Legend

- Proposed Project LOD (Proposed Project LOD (±15.1 Acres))
- Proposed Project AOI (Proposed Project LOD (±44.3 Acres))
- Kilometer Block
- Potential Acoustic Site Locations
- Proposed Project Alignment

0 2,200 4,400 8,800 Feet

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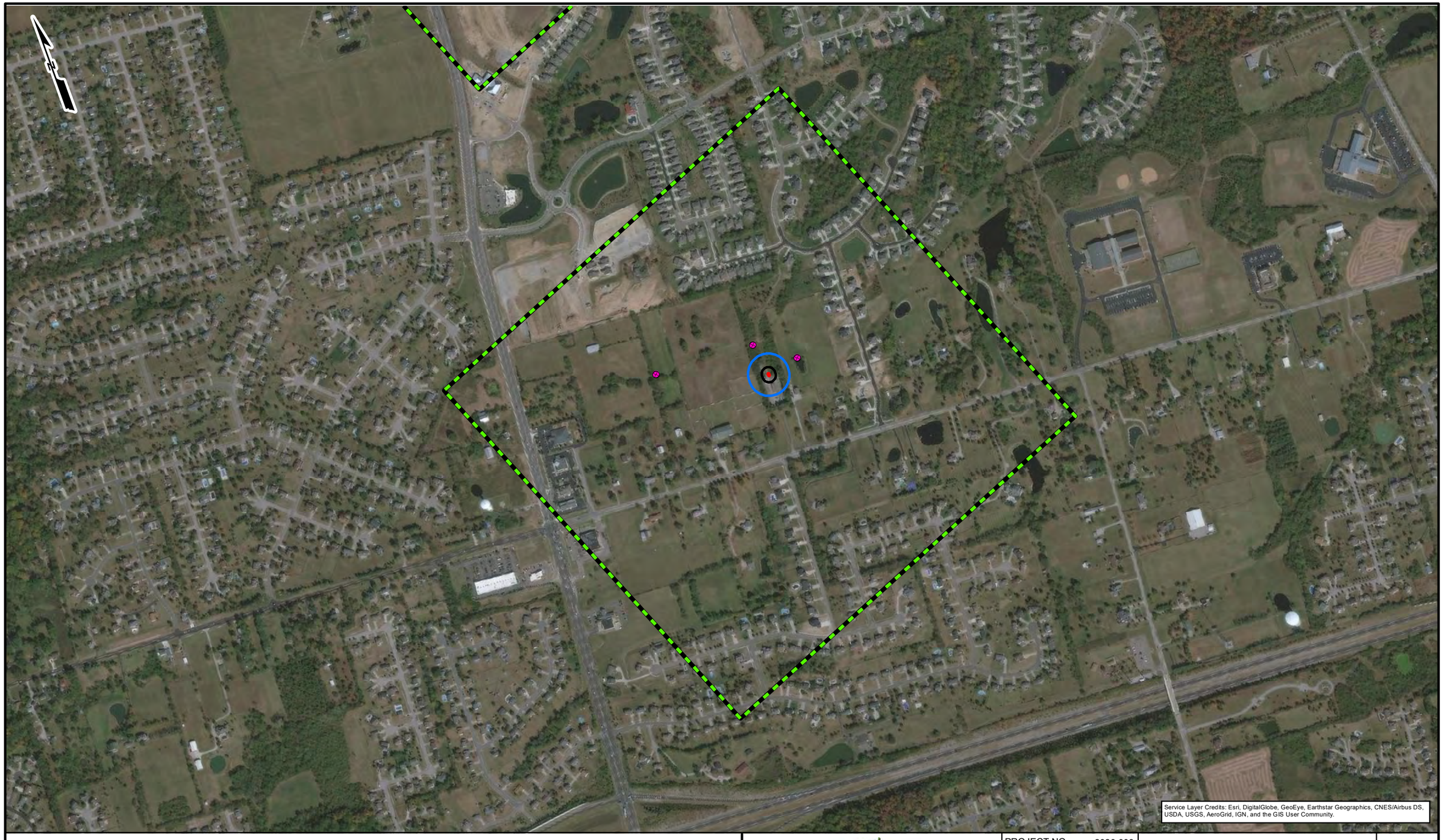
PROJECT NO.	2020.008
DRAWN:	08/08/2020
DRAWN BY:	CTO
FILE NAME:	See File Path

Potential Acoustic Site Locations Overview Map

Duke Energy
Butler County Integrity Upgrades - Phase 1
Butler County, Ohio

FIGURE 2

Document Path: C:\Users\chans\OneDrive\Desktop\ENCARNA, LLC\Projects\Kleinfelder\2020\2020.009 - Butler County Integrity Upgrades Acoustic Survey\MXD\Figure 2 - Potential Acoustic Site Locations Overview Map.mxd



Legend

- Proposed Project LOD (Proposed Project LOD (±15.1 Acres))
- Proposed Project AOI (Proposed Project LOD (±44.3 Acres))
- Kilometer Block
- Potential Acoustic Site Locations
- Proposed Project Alignment

0 370 740 1,480 Feet

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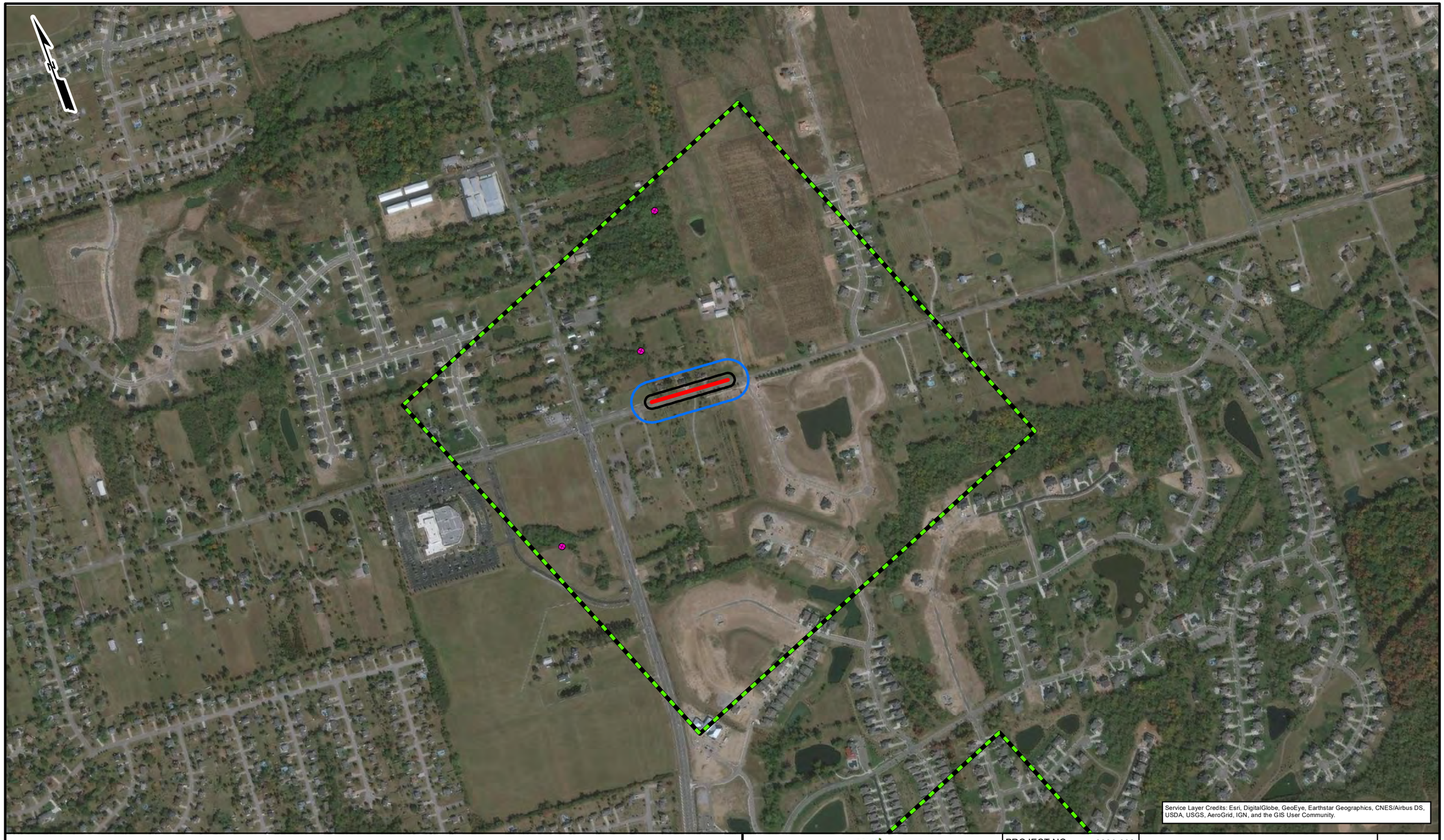
PROJECT NO.	2020.008
DRAWN:	08/08/2020
DRAWN BY:	CTO
FILE NAME:	See File Path

BC-1 Potential Acoustic Site Locations Map

Duke Energy
Butler County Integrity Upgrades - Phase 1
Butler County, Ohio

FIGURE 3

Document Path: C:\Users\chans\OneDrive\Desktop\ENCARNA, LLC\Projects\Kleinfelder\2020\2020.009 - Butler County Integrity Upgrades Acoustic Survey\MXD\Figure 3 - Potential Acoustic Site Locations Map.mxd



Legend

- Proposed Project LOD (Proposed Project LOD (±15.1 Acres))
- Proposed Project AOI (Proposed Project LOD (±44.3 Acres))
- Kilometer Block
- Potential Acoustic Site Locations
- Proposed Project Alignment

0 370 740 1,480 Feet

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PROJECT NO.	2020.008
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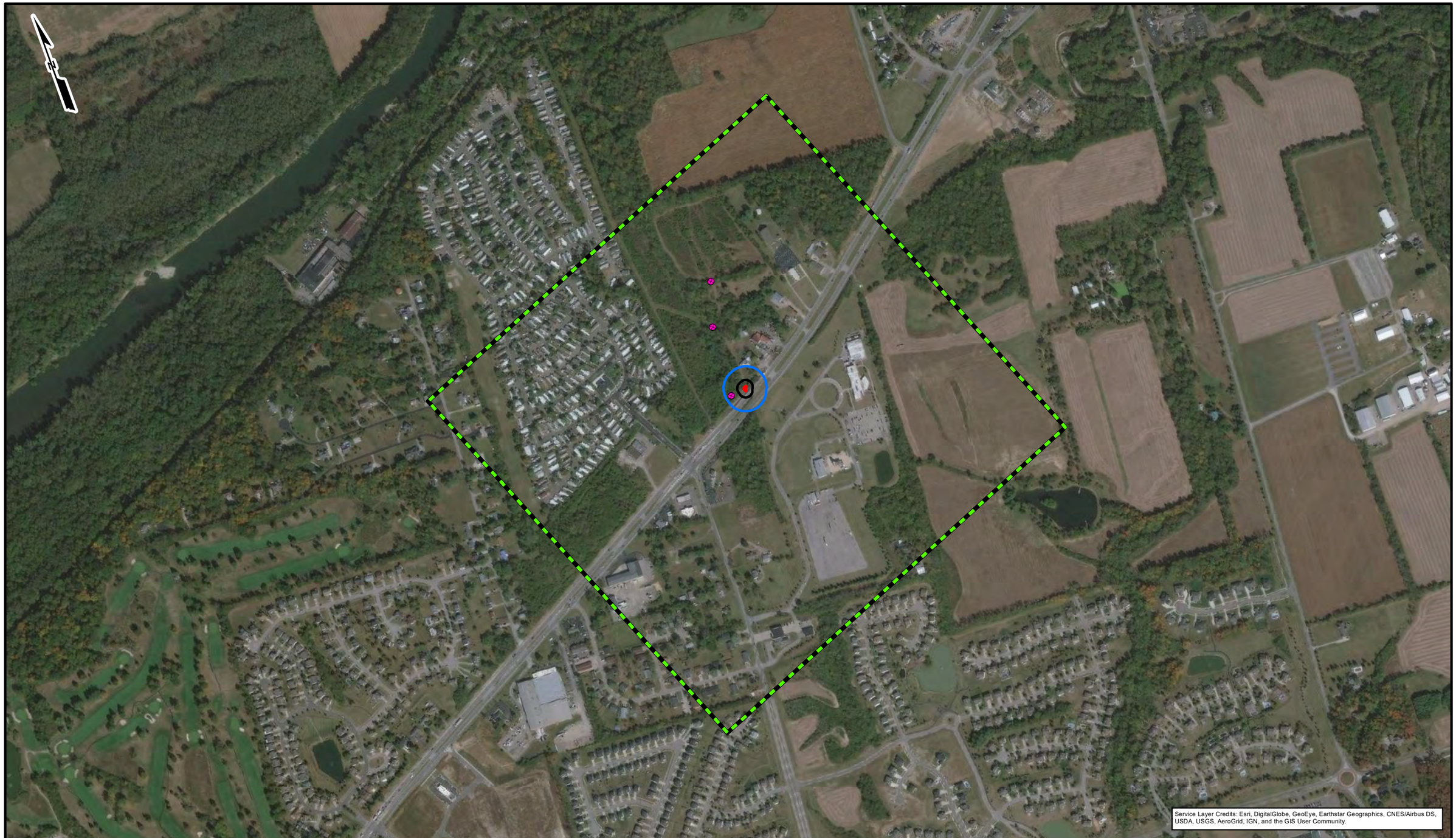
DRAWN BY:	CTO
FILE NAME:	See File Path

BC-2 Potential Acoustic Site Locations Map

Duke Energy
Butler County Integrity Upgrades - Phase 1
Butler County, Ohio

FIGURE
4



Legend

- Proposed Project LOD (Proposed Project LOD (±15.1 Acres))
- Proposed Project AOI (Proposed Project LOD (±44.3 Acres))
- Kilometer Block
- Potential Acoustic Site Locations
- Proposed Project Alignment

0 370 740 1,480 Feet

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FILE NAME:	See File Path

BC-3 Potential Acoustic Site Locations Map

Duke Energy
Butler County Integrity Upgrades - Phase 1
Butler County, Ohio

FIGURE 5

Document Path: C:\Users\chans\OneDrive\Desktop\ENCARNA, LLC\Projects\Kleinfelder\2020\2020.009 - Butler County Integrity Upgrades Acoustic Survey\MXD\Figure 5 - Potential Acoustic Site Locations Map.mxd

Legend

- Proposed Project LOD (Proposed Project LOD (±15.1 Acres))
- Proposed Project AOI (Proposed Project LOD (±44.3 Acres))
- Kilometer Block
- Potential Acoustic Site Locations
- Proposed Project Alignment

0 370 740 1,480 Feet

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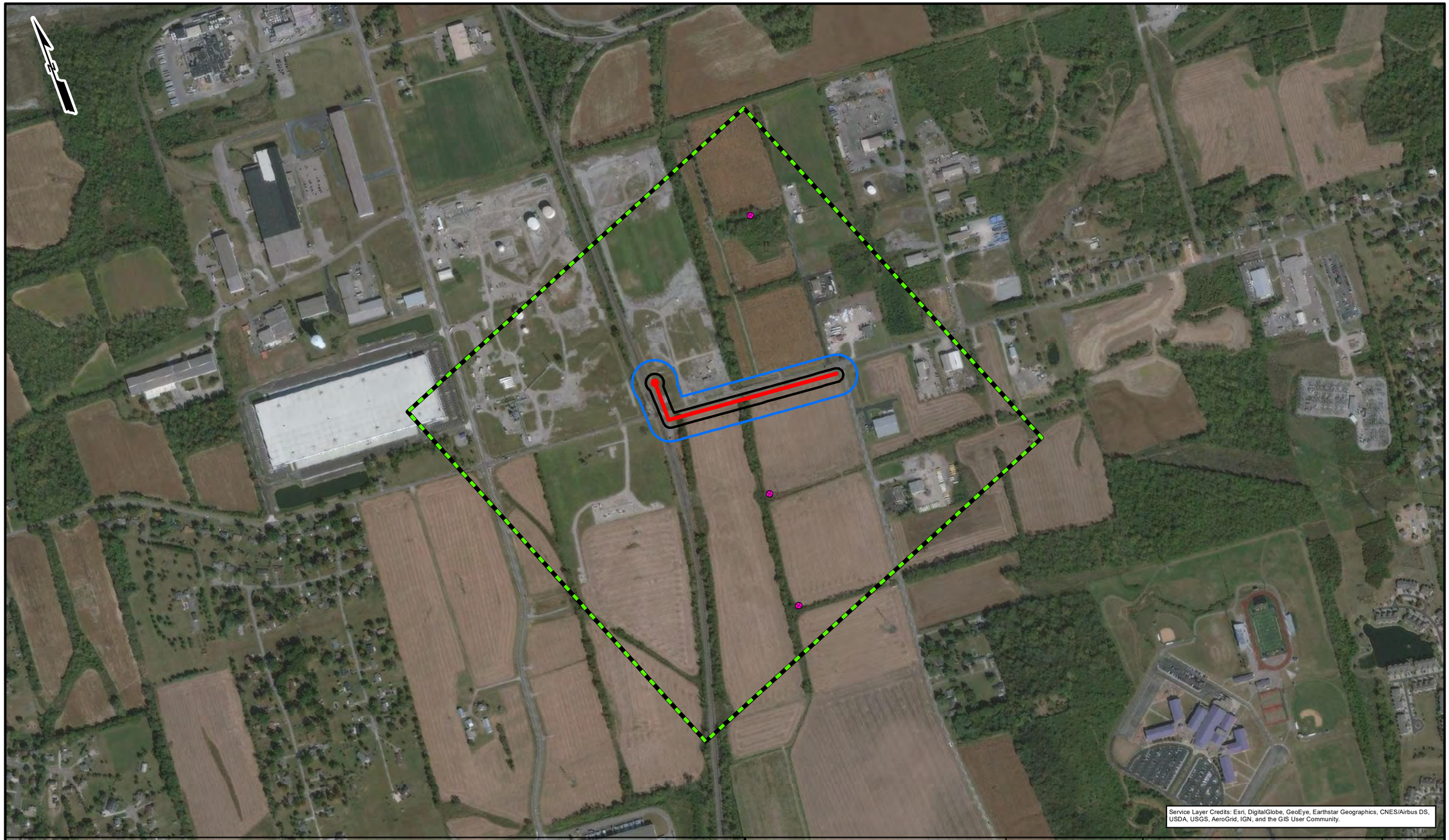
PROJECT NO.	2020.008
DRAWN:	08/08/2020
DRAWN BY:	CTO
FILE NAME:	See File Path

BC-4 Potential Acoustic Site Locations Map

Duke Energy
Butler County Integrity Upgrades - Phase 1
Butler County, Ohio

FIGURE 6

Document Path: C:\Users\chans\OneDrive\Desktop\ENCARNA, LLC\Projects\Kleinfelder\2020\2020.009 - Butler County Integrity Upgrades Acoustic Survey\MXD\Figure 6 - Potential Acoustic Site Locations Map.mxd



Legend

- Proposed Project LOD (Proposed Project LOD (±15.1 Acres))
- Proposed Project AOI (Proposed Project LOD (±44.3 Acres))
- Kilometer Block
- Potential Acoustic Site Locations
- Proposed Project Alignment

0 370 740 1,480 Feet

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PROJECT NO.	2020.008
DRAWN:	08/08/2020
DRAWN BY:	CTO
FILE NAME:	See File Path

BC-7 Potential Acoustic Site Locations Map

Duke Energy
Butler County Integrity Upgrades - Phase 1
Butler County, Ohio

FIGURE 7

Document Path: C:\Users\chans\OneDrive\Desktop\ENCARNA, LLC\Projects\Kleinfelder\2020\2020.009 - Butler County Integrity Upgrades Acoustic Survey\MXD\Figure 7 - Potential Acoustic Site Locations Map.mxd

Gmail **Chance Osborne <chance@encarnaenv.com>**

Fwd: [EXTERNAL] Duke Energy - Maineville to Morrow Pipeline / Phase 1 Butler County Upgrades

1 message

Jill Vovaris <JVovaris@kleinfelder.com> Tue, Aug 11, 2020 at 9:21 AM
To: Chance Osborne <chance@encarnaenv.com>, Matthew Albright <MAlbright@kleinfelder.com>

Jill Vovaris
Kleinfelder
VP- Ohio River Valley Operations
724.757.6210

Begin forwarded message:

From: "Boyer, Angela" <angela_boyer@fws.gov>
Date: August 11, 2020 at 9:15:21 AM EDT
To: Jill Vovaris <JVovaris@Kleinfelder.com>
Cc: "Steve.Lane@duke-energy.com" <Steve.Lane@duke-energy.com>, "Klein, David Anthony" <David.Klein@duke-energy.com>, Seth Sanders <SDSanders@Kleinfelder.com>, "Sarah.Stankavich@dnr.state.oh.us" <Sarah.Stankavich@dnr.state.oh.us>, "Zimmermann, Susan C" <Susan_Zimmermann@fws.gov>
Subject: Re: [EXTERNAL] Duke Energy - Maineville to Morrow Pipeline / Phase 1 Butler County Upgrades

External Email.

Jill,

This response provides U.S. Fish and Wildlife Service approval of your proposed acoustic surveys for the Duke Energy – Mainesville to Morrow Pipeline Project and the Phase 1 Butler County Upgrades Project in Warren and Butler Counties, Ohio. Please note that plans must also be reviewed and approved by the Ohio Division of Wildlife (contact Sarah Stankavich) before any surveys take place. This surveys has been assigned the reference numbers **20-041 (Mainesville) and 20-042 (Phase 1)**. Please include this project reference number in all correspondence to the U.S. Fish and Wildlife Service and the Ohio Division of Wildlife. This surveys will serve as a summer presence/absence survey for the Indiana bat and northern long-eared bat.

By January 31, 2021, we request that you submit an annual report of your Ohio acoustic survey work to this office using the Midwestern U.S. Spreadsheet in electronic format. Be sure to include data for the site even if no bats were detected. The 2020 Midwestern U.S. Spreadsheet and

instructions are found here: http://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html.

Please notify me if any surveys are cancelled or otherwise not completed this field season. Please contact me if you have questions.

Sincerely,
Angela Boyer
Endangered Species Coordinator for Ohio
U.S. Fish and Wildlife Service
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993, ext. 122
(614) 416-8994 FAX

From: Jill Vovaris <JVovaris@Kleinfelder.com>
Sent: Sunday, August 9, 2020 9:39 PM
To: Boyer, Angela <angela_boyer@fws.gov>; Zimmermann, Susan C <Susan_Zimmermann@fws.gov>
Cc: Steve.Lane@duke-energy.com <Steve.Lane@duke-energy.com>; Klein, David Anthony <David.Klein@duke-energy.com>; Seth Sanders <SDSanders@Kleinfelder.com>
Subject: [EXTERNAL] Duke Energy - Maineville to Morrow Pipeline / Phase 1 Butler County Upgrades

Good evening Angela and Susan,

Our client, Duke Energy, is proposing to construct approximately 4.1 miles of an 8-inch diameter steel gas pipeline from Maineville to Morrow in Warren County, Ohio, known as the Maineville Morrow Loop Line C231 (Project). The proposed project will increase the reliability of the existing system by upgrading the capacity in the surrounding area. And, as a second project, Duke is proposing to bolster pressure in small diameter feeder lines in Liberty Township, Hamilton, and Middletown, Ohio, known as the Butler County Integrity Upgrades – Phase 1 (Project) in Butler County, Ohio. Increasing this pressure will better position assets to create a future loop to provide an alternate gas path for alternate supply from Dick's Creek to south of Hunstville, Ohio.

The proposed design for the projects will likely result in less than 5 acres and less than 1 acre, respectively, for the two projects. Understanding that there remains a moratorium on mist net surveys, we would like to conduct acoustic surveys for both projects. Also knowing that the survey window closes on Saturday, August 15, we are requesting that you review the study plans at the following links. I know that this is an expedited request and that we are asking for extremely quick turn around time. However, with the pandemic this year and budgetary and schedule constraints, I am hoping that you could accommodate this request so that we can get into the field on Wednesday at the very latest.

Please download the study plans at the following links:

1. **2020.008 - Maineville Morrow Loop Line Acoustic Survey Study Plan FINAL.pdf** (5.44 MB)
https://kleinfelder.filegenius.com/downloadPublic/cd294ntcdlyv5c2/3g6c7cjcffyjazc

2. **2020.009 - Butler Couny Integrity Upgrades Acoustic Survey Study Plan FINAL.pdf** (41.93 MB)
https://kleinfelder.filegenius.com/downloadPublic/gscub8xoc1ewos5/vfzmeph9cxv1814

I have also attached our bat biologists permits to this email. I will contact you both in the morning to discuss.

Thank you so much in advance for your consideration of this expedited and accelerated request.

Sincerely,

Jill Vovaris

Jill Vovaris

Vice President – Ohio River Valley Operations Manager

51 Dutilh Road, Suite 240

Cranberry Township, PA 16066

180 White Oaks Blvd., Suite 110
Bridgeport, WV 26330-9770

o| +724.772.7072

d| +724.200.7501

f| +724.772.7079

m| +724.757.6210

4 attachments

TE 62778B-1 Osborne Signed Permit.pdf
121K

ATT00001.htm
1K

Osborne_ODNR_Permit.pdf
1940K

ATT00002.htm
1K

Gmail

Chance Osborne <chance@encarnaenv.com>

Fwd: Request for review from ODNR - Acoustic Surveys

1 message

Jill Vovaris <JVovaris@kleinfelder.com> Wed, Aug 12, 2020 at 7:52 AM
To: Matthew Albright <MAlbright@kleinfelder.com>, Chance Osborne <chance@encarnaenv.com>

Good morning,

See below for approval from ODNR.

Matt,

Can you please pull what Erin is asking?

Thanks.

Jill Vovaris
Kleinfelder
VP- Ohio River Valley Operations
724.757.6210

Begin forwarded message:

From: "Erin.Hazelton@dnr.state.oh.us" <Erin.Hazelton@dnr.state.oh.us>
Date: August 12, 2020 at 7:22:31 AM EDT
To: Jill Vovaris <JVovaris@Kleinfelder.com>
Cc: "angela_boyer@fws.gov" <angela_boyer@fws.gov>, "Sarah.Stankavich@dnr.state.oh.us" <Sarah.Stankavich@dnr.state.oh.us>, "Steve.Lane@duke-energy.com" <Steve.Lane@duke-energy.com>, Seth Sanders <SDSanders@Kleinfelder.com>, "Klein, David Anthony" <David.Klein@duke-energy.com>
Subject: RE: Request for review from ODNR - Acoustic Surveys

External Email.

Hi Jill,

I'm going to be out of the office most of today so please consider this an approval to move forward with the acoustics for these two projects. I'm having trouble accessing the study plans via the link—can you please send in PDF? Also, please send me a shapefile of the project boundary (limit of tree cutting) and I'll check our database for any existing state bat buffers and respond with any updated information.

Thank you,

Erin

Erin Hazelton

Wind Energy Administrator

ODNR Division of Wildlife

2045 Morse Rd. Bldg G-3

Columbus, OH 43229

1-800-WILDLIFE

Office: 614-265-6349

Email: erin.hazelton@dnr.state.oh.us

Support Ohio's wildlife. Buy a license or stamp at wildohio.gov.

From: Jill Vovaris <JVovaris@Kleinfelder.com>
Sent: Tuesday, August 11, 2020 9:42 AM
To: Hazelton, Erin <Erin.Hazelton@dnr.state.oh.us>

Cc: angela_boyer@fws.gov; Stankavich, Sarah <Sarah.Stankavich@dnr.state.oh.us>; Steve.Lane@duke-energy.com; Seth Sanders <SDSanders@Kleinfelder.com>; Klein, David Anthony <David.Klein@duke-energy.com>
Subject: Request for review from ODNR - Acoustic Surveys
Importance: High

Good morning Erin,

As I understand it Sarah is out of the office until Thursday, so I'm reaching out to you.

Our client, Duke Energy, is proposing to construct approximately 4.1 miles of an 8-inch diameter steel gas pipeline from Maineville to Morrow in Warren County, Ohio, known as the Maineville Morrow Loop Line C231 (Project). The proposed project will increase the reliability of the existing system by upgrading the capacity in the surrounding area. And, as a second project, Duke is proposing to bolster pressure in small diameter feeder lines in Liberty Township, Hamilton, and Middletown, Ohio, known as the Butler County Integrity Upgrades – Phase 1 (Project) in Butler County, Ohio. Increasing this pressure will better position assets to create a future loop to provide an alternate gas path for alternate supply from Dick's Creek to south of Hunstville, Ohio.

The proposed design for the projects will likely result in less than 5 acres and less than 1 acre, respectively, for the two projects. Understanding that there remains a moratorium on mist net surveys, we would like to conduct acoustic surveys for both projects. Also knowing that the survey window closes on Saturday, August 15, we are requesting that you review the study plans at the following links. I know that this is an expedited request and that we are asking for extremely quick turnaround time. However, with the pandemic this year and budgetary and schedule constraints, I am hoping that you could accommodate this request so that we can get into the field on Wednesday at the very latest.

USFWS provided approval this morning for these two projects. I have attached the email.

Please download the study plans at the following links:

1. **2020.008 - Maineville Morrow Loop Line Acoustic Survey Study Plan FINAL.pdf** (5.44 MB) in Albright_Matthew
https://kleinfelder.filegenius.com/downloadPublic/cd294ntcdlyv5c2/3g6c7cjcffyjazc

2. **2020.009 - Butler Couny Integrity Upgrades Acoustic Survey Study Plan FINAL.pdf** (41.93 MB) in Albright_Matthew
https://kleinfelder.filegenius.com/downloadPublic/gscub8xoc1ewos5/vfzmeph9cxv1814

These links will expire on **08/19/20 at 05:00 pm PDT**

Please let me know if you have any issue downloading the files or have any questions. I really appreciate your attention to this.

Thanks,

Jill Vovaris

Vice President – Ohio River Valley Operations Manager

51 Dutilh Road, Suite 240

Cranberry Township, PA 16066

180 White Oaks Blvd., Suite 110
Bridgeport, WV 26330-9770

o| +724.772.7072

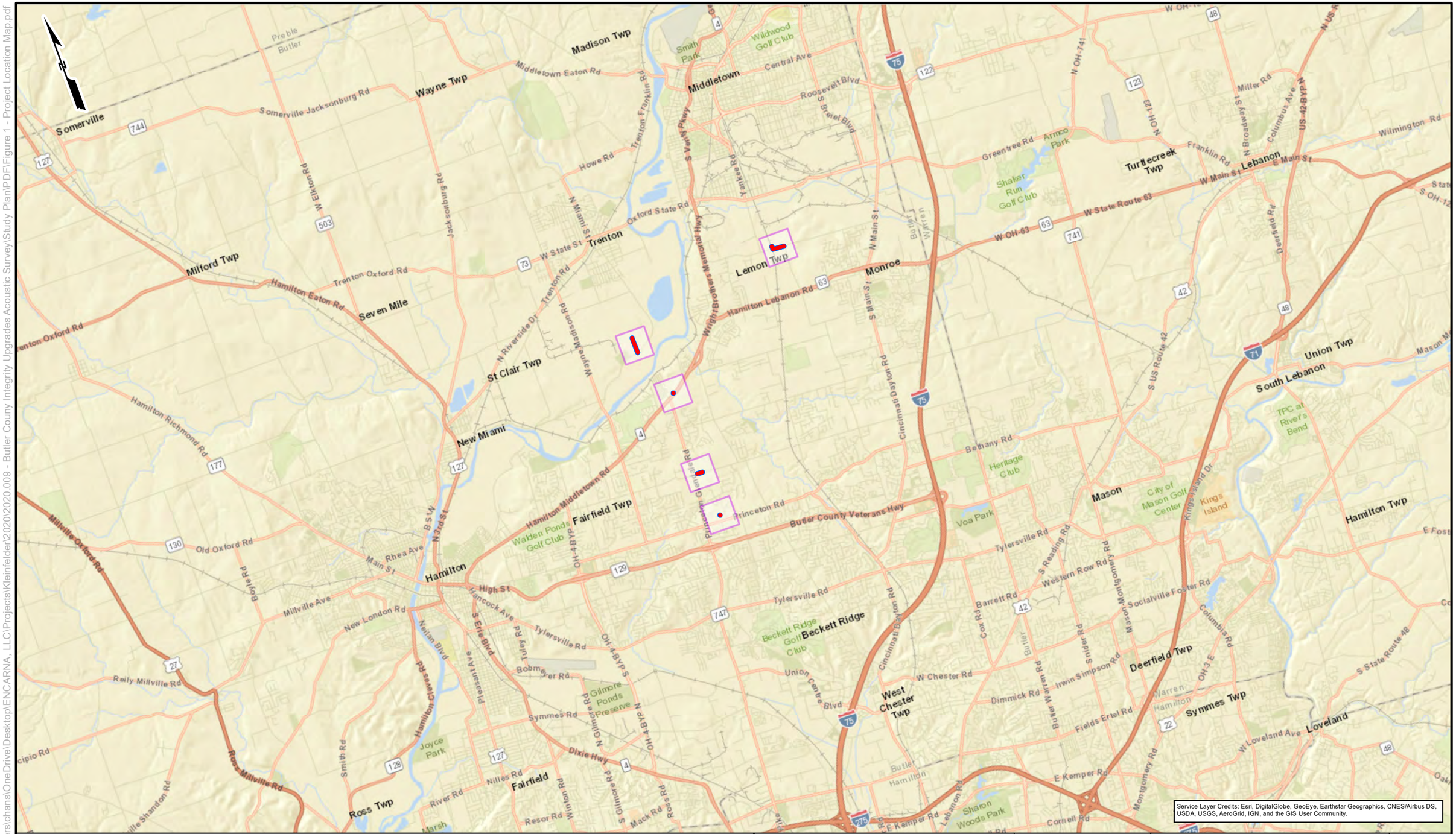
d| +724.200.7501

f| +724.772.7079

m| +724.757.6210

APPENDIX B: Project Mapping

Document Path: C:\Users\chans\OneDrive\Desktop\ENCARNA, LLC\Projects\Kleinfelder\2020\2020.009 - Butler County Integrity Upgrades Acoustic Survey\Study Plan\PDF\Figure 1 - Project Location Map.pdf



Legend

- Proposed Project LOD (Proposed Project LOD (±15.1 Acres))
- Proposed Project Alignment
- Proposed Project AOI (Proposed Project LOD (±44.3 Acres))

0 5,500 11,000 22,000 Feet

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Project Location Map

Duke Energy
Butler County Integrity Upgrades - Phase 1
Butler County, Ohio

FIGURE
1

Legend

- Proposed Project LOD (Proposed Project LOD (±15.1 Acres))
- Proposed Project AOI (Proposed Project LOD (±44.3 Acres))
- Kilometer Blocks Surveyed
- Acoustic Site Locations
- Proposed Project Alignment
- Kilometer Blocks Not Surveyed

0 2,200 4,400 8,800 Feet

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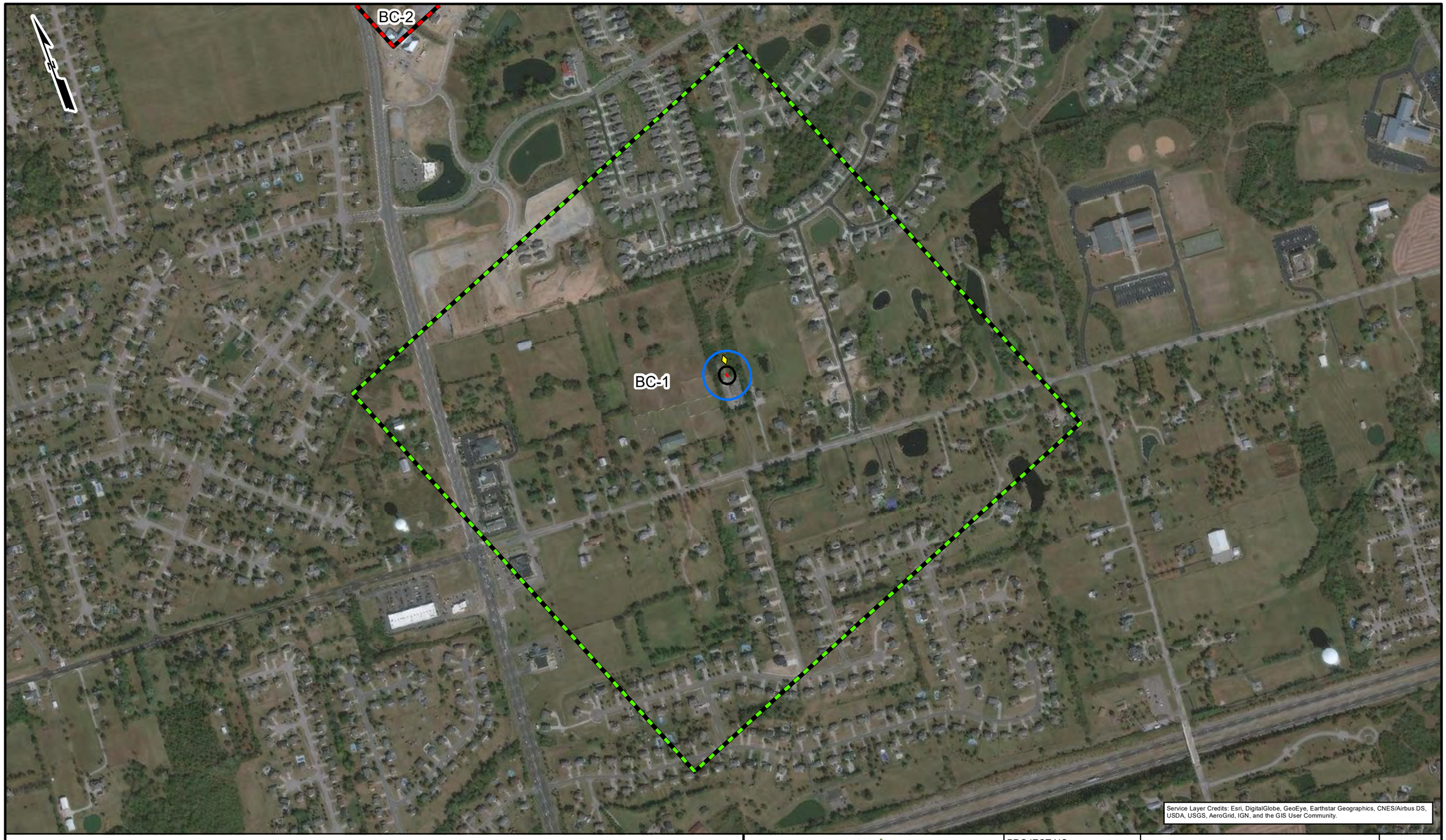
PROJECT NO.	2020.009
DRAWN:	08/19/2020
DRAWN BY:	CTO
FILE NAME:	See File Path

Acoustic Site Locations Overview Map

Duke Energy
Butler County Integrity Upgrades - Phase 1
Butler County, Ohio

FIGURE 2

Document Path: C:\Users\chans\OneDrive\Desktop\ENCARNA, LLC\Projects\Kleinfelder\2020\Duke Energy\2020.009 - Butler County Integrity Upgrades Acoustic Survey\Report\Report Mapping\Figure 2 - Acoustic Site Locations Overview Map.mxd



Service Layer Credits: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGrid, IGN, and the GIS User Community.

Legend

- Proposed Project LOD (Proposed Project LOD (±15.1 Acres))
- Proposed Project AOI (Proposed Project LOD (±44.3 Acres))
- Kilometer Blocks Surveyed
- Acoustic Site Locations
- Proposed Project Alignment
- Kilometer Blocks Not Surveyed

0 320 640 1,280 Feet

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PROJECT NO.	2020.009
DRAWN:	08/19/2020
DRAWN BY:	CTO
FILE NAME:	See File Path

BC-1 Acoustic Site Location Map

Duke Energy
Butler County Integrity Upgrades - Phase 1
Butler County, Ohio

FIGURE 3

Document Path: C:\Users\chans\OneDrive\Desktop\ENCARNA, LLC\Projects\Kleinfelder\2020\Duke Energy\2020.009 - Butler County Integrity Upgrades Acoustic Survey\Report\Report Mapping\Figure 3 - BC-1 Acoustic Site Location Map.mxd

Legend

- Proposed Project LOD (Proposed Project LOD (±15.1 Acres))
- Proposed Project AOI (Proposed Project LOD (±44.3 Acres))
- Kilometer Blocks Surveyed
- Acoustic Site Locations
- Proposed Project Alignment
- Kilometer Blocks Not Surveyed

0 320 640 1,280 Feet

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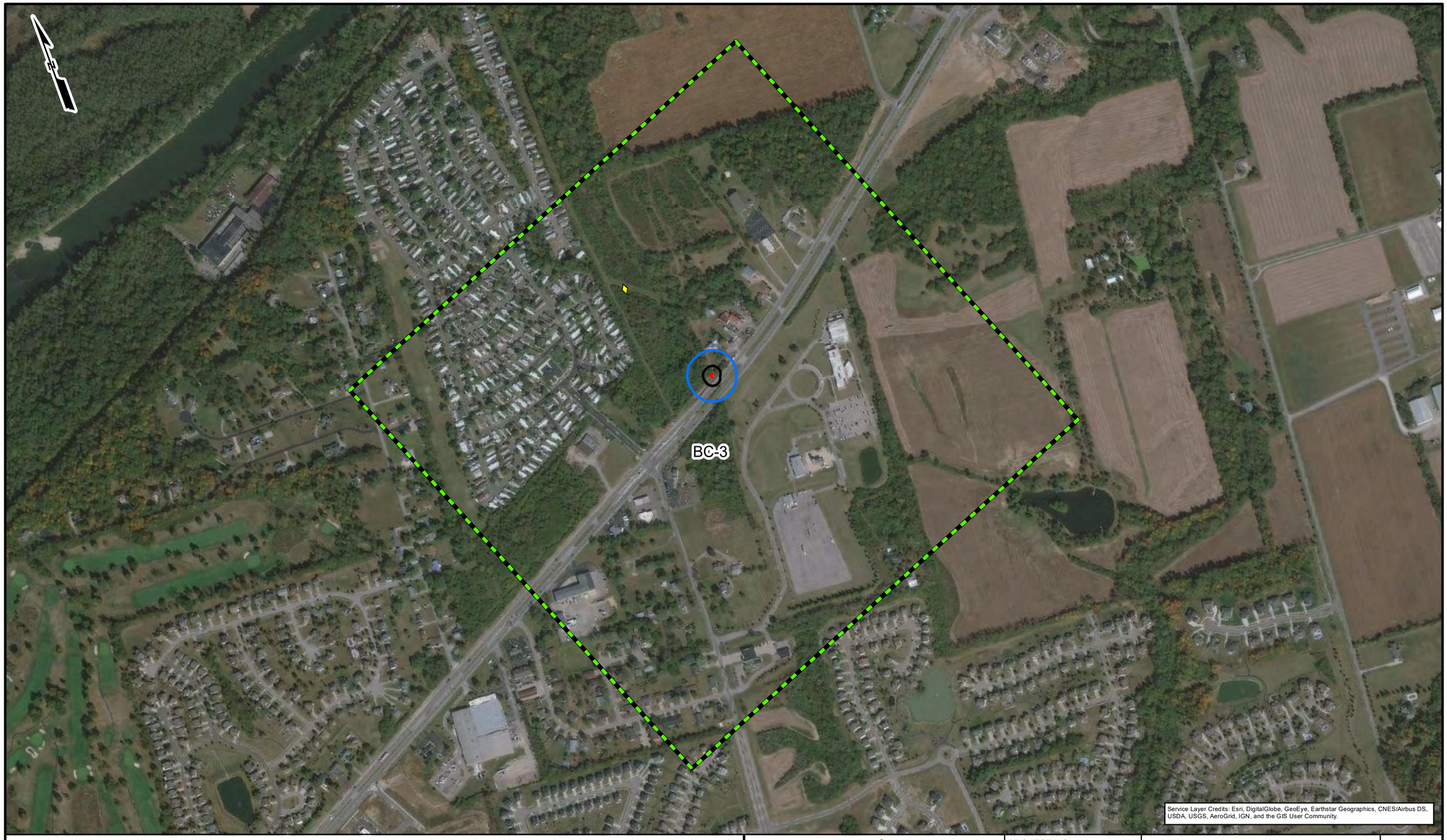
PROJECT NO.	2020.009
DRAWN:	08/19/2020
DRAWN BY:	CTO
FILE NAME:	See File Path

BC-2 Acoustic Site Location Map

Duke Energy
Butler County Integrity Upgrades - Phase 1
Butler County, Ohio

FIGURE 4

Document Path: C:\Users\chans\OneDrive\Desktop\ENCARNA, LLC\Projects\Kleinfelder\2020\Duke Energy\2020.009 - Butler County Integrity Upgrades Acoustic Survey\Report\Report Mapping\Figure 4 - BC-2 Acoustic Site Location Map.mxd



Legend

- Proposed Project LOD (Proposed Project LOD (±15.1 Acres))
- Proposed Project AOI (Proposed Project LOD (±44.3 Acres))
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- Acoustic Site Locations
- Proposed Project Alignment
- Kilometer Blocks Not Surveyed

0 320 640 1,280 Feet

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PROJECT NO.	2020.009
DRAWN:	08/19/2020
DRAWN BY:	CTO
FILE NAME:	See File Path

BC-3 Acoustic Site Location Map

Duke Energy
Butler County Integrity Upgrades - Phase 1
Butler County, Ohio

FIGURE 5

Document Path: C:\Users\chans\OneDrive\Desktop\ENCARNA, LLC\Projects\Kleinfelder\2020\Duke Energy\2020.009 - Butler County Integrity Upgrades Acoustic Survey\Report\Report Mapping\Figure 5 - BC-3 Acoustic Site Location Map.mxd

Legend

- Proposed Project LOD (Proposed Project LOD (±15.1 Acres))
- Proposed Project AOI (Proposed Project LOD (±44.3 Acres))
- Kilometer Blocks Surveyed
- Acoustic Site Locations
- Proposed Project Alignment
- Kilometer Blocks Not Surveyed

0 320 640 1,280 Feet

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PROJECT NO.	2020.009
DRAWN:	08/19/2020
DRAWN BY:	CTO
FILE NAME:	See File Path

BC-4 Acoustic Site Location Map

Duke Energy
Butler County Integrity Upgrades - Phase 1
Butler County, Ohio

FIGURE 6

Document Path: C:\Users\chans\OneDrive\Desktop\ENCARNA, LLC\Projects\Kleinfelder\2020\Duke Energy\2020.009 - Butler County Integrity Upgrades Acoustic Survey\Report\Report Mapping\Figure 6 - BC-4 Acoustic Site Location Map.mxd

Legend

- Proposed Project LOD (Proposed Project LOD (±15.1 Acres))
- Proposed Project AOI (Proposed Project LOD (±44.3 Acres)
- Kilometer Blocks Surveyed
- Acoustic Site Locations
- Proposed Project Alignment
- Kilometer Blocks Not Surveyed

0 320 640 1,280 Feet

encarna
www.encarnaenv.com

PROJECT NO.	2020.009
DRAWN:	08/19/2020
DRAWN BY:	CTO
FILE NAME:	See File Path

BC-7 Acoustic Site Location Map

Duke Energy
Butler County Integrity Upgrades - Phase 1
Butler County, Ohio

FIGURE 7

APPENDIX C: Project Data Tables

Table 1. Kaleidoscope Pro V.5.1.0 Output of Species Identifications by Site and Night.

Site	Date	Big brown bat	Eastern red bat	Hoary bat	Silver-haired bat	Eastern small-footed bat	Little brown bat	Northern long-eared bat	Indiana bat	Evening bat	Tricolored bat
BC-1	08/12/2020	89	0	0	4	0	0	0	0	0	0
BC-1	08/13/2020	10	0	0	0	0	4	0	0	0	0
BC-3	08/13/2020	134	0	1	15	0	3	0	0	2	1
BC-3	08/14/2020	489	0	17	35	0	5	0	0	23	12
BC-4	08/13/2020	51	2	4	4	0	1	0	0	2	0
BC-4	08/14/2020	119	1	0	8	0	1	0	0	7	1
BC-7	08/12/2020	21	0	2	8	0	2	0	0	0	0
BC-7	08/13/2020	23	0	0	1	0	0	0	0	1	0

Table 2. Kaleidoscope V.5.1.0 Output of P-Values for the Maximum Likelihood Estimator.

Site	Date	Big brown bat	Eastern red bat	Hoary bat	Silver-haired bat	Eastern small-footed bat	Little brown bat	Northern long-eared bat	Indiana bat	Evening bat	Tricolored bat
BC-1	08/12/2020	**0.0000**	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
BC-1	08/13/2020	**0.0000**	1.0000	1.0000	1.0000	1.0000	**0.0001**	1.0000	1.0000	1.0000	1.0000
BC-3	08/13/2020	**0.0000**	1.0000	1.0000	1.0000	1.0000	**0.0031**	1.0000	1.0000	**0.0485**	0.1820
BC-3	08/14/2020	**0.0000**	1.0000	1.0000	1.0000	1.0000	**0.0003**	1.0000	1.0000	0.0000	**0.0000**
BC-4	08/13/2020	**0.0000**	**0.0441**	0.5664	1.0000	1.0000	0.6404	1.0000	1.0000	0.4148	1.0000
BC-4	08/14/2020	**0.0000**	0.7041	1.0000	1.0000	1.0000	0.4333	1.0000	1.0000	**0.0002**	0.4838
BC-7	08/12/2020	**0.0000**	1.0000	0.7901	0.0720	1.0000	**0.0113**	1.0000	1.0000	1.0000	1.0000
BC-7	08/13/2020	**0.0000**	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.1915	1.0000
Low p-values in bold (p≤0.05) indicate high confidence level in species presence.											

Table 3. Location of Bat Acoustic Sites and Microphone Orientation.

Bat Acoustic Site	Latitude °N	Longitude °W	Microphone Orientation (degrees)
BC-1	39.389899	-84.447180	4
BC-3	39.430799	-84.449430	116
BC-4	39.447505	-84.456275	188
BC-7	39.459603	-84.391006	240

Table 4. Weather Data Through Survey Sampling Period.

Survey Night	Date	Time	Temp (°F)	Dew Point (°F)	Humidity %	Wind Direction	Wind Speed (MPH)	Gust Speed (MPH)	Precipitation (inches)	Events
1	08/12/2020	20:34	79.1	72.0	79	NE	0.5	1.4	0.00	N/A
1	08/12/2020	21:34	76.2	71.0	84	E	0.2	1.0	0.00	N/A
1	08/12/2020	22:34	73.1	69.7	89	WSW	0.0	0.0	0.00	N/A
1	08/12/2020	23:34	72.5	70.0	92	SSE	0.0	0.0	0.00	N/A
1	08/13/2020	00:34	72.1	70.0	93	SW	0.0	0.0	0.00	N/A
1	08/13/2020	01:34	70.5	69.0	95	ESE	0.0	1.0	0.00	N/A
1	08/13/2020	02:34	70.3	68.8	95	SW	0.0	1.0	0.00	N/A
1	08/13/2020	03:34	69.2	68.3	97	S	0.1	0.3	0.00	N/A
1	08/13/2020	04:34	67.4	66.8	98	SW	0.0	0.0	0.00	N/A
1	08/13/2020	05:34	66.7	66.4	99	NNW	0.0	0.0	0.00	N/A
1	08/13/2020	06:34	66.8	66.5	99	SSW	0.0	0.0	0.00	N/A
2	08/13/2020	20:34	80.3	70..9	73	E	1.5	2.5	0.00	N/A
2	08/13/2020	21:34	77.5	70.5	79	ESE	0.1	0.5	0.00	N/A
2	08/13/2020	22:34	73.6	68.9	86	SW	0.0	0.0	0.00	N/A
2	08/13/2020	23:34	71.9	68.8	90	SW	0.0	0.0	0.00	N/A
2	08/14/2020	00:34	70.7	68.3	92	W	0.0	0.0	0.00	N/A
2	08/14/2020	01:34	70.2	68.1	93	SW	0.0	0.0	0.00	N/A
2	08/14/2020	02:34	69.8	67.7	93	E	0.0	0.0	0.00	N/A
2	08/14/2020	03:34	68.5	66.7	94	W	0.0	0.0	0.00	N/A
2	08/14/2020	04:34	67.1	66.2	97	SW	0.0	0.0	0.00	N/A
2	08/14/2020	05:34	67.5	67.2	99	SW	0.0	0.0	0.00	N/A
2	08/14/2020	06:34	67.1	66.8	99	NNW	0.0	0.0	0.00	N/A
3	08/14/2020	20:34	77.8	71.9	82	SSE	0.0	0.5	0.00	N/A
3	08/14/2020	21:34	75.7	72.2	89	ESE	0.0	0.5	0.00	N/A
3	08/14/2020	22:34	72.7	70.2	92	SE	2.4	3.6	0.00	N/A
3	08/14/2020	23:34	70.9	69.4	95	E	3.7	4.3	0.00	N/A
3	08/15/2020	00:34	70.5	69.3	96	ESE	2.8	4.6	0.00	N/A
3	08/15/2020	01:34	70.3	69.4	97	E	0.6	1.7	0.00	N/A
3	08/15/2020	02:34	69.1	68.8	99	SSW	0.0	0.0	0.00	N/A
3	08/15/2020	03:34	66.9	66.6	99	SSW	0.0	0.0	0.00	N/A
3	08/15/2020	04:34	66.7	66.4	99	E	0.9	1.2	0.00	N/A
3	08/15/2020	05:34	67.8	67.5	99	E	1.6	2.5	0.00	N/A
3	08/15/2020	06:34	67.8	67.5	99	E	2.5	3.5	0.00	N/A

APPENDIX D: Completed Acoustic Survey Datasheets

Acoustic Survey Datasheet

Site: BC-1 Project: Butler County Integrity Upgrades - Phase 1 Date: 12 August 2020

Latitude: 39.389899 Longitude: -84.447180

County: Butler State: OH Surveyors: Chance Osborne, Anthony Marinelli

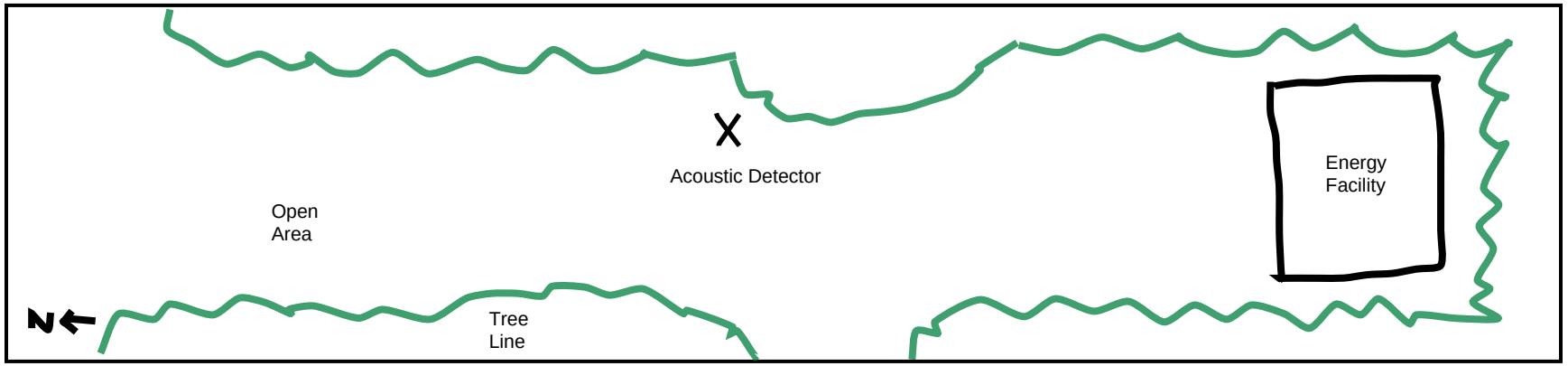
Detector Type: Anabat SD2 Active Placement: Forest Edge/Pond Elevated: Y or N – Pole

Weatherproofing: None Microphone Height (m): 4.0 Microphone Azimuth: 60

Habitat Description:

Site is located along a forested tree line facing towards an open foraging area within an existing energy facility. Dominant tree species present include crabapple tree, tree of heaven, black willow, Eastern red cedar and Kentucky coffeetree.

Site Drawing:



Acoustic Survey Datasheet

Site: BC-3 Project: Butler County Integrity Upgrades - Phase 1 Date: 13 August 2020

Latitude: 39.430799 Longitude: -84.449430

County: Butler State: OH Surveyors: Chance Osborne, Anthony Marinelli

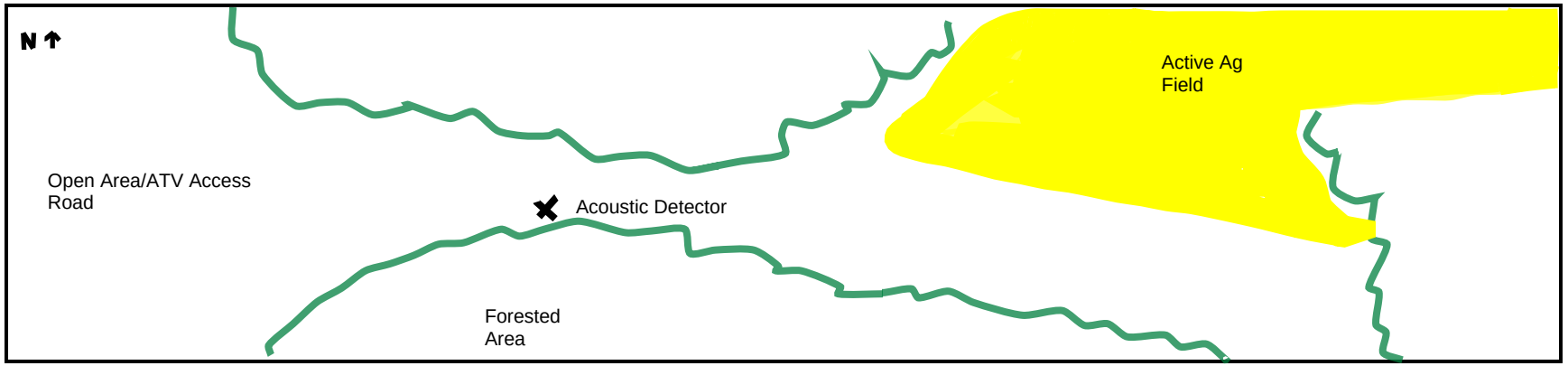
Detector Type: Anabat SD2 Active Placement: Forest Edge/Pond Elevated: Y or N – Pole

Weatherproofing: None Microphone Height (m): 4.0 Microphone Azimuth: 116

Habitat Description:

Site is along edge of tree line in potential foraging corridor and facing towards an open area leading towards a forested block where multiple snags are present. Dominant tree species present include tree of heaven, box elder, black locust, black walnut, and crabapple tree. It should be noted that aerial imagery does not dictate the active ag field present.

Site Drawing:



Acoustic Survey Datasheet

Site: BC-4 Project: Butler County Integrity Upgrades - Phase 1 Date: 13 August 2020

Latitude: 39.447505 Longitude: -84.456275

County: Butler State: OH Surveyors: Chance Osborne, Anthony Marinelli

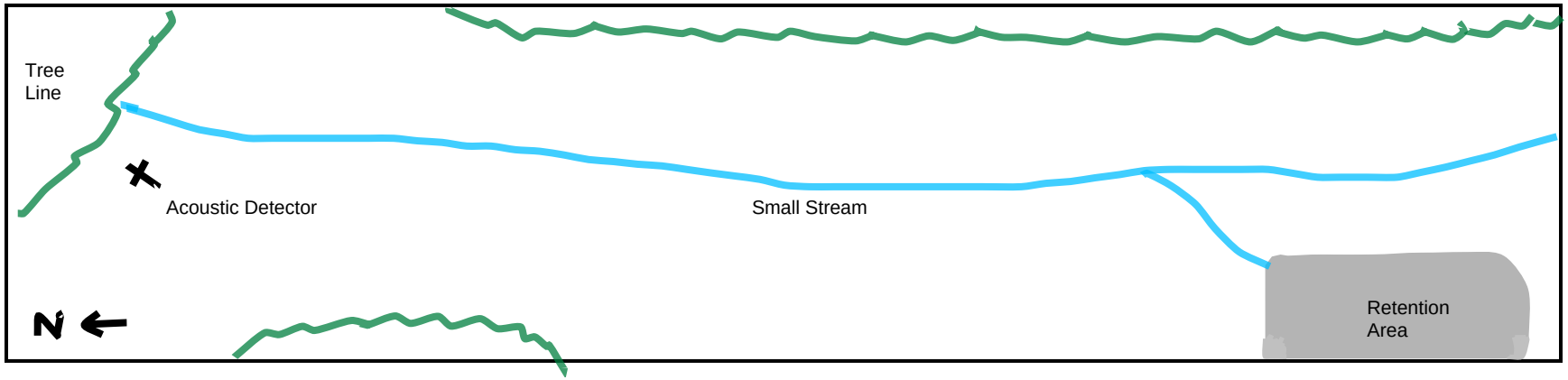
Detector Type: Anabat SD2 Active Placement: Forest Edge/Pond Elevated: Y or N – Pole

Weatherproofing: None Microphone Height (m): 4.0 Microphone Azimuth: 60

Habitat Description:

Site is located on an existing energy facility. Portions of tree lines were accessible within fenced in area where access was granted and detector was placed on edge of tree line facing where a small stream was flowing south in an open maintained field. Dominant tree species present include American sycamore, black walnut, black locust, honey locust and sugar maple.

Site Drawing:



Acoustic Survey Datasheet

Site: BC-7 Project: Butler County Integrity Upgrades - Phase 1 Date: 12 August 2020

Latitude: 39.459603 Longitude: -84.391006

County: Butler State: OH Surveyors: Chance Osborne, Anthony Marinelli

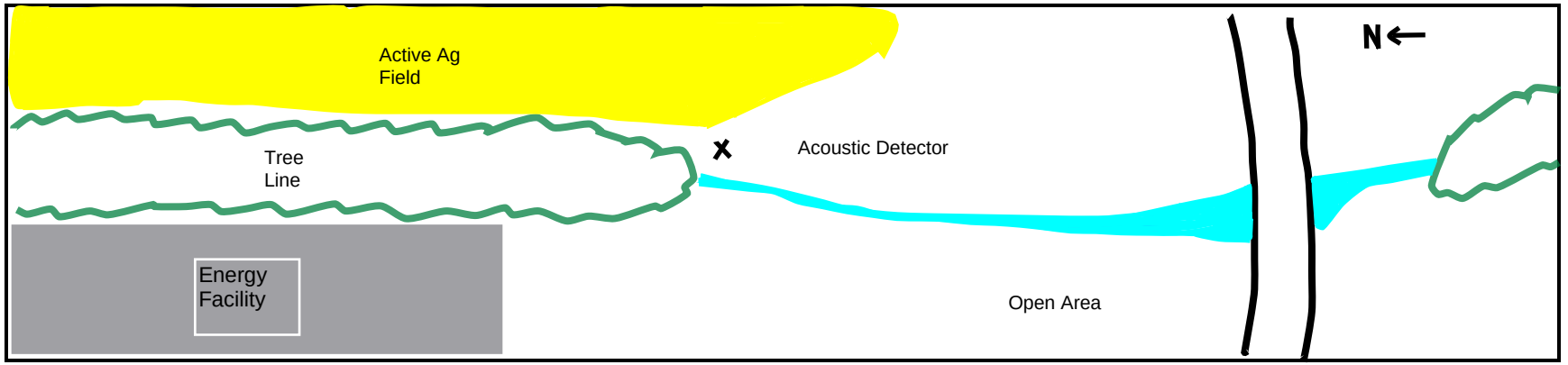
Detector Type: Anabat SD2 Active Placement: Forest Edge/Pond Elevated: Y or N – Pole

Weatherproofing: None Microphone Height (m): 1.5 Microphone Azimuth: 240

Habitat Description:

Site is at the bottom of a cluttered tree line where the stream exits the forest and continues under a bridge. An existing energy facility is due west and and active agricultural field is to the east. Only access available within KM block. Dominant tree species include box elder, green ash, and Kentucky coffeetree. Multiple snags are present within tree line. Detector is facing toward stream.

Site Drawing:



APPENDIX E: Acoustic Site Photographs

BC-1: Acoustic detector (Hank) along forest edge facing towards open foraging area.

BC-3: Acoustic detector (Q) along edge of potential flight corridor facing towards opening and snags.

BC-4: Acoustic detector (Pele) along forested edge facing towards open area and small stream.

BC-7: Acoustic detector (Tad) along forested edge open area and stream.
(Power lines are overhead; Tripod deployed instead of extendable pole)

ATTACHMENT C
POTENTIAL HABITAT PHOTOGRAPHS

Photograph 1 – KLF_BH01 view North (BC-1)

Photograph 2 – KLF_BH02 view South (BC-1)

Photograph 3 – KLF_BH03 view South (BC-2)

Photograph 4 – KLF_BH04 view West (BC-4)

Photograph 5 – KLF_BH05 view West (BC-4)

Photograph 6 – KLF_BH06 view North (BC-4)

Photograph 7 – KLF_BH07 view North (BC-4)

Photograph 8 – KLF_BH08 view West (BC-4)

Photograph 9 – KLF_BH09 view South (BC-5)

Photograph 10 – KLF_BH10 view South (BC-6)

Photograph 11 – KLF_BH11 view North (BC-7)

Photograph 12 – KLF_BH12 view West (BC-7)

Photograph 13 – KLF_BH13 view South (BC-7)

Photograph 14 – KLF_BH14 view West (BC-7)

Photograph 15 – KLF_BH15 view South (BC-7)

Photograph 16 – KLF_BH16 view South (BC-8)

In reply refer to:
2021-BUT-50700

March 16, 2021

Chris Swisher
Apogee Environmental & Archaeological, Inc.
143 Wedmore Drive
Fuquay-Varina, North Carolina 27526

RE: Section 106 Review-Phase I Cultural Resource Survey- Butler CNTY Ph I C210 & LP 07 Project, Lemon, Madison, and Liberty Townships, Butler County, Ohio.

Dear Mr. Swisher:

This letter is in response to correspondence received February 19, 2021 regarding the proposed seven (7) planned gas line improvements areas in Lemon, Madison, and Liberty Townships, Butler County, Ohio. We appreciate the opportunity to comment on this project. The comments of the State Historic Preservation Office (SHPO) are made in accordance with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended, and the associated regulations at 36 CFR Part 800.

According to the submitted report, *A Phase I Cultural Resource Survey of the Proposed Butler CNTY PH I C210 & LP07 Project Located near Monroe in Lemon, Madison, and Liberty Townships, Butler County, Ohio* by Apogee Environmental & Archaeological, Inc. (Apogee), no previously recorded archaeological sites, National Register properties, or districts are documented in the direct Area of Potential Effects (APE), as defined by you. The APE, totaling 12.7-acres, is comprised of seven (7) separate areas of various sizes and locales for planned gas line improvements.

The cultural resource survey involved a literature review, visual inspection, and shovel test unit excavations within the defined APEs. The literature review revealed two previously documented archaeological sites, 33BU403 and 33BU404 were located adjacent to one of the proposed APEs. Based on the results of the archaeological field work, no previously undocumented archaeological sites were identified within the APEs. Furthermore, no additional cultural materials were identified within the APE near the aforementioned previously identified sites. After careful review of the survey report, the SHPO concurs with Apogee that no further archaeological investigations are warranted for the seven (7) planned gas line improvement areas, as proposed. No further coordination is required for this project unless the scope of work changes or archaeological remains are discovered during the course of the project. In such a situation, this office should be contacted as required by 36 CFR § 800.13. If you have any questions concerning this review please contact me via email at sbiehl@ohiohistory.org. Thank you for your cooperation.

Sincerely,

Stephen M. Biehl

Stephen M. Biehl, Project Reviews Coordinator (archaeology)
Resource Protection and Review, State Historic Preservation Office

cc: Dr. E. Quent Winterhoff, Apogee Environmental & Archaeological, Inc.

RPR Serial No. 1087464

"Please be advised that this is a Section 106 decision. This review decision may not extend to other SHPO programs."

ATTACHMENT G

Stream and Wetland Delineation Report

STREAM AND WETLAND DELINEATION REPORT

Butler Cnty Ph I C210 & LP07

LEMON, LIBERTY, & MADISON TOWNSHIPS
BUTLER COUNTY, OHIO

January 2022

Prepared for:

Duke Energy Ohio, Inc.
139 East Fourth Street, Room EM740
Cincinnati, Ohio 45202

Prepared by:

Kleinfelder, Inc.
51 Dutilh Road, Suite 240
Cranberry Township, PA 16066
p | 724-772-7072 f | 724-203-6737

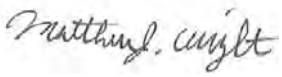
KLEINFELDER
Bright People. Right Solutions.

REPORT CERTIFICATION

This report, including delineation details and conclusions, has been prepared under supervision and review by the persons named below. This report shall not be reproduced in full or in part without the written consent of Kleinfelder, Inc.

Date 1/28/2022 Signature 

Name: John A. Lewis
Title: Project Professional
Kleinfelder, Inc.

Date 1/28/2022 Signature 

Name: Matthew Albright
Title: Project Manager
Kleinfelder, Inc.

TABLE OF CONTENTS

TABLES

FIGURES

ATTACHMENTS

EXECUTIVE SUMMARY

On behalf of Duke Energy Ohio, Inc., Kleinfelder, Inc. (Kleinfelder) conducted stream and wetland delineations within an approximately 125.1-acre cumulative area of interest (AOI) on September 3 and 10, 2020; October 21, 2020; December 15, 2020; May 10-13, 2021; December 17, 2021; January 13, 2022; and January 20, 2022 for the proposed Butler Cnty Ph I C210 & LP07 located throughout Lemon, Liberty, and Madison Townships in Butler County, Ohio.

During the stream and wetland delineation surveys, Kleinfelder identified the following potentially jurisdictional aquatic resources within the cumulative AOI:

- 16 streams, consisting of:
    - 4 perennial streams,
    - 5 intermittent streams, and
    - 7 ephemeral streams.

- 24 wetlands, consisting of:
    - 18 palustrine emergent wetlands,
    - 3 palustrine scrub-shrub wetlands,
    - 1 palustrine forested wetland, and
    - 2 palustrine unconsolidated bottom wetlands.

1.0 INTRODUCTION

On behalf of Duke Energy Ohio, Inc., Kleinfelder, Inc. (Kleinfelder) conducted stream and wetland delineations on September 3 and 10, 2020; October 21, 2020; December 15, 2020; May 10-13, 2021; December 17, 2021; January 13, 2022; and January 20, 2022 for the proposed Butler Cnty Ph I C210 & LP07 (Site) within an approximately 125.1-acre cumulative area of interest (AOI). The cumulative AOI consists of 8 locations throughout Lemon, Liberty, and Madison Townships in Butler County, Ohio (OH) and is on the Monroe and Trenton, OH 7.5-minute United States Geological Survey (USGS) quadrangles as shown on the USGS Topographic Map (**Figure 1**). Aquatic resources identified within the cumulative AOI are listed in **Table 1** and shown on **Figure 3**.

The following report documents current Site conditions and the protocol used in determining the occurrence of streams and wetlands. The findings provided in this report are representative of field conditions that were documented at the time of the field investigations.

2.0 BACKGROUND INFORMATION

2.1 Site Description

The proposed Site consists of 8 locations throughout Butler County, OH, which have a cumulative AOI of approximately 125.1-acres and are individually described below.

- BC-1 consists of an approximately 3.9-acre AOI. This AOI is located in Liberty Township at 39.389634, -84.447235. Land cover within this AOI consists of industrial use, existing road right-of-way (ROW), existing utility ROW, and forested and open field areas. Land use is dominated by industrial use.
- BC-2 consists of an approximately 5.7-acre AOI. This AOI is located in Liberty Township, at 39.403627, -84.450058. Land cover within this AOI consists of road ROW, utility ROW, and residential areas. Land use is dominated by residential use.
- BC-4 consists of an approximately 11.3-acre AOI. This AOI is located in Madison Township at 39.443954, -84.455973. Land cover within this AOI consists of industrial use, including two stormwater management facilities, road ROW, and forested and open field areas. Land use is dominated by industrial use and open field areas.
- BC-5 consists of an approximately 71.4-acre AOI. This AOI is located in Lemon Township, at 39.452467, -84.431994. Land cover within this AOI consists of commercial use, road ROW, railroad ROW, utility ROW, residential areas, early successional habitat, forested habitat, open field, and agricultural areas. Land use is dominated by early successional habitat, residential, commercial, and agricultural use.
- BC-6 consists of an approximately 1.9-acre AOI. This AOI is located in Lemon Township, at 39.452970, -84.412850. Land cover within this AOI consists of road ROW, utility ROW, and residential areas. Land use is dominated by residential use.
- BC-7 consists of an approximately 23.1-acre AOI. This AOI is located in Lemon Township at 39.459910, -84.392265. Land cover within this AOI consists of industrial use, road

ROW, utility ROW, railroad ROW, and secondary growth habitat, and agricultural areas. Land use is dominated by industrial and agricultural use.

- BC-7 Laydown Yard consists of an approximately 5.5-acre AOI. This AOI is located in Lemon Township at 39.461771, -84.376899. Land cover within this AOI consists of industrial use, road ROW, utility ROW, and forested and agricultural areas. Land use is dominated by industrial and agricultural use.
- BC-8 consists of an approximately 2.3-acre AOI. This AOI is located in Lemon Township at 39.458487, -84.374842. Land cover within this AOI consists of industrial use, road ROW, utility ROW, and residential areas. Land use is dominated by industrial and residential use.

2.2 Soils Information

There are numerous soil types located within the cumulative AOI. Varying soil types within the profile are present within each horizon. Soil units at the Site were reviewed for presence of hydric soils. Hydric soils are soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Hydric soils along with hydrophytic vegetation and wetland hydrology are used to define wetlands (Natural Resources Conservation Service [NRCS], National Soil Survey handbook). Within the 125.1-acre cumulative AOI, 3.3-acres or 3%, are classified as hydric or partially hydric soils.

A Custom Soil Resource Report exported from the United States Department of Agriculture (USDA), NRCS website for the Site is included as **Attachment A**. Soil unit boundaries and associated map units are depicted on the Natural Resources Map – Desktop Study **(Figure 2)**.

Soils information specific to upland environments and wetlands identified during delineation activities at the Site are located within the United States Army Corps of Engineers (USACE) Wetland Determination Data Forms (**Attachment B**).

2.3 National Wetlands Inventory Status

The National Wetlands Inventory (NWI) Program under the United States Fish and Wildlife Service (USFWS) is responsible for the mapping and inventory of United States wetlands. The USFWS Wetlands Mapper (http://www.fws.gov/Wetlands/Data/Mapper.html) was used to review NWI wetlands within the cumulative AOI. Based on USFWS Wetlands Mapper, 1 palustrine emergent persistent wetland, temporarily flooded (PEM1A) NWI wetland was identified within the BC-4 AOI; and 5 NWI wetlands were identified within the BC-5 AOI, including 2 palustrine unconsolidated bottom intermittently exposed wetlands, excavated (PUBGx); 1 palustrine unconsolidated bottom intermittently exposed wetland, diked/impounded (PUBGh); 1 palustrine forested broad-leaved deciduous wetland, temporarily flooded (PFO1A); and 1 riverine lower perennial unconsolidated bottom wetland, permanently flooded (R2UBH) (**Figure 2**).

2.4 National Hydrography Dataset Streams

National Hydrography Dataset (NHD) streams are digital representations of the surface waters of the United States (WoUS) and are managed by the USGS under the National Map and Geospatial Program. The National Map Download Viewer (https://viewer.nationalmap.gov/basic/) was used to review NHD streams within the cumulative AOI. An examination of the USGS mapping and spatial data indicated 2 mapped streams (Great Miami River and Gregory Creek) are located within the BC-5 AOI and 1 mapped stream (Unnamed Tributary [UNT] to Dicks Creek) is located within the BC-7 AOI (**Figure 2**).

2.5 Federal Emergency Management Agency Floodplains

The Federal Emergency Management Agency (FEMA) is part of the United States Department of Homeland Security and is responsible for managing the National Flood Insurance Rate Maps (https://msc.fema.gov/portal/advanceSearch). These maps are used to display special hazard areas and floodplains as identified by FEMA. A review of FEMA flood insurance rate mapping panels 39017C0214E (BC-1 and BC-2), 39017C0204F (BC-4), 39017C0208F (BC-5 and BC-6), 39017C0209E (BC-7 and BC-7 Laydown Yard), and 39017C0228F (BC-8), revealed that a portion of the BC-4 and BC-5 AOIs are within the limits of a designated regulatory floodplain (**Figure 2**).

3.0 STREAM AND WETLAND DELINEATION PROCEDURES

Kleinfelder conducted stream and wetland delineations within an approximately 125.1-acre cumulative AOI on September 3 and 10, 2020; October 21, 2020; December 15, 2020; May 10-13, 2021; December 17, 2021; January 13, 2022; and January 20, 2022.

Prior to fieldwork, field biologists reviewed available mapping (topographic, aerial, and historic aerial imagery) to identify areas containing wet signatures and to understand what stream and/or wetlands may be encountered. Additionally, a desktop evaluation was conducted to identify NRCS soils, USFWS NWI wetlands, NHD streams, and FEMA floodplains that may be located within or near the cumulative AOI.

The wetland delineations were completed in accordance with the wetland delineation methodology outlined in the 1987 Corps of Engineers Wetland Delineation Manual (Environmental Laboratory, 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (USACE, 2010). This approach utilizes three parameters including vegetation, soils, and hydrology to identify and delineate wetlands. In situations when one or more of these parameters was absent due to natural, seasonal, or man-made disturbances, a determination was made if the missing parameter(s) would occur under normal circumstances based on field indicators and best professional judgement.

During delineation activities, the boundaries of aquatic resources were recorded using a Trimble Geo 7x Model. Vegetation, soils, and hydrology were documented at sampling locations throughout the cumulative AOI. The information obtained at sampling locations is documented on datasheets (**Attachment B**) as per the 1987 USACE Manual Protocol. Nomenclature and indicator status of

vegetative species was identified using the USACE 2018 and 2020 National Wetland Plant Lists. Wetlands and streams were classified according to the Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al.,1979) guidelines. Wetlands were also evaluated using the OH Rapid Assessment Method (ORAM) for Wetlands V. 5.0 (Mack 2001).

Stream data was documented according to Ohio Environmental Protection Agency (OEPA) guidance using the Primary Headwater Habitat Evaluation Index (HHEI) and/or the Qualitative Habitat Evaluation Index (QHEI), as applicable (Ohio EPA 2018). Streams were identified by the presence and strength of several criteria. These indicators were evaluated and the stream type was determined based on the criteria presented. A complete list of indicators and methodology used can be found in the Methodology for Identification of Intermittent and Perennial Streams and Their Origins Manual (North Carolina Division of Water Quality, 2010). This methodology was selected due to its qualitative and quantitative approach to classifying the following stream types:

- **Ephemeral** (stormwater) stream is defined as a feature that carries only stormwater in direct response to precipitation with water flowing only during and shortly after large precipitation events. An ephemeral stream may or may not have a well-defined channel, the aquatic bed is always above the water table, and stormwater runoff is the primary source of water. An ephemeral stream typically lacks the biological, hydrological, and physical characteristics commonly associated with the continuous or intermittent conveyance of water. [15A NCAC 02B .0233(2)(d)]

- **Intermittent** stream is recognized as a well-defined channel that contains water for only part of the year, typically during winter and spring when the aquatic bed is below the water table. The flow may be heavily supplemented by stormwater runoff. An intermittent stream often lacks the biological and hydrological characteristics commonly associated with the conveyance of water. [15A NCAC 02B .0233(2)(g)]

- **Perennial** stream is recognized as a well-defined channel that contains water year-round during a year of normal rainfall with the aquatic bed located below the water table for most of the year. Groundwater is the primary source of water for a perennial stream, but it also carries stormwater runoff. A perennial stream exhibits the typical biological, hydrological, and physical characteristics commonly associated with the continuous conveyance of water. [15A NCAC 02B .0233(2)(i)]

To identify the stream type, Kleinfelder biologists collected the following data in the field:

- Geomorphologic including:
    - presence of defined bed and banks,
    - flow regime,
    - bank height
    - ordinary high water depth and width,
    - sinuosity,

  - substrate, and
  - bank erosion.

- Biologic including:
  - rooted upland plants in streambed,
  - fish, and
  - macrobenthos.

- Hydrologic including:
  - baseflow, and
  - leaf litter.

4.0 STREAM AND WETLAND DELINEATION RESULTS

Kleinfelder identified 16 streams and 24 wetlands within an approximately 125.1-acre cumulative AOI. Tables of documented habitat conditions within these aquatic resources and dominant upland environments are provided in **Tables 2, 3,** and **4**. Please refer to the Natural Resources Map – Field Delineations (**Figure 3**) for the location of mapped features. Biological, hydrological, and soil conditions specific to sampling locations within each wetland are found on datasheets in **Attachment B**. Rapid assessments of the quality and category of each wetland are found on ORAM forms in **Attachment C**. Assessments of the quality of each stream are found on HHEI/QHEI forms in **Attachment D**. Photographs of each stream, wetland, and upland point within the cumulative AOI are presented in **Attachment E.**

4.1 Stream Descriptions

Sixteen potentially jurisdictional streams were identified and delineated within the cumulative AOI as summarized in **Tables 1** and **2** and shown on **Figure 3**. The identified streams within the cumulative AOI include Gregory Creek, an UNT to Gregory Creek, a UNT to Dicks Creek, Great Miami River, and UNTs to Great Miami River. The identified streams within the cumulative AOI are located within the HUC-8 Lower Great Miami, Indiana, Ohio Watershed (08050002).

4.2 Wetland Descriptions

Twenty-four potentially jurisdictional wetlands were identified and delineated within the cumulative AOI, as summarized in **Tables 1** and **3** and shown on **Figure 3**. Data collected during delineation activities indicated that soils, vegetation, and hydrology parameters met the criteria to be considered a wetland.

4.3 Upland Environments

Sample point locations not exhibiting wetland hydrology, hydrophytic vegetation, and/or hydric soils were classified as upland. Land cover throughout the cumulative AOI consists of agricultural fields, early successional forests, residential, and existing industrial and transportation infrastructure. Dominant upland species are summarized in **Table 4**. Refer to the field datasheets

provided in **Attachment B** for additional information specific to the upland conditions documented within the cumulative AOI.

5.0 CLOSING REMARKS

Formal determination of jurisdiction regarding WoUS can only be determined by the USACE with the submittal of a jurisdictional determination request by the proponent. All work was completed in accordance with the 1987 USACE Wetland Delineation Manual and the Midwest Regional Supplement. Aquatic resources described within this report are those which were identified within the cumulative AOI. All depictions and accounts described within this report are based on field observations made at the time of the investigation.

Wetland delineation studies are generally conducted to support permit applications for various site developments. Wetlands can be subject to national, state, and/or local regulations and are subject to local political and jurisdictional boundaries. Aquatic resource boundaries identified in the field will be considered preliminary unless confirmed by federal and/or state agencies (jurisdictional determination or otherwise). Final determination rests solely at the discretion of agencies with jurisdiction and may occur at any point during the permit process. The decision may depend on the applicable law or regulations governing the decision. As engineers and scientists, we cannot provide legal advice nor guarantee any government ruling. We also cannot accept responsibility for any change in law or regulation.

6.0 REFERENCES

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TABLE 1

STREAMS AND WETLANDS IDENTIFIED IN THE CUMULATIVE AOI

Table 1: Streams and Wetlands Identified in the Cumulative AOI

Waters Name[1]	AOI Segment	Cowardin Code[2]	HGM Code[2]	Measurement Type	Amount	Units	Waters Type[2]	Latitude[3]	Longitude[3]	Local Waterway	OH WQ Class[4]	PHWH Class[5]	HHEI Score[6]	QHEI Score[6]	ORAM Score[7]	ORAM Category[7]
Streams																
KLF_Stream01 (EPH)	BC-2	R6	N/A	Linear	114	Feet	NRPW	39.403921	-84.448312	UNT to Gregory Creek	N/A	Class I	29	N/A	N/A	N/A
KLF_Stream03 (PER)	BC-4	R3UB	N/A	Linear	1129	Feet	TNW	39.447506	-84.456196	UNT to Great Miami River	N/A	Class II	54	N/A	N/A	N/A
KLF_Stream04 (EPH)	BC-4	R6	N/A	Linear	38	Feet	NRPW	39.448823	-84.455862	UNT to Great Miami River	N/A	Class I	22	N/A	N/A	N/A
KLF_Stream05 (INT)	BC-4	R4SB	N/A	Linear	1648	Feet	RPW	39.446762	-84.455921	UNT to Great Miami River	N/A	Class II	52	N/A	N/A	N/A
KLF_Stream06 (INT)	BC-4	R4SB	N/A	Linear	126	Feet	RPW	39.447327	-84.456529	UNT to Great Miami River	N/A	Class II	52	N/A	N/A	N/A
KLF_Stream07 (PER)	BC-7	R3UB	N/A	Linear	669	Feet	TNW	39.459278	-84.391083	UNT to Dicks Creek	WWH, AWS, IWS, PCR	Class II	N/A	53	N/A	N/A
KLF_Stream08 (INT)	BC-5	R4SB	N/A	Linear	3442	Feet	RPW	39.454739	-84.429995	UNT to Great Miami River	N/A	Class II	53	N/A	N/A	N/A
KLF_Stream08A (EPH)	BC-5	R6	N/A	Linear	714	Feet	NRPW	39.454828	-84.430309	UNT to Great Miami River	N/A	Class I	19	N/A	N/A	N/A
KLF_Stream08B (EPH)	BC-5	R6	N/A	Linear	1033	Feet	NRPW	39.454781	-84.430283	UNT to Great Miami River	N/A	Class I	19	N/A	N/A	N/A
KLF_Stream09 (INT)	BC-5	R4SB	N/A	Linear	37	Feet	RPW	39.454407	-84.428285	UNT to Great Miami River	N/A	Class II	34	N/A	N/A	N/A
KLF_Stream10 (EPH)	BC-5	R6	N/A	Linear	42	Feet	NRPW	39.454165	-84.427466	UNT to Great Miami River	N/A	Class II	34	N/A	N/A	N/A
KLF_Stream11 (INT)	BC-5	R4SB	N/A	Linear	279	Feet	RPW	39.452906	-84.428519	UNT to Great Miami River	N/A	Class II	44	N/A	N/A	N/A
KLF_Stream12 (EPH)	BC-5	R6	N/A	Linear	385	Feet	NRPW	39.452811	-84.427905	UNT to Great Miami River	N/A	Class I	19	N/A	N/A	N/A
KLF_Stream13 (EPH)	BC-5	R6	N/A	Linear	500	Feet	NRPW	39.452384	-84.426564	UNT to Great Miami River	N/A	Class I	19	N/A	N/A	N/A
KLF_Great Miami River (PER)	BC-5	R3UB	N/A	Linear	58	Feet	TNW	39.447868	-84.433324	Great Miami River	WWH, AWS, IWS, PCR	Class II	N/A	47	N/A	N/A
KLF_Gregory Creek (PER)	BC-5	R3UB	N/A	Linear	318	Feet	TNW	39.442571	-84.435514	Gregory Creek	WWH, AWS, IWS, PCR	Class II	N/A	40	N/A	N/A
Wetlands																
KLF_Wetland01 (PEM)	BC-5	PEM	DEPRESS	Area	0.007	Acre	N/A	39.452578	-84.420535	N/A	N/A	N/A	N/A	N/A	16	Category 1
KLF_Wetland02 (PEM)	BC-4	PEM	DEPRESS	Area	0.017	Acre	N/A	39.448210	-84.456270	N/A	N/A	N/A	N/A	N/A	17	Category 1
KLF_Wetland03 (PEM)	BC-4	PEM	DEPRESS	Area	0.018	Acre	N/A	39.448971	-84.456039	N/A	N/A	N/A	N/A	N/A	28	Category 1
KLF_Wetland04 (PEM)	BC-4	PEM	DEPRESS	Area	0.003	Acre	N/A	39.448985	-84.455923	N/A	N/A	N/A	N/A	N/A	29	Category 1
KLF_Wetland05 (PEM)	BC-4	PEM	DEPRESS	Area	0.007	Acre	N/A	39.445699	-84.455857	N/A	N/A	N/A	N/A	N/A	27	Category 1
KLF_Wetland06 (PEM)	BC-7	PEM	DEPRESS	Area	0.003	Acre	N/A	39.459711	-84.391159	N/A	N/A	N/A	N/A	N/A	20	Category 1
KLF_Wetland07 (PEM)	BC-5	PEM	DEPRESS	Area	0.062	Acre	N/A	39.451553	-84.431946	N/A	N/A	N/A	N/A	N/A	19	Category 1
KLF_Wetland07 (PSS)	BC-5	PSS	DEPRESS	Area	0.033	Acre	N/A	39.451469	-84.431889	N/A	N/A	N/A	N/A	N/A	27	Category 1
KLF_Wetland07 (PUB)	BC-5	PUB	DEPRESS	Area	0.189	Acre	N/A	39.451909	-84.431944	N/A	N/A	N/A	N/A	N/A	29	Category 1
KLF_Wetland08 (PEM)	BC-5	PEM	DEPRESS	Area	0.024	Acre	N/A	39.454559	-84.430592	N/A	N/A	N/A	N/A	N/A	16	Category 1
KLF_Wetland09 (PEM)	BC-5	PEM	DEPRESS	Area	0.063	Acre	N/A	39.448763	-84.432994	N/A	N/A	N/A	N/A	N/A	23	Category 1
KLF_Wetland10 (PEM)	BC-5	PEM	DEPRESS	Area	0.033	Acre	N/A	39.448605	-84.432385	N/A	N/A	N/A	N/A	N/A	18	Category 1
KLF_Wetland11 (PEM)	BC-5	PEM	DEPRESS	Area	0.200	Acre	N/A	39.454262	-84.425987	N/A	N/A	N/A	N/A	N/A	16	Category 1
KLF_Wetland12 (PEM)	BC-5	PEM	DEPRESS	Area	0.035	Acre	N/A	39.454265	-84.428127	N/A	N/A	N/A	N/A	N/A	16	Category 1
KLF_Wetland12 (PFO)	BC-5	PFO	DEPRESS	Area	0.063	Acre	N/A	39.454162	-84.427985	N/A	N/A	N/A	N/A	N/A	22	Category 1
KLF_Wetland13 (PSS)	BC-5	PSS	DEPRESS	Area	0.006	Acre	N/A	39.454118	-84.427744	N/A	N/A	N/A	N/A	N/A	19	Category 1
KLF_Wetland14 (PUB)	BC-5	PUB	DEPRESS	Area	0.479	Acre	N/A	39.453533	-84.429260	N/A	N/A	N/A	N/A	N/A	29	Category 1
KLF_Wetland15 (PEM)	BC-5	PEM	DEPRESS	Area	0.052	Acre	N/A	39.453860	-84.423580	N/A	N/A	N/A	N/A	N/A	18	Category 1
KLF_Wetland16 (PEM)	BC-5	PEM	DEPRESS	Area	0.057	Acre	N/A	39.454075	-84.423345	N/A	N/A	N/A	N/A	N/A	18	Category 1
KLF_Wetland17 (PSS)	BC-5	PSS	DEPRESS	Area	0.028	Acre	N/A	39.452723	-84.427860	N/A	N/A	N/A	N/A	N/A	21	Category 1
KLF_Wetland18 (PEM)	BC-5	PEM	DEPRESS	Area	0.172	Acre	N/A	39.452041	-84.426245	N/A	N/A	N/A	N/A	N/A	20	Category 1
KLF_Wetland19 (PEM)	BC-7 Laydown Yard	PEM	DEPRESS	Area	0.019	Acre	N/A	39.461568	-84.376112	N/A	N/A	N/A	N/A	N/A	13	Category 1
KLF_Wetland20 (PEM)	BC-7 Laydown Yard	PEM	DEPRESS	Area	0.008	Acre	N/A	39.461674	-84.376720	N/A	N/A	N/A	N/A	N/A	13	Category 1
KLF_Wetland21 (PEM)	BC-7	PEM	DEPRESS	Area	0.017	Acre	N/A	39.459741	-84.390381	N/A	N/A	N/A	N/A	N/A	11	Category 1

NOTES:

1. Kleinfelder, Inc. naming convention.
2. As determined by the USACE's Waters Upload Sheet (pers. comm.)
3. North American Datum 1983.
4. As defined by OAC Chapter 3745-1 Water Quality Standards, Water use designations and statewide criteria (OAC 3745-1-07). http://www.epa.ohio.gov/dsw/rules/3745_1.aspx.
   WWH = Warmwater Habitat, AWS = Agricultural Water Supply, IWS = Industrial Water Supply, PCR = Primary Contact Recreation
5. Scoring for OEPA Headwater Habitat Evaluation Index (HHEI) Primary Headwater Habitats (PHWH). Class I = 0-29.9 and include "normally dry channels with little or no aquatic life present"; Class II = 30-69.9 and are equivalent to "warm water habitat"; Class III = 70-100 and typically have perennial flow with cool-cold water adapted native fauna.
   Streams classified as Class III PHWH by a Level 1 or Level 2 Assessment are assumed Class IIIB PHWH unless disproved by Level 3 Assessment.
6. Streams with drainage areas > 1 sq. mi., which have not received a water use designation under OAC 3745-1 were scored based on OEPA's Methods for assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (QHEI), June 2006. http://www/epa.state.oh.us/portals/35/documents/qheimanualjune2006.pdf.
   Scoring > 75 = Excellent stream habitat; 60-74 = Good; 45-59 = Fair; 30-44 = Poor; < 30 = Very Poor.
7. Scoring for ORAM v 5.0: Category 1 = 0-29.9; Category 1 or 2 Gray Zone = 30-34.9; Category Modified 2 = 35-44.9; Category 2 = 45-59.9; Category 2 or 3 = 60-64.9; Category 3 = 65-100. ORAM v 5.0 Quantitative Score Calibration, Last Revised: August 15, 2000. http://epa.ohio.gov/portals/35/401/oram50sc_s.pdf.

TABLE 2

STREAM DESCRIPTIONS

Table 2: Stream Descriptions

Stream Name	Stream Type	OHWM Width (feet)	OHWM Depth (Inches)	Presence of Water	Presence of Baseflow [1]	Bank Definition and Stability/Erosion	Dominant Substrate	Aquatic Fauna	Presence of Leaf Litter [2]	Presence of Rooted Upland Plants in Streambed [3]
Delineation Date: 9/3/2020	**Date of Last Precipitation Event & Quantity: 09/03/2020 / 0.53 in (Within 48 hours from Delineation)**									
KLF_Stream01 (EPH)	Ephemeral	2.0	6.0	•Dry	•Absent	•Well Defined and Eroding	•Clay •Gravel •Cobble	•None	•Moderate	•Weak
Delineation Date: 9/10/2020	**Date of Last Precipitation Event & Quantity: 09/03/2020 / 0.53 in (Greater than 48 hours from Delineation)**									
KLF_Stream03 (PER)	Perennial	4.0	12.0	•Flowing	•Strong	•Well Defined and Stable	•Silt •Gravel	•Macros	•Weak	•Absent
KLF_Stream04 (EPH)	Ephemeral	1.5	2.0	•Dry	•Absent	•Well Defined and Eroding	•Silt •Cobble	•None	•Weak	•Moderate
KLF_Stream05 (INT)	Intermittent	4.0	3.0	•Non-Continuous Flow	•Moderate	•Well Defined and Eroding	•Silt •Cobble	•None	•Weak	•Weak
KLF_Stream06 (INT)	Intermittent	5.0	5.0	•Flowing	•Moderate	•Well Defined and Eroding	•Silt •Sand •Gravel	•None	•Weak	•Absent
Delineation Date: 12/15/2020	**Date of Last Precipitation Event & Quantity: 12/12/2020 / 0.06 in (Greater than 48 hours from Delineation)**									
KLF_Stream07 (PER)	Perennial	13.0	12.0	•Flowing	•Strong	•Well Defined and Eroding	•Silt •Sand •Gravel •Cobble	•Fish •Macros	•Absent	•Absent
Delineation Date: 5/10/2021	**Date of Last Precipitation Event & Quantity: 5/10/2021 / 0.62 in (Within 48 hours from Delineation)**									
KLF_Stream08 (INT)	Intermittent	4.0	6.0	•Flowing	•Moderate	•Well Defined and Eroding	•Silt •Sand •Gravel •Cobble	•Macros	•Absent	•Absent
KLF_Stream08A (EPH)	Ephemeral	2.0	1.0	•Flowing	•Weak	•Poorly Defined and Stable	•Silt •Gravel	•None	•Weak	•Absent
KLF_Stream08B (EPH)	Ephemeral	2.0	1.0	•Flowing	•Weak	•Poorly Defined and Stable	•Silt •Gravel	•None	•Weak	•Weak
Delineation Date: 5/11/2021	**Date of Last Precipitation Event & Quantity: 5/10/2021 / 0.62 in (Within than 48 hours from Delineation)**									
KLF_Stream09 (INT)	Intermittent	1.5	2.0	•Flowing	•Moderate	•Moderately Defined and Stable	•Silt •Gravel	•Macros	•Absent	•Absent
KLF_Stream10 (EPH)	Ephemeral	1.0	2.0	•Non-Continuous Flow	•Absent	•Moderately Defined and Stable	•Silt •Gravel	•None	•Weak	•Absent
Delineation Date: 5/12/2021	**Date of Last Precipitation Event & Quantity: 5/10/2021 / 0.62 in (Within 48 hours from Delineation)**									
KLF_Stream11 (INT)	Intermittent	3.0	5.0	•Flowing	•Moderate	•Well Defined and Eroding	•Silt •Gravel	•Macros	•Absent	•Absent
KLF_Stream12 (EPH)	Ephemeral	1.0	2.0	•Dry	•Absent	•Moderately Defined and Eroding	•Silt •Gravel	•None	•Weak	•Moderate
KLF_Stream13 (EPH)	Ephemeral	1.5	3.0	•Non-Continuous Flow	•Absent	•Moderately Defined and Eroding	•Silt •Gravel	•None	•Absent	•Weak

Table 2: Stream Descriptions

Stream Name	Stream Type	OHWM Width (feet)	OHWM Depth (Inches)	Presence of Water	Presence of Baseflow [1]	Bank Definition and Stability/Erosion	Dominant Substrate	Aquatic Fauna	Presence of Leaf Litter [2]	Presence of Rooted Upland Plants in Streambed [3]
KLF_Great Miami River (PER)	Perennial	230.0	48.0	•Flowing	•Strong	•Well Defined and Eroding	•Silt •Sand •Gravel	•Fish •Macros	•Absent	•Absent
KLF_Gregory Creek (PER)	Perennial	80.0	36.0	•Flowing	•Strong	•Well Defined and Eroding	•Silt •Sand •Gravel	•Fish •Macros	•Absent	•Absent

Notes:

Scoring defined by the Methodology for Identification of Intermittent and Perennial Streams and Their Origins manual (North Carolina Division of Water Quality, 2010)

[1] Water flowing in the channel more than 48 hours after rainfall that produces runoff is clear evidence of baseflow supplied by groundwater discharge from saturated soils below the water table adjacent to the stream. Even when there is no visible flow above the channel bottom, there may be slow groundwater discharge into, and downstream flow through, the hyporheic zone. Ratings include:
• Strong – Water is present and flowing in the thalweg region of the channel throughout the evaluation reach and there is significant baseflow through the riffles or other shallow zones. Evidence of groundwater discharge into the channel or a groundwater table above the thalweg is readily observable throughout the reach.
• Moderate – Water is present in the thalweg region of the channel throughout the evaluation reach and there is a small amount of baseflow through the riffles or other shallow zones. Evidence of groundwater discharge into the channel or a groundwater table slightly above the thalweg is observable in the reach but not abundant throughout the reach.
• Weak – Water is standing in pools and the hyporheic zone is saturated, but there is not visible flow through the riffles or other shallow zones of the thalweg. Evidence of groundwater discharge is present, but requires considerable time to locate. The groundwater table is at or slightly above the level of water in the pools.
• Absent – There is little to no visible water in the thalweg region of the channel. There is no evidence of groundwater discharge into the channel and the groundwater table is at or below the deepest parts of the channel.

[2] Perennial streams with riparian vegetation should continuously transport plant material through the channel. Leaves and lighter debris are typically present throughout the length of non-perennial streams, whereas little to no leaves are present in streams with constant or near-constant flow. Ratings include:
• Strong – Abundant amount of leaf litter is present throughout the length of the stream. Greater than 80% of the active channel is covered with leaves and the thalweg substrate is not visible.
• Moderate – Leaf litter is present throughout most of the stream's reach with some accumulation beginning on the upstream side of obstructions and in pools. Between 25% and 80% of the active channel bottom is covered with leaves and portions of the thalweg is visible.
• Weak – Leaf litter is present and is mostly accumulated in pools. Between 5% and 25% of the streambed is covered with leaves and most of the thalweg is visible.
• Absent – Leaf litter is not present in the fast moving areas of the reach but there may be some present in the pools. Less than 5% of the active channel bottom is covered with leaves. The thalweg is swept clear of leaf litter and the substrate is continuously visible throughout the assessment reach.

[3] Cases where rooted upland plants are present in the streambed may indicate ephemeral or intermittent flow. Focus should be on the presence of upland (i.e. FAC or drier) plants in or near the thalweg of the stream. Plants growing on any part of the bank of the stream should not be considered. Ratings include:
• Strong –Rooted plants are observed and cover over 75% of the streambed.
• Moderate – Rooted plants are observed and cover approximately 20-75% of the streambed.
• Weak – Rooted plants are observed and cover less that 20% of the streambed and most are in the thalweg.
• Absent – No rooted plants are observed.

TABLE 3

WETLAND DESCRIPTIONS

Table 3: Wetland Descriptions

Wetland Name	Wetland Type	Wetland Data Point	Corresponding Upland Data Point	Wetland Hydrology Indicators	Dominant Vegetation	Hydric Soil Indicators	Comments
KLF_Wetland01 (PEM)	PEM	KLF_SP04	KLF_SP03	•Oxidized Rhizospheres on Living Roots •Geomorphic Position •FAC-Neutral Test	•Barnyardgrass (*Echinochloa crus-galli*) •Blunt spikerush (*Eleocharis obtusa*) •Slender flatsedge (*Cyperus bipartitus*)	•Depleted Matrix	Located in the BC-5 portion of the AOI. The wetland is confined within a roadside swale and parallels Hamilton Middletown Road.
KLF_Wetland02 (PEM)	PEM	KLF_SP07	KLF_SP06	•Oxidized Rhizospheres on Living Roots •Geomorphic Position •FAC-Neutral Test	•Barnyardgrass (*Echinochloa crus-galli*) •Yellow foxtail (*Setaria pumila*)	•Depleted Matrix	Located in the BC-4 portion of the AOI. The wetland is located in a depressional area within an open field inside a fenced industrial facility.
KLF_Wetland03 (PEM)	PEM	KLF_SP08	KLF_SP10	•High Water Table •Saturation •Oxidized Rhizospheres on Living Roots •Geomorphic Position •FAC-Neutral Test	•Common boneset (*Eupatorium perfoliatum)* •Narrowleaf cattail (*Typha angustifolia*) •Dark-green bulrush (*Scirpus atrovirens*)	•Depleted Matrix •Loamy Gleyed Matrix	Located in the BC-4 portion of the AOI. The wetland is located within the riparian area of KLF_Stream03. The eastern border of the wetland directly abuts the stream.
KLF_Wetland04 (PEM)	PEM	KLF_SP09	KLF_SP10	•Oxidized Rhizospheres on Living Roots •Geomorphic Position •FAC-Neutral Test	•Swamp smartweed (*Persicaria hydropiper*) •Spotted touch-me-not (*Impatiens capensis*) •Northern bugleweed (*Lycopus uniflorus*)	•Depleted Matrix	Located in the BC-4 portion of the AOI. The wetland is located in a depressional area within the riparian area of KLF_Stream05. The eastern border of the wetland directly abuts the stream.
KLF_Wetland05 (PEM)	PEM	KLF_SP11	KLF_SP12	•Oxidized Rhizospheres on Living Roots •Geomorphic Position •FAC-Neutral Test	•Spotted touch-me-not (*Impatiens capensis*)	•Depleted Matrix	Located in the BC-4 portion of the AOI. The wetland is located within the riparian area of KLF_Stream05. The eastern border of the wetland directly abuts the stream.
KLF_Wetland06 (PEM)	PEM	KLF_SP16	KLF_SP15	•Oxidized Rhizospheres on Living Roots •Geomorphic Position •FAC-Neutral Test	•Common boneset (*Eupatorium perfoliatum)* •Dark-green bulrush (*Scirpus atrovirens*)	•Depleted Matrix	Located in the BC-7 portion of the AOI. The wetland is located in a depressional area adjacent to KLF_Stream07.
KLF_Wetland07 (PEM)	PEM	KLF_SP25	KLF_SP36	•High Water Table •Saturation •Oxidized Rhizospheres on Living Roots •FAC-Neutral Test	•Reed canarygrass (*Phalaris arundinacea*) •Late goldenrod (*Solidago gigantea*) •Creeping jenny (*Lysimachia nummularia*)	•Depleted Matrix	Located in the BC-5 portion of the AOI. The wetland is located in an herbaceous area above a strip pit in the forested valley bottom of KLF_Great Miami River.
KLF_Wetland07 (PSS)	PSS	KLF_SP34	KLF_SP35	•High Water Table •Saturation •Surface Water •Geomorphic Position •FAC-Neutral Test	•Creeping jenny (*Lysimachia nummularia*) •Late goldenrod (*Solidago gigantea*) •Boxelder (*Acer negundo*)	•Depleted Matrix	Located in the BC-5 portion of the AOI. The wetland is located in the valley bottom of KLF_Great Miami River.
KLF_Wetland07 (PUB)	PUB	KLF_SP24	KLF_SP28	•High Water Table •Saturation •Surface Water •Geomorphic Position •FAC-Neutral Test •Aquatic Fauna	•Creeping jenny (*Lysimachia nummularia*) •Swamp smartweed (*Persicaria hydropiper*) •Red maple (*Acer rubrum*) •American sycamore (*Platanus occidentalis*)	•Other: Assumed Hydric due to Prolonged Inundation	Located in the BC-5 portion of the AOI. The wetland is located in a strip pit in the forested valley bottom of KLF_Great Miami River.
KLF_Wetland08 (PEM)	PEM	KLF_SP27	KLF_SP26	•High Water Table •Saturation •Surface Water •Geomorphic Position •FAC-Neutral Test •Drift Deposits •Oxidized Rhizospheres on Living Roots •Drainage Patterns	•Reed canarygrass (*Phalaris arundinacea*) •Poison hemlock (*Conium maculatum*)	•Depleted Matrix	Located in the BC-5 portion of the AOI. The wetland is located within an herbaceous depression on the fringe of KLF_Stream08.

Table 3: Wetland Descriptions

Wetland Name	Wetland Type	Wetland Data Point	Corresponding Upland Data Point	Wetland Hydrology Indicators	Dominant Vegetation	Hydric Soil Indicators	Comments
KLF_Wetland09 (PEM)	PEM	KLF_SP30	KLF_SP31	•High Water Table •Saturation •Surface Water •Geomorphic Position •Drift Deposits •Algal mat or crust •Drainage Patterns	•Reed canarygrass (*Phalaris arundinacea*) •Kentucky bluegrass (*Poa pratensis*) •White clover (*Trifolium repens*)	•Depleted Matrix	Located in the BC-5 portion of the AOI. The wetland is located within a depression in the herbaceous valley bottom of KLF_Great Miami River.
KLF_Wetland10 (PEM)	PEM	KLF_SP38	KLF_SP31	•High Water Table •Saturation •Surface Water •Geomorphic Position •Drainage Patterns •Aquatic Fauna	•Reed canarygrass (*Phalaris arundinacea*) •Kentucky bluegrass (*Poa pratensis*) •White clover (*Trifolium repens*)	•Depleted Matrix	Located in the BC-5 portion of the AOI. The wetland is located within a depression in the herbaceous valley bottom of KLF_Great Miami River.
KLF_Wetland11 (PEM)	PEM	KLF_SP41, KLF_SP42	KLF_SP43	•High Water Table •Saturation •Oxidized Rhizospheres on Living Roots •Geomorphic Position •FAC-Neutral Test •Crayfish Burrows •Drainage Patterns	•Reed canarygrass (*Phalaris arundinacea*) •Pale sedge (*Carex pallescens*) •Dark-green bulrush (*Scirpus atrovirens*)	•Depleted Matrix	Located in the BC-5 portion of the AOI. The wetland is located within an herbaceous hillside topographic depression in an open pipeline/powerline right-of-way.
KLF_Wetland12 (PEM)	PEM	KLF_SP44	KLF_SP48	•High Water Table •Saturation •Surface Water •Geomorphic Position •FAC-Neutral Test •Oxidized Rhizospheres on Living Roots •Drainage Patterns	•Reed canarygrass (*Phalaris arundinacea*) •Field horsetail (*Equisetum arvense*)	•Depleted Matrix	Located in the BC-5 portion of the AOI. The wetland is located within an herbaceous depression in an open pipeline/powerline right-of-way. The wetland is hydrologically connected to KLF_Stream09.
KLF_Wetland12 (PFO)	PFO	KLF_SP45	KLF_SP47	•High Water Table •Saturation •Surface Water •Geomorphic Position •FAC-Neutral Test •Oxidized Rhizospheres on Living Roots •Drainage Patterns •Water-stained Leaves •Aquatic Fauna	•Quaking aspen (*Populus tremuloides*) •Black Willow (*Salix nigra*) •Pale sedge (*Carex pallescens*) •Jewelweed (*Impatiens capensis*)	•Depleted Matrix	Located in the BC-5 portion of the AOI. The wetland is located within a forested depression. The wetland is hydrologically connected to KLF_Stream09.
KLF_Wetland13 (PSS)	PSS	KLF_SP46	KLF_SP47	•High Water Table •Saturation •Geomorphic Position •FAC-Neutral Test •Oxidized Rhizospheres on Living Roots •Water-stained Leaves	•Black Willow (*Salix nigra*) •Pale sedge (*Carex pallescens*) •Late goldenrod (*Solidago gigantea*)	•Depleted Matrix	Located in the BC-5 portion of the AOI. The wetland is located within an early successional forest habitat, within a hillside topographic depression.

Table 3: Wetland Descriptions

Wetland Name	Wetland Type	Wetland Data Point	Corresponding Upland Data Point	Wetland Hydrology Indicators	Dominant Vegetation	Hydric Soil Indicators	Comments
KLF_Wetland14 (PUB)	PUB	KLF_SP49	KLF_SP60	•High Water Table •Saturation •Surface Water •Geomorphic Position •FAC-Neutral Test •Inundation Visible on Aerial Imagery •Aquatic Fauna	•Narrowleaf cattail (*Typha angustifolia*)	•Other: Assumed Hydric due to Prolonged Inundation	Located in the BC-5 portion of the AOI. The wetland is a valley bottom open water pond.
KLF_Wetland15 (PEM)	PEM	KLF_SP50	KLF_SP52	•High Water Table •Saturation •Drainage Patterns •Geomorphic Position •FAC-Neutral Test •Oxidized Rhizospheres on Living Roots	•Woollyfruit sedge (*Carex lasiocarpa*)	•Depleted Matrix	Located in the BC-5 portion of the AOI. The wetland is located within an herbaceous hillside topographic depression in an open fallow area that transitions into a maintained residential area.
KLF_Wetland16 (PEM)	PEM	KLF_SP51	KLF_SP52	•High Water Table •Saturation •Geomorphic Position •FAC-Neutral Test •Oxidized Rhizospheres on Living Roots	•Pale sedge (*Carex pallescens*) •Late goldenrod (*Solidago gigantea*)	•Depleted Matrix	Located in the BC-5 portion of the AOI. The wetland is located within an herbaceous hillside topographic depression in a pipeline/powerline right-of-way.
KLF_Wetland17 (PSS)	PSS	KLF_SP53	KLF_SP54	•High Water Table •Saturation •Surface Water •Geomorphic Position •FAC-Neutral Test •Drainage Patterns •Water-stained Leaves •Aquatic Fauna	•Black Willow (*Salix nigra*) •Reed canarygrass (*Phalaris arundinacea*) •Field horsetail (*Equisetum arvense*)	•Depleted Matrix	Located in the BC-5 portion of the AOI. The wetland is located in an early successional forest habitat, within a hillside topographic depression on the fringe of KLF_Stream11.
KLF_Wetland18 (PEM)	PEM	KLF_SP55	KLF_SP56	•High Water Table •Saturation •Oxidized Rhizospheres on Living Roots •Geomorphic Position •FAC-Neutral Test	•Pale sedge (*Carex pallescens*) •Black bent (*Agrostis gigantea*) •Slender flatsedge (*Cyperus diandrus*)	•Depleted Matrix	Located in the BC-5 portion of the AOI. The wetland is located within an herbaceous depression in an open fallow field.
KLF_Wetland19 (PEM)	PEM	KLF_SP57	KLF_SP59	•Oxidized Rhizospheres on Living Roots •Drainage Patterns •FAC-Neutral Test	•Meadow foxtail (*Alopecurus pratensis*)	•Depleted Matrix	Located in the BC-7 Laydown Yard portion of the AOI. The wetland is located within a sloping cultivated agricultural field.
KLF_Wetland20 (PEM)	PEM	KLF_SP58	KLF_SP59	•Oxidized Rhizospheres on Living Roots •Drainage Patterns •FAC-Neutral Test	•Meadow foxtail (*Alopecurus pratensis*)	•Depleted Matrix	Located in the BC-7 Laydown yard portion of the AOI. The wetland is located within a sloping cultivated agricultural field.
KLF_Wetland21 (PEM)	PEM	KLF_SP61	KLF_SP62	•Oxidized Rhizospheres on Living Roots •Drainage Patterns •Geomorphic Position	•Switchgrass (*Panicum virgatum*) •Yellow foxtail (*Setaria pumila*)	•Depleted Matrix	Located in the BC-7 portion of the AOI. The wetland is located in a depressional area in an agricultural field.

TABLE 4

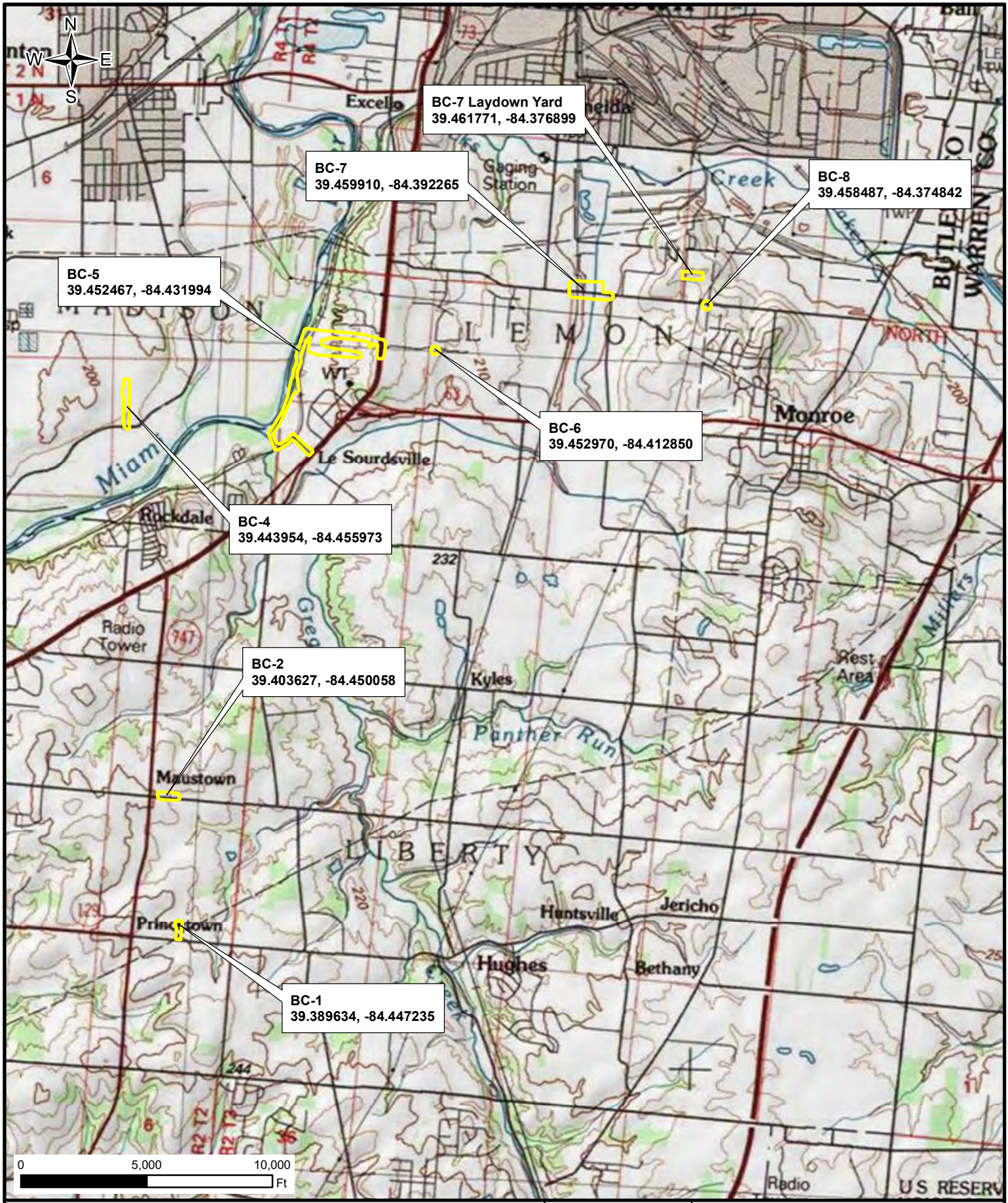
UPLAND ENVIRONMENTS

Table 4: Upland Environments (Dominant Species)

Tree Stratum					
Pyrus calleryana	*Cornus florida*	*Ulmus rubra*	*Juglans nigra*	-	-
Sapling/Shrub Stratum					
Lonicera maackii	-	-	-	-	-
Herb Stratum					
Allium vineale	*Asclepias syriaca*	*Dipsacus fullonum*	*Lonicera maackii*	*Setaria pumila*	*Toxicodendron radicans*
Ambrosia artemisiifolia	*Cichorium intybus*	*Echinochloa crus-galli*	*Lotus corniculatus*	*Sorghum halepense*	*Trifolium pratense*
Andropogon virginicus	*Cirsium arvense*	*Glechoma hederacea*	*Rubus flagellaris*	*Taraxacum officinale*	*Trifolium repens*
Anthoxanthum odoratum	*Dactylis glomerata*	*Cynodon dactylon*	-	-	-
Woody Vine Stratum					
-	-	-	-	-	-

FIGURE 1

USGS TOPOGRAPHIC MAP



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Monroe & Trenton, OH
7.5' USGS Quadrangle

Lemon, Liberty & Madison Township, Butler County, Ohio

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Figure 1
USGS Topographic Map
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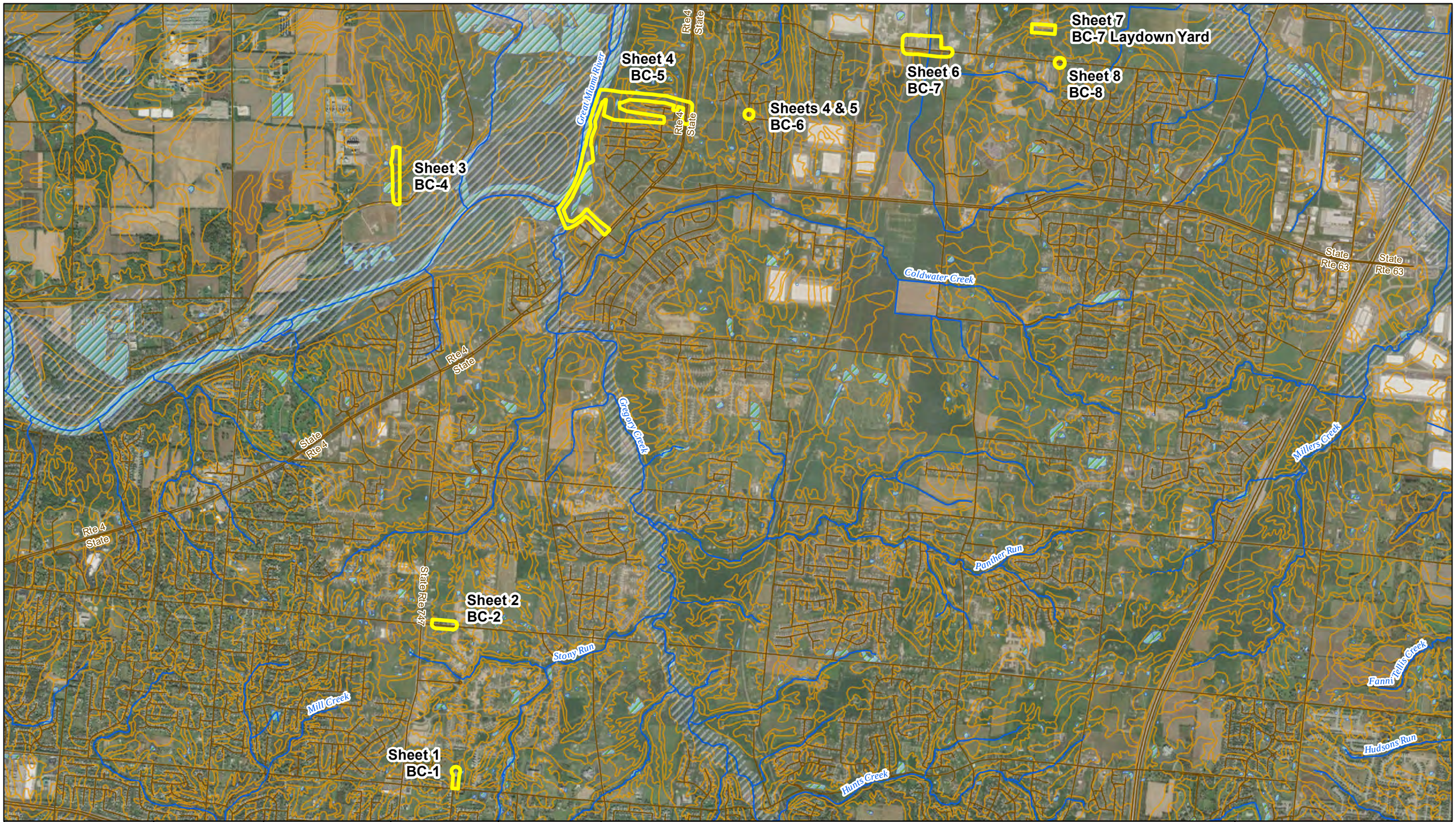
Date: 1/28/2022 | Version: 1

FIGURE 2

NATURAL RESOURCES MAP – DESKTOP STUDY



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Butler County Ohio

- Cumulative AOI (125.1 ac)
- NHD Stream
- NWI Wetland
- FEMA 100 Year Floodzone
- Soil Unit Boundary
- Existing Road

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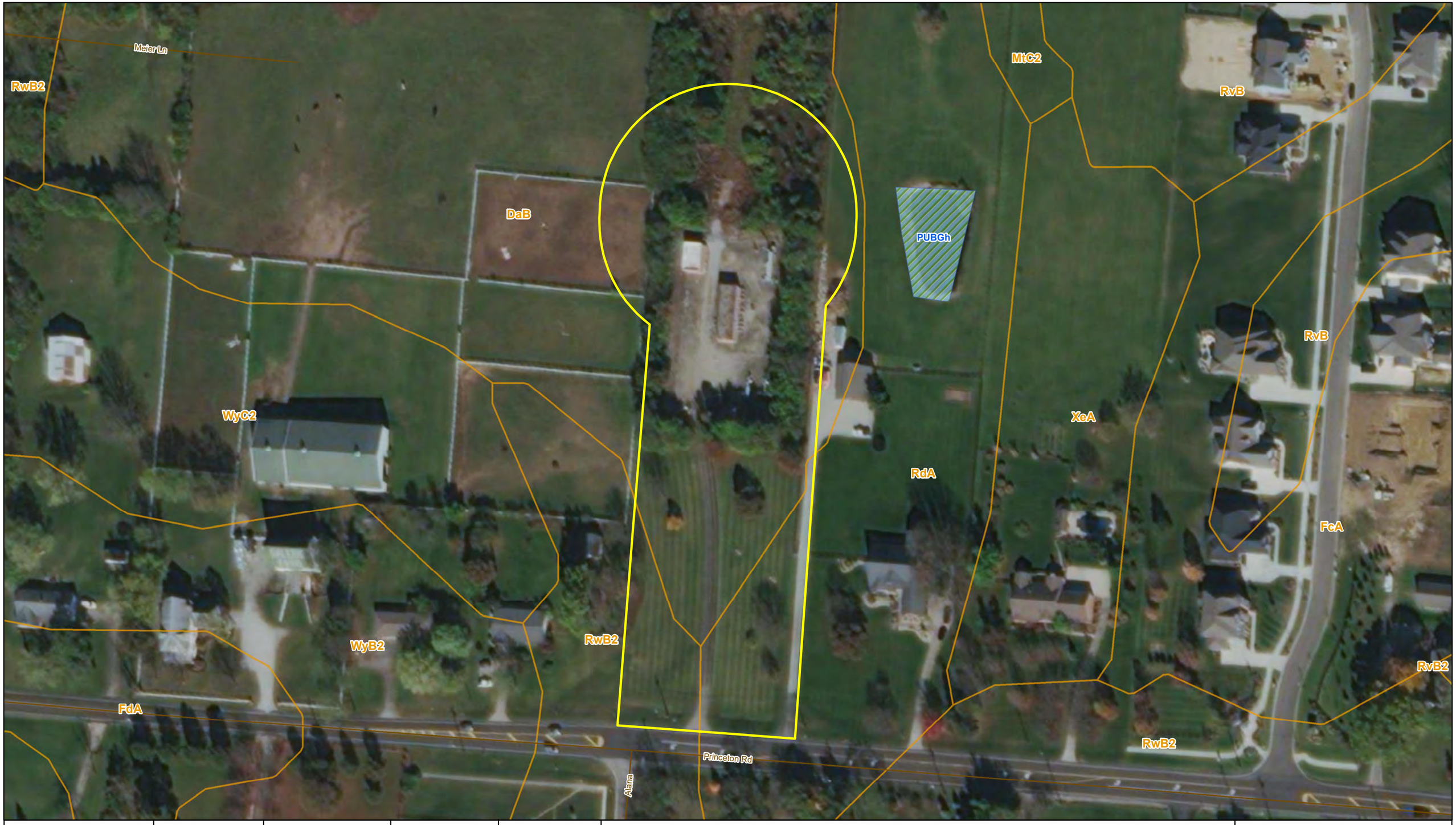
Figure 2
Natural Resources Map - Desktop Study
Butler Cnty Ph I C210 & LP07

Date: 1/27/2022 | Index Map



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Butler County Ohio

- BC-1 (3.9 ac)
- NHD Stream
- NWI Wetland
- FEMA 100 Year Floodzone
- Soil Unit Boundary
- Existing Road

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Figure 2
Natural Resources Map - Desktop Study
Butler Cnty Ph I C210 & LP07

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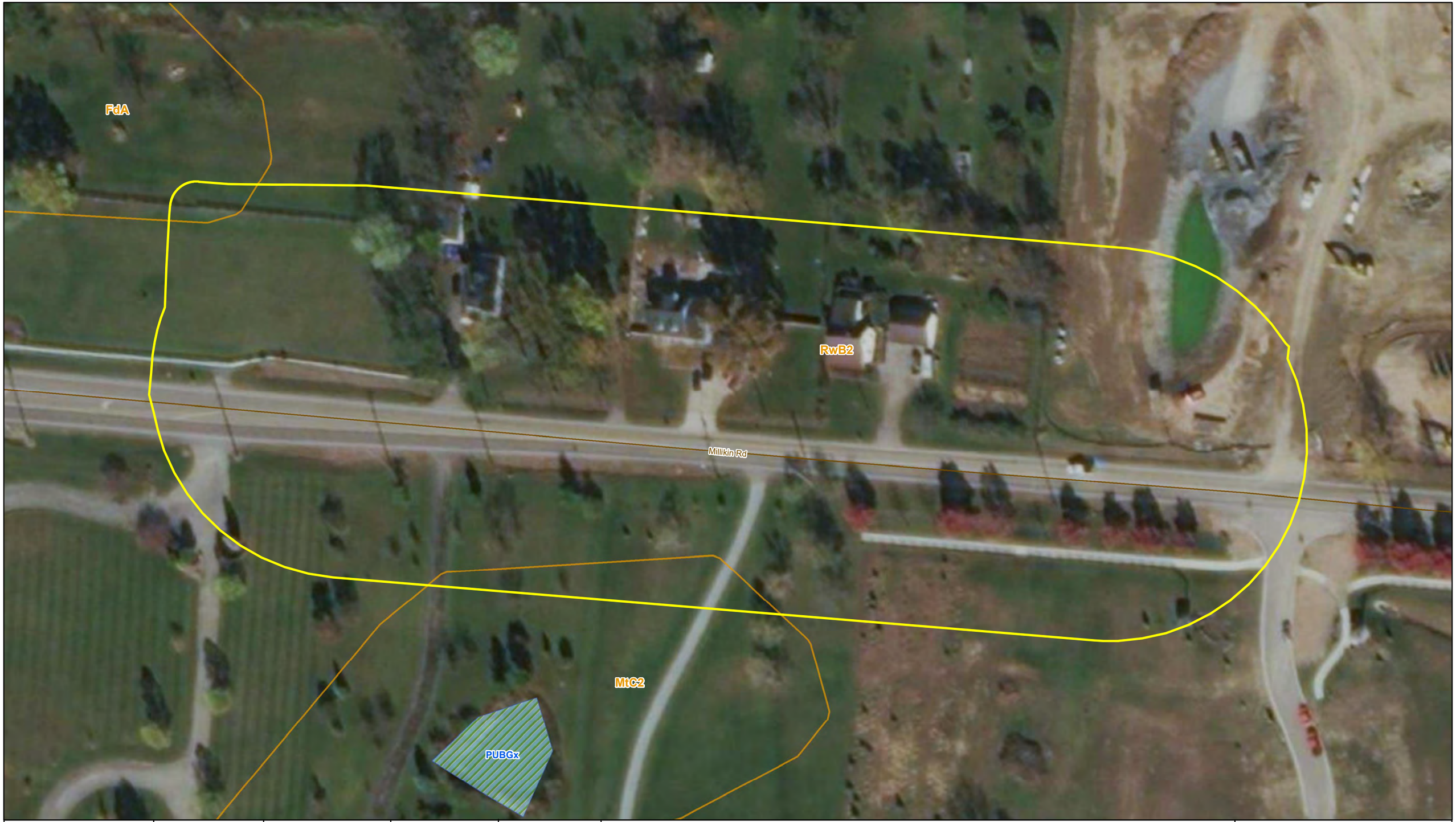

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Butler County Ohio

- BC-2 (5.7 ac)
- NHD Stream
- NWI Wetland
- FEMA 100 Year Floodzone
- Soil Unit Boundary
- Existing Road

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Figure 2
Natural Resources Map - Desktop Study
Butler Cnty Ph I C210 & LP07

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Butler County Ohio

- BC-4 (11.3 ac)
- NHD Stream
- NWI Wetland
- FEMA 100 Year Floodzone
- Soil Unit Boundary
- Existing Road

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Figure 2
Natural Resources Map - Desktop Study
Butler Cnty Ph I C210 & LP07

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Butler County Ohio

- BC-5 (71.4 ac)
- BC-6 (1.9 ac)
- NHD Stream
- NWI Wetland
- FEMA 100 Year Floodzone
- Soil Unit Boundary
- Existing Road

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Figure 2
Natural Resources Map - Desktop Study
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Butler County Ohio

- BC-6 (1.9 ac)
- NHD Stream
- NWI Wetland
- FEMA 100 Year Floodzone
- Soil Unit Boundary
- Existing Road

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Figure 2
Natural Resources Map - Desktop Study
Butler Cnty Ph I C210 & LP07

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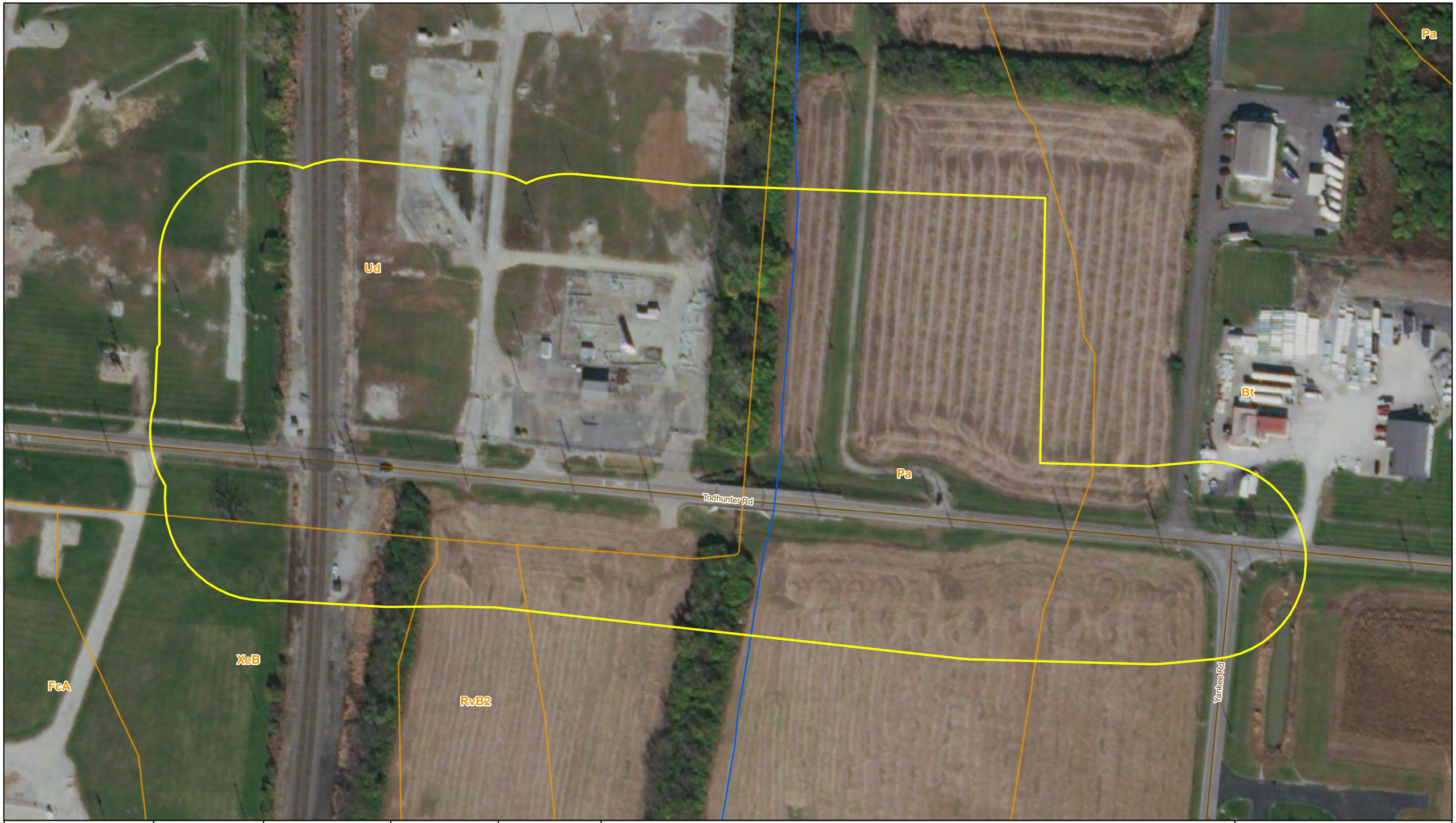

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Butler County Ohio

- BC-7 (23.1 ac)
- NHD Stream
- NWI Wetland
- FEMA 100 Year Floodzone
- Soil Unit Boundary
- Existing Road

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Figure 2
Natural Resources Map - Desktop Study
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Butler County Ohio

- BC-7 Laydown Yard (5.5 ac)
- Soil Unit Boundary
- NHD Stream
- Existing Road
- NWI Wetland
- FEMA 100 Year Floodzone

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Figure 2
Natural Resources Map - Desktop Study
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Butler County Ohio

- BC-8 (2.3 ac)
- NHD Stream
- NWI Wetland
- FEMA 100 Year Floodzone
- Soil Unit Boundary
- Existing Road

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Figure 2
Natural Resources Map - Desktop Study
Butler Cnty Ph I C210 & LP07

Date: 1/27/2022

FIGURE 3

NATURAL RESOURCES MAP – FIELD DELINEATIONS

BC-4
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Sheet 04
Sheet 03

BC-5
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Sheet 08
Sheet 10
Sheet 06
Sheet 07
Sheet 11
Sheet 12
Sheet 13
Sheet 14

BC-6
Sheet 15

BC-7
Sheet 16
Sheet 17

Sheet 18
BC-7 Laydown Yard
Sheet 19
BC-8

BC-2
Sheet 02

BC-1
Sheet 01

State Rte 4

State Rte 63

State Rte 727

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Butler County Ohio

- Cumulative AOI (125.1 ac)
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- PEM Wetland
- PFO Wetland
- PSS Wetland
- PUB Wetland
- Stormwater Management Facility
- Existing Road

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Figure 3
Natural Resources Map - Field Delineations
Butler Cnty Ph I C210 & LP07

Date: 1/26/2022 | Index Map

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Butler County Ohio

- BC-1 AOI (3.9 ac)
- Existing Culvert
- Bridge
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- PEM Wetland
- PFO Wetland
- PSS Wetland
- PUB Wetland
- Stormwater Management Facility
- Existing Road
- Stream Flow
- Feature Continues

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Figure 3
Natural Resources Map - Field Delineations
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Butler County Ohio

- BC-2 AOI (5.7 ac)
- Existing Culvert
- Bridge
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- PEM Wetland
- PFO Wetland
- PSS Wetland
- PUB Wetland
- Stormwater Management Facility
- Existing Road
- Stream Flow
- Feature Continues

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Figure 3
Natural Resources Map - Field Delineations
Butler Cnty Ph I C210 & LP07

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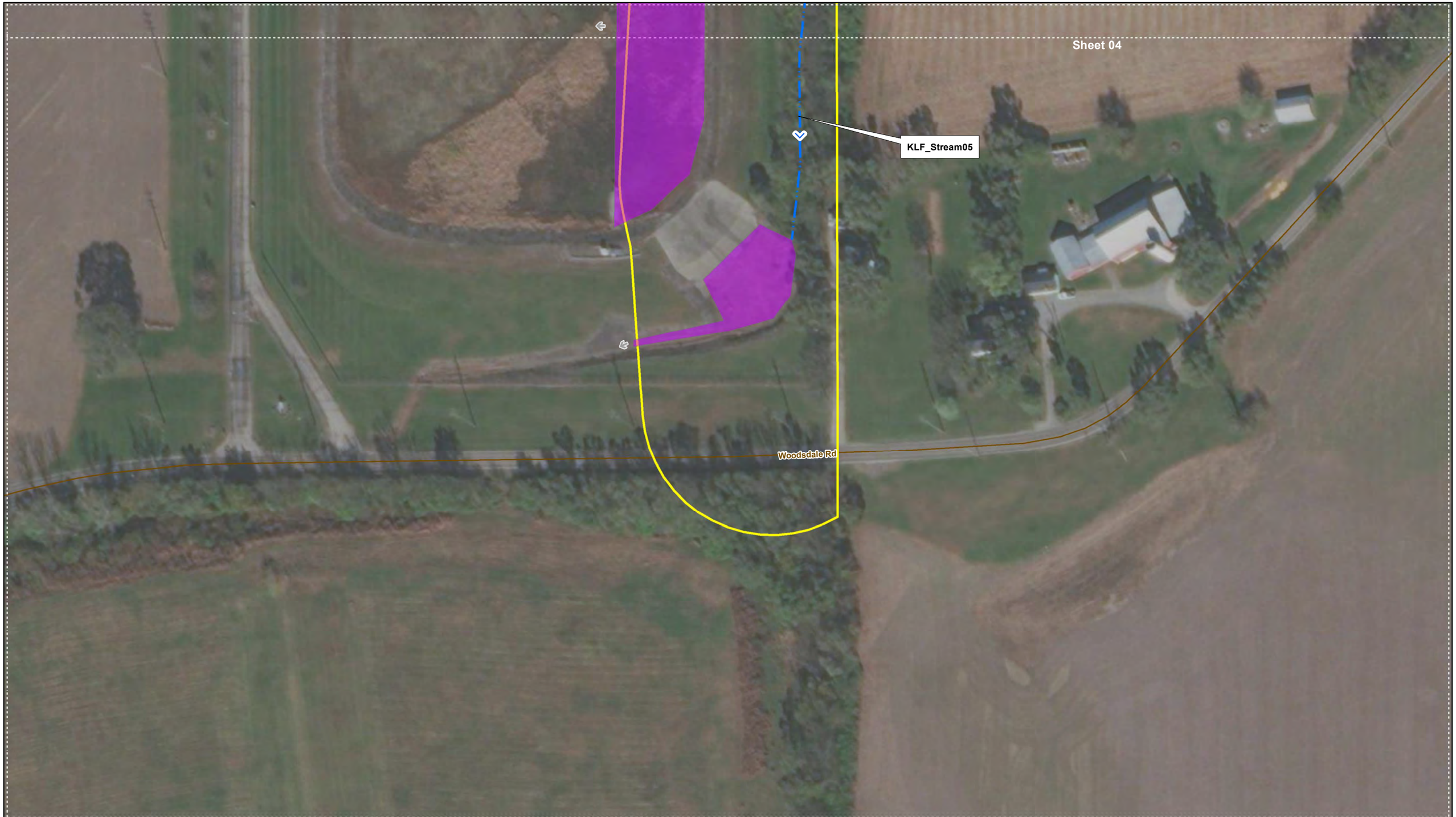

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Butler County Ohio

- BC-4 AOI (11.3 ac)
- Existing Culvert
- Bridge
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- PEM Wetland
- PFO Wetland
- PSS Wetland
- PUB Wetland
- Stormwater Management Facility
- Existing Road
- Stream Flow
- Feature Continues

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Figure 3
Natural Resources Map - Field Delineations
Butler Cnty Ph I C210 & LP07

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Butler County Ohio

- BC-4 AOI (11.3 ac)
- Existing Culvert
- Bridge
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- PEM Wetland
- PFO Wetland
- PSS Wetland
- PUB Wetland
- Stormwater Management Facility
- Existing Road
- Stream Flow
- Feature Continues

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Figure 3
Natural Resources Map - Field Delineations
Butler Cnty Ph I C210 & LP07

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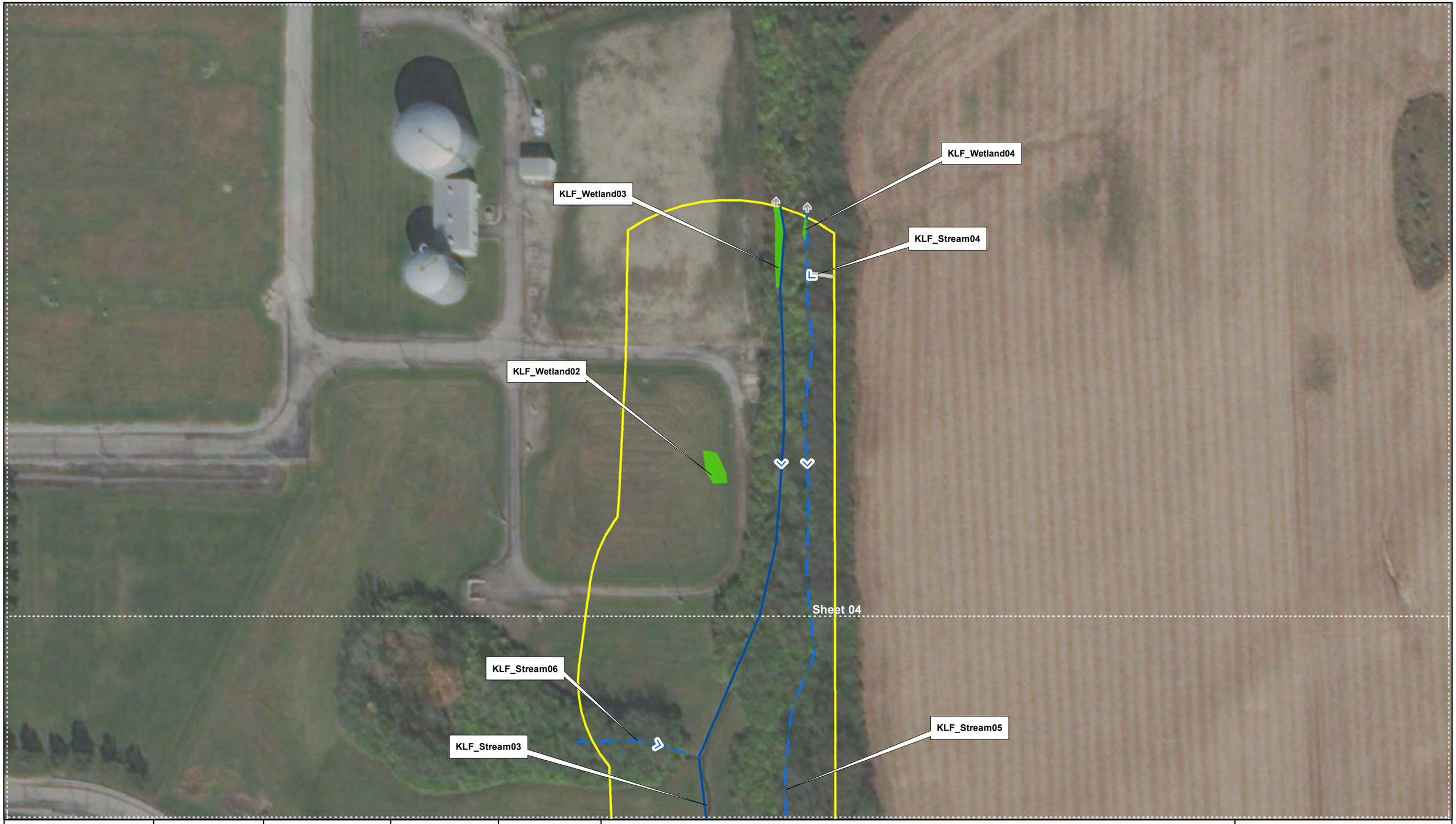

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N W E S

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Butler County Ohio

- BC-4 AOI (11.3 ac)
- Existing Culvert
- Bridge
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- PEM Wetland
- PFO Wetland
- PSS Wetland
- PUB Wetland
- Stormwater Management Facility
- Existing Road
- Stream Flow
- Feature Continues

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Figure 3
Natural Resources Map - Field Delineations
Butler Cnty Ph I C210 & LP07

Date: 1/28/2022

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PROJECT NO.	20211395
DRAWN BY:	S. Williams
CHECKED BY:	M. Albright
FILE NAME:	ButlerCountyPhase1_WDSIR_Fig3

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Butler County Ohio

- BC-5 AOI (71.4 ac)
- Existing Culvert
- Bridge
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- PEM Wetland
- PFO Wetland
- PSS Wetland
- PUB Wetland
- Stormwater Management Facility
- Existing Road
- Stream Flow
- Feature Continues

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Figure 3
Natural Resources Map - Field Delineations
Butler Cnty Ph I C210 & LP07

Date: 1/28/2022 | Sheet 6 of 19

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Butler County Ohio

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Figure 3
Natural Resources Map - Field Delineations
Butler Cnty Ph I C210 & LP07

Date: 1/28/2022 | Sheet 7 of 19

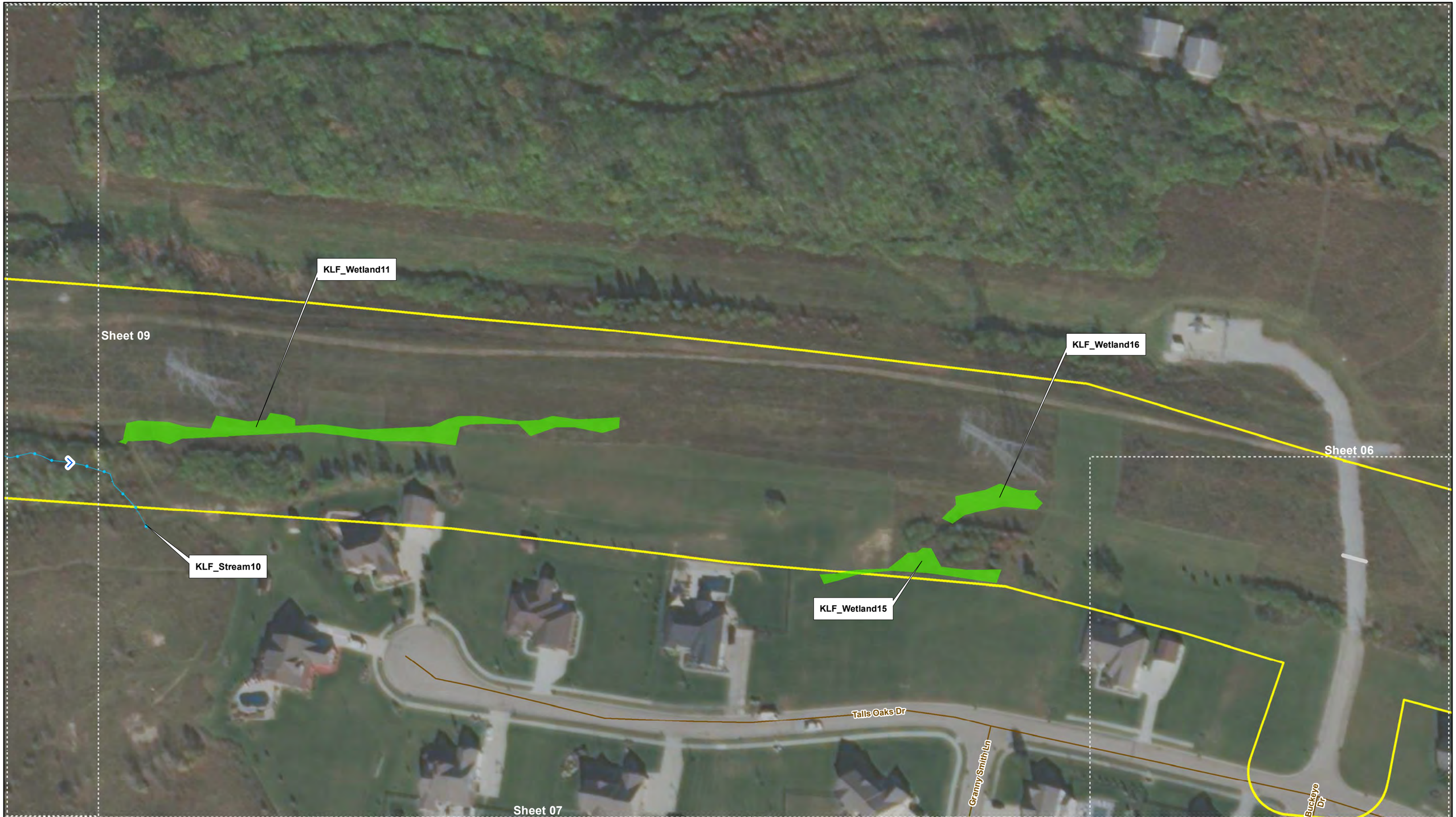

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Figure 3
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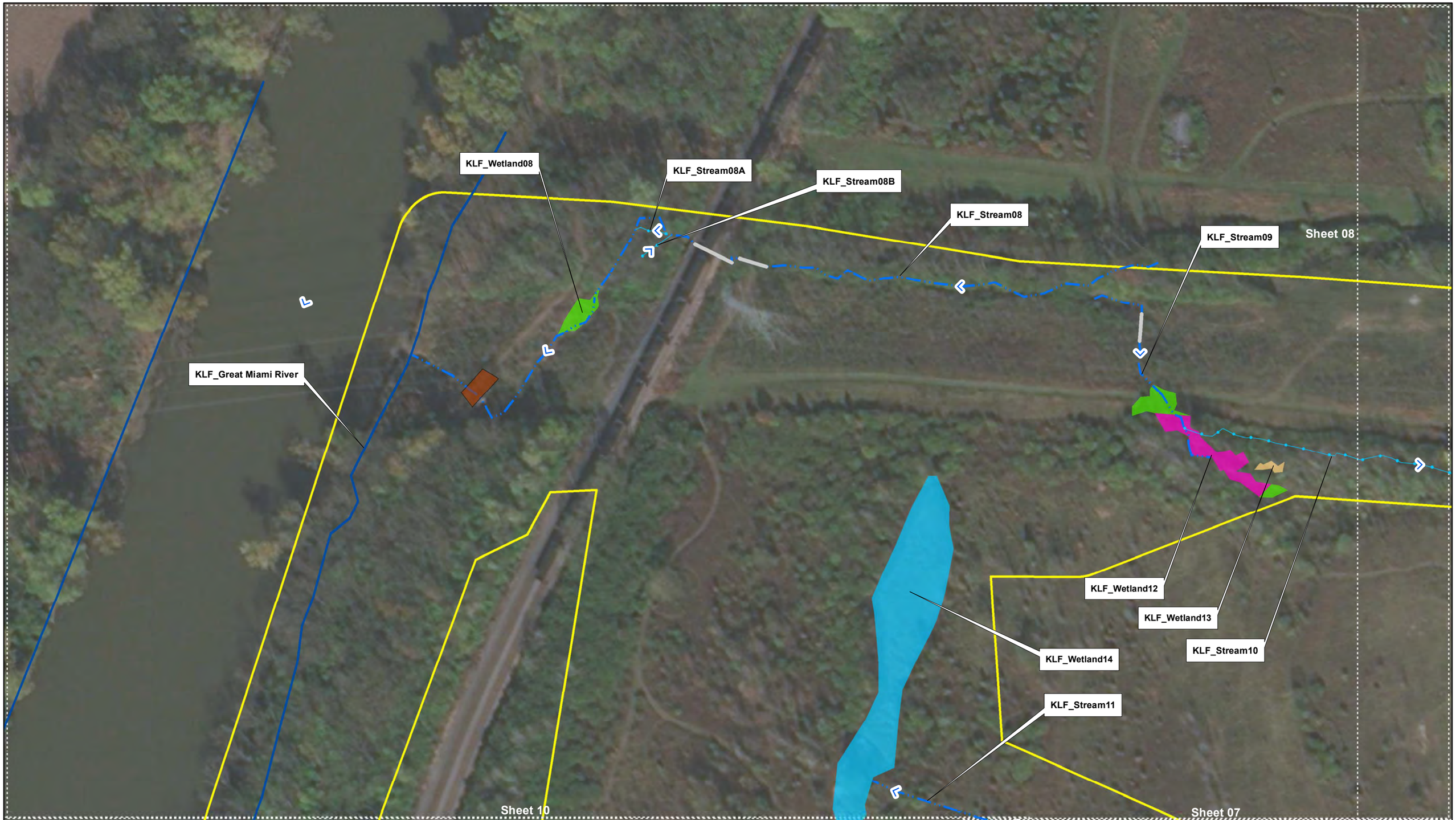

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Figure 3
Natural Resources Map - Field Delineations
Butler Cnty Ph I C210 & LP07

Date: 1/28/2022 | Sheet 9 of 19

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Figure 3
Natural Resources Map - Field Delineations
Butler Cnty Ph I C210 & LP07

Date: 1/28/2022 | Sheet 10 of 19

Sheet 10

KLF_Great Miami River

KLF_Wetland09

KLF_Wetland10

Granny Smith Ln

Apple Ridge Ct

Sheet 12

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Figure 3
Natural Resources Map - Field Delineations
Butler Cnty Ph I C210 & LP07

Date: 1/28/2022 | Sheet 11 of 19

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Figure 3
Natural Resources Map - Field Delineations
Butler Cnty Ph I C210 & LP07

Date: 1/28/2022

Sheet 12

KLF_Great Miami River

Sheet 14

KLF_Gregory Creek

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Natural Resources Map - Field Delineations
Butler Cnty Ph I C210 & LP07

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Figure 3
Natural Resources Map - Field Delineations
Butler Cnty Ph I C210 & LP07

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FILE NAME:	ButlerCountyPhase1_WDSIR_Fig3

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Butler County Ohio

- BC-6 AOI (1.9 ac)
- Existing Culvert
- Bridge
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
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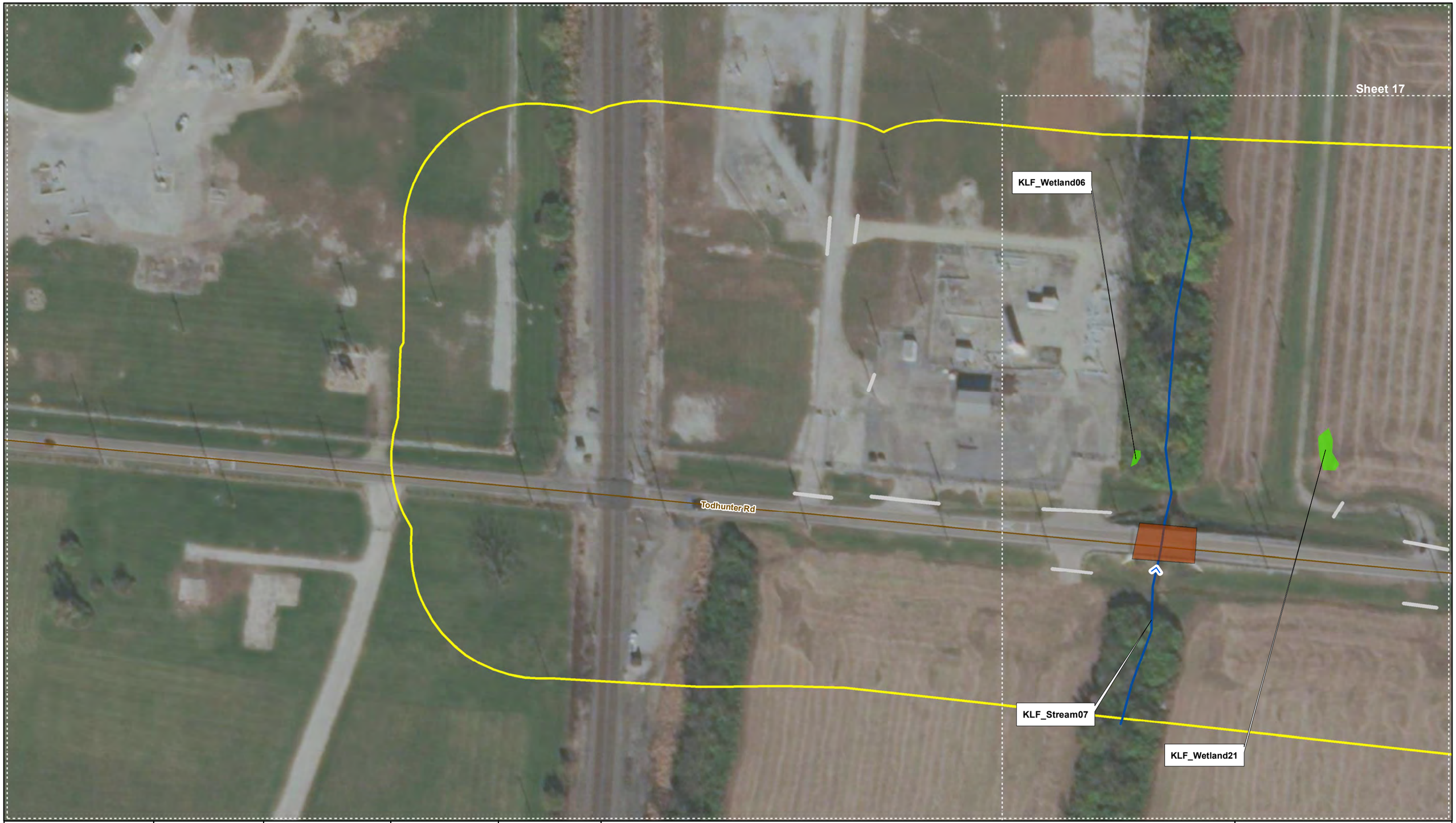
Figure 3
Natural Resources Map - Field Delineations
Butler Cnty Ph I C210 & LP07

Date: 1/28/2022 | Sheet 15 of 19



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CHECKED BY:	M. Albright
FILE NAME:	ButlerCountyPhaseI_WDSIR_Fig3

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Butler County Ohio

- BC-7 AOI (23.1 ac)
- Existing Culvert
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Figure 3
Natural Resources Map - Field Delineations
Butler Cnty Ph I C210 & LP07

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Natural Resources Map - Field Delineations
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Butler County Ohio

- BC-7 Laydown Yard AOI (5.5 ac)
- Existing Culvert
- Bridge
- Ephemeral Stream
- Intermittent Stream
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Butler County Ohio

- BC-8 AOI (2.3 ac)
- Existing Culvert
- Bridge
- Ephemeral Stream
- Intermittent Stream
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Duke Energy Ohio, Inc.

Figure 3
Natural Resources Map - Field Delineations
Butler Cnty Ph I C210 & LP07

Date: 1/28/2022

ATTACHMENT A

USDA/NRCS CUSTOM SOILS REPORT

United States Department of Agriculture

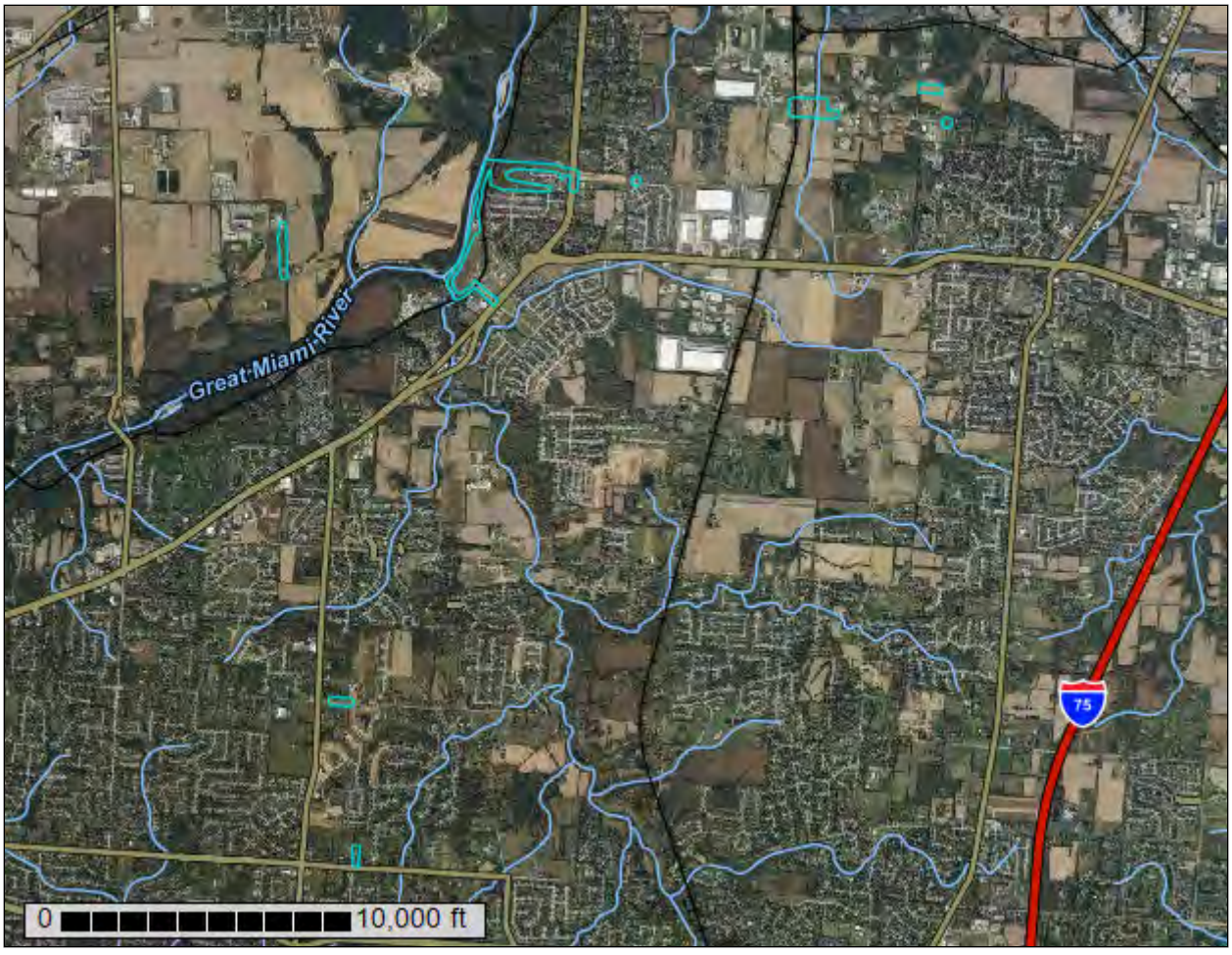
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Butler County, Ohio

Butler Cnty Ph I C210 & LP07



January 26, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

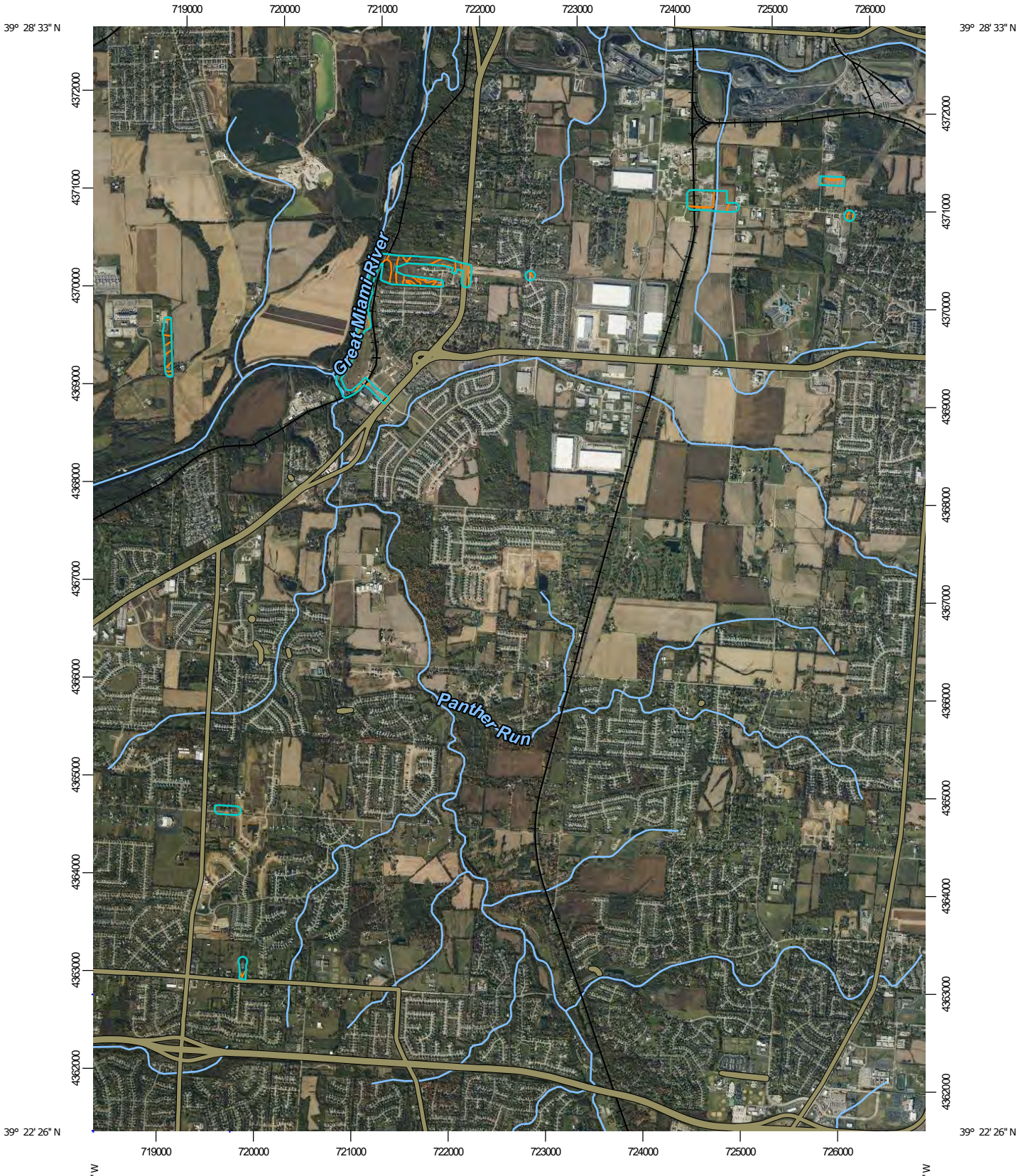
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map (Butler Cnty Ph I C210 & LP07)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Butler County, Ohio
Survey Area Data: Version 21, Sep 1, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 28, 2019—Dec 5, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (Butler Cnty Ph I C210 & LP07)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Bt	Brenton silt loam	2.3	1.9%
CdD2	Casco and Rodman gravelly loams, 6 to 18 percent slopes, moderately eroded	4.6	3.7%
DaB	Dana silt loam, 2 to 6 percent slopes	3.4	2.7%
EcE2	Eden silty clay loam, 15 to 25 percent slopes, moderately eroded	1.4	1.1%
ElA	Eldean loam, 0 to 2 percent slopes	6.3	5.0%
ElB2	Eldean loam, 2 to 6 percent slopes, eroded	1.7	1.4%
EuA	Eldean-Urban land complex, nearly level	4.3	3.4%
FdA	Fincastle silt loam, bedrock substratum, 0 to 2 percent slopes	0.0	0.0%
HeE2	Hennepin-Miamian silt loams, 18 to 25 percent slopes, moderately eroded	0.7	0.6%
MsC2	Miamian-Russell silt loams, 6 to 12 percent slopes, eroded	8.2	6.6%
MtC2	Miamian-Russell silt loams, bedrock substratum, 6 to 12 percent slopes, eroded	0.2	0.1%
OcA	Ockley silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	5.2	4.2%
OcB	Ockley silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes	4.1	3.3%
Pa	Patton silty clay loam, 0 to 2 percent slopes	8.1	6.5%
Ra	Ragsdale silty clay loam, 0 to 2 percent slopes	0.3	0.3%
RdA	Raub silt loam, 0 to 2 percent slopes	0.6	0.5%
Rn	Ross loam, 0 to 2 percent slopes, occasionally flooded	0.0	0.0%
RtB	Russell silt loam, 2 to 6 percent slopes	4.1	3.3%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
RvB2	Russell-Miamian silt loams, 2 to 6 percent slopes, moderately eroded	6.8	5.4%
RwB2	Russell-Miamian silt loams, bedrock substratum, 2 to 6 percent slopes, moderately eroded	9.8	7.8%
St	Stonelick fine sandy loam	23.1	18.4%
Ud	Udorthents	11.4	9.1%
Uf	Udorthents and Dumps	0.2	0.1%
W	Water	2.3	1.8%
WbA	Warsaw loam, 0 to 3 percent slopes	4.7	3.8%
WuB	Wynn-Urban land complex, gently sloping	0.7	0.6%
WyB2	Wynn silt loam, 2 to 6 percent slopes, eroded	1.3	1.1%
WyC2	Wynn silt loam, 6 to 12 percent slopes, eroded	5.4	4.3%
XeB	Xenia silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes	2.4	2.0%
XfB	Xenia silt loam, bedrock substratum, 2 to 6 percent slopes	1.5	1.2%
Totals for Area of Interest		**125.1**	**100.0%**

Map Unit Descriptions (Butler Cnty Ph I C210 & LP07)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called

noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can

be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Butler County, Ohio

Bt—Brenton silt loam

Map Unit Setting

National map unit symbol: 5pmk
Elevation: 300 to 1,020 feet
Mean annual precipitation: 29 to 48 inches
Mean annual air temperature: 45 to 57 degrees F
Frost-free period: 150 to 225 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Brenton and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Brenton

Setting

Landform: Outwash plains
Landform position (three-dimensional): Tread
Parent material: Silty loess over loamy outwash

Typical profile

H1 - 0 to 12 inches: silt loam
H2 - 12 to 44 inches: silt loam
H3 - 44 to 60 inches: stratified sandy loam to silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 12 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Available water supply, 0 to 60 inches: High (about 11.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C
Ecological site: R111DY020IN - Wet Outwash Mollisol
Hydric soil rating: No

Minor Components

Henshaw

Percent of map unit: 5 percent
Landform: Stream terraces
Ecological site: F111DY003IN - Wet Alluvium
Hydric soil rating: No

Patton

Percent of map unit: 5 percent
Landform: Depressions
Ecological site: F111DY013IN - Wet Lacustrine Forest
Hydric soil rating: Yes

CdD2—Casco and Rodman gravelly loams, 6 to 18 percent slopes, moderately eroded

Map Unit Setting

National map unit symbol: 5pml
Elevation: 340 to 1,500 feet
Mean annual precipitation: 28 to 55 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 130 to 200 days
Farmland classification: Farmland of local importance

Map Unit Composition

Casco and similar soils: 60 percent
Rodman and similar soils: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Casco

Setting

Landform: Terraces—outwash or marine
Landform position (three-dimensional): Riser
Parent material: Loamy outwash over sandy and gravelly outwash

Typical profile

H1 - 0 to 8 inches: gravelly loam
H2 - 8 to 18 inches: gravelly clay loam
H3 - 18 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 6 to 18 percent
Depth to restrictive feature: 14 to 18 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F111DY018IN - Dry Outwash Upland
Hydric soil rating: No

Description of Rodman

Setting

Landform: Terraces—outwash or marine
Landform position (three-dimensional): Riser
Parent material: Sandy and gravelly outwash

Typical profile

H1 - 0 to 7 inches: gravelly loam
H2 - 7 to 12 inches: gravelly loam
H3 - 12 to 60 inches: stratified sand to very gravelly sand

Properties and qualities

Slope: 6 to 18 percent
Depth to restrictive feature: 8 to 15 inches to strongly contrasting textural stratification
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 45 percent
Available water supply, 0 to 60 inches: Very low (about 1.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: A
Ecological site: R111DY021IN - Dry Outwash Mollisol
Hydric soil rating: No

Minor Components

Russell

Percent of map unit: 5 percent
Landform: Till plains
Ecological site: F111DY010IN - Till Ridge

Miamian

Percent of map unit: 5 percent
Landform: Till plains
Ecological site: F111DY010IN - Till Ridge

DaB—Dana silt loam, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2w0v8
Elevation: 590 to 1,180 feet
Mean annual precipitation: 37 to 45 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 145 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Dana and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dana

Setting

Landform: Ground moraines, till plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve, crest
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Loess over loamy till derived from sedimentary rock

Typical profile

Ap - 0 to 14 inches: silt loam
Bt - 14 to 37 inches: silty clay loam
2BC - 37 to 48 inches: clay loam
2Cd - 48 to 79 inches: loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 37 to 55 inches to densic material
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 24 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C

Ecological site: R111DY012IN - Till Ridge Prairie
Hydric soil rating: No

Minor Components

Brookston
Percent of map unit: 5 percent
Landform: — error in exists on —
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave
Ecological site: F111DY008IN - Till Depression Flatwood
Hydric soil rating: Yes

Raub
Percent of map unit: 5 percent
Landform: Till plains, hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R111DY012IN - Till Ridge Prairie
Hydric soil rating: No

EcE2—Eden silty clay loam, 15 to 25 percent slopes, moderately eroded

Map Unit Setting
National map unit symbol: 5pmv
Elevation: 500 to 1,400 feet
Mean annual precipitation: 35 to 48 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 160 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition
Eden and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Eden

Setting
Landform: Valley sides
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Parent material: Residuum weathered from limestone and shale

Typical profile
H1 - 0 to 6 inches: silty clay loam
H2 - 6 to 28 inches: flaggy silty clay

H3 - 28 to 38 inches: weathered bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: F111DY023IN - Moderately Deep Restricted
Forage suitability group: Unnamed (G121XYF-1OH)
Other vegetative classification: Unnamed (G121XYF-1OH)
Hydric soil rating: No

Minor Components

Wynn

Percent of map unit: 5 percent
Landform: Till plains
Ecological site: F111DY010IN - Till Ridge

Severely eroded soils

Percent of map unit: 5 percent

EIA—Eldean loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2vzcq
Elevation: 490 to 1,150 feet
Mean annual precipitation: 37 to 46 inches
Mean annual air temperature: 48 to 55 degrees F
Frost-free period: 145 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Eldean and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Eldean

Setting

Landform: Outwash terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy outwash

Typical profile

Ap - 0 to 12 inches: loam
Bt - 12 to 23 inches: clay loam
BC - 23 to 30 inches: gravelly clay loam
C - 30 to 79 inches: stratified gravelly coarse sand to very gravelly sand to extremely gravelly coarse sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 65 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: B
Ecological site: F111AY015IN - Dry Outwash Upland
Hydric soil rating: No

Minor Components

Warsaw

Percent of map unit: 5 percent
Landform: Outwash terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R111AY017IN - Dry Outwash Mollisol
Hydric soil rating: No

Ockley

Percent of map unit: 4 percent
Landform: Outwash terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread

Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F111AY015IN - Dry Outwash Upland
Hydric soil rating: No

Sleeth

Percent of map unit: 1 percent
Landform: Depressions on stream terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F111AY014IN - Outwash Upland
Hydric soil rating: No

ElB2—Eldean loam, 2 to 6 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2vzd0
Elevation: 490 to 1,150 feet
Mean annual precipitation: 37 to 46 inches
Mean annual air temperature: 48 to 55 degrees F
Frost-free period: 145 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Eldean, eroded, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Eldean, Eroded

Setting

Landform: Outwash terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy outwash over sandy and gravelly outwash

Typical profile

Ap - 0 to 5 inches: loam
Bt - 5 to 24 inches: gravelly clay
BC - 24 to 32 inches: gravelly clay loam
2C - 32 to 79 inches: stratified very gravelly coarse sandy loam to extremely gravelly loamy coarse sand

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained

Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 65 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.0 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F111AY015IN - Dry Outwash Upland
Hydric soil rating: No

Minor Components

Ockley
Percent of map unit: 7 percent
Landform: Outwash terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F111AY015IN - Dry Outwash Upland
Hydric soil rating: No

Westland, drained
Percent of map unit: 3 percent
Landform: Swales, stream terraces, depressions
Landform position (three-dimensional): Tread
Down-slope shape: Linear, concave
Across-slope shape: Concave, linear
Ecological site: R111AY016IN - Outwash Mollisol
Hydric soil rating: Yes

EuA—Eldean-Urban land complex, nearly level

Map Unit Setting
National map unit symbol: 5pn3
Elevation: 400 to 1,160 feet
Mean annual precipitation: 29 to 45 inches
Mean annual air temperature: 46 to 55 degrees F
Frost-free period: 130 to 192 days
Farmland classification: Not prime farmland

Map Unit Composition
Eldean and similar soils: 45 percent
Urban land: 30 percent

Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Eldean

Setting

Landform: Outwash plains
Landform position (three-dimensional): Tread
Parent material: Loamy outwash over sandy and gravelly outwash

Typical profile

H1 - 0 to 6 inches: loam
H2 - 6 to 26 inches: gravelly clay
H3 - 26 to 32 inches: gravelly clay loam
H4 - 32 to 60 inches: stratified gravel to very gravelly loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 65 percent
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Hydrologic Soil Group: B
Ecological site: F111DY018IN - Dry Outwash Upland
Hydric soil rating: No

Minor Components

Ockley

Percent of map unit: 10 percent
Landform: Terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F111DY018IN - Dry Outwash Upland
Hydric soil rating: No

Wea

Percent of map unit: 10 percent
Landform: Kames, stream terraces, outwash terraces, outwash plains
Ecological site: R111DY021IN - Dry Outwash Mollisol

Warsaw

Percent of map unit: 5 percent
Landform: Valley trains, kames, terraces, outwash plains
Ecological site: R111DY021IN - Dry Outwash Mollisol

FdA—Fincastle silt loam, bedrock substratum, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 5pn7
Elevation: 400 to 1,020 feet
Mean annual precipitation: 30 to 45 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 140 to 190 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Fincastle and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fincastle

Setting

Landform: Rises on till plains
Landform position (three-dimensional): Rise
Parent material: Silty loess over loamy till

Typical profile

H1 - 0 to 13 inches: silt loam
H2 - 13 to 28 inches: silty clay loam
H3 - 28 to 42 inches: clay loam
H4 - 42 to 56 inches: flaggy clay loam
H5 - 56 to 66 inches: weathered bedrock

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 48 to 72 inches to paralithic bedrock
Drainage class: Somewhat poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 12 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Available water supply, 0 to 60 inches: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C
Ecological site: F111DY009IN - Wet Till Ridge
Hydric soil rating: No

Minor Components

Xenia, bedrock substratum, bedrock substratum
Percent of map unit: 5 percent
Landform: Till plains
Hydric soil rating: No

Soils with shale and limestone at 20 to 40 inches
Percent of map unit: 5 percent

HeE2—Hennepin-Miamian silt loams, 18 to 25 percent slopes, moderately eroded

Map Unit Setting
National map unit symbol: 5pnc
Elevation: 400 to 1,530 feet
Mean annual precipitation: 30 to 42 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 151 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition
Hennepin and similar soils: 60 percent
Miamian and similar soils: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hennepin

Setting
Landform: Valley sides on moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Parent material: Fine-loamy till

Typical profile
H1 - 0 to 5 inches: silt loam
H2 - 5 to 17 inches: loam
H3 - 17 to 60 inches: loam

Properties and qualities
Slope: 18 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Calcium carbonate, maximum content: 45 percent
Available water supply, 0 to 60 inches: Moderate (about 7.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: F111DY010IN - Till Ridge
Forage suitability group: Unnamed (G111DYA-2OH)
Other vegetative classification: Unnamed (G111DYA-2OH)
Hydric soil rating: No

Description of Miamian

Setting

Landform: Valley sides on moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Parent material: Loamy till

Typical profile

H1 - 0 to 4 inches: silt loam
H2 - 4 to 20 inches: clay loam
H3 - 20 to 60 inches: loam

Properties and qualities

Slope: 18 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 45 percent
Available water supply, 0 to 60 inches: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: F111DY010IN - Till Ridge
Hydric soil rating: No

Minor Components

Severely eroded soils

Percent of map unit: 10 percent

Steeper soils

Percent of map unit: 5 percent

MsC2—Miamian-Russell silt loams, 6 to 12 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2vzcn
Elevation: 560 to 1,200 feet
Mean annual precipitation: 37 to 45 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 145 to 180 days
Farmland classification: Farmland of local importance

Map Unit Composition

Miamian, eroded, and similar soils: 60 percent
Russell, eroded, and similar soils: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Miamian, Eroded

Setting

Landform: Till plains
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loess over loamy till

Typical profile

Ap - 0 to 7 inches: silt loam
2Bt - 7 to 25 inches: silty clay loam
2BCt - 25 to 30 inches: clay loam
2Cd - 30 to 79 inches: loam

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: 20 to 39 inches to densic material
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.20 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C
Ecological site: F111DY010IN - Till Ridge
Hydric soil rating: No

Description of Russell, Eroded

Setting

Landform: Till plains, hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess over loamy till

Typical profile

Ap - 0 to 7 inches: silt loam
Bt1 - 7 to 22 inches: silty clay loam
2Bt2 - 22 to 33 inches: clay loam
2BCt - 33 to 36 inches: clay loam
2Cd - 36 to 79 inches: loam

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: 34 to 59 inches to densic material
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.20 in/hr)
Depth to water table: About 42 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F111DY010IN - Till Ridge
Hydric soil rating: No

Minor Components

Losantville, severely eroded

Percent of map unit: 5 percent
Landform: Till plains
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F111DY010IN - Till Ridge
Hydric soil rating: No

Treaty

Percent of map unit: 5 percent
Landform: Drainageways

Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: F111DY008IN - Till Depression Flatwood
Hydric soil rating: Yes

MtC2—Miamian-Russell silt loams, bedrock substratum, 6 to 12 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2w0vb
Elevation: 590 to 1,040 feet
Mean annual precipitation: 37 to 45 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 145 to 180 days
Farmland classification: Farmland of local importance

Map Unit Composition

Miamian, bedrock substratum, and similar soils: 60 percent
Russell, bedrock substratum, and similar soils: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Miamian, Bedrock Substratum

Setting

Landform: Till plains, hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Silty material or loess over loamy till derived from limestone and shale over residuum weathered from limestone and shale

Typical profile

Ap - 0 to 6 inches: silt loam
2Bt - 6 to 22 inches: clay loam
2BC - 22 to 57 inches: cobbly clay loam
3Cr - 57 to 67 inches: bedrock

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: 30 to 60 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 26 to 39 inches

Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 45 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F111DY010IN - Till Ridge
Hydric soil rating: No

Description of Russell, Bedrock Substratum

Setting

Landform: Hillslopes, till plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Silty material or loess over loamy till derived from limestone and shale over residuum weathered from limestone and shale

Typical profile

Ap - 0 to 6 inches: silt loam
Bt1 - 6 to 22 inches: silty clay loam
2Bt2 - 22 to 33 inches: clay loam
2BCt - 33 to 52 inches: cobbly clay loam
3Cr - 52 to 62 inches: bedrock

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 40 to 58 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F111DY010IN - Till Ridge
Hydric soil rating: No

Minor Components

Wynn

Percent of map unit: 10 percent
Landform: Hillslopes, till plains

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F111DY010IN - Till Ridge
Hydric soil rating: No

OcA—Ockley silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2t4lh
Elevation: 400 to 1,300 feet
Mean annual precipitation: 35 to 45 inches
Mean annual air temperature: 48 to 55 degrees F
Frost-free period: 125 to 190 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Ockley and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ockley

Setting

Landform: Outwash terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess over loamy outwash over stratified sandy and gravelly outwash

Typical profile

Ap - 0 to 9 inches: silt loam
Bt1 - 9 to 20 inches: silty clay loam
2Bt2 - 20 to 64 inches: gravelly clay loam
3C - 64 to 79 inches: gravelly loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 40 to 70 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

Frequency of ponding: None
Calcium carbonate, maximum content: 50 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Ecological site: F111AY015IN - Dry Outwash Upland
Hydric soil rating: No

Minor Components

Eldean

Percent of map unit: 5 percent
Landform: Outwash terraces
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F111AY015IN - Dry Outwash Upland
Hydric soil rating: No

Fox

Percent of map unit: 5 percent
Landform: Outwash plains, terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F111AY015IN - Dry Outwash Upland
Hydric soil rating: No

Sleeth

Percent of map unit: 5 percent
Landform: Stream terraces, outwash terraces
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F111AY014IN - Outwash Upland
Hydric soil rating: No

OcB—Ockley silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2t4ln
Elevation: 400 to 1,300 feet
Mean annual precipitation: 37 to 46 inches
Mean annual air temperature: 48 to 55 degrees F

Frost-free period: 155 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Ockley and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ockley

Setting

Landform: Outwash terraces
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess over loamy outwash over sandy and gravelly outwash

Typical profile

Ap - 0 to 10 inches: silt loam
2Bt1 - 10 to 41 inches: clay loam
2Bt2 - 41 to 66 inches: gravelly clay loam
3C - 66 to 79 inches: gravelly loamy coarse sand

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 40 to 70 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 50 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F111AY015IN - Dry Outwash Upland
Hydric soil rating: No

Minor Components

Eldean

Percent of map unit: 5 percent
Landform: Outwash terraces
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F111AY015IN - Dry Outwash Upland
Hydric soil rating: No

Sleeth

Percent of map unit: 5 percent
Landform: Stream terraces, outwash terraces
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F111AY014IN - Outwash Upland
Hydric soil rating: No

Fox

Percent of map unit: 5 percent
Landform: Outwash plains, terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F111AY015IN - Dry Outwash Upland
Hydric soil rating: No

Pa—Patton silty clay loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2w0tt
Elevation: 490 to 990 feet
Mean annual precipitation: 37 to 46 inches
Mean annual air temperature: 48 to 55 degrees F
Frost-free period: 145 to 180 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Patton, drained, and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Patton, Drained

Setting

Landform: Lake plains, terraces, depressions
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Tread, flat, dip
Down-slope shape: Linear, concave
Across-slope shape: Concave
Parent material: Loamy glaciolacustrine deposits

Typical profile

Ap - 0 to 11 inches: silty clay loam
Bg1 - 11 to 31 inches: silty clay loam
Bg2 - 31 to 38 inches: silty clay loam
Cg - 38 to 60 inches: stratified silt loam to silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Ecological site: F111DY013IN - Wet Lacustrine Forest
Hydric soil rating: Yes

Minor Components

Henshaw

Percent of map unit: 8 percent
Landform: Slackwater areas on outwash terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F111DY003IN - Wet Alluvium
Hydric soil rating: No

Uniontown

Percent of map unit: 4 percent
Landform: Stream terraces, lakebeds
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F111DY004IN - Dry Alluvium
Hydric soil rating: No

Genesee

Percent of map unit: 4 percent
Landform: Natural levees on flood plains, flood-plain steps on flood plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread, rise, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F111DY004IN - Dry Alluvium
Hydric soil rating: No

Algiers

Percent of map unit: 4 percent
Landform: Flood-plain steps, terraces, flood plains

Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Convex, linear
Ecological site: F111DY003IN - Wet Alluvium
Hydric soil rating: No

Ra—Ragsdale silty clay loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2t4m5
Elevation: 360 to 1,050 feet
Mean annual precipitation: 37 to 46 inches
Mean annual air temperature: 49 to 55 degrees F
Frost-free period: 175 to 220 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Ragsdale and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ragsdale

Setting

Landform: Flats, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Loess

Typical profile

Ap - 0 to 13 inches: silty clay loam
Bt - 13 to 50 inches: silty clay loam
C - 50 to 79 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 11.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Ecological site: F111DY015IN - Wet Loess Upland
Hydric soil rating: Yes

Minor Components

Reesville

Percent of map unit: 5 percent
Landform: Till plains
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F111DY005IN - Till Depression
Hydric soil rating: No

Fincastle

Percent of map unit: 5 percent
Landform: Till plains
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F111DY009IN - Wet Till Ridge
Hydric soil rating: No

RdA—Raub silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 5pp0
Elevation: 360 to 1,000 feet
Mean annual precipitation: 30 to 45 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 150 to 210 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Raub and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Raub

Setting

Landform: Rises on till plains
Landform position (three-dimensional): Rise
Parent material: Silty loess over loamy till

Typical profile

H1 - 0 to 15 inches: silt loam
H2 - 15 to 37 inches: silty clay loam
H3 - 37 to 43 inches: clay loam
H4 - 43 to 60 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 12 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Available water supply, 0 to 60 inches: High (about 10.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: D
Ecological site: R111DY012IN - Till Ridge Prairie
Hydric soil rating: No

Minor Components

Ragsdale

Percent of map unit: 5 percent
Landform: Depressions
Ecological site: F111DY015IN - Wet Loess Upland
Hydric soil rating: Yes

Dana

Percent of map unit: 5 percent
Landform: Till plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R111DY012IN - Till Ridge Prairie
Hydric soil rating: No

Rn—Ross loam, 0 to 2 percent slopes, occasionally flooded

Map Unit Setting

National map unit symbol: 2w564
Elevation: 540 to 1,010 feet
Mean annual precipitation: 37 to 45 inches

Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 145 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Ross and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ross

Setting

Landform: Flood-plain steps
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile

Ap - 0 to 23 inches: loam
Bw - 23 to 54 inches: loam
C - 54 to 79 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 45 to 54 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 11.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B
Ecological site: F111DY004IN - Dry Alluvium
Hydric soil rating: No

Minor Components

Eel

Percent of map unit: 5 percent
Landform: Flood-plain steps
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F111DY004IN - Dry Alluvium
Hydric soil rating: No

Genesee

Percent of map unit: 5 percent

Landform: Natural levees on flood-plain steps
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F111DY004IN - Dry Alluvium
Hydric soil rating: No

Sloan

Percent of map unit: 5 percent
Landform: Flood-plain steps, backswamps, meander scars
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F111DY003IN - Wet Alluvium
Hydric soil rating: Yes

RtB—Russell silt loam, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2w0vz
Elevation: 540 to 1,170 feet
Mean annual precipitation: 37 to 46 inches
Mean annual air temperature: 48 to 55 degrees F
Frost-free period: 145 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Russell and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Russell

Setting

Landform: Till plains
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess over loamy till

Typical profile

Ap - 0 to 8 inches: silt loam
Bt1 - 8 to 13 inches: silty clay loam
Bt2 - 13 to 28 inches: silty clay loam
2Bt3 - 28 to 52 inches: clay loam
2BCt - 52 to 58 inches: loam
2Cd - 58 to 79 inches: loam

Properties and qualities

Slope: 2 to 6 percent

Depth to restrictive feature: 42 to 60 inches to densic material
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.20 in/hr)
Depth to water table: About 40 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F111DY010IN - Till Ridge
Hydric soil rating: No

Minor Components

Xenia

Percent of map unit: 5 percent
Landform: Till plains
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F111DY010IN - Till Ridge
Hydric soil rating: No

Fincastle

Percent of map unit: 5 percent
Landform: Till plains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F111DY009IN - Wet Till Ridge
Hydric soil rating: No

Cyclone, drained

Percent of map unit: 3 percent
Landform: Swales, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: F111DY008IN - Till Depression Flatwood
Hydric soil rating: Yes

Williamstown

Percent of map unit: 2 percent
Landform: Till plains, recessionial moraines, water-lain moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope
Down-slope shape: Convex, linear

Across-slope shape: Linear, convex
Ecological site: F111DY010IN - Till Ridge
Hydric soil rating: No

RvB2—Russell-Miamian silt loams, 2 to 6 percent slopes, moderately eroded

Map Unit Setting

National map unit symbol: 5pp7
Elevation: 360 to 1,530 feet
Mean annual precipitation: 35 to 46 inches
Mean annual air temperature: 50 to 57 degrees F
Frost-free period: 150 to 210 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Russell and similar soils: 50 percent
Miamian and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Russell

Setting

Landform: Ridges on till plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Side slope
Parent material: Silty loess over loamy till

Typical profile

H1 - 0 to 7 inches: silt loam
H2 - 7 to 22 inches: silty clay loam
H3 - 22 to 36 inches: clay loam
H4 - 36 to 60 inches: loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C
Ecological site: F111DY010IN - Till Ridge
Hydric soil rating: No

Description of Miamian

Setting

Landform: Ridges on till plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Parent material: Silty loess over loamy till

Typical profile

H1 - 0 to 5 inches: silt loam
H2 - 5 to 24 inches: clay loam
H3 - 24 to 60 inches: loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 45 percent
Available water supply, 0 to 60 inches: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F111DY010IN - Till Ridge
Forage suitability group: Unnamed (G111BYA-1OH)
Other vegetative classification: Unnamed (G111BYA-1OH)
Hydric soil rating: No

Minor Components

Soils with bedrock at about 60 inches

Percent of map unit: 10 percent

Xenia

Percent of map unit: 5 percent
Landform: Till plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F111DY010IN - Till Ridge
Hydric soil rating: No

Severely eroded soils with calcareous surface layer

Percent of map unit: 5 percent

RwB2—Russell-Miamian silt loams, bedrock substratum, 2 to 6 percent slopes, moderately eroded

Map Unit Setting

National map unit symbol: 5pp9
Elevation: 360 to 1,530 feet
Mean annual precipitation: 35 to 45 inches
Mean annual air temperature: 50 to 57 degrees F
Frost-free period: 150 to 210 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Russell, bedrock substratum, and similar soils: 50 percent
Miamian and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Russell, Bedrock Substratum

Setting

Landform: Ridges on till plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Side slope
Parent material: Silty loess over till

Typical profile

H1 - 0 to 7 inches: silt loam
H2 - 7 to 22 inches: silty clay loam
H3 - 22 to 36 inches: clay loam
H4 - 36 to 60 inches: stony clay loam
H5 - 60 to 70 inches: weathered bedrock

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 48 to 72 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 42 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: D
Ecological site: F111DY010IN - Till Ridge
Hydric soil rating: No

Description of Miamian

Setting

Landform: Ridges on till plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Side slope
Parent material: Silty loess over loamy till

Typical profile

H1 - 0 to 5 inches: silt loam
H2 - 5 to 23 inches: clay loam
H3 - 23 to 60 inches: stony clay loam
H4 - 60 to 70 inches: weathered bedrock

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 48 to 72 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 36 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 45 percent
Available water supply, 0 to 60 inches: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D
Ecological site: F111DY010IN - Till Ridge
Forage suitability group: Unnamed (G111BYA-1OH)
Other vegetative classification: Unnamed (G111BYA-1OH)
Hydric soil rating: No

Minor Components

Wynn

Percent of map unit: 15 percent
Landform: Till plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F111DY010IN - Till Ridge
Hydric soil rating: No

Russell

Percent of map unit: 2 percent
Landform: Till plains
Ecological site: F111DY010IN - Till Ridge

Miamian

Percent of map unit: 1 percent
Landform: Till plains
Ecological site: F111DY010IN - Till Ridge

Xenia

Percent of map unit: 1 percent
Landform: Till plains
Ecological site: F111DY010IN - Till Ridge
Hydric soil rating: No

Severely eroded soils with a calcareous surface layer

Percent of map unit: 1 percent

St—Stonelick fine sandy loam

Map Unit Setting

National map unit symbol: 5ppf
Elevation: 480 to 940 feet
Mean annual precipitation: 35 to 45 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 153 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Stonelick and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Stonelick

Setting

Landform: Flood plains
Parent material: Coarse-loamy alluvium

Typical profile

H1 - 0 to 9 inches: fine sandy loam
H2 - 9 to 66 inches: stratified loamy sand to silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent

Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: A
Ecological site: F111DY004IN - Dry Alluvium
Hydric soil rating: No

Minor Components

Soils with a calcareous surface layer

Percent of map unit: 5 percent

Genesee

Percent of map unit: 5 percent
Landform: Flood plains
Ecological site: F111DY004IN - Dry Alluvium

Ud—Udorthents

Map Unit Setting

National map unit symbol: 5ppj
Elevation: 540 to 900 feet
Mean annual precipitation: 35 to 45 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 160 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Properties and qualities

Depth to restrictive feature: More than 80 inches
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Uf—Udorthents and Dumps

Map Unit Setting

National map unit symbol: 5ppk
Elevation: 560 to 890 feet
Mean annual precipitation: 35 to 45 inches

Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 160 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition
Dumps: 51 percent
Udorthents and similar soils: 49 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Properties and qualities
Depth to restrictive feature: More than 80 inches
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

W—Water

Map Unit Composition
Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

WbA—Warsaw loam, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: 5ppr
Elevation: 400 to 950 feet
Mean annual precipitation: 30 to 45 inches
Mean annual air temperature: 50 to 57 degrees F
Frost-free period: 140 to 210 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Warsaw and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Warsaw

Setting
Landform: Stream terraces
Landform position (three-dimensional): Tread
Parent material: Fine-loamy outwash over sandy and gravelly outwash

Typical profile
H1 - 0 to 17 inches: loam
H2 - 17 to 29 inches: sandy clay loam
H3 - 29 to 32 inches: gravelly sandy clay loam
H4 - 32 to 60 inches: stratified sand to very gravelly loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 24 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Available water supply, 0 to 60 inches: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: B
Ecological site: R111DY021IN - Dry Outwash Mollisol
Forage suitability group: Unnamed (G111DYA-1OH)
Other vegetative classification: Unnamed (G111DYA-1OH)
Hydric soil rating: No

Minor Components

Wea

Percent of map unit: 5 percent
Landform: Outwash terraces, kames, stream terraces, outwash plains
Ecological site: R111DY021IN - Dry Outwash Mollisol

Gently sloping soils

Percent of map unit: 5 percent

WuB—Wynn-Urban land complex, gently sloping

Map Unit Setting

National map unit symbol: 5ppv
Elevation: 880 to 1,040 feet
Mean annual precipitation: 35 to 45 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 160 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Wynn and similar soils: 55 percent
Urban land: 30 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wynn

Setting

Landform: Ridges on till plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Parent material: Silty loess over silty and clayey till over clayey residuum weathered from limestone and shale

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 16 inches: silty clay loam
H3 - 16 to 33 inches: clay
H4 - 33 to 43 inches: weathered bedrock

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 45 percent
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Hydrologic Soil Group: C
Ecological site: F111DY010IN - Till Ridge
Forage suitability group: Unnamed (G111DYF-1OH)
Other vegetative classification: Unnamed (G111DYF-1OH)
Hydric soil rating: No

Minor Components

Russell, bedrock substratum, bedrock substratum

Percent of map unit: 5 percent
Landform: Till plains

Dana, bedrock substratum

Percent of map unit: 5 percent
Landform: Till plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Miamian, bedrock substratum, bedrock substratum

Percent of map unit: 5 percent
Landform: Till plains

WyB2—Wynn silt loam, 2 to 6 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2xqyg
Elevation: 880 to 1,040 feet
Mean annual precipitation: 37 to 45 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 145 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Wynn, eroded, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wynn, Eroded

Setting

Landform: Till plains
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loess over loamy till over residuum weathered from limestone and shale

Typical profile

Ap - 0 to 5 inches: silt loam
Bt - 5 to 15 inches: silty clay loam
2Bt2 - 15 to 25 inches: clay loam
2BC - 25 to 29 inches: clay
3Cr - 29 to 39 inches: bedrock

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 28 to 33 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C
Ecological site: F111DY010IN - Till Ridge
Hydric soil rating: No

Minor Components

Millsdale
Percent of map unit: 7 percent
Landform: Drainageways, stream terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F111DY008IN - Till Depression Flatwood
Hydric soil rating: Yes

Miamian, eroded
Percent of map unit: 3 percent
Landform: Till plains, recessionial moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve, nose slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Ecological site: F111DY010IN - Till Ridge
Hydric soil rating: No

WyC2—Wynn silt loam, 6 to 12 percent slopes, eroded

Map Unit Setting
National map unit symbol: 2xqyh
Elevation: 880 to 1,040 feet
Mean annual precipitation: 37 to 45 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 145 to 180 days
Farmland classification: Farmland of local importance

Map Unit Composition
Wynn, eroded, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wynn, Eroded

Setting
Landform: Till plains
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex

Parent material: Loess over loamy till over residuum weathered from limestone and shale

Typical profile

Ap - 0 to 8 inches: silt loam
Bt1 - 8 to 12 inches: silty clay loam
2Bt2 - 12 to 16 inches: silty clay loam
2Bt3 - 16 to 26 inches: clay
2BC - 26 to 33 inches: clay
3Cr - 33 to 43 inches: bedrock

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: 32 to 34 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 45 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F111DY010IN - Till Ridge
Hydric soil rating: No

Minor Components

Miamian

Percent of map unit: 5 percent
Landform: Till plains
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F111DY010IN - Till Ridge
Hydric soil rating: No

Eden, eroded

Percent of map unit: 5 percent
Landform: Till plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Nose slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F111DY023IN - Moderately Deep Restricted
Hydric soil rating: No

XeB—Xenia silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2t98y
Elevation: 400 to 1,020 feet
Mean annual precipitation: 37 to 45 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 145 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Xenia and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Xenia

Setting

Landform: Till plains
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess over loamy till

Typical profile

Ap - 0 to 9 inches: silt loam
Bt1 - 9 to 29 inches: silty clay loam
2Bt2 - 29 to 40 inches: clay loam
2BCt - 40 to 58 inches: loam
2Cd - 58 to 79 inches: loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 40 to 60 inches to densic material
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.20 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C

Ecological site: F111DY010IN - Till Ridge
Hydric soil rating: No

Minor Components

Fincastle
Percent of map unit: 5 percent
Landform: Till plains
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F111DY009IN - Wet Till Ridge
Hydric soil rating: No

Russell
Percent of map unit: 5 percent
Landform: Till plains
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F111DY010IN - Till Ridge
Hydric soil rating: No

Cyclone
Percent of map unit: 5 percent
Landform: Till plains, depressions, flats
Landform position (two-dimensional): Toeslope, summit
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Linear, concave
Ecological site: F111DY008IN - Till Depression Flatwood
Hydric soil rating: Yes

XfB—Xenia silt loam, bedrock substratum, 2 to 6 percent slopes

Map Unit Setting
National map unit symbol: 5pq5
Elevation: 680 to 1,020 feet
Mean annual precipitation: 35 to 45 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 150 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Xenia and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Xenia

Setting

Landform: Rises on till plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Parent material: Silty loess over till over

Typical profile

H1 - 0 to 7 inches: silt loam
H2 - 7 to 33 inches: silty clay loam
H3 - 33 to 40 inches: clay loam
H4 - 40 to 55 inches: flaggy clay loam
H5 - 55 to 65 inches: weathered bedrock

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 48 to 72 inches to paralithic bedrock
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 24 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 50 percent
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F111DY010IN - Till Ridge
Forage suitability group: Unnamed (G111DYA-6OH)
Other vegetative classification: Unnamed (G111DYA-6OH)
Hydric soil rating: No

Minor Components

Soils greater than 60 inches to rock

Percent of map unit: 5 percent

Fincastle, bedrock substratum, bedrock substratum

Percent of map unit: 5 percent
Landform: Till plains
Hydric soil rating: No

Russell, bedrock substratum, bedrock substratum

Percent of map unit: 3 percent
Landform: Till plains

Miamian, bedrock substratum, bedrock substratum

Percent of map unit: 1 percent
Landform: Till plains

Ragsdale

Percent of map unit: 1 percent
Landform: Drainageways

Ecological site: F111DY015IN - Wet Loess Upland
Hydric soil rating: Yes

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

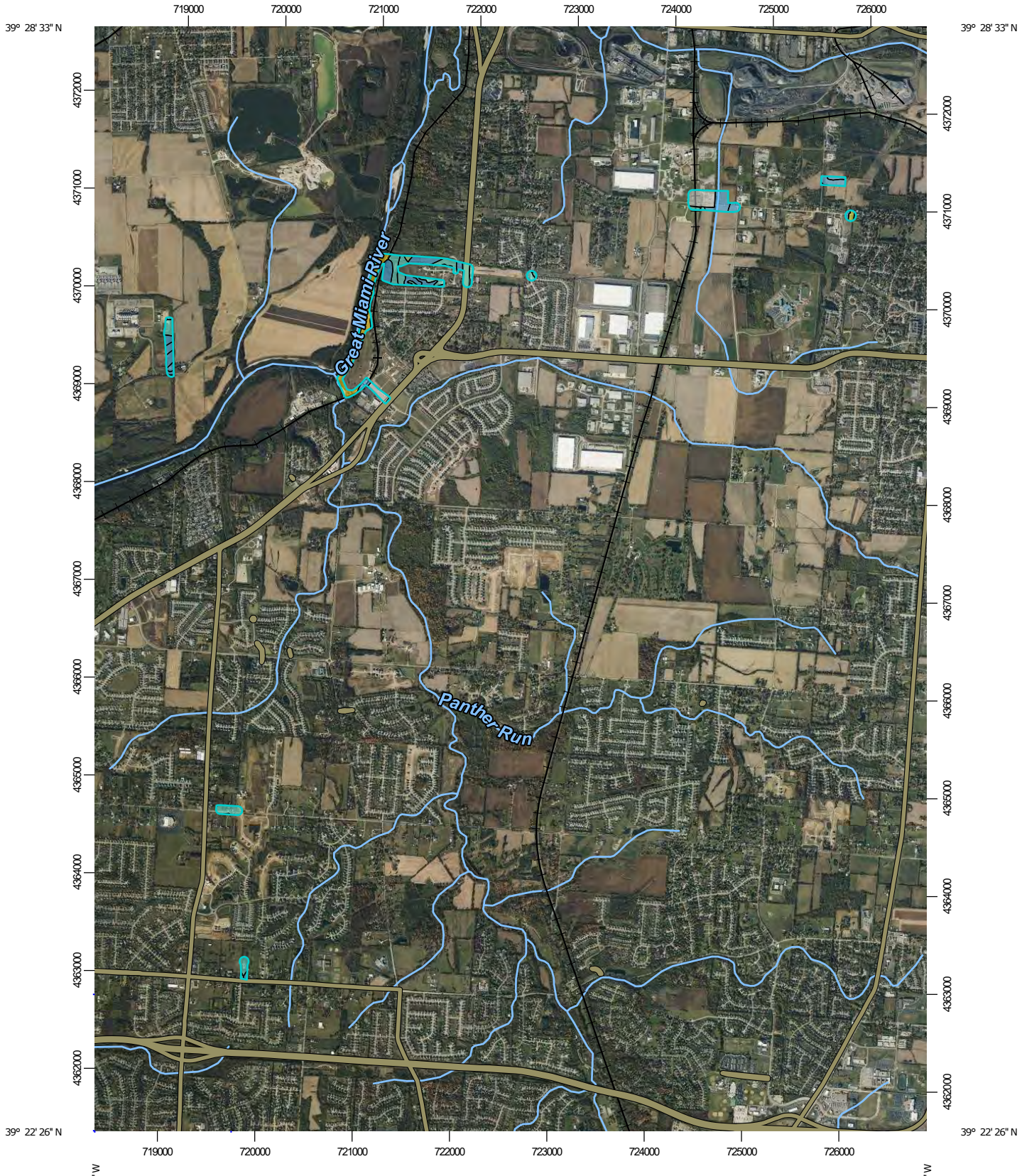
Soil Erosion Factors

Soil Erosion Factors are soil properties and interpretations used in evaluating the soil for potential erosion. Example soil erosion factors can include K factor for the whole soil or on a rock free basis, T factor, wind erodibility group and wind erodibility index.

Wind Erodibility Group (Butler Cnty Ph I C210 & LP07)

A wind erodibility group (WEG) consists of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

Map—Wind Erodibility Group (Butler Cnty Ph I C210 & LP07)



Map Scale: 1:55,000 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 500 1000 2000 3000

Feet
0 2500 5000 10000 15000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

1
2
3
4
4L
5
6
7
8
Not rated or not available

Soil Rating Lines

1
2
3
4
4L
5
6
7
8
Not rated or not available

Soil Rating Points

1
2
3
4
4L
5
6
7
8
Not rated or not available

Water Features

Streams and Canals

Transportation

Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Butler County, Ohio
Survey Area Data: Version 21, Sep 1, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 28, 2019—Dec 5, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Wind Erodibility Group (Butler Cnty Ph I C210 & LP07)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Bt	Brenton silt loam	6	2.3	1.9%
CdD2	Casco and Rodman gravelly loams, 6 to 18 percent slopes, moderately eroded	6	4.6	3.7%
DaB	Dana silt loam, 2 to 6 percent slopes	5	3.4	2.7%
EcE2	Eden silty clay loam, 15 to 25 percent slopes, moderately eroded	4	1.4	1.1%
ElA	Eldean loam, 0 to 2 percent slopes	6	6.3	5.0%
ElB2	Eldean loam, 2 to 6 percent slopes, eroded	6	1.7	1.4%
EuA	Eldean-Urban land complex, nearly level		4.3	3.4%
FdA	Fincastle silt loam, bedrock substratum, 0 to 2 percent slopes	5	0.0	0.0%
HeE2	Hennepin-Miamian silt loams, 18 to 25 percent slopes, moderately eroded	4L	0.7	0.6%
MsC2	Miamian-Russell silt loams, 6 to 12 percent slopes, eroded	6	8.2	6.6%
MtC2	Miamian-Russell silt loams, bedrock substratum, 6 to 12 percent slopes, eroded	6	0.2	0.1%
OcA	Ockley silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	5	5.2	4.2%
OcB	Ockley silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes	5	4.1	3.3%
Pa	Patton silty clay loam, 0 to 2 percent slopes	6	8.1	6.5%
Ra	Ragsdale silty clay loam, 0 to 2 percent slopes	6	0.3	0.3%
RdA	Raub silt loam, 0 to 2 percent slopes	6	0.6	0.5%
Rn	Ross loam, 0 to 2 percent slopes, occasionally flooded	6	0.0	0.0%
RtB	Russell silt loam, 2 to 6 percent slopes	5	4.1	3.3%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
RvB2	Russell-Miamian silt loams, 2 to 6 percent slopes, moderately eroded	5	6.8	5.4%
RwB2	Russell-Miamian silt loams, bedrock substratum, 2 to 6 percent slopes, moderately eroded	5	9.8	7.8%
St	Stonelick fine sandy loam	3	23.1	18.4%
Ud	Udorthents		11.4	9.1%
Uf	Udorthents and Dumps		0.2	0.1%
W	Water		2.3	1.8%
WbA	Warsaw loam, 0 to 3 percent slopes	6	4.7	3.8%
WuB	Wynn-Urban land complex, gently sloping	6	0.7	0.6%
WyB2	Wynn silt loam, 2 to 6 percent slopes, eroded	6	1.3	1.1%
WyC2	Wynn silt loam, 6 to 12 percent slopes, eroded	6	5.4	4.3%
XeB	Xenia silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes	5	2.4	2.0%
XfB	Xenia silt loam, bedrock substratum, 2 to 6 percent slopes	5	1.5	1.2%
Totals for Area of Interest			**125.1**	**100.0%**

Rating Options—Wind Erodibility Group (Butler Cnty Ph I C210 & LP07)

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

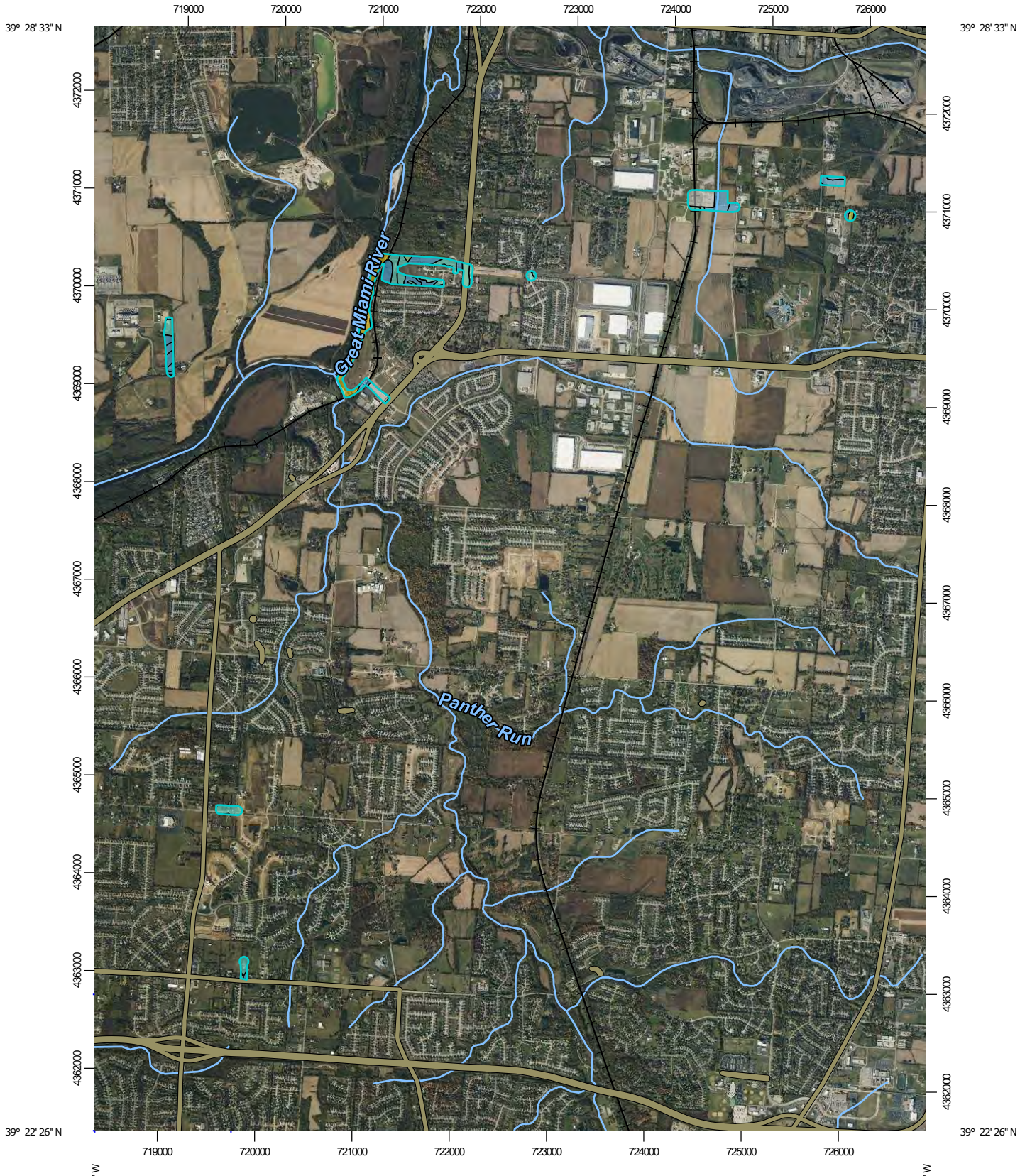
Tie-break Rule: Lower

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

Wind Erodibility Group (Butler Cnty Ph I C210 & LP07)

A wind erodibility group (WEG) consists of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

Map—Wind Erodibility Group (Butler Cnty Ph I C210 & LP07)



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

1
2
3
4
4L
5
6
7
8
Not rated or not available

Soil Rating Lines

1
2
3
4
4L
5
6
7
8
Not rated or not available

Soil Rating Points

1
2
3
4
4L
5
6
7
8
Not rated or not available

Water Features

Streams and Canals

Transportation

Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Butler County, Ohio
Survey Area Data: Version 21, Sep 1, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 28, 2019—Dec 5, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Wind Erodibility Group (Butler Cnty Ph I C210 & LP07)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Bt	Brenton silt loam	6	2.3	1.9%
CdD2	Casco and Rodman gravelly loams, 6 to 18 percent slopes, moderately eroded	6	4.6	3.7%
DaB	Dana silt loam, 2 to 6 percent slopes	5	3.4	2.7%
EcE2	Eden silty clay loam, 15 to 25 percent slopes, moderately eroded	4	1.4	1.1%
ElA	Eldean loam, 0 to 2 percent slopes	6	6.3	5.0%
ElB2	Eldean loam, 2 to 6 percent slopes, eroded	6	1.7	1.4%
EuA	Eldean-Urban land complex, nearly level		4.3	3.4%
FdA	Fincastle silt loam, bedrock substratum, 0 to 2 percent slopes	5	0.0	0.0%
HeE2	Hennepin-Miamian silt loams, 18 to 25 percent slopes, moderately eroded	4L	0.7	0.6%
MsC2	Miamian-Russell silt loams, 6 to 12 percent slopes, eroded	6	8.2	6.6%
MtC2	Miamian-Russell silt loams, bedrock substratum, 6 to 12 percent slopes, eroded	6	0.2	0.1%
OcA	Ockley silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	5	5.2	4.2%
OcB	Ockley silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes	5	4.1	3.3%
Pa	Patton silty clay loam, 0 to 2 percent slopes	6	8.1	6.5%
Ra	Ragsdale silty clay loam, 0 to 2 percent slopes	6	0.3	0.3%
RdA	Raub silt loam, 0 to 2 percent slopes	6	0.6	0.5%
Rn	Ross loam, 0 to 2 percent slopes, occasionally flooded	6	0.0	0.0%
RtB	Russell silt loam, 2 to 6 percent slopes	5	4.1	3.3%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
RvB2	Russell-Miamian silt loams, 2 to 6 percent slopes, moderately eroded	5	6.8	5.4%
RwB2	Russell-Miamian silt loams, bedrock substratum, 2 to 6 percent slopes, moderately eroded	5	9.8	7.8%
St	Stonelick fine sandy loam	3	23.1	18.4%
Ud	Udorthents		11.4	9.1%
Uf	Udorthents and Dumps		0.2	0.1%
W	Water		2.3	1.8%
WbA	Warsaw loam, 0 to 3 percent slopes	6	4.7	3.8%
WuB	Wynn-Urban land complex, gently sloping	6	0.7	0.6%
WyB2	Wynn silt loam, 2 to 6 percent slopes, eroded	6	1.3	1.1%
WyC2	Wynn silt loam, 6 to 12 percent slopes, eroded	6	5.4	4.3%
XeB	Xenia silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes	5	2.4	2.0%
XfB	Xenia silt loam, bedrock substratum, 2 to 6 percent slopes	5	1.5	1.2%
Totals for Area of Interest			**125.1**	**100.0%**

Rating Options—Wind Erodibility Group (Butler Cnty Ph I C210 & LP07)

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Lower

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group (Butler Cnty Ph I C210 & LP07)

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

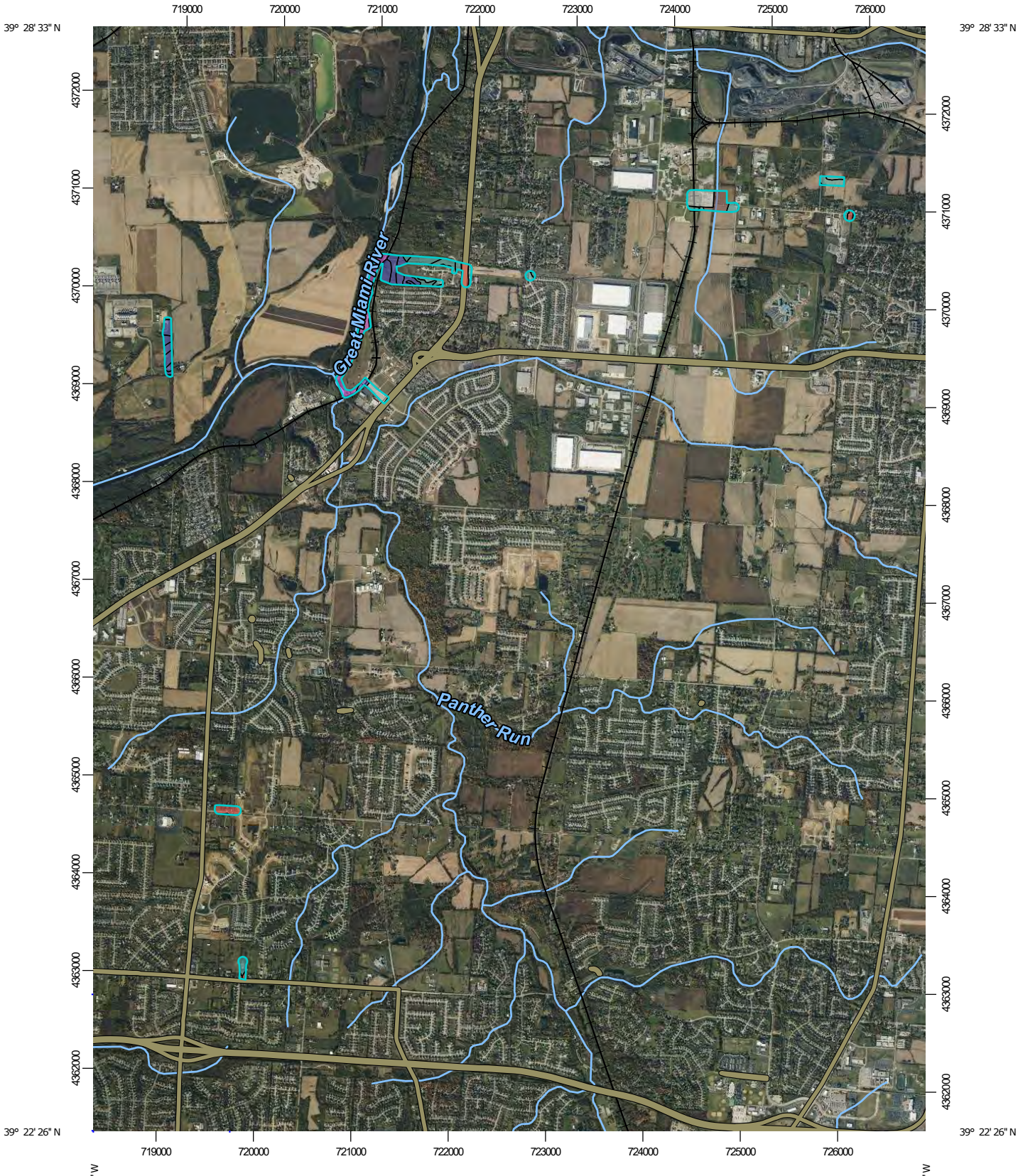
Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Map—Hydrologic Soil Group (Butler Cnty Ph I C210 & LP07)



MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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Soil Survey Area: Butler County, Ohio
Survey Area Data: Version 21, Sep 1, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 28, 2019—Dec 5, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group (Butler Cnty Ph I C210 & LP07)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Bt	Brenton silt loam	C	2.3	1.9%
CdD2	Casco and Rodman gravelly loams, 6 to 18 percent slopes, moderately eroded	B	4.6	3.7%
DaB	Dana silt loam, 2 to 6 percent slopes	C	3.4	2.7%
EcE2	Eden silty clay loam, 15 to 25 percent slopes, moderately eroded	D	1.4	1.1%
ElA	Eldean loam, 0 to 2 percent slopes	B	6.3	5.0%
ElB2	Eldean loam, 2 to 6 percent slopes, eroded	B	1.7	1.4%
EuA	Eldean-Urban land complex, nearly level		4.3	3.4%
FdA	Fincastle silt loam, bedrock substratum, 0 to 2 percent slopes	C	0.0	0.0%
HeE2	Hennepin-Miamian silt loams, 18 to 25 percent slopes, moderately eroded	C	0.7	0.6%
MsC2	Miamian-Russell silt loams, 6 to 12 percent slopes, eroded	C	8.2	6.6%
MtC2	Miamian-Russell silt loams, bedrock substratum, 6 to 12 percent slopes, eroded	C	0.2	0.1%
OcA	Ockley silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	B	5.2	4.2%
OcB	Ockley silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes	B	4.1	3.3%
Pa	Patton silty clay loam, 0 to 2 percent slopes	B/D	8.1	6.5%
Ra	Ragsdale silty clay loam, 0 to 2 percent slopes	B/D	0.3	0.3%
RdA	Raub silt loam, 0 to 2 percent slopes	D	0.6	0.5%
Rn	Ross loam, 0 to 2 percent slopes, occasionally flooded	B	0.0	0.0%
RtB	Russell silt loam, 2 to 6 percent slopes	B	4.1	3.3%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
RvB2	Russell-Miamian silt loams, 2 to 6 percent slopes, moderately eroded	C	6.8	5.4%
RwB2	Russell-Miamian silt loams, bedrock substratum, 2 to 6 percent slopes, moderately eroded	D	9.8	7.8%
St	Stonelick fine sandy loam	A	23.1	18.4%
Ud	Udorthents		11.4	9.1%
Uf	Udorthents and Dumps		0.2	0.1%
W	Water		2.3	1.8%
WbA	Warsaw loam, 0 to 3 percent slopes	B	4.7	3.8%
WuB	Wynn-Urban land complex, gently sloping	C	0.7	0.6%
WyB2	Wynn silt loam, 2 to 6 percent slopes, eroded	C	1.3	1.1%
WyC2	Wynn silt loam, 6 to 12 percent slopes, eroded	C	5.4	4.3%
XeB	Xenia silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes	C	2.4	2.0%
XfB	Xenia silt loam, bedrock substratum, 2 to 6 percent slopes	C	1.5	1.2%
Totals for Area of Interest			**125.1**	**100.0%**

Rating Options—Hydrologic Soil Group (Butler Cnty Ph I C210 & LP07)

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

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ATTACHMENT B

USACE WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 9/3/2020

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP01

Investigator(s): J. Lewis, C. Clair | Section, Township, Range: 002, 2E, 3N

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None

Slope (%): 3 | Lat: 39.389827 | Long: -84.447231 | Datum: NAD83

Soil Map Unit Name: Dana silt loam, 2 to 6 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 ____, 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:
This upland sample point is representative of an existing linear herbaceous right-of-way.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pyrus calleryana	10	Yes	UPL
2. Cornus florida	5	Yes	FACU
3.			
4.			
5.			
	15	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5' Radius)			
1. Sorghum halepense	30	Yes	FACU
2. Ambrosia artemisiifolia	20	Yes	FACU
3. Trifolium repens	15	No	FACU
4. Daucus carota	15	No	UPL
5. Toxicodendron radicans	10	No	FAC
6.			
7.			
8.			
9.			
10.			
	90	= Total Cover	
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.

SOIL

Sampling Point: KLF_SP(

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/3	100						
3-20	10YR 4/4	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 9/3/2020

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP02

Investigator(s): J. Lewis, C. Clair | Section, Township, Range: 003, 2E, 3N

Landform (hillslope, terrace, etc.): Plain | Local relief (concave, convex, none): N/A

Slope (%): 2 | Lat: 39.403794 | Long: -84.448117 | Datum: NAD83

Soil Map Unit Name: Russell-Miamian silt loams, bedrock substratum, 2 to 6 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 ____, 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 ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This upland sample point is representative of where KLF_Stream01 dissipates.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5' Radius)			
1. Setaria pumila	35	Yes	FAC
2. Echinochloa crus-galli	25	Yes	FACW
3. Carex lurida	15	No	OBL
4. Cyperus esculentus	15	No	FACW
5. Rumex crispus	10	No	FAC
6. Ambrosia artemisiifolia	10	No	FACU
7.			
8.			
9.			
10.			
	110	= Total Cover	
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.

SOIL

Sampling Point: KLF_SP(

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/3	95	7.5YR 5/6	5	C	M	SiCL	
12+								Rock Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.
Multiple attempts were made to excavate beyond 12", each attempt resulting in rock refusal.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 9/10/2020

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP03

Investigator(s): J. Lewis, C. Clair | Section, Township, Range: 036, 3E, 3N

Landform (hillslope, terrace, etc.): Ridge | Local relief (concave, convex, none): None

Slope (%): 3 | Lat: 39.453401 | Long: -84.420145 | Datum: NAD83

Soil Map Unit Name: Xenia silt loam, bedrock substratum, 2 to 6 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 ___, 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:
This upland sample point was taken at the edge of an overhead transmission line right-of-way and mature soybean field. The upland sample point was taken in an area adjacent to KLF_Wetland01, outside of the wetland boundary.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5' Radius)			
1. Glycine max	30	Yes	UPL
2. Rubus flagellaris	20	Yes	FACU
3. Setaria pumila	15	Yes	FAC
4. Cirsium arvense	15	Yes	FACU
5. Toxicodendron radicans	10	No	FAC
6. Cichorium intybus	5	No	FACU
7. Ambrosia trifida	5	No	FAC
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.

SOIL

Sampling Point: KLF_SP(

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/3	100					SiL	
6+								Compacted Soils

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators. Multiple attempts were made to excavate beyond 6", each attempt resulting in refusal due to compacted soils.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 9/10/2020

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP04

Investigator(s): J. Lewis, C. Clair | Section, Township, Range: 036, 3E, 3N

Landform (hillslope, terrace, etc.): Roadside Swale | Local relief (concave, convex, none): concave

Slope (%): 5 | Lat: 39.452578 | Long: -84.420535 | Datum: NAD83

Soil Map Unit Name: Russell-Miamian silt loams, bedrock substratum, 2 to 6 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 ____, 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:
This sample point is representative of KLF_Wetland01, a PEM wetland. The wetland is confined within a roadside swale and parallels Hamilton Middletown Road. Vegetation is routinely cut and stubble height was approximately 3 inches.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ~4' x 60')	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ~4' x 30')			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: ~4' x 10')			
1. Echinochloa crus-galli	35	Yes	FACW
2. Eleocharis obtusa	25	Yes	OBL
3. Cyperus bipartitus	20	Yes	OBL
4. Grass sp.	15	N/A	N/A
5. Juncus effusus	5	No	OBL
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ~4' x 60')			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation. Strata plot sizes were modified to only include species within the wetland boundary. A grass species could not be identified due to lack of distinguishable features.

SOIL

Sampling Point: KLF_SP(

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/1	90	7.5YR 5/8	10	C	M, PL	SiL	
4-20	10YR 4/1	100					SiL	Coarse Gravel Throughout

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- [ ] Dark Surface (S7)
- [ ] Iron-Manganese Masses (F12)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes [x] No [ ]

Remarks:

The parameters for hydric soil were met at the time of the investigation.

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)
- [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 [ ] No [x] Depth (inches): _____

Wetland Hydrology Present? Yes [x] No [ ]

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

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 9/10/2020

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP05

Investigator(s): J. Lewis, C. Clair | Section, Township, Range: 030, 3E, 3N

Landform (hillslope, terrace, etc.): Plain | Local relief (concave, convex, none): N/A

Slope (%): 2 | Lat: 39.453083 | Long: -84.413183 | Datum: NAD83

Soil Map Unit Name: Xenia silt loam, Southern Ohio Till Plain, 2 to 6 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 ___, 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:
This upland sample point is representative of an existing residential powerline right-of-way.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Trifolium repens	30	Yes	FACU
2. Plantago lanceolata	30	Yes	FACU
3. Taraxacum officinale	20	Yes	FACU
4. Grass spp.	20	N/A	N/A
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.
A grass species could not be identified due to lack of distinguishable features.

SOIL

Sampling Point: KLF_SP(

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/3	100					SiCL	
8+								Rock Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.
Multiple attempts were made to excavate beyond 8", each attempt resulting in rock refusal.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 9/10/2020

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP06

Investigator(s): J. Lewis, C. Clair | Section, Township, Range: 017, 1N, 4E

Landform (hillslope, terrace, etc.): Plain | Local relief (concave, convex, none): N/A

Slope (%): 2 | Lat: 39.448195 | Long: -84.456398 | Datum: NAD83

Soil Map Unit Name: Russell silt loam, 2 to 6 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 ____, 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:
This sample point serves as a representation of the upland areas that surround KLF_Wetland02. The sample point is located outside of the depression that holds the wetland within an open field.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Trifolium repens	30	Yes	FACU
2. Asclepias syriaca	30	Yes	FACU
3. Dipsacus fullonum	20	Yes	FACU
4. Grass spp.	20	N/A	N/A
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.
A grass species could not be identified due to lack of distinguishable features.

SOIL

Sampling Point: KLF_SP(

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/3	100					SiCL	
8+								Rock Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.
Multiple attempts were made to excavate beyond 8", each attempt resulting in rock refusal.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 9/10/2020

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP07

Investigator(s): J. Lewis, C. Clair | Section, Township, Range: 017, 1N, 4E

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

Slope (%): 1 | Lat: 39.44821 | Long: -84.45627 | Datum: NAD83

Soil Map Unit Name: Russell silt loam, 2 to 6 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 ____, 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:
This sample point is representative of KLF_Wetland02, a PEM wetland. The wetland is located in a depressional area within an open field adjacent to existing facilities.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Echinochloa crus-galli	25	Yes	FACW
2. Setaria pumila	25	Yes	FAC
3. Grass spp.	20	N/A	N/A
4. Cyperus esculentus	15	No	FACW
5. Scirpus atrovirens	15	No	OBL
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.
A grass species could not be identified due to lack of distinguishable features.

SOIL

Sampling Point: KLF_SP(

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/2	95	7.5YR 5/6	5	C	M, PL	SiCL	
8+								Rock Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No ____

Remarks:

The parameters for hydric soil were met at the time of the investigation.
Multiple attempts were made to excavate beyond 8", each attempt resulting in rock refusal.

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)
- 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 ___ No X Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 9/10/2020

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP08

Investigator(s): J. Lewis, C. Clair | Section, Township, Range: 017, 1N, 4E

Landform (hillslope, terrace, etc.): Floodplain (Non-FEMA mapped) | Local relief (concave, convex, none): Concave

Slope (%): 3 | Lat: 39.448971 | Long: -84.456039 | Datum: NAD83

Soil Map Unit Name: Ragsdale silty clay loam, 0 to 2 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 ____, 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:
This sample point is representative of KLF_Wetland03, a PEM wetland. The wetland is located in the non-FEMA mapped floodplain of KLF_Stream03 (Perennial). The eastern border of the wetland directly abuts the stream.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ~8' x 60')	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ~8' x 30')			
1. Salix nigra	15	Yes	OBL
2.			
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: ~8' x 10')			
1. Eupatorium perfoliatum	25	Yes	OBL
2. Typha angustifolia	20	Yes	OBL
3. Scirpus atrovirens	20	Yes	OBL
4. Persicaria pensylvanica	15	N/A	FACW
5. Bidens frondosa	10	No	FACW
6. Dipsacus fullonum	5	No	FACU
7. Schoenoplectus tabernaemontani	5	No	OBL
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ~8' x 60')			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation. Strata plot sizes were modified to only include species within the wetland boundary.

SOIL

Sampling Point: KLF_SP(

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 4/1	90	7.5YR 5/8	10	C	M, PL	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- [ ] Dark Surface (S7)
- [ ] Iron-Manganese Masses (F12)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes [x] No [ ]

Remarks:

The parameters for hydric soil were met at the time of the investigation.

HYDROLOGY

Wetland Hydrology Indicators:

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

- [ ] Surface Water (A1)
- [x] 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 [x] No [ ] Depth (inches): 10

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:

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 9/10/2020

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP09

Investigator(s): J. Lewis, C. Clair | Section, Township, Range: 017, 1N, 4E

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

Slope (%): 1 | Lat: 39.448985 | Long: -84.455923 | Datum: NAD83

Soil Map Unit Name: Ragsdale silty clay loam, 0 to 2 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 ____, 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:
This sample point is representative of KLF_Wetland04, a PEM wetland. The wetland is located in a depressional area within the riparian area of KLF_Stream05. The wetland is directly connected to the stream.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Persicaria hydropiper	25	Yes	OBL
2. Impatiens capensis	25	Yes	FACW
3. Lycopus uniflorus	20	Yes	OBL
4. Cyperus esculentus	15	No	FACW
5. Eupatorium perfoliatum	15	No	OBL
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.
Strata plot sizes were reduced to only include species within the wetland boundary.

SOIL

Sampling Point: KLF_SP(

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/1	90	10YR 5/8	10	C	M, PL	SiCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- [ ] Dark Surface (S7)
- [ ] Iron-Manganese Masses (F12)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes [x] No [ ]

Remarks:

The parameters for hydric soil were met at the time of the investigation.

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)
- [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 [ ] No [x] Depth (inches): _____

Wetland Hydrology Present? Yes [x] No [ ]

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

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 9/10/2020

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP10

Investigator(s): J. Lewis, C. Clair | Section, Township, Range: 017, 1N, 4E

Landform (hillslope, terrace, etc.): Knoll | Local relief (concave, convex, none): N/A

Slope (%): 2 | Lat: 39.44895 | Long: -84.455976 | Datum: NAD83

Soil Map Unit Name: Ragsdale silty clay loam, 0 to 2 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 ____, 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	
Hydric Soil Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This sample point serves as a representation of the upland areas that surround KLF_Wetland03 and KLF_Wetland04. The sample point is located outside of the depressions that hold the wetlands along a berm between two stream channels.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Lonicera maackii	50	Yes	UPL
2.			
3.			
4.			
5.			
	50	= Total Cover	
Herb Stratum (Plot size: 5' Radius)			
1. Toxicodendron radicans	25	Yes	FAC
2. Dactylis glomerata	25	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	50	= Total Cover	
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - 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 ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.

SOIL

Sampling Point: KLF_SP:

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/3	100					SiCL	
10+								Rock Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.
Multiple attempts were made to excavate beyond 10", each attempt resulting in rock refusal.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 9/10/2020

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP11

Investigator(s): J. Lewis, C. Clair | Section, Township, Range: 017, 1N, 4E

Landform (hillslope, terrace, etc.): Floodplain (Non-FEMA mapped) | Local relief (concave, convex, none): Concave

Slope (%): 3 | Lat: 39.445699 | Long: -84.455857 | Datum: NAD83

Soil Map Unit Name: Warsaw loam, 0 to 3 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 ____, 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:
This sample point is representative of KLF_Wetland05, a PEM wetland. The wetland is located in the non-FEMA mapped floodplain of KLF_Stream05 (intermittent). The eastern border of the wetland directly abuts the stream.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ~8' x 60')	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ~8' x 30')			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: ~8' x 10')			
1. Impatiens capensis	50	Yes	FACW
2. Lobelia siphilitica	15	No	OBL
3. Boehmeria cylindrica	10	No	OBL
4. Persicaria hydropiper	15	N/A	FACW
5.			
6.			
7.			
8.			
9.			
10.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: ~8' x 60')			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation. Strata plot sizes were modified to only include species within the wetland boundary.

SOIL

Sampling Point: KLF_SP:

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	95	7.5YR 5/8	5	C	M, PL	SiL	
6-20	10YR 4/2	85	7.5YR 5/8	15	C	M, PL	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No ____

Remarks:

The parameters for hydric soil were met at the time of the investigation.

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)
- 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 ___ No X Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 9/10/2020

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP12

Investigator(s): J. Lewis, C. Clair | Section, Township, Range: 017, 1N, 4E

Landform (hillslope, terrace, etc.): Constructed Earthen Bank | Local relief (concave, convex, none): Convex

Slope (%): 3 | Lat: 39.446482 | Long: -84.456148 | Datum: NAD83

Soil Map Unit Name: Eldean loam, 2 to 6 percent slopes, eroded | 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 ____, 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:
This sample point serves as a representation of the herbaceous upland areas west of KLF_Wetland05. The sample point is located on what appears to be a constructed linear earthen bank/berm.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Trifolium pratense	20	Yes	FACU
2. Cichorium intybus	15	Yes	FACU
3. Lotus corniculatus	15	Yes	FACU
4. Ambrosia artemisiifolia	10	No	FACU
5. Daucus carota	10	No	UPL
6. Dactylis glomerata	5	No	FACU
7. Dipsacus fullonum	5	No	FACU
8.			
9.			
10.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.

SOIL

Sampling Point: KLF_SP:

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/3	100					SiL	
2+								Rock Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators. Multiple attempts were made to excavate beyond 2", each attempt resulting in cobble/rock refusal. This is likely due to the area being a constructed earthen bank.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 9/10/2020

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP13

Investigator(s): J. Lewis, C. Clair | Section, Township, Range: 017, 1N, 4E

Landform (hillslope, terrace, etc.): Floodplain | Local relief (concave, convex, none): N/A

Slope (%): 2 | Lat: 39.44366 | Long: -84.455902 | Datum: NAD83

Soil Map Unit Name: Udorthents and Dumps | 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 ____, 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:
This upland sample point is representative of the upland areas located within a FEMA mapped floodplain within the project area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Ulmus rubra	40	Yes	FAC
2.			
3.			
4.			
5.			
	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Lonicera maackii	40	Yes	UPL
2.			
3.			
4.			
5.			
	40	= Total Cover	
Herb Stratum (Plot size: 5' Radius)			
1. Lonicera maackii	25	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	25	= Total Cover	
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.

SOIL

Sampling Point: KLF_SP:

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	100					SiL	
10+								Rock Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.
Multiple attempts were made to excavate beyond 10", each attempt resulting in rock refusal.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 9/10/2020

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP14

Investigator(s): J. Lewis, C. Clair | Section, Township, Range: 024, 3E, 3N

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None

Slope (%): 15 | Lat: 39.458245 | Long: -84.374985 | Datum: NAD83

Soil Map Unit Name: Eden silty clay loam, 15 to 25 percent slopes, moderately eroded | 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 ___, 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:
This upland sample point is representative of a manicured lawn within an existing overhead transmission line right-of-way.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Anthoxanthum odoratum	40	Yes	FACU
2. Grass sp.	20	N/A	N/A
3. Taraxacum officinale	15	No	FACU
4. Plantago lanceolata	15	No	FACU
5. Oxalis stricta	10	No	FACU
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation. A grass species could not be identified due to lack of distinguishable features from recent mowing.

SOIL

Sampling Point: KLF_SP:

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/3	100					SiL	
8+								Compacted Soils

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators. Multiple attempts were made to excavate beyond 8", each attempt resulting in refusal due to soil compaction. This is likely due to the area being within an existing overhead transmission line right-of-way.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 9/10/2020

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP15

Investigator(s): J. Lewis, C. Clair | Section, Township, Range: 024, 3E, 3N

Landform (hillslope, terrace, etc.): Plain | Local relief (concave, convex, none): None

Slope (%): 5 | Lat: 39.459239 | Long: -84.391466 | Datum: NAD83

Soil Map Unit Name: Udorthents | 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 ____, 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:
This upland sample point is representative of a mature soy bean field. The sample point is located in the general area where the farmer uses a graded access point to reach the fields from Todhunter Rd.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Glycine max	95	Yes	UPL
2. Amaranthus palmeri	5	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.

SOIL

Sampling Point: KLF_SP:

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/3	100					SiL	
6+								Compacted Soils

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators. Multiple attempts were made to excavate beyond 6", each attempt resulting in refusal due to soil compaction. This is likely due to the area being utilized by heavy farm equipment each year.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 9/10/2020

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP16

Investigator(s): J. Lewis, C. Clair | Section, Township, Range: 019, 2E, 4N

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

Slope (%): 3 | Lat: 39.459711 | Long: -84.391159 | Datum: NAD83

Soil Map Unit Name: Udorthents | 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 ____, 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:
This sample point is representative of KLF_Wetland06, a PEM wetland. The wetland is located in a depressional area within the non-FEMA floodplain of KLF_Stream07.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Eupatorium perfoliatum	50	Yes	OBL
2. Scirpus atrovirens	30	Yes	OBL
3. Vernonia noveboracensis	5	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: 10' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.
Strata plot sizes were reduced to only include species within the wetland boundary.

SOIL

Sampling Point: KLF_SP:

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	95	10YR 5/8	5	C	M, PL	SiL	
12+								Rock Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- [ ] Dark Surface (S7)
- [ ] Iron-Manganese Masses (F12)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes [x] No [ ]

Remarks:

The parameters for hydric soil were met at the time of the investigation.
Multiple attempts were made to excavate beyond 12", each attempt resulting in rock refusal.

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)
- [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 [ ] No [x] Depth (inches): _____

Wetland Hydrology Present? Yes [x] No [ ]

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

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 9/10/2020

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP17

Investigator(s): J. Lewis, C. Clair | Section, Township, Range: 024, 3E, 3N

Landform (hillslope, terrace, etc.): Plain | Local relief (concave, convex, none): None

Slope (%): 3 | Lat: 39.459122 | Long: -84.390337 | Datum: NAD83

Soil Map Unit Name: Patton silty clay loam, 0 to 2 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 ____, 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:
This upland sample point is representative of a mature soy bean field and was taken where the ground undulates slightly.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Glycine max	85	Yes	UPL
2. Amaranthus palmeri	15	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.

SOIL

Sampling Point: KLF_SP:

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/3	100					SiL	
6+								Compacted Soils

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators. Multiple attempts were made to excavate beyond 6", each attempt resulting in refusal due to soil compaction. This is likely due to the area being utilized by heavy farm equipment each year.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 10/21/2020

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP18

Investigator(s): C. Clair and W. Burgess | Section, Township, Range: 024, 3E, 3N

Landform (hillslope, terrace, etc.): Plain | Local relief (concave, convex, none): N/A

Slope (%): 2 | Lat: 39.549302 | Long: -84.393649 | Datum: NAD83

Soil Map Unit Name: Udorthents | 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 ____, 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:
This upland sample point is representative of an open maintained lawn adjacent to a railroad track.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Juglans nigra	20	Yes	FACU
2.			
3.			
4.			
5.			
	20	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5' Radius)			
1. Grass spp.	45	Yes	N/A
2. Glechoma hederacea	30	Yes	FACU
3. Digitaria sanguinalis	25	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0	= Total Cover	

Dominance Test worksheet:

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)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.
A grass species could not be identified due a lack of distinguishable features.

SOIL

Sampling Point: KLF_SP:

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100					SiCL	
12+								Rock Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.
Multiple attempts were made to excavate beyond 12", each attempt resulting in rock refusal.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 10/21/2020

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP19

Investigator(s): C. Clair and W. Burgess | Section, Township, Range: 002, 2E, 3N

Landform (hillslope, terrace, etc.): Plain | Local relief (concave, convex, none): N/A

Slope (%): 2 | Lat: 39.388501 | Long: -84.447347 | Datum: NAD83

Soil Map Unit Name: Dana silt loam, 2 to 6 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 ____, 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	
Hydric Soil Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This upland sample point is representative of an open maintained lawn adjacent to an existing facility.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Setaria pumila	25	Yes	FAC
2. Grass spp.	20	Yes	N/A
3. Taraxacum officinale	20	Yes	FACU
4. Daucus carota	15	No	UPL
5. Trifolium repens	10	No	FACU
6. Plantago major	10	No	FAC
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.
A grass species could not be identified due a lack of distinguishable features.

SOIL

Sampling Point: KLF_SP:

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	98	10YR 5/6	2	C	M	SiCL	
12+								Rock Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- [ ] Dark Surface (S7)
- [ ] Iron-Manganese Masses (F12)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes [x] No [ ]

Remarks:

The parameters for hydric soil were met at the time of the investigation.
Multiple attempts were made to excavate beyond 12", each attempt resulting in rock refusal.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 12/15/2020

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP20

Investigator(s): C. Clair | Section, Township, Range: 024, 3E, 3N

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

Slope (%): 2 | Lat: 39.460673 | Long: -84.392169 | Datum: NAD83

Soil Map Unit Name: Udorthents | 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 ____, 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	
Hydric Soil Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This upland sample point is representative of an open maintained lawn within an existing gas facility.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5' Radius)			
1. Dactylis glomerata	35	Yes	FACU
2. Andropogon virginicus	30	Yes	FACU
3. Setaria pumila	20	Yes	FAC
4. Trifolium pratense	15	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.

SOIL

Sampling Point: KLF_SP2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/3	100					SiCL	
10-16	10YR 4/1	95	10YR 5/6	5	C	M	SiCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- [ ] Dark Surface (S7)
- [ ] Iron-Manganese Masses (F12)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes [x] No [ ]

Remarks:

The soil profile met the criteria for the hydric soil at the time of investigation.

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)
- [x] 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:

Remarks:

One secondary indicator of wetland hydrology was present at the time of the investigation, but hydrology was not met.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 12/15/2020

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP21

Investigator(s): C. Clair | Section, Township, Range: 024, 3E, 3N

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

Slope (%): 2 | Lat: 39.460498 | Long: -84.393659 | Datum: NAD83

Soil Map Unit Name: Udorthents | 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 ____, 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:
This upland sample point is representative of a herbaceous utility right-of-way.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Dactylis glomerata	40	Yes	FACU
2. Taraxacum officinale	20	Yes	FACU
3. Trifolium repens	20	Yes	FACU
4. Plantago major	10	No	FAC
5. Plantago lanceolata	10	No	FACU
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.

SOIL

Sampling Point: KLF_SP2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/3	100					SiCL	
12+								Rock Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile did not meet the criteria of a hydric soil at the time of investigation.
Multiple attempts were made to excavate beyond 12", each attempt resulting in rock refusal.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 12/15/2020

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP22

Investigator(s): C. Clair | Section, Township, Range: 024, 3E, 3N

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

Slope (%): 2 | Lat: 39.46005 | Long: -84.390819 | Datum: NAD83

Soil Map Unit Name: Patton silty clay loam, 0 to 2 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 ____, 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:
This upland sample point is located on the edge of a recently cut soybean field near KLF_Stream07.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Stellaria media	25	Yes	FACU
2. Allium vineale	20	Yes	FACU
3. Glycine max	15	Yes	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.

SOIL

Sampling Point: KLF_SP2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/4	100					SiCL	
12+								Rock Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile did not meet the criteria of a hydric soil at the time of investigation.
Multiple attempts were made to excavate beyond 12", each attempt resulting in rock refusal.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/10/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP23

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 005, 2E, 3N

Landform (hillslope, terrace, etc.): Valley Bottom | Local relief (concave, convex, none): none

Slope (%): 1 | Lat: 39.442034 | Long: -84.435139 | Datum: NAD83

Soil Map Unit Name: Stonelick fine sandy loam | NWI classification: R2UBH

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:
This upland sample point is representative of the flat herbaceous valley bottom of KLF_Gregory Creek, adjacent to a gravel road.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5' Radius)			
1. Trifolium repens	20	Yes	FACU
2. Poa pratensis	20	Yes	FAC
3. Daucus carota	15	Yes	UPL
4. Plantago lanceolata	10	No	FACU
5. Galium aparine	10	No	FACU
6.			
7.			
8.			
9.			
10.			
	75	= Total Cover	
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.

SOIL

Sampling Point: KLF_SP2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/3	100						Interspersed Road Gravel
2+								Rock Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.

Multiple attempts were made to excavate beyond 2", each attempt resulting in rock refusal.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/10/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP24

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

Landform (hillslope, terrace, etc.): Valley Bottom | Local relief (concave, convex, none): concave

Slope (%): 5 | Lat: 39.451752 | Long: -84.431923 | Datum: NAD83

Soil Map Unit Name: Stonelick fine sandy loam | 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 ____, 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:
This sample point is representative of the PUB portion of KLF_Wetland07. The wetland is located in a strip pit in the forested valley bottom of KLF_Great Miami River.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	5	Yes	FAC
2. Platanus occidentalis	5	Yes	FACW
3.			
4.			
5.			
	10	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5' Radius)			
1. Lysimachia nummularia	30	Yes	FACW
2. Persicaria hydropiper	10	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	40	= Total Cover	
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.

SOIL

Sampling Point: KLF_SP2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20								Presumed Hydric

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- X Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

The parameters for hydric soil were met at the time of the investigation.

The soil profile was presumed hydric due to prolonged inundation.

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- X 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)
- X 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)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): >12

Water Table Present? Yes X No ___ Depth (inches): 0

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:

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/10/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP25

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

Landform (hillslope, terrace, etc.): Valley Bottom | Local relief (concave, convex, none): none

Slope (%): 2 | Lat: 39.451670 | Long: -84.431930 | Datum: NAD83

Soil Map Unit Name: Stonelick fine sandy loam | 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 ____, 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:
This sample point is representative of the PEM portion of KLF_Wetland07. The wetland is located in an herbaceous area above a strip pit in the forested valley bottom of KLF_Great Miami River.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Phalaris arundinacea	40	Yes	FACW
2. Solidago gigantea	20	Yes	FACW
3. Lysimachia nummularia	20	Yes	FACW
4. Carex pallescens	10	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.

SOIL

Sampling Point: KLF_SP2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/1	100					SiL	
2-7	10YR 4/2	95	7.5YR 4/6	5	C	M, PL	SiL	River Gravel Interspersed
7+								Rock Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

The parameters for hydric soil were met at the time of the investigation.

Multiple attempts were made to excavate beyond 7", each attempt resulting in rock refusal.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X 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)
- ___ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

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

Water Table Present? Yes X No ___ Depth (inches): 4

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 4

Wetland Hydrology Present? Yes X No ___

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

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/10/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP26

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

Landform (hillslope, terrace, etc.): Valley Bottom | Local relief (concave, convex, none): none

Slope (%): 1 | Lat: 39.454732 | Long: -84.430353 | Datum: NAD83

Soil Map Unit Name: Stonelick fine sandy loam | 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 ____, 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 ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This sample point serves as a representation of the upland areas that surround KLF_Wetland08. The sample point is located in the flat forested valley bottom adjacent to KLF_Stream08 where KLF_Stream08B dissipates.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Celtis occidentalis	25	Yes	FAC
2.			
3.			
4.			
5.			
	25 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Elaeagnus umbellata	25	Yes	UPL
2.			
3.			
4.			
5.			
	25 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Impatiens capensis	10	Yes	FACW
2. Packera aurea	10	Yes	FACW
3. Alliaria petiolata	5	No	FAC
4. Erythronium rostratum	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	30 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.

SOIL

Sampling Point: KLF_SP2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/3	100						Interspersed River Gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.

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)
- 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 ___ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

One secondary indicator of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/10/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP27

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

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

Slope (%): 5 | Lat: 39.454583 | Long: -84.430580 | Datum: NAD83

Soil Map Unit Name: Stonelick fine sandy loam | 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 ____, 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:
This sample point is representative of KLF_Wetland08, a PEM wetland. The wetland is located within an herbaceous depression on the fringe of KLF_Stream08.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Phalaris arundinacea	50	Yes	FACW
2. Conium maculatum	20	Yes	FACW
3. Packera aurea	15	No	FACW
4. Lysimachia nummularia	10	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- X 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.

SOIL

Sampling Point: KLF_SP2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	100					SiL	
4-16	10YR 4/2	90	7.5YR 4/6	8	C	M	SiCL	
			7.5YR 5/8	2	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No ____

Remarks:

The parameters for hydric soil were met at the time of the investigation.

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- X 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)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 1

Water Table Present? Yes X No ____ Depth (inches): 2

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:

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/10/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP28

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

Landform (hillslope, terrace, etc.): Valley Bottom | Local relief (concave, convex, none): none

Slope (%): 1 | Lat: 39.452220 | Long: -84.431851 | Datum: NAD83

Soil Map Unit Name: Stonelick fine sandy loam | 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 [ ], Soil [X], 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:
This sample point serves as a representation of the upland areas that surround KLF_Wetland07. The sample point is located on a flat herbaceous fill area adjacent to the wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Platanus occidentalis	15	Yes	FACW
2. Acer negundo	10	Yes	FAC
3.			
4.			
5.			
	25 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Microstegium vimineum	50	Yes	FAC
2. Solidago altissima	20	Yes	FACU
3. Poa annua	10	No	FACU
4. Rumex crispus	5	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [X] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.

SOIL

Sampling Point: KLF_SP2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/4	100					SiL	
2+								Fill Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.
Multiple attempts were made to excavate beyond 2", each attempt resulting in fill refusal. The soil profile was significantly disturbed by fill activity. Large blocks of concrete were observed.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/11/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP29

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 005, 2E, 3N

Landform (hillslope, terrace, etc.): Valley Bottom | Local relief (concave, convex, none): none

Slope (%): 1 | Lat: 39.443448 | Long: -84.435679 | Datum: NAD83

Soil Map Unit Name: Stonelick fine sandy loam | NWI classification: R2UBH

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:
This upland sample point is representative of the flat herbaceous valley bottom of KLF_Great Miami River, adjacent to a gravel road.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5' Radius)			
1. Poa pratensis	40	Yes	FAC
2. Trifolium repens	20	Yes	FACU
3. Plantago lanceolata	20	Yes	FACU
4. Taraxacum officinale	10	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	90	= Total Cover	
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.

SOIL

Sampling Point: KLF_SP2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	100						Interspersed Road Gravel
4+								Rock Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.

Multiple attempts were made to excavate beyond 4", each attempt resulting in rock refusal.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/11/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP30

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

Landform (hillslope, terrace, etc.): Valley Bottom | Local relief (concave, convex, none): concave

Slope (%): 1 | Lat: 39.448740 | Long: -84.432985 | Datum: NAD83

Soil Map Unit Name: Stonelick fine sandy loam | NWI classification: R2UBH

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

Are Vegetation X, Soil X, 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:
This sample point is representative of KLF_Wetland09, a PEM wetland. The wetland is located within a depression in the herbaceous valley bottom of KLF_Great Miami River.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Phalaris arundinacea	10	Yes	FACW
2. Poa pratensis	10	Yes	FAC
3. Trifolium repens	10	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	30 = Total Cover		
Woody Vine Stratum (Plot size: 5' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation. Plot sizes were reduced to only include species within the wetland boundary. Vegetation was disturbed by construction activity.

SOIL

Sampling Point: KLF_SP:

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/1	90	7.5YR 4/6	10	C	M	SiCL	Crushed Concrete Interspersed
4+								Rock Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No ____

Remarks:

The parameters for hydric soil were met at the time of the investigation. The soil profile was significantly disturbed by construction activity.
Multiple attempts were made to excavate beyond 4", each attempt resulting in rock refusal.

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- X 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)
- X 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)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 0.5

Water Table Present? Yes X No ____ Depth (inches): 2

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:

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation. Surface water was draining into KLF_Great Miami River at the time of investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/11/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP31

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

Landform (hillslope, terrace, etc.): Valley Bottom | Local relief (concave, convex, none): none

Slope (%): 1 | Lat: 39.449101 | Long: -84.432653 | Datum: NAD83

Soil Map Unit Name: Stonelick fine sandy loam | 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 ____, 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:
This sample point serves as a representation of the upland areas that surround KLF_Wetland09 and KLF_Wetland10. The sample point is located in the herbaceous valley bottom of KLF_Great Miami River adjacent to the wetlands.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Trifolium repens	60	Yes	FACU
2. Plantago lanceolata	10	No	FACU
3. Poa pratensis	5	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.

SOIL

Sampling Point: KLF_SP:

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
0-1	10YR 3/3	100					SiL	
1-8	10YR 4/4	100					SiCL	
8+								Rock Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.

Multiple attempts were made to excavate beyond 8", each attempt resulting in rock refusal.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/11/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP32

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

Landform (hillslope, terrace, etc.): Valley Bottom | Local relief (concave, convex, none): none

Slope (%): 1 | Lat: 39.450037 | Long: -84.432681 | Datum: NAD83

Soil Map Unit Name: Stonelick fine sandy loam | NWI classification: R2UBH

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 ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This upland sample point is representative of an herbaceous pocket in the forested valley bottom of KLF_Great Miami River.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Acer negundo	5	Yes	FAC
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Phalaris arundinacea	30	Yes	FACW
2. Solidago altissima	30	Yes	FACU
3. Impatiens capensis	20	Yes	FACW
4. Lysimachia nummularia	10	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.

SOIL

Sampling Point: KLF_SP:

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/3	100					SiL	
2-16	10YR 4/4	100					SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.

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)
- 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 ___ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

One secondary indicator of wetland hydrology was present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/11/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP33

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

Landform (hillslope, terrace, etc.): Valley Bottom | Local relief (concave, convex, none): none

Slope (%): 1 | Lat: 39.451339 | Long: -84.432270 | Datum: NAD83

Soil Map Unit Name: Stonelick fine sandy loam | 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 ____, 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 ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This upland sample point is representative the forested valley bottom of KLF_Great Miami River.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Platanus occidentalis	40	Yes	FACW
2.			
3.			
4.			
5.			
	40 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Acer negundo	15	Yes	FAC
2. Elaeagnus umbellata	10	Yes	UPL
3.			
4.			
5.			
	25 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Packera aurea	60	Yes	FACW
2. Urtica dioica	20	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.

SOIL

Sampling Point: KLF_SP:

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/3	100					SiL	
2-12	10YR 4/3	100					SiL	
12+								Root Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.
Multiple attempts were made to excavate beyond 12", each attempt resulting in root refusal.

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)
- 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 ___ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

One secondary indicator of wetland hydrology was present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/11/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP34

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

Landform (hillslope, terrace, etc.): Valley Bottom | Local relief (concave, convex, none): concave

Slope (%): 1 | Lat: 39.451349 | Long: -84.431913 | Datum: NAD83

Soil Map Unit Name: Stonelick fine sandy loam | 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 ____, 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:
This sample point is representative of the PSS portion of KLF_Wetland07. The wetland is located in an early successional depression in the forested valley bottom of KLF_Great Miami River.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5' Radius)			
1. Acer negundo	30	Yes	FAC
2. Acer rubrum	5	No	FAC
3.			
4.			
5.			
	35 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Lysimachia nummularia	40	Yes	FACW
2. Solidago gigantea	30	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: 5' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.

Plot sizes were reduced to only include species within the wetland.

SOIL

Sampling Point: KLF_SP:

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/2	95	7.5YR 4/6	5	C	M	SiL	River Gravel Interspersed
3+								Rock Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No ____

Remarks:

The parameters for hydric soil were met at the time of the investigation.

Multiple attempts were made to excavate beyond 3", each attempt resulting in rock refusal.

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- X 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)
- ___ 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 X No ____ Depth (inches): 3

Water Table Present? Yes X No ____ Depth (inches): 4

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:

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/11/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP35

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

Landform (hillslope, terrace, etc.): Valley Bottom | Local relief (concave, convex, none): none

Slope (%): 2 | Lat: 39.451549 | Long: -84.431864 | Datum: NAD83

Soil Map Unit Name: Stonelick fine sandy loam | 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 ____, 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 ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This upland sample point is representative the forested valley bottom of KLF_Great Miami River on a gently sloping ATV trail.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Acer negundo	20	Yes	FAC
2.			
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Lysimachia nummularia	30	Yes	FACW
2. Rumex crispus	5	No	FAC
3. Packera aurea	5	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.

SOIL

Sampling Point: KLF_SP:

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/3	100					SiL	
3+								Rock Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.
Multiple attempts were made to excavate beyond 3", each attempt resulting in rock refusal.

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)
- 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 ___ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

One secondary indicator of wetland hydrology was present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/11/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP36

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

Landform (hillslope, terrace, etc.): Valley Bottom | Local relief (concave, convex, none): none

Slope (%): 2 | Lat: 39.451518 | Long: -84.432031 | Datum: NAD83

Soil Map Unit Name: Stonelick fine sandy loam | 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 X, Soil X, 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 ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This sample point serves as a representation of the upland areas that surround KLF_Wetland07. The sample point is located on a hard pack gavel road surrounded by secondary growth forest.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Acer negundo	10	Yes	FAC
2.			
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Lysimachia nummularia	15	Yes	FACW
2. Solidago gigantea	15	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	30 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.

SOIL

Sampling Point: KLF_SP:

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0+								Rock Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators. A soil profile could not be obtained due to compacted gravel refusal at the ground surface.

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)
- 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 ___ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

One secondary indicator of wetland hydrology was present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/11/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP37

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

Landform (hillslope, terrace, etc.): Valley Bottom | Local relief (concave, convex, none): none

Slope (%): 2 | Lat: 39.454757 | Long: -84.43098 | Datum: NAD83

Soil Map Unit Name: Stonelick fine sandy loam | NWI classification: PFO1A

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 ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This upland sample point is representative of the forested valley bottom of KLF_Great Miami River.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer negundo	15	Yes	FAC
2. Celtis occidentalis	15	Yes	FAC
3. Acer rubrum	5	No	FAC
4.			
5.			
	35	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Acer negundo	10	Yes	FAC
2. Elaeagnus umbellata	10	Yes	UPL
3.			
4.			
5.			
	20	= Total Cover	
Herb Stratum (Plot size: 5' Radius)			
1. Packera aurea	60	Yes	FACW
2. Urtica dioica	15	No	FACW
3. Cinna arundinacea	10	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	85	= Total Cover	
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.

SOIL

Sampling Point: KLF_SP:

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/2	100					SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.

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)
- 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 ___ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

One secondary indicator of wetland hydrology was present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/11/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP38

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

Landform (hillslope, terrace, etc.): Valley Bottom | Local relief (concave, convex, none): concave

Slope (%): 1 | Lat: 39.448520 | Long: -84.432392 | Datum: NAD83

Soil Map Unit Name: Stonelick fine sandy loam | 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 X, Soil X, 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:
This sample point is representative of KLF_Wetland10, a PEM wetland. The wetland is located within a depression in the herbaceous valley bottom of KLF_Great Miami River.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Poa pratensis	20	Yes	FAC
2. Trifolium repens	20	Yes	FACU
3. Phalaris arundinacea	15	Yes	FACW
4. Taraxacum officinale	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation. Vegetation was disturbed by construction activity.

SOIL

Sampling Point: KLF_SP:

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	95	7.5YR 4/6	5	C	M	SiCL	Crushed Concrete Interspersed
4+								Rock Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No ____

Remarks:

The parameters for hydric soil were met at the time of the investigation. The soil profile was significantly disturbed by construction activity.
Multiple attempts were made to excavate beyond 4", each attempt resulting in rock refusal.

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- X Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- X 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)
- X 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)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 1

Water Table Present? Yes X No ____ Depth (inches): 2

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:

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I City/County: Butler County Sampling Date: 5/11/2021

Applicant/Owner: Duke Energy State: OH Sampling Point: KLF_SP39

Investigator(s): Spencer Chronister and Mike Poth Section, Township, Range: 036, 3E, 3N

Landform (hillslope, terrace, etc.): Valley Bottom Local relief (concave, convex, none): concave

Slope (%): 10 Lat: 39.447104 Long: -84.433096 Datum: NAD83

Soil Map Unit Name: Stonelick fine sandy loam NWI classification: PFO1A

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	
Hydric Soil Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This upland sample point is representative a maintained herbaceous area, the sampled area is located in a drained man made pond.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Trifolium repens	30	Yes	FACU
2. Cerastium fontanum	20	Yes	FACU
3. Poa pratensis	20	Yes	FAC
4. Poa annua	10	No	FACU
5. Plantago lanceolata	10	No	FACU
6.			
7.			
8.			
9.			
10.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.

SOIL

Sampling Point: KLF_SP:

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/1	95	7.5YR 4/6	5	C	M	SiCL	
16-20	10YR 3/1	90	7.5YR 4/6	5	C	M	SiCL	
			7.5YR 5/6	5	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

The parameters for hydric soil were met at the time of the investigation.

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)
- X 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:

Remarks:

One secondary indicator of wetland hydrology was present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/11/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP40

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 035, 3E, 3N

Landform (hillslope, terrace, etc.): Valley Bottom | Local relief (concave, convex, none): concave

Slope (%): 3 | Lat: 39.443187 | Long: -84.432273 | Datum: NAD83

Soil Map Unit Name: Stonelick fine sandy loam | 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 X, Soil X, 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 ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
This upland sample point is representative of an herbaceous swale between railroad tracks and a paved parking lot.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5' Radius)			
1. Conium maculatum	40	Yes	FACW
2. Viola sororia	30	Yes	FAC
3. Toxicodendron radicans	5	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	75	= Total Cover	
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.

SOIL

Sampling Point: KLF_SP4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/1	100					SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.

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)
- 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 ___ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Two secondary indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/11/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP41

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

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

Slope (%): 1 | Lat: 39.454293 | Long: -84.425229 | Datum: NAD83

Soil Map Unit Name: Miamian-Russell silt loams, 6 to 12 percent slopes, eroded | 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 ____, 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:
This sample point is representative of KLF_Wetland11, a PEM wetland. The wetland is located within an herbaceous hillside topographic depression in an open pipeline/powerline right-of-way.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Scirpus atrovirens	40	Yes	OBL
2. Carex pallescens	20	Yes	FACW
3. Solidago gigantea	10	No	FACW
4. Dipsacus fullonum	10	No	FACU
5. Rumex crispus	5	No	FAC
6. Vernonia noveboracensis	5	No	FACW
7.			
8.			
9.			
10.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.

SOIL

Sampling Point: KLF_SP4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	95	7.5YR 4/6	5	C	M, PL	SiCL	
6-16	10YR 4/2	90	7.5YR 4/6	10	C	M	SiCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No ____

Remarks:

The parameters for hydric soil were met at the time of the investigation.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X 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)
- X 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 X No ____ Depth (inches): 2

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:

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/11/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP42

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

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

Slope (%): 1 | Lat: 39.45425 | Long: -84.426672 | Datum: NAD83

Soil Map Unit Name: Miamian-Russell silt loams, 6 to 12 percent slopes, eroded | 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 ____, 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:
This sample point is representative of KLF_Wetland11, a PEM wetland. The wetland is located within an herbaceous hillside topographic depression in an open pipeline/powerline right-of-way.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Rubus allegheniensis	5	Yes	FACU
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Phalaris arundinacea	40	Yes	FACW
2. Carex pallescens	30	Yes	FACW
3. Toxicodendron radicans	10	No	FAC
4. Rumex crispus	5	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.

SOIL

Sampling Point: KLF_SP4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/3	100					SiL	
2-16	10YR 4/2	90	7.5YR 5/6	8	C	M	SiCL	
			7.5YR 4/6	2	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No ____

Remarks:

The parameters for hydric soil were met at the time of the investigation.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X 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)
- ___ 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)
- X Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

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

Water Table Present? Yes X No ____ Depth (inches): 2

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:

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/11/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP43

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

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

Slope (%): 3 | Lat: 39.454267 | Long: -84.427037 | Datum: NAD83

Soil Map Unit Name: Stonelick fine sandy loam | 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 X, Soil X, 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:
This sample point serves as a representation of the upland areas that surround KLF_Wetland11. The sample point is located in a sloping herbaceous pipeline/powerline right-of-way.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Dactylis glomerata	30	Yes	FACU
2. Tridens flavus	30	Yes	UPL
3. Trifolium repens	20	Yes	FACU
4. Plantago lanceolata	10	No	FACU
5. Daucus carota	10	No	UPL
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.

SOIL

Sampling Point: KLF_SP4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/3	100					SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/11/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP44

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

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

Slope (%): 1 | Lat: 39.454311 | Long: -84.428176 | Datum: NAD83

Soil Map Unit Name: Ockley silt loam, Southern Ohio Till Plain, 2 to 6 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 ____, 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:
This sample point is representative of the PEM portion of KLF_Wetland12. The wetland is located within an herbaceous depression in an open pipeline/powerline right-of-way. The wetland is hydrologically connected to KLF_Stream09.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Phalaris arundinacea	40	Yes	FACW
2. Equisetum arvense	20	Yes	FAC
3. Solidago gigantea	15	No	FACW
4. Agrostis gigantea	10	No	FACW
5. Vernonia noveboracensis	5	No	FACW
6.			
7.			
8.			
9.			
10.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.

SOIL

Sampling Point: KLF_SP4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	98	7.5YR 4/6	2	C	M, PL	SiL	
4-20	10YR 4/2	85	7.5YR 4/6	15	C	M	SiCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No ____

Remarks:

The parameters for hydric soil were met at the time of the investigation.

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- X 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)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 1

Water Table Present? Yes X No ____ Depth (inches): 2

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:

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/11/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP45

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

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

Slope (%): 1 | Lat: 39.454168 | Long: -84.427983 | Datum: NAD83

Soil Map Unit Name: Ockley silt loam, Southern Ohio Till Plain, 2 to 6 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 ____, 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:
This sample point is representative of the PFO portion of KLF_Wetland12. The wetland is located within a forested depression. The wetland is hydrologically connected to KLF_Stream09.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus tremuloides	20	Yes	FAC
2. Salix nigra	15	Yes	OBL
3.			
4.			
5.			
	35	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Populus tremuloides	20	Yes	FAC
2. Salix nigra	10	Yes	OBL
3.			
4.			
5.			
	30	= Total Cover	
Herb Stratum (Plot size: 5' Radius)			
1. Carex pallescens	40	Yes	FACW
2. Impatiens capensis	10	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	50	= Total Cover	
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.

SOIL

Sampling Point: KLF_SP4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	95	7.5YR 4/6	5	C	M, PL	SiL	
4-20	10YR 4/2	90	7.5YR 4/6	10	C	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- [x] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- [ ] Coast Prairie Redox (A16)
- [ ] Dark Surface (S7)
- [ ] Iron-Manganese Masses (F12)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes [x] No [ ]

Remarks:

The parameters for hydric soil were met at the time of the investigation.

HYDROLOGY

Wetland Hydrology Indicators:

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

- [x] Surface Water (A1)
- [x] 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)
- [x] Water-Stained Leaves (B9)
- [x] 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)
- [x] Geomorphic Position (D2)
- [x] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes [x] No [ ] Depth (inches): 2

Water Table Present? Yes [x] No [ ] Depth (inches): 2

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:

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/11/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP46

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

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

Slope (%): 5 | Lat: 39.454135 | Long: -84.427744 | Datum: NAD83

Soil Map Unit Name: Ockley silt loam, Southern Ohio Till Plain, 2 to 6 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 ____, 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:
This sample point is representative of KLF_Wetland13, a PSS wetland. The wetland is located within an early successional hillside topographic depression.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5' Radius)			
1. Salix nigra	25	Yes	OBL
2. Acer negundo	5	No	FAC
3.			
4.			
5.			
	30 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Carex pallescens	25	Yes	FACW
2. Solidago gigantea	10	Yes	FACW
3. Impatiens capensis	5	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: 5' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.
Plot sizes were reduced to only include species within the wetland.

SOIL

Sampling Point: KLF_SP4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	95	7.5YR 4/6	5	C	M, PL	SiL	
4-20	10YR 4/2	80	7.5YR 5/6	20	C	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No ____

Remarks:

The parameters for hydric soil were met at the time of the investigation.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X 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)
- X 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 X No ____ Depth (inches): 2

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:

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/11/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP47

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

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

Slope (%): 1 | Lat: 39.454109 | Long: -84.42780 | Datum: NAD83

Soil Map Unit Name: Ockley silt loam, Southern Ohio Till Plain, 2 to 6 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 ___, 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:
This sample point serves as a representation of the upland areas that surround KLF_Wetland13. The sample point is located on an early successional upland rise between KLF_Wetland11 and KLF_Wetland12.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Elaeagnus umbellata	30	Yes	UPL
2. Salix nigra	5	No	OBL
3.			
4.			
5.			
	35 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Plantago lanceolata	5	Yes	FACU
2. Carex pallescens	5	Yes	FACW
3. Equisetum arvense	2	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	12 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.

SOIL

Sampling Point: KLF_SP4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/3	100					SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/11/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP48

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

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

Slope (%): 1 | Lat: 39.454337 | Long: -84.428519 | Datum: NAD83

Soil Map Unit Name: Ockley silt loam, Southern Ohio Till Plain, 2 to 6 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 ____, 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:
This sample point serves as a representation of the upland areas that surround KLF_Wetland12. The sample point is located in a sloping herbaceous pipeline/powerline right-of-way.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5' Radius)			
1. Tridens flavus	40	Yes	UPL
2. Dactylis glomerata	30	Yes	FACU
3. Trifolium repens	20	Yes	FACU
4. Plantago lanceolata	5	No	FACU
5. Taraxacum officinale	5	No	FACU
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0	= Total Cover	

Dominance Test worksheet:

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)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.

SOIL

Sampling Point: KLF_SP4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/3	100					SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/11/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP49

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

Landform (hillslope, terrace, etc.): Valley Bottom | Local relief (concave, convex, none): concave

Slope (%): 5 | Lat: 39.453976 | Long: -84.429113 | Datum: NAD83

Soil Map Unit Name: Ockley silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes | NWI classification: PUBGh

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:
This sample point is representative of KLF_Wetland14, a PUB wetland. The wetland is a valley bottom open water pond.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Typha angustifolia	30	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	30 = Total Cover		
Woody Vine Stratum (Plot size: 5' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.

SOIL

Sampling Point: KLF_SP4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20								Presumed Hydric

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- X Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

The parameters for hydric soil were met at the time of the investigation.

The soil profile was presumed hydric due to prolonged inundation.

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- X 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)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): >12

Water Table Present? Yes X No ___ Depth (inches): 0

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:

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/11/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP50

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

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

Slope (%): 2 | Lat: 39.453865 | Long: -84.423634 | Datum: NAD83

Soil Map Unit Name: Russell-Miamian silt loams, 2 to 6 percent slopes, moderately eroded | 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 ____, 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:
This sample point is representative of KLF_Wetland15, a PEM wetland. The wetland is located within an herbaceous hillside topographic depression in an open fallow area that transitions into a maintained residential area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Carex lasiocarpa	80	Yes	OBL
2. Dispacus fullonum	10	No	FACU
3. Rumex crispus	5	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.

SOIL

Sampling Point: KLF_SP!

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	85	7.5YR 5/6	15	C	M, PL	SiCL	
6-20	10YR 4/2	80	7.5YR 5/6	20	C	M	SiCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No ____

Remarks:

The parameters for hydric soil were met at the time of the investigation.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X 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)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

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

Water Table Present? Yes X No ____ Depth (inches): 8

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:

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/12/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP51

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

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

Slope (%): 2 | Lat: 39.454079 | Long: -84.423391 | Datum: NAD83

Soil Map Unit Name: Russell-Miamian silt loams, 2 to 6 percent slopes, moderately eroded | 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 ____, 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:
This sample point is representative of KLF_Wetland16, a PEM wetland. The wetland is located within an herbaceous hillside topographic depression in a pipeline/powerline right-of-way.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Carex pallescens	30	Yes	FACW
2. Agrostis gigantea	30	Yes	FACW
3. Scirpus atrovirens	15	No	OBL
4. Taraxacum officinale	5	No	FACU
5. Trifolium repens	5	No	FACU
6. Vernonia noveboracensis	5	No	FACW
7.			
8.			
9.			
10.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- X 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.

SOIL

Sampling Point: KLF_SP!

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	90	7.5YR 5/6	10	C	M, PL	SiCL	
6-12	10YR 4/2	90	7.5YR 5/6	10	C	M	SiCL	
12+								Rock Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No ____

Remarks:

The parameters for hydric soil were met at the time of the investigation.

Multiple attempts were made to excavate beyond 12", each attempt resulting in rock refusal.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X 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 X No ____ Depth (inches): 8

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:

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/12/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP52

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

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

Slope (%): 3 | Lat: 39.453920 | Long: -84.423558 | Datum: NAD83

Soil Map Unit Name: Ockley silt loam, Southern Ohio Till Plain, 2 to 6 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 ____, 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:
This sample point serves as a representation of the upland areas that surround KLF_Wetland13. The sample point is located on an early successional hillslope.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Elaeagnus umbellata	20	Yes	UPL
2. Pyrus calleryana	10	Yes	UPL
3.			
4.			
5.			
	30 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Conium maculatum	40	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.

SOIL

Sampling Point: KLF_SP!

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/3	100					SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/12/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP53

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

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

Slope (%): 5 | Lat: 39.452746 | Long: -84.427937 | Datum: NAD83

Soil Map Unit Name: Casco & Rodman gravelly loams, 6-18% slopes, moderately eroded | 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 ____, 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:
This sample point is representative of KLF_Wetland17, a PSS wetland. The wetland is located within an early successional hillside topographic depression on the fringe of KLF_Stream11.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5' Radius)			
1. Salix nigra	40	Yes	OBL
2.			
3.			
4.			
5.			
	40 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Phalaris arundinacea	30	Yes	FACW
2. Equisetum arvense	10	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: 5' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.
Plot sizes were reduced to only include species within the wetland.

SOIL

Sampling Point: KLF_SP!

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4								Blackened Organics
4-10	10YR 5/1	80	7.5YR 4/6	20	C	M	SiL	Interspersed Stream Substrate

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No _____

Remarks:

The parameters for hydric soil were met at the time of the investigation.

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- X 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)
- X Water-Stained Leaves (B9)
- X 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)
- X 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 X No _____ Depth (inches): 3

Water Table Present? Yes X No _____ Depth (inches): 0

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:

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/12/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP54

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

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

Slope (%): 2 | Lat: 39.452351 | Long: -84.427693 | Datum: NAD83

Soil Map Unit Name: Casco & Rodman gravelly loams, 6 - 18% slopes, moderately eroded | 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 ____, 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:
This sample point serves as a representation of the upland areas that surround KLF_Wetland17. The sample point is located in a gently sloping fallow field.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5' Radius)			
1. Andropogon virginicus	30	Yes	FACU
2. Poa annua	30	Yes	FACU
3. Plantago lanceolata	20	Yes	FACU
4. Trifolium repens	15	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	95	= Total Cover	
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0	= Total Cover	

Dominance Test worksheet:

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)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.

SOIL

Sampling Point: KLF_SP!

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/4	100					SiL	
12+								Rock Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.

Multiple attempts were made to excavate beyond 12" each attempts resulting in rock refusal.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/12/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP55

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

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

Slope (%): 1 | Lat: 39.452076 | Long: -84.426147 | Datum: NAD83

Soil Map Unit Name: Casco & Rodman gravelly loams, 6-18% slopes, moderately eroded | 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 ____, 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:
This sample point is representative of KLF_Wetland18, a PEM wetland. The wetland is located within an herbaceous depression in an open fallow field.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Carex pallescens	30	Yes	FACW
2. Agrostis gigantea	30	Yes	FACW
3. Cyperus diandrus	20	Yes	FACW
4. Solidago gigantea	15	No	FACW
5. Trifolium repens	5	No	FACU
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 10' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- X 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation.
Plot sizes were reduced to only include species within the wetland.

SOIL

Sampling Point: KLF_SP!

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/1	90	7.5YR 5/6	10	C	M, PL	SiL	
6-16	10YR 4/1	85	7.5YR 5/6	15	C	M	SiCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No ____

Remarks:

The parameters for hydric soil were met at the time of the investigation.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X 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 X No ____ Depth (inches): 0

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:

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/12/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP56

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

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

Slope (%): 2 | Lat: 39.452251 | Long: -84.425727 | Datum: NAD83

Soil Map Unit Name: Miamian-Russell silt loams, 6 to 12 percent slopes, eroded | 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 ____, 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:
This sample point serves as a representation of the upland areas that surround KLF_Wetland18. The sample point is located in a gently sloping fallow field.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5' Radius)			
1. Tridens flavus	40	Yes	UPL
2. Trifolium repens	20	Yes	FACU
3. Dispacus fullonum	20	Yes	FACU
4. Solidago gigantea	10	No	FACW
5. Taraxacum officinale	5	No	FACU
6.			
7.			
8.			
9.			
10.			
	95	= Total Cover	
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0	= Total Cover	

Dominance Test worksheet:

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)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.

SOIL

Sampling Point: KLF_SP!

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/4	100					SiL	
6-16	10YR 4/4	90	7.5YR 5/6	10	C	M	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.

The soil profile contained redox features however, the soil chroma is too high to meet hydric soil indicators.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/12/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP57

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 013, 2E, 4N

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

Slope (%): 3 | Lat: 39.461574 | Long: -84.376136 | Datum: NAD83

Soil Map Unit Name: Wynn silt loam, 6 to 12 percent slopes, eroded | 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 X, Soil X, 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:
This sample point is representative of KLF_Wetland19, a PEM wetland. The wetland is located within a sloping cultivated agricultural field.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Alopecurus pratensis	5	Yes	FACW
2. Allium vineale	2	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	7 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation. Vegetation was significantly disturbed by agricultural activity. Soybean skeletons were observed throughout the sampled area.

SOIL

Sampling Point: KLF_SP!

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	95	7.5YR 4/6	5	C	M, PL	SiL	
6-20	10YR 4/2	90	7.5YR 4/6	10	C	M	SiCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No ____

Remarks:

The parameters for hydric soil were met at the time of the investigation.

The soil profile was significantly disturbed by agricultural activity.

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)
- 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 ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/12/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP58

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 013, 2E, 4N

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

Slope (%): 3 | Lat: 39.461638 | Long: -84.376522 | Datum: NAD83

Soil Map Unit Name: Wynn silt loam, 6 to 12 percent slopes, eroded | 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 X, Soil X, 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:
This sample point is representative of KLF_Wetland20, a PEM wetland. The wetland is located within a sloping cultivated agricultural field.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Alopecurus pratensis	5	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	5 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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.)
The parameters for hydrophytic vegetation were met at the time of the investigation. Vegetation was significantly disturbed by agricultural activity. Soybean skeletons were observed throughout the sampled area.

SOIL

Sampling Point: KLF_SP!

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	95	7.5YR 4/6	5	C	M, PL	SiL	
4-20	10YR 4/2	90	7.5YR 4/6	10	C	M	SiCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No ____

Remarks:

The parameters for hydric soil were met at the time of the investigation.

The soil profile was significantly disturbed by agricultural activity.

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)
- 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 ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/12/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP59

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 013, 2E, 4N

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

Slope (%): 3 | Lat: 39.461621 | Long: -84.376230 | Datum: NAD83

Soil Map Unit Name: Miamian-Russell silt loams, 6 to 12 percent slopes, eroded | 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 X, Soil X, 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:
This sample point serves as a representation of the upland areas that surround KLF_Wetland19 and KLF_Wetland20. The sample point is located on a hillslope within a cultivated agricultural field, between the wetlands.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5' Radius)			
1. Cerastium fontanum	25	Yes	FACU
2. Alopecurus pratensis	20	Yes	FACW
3. Allium vineale	10	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	55	= Total Cover	
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation. Vegetation was significantly disturbed by agricultural activity. Soybean skeletons were observed throughout the sampled area.

SOIL

Sampling Point: KLF_SP!

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/2	100					SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.

The soil profile was significantly disturbed by agricultural activity.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 5/13/2021

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP60

Investigator(s): Spencer Chronister and Mike Poth | Section, Township, Range: 036, 3E, 3N

Landform (hillslope, terrace, etc.): Valley Bottom | Local relief (concave, convex, none): none

Slope (%): 2 | Lat: 39.453126 | Long: -84.429842 | Datum: NAD83

Soil Map Unit Name: Eldean loam, 0 to 2 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 ____, 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:
This sample point serves as a representation of the upland areas that surround KLF_Wetland14. The sample point is located in a valley bottom early successional fallow field.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus tremuloides	20	Yes	FAC
2.			
3.			
4.			
5.			
	20 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Elaeagnus umbellata	25	Yes	UPL
2.			
3.			
4.			
5.			
	25 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Trifolium repens	30	Yes	FACU
2. Solidago altissima	20	Yes	FACU
3. Poa pratensis	15	No	FAC
4. Tridens flavus	10	No	UPL
5. Carex pallescens	5	No	FACW
6. Daucus carota	5	No	UPL
7.			
8.			
9.			
10.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - 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 ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.

SOIL

Sampling Point: KLF_SP(

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/3	100					SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler Cnty Ph I C210 & LP07 City/County: Butler County Sampling Date: 1/20/2022

Applicant/Owner: Duke Energy Ohio, Inc State: OH Sampling Point: KLF_SP61

Investigator(s): C. Maier Section, Township, Range: Section 19, Township 2 East, Range 4 North

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

Slope (%): 2 Lat: 39.459709 Long: -84.390388 Datum: NAD83

Soil Map Unit Name: Patton silty clay loam, 0 to 2 percent slopes (169783) NWI classification: N/A

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

Are Vegetation X, Soil X, 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:
This sample point is representative of KLF_Wetland21, a PEM wetland. The wetland is located within a depression in an agricultural row crop field. Vegetation and soils were significantly disturbed by agricultural activity.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Panicum virgatum	10	Yes	FAC
2. Setaria pumila	10	Yes	FAC
3. Cerastium glomeratum	5	No	FACU
4. Crepis capillaris	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	30 = Total Cover		
Woody Vine Stratum (Plot size: 5' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - 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.)
Vegetation was considered significantly disturbed due to the routine removal and suppression of native vegetation for farming of cultivated crops. The parameters for hydrophytic vegetation were met at the time of the investigation. Strata plot sizes were reduced to only include species within the wetland boundary.

SOIL

Sampling Point: KLF_SP(

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/1	100					SiCL	
2-16	10YR 4/1	85	10YR 4/4	15	C	PL/M	CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- [ ] Dark Surface (S7)
- [ ] Iron-Manganese Masses (F12)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes [x] No [ ]

Remarks:

Soils within the plow layer were considered significantly disturbed due to routine plowing associated with the farming of cultivated row crops. The parameters for hydric soil were met at the time of the investigation.

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)
- [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)
- [x] 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 [x] No [ ]

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

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler Cnty Ph I C210 & LP07 City/County: Butler County Sampling Date: 1/20/2022

Applicant/Owner: Duke Energy Ohio, Inc State: OH Sampling Point: KLF_SP62

Investigator(s): C. Maier Section, Township, Range: Section 19, Township 2 East, Range 4 North

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None

Slope (%): 1 Lat: 39.459792 Long: -84.390303 Datum: NAD83

Soil Map Unit Name: Patton silty clay loam, 0 to 2 percent slopes (169783) 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 X, Soil X, 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:
This sample point is located in a row crop field and serves as a representation of the upland areas that surround KLF_Wetland21. Vegetation and soils were significantly disturbed by agricultural activity.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Cynodon dactylon	60	Yes	FACU
2. Cerastium gloveratum	10	No	FACU
3. Crepis capillaris	5	No	FACU
4. Veronica arvensis	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation. Vegetation was considered significantly disturbed due to the routine removal and suppression of native vegetation for farming of cultivated crops; however, an abundance of volunteer species were present.

SOIL

Sampling Point: KLF_SP(

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/1	100					SiCL	
4-16	10YR 3/1	100					CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators. Soils within the plow layer were considered significantly disturbed due to routine plowing associated with the farming of cultivated row crops.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler Cnty Ph I C210 & LP07 City/County: Butler County Sampling Date: 1/20/2022

Applicant/Owner: Duke Energy Ohio, Inc State: OH Sampling Point: KLF_SP63

Investigator(s): C. Maier Section, Township, Range: Section 19, Township 2 East, Range 4 North

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None

Slope (%): 1 Lat: 39.460576 Long: -84.389740 Datum: NAD83

Soil Map Unit Name: Patton silty clay loam, 0 to 2 percent slopes (169783) 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 X, Soil X, 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:
This sample point is located in a row crop field and serves as a representation of the upland areas that surround KLF_Wetland21. Vegetation and soils were significantly disturbed by agricultural activity.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. Cynodon dactylon	60	Yes	FACU
2. Cerastium gloveratum	15	No	FACU
3. Crepis capillaris	10	No	FACU
4. Veronica arvensis	10	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation. Vegetation was considered significantly disturbed due to the routine removal and suppression of native vegetation for farming of cultivated crops; however, an abundance of volunteer species were present.

SOIL

Sampling Point: KLF_SP(

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/1	100					SiCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators. Soils within the plow layer were considered significantly disturbed due to routine plowing associated with the farming of cultivated row crops.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Butler County Phase I | City/County: Butler County | Sampling Date: 1/13/2022

Applicant/Owner: Duke Energy | State: OH | Sampling Point: KLF_SP100

Investigator(s): Spencer Chronister | Section, Township, Range: 036 3E 3N

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

Slope (%): 1 | Lat: 39.448716 | Long: -84.432644 | Datum: NAD83

Soil Map Unit Name: Stonelick fine sandy loam | 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 X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

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:
This sample point is representative of a former stone stockpile between KLF_Wetland09 and KLF_Wetland10 and is within the FEMA mapped floodplain of KLF_Great Miami River. The sampled area was significantly disturbed by excavation activity.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' Radius)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 30' Radius)			
1. N/A			
2.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
No vegetation was present at the time of the investigation due to excavation and earth moving activity within the sampled area. Vegetation did not meet the criteria to be considered hydrophytic at the time of the investigation.

SOIL

Sampling Point: KLF_SP:

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0+								Rock Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Compacted Rock

Depth (inches): 0

Hydric Soil Present? Yes _____ No X

Remarks:

The soil profile does not meet the criteria for any of the hydric soil indicators. The soil profile was significantly disturbed due to excavation and earth moving activity. The soil profile was inaccessible due to a layer of rock covering the natural ground. Multiple attempts were made to excavate beyond 0", each attempt resulting in rock refusal.

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:

Remarks:

No indicators of wetland hydrology were present at the time of the investigation. Hydrology was considered significantly disturbed due to the presence of compacted rock preventing infiltration of stormwater into the natural ground.

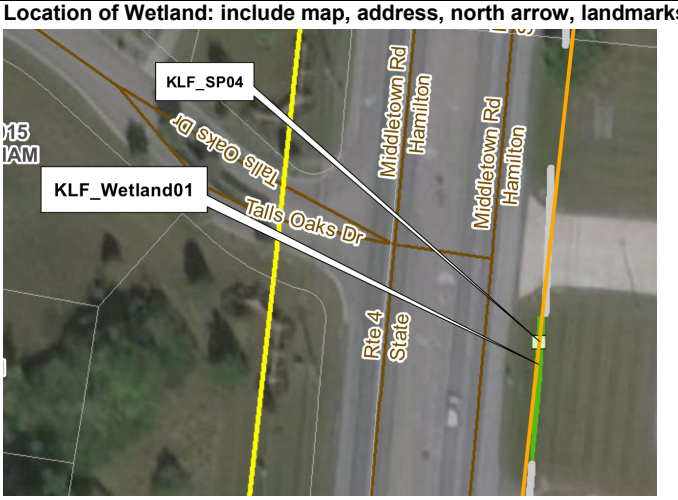
ATTACHMENT C

OHIO RAPID ASSESSMENT METHOD (ORAM) FORMS

Background Information

Name:	John Lewis, Chad Clair
Date:	9/10/2020
Affiliation:	Kleinfelder
Address:	51 Dutilh Road, Suite 240 Cranberry Township, PA 16066
Phone Number:	724-772-7072
e-mail address:	jalewis@kleinfelder.com
Name of Wetland:	KLF_Wetland01
Vegetation Communit(ies):	Palustrine Emergent
HGM Class(es):	DEPRESS

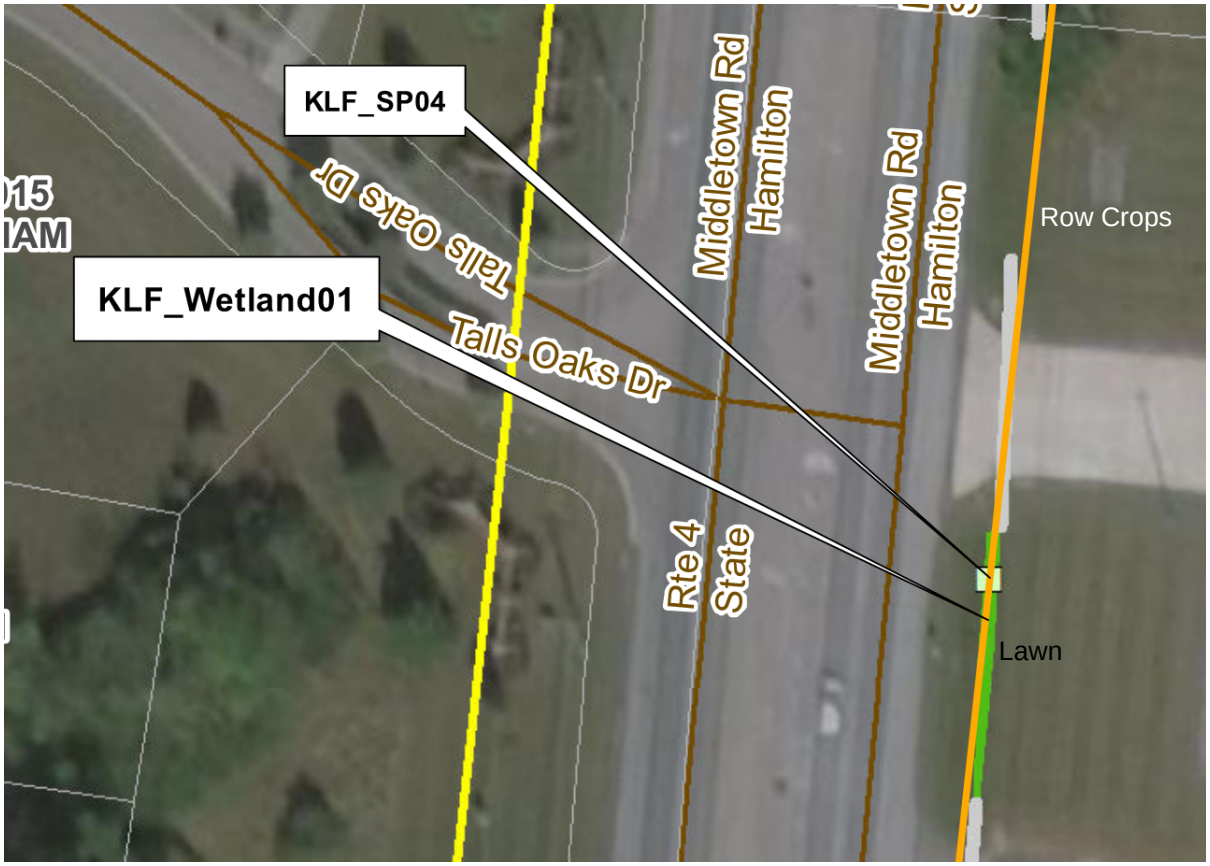
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate	39.452578, -84.420535
USGS Quad Name	Trenton
County	Butler
Township	Lemon
Section and Subsection	036
Hydrologic Unit Code	HUC 0508000207
Site Visit	9/10/2020
National Wetland Inventory Map	No
Ohio Wetland Inventory Map	N/A
Soil Survey	Russell-Miamian silt loams, bedrock substratum, 2 to 6 percent slopes, moderately eroded
Delineation report/map	Previously provided.

Name of Wetland:	KLF_Wetland01
Wetland Size (acres, hectares):	0.007 acres

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.



Comments, Narrative Discussion, Justification of Category Changes:

KLF_Wetland01 is a Palustrine Emergent (PEM) wetland is confined within a roadside swale and parallels Hamilton Middletown Road in Lemon Township.

Final score :	16	**Category:**	1

Scoring Boundary Worksheet

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

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

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

Narrative Rating

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

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

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

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	*Zygadenus elegans var. glaucus*	*Calla palustris*	*Carex cryptolepis*	*Calamagrostis canadensis*
Myriophyllum spicatum	*Cacalia plantaginea*	*Carex atlantica var. capillacea*	*Carex lasiocarpa*	*Calamogrostis stricta*
Najas minor	*Carex flava*	*Carex echinata*	*Carex stricta*	*Carex atherodes*
Phalaris arundinacea	*Carex sterilis*	*Carex oligosperma*	*Cladium mariscoides*	*Carex buxbaumii*
Phragmites australis	*Carex stricta*	*Carex trisperma*	*Calamagrostis stricta*	*Carex pellita*
Potamogeton crispus	*Deschampsia caespitosa*	*Chamaedaphne calyculata*	*Calamagrostis canadensis*	*Carex sartwellii*
Ranunculus ficaria	*Eleocharis rostellata*	*Decodon verticillatus*	*Quercus palustris*	*Gentiana andrewsii*
Rhamnus frangula	*Eriophorum viridicarinatum*	*Eriophorum virginicum*		*Helianthus grosseserratus*
Typha angustifolia	*Gentianopsis spp.*	*Larix laricina*		*Liatris spicata*
Typha xglauca	*Lobelia kalmii*	*Nemopanthus mucronatus*		*Lysimachia quadriflora*
	Parnassia glauca	*Schechzeria palustris*		*Lythrum alatum*
	Potentilla fruticosa	*Sphagnum spp.*		*Pycnanthemum virginianum*
	Rhamnus alnifolia	*Vaccinium macrocarpon*		*Silphium terebinthinaceum*
	Rhynchospora capillacea	*Vaccinium corymbosum*		*Sorghastrum nutans*
	Salix candida	*Vaccinium oxycoccos*		*Spartina pectinata*
	Salix myricoides	*Woodwardia virginica*		*Solidago riddellii*
	Salix serissima	*Xyris difformis*		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

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

ORAM v. 5.0 Field Form Quantitative Rating

Site:	KLF_Wetland01	Rater(s):	JAL/CDC	Date:	9/10/2020

Metric 1. Wetland Area (size).

max 6 pts.	subtotal
0	0

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	<0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

max 14 pts.	subtotal
3	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 <50 (82 to <164ft) around wetland perimeter (4)
	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
0	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)
3	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

max 30 pts.	subtotal
5	8

3a. Sources of Water. Score all that apply

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

3b. Connectivity. Score all that apply

	100 year floodplain (1)
	Between stream/lake and other human use (1)
	Part of wetland/upland (e.g. forest), complex (1)
	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)
1	<0.4m (<15.7in) (1)

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

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

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

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

Check all disturbances observed

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

Metric 4. Habitat Alteration and Development.

max 20 pts.	subtotal
6	14

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

	None or none apparent (4)
	Recovered (3)
2	Recovering (2)
1	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)
2	Poor to fair (2)
	Poor (1)

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

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

Check all disturbances observed

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

subtotal this page
14

ORAM v. 5.0 Field Form Quantitative Rating

Site:	KLF_Wetland01	Rater(s):	JAL/CDC	Date:	9/10/2020

14
subtotal first page

Metric 5. Special Wetlands.

- | 14
max 10 pts. | 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.

2 | 16
max 20 pts. | subtotal

6a. Wetland Vegetation Communities.

Score all present using a 0 to 3 scale.

0	Aquatic bed
1	Emergent
0	Shrub
0	Forest
0	Mudflats
0	Open water
	Other_____

6b. Horizontal (plan view) interspersion.

	High (5)
	Moderately High (4)
	Moderate (3)
	Moderately Low (2)
1	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)
0	Nearly absent <5% cover (0)
	Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

0	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 a 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 a 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.

16
total

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES (NO)	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES (NO)	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES (NO)	If yes, Category 3.
	Question 4. Significant bird habitat	YES (NO)	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES (NO)	If yes, Category 1.
	Question 6. Bogs	YES (NO)	If yes, Category 3.
	Question 7. Fens	YES (NO)	If yes, Category 3.
	Question 8a. Old Growth Forest	YES (NO)	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES (NO)	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES (NO)	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size		0
	Metric 2. Buffers and surrounding land use		3
	Metric 3. Hydrology		5
	Metric 4. Habitat		6
	Metric 5. Special Wetland Communities		0
	Metric 6. Plant communities, interspersion, microtopography		2
	TOTAL SCORE 16		Category based on score breakpoints 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

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

Final Category

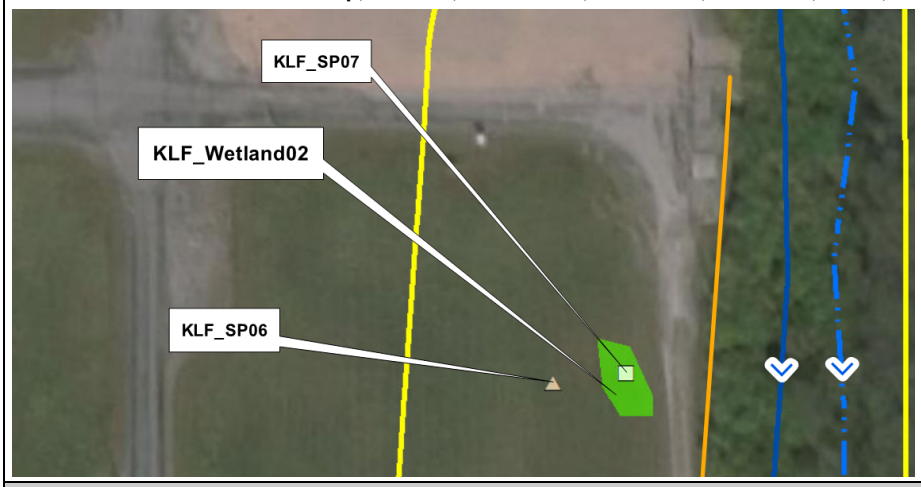
Choose one	Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name:	John Lewis, Chad Clair
Date:	9/10/2020
Affiliation:	Kleinfelder
Address:	51 Dutilh Road, Suite 240 Cranberry Township, PA 16066
Phone Number:	724-772-7072
e-mail address:	jalewis@kleinfelder.com
Name of Wetland:	KLF_Wetland02
Vegetation Communit(ies):	Palustrine Emergent
HGM Class(es):	DEPRESS

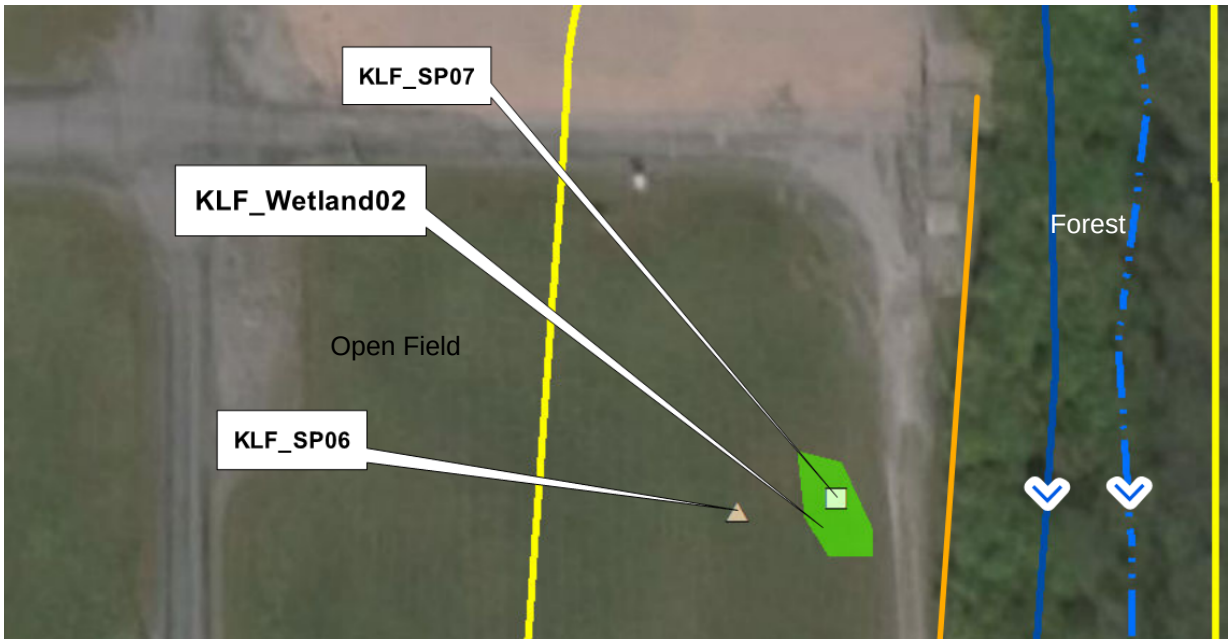
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate	39.44821, -84.45627
USGS Quad Name	Trenton
County	Butler
Township	Madison
Section and Subsection	017
Hydrologic Unit Code	HUC 0508000207
Site Visit	9/10/2020
National Wetland Inventory Map	No
Ohio Wetland Inventory Map	N/A
Soil Survey	Russell silt loam, 2 to 6 percent slopes
Delineation report/map	Previously provided.

Name of Wetland:	KLF_Wetland02
Wetland Size (acres, hectares):	0.017 acres

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.



Comments, Narrative Discussion, Justification of Category Changes:

KLF_Wetland02 is a Palustrine Emergent (PEM) wetland is located in a depressional area within an open field adjacent to existing facilities in Madison Township.

Final score :	17	**Category:**	1

Scoring Boundary Worksheet

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

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

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

Narrative Rating

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

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

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

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	*Zygadenus elegans var. glaucus*	*Calla palustris*	*Carex cryptolepis*	*Calamagrostis canadensis*
Myriophyllum spicatum	*Cacalia plantaginea*	*Carex atlantica var. capillacea*	*Carex lasiocarpa*	*Calamogrostis stricta*
Najas minor	*Carex flava*	*Carex echinata*	*Carex stricta*	*Carex atherodes*
Phalaris arundinacea	*Carex sterilis*	*Carex oligosperma*	*Cladium mariscoides*	*Carex buxbaumii*
Phragmites australis	*Carex stricta*	*Carex trisperma*	*Calamagrostis stricta*	*Carex pellita*
Potamogeton crispus	*Deschampsia caespitosa*	*Chamaedaphne calyculata*	*Calamagrostis canadensis*	*Carex sartwellii*
Ranunculus ficaria	*Eleocharis rostellata*	*Decodon verticillatus*	*Quercus palustris*	*Gentiana andrewsii*
Rhamnus frangula	*Eriophorum viridicarinatum*	*Eriophorum virginicum*		*Helianthus grosseserratus*
Typha angustifolia	*Gentianopsis spp.*	*Larix laricina*		*Liatris spicata*
Typha xglauca	*Lobelia kalmii*	*Nemopanthus mucronatus*		*Lysimachia quadriflora*
	Parnassia glauca	*Schechzeria palustris*		*Lythrum alatum*
	Potentilla fruticosa	*Sphagnum spp.*		*Pycnanthemum virginianum*
	Rhamnus alnifolia	*Vaccinium macrocarpon*		*Silphium terebinthinaceum*
	Rhynchospora capillacea	*Vaccinium corymbosum*		*Sorghastrum nutans*
	Salix candida	*Vaccinium oxycoccos*		*Spartina pectinata*
	Salix myricoides	*Woodwardia virginica*		*Solidago riddellii*
	Salix serissima	*Xyris difformis*		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

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

ORAM v. 5.0 Field Form Quantitative Rating

Site:	KLF_Wetland02	Rater(s):	JAL/CDC	Date:	9/10/2020

Metric 1. Wetland Area (size).

0 (max 6 pts.) | 0 (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)
- [ ] 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] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

3 (max 14 pts.) | 3 (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 <50 (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [0] 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)
- [3] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

6 (max 30 pts.) | 9 (subtotal)

3a. Sources of Water. Score all that apply

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

3b. Connectivity. Score all that apply

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] 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)
- [1] <0.4m (<15.7in) (1)

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

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

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

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

Check all disturbances observed

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

Metric 4. Habitat Alteration and Development.

6 (max 20 pts.) | 15 (subtotal)

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

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [2] Recovering (2)
- [1] 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)
- [2] Poor to fair (2)
- [ ] Poor (1)

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

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

Check all disturbances observed

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

15 (subtotal this page)

ORAM v. 5.0 Field Form Quantitative Rating

Site:	KLF_Wetland02	Rater(s):	JAL/CDC	Date:	9/10/2020

15
subtotal first page

Metric 5. Special Wetlands.

- | 15
max 10 pts. | 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.

2 | 17
max 20 pts. | subtotal

6a. Wetland Vegetation Communities.

Score all present using a 0 to 3 scale.

0	Aquatic bed
1	Emergent
0	Shrub
0	Forest
0	Mudflats
0	Open water
	Other_____

6b. Horizontal (plan view) interspersion.

	High (5)
	Moderately High (4)
	Moderate (3)
	Moderately Low (2)
1	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)
0	Nearly absent <5% cover (0)
	Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

0	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 a 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 a 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.

17
total

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES (NO)	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES (NO)	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES (NO)	If yes, Category 3.
	Question 4. Significant bird habitat	YES (NO)	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES (NO)	If yes, Category 1.
	Question 6. Bogs	YES (NO)	If yes, Category 3.
	Question 7. Fens	YES (NO)	If yes, Category 3.
	Question 8a. Old Growth Forest	YES (NO)	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES (NO)	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES (NO)	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size		0
	Metric 2. Buffers and surrounding land use		3
	Metric 3. Hydrology		6
	Metric 4. Habitat		6
	Metric 5. Special Wetland Communities		0
	Metric 6. Plant communities, interspersion, microtopography		2
	TOTAL SCORE 17		Category based on score breakpoints 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

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

Final Category

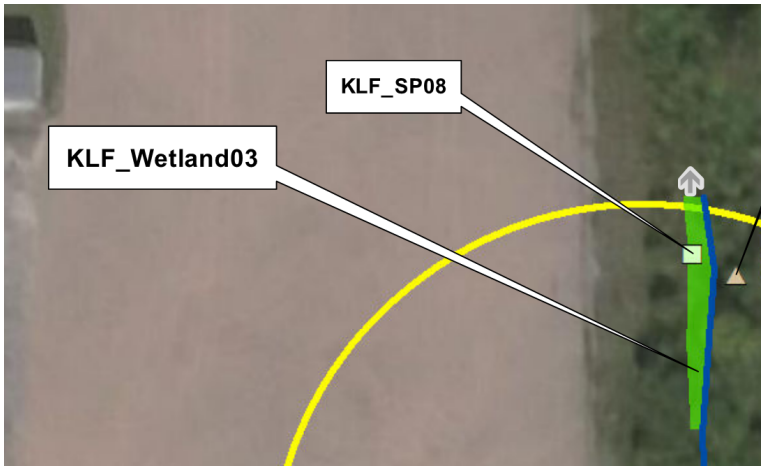
Choose one	Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name:	John Lewis, Chad Clair
Date:	9/10/2020
Affiliation:	Kleinfelder
Address:	51 Dutilh Road, Suite 240 Cranberry Township, PA 16066
Phone Number:	724-772-7072
e-mail address:	jalewis@kleinfelder.com
Name of Wetland:	KLF_Wetland03
Vegetation Communit(ies):	Palustrine Emergent
HGM Class(es):	DEPRESS

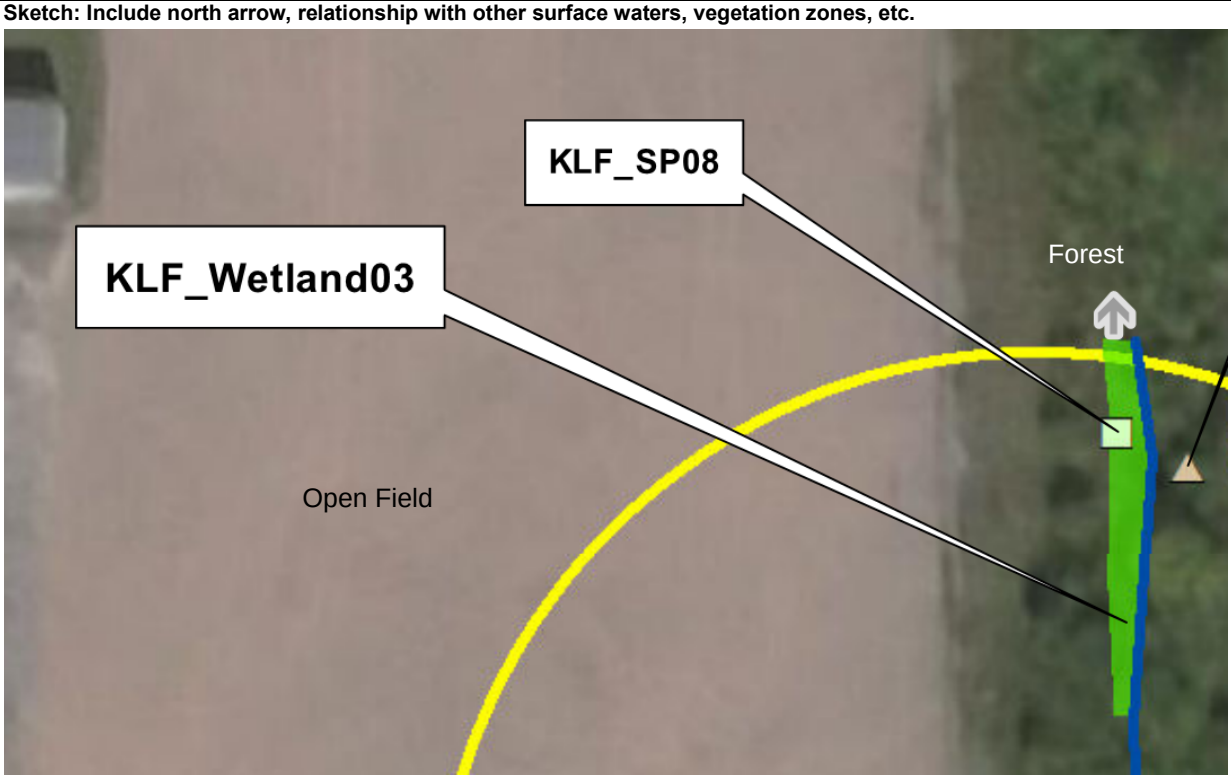
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate	39.448971, -84.456039
USGS Quad Name	Trenton
County	Butler
Township	Madison
Section and Subsection	017
Hydrologic Unit Code	HUC 0508000207
Site Visit	9/10/2020
National Wetland Inventory Map	No
Ohio Wetland Inventory Map	N/A
Soil Survey	Ragsdale silty clay loam, 0 to 2 percent slopes
Delineation report/map	Previously provided.

Name of Wetland:	KLF_Wetland03
Wetland Size (acres, hectares):	0.017 acres

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.



Comments, Narrative Discussion, Justification of Category Changes:

KLF_Wetland03 is a Palustrine Emergent (PEM) wetland is located in the non-FEMA mapped floodplain of KLF_Stream03 (perennial). The eastern border of the wetland directly abuts the stream in Madison Township.

Final score :	28	**Category:**	1

Scoring Boundary Worksheet

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

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

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

Narrative Rating

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

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

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

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	*Zygadenus elegans var. glaucus*	*Calla palustris*	*Carex cryptolepis*	*Calamagrostis canadensis*
Myriophyllum spicatum	*Cacalia plantaginea*	*Carex atlantica var. capillacea*	*Carex lasiocarpa*	*Calamogrostis stricta*
Najas minor	*Carex flava*	*Carex echinata*	*Carex stricta*	*Carex atherodes*
Phalaris arundinacea	*Carex sterilis*	*Carex oligosperma*	*Cladium mariscoides*	*Carex buxbaumii*
Phragmites australis	*Carex stricta*	*Carex trisperma*	*Calamagrostis stricta*	*Carex pellita*
Potamogeton crispus	*Deschampsia caespitosa*	*Chamaedaphne calyculata*	*Calamagrostis canadensis*	*Carex sartwellii*
Ranunculus ficaria	*Eleocharis rostellata*	*Decodon verticillatus*	*Quercus palustris*	*Gentiana andrewsii*
Rhamnus frangula	*Eriophorum viridicarinatum*	*Eriophorum virginicum*		*Helianthus grosseserratus*
Typha angustifolia	*Gentianopsis spp.*	*Larix laricina*		*Liatris spicata*
Typha xglauca	*Lobelia kalmii*	*Nemopanthus mucronatus*		*Lysimachia quadriflora*
	Parnassia glauca	*Schechzeria palustris*		*Lythrum alatum*
	Potentilla fruticosa	*Sphagnum spp.*		*Pycnanthemum virginianum*
	Rhamnus alnifolia	*Vaccinium macrocarpon*		*Silphium terebinthinaceum*
	Rhynchospora capillacea	*Vaccinium corymbosum*		*Sorghastrum nutans*
	Salix candida	*Vaccinium oxycoccos*		*Spartina pectinata*
	Salix myricoides	*Woodwardia virginica*		*Solidago riddellii*
	Salix serissima	*Xyris difformis*		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

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

ORAM v. 5.0 Field Form Quantitative Rating

Site:	KLF_Wetland03	Rater(s):	JAL/CDC	Date:	9/10/2020

0	0
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

	>50 acres (>20.2ha) (6 pts)
	25 to <50 acres (10.1 to <20.2ha (5 pts)
	10 to <25 acres (4 to <10.1ha) (4 pts)
	3 to <10 acres (1.2 to <4ha) (3 pts)
	0.3 to <3 acres (0.12 to <1.2ha (2pts)
	0.1 to <0.3 acres (0.04 to <0.12ha (1 pt)
0	<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 <50 (82 to <164ft) around wetland perimeter (4)
	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
0	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)
5	LOW. Old field (>10 years), shrub land, young second growth forest. (5)
3	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)
1	Precipitation (1)
	Seasonal/Intermittent surface water (3)
5	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	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)
1	<0.4m (<15.7in) (1)

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

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

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

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

Check all disturbances observed

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

9	27
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)
3	Recovered (3)
2	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)
2	Poor to fair (2)
	Poor (1)

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

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

Check all disturbances observed

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

27
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site:	KLF_Wetland03	Rater(s):	JAL/CDC	Date:	9/10/2020

27
subtotal first page

Metric 5. Special Wetlands.

- | 27
max 10 pts. | 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.

1 | 28
max 20 pts. | subtotal

6a. Wetland Vegetation Communities.

Score all present using a 0 to 3 scale.

0	Aquatic bed
1	Emergent
0	Shrub
0	Forest
0	Mudflats
0	Open water
	Other_____

6b. Horizontal (plan view) interspersion.

	High (5)
	Moderately High (4)
	Moderate (3)
	Moderately Low (2)
1	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)
-1	Sparse 5-25% cover (-1)
	Nearly absent <5% cover (0)
	Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

0	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 a 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 a 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
total

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES (NO)	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES (NO)	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES (NO)	If yes, Category 3.
	Question 4. Significant bird habitat	YES (NO)	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES (NO)	If yes, Category 1.
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	Question 10. Oak Openings	YES (NO)	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size		0
	Metric 2. Buffers and surrounding land use		4
	Metric 3. Hydrology		14
	Metric 4. Habitat		9
	Metric 5. Special Wetland Communities		0
	Metric 6. Plant communities, interspersion, microtopography		1
	TOTAL SCORE 28		Category based on score breakpoints 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

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

Final Category

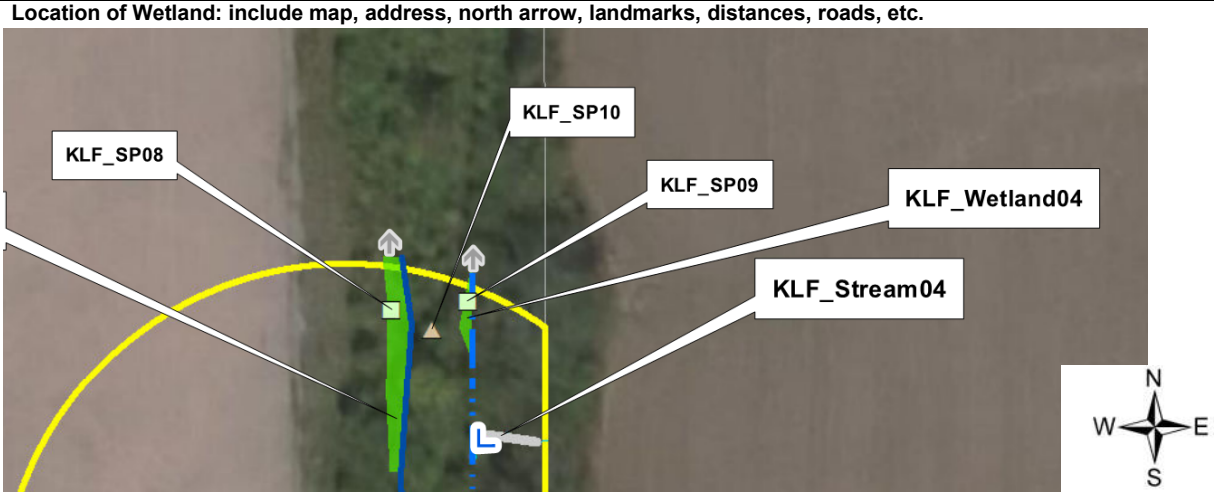
Choose one	Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name:	John Lewis, Chad Clair
Date:	9/10/2020
Affiliation:	Kleinfelder
Address:	51 Dutilh Road, Suite 240 Cranberry Township, PA 16066
Phone Number:	724-772-7072
e-mail address:	jalewis@kleinfelder.com
Name of Wetland:	KLF_Wetland04
Vegetation Communit(ies):	Palustrine Emergent
HGM Class(es):	DEPRESS

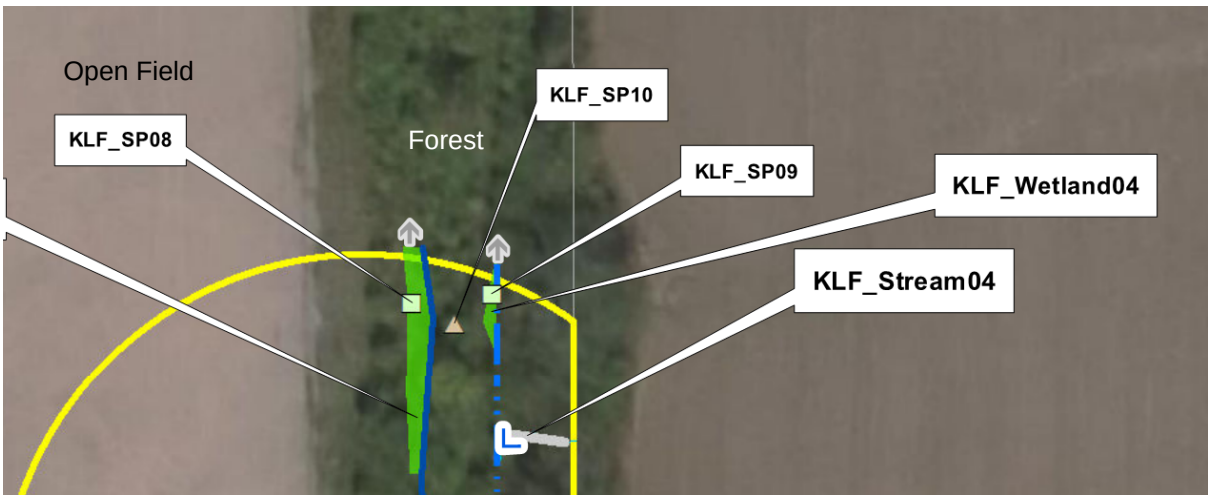
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate	39.448985, -84.455923
USGS Quad Name	Trenton
County	Butler
Township	Madison
Section and Subsection	017
Hydrologic Unit Code	HUC 0508000207
Site Visit	9/10/2020
National Wetland Inventory Map	No
Ohio Wetland Inventory Map	N/A
Soil Survey	Ragsdale silty clay loam, 0 to 2 percent slopes
Delineation report/map	Previously provided.

Name of Wetland:	KLF_Wetland04
Wetland Size (acres, hectares):	0.003 acres

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.



Comments, Narrative Discussion, Justification of Category Changes:

KLF_Wetland04 is a Palustrine Emergent (PEM) wetland is located in a depressional area within the riparian area of KLF_Stream05. The wetland is directly connected to the stream in Madison Township.

Final score :	29	**Category:**	1

Scoring Boundary Worksheet

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

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

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

Narrative Rating

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

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

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

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	*Zygadenus elegans var. glaucus*	*Calla palustris*	*Carex cryptolepis*	*Calamagrostis canadensis*
Myriophyllum spicatum	*Cacalia plantaginea*	*Carex atlantica var. capillacea*	*Carex lasiocarpa*	*Calamogrostis stricta*
Najas minor	*Carex flava*	*Carex echinata*	*Carex stricta*	*Carex atherodes*
Phalaris arundinacea	*Carex sterilis*	*Carex oligosperma*	*Cladium mariscoides*	*Carex buxbaumii*
Phragmites australis	*Carex stricta*	*Carex trisperma*	*Calamagrostis stricta*	*Carex pellita*
Potamogeton crispus	*Deschampsia caespitosa*	*Chamaedaphne calyculata*	*Calamagrostis canadensis*	*Carex sartwellii*
Ranunculus ficaria	*Eleocharis rostellata*	*Decodon verticillatus*	*Quercus palustris*	*Gentiana andrewsii*
Rhamnus frangula	*Eriophorum viridicarinatum*	*Eriophorum virginicum*		*Helianthus grosseserratus*
Typha angustifolia	*Gentianopsis spp.*	*Larix laricina*		*Liatris spicata*
Typha xglauca	*Lobelia kalmii*	*Nemopanthus mucronatus*		*Lysimachia quadriflora*
	Parnassia glauca	*Schechzeria palustris*		*Lythrum alatum*
	Potentilla fruticosa	*Sphagnum spp.*		*Pycnanthemum virginianum*
	Rhamnus alnifolia	*Vaccinium macrocarpon*		*Silphium terebinthinaceum*
	Rhynchospora capillacea	*Vaccinium corymbosum*		*Sorghastrum nutans*
	Salix candida	*Vaccinium oxycoccos*		*Spartina pectinata*
	Salix myricoides	*Woodwardia virginica*		*Solidago riddellii*
	Salix serissima	*Xyris difformis*		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

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

ORAM v. 5.0 Field Form Quantitative Rating

Site:	KLF_Wetland04	Rater(s):	JAL/CDC	Date:	9/10/2020

0	0
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

	>50 acres (>20.2ha) (6 pts)
	25 to <50 acres (10.1 to <20.2ha (5 pts)
	10 to <25 acres (4 to <10.1ha) (4 pts)
	3 to <10 acres (1.2 to <4ha) (3 pts)
	0.3 to <3 acres (0.12 to <1.2ha (2pts)
	0.1 to <0.3 acres (0.04 to <0.12ha (1 pt)
0	<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 <50 (82 to <164ft) around wetland perimeter (4)
	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
0	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)
5	LOW. Old field (>10 years), shrub land, young second growth forest. (5)
3	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

12	16
max 30 pts.	subtotal

Metric 3. Hydrology.

3a. Sources of Water. Score all that apply

	High pH groundwater (5)
	Other groundwater (3)
1	Precipitation (1)
3	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	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)
1	<0.4m (<15.7in) (1)

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

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

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

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

Check all disturbances observed

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

11	27
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)
3	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)
3	Fair (3)
	Poor to fair (2)
	Poor (1)

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

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

Check all disturbances observed

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

27
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site:	KLF_Wetland04	Rater(s):	JAL/CDC	Date:	9/10/2020

27
subtotal first page

Metric 5. Special Wetlands.

- | 27
max 10 pts. | 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.

2 | 29
max 20 pts. | subtotal

6a. Wetland Vegetation Communities.

Score all present using a 0 to 3 scale.

0	Aquatic bed
1	Emergent
0	Shrub
0	Forest
0	Mudflats
0	Open water
	Other_____

6b. Horizontal (plan view) interspersion.

	High (5)
	Moderately High (4)
	Moderate (3)
	Moderately Low (2)
1	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)
0	Nearly absent <5% cover (0)
	Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

0	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 a 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 a 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.

29
total

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES (NO)	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES (NO)	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES (NO)	If yes, Category 3.
	Question 4. Significant bird habitat	YES (NO)	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES (NO)	If yes, Category 1.
	Question 6. Bogs	YES (NO)	If yes, Category 3.
	Question 7. Fens	YES (NO)	If yes, Category 3.
	Question 8a. Old Growth Forest	YES (NO)	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES (NO)	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES (NO)	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size		0
	Metric 2. Buffers and surrounding land use		4
	Metric 3. Hydrology		12
	Metric 4. Habitat		11
	Metric 5. Special Wetland Communities		0
	Metric 6. Plant communities, interspersion, microtopography		2
	TOTAL SCORE 29		Category based on score breakpoints 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

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

Final Category

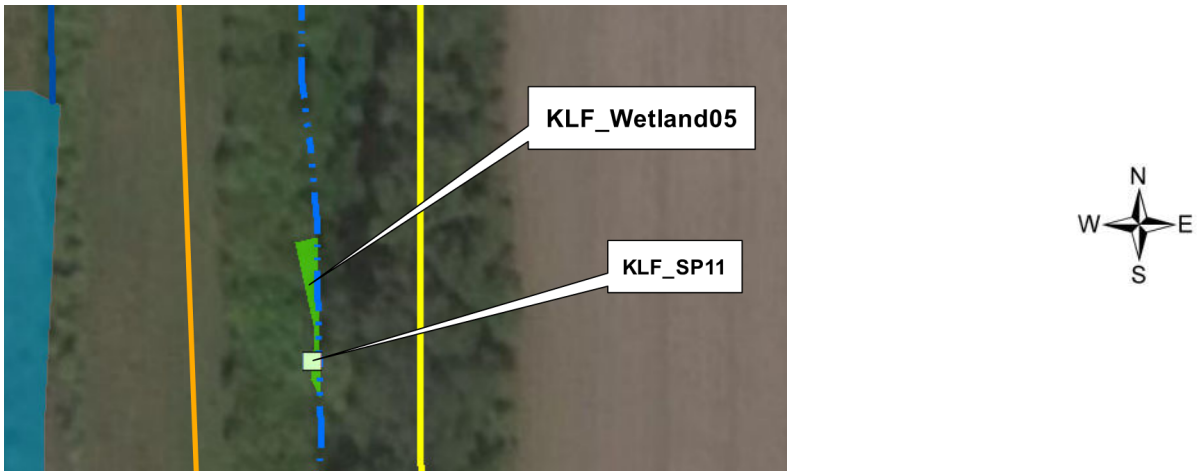
Choose one	Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name:	John Lewis, Chad Clair
Date:	9/10/2020
Affiliation:	Kleinfelder
Address:	51 Dutilh Road, Suite 240 Cranberry Township, PA 16066
Phone Number:	724-772-7072
e-mail address:	jalewis@kleinfelder.com
Name of Wetland:	KLF_Wetland05
Vegetation Communit(ies):	Palustrine Emergent
HGM Class(es):	DEPRESS

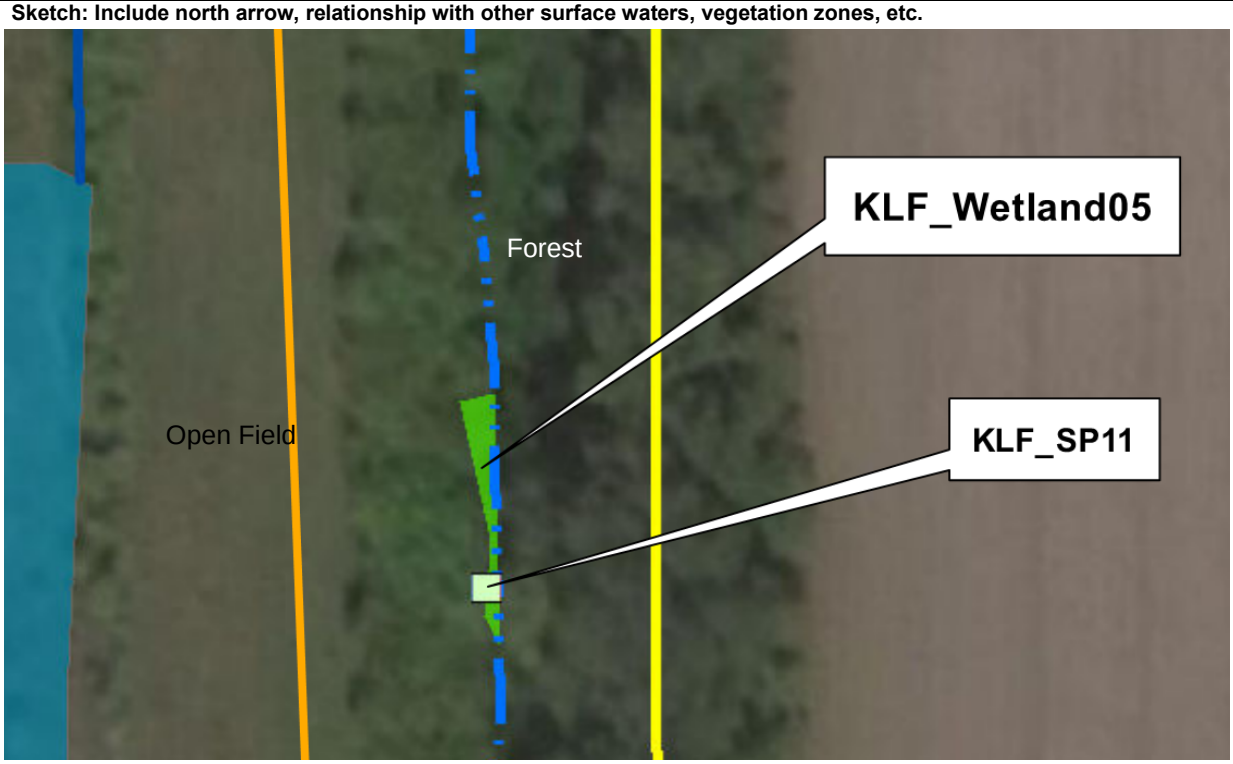
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate	39.445699, -84.455857
USGS Quad Name	Trenton
County	Butler
Township	Madison
Section and Subsection	017
Hydrologic Unit Code	HUC 0508000207
Site Visit	9/10/2020
National Wetland Inventory Map	No
Ohio Wetland Inventory Map	N/A
Soil Survey	Warsaw loam, 0 to 3 percent slopes
Delineation report/map	Previously provided.

Name of Wetland:	KLF_Wetland05
Wetland Size (acres, hectares):	0.007 acres

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.



Comments, Narrative Discussion, Justification of Category Changes:

KLF_Wetland05 is a Palustrine Emergent (PEM) wetland is located in the non-FEMA mapped floodplain of KLF_Stream05 (intermittent). The eastern border of the wetland directly abuts the stream in Madison Township.

Final score :	27	**Category:**	1

Scoring Boundary Worksheet

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

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

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

Narrative Rating

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

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

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

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	*Zygadenus elegans var. glaucus*	*Calla palustris*	*Carex cryptolepis*	*Calamagrostis canadensis*
Myriophyllum spicatum	*Cacalia plantaginea*	*Carex atlantica var. capillacea*	*Carex lasiocarpa*	*Calamogrostis stricta*
Najas minor	*Carex flava*	*Carex echinata*	*Carex stricta*	*Carex atherodes*
Phalaris arundinacea	*Carex sterilis*	*Carex oligosperma*	*Cladium mariscoides*	*Carex buxbaumii*
Phragmites australis	*Carex stricta*	*Carex trisperma*	*Calamagrostis stricta*	*Carex pellita*
Potamogeton crispus	*Deschampsia caespitosa*	*Chamaedaphne calyculata*	*Calamagrostis canadensis*	*Carex sartwellii*
Ranunculus ficaria	*Eleocharis rostellata*	*Decodon verticillatus*	*Quercus palustris*	*Gentiana andrewsii*
Rhamnus frangula	*Eriophorum viridicarinatum*	*Eriophorum virginicum*		*Helianthus grosseserratus*
Typha angustifolia	*Gentianopsis spp.*	*Larix laricina*		*Liatris spicata*
Typha xglauca	*Lobelia kalmii*	*Nemopanthus mucronatus*		*Lysimachia quadriflora*
	Parnassia glauca	*Schechzeria palustris*		*Lythrum alatum*
	Potentilla fruticosa	*Sphagnum spp.*		*Pycnanthemum virginianum*
	Rhamnus alnifolia	*Vaccinium macrocarpon*		*Silphium terebinthinaceum*
	Rhynchospora capillacea	*Vaccinium corymbosum*		*Sorghastrum nutans*
	Salix candida	*Vaccinium oxycoccos*		*Spartina pectinata*
	Salix myricoides	*Woodwardia virginica*		*Solidago riddellii*
	Salix serissima	*Xyris difformis*		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

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

ORAM v. 5.0 Field Form Quantitative Rating

Site:	KLF_Wetland05	Rater(s):	JAL/CDC	Date:	9/10/2020

Metric 1. Wetland Area (size).

0	0
max 6 pts.	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)
	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	<0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

4	4
max 14 pts.	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 <50 (82 to <164ft) around wetland perimeter (4)
	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
0	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)
5	LOW. Old field (>10 years), shrub land, young second growth forest. (5)
3	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

12	16
max 30 pts.	subtotal

3a. Sources of Water. Score all that apply

	High pH groundwater (5)
	Other groundwater (3)
1	Precipitation (1)
3	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	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)
1	<0.4m (<15.7in) (1)

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

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

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

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

Check all disturbances observed

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

Metric 4. Habitat Alteration and Development.

9	25
max 20 pts.	subtotal

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

	None or none apparent (4)
3	Recovered (3)
2	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)
2	Poor to fair (2)
	Poor (1)

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

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

Check all disturbances observed

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

25
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site:	KLF_Wetland05	Rater(s):	JAL/CDC	Date:	9/10/2020

25
subtotal first page

Metric 5. Special Wetlands.

- | 25
max 10 pts. | 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.

2 | 27
max 20 pts. | subtotal

6a. Wetland Vegetation Communities.

Score all present using a 0 to 3 scale.

0	Aquatic bed
1	Emergent
0	Shrub
0	Forest
0	Mudflats
0	Open water
	Other_____

6b. Horizontal (plan view) interspersion.

	High (5)
	Moderately High (4)
	Moderate (3)
	Moderately Low (2)
1	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)
0	Nearly absent <5% cover (0)
	Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

0	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 a 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 a 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.

27
total

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES (NO)	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES (NO)	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES (NO)	If yes, Category 3.
	Question 4. Significant bird habitat	YES (NO)	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES (NO)	If yes, Category 1.
	Question 6. Bogs	YES (NO)	If yes, Category 3.
	Question 7. Fens	YES (NO)	If yes, Category 3.
	Question 8a. Old Growth Forest	YES (NO)	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES (NO)	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES (NO)	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size		0
	Metric 2. Buffers and surrounding land use		4
	Metric 3. Hydrology		12
	Metric 4. Habitat		9
	Metric 5. Special Wetland Communities		0
	Metric 6. Plant communities, interspersion, microtopography		2
	TOTAL SCORE 27		Category based on score breakpoints 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

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

Final Category

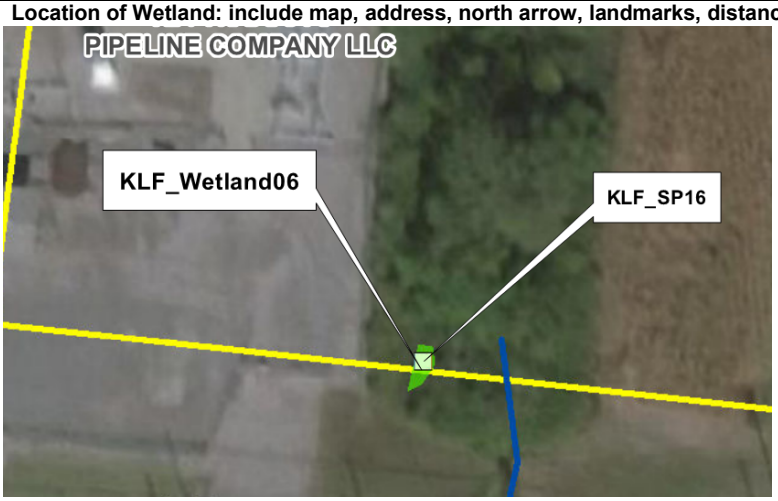
Choose one	Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name:	John Lewis, Chad Clair
Date:	9/10/2020
Affiliation:	Kleinfelder
Address:	51 Dutilh Road, Suite 240 Cranberry Township, PA 16066
Phone Number:	724-772-7072
e-mail address:	jalewis@kleinfelder.com
Name of Wetland:	KLF_Wetland06
Vegetation Communit(ies):	Palustrine Emergent
HGM Class(es):	DEPRESS

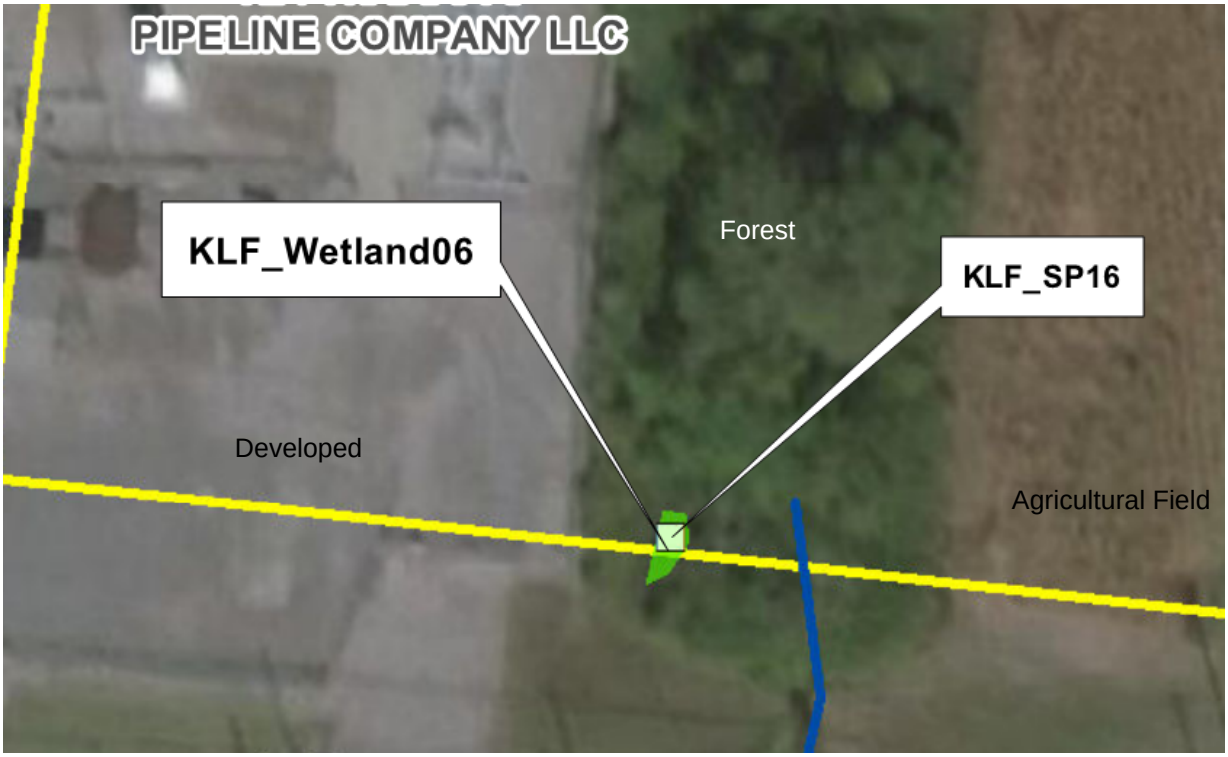
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate	39.459711, -84.391159
USGS Quad Name	Trenton
County	Butler
Township	Lemon
Section and Subsection	019
Hydrologic Unit Code	HUC 0508000207
Site Visit	9/10/2020
National Wetland Inventory Map	No
Ohio Wetland Inventory Map	N/A
Soil Survey	Udorthents
Delineation report/map	Previously provided.

Name of Wetland:	KLF_Wetland06
Wetland Size (acres, hectares):	0.001 acres

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.



Comments, Narrative Discussion, Justification of Category Changes:

KLF_Wetland06 is a Palustrine Emergent (PEM) wetland is located in a depressional area within the non-FEMA floodplain of KLF_Stream07 in Lemon Township.

Final score :	20	**Category:**	1

Scoring Boundary Worksheet

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

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

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

Narrative Rating

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

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

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

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	*Zygadenus elegans var. glaucus*	*Calla palustris*	*Carex cryptolepis*	*Calamagrostis canadensis*
Myriophyllum spicatum	*Cacalia plantaginea*	*Carex atlantica var. capillacea*	*Carex lasiocarpa*	*Calamogrostis stricta*
Najas minor	*Carex flava*	*Carex echinata*	*Carex stricta*	*Carex atherodes*
Phalaris arundinacea	*Carex sterilis*	*Carex oligosperma*	*Cladium mariscoides*	*Carex buxbaumii*
Phragmites australis	*Carex stricta*	*Carex trisperma*	*Calamagrostis stricta*	*Carex pellita*
Potamogeton crispus	*Deschampsia caespitosa*	*Chamaedaphne calyculata*	*Calamagrostis canadensis*	*Carex sartwellii*
Ranunculus ficaria	*Eleocharis rostellata*	*Decodon verticillatus*	*Quercus palustris*	*Gentiana andrewsii*
Rhamnus frangula	*Eriophorum viridicarinatum*	*Eriophorum virginicum*		*Helianthus grosseserratus*
Typha angustifolia	*Gentianopsis spp.*	*Larix laricina*		*Liatris spicata*
Typha xglauca	*Lobelia kalmii*	*Nemopanthus mucronatus*		*Lysimachia quadriflora*
	Parnassia glauca	*Schechzeria palustris*		*Lythrum alatum*
	Potentilla fruticosa	*Sphagnum spp.*		*Pycnanthemum virginianum*
	Rhamnus alnifolia	*Vaccinium macrocarpon*		*Silphium terebinthinaceum*
	Rhynchospora capillacea	*Vaccinium corymbosum*		*Sorghastrum nutans*
	Salix candida	*Vaccinium oxycoccos*		*Spartina pectinata*
	Salix myricoides	*Woodwardia virginica*		*Solidago riddellii*
	Salix serissima	*Xyris difformis*		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

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

ORAM v. 5.0 Field Form Quantitative Rating

Site:	KLF_Wetland06	Rater(s):	JAL/CDC	Date:	9/10/2020

0	0
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

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

2	2
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

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

	WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
	MEDIUM. Buffers average 25m to <50 (82 to <164ft) around wetland perimeter (4)
	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
0	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)
3	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
1	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

6	8
max 30 pts.	subtotal

Metric 3. Hydrology.

3a. Sources of Water. Score all that apply

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

3b. Connectivity. Score all that apply

	100 year floodplain (1)
	Between stream/lake and other human use (1)
	Part of wetland/upland (e.g. forest), complex (1)
	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)
1	<0.4m (<15.7in) (1)

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

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

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

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

Check all disturbances observed

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

10	18
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)
3	Recovered (3)
2	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)
3	Fair (3)
	Poor to fair (2)
	Poor (1)

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

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

Check all disturbances observed

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

18
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site:	KLF_Wetland06	Rater(s):	JAL/CDC	Date:	9/10/2020

18
subtotal first page

- 18
max 10 pts. subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

2 20
max 20 pts. subtotal

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.

Score all present using a 0 to 3 scale.

0	Aquatic bed
1	Emergent
0	Shrub
0	Forest
0	Mudflats
0	Open water
	Other_____

6b. Horizontal (plan view) interspersion.

	High (5)
	Moderately High (4)
	Moderate (3)
	Moderately Low (2)
1	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)
0	Nearly absent <5% cover (0)
	Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

0	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 a 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 a 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.

20
total

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES (NO)	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES (NO)	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES (NO)	If yes, Category 3.
	Question 4. Significant bird habitat	YES (NO)	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES (NO)	If yes, Category 1.
	Question 6. Bogs	YES (NO)	If yes, Category 3.
	Question 7. Fens	YES (NO)	If yes, Category 3.
	Question 8a. Old Growth Forest	YES (NO)	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES (NO)	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES (NO)	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size		0
	Metric 2. Buffers and surrounding land use		2
	Metric 3. Hydrology		6
	Metric 4. Habitat		10
	Metric 5. Special Wetland Communities		0
	Metric 6. Plant communities, interspersion, microtopography		2
	TOTAL SCORE 20		Category based on score breakpoints 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

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

Final Category

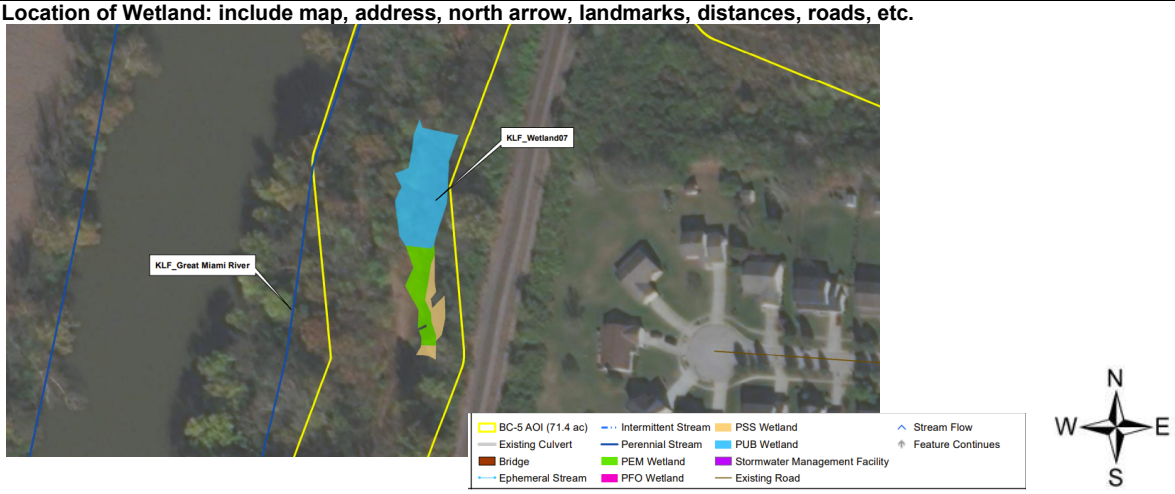
Choose one	Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name:	Spencer Chronister and Mike Poth
Date:	05/10/2021
Affiliation:	Kleinfelder
Address:	51 Dutilh Road, Suite 240 Cranberry Township, PA 16066
Phone Number:	724-772-7072
e-mail address:	SChronister@kleinfelder.com
Name of Wetland:	KLF_Wetland07 (PEM)
Vegetation Communit(ies):	Palustrine Emergent
HGM Class(es):	DEPRESS

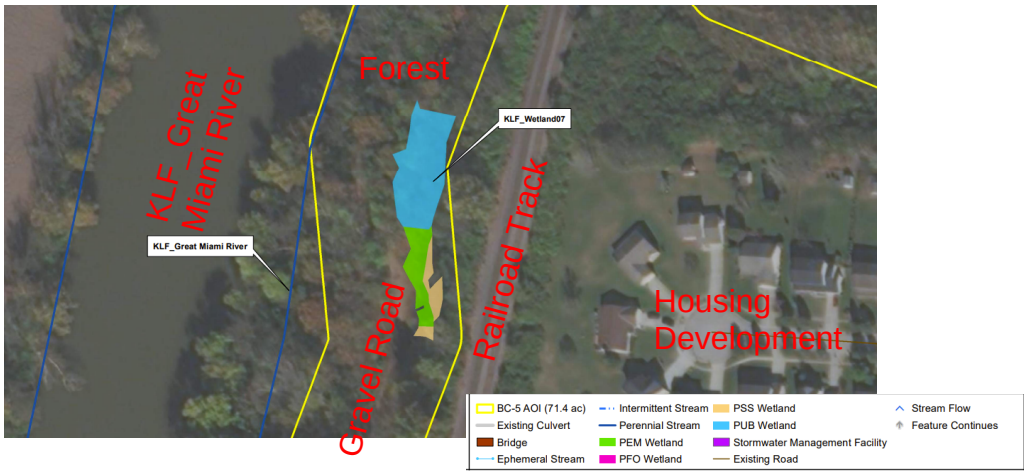
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



Lat/Long or UTM Coordinate	39.451670, -84.431930
USGS Quad Name	Trenton
County	Butler
Township	Lemon
Section and Subsection	036
Hydrologic Unit Code	HUC 0508000207
Site Visit	05/10/2021
National Wetland Inventory Map	No
Ohio Wetland Inventory Map	N/A
Soil Survey	Stonelick fine sandy loam
Delineation report/map	Previously provided.

Name of Wetland: KLF_Wetland07 (PEM)	
Wetland Size (acres, hectares): 0.0619	

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.



Comments, Narrative Discussion, Justification of Category Changes:

KLF_Wetland07 is a Palustrine Emergent (PEM) wetland located on a gentle slope/flat above KLF_Wetland07 (PUB) within the floodplain of KLF_Great Miami River.

Final score : 19	**Category:** 1

Scoring Boundary Worksheet

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

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

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

Narrative Rating

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

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

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

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	*Zygadenus elegans var. glaucus*	*Calla palustris*	*Carex cryptolepis*	*Calamagrostis canadensis*
Myriophyllum spicatum	*Cacalia plantaginea*	*Carex atlantica var. capillacea*	*Carex lasiocarpa*	*Calamogrostis stricta*
Najas minor	*Carex flava*	*Carex echinata*	*Carex stricta*	*Carex atherodes*
Phalaris arundinacea	*Carex sterilis*	*Carex oligosperma*	*Cladium mariscoides*	*Carex buxbaumii*
Phragmites australis	*Carex stricta*	*Carex trisperma*	*Calamagrostis stricta*	*Carex pellita*
Potamogeton crispus	*Deschampsia caespitosa*	*Chamaedaphne calyculata*	*Calamagrostis canadensis*	*Carex sartwellii*
Ranunculus ficaria	*Eleocharis rostellata*	*Decodon verticillatus*	*Quercus palustris*	*Gentiana andrewsii*
Rhamnus frangula	*Eriophorum viridicarinatum*	*Eriophorum virginicum*		*Helianthus grosseserratus*
Typha angustifolia	*Gentianopsis spp.*	*Larix laricina*		*Liatris spicata*
Typha xglauca	*Lobelia kalmii*	*Nemopanthus mucronatus*		*Lysimachia quadriflora*
	Parnassia glauca	*Schechzeria palustris*		*Lythrum alatum*
	Potentilla fruticosa	*Sphagnum spp.*		*Pycnanthemum virginianum*
	Rhamnus alnifolia	*Vaccinium macrocarpon*		*Silphium terebinthinaceum*
	Rhynchospora capillacea	*Vaccinium corymbosum*		*Sorghastrum nutans*
	Salix candida	*Vaccinium oxycoccos*		*Spartina pectinata*
	Salix myricoides	*Woodwardia virginica*		*Solidago riddellii*
	Salix serissima	*Xyris difformis*		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

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

ORAM v. 5.0 Field Form Quantitative Rating

Site:	KLF_Wetland07 (PEM)	Rater(s):	S. Chronister	Date:	5/10/2021

0	0
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

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

6	6
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 <50 (82 to <164ft) around wetland perimeter (4)
1	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)
5	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)

10	16
max 30 pts.	subtotal

Metric 3. Hydrology.

3a. Sources of Water. Score all that apply

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

3b. Connectivity. Score all that apply

1	100 year floodplain (1)
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)

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)
1	<0.4m (<15.7in) (1)

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

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

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

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

Check all disturbances observed

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

5	21
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)
2	Recovering (2)
1	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)
1	Poor (1)

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

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

Check all disturbances observed

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

21
subtotal this page

Site:	KLF_Wetland07 (PEM)	Rater(s):	S. Chronister	Date:	5/10/2021

21
subtotal first page

-
21
max 10 pts. subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

(2)
19
max 20 pts. subtotal

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.

Score all present using a 0 to 3 scale.

0	Aquatic bed
1	Emergent
0	Shrub
0	Forest
0	Mudflats
0	Open water
0	Other_____

6b. Horizontal (plan view) interspersion.

	High (5)
	Moderately High (4)
	Moderate (3)
	Moderately Low (2)
	Low (1)
0	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)
-3	Moderate 25-75% cover (-3)
	Sparse 5-25% cover (-1)
	Nearly absent <5% cover (0)
	Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

0	Vegetated 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 a 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 a 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.

19
total

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES (NO)	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES (NO)	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES (NO)	If yes, Category 3.
	Question 4. Significant bird habitat	YES (NO)	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES (NO)	If yes, Category 1.
	Question 6. Bogs	YES (NO)	If yes, Category 3.
	Question 7. Fens	YES (NO)	If yes, Category 3.
	Question 8a. Old Growth Forest	YES (NO)	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES (NO)	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES (NO)	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size		0
	Metric 2. Buffers and surrounding land use		6
	Metric 3. Hydrology		10
	Metric 4. Habitat		5
	Metric 5. Special Wetland Communities		0
	Metric 6. Plant communities, interspersion, microtopography		-2
	TOTAL SCORE 19		Category based on score breakpoints 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

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

Final Category

Choose one	Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.