Aaron Koehlinger 1/21/2022

Note: Duplicate mapping and photographs were included in the Waters Report, but were intentionally removed. Please see Appendix B for maps and photographs.

# Waters Report

## SR 3 and Waits Road
## City of Kendallville, Noble County, Indiana
## Intersection Improvement Project

**DES No: 1900138**

Completed Date: JANUARY 10, 2022
INDOT EWPO Approval Date:


PREPARED BY:

CRAWFORD, MURPHY & TILLY, INC.
8790 PURDUE ROAD
INDIANAPOLIS, INDIANA 46268

PREPARED FOR:

INDIANA DEPARTMENT
OF TRANSPORTATION
FORT WAYNE DISTRICT OFFICE

**Waters Report**
**SR 3 and Waits Road in Noble County, Indiana**
**Intersection Improvement**
**DES No: 1900138**

Prepared by: Claudia McAllister-Peterson
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Company: Crawford, Murphy & Tilly, Inc.
Completed Date: January 10, 2022

## PROJECT INFORMATION

**Dates of Field Reconnaissance: June 23, 2021; August 6, 2021**

**Location:**
Sections 4, 5, and 9, Township 34 North, Range 11 East
Kendallville Indiana, Quadrangle
Noble County, Indiana
41.425108 Latitude, -85.268119 Longitude

### PROJECT DESCRIPTION

Per the U.S Geological Survey (USGS) Kendallville, Indiana Quadrangle Map, the investigated area is situated within Sections 4, 5, and 9, Township 34 North, and Range 11 East.

Proposed improvements include converting the project intersection of State Road 3 (SR 3) and Waits Road to a Closed Median Reduced Conflict Intersection (RCI). The approaches on Waits Road will be updated to right turn only movement. Vehicles wishing to travel through or turn left from Waits Road will be required to turn right onto SR 3 and then complete a U-turn movement. Vehicles wishing to turn left onto Waits Road from SR 3 will be required to complete a U-turn movement at the Median U-Turn (MUT) location. The spacing of the MUT along SR 3 will be 1,500 feet north of the existing intersection due to the existing curve on SR 3. The MUT will be unsignalized. Lighting at the MUT may need to be provided for adequate visibility at the intersection. There will not be a south MUT, instead vehicles will need to travel to the intersection of SR 3 and Main Street, which is located approximately 0.33 mile south of the SR 3 and Waits Road intersection.

Land use in the vicinity of the project is primarily residential and agricultural with small patches of forest.

The project has been programmed by INDOT as SR 3 and Waits Road Intersection Improvement, DES No: 1900138.

The investigated area was established using the anticipated project footprint to construct the proposed improvements. The location of the project within Noble County and the investigated area are shown on the attached mapping.

## DESKTOP RECONNAISSANCE

### SOILS

According to the Soil Survey Geographic (SSURGO) Database for Noble County, Indiana, the investigated area does contain soil areas with nationally listed hydric soils.

| Map Abbreviation | Soil Name | NRCS Hydric Soil Category | Hydric Range |
|---|---|---|---|
| BlA | Blount loam, interlobate moraines, 0 to 2 percent slopes | Predominantly Nonhydric | Hydric (1 to 32%) |
| MrB2 | Glynwood silt loam, 2 to 6 percent slopes, eroded | Predominantly Nonhydric | Hydric (1 to 32%) |
| MsC3 | Morley silty clay loam, 6 to 12 percent slopes, severely eroded | Nonhydric | Not Hydric (0%) |
| Pe | Pewamo silty clay loam, 0 to 1 percent slopes | Predominantly Hydric | Hydric (66 to 99%) |
| RbB | Rawson loam, 2 to 6 percent slopes | Predominantly Nonhydric | Hydric (1 to 32%) |
| RdB2 | Rawson, Morley, and Miami loams, 2 to 6 percent slopes, eroded | Predominantly Nonhydric | Hydric (1 to 32%) |

### NATIONAL WETLAND INVENTORY (NWI) INFORMATION

There is one (1) NWI feature identified within the investigated area. There are four (4) NWI features, including one (1) freshwater forested/shrub wetland, two (2) freshwater ponds, and one (1) freshwater emergent wetland, identified near the investigated area.

| Wetland Type | Location |
|---|---|
| Riverine (R4SBC) | Within the south leg of the investigated area |
| Freshwater Forested/Shrub Wetland (PFO1/EM1C) | 0.01 mile east of the investigated area |
| Freshwater Pond (PUBGx) | 0.01 mile west of the investigated area |
| Freshwater Pond (PUBGx) | 0.01 mile southwest of the investigated area |
| Freshwater Emergent Wetland (PEM1A) | 0.02 mile west of the investigated area |

### 12 DIGIT HUC

040500011504 – Waterhouse Ditch-Henderson Lake Ditch

### USGS NATIONAL HYDROGRAPHY DATASET (NHD)

According to the USGS National Hydrography Dataset (NHD layer), three (3) stream flowlines, two (2) ditch flowlines, and one (1) connector flowline are identified within the investigated area.

One (1) stream (corresponding to unnamed tributary (UNT) 1 to Bixler Lake Ditch) located east of SR 3 at Waits Road, eventually flows southeast to the St. Joseph River. Two (2) mapped stream flowlines located within the southern leg of the investigated area, were identified as UNT 2 to Bixler Lake Ditch, which eventually flows southeast to the St. Joseph River. Two (2) mapped ditch flowlines located along the west side of SR 3, north of Waits Road, were identified as a wetland (Wetland D) and stream (UNT 3 to Bixler Lake Ditch) during the on-site investigation. One (1) connector is located within the southern leg of the investigated area, connecting a stream from west to east underneath SR 3, which eventually drains to the St. Joseph River.

### FEMA FLOOD INSURANCE RATE MAP (FIRM)

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), the investigated area is not located within or adjacent to a floodplain.

### ATTACHED DOCUMENTS

- Project Mapping (Project Location, Aerial, Topographic, NRCS Soils, NWI, USGS NHD, 12 Digit HUC, and Floodplain)
- Photographs with Photo Location Map
- Wetland Data Sheets

## FIELD RECONNAISSANCE

Nine (9) wetlands, three (3) streams, and six (6) drainage swales were identified within the investigated area during the onsite investigation for the presence of wetlands and other Waters of the United States (WOTUS) by Crawford, Murphy and Tilly, Inc (CMT).

The investigation for wetlands was conducted in accordance with the *1987 U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual and the August 2010 Midwest Regional Supplement (Version 2.0) Manual*. Supporting materials used for identifying, delineating, and verifying wetlands included the soil survey report and hydric soil list for Noble County, the State of Indiana 2016 Wetland Plant List and indicator status for the Midwest Region, topography, USGS topo map, NWI map, and the Field Indicators for Hydric Soils of the United States V 8.1, 2017. The wetland boundaries were flagged and surveyed using a handheld GPS device with sub-foot accuracy.

Streams were evaluated according to the definition of a Water of the United States in 40 CFR 230.3(s). The attached WOTUS Map depicts the location of identified surface water resources, including the wetland and upland data point locations, on an aerial photograph. Routine Wetland Determination data forms are attached. Representative photographs are provided.

## STREAMS

Three (3) streams were identified within the investigated area. A summary of the streams are provided in the table below. Photographs of the streams are attached within the WOTUS Photolog.

**Stream Summary Table**

| Water Feature Name | WOTUS Photos | Lat/Long | OHWM Width (ft) | OHWM Depth (in) | USGS Blue- Line? Type? | Stream Type | Riffles? Pools? | Quality | Substrate | Likely Water of the U.S.? | Total Linear Feet within Investigated Area |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **UNT 1 to Bixler Lake Ditch** | 90-91 | 41.425146°N -85.268653°W | 2 | 2 | No | Ephemeral | No | Poor | silt, sand | Yes | 28 |
| **UNT 2 to Bixler Lake Ditch** | 52-54 | 41.424641°N -85.268365°W | 3.5 | 4 | Yes, Intermittent | Intermittent | No | Poor | silt, sand | Yes | 436 |
| **UNT 3 to Bixler Lake Ditch** | 41-44 | 41.425146°N -85.268653°W | 1.75 | 4 | No | Intermittent | No | Poor | silt, muck | Yes | 331 |
| | | | | | | | | | | **Total Linear Feet of Stream** | **795** |

### UNT 1 TO BIXLER LAKE DITCH

An unnamed tributary to Bixler Lake Ditch (UNT 1 to Bixler Lake Ditch), was located east of SR 3 and south of Waits Road at the outlet of an existing culvert underneath Waits Road that originates outside of the investigated area. UNT 1 to Bixler Lake Ditch flows generally south through an open channel for 28 linear feet within the investigated area. The drainage area upstream of the investigated area is estimated to be 0.06 square miles. Although UNT 1 to Bixler Lake Ditch is not mapped on the USGS topographic quadrangle as a 'blue-line' feature, it exhibits connectivity to UNT 2 to Bixler Lake Ditch, a mapped intermittent 'blue-line' feature. UNT 1 to Bixler Lake Ditch flows through UNT 2 to Bixler Lake Ditch to Bixler Lake Ditch to Henderson Lake Ditch to the Elkhart River, which is a tributary to the St. Joseph River. Based on the ultimate connection to the St. Joseph River, a Section 10 Traditional Navigable Water (TNW), UNT 1 to Bixler Lake Ditch is likely to fall under the jurisdiction of the USACE. The USACE will make the final determination of jurisdiction.

Within the investigated area, UNT 1 to Bixler Lake Ditch has ephemeral flow, and silt and sand substrate. This stream was visually observed on June 23, 2021 to have a low flow with a prior rain event occurring within the past 48 hours and the stream was determined to begin at the culvert outlet; therefore, it was determined to have ephemeral flow within the investigated area. The width of the ordinary high water mark (OHWM) ranges from 1-2 feet with an average width of 1.1 feet within the investigated area. The maximum depth of the OHWM is 2 inches within the

investigated area. This stream has no riffle/pool complexes within the investigated area. An oil sheen was visible on the surface of the water near the culvert outlet.

Based on an ephemeral flow regime, predominately silt and sand substrate, presence of oil sheen, 90% opacity, and stream channel modifications from the construction of SR 3 and Waits Road, UNT1 to Bixler Lake Ditch is a poor-quality stream.

## UNT 2 TO BIXLER LAKE DITCH

An unnamed tributary to Bixler Lake Ditch (UNT 2 to Bixler Lake Ditch), was located south of Waits Road flowing west to east underneath SR 3. UNT 2 to Bixler Lake Ditch flows generally north through an open channel for 50 linear feet within the investigated area, then generally east through an existing culvert as an encapsulated stream underneath SR 3 for 258 linear feet, and then flows generally east through an open channel for 128 linear feet before exiting the investigated area. UNT 2 to Bixler Lake Ditch flows through the investigated area for a total of 436 linear feet. The drainage area upstream of the investigated area is estimated to be 0.62 square miles. UNT 2 to Bixler Lake Ditch is mapped on the USGS topographic quadrangle as an intermittent 'blue-line' feature. UNT 2 to Bixler Lake Ditch flows through Bixler Lake Ditch to Henderson Lake Ditch to the Elkhart River, which is a tributary to the St. Joseph River. Based on the ultimate connection to the St. Joseph River, a Section 10 TNW, UNT 2 to Bixler Lake Ditch is likely to fall under the jurisdiction of the USACE. The USACE will make the final determination of jurisdiction.

Within the investigated area, UNT 2 to Bixler Lake Ditch has intermittent flow, and silt and sand substrate. This stream was visually observed on August 6, 2021 to be flowing without any prior rain events within 48 hours; therefore, it was determined to have intermittent flow within the investigated area. The width of the OHWM ranges from 2.2-3.5 feet with an average width of 2.3 feet within the investigated area. The maximum depth of the OHWM is 4 inches within the investigated area. This stream has no riffle/pool complexes within the investigated area.

Based on predominately silt and sand substrate, 90% opacity, and stream channel modifications from the construction of SR 3 and Waits Road, UNT2 to Bixler Lake Ditch is a poor-quality stream.

## UNT 3 TO BIXLER LAKE DITCH

An unnamed tributary to Bixler Lake Ditch (UNT 3 to Bixler Lake Ditch), was located west of SR 3 flowing north to south underneath Waits Road. UNT 3 to Bixler Lake Ditch flows generally south within the investigated area through an open channel for 159 linear feet, then generally south through an existing culvert as an encapsulated stream underneath Waits Road for ~~83~~ ***69** linear feet, and then generally south through an open channel again for 89 linear feet. UNT 3 to Bixler Lake Ditch flows through the investigated area for a total of 331 linear feet. The drainage area upstream of the investigated area is estimated to be 0.02 square miles. Although UNT 3 to Bixler Lake Ditch is not mapped on the USGS topographic quadrangle as a 'blue-line' feature, it exhibits connectivity to UNT 2 to Bixler Lake Ditch, a mapped perennial 'blue-line' feature. UNT 3 to Bixler Lake Ditch flows through UNT 2 to Bixler Lake Ditch to Bixler Lake Ditch to Henderson Lake Ditch to the Elkhart River, which is a tributary to the St. Joseph River. Based

***Survey came back with the exact length of the existing culvert, which is 69 feet.

on the ultimate connection to the St. Joseph River, a Section 10 TNW, UNT 3 to Bixler Lake Ditch is likely to fall under the jurisdiction of the USACE. The USACE will make the final determination of jurisdiction.

Within the investigated area, UNT 3 to Bixler Lake Ditch has intermittent flow and silt and muck substrate. This stream was visually observed on August 6, 2021 to be flowing without any prior rain events within 48 hours; therefore, it was determined to have intermittent flow within the investigated area. The width of the OHWM ranges from 1.0-2.4 feet with an average width of 1.75 feet within the investigated area. The maximum depth of the OHWM is 4 inches within the investigated area. This stream has no riffle/pool complexes within the investigated area.

Based on predominately silt and muck substrate, 80% opacity, and stream channel modifications from the construction of SR 3 and Waits Road, UNT3 to Bixler Lake Ditch is a poor-quality stream.

## WETLANDS

Nine (9) wetlands were identified in the investigated area. A summary of the data points and the wetlands are provided in the tables below. Details on the soil, hydrology and dominant vegetation for the wetlands are provided on the attached Routine Wetland Determination data forms. Photographs of the wetlands are attached within the WOTUS Photolog.

| Data Point Summary Table | | | | |
|---|---|---|---|---|
| **Data Point** | **Vegetation** | **Soils** | **Hydrology** | **Wetland** |
| A1 | Yes | Yes | Yes | Yes |
| A2 | No | No | No | No |
| B1 | Yes | Yes | Yes | Yes |
| B2 | No | No | No | No |
| C1 | Yes | Yes | Yes | Yes |
| C2 | No | No | No | No |
| D1 | Yes | Yes | Yes | Yes |
| D2 | No | No | No | No |
| E1 | Yes | Yes | Yes | Yes |
| E2 | No | No | No | No |
| F1 | Yes | Yes | Yes | Yes |
| F2 | No | No | No | No |
| G1 | Yes | Yes | Yes | Yes |
| G2 | No | No | No | No |
| H1 | Yes | Yes | Yes | Yes |
| H2 | No | No | No | No |
| I1 | Yes | Yes | Yes | Yes |
| I2 | No | No | No | No |

| Wetland Summary Table | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Wetland Name | WOTUS Photos | Lat/Long | Type | Quality | Likely Water of the U.S.? | Isolated Wetland Class | Exempt Isolated Wetland? | Length (LF) | Total Area within Investigated Area (acres) |
| **Wetland A** | 1-9 | 41.425391°N -85.267768°W | Palustrine Emergent (PEM1) | Poor | Yes | NA | NA | 836 | 0.530 |
| **Wetland B** | 15-20 | 41.428177°N -85.271537°W | PEM1 | Poor | Yes | NA | NA | 184 | 0.017 |
| **Wetland C** | 24-29 | 41.428459°N -85.272069°W | PEM1 | Poor | Yes | NA | NA | 41 | 0.002 |
| **Wetland D** | 32-38 | 41.428065°N -85.272393°W | PEM1 | Poor | Yes | NA | NA | 1510 | 0.343 |
| **Wetland E** | 45-49 | 41.424749°N -85.268425°W | PEM1 | Poor | Yes | NA | NA | 18 | 0.003 |
| **Wetland F** | 58-62 | 41.423319°N -85.267414°W | PEM1 | Poor | Yes | NA | NA | 565 | 0.071 |
| **Wetland G** | 65-69 | 41.423296°N -85.266512°W | PEM1 | Poor | Yes | NA | NA | 247 | 0.044 |
| **Wetland H** | 73-77 | 41.424216°N -85.267047°W | PEM1 | Poor | Yes | NA | NA | 23 | 0.002 |
| **Wetland I** | 82-87 | 41.425028°N 85.267489°W | PEM1 | Poor | Yes | NA | NA | 275 | 0.078 |
| | | | | | | | **Total Acres of Wetlands** | | **1.090** |

## WETLAND A

Wetland A is a 0.530-acre, palustrine emergent persistent (PEM1) wetland located in a depression to the northeast of the intersection of SR 3 and Waits Road. This wetland extends beyond the investigated area. This wetland drains south into an existing culvert underneath Waits Road, which drained to Wetland I to UNT 2 to Bixler Lake Ditch to Bixler Lake Ditch to Henderson Lake Ditch, which is a tributary to the St Joseph River, a Section 10 TNW. Based on the connection to a downstream TNW, this wetland is likely federally jurisdictional.

### WETLAND DATA POINT A1

The vegetation was dominated by tall scouring-rush (*Equisetum hyemale*, FACW, 20%), hybrid cattail (*Typha x glauca,* OBL, 15%), reed canary grass (*Phalaris arundinacea*, FACW, 15%), field horsetail (*Equisetum arvense*, FAC, 10%), dark-green bulrush (*Scirpus atrovirens*, OBL, 10%), lamp rush (*Juncus effusus*, OBL, 10%), and soft-stem club-rush (*Schoenoplectus tabemaemontani*, OBL, 10%) in the herbaceous layer. The vegetative community had a dominance test of >50%; therefore, the vegetation is hydrophytic. From the surface to 4 inches deep, the soil matrix had a color of 10YR 3/2 with 10% redox features with a color of 10YR 5/6. From 4 inches deep to 18 inches deep, the soil matrix had a color of 10YR 5/2 with 15% redox features with a color of 10YR 4/6. The soil at this site was loamy/clayey and met the depleted below dark surface, depleted matrix, and redox dark surface hydric soil indicators. Wetland A exhibited three primary hydrology indicators including 0.25 inches of surface water, a high water table at a depth of 9 inches, and saturation to the surface. Wetland A also exhibited two secondary wetland hydrology indicators including drainage patterns and a positive FAC-neutral test. All three wetland criteria including, vegetation, soils, and hydrology were met at this data point; therefore, data point A1 is within a wetland. Some wetland vegetation had been sprayed with herbicide. Based on hydrology and vegetation modifications from the construction of SR 3 and Waits Road and the dominance of invasive species, Wetland A is a poor-quality wetland.

### UPLAND DATA POINT A2

Upland point A2 was taken on a hillslope near Wetland A, to determine the boundary of Wetland A. The vegetation in this area failed to meet the requirements for the dominance test or the prevalence index and, therefore, is not hydrophytic. The soil profile failed to meet any hydric soil indicators. No wetland hydrology indicators were observed. None of the three wetland criteria were met; therefore, data point A2 is not within a wetland. The boundary of Wetland A was determined by the presence of hydrophytic plants and hydrology indicators. The shape of Wetland A was defined by a depression and the presence of hydrophytic vegetation.

## WETLAND B

Wetland B is a 0.017-acre, palustrine emergent persistent (PEM1) wetland located within a roadside ditch to the east of SR 3 and north of Waits Road. This wetland drains south through a drainage swale to Wetland A to Wetland I to UNT 2 to Bixler Lake Ditch to Bixler Lake Ditch to Henderson Lake Ditch, which is a tributary to the St Joseph River, a Section 10 TNW. Based on the connection to a downstream TNW, this wetland is likely federally jurisdictional.

### WETLAND DATA POINT B1

The vegetation was dominated by lesser poverty rush (*Juncus tenuis*, FAC, 30%) and hybrid cattail (*Typha x glauca*, OBL, 25%) in the herbaceous layer. The vegetative community had a dominance test of >50%; therefore, the vegetation is hydrophytic. From the surface to 8 inches deep, the soil matrix had a color of 10YR 4/1 with 25% redox features with a color of 10YR 4/6 and 5% redox features with a color of 2.5YR 2.5/1. From 8 inches deep to 18 inches deep, the soil matrix had a color of 10YR 6/1 with 20% redox features with a color of 10YR 5/6. The soil at this site was loamy/clayey and met the depleted matrix hydric soil indicator. Wetland B exhibited three primary hydrology indicators including 0.5 inches of surface water, a high water table at a depth of 11 inches, and saturation to the surface. Wetland B also exhibited three secondary wetland hydrology indicators including drainage patterns, geomorphic position, and a positive FAC-neutral test. All three wetland criteria including, vegetation, soils, and hydrology were met at this data point; therefore, data point B1 is within a wetland. Most wetland vegetation had been sprayed with herbicide. Based on hydrology and vegetation modifications from the construction of SR 3, mown grass buffer, low species diversity, and the dominance of invasive species, Wetland B is a poor-quality wetland.

### UPLAND DATA POINT B2

Upland point B2 was taken on a hillslope near Wetland B, to determine the boundary of Wetland B. The vegetation in this area failed to meet the requirements for the dominance test or the prevalence index and, therefore, is not hydrophytic. The soil profile failed to meet any hydric soil indicators. No wetland hydrology indicators were observed. None of the three wetland criteria were met; therefore, data point B2 is not within a wetland. The boundary of Wetland B was determined by geomorphic position, the presence of hydrophytic plants and hydrology indicators. The shape of Wetland B was defined by a depression and the presence of hydrophytic vegetation.

## WETLAND C

Wetland C is a 0.002-acre, palustrine emergent persistent (PEM1) wetland located within a roadside ditch to the east of SR 3 and north of Waits Road. This wetland drains south through a drainage swale into Wetland B which drains through a drainage swale to Wetland A to Wetland I UNT 2 to Bixler Lake Ditch to Bixler Lake Ditch to the Henderson Lake Ditch, which is a tributary to the St Joseph River, a Section 10 TNW. Based on the connection to a downstream TNW, this wetland is likely federally jurisdictional.

### WETLAND DATA POINT C1

The vegetation was dominated by dark-green bulrush (*Scirpus atrovirens*, OBL, 30%) and Torrey's rush (*Juncus torreyi*, FACW, 20%) in the herbaceous layer. The vegetative community had a dominance test of >50%; therefore, the vegetation is hydrophytic. From the surface to 4 inches deep, the soil matrix had a color of 10YR 4/3. From 4 inches deep to 18 inches deep, the soil matrix had a color of 10YR 3/2 with 10% redox features with a color of 10YR 5/6. The soil at

this site was loamy/clayey and met the redox dark surface hydric soil indicator. Wetland C exhibited one primary hydrology indicator of sparsely vegetated concave surface. Wetland C also exhibited four secondary wetland hydrology indicators including, drainage patterns, surface soil cracks, geomorphic position, and a positive FAC-neutral test. All three wetland criteria including, vegetation, soils, and hydrology were met at this data point; therefore, data point C1 is within a wetland. Based on hydrology modifications from the construction of SR 3, mown grass buffer, and low species diversity, Wetland C is a poor-quality wetland.

### UPLAND DATA POINT C2

Upland point C2 was taken on a hillslope near Wetland C, to determine the boundary of Wetland C. The vegetation in this area failed to meet the requirements for the dominance test or the prevalence index and, therefore, is not hydrophytic. The soil profile failed to meet any hydric soil indicators. No wetland hydrology indicators were observed. None of the three wetland criteria were met; therefore, data point C2 is not within a wetland. The boundary of Wetland C was determined by geomorphic position, the presence of hydrophytic plants and hydrology indicators. The shape of Wetland C was defined by a depression and the presence of hydrophytic vegetation.

## WETLAND D

Wetland D is a 0.343-acre, palustrine emergent persistent (PEM1) wetland located within a roadside ditch to the west of SR 3 and north of Waits Road, abutting UNT 3 to Bixler Lake Ditch. This wetland drains south to UNT 3 to Bixler Lake Ditch to UNT 2 to Bixler Lake Ditch to Bixler Lake Ditch to Henderson Lake Ditch, which is a tributary to the St Joseph River, a Section 10 TNW. Based on the connection to a downstream TNW, this wetland is likely federally jurisdictional.

### WETLAND DATA POINT D1

The vegetation was dominated by lesser poverty rush (*Juncus tenuis*, FAC, 60%) and common fox sedge (*Carex vulpinoidea*, FACW, 25%) in the herbaceous layer. The vegetative community had a dominance test of >50%; therefore, the vegetation is hydrophytic. From the surface to 3 inches deep, the soil matrix had a color of 10YR 4/1 with 15% redox features with a color of 10YR 5/8. From 3 inches deep to 18 inches deep, the soil matrix had a color of 10YR 4/1 with 10% redox features with a color of 10YR 5/8. The soil at this site was loamy/clayey and met the hydric soil indicators of depleted matrix and hydrogen sulfide. Wetland D exhibited seven primary hydrology indicators including 2 inches of surface water, saturation to the surface, agal crust, sparsely vegetation concave surface, aquatic fauna, hydrogen sulfide odor, and thin muck surface. Wetland D also exhibited four secondary wetland hydrology indicators including drainage patterns, crayfish burrows, geomorphic position, and a positive FAC-neutral test. All three wetland criteria including, vegetation, soils, and hydrology were met at this data point; therefore, data point D1 is within a wetland. Based on hydrology modifications from the construction of SR 3, mown grass buffer, and low species diversity, Wetland D is a poor-quality wetland.

### UPLAND DATA POINT D2

Upland point D2 was taken on a hillslope near Wetland D, to determine the boundary of Wetland D. The vegetation in this area failed to meet the requirements for the dominance test or the prevalence index and, therefore, is not hydrophytic. The soil profile failed to meet any hydric soil indicators. No wetland hydrology indicators were observed. None of the three wetland criteria were met; therefore, data point D2 is not within a wetland. The boundary of Wetland D was determined by geomorphic position, the presence of hydrophytic plants and hydrology indicators. The shape of Wetland D was defined by a depression and the presence of hydrophytic vegetation.

## WETLAND E

Wetland E is a 0.003-acre, palustrine emergent persistent (PEM1) wetland located within a roadside ditch to the southwest of the intersection of SR 3 and Waits Rd, abutting UNT 3 to Bixler Lake Ditch. This wetland drains south to UNT 3 to Bixler Lake Ditch to UNT 2 to Bixler Lake Ditch Bixler Lake Ditch to Henderson Lake Ditch, which is a tributary to the St Joseph River, a Section 10 TNW. Based on the connection to a downstream TNW, this wetland is likely federally jurisdictional.

### WETLAND DATA POINT E1

The vegetation was dominated by spotted touch-me-not (*Impatiens capensis*, FACW, 30%), reed canary grass (*Phalaris arundinacea*, FACW, 15%), and rice cut grass (*Leersia oryzoides*, OBL, 15%) in the herbaceous layer and dominated by gray dogwood (*Cornus racemosa*, FAC, 10%) in the sapling/shrub layer. The vegetative community had a dominance test of >50%; therefore, the vegetation is hydrophytic. From the surface to 18 inches deep, the soil matrix had a color of 10YR 3/1 with 10% redox features with a color of 10YR 5/8 and 10% redox features with a gley color of N 5/. The soil at this site was loamy/clayey and met the hydric soil indicators of redox dark surface and hydrogen sulfide. Wetland E exhibited four primary hydrology indicators including 0.5 inches of surface water, a high water table at a depth of 18 inches, saturation to the surface, and hydrogen sulfide odor. Wetland E also exhibited three secondary wetland hydrology indicators including drainage patterns, geomorphic position, and a positive FAC-neutral test. All three wetland criteria including, vegetation, soils, and hydrology were met at this data point; therefore, data point E1 is within a wetland. Based on hydrology modifications from the construction of SR 3 and Waits Road, low species diversity, and the dominance of invasive species, Wetland E is a poor-quality wetland.

Data point E1 is identified on the NWI map as a riverine (R4SBC) wetland. Wetland E abuts UNT 3 to Bixler Lake Ditch, but is not contained within the channel. While data point E1 is located within a wetland, Wetland E is a Freshwater Emergent Wetland (PEM1A) wetland rather than a riverine wetland.

### UPLAND DATA POINT E2

Upland point E2 was taken on a hillslope near Wetland E, to determine the boundary of Wetland E. The vegetation in this area failed to meet the requirements for the dominance test or the prevalence index and, therefore, is not hydrophytic. The soil profile failed to meet any hydric soil

indicators. No wetland hydrology indicators were observed. None of the three wetland criteria were met; therefore, data point E2 is not within a wetland. The boundary of Wetland E was determined by geomorphic position, the presence of hydrophytic plants and hydrology indicators. The shape of Wetland E was defined by a depression and the presence of hydrophytic vegetation.

## WETLAND F

Wetland F is a 0.071-acre, palustrine emergent persistent (PEM1) wetland located within a roadside ditch to the west of SR 3 and south of Waits Road. This wetland drains north through a drainage swale to UNT 2 to Bixler Lake Ditch to Bixler Lake Ditch to Henderson Lake Ditch, which is a tributary to the St Joseph River, a Section 10 TNW. Based on the connection to a downstream TNW, this wetland is likely federally jurisdictional.

### WETLAND DATA POINT F1

The vegetation was dominated by hybrid cattail (*Typha x glauca*, OBL, 30%), dark-green bulrush (*Scirpus atrovirens*, OBL, 30%), chufa (*Cyperus esculentus*, FACW, 20%) and rufous bulrush (*Scirpus pendulus*, OBL, 20%) in the herbaceous layer. The vegetative community had a dominance test of >50%; therefore, the vegetation is hydrophytic. From the surface to 8 inches deep, the soil matrix had a color of 10YR 3/1 with 10% redox features with a color of 10YR 5/6. From 8 inches deep to 18 inches deep, the soil matrix had a color of 10YR 3/2 at 60% and color of 10YR 6/3 at 30% with 10% redox features with a color of 10YR 5/6. The soil at this site was loamy/clayey and met the redox dark surface hydric soil indicator. Wetland F exhibited one primary hydrology indicator of saturation to the surface. Wetland F also exhibited five secondary wetland hydrology indicators including drainage patterns, surface soil cracks, crayfish burrows, geomorphic position, and a positive FAC-neutral test. All three wetland criteria including, vegetation, soils, and hydrology were met at this data point; therefore, data point F1 is within a wetland. Based on hydrology modifications from the construction of SR 3, mown grass buffer, low species diversity, and the dominance of invasive species, Wetland F is a poor-quality wetland.

### UPLAND DATA POINT F2

Upland point F2 was taken on a hillslope near Wetland F, to determine the boundary of Wetland F. The vegetation in this area failed to meet the requirements for the dominance test or the prevalence index and, therefore, is not hydrophytic. The soil profile failed to meet any hydric soil indicators. No wetland hydrology indicators were observed. None of the three wetland criteria were met; therefore, data point F2 is not within a wetland. The boundary of Wetland F was determined by geomorphic position, the presence of hydrophytic plants and hydrology indicators. The shape of Wetland F was defined by a depression and the presence of hydrophytic vegetation.

## WETLAND G

Wetland G is a 0.044-acre, palustrine emergent persistent (PEM1) wetland located within a roadside ditch to the east of SR 3 and south of Waits Road. This wetland drains north through a

drainage swale to Wetland H, through another drainage swale to Wetland I, to UNT 2 to Bixler Lake Ditch to Bixler Lake Ditch to Henderson Lake Ditch, which is a tributary to the St Joseph River, a Section 10 TNW. Based on the connection to a downstream TNW, this wetland is likely federally jurisdictional.

### WETLAND DATA POINT G1

The vegetation was dominated by hybrid cattail (*Typha x glauca*, OBL, 45%) and chufa (*Cyperus esculentus*, FACW, 25%) in the herbaceous layer. The vegetative community had a dominance test of >50%; therefore, the vegetation is hydrophytic. From the surface to 18 inches deep, the soil matrix had a color of 10YR 3/2 with 10% redox features with a color of 10YR 5/8. The soil at this site was loamy/clayey and met the redox dark surface hydric soil indicator. Wetland G exhibited no primary hydrology indicators. Wetland G exhibited five secondary wetland hydrology indicators including surface soil cracks, crayfish burrows, drainage patterns, geomorphic position, and a positive FAC-neutral test. All three wetland criteria including, vegetation, soils, and hydrology were met at this data point; therefore, data point G1 is within a wetland. Based on hydrology modifications from the construction of SR 3, mown grass buffer, low species diversity, and the dominance of invasive species, Wetland G is a poor-quality wetland.

### UPLAND DATA POINT G2

Upland point G2 was taken on a hillslope near Wetland G, to determine the boundary of Wetland G. The vegetation in this area failed to meet the requirements for the dominance test or the prevalence index and, therefore, is not hydrophytic. The soil profile failed to meet any hydric soil indicators. No wetland hydrology indicators were observed. None of the three wetland criteria were met; therefore, data point G2 is not within a wetland. The boundary of Wetland G was determined by geomorphic position, the presence of hydrophytic plants and hydrology indicators. The shape of Wetland G was defined by a depression and the presence of hydrophytic vegetation.

## WETLAND H

Wetland H is a 0.002-acre, palustrine emergent persistent (PEM1) wetland located within a roadside ditch to the east of SR 3 and south of Waits Road. This wetland drains north through a drainage swale to Wetland I to UNT 2 to Bixler Lake Ditch to Bixler Lake Ditch to Henderson Lake Ditch, which is a tributary to the St Joseph River, a Section 10 TNW. Based on the connection to a downstream TNW, this wetland is likely federally jurisdictional.

### WETLAND DATA POINT H1

The vegetation was dominated by cut-leaf water-horehound (*Lycopus americanus*, OBL, 30%), Torrey's rush (*Juncus torreyi*, FACW, 30%), and tall fescue (*Festuca arundinacea*, FACU, 20%) in the herbaceous layer. . The vegetative community had a dominance test of >50%; therefore, the vegetation is hydrophytic. From the surface to 4 inches deep, the soil matrix had a color of 10YR 3/1. From 4 inches deep to 18 inches deep, the soil matrix had a color of 10YR 6/2 with 20% redox features with a color of 10YR 5/6. The soil at this site was mostly sandy and met the

sandy redox and depleted below dark surface hydric soil indicators. Wetland H exhibited no primary hydrology indicators. Wetland H exhibited two secondary wetland hydrology indicators of drainage patterns and geomorphic position. All three wetland criteria including, vegetation, soils, and hydrology were met at this data point; therefore, data point H1 is within a wetland. Based on hydrology modifications from the construction of SR 3, mown grass buffer, and low species diversity, Wetland H is a poor-quality wetland.

### UPLAND DATA POINT H2

Upland point H2 was taken on a hillslope near Wetland H, to determine the boundary of Wetland H. The vegetation in this area failed to meet the requirements for the dominance test or the prevalence index and, therefore, is not hydrophytic. The soil profile failed to meet any hydric soil indicators. No wetland hydrology indicators were observed. None of the three wetland criteria were met; therefore, data point H2 is not within a wetland. The boundary of Wetland H was determined by geomorphic position, the presence of hydrophytic plants and hydrology indicators. The shape of Wetland H was defined by a depression and the presence of hydrophytic vegetation.

## WETLAND I

Wetland I is a 0.078-acre, palustrine emergent persistent (PEM1) wetland located within a roadside ditch abutting UNT 2 to Bixler Lake Ditch to the southeast of the intersection of SR 3 and Waits Road. This wetland drains to UNT 2 to Bixler Lake Ditch to Bixler Lake Ditch to Henderson Lake Ditch, which is a tributary to the St Joseph River, a Section 10 TNW. Based on the connection to a downstream TNW, this wetland is likely federally jurisdictional.

### WETLAND DATA POINT I1

The vegetation was dominated by reed canary grass (*Phalaris arundinacea*, FACW, 45%) and hybrid cattail (*Typha x glauca*, OBL, 30%) in the herbaceous layer. The vegetative community had a dominance test of >50%; therefore, the vegetation is hydrophytic. From the surface to 18 inches deep, the soil matrix had a color of 10YR 3/2 with 15% redox features with a color of 7.5YR 4/6. The soil at this site was loamy/clayey and met the redox dark surface hydric soil indicator. Wetland I exhibited two primary hydrology indicators including 3 inches of surface water and saturation to 11 inches. Wetland I also exhibited four secondary wetland hydrology indicators including crayfish burrows, drainage patterns, geomorphic position, and a positive FAC-neutral test. All three wetland criteria including, vegetation, soils, and hydrology were met at this data point; therefore, data point I1 is within a wetland. Based on hydrology modifications from the construction of SR 3 and Waits Road, mown grass buffer, low species diversity, and the dominance of invasive species, Wetland I is a poor-quality wetland.

Data point I1 is identified on the NWI map as a riverine (R4SBC) wetland. Wetland I abuts UNT 2 to Bixler Lake Ditch, but is not contained within the channel. While data point I1 is located within a wetland, Wetland I is a Freshwater Emergent Wetland (PEM1A) wetland rather than a riverine wetland.

### UPLAND DATA POINT I2

Upland point I2 was taken on a hillslope near Wetland I, to determine the boundary of Wetland I. The vegetation in this area failed to meet the requirements for the dominance test or the prevalence index and, therefore, is not hydrophytic. The soil profile failed to meet any hydric soil indicators. No wetland hydrology indicators were observed. None of the three wetland criteria were met; therefore, data point I2 is not within a wetland. The boundary of Wetland I was determined by geomorphic position, the presence of hydrophytic plants and hydrology indicators. The shape of Wetland I was defined by a depression and the presence of hydrophytic vegetation.

## OPEN WATER

No open water areas were observed within the investigated area.

## OTHER FEATURES

### ROADSIDE DITCHES

No roadside ditches were observed within the investigated area.

### DRAINAGE FEATURES WITHOUT OHWM

Six (6) drainage swales without an ordinary high water mark (OHWM) were located throughout the investigated area. These drainage swales were mostly vegetated. Minimal surface water, if any, was observed within the drainage swales. A grass-lined and concrete-lined drainage swale located along the east side of SR 3, north of Waits Road drains generally southeast for 462 linear feet within a grass-lined drainage swale and then 133 linear feet within a concrete-lined drainage swale within the investigated area, connecting Wetland B to Wetland C. A grass-lined drainage swale located along the east side of SR 3, north of Waits Road drains generally southeast for 21 linear feet within the investigated area, connecting Wetland C to Wetland B. A grass-lined and concrete-lined drainage swale located along the west side of SR 3, south of Waits Road drains generally north for 35 linear feet within a grass-lined drainage swale, 49 linear feet within a concrete-line drainage swale, and then 36 linear feet within a grass-lined drainage swale within the investigated area, connecting Wetland F to UNT 2 to Bixler Lake Ditch. A grass-lined drainage swale located along the east side of SR 3, south of Waits Road drains generally north for 122 linear feet within a grass-lined drainage swale within the investigated area, connecting Wetland G to Wetland H. A grass-lined drainage swale located along the east side of SR 3, south of Waits Road drains generally north for 117 linear feet within a grass-lined drainage swale within the investigated area, connecting Wetland H to Wetland I. A sediment-filled, concrete-lined drainage swale located along the south side of Waits Road, east of SR 3 drains generally west for 86 linear feet within a sediment-filled, concrete-lined drainage swale within the investigated area, draining into UNT 1 to Bixler Lake Ditch.

The drainage swales were man-made and created from the construction of SR 3 and Waits Road. These drainage swales are expected to contain water only during heavy rain events. All of the drainage swales ultimately drain into the St. Joseph River, a Section 10 TNW. Although

the drainage swales connect wetlands and drain into streams and could impact the chemical, physical and/or biological integrity of the TNW, they do not have an OHWM or bed and bank and do not transport relatively permanent flow; therefore, the drainage swales are likely not jurisdictional.

## CONCLUSIONS

Three (3) streams, nine (9) wetlands, and six (6) non-jurisdictional drainage swales were identified within the investigated area. All of the wetlands, a total of nine (9) wetlands (1.09 acres) are likely Waters of the U.S.

These waterways are likely Waters of the U.S. Every effort should be taken to avoid and minimize impacts to the waterway and wetlands. If impacts are necessary, then mitigation may be required. The INDOT Environmental Services Division should be contacted immediately if impacts will occur. The final determination of jurisdictional waters is ultimately made by the U.S. Army Corps of Engineers. This report is our best judgment based on the guidelines set forth by the Corps.

## ACKNOWLEDGEMENT

This waters determination has been prepared based on the best available information, interpreted in the light of the investigator's training, experience and professional judgement in conformance with the *1987 Corps of Engineers Wetlands Delineation Manual*, the appropriate regional supplement, the USACE *Jurisdictional Determination Form Instructional Guidebook*, and other appropriate agency guidelines.

Claudia McAllister-Peterson
Ecological Engineer
Crawford, Murphy & Tilly, Inc.

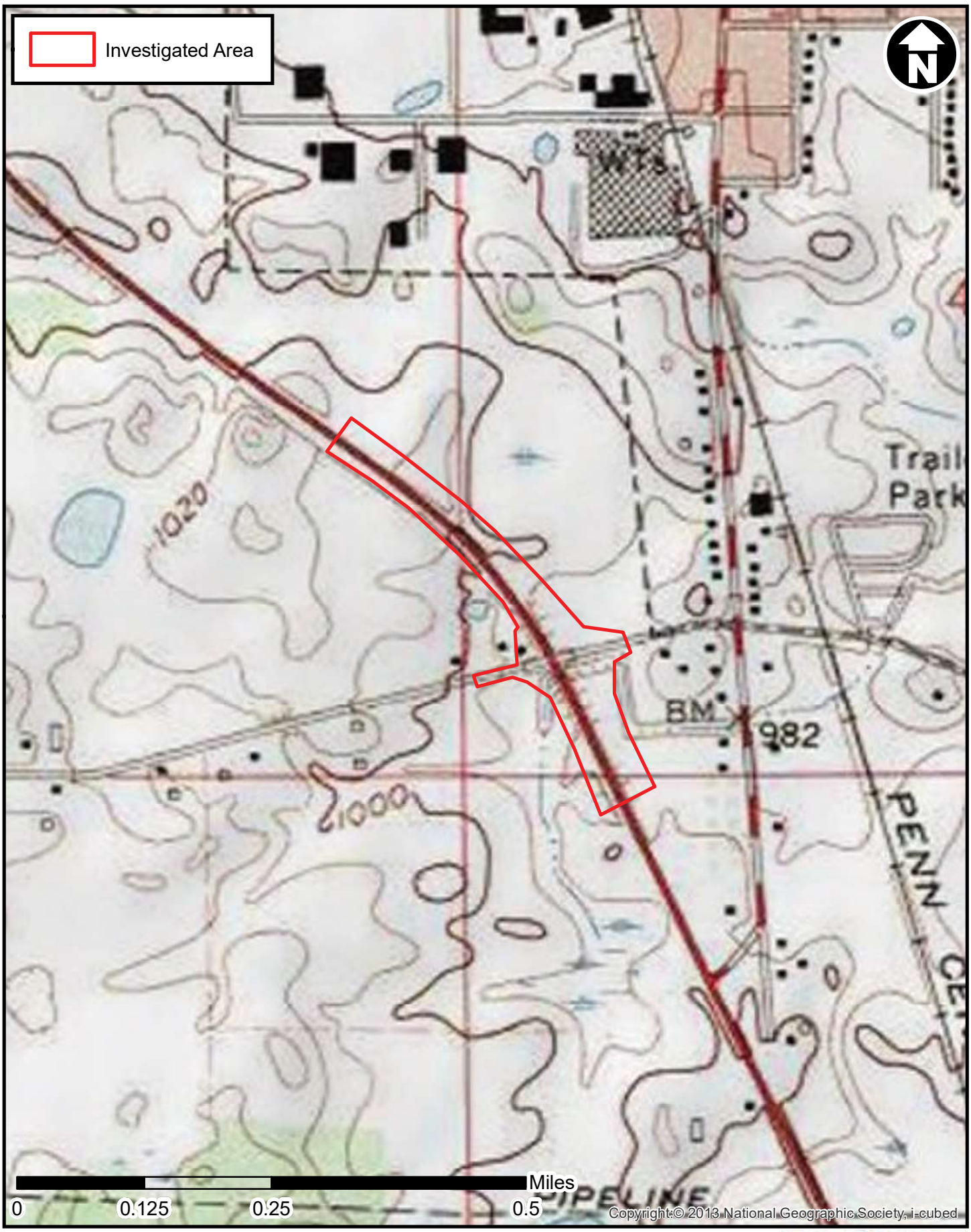
Date: January 10, 2022

Marion Wells - Reviewer
Environmental Scientist
Crawford, Murphy & Tilly, Inc.

Date: January 10, 2022

## SUPPORTING DOCUMENTATION

- Maps
- Photos
- Wetland Delineation Data Sheets

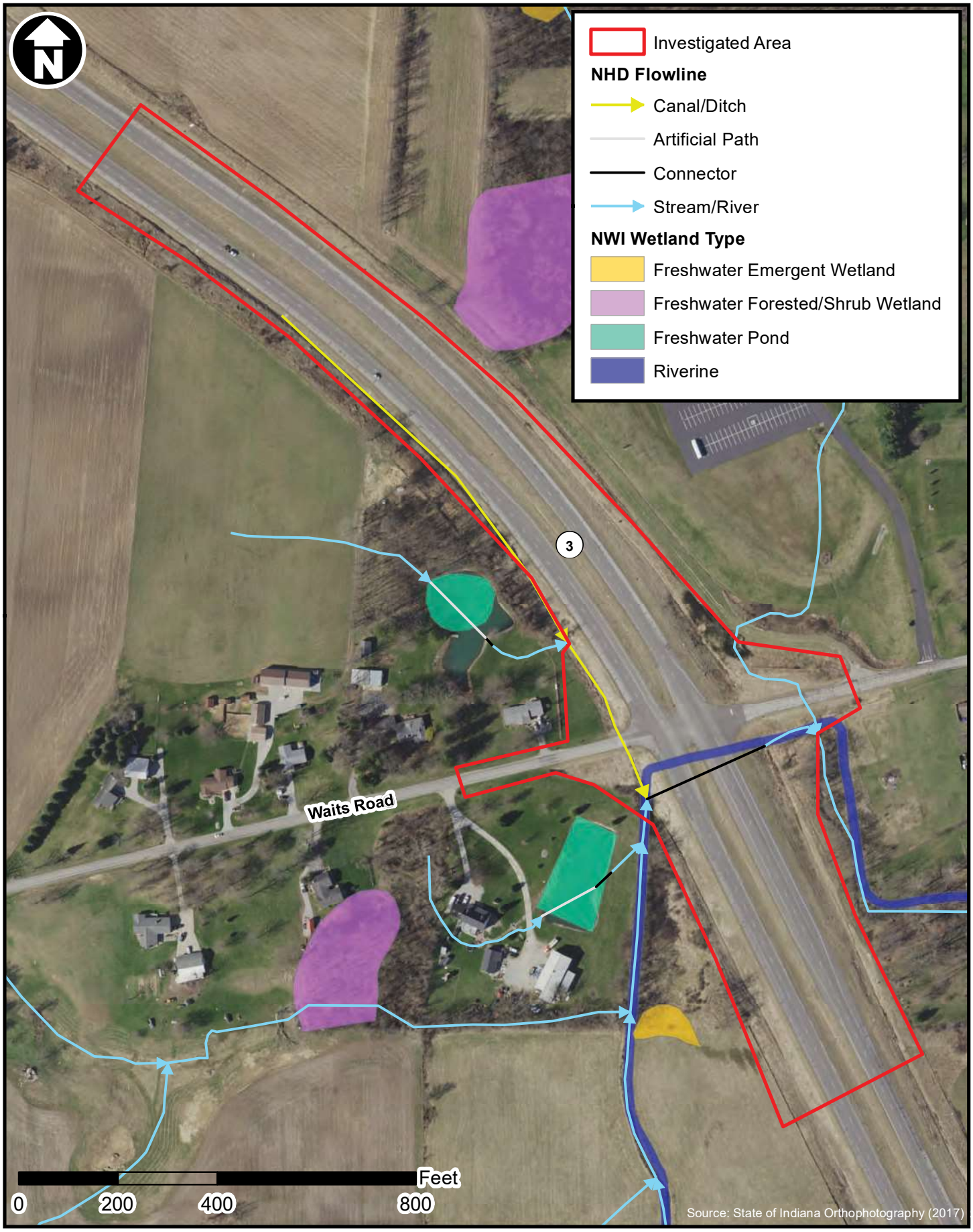



SR 3 and Waits Road Intersection Improvement (Des No 1900138)

## USGS Topographic Map - Kendallville, IN Quadrangle

CMT Crawford, Murphy & Tilly

Author: Claudia McAllister-Peterson; 6/21/2021

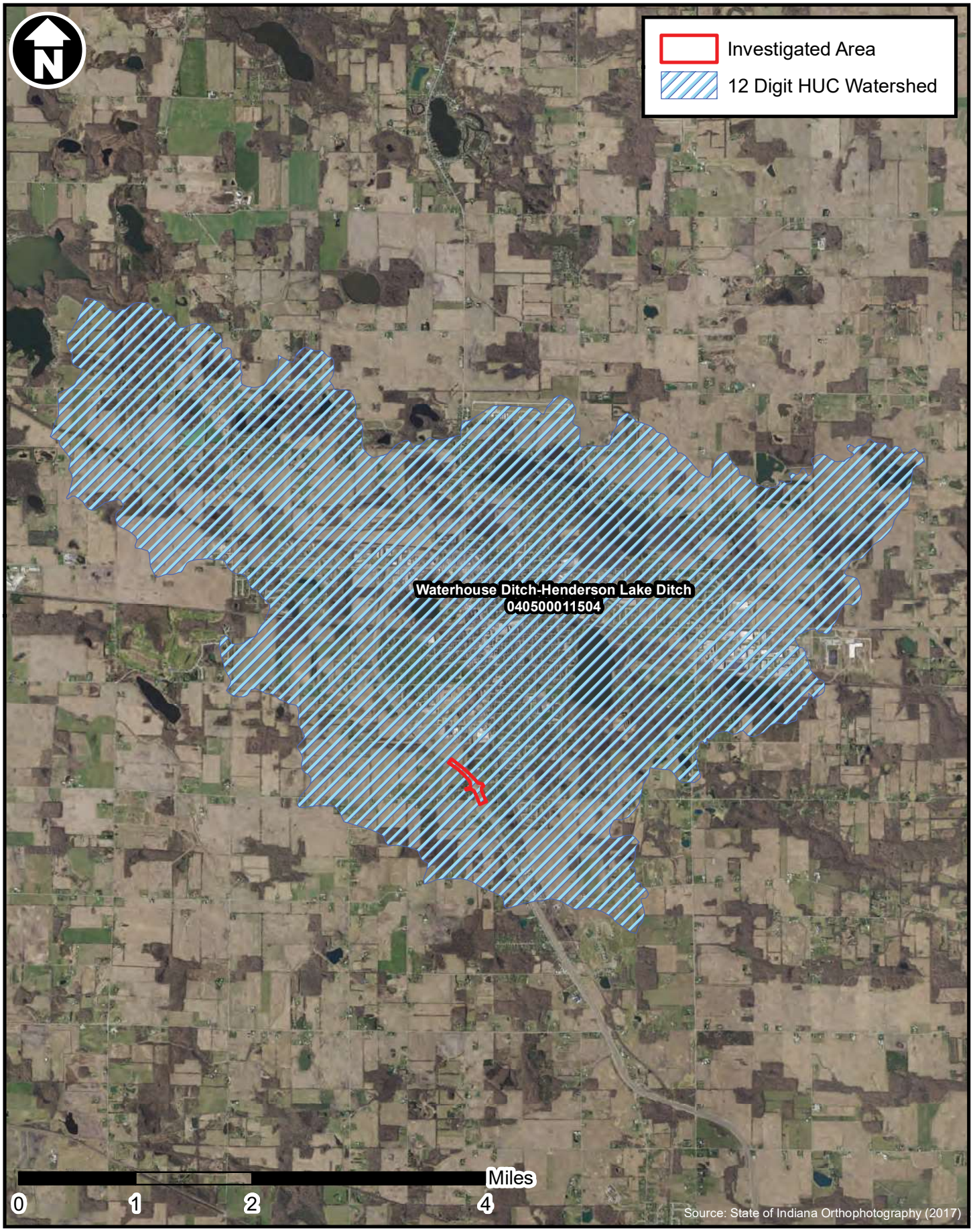



SR 3 and Waits Road Intersection Improvement (Des No 1900138) - Noble Co., IN

# National Wetland Inventory (NWI) and National Hydrography Dataset (NHD) Map

CMT Crawford, Murphy & Tilly

Author: Claudia McAllister-Peterson, 11/30/2021




SR 3 and Waits Road Intersection Improvement (Des No 1900138) - Noble Co., IN

# 12 Digit Hydrologic Unit Code (HUC) Watershed Map

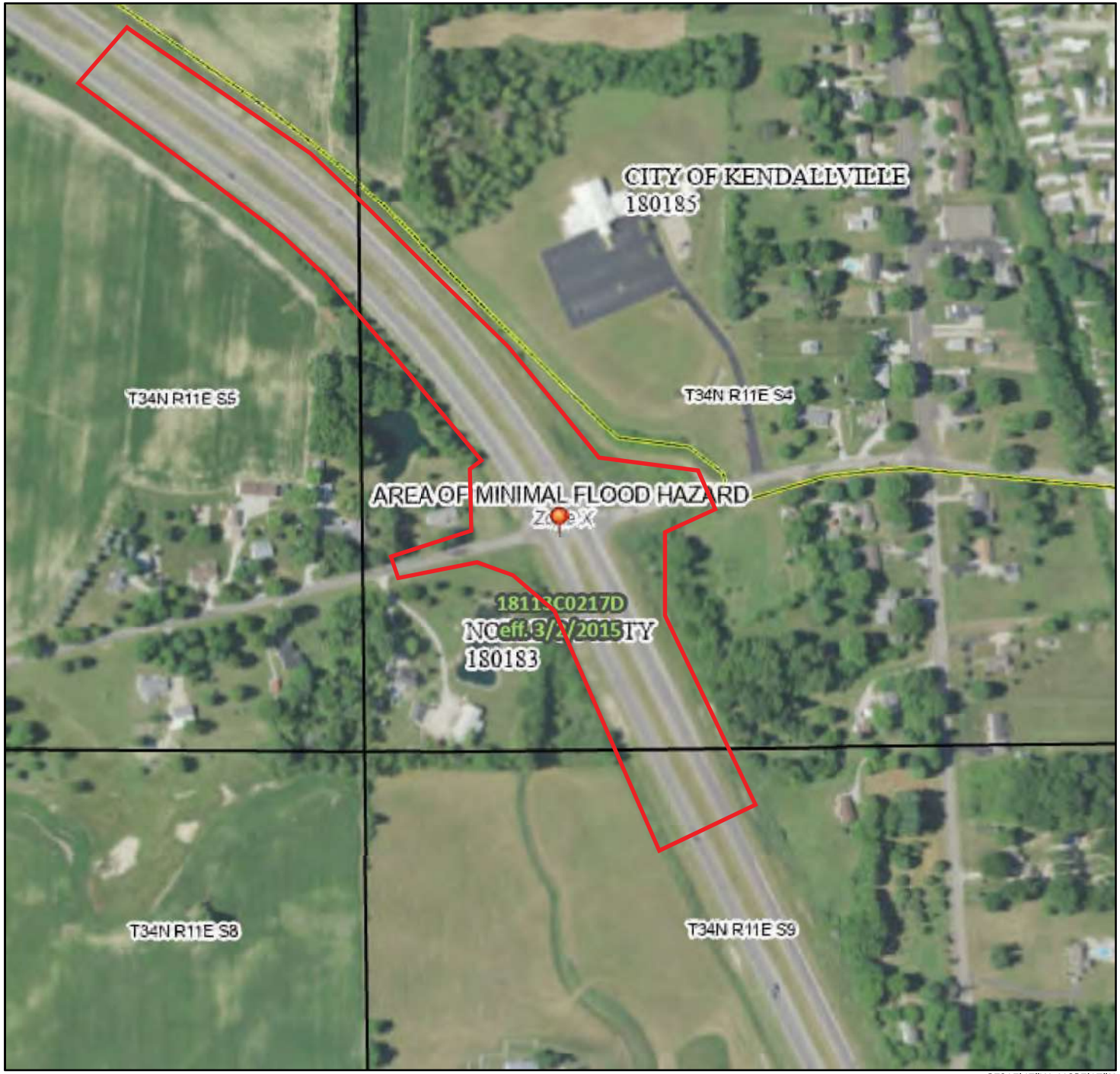
Author: Claudia McAllister-Peterson, 11/30/2021



CMT Crawford, Murphy & Tilly

# National Flood Hazard Layer FIRMette

85°16'24"W 41°25'44"N SR 3 and Waits Road Intersection Improvement (Des No. 1900138) - Noble Co., IN




0 250 500 1,000 1,500 2,000 Feet 1:6,000 F-22

85°15'47"W 41°25'17"N

*Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020*

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

**SPECIAL FLOOD HAZARD AREAS**
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

**OTHER AREAS OF FLOOD HAZARD**
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

**OTHER AREAS**
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

**GENERAL STRUCTURES**
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

**OTHER FEATURES**
- 20,2 Cross Sections with 1% Annual Chance
- 17,5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

**MAP PANELS**
- Digital Data Available
- No Digital Data Available
- Unmapped

N

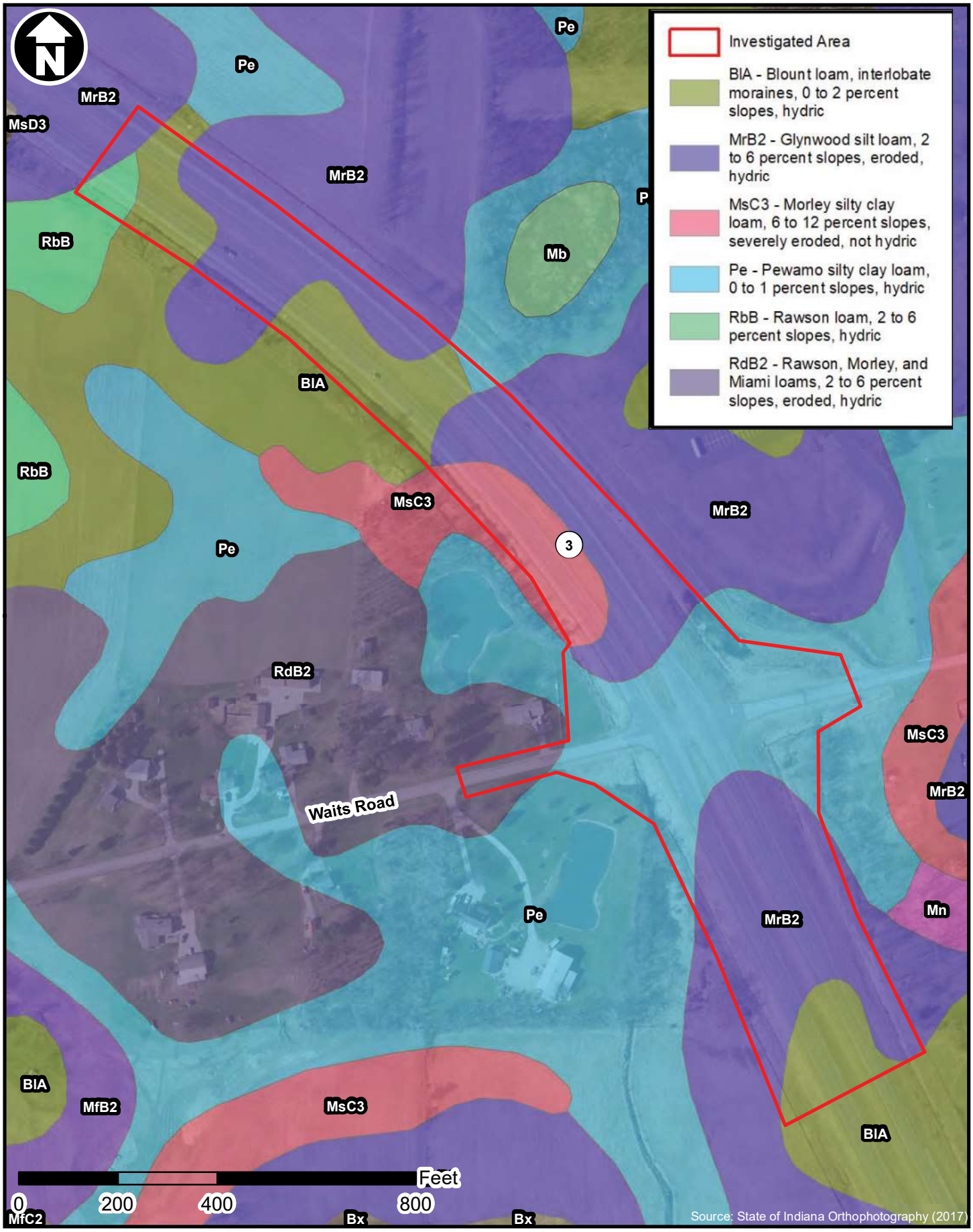
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

Investigated Area

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 11/30/2021 at 3:21 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



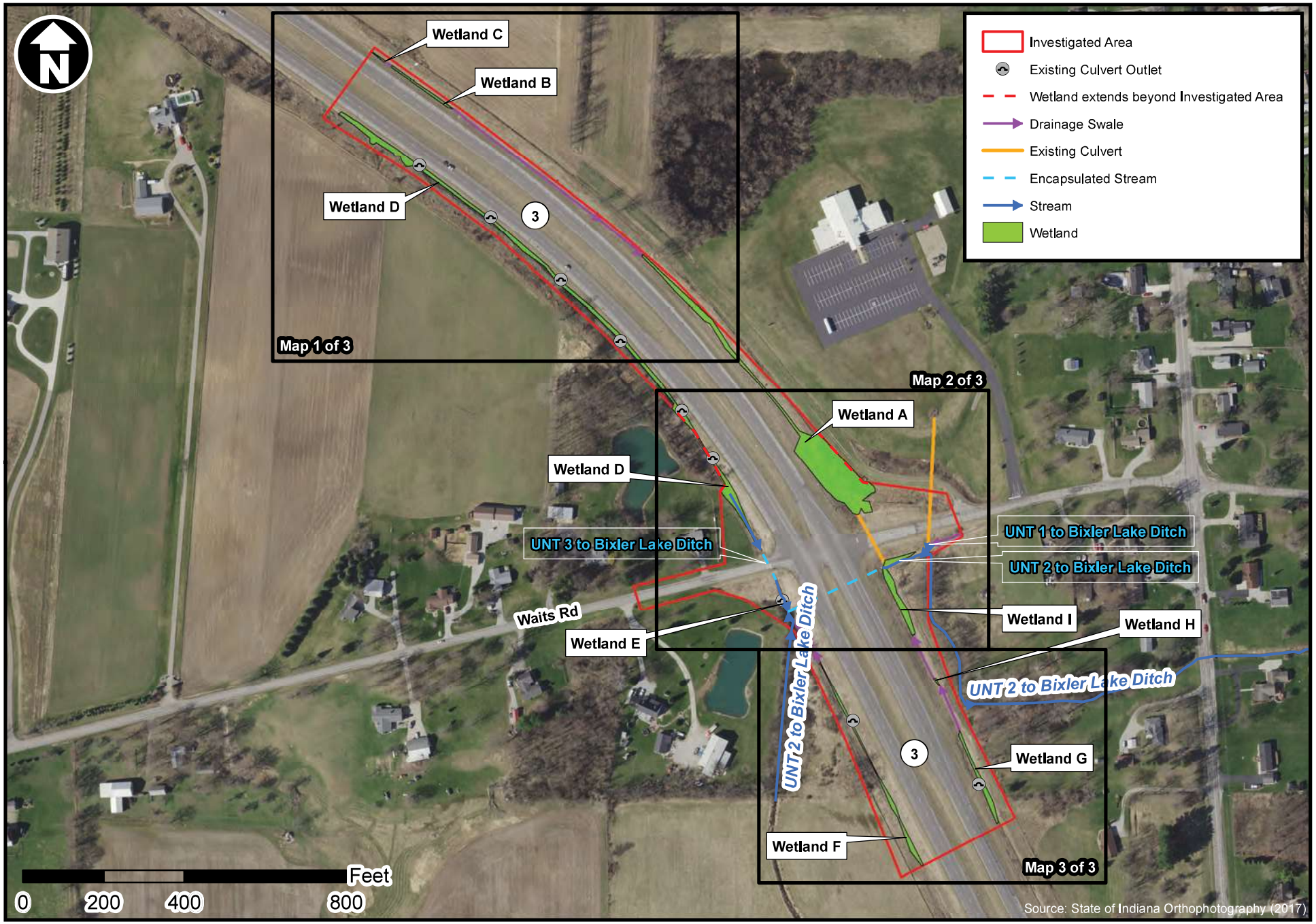

SR 3 and Waits Road Intersection Improvement (Des No 1900138) - Noble Co., IN

# NRCS SSURGO Soil Survey Map

Author: Claudia McAllister-Peterson, 11/30/2021



CMT Crawford, Murphy & Tilly



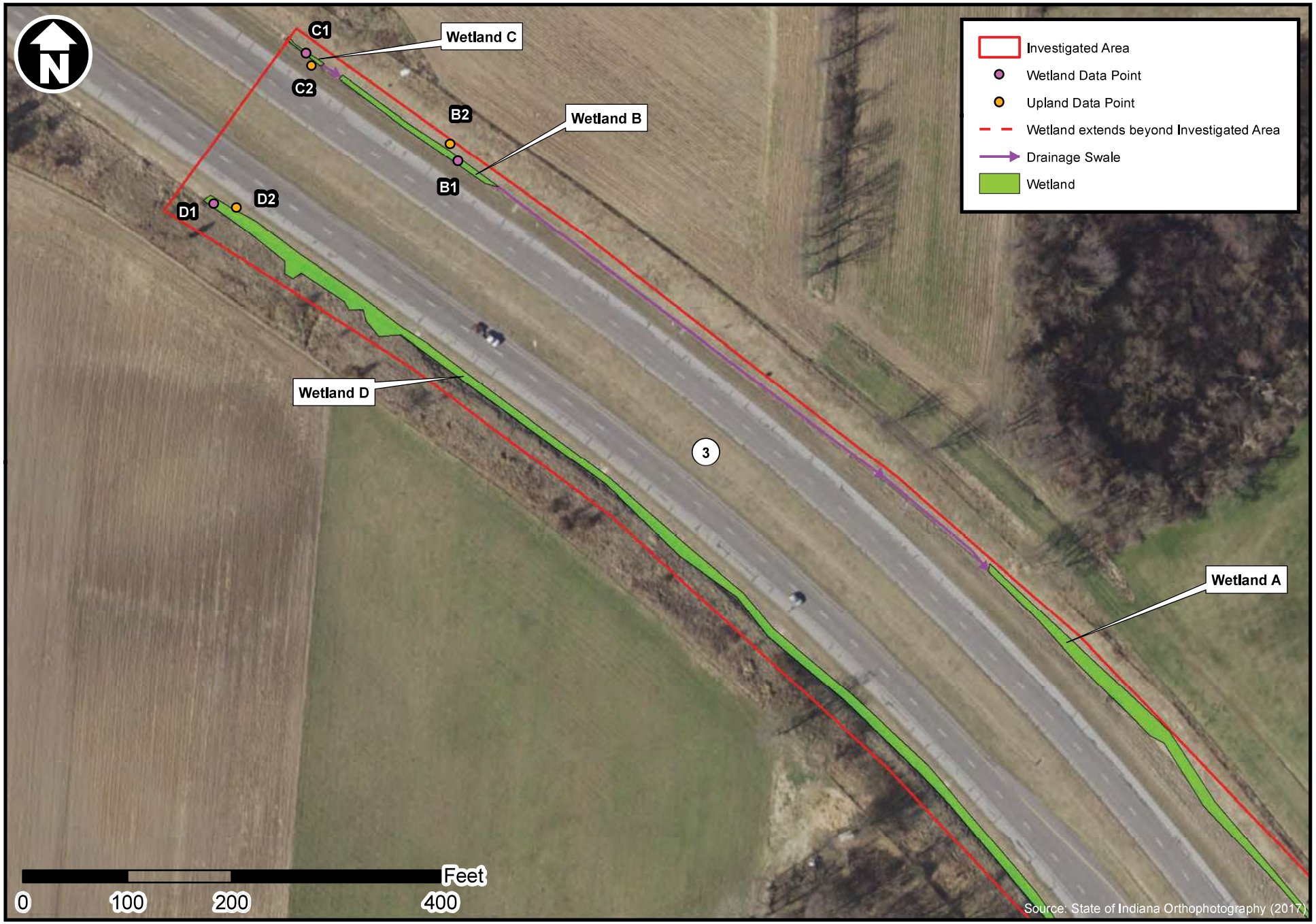

SR 3 and Waits Road Intersection Improvement (Des No 1900138) - Noble Co., IN

# Waters of the United States (WOTUS) Resource Map Key

Author: Ellen Hogrebe; 12/2/2021



CMT
Crawford, Murphy & Tilly

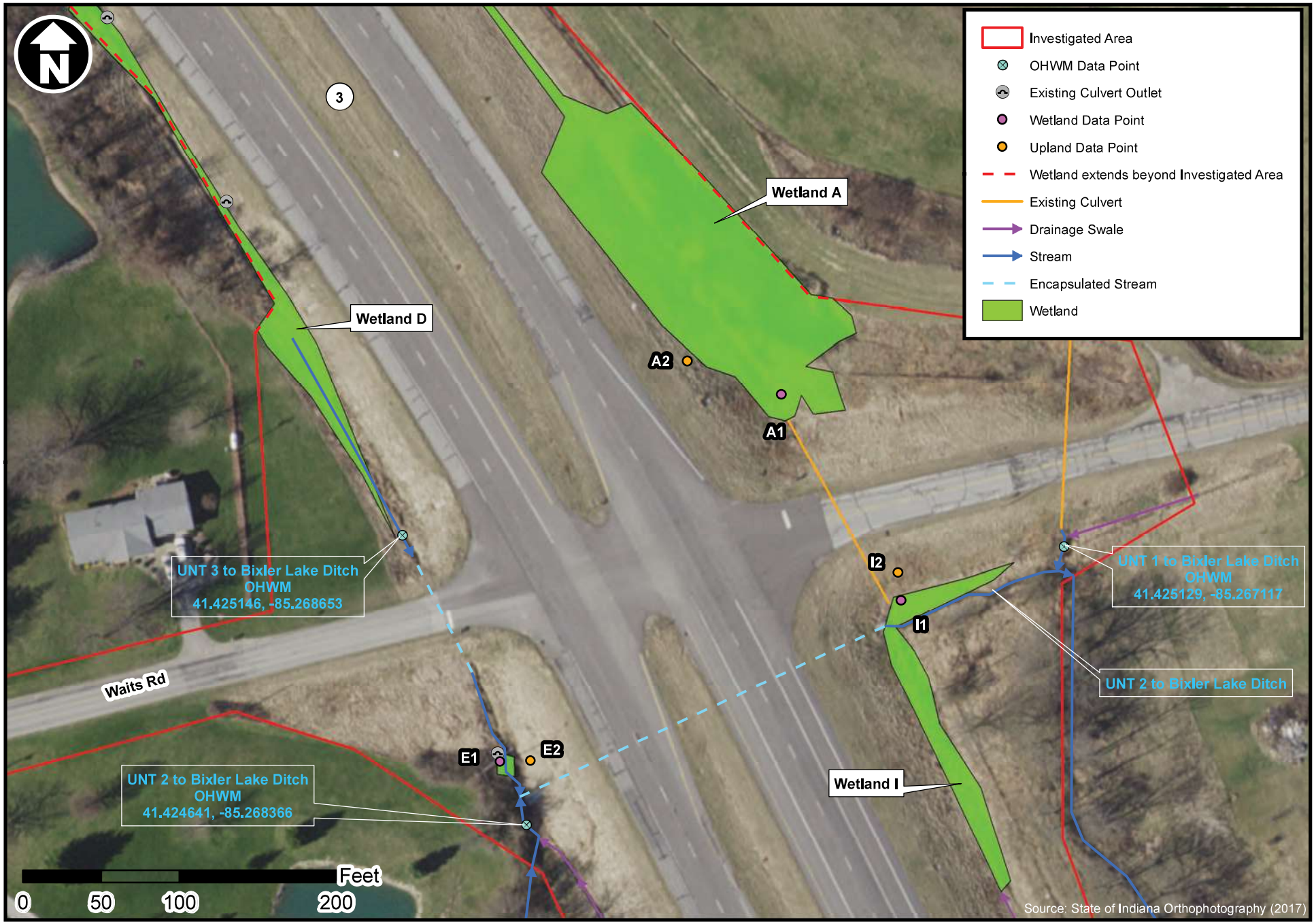



SR 3 and Waits Road Intersection Improvement (Des No 1900138) - Noble Co., IN

# Waters of the United States (WOTUS) Resource Map 1 of 3

Crawford, Murphy & Tilly

Author: Ellen Hogrebe; 12/2/2021

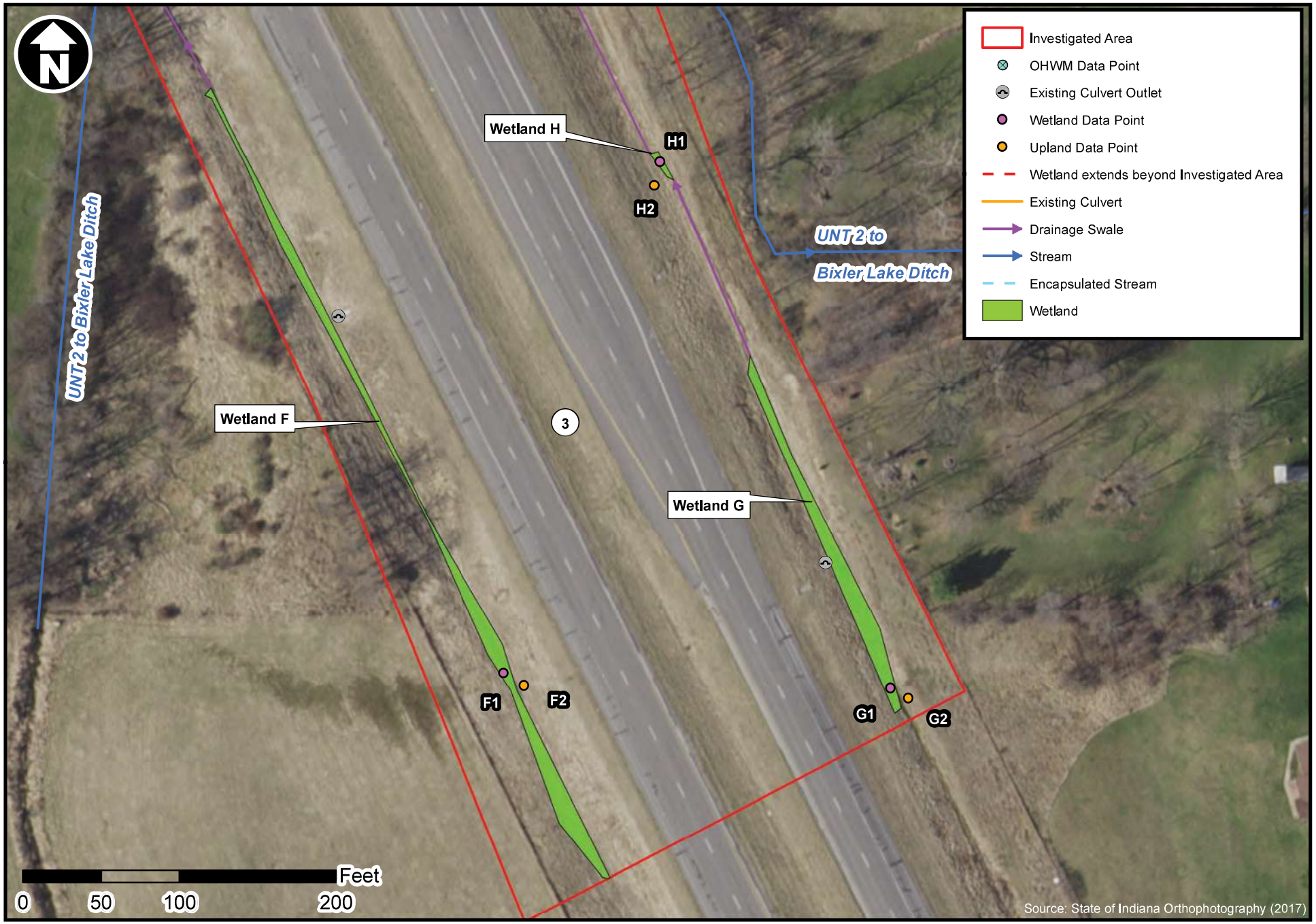



SR 3 and Waits Road Intersection Improvement (Des No 1900138) - Noble Co., IN

# Waters of the United States (WOTUS) Resource Map 2 of 3

Crawford, Murphy & Tilly

Author: Ellen Hogrebe; 12/2/2021

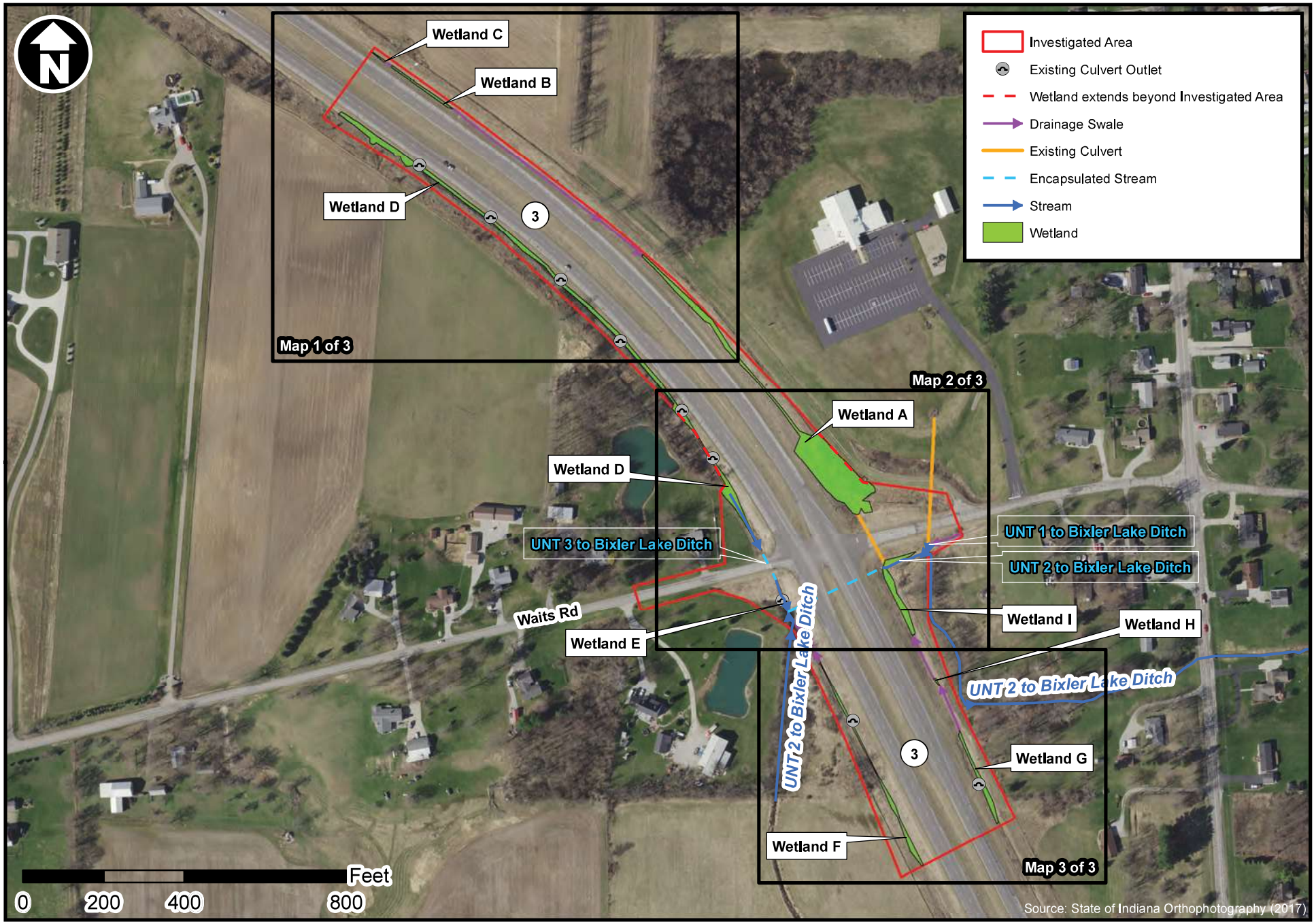



SR 3 and Waits Road Intersection Improvement (Des No 1900138) - Noble Co., IN

# Waters of the United States (WOTUS) Resource Map 3 of 3

Crawford, Murphy & Tilly

Author: Ellen Hogrebe; 12/2/2021

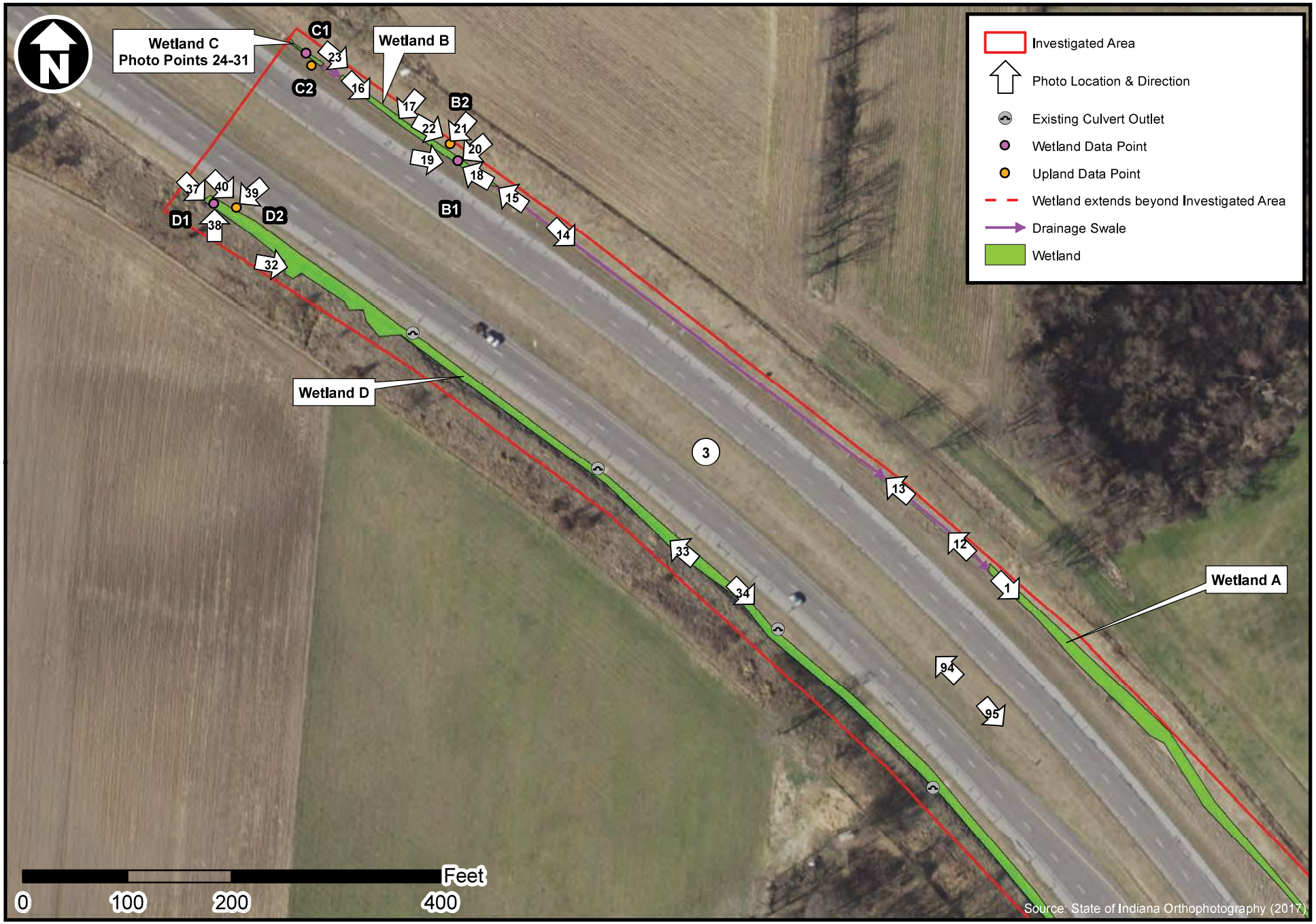



SR 3 and Waits Road Intersection Improvement (Des No 1900138) - Noble Co., IN

# Waters of the United States (WOTUS) Resource Map Key

Author: Ellen Hogrebe; 12/2/2021

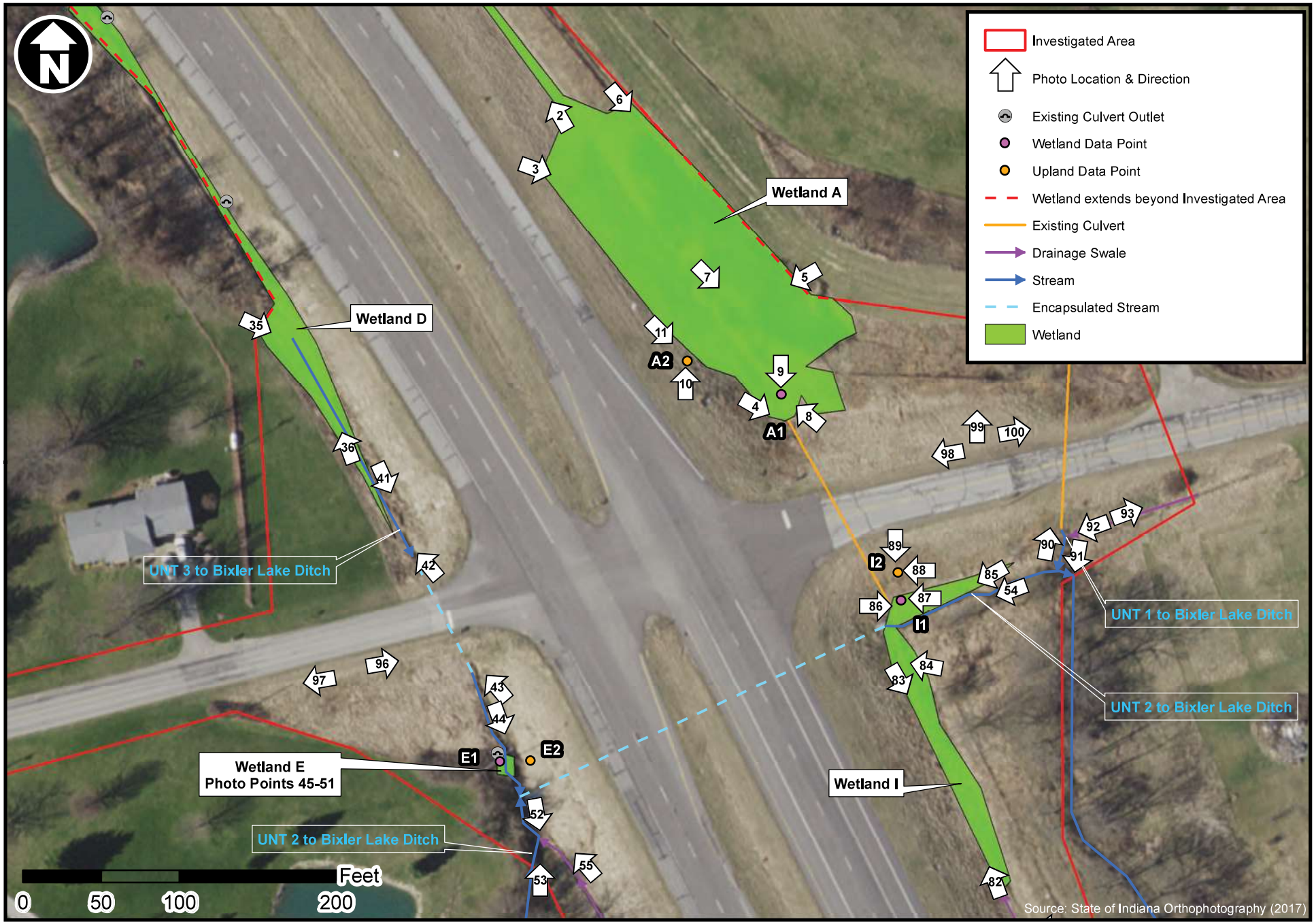
CMT Crawford, Murphy & Tilly




SR 3 and Waits Road Intersection Improvement (Des No 1900138) - Noble Co., IN

# Waters of the United States (WOTUS) Photo Key 1 of 3

Author: Ellen Hogrebe; 12/2/2021

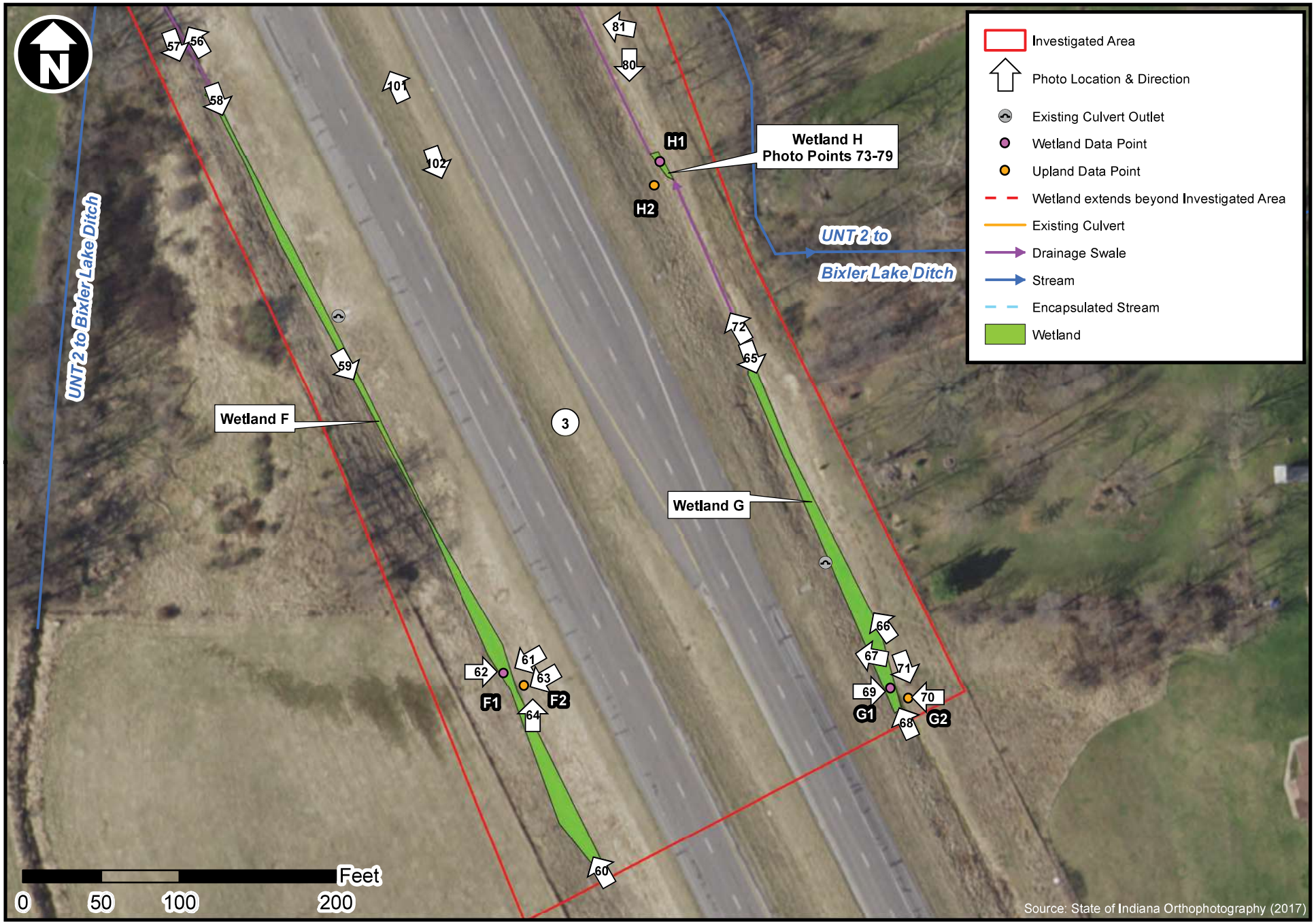



SR 3 and Waits Road Intersection Improvement (Des No 1900138) - Noble Co., IN

# Waters of the United States (WOTUS) Photo Key 2 of 3

CMT
Crawford, Murphy & Tilly

Author: Ellen Hogrebe; 12/2/2021




SR 3 and Waits Road Intersection Improvement (Des No 1900138) - Noble Co., IN

# Waters of the United States (WOTUS) Photo Key 3 of 3

Crawford, Murphy & Tilly

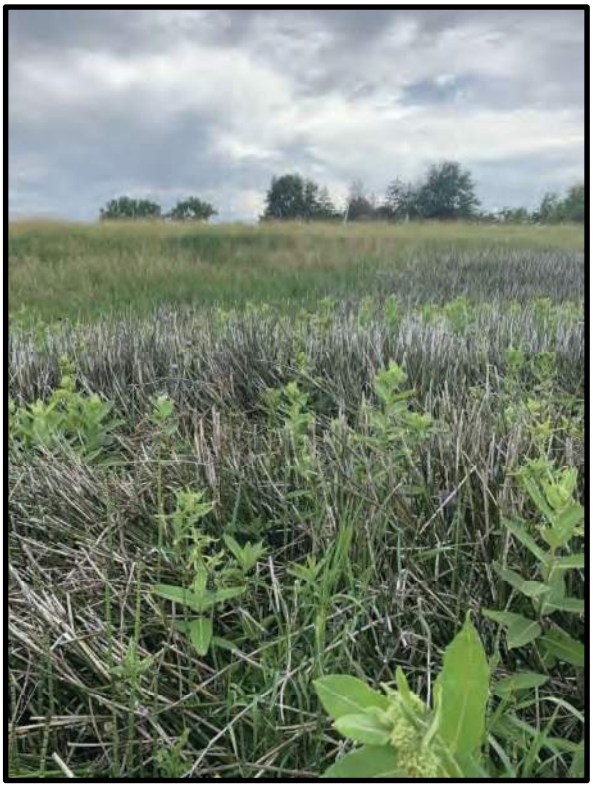
Author: Ellen Hogrebe; 12/2/2021

1. View of Wetland A, located in a depression to the northeast of the SR 3 and Waits Road intersection, looking southeast. 6/23/2021

2. View of Wetland A and surrounding terrain, looking northwest. 6/23/2021

3. View of Wetland A and surrounding terrain, looking southeast. 6/23/2021

4. View of Wetland A and drainage culvert inlet under Waits Road, looking southeast. 6/23/2021



5. View of Wetland A looking southwest. 6/23/2021

7. View from within Wetland A looking out towards surrounding terrain, looking southeast. 6/23/2021

6. View of Wetland A looking southeast. 6/23/2021

8. View of Wetland A, with shovel located at wetland datapoint A1, looking northwest. A1 passed the dominance test for hydrophytic vegetation. 6/23/2021

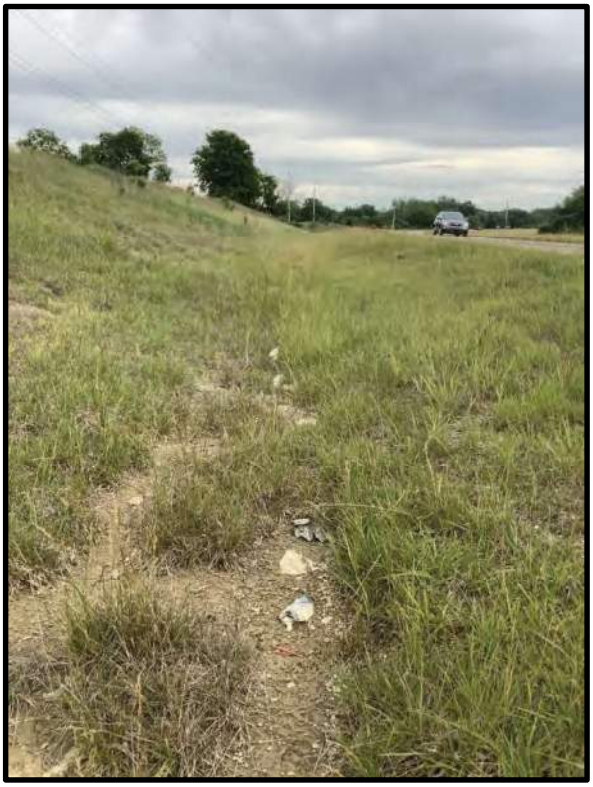
9. Wetland data point A1 and close-up of hydric features. 6/23/2021

11. View of upland area near upland data point A2, looking southeast. 6/23/2021

10. Upland data point A2. No indicators of hydric soils were present. 6/23/2021

12. View of concrete-lined drainage swale located northeast of SR 3 between Wetland A and Wetland B, looking northwest. 6/23/2021

13. View of grass-lined drainage swale transitioning to concrete-lined drainage swale located northeast of SR 3 between Wetland A and Wetland B, looking northwest. 6/23/2021



14. View of grass-lined drainage swale located northeast of SR 3 between Wetland A and Wetland B, looking southeast. 6/23/2021.

15. View of Wetland B, located in a depression northeast of SR 3, looking northwest. 6/23/2021

16. View of Wetland B and surrounding terrain, looking southeast. 6/23/2021

17. View of Wetland B, looking southwest. 6/23/2021

19. View of Wetland B, with shovel located at wetland datapoint B1, looking southeast. B1 passed the dominance test for hydrophytic vegetation. 6/23/2021

18. View from within Wetland B looking out towards surrounding terrain, looking northwest. 6/23/2021

20. Wetland data point B1 and close-up of hydric features. 6/23/2021

21. Upland data point B2. No indicators of hydric soils were present. 6/23/2021

23. View of partially vegetated drainage swale between Wetland B and Wetland C, looking southeast. 6/23/2021

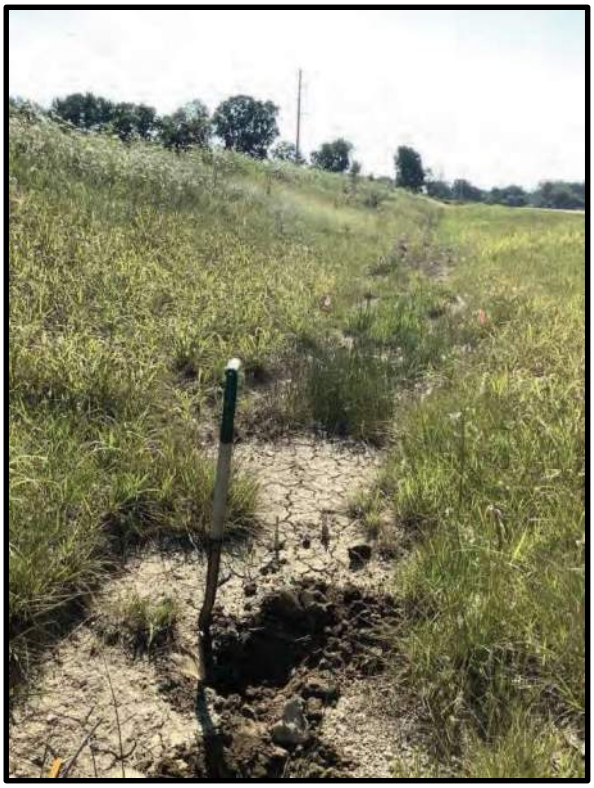
22. View of upland area near upland data point B2, looking southeast. 6/23/2021

24. View of Wetland C, located in a depression northeast of the SR 3, looking northwest. 6/23/2021

25. View of Wetland C and surrounding terrain, looking northwest. 6/23/2021

26. View of Wetland C, looking southeast. 6/23/2021

27. View from within Wetland C looking out towards surrounding terrain, looking south. 6/23/2021



28. View of Wetland C, with shovel located at wetland datapoint C1, looking southeast. C1 passed the dominance test for hydrophytic vegetation. 8/4/2021

29. Wetland data point C1 and close-up of hydric features. 8/4/2021

30. Upland data point C2. No indicators of hydric soils were present. 8/4/2021

31. View of upland area near upland data point C2, looking southeast. 8/4/2021

32. View of Wetland D, located in a depression southwest of SR 3, looking east. 8/4/2021

33. View of Wetland D and surrounding terrain, looking northwest. 8/4/2021

34. View of Wetland D, looking southeast. 8/4/2021

35. View of Wetland D, abutting UNT 3 to Bixler Lake Ditch, looking southeast. 8/4/2021

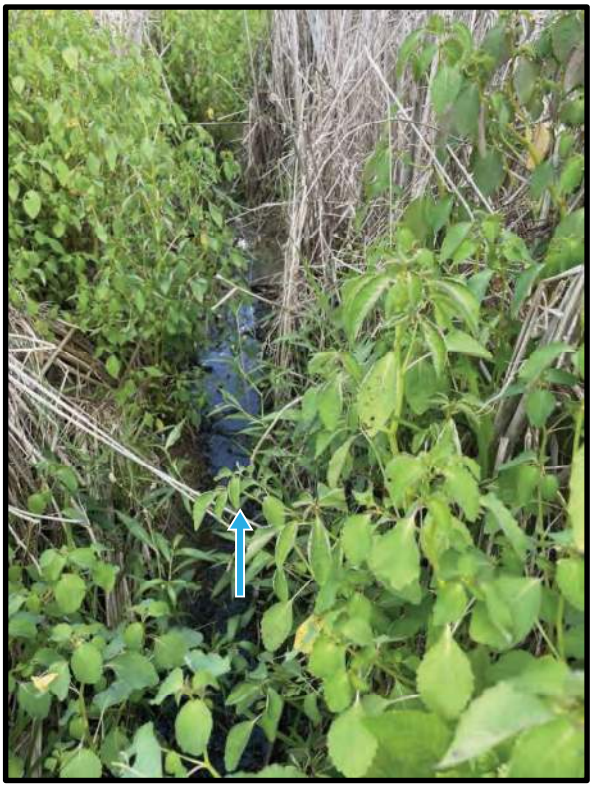
36. View from within Wetland D, abutting UNT 3 to Bixler Lake Ditch, looking out towards surrounding terrain, looking north. 8/4/2021

37. View of Wetland D, with shovel located at wetland datapoint D1, looking southeast. D1 passed the dominance test for hydrophytic vegetation. 8/4/2021

39. Upland data point D2. No indicators of hydric soils were present. 8/4/2021

38. Wetland data point D1 and close-up of hydric features. 8/4/2021

40. View of upland area near upland data point D2, looking southeast. 8/4/2021

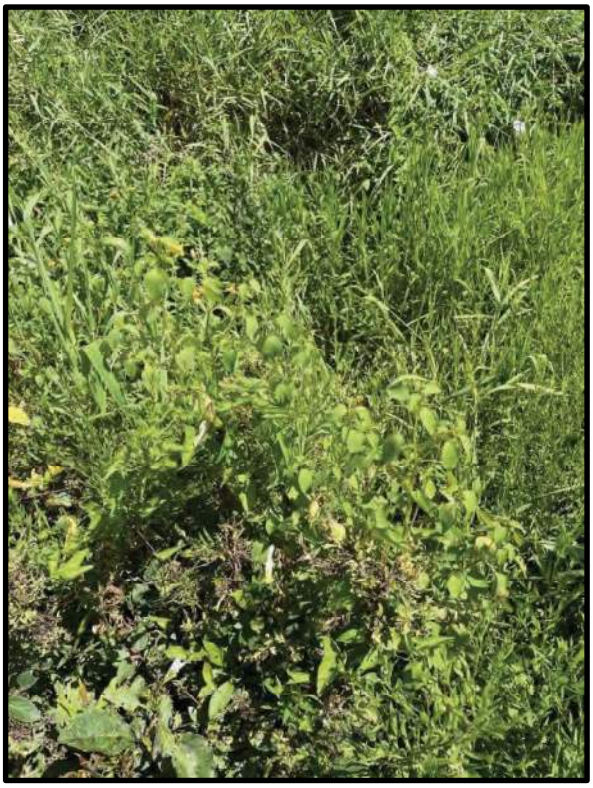


41. View of UNT 3 to Bixler Lake Ditch, abutting Wetland D, looking southeast (downstream). Blue arrow signifies flow direction. 8/4/2021

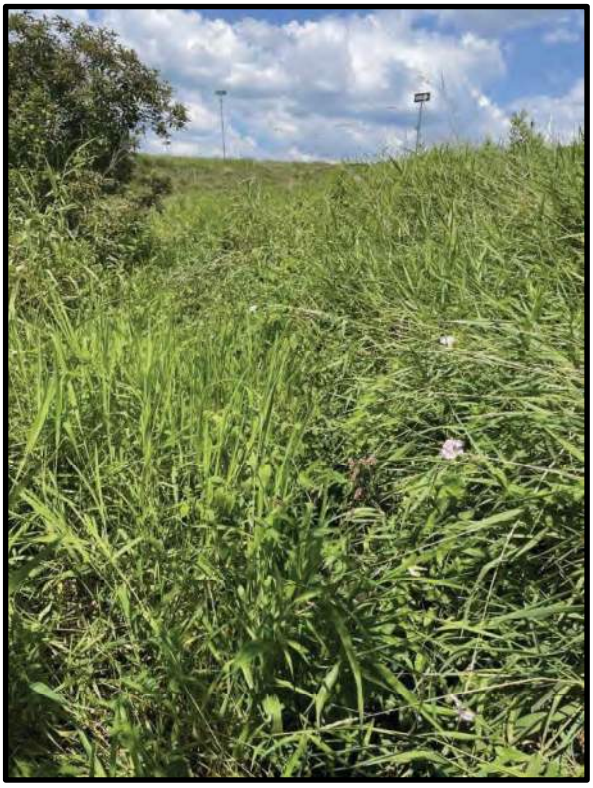

42. View of UNT 3 to Bixler Lake Ditch from drainage culvert inlet under Waits Road, looking northwest (upstream). The OHWM in this area measured 1.75 feet wide and 4 inches deep. 8/4/2021

43. View of UNT 3 to Bixler Lake Ditch and drainage culvert outlet under Waits Road, looking northwest (upstream). 8/4/2021

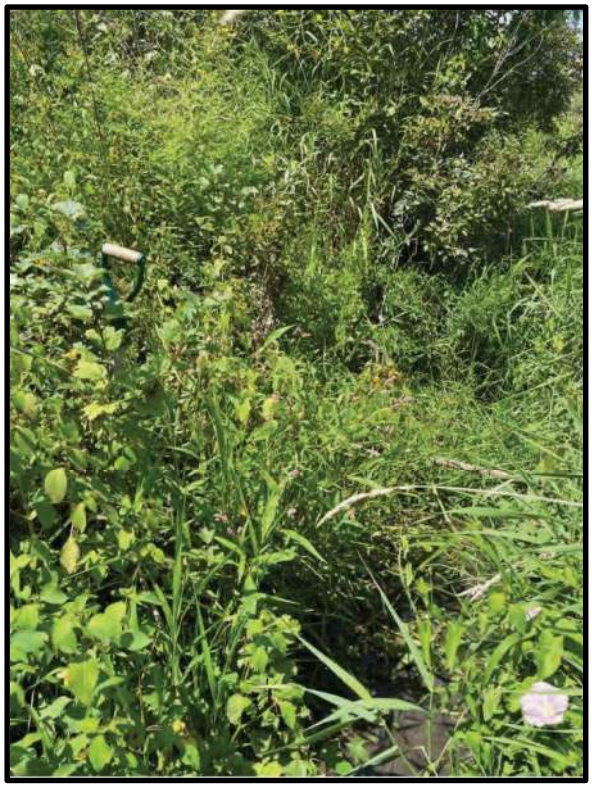
44. View of UNT 3 to Bixler Lake Ditch, looking south (downstream). 8/4/2021



45. View of Wetland E, located in a depression west of the SR 3 and abutting UNT 3 to Bixler Lake Ditch, looking southeast. 8/4/2021



46. View of Wetland E, looking north. 8/4/2012



47. View of Wetland E, with shovel located at wetland datapoint E1, looking southwest. E1 passed the dominance test for hydrophytic vegetation. 8/4/2021

48. View from within Wetland E looking out towards surrounding terrain, looking northeast. 8/4/2021

49. Wetland data point E1 and close-up of hydric features. 8/4/2021

51. View of upland area near upland data point E2, looking north. 8/4/2021

50. Upland data point E2. No indicators of hydric soils were present. 8/4/2021


52. View of UNT 2 to Bixler Lake Ditch, west of SR 3, from drainage culvert inlet under SR 3, looking south (upstream). The OHWM in this area measured 3.5 feet wide and 4 inches deep. 8/4/2021

53. View of UNT 2 to Bixler Lake Ditch, west of SR 3, looking north (downstream). 8/4/2021

54. View of UNT 2 to Bixler Lake Ditch, east of SR 3, looking southwest (upstream). 6/23/2021

55. View of grass-lined drainage swale located west of SR 3 between Wetland F and UNT 2 to Bixler Lake Ditch, looking northwest. 8/4/2021

56. View of concrete-lined drainage swale located west of SR 3 between Wetland F and UNT 2 to Bixler Lake Ditch, looking northwest. 8/4/2021

57. View of grass-lined drainage swale transitioning to concrete-lined drainage swale located west of SR 3 between Wetland F and UNT 2 to Bixler Lake Ditch, looking southeast. 8/4/2021

58. View of Wetland F, located in a depression west of the SR 3 and south of Waits Road, looking southeast. 8/4/2021

59. View from within Wetland F looking out towards surrounding terrain, looking southeast. 8/4/2021

60. View of Wetland F and surrounding terrain, looking northwest. 8/4/2021

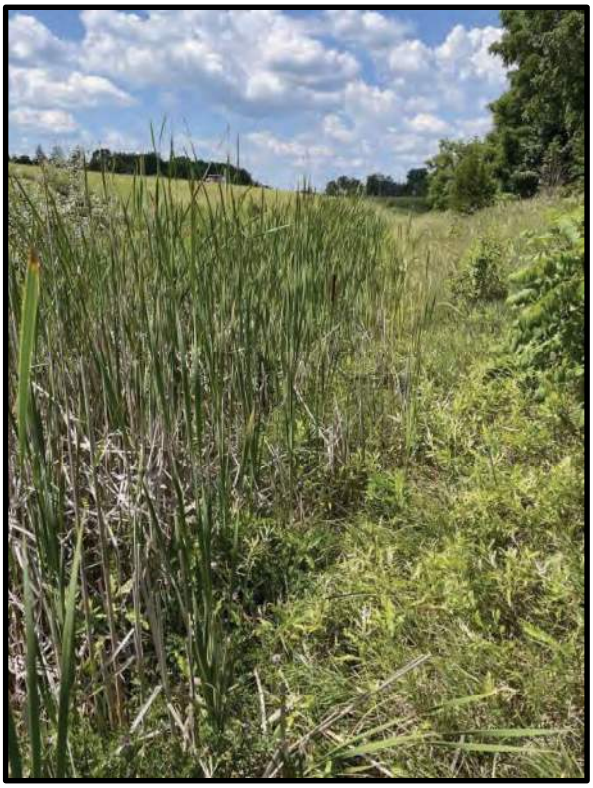
61. View of Wetland F, with shovel located at wetland datapoint F1, looking southwest. F1 passed the dominance test for hydrophytic vegetation. 8/4/2021

63. Upland data point F2. No indicators of hydric soils were present. 8/4/2021

62. Wetland data point F1 and close-up of hydric features. 8/4/2021

64. View of upland area near upland data point F2, looking north. 8/4/2021

65. View of Wetland G, located in a depression east of the SR 3, looking south. 8/4/2021



66. View of Wetland G and surrounding terrain, looking northwest. 8/4/2021

67. View from within Wetland G looking out towards surrounding terrain, looking west. 8/4/2021

68. View of Wetland G, with shovel located at wetland datapoint G1, looking north. G1 passed the dominance test for hydrophytic vegetation. 8/4/2021

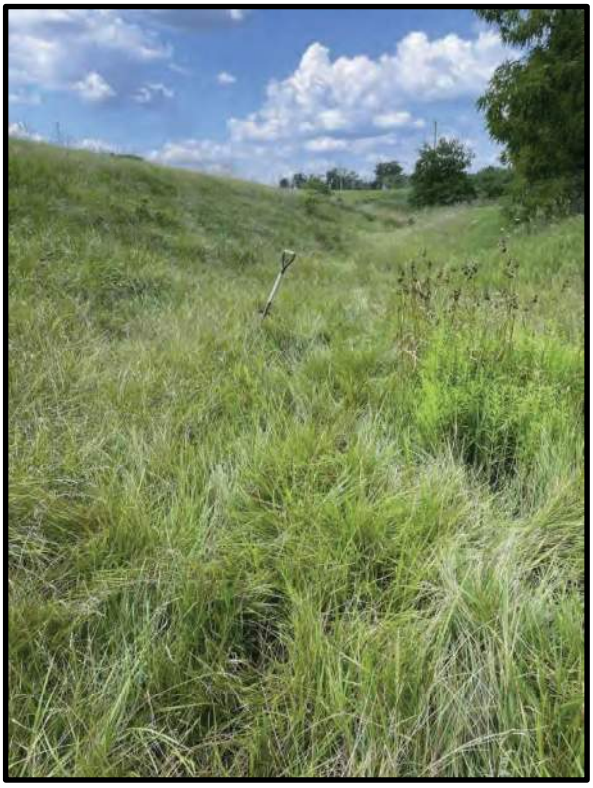
69. Wetland data point G1 and close-up of hydric features. 8/4/2021

71. View of upland area near upland data point G2, looking south. 8/4/2021

70. Upland data point G2. No indicators of hydric soils were present. 8/4/2021

72. View of grass-lined drainage swale between Wetland G and Wetland H, looking northwest.

73. View of Wetland H, located in a depression east of SR 3 and south of Waits Road, looking northeast. 8/4/2021



74. View of Wetland H and surrounding terrain, looking north. 8/4/2021

75. View of Wetland H, looking south. 8/4/2021

76. View of Wetland H, with shovel located at wetland datapoint H1, looking southwest. H1 passed the dominance test for hydrophytic vegetation. 8/4/2021

77. Wetland data point H1 and close-up of hydric features. 8/4/2021

78. Upland data point H2. No indicators of hydric soils were present. 8/4/2021

79. View of upland area near upland data point H2, looking west. 8/4/2021

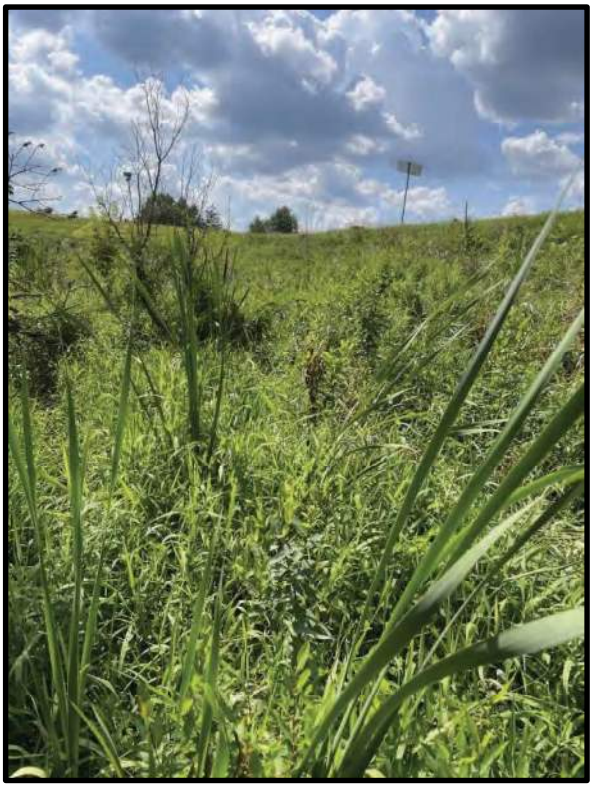
80. View of grass-lined drainage swale between Wetland H and Wetland I, looking south. 8/4/2021

81. View of grass-lined drainage swale between Wetland H and Wetland I, looking northwest. 8/4/2021.

83. View of Wetland I, looking south. 8/4/2021

82. View of Wetland I, located in a depression east of SR 3, looking north. 8/4/2021

84. View of Wetland I and surrounding terrain, looking west. 8/4/2021



85. View from within Wetland I, looking out towards surrounding terrain, looking west. 8/4/2021

86. View of Wetland I, with shovel located at wetland datapoint I1, looking southwest. I1 passed the dominance test for hydrophytic vegetation. 8/4/2021.

87. Wetland data point I1 and close-up of hydric features. 8/4/2021

88. Upland data point I2. No indicators of hydric soils were present. 8/4/2021

89. View of upland area near upland data point I2, looking south. 8/4/2021


91. View of UNT 1 to Bixler Lake Ditch, looking south (downstream). The OHWM in this area measured 2 feet wide and 2 inches deep. 6/23/2021

90. View of UNT 1 to Bixler Lake Ditch at drainage culvert outlet under Waits Road, looking north (upstream). 6/23/2021

92. View of sediment-filled, concrete-lined drainage swale to UNT 1 to Bixler Lake Ditch, looking west. 6/23/2021

93. View of sediment-filled, concrete-lined drainage swale to UNT 1 to Bixler Lake Ditch, looking east. 6/23/2021

94. View of mowed grass median along SR 3, north of Waits Road, looking northwest. 6/23/2021

95. View of mowed grass median along SR 3, north of Waits Road, looking southeast. 6/23/2021


96. View of mowed right-of-way (ROW) along the south side of Waits Road, looking east towards SR 3. 8/4/2021

97. View of mowed ROW along the south side of Waits Road, looking west. 8/4/2021

98. View of mowed ROW and upland along the north side of Waits Road, east of SR 3, looking west. 6/23/2021

99. View of un-mown grass upland area along the north side of Waits Road, east of SR 3, looking north. 6/23/2021

100. View of mowed ROW along the north side of Waits Road, east of SR 3, looking east. 6/23/2021.

101. View of mowed grass median along SR 3, south of Waits Road, looking northwest. 6/23/2021

102. View of mowed grass median along SR 3, south of Waits Road, looking southeast. 6/23/2021

103.

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: SR 3 & Waits Road Intersection Improvement (Des No. 1900138) City/County: Noble County Sampling Date: 6/23/2021

Applicant/Owner: INDOT State: IN Sampling Point: A1

Investigator(s): Marion Wells & Claudia McAllister-Peterson, CMT Inc. Section, Township, Range: S4 T34N R11E

Landform (hillside, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave

Slope (%): 25% Lat: 41.425391 Long: -85.267768 Datum: NAD 83

Soil Map Unit Name: Pe - Pewamo silty clay loam, 0 to 1 percent slopes NWI classification: N/A

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

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. *Equisetum hyemale* | 20 | Yes | FACW |
| 2. *Typha X glauca* | 15 | Yes | OBL |
| 3. *Phalaris arundinacea* | 15 | Yes | FACW |
| 4. *Equisetum arvense* | 10 | Yes | FAC |
| 5. *Scirpus atrovirens* | 10 | Yes | OBL |
| 6. *Juncus effusus* | 10 | Yes | OBL |
| 7. *Schoenoplectus tabernaemontani* | 10 | Yes | OBL |
| 8. *Carex vulpinoidea* | 5 | No | FACW |
| 9. *Carex cristatella* | 5 | No | FACW |
| 10. | | | |
| | 100 =Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | =Total Cover | | |

**Dominance Test worksheet:**

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

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 45 | x 1 = | 45 |
| FACW species | 45 | x 2 = | 90 |
| FAC species | 10 | x 3 = | 30 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 100 (A) | | 165 (B) |

Prevalence Index = B/A = 1.65

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** **Yes** X **No** ____

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

## SOIL

Sampling Point: A1

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-4 | 10YR 3/2 | 90 | 10YR 5/6 | 10 | C | M | Loamy/Clayey | Prominent redox concentrations |
| 4-18 | 10YR 5/2 | 85 | 10YR 4/6 | 15 | C | M | Loamy/Clayey | Prominent redox concentrations |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes X | No ___ | Depth (inches): 0.25 |
| Water Table Present? | Yes X | No ___ | Depth (inches): 9 |
| Saturation Present? (includes capillary fringe) | Yes X | No ___ | Depth (inches): 18 |

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

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: SR 3 & Waits Road Intersection Improvement (Des No. 1900138) City/County: Noble County Sampling Date: 6/23/2021

Applicant/Owner: INDOT State: IN Sampling Point: A2

Investigator(s): Marion Wells & Claudia McAllister-Peterson, CMT Inc. Section, Township, Range: S4 T34N R11E

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

Slope (%): 30% Lat: 41.425452 Long: -85.267986 Datum: NAD 83

Soil Map Unit Name: Pe - Pewamo silty clay loam, 0 to 1 percent slopes NWI classification: N/A

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

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ =Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ =Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. *Festuca rubra* | 40 | Yes | FACU |
| 2. *Poa pratensis* | 40 | Yes | FAC |
| 3. *Asclepias syriaca* | 15 | No | FACU |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 95 =Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ =Total Cover | | |

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 40 | x 3 = | 120 |
| FACU species | 55 | x 4 = | 220 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 95 (A) | | 340 (B) |

Prevalence Index = B/A = 3.58

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** **Yes** ____ **No** X

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

## SOIL

Sampling Point: A2

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-12 | 10YR 4/3 | 100 | | | | | Loamy/Clayey | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: Gravel

Depth (inches): 12

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

Remarks:

A restrictive layer of gravel was encountered at 12 inches. Multiple attempts were made at multiple locations and restrictive gravel was encountered at or above 12 inches.

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): ___ |
| Water Table Present? | Yes ___ | No X | Depth (inches): ___ |
| Saturation Present? (includes capillary fringe) | Yes ___ | No X | Depth (inches): ___ |

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

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: SR 3 & Waits Road Intersection Improvement (Des No. 1900138) City/County: Noble County Sampling Date: 6/23/2021

Applicant/Owner: INDOT State: IN Sampling Point: B1

Investigator(s): Marion Wells & Claudia McAllister-Peterson, CMT Inc. Section, Township, Range: S5 T34N R11E

Landform (hillside, terrace, etc.): Roadside Ditch Local relief (concave, convex, none): Concave

Slope (%): 5 Lat: 41.428177 Long: -85.271537 Datum: NAD 83

Soil Map Unit Name: MrB2 - Glynwood silt loam, 2 to 6 percent slopes, eroded NWI classification: N/A

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

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Roadside trash throughout wetland.

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ =Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ =Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. *Juncus tenuis* | 30 | Yes | FAC |
| 2. *Typha X glauca* | 25 | Yes | OBL |
| 3. *Juncus torreyi* | 10 | No | FACW |
| 4. *Equisetum arvense* | 10 | No | FAC |
| 5. *Scirpus atrovirens* | 5 | No | OBL |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 80 =Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ =Total Cover | | |

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 30 | x 1 = | 30 |
| FACW species | 10 | x 2 = | 20 |
| FAC species | 40 | x 3 = | 120 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 80 (A) | | 170 (B) |

Prevalence Index = B/A = 2.13

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation mostly dead/sprayed.

## SOIL

Sampling Point: B1

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-8 | 10YR 4/1 | 70 | 10YR 4/6 | 25 | C | M | Loamy/Clayey | Prominent redox concentrations |
| | | | 2.5YR 2.5/1 | 5 | C | M | | Prominent redox concentrations |
| 8-18 | 10YR 6/1 | 80 | 10YR 5/6 | 20 | C | M | Sandy | Prominent redox concentrations |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface Water Present? | Yes X | No ___ | Depth (inches): | 0.5 | |
| Water Table Present? | Yes X | No ___ | Depth (inches): | 11 | |
| Saturation Present? (includes capillary fringe) | Yes X | No ___ | Depth (inches): | 18 | **Wetland Hydrology Present?** **Yes** X **No** ___ |

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: SR 3 & Waits Road Intersection Improvement (Des No. 1900138) City/County: Noble County Sampling Date: 6/23/2021

Applicant/Owner: INDOT State: IN Sampling Point: B2

Investigator(s): Marion Wells & Claudia McAllister-Peterson, CMT Inc. Section, Township, Range: S5 T34N R11E

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

Slope (%): 15 Lat: 41.428220 Long: -85.271565 Datum: NAD 83

Soil Map Unit Name: MrB2 - Glynwood silt loam, 2 to 6 percent slopes, eroded NWI classification: N/A

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

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. *Juniperus virginiana* | 2 | No | FACU |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 2 =Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. *Poa pratensis* | 60 | Yes | FAC |
| 2. *Festuca rubra* | 20 | Yes | FACU |
| 3. *Daucus carota* | 10 | No | UPL |
| 4. *Equisetum arvense* | 5 | No | FAC |
| 5. *Asclepias syriaca* | 5 | No | FACU |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 100 =Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | =Total Cover | | |

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 65 | x 3 = | 195 |
| FACU species | 27 | x 4 = | 108 |
| UPL species | 10 | x 5 = | 50 |
| Column Totals: | 102 (A) | | 353 (B) |
| Prevalence Index = B/A = | | | 3.46 |

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** Yes ____ No X

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

## SOIL

Sampling Point: B2

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-7 | 10YR 4/4 | 100 | | | | | Loamy/Clayey | |
| 7-18 | 10YR 3/6 | 100 | | | | | Sandy | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ | No X | Depth (inches): ____ |
| Water Table Present? | Yes ____ | No X | Depth (inches): ____ |
| Saturation Present? (includes capillary fringe) | Yes ____ | No X | Depth (inches): ____ |

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

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: SR 3 & Waits Road Intersection Improvement (Des No. 1900138) City/County: Noble County Sampling Date: 8/4/2021

Applicant/Owner: INDOT State: IN Sampling Point: C1

Investigator(s): Austin Clarridge & Claudia McAllister-Peterson, CMT Inc. Section, Township, Range: S5 T34N R11E

Landform (hillside, terrace, etc.): Roadside Ditch Local relief (concave, convex, none): Concave

Slope (%): 5 Lat: 41.428459 Long: -85.272069 Datum: NAD 83

Soil Map Unit Name: MrB2 - Glynwood silt loam, 2 to 6 percent slopes, eroded NWI classification: N/A

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

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. *Scirpus atrovirens* | 30 | Yes | OBL |
| 2. *Juncus torreyi* | 20 | Yes | FACW |
| 3. *Typha X glauca* | 10 | No | OBL |
| 4. *Festuca rubra* | 5 | No | FACU |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 65 =Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | =Total Cover | | |

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 40 | x 1 = | 40 |
| FACW species | 20 | x 2 = | 40 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 5 | x 4 = | 20 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 65 (A) | | 100 (B) |

Prevalence Index = B/A = 1.54

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** **Yes** X **No** ____

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

## SOIL

Sampling Point: C1

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-4 | 10YR 4/3 | 100 | | | | | Loamy/Clayey | |
| 4-18 | 10YR 3/2 | 90 | 10YR 5/6 | 10 | C | M | Loamy/Clayey | Prominent redox concentrations |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): ___ |
| Water Table Present? | Yes ___ | No X | Depth (inches): ___ |
| Saturation Present? (includes capillary fringe) | Yes ___ | No X | Depth (inches): ___ |

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

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: SR 3 & Waits Road Intersection Improvement (Des No. 1900138) City/County: Noble County Sampling Date: 8/4/2021

Applicant/Owner: INDOT State: IN Sampling Point: C2

Investigator(s): Austin Clarridge & Claudia McAllister-Peterson, CMT Inc. Section, Township, Range: S5 T34N R11E

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

Slope (%): 15 Lat: 41.428425 Long: -85.272047 Datum: NAD 83

Soil Map Unit Name: MrB2 - Glynwood silt loam, 2 to 6 percent slopes, eroded NWI classification: N/A

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

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ =Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ =Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. *Festuca arundinacea* | 50 | Yes | FACU |
| 2. *Festuca rubra* | 40 | Yes | FACU |
| 3. *Ambrosia artemisiifolia* | 5 | No | FACU |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 95 =Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ =Total Cover | | |

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 95 | x 4 = | 380 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 95 (A) | | 380 (B) |

Prevalence Index = B/A = 4.00

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** **Yes** ____ **No** X

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

## SOIL

Sampling Point: C2

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-18 | 10YR 4/3 | 100 | | | | | Loamy/Clayey | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): ___ |
| Water Table Present? | Yes ___ | No X | Depth (inches): ___ |
| Saturation Present? (includes capillary fringe) | Yes ___ | No X | Depth (inches): ___ |

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

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: SR 3 & Waits Road Intersection Improvement (Des No. 1900138) City/County: Noble County Sampling Date: 8/4/2021

Applicant/Owner: INDOT State: IN Sampling Point: D1

Investigator(s): Austin Clarridge & Claudia McAllister-Peterson, CMT Inc. Section, Township, Range: S5 T34N R11E

Landform (hillside, terrace, etc.): Roadside Ditch Local relief (concave, convex, none): Concave

Slope (%): 5 Lat: 41.428065 Long: -85.272393 Datum: NAD 83

Soil Map Unit Name: RbB - Rawson loam, 2 to 6 percent slopes NWI classification: N/A

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

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ =Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ =Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. *Juncus tenuis* | 60 | Yes | FAC |
| 2. *Carex vulpinoidea* | 25 | Yes | FACW |
| 3. *Typha X glauca* | 15 | No | OBL |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 100 =Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ =Total Cover | | |

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 15 | x 1 = | 15 |
| FACW species | 25 | x 2 = | 50 |
| FAC species | 60 | x 3 = | 180 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 100 (A) | | 245 (B) |

Prevalence Index = B/A = 2.45

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** **Yes** X **No** ____

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

## SOIL

Sampling Point: D1

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-3 | 10YR 4/1 | 85 | 10YR 5/8 | 15 | C | M | Mucky Loam/Clay | Prominent redox concentrations |
| 3-18 | 10YR 4/1 | 90 | 10YR 5/8 | 10 | C | M | Loamy/Clayey | Prominent redox concentrations |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

Abutting UNT 2 to Bixler Lake Ditch.

**Restrictive Layer (if observed):**

Type: ___

Depth (inches): ___

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface Water Present? | Yes X | No ___ | Depth (inches): 2 | | |
| Water Table Present? | Yes ___ | No X | Depth (inches): ___ | | |
| Saturation Present? (includes capillary fringe) | Yes X | No ___ | Depth (inches): 18 | **Wetland Hydrology Present?** | **Yes** X **No** ___ |

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

Remarks:

Abutting UNT 3 to Bixler Lake Ditch.

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: SR 3 & Waits Road Intersection Improvement (Des No. 1900138) City/County: Noble County Sampling Date: 8/4/2021

Applicant/Owner: INDOT State: IN Sampling Point: D2

Investigator(s): Austin Clarridge & Claudia McAllister-Peterson, CMT Inc. Section, Township, Range: S5 T34N R11E

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

Slope (%): 15 Lat: 41.428053 Long: -85.272312 Datum: NAD 83

Soil Map Unit Name: RbB - Rawson loam, 2 to 6 percent slopes NWI classification: N/A

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

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. *Juniperus virginiana* | 5 | Yes | FACU |
| 2. *Pyrus calleryana* | 5 | Yes | UPL |
| 3. *Fraxinus pennsylvanica* | 2 | No | FACW |
| 4. | | | |
| 5. | | | |
| | 12 =Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. *Festuca arundinacea* | 60 | Yes | FACU |
| 2. *Festuca rubra* | 20 | Yes | FACU |
| 3. *Ambrosia artemisiifolia* | 5 | No | FACU |
| 4. *Daucus carota* | 5 | No | UPL |
| 5. *Asclepias syriaca* | 5 | No | FACU |
| 6. *Digitaria bicornis* | 5 | No | FACU |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 100 =Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | =Total Cover | | |

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 2 | x 2 = | 4 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 100 | x 4 = | 400 |
| UPL species | 10 | x 5 = | 50 |
| Column Totals: | 112 (A) | | 454 (B) |

Prevalence Index = B/A = 4.05

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** Yes ____ No X

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

## SOIL

Sampling Point: D2

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-4 | 10YR 4/3 | 100 | | | | | Loamy/Clayey | |
| 4-18 | 10YR 5/3 | 100 | | | | | Loamy/Clayey | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ | No X | Depth (inches): ____ |
| Water Table Present? | Yes ____ | No X | Depth (inches): ____ |
| Saturation Present? (includes capillary fringe) | Yes ____ | No X | Depth (inches): ____ |

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

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: SR 3 & Waits Road Intersection Improvement (Des No. 1900138) City/County: Noble County Sampling Date: 8/4/2021

Applicant/Owner: INDOT State: IN Sampling Point: E1

Investigator(s): Austin Clarridge & Claudia McAllister-Peterson, CMT Inc. Section, Township, Range: S4 T34N R11E

Landform (hillside, terrace, etc.): Roadside Ditch Local relief (concave, convex, none): Concave

Slope (%): 5 Lat: 41.424749 Long: -85.268425 Datum: NAD 83

Soil Map Unit Name: Pe - Pewamo silty clay loam, 0 to 1 percent slopes NWI classification: Riverine (R4SBC)

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

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. *Cornus racemosa* | 10 | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 10 =Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. *Impatiens capensis* | 30 | Yes | FACW |
| 2. *Phalaris arundinacea* | 15 | Yes | FACW |
| 3. *Leersia oryzoides* | 15 | Yes | OBL |
| 4. *Geum canadense* | 10 | No | FAC |
| 5. *Persicaria maculosa* | 10 | No | FACW |
| 6. *Calystegia sepium* | 10 | No | FAC |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 90 =Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | =Total Cover | | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 15 | x 1 = | 15 |
| FACW species | 55 | x 2 = | 110 |
| FAC species | 30 | x 3 = | 90 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 100 (A) | | 215 (B) |

Prevalence Index = B/A = 2.15

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** **Yes** X **No** ____

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

## SOIL

Sampling Point: E1

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-18 | 10YR 3/1 | 80 | 10YR 5/8 | 10 | C | M | Loamy/Clayey | Prominent redox concentrations |
| | | | N 5/ | 10 | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface Water Present? | Yes X | No ___ | Depth (inches): 0.5 | | |
| Water Table Present? | Yes X | No ___ | Depth (inches): 18 | | |
| Saturation Present? (includes capillary fringe) | Yes X | No ___ | Depth (inches): 18 | **Wetland Hydrology Present?** | **Yes** X **No** ___ |

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: SR 3 & Waits Road Intersection Improvement (Des No. 1900138) City/County: Noble County Sampling Date: 8/4/2021

Applicant/Owner: INDOT State: IN Sampling Point: E2

Investigator(s): Austin Clarridge & Claudia McAllister-Peterson, CMT Inc. Section, Township, Range: S4 T34N R11E

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

Slope (%): 10 Lat: 41.424750 Long: -85.268352 Datum: NAD 83

Soil Map Unit Name: Pe - Pewamo silty clay loam, 0 to 1 percent slopes NWI classification: N/A

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

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ | =Total Cover | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ | =Total Cover | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. *Phalaris arundinacea* | 40 | Yes | FACW |
| 2. *Solidago canadensis* | 40 | Yes | FACU |
| 3. *Dipsacus fullonum* | 10 | No | FACU |
| 4. *Festuca arundinacea* | 10 | No | FACU |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 100 | =Total Cover | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ | =Total Cover | |

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 40 | x 2 = | 80 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 60 | x 4 = | 240 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 100 (A) | | 320 (B) |

Prevalence Index = B/A = 3.20

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** Yes ____ No X

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

## SOIL

Sampling Point: E2

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-18 | 10YR 4/3 | 100 | | | | | Loamy/Clayey | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ | No X | Depth (inches): ____ |
| Water Table Present? | Yes ____ | No X | Depth (inches): ____ |
| Saturation Present? (includes capillary fringe) | Yes ____ | No X | Depth (inches): ____ |

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

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: SR 3 & Waits Road Intersection Improvement (Des No. 1900138) City/County: Noble County Sampling Date: 8/4/2021

Applicant/Owner: INDOT State: IN Sampling Point: F1

Investigator(s): Austin Clarridge & Claudia McAllister-Peterson, CMT Inc. Section, Township, Range: S4 T34N R11E

Landform (hillside, terrace, etc.): Roadside Ditch Local relief (concave, convex, none): Concave

Slope (%): 5 Lat: 41.423319 Long: -85.267414 Datum: NAD 83

Soil Map Unit Name: MrB2 - Glynwood silt loam, 2 to 6 percent slopes, eroded NWI classification: N/A

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

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. *Typha X glauca* | 30 | Yes | OBL |
| 2. *Scirpus atrovirens* | 30 | Yes | OBL |
| 3. *Cyperus esculentus* | 20 | Yes | FACW |
| 4. *Scirpus pendulus* | 20 | Yes | OBL |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 100 =Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | =Total Cover | | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 80 | x 1 = | 80 |
| FACW species | 20 | x 2 = | 40 |
| FAC species | 10 | x 3 = | 30 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 110 (A) | | 150 (B) |

Prevalence Index = B/A = 1.36

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** **Yes** X **No** ____

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

## SOIL

Sampling Point: F1

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-8 | 10YR 3/1 | 90 | 10YR 5/6 | 10 | C | M | Loamy/Clayey | Prominent redox concentrations |
| 8-18 | 10YR 3/2 | 60 | | | | | Loamy/Clayey | |
| | 10YR 6/3 | 30 | 10YR 5/6 | 10 | C | M | | Distinct redox concentrations |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

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

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

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 18

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

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: SR 3 & Waits Road Intersection Improvement (Des No. 1900138) City/County: Noble County Sampling Date: 8/4/2021

Applicant/Owner: INDOT State: IN Sampling Point: F2

Investigator(s): Austin Clarridge & Claudia McAllister-Peterson, CMT Inc. Section, Township, Range: S4 T34N R11E

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

Slope (%): 15 Lat: 41.423301 Long: -85.267364 Datum: NAD 83

Soil Map Unit Name: MrB2 - Glynwood silt loam, 2 to 6 percent slopes, eroded NWI classification: N/A

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

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ =Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ =Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. *Festuca arundinacea* | 40 | Yes | FACU |
| 2. *Festuca rubra* | 20 | Yes | FACU |
| 3. *Asclepias syriaca* | 15 | No | FACU |
| 4. *Daucus carota* | 10 | No | UPL |
| 5. *Digitaria bicornis* | 10 | No | FACU |
| 6. *Lolium perenne* | 5 | No | FACU |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 100 =Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ =Total Cover | | |

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 90 | x 4 = | 360 |
| UPL species | 10 | x 5 = | 50 |
| Column Totals: | 100 (A) | | 410 (B) |

Prevalence Index = B/A = 4.10

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** **Yes** ____ **No** X

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

## SOIL

Sampling Point: F2

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-18 | 10YR 5/2 | 100 | | | | | Loamy/Clayey | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): ___ |
| Water Table Present? | Yes ___ | No X | Depth (inches): ___ |
| Saturation Present? (includes capillary fringe) | Yes ___ | No X | Depth (inches): ___ |

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

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: SR 3 & Waits Road Intersection Improvement (Des No. 1900138) City/County: Noble County Sampling Date: 8/4/2021

Applicant/Owner: INDOT State: IN Sampling Point: G1

Investigator(s): Austin Clarridge & Claudia McAllister-Peterson, CMT Inc. Section, Township, Range: S4 T34N R11E

Landform (hillside, terrace, etc.): Roadside Ditch Local relief (concave, convex, none): Concave

Slope (%): 5 Lat: 41.423296 Long: -85.266512 Datum: NAD 83

Soil Map Unit Name: MrB2 - Glynwood silt loam, 2 to 6 percent slopes, eroded NWI classification: N/A

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

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ =Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ =Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. *Typha X glauca* | 45 | Yes | OBL |
| 2. *Cyperus esculentus* | 25 | Yes | FACW |
| 3. *Sorghastrum nutans* | 10 | No | FACU |
| 4. *Carex torreyi* | 10 | No | FACU |
| 5. *Scirpus atrovirens* | 10 | No | OBL |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 100 =Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ =Total Cover | | |

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 55 | x 1 = | 55 |
| FACW species | 25 | x 2 = | 50 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 20 | x 4 = | 80 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 100 (A) | | 185 (B) |

Prevalence Index = B/A = 1.85

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** **Yes** X **No** ____

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

## SOIL

Sampling Point: G1

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-18 | 10YR 3/2 | 90 | 10YR 5/8 | 10 | C | M | Loamy/Clayey | Prominent redox concentrations |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): ___ |
| Water Table Present? | Yes ___ | No X | Depth (inches): ___ |
| Saturation Present? (includes capillary fringe) | Yes ___ | No X | Depth (inches): ___ |

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

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: SR 3 & Waits Road Intersection Improvement (Des No. 1900138) City/County: Noble County Sampling Date: 8/4/2021

Applicant/Owner: INDOT State: IN Sampling Point: G2

Investigator(s): Austin Clarridge & Claudia McAllister-Peterson, CMT Inc. Section, Township, Range: S4 T34N R11E

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

Slope (%): 15 Lat: 41.423279 Long: -85.266471 Datum: NAD 83

Soil Map Unit Name: MrB2 - Glynwood silt loam, 2 to 6 percent slopes, eroded NWI classification: N/A

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

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ =Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ =Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. *Festuca arundinacea* | 50 | Yes | FACU |
| 2. *Digitaria bicornis* | 10 | Yes | FACU |
| 3. *Cirsium arvense* | 10 | Yes | FACU |
| 4. *Echinochloa crus-galli* | 10 | Yes | FACW |
| 5. *Glyceria striata* | 10 | Yes | OBL |
| 6. *Asclepias syriaca* | 10 | Yes | FACU |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 100 =Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ =Total Cover | | |

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 10 | x 1 = | 10 |
| FACW species | 10 | x 2 = | 20 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 80 | x 4 = | 320 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 100 (A) | | 350 (B) |

Prevalence Index = B/A = 3.50

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** **Yes** ____ **No** X

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

## SOIL

Sampling Point: G2

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-18 | 10YR 5/4 | 100 | | | | | Loamy/Clayey | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): ___ |
| Water Table Present? | Yes ___ | No X | Depth (inches): ___ |
| Saturation Present? (includes capillary fringe) | Yes ___ | No X | Depth (inches): ___ |

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

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: SR 3 & Waits Road Intersection Improvement (Des No. 1900138) City/County: Noble County Sampling Date: 8/4/2021

Applicant/Owner: INDOT State: IN Sampling Point: H1

Investigator(s): Austin Clarridge & Claudia McAllister-Peterson, CMT Inc. Section, Township, Range: S4 T34N R11E

Landform (hillside, terrace, etc.): Roadside Ditch Local relief (concave, convex, none): Concave

Slope (%): 5 Lat: 41.424216 Long: -85.267047 Datum: NAD 83

Soil Map Unit Name: MrB2 - Glynwood silt loam, 2 to 6 percent slopes, eroded NWI classification: N/A

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

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | |
|---|---|
| Hydrophytic Vegetation Present? Yes X No ____<br>Hydric Soil Present? Yes X No ____<br>Wetland Hydrology Present? Yes X No ____ | **Is the Sampled Area within a Wetland?** **Yes** X **No** ____ |

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. *Lycopus americanus* | 30 | Yes | OBL |
| 2. *Juncus torreyi* | 30 | Yes | FACW |
| 3. *Festuca arundinacea* | 20 | Yes | FACU |
| 4. *Glyceria striata* | 15 | No | OBL |
| 5. *Typha X glauca* | 5 | No | OBL |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 100 =Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | =Total Cover | | |

**Dominance Test worksheet:**

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 50 | x 1 = | 50 |
| FACW species | 30 | x 2 = | 60 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 20 | x 4 = | 80 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 100 (A) | | 190 (B) |

Prevalence Index = B/A = 1.90

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** **Yes** X **No** ____

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

## SOIL

Sampling Point: H1

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-4 | 10YR 3/1 | 100 | | | | | Loamy/Clayey | |
| 4-18 | 10YR 6/2 | 80 | 10YR 5/6 | 20 | C | M | Sandy | Prominent redox concentrations |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): ___ |
| Water Table Present? | Yes ___ | No X | Depth (inches): ___ |
| Saturation Present? (includes capillary fringe) | Yes ___ | No X | Depth (inches): ___ |

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

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: SR 3 & Waits Road Intersection Improvement (Des No. 1900138) City/County: Noble County Sampling Date: 8/4/2021

Applicant/Owner: INDOT State: IN Sampling Point: H2

Investigator(s): Austin Clarridge & Claudia McAllister-Peterson, CMT Inc. Section, Township, Range: S4 T34N R11E

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

Slope (%): 15 Lat: 41.424176 Long: -85.267061 Datum: NAD 83

Soil Map Unit Name: MrB2 - Glynwood silt loam, 2 to 6 percent slopes, eroded NWI classification: N/A

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

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ =Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ =Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. *Festuca arundinacea* | 60 | Yes | FACU |
| 2. *Lolium perenne* | 15 | No | FACU |
| 3. *Daucus carota* | 15 | No | UPL |
| 4. *Asclepias syriaca* | 10 | No | FACU |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 100 =Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ =Total Cover | | |

**Dominance Test worksheet:**

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

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 85 | x 4 = | 340 |
| UPL species | 15 | x 5 = | 75 |
| Column Totals: | 100 (A) | | 415 (B) |

Prevalence Index = B/A = 4.15

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** **Yes** ____ **No** X

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

## SOIL

Sampling Point: H2

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-7 | 10YR 4/2 | 100 | | | | | Loamy/Clayey | with gravel |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: Rock/gravel

Depth (inches): 7

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

Remarks:

A restrictive layer of gravel was encountered at 7 inches. Multiple attempts were made at multiple locations and restrictive gravel was encountered at or above 7 inches.

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): ___ |
| Water Table Present? | Yes ___ | No X | Depth (inches): ___ |
| Saturation Present? (includes capillary fringe) | Yes ___ | No X | Depth (inches): ___ |

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

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: SR 3 & Waits Road Intersection Improvement (Des No. 1900138) City/County: Noble County Sampling Date: 8/4/2021

Applicant/Owner: INDOT State: IN Sampling Point: I1

Investigator(s): Austin Clarridge & Claudia McAllister-Peterson, CMT Inc. Section, Township, Range: S4 T34N R11E

Landform (hillside, terrace, etc.): Roadside Ditch Local relief (concave, convex, none): Concave

Slope (%): 5 Lat: 41.425028 Long: -85.267489 Datum: NAD 83

Soil Map Unit Name: Pe - Pewamo silty clay loam, 0 to 1 percent slopes NWI classification: Riverine (R4SBC)

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

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Acer negundo* | 5 | Yes | FAC |
| 2. *Rhus glabra* | 5 | Yes | UPL |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 10 | =Total Cover | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | | =Total Cover | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. *Phalaris arundinacea* | 45 | Yes | FACW |
| 2. *Typha X glauca* | 30 | Yes | OBL |
| 3. *Calystegia sepium* | 10 | No | FAC |
| 4. *Impatiens capensis* | 10 | No | FACW |
| 5. *Apocynum cannabinum* | 5 | No | FAC |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 100 | =Total Cover | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | | =Total Cover | |

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 30 | x 1 = | 30 |
| FACW species | 55 | x 2 = | 110 |
| FAC species | 20 | x 3 = | 60 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 5 | x 5 = | 25 |
| Column Totals: | 110 (A) | | 225 (B) |

Prevalence Index = B/A = 2.05

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** **Yes** X **No** ____

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

## SOIL

Sampling Point: I1

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-18 | 10YR 3/2 | 85 | 7.5YR 4/6 | 15 | C | M | Loamy/Clayey | Prominent redox concentrations |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface Water Present? | Yes X | No ___ | Depth (inches): 3 | | |
| Water Table Present? | Yes ___ | No X | Depth (inches): ___ | | |
| Saturation Present? (includes capillary fringe) | Yes X | No ___ | Depth (inches): 11 | **Wetland Hydrology Present?** | **Yes** X **No** ___ |

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

Remarks:

Abutting UNT 2 to Bixler Lake Ditch.

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: SR 3 & Waits Road Intersection Improvement (Des No. 1900138) City/County: Noble County Sampling Date: 8/4/2021

Applicant/Owner: INDOT State: IN Sampling Point: I2

Investigator(s): Austin Clarridge & Claudia McAllister-Peterson, CMT Inc. Section, Township, Range: S4 T34N R11E

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

Slope (%): 15 Lat: 41.425080 Long: -85.267497 Datum: NAD 83

Soil Map Unit Name: Pe - Pewamo silty clay loam, 0 to 1 percent slopes NWI classification: N/A

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

Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. *Phalaris arundinacea* | 60 | Yes | FACW |
| 2. *Solidago canadensis* | 30 | Yes | FACU |
| 3. *Cirsium arvense* | 5 | No | FACU |
| 4. *Cichorium intybus* | 5 | No | FACU |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 100 =Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | =Total Cover | | |

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 60 | x 2 = | 120 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 40 | x 4 = | 160 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 100 (A) | | 280 (B) |

Prevalence Index = B/A = 2.80

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** **Yes** ____ **No** X

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

## SOIL

Sampling Point: I2

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-6 | 10YR 4/4 | 100 | | | | | Loamy/Clayey | with gravel |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: Gravel

Depth (inches): 6

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

Remarks:

A restrictive layer of gravel was encountered at 6 inches. Multiple attempts were made at multiple locations and restrictive gravel was encountered at or above 6 inches.

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): ___ |
| Water Table Present? | Yes ___ | No X | Depth (inches): ___ |
| Saturation Present? (includes capillary fringe) | Yes ___ | No X | Depth (inches): ___ |

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

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

Remarks:

**PRELIMINARY JURISDICTIONAL DETERMINATION FORM**

**BACKGROUND INFORMATION**

**A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD):** January 10, 2022

**B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:**
Claudia McAllister-Peterson
Crawford, Murphy & Tilly, Inc.
8790 Purdue Rd
Indianapolis, IN 46268

**C. DISTRICT OFFICE, FILE NAME, AND NUMBER: CENAP-OP-R-_____**

**D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:**

Proposed improvements for the project (DES No: 1900138) include converting the project intersection of State Road 3 (SR 3) and Waits Road to a Closed Median Reduced Conflict Intersection (RCI). The approaches on Waits Road will be updated to right turn only movement. Vehicles wishing to travel through or turn left from Waits Road will be required to turn right onto SR 3 and then complete a U-turn movement. Vehicles wishing to turn left onto Waits Road from SR 3 will be required to complete a U-turn movement at the Median U-Turn (MUT) location. The spacing of the MUT along SR 3 will be 1,500 feet north of the existing intersection due to the existing curve on SR 3. The MUT will be unsignalized. Lighting at the MUT may need to be provided for adequate visibility at the intersection. There will not be a south MUT, instead vehicles will need to travel to the intersection of SR 3 and Main Street, which is located approximately 0.33 mile south of the SR 3 and Waits Road intersection.

Per the USGS Kendallville, Indiana Quadrangle, the project is situated within Sections 4, 5 and 9, Township 34 North, and Range 11 East.

Land use in the vicinity of the project is primarily residential and agricultural with small patches of forest.

**(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)**

State: IN County: Noble City: Kendallville
Center coordinates of site (lat/long in degree decimal format):
Lat. 41.425108 ° N, Long. -85.268119° W
Universal Transverse Mercator: 16T 644716.78 m Easting (x) 4587397.19 m Northing (y)
Name of nearest waterbody: Bixler Lake Ditch

Identify (estimate) amount of waters in the review area: **See table below**
Non-wetland waters:_____linear feet:_____width (ft) and/or_____acres.
Cowardin Class: _____
Stream Flow: _____
Wetlands:_____acres.
Cowardin Class: _____

Name of any water bodies on the site that have been identified as Section 10 waters:
Tidal: N/A
Non-Tidal: N/A

**E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):**

☐ Office (Desk) Determination. Date: _____
☐ Field Determination. Date(s): _____

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.
This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

**SUPPORTING DATA:** **Data reviewed for preliminary JD** (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

- ■ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: General location map, aerial photograph, USGS topographic map, picture key map, NRCS soils map, NWI map, NHD map, 12 Digit HUC map, FEMA map
- ■ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report. _____
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: _.
- ☐ Corps navigable waters' study: _____.
- ■ U.S. Geological Survey Hydrologic Atlas: _____.
  - ■ USGS NHD data.
  - ■ USGS 8 and 12 digit HUC maps.
- ■ U.S. Geological Survey map(s). Cite scale & quad name: 1:24,000 Kendallville Quadrangle, Indiana.
- ■ USDA Natural Resources Conservation Service Soil Survey. Citation: http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm
- ■ National wetlands inventory map(s). Cite name: http://www.fws.gov/wetlands/Data/Mapper.html
- ☐ State/Local wetland inventory map(s): ____.
- ■ FEMA/FIRM maps: 18113C0217D, eff. 3/15/2015.
- ☐ 100-year Floodplain Elevation is: _____ (National Geodetic Vertical Datum of 1929)
- ■ Photographs:
  - ■ Aerial (Name & Date): State of Indiana Orthophotography, 2017.
  - ■ Other (Name & Date): Site Photographs, 6/23/21, 8/4/21.
- ☐ Previous determination(s). File no. and date of response letter: _____.
- ☐ Other information (please specify): _____.

**IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.**

1/10/2022

Signature and date of
Regulatory Project Manager
(REQUIRED)

Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining the signature is impracticable)

## TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

| Site number | Latitude | Longitude | Cowardin class | Estimated amount of aquatic resource inreview area | Class of aquatic resource |
|---|---|---|---|---|---|
| UNT 1 to Bixler Lake Ditch | 41.425146 | -85.268653 | R4SBC | 28 linear feet (2 feet wide) | Non-section 10 water; subject to 404 jurisdiction – non-wetland waters; ephemeral flow |
| UNT 2 to Bixler Lake Ditch | 41.424641 | -85.268365 | R4SBC* | 436 linear feet (3.5 feet wide) | Non-section 10 water; subject to 404 jurisdiction – non-wetland waters; intermittent flow |
| UNT 3 to Bixler Lake Ditch | 41.425146 | -85.268653 | R4SBC | 331 linear feet (1.75 feet wide) | Non-section 10 water; subject to 404 jurisdiction – non-wetland waters; intermittent flow |
| Wetland A | 41.425391 | -85.267768 | PEM1 | 0.530 acre | Non-section 10 water; subject to 404 jurisdiction – wetland |
| Wetland B | 41.428177 | -85.271537 | PEM1 | 0.017 acre | Non-section 10 water; subject to 404 jurisdiction – wetland |
| Wetland C | 41.428459 | -85.272069 | PEM1 | 0.002 acre | Non-section 10 water; subject to 404 jurisdiction – wetland |
| Wetland D | 41.428065 | -85.272393 | PEM1 | 0.343 acre | Non-section 10 water; subject to 404 jurisdiction – wetland |
| Wetland E | 41.424749 | -85.268425 | PEM1 | 0.003 acre | Non-section 10 water; subject to 404 jurisdiction – wetland |
| Wetland F | 41.423319 | -85.267414 | PEM1 | 0.071 acre | Non-section 10 water; subject to 404 jurisdiction – wetland |
| Wetland G | 41.423296 | -85.266512 | PEM1 | 0.044 acre | Non-section 10 water; subject to 404 jurisdiction – wetland |
| Wetland H | 41.424216 | -85.267047 | PEM1 | 0.002 acre | Non-section 10 water; subject to 404 jurisdiction – wetland |
| Wetland I | 41.425028 | 85.267489 | PEM1 | 0.078 acre | Non-section 10 water; subject to 404 jurisdiction – wetland |

* Cowardin Class determined from USFWS NWI online mapper.

## Marion Wells

**Subject:** FW: Waters Report Approved: Des No. 1900138 Waters Report - SR 3 at Waits Road Noble Co
**Attachments:** 1900138 Waters Report Approved 1.21.2022.pdf

**From:** Koehlinger, Aaron <AKoehlinger@indot.IN.gov>
**Sent:** Friday, January 21, 2022 11:18 AM
**To:** Nick Batta <nbatta@cmtengr.com>
**Cc:** Bass, Jenny R <JBass@indot.IN.gov>; Curry, Jennifer <JCurry1@indot.IN.gov>; Tucker, Miguel <MTucker2@indot.IN.gov>
**Subject:** Waters Report Approved: Des No. 1900138 Waters Report - SR 3 at Waits Road Noble Co



Good morning Nick,

Thank you for submitting the waters report for **Des No. 1900138 Waters Report - SR 3 at Waits Road Noble Co (5/30/2023)**. The approved report can be found on Projectwise through this link: 1900138 Waters Report Approved 1.21.2022.pdf. *It is the responsibility of the Project Manager to forward a copy of this report to the Project Designer.*

The information in this report should be used by the Project Designer to determine if waters of the U.S. will be impacted by the project. Avoidance and minimization of impacts must occur *before* mitigation will be considered. If mitigation is required, the Project Manager or Project Designer must coordinate with the Ecology and Waterway Permitting Office to discuss how adequate compensatory mitigation will be provided.

The Project Manager should notify the Ecology and Waterway Permitting Office if there is any change to the project footprint presented in this report. Such changes may require additional fieldwork and submittal of an updated waters report covering areas not previously investigated. *This report is only valid for a period of five years from the date of earliest fieldwork.* If the report expires prior to waterway permit application submittal, additional fieldwork and a revised waters report will be required.

It will not be sent to the United States Army Corps of Engineers (USACE) or the Indiana Department of Environmental Management (IDEM) until the waterways permit applications are submitted to these agencies.

Please fill out the listed questions below. I will get back to you with a permit determination as soon as possible.

## Permit Determination Questions

Will work go off pavement? What kind of structure work is associated with this project (replacement, painting, scour protection, etc.)? If a pipe liner project, please specify the type and include an INDOT hydraulics memo if available.

What is the estimated total soil disturbance associated with this project in acres? Disturbance includes (among other items) Full depth reclamation and patching should not be counted.

- Shoulder work;
- Construction entrances;
- Riprap drainage turnouts riprap around bridge cones;

- Area under the bridge where equipment will be driving and working;
- Cofferdams or dewatering systems scour work
- Excavation around piers
- Tree clearing
- Full Depth

Will any permanent or temporary work take place below the Q100? If so, is the project considered Rural or Urban? What is the upstream drainage area (in square miles)?

What are the anticipated permanent impacts to any jurisdictional streams (in **linear feet** below ordinary high water mark and in **acres** below ordinary high water mark) and wetlands (acres)?

- Streams
  Linear feet: Acres:
- Wetlands:
  Acres:

What are the anticipated temporary impacts to any jurisdictional streams (in **linear feet** below ordinary high water mark and in **acres** below ordinary high water mark) and wetlands (acres)?

- Streams
  Linear feet: Acres:
- Wetlands
  Acres:

If riprap is being placed for scour protection, is it just being placed on any existing riprap footprint?

Will there be any tree clearing?

Is this project impacting a county regulated drain?

Is this project impacting a section 10 stream/ river?

Are there any known wildlife concerns (nesting swallows, bats, other ETR species located within 0.5 miles of the project)?

For stream channel bottom stabilization does is it exceed one bank full width or 10 linear feet(whichever is greater)?. Rip rap will count as stream bottom stablization. Please also provide the dimensions of the rip rap below OHWM upstream and downstream of the structure.

Please forward a copy of the project plans for my review.

**Aaron Koehlinger**
***Permitting Specialist, Ecology and Waterway Permitting***
***INDOT Environmental Services***
100 N Senate Ave, Room N758-ES
Indianapolis, IN 46204
Hours: M-F 9 am – 5:00 pm
**Office:** (317)296-0308
**Email:** Akoehlinger@indot.IN.gov

**From:** Nick Batta <nbatta@cmtengr.com>
**Sent:** Monday, January 10, 2022 3:32 PM

DNR Indiana Department of Natural Resources

# Floodplain Analysis & Regulatory Assessment (FARA)


Point of Interest

Base Flood Elevation Point

**Flood Elevation Points**

JURISDICTIONAL UNSTUDIED STREAM

**Rivers and Streams at least 1 square mile**

**Drainage Area (sq. miles)**

1 - 10

FEMA Zone AE

Project Area

Point of Interest Coordinates (WGS84)

Long: **-85.2681788995**

Lat: **41.4251270151**

***The information provided below is based on the point of interest shown in the map above.***

County: **Noble**

Stream Name: **Unnamed Tributary**

Approximate Ground Elevation: **992.7 feet (NAVD88)**

Base Flood Elevation:**Not Available**

Drainage Area: **Not available**

Best Available Flood Hazard Zone: **Not Mapped**

National Flood Hazard Zone: **Not Mapped**

Is a Flood Control Act permit from the DNR needed for this location? **See following pages**

Is a local floodplain permit needed for this location? **Contact your local Floodplain Administrator-**

Floodplain Administrator: **Norman Lortie, Building Commissioner**

Community Jurisdiction: **Noble County, County proper**

Phone: **(260) 636-2215**

Email: **nlortie@nobleco.us**

US Army Corps of Engineers District: **Detroit**



Date Generated: 2/10/2022

**Indiana Department of Transportation**
**SR 3 Intersection Improvement at Waits Road**
**INDOT Des No. 1900138**

**Date:** February 11, 2022

**Location:** Kendallville City Hall

**Subject:** Local Agency Coordination

Meeting notes added in red

1. **Introductions**
   a. Attendees from INDOT were Miguel Tucker, Jordan Eldridge and Dana Plattner. Attendees from the City of Kendallville were Scott Derby (Engineering), Lance Waters (Police), and Jeremy McKinley (Fire). Also attended were Logan Ison (Parkview, EMS), Nick Batta (CMT), and Zack Smith (Noble County).

2. **Project History and Needs**
   a. 13 crashes in 2017-2019 (4 injury or fatal); 46% of the crashes either right angle to turning
   b. ICF is 1.99 and ICC is 1.36
   c. Levels of Service adequate
   d. Does not meet signal warrants
   e. Another fatal crash occurred in the spring of 2021
   f. INDOT completed a Road Safety Audit a few years ago
   g. Most of the severe crashes are "far-side" incidents, where traffic crossing SR 3 can across the initial lanes of SR 3 but are they struck once past the median.

3. **Design Status**
   a. Topographic Survey
   b. Stage 1 Plans
   c. Waters Report
   d. Early Utility Coordination

4. **Review of Proposed Improvement**
   a. Benefits of Reduced Conflict Intersections (RCI)
   b. How They Work
   c. Review Current Proposal
   d. INDOT studied 7 of their installed RCIs and found that fatal crashes were reduced by 81% and overall crashes by over 50%.
   e. Special attention will be given to the newly closed median. This may include using delineator posts. (INDOT District Traffic Engineer)
   f. The "pork chop" islands on the Waits Road approaches should be painted (as opposed to raised) (INDOT District Traffic Engineer)

g. Consider extending the left turn lanes of the median so Waits Road traffic can turn directly into them. (INDOT District Traffic Engineer)

**5. Schedule**

a. Stage 2 Plans
b. NEPA Approval
c. Stage 3 Plans
d. Final Tracings
e. Letting
f. Construction bid in August of 2023 with likely construction in the spring of 2024

**6. Next Steps**

a. Preliminary Field Check meeting likely to be held in March or early April
b. Public Meeting likely to be held in the early summer

Indiana Department of Transportation (INDOT)

State Preservation and Local Initiated Projects FY 2020 - 2024

| SPONSOR | CONTRACT # / LEAD DES | STIP NAME | ROUTE | WORK TYPE | LOCATION | DISTRICT | MILES | FEDERAL CATEGORY | Total Cost of Project* | PROGRAM | PHASE | FEDERAL | MATCH | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Comments:Add ROW to STIP. No MPO | | | | | | | | | | | | | | | | | | |
| Noble County | 40490 / 1600678 | M 10 | IR 1017 | Bridge Replacement, Steel | CR 400 E. Bridge No 136 over CSX RR | Fort Wayne | .13 | STBG | $2,800,000.00 | Local Funds | CN | $0.00 | $0.00 | | | ($532,375.00) | $532,375.00 | |
| | | | | | | | | | | Local Bridge Program | CN | $0.00 | $0.00 | | | ($2,129,500.00) | $2,129,500.00 | |
| Comments:Move CN from FY ?22 to ?23. NO MPO | | | | | | | | | | | | | | | | | | |
| Kendallville | 41146 / 1702731 | Init. | ST 1030 | Road Reconstruction (3R/4R Standards) | Drake Rd: from Weston Ave., to Main St | Fort Wayne | .55 | STBG | | Group III Program | CN | $3,533,948.00 | $0.00 | | | | $3,533,948.00 | |
| | | | | | | | | | | Local Funds | CN | $0.00 | $883,487.00 | | | | $883,487.00 | |
| Kendallville | 41146 / 1702731 | A 04 | ST 1030 | Road Reconstruction (3R/4R Standards) | Drake Rd: from Weston Ave., to Main St | Fort Wayne | .55 | STBG | $4,700,000.00 | Group III Program | RW | $226,312.00 | $0.00 | | $226,312.00 | | | |
| | | | | | | | | | | Local Funds | RW | $0.00 | $56,578.00 | | $56,578.00 | | | |
| Comments:Add ROW to STIP. No MPO | | | | | | | | | | | | | | | | | | |
| Noble County | 41151 / 1702729 | Init. | IR 1028 | Road Reconstruction (3R/4R Standards) | CR 400N: from SR 9 to CR 150E | Fort Wayne | 1.44 | STBG | | Group IV Program | RW | $240,000.00 | $0.00 | | $240,000.00 | | | |
| | | | | | | | | | | Group IV Program | CN | $2,248,000.00 | $0.00 | | | | $2,248,000.00 | |
| | | | | | | | | | | Local Funds | RW | $0.00 | $60,000.00 | | $60,000.00 | | | |
| | | | | | | | | | | Local Funds | CN | $0.00 | $562,000.00 | | | | $562,000.00 | |
| Indiana Department of Transportation | 41546 / 1800099 | Init. | US 33 | Bridge Replacement, Other Construction | Bridge Over Carroll Creek, 1.16 Miles South of SR 109. | Fort Wayne | .2 | NHPP | | Bridge Construction | CN | $4,247,417.60 | $1,061,854.40 | | | | $5,309,272.00 | |
| | | | | | | | | | | Bridge ROW | RW | $64,000.00 | $16,000.00 | | | $80,000.00 | | |
| Indiana Department of Transportation | 42375 / 1900138 | A 01 | SR 3 | Other Intersection Improvement | SR 3 at Waits Road, 2.22 miles S of US 6 | Fort Wayne | .37 | STBG | $1,476,742.00 | Safety Construction | CN | $1,101,393.60 | $275,348.40 | | | | | $1,376,742.00 |
| | | | | | | | | | | Safety Consulting | PE | $80,000.00 | $20,000.00 | $100,000.00 | | | | |
| Performance Measure Impacted: Safety | | | | | | | | | | | | | | | | | | |
| Comments:NO MPO. DES 1900138 adding PE to FY 2020 and CN to FY 2024 into FY 2020 - 2024 STIP. | | | | | | | | | | | | | | | | | | |



*Estimated Costs left to Complete Project column is for costs that may extend beyond the four years of a STIP. This column is not fiscally constrained and is for information purposes.

**Land and Water Conservation Fund (LWCF) County Property List for Indiana (Last Updated July 2020)**

| ProjectNumber | SubProjectCode | County | Property |
|---|---|---|---|
| 1800002 | 1800002 | Noble | Chain O'Lakes State Park |
| 1800118 | 1800118A | Noble | Chain O' Lakes |
| 1800135 | 1800135 | Noble | Noble Co. Fairgrounds, Kendallville Fair Grounds |
| 1800161 | 1800161G | Noble | Chain O' Lakes State Park |
| 1800171 | 1800171B | Noble | Chain O' Lakes State Park |
| 1800305 | 1800305H | Noble | Chain O' Lakes State Park |
| 1800312 | 1800312B | Noble | Chain O' Lakes State Park |
| 1800319 | 1800319 | Noble | G. Martin Kenney Memorial Park |
| 1800327 | 1800327C | Noble | Chain O' Lakes State Park |
| 1800353 | 1800353 | Noble | Kelly St. Park |
| 1800358 | 1800358 | Noble | Avilla Park |
| 1800363 | 1800363D | Noble | Chain O' Lakes State Park |
| 1800369 | 1800369E | Noble | Gaff Park (Mainland Park) |
| 1800378 | 1800378A | Noble | Chain O' Lakes State Park |
| 1800391 | 1800391 | Noble | Cromwell Community Park |
| 1800405 | 1800405B | Noble | Big Lake Public Access Site |
| 1800405 | 1800405AA | Noble | Crane Lake Public Access Site |
| 1800405 | 1800405J | Noble | Eagle Lake Wetland Conservation Area |
| 1800405 | 1800405T | Noble | Rome City Wetlands Fish and Wildlife Area |
| 1800405 | 1800405U | Noble | Smalley Lake Public Access Site |
| 1800413 | 1800413J | Noble | Chain O' Lakes State Park |
| 1800492 | 1800492 | Noble | Hidden Diamonds Community Park |
| 1800513 | 1800513 | Noble | Hidden Diamonds Community Park |

*Park names may have changed. If acquisition of publically owned land or impacts to publically owned land is anticipated, coordination with IDNR, Division of Outdoor Recreation, should occur.

# SR 3 Intersection Improvement at Waits Road Engineer's Assessment

## Des Number: 1900138

NOBLE COUNTY

*December 4, 2020*

CMT

8790 Purdue Road, Indianapolis, IN 46268

the north and 800' to the south. The Closed Median RCI will have a MUT spacing of 1500' to the north and 650' to the south. Another potential issue that was discussed during the field check was the addition of a right turn lane along southbound SR 3. This lane would necessitate grading of the adjacent ditch that could require right-of-way takings. This right turn lane is not warranted by volumes but has been a standard treatment for RCI upgrades. Discussions with INDOT determined the right turn lane is not necessary to reduce cost and right-of-way takings for this project.

Two additional alternatives were presented and discussed for improvements to the intersection. The first additional alternative was to remove both MUTs to the south and north and cul-de-sac westbound Waits Road. This option would re-route Waits Road eastbound and westbound traffic to the SR 3 and Main Street intersection to make a typical left turn or through movement. A left turn movement would be allowed on northbound SR 3. Southbound SR 3 traffic would also be re-routed to the Main Street signal to make a left onto Waits Road. The second additional alternative is similar to the first but kept both eastbound and westbound Waits Road as right-in and right-out approaches and maintained the left turn movement for both southbound and northbound SR 3. Waits Road left turn and through movement traffic will still be re-routed to the intersection of SR 3 and Main Street. INDOT requested added travel time analysis of the RCI alternatives along with the additional alternatives discussed at the meeting. This analysis would determine which alternatives were to be proposed in the Engineer's Assessment.

## 3.0 TRAFFIC DATA AND CAPACITY ANALYSIS

This project analyzed traffic movements and crash history in the area surrounding the proposed project area. The extent of the analysis encompassed the existing conditions and geometric design of the study intersection.

To effectively measure the proposed improvements, the identified alternatives were evaluated for operational and safety impacts to the roadway. The analysis includes the existing conditions based upon count conducted in 2020. Future analyses include the design year (2044).

Six alternatives were developed for analysis, including a No Build alternative. Descriptions of the alternatives will be provided in ***Section 5.0.***

### 3.1 TRAFFIC DATA

Traffic Data and turning movement counts used for the study was compiled from 24-hour counts provided by the Indiana Department of Transportation in August 2020 at the intersections of SR 3 and Waits Road and SR 3 and Main St. INDOT previously provided turning movement traffic counts at the SR 3 / Waits Road intersection from 2018. When comparing the two counts at Waits Road, the volumes had decreased by 29% in the AM and 23% in the PM. This is likely due to the COVID-19 related effects. In order to

normalize this data, the traffic counts at both intersections were increased by 1.3 for the year of 2020 to adjust for the immediate drop in traffic; by 0.5 growth rate between years 2020 to 2025; and finally by 1% growth rate between years 2025 and 2044. The full turning movement forecasting is included in ***Appendix C – Traffic Analysis***.

## 3.2 CAPACITY ANALYSIS

The operational analysis associated with this report includes an analysis of the existing conditions and design year traffic volumes. Synchro traffic modeling software (Version 10.3.55.0) and Highway Capacity Software 7 (Version 7.6) were used to analyze each alternative. Highway Capacity Manual (HCM) 2010 default values were used for modeling traffic behavior. While crash history was the main reason for studying this intersection, the existing conditions were analyzed for congestion or capacity issues that had not been previously identified. The results of the existing conditions analysis are presented in ***Table 3.***

TABLE 3 – 2020 EXISTING CONDITIONS

| Criteria | AM | | PM | |
|---|---|---|---|---|
| | LOS | Delay (sec/veh) | LOS | Delay (sec/veh) |
| **Northbound SR 3** | A | 0.0 | A | 0.1 |
| **Southbound SR 3** | A | 0.3 | A | 0.3 |
| **Eastbound Waits Road** | C | 21.5 | C | 22.7 |
| **Westbound Waits Road** | B | 12.9 | C | 18.0 |

The results in ***Table 3*** show that the intersection currently operates at an acceptable level of service (LOS). According to the Indiana Design Manual, the minimum acceptable level of service on a rural arterial is LOS D. The delay for northbound and southbound SR 3 is calculated only for traffic making a left turn.

Intersection performance was analyzed as a mobility measure of effectiveness. The performance criteria set forth in the HCM 2010 for signalized intersections and unsignalized intersections were used to analyze intersections delay and provide a level of service (LOS) for the results of the Synchro and HCS7 analyses. The design year intersection approach's LOS and delay for the No Build and the proposed improvement alternatives are shown in ***Table 4***.

TABLE 4 – LEVEL OF SERVICE SUMMARY

| Alternative | | Eastbound | | Westbound | | Northbound Left | | Southbound Left | | North Median U-Turn | | South Median U-Turn | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) |
| 2044 No Build | AM | D | 32.4 | C | 15.3 | A | 0.0 | A | 0.3 | N/A | N/A | N/A | N/A |
| | PM | E | 36.2 | C | 24.5 | A | 0.0 | A | 0.3 | N/A | N/A | N/A | N/A |
| 2044 Alt 1 Standard RCI | AM | B | 10.7 | B | 11.1 | A | 0.0 | A | 0.3 | A | 8.7 | A | 9.8 |
| | PM | B | 11.9 | B | 11.1 | A | 0.0 | A | 0.3 | B | 10.3 | A | 9.4 |
| 2044 Alt 2 Closed Median RCI | AM | B | 10.8 | B | 11.1 | N/A | N/A | N/A | N/A | A | 8.7 | A | 9.8 |
| | PM | B | 12.0 | B | 11.1 | N/A | N/A | N/A | N/A | B | 10.3 | A | 9.6 |
| 2044 Alt 3 Standard RCI No MUT | AM | B | 10.7 | B | 11.1 | A | 0.0 | A | 0.3 | *B | *13.1 | *A | *7.9 |
| | PM | B | 11.9 | B | 11.1 | A | 0.0 | A | 0.3 | *C | *29.9 | *B | *10.1 |
| 2044 Alt 4 Closed Median RCI No South MUT | AM | B | 10.8 | B | 11.1 | N/A | N/A | N/A | N/A | A | 8.7 | *A | *8.4 |
| | PM | B | 12.0 | B | 11.1 | N/A | N/A | N/A | N/A | B | 10.3 | *B | *10.7 |
| 2044 Alt 5 Closed Median RCI No MUT | AM | B | 10.8 | B | 11.1 | N/A | N/A | N/A | N/A | N/A | N/A | *A | *8.4 |
| | PM | B | 12.0 | B | 11.1 | N/A | N/A | N/A | N/A | N/A | N/A | *B | *10.7 |

* Turn Delays at the intersection of SR 3 and Waits Road

The intersection performance results in ***Table 4*** shows that for the No Build scenerio, if no alignment, capacity, or intersection control changes are implemented, vehicle delays are expected to increase as traffic volumes grow in the future, and the delay experienced falls below the acceptable range for the type of facility.

All alternatives approaches meet the minimum acceptable level of service per the IDM. With the removal of both median U-turns on the alternatives Standard RCI No MUT and Closed Median RCI No MUT additional traffic will be re-routed to the intersection of SR 3 and Main Street. Re-routing traffic to this intersection will create longer delays to make typical median u-turn movements. These delays are still within the minimum acceptable level of service. The alternative Closed Median RCI No South MUT will also route additional traffic to the SR 3 and Main Street intersection. However, westbound Waits Road traffic will use the north MUT to make their movements decreasing the amount of delay at the Main Street signalized intersection. The full synchro results can be found in ***Appendix C – Traffic Analysis.***

SimTraffic was used to calculate the travel times for the all five proposed alternatives. The entire corridor of SR 3 including Waits Road and Main Street were input into Synchro 10 using the AM and PM 2044 design hourly volumes. For each alternative ten simulations of a 60-minute interval were ran to calculate the total travel time of the corridor. The average total travel time of these ten simulations was calculated to capture the total travel time of each alternative. In order to accurately compare the alternatives, adjustments were made to the outputs of the SimTraffic total time travel analysis. The travel time on Waits Road between SR 3 and Main Street and the travel time on Main Street from Waits Road to SR 3 were manually factored in. This was done to account for the Alternative 3 traffic that would have normally traveled on Waits Road to SR 3 but would now reroute to travel down Main Street to SR 3. This reroute was not being captured by SimTraffic. The travel time was calculated based on segment length and posted speed limit for the segment of Waits Road from Main Street to SR 3 and the segment of Main Street from Waits Road to SR 3. The Waits Road segment equated to 0.1 hours travel time and Main Street segment equated to 0.13 hours travel time. For Alternatives 1, 2, 4, and 5, where vehicles travel on the Waits Street segment, we subtracted the 0.1 hours travel time to match what would happen in Alternative 3. The 0.13 hours of travel time was added to Alternative 3 where vehicles travel down Main Street to SR 3. Assumptions were made for Alternative 5 travel time to account for the additional travel time needed for SR 3 northbound left turn vehicles and westbound Waits Road through and left turn vehicles to reroute to the nearest intersection to the north, Ohio Street, to complete the U-turn movement. The adjustment was calculated based on segment length and posted speed as well as an assumed average delay per vehicles for the U-turn at Ohio Street. An average total travel time of the corridor with the adjustment discussed are shown for the AM and PM peak hour volumes of each Alternative in ***Table 5.***

TABLE 5 – SIMTRAFFIC SUMMARY

| Alternative | AM | PM |
|---|---|---|
| | Travel Time (hrs) | Travel Time (hrs) |
| **Alternative 1 Standard RCI** | 30.1 | 42.3 |
| **Alternative 2 Closed Median RCI** | 30.1 | 42.2 |
| **Alternative 3 Standard RCI No MUT** | 31.0 | 43.0 |
| **Alternative 4 Closed Median RCI No South MUT** | 31.4 | 42.6 |
| **Alternative 5 Closed Median RCI No MUT** | 31.5 | 42.8 |

Alternatives 1 and 2 have the lowest total AM and PM combined travel time and Alternatives 3, 4, and 5 have the highest total AM and PM combined travel time, but only account for an average 2.5% increase compared to the lowest total. The exclusion of the south median U-turn in Alternatives 3, 4, and 5 will add travel time in the peak hours as traffic will have to travel to Main Street intersection. Alternate 5 accounts for the additional travel time needed for SR 3 northbound left turn and westbound Waits Road through and left turn vehicles reroute that extends well outside the study limits. This reroute would impact 16 vehicles in the AM Peak and 20 vehicles in the PM Peak causing a disruption to the mobility of the corridor. Alternatives 1 and 2 show the best mobility for all users of the corridor, however have the greatest pavement footprint. Alternatives 3 and 4 reduce the pavement footprint and still provide adequate capacity through the corridor.

## 4.0 CRASH DATA AND ANALYSIS

### 4.1 CRASH DATA

A safety analysis was performed to evaluate historic crash data as well as to compare build and No Build alternatives. The analysis was done only for the study intersection. Historic crash data were reviewed at the intersection of SR 3 and Waits Road. The crash data were provided by INDOT. Within a 3-year period between April 2017 and November 2019, 13 crashes were reported within the study intersection. There were no fatalities reported during the study period. Of the four crashes that resulted in injuries, two were reported as incapacitating injuries. The severe crashes were right angle crashes in 2017 and 2018, and all of the injury crashes within the study period were right angle or turning crashes. These crashes were due to vehicles trying to make a two-stage left turn from eastbound Waits Road onto Northbound SR 3. A breakdown of the crashes by type and location is provided in ***Table 6.***

TABLE 6 – HISTORICAL CRASH SEVERITY DATA (2017-2019)

| | Right Angle / Turning | | | Ran off Road | | | Animal in Roadway | | | Sideswipe | | | Other | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PDO | NIC | F/IC | PDO | NIC | F/IC | PDO | NIC | F/IC | PDO | NIC | F/IC | PDO | NIC | F/IC | |
| **2017** | 1 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **5** |
| **2018** | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **4** |
| **2019** | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | **4** |
| **Total** | **2** | **2** | **2** | **1** | **0** | **0** | **4** | **0** | **0** | **1** | **0** | **0** | **1** | **0** | **0** | **13** |
| **Percentage** | **46%** | | | **8%** | | | **30%** | | | **8%** | | | **8%** | | | |

PDO = Property Damage Only

NIC = Not Incapacitating Injury

F/IC = Fatality/Incapacitating

The data shows that approximately 46% of the crashes at the intersection are right angle or turning movement crashes. One of the common factors cited in right angle crashes was vehicles within the median failing to yield to the right-of-way. Improvement options such as restricted conflict intersections would mitigate frequency and severity of right-angle crashes, which tend to result in more severe crashes. The narratives from the historic crash data of the right turn crashes were reviewed. All right-angle crashes that occurred at the intersection could have been avoided by installing a Standard RCI or a Closed Median RCI due to the restricted left turn on the minor road approaches.

## 4.2 SAFETY ANALYSIS

The crash history for the study intersection was input into INDOT's RoadHAT 3.0 project to compare intersections to similar locations statewide. Indices of crash frequency (ICF) and crash cost (ICC) are calculated to determine how many standard deviations away from average an intersection's crash history and severity are compared to other similar intersections across Indiana. When the RoadHAT results should a positive ICF and ICC, this means the intersection is experiencing a higher frequency of crashes and a more expensive crash cost than similar intersections statewide. Typically, a high positive ICF and ICC would raise a red flag that the intersection should be evaluated for potential safety enhancements. The RoadHAT results provided by INDOT for the current year (2020) traffic volumes and crash history from (2017-2019) can be found in ***Table 7.***

TABLE 7 – ROADHAT RESULTS

| Intersection | 2015-2018 | |
|---|---|---|
| | Icf | Icc |
| **SR 3 and Waits Road** | 1.99 | 1.36 |

The RoadHAT results flag this intersection as a safety concern. The index of crash frequency is two standard deviations higher than similar intersections in the state and the index of crash cost is more than one standard deviation higher than similar intersections in the state. The higher index of crash cost is due to the number and severity of injury crashes at the intersection.

To improve safety at the intersection of SR 3 and Waits Road, crash modification factors (CMFs) were reviewed for possible intersection improvements. CMFs were found from INDOT's CRFs and CMFs Most Suitable for Indiana table. The CMF for converting a two-way stop controlled intersection to a J-turn intersection has a value of 0.65 which indicates a reduction in crashes. This CMF will be applied to the Closed Median RCI. The clearing house website and INDOT CMF Table did not provide a well-substantiated CMF to use for a Standard RCI. In order to differentiate the safety benefits of a Standard RCI and a Closed Median RCI, the number of conflict points present in each configuration was used as a calibration method. There are 16 possible conflict points in a Closed Median RCI and 24 conflict points in Standard RCI intersection. Using

base/existing condition as a CMF of 1 with 42 conflict points and straight-line interpolation between base/existing and the Closed Median RCI CMFs, it results in a CMF value of 0.76. These CMFs can be found in ***Appendix C – Traffic Analysis.*** The table below summarizes how the crash modification factor could reduce the average yearly predicted crashes at the intersection.

Table 8 – CRASH REDUCTION SUMMARY TABLE

| | CMF Value | PDO Crashes | F/I Crashes | % Crash Reduction |
|---|---|---|---|---|
| **Existing Conditions** | -- | 3.7 | 0.7 | -- |
| **Installing Standard RCI** | 0.76 | 2.8 | 0.5 | 24% |
| **Installing Median Closed RCI** | 0.65 | 2.4 | 0.5 | 35% |

INDOT's CRFs and CMFs table also documented that installing a RCI has an additional benefit of potentially decreasing higher severity crashes at the intersection. The CMF value for KABC crash type is 0.46, which would decrease the potential for severe crashes at this intersection by 54%. The RCI configurations limit the opportunities for right angle crashes, which addresses the historically higher severity crashes at this intersection. According to the FHWA Highway Safety Improvement Program Manual table 4.2, Crash Costs by Injury Severity Level, the comprehensive cost for property damage only crash is $7,400 whereas the comprehensive cost for a fatal/injury crash is $158,200, so the reduction in severe crashes from installing a Standard of Closed Median RCI results in considerable crash cost benefits.

# 5.0 ALTERNATIVES ANALYSIS

## 5.1 INTRODUCTION

Six alternatives were analyzed: five build alternatives and the No Build alternative. The summary of each alternative is shown in the section below and each alternative's traffic performance has been previously discussed in this report. Conceptual exhibits can be found in ***Appendix A – Project Graphics***.

Additional alternatives were also considered but discarded early in the assessment.

- A signal warrant analysis was completed and determined that a signal was not warranted for the intersection of SR 3 and Waits Road.
- An alternative which included a cul-de-sac on westbound Waits Road was eliminated as an option. This alternative created the largest increase in composite travel time and impacted most of the existing movements by the re-routing of traffic to SR 3 and Main Street intersection.

# Appendix C

## Traffic Analysis

- Intersection Design Guide
- Road HAT Analysis
- Crash Modification Factors
- Highway Capacity Software 7 Results
- Synchro Results
- SimTraffic Results

| 2024 Call | Stage 2 | SR3 @ Waits Rd | A. KOBRYN |
|---|---|---|---|

Q1

AM: $3.3 \times 3600 / 256 = 46.41$

PM: $3.6 \times 3600 / 289 = 44.84$

Q2

n = Fatal/incap = 6

y = Noninjap = 1

z = PDO = 7

$58(n) + 6(y) + z =$

$58(6) + 6(1) + 7 = 361$

$361 / 3 = 120.33$ crashes/yr

CRF

0.463 - install J turn intersection

$120.33 \text{ crashes/yr} \cdot (0.463) = 55.71$ crash/yr reduced

Q3

$$A = P\left[\frac{i(1+i)^n}{(1+i)^n - 1}\right] = 1{,}200{,}000\left[\frac{0.05(1+0.05)^{20}}{(1+0.05)^{20} - 1}\right] = \$96{,}291$$

$\$96,291 / 3.3$

$\$96,291 / 3.6$ } 3a

$\$96,291 / 55.71 = \$1728.43$ ) 3b

Conventional - No build

Q1

AM: $1.6 \times 3600 / 243 = 23.70$

PM: $1.9 \times 3600 / 278 = 24.60$

Q2

CRF

$118.67 \text{ crashes/yr} \cdot (\ 0\ ) = 0$

# Index of Crash Frequency and Cost - Form F1

Page 1/2

| Location | Intersection of SR 3 and Waits Road | |
|---|---|---|
| | | |
| GIS | | |
| Post | | |
| Analyst | NLP | |
| Date | 6/10/2020 | |

| **INPUT** | |
|---|---|
| Road Facility Type | Unsignalized Rural State-Local Intersection |
| Major Road AADT (veh/day) | 10144 |
| T-intersection Indicator (1 if present, 0 otherwise) | 0 |
| First Year with Crash Data (yyyy) | 2017 |
| Last Year with Crash Data (yyyy) | 2019 |
| Number of Crashes (crash/period) | |
| Fatal and Incapacitating Injury Crashes | 2 |
| Non-Incapacitating and Possible Injury Crashes | 2 |
| Property Damage Only Crashes | 9 |
| Route or Road Type | Unsignalized Rural State-Local Intersection |
| Average Crash Costs ($) | |
| Fatal and Incapacitating Injury Crashes | 459600 |
| Non-Incapacitating and Possible Injury Crashes | 32700 |
| Property Damage Only Crashes | 5000 |
| Crash Cost Year (yyyy) | 2013 |
| **OUTPUT** | |
| Expected Crash Frequency (crash/year) | |
| Fatal and Incapacitating Injury Crashes | 0.050 |
| Non-Incapacitating and Possible Injury Crashes | 0.27 |
| Property Damage Only Crashes | 0.85 |
| All Crashes | 1.17 |
| Index of Crash Frequency | **1.99** |
| Index of Crash Cost | **1.36** |

# Index of Crash Frequency and Cost - Form F1

Page 2/2

| Location | Intersection of SR 3 and Waits Road | |
|---|---|---|
| | | |
| GIS | | |
| Post | | |
| Analyst | NLP | |
| Date | 6/10/2020 | |

**Comments:**

# Description

This table presents the CRFs/CMFs for safety countermeasures that were identified as being the most suitable for Indiana based on the criteria presented in the Joint Transportation Research Program technical report, "Updating the Crash Modification Factors and Calibrating the IHSDM for Indiana". The table contains 82 safety countermeasures spanning 16 different categories. For each countermeasure, the applicable areas type (urban and/or rural), facility type, and CRF/CMF values for various crash types and severities are presented. Finally, the state(s) where each study was conducted and the corresponding reference are provided in the table.