Wabash Valley Resources, LLC	- Wabash Hydrogen Energy Center Project	Appendix E	Natural Resources Assessment Report
APPENDIX E	NATURAL RESOURCES ASSE	SSMENT F	REPORT

NATURAL RESOURCE ASSESSMENT REPORT

Wabash Hydrogen Energy Center Project Vigo and Vermillion Counties, Indiana





Wabash Valley Resources LLC 444 W Sandford Ave West Terre Haute, IN 47885 August 2024

NATURAL RESOURCE ASSESSMENT REPORT

Wabash Hydrogen Energy Center Project Vigo and Vermillion Counties, Indiana

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TABLE OF CONTENTS

1.	.0	INTRODUCTION	1
2.	0	METHODOLOGY	1
3.	0	DESKTOP REVIEW FINDINGS – PHYSICAL RESOURCES	3
	3.1	Study Area Setting	3
	3.2	Soils	
	3.3	Aquatic Resources	4
	3.4	Floodplains	4
4.	0	SITE DESCRIPTION – BIOTIC RESOURCES	4
	4.1	Terrestrial Land Cover Types	4
	4.2	Aquatic Land Cover Types	
5.	0	REGULATORY ISSUES	5
	5.1	Clean Water Act Waters of the U.S	5
	5.	1.1 Wetlands	6
		1.2 Streams	
		Non-Waters of the United States	
		2.1 Isolated Wetlands	
		2.2 Ephemeral Streams	
		2.3 Upland Drainage Features	
		Rivers and Harbors Act Section 10 Navigable Waters	
		Federally Listed and Protected Species	
		4.1 Indiana Bat	
		4.2 Northern Long-Eared Bat	
		4.3 Tricolored bat	
		Federal Species At Risk/Candidate Species/Experimental Populations	
		5.1 Monarch	
	5.6	5.2 Whooping Crane Bald Eagle and Golden Eagle Protection Act	
	5.6 5.7	State-Listed Species, Natural and Managed Areas	
	0	CONCLUSION AND RECOMMENDATIONS	
7.	0	REFERENCES	14

Appendix A. Figures

Figure 1. Site Location USGS Topographic Map with FEMA/HUC Overlay

Figure 2A-F. Project Area Map

Figure 3A-F. Soils and Mine Map

Figure 4A-F. NWI and NHD Map

Figure 5A-F. Flood Zone Map

Figure 6A-F. Land Cover Map

Figure 7A-F. Delineated Features Map

Appendix B. USACE Data Forms and OEPA ORAM Forms

Appendix C. OEPA Stream Forms

Appendix D. Representative Photograph Logs

Wetland Photograph Log Stream Photograph Log UDF Photograph Log

Appendix E. Threatened and Endangered Species Information

LIST OF TABLES

Table 1. Soils in the Project Area	3
Table 2. Land Cover Types within the Project Area	
Table 3. Delineated Wetlands within the Project Area	6
Table 4. Delineated Streams within the Project Area	7
Table 5. Delineated Isolated Wetlands within the Project Area	7
Table 6. Delineated Ephemeral Streams within the Project Area	8
Table 7. Upland Drainage Features within the Project Area	9
Table 8. IPaC List of Federally Protected Species for the Project Area	

1.0 INTRODUCTION

Wabash Valley Resources LLC (WVR), in coordination with Gas Technology Institute (GTI), proposes to redevelop the existing WVR's Coal Gasification site into a prototype of the 21st Century Power Plant for gasification-based carbon-negative power and hydrogen co-production. This project is part of the Department of Energy's (DOE), 21st Century Power Plant initiative, which seeks to advance power generation along with hydrogen production beyond today's state-of-the-art to make power plants more adaptive to the electrical grid with net zero carbon emission by 2035. Project limits of disturbance, herein defined as the "Project Area", which totals approximately 143.22-acres, includes: an ammonia synthesis site, a hydrogen production and CO₂ capture site, one laydown/parking area, two injection well sites and two formation monitoring well sites (Appendix A, Figure 1).

AECOM Technical Services, Inc. (AECOM) was retained by WVR to provide a Natural Resource Assessment Report for the Project. The scope of work includes the following services:

- A delineation of Waters of the United States and isolated waters.
- Collection of data using sub-meter accuracy Global Positioning System (GPS) equipment.
- A habitat evaluation for federal and state-listed protected species.
- A report documenting the natural resources within the Project Area.

This Natural Resource Assessment Report has been prepared to assist WVR in their preliminary planning, so that construction activities may attempt to avoid or minimize impacts to environmental resources identified within the Project Area.

2.0 METHODOLOGY

AECOM performed background research prior to commencing fieldwork with additional research conducted following completion of fieldwork. Research included publicly available information on soils, water resources, geology, mapped wetlands, and rare species. Sources included, but were not limited to:

- U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps (USFWS 2024a)
- U.S. Geological Survey (USGS) National Hydrography Dataset (NHD) for the state of Indiana (USGS 2022a)
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey Geographic Database for Vigo and Vermillion Counties, Indiana (USDA NRCS 2023a and 2023b)
- USGS 7.5-minute topographic quadrangles for Clinton (USGS 2022b) and New Goshen (USGS 2022c), Indiana
- Federal Emergency Management Agency (FEMA) floodplain mapping (FEMA 2011 and 2014)
- Indiana Department of Natural Resources (IDNR) Indiana Best Available Floodplain Mapping (IDNR 2017a and 2017b)
- USFWS Information for Planning and Consultation (IPaC) Official Species List (USFWS 2024b; Appendix D)
- Indiana Department of Natural Resources (IDNR) Heritage Data Center Request (Appendix E)
- Indiana Geographic Information Office Indiana Map Viewer (IGIO 2024)
- IDNR Coal Mine Information System (IDNR 2024a)

AECOM biologists surveyed the Project Area for potential jurisdiction wetlands and waterways, including isolated waters. AECOM identified habitat types, wetlands, waterbodies, and other regulated special aquatic sites. Wetlands were identified using the U.S. Army Corps of Engineers (USACE) 1987 Manual

(Environmental Laboratory 1987) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (USACE 2010), utilizing the routine on-site method for wetland delineation. As per the USACE guidance, trees and woody vines were evaluated in an approximate 30-foot radius plot; saplings and shrubs were evaluated in a 15-foot radius plot; and herbs were evaluated in a 5-foot radius plot. The wetland indicator status of these species was determined using the National Wetland Plant List (USACE 2023). At each sample plot, a spade shovel or a one-piece hand-auger was used to excavate the soil for inspection of the soil profile. Soil horizon depths were measured and recorded. Each distinct horizon in the soil profile was also examined for hue, value, and chroma using a Munsell Soil color chart (Kollmorgen Corporation 2010). In addition, the texture, physical characteristics, and redoximorphic features if present, of each horizon were noted. Sample plots were evaluated by visual inspection for the presence of wetland hydrologic indicators, including but not limited to inundation, observed saturation, water marks, drift lines, sediment deposits, water-stained leaves, surface scour, drainage patterns, and/or morphological plant adaptations. AECOM documented, using the most current USACE wetland determination data form, sample plots for each identified wetland and at least one corresponding upland plot. Indiana does not have a statemandated wetland assessment protocol in place. Based on our experience with USACE and Indiana Department of Environmental Management, the Ohio Environmental Protection Agency (OEPA) Ohio Rapid Assessment Method (ORAM) version 5.0 (Mack 2001) qualitative wetland assessment would be acceptable as a qualitative wetland assessment by regulatory agencies. For the Project, the 10-page version of the ORAM form was utilized. AECOM classified each wetland according to the USFWS Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et. al. 1979). Identified wetlands were photographed from the datapoint at the four cardinal directions as well as the soil profile.

Streams were identified by the presence of a defined bed and bank and evidence of an ordinary high-water mark (OHWM). The USACE defines OHWM as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (USACE 2005). Each identified stream was assessed using either the OEPA Headwater Habitat Evaluation Index (HHEI; OEPA 2020) or the OEPA Qualitative Habitat Evaluation Index (QHEI) data form (Rankin 2006), depending upon stream watershed size. Additionally, AECOM collected specific information about width, depth, and bank characteristics for all identified stream features. Identified streams were photographed showing upstream, downstream, and substrate images.

An upland drainage feature (UDF) is a non-jurisdictional drainage that does not meet the criteria of either a jurisdictional stream or a wetland. A UDF generally lacks an OHWM (USACE 2005) and is equivalent to a swale or an erosional feature as described by the USACE: "generally shallow features in the landscape that may convey water across upland areas during and following storm events. Swales usually occur on nearly flat slopes and typically have grass or other low-lying vegetation throughout the swale" (USACE 2007).

AECOM mapped the location of each field-delineated feature boundary using Global Positioning System (GPS) EOS Arrow units capable of sub-meter accuracy in conjunction with the ESRI Field Map application on Samsung tablets. The GPS data was imported into ESRI ArcMap Geographic Information System (GIS) software, where the data was reviewed, edited for quality and accuracy, and compiled in a format suitable for transfer and use by WVR. GIS analysis was performed on the field data to produce tables and maps required for a USACE Jurisdictional Determination.

Land cover observed within the Project Area were assigned a general classification based upon the principal land characteristics and vegetation cover of the location. These habitat community types were compared to the habitat preferences of known listed federal or state species.

3.0 DESKTOP REVIEW FINDINGS – PHYSICAL RESOURCES

3.1 Study Area Setting

The Project Area is geographically situated within the Wabash-Ohio Bottomlands, Wabash River Bluffs and Low Hills, and Illinois/Indiana Prairies (USEPA 2012). The Project site is located on the Clinton and New Goshen, Indiana USGS 7.5' Topographic Quadrangles (Appendix A, Figure 1; USGS 2022b and 2022c). Elevations in the Project Area range between approximately 480-feet to 630-feet above mean sea level. A desktop review of aerial imagery (ESRI 2020) indicates that land use in the Project Area is comprised primarily of development, cultivated crops, deciduous/mixed forests, grassland and shrub/scrub.

3.2 Soils

The Soil Survey for Vermillion and Vigo Counties (USDA NRCS 2023a and 2023b) identifies fifteen (15) soil mapping units within the Project Area. One (1) of these soil units, Ra, is classified as hydric, five (5) were classified as having hydric inclusions, and the remainder are classified as non-hydric soils (Table 1). Soil mapping units are shown on Appendix A, Figure 3. Hydric status was defined by NRCS Web Soil Survey (USDA NRCS 2023a and 2023b). A soil is considered hydric if the majority of its components are hydric. Non-hydric soils can have hydric components but are predominately non-hydric.

Table 1. Soils in the Project Area

Soil Map Unit	Mapping Unit Symbol	Drainage Class	Hydric Status
AlB2	Alford silt loam, 2 to 5 percent slopes, eroded	Well drained	Non-hydric
AlC3	Alford silt loam, 5 to 10 percent slopes, severely eroded	Well drained	Non-hydric
Ee	Eel silt loam	Moderately well drained	Hydric Inclusions
Fn	Fincastle silt loam, Bloomington Ridged Plain, 0 to 2 percent slopes	Somewhat poorly drained	Hydric Inclusions
HeG	Hennepin loam, 25 to 50 percent slopes	Well drained	Non-hydric
HkF	Hickory loam, 25 to 40 percent slopes	Well drained	Non-hydric
Ма	Made land	Well drained	Non-hydric
MuB2	Muren silt loam, 2 to 6 percent slopes, eroded	Moderately well drained	Hydric Inclusions
OrB	Orthents, loamy, 0 to 8 percent slopes	Well drained	Non-hydric
Ra	Ragsdale silt loam, 0 to 2 percent slopes	Poorly drained	Hydric
RuC2	Russell silt loam, Bloomington Ridged Plain, 5 to 10 percent slopes, eroded	Well drained	Non-hydric
RuD2	Russell silt loam, 12 to 18 percent slopes, eroded	Well drained	Non-hydric
Sh	Shoals silt loam, 0 to 2 percent slopes, frequently flooded, brief duration	Somewhat poorly drained	Hydric Inclusions
W	Water	-	-
XeB2	Xenia silt loam, 2 to 6 percent slopes, eroded	Moderately well drained	Hydric Inclusions

3.3 Aquatic Resources

The Project Area is located within the Gin Creek-Brouilletts Creek [USGS Hydrologic Unit Code (HUC): 051201110303], North Coal Creek-Coal Creek [HUC: 051201110602], and South Salt Creek-Wabash River [HUC: 051201110604] watersheds (Appendix A, Figure 4). Review of USFWS NWI data indicates that five (5) PEM1Cx (Palustrine, Emergent, Persistent, Seasonally, Flooded, Excavated) and one R2UBH (Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded) wetlands are mapped within the Project Area (Appendix A, Figure 4). Four (4) of the PEM1Cx features were field verified as present and discussed in detail in Section 5.1, while the overlay for the R2UBH feature (Wabash River) falls within the Project Area Aerial imagery shows the river actually does not.

Based on review of the USGS NHD, eleven (11) mapped streams were identified within the Project Area (Appendix A, Figure 4).

3.4 Floodplains

Approximately 0.42-acres of the Project Area is within a FEMA designated 100-year floodplain (FEMA 2011 and 2014). No IDNR Approximate Floodway/Fringe within the Project Area (IDNR 2017a and 2017b) (Appendix A, Figures 5).

4.0 SITE DESCRIPTION – BIOTIC RESOURCES

4.1 Terrestrial Land Cover Types

The National Land Cover Database has documented thirteen (13) national land cover types within the 143.22-acres of Project Area, (Table 2; Appendix A, Figure 6): Barren Land (Rock/Sand/Clay), Cultivated Crops, Deciduous Forest, Developed High Intensity, Developed, Low Intensity, Developed, Medium Intensity, Developed, Open Space, Emergent Herbaceous Wetlands, Grassland/Herbaceous, Mixed Forest, Open Water, Pasture/Hay and Shrub/Scrub.

Table 2. Land Cover Types within the Project Area

Vegetation Community Type	Description	Approximate Acreage Within the Project Area	Percentage of Project Area
Barren Land (Rock/Sand/Clay)	Areas with bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits, and other accumulations of earthen material.	10.92	7.6
Cultivated Crops	Areas used to produce annual crops, perennial woody crops, and actively tilled land.	20.44	14.3
Deciduous Forest	Areas dominated by trees generally greater than 5 eciduous Forest meters tall, and greater than 20% of total vegetation cover.		28.4
Developed High Intensity	Areas with a high density of people living or working.	14.62	10.2
Developed, Low Intensity	Areas that have a mix of vegetation and constructed materials, with impervious surfaces making up 20–49% of the total cover.	3.77	2.6

Vegetation Community Type	Description	Approximate Acreage Within the Project Area	Percentage of Project Area
Developed, Medium Intensity	Areas as those with 50–79% impervious surfaces and a mix of vegetation and constructed materials.	12.16	8.5
Developed, Open Space	Areas with a mix of constructed materials and vegetation, but mostly vegetation like lawn grasses.	5.72	4.0
Wetlands	Areas where perennial vegetation covers more than 80% of the vegetative cover and the soil or substrate is periodically covered with or saturated with water.	3.51	2.5
Grassland/Herbaceous	Areas where more than 80% of the total vegetation is made up of gramanoid or herbaceous vegetation.	23.77	16.5
Mixed Forest	Areas where trees make up more than 20% of the total vegetation cover and are generally over 5 meters tall.	4.22	2.9
Open Water	Areas with less than 25% vegetation or soil cover.	2.40	1.7
Pasture/Hay	Areas of grasses, legumes, or grass-legume mixtures that are planted for livestock grazing, hay crops, or seed production.	0.64	0.4
Shrub/Scrub	Areas where shrubs are the dominant vegetation, and are typically less than 5 meters tall.		0.4
	Totals	143.22	100%

4.2 Aquatic Land Cover Types

The National Wetlands Inventory (NWI), identified approximately 5.98-acres classified as either Riverine or PEM consisting of one (1) perennial stream (Wabash River), and five (5) PEM wetlands within workspace located throughout the Project Area (Appendix A, Figure 4).

5.0 REGULATORY ISSUES

5.1 Clean Water Act Waters of the U.S.

Jurisdictional waters of the United States (WOTUS), including wetlands, are protected under Section 404 of the Clean Water Act (CWA). The USACE and U.S. Environmental Protection Agency jointly define wetlands as "those areas that are inundated or saturated by surface or groundwater 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. Wetlands generally include swamps, marshes, bogs, and similar areas" (Wetlands Definitions. Code of Federal Regulations, Title 40, Pt. 230.3, Revised 2019.) The USACE's 1987 Wetlands Delineation Manual, as supplemented by the 2010 Midwest regional supplement, requires evidence of hydric soils, positive hydrological indicators, and a prevalence of hydrophytic vegetation for determination that an area is a wetland. Section 404 jurisdictional waters other than wetlands include streams, rivers, and lakes. Presence of an OHWM and a continuous bed and bank are used to identify streams and tributaries.

The State of Indiana is currently under the regulatory regime governed by Pre-2015 (Rapanos) Consistent with Sackett decision. Below are wetlands or waterbodies provisionally classified as jurisdictional by the USACE under the CWA. Final jurisdictional determination of WOTUS can only be established by the USACE.

5.1.1 Wetlands

AECOM conducted a survey of the approximately 143.22-acres of Project Area on June 11th-13th, and July 10th-11th, and found four (4) wetlands totaling 0.26-acre. Two (2) palustrine emergent wetlands (W-CMS-007 and W-CMS-008), one (1) forested wetland (W-CMS-006), and one (1) palustrine emergent/shrub-scrub/ forested wetland (W-CMS-001), are within the Project Area. Impacts to wetlands will be minimized to the greatest extent possible (photos in Appendix D; data forms in Appendix B; Table 3).

Table 3. Delineated Wetlands within the Project Area

Waters Name ¹	Cowardin	NWI Mapped Feature	Jurisdictional Connectivity ³	Local Waterway	Lat/Long	OEPA ORAM Score ⁴	OEPA ORAM Classification ⁴	Amount (acres)
W-CMS-001	PEM/PSS/PFO	No	Yes	Wabash River	39.534327°, -87.424367°	57	2	0.05
W-CMS-006	PFO	No	Yes	Wabash River	39.539358°, -87.436173°	46	2	0.14
W-CMS-007	PEM	No	Yes	Wabash River	39.539358°, -87.436173°	37	Modified 2	0.03
W-CMS-008	PEM	No	Yes	Wabash River	39.539358°, -87.436173°	37	Modified 2	0.04
							Total	0.26

^{1.} Field ID

- 2.Total Acres delineated; areas within the Project Area
- 3. Waters Type***: WOTUS definition based upon the Pre-2015 Regulatory Regime consistent with Sackett Ruling: 1. Commerce- includes those waters with tides (streams and wetlands).
- 2. Interstate- wetlands and streams.
- 3. All other waters that could impact interstate or foreign commerce wetlands and streams.
- a) Used for recreation or other purposes
- b) Fish or shellfish are taken and sold in interstate or foreign commerce
- c) industrial purposes by industries in interstate commerce.

- 4. Impoundments wetlands and streams
- 5. Tributaries to water types 1-4
- 6. Territorial sea
- 7. Adjacent wetlands- wetlands adjacent to waters identified in water types 1-6.
 ***All waters not meeting these definitions are presumed to be isolated
 and therefore, federally non-jurisdictional. The table identifies wetlands
 as either likely jurisdictional or likely isolated with a final determination
 made by the USACE. Likely jurisdictional wetlands were designated to
 have a physical surface connection as Water Type 7 "Adjacent wetland."
- 4. ORAM Ohio Rapid Assessment Method for Wetlands (Mack, 2001)

5.1.2 Streams

One (1) intermittent stream totaling 292-linear feet were identified within the Project area (photos in Appendix D; data forms in Appendix C; Table 4).

Table 4	Dolingatod	Streams with	in tha	Project Area
Table 4.	Delineated	Streams with	ın tne	Project Area

Waters Name ¹	Type/Code	NWI/NHD Mapped Feature	Classification ⁴	Jurisdictional Connectivity ³	OHWM Width x Depth (ft)	Lat/Long	Local Waterway	OEPA HHEI Score	Amount (feet) ²
S-CMS- 043	Intermittent	Yes	Class III PHW	Tributary to Wabash River	10'x0.4'	39.53897, - 87.43622	Wabash River	60	292
								Total	292

- 1. Field ID
- 2. Total length delineated
- 3. Waters Type***: WOTUS definition based upon the Pre-2015 Regulatory Regime consistent with Sackett Ruling:
 - 1. Commerce- includes those waters with tides (streams and wetlands).
 - 2. Interstate- wetlands and streams
 - 3. All other waters- those that could impact interstate or foreign commerce (wetlands and streams) a) Used for recreation or other purposes
 - b) Fish or shellfish are taken and sold in interstate or foreign commerce
 - c) industrial purposes by industries in interstate commerce.
 - 4. Impoundments wetlands and streams
 - 5. Tributaries to water types 1-4
 - 6. Territorial sea

- 7. Adjacent wetlands- wetlands adjacent to waters identified in water types 1-6.
- ***All waters not meeting these definitions are presumed to be isolated and therefore, federally non-jurisdictional. The table identifies streams as either likely jurisdictional or likely isolated with a final determination made by the USACE. Likely jurisdictional streams are denoted with the water type as defined in current WOTUS regulations. Likely isolated streams are denoted in the table as "isolated." Ephemeral streams are considered non-federally jurisdictional and are therefore isolated.

4QHEI – Qualitative Habitat Evaluation Index (Ohio EPA) Provisional Aquatic Life Use Classification follows:

EWH- Exceptional Warm Water Habitat WWH- Warm Water Habitat MWH- Modified Warm Water Habitat LRW- Limited Resource Waters

5.2 Non-Waters of the United States

Non-Waters of the United States (WOTUS) waters include bodies of water that are not protected by the Clean Water Act (CWA):

- Wetlands: Wetlands that are isolated or don't have a continuous surface connection to WOTUS are likely not considered WOTUS. This includes vernal pools and prairie potholes. Seasonal wetlands that are connected to a relatively permanent water for part of the year may be considered WOTUS, depending on agency guidance.
- Ephemeral drainages: Some rivers, streams, lakes, and ponds are no longer protected by the CWA.
- Artificial bodies of water: These include:
 - Reflecting pools, swimming pools, and other small ornamental bodies of water
 - o Waterfilled depressions created during construction
 - o Pits excavated for fill, sand, or gravel
 - o Artificial lakes or ponds used for irrigation, stock watering, rice growing, or settling basins
- Ditches: Ditches that are excavated in dry land and don't carry a permanent flow of water, including roadside ditches
- Artificially irrigated areas: Areas that would revert to dry land if irrigation stopped

5.2.1 Isolated Wetlands

Four isolated wetlands W-CMS-002, W-CMS-003, W-CMS-004, and W-CMS-005 were observed within the Project Area appear to have no jurisdictional connectivity to Waters of the U.S. (WOTUS) (photos in Appendix D; data forms in Appendix B; Table 5).

Table 5. Delineated Isolated Wetlands within the Project Area

Waters Name ¹	Cowardin	NWI Mapped Feature	Jurisdictional Connectivity ³	Local Waterway	Lat/Long	OEPA ORAM Score ⁴	OEPA ORAM Classification ⁴	Amount (acres) ²
W-CMS-002	PFO	No	No	Wabash River	39.535503°, -87.424145°	13	1	0.01

Waters Name ¹	Cowardin	NWI Mapped Feature	Jurisdictional Connectivity ³	Local Waterway	Lat/Long	OEPA ORAM Score ⁴	OEPA ORAM Classification ⁴	Amount (acres) ²	
W-CMS-003	PEM	Yes	No	Brouilletts Creek	39.622484°, -87.488098°	21	1	2.96	
W-CMS-004	PEM	Yes	No	Brouilletts Creek	39.623252°, -87.487345°	9	1	0.14	
W-CMS-005	PEM	Yes	No	Brouilletts Creek	39.623781°, -87.486961°	7	1	0.14	
Total									

5.2.2 Ephemeral Streams

Thirteen (13) ephemeral streams (S-CMS-001, S-CMS-002, S-CMS-003, S-CMS-005, S-CMS-006, S-CMS-007, S-CMS-021, S-CMS-022, S-CMS-023, S-CMS-035, S-CMS-042, S-CMS-044 and S-CMS-045), totaling 2,849-linear feet were identified within the Project area (photos in Appendix D; data forms in Appendix C; Table 6).

Table 6. Ephemeral Streams within the Project Area

Waters Name ¹	Type/Code	NWI/NHD Mapped Feature	Classification ⁴	Jurisdictional Connectivity ³	OHWM Width x Depth (ft)	Lat/Long	Local Waterway	Amount (feet) ²
S-CMS- 001	Ephemeral	No	Class II PHW	NA	2.25′x0.5′	39.53384, -87.42707	Wabash River	42
S-CMS- 002	Ephemeral	No	Class I PHW	NA	1x0.25′	39.53383, -87.42725	Wabash River	55
S-CMS- 003	Ephemeral	No	Class I PHW	NA	1x0.25	39.53385, -87.42739	Wabash River	68
S-CMS- 005	Ephemeral	No	Class I PHW	NA	2'x0.25'	39.53479, -87.42407	Wabash River	22
S-CMS- 006	Ephemeral	No	Class I PHW	NA	2'x0.25'	39.53570, -87.42578	Wabash River	901
S-CMS- 007	Ephemeral	No	Class I PHW	NA	2'x0.1'	39.53667, -87.42577	Wabash River	202
S-CMS- 021	Ephemeral	No	Modified Class I PHW	NA	2'x0.25'	39.54015, -87.42549	Wabash River	510
S-CMS- 022	Ephemeral	No	Class I PHW	NA	2'x0.2'	39.53977, -87.42490	Wabash River	493
S-CMS- 023	Ephemeral	No	Class I PHW	NA	1'x0.1'	39.53913, -87.42492	Wabash River	31
S-CMS- 035	Ephemeral	No	Class I PHW	NA	3'x0.2'	39.53925, -87.43230	Wabash River	105

Waters Name ¹	Type/Code	NWI/NHD Mapped Feature	Classification ⁴	Jurisdictional Connectivity ³	OHWM Width x Depth (ft)	Lat/Long	Local Waterway	Amount (feet) ²
S- CMS- 042	Ephemeral	No	Class I PHW	NA	2'x0.2'	39.53880, -87.43588	Wabash River	168
S- CMS- 044	Ephemeral	No	Class I PHW	NA	1.5'x0.2'	39.53977, -87.43602	Wabash River	210
S- CMS- 045	Ephemeral	No	Class I PHW	NA	0.75′x0.1′	39.53983, -87.43607	Wabash River	42
Total						2849		

5.2.3 Upland Drainage Features

Two (2) non-jurisdictional manmade Upland Drainage Features (UDFs) were identified within the Project Area (Table 7; Appendix A, Figure 7 with photographs in Appendix D).

Table 7. Upland Drainage Features within the Project Area

Waters Name ¹	Length (feet)	Lat/Long	Description	Length (feet)
UDF-CMS-001	449	39.531135, -87.427953	Manmade ditch and drains into a UNT to the Wabash River	449
UDF-CMS-002 94 39.53		39.532370, -87.428029	Manmade ditch that flows into UDF-CMS-001	94
			Total	543

^{1.} Field ID

5.3 Rivers and Harbors Act Section 10 Navigable Waters

Section 10 of the Rivers and Harbors Act protects navigable waters of the US. Navigable waters are defined as "those waters that are subject to the ebb/flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce." The Project Area and the adjacent properties do not contain any navigable waters that meet the Section 10 of the Rivers and Harbors Act criteria.

5.4 Federally Listed and Protected Species

Species with the federal listing of Threatened or Endangered are protected under the Endangered Species Act (ESA) of 1976, as amended (16 U.S.C. 1531 et seq.). AECOM obtained federally listed endangered and threatened species data from the USFWS IPaC which generates a list of species and other resources that are known or expected to be within or near the Project Area (Table 8). The IPaC includes considerations for species range and potential indirect impacts. The IPaC Official Species List, generated on June 3, 2024, for the Project indicated that no critical habitat was identified within the vicinity of the Project (Appendix E).

^{2.} Will have no area of potential disturbance.

Based on the IPaC review, three (3) mammals, one (1) bird, and one (1) insect species were identified as having the potential occur within the Project Area (USFWS 2024b). All federally listed species are discussed further within this section.

Table 8. IPaC List of Federally Protected Species for the Project Area

Scientific Name	Common Name	Federal Status	Habitat Present	Biological Conclusion	
Mammals:					
Myotis sodalis	Indiana bat	E	No	May Effect	
Myotis septentrionalis	northern long-eared bat	E	No	May Effect	
Perimyotis subflavus	tricolored bat	PE	No	May Effect	
	Insects:				
Danaus plexippus	monarch butterfly	С	No	May Effect	
Avian:					
Grus americana	whooping crane	EP	No	Not Likely to Effect	

C – Candidate

5.4.1 Indiana Bat

The Indiana bat (*Myotis sodalis*) is a medium-sized bat with chestnut brown to dark gray fur. The Indiana Bat is listed as endangered under the ESA. They are found over most of the eastern United States, with some states supporting populations of over 40,000 individuals including Indiana, Missouri, Kentucky, Illinois, and New York (USFWS 2006). From mid-autumn to early spring, Indiana bats hibernate in fissure caves in felsic rocks, or occasionally in abandoned mines, called hibernacula. In summer, they typically live in wooded or semi-wooded areas. Pregnant females will group together to form maternity colonies in crevices of trees or under loose, peeling bark of live trees. Typically, large (>9 inches in diameter at breast height [DBH]) dead and/or dying trees, exposed to direct sunlight throughout the day are preferred roosting sites for female Indiana bats (USFWS 2008). Male Indiana bats may utilize much smaller trees. A wide variety of tree species, including maple (*Acer* spp.), hickory (*Carya* spp.), ash (*Fraxinus* spp.), oak (*Quercus* spp.), elm (*Ulmus* spp.), pine (*Pinus* spp.), hemlock (*Tsuga candensis*) and others, may be used for roosting. Indiana Bats are also known to roost in human-made structures such as bridges, sheds, houses, and abandoned churches (USFWS 2004).

To determine the likelihood of potential hibernacula present within 0.25-mile of the Project Area, a desktop assessment was conducted. Based on the Indiana Geographic Information Office IndianaMap Viewer (IGIO 2024) and IDNR Coal Mine Information System (IDNR 2024a) there are recorded underground mines within the 0.25-mile buffer of the Project Area. Suitable roost habitat with foraging opportunities was present within the deciduous and mixed forests within the Project Area. AECOM provisionally determined that Indiana bats are likely to occur within the Project Area do the presence of suitable summer habitat and proximity of the Wabash River. Due to the potential bat roost trees located within the Project Area, AECOM opines a preliminary determination of may affect.

5.4.2 Northern Long-Eared Bat

The northern long-eared bat (NLEB; M. septentrionalis) is a medium sized bat, around 3-3.7 inches in length and a wingspan of 9 to 10 inches, that is distinguished by its long ears. Although the fur color is variable, these bats are typically medium brown on the upperparts with lighter belly fur (USFWS 2022d). On November 29, 2022, the USFWS published a final rule to reclassify the northern long-eared bat as

E –Endangered

EP - Experimental Population, Non-Essential

PE - Proposed Endangered

endangered under the ESA which become effective on March 31, 2023 (USFWS 2022b). This species of bat can be found through much of the eastern United States, as well as eight Canadian provinces (USFWS 2022d). The NLEB spends winters hibernating in caves and mines with constant temperatures, high-humidity, and no air currents. During the summer, the NLEB roosts, singly or in colonies, underneath sloughing bark, in cavities or crevices of both live and dead trees. NLEB tend to be more flexible in selecting roosts, choosing trees based on suitability to retain bark or provide cavities or crevices. These species are also rarely found roosting in structures such as barns or sheds.

To determine the likelihood of potential hibernacula present within 0.25-mile of the Project Area, a desktop assessment was conducted. Based on the Indiana Geographic Information Office IndianaMap Viewer (IGIO 2024) and IDNR Coal Mine Information System (IDNR 2024a) there are recorded underground mines within the 0.25-mile buffer of the Project Area. Suitable roost habitat with foraging opportunities was present within the deciduous and mixed forests within the Project Area. AECOM provisionally determined that Indiana bats are likely to occur within the Project Area do the presence of suitable summer habitat and proximity of the Wabash River. Due to the potential bat roost trees located within the Project Area, AECOM opines a preliminary determination of may affect.

5.4.3 Tricolored bat

Tricolored bat (*Perimyotis subflavus*) is one of the smallest native bats in North America, their body measuring only 3-3.5 inches long. Tricolored bats are distinguished by their unique tricolored fur that appears dark at the base, lighter in the middle and dark at the tip (USFWS 2022e). On September 14, 2022, the USFWS announced the proposed rule to list the tricolored bat as an endangered species under the ESA (USFWS 2022c). The tricolored bat spends the winter hibernating in caves, mines, or other underground structures that provide cool, humid areas with stables temperatures. During the summer, the tricolored bat predominately roost in trees, primarily among leaves of live or recently dead deciduous hardwood trees, in open woods near the edges of water (Fugita 1984). They rarely roost in structures, including bridges.

To determine the likelihood of potential hibernacula present within 0.25-mile of the Project Area, a desktop assessment was conducted. Based on the Indiana Geographic Information Office IndianaMap Viewer (IGIO 2024) and IDNR Coal Mine Information System (IDNR 2024a) there are recorded underground mines within the 0.25-mile buffer of the Project Area. Suitable roost habitat with foraging opportunities was present within the deciduous and mixed forests within the Project Area. AECOM provisionally determined that Indiana bats are likely to occur within the Project Area do the presence of suitable summer habitat and proximity of the Wabash River. Due to the potential bat roost trees located within the Project Area, AECOM opines a preliminary determination of may affect.

5.5 Federal Species At Risk/Candidate Species/Experimental Populations

Monarch butterfly is a candidate to the ESA with the potential to occur within the Project Area. However, there is no current regulatory framework to protect the species or its habitat for projects that lack a federal nexus.

Whooping Crane is designated as an Experimental Population, Non-Essential to the ESA and has the potential to occur within the Project Area. By definition, the experimental population is not essential to the continued existence of the species. Therefore, any effects to the species as a result of the Project activities are not considered to risk jeopardizing the species population.

5.5.1 Monarch

Monarch butterfly (*Danaus plexippus*) is a large and conspicuous orange and black butterfly species of the Nymphalidae family. It's well known for having a generation that annually makes a large migration south across the United States and winters in Mexico. During spring migration, important nectar sources typically include tickseed, arrowwood and phlox species. Although adult monarch butterflies forage for nectar on a wide variety of flowering plants through migration and breeding, they only breed and lay eggs on their host plant, the milkweed (*Asclepias* spp.; USFWS 2022a). Monarch butterfly larvae, or caterpillars, are completely dependent on milkweed host plants. This species is dependent on approximately 25 different species of milkweed in eastern North America. Milkweed decline in both agricultural and urban landscapes is one of the primary reasons that monarchs are in trouble today (National Wildlife Federation 2022).

In December 2020, the USFWS determined that the monarch butterfly was warranted for listing but excluded because of other priorities. It was added to the candidate list, meaning it has no regulatory requirements; however, some federal agencies place special conditions on candidate species for projects with a federal nexus (e.g., located on federal lands, requiring federal permits).

Flowering plants, such as goldenrod, milkweeds and aster species, were observed within the Project study area. Therefore, AECOMs opines a preliminary determination of may affect.

5.5.2 Whooping Crane

The Whooping Crane (*Grus americana*) population continues to use ancestral breeding areas, migration routes, and wintering grounds. The Whooping Crane Recovery Team, an international coalition of governmental agencies and private organizations, taught captive-bred Whooping Cranes a migration route from central Wisconsin to the Gulf Coast of Florida to establish a migratory population of Whooping Cranes in the eastern United States (Canadian Wildlife Service and U.S. Fish and Wildlife Service 2005). Most of the Eastern flock spends the summer nesting season on or around Necedah National Wildlife Refuge in central Wisconsin. Nests are typically situated within poorly drained, interspersed with numerous shallow-water wetlands, most with soft marl bottoms, that vary in size, shape, and depth (Urbanek and Lewis 2020). Currently, the birds occasionally stop during the fall and spring migrations in Indiana to rest and feed in wet meadows, sloughs and crop fields. In Indiana, whooping cranes are listed as state endangered (IDNR 2024b).

While Whooping Cranes may be observed in Indiana during fall and spring migration, nesting does not occur within the state. Further, the Project Area does not have any wet meadows, sloughs. Large amount of crop lands that would provide suitable stopover habitat were present. Therefore, AECOM opines a preliminary determination of not likely to affect.

5.6 Bald Eagle and Golden Eagle Protection Act

Habitat for the Bald Eagle (Haliaeetus leucocephalus) primarily consists of mature forest in proximity to large bodies of open water for foraging. Large, dominant trees are utilized for nesting sites, typically within one-mile of open water. The closest open water feature is the Wabash River. Based on eBird records; there are a number of Bald Eagle observations along the River during typical nesting/post-breeding months (March-July). Deciduous/mixed forest for potential Bald Eagle nest sites is within the Project Area, however no nest were identified during the survey.

5.7 State-Listed Species, Natural and Managed Areas

AECOM requested information from the Indiana Department of Natural Resources (IDNR) for threatened and endangered (T&E) species, natural areas, and exemplary natural communities within the general vicinity of the Project. AECOM is currently awaiting a response from the IDNR.

6.0 CONCLUSION AND RECOMMENDATIONS

AECOM conducted a survey of the approximately 143.22-acres of Project Area on June 11th-13th, and July 10th-11th, and this report has determined the following:

- It was determined that W-CMS-001, W-CMS-006, W-CMS-007, and W-CMS-008 within the Project Area appear to have jurisdictional connectivity to Waters of the U.S. (WOTUS) therefor making them WOTUS.
- It was determined that W-CMS-002, W-CMS-003, W-CMS-004, and W-CMS-005 within the Project Area appear to have no jurisdictional connectivity to Waters of the U.S. therefor making them Non-Waters of the U.S.
- It was determined that the intermittent stream S-CMS-043 within the Project Area appear to have jurisdictional connectivity to Waters of the U.S. (WOTUS) therefor making it WOTUS.
- Thirteen (13) ephemeral streams S-CMS-001, S-CMS-002, S-CMS-003, S-CMS-005, S-CMS-006, S-CMS-007, S-CMS-021, S-CMS-022, S-CMS-023, S-CMS-035, S-CMS-042, S-CMS-044 and S-CMS-045 appear to not have permanent, standing, or continuously flowing bodies of water therefor making them Non-Waters of the U.S.
- Approximately 0.42-acres of FEMA 100-year Floodplain is mapped within the Project Area.
- Summer (roosting) habitat for the two (2) federally endangered and one (1) proposed endangered bat species was identified within the Project Area or vicinity. The Project has provisionally been determined to have a may affect upon federally listed species. No critical habitat was identified within the vicinity of the Project.
- Flowering plants, such as goldenrod, milkweeds and aster species, were observed within the Project study area. Therefore, AECOMs opines a preliminary determination for the monarch butterfly of may affect.
- Large amount of crop lands that would provide suitable stopover habitat were present for whooping crane. Therefore, AECOM opines a preliminary determination of not likely to affect.
- Based on eBird records; there are a number of Bald Eagle observations along the River during typical nesting/post-breeding months (March-July). Deciduous/mixed forest for potential Bald Eagle nest sites is within the Project Area, however no nest were identified during the survey.
- Coordination with IDNR is pending.

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- USGS. 2022c. 7.5-minute Topographic Quadrangle for New Goshen, Indiana.

APPENDIX A Figures

Wabash Hydrogen Energy Center

Figure 1. Site Location USGS Topographic Map with FEMA/HUC Overlay

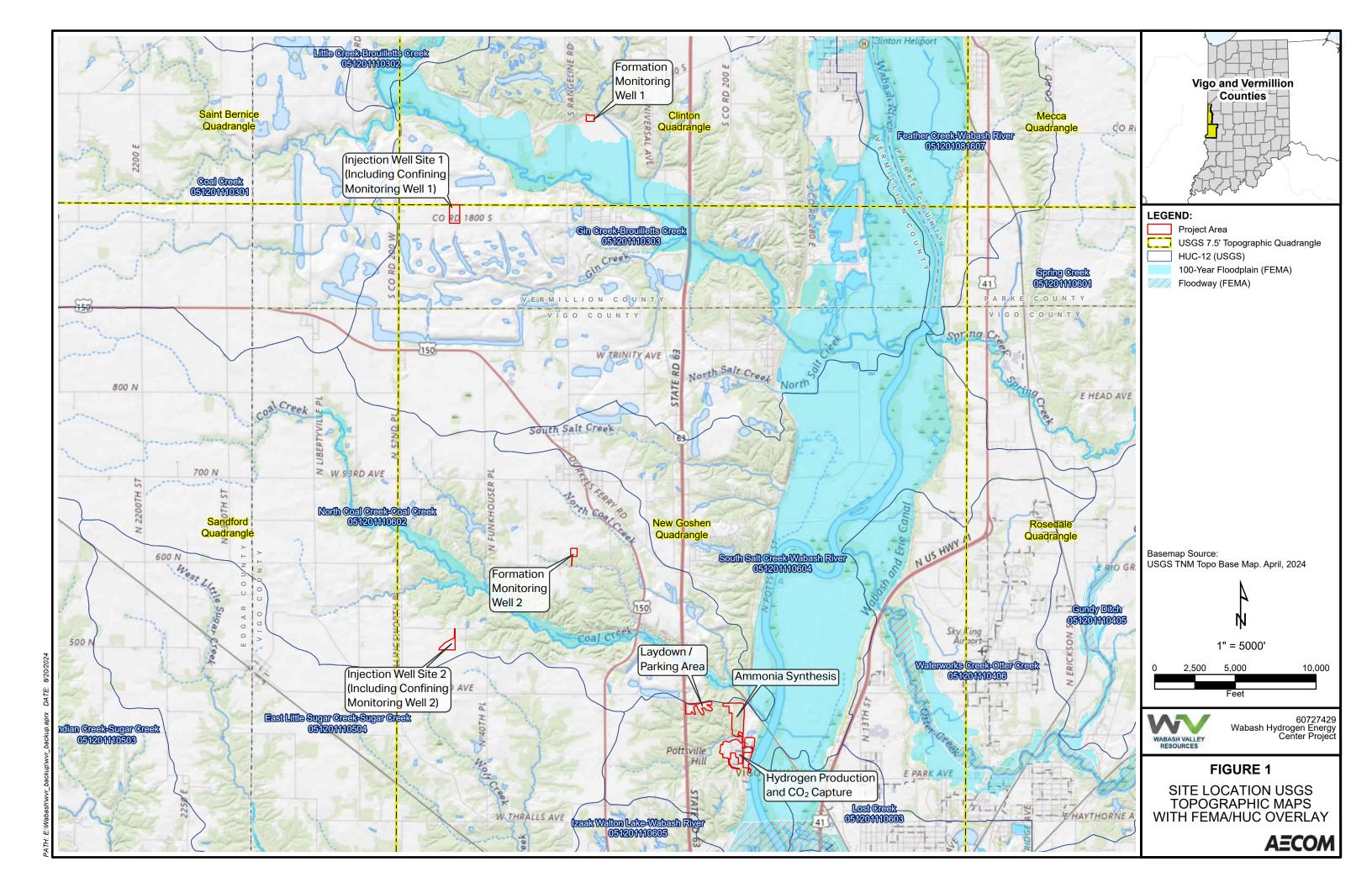


Figure 2A-F. Project Area Map





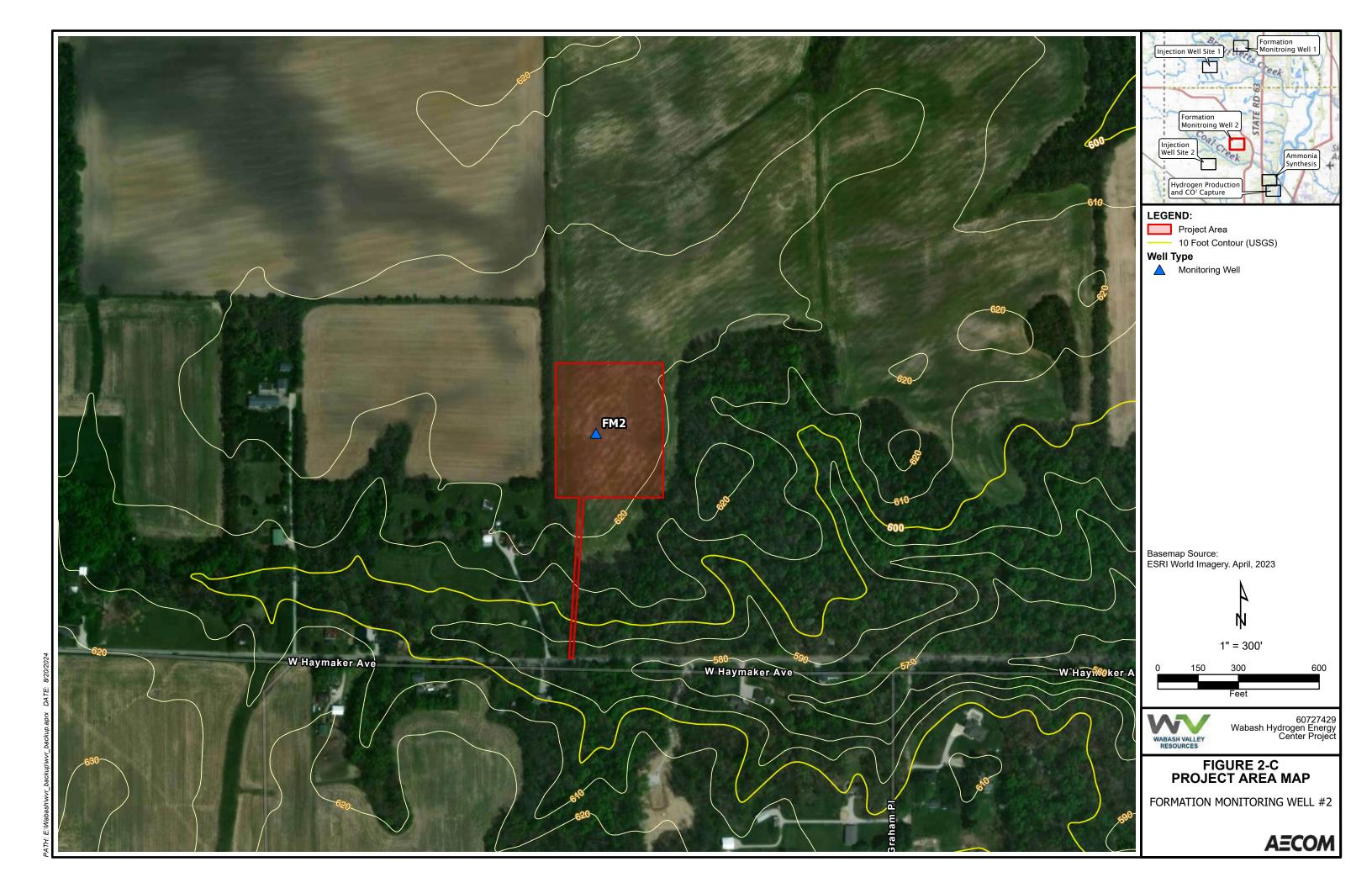


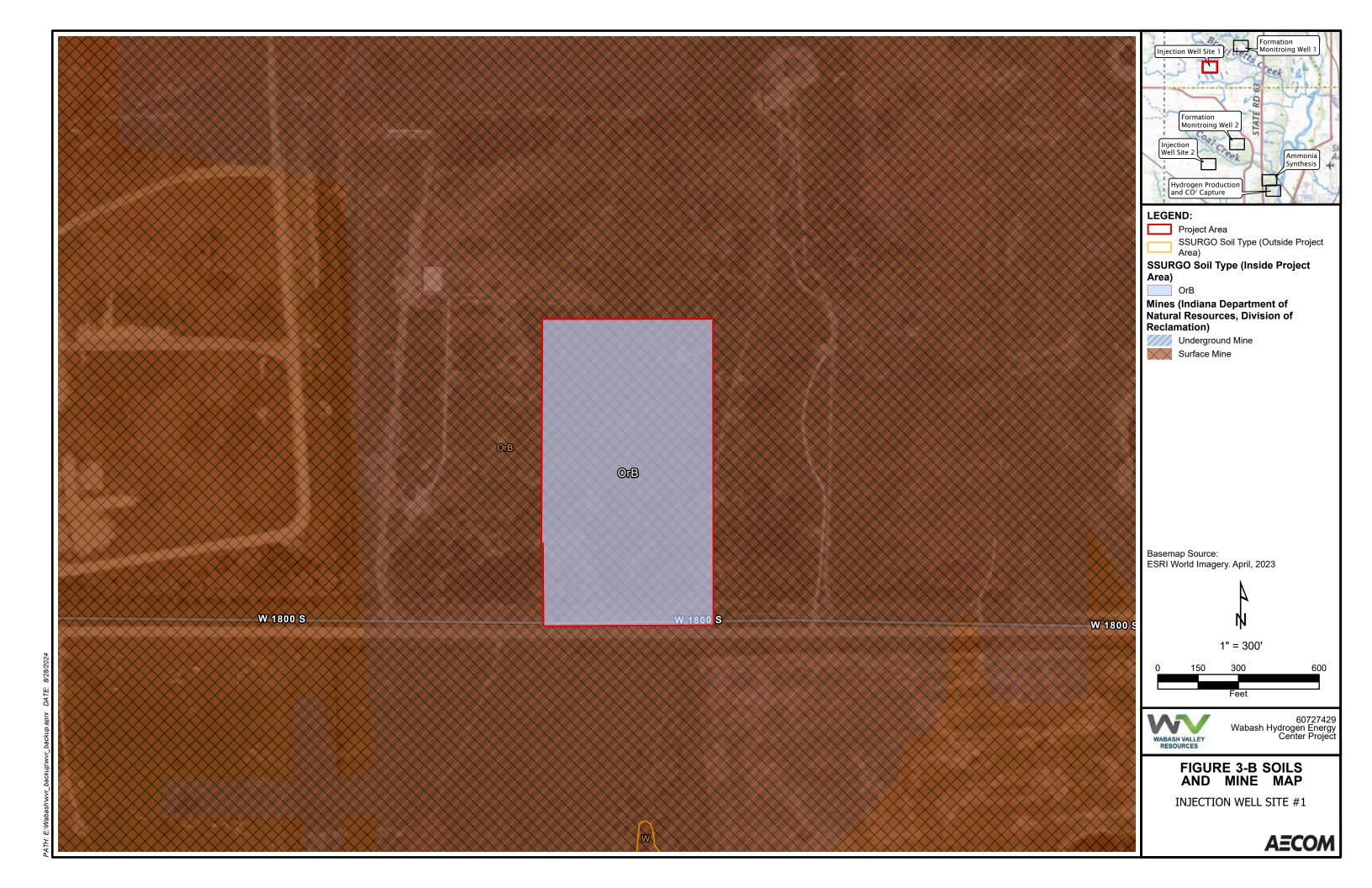


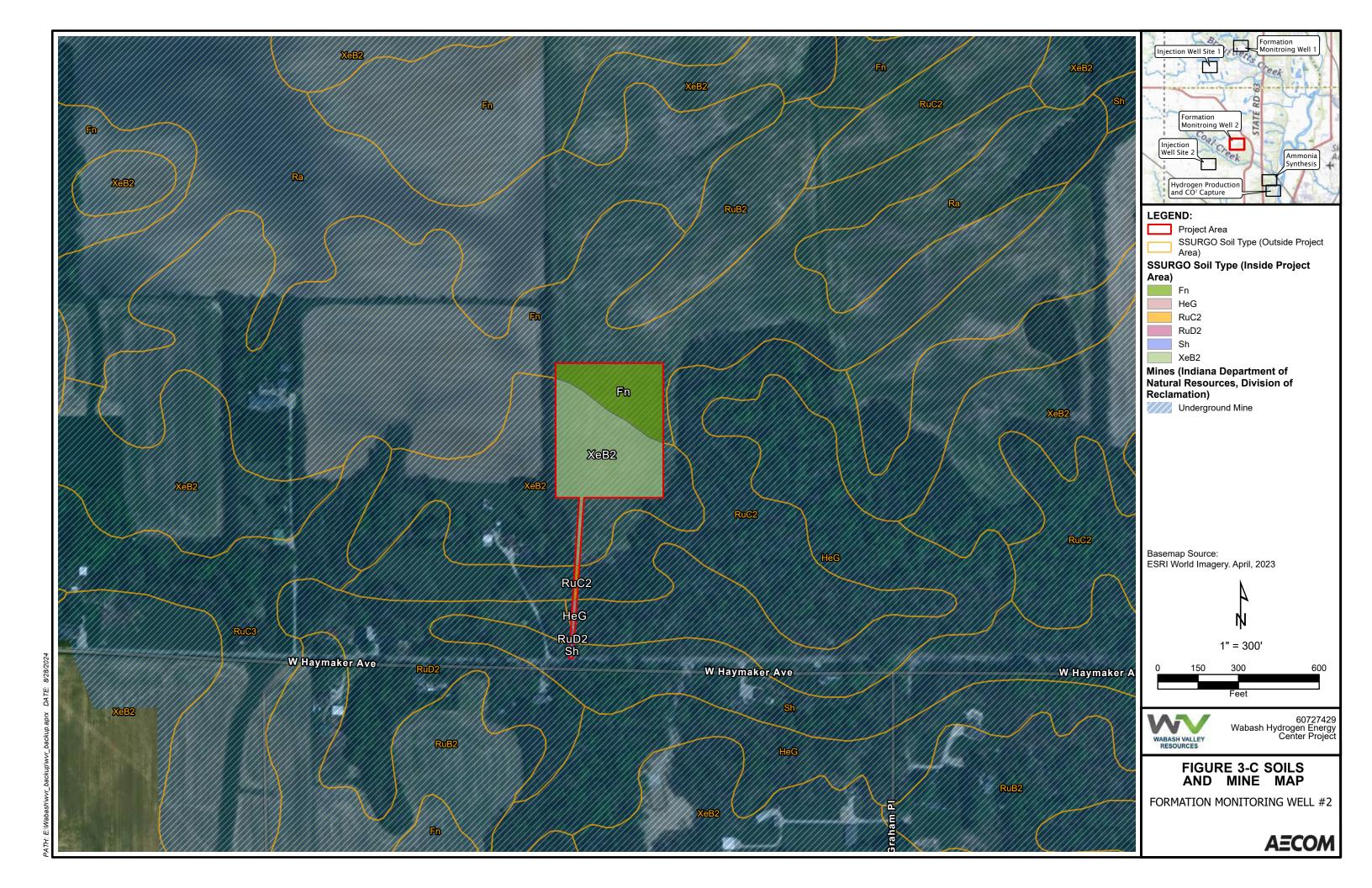




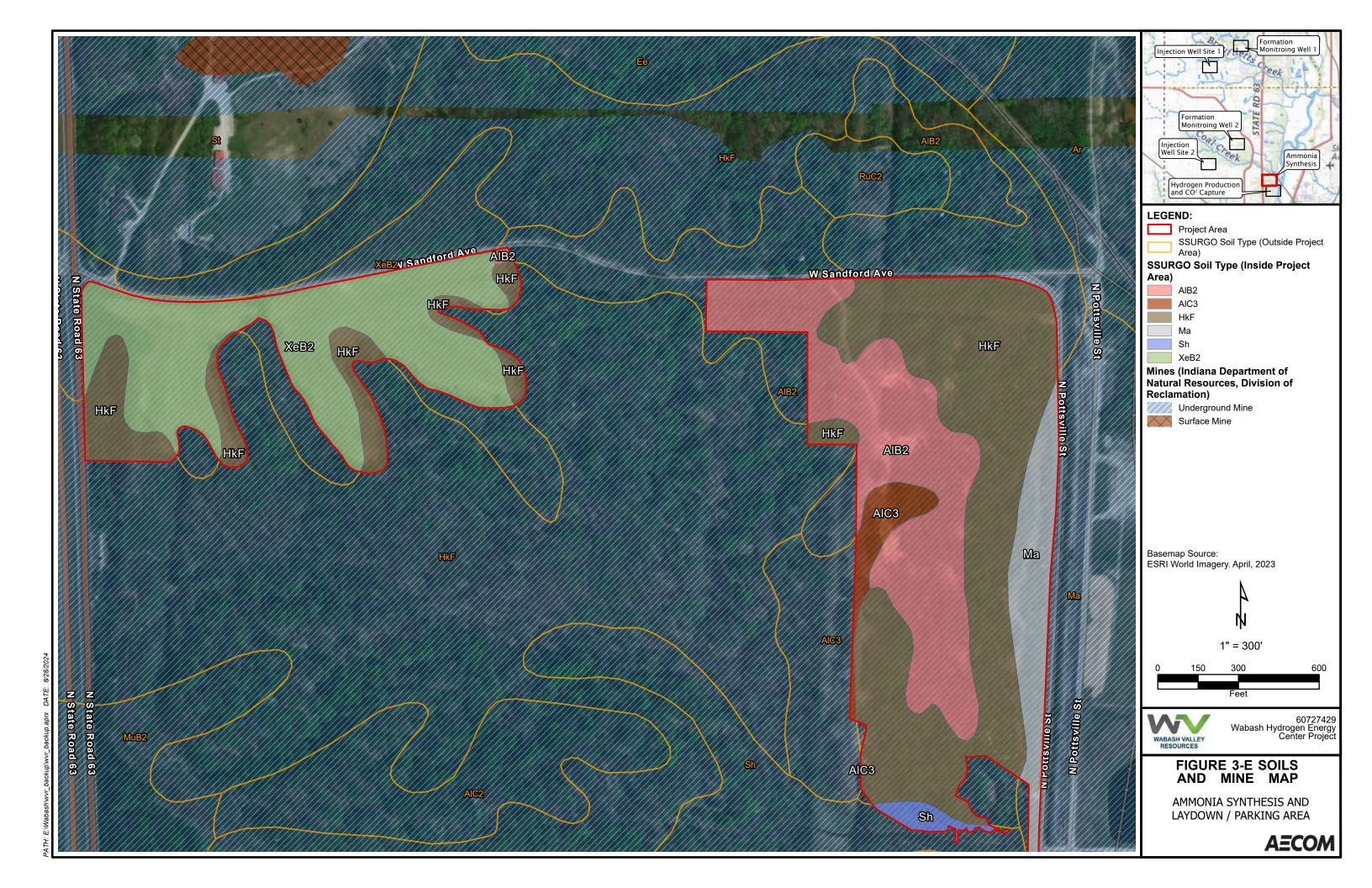
Figure 3A-F. Soils and Mine Map











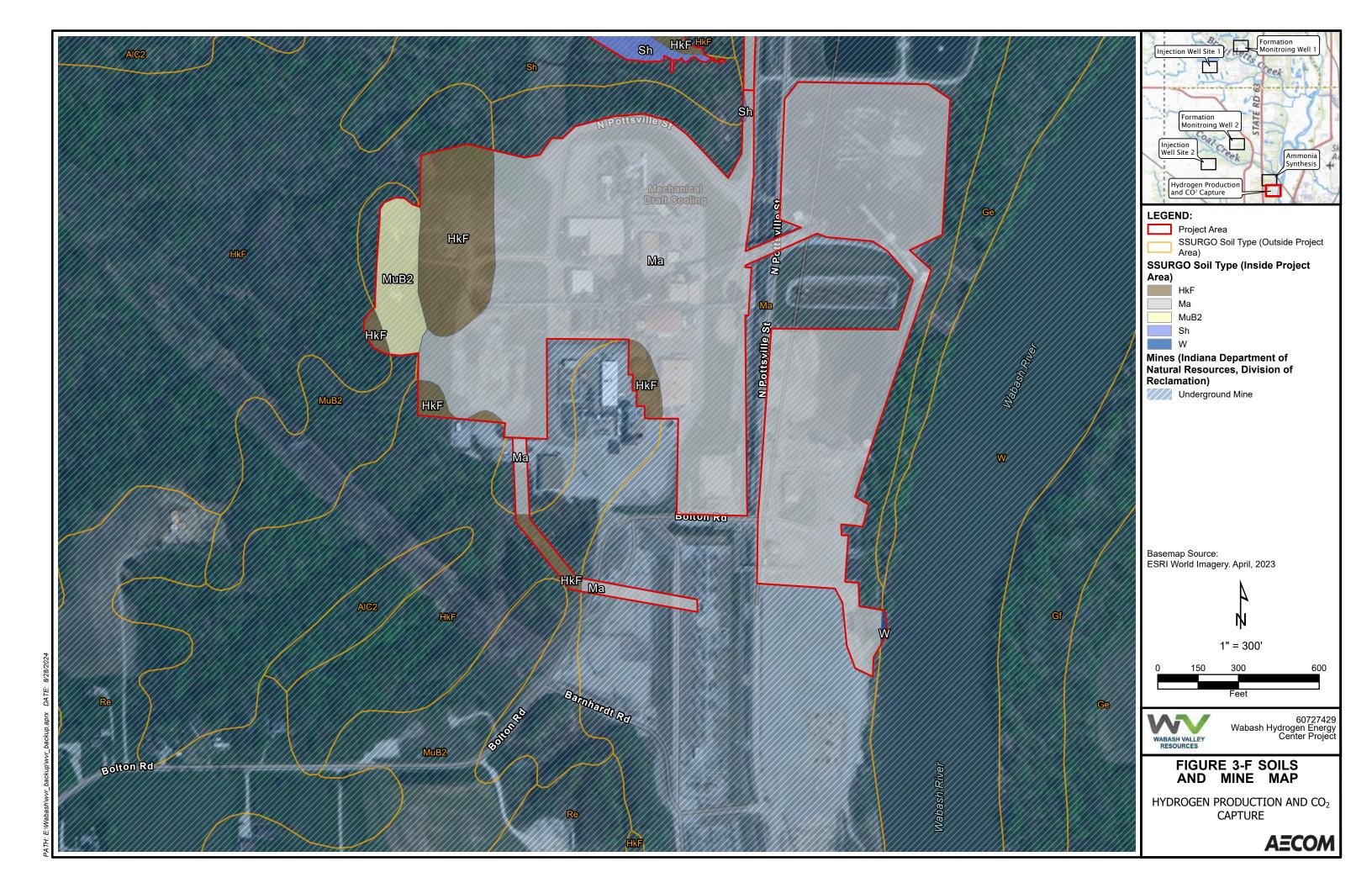
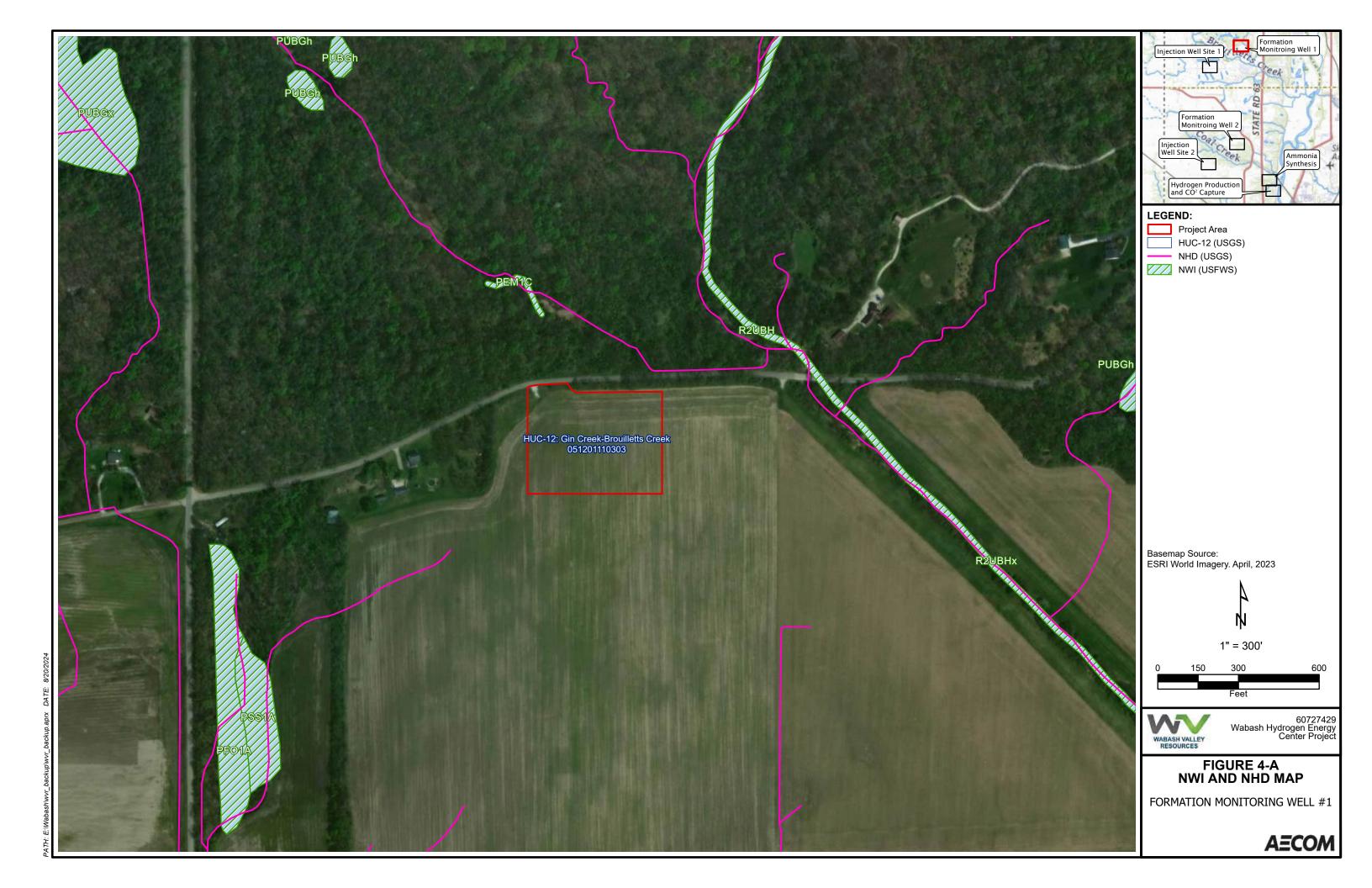
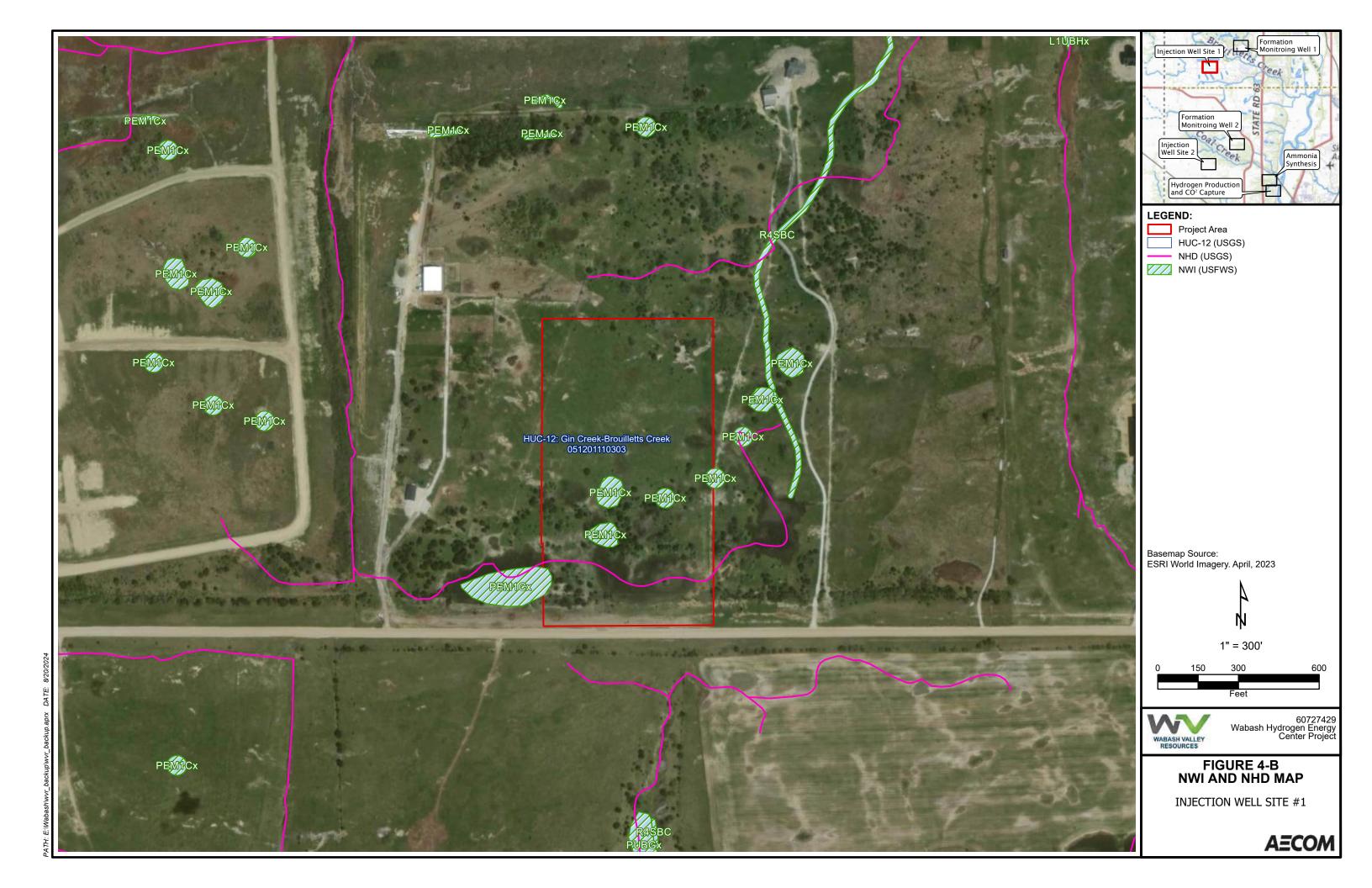
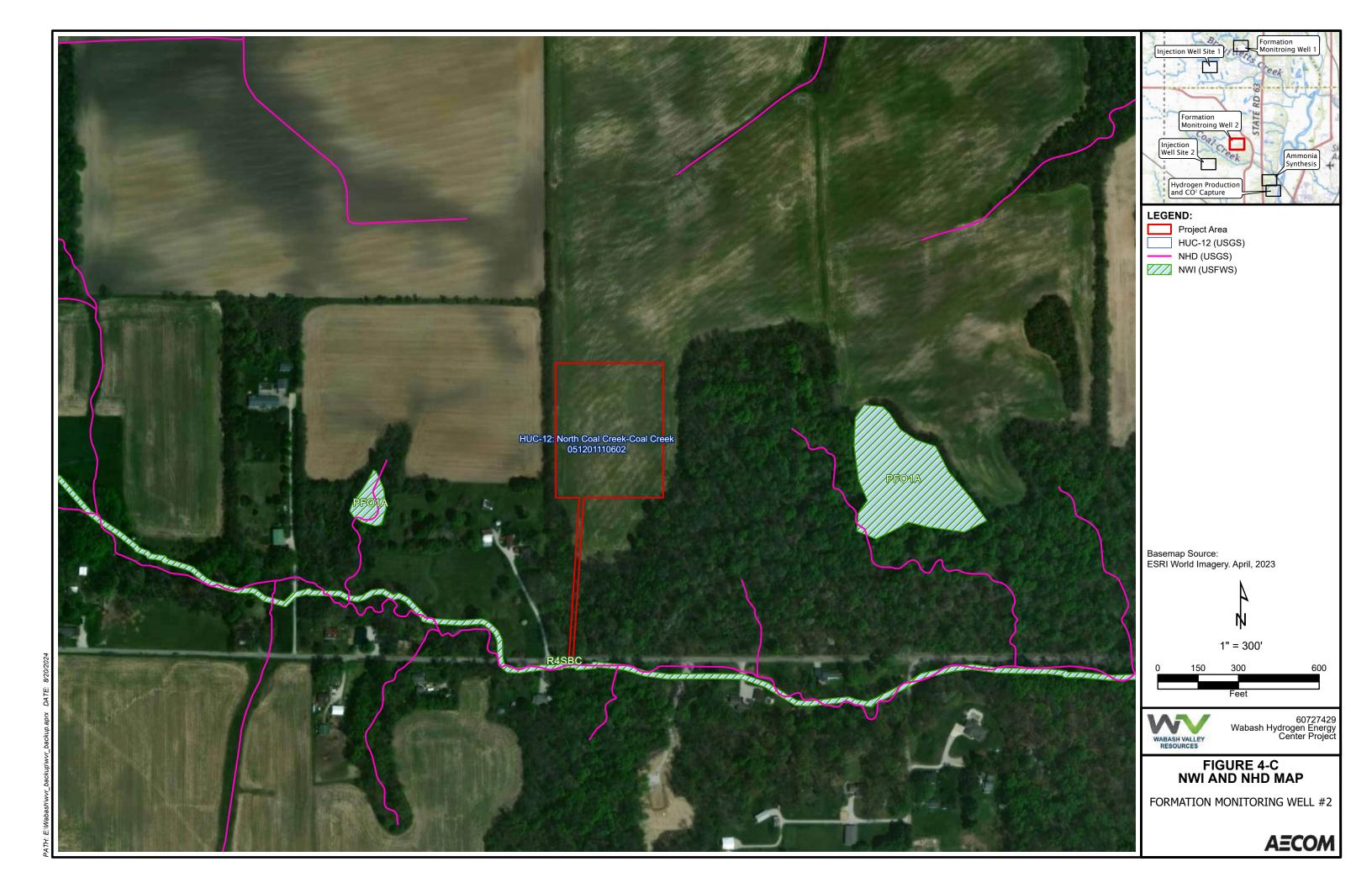


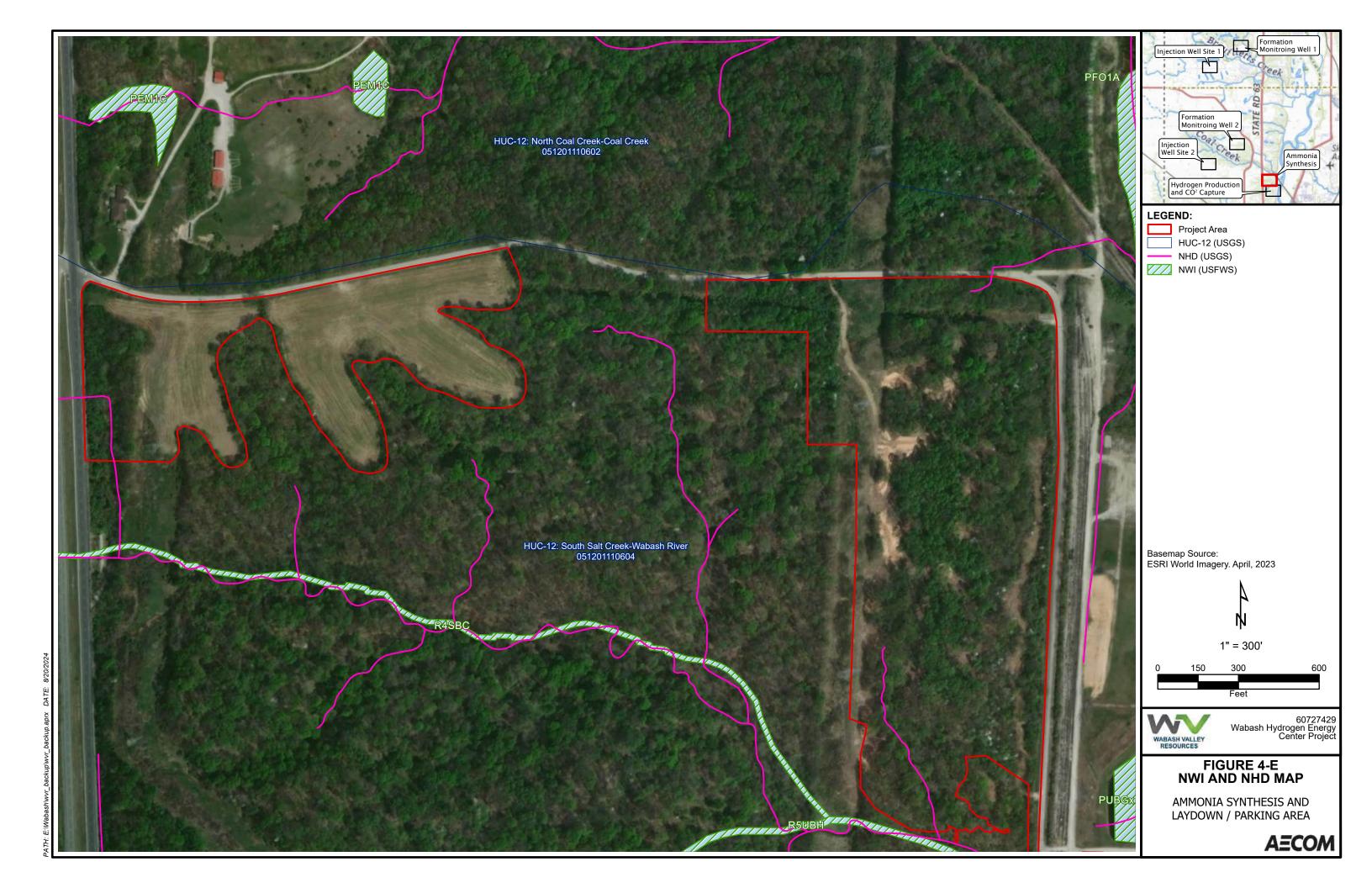
Figure 4A-F. NWI and NHD Map











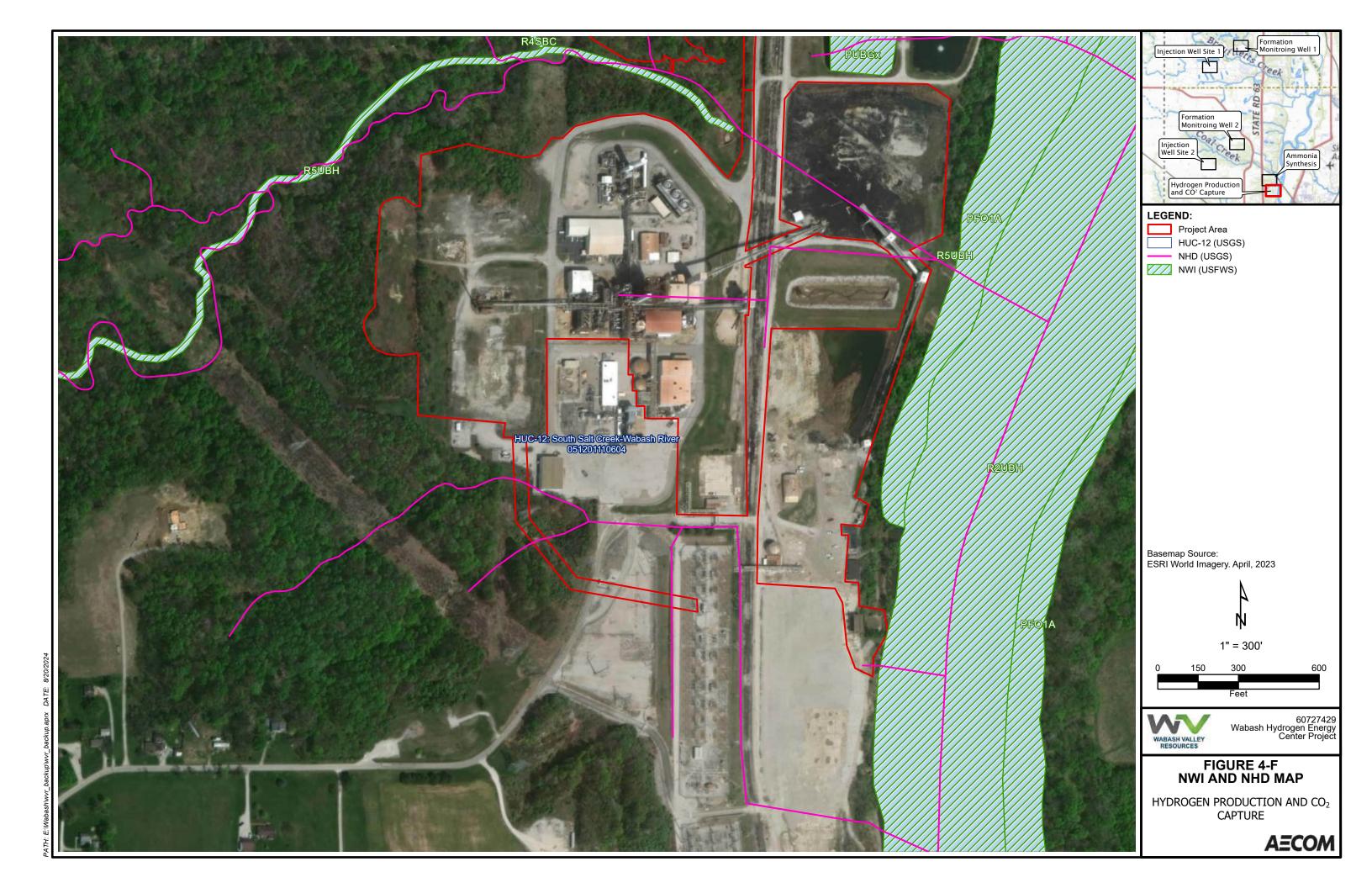
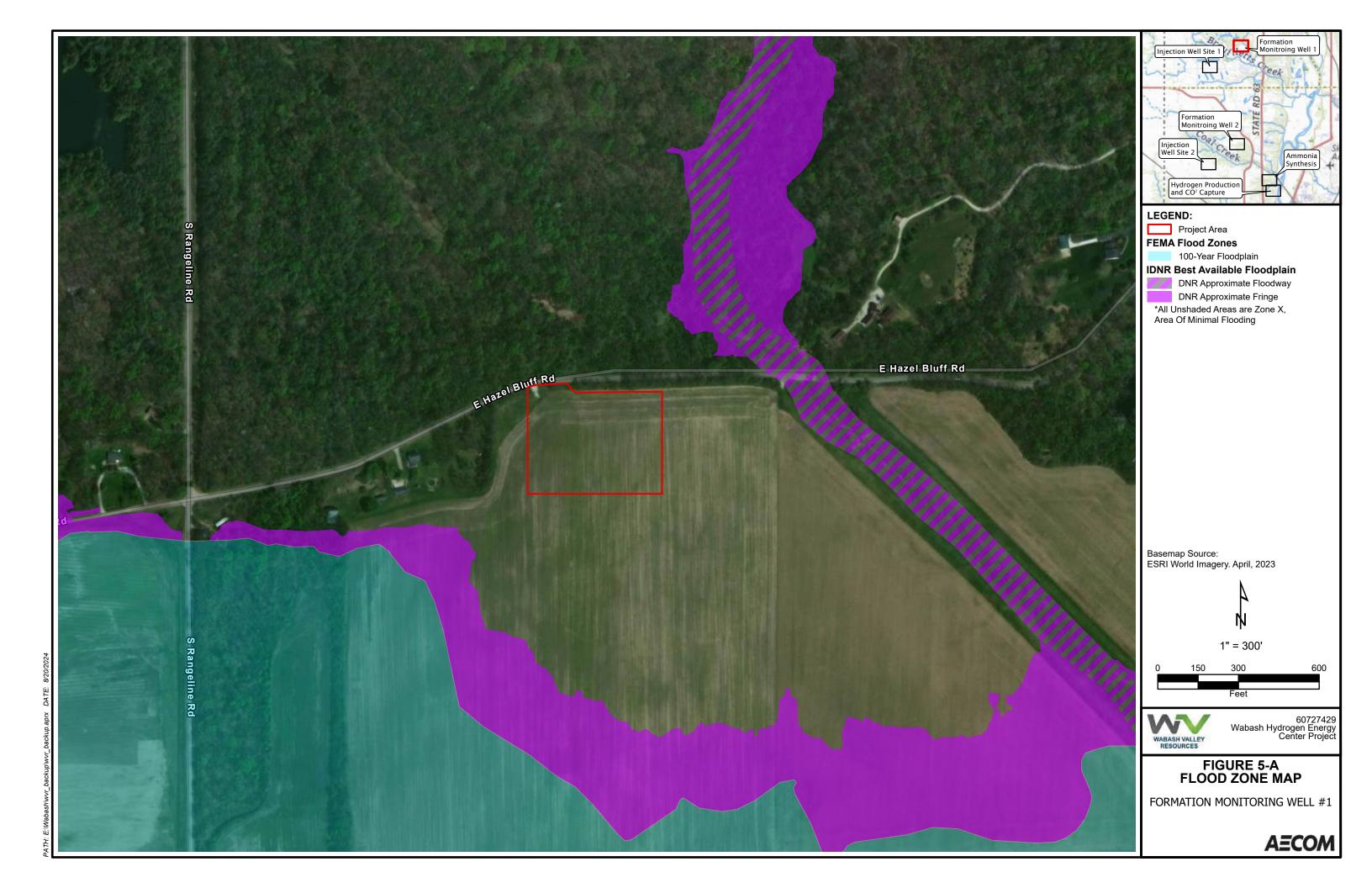


Figure 5A-F. Flood Zone Map











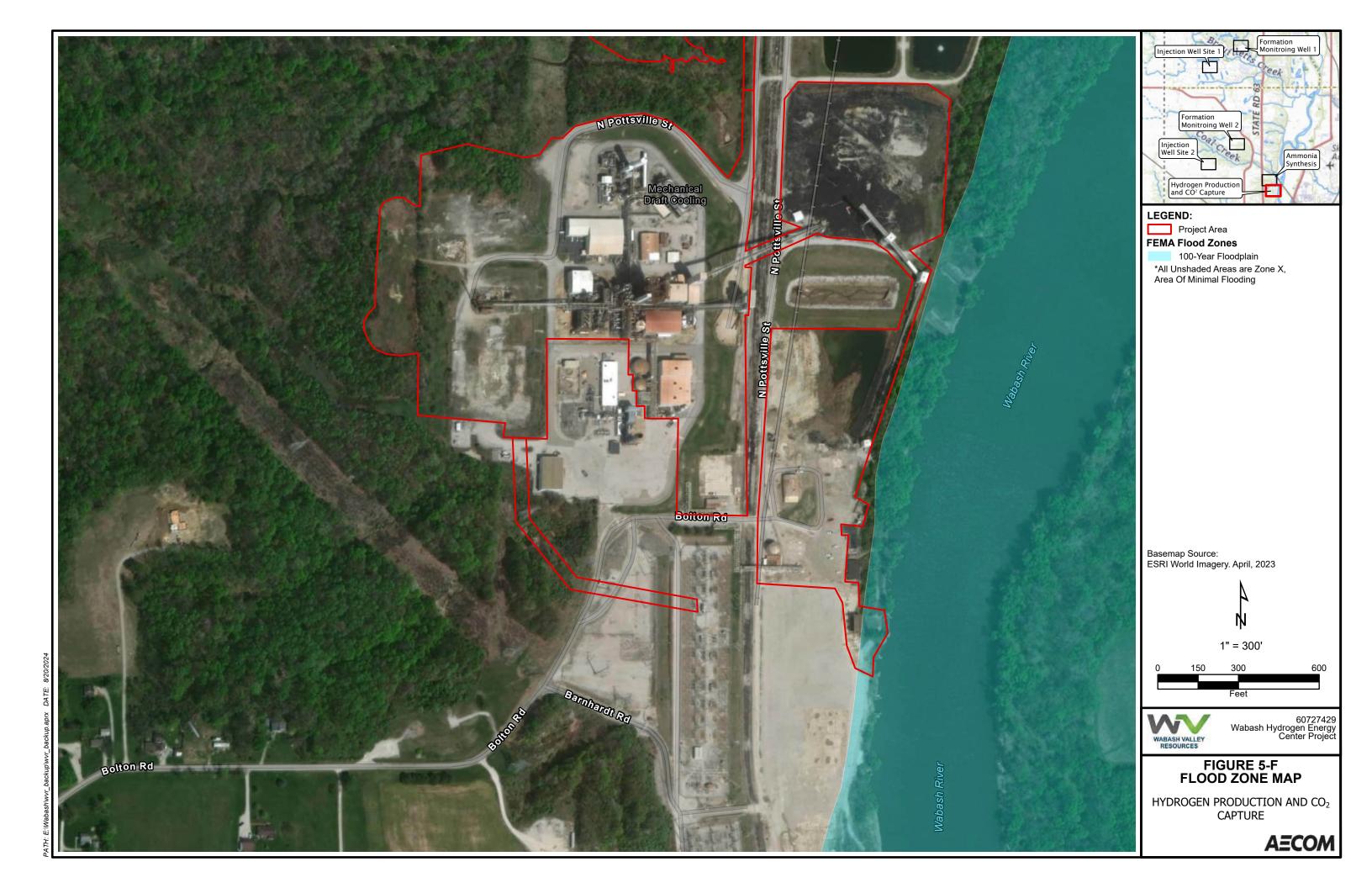


Figure 6A-F. Land Cover Map











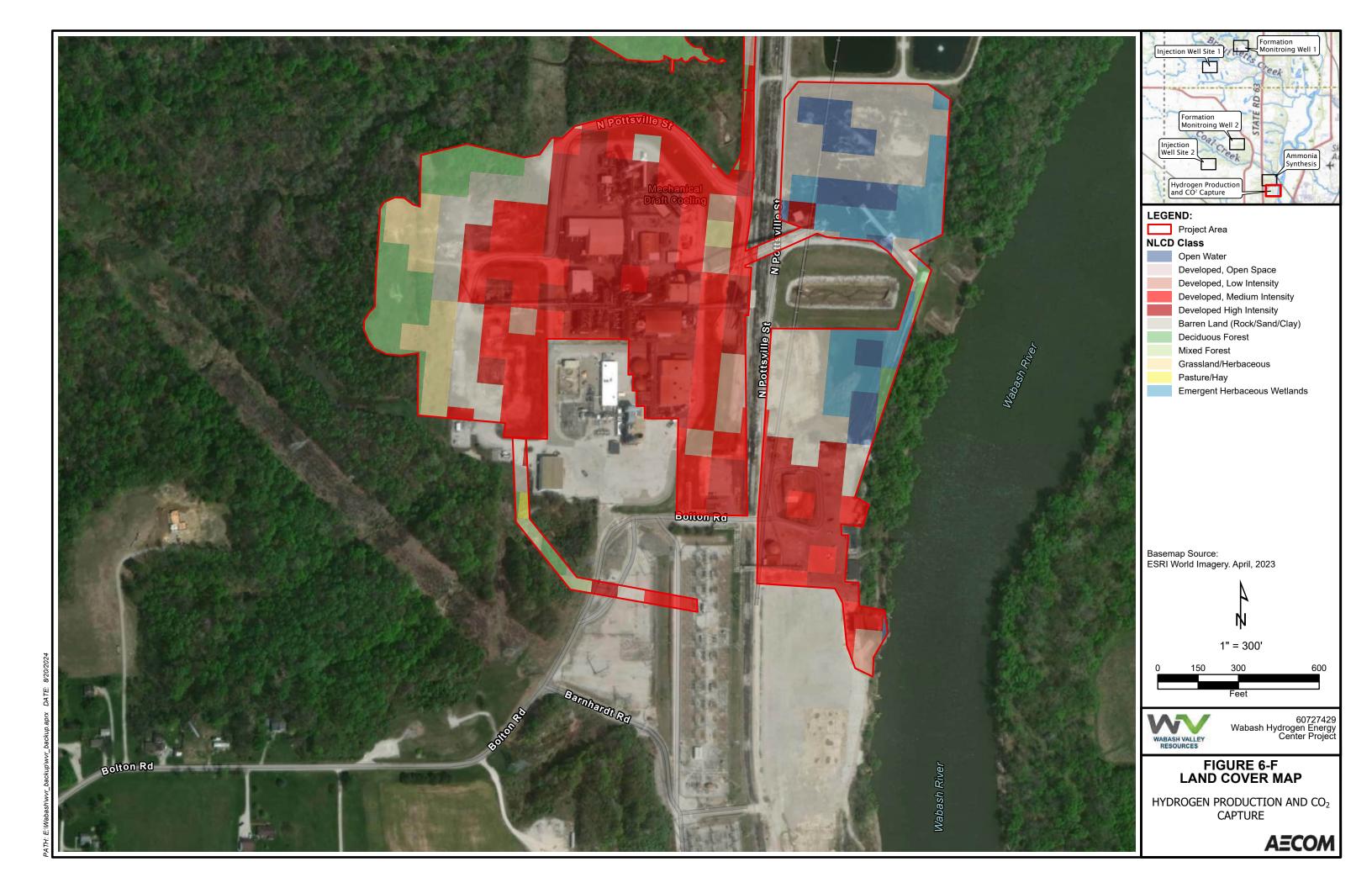


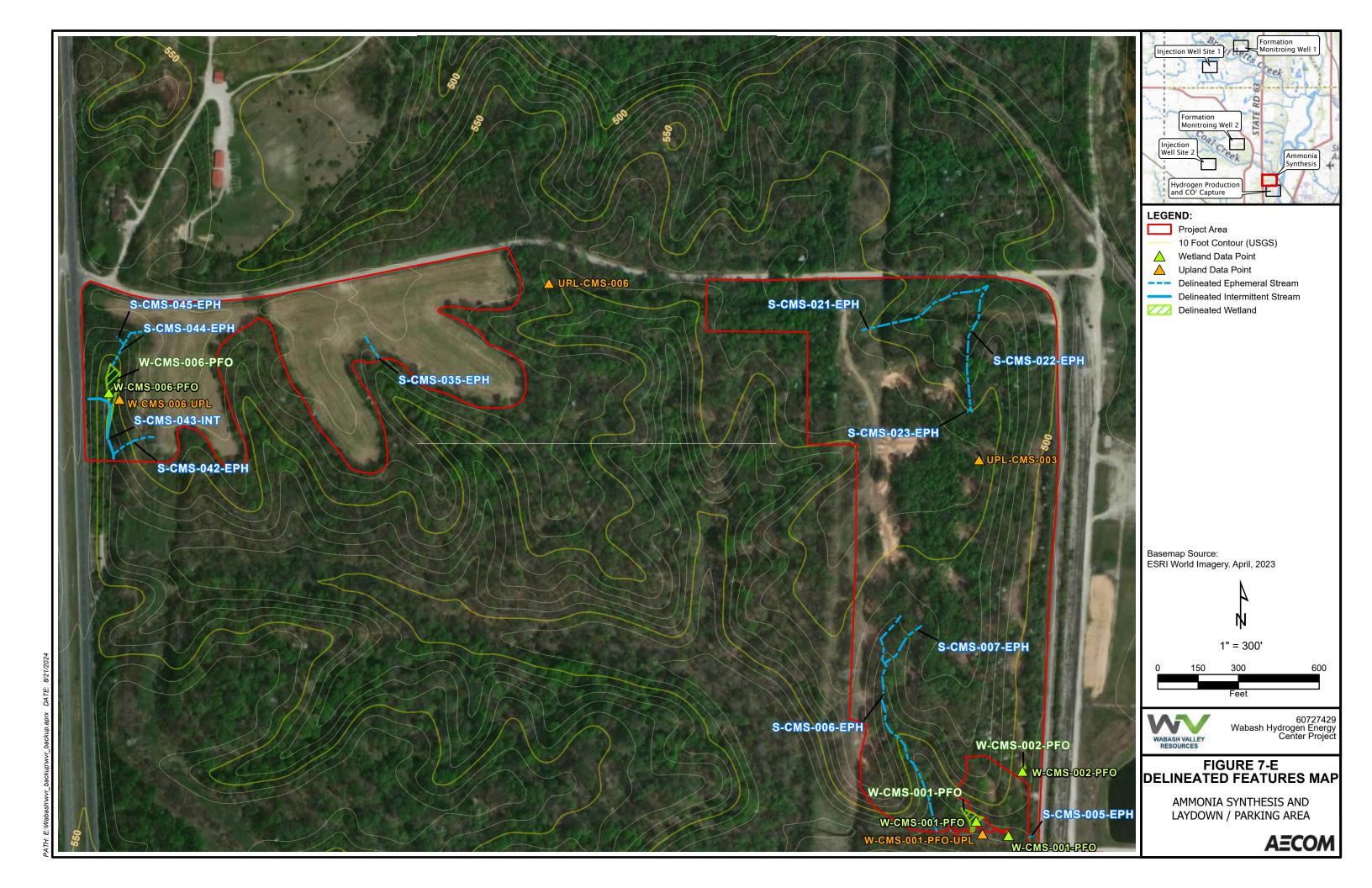
Figure 7A-F. Delineated Features Map

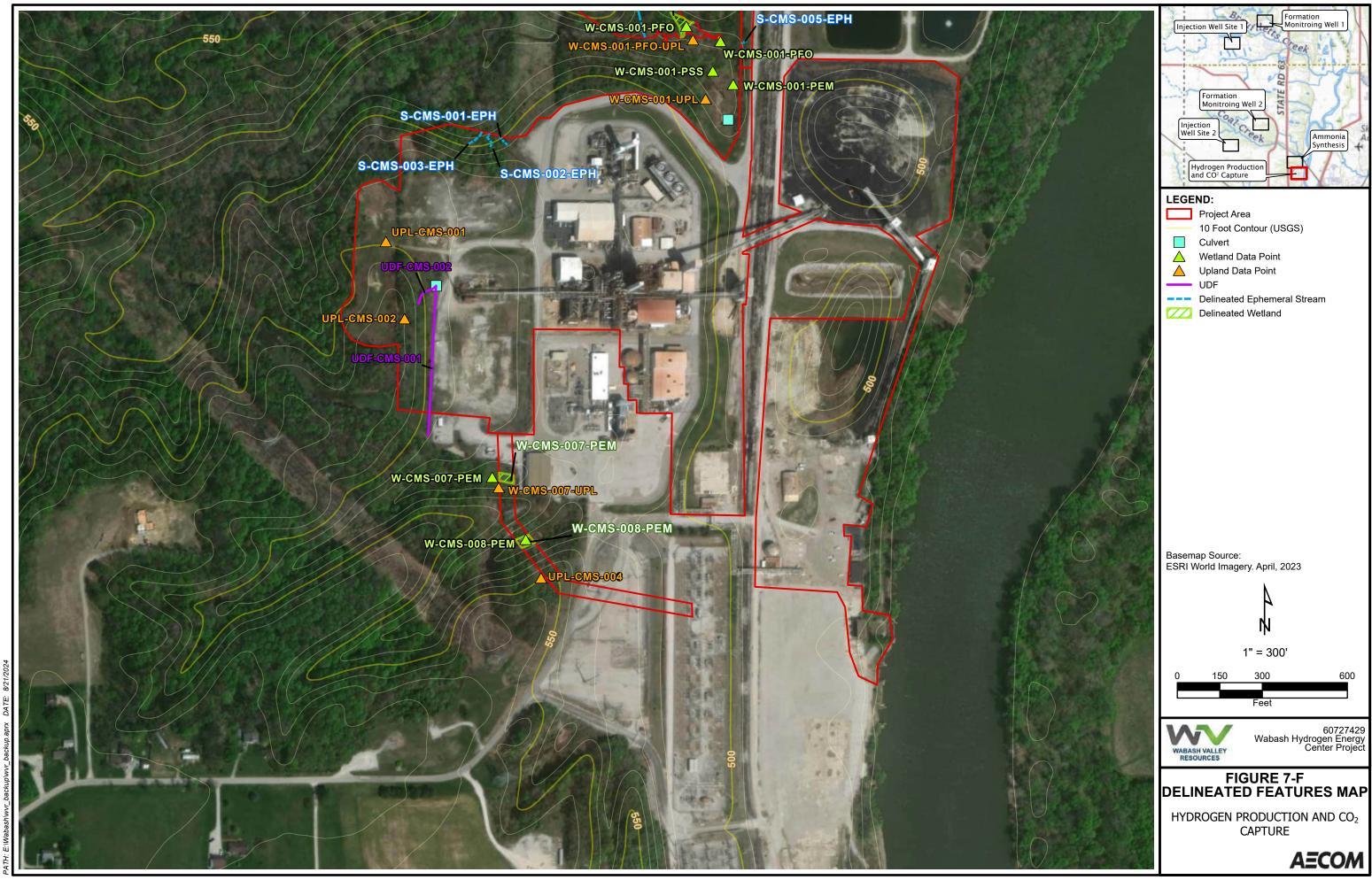












APPENDIX B USACE Data Forms and OEPA ORAM Forms

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Midwest Region

See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024 Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)

Project/Site: Wabash Hydrogen Energy Center		City/Cou	nty: Vigo		Sampling Date:	6/13/2024
Applicant/Owner: Wabash Valley Resources LLC				State: IN	Sampling Point:	W-CMS-001 PEM
Investigator(s): CMS, KB		Section, T	ownship, Ra	nge: S28 T13N R9W		
Landform (hillside, terrace, etc.): Floodplain				concave, convex, none):	Concave	
Slope (%): 7 Lat: 39.534397°			87.424188°	,	Datum: DDNAD 83	
Soil Map Unit Name: Sh: Shoals silt loam, 0 to 2 perce	ent slones fre			tion NWI classi	fication: NA	<u>′</u>
	-				-	
Are climatic / hydrologic conditions on the site typical		-	Yes	No X (If no, ex		V
Are Vegetation X, Soil X, or Hydrology X				Circumstances" present?		o_X_
Are Vegetation, Soil, or Hydrology	naturally prob	olematic? (If needed, ex	plain any answers in Re	marks.)	
SUMMARY OF FINDINGS – Attach site m	ap showir	ng samplin	g point lo	cations, transects	, important fea	tures, etc.
Hydrophytic Vegetation Present? Yes X N	0	Is the	Sampled A	rea		
	<u> </u>		a Wetland		No	
Wetland Hydrology Present? Yes X N						
Remarks:		<u> </u>				
PEM portion of a PEM/PSS/PFO complex. This portion	on of the wetl	and was histo	rically disturb	ed when stream erosion	measures were ins	stalled.
Antecedent Precipitation Tool Drought Index as mild	drought.					
VEGETATION - Use scientific names of pla	ants.					
	Absolute	Dominant	Indicator			
Tree Stratum (Plot size: 30')	% Cover	Species?	Status	Dominance Test wo	rksheet:	
1				Number of Dominant	•	4 (4)
2.				Are OBL, FACW, or I		4 (A)
3. 4.				Total Number of Dom Across All Strata:	inant Species	4 (B)
5.						4 (B)
·		=Total Cover		Percent of Dominant Are OBL, FACW, or I	•	0.0% (A/B)
Sapling/Shrub Stratum (Plot size: 15'	, ——	- Total Covol		7110 002,171011, 011	, to:	(112)
Platanus occidentalis	4	Yes	FACW	Prevalence Index w	orksheet:	
Ulmus americana	2	Yes	FACW	Total % Cover o		/ by:
3. Acer negundo	2	Yes	FAC	OBL species 6	0 x 1 =	60
4.				FACW species 2	8 x 2 =	56
5				FAC species	7 x 3 =	21
	8	=Total Cover		FACU species	1 x 4 =	4
Herb Stratum (Plot size: 5')				· -		20
Carex lurida	50	Yes	OBL			161 (B)
2. Phalaris arundinacea	10	No	FACW	Prevalence Index	= B/A = <u>1.61</u>	<u> </u>
3. Cinna arundinacea	5	No No	FACW	Harden and a Manager		
4. Scirpus atrovirens	5	No No	OBL	Hydrophytic Vegeta		
5. Lysimachia nummularia	<u>5</u> 5	No No	FACW	-	Hydrophytic Veget	ation
Salix nigra Populus deltoides	5	No No	OBL FAC	X 2 - Dominance To		
8. Daucus carota	4	No	UPL		Adaptations ¹ (Prov	vide supporting
9. Verbena hastata	2	No	FACW		ks or on a separate	
10. Lonicera japonica	1	No	FACU		ophytic Vegetation ¹	
. 0. 20/1/06/74 / Japos 111/04		=Total Cover		¹ Indicators of hydric s		
Woody Vine Stratum (Plot size: 30')			be present, unless dis		
1.				Hydrophytic	-	
2.				Vegetation		
		=Total Cover			X No	_
Remarks: (Include photo numbers here or on a sepa	rate sheet.)					
, , ,	,					

SOIL Sampling Point: w-cms-001 PEM

_	Matrix		Redo	ox Featur	es			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-6	10YR 4/1	90	7.5R 5/6	_10	С	M	Loamy/Clayey	
	_							
								
								
<u>_</u>								
Type: C=Con-	centration, D=Depl	letion, RM	=Reduced Matrix, I	MS=Masl	ked Sand	d Grains.	² Location	: PL=Pore Lining, M=Matrix.
Hydric Soil Ind	dicators:						Indicator	s for Problematic Hydric Soils ³ :
Histosol (A	1)		Sandy Gle	eyed Matı	rix (S4)		Iron-N	Manganese Masses (F12)
Histic Epipe	edon (A2)		Sandy Re	dox (S5)				Parent Material (F21)
Black Histic	c (A3)		Stripped N	∕latrix (S6	5)		Very	Shallow Dark Surface (F22)
Hydrogen S	Sulfide (A4)		Dark Surfa	ace (S7)			Other	(Explain in Remarks)
Stratified L	ayers (A5)		Loamy Μι	ucky Mine	eral (F1)			
2 cm Muck	,		Loamy Gl	-				
Depleted B	elow Dark Surface	e (A11)	X Depleted	Matrix (F	3)		_	
	Surface (A12)		Redox Da	rk Surfac	e (F6)		³ Indicator	s of hydrophytic vegetation and
	ky Mineral (S1)		Depleted		` '			nd hydrology must be present,
5 cm Muck	y Peat or Peat (S3	3)	X Redox De	pressions	s (F8)		unles	s disturbed or problematic.
Restrictive La	yer (if observed):							
Type:	gravel							
Depth (inches): 6							Hydria Sail Bracant	? Yes X No
Remarks:	<u></u>		l encountered at 6	inches.			Hydric Soil Present	: 163 <u>/</u> NO
Remarks: Multiple hydric	indicators present.		l encountered at 6	inches.			nyunc son Present	: 163 <u>X</u> NO
Remarks: Multiple hydric	indicators present.		l encountered at 6	inches.			nyunc son Present	: 163 <u>X</u> NO
Remarks: Multiple hydric IYDROLOG Wetland Hydro	indicators present. Y plogy Indicators:	. Gravel fil						
Remarks: Multiple hydric IYDROLOG Wetland Hydro Primary Indicat	indicators present. Y plogy Indicators: ors (minimum of o	. Gravel fil	ired; check all that	apply)			<u>Secondar</u>	y Indicators (minimum of two require
Remarks: Multiple hydric IYDROLOG Wetland Hydro Primary Indicat Surface Wa	indicators present. iY blogy Indicators: cors (minimum of o	. Gravel fil	ired; check all that Water-Sta	apply) ained Lea			Secondar	y Indicators (minimum of two require ce Soil Cracks (B6)
Remarks: Multiple hydric IYDROLOG Wetland Hydro Primary Indicat Surface Wa High Watel	indicators present. iY blogy Indicators: cors (minimum of o ater (A1) r Table (A2)	. Gravel fil	ired; check all thatWater-Sta	apply) ained Lea auna (B1:	3)		Secondar Surfa Drain	y Indicators (minimum of two require ce Soil Cracks (B6) age Patterns (B10)
Remarks: Multiple hydric IYDROLOG Wetland Hydro Primary Indicat Surface Wa High Water Saturation	indicators present. SY Diogy Indicators: cors (minimum of o ater (A1) r Table (A2) (A3)	. Gravel fil	ired; check all thatWater-StaAquatic Fa	apply) ained Lea auna (B1 atic Plant:	3) s (B14)		Secondar Surfa Drain Dry-S	y Indicators (minimum of two require ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2)
Remarks: Multiple hydric IYDROLOG Wetland Hydro Primary Indicat Surface Wa High Water Saturation Water Marl	indicators present. SY Dlogy Indicators: cors (minimum of o ater (A1) r Table (A2) (A3) ks (B1)	. Gravel fil	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen	apply) nined Lea auna (B1: atic Plants Sulfide C	3) s (B14) Odor (C1)		Secondar Surfa Drain Dry-S	y Indicators (minimum of two require ce Soil Cracks (B6) age Patterns (B10) deason Water Table (C2) dish Burrows (C8)
Nultiple hydric IYDROLOG Wetland Hydro Primary Indicat Surface Wa High Water Saturation Water Mark Sediment [indicators present. iY plogy Indicators: ors (minimum of orater (A1) r Table (A2) (A3) ks (B1) Deposits (B2)	. Gravel fil	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F	apply) nined Lea auna (B1: atic Plants Sulfide C Rhizosph	3) s (B14) Odor (C1) eres on l	_iving Ro	Secondar Surfa Drain Dry-S Crayf	y Indicators (minimum of two require ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) ish Burrows (C8) ation Visible on Aerial Imagery (C9)
Nultiple hydric IYDROLOG Wetland Hydro Primary Indicat Surface Watel High Watel Saturation Water Mark Sediment I Drift Depos	indicators present. iy blogy Indicators: cors (minimum of of ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3)	. Gravel fil	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa	apply) ained Lea auna (B1: atic Plants Sulfide C Rhizosphoof Reduce	3) s (B14) Odor (C1) eres on l ced Iron (_iving Ro [C4)	Secondar Surfa Drain Dry-S Crayf Soots (C3) Stunt	y Indicators (minimum of two require ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) ish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1)
Remarks: Multiple hydric Netland Hydro Primary Indicat Surface Water High Water Saturation Water Mark Sediment D Drift Depos Algal Mat c	indicators present. blogy Indicators: cors (minimum of orater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) bits (B3) or Crust (B4)	. Gravel fil	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro	apply) ained Lea auna (B1: atic Plant: Sulfide C Rhizosph of Reduc	3) s (B14) Odor (C1) eres on Led Iron (tion in Ti	_iving Ro [C4)	Secondar	y Indicators (minimum of two require ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) ish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2)
Remarks: Multiple hydric IYDROLOG Wetland Hydro Primary Indicat Surface Wa High Watel Saturation Water Marl Sediment E Drift Depos Algal Mat o Iron Depos	indicators present. blogy Indicators: cors (minimum of of ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) its (B5)	. Gravel fil	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro	apply) ained Lea auna (B1: atic Plant: Sulfide C Rhizosph of Reduc on Reduc	3) s (B14) Odor (C1) eres on Led Iron (tion in Ti	_iving Ro [C4)	Secondar	y Indicators (minimum of two require ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) ish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1)
Remarks: Multiple hydric IYDROLOG Wetland Hydro Primary Indicat Surface Wa High Water Saturation Water Mark Sediment I Drift Depos Algal Mat of Iron Depos Inundation	indicators present. FY Plogy Indicators: ors (minimum of orater (A1) or Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) its (B5) Visible on Aerial Ir	ne is requ	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 7) Gauge or	apply) ained Lea auna (B1: Sulfide C Rhizosph of Reduc on Reduc c Surface Well Date	3) s (B14) Odor (C1) eres on L ed Iron (tion in Ti (C7) a (D9)	_iving Ro [C4)	Secondar	y Indicators (minimum of two require ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) ish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2)
Remarks: Multiple hydric IYDROLOG Wetland Hydro Primary Indicat Surface Wa High Water Saturation Water Marl Sediment E Drift Depos Algal Mat of Iron Depos Inundation Sparsely V	indicators present. iY clogy Indicators: cors (minimum of of ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) its (B5) Visible on Aerial Ir egetated Concave	ne is requ	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro	apply) ained Lea auna (B1: Sulfide C Rhizosph of Reduc on Reduc c Surface Well Date	3) s (B14) Odor (C1) eres on L ed Iron (tion in Ti (C7) a (D9)	_iving Ro [C4)	Secondar	y Indicators (minimum of two require ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) ish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2)
Remarks: Multiple hydric IYDROLOG Wetland Hydro Primary Indicat Surface Wa High Water Saturation Water Mark Sediment E Drift Depos Algal Mat of Iron Depos Inundation Sparsely V Field Observa	indicators present. iy plogy Indicators: ors (minimum of orater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) its (B5) Visible on Aerial Ir egetated Concave tions:	ne is requesting magery (B	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 7) Gauge or B8) X Other (Exp	apply) ained Lea auna (B1: atic Plant: Sulfide C Rhizosphiof Reduce on Reduce Surface Well Dati	3) s (B14) Odor (C1) eres on Led Iron (tion in Ti (C7) a (D9) emarks)	_iving Ro [C4)	Secondar	y Indicators (minimum of two require ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) ish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2)
Remarks: Multiple hydric IYDROLOG Wetland Hydro Primary Indicat Surface Water Saturation Water Marl Sediment I Drift Depose Algal Mater Iron Depose Inundation Sparsely V Field Observa Surface Water	indicators present. iy plogy Indicators: ors (minimum of orater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) Visible on Aerial Ir egetated Concave tions: Present? Ye	ne is requesting magery (B	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 7) Gauge or B8) X Other (Ex	apply) ained Lea auna (B1: atic Plant: Sulfide C Rhizosph of Reduc on Reduc c Surface Well Data plain in R	s (B14) Ddor (C1) eres on L ed Iron (tion in Ti (C7) a (D9) emarks)	_iving Ro [C4)	Secondar	y Indicators (minimum of two require ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) ish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2)
Remarks: Multiple hydric IYDROLOG Wetland Hydro Primary Indicat Surface Water Saturation Water Mark Sediment I Drift Depos Algal Mat of Iron Depos Inundation Sparsely V Field Observa Surface Water Water Table Primary Indicate	indicators present. FY Plogy Indicators: Prose (minimum of or other (A1) Proposits (A2) Proposits (B2) Proposits (B3) Proposits (B4) Propos	ne is requested fillowed magery (Baseline Surface (Same Su	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 7) Gauge or B8) X Other (Ex	apply) ained Lea auna (B1: atic Plant: Sulfide C Rhizosphi of Reduct on Reduct Surface Well Data plain in R Depth (iii	s (B14) Odor (C1) eres on L ed Iron (tion in Ti (C7) a (D9) emarks) nches): _ nches): _	_iving Ro [C4)	Secondar Surfa Drain Dry-S Crayf Satur Stunt S (C6) X Geon X FAC-	y Indicators (minimum of two require ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) ish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2) Neutral Test (D5)
Remarks: Multiple hydric IYDROLOG Wetland Hydro Primary Indicat Surface Wa High Water Saturation Water Mark Sediment I Drift Depos Algal Mat of Iron Depos Inundation Sparsely V Field Observa Surface Water Water Table President Presi	indicators present. FY Clogy Indicators: FORCE (MINIMUM of of other (A1) FORCE (A2) FORCE (A3) FO	ne is requested fillowed magery (Baseline Surface (Same Su	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 7) Gauge or B8) X Other (Ex	apply) ained Lea auna (B1: atic Plant: Sulfide C Rhizosph of Reduc on Reduc c Surface Well Data plain in R	s (B14) Odor (C1) eres on L ed Iron (tion in Ti (C7) a (D9) emarks) nches): _ nches): _	_iving Ro [C4)	Secondar Surfa Drain Dry-S Crayf Satur Stunt S (C6) X Geon X FAC-	y Indicators (minimum of two require ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) ish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2)
Nultiple hydric Nultiple Nultiple Nultiple Nultiple Nultiple Nultiple Nultiple Nultiple Nultiple	indicators present. indicators present. indicators present. indicators present. indicators:	magery (B Surface (ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 7) Gauge or B8) X Other (Ex	apply) ained Lea auna (B1: atic Plant: Sulfide C Rhizosph of Reduct on Reduct Surface Well Data plain in R Depth (in	s (B14) Dodor (C1) eres on Led Iron (tion in Ti (C7) a (D9) emarks) nches): _nches): _	Living Ro	Secondar	y Indicators (minimum of two require ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) ish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2) Neutral Test (D5)
Nultiple hydric Nultip	indicators present. indicators present. indicators present. indicators present. indicators:	magery (B Surface (ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 7) Gauge or B8) X Other (Exp No X No X No X	apply) ained Lea auna (B1: atic Plant: Sulfide C Rhizosph of Reduct on Reduct Surface Well Data plain in R Depth (in	s (B14) Dodor (C1) eres on Led Iron (tion in Ti (C7) a (D9) emarks) nches): _nches): _	Living Ro	Secondar	y Indicators (minimum of two require ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) ish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2) Neutral Test (D5)
Remarks: Multiple hydric HYDROLOG Wetland Hydro Primary Indicat Surface Wa High Water Saturation Water Marl Sediment D Drift Depos Iron Depos Inundation Sparsely V Field Observa Surface Water Water Table Pro Saturation Press (includes capilled) Describe Reco	indicators present. indicators present. indicators present. indicators present. indicators:	magery (B Surface (s s gauge, m	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 7) Gauge or B8) X Other (Exp No X No X No X	apply) ained Lea auna (B1: atic Plant: Sulfide C Rhizosph of Reduct on Reduct Surface Well Data plain in R Depth (in	s (B14) Dodor (C1) eres on Led Iron (tion in Ti (C7) a (D9) emarks) nches): _nches): _	Living Ro	Secondar	y Indicators (minimum of two require ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) ish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2) Neutral Test (D5)

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Midwest Region

See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024 Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)

Project/Site: Wabash Hydrogen Energy Center		City/Cou	inty: Vigo		S	ampling Dat	te: <u>6/12</u>	/2024
Applicant/Owner: Wabash Valley Resources LLC				State:	IN S	ampling Poi	nt: w-cm	1S-001 PFO
Investigator(s): CMS, KB		Section, T	Γownship, Ran	ge: S28 T13I	N R9W			
Landform (hillside, terrace, etc.): Depression			Local relief (co	ncave, convex	, none): <u>Con</u>	ncave		
Slope (%): 1 Lat: 39.892072		Long: -	77.673083		Dat	um: DDNAD	83	
Soil Map Unit Name: HkF: Hickory loam, 25 to 40 perce	ent slopes			NV	VI classificat	ion: NA		
Are climatic / hydrologic conditions on the site typical fo	r this time c	f vear?	Yes	No X (If no. explain	in Remarks	s.)	
Are Vegetation, Soil, or Hydrologys		-		rcumstances" ¡				
Are Vegetation , Soil , or Hydrology n				lain any answe				_
SUMMARY OF FINDINGS – Attach site ma				•			oaturos	oto
SOMMAN OF FINDINGS - Attach site ma	p snown		g point loc	alions, trai		portant i		, etc.
Hydrophytic Vegetation Present? Yes X No		Is the	Sampled Are					
Hydric Soil Present? Yes X No		withi	n a Wetland?	Ye	s X	No		
Wetland Hydrology Present? Yes X No								
Remarks:		T 15						
PFO portion of a PEM/PSS/PFO complex. Antecedent	Precipitation	n Tool Drougi	ht Index as mil	d drought.				
VEGETATION – Use scientific names of plan		Dani'n and	la Parter I					
<u>Tree Stratum</u> (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status	Dominance '	Test worksh	neet:		
1.	70 00101	ороскоо.		Number of Do				
2. Acer negundo	33	Yes	FAC	Are OBL, FA			7	(A)
3. Populus occidentalis	33	Yes	FAC	Total Numbe	r of Dominar	nt Species		_
4. Ulmus americana	33	Yes	FACW	Across All St		· _	7	(B)
5				Percent of Do	ominant Spe	cies That		
	99	=Total Cover		Are OBL, FA	CW, or FAC:	: <u> </u>	100.0%	_ (A/B)
Sapling/Shrub Stratum (Plot size: 15')			-					
1. Ulmus americana	15	Yes	FACW	Prevalence I				
2. 3.					Cover of:		tiply by:	_
3				OBL species FACW species		x1=_ x2=	0 286	-
5.				FAC species		_ x3=	198	-
•.	15	=Total Cover		FACU specie		x 4 =	0	_
Herb Stratum (Plot size: 5')				UPL species		x 5 =	0	_
1. Pilea pumila	50	Yes	FACW	Column Tota	ls: 209	(A)	484	(B)
2. Geum aleppicum	20	Yes	FACW	Prevalence	e Index = B/	A =2	2.32	_ _
3. Laportea canadensis	20	Yes	FACW					
4. Cinna arundinacea	5	No	FACW	Hydrophytic	-			
5					Test for Hyd		getation	
6				X 2 - Domir				
7.				X 3 - Preva	nence Index inclosical Ada		rovido ou	nnortina
9.					nological Ada n Remarks or	. ,		
10.					atic Hydrophy	•		•
10	95	=Total Cover		¹ Indicators of			, ,	,
Woody Vine Stratum (Plot size: 30')				be present, u	•		, ,,	must
1.			-	Hydrophytic				
2.				Vegetation				
		=Total Cover		Present?	Yes X	No_		
Remarks: (Include photo numbers here or on a separa	ate sheet.)		I					
	,							

SOIL Sampling Point: W-CMS-001 PFO

Profile Desc	ription: (Describe	to the dep				ator or	confirm the absence o	f indicators.)			
Depth	Matrix		Redo	x Featur							
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks			
0-6	10YR 3/1	60	10YR 4/1	35	С	M	Loamy/Clayey				
			10YR 4/6	5	С	М					
6-10	10YR 4/1	95	10YR 4/6	5	C	M	Loamy/Clayey				
10-18	10YR 5/1	95	5YR 3/4	5	_ C	M	Loamy/Clayey				
1Typo: C-C	oncentration, D=Dep	lotion PM	-Poducod Matrix N		kod San		² Location:	PL=Pore Lining, M=Matrix.			
Hydric Soil I		ietion, ixivi-	-Neduced Matrix, P	vio–ivias	Keu San	JOIAIIIS		s for Problematic Hydric Soils ³ :			
Histosol			Sandy Gle	ved Mat	rix (S4)			langanese Masses (F12)			
	ipedon (A2)		Sandy Red	-				arent Material (F21)			
Black His			Stripped M				Very Shallow Dark Surface (F22)				
	n Sulfide (A4)		Dark Surfa	•	,			(Explain in Remarks)			
	Layers (A5)		Loamy Mu	` '	eral (F1)			,			
2 cm Mu	• , ,		Loamy Gle	-							
	Below Dark Surface	e (A11)	X Depleted I	-							
	rk Surface (A12)		X Redox Da	rk Surfac	e (F6)		³ Indicators	of hydrophytic vegetation and			
Sandy M	ucky Mineral (S1)		Depleted [Dark Sur	face (F7))	wetlan	nd hydrology must be present,			
5 cm Mu	cky Peat or Peat (S3	3)	X Redox De	pression	s (F8)		unless	disturbed or problematic.			
Restrictive L	ayer (if observed):										
Type:											
Depth (in	ches):						Hydric Soil Present?	? Yes <u>X</u> No			
Remarks:											
Multiple hydr	ic indicators present										
HYDROLO	GY										
Wetland Hyd	drology Indicators:										
Primary Indic	ators (minimum of o	ne is requi	ired; check all that	apply)			<u>Secondary</u>	/ Indicators (minimum of two required)			
Surface \	Nater (A1)		Water-Sta	ined Lea	ives (B9)		Surface Soil Cracks (B6)				
High Wa	ter Table (A2)		Aquatic Fa	auna (B1	3)		Draina	age Patterns (B10)			
Saturatio	` '		True Aqua		` '			eason Water Table (C2)			
Water Ma			Hydrogen					sh Burrows (C8)			
	t Deposits (B2)		Oxidized F			_	` '	ation Visible on Aerial Imagery (C9)			
	osits (B3)		Presence			` '		ed or Stressed Plants (D1)			
	t or Crust (B4)		Recent Iro			iled Soi		orphic Position (D2)			
	osits (B5)	· · /D:	Thin Muck				X FAC-N	Neutral Test (D5)			
	on Visible on Aerial In Vegetated Concave										
		Surface (I	Bo) X Other (Ex	Jiaiii iii N	terriarks)		1				
Field Observ			No. Y	Depth (i	nchoc):						
Water Table			No X No X		· -						
Saturation Pr		es	No X	Depth (i	nches): _		Wetland Hydrolog	y Present? Yes X No			
(includes cap			<u> </u>	Dopui (i			Wettand Hydrolog	y 1 1636111: 163 <u>X</u> 160			
	corded Data (stream	gauge, mo	onitoring well, aeria	al photos	, previou	s insped	ctions), if available:				
	,						,				
Remarks:											
Cracked soils	s. Hydrology criteria	met.									

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Midwest Region

See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024 Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)

Project/Site: Wabash Hydrogen Energy Center		City/Cou	nty: Vigo		s	Sampling Da	te: <u>6/11</u>	/2024
Applicant/Owner: Wabash Valley Resources LLC				State:	IN S	ampling Po	int: w-cn	/IS-001-PSS
Investigator(s): CMS, KB		Section, T	ownship, Rai	nge: S33 T13N	I R9W			
Landform (hillside, terrace, etc.): floodplain			Local relief (c	oncave, convex,	none): Cor	ncave		
Slope (%): 5 Lat: 39.622484			87.488098			tum: DDNAI	D 83	
Soil Map Unit Name: Sh: Shoals silt loam, 0 to 2 perce	ent slopes, fre			tion NW		tion: R5UBH		
Are climatic / hydrologic conditions on the site typical for	-		Yes	No X (I				
Are Vegetation x , Soil x , or Hydrology x :		-		Circumstances" p				
 -							No x	_
Are Vegetation, Soil, or Hydrology				plain any answei		,	ooturoo	oto
SUMMARY OF FINDINGS – Attach site ma	ap snowir	ig sampim	g point io	cations, tran	secis, iii	iportant i	eatures	, etc.
Hydrophytic Vegetation Present? Yes X No			Sampled Ar					
		withir	n a Wetland?	? Yes	sX_	No		
Wetland Hydrology Present? Yes X No	<u> </u>							
Remarks:			era de la deservada.				. Salar all and	
PSS portion of a PEM/PSS/PFO complex. This portion Antecedent Precipitation Tool Drought Index as mild of		and was histor	rically disturb	ed when stream	erosion me	asures were	e installed.	
· · ·								
VEGETATION – Use scientific names of pla		Daminant	lu di a atau					
Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status	Dominance T	est worksl	neet:		
1.	70 00101	ороског.		Number of Do				
2.				Are OBL, FAC			5	(A)
3.				Total Number	of Domina	nt Species		_
4				Across All Str	ata:	_	5	(B)
5				Percent of Do				
		=Total Cover		Are OBL, FAC	CW, or FAC	: <u>-</u>	100.0%	_ (A/B)
Sapling/Shrub Stratum (Plot size: 15;								
Platanus occidentalis Soliv pigro	65	Yes No.	FACW	Prevalence In			tiply by:	
Salix nigra Salix bebbiana	10	No No	OBL FACW	Total % (OBL species	30	x 1 =	tiply by: 30	-
4.		110	TACW	FACW species		x2=	290	_
5.				FAC species	2	x 3 =	6	_
	85 :	=Total Cover		FACU species		x 4 =	24	_
Herb Stratum (Plot size: 5')				UPL species	0	x 5 =	0	_
1. Solidago gigantea	20	Yes	FACW	Column Totals	s: 183	(A)	350	(B)
2. Leersia virginica	20	Yes	FACW	Prevalence	Index = B	/A =	1.91	_
3. Leersia oryzoides	20	Yes	OBL					
4. Phalaris arundinacea	20	Yes	FACW	Hydrophytic '	Vegetation	Indicators	:	
5. Cinna arundinacea	5	No	FACW		-	drophytic Ve	egetation	
6. <u>Dichanthelium clandestinum</u>	5	No	FACW	<u>X</u> 2 - Domin				
7. <u>Desmodium canadense</u>	4	No	FACU	X 3 - Preval				
8. Hordeum jubatum	2	<u>No</u>	FAC			aptations ¹ (F r on a sepai		
9. Galium aparine	2	No	FACU			•		•
10		Total Cavar				ytic Vegetat	٠.	•
Woody Vine Stratum (Plot size: 30'	98 :	=Total Cover		¹ Indicators of be present, ur				must
1.	,				uistuli	Joa of proble	omano.	
2.				Hydrophytic Vegetation				
		=Total Cover		Present?	Yes X	No		
Remarks: (Include photo numbers here or on a separ								

SOIL Sampling Point: w-cms-001-Pss

Depth	Matrix		Redo	x Feature				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-8	10YR 6/1	60	10YR 6/8	40	С	M	Loamy/Clayey	
8-16	10YR 7/1	70	10YR 6/8	30	C	M	Loamy/Clayey	
								-
1							2.	
	ncentration, D=Depl	etion, RM	=Reduced Matrix, I	MS=Mask	ked San	d Grains		n: PL=Pore Lining, M=Matrix.
Hydric Soil I			Sandy Glo	wod Matr	iv (Q1)			rs for Problematic Hydric Soils ³ :
Histosol (pedon (A2)		Sandy Gle Sandy Re		IX (34)			Manganese Masses (F12) Parent Material (F21)
Black His			Stripped N		:)			Shallow Dark Surface (F22)
	Sulfide (A4)		Dark Surfa		')			er (Explain in Remarks)
			Loamy Mu		ral (F1)			(Explain in Remarks)
Stratified Layers (A5) 2 cm Muck (A10)			Loamy Gle	-				
	Below Dark Surface	(Δ11)	X Depleted I	-				
	k Surface (A12)	(((1)	Redox Da				³ Indicato	rs of hydrophytic vegetation and
	ucky Mineral (S1)		Depleted I		` ')		and hydrology must be present,
	cky Peat or Peat (S3)	Redox De		•	,		ss disturbed or problematic.
	ayer (if observed):	,						·
Type:	Rock							
Depth (in	ches):	16					Hydric Soil Presen	t? Yes <u>X</u> No
Remarks:	ches):		ed at 16 inches.				Hydric Soil Presen	t? Yes <u>X</u> No
Remarks: Hydric soil ind	dicators met. Rock e		ed at 16 inches.				Hydric Soil Presen	t? Yes <u>X</u> No
Remarks: Hydric soil ind	dicators met. Rock e		ed at 16 inches.				Hydric Soil Presen	t? Yes <u>X</u> No
Remarks: Hydric soil inc	GY rology Indicators:	ncountere						
Remarks: Hydric soil ind HYDROLO Wetland Hyd Primary Indic	GY rology Indicators: ators (minimum of o	ncountere	ired; check all that		(DO)		Seconda	ry Indicators (minimum of two require
Remarks: Hydric soil ind HYDROLO Wetland Hyd Primary Indica Surface V	GY rology Indicators: ators (minimum of o	ncountere	ired; check all that X Water-Sta	ined Lea	. ,		Seconda Surf:	ary Indicators (minimum of two require ace Soil Cracks (B6)
Remarks: Hydric soil ind HYDROLO Wetland Hyd Primary Indica Surface V High Wat	GY rology Indicators: ators (minimum of o	ncountere	ired; check all that X Water-Sta Aquatic Fa	ined Lea	3)		Seconda Surf: Drai	ary Indicators (minimum of two require ace Soil Cracks (B6) nage Patterns (B10)
Remarks: Hydric soil ind HYDROLO Wetland Hyd Primary Indica Surface V High Wat X Saturation	GY rology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3)	ncountere	ired; check all that X Water-Sta Aquatic Fa	nined Lear auna (B13 atic Plants	3) s (B14)		Seconda Surfa Drai Dry-	ary Indicators (minimum of two require ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2)
HYDROLO Wetland Hyd Primary Indic Surface V High Wat X Saturation Water Ma	GY rology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) urks (B1)	ncountere	ired; check all that X Water-Sta Aquatic Fa True Aqua Hydrogen	nined Lear auna (B1: atic Plants Sulfide C	3) s (B14) Odor (C1)	Seconda Surfa Draii Dry- Cray	ary Indicators (minimum of two require ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) rfish Burrows (C8)
HYDROLO Wetland Hyd Primary Indice Surface V High Wat X Saturation Water Ma Sediment	GY rology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) Deposits (B2)	ncountere	ired; check all that X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F	nined Lear auna (B13 atic Plants Sulfide C Rhizospho	3) s (B14) Odor (C1 eres on) Living Ro	Seconda Surfi Draii Dry- Cray soots (C3) Satu	ary Indicators (minimum of two required ace Soil Cracks (B6) anage Patterns (B10) Season Water Table (C2) frish Burrows (C8) ration Visible on Aerial Imagery (C9)
HYDROLO Wetland Hyd Primary Indica Surface V High Wat X Saturation Water Ma Sediment X Drift Depo	GY rology Indicators: ators (minimum of or Vater (A1) er Table (A2) n (A3) arks (B1) Deposits (B2) posits (B3)	ncountere	ired; check all that X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F	nined Lear auna (B1; atic Plants Sulfide C Rhizospho of Reduc	3) s (B14) Odor (C1 eres on ed Iron) Living Ro (C4)	Seconda Surf- Drai Dry- Cray Satu Stur	ary Indicators (minimum of two require ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) fish Burrows (C8) rration Visible on Aerial Imagery (C9) ted or Stressed Plants (D1)
HYDROLOG Wetland Hyd Primary Indica Surface V High Wat X Saturation Water Ma Sediment X Drift Depo	rology Indicators: ators (minimum of or Vater (A1) er Table (A2) n (A3) arks (B1) Deposits (B2) osits (B3) or Crust (B4)	ncountere	ired; check all that X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro	nined Lea auna (B13 atic Plants Sulfide C Rhizospho of Reduct on Reduct	3) s (B14) Odor (C1 eres on ed Iron tion in T) Living Ro (C4)	Seconda Surf: Drai: Dry- Cray Satu Stun S (C6) X Geo	ary Indicators (minimum of two required ace Soil Cracks (B6) age Patterns (B10) Season Water Table (C2) artion Visible on Aerial Imagery (C9) arted or Stressed Plants (D1) morphic Position (D2)
HYDROLO Wetland Hyd Primary Indica Surface V High Wat X Saturation Water Ma Sediment X Drift Depo	rology Indicators: ators (minimum of or Vater (A1) er Table (A2) n (A3) arks (B1) Deposits (B2) osits (B3) or Crust (B4) osits (B5)	ncountere	ired; check all that X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro	uined Lea auna (B1; atic Plants Sulfide C Rhizospho of Reduct on Reduct & Surface	3) s (B14) Odor (C1 eres on eed Iron tion in T (C7)) Living Ro (C4)	Seconda Surf: Drai: Dry- Cray Satu Stun S (C6) X Geo	ary Indicators (minimum of two require ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) fish Burrows (C8) rration Visible on Aerial Imagery (C9) ted or Stressed Plants (D1)
HYDROLO Wetland Hyd Primary Indica Surface V High Wat X Saturation Water Ma Sediment X Drift Depo Algal Mat Iron Depo Inundatio	GY rology Indicators: ators (minimum of or	ncountere	ired; check all that X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck 7) Gauge or	uined Lear auna (B13 atic Plants Sulfide C Rhizospho of Reduct on Reduct & Surface Well Data	3) s (B14) Odor (C1 eres on ed Iron tion in T (C7) a (D9)) Living Ro (C4) illed Soil:	Seconda Surf: Drai: Dry- Cray Satu Stun S (C6) X Geo	ary Indicators (minimum of two required ace Soil Cracks (B6) age Patterns (B10) Season Water Table (C2) artion Visible on Aerial Imagery (C9) arted or Stressed Plants (D1) morphic Position (D2)
HYDROLO Wetland Hyd Primary Indic: Surface V High Wat X Saturation Water Ma Sediment X Drift Depo Algal Mat Iron Depo Inundatio Sparsely	GY Irology Indicators: ators (minimum of or	ncountere	ired; check all that X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck 7) Gauge or	uined Lear auna (B13 atic Plants Sulfide C Rhizospho of Reduct on Reduct & Surface Well Data	3) s (B14) Odor (C1 eres on ed Iron tion in T (C7) a (D9)) Living Ro (C4) illed Soil:	Seconda Surf: Drai: Dry- Cray Satu Stun S (C6) X Geo	ary Indicators (minimum of two required ace Soil Cracks (B6) age Patterns (B10) Season Water Table (C2) artion Visible on Aerial Imagery (C9) arted or Stressed Plants (D1) morphic Position (D2)
HYDROLO Wetland Hyd Primary Indice Surface V High Wat X Saturation Water Ma Sediment X Drift Depo Algal Mat Iron Depo Inundatio Sparsely Field Observ	GY rology Indicators: ators (minimum of or	ne is requinagery (B	ired; check all that X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck 7) Gauge or B8) Other (Exp	nined Lear auna (B1; atic Plants Sulfide C Rhizospho of Reduct on Reduct & Surface Well Data plain in R	3) s (B14) Odor (C1 eres on eed Iron tion in T (C7) a (D9) emarks)) Living Ro (C4) illed Soil:	Seconda Surf: Drai: Dry- Cray Satu Stun S (C6) X Geo	ary Indicators (minimum of two required ace Soil Cracks (B6) age Patterns (B10) Season Water Table (C2) artion Visible on Aerial Imagery (C9) arted or Stressed Plants (D1) morphic Position (D2)
HYDROLO Wetland Hyd Primary Indica Surface V High Wat X Saturation Water Ma Sediment X Drift Depo Algal Mat Iron Depo Inundatio Sparsely Field Observ Surface Water	GY rology Indicators: ators (minimum of or	ncountered ne is requented magery (B Surface (ired; check all that X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck 7) Gauge or B8) Other (Exp	nined Lear auna (B1; atic Plants Sulfide C Rhizospho of Reduct on Reduct Surface Well Data plain in R	3) s (B14) Odor (C1 eres on eed Iron tion in T (C7) a (D9) emarks)) Living Ro (C4) illed Soil	Seconda Surf: Drai: Dry- Cray Satu Stun S (C6) X Geo	ary Indicators (minimum of two required ace Soil Cracks (B6) age Patterns (B10) Season Water Table (C2) artion Visible on Aerial Imagery (C9) arted or Stressed Plants (D1) morphic Position (D2)
Remarks: Hydric soil ind Wetland Hyd Primary Indica Surface V High Wat X Saturation Water Ma Sediment X Drift Depo Algal Mat Iron Depo Inundatio Sparsely Field Observ Surface Water Water Table	GY rology Indicators: ators (minimum of or	ncountered ne is requested in the second sec	ired; check all that X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck 7) Gauge or B8) Other (Exp	ained Lear auna (B1; atic Plants Sulfide C Rhizospho of Reduct on Reduct Surface Well Data plain in R Depth (ir	3) s (B14) Odor (C1 eres on eed Iron tion in T (C7) a (D9) emarks) nches):) Living Ro (C4) illed Soil	Seconda	ary Indicators (minimum of two require ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) fish Burrows (C8) rration Visible on Aerial Imagery (C9) ted or Stressed Plants (D1) morphic Position (D2) -Neutral Test (D5)
HYDROLO Wetland Hyd Primary Indica Surface W High Wat X Saturation Water Ma Sediment X Drift Depo Algal Mat Iron Depo Inundatio Sparsely Field Observ Surface Water Water Table I Saturation Pri	GY rology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) Deposits (B2) posits (B3) or Crust (B4) posits (B5) n Visible on Aerial Ir Vegetated Concave rations: er Present? Ye Present? Ye esent? Ye	ncountered ne is requented magery (B Surface (ired; check all that X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck 7) Gauge or B8) Other (Exp	nined Lear auna (B1; atic Plants Sulfide C Rhizospho of Reduct on Reduct Surface Well Data plain in R	3) s (B14) Odor (C1 eres on eed Iron tion in T (C7) a (D9) emarks) nches):) Living Ro (C4) illed Soil	Seconda Surf: Drai: Dry- Cray Satu Stun S (C6) X Geo	ary Indicators (minimum of two require ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) fish Burrows (C8) tration Visible on Aerial Imagery (C9) ted or Stressed Plants (D1) morphic Position (D2) -Neutral Test (D5)
HYDROLO Wetland Hyd Primary Indice Surface V High Wat X Saturation Water Ma Sediment X Drift Depo Algal Mat Iron Depo Inundatio Sparsely Field Observ Surface Water Water Table I Saturation Pro (includes cap	GY rology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) Deposits (B2) posits (B3) or Crust (B4) posits (B5) n Visible on Aerial Ir Vegetated Concave rations: er Present? Ye Present? Ye esent? Ye	ne is required in the second i	ired; check all that X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 7) Gauge or B8) Other (Exp No X No X No X	nined Lear auna (B1; atic Plants Sulfide C Rhizosphe of Reduct on Reduct of Surface Well Data plain in R Depth (in Depth (in	3) s (B14) c)dor (C1 eres on eed Iron tion in T (C7) a (D9) emarks) nches): nches):) Living Ro (C4) illed Soil:	Seconda	ary Indicators (minimum of two require ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) fish Burrows (C8) rration Visible on Aerial Imagery (C9) ted or Stressed Plants (D1) morphic Position (D2) -Neutral Test (D5)
HYDROLO Wetland Hyd Primary Indice Surface V High Wat X Saturation Water Ma Sediment X Drift Depo Algal Mat Iron Depo Inundatio Sparsely Field Observ Surface Water Water Table I Saturation Pri (includes cap Describe Rec	GY rology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) n Visible on Aerial Ir Vegetated Concave rations: er Present? Ye esent? Ye esent? Ye esent? Ye	ne is required in the second i	ired; check all that X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 7) Gauge or B8) Other (Exp No X No X No X	nined Lear auna (B1; atic Plants Sulfide C Rhizosphe of Reduct on Reduct of Surface Well Data plain in R Depth (in Depth (in	3) s (B14) c)dor (C1 eres on eed Iron tion in T (C7) a (D9) emarks) nches): nches):) Living Ro (C4) illed Soil:	Seconda	ary Indicators (minimum of two require ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) fish Burrows (C8) rration Visible on Aerial Imagery (C9) ted or Stressed Plants (D1) morphic Position (D2) -Neutral Test (D5)
Remarks: Hydric soil ind Wetland Hyd Primary Indic: Surface V High Wat X Saturation Water Ma Sediment X Drift Depo Algal Mat Iron Depo Inundatio Sparsely Field Observ Surface Water Water Table I Saturation Pri (includes cap Describe Reco	GY Irology Indicators: ators (minimum of or	nagery (B Surface (ired; check all that X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 7) Gauge or B8) Other (Exp No X No X No X	nined Lear auna (B1; atic Plants Sulfide C Rhizosphe of Reduct on Reduct of Surface Well Data plain in R Depth (in Depth (in	3) s (B14) c)dor (C1 eres on eed Iron tion in T (C7) a (D9) emarks) nches): nches):) Living Ro (C4) illed Soil:	Seconda	ary Indicators (minimum of two require ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) fish Burrows (C8) rration Visible on Aerial Imagery (C9) ted or Stressed Plants (D1) morphic Position (D2) -Neutral Test (D5)
Remarks: Hydric soil ind Wetland Hyd Primary Indic: Surface V High Wat X Saturation Water Ma Sediment X Drift Depo Algal Mat Iron Depo Inundatio Sparsely Field Observ Surface Water Water Table I Saturation Pri (includes cap Describe Reco	GY rology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) n Visible on Aerial Ir Vegetated Concave rations: er Present? Ye esent? Ye esent? Ye esent? Ye	nagery (B Surface (ired; check all that X Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 7) Gauge or B8) Other (Exp No X No X No X	nined Lear auna (B1; atic Plants Sulfide C Rhizosphe of Reduct on Reduct of Surface Well Data plain in R Depth (in Depth (in	3) s (B14) c)dor (C1 eres on eed Iron tion in T (C7) a (D9) emarks) nches): nches):) Living Ro (C4) illed Soil:	Seconda	ary Indicators (minimum of two require ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) fish Burrows (C8) rration Visible on Aerial Imagery (C9) ted or Stressed Plants (D1) morphic Position (D2) -Neutral Test (D5)

Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a) See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024

Project/Site: Wabash Hydrogen Energy Center		City/Cou	nty: Vigo		Sampling Date:	6/12/2024
Applicant/Owner: Wabash Valley Resources LLC				State: IN	Sampling Point:	W-CMS-001 PFO-UP
Investigator(s): CMS, KB		Section, T	ownship, Ra	nge: S28 T13N R9V	V	
Landform (hillside, terrace, etc.): Slope			Local relief (c	concave, convex, none	e): Convex	
Slope (%):7		Long:	87.424694		Datum: DDNAD 8	33
Soil Map Unit Name: Sh: Shoals silt loam, 0 to 2 perc	ent slopes, fr	equently flood	ed, brief dura	tion NWI clas	ssification: NA	
Are climatic / hydrologic conditions on the site typical	for this time	of year?	Yes	No X (If no, e	explain in Remarks.)	
Are Vegetation , Soil , or Hydrology	significantly	disturbed? A	Are "Normal C	Circumstances" preser	nt? Yes X N	No
Are Vegetation, Soil, or Hydrology	naturally pro	blematic? (If needed, ex	plain any answers in F	Remarks.)	
SUMMARY OF FINDINGS – Attach site m	_			-		atures, etc.
Hydrophytic Vegetation Present? Yes X	lo	Is the	Sampled A	rea		
	lo X		n a Wetland		No X_	
Wetland Hydrology Present? Yes N	lo X					
Remarks:						
Upland woodlands. Antecedent Precipitation Tool Dr	ought Index a	as mild drough	t.			
VEGETATION – Use scientific names of pl		Danainant	la d'a atau			
Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test v	vorksheet:	
1.				Number of Domina		
2. Ulmus americana	65	Yes	FACW	Are OBL, FACW, o	•	3 (A)
3. Populus occidentalis	20	No	FAC	Total Number of Do	ominant Species	
4. Quercus muehlenbergii	20	No No	FACU	Across All Strata:		5 (B)
5	105	=Total Cover		Percent of Dominar Are OBL, FACW, o		60.0% (A/B)
Sapling/Shrub Stratum (Plot size: 15'	105	= 10tal Covel		Ale OBL, FACVV, O	1 FAC. <u>C</u>	60.0% (A/B)
1.				Prevalence Index	worksheet:	
2.				Total % Cover		ly by:
3.				OBL species	10 x 1 =	10
4				FACW species	95 x 2 =	190
5				FAC species	40 x 3 =	120
Herb Stratum (Plot size: 5')		=Total Cover		FACU species UPL species	40 x 4 =	160 0
1. Laportea canadensis	20	Yes	FACW	Column Totals:	185 (A)	480 (B)
Persicaria virginiana	20	Yes	FAC	Prevalence Inde		
3. Geum aleppicum	10	No	FACW			
4. Glyceria striata	10	No	OBL	Hydrophytic Vege	tation Indicators:	
5. Podophyllum peltatum	5	No	FACU		for Hydrophytic Vege	etation
6.				X 2 - Dominance 3 - Prevalence		
7. 8.					index is ≤3.0 cal Adaptations¹ (Pro	wide supporting
9.					arks or on a separate	
10.				Problematic Hy	drophytic Vegetation	า ¹ (Explain)
	65	=Total Cover		¹ Indicators of hydric	soil and wetland hy	drology must
Woody Vine Stratum (Plot size: 30')			be present, unless	disturbed or problem	atic.
Parthenocissus quinquefolia	10	Yes	FACU	Hydrophytic		
2. Smilax glauca	<u>5</u> 15	Yes =Total Cover	FACU	Vegetation Present? Ye	ne Y No	
	-	- I Ulai CUVEI		riesent! Te	es <u>X</u> No	
Remarks: (Include photo numbers here or on a sepa	arate sheet.)					

SOIL Sampling Point: W-CMS-001 PFO-UPL

Depth (inches)			Kenn		es			
	Matrix Color (moist)	%	Color (moist)	x Featur %	Type ¹	Loc ²	Texture	Remarks
0-8	10YR 2/2	100	(.,,,,,		Loamy/Clayey	
	1011(2/2	100					<u> </u>	
		·						
	-	. — -						
		. — -						
	-							
	oncentration, D=Dep	oletion, RM=	Reduced Matrix, N	//S=Mas	ked Sand	Grains		PL=Pore Lining, M=Matrix.
Hydric Soil I			0		····· (O.4)			s for Problematic Hydric Soils ³ :
Histosol (Sandy Gle	-	rix (54)			Manganese Masses (F12)
	ipedon (A2)		Sandy Red		2)			Parent Material (F21)
Black His	n Sulfide (A4)		Stripped N Dark Surfa))			Shallow Dark Surface (F22) (Explain in Remarks)
	Layers (A5)		Loamy Mu	` '	aral (F1)			(Explain in Remarks)
2 cm Mu			Loamy Gle					
	Below Dark Surfac	e (A11)	Depleted I	•	. ,			
	rk Surface (A12)	, ,	Redox Da	•	•		³ Indicators	s of hydrophytic vegetation and
Sandy M	ucky Mineral (S1)		Depleted [Dark Sur	face (F7)			nd hydrology must be present,
5 cm Mu	cky Peat or Peat (S	3)	Redox De	oression	s (F8)		unles	s disturbed or problematic.
Restrictive L	ayer (if observed)							
Type:	rock							
Depth (in	ches):	8	<u> </u>				Hydric Soil Present	? Yes No_X_
Remarks:								
No indicators	present							
HYDROLO	GY							
Wetland Hyd	drology Indicators:							
Primary Indic								
	•		ed; check all that					y Indicators (minimum of two required)
	Water (A1)		Water-Sta	ined Lea	, ,		Surfa	ce Soil Cracks (B6)
High Wat	Water (A1) ter Table (A2)		Water-Sta Aquatic Fa	ined Lea auna (B1	3)		Surfa Draina	ce Soil Cracks (B6) age Patterns (B10)
High Wat	Water (A1) ter Table (A2) n (A3)		Water-Sta Aquatic Fa True Aqua	ined Lea auna (B1 atic Plant	3) s (B14)		Surfar Draina Dry-S	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2)
High Wat Saturatio Water Ma	Water (A1) ter Table (A2) n (A3) arks (B1)		Water-Sta Aquatic Fa True Aqua Hydrogen	ined Lea auna (B1 atic Plant Sulfide (3) s (B14) Odor (C1)		Surfa Drain: Dry-S Crayfi	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8)
High Wat Saturatio Water Ma	Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2)		Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F	ined Lea auna (B1 atic Plant Sulfide (Rhizosph	3) s (B14) Odor (C1) eres on l	_iving R	Surfar Drain: Dry-S Crayfi pots (C3)Satur.	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9)
High Wat Saturatio Water Ma Sediment Drift Dep	Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3)		Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence	ined Lea auna (B1 atic Plant Sulfide (Rhizosph of Reduc	3) s (B14) Odor (C1) eres on l ced Iron (_iving Ro (C4)	SurfactDrain:Dry-SCrayfict pots (C3)SaturactStunton	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1)
High Wat Saturatio Water Ma Sedimen Drift Depo	Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4)		Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro	ined Lea auna (B1 atic Plant Sulfide (Rhizosph of Reduc n Reduc	3) s (B14) Odor (C1) eres on L ced Iron (_iving Ro (C4)	SurfactDrainsDry-SCrayfict poots (C3)SaturaStunto s (C6)Geom	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2)
High Wat Saturatio Water Ma Sedimen Drift Depo Algal Mat	Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5)	one is requir	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck	ined Lea auna (B1 sulfide (Rhizosph of Reduc n Reduc Surface	3) s (B14) Odor (C1) eres on l ced Iron (tion in Ti	_iving Ro (C4)	SurfactDrainsDry-SCrayfict poots (C3)SaturaStunto s (C6)Geom	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1)
High Wat Saturatio Water Ma Sedimen Drift Depo Algal Mat Iron Depo Inundatio	Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4)	one is requir	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck	ined Lea auna (B1 sulfide (Rhizosph of Reduc n Reduc Surface Well Dat	3) s (B14) Odor (C1) eres on L ced Iron (tion in Ti (C7) a (D9)	Living Ro (C4) Iled Soil	SurfactDrainsDry-SCrayfict poots (C3)SaturaStunto s (C6)Geom	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2)
High Wat Saturatio Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundatio	Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aerial I Vegetated Concave	one is requir	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck	ined Lea auna (B1 sulfide (Rhizosph of Reduc n Reduc Surface Well Dat	3) s (B14) Odor (C1) eres on L ced Iron (tion in Ti (C7) a (D9)	Living Ro (C4) Iled Soil	SurfactDrainsDry-SCrayfict poots (C3)SaturaStunto s (C6)Geom	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2)
High Wat Saturatio Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundatio Sparsely	Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aerial I Vegetated Concave vations:	one is requir	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or V 8) Other (Exp	ined Lea auna (B1 sulfide (Rhizosph of Reduc n Reduc Surface Well Dat	3) s (B14) Odor (C1) eres on L ed Iron (tion in Ti (C7) a (D9) emarks)	Living Ro (C4) Iled Soil	SurfactDrainsDry-SCrayfict poots (C3)SaturaStunto s (C6)Geom	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2)
High Wat Saturatio Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundatio Sparsely	Water (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aerial I Vegetated Concave vations: er Present?	one is requir magery (B7 e Surface (B	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or V 8) Other (Exp	ined Lea auna (B1 titic Plant Sulfide (Rhizosph of Reduc n Reduc Surface Well Dat	3) s (B14) Odor (C1) eres on l ced Iron (tion in Ti (C7) a (D9) temarks)	Living Ro (C4) Iled Soil	SurfactDrainsDry-SCrayfict poots (C3)SaturaStunto s (C6)Geom	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2)
High Wat Saturatio Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundatio Sparsely Field Observ Surface Water	Water (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aerial I Vegetated Concave vations: er Present? Ye	magery (B7 e Surface (B	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or V 8) Other (Exp	ined Lea auna (B1 stic Plant Sulfide (Rhizosph of Reduc n Reduc Surface Well Dat blain in R	3) s (B14) Odor (C1) eres on L ced Iron (tion in Ti (C7) a (D9) emarks) nches): _ nches): _	Living Ro (C4) Iled Soil	SurfactDrainsDry-SCrayfict poots (C3)SaturaStunto s (C6)Geom	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) horphic Position (D2) Neutral Test (D5)
High Wat Saturatio Water Ma Sedimen Drift Depo Algal Mat Iron Depo Inundatio Sparsely Field Observ Surface Water	Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aerial I Vegetated Concave vations: er Present? Present? Ye resent?	magery (B7) e Surface (B	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or V 8) Other (Exp	ined Lea auna (B1 titic Plant Sulfide (Rhizosph of Reduc n Reduc Surface Well Dat blain in R	3) s (B14) Odor (C1) eres on L ced Iron (tion in Ti (C7) a (D9) emarks) nches): _ nches): _	Living Ro (C4) Iled Soil	Surfaction Drains Dry-S Dry-S Crayfi Saturt Stunte S (C6) FAC-I	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2) Neutral Test (D5)
High Wat Saturatio Water Ma Sedimen Drift Depo Algal Mat Iron Depo Inundatio Sparsely Field Observ Surface Water Water Table Saturation Pr (includes cap	Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aerial I Vegetated Concave vations: er Present? Present? Ye resent?	magery (B7) e Surface (B	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or 8) Other (Exp No X No X No X	ined Lea auna (B1 titic Plant Sulfide (Rhizosph of Reduc n Reduc Surface Well Dat blain in R Depth (i Depth (i	3) s (B14) Ddor (C1) eres on Led Iron (tion in Ti (C7) a (D9) demarks) nches): nches):	Living Ro	Surfaction Drains Dry-S Dry-S Crayfi Soots (C3) Saturit Stunt S (C6) FAC-I Wetland Hydrolog	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2) Neutral Test (D5)
High Wat Saturatio Water Ma Sedimen: Drift Depo Algal Mat Iron Depo Inundatio Sparsely Field Observ Surface Water Water Table Saturation Pr (includes cap Describe Rec	Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aerial I Vegetated Concave vations: er Present? Present? Vegesent? Vegetatey Vegetatey	magery (B7) e Surface (B	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or 8) Other (Exp No X No X No X	ined Lea auna (B1 titic Plant Sulfide (Rhizosph of Reduc n Reduc Surface Well Dat blain in R Depth (i Depth (i	3) s (B14) Ddor (C1) eres on Led Iron (tion in Ti (C7) a (D9) demarks) nches): nches):	Living Ro	Surfaction Drains Dry-S Dry-S Crayfi Soots (C3) Saturit Stunt S (C6) FAC-I Wetland Hydrolog	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2) Neutral Test (D5)
High Wat Saturatio Water Ma Sedimen: Drift Depo Algal Mat Iron Depo Inundatio Sparsely Field Observ Surface Water Water Table Saturation Pr (includes cap Describe Rec	Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aerial I Vegetated Concave vations: er Present? Present? Vegesent? Vegetatey Vegetatey	magery (B7) e Surface (B	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or 8) Other (Exp No X No X No X	ined Lea auna (B1 titic Plant Sulfide (Rhizosph of Reduc n Reduc Surface Well Dat blain in R Depth (i Depth (i	3) s (B14) Ddor (C1) eres on Led Iron (tion in Ti (C7) a (D9) demarks) nches): nches):	Living Ro	Surfaction Drains Dry-S Dry-S Crayfi Soots (C3) Saturit Stunt S (C6) FAC-I Wetland Hydrolog	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2) Neutral Test (D5)
High Wat Saturatio Water Ma Sedimen: Drift Depo Algal Mat Iron Depo Inundatio Sparsely Field Observ Surface Water Water Table Saturation Pr (includes cap Describe Rec	Water (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) on Visible on Aerial I Vegetated Concave vations: er Present? Present? Ye resent? Ye osillary fringe) corded Data (stream	magery (B7) e Surface (B	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or 8) Other (Exp No X No X No X	ined Lea auna (B1 titic Plant Sulfide (Rhizosph of Reduc n Reduc Surface Well Dat blain in R Depth (i Depth (i	3) s (B14) Ddor (C1) eres on Led Iron (tion in Ti (C7) a (D9) demarks) nches): nches):	Living Ro	Surfaction Drains Dry-S Dry-S Crayfi Soots (C3) Saturit Stunt S (C6) FAC-I Wetland Hydrolog	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2) Neutral Test (D5)

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Midwest Region See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

Project/Site: Wabash Hydrogen Energy Center		City/Cou	nty: Vigo		Sampling Date:	6/12/2024
Applicant/Owner: Wabash Valley Resources LLC)	_		State: IN	Sampling Point:	W-CMS-001 PSS-UPL
Investigator(s): CMS, KB		Section, 7	Township, Rar	nge: S33 T13N R9W	•	
Landform (hillside, terrace, etc.): Hillside		_		oncave, convex, none):	Convex	
Slope (%): 10 Lat: 39.534256°		_	87.424532°	oo,,,,.	Datum: DDNAD 83	1
Soil Map Unit Name: Ma: Made land		Long	07.424332	NWI classi	fication: NA	
			.,			
Are climatic / hydrologic conditions on the site typica			Yes	No X (If no, ex		
Are Vegetation X, Soil X, or Hydrology X				ircumstances" present?		<u> </u>
Are Vegetation, Soil, or Hydrology	_naturally proble	ematic? (If needed, exp	olain any answers in Re	marks.)	
SUMMARY OF FINDINGS – Attach site	map showing	ı samplin	g point lo	cations, transects	, important feat	ures, etc.
Hydrophytic Vegetation Present? Yes	No X	Is the	Sampled Ar	ea		
	No X		n a Wetland?		No X	
	No X					
Remarks:						
Upland old field historically disturbed when stream	erosion measure	s were insta	lled Anteced	lent Precipitation Tool D	rought Index as mile	d drought.
VEGETATION – Use scientific names of p	lants.					
		Dominant	Indicator			
Tree Stratum (Plot size: 30')	% Cover	Species?	Status	Dominance Test wo	rksheet:	
1 2.				Number of Dominant Are OBL, FACW, or I	•	1 (A)
						1 (A)
4				Total Number of Dom Across All Strata:	ninant Species	5 (B)
5.				Percent of Dominant	Species That	<u> </u>
·	 =1	Total Cover		Are OBL, FACW, or f	•	0.0% (A/B)
Sapling/Shrub Stratum (Plot size: 15')			, , , , ,		(,
1. Cornus racemosa		Yes	FAC	Prevalence Index we	orksheet:	
2. Elaeagnus umbellata	10	Yes	UPL	Total % Cover o	f: Multiply	by:
3.				OBL species	0 x 1 =	0
4				FACW species 0) x 2 =	0
5					0 x 3 =	30
	=1	Total Cover		· · · · · · · · · · · · · · · · · · ·		212
Herb Stratum (Plot size: 5')				' -		340
1. Securigera varia	50	Yes	UPL	Column Totals: 13	` ′	582 (B)
2. Medicago lupulina	20	Yes	FACU	Prevalence Index	= B/A = <u>4.44</u>	<u> </u>
Trifolium pratense Daucus carota		Yes No	FACU UPL	Hydrophytic Vegeta	tion Indicators:	
5. Trifolium repens	<u> </u>	No	FACU		r Hydrophytic Veget	ation
6. Erigeron canadensis		No	FACU	2 - Dominance To		allon
7. Leucanthemum vulgare	3	No	UPL	3 - Prevalence In		
8. Lonicera japonica		No	FACU		Adaptations ¹ (Provi	ide supporting
9. Melilotus officinalis		No	FACU		ks or on a separate	
10.				Problematic Hydi	rophytic Vegetation ¹	(Explain)
	111 =7	Total Cover		¹ Indicators of hydric s	soil and wetland hyd	rology must
Woody Vine Stratum (Plot size: 30')			be present, unless dis		
1.				Hydrophytic		
2				Vegetation		
	=	Total Cover		Present? Yes	No X	_
Remarks: (Include photo numbers here or on a sep	parate sheet.)					

SOIL Sampling Point: W-CMS-001 PSS-UPL

		to the dept				tor or c	onfirm the absence o	f indicators.)
Depth	Matrix			ox Featur		. 2		
(inches)	Color (moist)	<u> </u>	Color (moist)		Type ¹	Loc ²	Texture	Remarks
0-2	10YR 6/3	70	10YR 5/3	30			Loamy/Clayey	
		·						
ļ								
	oncentration, D=Dep	letion, RM=	Reduced Matrix,	MS=Mas	ked Sand	d Grains	. ² Location:	PL=Pore Lining, M=Matrix.
Hydric Soil I								s for Problematic Hydric Soils ³ :
Histosol	` '		Sandy Gle		rix (S4)			Manganese Masses (F12)
I — ·	ipedon (A2)		Sandy Re	` '				Parent Material (F21)
Black His	` ,		Stripped N	•	6)			Shallow Dark Surface (F22)
	n Sulfide (A4)		Dark Surf	` '			Other	(Explain in Remarks)
	Layers (A5)		Loamy Mu					
2 cm Mu	` '	- / ^ 4 4 \	Loamy GI	-				
I — '	Below Dark Surface	e (A11)	Depleted				31 12 4	
l ——	rk Surface (A12)		Redox Da		, ,			s of hydrophytic vegetation and
	ucky Mineral (S1)	2)	Depleted		. ,			nd hydrology must be present,
	cky Peat or Peat (S3		Redox De	pression	S (F8)		uniess	s disturbed or problematic.
	_ayer (if observed):							
Type:	gravel							
Depth (in	iches):	2	<u> </u>				Hydric Soil Present	? Yes <u>No X</u>
Remarks:								
No indicators	present. Gravel fill	encountered	d at 2 inches.					
HYDROLO	GY							
	drology Indicators:							
	cators (minimum of c		ad: abaak all that	annlu)			Cacandar	y Indicators (minimum of two require
	Water (A1)	nie is requir	eu, check an that Water-Sta		vec (R0)			ce Soil Cracks (B6)
l —	ter Table (A2)		Aquatic F		` '			age Patterns (B10)
Saturatio	` '		True Aqua	,	•			eason Water Table (C2)
	arks (B1)		Hydrogen					sh Burrows (C8)
	t Deposits (B2)		Oxidized I		, ,			ation Visible on Aerial Imagery (C9)
	osits (B3)		Presence			_		ed or Stressed Plants (D1)
· — ·	t or Crust (B4)		Recent Iro		,	,		porphic Position (D2)
	osits (B5)		Thin Mucl					Neutral Test (D5)
	on Visible on Aerial I	magery (B7			. ,			1001101 (20)
l —	Vegetated Concave	0 , .			, ,			
Field Observ		`	, <u> </u>				I	
Surface Water		es	No X	Depth (i	nches):			
Water Table		es	No X		nches):			
Saturation P			No X	Depth (i			Wetland Hydrolog	y Present? Yes No_X
(includes cap				-1 - (_			· · · · · · · · · · · · · · · · · · ·
	corded Data (stream	gauge, mo	nitoring well, aeria	al photos	, previous	s inspec	tions), if available:	
Remarks:	thanka mak ee ek							
Hydrology cri	iteria not met.							

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Midwest Region See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

Project/Site: Wabash Hydrogen Energy Center		City/Cou	ınty: Vigo			Sampling Da	ite: <u>6/13</u>	3/2024
Applicant/Owner: Wabash Valley Resources LLC				State:	IN	Sampling Po	int: w-cı	//S-002-PF0
Investigator(s): CMS, KB		Section, 7	Γownship, Ran	ge: S28 T13	BN R9W			
Landform (hillside, terrace, etc.): hillside			Local relief (co	ncave, conve	x, none): c	oncave		
Slope (%): 1 Lat: 39.535476°		Lona: -	·87.424167°			atum: DDNAI	D 83	
Soil Map Unit Name: HkF: Hickory loam, 25 to 40 perce	nt slopes		-	N'	WI classific			
Are climatic / hydrologic conditions on the site typical for		f vear?	Yes			ain in Remark	s)	
Are Vegetation X , Soil X , or Hydrology X si		-	Are "Normal Cir				No X	
							140 <u>X</u>	_
Are Vegetation, Soil, or Hydrologyna SUMMARY OF FINDINGS – Attach site ma			(If needed, expl	•			features	s etc
								, oto.
			Sampled Are		V	No		
Hydric Soil Present? Yes X No Wetland Hydrology Present? Yes X No		Within	n a Wetland?	T	es <u>X</u>	No		
Remarks:								
Site was historically disturbed in 2023 by the constructi								
by the removal of vegetation and the compaction of soi	ls. Site don	ninated by pin	oak, dark-gree	en bulrush, na	rrow leaf c	attail and shal	low sedge	€.
VEGETATION – Use scientific names of plan	its.							
T 0: (D) : (D) : (D)	Absolute	Dominant	Indicator					
Tree Stratum (Plot size: 30') 1. Quercus palustris	% Cover 25	Species? Yes	Status	Dominance				
2.	25	162	FACW	Number of D Are OBL, FA		•	4	(A)
3.				Total Number		_		_(' '
4.				Across All S		ан ороско	4	(B)
5.				Percent of D	ominant S	pecies That		
	25	=Total Cover		Are OBL, FA	CW, or FA	C: _	100.0%	_ (A/B)
Sapling/Shrub Stratum (Plot size: 15')								
1				Prevalence				
2					Cover of:		Itiply by:	_
3.				OBL species			55 70	_
5.				FACW species			45	_
J		=Total Cover		FACU specie		x 4 =	20	_
Herb Stratum (Plot size: 5')				UPL species		x 5 =	0	_
1. Scirpus atrovirens	20	Yes	OBL	Column Tota			190	(B)
2. Typha angustifolia	20	Yes	OBL				1.73	
3. Carex lurida	15	Yes	OBL					
4. Verbena urticifolia	10	No	FAC	Hydrophytic	: Vegetation	on Indicators	:	
5. Carex normalis	5	No	FACW	1 - Rapi	d Test for H	Hydrophytic Ve	egetation	
6. Triodanis perfoliata	5	No	FAC	<u>X</u> 2 - Dom				
7. Melilotus albus	5	No	FACU	X 3 - Prev				
8. Phragmites australis	5	No	FACW			Adaptations ¹ (F s or on a separ		
9.						phytic Vegetat		,
10	85 :	=Total Cover				, ,	` '	,
Woody Vine Stratum (Plot size: 30')		= Total Cover				il and wetland urbed or probl		/ must
1				Hydrophytic	_ 			
2.				Vegetation				
	:	=Total Cover		Present?	Yes_	X No		
Remarks: (Include photo numbers here or on a separa	ite sheet.)			-				

SOIL Sampling Point: w-cms-002-PFO

Depth	Matrix		Redo	ox Feature	53			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-16	10YR 4/1	70	10YR 6/1	15	D	M	Loamy/Clayey	
			10YR 6/8	15	С	M		Prominent redox concentrations
								_
				·				
 								
	ncentration, D=Dep	etion, RM	I=Reduced Matrix,	MS=Mask	ed San	d Grains.		: PL=Pore Lining, M=Matrix.
Hydric Soil In								rs for Problematic Hydric Soils ³ :
Histosol (A			Sandy Gle		ix (S4)			Manganese Masses (F12)
	pedon (A2)		Sandy Re					Parent Material (F21)
Black Hist			Stripped N)			Shallow Dark Surface (F22)
	Sulfide (A4)		Dark Surf		L (- 4)		Othe	r (Explain in Remarks)
	Layers (A5)		Loamy Mu	•	, ,			
2 cm Mucl	, ,	. (Λ11)	Loamy Gl	-				
	Below Dark Surface k Surface (A12)	: (ATT)	X Depleted Redox Da				3122:22	s of hydrophytic vegetation and
	cky Mineral (S1)				` '			
	ky Peat or Peat (S3	2)	Z Depleted X Redox De)		and hydrology must be present, as disturbed or problematic.
	`	')		pressions	5 (1 0)		unies	as disturbed of problematic.
Type:	ayer (if observed):							
	rock							
		16					Hydric Soil Broson	Yos Y No
Depth (inc Remarks: Hydric indicato	ches):	16					Hydric Soil Presen	<u> Yes_X_No</u>
Depth (inc Remarks: Hydric indicato	ches):	16					Hydric Soil Presen	t? Yes <u>X</u> No
Depth (incomplete in the control of	or met.	16					Hydric Soil Presen	t? Yes <u>X</u> No
Depth (incomplete in the control of	or met. GY rology Indicators:		iradu ob oply all that	angle)				
Depth (incomplete in the control of	ches): Or met. GY rology Indicators: ators (minimum of o				(PA)		<u>Seconda</u>	ry Indicators (minimum of two require
Depth (incomplete in the control of	ehes): Or met. GY rology Indicators: ators (minimum of o		Water-Sta	ained Lea	, ,		Seconda Surfa	ry Indicators (minimum of two require ace Soil Cracks (B6)
Depth (incomplete in the control of	or met. GY rology Indicators: ators (minimum of or dater (A1) er Table (A2)		Water-Sta	ained Lea auna (B1	3) `´		Seconda Surfa Drair	ry Indicators (minimum of two requirence Soil Cracks (B6) hage Patterns (B10)
Depth (incomplete in the control of	or met. GY rology Indicators: ators (minimum of or /ater (A1) or Table (A2) a (A3)		Water-Sta Aquatic Factorial True Aqua	ained Lea auna (B13 atic Plants	3) s (B14)		Seconda Surfa Drair Dry-S	ry Indicators (minimum of two require ace Soil Cracks (B6) aage Patterns (B10) Season Water Table (C2)
Depth (inc Remarks: Hydric indicate HYDROLOC Wetland Hydr Primary Indicate X Surface W X High Wate X Saturation Water Mare	ches): Or met. Or m		Water-Sta Aquatic Fa True Aqua Hydrogen	ained Lea auna (B13 atic Plants Sulfide C	3) s (B14) odor (C1)	Seconda Surfa Drair Dry-S	ry Indicators (minimum of two requirence Soil Cracks (B6) hage Patterns (B10) Season Water Table (C2) fish Burrows (C8)
Depth (incomplete in the control of	ches): Or met. Or m		Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized I	ained Lea auna (B13 atic Plants Sulfide C Rhizosphe	3) s (B14) odor (C1 eres on l) Living Ro	Seconda	ry Indicators (minimum of two require ace Soil Cracks (B6) lage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9)
Depth (incomplete in the control of	prology Indicators: ators (minimum of or /ater (A1) er Table (A2) a (A3) rks (B1) Deposits (B2) sits (B3)		Water-Sta Aquatic Factor True Aqua Hydrogen Oxidized I Presence	ained Lea auna (B13 atic Plants Sulfide C Rhizospho of Reduc	3) s (B14) odor (C1 eres on led) Living Ro (C4)	Seconda Surfa Drair Dry-S Cray ots (C3) Stundard	ry Indicators (minimum of two require ace Soil Cracks (B6) age Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) ated or Stressed Plants (D1)
Depth (incomplete in the control of	rology Indicators: ators (minimum of or /ater (A1) er Table (A2) a (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4)		Water-Sta Aquatic F. True Aqua Hydrogen Oxidized I Presence Recent Iro	ained Lea auna (B13 atic Plants Sulfide C Rhizospho of Reduct on Reduct	B) S (B14) Odor (C1 eres on led Iron et ion in Ti) Living Ro (C4)	Seconda	ry Indicators (minimum of two required note Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) fied or Stressed Plants (D1) morphic Position (D2)
Depth (incomplete in the control of	rology Indicators: ators (minimum of or /ater (A1) er Table (A2) a (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5)	ne is requ	Water-Sta Aquatic F. True Aqua Hydrogen Oxidized I Presence Recent Iro	ained Lea auna (B1; atic Plants Sulfide C Rhizospho of Reduct on Reduct & Surface	B) S (B14) Odor (C1 eres on led Iron ed Iron in Ti) Living Ro (C4)	Seconda	ry Indicators (minimum of two require ace Soil Cracks (B6) age Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) ated or Stressed Plants (D1)
Depth (incomplete in the control of	prology Indicators: ators (minimum of or /ater (A1) er Table (A2) a (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) a Visible on Aerial In	ne is requ	Water-Sta Aquatic F. Aquatic F. True Aqua Hydrogen Oxidized I Presence Recent Iro Thin Muck 57) Gauge or	ained Lea auna (B1; atic Plants Sulfide C Rhizospho of Reduct on Reduct & Surface Well Data	B) S (B14) Odor (C1 eres on led Iron et ion in Ti (C7) A (D9)) Living Ro (C4) illed Soils	Seconda	ry Indicators (minimum of two required note Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) fied or Stressed Plants (D1) morphic Position (D2)
Depth (incomplete in the complete in the compl	ches): or met. or met. or met. or met. or motogy Indicators: ators (minimum of or ators (A1) or Table (A2) or (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) or Visible on Aerial In /egetated Concave	ne is requ	Water-Sta Aquatic F. Aquatic F. True Aqua Hydrogen Oxidized I Presence Recent Iro Thin Muck 57) Gauge or	ained Lea auna (B1; atic Plants Sulfide C Rhizospho of Reduct on Reduct & Surface Well Data	B) S (B14) Odor (C1 eres on led Iron et ion in Ti (C7) A (D9)) Living Ro (C4) illed Soils	Seconda	ry Indicators (minimum of two required note Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) fied or Stressed Plants (D1) morphic Position (D2)
Depth (inco Remarks: Hydric indicate HYDROLOC Wetland Hydr Primary Indica X Surface W X High Wate X Saturation Water Man Sediment Drift Depo Algal Mate Iron Depo: Inundation Sparsely \ Field Observation	ches): Der met. Der met. Der mot. Der rology Indicators: ators (minimum of or	ne is requ magery (B Surface (Water-Sta Aquatic F. True Aqua Hydrogen Oxidized I Presence Recent Iro Thin Mucl (57) Gauge or (58) Other (Ex	ained Lear auna (B1; atic Plants Sulfide C Rhizospho of Reduct on Reduct & Surface Well Data plain in R	B) S (B14) Ddor (C1 eres on led Iron ition in Ti (C7) a (D9) emarks)) Living Rc (C4) illed Soils	Seconda	ry Indicators (minimum of two required note Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) fied or Stressed Plants (D1) morphic Position (D2)
Depth (incomplete in the content of	ches): Or met. Or met. Or met. Or met. Or met. Or mot. Or m	ne is requ magery (B Surface (Water-Sta Aquatic F. True Aqua Hydrogen Oxidized I Presence Recent Iro Thin Muck 67) Gauge or (B8) Other (Ex	ained Lear auna (B1; atic Plants Sulfide C Rhizospho of Reduct on Reduct & Surface Well Data plain in R	B) S (B14) Odor (C1 eres on led Iron cition in Ti (C7) a (D9) emarks)) Living Ro (C4) illed Soils	Seconda	ry Indicators (minimum of two required note Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) fied or Stressed Plants (D1) morphic Position (D2)
Depth (incomplete in the content of	ches): pr met. prology Indicators: ators (minimum of or or or table (A2) a (A3) arks (B1) a (A3) brks (B3) brysits (B3) brysits (B3) brysits (B4) brysits (B5) a Visible on Aerial Indicators: ations: ar Present? brysits (Present? brysits (Present? brysits (Present? brysits (Present)	ne is requ magery (B Surface (s X s X	Water-Sta Aquatic For True Aquatic For True Aquatic For True Aquatic For True Aquatic For Presence Recent Irus Thin Mucles For Gauge or The Company (B8) Other (Extended For Presence Recent Irus Thin Mucles For Presence Recent Irus Th	ained Lear auna (B1; atic Plants Sulfide C Rhizospho of Reduct on Reduct on Reduct on Surface Well Data plain in R Depth (ir	B) S (B14) Odor (C1 eres on led Iron cition in Ti (C7) a (D9) emarks) anches): _anches):) Living Rc (C4) illed Soils	Seconda	ry Indicators (minimum of two required ace Soil Cracks (B6) aage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) ated or Stressed Plants (D1) morphic Position (D2) Neutral Test (D5)
Depth (incomplete in the control of	ches): Or met. Or mot. Or Table (A2) Or (A3) Or Crust (B4) Or Crust (B4) Or Crust (B4) Or Or Wisible on Aerial In Or	ne is requ magery (B Surface (Water-Sta Aquatic F. True Aqua Hydrogen Oxidized I Presence Recent Iro Thin Muck 67) Gauge or (B8) Other (Ex	ained Lear auna (B1; atic Plants Sulfide C Rhizospho of Reduct on Reduct & Surface Well Data plain in R	B) S (B14) Odor (C1 eres on led Iron cition in Ti (C7) a (D9) emarks) anches): _anches):) Living Ro (C4) illed Soils	Seconda	ry Indicators (minimum of two required ace Soil Cracks (B6) aage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) ated or Stressed Plants (D1) morphic Position (D2) Neutral Test (D5)
Depth (inc Remarks: Hydric indicate HYDROLOC Wetland Hydr Primary Indicate X Surface W X High Water X Saturation Water Mai Sediment Drift Depo Algal Mat Iron Depos Inundatior Sparsely \ Field Observa Surface Water Water Table F Saturation Pre (includes capil	ches): Or met. Or mot. Or Table (A2) Or (A3) Or Crust (B4) Or Crust (B4) Or Crust (B4) Or Or Wisible on Aerial In Or	magery (B Surface (s X s X	Water-Sta Aquatic Fa Aquatic Fa True Aqua Hydrogen Oxidized I Presence Recent Ira Thin Much Gauge or Other (Ex	ained Lear auna (B1; atic Plants Sulfide C Rhizosphe of Reduct on Reduct on Reduct on Surface Well Data plain in R Depth (in Depth (in	B) S (B14) Odor (C1 eres on led Iron ed Iron in Ti (C7) a (D9) emarks) anches): _ anches): _ anches): _) Living Ro (C4) illed Soils 1 0 0	Seconda	ry Indicators (minimum of two required ace Soil Cracks (B6) aage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) ated or Stressed Plants (D1) morphic Position (D2) Neutral Test (D5)
Depth (inc Remarks: Hydric indicate HYDROLOC Wetland Hydr Primary Indicate X Surface W X High Water X Saturation Water Mai Sediment Drift Depo Algal Mat Iron Depos Inundatior Sparsely \ Field Observa Surface Water Water Table F Saturation Pre (includes capil	ches): or met. or clogy Indicators: ators (minimum of or /ater (A1) or Table (A2) or (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) or Visible on Aerial In /egetated Concave ations: or Present? or Present? ye esent? ye ellary fringe)	magery (B Surface (s X s X	Water-Sta Aquatic Fa Aquatic Fa True Aqua Hydrogen Oxidized I Presence Recent Ira Thin Much Gauge or Other (Ex	ained Lear auna (B1; atic Plants Sulfide C Rhizosphe of Reduct on Reduct on Reduct on Surface Well Data plain in R Depth (in Depth (in	B) S (B14) Odor (C1 eres on led Iron ed Iron in Ti (C7) a (D9) emarks) anches): _ anches): _ anches): _) Living Ro (C4) illed Soils 1 0 0	Seconda	ry Indicators (minimum of two required ace Soil Cracks (B6) aage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) ated or Stressed Plants (D1) morphic Position (D2) Neutral Test (D5)
Depth (inco Remarks: Hydric indicate HYDROLOC Wetland Hydr Primary Indica X Surface W X High Water X Saturation Water Man Sediment Drift Depo Algal Mat Iron Depo: Inundation Sparsely \ Field Observa Surface Water Water Table F Saturation Pre (includes capil Describe Reco	ches): or met. or met. or met. or met. or met. or rology Indicators: attors (minimum of or vater (A1) or Table (A2) or (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) or Visible on Aerial In vegetated Concave ations: r Present? Ye resent? Ye	magery (B Surface (s X s X	Water-Sta Aquatic Fa Aquatic Fa True Aqua Hydrogen Oxidized I Presence Recent Ira Thin Much Gauge or Other (Ex	ained Lear auna (B1; atic Plants Sulfide C Rhizosphe of Reduct on Reduct on Reduct on Surface Well Data plain in R Depth (in Depth (in	B) S (B14) Odor (C1 eres on led Iron ed Iron in Ti (C7) a (D9) emarks) anches): _ anches): _ anches): _) Living Ro (C4) illed Soils 1 0 0	Seconda	ry Indicators (minimum of two required ace Soil Cracks (B6) aage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) ated or Stressed Plants (D1) morphic Position (D2) Neutral Test (D5)

See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

Project/Site: Wabash Hydrogen Energy Center		City/Cou	nty: Vermilli	on	Sam	pling Date:	6/13/	/2024
Applicant/Owner: Wabash Valley Resources LLC				State: IN	Samp	oling Point:	W-CM	IS-003-PEM
Investigator(s): CMS, KB		Section, T	Township, Ra	nge: S26 T14N R	10W			
Landform (hillside, terrace, etc.): plains			Local relief (d	concave, convex, no	one): concav	e		
Slope (%): 0 Lat: 39.622335°		Long: -	87.489021°		Datum:	DDNAD 8	3	
Soil Map Unit Name: OrB: Orthents, loamy, 0 to 8 per	rcent slopes			NWI	 classification:			
Are climatic / hydrologic conditions on the site typical	for this time o	of vear?	Yes	No X (If n	o. explain in	Remarks.)		
Are Vegetation X , Soil X , or Hydrology X		-		Circumstances" pre			lo X	
Are Vegetation , Soil , or Hydrology	•			plain any answers i				_
SUMMARY OF FINDINGS – Attach site m							tures	, etc.
Lludrank, tie Versteier Drassut? Ver	1-	la tha	Commissis					
<u>—</u>	10 10		Sampled A		X No			
	10	Within	ii a vvetialiu	. 165_				
Remarks:		<u> </u>						
Site was historically disturbed by strip mining and cu the compaction of soils. Site dominated by cottonwo								on and
		and opolica i	aayoti ai i i b	" T III III III III III III III III III	arought for th		· oui ·	
VEGETATION – Use scientific names of pl	Absolute	Dominant	Indicator	1				
<u>Tree Stratum</u> (Plot size: 30')	% Cover	Species?	Status	Dominance Tes	st worksheet	::		
1.				Number of Dom	inant Species	s That		
2. Populus deltoides	10	Yes	FAC	Are OBL, FACW	, or FAC:		4	(A)
3.				Total Number of	Dominant S	pecies		
4				Across All Strata	a :		5	_(B)
5	. ——			Percent of Domi				
One line (Ohan h. Ohan hann) (Diet eine	10	=Total Cover		Are OBL, FACW	, or FAC:	8	0.0%	_ (A/B)
Sapling/Shrub Stratum (Plot size: 15'	_)	V	E4011	Duran la de		. 4 .		
Juniperus virginiana Salix nigra	<u>5</u> 5	Yes Yes	FACU OBL	Prevalence Index Total % Co		et: Multipl	v bv:	
3.		103	ODL	OBL species	15	x 1 =	15	-
4.				FACW species	10	x 2 =	20	_
5.				FAC species	10	x 3 =	30	_
	10	=Total Cover		FACU species	5	x 4 =	20	_
Herb Stratum (Plot size: 5')				UPL species	0	x 5 =	0	_
1. Polygonum persicaria	10	Yes	FACW	Column Totals:	40 (A)	85	(B)
2. Eleocharis palustris	10	Yes	OBL	Prevalence In	ndex = B/A =	2.1	3	_
3	<u> </u>							
4				Hydrophytic Ve	getation Ind	icators:		
5					est for Hydrop		tation	
6				X 2 - Dominan				
7				X 3 - Prevalen				
8.					ogical Adapta emarks or on			
9.	. ——					•		
10	20	=Total Cover			Hydrophytic	•		•
Woody Vine Stratum (Plot size: 30'	1 20	= Folai Covei		¹ Indicators of hy be present, unle				must
	_'				33 distuibed	or problem	alic.	
1				Hydrophytic Vegetation				
 -				vegetation				
		=Total Cover		Present?	Yes X	No		

SOIL Sampling Point: w-cms-003-PEM

Depth	Matrix		Redu	x Feature					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	_	Remarks
0-16	10G 4/1	85	10YR 4/6	15	С	M	Loamy/Clayey	Promin	ent redox concentration
								_	
¹ Type: C=Co	ncentration, D=Dep	letion, RM	=Reduced Matrix, I	MS=Mask	ced Sand	d Grains.	² Locati	on: PL=Pore I	Lining, M=Matrix.
Hydric Soil Ir	ndicators:						Indicat	ors for Probl	ematic Hydric Soils ³ :
Histosol (A1)		Sandy Gle	eyed Matr	ix (S4)		Iro	n-Manganese	Masses (F12)
Histic Epi	pedon (A2)		Sandy Re	dox (S5)			Re	d Parent Mate	rial (F21)
Black Hist	tic (A3)		Stripped N		5)		Ve	ry Shallow Da	rk Surface (F22)
Hydrogen	Sulfide (A4)		Dark Surfa	ace (S7)			Oth	ner (Explain in	Remarks)
Stratified	Layers (A5)		Loamy Mu	icky Mine	eral (F1)				
2 cm Muc	k (A10)		X Loamy Gl	eyed Mat	rix (F2)				
Depleted	Below Dark Surface	e (A11)	Depleted	Matrix (F3	3)				
Thick Dar	k Surface (A12)		Redox Da	rk Surfac	e (F6)		³ Indicat	tors of hydroph	nytic vegetation and
	ıcky Mineral (S1)		Depleted	Dark Surf	ace (F7))	we	tland hydrolog	y must be present,
5 cm Muc	ky Peat or Peat (S3	3)	X Redox De	pressions	s (F8)		unl	ess disturbed	or problematic.
Restrictive L	ayer (if observed):								
-	rock								
Type:	TOOK								
Depth (inc		16 e hummoc	ked and compacte	d soils.			Hydric Soil Prese	ent?	Yes <u>X</u> No_
Depth (inc	ches):		ked and compacte	d soils.			Hydric Soil Prese	ent?	Yes <u>X</u> No_
Depth (inc	ches): ors met. Cattle have		ked and compacte	d soils.			Hydric Soil Prese	ent?	Yes X No
Depth (incomplete in the control of	ors met. Cattle have	e hummoo							
Depth (incomplete in the control of	ches): ors met. Cattle have GY rology Indicators: ators (minimum of c	e hummoo	ired; check all that	apply)			Second	dary Indicators	(minimum of two requi
Depth (incomplete in the control of	GY rology Indicators: ators (minimum of covater (A1)	e hummoo	ired; check all thatWater-Sta	apply) iined Lea	` '		Second	dary Indicators	(minimum of two requi
Depth (incomplete in the control of	GY rology Indicators: ators (minimum of covater (A1) er Table (A2)	e hummoo	ired; check all thatWater-Sta	apply) iined Lea auna (B1;	3) ` ´		<u>Secono</u> Su Dra	dary Indicators rface Soil Crad ainage Pattern	(minimum of two requicks (B6) s (B10)
Depth (incomplete in the control of	GY rology Indicators: ators (minimum of or Vater (A1) er Table (A2) n (A3)	e hummoo	ired; check all that Water-Sta Aquatic Fa	apply) ined Lea auna (B1; atic Plants	3) s (B14)		Second Su Dra X_Dry	dary Indicators rface Soil Crad ainage Pattern r-Season Wate	(minimum of two requicks (B6) s (B10) er Table (C2)
Depth (incomplete in the complete in the compl	GY rology Indicators: ators (minimum of covater (A1) er Table (A2) n (A3) urks (B1)	e hummoo	ired; check all thatWater-StaAquatic FaTrue Aqua	apply) nined Lea auna (B1: atic Plants Sulfide C	3) s (B14) Odor (C1)	Second Su Dra Dry Cra	dary Indicators rface Soil Crad ainage Pattern r-Season Wat ayfish Burrows	: (minimum of two requi cks (B6) s (B10) er Table (C2)
Depth (incomplete in the content of	GY rology Indicators: ators (minimum of or Vater (A1) er Table (A2) n (A3) urks (B1) Deposits (B2)	e hummoo	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized I	apply) ined Lea auna (B1; atic Plants Sulfide C Rhizospho	3) s (B14) Odor (C1 eres on l) Living Ro	Second Su	dary Indicators rface Soil Crac ainage Pattern r-Season Wate ayfish Burrows turation Visible	cks (B6) s (B10) er Table (C2) c (C8) e on Aerial Imagery (CS
Depth (incomplete in the content of	GY rology Indicators: ators (minimum of or Vater (A1) er Table (A2) n (A3) urks (B1) Deposits (B2) osits (B3)	e hummoo	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa	apply) uined Lear auna (B1; atic Plants Sulfide C Rhizospho of Reduc	3) s (B14) Odor (C1 eres on led) Living Ro (C4)	Second Su Dra X Dra Dra Cra Cra X Sa X Stu	dary Indicators rface Soil Crac ainage Pattern r-Season Wate ayfish Burrows turation Visible unted or Stress	cks (B6) s (B10) er Table (C2) s (C8) e on Aerial Imagery (C9) sed Plants (D1)
Depth (incomplete in the control of	ches): ors met. Cattle have rology Indicators: ators (minimum of covater (A1) er Table (A2) n (A3) urks (B1) Deposits (B2) osits (B3) or Crust (B4)	e hummoo	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro	apply) ined Lear auna (B1; atic Plants Sulfide C Rhizospho of Reduc	3) s (B14) Odor (C1 eres on led Iron (tion in Ti) Living Ro (C4)	Second Su Dra X Dry Cra Sots (C3) X Sa X Stu G (C6) Ge	dary Indicators rface Soil Crace ainage Pattern r-Season Wate ayfish Burrows turation Visible inted or Stress omorphic Pos	cks (B6) s (B10) er Table (C2) c (C8) e on Aerial Imagery (C9) sed Plants (D1)
Depth (incomplete in the content of	ches): ors met. Cattle have rology Indicators: ators (minimum of or Vater (A1) er Table (A2) n (A3) arks (B1) Deposits (B2) osits (B3) or Crust (B4) osits (B5)	e hummoo	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro	apply) ined Lear auna (B1; atic Plants Sulfide C Rhizospho of Reduct c Surface	3) s (B14) Odor (C1 eres on led Iron (C7)) Living Ro (C4)	Second Su Dra X Dry Cra Sots (C3) X Sa X Stu G (C6) Ge	dary Indicators rface Soil Crac ainage Pattern r-Season Wate ayfish Burrows turation Visible unted or Stress	cks (B6) s (B10) er Table (C2) c (C8) e on Aerial Imagery (C9) sed Plants (D1)
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U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Midwest Region See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

Project/Site: Wabash Hydrogen Energy Center		City/Cour	nty: Vermillion			Sampling Da	te: <u>6/13</u>	3/2024
Applicant/Owner: Wabash Valley Resources LLC				State:	IN S	ampling Poi	nt: w-cn	/IS-003-UP
Investigator(s): CMS, KB		Section, T	ownship, Rang	e: S26 T14N	R10W			
Landform (hillside, terrace, etc.): plains		- L	ocal relief (co	ncave, convex,	none): con	ıcave		
Slope (%): 0 Lat: 39.622746°			37.487905°			tum: DDNA[D 83	
Soil Map Unit Name: OrB: Orthents, loamy, 0 to 8 perce	nt slopes	_		NW	/I classifica			
Are climatic / hydrologic conditions on the site typical for		ear?	Yes	No X (I	f no explair	n in Remarks	s)	
Are Vegetation X , Soil X , or Hydrology X sig	-		re "Normal Cir				No X	
Are Vegetation, Soil, or Hydrology na			f needed, expl				<u> </u>	_
SUMMARY OF FINDINGS – Attach site maj				-			eatures	s, etc.
	X		Sampled Area a Wetland?		s	No_X_		
Remarks: Site was historically disturbed by strip mining and curre the compaction of soils. Site dominated by red cedar. A					turbed by th	ne removal c	of vegetat	ion and
VEGETATION – Use scientific names of plan	ts.							
<u>Tree Stratum</u> (Plot size: 30')		Dominant Species?	Indicator Status	Dominance T	ost works	hoot:		
1.	76 COVEI	species:	Status	Number of Do				
2. Juniperus virginiana	90	Yes	FACU	Are OBL, FAC			0	(A)
3.				Total Number	of Domina	nt Species		
4				Across All Str	ata:	· _	1	(B)
5				Percent of Do				
-	90 =To	otal Cover		Are OBL, FAC	CW, or FAC	: <u> </u>	0.0%	_ (A/B)
Sapling/Shrub Stratum (Plot size: 15')	0	Nie	LIDI	Dunisalamaa li		la a a 4 ·		
Elaeagnus umbellata 2.	2	No	<u>UPL</u>	Prevalence In Total % (tiply by:	
3.				OBL species	0	x 1 =	0	_
4.				FACW specie	s 0	x 2 =	0	_
5.				FAC species	0	x 3 =	0	
	2 =To	otal Cover		FACU species	92	x 4 =	368	
Herb Stratum (Plot size: 5')				UPL species	2	x 5 =	10	_
Digitaria ciliaris	2	No	FACU	Column Totals		(A)	378	_(B)
2				Prevalence	Index = B	/A =	4.02	_
3				Hydrophytic	Vagetation	Indicators		
						drophytic Ve		
6.					ance Test i		getation	
7.					ence Index			
8.						aptations ¹ (F r on a separ		
9. 10.						ytic Vegetat		
Woody Vine Stratum (Plot size: 30')	2 =To	otal Cover		¹ Indicators of be present, ur	hydric soil a	and wetland	hydrology	
1				Hydrophytic	see alotan			
2.				Vegetation				
	=To	otal Cover		Present?	Yes	No_	Χ	
Remarks: (Include photo numbers here or on a separa	te sheet)		1					

SOIL Sampling Point: w-cms-003-UPL

Depth _	Matrix		Redo	ox Featur	es					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	
0-6	10YR 5/1	90	10YR 5/6	10	C	M	Loamy/Clayey	Promine	nt redox conce	ntrations
<u> </u>										
	centration, D=Dep	etion, RM	=Reduced Matrix, I	MS=Masl	ked Sand	d Grains.			ning, M=Matrix	•
Hydric Soil In			Canada Ola	Mat	(C.4)				matic Hydric S	SOIIS":
Histosol (A			Sandy Gle	•	rix (54)			Manganese M		
Histic Epip			Sandy Re		• • • • • • • • • • • • • • • • • • • •			Parent Materi		
Black Histi			Stripped N		o)				Surface (F22)	
	Sulfide (A4)		Dark Surfa	, ,	rol (Γ1)		Otne	er (Explain in F	Remarks)	
Stratified Layers (A5) 2 cm Muck (A10)		Loamy Mu	-							
	k (A10) Below Dark Surface	(Δ11)	Loamy Gl X Depleted	-						
	Selow Dark Surface Surface (A12)	: (A11)	Redox Da				3Indicate	ro of budrophy	tic vegetation	and
	cky Mineral (S1)		Redox ba		` '				must be prese	
	ky Peat or Peat (S3	3)	X Redox De		` '				r problematic.	н.,
	•	'/		proceion	3 (1 0)		41110		r problematic.	
Resultative La	yer (if observed):									
Type	rock									
Type:	rock hes):	6					Hydric Soil Preser	ıt?	Yes X	No
Depth (incl		6 hummoo	ked and compacte	d soils.			Hydric Soil Preser	nt?	Yes_X_	No
Depth (incl	hes):		ked and compacte	d soils.			Hydric Soil Preser	nt?	Yes X	No
Depth (incl	hes): ors met. Cattle have		ked and compacte	d soils.			Hydric Soil Preser	nt?	Yes X	No
Depth (incl Remarks: Hydric indicato	hes): ors met. Cattle have SY ology Indicators:	e hummoc								
Depth (incl Remarks: Hydric indicato HYDROLOG Wetland Hydr Primary Indica	hes): ors met. Cattle have ory ology Indicators: tors (minimum of o	e hummoc	ired; check all that	apply)			<u>Seconda</u>	ary Indicators (minimum of tw	
Depth (incl Remarks: Hydric indicato HYDROLOG Wetland Hydr Primary Indica Surface W	ors met. Cattle have SY cology Indicators: tors (minimum of o	e hummoc	ired; check all that Water-Sta	apply) ained Lea	, ,		Seconda Surf	ary Indicators (ace Soil Crack	minimum of two	
Depth (incl Remarks: Hydric indicato HYDROLOG Wetland Hydr Primary Indicato Surface W High Wate	ors met. Cattle have ors met. Cattle have ology Indicators: tors (minimum of olater (A1) or Table (A2)	e hummoc	ired; check all thatWater-Sta	apply) ained Lea auna (B1	3)		Seconda Surf Drai	ary Indicators (ace Soil Crack nage Patterns	minimum of two (ss (B6) (B10)	
Depth (incl Remarks: Hydric indicato HYDROLOG Wetland Hydr Primary Indica Surface W High Wate Saturation	ors met. Cattle have ors met. Cattle have ology Indicators: tors (minimum of orater (A1) or Table (A2) (A3)	e hummoc	ired; check all that Water-Sta Aquatic Fa	apply) ained Lea auna (B1 atic Plant	3) s (B14)		Surf Surf Drai Dry-	ary Indicators (ace Soil Crack nage Patterns Season Watel	minimum of two (B6) (B10) r Table (C2)	
Depth (incl Remarks: Hydric indicato IYDROLOG Wetland Hydr Primary Indica Surface W High Wate Saturation Water Mar	ors met. Cattle have ology Indicators: tors (minimum of olater (A1) or Table (A2) (A3) ks (B1)	e hummoc	ired; check all thatWater-StaAquatic FaTrue Aqua	apply) nined Lea auna (B1 atic Plant Sulfide (3) s (B14) Odor (C1		Seconda Surf Drai Dry- Cray	ary Indicators (ace Soil Crack nage Patterns Season Water rfish Burrows ((minimum of two (B10) (B10) (Table (C2) (C8)	o require
Depth (incl Remarks: Hydric indicato HYDROLOG Wetland Hydr Primary Indica Surface W High Wate Saturation Water Mar Sediment I	ors met. Cattle have ors met. Cattle have ology Indicators: tors (minimum of orater (A1) or Table (A2) (A3) cks (B1) Deposits (B2)	e hummoc	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized I	apply) nined Lea auna (B1 atic Plant Sulfide (Rhizosph	3) s (B14) Odor (C1) eres on l	_iving Ro	Seconda Surf Drai Dry- Cray Satu	ary Indicators (ace Soil Crack nage Patterns Season Water fish Burrows (iration Visible	(minimum of two tests (B6) (B10) (C2) (C8) on Aerial Imag	o require
Depth (incl Remarks: Hydric indicato IYDROLOG Wetland Hydr Primary Indica Surface W High Wate Saturation Water Mar Sediment I Drift Depos	ors met. Cattle have ors met. Cattle have ology Indicators: tors (minimum of orater (A1) or Table (A2) (A3) rks (B1) Deposits (B2) sits (B3)	e hummoc	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa	apply) nined Lea auna (B1 atic Plant Sulfide C Rhizosph of Reduc	3) s (B14) Odor (C1) eres on l ced Iron (_iving Ro [C4)	Seconda Surf Drai Dry- Cray Satu Stur	ary Indicators (ace Soil Crack nage Patterns Season Water fish Burrows (iration Visible ited or Stresse	(minimum of two cs (B6) (B10) r Table (C2) (C8) on Aerial Imaged Plants (D1)	o require
Depth (incl Remarks: Hydric indicato IYDROLOG Wetland Hydr Primary Indica Surface W High Wate Saturation Water Mar Sediment I Drift Depos	brs met. Cattle have cology Indicators: tors (minimum of of atter (A1) or Table (A2) (A3) cks (B1) Deposits (B2) sits (B3) or Crust (B4)	e hummoc	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized I Presence Recent Iro	apply) ained Lea auna (B1 atic Planti Sulfide (Rhizosph of Reduc	3) s (B14) Odor (C1) eres on I ced Iron (tion in Ti	_iving Ro [C4)	Seconda Surf Drai Dry- Cray Sots (C3) Satu Stur S (C6) Geo	ary Indicators (ace Soil Crack nage Patterns Season Water fish Burrows (uration Visible ted or Stresse morphic Positi	(minimum of two (s) (B6) (B10) (C8) (C8) on Aerial Imaged Plants (D1) (ion (D2)	o require
Depth (incl Remarks: Hydric indicato HYDROLOG Wetland Hydr Primary Indica Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos	ors met. Cattle have ology Indicators: tors (minimum of of otater (A1) or Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5)	ne is requ	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized fa Presence Recent Iro	apply) ained Lea auna (B1 atic Planti Sulfide (Rhizosph of Reduc on Reduc	3) s (B14) Odor (C1) eres on I ced Iron (tion in Ti (C7)	_iving Ro [C4)	Seconda Surf Drai Dry- Cray Sots (C3) Satu Stur S (C6) Geo	ary Indicators (ace Soil Crack nage Patterns Season Water fish Burrows (iration Visible ited or Stresse	(minimum of two (s) (B6) (B10) (C8) (C8) on Aerial Imaged Plants (D1) (ion (D2)	o require
Depth (incl Remarks: Hydric indicato HYDROLOG Wetland Hydr Primary Indica: Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat of Iron Depos Inundation	ors met. Cattle have ology Indicators: tors (minimum of of otater (A1) or Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) Visible on Aerial In	ne is requ	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 7) Gauge or	apply) ained Lea auna (B1 atic Plant: Sulfide C Rhizosph of Reduc on Reduc c Surface Well Dat	3) s (B14) Odor (C1) eres on l ced Iron (tion in Ti (C7) a (D9)	_iving Ro [C4)	Seconda Surf Drai Dry- Cray Sots (C3) Satu Stur S (C6) Geo	ary Indicators (ace Soil Crack nage Patterns Season Water fish Burrows (uration Visible ted or Stresse morphic Positi	(minimum of two (s) (B6) (B10) (C8) (C8) on Aerial Imaged Plants (D1) (ion (D2)	o require
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Depth (incl Remarks: Hydric indicato HYDROLOG Wetland Hydr Primary Indica Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat of Iron Depos Inundation Sparsely V Field Observa	brs met. Cattle have cology Indicators: tors (minimum of of ater (A1) br Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) br Crust (B4) sits (B5) Visible on Aerial Independent	ne is requ magery (B Surface (ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Ia Presence Recent Iro Thin Muck 7) Gauge or B8) Other (Ex	apply) ained Lea auna (B1 atic Plant: Sulfide (Rhizosph of Reduc on Reduc c Surface Well Dat plain in R	3) s (B14) Odor (C1) eres on I ced Iron (tion in Ti (C7) a (D9)	_iving Ro [C4)	Seconda Surf Drai Dry- Cray Sots (C3) Satu Stur S (C6) Geo	ary Indicators (ace Soil Crack nage Patterns Season Water fish Burrows (uration Visible ted or Stresse morphic Positi	(minimum of two (s) (B6) (B10) (C8) (C8) on Aerial Imaged Plants (D1) (ion (D2)	o require
Depth (incl Remarks: Hydric indicato HYDROLOG Wetland Hydr Primary Indica Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat of Iron Depos Inundation Sparsely W Field Observa Surface Water	ors met. Cattle have ors met. Cattle have ology Indicators: tors (minimum of orater (A1) or Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) Visible on Aerial Invegetated Concave	ne is requested in the second	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized In Presence Recent Iro Thin Muck 7) Gauge or B8) No X	apply) ained Lea auna (B1 atic Plant: Sulfide (CRhizosph of Reduct on Reduct on Reduct Well Datt plain in R	3) s (B14) Odor (C1 eres on I ced Iron (tion in Ti (C7) a (D9) emarks)	_iving Ro [C4)	Seconda Surf Drai Dry- Cray Sots (C3) Satu Stur S (C6) Geo	ary Indicators (ace Soil Crack nage Patterns Season Water fish Burrows (uration Visible ted or Stresse morphic Positi	(minimum of two (s) (B6) (B10) (C8) (C8) on Aerial Imaged Plants (D1) (ion (D2)	o require
Depth (incl Remarks: Hydric indicato HYDROLOG Wetland Hydr Primary Indica: Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat of Iron Depos Inundation Sparsely V Field Observa Surface Water Water Table P	ors met. Cattle have ors met. Cattle have ology Indicators: tors (minimum of orater (A1) or Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) Visible on Aerial Inverse (Aregulated Concave	ne is requested in the second	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized If Presence Recent Iro Thin Muck 7) Gauge or B8) No X No X	apply) ained Lea auna (B1 atic Plant: Sulfide (Rhizosph of Reduc on Reduc c Surface Well Dat plain in R	3) s (B14) Odor (C1 eres on I ced Iron (tion in Ti (C7) a (D9) emarks) nches): _ nches): _	_iving Ro [C4)	Seconda Surf Drai Dry- Cray Satu Stur S (C6) FAC	ary Indicators (ace Soil Crack nage Patterns Season Water fish Burrows (aration Visible ted or Stresse morphic Positi -Neutral Test	(minimum of two sets (B6) (B10) (C8) (C8) (D1) (D2) (D5)	o require
Depth (incl Remarks: Hydric indicato HYDROLOG Wetland Hydr Primary Indica Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Inundation Sparsely V Field Observa Surface Water Water Table P Saturation Pre	ors met. Cattle have ology Indicators: tors (minimum of orater (A1) or Table (A2) (A3) or Crust (B4) or Crust (B4) or Crust (B5) Visible on Aerial In vegetated Concave attions: Present? Ye sent? Ye	ne is requested in the second	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized In Presence Recent Ind Thin Muck 7) Gauge or B8) No X	apply) ained Lea auna (B1 atic Plant: Sulfide (CRhizosph of Reduct on Reduct on Reduct Well Datt plain in R	3) s (B14) Odor (C1 eres on I ced Iron (tion in Ti (C7) a (D9) emarks) nches): _ nches): _	_iving Ro [C4)	Seconda Surf Drai Dry- Cray Sots (C3) Satu Stur S (C6) Geo	ary Indicators (ace Soil Crack nage Patterns Season Water fish Burrows (aration Visible ted or Stresse morphic Positi -Neutral Test	(minimum of two (s) (B6) (B10) (C8) (C8) on Aerial Imaged Plants (D1) (ion (D2)	o require
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Depth (incl Remarks: Hydric indicato HYDROLOG Wetland Hydr Primary Indica Surface W High Wate Saturation Water Mar Sediment I Drift Depos Inundation Sparsely V Field Observa Surface Water Water Table P Saturation Pre (includes capill	ors met. Cattle have ology Indicators: tors (minimum of ologicater (A1) or Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) Visible on Aerial Inference of the concave of the con	ne is required in the second i	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 7) Gauge or B8) Other (Ex No X No X No X No X	apply) ained Lea auna (B1 atic Plant: Sulfide C Rhizosph of Reduc on Reduc Surface Well Dat plain in R Depth (ii Depth (ii	3) s (B14) Ddor (C1) eres on I ced Iron (tion in Ti (C7) a (D9) emarks) nches): _nches): _	Living Ro	Seconda	ary Indicators (ace Soil Crack nage Patterns Season Water fish Burrows (aration Visible ted or Stresse morphic Positi -Neutral Test	(minimum of two sets (B6) (B10) (C8) (C8) (D1) (D2) (D5)	ery (C9)

Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a) See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024

Project/Site: Wabash Hydrogen Ene	rgy Center		City/Cou	nty: Vermilli	on	Sa	ampling Date:	6/13/	/2024
Applicant/Owner: Wabash Valley	y Resources LLC				State:	IN Sa	ampling Point:	W-CMS	S-004-PEN
Investigator(s): CMS, KB			Section, T	ownship, Ra	nge: S26 T14	N R10W			
Landform (hillside, terrace, etc.): pla	ains		I	Local relief (d	concave, convex	c, none): cond	cave		
Slope (%):2 Lat: 39.62326	30°		Long:{	87.487250°		Dati	ım: DDNAD 8	33	
Soil Map Unit Name: OrB: Orthents,	loamy, 0 to 8 percer	nt slopes			NV	VI classificati	on: PEM1Cx		
Are climatic / hydrologic conditions of	on the site typical for	this time o	f year?	Yes	No X (If no, explain	in Remarks.)		
Are Vegetation X , Soil X , o	r Hydrology X sig	nificantly o	disturbed? A	Are "Normal (Circumstances"			No X	
Are Vegetation, Soil, o	r Hydrology na	turally prob	olematic? (I	If needed, ex	plain any answe	ers in Remark	(s.)		_
SUMMARY OF FINDINGS -	·			g point lo	cations, trar	nsects, im	portant fea	atures	, etc.
Hydrophytic Vegetation Present?	Yes X No		Is the	Sampled A	rea				
Hydric Soil Present?	Yes X No		withir	n a Wetland	? Ye	s X	No		
Wetland Hydrology Present?	Yes X No								
Remarks: Site was historically disturbed by st the compaction of soils. Site domin								/egetatio	on and
VEGETATION – Use scientif	·								
<u>Tree Stratum</u> (Plot size:		Absolute % Cover	Dominant Species?	Indicator Status	Dominance '	Tost worksh	oot:		
1		70 OOVC1	Ореспез	Otatus	Number of De	ominant Spe	cies That	1	(A)
3.					Total Numbe	r of Dominan		2	(B)
5.					Percent of Do		ion That		_(D)
Sapling/Shrub Stratum (Plot	size: 15')		=Total Cover		Are OBL, FA			50.0%	_(A/B)
1					Prevalence I	ndex works	heet:		
2.						Cover of:	Multip	ly by:	_
3.					OBL species	61	x 1 =	61	_
4					FACW specie	es0	x 2 =	0	_
5					FAC species		x 3 =	0	_
			=Total Cover		FACU specie		_ x 4 =	80	_
Herb Stratum (Plot size:)	00		0.01	UPL species		_ x 5 =	0	- (D)
Eleocharis palustris		60	Yes	OBL	Column Tota			141	_(B)
 Portulaca oleracea Sagittaria latifolia 		20	Yes No	FACU OBL	Prevalence	e Index = B/	A = 1.7	4	_
			110	OBL	Hydrophytic	Vegetation	Indicators:		
						_	Irophytic Vege	atation	
5 6.						nance Test is		, tation	
7.					X 3 - Preva				
8.							ptations ¹ (Pro	vide sur	oporting
9.							on a separate		
10.					Problema	atic Hydrophy	tic Vegetation	า ¹ (Expla	ain)
Woody Vine Stratum (Plot	size: 30')	81 :	=Total Cover				nd wetland hy ed or problem		must
1					Hydrophytic		· ·		
2.					Vegetation				
	· -	:	=Total Cover	_	Present?	Yes X	No		
Remarks: (Include photo numbers	here or on a separate	e sheet.)							

SOIL Sampling Point: w-cms-004-PEM

Profile Desc Depth	cription: (Describ Matrix	e to the depth		ument tl x Featur		ator or c	onfirm the absence	of indicators.)	
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks	
0-6	10YR 5/1	60	7.5YR 6/8	40	С	М	Loamy/Clayey	Prominent redox concentra	ations
									
	oncentration, D=De	epletion, RM=F	Reduced Matrix, N	/IS=Mas	ked Sand	d Grains.		: PL=Pore Lining, M=Matrix.	. 3
Hydric Soil			0 1 01		. (0.1)			rs for Problematic Hydric Soil	ls":
Histosol			Sandy Gle		rix (S4)			Manganese Masses (F12)	
	pipedon (A2)		Sandy Red		• •			Parent Material (F21)	
Black Hi	` '		Stripped M		o)			Shallow Dark Surface (F22)	
	n Sulfide (A4)		Dark Surfa		! (- 4)		Other	r (Explain in Remarks)	
	d Layers (A5)		Loamy Mu						
	ick (A10)	00 (011)	Loamy Gle	•	, ,				
	d Below Dark Surfa	ce (ATT)	X Depleted N				3In diaptor	ra of budrophytic variation and	٦
	ark Surface (A12)		Redox Da		` '			s of hydrophytic vegetation and	
	fucky Mineral (S1) ucky Peat or Peat (53)	Z Redox De		, ,			and hydrology must be present, as disturbed or problematic.	
				716331011	3 (1 0)		unies	ss disturbed of problematic.	
	Layer (if observed								
Type: Depth (ir	roc	6	_				Hydric Soil Present	t? Yes X N	No
			_				Tryuno Con i recent	100 <u>X</u>	··
Remarks:	store mot Cottle be	wa hummaaka	d and compactor	d apile					
Tiyunc mulca	ators met. Cattle ha	ive nummocke	tu anu compactet	a 50115.					
HYDROLC)GY								
Wetland Hy	drology Indicator	s:							
Primary India	cators (minimum o	fone is require	ed; check all that	apply)			<u>Secondar</u>	ry Indicators (minimum of two re	equired)
Surface	Water (A1)		Water-Sta	ined Lea	ves (B9)		Surfa	ace Soil Cracks (B6)	
High Wa	iter Table (A2)		Aquatic Fa					nage Patterns (B10)	
Saturation	on (A3)		True Aqua	tic Plant	s (B14)		Dry-S	Season Water Table (C2)	
Water M	larks (B1)		Hydrogen					fish Burrows (C8)	
	nt Deposits (B2)		Oxidized F	•		-		ration Visible on Aerial Imagery	(C9)
	oosits (B3)		Presence					ted or Stressed Plants (D1)	
	at or Crust (B4)		Recent Iro			lled Soils	· ·	norphic Position (D2)	
	oosits (B5)		Thin Muck		. ,		X FAC-	Neutral Test (D5)	
	on Visible on Aeria	0 , ,			, ,				
	Vegetated Conca	ve Surface (B8	3)Other (Exp	plain in R	(emarks		1		
Field Obser									
Surface Wat		/es			nches):				
Water Table		/es			nches):		M-41		
Saturation P		/es	No X	Depth (i	nches): _		Wetland Hydrolog	gy Present? Yes X N	No
(includes ca			dendina U	ll 1 -		_ ! :	tions) if an eller		
Describe Re	corded Data (strea	m gauge, mon	nitoring well, aeria	ıı pnotos	, previou	s inspect	tions), it available:		
Remarks:									
Hydrolgic ind	dcators met.								

See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

Investigator(s): CMS, KB Section, Township, Range: S28 T14N R10W Landform (fillslide, terrace, etc.): plains Local relief (concave, correx, none): concave Stoll Map Unit Name: OrB: Orthents, loamy, 0 to 8 percent slopes NWI classification: PEM1Cx Are climatic / hydrologic conditions on the site typical for this time of year? Yes No_X (if no, explain in Remarks.) Are Vegetation	Project/Site: Wabash Hydrogen Energy Center		_ City/Cour	nty: Vermilli	on	{	Sampling Date:	6/13	/2024
Landform (hillside, terrace, etc.): plains	Applicant/Owner: Wabash Valley Resources L	LC	_		State:	IN S	Sampling Point	: W-CM	IS-005-PEN
Slope (%): 2 Lat: 39.623728*	Investigator(s): CMS, KB		Section, Te	ownship, Raı	nge: S26 T14N	√ R10W		-	
Soil Map Unit Name: OrB: Orthents, loamy, 0 to 8 percent slopes	Landform (hillside, terrace, etc.): plains		_ 	ocal relief (c	oncave, convex	, none): cor	ncave		
Soil Map Unit Name: OrB: Orthents, loamy, 0 to 8 percent slopes	Slope (%): 2 Lat: 39.623726°		Long: -8	37.486852°		Da	tum: DDNAD (33	
Are Vegetation X , Soil X , or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes No X Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, Hydrophytic Vegetation Present? Yes X No within a Wetland? Yes X No within a Wetland? Yes X No Wetland Hydrology Present? Yes X No Wetland Hydrology Present? Yes X No Wetland Hydrology Present? Yes X No Detailed From the compaction of soils. Site dominated by Indian strawberry, creeping rush and reed canary grass. APT indicates mild drought for this time of yetless that the compaction of soils. Site dominated by Indian strawberry, creeping rush and reed canary grass. APT indicates mild drought for this time of yetless that the compaction of soils. Site dominated by Indian strawberry, creeping rush and reed canary grass. APT indicates mild drought for this time of yetless that the compaction of soils. Site dominated by Indian strawberry, creeping rush and reed canary grass. APT indicates mild drought for this time of yetless that the compaction of soils. Site dominated by Indian strawberry, creeping rush and reed canary grass. APT indicates mild drought for this time of yetless that the compaction of soils. Site dominated by Indian strawberry, creeping rush and reed canary grass. APT indicates mild drought for this time of yetless and reed canary grass. APT indicates mild drought for this time of yetless and reed canary grass. APT indicates mild drought for this time of yetless and reed canary grass. APT indicates mild drought for this time of yetless and reed canary grass. APT indicates mild drought for this time of yetless and reed canary grass. APT indicates mild drought for this time of yetless and reed canary grass. APT indicates mild drought for this time of yetless and reed canary grass. APT indicates mild drought for this time of yetless and reed canary grass. APT indicates mild drought		percent slopes			NW				
Are Vegetation X , Soil X , or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes No X Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, Hydrophytic Vegetation Present? Yes X No within a Wetland? Yes X No within a Wetland? Yes X No Wetland Hydrology Present? Yes X No Wetland Hydrology Present? Yes X No Wetland Hydrology Present? Yes X No Detailed From the compaction of soils. Site dominated by Indian strawberry, creeping rush and reed canary grass. APT indicates mild drought for this time of yetless that the compaction of soils. Site dominated by Indian strawberry, creeping rush and reed canary grass. APT indicates mild drought for this time of yetless that the compaction of soils. Site dominated by Indian strawberry, creeping rush and reed canary grass. APT indicates mild drought for this time of yetless that the compaction of soils. Site dominated by Indian strawberry, creeping rush and reed canary grass. APT indicates mild drought for this time of yetless that the compaction of soils. Site dominated by Indian strawberry, creeping rush and reed canary grass. APT indicates mild drought for this time of yetless that the compaction of soils. Site dominated by Indian strawberry, creeping rush and reed canary grass. APT indicates mild drought for this time of yetless and reed canary grass. APT indicates mild drought for this time of yetless and reed canary grass. APT indicates mild drought for this time of yetless and reed canary grass. APT indicates mild drought for this time of yetless and reed canary grass. APT indicates mild drought for this time of yetless and reed canary grass. APT indicates mild drought for this time of yetless and reed canary grass. APT indicates mild drought for this time of yetless and reed canary grass. APT indicates mild drought for this time of yetless and reed canary grass. APT indicates mild drought	Are climatic / hvdrologic conditions on the site typi	cal for this time of v	ear?	Yes	No X (I	f no. explai	n in Remarks.)		
Are Vegetation, Soll, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, Hydrophytic Vegetation Present? Yes X No									
Summary OF FINDINGS - Attach site map showing sampling point locations, transects, important features,									_
Hydric Soil Present? Yes X No Wetland Hydrology Present? Yes X No No Wetland Hydrology Present? Yes X No								atures	, etc.
Hydric Soil Present? Yes X No Wetland Hydrology Present? Yes X No No Wetland Hydrology Present? Yes X No	Hydrophytic Vegetation Present? Yes X	No	Is the	Sampled Ar	ea				
Remarks: Stite was historically disturbed by strip mining and currently by cattle. Solls, vegetation and hydrology were disturbed by the removal of vegetation the compaction of soils. Site dominated by indian strawberry, creeping rush and reed canary grass. APT indicates mild drought for this time of yet				-		s X	No		
Site was historically disturbed by strip mining and currently by cattle. Soils, vegetation and hydrology were disturbed by the removal of vegetation the compaction of soils. Site dominated by indian strawberry, creeping rush and reed canary grass. APT indicates mill drought for this time of yet VEGETATION – Use scientific names of plants. Tree Stratum	Wetland Hydrology Present? Yes X	No							
VEGETATION — Use scientific names of plants. Tree Stratum (Plot size: 30') Absolute % Cover (Species?) Dominant (Species?) Indicator (Status) Dominant (Are OBL, FACW, or FAC: 2) 1		currently by cattle.	Soils, veget	tation and hy	drology were dis	sturbed by t	he removal of	vegetati	on and
Absolute									
Tree Stratum (Plot size: 30')	VEGETATION – Use scientific names of	•							
Number of Dominant Species That Are OBL, FACW, or FAC: 2 2 3 3 4 5 5 5 5 5 5 5 5 5	Tree Stratum (Plot size: 30')				Dominance 1	Feet works	heet.		
Total Number of Dominant Species Across All Strata: 3	1.	70 00001	ореоісо.	Otatus	Number of Do	ominant Spe	ecies That	_	(4)
4.									_(A)
Sapling/Shrub Stratum (Plot size: 15')	4						nt Species	3	(B)
Sapling/Shrub Stratum	5.	_{=T}	otal Cover					66 7%	(A/B)
Prevalence Index worksheet: 2. Total % Cover of: Multiply by: 3. OBL species 25 x 1 = 25 FACW species 30 x 2 = 60 FAC species 0 x 3 = 0 FACU species 42 x 4 = 168 UPL species 0 x 5 = 0 Column Totals: 97 (A) 253 2. Eleocharis palustris 25 Yes OBL Prevalence Index = B/A = 2.61 3. Phalaris arundinacea 20 Yes FACW 4. Polygonum persicaria 10 No FACW 5. Ambrosia artemisiifolia 2 No FACU 6.	Sapling/Shrub Stratum (Plot size: 15'		otal Govel		7110 ODE, 1710	JVV, 01 1 7 C	·	50.1 70	_(''')
Z. Total % Cover of: Multiply by: 3. OBL species 25 x 1 = 25 4. FACW species 30 x 2 = 60 5. FAC species 0 x 3 = 0 FAC species 0 x 3 = 0 FACU species 42 x 4 = 168 UPL species 0 x 5 = 0 Column Totals: 97 (A) 253 Peleocharis palustris 25 Yes OBL Prevalence Index = B/A = 2.61 3. Phalaris arundinacea 20 Yes FACW 4. Polygonum persicaria 10 No FACW 5. Ambrosia artemisiifolia 2 No FACU 6. 2 No FACU 7. 3. Prevalence Index is ≤3.0¹ 8. 3. Prevalence Index is ≤3.0¹ 9. 4. Morphological Adaptations¹ (Provide supption data in Remarks or on a separate sheet) 10. Problematic Hydrophytic Vegetation¹ (Explain and wetland hydrology materials)		<u> </u>			Prevalence I	ndex work	sheet:		
4.	2				Total %	Cover of:	Multip	ly by:	_
FAC species 0 x 3 = 0 Herb Stratum (Plot size: 5') 1. Potentilla indica 40 Yes FACU UPL species 0 x 5 = 0 2. Eleocharis palustris 25 Yes OBL Prevalence Index = B/A = 2.61 3. Phalaris arundinacea 20 Yes FACW 4. Polygonum persicaria 10 No FACW 5. Ambrosia artemisiifolia 2 No FACU Hydrophytic Vegetation Indicators: 5. Ambrosia artemisiifolia 2 No FACU 1 - Rapid Test for Hydrophytic Vegetation 6. X 2 - Dominance Test is >50% X 3 - Prevalence Index is ≤3.0¹ 7. X 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide suppose the problematic Hydrophytic Vegetation¹ (Explain the problematic Hydrophytic Vegetation¹ (Explain the problematic Hydrophytic Vegetation¹ (Explain the problematic Hydrophytic Soil and wetland hydrology methods	3				OBL species	25	x 1 =	25	_
Earth Ear	4				FACW specie	es 30	x 2 =	60	_
Herb Stratum(Plot size: 5')40 YesFACUUPL species 0 x 5 = 0 1. Potentilla indica40 YesFACUColumn Totals: 97 (A) 253 2. Eleocharis palustris25 YesOBLPrevalence Index = B/A = 2.61 3. Phalaris arundinacea20 YesFACW4. Polygonum persicaria10 No FACWHydrophytic Vegetation Indicators:5. Ambrosia artemisiifolia2 No FACU1 - Rapid Test for Hydrophytic Vegetation6.X 2 - Dominance Test is >50%7.X 3 - Prevalence Index is ≤3.0¹8.4 - Morphological Adaptations¹ (Provide suppose data in Remarks or on a separate sheet)10.Problematic Hydrophytic Vegetation¹ (Explain Indicators of hydric soil and wetland hydrology materials)	5						x 3 =	0	_
1. Potentilla indica 40 Yes FACU Column Totals: 97 (A) 253 2. Eleocharis palustris 25 Yes OBL Prevalence Index = B/A = 2.61 3. Phalaris arundinacea 20 Yes FACW 4. Polygonum persicaria 10 No FACW 5. Ambrosia artemisiifolia 2 No FACU 6. 1 - Rapid Test for Hydrophytic Vegetation 7. X 2 - Dominance Test is >50% X 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide support data in Remarks or on a separate sheet) 9. Total Cover Total Cover		=T	otal Cover						_
2. Eleocharis palustris 25 Yes OBL Prevalence Index = B/A = 2.61 3. Phalaris arundinacea 20 Yes FACW 4. Polygonum persicaria 10 No FACW 5. Ambrosia artemisiifolia 2 No FACU 6. 1 - Rapid Test for Hydrophytic Vegetation 7. X 2 - Dominance Test is >50% X 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide support data in Remarks or on a separate sheet) 9. Problematic Hydrophytic Vegetation¹ (Explain Indicators of hydric soil and wetland hydrology methods)	· · · · · · · · · · · · · · · · · · ·		.,	=					- (5)
3. Phalaris arundinacea 20 Yes FACW 4. Polygonum persicaria 10 No FACW 5. Ambrosia artemisiifolia 2 No FACU 6. 1 - Rapid Test for Hydrophytic Vegetation 7. X 2 - Dominance Test is >50% X 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide suppredata in Remarks or on a separate sheet) 10. Problematic Hydrophytic Vegetation¹ (Explain) 1 Indicators of hydric soil and wetland hydrology metals			-				_		_(B)
4. Polygonum persicaria 10 No FACW Hydrophytic Vegetation Indicators: 5. Ambrosia artemisiifolia 2 No FACU 1 - Rapid Test for Hydrophytic Vegetation 6. X 2 - Dominance Test is >50% X 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide suppose data in Remarks or on a separate sheet) 9. Problematic Hydrophytic Vegetation¹ (Explain Indicators of hydric soil and wetland hydrology materials)					Prevalence	index = B	/A = 2.6	51	_
5. Ambrosia artemisiifolia 2 No FACU 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% X 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide suppose data in Remarks or on a separate sheet) 10. 10. 11. Problematic Hydrophytic Vegetation¹ (Explain 1) 12. Problematic Hydrophytic Vegetation¹ (Explain 2) 13. Provide suppose data in Remarks or on a separate sheet) 14. Problematic Hydrophytic Vegetation¹ (Explain 3) 15. Ambrosia artemisiifolia 15. Ambrosia artemisiifolia 16. 18. Suppose data in Remarks or on a separate sheet) 19. Problematic Hydrophytic Vegetation¹ (Explain 3) 16. Suppose data in Remarks or on a separate sheet) 19. Suppose data in Remarks or on a separate sheet) 19. Suppose data in Remarks or on a separate sheet) 19. Suppose data in Remarks or on a separate sheet) 19. Suppose data in Remarks or on a separate sheet) 10. Suppose data in Remarks or on a separate sheet) 10. Suppose data in Remarks or on a separate sheet) 10. Suppose data in Remarks or on a separate sheet) 10. Suppose data in Remarks or on a separate sheet) 10. Suppose data in Remarks or on a separate sheet) 10. Suppose data in Remarks or on a separate sheet) 10. Suppose data in Remarks or on a separate sheet) 10. Suppose data in Remarks or on a separate sheet) 10. Suppose data in Remarks or on a separate sheet) 10. Suppose data in Remarks or on a separate sheet) 10. Suppose data in Remarks or on a separate sheet)					Hydrophytic	Vogotation	Indicators		,
6.						•		otation	
7.			INO	TACO		-		station	
8. 4 - Morphological Adaptations ¹ (Provide supplementation) (Provide	_								
9. data in Remarks or on a separate sheet) 10. Problematic Hydrophytic Vegetation ¹ (Explain 197 = Total Cover 1 Indicators of hydric soil and wetland hydrology methods)	0							ovide su	pporting
10. Problematic Hydrophytic Vegetation ¹ (Explain 97 = Total Cover ¹ Indicators of hydric soil and wetland hydrology methods and wetland hydrology methods are not as a second	0								
97 =Total Cover ¹ Indicators of hydric soil and wetland hydrology n					Problema	atic Hydroph	nytic Vegetation	n¹ (Expl	ain)
vyciony vine analim i telorisize su i i i i i ne present liniess distribed of problematic	Woody Vine Stratum (Plot size: 30'	97 =T	otal Cover		¹ Indicators of	hydric soil a	and wetland hy	drology	,
		 ′			•		aca or problem		
2 Hydrophytic Vegetation	0								
=Total Cover Present? Yes X No			otal Cover		-	Yes >	⟨ No		
Remarks: (Include photo numbers here or on a separate sheet.)	Remarks: (Include photo numbers here or on a s								

SOIL Sampling Point: w-cms-005-PEM

Profile Desc	ription: (Describe t Matrix	to the depth		ument th x Featur		ator or c	onfirm the absence o	of indicators.)	
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remark	ks
0-8	10YR 5/1	60	7.5YR 5/6	40	С	М	Loamy/Clayey	Prominent redox c	
¹ Type: C=Co	ncentration, D=Depl	etion, RM=F	Reduced Matrix, M	/IS=Masl	ked Sand	Grains.	² Location:	PL=Pore Lining, M=N	Matrix.
Hydric Soil I		,	•					s for Problematic Hyd	
Histosol (A1)		Sandy Gle	yed Mat	rix (S4)		Iron-N	Manganese Masses (F	12)
Histic Epi	pedon (A2)		Sandy Red	dox (S5)			Red F	Parent Material (F21)	
Black His	tic (A3)		Stripped M	latrix (S6	5)		Very S	Shallow Dark Surface ((F22)
	Sulfide (A4)		Dark Surfa				Other	(Explain in Remarks)	
	Layers (A5)		Loamy Mu						
2 cm Mud	` '	(* ()	Loamy Gle						
	Below Dark Surface	(A11)	X Depleted N				31	a af haadaaa hadaa aa aa ta	.C
	k Surface (A12)		Redox Dar		` '			s of hydrophytic vegeta	
	ucky Mineral (S1) ky Peat or Peat (S3)	Depleted D X Redox Dep		, ,			nd hydrology must be p s disturbed or problem	
		· ·	X Redox Bep	710331011	3 (1 0)		unics	3 disturbed of problem	ano.
Type:	ayer (if observed):								
Depth (in	rock	8	_				Hydric Soil Present	? Yes	X No
			_				Tryuno con i resent	. 100	<u> </u>
Remarks: Hydric indicat	ors met. Cattle have	hummocke	ed and compacted	l soils					
l Try di To II Talloca	oro mon oamo nave	, manimioone	a ana compació	. 00110.					
HYDROLO	GY								
_	rology Indicators:								
	ators (minimum of o	ne is require			(DO)			y Indicators (minimum	of two required)
	Vater (A1)		Water-Stai					ce Soil Cracks (B6)	
Saturation	er Table (A2)		Aquatic Fa True Aqua					age Patterns (B10) eason Water Table (C	2)
Water Ma			Hydrogen :			١		ish Burrows (C8)	2)
	Deposits (B2)		Oxidized R		` '			ation Visible on Aerial	Imagery (C9)
Drift Depo			Presence	•		•	` ′ —	ed or Stressed Plants	
	or Crust (B4)		Recent Iro			,		norphic Position (D2)	,
Iron Depo	sits (B5)		Thin Muck	Surface	(C7)		X FAC-I	Neutral Test (D5)	
Inundatio	n Visible on Aerial Ir	magery (B7)	Gauge or \	Well Dat	a (D9)				
Sparsely	Vegetated Concave	Surface (B8	B)Other (Exp	lain in R	emarks)				
Field Observ	ations:								
Surface Water	r Present? Ye	s	No X	Depth (i	nches):				
Water Table				Depth (i	_				
Saturation Pr		s	No X	Depth (i	nches): _		Wetland Hydrolog	y Present? Yes	X No
(includes cap		aous	sitoring	l nk -/ -	n residen	- in	iono) if available		
Describe Red	orded Data (stream	gauge, mor	nitoring well, aeria	pnotos	, previou:	s inspect	ions), if available:		
Remarks:									
Hydrolgic inde	cators met.								

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Midwest Region See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

Project/Site: Wabash Hydrogen Energy Center		City/Cou	nty: Vermilli	on	Sampling Date:	6/13/2024
Applicant/Owner: Wabash Valley Resources LLC				State: IN	Sampling Point:	W-CMS-004/5-UPL
Investigator(s): CMS, KB		Section, T	ownship, Ra	nge: S26 T14N R10W		
Landform (hillside, terrace, etc.): plains			Local relief (c	concave, convex, none):	concave	
Slope (%): 0 Lat: 39.624547°		Long: -	87.487396°	,	Datum: DDNAD 83	3
Soil Map Unit Name: OrB: Orthents, loamy, 0 to 8 percel	nt slopes				fication: NA	
Are climatic / hydrologic conditions on the site typical for	this time of	f vear?	Yes	No X (If no, ex	olain in Remarks.)	
Are Vegetation X , Soil X , or Hydrology X sig		-		Circumstances" present?		o X
Are Vegetation, Soil, or Hydrology na				plain any answers in Re		
SUMMARY OF FINDINGS – Attach site map				-		tures, etc.
Hydrophytic Vegetation Present? Yes No	Х	Is the	Sampled A	rea		
		withir	n a Wetland?	? Yes	No X	
Wetland Hydrology Present? Yes No	X					
Remarks: Site was historically disturbed by strip mining and currer the compaction of soils. Site dominated by annual blue						egetation and
VEGETATION – Use scientific names of plan	ts.					
Troc Stratum (Diet size: 20)	Absolute	Dominant Species?	Indicator	Dominance Test wo	wka baati	
<u>Tree Stratum</u> (Plot size: <u>30'</u>) 1 2.	% Cover	Species?	Status	Number of Dominant Are OBL, FACW, or F	Species That	0 (A)
3.				Total Number of Dom Across All Strata:		1 (B)
5.		=Total Cover		Percent of Dominant Are OBL, FACW, or F	•).0% (A/B)
Sapling/Shrub Stratum (Plot size: 15')				, ,		` ′
1				Prevalence Index we	orksheet:	
2				Total % Cover o		
3					0 x1=	0
4					x 2 =	0
5		Total Cavar			0 x 3 =	0
Herb Stratum (Plot size: 5')		=Total Cover			05 x4 =	420 0
1. Poa annua	60	Yes	FACU			420 (B)
Trifolium pratense	20	No	FACU	Prevalence Index	` ′	``
3. Plantago lanceolata	10	No	FACU			
4. Dactylis glomerata	10	No	FACU	Hydrophytic Vegeta	tion Indicators:	
5. Ambrosia artemisiifolia	5	No	FACU	1 - Rapid Test for	r Hydrophytic Veget	ation
6.				2 - Dominance Te	est is >50%	
7				3 - Prevalence In	dex is ≤3.0 ¹	
8					l Adaptations ¹ (Prov	
9					ks or on a separate	•
10					rophytic Vegetation ¹	` ' '
Woody Vine Stratum (Plot size: 30')	105 =	=Total Cover		¹ Indicators of hydric s be present, unless dis		
1.				Hydrophytic		
2		=Total Cover		Vegetation Present? Yes	NoX	<u> </u>
Remarks: (Include photo numbers here or on a separate	te sheet.)					

SOIL Sampling Point: w-cms-004/5-UPL

Depth	Matrix		Redo							
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	_	Remarks	
0-5	10YR 4/1	60	10YR 5/6	5	С	M	Loamy/Clayey	Promin	ent redox concer	ntrations
			10YR 5/1	35	D	М				
								_		
							-	_		
								_		
								_		
								_		
Type: C=Co	ncentration, D=Depl	etion, RM	=Reduced Matrix, I	MS=Mask	ked San	d Grains.	² Locati	on: PL=Pore	Lining, M=Matrix.	
Hydric Soil I	ndicators:						Indicat	ors for Probl	ematic Hydric S	oils³:
Histosol (A1)		Sandy Gle	eyed Matr	rix (S4)		Iro	n-Manganese	Masses (F12)	
Histic Epi	pedon (A2)		Sandy Re	dox (S5)			Re	d Parent Mate	rial (F21)	
Black His	tic (A3)		Stripped N	/latrix (S6	5)		Ve	ry Shallow Da	rk Surface (F22)	
Hydrogen	Sulfide (A4)		Dark Surfa	ace (S7)			Oti	ner (Explain in	Remarks)	
Stratified	Layers (A5)		Loamy Mu	icky Mine	eral (F1)					
2 cm Mud	ck (A10)		Loamy Gle	eyed Mat	rix (F2)					
Depleted	Below Dark Surface	(A11)	X Depleted I	Matrix (F3	3)					
Thick Da	k Surface (A12)		Redox Da	rk Surfac	e (F6)		³ Indica	tors of hydropl	nytic vegetation a	and
Sandy Mu	ucky Mineral (S1)		Depleted I		` ')	we	tland hydrolog	y must be preser	nt,
5 cm Mud	ky Peat or Peat (S3)	X Redox De	pressions	s (F8)		un	ess disturbed	or problematic.	
Restrictive L	ayer (if observed):									
Typo:										
Type:	rock									
Depth (in-		5 hummoo	ked and compacte	d soils.			Hydric Soil Prese	ent?	Yes X	No
Depth (in	ches):		ked and compacte	d soils.			Hydric Soil Prese	ent?	Yes X	No
Depth (in Remarks: Hydric indicat	ches): ors met. Cattle have		ked and compacte	d soils.			Hydric Soil Prese	ent?	Yes <u>X</u>	No
Depth (in Remarks: Hydric indicat	ches): ors met. Cattle have GY rology Indicators:	hummoc								
Depth (in Remarks: Hydric indicat YDROLO Wetland Hyd	ches): ors met. Cattle have GY rology Indicators: ators (minimum of o	hummoc	ired; check all that	apply)			Second	dary Indicators	(minimum of two	
Depth (in Remarks: Hydric indicat YDROLO Wetland Hyd Primary Indic Surface V	GY rology Indicators: ators (minimum of o	hummoc	nired; check all thatWater-Sta	apply) ined Lea	` '		Second	dary Indicators	: (minimum of two	
Depth (in Remarks: Hydric indicate YDROLO Wetland Hyd Primary Indic Surface V High Wat	GY rology Indicators: ators (minimum of o	hummoc	nired; check all thatWater-StaAquatic Fa	apply) ined Lea auna (B1;	3) ` ´		<u>Second</u> Su Dra	dary Indicators rface Soil Cradainage Pattern	: (minimum of two cks (B6) is (B10)	
Depth (in Remarks: Hydric indicate TYDROLO Wetland Hyde Primary Indic Surface V High Wat Saturation	GY rology Indicators: ators (minimum of or Vater (A1) er Table (A2) n (A3)	hummoc	nired; check all that Water-Sta Aquatic Fa	apply) ined Lea auna (B1; atic Plants	3) s (B14)		Second Su Dra	dary Indicators rface Soil Crad ainage Pattern /-Season Wat	(minimum of two cks (B6) is (B10) er Table (C2)	
Depth (in Remarks: Hydric indicated by Primary Indicated by High Water Mater Marks: New York (in Primary Indicated by High Water Mater Mat	GY rology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1)	hummoc	iired; check all that Water-Sta Aquatic Fa True Aqua	apply) ined Lea auna (B1; atic Plants Sulfide C	3) s (B14) Odor (C1)	Second Su Dra Dra Cra	dary Indicators rface Soil Cradainage Pattern r-Season Wat ayfish Burrows	c (minimum of two cks (B6) ss (B10) er Table (C2) c (C8)	o require
Depth (in Remarks: Hydric indicated Primary Indi	GY rology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) r Deposits (B2)	hummoc	iired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F	apply) ined Lea auna (B1; atic Plants Sulfide C Rhizospho	3) s (B14) Odor (C1 eres on) Living Ro	Second Su Dra Dra Cra oots (C3) Sa	dary Indicators rface Soil Crad ainage Pattern /-Season Wat ayfish Burrows turation Visible	c (minimum of two cks (B6) is (B10) er Table (C2) c (C8) e on Aerial Image	o require
Primary Indicates Surface V High Water Ma Sediment Drift Depo	GY rology Indicators: ators (minimum of or Vater (A1) er Table (A2) n (A3) arks (B1) Deposits (B2) osits (B3)	hummoc	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F	apply) ined Lea auna (B1; atic Plants Sulfide C Rhizospho of Reduc	3) s (B14) Odor (C1 eres on lead) Living Ro (C4)	Second Su Dr. Dr. Cr. Sa St.	dary Indicators rface Soil Cra ainage Pattern r-Season Wat ayfish Burrows turation Visible inted or Stress	cks (B6) sis (B10) er Table (C2) sis (C8) e on Aerial Imagesed Plants (D1)	o require
Depth (in- Remarks: Hydric indicat IYDROLO Wetland Hyd Primary Indic Surface V High Wat Saturation Water Ma Sediment Drift Depo	GY rology Indicators: ators (minimum of or Vater (A1) er Table (A2) n (A3) arks (B1) Deposits (B2) osits (B3) or Crust (B4)	hummoc	wired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro	apply) ined Lear auna (B1; atic Plants Sulfide C Rhizospho of Reduc	3) s (B14) Odor (C1 eres on led Iron etion in Ti) Living Ro (C4)	SecondSuDraDraCracrastaStaStaStaSta	dary Indicators rface Soil Crace ainage Pattern y-Season Wate ayfish Burrows turation Visible unted or Stress omorphic Pos	e (minimum of two cks (B6) is (B10) er Table (C2) is (C8) e on Aerial Image sed Plants (D1) ition (D2)	o require
Depth (in Remarks: Hydric indicated by the Indicated by t	GY rology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) r Deposits (B2) osits (B3) or Crust (B4) osits (B5)	ne is requ	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro	apply) ined Lear auna (B1; atic Plants Sulfide C Rhizospho of Reduct con Reduct Surface	3) s (B14) Odor (C1 eres on led Iron et ion in Ti) Living Ro (C4)	SecondSuDraDraCracrastaStaStaStaSta	dary Indicators rface Soil Cra ainage Pattern r-Season Wat ayfish Burrows turation Visible inted or Stress	e (minimum of two cks (B6) is (B10) er Table (C2) is (C8) e on Aerial Image sed Plants (D1) ition (D2)	o require
Depth (in Remarks: Hydric indicated Primary Indi	rology Indicators: ators (minimum of or Vater (A1) er Table (A2) n (A3) arks (B1) Deposits (B2) posits (B3) or Crust (B4) posits (B5) n Visible on Aerial Ir	ne is requ	wired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 7) Gauge or	apply) ined Lear auna (B1; atic Plants Sulfide C Rhizospho of Reduct on Reduct & Surface Well Data	3) s (B14) Odor (C1 eres on led Iron lition in Ti (C7) a (D9)) Living Ro (C4) illed Soils	SecondSuDraDraCracrastaStaStaStaSta	dary Indicators rface Soil Crace ainage Pattern y-Season Wate ayfish Burrows turation Visible unted or Stress omorphic Pos	e (minimum of two cks (B6) is (B10) er Table (C2) is (C8) e on Aerial Image sed Plants (D1) ition (D2)	o require
Depth (in Remarks: Hydric indicated Primary Indi	GY rology Indicators: ators (minimum of or	ne is requ	wired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 7) Gauge or	apply) ined Lear auna (B1; atic Plants Sulfide C Rhizospho of Reduct on Reduct & Surface Well Data	3) s (B14) Odor (C1 eres on led Iron lition in Ti (C7) a (D9)) Living Ro (C4) illed Soils	SecondSuDraDraCracrastaStaStaStaSta	dary Indicators rface Soil Crace ainage Pattern y-Season Wate ayfish Burrows turation Visible unted or Stress omorphic Pos	e (minimum of two cks (B6) is (B10) er Table (C2) is (C8) e on Aerial Image sed Plants (D1) ition (D2)	o require
Depth (in Remarks: Hydric indicated Primary Indi	GY rology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) r Deposits (B2) posits (B3) or Crust (B4) posits (B5) n Visible on Aerial In Vegetated Concave vations:	ne is requinagery (B	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 7) Gauge or B8) Other (Exp	apply) ined Lear auna (B1; atic Plants Sulfide C Rhizospho of Reduce on Reduce a Surface Well Data blain in R	3) s (B14) Ddor (C1 eres on leed Iron ition in Ti (C7) a (D9) emarks)) Living Ro (C4) illed Soils	SecondSuDraDraCracrastaStaStaStaSta	dary Indicators rface Soil Crace ainage Pattern y-Season Wate ayfish Burrows turation Visible unted or Stress omorphic Pos	e (minimum of two cks (B6) is (B10) er Table (C2) is (C8) e on Aerial Image sed Plants (D1) ition (D2)	o require
Depth (in Remarks: Hydric indicated Primary Indi	GY rology Indicators: ators (minimum of or	ne is requinagery (B	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 7) Gauge or B8) Other (Exp	apply) ined Lear auna (B1; atic Plants Sulfide C Rhizosphe of Reduce on Reduce a Surface Well Data blain in R	s (B14) Dodor (C1 eres on led Iron tion in Ti (C7) a (D9) emarks)) Living Ro (C4) illed Soils	SecondSuDraDraCracrastaStaStaStaSta	dary Indicators rface Soil Crace ainage Pattern y-Season Wate ayfish Burrows turation Visible unted or Stress omorphic Pos	e (minimum of two cks (B6) is (B10) er Table (C2) is (C8) e on Aerial Image sed Plants (D1) ition (D2)	o require
Depth (in Remarks: Hydric indicated Primary Indi	rology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) Deposits (B2) posits (B3) or Crust (B4) posits (B5) n Visible on Aerial In Vegetated Concave rations: ar Present? Ye Present? Ye	ne is requested in agery (B Surface (ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 7) Gauge or B8) No X No X	apply) ined Lear auna (B1; atic Plants Sulfide C Rhizosphe of Reduce on Reduce Surface Well Data blain in R Depth (ir	3) s (B14) Odor (C1 eres on led Iron tion in Ti (C7) a (D9) emarks) nches): _ nches): _) Living Ro (C4) illed Soils	SecondSuDr:Dr:Cr:StuStuSt(C6)St	dary Indicators rface Soil Crace ainage Pattern y-Season Wate ayfish Burrows turation Visible unted or Stress omorphic Pos C-Neutral Tes	cks (minimum of two cks (B6) is (B10) er Table (C2) is (C8) e on Aerial Image sed Plants (D1) ition (D2) t (D5)	o require
Depth (in Depth	rology Indicators: ators (minimum of or Vater (A1) er Table (A2) n (A3) arks (B1) Deposits (B2) posits (B3) or Crust (B4) posits (B5) n Visible on Aerial In Vegetated Concave rations: er Present? Yee Present? Yeesent?	ne is requinagery (B	ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 7) Gauge or B8) Other (Exp	apply) ined Lear auna (B1; atic Plants Sulfide C Rhizosphe of Reduce on Reduce a Surface Well Data blain in R	3) s (B14) Odor (C1 eres on led Iron tion in Ti (C7) a (D9) emarks) nches): _ nches): _) Living Ro (C4) illed Soils	SecondSuDraDraCracrastaStaStaStaSta	dary Indicators rface Soil Crace ainage Pattern y-Season Wate ayfish Burrows turation Visible unted or Stress omorphic Pos C-Neutral Tes	cks (Minimum of two cks (B6) is (B10) er Table (C2) is (C8) e on Aerial Image sed Plants (D1) ition (D2) t (D5)	o require
Depth (in Remarks: Hydric indicated Hydric indicated Hydric indicated Hydrocal Indicated	ches): GY rology Indicators: ators (minimum of or	ne is required in agery (B Surface (ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 7) Gauge or B8) Other (Exp No X No X No X	apply) ined Lear auna (B1; atic Plants Sulfide C Rhizosphe of Reduce on Reduce Well Data blain in R Depth (ir Depth (ir	3) s (B14) Ddor (C1 eres on led Iron etion in Ti (C7) a (D9) emarks) nches): _ nches): _) Living Ro (C4) illed Soils	Second	dary Indicators rface Soil Crace ainage Pattern y-Season Wate ayfish Burrows turation Visible unted or Stress omorphic Pos C-Neutral Tes	cks (minimum of two cks (B6) is (B10) er Table (C2) is (C8) e on Aerial Image sed Plants (D1) ition (D2) t (D5)	o require
Depth (in Permarks: Hydric indicated Hydric indicated Hydric indicated Hydrocontent in Permary Indicated High Water Massed High Water Hable Hydrocontent H	rology Indicators: ators (minimum of or Vater (A1) er Table (A2) n (A3) arks (B1) Deposits (B2) posits (B3) or Crust (B4) posits (B5) n Visible on Aerial In Vegetated Concave rations: er Present? Yee Present? Yeesent? Yeesent?	ne is required in agery (B Surface (ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 7) Gauge or B8) Other (Exp No X No X No X	apply) ined Lear auna (B1; atic Plants Sulfide C Rhizosphe of Reduce on Reduce Well Data blain in R Depth (ir Depth (ir	3) s (B14) Ddor (C1 eres on led Iron etion in Ti (C7) a (D9) emarks) nches): _ nches): _) Living Ro (C4) illed Soils	Second	dary Indicators rface Soil Crace ainage Pattern y-Season Wate ayfish Burrows turation Visible unted or Stress omorphic Pos C-Neutral Tes	cks (minimum of two cks (B6) is (B10) er Table (C2) is (C8) e on Aerial Image sed Plants (D1) ition (D2) t (D5)	o require
Depth (in Permarks: Hydric indicated Hydric indicated Hydric indicated Hydrocontent in Permary Indicated High Water Massed High Water Hable Hydrocontent H	ches): GY rology Indicators: ators (minimum of or	ne is required in agery (B Surface (ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 7) Gauge or B8) Other (Exp No X No X No X	apply) ined Lear auna (B1; atic Plants Sulfide C Rhizosphe of Reduce on Reduce Well Data blain in R Depth (ir Depth (ir	3) s (B14) Ddor (C1 eres on led Iron etion in Ti (C7) a (D9) emarks) nches): _ nches): _) Living Ro (C4) illed Soils	Second	dary Indicators rface Soil Crace ainage Pattern y-Season Wate ayfish Burrows turation Visible unted or Stress omorphic Pos C-Neutral Tes	cks (minimum of two cks (B6) is (B10) er Table (C2) is (C8) e on Aerial Image sed Plants (D1) ition (D2) t (D5)	o require
Depth (in Remarks: Hydric indicated Hydric includes caped Remarks: Hydric indicated Hydric includes caped includes caped Hydric includes caped Hydric includes caped Hydric indicated Hydric indica	ches): GY rology Indicators: ators (minimum of or	ne is required in agery (B Surface (ired; check all that Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck 7) Gauge or B8) Other (Exp No X No X No X	apply) ined Lear auna (B1; atic Plants Sulfide C Rhizosphe of Reduce on Reduce Well Data blain in R Depth (ir Depth (ir	3) s (B14) Ddor (C1 eres on led Iron etion in Ti (C7) a (D9) emarks) nches): _ nches): _) Living Ro (C4) illed Soils	Second	dary Indicators rface Soil Crace ainage Pattern y-Season Wate ayfish Burrows turation Visible unted or Stress omorphic Pos C-Neutral Tes	cks (minimum of two cks (B6) is (B10) er Table (C2) is (C8) e on Aerial Image sed Plants (D1) ition (D2) t (D5)	o require

See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

(Authority: A

Project/Site: Wabash Hydrogen Energy Center		City/Cou	nty: Vigo			Sampling Da	te: <u>7/10</u>	0/2024
Applicant/Owner: Wabash Valley Resources LLC				State:	IN	Sampling Po	int: w-c	MS-006-PFO
Investigator(s): CMS, CB		Section, T	ownship, Rang	e: S29 T13I	N R9W			
Landform (hillside, terrace, etc.): valley		[Local relief (cor	ncave, convex	, none): <u>(</u>	concave		
Slope (%): 2 Lat: 39.539358°		Long: -	87.436173°		_	Datum: DDNA	D 83	
Soil Map Unit Name: HkF: Hickory loam, 25 to 40 perce	nt slopes			NV	VI classif	ication: NA		
Are climatic / hydrologic conditions on the site typical fo	r this time o	of year?	Yes	No X (If no. exp	lain in Remark	s.)	
	ignificantly	-	Are "Normal Circ				No	
Are Vegetation, Soil, or Hydrologyn	-		If needed, expla					_
SUMMARY OF FINDINGS – Attach site ma				-			eatures	s, etc.
Hydrophytic Vegetation Present? Yes X No		1	Sampled Area	·		•		<u> </u>
Hydric Soil Present? Yes X No			n a Wetland?		s X	No		
Wetland Hydrology Present? Yes X No								
Remarks:		ı						
Wetland located in a valley receiving water from interm					amore, co	ttonwood, Ame	erican elm	١,
American fly honeysuckle, and fowl manna grass. APT	indicates r	nild drought fo	r this time of ye	ear.				
VEGETATION – Use scientific names of plar	nts.							
	Absolute	Dominant	Indicator					
Tree Stratum (Plot size: 30')	% Cover	Species?	Status	Dominance '				
Platanus occidentalis		Voc	EACW.	Number of Do		•	4	(4)
Populus deltoides	<u>40</u> 20	Yes Yes		Are OBL, FA		-	4	(A)
Quercus alba	10	No	FACU	Total Numbe Across All St		nant Species	5	(B)
5. Fraxinus pennsylvanica	5	No	FACW	Percent of Do		- Species That		_(_)
- Talina pointe, Trainea		=Total Cover		Are OBL, FA		•	80.0%	(A/B)
Sapling/Shrub Stratum (Plot size: 15')				,	, -	-		_ (' '
1. Ulmus americana	10	Yes	FACW	Prevalence I	ndex wo	rksheet:		
2. Lonicera canadensis	5	Yes	FACU	Total %	Cover of:	Mu	tiply by:	
3.				OBL species	20	x 1 =	20	_
4				FACW specie	es <u>70</u>	x 2 =	140	_
5				FAC species	20) x 3 =	60	
	15	=Total Cover		FACU specie			60	_
Herb Stratum (Plot size: 5')				UPL species			0	—
1. Glyceria striata		Yes	OBL	Column Total		()	280	(B)
Impatiens capensis Phragmites australis	<u>5</u>	No No	FACW FACW	Prevalence	e inaex =	= B/A =	2.24	_
Geum aleppicum	5	No No		Hydronhytic	Venetati	ion Indicators		
		110	TAOW		_	Hydrophytic V		
6.				X 2 - Domir			gotation	
7.			-	X 3 - Preva				
8.						Adaptations ¹ (F	Provide su	upporting
9.				data in	n Remark	s or on a sepa	rate sheet	i)
10.				Problema	atic Hydro	ophytic Vegeta	tion ¹ (Exp	lain)
	35	=Total Cover				oil and wetland		
Woody Vine Stratum (Plot size: 30')				be present, u	nless dis	turbed or probl	ematic.	
1				Hydrophytic			_	
2.				Vegetation				
		=Total Cover		Present?	Yes_	X No		
Remarks: (Include photo numbers here or on a separa	ate sheet.)		•					

SOIL Sampling Point: w-cms-006-PFO

		to the depth				ator or o	confirm the absence	of indicators.)
Depth	Matrix		Redo	x Featur				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-8	10YR 3/2	95	10YR 4/6	5	С	M	Loamy/Clayey	Prominent redox concentrations
8-12	10YR 5/2	70	7.5YR 4/6	_30	_ C	М	Loamy/Clayey	Prominent redox concentrations
	-							
l 								
¹ Type: C=C	oncentration, D=Dep	oletion, RM=F	Reduced Matrix, I	MS=Mas	ked Sand	d Grains	. ² Location	n: PL=Pore Lining, M=Matrix.
Hydric Soil								rs for Problematic Hydric Soils ³ :
Histosol	` '		Sandy Gle					Manganese Masses (F12)
	oipedon (A2)		Sandy Re					Parent Material (F21)
	stic (A3)		Stripped N	,	6)			Shallow Dark Surface (F22)
	en Sulfide (A4)		Dark Surfa	` '			Othe	er (Explain in Remarks)
l ——	d Layers (A5)		Loamy Mu	,	` ,			
I —	ıck (A10)	(* ()	Loamy Gl	-				
l ——	d Below Dark Surfac	e (A11)	Depleted	,	,		3, ,,	
	ark Surface (A12)		X Redox Da		. ,			rs of hydrophytic vegetation and
I — ·	flucky Mineral (S1) sucky Peat or Peat (S	2)	Z Redox De		٠,)		and hydrology must be present,
			Redox De	pression	S (F0)		unie	ss disturbed or problematic.
	Layer (if observed)	:						
Type:	rock	40	_				Undete Oall Bersey	40 Vaa V Na
Depth (ii	ncnes):	12	_				Hydric Soil Presen	t?
Remarks:								
Hydric indica	ators met.							
HYDROLO)CV							
_	drology Indicators:							
	cators (minimum of	one is require			(D0)			ry Indicators (minimum of two required
	Water (A1)		Water-Sta		` '			ace Soil Cracks (B6)
	ater Table (A2)		Aquatic Fa	•	•			nage Patterns (B10)
X Saturation	on (A3) larks (B1)		True Aqua			`		Season Water Table (C2)
			Hydrogen Oxidized I		•	•		fish Burrows (C8)
X Drift Dep	nt Deposits (B2)		Presence			J	` ′	ration Visible on Aerial Imagery (C9) ted or Stressed Plants (D1)
	at or Crust (B4)		Recent Iro			` '		morphic Position (D2)
	oosits (B5)		Thin Muck			iica ooii	· · · —	-Neutral Test (D5)
<u> </u>	on Visible on Aerial	magery (B7)					<u> </u>	recutal rest (Do)
	Vegetated Concave	0, ,			, ,			
Field Obser	<u> </u>	(= -			,			
Surface Wat		es	No X	Depth (i	nches):	0		
Water Table		es X	No No	Depth (i	· -	0		
Saturation P		es X	No	Depth (i	′ =	0	Wetland Hydrolo	gy Present? Yes X No
	pillary fringe)			-1- (_		, , , , , , , , , , , , , , , , , , , ,	<u> </u>
-	corded Data (stream	n gauge, mor	nitoring well, aeria	al photos	, previou	s inspec	tions), if available:	
Remarks:	daatawa t							
Hydrolgic ind	acators met.							

See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

Project/Site: Wabash Hydrogen Energy Center		City/Cou	nty: Vigo			Sampling Dat	.e: <u>7/10</u>	/2024
Applicant/Owner: Wabash Valley Resources LLC				State:	IN	Sampling Poir	nt: w-cM	IS-006-UPL
Investigator(s): CMS, CB		Section, T	ownship, Ra	nge: S29 T13	N R9W			
Landform (hillside, terrace, etc.): hillside		I	Local relief (c	concave, conve	x, none):	convex		
Slope (%):30 Lat: 39.539234°		Long:	87.436087°			Datum: DDNAD	83	
Soil Map Unit Name: HkF: Hickory loam, 25 to 40 perce	ent slopes			N\	WI classif	ication: NA		
Are climatic / hydrologic conditions on the site typical fo	or this time of	of year?	Yes	No X	(If no, exp	lain in Remarks	;.)	
Are Vegetation , Soil , or Hydrology s	ignificantly	disturbed? A	۱۲e "۱۱ X			Yes X	No	
Are Vegetation , Soil , or Hydrology n	aturally pro	blematic? (If needed, ex	plain any answe	ers in Rer	narks.)	-	
SUMMARY OF FINDINGS – Attach site ma				,				
Hydrophytic Vegetation Present? Yes No	X	Is the	Sampled Ar	rea				
Hydric Soil Present? Yes No	X	withir	n a Wetland?	? Ye	es	No X		
Wetland Hydrology Present? Yes No	X							
Remarks: Upland woods. Site dominated by sugar maple, cotton time of year. VEGETATION – Use scientific names of plan		rican fly honey	suckle and w	vild Canadain gi	nger. AP	Γ indicates mild	drought f	or this
·	Absolute	Dominant	Indicator					
Tree Stratum (Plot size: 30')	% Cover	Species?	Status	Dominance				
1. Acer saccharum	40	Yes	FACU	Number of D Are OBL, FA		Species That	1	(A)
3. Populus deltoides	30	Yes	FAC			nant Species		_(^)
4.				Across All St		пан оробоз	6	(B)
5.				Percent of D	ominant S	Species That		
	70	=Total Cover		Are OBL, FA	CW, or F	AC:	16.7%	_ (A/B)
Sapling/Shrub Stratum (Plot size: 15')								
Lonicera canadensis 2.	10	Yes	FACU	Prevalence	Cover of:		inly by:	
3.				OBL species			iply by: 0	_
4.	-			FACW speci			0	_
5.				FAC species) x 3 =	90	_
	10	=Total Cover		FACU specie	es 11	5 x 4 =	460	_
Herb Stratum (Plot size: 5')				UPL species			50	_
1. Asarum canadense	50	Yes	FACU	Column Tota			600	_ (B)
2. 3.				Prevalenc	e Index =	= B/A =3	3.87	_
Δ				Hydrophytic	Vegetat	ion Indicators:		
5.					_	Hydrophytic Ve		
6.						st is >50%		
7.				3 - Preva	alence Inc	lex is ≤3.0 ¹		
8					_	Adaptations ¹ (P		
9						s or on a separa		
10		T-1-1 0			-	ophytic Vegetati		
Woody Vine Stratum (Plot size: 30')	50	=Total Cover				oil and wetland l turbed or proble		must
1. Parthenocissus quinquefolia	15	Yes	FACU			tarbed or proble	matic.	
Hedera helix	10	Yes	UPL	Hydrophytic Vegetation	į			
	25	=Total Cover		Present?	Yes	No_	X	
Remarks: (Include photo numbers here or on a separa	ate sheet.)							
	,							

SOIL Sampling Point: w-cms-006-UPL

Depth	Matrix		Redo	x Featur	69					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	
0-16	10YR 5/4	70	5YR 3/4	30	С	М	Sandy	Prominer	nt redox conce	ntrations
<u> </u>										
		pletion, RM	I=Reduced Matrix,	MS=Mas	ked Sand	d Grains.		n: PL=Pore Li		•
Hydric Soil Ir			0		···· (O.4)			ors for Proble	-	Soils":
Histosol (/			Sandy Gle	•	rix (54)			-Manganese M		
	pedon (A2)		Sandy Re		• • • • • • • • • • • • • • • • • • • •			Parent Materi		
Black Hist			Stripped N		o)			y Shallow Dark er (Explain in F)
	Sulfide (A4)		Dark Surf		rol (Γ1)		Oth	er (Explain in F	kemarks)	
	Layers (A5)		Loamy Mu	-						
2 cm Muc	ik (A10) Below Dark Surfac	ο (Λ11)	Loamy Gl Depleted	-						
	k Surface (A12)	e (ATT)	Redox Da	•			³ Indicat	ors of hydrophy	tic vegetation	and
	icky Mineral (S1)		Depleted		` '			and hydrology	_	
	ky Peat or Peat (S	3)	Redox De		` '			ess disturbed o		J111,
	ayer (if observed)	-		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	- ()					
Type:	rock									
rypc.										
Depth (inc							Hydric Soil Prese	nt?	Yes	No >
	ches):	16					Hydric Soil Prese	nt?	Yes	No_>
Remarks: Hydric indicat	ors not met.						Hydric Soil Prese	nt?	Yes	No >
Remarks:	ors not met.						Hydric Soil Prese	nt?	Yes	No <u>></u>
Remarks: Hydric indicate HYDROLOG Wetland Hyd	ches): ors not met. GY rology Indicators	16								
Remarks: Hydric indicate HYDROLOG Wetland Hyde	ches): ors not met. GY rology Indicators ators (minimum of	16	uired; check all that				<u>Second</u>	ary Indicators (minimum of tv	
Remarks: Hydric indicate HYDROLOG Wetland Hyd Primary Indica	ors not met. GY rology Indicators (minimum of Vater (A1)	16	Water-Sta	ined Lea			<u>Second</u> Sur	ary Indicators (face Soil Crack	minimum of tv	
Remarks: Hydric indicate HYDROLOG Wetland Hyd Primary Indica Surface W High Wate	ches): ors not met. GY rology Indicators ators (minimum of Vater (A1) er Table (A2)	16	Water-Sta	ined Lea auna (B1	3)		Second Sur Dra	ary Indicators (face Soil Crack inage Patterns	minimum of tv ss (B6) (B10)	
Remarks: Hydric indicate HYDROLOG Wetland Hyd Primary Indica Surface W High Wate Saturation	ors not met. GY rology Indicators ators (minimum of Vater (A1) er Table (A2) n (A3)	16	Water-Sta Aquatic F True Aqua	nined Lea auna (B1 atic Plant	3) s (B14)		Second Sur Dra	ary Indicators (face Soil Crack inage Patterns -Season Water	minimum of twas (B6) (B10) Table (C2)	
Hydric indicate Hydric indicate Hydric indicate Wetland Hydric Surface W High Wate Saturatior Water Ma	ors not met. GY rology Indicators ators (minimum of Vater (A1) er Table (A2) n (A3) irks (B1)	16	Water-Sta Aquatic Fa True Aqua Hydrogen	iined Lea auna (B1 atic Plant Sulfide (3) s (B14) Odor (C1		Second Sur Dra Dry Cra	ary Indicators (face Soil Crack inage Patterns -Season Water yfish Burrows (minimum of twas (B6) (B10) Table (C2)	vo require
Hydric indicate Hydric indicate HydroLOC Wetland Hydr Primary Indica Surface W High Wate Saturation Water Ma Sediment	ches): ors not met. GY rology Indicators ators (minimum of Vater (A1) er Table (A2) n (A3) urks (B1) Deposits (B2)	16	Water-Sta Aquatic F True Aqua Hydrogen Oxidized I	iined Lea auna (B1 atic Plant Sulfide (Rhizosph	3) s (B14) Odor (C1 eres on I	_iving Ro	Second Sur Dra Dry Cra ots (C3) Sat	ary Indicators (face Soil Crack inage Patterns -Season Water yfish Burrows (uration Visible	minimum of twas (B6) (B10) · Table (C2) C8) on Aerial Imag	vo require
HYDROLOG Wetland Hydric Surface W High Wate Saturation Water Ma Sediment Drift Depo	ches): ors not met. GY rology Indicators ators (minimum of Vater (A1) er Table (A2) n (A3) urks (B1) Deposits (B2) osits (B3)	16	Water-Sta Aquatic F. True Aqua Hydrogen Oxidized I Presence	nined Lea auna (B1 atic Plant Sulfide (Rhizosph of Reduc	3) s (B14) Odor (C1) eres on l ced Iron (_iving Ro (C4)	Second Sur Dra Dry Cra ots (C3) Sat Stu	ary Indicators (face Soil Crack inage Patterns -Season Water yfish Burrows (uration Visible nted or Stresse	minimum of twas (B6) (B10) Table (C2) C8) on Aerial Imaged Plants (D1)	vo require
Remarks: Hydric indicate HYDROLOG Wetland Hydr Primary Indica Surface W High Wate Saturation Water Ma Sediment Drift Depo	ches): ors not met. GY rology Indicators ators (minimum of Vater (A1) er Table (A2) n (A3) nrks (B1) Deposits (B2) osits (B3) or Crust (B4)	16	Water-Sta Aquatic F. True Aqua Hydrogen Oxidized I Presence Recent Iro	nined Lea auna (B1 atic Plant Sulfide (Rhizosph of Reduc	3) s (B14) Odor (C1) eres on I ced Iron (tion in Ti	_iving Ro (C4)	Second Sur Dra Dry Cra oots (C3) Sat Stu G (C6) Geografies	ary Indicators (face Soil Crack inage Patterns -Season Water yfish Burrows (uration Visible inted or Stresse omorphic Positi	minimum of two (ss (B6) (B10) (C2) (C8) on Aerial Imaged Plants (D1) on (D2)	vo require
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U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Midwest Region See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

Project/Site: Wabash Hydrogen Energy Center		City/Cou	nty: Vigo		Sampling Date:	7/11/2024
Applicant/Owner: Wabash Valley Resources LLC				State: IN	Sampling Point:	W-CMS-007-PEN
Investigator(s): CMS, CB		Section, T	ownship, Rar	nge: S32 T13N R9	•W	
Landform (hillside, terrace, etc.): valley			Local relief (c	oncave, convex, noi	ne): concave	
Slope (%): 1 Lat: 39.530588°		Lona: -	87.427182°		Datum: DDNAD 8	33
Soil Map Unit Name: Ma: Made land				NWI cl	assification: NA	
Are climatic / hydrologic conditions on the site typical	for this time o	of year?	Yes	No X (If no	, explain in Remarks.)	
Are Vegetation X , Soil X , or Hydrology X		-		ircumstances" pres		No X
	<u></u>					<u> </u>
Are Vegetation, Soil, or Hydrology SUMMARY OF FINDINGS – Attach site m	='			olain any answers in cations. transe		atures. etc.
				·		
	lo lo		Sampled Ar a Wetland?		X No	
	lo	Within	i a vveuaiiu:	163	<u> </u>	
Remarks:						
Site was historically disturbed by the construction of vegetation and compaction of soils. Site dominated by	by boxelder, p					
VEGETATION – Use scientific names of plants		D	la d'a atau			
<u>Tree Stratum</u> (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test	workshoot:	
1. Acer negundo	10	Yes	FAC		nant Species That	
Prunus pensylvanica	5	Yes	FACU	Are OBL, FACW,	•	4 (A)
3.					Dominant Species	` ′
4.				Across All Strata:	•	6 (B)
5.				Percent of Domin	ant Species That	
	15	=Total Cover		Are OBL, FACW,	•	66.7% (A/B)
Sapling/Shrub Stratum (Plot size: 15')					
1. Ulmus americana	10	Yes	FACW	Prevalence Inde	x worksheet:	
2. Gleditsia triacanthos	5	Yes	FACU	Total % Cov	er of: Multip	ly by:
3				OBL species	50 x 1 =	50
4				FACW species	39 x 2 =	78
5				FAC species	17 x 3 =	51
	15	=Total Cover		FACU species	15 x 4 =	60
Herb Stratum (Plot size: 5')	40		0.01	UPL species	0 x 5 =	0 (5)
Leersia oryzoides Dhalaria aryzoides	40	Yes	OBL	Column Totals:	121 (A)	239 (B)
2. Phalaris arundinacea	20	Yes	FACW OBL	Prevalence Inc	$dex = B/A = \underline{1.9}$	18
Carex lurida Phragmites australis	5 5	No No	FACW	Hydrophytic Vec	jetation Indicators:	
5. Elymus hystrix	5	No	FACU		st for Hydrophytic Vege	atation
6. Toxicodendron radicans	5	No	FAC	X 2 - Dominano		iation
7. Glyceria striata	5	No	OBL	X 3 - Prevalence		
8. Dichanthelium clandestinum	2	No	FACW		gical Adaptations ¹ (Pro	vide supporting
9. Urtica dioica	2	No	FACW		marks or on a separate	
10. Rumex crispus	2	No	FAC	Problematic I	Hydrophytic Vegetation	າ ¹ (Explain)
·	91	=Total Cover		1Indicators of hyd	ric soil and wetland hy	drology must
Woody Vine Stratum (Plot size: 30')			•	s disturbed or problem	• • •
1.				Hydrophytic		· · · · · · · · · · · · · · · · · · ·
2.				Vegetation		
		=Total Cover		Present?	Yes X No	_
Remarks: (Include photo numbers here or on a sepa	arate sheet.)		•			

SOIL Sampling Point: w-cms-007-PEM

(inches)	Matrix		Redo	x Feature	es			
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-5	2.5Y 4/2	100					Sandy	
5-18	10YR 6/2	70	7.5YR 4/6	30	С	М	Sandy	Prominent redox concentrations
				<u> </u>	<u> </u>			
	oncentration, D=Depl	etion, RM	=Reduced Matrix, I	 MS=Mask	ced San	d Grains		PL=Pore Lining, M=Matrix.
Black His Hydroger	(A1) ipedon (A2) stic (A3) n Sulfide (A4) Layers (A5)		Sandy Gle X Sandy Re Stripped M Dark Surfa Loamy Mu Loamy Gl	dox (S5) Matrix (S6 ace (S7) ucky Mine) eral (F1)		Iron-M Red F Very S	s for Problematic Hydric Soils ³ : Manganese Masses (F12) Parent Material (F21) Shallow Dark Surface (F22) (Explain in Remarks)
Thick Da	Below Dark Surface rk Surface (A12) ucky Mineral (S1) cky Peat or Peat (S3		Depleted Redox Da Depleted Redox De	rk Surfac Dark Surf	e (F6) ace (F7))	wetlar	s of hydrophytic vegetation and nd hydrology must be present, s disturbed or problematic.
Restrictive L Type: _ Depth (in	ches):		_				Hydric Soil Present	? Yes <u>X</u> No
	CV							
Wetland Hyd	Irology Indicators:	no is roqu	ired, check all that	apply)			Socondar	y Indicators (minimum of two require
Wetland Hyd	Irology Indicators: ators (minimum of o	ne is requ	-		ves (B0)			y Indicators (minimum of two require
Wetland Hyd Primary Indic Surface V	Irology Indicators: ators (minimum of or Vater (A1)	ne is requ	Water-Sta	ined Lea			Surfac	ce Soil Cracks (B6)
Wetland Hyd Primary Indic Surface V X High Wat	Irology Indicators: ators (minimum of on Water (A1) ter Table (A2)	ne is requ	Water-Sta	ined Lea auna (B1	3)		Surfac X Draina	ce Soil Cracks (B6) age Patterns (B10)
Wetland Hyd Primary Indic Surface V X High Wat X Saturatio	Irology Indicators: ators (minimum of or Vater (A1) er Table (A2) n (A3)	ne is requ	Water-Sta Aquatic Fa	nined Lea auna (B1: atic Plants	3) s (B14)		Surface X Draina X Dry-S	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2)
Wetland Hyd Primary Indic Surface V X High Wat X Saturatio Water Ma	Irology Indicators: ators (minimum of or Water (A1) ter Table (A2) n (A3) arks (B1)	ne is requ	Water-Sta Aquatic Fa True Aqua Hydrogen	nined Lea auna (B1: atic Plants Sulfide C	3) s (B14) Odor (C1)	Surfac Crayfi	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8)
Wetland Hyd Primary Indic Surface V X High Wat X Saturation Water Ma Sediment	Irology Indicators: ators (minimum of or Water (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2)	ne is requ	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized I	nined Lea auna (B13 atic Plants Sulfide C	3) s (B14) Odor (C1 eres on l) Living Ro	Surfact X Draina X Dry-S Crayfic Coots (C3) Satura	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9)
Wetland Hyd Primary Indic Surface V X High Wat X Saturatio Water Ma Sediment Drift Depo	Irology Indicators: ators (minimum of or Nater (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3)	ne is requ	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized I	ained Lea auna (B1: atic Plants Sulfide C Rhizospho of Reduc	3) s (B14) odor (C1 eres on l ed Iron () Living Ro (C4)	Surface X Drains X Dry-S Crayfice Satura Stunte Stun	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1)
Wetland Hyd Primary Indic Surface V X High Wat X Saturatio Water Ma Sediment Drift Depr Algal Mat	Irology Indicators: ators (minimum of or Nater (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4)	ne is requ	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro	nined Lea auna (B1: atic Plants Sulfide C Rhizospho of Reduct on Reduct	3) s (B14) Odor (C1 eres on l ed Iron (tion in Ti) Living Ro (C4)	Surfact X Drains X Dry-S Crayfit	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2)
Wetland Hyd Primary Indic Surface V X High Wat X Saturatio Water Ma Sediment Drift Depo	Irology Indicators: ators (minimum of or Nater (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5)	•	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized I Presence Recent Iro Thin Muck	uined Lea auna (B1: atic Plants Sulfide C Rhizospho of Reducton Reducton & Surface	3) s (B14) Odor (C1 eres on led Iron (tion in Ti) Living Ro (C4)	Surfact X Drains X Dry-S Crayfit	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1)
Wetland Hyd Primary Indic Surface V X High Wat X Saturatio Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundatio	Irology Indicators: ators (minimum of or Nater (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4)	nagery (B	Water-Sta Aquatic Fa Aquatic Fa True Aqua Hydrogen Oxidized I Presence Recent Iro Thin Muck 7) Gauge or	uined Lea auna (B1: Atic Plants Sulfide C Rhizospho of Reduc on Reduc & Surface Well Data	3) s (B14) Odor (C1 eres on led Iron (tion in Ti (C7) a (D9)) Living Ro (C4) Iled Soil:	Surfact X Drains X Dry-S Crayfit	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2)
Wetland Hyd Primary Indic Surface V X High Wat X Saturatio Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundatio	Irology Indicators: ators (minimum of or Nater (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) in Visible on Aerial In Vegetated Concave	nagery (B	Water-Sta Aquatic Fa Aquatic Fa True Aqua Hydrogen Oxidized I Presence Recent Iro Thin Muck 7) Gauge or	uined Lea auna (B1: Atic Plants Sulfide C Rhizospho of Reduc on Reduc & Surface Well Data	3) s (B14) Odor (C1 eres on led Iron (tion in Ti (C7) a (D9)) Living Ro (C4) Iled Soil:	Surfact X Drains X Dry-S Crayfit	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2)
Wetland Hyd Primary Indic Surface V X High Wat X Saturatio Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundatio Sparsely	Arks (B1) to Deposits (B2) osits (B3) to Crust (B4) osits (B5) on Visible on Aerial In Vegetated Concave	nagery (B' Surface (l	Water-Sta Aquatic Fa Aquatic Fa True Aqua Hydrogen Oxidized I Presence Recent Iro Thin Muck 7) Gauge or	uined Lea auna (B1: Atic Plants Sulfide C Rhizospho of Reduc on Reduc & Surface Well Data	B) S (B14) Odor (C1 eres on led Iron (tion in Ti (C7) a (D9) emarks)) Living Ro (C4) Iled Soil:	Surfact X Drains X Dry-S Crayfit Dots (C3) Saturates Stuntes Stuntes Geometric Geometric C6) C7 C7 C7 C7 C7 C7 C7 C	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2)
Wetland Hyd Primary Indic Surface V X High Wat X Saturatio Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundatio Sparsely Field Observa	Archael Irology Indicators: ators (minimum of or Nater (A1) ter Table (A2) In (A3) arks (B1) It Deposits (B2) It Deposits (B3) It or Crust (B4) It Desits (B5) In Visible on Aerial In Vegetated Concave Irology Indicators: Irolo	nagery (B' Surface (l	Water-Sta Aquatic Fa Aquatic Fa True Aqua Hydrogen Oxidized I Presence Recent Iro Thin Muck T) Gauge or B8) Other (Ex	nined Lea auna (B1: atic Plants Sulfide C Rhizospho of Reduct on Reduct Surface Well Data olain in R	3) s (B14) cloor (C1 eres on led Iron of tion in Ti (C7) a (D9) emarks)) Living Ro (C4) Iled Soil:	Surfact X Drains X Dry-S Crayfit Dots (C3) Saturates Stuntes Stuntes Geometric Geometric C6) C7 C7 C7 C7 C7 C7 C7 C	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2)
Primary Indice Surface V X High Wat X Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundation Sparsely Field Observ Surface Water	Irology Indicators: ators (minimum of or Nater (A1) ter Table (A2) in (A3) arks (B1) it Deposits (B2) osits (B3) it or Crust (B4) osits (B5) in Visible on Aerial In Vegetated Concave vations: er Present? Yes	nagery (B Surface (l	Water-Sta Aquatic Fa Aquatic Fa True Aqua Hydrogen Oxidized I Presence Recent Iro Thin Muck 7) Gauge or B8) Other (Ex	nined Lea auna (B1: atic Plants Sulfide C Rhizospho of Reduct on Reduct Surface Well Data plain in R	B) s (B14) c) dor (C1 eres on led Iron (ction in Ti (C7) a (D9) emarks) c) ches): _ ches): _) Living Ro (C4) Iled Soil:	Surfact X Drains X Dry-S Crayfit Dots (C3) Saturates Stuntes Stuntes Geometric Geometric C6) C7 C7 C7 C7 C7 C7 C7 C	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) horphic Position (D2) Neutral Test (D5)
Wetland Hyd Primary Indic Surface V X High Wat X Saturatio Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundatio Sparsely Field Observ Surface Water Table	Irology Indicators: ators (minimum of orwater (A1) ter Table (A2) in (A3) arks (B1) it Deposits (B2) osits (B3) it or Crust (B4) osits (B5) in Visible on Aerial Invegetated Concave vations: er Present? Yes esent? Yes	nagery (B Surface (l s s	Water-Sta Aquatic Fa Aquatic Fa True Aqua Hydrogen Oxidized I Presence Recent Iro Thin Muck 7) Gauge or B8) Other (Ex	nined Lea auna (B1: atic Plants Sulfide C Rhizospho of Reduct on Reduct Surface Well Data plain in R Depth (in	B) s (B14) c) dor (C1 eres on led Iron (ction in Ti (C7) a (D9) emarks) c) ches): _ ches): _) Living Ro (C4) Illed Soil:	Surfact X Draina X Dry-S Crayfic Satura Stunte St (C6) Geom X FAC-I	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) horphic Position (D2) Neutral Test (D5)
Wetland Hyd Primary Indic Surface V X High Wat X Saturatio Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundatio Sparsely Field Observ Surface Water Water Table Saturation Pr (includes cap	Irology Indicators: ators (minimum of orwater (A1) ter Table (A2) in (A3) arks (B1) it Deposits (B2) osits (B3) it or Crust (B4) osits (B5) in Visible on Aerial Invegetated Concave vations: er Present? Yes esent? Yes	nagery (B Surface (l s s <u>X</u> s <u>X</u>	Water-Sta Aquatic Fa Aquatic Fa True Aqua Hydrogen Oxidized I Presence Recent Ird Thin Muck 7) Gauge or B8) Other (Ex No No No	nined Lea auna (B1: atic Plants Sulfide C Rhizospho of Reductor Surface Well Data plain in R Depth (in Depth (in	3) s (B14) c)dor (C1 eres on led Iron (C7) a (D9) emarks) c)ches): _ ches): _) Living Ro (C4) Illed Soil:	Surface X Draina X Dry-S Crayfice Doots (C3) Satura Stunte S (C6) Geom X FAC-I	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) horphic Position (D2) Neutral Test (D5)

See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

Project/Site: Wabash Hydrogen Energy Center	City/Co	unty: Vigo		Saı	mpling Date:	7/11/	2024
Applicant/Owner: Wabash Valley Resources LLC			State:	IN Sar	npling Point:	W-CMS	S-007-UPL
Investigator(s): CMS, CB	Section,	Township, Ran	ge: S32 T13N	R9W			
Landform (hillside, terrace, etc.): hill side		Local relief (co	oncave, convex,	none): conca	ave		
Slope (%): 7 Lat: 39.530487°	Long:	-87.427100°			m: DDNAD 8	3	
Soil Map Unit Name: Ma: Made land			NWI	classificatio			
Are climatic / hydrologic conditions on the site typical for thi	s time of year?	Yes	No_X (If	no, explain i	n Remarks.)		
Are Vegetation X , Soil X , or Hydrology X signif	-		ircumstances" pr			o X	
Are Vegetation , Soil , or Hydrology natur			olain any answers				-
SUMMARY OF FINDINGS – Attach site map s			•			tures,	, etc.
Hydrophytic Vegetation Present? Yes No X	Is th	ne Sampled Ar	ea				
Hydric Soil Present? Yes No X		in a Wetland?		N	lo X		
Wetland Hydrology Present? Yes No X							
Remarks:	•						
Site was historically disturbed by the construction of transr vegetation and the compaction of soils. Site dominated by					d by the remo	oval of	
VEGETATION – Use scientific names of plants.							
	solute Dominant	Indicator					
Tree Stratum (Plot size: 30') % 1.	Cover Species?	Status	Dominance Te				
2.			Number of Dor Are OBL, FAC		es mat	0	(A)
3.			Total Number		Species		_` ′
4.			Across All Stra			1	(B)
5			Percent of Don				
Openition of Objects to the Control of Contr	=Total Cover	r	Are OBL, FAC	W, or FAC:	(0.0%	(A/B)
Sapling/Shrub Stratum (Plot size: 15')		-	Prevalence In	dov worksh	not:		
1			Total % C		Multiply	v bv:	
3.			OBL species	0	x 1 =	0	-
4.			FACW species	10	x 2 =	20	_
5			FAC species	0	x 3 =	0	_
<u> </u>	=Total Cover	r	FACU species		x 4 =	20	_
Herb Stratum (Plot size: 5')			UPL species	85		425	
1. Securigera varia	80 Yes	UPL	Column Totals			465	_(B)
Solanum carolinense Rubus occidentalis	5 No No	FACU UPL	Prevalence	Index = B/A	= 4.6	5	-
Rubus occidentalis Phragmites australis	5 No No	FACW	Hydrophytic V	egetation Ir	ndicators:		
5. Urtica dioica	5 No	FACW		_	ophytic Vege	tation	
6				ance Test is :		lation	
7.				ence Index is			
8.			4 - Morpho	ological Adap	tations ¹ (Prov	vide sup	porting
9.			data in F	Remarks or o	n a separate	sheet)	
10			Problemati	ic Hydrophyt	c Vegetation	¹ (Expla	ain)
Woody Vine Stratum (Plot size: 30')	=Total Cover	r	¹ Indicators of h be present, unl				must
		}	•	coo distuibe	a or broniettic	allo.	
1. 2.		· 	Hydrophytic Vegetation				
	=Total Cover	r	Present?	Yes	No X		

SOIL Sampling Point: w-cms-007-UPL

Profile Des	cription: (Descril Matri)	-		ument ti x Featur		itor or o	confirm the absence of	π indicators.)			
(inches)	Color (moist)	<u> </u>	Color (moist)	% 1 Gatur	Type ¹	Loc ²	Texture	Re	emarks		
0-13	5YR 3/4	95	10YR 6/3	5	<u>.урс</u> С	M	Loamy/Clayey				
13-18	10YR 5/8	80	10YR 3/3	20				Dus	al matrix		
13-10	101103/0		10110 3/3					Due	ai illatiix		
	oncentration, D=D	epletion, RM=l	Reduced Matrix, N	//S=Mas	ked Sand	d Grains		: PL=Pore Lining,		•	
Hydric Soil					. (0.1)			s for Problematio	-	oils":	
Histosol			Sandy Gle	•	, ,			Manganese Masse			
	pipedon (A2)		Sandy Red					Parent Material (F2	,		
	istic (A3)		Stripped M		o)			Shallow Dark Surfa			
	en Sulfide (A4)		Dark Surfa		oral (F1)		Other	(Explain in Rema	rks)		
	d Layers (A5) uck (A10)	Loamy Mu Loamy Gle									
	d Below Dark Surf	ace (A11)	Depleted N								
	ace (ATT)					s of hydrophytic ve	enetation a	nd			
Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Dark Surface (F6) Depleted Dark Surface (F7)							wetland hydrology must be present,				
5 cm Mucky Peat or Peat (S3) Redox Depressions (F8)								s disturbed or prob		,	
	Layer (if observe							<u> </u>			
Type:											
Depth (i	nches):						Hydric Soil Present	? Ye	s	No X	
Remarks:	,		_				-				
	ators not met.										
,											
HYDROLO	OGY										
Wetland Hy	drology Indicator	s:									
Primary Indi	cators (minimum o	of one is require	ed; check all that	apply)			Secondar	y Indicators (minin	num of two	required)	
Surface	Water (A1)		Water-Sta	ined Lea	ives (B9)		Surfa	ce Soil Cracks (B6	6)		
High Wa	ater Table (A2)		Aquatic Fa	auna (B1	3)		Drain	age Patterns (B10))		
Saturation	on (A3)		True Aqua	itic Plant	s (B14)		Dry-S	eason Water Tabl	le (C2)		
Water M	1arks (B1)		Hydrogen	Sulfide (Odor (C1)	Crayf	ish Burrows (C8)			
Sedime	nt Deposits (B2)		Oxidized F	Rhizosph	eres on l	iving R	oots (C3)Satur	ation Visible on Ae	erial Image	ry (C9)	
	posits (B3)		Presence					ed or Stressed Pla			
	at or Crust (B4)		Recent Iro			lled Soil	• • —	norphic Position (D	02)		
	posits (B5)	(5-)	Thin Muck		, ,		FAC-	Neutral Test (D5)			
	on Visible on Aeria				, ,						
	y Vegetated Conca	ive Surrace (Ba	B)Other (Exp	Diain in R	(emarks		T				
Field Obser		V	Na V	Danth (
		Yes			nches): _						
Water Table Saturation F		Yes			nches): _		Watland Hydralas	w Brosont? Vo		No V	
		Yes	NO X	Deptii (i	nches):		Wetland Hydrolog	y Present: Te	es	No X	
•	pillary fringe)	am dallde mor	nitoring well aeria	l nhotos	nreviou	e inenar	 ctions), if available:				
Pescine Ke	oolueu Dala (Silea	an gauge, moi	moning well, aella	ii piiulus	, previou	s moher	alonoj, ii avaliabie.				
Remarks:											
	dcators not met.										

See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

Applicant/Owner: Wabash Valley Resources LLC Investigator(s): CMS, KB Section, To		State: IN				
Investigator(s): CMS_KB			n Sampli	Sampling Point:		S-008-PEM
mroongator(o). Oillo, RD	ownship, Ran	ge: S32 T13N R	89W			
Landform (hillside, terrace, etc.): valley	ocal relief (co	oncave, convex, no	one): concave			
· · · · · · · · · · · · · · · · · · ·	37.426760°		Datum: [DDNAD 83	3	
Soil Map Unit Name: HkF: Hickory loam, 25 to 40 percent slopes		NWI	classification: N			
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes	No X (If n	o. explain in R	emarks.)		
		rcumstances" pre			o X	
		lain any answers i	_			_
SUMMARY OF FINDINGS – Attach site map showing sampling		•		ant fea	tures	, etc.
Hydrophytic Vegetation Present? Yes X No Is the	Sampled Are	ea				
	a Wetland?		X No_			
Wetland Hydrology Present? Yes X No No						
Remarks: Site was historically disturbed by the construction of transmission line ROW. Soil vegetation and the compaction of soils. Site dominated by phragmites and reed of						
VEGETATION – Use scientific names of plants.						
Absolute Dominant	Indicator					
Tree Stratum (Plot size: 30') % Cover Species? 1.	Status	Dominance Tes		F		
2.		Number of Dom Are OBL, FACW		Inat	2	(A)
3.		Total Number of		ecies		- ` ′
4.		Across All Strata			2	(B)
5=Total Cover		Percent of Domi Are OBL, FACW			0.0%	_(A/B)
Sapling/Shrub Stratum (Plot size: 15')	-	Prevalence Inde	ov workshoot			
1		Total % Co		Multiply	/ bv:	
3.		OBL species			10	_
4.		FACW species	90 >	2 =	180	_
5		FAC species	10	3 =	30	_
=Total Cover		FACU species _		: 4 =	0	_
Herb Stratum (Plot size: 5') 1. Phragmites australis 60 Yes	EACW/	UPL species Column Totals:		5 =	0 220	_ (D)
1. Phragmites australis 60 Yes 2. Phalaris arundinacea 30 Yes	FACW FACW	Prevalence Ir		2.00		_ (B)
3. Glyceria striata 10 No	OBL	1 10 valorioo ii	.uox = <i>B</i> // = _	2.00		_
4. Toxicodendron radicans 10 No	FAC	Hydrophytic Ve	getation Indic	ators:		
5		1 - Rapid Te	est for Hydroph	ytic Veget	ation	
6		X 2 - Dominan	nce Test is >50	%		
7		X 3 - Prevalen				
8			ogical Adaptati			
9			emarks or on a	•	,	
10			Hydrophytic V	Ū	` .	,
Woody Vine Stratum (Plot size: 30')		¹ Indicators of hy be present, unle				must
1.		Hydrophytic				
2=Total Cover		Vegetation Present?	Yes X	No		
		1 1030111!	169 /	No	_	

SOIL Sampling Point: w-cms-008-PEM

Profile Description: (Describe to the depth needed to document the indicato Depth Matrix Redox Features						ator or c	onfirm the absence of	of indicators.)
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-5	2.5Y 4/2	100	, ,				Sandy	
5-18	10YR 6/2	80	7.5YR 4/6	20	С	M	Sandy	Prominent redox concentrations
	10110/2		7.511 4/0			IVI	Sariuy	Frominent redox concentrations
<u> </u>								
,								
¹ Type: C=Co	ncentration, D=Depl	etion, RM=	Reduced Matrix, N	//S=Masl	ked Sand	d Grains.	. ² Location:	PL=Pore Lining, M=Matrix.
Hydric Soil I	ndicators:						Indicators	s for Problematic Hydric Soils ³ :
Histosol ((A1)		Sandy Gle	-	rix (S4)			Manganese Masses (F12)
	pedon (A2)		X Sandy Red					Parent Material (F21)
Black His	` '		Stripped M		6)			Shallow Dark Surface (F22)
	Sulfide (A4)		Dark Surfa				Other	(Explain in Remarks)
	Layers (A5)		Loamy Mu	•	, ,			
2 cm Mud	` '	(444)	Loamy Gle	•	, ,			
	Below Dark Surface	(A11)	Depleted N				31	
	rk Surface (A12)	Redox Dai		` '			s of hydrophytic vegetation and	
	ucky Mineral (S1) cky Peat or Peat (S3	Depleted [Redox Dep		, ,)		nd hydrology must be present, s disturbed or problematic.	
		,	RCGOX BC	310331011	3 (1 0)		unics	s disturbed or problematic.
	ayer (if observed):							
Type: Depth (in	ches):		_				Hydric Soil Present	? Yes X No
			_				Tryunc 3011 Fresent	: 165 <u>/</u> 110
Remarks:	toro mot							
Hydric indicat	iois met.							
HYDROLO	GY							
Wetland Hyd	Irology Indicators:							
_	ators (minimum of o	ne is requir	ed; check all that	apply)			Secondar	y Indicators (minimum of two required)
X Surface V	Vater (A1)		Water-Sta	ined Lea	ves (B9)		Surfac	ce Soil Cracks (B6)
X High Wat	er Table (A2)		Aquatic Fa	una (B1	3)		Draina	age Patterns (B10)
X Saturation	n (A3)		True Aqua	tic Plants	s (B14)		Dry-S	eason Water Table (C2)
Water Ma	arks (B1)		Hydrogen	Sulfide C	Odor (C1)	Crayfi	ish Burrows (C8)
	t Deposits (B2)		Oxidized F			_		ation Visible on Aerial Imagery (C9)
Drift Depo			Presence			` '		ed or Stressed Plants (D1)
	or Crust (B4)		Recent Iro			illed Soils	` /	norphic Position (D2)
Iron Depo		(D.7	Thin Muck		, ,		X FAC-I	Neutral Test (D5)
	n Visible on Aerial Ir	5 , (<i>_</i>		` '			
	Vegetated Concave	Surface (B	8)Other (Exp	nain in R	emarks)		T	
Field Observ		V		D // //				
Surface Water		s_X_		Depth (ii	· -			
Water Table				Depth (ii	′ –	0	Wetlend Hudrelen	w Bresont2 Voc V No
Saturation Pro		s_X_	No	Depth (ii	ilches).	0	Wetland Hydrolog	gy Present? Yes X No No
(includes cap	orded Data (stream	naline mo	nitoring well serie	l nhotos	nreviou	s inspec	tions) if available:	
Peseupe Med	oraca Data (Strediti	yauy c , 1110	intorning well, aella	יי איזטנטס,	, previou	o mopet	aonoj, ii avaliabie.	
Remarks:								
Hydrolgic ind	cators met.							

See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

	h Hydrogen Er					ınty: Vigo				Date:	6/12	/2024
Applicant/Owner:	Wabash Valle	ey Resource	s LLC				State:	IN	Sampling	Point:	UPL-	CMS-001
Investigator(s): CMS	, KB				Section, 7	Γownship, Ran	ge: S33 T13	N R9W				
Landform (hillside, te	errace, etc.): <u>F</u>	lillside				Local relief (co	oncave, convex	, none): <u>co</u>	oncave			
Slope (%): 4	Lat: 39.5328	355			Long: -	-87.428524		D	atum: DDI	NAD 83	3	
Soil Map Unit Name			to 6 perc	ent slopes,	eroded		NV	VI classific				
Are climatic / hydrolo	ogic conditions	on the site i	typical for	this time o	f vear?	Yes	No X (If no. expla	in in Rem	arks.)		
Are Vegetation X	_				-		ircumstances"				o X	
Are Vegetation							lain any answe			_		_
SUMMARY OF							•			nt feat	tures	etc
					<u> </u>							, στο:
Hydrophytic Vegeta		Yes X	_ No_	X		e Sampled Aron n a Wetland?			No V			
Hydric Soil Present Wetland Hydrology		Yes X	No		Within	n a weuanu?	16	es	No_X	_		
	1 1000111.											
Remarks: Upland old field. Sit	te was historica	ally stripped	of 20' fee	t soils. Soi	s. hvdrology a	and vegetation	are significant	lv disturbed	d.Anteced	ent Pre	cipitati	on Tool
Drought Index as m) 0pp00	0. 20 .00		o,, a. o.og, c	ana rogotation	are eigrineant	., a.o.a			o.pa	
VEGETATION -	. I lea sciant	ific names	of nlan	te								
VEGETATION	030 3010110	- Harries	or plan	Absolute	Dominant	Indicator						
Tree Stratum	(Plot size:	30')	% Cover	Species?	Status	Dominance	Test work	sheet:			
1.	· _						Number of D	ominant Sr	oecies Tha	at		
2.							Are OBL, FA				0	(A)
3.							Total Numbe	r of Domin	ant Specie	es		
4							Across All St	rata:			1	(B)
5							Percent of Do			t		
			_		=Total Cover		Are OBL, FA	CW, or FA	C:	0	.0%	_(A/B)
Sapling/Shrub Strat			15')			-						
1							Prevalence					
2.								Cover of:		Multiply		_
3.							OBL species		x1	-	0	_
5.							FACW species		x2 x3		20 15	_
J					=Total Cover		FACU species			-	100	_
Herb Stratum	(Plot size:	5'	, -		= rotal Gover		UPL species		^ _ x 5		0	_
Erigeron canade	` _		_ ′	60	Yes	FACU	Column Tota			-	435	(B)
2. Poa annua				20	No	FACU		e Index =		3.78		_ (-/
												_
3. Melilotus albus				10	No	FACU						
3. Melilotus albus4. Carex vulpinoid	lea			10 10	No No	FACU FACW	Hydrophytic	Vegetatio	n Indicate	ors:		
								Vegetatio			ation	
4. Carex vulpinoid	а			10	No	FACW	1 - Rapid	_	lydrophytic		ation	
 Carex vulpinoid Solidago rugosa 	a Iensis			10 5	No No	FACW FAC	1 - Rapid 2 - Domi 3 - Preva	Test for H nance Test llence Inde	lydrophytio t is >50% ex is ≤3.0 ¹	Veget		
 Carex vulpinoid Solidago rugosa Solidago canad Dactylis glomer 	a Iensis			10 5 5	No No No	FACW FAC FACU	1 - Rapid 2 - Domin 3 - Preva 4 - Morpl	Test for H nance Test llence Inde nological A	lydrophytion t is >50% ex is ≤3.0 ¹ daptations	Vegets ¹ (Prov	ide su _l	
 Carex vulpinoid Solidago rugosa Solidago canad Dactylis glomer 9. 	a lensis ata			10 5 5	No No No	FACW FAC FACU	1 - Rapid 2 - Domil 3 - Preva 4 - Morpl data ir	Test for H nance Test llence Inde nological A n Remarks	lydrophytion t is >50% ex is ≤3.0 ¹ daptations or on a se	Veget 5 ¹ (Proveparate	ide su sheet)	
 Carex vulpinoid Solidago rugosa Solidago canad Dactylis glomer 	a lensis ata			10 5 5 5	No No No	FACW FAC FACU	1 - Rapic 2 - Domi 3 - Preva 4 - Morpl data ir Problema	I Test for H nance Test llence Inde nological A n Remarks atic Hydrop	lydrophytion t is >50% ex is ≤3.0 ¹ daptations or on a see bhytic Veg	c Veget c 1 (Proveparate etation1	ide su sheet) (Expla	ain)
 Carex vulpinoid Solidago rugosa Solidago canad Dactylis glomer 9. 10. 	a Iensis ata			10 5 5 5	No No No	FACW FAC FACU	1 - Rapic 2 - Domi 3 - Preva 4 - Morpl data ir Problema Indicators of	Test for Hanance Test lence Inde hological A Remarks atic Hydrop hydric soil	lydrophytion t is >50% ex is ≤3.0¹ daptations or on a see ohytic Vegu I and wetla	c Veget c 1 (Proverparate etation 1)	ide su sheet) (Expla	ain)
4. Carex vulpinoid 5. Solidago rugosa 6. Solidago canad 7. Dactylis glomer 8. 9. 10. Woody Vine Stratur	a Iensis ata		30')	10 5 5 5	No No No	FACW FAC FACU	1 - Rapic 2 - Domi 3 - Preva 4 - Morpl data ir Problema	Test for Hanance Test lence Inde hological A Remarks atic Hydrop hydric soil	lydrophytion t is >50% ex is ≤3.0¹ daptations or on a see ohytic Vegu I and wetla	c Veget c 1 (Proverparate etation 1)	ide su sheet) (Expla	ain)
 Carex vulpinoid Solidago rugosa Solidago canad Dactylis glomer 9. 10. Woody Vine Stratus 1. 	a Iensis ata	ot size:3	30')	10 5 5 5	No No No	FACW FAC FACU	1 - Rapic 2 - Domi 3 - Preva 4 - Morpl data ir Problema Indicators of be present, u	Test for H nance Test llence Inde nological A n Remarks atic Hydrop hydric soil nless distu	lydrophytion t is >50% ex is ≤3.0¹ daptations or on a see ohytic Vegu I and wetla	c Veget c 1 (Proverparate etation 1)	ide su sheet) (Expla	ain)
4. Carex vulpinoid 5. Solidago rugosa 6. Solidago canad 7. Dactylis glomer 8. 9. 10. Woody Vine Stratur 4.	a densis ata <u>m</u> (Plo	ot size:3	30')	10 5 5 5 5	No No No	FACW FAC FACU	1 - Rapic 2 - Domi 3 - Preva 4 - Morpl data ir Problema Indicators of be present, u	Test for H nance Test llence Inde nological A n Remarks atic Hydrop hydric soil nless distu	lydrophytic t is >50% ex is ≤3.0 ¹ daptations or on a se ohytic Vege I and wetla urbed or pr	c Veget c 1 (Proverparate etation 1)	ide su sheet) (Expla	ain)

SOIL Sampling Point: UPL-CMS-001

Profile Desc Depth		ument th x Featur		ator or c	onfirm the absence of						
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	F	temarks		
0-3	10YR 7/2	90	10YR 5/4	10	С	M	Loamy/Clayey	Distinct red	ox concent	rations	
	-										
		Depletion, RM=F	Reduced Matrix, N	/IS=Masl	ked Sand	d Grains.		: PL=Pore Lining		•	
Hydric Soil			0 1 01		. (0.1)			s for Problemat	-	Soils":	
Histosol			Sandy Gle		rix (S4)			Manganese Mass			
	pipedon (A2)		Sandy Red		• •			Parent Material (F			
Black Hi	` '		Stripped M		5)		Very Shallow Dark Surface (F22) Other (Explain in Remarks)				
	n Sulfide (A4)		Dark Surfa				Other	(Explain in Rem	arks)		
	Layers (A5)		Loamy Mu	•	, ,						
	ick (A10)	(0.4.4)	Loamy Gle								
	Below Dark Surf	ace (ATT)	X Depleted N				31				
	ark Surface (A12)	`	Redox Dai		` '			s of hydrophytic	•		
	lucky Mineral (S1 cky Peat or Peat	,	Depleted [Redox Dep		` '		wetland hydrology must be present, unless disturbed or problematic.				
			Redox Dep	716331011	3 (1 0)		unes	s disturbed or pro	blematic.		
	Layer (if observe										
Type: Depth (ir	bedi	3					Hydric Soil Present	2 V	es X	No	
			_				Tryuno com ricocine	•	<u> </u>		
Remarks:	acil oritoria but	waa ai anifi aanth	, diaturbad								
ineets riyund	soil criteria, but	was significantly	y disturbed.								
HYDROLC	GY										
Wetland Hy	drology Indicato	rs:									
Primary India	cators (minimum	of one is require	ed; check all that	apply)			<u>Secondar</u>	y Indicators (min	imum of tw	o required)	
Surface	Water (A1)		Water-Sta	ined Lea	ves (B9)		Surfa	ce Soil Cracks (E	36)		
High Wa	ter Table (A2)		Aquatic Fa	una (B1	3)		Drain	age Patterns (B1	0)		
Saturation	on (A3)		True Aqua	tic Plant	s (B14)		Dry-S	eason Water Ta	ble (C2)		
Water M	arks (B1)		Hydrogen	Sulfide C	Odor (C1))	Crayf	ish Burrows (C8)			
Sedimer	nt Deposits (B2)		Oxidized F	Rhizosph	eres on l	_iving Ro	oots (C3) Satur	ation Visible on A	Aerial Imag	ery (C9)	
	osits (B3)		Presence			,		ed or Stressed P			
	it or Crust (B4)		Recent Iro	n Reduc	tion in Ti	lled Soils	· · · —	norphic Position (
	osits (B5)		Thin Muck		' '		FAC-	Neutral Test (D5))		
	on Visible on Aeri	0, ,			` '						
Sparsely	Vegetated Conc	ave Surface (B	B)Other (Exp	olain in R	emarks)		_				
Field Obser											
Surface Wat		Yes			nches):						
Water Table		Yes			nches):_						
Saturation P		Yes	No X	Depth (i	nches): _		Wetland Hydrolog	y Present? Y	es	No X	
(includes ca			attanta a P	1 1 - 1			Caral W. S. C.				
Describe Re	corded Data (stre	am gauge, mor	nitoring well, aeria	ıı photos	, previou	s inspec	tions), if available:				
Remarks:											
No hydric ind	dicators met.										

See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

Project/Site: Wabash Hydrogen Energy Center		City/Cou	nty: Vigo			Sampling Date	: 6/12	2/2024
Applicant/Owner: Wabash Valley Resources LLC				State:	IN :	Sampling Poin	t: UPL-	-CMS-002
Investigator(s): CMS, KB		Section, T	ownship, Ran	ge: S33 T13N	R9W			
Landform (hillside, terrace, etc.): Hilltop			Local relief (co	oncave, convex,	none): co	nvex		
Slope (%): 8 Lat: 39.532098			87.428285			atum: DDNAD	83	
Soil Map Unit Name: MuB2: Muren silt loam, 2 to 6 pe	ercent slopes.		011120200	NW	/I classifica			
			V					
Are Climatic / hydrologic conditions on the site typical		-	Yes			in in Remarks.		
	significantly			rcumstances" p			No	_
Are Vegetation, Soil, or Hydrology	naturally pro	blematic? (If needed, exp	lain any answer	rs in Rema	ırks.)		
SUMMARY OF FINDINGS – Attach site m	ap showii	ng samplin	g p _{'X}					
Undership to Variation Presents Var	la V	la dia	Computed Au					
	lo X lo		Sampled Are n a Wetland?		•	No V		
	lo <u>X</u>	Within	i a vveudiiu?	res	s	No X		
	<u> </u>							
Remarks: Upland woodlands.Antecedent Precipitation Tool Dro	uight Index a	s mild drought						
opiana woodiands.Antecedent i recipitation roof bro	agiit iiidex a	s mila arougni	•					
VEGETATION – Use scientific names of pla	anto							
VEGETATION – Use scientific flames of pic	Absolute	Dominant	Indicator					
<u>Tree Stratum</u> (Plot size: 30')	% Cover	Species?	Status	Dominance T	est works	sheet:		
1. Fraxinus americana	60	Yes	FACU	Number of Do	minant Sp	ecies That		
2. Juniperus virginiana	10	No	FACU	Are OBL, FAC			1	(A)
3. Ulmus americana	5	No	FACW	Total Number	of Domina	ant Species		_
4.				Across All Stra	ata:	·	6	(B)
5.				Percent of Do	minant Sp	ecies That		
	75	=Total Cover		Are OBL, FAC			16.7%	(A/B)
Sapling/Shrub Stratum (Plot size: 15')							
Fraxinus pennsylvanica	10	Yes	FACW	Prevalence In	ndex work	sheet:		
Elaeagnus umbellata	10	Yes	UPL	Total % (Cover of:	Multip	oly by:	_
3. Sassafras albidum	5	No	FACU	OBL species	0	x 1 =	0	_
Liriodendron tulipifera	5	No	FACU	FACW specie	_	x 2 =	32	_
5. Lonicera tatarica	5	No	<u>FACU</u>	FAC species	0	x 3 =	0	_
(5)	35	=Total Cover		FACU species		x 4 =	612	_
Herb Stratum (Plot size: 5')	40	V	FACU	UPL species	13	x 5 =	65	- (D)
1. Poa annua	<u>40</u> 7	Yes	FACU	Column Totals		(A)	709	_(B)
Solidago canadensis Erigeron canadensis	7	No No	FACU FACU	Prevalence	e maex = c	5/A = 3.	90	_
Galium aparine	5	No	FACU	Hydrophytic \	Vegetation	n Indicators:		
Securigera varia	3	No	UPL		_	ydrophytic Veg	etation	
6. Cirsium vulgare	2	No	FACU		ance Test		Clation	
7. Erigeron philadelphicus	1	No	FACW		ence Inde			
8						daptations ¹ (Pr	ovide su	pporting
9.					•	or on a separa		
10.				Problema	tic Hydrop	hytic Vegetatio	n ¹ (Expl	ain)
	65	=Total Cover				and wetland h		
Woody Vine Stratum (Plot size: 15')				•	rbed or probler	, ,,	
Parthenocissus quinquefolia	5	Yes	FACU	Hydrophytic				
2. Smilax glauca	2	Yes	FACU	Vegetation				
	7	=Total Cover		Present?	Yes	No:	X	
Remarks: (Include photo numbers here or on a sepa	rate sheet.)							
<u> </u>								

SOIL Sampling Point: UPL-CMS-002

Profile Description: (Describe to the depth needed to document the indicato Depth Matrix Redox Features							ommin the absence o	i marcators.		
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks		
0-4	10YR 4/2	80	10YR 4/3	20	C	M	Loamy/Clayey	Faint redox concentrations		
4-14	10YR 4/3	75	10YR 4/4	25	С	M	Loamy/Clayey	Faint redox concentrations		
	1011(4/3	10	1011(4/4			101	Loamy/Olaycy	Taint redox concentrations		
¹ Type: C=Co	ncentration, D=Depl	letion, RM=	Reduced Matrix, I	√S=Masl	ked Sand	d Grains	. ² Location:	PL=Pore Lining, M=Matrix.		
Hydric Soil I	ndicators:						Indicators	s for Problematic Hydric Soils ³ :		
Histosol ((A1)		Sandy Gle	-	rix (S4)			langanese Masses (F12)		
Histic Epi	pedon (A2)		Sandy Re	dox (S5)				arent Material (F21)		
Black His	` '		Stripped N		5)			Shallow Dark Surface (F22)		
	Sulfide (A4)		Dark Surfa				Other	(Explain in Remarks)		
	Layers (A5)	Loamy Mu	-							
2 cm Mud	` '		Loamy Gle	-						
	Below Dark Surface	e (A11)	X Depleted I				3			
	rk Surface (A12)		Redox Da		` '			of hydrophytic vegetation and		
Sandy Mu	Depleted I		, ,		wetland hydrology must be preser unless disturbed or problematic.					
	cky Peat or Peat (S3	5)	Redox De	pression	S (F8)	1	uniess	s disturbed or problematic.		
	.ayer (if observed):									
Type:										
Depth (in	ches):						Hydric Soil Present	? Yes X No		
Remarks:										
Hydric indicat	tors met.									
HYDROLO	OV									
	GY									
Wotland Hyd										
_	Irology Indicators:	ne is requir	red: check all that	annly)			Secondari	/ Indicators (minimum of two required)		
Primary Indic	Irology Indicators: ators (minimum of o	ne is requir			ves (B9)			/ Indicators (minimum of two required)		
Primary Indic	Irology Indicators: ators (minimum of o Vater (A1)	ne is requir	Water-Sta	ined Lea			Surfac	ce Soil Cracks (B6)		
Primary Indic Surface V High Wat	Irology Indicators: ators (minimum of o Vater (A1) er Table (A2)	ne is requir	Water-Sta Aquatic Fa	ined Lea auna (B1	3)		Surface Draina	ce Soil Cracks (B6) age Patterns (B10)		
Primary Indic Surface V High Wat Saturation	Irology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3)	ne is requir	Water-Sta Aquatic Fa True Aqua	ined Lea auna (B1 atic Plant	3) s (B14)		Surface Draina Dry-S	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2)		
Primary Indic Surface V High Wat Saturation Water Ma	Irology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1)	ne is requir	Water-Sta Aquatic Fa	ined Lea auna (B1 atic Plant Sulfide (3) s (B14) Odor (C1)		Surface Draina Dry-S Crayfi	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8)		
Primary Indic Surface V High Wat Saturation Water Ma	Irology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2)	ne is requir	Water-Sta Aquatic Fa True Aqua Hydrogen	ined Lea auna (B1 atic Plant Sulfide (Rhizosph	3) s (B14) Odor (C1) eres on l	iving Ro	SurfactDrainaDry-SiCrayfi poots (C3)Satura	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2)		
Primary Indic Surface V High Wat Saturation Water Ma Sediment Drift Depo	Irology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2)	ne is requir	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F	ined Lea auna (B1 atic Plant Sulfide (Rhizosph of Reduc	3) s (B14) Odor (C1) eres on l ced Iron (iving Ro	Surface	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9)		
Primary Indic Surface V High Wat Saturation Water Ma Sediment Drift Depo	Irology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) c or Crust (B4)	ne is requir	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence	ined Lea auna (B1 atic Plant Sulfide (Rhizosph of Reduc in Reduc	3) s (B14) Odor (C1) eres on Led Iron (tion in Ti	iving Ro		ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1)		
Primary Indic Surface V High Wat Saturation Water Ma Sediment Drift Depo	Irology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) c or Crust (B4)		Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro	ined Lea auna (B1 atic Plant: Sulfide (Rhizosph of Reduc in Reduc Surface	3) s (B14) Odor (C1) eres on Led Iron (tion in Ti	iving Ro		ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) orphic Position (D2)		
Primary Indic Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundatio	Irology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) or Crust (B4) posits (B5)	magery (B7	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck Gauge or	ined Lea auna (B1 atic Plant Sulfide C Rhizosph of Reduc on Reduc Surface Well Dat	3) s (B14) Odor (C1) eres on L ed Iron (tion in Ti (C7) a (D9)	iving Ro		ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) orphic Position (D2)		
Primary Indic Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundatio	Irology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) c or Crust (B4) osits (B5) n Visible on Aerial Ir Vegetated Concave	magery (B7	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck Gauge or	ined Lea auna (B1 atic Plant Sulfide C Rhizosph of Reduc on Reduc Surface Well Dat	3) s (B14) Odor (C1) eres on L ed Iron (tion in Ti (C7) a (D9)	iving Ro		ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) orphic Position (D2)		
Primary Indic Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundatio Sparsely	Irology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) or Crust (B4) osits (B5) n Visible on Aerial Ir Vegetated Concave vations:	magery (B7	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck Gauge or	ined Lea auna (B1 atic Plant Sulfide C Rhizosph of Reduc on Reduc Surface Well Dat	3) s (B14) Odor (C1) eres on Led Iron (tion in Ti (C7) a (D9) emarks)	iving Ro		ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) orphic Position (D2)		
Primary Indic Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundatio Sparsely	Irology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) c or Crust (B4) osits (B5) n Visible on Aerial Ir Vegetated Concave vations:	magery (B7 Surface (B	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck Gauge or Other (Exp	ined Lea auna (B1 tic Plant Sulfide C Rhizosph of Reduc on Reduc Surface Well Dat	s (B14) Ddor (C1) eres on L ed Iron (tion in Ti (C7) a (D9) emarks)	iving Ro		ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) orphic Position (D2)		
Primary Indic Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundatio Sparsely Field Observ Surface Wate	Irology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) c or Crust (B4) osits (B5) n Visible on Aerial Ir Vegetated Concave vations: er Present? Ye Present? Ye	magery (B7 Surface (B ss	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck Gauge or Other (Exp	ined Lea auna (B1 atic Plant Sulfide (Rhizosph of Reduc in Reduc is Surface Well Dat blain in R	s (B14) Odor (C1) eres on L ed Iron (tion in Ti (C7) a (D9) emarks) nches): _ nches): _	iving Ro		ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) orphic Position (D2) Neutral Test (D5)		
Primary Indic Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundatio Sparsely Field Observ Surface Water Water Table	Irology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) or Crust (B4) posits (B5) n Visible on Aerial Ir Vegetated Concave vations: er Present? Ye Present? Ye esent? Ye	magery (B7 Surface (B ss	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck Gauge or Other (Exp No X No X	ined Lea auna (B1 atic Plant Sulfide (Rhizosph of Reduc in Reduc is Surface Well Dat blain in R Depth (ii	s (B14) Odor (C1) eres on L ed Iron (tion in Ti (C7) a (D9) emarks) nches): _ nches): _	iving Ro	Surface Draina Dry-S Crayfi Satura Stunte S (C6) FAC-N	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) orphic Position (D2) Neutral Test (D5)		
Primary Indic Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundatio Sparsely Field Observ Surface Water Water Table Saturation Pri	Irology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) or Crust (B4) posits (B5) n Visible on Aerial Ir Vegetated Concave vations: er Present? Ye Present? Ye esent? Ye	magery (B7 Surface (B s s	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck Gauge or Other (Exp No X No X No X No X	ined Lea auna (B1 ttic Plant Sulfide C Rhizosph of Reduc in Reduc in Surface Well Dat blain in R Depth (ii Depth (ii	s (B14) Dodor (C1) eres on Led Iron (tion in Ti (C7) a (D9) emarks) enches): _nches): _	Living Ro	Surface Draina Dry-Si Crayfi Satura Stunte Si (C6) FAC-N Wetland Hydrolog	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) orphic Position (D2) Neutral Test (D5)		
Primary Indic Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundatio Sparsely Field Observ Surface Wate Water Table Saturation Pr (includes cap Describe Rec	Irology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) or Crust (B4) posits (B5) n Visible on Aerial Ir Vegetated Concave vations: er Present? Ye Present? Ye esent? Ye esent? Ye	magery (B7 Surface (B s s	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck Gauge or Other (Exp No X No X No X No X	ined Lea auna (B1 ttic Plant Sulfide C Rhizosph of Reduc in Reduc in Surface Well Dat blain in R Depth (ii Depth (ii	s (B14) Dodor (C1) eres on Led Iron (tion in Ti (C7) a (D9) emarks) enches): _nches): _	Living Ro	Surface Draina Dry-Si Crayfi Satura Stunte Si (C6) FAC-N Wetland Hydrolog	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) orphic Position (D2) Neutral Test (D5)		
Primary Indic Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundatio Sparsely Field Observ Surface Wate Water Table Saturation Pr (includes cap Describe Rec	Irology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) or Crust (B4) posits (B5) n Visible on Aerial Ir Vegetated Concave vations: er Present? Ye Present? Ye esent? Ye esent? Ye	magery (B7 Surface (B s s	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck Gauge or Other (Exp No X No X No X No X	ined Lea auna (B1 ttic Plant Sulfide C Rhizosph of Reduc in Reduc in Surface Well Dat blain in R Depth (ii Depth (ii	s (B14) Dodor (C1) eres on Led Iron (tion in Ti (C7) a (D9) emarks) enches): _nches): _	Living Ro	Surface Draina Dry-Si Crayfi Satura Stunte Si (C6) FAC-N Wetland Hydrolog	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) orphic Position (D2) Neutral Test (D5)		
Primary Indic Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundatio Sparsely Field Observ Surface Wate Water Table Saturation Pr (includes cap Describe Rec	Irology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) or Crust (B4) osits (B5) n Visible on Aerial Ir Vegetated Concave vations: er Present? Ye Present? Ye esent? Ye esent? Ye esillary fringe)	magery (B7 Surface (B s s	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck Gauge or Other (Exp No X No X No X No X	ined Lea auna (B1 ttic Plant Sulfide C Rhizosph of Reduc in Reduc in Surface Well Dat blain in R Depth (ii Depth (ii	s (B14) Dodor (C1) eres on Led Iron (tion in Ti (C7) a (D9) emarks) enches): _nches): _	Living Ro	Surface Draina Dry-Si Crayfi Satura Stunte Si (C6) FAC-N Wetland Hydrolog	ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) orphic Position (D2) Neutral Test (D5)		

See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

Applicant/Owner: Wabash Valley Resources LLC Investigator(s): CMS, KB Landform (hillside, terrace, etc.): Hilltop Slope (%): 4 Lat: 39.538644° Soil Map Unit Name: AlB2: Alford silt loam, 2 to 5 percent slopes, erod Are climatic / hydrologic conditions on the site typical for this time of ye Are Vegetation X , Soil X , or Hydrology X significantly distu Are Vegetation , Soil , or Hydrology naturally problem SUMMARY OF FINDINGS – Attach site map showing: Hydrophytic Vegetation Present? Yes No X Hydric Soil Present? Yes No X Wetland Hydrology Present? Yes No X Remarks: Site was historistacly disturbed in 2023 by the construction of an accee by the removal of vegetation and the compaction of soils. Site is domi	Long: _8 led ear? urbed? A natic? (I sampling ls the within	Yes Yes Yes Yes Yes Ye "Normal Clf needed, exp g point loc Sampled Ar n a Wetland?	rea Pres No X al surveys. Soils, vegetation and hydrology were disturb	c.
Landform (hillside, terrace, etc.): Hilltop Slope (%): 4 Lat: 39.538644° Soil Map Unit Name: AlB2: Alford silt loam, 2 to 5 percent slopes, erod Are climatic / hydrologic conditions on the site typical for this time of ye Are Vegetation X , Soil X , or Hydrology X significantly distuance of the sile typical for the silt of t	Long: _8 led ear? urbed? A natic? (I sampling Is the within ess road for inated by A	Yes Yes Yes Yes Yes Ye "Normal Clf needed, exp g point loc Sampled Ar n a Wetland?	Datum: DDNAD 83 NWI classification: NA No_X (If no, explain in Remarks.) Circumstances" present? Yes No_X_ plain any answers in Remarks.) cations, transects, important features, etc. rea Yes No_X_ al surveys. Soils, vegetation and hydrology were disturble.	bec
Landform (hillside, terrace, etc.): Hilltop Slope (%): 4 Lat: 39.538644° Soil Map Unit Name: AlB2: Alford silt loam, 2 to 5 percent slopes, erod Are climatic / hydrologic conditions on the site typical for this time of ye Are Vegetation X , Soil X , or Hydrology X significantly distuance of the sile typical for the silt of t	Long: _E led ear? urbed? A natic? (I sampling Is the within ess road for inated by A	Yes Yre "Normal Colf needed, exp g point loo Sampled Arn a Wetland?	Datum: DDNAD 83 NWI classification: NA No _ X	bed
Slope (%):4	Long: _E led ear? urbed? A natic? (I sampling Is the within ess road for inated by A	Yes Yre "Normal Colf needed, exp g point loo Sampled Arn a Wetland?	Datum: DDNAD 83 NWI classification: NA No _ X	bec
Soil Map Unit Name: AIB2: Alford silt loam, 2 to 5 percent slopes, erod Are climatic / hydrologic conditions on the site typical for this time of ye Are Vegetation X , Soil X , or Hydrology X significantly disturbed and the site typical for the site of ye Are Vegetation X , Soil X , or Hydrology X significantly disturbed in 2023 by the construction of an acces and the site of	led ear? urbed? A natic? (I sampling Is the within ess road for inated by A	Yes Are "Normal C If needed, exp g point loo Sampled Ar n a Wetland?	NWI classification: NA No _X	bec
Are climatic / hydrologic conditions on the site typical for this time of yether Are Vegetation X , Soil X , or Hydrology X , significantly disturbed in 2023 by the construction of an accel are climate. Are Vegetation Are Vegetation , Soil X , or Hydrology X , significantly disturbed in 2023 by the construction of an accel are climate. Are Vegetation Provided The Soil Provided T	ear? urbed? A natic? (I sampling Is the within ess road for inated by A	are "Normal Colf needed, exp g point loc Sampled Ar n a Wetland?	No X (If no, explain in Remarks.) Circumstances" present? Yes No X plain any answers in Remarks.) cations, transects, important features, etc. rea ? Yes No X al surveys. Soils, vegetation and hydrology were disturb	bec
Are Vegetation X , Soil X , or Hydrology X significantly distraction Summary OF FINDINGS – Attach site map showing	Is the within ess road for inated by A	are "Normal Colf needed, exp g point loc Sampled Ar n a Wetland?	Circumstances" present? Yes No _X	bec
Are Vegetation , Soil , or Hydrology naturally problem SUMMARY OF FINDINGS – Attach site map showing : Hydrophytic Vegetation Present? Yes No X Hydric Soil Present? Yes No X Wetland Hydrology Present? Yes No X Remarks: Site was historistacly disturbed in 2023 by the construction of an acce	Is the within ess road for inated by A	g point loc Sampled Ar n a Wetland?	plain any answers in Remarks.) cations, transects, important features, etc. rea ? Yes No X al surveys. Soils, vegetation and hydrology were disturb	bec
SUMMARY OF FINDINGS – Attach site map showing at Hydrophytic Vegetation Present? Yes No X Hydric Soil Present? Yes No X Wetland Hydrology Present? Yes No X Remarks: Site was historistacly disturbed in 2023 by the construction of an access.	Is the within	g point loo Sampled Ar n a Wetland?	rea Yes No _X al surveys. Soils, vegetation and hydrology were disturb	bec
Hydrophytic Vegetation Present? Yes No X Hydric Soil Present? Yes No X Wetland Hydrology Present? Yes No X Remarks: Site was historistacly disturbed in 2023 by the construction of an acce	Is the within	Sampled Arn a Wetland?	rea Pres No X al surveys. Soils, vegetation and hydrology were disturb	bec
Hydric Soil Present? Wetland Hydrology Present? Yes No X No X Remarks: Site was historistacly disturbed in 2023 by the construction of an acce	within ess road for inated by A	n a Wetland?	Res NoX al surveys. Soils, vegetation and hydrology were disturb	
Wetland Hydrology Present? Yes No X Remarks: Site was historistacly disturbed in 2023 by the construction of an acce	ess road for inated by A	r geotechnica	al surveys. Soils, vegetation and hydrology were disturb	
Remarks: Site was historistacly disturbed in 2023 by the construction of an acce	inated by A	•	, , , , , , , , , , , , , , , , , , , ,	
Site was historistacly disturbed in 2023 by the construction of an acce	inated by A	•	, , , , , , , , , , , , , , , , , , , ,	
	inated by A	•	, , , , , , , , , , , , , , , , , , , ,	
	ominant			
VEGETATION – Use scientific names of plants.	ominant			
•		Indicator		
Tree Stratum (Plot size: 30') % Cover S	Species?	Status	Dominance Test worksheet:	
1.			Number of Dominant Species That	
2. Ulmus americana 40	Yes	FACW	Are OBL, FACW, or FAC: 4 (A)	1
3. Carya glabra 20	Yes	FACU	Total Number of Dominant Species	
4. Liriodendron tulipifera 15 5. Fraxinus americana 5	No No	FACU FACU	Across All Strata: 8 (B)	i
	otal Cover	-FACU	Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/	/R)
Sapling/Shrub Stratum (Plot size: 15')	ital Covel		Are OBE, I AGW, OF I AG. 30.0%	υ,
1. Cornus racemosa 10	Yes	FAC	Prevalence Index worksheet:	
2. Asimina triloba 5	Yes	FAC	Total % Cover of: Multiply by:	
3. Lonicera tatarica 3	No	FACU	OBL species 0 x 1 = 0	
4.			FACW species 60 x 2 = 120	
5.			FAC species 15 x 3 = 45	
18=To	otal Cover		FACU species 93 x 4 = 372	
Herb Stratum (Plot size: 5')			UPL species 0 x 5 = 0	
1. Geum aleppicum 20	Yes	FACW	Column Totals: 168 (A) 537 (B))
2. Ageratina altissima 20	Yes	FACU	Prevalence Index = B/A = 3.20	
3. Elymus villosus 15	Yes	FACU		
4. Milium effusum 5	No	FACU	Hydrophytic Vegetation Indicators:	
5			1 - Rapid Test for Hydrophytic Vegetation	
6			2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹	
7			4 - Morphological Adaptations ¹ (Provide support	tino
9.			data in Remarks or on a separate sheet)	mić
10.			Problematic Hydrophytic Vegetation ¹ (Explain)	
	otal Cover		¹ Indicators of hydric soil and wetland hydrology mus	et
Woody Vine Stratum (Plot size: 30')	2270.		be present, unless disturbed or problematic.	,,
1. Parthenocissus quinquefolia 10	Yes	FACU	Hydrophytic	
2.			Vegetation	
	tal Cover		Present? Yes No X	
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL Sampling Point: UPL-CMS-003

Depth	ription: (Describe Matrix	ειο ιπε αερτ		ı ment t x Featuı		nor or (confirm the absence of	วา กานเบลเบาร.)				
(inches)	Color (moist)	%	Color (moist)	% «	Type ¹	Loc ²	Texture	Rem	arks			
0-7	10YR 5/3	100	, , ,				Loamy/Clayey					
7-18	10YR 5/4	100					Loamy/Clayey					
. 10										_		
							-					
-												
1												
	oncentration, D=De	pletion, RM=	Reduced Matrix, N	1S=Mas	ked Sand	Grains		: PL=Pore Lining, M				
Hydric Soil Histosol			Sandy Gle	vad Mat	riv (S4)			s for Problematic H Manganese Masses	-			
	ipedon (A2)		Sandy Red					Parent Material (F21)				
Black Hi			Stripped M				Very Shallow Dark Surface (F22)					
	n Sulfide (A4)		Dark Surfa		3)		Other (Explain in Remarks)					
Stratified Layers (A5) Loamy Mucky Mineral (F1)								(=	-,			
2 cm Muck (A10)Loamy Gleyed Matrix (F2)												
Depleted Below Dark Surface (A11) Depleted Matrix (F3)												
Thick Dark Surface (A12) Redox Dark Surface (F6)							³ Indicators of hydrophytic vegetation and					
Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7)							wetland hydrology must be present,					
5 cm Mucky Peat or Peat (S3) Redox Depressions (F8)							unles	s disturbed or proble	ematic.			
Restrictive	_ayer (if observed)):										
Type:												
Depth (ir	nches):		<u></u>				Hydric Soil Present	? Yes	No	Χ		
Remarks:												
No hydric ind	licators present.											
HYDROLC	GY											
Wetland Hy	drology Indicators	:										
Primary India	cators (minimum of	one is requir	ed; check all that	apply)			<u>Secondar</u>	y Indicators (minimu	m of two requir	red)		
Surface	Water (A1)		Water-Stai		` '		Surfa	ce Soil Cracks (B6)				
	ter Table (A2)		Aquatic Fa					age Patterns (B10)				
Saturation	` '		True Aqua		. ,		<u> </u>	Season Water Table	(C2)			
	arks (B1)		Hydrogen		. ,			ish Burrows (C8)				
	t Deposits (B2)		Oxidized R			_		ation Visible on Aeria)		
	osits (B3)		Presence		`	,		ed or Stressed Plant				
	t or Crust (B4)		Recent Iro			lled Soil		norphic Position (D2))			
	osits (B5)	l	Thin Muck				FAC-	Neutral Test (D5)				
	on Visible on Aerial				, ,							
	Vegetated Concav	e Sunace (b	8) Other (Exp	iain in F	kemarks)							
Field Obser		oc.	No. V	Donth /	nehoe\:							
Surface Wat		es			nches):							
Water Table Saturation P		es es			nches): _ nches):		Wetland Hydrolog	y Present? Yes	No	v		
(includes cap			<u> </u>	Dopui (I			Tredalia Hydrolog	,, i 1636iii: 165	No	^		
	corded Data (strear	n gauge, mo	nitoring well, aeria	l photos	, previous	s inspec	tions), if available:					
	2000 (00000	J 250, 1110		F	, _F . 5.104		,					
Remarks:												
No hydrolog	/ indicators present											

See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

Project/Site: Wabash Hydrogen Energy Center		City/Cou	nty: Vigo			Sampling Dat	e: <u>6/13</u>	3/2024
Applicant/Owner: Wabash Valley Resources LLC				State:	IN S	Sampling Poir	nt: UPL	-CMS-004
Investigator(s): CMS, KB		Section, T	ownship, Ran	ge: S32 T13N	N R9W			
Landform (hillside, terrace, etc.): Hilltop			Local relief (co	ncave, convex	, none): cor	nvex		
Slope (%): 4 Lat: 39.529613°			87.426567°			tum: DDNAD	83	
Soil Map Unit Name: HkF: Hickory loam, 25 to 40 perc	ent slopes			NV	VI classifica			
Are climatic / hydrologic conditions on the site typical f	-	f vear?	Yes	No X (I	If no. explai	n in Remarks	.)	
Are Vegetation X , Soil X , or Hydrology X		-		rcumstances" p			No X	
Are Vegetation, Soil, or Hydrology				lain any answe				_
SUMMARY OF FINDINGS – Attach site ma				•		,	atures	s, etc.
Lludraphytia Vagatation Present? Vag	- V	lo the	Sampled Are					
	ο <u>X</u> ο <u>X</u>		Sampled Are n a Wetland?		s	No X		
	$\frac{X}{X}$	""	ra wouding.			<u> </u>		
Remarks:		I						
Maintained transmission line ROW Soils, vegetation							ls. Site is	s
dominated by autumn olive, callery pear, crownvetch,	Japanese ho	oneysuckle. Al	PT indicates m	nild drought for	this time of	year.		
VEGETATION – Use scientific names of pla	ınts.							
Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator	Dominance 1	Toot works	hooti		
1. (Flot Size	% Cover	Species?	Status	Number of Do				
2.				Are OBL, FA			0	(A)
3.				Total Number		_		- ` '
4.				Across All Str		· <u> </u>	5	(B)
5				Percent of Do				
(5)	. ——:	=Total Cover		Are OBL, FA	CW, or FAC	:: <u> </u>	0.0%	_ (A/B)
Sapling/Shrub Stratum (Plot size: 15')	V	LIDI	Dunisalamaa l		- h 4:		
Elaeagnus umbellata Pyrus calleryana	<u>20</u> 15	Yes Yes	UPL UPL	Prevalence I	naex work: Cover of:		iply by:	
3. Lonicera tatarica	10	Yes	FACU	OBL species		x 1 =	<u>іріу Бу.</u> 0	_
4. Morus rubra	5	No	FACU	FACW specie		x 2 =	16	_
5.				FAC species		x 3 =	0	_
	50 :	=Total Cover		FACU specie		x 4 =	168	_
Herb Stratum (Plot size: 5')				UPL species	60	x 5 =	300	_
1. Securigera varia	20	Yes	UPL	Column Total	s: 110	(A)	484	(B)
2. Lonicera japonica	20	Yes	FACU	Prevalence	e Index = B	_	.40	
3. Cinna arundinacea	8	No	FACW					_
4. Rubus idaeus	5	No	FACU	Hydrophytic	Vegetation	Indicators:		
5. Leucanthemum vulgare	5	No	UPL	1 - Rapid	Test for Hy	drophytic Ve	getation	
6. Solidago canadensis	2	No	FACU	2 - Domir	nance Test	s >50%		
7				3 - Preva	lence Index	is ≤3.0 ¹		
8.						aptations ¹ (P		
9.				data in	Remarks o	r on a separa	ate sheet	.)
10				Problema	atic Hydroph	nytic Vegetati	on¹ (Exp	lain)
Woody Vine Stratum (Plot size: 30'	60 :	=Total Cover		¹ Indicators of be present, u				/ must
1.				Hydrophytic		•		
2.				Vegetation				
		=Total Cover		Present?	Yes	No	Χ	
Remarks: (Include photo numbers here or on a sepa	rate sheet.)							
, , , , , , , , , , , , , , , , , , , ,	,							

SOIL Sampling Point: UPL-CMS-004

Depth	matrix (Descrit	_		ox Featur		ator or (confirm the absence of	oi iliulcators.)	
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks	
0-10	10YR 5/2	100	, ,				Loamy/Clayey		
	-								
 									
	oncentration, D=D	epletion, RM=	Reduced Matrix, I	MS=Mas	ked Sand	d Grains		: PL=Pore Lining, M=Ma	
Hydric Soil			0		···· (O.4)			s for Problematic Hydri	
Histosol			Sandy Gle	-				Manganese Masses (F12))
	pipedon (A2)		Sandy Re					Parent Material (F21)	22)
Black Hi	n Sulfide (A4)		Stripped N		5)			Shallow Dark Surface (F2 r (Explain in Remarks)	22)
	l Layers (A5)		Loamy Mu	` '	eral (F1)			(Explain in Nemarks)	
	ick (A10)		Loamy Gl	-					
	d Below Dark Surfa	ace (A11)	Depleted	-	. ,				
	ark Surface (A12)	, ,	Redox Da	•	,		³ Indicators	s of hydrophytic vegetation	on and
Sandy M	lucky Mineral (S1)		Depleted	Dark Sur	face (F7)			nd hydrology must be pre	
5 cm Mu	icky Peat or Peat (S3)	Redox De	pression	s (F8)		unles	s disturbed or problemati	c.
Restrictive	Layer (if observe	d):							
Type:	Hard	oan							
Depth (ii	nches):	10	<u> </u>				Hydric Soil Present	? Yes	NoX
Remarks:						•			
No hydric inc	dicators present.								
HYDROLO	OGY								
_	drology Indicator								
	cators (minimum o	f one is requir						ry Indicators (minimum of	two required)
	Water (A1)		Water-Sta		, ,			ce Soil Cracks (B6)	
·	iter Table (A2)		Aquatic Fa					age Patterns (B10)	
Saturation Mater M	` '		True Aqua		` ,	١		Season Water Table (C2)	
	arks (B1) nt Deposits (B2)		Hydrogen Oxidized I					ïsh Burrows (C8) ation Visible on Aerial Im	ageny (CQ)
	posits (B3)		Presence			_		ed or Stressed Plants (D	
	at or Crust (B4)		Recent Iro			,		norphic Position (D2)	.,
	osits (B5)		Thin Muck				• • —	Neutral Test (D5)	
Inundati	on Visible on Aeria	I Imagery (B7)			, ,			,	
Sparsely	Vegetated Conca	ve Surface (B	8) Other (Ex	plain in F	Remarks)				
Field Obser	vations:								
Surface Wat	er Present?	Yes	No X	Depth (i	nches):				
Water Table	Present?	Yes	No X	Depth (i	nches):				
Saturation P	resent?	Yes	No X	Depth (i	nches):		Wetland Hydrolog	gy Present? Yes	No X
(includes ca									
Describe Re	corded Data (strea	ım gauge, mo	nitoring well, aeria	al photos	, previou	s insped	ctions), if available:		
Remarks:									
	y indicators preser	nt.							

See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

Project/Site: Wabash Hydrogen Energy Center		City/Cou	nty: Vigo		Sa	ampling Date:	6/13	/2024
Applicant/Owner: Wabash Valley Resources LLC				State:	IN Sa	mpling Point:	UPL-	CMS-005
Investigator(s): CMS, KB		Section, T	ownship, Ran	ge: S18 T13N	R9W			
Landform (hillside, terrace, etc.): hillside			Local relief (co	oncave, convex,	none); conv	ex		
Slope (%): 7 Lat: 39.564574°			87.461678°	,		ım: DDNAD 8	3	
Soil Map Unit Name: RuC2: Russell silt loam, Bloomi	naton Ridaed F			s eroded NW				
Are climatic / hydrologic conditions on the site typical		-	Yes	No X (If	•	,		
Are Vegetation, Soil, or Hydrology	_			rcumstances" p			lo	_
Are Vegetation, Soil, or Hydrology	naturally prob	lematic? (If needed, exp	lain any answer	s in Remark	s.)		
SUMMARY OF FINDINGS – Attach site n	nap showin	g samplin	g point loc	ations, trans	sects, imp	portant fea	tures	, etc.
Hydrophytic Vegetation Present? Yes	No X	Is the	Sampled Are	ea .				
	No X		n a Wetland?		; !	No X		
· ·	No X							
Remarks:								
Upland woods. Site dominated by American elm, tuli	p tree, pignut h	nickory, grey	dogwood, paw	paw, yellow ave	ns and white	e snakeroot. <i>A</i>	APT ind	icates
mild drought for this time of year.								
VEGETATION – Use scientific names of pl		Daminant	la dinata a					
<u>Tree Stratum</u> (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status	Dominance T	est worksh	eet·		
1.	70 00001	Орсоюз.	Otatas	Number of Do				
2. Ulmus americana	40	Yes	FACW	Are OBL, FAC		ics mat	4	(A)
3. Liriodendron tulipifera	20	Yes	FACU	Total Number	of Dominant	Species		- ` '
4. Carya glabra	20	Yes	FACU	Across All Stra		. орос.ос	8	(B)
5. Fraxinus pennsylvanica	5	No	FACW	Percent of Doi	minant Spec	ies That		_
	85 =	Total Cover		Are OBL, FAC	•		0.0%	(A/B)
Sapling/Shrub Stratum (Plot size: 15'	_)							_
Cornus racemosa	10	Yes	FAC	Prevalence In	dex worksh	neet:		
2. Asimina triloba	5	Yes	FAC	Total % C	Cover of:	Multipl	y by:	_
3. Lonicera canadensis	3	No	FACU	OBL species	0	x 1 =	0	_
4				FACW species		x 2 =	130	_
5	 _			FAC species	15	_ x 3 =	45	_
(5)	18=	:Total Cover		FACU species		_ x 4 =	332	_
Herb Stratum (Plot size: 5')	00	.,	E4 0)4/	UPL species	0	_ x 5 =	0	- (D)
1. Geum aleppicum	20	Yes	FACU	Column Totals		(A)	507	_(B)
Ageratina altissima Milium effusum	<u>20</u> 5	Yes No	FACU FACU	Prevalence	Index = B/A	A = 3.1	Į.	_
4. Elymus villosus	5	No	FACU	Hydrophytic \	/egetation I	ndicators:		
5.		110	1700		_	rophytic Vege	tation	
6					ance Test is		lation	
7					ence Index is			
8.						ptations ¹ (Pro	vide su	pporting
9.						on a separate		
10.				Problemat	ic Hydrophy	tic Vegetation	¹ (Expl	ain)
	50 =	Total Cover		¹ Indicators of I		•	٠	,
Woody Vine Stratum (Plot size: 30'				be present, un				
Parthenocissus quinquefolia	10	Yes	FACU	Hydrophytic				
2.				Vegetation				
	10 =	Total Cover		Present?	Yes	No X		
Remarks: (Include photo numbers here or on a sepa	arate sheet.)		I					

SOIL Sampling Point: UPL-CMS-005

Profile Desc Depth	cription: (Describe Matrix	to the dep		ument t ox Featur		ator or o	confirm the absence	of indicators.)		
		%				Loc ²	Texture		Remarks	
(inches) 0-7	Color (moist) 10YR 5/3	100	Color (moist)	<u>%</u>	Type ¹	LOC	Loamy/Clayey	-	Remarks	
7-18	10YR 5/4	100					Loamy/Clayey	_		
								-		
1 _{Tymes} C. C.	oncentration, D=Dep	lotion DM	Dadwood Motrix		Lod Con		² l continu	: PL=Pore Linin	a M Matrix	
Hydric Soil		DIELION, KIVI	=Reduced Mailix, i	vi3=ivias	keu Sand	Giailis		rs for Problema		
Histosol			Sandy Gle	wad Mat	riv (S4)			Manganese Mas	-	
	vipedon (A2)		Sandy Sie					Parent Material		
Black His			Stripped N					Shallow Dark Si	. ,	
l 	n Sulfide (A4)		Dark Surfa	,	3)			r (Explain in Rer	. ,	
	Layers (A5)		Loamy Mu	, ,	eral (F1)			(Explain in reci	narko)	
2 cm Mu	• , ,		Loamy Gl	-						
l ——	l Below Dark Surfac	e (A11)	Depleted							
	rk Surface (A12)	· (,)	Redox Da				³ Indicato	rs of hydrophytic	vegetation a	and
	lucky Mineral (S1)		Depleted		` '			and hydrology mi		
	cky Peat or Peat (S	3)	Redox De		, ,			ss disturbed or p	•	,
Restrictive I	Layer (if observed):							<u> </u>		
Type:	Layer (ii observea)	•								
Depth (ir	nches):						Hydric Soil Presen	t?	Yes	No X
. `										
Remarks:	itors not met.									
l Tydrio Iridioc	itoro not mot.									
HYDROLO	GY									
Wetland Hv	drology Indicators:									
_	cators (minimum of		red; check all that	apply)			Seconda	ry Indicators (mi	nimum of tw	o required)
-	Water (A1)	•	Water-Sta		aves (B9)			ace Soil Cracks (
	ter Table (A2)		Aquatic Fa	auna (B1	3)			nage Patterns (B		
Saturation	on (A3)		True Aqua	atic Plant	s (B14)		Dry-S	Season Water Ta	able (C2)	
Water M	arks (B1)		Hydrogen	Sulfide (Odor (C1)	Cray	fish Burrows (C8	3)	
Sedimen	t Deposits (B2)		Oxidized I	Rhizosph	eres on l	_iving R	oots (C3) Satu	ration Visible on	Aerial Image	ery (C9)
Drift Dep	osits (B3)		Presence	of Redu	ced Iron ((C4)	Stun	ted or Stressed I	Plants (D1)	
Algal Ma	t or Crust (B4)		Recent Iro	n Reduc	tion in Ti	lled Soil	s (C6) Geor	morphic Position	(D2)	
Iron Dep	osits (B5)		Thin Mucl	Surface	e (C7)		FAC	-Neutral Test (D	5)	
Inundation	on Visible on Aerial I	magery (B7	7) Gauge or	Well Dat	ta (D9)					
Sparsely	Vegetated Concave	e Surface (E	38)Other (Ex	plain in F	Remarks)					
Field Obser	vations:									
Surface Wat	er Present? Ye	es	No	Depth (i	nches):					
Water Table	Present? Ye	es	No	Depth (i	nches):					
Saturation P	resent? Ye	es	No	Depth (i	nches):		Wetland Hydrolo	gy Present?	Yes	No X
(includes cap										
Describe Re	corded Data (stream	n gauge, mo	onitoring well, aeria	al photos	, previou	s inspec	ctions), if available:			
Remarks:										
	cators not met.									
]										

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET - Midwest Region

OMB Control #: 0710-0024, Exp:11/30/2024 Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a) See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

Project/Site: Wabash Hydrogen Energy Center		City/Cou	nty: Vigo		Sa	ampling Date:	7/10	/2024
Applicant/Owner: Wabash Valley Resources LLC				State:	IN Sa	ampling Point:	UPL-	CMS-006
Investigator(s): CMS, CB		Section, T	Гownship, Rar	ge: S29 T13N	R9W		•	
Landform (hillside, terrace, etc.): Hilltop				oncave, convex,		/ex		
Slope (%): 7 Lat: 39.540435°			87.430434°	, , , , , , , , , , , , , , , , , , , ,		ım: DDNAD 8	13	
Soil Map Unit Name: HkF: Hickory loam, 25 to 40 perc	ent slones	Long	07.400404	NW	I classificati			
		· · · · · · · · · · · · · · · · · · ·	V			-		
Are climatic / hydrologic conditions on the site typical f			Yes				I- V	
Are Vegetation, Soil, or Hydrology				ircumstances" p			10 X	_
Are Vegetation, Soil, or Hydrology	naturally prob	olematic? (If needed, exp	olain any answer	s in Remark	s.)		
SUMMARY OF FINDINGS – Attach site m	ap showir	ıg samplin	g point lo	ations, trans	sects, im	portant fea	tures	, etc.
Hydrophytic Vegetation Present? Yes N	o X	Is the	Sampled Ar	ea				
	o X		n a Wetland?		;	No X		
	o X							
Remarks:		<u> </u>						
Upland woods. Site is dominated by pignut hickory, s	ugar maple, g	grey dogwood	, sassafras, C	anadian wild gin	ger, yellow a	avens and bot	tlebrusl	h grass
. APT indicates mild drought for this time of year.								
VEGETATION – Use scientific names of pla	ants.							
	Absolute	Dominant	Indicator					
Tree Stratum (Plot size: 30')	% Cover	Species?	Status	Dominance T				
2. Carya glabra	40	Yes	FACU	Number of Do	•	cies That	3	(A)
3. Acer saccharum	25	Yes	FACU			. 0	J	_ (^)
4.		163	1700	Total Number Across All Stra		t Species	7	(B)
5.				Percent of Dor		nios That		_(_)
·	65 :	=Total Cover		Are OBL, FAC			12.9%	(A/B)
Sapling/Shrub Stratum (Plot size: 15')			, -	, -			_(' '
Cornus racemosa	25	Yes	FAC	Prevalence In	dex works	heet:		
2. Sassafras albidum	15	Yes	FACU	Total % C	Cover of:	Multip	ly by:	
3. Acer saccharum	10	No	FACU	OBL species	0	x 1 =	0	_
4. Fraxinus pennsylvanica	7	No	FACW	FACW species	s 33	x 2 =	66	_
5. Lonicera canadensis	5	No	FACU	FAC species	47	x 3 =	141	_
	62 :	=Total Cover		FACU species	137	x 4 =	548	_
Herb Stratum (Plot size: 5')				UPL species	0	x 5 =	0	
1. Asarum canadense	40	Yes	FACU	Column Totals		_ (A)	755	_ (B)
2. Geum aleppicum	20	Yes	FACW	Prevalence	Index = B/I	A = <u>3.4</u>	.8	_
3. Carex radiata	20	Yes	FAC	Usalronbutio \	/o mototion	Indicators		
4. Elymus hystrix Verbasina alternifolia	2	No No	FACU FACW	Hydrophytic \	•	Indicators: Irophytic Vege	tation	
5. Verbesina alternifolia6. Euthamia graminifolia	2	No No	FACW		ance Test is		lalion	
7. Persicaria virginiana	2	No	FAC		ence Index i			
8. Laportea canadensis	2	No	FACW			o =0.0 ptations¹ (Pro	vide su	pporting
9.						on a separate		
10.				Problemat	ic Hydrophy	rtic Vegetation	n¹ (Expl	ain)
	90 :	=Total Cover		¹ Indicators of h	, , ,	ŭ	` .	,
Woody Vine Stratum (Plot size: 30')			be present, un				
				Hydrophytic				
1								
2.				Vegetation				

SOIL Sampling Point: UPL-CMS-006

Depth	ription: (Descrit Matrix	_		ox Featur		מנטו טו נ	confirm the absence of	Ji iliulcators.j	
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks	
0-10	10YR 5/2	100	, , ,				Loamy/Clayey		
	-								
	-								
	oncentration, D=D	epletion, RM=	Reduced Matrix,	MS=Mas	ked Sand	d Grains		: PL=Pore Lining, M=Matr	
Hydric Soil			Sandy Cl	avod Mot	riv (C4)			s for Problematic Hydric	Soils":
Histosol	oipedon (A2)		Sandy Gle Sandy Re	-				Manganese Masses (F12) Parent Material (F21)	
Black Hi			Stripped N					Shallow Dark Surface (F22	2)
	n Sulfide (A4)		Dark Surf		3)			(Explain in Remarks)	-)
` `	Layers (A5)		Loamy Mu	` '	eral (F1)			(Explain in Romano)	
2 cm Mu			Loamy Gl	-					
	d Below Dark Surfa	ace (A11)	Depleted	-	. ,				
Thick Da	ark Surface (A12)		Redox Da	rk Surfac	ce (F6)		³ Indicator	s of hydrophytic vegetation	n and
Sandy M	lucky Mineral (S1)		Depleted	Dark Sur	face (F7))	wetla	nd hydrology must be pres	sent,
5 cm Mu	cky Peat or Peat (S3)	Redox De	pression	s (F8)		unles	s disturbed or problematic	
Restrictive	Layer (if observe	d):							
Type:	Hard	oan	<u></u>						
Depth (ir	nches):	10					Hydric Soil Present	? Yes	No X
Remarks:									
No hydric ind	dicators present.								
HYDROLC	GY								
-	drology Indicator								
•	cators (minimum o	f one is requir						ry Indicators (minimum of t	wo required)
	Water (A1)		Water-Sta		, ,			ce Soil Cracks (B6)	
·	iter Table (A2)		Aquatic F					age Patterns (B10)	
Saturatio	` '		True Aqua		` ,	١		Season Water Table (C2)	
	arks (B1) nt Deposits (B2)		Hydrogen Oxidized I					ish Burrows (C8) ation Visible on Aerial Ima	geny (CQ)
	oosits (B3)		Presence			_		ed or Stressed Plants (D1	
	it or Crust (B4)		Recent Iro			` '		norphic Position (D2)	,
	osits (B5)		Thin Muck				· · —	Neutral Test (D5)	
	on Visible on Aeria	I Imagery (B7			, ,				
	Vegetated Conca			plain in F	Remarks)				
Field Obser	vations:								
Surface Wat	er Present?	Yes	No X	Depth (i	nches):				
Water Table	Present?	Yes	No X	Depth (i	nches):				
Saturation P	resent?	Yes	No X	Depth (i	nches):		Wetland Hydrolog	gy Present? Yes	No X
(includes car									
Describe Re	corded Data (strea	am gauge, mo	nitoring well, aeria	al photos	, previou	s insped	ctions), if available:		
Remarks:									
	y indicators preser	nt.							

Background Information				
Name:	смѕ			
Date:	6/11/2024			
Affiliation:	AECOM			
Address:	564 White Pond Drive, Akron, OH 44320			
Phone Number:	717-617-7738			
e-mail address:	charlotte.stallone@aecom.com			
Name of Wetland:	W-CMS-001 PEM/PSS/PFO			
Vegetation Communit(ies):	PEM/PSS/PFO			
HGM Class(es):	Floodplain			
Location of Wetland: include map	, address, north arrow, landmarks, distances, roads, etc.			

See Figures 1, 2, and 3 of Wetland Delineation and Stream Assessment Report.

Lat/Long or UTM Coordinate:	39.534327°, -87.424367°
USGS Quad Name:	New Goshen, IN
County:	Vigo
Township:	West Terre Haute
Section and Subsection:	NA
Hydrologic Unit Code:	051201110604 South Salt Creek-Wabash River
Site Visit:	6/11/2024
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	N/A
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

i swo-s	A 049-100-2MD-WE	W Ravilland due:	
ketch: Include north arrow, relations	inp with other surface waters, vegetar	ion zones, etc.	
Vetland Size (delineated acres):	80.0	Wetland Size (Estimated total acres):	95.0
iame of Wetland:	W-CMS-001 PEM/PSS/PFO		

PEM/PSS/PFO floodplain wetland associated with an identified NWI R5UBH wetland. Wetland is dominated by Acer Comments, Narrative Discussion, Justification of Category Changes:

to add stream erosion protection and culvert repairs. hydrology from precipitation, roadside run off and UNT to Wabash River. A portion of the wetland was cleared in 2016 arundinacea, Pilea pumila, Platanus occidentalis, Salix nigra, Solidago gigantea, and Ulmus americana. Recieves negundo, Carex lurida, Geum aleppicum, Laportea canadensis, Leersia virginica, Leersia oryzoides, Phalaris

Wetland ID:	W-CMS-001	PEM/PSS/PFO
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Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	X	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human- induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	X	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	Х	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		X
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	X	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature and by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	1
1	Critical Habitat. Is the wetland in a township, section, or subsection of a	YES	*NO
	United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	Wetland should be evaluated for possible Category 3 status Go to Question 2	Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of,	YES	*NO
	or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	Wetland is a Category 3 wetland. Go to Question 3	Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage	YES	*NO
	Database as a high quality wetland?	Wetland is a Category 3 wetland Go to Question 4	Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented	YES	*NO
	regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland Go to Question 5	Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and	YES	*NO
	hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	Wetland is a Category 1 wetland Go to Question 6	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or	YES	*NO
	outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland Go to Question 7	Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated	YES	*NO
	during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland Go to Question 8a	Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized	YES	*NO
	by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an allaged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Wetland is a Category 3 wetland. Go to Question 8b	Go to Question 8b

Wetland ID: W-CMS-001 PEM/PSS/PFO

0.6	Making formated making do the method of constant making distributions of the	I	
	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	*YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	Go to Question 9a
	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	*NO Go to Question 10
	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	*NO Go to Question 9c
	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	*NO Go to Question 10
	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	*NO Go to Question 9e
	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	*NO Go to Question 10
	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	*NO Go to Question 11
	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	*NO Complete Quantitative Rating

Wetland ID: W-CMS-001 PEM/PSS/PFO

invasive/exotic spp	fen species	bog species	oak opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Wetland ID:	W-CMS-001 PEM/PSS/PFO			
Site: Wabash Hydrogen Energ	gy Center Project Rater(s): CMS		Date: 6/11/2024	
Oile.	reaction.		Date: 0/11/2024	
		Field ID:		
2.0 2.0	Metric 1. Wetland Area (size).	W-CMS-001 PEM/PSS/PF	- 0	
max 6 pts subtotal	Select one size class and assign score.			
max o pto cabicita	>50 acres (>20.2ha) (6 pts)			
	25 to <50 acres (10.1 to <20.2ha) (5 pts) 10 to <25 acres (4 to <10.1ha) (4 pts)	Delineated acres:	0.05	
	3 to <10 acres (1.2 to <4ha) (3 pts) 0.3 to <3 acres (0.12 to <1.2ha) (2pts)	Estimated Total acres	0.56	
	0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)			
	<0.1 acres (0.04ha) (0 pts)			
8.0 10.0	Metric 2. Upland buffers and surrounding	ng land use.		
max 14 pts. subtotal	2a. Calculate average buffer width. Select only one and as:	•		
·	WIDE. Buffers average 50m (164ft) or more around wetland pe	rimeter (7)		
X	MEDIUM. Buffers average 25m to <50m (82 to <164ft) around NARROW. Buffers average 10m to <25m (32ft to <82ft) around	wetland perimeter (1)		
	VERY NARROW. Buffers average <10m (<32ft) around wetlan			
X	2b. Intensity of surrounding land use. Select one or double VERY LOW. 2nd growth or older forest, prairie, savannah, wild	_		
	LOW. Old field (>10 years), shrubland, young second growth for	prest. (5)		
X	MODERATELY HIGH. Residential, fenced pasture, park, conse HIGH. Urban, industrial, open pasture, row cropping, mining, or			
_^		mondation. (1)		
19.0 29.0	Metric 3. Hydrology.			
max 30 pts. subtotal	3a. Sources of Water. Score all that apply.	3b. Connectivity. Score all tha	t apply.	
X	High pH groundwater (5) Other groundwater (3)	100 year floodplain (1) x Between stream/lake and other h	numan use (1)	
	Precipitation (1)	x Part of wetland/upland (e.g. fore:	st), complex (1)	
x	Seasonal/Intermittent surface water (3) Perennial surface water (lake or stream) (5)	x Part of riparian or upland corrido 3d. Duration inundation/satura		
	3c. Maximum water depth. Select one.	Semi- to permanently inundated/ x Regularly inundated/saturated (3		
	0.4 to 0.7m (15.7 to 27.6in) (2)	Seasonally inundated (2)		
<u> </u>	<0.4m (<15.7in) (1) 3e. Modifications to natural hydrologic regime. Score one	Seasonally saturated in upper 30 or double check and average.	Jcm (12in) (1)	
F	None or none apparent (12) Recovered (7)	Check all disturbances observ	point source (nonstormwater)	
x	Recovering (3)	tile x	filling/grading	
	Recent or no recovery (1)	dike x weir	road bed/RR track dredging	
		stormwater input	Other:	
10.0 39.0	Metric 4. Habitat Alteration and Develop	ment		
max 20 pts. subtotal	4a. Substrate disturbance. Score one or double check and			
max 20 ptd.	None or none apparent (4)	arorago.		
X	Recovered (3) Recovering (2)			
	Recent or no recovery (1)			
	4b. Habitat development. Select only one and assign score Excellent (7)			
_	Very good (6) Good (5)			
	Moderately good (4)			
	Fair (3) Poor to fair (2)			
	Poor (1) 4c. Habitat alteration. Score one or double check and avera	age		
	None or none apparent (9)	Check all disturbances observed		
x	Recovered (6) Recovering (3)	mowing grazing	shrub/sapling removal herbaceous/aquatic bed removal	
	Recent or no recovery (1)	x clearcutting selective cutting	sedimentation dredging	
		woody debris removal	farming	
		toxic pollutants	nutrient enrichment	
39.0				
subtotal this page	ORAM v. 5.0 Field Form Quantitative Rating			

Wetlaı	nd ID:	W-CMS-001 PEM/PSS/PFO				
Site:	Wabash I	Hydrogen Energy Center Project Rater(s):	CN	IS	Date:	6/11/2024
				Field ID:		
	39.0			W-CMS-001 PEM/PSS/PFC)	
	subtotal this page					
5.	.0 44.0	Metric 5. Special Wetlands.				
max 10 pts. 13. max 20pts.	subtotal	Check all that apply and score as indicated. Bog (10) Fen (10) Old growth forest (10) X Mature forested wetland (5) Lake Erie coastal/tributary wetland-unrestricted hydrology (10) Lake Plain Sand Prairies (Oak Openings) (10) Relict Wet Praires (10) Known occurrence state/federal threatened or endangered sy Significant migratory songbird/water fowl habitat or usage (10) Category 1 Wetland. See Question 5 Qualitative Rating (-10) Metric 6. Plant communities, intersper 6a. Wetland Vegetation Communities.	pecies)) rsion	, microtopography. Vegetation Community C	Sover Scale	
		Score all present using 0 to 3 scale. Aquatic bed	<u>0</u>	Absent or comprises <0.1ha (0.247) Present and either comprises small	71 acres) contiguous area	
		1 Emergent		vegetation and is of moderate qual	lity, or comprises a	
		2 Shrub 3 Forest	2	significant part but is of low quality Present and either comprises signi		
		Mudflats		vegetation and is of moderate qual		
		1 Open water Other	3	part and is of high quality Present and comprises significant	nart or more of wetland's 3	
		6b. horizontal (plan view) Interspersion.	3	vegetation and is of high quality	part, or more, or welland 3 5	
		Select only one.		No. of a Board of the active and	1 O III	
		High (5) Moderately high(4)		Narrative Description of Vegetat Low spp diversity and/or predomina		
		x Moderate (3)		disturbance tolerant native species	3	
		Moderately low (2)		Native spp are dominant componer		
		Low (1) None (0)		although nonnative and/or disturbation also be present, and species of		
		6c. Coverage of invasive plants. Refer		moderately high, but generallyw/o		
		Table 1 ORAM long form for list. Add		threatened or endangered spp to	with papaging and high	
		or deduct points for coverage Extensive >75% cover (-5)		A predominance of native species, and/or disturbance tolerant native s		
		Moderate 25-75% cover (-3)		absent, and high spp diversity and	often, but not always,	
		x Sparse 5-25% cover (-1) Phalaris arundinacea		the presence of rare, threatened, or	or endangered spp	
		Nearly absent <5% cover (0) Absent (1)		Mudflat and Open Water Class C	Duality	
		6d. Microtopography.		Absent <0.1ha (0.247 acres)		
		Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 acr		
		Vegetated hummucks/tussucks Coarse woody debris >15cm (6in)	- 2	Moderate 1 to <4ha (2.47 to 9.88 a High 4ha (9.88 acres) or more	acres)	
		1 Standing dead >25cm (10in) dbh	3	1ga (0.00 a0100) or more		
		1 Amphibian breeding pools	_	Microtopography Cover Scale		
			0	Absent Present very small amounts or if m	nore common	
			'	of marginal quality	ioro odminion	
		1	2	Present in moderate amounts, but	not of highest	
	57.0	TOTAL (Max 100 pts)		quality or in small amounts of higher	est quality	
	2	Category	3	Present in moderate or greater am	nounts	

and of highest quality

Wetland ID: W-CMS-001 PEM/PSS/PFO

ORAM Summary Worksheet

		answ	cle /er or score	Result
Narrative Rating	Question 1 Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	*NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	*YES	0	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	*NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	ative Rating Metric 1. Size		2	
	Metric 2. Buffers and surrounding land use		8	
	Metric 3. Hydrology	1	9	
	Metric 4. Habitat	1	0	
	Metric 5. Special Wetland Communities		5	
	Metric 6. Plant communities, interspersion, microtopography	1	3	
	TOTAL SCORE	5	7	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

IVVETIAND ID: IVV-CIVIS-UU'I PEIVI/PSS/PI	Wetland ID:	W-CMS-001 PEM/PSS/PF
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Wetland Categorization Worksheet

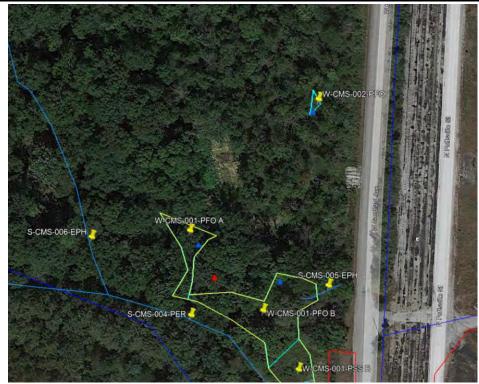
Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	*NO	Is quantitative rating score <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over- categorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	*YES Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	*NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	*YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria		Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	*NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.
		Final Category	
Ch	oose one Category	1 *Category 2	Category 3

Background Information			
Name:	смѕ		
Date:	6/12/2024		
Affiliation:	AECOM		
Address:	564 White Pond Drive, Akron, OH 44320		
Phone Number:	717-617-7738		
e-mail address:	charlotte.stallone@aecom.com		
Name of Wetland:	W-CMS-002 PFO		
Vegetation Communit(ies):	PFO		
HGM Class(es):	Slope		
Location of Wetland: include map	address, north arrow, landmarks, distances, roads, etc.		

See Figures 1, 2, and 3 of Wetland Delineation and Stream Assessment Report.

Lat/Long or UTM Coordinate:	39.535503°, -87.424145°
USGS Quad Name:	New Goshen, IN
County:	Vigo
Township:	West Terre Haute
Section and Subsection:	NA
Hydrologic Unit Code:	051201110604 South Salt Creek-Wabash River
Site Visit:	6/12/2024
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	N/A
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:	W-CMS-002 PFO			
Wetland Size (delineated acres):	0.01	Wetland Size (Estimated total acres):	0.01	
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.				
N 🛕			部 知 問	



Comments, Narrative Discussion, Justification of Category Changes:

PFO wetland dominated by Carex Iurida, Populus deltoides, Quercus palustris, Scirpus atrovirens, Typha angustifolia. Recieves hydrology from precipitation. The wetland developed on an abandoned temporary access road. Compacted soil ruts hold water and wetland vegetation has developed over time.

Final score:	13	Category:	1

Wetland ID: W-CMS-002 PFO

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	X	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human- induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	X	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	Х	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		X
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	X	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature and by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a	YES	*NO
	United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	Wetland should be evaluated for possible Category 3 status Go to Question 2	Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of,	YES	*NO
	or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	Wetland is a Category 3 wetland. Go to Question 3	Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage	YES	*NO
	Database as a high quality wetland?	Wetland is a Category 3 wetland Go to Question 4	Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented	YES	*NO
	regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland Go to Question 5	Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and	*YES	NO
	hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	Wetland is a Category 1 wetland Go to Question 6	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or	YES	*NO
	outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland Go to Question 7	Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated	YES	*NO
	during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland Go to Question 8a	Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized	YES	*NO
	by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Wetland is a Category 3 wetland. Go to Question 8b	Go to Question 8b

Wetland ID: W-CMS-002 PFO

0h	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the		day.
OD	cover of upper forest canopy consisting of deciduous trees with large diameters at breast	Yes	*NO
	height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status. Go to Question 9a	Go to Question 9a
92	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less	VFQ.	****
Эa	•	YES	*NO
	than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9h	Does the wetland's hydrology result from measures designed to prevent erosion and the	YES	*NO
3	loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	Wetland should be evaluated for possible Category 3 status Go to Question 10	Go to Question 9c
9с	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	*NO
	i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	Go to Question 9d	Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation	YES	*NO
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	*NO Go to Question 9e
	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant	Wetland is a Category 3 wetland	
	communities, although non-native or disturbance tolerant native species can also be present?	Wetland is a Category 3 wetland Go to Question 10	Go to Question 9e
9e	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton,	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status	Go to Question 9e *NO
9e	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status Go to Question 10	*NO Go to Question 9e *NO Go to Question 10
9e	Communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status Go to Question 10 YES Wetland is a Category 3 wetland. Go to Question 11	*NO Go to Question 10 *NO Go to Question 11
9e	Communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status Go to Question 10 YES Wetland is a Category 3 wetland.	*NO Go to Question 9e *NO Go to Question 10 *NO

Wetland ID: W-CMS-002 PFO

invasive/exotic spp	fen species	bog species	oak opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Wabash Hydrogen Energy Center Project Rater(s): CMS	Date: 6/12/2024
	Field ID:
0.0 0.0 Metric 1. Wetland Area (size).	W-CMS-002 PFO
subtotal Select one size class and assign score. >50 acres (>20.2ha) (6 pts)	
25 to <50 acres (10.1 to <20.2ha) (5 pts) 10 to <25 acres (4 to <10.1ha) (4 pts)	Delineated acres: 0.01
3 to <10 acres (1.2 to <4ha) (3 pts) 0.3 to <3 acres (0.12 to <1.2ha) (2pts) 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt) x <0.1 acres (0.04ha) (0 pts)	Estimated Total acres 0.01
8.0 8.0 Metric 2. Upland buffers and surro	unding land use.
pts. subtotal 2a. Calculate average buffer width. Select only one WIDE. Buffers average 50m (164ft) or more around we x MEDIUM. Buffers average 25m to <50m (82 to <164ft) NARROW. Buffers average 10m to <25m (32ft to <82ft) VERY NARROW. Buffers average <10m (<32ft) around	tland perimeter (7) around wetland perimeter (4)) around wetland perimeter (1)
2b. Intensity of surrounding land use. Select one o X VERY LOW. 2nd growth or older forest, prairie, savanr LOW. Old field (>10 years), shrubland, young second (MODERATELY HIGH. Residential, fenced pasture, par X HIGH. Urban, industrial, open pasture, row cropping, m	nah, wildlife area, etc. (7) growth forest. (5) k, conservation tillage, new fallow field. (3)
8.0 16.0 Metric 3. Hydrology.	
3a. Sources of Water. Score all that apply. High pH groundwater (3) X Precipitation (1) Seasonal/Intermittent surface water (3) Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select one. >-0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) x -0.4m (-15.7in) (1) 3e. Modifications to natural hydrologic regime. Sco	Check all disturbances observed ditch
6.0 22.0 Metric 4. Habitat Alteration and De	•
As. Substrate disturbance. Score one or double che None or none apparent (4) Recovered (3) X Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only one and assig Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) X Poor (1) 4c. Habitat alteration. Score one or double check at None or none apparent (9) Recovered (6)	in score.

ORAM v. 5.0 Field Form Quantitative Rating

Wetla	nd ID:	W-CMS-002 PFO				
Site:	Wabash I	Hydrogen Energy Center Project Rater(s):	CM	is	Date:	6/12/2024
		, , , , , , , , , , , , , , , , , , , ,				
		_		Field ID:		
	22.0			W-CMS-002 PFO		
	subtotal this page	•				
-10	.0 12.0	Metric 5. Special Wetlands.				
max 10 pts.	subtotal	Check all that apply and score as indicated.				
		Bog (10)				
		Fen (10)				
		Old growth forest (10) Mature forested wetland (5)				
		Lake Erie coastal/tributary wetland-unrestricted hydrology (10)			
		Lake Erie coastal/tributary wetland-restricted hydrology (5)				
		Lake Plain Sand Prairies (Oak Openings) (10) Relict Wet Praires (10)				
		Known occurrence state/federal threatened or endangered sp	ecies	(10)		
		Significant migratory songbird/water fowl habitat or usage (10)		/		
		x Category 1 Wetland. See Question 5 Qualitative Rating (-10)				
	0 400	L. W. (2) A. Black				
1	.0 13.0		sion			
max 20pts.	subtotal	6a. Wetland Vegetation Communities.		Vegetation Community Co		
		Score all present using 0 to 3 scale. Aquatic bed		Absent or comprises <0.1ha (0.247) Present and either comprises small		
		Emergent	'	vegetation and is of moderate qualit		
		Shrub		significant part but is of low quality		
		1 Forest	2	Present and either comprises signifi		
		Mudflats Open water		vegetation and is of moderate qualit part and is of high quality	ly or comprises a small	
		Other	3	Present and comprises significant p	art, or more, of wetland's 3	
		6b. horizontal (plan view) Interspersion.		vegetation and is of high quality		
		Select only one.		Normative Decembring of Vegetation	on Ovality	
		High (5) Moderately high(4)		Narrative Description of Vegetation Low spp diversity and/or predomina		
		Moderate (3)		disturbance tolerant native species		
		x Moderately low (2)		Native spp are dominant componen		
		Low (1) None (0)		although nonnative and/or disturbar can also be present, and species di		
		6c. Coverage of invasive plants. Refer		moderately high, but generallyw/o p		
		Table 1 ORAM long form for list. Add		threatened or endangered spp to		
		or deduct points for coverage Extensive >75% cover (-5)		A predominance of native species, v and/or disturbance tolerant native s		
		x Moderate 25-75% cover (-5)		absent, and high spp diversity and o		
		Sparse 5-25% cover (-1) Phragmites australis		the presence of rare, threatened, or		
		Nearly absent <5% cover (0)			-194	
		Absent (1) 6d. Microtopography.	0	Mudflat and Open Water Class Quality Absent <0.1ha (0.247 acres)	uality	
		Score all present using 0 to 3 scale.		Low 0.1 to <1ha (0.247 to 2.47 acre	es)	
		Vegetated hummucks/tussucks		Moderate 1 to <4ha (2.47 to 9.88 ac	cres)	
		Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more		
		Standing dead >25cm (10in) dbh 1 Amphibian breeding pools		Microtopography Cover Scale		
			0	Absent		
			1	Present very small amounts or if mo	ore common	
			2	of marginal quality Present in moderate amounts, but n	ot of highest	
	13.0	TOTAL (Max 100 pts)	_		•	
	13.0	Category	3	quality or in small amounts of highest Present in moderate or greater amo		
· · · · · ·		outego: y	3	Present in moderate or greater amo	rumo	

and of highest quality

Wetland ID: W-CMS-002 PFO

ORAM Summary Worksheet

		answ	cle /er or score	Result
Narrative Rating	Question 1 Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	*YES	NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	Yes	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	*NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	()	
	Metric 2. Buffers and surrounding land use	:	3	
	Metric 3. Hydrology	:	3	
	Metric 4. Habitat		6	
	Metric 5. Special Wetland Communities	-1	10	
	Metric 6. Plant communities, interspersion, microtopography]	1	
	TOTAL SCORE	1	3	Category based on score breakpoints

 $Complete\ Wetland\ Categorization\ Worksheet.$

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	*NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over- categorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	*NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	*YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (including any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	*YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria		Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	*NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.
		Final Category	<i>1</i>

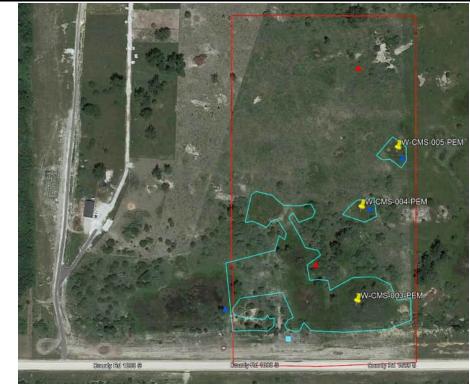
Background Information			
Name:	смѕ		
Date:	6/12/2024		
Affiliation:	AECOM		
Address:	564 White Pond Drive, Akron, OH 44320		
Phone Number:	717-617-7738		
e-mail address:	charlotte.stallone@aecom.com		
Name of Wetland:	W-CMS-003 PEM		
Vegetation Communit(ies):	PEM		
HGM Class(es):	Depression		
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.			

See Figures 1, 2, and 3 of Wetland Delineation and Stream Assessment Report.

Lat/Long or UTM Coordinate:	39.622484°, -87.488098°
USGS Quad Name:	New Goshen, IN
County:	Vermillion
Township:	Clinton
Section and Subsection:	NA NA
Hydrologic Unit Code:	051201110303 Gin Creek-Brouilletts Creek
Site Visit:	6/12/2024
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	N/A
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:	W-CMS-003 PEM		
Wetland Size (delineated acres):	2.96	Wetland Size (Estimated total acres):	8.36

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.



Comments, Narrative Discussion, Justification of Category Changes:

PEM wetland dominated by *Eleocharis palustris, and Portulaca oleracea*. Recieves hydrology from precipitation. Historic strip mine. Shallow clay soils bedrock at 6 inches. Heavily disturbed by cattle grazing and compacted soils around the wetland fringe creating hummocks.

Final score:	21	Category:	1

Wetland ID:	W-CMS-003 PEM
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Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	X	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human- induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	X	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	Х	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		X
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	X	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature and by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a	YES	*NO
	United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	Wetland should be evaluated for possible Category 3 status Go to Question 2	Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of,	YES	*NO
	or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	Wetland is a Category 3 wetland. Go to Question 3	Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage	YES	*NO
	Database as a high quality wetland?	Wetland is a Category 3 wetland Go to Question 4	Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented	YES	*NO
	regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland Go to Question 5	Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and	YES	*NO
	hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	Wetland is a Category 1 wetland Go to Question 6	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or	YES	*NO
	outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland Go to Question 7	Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated	YES	*NO
	during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland Go to Question 8a	Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized	YES	*NO
	by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Wetland is a Category 3 wetland. Go to Question 8b	Go to Question 8b

Wetland ID: W-CMS-003 PEM

8h	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the	V	WATO
ab	cover of upper forest canopy consisting of deciduous trees with large diameters at breast	Yes	*NO
	height (dbh), generally diameters greater than 45cm (17.7in) dbh?		Go to Question 9a
	rieight (dbh), generally diameters greater than 456m (17.7m) dbh:	possible Category 3 status.	
		Go to Question 9a	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less	YES	*NO
	than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake	Go to Question 9b	Go to Question 10
	Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
96	Does the wetland's hydrology result from measures designed to prevent erosion and the	YES	*NO
	loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	Wetland should be evaluated for	Go to Question 9c
	due to lakeward or landward dikes of other hydrological controls?	possible Category 3 status	
		Go to Question 10	
9с	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	*NO
	i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or		Go to Question 10
	the wetland can be characterized as an "estuarine" wetland with lake and river influenced	O to Question 90	Go to Question 10
	hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth		
	wetlands, or those dominated by submersed aquatic vegetation.		
0.4	Describe mattered being a predominance of poting appealed within its monetation		
9d	Does the wetland have a predominance of native species within its vegetation	YES	*NO
9d	communities, although non-native or disturbance tolerant native species can also be	Wetland is a Category 3 wetland	*NO Go to Question 9e
9d			· · ·
9d	communities, although non-native or disturbance tolerant native species can also be	Wetland is a Category 3 wetland	· · ·
9d	communities, although non-native or disturbance tolerant native species can also be	Wetland is a Category 3 wetland	· · ·
9d	communities, although non-native or disturbance tolerant native species can also be	Wetland is a Category 3 wetland	· · ·
9d	communities, although non-native or disturbance tolerant native species can also be	Wetland is a Category 3 wetland	· · ·
9d	communities, although non-native or disturbance tolerant native species can also be	Wetland is a Category 3 wetland	· · ·
	communities, although non-native or disturbance tolerant native species can also be	Wetland is a Category 3 wetland Go to Question 10	Go to Question 9e
	communities, although non-native or disturbance tolerant native species can also be present?	Wetland is a Category 3 wetland Go to Question 10 YES	Go to Question 9e *NO
	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for	Go to Question 9e
	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status	Go to Question 9e *NO
	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for	Go to Question 9e *NO
	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status	Go to Question 9e *NO
	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status	Go to Question 9e *NO
	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status	Go to Question 9e *NO
9e	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status Go to Question 10	*NO Go to Question 9e *NO Go to Question 10
9e	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton,	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status	*NO Go to Question 9e *NO Go to Question 10 *NO
9e	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status Go to Question 10 YES Wetland is a Category 3 wetland.	*NO Go to Question 9e *NO Go to Question 10
9e	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status Go to Question 10 YES	*NO Go to Question 9e *NO Go to Question 10 *NO
9e	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status Go to Question 10 YES Wetland is a Category 3 wetland.	*NO Go to Question 9e *NO Go to Question 10 *NO
9e	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status Go to Question 10 YES Wetland is a Category 3 wetland.	*NO Go to Question 9e *NO Go to Question 10 *NO
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Wetland ID: W-CMS-003 PEM

invasive/exotic spp	fen species	bog species	oak opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Wetland ID: W-CMS-003 PEM	
Wetialia ib. W-Civi3-003 FEIVI	
Site: Wabash Hydrogen Energy Center Project Rater(s):	CMS Date: 6/12/2024
one.	Duto. 10/12/2021
	Field ID:
3.0 3.0 Metric 1. Wetland Area (size	e). W-CMS-003 PEM
max 6 pts subtotal Select one size class and assign score.	
>50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pts)	Delineated acres: 2.96
10 to <25 acres (4 to <10.1ha) (4 pts) x 3 to <10 acres (1.2 to <4ha) (3 pts)	Estimated Total acres 8.36
0.3 to <3 acres (0.12 to <1.2ha) (2pts) 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)	Estimated Total acres 0.50
<0.1 acres (0.04ha) (0 pts)	
3.0 6.0 Metric 2. Upland buffers and	d surrounding land use
·	t only one and assign score. Do not double check.
WIDE. Buffers average 50m (164ft) or more	around wetland perimeter (7)
MEDIUM. Buffers average 25m to <50m (82 NARROW. Buffers average 10m to <25m (3	2ft to <82ft) around wetland perimeter (1)
x VERY NARROW. Buffers average <10m (<3 2b. Intensity of surrounding land use. Se	
VERY LOW. 2nd growth or older forest, prai	rie, savannah, wildlife area, etc. (7)
LOW. Old field (>10 years), shrubland, youn	g second growth forest. (5) asture, park, conservation tillage, new fallow field. (3)
HIGH. Urban, industrial, open pasture, row of	The state of the s
7.0 13.0 Metric 3. Hydrology.	
max 30 pts. subtotal 3a. Sources of Water. Score all that apply	7. 3b. Connectivity. Score all that apply.
High pH groundwater (5)	100 year floodplain (1)
Other groundwater (3) x Precipitation (1)	Between stream/lake and other human use (1) Part of wetland/upland (e.g. forest), complex (1)
Seasonal/Intermittent surface water (3) Perennial surface water (lake or stream) (5)	Part of riparian or upland corridor (1) 3d. Duration inundation/saturation. Score one or dbl check.
3c. Maximum water depth. Select one.	X Semi- to permanently inundated/saturated (4) Regularly inundated/saturated (3)
>0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2)	Seasonally inundated (2)
x <0.4m (<15.7in) (1) 3e. Modifications to natural hydrologic re	Seasonally saturated in upper 30cm (12in) (1) gime. Score one or double check and average.
None or none apparent (12) Recovered (7)	Check all disturbances observed ditch point source (nonstormwater)
Recovering (3) x Recent or no recovery (1)	tile filling/grading dike road bed/RR track
X Recent of no recovery (1)	weir dredging
	stormwater inputOther: cattle have disturbed and compacted soils around the wetland fringe creating hummocks
3.0 16.0 Metric 4. Habitat Alteration	
max 20 pts. subtotal 4a. Substrate disturbance. Score one or of	double check and average.
None or none apparent (4) Recovered (3)	
Recovering (2) x Recent or no recovery (1)	
4b. Habitat development. Select only one	and assign score.
Excellent (7) Very good (6)	
Good (5) Moderately good (4)	
Fair (3) Poor to fair (2)	
X Poor (1) 4c. Habitat alteration. Score one or double	o check and average
None or none apparent (9)	Check all disturbances observed
Recovered (6) Recovering (3)	mowing shrub/sapling removal shrub/sapling removal herbaceous/aquatic bed removal
x Recent or no recovery (1)	clearcutting sedimentation selective cutting dredging
	woody debris removal farming toxic pollutants nutrient enrichment
16.0	
subtotal this page ORAM v. 5.0 Field Form Quantitative Rating	

ORAM v. 5.0 Field Form Quantitative Rating

Wetla	ınd ID:	W-CMS-003 PEM				
Site:	Wabash H	ydrogen Energy Center Project Rater(s):	CM	S Date:	Т	6/12/2024
		y - 10 - 10 - 10 - 10 - 10 - 10 - 10 - 1				
				Field ID:		
	16.0			W-CMS-003 PEM		
	subtotal this page					
	subtotal tris page					
	0.0 16.0	Metric 5. Special Wetlands.				
max 10 pts.	subtotal	Check all that apply and score as indicated.				
		Bog (10)				
	_	Fen (10) Old growth forest (10)				
	F	Mature forested wetland (5)				
		Lake Erie coastal/tributary wetland-unrestricted hydrology (10	0)			
	-	Lake Erie coastal/tributary wetland-restricted hydrology (5) Lake Plain Sand Prairies (Oak Openings) (10)				
		Relict Wet Praires (10)				
		Known occurrence state/federal threatened or endangered sp Significant migratory songbird/water fowl habitat or usage (10		(10)		
	-	Category 1 Wetland. See Question 5 Qualitative Rating (-10)				
	_					
	5.0 21.0	Metric 6. Plant communities, intersper	sion	, microtopography.		
max 20pts.	subtotal	6a. Wetland Vegetation Communities.		Vegetation Community Cover Scale		
	_	Score all present using 0 to 3 scale. Aquatic bed	0	Absent or comprises <0.1ha (0.2471 acres) contiguous Present and either comprises small part of wetland's 1	s area	
	F	1 Emergent		vegetation and is of moderate quality, or comprises a		
		Shrub		significant part but is of low quality		
	-	Forest Mudflats	2	Present and either comprises significant part of wetland vegetation and is of moderate quality or comprises a significant part of wetlands.		
		Open water		part and is of high quality		
		Other 6b. horizontal (plan view) Interspersion.	3	Present and comprises significant part, or more, of wet vegetation and is of high quality	dand's 3	
	_	Select only one.		vegetation and is or riigh quality		
		High (5)		Narrative Description of Vegetation Quality	r low	
		Moderately high(4) Moderate (3)		Low spp diversity and/or predominance of nonnative or disturbance tolerant native species	I IOW	
		Moderately low (2)		Native spp are dominant component of the vegetation,		
	-	x Low (1) None (0)		although nonnative and/or disturbance tolerant native s can also be present, and species diversity moderate to		
	_	6c. Coverage of invasive plants. Refer		moderately high, but generallyw/o presence of rare		
		Table 1 ORAM long form for list. Add or deduct points for coverage		threatened or endangered spp to A predominance of native species, with nonnative spp	high	
		Extensive >75% cover (-5)		and/or disturbance tolerant native spp absent or virtual	lly	
		Moderate 25-75% cover (-: Typha angustifolia Sparse 5-25% cover (-1) Phragmites australis		absent, and high spp diversity and often, but not alway the presence of rare, threatened, or endangered spp	S,	
	-	Nearly absent <5% cover (0)		the presence of rare, threatened, or endangered spp		
		x Absent (1)		Mudflat and Open Water Class Quality		
		6d. Microtopography. Score all present using 0 to 3 scale.		Absent <0.1ha (0.247 acres) Low 0.1 to <1ha (0.247 to 2.47 acres)	_	
		Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88 acres)	_	
		Coarse woody debris >15cm (6in) Standing dead >25cm (10in) dbh	3	High 4ha (9.88 acres) or more		
	<u> </u>	1 Amphibian breeding pools		Microtopography Cover Scale		
	<u>-</u>		0	Absent		
			1	Present very small amounts or if more common of marginal quality		
			2	Present in moderate amounts, but not of highest		
	21.0	ГОТAL (Max 100 pts)		quality or in small amounts of highest quality		
	1	Category	3	Present in moderate or greater amounts		
				and of highest quality		

Wetland ID: W-CMS-003 PEM

ORAM Summary Worksheet

		answ	cle /er or score	Result
Narrative Rating	Question 1 Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	*NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	Yes	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	*NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	3		
	Metric 2. Buffers and surrounding land use	3	3	
	Metric 3. Hydrology	,	7	
	Metric 4. Habitat	3	3	
	Metric 5. Special Wetland Communities	()	
	Metric 6. Plant communities, interspersion, microtopography		5	
	TOTAL SCORE	2	1	Category based on score breakpoints

 $Complete\ Wetland\ Categorization\ Worksheet.$

Wetland ID:	W-CMS-003 PEM
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Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	*NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over- categorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	*NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	*NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (<i>including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	*YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria		Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	*NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.
		Final Categor	у

Background Information			
Name:	смѕ		
Date:	6/12/2024		
Affiliation:	AECOM		
Address:	564 White Pond Drive, Akron, OH 44320		
Phone Number:	717-617-7738		
e-mail address:	charlotte.stallone@aecom.com		
Name of Wetland:	W-CMS-004 PEM		
Vegetation Communit(ies):	PEM		
HGM Class(es):	Depression		
Location of Wetland: include map,	address, north arrow, landmarks, distances, roads, etc.		

See Figures 1, 2, and 3 of Wetland Delineation and Stream Assessment Report.

Lat/Long or UTM Coordinate:	39.623252°, -87.487345°
USGS Quad Name:	New Goshen, IN
County:	Vermillion
Township:	Clinton
Section and Subsection:	NA
Hydrologic Unit Code:	051201110303 Gin Creek-Brouilletts Creek
Site Visit:	6/12/2024
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	N/A
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:	W-CMS-004 PEM		
Wetland Size (delineated acres):	0.14	Wetland Size (Estimated total acres):	0.14

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.



Comments, Narrative Discussion, Justification of Category Changes:

PEM wetland dominated by Eleocharis palustris, and Portulaca oleracea. Recieves hydrology from precipitation. Historic strip mine. Shallow clay soils bedrock at 6 inches. Heavily disturbed by cattle grazing and compacted soils around the wetland fringe creating hummocks.

Final score:	9	Category:	1

Wetland ID:	W-CMS-004 PEM
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Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	Х	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human- induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	X	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	Х	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		X
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	Х	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature and by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	1
1	Critical Habitat. Is the wetland in a township, section, or subsection of a	YES	*NO
	United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	Wetland should be evaluated for possible Category 3 status Go to Question 2	Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of,	YES	*NO
	or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	Wetland is a Category 3 wetland. Go to Question 3	Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage	YES	*NO
	Database as a high quality wetland?	Wetland is a Category 3 wetland Go to Question 4	Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented	YES	*NO
	regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland Go to Question 5	Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and	*YES	NO
	hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	Wetland is a Category 1 wetland Go to Question 6	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or	YES	*NO
	outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland Go to Question 7	Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated	YES	*NO
	during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland Go to Question 8a	Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized	YES	*NO
	by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Wetland is a Category 3 wetland. Go to Question 8b	Go to Question 8b

Wetland ID: W-CMS-004 PEM

8h	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the	V	WATO
ab	cover of upper forest canopy consisting of deciduous trees with large diameters at breast	Yes	*NO
	height (dbh), generally diameters greater than 45cm (17.7in) dbh?		Go to Question 9a
	rieight (dbh), generally diameters greater than 456m (17.7m) dbh:	possible Category 3 status.	
		Go to Question 9a	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less	YES	*NO
	than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake	Go to Question 9b	Go to Question 10
	Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
96	Does the wetland's hydrology result from measures designed to prevent erosion and the	YES	*NO
	loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	Wetland should be evaluated for	Go to Question 9c
	due to lakeward or landward dikes of other hydrological controls?	possible Category 3 status	
		Go to Question 10	
9с	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	*NO
	i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or		Go to Question 10
	the wetland can be characterized as an "estuarine" wetland with lake and river influenced	O to Question 90	Go to Question 10
	hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth		
	wetlands, or those dominated by submersed aquatic vegetation.		
0.4	Describe mattered being a predominance of poting appealed within its manufaction		
9d	Does the wetland have a predominance of native species within its vegetation	YES	*NO
9d	communities, although non-native or disturbance tolerant native species can also be	Wetland is a Category 3 wetland	*NO Go to Question 9e
9d			· · ·
9d	communities, although non-native or disturbance tolerant native species can also be	Wetland is a Category 3 wetland	· · ·
9d	communities, although non-native or disturbance tolerant native species can also be	Wetland is a Category 3 wetland	· · ·
9d	communities, although non-native or disturbance tolerant native species can also be	Wetland is a Category 3 wetland	· · ·
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9d	communities, although non-native or disturbance tolerant native species can also be	Wetland is a Category 3 wetland	· · ·
	communities, although non-native or disturbance tolerant native species can also be	Wetland is a Category 3 wetland Go to Question 10	Go to Question 9e
	communities, although non-native or disturbance tolerant native species can also be present?	Wetland is a Category 3 wetland Go to Question 10 YES	Go to Question 9e *NO
	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for	Go to Question 9e
	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status	Go to Question 9e *NO
	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for	Go to Question 9e *NO
	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status	Go to Question 9e *NO
	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status	Go to Question 9e *NO
	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status	Go to Question 9e *NO
9e	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status Go to Question 10	*NO Go to Question 9e *NO Go to Question 10
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9e	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status Go to Question 10 YES Wetland is a Category 3 wetland.	*NO Go to Question 9e *NO Go to Question 10
9e	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status Go to Question 10 YES	*NO Go to Question 9e *NO Go to Question 10 *NO
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Wetland ID: W-CMS-004 PEM

invasive/exotic spp	fen species	bog species	oak opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Wetland ID:	W-CMS-004 PEM		
Site: Wabash Hydrogen E	Energy Center Project Rater(s): CMS	Date: 6/12/2024	
1.0 1.0	Metric 1. Wetland Area (size).	Field ID: W-CMS-004 PEM	
max 6 pts subtotal	Select one size class and assign score. >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pts) 10 to <25 acres (4 to <10.1ha) (4 pts) 3 to <10 acres (1.2 to <4ha) (3 pts) 0.3 to <3 acres (0.12 to <1.2ha) (2pts) x 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)	Delineated acres: 0.14 Estimated Total acres 0.14	
3.0 4.0 max 14 pts. subtotal	Metric 2. Upland buffers and surrou 2a. Calculate average buffer width. Select only one a WIDE. Buffers average 50m (164ft) or more around wetle MEDIUM. Buffers average 50m (162ft) or more around wetle MEDIUM. Buffers average 25m (32ft to <82ft) a NARROW. Buffers average 10m to <25m (32ft to <82ft) a VERY NARROW. Buffers average <10m (<32ft) around v 2b. Intensity of surrounding land use. Select one or or VERY LOW. 2nd growth or older forest, prairie, savannal LOW. Old field (<10 years), shrubland, young second grown of the second of t	ad assign score. Do not double check. Ind perimeter (7) Ind wetland perimeter (4) Ind wetland perimeter (1) Ind wetland perimeter (1) Ind wetland perimeter (0) Ind wetland perimeter (1) Ind wetland perimeter (2) Ind wetland perim	
7.0 11.0 max 30 pts. subtotal	Metric 3. Hydrology. 3a. Sources of Water. Score all that apply. High pH groundwater (5) Other groundwater (3) X Precipitation (1) Seasonal/Intermittent surface water (3) Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select one. 3-0.7 (27.6 in) (3) 0.4 to 0.7m (15.7 to 27.6 in) (2) X <0.4m (<15.7 in) (1) 3e. Modifications to natural hydrologic regime. Score None or none apparent (12) Recovering (3) X Recent or no recovery (1)	3b. Connectivity. Score all that apply. 100 year floodplain (1) Between stream/lake and other human use (1) Part of wetland/upland (e.g. forest), complex (1) Part of riparian or upland corridor (1) 3d. Duration inundation/saturation. Score one or dbl check. x Semi- to permanently inundated/saturated (4) Regularly inundated/saturated (3) Seasonally inundated (2) Seasonally saturated in upper 30cm (12in) (1)	soils
3.0 14.0 max 20 pts. subtotal	Metric 4. Habitat Alteration and Dev 4a. Substrate disturbance. Score one or double chec None or none apparent (4) Recovered (3) Recovering (2) X Recent or no recovery (1) 4b. Habitat development. Select only one and assign Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) X Poor (1) 4c. Habitat alteration. Score one or double check and None or none apparent (9) Recovered (6) Recovered (6) Recovering (3) X Recent or no recovery (1)	around the wetland fringe creating hun around the wetland fringe creating hun and average.	
14.0 subtotal this page	ORAM v. 5.0 Field Form Quantitative Rating		

Wetla	nd ID:	W-CMS-004 PEM				
Site:	Wahash	Hydrogen Energy Center Project Rater(s):	CM	10	Date:	6/12/2024
Site.	Wabasii	Hydrogen Energy Center Project Rater(s).	CIV	15	Date.	0/12/2024
				Field ID:		
	444	5				
	14.0	<u> </u>		W-CMS-004 PEM		
	subtotal this page					
	-1	.				
-10	.0 4.0	<u> </u>				
max 10 pts.	subtotal	Check all that apply and score as indicated				
		Bog (10) Fen (10)				
		Old growth forest (10)				
		Mature forested wetland (5)				
		Lake Erie coastal/tributary wetland-unrestricted hydrology (10)			
		Lake Erie coastal/tributary wetland-restricted hydrology (5)				
		Lake Plain Sand Prairies (Oak Openings) (10) Relict Wet Praires (10)				
		Known occurrence state/federal threatened or endangered	species	(10)		
		Significant migratory songbird/water fowl habitat or usage (10)			
		x Category 1 Wetland. See Question 5 Qualitative Rating (-1	0)			
	-1 -					
5	.0 9.0	Metric 6. Plant communities, interspe	ersion	, microtopography.		
max 20pts.	subtotal	6a. Wetland Vegetation Communities.		Vegetation Community C		
		Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.24		
		Aquatic bed 1 Emergent	1	Present and either comprises sma vegetation and is of moderate qua		
		Shrub		significant part but is of low quality		
		Forest	2	Present and either comprises sign		
		Mudflats		vegetation and is of moderate qua	lity or comprises a small	
		Open water Other	2	part and is of high quality Present and comprises significant	part or more of wotland's 2	
		6b. horizontal (plan view) Interspersion.	3	vegetation and is of high quality	part, or more, or wettand 3 3	
		Select only one.				
		High (5) Moderately high(4)		Narrative Description of Vegetat		
		Moderate (3)		Low spp diversity and/or predomin disturbance tolerant native species		
		Moderately low (2)		Native spp are dominant compone		
		x Low (1)		although nonnative and/or disturba		
		None (0) 6c. Coverage of invasive plants. Refer		can also be present, and species of moderately high, but generallyw/o		
		Table 1 ORAM long form for list. Add		threatened or endangered spp to	presence of rare	
		or deduct points for coverage		A predominance of native species	, with nonnative spp high	
		Extensive >75% cover (-5)		and/or disturbance tolerant native		
		Moderate 25-75% cover (-3) Sparse 5-25% cover (-1)		absent, and high spp diversity and the presence of rare, threatened, or		
		Nearly absent <5% cover (0)		trie presence of rare, trireatened, t	or endangered spp	
		x Absent (1)		Mudflat and Open Water Class (Quality	
		6d. Microtopography.		Absent <0.1ha (0.247 acres)		
		Score all present using 0 to 3 scale. 1 Vegetated hummucks/tussucks	1	Low 0.1 to <1ha (0.247 to 2.47 acr Moderate 1 to <4ha (2.47 to 9.88 a		
		Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	20100)	
		Standing dead >25cm (10in) dbh	Ü	13 (0.00 00.00) 0. 11010		
		1 Amphibian breeding pools	_	Microtopography Cover Scale		
			0	Absent	ore common	
			1	Present very small amounts or if n of marginal quality	iore common	
			2	Present in moderate amounts, but	not of highest	
	9.0	TOTAL (Max 100 pts)		quality or in small amounts of high	est quality	
		Category	3	Present in moderate or greater am		
		<u> </u>	5	I	· ·	

and of highest quality

Wetland ID: W-CMS-004 PEM

ORAM Summary Worksheet

		answ	cle /er or score	Result
Narrative Rating	Question 1 Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	*YES	NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	Yes	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	*NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	1	1	
	Metric 2. Buffers and surrounding land use	3	3	
	Metric 3. Hydrology	7	7	
	Metric 4. Habitat	3	3	
	Metric 5. Special Wetland Communities		10	
	Metric 6. Plant communities, interspersion, microtopography		5	
	TOTAL SCORE	9	•	Category based on score breakpoints

 $Complete\ Wetland\ Categorization\ Worksheet.$

Wetland ID:	W-CMS-004 PEM
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Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	*NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over- categorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	*NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	*YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (including any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	*YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria		Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	*NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.
		Final Category	<i>1</i>

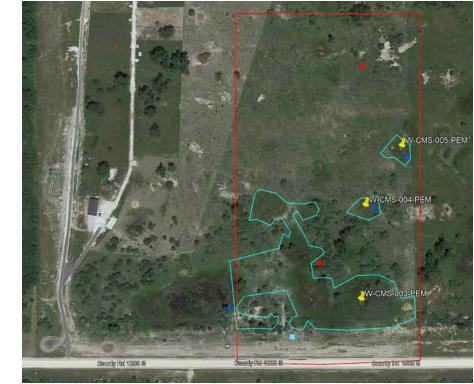
Background Information				
Name:	смѕ			
Date:	6/12/2024			
Affiliation:	AECOM			
Address:	564 White Pond Drive, Akron, OH 44320			
Phone Number:	717-617-7738			
e-mail address:	charlotte.stallone@aecom.com			
Name of Wetland:	W-CMS-005 PEM			
Vegetation Communit(ies):	PEM			
HGM Class(es):	Depression			
Location of Wetland: include map	, address, north arrow, landmarks, distances, roads, etc.			

See Figures 1, 2, and 3 of Wetland Delineation and Stream Assessment Report.

Lat/Long or UTM Coordinate:	39.623781°, -87.486961°
USGS Quad Name:	New Goshen, IN
County:	Vermillion
Township:	Clinton
Section and Subsection:	NA
Hydrologic Unit Code:	051201110303 Gin Creek-Brouilletts Creek
Site Visit:	6/12/2024
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	N/A
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:	W-CMS-005 PEM		
Wetland Size (delineated acres):	0.14	Wetland Size (Estimated total acres):	0.14

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.



Comments, Narrative Discussion, Justification of Category Changes:
PEM wetland dominated by Potentilla indica, Eleocharis palustris and Phalaris arundinacea. Recieves hydrology from precipitation. Historic strip mine. Shallow clay soils bedrock at 8 inches. Heavily disturbed by cattle grazing and compacted soils around the wetland fringe creating hummocks.

Final score:	7	Category:	1

Wetland ID:	W-CMS-005 PEM
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Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	X	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human- induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	X	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	Х	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		X
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	Х	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature and by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	*NO Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	*NO Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	*NO Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	*NO Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	*YES Wetland is a Category 1 wetland Go to Question 6	NO Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	*NO Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	*NO Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	*NO Go to Question 8b

Wetland ID: W-CMS-005 PEM

8h	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the	lv	*NO
00	cover of upper forest canopy consisting of deciduous trees with large diameters at breast	Yes	*NO
	height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status. Go to Question 9a	Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less	YES	*NO
	than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the	YES	*NO
	loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	Wetland should be evaluated for possible Category 3 status Go to Question 10	Go to Question 9c
9с	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	*NO
	i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	Go to Question 9d	Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation	YES	*NO
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	*NO Go to Question 9e
	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant	Wetland is a Category 3 wetland Go to Question 10	
	communities, although non-native or disturbance tolerant native species can also be present?	Wetland is a Category 3 wetland Go to Question 10	Go to Question 9e
9e	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton,	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status	Go to Question 9e *NO
9e	communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status Go to Question 10	*NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status Go to Question 10 YES Wetland is a Category 3 wetland. Go to Question 11	*NO Go to Question 10 *NO Go to Question 11
9e	Communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide	Wetland is a Category 3 wetland Go to Question 10 YES Wetland should be evaluated for possible Category 3 status Go to Question 10 YES Wetland is a Category 3 wetland.	*NO Go to Question 9e *NO *NO *NO

Wetland ID: W-CMS-005 PEM

invasive/exotic spp	fen species	bog species	oak opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Wetland ID: W-CMS-005 PEM			
	_		
Site: Wabash Hydrogen Energy Center Project Rater(s): CMS		Date:	6/12/2024
	Field ID:		
1.0 1.0 Metric 1. Wetland Area (size).	W-CMS-005 PEM		
max 6 pts subtotal Select one size class and assign score.			
>50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pts)			
10 to <25 acres (4 to <10.1ha) (4 pts) 3 to <10 acres (1.2 to <4ha) (3 pts)	Delineated acres:	0.14	
0.3 to <3 acres (0.12 to <1.2ha) (2pts) x	Estimated Total acres	0.14	
 10 < 0.3 acres (0.04 to < 0.121a) (1 pt) <0.1 acres (0.04ha) (0 pts) 			
3.0 4.0 Metric 2. Upland buffers and surrounding	na land usa		
max 14 pts. subtotal 2a. Calculate average buffer width. Select only one and as:	•		
WIDE. Buffers average 50m (164ft) or more around wetland pe MEDIUM. Buffers average 25m to <50m (82 to <164ft) around	erimeter (7)		
NARROW. Buffers average 10m to <25m (32ft to <82ft) around	d wetland perimeter (1)		
x VERY NARROW. Buffers average <10m (<32ft) around wetlan 2b. Intensity of surrounding land use. Select one or double			
VERY LOW. 2nd growth or older forest, prairie, savannah, wild	llife area, etc. (7)		
LOW. Old field (>10 years), shrubland, young second growth for x MODERATELY HIGH. Residential, fenced pasture, park, conse	· ,		
HIGH. Urban, industrial, open pasture, row cropping, mining, co	onstruction. (1)		
7.0 11.0 Metric 3. Hydrology.			
max 30 pts. subtotal 3a. Sources of Water. Score all that apply.	3b. Connectivity. Score all t	hat apply.	
High pH groundwater (5) Other groundwater (3)	100 year floodplain (1) Between stream/lake and other	er human use (1)	
x Precipitation (1) Seasonal/Intermittent surface water (3)	Part of wetland/upland (e.g. for Part of riparian or upland corr	orest), complex (1)	
Perennial surface water (lake or stream) (5)	3d. Duration inundation/sat	uration. Score one or	dbl check.
3c. Maximum water depth. Select one.	x Semi- to permanently inundated Regularly inundated/saturated		
0.4 to 0.7m (15.7 to 27.6in) (2) x <0.4m (<15.7in) (1)	Seasonally inundated (2) Seasonally saturated in upper	r 30cm (12in) (1)	
3e. Modifications to natural hydrologic regime. Score one None or none apparent (12)	or double check and average. Check all disturbances obs	erved	
Recovered (7) Recovering (3)	ditch tile	point source (nonst filling/grading	formwater)
x Recent or no recovery (1)	dike weir	road bed/RR track dredging	
	stormwater input		disturbed and compacted soils
3.0 14.0 Metric 4. Habitat Alteration and Develop	nment	around the	wetland fringe creating hummocks
max 20 pts. subtotal 4a. Substrate disturbance. Score one or double check and			
None or none apparent (4)	average.		
Recovered (3) Recovering (2)			
x Recent or no recovery (1) 4b. Habitat development. Select only one and assign score	9.		
Excellent (7) Very good (6)			
Good (5) Moderately good (4)			
Fair (3) Poor to fair (2)			
x Poor (1)			
Ac. Habitat alteration. Score one or double check and avera	Check all disturbances obser		
Recovered (6) Recovering (3)	mowing x grazing	shrub/sapling remo herbaceous/aquation	
x Recent or no recovery (1)	clearcutting selective cutting	sedimentation dredging	
	woody debris removal toxic pollutants	farming nutrient enrichment	
	tone pondanto		
14.0			

subtotal this page ORAM v. 5.0 Field Form Quantitative Rating

Wetla	nd ID:	W-CMS-005 PEM				
Site:	Wabash	Hydrogen Energy Center Project Rater(s):	CN	IS	Date:	6/12/2024
				-	1 - 3 - 3 - 3	
	440	1		Field ID: W-CMS-005 PEM		
	14.0			W-CMS-005 PEM		
	subtotal this page					
-10	.0 4.0	Metric 5. Special Wetlands.				
max 10 pts.	subtotal	Check all that apply and score as indicated.				
max 10 pts.	subtotal	Bog (10)				
		Fen (10)				
		Old growth forest (10)				
		Mature forested wetland (5) Lake Erie coastal/tributary wetland-unrestricted hydrology (10)))			
		Lake Erie coastal/tributary wetland-restricted hydrology (5)	,			
		Lake Plain Sand Prairies (Oak Openings) (10)				
		Relict Wet Praires (10) Known occurrence state/federal threatened or endangered sp	naciae	(10)		
		Significant migratory songbird/water fowl habitat or usage (10		(10)		
		x Category 1 Wetland. See Question 5 Qualitative Rating (-10)				
3	.0 7.0	Metric 6. Plant communities, intersper	sion	. microtopography.		
max 20pts.	subtotal	6a. Wetland Vegetation Communities.		Vegetation Community C	Cover Scale	
max Lopio.	odblotdi	Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.24		
		Aquatic bed	1	Present and either comprises sma		
		1 Emergent Shrub		vegetation and is of moderate qua significant part but is of low quality		
		Forest	2	Present and either comprises sign		
		Mudflats	_	vegetation and is of moderate qua		
		Open water		part and is of high quality		
		Other6b. horizontal (plan view) Interspersion.	3	Present and comprises significant vegetation and is of high quality	part, or more, of wetland's 3	
		Select only one.		vegetation and is of high quality		
		High (5)		Narrative Description of Vegeta		
		Moderately high(4) Moderate (3)		Low spp diversity and/or predomin disturbance tolerant native species		
		Moderate (3) Moderately low (2)		Native spp are dominant compone		
		x Low (1)		although nonnative and/or disturba	ance tolerant native spp	
		None (0)		can also be present, and species		
		6c. Coverage of invasive plants. Refer Table 1 ORAM long form for list. Add		moderately high, but generallyw/o threatened or endangered spp to	presence or rare	
		or deduct points for coverage		A predominance of native species	, with nonnative spp high	
		Extensive >75% cover (-5)		and/or disturbance tolerant native		
		Moderate 25-75% cover (-3) x Sparse 5-25% cover (-1) Philaris arundinacea		absent, and high spp diversity and the presence of rare, threatened,		
		Nearly absent <5% cover (0)		the presence of fare, threatened,	or endangered app	
		Absent (1)		Mudflat and Open Water Class (Quality	
		6d. Microtopography. Score all present using 0 to 3 scale.		Absent <0.1ha (0.247 acres) Low 0.1 to <1ha (0.247 to 2.47 acr	rec)	
		Vegetated hummucks/tussucks		Moderate 1 to <4ha (2.47 to 9.88 a		
		Coarse woody debris >15cm (6in)		High 4ha (9.88 acres) or more		
		Standing dead >25cm (10in) dbh 1 Amphibian breeding pools		Microtopography Cover Scale		
		Trubulpulan preeding boots	0	Absent		
			1	Present very small amounts or if n	nore common	
			2	of marginal quality Present in moderate amounts, but	not of highest	
	7.0	TOTAL (Max 100 pts)	2		•	
	1.0		3	quality or in small amounts of high Present in moderate or greater am		
		outegory	3	Present in moderate or greater an	iourito	

and of highest quality

Wetland ID: W-CMS-005 PEM

ORAM Summary Worksheet

		answ	cle /er or score	Result
Narrative Rating	Question 1 Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	*YES	NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	Yes	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	*NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	1	1	
	Metric 2. Buffers and surrounding land use	3	3	
	Metric 3. Hydrology	7	7	
	Metric 4. Habitat	3	3	
	Metric 5. Special Wetland Communities	-1	10	
	Metric 6. Plant communities, interspersion, microtopography		3	
	TOTAL SCORE	7	7	Category based on score breakpoints

 $Complete\ Wetland\ Categorization\ Worksheet.$

Wetland ID:	W-CMS-005 PEM
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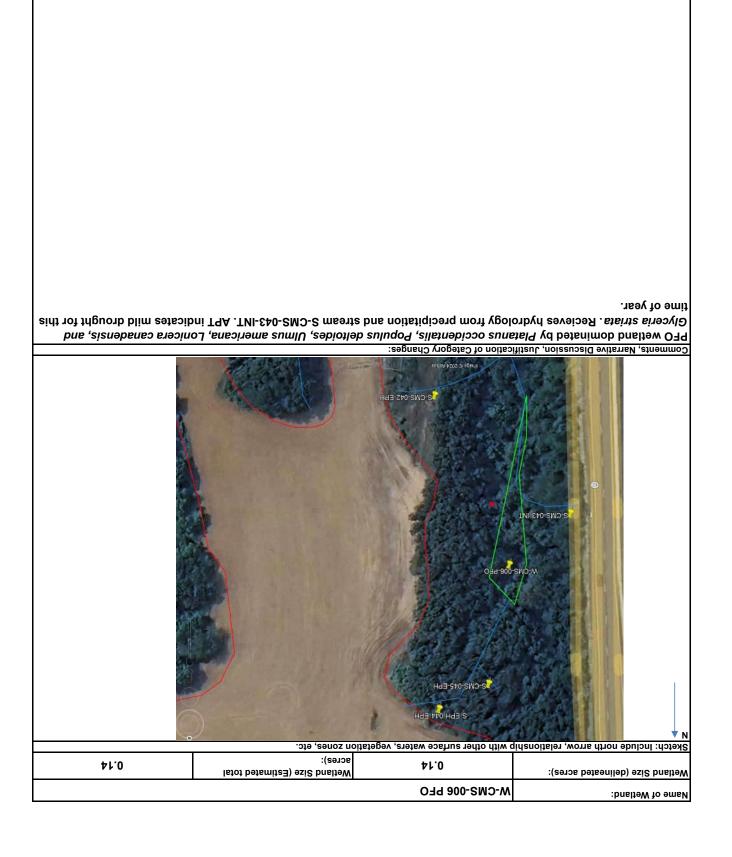
Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	*NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over- categorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	*NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	*YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (including any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	*YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria		Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	*NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.
		Final Category	<i>1</i>

Background Information		
Name:	смѕ	
Date:	7/10/2024	
Affiliation:	AECOM	
Address:	564 White Pond Drive, Akron, OH 44320	
Phone Number:	717-617-7738	
e-mail address:	charlotte.stallone@aecom.com	
Name of Wetland:	W-CMS-006 PFO	
Vegetation Communit(ies):	PFO	
HGM Class(es):	Riverine	
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.		

See Figures 1, 2, and 3 of Wetland Delineation and Stream Assessment Report.

Lat/Long or UTM Coordinate:	39.539358°, -87.436173°
USGS Quad Name:	New Goshen, IN
County:	Vigo
Township:	West Terre Haute
Section and Subsection:	NA
Hydrologic Unit Code:	051201110604 South Salt Creek-Wabash River
Site Visit:	7/10/2024
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	N/A
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3



97

Final score:

Category:

7

Wetland ID: W-CMS-006 PFO

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	Х	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human- induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	X	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	Х	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		X
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	Х	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature and by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	1
1	Critical Habitat. Is the wetland in a township, section, or subsection of a	YES	*NO
	United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	Wetland should be evaluated for possible Category 3 status Go to Question 2	Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of,	YES	*NO
	or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	Wetland is a Category 3 wetland. Go to Question 3	Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage	YES	*NO
	Database as a high quality wetland?	Wetland is a Category 3 wetland Go to Question 4	Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented	YES	*NO
	regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland Go to Question 5	Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and	YES	*NO
	hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	Wetland is a Category 1 wetland Go to Question 6	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or	YES	*NO
	outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland Go to Question 7	Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated	YES	*NO
	during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland Go to Question 8a	Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized	YES	*NO
	by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an allaged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Wetland is a Category 3 wetland. Go to Question 8b	Go to Question 8b

Wetland ID: W-CMS-006 PFO

O.L.	Mature forested wetlends to the wetlend of second wetlend with 500/ or more of the	I.,	
as	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast	Yes	*NO
	height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status. Go to Question 9a	Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less	YES	*NO
	than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9h	Does the wetland's hydrology result from measures designed to prevent erosion and the	YES	*NO
35	loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	Wetland should be evaluated for possible Category 3 status Go to Question 10	*NO Go to Question 9c
9с	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	*NO
	i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	Go to Question 9d	Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be	YES	*NO
	present?	Wetland is a Category 3 wetland Go to Question 10	Go to Question 9e
9е	Does the wetland have a predominance of non-native or disturbance tolerant native plant	YES	*NO
	species within its vegetation communities?	Wetland should be evaluated for possible Category 3 status Go to Question 10	Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton,	YES	*NO
	Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	Wetland is a Category 3 wetland. Go to Question 11	Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or	YES	*NO
	all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of	Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	Complete Quantitative Rating
	western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).		

Wetland ID: W-CMS-006 PFO

invasive/exotic spp	fen species	bog species	oak opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lvthrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Wetland ID: W-CMS-006 PFO	
Cita. Washington Francisco Maria	The 7/40/0004
Site: Wabash Hydrogen Energy Center Project Rater(s): CMS	Date: 7/10/2024
1.0 1.0 Metric 1. Wetland Area (size).	Field ID: W-CMS-006 PFO
max 6 pts subtotal Select one size class and assign score.	
>50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pts) 10 to <25 acres (4 to <10.1ha) (4 pts)	Delineated acres: 0.14
3 to <10 acres (1.2 to <4ha) (3 pts) 0.3 to <3 acres (0.12 to <1.2ha) (2pts) x 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt) <0.1 acres (0.04ha) (0 pts)	Estimated Total acres 0.14
3.0 4.0 Metric 2. Upland buffers and surrounding	ng land use.
2a. Calculate average buffer width. Select only one and ass WIDE. Buffers average 50m (164ft) or more around wetland pe MEDIUM. Buffers average 25m to <50m (82 to <164ft) around NARROW. Buffers average 10m to <25m (32ft to <82ft) around x VERY NARROW. Buffers average 10m to <25m (32ft to <82ft) around 2b. Intensity of surrounding land use. Select one or double VERY LOW. 2nd growth or older forest, prairie, savannah, wildl LOW. Old field (>10 years), shrubland, young second growth fo x MODERATELY HIGH. Residential, fenced pasture, park, conse HIGH. Urban, industrial, open pasture, row cropping, mining, co	rimeter (7) wetland perimeter (4) wetland perimeter (1) d perimeter (0) e check and average. life area, etc. (7) orest. (5) prvation tillage, new fallow field. (3)
18.0 22.0 Metric 3. Hydrology.	
max 30 pts. 3a. Sources of Water. Score all that apply. High pH groundwater (3) Other groundwater (3) X Precipitation (1) X Seasonal/Intermittent surface water (3) Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select one. >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) X <0.4m (<15.7in) (1) 3e. Modifications to natural hydrologic regime. Score one of None or none apparent (12) X Recovered (7) Recovering (3) Recent or no recovery (1)	3b. Connectivity. Score all that apply. 100 year floodplain (1) X Between stream/lake and other human use (1) X Part of wetland/upland (e.g. forest), complex (1) Part of riparian or upland corridor (1) 3d. Duration inundation/saturation. Score one or dbl check. Semi- to permanently inundated/saturated (4) X Regularly inundated/saturated (3) Seasonally inundated (2) Seasonally saturated in upper 30cm (12in) (1) or double check and average. Check all disturbances observed ditch tile dike weir dredging stormwater input Other:
18.0 40.0 Metric 4. Habitat Alteration and Develop max 20 pts. subtotal 4a. Substrate disturbance. Score one or double check and	
x None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only one and assign score Excellent (7) Very good (6) x Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or double check and avera x None or none apparent (9) Recovered (6) Recovering (3) Recent or no recovery (1)	
40.0 subtotal this page ORAM v. 5.0 Field Form Quantitative Rating	

Wetla	nd ID:	W-CMS-006 PFO				
Site:	Wabash	Hydrogen Energy Center Project Rater(s):	CM	IS.	Date:	7/10/2024
C		riyarəgən zinərgy Gərnər riəjəət riatər(ə).	ļ0		24.0.	.,,
				Field ID:		
	40.0	1		W-CMS-006 PFO		
		1				
	subtotal this page					
_	.0 40.0	Motrio E Special Wetlands				
	-	<u>.</u>				
max 10 pts.	subtotal	Check all that apply and score as indicated.				
		Fen (10)				
		Old growth forest (10)				
		Mature forested wetland (5)	٥١			
		Lake Erie coastal/tributary wetland-unrestricted hydrology (1) Lake Erie coastal/tributary wetland-restricted hydrology (5)	0)			
		Lake Plain Sand Prairies (Oak Openings) (10)				
		Relict Wet Praires (10)				
		Known occurrence state/federal threatened or endangered s		(10)		
		Significant migratory songbird/water fowl habitat or usage (10 Category 1 Wetland. See Question 5 Qualitative Rating (-10)				
		Outcoory 1 Welland. See Question's Quantum Training (10	,			
6	.0 46.0	Metric 6. Plant communities, intersper	sion	. microtopography.		
max 20pts.	subtotal	6a. Wetland Vegetation Communities.		Vegetation Community Co	over Scale	
		Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.247		
		Aquatic bed	1	Present and either comprises small		
		1 Emergent Shrub		vegetation and is of moderate quali	ty, or comprises a	
		2 Forest	2	significant part but is of low quality Present and either comprises signif	icant part of wetland's 2	
		Mudflats		vegetation and is of moderate quali		
		Open water	_	part and is of high quality		
		Other6b. horizontal (plan view) Interspersion.	3	Present and comprises significant properties and comprises significant properties and is of high quality	part, or more, or wetland's 3	
		Select only one.				
		High (5)		Narrative Description of Vegetati		
		Moderately high(4) x Moderate (3)		Low spp diversity and/or predomina disturbance tolerant native species		
		Moderately low (2)		Native spp are dominant componer		
		Low (1)		although nonnative and/or disturbar	nce tolerant native spp	
		None (0)		can also be present, and species d		
		6c. Coverage of invasive plants. Refer Table 1 ORAM long form for list. Add		moderately high, but generallyw/o p threatened or endangered spp to	resence of rare	
		or deduct points for coverage		A predominance of native species,	with nonnative spp high	
		Extensive >75% cover (-5)		and/or disturbance tolerant native s		
		Moderate 25-75% cover (-3) x Sparse 5-25% cover (-1) Phragmites australis		absent, and high spp diversity and the presence of rare, threatened, or		
		Nearly absent <5% cover (0)		the presence of fare, threatened, of	r endangered spp	
		Absent (1)		Mudflat and Open Water Class Q	uality	
		6d. Microtopography.		Absent <0.1ha (0.247 acres)		
		Score all present using 0 to 3 scale. Vegetated hummucks/tussucks	1	Low 0.1 to <1ha (0.247 to 2.47 acre Moderate 1 to <4ha (2.47 to 9.88 ac		
		Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	01001	
		Standing dead >25cm (10in) dbh				
		1 Amphibian breeding pools	_	Microtopography Cover Scale		
			1	Absent Present very small amounts or if mo	ore common	
			'	of marginal quality	ore common	
		_	2	Present in moderate amounts, but r	not of highest	
	46.0	TOTAL (Max 100 pts)		quality or in small amounts of highe	st quality	
	2	Category	3	Present in moderate or greater amo		

and of highest quality

Wetland ID: W-CMS-006 PFO

ORAM Summary Worksheet

		answ	cle /er or score	Result
Narrative Rating	Question 1 Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	*NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	Yes	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	*NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	1	1	
	Metric 2. Buffers and surrounding land use	3	3	
	Metric 3. Hydrology	1	8	
	Metric 4. Habitat	1	8	
	Metric 5. Special Wetland Communities)	
	Metric 6. Plant communities, interspersion, microtopography		6	
	TOTAL SCORE	4	6	Category based on score breakpoints

 $Complete\ Wetland\ Categorization\ Worksheet.$

Wetland ID:	W-CMS-006 PFO
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Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	*NO	Is quantitative rating score /ess than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over- categorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	*NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	*NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (<i>including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	*YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria		Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	*NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.
	<u> </u>		
		Final Categor	y

Background Information			
Name:	смѕ		
Date:	7/11/2024		
Affiliation:	AECOM		
Address:	564 White Pond Drive, Akron, OH 44320		
Phone Number:	717-617-7738		
e-mail address:	charlotte.stallone@aecom.com		
Name of Wetland:	W-CMS-007 PEM		
Vegetation Communit(ies):	PEM		
HGM Class(es):	Riverine		
Location of Wetland: include map,	address, north arrow, landmarks, distances, roads, etc.		

See Figures 1, 2, and 3 of Wetland Delineation and Stream Assessment Report.

Lat/Long or UTM Coordinate:	39.539358°, -87.436173°
USGS Quad Name:	New Goshen, IN
County:	Vigo
Township:	West Terre Haute
Section and Subsection:	NA
Hydrologic Unit Code:	051201110604 South Salt Creek-Wabash River
Site Visit:	7/11/2024
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	N/A
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:	W-CMS-007 PEM		
Wetland Size (delineated acres):	0.10	Wetland Size (Estimated total acres):	0.30

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.



Comments, Narrative Discussion, Justification of Category Changes:

PEM wetland dominated by Acer negundo, Prunus pensylvanica, Ulmus americana, Gleditsia triacanthos, Leersia oryzoides and Phalaris arundinacea. Recieves hydrology from precipitation and off-site stream. APT indicates mild drought for this time of year.

Final score:	37	Category:	Modified 2

Wetland ID:	W-CMS-007 PEM
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Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	Х	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human- induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	X	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	Х	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		X
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	Х	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature and by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	*NO Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	*NO Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	*NO Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	*NO Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	*NO Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	*NO Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	*NO Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	*NO Go to Question 8b

Wetland ID: W-CMS-007 PEM

8b N	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the	Yes	*NO
	cover of upper forest canopy consisting of deciduous trees with large diameters at breast neight (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status. Go to Question 9a	Go to Question 9a
th	.ake Erie coastal and tributary wetlands. Is the wetland located at an elevation less han 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	*NO Go to Question 10
lo	Does the wetland's hydrology result from measures designed to prevent erosion and the oss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	*NO Go to Question 9c
i. tł h	Are Lake Erie water levels the wetland's primary hydrological influence, e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or he wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth vetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	*NO Go to Question 10
С	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	*NO Go to Question 9e
	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	*NO Go to Question 10
H d ta g	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following lescription: the wetland has a sandy substrate with interspersed organic matter, a water able often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide issistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	*NO Go to Question 11
a (I C	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	*NO Complete Quantitative Rating

Wetland ID: W-CMS-007 PEM

invasive/exotic spp	fen species	bog species	oak opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Wetland ID:	W-CMS-007 PEM			
Sito: Wahash Hudrages 5	rgy Center Project Rater(s); CMS		Data	7/11/2024
Site: Wabash Hydrogen Ene	rgy Center Project Rater(s): CMS		Date:	7/11/2024
1.0 1.0	Metric 1. Wetland Area (size).	Field ID:		
max 6 pts subtotal	Select one size class and assign score.			
	>50 acres (>20.2ha) (6 pts)			
	25 to <50 acres (10.1 to <20.2ha) (5 pts) 10 to <25 acres (4 to <10.1ha) (4 pts)	Delineated acres:	0.10	
	3 to <10 acres (1.2 to <4ha) (3 pts) 0.3 to <3 acres (0.12 to <1.2ha) (2pts) 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)	Estimated Total acres	0.30	
_	<0.1 acres (0.04ha) (0 pts)			
3.0 4.0	Metric 2. Upland buffers and surrour	iding land use.		
max 14 pts. subtotal	2a. Calculate average buffer width. Select only one an WIDE. Buffers average 50m (164ft) or more around wetlan MEDIUM. Buffers average 25m to <50m (82 to <164ft) aro NARROW. Buffers average 10m to <25m (32ft to <82ft) ar	d perimeter (7) und wetland perimeter (4) ound wetland perimeter (1) etland perimeter (0)		
7	2b. Intensity of surrounding land use. Select one or dc VERY LOW. 2nd growth or older forest, prairie, savannah, LOW. Old field (>10 years), shrubland, young second grov MODERATELY HIGH. Residential, fenced pasture, park, c HIGH. Urban, industrial, open pasture, row cropping, minin	wildlife area, etc. (7) th forest. (5) onservation tillage, new fallow field. (3)		
23.0 27.0	Metric 3. Hydrology.			
	3a. Sources of Water. Score all that apply. High pH groundwater (5) Other groundwater (3) Precipitation (1) Seasonal/Intermittent surface water (3) Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select one. >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) <0.4m (<15.7in) (1) 3e. Modifications to natural hydrologic regime. Score (12) Recovered (7) Recovering (3) Recent or no recovery (1)	3b. Connectivity. Score all th 100 year floodplain (1) X Between stream/lake and other X Part of wetland/upland (e.g. fon X Part of riparian or upland corrid 3d. Duration inundation/satur Semi- to permanently inundated X Regularly inundated (1) Seasonally inundated (2) Seasonally saturated in upper 3 one or double check and average. Check all disturbances obset ditch tile dike weir stormwater input	human use (1) est), complex (1) or (1) ration. Score one or of J/saturated (4) (3)	
8.0 35.0	Metric 4. Habitat Alteration and Deve	•		
	4a. Substrate disturbance. Score one or double check None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only one and assign s Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or double check and a None or none apparent (9) Recovered (6) Recovering (3) Recent or no recovery (1)	core.	ed shrub/sapling remov herbaceous/aquatic sedimentation dredging farming nutrient enrichment	
35.0				
subtotal this page	ORAM v. 5.0 Field Form Quantitative Rating			

Wetla	ınd ID:	W-CMS-007 PEM				
Site:	Wabash H	ydrogen Energy Center Project Rater(s):	CN	s Dat	te:	7/11/2024
		, , , , , , , , , , , , , , , , , , , ,		•		
				Field ID:		
	35.0			W-CMS-007 PEM		
	subtotal this page					
	0.0 35.0	Metric 5. Special Wetlands.				
max 10 pts.	subtotal	Check all that apply and score as indicated.				
		Bog (10)				
	-	Fen (10) Old growth forest (10)				
		Mature forested wetland (5)				
	-	Lake Erie coastal/tributary wetland-unrestricted hydrology (10 Lake Erie coastal/tributary wetland-restricted hydrology (5)	0)			
		Lake Plain Sand Prairies (Oak Openings) (10)				
		Relict Wet Praires (10)		40		
	-	Known occurrence state/federal threatened or endangered sp Significant migratory songbird/water fowl habitat or usage (10		10)		
		Category 1 Wetland. See Question 5 Qualitative Rating (-10)				
	2.0 37.0	Metric 6. Plant communities, intersper	cion	microtonography		
		6a. Wetland Vegetation Communities.	31011	Vegetation Community Cover Scale		
max 20pts.	subtotal	Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2471 acres) conti		
		Aquatic bed	1	Present and either comprises small part of wetlan	nd's 1	
		1 Emergent		vegetation and is of moderate quality, or compris significant part but is of low quality	es a	
	-	Shrub Forest	2	Present and either comprises significant part of v	vetland's 2	
		Mudflats		vegetation and is of moderate quality or comprise		
	-	Open water Other	3	part and is of high quality Present and comprises significant part, or more,	of wetland's 3	
	_	6b. horizontal (plan view) Interspersion.		vegetation and is of high quality		
	F	Select only one. High (5)		Narrative Description of Vegetation Quality		
		Moderately high(4)		Low spp diversity and/or predominance of nonna	tive or low	
	-	Moderate (3) Moderately low (2)		disturbance tolerant native species Native spp are dominant component of the veget	tation mod	
	-	x Low (1)		although nonnative and/or disturbance tolerant n		
		None (0)		can also be present, and species diversity model		
		6c. Coverage of invasive plants. Refer Table 1 ORAM long form for list. Add		moderately high, but generallyw/o presence of ra threatened or endangered spp to	.re	
	-	or deduct points for coverage		A predominance of native species, with nonnative		
	-	Extensive >75% cover (-5) Moderate 25-75% cover (-3)		and/or disturbance tolerant native spp absent or absent, and high spp diversity and often, but not		
		x Sparse 5-25% cover (-1) Phragmites australis		the presence of rare, threatened, or endangered		
	_	Nearly absent <5% cover (0) Absent (1)		Mudflat and Open Water Class Quality		
	L	6d. Microtopography.	0	Absent <0.1ha (0.247 acres)		
	F	Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 acres)		
	-	Vegetated hummucks/tussucks Coarse woody debris >15cm (6in)		Moderate 1 to <4ha (2.47 to 9.88 acres) High 4ha (9.88 acres) or more		
		Standing dead >25cm (10in) dbh		, ,		
	L	1 Amphibian breeding pools	0	Microtopography Cover Scale Absent		
			1	Present very small amounts or if more common		
			2	of marginal quality Present in moderate amounts, but not of highest		
	37 N	FOTAL (Max 100 pts)	2			
		Category	-3	quality or in small amounts of highest quality Present in moderate or greater amounts		
	Modified 2	-u.ogo. j	3	1		
				and of highest quality		

Wetland ID: W-CMS-007 PEM

ORAM Summary Worksheet

		Circle answer or insert score		Result
Narrative Rating	Question 1 Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	*NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	Yes	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	*NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	1	1	
	Metric 2. Buffers and surrounding land use	3	3	
	Metric 3. Hydrology	2	3	
	Metric 4. Habitat	8		
	Metric 5. Special Wetland Communities	0		
	Metric 6. Plant communities, interspersion, microtopography	2	2	
	TOTAL SCORE	3	7	Category based on score breakpoints

 $Complete\ Wetland\ Categorization\ Worksheet.$

Wetland ID:	W-CMS-007 PEM
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Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	*NO	Is quantitative rating score /ess than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over- categorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	*NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	*NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (including any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the appropriate category based on the scoring range	*NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	*YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria		Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	*NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.
		Final Categor	<u> </u>

Background Information			
Name:	смѕ		
Date:	7/11/2024		
Affiliation:	AECOM		
Address:	564 White Pond Drive, Akron, OH 44320		
Phone Number:	717-617-7738		
e-mail address:	charlotte.stallone@aecom.com		
Name of Wetland:	W-CMS-008 PEM		
Vegetation Communit(ies):	PEM		
HGM Class(es):	Riverine		
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.			

See Figures 1, 2, and 3 of Wetland Delineation and Stream Assessment Report.

Lat/Long or UTM Coordinate:	39.539358°, -87.436173°
USGS Quad Name:	New Goshen, IN
County:	Vigo
Township:	West Terre Haute
Section and Subsection:	NA
Hydrologic Unit Code:	051201110604 South Salt Creek-Wabash River
Site Visit:	7/11/2024
National Wetland Inventory Map:	See Figure 2
Ohio Wetland Inventory Map:	N/A
Soil Survey:	See Figure 2
Delineation report/map:	See Figure 3

Name of Wetland:	W-CMS-008 PEM		
Wetland Size (delineated acres):	0.10	Wetland Size (Estimated total acres):	0.30

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.



Comments, Narrative Discussion, Justification of Category Changes:

PEM wetland dominated by *Phragmites australis, and Phalaris arundinacea*. Recieves hydrology from precipitation and off-site stream. APT indicates mild drought for this time of year.

Final score:	37	Category:	Modified 2

Wetland ID:	W-CMS-008 PEM
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Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	Х	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human- induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	X	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	Х	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		X
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	Х	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature and by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a	YES	*NO
	United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	Wetland should be evaluated for possible Category 3 status Go to Question 2	Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of,	YES	*NO
	or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	Wetland is a Category 3 wetland. Go to Question 3	Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage	YES	*NO
	Database as a high quality wetland?	Wetland is a Category 3 wetland Go to Question 4	Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented	YES	*NO
	regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	Wetland is a Category 3 wetland Go to Question 5	Go to Question 5
5	ory 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and	YES	*NO
	hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea, Lythrum salicaria,</i> or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	Wetland is a Category 1 wetland Go to Question 6	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or	YES	*NO
	outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	Wetland is a Category 3 wetland Go to Question 7	Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated	YES	*NO
	during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	Wetland is a Category 3 wetland Go to Question 8a	Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized	YES	*NO
	by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	Wetland is a Category 3 wetland. Go to Question 8b	Go to Question 8b

Wetland ID: W-CMS-008 PEM

Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the	Yes	*NO
cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status. Go to Question 9a	Go to Question 9a
Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	*NO Go to Question 10
Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	*NO Go to Question 9c
Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	*NO Go to Question 10
Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	*NO Go to Question 9e
Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	*NO Go to Question 10
Henry, or Wood Counties and can the wetland be characterized by the following	YES Wetland is a Category 3 wetland.	*NO Go to Question 11
	Go to Question 11	
table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.		
gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide	YES	*NO
	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish? Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls? Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation. Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh? Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish? Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls? Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation. Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present? Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities? Wetland is a Category 3 wetland for possible Category 3 status Go to Question 10 Lake Plain Sand Prairies (Oak Openings) is the wetland located in Lucas, Futton, Henry, or Wood Counties and can the wetland be characterized by the following

Wetland ID: W-CMS-008 PEM

invasive/exotic spp	fen species	bog species	oak opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Wetland ID: W-CMS-008 PEM	
Site: Wabash Hydrogen Energy Center Project Rater(s): CMS	Date: 7/11/2024
	Field ID:
1.0 1.0 Metric 1. Wetland Area (size).	W-CMS-008 PEM
max 6 pts subtotal Select one size class and assign score.	
>50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pts)	B.C. de Levin
10 to <25 acres (4 to <10.1ha) (4 pts) 3 to <10 acres (1.2 to <4ha) (3 pts)	Delineated acres: 0.10
0.3 to <3 acres (0.12 to <1.2ha) (2pts) x 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)	Estimated Total acres 0.30
<0.1 acres (0.04ha) (0 pts)	
3.0 4.0 Metric 2. Upland buffers and surround	ding land use.
max 14 pts. subtotal 2a. Calculate average buffer width. Select only one and a	
WIDE. Buffers average 50m (164ft) or more around wetland MEDIUM. Buffers average 25m to <50m (82 to <164ft) around the control of the control	
NARROW. Buffers average 10m to <25m (32ft to <82ft) around x VERY NARROW. Buffers average <10m (<32ft) around wetl	and wetland perimeter (1)
2b. Intensity of surrounding land use. Select one or dou	
VERY LOW. 2nd growth or older forest, prairie, savannah, w LOW. Old field (>10 years), shrubland, young second growth	
x MODERATELY HIGH. Residential, fenced pasture, park, cor	nservation tillage, new fallow field. (3)
HIGH. Urban, industrial, open pasture, row cropping, mining,	construction. (1)
23.0 27.0 Metric 3. Hydrology.	
max 30 pts. subtotal 3a. Sources of Water. Score all that apply.	3b. Connectivity. Score all that apply.
High pH groundwater (5) Other groundwater (3)	100 year floodplain (1) x Between stream/lake and other human use (1)
x Precipitation (1) x Seasonal/Intermittent surface water (3)	x Part of wetland/upland (e.g. forest), complex (1) x Part of riparian or upland corridor (1)
Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select one.	3d. Duration inundation/saturation. Score one or dbl check. Semi- to permanently inundated/saturated (4)
>0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2)	x Regularly inundated/saturated (3) Seasonally inundated (2)
x <0.4m (<15.7in) (1) 3e. Modifications to natural hydrologic regime. Score on	Seasonally saturated in upper 30cm (12in) (1)
x None or none apparent (12) Recovered (7)	Check all disturbances observed ditch point source (nonstormwater)
Recovering (3)	tile filling/grading
Recent or no recovery (1)	dike road bed/RR track weir dredging
	stormwater input Other:
8.0 35.0 Metric 4. Habitat Alteration and Develo	opment.
max 20 pts. subtotal 4a. Substrate disturbance. Score one or double check at	nd average.
None or none apparent (4) Recovered (3)	
x Recovering (2) Recent or no recovery (1)	
4b. Habitat development. Select only one and assign sco Excellent (7)	ле.
Very good (6) Good (5)	
Moderately good (4) x Fair (3)	
Poor to fair (2)	
4c. Habitat alteration. Score one or double check and av	
Recovered (6)	Check all disturbances observed x mowing shrub/sapling removal
x Recovering (3) Recent or no recovery (1)	grazing herbaceous/aquatic bed removal sedimentation
	selective cutting dredging woody debris removal farming
	toxic pollutantsnutrient enrichment
35.0	
subtotal this page ORAM v. 5.0 Field Form Quantitative Rating	

ORAM v. 5.0 Field Form Quantitative Rating

Wetla	nd ID:	W-CMS-008 PEM				
Site:	Wabash F	lydrogen Energy Center Project Rater(s):	CM	S Date:		7/11/2024
	•	· · · · · · · · · · · · · · · · · · ·	-			
				Field ID:		
	35.0			W-CMS-008 PEM		
	subtotal this page					
(0.0 35.0	Metric 5. Special Wetlands.				
max 10 pts.	subtotal	Check all that apply and score as indicated.				
	-	Bog (10) Fen (10)				
		Old growth forest (10)				
		Mature forested wetland (5) Lake Erie coastal/tributary wetland-unrestricted hydrology (10)	3)			
	-	Lake Erie coastal/tributary wetland-unrestricted hydrology (1)	וי			
		Lake Plain Sand Prairies (Oak Openings) (10)				
	-	Relict Wet Praires (10) Known occurrence state/federal threatened or endangered s	necies	(10)		
		Significant migratory songbird/water fowl habitat or usage (10))	,		
	Ĺ	Category 1 Wetland. See Question 5 Qualitative Rating (-10)				
	2.0 37.0	Metric 6. Plant communities, intersper	sion	, microtopography.		
max 20pts.	subtotal	6a. Wetland Vegetation Communities.		Vegetation Community Cover Scale		
	F	Score all present using 0 to 3 scale.		Absent or comprises <0.1ha (0.2471 acres) contigu		
	-	Aquatic bed 1 Emergent	1	Present and either comprises small part of wetland: vegetation and is of moderate quality, or comprises		
	-	Shrub		significant part but is of low quality	a	
		Forest	2	Present and either comprises significant part of wet		,
	-	Mudflats Open water		vegetation and is of moderate quality or comprises a part and is of high quality	a small	
	<u> </u>	Other	3	Present and comprises significant part, or more, of	wetland's 3	
		6b. horizontal (plan view) Interspersion. Select only one.		vegetation and is of high quality		
		High (5)		Narrative Description of Vegetation Quality		
	-	Moderately high(4) Moderate (3)		Low spp diversity and/or predominance of nonnative disturbance tolerant native species	e or low	
	-	Moderately low (2)		Native spp are dominant component of the vegetation	on, mod	
		x Low (1)		although nonnative and/or disturbance tolerant nativ		
	L	None (0) 6c. Coverage of invasive plants. Refer		can also be present, and species diversity moderate moderately high, but generallyw/o presence of rare		
		Table 1 ORAM long form for list. Add		threatened or endangered spp to		
	F	or deduct points for coverage Extensive >75% cover (-5)		A predominance of native species, with nonnative s and/or disturbance tolerant native spp absent or virt		
	-	Moderate 25-75% cover (-3)		absent, and high spp diversity and often, but not alv		
		x Sparse 5-25% cover (-1) Phragmites australis		the presence of rare, threatened, or endangered sp	p	
	-	Nearly absent <5% cover (Phalaris arundinacea Absent (1)		Mudflat and Open Water Class Quality		
	-	6d. Microtopography.		Absent <0.1ha (0.247 acres)		
	Г	Score all present using 0 to 3 scale. Vegetated hummucks/tussucks	1 2	Low 0.1 to <1ha (0.247 to 2.47 acres) Moderate 1 to <4ha (2.47 to 9.88 acres)		
		Coarse woody debris >15cm (6in)		High 4ha (9.88 acres) or more		
		Standing dead >25cm (10in) dbh Amphibian breeding pools		Microtopography Coyor Seele		
	L		0	Microtopography Cover Scale Absent		
			1	Present very small amounts or if more common		
			2	of marginal quality Present in moderate amounts, but not of highest		
	37.0	TOTAL (Max 100 pts)	_	quality or in small amounts of highest quality		
		Category	3	Present in moderate or greater amounts		_
			Ü	and of highest quality		
				and or riightest quality		

Wetland ID: W-CMS-008 PEM

ORAM Summary Worksheet

		answ	cle /er or score	Result
Narrative Rating	Question 1 Critical Habitat	YES	*NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	*NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	*NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	*NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	*NO	If yes, Category 1.
	Question 6. Bogs	YES	*NO	If yes, Category 3.
	Question 7. Fens	YES	*NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	*NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	Yes	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	*NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	*NO	If yes, Category 3
	Question 11. Relict Wet Prairies	YES	*NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size		1	
	Metric 2. Buffers and surrounding land use		3	
	Metric 3. Hydrology	2	3	
	Metric 4. Habitat		8	
	Metric 5. Special Wetland Communities	(0	
	Metric 6. Plant communities, interspersion, microtopography	2	2	
	TOTAL SCORE	3	7	Category based on score breakpoints

 $Complete\ Wetland\ Categorization\ Worksheet.$

Wetland ID:	W-CMS-008 PEM
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Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	*NO	Is quantitative rating score <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over- categorized by the ORAM
Narrative Pating Nos 1 8h 9h 9e l	YES Wetland should be evaluated for possible Category 3 status	*NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	*NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (including any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the appropriate category based on the scoring range	*NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
or Category 2 or 3 wetlands?	*YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria		Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
OR habitat, OR recreational functions AND the wetland was <i>not</i>	Wetland was	*NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.
		Final Categor	y .
-	oose one Category	1 *Category 2	Category 3

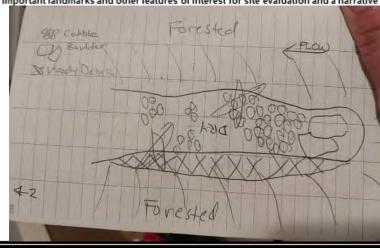
APPENDIX C OEPA Stream Forms

Stream S-CMS-001 Class II PHW

TE NAME/LOCATION	S-CMS-001 / Wabash	valley Resources, LLC			
TE NUMBER S-CMS	/ >	Wabash River	RIVER CODE N/A	DRAINAGE AREA (mir)	0.01
ENGTH OF STREAM	REACH (ft) 41.94	LAT_39.53384	LONG87.42707	RIVER MILE	N/A
6/11/24	SCORER CMS	COMMENTS	Ephemeral		
TE: Complete All	Items On This Form	- Refer to "Heads	water Habital Evaluation to	idex Field Manual" for Ins	struction
DEAM CHANNEL	MODIFICATIONS: [HANNEL RECOVERED		
CHIM CHARACE	MODIFICATIONS.	NONE / NATURAL L	HANNEC HECOVERED	RECOVERING RECENT OF	NO RECO
SUBSTRATE	(Estimate percent of a	every type present).	Check ONLY two predominant	substrate TYPE boxes	1,000
(Max of 32), A	dd total number of signif	ficant substrate types	s found (Max of 8). Final metric	score is sum of boxes A & B	HHE
PLOR SLA	ABS [16 pts]	TYPE	SILT (3 pt)	PERCENT 0%	Metr
	(>256 mm) [16 pts]	0%	LEAF PACK/WOODY DE		Subst
BEDROCK		0%	FINE DETRITUS [3 pts]	_0%	Max=
100,73,765,761,7	65-256 mm) [12 pts] 2-64 mm) [9 pts]	10%	MUCK [0 pts]	0%	-
	mm) [6 pts]	15%	ARTIFICIAL [3 pts]	0%	23
A	_		Substrate Percentage Check 100%		
	ercentages of der, Cobble, Bedrock	60.00% (A)		(8)	A + E
DRE OF TWO MOS	T PREDOMINATE SUB	STRATE TYPES:	TOTAL NUMBER OF S	SUBSTRATE TYPES: 5	
Maximum Po	ol Depth (Measure the	maximum pool dep	th within the 61 meter (200 fe	et) evaluation reach at the	Pool De
	tion Avoid plunge pools	tromroad culverts o	The second lead to the later of	(ONLY one box)	Max=
> 30 centimete > 22.5 - 30 cm	5 P. P. S. S. March 1997		5 cm - 10 cm [15 pts] < 5 cm [5pts]		
> 10 - 22.5 cm	E-25/6/19/5/		NO WATER OR MOIST	CHANNEL [Opts]	0
COMMENTS	OHWM = 2.25'w x	0.5'd	MAXIMUM POOL I	DEPTH (centimeters): 0.00	
BANK FULL	WIDTH (Measuredas t	heaverage of 3 - 4 m	neasurements) (Check ON	L Yoneboxi:	Banki
> 4.0 meters (s			= 1.0 m - 1.5 m (> 3'3" -		Widt
	(= 9 7°-13') [25 pts]		≤1.0 m (≤3'3°)[5 pts]	44.44.44	Max=
> 1,5 m - 3.0 m	(> 4'8" -9' 7")[20 pts]				15
COMMENTS	BF = 4.0'w x 1.0'd		AVERAGE BANKF	ULL WIDTH (meters) 1.22	1
		This informat	ion mustalso be completed		
RIPAR	IAN ZONE AND FLOOR	The second secon	 NOTE RiverLeft (L) and Rig 	ht (R) as looking downstream	
	RIAN WIDTH	50.45	LAIN QUALITY (Most Predom		
	er Bank)	LR		L R	
- O	e >10m	✓ Mature i	Forest, Wetland	Conservation Tiliage	
- 0	ierate 5-10m		e Forest Shrub or Old Field	Urban or Industrial	
✓ □ Wid	row ≈5m		tial, Park, New Field	Open Pasture, Row 0	- 11
Wid			Pasture	Mining or Construction	in.
✓ Wid		Fenced			_
Wid	ië +	Fenced			
Wid Mod Mod Nam Non COMMi	ENTS REGIME (At Time of Ev			Total Control of the	
Wid Mod Mod Nam Non COMMi	e ENTS REGIME (At Time of Ev Flowing	valuation) (Check C	Moist Channel, is	colated pools, no flow (intermit	(ent)
Wid Mod Mod Nam Non COMMi FLOW Stream Subsur	ENTS	valuation) (Check C	Moist Channel, is	olated pools, no flow (intermit water (ephemeral)	tent)
Vid Mod Mod Nam Non COMM: FLOW Stream Subsur COMM:	e ENTS REGIME (At Time of Ev Flowing face flow with isolated po ENTS	valuation) (Check Co	Moist Channel, is Dry channel, no	water (ephemeral)	tent)
Wid Mod Man Non COMM: FLOW Stream Subsur COMM:	e ENTS REGIME (At Time of Ev Flowing face flow with isolated po ENTS	valuation) (Check Co	Moist Channel, is	water (ephemeral)	tent)

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: Wabash River Distance from Evaluated Stream 1,786' 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: S32 T13N R9W NRCS Soil Map Page: Ma___NRCS Soil Map Stream Order: n/a___ County: Vigo Township/City: Fayette, II MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: June 10, 2024 Quantity: 1.2 in Photo-documentation Notes: _ Elevated Turbidity?(Y/N): N ____ Canopy (% open): <u>5</u> Were samples collected for waterchemistry? (Y/N): Lab Sample # or ID (attach results): n/a Field Measures:Temp (°C) n/a Dissolved Oxygen (mg/l) n/a pH (S.U.) n/a Conductivity (umhos/cm) n/a Is the sampling reach representative of the stream (Y/N) If not, explain: Additional comments/description of pollution impacts: Overall Stability of BOTH Stream Banks (check one): Stable **Moderately Stable** Unstable BIOLOGICAL OBSERVATIONS (Record all observations below) Fish Observed? (Y/N) N Species observed (if known): Frogs or Tadpoles Observed? (Y/N) Species observed (if known): Salamanders Observed? (Y/N) _ Species observed (if known): Aquatic Macroinvertebrates Observed? (Y/N) Y Species observed (if known): 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 S-CMS-002 Class I PHW

Percent Perc	9 1110 2- 5- 4	(isaa italo	ridolla, .	Evaluation Index HHEI Score (su	um of metrics 1+2+3)	16
ENSTH OF STREAM REACH (ft) 55.24 ATE 01/124 SCORER CMS COMMENTS Ephemeral TEX. COMPLET AND STREAM REACH (ft) 55.24 ATE 01/124 SCORER CMS COMMENTS Ephemeral TEX. COMPLET AND STREAM REACH (ft) 55.24 ATE 01/124 SCORER CMS COMMENTS Ephemeral TEX. COMPLET AND STREAM REACH (ft) 55.24 TEX. COMPLET AND STREAM REACH (ft) 55.24 TEX. COMPLET AND STREAM REACH (ft) 55.24 ATE 01/124 SCORER CMS COMMENTS Ephemeral TEX. COMPLET AND STREAM REACH (ft) 55.24 SUBSTRATE (Estimate percent of every type present). Check CNLY two predominant substrate TYPE boxes. AS B HERE TYPE BLDR SLABS (16 pts) BLDR SLABS (16 pts) PERCENT TYPE BOXES Metr TYPE SLABS (16 pts) PERCENT TYPE BLDR SLABS (16 pts) PERCENT TYPE BLDR SLABS (16 pts) PERCENT TYPE BOXES Metr TYPE SLABS (16 pts) PERCENT TYPE BOXES TYPE BOXES TYPE BOXES AND SLABS (16 pts) PERCENT TYPE BOXES TYPE BOXES	TE NAME/LOCATION	S-CMS-002 / Wabash Val	ley Resources, LLC			
TE: Complete All Items On This Form - Refer to "Headwater Habitat Evaluation Index Field Manual" for Instruction REAM CHANNEL MODIFICATIONS:None / NATURAL CHANNELRECOVEREDRECOVERINGRECENT OR NO RECO SUBSTRATE (Estimate person of every type present), Check ONL Y two predominant substrate 7 V/FE boxes. (Max of 32). Add total number of significant substrate types found (Max of 6). Final metric score is sum of boxes A & 8. HHE SUBSTRATE (Estimate person of every type present), Check ONL Y two predominant substrate 7 V/FE boxes. (Max of 32). Add total number of significant substrate types found (Max of 6). Final metric score is sum of boxes A & 8. HHE SUBSTRATE (Estimate person of every type present). Check ONL Y two predominant substrate 7 V/FE boxes. (Max of 32). Add total number of significant substrate types. BLOR SLABS (16 pts). 9%. HHE Metr POINT BEDROCK (16 pts). 9%. CLEAF PACKWOODDY DEBRIS (3 pts). 10%. ASTEPLIAL (1 pts). 0%. MUCK (6 pts). 0%. MUCK (6 pts). 0%. MUCK (6 pts). 10	TE NUMBER S-CMS				DRAINAGE AREA (mir)	01
TE: Complete All Items On This Form - Refer to "Headwater Habital Evaluation Index Field Manual" for Instruction REAM CHANNEL MODIFICATIONS: None NATURAL CHANNEL RECOVERING RECOVER RECOV			AT_39.53383	LONG87.42725	RIVER MILE	n/a
SUBSTRATE (Estimate persent of every type present). Check ONL Ywo predominant substrate TYPE boxes, (Max oT32). Add total number of significant substrate types found (Max oT6). Final metric score is sum of lowes 4-6.8 PERCENT TYPE SUBSTRATE (Estimate persent of every type present). Check ONL Ywo predominant substrate TYPE boxes, (Max oT32). Add total number of significant substrate types found (Max oT6). Final metric score is sum of lowes 4-6.8 PERCENT TYPE SUBSTRATE (Final metric score is sum of lowes 4-6.8 PERCENT TYPE SUBSTRATE (Final metric score is sum of lowes 4-6.8 PERCENT TYPE SUBSTRATE (Final metric score is sum of lowes 4-6.8 PERCENT TYPE SUBSTRATE (Final metric score is sum of lowes 4-6.8 PERCENT TYPE SUBSTRATE (Final metric score is sum of lowes 4-6.8 PERCENT TYPE SUBSTRATE (Final metric score is sum of lowes 4-6.8 PERCENT TYPE SUBSTRATE (Final metric score is sum of lowes 4-6.8 PERCENT TYPE SUBSTRATE (Final metric score is sum of lowes 4-6.8 PERCENT TYPE SUBSTRATE (Final metric score is sum of lowes 4-6.8 PERCENT TYPE SUBSTRATE (Final metric score is sum of lowes 4-6.8 PERCENT TYPE SUBSTRATE (Final metric score is sum of lowes 4-6.8 PERCENT TYPE SUBSTRATE (Final metric score is sum of lowes 4-6.8 PERCENT TYPE SUBSTRATE (Final metric score is sum of lowes 4-6.8 PERCENT TYPE SUBSTRATE (Final metric score is sum of lowes 4-6.8 PERCENT TYPE SUBSTRATE (Final metric score is sum of lowes 4-6.8 PERCENT TYPE SUBSTRATE (Final metric score is sum of lowes 4-6.8 PERCENT TYPE SUBSTRATE (Final metric score is sum of lowes 4-6.8 PERCENT TYPE SUBSTRATE (Final metric score is sum of lowes 4-6.8 PERCENT TYPE SUBSTRATE (Final metric score is sum of lowes 100% Substrate (Final metric score is sum of lowes 100% Substrate (Final metric score is sum of lowes 100% Substrate (Final metric score is sum of lowes 100% Substrate (Final metric score is sum of lowes 100% Substrate (Final metric score is sum of lowes 100% Substrate (Final metric score is sum of lowes 100% Substrate (Final metric score is sum of lowes 100% Substr	ATE 6/11/24	SCORER CMS	COMMENTS	Ephemeral		
Hard of 22, Add total number of significant substrate types found (flax of 8), Final metric score is sum of boxes A 8. If TYPE BLDR SLABS (16pts) 0% 0% 0% 0% 0% 0% 0% 0				7,70,70,70,70,70,70,70,70,70	VIOLATION ASSOCIATION AND ASSOCIATION ASSO	21/2-27/19
Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation Avoid plungs pools from road culver(s or storm water opes) (Check ONL Yone tox) 3 00 centimeters [20 pts] S cm - 10 cm [15 pts] 3 00 centimeters [20 pts] S cm - 10 cm [15 pts] 3 10 - 22.5 cm [25 pts] S cm - 10 cm [15 pts] 4 0 moders (> 13') [30 pts] S cm - 10 cm [15 pts] 4 0 moders (> 13') [30 pts] S cm - 10 cm [15 pts] 4 0 moders (> 13') [30 pts] S cm - 10 cm [15 pts] 5 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts] S cm 10 cm - 1.5 m (> 3' 2' - 4' 8') [45 pts] 5 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts] S cm 10 cm - 1.5 m (> 3' 2' - 4' 8') [45 pts] 5 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts] S cm 10 cm - 1.5 m (> 3' 2' - 4' 8') [45 pts] 6 1.0 m (- 3' 3'') [5 pts] S cm 10 cm - 1.5 m (> 3' 2' - 4' 8') [45 pts] 7 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts] S cm 10 cm - 1.5 m (> 3' 2' - 4' 8') [45 pts] 8 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts] S cm - 10 cm - 1.5 m (> 3' 2' - 4' 8') [45 pts] 8 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts] S cm - 10 cm - 1.5 m (> 3' 2' - 4' 8') [45 pts] 8 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts] S cm - 10 cm - 1.5 m (> 3' 2' - 4' 8') [45 pts] 9 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts] S cm - 10 cm - 1.5 m (> 3' 2' - 4' 8') [45 pts] S cm - 10 cm - 1.5 m (> 3' 3'') [5 pts] S cm - 10 cm - 1.5 m (> 3' 3'') [5 pts] S cm - 10 cm - 1.5 m (> 3' 3'') [5 pts] S cm - 10 cm - 1.5 m (> 3' 3'') [5 pts] S cm - 10 cm - 1.5 m (> 3' 3'') [5 pts] S cm - 10 cm - 1.5 m (> 3' 3'') [5 pts] S cm - 10 cm - 1.5 m (> 3' 3'') [5 pts] S cm - 10 cm - 1.5 m (> 3' 3'') [5 pts] S cm - 10 cm -	(Max of 32), Ac	d total number of significal PERI	nt substrate type ENT TYP %	s found (Max of 8), Final metri SILT [3 pt] LEAF PACK/WOODY D FINE DETRITUS [3 pts CLAY OF HARDPAN [0 pts] ARTIFICIAL [3 pts] Substrate Percentage	EBRIS [3 pts] 70% 1 0% 0% 0% 0% 0% 0% 0% 0%	
BANK FULL WIDTH (Measuredas the average of 3 - 4 measurements) (Check ONLY one box): > 4.0 meters (> 12') [30 pts]	Maximum Portime of evaluat > 30 centimeter > 22.5 - 30 cm > 10 - 22.5 cm	PREDOMINATE SUBSTI of Depth (Measure the ma on Avoid plunge pools tro s [20 pts] [30 pts] [25 pts]	RATE TYPES: Eximum pool de pmroad culverts	orthwithin the 61 meter (200 or storm water pipes) (Che 5 cm - 10 cm [15 pts] < 5 cm [5pts] NO WATER OR MOIST	SUBSTRATE TYPES: 2 feet) evaluation reach at the ck ONLY one box) CHANNEL [Opts]	Pool Dep Max = 3
Steam Flowing Steam Flowing Subsurface flow with isolated pools (interstitial) Stream Flowing Subsurface flow with isolated pools (interstitial) Comments	BANK FULL W	VIDTH (Measuredas the 13') [30 pts]		neasurements) (Check O	NLYonebox); -4' 8"[15 pts]	Bankfu Width
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 (Most Predominant, per Bank) L R (Per Bank) L R L R V Wide > 10m V Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Field Urban or Industrial Open Pasture, Row Crop None Residential, Park, New Field Open Pasture, Row Crop Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check CNLY one box). Stream Flowing Moist Channel, isolated pools, no flow (intermittent) COMMENTS SINUOSITY (Number of bends per 61 m (200 fi) of channel) (Check ONLY one box) None 1,0 2,0 3,0 0.5 STREAM GRADIENT ESTIMATE				<u> </u>	L.	
This information mustalso be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE River Left (L) and Right (R) as looking downstreams RIPARIAN WIDTH FLOODPLAIN QUALITY (Most Predominant per Bank) L R (Per Bank) L R V Wide > 10m	- Andrewski - I			A Married and an College	0.30	5
RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOODPLAIN QUALITY (Most Predominant, per Bank) L R (Per Bank) L R V Wide > 10m V Mature Forest, Welland Conservation Tillage Immature Forest, Shrub or Old Field Urban or Industrial Narrow <5m Residential, Park, New Field Open Pasture, Row Crop None Fenced Pasture COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box). Stream Flowing Moist Channe), isolated pools, no flow (intermittent) Subsurface flow with isolated pools (interstitial) V Dry channel, no water (ephemeral) COMMENTS SINUOSITY (Number of bends per 61 in (200 ft) of channel) (Check ONLY one box). None 1.0 2.0 3.0 0.5 3.5 2.5 3.5 STREAM GRADIENT ESTIMATE	COMMENTS	BF = 1.5 W X 1.0 d	This informs		FULL WIDTH (meters)	
L R Wide >10m Mature Forest, Welland Moderate 5-10m Marrow <5m Narrow <5m None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box). Stream Flowing Subsurface flow with isolated pools (interstitial) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box). None 1.0 2.0 3.0 3.0 3.5 STREAM GRADIENT ESTIMATE	RIPARI	AN ZONE AND FLOODPL				
Wide > 10m	RIPAR	NAN WIDTH	FLOODE	PLAIN QUALITY (Most Predor	ninant per Bank)	
Moderate 5-10m			A Company of the Comp		<u> </u>	
Narrow •5m		The state of the s		A TANK TO A PARTY.		
None		and the second s				Crop .
FLOW REGIME (At Time of Evaluation) (Check ONLY one box). Stream Flowing	None					
Stream Flowing Moist Channel, isolated pools, no flow (intermittent) Subsurface flow with isolated pools (interstitiol) Pry channel, no water (ephemeral) SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONL y one box) None 1.0 2.0 3.0 0.5 V 1.5 2.5 2.5 STREAM GRADIENT ESTIMATE	COMME	NTS				
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONL Y one box) None	Stream F	lowing ace flow with isolated pook		Moist Channel,	the control of the co	tent)
그가 가장 생각이 살아왔다면서 살아 하고 그렇게 되었다.	SINUOS Mone		1,0	2.0	3.0	
	ETDEAM COA	DIENT ESTIMATE				

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed): QHEI PERFORMED? Yes V No QHEI Score ______ (If Yes, Attach Completed QHEI form) DOWNSTREAM DESIGNATED USE(S) WWH Name: Wabash River Distance from Evaluated Stream 1,913' 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: S32 T13N R9W NRCS Soil Map Page: Ma NRCS Soil Map Stream Order: n/a _____ _{Township/City:} Fayette, II County: Vigo MISCELLANEOUS Y Date of last precipitation: June 10, 2024 Quantity: 1.2 in Base Flow Conditions? (Y/N): Photo-documentation Notes: Elevated Turbidity?(Y/N): N ___ Canopy (% open):_____ Were samples collected for waterchemistry? (Y/N): N ___ Lab Sample # or ID (attach results): N/a Field Measures:Temp (°C) n/a Dissolved Oxygen (mg/l) n/a pH (S.U.) n/a Conductivity (umhos/cm) n/a Is the sampling reach representative of the stream (Y/N) If not, explain: Additional comments/description of pollution impacts: Overall Stability of BOTH Stream Banks (check one): Stable **Moderately Stable** Unstable BIOLOGICAL OBSERVATIONS (Record all observations below) Fish Observed? (Y/N) N Species observed (if known): Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): Salamanders Observed? (Y/N) _ Species observed (if known): Aquatic Macroinvertebrates Observed? (Y/N) Y Species observed (if known): crawfish Comments Regarding Biology: crawfish holes 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

FOR & 5129

lay 2020 Revision Page 2

WOOD DEBRIS

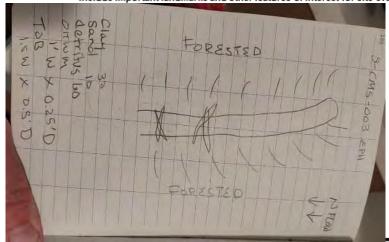
Stream S-CMS-003 Class I PHW

hio	Headwater H	abitat Evalu	lation Index F HHEI Score (sum	ield Form of metrics 1+2+3)	11
SITE NAME/LOCATIO	S-CMS-003 / Wabash Valley F	Resources, LLC			
SITE NUMBER S-CM LENGTH OF STREAM DATE 6/11/24	S-003 RIVER BASIN Wabasi	39.533855	ER CODE n/a LONG -87.427397 pemeral	DIVAMAGE AREA (MILE)	.01 /a
	MODIFICATIONS: NON			dex Field Manual" for Ins	
TYPE BLDR SL BOULDER BEDROCK COBBLE GRAVEL SAND (< Total of P Bldr Slabs, Boo	(Estimate percent of every ty Add total number of significant s PERCEN ABS [16 pts] 0% (ubstrate types found IT TYPE SI U		PERCENT 0% 60% 0% 30% 0% 0% 0% 0% 0% 0% 0%	HHEI Metric Points Substra Max = 46
. Maximum P	ool Depth (Measure the <u>maxin</u> aton Avoid plunge pools from n ers [20 pts]	num pool depthwith	nin the 61 meter (200 fee	() evaluation reach at the ONLY one box)	Pool Dep Max = 3
COMMENTS	OHWM = 1.0 'w x 0.25 'd		MAXIMUM POOL DE	PTH (centimeters): 0.00	
> 4.0 meters (> 3.0 m -4.0 r > 1.5 m -3.0 r	WIDTH (Measured as the ave > 13') [30 pts] n (> 9' 7'-13') [25 pts] n (> 4' 8" -9' 7') [20 pts] BF = 1.5'w x 0.5'd		ements) (Check ONL 1.0 m - 1.5 m (> 3' 3" -4 -1.0 m (< 3' 3") [5 pts]	8"[15 pts]	Bankfu Width Max=30
			stalso be completed		
L R (ii	RIAN ZONE AND FLOODPLAIN ARIAN WIDTH Per Bank) L de >10m Oerate 5-10m Trow <5m Delicates	FLOODPLAIN (Wetland L St. Shrub or Old Field K. New Field		гор
Stream Subsu CDMI SINIC	REGIME (At Time of Evaluation of Flowing reached pools (in IENTS SITY (Number of bends per 61 1,0	terstitiel) (n (200 ft) of channe	Moist Channel, iso Dry channel, no w. (Check ONL " one no. 2.0	3.0	ent)
0.5 STREAM GR	ADIENT ESTIMATE		2.5	□ +3	
Flat (as elso s)	Elat to Moderate	Moderate @ 9100 6	Moderate to Sev	ere V Severe (10 4	(00, 5)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed): QHEI PERFORMED? Yes V No QHEI Score ______ (If Yes, Attach Completed QHEI form) DOWNSTREAM DESIGNATED USE(S) WWH Name: Wabash River Distance from Evaluated Stream 2,046 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: S32 T13N R9W NRCS Soil Map Page: Ma NRCS Soil Map Stream Order: Township/City: Fayette, II County: Vigo MISCELLANEOUS Date of last precipitation: June 10, 2024 Quantity: 1.2 in Base Flow Conditions? (Y/N): Photo-documentation Notes: Elevated Turbidity?(Y/N): N Canopy (% open):_____ Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): n/a Field Measures:Temp (°C) n/a Dissolved Oxygen (mg/l) n/a pH (S.U.) n/a Conductivity (umhos/cm) n/a Is the sampling reach representative of the stream (Y/N) If not, explain: Additional comments/description of pollution impacts: Overall Stability of BOTH Stream Banks (check one): Stable **Moderately Stable** Unstable BIOLOGICAL OBSERVATIONS (Record all observations below) Fish Observed? (Y/N) N Species observed (if known):_____ Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): Salamanders Observed? (Y/N) _ Species observed (if known): Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): Comments Regarding Biology: none observed

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 S-CMS-005 Class I PHW

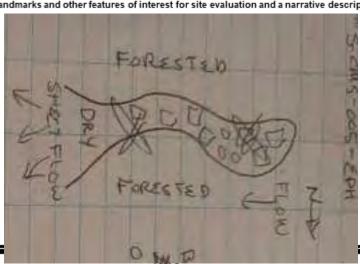
hio	neadwater nabita	t Evaluation Index Fi HHEI Score (sum o	CONTRACTOR AND A SECOND CONTRACTOR AND ADDRESS OF THE PERSON OF THE PERS	21
SITE NAME/LOCATION SITE NUMBER S-CMS LENGTH OF STREAM DATE 6/12/24	S-005 RIVER BASIN Wabash River	RIVER CODE n/a 195 LONG -87.424072	DRAINAGE AREA (mir) 0.0 RIVER MILE n/a	
OTE: Complete All	Items On This Form - Refer to "He MODIFICATIONS: NONE / NATUR	adwater Habital Evaluation Inde		
TYPE BLDR SLA BOULDER BEDROCK COBBLE (GRAVEL (SAND (<2) Total of Pe Bidr Slabs, Boul	BS [16 pts] 0% (>256 mm) [16 pts] 0%	ypes found (Max of 8). Final metric sco. TYPE SILT [3 pt] LEAF PACKWOODY DEBRIS FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pt] MUCK [0 pts] APTIFICIAL [3 pts] Substrate Percentage Check 100%	re is sum of boxes A & B PERCENT 0% 20% 0% 0% 0% 50%	HHEI Metric Points Substra Max = 4
> 30 centimete > 22.5 - 30 cm > 10 - 22.5 cm	[30 pts]		ANNEL [Opts]	Pool Deg Max = 3
> 4.0 meters (2 > 3.0 m -4.0 m > 1.5 m - 3.0 m	MIDTH (Measuredas the average of 3- -13') [30 pts] (> 9' 7'-13') [25 pts] (> 4' 8" - 9' 7') [20 pts] BF = 3.0'w x 1.25'd		nnebox): [7][15 pts]	Bankfi Width Max=3
RIPA L R (P Wid Mod Nam Non COMMI FLOW Stream Subsur COMMI	IAN ZONE AND FLOODPLAIN QUALITY RIAN WIDTH FLOOP er Bank) L R e > 10m V Mature ferate 5-10m Imm row <5m Res e Feni ENTS REGIME (At Time of Evaluation) (Chert Flowing face flow with isolated pools (interstitial) ENTS SITY (Number of bends per 61 in (200 fi	ODPLAIN QUALITY (Most Predominant L Rure Forest, Wetland ature Forest, Shrub or Old Field dential, Park, New Field ced Pasture CK ONLY one box). Moist Channel, isolate Dry channel, no wate prechannel) (Check ONLY one box)	Conservation Tillage Urban or Industrial Open Pasture, Row Cri Mining or Construction ed pools, no flow (intermitte	
∫ fione ✓ 0.5 STREAM GRA	ADIENT ESTIMATE Flat to Moderate Moderate	2.0 2.5 2.5 Moderate to Seven	3.0 3.3 3.5 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	

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: Wabash River Distance from Evaluated Stream 1,284 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: S28 T13N R9W NRCS Soil Map Page: Sh NRCS Soil Map Stream Order:_____ County: Vigo Township/City: Fayette, II MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: June 10, 2024 Quantity: 1.2 in Photo-documentation Notes: _ Elevated Turbidity?(Y/N): N ____ Canopy (% open):_____ Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): n/a Field Measures:Temp (°C) n/a Dissolved Oxygen (mg/l) n/a pH (S.U.) n/a Conductivity (umhos/cm) n/a Is the sampling reach representative of the stream (Y/N) If not, explain: Additional comments/description of pollution impacts: Moderately Stable Overall Stability of BOTH Stream Banks (check one): Stable Unstable BIOLOGICAL OBSERVATIONS (Record all observations below) Fish Observed? (Y/N) N Species observed (if known): Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): Salamanders Observed? (Y/N) Species observed (if known): Aquatic Macroinvertebrates Observed? (Y/N) Species observed (if known): Comments Regarding Biology: none observed

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



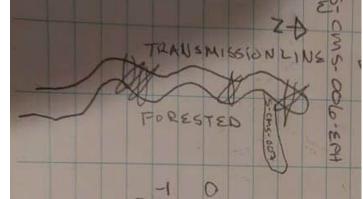


Stream S-CMS-006 Class I PHW

TE NAME/LOCATION S-CMS-006 / Wabash	Valley Resources, LLC			
TE NUMBER S-CMS-006 RIVER BASIN	Wabash River	RIVER CODE n/a	DRAINAGE AREA (mir)	0.57
NGTH OF STREAM REACH (ft) 901.34	LAT_39.53570	LONG87.42578	RIVER MILE	n/a
ATE 6/12/24 SCORER CMS	COMMENTS	Ephemeral		
TE: Complete All Items On This Form	- Refer to "Heady	water Habital Evaluation I	ndex Field Manual" for In	struction
REAM CHANNEL MODIFICATIONS: T	NONE (NATIONAL C	HANNEL RECOVERED	PECAVERING PRECENT OF	NO PECO
E. a. E.	THORE MATORIAL D	THAT THE PROPERTY OF	nacovaniionacovi oi	ine neco
SUBSTRATE (Estimate percent of e	very type present).	Check ONLY two predominant	substrate TYPE boxes	LILIE
(Max of 32), Add total number of signif FYPE PI	icant substrate types ERCENT TYPE		score is sum of boxes A & E PERCENT	HHE
BLDR SLABS [16 pts]	0%	SILT [3 pt]	0%	Poin
BOULDER (>258 mm) [16 pts]	0%		200 St. W. W.	Subst
BEDROCK [16 pts]	5% - -	CLAY or HARDPAN [0 pt	0%	Max =
GRAVEL (2-64 mm) [12 pts]	20%	MUCK [0 pts]	0%	
	40%	ARTIFICIAL [3 pts]	0%	13
Total of Percentages of 5	.00%	Substrate Percentage Check 100%		-
Bldr Slabs, Boulder, Cobble, Bedrock	(A)	9 TOTAL NUMBED OF	(8)	A + B
DRE OF TWO MOST PREDOMINATE SUBS	STRATE TYPES:	TOTAL NUMBER OF	SUBSTRATE TYPES: 4	10
Maximum Pool Depth (Measure the			COLDER OF SECURITY SE	Pool De
time of evaluation. Avoid plunge pools > 30 centimeters [20 pts]	from road culverts o	5 cm - 10 cm [15 pts]	(ONLY one box)	Max=
> 22.5 - 30 cm [30 pts]		< 5 cm [5pts]		0
> 10 - 22.5 cm [25 pts]		NO WATER OR MOIST	A. C.	1
COMMENTS OHWM = 2.0'w x 0	.25'd	MAXIMUM POOL I	DEPTH (centimeters): 0.00	
BANK FULL WIDTH (Measuredas ti	neaverage of 3 - 4 m	neasurements) (Check OA	LYonebox):	Banki
> 4.0 meters (>13') [30 pts]		= 1.0 m - 1.5 m (> 3'3" -	4' 8")[15 pts]	Widt
> 3.0 m -4.0 m (> 9' 7"-13") [25 pts] > 1.5 m -3.0 m (> 4'8" -9' 7") [20 pts]		≤10 m (<3'3")[5 pts]		Max=
_ stant stant production				15
COMMENTS TOB = 4.5'w x 2.5'd	d	AVERAGE BANKF	ULL WIDTH (meters) 1.37	
	This informat	ion mustalso be completed		-1
RIPARIAN ZONE AND FLOOD	PLAIN QUALITY	NOTE River Left (L) and Rig	ht (R) as looking downstream	n=
RIPARIAN WIDTH	FLOODP	LAIN QUALITY (Most Predom	inant per Bank)	
L R (Per Bank)	LR		LR	
✓ Wide >10m		Forest, Wetland	Conservation Tillage	
Moderate 5-10m	==	e Forest Shrub or Old Field	Urban or Industrial	e la constant
✓ Narrow =5m	Fenced	tial, Park, New Field	Open Pasture, Row Mining or Constructi	4.1
	ransau	, using	mining of construct	20
FLOW REGIME (At Time of Ex-	alignian) [Chant A	MI Vane bart		_
Stream Flowing	insultania (Chipoli C		olated pools, no flow (intermi	itent)
Subsurface flow with isolated po	ols (interstitial)	and the second s	water (ephemeral)	
			20,000	
COMMENTS			4.70	
SINUOSITY (Number of bends	per 61 m (200 ft) of t		(OX)	
	per 61 m (200 fi) of 1 1,0 1,5	channel) (Check ONL Y one to 2.0 2.5	3,0	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed): QHEI PERFORMED? Yes V No QHEI Score ______ (If Yes, Attach Completed QHEI form) DOWNSTREAM DESIGNATED USE(S) WWH Name: Wabash River Distance from Evaluated Stream 1,741 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: S28 T13N R9W NRCS Soil Map Page: HkF NRCS Soil Map Stream Order: n/a Township/City: Fayette, II County: Vigo MISCELLANEOUS Y Date of last precipitation: June 10, 2024 Quantity: 1.2 IN Base Flow Conditions? (Y/N): Photo-documentation Notes: Elevated Turbidity?(Y/N): N ___ Canopy (% open):_____ Were samples collected for waterchemistry?(Y/N): N Lab Sample # or ID (attach results): n/a Field Measures:Temp (°C) n/a Dissolved Oxygen (mg/l) n/a pH (S.U.) n/a Conductivity (umhos/cm) n/a Is the sampling reach representative of the stream (Y/N) If not, explain: Additional comments/description of pollution impacts: Moderately Stable Overall Stability of BOTH Stream Banks (check one): Stable Unstable BIOLOGICAL OBSERVATIONS (Record all observations below) Fish Observed? (Y/N) N Species observed (if known): Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): Salamanders Observed? (Y/N) _ Species observed (if known): Aquatic Macroinvertebrates Observed? (Y/N) Species observed (if known): Comments Regarding Biology: none observed 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 S-CMS-007 Class I PHW

Ohio Security Security Aprily		HHEI Score (su	ım of metrics 1+2+3)	22
ITE NAME/LOCATION ITE NUMBER S-CMS ENGTH OF STREAM IATE 6/12/24	-007 RIVER BASIN Wabash River	er RIVER CODE n/a	_ PROBLEMOF SHEET HILLS	05 //a
REAM CHANNEL 1		"Headwater Habital Evaluation ATURAL CHANNEL RECOVERED		
(Max of 32), Ad TYPE BLDR SLAI BOULDER BEDROCK COBBLE (6 GRAVEL (2 SAND (<2 r Total of Per Bidr Slabs, Bould	### dd total number of significant subst PERCENT ### 0% (>256 mm) [16 pts] 0%	present). Check ONLY two predominar rate types found (Max of 8). Final metric TYPE SILT [3 pt] LEAF PACK/WOODY DI FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pts] ARTIFICIAL [3 pts] Substrate Percentage (A) 6 TOTAL NUMBER OF	EBRIS [3 pts]	HHEI Metri Points Substra Max = 4
ime of evaluat > 30 centimeter > 22.5 - 30 cm [> 10 - 22.5 cm [ion Ávoid plungé pools from road (s [20 pts] [30 pts]	5 cm - 10 cm [15 pts] < 5 cm [5pts] NO WATER OR MOIST	ck ONLY one box)	Pool Ber Max = 3
> 4.0 meters (> > 3.0 m -4.0 m > 1.5 m -3.0 m		e of 3 - 4 measurements) (Check O.	NLYonebox): -4' 8" [15 pts]	Bankfi Width Max=3
RIPAF L R (Pe V Wide Mode Nam None COMME FLOW F	AN ZONE AND FLOODPLAIN QUARAN WIDTH STEAMK) L R STAND STAND	Moist Channe)	ight (R) as looking downstream	rop n

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: Wabash River Distance from Evaluated Stream 2,077' 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: S28 T13N R9W NRCS Soil Map Page: AlB2 NRCS Soil Map Stream Order: n/a County: Vigo Township/City: Fayette, II MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: June 10, 2024 Quantity: 1.2 in Photo-documentation Notes: _ Elevated Turbidity?(Y/N): N ____ Canopy (% open):_____ Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): n/a Field Measures:Temp (°C) n/a Dissolved Oxygen (mg/l) n/a pH (S.U.) n/a Conductivity (umhos/cm) n/a Is the sampling reach representative of the stream (Y/N) If not, explain: Additional comments/description of pollution impacts: Moderately Stable Overall Stability of BOTH Stream Banks (check one): Stable Unstable BIOLOGICAL OBSERVATIONS (Record all observations below) Fish Observed? (Y/N) N Species observed (if known): Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): Salamanders Observed? (Y/N) _ Species observed (if known): Aquatic Macroinvertebrates Observed? (Y/N) Species observed (if known): Comments Regarding Biology: none observed

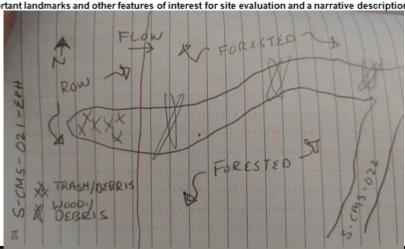
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)

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

ENGTH OF STREAM REACH (ft) 509.85 LAT 39.540154 ATE 6/12/24 SCORER CMS COMMENTS E OTE: Complete All Items On This Form - Refer to "Headwald REAM CHANNEL MODIFICATIONS: NONE NATURAL CHAN SUBSTRATE (Estimate percent of every type present). Che (Max of 32), Add total number of significant substrate types fou TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] COBBLE (65-256 mm) [12 pts] COBBLE (65-256 mm) [12 pts] SAND (<2 mm) [6 pts] Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock (A) 6	RIVER CODE n/a DRAINAGE AREA (m. LONG -87.425496 RIVER MILL Ephemeral er Habital Evaluation Index Field Manual* for the properties of the	or Instructions
ENGTH OF STREAM REACH (ft) 509.85 LAT 39.540154 LAT 6/12/24 SCORER CMS COMMENTS E OTE: Complete All Items On This Form - Refer to "Headwale REAM CHANNEL MODIFICATIONS: NONE NATURAL CHAN SUBSTRATE (Estimate percent of every type present). Che (Max of 32), Add total number of significant substrate types four TYPE BLDR SLABS [16 pts] 0% BEDROCK [16 pts] 0% COBBLE (69-256 mm) [16 pts] 0% GRAVEL (2-64 mm) [9 pts] 20% Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock (A) 6	Ephemeral er Habital Evaluation Index Field Manual* for the process of the proce	or Instructions of OR NO RECOVE HHEI Metric Points Substra Max = 4
ENGTH OF STREAM REACH (ft) 509.85 LAT 39.540154 ATE 6/12/24 SCORER CMS COMMENTS E OTE: Complete All Items On This Form - Refer to "Headwald REAM CHANNEL MODIFICATIONS: NONE/ NATURAL CHAN SUBSTRATE (Estimate percent of every type present). Che (Max of 32), Add total number of significant substrate types fou TYPE BLDR SLABS [16 pts] 0% BOULDER (>256 mm) [16 pts] 0% BEDROCK [16 pts] 0% COBBLE (65-256 mm) [12 pts] 0% GRAVEL (2-64 mm) [9 pts] 20% SAND (<2 mm) [6 pts] 20% Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock (A) 6	Ephemeral er Habital Evaluation Index Field Manual* for the process of the proce	or Instructions It OR NO RECOVE HHEI Metric Points Substra Max = 4
REAM CHANNEL MODIFICATIONS: NONE NATURAL CHANNEL MODIFICATIONS: NONE NATURAL CHANNEL MODIFICATIONS: NONE NATURAL CHANNEL MATTER (Estimate percent of every type present). Che (Max of 32). Add total number of significant substrate types for TYPE BLDR SLABS [16 pts] 0% PERCENT TYPE BLDR SLABS [16 pts] 0% PERCENT TYPE BEDROCK [16 pts] 0% PERCENT TYPE	er Habital Evaluation Index Field Manual" for the Image of the Image o	or Instructions IT OR NO RECOVE HHEI Metric Points Substra Max = 4
TE: Complete All Items On This Form - Refer to "Headwald REAM CHANNEL MODIFICATIONS: NONE NATURAL CHAN	PERCENT ON DEBRIS [3 pts] CLAY OF HARDPAN [0 pt] MUCK [0 pts] ARTIFICIAL [3 pts] Check DNLY two predominant substrate T/FE boxes, and (Max of 8). Final metric score is sum of boxes A 8 PERCENT SILT [3 pt] O% LEAF PACK/WOODLY DEBRIS [3 pts] O% CLAY OF HARDPAN [0 pt] ARTIFICIAL [3 pts] Check 100% (8) TOTAL NUMBER OF SUBSTRATE TYPES: 3	HHEI Metric Points Substra Max = 4
REAM CHANNEL MODIFICATIONS: NONE NATURAL CHAN SUBSTRATE (Estimate percent of every type present). Che (Max of 32). Add total number of significant substrate types fou TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pts] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A)	PERCENT ON DEBRIS [3 pts] CLAY OF HARDPAN [0 pt] MUCK [0 pts] ARTIFICIAL [3 pts] Check DNLY two predominant substrate T/FE boxes, and (Max of 8). Final metric score is sum of boxes A 8 PERCENT SILT [3 pt] O% LEAF PACK/WOODLY DEBRIS [3 pts] O% CLAY OF HARDPAN [0 pt] ARTIFICIAL [3 pts] Check 100% (8) TOTAL NUMBER OF SUBSTRATE TYPES: 3	HHEI Metric Points Substra Max = 4
SUBSTRATE (Estimate percent of every type present). Che (Max of 32). Add total number of significant substrate types fou TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock (A)	Silt [3 pt] LEAF PACKWOODY DEBRIS [3 pts] FINE DETRITUS [3 pts] CLAY OF HARDPAN [0 pt] MUCK [0 pts] ARTIFICIAL [3 pts] Check TOTAL NUMBER OF SUBSTRATE TYPES:	Metric Points Substra Max = 4
(Max of 32), Add total number of significant substrate types for TYPE BLDR SLABS [16 pts]	SILT [3 pt] CAS PACKWOODY DEBRIS [3 pts] FINE DETRITUS [3 pts] CLAY OF HARDPAN [0 pt] MUCK [0 pts] ARTIFICIAL [3 pts] Check Check CHAY OF SUBSTRATE TYPES: 3	Metric Points Substra Max = 4
(Max of 32), Add total number of significant substrate types for TYPE BLDR SLABS [16 pts]	SILT [3 pt] CAS PACKWOODY DEBRIS [3 pts] FINE DETRITUS [3 pts] CLAY OF HARDPAN [0 pt] MUCK [0 pts] ARTIFICIAL [3 pts] Check Check CHAY OF SUBSTRATE TYPES: 3	Metric Points Substra Max = 4
TYPE BLDR SLABS [16 pts] 0% BOULDER (>256 mm) [16 pts] 0% BEDROCK [16 pts] 0% COBBLE (65-256 mm) [12 pts] 0% GRAVEL (2-64 mm) [9 pts] 20% SAND (<2 mm) [6 pts] 20% Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock (A) 6	SILT [3 pt] 0% LEAF PACK/WOODY DEBRIS [3 pts] 60% FINE DETRITUS [3 pts] 0% CLAY OF HARDPAN [0 pt] 0% MUCK [0 pts] 0% ARTIFICIAL [3 pts] 0% Check 100% TOTAL NUMBER OF SUBSTRATE TYPES: 3	Metric Points Substra Max = 4
BOULDER (>256 mm) [16 pts]	FINE DETRITUS [3 pts] 60% FINE DETRITUS [3 pts] 0% CLAY OF HARDPAN [0 pt] 0% MUCK [0 pts] 0% ARTIFICIAL [3 pts] 0% Substrate Percentage Check 100% TOTAL NUMBER OF SUBSTRATE TYPES: 3	Substra Max = 4
BEDROCK [16 pts]	FINE DETRITUS [3 pts] CLAY OF HARDPAN [0 pt] MUCK [0 pts] ARTIFICIAL [3 pts] Substrate Percentage Check 100% TOTAL NUMBER OF SUBSTRATE TYPES: 3	9
COBBLE (65-256 mm) [12 pts]	CLAY OF HARDPAN [0 pt] 0% MUCK [0 pts] 0% ARTIFICIAL IJ pts1 0% Substrate Percentage Check 100% TOTAL NUMBER OF SUBSTRATE TYPES: 3	9
GRAVEL (2-64 mm) [9 pts] 20% SAND (<2 mm) [6 pts] 20% Total of Percentages of Bidr Slabs, Boulder, Cobbia, Bedrock (A) 6	MUCK [0 pts] 0% APTIFICIAL [3 pts] 0% Substrate Percentage Check 100% TOTAL NUMBER OF SUBSTRATE TYPES: 3	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A)	Substrate Percentage Check 100% (B) TOTAL NUMBER OF SUBSTRATE TYPES: 3	
Bidr Slabs, Boulder, Cobble, Bedrock (A)	TOTAL NUMBER OF SUBSTRATE TYPES: 3	A + B
Bidr Slabs, Boulder, Cobble, Bedrock (A)	TOTAL NUMBER OF SUBSTRATE TYPES: 3	A + B
	- Sell-Condition and parties and confidence	
CORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:	Control to the first and the COM Secret will be the second with	100
Maximum Pool Depth (Measure the <u>maximum</u> pool depthw	within the 61 meter (200 feet) evaluation reach at in	e Pool Des
time of evaluation. Avoid plunge pools from road culverts or sto		Max = 3
> 30 centimeters [20 pts]	5 cm - 10 cm [15 pts]	
> 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	< 5 cm [5pts] NO WATER OR MOIST CHANNEL [0pts]	0
COMMENTS OHWM = 2.0'w x 0.25'd	The state of the s	.00
BANK FULL WIDTH (Measuredas theaverage of 3 - 4 meas		Bankfu
> 4.0 meters (> 13') [30 pts] > 3.0 m -4.0 m (> 9' 7' -13') [25 pts]	= 1.0 m - 1.5 m (> 3'3" - 4'8")[15 pts] = 1.0 m (< 3'3")[5 pts]	Max=30
> 1.5 m - 3.0 m (> 4'8" - 9' 7")[20 pts]	210 W (2 2 3 (6 Mg)	
- C.		15
COMMENTS TOB = 4.5'w x 2.5'd	AVERAGE BANKFULL WIDTH (meters)	.37
	must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY NO	OTE RiverLeft (L) and Right (R) as looking downst	ream.
RIPARIAN WIDTH FLOODPLAIN	N QUALITY (Most Predominant, per Bank)	
LR (PerBank) LR	LA	
Wide >10m ✓ Mature Fore	est, Wetland Conservation Till	lage
	orest. Shrub or Old Field	
	Park, New Field Open Pasture, R	1270
None Fenced Pas	ture Mining or Constr	ruction
COMMENTS		
FLOW REGIME (At Time of Evaluation) (Check ONL)		
Stream Flowing	Moist Channel, isolated pools, no flow (int	ermillent)
Subsurface flow with isolated pools (interstitial) COMMENTS	Dry channel, no water (ephemeral)	
	and). (Chack DNI of our Feet)	
SINUOSITY (Number of bends per 61 m (200 ft) of char	2.0 S 3.0	
0.5	25 3	
STREAM GRADIENT ESTIMATE		
Flat (25 WIGO 5) Flat to Moderate Moderate (2 WIGO 5)	Moderate to Severe Seven	E (40 4:100 5)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed): QHEI PERFORMED? Yes V No QHEI Score ______ (If Yes, Attach Completed QHEI form) DOWNSTREAM DESIGNATED USE(S) WWH Name: Wabash River Distance from Evaluated Stream 2,212' 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. NRCS Soil Map Page: HkF NRCS Soil Map Stream Order: n/a USGS Quadrangle Name: S28 T13N R9W County: Vigo Township/City: Fayette, II MISCELLANEOUS Y Date of last precipitation: June 10, 2024 Quantity: 1.2 in Base Flow Conditions? (Y/N): Photo-documentation Notes: Elevated Turbidity?(Y/N): N ___ Canopy (% open):_____ Were samples collected for waterchemistry?(Y/N): N ___ Lab Sample # or ID (attach results): n/a Field Measures:Temp (°C) n/a Dissolved Oxygen (mg/l) n/a pH (S.U.) n/a Conductivity (umhos/cm) n/a Is the sampling reach representative of the stream (Y/N) If not, explain: Additional comments/description of pollution impacts: Moderately Stable Overall Stability of BOTH Stream Banks (check one): Stable Unstable BIOLOGICAL OBSERVATIONS (Record all observations below) Fish Observed? (Y/N) N Species observed (if known): Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): Salamanders Observed? (Y/N) _ Species observed (if known): Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): Comments Regarding Biology: none observed 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 S-CMS-022 Class I PHW

ITE NAME/LOCATION	S-CMS-022 / Wabash Valley	Resources, LLC			
TE NUMBER S-CMS-02	22 RIVER BASIN Wabash Riv	er RIVER I	CODE n/a DR	ANAGE AREA (mir))5
ENGTH OF STREAM REA	ACH (ft) 492.90 LAT 39.	539775	ONG -87.424901	RIVER MILE N	'a
	0140	MMENTS Epheme	ral		
TE: Complete All Item	ns On This Form - Refer t	o "Headwater Habi	tal Evaluation Index	Field Manual" for Ins	tructions
REAM CHANNEL MOI	DIFICATIONS: ZINDNE	NATIONAL CHANNEL	secoveses Perco	VERING RECENT OR !	io perov
	Manual Manual	Morae chambe	neophiaeb [neop)	Lincon en	ic necos
. SUBSTRATE (Est	imate percent of every type	present), Check ONL	Y two predominant subst	rate TYPE boxes	uur
(Max of 32), Add to	tal number of significant subs PERCENT	trate types found (Max TYPE	of 8), Final metric score	is sum of boxes A & B PERCENT	HHE
BLDR SLABS		SILT (3	[pt]	0%	Point
	56 mm) [16 pts]0%		PACK/WOODY DEBRIS !		Substr
BEDROCK [16	A CONTRACTOR OF THE PARTY OF TH		ETRITUS [3 pts]	0%	Max =
GRAVEL (2-64	C F 407 (1947 3173 1773)		FHARDPAN [0 pt]	0%	
SAND (<2 mm)		ARTIFIC	CIAL [3 pts]	0%	8
Total of Percen	dages of 0.00%	Substr Check	rate Percentage 100%		-
Bldr Slabs, Boulder,	Cobble, Bedrock	(A) 6 TOT	THAT AND THE STATE OF	(8) 2	A + B
ORE OF TWO MOST PR	REDOMINATE SUBSTRATE T	YPES: TOT	AL NUMBER OF SUBST	RATE TYPES:	
	epth (Measure the <u>maximum</u>			A SECTION AND ADDRESS OF THE PROPERTY OF THE P	Pool De
> 30 centimeters [2	Avoid plunge pools from road ons	and the second second second	r pipes) (Check ONL - 10 cm [15 pts]	Yone Dox()	Max=
> 22.5 - 30 cm [30 t			[5pts]		0
> 10 - 22.5 cm [25 p	ots]	v No w	ATER OR MOIST CHAN	1 May 14 1 May 1	0
COMMENTS OH	$IWM = 2.0'w \times 0.2'd$	1	MAXIMUM POOL DEPTH	(centimeters): 0.00	
BANK FULL WIDT	H (Measuredas the averag	e of 3 - 4 measureme	nts) (Check ONLY on	ebox);	Bankf
> 4.0 meters (> 13')			m - 1.5 m (> 3' 3" -4' 8")	[15 pts]	Width
> 3.0 m -4.0 m (> 9		v ≤10	m (≥3°3°)[5 pts]		Max=2
>15m-30m/>4	o -a / Menhal				5
> 1.5 m - 3.0 m (> 4			VERAGE BANKFULL V	VIDTH (meters) 0.91	-
> 1.5 m - 3.0 m (> 4	B = 3'w x 1.5'd		on has warmingstood		
C. J. C.		information must als	so be completed		
COMMENTS TO		information mustals		as looking downstream	
COMMENTS TO	This ZONE AND FLOODPLAIN QU	IALITY . NOTE PIN			
COMMENTS TO	This Zone and Floodplain Qu WDTH	IALITY . NOTE PIN	erLeft (L) and Right (R)		
COMMENTS TO RIPARIAN : RIPARIAN : RIPARIAN : RIPARIAN : RIPARIAN : V Wide > 10	ZONE AND FLOODPLAIN QUE WIDTH ank) L R	FLOODPLAIN QUAL Mature Forest, Wetle	verLeft (L) and Right (R) ITV (Most Predominant p L R and		
RIPARIAN A RIPARIAN L R (Per Bi	ZONE AND FLOODPLAIN QUE VOIDTH ank) Cm 2 5-10m	FLOODPLAIN QUAL Mature Forest, Wetle Immature Forest Sh	rerLeft (L) and Right (R) ITY (Most Predominant p L R and irub or Old Field	cer Bank) Conservation Tillage Urban or Industrial	
RIPARIAN : RIPARIAN : RIPARIAN : RIPARIAN : RIPARIAN : V Wide > 10 Moderate : Narrow :	ZONE AND FLOODPLAIN QUE VOIDTH ank) Cm 2 5-10m	FLOODPLAIN QUAL Mature Forest, Well Immature Forest, Sh Residential, Park, No	rerLeft (L) and Right (R) ITY (Most Predominant p L R and irub or Old Field	cer Bank) Conservation Tillage Urban or Industrial Open Pasture, Row Cr	гор
RIPARIAN : RIPARIAN : RIPARIAN : RIPARIAN : RIPARIAN : Noderate : None	ZONE AND FLOODPLAIN QUARTER STATE OF THE STATE OF T	FLOODPLAIN QUAL Mature Forest, Wetle Immature Forest Sh	rerLeft (L) and Right (R) ITY (Most Predominant p L R and irub or Old Field	cer Bank) Conservation Tillage Urban or Industrial	гор
RIPARIAN : RIPARI	ZONE AND FLOODPLAIN QUE WIDTH ank) L R Om = 5-10m -5m	ALITY NOTE RIV FLOODPLAIN QUAL Mature Forest, Wetle Immature Forest, Sh Residential, Park, No Fenced Pasture	er Left (L) and Right (R) ITY (Most Predominant p L R and arub or Old Field	cer Bank) Conservation Tillage Urban or Industrial Open Pasture, Row Cr	гор
RIPARIAN : RIPARI	ZONE AND FLOODPLAIN QUE WIDTH ank) L R Om 25-10m 55m 1 ME (At Time of Evaluation)	ALITY NOTE RIV FLOODPLAIN QUAL Mature Forest, Wetle Immature Forest, Sh Residential, Park, No Fenced Pasture	ver Left (L) and Right (R) ITY (Most Predominant p L R and arub or Old Field www. Field K)	Conservation Tillage Urban or Industrial Open Pasture, Row Co Mining or Construction	rop
RIPARIAN : RIPARI	ZONE AND FLOODPLAIN QUE WIDTH ank) L R Om 25-10m 55m 1 ME (At Time of Evaluation)	ALITY NOTE RIN FLOODPLAIN QUAL Mature Forest, Wetle Immature Forest, Sh Residential, Park, No Fenced Pasture (Check ONLY one box	ver Left (L) and Right (R) ITY (Most Predominant p L R and arub or Old Field www. Field K)	Conservation Tillage Urban or Industrial Open Pasture, Row Co Mining or Construction	rop
RIPARIAN : RIPARI	ZONE AND FLOODPLAIN QUE VOIDTH ank) L R Om 25-10m 25m SIME (At Time of Evaluation) Ving flow with isolated pools (inters	ALITY NOTE RIN FLOODPLAIN QUAL Mature Forest, Wetle Immature Forest, Sh Residential, Park, No Fenced Pasture (Check ONLY one box	er Left (L) and Right (R) ITY (Most Predominant pand) L R and Irub or Old Field Ew Field Moist Channe), isolated	Conservation Tillage Urban or Industrial Open Pasture, Row Co Mining or Construction	rop
RIPARIAN : RIPARI	ZONE AND FLOODPLAIN QUE VOIDTH ank) L R Om 25-10m 25m SIME (At Time of Evaluation) Ving flow with isolated pools (inters	ALITY NOTE RIN FLOODPLAIN QUAL Mature Forest, Weth Immature Forest Sh Residential, Park, Ne Fenceu Pasture (Check ONLY one both titial)	er Left (L) and Right (R) ITY (Most Predominant pand) L R and Irub or Old Field Ew Field Moist Channe), isolated	Conservation Tillage Urban or Industrial Open Pasture, Row Co Mining or Construction	rop
RIPARIAN A	ZONE AND FLOODPLAIN QUARTER STATE OF THE STA	ALITY NOTE RIN FLOODPLAIN QUAL Mature Forest, Wetle Immature Forest Sh Residential, Park, Ne Fenced Pasture (Check ONLY one both titial)	ver Left (L) and Right (R) ITV (Most Predominant p L R and brub or Old Field	Conservation Tillage Urban or Industrial Open Pasture, Row Co Mining or Construction	rop

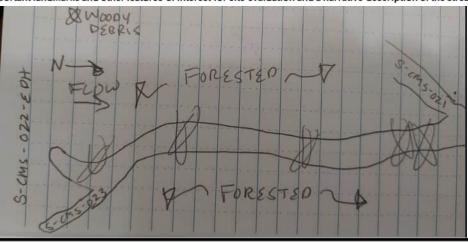
ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? Yes No QHEI Score (If Yes, A	Attach Completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	_
WWH Name: Wabash River	Distance from Evaluated Stream 2,212'
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: S28 T13N R9W NRCS Soil Map Page:	HkF NRCS Soil Map Stream Order: n/a
County: Vigo Township/City: Faye	ette, II
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: June 10, 2024	Quantity: 1.2 in
Photo-documentation Notes:	
Elevated Turbidity?(Y/N): N Canopy (% open):	
Were samples collected for water chemistry? (Y/N): N Lab Sample # or II) (attach results): n/a
Field Measures:Temp (°C) n/a Dissolved Oxygen (mg/l) n/a pH (S.U.) n/a Conductivity (umhos/cm) n/a
Is the sampling reach representative of the stream (Y/N) Y If not, explain:	
Additional comments/description of pollution impacts:	
Overall Stability of BOTH Stream Banks (check one): Stable Mod	derately Stable Unstable
BIOLOGICAL OBSERVATIONS	
(Record all observations below)	
Fish Observed? (Y/N) N Species observed (if known):	
Frogs or Tadpoles Observed? (Y/N) N Species observed (if known):	
Salamanders Observed? (Y/N) N Species observed (if known):	
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known):	
Comments Regarding Biology: none observed	

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 S-CMS-023 Class I PHW

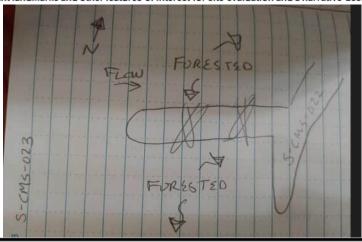
hio	Headwater Habita	at Evaluation Index Fig HHEI Score (sum o	49
SITE NAME/LOCATION	S-CMS-023 / Wabash Valley Res	-630-564-5	DRAINAGE AREA (mir) .01
ENGTH OF STREAM	REACH (ft) 31.05 LAT 39.5391 SCORER CMS COMME	30 LONG -87.424926	RIVER MILE
	Items On This Form - Refer to "H MODIFICATIONS: NONE / NATU	eadwater Habital Evaluation Indep	
TYPE BLDR SL BOULDER BEDROCK COBBLE GRAVEL SAND (< Total of P Bldr Slabs, Boo	(65-256 mm) [12 pts] 0% 0% (2-64 mm) [9 pts] 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%	types found (Max of 8), Final metric scortype SILT [3 pt] LEAF PACKWOODY DEBRIS FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pt] MUCK [0 pts] ARTIFICIAL [3 pts] Substrate Percentage Check 100%	PERCENT 0% 100% 0% 0% 0% 0% 0% 0% 7 (8) 1 A - 1
	[30 pts]		/LY one box) Max=
COMMENTS	OHWM = 1.0'w x 0.1'd	MAXIMUM POOL DEPT	H (centimeters): 0.00
> 4.0 meters (> 3.0 m - 4.0 r > 1.5 m - 3.0 r	WIDTH (Measuredas the average of 3 (> 13') [30 pts] n (> 9 7'-13') [25 pts] n (> 4 8''-9' 7'') [20 pts] TOB = 1.5'w x 0.5'd	3-4 measurements) (Check ONLY of a 1.0 m - 1.5 m (> 3 3° - 4′ 8	(15 pts) Wid Max=
200-20		rmation must also be completed	DANGE OF STREET
Ł R (I)	Per Bank) L R de >10m	DODPLAIN QUALITY (Most Predominant L R ture Forest, Wetland mature Forest, Shrub or Old Field sidential, Park, New Field code Pasture	per Bank)
FLOW Stream Subsu CDM6	V REGIME (At Time of Evaluation) (Che n Flowing rface flow with isolated pools (interstitiol) JENTS	Moist Channel, isolate Dry channel, no wate	ed pools, no flow (intermittent) er (ephemeral)
/ None	OSITY (Number of bends per 61 m (200 1,0 1,5	ff) of channel) (Check ONLY one box). 2.0 2.5	3.0
STREAM DO	ADIENT ESTIMATE		

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed): QHEI PERFORMED? Yes V No QHEI Score ______ (If Yes, Attach Completed QHEI form) DOWNSTREAM DESIGNATED USE(S) WWH Name: Wabash River Distance from Evaluated Stream 2,212' 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: S28 T13N R9W NRCS Soil Map Page: HkF NRCS Soil Map Stream Order: n/a Township/City: Fayette, II County: Vigo MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: June 10, 2024 Quantity: 1.2 in Photo-documentation Notes: _ Elevated Turbidity?(Y/N): N ____ Canopy (% open):_____ Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): n/a Field Measures:Temp (°C) n/a Dissolved Oxygen (mg/l) n/a pH (S.U.) n/a Conductivity (umhos/cm) n/a Is the sampling reach representative of the stream (Y/N) If not, explain: Additional comments/description of pollution impacts: Moderately Stable Overall Stability of BOTH Stream Banks (check one): Stable Unstable BIOLOGICAL OBSERVATIONS (Record all observations below) Fish Observed? (Y/N) N Species observed (if known): Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): Salamanders Observed? (Y/N) _ Species observed (if known):_____ Aquatic Macroinvertebrates Observed? (Y/N) Species observed (if known): Comments Regarding Biology: none observed

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 S-CMS-035 Class I PHW

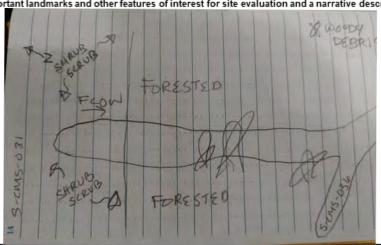
TE NAME/LOCATION	S-CMS-035 / Wabash Valley R	esources. LLC		7.7.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4	
TE NUMBER S-CMS ENGTH OF STREAM ATE 7/10/24	-035 RIVER BASIN Wabash	River RIVE 39.53925	R CODE n/a D LONG -87.43230 meral	HOURAGE SHEET THE !).05 n/a
TE: Complete All	Items On This Form - Refe MODIFICATIONS: NONE		abital Evaluation Index		
(Max of 32), And o	Estimate percent of every ty	bstrate types found (I		E is sum of boxes A & B PERCENT 0% 80% 0% 20% 0% 0% 0% 0% (8)	HHEI Metri Point Substra Max = 4
> 30 centimeter > 22.5 - 30 cm > 10 - 22.5 cm	[30 pts]	ad culverts or storm v	the 61 meter (200 feet) e	evaluation reach at the LYone box)	Pool De Max = 3
> 4.0 meters (> > 3.0 m -4.0 m > 1.5 m -3.0 m	VIDTH (Measured as the over 13') [30 pts] (> 9 7'-13') [25 pts] (> 4'8" -9' 7') [20 pts] BF = 6.5'w x 0.8'd		ments) (Check ONLY on 1.0 m - 1.5 m (> 3' 3" - 4' 8' 1.0 m (≤ 3' 3") [5 pts] AVERAGE BANKFULL	[15 pts]	Bankfi Width Max=3
DIDADI	T AN ZONE AND FLOODPLAIN	his information mus			
L R (Pi	RIAN WIDTH er Bank) L F =>10m	FLOODPLAIN QU Mature Forest, V	JALITY (Most Predominant L R /etland , Shrub or Old Field	per Bank)	Сгор
	REGIME (At Time of Evaluation	n) (Check CNLY one	Moist Channel, isolate	ed pools, no flow (intermit r (ephemeral)	ent)

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: Wabash Distance from Evaluated Stream 4,424 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: S29 T13N R9W _____ NRCS Soil Map Page: HkF NRCS Soil Map Stream Order: n/a County: Vigo Township/City: Fayette, II MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: July 10, 2024 Quantity: 1.0 in Photo-documentation Notes: _ Elevated Turbidity?(Y/N): N ____ Canopy (% open):_____ Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): n/a Field Measures:Temp (°C) n/a Dissolved Oxygen (mg/l) n/a pH (S.U.) n/a Conductivity (umhos/cm) n/a Is the sampling reach representative of the stream (Y/N) If not, explain: Additional comments/description of pollution impacts: Moderately Stable Overall Stability of BOTH Stream Banks (check one): Stable Unstable BIOLOGICAL OBSERVATIONS (Record all observations below) Fish Observed? (Y/N) N Species observed (if known): Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): Salamanders Observed? (Y/N) _ Species observed (if known): Aquatic Macroinvertebrates Observed? (Y/N) Species observed (if known): Comments Regarding Biology: none observed

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

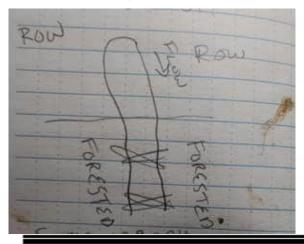




Stream S-CMS-042 Class I PHW

THE NUMBER S-CMS-042 RIVER BASIN Widosaft River RODE No DRAINAGE AREA (mil) 0.02 BIGTH OF STREAM REACH (ft) 168.48 LAT 39.538803 CONG 37.435883 RIVER MILE No DATE 7/1024 SCORER CMS COMMENTS Ephemeral SCORER CMS COMMENTS Ephemeral TOTAL 7/1024 SCORER CMS COMMENTS Ephemeral TOTE: Complete All Items On This Form - Refer to "Headwater Habital Evaluation Index Field Manual" for Instructions (REAM CHANNEL MODIFICATIONS: NONE: NATURAL CHANNEL RECOVERED PRECOVERING RECENT OR NO RECOVER BLUE STATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes. SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes. SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes. SUBSTRATE (Estimate percent of every type present). SLT 13 pt) BLUR SLABS (16pts) 975 BLUR SLABS (16pts) 975 BEDROCK (16pts) 975 CORDILEGE (9255mm) (12pts) 975 GRAVEL (2-54 mm) (8pts) 975 SAND (<2 mm) (8pts) 975 SAND (<2 mm) (8pts) 975 SAND (<2 mm) (8pts) 975 Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the interest of the present percentage of 100% Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the interest of the present percentage of 100% Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the interest of the present percentage of 100% Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the interest of 100% Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the interest of 100% Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the interest of 100% Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the interest of 100% Maximum Pool Depth (Measure the maxim	Com E-	er Habitat Evaluation Index Field Form HHEI Score (sum of metrics 1+2+3)
SUBSTRATE (Estimate percent of every type 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 HERCENT TYPE BLDR SLABS (16 pts)	ENGTH OF STREAM REACH (ft) 168.48	Nabash River RIVER CODE n/a DRAINAGE AREA (mir.) 0.02 LAT 39.538803 LONG -87.435883 RIVER MILE n/a
Chas of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B PERCENT TYPE BLDR SLABS (16 pts) 0% 0% 0% 0% 0% 0% 0% 0		
ime of evaluation. Avoid plungs pools from road culverts or storm water pipes) (Check ONLY one box) 30 centimeters [20 pts] S cm10 cm [16 pts] > 22.5 -30 cm [30 pts] S cm10 cm [16 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNIEL [0pts] COMMENTS OHWM = 2.0'w x 0.2'd MAXIMUM POOL DEPTH (centimeters): 0.00 BANK FULL WIDTH (Measuredas the average of 3 - 4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] s 1.0 m - 1.5 m (> 3' 3' - 4' 8') [15 pts] s 1.0 m - 2.5 m (> 3' 3' - 4' 8') [15 pts] s 1.0 m (> 3' 3' - 4' 8') [(Max of 32), Add total number of signific TYPE PEI BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] GOBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	Cant substrate types found (Max of 8), Final metric score is sum of boxes A & B RCENT TYPE O% SILT [3 pt] O% O% LEAF PACK/WOODY DEBRIS [3 pts] 70% O% FINE DETRITUS [3 pts] O% O% CLAY of HARDPAN [0 pt] 30% O% MUCK [0 pts] O% ARTIFICIAL I3 pts] O% O% ARTIFICIAL I3 pts] Check 100% (B) 2
BANK FULL WIDTH (Measuredas theaverage of 3 - 4 measurements) (Check ONLY one box): 3 4.0 meters (>13') [30 pts]	time of evaluation. Avoid plunge pools to > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	from road culverts or storm water pipes) (Check ONLY one box) 5 cm - 10 cm [15 pts] < 5 cm [5pts] NO WATER OR MOIST CHANNEL [0pts]
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY - NOTE River Left (L) and Right (R) as looking downstreams RIPARIAN WIDTH	> 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]	eaverage of 3 - 4 measurements) (Check ONLY one box): = 1.0 m - 1.5 m (> 3' 3" - 4' 8")[15 pts] W = 1.0 m (< 3' 3")[5 pts] 4.93
	RIPARIAN WIDTH L R (Psr Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS FLOW REGIME (At Time of Eval Stream Flowing Subsurface flow with isolated pool	PLAIN QUALITY NOTE River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY (Most Predominant, per Bank) L R Mature Forest, Wetland Conservation Tiliage Without Press, Wetland Without Press, Wetland Conservation Tiliage Without Profest, Shrub or Old Field Display Open Pasture, Row Crop Fenced Pasture Mining or Construction Moist Channel, isolated pools, no flow (intermittent) Dry channel, no water (ephemeral)

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: Wabash River Distance from Evaluated Stream 5,204 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: S29 T13N R9W NRCS Soil Map Page: HkF NRCS Soil Map Stream Order: n/a Township/City: Fayette, II County: Vigo MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: July 10, 2024 Quantity: 1.0 in Photo-documentation Notes: _ Elevated Turbidity?(Y/N): N ____ Canopy (% open):_____ Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): n/a Field Measures:Temp (°C) n/a Dissolved Oxygen (mg/l) n/a pH (S.U.) n/a Conductivity (umhos/cm)n/a Is the sampling reach representative of the stream (Y/N) If not, explain: Additional comments/description of pollution impacts: Moderately Stable Overall Stability of BOTH Stream Banks (check one): Stable Unstable BIOLOGICAL OBSERVATIONS (Record all observations below) Fish Observed? (Y/N) N Species observed (if known): Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): Salamanders Observed? (Y/N) _ Species observed (if known): Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): Comments Regarding Biology: none observed DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed) Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



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StreamS-CMS-043 Class III PHW

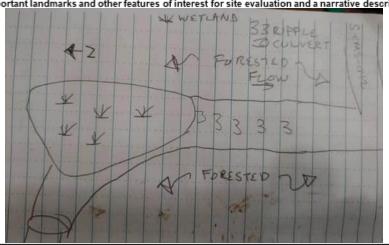
LENGTH OF STREAM REACH (ft) 292.21 DATE 7/10/24 SCORER CMS COMMENTS Inter OTE: Complete All Items On This Form - Refer to "Headwater H TREAM CHANNEL MODIFICATIONS: NONE/ NATURAL CHANNEL 1. SUBSTRATE (Estimate percent of every type present). Check C (Max of 32). Add total number of significant substrate types found (TYPE PERCENT TYPE BLDR SLABS [16 pts] 0% BOULDER (>256 mm) [16 pts] 0% LE	DRAINAGE AREA (mir) 0.1 LONG -87.436226 RIVER MILE n/a mittent Abital Evaluation Index Field Manual* for Instruction PRECOVERED RECOVERING RECENT OR NO RECO DIVLY two predominant substrate TYPE boxes.
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(Max of 32), Add total number of significant substrate types found (TYPE PERCENT TYPE BLDR SLABS [16 pts] 0% SL BOULDER (>256 mm) [16 pts] 0% LE	Max of 8), Final metric score is sum of boxes A & B
COBBLE (6S-256 mm) [12 pts] 50% CL GRAVEL (2-64 mm) [9 pts] 20% MU SAND (<2 mm) [6 pts] 20% AF Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) 24	T 3 pt 0%
> 22.5 - 30 cm [30 pts] e =	
The Part of the Pa	### Bank Check ONLYonebox): 1.0 m - 1.5 m (> 3' 3" - 4' 8")[15 pts] 1.0 m (< 3' 3")[5 pts] AVERAGE BANKFULL WIDTH (meters) 6.10
LR (Per Bank) LR ✓ Wide >10m ✓ Mature Forest, i	River Left (L) and Right (R) as looking downstream UALITY (Most Predominant, per Bank) L R Netland Conservation Tillage It, Shrub or Old Field Urban or Industrial It, New Field Open Pasture, Row Crop Mining or Construction e box) Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (ephemeral)

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: Wabash River Distance from Evaluated Stream 5,327' 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: S29 T13N R9W _____ NRCS Soil Map Page: HkF NRCS Soil Map Stream Order: n/a Township/City: Fayette, II County: Vigo MISCELLANEOUS N Date of last precipitation: July 10, 2024 Quantity: 1.0 in Base Flow Conditions? (Y/N): Photo-documentation Notes: Elevated Turbidity?(Y/N): N ____ Canopy (% open):_____ Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): n/a Field Measures:Temp (°C) n/a Dissolved Oxygen (mg/l) n/a pH (S.U.) n/a Conductivity (umhos/cm) n/a Is the sampling reach representative of the stream (Y/N) If not, explain: Additional comments/description of pollution impacts: Moderately Stable Overall Stability of BOTH Stream Banks (check one): Stable Unstable BIOLOGICAL OBSERVATIONS (Record all observations below) Fish Observed? (Y/N) N Species observed (if known): Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): Salamanders Observed? (Y/N) _ Species observed (if known): Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known):

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





May 2020 Revision Page 2

Comments Regarding Biology: none observed

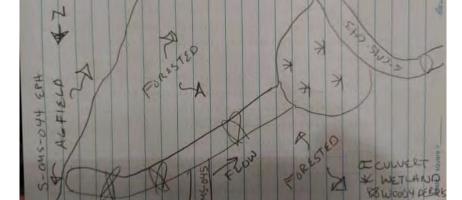
StreamS-CMS-044 Class I PHW

TRE NUMBER SCMS-044 RIVER BASIN Wobsish River ROTH OF STREAM REACH (II) 210.24 LAT 39.539774 LONG -87.436024 RIVER MLE rive SCORES CMS COMMENTS Ephemeral TE: Complete All tlems On This Form - Refer to "Headwater Habitat Evaluation Index Field Manual" for Instruction Comments of the	TRE NUMBER SCMS-044 RIVER BASIN Wabash River RNOTH OF STREAM REACH (ft) 210.24 (AT 93.539774 (DNG -97.436024 RIVER MLE no no no -97.436024 RIVER MLE no no no -97.436024 RIVER MLE no -97.436024 RIVER MLE no -97.436024 RIVER MLE no no -97.436024 RIVER MLE no no -97.436024 RIVER MLE no -97	TE NAME/LOCATION S-CMS-044 / Wat	oash Valley Resourc	es, LLC		
TE: Complete All Items On This Form - Refer to "Headwater Habitat Evaluation Index Field Manual" for Instruction REAM CHANNEL MODIFICATIONS: None / NATURAL CHANNEL RECOVERING RECOVERING RECENT OR NO REC SUBSTRATE (Estimate percent of every type present). Check CNL! Yivo 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 & 8 Mercent TYPE BLDR SLABS (16 pts) 97. SLAT (3 pt)	TE: Complete All Items On This Form - Refer to "Headwater Habital Evaluation Index Field Manual" for Instruct REAM CHANNEL MODIFICATIONS: NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RI SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE baxes. (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A.S. B. PERCENT (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A.S. B. PERCENT (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A.S. B. PERCENT (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A.S. B. PERCENT (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A.S. B. PERCENT (Max of 8). Final metric score is sum of boxes A.S. B. PERCENT (Max of 8). Final metric score is sum of boxes A.S. B. PERCENT (Max of 8). Final metric score is sum of boxes A.S. B. PERCENT (Max of 8). Final metric score is sum of boxes A.S. B. PERCENT (Max of 8). Final metric score is sum of boxes A.S. B. PERCENT (Max of 8). Final metric score is sum of boxes A.S. B. PERCENT (Max of 8). Final metric score is sum of boxes A.S. B. PERCENT (Max of 8). Final metric score is sum of boxes A.S. B. PERCENT (Max of 8). Final metric score is sum of boxes A.S. B. PERCENT (P. P. Sum (P. P. P	TE NUMBER S-CMS-044 RIVER BASIN	Wabash River	RIVER CODE n/a	DRAINAGE AREA (mir)).1
TE: Complete All Items On This Form - Refer to "Headwater Habitat Evaluation Index Field Manual" for Instruction REAM CHANNEL MODIFICATIONS: None Natural Channel RECOVERED RECOVERING RECENT OR NO REC SUBSTRATE (Estimate percent of every type present) Check ONLY Way 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 PERCENT TYPE BLDR SLABS (16pts) 0% 179 179 179 179 BEDROCK (16pts) 0% 179	TE: Complete All Items On This Form - Refer to "Headwater Habital Evaluation Index Field Manual" for Instruct REAM CHANNEL MODIFICATIONS: NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RE SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes. (Max of 32). Additional number of significant substrate types found (Max of 8). Final metric score is sum of boxes. A 5. B PERCENT TYPE BLDR SLABS (16 pts) PERCENT TYPE BLDR SLABS (16 pts) 0%	ENGTH OF STREAM REACH (ft) 210.24	LAT 39.539774	LONG -87.436024	RIVER MILE	1/a
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SUBSTRATE (Estimate percent of every type 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 HYPE BEDR SLABS (16 pts) O% ELAT PACKWOODY DEBRIS (3 pts) O% LEAT PACKWOODY DEBRIS (3 pts) O% SUBSTRATE (Estimate percent of every type present), Check ONLY (10 pts) BEDROCK (16 pts) O% COBBLE (62-256 mm) (16 pts) O% GRAVEL (2-64 mm) (9 pts) O% SAND (-2 mm) (6 pts) O% SAND (-2 mm) (6 pts) O% BIOT Slabs, Boulder, Cobble, Bedrock APPOINT Total of Percentages of Biot Slabs, Boulder, Cobble, Bedrock APPOINT TOTAL NUMBER OF SUBSTRATE TYPES: OTAL NUMBER OF SUBSTRATE TYPES: OW WATER OR MOIST CHANNEL (10 pts) > 30 centimeters (200 fset) evaluation reach at the imperoval of the substrate packs (10 pts) > 10 centimeters (200 fset) evaluation reach at the imperoval of the substrate packs (10 pts) > 10 centimeters (200 fset) evaluation reach at the imperoval of the substrate packs (10 pts) > 10 centimeters (200 fset) evaluation (10 pts) Now WATER OR MOIST CHANNEL (10 pts) > 10 centimeters (200 fset) evaluation (10 pts) Now WATER OR MOIST CHANNEL (10 pts) A 10 m (-2 3° 15 pts) > 1.0 m (-2 3° 15 pts) OME OF THIS information mastals be occumpleted RIPARIAN ZONE AND FLOODPLAIN QUALITY *NOTE River Left (1) and Right (R) as looking downstream rivers (10 pts) Maximum Powing FILOW REGINE (At Time of Evaluation) (Check ONLY one box). Stream Flowing Maist Channel, so water (epitemeral) COMMENTS FLOW REGINE (At Time of Evaluation) (Check ONLY one box). Simulation (At Time of Evaluation) (Check ONLY	SUBSTRATE (Estimate percent of every type present). Check ONLY [wo predominant substrate TYPE boxes. SUBSTRATE (Estimate percent of every type present). Check ONLY [wo predominant substrate TYPE boxes. A & B PERCENT TYPE BLARS (16 pts)	TE: Complete All Items On This Form	- Refer to "Heady	vater Habital Evaluation In	dex Field Manual" for Ins	struction
SUBSTRATE (Estimate percent of every type 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 HYPE BLDR SLABS (16 pts)	SUBSTRATE (Estimate percent of every type present). Check ONLY (wo predominant substrate TYPE boxes. SUBSTRATE (Estimate percent of every type present). Check ONLY (wo predominant substrate TYPE boxes. A & B PERCENT (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes. A & B PERCENT (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes. A & B PERCENT (Max of 32). Add total number of significant substrate types. Sum (B 16 pts)	SCAM CHANNEL MODIFICATIONS. P				
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BLDR SLABS (15 pts)	BLDR SLABS (16 pts)	(Max of 32), Add total number of signi	ficant substrate types	found (Max of 8). Final metric s	core is sum of boxes A & B	HHE
BOULDER (-258 mm) [16 pts] 0%	BOULDER (-255 mm) [16 pts]					Metr
SELNOCK (19 pts) 0% 0% 0% 0% 0% 0% 0% 0	COBBLE (69-25s mm) [12 pts]					
COBBLE (68-256 mm) [12 pts] 0% GRAVEL (2-54 mm) [19 pts] 0% GRAVEL (2-54 mm) [19 pts] 0% DYS AND (<2 mm) [15 pts] 15% But Slabs, Boulder, Cobble, Bedrock ORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or starm water pipes (Check ONLY one box). So centimeters [20 pts] 5 cm - 10 cm [15 pts] 5 cm - 10 cm [15 pts] 5 cm [25 pts] 7 NO WATER OR MOIST CHANNEL [0pts] 7 cm - 10 cm [15 pts] 7 cm - 10 cm [15 p	COBBLE (8-2-25 mm) [12 pts]	BEDROCK [16 pts]				Subst Max =
Total of Percentages of 0.00% Bidr Slobs, Boulder, Cobble, Bedrock (A) 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3 Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation Avoid plunge pools from road culverts or storm water pipes) (Check O/NLY one box) > 30 centimeters [20 pts] 5 cm - 10 cm [15 pts] > 25 - 30 cm [30 pts] 5 cm - 10 cm [15 pts] > 22 5 - 30 cm [30 pts] 5 cm - 10 cm [15 pts] > 22 5 - 30 cm [30 pts] 5 cm - 10 cm [15 pts] > 22 5 cm [25 pts] NO WATER OR MOIST CHANNEL [0pts] COMMENTS OHWM = 1.5'w x 0.2'd MAXIMUM POOL DEPTH (centimeters) 0.00 BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check O/NLY one box): > 4.0 meters (> 13') [30 pts] ≤ 1.0 m (≤ 3' 3') [5 pts] > 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts] COMMENTS BF = 2.5.0'w x 0.5'd AVERAGE BANKFULL WIDTH (meters) This information mustals o be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE River Left (L) and Right (R) as looking downstream- RIPARIAN WIDTH FLOODPLAIN QUALITY (Most Predominant per Bank) L R (Per Bank) L R L R Wide > 10m Mature Forest, Welland Urban or Industrial Wide > 10m Residential, Park, New Field Urban or Industrial Wide > 10m Residential, Park, New Field Open Pasture, Row Crop None Residential, Park, New Field Open Pasture, Row Crop Moist Channel, Solated pools, no flow (intermittent) Subsurface flow with isolated pools (interstitial) Dry channel, no water (ephemeral) COMMENTS Shiposity (Number of bends per 61 m (200 fi) or channel) (Check ONL'y one box) 100 1.0 2.0 3.0 110 100 1.0 2.0 3.0 110 11	Total of Percentages of 0.00% But Slobs, Boulder, Cobble, Bedrock 0.00% ORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3 Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation Avoid plunge pools from road culverts or storm water pipes) (Check ONL Yone box). > 30 centimeters [20 pts]	The state of the s				0.00
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Bidr Slobs, Boulder, Cobble, Bedrock Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the imer 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] 30 - 22.5 cm [25 pts] COMMENTS (OHWM = 1.5'w x 0.2'd) BANK FULL WIDTH (Measuredas the average of 3 - 4 measurements). (Check ONLY one box): 3.0 m -4.0 m (-9.7"-13") [25 pts] 3.3 m -4.0 m (-9.7"-13") [25 pts] 3.3 m -4.0 m (-9.7"-13") [25 pts] COMMENTS (DF Bank) E PLOODPLAIN QUALITY NOTE River Left (L) and Right (R) as looking downstreams. RIPARIAN WIDTH (PER Bank) E RIPARIAN WI	Bidd Slobs, Boulder, Cobble, Bedrock (A) 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3 Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the lime of evaluation Avoid plunge pools from road culverfs or storm water pipes) (Check ONLY one box) > 30 centimeters [20 pts]			Substrate Percentage	370	
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> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0pts]	NO WATER OR MOIST CHANNEL [0pts] NO WATER OR MOIST CHANNEL [0pts] 0.00			CONTRACTOR OF THE PROPERTY OF		
BANK FULL WIDTH (Measuredas the average of 3 - 4 measurements) (Check ONLY one box): > 4.0 meters (>13') [30 pts] > 4.0 meters (>13') [30 pts] > 1.5 m - 3.0 m (> 9 7' - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8' - 9' 7') [20 pts] COMMENTS BF = 2.5.0'w x 0.5'd AVERAGE BANKFULL WIDTH (meters) This information mustals be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE River Left (L) and Right (R) as looking downstreams. RIPARIAN WIDTH FLOODPLAIN QUALITY (Most Predominant per Bank) L R (Per Bank) L R (Per Bank) L R (Per Bank) L R (Per Bank) Residential, Park, New Field Urban or Industrial Narrow <5m Residential, Park, New Field Urban or Industrial Narrow <5m Residential, Park, New Field Urban or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box). Stream Flowing 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 Dry channel, no water (ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box). None 1.0 Dry channel, no water (ephemeral)	BANK FULL WIDTH (Measuredas the average of 3 - 4 measurements) (Check ONL Yone box): > 4.0 meters (> 13") [30 pts]	> 10 - 22.5 cm [25 pts]			A 100 CO	0
> 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] COMMENTS BF = 2.5.0 w x 0.5'd AVERAGE BANKFULL WIDTH (meters) This information mustalso be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY *NOTE RiverLeft (L) and Right (R) as looking downstream* RIPARIAN WIDTH FLOODPLAIN QUALITY (Most Predominant per Bank) L R (Per Bank) L R Wide >10m Mature Forest, Welland Conservation Tillage Immature Forest, Shrub or Old Field Urban or Industrial Narrow <5m Residential, Park, New Field Open Pasture, Row Crop None Fenced Pasture Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box) Stream Flowing Moist Channel, isolated pools, no flow (intermittent) CDMMENTS SINUOSITY (Number of bends per 61 in (200 ft) of channel) (Check ONLY one box) None 1.0 2.0 3.0	>4.0 meters (>13') [30 pts]	COMMENTS OHWM = 1.5'w x 0).2'd	MAXIMUM POOL DE	EPTH (centimeters): 0.00	
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COMMENTS BF = 2.5.0'w x 0.5'd AVERAGE BANKFULL WIDTH (meters) This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE River Left (L) and Right (R) as looking downstreams RIPARIAN WIDTH FLOODPLAIN QUALITY (Most Predominant, per Bank) L R (Per Bank) L R L R Wide > 10m	COMMENTS BF = 2.5.0'w x 0.5'd AVERAGE BANKFULL WIDTH (meters) This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE RiverLeft (L) and Right (R) as looking downstream* RIPARIAN WIDTH RIPARIAN WIDTH (Most Predominant per Bank) RIPARIAN WIDTH RIPARIAN WIDTH RIPARIAN WIDTH RIPARIAN WIDTH (Most Predominant per Bank) RIPARIAN WIDTH RIPARIAN WIDTH RIPARIAN WIDTH (Most Predominant per Bank) RIPARIAN WIDTH RIPARIAN WIDTH (Most Predominant per Bank) RIPARIAN WIDTH RIPARIAN WIDTH (Most Predominant per Bank) RIPARIAN WIDTH (R) as looking downstreams RIPARIAN (R) as looking downstreams RI			= 1.0 m - 1.5 m (> 3' 3" -4	('8')[15 pts]	Widt
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Wide >10m	Wide > 10m	RIPARIAN WIDTH	FLOODP	LAIN QUALITY (Most Predomin	ant per Bank)	
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SINUOSITY (Number of bends per 61 in (200 ff) of channel) (Check ONLY one box) None 1,0 2.0 3.0	SINUOSITY (Number of bends per 61 m (200 ff) of channel) (Check ONLY one box)	Subsurface flow with isolated p	ools (interstitial)	✓ Dry channel, no w	ater (ephemeral)	
☐ None	None		Tax Tax at A	The second second second		-
	0.5 0.5 2.5 -3		and the second of		The second second	
1 0.5 1 4.5 1 5.5 1 4.5						

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: Wabash River Distance from Evaluated Stream 5,327' 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: S29 T13N R9W NRCS Soil Map Page: HkF NRCS Soil Map Stream Order: n/a Township/City: Fayette, II County: Vigo MISCELLANEOUS Date of last precipitation: July 10, 2024 Quantity: 1.0 in Base Flow Conditions? (Y/N): Photo-documentation Notes: ___ Elevated Turbidity?(Y/N): N ____ Canopy (% open):_____ Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): n/a Field Measures:Temp (°C) n/a Dissolved Oxygen (mg/l) n/a pH (S.U.) n/a Conductivity (umhos/cm)n/a Is the sampling reach representative of the stream (Y/N) If not, explain: Additional comments/description of pollution impacts: Moderately Stable Overall Stability of BOTH Stream Banks (check one): Stable Unstable BIOLOGICAL OBSERVATIONS (Record all observations below) Fish Observed? (Y/N) N Species observed (if known): Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): Salamanders Observed? (Y/N) _ Species observed (if known): Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known):

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





May 2020 Revision Page 2

Comments Regarding Biology: none observed

StreamS-CMS-045 Class I PHW

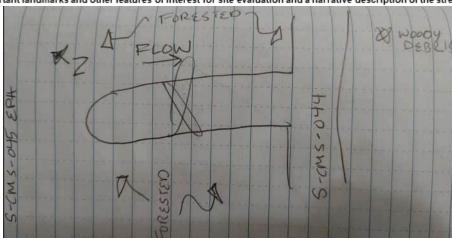
	S-CMS-045 / Waba	sh Valley Resource	es, LLC		
TE NAME/LOCATION TE NUMBER S-CM	S-045 RIVER BASIN V		RIVER CODE n/a	DRAINAGE AREA (mir)	0.01
ENGTH OF STREAM	REACH (ft) 41.49	LAT 39.539831	LONG -87.436074	RIVER MILE	n/a
	SCORER CMS	COMMENTS	Ephemeral		
TE: Complete All	Items On This Form	Refer to "Heady	rater Habital Evaluation Inc	lex Field Manual" for Ins	structions
REAM CHANNEL	MODIFICATIONS: I	ANONE MATURAL C	HANNEL RECOVERED R	econopiae Decenting	No pecou
illerim browning	MODIFICATION OF	HONE HATORAC C	HAMINEC HEODVERED IN	ECOVERING TRECENT ON	NO RECOI
SUBSTRATE	(Estimate percent of ev	ery type present).	Check ONLY two predominants	ubstrate TYPE boxes	
(Max of 32), A		cant substrate types RCENT TYPE	found (Max of 8), Final metric s	core is sum of boxes A & E PERCENT	HHE
	The second secon	0%	SLT (3 pt)	0%	Point
		0%	LEAF PACK/WOODY DEBI		Substi
BEDROCK	A PARTY OF A PARTY OF THE PARTY	0%	FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pt]	0% 	Max =
100 A C B A	THE PARTY OF PARTY AND ADDRESS.	0%	MUCK [0 pts]	0%	
✓ SAND (<2	mm) [6 pts]	0%	ARTIFICIAI Tantal Substrate Percentage	0%	10
	rcentages of 0.	00%	Check 100%	, decr.	1
	der, Cobble, Bedrock T PREDOMINATE SUBS	(A)	TOTAL NUMBER OF SU	(B)	A + B
STATE OF THE STATE	Thoracal about and	1202 12520		204034-3654	
	of Depth (Measure the <u>n</u> tion Avoid plunge pools t		thwithin the 61 meter (200 fee storm water pipes) (Check	() evaluation reach at the DNLY one box)	Pool De Max =
> 30 centimete			5 cm - 10 cm [15 pts]	200-1-00-2007	I I
> 22.5 - 30 cm			< 5 cm [5pts]	u Currer Maker	0
> 10 - 22.5 cm	*******		NO WATER OR MOIST C	0.00	
COMMENTS	$OHWM = 0.75'w \times 0$	0.1°d	MAXIMUM POOL DE	PTH (centimeters):	
	MINTH /Managradue the	eaverage of 3 - 4 m	easurements) (Check ONL		Bankf
				87(15 pts)	Width
> 4.0 meters (>	13') [30 pts]		= 1.0 m - 1.5 m (> 3' 3" - 4 < 1.0 m (< 3' 3" / 15 nts l	- within	Max=3
> 4.0 meters (> > 3.0 m -4.0 m			≥ 1.0 m (≤ 3'3")[5 pts]	414,004	Max=3
> 4.0 meters (> 3.0 m - 4.0 m > 1.5 m - 3.0 m	13') [30 pts] (> 9 7"-13') [25 pts] (> 4' 8" - 9' 7") [20 pts]		≤1.0 m (≤3'3")[5 pts]	0.46	Max=3
> 4.0 meters (> 3.0 m - 4.0 m > 1.5 m - 3.0 m	13') [30 pts] (> 9 7"-13") [25 pts]			0.46	-
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> 4.0 meters () > 3.0 m - 4.0 m > 1.5 m - 3.0 m COMMENTS RIPAR RIPAR L R (P V Wid Mod Nam Non COMMI FLOW Stream Subsuri COMMI	13') [30 pts] (> 9 7'-13') [25 pts] (> 4'8'-9'7') [20 pts] BF = 1.5.0'W x 0.3'd AN ZONE AND FLOODE RIAN WOTH er Bank) e > 10m evate 5-10m row <5m e ENTS REGIME (At Time of Eva Flowing face flow with isolated pool	This information PLAIN QUALITY FLOODPU L R Mature F Immature Resident Fenced F Fundation) (Check Of	AVERAGE BANKFUI AVERAGE BANKFUI On mustalso be completed NOTE River Left (L) and Right AIN QUALITY (Most Predominal orest, Wetland Forest, Shrub or Old Field lai, Park, New Field Pasture VLY one box) Moist Channel, iso Dry channel, no wi	L WIDTH (meters) (R) as looking downstream ant per Bank) R Conservation Tillage Urban or Industrial Open Pasture, Row C Mining or Construction atted pools, no flow (intermit atter (ephemeral)	5 Crop
> 4.0 meters () > 3.0 m - 4.0 m > 1.5 m - 3.0 m COMMENTS RIPAR RIPAR L R (P V Wid Mod Nam Nom COMMI FLOW Stream Subsuri	13') [30 pts] (> 9 7'-13') [25 pts] (> 4' 8' -9' 7') [20 pts] BF = 1.5.0'W x 0.3'd IAN ZONE AND FLOODE RIAN WIDTH ST BANK) =>10m For same series ENTS REGIME (At Time of Evaluation of the content of the conten	This information PLAIN QUALITY FLOODPU L R Mature F Immature Resident Fenced F Fundation) (Check Of	AVERAGE BANKFUI AVERAGE BANKFUI On mustalso be completed NOTE River Left (L) and Right AIN QUALITY (Most Predominal orest, Wetland Forest, Shrub or Old Field lai, Park, New Field Pasture VLY one box) Moist Channel, iso Dry channel, no wi	L WIDTH (meters) (R) as looking downstream ant per Bank) R Conservation Tillage Urban or Industrial Open Pasture, Row C Mining or Construction atted pools, no flow (intermit atter (ephemeral)	5 Crop

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: Wabash River Distance from Evaluated Stream 5,327' 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: S29 T13N R9W NRCS Soil Map Page: HkF NRCS Soil Map Stream Order: n/a County: Vigo Township/City: Fayette, II MISCELLANEOUS N Date of last precipitation: July 10, 2024 Quantity: 1.0 in Base Flow Conditions? (Y/N): Photo-documentation Notes: Elevated Turbidity?(Y/N): N ____ Canopy (% open):_____ Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): n/a Field Measures:Temp (°C) n/a Dissolved Oxygen (mg/l) n/a pH (S.U.) n/a Conductivity (umhos/cm) n/a Is the sampling reach representative of the stream (Y/N) If not, explain: Additional comments/description of pollution impacts: Moderately Stable Overall Stability of BOTH Stream Banks (check one): Stable Unstable BIOLOGICAL OBSERVATIONS (Record all observations below) Fish Observed? (Y/N) N Species observed (if known): Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): Salamanders Observed? (Y/N) _ Species observed (if known):_____ Aquatic Macroinvertebrates Observed? (Y/N) Species observed (if known): Comments Regarding Biology: none observed

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





May 2020 Revision Page 2

APPENDIX D Representative Photograph Log

Wabash H	vdroaen	Energy	Cente
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Wetland Photograph Log



Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 1 **Date** 06/11/24

Description:

UPL-CMS-001

39.532863, -87.428517

Facing North



Photo Location 2 **Date** 06/11/24

Description:

UPL-CMS-001

39.532863, -87.428517

Facing East





Client Name:
Wabash Hydrogen Energy Center

Site Location:
Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 3 Description: **Date** 06/11/24

UPL-CMS-001

39.532863, -87.428517

Facing South



39.532863, -87.428517	UPL-CMS-001	Description:	
28517		00/11/25	Dale

Facing West





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Date Location 5 06/11/24 Description:

UPL-CMS-001

39.532863, -87.428517

Facing Soils



Photo Date Location 6 06/11/24

Description:

UDF-CMS-002

39.532122, -87.428288

Facing North





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 7 **Date** 06/11/24

Description:

UDF-CMS-002

39.532122, -87.428288

Facing East



Photo Location 8 **Date** 06/11/24

Description:

UDF-CMS-002

39.532122, -87.428288

Facing South





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 9 **Date** 06/11/24

Description:

UDF-CMS-002

39.532122, -87.428288

Facing West



Photo Date Location 10 06/11/24

Description:

UDF-CMS-002

39.532122, -87.428288

Facing Soils





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Date Location 11 06/11/24 Description:

W-CMS-001-PSS

39.534383, -87.424509

Facing North



Photo Date Location 12 06/11/24

Description:

W-CMS-001-PSS

39.534383, -87.424509

Facing East





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Date Location 13 06/11/24 Description:

W-CMS-001-PSS

39.534383, -87.424509

Facing South



Photo Location 14 **Date** 06/11/24

Description:

W-CMS-001-PSS

39.534383, -87.424509

Facing West





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 15 **Date** 06/11/24

Description:

W-CMS-001-PSS

39.534383, -87.424509

Facing Soils



 Photo
 Date

 Location 16
 06/11/24

Description:

W-CMS-001-PFO

39.534802, -87.4274357

Facing North





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Date Location 17 06/11/24

Description:

W-CMS-001-PFO

39.534802, -87.4274357

Facing East



Photo Date Location 18 06/11/24

Description:

W-CMS-001-PFO

39.534802, -87.4274357

Facing South





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 19 **Date** 06/11/24

Description:

W-CMS-001-PFO

39.534802, -87.4274357

Facing West



Photo Location 20

Date 06/11/24

Description:

W-CMS-001-PFO

39.534802, -87.4274357

Facing Soils





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 21 **Date** 06/11/24

Description:

W-CMS-001-PEM

39.534403, -87.424186

Facing North



Photo Date Location 22 06/11/24

Description:

W-CMS-001-PEM

39.534403, -87.424186

Facing East





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Date Location 23 06/11/24 Description:

W-CMS-001-PEM

39.534403, -87.424186

Facing South



Photo Date Location 24 06/11/24

Description:

W-CMS-001-PEM

39.534403, -87.424186

Facing West





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 25 **Date** 06/11/24

Description:

W-CMS-001-PEM

39.534403, -87.424186

Facing Soils



Photo Location 26

Date 06/12/24

Description:

W-CMS-001-UPL

39.534834, -87.424692

Facing North





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 27 **Date** 06/12/24

Description:

W-CMS-001-UPL

39.534834, -87.424692

Facing East



Photo Date Location 28 06/12/24

Description:

W-CMS-001-UPL

39.534834, -87.424692

Facing South





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 29 **Date** 06/12/24

Description:

W-CMS-001-UPL

39.534834, -87.424692

Facing West



Photo Location 30 **Date** 06/12/24

Description:

W-CMS-001-UPL

39.534834, -87.424692

Facing Soils





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 31

Date 06/12/24

Description:

W-CMS-002-PFO

39.535476, -87.424167

Facing North



Photo Location 32 **Date** 06/12/24

Description:

W-CMS-002-PFO

39.535476, -87.424167

Facing East





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 33 **Date** 06/12/24

Description:

W-CMS-002-PFO

39.535476, -87.424167

Facing South



Photo Location 34

Date 06/12/24

Description:

W-CMS-002-PFO

39.535476, -87.424167

Facing West





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 35 **Date** 06/12/24

Description:

W-CMS-002-PFO

39.535476, -87.424167

Facing Soils



Photo Location 36 **Date** 06/13/24

Description:

W-CMS-003-PEM

39.622335, -87.489021

Facing North





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Date Location 37 06/13/24 Description:

W-CMS-003-PEM

39.622335, -87.489021

Facing East



Photo Date Location 38 06/13/24

Description:

W-CMS-003-PEM

39.622335, -87.489021

Facing South





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 39 **Date** 06/13/24

Description:

W-CMS-003-PEM

39.622335, -87.489021

Facing West



Photo Location 40 **Date** 06/13/24

Description:

W-CMS-003-PEM

39.622335, -87.489021

Facing Soils





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 41 **Date** 06/13/24

Description:

W-CMS-003-UPL

39.622746, -87.487905

Facing North



Photo Location 42

Date 06/13/24

Description:

W-CMS-003-UPL

39.622746, -87.487905

Facing East





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 43 **Date** 06/13/24

Description:

W-CMS-003-UPL

39.622746, -87.487905

Facing South



Photo Location 44 **Date** 06/13/24

Description:

W-CMS-003-UPL

39.622746, -87.487905

Facing West





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Date Location 45 06/13/24 Description:

W-CMS-003-UPL

39.622746, -87.487905

Facing Soils



Photo Date Location 46 06/13/24

Description:

W-CMS-004

39.623243, -87.487244

Facing North





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 47 **Date** 06/13/24

Description:

W-CMS-004

39.623243, -87.487244

Facing East



Photo Location 48 **Date** 06/13/24

Description:

W-CMS-004

39.623243, -87.487244

Facing South





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 49 **Date** 06/13/24

Description:

W-CMS-004

39.623243, -87.487244

Facing West



Photo Location 50 **Date** 06/13/24

Description:

W-CMS-004

39.623243, -87.487244

Facing Soils





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 51 **Date** 06/13/24

Description:

W-CMS-005

39.623701, -87.486886

Facing North



Photo Location 52 **Date** 06/13/24

Description:

W-CMS-005

39.623701, -87.486886

Facing East





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Date Location 53 06/13/24

Description:

W-CMS-005

39.623701, -87.486886

Facing South



Photo Date Location 54 06/13/24

Description:

W-CMS-005

39.623701, -87.486886

Facing West





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 55 **Date** 06/13/24

Description:

W-CMS-005

39.623701, -87.486886

Facing Soils



Photo Date Location 56 06/13/24

Description:

W-CMS-004/005-UPL

39.624547, -87.487396

Facing North



РНОТОСЯВРН ГОС REPRESENTATIVE WETLAND

MODEA

60727429 Project No. Vigo & Vermillion Counties, Indiana Site Location: Wabash Hydrogen Energy Center Client Name:

Date



Location 58 72<u>/</u>81/90 Date Photo

39.624547, -87.487396 M-CM2-004/002-NbF

Facing South

Description:

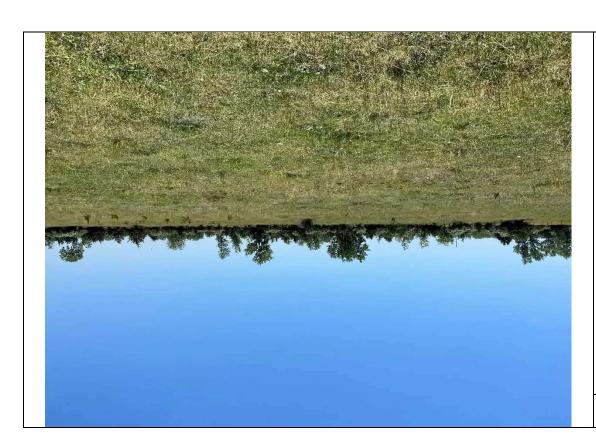
Facing East

Description: Location 57

Photo

39.624547, -87.487396

M-CM2-004/002-NbF





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 59 **Date** 06/11/24

Description:

W-CMS-004/005-UPL

39.624547, -87.487396

Facing West



Photo Date Location 60 06/13/24

Description:

W-CMS-004/005-UPL

39.624547, -87.487396

Facing South





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 61 **Date** 07/10/24

Description:

W-CMS-006

39.539303, -87.436227

Facing North



Photo Date Location 62 07/10/24

Description:

W-CMS-006

39.539303, -87.436227

Facing East





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 63 **Date** 07/10/24

Description:

W-CMS-006

39.539303, -87.436227

Facing South



Photo Date Location 64 07/10/24

Description:

W-CMS-006

39.539303, -87.436227

Facing West





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 65 **Date** 07/10/24

Description:

W-CMS-006

39.539303, -87.436227

Facing Soil



Photo Date Location 66 07/10/24

Description:

W-CMS-006-UPL

39.539234, -87.436087

Facing North





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 67 **Date** 07/10/24

Description:

W-CMS-006-UPL

39.539234, -87.436087

Facing East



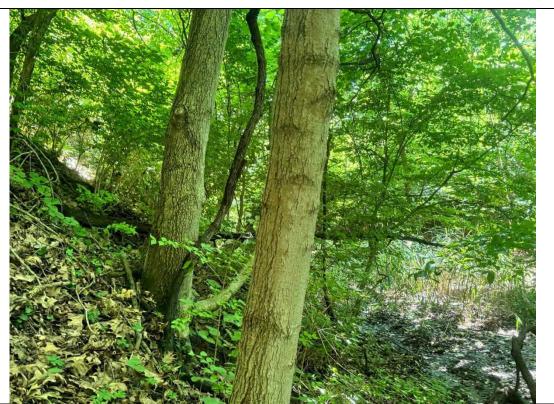
Photo Date Location 68 07/10/24

Description:

W-CMS-006-UPL

39.539234, -87.436087

Facing South





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 69 **Date** 07/10/24

Description:

W-CMS-006-UPL

39.539234, -87.436087

Facing West



Photo Date Location 70 07/10/24

Description:

W-CMS-006-UPL

39.539234, -87.436087

Facing Soils





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 71 **Date** 07/11/24

Description:

W-CMS-007

39.530588, -87.427182

Facing North



Photo Date Location 72 07/11/24 Description:

W-CMS-007

39.530588, -87.427182

Facing East





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 73 **Date** 07/11/24

Description:

W-CMS-007

39.530588, -87.427182

Facing North



 Photo
 Date

 Location 74
 07/11/24

Description:

W-CMS-007

39.530588, -87.427182

Facing West





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 75 **Date** 07/11/24

Description:

W-CMS-007

39.530588, -87.427182

Facing Soils



Photo Location 76 **Date** 07/11/24

Description:

W-CMS-008

39.529985, 87.426760

Facing North





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 77 **Date** 07/11/24

Description:

W-CMS-008

39.529985, 87.426760

Facing East



Photo Date Location 78 07/11/24

Description:

W-CMS-008

39.529985, 87.426760

Facing South





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 79 **Date** 07/11/24

Description:

W-CMS-008

39.529985, 87.426760

Facing West



Photo Location 80 **Date** 07/11/24

Description:

W-CMS-007/008-UPL

39.530487°, -87.427100°

Facing North





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 81 **Date** 07/11/24

Description:

W-CMS-007/008-UPL

39.530487°, -87.427100°

Facing East



Photo Location 82

Date 07/11/24

Description:

W-CMS-007/008-UPL

39.530487°, -87.427100°

Facing South





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 81 **Date** 07/11/24

Description:

W-CMS-007/008-UPL

39.530487°, -87.427100°

Facing West



Photo Location 82 **Date** 07/11/24

Description:

W-CMS-007/008-UPL

39.530487°, -87.427100°

Facing Soils



Wabash H	vdrogen	Energy	Center
vvubusiii	varoacii	LIICIUV	CCIICCI

Stream Photograph Log



Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 1 **Date** 6/11/2024

Description:

S-CMS-001-EPH

39.53384, -87.42707

Facing Upstream



Photo Location 2 **Date** 06/11/24

Description:

S-CMS-001-EPH

39.53384, -87.42707





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 3 **Date** 06/11/24

Description:

S-CMS-001-EPH

39.53384, -87.42707

Facing Substrate



Photo Location 4 **Date** 06/11/24

Description:

S-CMS-002-EPH

39.53383, -87.42725

Facing Upstream





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 5 **Date** 06/11/24

Description:

S-CMS-002-EPH

39.53383, -87.42725

Facing Downstream



Photo Location 6 **Date** 06/11/24

Description:

S-CMS-002-EPH

39.53383, -87.42725

Facing Substrate





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Date Location 7 06/11/24 Description:

S-CMS-003-EPH

39.533855, -87.427397

Facing Upstream



Photo Location 8 06/11/24

Date

Description:

S-CMS-003-EPH

39.533855, -87.427397





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 9

Date 06/11/24

Description:

S-CMS-003-EPH

39.533855, -87.427397

Facing Substrate



Photo Location 10 **Date** 06/11/24

Description:

S-CMS-005-EPH

39.534795, -87.424072

Facing Upstream





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 11 **Date** 06/12/24

Description:

S-CMS-005-EPH

39.534795, -87.424072

Facing Downstream



Photo Location 12 **Date** 06/12/24

Description:

S-CMS-005-EPH

39.534795, -87.424072

Facing Substrate





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 13 **Date** 06/12/24

Description:

S-CMS-006-EPH

39.53570, -87.42578

Facing Upstream



Photo Location 14 **Date** 06/12/24

Description:

S-CMS-006-EPH

39.53570, -87.42578





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 15 **Date** 06/12/24

Description:

S-CMS-006-EPH

39.53570, -87.42578

Facing Substrate



Photo Location 16 **Date** 06/12/24

Description:

S-CMS-007-EPH

39.53667, -87.42577

Facing Upstream





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Date Location 17 06/12/24

Description:

S-CMS-007-EPH

39.53667, -87.42577

Facing Downstream



Photo Location 18 **Date** 06/12/24

Description:

S-CMS-007-EPH

39.53667, -87.42577

Facing Substrate





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Date Location 19 06/12/24 Description:

S-CMS-021-EPH

39.540154, -87.425496

Facing Upstream



Photo Date Location 20 06/12/24

Description:

S-CMS-021-EPH

39.540154, -87.425496





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Date Location 21 06/12/24 Description:

S-CMS-021-EPH

39.540154, -87.425496

Facing Substrate



Photo Date Location 22 06/12/24 Description:

S-CMS-022-EPH

39.539775, -87.424901

Facing Upstream





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Date Location 23 06/12/24 Description:

S-CMS-022-EPH

39.539775, -87.424901

Facing Downstream



Photo Date
Location 24 06/12/24

Description:

S-CMS-022-EPH

39.539775, -87.424901

Facing Substrate





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Date Location 25 06/12/24 Description:

S-CMS-023-EPH

39.539130, -87.424926

Facing Upstream



Photo Date Location 26 06/12/24 Description:

S-CMS-023-EPH

39.539130, -87.424926





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Date Location 27 06/12/24 Description:

S-CMS-023-EPH

39.539130, -87.424926

Facing Substrate



Photo Date Location 28 07/10/24 Description:

S-CMS-035-EPH

39.53925, -87.43230

Facing Upstream





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Date Location 29 07/10/24 Description:

S-CMS-035-EPH

39.53925, -87.43230

Facing Downstream



Photo Date Location 30 07/10/24

Description:

S-CMS-035-EPH

39.53925, -87.43230

Facing Substrate





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Date Location 31 07/10/24

Description:

S-CMS-042-EPH

39.538803, -87.435883

Facing Upstream



Photo Date Location 32 07/10/24 Description:

S-CMS-042-EPH

39.538803, -87.435883





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 33 **Date** 07/10/24

Description:

S-CMS-042-EPH

39.538803, -87.435883

Facing Substrate



Photo Location 34 **Date** 07/10/24

Description:

S-CMS-043-EPH

39.538977, -87.436226

Facing Upstream





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 35 **Date** 07/10/24

Description:

S-CMS-043-EPH

39.538977, -87.436226

Facing Downstream



Photo Date Location 36 07/10/24

Description:

S-CMS-043-EPH

39.538977, -87.436226

Facing Substrate





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 37 **Date** 07/10/24

Description:

S-CMS-044-EPH

39.539774, -87.436024

Facing Upstream



Photo Location 38 **Date** 07/10/24

Description:

S-CMS-044-EPH

39.539774, -87.436024





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 39 **Date** 07/10/24

Description:

S-CMS-044-EPH

39.539774, -87.436024

Facing Substrate



Photo Date Location 40 07/10/24

Description:

S-CMS-045-EPH

39.539831, -87.436074

Facing Upstream





Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 41 **Date** 07/10/24

Description:

S-CMS-045-EPH

39.539831, -87.436074

Facing Downstream



Photo Location 42 **Date** 07/10/24

Description:

S-CMS-045-EPH

39.539831, -87.436074

Facing Substrate



Wabash H	vdroaen	Energy	Cente
vvubusiiii	varoacii	LIICIUV	CLITT

UDF Photograph Log



Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 1 **Date** 6/11/2024

Description:

UDF-CMS-001

39.531135, -87.427953

Facing Upstream



Photo Location 2 **Date** 06/11/24

Description:

UDF-CMS-001

39.531135, -87.427953





REPRESENTATIVE STREAM PHOTOGRAPH LOG

Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 3 **Date** 06/11/24

Description:

UDF-CMS-001

39.531135, -87.427953

Facing Substrate



Photo Location 4 **Date** 06/11/24

Description:

UDF-CMS-002

39.532370, -87.428029 Facing Upstream





REPRESENTATIVE STREAM PHOTOGRAPH LOG

Client Name:

Wabash Hydrogen Energy Center

Site Location:

Vigo & Vermillion Counties, Indiana

Project No. 60727429

Photo Location 5 **Date** 06/11/24

Description:

UDF-CMS-002

39.532370, -87.428029

Facing Downstream



Photo Location 6 **Date** 06/11/24

Description:

UDF-CMS-002

39.532370, -87.428029

Facing Substrate



APPENDIX E Threatened and Endangered Species Information



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Indiana Ecological Services Field Office 620 South Walker Street Bloomington, IN 47403-2121 Phone: (812) 334-4261 Fax: (812) 334-4273

In Reply Refer To: 06/03/2024 22:28:52 UTC

Project Code: 2024-0098919

Project Name: Wabash Hydrogen Energy Center

Subject: List of threatened and endangered species that may occur in your proposed project

location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

Please use the species list provided and visit the U.S. Fish and Wildlife Service's Region 3 Section 7 Technical Assistance website at - http://www.fws.gov/midwest/endangered/section7/s7process/index.html. This website contains step-by-step instructions which will help you

determine if your project will have an adverse effect on listed species and will help lead you through the Section 7 process. For all **wind energy projects** and **projects that include installing towers that use guy wires or are over 200 feet in height**, please contact this field office directly for assistance, even if no federally listed plants, animals or critical habitat are present within your proposed project or may be affected by your proposed project.

Project code: 2024-0098919

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of

Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Indiana Ecological Services Field Office 620 South Walker Street Bloomington, IN 47403-2121 (812) 334-4261

PROJECT SUMMARY

Project code: 2024-0098919

Project Code: 2024-0098919

Project Name: Wabash Hydrogen Energy Center

Project Type: Mixed-Use Construction

Project Description: The Project will construct a new carbon capture, hydrogen purification,

and ammonia synthesis facility, and associated infrastructure activities adjacent to an existing gasification facility. In addition, there will be equipment development for CO2 transport injection and monitoring as

part of the carbon sequestration portion of the Project.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@39.6234193,-87.48781509781753,14z



Counties: Vermillion and Vigo counties, Indiana

ENDANGERED SPECIES ACT SPECIES

Project code: 2024-0098919

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME STATUS

Indiana Bat *Myotis sodalis*

Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

Species profile: https://ecos.fws.gov/ecp/species/5949

Northern Long-eared Bat Myotis septentrionalis

Endangered

No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045

Tricolored Bat Perimyotis subflavus

Proposed

No critical habitat has been designated for this species.

Endangered

This species only needs to be considered under the following conditions:

• This species only needs to be considered if the project includes wind turbine operations.

Species profile: https://ecos.fws.gov/ecp/species/10515

BIRDS

NAME

Whooping Crane *Grus americana*Population: U.S.A. (AL, AR, CO, FL, GA, ID, IL, IN, IA, KY, LA, MI, MN, MS, MO, NC, NM, OH, SC, TN, UT, VA, WI, WV, western half of WY)

No critical habitat has been designated for this species.

Species profile: https://ecos.fws.gov/ecp/species/758

Experimental

Population,
NonEssential

INSECTS

NAME STATUS

Monarch Butterfly *Danaus plexippus*

Candidate

No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act^1 and the Migratory Bird Treaty Act^2 .

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats³, should follow appropriate regulations and consider

implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

- 1. The Bald and Golden Eagle Protection Act of 1940.
- 2. The Migratory Birds Treaty Act of 1918.
- 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to <u>Bald Eagle Nesting and Sensitivity to Human Activity</u>

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Aug 31
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention	Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

https://ecos.fws.gov/ecp/species/1680

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (

Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

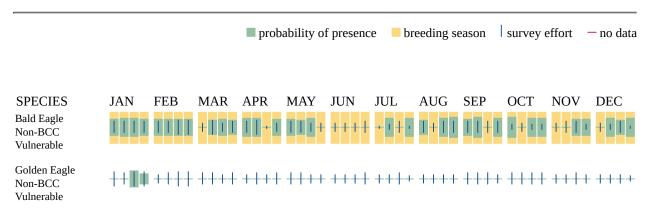
Survey Effort (|)

Project code: 2024-0098919

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (-)

A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats³ should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

- 1. The Migratory Birds Treaty Act of 1918.
- 2. The Bald and Golden Eagle Protection Act of 1940.
- 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

Project code: 2024-0098919

NAME	BREEDING SEASON
American Golden-plover <i>Pluvialis dominica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10561	Breeds elsewhere
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Aug 31
Black-billed Cuckoo <i>Coccyzus erythropthalmus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Bobolink <i>Dolichonyx oryzivorus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9454	Breeds May 20 to Jul 31
Cerulean Warbler <i>Setophaga cerulea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/2974	Breeds Apr 21 to Jul 20
Chimney Swift <i>Chaetura pelagica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9406	Breeds Mar 15 to Aug 25
Eastern Whip-poor-will <i>Antrostomus vociferus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10678	Breeds May 1 to Aug 20
Field Sparrow <i>Spizella pusilla</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9446	Breeds Mar 1 to Aug 15
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds elsewhere

BREEDING NAME **SEASON** Grasshopper Sparrow *Ammodramus savannarum perpallidus* Breeds Jun 1 to This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions Aug 20 (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8329 Henslow's Sparrow Centronyx henslowii Breeds May 1 This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA to Aug 31 and Alaska. https://ecos.fws.gov/ecp/species/3941 Kentucky Warbler *Geothlypis formosa* Breeds Apr 20 This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA to Aug 20 and Alaska. https://ecos.fws.gov/ecp/species/9443 **Breeds** Le Conte's Sparrow *Ammospiza leconteii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA elsewhere and Alaska. https://ecos.fws.gov/ecp/species/9469 Lesser Yellowlegs Tringa flavipes **Breeds** This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA elsewhere and Alaska. https://ecos.fws.gov/ecp/species/9679 Pectoral Sandpiper *Calidris melanotos* **Breeds** This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA elsewhere and Alaska. https://ecos.fws.gov/ecp/species/9561 Breeds May 1 Prairie Warbler *Setophaga discolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA to Jul 31 and Alaska. https://ecos.fws.gov/ecp/species/9513 Prothonotary Warbler *Protonotaria citrea* Breeds Apr 1 to This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA Jul 31 and Alaska. https://ecos.fws.gov/ecp/species/9439 Red-headed Woodpecker *Melanerpes erythrocephalus* Breeds May 10 This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA to Sep 10 and Alaska. https://ecos.fws.gov/ecp/species/9398 Rusty Blackbird Euphagus carolinus **Breeds** This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions elsewhere (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9478

NAME	BREEDING SEASON
Semipalmated Sandpiper <i>Calidris pusilla</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9603	Breeds elsewhere
Short-billed Dowitcher <i>Limnodromus griseus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Upland Sandpiper <i>Bartramia longicauda</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9294	Breeds May 1 to Aug 31
Wood Thrush <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9431	Breeds May 10 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

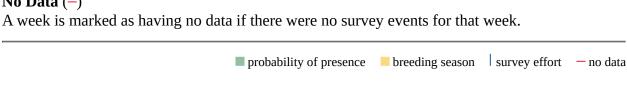
Breeding Season (**•**)

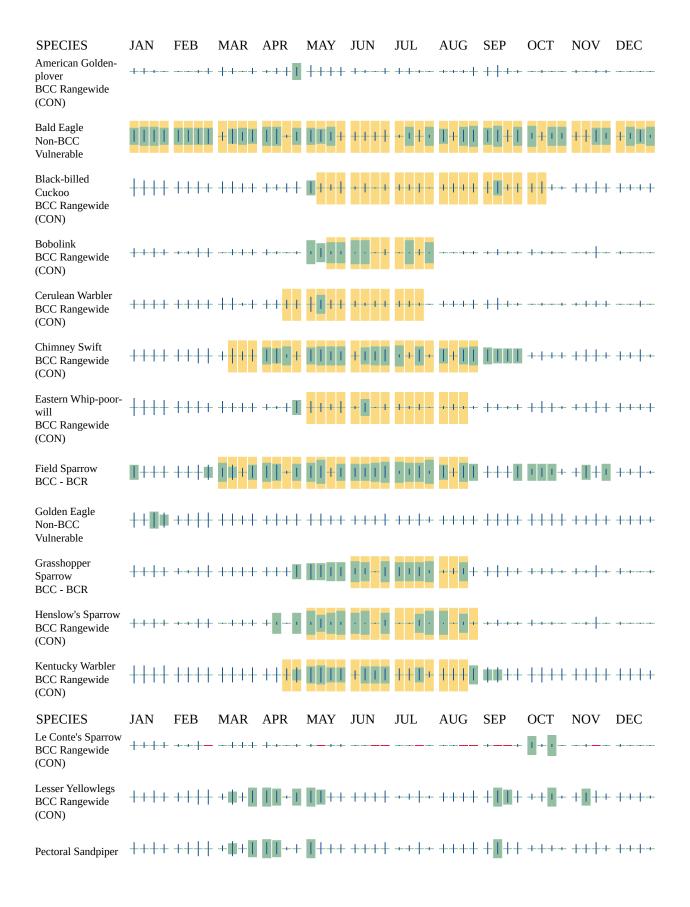
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

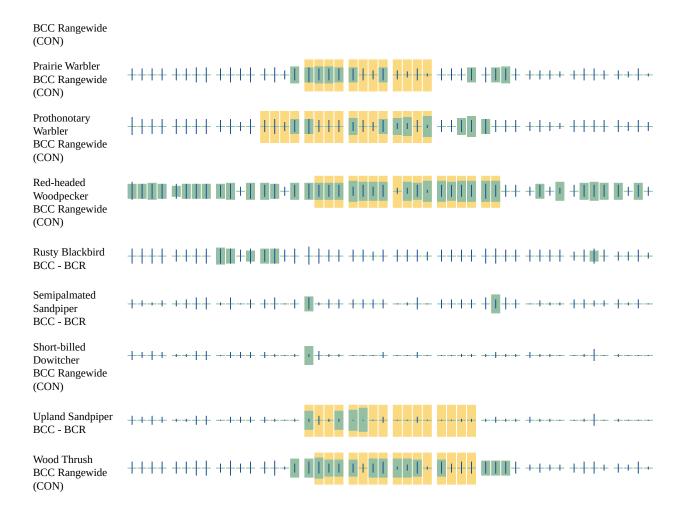
Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (-)







Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

WETLANDS

Impacts to <u>NWI wetlands</u> and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local <u>U.S. Army Corps of Engineers District</u>.

Project code: 2024-0098919 06/03/2024 22:28:52 UTC

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

■ PEM1Cx

RIVERINE

• R2UBH

Project code: 2024-0098919 06/03/2024 22:28:52 UTC

IPAC USER CONTACT INFORMATION

Agency: AECOM

Name: Christy Anderson Address: 625 West Ridge Pike

City: Conshohocken

State: PA Zip: 19428

Email christy.anderson@aecom.com

Phone: 4849426089

You have indicated that your project falls under or receives funding through the following special project authorities:

• BIPARTISAN INFRASTRUCTURE LAW (BIL) (OTHER)

Wabash Valley Resources,	LLC – Wabash Hydrogen Energy Center Project	Appendix F	Transportation Reports
APPENDIX F	TRANSPORTATION REPORTS		

Attachment 1: Transportation Reports

- 1. "Carbon Capture Project Traffic Analysis" Thrive West Central, July 2024
- 2. "Haul Vehicle Route Turning Analysis" Banning Engineering, Inc., September 2024
- 3. "Level of Service Analysis" Traffic Engineering, Inc., October 2024
- 4. "Traffic Engineering Analysis" Traffic Engineering, Inc., October 2024
- 5. "Traffic Signal Warrant Analysis" Traffic Engineering, Inc., October 2024



Carbon Capture Project Traffic Analysis

Thrive West Central

Study Understanding

Thrive West Central, the Rural Planning Organization based in Terre Haute, Indiana, was uniquely tasked with examining the existing transportation infrastructure, operations, and maintenance and determining what would be required to sustain long-term, repeated trucking operations for a specific business.

Assumptions:

- As noted on Map 1, operations will utilize pre-determined travel routes from one loading site
 to two off-loading sites. The loading site is in Vigo County, and the off-load locations are in
 Vermillion County, Indiana.
- All loads originate at 444 West Sandford Ave, West Terre Haute.
- Off-Load Site #1 is situated at 39.624378, -87.488673, adjacent to Vermillion County Road 1800 South in Vermillion County.
- Off-Load Site #2 is positioned at 39.551603, -87.488378, near Reiter Place and West 72nd Ave/West Wright Ave in Vigo County.
- For calculations, the proposed haul schedule is expected to be 5 loads each hour, 24 hours a day, 365 days per year for 12 years. This equates to 240 daily trips (one out/one return) and 87,600 one-way trips annually.

 Map 1- Wabash Valley Resources Routes & Sites
- The trips are distributed equally among the six routes for calculation purposes, or 26.7 trips.
- Hauling trucks are calculated to be 4-axle trailers with a single-axle cab.
- For calculations, each truck weighs 80,000 pounds per trip.

Existing Conditions & Data:

Land Uses

Growth is not a term commonly associated with West Central Indiana. The region has experienced a steady population decline over the past several decades. For instance, Vermillion County's population decreased from

Cencentry

Cencentry

Clinton

Lyford

Universal

Universal

Universal

Shepardsville

New Gashen

West New
Goshen

Tecumseh

North Terre
Haute

18,229 in 1980 to 15,439 in the 2020 US Census, marking a 15.3% decline (Indiana, n.d.). The land uses near the Load and Off-Load sites and along the designated travel routes have remained consistent over the same timeframe. Vermillion County comprises 166,400 acres or 260 square miles of land, 74% of which is deemed agricultural use (US Census, 2017). Considering the region's population and housing trends, the farming and sporadic housing

surrounding the proposed routes is anticipated to remain unchanged. The closest town of any size is Clinton, with a population of 4,821, according to Stats Indiana.

Average Annual Daily Traffic

Indiana measures traffic using Average Annual Daily Traffic (AADT), which represents the average number of vehicles that pass a specific point on the road in 24 hours over a one-year period. Most locations are physically counted once every three years, with growth factors applied during years two and three. AADT tracks long-term travel changes on roadways (Editorial Team, 2024). Portions of the designated routes have a solid history of AADT through the Indiana Department of Transportation.

A benefit of today's traffic counting technology is the ability to collect fleet information. Automobiles, motorcycles, and freight trucks all have distinct weight, axle, and wheelbase patterns that are captured. Knowing the number of trucks on a roadway helps engineers determine future maintenance needs based on today's wear and tear. The higher the percentage of trucks on a roadway, the more frequent the maintenance needs. Larger and slower trucks can also impact traffic flow when encountering stop/start situations. This analysis only examines load/off-load trips.

Roadways

As mentioned earlier regarding land use, the Vermillion and Vigo Counties' roadways are expected to remain unchanged. Rural county roads typically consist of narrow, two-lane routes that connect small towns and farms to regional centers. Rural state roads vary in width from two to four lanes, depending on their intended function. Due to sporadic housing and widespread agriculture, rural roads are the norm throughout the area. Historical records suggest that these roadways were initially constructed during the 1960s and 1970s and have seen minimal changes since their original design and construction.

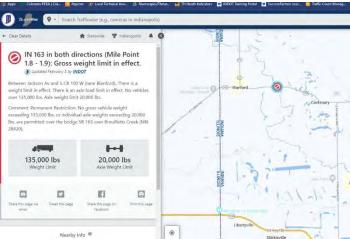
Indiana Route 63 (IN-63) is an exception. This INDOT-controlled four-lane, high-speed divided highway is a critical link for local, regional, and interstate traffic in western Indiana. This roadway spans significant distances and facilitates the movement of people and goods across the region, such as Terre Haute to Chicago.

Additionally, IN-63 and IN-163 near the City of Clinton are equipped with traffic signals to control traffic flow in each direction. These signals provide predictable and timely traffic regulation, reducing driver frustration and minimizing conflicts at these intersections. The predictable traffic signal prevents drivers from taking chances

INDOT Area Restrictions/Closures

The Indiana Department of Transportation (INDOT) maintains a real-time traveler's information page that identifies road closures, construction, or load restrictions. Figure 2 on IN-163 shows that one location identifies a permanent bridge load restriction of 135,000 pounds or 20,000 axle weight limit for the Blanford bridge over Bouillottes Creek. Due to financial and engineering challenges, INDOT has not scheduled this bridge replacement.

Figure 2- INDOT 511 Post



Proposed Operations

Average Annual Daly Traffic

As previously mentioned, the hauling schedule is estimated at five loads per hour, operating 24 hours a day, 365 days a year, for 12 years. This equates to at least half of the 240 one-way trips (120) per day using trucks at or near the 80,000-pound limit. To perform operations analysis, 26.7 daily trips were added to each designated route to evenly spread the use. Since AADT is a one-day snapshot of vehicles passing a certain point, adding these trips does not significantly change roadway daily traffic. The only notable future change noted is a 1.5% increase in truck traffic at Intersection #3 at IN-163 and State Line Road.

Roadways

Equivalent Single Axle Loads (ESALs)

Engineers utilize Equivalent single-axle loads, commonly called ESALs, as a standardized measure to express the damage caused by heavy loads on pavement. This standardization is significant for projecting the long-term maintenance costs based on today, or in this case, anticipated traffic. By predicting pavement performance, ESALs help minimize maintenance costs and extend the lifespan of pavements, thereby contributing to safer and more efficient transportation networks.

The calculations for a 4,000-pound automobile would give an estimated ESAL of 0.0004. Calculating the per 5-axle 80,000-pound tractor semi-trailer ESAL is 2.45.

365 operating days per year*120 loaded trips per day*2.45 ESALs per truck= 107,310 ESALs

Future Safety Considerations

Looking ahead, changes in traffic levels due to this project should trigger periodic safety reviews for the designated routes. It is prudent to assess roadway conditions and opportunities for improvement. For instance, conducting regular assessments of traffic flow

at various times along IN-63 can provide valuable insights into potential delays and safety risks. Uncontrolled intersections along this highway present specific risks, as they only regulate movements from side roads with stop signs. Without reliable traffic control measures, such as traffic signals, drivers may encounter challenges crossing four lanes of traffic, particularly during peak travel times.

Figure 3 and
Appendix B show
that traffic signals
are present at IN63 and IN-163 in
Clinton among the
intersections
investigated in this
report. Monitoring
IN-63 in the future



would allow for observing changing traffic patterns and potential safety hazards, thereby improving intersection safety. If congestion or safety issues arise at any intersection in the future, working with county and state transportation officials can facilitate timely investments and improvements to address these concerns effectively.

Appendix A: Acronyms

Appendix A: A	
AADT	Average Annual Daily Traffic
CE	Categorical Exclusion of the National Environmental Policy Act- A class of actions that a Federal agency has determined do not individually or cumulatively have a significant effect on the human environment and for which, therefore, neither an environmental assessment nor an environmental impact statement is usually required.
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act, also known as Superfunds. The program identifies and cleans up abandoned hazardous waste sites.
DOE	United States Department of Energy
EPA	Environmental Protection Agency
ESAL	Equivalent single-axle loads, commonly called ESALs, are a standardized measure used in pavement engineering to assess the impact of different loads on pavement.
ETC	USDOT Equitable Transportation Community Explorer
FHWA	The Federal Highway Administration division of the United States Department of Transportation
STORET	EPA's Storage and Retrieval (STORET) System
IN-63	State Road 63. All State highways identified as IN-63 or SR63 are operated and maintained by the Indiana Department of Transportation
INDOT	Indiana Department of Transportation, a division of the State of Indiana
MEV Rate	Million Entering Vehicles Rate is a metric used in traffic safety analysis to evaluate the frequency of traffic crashes.
NEPA	National Environmental Policy Act
RCRA	Resource Conservation & Recovery Act Information- inventory of all Hazardous Waste generators, transporters, treaters, storers, and disposers.
NPDES	The National Pollution Discharge Elimination System regulates water discharge, such as municipal or industrial wastewater treatment facilities.
SO2 1-Hour	The 2010 Standard for Sulfur Dioxide
Superfund NPL	Superfund National Priorities List
USDOT	US Department of Transportation
USGS	US Geological Survey

Appendix B: Google Earth Images of Intersections



















Appendix C: Federal Functional Classification Criteria from the Federal Highway Administration (FHWA) webpage



Road Function Classifications

he U.S. DOT's Federal Highway Administration (FHWA) classifies our Nation's urban and rural roadways by road function. Each function class is based on the type of service the road provides to the motoring public, and the designation is used for data and planning purposes. Design standards are tied to function class. Each class has a range of allowable lane widths, shoulder widths, curve radii, etc. The following photos and information illustrate the four major road function classifications: Interstates, Other Arterials, Collectors, and Local roads. The amount of mobility and land access offered by these road types differs greatly.

The Interstate System is the highest classification of roadways in the United States. These arterial roads provide the highest level of mobility and the highest speeds over the longest uninterrupted distance. Interstates nationwide usually have posted speeds between 55 and 75 mi/h.



Rural Interstate

North Carolina



Urban Interstate

other Arterials include freeways, multilane highways, and other important roadways that supplement the Interstate System. They connect, as directly as practicable, the Nation's principal urbanized areas, cities, and industrial centers. Land access is limited. Posted speed limits on arterials usually range between 50 and 70 mi/h.



Rural Arterial





Urban Arterial

California

docal roads and streets with arterials. Collectors provide less mobility than arterials at lower speeds and for shorter distances. They balance mobility with land access. The posted speed limit on collectors is usually between 35 and 55 mi/h.



Rural Collector

New Yo



roads provide limited mobility and are the primary access to residential areas, businesses, farms, and other local areas. Local roads, with posted speed limits usually between 20 and 45 mi/h, are the majority of roads in the U.S.



Rural Local Pennsylvania



Urban Local New

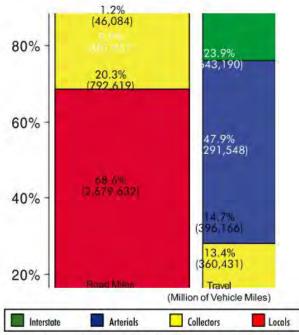


Figure 1. Total Road Mileage and Travel by Road Function (1999)

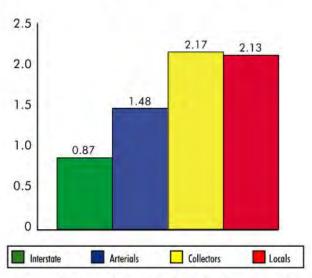
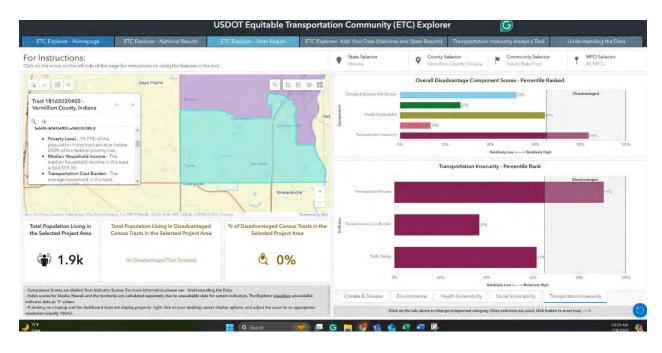
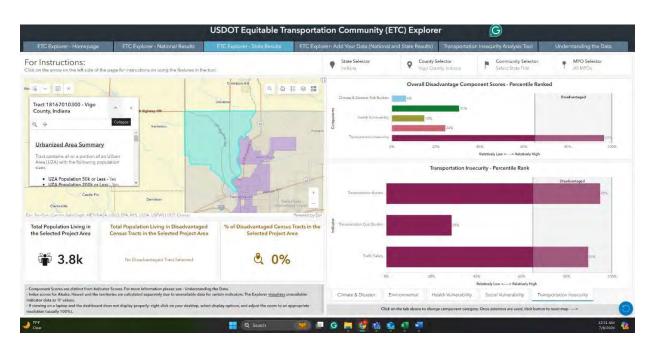


Figure 2. Overall Fatality Rates by Function Class (Fatalities per 100 M VMT, speeding-related and nonspeeding fatalities combined) (1999)

Source: Table VM-2 for VMT, and HM-20 for Public Road Miles, FHWA 1999 Highway Statistics. Fatality data come from NHTSA Fatality Analysis Reporting System.

Appendix D: EPA NEPAssist and USDOT Equitable Transportation Community Explorer





Appendix E: References

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Appendix F: General Vehicle Weight Estimates

APPROXIMATE VEHICLE WEIGHTS



AVERAGE STANDARD CAR - 1.5 TONS

AVERAGE STANDARD TRUCK - 3 TONS



AVERAGE AMBULANCE-5 TONS





AVERAGE LOADED SCHOOL BUS - 17 TONS







AVERAGE FIRE TRUCK 19 TONS - 30 TONS

AVERAGE LOADED

GARBAGE TRUCK - 25 TON



AVERAGE LOADED
PLOWTRUCK - 28 TONS

AVERAGE LOADED CEMENT TRUCK - 33 TONS



AVERAGE LOADED DUMP
TRUCK - 36 TONS

AVERAGE LOADED TRACTOR TRAILER - 40 TONS



Appendix G: Report Data

Traffic Conditions today

or Trust by Internation (v. 2000 2022)											
1 4 !	Curre Church	AADT	TAADT	% Truck by	Intersection %	2019-2023	MEN D-4-	Netes			
Location	Cross Streets	AADT	TAADT	Leg	truck	Crashes	MEV Rate	Notes			
Intersection 1	IN CO	44475	2522	22.70/		1.0	0.77	A size of /obic obic section and observe			
Vigo County	IN-63	11175	2533	22.7%	22.50/	16	0.77	Animal/object in roadway			
	Trinity Ave	272	44	16.2%	22.5%						
Intersection 2				/							
Vigo County	IN-63	14573	2311	15.9%		14	0.51	Animal/Object in Roadway / Failure to Yield			
	Sanford Rd (estimated)	373	37.3	10.0%	15.7%						
Intersection 3							MEV Rate				
Vermillion County	IN -163	1280	156	12.2%		0	-	N/A			
	State Line Rd (estimated)	250	25	10.0%	11.8%						
Intersection 4							MEV Rate				
Vigo County	IN-150	2923	418	14.3%		6	1.03	Animal/Object in Roadway / following too closely			
	Trinity Ave	272	44	16.2%	14.5%						
Intersection 5							MEV Rate				
Vermillion County	IN-63	10061	1660	16.5%		10	0.39	Animal/Object in Roadway / following too closely			
	IN-163	4128	146	3.5%	12.7%						
Intersection 6							MEV Rate				
Vigo County	IN-63	13523	1712	12.7%		6		Animal/Object in Roadway / following too closely			
,	Bolton Rd	956	70	7.3%	12.3%			. , , , , , , , , , , , , , , , , , , ,			
Intersection 7							MEV Rate				
Vigo County	IN-63	14573	2311	15.9%		17		Animal/Object in Roadway / Failure to Yield			
1.80 00 0	Durkees Ferry Rd	1141	28	2.5%	14.9%	<u></u> /	0.00	rumman, expect in research for tallette to their			
	Burkees Ferry Ru		20	2.370	11.570						
Intersection 8							MEV Rate				
Vigo County	IN-150	3070	427	13.9%		4		Animal/Object in Roadway / Failure to Yield			
vigo county	Durkees Ferry Rd	1141	28	2.5%	10.8%	т	0.52	raman object in nodaway / ramare to field			
	Darkees refry hu	1171	20	2.5/0	10.070						
Intersection 9							MEV Rate				
Vigo County	IN-150	3070	427	13.9%		2		Animal/Object in Roadway / Failure to Yield			
vigo county	Sanford Rd	373	150	10.0%	12.6%	۷	0.52	Animal Object in Roduway / Failule to Held			
	Sallioru Ku	3/3	150	10.0%	12.0%						

Traffic Conditions 2023

Future Estimations

		Traffic Cond	itions 20	23		Future Estimations							
				2023 %			2035						
			2023	Truck By	2023	2035	Truck	2035 % Truck	2035 % Truck				
Intersection 1		2023 AADT	TAADT	Leg	%truck	AADT	AADT	By Leg	Intersection				
Vigo County	IN-63	11,175	2,533	22.67%		11,175	2,533	22.67%	0.18%				
	Trinity Ave	272	44	16.18%	22.51%	299	71	23.66%	22.69%				
Intersection 2													
Vigo County	IN-63	14,573	2,311	15.86%	,	14,573	2,311	15.86%	0.14%				
	Sanford Rd (estimated)	1,500	150	10.00%	15.31%	1,527	177	11.57%	15.45%				
Intersection 3													
Vermillion County	IN -163	1,280	156	12.19%)	1,280	156	12.19%	1.51%				
	State Line Rd (estimated)	250	25	10.00%	11.83%	277	52	18.67%	13.34%				
Intersection 4													
Vigo County	IN-150	2,923	418	14.30%		2,923	418	14.30%	0.71%				
	Trinity Ave	272	44	16.18%	14.46%	299	71	23.66%	15.17%				
Intersection 5													
Vermillion County	IN-63	10,061	1,660	16.50%		10,061	1,660	16.50%					
	IN-163	4,128	146	3.54%	12.73%	4,155	173	4.16%	12.89%				
Intersection 6													
Vigo County	IN-63	13,523	1,712	12.66%		13,523	1,712	12.66%	0.16%				
	Bolton Rd	956	70	7.32%	12.31%	983	97	9.84%	12.47%				
Intersection 7													
Vigo County	IN-63	14,573	2,311	15.86%	,	14,573	2,311	15.86%	0.14%				
	Durkees Ferry Rd	1,141	28	2.45%	14.88%	1,168	55	4.68%	15.03%				
Intersection 8													
Vigo County	IN-150	3,070	427	13.91%	,	3,070	427	13.91%	0.56%				
	Durkees Ferry Rd	1,141	28	0	10.81%	1,168	55	0	11.37%				
Intersection 9													
Vigo County	IN-150	3,070	427	0		3,070	427	0	0.51%				
	Sanford Rd	1,500	150	0	12.63%	1,527	177	0	13.13%				



HAUL VEHICLE ROUTE TURNING ANALYSIS

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Prepared by:



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Table of Contents

Introduction	. 3
Data Collection	
Analysis	
Northern Haul Route	
Southern Haul Route	. 5
Summary	. 5
Appendix A - Northern Haul Route and Intersections	. 6
Appendix B - Southern Haul Route Map and Intersections	17

Figure 1: Passing Vehicle for Northern Haul Route (Page 4)
Figure 2: Passing Vehicle for Southern Haul Route (Page 5)





Introduction

The following report describes the findings of Banning Engineering, Inc. for the haul route turning radius study performed for Wabash Valley Resources, LLC. Two separate hauling routes were evaluated. An array of vehicles were analyzed and the largest "passing" vehicle configuration is shown in this report.

A passing vehicle configuration is considered a turning path where all wheel paths traverse over pavement or gravel portions of the respective roadways. At times, additional linework may appear to be outside the gravel or pavement, however, this linework is actually the rear overhang on the vehicles. Every intersection analyzed and shown on the routes provide a "passing" performance for the vehicle configuration shown. Smaller vehicles than the ones shown could also be utilized on each respective route.

Data Collection

The survey information presented for this report was collected in the field between August 12 and August 16, 2024. Data was gathered using a data collector and standard surveying techniques with global positioning system (GPS) equipment. A real-time kinematic (RTK) correction service, provided by the VRS Network, was utilized to enhance accuracy. Locations at intersections of pavement and gravel limits were acquired. Additionally, items such as power poles, fence posts or other items that may interfere with turning movements were located.

Aerial imagery was obtained from the Indiana Spatial Data Portal. The downloaded images were imported into Global Mapper V24.0 and cropped to encompass the desired area. Subsequently, the images were exported as JPEG files. These JPEG files were then imported into AutoCAD and georeferenced to the appropriate coordinate system.

Analysis

The turning swept path analysis was performed within the Autocad suite of programs. The vehicle tracking module specifically was utilized. Standard vehicles within this module were operated. The analysis output provided outside locations for wheel paths and vehicle overhangs (typically in the rear of a vehicle).

The route analysis locations are within the northwest portion of Vigo County and southern portion of Vermillion County. Both routes begin at the Wabash Valley Resources, LLC (WVR) plant and provide intersection by intersection evaluation both to and from the haul destination.





Northern Haul Route

The northern haul route is approximately 28 miles in total. The route is approximately 19 miles from the plant to the haul destination for the loaded trip. The return, empty trip, is 9 miles. The northern haul route consists of the following segments and intersections. See Appendix A for a map and intersection analysis.

- 1. From Plant, Sandford Road (West 0.5 miles)
- 2. North 1 intersection (Sandford Road and SR 63) right turn
- 3. State Highway 63 (North 8.2 miles) (Leave Vigo Enter Vermillion)
- 4. North 2 intersection (SR 163 and SR 63) left turn
- 5. State Highway 163 (West 5.4 miles)
- 6. North 3 intersection (State Line Rd and SR 163) left turn
- 7. State Line Road (South 1.5 miles)
- 8. North 4 intersection (State Line Rd and Brouilletts Rd) left turn
- 9. Brouilletts Road (East 1.2 miles)
- 10. North 5 intersection (Brouilletts Rd and CR 250 W) right turn
- 11. CR 250 West (South 1.6 miles)
- 12. North 6 intersection (CR 250 W and CR 1800 S) left turn
- 13. CR 1800 South (East 0.5 miles), to Haul Destination
- 14. From Haul Destination, CR 1800 South (East 1.5 miles)
- 15. North 7 intersection (CR 1800 S and Rangeline Rd) right turn
- 16. Rangeline Road (South 1.5 miles) (Leave Vermillion Enter Vigo)
- 17. North 8 intersection (Rangeline Rd and Trinity Ave) left turn
- 18. Trinity Avenue (East 1.4 miles)
- 19. North 9 intersection (Trinity Ave and SR 63) right turn
- 20. State Highway 63 (South 4.1 miles)
- 21. North 10 intersection (SR 63 and Sandford Road) left turn
- 22. Sandford Road (East 0.5 miles), to Plant

All intersections analyzed had a passing evaluation for the northern route. A standard semi tractor with up to a 48 foot trailer navigated the route.

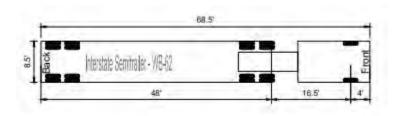


Figure 1: Passing Vehicle for Northern Haul Route





Southern Haul Route

The southern haul route is approximately 9.3 miles in total. The route is approximately 4.1 miles from the plant to the haul destination for the loaded trip. The return, empty trip, is 5.2 miles. Both the loaded and empty trip are within Vigo County. The southern haul route consists of the following segments and intersections. See Appendix B for a map and intersection analysis.

- 1. From Plant, Sandford Road (West 2.9 miles)
- 2. South 1 intersection (Sandford Rd and Regan Rd) right turn
- 3. Regan Road (North 0.5 miles)
- 4. South 2 intersection (Regan Rd and Dugger Ave) left turn
- 5. Dugger Road (West 0.25 miles)
- 6. South 3 intersection (Dugger Ave and Reiter Rd) right turn
- 7. Reiter Road (North 0.25 miles)
- 8. South 4 intersection (Reiter Rd and Wright Ave) left turn
- 9. Wright Ave (West 0.2 miles), to Haul Destination
- 10. From Haul Destination, Wright Ave (West 0.6 miles)
- 11. South 5 intersection (Wright Ave and Hollingsworth PI) left turn
- 12. Hollingsworth Place (South 0.75 miles)
- 13. South 6 intersection (Hollingsworth Pl and Sandford Rd) left turn
- 14. Sandford Road (3.85 miles east), to Plant

All intersections analyzed had a passing evaluation for the southern route. A large truck up to 38 feet in length navigated the route with a passing evaluation.

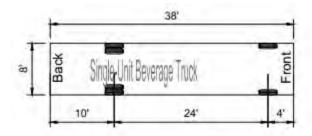


Figure 2: Passing Vehicle for Southern Haul Route

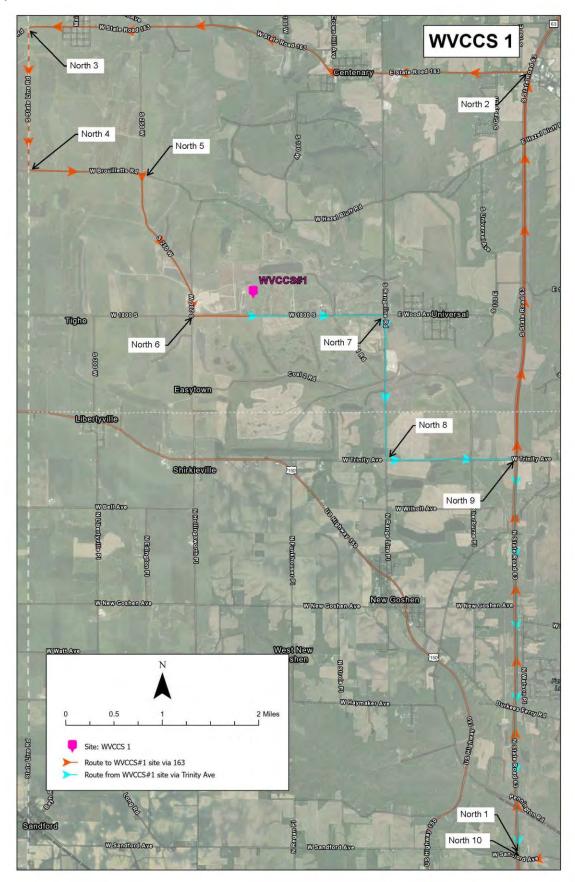
Summary

In summary, both routes analyzed provided a passing evaluation for the respective vehicles evaluated. A passing evaluation for both routes means no additional roadway pavement or gravel is needed to traverse intersections. It is our opinion, if vehicles used are the same size or smaller than the vehicles evaluated within the turning analysis program no additional pavement or gravel will be necessary at the intersections evaluated along the respective routes.



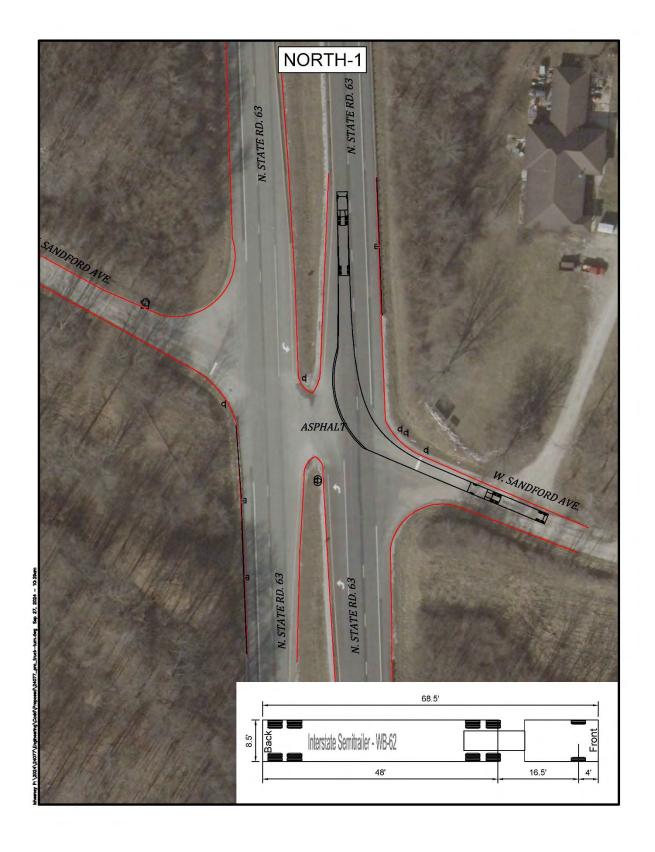


Appendix A- Northern Haul Route and Intersections









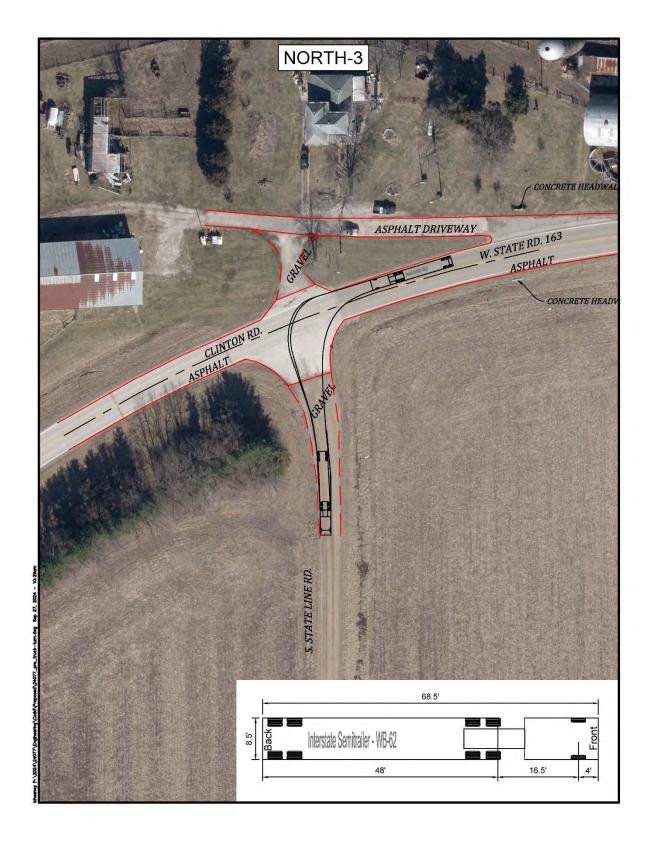






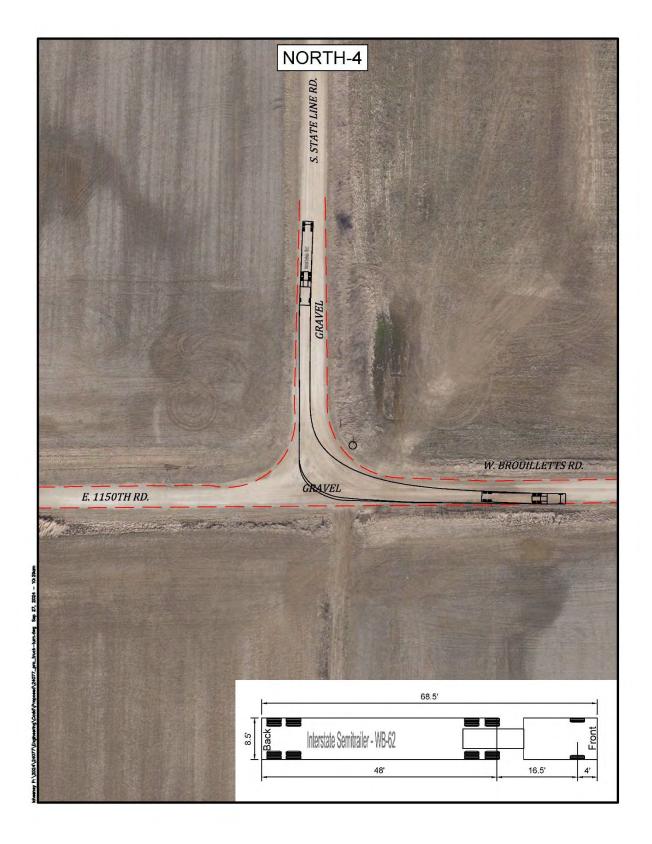






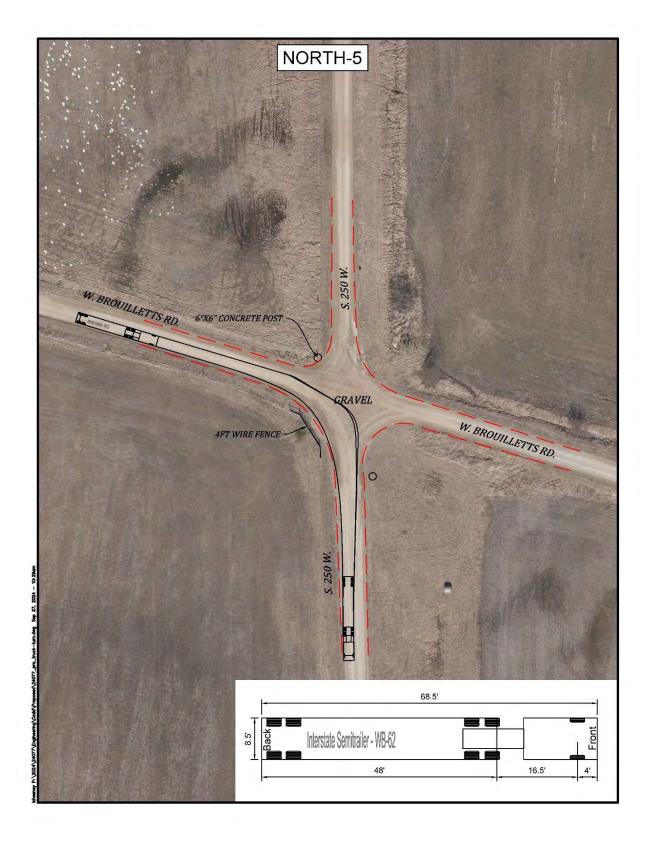






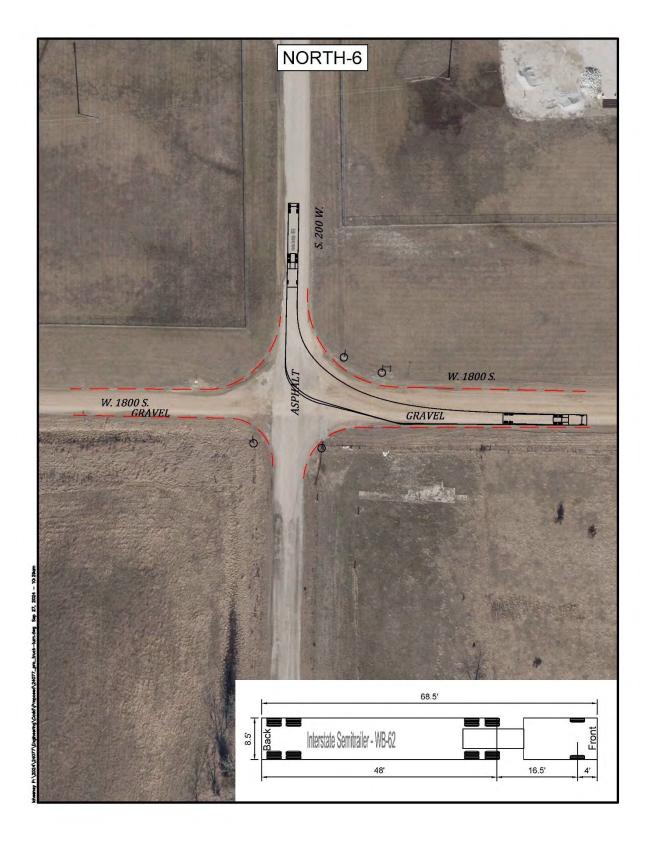












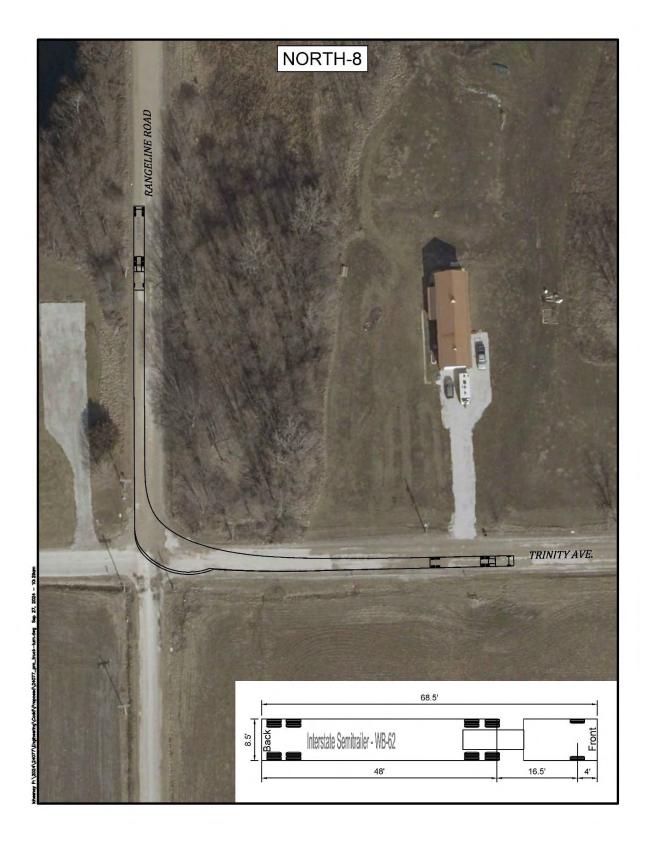






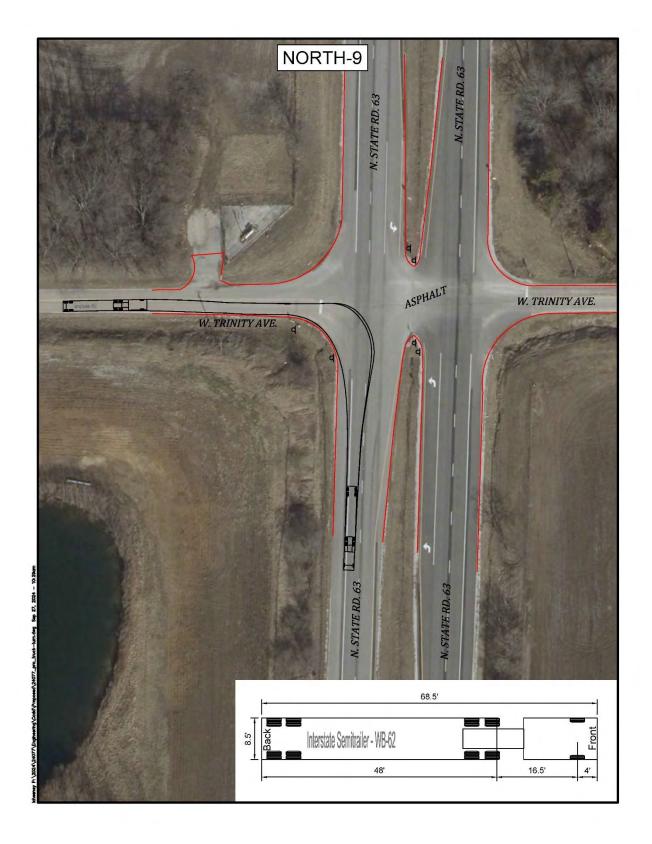






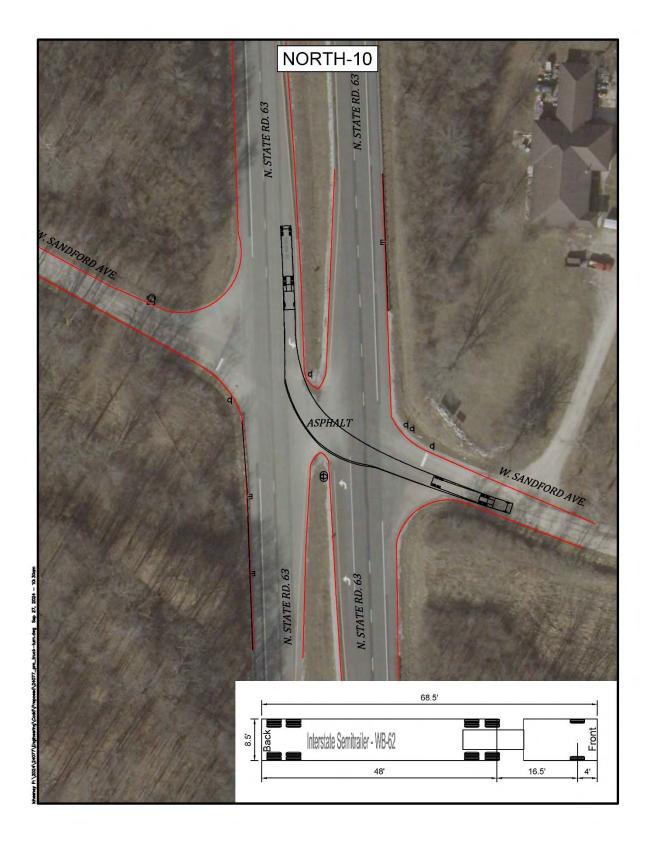








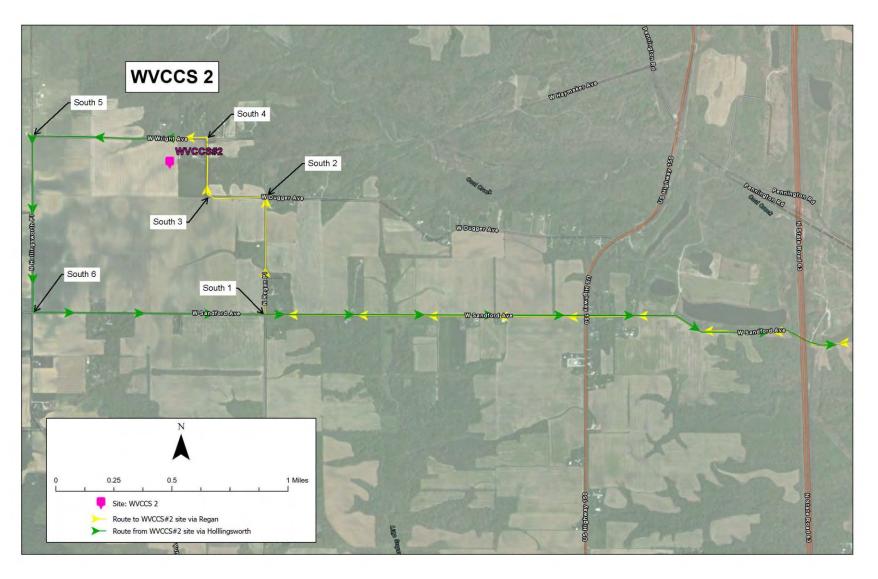






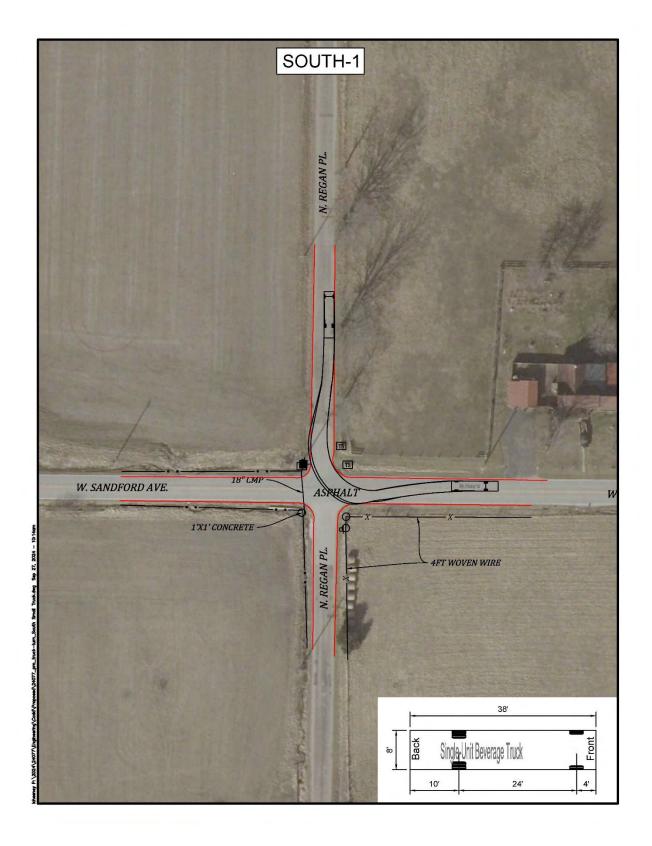
WABASH VALLEY RESOURCES

Appendix B-Southern Haul Route Map and Intersections



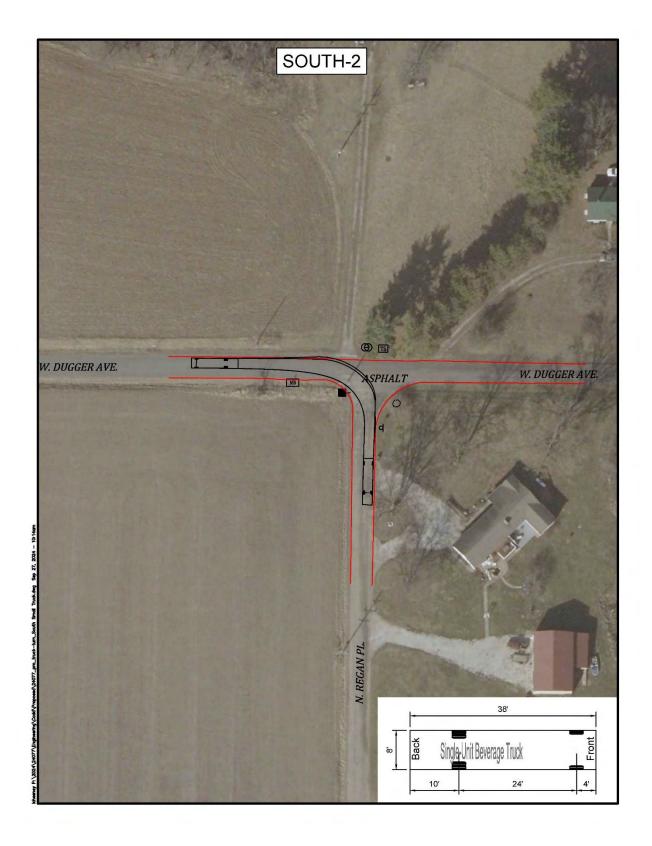






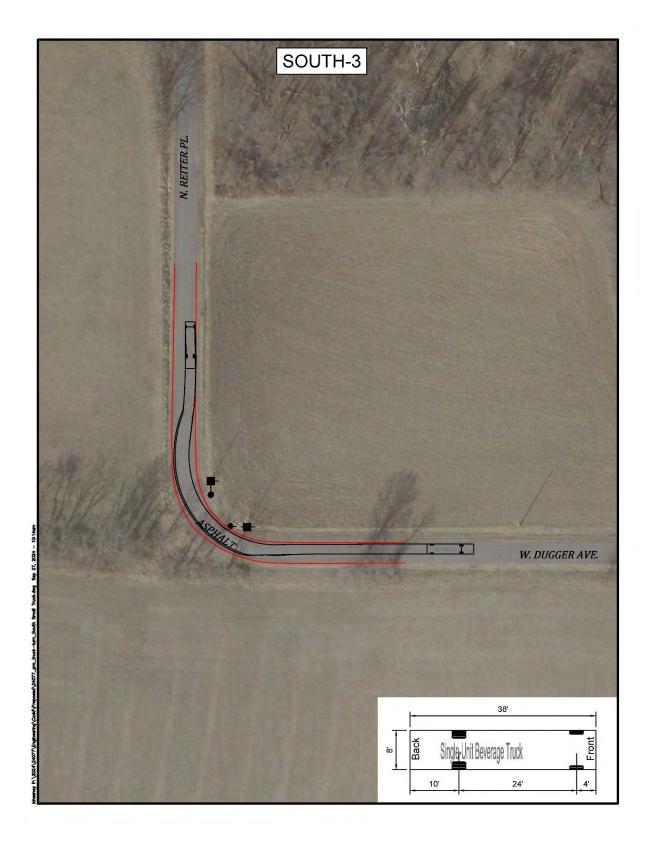






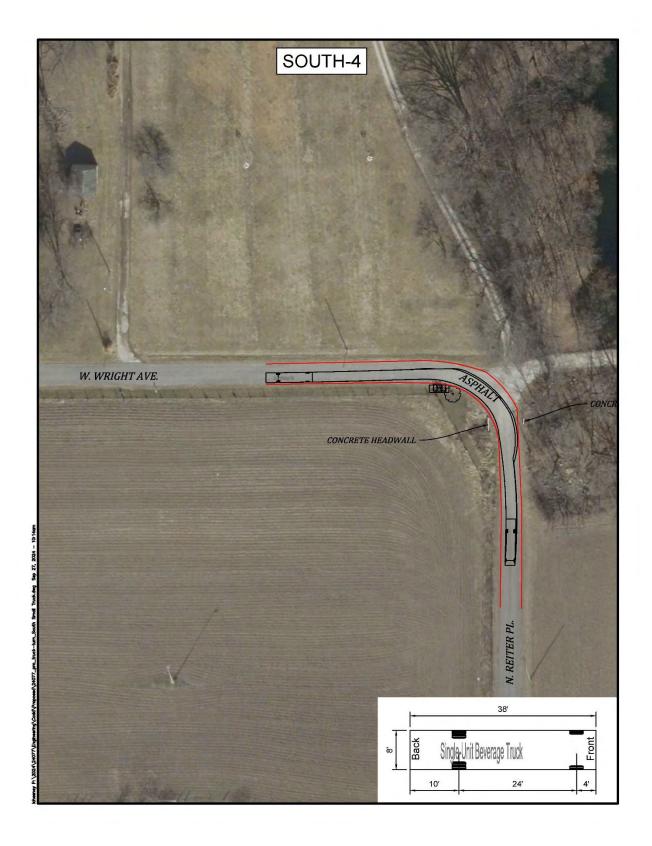






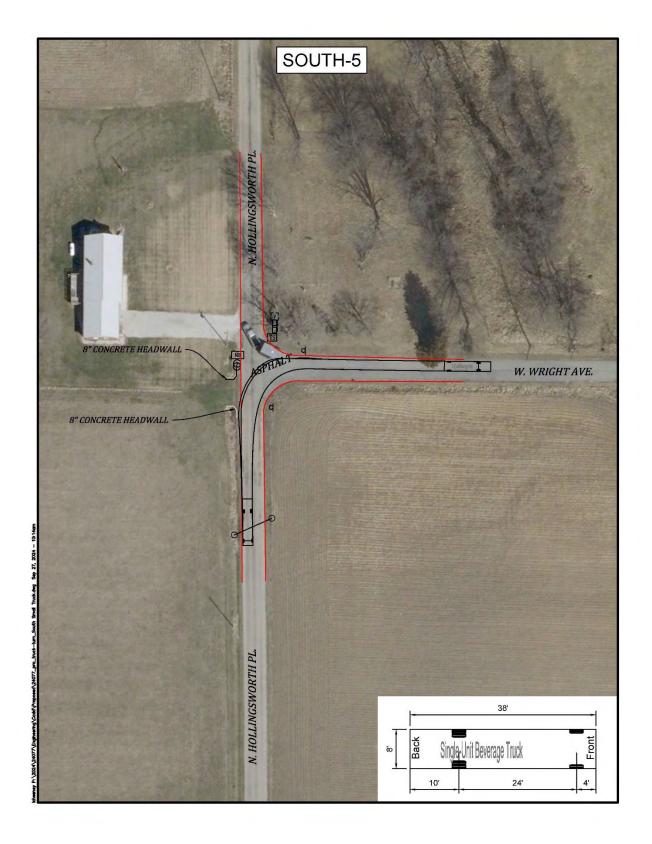






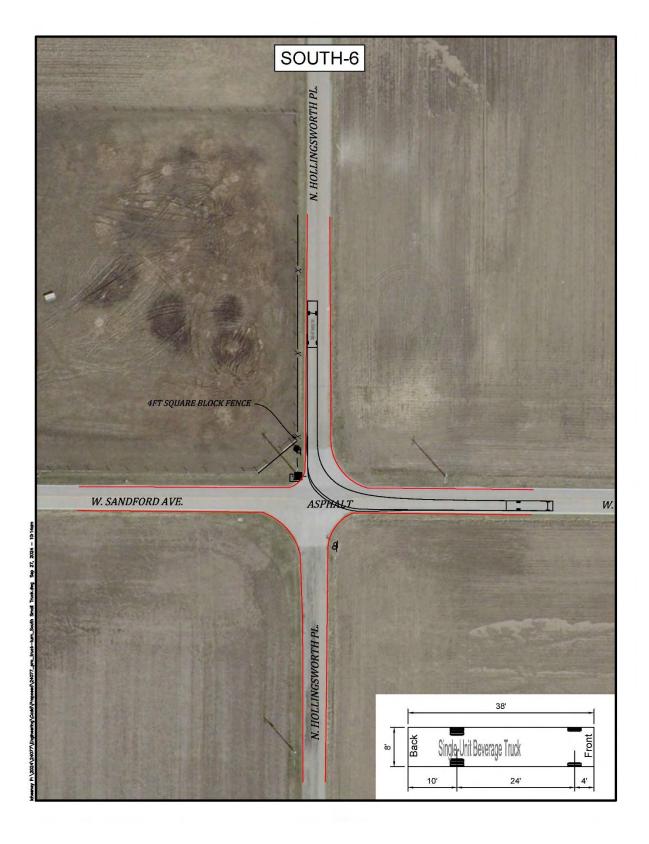
















Level of Service Analysis

SR 63 at Sandford Avenue West Terre Haute, Indiana

Wabash Valley Resources, LLC Haul Vehicle Evaluation

Submitted by:

Chet M. Skwarcan, P.E., President Traffic Engineering, Inc. 1965 E. Main Street, Suite 555 Danville, Indiana 46122 October 9, 2024





SR 63 at Sandford Avenue - WVR

Vistro File: C:\...\SR 63 at Sandford Avenue 10092024.vistro Report File: C:\...\1 LOS - AM Peak Hour - 2024 Existing -

Scenario 1 1 AM Peak Hour - 2024 Existing

10/9/2024

SR 63 at Sandford Avenue 10092024.pdf

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SR 63 at Sandford Road	Two-way stop	HCM 6th Edition	EB Thru	0.007	32.7	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

SR 63 at Sandford Avenue - WVR 10/9/2024





Intersection Level Of Service Report Intersection 1: SR 63 at Sandford Road

Control Type:Two-way stopDelay (sec / veh):32.7Analysis Method:HCM 6th EditionLevel Of Service:DAnalysis Period:15 minutesVolume to Capacity (v/c):0.007

Intersection Setup

Name												
Approach	Approach Northbound		Southbound			E	Eastbound	t t	Westbound			
Lane Configuration	٦lb			чIР				+		+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	120.00	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	60.00			60.00			30.00	-	30.00			
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No		No				No		No			

Volumes

Name												
Base Volume Input [veh/h]	4	408	4	0	770	7	8	1	20	1	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	13.00	2.00	2.00	5.00	2.00	2.00	2.00	5.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	408	4	0	770	7	8	1	20	1	0	0
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	120	1	0	226	2	2	0	6	0	0	0
Total Analysis Volume [veh/h]	5	480	5	0	906	8	9	1	24	1	0	0
Pedestrian Volume [ped/h]	0			0				0		0		



Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.01	0.00	0.06	0.01	0.04	0.00	0.00	0.00	
d_M, Delay for Movement [s/veh]	9.89	0.00	0.00	8.35	0.00	0.00	30.50	32.70	13.11	22.70	31.36	9.83	
Movement LOS	Α	А	Α	А	А	Α	D	D	В	С	D	Α	
95th-Percentile Queue Length [veh/ln]	0.02	0.00	0.00	0.00	0.00	0.00	0.37	0.37	0.37	0.01	0.01	0.01	
95th-Percentile Queue Length [ft/In]	0.51	0.00	0.00	0.00	0.00	0.00	9.32	9.32	9.32	0.37	0.37	0.37	
d_A, Approach Delay [s/veh]		0.10		0.00			18.29			22.70			
Approach LOS		Α			А			С			С		
d_I, Intersection Delay [s/veh]		0.48											
Intersection LOS	D												

SR 63 at Sandford Avenue - WVR 10/9/2024





SR 63 at Sandford Avenue - WVR

Vistro File: C:\...\SR 63 at Sandford Avenue 10092024.vistro Report File: C:\...\1 LOS - AM Peak Hour - 2024 Existing -

Scenario 1 1 AM Peak Hour - 2024 Existing

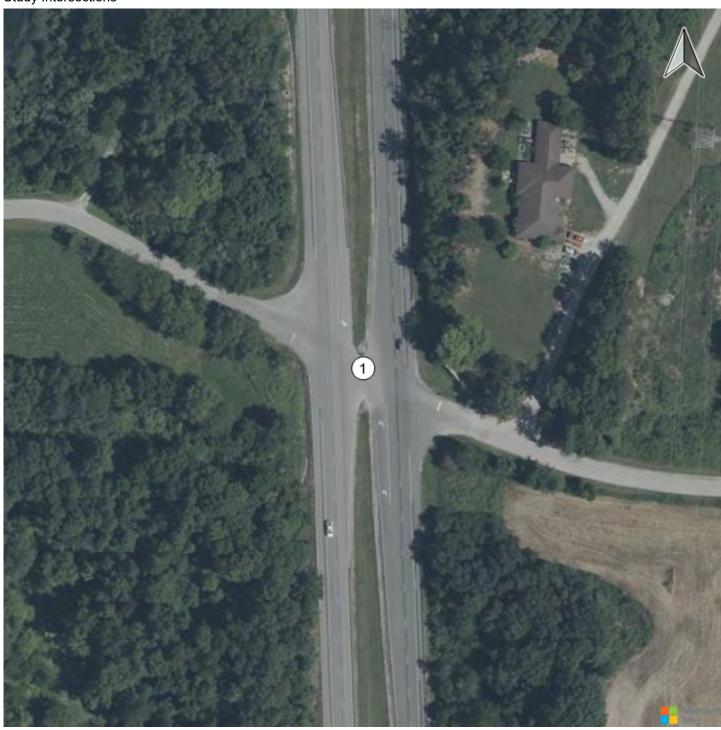
10/9/2024

SR 63 at Sandford Avenue 10092024.pdf

Turning Movement Volume: Detail

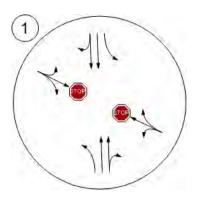
ID Intersection Name	Intersection	Maluma Tuma	Northbound			So	Southbound			Eastbound			Westbound		
	Volume Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume	
		Final Base	4	408	4	0	770	7	8	1	20	1	0	0	1223
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
1	SR 63 at	In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
'	Sandford Road	Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	4	408	4	0	770	7	8	1	20	1	0	0	1223

Study Intersections



Lane Configuration and Traffic Control

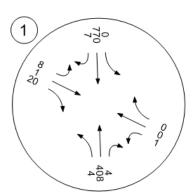






Traffic Volume - Base Volume

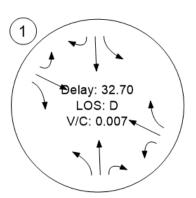






Traffic Conditions









Vistro File: C:\...\SR 63 at Sandford Avenue 10092024.vistro Report File: C:\...\2 LOS - PM Peak Hour - 2024 Existing -

Scenario 4 2 PM Peak Hour - 2024 Existing

10/9/2024

SR 63 at Sandford Avenue 10092024.pdf

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SR 63 at Sandford Road	Two-way stop	HCM 6th Edition	EB Thru	0.018	40.0	Е

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.





Intersection Level Of Service Report Intersection 1: SR 63 at Sandford Road

Control Type:Two-way stopDelay (sec / veh):40.0Analysis Method:HCM 6th EditionLevel Of Service:EAnalysis Period:15 minutesVolume to Capacity (v/c):0.018

Intersection Setup

Name												
Approach	١	lorthboun	d	S	outhboun	d	E	Eastbound	t t	V	Vestbound	d
Lane Configuration		٦١٢			٦lh			+		+		
Turning Movement	Left	- 		Left	Thru	Right	Left Thru		Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	120.00	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	Speed [mph] 60.00			60.00	-		30.00	-		30.00		
Grade [%]		0.00			0.00			0.00			0.00	
Crosswalk		No			No			No			No	

Volumes

Name												
Base Volume Input [veh/h]	23	807	0	0	575	12	9	2	12	4	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	7.00	2.00	2.00	7.00	2.00	11.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	807	0	0	575	12	9	2	12	4	1	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	219	0	0	156	3	2	1	3	1	0	0
Total Analysis Volume [veh/h]	25	877	0	0	625	13	10	2	13	4	1	0
Pedestrian Volume [ped/h]		0	_		0			0	_		0	



Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.00	0.00	0.01	0.00	0.07	0.02	0.02	0.03	0.01	0.00
d_M, Delay for Movement [s/veh]	8.99	0.00	0.00	9.70	0.00	0.00	31.45	40.02	12.13	35.22	39.80	12.65
Movement LOS	Α	Α	А	А	Α	Α	D	E	В	Е	E	В
95th-Percentile Queue Length [veh/ln]	0.08	0.00	0.00	0.00	0.00	0.00	0.35	0.35	0.35	0.13	0.13	0.13
95th-Percentile Queue Length [ft/In]	2.07	0.00	0.00	0.00	0.00	0.00	8.79	8.79	8.79	3.22	3.22	3.22
d_A, Approach Delay [s/veh]		0.25			0.00			22.09			36.14	
Approach LOS	A A C									E		
d_I, Intersection Delay [s/veh]	0.61											
Intersection LOS						E						





Vistro File: C:\...\SR 63 at Sandford Avenue 10092024.vistro Report File: C:\...\2 LOS - PM Peak Hour - 2024 Existing -

Scenario 4 2 PM Peak Hour - 2024 Existing

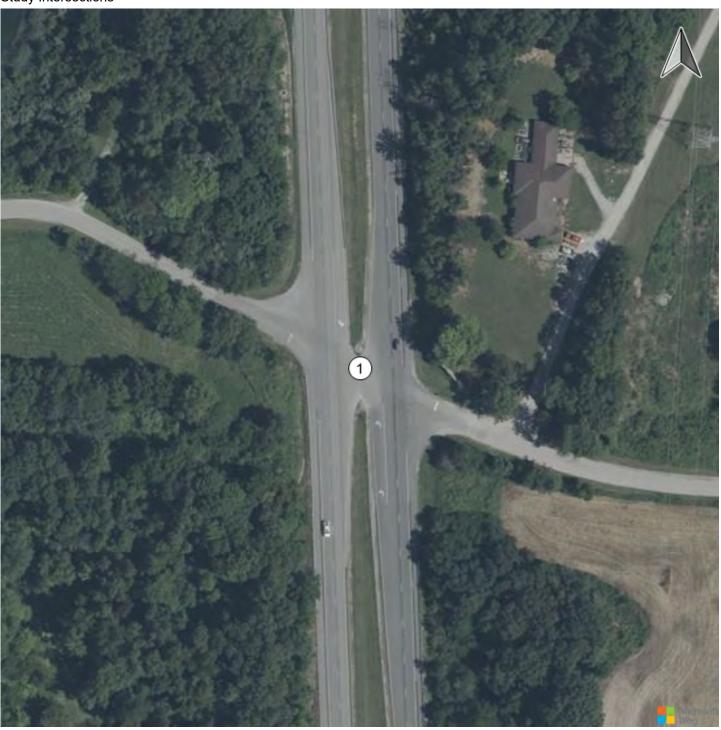
10/9/2024

SR 63 at Sandford Avenue 10092024.pdf

Turning Movement Volume: Detail

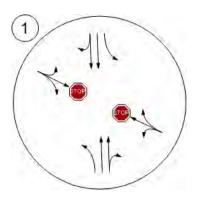
ID	Intersection	Values a Tues	N	orthbou	nd	Southbound			Eastbound			Westbound			Total
ID	Name	Volume Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
		Final Base	23	807	0	0	575	12	9	2	12	4	1	0	1445
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
1	SR 63 at	In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
'	Sandford Road	Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	23	807	0	0	575	12	9	2	12	4	1	0	1445

Study Intersections



Lane Configuration and Traffic Control

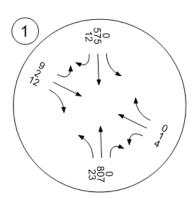






Traffic Volume - Base Volume



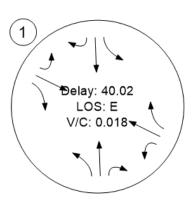


16



Traffic Conditions









Vistro File: C:\...\SR 63 at Sandford Avenue 10092024.vistro

Scenario 2 3 AM Peak Hour - 2029 Existing + BG

10/9/2024

Report File: C:\...\3 LOS - AM Peak Hour - 2029 Existing plus BG - SR 63 at Sandford Avenue 10092024.pdf

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SR 63 at Sandford Road	Two-way stop	HCM 6th Edition	EB Thru	0.008	37.8	Е

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.





Intersection Level Of Service Report Intersection 1: SR 63 at Sandford Road

Control Type:Two-way stopDelay (sec / veh):37.8Analysis Method:HCM 6th EditionLevel Of Service:EAnalysis Period:15 minutesVolume to Capacity (v/c):0.008

Intersection Setup

Name												
Approach	١	Northboun	d	S	outhboun	d	ı	Eastbound	ı	٧	Vestbound	d
Lane Configuration		٦I٢			٦١٢			+		+		
Turning Movement	Left	- 		Left	Thru	Right	Left Thru		Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	120.00	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	Speed [mph] 60.00			60.00	-		30.00			30.00		
Grade [%]		0.00			0.00			0.00			0.00	
Crosswalk		No			No			No			No	

Volumes

Name												
Base Volume Input [veh/h]	4	408	4	0	770	7	8	1	20	1	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	13.00	2.00	2.00	5.00	2.00	2.00	2.00	5.00	2.00	2.00	2.00
Growth Factor	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	440	4	0	830	8	9	1	22	1	0	0
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	129	1	0	244	2	3	0	6	0	0	0
Total Analysis Volume [veh/h]	5	518	5	0	976	9	11	1	26	1	0	0
Pedestrian Volume [ped/h]		0			0			0			0	



Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.00	0.00	0.01	0.00	0.09	0.01	0.05	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	10.20	0.00	0.00	8.46	0.00	0.00	35.28	37.85	14.30	25.19	35.75	10.00
Movement LOS	В	Α	Α	А	Α	Α	E	E	В	D	Е	А
95th-Percentile Queue Length [veh/ln]	0.02	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.50	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.54	0.00	0.00	0.00	0.00	0.00	12.45	12.45	12.45	0.42	0.42	0.42
d_A, Approach Delay [s/veh]		0.10			0.00			20.99			25.19	
Approach LOS	Approach LOS A				Α		С			D		
d_I, Intersection Delay [s/veh] 0.56												
Intersection LOS						ĺ	E					





Vistro File: C:\...\SR 63 at Sandford Avenue 10092024.vistro

Scenario 2 3 AM Peak Hour - 2029 Existing + BG

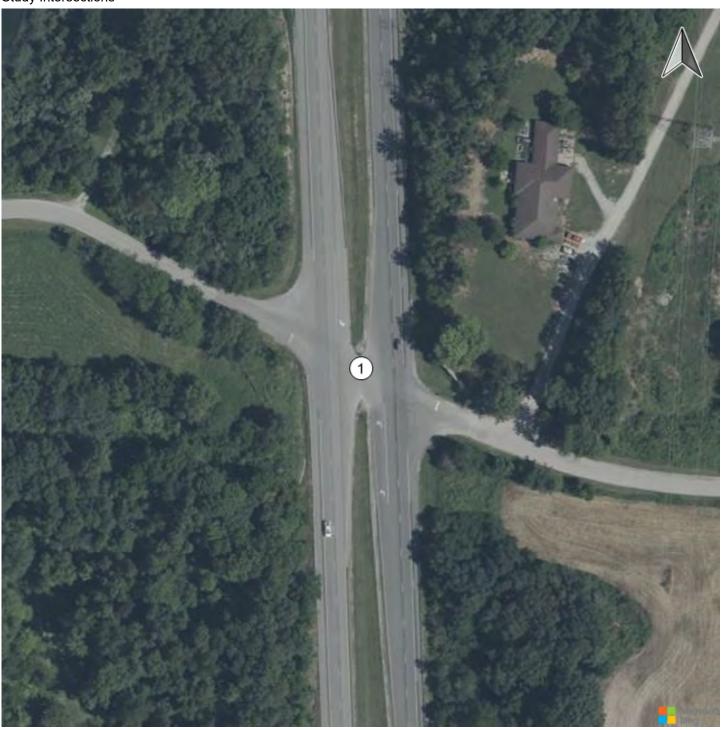
10/9/2024

Report File: C:\...\3 LOS - AM Peak Hour - 2029 Existing plus BG - SR 63 at Sandford Avenue 10092024.pdf

Turning Movement Volume: Detail

ID	Intersection	Valuma Typa	N	orthbou	nd	Sc	outhbou	nd	Е	astboun	ıd	V	estbour/	nd	Total
טו	Name	Volume Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
		Final Base	4	408	4	0	770	7	8	1	20	1	0	0	1223
		Growth Factor	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	-
1	SR 63 at	In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
'	Sandford Road	Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	4	440	4	0	830	8	9	1	22	1	0	0	1319

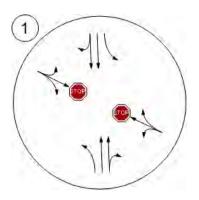
Study Intersections





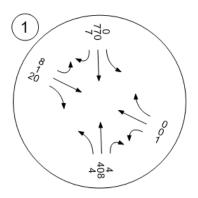
Lane Configuration and Traffic Control





Traffic Volume - Base Volume

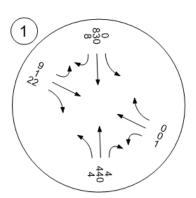






Traffic Volume - Future Background Volume

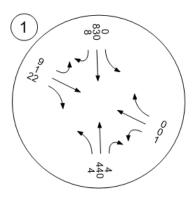






Traffic Volume - Future Total Volume

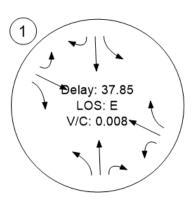






Traffic Conditions









Vistro File: C:\...\SR 63 at Sandford Avenue 10092024.vistro

Scenario 5 4 PM Peak Hour - 2029 Existing + BG

10/9/2024

Report File: C:\...\4 LOS - PM Peak Hour - 2029 Existing plus BG - SR 63 at Sandford Avenue 10092024.pdf

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SR 63 at Sandford Road	Two-way stop	HCM 6th Edition	EB Thru	0.022	47.2	Е

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.





Intersection Level Of Service Report Intersection 1: SR 63 at Sandford Road

Control Type:Two-way stopDelay (sec / veh):47.2Analysis Method:HCM 6th EditionLevel Of Service:EAnalysis Period:15 minutesVolume to Capacity (v/c):0.022

Intersection Setup

Name												
Approach	١	lorthboun	d	s	outhboun	d	E	Eastbound	ł	V	Vestbound	d
Lane Configuration		٦١٢			٦١٢			+			+	
Turning Movement	Left	- 		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	120.00	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	Speed [mph] 60.00		-		60.00	-		30.00	-		30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Crosswalk		No			No			No			No	

Volumes

Name												
Base Volume Input [veh/h]	23	807	0	0	575	12	9	2	12	4	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	7.00	2.00	2.00	7.00	2.00	11.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	869	0	0	619	13	10	2	13	4	1	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	236	0	0	168	4	3	1	4	1	0	0
Total Analysis Volume [veh/h]	27	945	0	0	673	14	11	2	14	4	1	0
Pedestrian Volume [ped/h]		0			0			0			0	



Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.00	0.00	0.01	0.00	0.09	0.02	0.02	0.04	0.01	0.00	
d_M, Delay for Movement [s/veh]	9.17	0.00	0.00	9.99	0.00	0.00	36.39	47.17	13.15	41.17	46.76	13.52	
Movement LOS	Α	А	А	А	Α	Α	E	E	В	E	E	В	
95th-Percentile Queue Length [veh/ln]	0.09	0.00	0.00	0.00	0.00	0.00	0.44	0.44	0.44	0.15	0.15	0.15	
95th-Percentile Queue Length [ft/ln]	2.35	0.00	0.00	0.00	0.00	0.00	11.12	11.12	11.12	3.84	3.84	3.84	
d_A, Approach Delay [s/veh]		0.25			0.00			25.14			42.29		
Approach LOS		Α		A D						E			
d_I, Intersection Delay [s/veh]						0.	67						
Intersection LOS						[





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Scenario 5 4 PM Peak Hour - 2029 Existing + BG

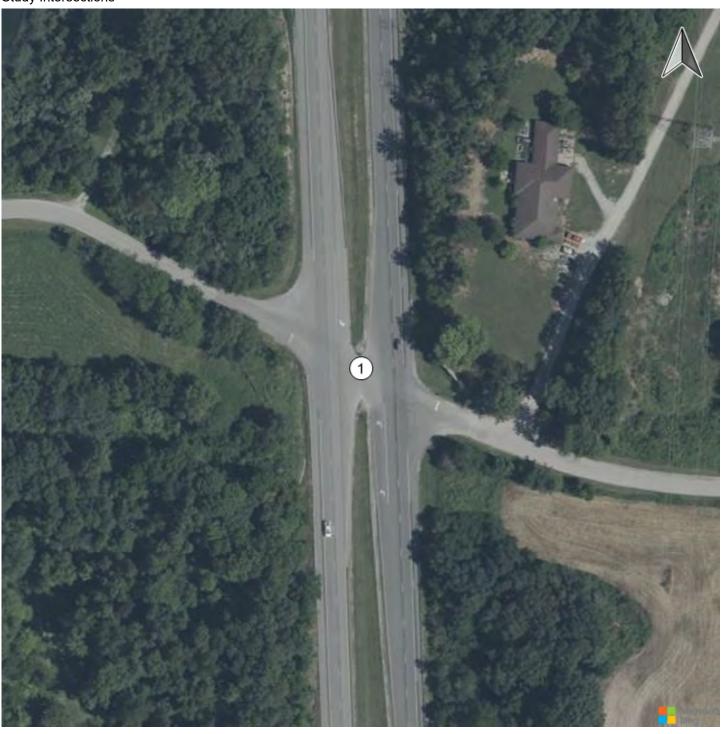
10/9/2024

Report File: C:\...\4 LOS - PM Peak Hour - 2029 Existing plus BG - SR 63 at Sandford Avenue 10092024.pdf

Turning Movement Volume: Detail

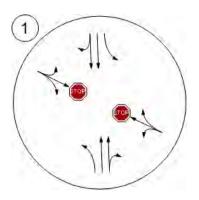
ID	Intersection	Valuma Tuna	Northbound			Southbound			Eastbound			Westbound			Total
טו	Name	Volume Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
		Final Base	23	807	0	0	575	12	9	2	12	4	1	0	1445
		Growth Factor	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	-
1	SR 63 at	In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
'	Sandford Road	Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	25	869	0	0	619	13	10	2	13	4	1	0	1556

Study Intersections



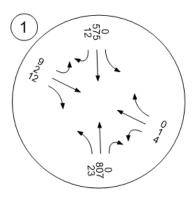
Lane Configuration and Traffic Control





Traffic Volume - Base Volume

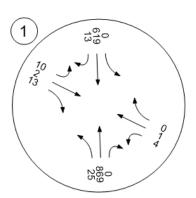






Traffic Volume - Future Background Volume

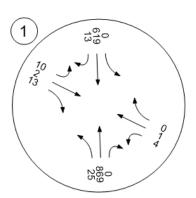






Traffic Volume - Future Total Volume

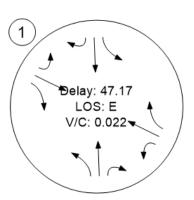






Traffic Conditions









Vistro File: C:\...\SR 63 at Sandford Avenue 10092024.vistro

Scenario 3 5 AM Peak Hour - 2029 Existing + BG + Site

10/9/2024

Report File: C:\...\5 LOS - AM Peak Hour - 2029 Existing plus BG plus Site - SR 63 at Sandford Avenue 10092024.pdf

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SR 63 at Sandford Road	Two-way stop	HCM 6th Edition	WB Thru	0.131	93.3	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.





Intersection Level Of Service Report Intersection 1: SR 63 at Sandford Road

Control Type:Two-way stopDelay (sec / veh):93.3Analysis Method:HCM 6th EditionLevel Of Service:FAnalysis Period:15 minutesVolume to Capacity (v/c):0.131

Intersection Setup

Name												
Approach	١	lorthboun	d	S	outhboun	d	ı	Eastbound	ł	V	Vestbound	d
Lane Configuration		٦١٢			٦١٢			+			+	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	120.00	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]		60.00	-		60.00			30.00	-		30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Crosswalk		No			No			No			No	

Volumes

Name												
Base Volume Input [veh/h]	4	408	4	0	770	7	8	1	20	1	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	13.00	43.00	100.00	5.00	2.00	2.00	83.00	5.00	75.00	100.00	100.00
Growth Factor	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	3	7	0	0	0	5	0	3	5	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	440	7	7	830	8	9	6	22	4	5	7
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	129	2	2	244	2	3	2	6	1	1	2
Total Analysis Volume [veh/h]	5	518	8	8	976	9	11	7	26	5	6	8
Pedestrian Volume [ped/h]		0			0		·	0			0	





Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.00	0.01	0.01	0.00	0.10	0.13	0.05	0.05	0.13	0.02
d_M, Delay for Movement [s/veh]	10.20	0.00	0.00	11.32	0.00	0.00	46.85	81.35	20.87	53.56	93.27	21.46
Movement LOS	В	Α	Α	В	Α	Α	E	F	С	F	F	С
95th-Percentile Queue Length [veh/ln]	0.02	0.00	0.00	0.04	0.00	0.00	1.10	1.10	1.10	0.70	0.70	0.70
95th-Percentile Queue Length [ft/ln]	0.54	0.00	0.00	1.05	0.00	0.00	27.39	27.39	27.39	17.61	17.61	17.61
d_A, Approach Delay [s/veh]		0.10			0.09			36.99			52.58	
Approach LOS	A A E							F				
d_I, Intersection Delay [s/veh]						1.	74					
Intersection LOS						ſ	F					





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Scenario 3 5 AM Peak Hour - 2029 Existing + BG + Site

10/9/2024

Report File: C:\...\5 LOS - AM Peak Hour - 2029 Existing plus BG plus Site - SR 63 at Sandford Avenue 10092024.pdf

Turning Movement Volume: Detail

ID.	Intersection	Values a Tues	N	Northbound			Southbound			Eastbound			/estbour	nd	Total
ID	Name	Volume Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
		Final Base	4	408	4	0	770	7	8	1	20	1	0	0	1223
		Growth Factor	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	-
1	SR 63 at	In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
'	Sandford Road	Net New Trips	0	0	3	7	0	0	0	5	0	3	5	7	30
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	4	440	7	7	830	8	9	6	22	4	5	7	1349





Vistro File: C:\...\SR 63 at Sandford Avenue 10092024.vistro

Scenario 3 5 AM Peak Hour - 2029 Existing + BG + Site

10/9/2024

Report File: C:\...\5 LOS - AM Peak Hour - 2029 Existing plus BG plus Site - SR 63 at Sandford Avenue 10092024.pdf

Trip Generation summary

Added Trips

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total Trips	% of Total Trips
1: Industrial Development				1.000	0.000	50.00	50.00	15	15	30	100.00
					Added Trips Total			15	15	30	100.00





Vistro File: C:\...\SR 63 at Sandford Avenue 10092024.vistro

Scenario 3 5 AM Peak Hour - 2029 Existing + BG + Site

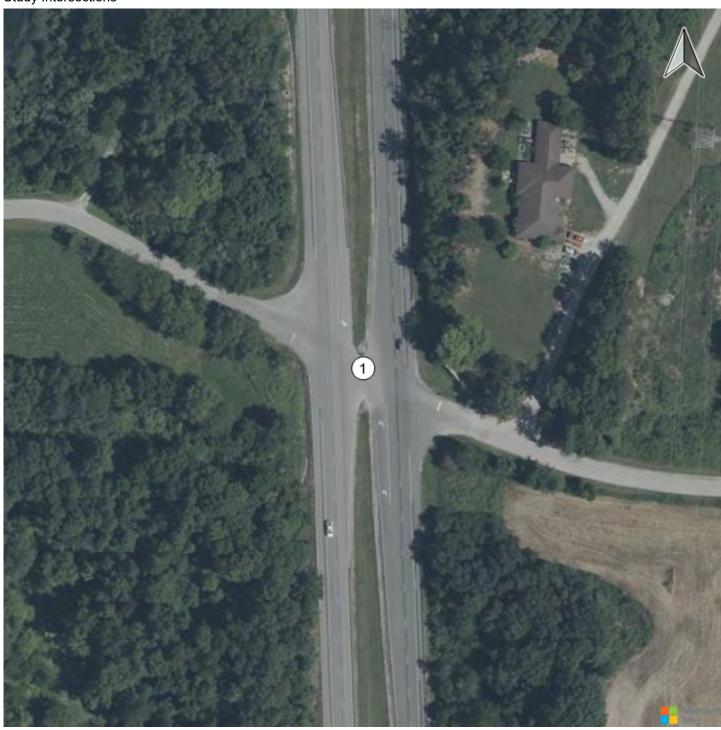
10/9/2024

Report File: C:\...\5 LOS - AM Peak Hour - 2029 Existing plus BG plus Site - SR 63 at Sandford Avenue 10092024.pdf

Trip Distribution summary

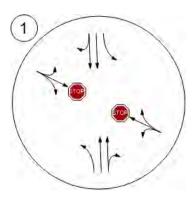
	Zone 1: Industrial Development						
	To Industrial Development:		From Industrial Development:				
Zone / Gate	Share %	Trips	Share %	Trips			
2: Gate	47.00	7	47.00	7			
3: Gate	20.00	3	20.00	3			
4: Gate	33.00	5	33.00	5			
Total	100.00	15	100.00	15			

Study Intersections



Lane Configuration and Traffic Control

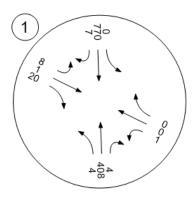






Traffic Volume - Base Volume

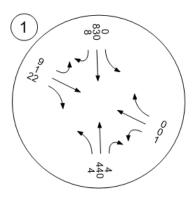






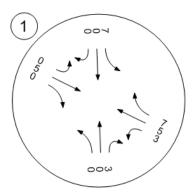
Traffic Volume - Future Background Volume





Traffic Volume - Net New Site Trips

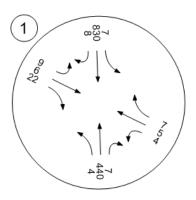






Traffic Volume - Future Total Volume

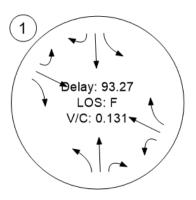
















Vistro File: C:\...\SR 63 at Sandford Avenue 10092024.vistro

Scenario 6 6 PM Peak Hour - 2029 Existing + BG + Site

10/9/2024

Report File: C:\...\6 LOS - PM Peak Hour - 2029 Existing plus BG plus Site - SR 63 at Sandford Avenue 10092024.pdf

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SR 63 at Sandford Road	Two-way stop	HCM 6th Edition	WB Thru	0.185	125.8	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.





Intersection Level Of Service Report Intersection 1: SR 63 at Sandford Road

Control Type:Two-way stopDelay (sec / veh):125.8Analysis Method:HCM 6th EditionLevel Of Service:FAnalysis Period:15 minutesVolume to Capacity (v/c):0.185

Intersection Setup

Name													
Approach	١	lorthboun	d	S	Southbound			Eastbound			Westbound		
Lane Configuration		٦lb			пIF			+			+		
Turning Movement	Left	Left Thru Right I		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0	
Entry Pocket Length [ft]	120.00	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Speed [mph]		60.00			60.00	-		30.00			30.00		
Grade [%]		0.00			0.00		0.00			0.00			
Crosswalk	Crosswalk No		No			No			No				

Volumes

Name												
Base Volume Input [veh/h]	23	807	0	0	575	12	9	2	12	4	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	7.00	100.00	100.00	7.00	2.00	11.00	71.00	2.00	43.00	83.00	100.00
Growth Factor	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773	1.0773
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	3	7	0	0	0	5	0	3	5	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	869	3	7	619	13	10	7	13	7	6	7
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	236	1	2	168	4	3	2	4	2	2	2
Total Analysis Volume [veh/h]	27	945	3	8	673	14	11	8	14	8	7	8
Pedestrian Volume [ped/h] 0					0		·	0			0	







Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.00	0.02	0.01	0.00	0.11	0.19	0.02	0.13	0.19	0.02
d_M, Delay for Movement [s/veh]	9.17	0.00	0.00	16.04	0.00	0.00	56.09	103.99	25.80	89.92	125.77	41.05
Movement LOS	Α	Α	Α	С	Α	Α	F	F	D	F	F	Е
95th-Percentile Queue Length [veh/ln]	0.09	0.00	0.00	0.07	0.00	0.00	1.22	1.22	1.22	1.26	1.26	1.26
95th-Percentile Queue Length [ft/ln]	2.35	0.00	0.00	1.84	0.00	0.00	30.59	30.59	30.59	31.62	31.62	31.62
d_A, Approach Delay [s/veh]		0.25		0.18				54.85			83.83	
Approach LOS		Α			A				F			
d_I, Intersection Delay [s/veh]						2.	38					
Intersection LOS				F								





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Scenario 6 6 PM Peak Hour - 2029 Existing + BG + Site

10/9/2024

Report File: C:\...\6 LOS - PM Peak Hour - 2029 Existing plus BG plus Site - SR 63 at Sandford Avenue 10092024.pdf

Turning Movement Volume: Detail

ID.	ID Intersection	Values a Tues	N	orthbou	nd	So	outhbou	nd	Е	astbour	nd	Westbound			Total
ID	Name	Volume Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
		Final Base	23	807	0	0	575	12	9	2	12	4	1	0	1445
		Growth Factor	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	-
1	SR 63 at	In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
'	Sandford Road	Net New Trips	0	0	3	7	0	0	0	5	0	3	5	7	30
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	25	869	3	7	619	13	10	7	13	7	6	7	1586





Vistro File: C:\...\SR 63 at Sandford Avenue 10092024.vistro

Scenario 6 6 PM Peak Hour - 2029 Existing + BG + Site

10/9/2024

Report File: C:\...\6 LOS - PM Peak Hour - 2029 Existing plus BG plus Site - SR 63 at Sandford Avenue 10092024.pdf

Trip Generation summary

Added Trips

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total Trips	% of Total Trips
1: Industrial Development				1.000	0.000	50.00	50.00	15	15	30	100.00
					Added	d Trips Tota	al	15	15	30	100.00





Vistro File: C:\...\SR 63 at Sandford Avenue 10092024.vistro

Scenario 6 6 PM Peak Hour - 2029 Existing + BG + Site

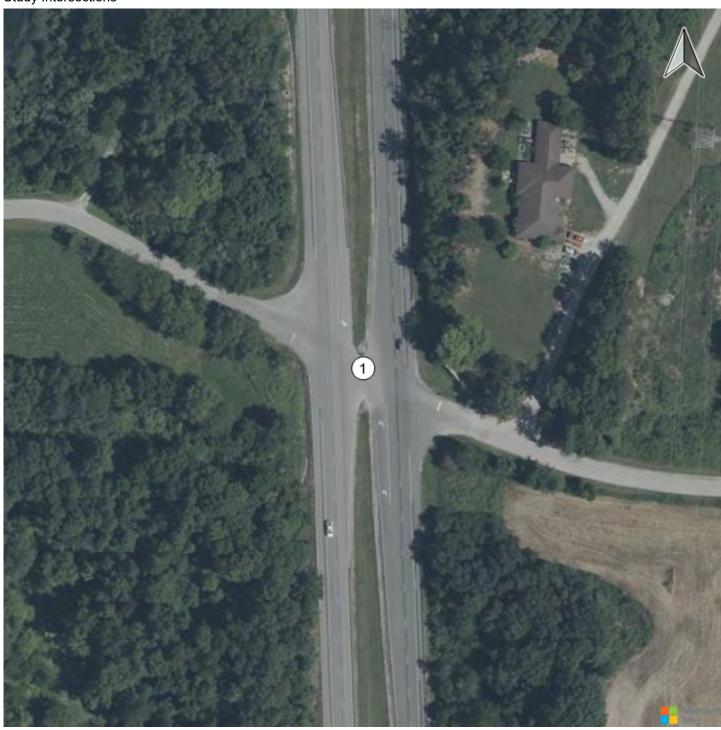
10/9/2024

Report File: C:\...\6 LOS - PM Peak Hour - 2029 Existing plus BG plus Site - SR 63 at Sandford Avenue 10092024.pdf

Trip Distribution summary

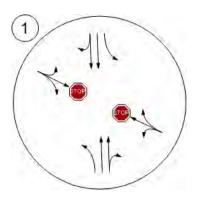
	Zone 1: Industrial Development								
	To Ind Develo		From In Develo						
Zone / Gate	Share %	Trips	Share %	Trips					
2: Gate	47.00	7	47.00	7					
3: Gate	20.00	3	20.00	3					
4: Gate	33.00	5	33.00	5					
Total	100.00	15	100.00	15					

Study Intersections



Lane Configuration and Traffic Control

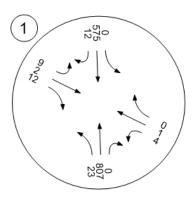






Traffic Volume - Base Volume

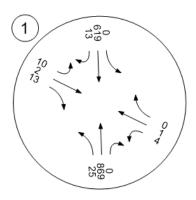






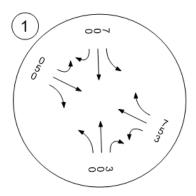
Traffic Volume - Future Background Volume





Traffic Volume - Net New Site Trips

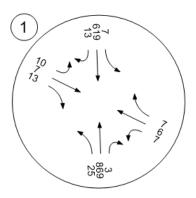






Traffic Volume - Future Total Volume

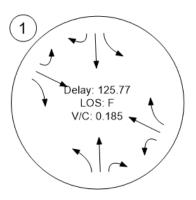






Traffic Conditions







Traffic Engineering Analysis

SR 63 at Sandford Avenue West Terre Haute, Indiana

Wabash Valley Resources, LLC Haul Vehicle Evaluation

Chet M. Skwarcan, P.E., President Traffic Engineering, Inc. 1965 E. Main Street, Suite 555 Danville, Indiana 46122 October 9, 2024

Certification

I certify this Traffic Analysis has been prepared by me or under my immediate supervision and that I have experience and training in the field of traffic and transportation engineering.

Chet M. Skwarcan, P.E., President Traffic Engineering, Inc.

10/09/2024



Table of Contents

Executive Summary	4
Existing Traffic Information	5
Peak Hour Turning Movements for All Vehicles (Non-trucks plus Trucks)	5
Development Information	6
Trip Generation Details	6
Distribution of New Site Traffic	6
Projected Turning Movements – SR 63 at Sandford Avenue	7
Sight Distance Evaluation – SR 63 at Sandford Avenue	8
Traffic Signal Warrant Summary – SR 63 at Sandford Avenue	9
Level of Service Summary – SR 63 at Sandford Avenue	10
Traffic Signal Warrant Analysis – SR 63 at Sandford Avenue	11
Level of Service Analysis – SR 63 at Sandford Avenue	12
Haul Vehicle Route Turning Analysis	13

Executive Summary

The Wabash Valley Resources facility is located on the east side of SR 63¹, between Sandford Avenue and Bolton Road in West Terre Haute, Indiana. The development forecasts new site truck traffic to access their site via Sandford Avenue at SR 63.

Study scenarios for the AM and PM peak hours:

- 1. Existing Traffic (2024)
- 2. Existing Traffic plus Background Growth² (2029)
- 3. Existing Traffic plus Background Growth (2029) plus Projected Site Truck Traffic (see page 6)

Key Findings:

Traffic Signal Warrant Analysis:

A traffic signal is not warranted for the intersection of SR 63 at Sandford Avenue based on projected traffic volumes³ (see pages 9 & 11).

Sight Distance Evaluation:

Field measurements at the east approach of the intersection of SR 63 and Sandford Avenue indicate that the available intersection sight distance (ISD) may not meet the current design criteria for combination trucks (see page 8). These criteria are established by the American Association of State Highway and Transportation Officials (AASHTO) in "A Policy on Geometric Design of Highways and Streets, 7th Edition (2018)".

Ensuring safety for all road users is essential, especially with the proposed increase in combination truck traffic from the development. Therefore, we recommend that a certified survey be conducted. This survey will accurately determine whether the ISD meets the necessary standards for the specific conditions and expected vehicle types at this location.

Although this intersection is a public facility on a state route—where adequate sight distance is generally presumed—it is prudent to verify compliance with AASHTO guidelines to address any potential safety concerns.

Level of Service (LOS) and Vehicle Queuing:

Both SR 63 approaches at the proposed intersection are projected to operate at an acceptable LOS, with individual turning movements anticipated to perform at LOS "C" or better during both AM and PM peak hours. While multiple Sandford Avenue turning movements are projected to operate below acceptable levels, the maximum queue length is projected to be two vehicles, which is considered acceptable (see pages 10 & 12).

² 5 years of background growth at an average annual rate of 1.5%

¹ Note: the posted speed limit along SR 63 is 60 mph

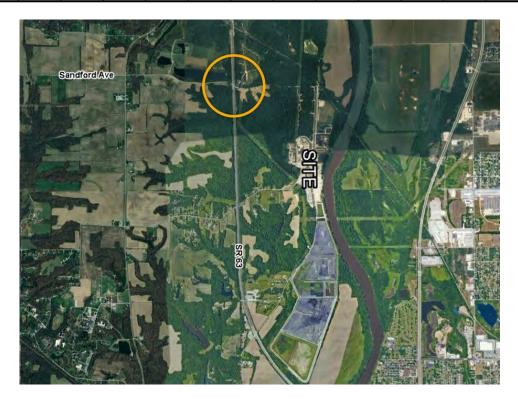
³ Using projected 2029 turning movements (existing traffic + background growth + projected truck traffic)

Existing Traffic Information

Peak Hour Turning Movements for All Vehicles (Non-trucks plus Trucks)

This analysis focuses on the AM and PM peak hours of a typical weekday:

AM Peak H	Weekday Turning Movement Volumes (Peak Hours) SR 63 at Sandford Avenue Week of September 9, 2024 AM Peak Hour													
Time SBR SBT SBL WBR WBT WBL NBR NBT NBL EBR EBT EBL Total														
0715 - 0730	0	166	0	0	0	1	0	103	0	5	1	2	278	
0730 - 0745	2	224	0	0	0	0	2	122	1	5	0	2	358	
0745 - 0800	4	249	0	0	0	0	2	92	0	5	0	2	354	
0800 - 0815	1	131	0	0	0	0	0	91	3	5	0	2	233	
Totals	7	770	0	0	0	1	4	408	4	20	1	8	1223	
PHF	0.44	0.77	0.00	0.00	0.00	0.25	0.50	0.84	0.33	1.00	0.25	1.00	0.85	
% Trucks	0%	5%	0%	0%	0%	0%	0%	13%	0%	5%	0%	0%	8%	
PM Peak H	our													
Time	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	Total	
1630 - 1645	4	141	0	0	1	1	0	189	3	7	0	0	346	
1645 - 1700	3	135	0	0	0	0	0	204	11	1	0	2	356	
1700 - 1715	2	138	0	0	0	1	0	199	2	2	2	4	350	
1715 - 1730	3	161	0	0	0	2	0	215	7	2	0	3	393	
Totals	12	575	0	0	1	4	0	807	23	12	2	9	1445	
PHF	0.75	0.89	0.00	0.00	0.25	0.50	0.00	0.94	0.52	0.43	0.25	0.56	0.92	
% Trucks	0%	7%	0%	0%	0%	0%	0%	7%	4%	0%	0%	11%	7 %	



Development Information

Trip Generation Details

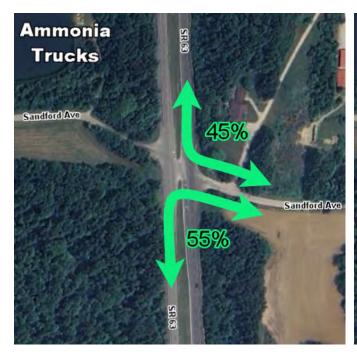
The expected traffic generated by the proposed development is detailed below:

Tweek Tome	AM Pea	ak Hour	PM Peak Hour				
Truck Type	Entry	Exit	Entry	Exit			
Ammonia	5	5	5	5			
CO2	10	10	10	10			
Total Trucks	15	15	15	15			

For the ammonia trucking operations, approximately 72 trucks will be loaded per day over a 16-hour period. This equates to an average of 9 trucks per hour turning into and out of Sandford Avenue for ammonia purposes, with 4.5 (rounded up to 5) empty trucks arriving and 4.5 (rounded up to 5) loaded trucks departing each hour. In the CO2 trucking operation, approximately 240 trucks will be loaded per day over a 24-hour period, averaging 10 trucks per hour. Since these trucks are operating in a loop (loaded and unloaded), the total traffic through Sandford Avenue will be 20 trucks per hour.

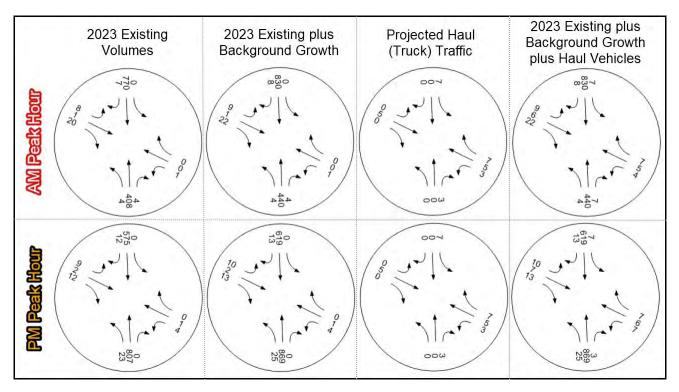
Distribution of New Site Traffic

The distribution of haul traffic is based on the nature of the proposed development, existing traffic patterns in this area, and projected haul routes (CO2 Trucks). This graphic depicts the overall distribution of haul traffic entering and exiting the proposed development:





Projected Turning Movements – SR 63 at Sandford Avenue





Sight Distance Evaluation – SR 63 at Sandford Avenue

Intersection Sight Distance (ISD) was measured along the major roadway beginning at a point that coincides with the intersection of Sandford Avenue. In this case, the major roadway is SR 63, a divided, two-way, four-lane roadway with dedicated left-turn lanes and a posted speed limit of 60 mph.

In this scenario, the ISD required for a westbound combination truck turning left, right, or crossing straight over SR 63 is calculated as follows:

Maneuver Type	Base Gap Time (seconds)	Northbound Through Lane* (seconds)	Northbound Left-turn Lane (seconds)	Time for Median (seconds)	Southbound Left-turn Lane (seconds)	Southbound Through Lane* (seconds)	Total Time Gap (seconds)	ISD Formula ¹ (ft)
Left-Turn (into near lane)	11.5	0.7	0.7	1.4	0.7		15	1323
Left-Turn (into far lane)	11.5	0.7	0.7	1.4	0.7	0.7	15.7	1385
Right-Turn (into near lane)	10.5						10.5	926
Right-Turn (into far lane)	10.5	0.7					11.2	988
Crossing	10.5	0.7	0.7	1.4	0.7	0.7	14.7	1297

¹ ISD=1.47 X 60 X Total Time Gap

Based on the average eye height of a combination truck driver (7.6 feet) at the east approach of Sandford Avenue, the ISD looking south exceeds 1,500 feet and looking north is approximately 1,000 feet, along SR 63.

Looking south along SR 63:





^{*}Applicable when more than one through lane.

Traffic Signal Warrant Summary – SR 63 at Sandford Avenue

A traffic signal *is not warranted* for the SR 63 at Sandford Avenue intersection based on projected traffic volumes⁴.

Based on Table 4C-1 of the MUTCD⁵, posted speed limit⁶ > 40 mph, two lanes on the major street approaches, and one lane on each minor street approach, the projected volumes did not warrant consideration of a future traffic signal for any hour of a typical day (eight hours required).

	nes for moving ach approach		es per hou tal of both			Vehicl minor-stre	es per hou et approac	r on higher- h (one dire	volum ction only
Major Street		100%ª	80% ^b	70%°	56% ^d	100% ^a	80% ^b	56% ^d	
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112
	nes for moving ach approach		es per hou tal of both			Vehicl minor-stre	es per hou et approac	r on higher- h (one dire	volum ction only
Major Street		100% ^a	80% ^b	70% ^c	56% ^d	100% ^a	80% ^b	70%°	56% ^d
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

- 1. Table 4C-1, Condition "A" a signal is considered warranted when SR 63 exceeds 420 vehicles and either Sandford Avenue approach exceeds 105 vehicles per hour for the same eight (8) hours of a typical day this threshold was not satisfied for any hours of a projected typical day.
- 2. Table 4C-1, Condition "B" a signal is considered warranted when SR 63 exceeds 630 vehicles and either Sandford Avenue approach exceeds 53 vehicles per hour for the same eight (8) hours of a typical day this threshold was not satisfied for any hours of a projected typical day.

speed exceeds 40 mph or in an isolated community with a population of less than 10,000

⁴ Using projected 2029 turning movements (existing traffic + background growth + projected truck traffic)

⁵ Manual on Uniform Traffic Control Devices (MUTCD)

⁶ Posted speed limit along SR 63 is 60 mph

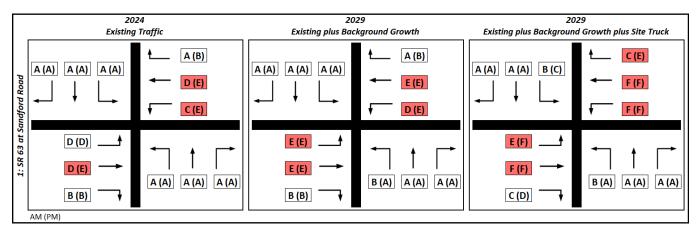
Level of Service Summary - SR 63 at Sandford Avenue

The individual turning movements are provided in terms of Level of Service (LOS). In general, LOS "D" or better is considered acceptable while LOS "E" or "F" suggest volume exceeding the capacity of the intersection, approach, or turning movement:

	LOS vs. Delay							
LOS	Unsignalized Intersection							
Α	<10 seconds							
В	10-15 seconds							
С	15-25 seconds							
D	25-35 seconds							
E	35-50 seconds							
F	>50 seconds							

Source: Federal Highway Administration (FHWA)

All turning movements along SR 63 are projected to operate at an acceptable level of service (LOS) during the peak hours. However, multiple turning movements at both Sandford Avenue approaches are currently operating below acceptable levels, with additional movements expected to degrade further due to background growth and the forecasted increase in site truck traffic.



As shown in the attached LOS analysis, the projected vehicle queuing for all analyzed turning movements during the AM and PM peak hours is not expected to exceed two vehicles.

Traffic Signal Warrant Analysis – SR 63 at Sandford Avenue

[submitted as separate document]

Level of Service Analysis – SR 63 at Sandford Avenue

[submitted as separate document]

Haul Vehicle Route Turning Analysis

[submitted by client as separate document]



Traffic Signal Warrant Analysis

SR 63 at Sandford Avenue West Terre Haute, Indiana

Wabash Valley Resources, LLC Haul Vehicle Evaluation

Chet M. Skwarcan, P.E., President Traffic Engineering, Inc. 1965 E. Main Street, Suite 555 Danville, Indiana 46122 October 9, 2024

Traffic Signal Warrant Results

Signal Warrant Anaylsis - Condition "A"										
		Major-stree	et (SR 63)		N	/linor-street (Sandford Avenu	ne)	BOTH Major-street & Minor-street	
Time				Threshold			Greatest	Threshold	Thresholds Met	Total Vehicles
	Northbound	Southbound	Total	420 Vehicles (70%)	Eastbound		Hourly Minor Aproach Total	105 Vehicles (70%)	70% Threshold	venicies
0 - 1	48	50	98	Unsatisfied	5	10	10	Unsatisfied	Unsatisfied	113
1 - 2	30	43	73	Unsatisfied	5	10	10	Unsatisfied	Unsatisfied	88
2 - 3	34	48	82	Unsatisfied	6	10	10	Unsatisfied	Unsatisfied	98
3 - 4	54	66	120	Unsatisfied	6	10	10	Unsatisfied	Unsatisfied	136
4 - 5	100	115	215	Unsatisfied	8	15	15	Unsatisfied	Unsatisfied	238
5 - 6	164	262	426	SATISFIED	19	15	19	Unsatisfied	Unsatisfied	460
6 - 7	305	539	844	SATISFIED	24	15	24	Unsatisfied	Unsatisfied	883
7 - 8	442	833	1275	SATISFIED	39	16	39	Unsatisfied	Unsatisfied	1330
8 - 9	407	594	1001	SATISFIED	29	16	29	Unsatisfied	Unsatisfied	1046
9 - 10	327	482	809	SATISFIED	24	17	24	Unsatisfied	Unsatisfied	850
10 - 11	386	472	858	SATISFIED	13	18	18	Unsatisfied	Unsatisfied	889
11 - 12	408	453	861	SATISFIED	27	19	27	Unsatisfied	Unsatisfied	907
12 - 13	468	448	916	SATISFIED	21	18	21	Unsatisfied	Unsatisfied	955
13 - 14	489	450	939	SATISFIED	29	22	29	Unsatisfied	Unsatisfied	990
14 - 15	549	427	976	SATISFIED	23	20	23	Unsatisfied	Unsatisfied	1019
15 - 16	797	544	1341	SATISFIED	22	20	22	Unsatisfied	Unsatisfied	1383
16 - 17	857	544	1401	SATISFIED	21	21	21	Unsatisfied	Unsatisfied	1443
17 - 18	785	606	1391	SATISFIED	31	20	31	Unsatisfied	Unsatisfied	1442
18 - 19	471	414	885	SATISFIED	19	21	21	Unsatisfied	Unsatisfied	925
19 - 20	429	279	708	SATISFIED	15	17	17	Unsatisfied	Unsatisfied	740
20 - 21	309	271	580	SATISFIED	10	11	11	Unsatisfied	Unsatisfied	601
21 - 22	266	136	402	Unsatisfied	13	11	13	Unsatisfied	Unsatisfied	426
22 - 23	183	136	319	Unsatisfied	7	11	11	Unsatisfied	Unsatisfied	337
23 - 24	97	74	171	Unsatisfied	5	10	10	Unsatisfied	Unsatisfied	186
Totals	8405	8286	16691	16	421	373	465	0	0	17485

	Signal Warrant Anaylsis - Condition "B"										
		Major-stree	et (SR 63)		N	/linor-street (Sandford Avenu	ıe)	BOTH Major-street & Minor-street		
Time				Threshold			Greatest	Threshold	Thresholds Met	Total Vehicles	
	Northbound	Southbound	Total	630 Vehicles (70%)	Eastbound	Westbound	Hourly Minor Aproach Total	53 Vehicles (70%)	70% Threshold	Verilicies	
0 - 1	48	50	98	Unsatisfied	5	10	10	Unsatisfied	Unsatisfied	113	
1 - 2	30	43	73	Unsatisfied	5	10	10	Unsatisfied	Unsatisfied	88	
2 - 3	34	48	82	Unsatisfied	6	10	10	Unsatisfied	Unsatisfied	98	
3 - 4	54	66	120	Unsatisfied	6	10	10	Unsatisfied	Unsatisfied	136	
4 - 5	100	115	215	Unsatisfied	8	15	15	Unsatisfied	Unsatisfied	238	
5 - 6	164	262	426	Unsatisfied	19	15	19	Unsatisfied	Unsatisfied	460	
6 - 7	305	539	844	SATISFIED	24	15	24	Unsatisfied	Unsatisfied	883	
7 - 8	442	833	1275	SATISFIED	39	16	39	Unsatisfied	Unsatisfied	1330	
8 - 9	407	594	1001	SATISFIED	29	16	29	Unsatisfied	Unsatisfied	1046	
9 - 10	327	482	809	SATISFIED	24	17	24	Unsatisfied	Unsatisfied	850	
10 - 11	386	472	858	SATISFIED	13	18	18	Unsatisfied	Unsatisfied	889	
11 - 12	408	453	861	SATISFIED	27	19	27	Unsatisfied	Unsatisfied	907	
12 - 13	468	448	916	SATISFIED	21	18	21	Unsatisfied	Unsatisfied	955	
13 - 14	489	450	939	SATISFIED	29	22	29	Unsatisfied	Unsatisfied	990	
14 - 15	549	427	976	SATISFIED	23	20	23	Unsatisfied	Unsatisfied	1019	
15 - 16	797	544	1341	SATISFIED	22	20	22	Unsatisfied	Unsatisfied	1383	
16 - 17	857	544	1401	SATISFIED	21	21	21	Unsatisfied	Unsatisfied	1443	
17 - 18	785	606	1391	SATISFIED	31	20	31	Unsatisfied	Unsatisfied	1442	
18 - 19	471	414	885	SATISFIED	19	21	21	Unsatisfied	Unsatisfied	925	
19 - 20	429	279	708	SATISFIED	15	17	17	Unsatisfied	Unsatisfied	740	
20 - 21	309	271	580	Unsatisfied	10	11	11	Unsatisfied	Unsatisfied	601	
21 - 22	266	136	402	Unsatisfied	13	11	13	Unsatisfied	Unsatisfied	426	
22 - 23	183	136	319	Unsatisfied	7	11	11	Unsatisfied	Unsatisfied	337	
23 - 24	97	74	171	Unsatisfied	5	10	10	Unsatisfied	Unsatisfied	186	
Totals	8405	8286	16691	14	421	373	465	0	0	17485	

Note: the posted speed limit along SR 63 is 60 mph

Entering and Exiting Site Traffic Breakdown

Projected Truck Traffic Hourly Volumes										
Time	Entering	Exiting								
0 - 1	10	10								
1 - 2	10	10								
2 - 3	10	10								
3 - 4	10	10								
4 - 5	15	15								
5 - 6	15	15								
6 - 7	15	15								
7 - 8	15	15								
8 - 9	15	15								
9 - 10	15	15								
10 - 11	15	15								
11 - 12	15	15								
12 - 13	15	15								
13 - 14	15	15								
14 - 15	15	15								
15 - 16	15	15								
16 - 17	15	15								
17 - 18	15	15								
18 - 19	15	15								
19 - 20	15	15								
20 - 21	10	10								
21 - 22	10	10								
22 - 23	10	10								
23 - 24	10	10								
Totals	320	320								

Existing Traffic

	24 Hour Traffic Data - Existing												
				We	ek of S	Septei	mber	9, 202	4				
Time	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	Total
0 - 1	0	42	0	0	0	0	0	44	1	0	0	0	87
1 - 2	1	34	0	0	0	0	0	28	0	0	0	0	63
2 - 3	0	40	0	0	0	0	0	31	1	1	0	0	73
3 - 4	0	57	0	0	0	0	0	50	0	1	0	0	108
4 - 5	1	99	0	0	0	0	0	90	0	3	0	0	193
5 - 6	0	236	1	0	0	0	2	147	1	10	0	3	400
6 - 7	0	494	0	0	0	0	1	278	2	14	1	3	793
7 - 8	6	761	0	0	0	1	4	402	2	21	2	8	1207
8 - 9	4	541	0	0	0	1	1	362	12	15	0	7	943
9 - 10	2	438	1	1	0	1	3	289	9	16	0	2	762
10 - 11	0	430	2	1	1	1	2	346	7	4	0	4	798
11 - 12	3	408	3	1	0	3	4	369	3	16	0	5	815
12 - 13	4	406	0	2	1	0	2	422	7	10	3	2	859
13 - 14	2	409	0	4	1	2	4	433	15	17	0	6	893
14 - 15	6	384	0	1	2	2	3	488	16	13	1	3	919
15 - 16	5	493	1	1	1	3	4	705	29	7	1	7	1257
16 - 17	12	486	0	0	1	5	1	773	19	11	0	4	1312
17 - 18	8	548	0	0	1	4	1	707	18	10	2	12	1311
18 - 19	3	375	0	0	1	5	2	418	15	10	0	3	832
19 - 20	5	248	0	0	1	1	0	379	17	6	0	4	661
20 - 21	3	244	0	0	0	1	0	282	5	3	0	2	540
21 - 22	1	121	0	0	1	0	0	242	5	5	0	3	378
22 - 23	0	122	0	0	0	1	0	164	6	1	1	0	295
23 - 24	0	64	0	0	0	0	0	85	5	0	0	0	154
Totals	66	7480	8	11	11	31	34	7534	195	194	11	78	15653

Existing Traffic plus Background Growth

	24 Hour Traffic Data - Existing plus Background Growth												
Time	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	Total
0 - 1	0	45	0	0	0	0	0	47	1	0	0	0	93
1 - 2	1	37	0	0	0	0	0	30	0	0	0	0	68
2 - 3	0	43	0	0	0	0	0	33	1	1	0	0	78
3 - 4	0	61	0	0	0	0	0	54	0	1	0	0	116
4 - 5	1	107	0	0	0	0	0	97	0	3	0	0	208
5 - 6	0	254	1	0	0	0	2	158	1	11	0	3	430
6 - 7	0	532	0	0	0	0	1	299	2	15	1	3	853
7 - 8	6	820	0	0	0	1	4	433	2	23	2	9	1300
8 - 9	4	583	0	0	0	1	1	390	13	16	0	8	1016
9 - 10	2	472	1	1	0	1	3	311	10	17	0	2	820
10 - 11	0	463	2	1	1	1	2	373	8	4	0	4	859
11 - 12	3	440	3	1	0	3	4	398	3	17	0	5	877
12 - 13	4	437	0	2	1	0	2	455	8	11	3	2	925
13 - 14	2	441	0	4	1	2	4	466	16	18	0	6	960
14 - 15	6	414	0	1	2	2	3	526	17	14	1	3	989
15 - 16	5	531	1	1	1	3	4	759	31	8	1	8	1353
16 - 17	13	524	0	0	1	5	1	833	20	12	0	4	1413
17 - 18	9	590	0	0	1	4	1	762	19	11	2	13	1412
18 - 19	3	404	0	0	1	5	2	450	16	11	0	3	895
19 - 20	5	267	0	0	1	1	0	408	18	6	0	4	710
20 - 21	3	263	0	0	0	1	0	304	5	3	0	2	581
21 - 22	1	130	0	0	1	0	0	261	5	5	0	3	406
22 - 23	0	131	0	0	0	1	0	177	6	1	1	0	317
23 - 24	0	69	0	0	0	0	0	92	5	0	0	0	166
Totals	68	8058	8	11	11	31	34	8116	207	208	11	82	16845

Note: 5 years of background traffic growth at an annual rate of 1%

Projected Truck Traffic

	24 Hour Traffic Data - Projected Truck Traffic												
Time	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	Total
0 - 1	0	0	5	5	5	0	0	0	0	0	5	0	20
1 - 2	0	0	5	5	5	0	0	0	0	0	5	0	20
2 - 3	0	0	5	5	5	0	0	0	0	0	5	0	20
3 - 4	0	0	5	5	5	0	0	0	0	0	5	0	20
4 - 5	0	0	7	7	5	3	3	0	0	0	5	0	30
5 - 6	0	0	7	7	5	3	3	0	0	0	5	0	30
6 - 7	0	0	7	7	5	3	3	0	0	0	5	0	30
7 - 8	0	0	7	7	5	3	3	0	0	0	5	0	30
8 - 9	0	0	7	7	5	3	3	0	0	0	5	0	30
9 - 10	0	0	7	7	5	3	3	0	0	0	5	0	30
10 - 11	0	0	7	7	5	3	3	0	0	0	5	0	30
11 - 12	0	0	7	7	5	3	3	0	0	0	5	0	30
12 - 13	0	0	7	7	5	3	3	0	0	0	5	0	30
13 - 14	0	0	7	7	5	3	3	0	0	0	5	0	30
14 - 15	0	0	7	7	5	3	3	0	0	0	5	0	30
15 - 16	0	0	7	7	5	3	3	0	0	0	5	0	30
16 - 17	0	0	7	7	5	3	3	0	0	0	5	0	30
17 - 18	0	0	7	7	5	3	3	0	0	0	5	0	30
18 - 19	0	0	7	7	5	3	3	0	0	0	5	0	30
19 - 20	0	0	7	7	5	3	3	0	0	0	5	0	30
20 - 21	0	0	5	5	5	0	0	0	0	0	5	0	20
21 - 22	0	0	5	5	5	0	0	0	0	0	5	0	20
22 - 23	0	0	5	5	5	0	0	0	0	0	5	0	20
23 - 24	0	0	5	5	5	0	0	0	0	0	5	0	20
Totals	0	0	152	152	120	48	48	0	0	0	120	0	640

Existing Traffic plus Background Growth plus Projected Truck Traffic

	24 Hour Traffic Data Existing plus Background Growth plus Projected Truck Traffic												
Time	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	Total
0 - 1	0	45	5	5	5	0	0	47	1	0	5	0	113
1 - 2	1	37	5	5	5	0	0	30	0	0	5	0	88
2 - 3	0	43	5	5	5	0	0	33	1	1	5	0	98
3 - 4	0	61	5	5	5	0	0	54	0	1	5	0	136
4 - 5	1	107	7	7	5	3	3	97	0	3	5	0	238
5 - 6	0	254	8	7	5	3	5	158	1	11	5	3	460
6 - 7	0	532	7	7	5	3	4	299	2	15	6	3	883
7 - 8	6	820	7	7	5	4	7	433	2	23	7	9	1330
8 - 9	4	583	7	7	5	4	4	390	13	16	5	8	1046
9 - 10	2	472	8	8	5	4	6	311	10	17	5	2	850
10 - 11	0	463	9	8	6	4	5	373	8	4	5	4	889
11 - 12	3	440	10	8	5	6	7	398	3	17	5	5	907
12 - 13	4	437	7	9	6	3	5	455	8	11	8	2	955
13 - 14	2	441	7	11	6	5	7	466	16	18	5	6	990
14 - 15	6	414	7	8	7	5	6	526	17	14	6	3	1019
15 - 16	5	531	8	8	6	6	7	759	31	8	6	8	1383
16 - 17	13	524	7	7	6	8	4	833	20	12	5	4	1443
17 - 18	9	590	7	7	6	7	4	762	19	11	7	13	1442
18 - 19	3	404	7	7	6	8	5	450	16	11	5	3	925
19 - 20	5	267	7	7	6	4	3	408	18	6	5	4	740
20 - 21	3	263	5	5	5	1	0	304	5	3	5	2	601
21 - 22	1	130	5	5	6	0	0	261	5	5	5	3	426
22 - 23	0	131	5	5	5	1	0	177	6	1	6	0	337
23 - 24	0	69	5	5	5	0	0	92	5	0	5	0	186
Totals	68	8058	160	163	131	79	82	8116	207	208	131	82	17485

Note: 5 years of background traffic growth at an annual rate of 1.5%

Wabash Valley Resources, L	.LC – Wabash Hydrogen Energy Center Project	Appendix G	Mitigaton Action Plan
APPENDIX G	MITIGATON ACTION PLAN		

This Mitigation Action Plan identifies mitigation measures applicable to the Project, for the construction and operation of the Project for the production of ammonia and hydrogen, and the capture, transport, and sequestration of CO₂. This Mitigation Action Plan for the Proposed Action (as defined in Chapter 2 of this EA) includes integral elements and commitments made in the EA to mitigate potential adverse environmental impacts. The Proposed Action includes commitments by Wabash Valley Resources, LLC (WVR) to refine and implement the Project Transportation Plan and develop and implement a Noise Plan. The Transportation Plan will cover both the construction and operation of the Project, accounting for both construction and operational workforce transportation as well as the shipments of supplies, raw materials, products, wastes, and CO₂. The Transportation Plan and Noise Plan will be incorporated into the construction and operation of the Project to mitigate potential safety, noise, road maintenance, and traffic impacts associated with the Project.

As part of the Transportation Plan, WVR has allocated up to \$5,000,000 for implementation of future transportation-related measures to mitigate any adverse impacts.

As part of the consultations with Indiana State and County officials, WVR will provide the following to such State and County officials:

- Updated traffic analyses and level-of-service analyses that address the construction and operational phases of the Project accounting for various operational conditions (e.g., all CO₂ shipments directed to a single Injection Well Site). The traffic analyses and level-of-service analyses will account for the deliveries of materials and shipment of products and CO₂ from the Wabash Facility as well as the construction and operational workforce associated with the Project.
- Updated equivalent single-axle loads (ESALs) evaluations and annual values associated with the truck traffic supporting Project operations, including CO₂ transport trucks and product (ammonia) transport trucks.
- A review of the access road to the Wabash Facility (West Sandford Avenue) to ensure that the access road can adequately support the construction and operation of the Project.
- A review of the paved and unpaved Vigo County and Vermilion County roads to ensure that they can adequately and safely support the construction and operation of the Project, as well as prepare an applicable ESAL analyses for the paved and gravel county roads to identify any applicable upgrade and/or maintenance measures.
- In coordination with local emergency responders, WVR will develop response, coordination, and training plans for potential trucking incidents involving both CO₂ and ammonia.

The Noise Plan will cover both the construction and operation of the Project to include shipments of supplies, raw materials, products, waste, and CO₂. The Noise Plan will be incorporated into the construction and operation of the Project to mitigate potential noise impacts associated with the Project. As part of the consultations with Indiana State and County officials, WVR will provide the following to such State and County officials:

- Review of applicability of Indiana Code Title 13. Environment Article 17. Air Pollution Control Chapter 3. Powers and Duties Concerning Air Pollution Control 13-17-3-15. Rules and Standards Limiting Noise Emission (IN Code §13-17-3-15 (2024)) and other potentially applicable State noise related ordinances.
- Review of applicability of County noise ordinances (e.g., Vigo County Chapter 53, Excessive Noise, Disturbance Prohibited; Chapter 20 Road Crossings Temporary Road Closing; and Vermillion County Unified Development Ordinance, Article 5.23 G. Noise Pollution), that may be applicable to the noise associated with the construction and operation of the Project.

- Identification of potential noise reduction measures that WVR could implement to address any potential adverse impacts.
- A Final Noise Plan that addresses applicable noise-related authorizations, ordinances, agreements, and/or approvals associated with the construction and operation of the Project.

WVR will provide LPO with an initial approach and schedule for the development of any additional studies and information regarding the Transportation Plan and the Noise Plan.

WVR will provide LPO with updates on the development of any additional studies and information and will include LPO on correspondence to and from the State and County officials to include any reports and information submitted.

WVR will notify and invite LPO to participate in discussions with State and County officials regarding the Transportation Plan and the Noise Plan.

WVR will provide LPO with summaries of the outcomes of consultations conducted with State and County officials regarding the Transportation Plan and the Noise Plan.

WVR will provide LPO with any final concurrence, approvals, and/or resolutions reached between WVR and the State and County officials.

WVR will provide Mitigation Action Plan status reports within 3 months after closure of DOE's loan guarantee and continue at a frequency to be established between LPO and WVR

If you have questions about this Mitigation Action Plan, contact the LPO NEPA document manager for the environmental review, Whitney Donoghue (LPO_environmental@hq.doe.gov). LPO may amend this Mitigation Action Plan if revisions are necessary due to new information or Project adjustments.