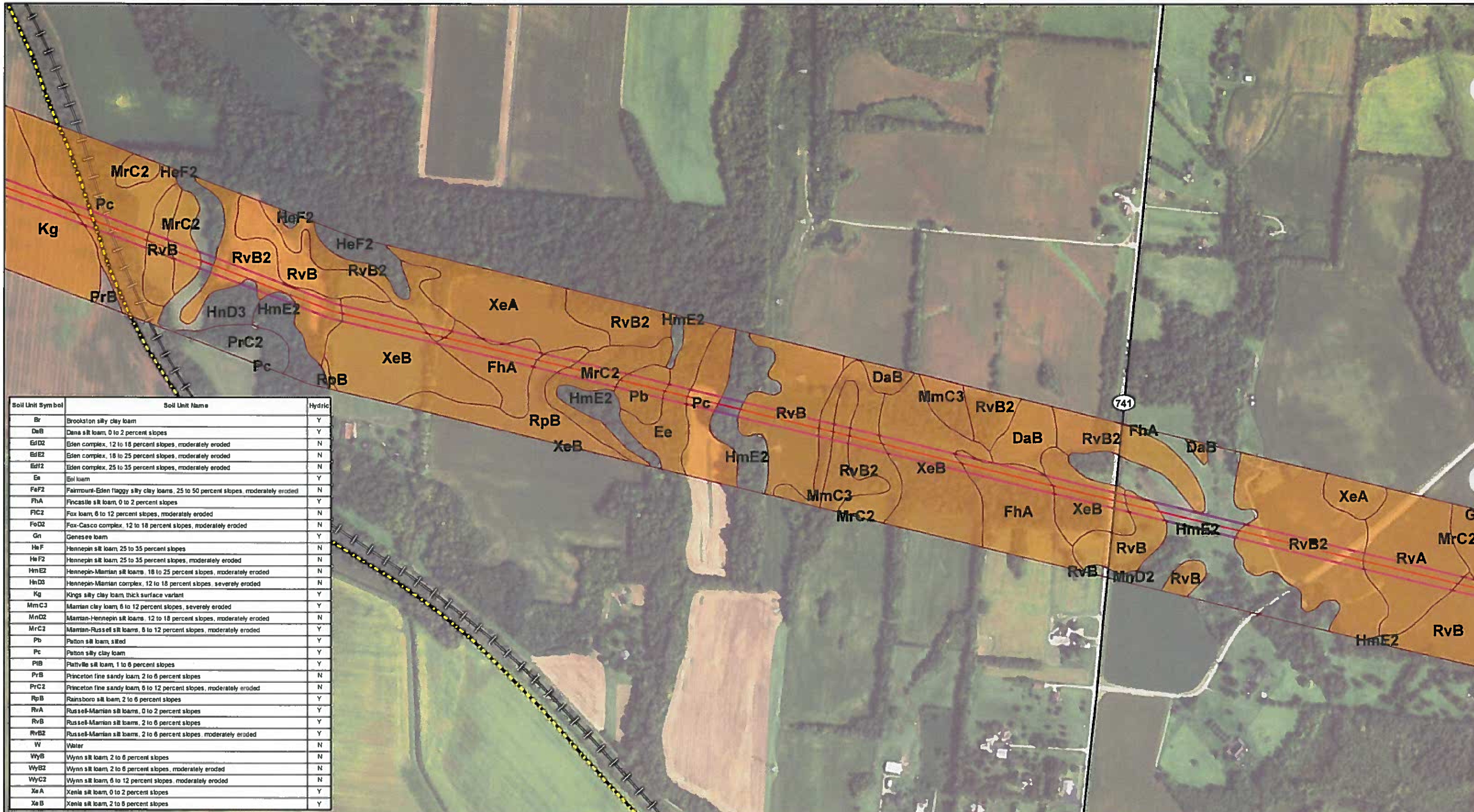

Soil Unit Symbol	Soil Unit Name	Hydric
Br	Brookston silty clay loam	Y
DaB	Dana silt loam, 0 to 2 percent slopes	Y
EdD2	Eden complex, 12 to 18 percent slopes, moderately eroded	N
EdE2	Eden complex, 18 to 25 percent slopes, moderately eroded	N
EdF2	Eden complex, 25 to 35 percent slopes, moderately eroded	N
Ee	Eel loam	Y
FeF2	Fairmount-Eden flaggy silty clay loams, 25 to 50 percent slopes, moderately eroded	N
FhA	Fincastle silt loam, 0 to 2 percent slopes	Y
FlC2	Fox loam, 6 to 12 percent slopes, moderately eroded	N
FoD2	Fox-Casco complex, 12 to 18 percent slopes, moderately eroded	N
Gn	Genesee loam	Y
HeF	Hennepin silt loam, 25 to 35 percent slopes	N
HeF2	Hennepin silt loam, 25 to 35 percent slopes, moderately eroded	N
HmE2	Hennepin-Miamian silt loams, 18 to 25 percent slopes, moderately eroded	N
HnD3	Hennepin-Miamian complex, 12 to 18 percent slopes, severely eroded	N
Kg	Kings silty clay loam, thick surface variant	Y
MmC3	Miamian clay loam, 6 to 12 percent slopes, severely eroded	Y
MnD2	Miamian-Hennepin silt loams, 12 to 18 percent slopes, moderately eroded	N
MrC2	Miamian-Russell silt loams, 6 to 12 percent slopes, moderately eroded	Y
Pb	Patton silt loam, silted	Y
Pc	Patton silty clay loam	Y
PlB	Pattville silt loam, 1 to 6 percent slopes	Y
PrB	Princeton fine sandy loam, 2 to 6 percent slopes	N
PrC2	Princeton fine sandy loam, 6 to 12 percent slopes, moderately eroded	N
RpB	Rainsboro silt loam, 2 to 6 percent slopes	Y
RvA	Russell-Miamian silt loams, 0 to 2 percent slopes	Y
RvB	Russell-Miamian silt loams, 2 to 6 percent slopes	Y
RvB2	Russell-Miamian silt loams, 2 to 6 percent slopes, moderately eroded	Y
W	Water	N
WyB	Wynn silt loam, 2 to 6 percent slopes	N
WyB2	Wynn silt loam, 2 to 6 percent slopes, moderately eroded	N
WyC2	Wynn silt loam, 6 to 12 percent slopes, moderately eroded	N
XeA	Xenia silt loam, 0 to 2 percent slopes	Y
XeB	Xenia silt loam, 2 to 6 percent slopes	Y

PROJECT LOCATION

BUTLER COUNTY, OH

REFERENCE: USGS 7.5' TOPOGRAPHIC QUADRANGLE: MONROE AND LEBANON, OHIO. OBTAINED VIA ESRI USA TOPO, NATIONAL GEOGRAPHIC TOPO, AND USGS, ACCESSED 01/2017.

0 390 780 1,170 1,560 Feet

- Existing Facility
- Soil Type
- Hydric Soil Type
- Municipal Boundary
- 100ft Corridor
- Project Centerline
- Interstate
- State Highway
- US Highway
- Railroad

DUKE ENERGY.

Cardno

FIGURE: 3.02

STORMWATER POLLUTION PREVENTION PLAN
5680 138kV NICKEL TO WARREN STATION REBUILD
DUKE ENERGY
SOIL CLASSIFICATIONS

DRAWN BY: COD
DATE: 11/3/2017
CHECKED: CJ
APPROVED: JT

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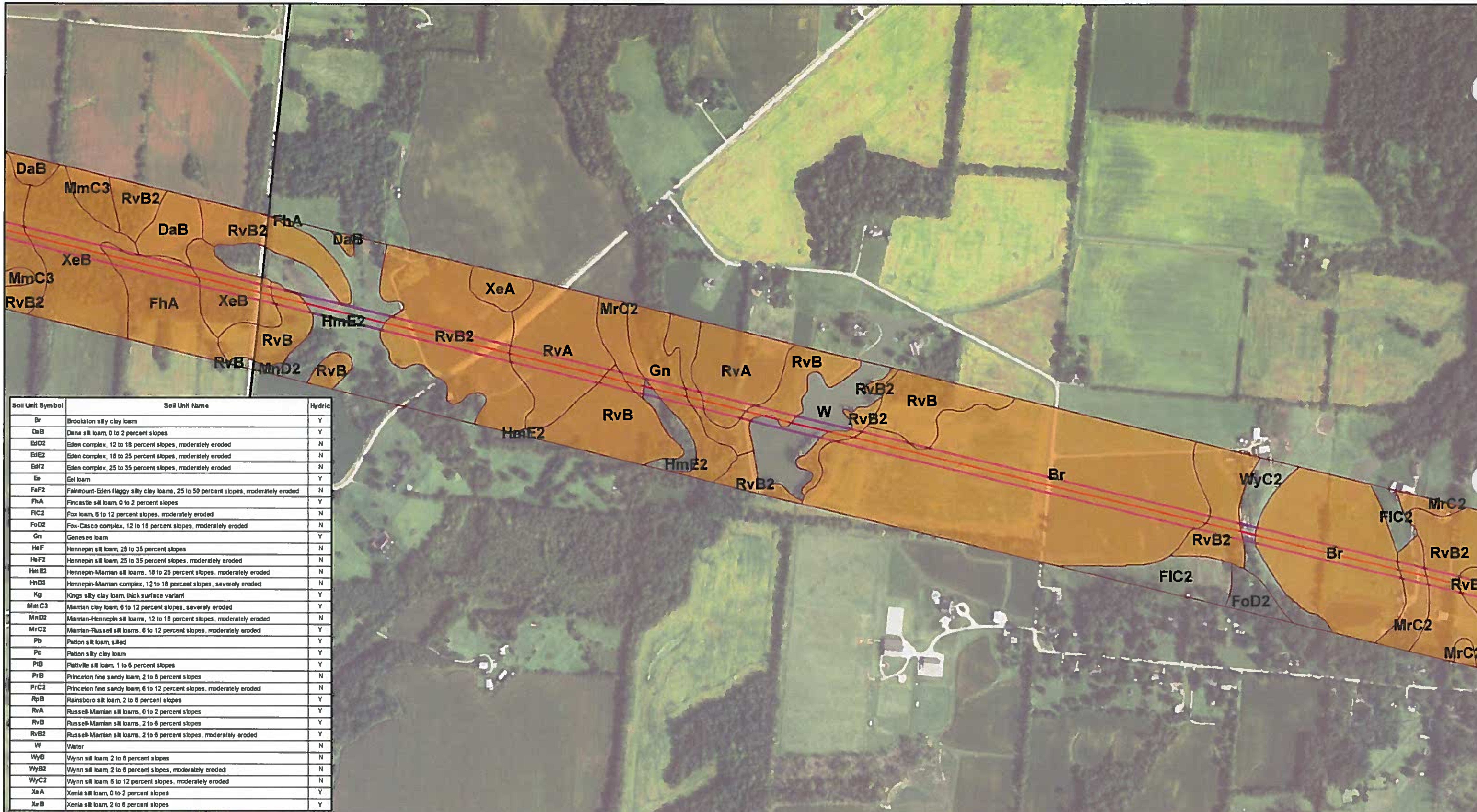

Soil Unit Symbol	Soil Unit Name	Hydric
Br	Brookston silty clay loam	Y
DaB	Dana silt loam, 0 to 2 percent slopes	Y
EdD2	Eden complex, 12 to 18 percent slopes, moderately eroded	N
EdE2	Eden complex, 18 to 25 percent slopes, moderately eroded	N
EdF2	Eden complex, 25 to 35 percent slopes, moderately eroded	N
Ee	Eel loam	Y
FaF2	Fairmount-Eden flaggy silty clay loams, 25 to 50 percent slopes, moderately eroded	N
FhA	Fincastle silt loam, 0 to 2 percent slopes	Y
FlC2	Fox loam, 6 to 12 percent slopes, moderately eroded	N
FoD2	Fox-Casco complex, 12 to 18 percent slopes, moderately eroded	N
Gn	Genesee loam	Y
HeF	Hennepin silt loam, 25 to 35 percent slopes	N
HeF2	Hennepin silt loam, 25 to 35 percent slopes, moderately eroded	N
HmE2	Hennepin-Miamian silt loams, 18 to 25 percent slopes, moderately eroded	N
HnD3	Hennepin-Miamian complex, 12 to 18 percent slopes, severely eroded	N
Kg	Kings silty clay loam, thick surface variant	Y
MmC3	Miamian clay loam, 6 to 12 percent slopes, severely eroded	Y
MnD2	Miamian-Hennepin silt loams, 12 to 18 percent slopes, moderately eroded	N
MrC2	Miamian-Russell silt loams, 6 to 12 percent slopes, moderately eroded	Y
Pb	Patton silt loam, silted	Y
Pc	Patton silty clay loam	Y
PlB	Plattville silt loam, 1 to 6 percent slopes	Y
PrB	Princeton fine sandy loam, 2 to 6 percent slopes	N
PrC2	Princeton fine sandy loam, 6 to 12 percent slopes, moderately eroded	N
RpB	Rainsboro silt loam, 2 to 6 percent slopes	Y
RvA	Russell-Miamian silt loams, 0 to 2 percent slopes	Y
RvB	Russell-Miamian silt loams, 2 to 6 percent slopes	Y
RvB2	Russell-Miamian silt loams, 2 to 6 percent slopes, moderately eroded	Y
W	Water	N
WyB	Wynn silt loam, 2 to 6 percent slopes	N
WyB2	Wynn silt loam, 2 to 6 percent slopes, moderately eroded	N
WyC2	Wynn silt loam, 6 to 12 percent slopes, moderately eroded	N
XeA	Xenia silt loam, 0 to 2 percent slopes	Y
XeB	Xenia silt loam, 2 to 6 percent slopes	Y

PROJECT LOCATION

BUTLER COUNTY, OH

REFERENCE: USGS 7.5' TOPOGRAPHIC QUADRANGLE: MONROE AND LEBANON, OHIO. OBTAINED VIA ESRI USA TOPO, NATIONAL GEOGRAPHIC TOPO, AND USGS, ACCESSED 01/2017.

0 390 780 1,170 1,560 Feet

Existing Facility
Soil Type
Hydric Soil Type
Municipal Boundary
100ft Corridor
Project Centerline
Interstate
State Highway
US Highway
Railroad

DUKE ENERGY.

Cardno

FIGURE: 3.03

STORMWATER POLLUTION PREVENTION PLAN
5680 138kV NICKEL TO WARREN STATION REBUILD
DUKE ENERGY
SOIL CLASSIFICATIONS

DRAWN BY: COD
CHECKED: CJ
DATE: 11/3/2017
APPROVED: JT

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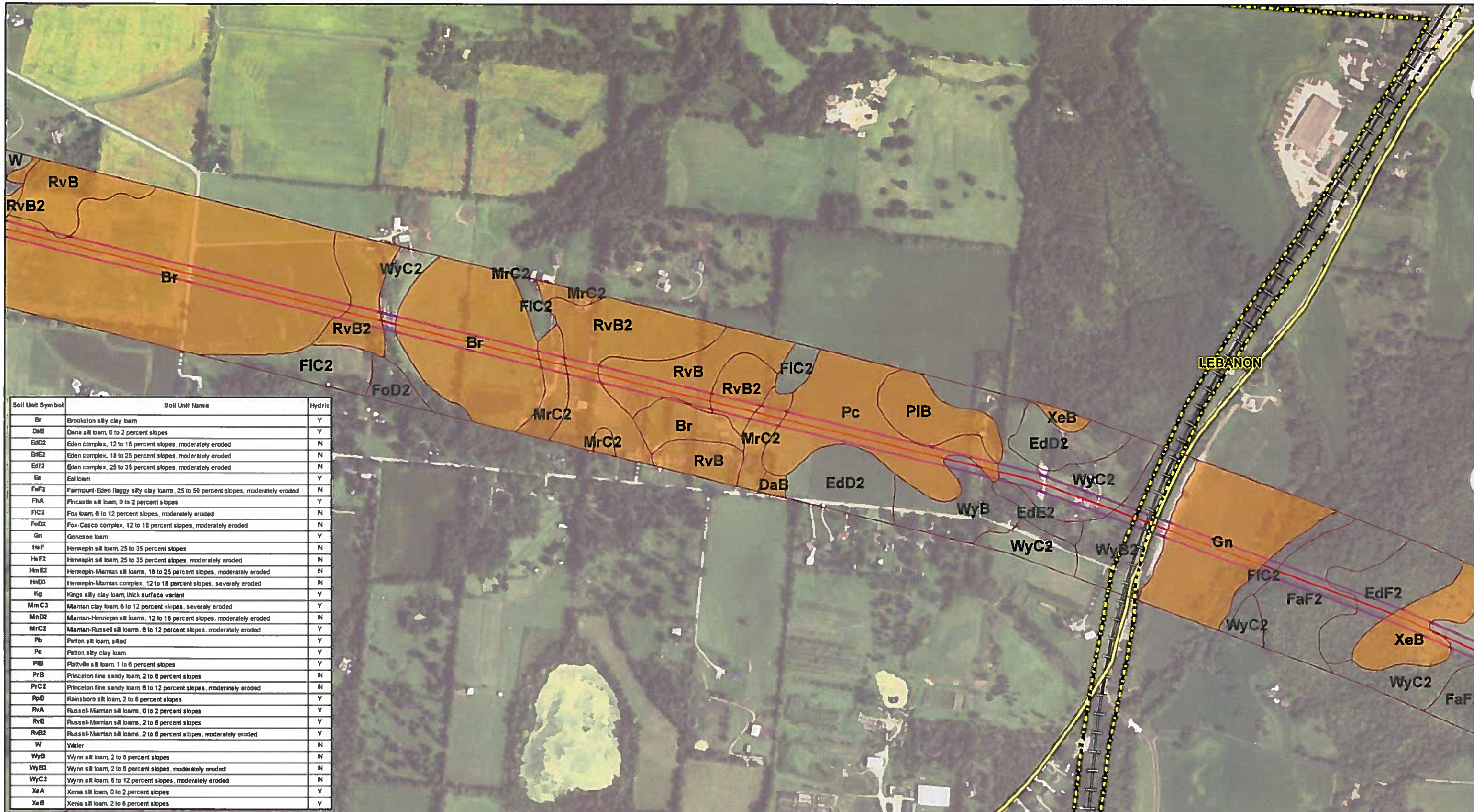

Soil Unit Symbol	Soil Unit Name	Hydric
Br	Brookston silty clay loam	Y
DaB	Dana silt loam, 0 to 2 percent slopes	Y
EdD2	Eden complex, 12 to 18 percent slopes, moderately eroded	N
EdE2	Eden complex, 18 to 25 percent slopes, moderately eroded	N
EdF2	Eden complex, 25 to 35 percent slopes, moderately eroded	N
Ee	Eel loam	Y
FaF2	Fairmount-Eden flaggy silty clay loams, 25 to 50 percent slopes, moderately eroded	N
FhA	Fincastle silt loam, 0 to 2 percent slopes	Y
FlC2	Fox loam, 6 to 12 percent slopes, moderately eroded	N
FoD2	Fox-Casco complex, 12 to 18 percent slopes, moderately eroded	N
Gn	Genesee loam	Y
HeF	Hennepin silt loam, 25 to 35 percent slopes	N
HeF2	Hennepin silt loam, 25 to 35 percent slopes, moderately eroded	N
HmE2	Hennepin-Miamian silt loams, 18 to 25 percent slopes, moderately eroded	N
HnD3	Hennepin-Miamian complex, 12 to 18 percent slopes, severely eroded	N
Kg	Kings silty clay loam, thick surface variant	Y
MmC3	Miamian clay loam, 6 to 12 percent slopes, severely eroded	Y
MnD2	Miamian-Hennepin silt loams, 12 to 18 percent slopes, moderately eroded	N
MrC2	Miamian-Russell silt loams, 6 to 12 percent slopes, moderately eroded	Y
Pb	Patton silt loam, silted	Y
Pc	Patton silty clay loam	Y
PlB	Plattville silt loam, 1 to 6 percent slopes	Y
PrB	Princeton fine sandy loam, 2 to 6 percent slopes	N
PrC2	Princeton fine sandy loam, 6 to 12 percent slopes, moderately eroded	N
RpB	Rainsboro silt loam, 2 to 6 percent slopes	Y
RvA	Russell-Miamian silt loams, 0 to 2 percent slopes	Y
RvB	Russell-Miamian silt loams, 2 to 6 percent slopes	Y
RvB2	Russell-Miamian silt loams, 2 to 6 percent slopes, moderately eroded	Y
W	Water	N
WyB	Wynn silt loam, 2 to 6 percent slopes	N
WyB2	Wynn silt loam, 2 to 6 percent slopes, moderately eroded	N
WyC2	Wynn silt loam, 6 to 12 percent slopes, moderately eroded	N
XeA	Xenia silt loam, 0 to 2 percent slopes	Y
XeB	Xenia silt loam, 2 to 6 percent slopes	Y

PROJECT LOCATION

BUTLER COUNTY, OH

REFERENCE: USGS 7.5' TOPOGRAPHIC QUADRANGLE: MONROE AND LEBANON, OHIO. OBTAINED VIA ESRI USA TOPO, NATIONAL GEOGRAPHIC TOPO, AND USGS, ACCESSED 01/2017.

0 390 780 1,170 1,560 Feet

- Existing Facility
- Soil Type
- Hydric Soil Type
- Municipal Boundary
- 100ft Corridor
- Project Centerline
- Interstate
- State Highway
- US Highway
- Railroad

DUKE ENERGY.

Cardno

FIGURE: 3.04

STORMWATER POLLUTION PREVENTION PLAN
5680 138kV NICKEL TO WARREN STATION REBUILD
DUKE ENERGY
SOIL CLASSIFICATIONS

DRAWN BY: COD | DATE: 11/3/2017
CHECKED: CJ | APPROVED: JT

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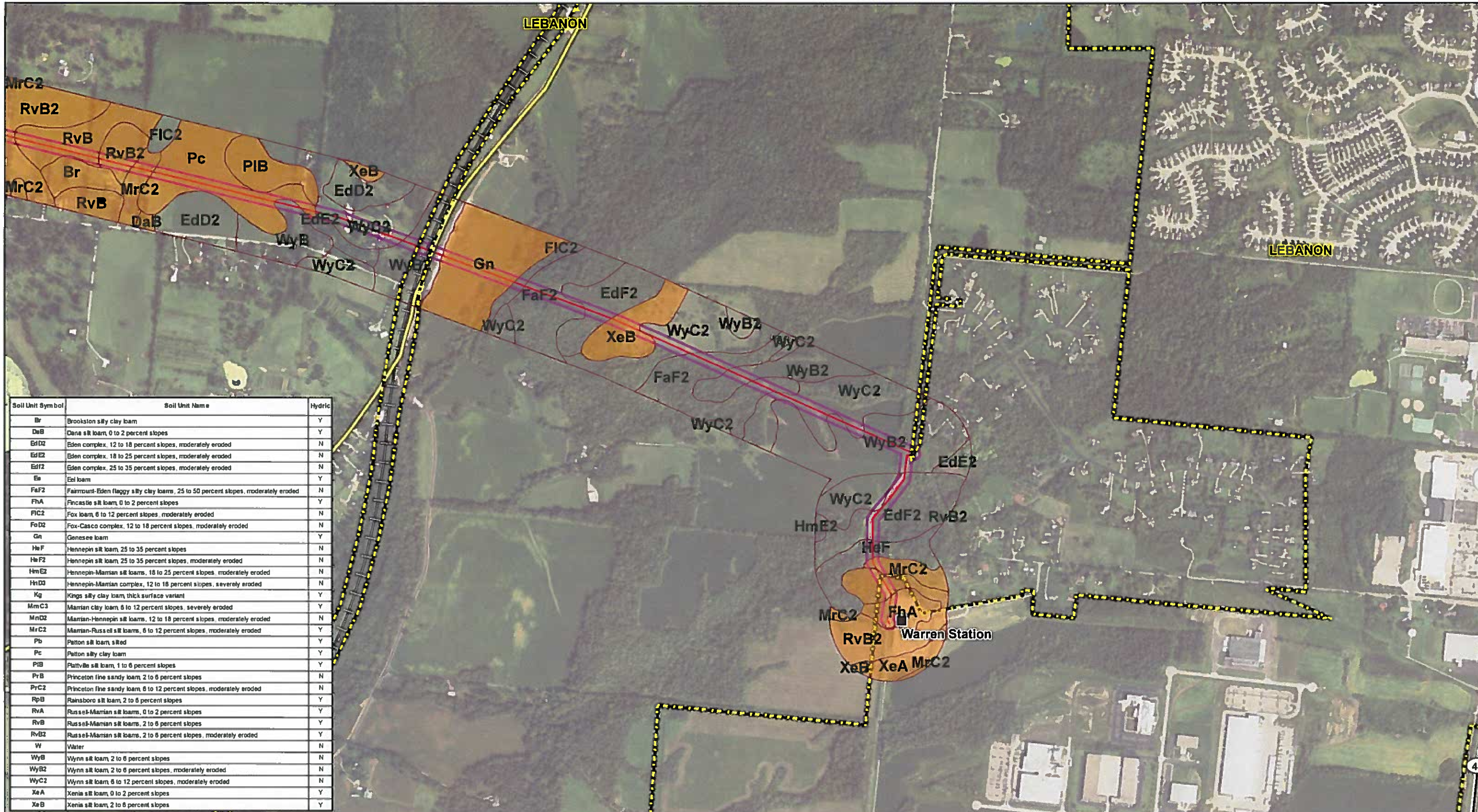

Soil Unit Symbol	Soil Unit Name	Hydric
Br	Brookston silty clay loam	Y
DaB	Dana silt loam, 0 to 2 percent slopes	Y
EdD2	Eden complex, 12 to 18 percent slopes, moderately eroded	N
EdE2	Eden complex, 18 to 25 percent slopes, moderately eroded	N
Edf2	Eden complex, 25 to 35 percent slopes, moderately eroded	N
Ee	Eel loam	Y
FaF2	Fairmount-Eden flaggy silty clay loams, 25 to 50 percent slopes, moderately eroded	N
FhA	Fincastle silt loam, 0 to 2 percent slopes	Y
FlC2	Fox loam, 6 to 12 percent slopes, moderately eroded	N
FoD2	Fox-Casco complex, 12 to 18 percent slopes, moderately eroded	N
Gn	Genesee loam	Y
HeF	Hennepin silt loam, 25 to 35 percent slopes	N
HeF2	Hennepin silt loam, 25 to 35 percent slopes, moderately eroded	N
HmE2	Hennepin-Miamian silt loams, 18 to 25 percent slopes, moderately eroded	N
HnD3	Hennepin-Miamian complex, 12 to 18 percent slopes, severely eroded	N
Kg	Kings silty clay loam, thick surface variant	Y
MmC3	Miamian clay loam, 6 to 12 percent slopes, severely eroded	Y
MnD2	Miamian-Hennepin silt loams, 12 to 18 percent slopes, moderately eroded	N
MrC2	Miamian-Russell silt loams, 6 to 12 percent slopes, moderately eroded	Y
Pb	Patton silt loam, silted	Y
Pc	Patton silty clay loam	Y
PlB	Plattville silt loam, 1 to 6 percent slopes	Y
PrB	Princeton fine sandy loam, 2 to 6 percent slopes	N
PrC2	Princeton fine sandy loam, 6 to 12 percent slopes, moderately eroded	N
RpB	Rainsboro silt loam, 2 to 6 percent slopes	Y
RvA	Russell-Miamian silt loams, 0 to 2 percent slopes	Y
RvB	Russell-Miamian silt loams, 2 to 6 percent slopes	Y
RvB2	Russell-Miamian silt loams, 2 to 6 percent slopes, moderately eroded	Y
W	Water	N
WyB	Wynn silt loam, 2 to 6 percent slopes	N
WyB2	Wynn silt loam, 2 to 6 percent slopes, moderately eroded	N
WyC2	Wynn silt loam, 6 to 12 percent slopes, moderately eroded	N
XeA	Xenia silt loam, 0 to 2 percent slopes	Y
XeB	Xenia silt loam, 2 to 6 percent slopes	Y

PROJECT LOCATION

BUTLER COUNTY, OH

REFERENCE: USGS 7.5' TOPOGRAPHIC QUADRANGLE: MONROE AND LEBANON, OHIO. OBTAINED VIA ESRI USA TOPO, NATIONAL GEOGRAPHIC TOPO, AND USGS, ACCESSED 01/2017.

0 525 1,050 1,575 2,100 Feet

- Existing Facility
- Soil Type
- Hydric Soil Type
- Municipal Boundary
- 100ft Corridor
- Project Centerline
- Interstate
- State Highway
- US Highway
- Railroad

DUKE ENERGY.

Cardno

FIGURE: 3.05
STORMWATER POLLUTION PREVENTION PLAN
5680 138kV NICKEL TO WARREN STATION REBUILD
DUKE ENERGY
SOIL CLASSIFICATIONS

DRAWN BY: COD
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DATE: 11/3/2017
APPROVED: JT

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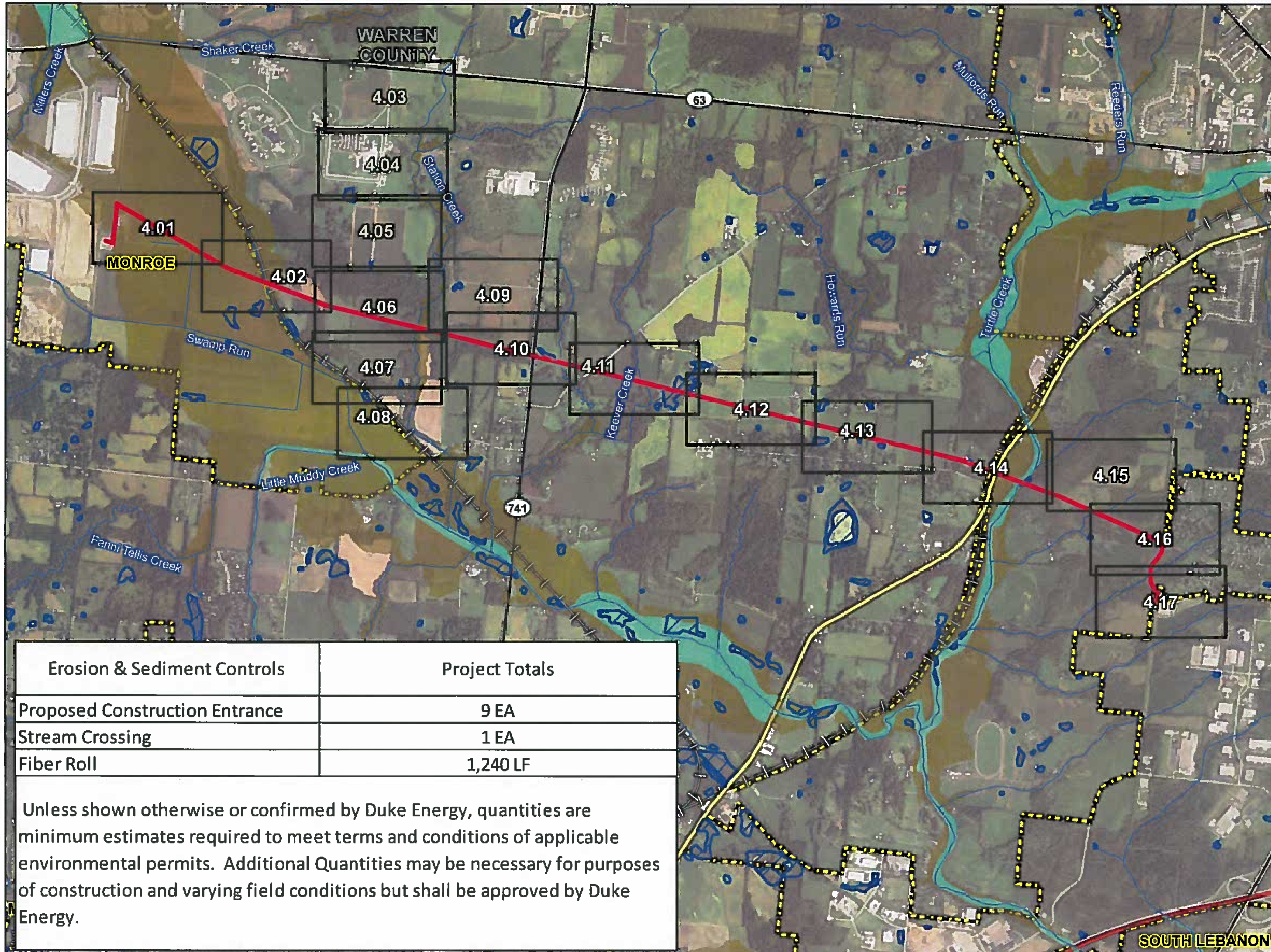

Erosion & Sediment Controls	Project Totals
Proposed Construction Entrance	9 EA
Stream Crossing	1 EA
Fiber Roll	1,240 LF

Unless shown otherwise or confirmed by Duke Energy, quantities are minimum estimates required to meet terms and conditions of applicable environmental permits. Additional Quantities may be necessary for purposes of construction and varying field conditions but shall be approved by Duke Energy.

GENERAL NOTES:

01. UTILITY LINE INFORMATION SHOWN ON THIS DRAWING IS FOR GRAPHIC REPRESENTATION ONLY AND DOES NOT SUBSTITUTE THE ENGINEERING PLANS.
02. ENVIRONMENTAL ASSESSMENT IS LIMITED TO THE RIGHT-OF-WAY CORRIDOR UNLESS NOTED OTHERWISE. STREAM, WETLAND, AND POND BOUNDARIES MAY EXTEND BEYOND STUDY AREA.
03. SEE EROSION AND SEDIMENT CONTROL DETAILS FOR MORE INFORMATION AND INSTALLATION REQUIREMENTS.
04. THE SWPPP MAY BE AMENDED AS NECESSARY BY THE DUKE ENERGY CONSTRUCTION SUPERVISOR AND INSPECTING AUTHORITY DEPENDENT ON SITE CONDITIONS.
05. PROPOSED ACCESS INDICATES RECOMMENDED APPROXIMATE CONSTRUCTION ROUTE IN THE RIGHT-OF-WAY AND OFFSITE AREAS TO MINIMIZE ENVIRONMENTAL DISTURBANCE AND PERMITTING. CONSTRUCTION ROUTE SHALL BE RESTRICTED TO 20-FOOT WIDE PATH. ANY ROUTES OTHER THAN THOSE RECOMMENDED MAY REQUIRE ADDITIONAL PERMITTING AND CAUSE DELAYS IN PROJECT.
06. ADEQUATE CONSTRUCTION ENTRANCES SHALL BE PROVIDED OFF ALL PUBLIC ROADWAYS. SITE CONDITIONS AT EACH ENTRANCE SHALL BE EVALUATED BY THE CONSTRUCTION SUPERVISOR TO DETERMINE AMOUNT OF STONE AND TYPE OF GEOTEXTILE FABRIC UNDERLINER.
07. OUTSIDE OF AGRICULTURAL FIELD BOUNDARIES, TEMPORARY OR PERMANENT SEEDING SHALL BE APPLIED IN ALL AREAS LEFT DISTURBED 15 DAYS OR MORE PER SWPPP SPECIFICATIONS.
08. EROSION CONTROL BLANKET OR HYDROMULCH SHALL BE SUBSTITUTED FOR STRAW MULCH ON ALL SLOPES GREATER THAN 3:1 AND ADJACENT TO STREAM CHANNELS.
09. EROSION CONTROL MEASURES ARE ESTIMATED. THE LOCATION AND QUANTITY MUST BE FIELD VERIFIED BY QUALIFIED INDIVIDUAL.
10. TEMPORARY MATTING SHALL BE UTILIZED AS NEEDED FOR ACCESS AND CONSTRUCTION IN WETLAND AREAS.
11. VEGETATIVE MAINTENANCE MAY PRECEDE CONSTRUCTION ACTIVITY BUT EROSION AND SEDIMENT CONTROL PLACEMENT SHALL BE REQUIRED PRIOR TO CONSTRUCTION ACTIVITIES.
12. DISTURBANCE FROM MECHANIZED EQUIPMENT IS NOT PERMITTED IN REGULATED WETLANDS AND STREAMS. HAND CUTTING OR WORK OFF OF CONSTRUCTION MATTING REQUIRED IN THESE AREAS.
13. ALL FORESTRY CLEARING DEBRIS MUST BE REMOVED FROM REGULATED WETLANDS AND STREAMS. CHIPPING OR STOCKPILING PERMISSIBLE IN UPLAND AREAS ONLY.
14. NHD FLOWLINES ARE SHOWN FOR REFERENCE ONLY AND DO NOT NECESSARILY DEFINE THE PRESENCE OF A STREAM. INCREASED WATER FLOW AND/OR EROSION MAY OCCUR IN THESE AREAS, ESPECIALLY WHEN VEGETATION IS REMOVED.

Project Location

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

N

0 1,750 3,500 Feet

Project Centerline
SheetGrid_200ft
Interstate
US Highway
State Highway
Railroad
NHD Flowline
100-Year Floodplain
Floodway
NWI Wetland
County Boundary
Municiple Boundary

DUKE ENERGY.

Cardno

FIGURE: 4
STORMWATER POLLUTION PREVENTION PLAN
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
INDEX SHEET

DRAWN BY: COD
CHECKED: CJ
DATE: 11/8/2017
APPROVED: JT

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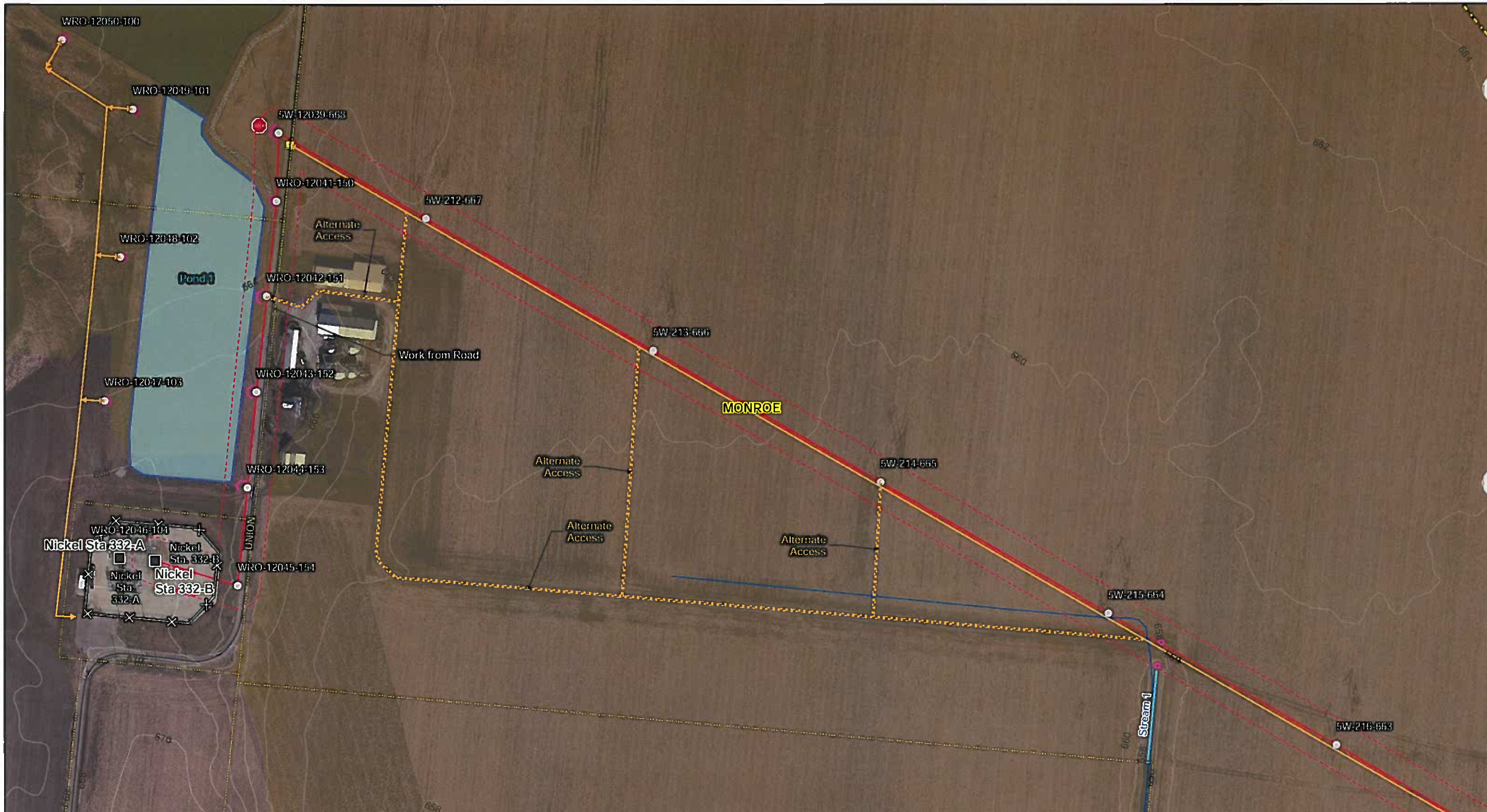

SHEET INDEX

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

N

0 50 100 200 Feet

Proposed Access	Parcel Boundary	US Highway	Stream Crossing	
Alternate Proposed Access	Study Area	Railroad	NWI Wetland	
Existing Culvert	Delineated Stream	Local Road	NHD Flowline	
Identified Feature	Open Water (NONE)	Temp Construction Entrance	100-Year Floodplain	
Existing Facility	Delineated Wetland (NONE)	Restricted Access	Floodway	
Proposed Structure	Interstate	Ditch	Project Centerline	
Existing Structure	State Highway	Fiber Roll	Municipal Boundary	
Fence Line				

DUKE ENERGY.

Cardno

FIGURE: 4.01
STORMWATER POLLUTION PREVENTION PLAN
5680 138kV NICKEL TO WARREN STATION REBUILD
DUKE ENERGY
ENVIRONMENTAL ACCESS/ EROSION CONTROL PLAN

DRAWN BY: COD
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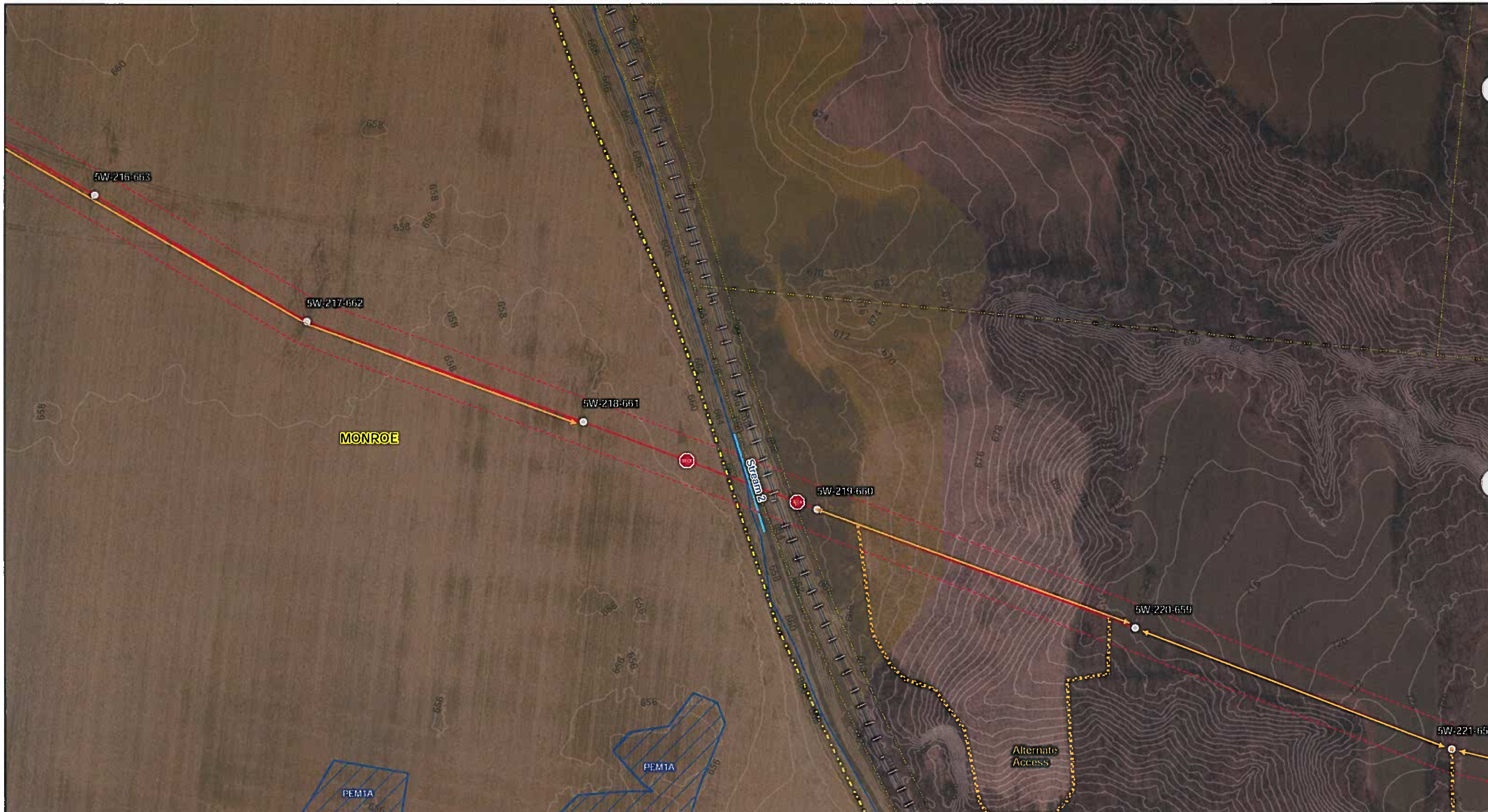
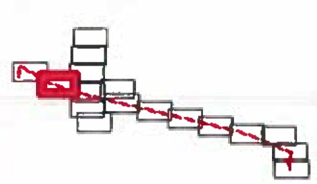
DATE: 11/8/2017
APPROVED: JT



SHEET INDEX



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

N

0 50 100 200 Feet

Proposed Access	Parcel Boundary	US Highway	Stream Crossing
Alternate Proposed Access	Study Area	Railroad	NWI Wetland
Existing Culvert	Delineated Stream	Local Road	NHD Flowline
Identified Feature	Open Water (NONE)	Temp Construction Entrance	100-Year Floodplain
Existing Facility	Delineated Wetland (NONE)	Restricted Access	Floodway
Proposed Structure	Interstate	Ditch	Project Centerline
Existing Structure	State Highway	Fiber Roll	Municipal Boundary
Fence Line			

DUKE ENERGY.

Cardno

FIGURE: 4.02

STORMWATER POLLUTION PREVENTION PLAN
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
ENVIRONMENTAL ACCESS/ EROSION CONTROL PLAN

DRAWN BY: COD
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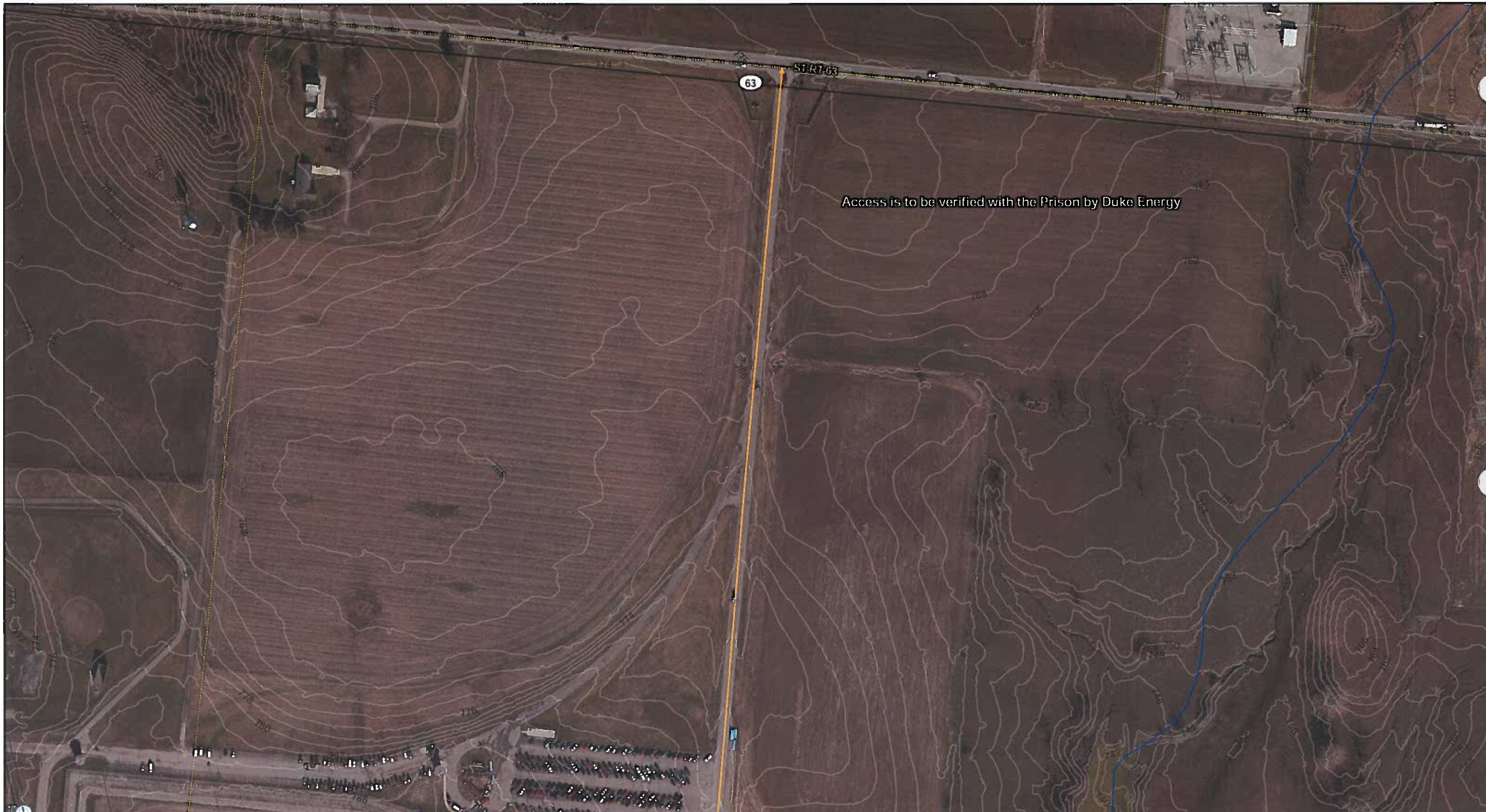
DATE: 11/8/2017
APPROVED: JT



SHEET INDEX

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

N

0 50 100 200 Feet

Proposed Access	Parcel Boundary	US Highway	Stream Crossing
Alternate Proposed Access	Study Area	Railroad	NWI Wetland
Existing Culvert	Delineated Stream	Local Road	NHD Flowline
Identified Feature	Open Water (NONE)	Temp Construction Entrance	100-Year Floodplain
Existing Facility	Delineated Wetland (NONE)	Restricted Access	Floodway
Proposed Structure	Interstate	Ditch	Project Centerline
Existing Structure	State Highway	Fiber Roll	Municipal Boundary
Fence Line			

DUKE ENERGY.

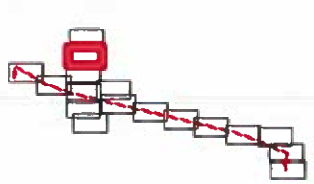
Cardno

FIGURE: 4.03

STORMWATER POLLUTION PREVENTION PLAN
5680 138kV NICKEL TO WARREN STATION REBUILD
DUKE ENERGY
ENVIRONMENTAL ACCESS/ EROSION CONTROL PLAN

DRAWN BY: COD
CHECKED: CJ
DATE: 11/8/2017
APPROVED: JT

SHEET INDEX



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

N

0 50 100 200
Feet

Proposed Access	Parcel Boundary	US Highway	Stream Crossing
Alternate Proposed Access	Study Area	Railroad	NWI Wetland
Existing Culvert	Delineated Stream	Local Road	NHD Flowline
Identified Feature	Open Water (NONE)	Temp Construction Entrance	100-Year Floodplain
Existing Facility	Delineated Wetland (NONE)	Restricted Access	Floodway
Proposed Structure	Interstate	Ditch	Project Centerline
Existing Structure	State Highway	Fiber Roll	Municipal Boundary
Fence Line			

DUKE ENERGY.

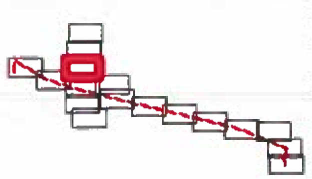
Cardno

FIGURE: 4.04

STORMWATER POLLUTION PREVENTION PLAN
5680 138kV NICKEL TO WARREN STATION REBUILD
DUKE ENERGY
ENVIRONMENTAL ACCESS/ EROSION CONTROL PLAN

DRAWN BY: COD
CHECKED: CJ
DATE: 11/8/2017
APPROVED: JT

SHEET INDEX



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

N

0 50 100 200 Feet

Proposed Access	Parcel Boundary	US Highway	Stream Crossing
Alternate Proposed Access	Study Area	Railroad	NWI Wetland
Existing Culvert	Delineated Stream	Local Road	NHD Flowline
Identified Feature	Open Water (NONE)	Temp Construction Entrance	100-Year Floodplain
Existing Facility	Delineated Wetland (NONE)	Restricted Access	Floodway
Proposed Structure	Interstate	Ditch	Project Centerline
Existing Structure	State Highway	Fiber Roll	Municipal Boundary
Fence Line			

DUKE ENERGY.

Cardno

FIGURE: 4.05
STORMWATER POLLUTION PREVENTION PLAN
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
ENVIRONMENTAL ACCESS/ EROSION CONTROL PLAN

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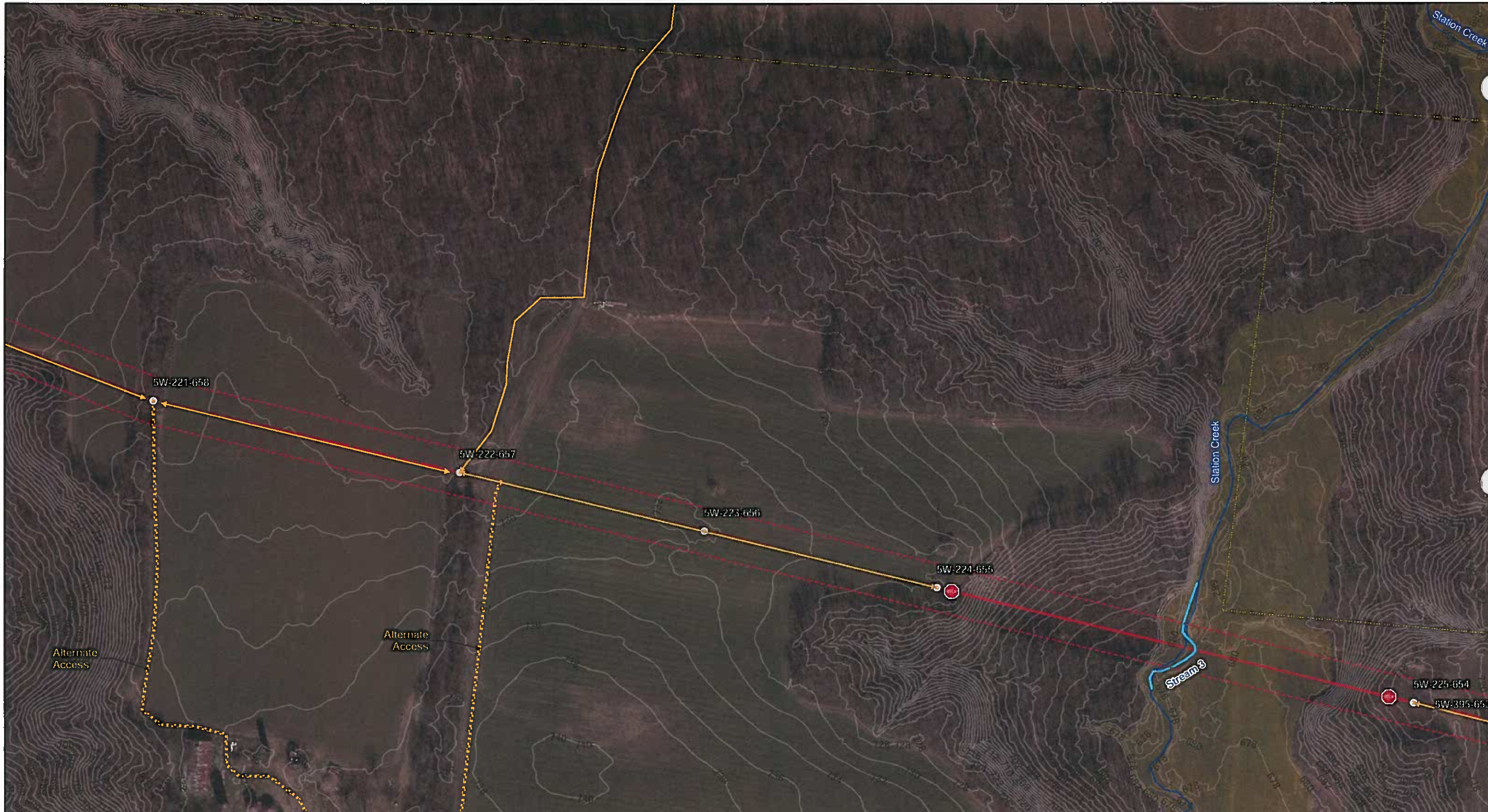
CHECKED: CJ
DATE: 11/8/2017
APPROVED: JT



SHEET INDEX

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

N

0 50 100 200
Feet

- Proposed Access
- Alternate Proposed Access
- Existing Culvert
- Identified Feature
- Existing Facility
- Proposed Structure
- Existing Structure
- Fence Line
- Parcel Boundary
- Study Area
- Delineated Stream
- Open Water (NONE)
- Delineated Wetland (NONE)
- Interstate
- State Highway
- US Highway
- Railroad
- Local Road
- Temp Construction Entrance
- Restricted Access
- Ditch
- Fiber Roll
- Stream Crossing
- NWI Wetland
- NHD Flowline
- 100-Year Floodplain
- Floodway
- Project Centerline
- Municipal Boundary

DUKE ENERGY.

Cardno

FIGURE: 4.06

STORMWATER POLLUTION PREVENTION PLAN
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
ENVIRONMENTAL ACCESS/ EROSION CONTROL PLAN

DRAWN BY: COD
CHECKED: CJ

DATE: 11/8/2017
APPROVED: JT

SHEET INDEX

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

N

0 50 100 200 Feet

Proposed Access	Parcel Boundary	US Highway	Stream Crossing
Alternate Proposed Access	Study Area	Railroad	NWI Wetland
Existing Culvert	Delineated Stream	Local Road	NHD Flowline
Identified Feature	Open Water (NONE)	Temp Construction Entrance	100-Year Floodplain
Existing Facility	Delineated Wetland (NONE)	Restricted Access	Floodway
Proposed Structure	Interstate	Ditch	Project Centerline
Existing Structure	State Highway	Fiber Roll	Municipal Boundary
Fence Line			

DUKE ENERGY.

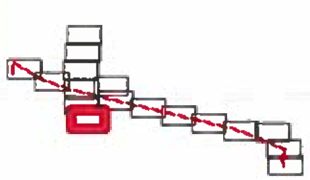
Cardno

FIGURE: 4.07

STORMWATER POLLUTION PREVENTION PLAN
5680 138kV NICKEL TO WARREN STATION REBUILD
DUKE ENERGY
ENVIRONMENTAL ACCESS/ EROSION CONTROL PLAN

DRAWN BY: COD
CHECKED: CJ
DATE: 11/8/2017
APPROVED: JT

SHEET INDEX



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

N

0 50 100 200 Feet

- Proposed Access
- Alternate Proposed Access
- Existing Culvert
- Identified Feature
- Existing Facility
- Proposed Structure
- Existing Structure
- Fence Line
- Parcel Boundary
- Study Area
- Delineated Stream
- Open Water (NONE)
- Delineated Wetland (NONE)
- Interstate
- State Highway
- US Highway
- Railroad
- Local Road
- Temp Construction Entrance
- Restricted Access
- Ditch
- Fiber Roll
- Stream Crossing
- NWI Wetland
- NHD Flowline
- 100-Year Floodplain
- Floodway
- Project Centerline
- Municipal Boundary

DUKE ENERGY.

Cardno

FIGURE: 4.08

STORMWATER POLLUTION PREVENTION PLAN
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
ENVIRONMENTAL ACCESS/ EROSION CONTROL PLAN

DRAWN BY: COD
CHECKED: CJ
DATE: 11/8/2017
APPROVED: JT

SHEET INDEX

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

N

0 50 100 200 Feet

Proposed Access	Parcel Boundary	US Highway	Stream Crossing
Alternate Proposed Access	Study Area	Railroad	NWI Wetland
Existing Culvert	Delineated Stream	Local Road	NHD Flowline
Identified Feature	Open Water (NONE)	Temp Construction Entrance	100-Year Floodplain
Existing Facility	Delineated Wetland (NONE)	Restricted Access	Floodway
Proposed Structure	Interstate	Ditch	Project Centerline
Existing Structure	State Highway	Fiber Roll	Municipal Boundary
Fence Line			

DUKE ENERGY.

Cardno

FIGURE: 4.09

STORMWATER POLLUTION PREVENTION PLAN
5680 138kV NICKEL TO WARREN STATION REBUILD
DUKE ENERGY
ENVIRONMENTAL ACCESS/ EROSION CONTROL PLAN

DRAWN BY: COD
CHECKED: CJ
DATE: 11/8/2017
APPROVED: JT

SHEET INDEX

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

N

0 50 100 200 Feet

Proposed Access	Parcel Boundary	US Highway	Stream Crossing
Alternate Proposed Access	Study Area	Railroad	NWI Wetland
Existing Culvert	Delineated Stream	Local Road	NHD Flowline
Identified Feature	Open Water (NONE)	Temp Construction Entrance	100-Year Floodplain
Existing Facility	Delineated Wetland (NONE)	Restricted Access	Floodway
Proposed Structure	Interstate	Ditch	Project Centerline
Existing Structure	State Highway	Fiber Roll	Municipal Boundary
Fence Line			

DUKE ENERGY.

Cardno

FIGURE: 4.10
STORMWATER POLLUTION PREVENTION PLAN
5680 138kV NICKEL TO WARREN STATION REBUILD
DUKE ENERGY
ENVIRONMENTAL ACCESS/ EROSION CONTROL PLAN

DRAWN BY: COD
CHECKED: CJ
DATE: 11/8/2017
APPROVED: JT

SHEET INDEX

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

N

0 50 100 200 Feet

- Proposed Access
- Alternate Proposed Access
- Existing Culvert
- Identified Feature
- Existing Facility
- Proposed Structure
- Existing Structure
- Fence Line
- Parcel Boundary
- Study Area
- Delineated Stream
- Open Water (NONE)
- Delineated Wetland (NONE)
- Interstate
- State Highway
- US Highway
- Railroad
- Local Road
- Temp Construction Entrance
- Restricted Access
- Ditch
- Fiber Roll
- Stream Crossing
- NWI Wetland
- NHD Flowline
- 100-Year Floodplain
- Floodway
- Project Centerline
- Municipal Boundary

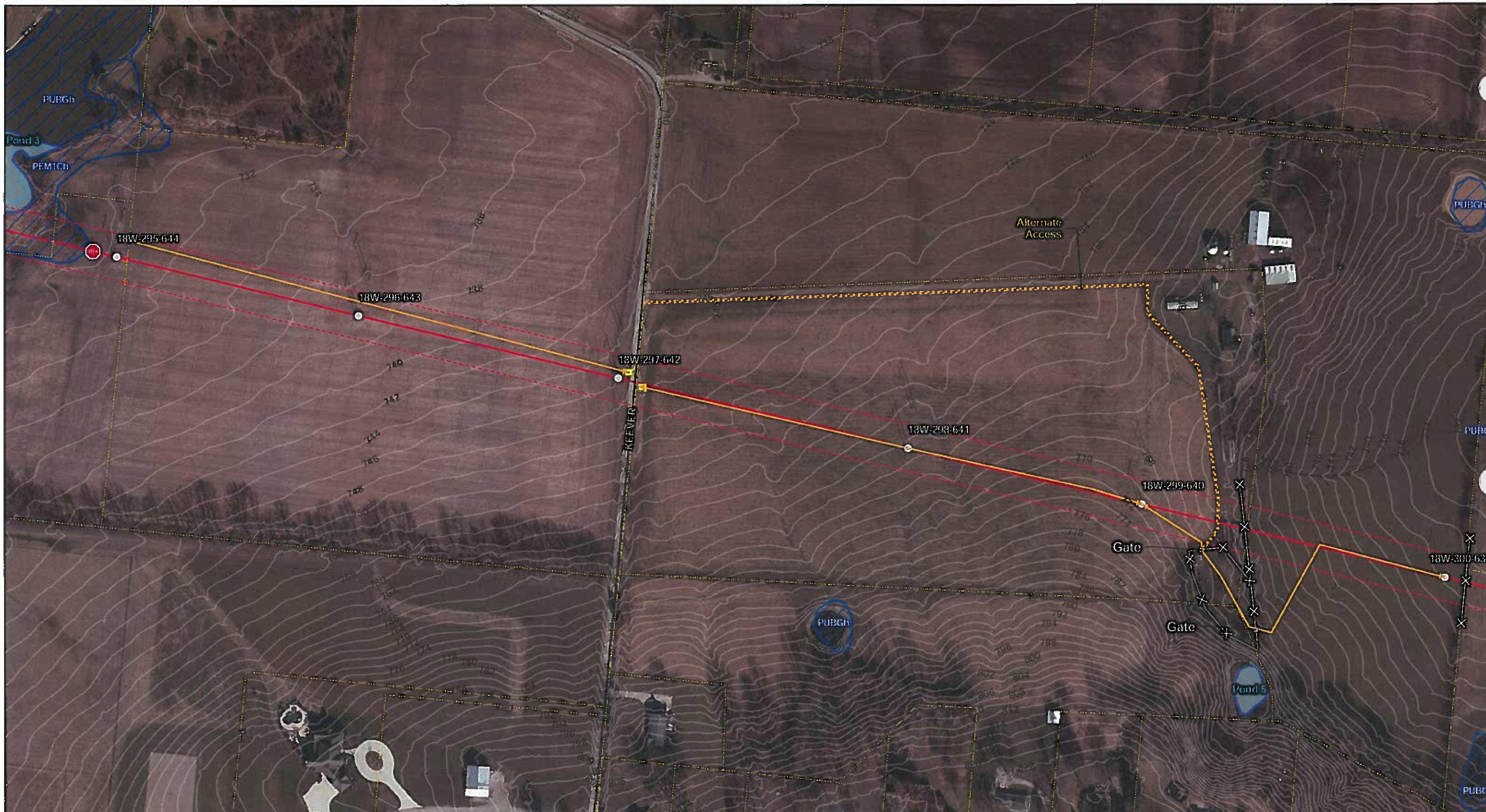
DUKE ENERGY.

Cardno

FIGURE: 4.11

STORMWATER POLLUTION PREVENTION PLAN
5680 138kV NICKEL TO WARREN STATION REBUILD
DUKE ENERGY
ENVIRONMENTAL ACCESS/ EROSION CONTROL PLAN

DRAWN BY: COD
CHECKED: CJ
DATE: 11/8/2017
APPROVED: JT



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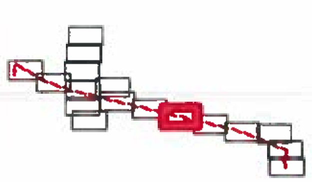

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ESRI WORLD IMAGERY, OBTAINED THROUGH ESRI WORLD IMAGERY MICROSOFT CORPORATION, ACCESSED 01/2017

N

0 50 100 200 Feet

Proposed Access	Parcel Boundary	US Highway	Stream Crossing
Alternate Proposed Access	Study Area	Railroad	NWI Wetland
Existing Culvert	Delineated Stream	Local Road	NHD Flowline
Identified Feature	Open Water (NONE)	Temp Construction Entrance	100-Year Floodplain
Existing Facility	Delineated Wetland (NONE)	Restricted Access	Floodway
Proposed Structure	Interstate	Ditch	Project Centerline
Existing Structure	State Highway	Fiber Roll	Municipal Boundary
Fence Line			

DUKE ENERGY.

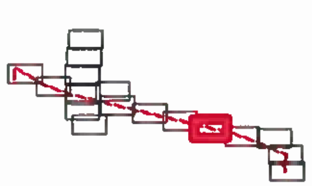
Cardno

FIGURE: 4.12

STORMWATER POLLUTION PREVENTION PLAN
5680 138kV NICKEL TO WARREN STATION REBUILD
DUKE ENERGY
ENVIRONMENTAL ACCESS/ EROSION CONTROL PLAN

DRAWN BY: COD
CHECKED: CJ
DATE: 11/8/2017
APPROVED: JT

SHEET INDEX



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

N

0 50 100 200 Feet

Proposed Access	Parcel Boundary	US Highway	Stream Crossing
Alternate Proposed Access	Study Area	Railroad	NWI Wetland
Existing Culvert	Delineated Stream	Local Road	NHD Flowline
Identified Feature	Open Water (NONE)	Temp Construction Entrance	100-Year Floodplain
Existing Facility	Delineated Wetland (NONE)	Restricted Access	Floodway
Proposed Structure	Interstate	Ditch	Project Centerline
Existing Structure	State Highway	Fiber Roll	Municipal Boundary
Fence Line			

DUKE ENERGY.

Cardno

FIGURE: 4.13

STORMWATER POLLUTION PREVENTION PLAN
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
ENVIRONMENTAL ACCESS/ EROSION CONTROL PLAN

DRAWN BY: COD DATE: 11/8/2017
CHECKED: CJ APPROVED: JT

SHEET INDEX

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

N

0 50 100 200 Feet

Proposed Access	Parcel Boundary	US Highway	Stream Crossing
Alternate Proposed Access	Study Area	Railroad	NWI Wetland
Existing Culvert	Delineated Stream	Local Road	NHD Flowline
Identified Feature	Open Water (NONE)	Temp Construction Entrance	100-Year Floodplain
Existing Facility	Delineated Wetland (NONE)	Restricted Access	Floodway
Proposed Structure	Interstate	Ditch	Project Centerline
Existing Structure	State Highway	Fiber Roll	Municipal Boundary
Fence Line			

DUKE ENERGY.

Cardno

FIGURE: 4.14

STORMWATER POLLUTION PREVENTION PLAN
5680 138kV NICKEL TO WARREN STATION REBUILD
DUKE ENERGY
ENVIRONMENTAL ACCESS/ EROSION CONTROL PLAN

DRAWN BY: COD
CHECKED: CJ

DATE: 11/8/2017
APPROVED: JT

SHEET INDEX

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

N

0 50 100 200 Feet

Proposed Access	Parcel Boundary	US Highway	Stream Crossing
Alternate Proposed Access	Study Area	Railroad	NWI Wetland
Existing Culvert	Delineated Stream	Local Road	NHD Flowline
Identified Feature	Open Water (NONE)	Temp Construction Entrance	100-Year Floodplain
Existing Facility	Delineated Wetland (NONE)	Restricted Access	Floodway
Proposed Structure	Interstate	Ditch	Project Centerline
Existing Structure	State Highway	Fiber Roll	Municipal Boundary
Fence Line			

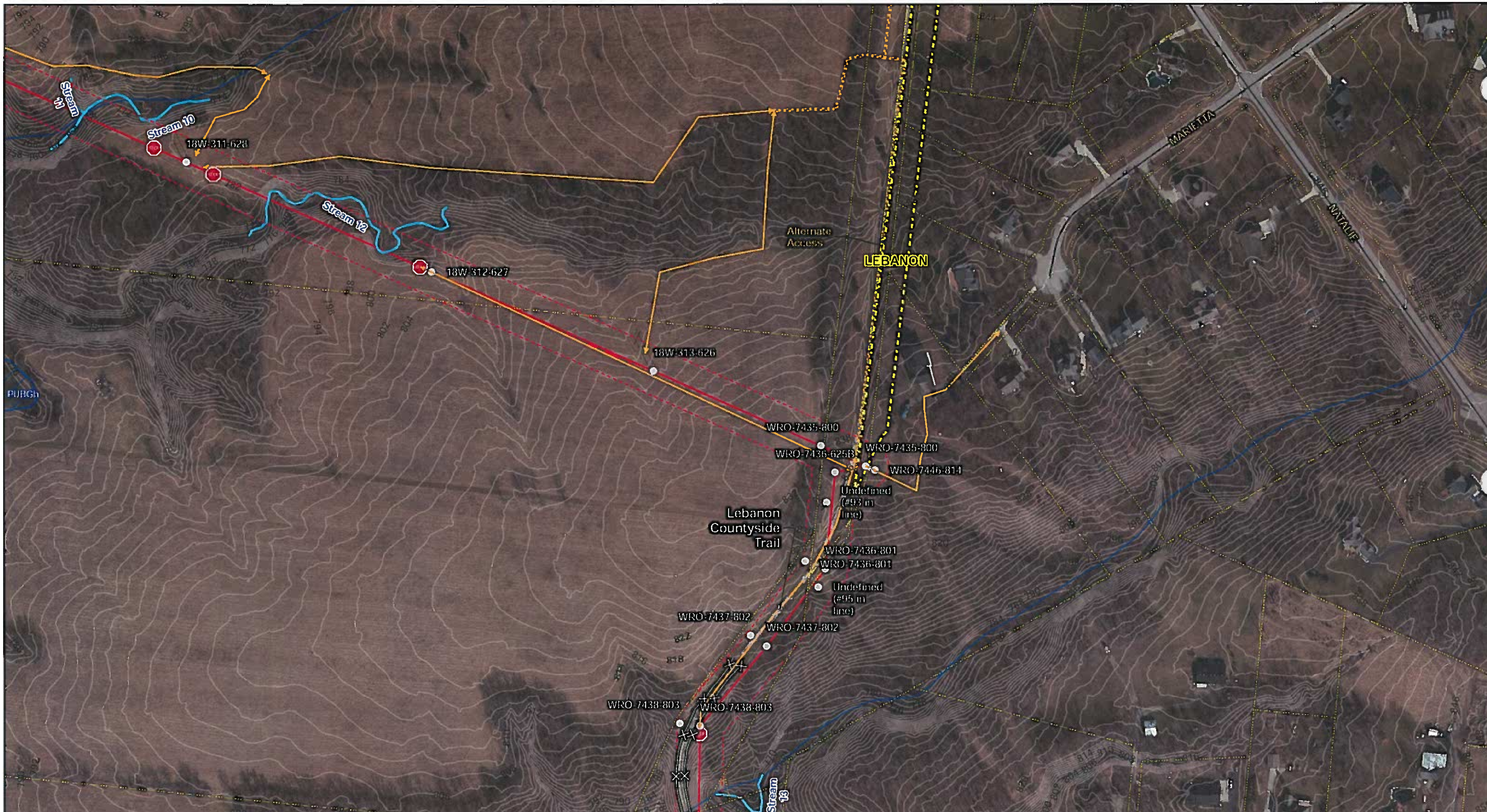
DUKE ENERGY.

Cardno

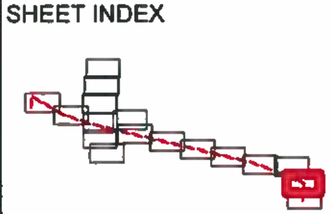
FIGURE: 4.15

STORMWATER POLLUTION PREVENTION PLAN
5680 138kV NICKEL TO WARREN STATION REBUILD
DUKE ENERGY
ENVIRONMENTAL ACCESS/ EROSION CONTROL PLAN

DRAWN BY: COD
CHECKED: CJ
DATE: 11/8/2017
APPROVED: JT



SHEET INDEX



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

N

0 50 100 200 Feet

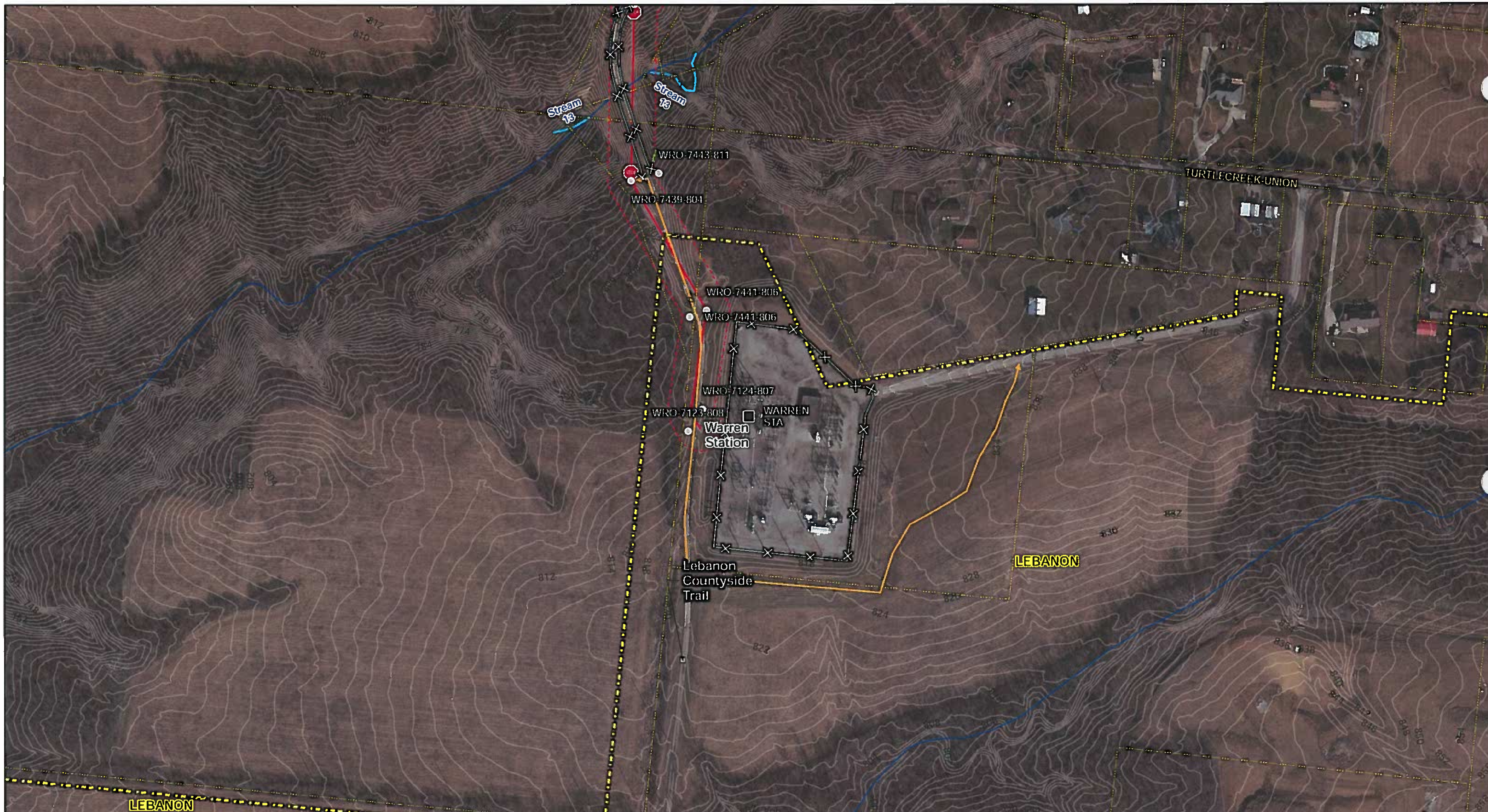
Proposed Access
Alternate Proposed Access
Existing Culvert
Identified Feature
Existing Facility
Proposed Structure
Existing Structure
Fence Line
Parcel Boundary
Study Area
Delineated Stream
Open Water (NONE)
Delineated Wetland (NONE)
Interstate
State Highway
US Highway
Railroad
Local Road
Temp Construction Entrance
Restricted Access
Ditch
Fiber Roll
Stream Crossing
NWI Wetland
NHD Flowline
100-Year Floodplain
Floodway
Project Centerline
Municipal Boundary

DUKE ENERGY.

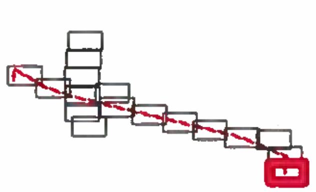
Cardno

FIGURE: 4.16
STORMWATER POLLUTION PREVENTION PLAN
5680 138kV NICKEL TO WARREN STATION REBUILD
DUKE ENERGY
ENVIRONMENTAL ACCESS/ EROSION CONTROL PLAN

DRAWN BY: COD
CHECKED: CJ
DATE: 11/8/2017
APPROVED: JT



SHEET INDEX



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

N

0 50 100 200 Feet

Proposed Access	Parcel Boundary	US Highway	Stream Crossing
Alternate Proposed Access	Study Area	Railroad	NWI Wetland
Existing Culvert	Delineated Stream	Local Road	NHD Flowline
Identified Feature	Open Water (NONE)	Temp Construction Entrance	100-Year Floodplain
Existing Facility	Delineated Wetland (NONE)	Restricted Access	Floodway
Proposed Structure	Interstate	Ditch	Project Centerline
Existing Structure	State Highway	Fiber Roll	Municipal Boundary
Fence Line			

DUKE ENERGY.

Cardno

FIGURE: 4.17

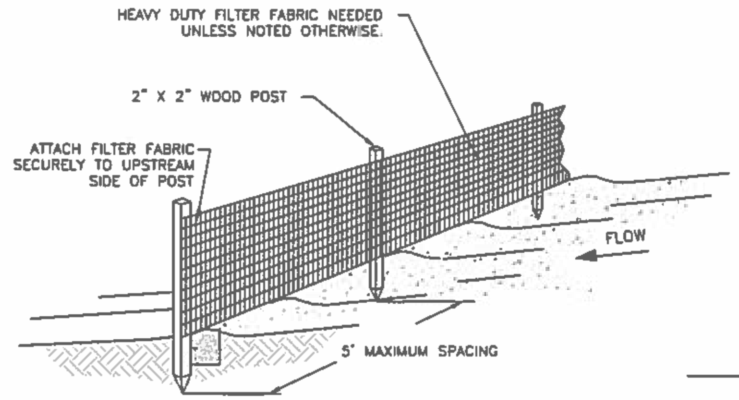
STORMWATER POLLUTION PREVENTION PLAN
5680 138kV NICKEL TO WARREN STATION REBUILD
DUKE ENERGY
ENVIRONMENTAL ACCESS/ EROSION CONTROL PLAN

DRAWN BY: COD
CHECKED: CJ

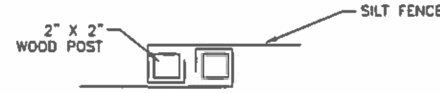
DATE: 11/8/2017
APPROVED: JT

Appendix B

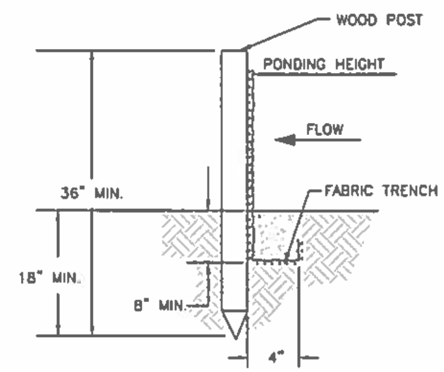
Storm Water Pollution Prevention Plan Typical Details



ISOMETRIC VIEW



JOINT WRAP



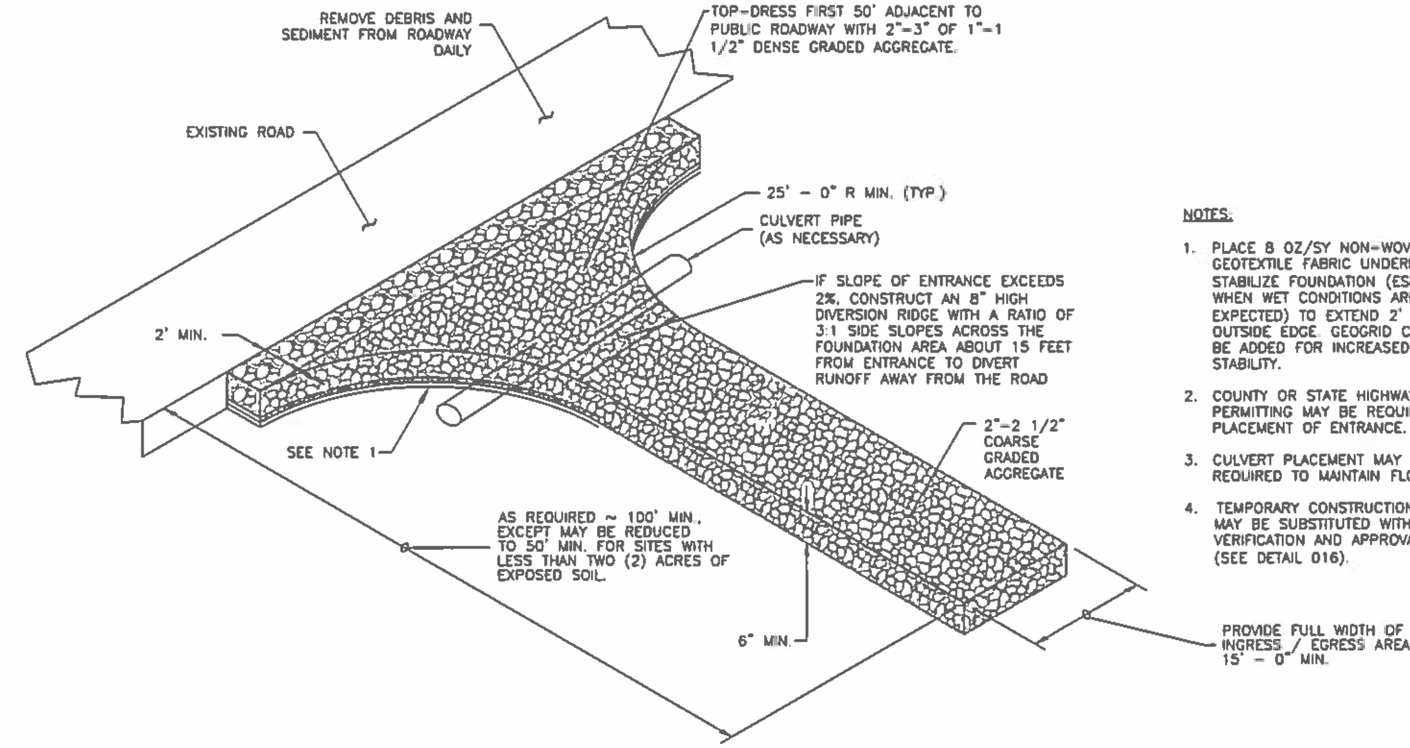
TYPICAL SECTION

NOTES:

1. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
2. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN IT REACHES ONE-HALF HEIGHT OF FENCE OR FABRIC STARTS TO BULGE.
3. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
4. TURN END OF SILT FENCE UP SLOPE TO PREVENT BYPASS FLOW AND ALLOW FOR PONDING.

SILT FENCE

001

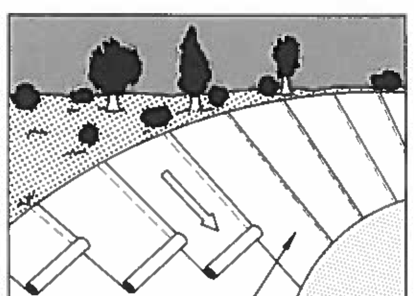


NOTES:

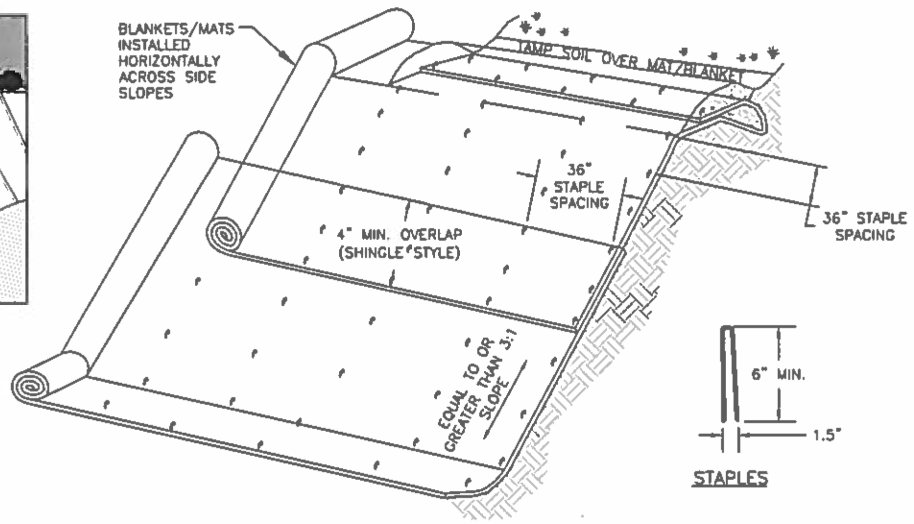
1. PLACE 8 OZ/SY NON-WOVEN GEOTEXTILE FABRIC UNDERLINER TO STABILIZE FOUNDATION (ESPECIALLY WHEN WET CONDITIONS ARE EXPECTED) TO EXTEND 2' FROM OUTSIDE EDGE. GEOGRID CAN ALSO BE ADDED FOR INCREASED STABILITY.
2. COUNTY OR STATE HIGHWAY ACCESS PERMITTING MAY BE REQUIRED FOR PLACEMENT OF ENTRANCE.
3. CULVERT PLACEMENT MAY BE REQUIRED TO MAINTAIN FLOW.
4. TEMPORARY CONSTRUCTION MATTING MAY BE SUBSTITUTED WITH FIELD VERIFICATION AND APPROVAL (SEE DETAIL 016).

TEMPORARY CONSTRUCTION ENTRANCE

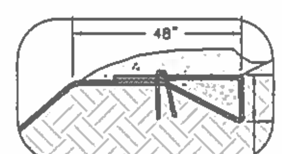
002



BLANKETS/MATS INSTALLED VERTICALLY ON SEVERE OR LONGER SLOPES



STAPLES



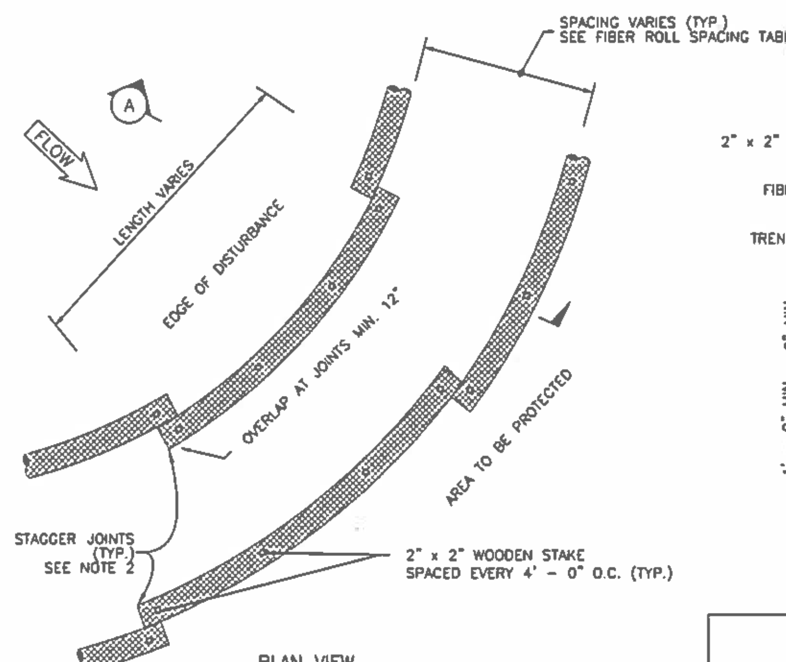
BERM

NOTES:

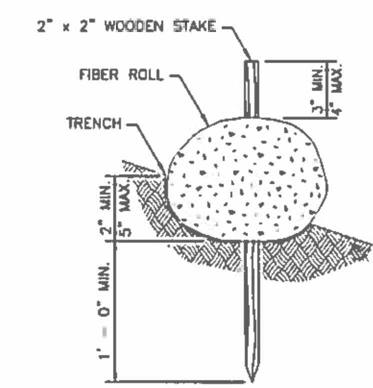
1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
2. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.
4. USE ON SIDE SLOPES EXCEEDING A 3:1 SLOPE AND DISTURBED STREAMBANKS.
5. THE FOLLOWING BLANKET TYPES SHALL BE UTILIZED:
   A. LONG-TERM BIODEGRADABLE DOUBLE-NET COCONUT BLANKET ON STREAMBANKS.
   B. SHORT-TERM BIODEGRADABLE DOUBLE-NET STRAW BLANKET ON 3:1 SLOPES OR GREATER.
   C. SHORT-TERM BIODEGRADABLE SINGLE-NET STRAW ON LESSER SLOPES, FLAT FLOODPLAIN, AND WORKSPACE AREAS.
6. FOR STREAMBANK STABILIZATION:
   A. TUCK/UNDERLAP BASE OF BLANKET TO PREVENT HIGH WATER FROM REMOVING BLANKET AND SEED.
   B. STAPLE SPACING MAY NEED TO BE DECREASED.
   C. PREPARE SUBGRADE PRIOR TO INSTALLING BLANKET BY REMOVING DISPLACED ROCKS AND WOODY DEBRIS.

EROSION CONTROL BLANKET

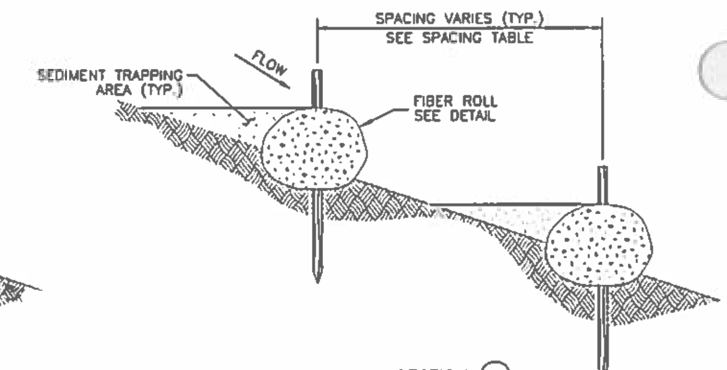
003



PLAN VIEW



TYPICAL SECTION



SECTION (A)

SPACING TABLE	
SLOPE	MAXIMUM SPACING
1:1	10' - 0"
2:1	20' - 0"
3:1	30' - 0"
4:1	40' - 0"

* INSTALL FIRST ROW AT TOP OF BANK. INSTALL LAST ROW 10' FROM TOE OF SLOPE.

NOTES:

1. INSTALL FIBER ROLLS ALONG CONTOURS DURING FINAL RESTORATION TO CHECK FLOW TO ALLOW ADEQUATE REVEGETATION.
2. ABUT ADJACENT FIBER ROLLS TIGHTLY WHILE OVERLAPPING THE ENDS. STAGGER JOINTS WITH THE NEXT PARALLEL ROW.
3. PILOT HOLES MAY BE DRIVEN THROUGH THE FIBER ROLLS AND INTO THE SOIL WHEN SOIL CONDITIONS REQUIRE.
4. FIBER ROLLS SHALL BE INSPECTED REGULARLY, AND IMMEDIATELY AFTER A RAINFALL PRODUCES RUNOFF, TO ENSURE THEY REMAIN THOROUGHLY ENTRENCHED AND IN CONTACT WITH THE SOIL.
5. A SINGLE ROW MAY BE INSTALLED ON FLAT SLOPES.

FIBER ROLL

005

INTENTIONALLY LEFT BLANK

004

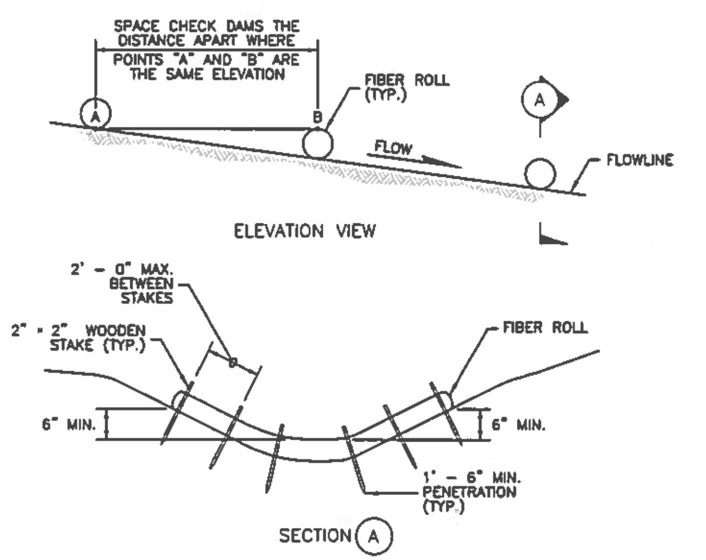
REVISIONS			
NO.	DATE	DESCRIPTION	APPROVED BY

DESIGN BY	DATE
CAM/MRW	2/18/2015
DRAWN BY	JOB NO.
KTH	- -
CHECKED BY	APPROVED
MRW	CAM

DUKE ENERGY.

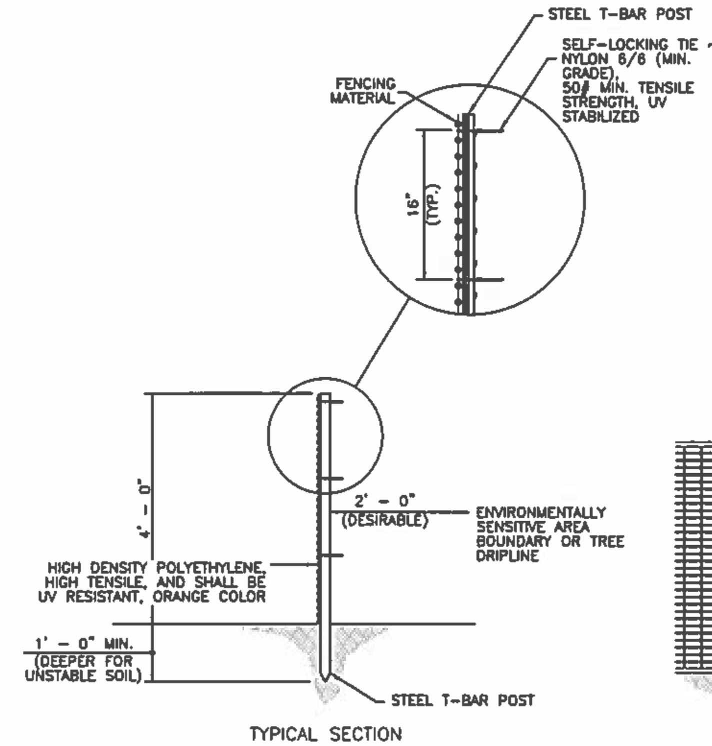
STORM WATER POLLUTION PREVENTION PLAN
TYPICAL DETAILS

SCALE	
N.T.S.	
DRAWING NO.	
SHEET 1	OF 5

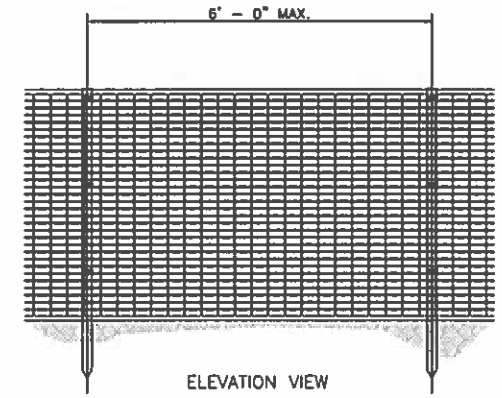


NOTE:
1. STRAW WATTLE SHALL NOT BE USED IN A CHECK DAM APPLICATION.

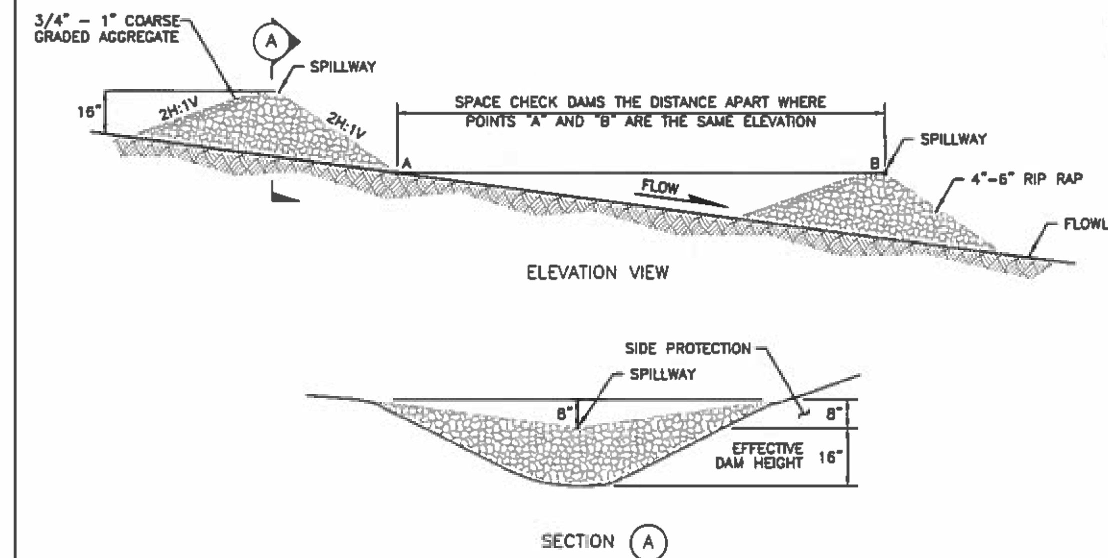
FIBER ROLL CHECK DAM 006



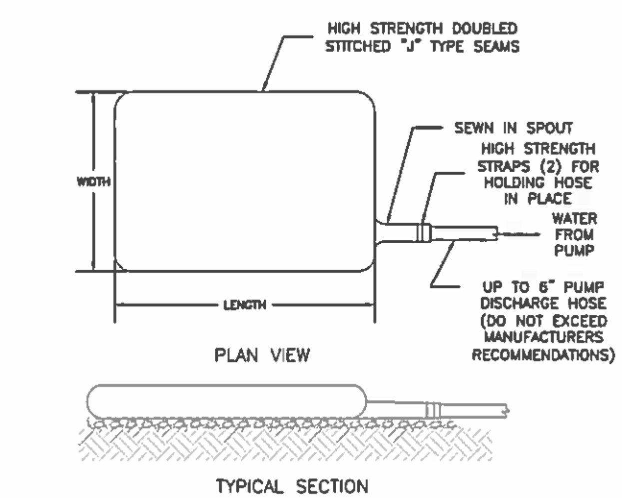
NOTE:
1. POST SHALL HAVE SUFFICIENT STRENGTH AND DURABILITY TO SUPPORT THE FENCE THROUGH THE LIFE OF THE PROJECT.



CONSTRUCTION BARRIER FENCING 007



ROCK CHECK DAM 008



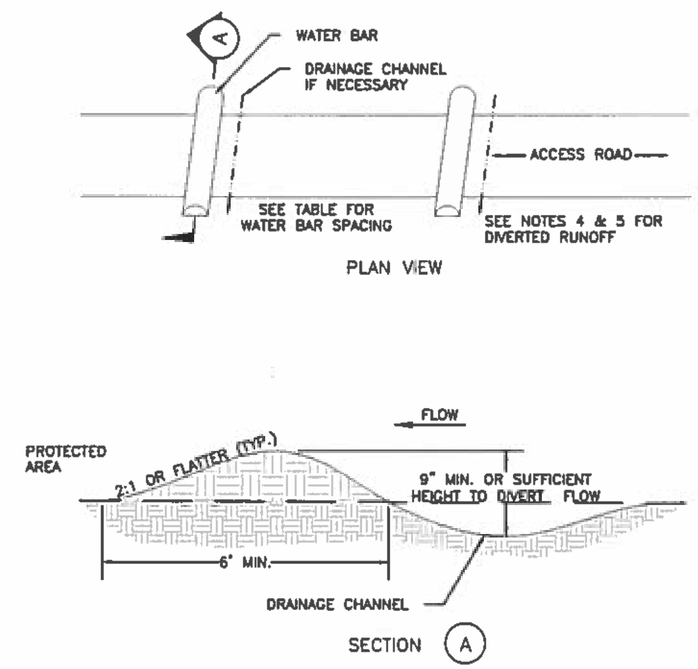
NOTES:

1. THE NECK OF THE FILTER BAG SHALL BE TIGHTLY STRAPPED (MINIMUM TWO STRAPS) TO THE DISCHARGE HOSE.
2. THE FILTER BAG IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR PASS WATER AT A REASONABLE RATE.
3. FLOW RATES VARY DEPENDING ON THE SIZE OF THE DEWATERING DEVICE, AMOUNT OF SEDIMENT DISCHARGED INTO THE DEWATERING DEVICE, THE TYPE OF GROUND, ROCK, OR OTHER SUBSTANCE UNDER THE BAG AND THE DEGREE OF THE SLOPE ON WHICH THE BAG LIES. THE FILTER BAG SHOULD BE SIZED TO ACCOMMODATE THE ANTICIPATED FLOW RATES FROM THE TYPE OF PUMP USED. TYPICALLY FILTER BAGS CAN HANDLE FLOW RATES OF UP TO 1000 GALLONS PER MINUTE, BUT IN ALL CASES FOLLOW THE MANUFACTURERS RECOMMENDATIONS FOR FLOW RATES.
4. USE OF EXCESSIVE FLOW RATES OR OVERFILLING THE DEWATERING DEVICE WITH SEDIMENT WILL CAUSE RUPTURES OF THE BAG OR FAILURE OF THE HOSE ATTACHMENT STRAPS.
5. THE FILTER BAG SHALL BE REMOVED AND DISPOSED OF OFFSITE..
6. EACH STANDARD DEWATERING DEVICE SHALL HAVE A FILL SPOUT LARGE ENOUGH TO ACCOMMODATE THE DISCHARGE HOSE. USE TWO STAINLESS STEEL STRAPS TO SECURE THE HOSE AND PREVENT PUMPED WATER FROM ESCAPING WITHOUT BEING FILTERED.
7. THE DEWATERING DEVICE SHALL BE A NONWOVEN BAG, WHICH IS SEWN WITH A DOUBLE NEEDLE STITCHING USING A HIGH STRENGTH THREAD.
8. THE DEWATERING DEVICE SEAMS SHALL HAVE AN AVERAGE WIDE WITH STRENGTH PER ASTM D 4884 OF 100 LB/IN.
9. THE GEOTEXTILE FABRIC SHALL BE A NONWOVEN FABRIC WITH THE FOLLOWING PROPERTIES:

PROPERTIES	TEST METHOD	ENGLISH	METRIC
GRAB TENSILE	ASTM D - 4632	250 LBS.	113 KG
PUNCTURE	ASTM D - 4833	165 LBS.	75 KG
FLOW RATE	ASTM D - 4491	70 GAL/MIN/SQ FT	25 LITERS/MIN/SQ METER
PERMITIVITY	ASTM D - 4491	1.3 SEC. - 1	1.3 SEC. - 1
MULLEN BURST	ASTM D - 3786	550 LBS./SQ INCH	3.79 Mpa
UV RESISTANT	ASTM D - 4355	70%	70%
AOS % RETAINED	ASTM D - 4751	100%	100%

*ALL PROPERTIES ARE MINIMUM AVERAGE ROLL VALUE

DEWATERING BAG 009



NOTES:

1. SIDE SLOPES OF WATER BAR SHALL BE CONSTRUCTED SUFFICIENTLY FLAT TO ACCOMMODATE THE EXPECTED TRAFFIC.
2. THE SPACING BETWEEN WATER BARS SHALL BE AS NOTED (SEE SPACING TABLE):

WATER BAR SPACING TABLE

ROAD GRADE (%)	DISTANCE (FT.)
1	400
2	250
5	135
10	80
15	60
20	45

3. THE FIELD LOCATION SHALL BE ADJUSTED AS NEEDED TO PROVIDE A STABILIZED SAFE OUTLET.
4. DRAINAGE CHANNELS SHALL BE DIRECTED ONTO STABLE VEGETATIVE AREA OR A SEDIMENT TRAP OR A BASIN IF CONTRIBUTING AREA IS NOT STABLE.
5. DRAINAGE CHANNELS SHALL BE CONSTRUCTED WITH ≤ 2% WITH POSITIVE OUTLET TO STABLE AREA.
6. DIVERSIONS/WATER BARS SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT DURING CONSTRUCTION.
7. THE WATER BARS SHALL BE ANGLED SLIGHTLY DOWNSLOPE ACROSS THE CENTERLINE OF THE TRAVEL LANE.

WATER BAR 010

REVISIONS			
NO.	DATE	DESCRIPTION	APPROVED BY

DESIGN BY	DATE
CAM/MRW	12/18/2015
DRAWN BY	JOB NO.
KTH	- -
CHECKED BY	APPROVED
MRW	CAM

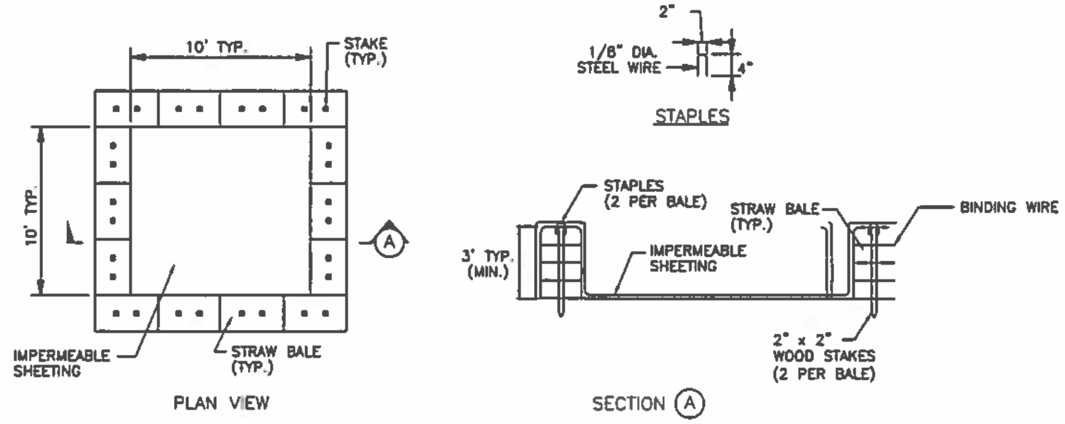
DUKE ENERGY.

STORM WATER POLLUTION PREVENTION PLAN TYPICAL DETAILS

SCALE N.T.S.

DRAWING NO.

SHEET 2 OF 5

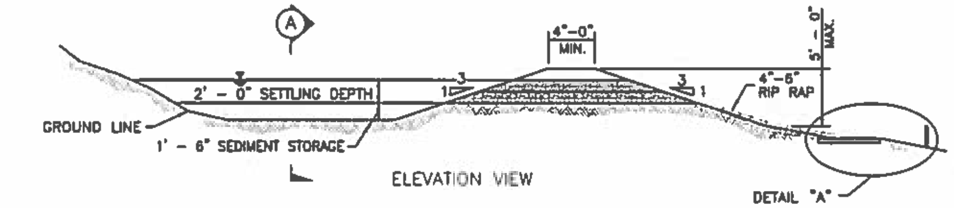


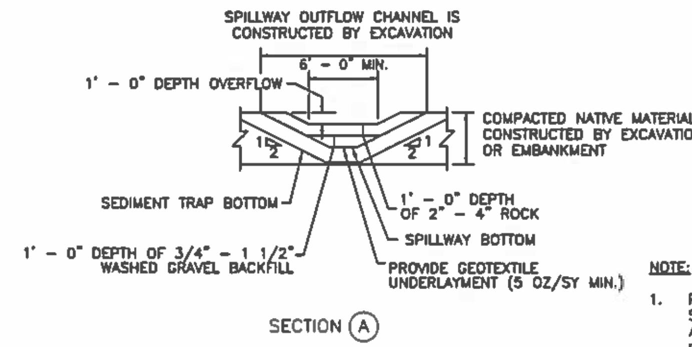
NOTES:

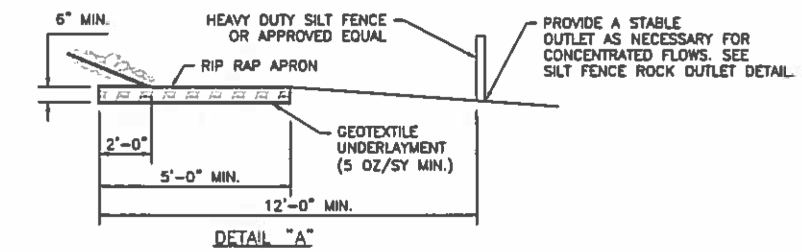
1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
2. SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
3. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET-VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.
6. BALES CAN BE TWO STACKED OR PARTIALLY EXCAVATED TO REACH 3FT DEPTH (MIN.).
7. PREFABRICATED UNITS MAY BE USED WITH APPROVAL.

CONCRETE WASHOUT

011





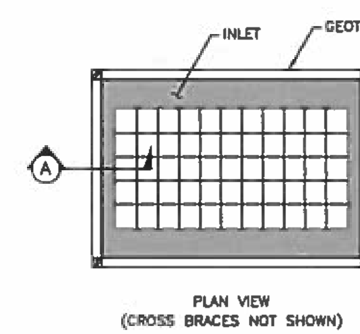


NOTE:

1. PLACE GEOTEXTILE UNDER THE SPILLWAY SIDE SLOPES, SPILLWAY BOTTOM, AND RIP RAP APRON. PROVIDE A CONTINUOUS LAYER BETWEEN THE GRAVEL/ROCK AND THE NATIVE EARTHEN MATERIAL.

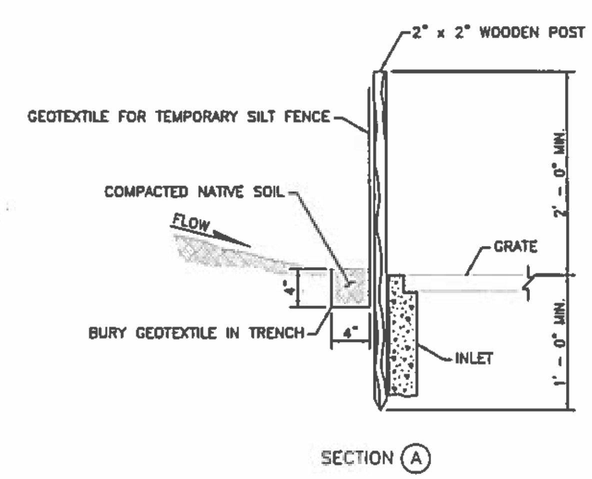
TEMPORARY SEDIMENT TRAP

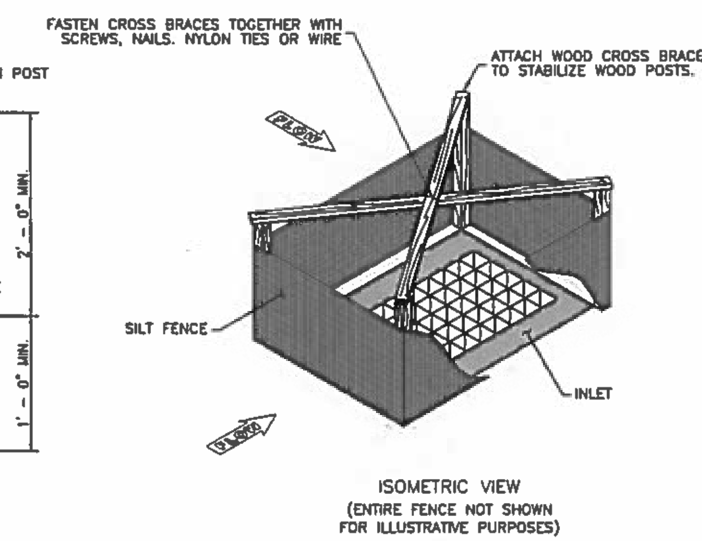
012



NOTES:

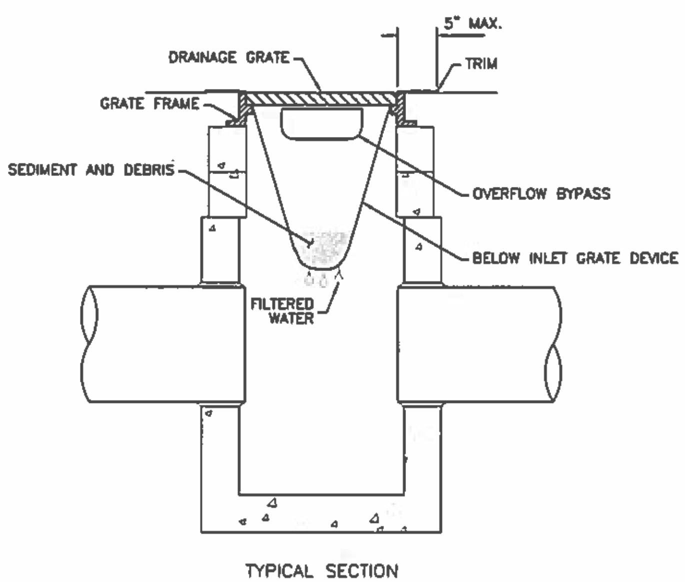
1. PREFABRICATED UNITS MAY BE USED WITH APPROVAL.
2. STRUCTURE SHALL BE CONSTRUCTED SUCH THAT GEOTEXTILE MATERIAL SHALL BE FASTENED TO POSTS CREATING A SEAM-LESS JOINT.
3. ENSURE THAT PONDING HEIGHT OF WATER DOES NOT CAUSE FLOODING ON ADJACENT ROADWAYS OR PRIVATE PROPERTY.

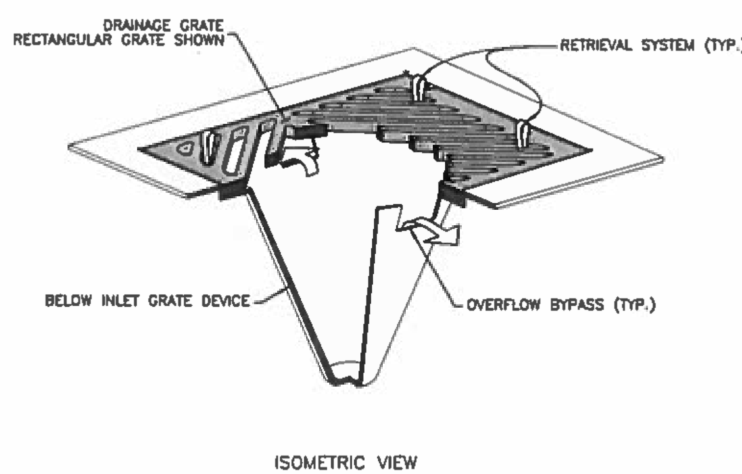




NON-PAVED AREA INLET PROTECTION

014



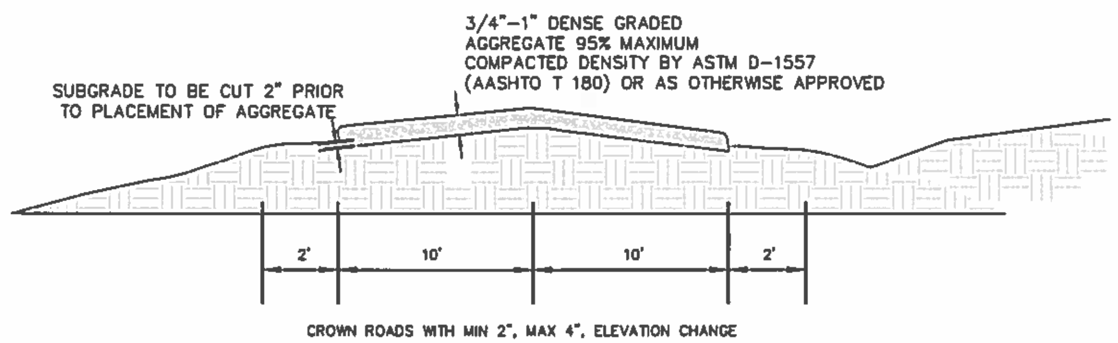


PAVED AREA INLET PROTECTION

013

REVISIONS			
NO.	DATE	DESCRIPTION	APPROVED BY

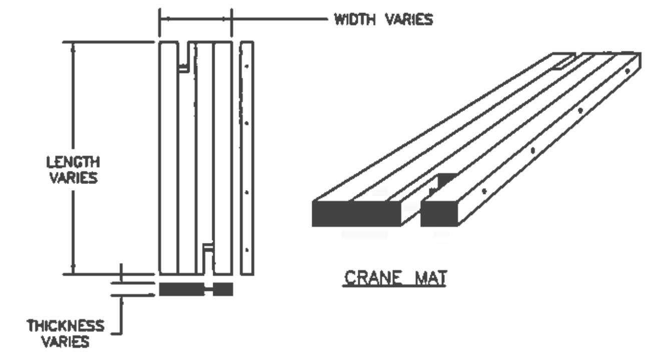
DESIGN BY	DATE			SCALE
CAM/MRW	12/18/2015	DUKE ENERGY.	STORM WATER POLLUTION PREVENTION PLAN TYPICAL DETAILS	N.T.S.
DRAWN BY	JOB NO.			DRAWING NO.
KTH	– –			
CHECKED BY	APPROVED			SHEET 3 OF 5
MRW	CAM			

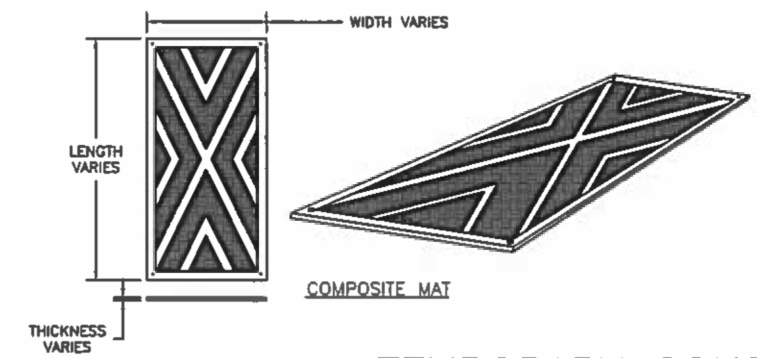


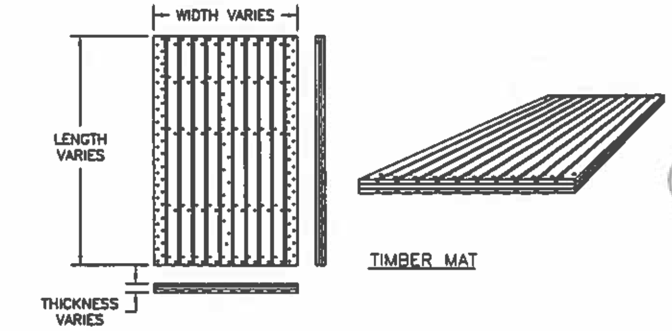
NOTE:

1. VARYING FIELD CONDITIONS MAY WARRANT ALTERNATE AGGREGATE GRADATIONS.

TEMPORARY ACCESS DRIVE 015



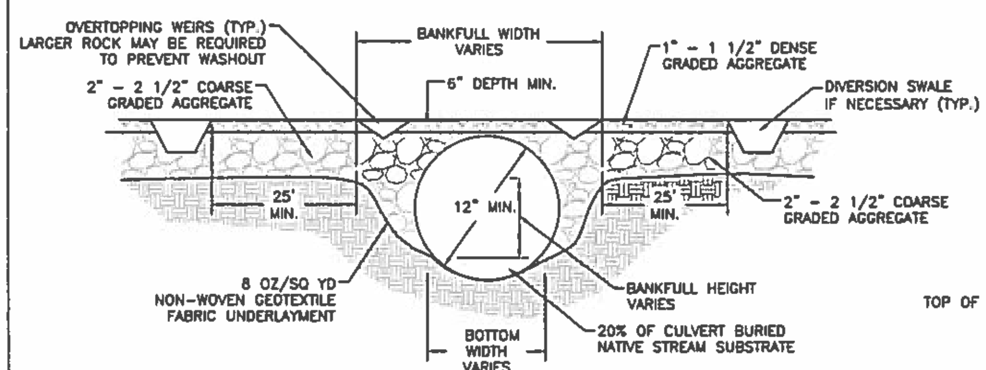




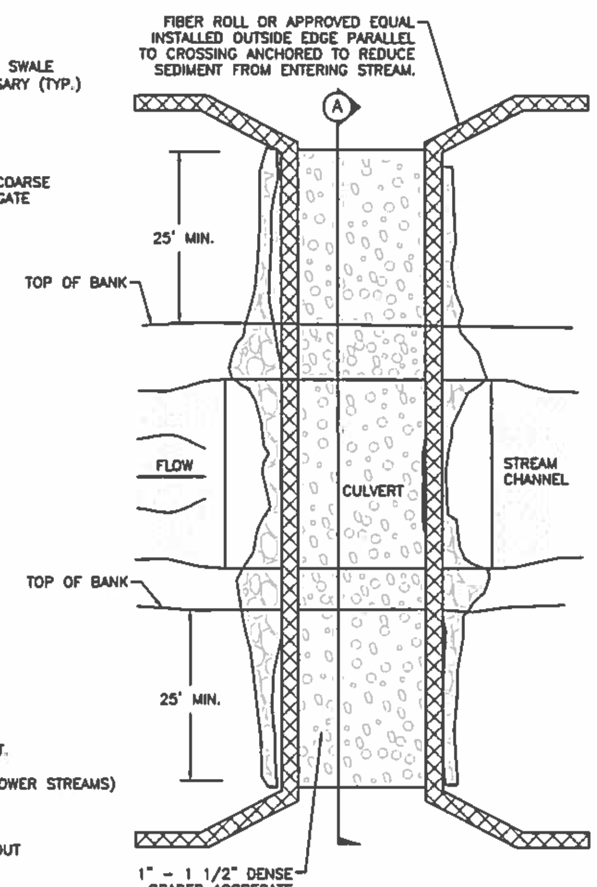
NOTES:

1. TEMPORARY CONSTRUCTION MATTING SHALL BE USED IN ALL SATURATED OR UNSTABLE WETLAND AREAS IF CROSSING IS NECESSARY.
2. FILL SHALL NOT BE PLACED OFF OF MATTING WHEN WORKING IN WETLAND AND STREAM AREAS.
3. SECTIONS TO BE ASSEMBLED TO REQUIRED SIZE SPECIFIC TO EQUIPMENT NEEDS.
4. NO GAPS SHALL BE PRESENT IN THE MATTING TO REDUCE "PUMPING" AND SEDIMENT FROM ENTERING STREAMS AND WETLANDS.
5. MATTING SHALL BE ANCHORED IN ALL NOTED FLOODWAYS AND ADJACENT TO OTHER STREAMS DETERMINED TO BE PRONE TO FLOODING.
6. MAINTAIN STREAM FLOWS AND UTILIZE EROSION CONTROLS IF MATTING IS TO BE USED FOR A STREAM CROSSING APPLICATION.
7. PLACE NON-WOVEN GEOTEXTILE UNDERLAYMENT (7 OZ/SY) BENEATH MATTING IN SATURATED OR DELINEATED WETLAND AREAS TO PREVENT PUMPING OF SATURATED SOILS.
8. INSTALL FIBER ROLL ALONG ENTIRE PERIMETER OF MATTING WITHIN DELINEATED WETLAND AREAS EXCEPT FOR THE INGRESS AND EGRESS LOCATIONS.

TEMPORARY CONSTRUCTION MATTING 016



SECTION (A)

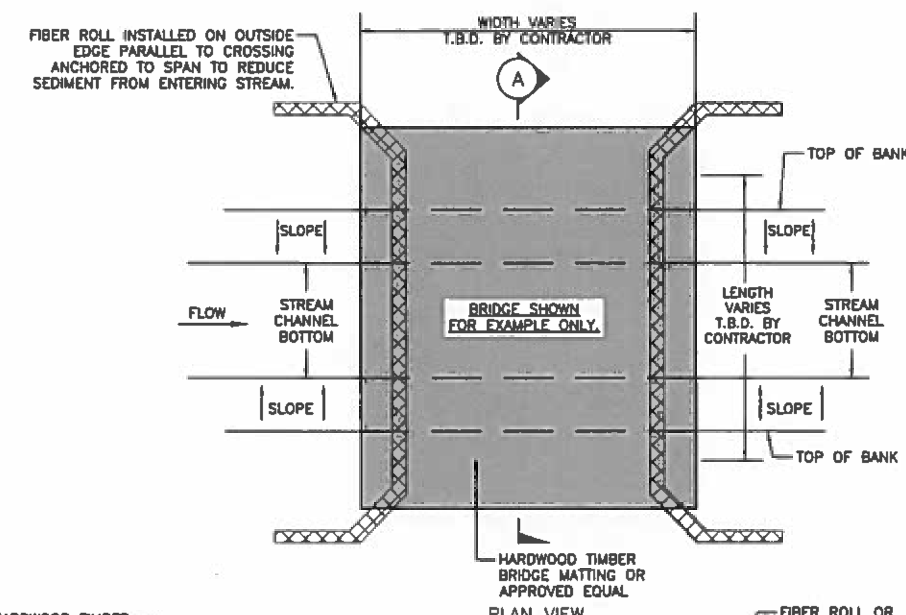


PLAN VIEW

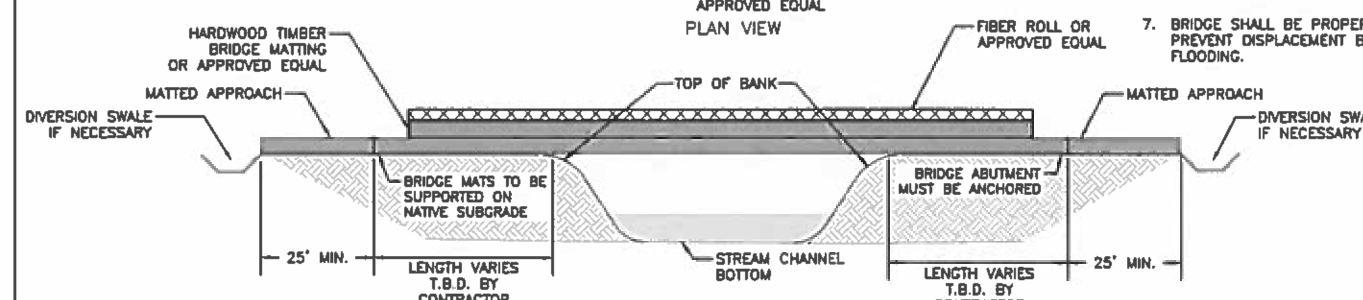
NOTES:

1. THE SLOPE OF THE BED WITHIN THE ENCAPSULATION MATCHES THE SLOPE OF THE BED BOTH IMMEDIATELY UPSTREAM AND DOWNSTREAM.
2. NO SOIL SHALL BE USED FOR CONSTRUCTION OF TEMPORARY CROSSING OR PLACED WITHIN STREAM CHANNEL.
3. CULVERTED CROSSINGS MAY REQUIRE ADDITIONAL STATE AND/OR FEDERAL PERMITTING. NOTIFY ENVIRONMENTAL COORDINATOR PRIOR TO IMPLEMENTATION OR CONSIDERATION TO MAKING PERMANENT.
4. CULVERT DIAMETER SHALL BE AT LEAST 3X DEPTH OF NORMAL FLOW. (2X DEPTH IS ALLOWED IN DEEP, SLOWER STREAMS)
5. IF MULTIPLE CULVERTS ARE NEEDED TO CROSS STREAM LEAVE 12" SPACE BETWEEN CULVERTS.
6. FOR FINAL RESTORATION, REMOVE CULVERT AND ALL STONE FROM STREAM AS PRACTICALLY POSSIBLE WITHOUT ADDITIONAL DAMAGE.

TEMPORARY CULVERT STREAM CROSSING 017



PLAN VIEW



SECTION (A)

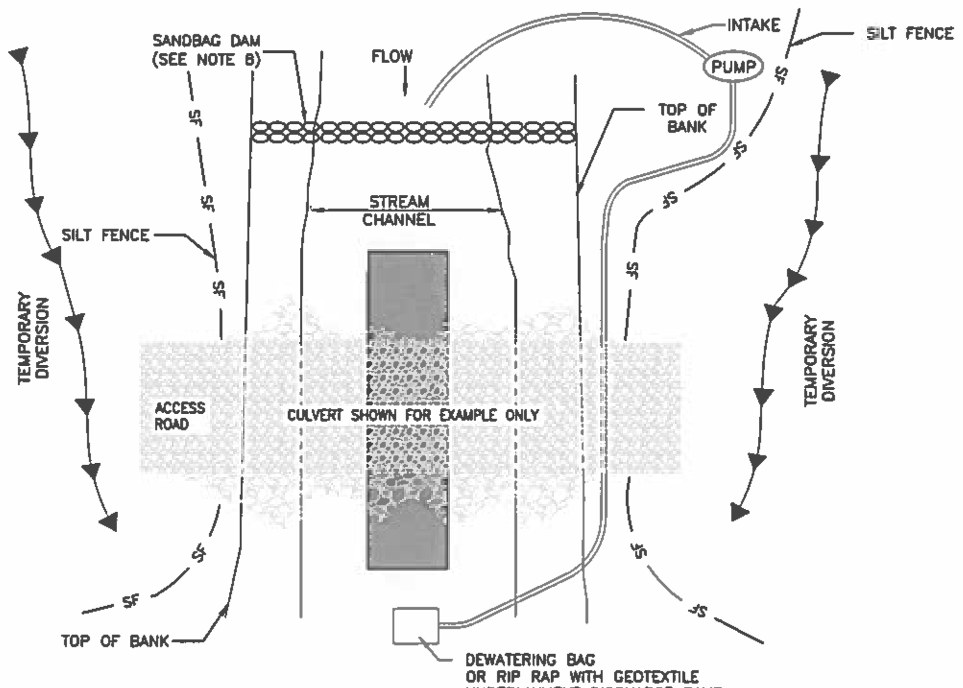
NOTES:

1. DETAIL SHOWS BRIDGE EXAMPLE ONLY. CONTRACTOR TO PROVIDE SIMILAR OR APPROVED EQUAL.
2. BRIDGE MATERIAL, DIMENSIONS, AND LOAD DESIGN TO BE DETERMINED BY CONTRACTOR SPECIFIC TO PROJECT AND EQUIPMENT NEEDS.
3. BRIDGE SHALL CLEAR SPAN STREAM PERPENDICULARLY FROM TOP OF BANK TO TOP OF BANK WITHOUT DISTURBING STREAM BANKS.
4. NO OBSTRUCTIONS OR EQUIPMENT SHALL BE PLACED IN CHANNEL AND FLOW MUST BE MAINTAINED.
5. ANY BEARING STRUCTURES SHALL BE SECURED FOR STABILITY AND SUPPORTED ON NATIVE SUBGRADE WITHOUT POURED FOUNDATIONS.
6. ADDITIONAL CONSTRUCTION TIMBER MATTING MAY BE REQUIRED FOR GRADE COMPENSATION AT APPROACHES.
7. BRIDGE SHALL BE PROPERLY ANCHORED TO PREVENT DISPLACEMENT BY STREAM FLOODING.

TEMPORARY CLEAR SPAN BRIDGE CROSSING 018

REVISIONS				
NO.	DATE	DESCRIPTION	APPROVED BY	

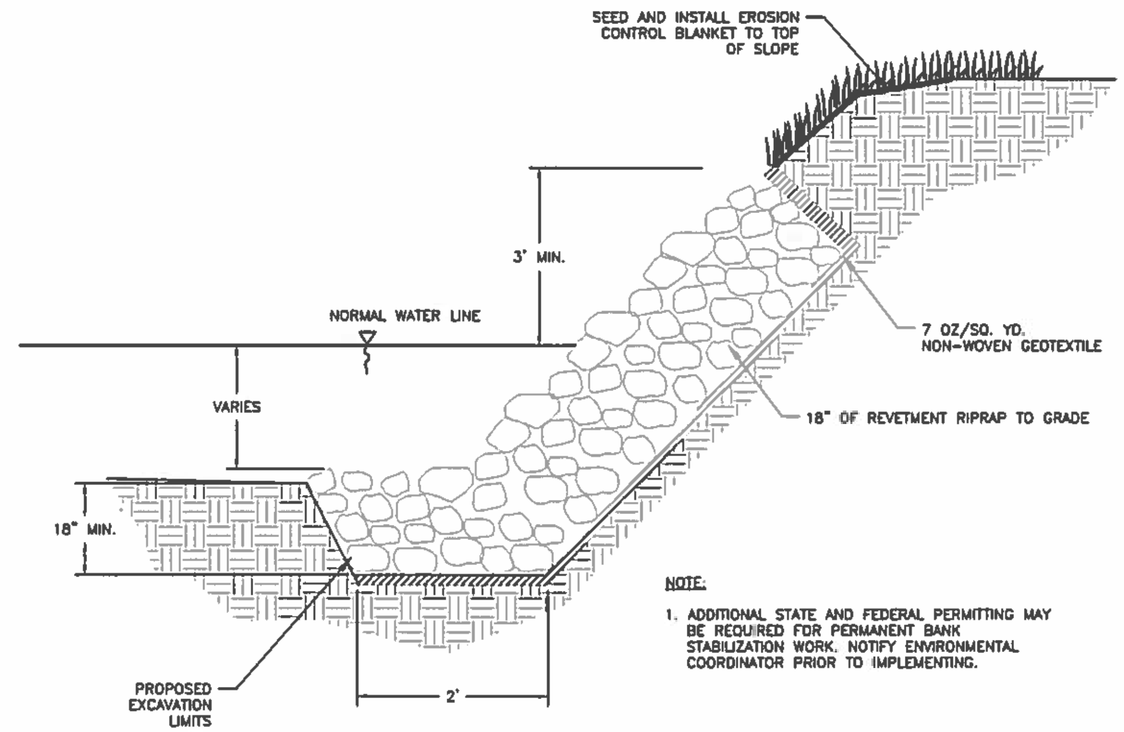
DESIGN BY	DATE			SCALE
CAM/MRW	12/18/2015	DUKE ENERGY.	STORM WATER POLLUTION PREVENTION PLAN TYPICAL DETAILS	N.T.S.
DRAWN BY	JOB NO.			DRAWING NO.
KTH	- -			
CHECKED BY	APPROVED			SHEET 4 OF 5
MRW	CAM			



NOTES:

1. INSTALL SILT FENCE, PUMP, DEWATERING BAG, AND SANDBAG DAM BEFORE TRENCHING STREAM.
2. PUMP MUST BE OF SUFFICIENT CAPACITY TO CONVEY NORMAL AND/OR EXISTING STREAM FLOW OVER SANDBAG DAM. A BACK-UP PUMP OF EQUAL CAPACITY MUST BE AVAILABLE ON-SITE DURING CONSTRUCTION OF THE CROSSING.
3. ANY SOIL PILES TO BE PLACED A MINIMUM OF 10 FEET FROM TOP OF BANK.
4. INSTALL DIVERSIONS AT APPROACHES TO STREAM CROSSING AND SILT FENCE (AS INDICATED ON PLAN SHEETS).
5. MAINTAIN SURFACE OF TEMPORARY EQUIPMENT CROSSING TO PREVENT SOIL DISCHARGES TO STREAM.
6. APPROACHES TO CROSSINGS ARE NOT TO EXCEED A DEPTH OF 6 INCHES ABOVE ORIGINAL GRADE.
7. RESTORE AREA TO APPROXIMATE ORIGINAL CONTOURS.
8. ADJUST HEIGHT AS NEEDED BASED ON FLOW CONDITIONS AND PUMP INTAKE.

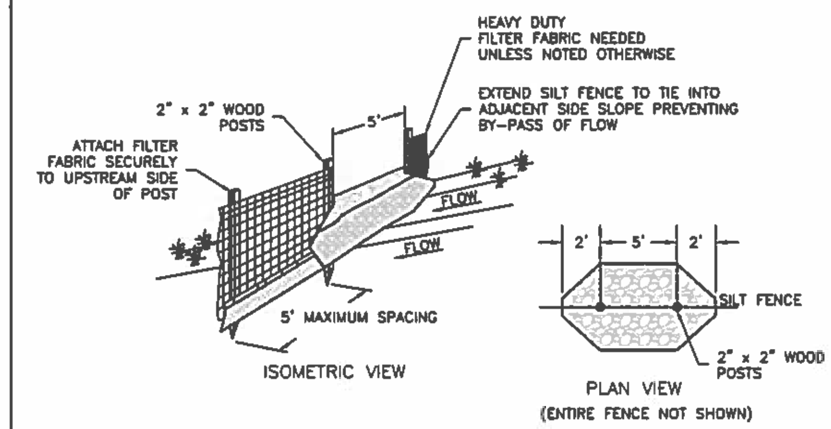
TEMPORARY STREAM CROSSING PUMP DIVERSION 019



NOTE:

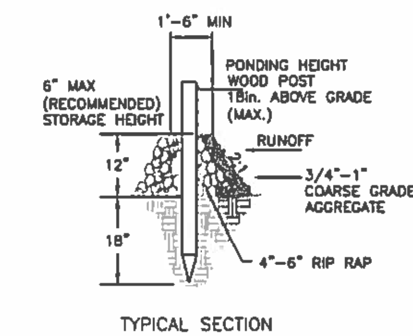
1. ADDITIONAL STATE AND FEDERAL PERMITTING MAY BE REQUIRED FOR PERMANENT BANK STABILIZATION WORK. NOTIFY ENVIRONMENTAL COORDINATOR PRIOR TO IMPLEMENTING.

HARD ARAMENT BANK STABILIZATION 020

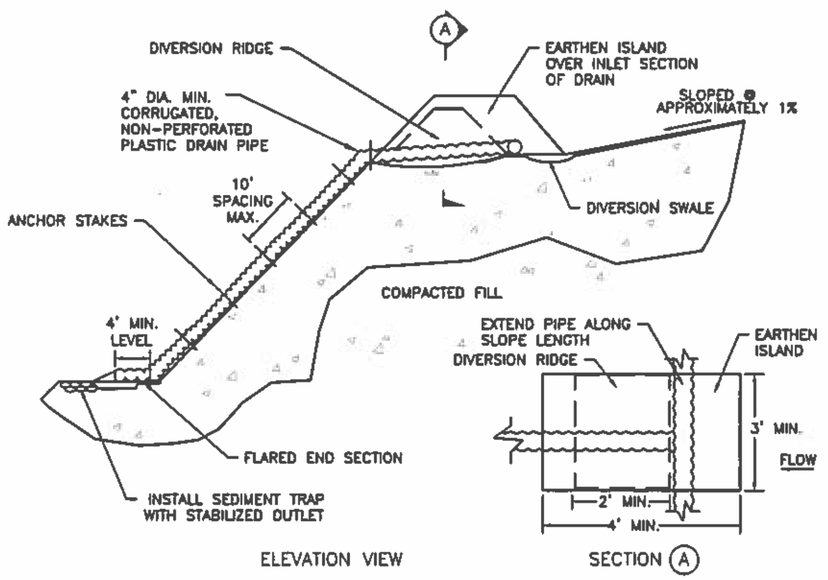


NOTES:

1. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
2. INSPECT AND REPAIR AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN IT REACHES ONE-HALF HEIGHT OF FENCE OR FABRIC STARTS TO BULGE.
3. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
4. TURN END OF SILT FENCE UP SLOPE TO PREVENT BYPASS FLOW AND ALLOW FOR PONDING.
5. SEE TYPICAL SILT FENCE DETAIL FOR ADDITIONAL INFORMATION.



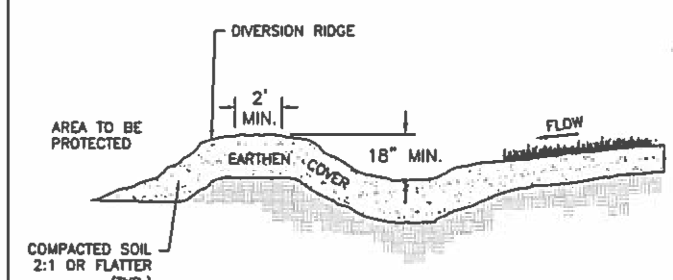
SILT FENCE ROCK OUTLET 021



NOTES:

1. THE SLOPE DRAIN SHALL BE CONSTRUCTED/LENGTHENED WITH THE CONSTRUCTION OF THE FILL SLOPE. AS A RESULT, INLET ELEVATIONS WILL VARY ACCORDING TO GRADE ELEVATIONS AT THE TIME OF CONSTRUCTION.
2. INSPECT SLOPE DRAIN AND SUPPORTING DIVERSIONS AFTER EVERY RAINFALL EVENT AND MAKE NECESSARY REPAIRS FOR PROPER OPERATION OF THE SYSTEM.
3. UPON PROJECT COMPLETION, REMOVE THE SLOPE DRAIN AND PROPERLY STABILIZE ALL DISTURBED AREAS.

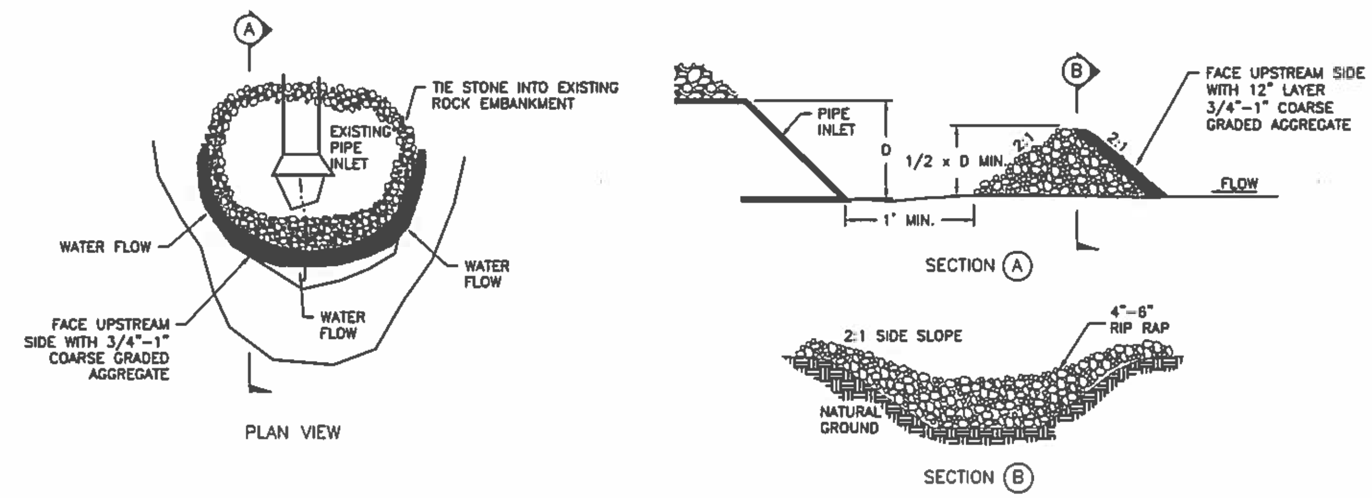
TEMPORARY SLOPE DRAIN 022



NOTE:

1. SWALE SHALL BE CONSTRUCTED WITH POSITIVE SLOPE ≤ 1% AND OUTLET TO A STABLE VEGETATED AREA OR SEDIMENT TRAP OR BASIN.

DIVERSION SWALE 023



ROCK PIPE INLET PROTECTION 024

REVISIONS			
NO.	DATE	DESCRIPTION	APPROVED BY

DESIGN BY: CAM/MRW	DATE: 12/18/2015	DUKE ENERGY.	STORM WATER POLLUTION PREVENTION PLAN TYPICAL DETAILS	SCALE: N.T.S.
DRAWN BY: KTH	JOB NO.: - -			DRAWING NO.
CHECKED BY: MRW	APPROVED: CAM			SHEET 5 OF 5

Appendix C

Storm Water Evaluation Form for Construction

Storm Water Evaluation Form for Construction
(Complete at least once per week and after each storm event of 0.5 inches or more.)

DUKE ENERGY.

Project Name: 5680 138kV Nickel to Warren – Rebuild	**Evaluation Date:**
Construction Supervisor:	**Evaluated By:**
Reason for Evaluation: ☐ **Routine**	☐ **Post Rain Event** ☐ **Non-Routine**
Location and Phase of Construction:	**Conditions at time of evaluation?** ☐ Dry ☐ Wet ☐ Frozen

OBSERVATIONS	INSTALLED	CORRECTIVE ACTION NEEDED
Silt Fence	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No
Comment/Action:		
Fiber Rolls/Filter Socks	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No
Comment/Action:		
Check Dams	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No
Comment/Action:		
Seeding/Mulching	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No
Comment/Action:		
Erosion Control Blanket	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No
Comment/Action:		
Construction Entrances	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No
Comment/Action:		
Stream Crossings	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No
Comment/Action:		
Wetland Crossings	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No
Comment/Action:		
Concrete Washout Areas	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No
Comment/Action:		

Is sediment or other pollutants leaving the site?	☐ Yes ☐ No If yes, corrective action is needed.
Is sediment being tracked onto public roadways?	☐ Yes ☐ No If yes, corrective action is needed.
Have any areas been left disturbed for 21 days or more?	☐ Yes ☐ No If yes, corrective action is needed.

See Reverse Side for More Information and Additional Space for Comments

General Information:

- This storm water evaluation program is intended to comply with self-monitoring requirements and the project specific Storm Water Pollution Prevention Plan (SWPPP).
- A Storm Water Evaluation is required by a trained individual at a minimum of one (1) time per week and by the end of the next business day following each measurable storm event (total rainfall accumulation equal to one-half (0.5) inches or greater.
- Observed erosion and sediment control deficiencies shall be corrected within 7 days. Modifications to erosion and sediment control structures and/or locations shall be recorded in the SWPPP Amendment Log within 10 days.
- Areas that are scheduled to be inactive for 21 days or more must be temporarily or permanently stabilized with appropriate measures within 7 days of last disturbance.
- Erosion and sediment control structures shall be maintained until a vegetative cover of 70% or greater density in all disturbed, non-agricultural areas is achieved. At which time, all temporary erosion and sediment control structures shall be removed and Notice of Termination (NOT) will be filed with Ohio Environmental Protection Agency (OEPA).
- Completed Evaluation Forms to be submitted to Amanda Sheehe at 1000 East Main Street, Plainfield, IN 46168, (317) 838-2447, Amanda.Sheehe@Duke-Energy.com
- Upon request, Evaluation Forms must be provided to inspecting authorities within 48 hours and must be retained for 3 years after project completion.

Additional Comments/Actions (attach photographs and additional pages as necessary):

Appendix D

SWPPP Amendment Log

SWPPP Amendment Log

Project: 5680 Nickel to Warren – Rebuild

Date	Description/Location	Initials

Appendix E

Approved General Permit

Ohio Environmental Protection Agency

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

Nov 24, 2017

Duke Energy
Amanda Sheehe
1000 East Main Street
Plainfield, IN 46168

Re: Approval Under Ohio EPA National Pollutant Discharge Elimination System (NPDES) - Construction Site Stormwater General Permit - OHC000004

Dear Applicant,

Your NPDES Notice of Intent (NOI) application is approved for the following facility/site. Please use your Ohio EPA Facility Permit Number in all future correspondence.

Facility Name:	Duke Energy 138kV 5680 Nickel to Warren Rebuild
Facility Location:	895 Union Road
City:	Lebanon
County:	Warren
Township:	
Ohio EPA Facility Permit Number:	1GC06498*AG
Permit Effective Date:	Nov 24, 2017

Please read and review the permit carefully. The permit contains requirements and prohibitions with which you must comply. Coverage under this permit will remain in effect until a renewal of the permit is issued by the Ohio EPA.

If more than one operator (defined in the permit) will be engaged at the site, each operator shall seek coverage under the general permit. Additional operator(s) shall submit a Co-Permittee NOI to be covered under this permit. There is no fee associated with the Co-Permittee NOI form.

Please be aware that this letter only authorizes discharges in accordance with the above referenced NPDES CGP. The placement to fill into regulated waters of the state may require a 401 Water Quality Certification and/or Isolated Wetlands Permit from Ohio EPA. Also, a Permit-To-Install (PTI) is required for the construction of sanitary or industrial wastewater collection, conveyance, storage, treatment, or disposal facility; unless a specific exemption by rule exists. Failure to obtain the required permits in advance is a violation of Ohio Revised Code 6111 and potentially subjects you to enforcement and civil penalties.

To view your electronic submissions and permits please Logon in to the Ohio EPA's eBusiness Center at http://ebiz.epa.ohio.gov.

If you need assistance or have questions please call (614) 644-2001 and ask for Construction Site Stormwater General Permit support or visit our website at http://www.epa.ohio.gov.

Sincerely,

Craig W. Butler

Craig W. Butler
Director

Appendix F

Local Reviewing Agency Approval

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

email the sender by replying to this message and immediately delete and destroy any copies of this email and any attachments. The views or opinions expressed are the author's own and may not reflect the views or opinions of Cardno.

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

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Office (+1) 513-489-2402 Ext 112 Mobile (+1) 513-833-6392 Fax (+1) 513-489-2404
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Email cori.jansing@cardno.com Web www.cardno.com

CONNECT WITH CARDNO

Appendix G

Notice of Termination

Notice of Termination (NOT) of Coverage Under Ohio Environmental Protection Agency General NPDES Permit

Ohio EPA

Division of Surface Water

(Read accompanying instructions carefully before completing this form.)

Submission of this NOT constitutes notice that the party identified in Section II of this form is no longer authorized to discharge into state waters under the NPDES general permit program. NOTE: All necessary information must be provided on this form. Do not use correction fluid on this form. Forms transmitted by fax will not be accepted. There is no fee associated with submitting this form.

I. Permit Information:

NPDES General Permit Number: OH

Facility General Permit Number:

II. Owner/Applicant Information/Mailing Address

Company (Applicant) Name: Duke Energy

Mailing (Applicant) Address: 1000 E. Main Street

City: Plainfiled **State:** Ohio **Zip Code:** 46168 - 8906

Contact Person: Amanda Sheehe **Phone:** (317) 838 - 2447 **Fax:** ( ) -

Contact Email: Amanda.Sheehe@Duke-Energy.com

III. Facility/Site Location Information

Facility Name: 5680 Nickel to Warren - Rebuild

Facility Address/Location: n/a

City: Monroe, Turtlecreek Twp. **State:** Ohio **Zip Code:** 45036 -

County: Warren **Township(s):** 3E3N, 4E3N **Section:** 5,35,34,28,22,16,10,3,4

Facility Contact Person: Amanda Sheehe **Phone:** (317) 838 - 2447 **Fax:** ( ) -

Facility Contact Email: Amanda.Sheehe@Duke-Energy.com

IV. Reason for Termination

Transfer of Ownership ☐ Cease to Discharge ☐ Facility Closed ☐

Project Completed ☐ Obtained Individual Permit ☐

V. Certifications

Standard Certification:

I certify under penalty of law that all discharges authorized by the NPDES general permit have been eliminated or that I am no longer the operator of the facility. I understand that by submitting this NOT, I am no longer authorized to discharge under this general permit and that discharging pollutants to waters of the state without an NPDES permit is unlawful under ORC 6111.

Name (typed): **Title:**

Signature: **Date:**

Industrial Storm Water and Coal Mining Activity Certification Only:

I certify under penalty of law that all discharges associated with the identified facility that are authorized by the above referenced NPDES general permit have been eliminated, that I am no longer the operator of the facility, or in the case of a coal mine that the SMCRA bond has been released by ODNR-Division of Reclamation. I understand that by submitting this NOT, I am no longer authorized to discharge storm water associated with industrial activity under this general permit, and that discharging pollutants in storm water associated with industrial activity to waters of the state is unlawful under ORC 6111 where the discharge is not authorized by an NPDES permit.

Name (typed): **Title:**

Signature: **Date:**

Storm Water Construction Activity Certification Only:

For non-residential developments, I certify under penalty of law that, prior to the submittal of this NOT, all elements of the storm water pollution prevention plan have been completed, the disturbed soil at the identified facility have been stabilized and temporary erosion and sediment control measures have been removed at the appropriate time, or all storm water discharges associated with construction activity from the identified facility that are authorized by the above referenced NPDES general permit have otherwise been eliminated.

For residential developments only, I certify under penalty of law that, prior to the submittal of this NOT, either (i) temporary stabilization has been completed and the lot, which includes a home, has been transferred to the homeowner; (ii) final stabilization has been completed and the lot, which does not include a home, has been transferred to the property owner; or (iii) no stabilization has been implemented on a lot, which includes a home, and the lot has been transferred to the homeowner.

I understand that, by submitting this NOT, I am no longer authorized to discharge storm water associated with construction activity by the general permit, and that discharging pollutants in storm water associated with construction activity to waters of the state is unlawful under ORC 6111 where the discharge is not authorized by an NPDES permit.

Name (typed): **Title:**

Signature: **Date:**

Attachment F

Agency Coordination Letters

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. <u>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</u>. 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

Dan Everson

Field Office Supervisor

cc: Nathan Reardon, ODNR-DOW

Kate Parsons, ODNR-DOW

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 G

Regulated Waters Delineation Report

Regulated Waters Delineation Report

5680 138kV Nickel to Warren Station - Rebuild

Warren County, Ohio

February 3, 2017

Cardno

Shaping the Future

Document Information

Prepared for	Duke Energy
Client Contact	Amanda Sheehe
Project Name	5680 138kV Nickel to Warren Station - Rebuild
Project Number	Cardno #J156720M45
Project Manager	Cori Jansing (Cardno)
Date	February 3, 2017

Prepared for:

DUKE ENERGY

Duke Energy
1000 East Main Street, Plainfield, Indiana 46168

Prepared by:

Cardno
Shaping the Future

Cardno
11121 Canal Road, Cincinnati, Ohio 45241

Table of Contents

1 Introduction 1

2 Regulatory Definitions 1

2.1 Waters of the United States 1

2.2 Waters of the State 3

2.3 Wetlands 4

2.4 Streams, Rivers, Watercourses & Jurisdictional Ditches 6

2.5 Endangered Species Act 6

3 Background Information 6

3.1 Existing Maps 6

4 Methodology and Description 8

4.1 Regulated Waters Investigation 8

4.2 Technical Descriptions 8

4.3 Rare, Threatened, and Endangered Species 13

5 Jurisdictional Analysis 13

5.1 U.S. Army Corps of Engineers 13

5.2 Ohio Environmental Protection Agency 14

6 Summary and Conclusion 14

6.1 Summary 14

6.2 Conclusion 16

7 References 17

Appendices

Appendix A	Site Photographs
Appendix B	Ohio Primary Headwater Habitat Evaluation Index (HHEI) and Qualitative Habitat. Evaluation Index (QHEI) Forms
Appendix C	Ohio Rapid Assessment Method 5.0 Forms and USACE Wetland Delineation Data Sheets
Appendix D	Endangered, Threatened, and Rare Species

Tables

Table 1-1	PLSS within the 5680 - Nickel to Warren Station Study Area	1
Table 3-2	Soil Map Units within the 5680 - Nickel to Warren Station Study Area	7
Table 6-1	Features Identified within the 5680 - Nickel to Warren Station Project Study Area	14

Figures

Figure 1	Project Location and Water Resources
Figure 2	National Wetland Inventory (NWI) Key
Figure 3	Soil Survey
Figure 4	Delineation

Acronyms

APA	Administrative Procedure Act
BF	Bank Full
CFR	Code of Federal Regulations
CWA	Clean Water Act
DBH	Diameter at Breast Height
DP	Data Point
EPA	U.S. Environmental Protection Agency
ETR	Endangered, Threatened, and Rare
FAC	Facultative Plant
FACU	Facultative Upland Plant
FACW	Facultative Wetland Plant
FEMA	Federal Emergency Management Agency
FIRM	Insurance Rate Map
GIS	Geographical Information SystemAcronyms, continued
MS4	Municipal Separate Storm Water Sewer Systems

NHD	National Hydrography Dataset
NPDES	National Pollutant Discharge Elimination System
NRCS	U.S. Department of Agriculture Natural Resources Conservation Service
NWP	Nationwide Permit
NWPL	National Wetland Plant List
OBL	Obligate Wetland Plant
OEPA	Ohio Environmental Protection Agency
ODNR	Ohio Department of Natural Resources
OHWM	Ordinary High Water Mark
PEM	Palustrine Emergent Wetland
PFO	Palustrine Forested Wetland
PLSS	Public Land Survey Section
PSS	Palustrine Shrub Scrub Wetland
RGP	Regional General Permit
SNE	Significant Nexus
SWANCC	Solid Waste Agency of Northern Cook County
TNW	Traditional Navigable Water
TOB	Top of Bank
UPL	Upland Plant
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WOTUS	Waters of the United States
WQC	Water Quality Certification

1 Introduction

Cardno was contracted to perform a water resource inventory, including wetlands and streams, which are located at the 5680 - 345kV Nickel to Warren Station - ReBuild (Nickel to Warren Station) Study Area in Monroe, Turtlecreek Township (Twp.), and Lebanon, Warren County, Ohio on January 4, 2017. Table 1-1 summarizes the location of the Study Area based on the Public Land Survey Section (PLSS) data.

Table 1-1 PLSS within the 5680 - Nickel to Warren Station Study Area

Township	Range	Section
4E	3N	35
4E	3N	34
4E	3N	28
4E	3N	22
4E	3N	16
4E	3N	10
4E	3N	9
4E	3N	4
4E	3N	3

The total size of the Study Area was approximately 104 acres. The Study Area consisted of a mix of agricultural, residential, palustrine emergent wetland, secondary growth deciduous forest, and scrub-shrub/maintained right-of-way (ROW).

This report identifies the jurisdictional status of the Study Area based on Cardno's best professional understanding and interpretation of the *Corps of Engineers' Wetland Delineation Manual* (Environmental Laboratory, 1987) and U.S. Army Corps of Engineers' (USACE) guidance documents and regulations. Jurisdictional determinations for other "waters of the U.S." were made based on definitions and guidance found in 33 CFR 328.3, USACE Regulatory Guidance Letters, and the wetland delineation manual. The USACE administers Section 404 of the Clean Water Act (CWA), which regulates the discharge of fill or dredged material into all "waters of the U.S.," and is the regulatory authority that must make the final determination as to the jurisdictional status of the Study Area.

2 Regulatory Definitions

2.1 Waters of the United States

"Waters of the U.S." are within the jurisdiction of the USACE under the CWA. "Waters of the U.S." is a broad term, which includes waters that are used or could be used for interstate commerce. This includes wetlands, ponds, lakes, territorial seas, rivers, tributary streams including any definable intermittent waterways, and some ditches below the ordinary high water mark (OHWM). Also included are manmade water bodies such as quarries and ponds, which are no longer actively being mined or constructed and are connected to other "waters". Wetlands, mudflats, vegetated shallows, riffle and pool complexes, coral reefs, sanctuaries, and refuges are all considered special aquatic sites which involve more rigorous regulatory permitting requirements. A specific, detailed definition of "waters of the U.S." can be found in the Federal Register (33 CFR 328.3).

On January 9, 2001, the U.S. Supreme Court issued a decision, Solid Waste Agency of Northern Cook County (SWANCC) v. U.S. Army Corps of Engineers (No. 99-1178). The decision reduced the regulation of isolated wetlands under Section 404 of the CWA, which assigned the USACE authority to issue permits for the discharge of dredge or fill material into "waters of the U.S.". Prior to the SWANCC decision, the USACE had adopted a regulatory definition of "waters of the U.S." that afforded federal protection for almost all of the nation's wetlands. The Supreme Court decision interpreted that the USACE's jurisdiction was restricted to navigable waters, their tributaries, and wetlands that are adjacent to these navigable waterways and tributaries. The decision leaves the majority of "isolated" wetlands unregulated by the CWA. Therefore, most wetlands that are not adjacent to, or contiguous with, any other "waters of the U.S." via a surface drain such as a swale, ditch, or stream are considered isolated and thus no longer jurisdictional by the USACE.

On June 19, 2006, the U.S. Supreme Court issued decisions in regards to John A. Rapanos v. United States (No. 04-1034) and June Carabell v. United States (04-1384), et al. The plurality decision created two 'tests' for determining CWA jurisdiction: the permanent flow of water test (set out by Justice Scalia) and the "significant nexus" test (set out by Justice Kennedy). On June 5, 2007 the USACE and U.S. Environmental Protection Agency (EPA) issued joint guidance on how to interpret and apply the Court's ruling. According to this guidance, the USACE will assert jurisdiction over traditionally navigable waters, adjacent wetlands, and non-navigable tributaries of traditionally navigable waters that have "relatively permanent" flow, and wetlands that border these waters, regardless of whether or not they are separated by roads, berms, and similar barriers. In addition, the USACE will use a case-by-case "significant nexus" analysis to determine whether waters and their adjacent wetlands are jurisdictional. A "significant nexus" can be found where waters, including adjacent wetlands, alter the physical, biological, or chemical integrity of the traditionally navigable water based on consideration of several factors.

In January 2015 an EPA sponsored publication, *Connectivity of Streams & Wetlands to Downstream Waters: A Review & Synthesis of the Scientific Evidence* (EPA, 2015), emphasized how streams, nontidal wetlands, and open waters in and outside of riparian areas and floodplains effect downstream waters such as rivers, lakes, estuaries, and oceans.

On May 27, 2015 the EPA released a statement that a new Clean Water Rule typically referred to as, "The Waters of the United States (WOTUS) Rule" was finalized and that it would "not create any new permitting requirements and maintains all previous exemptions and exclusions" (epa.gov). The rule would only protect waters that have historically been covered by the Clean Water Act. The intent was to clearly define:

- Jurisdictional limits of tributaries of navigable waterways;
- Set boundaries on covering nearby waters;
- Identify specific national water treasures by name (prairie potholes, etc.);
- Clearly define when a ditch is jurisdictional, and when it is not;
- Maintain status that waters within Municipal Separate Storm Water Sewer Systems (MS4) are not jurisdictional; and
- Reduce the use of case-specific analysis of waters.

Also on May 27, 2015 a publication, *Technical Support Document for the Clean Water Rule: Definition of Waters of the United States* (EPA, 2105), was released discussing in detail why the significant nexus (SNE) between one water and another is important. It specifically ties distances to the various types of waters mentioned within the Code of Federal Regulations [33 CFR 328.3(a)(1) through (a)(8)]. For example, the document states "Waters located within the 100-year floodplain of a traditional navigable water, interstate water, or the territorial seas and waters located more than 1,500 feet and less than 4,000 feet from the lateral limit of an (a)(1) or (a)(3) water may still be determined to have a significant nexus on a case-specific basis under paragraph (a)(8) of the rule and, thus, be a "water of the United States" (EPA 2015).

On June 29, 2015 the new Clean Water Rule was entered into the Federal Register (40 CFR Parts 110, 112, 116, et al. Clean Water Rule: Definition of "waters of the United States"; Final Rule). This report will refer to this rule as "June 29, 2015 WOTUS Rule". This rule includes exact distances mentioned in the May 27, 2015 Technical Support Document as it relates to adjacent waters, including the following:

- Waters within 100 ft. of jurisdictional waters;
- Waters within the 100-year floodplain to a maximum of 1,500 feet from the ordinary high water mark (OHWM);
- Waters within the 100-year floodplain with a SNE to the Traditional Navigable Water (TNW); and
- Waters with a SNE within 4,000 ft. of jurisdictional waters.

On October 9, 2015 the U.S. Court of Appeals for the Sixth Circuit (Court) issued a nationwide stay against the enforcement of the June 29, 2015 WOTUS Rule. The Court stated, "...we conclude that...Justice Kennedy's opinion in *Rapanos* represents the best instruction on the permissible parameters of "waters of the United States" as used in the Clean Water Act, it is far from clear that the new Rule's distance limitations are harmonious with the instruction.

Moreover, the Court stated that the rulemaking process by which the distance limitations were adopted is facially suspect. Petitioners contend the proposed rule that was published, on which interested persons were invited to comment, did not include any proposed distance limitations in its use of terms like "adjacent waters" and "significant nexus." Consequently, petitioners contend, the Final Rule cannot be considered a "logical outgrowth" of the rule proposed, as required to satisfy the notice-and-comment requirements of the APA, 5 U.S.C. § 553. As a further consequence of this defect, petitioners contend, the record compiled by respondents is devoid of specific scientific support for the distance limitations that were included in the Final Rule. They contend the Rule is therefore not the product of reasoned decision-making and is vulnerable to attack as impermissibly "arbitrary or capricious" under the APA, 5 U.S.C. § 706(2)."

Until further notice, the June 29, 2015 WOTUS Rule is not in effect. Furthermore, this report does not attempt to include a professional opinion as it relates to the June 29, 2015 WOTUS Rule.

2.2 Waters of the State

"Waters of the State" are within the jurisdiction of the Ohio Environmental Protection Agency (OEPA). They are generally defined as surface and underground water bodies, which extend through or exist wholly in the State of Ohio, which includes, but is not limited to, streams and both isolated and non-isolated wetlands. Private ponds, or any pond, reservoir, or facility built for reduction of pollutants prior to discharge are not included in this definition. In addition to "waters of the U.S.", OEPA also regulates and issues permits for isolated wetland impacts.

OEPA relies on the USACE decision regarding wetland determinations and delineations including whether or not a wetland is isolated or non-isolated.

2.3 Wetlands

Wetlands are a category of "waters of the U.S." for which a specific identification methodology has been developed. As described in detail in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987), wetland boundaries are delineated using three criteria: hydrophytic vegetation, hydric soils, and wetland hydrology. In addition to the criteria defined in the 1987 Manual, the procedures described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (Environmental Laboratory, 2010) were used to evaluate the Study Area for the presence of wetlands.

2.3.1 Hydrophytic Vegetation

On June 1, 2012, the National Wetland Plant List (NWPL), formerly called the National List of Plant Species that Occur in Wetlands (Reed 1988), went into effect after being released by the U.S. Army Corps of Engineers (USACE) as part of an interagency effort with the U.S. Fish and Wildlife Service (USFWS), the U.S. Environmental Protection Agency (EPA), and the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) (Lichvar and Kartesz, 2009). The NWPL, along with the information implied by its wetland plant species status ratings, provides general botanical information about wetland plants and is used extensively in wetland delineation, restoration, and mitigation efforts. The NWPL consists of a comprehensive list of wetland plant species that occur within the United States along with their respective wetland indicator statuses by region. An indicator status reflects the likelihood that a particular plant species occurs in a wetland or upland (Lichvar et al. 2012). Definitions of the five indicator categories are presented below.

> <u>OBL (Obligate Wetland Plants):</u> almost always occur in wetlands. With few exceptions, these plants (herbaceous or woody) are found in standing water or seasonally saturated soils (14 or more consecutive days) near the surface. These plants are of four types: submerged, floating, floating-leaved, and emergent.
>
> <u>FACW (Facultative Wetland Plants):</u> usually occur in wetlands, but may occur in non-wetlands. These plants predominately occur with hydric soils, often in geomorphic settings where water saturates the soils or floods the soil surface at least seasonally.
>
> <u>FAC (Facultative Plants):</u> occur in wetlands and non-wetlands. These plants can grow in hydric, mesic, or xeric habitats. The occurrence of these plants in different habitats represents responses to a variety of environmental variables other than just hydrology, such as shade tolerance, soil pH, and elevation, and they have a wide tolerance of soil moisture conditions.
>
> <u>FACU (Facultative Upland Plants):</u> usually occur in non-wetlands, but may occur in wetlands. These plants predominately occur on drier or more mesic sites in geomorphic settings where water rarely saturates the soils or floods the soil surface seasonally.
>
> <u>UPL (Upland Plants):</u> almost never occur in wetlands. These plants occupy mesic to xeric non-wetland habitats. They almost never occur in standing water or

saturated soils. Typical growth forms include herbaceous, shrubs, woody vines, and trees.

According to the USACE's Midwest Regional Supplement, plants that are rated as FAC, FACW, or OBL are classified as wetland plant species. The percentage of dominant wetland species in each of the four vegetation strata (tree, shrub/sapling, herbaceous, and woody vine) in the sample area determines the hydrophytic (wetland) status of the plant community. Dominant species are chosen independently from each stratum of the community. In general, dominants are the most abundant species that individually or collectively account for more than 50 percent of the total coverage of vegetation in the stratum, plus any other species that, by itself, accounts for at least 20 percent of the total.

For the purposes of determining dominant plant species, the four vegetation strata are defined. Trees consist of woody species 3 inches or greater in diameter at breast height (DBH). Shrubs and saplings are woody species that are over 1 meter in height and less than 3 inches DBH. Herbaceous species consist of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants less than 1 meter tall. Woody vines consist of vine species greater than 1 meter in height, such as wild grapes.

2.3.2 Hydric Soils

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part. In general, hydric soils are flooded, ponded, or saturated for a week or more during the growing season when soil temperatures are above 32 degrees Fahrenheit. The anaerobic conditions created by repeated or prolonged saturation or flooding result in permanent changes in soil color and chemistry, which are used to differentiate hydric from non-hydric soils.

In this report, soil colors are described using the Munsell notation system. This method of describing soil color consists of separate notations for hue, value, and chroma that are combined in that order to form the color designation. The hue notation of a color indicates its relation to red, yellow, green, blue, and purple; the value notation indicates its lightness, and the chroma notation indicates its strength or departure from a neutral of the same lightness.

The symbol for hue consists of a number from 1 to 10, followed by the letter abbreviation of the color. Within each letter range, the hue becomes more yellow and less red as the numbers increase. The notation for value consists of numbers from 0 for absolute black, to 10 for absolute white. The notation for chroma consists of numbers beginning with /0 for neutral grays and increasing at equal intervals. A soil described as 10YR 3/1 soil is more gray than a soil designated 10YR 3/6.

2.3.3 Wetland Hydrology

Wetland hydrology is defined as the presence of water for a significant period of time at or near the surface (within the root zone) during the growing season. Wetland hydrology is present only seasonally in many cases, and is often inferred by indirect evidence. Hydrology is controlled by such factors as seasonal and long-term rainfall patterns, local geology and topography, soil type, local water table conditions, and drainage. Primary indicators of hydrology are inundation, soil saturation in the upper 12 inches of the soil, watermarks, sediment deposits, and drainage patterns. Secondary indicators such as oxidized root channels in the upper 12 inches of the soil, water-stained leaves, local soil survey data, and the FAC-neutral vegetation test are sometimes used to identify hydrology. A primary indicator or two or more secondary indicators are required to establish a positive indication of hydrology.

2.3.4 Wetland Definition Summary

In general, an area must meet all three criteria to be classified as a wetland. In certain problem areas such as seasonal wetlands, which are not wet at all times, or in recently disturbed (atypical) situations, areas may be considered a wetland if only two criteria are met. In special situations, an area that meets the wetland definition may not be within the USACE's jurisdiction due to a specific regulatory exemption.

2.4 Streams, Rivers, Watercourses & Jurisdictional Ditches

With non-tidal waters, in the absence of adjacent wetlands, the extent of the USACE's jurisdiction is defined by the OHWM. USACE regulations define the term "ordinary high water mark" for purposes of the CWA lateral jurisdiction at 33 CFR 328.3(e), which states:

> The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Streams, rivers, watercourse, and ditches within the Study Area were evaluated using the above definition and documented. Waterways that did exhibit an OHWM were recorded and evaluated using the Ohio Environmental Protection Agency's Primary Headwater Habitat Evaluation (HHEI) or Qualitative Habitat Evaluation Index (QHEI) methodology. If applicable, the results of the HHEI and/or QHEI are presented in Section 3.2, Technical Descriptions and datasheets are provided in the Appendix B.

2.5 Endangered Species Act

Endangered, Threatened, and rare (ETR) species are protected at both the state and federal level (ORC 1531.25 and 50 CFR 17.11 through 17.12, respectively). The Ohio Revised Code defines "Take" as to harass, hunt, capture, or kill; or attempt to harass, hunt, capture, or kill.

The USFWS, under authority of the Endangered Species Act of 1973 (16 U.S. Code 1531), as amended, has the responsibility for federally listed species. The Ohio Department of Natural Resources (ODNR) has the responsibility for state listed species.

3 Background Information

3.1 Existing Maps

Several sources of information were consulted to identify potential wetlands and wetland soil units on the site. These include the USFWS's *National Wetland Inventory* (NWI), the USGS's *National Hydrography Dataset* (NHD), and the Natural Resources Conservation Service's (NRCS) *Soil Survey* for this county. These maps identify potential wetlands and wetland soil units on the site. The NHD maps are used to portray surface water. The NWI maps were prepared from high altitude photography and in most cases were not field checked. Because of this, wetlands are sometimes erroneously identified, missed, or misidentified. Additionally, the criteria used in identifying these wetlands were different from those currently used by the USACE. The county soil maps, on the other hand, were developed from actual field investigations. However, they address only one of the three required wetland criteria and may reflect historical conditions rather than current site conditions. The resolution of the soil maps limits their accuracy as well. The mapping units are often generalized based on topography and many mapping units contain inclusions of other soil types for up to 15 percent of the area of the unit. The USACE does not accept the use of either of these maps to make wetland determinations.

3.1.1 National Wetland Inventory

The NWI map of the area (Figure 1) identified mapped seven wetland features including five PUBGx, one PEM1Ch and one R2USA within the Survey Area.

3.1.2 National Hydrography Dataset

The NHD dataset (Figure 4.01-4.16) identified eight surface waters within the Survey Area.

3.1.3 Soil Survey

The NRCS Soil Survey identified 34 soil series located within the project study area (Figure 3.01-3.16). The following table identifies the soil unit symbol, soil unit name, and whether or not the soil type contains components that meet the hydric soil criteria.

Table 3-2 Soil Map Units within the 5680 - Nickel to Warren Station Rebuild Study Area

Symbol	Description	Hydric
Br	Brookston silty clay loam	Yes
DaB	Dana silt loam, 0 to 2 percent slopes	Yes
EdD2	Eden complex, 12 to 18 percent slopes, moderately eroded	No
EdE2	Eden complex, 18 to 25 percent slopes, moderately eroded	No
Edf2	Eden complex, 25 to 35 percent slopes, moderately eroded	No
Ee	Eel loam	Yes
FaF2	Fairmount-Eden flaggy silty clay loams, 25 to 50 percent slopes, moderately eroded	No
FhA	Fincastle silt loam, 0 to 2 percent slopes	Yes
FIC2	Fox loam, 6 to 12 percent slopes, moderately eroded	No
FoD2	Fox-Casco complex, 12 to 18 percent slopes, moderately eroded	No
Gn	Genesee loam	Yes
HeF	Hennepin silt loam, 25 to 35 percent slopes	No
HeF2	Hennepin silt loam, 25 to 35 percent slopes, moderately eroded	No
HmE2	Hennepin-Miamian silt loams, 18 to 25 percent slopes, moderately eroded	No
HnD3	Hennepin-Miamian complex, 12 to 18 percent slopes, severely eroded	No
Kg	Kings silty clay loam, thick surface variant	Yes
MmC3	Miamian clay loam, 6 to 12 percent slopes, severely eroded	Yes
MnD2	Miamian-Hennepin silt loams, 12 to 18 percent slopes, moderately eroded	No
MrC2	Miamian-Russell silt loams, 6 to 12 percent slopes, moderately eroded	Yes
Pb	Patton silt loam, silted	Yes
Pc	Patton silty clay loam	Yes
PIB	Plattville silt loam, 1 to 6 percent slopes	Yes
PrB	Princeton fine sandy loam, 2 to 6 percent slopes	No
PrC2	Princeton fine sandy loam, 6 to 12 percent slopes, moderately eroded	No
RpB	Rainsboro silt loam, 2 to 6 percent slopes	Yes

RvA	Russell-Miamian silt loams, 0 to 2 percent slopes	Yes
RvB	Russell-Miamian silt loams, 2 to 6 percent slopes	Yes
RvB2	Russell-Miamian silt loams, 2 to 6 percent slopes, moderately eroded	Yes
WyB	Wynn silt loam, 2 to 6 percent slopes	No
WyB2	Wynn silt loam, 2 to 6 percent slopes, moderately eroded	No
WyC2	Wynn silt loam, 6 to 12 percent slopes, moderately eroded	No
XeA	Xenia silt loam, 0 to 2 percent slopes	Yes
XeB	Xenia silt loam, 2 to 6 percent slopes	Yes

4 Methodology and Description

4.1 Regulated Waters Investigation

The delineation of regulated waters within the Study Area was based on the methodology described in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (Environmental Laboratory, 2010) as required by current USACE policy.

Prior to the field work, the background information was reviewed to establish the probability and potential location of wetlands on the site. Next, a general reconnaissance of the Study Area was conducted to determine site conditions. The site was then walked with the specific intent of determining wetland boundaries. Data stations were established at locations within and near the wetland areas to document soil characteristics, evidence of hydrology and dominant vegetation. Note that no attempt was made to examine a full soil profile to confirm any soil series designations. However, when possible, soils were examined to a depth of at least 16 inches to assess soil characteristics and site hydrology. Complete descriptions of typical soil series can be found in the soil survey for these counties.

4.1.1 <u>Site Photographs.</u>

Photographs of the site are located in Appendix A. These photographs are the visual documentation of site conditions at the time of inspection. The photographs are intended to provide representative visual samples of any wetlands or other special features found on the site.

4.1.2 <u>Delineation Data Sheets.</u>

Where stations represent a wetland boundary point they are presented as paired data points (dp), one each documenting the wetland and upland sides of the wetland boundary. These forms are the written documentation of how representative sample stations met or did not meet each of the wetland criteria. For plant species included on the National Wetlands Plant List, nomenclature will follow their lead. For all other plants not listed in the NWPL, nomenclature will follow the USDA's Plants Database.

4.2 Technical Descriptions

Complete stream field data sheets from the site investigation are located in Appendix B wetland field data sheets are located in Appendix C. The Duke Energy - 5680 Nickel to Warren Station Rebuild (138kV). The project included the review of a 150-ft wide study corridor approximately 5.78 miles long (the "Study Area"), located in Monroe, Lebanon, and Turtle Creek Township, Warren County, Ohio (see Figure 1). The Study Area consists of approximately 104 acres, with an actual project earth disturbance potential of 6 acres (based on a 20-ft wide vehicular path).

The 5680 Nickel to Warren Station Rebuild project begins and the Duke Energy's Nickel Station located south of Hamilton Lebanon Road (OH 63), north of Kingsview Drive, and west of Deerfield Road and east of Gateway Boulevard (39.426789, -84.432386) and terminates at Duke Energy's Warren Station located south of Turtle Creek Union Road, north of Nickel Road, and west of Union Road and east of Lebanon Countryside Trail (39.403683, -84.228060). The Study Area consisted of a mix of agricultural, residential, palustrine emergent wetland, secondary growth deciduous forest, and scrub-shrub/maintained right-of-way (ROW).

4.2.1 Wetland and Stream Descriptions

Wetland 1 (0.07 acre within the Study Area)

Wetland 1 was an emergent wetland is located within what appears to be a historic excavated detention basin associated with the adjacent residential/agricultural property. Based on historic aerials this detention basin was constructed prior to 1994. This wetland does not appear to be hydraulically connected to any potential Jurisdictional waters of the United States and therefore should be considered a non-jurisdictional 'waters of the State' under the current Rapanos guidance. The ORAM score for Wetland 1 was 18, categorizing the wetland as a Category 1, or low quality, wetland.

Dominant vegetation within Wetland 1 included Hybrid Cattail (*Typha X glauca*, OBL). In addition, non-dominant vegetation observed included sedge (*Carex sp.*, OBL-FAC), and Green Bulrush (*Scirpus atrovirens*, OBL). The soil within Wetland 1 data point was mapped as Miamian-Russell silt loam (MrC2), and met the Depleted Matrix (F3) hydric soil criteria. Primary indicators of hydrology included Saturation (A3), and secondary indicators of hydrology observed included Drainage Patterns (B10), Saturation Visible on Aerial Imagery (C9), Geomorphic Position (D2), and the FAC-Neutral Test (D5). This data point qualified as a wetland.

Stream 1 (UNT to Little Muddy Creek) (26 Linear Feet within the Study Area)

Stream 1 was an intermittent stream that flowed south through the project study area. Stream 1 was an excavated channel within an agricultural field; no recent modifications were observed within the survey reach. This stream appeared to have higher than base flow conditions at the time of the stream survey. The dominant substrates were gravel, sand, and silt. The OHWM width was four (4) feet and depth was three (3) feet. The maximum pool depth observed was approximately 6 inches (15 cm). Stream 1 flows into Swamp Run which flows into Little Muddy Creek a traditional navigable water (TNW). Due to this connection, this stream should be considered a jurisdictional water of the United States. The HHEI score for Stream 1 was 52, categorizing the stream as a Modified Class II Primary Headwater Habitat. This categorization appears to be elevated based on the observed characteristics of Stream 1 and Cardno's best professional judgement.

Stream 2 (UNT to Little Muddy Creek) (190 Linear Feet within the Study Area)

Stream 2 was an intermittent stream that flowed south through the project study area. Stream 2 was an excavated channel adjacent to an agricultural field and railroad tracks; no recent modifications were observed within the survey reach. This stream was at base flow conditions at the time of the stream survey. The dominant substrates were gravel, sand, and silt. The OHWM width was three (3) feet and depth was approximately 1 foot. The maximum pool depth observed was approximately 4 inches (12 cm). Stream 2 flows into Little Muddy Creek a traditional navigable water (TNW). Due to this connection, this stream should be considered a jurisdictional water of the United States. The HHEI score for Stream 2 was 32, categorizing the stream as a Modified Class II Primary Headwater Habitat.

Stream 3 (Station Creek) (207 Linear Feet within the Study Area)

Stream 3 was an intermittent stream that flowed south through the project study area. This stream was at base flow conditions at the time of the stream survey. The dominant substrates were silt, sand, gravel, and cobble. Bank Full width was 3 to 4 feet and depth was one foot. The maximum pool depth observed was approximately 3 to 4 inches (10 centimeters). Stream 3 flows into Little Muddy Creek, a Relatively Permanent Water (RPW) south of the project area. Due to this connection, this stream should be considered a jurisdictional water of the United States. The HHEI score for Stream 3 was 43, categorizing the stream as a Modified Class II Primary Headwater Habitat.

Stream 4 (UNT to Little Muddy Creek) (171 Linear Feet within the Study Area)

Stream 4 was an intermittent stream that flowed south through the project study area. S This stream was at base flow conditions at the time of the stream survey. The dominant substrates were silt, sand, gravel and cobble. Bank Full width was 3 to 4 feet and depth was one foot. The maximum pool depth observed was approximately 3 to 4 inches (10 centimeters). Stream 3 flows into Little Muddy Creek, a Relatively Permanent Water (RPW) south of the project area. Due to this connection, this stream should be considered a jurisdictional water of the United States. The HHEI score for Stream 4 was 43, categorizing the stream as a Modified Class II Primary Headwater Habitat.

Stream 5 (UNT to Little Muddy Creek) (352 Linear Feet within the Study Area)

Stream 5 was an intermittent stream that flowed south through the project study area. This stream was at base flow conditions at the time of the stream survey. The dominant substrates were silt, sand, gravel and cobble. Bank Full width was 4 to 5 feet and depth was one foot. The maximum pool depth observed was 4 inches (15 centimeters). Stream 5 flows into Little Muddy Creek, a Relatively Permanent Water (RPW) north of the project area. Due to this connection, this stream should be considered a jurisdictional water of the United States. The HHEI score for Stream 5 was 53, categorizing the stream as a Modified Class II Primary Headwater Habitat.

Stream 6 (UNT to Little Muddy Creek) (182 Linear Feet within the Study Area)

Stream 6 was an intermittent stream that flowed south through the project study area. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were silt, sand and gravel. Bank Full width was 5 to 6 feet and depth was one foot. The maximum pool depth observed was 4 inches (15 centimeters). Stream 6 flows into Little Muddy Creek, a Relatively Permanent Water (RPW) north of the project area. Due to this connection, this stream should be considered a jurisdictional water of the United States. The HHEI score for Stream 6 was 53, categorizing the stream as a Modified Class II Primary Headwater Habitat.

Stream 7 (UNT to Turtle Creek) (142 Linear Feet within the Study Area)

Stream 7 was an intermittent stream that flowed southeast through the project study area. This stream was at base flow conditions at the time of the stream survey. The dominant substrates were sand and silt. Bank Full width was 2 to 3 feet and depth was one foot. The maximum pool depth observed was 3 inches (9 centimeters). Stream 7 flows into Turtle Creek, a Relatively Permanent Water (RPW) north of the project area. Due to this connection, this stream should be considered a jurisdictional water of the United States. The HHEI score for Stream 7 was 32, categorizing the stream as a Modified Class II Primary Headwater Habitat.

Stream 8 (Turtle Creek) (174 Linear Feet within the Study Area)

Stream 8 was a perennial stream that flowed south through the project study area. This stream was at base flow conditions at the time of the stream survey. The dominant visible substrates were sand and silt, however the water level was high due to recent precipitation. Bank Full width was 40 to 50 feet and an approximate depth was 4 to 6 feet. Stream 8 is a Relatively Permanent Water (RPW) that flows through the project area. Stream 8 should be considered a jurisdictional water of the United States. The QHEI score for Stream 8 was 65 from 2007 OEPA sampling in the vicinity of the project area, and is categorized by OEPA as a Warmwater Habitat.

Stream 9 (UNT to Turtle Creek) (396 Linear Feet within the Study Area)

Stream 9 was an ephemeral stream that flowed northwest through the project study area. This stream was not flowing and had isolated pools at the time of the stream survey. The dominant substrates were sand and silt. Bank Full width was 2 to 3 feet and depth was 10 inches. The maximum pool depth observed was less than 4 centimeters. Stream 9 flows into Turtle Creek, a Relatively Permanent Water (RPW). Due to this connection, this stream should be considered a jurisdictional water of the United States. The HHEI score for Stream 9 was 22, categorizing the stream as a Modified Class I Primary Headwater Habitat.

Stream 10 (UNT to Turtle Creek) (297 Linear Feet within the Study Area)

Stream 10 was an intermittent stream that flowed southwest through the project study area. This stream was at base flow conditions at the time of the stream survey. The dominant substrates were cobble, gravel, sand and silt. Bank Full width was 3 to 6 feet and depth was two feet. The maximum pool depth observed was approximately 15 centimeters. Stream 10 flows into Turtle Creek, a Relatively Permanent Water (RPW) southwest of the project area. Due to this connection, this stream should be considered a jurisdictional water of the United States. The HHEI score for Stream 10 was 53, categorizing the stream as a Modified Class II Primary Headwater Habitat.

Stream 11 (UNT to Turtle Creek) (87 Linear Feet within the Study Area)

Stream 11 was an intermittent stream that flowed west through the project study area. This stream was at base flow conditions at the time of the stream survey. The dominant substrates were gravel, sand and silt. Bank Full width was 1 to 2 feet and depth was one foot. The maximum pool depth observed was approximately 4 centimeters. Stream 11 flows into Turtle Creek, a Relatively Permanent Water (RPW) north of the project area. Due to this connection, this stream should be considered a jurisdictional water of the United States. The HHEI score for Stream 11 was 22, categorizing the stream as a Modified Class I Primary Headwater Habitat.

Stream 12 (UNT to Turtle Creek) (545 Linear Feet within the Study Area)

Stream 12 was an intermittent stream that flowed west through the project study area. S This stream was at base flow conditions at the time of the stream survey. The dominant substrates were cobble, gravel, sand and silt. Bank Full width was 3 to 4 feet and depth was two feet. The maximum pool depth observed was approximately 17 centimeters. Stream 12 flows into Turtle Creek, a Relatively Permanent Water (RPW) north of the project area. Due to this connection, this stream should be considered a jurisdictional water of the United States. The HHEI score for Stream 12 was 53, categorizing the stream as a Modified Class II Primary Headwater Habitat. .

Stream 13 (UNT to Turtle Creek) (37 Linear Feet within the Study Area)

Stream 13 was an intermittent stream that flowed northwest through the project study area. Stream 13 was considered to be recovered from past modifications. This stream was at base flow conditions at the time of the stream survey. The turbidity levels were not elevated at the time of survey. The dominant substrates were cobble, gravel, sand and silt. Bank Full width was 3 to 4 feet and depth was two feet. The maximum pool depth observed was approximately 15 centimeters. Stream 13 flows into Turtle Creek, a Relatively Permanent Water (RPW) west of the project area. Due to this connection, this stream should be considered a jurisdictional water of the United States. The HHEI score for Stream 13 was 53, categorizing the stream as a Modified Class II Primary Headwater Habitat.

Pond 1 (0.70 acres within the Study Area)

Pond 1 was an upland man-made, excavated retention basin associated with recently constructed commercial/industrial facilities located within the western portion of the study area. Pond 1 flows through a culvert beneath Gateway Boulevard which ultimately discharges into Millers Creek. Due to this Pond appearing to be part of a stormwater management system for the commercial/industrial facility and therefore should be considered a non-jurisdictional 'waters of the State' under the current Rapanos guidance.

Pond 2 (0.53 acres within the Study Area)

Pond 2 was an upland man-made, excavated retention basin associated with the livestock pasture that is located east of SR 741 and northwest of Lower Hamilton Road. Pond 2 discharges into Stream 5, an Unnamed Tributary to Little Muddy Creek. Due to this connection to stream 5 this stream should be considered a jurisdictional water of the United States.

Pond 3 (1.47 acres within the Study Area)

Pond 3 was an upland man-made, excavated retention basin associated with residential properties located south of Keever Road. Pond 3 discharges into Stream 6, an Unnamed Tributary to Little Muddy Creek. Due to this connection to Stream 5 this stream should be considered a jurisdictional water of the United States.

Pond 4 (0.02 acres within the Study Area)

Pond 4 was an upland man-made, excavated retention basin associated with nearby residential property located north of Keever Road. Pond 4 does not discharge into any observed water way (stream, ditch or wetland) and therefore should be considered a non-jurisdictional 'waters of the State' under the current Rapanos guidance.

Pond 5 (0.02acres within the Study Area)

Pond 5 was an upland man-made, excavated retention basin associated with the livestock pasture that is located north of Keever Road. Pond 5 drains into Ditch 2, Wetland 1 and Ditch 3; however these features do not discharge into a potential "jurisdictional" water of the United States and therefore should be considered a non-jurisdictional 'waters of the State' under the current Rapanos guidance.

4.3 Endangered, Threatened and Rare Species

The potential for listed species known to occur within Warren County were evaluated based on the habitat observed within the Study Area. In addition, high quality natural communities and significant natural habitat areas were documented if encountered (Appendix D). A walking survey of the Study Area was performed in which all observed Endangered, Threatened and Rare (ETR) species or specific known special habitats were noted. Coordination with the U.S. Fish and Wildlife Service (USFWS) and Ohio Department of Natural Resources (ODNR) Division of Wildlife occurred as it related to the Natural Heritage Database search results for the Study Area.

Tables summarizing the results of ETR species as they relate to the habitat observed within the Study Area are included with this report. Correspondence with the ODNR DOW and the USFWS regarding RTE located within a ½-mile of the Study Area were sent January 20, 2017. Results of the USFWS were received on January 24, 2017. The copies of the correspondence letters are located in Appendix A.

4.3.1 <u>Bat Roost Habitat</u>

The Indiana Bat (*Myotis sodalis*, federally endangered) and Northern Long-eared Bat (*Myotis septentrionalis*, federally threatened) are protected under the Endangered Species Act, which is overseen by the USFWS. Typical guidance from USFWS regarding potential bat roost trees is avoidance of cutting trees from April through October. The Study Area was assessed for potential bat roosting habitat with respect to any indicated clearing activities. Potential bat roost trees include dead or dying trees (including live shagbark hickories) with at least 10-percent exfoliating bark, a diameter at breast height (DBH) of at least 3 inches, and solar exposure for maternity roost trees (the tree is on a wooded edge or in a canopy gap). If applicable, correspondence from USFWS regarding Indiana Bat and Northern Long-eared Bat is included within Appendix D.

Suitable bat roost habitat was observed within wooded the portions of the Nickel to Warren Station project survey area located outside of the existing maintained right-of-way (ROW). Specific areas should be evaluated before any tree clearing takes place.

5 Jurisdictional Analysis

5.1 U.S. Army Corps of Engineers

The USACE has authority over the discharge of fill or dredged material into "waters of the U.S.". This includes authority over any filling, mechanical land clearing, or construction activities that occur within the boundaries of any "waters of the U.S." A permit must be obtained from the USACE before any of these activities occur. Permits can be divided into two general categories: Individual Permits and Nationwide Permits.

Individual Permits are required for projects that do not fall into one of the specific Nationwide Permits (NWP) or are deemed to have significant environmental impacts. These permits are much more difficult to obtain and receive a much higher level of regulatory agency and public scrutiny and may require several months to more than a year for processing.

Nationwide Permits (NWP) have been developed for projects that meet specific criteria and are deemed to have minimal impact on the aquatic environment. There are currently 52 Nationwide Permits for qualifying activities with 31 Nationwide Permit General Conditions that must be satisfied in order to receive NWP consideration from the USACE.

5.2 Ohio Environmental Protection Agency

The OEPA is responsible for issuing Clean Water Act (CWA) Section 401 permits known as Water Quality Certifications (WQC) for all impacts to "waters of the State of Ohio." This includes authority over any dredging, filling, mechanical land clearing, impoundments or construction activities that occur within the boundaries of any "waters of the State," including those isolated waters not otherwise regulated by the USACE.

The OEPA issues Section 401 WQC in conjunction with the USACE' Section 404 permits. A §401 Water Quality Certification must be received before the USACE can issue any §404 Department of the Army Permit. The OEPA must issue Individual §401 WQC for all Individual §404 Permits.

Water quality certification may be granted, without notification to the OEPA, if the project falls under the NWP limitations described above. In order to qualify for this granted certification, all prior-authorized and *de minimis* Ohio State Certification General Limitations and Conditions as published by the OEPA must be satisfied.

The OEPA also requires notification for all impacts to isolated wetlands, which includes a permit application and mitigation plan pursuant to Section 6111 of Ohio Revised Code (ORC).

6 Summary and Conclusion

6.1 Summary

Cardno inspected the 5680 - Nickel to Warren Station Study Area on January 4, 2017.

6.1.1 <u>Wetlands and Waterways</u>

Thirteen streams, one emergent wetlands, and five ponds were identified within the 5680 Nickel to Warren Station Study Area.

Table 6-1 Features Identified within the 5680 - Nickel to Warren Station Project Study Area

Feature Name	USGS/ NWI Identified	Feature Class	Regulatory Status[1]	Riffles / Pools	Dimensions (ft)		Substrate	QHEI/HHEI/ ORAM Score	Linear Footage (LF)	Acreage (AC)
					Width	Depth				
Wetland 1	No	PEM	Jurisdictional	N/A	N/A	N/A	N/A	18	N/A	0.07
Stream 1	Yes	Intermittent	Jurisdictional	Yes	4	3	G-Sa-Si	52	26	0.0024
Stream 2	No	Intermittent	Jurisdictional	Yes	3	1	G-Sa-Si	32	190	0.0131
Stream 3	Yes	Intermittent	Jurisdictional	Yes	3-4	1	C-G-Sa-Si	43	207	0.0166
Stream 4	Yes	Intermittent	Jurisdictional	Yes	3-4	1	C-G-Sa-Si	43	171	0.0137
Stream 5	Yes	Intermittent	Jurisdictional	Yes	4-5	1	C-G-Sa-Si	53	352	0.0364
Stream 6	Yes	Intermittent	Jurisdictional	Yes	5-6	1	G-Sa-Si	53	182	0.0230

Table 6-1 Features Identified within the 5680 - Nickel to Warren Station Project Study Area

Feature Name	USGS/ NWI Identified	Feature Class	Regulatory Status[1]	Riffles / Pools	Dimensions (ft)		Substrate	QHEI/HHEI/ ORAM Score	Linear Footage (LF)	Acreage (AC)
					Width	Depth				
Stream 7	Yes	Intermittent	Jurisdictional	Yes	2-3	1	Sa-Si	32	142	0.0081
Stream 8	Yes	Perennial	Jurisdictional	Yes	40-50	4-6	C-G-Sa-Si	65[2]	174	0.1798
Stream 9	No	Ephemeral	Jurisdictional	Yes	2-3	<1	Sa-Si	22	396	0.0227
Stream 10	Yes	Intermittent	Jurisdictional	Yes	3-6	2	C-G-Sa-Si	53	297	0.0307
Stream 11	Yes	Intermittent	Jurisdictional	Yes	1-2	1	G-Sa-Si	22	87	0.0090
Stream 12	Yes	Intermittent	Jurisdictional	Yes	3-4	2	C-G-Sa-Si	53	545	0.0438
Stream 13	Yes	Intermittent	Jurisdictional	Yes	3-4	2	C-G-Sa-Si	53	37	0.0030
Pond 1	Yes	PUB	Non-Jurisdictional	N/A	N/A	N/A	N/A	N/A	N/A	0.70
Pond 2	No	PUB	Jurisdictional	N/A	N/A	N/A	N/A	N/A	N/A	0.53
Pond 3	Yes	PUB	Jurisdictional	N/A	N/A	N/A	N/A	N/A	N/A	1.47
Pond 4	Yes	PUB	Non-Jurisdictional	N/A	N/A	N/A	N/A	N/A	N/A	0.02
Pond 5	Yes	PUB	Non-Jurisdictional	N/A	N/A	N/A	N/A	N/A	N/A	0.02
Totals			Streams		Ephemeral		396 LF			0.023
					Intermittent		2236 LF			0.199
					Perennial		174 LF			0.179
			Wetlands		PEM	JD	---			0.07
						Non-JD	---			---
			Ponds		Jurisdictional		---			2.0
					Non-Jurisdictional		---			0.74
			Waterbodies Total		Jurisdictional		2806 LF			2.472
					Non-Jurisdictional		---			0.74

[1] Regulatory Status is based on our "professional judgment" on experience, however the USACE makes the final determination.
[2] QHEI score from OEPA 2007 sampling of Turtle Creek watershed at the McClure Road location (upstream of project area).

6.1.2 Endangered, Threatened, and Rare Species

Several sources of information were consulted to further define the potential habitat of listed species that occur within the county of the Study Area. Tables 1 in Appendix D contain lists of the ETR species known to occur within Warren County and their potential to occur within the Study Area based on their habitat requirements and observations during the field survey (Appendix D).

Correspondence with the ODNR DOW and the USFWS regarding RTE located within a ½-mile of the Study Area were sent January 20, 2017 and results of the USFWS was received on January 24, 2017. The copies of the correspondence letters are located in Appendix A.

6.1.3 Indiana Bat and Northern Long-eared Bat Roost Habitat

The entire Study Area was walked to identify potential Indiana Bat and Northern Long-eared Bat roost trees. Based on our field inspection and our best professional judgment, there are potential roost or maternity roost trees suitable for harboring Indiana Bats and Northern Long-eared Bats within the Study Area. Suitable bat roost habitat was observed within the wooded areas located outside the existing ROW, including the wooded riparian corridor of Stream 1 and 2.

In the event tree clearing activity becomes a work priority within the Study Area, it is recommended that a field inspection be performed within the clearing limits to ensure that potential bat habitat has not developed.

The USFWS is the regulatory authority that makes the final determination as to the status of the Indiana Bat and Northern Long-eared Bat in the Study Area. A letter based on the field observations was submitted to the USFWS for concurrence on January 20, 2017 and results of the USFWS was received on January 24, 2017. A copy of the correspondence letter is located in Appendix A.

6.2 Conclusion

A permit must be obtained from the USACE and the OEPA prior to any filling, dredging, or mechanical land clearing that occurs within the boundaries of any 'waters of the U.S.' or 'waters of the State'.

While this report represents our best professional judgment based on our knowledge and experience, it is important to note that the Huntington District of the U.S. Army Corps of Engineers has final discretionary authority over all jurisdictional determinations of 'waters of the U.S.' including wetlands under Section 404 of the CWA in this region. It is therefore, recommended that a copy of this report be furnished to the Huntington District of the U.S. Army Corps of Engineers to confirm the results of our findings.

7 References

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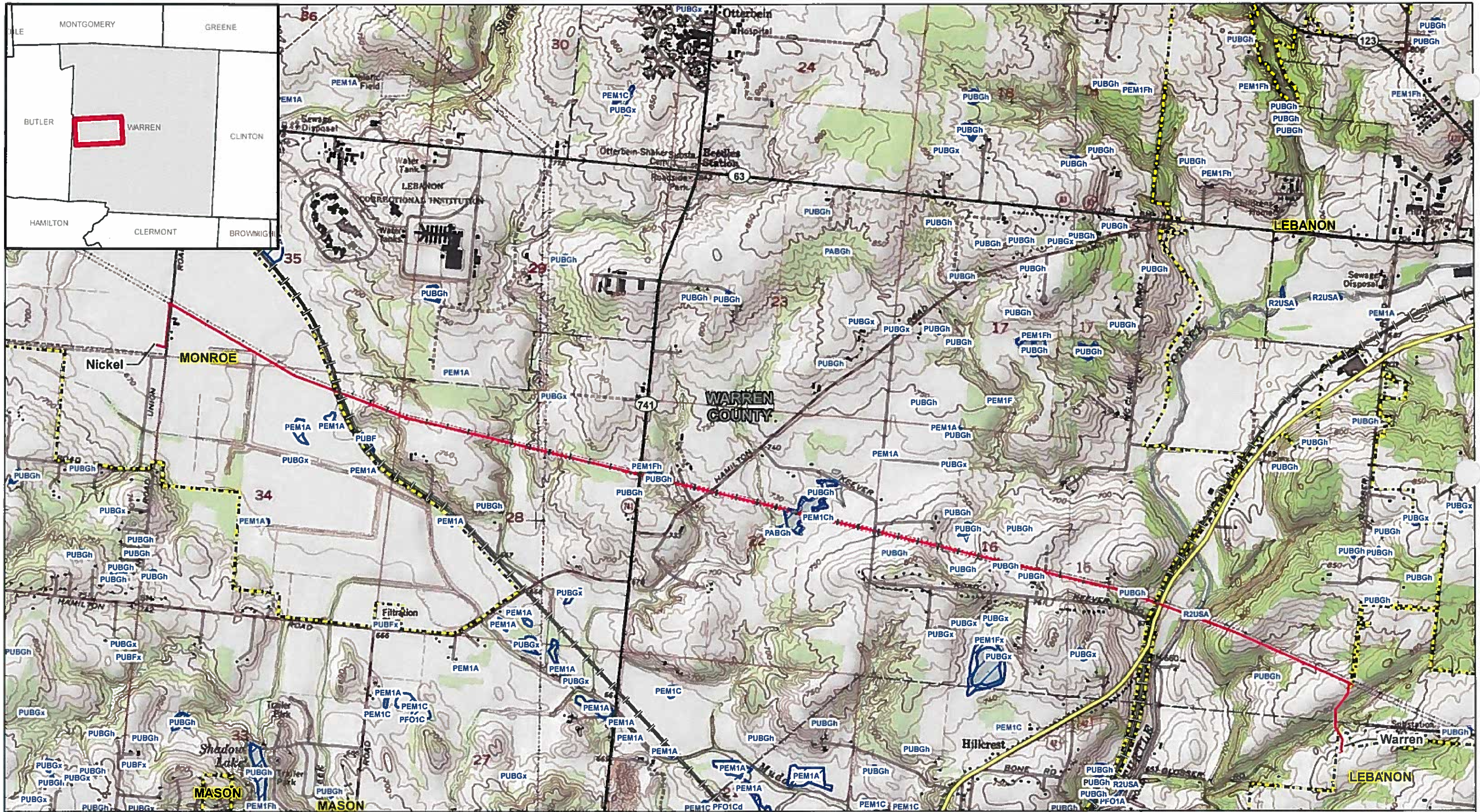
DUKE ENERGY
NICKEL TO WARREN STATION
REBUILD

FIGURES



PROJECT LOCATION

WARREN COUNTY, OH

REFERENCE: USGS 7.5' TOPOGRAPHIC QUADRANGLES: MONROE AND LEBANON, OHIO. OBTAINED VIA ESRI USA TOPO, NATIONAL GEOGRAPHIC TOPO, AND USGS, ACCESSED 01/2017.

N

0 1,000 2,000 Feet

- Project Centerline
- NWI Wetland
- Interstate
- State Highway
- US Highway
- Railroad
- County Boundary
- Municiple Boundary

DUKE ENERGY.

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FIGURE 1

REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUILD
DUKE ENERGY
PROJECT VICINITY MAP

DRAWN BY: COD	DATE: 1/27/2017
CHECKED: CJ	APPROVED: JT

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FRESHWATER WETLAND CLASSIFICATION

P—PALUSTRINE

RB ROCK BOTTOM
1) Bedrock
2) Rubble

UB UNCONSOLIDATED BOTTOM
1) Cobble/Gravel
2) Sand
3) Mud
4) Organic

AB AQUATIC BED
1) Algal
2) Aquatic Moss
3) Rooted Vascular
4) Floating Vascular
5) UNK Submergent
6) UNK Surface

US UNCONSOLIDATED SHORE
1) Cobble/Gravel
2) Sand
3) Mud
4) Organic
5) Vegetated

ML MOSS-LICHEN
1) Mosses
2) Lichen

EM EMERGENT
1) Persistent
2) Nonpersistent

SS SHRUB SCRUB
1) Broad Leaf Decid.
2) Needle Leaf Decid.
3) Broad Leav Evergr.
4) Needle Leaf Evergr.
5) Dead
6) Deciduous
7) Evergreen

FO FORESTED
1) Broad Leaf Decid.
2) Needle Leaf Decid.
3) Broad Leav Evergr.
4) Needle Leaf Evergr.
5) Dead
6) Deciduous
7) Evergreen

OW OPEN WATER
Unknown Bottom

R—RIVERINE

1 TIDAL | 2 LOWER PERENNIAL | 3 UPPER PERENNIAL | 4 INTERMITTENT | 5 UNKNOWN PERENNIAL

RB ROCK BOTTOM
1 Bedrock
2 Rubble

UB UNCONSOLIDATED BOTTOM
1 Cobble/Gravel
2 Sand
3 Mud
4 Organic

AB AQUATIC BED
1 Algal
2 Aquatic Moss
3 Rooted Vascular
4 Floating Vascular
5 UNK Submergent
6 UNK Surface

US UNCONSOLIDATED SHORE
1 Cobble/Gravel
2 Sand
3 Mud
4 Organic
5 Vegetated

SB STREAMBED *
1 Bedrock
2 Rubble
3 Cobble-Gravel
4 Sand
5 Mud
6 Organic
7 Vegetated

EM EMERGENT **
1 Persistent
2 Non-persistent

RS ROCKY SHORE
1 Bedrock
2 Rubble

OW OPEN WATER
Unknown Bottom

MODIFYING TERMS

In order to more adequately describe wetland and aquatic habitats water regime, water chemistry, soil or special modifiers may be applied.

WATER REGIME		*WATER CHEMISTRY*		*SOIL*	*SPECIAL MODIFIERS*
NON-TIDAL		INLAND SALINITY	pH MODIFIERS FOR FRESHWATER		
A Temporarily Flooded	J Intermittently Flooded	7 Hypersaline	a Acid	g Organic	b Beaver
B Saturated	K Artificially Flooded	8 Eusaline	t Circumneutral	n Mineral	d Partially Drained/Ditched
C Seasonally Flooded	W Intermittently Flooded/ Temporary	9 Mixosaline	i Alkaline		f Farmed
D Seasonally Flooded/ Well-Drained	Y Saturated/Semipermanent/ Seasonal	0 Fresh			h Diked/Impounded
E Seasonally Flooded/Saturated	Z Intermittently Exposed/ Permanent				r Artificial Substrate
F Semipermanently Flooded	U Unknown				s Spoil
G Intermittently Exposed					x Excavated
H Permanently Flooded					

Dominance types must be added by users.

Classification of wetland and deepwater habitats of the U.S. Cowardin et. al. 1979 as modified for national wetland inventory mapping conventions.

Project No. J156720M45

Figure 2: NWI KEY

REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUILD
DUKE ENERGY
WARREN COUNTY, OHIO

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Date Created: 1/27/2017 Date Revised: 1/27/2017 File Path: R:\Projects\15\156\156720M_DukeEnergy\0193\M45_SOW18_5680_138Kv Nickel to Warren Station Rebuild\GIS\MXD\Delineation\D2_NWI_Key1.mxd Saved By: christine dittmar
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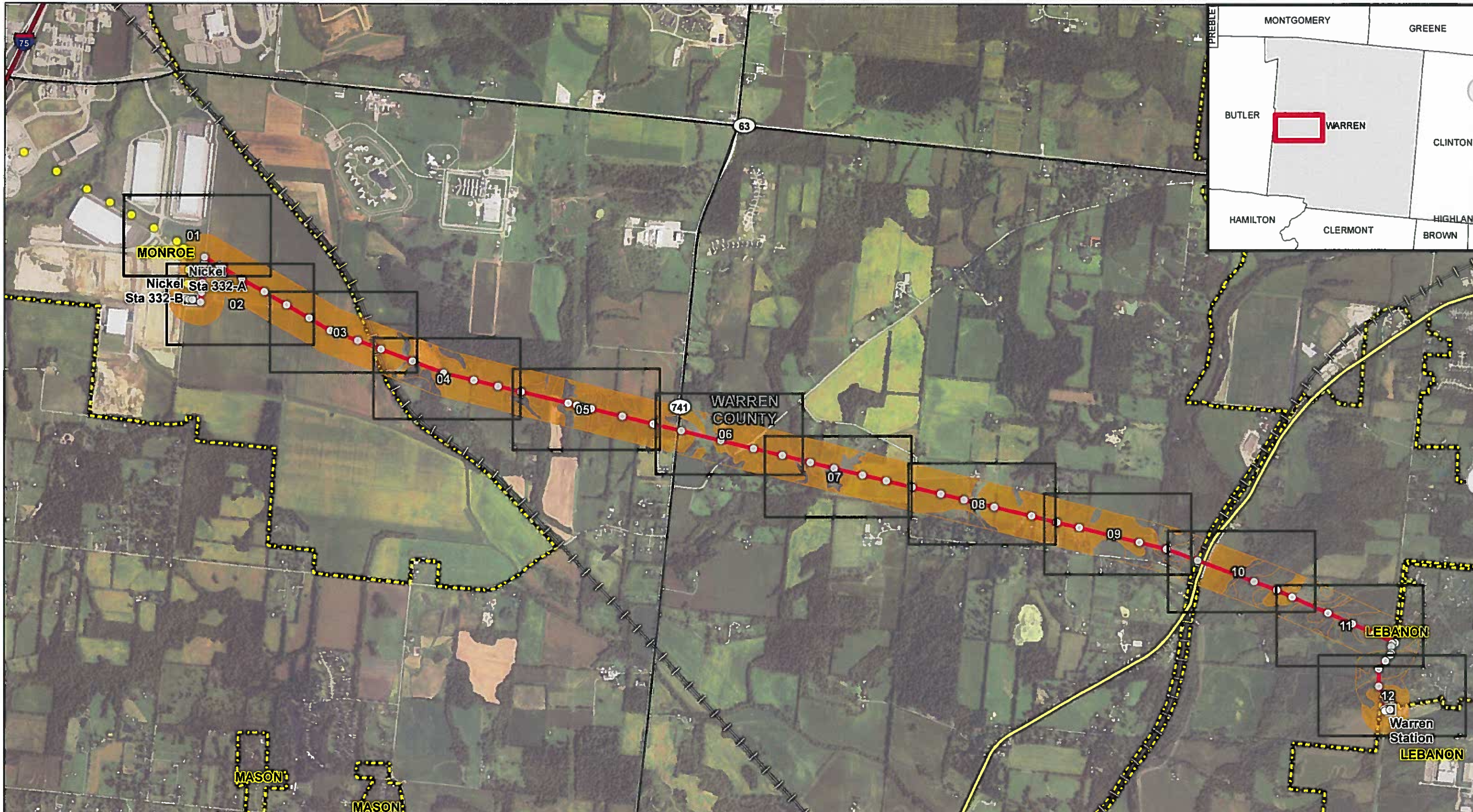

Project Location

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

N

0 1,000 2,000 Feet

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

DUKE ENERGY.

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FIGURE: 3
REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
SOIL SURVEY KEY

DRAWN BY: COD
CHECKED: CJ
DATE: 1/27/2017
APPROVED: JT

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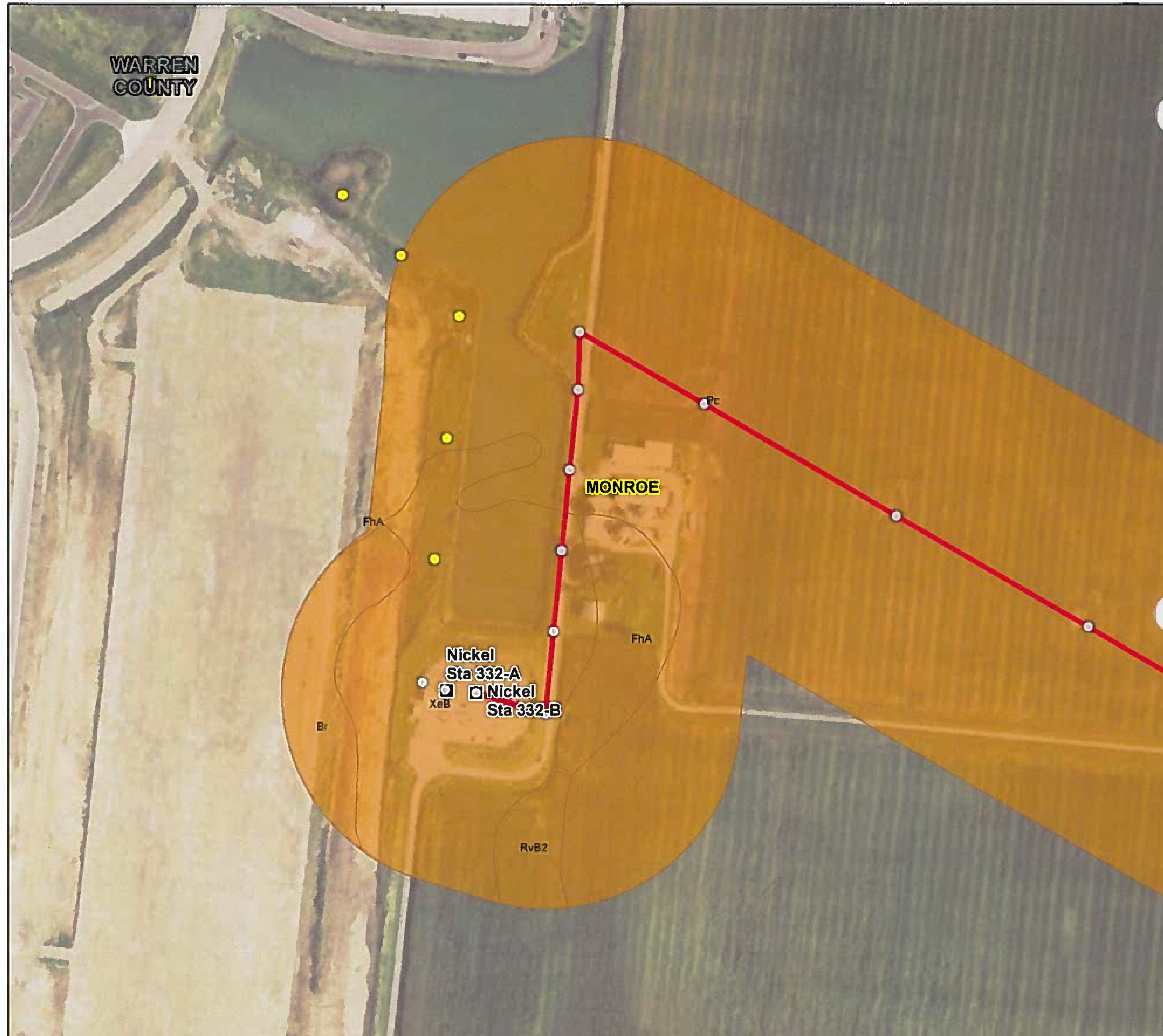
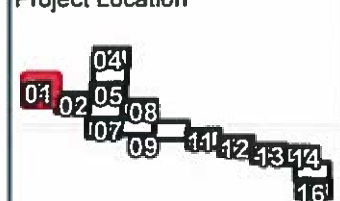
Soil Unit Symbol	Soil Unit Name	Acres	% in 1,000 ft Corridor	Hydric
Br	Brookston silty clay loam	69.83	9.62	Y
DaB	Dana silt loam, 0 to 2 percent slopes	4.92	0.68	Y
EdD2	Eden complex, 12 to 18 percent slopes, moderately eroded	13.38	1.84	N
EdE2	Eden complex, 18 to 25 percent slopes, moderately eroded	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: 3.01

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

DRAWN BY: COD
CHECKED: CJ
DATE: 1/27/2017
APPROVED: JT

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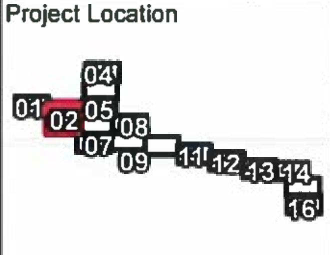
Soil Unit Symbol	Soil Unit Name	Acres	% in 1,000 ft Corridor	Hydric
Br	Brookston silty clay loam	69.83	9.62	Y
DaB	Dana silt loam, 0 to 2 percent slopes	4.92	0.68	Y
EdD2	Eden complex, 12 to 18 percent slopes, moderately eroded	13.38	1.84	N
EdE2	Eden complex, 18 to 25 percent slopes, moderately eroded	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
FIC2	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: 3.02
REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
ENVIRONMENTAL ACCESS INDEX SHEET

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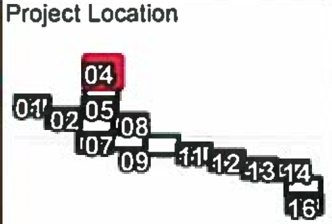
Soil Unit Symbol	Soil Unit Name	Acres	% in 1,000 ft Corridor	Hydric
Br	Brookston silty clay loam	69.83	9.62	Y
DaB	Dana silt loam, 0 to 2 percent slopes	4.92	0.68	Y
EdD2	Eden complex, 12 to 18 percent slopes, moderately eroded	13.38	1.84	N
EdE2	Eden complex, 18 to 25 percent slopes, moderately eroded	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: 3.03
REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
ENVIRONMENTAL ACCESS INDEX SHEET

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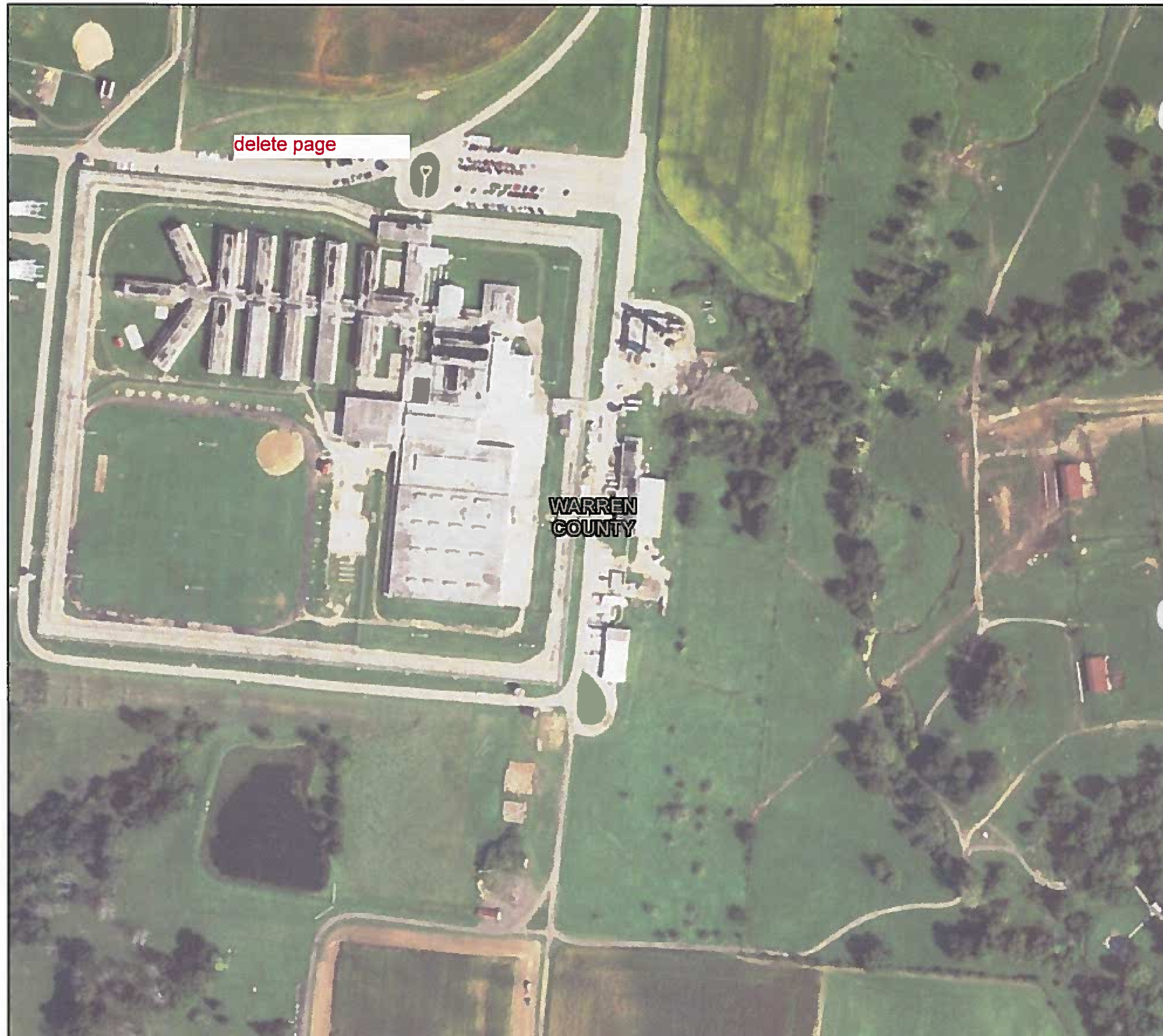
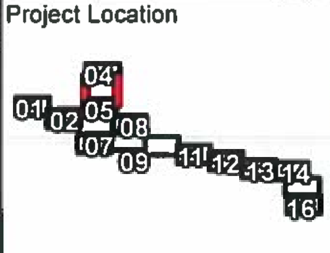
Soil Unit Symbol	Soil Unit Name	Acres	% in 1,000 ft Corridor	Hydric
Br	Brookston silty clay loam	69.83	9.62	Y
DaB	Dana silt loam, 0 to 2 percent slopes	4.92	0.68	Y
EdD2	Eden complex, 12 to 18 percent slopes, moderately eroded	13.38	1.84	N
EdE2	Eden complex, 18 to 25 percent slopes, moderately eroded	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: 3.04
REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
ENVIRONMENTAL ACCESS INDEX SHEET

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APPROVED: JT

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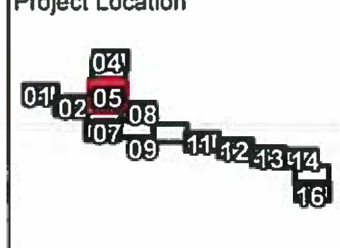
Soil Unit Symbol	Soil Unit Name	Acres	% in 1,000 ft Corridor	Hydric
Br	Brookston silty clay loam	69.83	9.62	Y
DaB	Dana silt loam, 0 to 2 percent slopes	4.92	0.68	Y
EdD2	Eden complex, 12 to 18 percent slopes, moderately eroded	13.38	1.84	N
EdE2	Eden complex, 18 to 25 percent slopes, moderately eroded	21.29	2.93	N
Edf2	Eden complex, 25 to 35 percent slopes, moderately eroded	18.33	2.53	N
Es	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: 3.05
REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
ENVIRONMENTAL ACCESS INDEX SHEET

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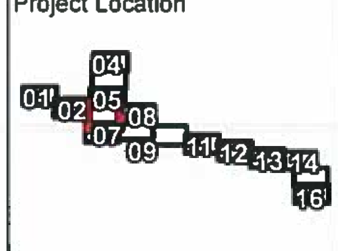
Soil Unit Symbol	Soil Unit Name	Acres	% in 1,000 ft Corridor	Hydric
Br	Brookston silty clay loam	69.83	9.62	Y
DaB	Dana silt loam, 0 to 2 percent slopes	4.92	0.68	Y
EdD2	Eden complex, 12 to 18 percent slopes, moderately eroded	13.38	1.84	N
EdE2	Eden complex, 18 to 25 percent slopes, moderately eroded	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
FIC2	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
PIB	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: 3.06
REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
ENVIRONMENTAL ACCESS INDEX SHEET

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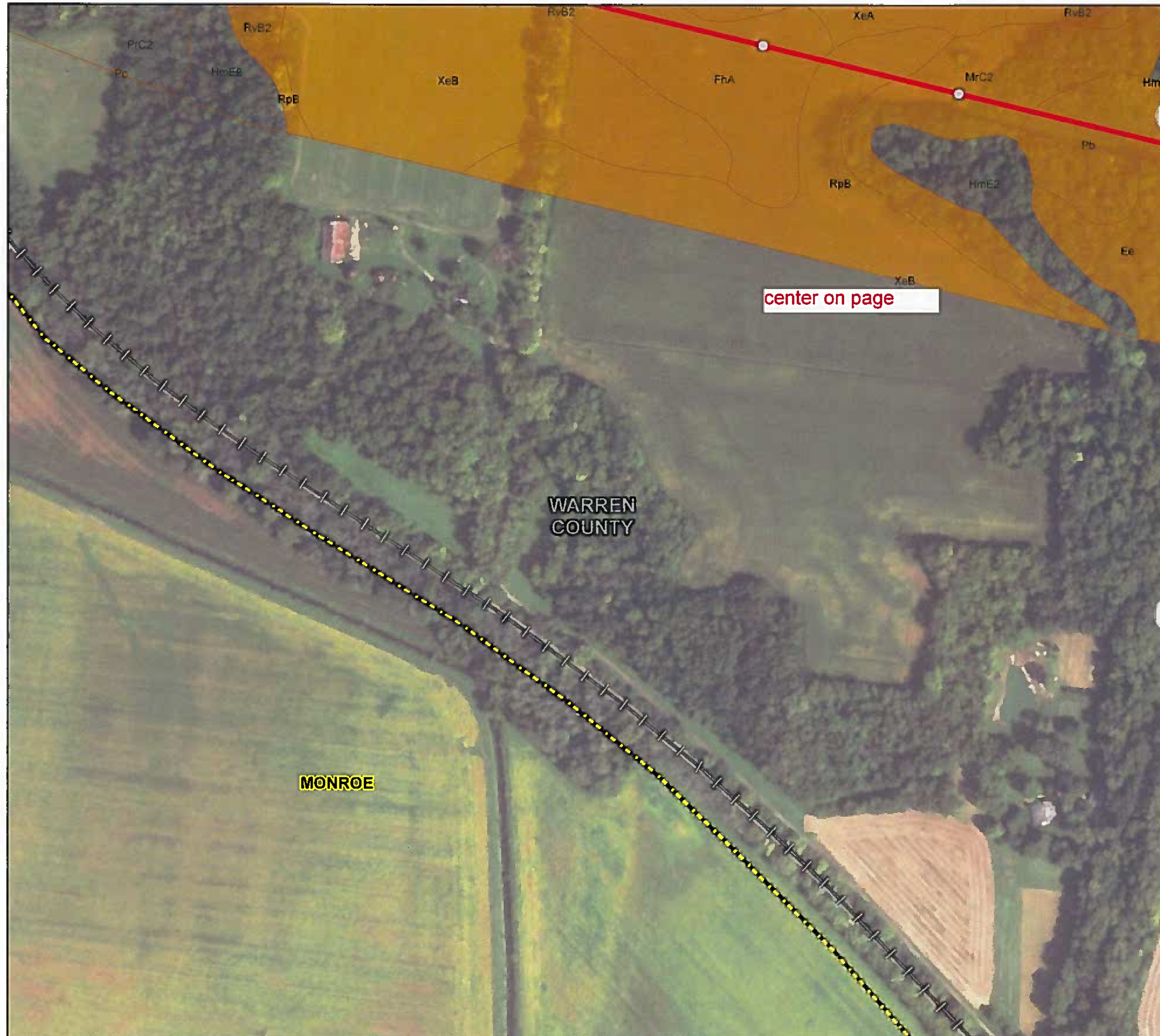
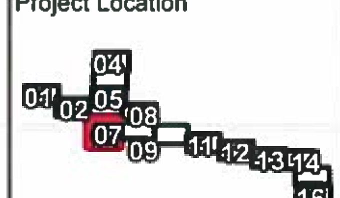
Soil Unit Symbol	Soil Unit Name	Acres	% in 1,000 ft Corridor	Hydric
Br	Brookston silty clay loam	69.83	9.62	Y
DaB	Dana silt loam, 0 to 2 percent slopes	4.92	0.68	Y
EdD2	Eden complex, 12 to 18 percent slopes, moderately eroded	13.38	1.84	N
EdE2	Eden complex, 18 to 25 percent slopes, moderately eroded	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



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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: 3.07

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

DRAWN BY: COD DATE: 1/27/2017
CHECKED: CJ APPROVED: JT

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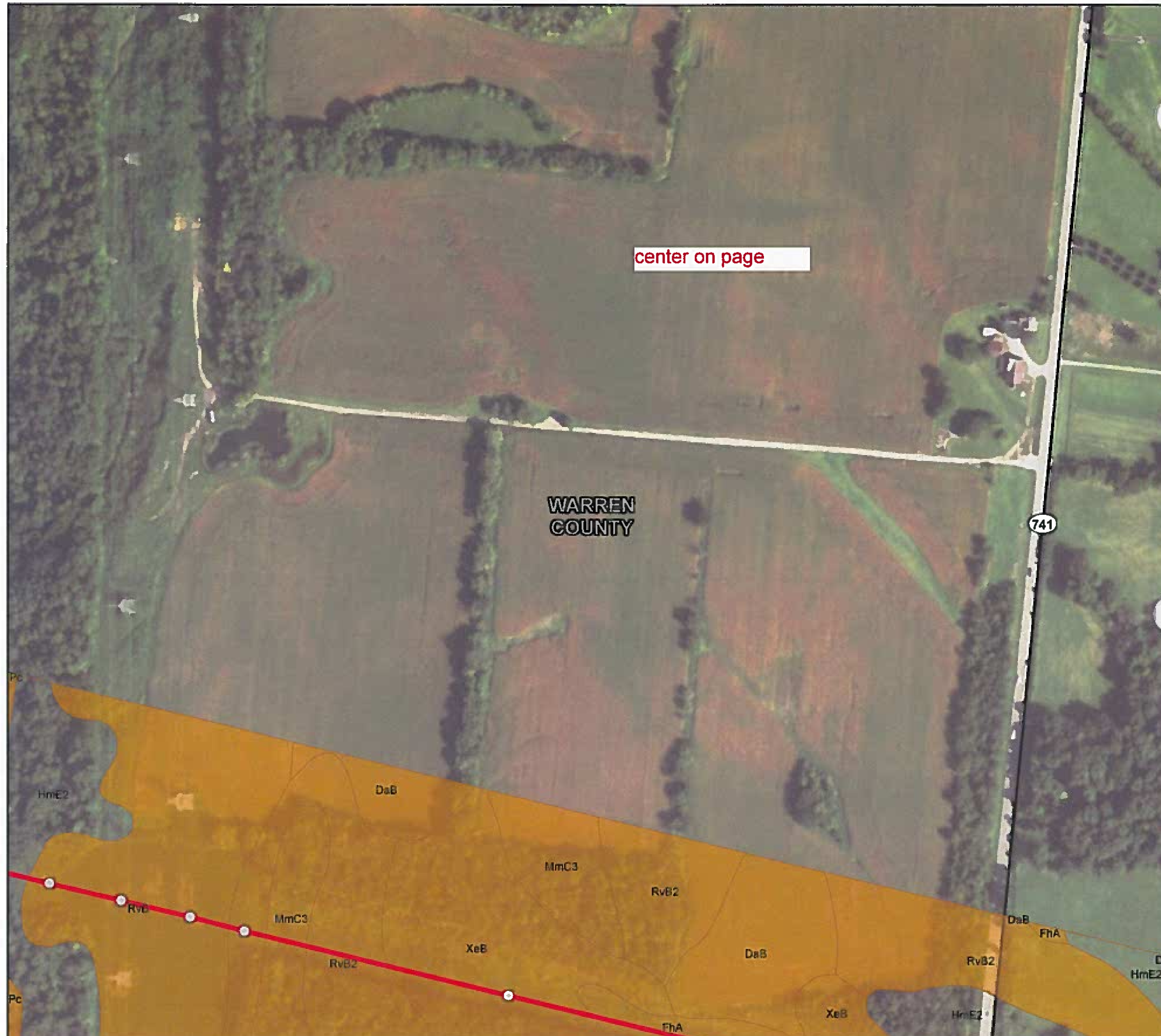
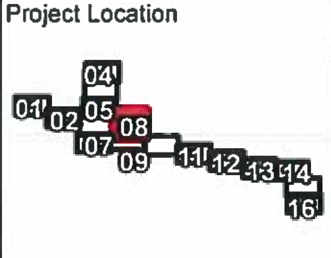
Soil Unit Symbol	Soil Unit Name	Acres	% in 1,000 ft Corridor	Hydric
Br	Brookston silty clay loam	69.83	9.62	Y
DaB	Dana silt loam, 0 to 2 percent slopes	4.92	0.68	Y
EdD2	Eden complex, 12 to 18 percent slopes, moderately eroded	13.38	1.84	N
EdE2	Eden complex, 18 to 25 percent slopes, moderately eroded	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



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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

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FIGURE: 3.08
REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUIL
DUKE ENERGY
ENVIRONMENTAL ACCESS INDEX SHEET

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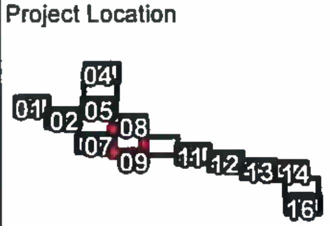
Soil Unit Symbol	Soil Unit Name	Acres	% In 1,000 ft Corridor	Hydric
Br	Brookston silty clay loam	69.83	9.62	Y
DaB	Dana silt loam, 0 to 2 percent slopes	4.92	0.68	Y
EdD2	Eden complex, 12 to 18 percent slopes, moderately eroded	13.38	1.84	N
EdE2	Eden complex, 18 to 25 percent slopes, moderately eroded	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



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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: 3.09
REGULATED WATERS DELINEATION REPORT
5680 138kV NICKEL TO WARREN STATION REBUILD
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