Soil Unit Symbol	Soil Unit Name	Acres	% in 1,000 ft Corridor	Hydric
Br	Brookston silty clay loam	69.83	9.62	Y
DaB	Dana silt loam, 0 to 2 percent slopes	4.92	0.68	Y
EdD2	Eden complex, 12 to 18 percent slopes, moderately eroded	13.38	1.84	N
EdE2	Eden complex, 18 to 25 percent slopes, moderately eroded	21.29	2.93	N
EdF2	Eden complex, 25 to 35 percent slopes, moderately eroded	18.33	2.53	N
Ee	Eel loam	4.82	0.66	Y
FaF2	Fairmount-Eden flaggy silty clay loams, 25 to 50 percent slopes, moderately eroded	21.70	2.99	N
FhA	Fincastle silt loam, 0 to 2 percent slopes	18.26	2.52	Y
FlC2	Fox loam, 6 to 12 percent slopes, moderately eroded	8.82	1.22	N
FoD2	Fox-Casco complex, 12 to 18 percent slopes, moderately eroded	1.74	0.24	N
Gn	Genesee loam	21.63	2.98	Y
HeF	Hennepin silt loam, 25 to 35 percent slopes	6.28	0.87	N
HeF2	Hennepin silt loam, 25 to 35 percent slopes, moderately eroded	2.56	0.35	N
HmE2	Hennepin-Miamian silt loams, 18 to 25 percent slopes, moderately eroded	29.20	4.02	N
HnD3	Hennepin-Miamian complex, 12 to 18 percent slopes, severely eroded	5.58	0.77	N
Kg	Kings silty clay loam, thick surface variant	24.14	3.33	Y
MmC3	Miamian clay loam, 6 to 12 percent slopes, severely eroded	4.97	0.68	Y
MnD2	Miamian-Hennepin silt loams, 12 to 18 percent slopes, moderately eroded	0.43	0.06	N
MrC2	Miamian-Russell silt loams, 6 to 12 percent slopes, moderately eroded	19.51	2.69	Y
Pb	Patton silt loam, silted	2.26	0.31	Y
Pc	Patton silty clay loam	111.17	15.31	Y
PlB	Plattville silt loam, 1 to 6 percent slopes	5.40	0.74	Y
PrB	Princeton fine sandy loam, 2 to 6 percent slopes	0.51	0.07	N
PrC2	Princeton fine sandy loam, 6 to 12 percent slopes, moderately eroded	2.78	0.38	N
RpB	Rainsboro silt loam, 2 to 6 percent slopes	6.13	0.84	Y
RvA	Russell-Miamian silt loams, 0 to 2 percent slopes	16.74	2.31	Y
RvB	Russell-Miamian silt loams, 2 to 6 percent slopes	50.55	6.96	Y
RvB2	Russell-Miamian silt loams, 2 to 6 percent slopes, moderately eroded	80.86	11.14	Y
W	Water	7.20	0.99	N
WyB	Wynn silt loam, 2 to 6 percent slopes	6.06	0.84	N
WyB2	Wynn silt loam, 2 to 6 percent slopes, moderately eroded	34.47	4.75	N
WyC2	Wynn silt loam, 6 to 12 percent slopes, moderately eroded	46.06	6.35	N
XeA	Xenia silt loam, 0 to 2 percent slopes	11.93	1.64	Y
XeB	Xenia silt loam, 2 to 6 percent slopes	46.40	6.39	Y

Project Location

REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 01/2017

N

0 150 300 600 Feet

Project Centerline
Hydric Soil Type
Soil Type
Existing Facility
Proposed Structure
Existing Structure
Interstate
US Highway
State Highway
Railroad
County Boundary
Municiple Boundary

DUKE ENERGY.

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FIGURE: 3.10
REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUI
DUKE ENERGY
ENVIRONMENTAL ACCESS INDEX SHEET

DRAWN BY: COD DATE: 1/27/2017
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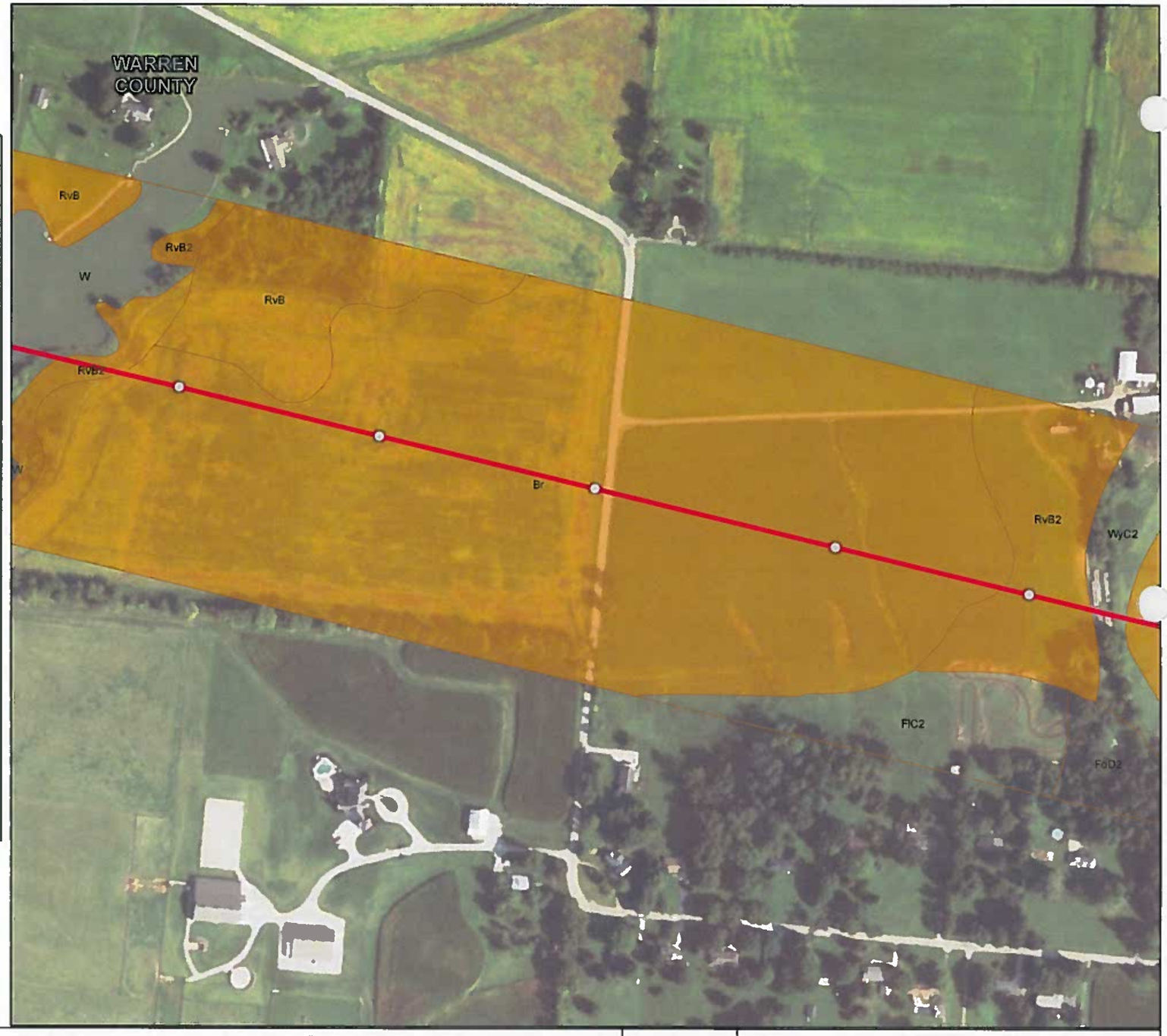
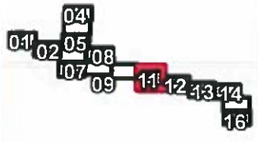
Soil Unit Symbol	Soil Unit Name	Acres	% in 1,000 ft Corridor	Hydric
Br	Brookston silty clay loam	69.83	9.62	Y
DaB	Dana silt loam, 0 to 2 percent slopes	4.92	0.68	Y
EdD2	Eden complex, 12 to 18 percent slopes, moderately eroded	13.38	1.84	N
EdE2	Eden complex, 18 to 25 percent slopes, moderately eroded	21.29	2.93	N
EdF2	Eden complex, 25 to 35 percent slopes, moderately eroded	18.33	2.53	N
Ee	Eel loam	4.82	0.66	Y
FaF2	Fairmount-Eden flaggy silty clay loams, 25 to 50 percent slopes, moderately eroded	21.70	2.99	N
FhA	Fincastle silt loam, 0 to 2 percent slopes	18.26	2.52	Y
FlC2	Fox loam, 6 to 12 percent slopes, moderately eroded	8.82	1.22	N
FoD2	Fox-Casco complex, 12 to 18 percent slopes, moderately eroded	1.74	0.24	N
Gn	Genesee loam	21.63	2.98	Y
HeF	Hennepin silt loam, 25 to 35 percent slopes	6.28	0.87	N
HeF2	Hennepin silt loam, 25 to 35 percent slopes, moderately eroded	2.56	0.35	N
HmE2	Hennepin-Miamian silt loams, 18 to 25 percent slopes, moderately eroded	29.20	4.02	N
HnD3	Hennepin-Miamian complex, 12 to 18 percent slopes, severely eroded	5.58	0.77	N
Kg	Kings silty clay loam, thick surface variant	24.14	3.33	Y
MmC3	Miamian clay loam, 6 to 12 percent slopes, severely eroded	4.97	0.68	Y
MnD2	Miamian-Hennepin silt loams, 12 to 18 percent slopes, moderately eroded	0.43	0.06	N
MrC2	Miamian-Russell silt loams, 6 to 12 percent slopes, moderately eroded	19.51	2.69	Y
Pb	Patton silt loam, silted	2.26	0.31	Y
Pc	Patton silty clay loam	111.17	15.31	Y
PlB	Plattville silt loam, 1 to 6 percent slopes	5.40	0.74	Y
PrB	Princeton fine sandy loam, 2 to 6 percent slopes	0.51	0.07	N
PrC2	Princeton fine sandy loam, 6 to 12 percent slopes, moderately eroded	2.78	0.38	N
RpB	Rainsboro silt loam, 2 to 6 percent slopes	6.13	0.84	Y
RvA	Russell-Miamian silt loams, 0 to 2 percent slopes	16.74	2.31	Y
RvB	Russell-Miamian silt loams, 2 to 6 percent slopes	50.55	6.96	Y
RvB2	Russell-Miamian silt loams, 2 to 6 percent slopes, moderately eroded	80.86	11.14	Y
W	Water	7.20	0.99	N
WyB	Wynn silt loam, 2 to 6 percent slopes	6.06	0.84	N
WyB2	Wynn silt loam, 2 to 6 percent slopes, moderately eroded	34.47	4.75	N
WyC2	Wynn silt loam, 6 to 12 percent slopes, moderately eroded	46.06	6.35	N
XeA	Xenia silt loam, 0 to 2 percent slopes	11.93	1.64	Y
XeB	Xenia silt loam, 2 to 6 percent slopes	46.40	6.39	Y



Project Location



REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 01/2017

N

0 150 300 600 Feet

Project Centerline
Hydric Soil Type
Soil Type
Existing Facility
Proposed Structure
Existing Structure
Interstate
US Highway
State Highway
Railroad
County Boundary
Municiple Boundary

DUKE ENERGY.

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FIGURE: 3.11
REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUI
DUKE ENERGY
ENVIRONMENTAL ACCESS INDEX SHEET

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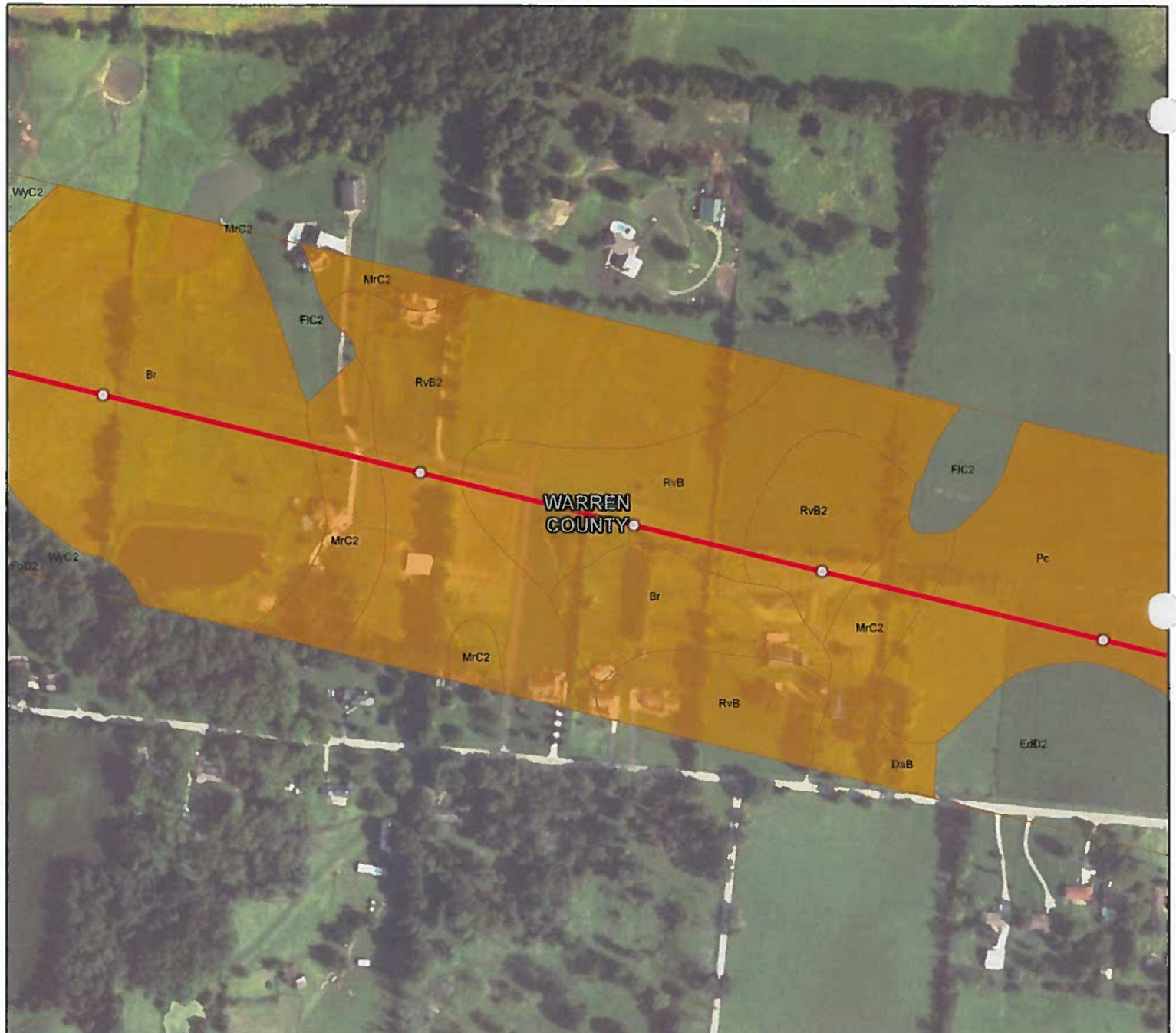
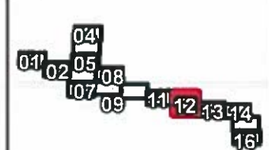
Soil Unit Symbol	Soil Unit Name	Acres	% in 1,000 ft Corridor	Hydric
Br	Brookston silty clay loam	69.83	9.62	Y
DaB	Dana silt loam, 0 to 2 percent slopes	4.92	0.68	Y
EdD2	Eden complex, 12 to 18 percent slopes, moderately eroded	13.38	1.84	N
EdE2	Eden complex, 18 to 25 percent slopes, moderately eroded	21.29	2.93	N
Edf2	Eden complex, 25 to 35 percent slopes, moderately eroded	18.33	2.53	N
Ee	Eel loam	4.82	0.66	Y
FaF2	Fairmount-Eden flaggy silty clay loams, 25 to 50 percent slopes, moderately eroded	21.70	2.99	N
FhA	Fincastle silt loam, 0 to 2 percent slopes	18.26	2.52	Y
FlC2	Fox loam, 6 to 12 percent slopes, moderately eroded	8.82	1.22	N
FoD2	Fox-Casco complex, 12 to 18 percent slopes, moderately eroded	1.74	0.24	N
Gn	Genesee loam	21.63	2.98	Y
HeF	Hennepin silt loam, 25 to 35 percent slopes	6.28	0.87	N
HeF2	Hennepin silt loam, 25 to 35 percent slopes, moderately eroded	2.56	0.35	N
HmE2	Hennepin-Miamian silt loams, 18 to 25 percent slopes, moderately eroded	29.20	4.02	N
HnD3	Hennepin-Miamian complex, 12 to 18 percent slopes, severely eroded	5.58	0.77	N
Kg	Kings silty clay loam, thick surface variant	24.14	3.33	Y
MmC3	Miamian clay loam, 6 to 12 percent slopes, severely eroded	4.97	0.68	Y
MnD2	Miamian-Hennepin silt loams, 12 to 18 percent slopes, moderately eroded	0.43	0.06	N
MrC2	Miamian-Russell silt loams, 6 to 12 percent slopes, moderately eroded	19.51	2.69	Y
Pb	Patton silt loam, silted	2.26	0.31	Y
Pc	Patton silty clay loam	111.17	15.31	Y
PlB	Plattville silt loam, 1 to 6 percent slopes	5.40	0.74	Y
PrB	Princeton fine sandy loam, 2 to 6 percent slopes	0.51	0.07	N
PrC2	Princeton fine sandy loam, 6 to 12 percent slopes, moderately eroded	2.78	0.38	N
RpB	Rainsboro silt loam, 2 to 6 percent slopes	6.13	0.84	Y
RvA	Russell-Miamian silt loams, 0 to 2 percent slopes	16.74	2.31	Y
RvB	Russell-Miamian silt loams, 2 to 6 percent slopes	50.55	6.96	Y
RvB2	Russell-Miamian silt loams, 2 to 6 percent slopes, moderately eroded	80.86	11.14	Y
W	Water	7.20	0.99	N
WyB	Wynn silt loam, 2 to 6 percent slopes	6.06	0.84	N
WyB2	Wynn silt loam, 2 to 6 percent slopes, moderately eroded	34.47	4.75	N
WyC2	Wynn silt loam, 6 to 12 percent slopes, moderately eroded	46.06	6.35	N
XeA	Xenia silt loam, 0 to 2 percent slopes	11.93	1.64	Y
XeB	Xenia silt loam, 2 to 6 percent slopes	46.40	6.39	Y



Project Location



REFERENCE:
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N

0 150 300 600 Feet

Project Centerline
Hydric Soil Type
Soil Type
Existing Facility
Proposed Structure
Existing Structure
Interstate
US Highway
State Highway
Railroad
County Boundary
Municiple Boundary

DUKE ENERGY.

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FIGURE: 3.12
REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
ENVIRONMENTAL ACCESS INDEX SHEET

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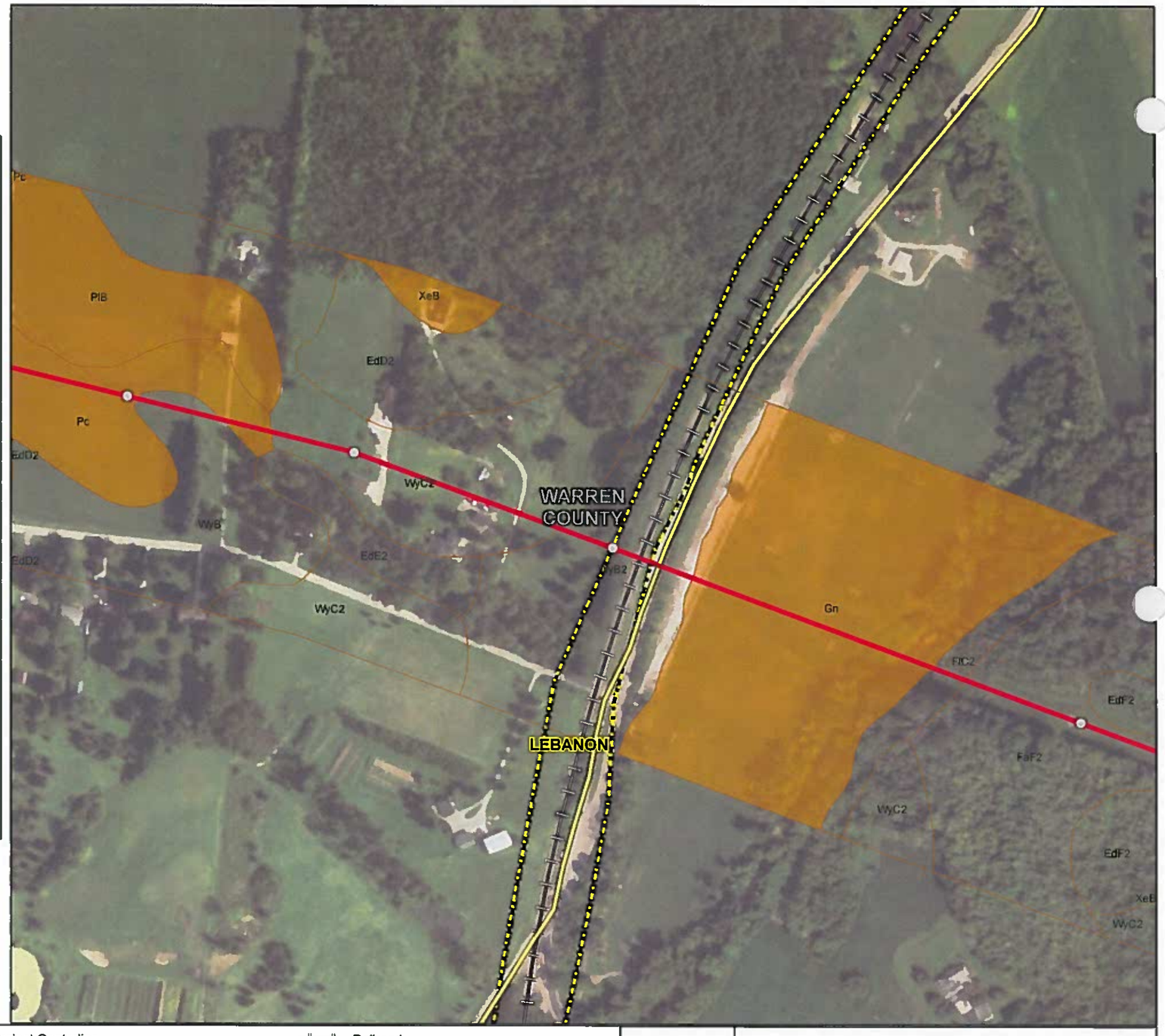
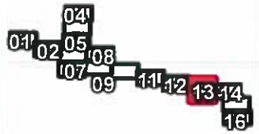
Soil Unit Symbol	Soil Unit Name	Acres	% in 1,000 ft Corridor	Hydric
Br	Brookston silty clay loam	69.83	9.62	Y
DaB	Dana silt loam, 0 to 2 percent slopes	4.92	0.68	Y
EdD2	Eden complex, 12 to 18 percent slopes, moderately eroded	13.38	1.84	N
EdE2	Eden complex, 18 to 25 percent slopes, moderately eroded	21.29	2.93	N
Edf2	Eden complex, 25 to 35 percent slopes, moderately eroded	18.33	2.53	N
Ee	Eel loam	4.82	0.66	Y
FaF2	Fairmount-Eden flaggy silty clay loams, 25 to 50 percent slopes, moderately eroded	21.70	2.99	N
FhA	Fincastle silt loam, 0 to 2 percent slopes	18.26	2.52	Y
FlC2	Fox loam, 6 to 12 percent slopes, moderately eroded	8.82	1.22	N
FoD2	Fox-Casco complex, 12 to 18 percent slopes, moderately eroded	1.74	0.24	N
Gn	Genesee loam	21.63	2.98	Y
HeF	Hennepin silt loam, 25 to 35 percent slopes	6.28	0.87	N
HeF2	Hennepin silt loam, 25 to 35 percent slopes, moderately eroded	2.56	0.35	N
HmE2	Hennepin-Miamian silt loams, 18 to 25 percent slopes, moderately eroded	29.20	4.02	N
HnD3	Hennepin-Miamian complex, 12 to 18 percent slopes, severely eroded	5.58	0.77	N
Kg	Kings silty clay loam, thick surface variant	24.14	3.33	Y
MmC3	Miamian clay loam, 6 to 12 percent slopes, severely eroded	4.97	0.68	Y
MnD2	Miamian-Hennepin silt loams, 12 to 18 percent slopes, moderately eroded	0.43	0.06	N
MrC2	Miamian-Russell silt loams, 6 to 12 percent slopes, moderately eroded	19.51	2.69	Y
Pb	Patton silt loam, silted	2.26	0.31	Y
Pc	Patton silty clay loam	111.17	15.31	Y
PlB	Plattville silt loam, 1 to 6 percent slopes	5.40	0.74	Y
PrB	Princeton fine sandy loam, 2 to 6 percent slopes	0.51	0.07	N
PrC2	Princeton fine sandy loam, 6 to 12 percent slopes, moderately eroded	2.78	0.38	N
RpB	Rainsboro silt loam, 2 to 6 percent slopes	6.13	0.84	Y
RvA	Russell-Miamian silt loams, 0 to 2 percent slopes	16.74	2.31	Y
RvB	Russell-Miamian silt loams, 2 to 6 percent slopes	50.55	6.96	Y
RvB2	Russell-Miamian silt loams, 2 to 6 percent slopes, moderately eroded	80.86	11.14	Y
W	Water	7.20	0.99	N
WyB	Wynn silt loam, 2 to 6 percent slopes	6.06	0.84	N
WyB2	Wynn silt loam, 2 to 6 percent slopes, moderately eroded	34.47	4.75	N
WyC2	Wynn silt loam, 6 to 12 percent slopes, moderately eroded	46.06	6.35	N
XeA	Xenia silt loam, 0 to 2 percent slopes	11.93	1.64	Y
XeB	Xenia silt loam, 2 to 6 percent slopes	46.40	6.39	Y



Project Location



REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 01/2017

N

0 150 300 600 Feet

Project Centerline
Hydric Soil Type
Soil Type
Existing Facility
Proposed Structure
Existing Structure
Interstate
US Highway
State Highway
Railroad
County Boundary
Municiple Boundary

DUKE ENERGY.

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FIGURE: 3.13
REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUI
DUKE ENERGY
ENVIRONMENTAL ACCESS INDEX SHEET

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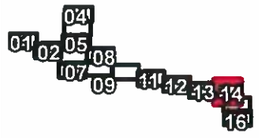
Soil Unit Symbol	Soil Unit Name	Acres	% in 1,000 ft Corridor	Hydric
Br	Brookston silty clay loam	69.83	9.62	Y
DaB	Dana silt loam, 0 to 2 percent slopes	4.92	0.68	Y
EdD2	Eden complex, 12 to 18 percent slopes, moderately eroded	13.38	1.84	N
EdE2	Eden complex, 18 to 25 percent slopes, moderately eroded	21.29	2.93	N
EdF2	Eden complex, 25 to 35 percent slopes, moderately eroded	18.33	2.53	N
Ee	Eel loam	4.82	0.66	Y
FaF2	Fairmount-Eden flaggy silty clay loams, 25 to 50 percent slopes, moderately eroded	21.70	2.99	N
FhA	Fincastle silt loam, 0 to 2 percent slopes	18.26	2.52	Y
FlC2	Fox loam, 6 to 12 percent slopes, moderately eroded	8.82	1.22	N
FoD2	Fox-Casco complex, 12 to 18 percent slopes, moderately eroded	1.74	0.24	N
Gn	Genesee loam	21.63	2.98	Y
HeF	Hennepin silt loam, 25 to 35 percent slopes	6.28	0.87	N
HeF2	Hennepin silt loam, 25 to 35 percent slopes, moderately eroded	2.56	0.35	N
HmE2	Hennepin-Miamian silt loams, 18 to 25 percent slopes, moderately eroded	29.20	4.02	N
HnD3	Hennepin-Miamian complex, 12 to 18 percent slopes, severely eroded	5.58	0.77	N
Kg	Kings silty clay loam, thick surface variant	24.14	3.33	Y
MmC3	Miamian clay loam, 6 to 12 percent slopes, severely eroded	4.97	0.68	Y
MnD2	Miamian-Hennepin silt loams, 12 to 18 percent slopes, moderately eroded	0.43	0.06	N
MrC2	Miamian-Russell silt loams, 6 to 12 percent slopes, moderately eroded	19.51	2.69	Y
Pb	Patton silt loam, silted	2.26	0.31	Y
Pc	Patton silty clay loam	111.17	15.31	Y
PlB	Plattville silt loam, 1 to 6 percent slopes	5.40	0.74	Y
PrB	Princeton fine sandy loam, 2 to 6 percent slopes	0.51	0.07	N
PrC2	Princeton fine sandy loam, 6 to 12 percent slopes, moderately eroded	2.78	0.38	N
RpB	Rainsboro silt loam, 2 to 6 percent slopes	6.13	0.84	Y
RvA	Russell-Miamian silt loams, 0 to 2 percent slopes	16.74	2.31	Y
RvB	Russell-Miamian silt loams, 2 to 6 percent slopes	50.55	6.96	Y
RvB2	Russell-Miamian silt loams, 2 to 6 percent slopes, moderately eroded	80.86	11.14	Y
W	Water	7.20	0.99	N
WyB	Wynn silt loam, 2 to 6 percent slopes	6.06	0.84	N
WyB2	Wynn silt loam, 2 to 6 percent slopes, moderately eroded	34.47	4.75	N
WyC2	Wynn silt loam, 6 to 12 percent slopes, moderately eroded	46.06	6.35	N
XeA	Xenia silt loam, 0 to 2 percent slopes	11.93	1.64	Y
XeB	Xenia silt loam, 2 to 6 percent slopes	46.40	6.39	Y

Project Location



REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 01/2017

N

0 150 300 600 Feet

- Project Centerline
- Hydric Soil Type
- Soil Type
- Existing Facility
- Proposed Structure
- Existing Structure
- Interstate
- US Highway
- State Highway
- Railroad
- County Boundary
- Municiple Boundary

DUKE ENERGY.

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FIGURE: 3.14
REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
ENVIRONMENTAL ACCESS INDEX SHEET

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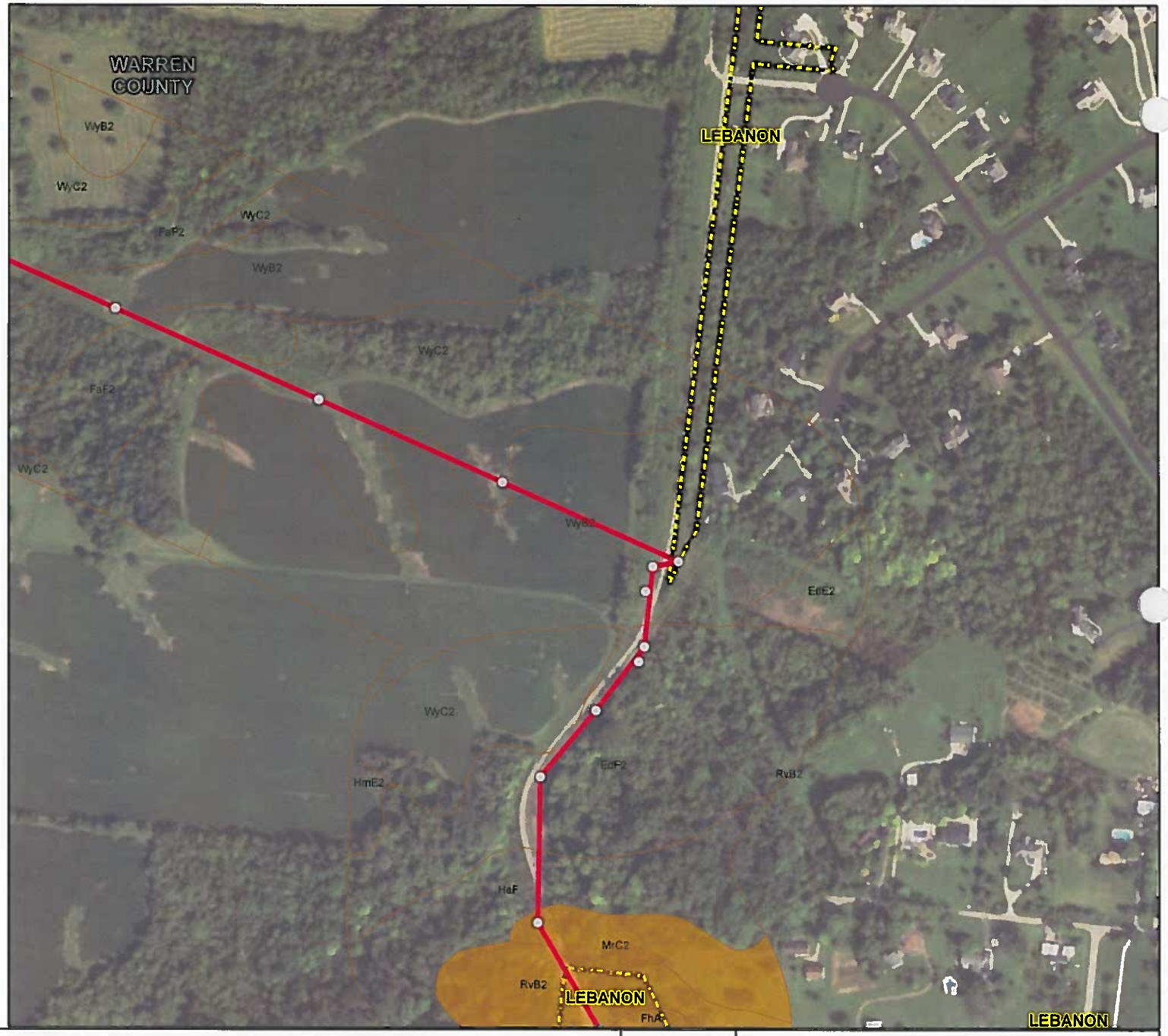
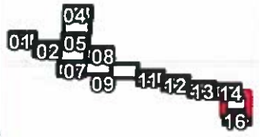
Soil Unit Symbol	Soil Unit Name	Acres	% in 1,000 ft Corridor	Hydric
Br	Brookston silty clay loam	69.83	9.62	Y
DaB	Dana silt loam, 0 to 2 percent slopes	4.92	0.68	Y
EdD2	Eden complex, 12 to 18 percent slopes, moderately eroded	13.38	1.84	N
EdE2	Eden complex, 18 to 25 percent slopes, moderately eroded	21.29	2.93	N
EdF2	Eden complex, 25 to 35 percent slopes, moderately eroded	18.33	2.53	N
Ee	Eel loam	4.82	0.66	Y
FaF2	Fairmount-Eden flaggy silty clay loams, 25 to 50 percent slopes, moderately eroded	21.70	2.99	N
FhA	Fincastle silt loam, 0 to 2 percent slopes	18.26	2.52	Y
FtC2	Fox loam, 6 to 12 percent slopes, moderately eroded	8.82	1.22	N
FoD2	Fox-Casco complex, 12 to 18 percent slopes, moderately eroded	1.74	0.24	N
Gn	Genesee loam	21.63	2.98	Y
HeF	Hennepin silt loam, 25 to 35 percent slopes	6.28	0.87	N
HeF2	Hennepin silt loam, 25 to 35 percent slopes, moderately eroded	2.56	0.35	N
HmE2	Hennepin-Miamian silt loams, 18 to 25 percent slopes, moderately eroded	29.20	4.02	N
HnD3	Hennepin-Miamian complex, 12 to 18 percent slopes, severely eroded	5.58	0.77	N
Kg	Kings silty clay loam, thick surface variant	24.14	3.33	Y
MmC3	Miamian clay loam, 6 to 12 percent slopes, severely eroded	4.97	0.68	Y
MnD2	Miamian-Hennepin silt loams, 12 to 18 percent slopes, moderately eroded	0.43	0.06	N
MrC2	Miamian-Russell silt loams, 6 to 12 percent slopes, moderately eroded	19.51	2.69	Y
Pb	Patton silt loam, silted	2.26	0.31	Y
Pc	Patton silty clay loam	111.17	15.31	Y
PlB	Plattville silt loam, 1 to 6 percent slopes	5.40	0.74	Y
PrB	Princeton fine sandy loam, 2 to 6 percent slopes	0.51	0.07	N
PrC2	Princeton fine sandy loam, 6 to 12 percent slopes, moderately eroded	2.78	0.38	N
RpB	Rainsboro silt loam, 2 to 6 percent slopes	6.13	0.84	Y
RvA	Russell-Miamian silt loams, 0 to 2 percent slopes	16.74	2.31	Y
RvB	Russell-Miamian silt loams, 2 to 6 percent slopes	50.55	6.96	Y
RvB2	Russell-Miamian silt loams, 2 to 6 percent slopes, moderately eroded	80.86	11.14	Y
W	Water	7.20	0.99	N
WyB	Wynn silt loam, 2 to 6 percent slopes	6.06	0.84	N
WyB2	Wynn silt loam, 2 to 6 percent slopes, moderately eroded	34.47	4.75	N
WyC2	Wynn silt loam, 6 to 12 percent slopes, moderately eroded	46.06	6.35	N
XeA	Xenia silt loam, 0 to 2 percent slopes	11.93	1.64	Y
XeB	Xenia silt loam, 2 to 6 percent slopes	46.40	6.39	Y



Project Location



REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 01/2017

N

0 150 300 600 Feet

- Project Centerline
- Hydric Soil Type
- Soil Type
- Existing Facility
- Proposed Structure
- Existing Structure
- Interstate
- US Highway
- State Highway
- Railroad
- County Boundary
- Municiple Boundary

DUKE ENERGY.

Cardno

FIGURE: 3.15
REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
ENVIRONMENTAL ACCESS INDEX SHEET

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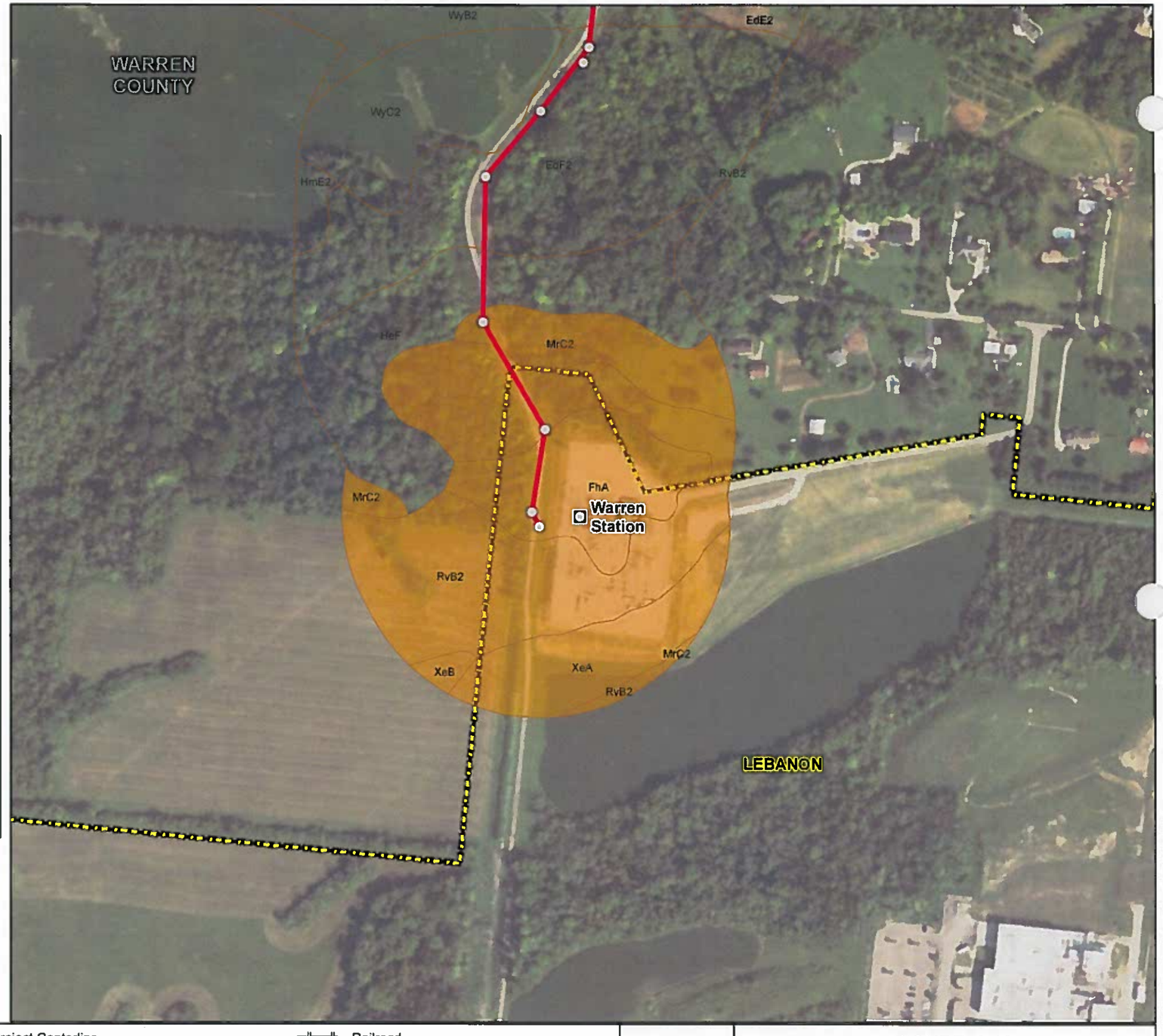
Soil Unit Symbol	Soil Unit Name	Acres	% In 1,000 ft Corridor	Hydric
Br	Brookston silty clay loam	69.83	9.62	Y
DaB	Dana silt loam, 0 to 2 percent slopes	4.92	0.68	Y
EdD2	Eden complex, 12 to 18 percent slopes, moderately eroded	13.38	1.84	N
EdE2	Eden complex, 18 to 25 percent slopes, moderately eroded	21.29	2.93	N
EdF2	Eden complex, 25 to 35 percent slopes, moderately eroded	18.33	2.53	N
Ee	Eel loam	4.82	0.66	Y
FaF2	Fairmount-Eden flaggy silty clay loams, 25 to 50 percent slopes, moderately eroded	21.70	2.99	N
FhA	Fincastle silt loam, 0 to 2 percent slopes	18.26	2.52	Y
FlC2	Fox loam, 6 to 12 percent slopes, moderately eroded	8.82	1.22	N
FoD2	Fox-Casco complex, 12 to 18 percent slopes, moderately eroded	1.74	0.24	N
Gn	Genesee loam	21.63	2.98	Y
HeF	Hennepin silt loam, 25 to 35 percent slopes	6.28	0.87	N
HeF2	Hennepin silt loam, 25 to 35 percent slopes, moderately eroded	2.56	0.35	N
HmE2	Hennepin-Miamian silt loams, 18 to 25 percent slopes, moderately eroded	29.20	4.02	N
HnD3	Hennepin-Miamian complex, 12 to 18 percent slopes, severely eroded	5.58	0.77	N
Kg	Kings silty clay loam, thick surface variant	24.14	3.33	Y
MmC3	Miamian clay loam, 6 to 12 percent slopes, severely eroded	4.97	0.68	Y
MnD2	Miamian-Hennepin silt loams, 12 to 18 percent slopes, moderately eroded	0.43	0.06	N
MrC2	Miamian-Russell silt loams, 6 to 12 percent slopes, moderately eroded	19.51	2.69	Y
Pb	Patton silt loam, silted	2.26	0.31	Y
Pc	Patton silty clay loam	111.17	15.31	Y
PlB	Plattville silt loam, 1 to 6 percent slopes	5.40	0.74	Y
PrB	Princeton fine sandy loam, 2 to 6 percent slopes	0.51	0.07	N
PrC2	Princeton fine sandy loam, 6 to 12 percent slopes, moderately eroded	2.78	0.38	N
RpB	Rainsboro silt loam, 2 to 6 percent slopes	6.13	0.84	Y
RvA	Russell-Miamian silt loams, 0 to 2 percent slopes	16.74	2.31	Y
RvB	Russell-Miamian silt loams, 2 to 6 percent slopes	50.55	6.96	Y
RvB2	Russell-Miamian silt loams, 2 to 6 percent slopes, moderately eroded	80.86	11.14	Y
W	Water	7.20	0.99	N
WyB	Wynn silt loam, 2 to 6 percent slopes	6.06	0.84	N
WyB2	Wynn silt loam, 2 to 6 percent slopes, moderately eroded	34.47	4.75	N
WyC2	Wynn silt loam, 6 to 12 percent slopes, moderately eroded	46.06	6.35	N
XeA	Xenia silt loam, 0 to 2 percent slopes	11.93	1.64	Y
XeB	Xenia silt loam, 2 to 6 percent slopes	46.40	6.39	Y



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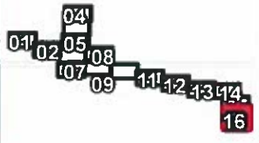

REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 01/2017

N

0 150 300 600 Feet

Project Centerline
Hydric Soil Type
Soil Type
Existing Facility
Proposed Structure
Existing Structure
Interstate
US Highway
State Highway
Railroad
County Boundary
Municiple Boundary

DUKE ENERGY.

Cardno

FIGURE: 3.16
REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
ENVIRONMENTAL ACCESS INDEX SHEET

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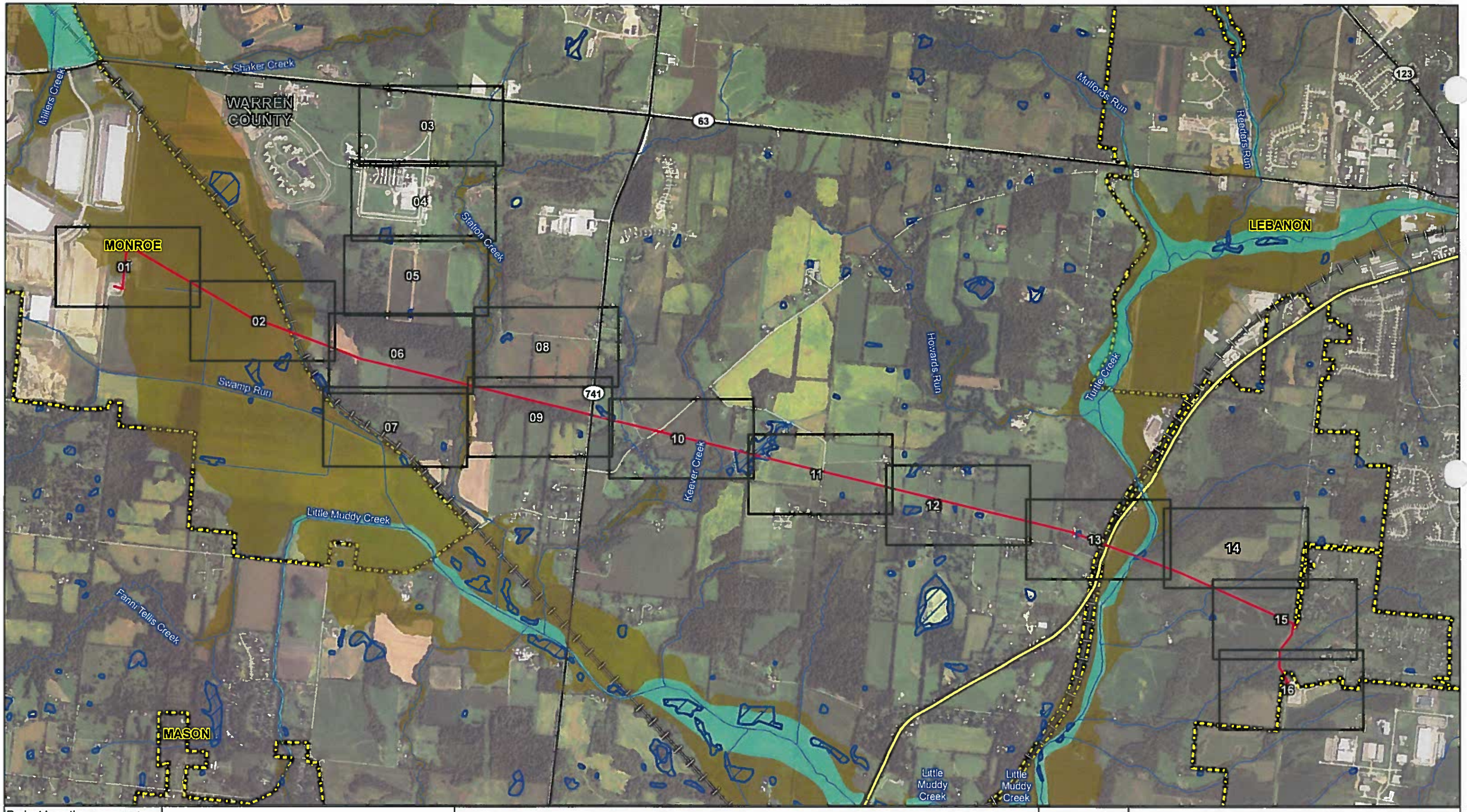

Project Location

REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 01/2017

N

0 1,000 2,000 Feet

- Project Centerline
- Interstate
- US Highway
- State Highway
- Railroad
- NHD Flowline
- 100-Year Floodplain
- Floodway
- NWI Wetland
- County Boundary
- Municiple Boundary
- Sheet Index

DUKE ENERGY.

Cardno

FIGURE:4

REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
DELINEATION KEY

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WRO-12052-669

WRO-12050-100

GATEWAY

WRO-12049-101

5W-12039-668

WRO-12041-150

5W-212-667

WRO-12048-102

Pond 1

WRO-12042-151

5W-213-666

MONROE

WRO-12043-152

WRO-12047-103

UNION

WRO-12044-153

5W-214-665

WRO-12046-104

Nickel Sta 332-A

Nickel Sta. 332-B

Nickel Sta. 332-A

Nickel Sta 332-B

WRO-12045-154

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N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Fence Line
- Study Area
- Potential_Access
- Delineated Stream
- Open Water
- Delineated Wetland
- Interstate
- State Highway
- US Highway
- Railroad
- Road Centerline
- NHD Flowline
- 100-Year Floodplain
- Floodway
- Project Centerline
- Municiple

DUKE ENERGY.

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FIGURE: 4.01

REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
REGULATED WATERS DELINEATION

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IMAGERY MICROSOFT CORPORATION, ACCESSED 01/2017

N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Fence Line
- Study Area
- Potential_Access
- Delineated Stream
- Open Water
- Delineated Wetland
- Interstate
- State Highway
- US Highway
- Railroad
- Road Centerline
- NHD Flowline
- 100-Year Floodplain
- Floodway
- Project Centerline
- Municiple

DUKE ENERGY.

Cardno

FIGURE: 4.02

REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUI
DUKE ENERGY
REGULATED WATERS DELINEATION

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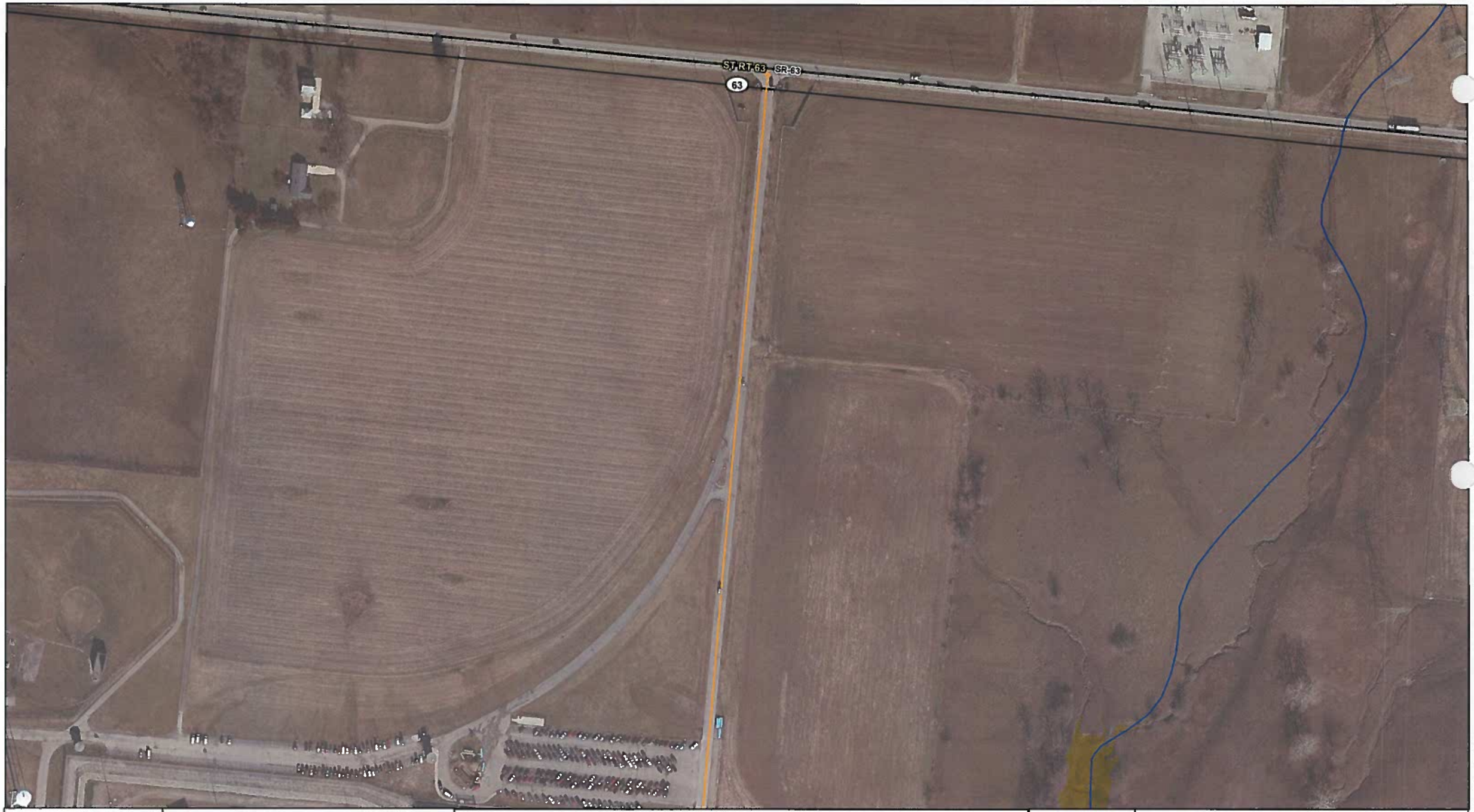

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REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 01/2017

N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Fence Line
- Study Area
- Potential_Access
- Delineated Stream
- Open Water
- Delineated Wetland
- Interstate
- State Highway
- US Highway
- Railroad
- Road Centerline
- NHD Flowline
- 100-Year Floodplain
- Floodway
- Project Centerline
- Municiple

DUKE ENERGY.

Cardno

FIGURE: 4.03
REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUI
DUKE ENERGY
REGULATED WATERS DELINEATION

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SHEET INDEX

REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 01/2017

N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Fence Line
- Study Area
- Potential_Access
- Delineated Stream
- Open Water
- Delineated Wetland
- Interstate
- State Highway
- US Highway
- Railroad
- Road Centerline
- NHD Flowline
- 100-Year Floodplain
- Floodway
- Project Centerline
- Municiple

DUKE ENERGY.

Cardno

FIGURE: 4.04
REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
REGULATED WATERS DELINEATION

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SHEET INDEX

REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 01/2017

N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Fence Line
- Study Area
- Potential_Access
- Delineated Stream
- Open Water
- Delineated Wetland
- Interstate
- State Highway
- US Highway
- Railroad
- Road Centerline
- NHD Flowline
- 100-Year Floodplain
- Floodway
- Project Centerline
- Municiple

DUKE ENERGY.

Cardno

FIGURE: 4.05

REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
REGULATED WATERS DELINEATION

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5W-220-659

5W-221-658

5W-222-657

5W-223-656

5W-224-655

Station Creek

Stream 3

SHEET INDEX

REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 01/2017

N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Fence Line
- Study Area
- Potential_Access
- Delineated Stream
- Open Water
- Delineated Wetland
- Interstate
- State Highway
- US Highway
- Railroad
- Road Centerline
- NHD Flowline
- 100-Year Floodplain
- Floodway
- Project Centerline
- Municiple

DUKE ENERGY.

Cardno

FIGURE: 4.06

REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
REGULATED WATERS DELINEATION

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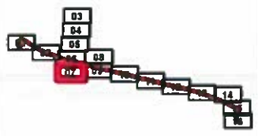

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N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Fence Line
- Study Area
- Potential_Access
- Delineated Stream
- Open Water
- Delineated Wetland
- Interstate
- State Highway
- US Highway
- Railroad
- Road Centerline
- NHD Flowline
- 100-Year Floodplain
- Floodway
- Project Centerline
- Municiple

DUKE ENERGY.

Cardno

FIGURE: 4.07

REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUI
DUKE ENERGY
REGULATED WATERS DELINEATION

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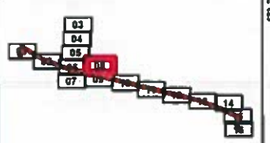

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N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Fence Line
- Study Area
- Potential_Access
- Delineated Stream
- Open Water
- Delineated Wetland
- Interstate
- State Highway
- US Highway
- Railroad
- Road Centerline
- NHD Flowline
- 100-Year Floodplain
- Floodway
- Project Centerline
- Municiple

DUKE ENERGY.

Cardno

FIGURE: 4.08
REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
REGULATED WATERS DELINEATION

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5W-225-654
5W-395-653B
5W-396-653A
5W-226-653
Stream 4
5W-227-652
5W-228-651
ST RT 741
741
SR RT 741
18W-289-650
Pond 2

SHEET INDEX

REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 01/2017

N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Fence Line
- Study Area
- Potential_Access
- Delineated Stream
- Open Water
- Delineated Wetland
- Interstate
- State Highway
- US Highway
- Railroad
- Road Centerline
- NHD Flowline
- 100-Year Floodplain
- Floodway
- Project Centerline
- Municiple

DUKE ENERGY.

Cardno

FIGURE: 4.09
REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
REGULATED WATERS DELINEATION

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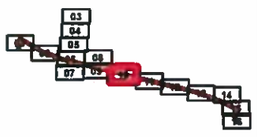
Pond 2
Stream 5
18W-290-649
18W-291-648
HAMILTON
LOWER HAMILTON
18W-292-647
KEEVER
KEEVER
Stream 6
Keever Creek
18W-293-646
18W-294-645
Pond 3

SHEET INDEX



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N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Fence Line
- Study Area
- Potential_Access
- Delineated Stream
- Open Water
- Delineated Wetland
- Interstate
- State Highway
- US Highway
- Railroad
- Road Centerline
- NHD Flowline
- 100-Year Floodplain
- Floodway
- Project Centerline
- Municiple

DUKE ENERGY.

Cardno

FIGURE: 4.10
REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUI
DUKE ENERGY
REGULATED WATERS DELINEATION

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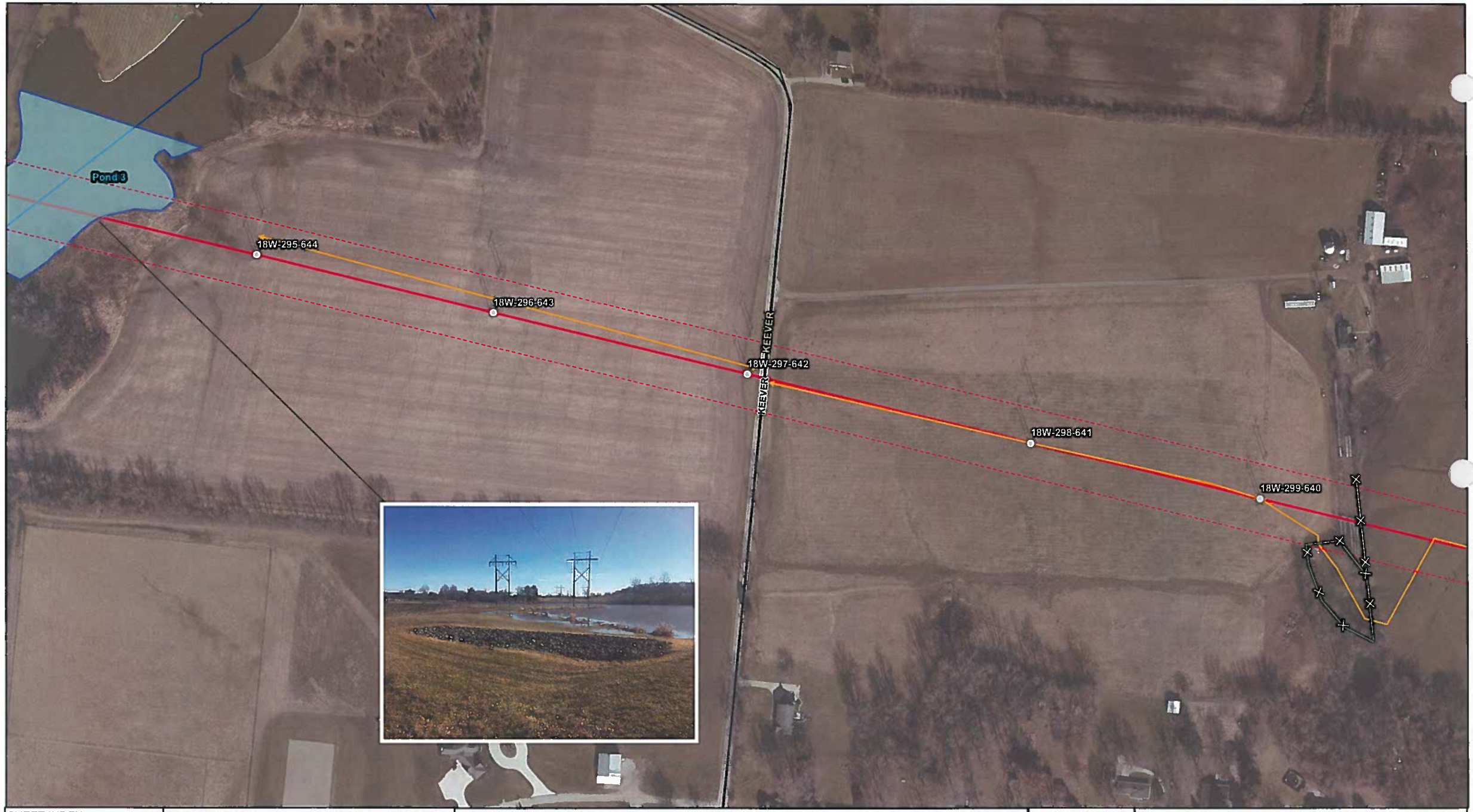

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N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Fence Line
- Study Area
- Potential_Access
- Delineated Stream
- Open Water
- Delineated Wetland
- Interstate
- State Highway
- US Highway
- Railroad
- Road Centerline
- NHD Flowline
- 100-Year Floodplain
- Floodway
- Project Centerline
- Municiple

DUKE ENERGY.

Cardno

FIGURE: 4.11
REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
REGULATED WATERS DELINEATION

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18W-300-639

18W-301-638

18W-302-637

18W-303-636

18W-304-635

Pond 4

Pond 5

wetland 1

KEEVER KEEVER

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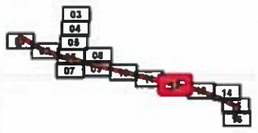

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N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Fence Line
- Study Area
- Potential_Access
- Delineated Stream
- Open Water
- Delineated Wetland
- Interstate
- State Highway
- US Highway
- Railroad
- Road Centerline
- NHD Flowline
- 100-Year Floodplain
- Floodway
- Project Centerline
- Municiple

DUKE ENERGY.

Cardno

FIGURE: 4.12

REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUI
DUKE ENERGY
REGULATED WATERS DELINEATION

DRAWN BY: COD DATE: 2/6/2017
CHECKED: CJ APPROVED: JT

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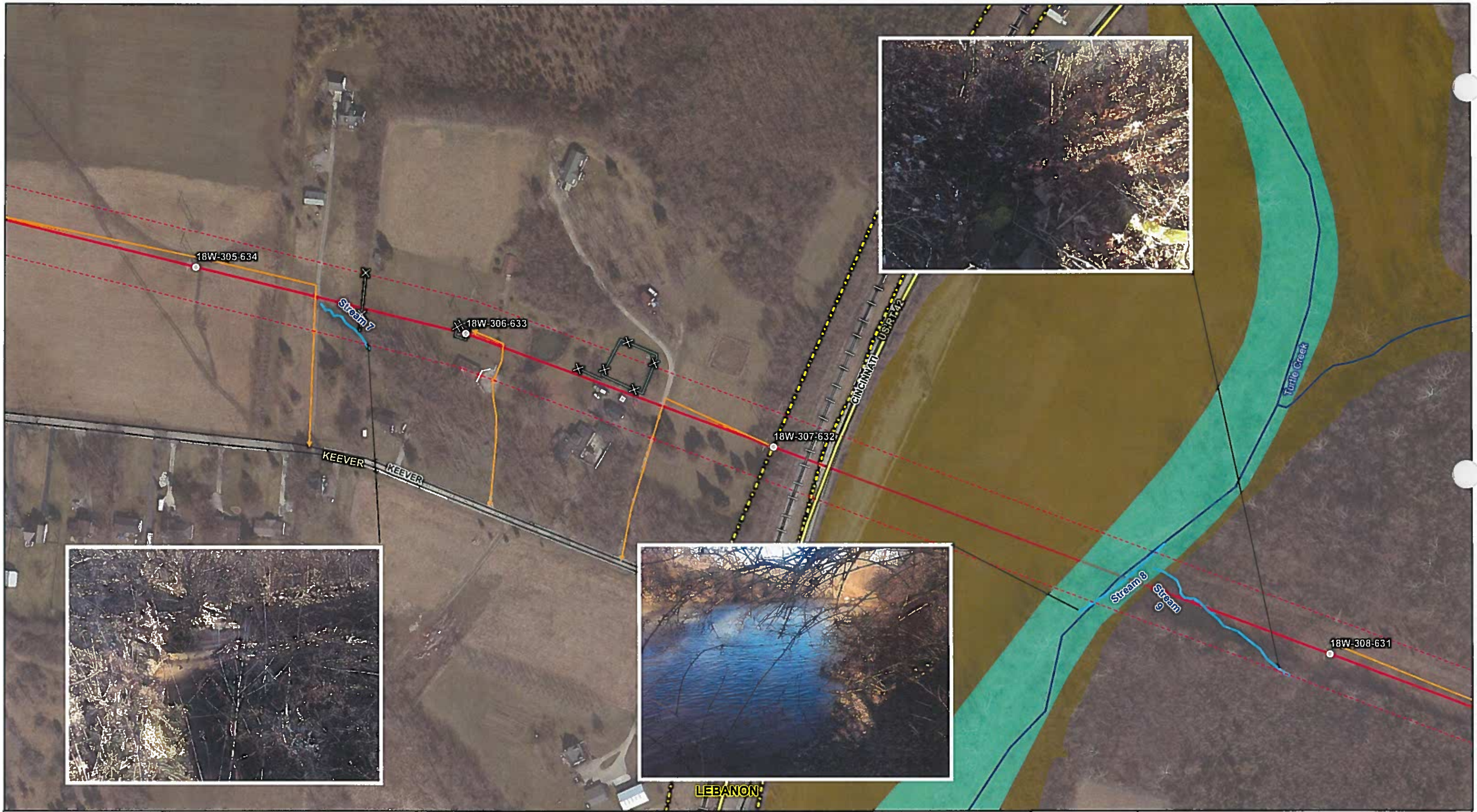

SHEET INDEX

REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 01/2017

N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Fence Line
- Study Area
- Potential_Access
- Delineated Stream
- Open Water
- Delineated Wetland
- Interstate
- State Highway
- US Highway
- Railroad
- Road Centerline
- NHD Flowline
- 100-Year Floodplain
- Floodway
- Project Centerline
- Municiple

DUKE ENERGY.

Cardno

FIGURE: 4.13

REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
REGULATED WATERS DELINEATION

DRAWN BY: COD DATE: 2/6/2017
CHECKED: CJ APPROVED: JT

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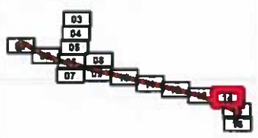
SHEET INDEX



REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 01/2017

N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Fence Line
- Study Area
- Potential_Access
- Delineated Stream
- Open Water
- Delineated Wetland
- Interstate
- State Highway
- US Highway
- Railroad
- Road Centerline
- NHD Flowline
- 100-Year Floodplain
- Floodway
- Project Centerline
- Municiple

DUKE ENERGY.

Cardno

FIGURE: 4.14

REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
REGULATED WATERS DELINEATION

DRAWN BY: COD DATE: 2/6/2017
CHECKED: CJ APPROVED: JT

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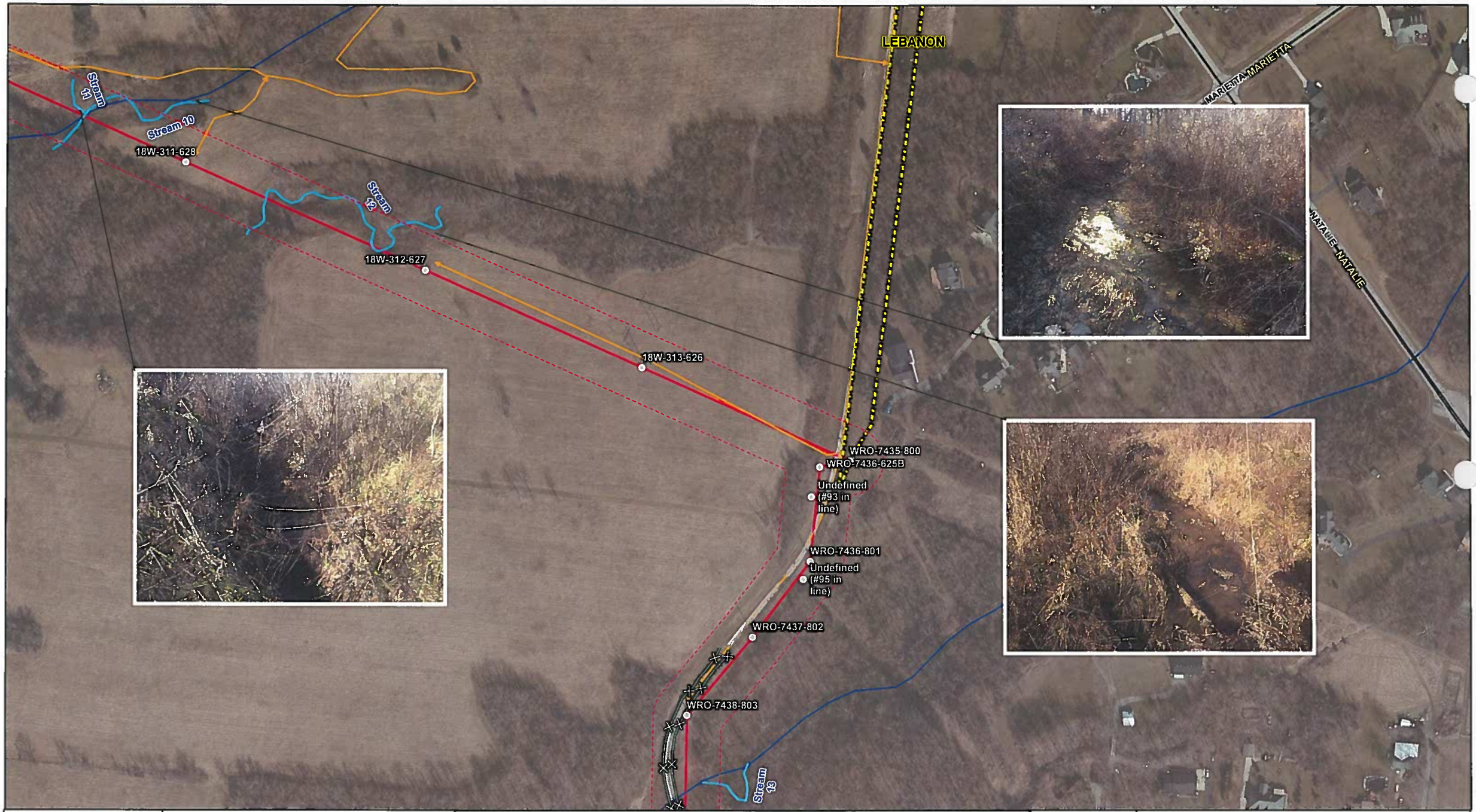

SHEET INDEX

REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 01/2017

N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Fence Line
- Study Area
- Potential_Access
- Delineated Stream
- Open Water
- Delineated Wetland
- Interstate
- State Highway
- US Highway
- Railroad
- Road Centerline
- NHD Flowline
- 100-Year Floodplain
- Floodway
- Project Centerline
- Municiple

DUKE ENERGY.

Cardno

FIGURE: 4.15

REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
REGULATED WATERS DELINEATION

DRAWN BY: COD DATE: 2/6/2017
CHECKED: CJ APPROVED: JT

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WRO-7438-803

Stream 13

Stream 13

WRO-7439-804

TURTLE CREEK-UNION

TURTLECREEK-UNION

WRO-7441-806

Warren Station

WRO-7124-807

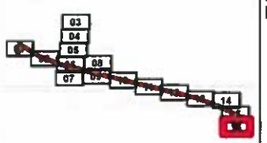
WRO-7123-808

WARREN STA

LEBANON

LEBANON

SHEET INDEX



REFERENCE:
ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 01/2017

N

0 50 100 200 Feet

- Existing Facility
- Proposed Structure
- Existing Structure
- Fence Line
- Study Area
- Potential_Access
- Delineated Stream
- Open Water
- Delineated Wetland
- Interstate
- State Highway
- US Highway
- Railroad
- Road Centerline
- NHD Flowline
- 100-Year Floodplain
- Floodway
- Project Centerline
- Municiple

DUKE ENERGY.

Cardno

FIGURE: 4.16

REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
REGULATED WATERS DELINEATION

DRAWN BY: COD DATE: 2/6/2017
CHECKED: CJ APPROVED: JT

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DUKE ENERGY
NICKEL TO WARREN STATION

APPENDIX

A

SITE PHOTOGRAPHS

Photo 1: Stream 1, Looking Downstream.

Photo 2: Stream 2, Looking west at the stream channel.

Photo 3: Stream 3, Looking Upstream.

Photo 4: Stream 4, Looking Upstream.

Project Number
J156726/145

Site Photographs

Duke Energy — 5680 138kV Nickel to Warren Station - Rebuild
Warren County, Ohio
Regulated Waters Delineation

Cardno
Shaping the Future

Photo 5: Stream 5, Looking Upstream.

Photo 6: Stream 6, Looking Upstream.

Photo 7: Stream 7, Looking Downstream.

Photo 8: Stream 8, Looking Upstream.

Photo 9: Stream 9, looing downstream.

Photo 10: Stream 10, looking Downstream.

Photo 11: Stream 11, looking Upstream.

Photo 12: Stream 12, looking Upstream.

Photo 13: Stream 13, looing Downstream.

Photo 14: Pond 1, looking East.

Photo 15: Pond 2, looking West

Photo 16: Pond 3, looking East.

Photo 17: Pond 4, looing south.

Photo 18: Pond 5, looking South.

Photo 19: Wetland 1, looking North.

Photo 20: Maintained ROW west of SR 741, looking East.

Photo 21: Livestock fence within the ROW, looing East.

Photo 22: Roadside ditch along Hamilton Road, looking Northeast.

Photo 23: Agricultural field and lawn within ROW, looking West.

Photo 24: Eastern ROW through agricultural fields, looking West.

DUKE ENERGY
NICKEL TO WARREN STATION

APPENDIX

B

OHIO HHEI FORMS

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 52

SITE NAME/LOCATION: DUKE - 5680 138kV Nickel to Warren Station

SITE NUMBER: Stream 1 | RIVER BASIN: Little Miami River | DRAINAGE AREA (mi²): 0.18

LENGTH OF STREAM REACH (ft): | LAT.: | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 01/04/17 | SCORER: DGV / CAJ | COMMENTS:

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	50%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	20%	☐ ☐	MUCK [0 pts]	0%
☑ ☐	SAND (<2 mm) [6 pts]	30%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) | 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 | TOTAL NUMBER OF SUBSTRATE TYPES: 3

HHEI Metric Points

Substrate Max = 40: **12**

A + B

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

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

COMMENTS: | MAXIMUM POOL DEPTH (centimeters): 12

Pool Depth Max = 30: **25**

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

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

COMMENTS: | AVERAGE BANKFULL WIDTH (meters): 1.30

Bankfull Width Max=30: **15**

This information must also be completed

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

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

COMMENTS: All within maintained ROW - adjacent to Ag field

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

- ☑ Stream Flowing
- ☐ Subsurface flow with Isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS: recent rain

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

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

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Little Muddy Creek Distance from Evaluated Stream 1.56

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

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

County: Warren Township / City: Monroe

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: 0.00

Photograph Information: See Photolog on Figures

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

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

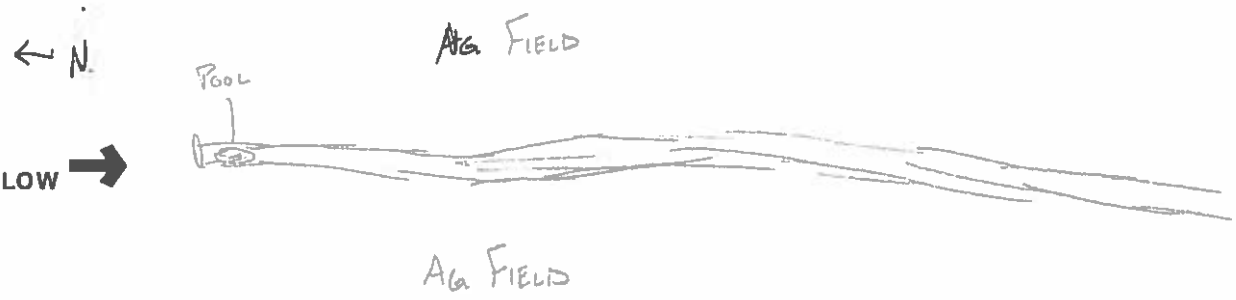
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

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

Comments Regarding Biology: _____

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

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



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Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 32

SITE NAME/LOCATION: DUKE - 5680 138kV Nickel to Warren Station

SITE NUMBER: Stream 2 RIVER BASIN: Little Miami River DRAINAGE AREA (mi²): 0.20

LENGTH OF STREAM REACH (ft): LAT.: LONG.: RIVER CODE: RIVER MILE:

DATE: 01/04/17 SCORER: DGV / CAJ COMMENTS:

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	50%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	20%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	30%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3

HHEI Metric Points

Substrate Max = 40: 12

A + B

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

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

COMMENTS: MAXIMUM POOL DEPTH (centimeters): 12

Pool Depth Max = 30: 15

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

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

COMMENTS: AVERAGE BANKFULL WIDTH (meters): 0.90

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS: All within maintained ROW - adjacent to RR tracks & Ag field

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

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel no water (Ephemeral)

COMMENTS: recent rain

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

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

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? - [ ] Yes [✓] No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

[✓] WWH Name: Little Muddy Creek Distance from Evaluated Stream 1.01

[ ] CWH Name: _____ Distance from Evaluated Stream _____

[ ] EWH Name: _____ Distance from Evaluated Stream _____

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

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

County: Warren Township / City: Monroe

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: 0.00

Photograph Information: See Photolog on Figures

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

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

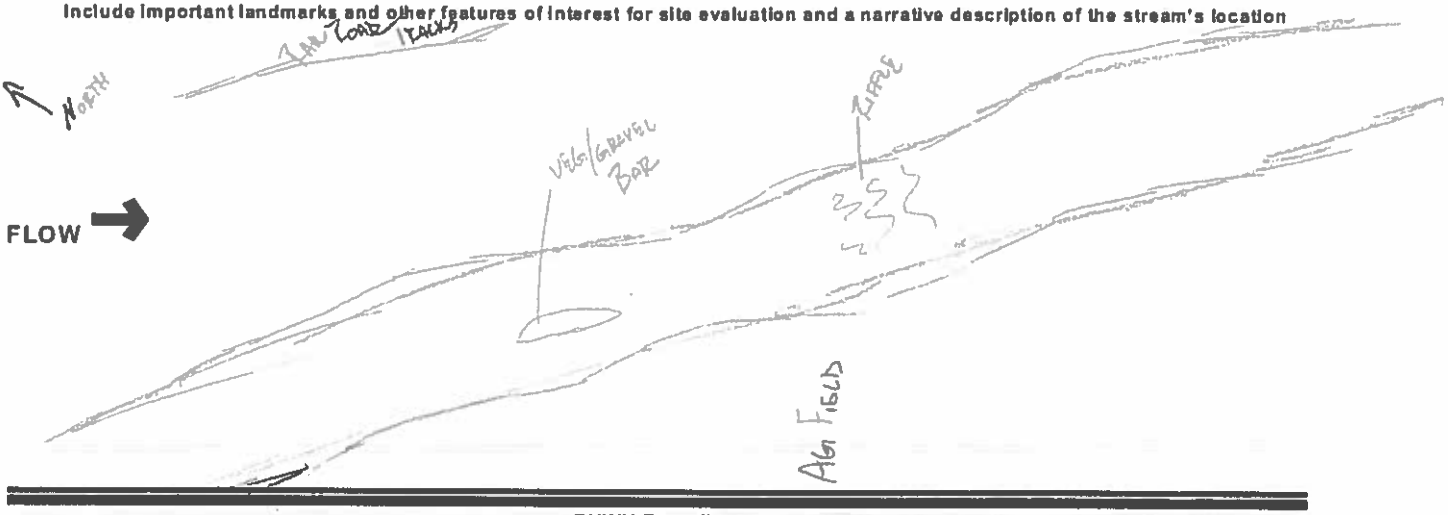
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

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

Comments Regarding Biology: _____

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

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



Save as pdf Reset Form

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 43

SITE NAME/LOCATION: DUKE - 5680 138kV Nickel to Warren Station

SITE NUMBER: Stream 3 RIVER BASIN: Little Miami River DRAINAGE AREA (mi²): 0.11

LENGTH OF STREAM REACH (ft): _____ LAT: _____ LONG: _____ RIVER CODE: _____ RIVER MILE: _____

DATE: 01/04/17 SCORER: DGV / CAJ COMMENTS: _____

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	40%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	10%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	20%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	30%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10.00% (A) (B) 100%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 4

HHEI Metric Points

Substrate Max = 40: 13

A + B

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

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

COMMENTS: _____ MAXIMUM POOL DEPTH (centimeters): 10

Pool Depth Max = 30: 15

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

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

COMMENTS: _____ AVERAGE BANKFULL WIDTH (meters): 1.10

Bankfull Width Max=30: 15

This information must also be completed

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

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

COMMENTS: All within maintained ROW - Narrow Riparian buffer outside of ROW

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

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel no water (Ephemeral)

COMMENTS: recent rain

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

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

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Little Muddy Creek Distance from Evaluated Stream 1.10

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

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

County: Warren Township / City: Deerfield Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: 0.00

Photograph Information: See Photolog on Figures

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

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

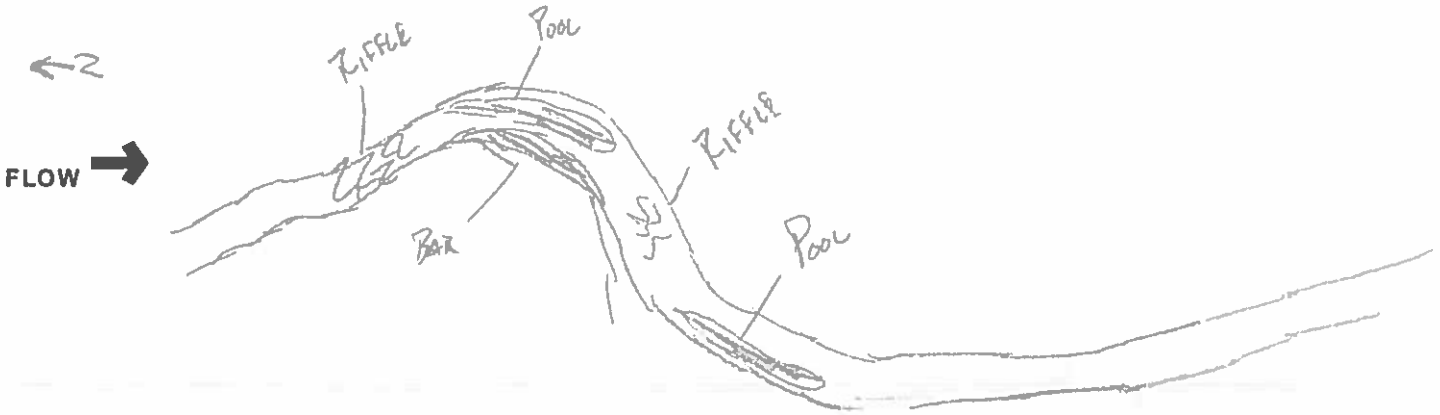
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

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

Comments Regarding Biology: _____

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

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



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Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 43

SITE NAME/LOCATION: DUKE - 5680 138kV Nickel to Warren Station

SITE NUMBER: Stream 4 | RIVER BASIN: Little Miami River | DRAINAGE AREA (mi²): 0.25

LENGTH OF STREAM REACH (ft): | LAT.: | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 01/04/17 | SCORER: DGV / CAJ | COMMENTS:

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	40%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	10%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	20%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	30%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10.00% (A) | Substrate Percentages Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 | TOTAL NUMBER OF SUBSTRATE TYPES: 4

HHEI Metric Points

Substrate Max = 40: 13

A + B

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

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

COMMENTS: | MAXIMUM POOL DEPTH (centimeters): 10

Pool Depth Max = 30: 15

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

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

COMMENTS: | AVERAGE BANKFULL WIDTH (meters): 1.20

Bankfull Width Max=30: 15

This information must also be completed

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

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

COMMENTS: All within maintained ROW - Narrow Riparian buffer outside of ROW

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

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS: recent rain

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

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

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Little Muddy Creek Distance from Evaluated Stream 0.90

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

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

County: Warren Township / City: Deerfield Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: 0.00

Photograph Information: See Photolog on Figures

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

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

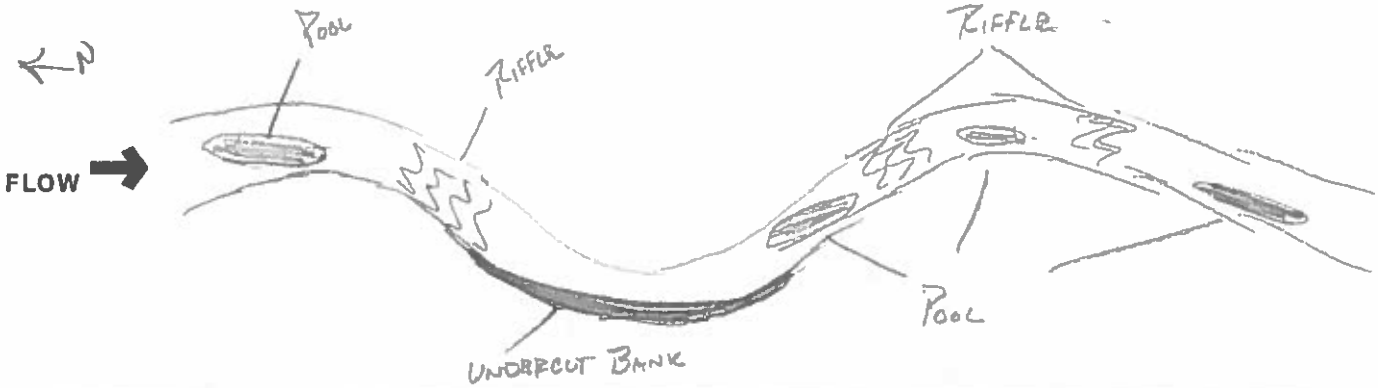
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

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

Comments Regarding Biology: _____

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

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



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Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 53

SITE NAME/LOCATION: DUKE - 5680 138kV Nickel to Warren Station

SITE NUMBER: Stream 5 RIVER BASIN: Little Miami River DRAINAGE AREA (mi²): 0.35

LENGTH OF STREAM REACH (ft): LAT.: LONG.: RIVER CODE: RIVER MILE:

DATE: 01/04/17 SCORER: DGV / CAJ COMMENTS:

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐☐	BLDR SLABS [16 pts]	0%	☐☑	SILT [3 pt]	40%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐☐	BEDROCK [16 pt]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☐☐	COBBLE (65-256 mm) [12 pts]	5%	☐☐	CLAY or HARDPAN [0 pt]	0%
☐☐	GRAVEL (2-64 mm) [9 pts]	20%	☐☐	MUCK [0 pts]	0%
☑☐	SAND (<2 mm) [6 pts]	35%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5.00% (A) 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 4

HHEI Metric Points

Substrate Max = 40: 13

A + B

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

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

COMMENTS: MAXIMUM POOL DEPTH (centimeters): 15

Pool Depth Max = 30: 25

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

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

COMMENTS: AVERAGE BANKFULL WIDTH (meters): 1.10

Bankfull Width Max=30: 15

This information must also be completed

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

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

COMMENTS: All within maintained ROW - Narrow Riparian buffer outside of ROW

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

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS: recent rain

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

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

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? - [ ] Yes [✓] No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

[✓] WWH Name: Little Muddy Creek Distance from Evaluated Stream 1.38

[ ] CWH Name: _____ Distance from Evaluated Stream _____

[ ] EWH Name: _____ Distance from Evaluated Stream _____

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

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

County: Warren Township / City: Deerfield Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: 0.00

Photograph Information: See Photolog on Figures

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

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

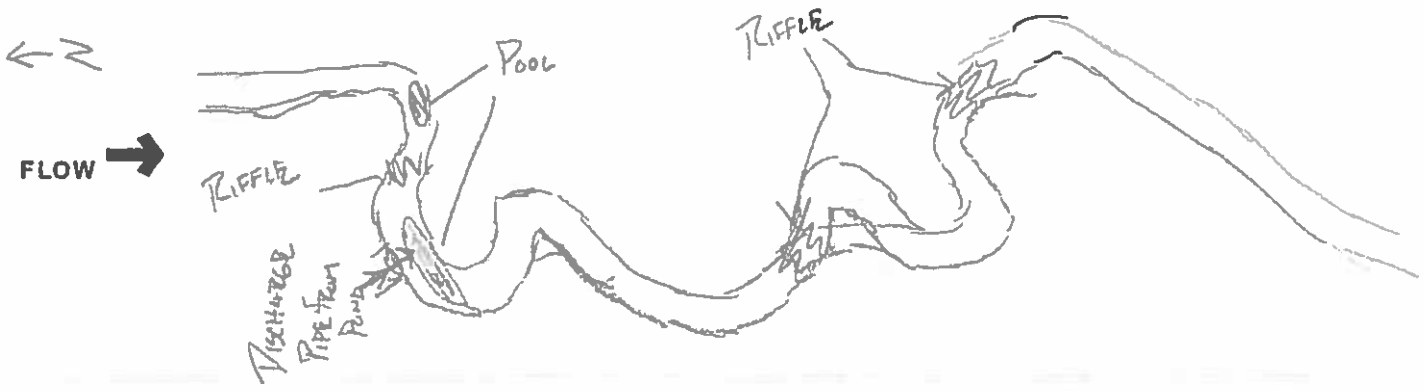
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

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

Comments Regarding Biology: _____

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

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



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Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 52

SITE NAME/LOCATION: DUKE - 5680 138kV Nickel to Warren Station

SITE NUMBER: Stream 6 RIVER BASIN: Little Miami River DRAINAGE AREA (mi²): 0.40

LENGTH OF STREAM REACH (ft): LAT.: LONG.: RIVER CODE: RIVER MILE:

DATE: 01/04/17 SCORER: DGV / CAJ COMMENTS:

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	40%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	25%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	35%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) Substrate One: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3

HHEI Metric Points

Substrate Max = 40: 12

A + B

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

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

COMMENTS: MAXIMUM POOL DEPTH (centimeters): 14

Pool Depth Max = 30: 25

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

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

COMMENTS: AVERAGE BANKFULL WIDTH (meters): 1.10

Bankfull Width Max=30: 15

This information must also be completed

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

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

COMMENTS: All within maintained ROW - Narrow Riparian buffer outside of ROW

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

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel no water (Ephemeral)

COMMENTS: recent rain

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

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

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Little Muddy Creek Distance from Evaluated Stream 1.60

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

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

County: Warren Township / City: Deerfield Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: 0.00

Photograph Information: See Photolog on Figures

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

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

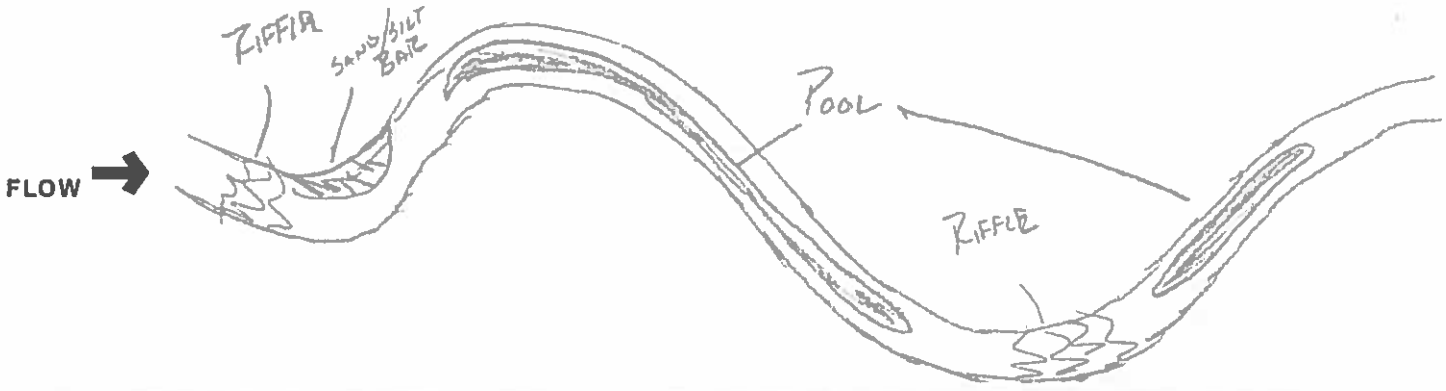
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

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

Comments Regarding Biology: _____

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

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



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Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 32

SITE NAME/LOCATION: DUKE - 5680 138kV Nickel to Warren Station

SITE NUMBER: Stream 7 RIVER BASIN: Little Miami River DRAINAGE AREA (mi²): 0.30

LENGTH OF STREAM REACH (ft): LAT.: LONG.: RIVER CODE: RIVER MILE:

DATE: 01/04/17 SCORER: DGV / CAJ COMMENTS:

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐☐	BLDR SLABS [16 pts]	0%	☐☑	SILT [3 pt]	40%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐☐	BEDROCK [16 pt]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☐☐	COBBLE (65-256 mm) [12 pts]	0%	☐☐	CLAY or HARDPAN [0 pt]	0%
☐☐	GRAVEL (2-64 mm) [9 pts]	25%	☐☐	MUCK [0 pts]	0%
☑☐	SAND (<2 mm) [6 pts]	35%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3

HHEI Metric Points

Substrate Max = 40: 12

A + B

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

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

COMMENTS: MAXIMUM POOL DEPTH (centimeters): 6

Pool Depth Max = 30: 15

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

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

COMMENTS: AVERAGE BANKFULL WIDTH (meters): 0.70

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS: All within maintained ROW & Lawn - Narrow Riparian buffer outside of ROW

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

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS: recent rain

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

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

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Turtle Creek Distance from Evaluated Stream 0.10

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

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

County: Warren Township / City: Deerfield Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: 0.00

Photograph Information: See Photolog on Figures

Elevated Turbidity? (Y/N): N Canopy (% open): 80%

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

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

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

Additional comments/description of pollution impacts _____

BIOTIC EVALUATION

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

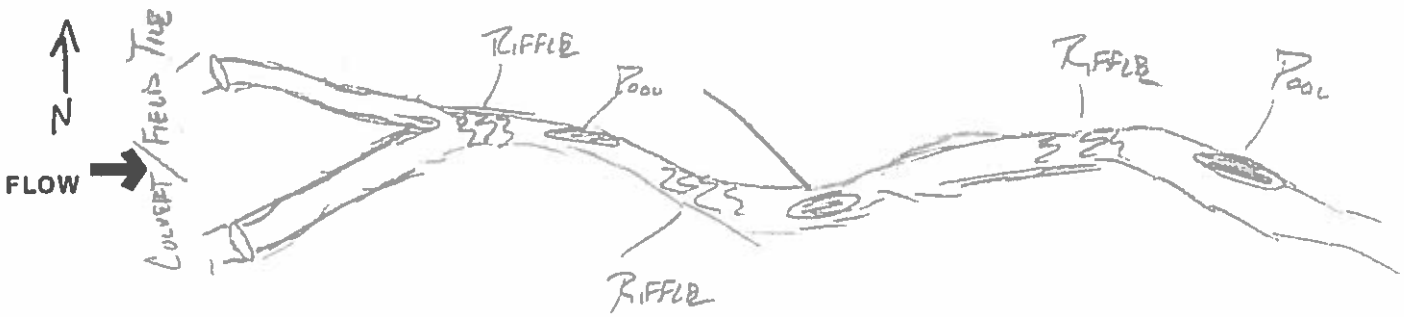
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

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

Comments Regarding Biology: _____

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

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



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Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 22

SITE NAME/LOCATION: DUKE - 5680 138kV Nickel to Warren Station

SITE NUMBER: Stream 9 RIVER BASIN: Little Miami River DRAINAGE AREA (mi²): 0.05

LENGTH OF STREAM REACH (ft): _____ LAT.: _____ LONG.: _____ RIVER CODE: _____ RIVER MILE: _____

DATE: 01/04/17 SCORER: DGV / CAJ COMMENTS: _____

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	50%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	10%	☐ ☐	MUCK [0 pts]	0%
☑ ☐	SAND (<2 mm) [6 pts]	40%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3

HHEI Metric Points

Substrate Max = 40: **12**

A + B

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

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

COMMENTS: _____ MAXIMUM POOL DEPTH (centimeters): 4

Pool Depth Max = 30: **5**

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

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

COMMENTS: _____ AVERAGE BANKFULL WIDTH (meters): 0.70

Bankfull Width Max=30: **5**

This information must also be completed

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

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

COMMENTS: All within maintained ROW wider Riparian buffer outside of ROW

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

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☑ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel no water (Ephemeral)

COMMENTS: recent rain

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

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

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Turtle Creek Distance from Evaluated Stream 0.00

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

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

County: Warren Township / City: Deerfield Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation _____ Quantity: 0.00

Photograph Information: See Photolog on Figures

Elevated Turbidity? (Y/N) N Canopy (% open): 90%

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

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

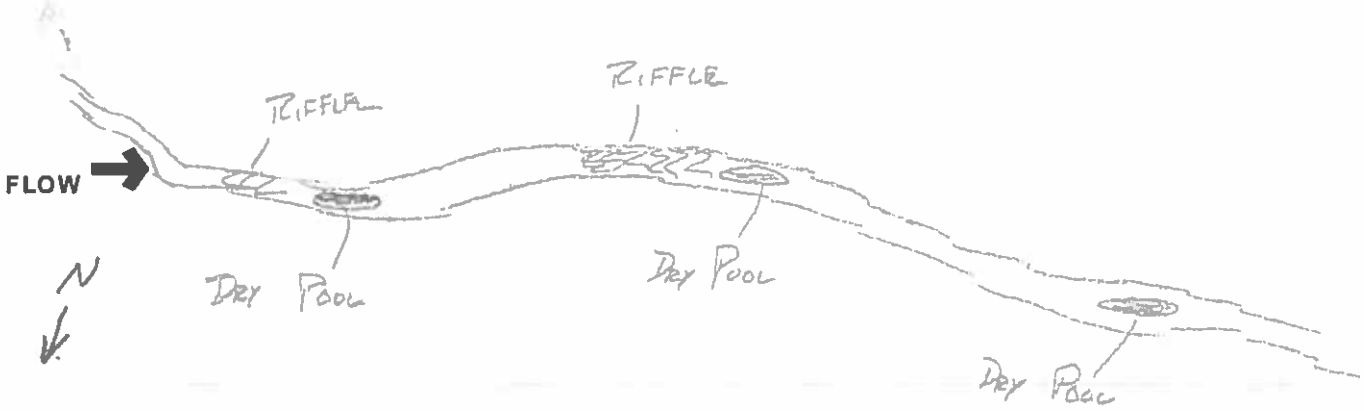
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

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

Comments Regarding Biology: _____

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

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



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Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 53

SITE NAME/LOCATION: DUKE - 5680 138kV Nickel to Warren Station

SITE NUMBER: Stream 10 | RIVER BASIN: Little Miami River | DRAINAGE AREA (mi²): 0.10

LENGTH OF STREAM REACH (ft): | LAT.: | LONG.: | RIVER CODE: | RIVER MILE:

DATE: 01/04/17 | SCORER: DGV / CAJ | COMMENTS:

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	40%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	10%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	20%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	30%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10.00% (A) | 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 | TOTAL NUMBER OF SUBSTRATE TYPES: 4

HHEI Metric Points

Substrate Max = 40: 13

A + B

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

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

COMMENTS: | MAXIMUM POOL DEPTH (centimeters): 15

Pool Depth Max = 30: 25

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

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

COMMENTS: | AVERAGE BANKFULL WIDTH (meters): 0.70

Bankfull Width Max=30: 15

This information must also be completed

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

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

COMMENTS: All within maintained ROW wider Riparian buffer outside of ROW

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

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel no water (Ephemeral)

COMMENTS: recent rain

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

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

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Turtle Creek Distance from Evaluated Stream 0.60

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

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

County: Warren Township / City: Deerfield Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: 0.00

Photograph Information: See Photolog on Figures

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

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

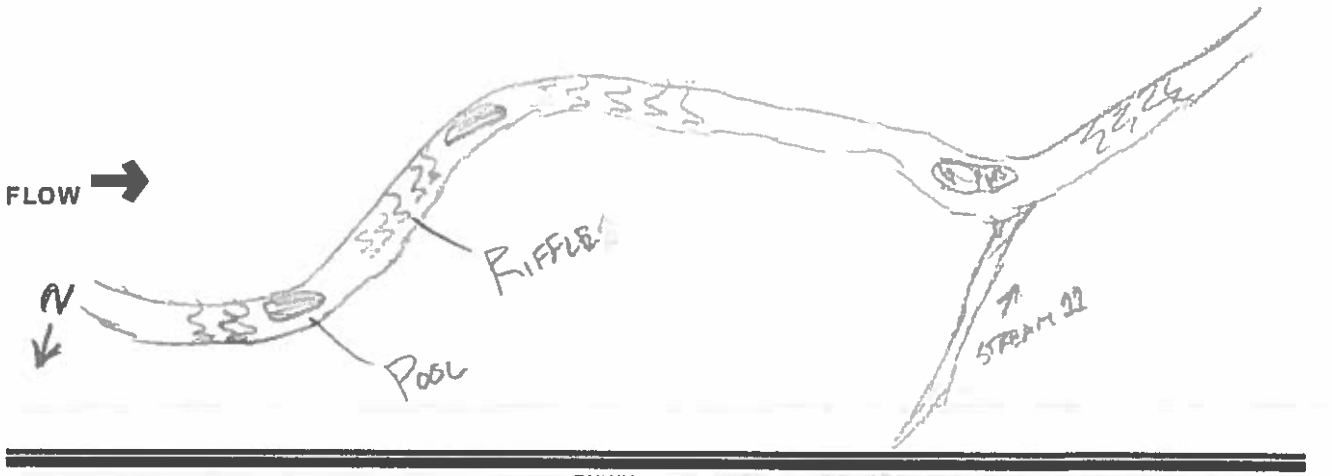
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

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

Comments Regarding Biology: _____

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

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



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Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 22

SITE NAME/LOCATION: DUKE - 5680 138kV Nickel to Warren Station

SITE NUMBER: Stream 11 RIVER BASIN: Little Miami River DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): LAT.: LONG.: RIVER CODE: RIVER MILE:

DATE: 01/04/17 SCORER: DGV / CAJ COMMENTS:

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	50%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	10%	☐ ☐	MUCK [0 pts]	0%
☑ ☐	SAND (<2 mm) [6 pts]	40%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3

HHEI Metric Points

Substrate Max = 40: 12

A + B

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

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

COMMENTS: MAXIMUM POOL DEPTH (centimeters): 4

Pool Depth Max = 30: 5

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

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

COMMENTS: AVERAGE BANKFULL WIDTH (meters): 0.60

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS: All within maintained ROW wider Riparian buffer outside of ROW

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

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☑ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS: recent rain

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

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

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Turtle Creek Distance from Evaluated Stream 0.60

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

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

County: Warren Township / City: Deerfield Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: 0.00

Photograph Information: See Photolog on Figures

Elevated Turbidity? (Y/N): N Canopy (% open): 95%

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

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

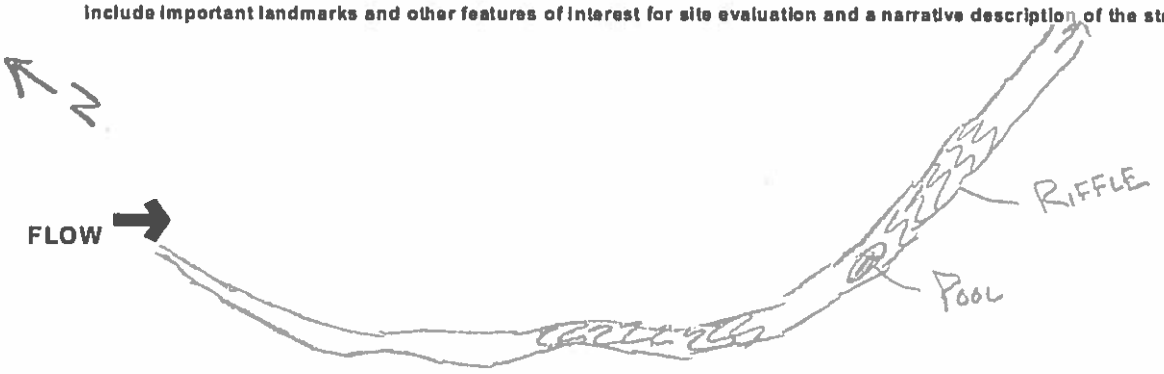
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

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

Comments Regarding Biology: _____

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

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



Save as pdf Reset Form

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 53

SITE NAME/LOCATION: DUKE - 5680 138kV Nickel to Warren Station

SITE NUMBER: Stream 12 RIVER BASIN: Little Miami River DRAINAGE AREA (mi²): 0.10

LENGTH OF STREAM REACH (ft): _____ LAT. _____ LONG _____ RIVER CODE _____ RIVER MILE _____

DATE: 01/04/17 SCORER: DGV / CAJ COMMENTS: _____

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐☐	BLDR SLABS [16 pts]	0%	☐☑	SILT [3 pt]	40%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐☐	BEDROCK [16 pt]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☐☐	COBBLE (65-256 mm) [12 pts]	10%	☐☐	CLAY or HARDPAN [0 pt]	0%
☐☐	GRAVEL (2-64 mm) [9 pts]	20%	☐☐	MUCK [0 pts]	0%
☑☐	SAND (<2 mm) [6 pts]	30%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10.00% (A) 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 4

HHEI Metric Points

Substrate Max = 40: 13

A + B

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

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

COMMENTS: _____ MAXIMUM POOL DEPTH (centimeters): 17

Pool Depth Max = 30: 25

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

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

COMMENTS: _____ AVERAGE BANKFULL WIDTH (meters): 1.20

Bankfull Width Max=30: 15

This information must also be completed

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

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

COMMENTS: All within maintained ROW wider Riparian buffer outside of ROW

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

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel no water (Ephemeral)

COMMENTS: recent rain

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

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

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Turtle Creek Distance from Evaluated Stream 0.68

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

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

County: Warren Township / City: Deerfield Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N) Y Date of last precipitation: _____ Quantity: 0.00

Photograph Information: See Photolog on Figures

Elevated Turbidity? (Y/N): N Canopy (% open) 90%

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

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

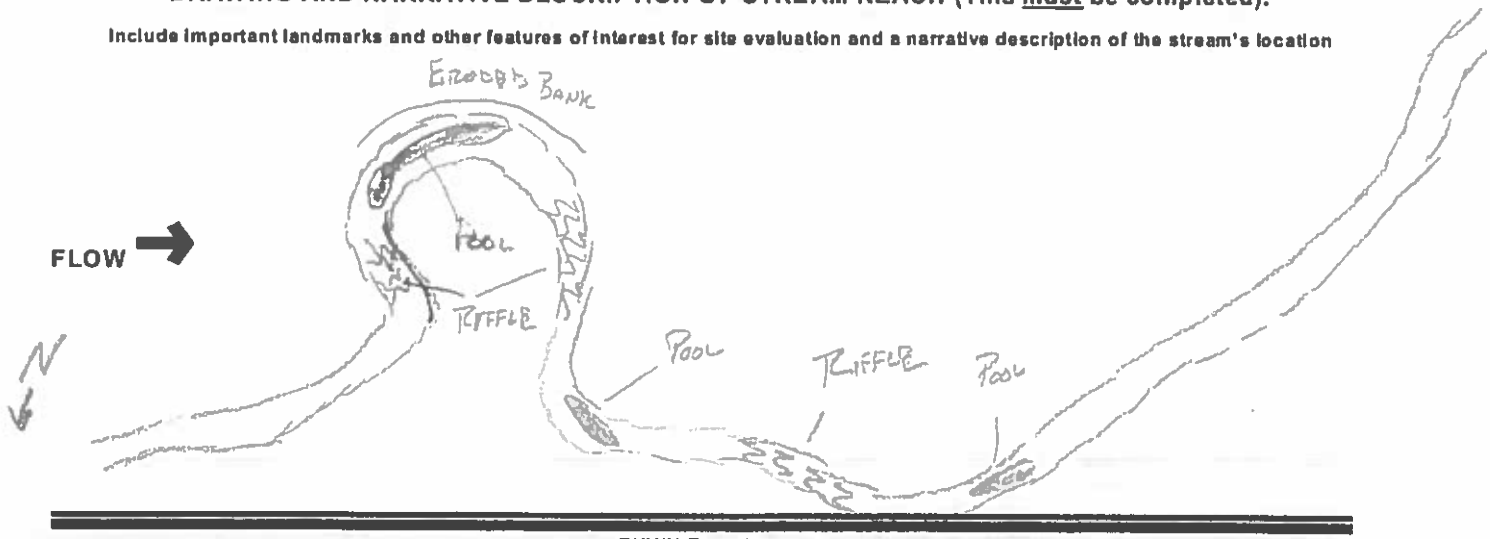
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

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

Comments Regarding Biology: _____

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

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



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Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 53

SITE NAME/LOCATION: DUKE - 5680 138kV Nickel to Warren Station

SITE NUMBER: Stream 13 RIVER BASIN: Little Miami River DRAINAGE AREA (mi²): 0.30

LENGTH OF STREAM REACH (ft): _____ LAT. _____ LONG. _____ RIVER CODE _____ RIVER MILE _____

DATE: 01/04/17 SCORER: DGV / CAJ COMMENTS: _____

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐☐	BLDR SLABS [16 pts]	0%	☐☑	SILT [3 pt]	30%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐☐	BEDROCK [16 pt]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☐☐	COBBLE (65-256 mm) [12 pts]	15%	☐☐	CLAY or HARDPAN [0 pt]	0%
☐☐	GRAVEL (2-64 mm) [9 pts]	25%	☐☐	MUCK [0 pts]	0%
☑☐	SAND (<2 mm) [6 pts]	30%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 15.00% (A) Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 4

HHEI Metric Points

Substrate Max = 40: 13

A + B

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

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

COMMENTS: _____ MAXIMUM POOL DEPTH (centimeters): 15

Pool Depth Max = 30: 25

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

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

COMMENTS: _____ AVERAGE BANKFULL WIDTH (meters): 1.20

Bankfull Width Max=30: 15

This information must also be completed

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

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

COMMENTS: All within maintained ROW wider Riparian buffer outside of ROW

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

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel no water (Ephemeral)

COMMENTS: recent rain

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

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

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Turtle Creek Distance from Evaluated Stream 0.68

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

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

County: Warren Township / City: Deerfield Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: 0.00

Photograph Information: See Photolog on Figures

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

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

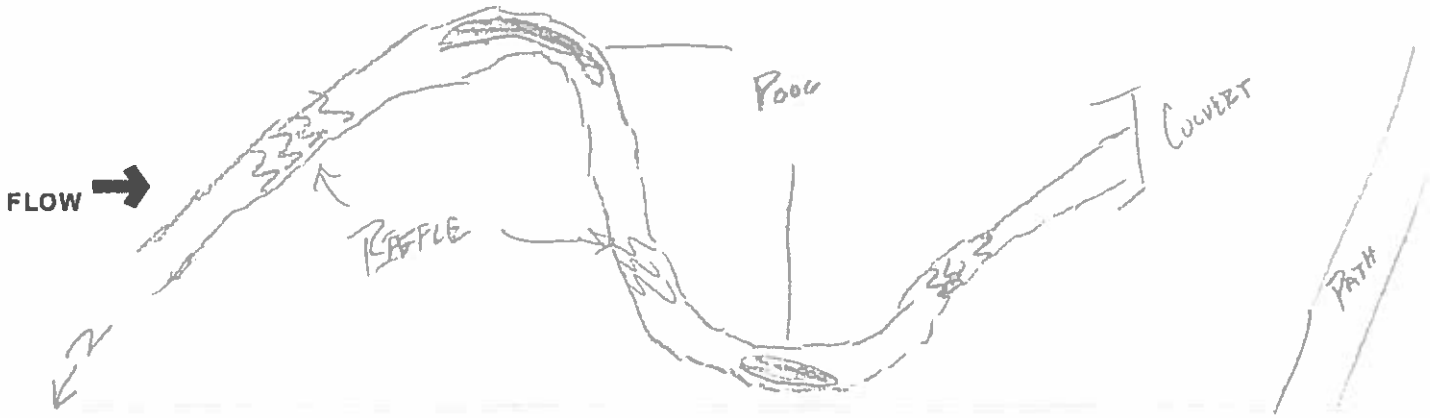
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

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

Comments Regarding Biology: _____

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

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



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DUKE ENERGY
NICKEL TO WARREN STATION

APPENDIX

C

OHIO RAPID ASSESSMENT METHOD 5.0 FORM AND USACE WETLAND DELINEATION DATA SHEETS

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: 5680 - 138 kV Nickel to Warren Station Rebuild City/County: Turtle Creek Twp, Warren Co Sampling Date: 1/4/2017

Applicant/Owner: Duke Energy State: OH Sampling Point: DP01

Investigator(s): C.Jansing, D. Vandewater Section, Township, Range: 2E 3N S5

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

Slope (%): 0% Lat: 39.41411 Long: -84.25153 Datum: NAD83 UTM16N

Soil Map Unit Name: Miamian-Russell silt loam (MrC2) NWI classification: none

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No ____	Is the Sampled Area		
Hydric Soil Present?	Yes X	No ____	within a Wetland?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____			

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
		= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
		= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1. *Typha X glauca*	90%	Yes	OBL
2. *Carex sp.*	5%	No	UPL
3. *Salix nigra*	5%	No	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	100%	= Total Cover	

Woody Vine Stratum (Plot size: 30' radius)			
1. *No vegetation*			UPL
2.			
		= 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:	
That Are OBL, FACW, or FAC:			A/B
OBL species	95%	x1 =	0.95
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species	5%	x5 =	0.25
Column Totals:	1.00 (A)		1.2 (B)

Prevalence Index = B/A = 1.20

Hydrophytic Vegetation Indicators:

X 1-Rapid Test for Hydrophytic Vegetation

X 2-Dominance Test is >50%

X 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.)

Wetland 1 appears to be an excavated detention basin associated with adjacent commercial/industrial facilities constructed in after 2006 based on historic aerials.

SOIL

Sampling Point: DP01

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12"	10YR 3/2	90	10YR 4/2	10	C	M	Silty Clay Loam	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Dark Surface (S7)
- ___ 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: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ 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)
- X 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):	6"
Saturation Present? (includes capillary fringe)	Yes x No ___	Depth (inches):	2"

Wetland Hydrology Present? Yes X No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: 5680 - 138 kV Nickel to Warren Station Rebuild City/County: Turtle Creek Twp, Warren Co Sampling Date: 1/4/2017

Applicant/Owner: Duke Energy State: OH Sampling Point: DP02

Investigator(s): C.Jansing, D. Vandewater Section, Township, Range: 2E 3N S5

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

Slope (%): 0% Lat: 39.41418 Long: -84.2516 Datum: NAD83 UTM16N

Soil Map Unit Name: Miamian-Russell silt loam (MrC2) NWI classification: none

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

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

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

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

Hydrophytic Vegetation Present? Yes ____ No X

Hydric Soil Present? Yes ____ No X

Wetland Hydrology Present? Yes ____ No X

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *No vegetation*			UPL
2.			
3.			
4.			
5.			
	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *Lonicera morrowii*	5%	Yes	FACU
2.			
3.			
4.			
5.			
	5%	= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1. *Artemisia annua*	60%	Yes	FACU
2. *Daucus carota*	15%	No	UPL
3. *Ambrosia artemisiifolia*	10%	No	FACU
4. *Poa pratensis*	5%	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	90%	= Total Cover	

Woody Vine Stratum (Plot size: 30' radius)			
1. *No vegetation*			UPL
2.			
	= 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: 2 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
That Are OBL, FACW, or FAC:			A/B
OBL species		x1 =	
FACW species		x2 =	
FAC species	5%	x3 =	0.15
FACU species	75%	x4 =	3
UPL species	15%	x5 =	0.75
Column Totals:	0.95 (A)		3.9 (B)

Prevalence Index = B/A = 4.11

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.)

Wetland 1 appears to be an excavated detention basin associated with adjcaent commercial/industrial facilities constructed in after 2006 based on historic aerials.

SOIL

Sampling Point: DP02

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12"	10YR 4/2	100			C	M	Silty Clay Loam	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Dark Surface (S7)
- ___ 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: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ___ No X	Depth (inches):	>18"
Water Table Present?	Yes ___ No X	Depth (inches):	>18"
Saturation Present? (includes capillary fringe)	Yes ___ No X	Depth (inches):	>18"

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

Site: Wetland 1	Rater(s): CAJ DGV	Date: January 4, 2017

Project: 5680 -138kV Nickel to Warren Station

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) (2 pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

1	1
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

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

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

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

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

7	8
max 30 pts.	subtotal

Metric 3. Hydrology

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

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] 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)
- [x] Part of riparian or upland corridor (1)

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

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

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

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

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

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

Check all disturbances observed

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

7	15
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)
- [x] 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)
- [x] Poor to fair (2)
- [ ] Poor (1)

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

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

Check all disturbances observed

- [x] mowing
- [x] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [x] sedimentation
- [ ] dredging
- [x] farming
- [ ] nutrient enrichment

15
subtotal this page

Site: Wetland 1	Rater(s): CAJ DGV	Date: January 4, 2017

Project:	5680 -138kV Nickel to Warren Station

3 subtotal this page

0 | 0 max 10 pt. 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
- [x] Not Applicable (0)

3 | 3 max 20 pt. subtotal

Metric 6. Plant communities, interspersion, microtopograhy.

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

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other

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

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

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

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

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

- [0] Vegetated hummocks/tussocks
- [0] Coarse woody debris >15cm (6in)
- [0] Standing dead >25cm (10in) dbh
- [0] Amphibian breading pools

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but no always the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
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

18 Grand Total (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

Comments:

DUKE ENERGY
NICKEL TO WARREN STATION

APPENDIX D

ENDANGERED, THREATENED, AND RARE SPECIES

Cori Jansing

From: susan_zimmermann@fws.gov on behalf of Ohio, FW3 <ohio@fws.gov>
Sent: Tuesday, January 24, 2017 2:44 PM
To: Cori Jansing
Cc: nathan.reardon@dnr.state.oh.us; kate.parsons@dnr.state.oh.us
Subject: 5680 Nickel to Warren Station Rebuild, Warren Co. OH

UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. Fish and Wildlife Service
Ecological Services Office
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / Fax (614) 416-8994

TAILS# 03E15000-2017-TA-0598

Dear Ms. Jansing,

We have received your recent correspondence requesting information about the subject proposal. There are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the project area. The following comments and recommendations will assist you in fulfilling the requirements for consultation under section 7 of the Endangered Species Act of 1973, as amended (ESA).

The U.S. Fish and Wildlife Service (Service) recommends that proposed developments avoid and minimize water quality impacts and impacts to high quality fish and wildlife habitat (e.g., forests, streams, wetlands). Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the Corps of Engineers should be contacted to determine whether a Clean Water Act section 404 permit is required. Best management practices should be used to minimize erosion, especially on slopes. All disturbed areas should be mulched and revegetated with native plant species. Prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

FEDERALLY LISTED SPECIES COMMENTS: All projects in the State of Ohio lie within the range of the federally endangered **Indiana bat** (*Myotis sodalis*) and the federally threatened **northern long-eared bat** (*Myotis septentrionalis*). In Ohio, presence of the Indiana bat and northern long-eared bat is assumed wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense

or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves and abandoned mines.

Should the proposed site contain trees ≥3 inches dbh, we recommend that trees be saved wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees ≥3 inches dbh cannot be avoided, we recommend that removal of any trees ≥3 inches dbh only occur between October 1 and March 31. Seasonal clearing is being recommended to avoid adverse effects to Indiana bats and northern long-eared bats. While incidental take of northern long-eared bats from most tree clearing is exempted by a 4(d) rule (see http://www.fws.gov/midwest/endangered/mammals/nleb/index.html), incidental take of Indiana bats is still prohibited without a project-specific exemption. Thus, seasonal clearing is recommended where Indiana bats are assumed present.

If implementation of this seasonal tree cutting recommendation is not possible, summer surveys may be conducted to document the presence or probable absence of Indiana bats within the project area during the summer. If a summer survey documents probable absence of Indiana bats, the 4(d) rule for the northern long-eared bat could be applied. Surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Endangered Species Coordinator for this office. Surveyors must have a valid federal permit. Please note that summer surveys may only be conducted between June 1 and August 15.

If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), no tree clearing should occur on any portion of the project area until consultation under section 7 of the ESA, between the Service and the federal action agency, is completed. We recommend that the federal action agency submit a determination of effects to this office, relative to the Indiana bat and northern long-eared bat, for our review and concurrence.

The proposed project lies within the range of **running buffalo clover** (*Trifolium stoloniferum*), a federally listed endangered species. This plant can be found in partially shaded woodlots, mowed areas (lawns, parks, cemeteries), and along streams and trails. Running buffalo clover requires periodic disturbance and a somewhat open habitat to successfully flourish, but cannot tolerate full-sun, full-shade, or severe disturbance. If suitable habitat is present, we recommend that surveys for this species be conducted by a trained botanist in May or June when the plant is in flower. The survey must be coordinated with this office in advance.

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, proposed, or candidate species. Should the project design change, or during the term of this action, additional information on listed or proposed species or their critical

habitat become available, or if new information reveals effects of the action that were not previously considered, consultation with the Service should be initiated to assess any potential impacts.

These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the ESA, and are consistent with the intent of the National Environmental Policy Act of 1969 and the Service's Mitigation Policy. This letter provides technical assistance only and does not serve as a completed section 7 consultation document. We recommend that the project be coordinated with the Ohio Department of Natural Resources due to the potential for the project to affect state listed species and/or state lands. Contact John Kessler, Environmental Services Administrator, at (614) 265-6621 or at john.kessler@dnr.state.oh.us.

If you have questions, or if we can be of further assistance in this matter, please contact our office at (614) 416-8993 or ohio@fws.gov.

Sincerely,

Dan Everson

Field Office Supervisor

cc: Nathan Reardon, ODNR-DOW

Kate Parsons, ODNR-DOW

Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR — JAMES ZEHRINGER, DIRECTOR

Office of Real Estate
Paul R. Baldridge, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6649
Fax: (614) 267-4764

March 6, 2017

Cori Jansing
Cardno
11121 Canal Road
Cincinnati, Ohio 45241

Re: 17-076; 5680 Nickel to Warren Station Rebuild - Threatened and Endangered Species Consultation Request

Project: The proposed project involves removal and replacement of approximately 5.72 miles of existing transmission.

Location: The proposed project extends from the City of Monroe to the City of Lebanon, Warren County, Ohio.

The Ohio Department of Natural Resources (ODNR) has completed a review of the above referenced project. These comments were generated by an inter-disciplinary review within the Department. These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the National Environmental Policy Act, the Coastal Zone Management Act, Ohio Revised Code and other applicable laws and regulations. These comments are also based on ODNR's experience as the state natural resource management agency and do not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

Natural Heritage Database: The Natural Heritage Database has no records at or within a one-mile radius of the project area.

A review of the Ohio Natural Heritage Database indicates there are no records of state or federal listed plants or animals within the project area. We are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state nature preserves, state or national parks, state or national forests, or national wildlife refuges within the project area. The review was performed on the project area you specified in your request as well as an additional one-mile radius. Records searched date from 1980.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. Although all types of plant communities have been surveyed, we only maintain records on the highest quality areas.

Fish and Wildlife: The Division of Wildlife (DOW) has the following comments.

The DOW recommends that impacts to streams, wetlands and other water resources be avoided and minimized to the fullest extent possible, and that best management practices be utilized to minimize erosion and sedimentation.

The project is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species. The following species of trees have relatively high value as potential Indiana bat roost trees to include: shagbark hickory (*Carya ovata*), shellbark hickory (*Carya laciniosa*), bitternut hickory (*Carya cordiformis*), black ash (*Fraxinus nigra*), green ash (*Fraxinus pennsylvanica*), white ash (*Fraxinus americana*), shingle oak (*Quercus imbricaria*), northern red oak (*Quercus rubra*), slippery elm (*Ulmus rubra*), American elm (*Ulmus americana*), eastern cottonwood (*Populus deltoides*), silver maple (*Acer saccharinum*), sassafras (*Sassafras albidum*), post oak (*Quercus stellata*), and white oak (*Quercus alba*). Indiana bat roost trees consists of trees that include dead and dying trees with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. However, Indiana bats are also dependent on the forest structure surrounding roost trees. If suitable habitat occurs within the project area, the DOW recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, the DOW recommends cutting occur between October 1 and March 31. If suitable trees must be cut during the summer months, the DOW recommends a net survey be conducted between June 1 and August 15, prior to any cutting. Net surveys should incorporate either nine net nights per square 0.5 kilometer of project area, or four net nights per kilometer for linear projects. If no tree removal is proposed, this project is not likely to impact this species.

The project is within the range of the club shell (*Pleurobema clava*), a state endangered and federally endangered mussel, the rayed bean (*Villosa fabalis*), a state endangered and federally endangered mussel, the snuffbox (*Epioblasma triquetra*), a state endangered and federally endangered mussel, the washboard (*Megalonaias* nervosa), a state endangered mussel, the threehorn wartyback (*Obliquaria reflexa*), a state threatened mussel, the black sandshell (*Ligumia recta*), a state threatened mussel, and the fawnsfoot (*Truncilla donaciformis*), a state threatened mussel. This project must not have an impact on freshwater native mussels at the project site. This applies to both listed and non-listed species. Per the Ohio Mussel Survey Protocol (2016), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 10 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. This is further explained within the Ohio Mussel Survey Protocol. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, as a last resort, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the Ohio Mussel Survey Protocol. The Ohio Mussel Survey Protocol (2016) can be found at:

http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/licenses%20&%20permits/OH%20Mussel%20Survey%20Protocol.pdf

The project is within the range of the northern brook lamprey *(Ichthyomyzon fossor*), a state endangered fish, the goldeye (*Hiodon alosoides*), a state endangered fish, the mountain brook

lamprey (*Ichthyomyzon greeleyi*), a state endangered fish, the bigeye shiner (*Notropis boops*) a state threatened fish, the American eel (*Anguilla rostrata*), a state threatened fish, and the paddlefish (*Polyodon spathula*) a state threatened fish. The DOW recommends no in-water work in perennial streams at least April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed, this project is not likely to impact these or other aquatic species.

The project is within the range of the eastern massasauga (*Sistrurus catenatus*), a state endangered and federally threatened snake species. The eastern massasauga uses a range of habitats including wet prairies, fens, and other wetlands, as well as drier upland habitat. Due to the location, the type of habitat present at the project site and within the vicinity of the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the spotted turtle (*Clemmys guttata*), a state threatened species. This species prefers fens, bogs and marshes, but is also known to inhabit wet prairies, meadows, pond edges, wet woods, and the shallow sluggish waters of small streams and ditches. Due to the location, the type of habitat present at the project site and within the vicinity of the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the Kirtland's snake (*Clonophis kirtlandii*), a state threatened species. This secretive species prefers wet fields and meadows. Due to the location, the type of habitat present at the project site and within the vicinity of the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the northern harrier (*Circus cyaneus*), a state endangered bird. This is a common migrant and winter species. Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds a nest out of sticks on the ground, often on top of a mound. Harriers hunt over grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 15 to August 1. If this habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the Sloan's crayfish (*Orconectes sloanii*), a state threatened species. In-water work within isolated pools of perennial streams should be avoided as to not impact Sloan's crayfish that have become trapped within the pool. If there is no in-water work proposed, this project is not likely to impact this species.

Due to the potential of impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the U.S. Fish & Wildlife Service.

Water Resources: The Division of Water Resources has the following comment.

The local floodplain administrator should be contacted concerning the possible need for any floodplain permits or approvals for this project. Your local floodplain administrator contact information can be found at the website below.

http://water.ohiodnr.gov/water-use-planning/floodplain-management#PUB

ODNR appreciates the opportunity to provide these comments. Please contact John Kessler at (614) 265-6621 if you have questions about these comments or need additional information.

John Kessler

ODNR Office of Real Estate
2045 Morse Road, Building E-2
Columbus, Ohio 43229-6693
John.Kessler@dnr.state.oh.us

Attachment H-

City of Monroe & Warren County Flood Damage Prevention Regulations

Cori Jansing

From: Dan Arthur <arthurd@monroeohio.org>
Sent: Wednesday, July 06, 2016 9:03 AM
To: Cori Jansing
Subject: RE: Special Flood Hazard Form

You do not have to fill out the flood hazard form since you are not doing any earth work and you are only removing and replacing existing facilities on your system.

Have a great day!

Thank You,

Daniel J. Arthur, P.E.
Director of Public Works
City of Monroe, Ohio
Ph. 513.727.8953

From: Cori Jansing [mailto:cori.jansing@cardno.com]
Sent: Tuesday, July 5, 2016 4:18 PM
To: Dan Arthur <arthurd@monroeohio.org>
Subject: RE: Special Flood Hazard Form

Dan,

I contacted you earlier today regarding clarification of whether or not a Duke Energy line removal and structure replacement project would be considered exempt from filing a floodway permit within the City of Monroe. The project involves the removal of 13 existing structures and the replacement of 10 existing structures located within a designated FEMA 100 YR flood zone. I am having a hard time locating the City of Monroe's floodway regulations but have been able to determine that the project is considered exempt from floodplain permit requirements per Section 4.2 (c) of Butler County's Flood Damage Prevention Regulations. I just want to make sure we advise Duke on the correct level of coordination, whether a local stormwater permit and/or Construction in a Flood is needed, and what if anything else is necessary for transmission line work in your jurisdiction.

Thanks for your help,

Cori

Cori Jansing
SENIOR STAFF SCIENTIST
ENGINEERING & ENVIRONMENTAL SERVICES DIVISION
CARDNO

Office (+1) 513-489-2402 Ext 112 Mobile (+1) 513-833-6392 Fax (+1) 513-489-2404
Address 11121 Canal Road, Cincinnati, OH 45241
Email cori.jansing@cardno.com Web www.cardno.com

From: Dan Arthur [mailto:arthurd@monroeohio.org]
Sent: Friday, July 01, 2016 2:39 PM
To: Cori Jansing <cori.jansing@cardno.com>
Subject: Special Flood Hazard Form

Cori,

Attached is the special flood hazard form for the City of Monroe. Please fill this out and scan it back to us for this project. If you have any questions, please do not hesitate to contact me.

Have a happy 4th of July!

Thank You,

Daniel J. Arthur, P.E.
Director of Public Works
City of Monroe, Ohio
Ph. 513.727.8953

Cori Jansing

From: Spurling, Jerry <Jerry.Spurling@co.warren.oh.us>
Sent: Thursday, January 19, 2017 10:04 AM
To: Cori Jansing
Subject: RE: Duke Energy_Construction or Development in a Flood Hazard Permit

Ms. Jansing,

No flood zone permits are required within Warren County for the work you have described.

Thank You,

Jerry Spurling
Warren County
Chief Building Official
513-695-2650

From: Cori Jansing [mailto:cori.jansing@cardno.com]
Sent: Thursday, January 19, 2017 9:51 AM
To: Spurling, Jerry
Subject: Duke Energy_Construction or Development in a Flood Hazard Permit

Mr. Spurling,

I am currently working on a Duke Energy Rebuild Project (overhead power line) that contains eleven existing structures located in a designated FEMA 100 YR flood zone that will be removed and replaced in place within the original footprint located in Turtle Creek Township. This is also a location where the City of Monroe also has jurisdiction and has previously considered the activities exempt from City of Monroe's floodway regulations. Can you please confirm that the project in question is exempt from the Warren County *Construction or Development in a Flood Hazard Area* permit?

If you have any questions please don't hesitate to contact me at (513)833-6392 or by email cori.jansing@cardno.com.

Best,

Cori

Cori Jansing
SENIOR STAFF SCIENTIST
ENGINEERING & ENVIRONMENTAL SERVICES DIVISION
CARDNO

Cardno
Shaping the Future

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CONNECT WITH CARDNO

Attachment I-

Property Owner Notification Letter

Transmission – Public Engagement
EX552 | 315 Main Street
Cincinnati, OH 45202
duke-energy.com

December 27, 2017

PROPERTY OWNER
ADDRESS

Re: Notice of Electric Transmission Line Project

Dear Property Owner or Tenant

Duke Energy Ohio, Inc., (Duke Energy Ohio) is proposing an electric transmission line project in your area. This project will allow the rebuilding of an existing 138-kilovolt (kV) line in order to increase its capacity for transmission of electricity. The project will extend approximately 5.8 miles and is proposed to begin at Duke Energy Ohio's Warren Substation, located at W. 765 Turtle Creek Union Road, in Lebanon, Ohio. The project ends at Duke Energy Ohio's Nickel Substation at 895 Union Road in Monroe, Ohio. A map of the project area is included with this letter.

A Letter of Notification to construct, operate and maintain this facility is now pending before the Ohio Power Siting Board (OPSB) in Columbus, Ohio. Interested persons may participate in the process by filing comments in the docket, or by seeking permission to formally intervene in the case. You also may request notification of the filing documents in the case by signing up with the OPSB for electronic notice of filings, or by sending a letter to the OPSB to indicate your interest. The case may be found on the OPSB's website, identified as Case No. 17-2500-EL-BN. The OPSB can be reached by email at **contactOPSB@puc.state.oh.us**, by phone, at 866.270.6772, or by mail addressed to: The Ohio Power Siting Board, 180 East Broad Street, Columbus, OH 43215.

A copy of the application is available for public inspection at the main office of Duke Energy Ohio, at 139 East Fourth St., Cincinnati, Ohio, and at the offices of the OPSB, 180 East Broad St., Columbus, Ohio 43215. It also is available on the Duke Energy Ohio website: **www.duke-energy.com/transmission-projects**, and on the Ohio Power Siting Board's website: **http://www.opsb.ohio.gov/.**

Thank you for working with us as we move forward with this important project to meet your energy needs.

Sincerely,

Duke Energy Ohio, Inc