

Appendix D

# WETLAND DELINEATION REPORT

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Jennings County Indiana • Des. No. 0401402

# US 50 NORTH VERNON PROJECT

## WETLAND AND OTHER WATERS DELINEATION REPORT



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## 1.0 Introduction

### 1.1 Project Background

In 2008, INDOT published a Preliminary Alternatives Screening Report for U.S. 50 in Jennings and Jackson Counties and the City of North Vernon. For analysis and evaluation purposes, the study was divided into two sections—a western section from U.S. 31 in Jackson County eastward to Jennings CR 575 W, and an eastern section from CR 575 W eastward to near the Jennings/Ripley County line. The eastern section investigated bypass alternatives around North Vernon and recommended two alternatives for further study.

In 2010, Parsons began work on an Environmental Assessment (EA) to further refine the two bypass alternatives advanced out of the Preliminary Alternatives Screening Report. Due to budget constraints, INDOT scaled back the bypass portion of the project to include only the western half of the bypass envisioned in the Screening Report. This new project proposes a new two-lane roadway connection from U.S. 50 near CR 400 W north and east to S.R. 3, on the north side of North Vernon. The western section of U.S. 50, from US 31 to Jennings CR 575 W, is being advanced as a series of spot improvements, which will be evaluated under a separate environmental document.

The southern terminus of the new roadway project is on U.S. 50 near Jennings CR 400 W. From here, the new roadway will travel northeast and terminate at S.R. 3 on the north side of North Vernon, just south of CR 350 N (See Figure 1). The approximate length of the roadway will be 4.5 miles. This new roadway will help alleviate some of the operational concerns created by commercial truck traffic by creating a new, more efficient access to the industrial areas of North Vernon. The northern terminus at S.R. 3 was chosen to allow for the continuation of the roadway to the east at a later date while maintaining sufficient separation from the intersection of S.R. 3 and CR 350 N.

While two lanes are sufficient to effectively carry traffic in this corridor for the foreseeable future, in accordance with the designation of U.S. 50 as a Statewide Mobility Corridor, INDOT plans to acquire sufficient right-of-way for a future four-lane roadway. The two-lane roadway constructed as part of this project would serve as the westbound lanes of that roadway. Through most of the corridor, a 300-foot wide right-of-way will be acquired, allowing for construction of the eastbound lanes in the future. The impact assessment performed in the EA was based on this full-width corridor. Likewise, for this report, the Study Area is defined as the full 300-foot wide corridor as shown in the accompanying figures.

Based on environmental and engineering investigations and input from the public and agency stakeholders, INDOT developed additional alignments for evaluation in addition to those identified in the Preliminary Alternatives Screening Report. The project was divided into three sections—south, middle, and north—to allow for multiple combinations of alternatives. Through this process, Parsons investigated 5 alternatives in the southern segment, 2 in the middle segment, and 7 in the northern segment. These alternatives went through an initial screening, which eliminated alternatives that had severe impacts or did not meet the project goals. After the initial screening, two alternatives from each segment remained. These alternatives, S1 and S2 in the southern segment, M1 and M2 in the middle segment, and N3 and N6 in the northern segment, were presented to the public at an open house meeting in April 2011. Based on comments received from the public and additional engineering analysis, the S2 and N6 alternatives were modified to minimize impacts, improve operations and reduce

costs. The alignments S1 and S2-Modified, M1 and M2, and N3 and N6-Modified, as well as the “Do-Nothing” alternative, have undergone detailed analysis in the EA.

The engineering and environmental analysis, in conjunction with public comments, led INDOT to select the combination of Alternatives S2-Modified, M2, and N6-Modified as the preferred alternative (see Figure 2, Sheet Index). This combination best meets the project’s Purpose and Need and achieves several other desirable outcomes. Specifically, the preferred alternative:

- Aligns with INDOT’s long-term goals for the U.S. 50 corridor by allowing for completion of a bypass around North Vernon in the future.
- Provides for an efficient connection with existing U.S. 50 to facilitate use of the new roadway.
- Supports the planning and economic development goals of North Vernon and Jennings County.
- Provides the best balance between construction cost and access.
- Minimizes impacts to residences and businesses.
- Minimizes impacts to wetlands and streams.
- Received broad support from the community and agency stakeholders.

This report describes the ponds, streams and wetlands that have been identified within the 300-foot wide Study Area. Water features were located during several field visits from the Fall of 2010 to Summer 2011. The proposed project may result in impacts to these features. Therefore, INDOT anticipates the need to obtain verification from the US Army Corps of Engineers (USACE) regarding the jurisdictional status of wetlands, streams and ponds located within the Study Area, and that authorization from the USACE and the Indiana Department of Environmental Management (IDEM) to discharge fill in these features is necessary.

## 1.2 Project Area Description

### Location

The US 50 new roadway project is located in Jennings County, Indiana, from near the intersection of U.S. 50 and CR 400 W to a point south of CR 350 N on S.R. 3.

### General Land Use

The Study Area is located within the Level IV ecoregion 55d: Pre-Wisconsinan Drift Plains, part of the Eastern Corn Belt Plain ecoregion as delineated by the U.S. Environmental Protection Agency (USEPA, 2011). The area is dominated by agriculture, including both row-crop and livestock farming operations. Trees including black walnut (*Juglans nigra*), silver maple (*Acer saccharinum*), sweetgum (*Liquidambar styraciflua*), sycamore (*Platanus occidentalis*), and green ash (*Fraxinus pennsylvanica*) are common in this area. Black raspberry (*Rubus occidentalis*), and swamp rose (*Rosa palustris*) are located on the edges of farm fields and woodlots, while nuisance exotic bushes like honeysuckle (*Lonicera maackii*) dominate the understory of some disturbed woodlands. There are scattered residential developments throughout the project area, as well as some urban land uses near the northern terminus of the project.

### Topography and Drainage

The elevation of the 4.5 mile-long Study Area ranges from about 700 to 740 feet above sea level. The Study Area is located within the Muscatatuck 8-Digit watershed (Hydrologic Unit Code 05120207, see Figure 3). The majority of the project area is drained by tributaries to Sixmile Creek, which flows into the Vernon Fork of the Muscatatuck River. The southern portion of the Study Area also has a few areas

that drain into tributaries of Indian Creek, which also flows into the Vernon Fork. There are no mapped Federal Emergency Management Agency (FEMA) floodplains within the Study Area (see Figure 4).

### National Wetland Inventory Mapped Wetlands

National Wetland Inventory (NWI) mapping of the Study Area identified four ponds (PUBGh) and one wetland (PFO1A) within the study area (see Figure 2). All four ponds are man-made impoundments within a naturally-occurring drainage. A fifth pond appears to be within the Study Area (see Figure 2, Sheet 2) but it is actually missed by the proposed project alignment (see Figure 6, Sheet 2). The majority of the forested wetland (PFO1A) as seen in Figure 2, Sheet 8, was not identified in the field during the site visits. A small portion of the mapped NWI wetland was delineated as T1-W10, which is discussed in the Results section below.

The NWI maps identify potential wetlands. The NWI maps were prepared from high-altitude photography and were not field-checked in most cases. Because of this, wetlands are sometimes identified incorrectly or missed. Additionally, the criteria used in indentifying these wetlands were different from the criteria currently used by the USACE. The USACE does not accept the use of the NWI maps to make a wetland determination.

### Soil Associations and Series

The US Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey identifies twenty different soil types within the Study Area (Figure 5). Only one soil unit, Cobbsfork silt loam, 0 to 1 percent slopes, is designated as hydric. All other soils within the Study Area are designated as non-hydric (See Table 1).

**Table 1: Soils in the Study Area**

Symbol	Description	Hydric rating
AddA	Avonburg silt loam, 0 to 2 percent slopes	Not Hydric
AddB2	Avonburg silt loam, 2 to 4 percent slopes, eroded	Not Hydric
BlbB2	Blocher, soft black shale substratum-Jennings silt loams 2 to 6 percent slopes, eroded	Not Hydric
BlcC3	Blocher, soft black shale substratum-Jennings silt loams 6 to 12 percent slopes, severely eroded	Not Hydric
BlgC2	Blocher-Cincinnati silt loams, 6 to 12 percent slopes, eroded	Not Hydric
BlgC3	Blocher-Cincinnati silt loams, 6 to 12 percent slopes, severely eroded	Not Hydric
BnuD3	Bonnell-Blocher-Hickory complex, 12 to 25 percent slopes, severely eroded	Not Hydric
CldB2	Cincinnati-Blocher silt loams, 2 to 6 percent slopes, eroded	Not Hydric
ClfA	Cobbsfork silt loam, 0 to 1 percent slopes	Hydric
DtwC2	Deputy silt loam, 6 to 15 percent slopes, eroded	Not Hydric
DtzC3	Deputy-Tappist silty clay loams, 6 to 15 percent slopes, severely eroded	Not Hydric
HleAW	Holton silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration	Not Hydric
NaaA	Nabb silt loam, 0 to 2 percent slopes	Not Hydric
NaaB2	Nabb silt loam, 2 to 6 percent slopes, eroded	Not Hydric
OfaAW	Oldenburg silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration	Not Hydric
PcrB2	Pekin silt loam, 2 to 6 percent slopes, eroded	Not Hydric
SceA	Scottsburg silt loam, 0 to 2 percent slopes	Not Hydric
ScfB2	Scottsburg-Deputy silt loams, 2 to 6 percent slopes, eroded	Not Hydric
Uby	Udorthents, loamy	Not Hydric
WnmA	Whitcomb silt loam, 0 to 2 percent slopes	Not Hydric

Hydric soils are soils that have formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper layer of the soil. Hydric soils are a strong indication that wetlands currently exist or recently existed within the mapped soil unit. Hydric soil units alone are not sufficient to classify an area as wetland and must be verified during a wetland field determination.

## 1.3 Jurisdictional Guidance

The USACE and IDEM regulate impacts to surface water resources within the State of Indiana. Jurisdictional waters of the United States are protected under Sections 401 and 404 of the Clean Water Act (CWA) and Executive Order 11990. The USACE has the primary regulatory authority for enforcing Section 404 requirements for waters of the United States. Indiana also has a state program protecting surface waters for both isolated and non-isolated wetlands and other “waters of the State.”

### 1.3.1 Federal Jurisdiction

Wetlands are a category of waters of the United States, and they are defined by the USACE as “areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3, USACE; Section 8b). Typical wetlands include bogs, marshes and swamps but also may include temporarily or seasonally flooded depressions that receive overland storm-water runoff or overbank floodwaters.

In 1987 the USACE published a document to assist in determining the boundaries of a wetland (Environmental Laboratory, 1987). This document, referred to as the 1987 Corps Manual, contains information related to soils, hydrology and plants. Section 2 further describes the methodologies for determining wetland boundaries.

### Rapanos Guidance

Based on current guidance by the USEPA, only those wetlands that are adjacent to traditional navigable waters or wetlands that directly abut non-navigable tributaries having a seasonal (3-month minimum) flow are now considered jurisdictional under the CWA. The USEPA and USACE issued a joint memo (USEPA/USACE, 2007) with the following key points that has become known as “Rapanos Guidance:”

The agencies will assert jurisdiction over the following waters:

- Traditional navigable waters;
- Wetlands adjacent to traditional navigable waters;
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months);
- Wetlands that directly abut such tributaries.

The agencies will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with traditional navigable water:

- Non-navigable tributaries that are not relatively permanent;
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent;
- Wetlands adjacent to but do not directly abut a relatively permanent non-navigable tributary.

The agencies generally will not assert jurisdiction over the following features:

- Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow);
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

The agencies will apply the significant nexus standard as follows:

- A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters;
- Significant nexus includes consideration of hydrologic and ecologic factors.

### **JD Guidebook**

The document titled *The U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* was created by the USACE and USEPA as a joint effort to aid field staff in preparing the *Approved Jurisdictional Determination Form* (“JD Form”). The JD Form is a seven page “key” that assists practitioners in determining the jurisdictional status of a given wetland, stream, pond or other type of water body. The JD Guidebook was determined to be necessary following the issuance of the Rapanos Guidance.

This guide book helps clarify the USACE expectation for documentation of waters of the United States. The document helps with clarifying the difference between Traditional Navigable Waters (TNWs), Relatively Permanent Waters (RPWs), and Non-Relatively Permanent Waters (Non-RPWs). It also contains helpful information related to wetland adjacency—wetlands directly abutting other waters, impoundments, isolated wetlands, pipes, ditches, swales, and erosional features. The JD Guidebook also assists in determining significant nexus.

### **1.3.2 State Jurisdiction**

“Waters” within the State of Indiana are defined as bodies of water—on the surface and underground, natural and artificial, public and private—which are wholly within, flow through or border upon Indiana. The term includes all waters of the United States, as defined in Section 502(7) of the federal Clean Water Act (33 U.S.C. 1362 (7)), that are located in Indiana.

Although not specifically mentioned within the Indiana Code’s definition of state “waters,” Indiana “waters” do include, and are not limited to, streams and wetlands (both isolated and non-isolated). State of Indiana “waters” do not include exempt isolated wetlands, private ponds, or off-stream ponds, reservoirs, wetlands, or other facilities built for reduction or control of pollution or cooling of water before discharge (IC 13-11-2-265). The State of Indiana relies on the USACE decision regarding wetland determinations and delineations, including whether or not a wetland is isolated or non-isolated.

## 2.0 Methods

Delineation methodology for wetlands, ponds, and streams located in the Study Area are described in this section as well as criteria for assessing the functions and values of these resources.

### 2.1 Wetlands

Wetlands are identified using the guidance provided in the 1987 Corps Manual. The presence of potentially jurisdictional wetlands is determined by the positive indication of three criteria in accordance with the 1987 Corps Manual: the presence of greater than 50% hydrophytic (wetland) vegetation, a minimum of one primary or two secondary indicators of hydrology and one positive hydric soil indicator. In addition, the USACE recently issued a Regional Supplement (RS) for this area of the United States (Midwest Region). Methodologies are utilized in accordance with the RS.

A dominance of hydrophytic vegetation is the first indicator used during the field determination effort to identify wetlands within the Study Area. Although the presence of wetland vegetation is the first indicator used to identify wetland, topographic signatures such as depressional features, and areas exhibiting signs of wetland hydrology, such as saturated soils, water marks, algal mats, etc., if observed, are also investigated as potential wetlands. Soil pits are dug in representative areas to evaluate soil characteristics and assist in determining if indicators of wetland hydrology are present. Evidence of wetland hydrology is assessed within the soil pit by observing saturated soils within the upper 12 inches and/or documenting the presence of water within the upper 12 inches of the pit. Other signs of hydrology may include, but are not limited to, drainage patterns, surface water, rafted debris, and crayfish burrows.

Once it is determined that the wetland vegetation, soil, and hydrology criteria are met, notes pertaining to flora, soil and hydrology are recorded on a Wetland Determination Data Form (see Appendix B), following guidance provided in the RS. Data is collected from one wetland and one upland data point for each wetland system. A photo point is taken, usually in proximity to the wetland data point, but occasionally a better vantage point away from the data point is used to better depict the characteristics of a wetland (see Appendix A).

Each wetland is delineated using a sub-meter GPS unit (Trimble Geo-XH). Notes pertaining to significant nexus and the potential for USACE jurisdiction are also recorded at each wetland. Wetlands are identified as isolated waters if they do not directly connect to, are not adjacent to, or do not abut a jurisdictional channel.

Wetlands are classified utilizing the Cowardin Classification System (Cowardin et.al., 1979), which identifies three principal classes of wetland and open water habitats: Palustrine, Riverine, and Lacustrine. Palustrine wetland communities are divided into eight types. The three Palustrine types frequently encountered in Indiana are Palustrine Emergent (PEM), Palustrine Scrub-Shrub (PSS), and Palustrine Forested (PFO). PEM wetlands are characterized by a vegetation pattern that is dominated by herbaceous species such as wildflowers and grasses and lack a shrub or tree stratum. PSS wetlands are defined as areas where woody vegetation such as smaller trees and shrubs (< 20 feet tall) dominate the area. PFO wetlands are dominated by trees taller than 20 feet.

## **Function and Value Assessment of Wetlands**

The methodology used in assessing the functions and values of wetlands located within the Study Area is the Indiana Wetland Rapid Assessment Protocol (InWRAP). InWRAP was developed by Taylor University Environmental Research Group (TERG) as an efficient way to quickly, and with a confident level of accuracy, assess the quality of a wetland (TERG, 2005). The InWRAP utilizes three tiers of assessment in evaluating wetlands.

**Tier 1: Assessment Overview.** This tier examines the size and landscape position of the wetland and if it is located on an NWI map. This tier also examines the wetland's connectivity to other wetlands and the type and intensity of the surrounding land use.

**Tier 2: Preliminary Assessment.** This tier documents the geomorphic position, hydrology, soil, and the wetland community type. This tier also documents disturbances to hydrology and observations of invasive plant species and the presence of federal or state rare, threatened or endangered species.

**Tier 3: Rapid Indicators.** This tier examines water quality, flood and storm water storage, and animal habitat and plant species located within the wetland. Each documented plant species has a corresponding Coefficient of Conservatism (C) that ranges from 0 to 10. The concept is that plants with a higher C value are more likely to be found in communities with less habitat disturbance.

For each wetland identified in the Study Area, an InWRAP form was completed during the site visit. Corresponding C values for each species recorded on the USACE delineation form was used to calculate the average C value for the wetland. Based on this information, an InWRAP summary (see Appendix C) was prepared for each wetland to determine the overall quality of the wetland system. This summary includes information on the number of dominant species at each wetland data point and the average C of those species.

## **2.2 Ponds**

Open water systems such as lakes, aesthetic ponds, farm ponds, dammed streams, retention ponds, reservoirs, borrow pits and similar are open water systems, and the limits are defined by the Ordinary High Water Mark (OHWM) near the shoreline or the edge of its littoral fringe (if one is present and meets the 1987 Corps Manual criteria for a wetland). The OHWM is the line on the shore or bank established by flowing and/or standing water, marked by characteristics such as a clear, natural line impressed on the bank, erosion shelving, changes in the character of the soil, destruction of terrestrial vegetation, presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Ponds encountered during the field determination effort were identified as bodies of open water if no emergent vegetation was visible above the surface of the water. These areas were designated as ponds, not wetlands. Those ponds which developed naturally by fluvial erosion processes were considered jurisdictional if they were connected via a channel containing a continuous OHWM and met the significant nexus criteria.

## **2.3 Streams**

Potential boundaries for these water resources were delineated in the field at the OHWM. Typically, waterways with an OHWM are identified as perennial, intermittent or ephemeral. An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral streambeds are located above the water table year-round. Furthermore, groundwater is not

a source of water for the stream. Runoff from rainfall is the primary source of water for ephemeral stream flow. An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow, and runoff provides a supplemental source of water. During dry periods, intermittent streams may not have flowing water. Perennial streams have flow throughout the year except during drought conditions. The water table is located above the stream bed for most of the year. (Federal Register, 2000)

The USGS quadrangle maps provide limited assistance in locating stream types as they depict solid blue lines to indicate perennial flow and dashed lines to indicate intermittent flow. Ephemeral drainages are not identified on these maps.

All streams, regardless of potential connectivity to other “waters,” were delineated. Assumptions were made as to whether or not the stream eventually drained into another “water of the U.S.” as the limit of study did not allow for a full investigation of connectivity. Aerial photography and topographic maps were utilized as aides in supporting decisions regarding connectivity with other “waters.”

### **Function and Value Assessment for Streams**

Two different function and value assessment methodologies were used, which were dependent on the size of the stream’s immediate watershed (drainage area). These methodologies include the Qualitative Habitat Evaluation Index (QHEI) for larger streams and the Headwater Habitat Evaluation Index (HHEI) for smaller streams. Each of these assessment methodologies are described in more detail below.

#### *HHEI*

As described in detail in the Field Evaluation Manual for Ohio’s Primary Headwater Habitat Streams (State of Ohio Environmental Protection Agency (OEPA), 2009), a primary headwater habitat stream is a “surface water of the state, having a defined bed and bank, with either continuous or periodical flowing water, with watershed areas less than or equal to 1.0 square mile, and a maximum depth of water pools less than or equal to 40cm.” Primary headwater habitat streams are defined based on substrate type, quality, maximum pool depth and bank full width.

#### *QHEI*

The QHEI was developed by the OEPA to assess available habitat for fish communities, invertebrates and other aquatic organisms by visually assessing the bed, bank and riparian areas of free-flowing streams. The QHEI is similar to the HHEI in that a score is given to a particular stream segment based on the sum of metrics. The six metrics that comprise the composite score are substrate, in-stream cover, channel morphology, bank erosion and riparian zone, pool/glide and riffle/run quality, and gradient (OEPA, 2006). Each of these categories is subdivided into specific attributes that are assigned a point value reflective of the attribute’s impact on the aquatic life. Highest scores are assigned to the attributes correlated to streams with high biological diversity and integrity and lower scores are progressively assigned to less desirable habitat features. The QHEI is typically utilized for streams with either continuous or periodic flowing water, with a watershed area greater than 1 square mile.

## 3.0 Results

### 3.1 Wetlands

**Table 2: Wetlands within the Study Area**

Wetland ID	Photo Number	Lat. / Long.	Type	Delineated Area (acres)*	Area within Study Area (acres)**	Isolated?
T2-W8	1	38.984600 N 85.684300 W	PEM	0.81	0.12	No
T1-W10	2	39.027500 N 85.648100 W	PFO	0.53	0.30	No
T1-W23	3	39.014200 N 85.663100 W	PFO	0.02	0.02	No
T1-W31	4	39.033600 N 85.642200 W	PEM	0.22	0.04	No
T1-W32	5	39.007600 N 85.663600 W	PEM	0.44	0.33	No
T1-W33	6	39.008600 N 85.663500 W	PEM	0.66	0.44	No
T1-W34	7	38.988500 N 85.684800 W	PFO	0.45	0.04	No
T1-W36	8	38.988700 N 85.681800 W	PEM	0.02	0.02	No
T1-W37	9	38.988700 N 85.681800 W	PEM	0.12	0.12	No
T1-W40	10	38.987700 N 85.681500 W	PFO	0.31	0.23	No
T1-W41	11	38.987600 N 85.681800 W	PEM	0.10	0.09	No
T1-W42	12	38.987100 N 85.682100 W	PEM	0.25	0.17	No
T1-W43	13	38.987200 N 85.681300 W	PEM	0.10	0.10	No
T1-W44	14	38.985800 N 85.684100 W	PEM	0.05	0.05	No
<b>Total Acres</b>				<b>4.08</b>	<b>2.07</b>	

\*In most cases, the wetland boundary extends outside of the proposed road corridor.

\*\*Study area is defined as a 300ft wide corridor as shown on the included figures.

#### Wetland T2-W8

This wetland is located just east of CR 400 W on the south side of U.S. 50 and is adjacent to a tributary of Indian Creek. It has a Cowardin classification of PEM and occurs in the soil series Avonburg silt loam (AddA) and Cobbsfork silt loam (ClfA). The soil in this wetland was observed to contain a low chroma with a depleted matrix meeting the hydric soil criterion. The dominant species in this wetland, common rush (*Juncus effuses*, OBL), false nut sedge (*Cyperus strigosus*, FACW), and a sedge species (*Carex sp.*, FACW), meet the hydrophytic vegetation criterion. Four indicators of hydrology, oxidized rhizospheres, surface soil cracks, drainage patterns and FAC-neutral test, are present and thus the site meets the hydrology criterion.

Based on the InWRAP Summary, the Indiana community type is sedge meadow with a “more favorable” value for animal habitat, using a valuable, more favorable, favorable or poor rating. On a scale of good, medium or poor, the overall water quality and flood storage of this wetland is “medium” and “poor”, respectively. The average C value for the dominant plant species in the wetland is 2.25. On a scale of good, medium or poor, the C average is “poor” (under 3.0).

#### **Wetland T1-W10**

This wetland is located south of CR 300 N and north of the abandoned Indianapolis-Madison Railroad line. It is adjacent to a perennial tributary (T1-S8) to Sixmile Creek and has a Cowardin classification of PFO. It occurs in the soil series Pekin silt loam (PcrB2) and Oldenburg silt loam (OfaAW). The soil profile displayed a low chroma and a depleted matrix and met hydric soils field indicator F3. Dominant species include green ash (*Fraxinus pennsylvanica*, FACW), American elm (*Ulmus americana*, FACW-), and common wood reed (*Cinna arundinacea*, FACW). Hydrology was indicated by observance of drainage patterns, crayfish burrows, geomorphic position, and a FAC-neutral test.

Based on the InWRAP Summary, the Indiana community type is floodplain forest with a “valuable” rating for animal habitat. The ratings for overall water quality and flood storage are “good.” The average C value for the dominant plant species in the wetland is 2.25, which is “poor.”

#### **Wetland T1-W23**

This wetland is located just south of CR 200 N, within an ephemeral tributary (T1-S49A) to Sixmile Creek. It is classified as a forested (PFO) wetland and is underlain by Blocher-Cincinnati silt loam (BlgC2). The soil profile meets field indicator F3: Depleted Matrix. Wetland hydrology is present (soil saturation within 4 inches of the surface) and indicated by a sparsely vegetated concave surface, drainage patterns, and a FAC-neutral test. Dominant plant species are sweetgum (*Liquidambar styraciflua*, FACW), green ash, reed canarygrass (*Phalaris arundinacea*, FACW+) and soft-stem bulrush (*Schoenoplectus tabernaemontani*, OBL), which satisfies the vegetation criterion.

Based on the InWRAP Summary, the Indiana community type is swamp forest with a “more favorable” value for animal habitat. The overall water quality and flood storage of this wetland is “poor” and “medium,” respectively. The average C value for the dominant plant species in the wetland is 2.25, which is a “poor” rating.

#### **Wetland T1-W31**

Wetland 31 is a shallow, emergent (PEM) wetland west of S.R. 3, near the north end of the project. It lies along the north edge of a pond that was formed by damming a small ephemeral tributary to Sixmile Creek. The mapped soil units under this wetland are Avonburg silt loam (AddA) and Cobbsfork silt loam (ClfA). A soil profile with low chroma and a depleted matrix satisfied the hydric soil criterion. Hydrology was both present (soil was saturated within 8 inches of the surface) and indicated by drainage patterns, crayfish burrows, geomorphic position and a FAC-neutral test. Although there are a few tree species present along the north edge of the wetland, the areas of the wetland within the study area are dominated solely by herbaceous species. The dominant species in the herbaceous layer are soft-stem bulrush, redtop (*Agrostis gigantea*, FACW), jewelweed, (*Impatiens capensis*, FACW) and tussock sedge (*Carex stricta*, OBL), which satisfies the vegetation criterion.

Based on the InWRAP Summary, the Indiana community type is sedge meadow with a “valuable” rating for animal habitat. The ratings for overall water quality and flood storage are “medium.” The average C value for the dominant plant species in the wetland is 2.83, which is a “poor” rating on the scale.

#### **Wetland T1-W32**

Wetland 32 is in a shallow drainage swale in a row-crop agricultural field just north of CR 150 N. The mapped soil types here are Deputy-Tappist silty clay loam (DtzC3) and Scottsburg-Deputy silt loam (ScfB2). A soil profile with low chroma matrix and prominent redox features satisfies the hydric soil criterion. Wetland hydrology is both present (saturation was observed at the surface) and indicated by an algal crust, drainage patterns, crayfish burrows, geomorphic position, and a FAC-neutral test. This wetland, which is classified as an emergent wetland (PEM), is dominated by redtop and butterweed (*Senecio glabellus*, OBL). Water flows west through this wetland and enters a man-made impoundment on a tributary to Sixmile Creek.

Based on the InWRAP Summary, the Indiana community type is sedge meadow with a “more favorable” value for animal habitat. The overall water quality and flood storage of this wetland is “medium” and “good.” The average C value for the dominant plant species in the wetland is 0.0, a “poor” rating.

#### **Wetland T1-W33**

Wetland 33 is located approximately 300 feet north of Wetland 32 in a farm field drainage swale. It is also an emergent wetland (PEM) and lies on Deputy silt loam (DtwC2) soils. Dominant species within the wetland are giant goldenrod (*Solidago gigantea*, FACW), redtop, reed canarygrass, and barnyard grass (*Echinochloa crus-galli*, FACW). A soil profile with a depleted matrix meets the soil criterion, while wetland hydrology is both present (saturation at the surface) and indicated (drift deposits, algal crust, drainage patterns, crayfish burrows, geomorphic position, and a FAC-neutral test). Water flows west through this wetland to a man-made impoundment of a tributary to Sixmile Creek.

Based on the InWRAP Summary, the Indiana community type is sedge meadow with a “more favorable” value for animal habitat. The overall water quality and flood storage of this wetland is “medium” and “good.” The average C value for the dominant plant species in the wetland is 1.0, which is a “poor” rating.

#### **Wetland T1-W34**

This is a forested (PFO) wetland just east of CR 400 W, north of Base Road. The wetland is in a shallow swale downstream of the outlet of a nearby pond. Two soil units, Blocher-Cincinnati silt loams (BlgC3) and Nabb silt loam (NaaB2) are mapped in this area. The hydric soil criterion is satisfied by a soil profile with a depleted matrix. Wetland hydrology is both present (soil is saturated within 2 to 6 inches of the surface throughout the wetland), and indicated by water-stained leaves, oxidized rhizospheres, drainage patterns, crayfish burrows, geomorphic position and a FAC-neutral test. Dominant species are pin oak (*Quercus palustris*, FACW), green ash, American elm, and jewelweed. Beyond the wetland, the pond drainage crosses under CR 400 W and is a tributary to Sixmile Creek.

Based on the InWRAP Summary, the Indiana community type is swamp forest with a “valuable” rating for animal habitat. The overall water quality and flood storage of this wetland is “good” and “medium.” The average C value for the dominant plant species in the wetland is 2.25, or “poor.”

### **Wetlands T1-W36 and T1-W37**

These are 2 emergent wetland (PEM) depressions in a grassy field just north of the CSX railroad, east of CR 400 W. The mapped soil unit in this area is Cobbsfork silt loam (ClfA) and the soil profile contains a depleted matrix, which satisfies the hydric soil criterion. Both wetlands have water at the surface and other indicators of hydrology, such as an algal crust, crayfish burrows, and saturation that is visible on aerial imagery. Three obligate wetland species are dominant in these wetlands. These species are common rush, soft-stem bulrush, and bottlebrush sedge (*Carex hystericina*, OBL).

Based on the InWRAP Summary, the Indiana community type is sedge meadow with a “favorable” value for animal habitat. The ratings for both overall water quality and flood storage are “medium.” The average C value for the dominant plant species in the wetland is 4.0, which gives this wetland a rating of “medium” (between 3 and 5).

### **Wetland T1-W40**

Wetland 40 is located south of the CSX railroad, just north of the end of Private Road 375 W. This area is classified as a forested wetland (PFO) and is located on a mapped area of Cobbsfork silt loam (ClfA) soils. The soil profile reveals a depleted matrix (Field Indicator F3) with many, prominent redox features. Wetland hydrology is indicated by a sparsely vegetated concave surface, water stained leaves, geomorphic position, and a FAC-neutral test. The dominant species in this wetland are pin oak, American elm, silver maple (*Acer saccharinum*, FACW), buttonbush (*Cephalanthus occidentalis*, OBL), black bulrush (*Scirpus atrovirens*, OBL), and tall fescue (*Festuca arundinacea*, FACU+). This wetland appears to drain south through Wetland 43 to a tributary of Indian Creek.

Based on the InWRAP Summary, the Indiana community type is swamp forest with a “more favorable” value for animal habitat. The overall water quality and flood storage ratings of this wetland are “medium.” The average C value for the dominant plant species in the wetland is 2.7, which is “poor”.

### **Wetland T1-W41**

Wetland 41 is an emergent (PEM) wetland just south of the CSX railroad and just north of the end of Private Road 375 W. The mapped soil unit is Cobbsfork silt loam (ClfA) and the soil profile meets field indicator of hydric soils F3: Depleted Matrix. The hydrology criterion is satisfied by several indicators of wetland hydrology: algal crust, water-stained leaves, saturation visible on aerial photography, geomorphic position, and a FAC-neutral test. There is only one dominant species, common spike rush (*Eleocharis palustris*, OBL), in this wetland, but it satisfies the vegetation criterion. This wetland appears to be hydrologically connected to Wetland 40, and thus drains into a tributary of Indian Creek.

Based on the InWRAP Summary, the Indiana community type is sedge meadow with a “more favorable” value for animal habitat. The overall water quality and flood storage ratings are “medium.” The average C value for the dominant plant species in the wetland is 8.0, which is a “good” (greater than 5.0) rating on the scale.

### **Wetland T1-W42**

This emergent wetland (PEM) is located just west of Wetlands 40 and 41, just south of the CSX railroad and northwest of Private Road 375 W. It is underlain by Cobbsfork silt loam (ClfA) and Avonburg silt loam (AddA). A soil profile with a depleted matrix meets the soils criterion. Two of the three dominant species—yellow nut sedge (*Cyperus esculentus*, FACW), nodding spurge (*Chamaesyce nutans*, FACU), and blunt spike rush (*Eleocharis obtusa*, OBL)—are hydrophytic, thus satisfying the vegetation criterion.

Wetland hydrology is indicated by the observance of an algal crust, saturation that is visible on aerial imagery, geomorphic position, and a FAC-neutral test.

Based on the InWRAP Summary, the Indiana community type is sedge meadow with a “more favorable” value for animal habitat. The overall water quality and flood storage of this wetland is “medium.” The average C value for the dominant plant species in the wetland is 0.0, a “poor” rating.

#### **Wetland T1-W43**

Wetland 43 is an emergent wetland (PEM) that is contiguous with the PFO Wetland 40. It is located in a shallow swale near the north end of Private Road 375 W. It is on a mapped area of Cobbsfork silt loam (ClfA) and receives surface waters from Wetlands 40 and 41 before draining into a tributary of Indian Creek. The soil profile meets field indicator F3: Depleted Matrix and wetland hydrology is indicated by an algal crust, geomorphic position, and a FAC-neutral test. The vegetation criterion is satisfied by the single dominant species, barnyard grass (*Echinochloa crus-galli*, FACW).

Based on the InWRAP Summary, the Indiana community type is sedge meadow with a “valuable” rating for animal habitat. The overall water quality and flood storage of this wetland is “medium.” The average C value for the dominant plant species in the wetland is 0.0, which is a “poor” rating.

#### **Wetland T1-W44**

Wetland 44 is in the same grassy field as Wetlands 41 and 42. This emergent wetland (PEM) is between the CSX railroad and existing U.S. 50, near the Base Road/CR 400 W intersection. Like the nearby wetlands, it is underlain by Cobbsfork silt loam (ClfA) soils and meets field indicator of hydric soils F3: Depleted Matrix. Wetland hydrology is indicated by saturation that is visible on aerial imagery, geomorphic position and a FAC-neutral test. Two of the three dominant species, barnyard grass, yellow nut sedge, and nodding spurge, are hydrophytes, and thus meet the vegetation criterion.

Based on the InWRAP Summary, the Indiana community type is sedge meadow with a “favorable” value for animal habitat. The overall water quality and flood storage of this wetland is “medium.” The average C value for the dominant plant species in the wetland is 0.0, a “poor” rating.

### **3.2 Ponds**

Four ponds were delineated within the Study Area. Pond T1-P2 (Figure 6: Sheet 5) appears to drain south into a tributary of Indian Creek. Ponds T1-P3, T1-P4 and T1-P5 (Figure 6: Sheets 8-9) drain into tributaries of Sixmile Creek. These four ponds are not isolated and have a significant nexus with a “water of the U.S.” Table 3 on the next page summarizes the ponds located within the Study Area.

**Table 3: Ponds Located within the Study Area**

Pond ID	Photos	Lat. / Long.	Total Area of Pond (acres)*	Acres within Study Area	Waters of the US?
T1-P2	51	39.002900 N 85.664700 W	1.30	1.30	Yes
T1-P3	52	39.023300 N 85.653500 W	0.27	0.16	Yes
T1-P4	53	39.032500 N 85.642900 W	0.57	0.15	Yes
T1-P5	54	39.033100 N 85.642700 W	0.33	0.33	Yes
<b>Total</b>			2.47	1.94	

\*In some instances, the delineated feature extends beyond the 300 foot corridor

### 3.3 Streams

The U.S. 50 Study Area, located in the City of North Vernon and Jennings County, Indiana was surveyed for the presence of waters of the U.S. Eighteen streams were identified in the Study Area. The total length for streams located within the Study Area is 5,075 feet and the total area of these streams is approximately 0.675 acre. This Study Area is within the drainage area of two major stream systems, Indian Creek and Sixmile Creek. Table 4 on the next page lists the streams that were delineated within the Study Area. HHEI/QHEI forms were completed for each stream and are located in Appendix D.

### 4.0 Summary

A total of 14 wetlands with two classification types totaling 4.08 acres, 4 ponds totaling 2.47 acres, and 18 jurisdictional streams totaling 5,075 linear feet were delineated within the Study Area. The USACE has the authority to determine that this report is accurate and meets the requirements for a wetland delineation.

**Table 4: Streams Located within the Study Area**

Stream ID	Photo Nos.	Waterbody Name	Stream Type	Rapanos type	Avg. Width at OHW (ft.)	Avg. Depth at OHW (ft.)	Linear feet within study area	Acres within study area	QHEI/HHEI	Jurisdictional
T2-S23	15, 16	Tributary to Indian Creek	EPH	Non-RPW	2	1	383	0.018	17	Yes
T1-S27	17, 18	Tributary to Indian Creek	EPH	Non-RPW	2.5	1.5	29	0.002	10	Yes
T1-S21	19, 20	Tributary to Indian Creek	EPH	Non-RPW	1	0.5	340	0.008	12	Yes
T1-S20	21, 22	Tributary to Indian Creek	EPH	Non-RPW	3	2	411	0.028	12	Yes
T1-S20A	23, 24	Tributary to Indian Creek	EPH	Non-RPW	3	1.5	61	0.004	12	Yes
T1-S19	25, 26	Tributary to Indian Creek	EPH	Non-RPW	3	1.5	266	0.018	12	Yes
T1-S45	27, 28	Tributary to Sixmile Creek	EPH	Non-RPW	4	2	477	0.044	27	Yes
T1-S46	29, 30	Tributary to Sixmile Creek	INT	RPW	8	2.5	349	0.064	46	Yes
T1-S47	31, 32	Tributary to Sixmile Creek	EPH	Non-RPW	2	.5	186	0.009	14	Yes
T1-S48	33, 34	Tributary to Sixmile Creek	EPH	Non-RPW	2	1	242	0.011	14	Yes
T1-S49	35, 36	Tributary to Sixmile Creek	INT	Non-RPW	7	2	349	0.056	38	Yes
T1-S49A	37, 38	Tributary to Sixmile Creek	EPH	Non-RPW	2	.5	119	0.005	13	Yes
T1-S12*	39, 40	Tributary to Sixmile Creek	EPH	Non-RPW	3	1	278*	0.019	12	Yes
T1-S11	41, 42	Tributary to Sixmile Creek	EPH	Non-RPW	3	1	216	0.015	12	Yes
T1-S10	43, 44	Tributary to Sixmile Creek	EPH	Non-RPW	3	1	217	0.015	12	Yes
T1-S8	45, 46	Tributary to Sixmile Creek	PER	RPW	22	3	385	0.194	54	Yes
T1-S7	47, 48	Tributary to Sixmile Creek	EPH	Non-RPW	3	1	279	0.019	13	Yes
T1-S4	49, 50	Tributary to Sixmile Creek	EPH	Non-RPW	13	2.5	488	0.146	37	Yes
<b>Total</b>							5,075	0.675		

\*This stream is already within a subterranean culvert under the new ROW and will be mitigated onsite.

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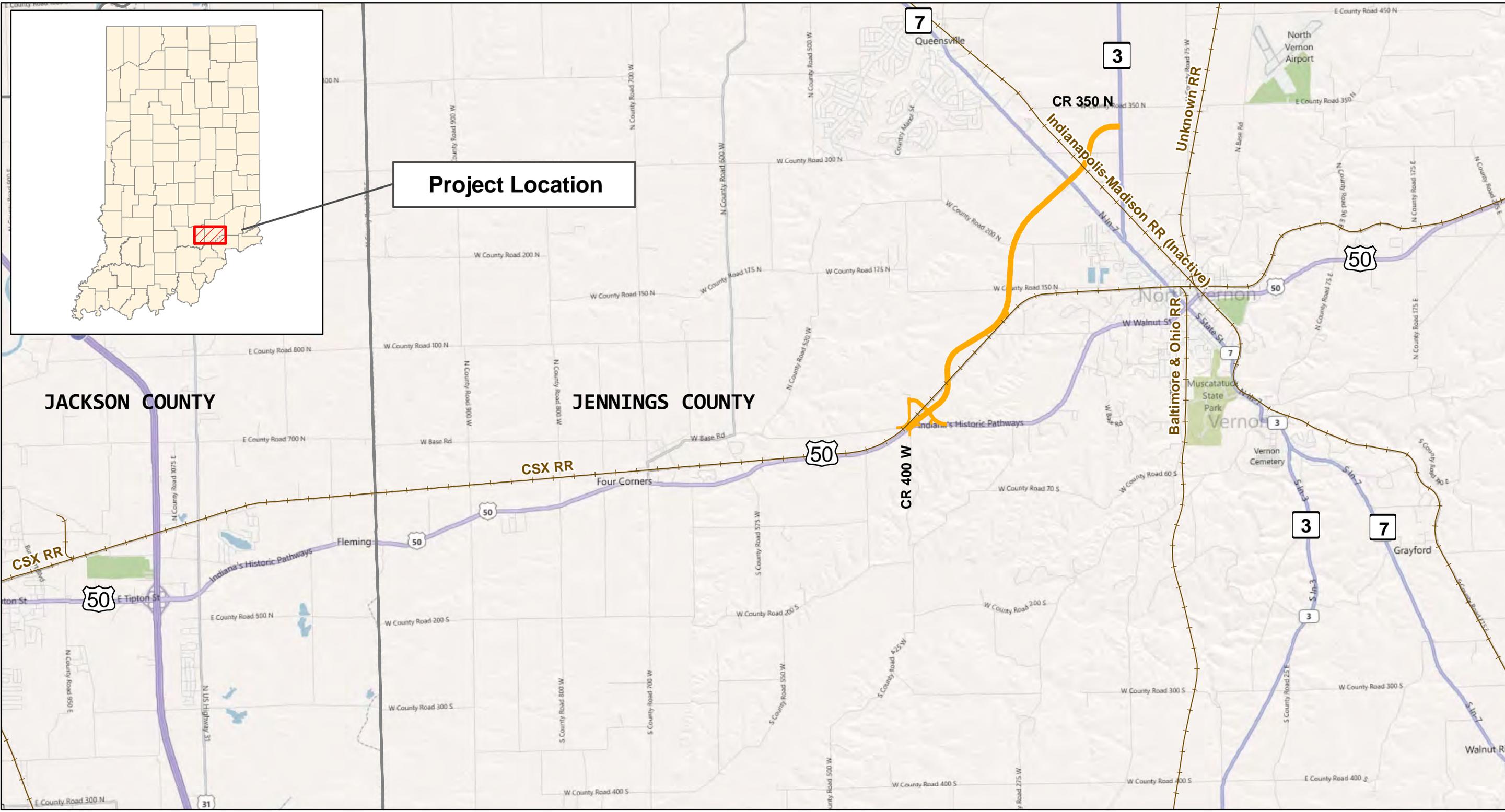
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# LIST OF FIGURES

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Figure 4: FEMA FIRM Map | Figure 5: Soil Maps | Figure 6: Delineated Features



**Legend**

Preferred Alternative

N

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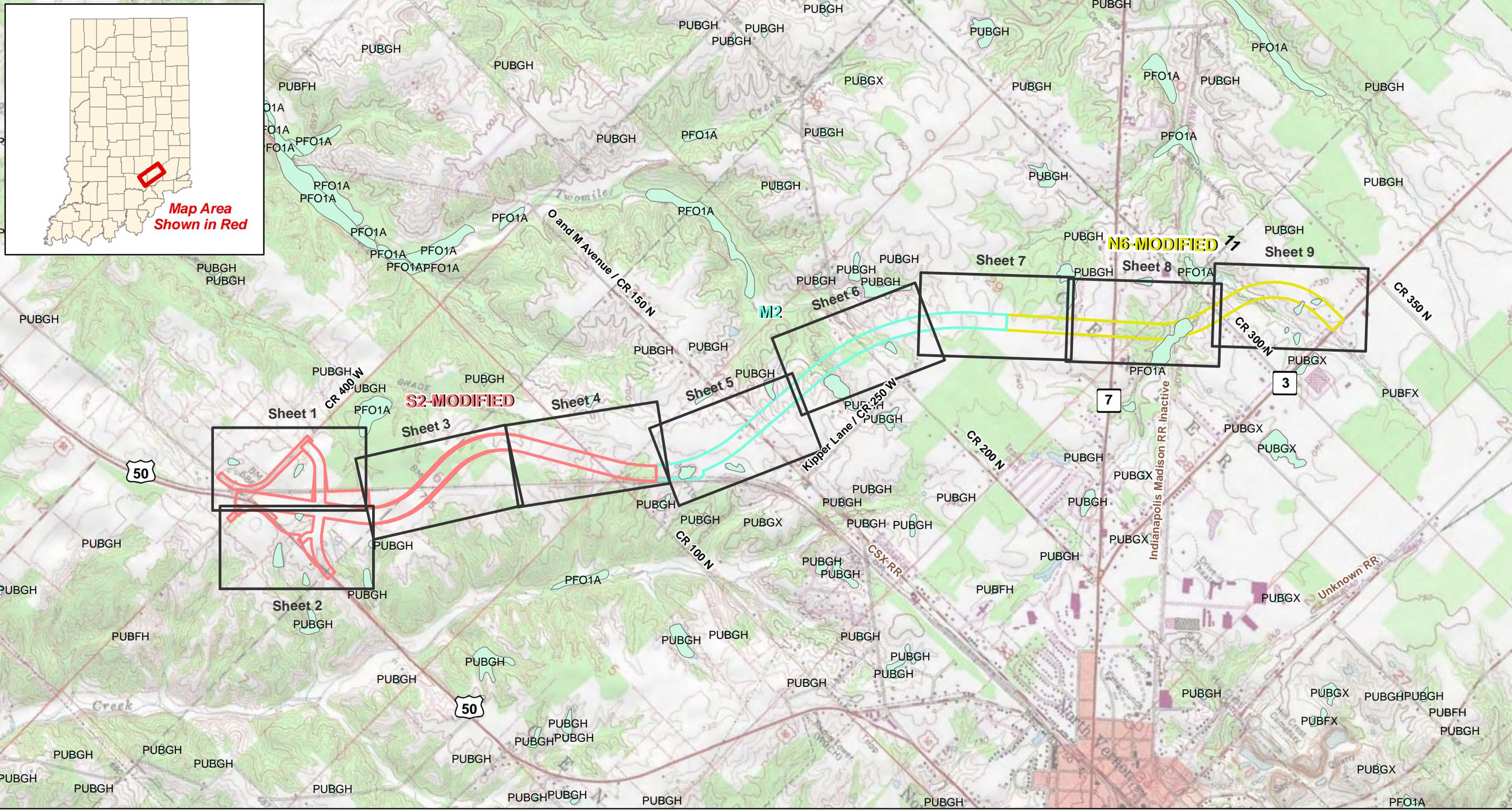
**PARSONS**

**Project Location**

**FIGURE 1**



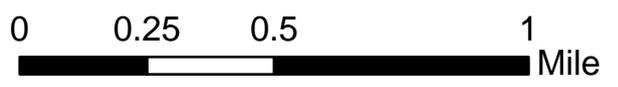
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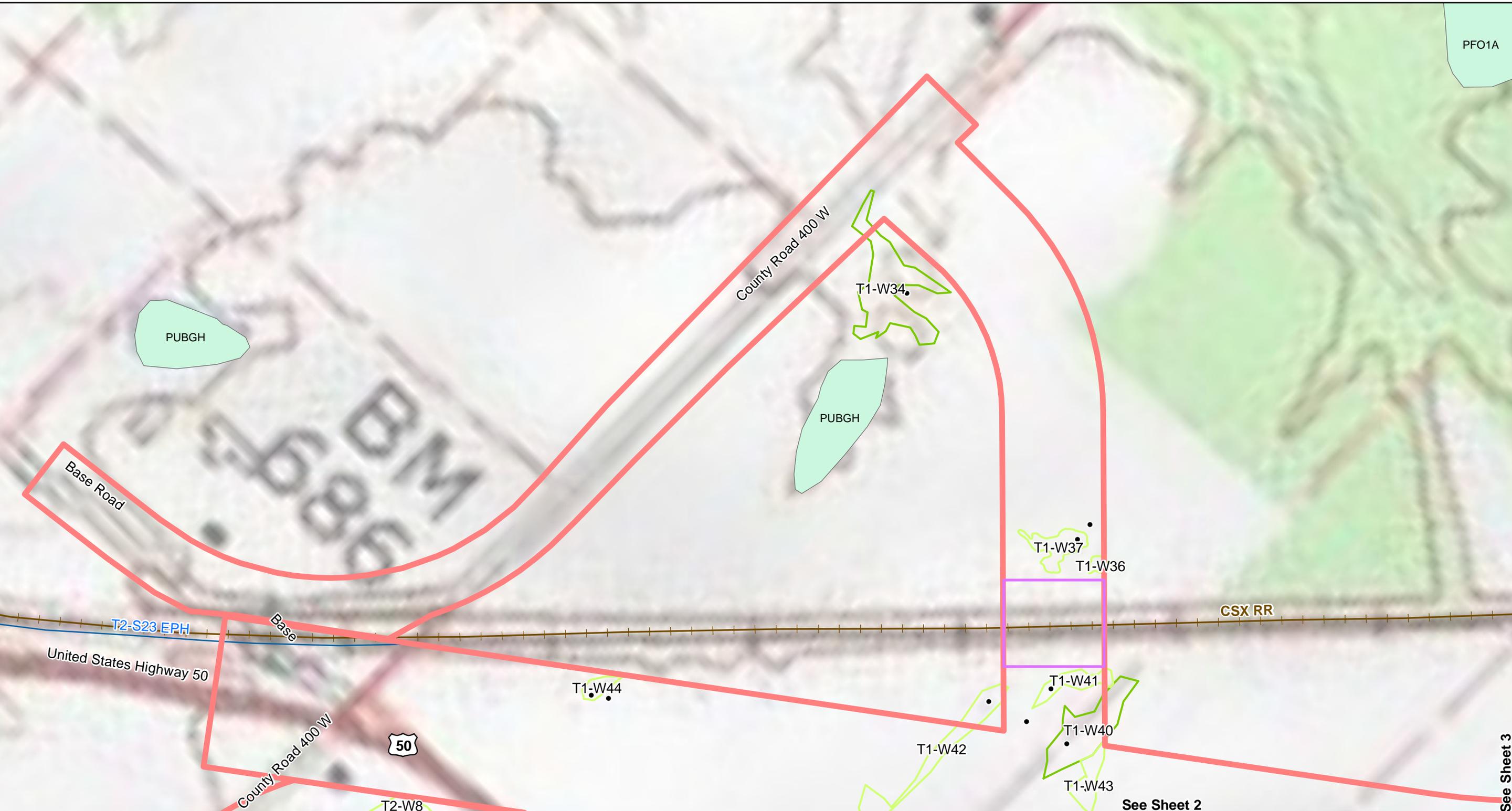


PARSONS

USGS Topographical & NWI Maps

FIGURE 2: SHEET INDEX





See Sheet 3

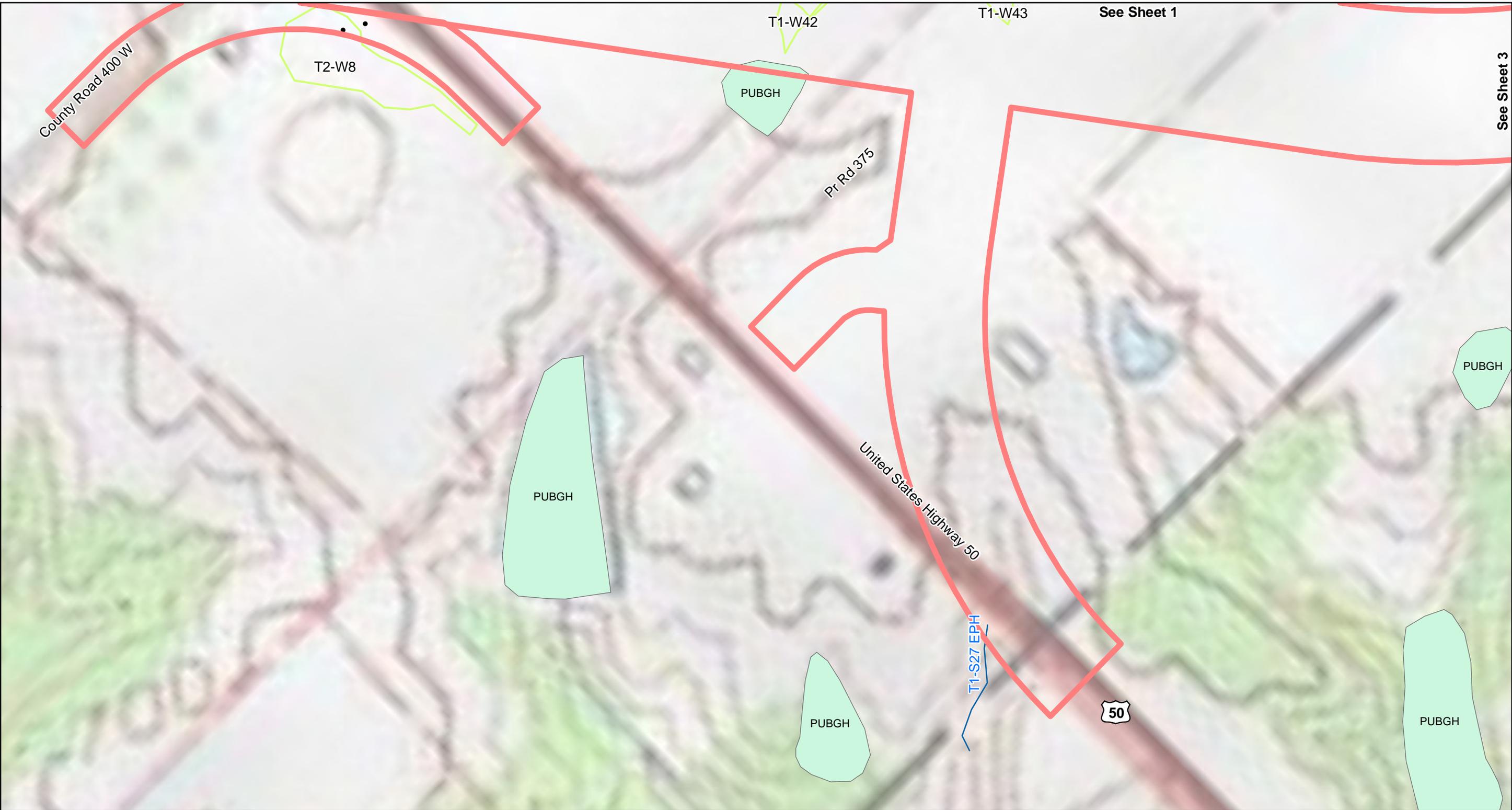
See Sheet 2

- Legend**
- NWI
  - Delineated Streams
  - Proposed Bridge Location
  - PEM
  - PFO
  - Data Points
  - Alternative S2-Modified



**USGS Topographical & NWI Maps**

**FIGURE 2: SHEET 1**

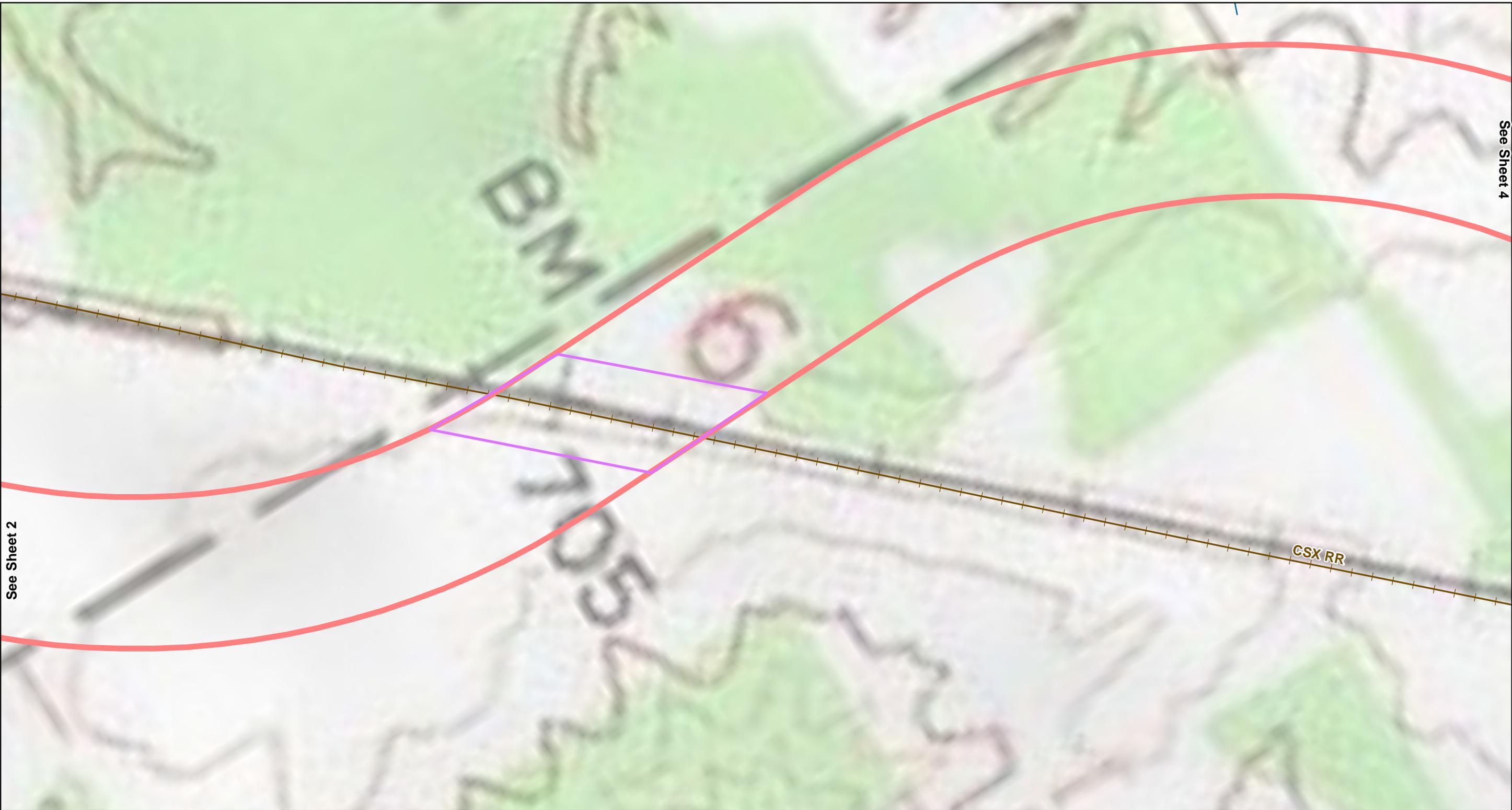


- Legend**
- NWI Delineated Wetlands
  - Alternative S2-Modified
  - Delineated Streams
  - PEM
  - Data Points



**USGS Topographical & NWI Maps**

**FIGURE 2: SHEET 2**



**Legend**  
Alternative S2 Modified  
Proposed Bridge Location



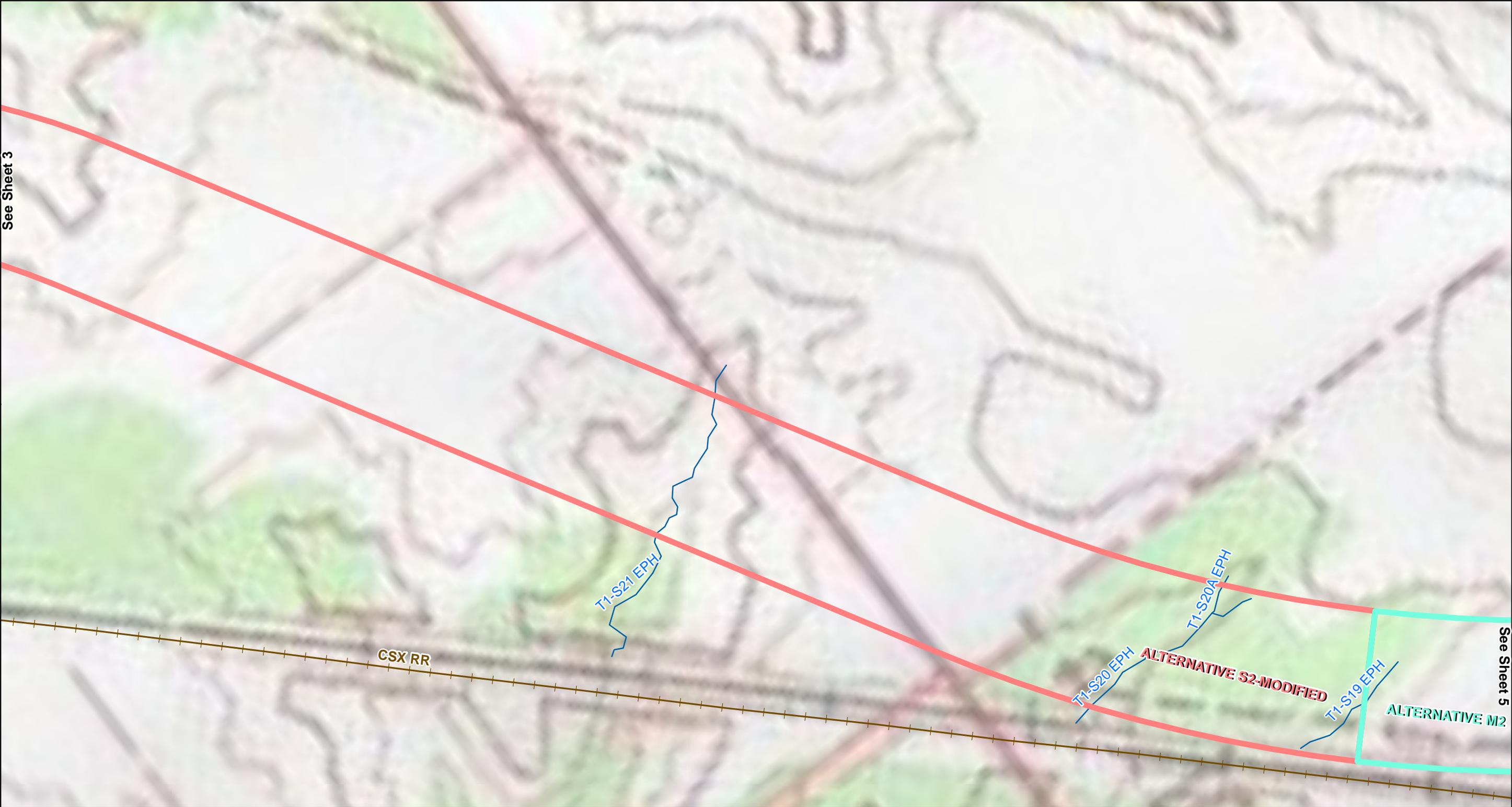
**PARSONS**

**USGS Topographical & NWI Maps**

**FIGURE 2: SHEET 3**



See Sheet 3



See Sheet 5

**Legend**

-  Alternative M2
-  Alternative S2-Modified
-  Delineated Streams



**PARSONS**

**USGS Topographical & NWI Maps**

**FIGURE 2: SHEET 4**





See Sheet 4

See Sheet 6

**Legend**

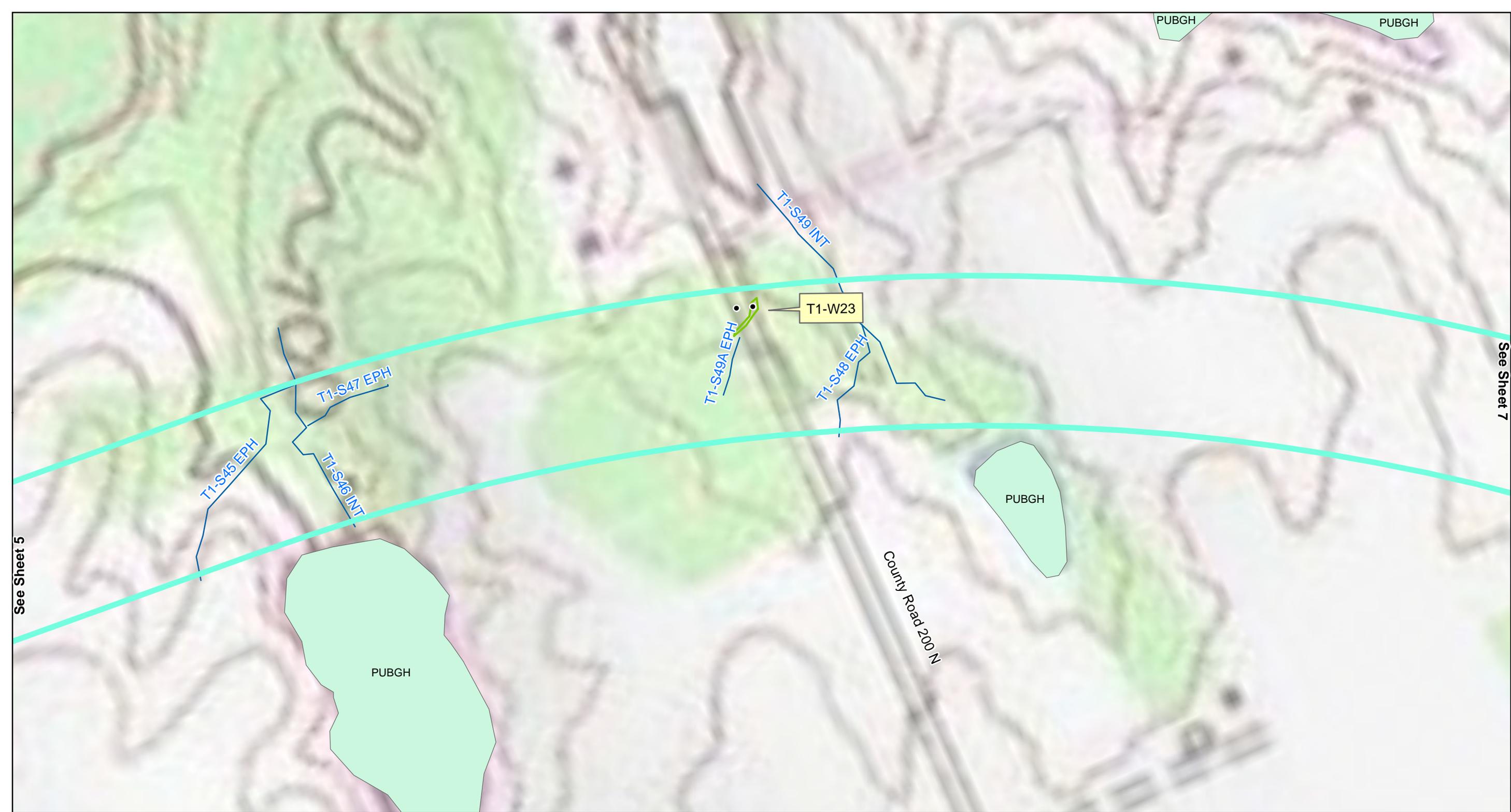
- NWI
- Delineated Wetlands
- PEM
- Data Points
- Alternative M2
- Delineated Ponds
- Delineated Streams



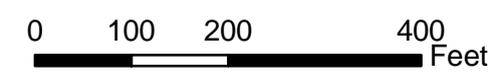
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**USGS Topographical & NWI Maps**

**FIGURE 2: SHEET 5**

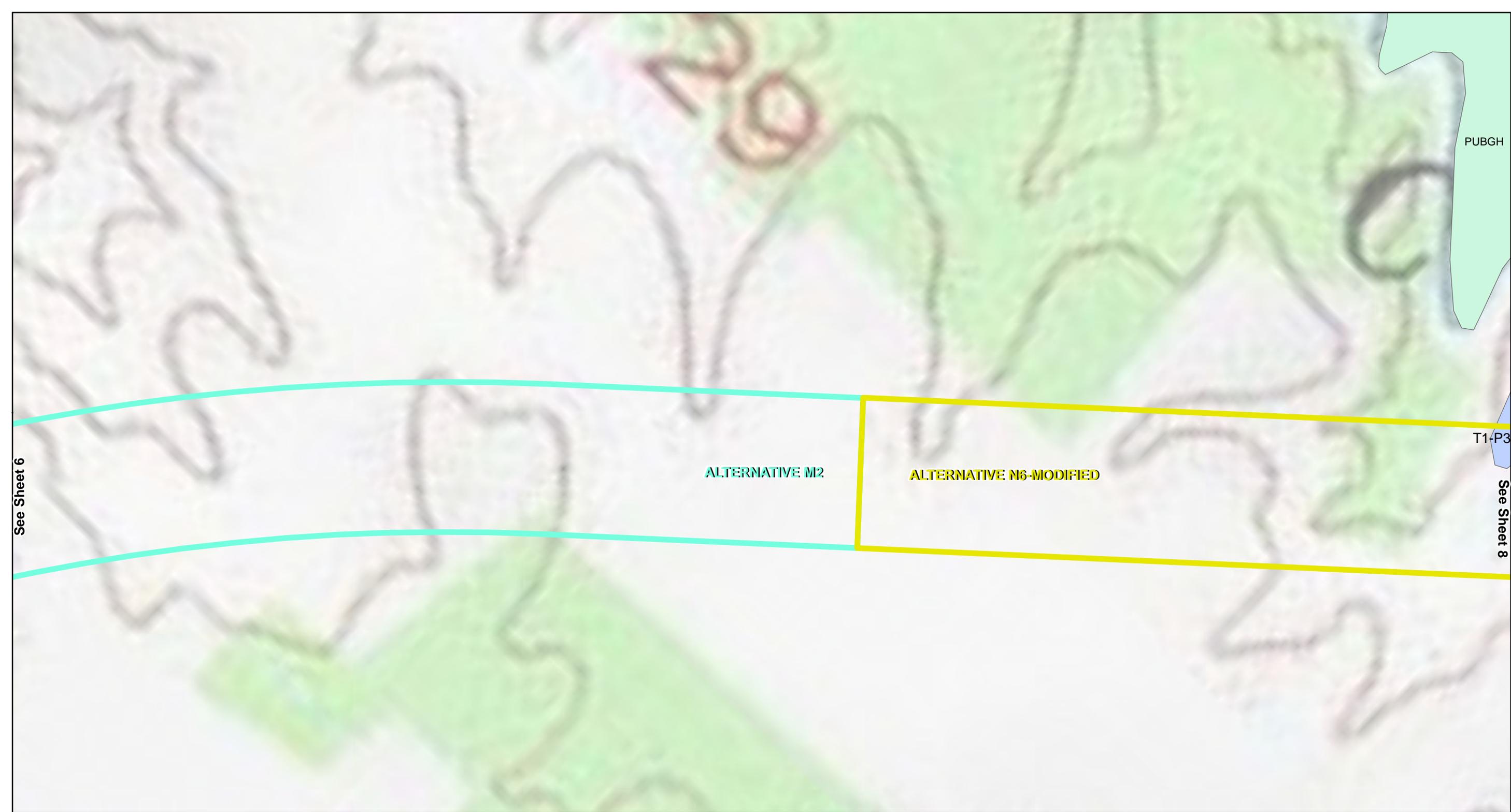


- Legend**
- NWI
  - Alternative M2
  - Delineated Wetlands
  - Delineated Streams
  - PFO
  - Data Points



**USGS Topographical & NWI Maps**

**FIGURE 2: SHEET 6**



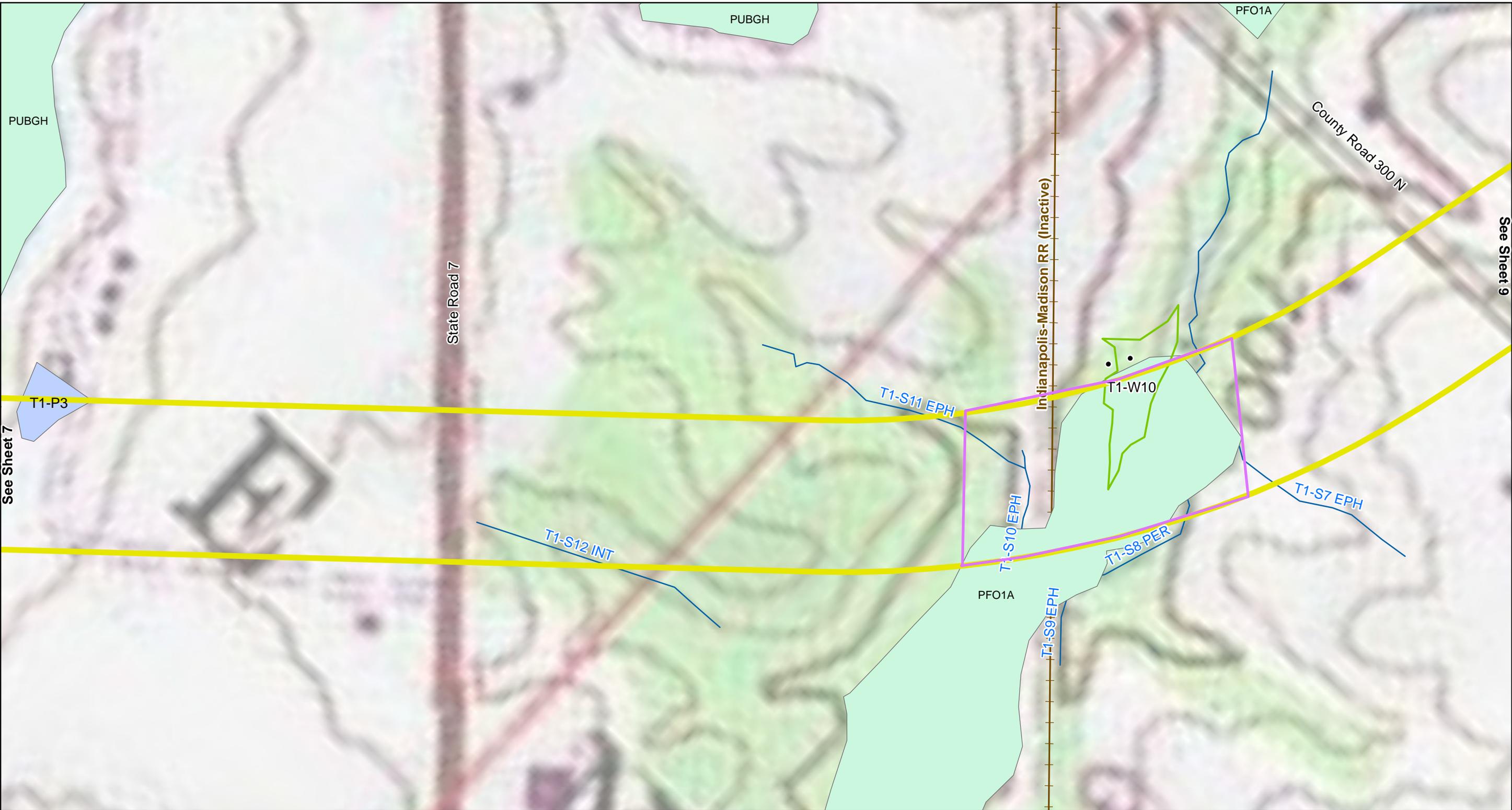
- Legend**
- Alternative N6-Modified
  - Alternative M2
  - NWI
  - Delineated Ponds



**USGS Topographical & NWI Maps**



**FIGURE 2: SHEET 7**



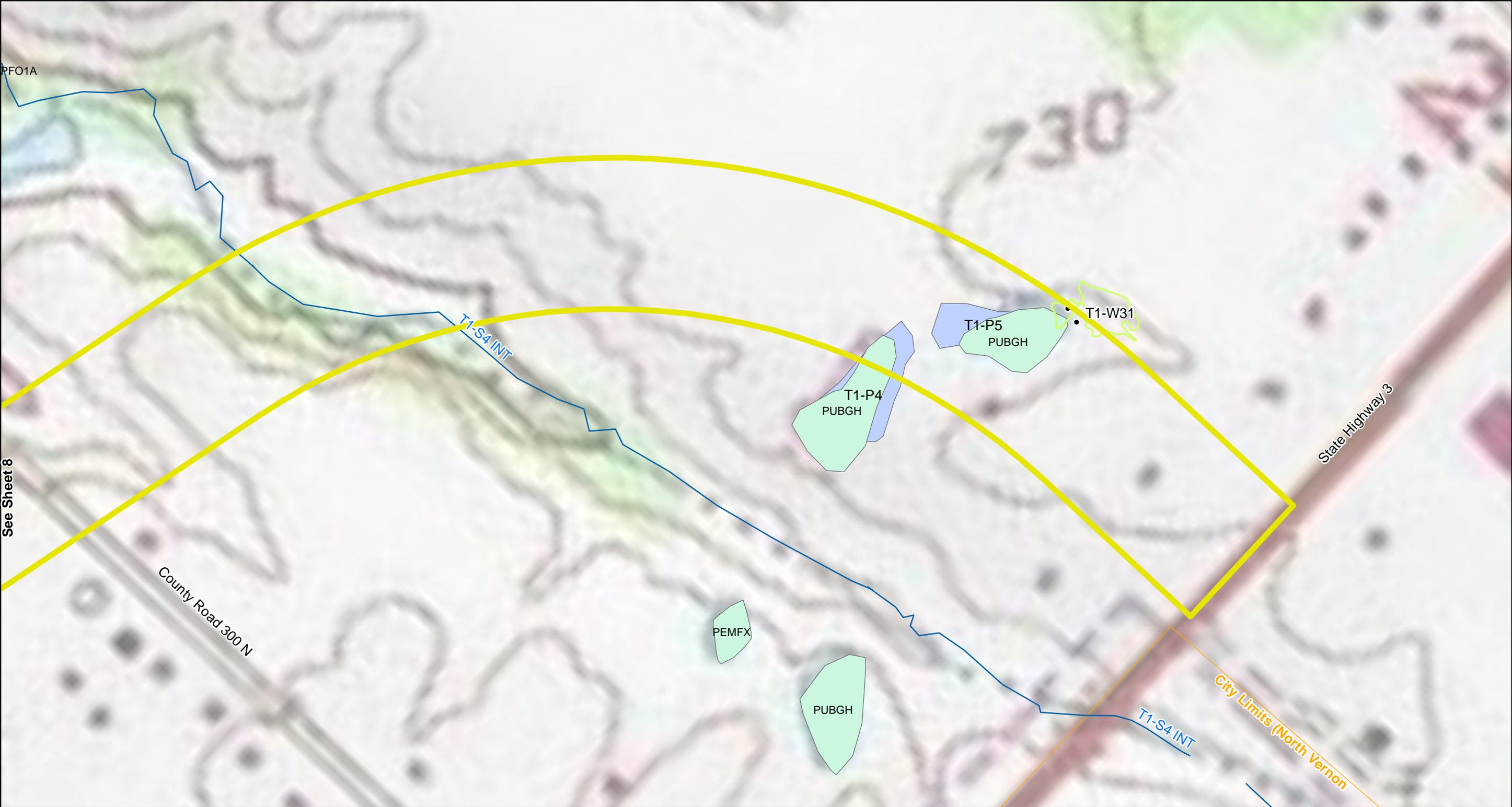
- Legend**
- NWI
  - Delineated Wetlands
  - PFO
  - Data Points
  - Alternative N6-Modified
  - Delineated Ponds
  - Delineated Streams
  - Proposed Bridge Location



**PARSONS**

**USGS Topographical & NWI Maps**

**FIGURE 2: SHEET 8**

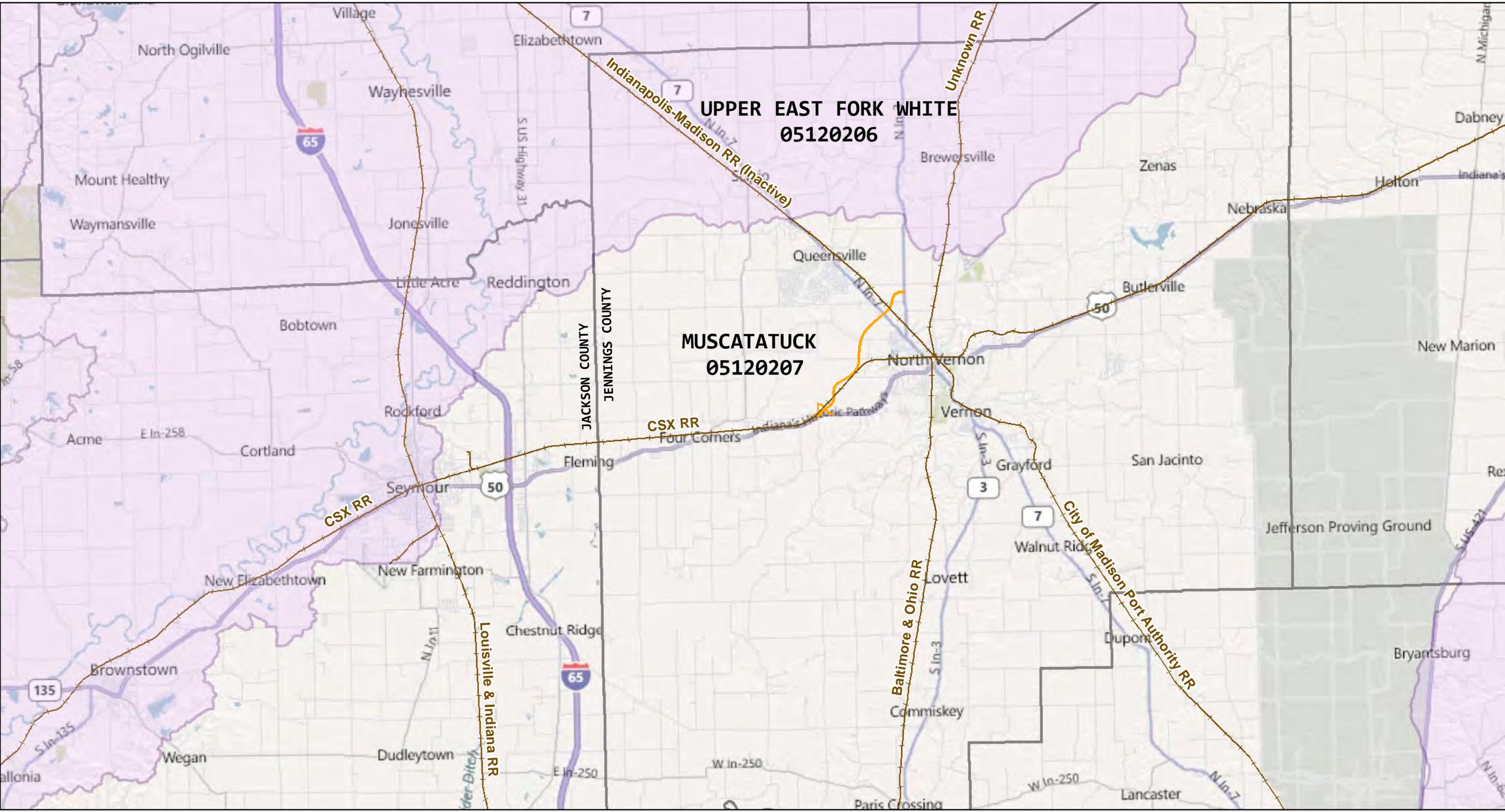


- Legend**
- NWI
  - Delineated Ponds
  - PEM
  - Delineated Streams
  - Data Points
  - Alternative N6-Modified



**USGS Topographical & NWI Maps**

**FIGURE 2: SHEET 9**

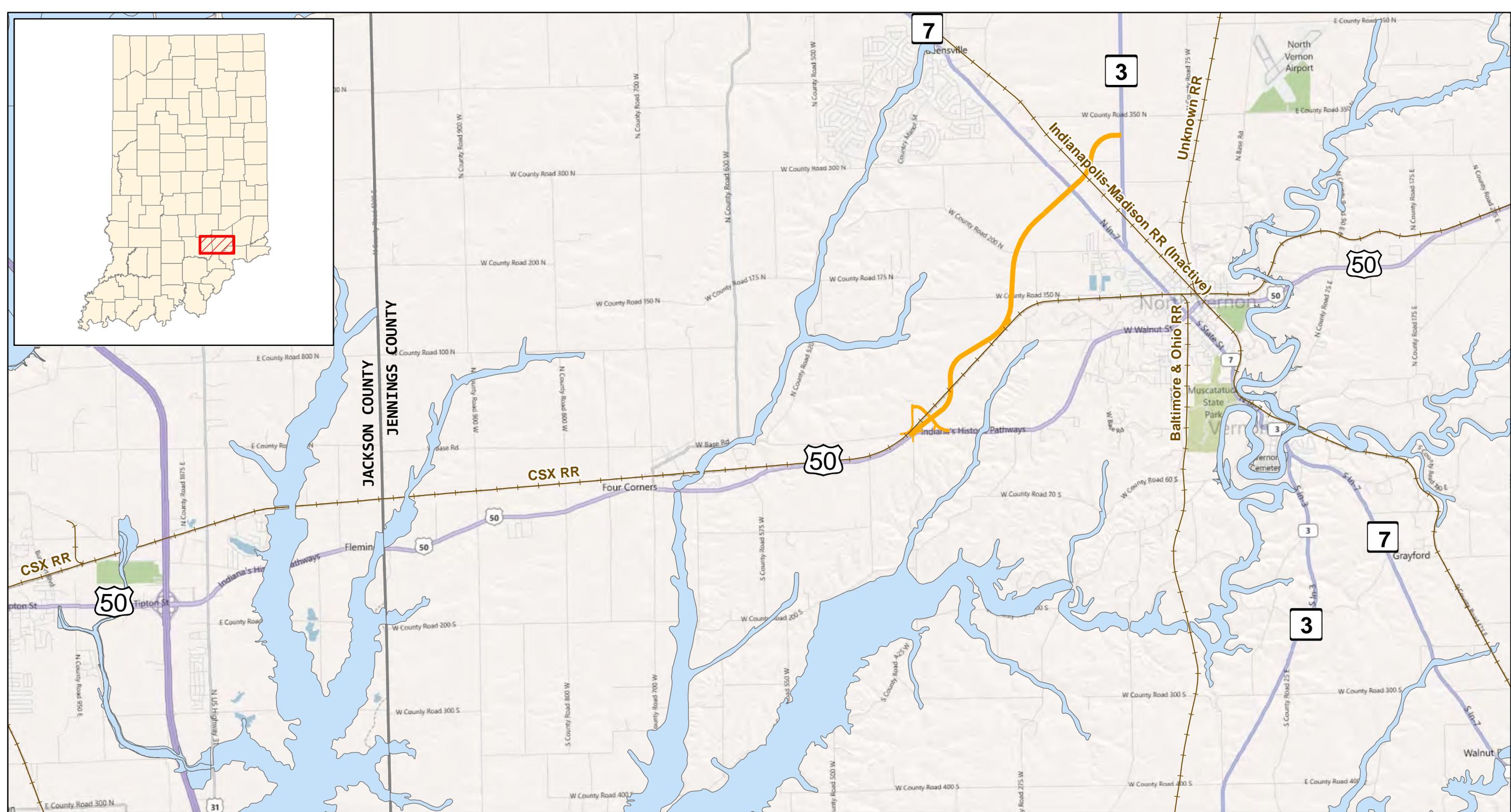


**Legend**  
 Preferred Alternative  
 Watershed Boundary



**Watershed Map (8-Digit Hydrologic Unit Code)**

**FIGURE 3**



**Legend**

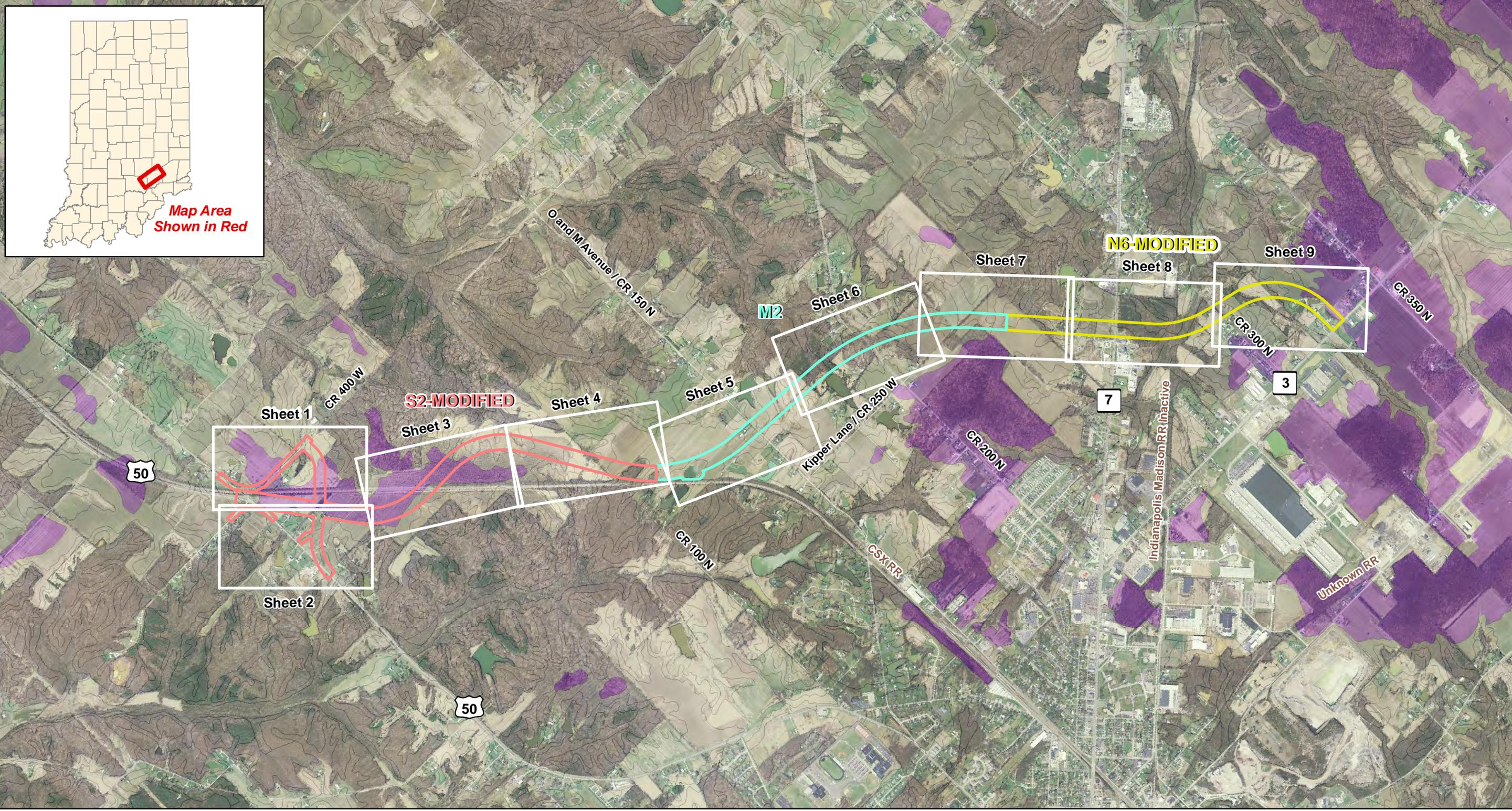
- Preferred Alternative
- Floodplains

0 1 2 4 Miles



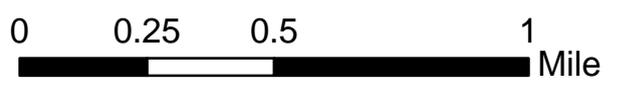
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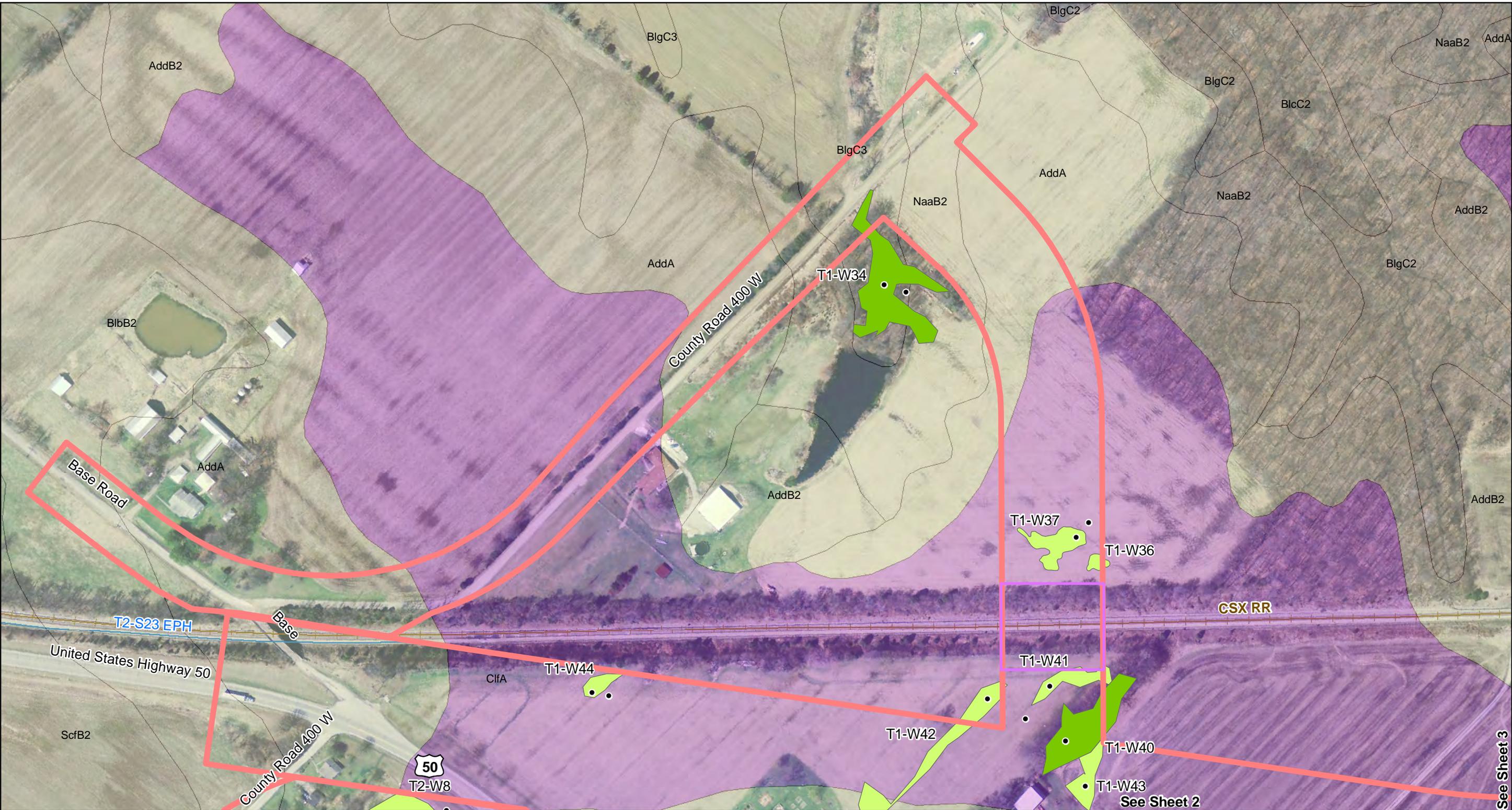
**FIGURE 4**



Soils Map

FIGURE 5: SHEET INDEX





- Legend**
- Delimited Wetlands
    - PEM
    - PFO
    - Data Points
  - Hydric soils
  - Non-Hydric Soils
  - Delimited Streams
  - Proposed Bridge Location
  - Alternative S2-Modified

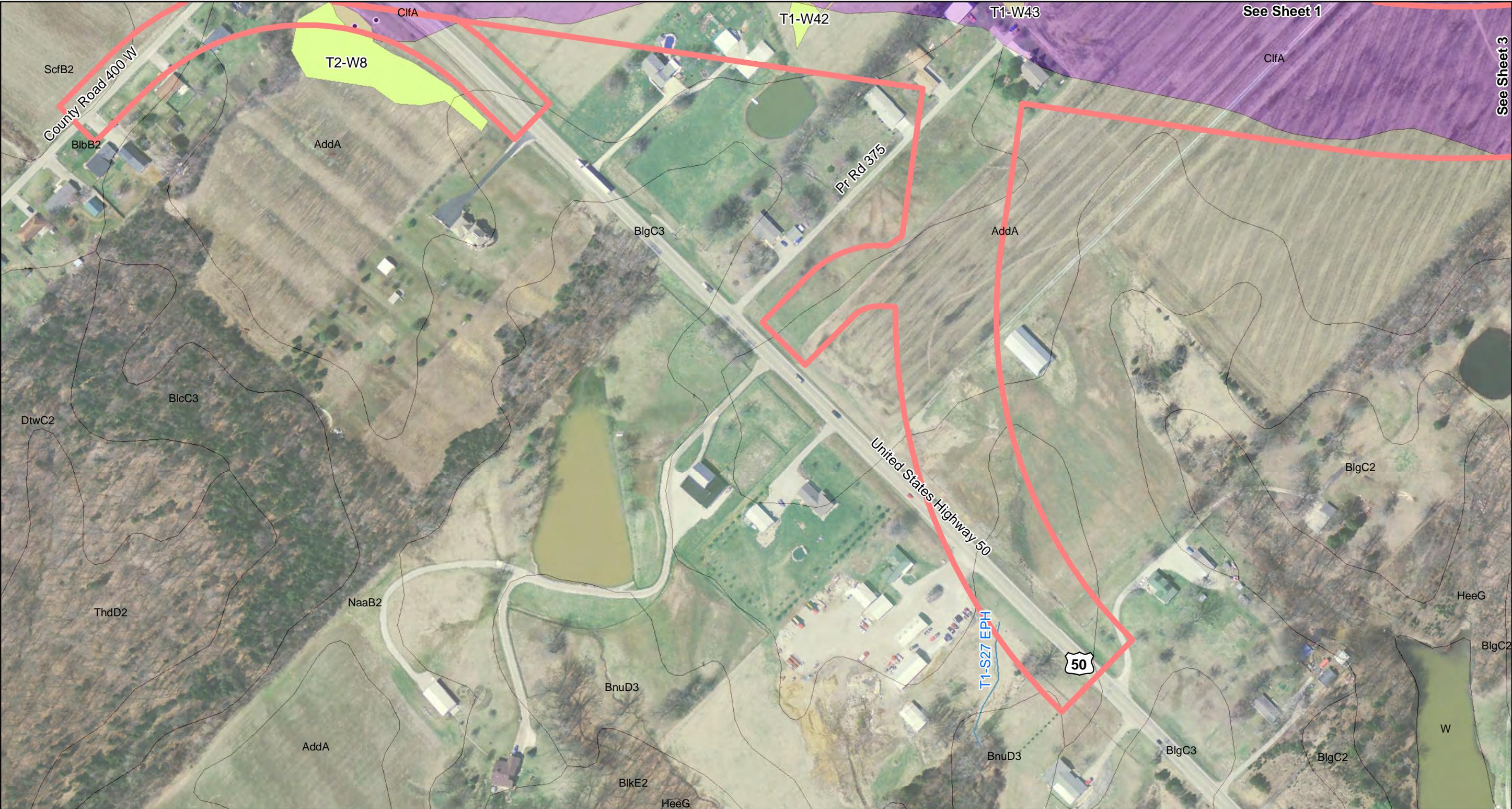


**Soils Map**

**FIGURE 5: SHEET 1**

See Sheet 3

See Sheet 2



**Legend**

- Delineated Wetlands
- PEM
- Data Points
- Alternative S2-Modified

- Hydric Soils
- Non-Hydric Soils
- Delineated Streams



**Soils Map**

**FIGURE 5: SHEET 2**





- Legend**
-  Alternative S2-Modified
  -  Hydric Soils
  -  Non-Hydric Soils
  -  Proposed Bridge Location



**Soils Map**

**FIGURE 5: SHEET 3**



- Legend**
- Alternative S2-Modified
  - Alternative M2
  - Hydric Soils
  - Non-Hydric Soils
  - Delineated Streams



**Soils Map**  
**FIGURE 5: SHEET 4**



- Legend**
- Delineated Wetlands
  - PEM
  - Data Points
  - Alternative M2
  - Hydric Soils
  - Non-Hydric Soils
  - Delineated Ponds

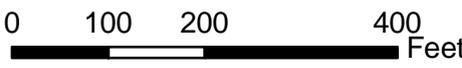


**Soils Map**

**FIGURE 5: SHEET 5**



- Legend**
- Delimited Wetlands
  - PFO
  - Data Points
  - Alternative M2
  - Hydic Soils
  - Non-Hydic Soils
  - Delimited Streams



**Soils Map**

**FIGURE 5: SHEET 6**



- Legend**
- Alternative M2
  - Alternative N6-Modified
  - Hydric Soils
  - Non-Hydric Soils
  - Delineated Ponds

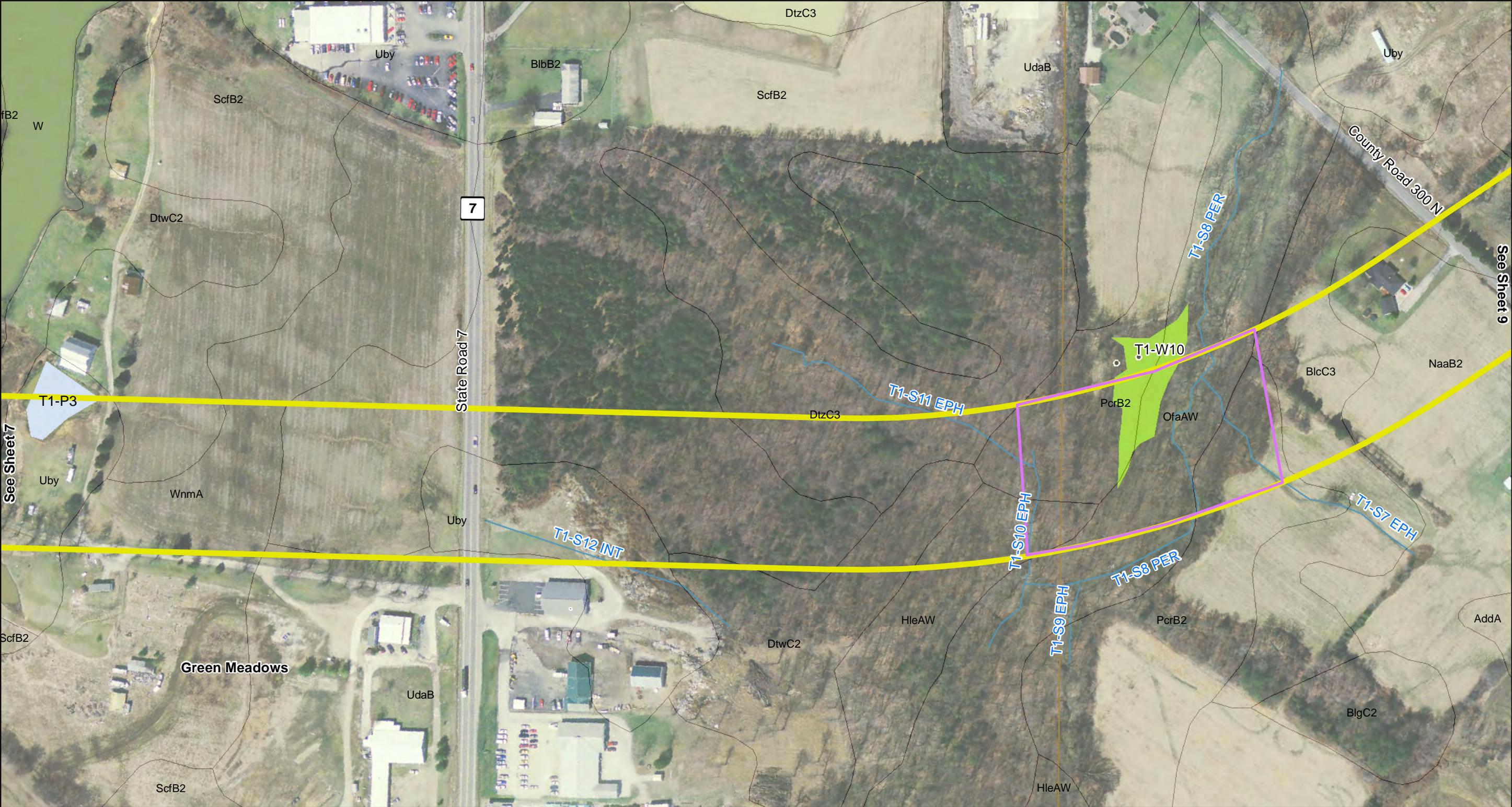


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**Soils Map**

**FIGURE 5: SHEET 7**



**Legend**

<ul style="list-style-type: none"> <li>■ Delineated Wetlands</li> <li>■ PFO</li> <li>● Data Points</li> <li>■ Alternative N6-Modified</li> </ul>	<ul style="list-style-type: none"> <li>■ Hydric Soils</li> <li>■ Non-Hydric Soils</li> <li>■ Delineated Ponds</li> <li>■ Delineated Streams</li> <li>■ Proposed Bridge Location</li> </ul>
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**Soils Map**

**FIGURE 5: SHEET 8**



- Legend**
- Delineated Wetlands
  - PEM
  - Data Points
  - Alternative N6-Modified
  - Hydric Soils
  - Non-Hydric Soils
  - Delineated Ponds
  - Delineated Streams



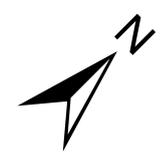
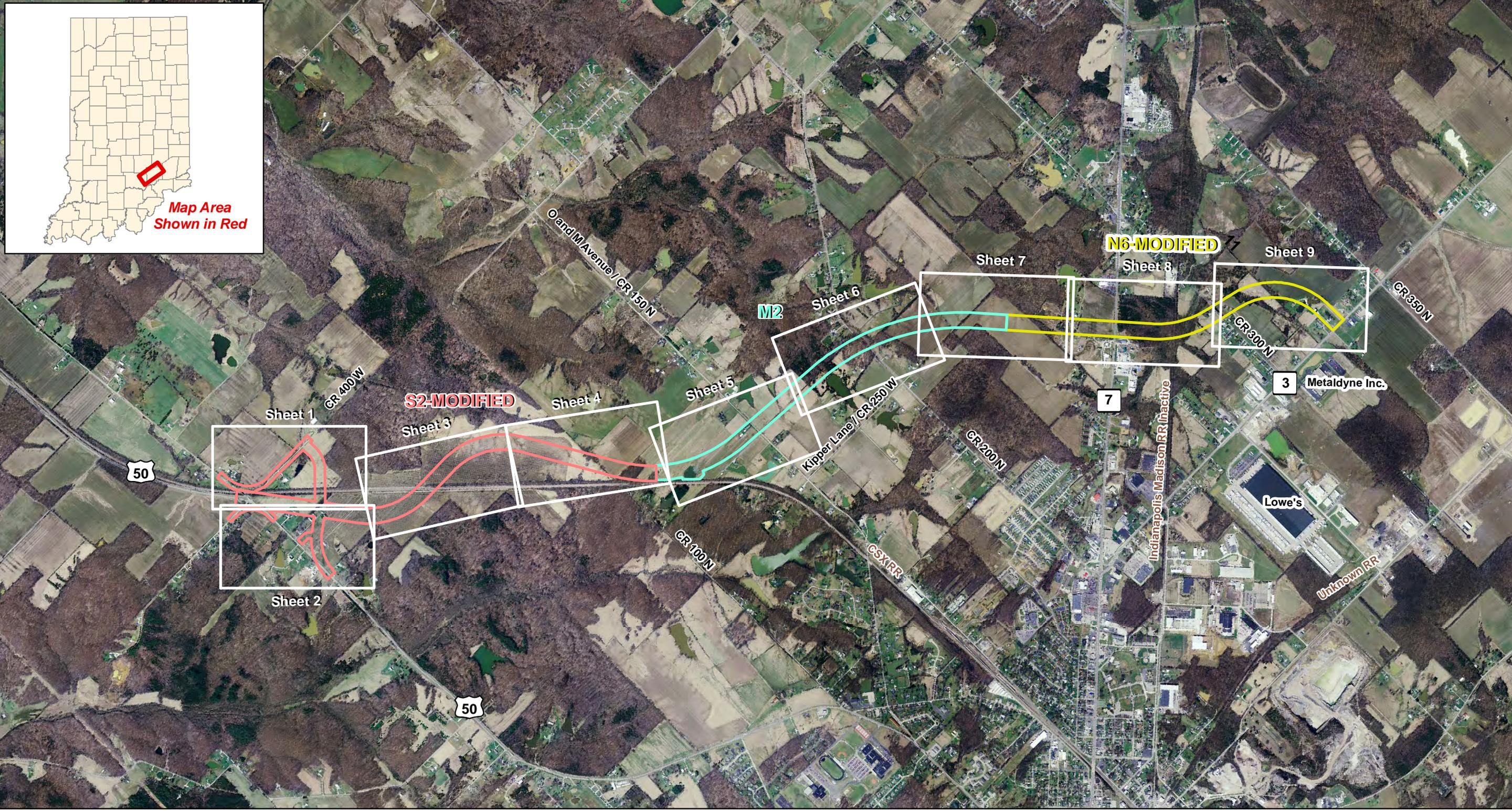
**PARSONS**

**Soils Map**

**FIGURE 5: SHEET 9**



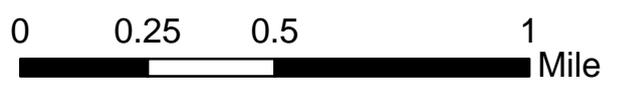
Map Area Shown in Red



PARSONS

Impacted Wetland & Water Features

FIGURE 6: SHEET INDEX





**Legend**

- Delineated Wetlands
- PEM
- PFO
- Data Points
- Alternative S2-Modified
- Delineated Streams
- Proposed Bridge Location

0 100 200 400 Feet

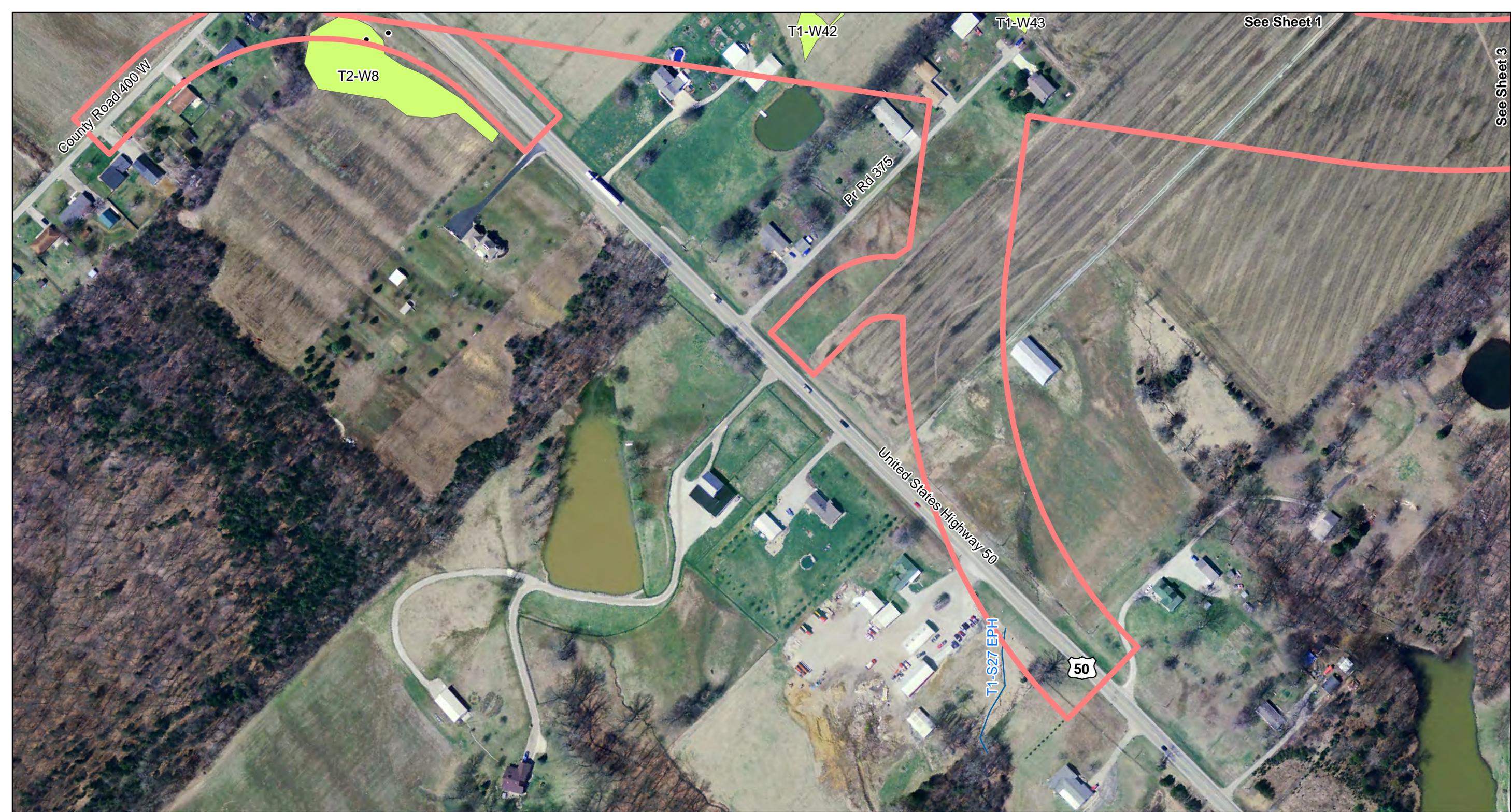


**Impacted Wetland & Water Features: Alternative S2-Modified**

**FIGURE 6: SHEET 1**

See Sheet 3

See Sheet 2



See Sheet 1

See Sheet 3

**Legend**

- Delineated Wetlands  Alternative S2-Modified
- PEM
- Data Points
- Delineated Streams



**PARSONS**

**Impacted Wetland & Water Features: Alternative S2-Modified**



**FIGURE 6: SHEET 2**



**Legend**  
 Alternative S2-Modified  
 Proposed Bridge Location



**Impacted Wetland & Water Features: Alternative S2-Modified**



**FIGURE 6: SHEET 3**



- Legend**
- Alternative S2-Modified
  - Alternative M2
  - Delineated Streams



**PARSONS**

**Impacted Wetland & Water Features: Alternatives S2-Modified and M2**



**FIGURE 6: SHEET 4**



- Legend**
- Delineated Wetlands
  - Alternative M2
  - PEM
  - Delineated Ponds
  - Data Points



**Impacted Wetland and Water Features: Alternative M2**

**FIGURE 6: SHEET 5**





- Legend**
- Alternative M2
  - PFO
  - Delineated Streams
  - Data Points



**PARSONS**

**Impacted Wetland and Water Features: Alternative M2**

**FIGURE 6: SHEET 6**





See Sheet 6

T1-P3

See Sheet 8

ALTERNATIVE M2

ALTERNATIVE N6-MODIFIED

- Legend**
-  Alternative M2
  -  Alternative N6-Modified
  -  Delineated Ponds

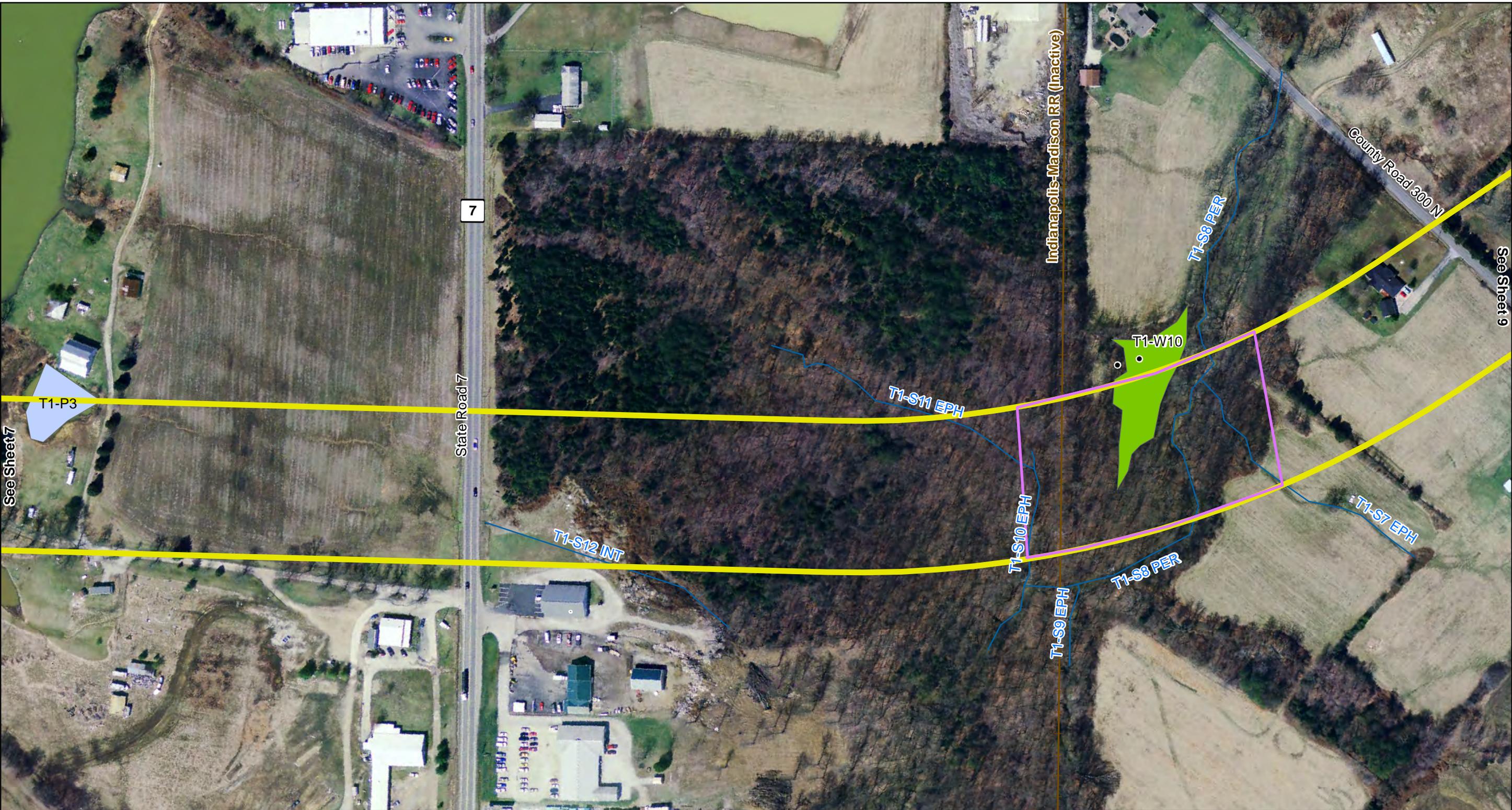


**PARSONS**

**Impacted Wetland & Water Features: Alternative M2 and N6-Modified**



**FIGURE 6: SHEET 7**



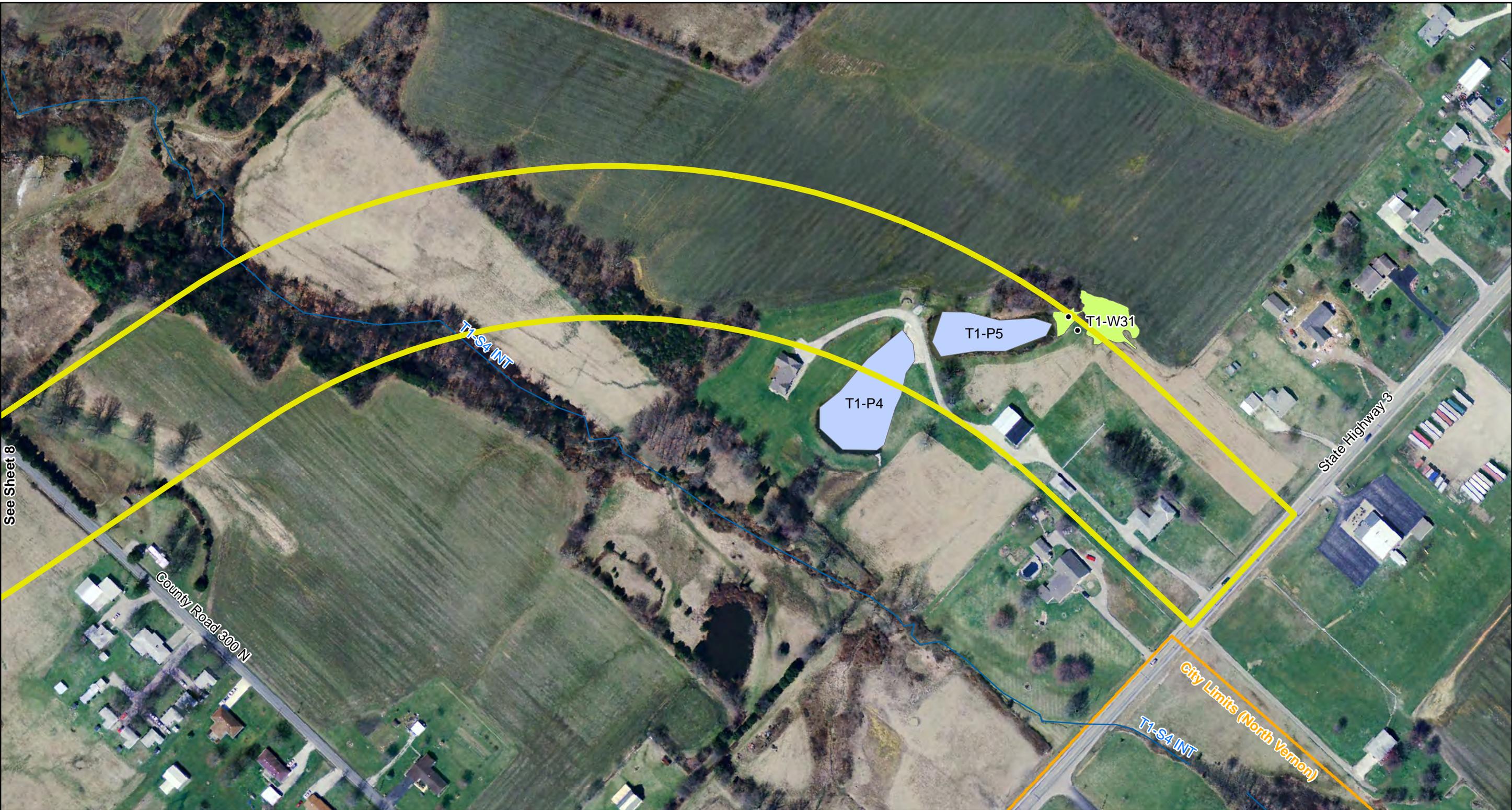
- Legend**
- Alternative N6-Modified
  - PFO
  - Delineated Ponds
  - Delineated Streams
  - Proposed Bridge Location
  - Data Points



**PARSONS**

**Impacted Wetland & Water Features: Alternative N6-Modified**

**FIGURE 6: SHEET 8**



- Legend**
- Alternative N6-Modified
  - PEM
  - Delineated Ponds
  - Delineated Streams
  - Data Points



**Impacted Wetland & Water Features: Alternative N6-Modified**

**FIGURE 6: SHEET 9**

Appendix A

# PHOTOGRAPH LOG



Photo 1 T2-W8



Photo 2 T1-W10



Photo 3 T1-W23



Photo 4 T1-W31



Photo 5 T1-W32



Photo 6 T1-W33



Photo 7 T1-W34



Photo 8 T1-W36



Photo 9 T1-W37



Photo 10 T1-W40



Photo 11 T1-W41



Photo 12 T1-W42



Photo 13 T1-W43



Photo 14 T1-W44



Photo 15 T2-S23 looking upstream



Photo 16 T2-S23 looking downstream



Photo 17 T1-S27 looking upstream



Photo 18 T1-S27 looking downstream

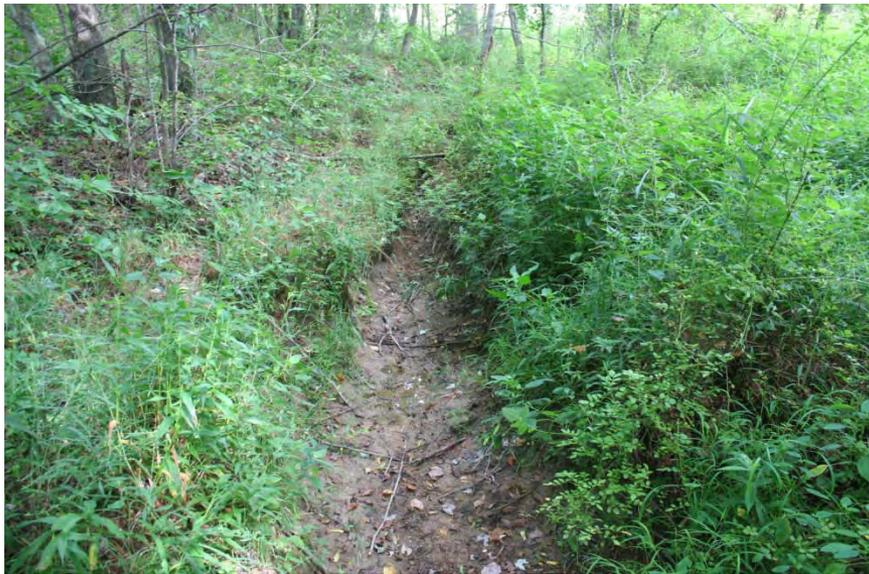


Photo 19 T1-S21 looking upstream



Photo 20 T1-S21 looking downstream



Photo 21 T1-S20 looking upstream



Photo 22 T1-S20 looking downstream



Photo 23 T1-S20A looking upstream

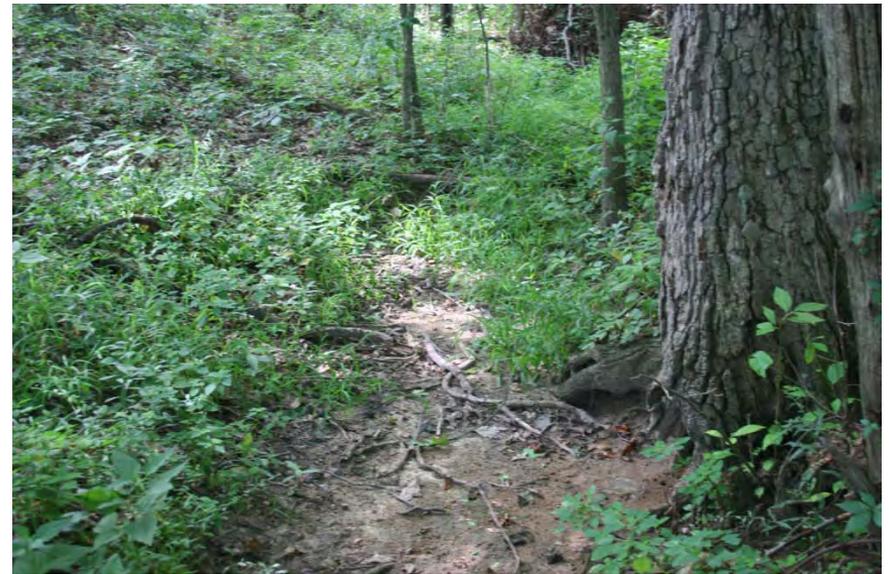


Photo 24 T1-S20A looking downstream



Photo 25 T1-S19 looking upstream



Photo 26 T1-S19 looking downstream



Photo 27 T1-S45 looking upstream



Photo 28 T1-S45 looking downstream



Photo 29 T1-S46 looking upstream



Photo 30 T1-S46 looking downstream



Photo 31 T1-S47 looking upstream



Photo 32 T1-S47 looking downstream



Photo 33 T1-S48 looking upstream



Photo 34 T1-S48 looking downstream



Photo 35 T1-S49 looking upstream



Photo 36 T1-S49 looking downstream



Photo 37 T1-S49A looking upstream



Photo 38 T1-S49A looking downstream



Photo 39 T1-S12 looking upstream



Photo 40 T1-S12 looking downstream



Photo 41 T1-S11 looking upstream



Photo 42 T1-S11 looking downstream



Photo 43 T1-S10 looking upstream



Photo 44 T1-S10 looking downstream



Photo 45 T1-S8 looking upstream



Photo 46 T1-S8 looking downstream



Photo 47 T1-S7 looking upstream



Photo 48 T1-S7 looking downstream



Photo 49 T1-S4 looking upstream



Photo 50 T1-S4 looking downstream



Photo 51 T1-P2



Photo 52 T1-P3



Photo 53 T1-P4



Photo 54 T1-P5

Appendix B

# WETLAND DETERMINATION FORMS

**WETLAND DETERMINATION DATA FORM - Midwest Region (PEER-REVIEW DRAFT)**

Project/Site: US 50 Spot Improvements City/County: Jennings Sampling Date: 9/29/10  
 Applicant/Owner: INDOT State: IN Sampling Point: T2-W8-U  
 Investigator(s): JDV/MWW Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): slope, seep Local relief (concave, convex, none): none  
 Slope (%): 1 Lat: 38.98463611 Long: -85.68420556 Datum: dd nad83  
 Soil Map Unit Name: Avonburg silt loam (AddA) NWI classification: \_\_\_\_\_

Are climatic/hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/>	No _____	<b>Is the Sampled Area within a Wetland?</b>	Yes _____	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>			
Remarks:					

**VEGETATION - Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (including FAC -): <u>3</u> (A)	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)	
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)	
4. _____	_____	_____	_____	Total Cover = _____	
				<b>Prevalence Index worksheet:</b>	
				Total % Cover of: _____ Multiply by: _____	
				OBL species _____ x 1 = _____	
				FACW species _____ x 2 = _____	
				FAC species _____ x 3 = _____	
				FACU species _____ x 4 = _____	
				UPL species _____ x 5 = _____	
				Column Totals: _____ (A) _____ (B)	
				Prevalence Index = B/A = _____	
				<b>Hydrophytic Vegetation Indicators:</b>	
				<input checked="" type="checkbox"/> Dominance Test is >50%	
				_____ Prevalence Index is ≤3.0 <sup>1</sup>	
				_____ Morphological Adaptations <sup>1</sup> (Provide Supporting data in Remarks or on a separate sheet)	
				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.	
				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____	
Remarks:					



**WETLAND DETERMINATION DATA FORM - Midwest Region (PEER-REVIEW DRAFT)**

Project/Site: US 50 Spot Improvements City/County: Jennings Sampling Date: 9/29/10  
 Applicant/Owner: INDOT State: IN Sampling Point: T2-W8-W  
 Investigator(s): JDV/MWW Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): slope, seep Local relief (concave, convex, none): none  
 Slope (%): 1 Lat: 38.98463611 Long: -85.68420556 Datum: dd nad83  
 Soil Map Unit Name: Avonburg silt loam (AddA) NWI classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/>	No _____	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No _____			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No _____			
Remarks:					

**VEGETATION - Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (including FAC - ): <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Total Cover = _____				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum</b> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Total Cover = _____				
<b>Herb Stratum</b> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% _____ Prevalence Index is ≤3.0 <sup>1</sup> _____ Morphological Adaptations <sup>1</sup> (Provide Supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
1. <u>Juncus effusus</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Cyperus strigosus</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
<u>Carex sp. 1</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. <u>Carex sp. 2</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
5. <u>Potentilla sp.</u>	<u>10</u>	<u>N</u>	_____	
6. <u>Onoclea sensibilis</u>	<u>2</u>	<u>N</u>	<u>FACW</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
Total Cover = <u>92</u>				
<b>Woody Vine Stratum</b> (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
Total Cover = _____				
Remarks:				

**SOIL**

Sampling Point: T2-W8-W \_\_\_\_\_

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>		
0-16	10YR 6/2		10YR 5/8	10	C	M	clay loam

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> 2 cm Muck (A10)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> High Plains Depressions (F16)	

<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present.

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></b>
--	---

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> True Aquatic Plants (B14)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Gauge or Well Data (D9)	
<input type="checkbox"/> Other (Explain in Remarks)	

<b>Field Observations:</b> Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></b>
--	---

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: US 50 North Vernon bypass City/County: North Vernon, Jennings County Sampling Date: 9/29/10

Applicant/Owner: \_\_\_\_\_ State: IN Sampling Point: T1-W10 upland

Investigator(s): Alan Ball, Richard Connolly Section, Township, Range: \_\_\_\_\_

Landform (hillslope, terrace, etc.): depressed area in nearly flat woods Local relief (concave, convex, none): \_\_\_\_\_

Slope (%): \_\_\_\_\_ Lat: 39.027500 N Long: 85.648100 W Datum: \_\_\_\_\_

Soil Map Unit Name: PcrB2: Pekin Silt Loam, 2-6% slopes NWI or WWI classification: \_\_\_\_\_

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

Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes _____	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>			

Remarks:  
 Much of the state on Indiana has been experiencing a moderate to severe drought. This site was visited during a dry time of year and following two months of less-than normal precipitation

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <i>Fraxinus americana</i>	25	Y	FACU	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>7</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>43</u> (A/B)																
2. <i>Ulmus americana</i>	10	Y	FACW-																	
3. <i>Platanus occidentalis</i>	10	Y	FACW																	
4. _____																				
5. _____																				
<u>45</u> = Total Cover				<b>Prevalence Index worksheet:</b> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species _____</td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td><u>0</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>0</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = <u>0</u>	FACW species _____	x 2 = <u>0</u>	FAC species _____	x 3 = <u>0</u>	FACU species _____	x 4 = <u>0</u>	UPL species _____	x 5 = <u>0</u>	Column Totals: _____ (A)	<u>0</u> (B)	Prevalence Index = B/A = <u>0</u>	
Total % Cover of:	Multiply by:																			
OBL species _____	x 1 = <u>0</u>																			
FACW species _____	x 2 = <u>0</u>																			
FAC species _____	x 3 = <u>0</u>																			
FACU species _____	x 4 = <u>0</u>																			
UPL species _____	x 5 = <u>0</u>																			
Column Totals: _____ (A)	<u>0</u> (B)																			
Prevalence Index = B/A = <u>0</u>																				
<u>50</u> = Total Cover																				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>																				
1. <i>Fraxinus americana</i>	40	Y	FACU																	
2. <i>Ulmus americana</i>	10	Y	FACW-																	
3. _____																				
4. _____																				
5. _____																				
<u>50</u> = Total Cover																				
<b>Herb Stratum (Plot size: _____)</b>																				
1. <i>Eupatorium rugosum</i>	65	Y	FACU																	
2. <i>Rosa multiflora</i>	25	Y	FACU																	
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
<u>90</u> = Total Cover																				
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____																				
2. _____																				
_____ = Total Cover																				

Remarks: (Include photo numbers here or on a separate sheet.)  
 This is a small wooded wetland within a larger wooded area that is largely covered by a mapped NWI polygon. Most of the NWI polygon is dominated by upland species and lacks hydric soils. This small wetland is the exception.



## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: US 50 North Vernon bypass City/County: North Vernon, Jennings County Sampling Date: 9/29/10

Applicant/Owner: \_\_\_\_\_ State: IN Sampling Point: T1-W10 wetland

Investigator(s): Alan Ball, Richard Connolly Section, Township, Range: \_\_\_\_\_

Landform (hillslope, terrace, etc.): depressed area in nearly flat woods Local relief (concave, convex, none): \_\_\_\_\_

Slope (%): \_\_\_\_\_ Lat: 39.027500 N Long: 85.648100 W Datum: \_\_\_\_\_

Soil Map Unit Name: PcrB2: Pekin Silt Loam, 2-6% slopes NWI or WWI classification: \_\_\_\_\_

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

Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
--	--

Remarks:  
 Much of the state on Indiana has been experiencing a moderate to severe drought. This site was visited during a dry time of year and following two months of less-than normal precipitation

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <i>Fraxinus pennsylvanica</i>	60	Y	FACW	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>60</u> = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: _____ (A) <u>0</u> (B)  Prevalence Index = B/A = <u>0</u>
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				
1. <i>Fraxinus pennsylvanica</i>	70	Y	FACW	
2. <i>Ulmus americana</i>	25	Y	FACW-	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>95</u> = Total Cover				
<b>Herb Stratum (Plot size: _____)</b>				
1. <i>Cinna arundinacea</i>	80	Y	FACW	
2. <i>Rosa multiflora</i>	5	N	FACU	
3. <i>Eupatorium rugosum</i>	5	N	FACU	
4. <i>Elymus virginicus</i>	5	N	FACW-	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>95</u> = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)  
 This is a small wooded wetland within a larger wooded area that is largely covered by a mapped NWI polygon. Most of the NWI polygon is dominated by upland species and lacks hydric soils. This small wetland is the exception.







## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: US 50 North Vernon City/County: North Vernon, Jennings County Sampling Date: 05/10/2011

Applicant/Owner: \_\_\_\_\_ State: IN Sampling Point: T1-W23 wetland

Investigator(s): Alan Ball, Richard Connolly Section, Township, Range: \_\_\_\_\_

Landform (hillslope, terrace, etc.): wooded hillside north-facing slope Local relief (concave, convex, none): concave

Slope (%): \_\_\_\_\_ Lat: 39.014200 N Long: 85.663100 W Datum: \_\_\_\_\_

Soil Map Unit Name: BlgC2: Blocher-Cincinnati silt loams, 6-12% slopes NWI or WWI classification: \_\_\_\_\_

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

Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
--	--

Remarks:  
 this is a sloped, north-facing woodlot on the south side of CR 200N. There is a small ephemeral stream flowing towards the road. This stream joins the CR 200 N roadside ditch, but the flow is blocked by sediment/debris creating a small wetland pocket.

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: _____ (A) <u>0</u> (B)  Prevalence Index = B/A = <u>0</u>
<b>Sapling/Shrub Stratum (Plot size: <u>15'</u>)</b>				
1. <u>Liquidambar styraciflua</u>	15	Y	FACW	
2. <u>Fraxinus pennsylvanica</u>	10	Y	FACW	
3. _____	_____	_____	_____	
_____ = Total Cover				
<b>Herb Stratum (Plot size: <u>5'</u>)</b>				
1. <u>Schoenoplectus tabernaemontani</u>	10	Y	OBL	
2. <u>Phalaris arundinacea</u>	5	Y	FACW+	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)  
 Wetland vegetation is present. The recent rains in combination with the stopped-up roadside ditch has allowed this small wetland to hold water. Therefore, only limited herbaceous vegetation is present.



## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: US 50 North Vernon City/County: North Vernon, Jennings County Sampling Date: 05/10/2011

Applicant/Owner: \_\_\_\_\_ State: IN Sampling Point: T1-W31 upland

Investigator(s): Alan Ball, Richard Connolly Section, Township, Range: \_\_\_\_\_

Landform (hillslope, terrace, etc.): shallow end of man-made impoundment Local relief (concave, convex, none): concave

Slope (%): \_\_\_\_\_ Lat: 39.033600 N Long: 85.642200 W Datum: \_\_\_\_\_

Soil Map Unit Name: AddB2: Avonburg silt loam, 2-4% slopes NWI or WWI classification: \_\_\_\_\_

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

Are Vegetation , Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>	

Remarks:  
Upland vegetation is maintained by frequent mowing, as it is in a residential yard. This data point is in a broad, shallow depression along the shore of a small pond.

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: _____ (A) <u>0</u> (B)  Prevalence Index = B/A = <u>0</u>
Sapling/Shrub Stratum (Plot size: <u>15'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <i>Festuca pratensis</i>	40	Y	FACU-	
2. <i>Poa pratensis</i>	40	Y	FAC-	
3. <i>Taraxacum officinale</i>	15	N	FACU	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)  
Upland vegetation is present. Only the herbaceous stratum is present at this data point.



## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: US 50 North Vernon City/County: North Vernon, Jennings County Sampling Date: 05/10/2011

Applicant/Owner: \_\_\_\_\_ State: IN Sampling Point: T1-W31 wetland

Investigator(s): Alan Ball, Richard Connolly Section, Township, Range: \_\_\_\_\_

Landform (hillslope, terrace, etc.): shallow end of man-made impoundment Local relief (concave, convex, none): concave

Slope (%): \_\_\_\_\_ Lat: 39.033600 N Long: 85.642200 W Datum: \_\_\_\_\_

Soil Map Unit Name: AddB2: Avonburg silt loam, 2-4% slopes NWI or WWI classification: \_\_\_\_\_

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

Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
--	--

Remarks:  
 This data point is in a broad, shallow depression along the shore of a small pond. Water comes from a shallow ditch flowing from the east and north. This ditch also contains wetland 30.

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Quercus palustris</u>	20	Y	FACW	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)  Total Number of Dominant Species Across All Strata: <u>6</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83</u> (A/B)																
2. <u>Celtis occidentalis</u>	10	Y	FAC-																	
3. <u>Acer rubrum</u>	5	N	FAC																	
4. <u>Liquidambar styraciflua</u>	5	N	FACW																	
5. _____																				
<u>40</u> = Total Cover				<b>Prevalence Index worksheet:</b> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species _____</td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) <u>0</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>0</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = <u>0</u>	FACW species _____	x 2 = <u>0</u>	FAC species _____	x 3 = <u>0</u>	FACU species _____	x 4 = <u>0</u>	UPL species _____	x 5 = <u>0</u>	Column Totals: _____	(A) <u>0</u> (B)	Prevalence Index = B/A = <u>0</u>	
Total % Cover of:	Multiply by:																			
OBL species _____	x 1 = <u>0</u>																			
FACW species _____	x 2 = <u>0</u>																			
FAC species _____	x 3 = <u>0</u>																			
FACU species _____	x 4 = <u>0</u>																			
UPL species _____	x 5 = <u>0</u>																			
Column Totals: _____	(A) <u>0</u> (B)																			
Prevalence Index = B/A = <u>0</u>																				
_____ = Total Cover																				
<b>Sapling/Shrub Stratum (Plot size: <u>15'</u>)</b>																				
1. _____				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
_____ = Total Cover																				
<b>Herb Stratum (Plot size: <u>5'</u>)</b>																				
1. <u>Schoenoplectus tabernaemontani</u>	20	Y	OBL																	
2. <u>Agrostis gigantea</u>	20	Y	FACW																	
3. <u>Impatiens capensis</u>	20	Y	FACW																	
4. <u>Carex stricta</u>	20	Y	OBL																	
5. <u>Asclepias incarnata</u>	5	N	OBL																	
6. <u>Erigeron philadelphicus</u>	5	N	FACW																	
7. <u>Phleum pratense</u>	5	N	FACU																	
8. _____																				
9. _____																				
10. _____																				
<u>95</u> = Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____																
<b>Woody Vine Stratum (Plot size: _____)</b>																				
1. _____																				
2. _____																				
_____ = Total Cover																				

Remarks: (Include photo numbers here or on a separate sheet.)  
 Wetland vegetation is present.

**SOIL**

Sampling Point: T1-W31 wetla

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			
0-2	10YR 3/2							
2-16	10YR 5/1	80	10YR 4/6	20				
						silty clay lm		
						silty clay lm	Opg, 1 value, 5 chroma = many	
							pominent mottles	

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

<b>Hydric Soil Indicators:</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Other (Explain in Remarks)
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<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes <input checked="" type="checkbox"/> No _____
---	--

Remarks:  
  
The soil profile meets field indicator F3: Depleted Matrix. Hydric soils are present.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present?    Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present?    Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present?    Yes <input checked="" type="checkbox"/> No _____    Depth (inches): <u>6-8</u> (includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:  Wetland hydrology is both present and indicated. Soils are saturated at 6 to 8 inches below the surface within the wetland boundary.		

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: US 50 North Vernon City/County: North Vernon, Jennings County Sampling Date: 05/10/2011

Applicant/Owner: \_\_\_\_\_ State: IN Sampling Point: T1-W32 upland

Investigator(s): Alan Ball, Richard Connolly Section, Township, Range: \_\_\_\_\_

Landform (hillslope, terrace, etc.): edge of drainage swale in farm field Local relief (concave, convex, none): concave

Slope (%): \_\_\_\_\_ Lat: 39.007600 N Long: 85.663600 W Datum: \_\_\_\_\_

Soil Map Unit Name: DtzC3: Deputy-Trappist silty clay loams, 6-15% slopes NWI or WWI classification: \_\_\_\_\_

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

Are Vegetation , Soil , or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes _____	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>			

Remarks:  
Upland point is within a row-crop ag field, so vegetation and soils are disturbed. The wetland is in a broad, shallow swale that channels drainage to a small pond off to the west.

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
				_____ = Total Cover
Sapling/Shrub Stratum (Plot size: <u>15'</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
				_____ = Total Cover
Herb Stratum (Plot size: <u>5'</u> )				
1. <u>Allium canadense</u>	25	Y	FACU	
2. <u>Ambrosia artemisiifolia</u>	20	Y	FACU	
3. <u>Taraxacum officinale</u>	5	N	FACU	
4. <u>Trifolium hybridum</u>	5	N	FAC-	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
				55 = 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 (A/B)

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**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species _____	x 1 = <u>0</u>
FACW species _____	x 2 = <u>0</u>
FAC species _____	x 3 = <u>0</u>
FACU species _____	x 4 = <u>0</u>
UPL species _____	x 5 = <u>0</u>
Column Totals: _____ (A)	<u>0</u> (B)

Prevalence Index = B/A = 0

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**Hydrophytic Vegetation Indicators:**

Dominance Test is >50%

Prevalence Index is ≤3.0<sup>1</sup>

Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

---

**Hydrophytic Vegetation Present?** Yes \_\_\_\_\_ No

Remarks: (Include photo numbers here or on a separate sheet.)  
Upland vegetation is present. This data point is within an un-planted, un-plowed row-crop agricultural field.



## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: US 50 North Vernon City/County: North Vernon, Jennings County Sampling Date: 05/10/2011

Applicant/Owner: \_\_\_\_\_ State: IN Sampling Point: T1-W32 wetland

Investigator(s): Alan Ball, Richard Connolly Section, Township, Range: \_\_\_\_\_

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

Slope (%): \_\_\_\_\_ Lat: 39.007600 N Long: 85.663600 W Datum: \_\_\_\_\_

Soil Map Unit Name: DtzC3: Deputy-Trappist silty clay loams, 6-15% slopes NWI or WWI classification: \_\_\_\_\_

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

Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
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Remarks:  
 The wetland is in a broad, shallow swale that channels drainage to a small pond off to the west. Water comes from surrounding the farm field and the road side ditch along CR 150 N.

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5'</u> )				
1. <u>Senecio glabellus</u>	30	Y	OBL	
2. <u>Agrostis gigantea</u>	30	Y	FACW	
3. <u>Solidago gigantea</u>	10	N	FACW	
4. <u>Onoclea sensibilis</u>	5	N	FACW	
5. <u>Mentha arvensis</u>	5	N	FACW	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = 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 (A/B)

**Prevalence Index worksheet:**  
 Total % Cover of: \_\_\_\_\_ Multiply by: \_\_\_\_\_  
 OBL species \_\_\_\_\_ x 1 = 0  
 FACW species \_\_\_\_\_ x 2 = 0  
 FAC species \_\_\_\_\_ x 3 = 0  
 FACU species \_\_\_\_\_ x 4 = 0  
 UPL species \_\_\_\_\_ x 5 = 0  
 Column Totals: \_\_\_\_\_ (A) 0 (B)  
 Prevalence Index = B/A = 0

**Hydrophytic Vegetation Indicators:**  
 Dominance Test is >50%  
 Prevalence Index is ≤3.0<sup>1</sup>  
 Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes  No \_\_\_\_\_

Remarks: (Include photo numbers here or on a separate sheet.)  
 Wetland vegetation is present.



## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: US 50 North Vernon City/County: North Vernon, Jennings County Sampling Date: 05/10/2011

Applicant/Owner: \_\_\_\_\_ State: IN Sampling Point: T1-W33 upland

Investigator(s): Alan Ball, Richard Connolly Section, Township, Range: \_\_\_\_\_

Landform (hillslope, terrace, etc.): edge of drainage swale in farm field Local relief (concave, convex, none): concave

Slope (%): \_\_\_\_\_ Lat: 39.008600 N Long: 85.663500 W Datum: \_\_\_\_\_

Soil Map Unit Name: DtwC2: Deputy silt loam, 6-15% slopes NWI or WWI classification: \_\_\_\_\_

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

Are Vegetation , Soil , or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes _____	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>			

Remarks:  
Upland point is within a row-crop ag field, so vegetation and soils are disturbed. The wetland is in a broad, shallow swale that channels drainage to a small pond off to the west.

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
				_____ = Total Cover
Sapling/Shrub Stratum (Plot size: <u>15'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
				_____ = Total Cover
Herb Stratum (Plot size: <u>5'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Allium canadense</u>	30	Y	FACU	
2. <u>Ambrosia artemisiifolia</u>	15	Y	FACU	
3. <u>Taraxacum officinale</u>	10	N	FACU	
4. <u>Senecio glabellus</u>	10	N	OBL	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
				65 = Total Cover
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
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 (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species _____	x 1 = <u>0</u>
FACW species _____	x 2 = <u>0</u>
FAC species _____	x 3 = <u>0</u>
FACU species _____	x 4 = <u>0</u>
UPL species _____	x 5 = <u>0</u>
Column Totals: _____ (A)	<u>0</u> (B)

Prevalence Index = B/A = 0

**Hydrophytic Vegetation Indicators:**

Dominance Test is >50%

Prevalence Index is ≤3.0<sup>1</sup>

Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

<b>Hydrophytic Vegetation Present?</b>	Yes _____	No <input checked="" type="checkbox"/>
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Remarks: (Include photo numbers here or on a separate sheet.)  
Upland vegetation is present. This data point is within an un-planted, un-plowed row-crop agricultural field.



## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: US 50 North Vernon City/County: North Vernon, Jennings County Sampling Date: 05/10/2011

Applicant/Owner: \_\_\_\_\_ State: IN Sampling Point: T1-W33 wetland

Investigator(s): Alan Ball, Richard Connolly Section, Township, Range: \_\_\_\_\_

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

Slope (%): \_\_\_\_\_ Lat: 39.008600 N Long: 85.663500 W Datum: \_\_\_\_\_

Soil Map Unit Name: DtwC2: Deputy silt loam, 6-15% slopes NWI or WWI classification: \_\_\_\_\_

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

Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
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Remarks:  
The wetland is in a broad, shallow swale that channels drainage to a small pond off to the west. Water comes from surrounding the farm field.

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5'</u> )				
1. <u>Solidago gigantea</u>	15	Y	FACW	
2. <u>Agrostis gigantea</u>	10	Y	FACW	
3. <u>Phalaris arundinacea</u>	10	Y	FACW+	
4. <u>Echinochloa crus-galli</u>	10	Y	FACW	
5. <u>Mentha arvensis</u>	5	N	FACW	
6. <u>Senecio glabellus</u>	5	N	OBL	
7. <u>Onoclea sensibilis</u>	5	N	FACW	
8. <u>Schoenoplectus tabernaemontni</u>	5	N	OBL	
9. <u>Eupatorium perfoliatum</u>	5	N	FACW+	
10. _____	_____	_____	_____	
70 = 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 (A/B)

**Prevalence Index worksheet:**  
 Total % Cover of: \_\_\_\_\_ Multiply by: \_\_\_\_\_  
 OBL species \_\_\_\_\_ x 1 = 0  
 FACW species \_\_\_\_\_ x 2 = 0  
 FAC species \_\_\_\_\_ x 3 = 0  
 FACU species \_\_\_\_\_ x 4 = 0  
 UPL species \_\_\_\_\_ x 5 = 0  
 Column Totals: \_\_\_\_\_ (A) 0 (B)  
 Prevalence Index = B/A = 0

**Hydrophytic Vegetation Indicators:**  
 Dominance Test is >50%  
 Prevalence Index is ≤3.0<sup>1</sup>  
 Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes  No \_\_\_\_\_

Remarks: (Include photo numbers here or on a separate sheet.)  
Wetland vegetation is present. The wetland (drainage swale) shows ruts from heavy equipment passage.



## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: US 50 North Vernon City/County: North Vernon, Jennings County Sampling Date: 05/10/2011

Applicant/Owner: \_\_\_\_\_ State: IN Sampling Point: T1-W34 upland

Investigator(s): Alan Ball, Richard Connolly Section, Township, Range: \_\_\_\_\_

Landform (hillslope, terrace, etc.): wooded drainage swale Local relief (concave, convex, none): concave

Slope (%): \_\_\_\_\_ Lat: 38.988500 N Long: 85.684800 W Datum: \_\_\_\_\_

Soil Map Unit Name: BlgC3: Blocher, soft black shale substratum-Jennings-Deputy silt loams 6-12% NWI or WWI classification: \_\_\_\_\_

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

Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____ No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes _____ No <input checked="" type="checkbox"/>		

Remarks:  
The wetland is in a broad, wooded, shallow swale that channels drainage northwest from a small pond.

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Quercus palustris</u>	10	Y	FACW	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>5</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40</u> (A/B)
2. _____				
3. _____				
4. _____				
5. _____				
<u>10</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Acer saccharum</u>	5	Y	FACU	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: _____ (A) <u>0</u> (B)  Prevalence Index = B/A = <u>0</u>
2. <u>Elaeagnus umbellata</u>	10	Y	NI	
3. _____				
4. _____				
5. _____				
<u>15</u> = Total Cover				
Herb Stratum (Plot size: <u>5'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Impatiens capensis</u>	40	Y	FACW	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Allium canadense</u>	15	Y	FACU	
3. <u>Galium aparine</u>	5	N	FACU	
4. <u>Laportea canadensis</u>	5	N	FACW	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>65</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <input checked="" type="checkbox"/>
2. _____				
_____ = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)  
Upland vegetation is present. This data point is taken on a slight rise near the eastern edge of the wetland.



## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: US 50 North Vernon City/County: North Vernon, Jennings County Sampling Date: 05/10/2011

Applicant/Owner: \_\_\_\_\_ State: IN Sampling Point: T1-W34 wetland

Investigator(s): Alan Ball, Richard Connolly Section, Township, Range: \_\_\_\_\_

Landform (hillslope, terrace, etc.): wooded drainage swale Local relief (concave, convex, none): concave

Slope (%): \_\_\_\_\_ Lat: 38.988500 N Long: 85.684800 W Datum: \_\_\_\_\_

Soil Map Unit Name: B1gC3: Blocher, soft black shale substratum-Jennings-Deputy silt loams 6-12% NWI or WWI classification: \_\_\_\_\_

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

Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
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Remarks:  
The wetland is in a broad, wooded, shallow swale that channels drainage northwest from a small pond.

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <i>Quercus palustris</i>	40	Y	FACW	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. <i>Liquidambar styraciflua</i>	10	N	FACW	
3. <i>Acer rubrum</i>	5	N	FAC	
4. _____				
5. _____				
<u>55</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <i>Fraxinus pennsylvanica</i>	20	Y	FACW	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: _____ (A) <u>0</u> (B)  Prevalence Index = B/A = <u>0</u>
2. <i>Ulmus americana</i>	10	Y	FACW-	
3. _____				
4. _____				
5. _____				
<u>30</u> = Total Cover				
Herb Stratum (Plot size: <u>5'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <i>Impatiens capensis</i>	70	Y	FACW	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <i>Onoclea sensibilis</i>	10	N	FACW	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>80</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____
2. _____				
_____ = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)  
Wetland vegetation is present.

**SOIL**

Sampling Point: T1-W34 wetla

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			
0-3	10YR 3/2					silt loam		
3-16	10YR 5/1	70	5YR 4/6	30		matrix silt loam	2 pg, 1 value, 5 chroma = many prominent mottles	

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

<b>Hydric Soil Indicators:</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Other (Explain in Remarks)
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<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes <input checked="" type="checkbox"/> No _____
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Remarks:  
  
The soil profile meets field indicator F3: Depleted Matrix. Hydric soils are present.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
<b>Primary Indicators (minimum of one is required; check all that apply)</b> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)

<b>Field Observations:</b> Surface Water Present?    Yes <input checked="" type="checkbox"/> No _____    Depth (inches): <u>0-1</u> Water Table Present?    Yes _____    No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present?    Yes <input checked="" type="checkbox"/> No _____    Depth (inches): <u>2-6</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
  
Wetland hydrology is both present and indicated. Soils are saturated at or near the surface within the wetland boundary. There are multiple poorly defined drainage threads coursing through the wetland, fed by the outlet from the adjacent pond.





## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: US 50 North Vernon City/County: North Vernon, Jennings County Sampling Date: 05/10/2011

Applicant/Owner: \_\_\_\_\_ State: IN Sampling Point: T1-W36 wetland

Investigator(s): Alan Ball, Richard Connolly Section, Township, Range: \_\_\_\_\_

Landform (hillslope, terrace, etc.): shallow depression in grassy field Local relief (concave, convex, none): concave

Slope (%): \_\_\_\_\_ Lat: 38.988700 N Long: 85.681800 W Datum: \_\_\_\_\_

Soil Map Unit Name: ClfA: Cobbsfork silt loam, 0-1% slopes NWI or WWI classification: \_\_\_\_\_

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

Are Vegetation , Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
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Remarks:  
 These wetland pockets are shallow depressions located in a large grassy field. The vegetation is disturbed by mowing one or more times per growing season.

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5'</u> )				
1. <i>Juncus effusus</i>	20	Y	OBL	
2. <i>Schoenoplectus tabernaemontani</i>	15	Y	OBL	
3. <i>Carex hystericina</i>	10	Y	OBL	
4. <i>Cyperus esculentus</i>	5	N	FACW	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = 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: 3 (B)  
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

**Prevalence Index worksheet:**  
 Total % Cover of: \_\_\_\_\_ Multiply by: \_\_\_\_\_  
 OBL species \_\_\_\_\_ x 1 = 0  
 FACW species \_\_\_\_\_ x 2 = 0  
 FAC species \_\_\_\_\_ x 3 = 0  
 FACU species \_\_\_\_\_ x 4 = 0  
 UPL species \_\_\_\_\_ x 5 = 0  
 Column Totals: \_\_\_\_\_ (A) 0 (B)  
 Prevalence Index = B/A = 0

**Hydrophytic Vegetation Indicators:**  
 Dominance Test is >50%  
 Prevalence Index is ≤3.0<sup>1</sup>  
 Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes  No \_\_\_\_\_

Remarks: (Include photo numbers here or on a separate sheet.)  
 Wetland vegetation is present.



## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: US 50 North Vernon City/County: North Vernon, Jennings County Sampling Date: 05/10/2011

Applicant/Owner: \_\_\_\_\_ State: IN Sampling Point: T1-W37 upland

Investigator(s): Alan Ball, Richard Connolly Section, Township, Range: \_\_\_\_\_

Landform (hillslope, terrace, etc.): shallow depression in grassy field Local relief (concave, convex, none): concave

Slope (%): \_\_\_\_\_ Lat: 38.988700 N Long: 85.681800 W Datum: \_\_\_\_\_

Soil Map Unit Name: ClfA: Cobbsfork silt loam, 0-1% slopes NWI or WWI classification: \_\_\_\_\_

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

Are Vegetation , Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No _____		
Wetland Hydrology Present?	Yes _____ No <input checked="" type="checkbox"/>		

Remarks:  
These wetland pockets are shallow depressions located in a large grassy field. The vegetation is disturbed by mowing one or more times per growing season.

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Poa pratensis</u>	40	Y	FAC-	
2. <u>Festuca arundinacea</u>	40	Y	FACU+	
3. <u>Erigeron strigosus</u>	5	N	FAC-	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
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 (A/B)

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**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species _____	x 1 = <u>0</u>
FACW species _____	x 2 = <u>0</u>
FAC species <u>45</u>	x 3 = <u>135</u>
FACU species <u>40</u>	x 4 = <u>160</u>
UPL species _____	x 5 = <u>0</u>
Column Totals: <u>85</u> (A)	<u>295</u> (B)

Prevalence Index = B/A = 3.47

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**Hydrophytic Vegetation Indicators:**

Dominance Test is >50%

Prevalence Index is ≤3.0<sup>1</sup>

Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

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**Hydrophytic Vegetation Present?** Yes \_\_\_\_\_ No

Remarks: (Include photo numbers here or on a separate sheet.)  
The vegetation component not satisfied at this data point.



## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: US 50 North Vernon City/County: North Vernon, Jennings County Sampling Date: 05/10/2011

Applicant/Owner: \_\_\_\_\_ State: IN Sampling Point: T1-W37 wetland

Investigator(s): Alan Ball, Richard Connolly Section, Township, Range: \_\_\_\_\_

Landform (hillslope, terrace, etc.): shallow depression in grassy field Local relief (concave, convex, none): concave

Slope (%): \_\_\_\_\_ Lat: 38.988700 N Long: 85.681800 W Datum: \_\_\_\_\_

Soil Map Unit Name: ClfA: Cobbsfork silt loam, 0-1% slopes NWI or WWI classification: \_\_\_\_\_

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

Are Vegetation , Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
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Remarks:  
 These wetland pockets are shallow depressions located in a large grassy field. The vegetation is disturbed by mowing one or more times per growing season.

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: _____ (A) <u>0</u> (B)  Prevalence Index = B/A = <u>0</u>	
Sapling/Shrub Stratum (Plot size: <u>15'</u> )	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
_____ = Total Cover					
Herb Stratum (Plot size: <u>5'</u> )	Absolute % Cover	Dominant Species?	Indicator Status		
1. <i>Juncus effusus</i>	20	Y	OBL		
2. <i>Schoenoplectus tabernaemontani</i>	15	Y	OBL		
3. <i>Carex hystericina</i>	10	Y	OBL		
4. <i>Cyperus esculentus</i>	5	N	FACW		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
_____ = Total Cover					
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
_____ = Total Cover					

Remarks: (Include photo numbers here or on a separate sheet.)  
 Wetland vegetation is present.



## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: US 50 North Vernon City/County: North Vernon, Jennings County Sampling Date: 08/11/2011

Applicant/Owner: \_\_\_\_\_ State: IN Sampling Point: T1-W40 upland

Investigator(s): Alan Ball, Marc Woernle Section, Township, Range: \_\_\_\_\_

Landform (hillslope, terrace, etc.): shallow tree-filled depression along fenceline Local relief (concave, convex, none): concave

Slope (%): \_\_\_\_\_ Lat: 38.987700 N Long: 85.681500 W Datum: \_\_\_\_\_

Soil Map Unit Name: ClfA: Cobbsfork silt loam, 0-1% slopes NWI or WWI classification: \_\_\_\_\_

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

Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>	

Remarks:  
These wetland pockets are shallow depressions located in a large grassy field. The vegetation is disturbed by mowing one or more times per growing season.

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: _____ (A) <u>0</u> (B)  Prevalence Index = B/A = <u>0</u>
Sapling/Shrub Stratum (Plot size: <u>15'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Festuca arundinacea</u>	<u>95</u>	<u>Y</u>	<u>FACU+</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>95</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)  
Upland vegetation is present.

**SOIL**

Sampling Point: T1-W40 uplan

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			
0-6	10YR 4/3	100					silty clay loam	
6-16	10YR 5/2	98	10YR 5/6	2			silty clay loam	

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

<b>Hydric Soil Indicators:</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Other (Explain in Remarks)
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<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes _____    No <u>  X  </u>
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Remarks:  
  
The soil profile does not meet a hydric soil field indicator.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
<b>Primary Indicators (minimum of one is required; check all that apply)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)

<b>Field Observations:</b> Surface Water Present?    Yes _____    No <u>  X  </u> Depth (inches): _____ Water Table Present?        Yes _____    No <u>  X  </u> Depth (inches): _____ Saturation Present?          Yes _____    No <u>  X  </u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____    No <u>  X  </u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
  
Wetland hydrology is neither present nor indicated.

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: US 50 North Vernon City/County: North Vernon, Jennings County Sampling Date: 08/11/2011

Applicant/Owner: \_\_\_\_\_ State: IN Sampling Point: T1-W40 wetland

Investigator(s): Alan Ball, Marc Woernle Section, Township, Range: \_\_\_\_\_

Landform (hillslope, terrace, etc.): shallow tree-filled depression along fenceline Local relief (concave, convex, none): concave

Slope (%): \_\_\_\_\_ Lat: 38.987700 N Long: 85.681500 W Datum: \_\_\_\_\_

Soil Map Unit Name: ClfA: Cobbsfork silt loam, 0-1% slopes NWI or WWI classification: \_\_\_\_\_

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

Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/>	No _____	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No _____			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No _____			

Remarks:  
These wetland pockets are shallow depressions located in a large grassy field. The vegetation is disturbed by mowing one or more times per growing season.

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Quercus palustris</u>	40	Y	FACW	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A)  Total Number of Dominant Species Across All Strata: <u>7</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>86%</u> (A/B)
2. <u>Ulmus americana</u>	30	Y	FACW-	
3. <u>Acer saccharinum</u>	20	Y	FACW	
4. <u>Quercus macrocarpa</u>	10	N	FAC-	
5. _____				
<u>100</u> = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: _____ (A) <u>0</u> (B)  Prevalence Index = B/A = <u>0</u>
<b>Sapling/Shrub Stratum (Plot size: <u>15'</u>)</b>				
1. <u>Ulmus americana</u>	10	Y	FACW-	
2. <u>Cephalanthus occidentalis</u>	5	Y	OBL	
3. _____				
<u>15</u> = Total Cover				
<b>Herb Stratum (Plot size: <u>5'</u>)</b>				
1. <u>Scirpus atrovirens</u>	20	Y	OBL	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Festuca arundinacea</u>	10	Y	FACU+	
3. <u>Leersia virginica</u>	5	N	FACW	
4. <u>Oxalis stricta</u>	2	N	FACU	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>37</u> = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____				
2. _____				
_____ = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)  
Wetland vegetation is present.



## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: US 50 North Vernon City/County: North Vernon, Jennings County Sampling Date: 08/11/2011

Applicant/Owner: \_\_\_\_\_ State: IN Sampling Point: T1-W41 upland

Investigator(s): Alan Ball, Marc Woernle Section, Township, Range: \_\_\_\_\_

Landform (hillslope, terrace, etc.): flat, grassy farm field Local relief (concave, convex, none): concave

Slope (%): \_\_\_\_\_ Lat: 38.987600 N Long: 85.681800 W Datum: \_\_\_\_\_

Soil Map Unit Name: ClfA: Cobbsfork silt loam, 0-1% slopes NWI or WWI classification: \_\_\_\_\_

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

Are Vegetation , Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes _____	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>			

Remarks:  
These wetland pockets are shallow depressions located in a large grassy field. The vegetation is disturbed by mowing one or more times per growing season.

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: <u>15'</u>)</b>				
1. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b>
2. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
3. _____	_____	_____	_____	OBL species _____ x 1 = <u>0</u>
4. _____	_____	_____	_____	FACW species _____ x 2 = <u>0</u>
5. _____	_____	_____	_____	FAC species _____ x 3 = <u>0</u>
_____ = Total Cover				FACU species _____ x 4 = <u>0</u>
UPL species _____ x 5 = <u>0</u>				
_____ = Total Cover				Column Totals: _____ (A) <u>0</u> (B)
_____ = Total Cover				Prevalence Index = B/A = <u>0</u>
<b>Herb Stratum (Plot size: <u>5'</u>)</b>				
1. <u>Festuca arundinacea</u>	<u>95</u>	<u>Y</u>	<u>FACU+</u>	<b>Hydrophytic Vegetation Indicators:</b>
2. _____	_____	_____	_____	<input type="checkbox"/> Dominance Test is >50%
3. _____	_____	_____	_____	<input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>
4. _____	_____	_____	_____	<input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
5. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b>
2. _____	_____	_____	_____	Yes _____ No <input checked="" type="checkbox"/>
_____ = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)  
Upland vegetation is present.

**SOIL**

Sampling Point: T1-W41 uplan

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			
0-6	10YR 4/3	100					silty clay loam	
6-16	10YR 5/2	98	10YR 5/6	2			silty clay loam	

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

<b>Hydric Soil Indicators:</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Other (Explain in Remarks)
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<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes _____    No <u>  X  </u>
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Remarks:  
  
The soil profile does not meet a hydric soil field indicator.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
<b>Primary Indicators (minimum of one is required; check all that apply)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)

<b>Field Observations:</b> Surface Water Present?    Yes _____    No <u>  X  </u> Depth (inches): _____ Water Table Present?        Yes _____    No <u>  X  </u> Depth (inches): _____ Saturation Present?         Yes _____    No <u>  X  </u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____    No <u>  X  </u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
  
Wetland hydrology is neither present nor indicated.

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: US 50 North Vernon City/County: North Vernon, Jennings County Sampling Date: 08/11/2011

Applicant/Owner: \_\_\_\_\_ State: IN Sampling Point: T1-W41 wetland

Investigator(s): Alan Ball, Marc Woernle Section, Township, Range: \_\_\_\_\_

Landform (hillslope, terrace, etc.): shallow depression in grassy field Local relief (concave, convex, none): concave

Slope (%): \_\_\_\_\_ Lat: 38.987600 N Long: 85.681800 W Datum: \_\_\_\_\_

Soil Map Unit Name: ClfA: Cobbsfork silt loam, 0-1% slopes NWI or WWI classification: \_\_\_\_\_

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

Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
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Remarks:  
 These wetland pockets are shallow depressions located in a large grassy field. The vegetation is disturbed by mowing one or more times per growing season.

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: _____ (A) <u>0</u> (B)  Prevalence Index = B/A = <u>0</u>
<b>Sapling/Shrub Stratum (Plot size: <u>15'</u>)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
_____ = Total Cover				
<b>Herb Stratum (Plot size: <u>5'</u>)</b>				
1. <i>Eleocharis palustris</i>	75	Y	OBL	
2. <i>Scirpus atrovirens</i>	10	N	OBL	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
85 = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)  
 Wetland vegetation is present.

**SOIL**

Sampling Point: T1-W41 wetla

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			
0-16	10YR 5/1	85	10YR 4/6	10			silt loam	0 pg, 1 value, 5 chroma = many
			10YR 8/1	5				prominent mottles

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

<b>Hydric Soil Indicators:</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Other (Explain in Remarks)
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<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes <input checked="" type="checkbox"/> No _____
---	--

Remarks:  
  
The soil profile meets field indicator F3: Depleted Matrix.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
<b>Primary Indicators (minimum of one is required; check all that apply)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)

<b>Field Observations:</b> Surface Water Present?    Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present?    Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present?    Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
  
Wetland hydrology is indicated.

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: US 50 North Vernon City/County: North Vernon, Jennings County Sampling Date: 08/11/2011

Applicant/Owner: \_\_\_\_\_ State: IN Sampling Point: T1-W42 upland

Investigator(s): Alan Ball, Marc Woernle Section, Township, Range: \_\_\_\_\_

Landform (hillslope, terrace, etc.): flat, grassy farm field Local relief (concave, convex, none): concave

Slope (%): \_\_\_\_\_ Lat: 38.987100 N Long: 85.682100 W Datum: \_\_\_\_\_

Soil Map Unit Name: ClfA: Cobbsfork silt loam, 0-1% slopes NWI or WWI classification: \_\_\_\_\_

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

Are Vegetation , Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes _____	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>			

Remarks:  
These wetland pockets are shallow depressions located in a large grassy field. The vegetation is disturbed by mowing one or more times per growing season.

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x 1 = <u>0</u>
3. _____	_____	_____	_____	FACW species _____ x 2 = <u>0</u>
4. _____	_____	_____	_____	FAC species _____ x 3 = <u>0</u>
5. _____	_____	_____	_____	FACU species _____ x 4 = <u>0</u>
_____ = Total Cover				UPL species _____ x 5 = <u>0</u>
_____ = Total Cover				Column Totals: _____ (A) <u>0</u> (B)
_____ = Total Cover				Prevalence Index = B/A = <u>0</u>
Herb Stratum (Plot size: <u>5'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Festuca arundinacea</u>	<u>95</u>	<u>Y</u>	<u>FACU+</u>	<input type="checkbox"/> Dominance Test is >50%
2. _____	_____	_____	_____	<input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>
3. _____	_____	_____	_____	<input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____	_____	_____	_____	Yes _____ No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)  
Upland vegetation is present.



## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: US 50 North Vernon City/County: North Vernon, Jennings County Sampling Date: 08/11/2011

Applicant/Owner: \_\_\_\_\_ State: IN Sampling Point: T1-W42 wetland

Investigator(s): Alan Ball, Marc Woernle Section, Township, Range: \_\_\_\_\_

Landform (hillslope, terrace, etc.): shallow depression in grassy field Local relief (concave, convex, none): concave

Slope (%): \_\_\_\_\_ Lat: 38.987100 N Long: 85.682100 W Datum: \_\_\_\_\_

Soil Map Unit Name: ClfA: Cobbsfork silt loam, 0-1% slopes NWI or WWI classification: \_\_\_\_\_

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

Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
--	--

Remarks:  
 These wetland pockets are shallow depressions located in a large grassy field. The vegetation is disturbed by mowing one or more times per growing season.

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5'</u> )				
1. <u>Cyperus esculentus</u>	30	Y	FACW	
2. <u>Chamaesyce nutans</u>	20	Y	FACU	
3. <u>Eleocharis obtusa</u>	20	Y	OBL	
4. <u>Paspalum setaceum</u>	10	N	FAC	
5. <u>Festuca arundinacea</u>	10	N	FACU+	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = 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: 67% (A/B)

**Prevalence Index worksheet:**  
 Total % Cover of: \_\_\_\_\_ Multiply by: \_\_\_\_\_  
 OBL species \_\_\_\_\_ x 1 = 0  
 FACW species \_\_\_\_\_ x 2 = 0  
 FAC species \_\_\_\_\_ x 3 = 0  
 FACU species \_\_\_\_\_ x 4 = 0  
 UPL species \_\_\_\_\_ x 5 = 0  
 Column Totals: \_\_\_\_\_ (A) 0 (B)  
 Prevalence Index = B/A = 0

**Hydrophytic Vegetation Indicators:**  
 Dominance Test is >50%  
 Prevalence Index is ≤3.0<sup>1</sup>  
 Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes  No \_\_\_\_\_

Remarks: (Include photo numbers here or on a separate sheet.)  
 Wetland vegetation is present.

**SOIL**

Sampling Point: T1-W42 wetla

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			
0-4	10YR 4/2	80	10YR 5/4	20			silt loam	
4-16	10YR 5/1	90	10YR 5/6	10			silt loam	

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

<b>Hydric Soil Indicators:</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Other (Explain in Remarks)
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<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes <input checked="" type="checkbox"/> No _____
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Remarks:  
  
The soil profile meets field indicator F3: Depleted Matrix.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present?    Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present?    Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present?    Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:  Wetland hydrology is indicated.		

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: US 50 North Vernon City/County: North Vernon, Jennings County Sampling Date: 08/11/2011

Applicant/Owner: \_\_\_\_\_ State: IN Sampling Point: T1-W43 upland

Investigator(s): Alan Ball, Marc Woernle Section, Township, Range: \_\_\_\_\_

Landform (hillslope, terrace, etc.): flat, grassy farm field Local relief (concave, convex, none): concave

Slope (%): \_\_\_\_\_ Lat: 38.985800 N Long: 85.684100 W Datum: \_\_\_\_\_

Soil Map Unit Name: ClfA: Cobbsfork silt loam, 0-1% slopes NWI or WWI classification: \_\_\_\_\_

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

Are Vegetation , Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>	

Remarks:  
These wetland pockets are shallow depressions located in a large grassy field. The vegetation is disturbed by mowing one or more times per growing season.

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: _____ (A) <u>0</u> (B)  Prevalence Index = B/A = <u>0</u>
Sapling/Shrub Stratum (Plot size: <u>15'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <i>Festuca arundinacea</i>	70	Y	FACU+	
2. <i>Setaria pumila</i>	15	N	FAC	
3. <i>Toxicodendron radicans</i>	5	N	FAC+	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)  
Upland vegetation is present.

**SOIL**

Sampling Point: T1-W43 uplan

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			
0-6	10YR 4/3	100					silty clay loam	
6-16	10YR 5/2	98	10YR 5/6	2			silty clay loam	

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

<b>Hydric Soil Indicators:</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Other (Explain in Remarks)
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<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes _____    No <u>  X  </u>
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Remarks:  
  
The soil profile does not meet a hydric soil field indicator.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
<b>Primary Indicators (minimum of one is required; check all that apply)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)

<b>Field Observations:</b> Surface Water Present?    Yes _____ No <u>  X  </u> Depth (inches): _____ Water Table Present?    Yes _____ No <u>  X  </u> Depth (inches): _____ Saturation Present?    Yes _____ No <u>  X  </u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____    No <u>  X  </u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
  
Wetland hydrology is neither present nor indicated.

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: US 50 North Vernon City/County: North Vernon, Jennings County Sampling Date: 08/11/2011

Applicant/Owner: \_\_\_\_\_ State: IN Sampling Point: T1-W43 wetland

Investigator(s): Alan Ball, Marc Woernle Section, Township, Range: \_\_\_\_\_

Landform (hillslope, terrace, etc.): shallow depression in grassy field Local relief (concave, convex, none): concave

Slope (%): \_\_\_\_\_ Lat: 38.987200 N Long: 85.681300 W Datum: \_\_\_\_\_

Soil Map Unit Name: ClfA: Cobbsfork silt loam, 0-1% slopes NWI or WWI classification: \_\_\_\_\_

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

Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
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Remarks:  
 These wetland pockets are shallow depressions located in a large grassy field. The vegetation is disturbed by mowing one or more times per growing season.

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5'</u> )				
1. <u>Echinochloa crus-galli</u>	70	Y	FACW	
2. <u>Xanthium strumarium</u>	5	N	FAC	
3. <u>Scirpus atrovirens</u>	5	N	OBL	
4. <u>Leersia oryzoides</u>	5	N	OBL	
5. <u>Typha latifolia</u>	5	N	OBL	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = 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: 1 (B)  
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

**Prevalence Index worksheet:**  
 Total % Cover of: \_\_\_\_\_ Multiply by: \_\_\_\_\_  
 OBL species \_\_\_\_\_ x 1 = 0  
 FACW species \_\_\_\_\_ x 2 = 0  
 FAC species \_\_\_\_\_ x 3 = 0  
 FACU species \_\_\_\_\_ x 4 = 0  
 UPL species \_\_\_\_\_ x 5 = 0  
 Column Totals: \_\_\_\_\_ (A) 0 (B)  
 Prevalence Index = B/A = 0

**Hydrophytic Vegetation Indicators:**  
 Dominance Test is >50%  
 Prevalence Index is ≤3.0<sup>1</sup>  
 Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes  No \_\_\_\_\_

Remarks: (Include photo numbers here or on a separate sheet.)  
 Wetland vegetation is present.

**SOIL**

Sampling Point: T1-W43 wetla

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			
0-4	10YR 4/1	97	10YR 8/1	3		M	silty clay loam	
			10YR 4/4	7		PL	silty clay loam	
4-16	10YR 4/1	90	10YR 4/4	10		PL	silty clay loam	

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

<b>Hydric Soil Indicators:</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Other (Explain in Remarks)
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<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes <input checked="" type="checkbox"/> No _____
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Remarks:  
  
The soil profile meets field indicator F3: Depleted Matrix.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
<b>Primary Indicators (minimum of one is required; check all that apply)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)

<b>Field Observations:</b> Surface Water Present?    Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present?    Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present?    Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
  
Wetland hydrology is indicated.

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: US 50 North Vernon City/County: North Vernon, Jennings County Sampling Date: 08/11/2011

Applicant/Owner: \_\_\_\_\_ State: IN Sampling Point: T1-W44 upland

Investigator(s): Alan Ball, Marc Woernle Section, Township, Range: \_\_\_\_\_

Landform (hillslope, terrace, etc.): flat, grassy farm field Local relief (concave, convex, none): concave

Slope (%): \_\_\_\_\_ Lat: 38.985800 N Long: 85.684100 W Datum: \_\_\_\_\_

Soil Map Unit Name: ClfA: Cobbsfork silt loam, 0-1% slopes NWI or WWI classification: \_\_\_\_\_

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

Are Vegetation , Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes _____	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>			

Remarks:  
These wetland pockets are shallow depressions located in a large grassy field. The vegetation is disturbed by mowing one or more times per growing season.

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Festuca arundinacea</u>	95	Y	FACU+	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
95 = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
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% (A/B)

---

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species _____	x 1 = <u>0</u>
FACW species _____	x 2 = <u>0</u>
FAC species _____	x 3 = <u>0</u>
FACU species _____	x 4 = <u>0</u>
UPL species _____	x 5 = <u>0</u>
Column Totals: _____ (A)	<u>0</u> (B)

Prevalence Index = B/A = 0

---

**Hydrophytic Vegetation Indicators:**

Dominance Test is >50%

Prevalence Index is ≤3.0<sup>1</sup>

Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

---

**Hydrophytic Vegetation Present?** Yes \_\_\_\_\_ No

Remarks: (Include photo numbers here or on a separate sheet.)  
Upland vegetation is present.

**SOIL**

Sampling Point: T1-W44 uplan

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			
0-6	10YR 4/3	100					silty clay loam	
6-16	10YR 5/2	98	10YR 5/6	2			silty clay loam	

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

<b>Hydric Soil Indicators:</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Other (Explain in Remarks)
---	--	--

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes _____    No <u>  X  </u>
---	--

Remarks:  
  
The soil profile does not meet a hydric soil field indicator.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
<b>Primary Indicators (minimum of one is required; check all that apply)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)

<b>Field Observations:</b> Surface Water Present?    Yes _____    No <u>  X  </u> Depth (inches): _____ Water Table Present?    Yes _____    No <u>  X  </u> Depth (inches): _____ Saturation Present?    Yes _____    No <u>  X  </u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____    No <u>  X  </u>
--	--

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

Remarks:  
  
Wetland hydrology is neither present nor indicated.

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: US 50 North Vernon City/County: North Vernon, Jennings County Sampling Date: 08/11/2011

Applicant/Owner: \_\_\_\_\_ State: IN Sampling Point: T1-W44 wetland

Investigator(s): Alan Ball, Marc Woernle Section, Township, Range: \_\_\_\_\_

Landform (hillslope, terrace, etc.): shallow depression in grassy field Local relief (concave, convex, none): concave

Slope (%): \_\_\_\_\_ Lat: 38.985800 N Long: 85.684100 W Datum: \_\_\_\_\_

Soil Map Unit Name: ClfA: Cobbsfork silt loam, 0-1% slopes NWI or WWI classification: \_\_\_\_\_

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

Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
--	--

Remarks:  
 These wetland pockets are shallow depressions located in a large grassy field. The vegetation is disturbed by mowing one or more times per growing season.

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <i>Echinochloa crus-galli</i>	50	Y	FACW	
2. <i>Cyperus esculentus</i>	25	Y	FACW	
3. <i>Chamaesyce nutans</i>	20	Y	FACU	
4. <i>Festuca arundinacea</i>	5	N	FACU+	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
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: 67% (A/B)

**Prevalence Index worksheet:**  
 Total % Cover of: \_\_\_\_\_ Multiply by: \_\_\_\_\_  
 OBL species \_\_\_\_\_ x 1 = 0  
 FACW species \_\_\_\_\_ x 2 = 0  
 FAC species \_\_\_\_\_ x 3 = 0  
 FACU species \_\_\_\_\_ x 4 = 0  
 UPL species \_\_\_\_\_ x 5 = 0  
 Column Totals: \_\_\_\_\_ (A) 0 (B)  
 Prevalence Index = B/A = 0

**Hydrophytic Vegetation Indicators:**  
 Dominance Test is >50%  
 Prevalence Index is ≤3.0<sup>1</sup>  
 Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes  No \_\_\_\_\_

Remarks: (Include photo numbers here or on a separate sheet.)  
 Wetland vegetation is present.

**SOIL**

Sampling Point: T1-W44 wetla

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			
0-2	10YR 4/2	98	10YR 4/6	2		M	silty clay loam	
2-16	10YR 5/2	90	10YR 4/6	10		M	silty clay loam	

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

<b>Hydric Soil Indicators:</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Other (Explain in Remarks)
---	---	--

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes <input checked="" type="checkbox"/> No _____
---	--

Remarks:  
  
The soil profile meets field indicator F3: Depleted Matrix.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
<b>Primary Indicators (minimum of one is required; check all that apply)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)

<b>Field Observations:</b> Surface Water Present?    Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present?    Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present?    Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____
--	--

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

Remarks:  
  
Wetland hydrology is indicated.

Appendix C

# INWRAP SUMMARY FORMS

## In-WRAP Summary Sheet

Date Report Generated: Feb. 3, 2011

Wetland site name: T2-W8

Data Reference # \_\_\_\_\_

Date of Site Visit: Sept. 29, 2010

NWI polygons in Site (quadrangle and NWI id. numbers): \_\_\_\_\_

### TIER 1 SUMMARY:

a. Total wetland area (acres): 0.28

b. Wetland size and connectivity - contribution to animal habitat:

Valuable  More Favorable  Favorable  Neutral

c. Surrounding land use - numerical rank (max. = 1): 0.30

d. Value surrounding area adds to animal habitat:  Valuable  Favorable  Low

### TIER 2 SUMMARY

NWI Polygon Id. \_\_\_\_\_

a. Indiana Wetland community type: sedge meadow

b. Standing water - contribution to animal habitat:  Valuable  Favorable  Neutral

c. Disturbances to site: tiles, road

d. Exotic species rating:  Good  Medium  Poor

e. Special Hydrologic Conditions Observed: None

f. Special Community Type: fen characteristics

g. Rare-Threatened-Endangered Species: none observed

h. Polygon QualityDescriptor:  Good  Medium  Poor

### TIER 3A SUMMARY

a. Dead woody material as indicator of animal habitat:  Valuable  Favorable  Neutral

b. Water quality protection - numerical rank (6 max.): 3 Rating:  Good  Medium  Poor

c. Flood and storm water storage - numerical rank (5 max.): 1 Rating:  Good  Medium  Poor

### TIER 3B SUMMARY

a. Zonation and interspersions as indicator of animal habitat:  Valuable  Favorable  Neutral

b. Stratification as indicator of animal habitat:  Valuable  Neutral

c. Number of dominant plant taxa observed: 5 Rating:  Good  Medium  Poor

d. Average coefficient of conservatism: 2.25 Rating:  Good  Medium  Poor

e. Tree canopy as indicator of animal habitat:  Valuable  Neutral

f. Mature trees as indicator of animal habitat:  Valuable  Favorable  Neutral

g. Total hydrophytic taxa observed: 14 Rating:  Good  Medium  Poor

h. Number of indicator taxa: 1 Rating:  Good  Medium  Poor

## In-WRAP Summary Sheet

Date Report Generated: Aug. 12, 2011

Wetland site name: T1-W10

Data Reference # \_\_\_\_\_

Date of Site Visit: Sept. 29, 2010

NWI polygons in Site (quadrangle and NWI id. numbers): PFO 1A, 6.70 ac, 24th quad: North Vernon

### TIER 1 SUMMARY:

a. Total wetland area (acres): 0.53

b. Wetland size and connectivity - contribution to animal habitat:

Valuable  More Favorable  Favorable  Neutral

c. Surrounding land use - numerical rank (max. = 1): .98

d. Value surrounding area adds to animal habitat:  Valuable  Favorable  Low

### TIER 2 SUMMARY

NWI Polygon Id. \_\_\_\_\_

a. Indiana Wetland community type: floodplain forest

b. Standing water - contribution to animal habitat:  Valuable  Favorable  Neutral

c. Disturbances to site: none

d. Exotic species rating:  Good  Medium  Poor

e. Special Hydrologic Conditions Observed: none

f. Special Community Type: none

g. Rare-Threatened-Endangered Species: none observed

h. Polygon Quality Descriptor:  Good  Medium  Poor

### TIER 3A SUMMARY

a. Dead woody material as indicator of animal habitat:  Valuable  Favorable  Neutral

b. Water quality protection - numerical rank (6 max.): 5 Rating:  Good  Medium  Poor

c. Flood and storm water storage - numerical rank (5 max.): 4 Rating:  Good  Medium  Poor

### TIER 3B SUMMARY

a. Zonation and interspersion as indicator of animal habitat:  Valuable  Favorable  Neutral

b. Stratification as indicator of animal habitat:  Valuable  Neutral

c. Number of dominant plant taxa observed: 3 Rating:  Good  Medium  Poor

d. Average coefficient of conservatism: 2.25 Rating:  Good  Medium  Poor

e. Tree canopy as indicator of animal habitat:  Valuable  Neutral

f. Mature trees as indicator of animal habitat:  Valuable  Favorable  Neutral

g. Total hydrophytic taxa observed: 4 Rating:  Good  Medium  Poor

h. Number of indicator taxa: 0 Rating:  Good  Medium  Poor

## In-WRAP Summary Sheet

Date Report Generated: Aug. 12, 2011

Wetland site name: T1 - W23

Data Reference # \_\_\_\_\_

Date of Site Visit: May 10, 2011

NWI polygons in Site (quadrangle and NWI id. numbers): \_\_\_\_\_

### TIER 1 SUMMARY:

- a. Total wetland area (acres): 0.02
- b. Wetland size and connectivity - contribution to animal habitat:  
 Valuable  More Favorable  Favorable  Neutral
- c. Surrounding land use - numerical rank (max. = 1): 0.60
- d. Value surrounding area adds to animal habitat:  Valuable  Favorable  Low

### TIER 2 SUMMARY

NWI Polygon Id. \_\_\_\_\_

- a. Indiana Wetland community type: Swamp forest
- b. Standing water - contribution to animal habitat:  Valuable  Favorable  Neutral
- c. Disturbances to site: road side ditch drains wetland
- d. Exotic species rating:  Good  Medium  Poor
- e. Special Hydrologic Conditions Observed: none
- f. Special Community Type: none
- g. Rare-Threatened-Endangered Species: none observed
- h. Polygon Quality Descriptor:  Good  Medium  Poor

### TIER 3A SUMMARY

- a. Dead woody material as indicator of animal habitat:  Valuable  Favorable  Neutral
- b. Water quality protection - numerical rank (6 max.): 2 Rating:  Good  Medium  Poor
- c. Flood and storm water storage - numerical rank (5 max.): 3 Rating:  Good  Medium  Poor

### TIER 3B SUMMARY

- a. Zonation and interspersion as indicator of animal habitat:  Valuable  Favorable  Neutral
- b. Stratification as indicator of animal habitat:  Valuable  Neutral
- c. Number of dominant plant taxa observed: 4 Rating:  Good  Medium  Poor
- d. Average coefficient of conservatism: 2.25 Rating:  Good  Medium  Poor
- e. Tree canopy as indicator of animal habitat:  Valuable  Neutral
- f. Mature trees as indicator of animal habitat:  Valuable  Favorable  Neutral
- g. Total hydrophytic taxa observed: 4 Rating:  Good  Medium  Poor
- h. Number of indicator taxa: 0 Rating:  Good  Medium  Poor

## In-WRAP Summary Sheet

Date Report Generated: Aug. 12 2011  
Wetland site name: T1 - W31  
Data Reference # \_\_\_\_\_  
Date of Site Visit: May 10, 2011  
NWI polygons in Site (quadrangle and NWI id. numbers): \_\_\_\_\_

### TIER 1 SUMMARY:

- a. Total wetland area (acres): 0.22
- b. Wetland size and connectivity - contribution to animal habitat:  
 Valuable  More Favorable  Favorable  Neutral
- c. Surrounding land use - numerical rank (max. = 1): 0.56
- d. Value surrounding area adds to animal habitat:  Valuable  Favorable  Low

### TIER 2 SUMMARY

NWI Polygon Id. \_\_\_\_\_

- a. Indiana Wetland community type: sedge meadow
- b. Standing water - contribution to animal habitat:  Valuable  Favorable  Neutral
- c. Disturbances to site: ditching, dam (creating pond downstream)
- d. Exotic species rating:  Good  Medium  Poor
- e. Special Hydrologic Conditions Observed: none
- f. Special Community Type: none
- g. Rare-Threatened-Endangered Species: none observed
- h. Polygon Quality Descriptor:  Good  Medium  Poor

### TIER 3A SUMMARY

- a. Dead woody material as indicator of animal habitat:  Valuable  Favorable  Neutral
- b. Water quality protection - numerical rank (6 max.): 4 Rating:  Good  Medium  Poor
- c. Flood and storm water storage - numerical rank (5 max.): 3 Rating:  Good  Medium  Poor

### TIER 3B SUMMARY

- a. Zonation and interspersions as indicator of animal habitat:  Valuable  Favorable  Neutral
- b. Stratification as indicator of animal habitat:  Valuable  Neutral
- c. Number of dominant plant taxa observed: 6 Rating:  Good  Medium  Poor
- d. Average coefficient of conservatism: 2.83 Rating:  Good  Medium  Poor
- e. Tree canopy as indicator of animal habitat:  Valuable  Neutral
- f. Mature trees as indicator of animal habitat:  Valuable  Favorable  Neutral
- g. Total hydrophytic taxa observed: 11 Rating:  Good  Medium  Poor
- h. Number of indicator taxa: 2 Rating:  Good  Medium  Poor

## In-WRAP Summary Sheet

Date Report Generated: Aug. 12 2011  
Wetland site name: T1 - W32  
Data Reference # \_\_\_\_\_  
Date of Site Visit: May 10, 2011  
NWI polygons in Site (quadrangle and NWI id. numbers): \_\_\_\_\_

### TIER 1 SUMMARY:

- a. Total wetland area (acres): 0.44
- b. Wetland size and connectivity - contribution to animal habitat:  
 Valuable  More Favorable  Favorable  Neutral
- c. Surrounding land use - numerical rank (max. = 1): 0.20
- d. Value surrounding area adds to animal habitat:  Valuable  Favorable  Low

### TIER 2 SUMMARY

NWI Polygon Id. \_\_\_\_\_

- a. Indiana Wetland community type: Sedge meadow
- b. Standing water - contribution to animal habitat:  Valuable  Favorable  Neutral
- c. Disturbances to site: none
- d. Exotic species rating:  Good  Medium  Poor
- e. Special Hydrologic Conditions Observed: none
- f. Special Community Type: none
- g. Rare-Threatened-Endangered Species: none observed
- h. Polygon Quality Descriptor:  Good  Medium  Poor

### TIER 3A SUMMARY

- a. Dead woody material as indicator of animal habitat:  Valuable  Favorable  Neutral
- b. Water quality protection - numerical rank (6 max.): 4 Rating:  Good  Medium  Poor
- c. Flood and storm water storage - numerical rank (5 max.): 4 Rating:  Good  Medium  Poor

### TIER 3B SUMMARY

- a. Zonation and interspersions as indicator of animal habitat:  Valuable  Favorable  Neutral
- b. Stratification as indicator of animal habitat:  Valuable  Neutral
- c. Number of dominant plant taxa observed: 2 Rating:  Good  Medium  Poor
- d. Average coefficient of conservatism: 0 Rating:  Good  Medium  Poor
- e. Tree canopy as indicator of animal habitat:  Valuable  Neutral
- f. Mature trees as indicator of animal habitat:  Valuable  Favorable  Neutral
- g. Total hydrophytic taxa observed: 5 Rating:  Good  Medium  Poor
- h. Number of indicator taxa: 0 Rating:  Good  Medium  Poor

## In-WRAP Summary Sheet

Date Report Generated: Aug. 12, 2011  
Wetland site name: T1 - W33  
Data Reference # \_\_\_\_\_  
Date of Site Visit: May 10, 2011  
NWI polygons in Site (quadrangle and NWI id. numbers): \_\_\_\_\_

### TIER 1 SUMMARY:

- a. Total wetland area (acres): 0.66
- b. Wetland size and connectivity - contribution to animal habitat:  
 Valuable  More Favorable  Favorable  Neutral
- c. Surrounding land use - numerical rank (max. = 1): 0.20
- d. Value surrounding area adds to animal habitat:  Valuable  Favorable  Low

### TIER 2 SUMMARY

NWI Polygon Id. \_\_\_\_\_

- a. Indiana Wetland community type: sedge meadow
- b. Standing water - contribution to animal habitat:  Valuable  Favorable  Neutral
- c. Disturbances to site: none
- d. Exotic species rating:  Good  Medium  Poor
- e. Special Hydrologic Conditions Observed: none
- f. Special Community Type: none
- g. Rare-Threatened-Endangered Species: none observed
- h. Polygon Quality Descriptor:  Good  Medium  Poor

### TIER 3A SUMMARY

- a. Dead woody material as indicator of animal habitat:  Valuable  Favorable  Neutral
- b. Water quality protection - numerical rank (6 max.): 4 Rating:  Good  Medium  Poor
- c. Flood and storm water storage - numerical rank (5 max.): 4 Rating:  Good  Medium  Poor

### TIER 3B SUMMARY

- a. Zonation and interspersion as indicator of animal habitat:  Valuable  Favorable  Neutral
- b. Stratification as indicator of animal habitat:  Valuable  Neutral
- c. Number of dominant plant taxa observed: 4 Rating:  Good  Medium  Poor
- d. Average coefficient of conservatism: 1 Rating:  Good  Medium  Poor
- e. Tree canopy as indicator of animal habitat:  Valuable  Neutral
- f. Mature trees as indicator of animal habitat:  Valuable  Favorable  Neutral
- g. Total hydrophytic taxa observed: 9 Rating:  Good  Medium  Poor
- h. Number of indicator taxa: 0 Rating:  Good  Medium  Poor

## In-WRAP Summary Sheet

Date Report Generated: Aug. 12, 2011  
Wetland site name: 79 - W34  
Data Reference # \_\_\_\_\_  
Date of Site Visit: May 10, 2011  
NWI polygons in Site (quadrangle and NWI id. numbers): \_\_\_\_\_

### TIER 1 SUMMARY:

- a. Total wetland area (acres): 0.45
- b. Wetland size and connectivity - contribution to animal habitat:  
 Valuable    More Favorable    Favorable    Neutral
- c. Surrounding land use - numerical rank (max. = 1): 1
- d. Value surrounding area adds to animal habitat:  Valuable    Favorable    Low

### TIER 2 SUMMARY

NWI Polygon Id. \_\_\_\_\_

- a. Indiana Wetland community type: Swamp forest
- b. Standing water - contribution to animal habitat:    Valuable    Favorable    Neutral
- c. Disturbances to site: none
- d. Exotic species rating:  Good    Medium    Poor
- e. Special Hydrologic Conditions Observed: none
- f. Special Community Type: none
- g. Rare-Threatened-Endangered Species: none observed
- h. Polygon Quality Descriptor:  Good    Medium    Poor

### TIER 3A SUMMARY

- a. Dead woody material as indicator of animal habitat:    Valuable    Favorable    Neutral
- b. Water quality protection - numerical rank (6 max.): 5   Rating:  Good    Medium    Poor
- c. Flood and storm water storage - numerical rank (5 max.): 3   Rating:  Good    Medium    Poor

### TIER 3B SUMMARY

- a. Zonation and interspersions as indicator of animal habitat:    Valuable    Favorable    Neutral
- b. Stratification as indicator of animal habitat:    Valuable    Neutral
- c. Number of dominant plant taxa observed: 4   Rating:    Good    Medium    Poor
- d. Average coefficient of conservatism: 2.25   Rating:    Good    Medium    Poor
- e. Tree canopy as indicator of animal habitat:    Valuable    Neutral
- f. Mature trees as indicator of animal habitat:    Valuable    Favorable    Neutral
- g. Total hydrophytic taxa observed: 7   Rating:    Good    Medium    Poor
- h. Number of indicator taxa: 0   Rating:    Good    Medium    Poor

## In-WRAP Summary Sheet

Date Report Generated: Aug 12 2011  
Wetland site name: T1 - W36  
Data Reference # \_\_\_\_\_  
Date of Site Visit: May 10, 2011  
NWI polygons in Site (quadrangle and NWI id. numbers): \_\_\_\_\_

### TIER 1 SUMMARY:

- a. Total wetland area (acres): 0.02
- b. Wetland size and connectivity - contribution to animal habitat:  
 Valuable  More Favorable  Favorable  Neutral
- c. Surrounding land use - numerical rank (max. = 1): 0.40
- d. Value surrounding area adds to animal habitat:  Valuable  Favorable  Low

### TIER 2 SUMMARY

NWI Polygon Id. \_\_\_\_\_

- a. Indiana Wetland community type: sedge meadow
- b. Standing water - contribution to animal habitat:  Valuable  Favorable  Neutral
- c. Disturbances to site: drain tiles
- d. Exotic species rating:  Good  Medium  Poor
- e. Special Hydrologic Conditions Observed: none
- f. Special Community Type: none
- g. Rare-Threatened-Endangered Species: none observed
- h. Polygon Quality Descriptor:  Good  Medium  Poor

### TIER 3A SUMMARY

- a. Dead woody material as indicator of animal habitat:  Valuable  Favorable  Neutral
- b. Water quality protection - numerical rank (6 max.): 3 Rating:  Good  Medium  Poor
- c. Flood and storm water storage - numerical rank (5 max.): 2 Rating:  Good  Medium  Poor

### TIER 3B SUMMARY

- a. Zonation and interspersion as indicator of animal habitat:  Valuable  Favorable  Neutral
- b. Stratification as indicator of animal habitat:  Valuable  Neutral
- c. Number of dominant plant taxa observed: 3 Rating:  Good  Medium  Poor
- d. Average coefficient of conservatism: 4 Rating:  Good  Medium  Poor
- e. Tree canopy as indicator of animal habitat:  Valuable  Neutral
- f. Mature trees as indicator of animal habitat:  Valuable  Favorable  Neutral
- g. Total hydrophytic taxa observed: 4 Rating:  Good  Medium  Poor
- h. Number of indicator taxa: 0 Rating:  Good  Medium  Poor

## In-WRAP Summary Sheet

Date Report Generated: Aug. 12 2011  
Wetland site name: T1 - W37  
Data Reference # \_\_\_\_\_  
Date of Site Visit: May 10, 2011  
NWI polygons in Site (quadrangle and NWI id. numbers): \_\_\_\_\_

### TIER 1 SUMMARY:

- a. Total wetland area (acres): 0.12
- b. Wetland size and connectivity - contribution to animal habitat:  
 Valuable  More Favorable  Favorable  Neutral
- c. Surrounding land use - numerical rank (max. = 1): 0.40
- d. Value surrounding area adds to animal habitat:  Valuable  Favorable  Low

### TIER 2 SUMMARY

NWI Polygon Id. \_\_\_\_\_

- a. Indiana Wetland community type: Sedge meadow
- b. Standing water - contribution to animal habitat:  Valuable  Favorable  Neutral
- c. Disturbances to site: drain tiles
- d. Exotic species rating:  Good  Medium  Poor
- e. Special Hydrologic Conditions Observed: none
- f. Special Community Type: none
- g. Rare-Threatened-Endangered Species: none observed
- h. Polygon Quality Descriptor:  Good  Medium  Poor

### TIER 3A SUMMARY

- a. Dead woody material as indicator of animal habitat:  Valuable  Favorable  Neutral
- b. Water quality protection - numerical rank (6 max.): 3 Rating:  Good  Medium  Poor
- c. Flood and storm water storage - numerical rank (5 max.): 2 Rating:  Good  Medium  Poor

### TIER 3B SUMMARY

- a. Zonation and interspersions as indicator of animal habitat:  Valuable  Favorable  Neutral
- b. Stratification as indicator of animal habitat:  Valuable  Neutral
- c. Number of dominant plant taxa observed: 3 Rating:  Good  Medium  Poor
- d. Average coefficient of conservatism: 4 Rating:  Good  Medium  Poor
- e. Tree canopy as indicator of animal habitat:  Valuable  Neutral
- f. Mature trees as indicator of animal habitat:  Valuable  Favorable  Neutral
- g. Total hydrophytic taxa observed: 4 Rating:  Good  Medium  Poor
- h. Number of indicator taxa: 0 Rating:  Good  Medium  Poor

## In-WRAP Summary Sheet

Date Report Generated: Aug. 12 2011  
Wetland site name: 71-W40  
Data Reference # \_\_\_\_\_  
Date of Site Visit: Aug. 11, 2011  
NWI polygons in Site (quadrangle and NWI id. numbers): \_\_\_\_\_

### TIER 1 SUMMARY:

- a. Total wetland area (acres): 0.31
- b. Wetland size and connectivity - contribution to animal habitat:  
 Valuable  More Favorable  Favorable  Neutral
- c. Surrounding land use - numerical rank (max = 1): 0.44
- d. Value surrounding area adds to animal habitat:  Valuable  Favorable  Low

### TIER 2 SUMMARY

NWI Polygon Id. \_\_\_\_\_

- a. Indiana Wetland community type: Swamp forest
- b. Standing water - contribution to animal habitat:  Valuable  Favorable  Neutral
- c. Disturbances to site: drain tiles
- d. Exotic species rating:  Good  Medium  Poor
- e. Special Hydrologic Conditions Observed: none
- f. Special Community Type: none
- g. Rare-Threatened-Endangered Species: none observed
- h. Polygon Quality Descriptor:  Good  Medium  Poor

### TIER 3A SUMMARY

- a. Dead woody material as indicator of animal habitat:  Valuable  Favorable  Neutral
- b. Water quality protection - numerical rank (6 max.): 4 Rating:  Good  Medium  Poor
- c. Flood and storm water storage - numerical rank (5 max.): 2 Rating:  Good  Medium  Poor

### TIER 3B SUMMARY

- a. Zonation and interspersion as indicator of animal habitat:  Valuable  Favorable  Neutral
- b. Stratification as indicator of animal habitat:  Valuable  Neutral
- c. Number of dominant plant taxa observed: 7 Rating:  Good  Medium  Poor
- d. Average coefficient of conservatism: 2.7 Rating:  Good  Medium  Poor
- e. Tree canopy as indicator of animal habitat:  Valuable  Neutral
- f. Mature trees as indicator of animal habitat:  Valuable  Favorable  Neutral
- g. Total hydrophytic taxa observed: 10 Rating:  Good  Medium  Poor
- h. Number of indicator taxa: 0 Rating:  Good  Medium  Poor

## In-WRAP Summary Sheet

Date Report Generated: Aug. 12 2011  
Wetland site name: T1 - W41  
Data Reference # \_\_\_\_\_  
Date of Site Visit: Aug. 11, 2011  
NWI polygons in Site (quadrangle and NWI id. numbers): \_\_\_\_\_

### TIER 1 SUMMARY:

- a. Total wetland area (acres): 6.10
- b. Wetland size and connectivity - contribution to animal habitat:  
 Valuable  More Favorable  Favorable  Neutral
- c. Surrounding land use - numerical rank (max. = 1): 0.40
- d. Value surrounding area adds to animal habitat:  Valuable  Favorable  Low

### TIER 2 SUMMARY

NWI Polygon Id. \_\_\_\_\_

- a. Indiana Wetland community type: sedge meadow
- b. Standing water - contribution to animal habitat:  Valuable  Favorable  Neutral
- c. Disturbances to site: files
- d. Exotic species rating:  Good  Medium  Poor
- e. Special Hydrologic Conditions Observed: none
- f. Special Community Type: none
- g. Rare-Threatened-Endangered Species: none observed
- h. Polygon Quality Descriptor:  Good  Medium  Poor

### TIER 3A SUMMARY

- a. Dead woody material as indicator of animal habitat:  Valuable  Favorable  Neutral
- b. Water quality protection - numerical rank (6 max.): 4 Rating:  Good  Medium  Poor
- c. Flood and storm water storage - numerical rank (5 max.): 3 Rating:  Good  Medium  Poor

### TIER 3B SUMMARY

- a. Zonation and interspersion as indicator of animal habitat:  Valuable  Favorable  Neutral
- b. Stratification as indicator of animal habitat:  Valuable  Neutral
- c. Number of dominant plant taxa observed: 1 Rating:  Good  Medium  Poor
- d. Average coefficient of conservatism: 8 Rating:  Good  Medium  Poor
- e. Tree canopy as indicator of animal habitat:  Valuable  Neutral
- f. Mature trees as indicator of animal habitat:  Valuable  Favorable  Neutral
- g. Total hydrophytic taxa observed: 2 Rating:  Good  Medium  Poor
- h. Number of indicator taxa: 1 Rating:  Good  Medium  Poor

## In-WRAP Summary Sheet

Date Report Generated: Aug. 12, 2011  
Wetland site name: T1 - W42  
Data Reference # \_\_\_\_\_  
Date of Site Visit: Aug. 11, 2011  
NWI polygons in Site (quadrangle and NWI id. numbers): \_\_\_\_\_

### TIER 1 SUMMARY:

- a. Total wetland area (acres): 0.25  
b. Wetland size and connectivity - contribution to animal habitat:  
 Valuable  More Favorable  Favorable  Neutral  
c. Surrounding land use - numerical rank (max. = 1): 0.40  
d. Value surrounding area adds to animal habitat:  Valuable  Favorable  Low

### TIER 2 SUMMARY

NWI Polygon Id. \_\_\_\_\_

- a. Indiana Wetland community type: Sedge meadow  
b. Standing water - contribution to animal habitat:  Valuable  Favorable  Neutral  
c. Disturbances to site: tiles  
d. Exotic species rating:  Good  Medium  Poor  
e. Special Hydrologic Conditions Observed: none  
f. Special Community Type: none  
g. Rare-Threatened-Endangered Species: none observed  
h. Polygon Quality Descriptor:  Good  Medium  Poor

### TIER 3A SUMMARY

- a. Dead woody material as indicator of animal habitat:  Valuable  Favorable  Neutral  
b. Water quality protection - numerical rank (6 max.): 4 Rating:  Good  Medium  Poor  
c. Flood and storm water storage - numerical rank (5 max.): 3 Rating:  Good  Medium  Poor

### TIER 3B SUMMARY

- a. Zonation and interspersion as indicator of animal habitat:  Valuable  Favorable  Neutral  
b. Stratification as indicator of animal habitat:  Valuable  Neutral  
c. Number of dominant plant taxa observed: 3 Rating:  Good  Medium  Poor  
d. Average coefficient of conservatism: 0 Rating:  Good  Medium  Poor  
e. Tree canopy as indicator of animal habitat:  Valuable  Neutral  
f. Mature trees as indicator of animal habitat:  Valuable  Favorable  Neutral  
g. Total hydrophytic taxa observed: 5 Rating:  Good  Medium  Poor  
h. Number of indicator taxa: 0 Rating:  Good  Medium  Poor

## In-WRAP Summary Sheet

Date Report Generated: Aug. 12, 2011  
Wetland site name: T1 - W43  
Data Reference # \_\_\_\_\_  
Date of Site Visit: Aug. 11, 2011  
NWI polygons in Site (quadrangle and NWI id. numbers): \_\_\_\_\_

### TIER 1 SUMMARY:

- a. Total wetland area (acres): 0.10
- b. Wetland size and connectivity - contribution to animal habitat:  
 Valuable  More Favorable  Favorable  Neutral
- c. Surrounding land use - numerical rank (max. = 1): 0.28
- d. Value surrounding area adds to animal habitat:  Valuable  Favorable  Low

### TIER 2 SUMMARY

NWI Polygon Id. \_\_\_\_\_

- a. Indiana Wetland community type: Sedge meadow
- b. Standing water - contribution to animal habitat:  Valuable  Favorable  Neutral
- c. Disturbances to site: tiles, ditching
- d. Exotic species rating:  Good  Medium  Poor
- e. Special Hydrologic Conditions Observed: none
- f. Special Community Type: none
- g. Rare-Threatened-Endangered Species: none observed
- h. Polygon Quality Descriptor:  Good  Medium  Poor

### TIER 3A SUMMARY

- a. Dead woody material as indicator of animal habitat:  Valuable  Favorable  Neutral
- b. Water quality protection - numerical rank (6 max.): 3 Rating:  Good  Medium  Poor
- c. Flood and storm water storage - numerical rank (5 max.): 3 Rating:  Good  Medium  Poor

### TIER 3B SUMMARY

- a. Zonation and interspersions as indicator of animal habitat:  Valuable  Favorable  Neutral
- b. Stratification as indicator of animal habitat:  Valuable  Neutral
- c. Number of dominant plant taxa observed: 1 Rating:  Good  Medium  Poor
- d. Average coefficient of conservatism: 0 Rating:  Good  Medium  Poor
- e. Tree canopy as indicator of animal habitat:  Valuable  Neutral
- f. Mature trees as indicator of animal habitat:  Valuable  Favorable  Neutral
- g. Total hydrophytic taxa observed: 5 Rating:  Good  Medium  Poor
- h. Number of indicator taxa: 0 Rating:  Good  Medium  Poor

## In-WRAP Summary Sheet

Date Report Generated: Aug 12 2011  
Wetland site name: T1 - W44  
Data Reference # \_\_\_\_\_  
Date of Site Visit: Aug. 11, 2011  
NWI polygons in Site (quadrangle and NWI id. numbers): \_\_\_\_\_

### TIER 1 SUMMARY:

- a. Total wetland area (acres): 0.05
- b. Wetland size and connectivity - contribution to animal habitat:  
 Valuable  More Favorable  Favorable  Neutral
- c. Surrounding land use - numerical rank (max. = 1): 0.40
- d. Value surrounding area adds to animal habitat:  Valuable  Favorable  Low

### TIER 2 SUMMARY

NWI Polygon Id. \_\_\_\_\_

- a. Indiana Wetland community type: Sedge meadow
- b. Standing water - contribution to animal habitat:  Valuable  Favorable  Neutral
- c. Disturbances to site: tiles
- d. Exotic species rating:  Good  Medium  Poor
- e. Special Hydrologic Conditions Observed: none
- f. Special Community Type: none
- g. Rare-Threatened-Endangered Species: none observed
- h. Polygon Quality Descriptor:  Good  Medium  Poor

### TIER 3A SUMMARY

- a. Dead woody material as indicator of animal habitat:  Valuable  Favorable  Neutral
- b. Water quality protection - numerical rank (6 max.): 4 Rating:  Good  Medium  Poor
- c. Flood and storm water storage - numerical rank (5 max.): 3 Rating:  Good  Medium  Poor

### TIER 3B SUMMARY

- a. Zonation and interspersed as indicator of animal habitat:  Valuable  Favorable  Neutral
- b. Stratification as indicator of animal habitat:  Valuable  Neutral
- c. Number of dominant plant taxa observed: 3 Rating:  Good  Medium  Poor
- d. Average coefficient of conservatism: 0 Rating:  Good  Medium  Poor
- e. Tree canopy as indicator of animal habitat:  Valuable  Neutral
- f. Mature trees as indicator of animal habitat:  Valuable  Favorable  Neutral
- g. Total hydrophytic taxa observed: 4 Rating:  Good  Medium  Poor
- h. Number of indicator taxa: 0 Rating:  Good  Medium  Poor

Appendix D

# HHEI/QHEI FORMS



# Primary Headwater Habitat Evaluation Form

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

17

SITE NAME/LOCATION

TN-523 EPA SITE NUMBER RIVER BASIN DRAINAGE AREA (mi<sup>2</sup>)

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

DATE 9/29/10 SCORER COMMENTS

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

STREAM CHANNEL  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY MODIFICATIONS: RR side ditch

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> Bldr Slabs [16 pts]	_____	<input checked="" type="checkbox"/> SILT [3 pt]	60
<input type="checkbox"/> Boulder (>256 mm) [16 pts]	_____	<input type="checkbox"/> Leaf Pack/Woody Debris [3 pts]	_____
<input type="checkbox"/> Bedrock [16 pt]	_____	<input type="checkbox"/> Fine Detritus [3 pts]	_____
<input type="checkbox"/> Cobble (65-256 mm) [12 pts]	_____	<input checked="" type="checkbox"/> Clay or Hardpan [0 pt]	10
<input type="checkbox"/> Gravel (2-64 mm) [9 pts]	_____	<input type="checkbox"/> Muck [0 pts]	_____
<input checked="" type="checkbox"/> Sand (<2 mm) [6 pts]	30	<input type="checkbox"/> Artificial [3 pts]	_____

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) 9 (B) 3

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points

Substrate Max = 40

12

A + B

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

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

COMMENTS MAXIMUM POOL DEPTH (centimeters): 0

Pool Depth Max = 30

0

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

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

COMMENTS AVERAGE BANKFULL WIDTH (meters): 2'

Bankfull Width Max=30

5

This information must also be completed

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

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L R (Per Bank)	L R (Most Predominant per Bank)	L R
<input type="checkbox"/> Wide >10m	<input type="checkbox"/> Mature Forest, Wetland	<input type="checkbox"/> Conservation Tillage
<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Immature Forest, Shrub or Old Field	<input checked="" type="checkbox"/> Urban or Industrial
<input checked="" type="checkbox"/> Narrow <5m	<input type="checkbox"/> Residential, Park, New Field	<input type="checkbox"/> Open Pasture, Row Crop
<input checked="" type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture	<input type="checkbox"/> Mining or Construction

COMMENTS

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

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

COMMENTS

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

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

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? -  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

- WWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_
- CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_
- EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangle Name: \_\_\_\_\_ NRCS Soil Map Page: \_\_\_\_\_ NRCS Soil Map Stream Order \_\_\_\_\_  
County: \_\_\_\_\_ Township / City: \_\_\_\_\_

**MISCELLANEOUS**

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

Photograph Information: \_\_\_\_\_

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

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

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

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

Additional comments/description of pollution impacts: \_\_\_\_\_

**BIOTIC EVALUATION**

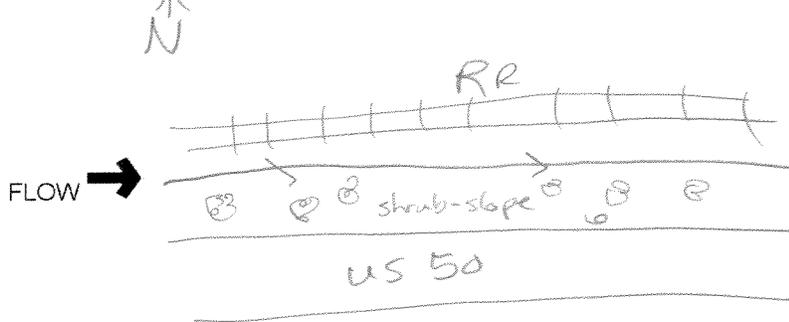
Performed? (Y/N): \_\_\_\_\_ (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Salamanders Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_  
Frogs or Tadpoles Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Aquatic Macroinvertebrates Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_

Comments Regarding Biology: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

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



SITE NAME/LOCATION **T1 S27**  
 SITE NUMBER **27** RIVER BASIN **Muskratuck** DRAINAGE AREA (mi<sup>2</sup>) **0.02**  
 LENGTH OF STREAM REACH (ft) **200** LAT. **38.98430** LONG. **-85.6778** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_  
 DATE **03/04/11** SCORER **RJC** COMMENTS **begins at culvert under US 50**

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input checked="" type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	30%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	70%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

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

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **3** TOTAL NUMBER OF SUBSTRATE TYPES: **2**

HHEI Metric Points

Substrate Max = 40

5

A + B

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): \_\_\_\_\_

Pool Depth Max = 30

0

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

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

COMMENTS **2.5'** AVERAGE BANKFULL WIDTH (meters): **2.50**

Bankfull Width Max=30

5

This information must also be completed

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

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

COMMENTS \_\_\_\_\_

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

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

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? -  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangle Name: North Vernon NRCS Soil Map Page: \_\_\_\_\_ NRCS Soil Map Stream Order \_\_\_\_\_

County: Jennings Township / City: \_\_\_\_\_

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 3/4/11 Quantity: ~~0.00~~ 0.01

Photograph Information: \_\_\_\_\_

Elevated Turbidity? (Y/N): Y Canopy (% open): 0%

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

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

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

Additional comments/description of pollution impacts: \_\_\_\_\_

**BIOTIC EVALUATION**

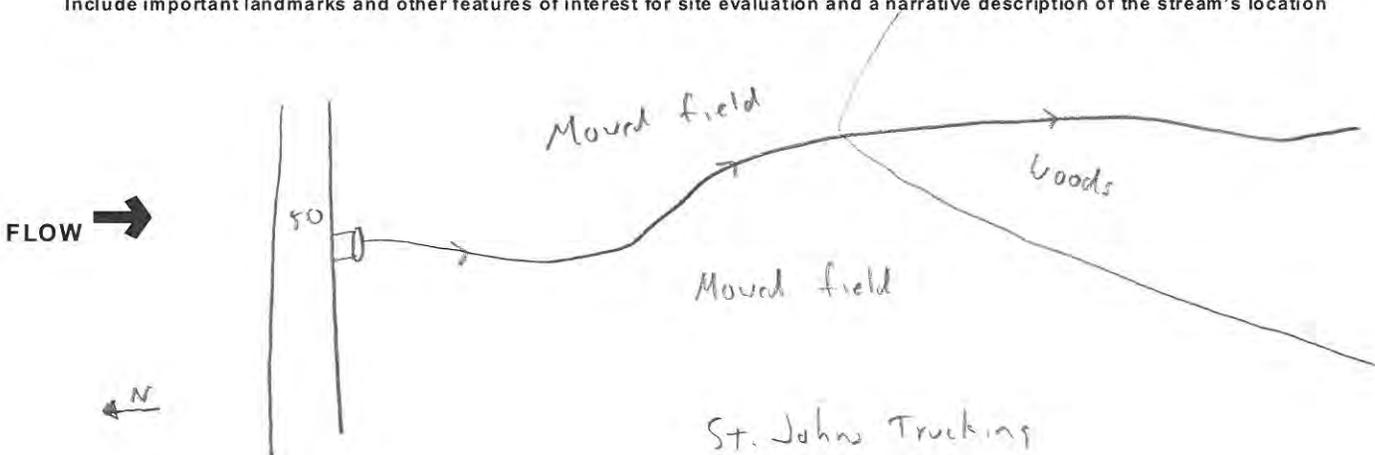
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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

Comments Regarding Biology: \_\_\_\_\_

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

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



SITE NAME/LOCATION **T1-S21**  
 SITE NUMBER **21** RIVER BASIN **Muscatatuck** DRAINAGE AREA (mi<sup>2</sup>) **0.03**  
 LENGTH OF STREAM REACH (ft) **200** LAT. **38.99870** LONG. **85.6702** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_  
 DATE **09/29/10** SCORER **RJC** COMMENTS **headwater cut**

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

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

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)				HHEI Metric Points	
TYPE	PERCENT	TYPE	PERCENT		
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> SILT [3 pt]	0%	Substrate Max = 40  <div style="border: 1px solid black; padding: 5px; font-size: 24px; margin: 5px auto;">7</div> A + B	
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%		
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%		
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%		
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%		
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%		
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <b>0.00%</b>		(A)	(B)		
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: <b>6</b>		TOTAL NUMBER OF SUBSTRATE TYPES: <b>1</b>			
2. <b>Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):</b>					Pool Depth Max = 30  <div style="border: 1px solid black; padding: 5px; font-size: 24px; margin: 5px auto;">0</div>
<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]				
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]				
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]				
COMMENTS _____		MAXIMUM POOL DEPTH (centimeters): <input type="text"/>			
3. <b>BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):</b>				Bankfull Width Max=30  <div style="border: 1px solid black; padding: 5px; font-size: 24px; margin: 5px auto;">5</div>	
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]				
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]				
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]					
COMMENTS <b>3'</b>		AVERAGE BANKFULL WIDTH (meters): <b>1.00</b>			

**This information must also be completed**

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

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

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input checked="" type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

<input type="checkbox"/> Flat (0.5 ft/100 ft)	<input type="checkbox"/> Flat to Moderate	<input checked="" type="checkbox"/> Moderate (2 ft/100 ft)	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10 ft/100 ft)
---	---	--	---	--

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

QHEI PERFORMED? -  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangle Name: North Vernon NRCS Soil Map Page: \_\_\_\_\_ NRCS Soil Map Stream Order \_\_\_\_\_  
County: Jennings Township / City: \_\_\_\_\_

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/24/10 Quantity: 0.05

Photograph Information: \_\_\_\_\_

Elevated Turbidity? (Y/N): N Canopy (% open): 75%

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

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

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

Additional comments/description of pollution impacts: \_\_\_\_\_

**BIOTIC EVALUATION**

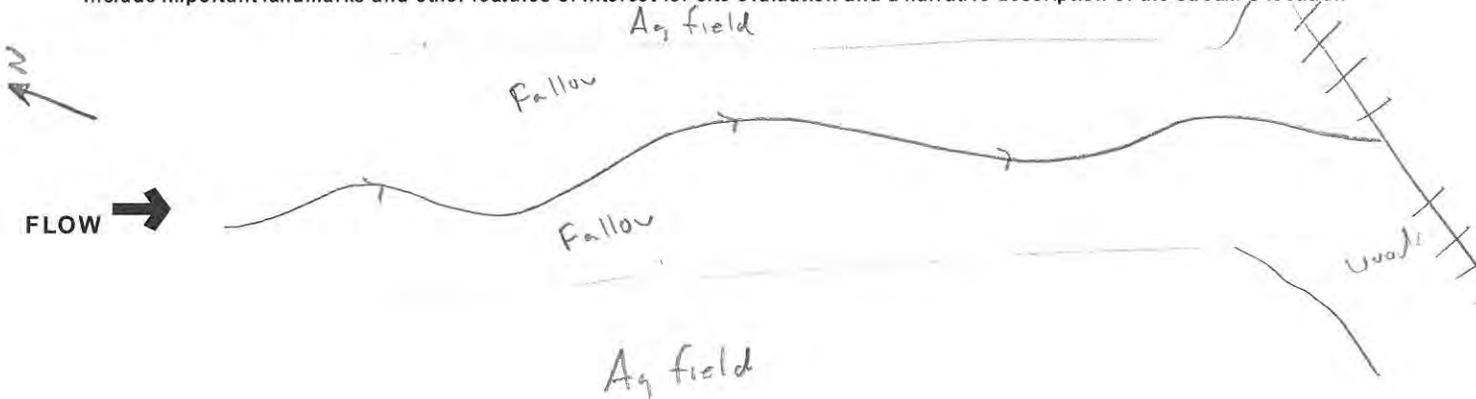
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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

Comments Regarding Biology: \_\_\_\_\_

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

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



SITE NAME/LOCATION **T1-S20**  
 SITE NUMBER **S20** RIVER BASIN **Muscatatuck** DRAINAGE AREA (mi<sup>2</sup>) **0.03**  
 LENGTH OF STREAM REACH (ft) **200** LAT. **39.00020** LONG. **85.6676** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_  
 DATE **09/26/10** SCORER **RJC** COMMENTS **ravine bottom**

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **0.00%** (A) **0%** (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **6** TOTAL NUMBER OF SUBSTRATE TYPES: **1**

**HHEI Metric Points**

Substrate Max = 40

**7**

A + B

Pool Depth Max = 30

**0**

Bankfull Width Max=30

**5**

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): \_\_\_\_\_

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

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

COMMENTS **approx 3' wide** AVERAGE BANKFULL WIDTH (meters): **1.00**

**This information must also be completed**

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

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

COMMENTS \_\_\_\_\_

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

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

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

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

QHEI PERFORMED? -  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangle Name: North Vernon NRCS Soil Map Page: \_\_\_\_\_ NRCS Soil Map Stream Order \_\_\_\_\_  
County: Jennings Township / City: \_\_\_\_\_

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/24/11 Quantity: 0.05

Photograph Information: \_\_\_\_\_

Elevated Turbidity? (Y/N): N Canopy (% open): 20%

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

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

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

Additional comments/description of pollution impacts: \_\_\_\_\_

**BIOTIC EVALUATION**

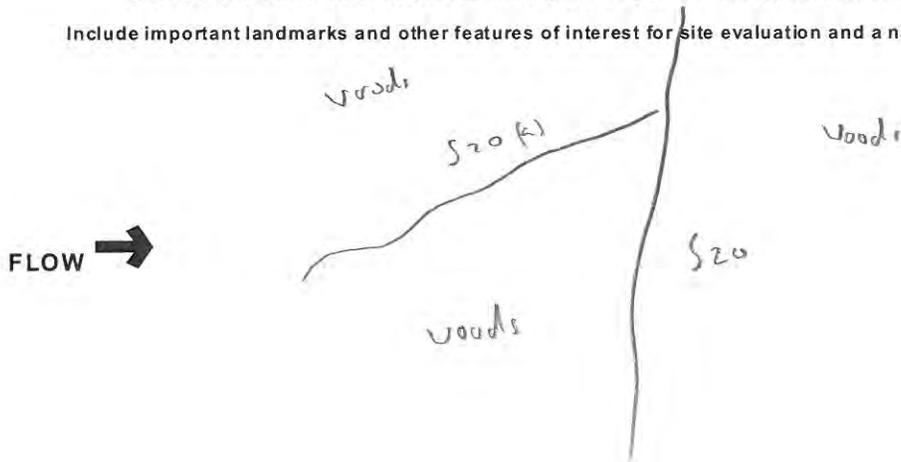
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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

Comments Regarding Biology: \_\_\_\_\_

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

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



SITE NAME/LOCATION T1-S20(a)  
 SITE NUMBER S20(a) RIVER BASIN Muscatatuck DRAINAGE AREA (mi<sup>2</sup>) 0.01  
 LENGTH OF STREAM REACH (ft) 200 LAT. 39.00020 LONG. 85.6618 RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_  
 DATE 09/26/10 SCORER RJC COMMENTS ravine bottom

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0.00% (A) 0% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 1

HHEI Metric Points

Substrate Max = 40

7

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

5

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):  
 > 30 centimeters [20 pts]  > 5 cm - 10 cm [15 pts]  
 > 22.5 - 30 cm [30 pts]  < 5 cm [5 pts]  
 > 10 - 22.5 cm [25 pts]  NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): \_\_\_\_\_

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check ONLY one box):  
 > 4.0 meters (> 13') [30 pts]  > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  
 > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  ≤ 1.0 m (≤ 3' 3") [5 pts]  
 > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]

COMMENTS approx 3' wide AVERAGE BANKFULL WIDTH (meters): 1.00

This information must also be completed

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

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

COMMENTS \_\_\_\_\_

**FLOW REGIME** (At Time of Evaluation) (Check ONLY one box):  
 Stream Flowing  Moist Channel, isolated pools, no flow (Intermittent)  
 Subsurface flow with isolated pools (Interstitial)  Dry channel, no water (Ephemeral)  
 COMMENTS \_\_\_\_\_

**SINUOSITY** (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  
 None  1.0  2.0  3.0  
 0.5  1.5  2.5  >3

**STREAM GRADIENT ESTIMATE**  
 Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

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

QHEI PERFORMED? -  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangle Name: North Vernon NRCS Soil Map Page: \_\_\_\_\_ NRCS Soil Map Stream Order \_\_\_\_\_  
County: Jennings Township / City: \_\_\_\_\_

**MISCELLANEOUS**

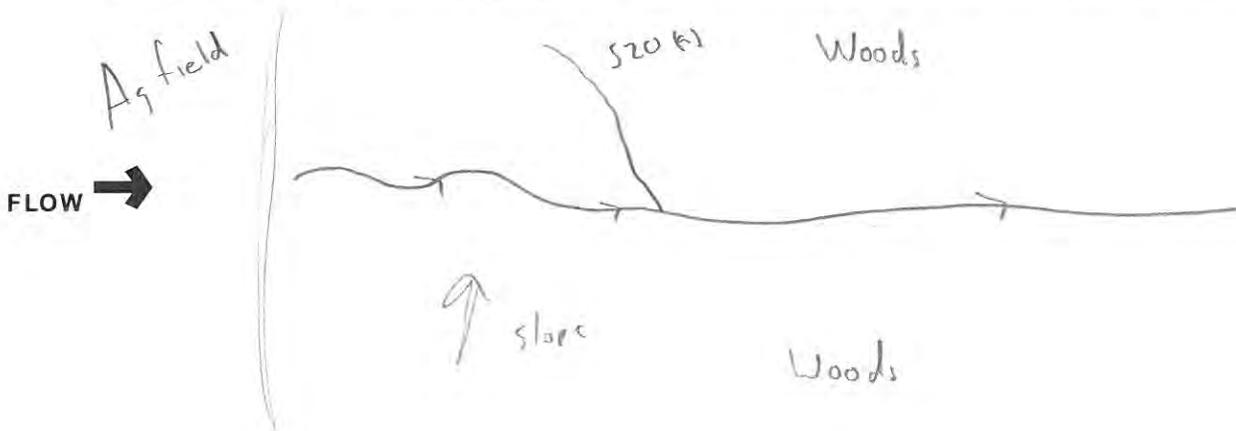
Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/24/11 Quantity: 0.05  
Photograph Information: \_\_\_\_\_  
Elevated Turbidity? (Y/N): N Canopy (% open): 20%  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_  
Field Measures: Temp (°C) \_\_\_\_\_ Dissolved Oxygen (mg/l) \_\_\_\_\_ pH (S.U.) \_\_\_\_\_ Conductivity (µmhos/cm) \_\_\_\_\_  
Is the sampling reach representative of the stream (Y/N) N If not, please explain: \_\_\_\_\_  
Additional comments/description of pollution impacts: \_\_\_\_\_

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N  
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N  
Comments Regarding Biology: \_\_\_\_\_

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

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



SITE NAME/LOCATION **T1-S19**  
 SITE NUMBER **S19** RIVER BASIN **Muscatatuck** DRAINAGE AREA (mi<sup>2</sup>) **0.01**  
 LENGTH OF STREAM REACH (ft) **200** LAT. **39.00010** LONG. **85.6664** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_  
 DATE **09/26/10** SCORER **RJC** COMMENTS **ravine bottom**

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **0.00%** (A) **0%** (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **6** TOTAL NUMBER OF SUBSTRATE TYPES: **1**

HHEI Metric Points

Substrate Max = 40

**7**

A + B

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

Pool Depth Max = 30

**0**

COMMENTS \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): \_\_\_\_\_

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

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

Bankfull Width Max=30

**5**

COMMENTS **approx 3' wide** AVERAGE BANKFULL WIDTH (meters): **1.00**

This information must also be completed

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

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

COMMENTS \_\_\_\_\_

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

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

QHEI PERFORMED? -  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangle Name: North Vernon NRCS Soil Map Page: \_\_\_\_\_ NRCS Soil Map Stream Order \_\_\_\_\_  
County: Jennings Township / City: \_\_\_\_\_

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/24/11 Quantity: 0.05

Photograph Information: \_\_\_\_\_

Elevated Turbidity? (Y/N): N Canopy (% open): 20%

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

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

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

Additional comments/description of pollution impacts: \_\_\_\_\_  
\_\_\_\_\_

**BIOTIC EVALUATION**

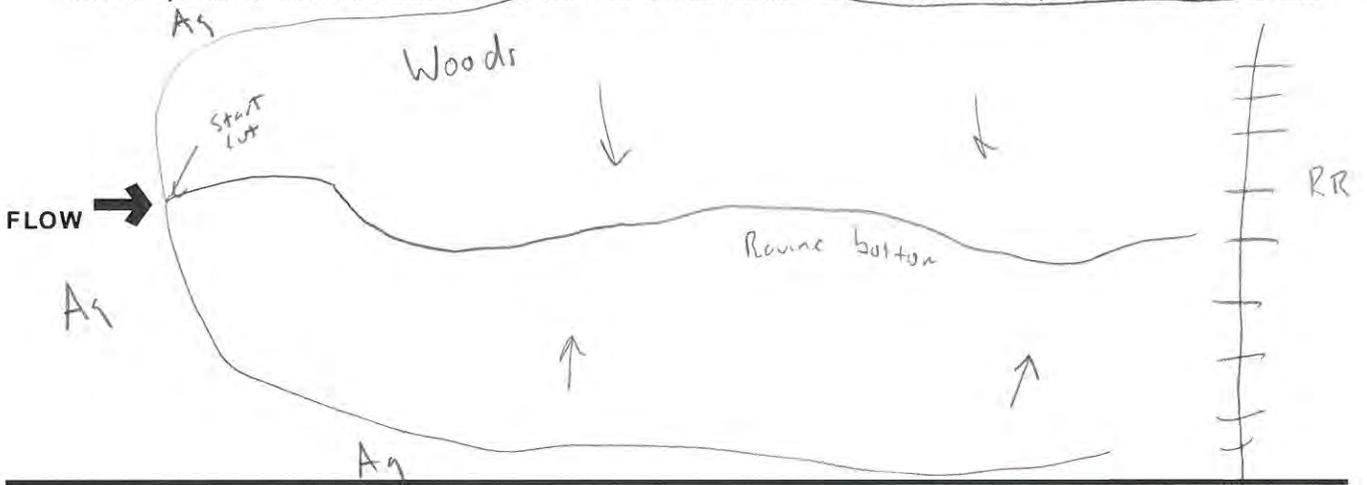
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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

Comments Regarding Biology: \_\_\_\_\_  
\_\_\_\_\_

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

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



SITE NAME/LOCATION **T1 S45**  
 SITE NUMBER **S45** RIVER BASIN **Muscatatuck** DRAINAGE AREA (mi<sup>2</sup>) **0.01**  
 LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **39.01090** LONG. **85.6631** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_  
 DATE **03/04/11** SCORER **RJC** COMMENTS **Trip to S-46**

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

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

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

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

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

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

**HHEI Metric Points**

Substrate Max = 40

**12**

A + B

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): \_\_\_\_\_

Pool Depth Max = 30

**0**

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

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

COMMENTS **approx 4' wide** AVERAGE BANKFULL WIDTH (meters): **3.00**

Bankfull Width Max=30

**15**

**This information must also be completed**

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

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

COMMENTS \_\_\_\_\_

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

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

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

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

QHEI PERFORMED? -  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangle Name: NOrth Vernon NRCS Soil Map Page: \_\_\_\_\_ NRCS Soil Map Stream Order \_\_\_\_\_  
County: Jennings Township / City: Center

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 03/03/11 Quantity: 0.10

Photograph Information: \_\_\_\_\_

Elevated Turbidity? (Y/N): N Canopy (% open): 20%

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

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

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

Additional comments/description of pollution impacts: \_\_\_\_\_

**BIOTIC EVALUATION**

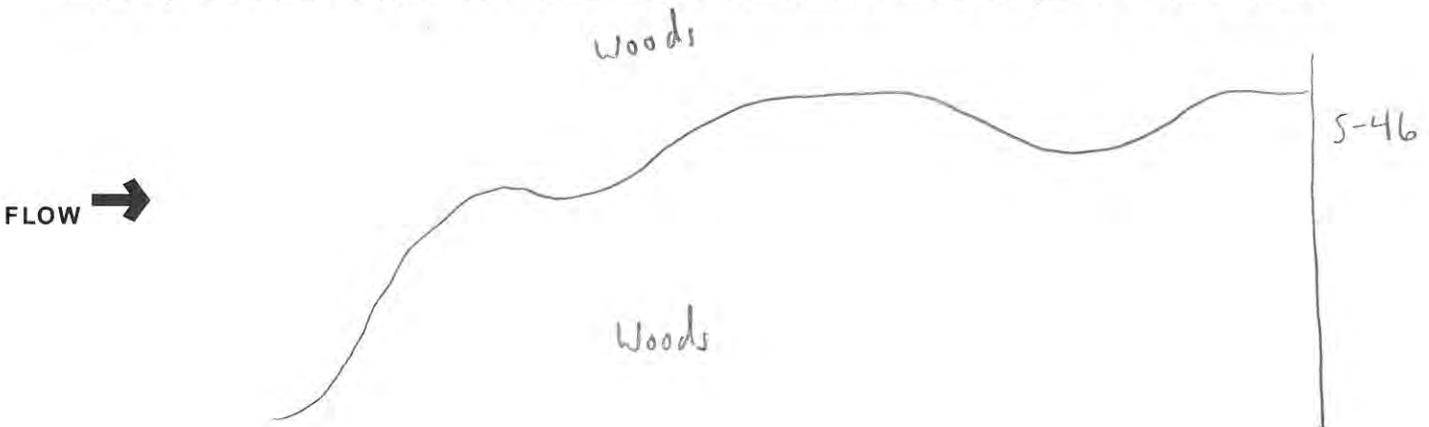
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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

Comments Regarding Biology: \_\_\_\_\_

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

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



Stream & Location: T1 - 546 RM: Date: 2/9/11

Scorers Full Name & Affiliation: R. Connolly

River Code: STORET #: Lat./ Long.: 39.0117 / 85.6631 Office verified location

1) SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present. Check ONE (Or 2 & average). BEST TYPES: BLDR/SLABS [10], BOULDER [9], COBBLE [8], GRAVEL [7], SAND [6], BEDROCK [5]. OTHER TYPES: HARDPAN [4], DETRITUS [3], MUCK [2], SILT [2], ARTIFICIAL [0]. ORIGIN: LIMESTONE [1], TILLS [1], WETLANDS [0], HARDPAN [0], SANDSTONE [0], RIP/RAP [0], LACUSTURINE [0], SHALE [-1], COAL FINES [-2]. QUALITY: HEAVY [-2], MODERATE [-1], NORMAL [0], FREE [1], EXTENSIVE [-2], MODERATE [-1], NORMAL [0], NONE [1].

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts. AMOUNT: Check ONE (Or 2 & average). UNDERCUT BANKS [1], OVERHANGING VEGETATION [1], SHALLOWS (IN SLOW WATER) [1], ROOTMATS [1]. POOLS > 70cm [2], ROOTWADS [1], BOULDERS [1]. OXBOWS, BACKWATERS [1], AQUATIC MACROPHYTES [1], LOGS OR WOODY DEBRIS [1].

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average). SINUOSITY: HIGH [4], MODERATE [3], LOW [2], NONE [1]. DEVELOPMENT: EXCELLENT [7], GOOD [5], FAIR [3], POOR [1]. CHANNELIZATION: NONE [6], RECOVERED [4], RECOVERING [3], RECENT OR NO RECOVERY [1]. STABILITY: HIGH [3], MODERATE [2], LOW [1].

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average). River right looking downstream. EROSION: NONE/LITTLE [3], MODERATE [2], HEAVY/SEVERE [1]. RIPARIAN WIDTH: WIDE > 50m [4], MODERATE 10-50m [3], NARROW 5-10m [2], VERY NARROW < 5m [1], NONE [0]. FLOOD PLAIN QUALITY: FOREST, SWAMP [3], SHRUB OR OLD FIELD [2], RESIDENTIAL, PARK, NEW FIELD [1], FENCED PASTURE [1], OPEN PASTURE, ROWCROP [0]. CONSERVATION TILLAGE [1], URBAN OR INDUSTRIAL [0], MINING / CONSTRUCTION [0].

5) POOL / GLIDE AND RIFFLE / RUN QUALITY MAXIMUM DEPTH: > 1m [6], 0.7-<1m [4], 0.4-<0.7m [2], 0.2-<0.4m [1], < 0.2m [0]. CHANNEL WIDTH: POOL WIDTH > RIFFLE WIDTH [2], POOL WIDTH = RIFFLE WIDTH [1], POOL WIDTH < RIFFLE WIDTH [0]. CURRENT VELOCITY: TORRENTIAL [-1], VERY FAST [1], FAST [1], MODERATE [1], SLOW [1], INTERSTITIAL [-1], INTERMITTENT [-2], EDDIES [1].

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average). NO RIFFLE [metric=0]. RIFFLE DEPTH: BEST AREAS > 10cm [2], BEST AREAS 5-10cm [1], BEST AREAS < 5cm [metric=0]. RUN DEPTH: MAXIMUM > 50cm [2], MAXIMUM < 50cm [1]. RIFFLE / RUN SUBSTRATE: STABLE (e.g., Cobble, Boulder) [2], MOD. STABLE (e.g., Large Gravel) [1], UNSTABLE (e.g., Fine Gravel, Sand) [0]. RIFFLE / RUN EMBEDDEDNESS: NONE [2], LOW [1], MODERATE [0], EXTENSIVE [-1].

6) GRADIENT (ft/mi) DRAINAGE AREA (mi^2). VERY LOW - LOW [2-4], MODERATE [6-10], HIGH - VERY HIGH [10-6]. %POOL: 10, %GLIDE: 10, %RUN: 60, %RIFFLE: 20.

**AJ SAMPLED REACH**

Check ALL that apply

**METHOD**

- BOAT
  - WADE
  - L. LINE
  - OTHER
- DISTANCE**
- 0.5 Km
  - 0.2 Km
  - 0.15 Km
  - 0.12 Km
  - OTHER

**STAGE**

- 1st--sample pass-- 2nd
- HIGH
- UP
- NORMAL
- LOW
- DRY

**CLARITY**

- 1st --sample pass-- 2nd
- < 20 cm
- 20-40 cm
- 40-70 cm
- > 70 cm/ CTB
- SECCHI DEPTH

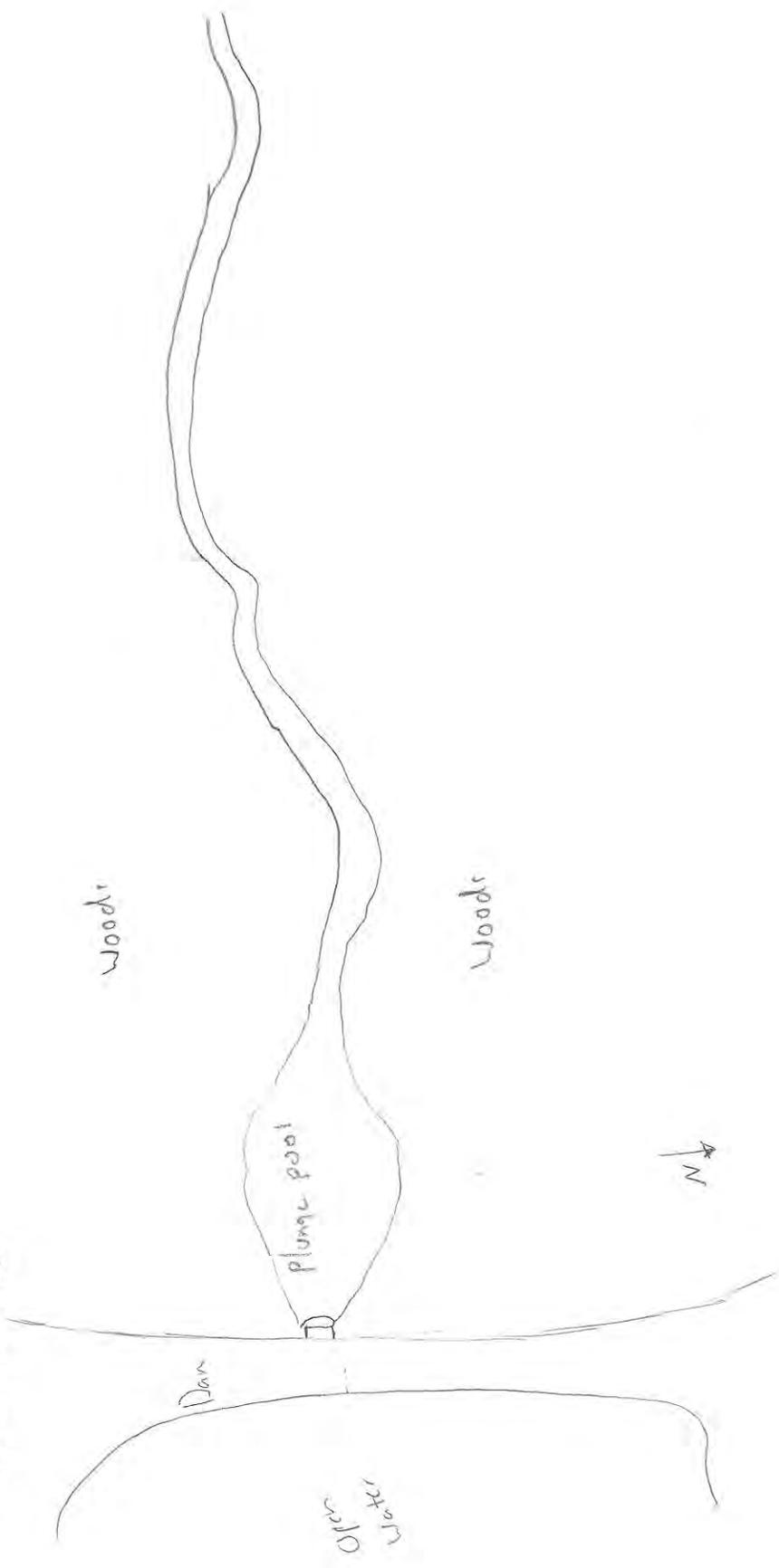
**CANOPY**

- > 85% - OPEN
- 55% - 85%
- 30% - 55%
- 10% - 30%
- < 10% - CLOSED

**CJ RECREATION**

- AREA
- DEPTH
- POOL:  > 100ft<sup>2</sup>  > 3ft

**Stream Drawing:**



Comment RE: Reach consistency/ Is reach typical of stream? Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.  
 Stream input is outlet of recreational pond down. Deep plunge pool provides some refuge for amphibians

- DJ MAINTENANCE** Circle some & COMMENT
- PUBLIC / PRIVATE / BOTH / NA
  - ACTIVE / HISTORIC / BOTH / NA
  - YOUNG-SUCCESSION-OLD
  - SPRAY / SNAG / REMOVED
  - MODIFIED / DIPPED OUT / NA
  - LEVEED / ONE SIDED
  - RELOCATED / CUTOFFS
  - MOVING-BEDLOAD-STABLE
  - ARMoured / SLUMPS
  - ISLANDS / SCoured
  - IMPOUNDED / DESICCATED
  - FLOOD CONTROL / DRAINAGE
- EJ ISSUES**
- WWTP / CSO / NPDES / INDUSTRY
  - HARDENED / URBAN / DIRT&GRIME
  - CONTAMINATED / LANDFILL
  - BMPs-CONSTRUCTION-SEDIMENT
  - LOGGING / IRRIGATION / COOLING
  - BANK / EROSION / SURFACE
  - FALSE BANK / MANURE / LAGOON
  - WASH H<sub>2</sub>O / TILE / H<sub>2</sub>O TABLE
  - ACID / MINE / QUARRY / FLOW
  - NATURAL / WETLAND / STAGNANT
  - PARK / GOLF / LAWN / HOME
  - ATMOSPHERE / DATA PAUCITY
- FJ MEASUREMENTS**
- $\bar{x}$  width
  - $\bar{x}$  depth
  - max. depth
  - $\bar{x}$  bankfull width
  - bankfull  $\bar{x}$  depth
  - W/D ratio
  - bankfull max. depth
  - floodprone  $\bar{x}^2$  width
  - entrench. ratio
  - Legacy Tree:

- BJ AESTHETICS**
- NUISANCE ALGAE
  - INVASIVE MACROPHYTES
  - EXCESS TURBIDITY
  - DISCOLORATION
  - FOAM / SCUM
  - OIL SHEEN
  - TRASH / LITTER
  - NUISANCE ODOR
  - SLUDGE DEPOSITS
  - CSOs/SSOs/OUTFALLS

SITE NAME/LOCATION T1 S47  
 SITE NUMBER S47 RIVER BASIN Muscatatuck DRAINAGE AREA (mi<sup>2</sup>) 0.00  
 LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. 39.01220 LONG. 85.6637 RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_  
 DATE 03/04/11 SCORER RJC COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> SILT [3 pt]	100%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

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

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 3

HHEI Metric Points

Substrate Max = 40

9

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

5

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):  
 > 30 centimeters [20 pts]  > 5 cm - 10 cm [15 pts]  
 > 22.5 - 30 cm [30 pts]  < 5 cm [5 pts]  
 > 10 - 22.5 cm [25 pts]  NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): \_\_\_\_\_

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  
 > 4.0 meters (> 13') [30 pts]  > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  
 > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  ≤ 1.0 m (<= 3' 3") [5 pts]  
 > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]

COMMENTS approx 2' wide AVERAGE BANKFULL WIDTH (meters): 1.00

This information must also be completed

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

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

COMMENTS \_\_\_\_\_

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  
 Stream Flowing  Moist Channel, isolated pools, no flow (Intermittent)  
 Subsurface flow with isolated pools (Interstitial)  Dry channel, no water (Ephemeral)  
 COMMENTS \_\_\_\_\_

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  
 None  1.0  2.0  3.0  
 0.5  1.5  2.5  >3

STREAM GRADIENT ESTIMATE  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

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

QHEI PERFORMED? -  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangle Name: North Vernon NRCS Soil Map Page: \_\_\_\_\_ NRCS Soil Map Stream Order \_\_\_\_\_  
County: Jennings Township / City: Center

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): N Date of last precipitation: 03/03/11 Quantity: 0.10

Photograph Information: \_\_\_\_\_

Elevated Turbidity? (Y/N): N Canopy (% open): 10%

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

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

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

Additional comments/description of pollution impacts: \_\_\_\_\_

pond outlet just east of study area

**BIOTIC EVALUATION**

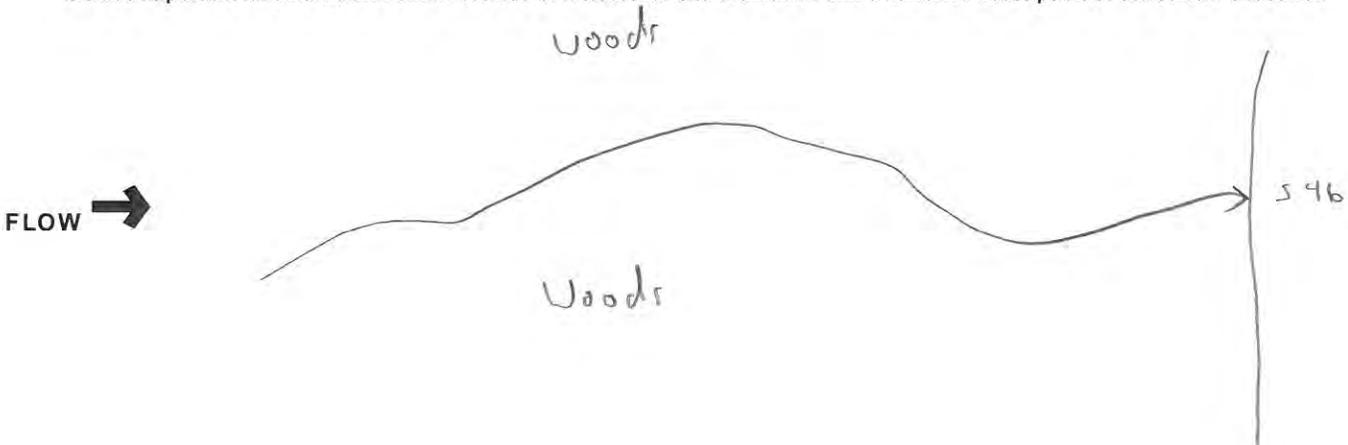
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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

Comments Regarding Biology: \_\_\_\_\_

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

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



SITE NAME/LOCATION **T1 S48**

SITE NUMBER **S48** RIVER BASIN **Muscatatuck** DRAINAGE AREA (mi<sup>2</sup>) **0.01**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **39.01440** LONG. **85.6622** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **03/04/11** SCORER **RJC** COMMENTS **Trib to S 49**

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> SILT [3 pt]	100%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

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

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **6** TOTAL NUMBER OF SUBSTRATE TYPES: **3**

**HHEI Metric Points**

Substrate Max = 40

**9**

A + B

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): \_\_\_\_\_

Pool Depth Max = 30

**0**

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

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

COMMENTS **approx 2' wide** AVERAGE BANKFULL WIDTH (meters): **1.00**

Bankfull Width Max=30

**5**

**This information must also be completed**

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

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

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**  
 Stream Flowing  Moist Channel, isolated pools, no flow (Intermittent)  
 Subsurface flow with isolated pools (Interstitial)  Dry channel, no water (Ephemeral)  
 COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**  
 None  1.0  2.0  3.0  
 0.5  1.5  2.5  >3

**STREAM GRADIENT ESTIMATE**  
 Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

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

QHEI PERFORMED? -  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangle Name: North Vernon NRCS Soil Map Page: \_\_\_\_\_ NRCS Soil Map Stream Order \_\_\_\_\_  
County: Jennings Township / City: Center

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): N Date of last precipitation: 03/03/11 Quantity: 0.10

Photograph Information: \_\_\_\_\_

Elevated Turbidity? (Y/N): N Canopy (% open): 10%

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

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

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

Additional comments/description of pollution impacts: \_\_\_\_\_  
pond outlet just east of study area

**BIOTIC EVALUATION**

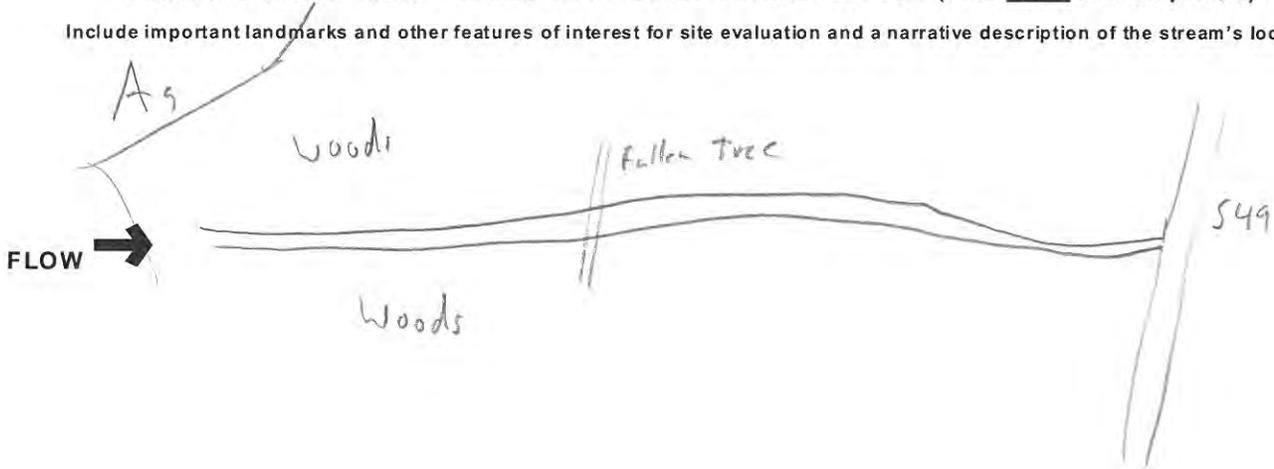
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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

Comments Regarding Biology: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

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



SITE NAME/LOCATION **T1 S49**

SITE NUMBER **S49** RIVER BASIN **Muscatatuck** DRAINAGE AREA (mi<sup>2</sup>) **0.05**

LENGTH OF STREAM REACH (ft) **200** LAT. **39.01465** LONG. **85.6632** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **03/04/11** SCORER **RJC** COMMENTS \_\_\_\_\_

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

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

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

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

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

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15** **TOTAL NUMBER OF SUBSTRATE TYPES: 3**

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input checked="" type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters):** \_\_\_\_\_

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

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

COMMENTS **approx 6' wide** **AVERAGE BANKFULL WIDTH (meters): 1.00**

**HHEI Metric Points**

Substrate  
Max = 40

18

A + B

Pool Depth  
Max = 30

5

Bankfull  
Width  
Max=30

15

**This information must also be completed**

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

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

COMMENTS \_\_\_\_\_

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

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS Stream currently flowing, likely not typical

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

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

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

QHEI PERFORMED? -  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangle Name: North Vernon NRCS Soil Map Page: \_\_\_\_\_ NRCS Soil Map Stream Order \_\_\_\_\_  
County: Jennings Township / City: Center

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): N Date of last precipitation: 03/03/11 Quantity: 0.10

Photograph Information: \_\_\_\_\_

Elevated Turbidity? (Y/N): N Canopy (% open): 10%

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

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

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

Additional comments/description of pollution impacts: \_\_\_\_\_  
pond outlet just east of study area

**BIOTIC EVALUATION**

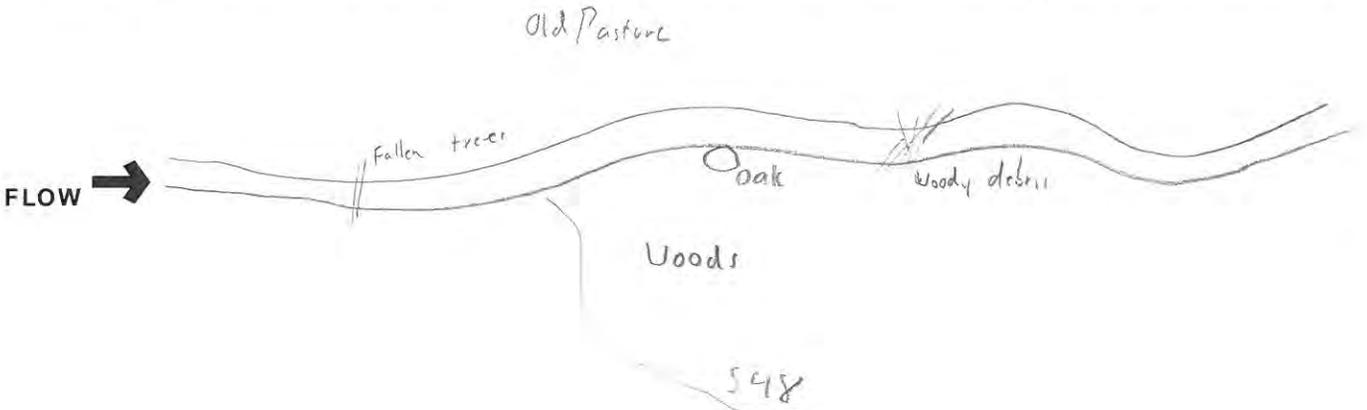
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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

Comments Regarding Biology: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

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



SITE NAME/LOCATION T1 S49(a)  
 SITE NUMBER S49(a) RIVER BASIN Muscatatuck DRAINAGE AREA (mi<sup>2</sup>) 0.03  
 LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. 39.01400 LONG. 85.6631 RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_  
 DATE 03/04/11 SCORER RJC COMMENTS Fr 6 to 544 Flows to wetland 23

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 30%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 70%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

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

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 2

**HHEI Metric Points**

Substrate Max = 40

8

A + B

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): \_\_\_\_\_

Pool Depth Max = 30

0

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

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

COMMENTS approx 2' wide AVERAGE BANKFULL WIDTH (meters): 1.00

Bankfull Width Max=30

5

**This information must also be completed**

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

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

COMMENTS \_\_\_\_\_

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

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

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

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

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

QHEI PERFORMED? -  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangle Name: North Vernon NRCS Soil Map Page: \_\_\_\_\_ NRCS Soil Map Stream Order \_\_\_\_\_  
County: Jennings Township / City: Center

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): N Date of last precipitation: 03/03/11 Quantity: 0.10  
Photograph Information: \_\_\_\_\_  
Elevated Turbidity? (Y/N): N Canopy (% open): 10%  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_  
Field Measures: Temp (°C) \_\_\_\_\_ Dissolved Oxygen (mg/l) \_\_\_\_\_ pH (S.U.) \_\_\_\_\_ Conductivity (µmhos/cm) \_\_\_\_\_  
Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_  
\_\_\_\_\_

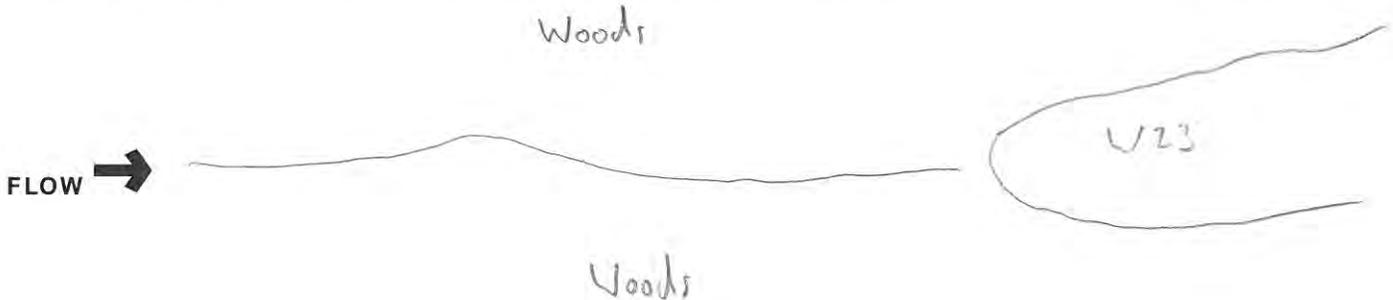
Additional comments/description of pollution impacts: \_\_\_\_\_  
pond outlet just east of study area

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N  
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N  
Comments Regarding Biology: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

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



SITE NAME/LOCATION **T1 S12**  
 SITE NUMBER **S12** RIVER BASIN **Muscatatuck** DRAINAGE AREA (mi<sup>2</sup>) **0.00**  
 LENGTH OF STREAM REACH (ft) **200** LAT. **39.02750** LONG. \_\_\_\_\_ RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_  
 DATE **09/29/10** SCORER **RJC** COMMENTS **majoty of stream encapsulated in culvert**

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> ARTIFICIAL [3 pts]	<input checked="" type="checkbox"/> 100%

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

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **6** TOTAL NUMBER OF SUBSTRATE TYPES: **1**

HHEI Metric Points

Substrate Max = 40

7

A + B

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): \_\_\_\_\_

Pool Depth Max = 30

0

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

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

COMMENTS **approx 3' wide** AVERAGE BANKFULL WIDTH (meters): **1.00**

Bankfull Width Max=30

5

This information must also be completed

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

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

COMMENTS \_\_\_\_\_

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

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

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

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

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

**QHEI PERFORMED?** -  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangle Name: North Vernon NRCS Soil Map Page: \_\_\_\_\_ NRCS Soil Map Stream Order \_\_\_\_\_  
County: Jennings Township / City: Center

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): N Date of last precipitation: 09/27/10 Quantity: 0.20

Photograph Information: \_\_\_\_\_

Elevated Turbidity? (Y/N): N Canopy (% open): 0%

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

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

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

*The majority of this stream within the proposed ROW is encapsulated in a large culvert running the length of the field pond outlet just east of study area*

**BIOTIC EVALUATION**

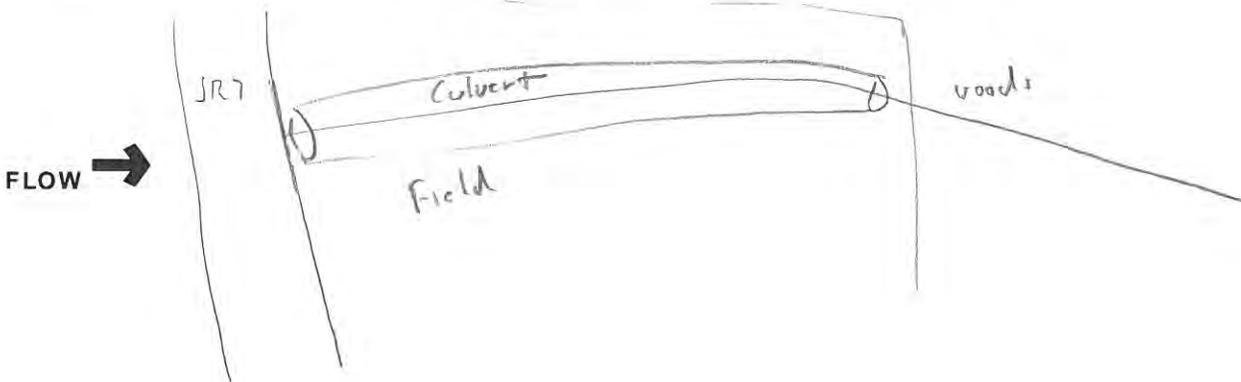
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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

Comments Regarding Biology: \_\_\_\_\_

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

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



SITE NAME/LOCATION T1 S11  
 SITE NUMBER S11 RIVER BASIN Muscatatuck DRAINAGE AREA (mi<sup>2</sup>) 0.00  
 LENGTH OF STREAM REACH (ft) 200 LAT. 39.02660 LONG. 85.6488 RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_  
 DATE 09/29/10 SCORER RJC COMMENTS Trick out s 10

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> SILT [3 pt]	100%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

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

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 1

**HHEI Metric Points**

Substrate Max = 40

7

A + B

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): \_\_\_\_\_

Pool Depth Max = 30

0

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

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

COMMENTS approx 3' wide AVERAGE BANKFULL WIDTH (meters): 1.00

Bankfull Width Max=30

5

**This information must also be completed**

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

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

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

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

QHEI PERFORMED? -  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangle Name: North Vernon NRCS Soil Map Page: \_\_\_\_\_ NRCS Soil Map Stream Order \_\_\_\_\_  
County: Jennings Township / City: Center

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): N Date of last precipitation: 09/27/10 Quantity: 0.20

Photograph Information: \_\_\_\_\_

Elevated Turbidity? (Y/N): N Canopy (% open): 10%

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

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

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

Additional comments/description of pollution impacts: \_\_\_\_\_  
pond outlet just east of study area

**BIOTIC EVALUATION**

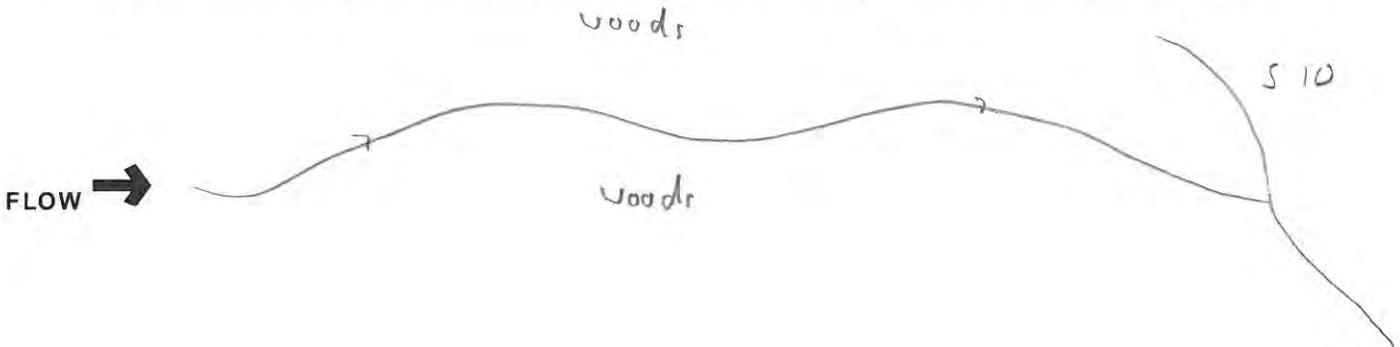
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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

Comments Regarding Biology: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

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



SITE NAME/LOCATION **T1 S10**  
 SITE NUMBER **S10** RIVER BASIN **Muscatatuck** DRAINAGE AREA (mi<sup>2</sup>) **0.00**  
 LENGTH OF STREAM REACH (ft) **200** LAT. **39.02640** LONG. **85.6481** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_  
 DATE **09/29/10** SCORER **RJC** COMMENTS **Trib ot 58 - Side ditch ot RR track**

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> SILT [3 pt]	100%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

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

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **6** TOTAL NUMBER OF SUBSTRATE TYPES: **1**

**HHEI Metric Points**

Substrate Max = 40

**7**  
A + B

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): \_\_\_\_\_

Pool Depth Max = 30

**0**

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

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

COMMENTS **approx 3' wide** AVERAGE BANKFULL WIDTH (meters): **1.00**

Bankfull Width Max=30

**5**

**This information must also be completed**

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

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

COMMENTS \_\_\_\_\_

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

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

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

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

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

QHEI PERFORMED? -  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangle Name: North Vernon NRCS Soil Map Page: \_\_\_\_\_ NRCS Soil Map Stream Order \_\_\_\_\_  
County: Jennings Township / City: Center

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): N Date of last precipitation: 09/27/10 Quantity: 0.20  
Photograph Information: \_\_\_\_\_  
Elevated Turbidity? (Y/N): N Canopy (% open): 10%  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_  
Field Measures: Temp (°C) \_\_\_\_\_ Dissolved Oxygen (mg/l) \_\_\_\_\_ pH (S.U.) \_\_\_\_\_ Conductivity (µmhos/cm) \_\_\_\_\_  
Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_  
\_\_\_\_\_

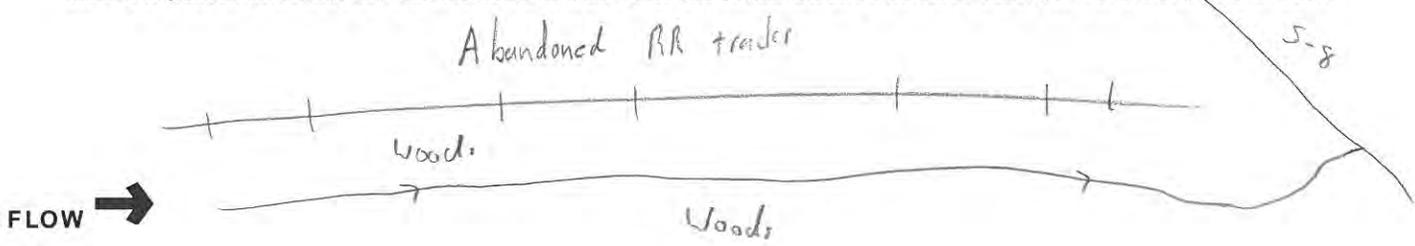
Additional comments/description of pollution impacts: \_\_\_\_\_  
pond outlet just east of study area

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N  
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N  
Comments Regarding Biology: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

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



Stream & Location: T1-58 (UNT Sixmile Creek) RM: Date: 20/11/10

Scorers Full Name & Affiliation: R. Connolly, Parsons

River Code: STORET #: Lat./ Long.: 39.0279 / 85.6481 Office verified location

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present. Check ONE (Or 2 & average). BEST TYPES: BLDR / SLABS [10] 20, BOULDER [9], COBBLE [8], GRAVEL [7], SAND [6], BEDROCK [5] 20. OTHER TYPES: HARDPAN [4], DETRITUS [3], MUCK [2], SILT [2], ARTIFICIAL [0]. ORIGIN: LIMESTONE [1], TILLS [1], WETLANDS [0], SANDSTONE [0], RIP/RAP [0], LACUSTURINE [0], SHALE [-1], COAL FINES [-2]. QUALITY: HEAVY [-2], MODERATE [-1], NORMAL [0], FREE [1], EXTENSIVE [-2], MODERATE [-1], NORMAL [0], NONE [1]. Substrate Maximum 20 (6.5)

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts. AMOUNT: Check ONE (Or 2 & average). UNDERCUT BANKS [1] 1, OVERHANGING VEGETATION [1] 1, SHALLOWS (IN SLOW WATER) [1] 1, ROOTMATS [1] 0. POOLS > 70cm [2] 2, ROOTWADS [1] 2, BOULDERS [1] 0. OXBOWS, BACKWATERS [1] 0, AQUATIC MACROPHYTES [1] 0, LOGS OR WOODY DEBRIS [1] 1. EXTENSIVE >75% [11], MODERATE 25-75% [7], SPARSE 5-<25% [3], NEARLY ABSENT <5% [1]. Cover Maximum 20 (11)

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average). SINUOSITY: HIGH [4], MODERATE [3] X, LOW [2], NONE [1]. DEVELOPMENT: EXCELLENT [7], GOOD [5] X, FAIR [3], POOR [1]. CHANNELIZATION: NONE [6] X, RECOVERED [4], RECOVERING [3], RECENT OR NO RECOVERY [1]. STABILITY: HIGH [3], MODERATE [2] X, LOW [1]. Channel Maximum 20 (16)

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average). RIVER RIGHT LOOKING DOWNSTREAM. EROSION: NONE / LITTLE [3] X, MODERATE [2], HEAVY / SEVERE [1]. RIPARIAN WIDTH: WIDE > 50m [4] X, MODERATE 10-50m [3], NARROW 5-10m [2], VERY NARROW < 5m [1], NONE [0]. FLOOD PLAIN QUALITY: FOREST, SWAMP [3], SHRUB OR OLD FIELD [2], RESIDENTIAL, PARK, NEW FIELD [1], FENCED PASTURE [1], OPEN PASTURE, ROWCROP [0] X. CONSERVATION TILLAGE [1] X, URBAN OR INDUSTRIAL [0], MINING / CONSTRUCTION [0]. Riparian Maximum 10 (9.5)

5] POOL / GLIDE AND RIFFLE / RUN QUALITY MAXIMUM DEPTH: > 1m [6] X, 0.7-<1m [4], 0.4-<0.7m [2], 0.2-<0.4m [1], < 0.2m [0]. CHANNEL WIDTH: POOL WIDTH > RIFFLE WIDTH [2] X, POOL WIDTH = RIFFLE WIDTH [1], POOL WIDTH < RIFFLE WIDTH [0]. CURRENT VELOCITY: TORRENTIAL [-1], VERY FAST [1], FAST [1], MODERATE [1], SLOW [1], INTERSTITIAL [-1], INTERMITTENT [-2], EDDIES [1]. Recreation Potential: Primary Contact, Secondary Contact. Pool / Current Maximum 12 (7)

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average). NO RIFFLE [metric=0]. RIFFLE DEPTH: BEST AREAS > 10cm [2], 5-10cm [1], < 5cm [metric=0]. RUN DEPTH: MAXIMUM > 50cm [2], MAXIMUM < 50cm [1]. RIFFLE / RUN SUBSTRATE: STABLE [2], MOD. STABLE [1], UNSTABLE [0]. RIFFLE / RUN EMBEDDEDNESS: NONE [2], LOW [1], MODERATE [0], EXTENSIVE [-1]. Riffle / Run Maximum 8

6] GRADIENT (18 ft/mi) DRAINAGE AREA (1.74 mi^2). VERY LOW - LOW [2-4] X, MODERATE [6-10], HIGH - VERY HIGH [10-6]. %POOL: 30, %GLIDE: 60, %RUN: 0, %RIFFLE: 10. Gradient Maximum 10 (4)

**AJ SAMPLED REACH**

Check ALL that apply

**METHOD**

- BOAT
- WADE
- L. LINE
- OTHER

**DISTANCE**

- 0.5 Km
- 0.2 Km
- 0.15 Km
- 0.12 Km
- OTHER

**CLARITY**

- 1st --sample pass-- 2nd
- < 20 cm
- 20-40 cm
- 40-70 cm
- > 70 cm/ CTB
- SECCHI DEPTH

**CANOPY**

- > 85%- OPEN
- 55%-<85%
- 30%-<55%
- 10%-<30%
- <10%- CLOSED

**CJ RECREATION**

AREA DEPTH  
POOL:  >100ft<sup>2</sup>  >3ft

*This stream drains the NW corner of the City of N. Vernon*

**BJAESTHETICS**

- NUISANCE ALGAE
- INVASIVE MACROPHYTES
- EXCESS TURBIDITY
- DISCOLORATION
- FOAM/ SCUM
- OIL SHEEN
- TRASH / LITTER
- NUISANCE ODOR
- SLUDGE DEPOSITS
- CSOs/SSOs/OUTFALLS

**DJ MAINTENANCE**

- PUBLIC / PRIVATE / BOTH / NA
- ACTIVE / HISTORIC / BOTH / NA
- YOUNG-SUCCESSION-OLD
- SPRAY / SNAG / REMOVED
- MODIFIED / DIPPED OUT / NA
- LEVEED / ONE SIDED
- RELOCATED / CUTOFFS
- MOVING-BEDLOAD-STABLE
- ARMoured / SLUMPS
- ISLANDS / SCoured
- IMPOUNDED / DESICCATED
- FLOOD CONTROL / DRAINAGE

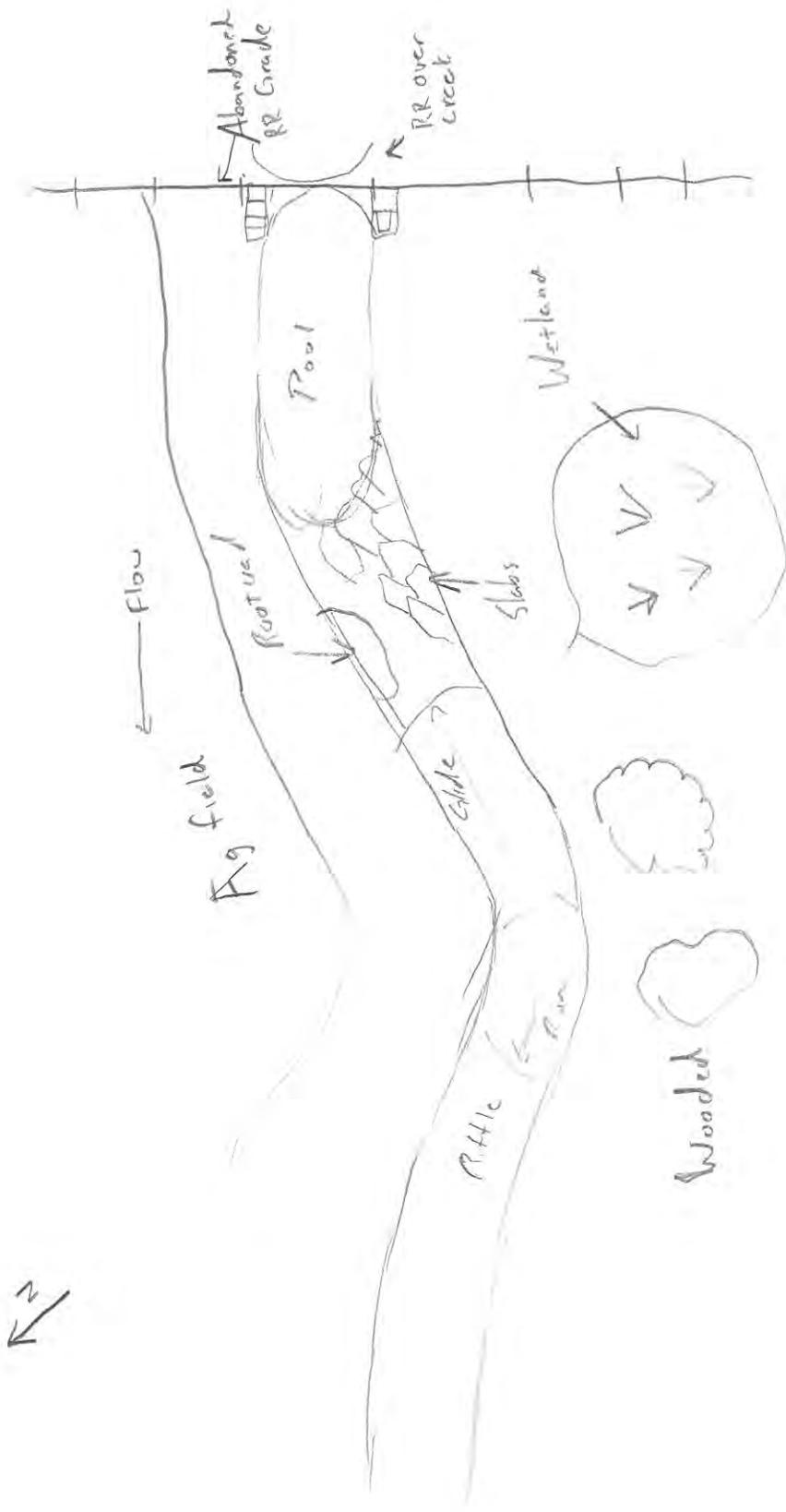
**EJ ISSUES**

- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT&GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H<sub>2</sub>O / TILE / H<sub>2</sub>O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

**FJ MEASUREMENTS**

- $\bar{x}$  width
- $\bar{x}$  depth
- max. depth
- $\bar{x}$  bankfull width
- bankfull  $\bar{x}$  depth
- W/D ratio
- bankfull max. depth
- floodprone  $\bar{x}^2$  width
- entrench. ratio
- Legacy Tree:

**Stream Drawing:**



SITE NAME/LOCATION T1 S40 S7  
 SITE NUMBER S7 RIVER BASIN Muscatatuck DRAINAGE AREA (mi<sup>2</sup>) 0.00  
 LENGTH OF STREAM REACH (ft) 200 LAT. 39.02750 LONG. 85.6467 RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_  
 DATE 09/29/10 SCORER RJC COMMENTS Broken tile or "gully plug" in field Trib to S8

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input checked="" type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 30%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input checked="" type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 70%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

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

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 2

HHEI Metric Points

Substrate Max = 40

8  
A + B

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): \_\_\_\_\_

Pool Depth Max = 30

0

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

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

COMMENTS approx 3' wide AVERAGE BANKFULL WIDTH (meters): 1.00

Bankfull Width Max=30

5

This information must also be completed

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank)		(Most Predominant per Bank)		Conservation Tillage	
Wide >10m		Mature Forest, Wetland		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field		<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Residential, Park, New Field		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture		<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m				<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
None					
<input type="checkbox"/>	<input type="checkbox"/>				
COMMENTS _____					

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  
 Stream Flowing  Moist Channel, isolated pools, no flow (Intermittent)  
 Subsurface flow with isolated pools (Interstitial)  Dry channel, no water (Ephemeral)  
 COMMENTS \_\_\_\_\_

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  
 None  1.0  2.0  3.0  
 0.5  1.5  2.5  >3

STREAM GRADIENT ESTIMATE  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

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

QHEI PERFORMED? -  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangle Name: North Vernon NRCS Soil Map Page: \_\_\_\_\_ NRCS Soil Map Stream Order \_\_\_\_\_  
County: Jennings Township / City: Center

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): N Date of last precipitation: 09/27/10 Quantity: 0.20

Photograph Information: \_\_\_\_\_

Elevated Turbidity? (Y/N): N Canopy (% open): 10%

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

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

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

Additional comments/description of pollution impacts: \_\_\_\_\_  
pond outlet just east of study area

**BIOTIC EVALUATION**

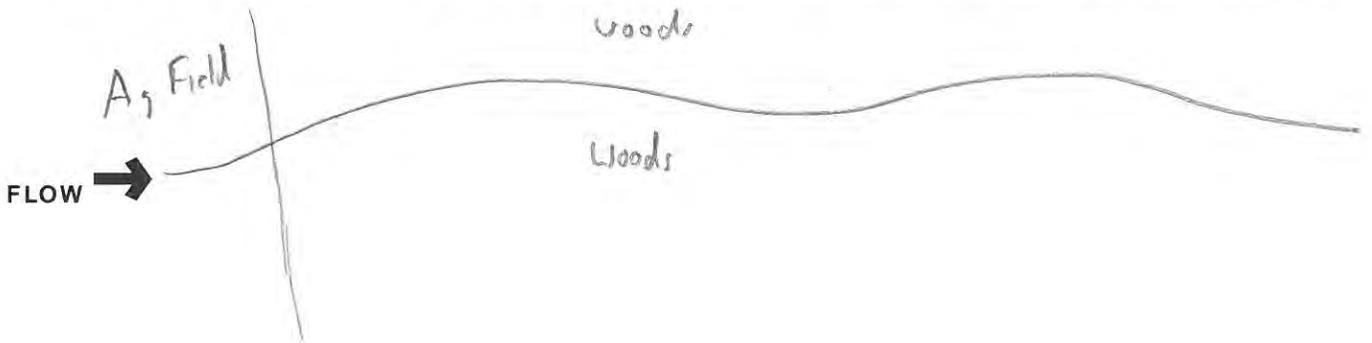
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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

Comments Regarding Biology: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

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



Stream & Location: T1 - 54 RM: Date: 11/01/10

Scorers Full Name & Affiliation: R. Connolly Parsons

River Code: STORET #: Lat./Long.: 39.0153 185.3244 Office verified location

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present. Check ONE (Or 2 & average). BEST TYPES: BLDR/SLABS [10], BOULDER [9], COBBLE [8], GRAVEL [7], SAND [6], BEDROCK [5]. OTHER TYPES: HARDPAN [4], DETRITUS [3], MUCK [2], SILT [2], ARTIFICIAL [0]. ORIGIN: LIMESTONE [1], TILLS [1], WETLANDS [0], HARDPAN [0], SANDSTONE [0], RIP/RAP [0], LACUSTURINE [0], SHALE [-1], COAL FINES [-2]. QUALITY: HEAVY [-2], MODERATE [-1], NORMAL [0], FREE [1], EXTENSIVE [-2], MODERATE [-1], NORMAL [0], NONE [1]. Comments: Shale bedrock. Substrate Maximum 20: 4.

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts. AMOUNT: Check ONE (Or 2 & average). UNDERCUT BANKS [1], OVERHANGING VEGETATION [1], SHALLOWS (IN SLOW WATER) [1], ROOTMATS [1]. POOLS > 70cm [2], ROOTWADS [1], BOULDERS [1]. OXBOWS, BACKWATERS [1], AQUATIC MACROPHYTES [1], LOGS OR WOODY DEBRIS [1]. EXTENSIVE >75% [1], MODERATE 25-75% [7], SPARSE 5-<25% [3], NEARLY ABSENT <5% [1]. Comments: Cover Maximum 20: 7.

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average). SINUOSITY: HIGH [4], MODERATE [3], LOW [2], NONE [1]. DEVELOPMENT: EXCELLENT [7], GOOD [5], FAIR [3], POOR [1]. CHANNELIZATION: NONE [6], RECOVERED [4], RECOVERING [3], RECENT OR NO RECOVERY [1]. STABILITY: HIGH [3], MODERATE [2], LOW [1]. Comments: Channel Maximum 20: 14.

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average). River right looking downstream. EROSION: NONE / LITTLE [3], MODERATE [2], HEAVY / SEVERE [1]. RIPARIAN WIDTH: WIDE > 50m [4], MODERATE 10-50m [3], NARROW 5-10m [2], VERY NARROW < 5m [1], NONE [0]. FLOOD PLAIN QUALITY: FOREST, SWAMP [3], SHRUB OR OLD FIELD [2], RESIDENTIAL, PARK, NEW FIELD [1], FENCED PASTURE [1], OPEN PASTURE, ROWCROP [0]. CONSERVATION TILLAGE [1], URBAN OR INDUSTRIAL [0], MINING / CONSTRUCTION [0]. Comments: Riparian Maximum 10: 9.

5] POOL / GLIDE AND RIFFLE / RUN QUALITY MAXIMUM DEPTH: > 1m [6], 0.7-<1m [4], 0.4-<0.7m [2], 0.2-<0.4m [1], < 0.2m [0]. CHANNEL WIDTH: POOL WIDTH > RIFFLE WIDTH [2], POOL WIDTH = RIFFLE WIDTH [1], POOL WIDTH < RIFFLE WIDTH [0]. CURRENT VELOCITY: TORRENTIAL [-1], VERY FAST [1], FAST [1], MODERATE [1], SLOW [1], INTERSTITIAL [-1], INTERMITTENT [-2], EDDIES [1]. Recreation Potential: Primary Contact, Secondary Contact. Comments: Pool / Current Maximum 12: 0.

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average). NO RIFFLE [metric=0]. RIFFLE DEPTH: BEST AREAS > 10cm [2], BEST AREAS 5-10cm [1], BEST AREAS < 5cm [metric=0]. RUN DEPTH: MAXIMUM > 50cm [2], MAXIMUM < 50cm [1]. RIFFLE / RUN SUBSTRATE: STABLE (e.g., Cobble, Boulder) [2], MOD. STABLE (e.g., Large Gravel) [1], UNSTABLE (e.g., Fine Gravel, Sand) [0]. RIFFLE / RUN EMBEDDEDNESS: NONE [2], LOW [1], MODERATE [0], EXTENSIVE [-1]. Comments: Riffle / Run Maximum 8: 0.

6] GRADIENT (34 ft/mi) DRAINAGE AREA (0.45 mi^2). VERY LOW - LOW [2-4], MODERATE [6-10], HIGH - VERY HIGH [10-6]. %POOL: 20, %GLIDE: 10, %RUN: 60, %RIFFLE: 10. Gradient Maximum 10: 3.

**AJ SAMPLED REACH**

Check ALL that apply

**METHOD**

- BOAT
- WADE
- L. LINE
- OTHER

**DISTANCE**

- 0.5 Km
- 0.2 Km
- 0.15 Km
- 0.12 Km
- OTHER

**CLARITY**

- 1st --sample pass-- 2nd
- < 20 cm
- 20-40 cm
- 40-70 cm
- > 70 cm/ CTB
- SECCHI DEPTH

**CANOPY**

- > 85%- OPEN
- 55%-<85%
- 30%-<55%
- 10%-<30%
- <10%- CLOSED

**CJ RECREATION**

POOL:  >100ft<sup>2</sup>  >3ft

**STAGE**

- HIGH
- UP
- NORMAL
- LOW
- DRY

Comment RE: Reach consistency/Is reach typical of stream?, Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.

WAT Tub at 5-8 WAT to Sixmile Creek

**BJ AESTHETICS**

- NUISANCE ALGAE
- INVASIVE MACROPHYTES
- EXCESS TURBIDITY
- DISCOLORATION
- FOAM/ SCUM
- OIL SHEEN
- TRASH / LITTER
- NUISANCE ODOR
- SLUDGE DEPOSITS
- CSOs/SSOs/OUTFALLS

**DJ MAINTENANCE**

- PUBLIC / PRIVATE / BOTH / NA
- ACTIVE / HISTORIC / BOTH / NA
- YOUNG-SUCCESSION-OLD
- SPRAY / SNAG / REMOVED
- MODIFIED / DIPPED OUT / NA
- LEVEED / ONE SIDED
- RELOCATED / CUTOFFS
- MOVING-BEDLOAD-STABLE
- ARMoured / SLUMPS
- ISLANDS / SCoured
- IMPOUNDED / DESICCATED
- FLOOD CONTROL / DRAINAGE

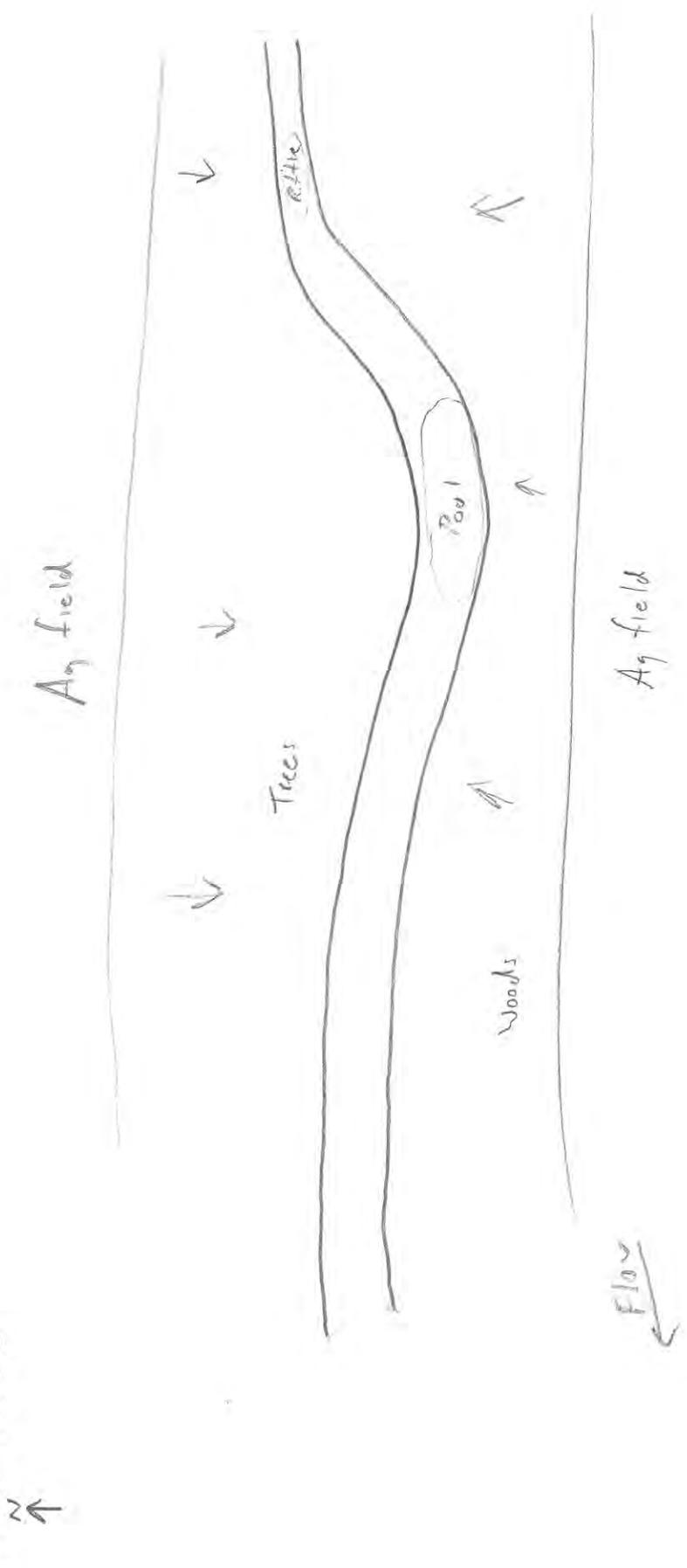
**EJ ISSUES**

- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT&GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H<sub>2</sub>O / TILE / H<sub>2</sub>O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

**FJ MEASUREMENTS**

- $\bar{x}$  width / 14'
- $\bar{x}$  depth 2'
- max. depth
- $\bar{x}$  bankfull width
- bankfull  $\bar{x}$  depth
- W/D ratio
- bankfull max. depth
- floodprone  $\bar{x}$  width
- entrench. ratio
- Legacy Tree:

**Stream Drawing:**



Appendix E

# PRELIMINARY JURISDICTIONAL DETERMINATION FORM & TABLE

**PRELIMINARY JURISDICTIONAL DETERMINATION FORM**

**BACKGROUND INFORMATION**

- A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD):** August 2011
- B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:**  
Parsons Transportation Group (Contact: Alan Ball), 101 West Ohio Street, Suite 2121, Indianapolis, IN 46204
- C. DISTRICT OFFICE, FILE NAME, AND NUMBER:** Louisville District
- D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:** INDOT plans to build a new roadway from US 50 near Jennings County Road 400 W to State Road 3 on the north side of North Vernon, just south of CR 350 N.

**(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)**

State: IN County/parish/borough: Jennings County City: North Vernon  
Center coordinates of site (lat/long in degree decimal format):  
Lat. 39.014200°N, Long. -85.663100° W

Universal Transverse Mercator: Northing 4319202.5, Easting 615743.5  
(Zone 16S)

Name of nearest waterbody: Sixmile Creek

Identify (estimate) amount of waters in the review area:

Non-wetland waters: See attached table

Wetlands: 4.08 acres.

Cowardin Class: See attached table

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal: None

Non-Tidal: None

**E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):**

Office (Desk) Determination. Date:

Field Determination. Date(s): September, 27-29, 2010, May 5, 2011, and August 11, 2011 (by Consultant)

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:

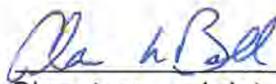
**SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply)**

- 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: [Various maps \(See attached report\)](#).
- 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: [See Figure 2](#)
- USDA Natural Resources Conservation Service Soil Survey. Citation: [NRCS website \(See Figure 5\)](#)
- National wetlands inventory map(s). Cite name: [See Figure 2](#)
- State/Local wetland inventory map(s):
- FEMA/FIRM maps: [See Figure 4](#)
- 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- Photographs:  Aerial (Name & Date): [2005, IN Geographic Information Council](#).
- 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.**

\_\_\_\_\_  
Signature and date of  
Regulatory Project Manager  
(REQUIRED)

 9/26/11  
\_\_\_\_\_  
Signature and date of  
person requesting preliminary JD  
(REQUIRED, unless obtaining  
the signature is impracticable)

PJD Form Table: U.S. 50 North Vernon, IN – Des. No. 0401402

Site Number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in Study Area	Class of aquatic resource
T2-W8	38.984600	-85.684300	PEM1	0.12 acre	non-section 10 - wetland
T1-W10	39.027500	-85.648100	PFO1	0.30 acre	non-section 10 - wetland
T1-W23	39.014200	-85.663100	PFO1	0.02 acre	non-section 10 - wetland
T1-W31	39.033600	-85.642200	PEM1	0.04 acre	non-section 10 - wetland
T1-W32	39.007600	-85.663600	PEM1	0.33 acre	non-section 10 - wetland
T1-W33	39.008600	-85.663500	PEM1	0.44 acre	non-section 10 - wetland
T1-W34	38.988500	-85.684800	PFO1	0.04 acre	non-section 10 - wetland
T1-W36	38.988700	-85.681800	PEM1	0.02 acre	non-section 10 - wetland
T1-W37	38.988700	-85.681800	PEM1	0.12 acre	non-section 10 - wetland
T1-W40	38.987700	-85.681500	PFO1	0.23 acre	non-section 10 - wetland
T1-W41	38.987600	-85.681800	PEM1	0.09 acre	non-section 10 - wetland
T1-W42	38.987100	-85.682100	PEM1	0.17 acre	non-section 10 - wetland
T1-W43	38.987200	-85.681300	PEM1	0.10 acre	non-section 10 - wetland
T1-W44	38.985800	-85.684100	PEM1	0.05 acre	non-section 10 - wetland
T2-S23	38.984900	-85.685600	R4SB4	383 linear feet	non-section 10
T1-S27	38.984700	-85.678100	R4SB5	29 linear feet	non-section 10
T1-S21	38.999000	-85.670500	R4SB5	340 linear feet	non-section 10
T1-S20	39.000300	-85.667500	R4SB5	411 linear feet	non-section 10
T1-20A	39.000900	-85.667800	R4SB5	61 linear feet	non-section 10
T1-S19	39.001200	-85.666400	R4SB5	266 linear feet	non-section 10
T1-S45	39.010900	-85.663200	R4SB4	477 linear feet	non-section 10
T1-S46	39.011700	-85.663200	R4SB3	349 linear feet	non-section 10
T1-S47	39.012100	-85.663700	R4SB5	186 linear feet	non-section 10
T1-S48	39.014600	-85.662400	R4SB5	242 linear feet	non-section 10
T1-S49	39.014600	-85.663400	R4SB4	349 linear feet	non-section 10
T1-S49A	39.014000	-85.662900	R4SB6	119 linear feet	non-section 10
T1-S12	39.024400	-85.650600	R4SBr	278 linear feet	non-section 10
T1-S11	39.026500	-85.649000	R4SB5	216 linear feet	non-section 10
T1-S10	39.026600	-85.648100	R4SB5	217 linear feet	non-section 10
T1-S8	39.027200	-85.647400	R4SB1	385 linear feet	non-section 10
T1-S7	39.027500	-85.647100	R4SB5	279 linear feet	non-section 10
T1-S4	39.030700	-85.646300	R4SB1	488 linear feet	non-section 10
T1-P2	39.002900	-85.664700	PUBGh	1.30 acres	non-section 10
T1-P3	39.023300	-85.653500	PUBGh	0.16 acre	non-section 10
T1-P4	39.032500	-85.642900	PUBGh	0.15 acre	non-section 10
T1-P5	39.033100	-85.642700	PUBGh	0.33 acre	non-section 10

Appendix F

# WATERS UPLOAD SHEET

Appendix F: Waters Upload Sheet

Waters_Name	Cowadin_Code	HGM_Code	Area (acres)	Linear (ft)	Waters Types	Latitude(dd nad83)	Longitude dd nad83)	Local_Waterway
T2-W8	PEM1	DEPRESS	0.12		NRPWW	38.984600	-85.684300	Tributary to Indian Creek
T1-W10	PFO1	DEPRESS	0.30		NRPWW	39.027500	-85.648100	Tributary to Sixmile Creek
T1-W23	PFO1	SLOPE	0.02		NRPWW	39.014200	-85.663100	Tributary to Sixmile Creek
T1-W31	PEM1	DEPRESS	0.04		NRPWW	39.033600	-85.642200	Tributary to Sixmile Creek
T1-W32	PEM1	SLOPE	0.33		NRPWW	39.007600	-85.663600	Tributary to Sixmile Creek
T1-W33	PEM1	SLOPE	0.44		NRPWW	39.008600	-85.663500	Tributary to Sixmile Creek
T1-W34	PFO1	DEPRESS	0.04		NRPWW	38.988500	-85.684800	Tributary to Sixmile Creek
T1-W36	PEM1	DEPRESS	0.02		NRPWW	38.988700	-85.681800	Tributary to Sixmile Creek
T1-W37	PEM1	DEPRESS	0.12		NRPWW	38.988700	-85.681800	Tributary to Sixmile Creek
T1-W40	PFO1	DEPRESS	0.23		NRPWW	38.987700	-85.681500	Tributary to Indian Creek
T1-W41	PEM1	DEPRESS	0.09		NRPWW	38.987600	-85.681800	Tributary to Indian Creek
T1-W42	PEM1	DEPRESS	0.17		NRPWW	38.987100	-85.682100	Tributary to Indian Creek
T1-W43	PEM1	DEPRESS	0.10		NRPWW	38.987200	-85.681300	Tributary to Indian Creek
T1-W44	PEM1	DEPRESS	0.05		NRPWW	38.985800	-85.684100	Tributary to Indian Creek
T2-S23	R4SB4	RIVERINE		383	NRPW	38.984900	-85.685600	Tributary to Indian Creek
T1-S27	R4SB5	RIVERINE		29	NRPW	38.984700	-85.678100	Tributary to Indian Creek
T1-S21	R4SB5	RIVERINE		340	NRPW	38.999000	-85.670500	Tributary to Indian Creek
T1-S20	R4SB5	RIVERINE		411	NRPW	39.000300	-85.667500	Tributary to Indian Creek
T1-S20A	R4SB5	RIVERINE		61	NRPW	39.000900	-85.667800	Tributary to Indian Creek
T1-S19	R4SB5	RIVERINE		266	NRPW	39.001200	-85.666400	Tributary to Indian Creek
T1-S45	R4SB4	RIVERINE		477	NRPW	39.010900	-85.663200	Tributary to Sixmile Creek
T1-S46	R4SB3	RIVERINE		349	RPW	39.011700	-85.663200	Tributary to Sixmile Creek
T1-S47	R4SB5	RIVERINE		186	NRPW	39.012100	-85.663700	Tributary to Sixmile Creek
T1-S48	R4SB5	RIVERINE		242	NRPW	39.014600	-85.662400	Tributary to Sixmile Creek
T1-S49	R4SB4	RIVERINE		349	NRPW	39.014600	-85.663400	Tributary to Sixmile Creek
T1-S49A	R4SB6	RIVERINE		119	NRPW	39.014000	-85.662900	Tributary to Sixmile Creek
T1-S12	R4SB	RIVERINE		278	NRPW	39.024400	-85.650600	Tributary to Sixmile Creek
T1-S11	R4SB5	RIVERINE		216	NRPW	39.026500	-85.649000	Tributary to Sixmile Creek
T1-S10	R4SB5	RIVERINE		217	RPW	39.026600	-85.648100	Tributary to Sixmile Creek
T1-S8	R4SB1	RIVERINE		385	NRPW	39.027200	-85.647400	Tributary to Sixmile Creek
T1-S7	R4SB5	RIVERINE		279	NRPW	39.027500	-85.647100	Tributary to Sixmile Creek
T1-S4	R4SB1	RIVERINE		488	NRPW	39.030700	-85.646300	Tributary to Sixmile Creek
T1-P2	PUB	DEPRESS	1.30		NRPWW	39.002900	-85.664700	Tributary to Indian Creek
T1-P3	PUB	DEPRESS	0.16		NRPWW	39.023300	-85.653500	Tributary to Sixmile Creek
T1-P4	PUB	DEPRESS	0.15		NRPWW	39.032500	-85.642900	Tributary to Sixmile Creek
T1-P5	PUB	DEPRESS	0.33		NRPWW	39.033100	-85.642700	Tributary to Sixmile Creek