### **Environmental Assessment**

**Attachment F. Wetlands Assessment** 

#### Appendix 1 - REQUEST FOR CORPS JURISDICTIONAL DETERMINATION (JD)

To: Louisville District I am requesting a JD on property located at: \_\_\_\_\_ (Street Address) City/Township/Parish: County: State: State: Latitude (decimal degrees): Longitude (decimal degrees): (For linear projects, please include the center point of the proposed alignment.) Please attach a survey/plat map and vicinity map identifying location and review area for the JD. I currently own this property.

I am an agent/consultant acting on behalf of the requestor. Other (please explain): Reason for request: (check as many as applicable) I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all aquatic resources. I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all jurisdictional aquatic resources under Corps authority. I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps, and the JD would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an initial step in a future permitting process. I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps; this request is accompanied by my permit application and the JD is to be used in the permitting process. I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district Section 10 list and/or is subject to the ebb and flow of the tide. A Corps JD is required in order to obtain my local/state authorization. I intend to contest jurisdiction over a particular aquatic resource and request the Corps confirm that jurisdiction does/does not exist over the aquatic resource on the parcel. \_\_\_ I believe that the site may be comprised entirely of dry land. Other: Type of determination being requested: \_\_\_ I am requesting an approved JD. \_\_\_ I am requesting a preliminary JD. I am requesting a "no permit required" letter as I believe my proposed activity is not regulated. I am unclear as to which JD I would like to request and require additional information to inform my decision. By signing below, you are indicating that you have the authority, or are acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant Corps personnel right of entry to legally access the site if needed to perform the JD. Your signature shall be an affirmation that you possess the requisite property rights to request a JD on the subject property. \*Signature: Typed or printed name: \_\_\_\_\_ Company name: \_\_\_\_\_

\*Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.

Daytime phone no.:

Email address:

Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.

Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website. Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an AJD cannot be evaluated nor can an AJD be issued

# **Wetland Services**

3880 Trigg-Turner Rd Corydon, KY 42406 270-860-8141 wetlandservices.net





♦ Delineation

♦ Permitting

♦ Mitigation

♦ Nitigation
♦ Survey

♦ Design

♦ Construction

♦ Monitoring

♦ Maintenance

To: Tre Barron 22MAY23

ACOE Regulatory Division, South Branch 6855 State Road 66

Newburgh, Indiana 47630

**RE:** BREC – Transmission Operations Center Waters of the US JD Report, Owensboro, KY. For Associated Engineers, Inc. & Big Rivers Electric Corporation.

Hello Tre Barron,

During the month of May, a delineation of Waters of the U.S. (WOUS) was performed on the site of the proposed Big Rivers Electric Corporation, Transmission Operations Center at the request of Associated Engineers, Inc. Owensboro, KY. Midpoint Location: N 37.77097, W -87.15917

Please note the enclosed Jurisdictional Determination Report and associated information: Request for JD Form, JD Narrative, Delineation Summary Tables, Stream & Wetland Data Forms, Location & JD Map and Preliminary JD Form. The report is bookmarked in pdf format for your convenience.

At this time, the client is requesting Preliminary JD.

Sincerely,

Keith Michalski Biologist km@wetland.services 216-647-1641

CC: David Lamb, Associated Engineers, Inc.

# Wetland Delineation, Stream Assessment, and Rapanos Report (JD Report)

## **BREC - Transmission Operations Center**

May, 2023

Owensboro, KY

For:

Associated Engineers, Inc 2740 North Main St. Madisonville, KY 42431 270-821-7732

By:

Wetland Services 3880 Trigg-Turner RD Corydon, KY 42406 270-860-8141

#### JD REPORT

Introduction and Location: An Army Corps of Engineers (ACOE) jurisdictional wetland and stream delineation was conducted within the proposed site for the BREC - Transmission Operations Center at the request of Associated Engineers, Inc. Field assessments were completed from May 15 to May 18, 2023. The project is located in Daviess County, KY. The site resides within the inner loop of the Highway 60 Bypass on the west side of Owensboro, KY. Central point of project location: N 37.77097, W -87.15917

Directions to the site from the Louisville District, Newburgh Regional Field Office. Proceed 18.3 miles on IN-66 E. Turn right onto IN-161 S for 8.8 miles and travel across the Glover Cary Bridge into KY. Turn right onto E  $3^{rd}$  Street. Make the next right onto Daviess St. Make the next left onto E  $2^{nd}$  St. Proceed 2.6 miles on E  $2^{nd}$  St and turn left onto Gradd Way. A gravel site access location will imediately be on the left. Southern portion of the JD area can be accessed from W  $5^{th}$  Street.

As the regulating authority of Section 404 of the Clean Water Act, ACOE must make the final determination as to the jurisdictional status of this site. Kentucky Division of Water (KDOW) has jurisdiction over "Waters of the Commonwealth".

### **Regulatory Definitions:**

**Waters of the United States:** Waters of the United States are regulated by ACOE based on authority from Section 404 of the Clean Water Act. They include waters that are or could be used for interstate commerce such as rivers, wetlands, lakes, territorial seas and ponds, as well as streams, waterways, and ditches below the ordinary high-water mark. Manmade water bodies and farmed wetlands may also be considered jurisdictional depending on their connection to other "Waters of the U.S." if they are not actively mined, farmed, or otherwise managed for five years. Activities in these areas will require an ACOE 404 permit if they include the discharge of dredged or fill material into "Waters of the U.S.".

Waters of the Commonwealth: Waters of the Commonwealth are regulated by KDOW based on authority from Section 401 of the Clean Water Act 33USC 1314 and KRS 224.16-070. They are defined as Section 404 jurisdictional wetlands and solid or dashed blue-line streams on the most recent version of the USGS 1:24,000 topographic map. Activities that include a physical disturbance to "Waters of the Commonwealth" will require a KDOW 401 Water Quality Certification.

**Other Permits:** Other permits typically associated with Section 401 and 404 may include KDOW Floodway Construction, USFWS Threatened Endangered Species, and Historic Preservation Office - Archaeology.

### **Technical Definitions:**

**Wetlands:** Wetlands are defined as areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. They are identified based on the three-parameter approach outlined in the *Corps of Engineers Wetland Delineation Manual (1987)* as amended by the Eastern Mountains and Piedmont Regional Supplement - Piedmont Central Subregion ERDC/EL TR-10-9. The three criteria include hydrophytic vegetation, hydric soils, and wetland hydrology. All three criteria must be present to make a positive wetland determination. The criteria are defined as follows:

**Hydrophytic vegetation:** Hydrophytic vegetation, due to morphological, physiological, and/or reproductive adaptation(s), has the ability to grow, effectively compete, reproduce, and/or persist in anaerobic soil conditions. Individual species have been assigned indicator status by the USFWS - National Wetland Inventory and the National Plant List Panel. Vegetation is considered hydric when *more than* 50% of the dominant species from all strata are OBL, FACW, or FAC based on the dominance test. A prevalence index of 3.0 or less indicates hydrophytic vegetation. Vegetation is also present if either the dominance test or the prevalence test is passed according to morphological adaptations. If all dominants are FAC, the vegetation criterion is disregarded and the determination is based on soil and hydrology criteria.

Indicator Status	Probability of Occurrence in Wetlands
Obligate Wetland - OBL	> 99%
Facultative Wetland - FACW	67-99%
Facultative- FAC	34-66%
Facultative Upland - FACU	1-33%
Obligate Upland - UPL	<1%

Secondary vegetation rules include observed physiological adaptations, plants growing in saturated soils, and the FAC neutral test.

**Hydric soils:** Hydric soils are present when they develop anaerobic in the upper part during the growing season. Hydric soils in this report are identified by various combinations of soil colors, depths, organic matter, and redox features.

**Hydrology:** Hydrology in wetlands occurs in areas inundated permanently or periodically at mean water depths <6.6-feet, or if the soil is saturated to the surface for 14-days consecutively during the growing season of the prevalent vegetation. Wetland hydrology indicators may be present above or below the surface. Primary indicators include surface water, high water table, saturation, water marks, sediment deposits, drift deposits, algal mat or crust, iron deposits, inundation visible from aerial imagery, water stained leaves, aquatic fauna, true aquatic plants, hydrogen sulfide odor, oxidized rhizospheres on living roots, presence of reduced iron, recent iron reduction in tilled soils, and thin muck surface. Secondary indicators (two or more required) include surface soil cracks, sparsely vegetated concave surface, drainage patterns, moss trim lines, dry-season water table, crayfish burrows, saturation visible on aerial imagery, stunted of stressed plants, geomorphic position, shallow aquitard, microtopographic relief, and FAC neutral test.

**Streams:** Streams were assessed according to criteria set forth in Rapanos Guidance to include surface drains with ordinary high-water marks (OHWM) and defined bed and banks. OHWM are evidenced by a clear, natural line impressed on the bank, sediment deposition/sorting, litter, debris or wrack lines, scouring, the destruction of terrestrial vegetation, benching, shelving, and changes in soil character. Swales and gullies are "generally" not jurisdictional, but were mapped and illustrated when they provided surface connection between "waters of the U.S." and a TNW. These features are denoted as surface connections, or 'SC', followed by the appropriate Unit ID as outlined below in the Unit ID labeling system.

### **Methods and Materials**

### **Wetland Delineation**

**Soils:** Soil colors were determined using the standard Munsell Soil Color Charts. Colors were determined with soil moist on an undisturbed ped face. Unless otherwise stated samples were taken using a tile spade and/or an Oakfield 7/8"x10" soil probe.

**Vegetation:** Vegetation was classified using the USFWS National List of Plant Species that Occur in Wetlands, Region 1, East, Eastern Mountains and Piedmont Regional Supplement. The 50/20 rule was applied to determine the dominant species in applying the dominance test. If the dominance test failed and the site had indicators of hydric soil and wetland hydrology, the prevalence index was applied. If the prevalence index failed, the morphological adaptations rule was applied.

**Hydrology:** Hydrology was determined by field indicators, and any reliable source of available gage data. Local soil survey data were also considered.

**Stream Assessment:** Assessments were conducted using the Rosgen stream assessment protocol and EPA RBP physical characterization and habitat parameter forms. Additional information was added to the standard Rosgen data sheet to facilitate Rapanos. These data include length, distance, sinuosity, area, vegetation width on both banks, additional Altered Channel descriptors and a check box for Step-Pool Series.

**Unit ID Labeling System:** For accurate record-keeping purposes a unit specific labeling system has been developed i.e.:

```
1NS2A1-1=Unit ID

1=watershed (any drain that solely leaves the permit boundary)

N=Landuse (Natural, Reclaimed, PreLaw, Ag, Mixed eXcavated, Logged, Urban)

S=Unit type (Stream, Wetland, Open Water)

2=Unit number (2nd stream assessed in watershed 1)

A=1st branch of stream 2

1=1st branch of stream 2A etc.

-1=Subsequent assessment on stream 2A1
```

**Rapanos:** Rapanos clarification of terms: watershed size is the area within the JD Boundary, drainage area is the size of each watershed on site, and review area is identified as the stream in conjunction with all associated wetlands. Occasionally a unit on site has connection to a TNW by a unit offsite. In such cases a visual observation of the unit is made from the permit boundary and an "Offsite" assessment is made to facilitate complete Rapanos documentation.

### **Site Description**

**Background Information:** Information on the JD area was gathered from USGS Quadrangle maps, USDA/NRCS Web Soil Survey, USFWS Wetland Mapper, USGS StreamStats, KY LiDAR elevation data, and various aerial imagery. These data sets were studied and utilized in making a formal assessment between 15MAY23 and 18MAY23. The assessed JD area was approximatly 117-acres. Weather conditions during assessment were normal for temperature and precipitation. A heavy rain event occurred within seven days of assessment. Assessment

data forms are provided for all mapped features. Assessments were also completed on agricultural landscapes to document conditions where development is planned to occur.

**Physiographic Setting:** The site is located within Ecoregion 72a, the Wabash - Ohio Bottomlands. The region is composed of nearly level, poorly drained floodplains and undulating terraces. Wetlands, sloughs, abandoned channels, owbow lakes and low ridges occur. The region is more poorly drained than other parts of Ecoregion 72. Today, some woodlands remain, but the majority of land use is agricultural and developed. Streams within the region are dominated by fine substrates and often channelized. Drainage ditches are common. (Woods et. al.)

The landscape of the JD area was very similar to the physiographic setting description of Ecoregion 72a. The JD area was greater than 90% agricultural land use. The site is relatively flat with convex and concave surfaces due to natural topography and directional tillage. Drainage on the site is extensive and complicated by the Highway 60 bypass. The site drains predominately north to an unnamed tributary to the Ohio River (2MS1). A large drainage system consisting of one main feature (2AW3) with many lateral W-ditches drains crop ground to the north. W-ditches on site have been well maintained and fuction as intended. Portions of the site that drain west and south drain along the Highway 60 bypass (1MS1). Stream 1MS1 flows south and east to the retention basins off site. Retention basin water has the ability to be pumped to a recieveing water.

Drainage features within mature tree lines have aggraded, are no longer present or drainage has been facilitated along them. In some locations, surface water appears to sheet flow along tree lines before entering connected waters. Ground swelling has occurred within mature tree lines resulting in tree line surface elevation being above agricultural fields.

The JD area resides in two HUC 12 watersheds:051100050501 Rhodes Creek-Green River and 051402011202 Jackson Creek-Ohio River. Although most of the site resides in Rhodes Creek watershed, most of the site drains north to the Ohio River.

**Streams:** Natural stream density on the site would have been low due to the flat nature of the site. Surface features mapped as streams have been dredged and channelized across flat landscapes. Main ditched streams carry relatively permanent flow. Few ephemeral features were located on site. Streams were dominated by silt, clay and organic substrates. RBP scores indicate marginal to poor stream quality for Western Kentucky. Shallow drainage features located within agricultural land use that did not display an ordinary high-water mark, or defined bed and banks were not mapped as streams.

**Open Waters:** No open waters were located on site.

**Wetlands:** Three types of wetland were mapped on site; PFO, PEM and PUBG. Wetlands met abutting and adjacent status. The most common mapped wetland condition on site were large, aggraded drainage ditches located in mature tree lines (2MW1, 2MW4, 1MW6). Over time these drainage features have developed obstructions leading to ponding of surface water. One PEM wetland was mapped where a maintained sewer right of way occurs through a tree line (2MW2). One old, excavated trash pit was mapped as PUBG (1MW5). One surface drainage feature located in agriculture was mapped as linear wetland (2AW3). The feature has not been farmed through and was located within mapped hydric soils.

All tree lines were investigated for wetland criteria. Ground swelling and debris collection within mature tree lines has resulted in convex surface elevations above agricultural fields. Soils in these locations were often dark with organic material but did not display reducing conditions, redoximorphic features or required hydrology indicators.

**Vegetation:** PFO wetland vegetation was dominted by hard and soft mast tree species. Dominant tree line species included sweet gum, pin oak, cottonwood, red maple and red mulberry. Tree species also present included: bur oak, pecan, shellbark hickory, silver maple, american elm and sugarberry. Shrubs within wetlands and tree lines were dominated by red mulberry and non-native species: border privet, burning bush and bush honeysuckle. Understory herbaceous vegetation was dominated by winter creeper (Euonymus fortunei), which has formed a dense continous mat in most tree lines. Additional dominant species included virgina creeper, poison ivy, woodland grasses and green briar. PEM wetland vegetation was dominated by a mix of sedges, forbs and tree saplings.

**Hydrology:** The primary hydrologic source for wetlands onsite was precipitation, surface ponding and influence from a seasonally high-water table. At the time of assessment wetlands displayed hydrology indicators including: high water table, soil saturation, water marks, sediment deposits, drift deposits, algae mat, iron deposits, water stained leaves, surface soil cracks, sparsley vegetated concave surface, drainage patterns, crayfish burrows, stressed plants, geomorphic position and FAC-Neutral test.

**Soils:** Dominant soil types on site included: Melvin silt loam, Otwood silt loam, Cape silty clay loam and Elk silt loam. Two soil types are listed as hydric: Cape silty clay loam and Melvin silt loam. Mapped soil types and hydric status of soils on site was approximate to on the ground conditions. All mapped wetlands met the criteria for a depleted matrix. Portions of agricultural fields display hydric soils, but active farming has removed many hydrology indicators and vegetation.

#### **Works Cited:**

Woods, A.J., Omernik, J.M., Martin, W.H., Pond, G.J., Andrews, W.M., Call, S.M, Comstock, J.A., and Taylor, D.D., 2002, Ecoregions of Kentucky (color poster with map, descriptive text, summary tables, and photographs): Reston, VA., U.S. Geological Survey (map scale 1:1,000,000).

<u>Jurisdictional Waters</u>: An itemized summary of all existing waters is listed below.

Table 1: Itemized Summary of Jurisdictional Waters								
TYPE	INDIVIDUAL UNIT	'S **T	OTAL AMOUNT					
Jurisdictional Wetlands	8		1.11-acres					
Non-Jurisdictional Wetlands	0		0.00-acres					
Jurisdictional Streams	2,557-Line	ear ft) 0.45 -acre*						
Jurisdictional Open Waters	0		0.00-acres					
Non-Jurisdictional Open Waters	0		0.00-acres					
	TOTAL J	Iurisdictional Area	1.56-acres					
TOTAL Non-Jurisdictional Area 0.00-acre								
*Stream area calculated by multiplying strea	**Areas rounded to the	hundredth 0.01-						
OHWM". Da channel area calculated by mul footage x "Wfpa"	acre.							

### **Summary Tables**

Streams									
Unit Id Latitude N Longitude W Eph Int Rosgen Type RBP Sc									
1MS1	37.76507	-87.16231	0	319	E6	107			
2MS1	37.77293	-87.15661	0	626	G6c	86			
2MS1A	37.77268	-87.15664	0	246	B6c	91			
2MS1A1	37.77221	-87.15680	53	0	C6	83			
2MS1A2	37.77251	-87.15912	37	0	B6c	71			
2MS1B	37.77216	-87.15490	0	1,276	G6c	81			
	Total Linear	Feet	90	2,467					

	Wetlands									
Unit Id	Latitude N	Cowardin Class	Connected Area							
2MW1	37.77241	-87.15808	PFO	0.42						
2MW2	37.77223	-87.15747	PEM	0.09						
2AW3	37.77141	-87.15703	PUBG	0.16						
2MW4	37.77157	-87.15520	PFO	0.14						
1MW1	37.76967	-87.16095	PFO	0.09						
1MW4	37.76481	-87.16187	PFO	0.05						
1MW5	37.77041	-87.16085	PUBG	0.04						
1MW6	37.77046	-87.16386	PFO	0.12						
		1.11								

_	Stream Assessment Worksheet									
Stream 1MS1		Date	5/18/2023	Inv.: Dakota Spruil		E	Entry: K	eith Michalsk	i i	
Latitude: Longitude:		37.765 -87.162		Level III - : Morp		State or al Descri		tion		
Length:			319	Primary Riparian Left:	10a		100	Altered	Channel Key	
Distance:			319	Primary Riparian Right	10b		80	CH = Chann		
Sinuosity:			1.00	Secondary Riparian Le	ft:		0	CV = Culver	t , Dam, or Rock	
FlowType:		Inter	mittent	Secondary Riparian Ri	ght: RV 1	1	20	Checks	,	
Area In Acres:			0.11	Stream Flow Regime:	12			DG = Dredg LWC = Low	ed Water Crossing	
Slope %:			0.5	Stream Size:	S-4			NA = Not ap	plicable	
l o	Level II - Stream		Depositional Features:	B-4	B-4		OT = Other Comments)	(See		
_	logical Des		ion	Meander Patterns:	M-3			PI = Pipe RSC = Road	d Side Channel	
Width at Bottom	•		6.40	Stream Channel Debris	s: D2			rtoo rtout	- Glad Gridinion	
Bankfull Surface	Width:		15.00	Stream Bank Erosion:	Low					
Width of Flood F			60.00	Stream Aggradation:	Stab	ole				
Bankfull Mean D			1.50	Channel Stability:	Goo	d				
Entrenchment R	•		4.00	Altered Channel:	CH,0	CV				
				Percent Riffle:	0		1			
Width / Depth Ra	alio:		10.00				]			
Stream Type:			E6	Percent Run:	85		]			
				Percent Pool:	15					

#### Comments:



Riparian Buffer: Primary and Secondary Riparian Buffer widths and vegetation types are delineated out to 100 ft (or the watershed divide if less) under the Level III criteria. Non-buffering land uses such as agriculture and roadways are disregarded.

Stream 1ASC	:1	Date: 5/22/2023	Inv.: Keith Michalski	Entry: K	Ceith Michalski
Latitude: Longitude:		37.76997 N -87.16121 W		eam State or Condi ogical Description	tion
Length:		845	Primary Riparian Left: Primary Riparian Right:		Altered Channel Key
Distance: Sinuosity:		1.00	Secondary Riparian Left:	0	CH = Channelized CV = Culvert DAM = Weir, Dam, or Rock
FlowType: Area In Acres:	Nor	u Jurisdictional	Secondary Riparian Right: Stream Flow Regime:		Checks DG = Dredged
Slope %:		0.5	Stream Size:	S-1	LWC = Low Water Crossing NA = Not applicable OT = Other (See
Level II - Stream Morphological Description		Depositional Features:  Meander Patterns:		Comments) PI = Pipe RSC = Road Side Channel	
Width at Bottom	of Stream:	0.00	Stream Channel Debris: Stream Bank Erosion:		
Bankfull Surface		0.00	Stream Aggradation:		
Width of Flood F Bankfull Mean D		0.00	Channel Stability:		
Entrenchment R	•	0.00	Altered Channel:		
Width / Depth Ra	atio:	0.00	Percent Riffle:	0	
Stream Type:		Swale	Percent Run:	0	
			Percent Pool:	0	
			Step Pool:		

Comments: Farmed Drainage Path/Swale.



Riparian Buffer: Primary and Secondary Riparian Buffer widths and vegetation types are delineated out to 100 ft (or the watershed divide if less) under the Level III criteria. Non-buffering land uses such as agriculture and roadways are disregarded.

Stream 2MS1	Date 5/16/2023	Inv.: Keith Michalski	En	try: Kei	th Michalsk	i
Latitude:	37.77293 N -87.15661 W		eam State or C ogical Descrip		on	
Length:	626	Primary Riparian Left:	10b	20	Altered (	Channel Key
Distance:	575	Primary Riparian Right:	10b	20	CH = Chann	-
Sinuosity:	1.09	Secondary Riparian Left:	RV 1	80	CV = Culver	
FlowType:	Intermittent	Secondary Riparian Right:	RV 1	80	Checks	, ,
Area In Acres:	0.26	Stream Flow Regime:	12		DG = Dredge LWC = Low	ed Water Crossing
Slope %:	1	Stream Size:	S-4		NA = Not ap	plicable
Level II - Stream		Depositional Features:	B-4		OT = Other ( Comments)	See
Morphological		Meander Patterns:	M-1		PI = Pipe	l Side Channel
Width at Bottom of Stream		Stream Channel Debris:	D3		Ttoo Ttoda	Tolde Gridinier
Bankfull Surface Width:	18.00	Stream Bank Erosion:	Low			
Width of Flood Prone Are		Stream Aggradation:	SL Agg			
Bankfull Mean Depth:	2.00	Channel Stability:	Fair			
Entrenchment Ratio:	1.39	Altered Channel:	CH,CV			
Width / Depth Ratio:	9.00	Percent Riffle:	5			
Stream Type:	G6	Percent Run:	80			
		Percent Pool:	15			
		Step Pool:				

#### Comments:



Riparian Buffer: Primary and Secondary Riparian Buffer widths and vegetation types are delineated out to 100 ft (or the watershed divide if less) under the Level III criteria. Non-buffering land uses such as agriculture and roadways are disregarded.

		•	Suc	aiii As	sessment wo	I VƏLICEL			
Stream 2MS1	A	Date 5/16/2	2023	Inv.:	Dakota Spruill		Entry: Ke	eith Michalsk	i
Latitude: Longitude:		37.77268 N -87.15664 W	- II		Level III - Stre	eam State		ion	-
Length:		246	<u> </u>	•	Riparian Left:	3b	20	Altered	Channel Key
Distance:		228	3	Primary	Riparian Right:	3b	100	CH = Chann	
Sinuosity:		1.08	3	Second	lary Riparian Left:		0	CV = Culver	t , Dam, or Rock
FlowType:		Intermittent	t	Second	lary Riparian Right:		0	Checks	
Area In Acres:		0.03	3	Stream	Flow Regime:	12		DG = Dredg	ed Water Crossing
Slope %:		1	ī	Stream	Size:	S-3		NA = Not ap	plicable
Level II - Stream			Deposit	tional Features:	NA		OT = Other Comments)	(See	
_	ogical De			Meande	er Patterns:	M-1		PI = Pipe	d Side Channel
Width at Bottom	•		60	Stream	Channel Debris:	D2		NOC - NOAC	Jule Chamile
Bankfull Surface			90	Stream	Bank Erosion:	Moderate			
			_	Stream	Aggradation:	SI deg			
Width of Flood P		12.	=	Channe	el Stability:	Fair			
Bankfull Mean De	epth:		50	Altered	Channel:	CH,CV			
Entrenchment Ra	atio:	2.	17						-
Width / Depth Ra	ntio:	11.	80	Percen	nt Riffle:	5			
Stream Type:		В	6c	Percen	nt Run:	90			
				Percen	nt Pool:	5			

Comments: Drainage Ditch



Riparian Buffer: Primary and Secondary Riparian Buffer widths and vegetation types are delineated out to 100 ft (or the watershed divide if less) under the Level III criteria. Non-buffering land uses such as agriculture and roadways are disregarded.

			Sire	aiii A	ssessment wc	n valleer			
Stream 2MS1	<b>A</b> 1	Date	5/16/2023	Inv.:	Dakota Spruill		Entry: Ke	ith Michalsk	i
Latitude: Longitude:	-	37.7722 -87.1568			Level III - Stre	eam State		ion	
Length:			53	Primary	/ Riparian Left:	10b	10	Altered	Channel Key
Distance:			53	Primary	/ Riparian Right:	10b	10	CH = Chann	elized
Sinuosity:			1.00	Second	lary Riparian Left:	RV 1	90	CV = Culver	t , Dam, or Rock
FlowType:		Ephe	emeral	Second	lary Riparian Right:	RV 1	90	Checks	
Area In Acres:			0.00	Stream	Flow Regime:	E2		DG = Dredg	ed Water Crossing
Slope %:			1	Stream	Size:	S-2		NA = Not ap	plicable
Level II - Stream		Deposi	tional Features:	NA		OT = Other Comments)	(See		
_	ogical De		on	Meande	er Patterns:	M-1		PI = Pipe	d Side Channel
Width at Bottom	•		2.10	Stream	Channel Debris:	D1		ree read	olde Gridinier
Bankfull Surface			3.40	Stream	Bank Erosion:	Moderate			
Width of Flood Pr			7.90	Stream	Aggradation:	SI deg			
			0.25	Channe	el Stability:	Fair			
Bankfull Mean De				Altered	Channel:	CH			
Entrenchment Ra			2.32	Dong -	-t Diffie.				<u> </u> 
Width / Depth Ra	tio:		13.60		nt Riffle:	5			
Stream Type:			C6		nt Run:	90			
				Percer	nt Pool:	5			

Comments: Drainage Ditch.



Riparian Buffer: Primary and Secondary Riparian Buffer widths and vegetation types are delineated out to 100 ft (or the watershed divide if less) under the Level III criteria. Non-buffering land uses such as agriculture and roadways are disregarded.

Stream 2MS1	A2	Date	5/17/2023	Inv.: Dakota Spruill		Entry: Da	akota Spruill	
Latitude: Longitude:		37.7729 -87.159		Level III - Stre Morphol	eam State ogical De		ion	ĺ
Length:			37	Primary Riparian Left:	10b	100	Altered	Channel Key
Distance:			37	Primary Riparian Right:	10b	100	CH = Chann	nelized
Sinuosity:			1.00	Secondary Riparian Left:		0	CV = Culver	t , Dam, or Rock
FlowType:		Eph	emeral	Secondary Riparian Right:		0	Checks	•
Area In Acres:			0.00	Stream Flow Regime:	E2		DG = Dredg	ed Water Crossing
Slope %:			1	Stream Size:	S-2		NA = Not ap	plicable
l av	vel II - Stre	am		Depositional Features:	NA		OT = Other Comments)	(2ee
_	logical De		ion	Meander Patterns:	M-3		PI = Pipe	d Side Channel
Width at Bottom	•		1.41	Stream Channel Debris:	D2		reo reac	d Clac Charmer
Bankfull Surface	Width:		3.10	Stream Bank Erosion:	Moderate			
Width of Flood P			6.20	Stream Aggradation:	SI deg			
Bankfull Mean D			0.20	Channel Stability:	Fair			
	•			Altered Channel:	NA			
Entrenchment Ra			2.00	Demont Diffler	10			<u> </u> 
Width / Depth Ra	atio:		15.50	Percent Riffle:	10			
Stream Type:			B6c	Percent Run:	90			
				Percent Pool:	0			

Comments: Agriculture field drainage location.



Riparian Buffer: Primary and Secondary Riparian Buffer widths and vegetation types are delineated out to 100 ft (or the watershed divide if less) under the Level III criteria. Non-buffering land uses such as agriculture and roadways are disregarded.

Stream 2MS1	В	Date	5/18/2023	Inv.: Keith Michalski		Entry: Ke	eith Michalsk	i
Latitude: Longitude:		37.772 87.154		Level III - Stre Morphole	eam State		ion	
Length:			1276	Primary Riparian Left:	10b	5	Altered (	Channel Key
Distance:			1273	Primary Riparian Right:	10b	30	CH = Chann	elized
Sinuosity:			1.00	Secondary Riparian Left:	RV 1	95	CV = Culver	t , Dam, or Rock
FlowType:		Inter	mittent	Secondary Riparian Right:	RV 1	70	Checks	,
Area In Acres:			0.32	Stream Flow Regime:	12		DG = Dredge	ed Water Crossing
Slope %:			1	Stream Size:	S-3		NA = Not ap	plicable
Lo	/el II - Stre	am		Depositional Features:	B-4		OT = Other ( Comments)	(See
_	ogical Des		ion	Meander Patterns:	M-3		PI = Pipe	l Side Channel
Width at Bottom	•		7.30	Stream Channel Debris:	D3		NOC - Noac	olde Charmer
Bankfull Surface			11.00	Stream Bank Erosion:	Moderate			
Width of Flood P			17.50	Stream Aggradation:	Stable			
				Channel Stability:	Fair			
Bankfull Mean D	•		1.50	Altered Channel:	CH,DG,PI			
Entrenchment Ra			1.59					<u> </u>
Width / Depth Ra	atio:		7.33	Percent Riffle:	5			
Stream Type:			G6c	Percent Run:	80			
				Percent Pool:	15			

#### Comments:



Riparian Buffer: Primary and Secondary Riparian Buffer widths and vegetation types are delineated out to 100 ft (or the watershed divide if less) under the Level III criteria. Non-buffering land uses such as agriculture and roadways are disregarded.

Storm (Heavy Rain)	Larg.   37.78907	Project ID: Transmission	on Operations Center	Stream Class: Intermittent
Date:   19-May 23		Stream ID: 1MS1		Location; OWENSBORO KY
Date:	Date: 18-May-23	Lat: 37.76507	Long: -87.16231	River Basin Ohio
MEATHER   Courant   Past 24 Hour	WATHER CONDITIONS	Investigators: Dakota S	pruill	
Current	Courrent	Signature:		
Storm (Heavy Rain)	Storm (Heavy Rain)		Time: 10:58 AM	404 functional Assessment:
Storm (Heavy Rain)	Storm (Heavy Rain)	WEATHER	Current Past 24 Hour	Heavy rain in last 7 days
Rain Steady	Rain Steady	CONDITIONS		
Showers (Intermittent)	Showers (Intermittent)			
Cloud Cover %	Cloud Cover %			
STREAM CHARACTERIZATION Stream Subsystem Perennial	Clear/Sunny   Clear/Sunny   Clear/Sunny   Stream Type   Characterization   Stream Subsystem   Perennial   Intermittent   Ephemeral   Coldwater   Warmwater   Catchment Area   Mile 2   0.00   Km 2   0.00   0.00   Km 2   0.00   Km 2   0.00   Km 2   0.00   Km 2   0.00   0.00   Km 2   0.00   Km 2   0.00   0.00   Km 2   0.00   0.00   Km 2   0.00   0.00   Km 2   0.00			
STREAM CHARACTERIZATION    Perennial     Intermittent     Ephemeral     Coldwater   Catchment Area   Mile   2   0.00	Stream Type		Glodd Gover 70	Other
Stream Subsystem   Perennial   Intermittent   Ephemeral   Coldwater   Catchment Area	CHARACTERIZATION    Perennial   Intermittent   Ephemeral   Cockwater   Catchment Area		Clear/Suriny	
Perennial   Intermittent   Ephemeral   Coldwater   Warmwater   Catchment Area   Mile 2   0.00   Mile 3   0.0	Perennial   Intermittent   Ephemeral   Coldwater   Catchment Area		Stream Subsystem	Stream Type
Stream Origin	Stream Origin	CHARACTERIZATION		Coldwater
Stream Origin	Stream Origin			
Upland Runoff	Upland Runoff		Stream Origin	
Spring-fed/Ground Water	Spring-fed/Ground Water			
WATER SHED FEATURES  Surrounding Land Use & Percentage	Surrounding Land Use & Percentage			Km <sup>2</sup> 0.00
Surrounding Land Use & Percentage	Surrounding Land Use & Percentage	WATERSHED		
Field/Pasture	Field/Pasture			Local Watershed NPS Pollution
RIPARIAN VEGETATION (18 meter buffer)    Residential	Agriculture   70		✓ Forest 10 Commercial 0	☐ No evidence ☐ Some potential sources
Residential	Residential		☐ Field/Pasture 0 ✓ Other 20	✓ Obvious sources
Residential	Residential		✓ Agriculture 70 Highway Interchange	Local Watershed Frosion
Indicate the dominant type and record the dominant species present   Dominant Species	Indicate the dominant type and record the dominant species present   Dominant Species			
Indicate the dominant type and record the dominant species present   Dominant Species	Indicate the dominant type and record the dominant species present   Trees   Shrubs   Grasses   Herbs   None   Mixed mast.	DIDADIAN	Tresidential 0	□ None • Noderate □ Fleavy
INSTREAM   Est Reach Length   ft   100   m   30   Canopy Cover   Est Stream Width   ft   15.0   m   4.6   Open   Partly Open   Sampling Reach Area ft   2   1500.0   m   2   139.4   Shaded   Partly Shaded	None		Indicate the dominant type and record the dominant sp	ecies present Dominant Species
Est Reach Length ft	Est Reach Length ft 100 m 30 Canopy Cover  Est Stream Width ft 15.0 m 4.6 Open Partly Open  Sampling Reach Area ft 2 1500.0 m 2 139.4 Shaded Partly Shaded  Sampling Area mile2 0.000055 km 2 0.000139 High Water Mark ft 1.50  Est Water Depth in 4.0 m 0.1 High Water Mark m 0.46  Surface Velocity ft/s 0.1 m/s 0.0 % of Stream Morphology  Riffle % 0 V Run % 85  Channelized Ves No Step Pool Series  LWD 0.1 m 2 1 ft 2  Density of LWD m 2 / km 2 0.000000929 ft 2 / mile 2 0.0000000359  AQUATIC VEGETATION  Indicate the dominant type and record the dominant species present  Rooted Emergent Rooted Submergent Rooted Floating None Free Floating None Portion of the reach with aquatic vegetation present: 20  WATER QUALITY  WATER QUALITY  WATER COLOR Petroleum Total Disolved Solids PH 7.85 Do: 8.3 mg/L  Turbidity Water Surface Oils Slick Sheen Globs Flecks		Troos Shrubs Crassos Horbs	Mixed mast.
Est Reach Length ft 100 m 30 Candy) Cover   Est Stream Width ft 15.0 m 4.6 Open Partly Open   Sampling Reach Area ft 2 1500.0 m 2 139.4 Shaded Partly Shaded   Sampling Area mile2 0.000055 km2 0.000139 High Water Mark ft 1.50   Est Water Depth in 4.0 m 0.1 High Water Mark m 0.46   Surface Velocity ft/s 0.1 m/s 0.0 % of Stream Morphology   Riffle % 0 V Run % 85   Channelized Velocity ft/s No Step Pool Series  LARGE WOODY DEBRIS  LARGE WOODY DEB	Est Reach Length		Titles   Siliubs   Glasses   Titlibs	Notic
Est Stream Width ft	Est Stream Width		Est Reach Length ft 100 m	30 Canopy Cover
Sampling Reach Area ft 2	Sampling Reach Area ft 2	FEATURES		
Sampling Area mile <sup>2</sup> 0.000055 km <sup>2</sup> 0.000139 High Water Mark ft 1.50  Est Water Depth in 4.0 m 0.1 High Water Mark m 0.46  Surface Velocity ft/s 0.1 m/s 0.0 % of Stream Morphology  Riffle % 0 Pool % 15 Glide Pool  Dam Present Yes No Step Pool Series  LARGE WOODY DEBRIS  LWD 0.1 m <sup>2</sup> 1 ft <sup>2</sup> Density of LWD m <sup>2</sup> / <sub>km</sub> 2 0.000000929 ft <sup>2</sup> / <sub>mile</sub> 2 0.000000359  AQUATIC VEGETATION  Indicate the dominant type and record the dominant species present Rooted Emergent Rooted Submergent Rooted Floating None Portion of the reach with aquatic vegetation present: 20  WATER QUALITY  No Water Present Temperature 20 °C 68 °F Water Odors  No Flow Present Conductivity µs/cm 583 V Normal/None Sewage Petroleum Total Disolved Solids 299 mg/l Chemical Anaerobic	Sampling Area   mile2   0.000055   km2   0.000139   High Water Mark   ft   1.50   Est Water Depth   in			Chaded Dowly Chaded
Est Water Depth in 4.0 m 0.1 High Water Mark m 0.46  Surface Velocity ft/s 0.1 m/s 0.0 % of Stream Morphology Riffle % 0 Pool % 15 Glide Pool Dam Present Yes No Step Pool Series  LARGE WOODY DEBRIS  LARGE WOODY DEBRIS  LORGE WOODY DEBRIS DE	Est Water Depth in 4.0 m 0.1 High Water Mark m 0.46  Surface Velocity ft/s 0.1 m/s 0.0 % of Stream Morphology  Riffle % 0 Run % 85  Channelized Yes No Pool % 15 Glide Pool  Dam Present Yes No Step Pool Series  LARGE WOODY DEBRIS  LWD 0.1 m² 1 ft² Density of LWD m²/km² 0.0000000929 ft ²/mile ² 0.0000000359  AQUATIC VEGETATION  Indicate the dominant type and record the dominant species present  Rooted Submergent Rooted Floating None Portion of the reach with aquatic vegetation present: 20  WATER QUALITY  No Water Present Temperature 20 ° C 68 ° F Water Odors  No Flow Present Conductivity µs/cm 583  Normal/None Sewage Petroleum Total Disolved Solids 292 mg/l Chemical Anaerobic  PH 7.85 Do: 8.3 mg/L  Turbidity Water Surface Oils  Slick Sheen Globs Flecks			100.4
Surface Velocity ft/s 0.1 m/s 0.0 % of Stream Morphology  Riffle % 0 Pool % 15 Glide Pool  Dam Present Yes No Step Pool Series  LWD 0.1 m 2 1 ft 2  Density of LWD m2 /km 2 0.0000000929 ft 2 /mile 2 0.0000000359  AQUATIC VEGETATION  Indicate the dominant type and record the dominant species present  Rooted Submergent Rooted Floating None Portion of the reach with aquatic vegetation present: 20  WATER QUALITY  No Water Present Temperature 20 ° C 68 ° F Water Odors  No Flow Present Conductivity µs/cm 583 Normal/None Sewage Petroleum Total Disolved Solids 292 mg/l Chemical Anaerobic	Surface Velocity ft/s 0.1 m/s 0.0 % of Stream Morphology  Channelized		Sampling Area mile <sup>2</sup> 0.000055 km <sup>2</sup> 0.00	00139 High Water Mark ft 1.50
Channelized	Channelized		Est Water Depth in 4.0 m	0.1 High Water Mark m 0.46
Channelized	Channelized		Surface Velocity ft/s 0.1 m/s	0.0 % of Stream Morphology
Channelized Dam Present Yes No Step Pool % 15 Glide Pool  LARGE WOODY DEBRIS  LWD Density of LWD M2 1 ft 2  Density of LWD M2 0.0000000929 ft 2 /mile 2 0.0000000359  AQUATIC VEGETATION  Indicate the dominant type and record the dominant species present Rooted Emergent Rooted Submergent Rooted Floating None Portion of the reach with aquatic vegetation present: 20  WATER QUALITY  WATER QUALITY  No Water Present Temperature 20 ° C 68 ° F Water Odors  No Flow Present Conductivity µs/cm 583 Normal/None Sewage Petroleum Total Disolved Solids 292 mg/l Chemical Anaerobic	Channelized Dam Present			
Dam Present	Dam Present		a	
LARGE WOODY DEBRIS  LWD Density of L	LARGE WOODY DEBRIS  LWD Density of L			
Density of LWD	Density of LWD		Dam Present	☐ Step Pool Series
Density of LWD	Density of LWD		LWD 0.1 <sub>m</sub> 2	1 ft <sup>2</sup>
AQUATIC VEGETATION  Indicate the dominant type and record the dominant species present  Rooted Emergent  Action Algae  Indicate the dominant type and record the dominant species present  Rooted Floating  None  Portion of the reach with aquatic vegetation present:  20  WATER QUALITY  No Water Present Temperature  20  C  68  F  Water Odors  No Flow Present  Conductivity  Portion of the reach with aquatic vegetation present:  20  C  68  F  Water Odors  No Flow Present  Total Disolved Solids  292  mg/l  Chemical  Anaerobic	AQUATIC VEGETATION  Indicate the dominant type and record the dominant species present  Rooted Emergent  Rooted Submergent  Rooted Floating  Free Floating  Attached Algae  Floating Algae  WATER QUALITY  No Water Present  Conductivity  Portion of the reach with aquatic vegetation present:  20  C 68  F Water Odors  Normal/None  Sewage  Petroleum  Total Disolved Solids  292  mg/l  Chemical  Anaerobic  pH  Turbidity  Water Surface Oils  Slick  Sheen  Globs  Flecks	טבאאוס		0.00000359
VEGETATION  Rooted Emergent  Rooted Submergent  Rooted Floating  None  Portion of the reach with aquatic vegetation present:  20  WATER QUALITY  No Flow Present Conductivity μs/cm  Total Disolved Solids  292  mg/l  Chemical  Portion of the reach with aquatic vegetation present:  20  None  Portion of the reach with aquatic vegetation present:  20  None  Portion of the reach with aquatic vegetation present:  20  C 68  Normal/None  Sewage  Petroleum  Total Disolved Solids  292  mg/l  Chemical  Anaerobic	VEGETATION  Rooted Emergent  Rooted Submergent  Rooted Floating  None  Portion of the reach with aquatic vegetation present:  20  WATER QUALITY  No Water Present Temperature  20 ° C 68 ° F Water Odors  No Flow Present Conductivity μs/cm  Total Disolved Solids  pH  Turbidity  Vater Surface Oils  Slick Sheen Globs Flecks	ACHATIC	, m²/km² L 3.33	ft 4 /mile 4
WATER QUALITY  □ No Water Present Temperature □ 20 ° C □ 68 ° F □ Normal/None □ Sewage □ Petroleum  Total Disolved Solids □ 292 mg/l □ Chemical □ Anaerobic	WATER QUALITY  □ No Water Present Temperature □ 20 °C □ 68 °F Water Odors □ Normal/None □ Sewage □ Petroleum Total Disolved Solids □ PH □ 7.85 □ Do: □ 8.3 mg/L  □ Turbidity □ Clear □ Slightly Turbid □ Turbid □ Slick □ Sheen □ Globs □ Flecks			Portion of the reach with
WATER QUALITY  □ No Water Present Temperature □ 20 ° C □ 68 ° F Water Odors □ No Flow Present Conductivity µs/cm □ 583 □ Normal/None □ Sewage □ Petroleum  Total Disolved Solids □ 292 mg/l □ Chemical □ Anaerobic	WATER QUALITY  □ No Water Present Temperature 20 ° C 68 ° F Water Odors □ No Flow Present Conductivity µs/cm 583 □ Normal/None □ Sewage □ Petroleum □ Total Disolved Solids 292 mg/l □ Chemical □ Anaerobic □ pH 7.85 □ Do: 8.3 mg/L □ Turbidity □ Water Surface Oils □ Slick □ Sheen □ Globs □ Flecks		✓ Rooted Emergent ✓ Rooted Submergent	Rooted Floating
WATER QUALITY  No Flow Present	WATER QUALITY  No Water Present Temperature 20 ° C 68 ° F Water Odors  No Flow Present Conductivity µs/cm 583		☐ Free Floating ✓ Attached Algae ☐ F	Floating Algae present: 20
QUALITY  ☐ No Flow Present Conductivity µs/cm ☐ Total Disolved Solids ☐ Total Disolved Solids ☐ Chemical ☐ Anaerobic	QUALITY  No Flow Present Conductivity			
U No Flow Present Conductivity μs/cm 583 ✓ Normal/None U Sewage U Petroleum  Total Disolved Solids 292 mg/l Chemical Anaerobic	No Flow Present Conductivity µs/cm Total Disolved Solids  pH  Turbidity  Clear ☐ Slightly Turbid ☐ Turbid  Normal/None ☐ Sewage ☐ Petroleum  7.85 ☐ Chemical ☐ Anaerobic  Do: 8.3 mg/L  Water Surface Oils ☐ Slick ☐ Sheen ☐ Globs ☐ Flecks		☐ No Water Present Temperature ☐ 20 O C	68 <sup>o</sup> F Water Odors
Total Disolved Solids 292 mg/l Chemical Anaerobic	Total Disolved Solids  pH  7.85  Do:  8.3 mg/L  Turbidity  Vater Surface Oils  Slick Sheen Globs Flecks	QUALITY	□ No Flow Present Conductivity µs/cm	583  Vormal/None  Sewage  Petroleum
	pH 7.85 Do: 8.3 mg/L  Turbidity Water Surface Oils  Clear □ Slightly Turbid □ Turbid □ Slick □ Sheen □ Globs □ Flecks			
ν   ν   ν   ν   ν   ν   ν   ν   ν   ν	Turbidity  Clear ☐ Slightly Turbid ☐ Turbid ☐ Slick ☐ Sheen ☐ Globs ☐ Flecks			7.05
	✓ Clear   ☐ Slightly Turbid   ☐ Turbid   ☐ Slick   ☐ Sheen   ☐ Globs   ☐ Flecks		рн	7.00 Do: 8.3 mg/L
			_	
☐ Clear ☐ Slightly Turbid ☐ Turbid ☐ Slick ☐ Sheen ☐ Globs ☐ Flecks	☐ Opaque ☐ Stained ☐ Other ☐ Other		✓ Clear Slightly Turbid Turbid	☐ Slick ☐ Sheen ☐ Globs ☐ Flecks
Onague Stained Other Other			☐ Opaque ☐ Stained ☐ Other	Other

SEDIMENT/		o :						- ·		
SUBSTRATE		Odors	s Norma		Sewage	Petroleum		Deposits  Sludge	Sawdust	☐ Paper Fiber
				_	_			_		
			Chemi	caı L	_ Anaerobic	None		Sand	Relic Shel	Is U Other
			Other				Loc	king at stone	s which are not o	deeply
		Oils					em	bedded, are ι	ındersides black	
✓ Absent ☐ Slight ☐ Modera					derate $\square$ Profus	rate Profuse Yes 🗹 No				
	INORGA	NIC S	UBSTF		OMPONENT		ORGANIC SUBSTRATE COMPONENTS			
Substrate Type	Diame	ter		% Co	mposite in S Reach	Sampling	Substrate Type	e Cha	racteristic	% Composition in Sampling Reach
Bedrock					0		Dietritus		wood, coarse	5
Boulder	>10				0		N. d I .	· ·	nt material	
Cobble Gravel	2.5 - 1 0.1 - 2				0 2		Muck- Mud		k, very fine anic matter	5
Sand	gritty				8		Marl	G	rey, shell	0
Silt	gooe				70				agments	
Clay	slick	•			20					
Habita	at				l	HABITAT ASSES	SMENT - LO	W GRADIEN	T STREAMS	
Parame	eter			Optima		SubOpt		1	arginal	Poor
1. Epifaunal				50% fo		30-50% for low g		10-30% for le		10% for low gradient
Substrate/ Available				ams) o epifau	f substrate	streams) mix of shabitat; well-suite		streams) mix	c of stable tat availability	streams)stable habitat; lack of habitat is
Cover					cover; mix of	colonization pote		less than de		obvious;substrate unstable
				nerged l		adequate habitat		substrate fre		or lacking.
					bble or other stage to	maintenance of presence of addi		disturbed or	removed.	
		allow	full col	onizatio	on potential	substrate in form	of new fall,			
				ags tha not trai	t are not	but not yet prepa colonization (may				
		IICW I	an and	not trai	isiciti).	high end of scale				
Score	9	20	<u> </u>	18 _	<b></b> 17	151413	12 11	□10 🛂 9	□8 □7 □6	5 4 3 2 1 0
2. Pool	,				materials,	Mixture of soft sa		All mud or cl		Hardpan clay or bedrock:
Substrate Characterizatio	on			ind firm ot mat		clay; mud may be some root mats a			or no root mat: ed vegetation.	no root mat or vegetation.
o.raraoron_arr						submerged vege			ou rogotutioni	
						present.				
Score	11	20	19	18 [	17	15 14 13	12 🗹 11	☐ 10 ☐ 9	8 7 6	5 4 3 2 10
3. Pool Variabil	lity	Even	mix of	large sl	hallow, large-	Majority of pools	large-deep;	Shallow poo	ls much more	Majority of pools small-
					, small-deep	very few shallow		prevalent that	an deep pools.	shallow or pools absent.
		poois	preser	II.						
Score	6	20	19	18 [	17	151413	12 11	109	87 ✔6	_5 _4 _3 _2 _ 1 _0
4. Sediment	<u> </u>	1			ment of	Some new increa			position of new	Heavy deposits of fine
Deposition		island	ls or po	oint bars	s and less	formation, mostly	/ from	gravel, sand	or fine	material, increased bar
				of the bo	ottom nt deposition.	gravel, sand or fi sediment; 20-509			old and new of the bottom	development; more than 80% of the bottom
		4,1000	Jabys	. Jan Hill	Gopooition.	bottom affected;	slight	affected; sec	liment deposits	changing frequently; pools
						deposition in poo	ols.	at obstructio		almost absent due to
								moderate de	, and bends; position of	substantial sediment deposition.
								pools preval		
Score	9	20	<u> </u>	18	<b>□</b> 17 <b>□</b> 16	151413	12 11	<u> </u> 10 <b>✓</b> 9	□8 □7 □6 □	5
		-								· _ · _ ·

Status	lower banks, and mimimal amount of channel substrate is exposed.	available channel; or <25% of channel substrate is exposed.	available channel, and/or riffle substrates are mostly exposed.	and mostly present as standing pools.
Score 16			10	5432 1 0
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
Score 8	<u></u>	15 14 13 12 11	10 9 28 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered coastal plains and other normal lowlying areas. this parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
Score 4	20 19 18 17 16	15 14 13 12 11	109876 [	5 🛂 4 🗌 3 🔲 2 🔲 1 🔲 0
8. Bank Stability (score each bank)  Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequently along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
Score (LB)   8	☐ ☐ ☐ ☐ 9 ☐ ☐ ☐ 9 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	<b>✓</b> 8	5	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
9. Vegetative Protection (score each bank)  Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zones covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well represented disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
Score (LB) 8	□ 10 □ 9	<b>✓</b> 8 □7 □6	□5 □4 □3	_2 _ 1 _ 0
Score (RB) 7	10 9	8 <b>√</b> 7	5	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)  Note: determine left or	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clearcuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
right side by facing downstream.				
Score (LB) 7	□10 □9	□8 🛂 7 □6	<u>□</u> 5 <u>□</u> 4 <u>□</u> 3	
Score (RB) 7	<u>10</u> <u>9</u>	□8 🛂7 □6	<b>□</b> 5 <b>□</b> 4 <b>□</b> 3	□2   □1   □0
Total Score 107				

Project ID: Transmission	on Operations Center	Stream Class:	Intermittent	
Stream ID: 2MS1		Location;	OWENSBORO K	Υ
Lat: 37.77293	Long: -87.15661	River Basin	Ohio	
Investigators: Keith Mic	halski			
Signature:	Date: 16-May-23 Time: 10:20 AM		Reason for Survey 404 functional Ass	
WEATHER	Current Past 24 Hour	Heavy rair	n in last 7 days	
CONDITIONS	Storm (Heavy Rain) Storm (Heavy Rain)	□ No	✓ Yes	
	☐ Storm (Heavy Rain) ☐ Storm (Heavy Rain) ☐ Rain Steady	Air Temp F		
	☐ Showers (Intermittent) ✓ Showers (Intermittent)	Air Temp C		
	50 5	Other		
	Clear/Sunny Clear/Sunny	J		
STREAM			Ctus sus Turns	
CHARACTERIZATION	Stream Subsystem		Stream Type	•
	Perennial 🗹 Intermittent 🗌 Ephemeral		☐ Coldwater	
	Stream Origin		<b>✓</b> Warmwateı	r Catchment Area
	Upland Runoff Mixture of Origin			Mile <sup>2</sup> 0.00
	Spring-fed/Ground Water Wetland Other			Km <sup>2</sup> 0.00
WATERSHED FEATURES	Surrounding Land Use & Percentage	Local \	Watershed NPS Pol	lution
FEATURES	Forest 10 Commercial 10	□ No	evidence	Some potential sources
	☐ Field/Pasture		ovious sources	<b>F</b>
	✓ Agriculture 70	1	Watershed Erosion	
				□
	✓ Residential 10	□ NO	one Moderate	Heavy
RIPARIAN VEGETATION	Indicate the dominant type and record the dominant sp	ecies present	Dominant Spec	ies
(18 meter buffer)	✓ Trees ☐ Shrubs ☐ Grasses ☐ Herbs	None	Mixed mast.	
INSTREAM				
FEATURES	Est Reach Length ft 100 m		y Cover	
	Est Stream Width ft 18.0 m	0.0	pen	
	Sampling Reach Area ft <sup>2</sup> 1800.0 m <sup>2</sup>	167.2 <b>✓</b> Sh	aded L Partly Sh	naded
	Sampling Area mile <sup>2</sup> 0.000066 km <sup>2</sup> 0.00	00167 High W	ater Mark ft	2.00
	Est Water Depth in 4.0 m	0.1 High W	ater Mark m	0.61
	Surface Velocity ft/s 0.2 m/s	0.1 % of St	ream Morphology	
		<b>✓</b> Riffl		<b>✓</b> Run % 80
	Channelized Yes No	<b>✓</b> Poo	15	Glide Pool
	Dam Present	☐ Step	Pool Series	
LARGE WOODY	LWD	10 ft <sup>2</sup>		
DEBRIS	LWD 0.9 m 2			
	Density of LWD m <sup>2</sup> /km <sup>2</sup> 0.00	00009290 ft <sup>2</sup> /	mile 2 0.0	000003587
AQUATIC VEGETATION	Indicate the dominant type and record the dominant spec	ies present		Portion of the reach with
VEGETATION	☐ Rooted Emergent ☐ Rooted Submergent ☐ F	Rooted Floating	None	aquatic vegetation
	☐ Free Floating ✓ Attached Algae ☐ I	Floating Algae		present: 5
WATER	No Wester Dressest Towns with a COC	00-	Materia O d	
QUALITY	No Water Present Temperature 0 C	0 ° F	Water Odors	
	☐ No Flow Present Conductivity μs/cm	0	✓ Normal/None	☐ Sewage ☐ Petroleum
	Total Disolved Solids	0 mg/l	L Chemical	Anaerobic
	рН	0	Do:	mg/L
	Turbidity	Wat	er Surface Oils	<del></del>
	✓ Clear Slightly Turbid Turbid		Slick	☐ Globs ☐ Flecks
	☐ Opaque ☐ Stained ☐ Other		Other	

SEDIMENT/		0.1						Б :		
SUBSTRATE		Odors  ✓ Normal ☐ Sewage ☐ Petroleum						Deposits ☐ Sludge ☐ Sawdust ☐ Paper Fiber		
		_	Chemi	_	Anaerobic	None		☐ Sludge	Relic Shel	
				cai _	_ Anaerobic	□ None			☐ Relic Stiel	is Utilei
			Other				Loo	king at stone	es which are not	deeply
Oils							embedded, are undersides black in color?			
		✓	Absent	t ∐ S	light	derate	ofuse ☐ Yes ✔ No			
			UBSTF		OMPONENT		ORGANIC SUBSTRATE COMPONENTS			
Substrate Type	Diame	eter		% Co	mposite in S Reach	ampling	Substrate Type	e Ch	aracteristic	% Composition in Sampling Reach
Bedrock		_			0		Dietritus		, wood, coarse ant material	25
Boulder Cobble	>10				0		Muck-	·		20
Gravel	2.5 - 0.1 - 2				0		Mud		ck, very fine ganic matter	20
Sand	gritt				5		Marl	0	Grey, shell	0
Silt	good	ey			70			f	ragments	
Clay	slic	k			25					
Habita					i	HABITAT ASSES	SMENT - LO	W GRADIEN	NT STREAMS	
Parame	ter			Optima		SubOpt			larginal	Poor
Epifaunal Substrate/				50% fo	or low f substrate	30-50% for low g streams) mix of s		10-30% for streams) m	low gradient	10% for low gradient streams)stable habitat;
Available				epifaur		habitat; well-suite			itat availability	lack of habitat is
Cover				& fish onerged I	over; mix of	colonization pote		less than de		obvious;substrate unstable
					ogs, oble or other	adequate habitat maintenance of p		substrate from disturbed or		or lacking.
		stable	habita	at & at s	tage to	presence of addi	tional			
					n potential t are not	substrate in form but not yet prepa				
				not trar		colonization (may	/ rate at			
			40	10	17 140	high end of scale	·			
Score 2. Pool	8		19	<u> </u>	17 L16 materials,	☐ 15 ☐ 14 ☐ 13 Mixture of soft sa		All mud or o	<b>№</b> 8 □ 7 □ 6	5
Substrate				ind firm		clay; mud may be			e or no root mat:	no root mat or vegetation.
Characterizatio	n			ot mats		some root mats a		no submerg	ged vegetation.	~
		subm	ergea	vegetat	ion common.	submerged vege present.	lation			
						ľ				
_	-				T.   T.					
Score	8	20	19	<u>  18  </u>	<u> </u>	ń.	<u> </u>		<b>⊻</b> 8 ∐7 ∐6 ∣	
<ol><li>Pool Variabil</li></ol>	lity				nallow, large- , small-deep	Majority of pools very few shallow	large-deep;		ols much more nan deep pools.	Majority of pools small- shallow or pools absent.
			preser		, оттан шоор	l si y i si i si i si i si i si i si i s		provident in	.а авор роско.	onanen er peere azeena
		Ц	_							
Score	6	_	19			151413		□10 □9		5432 10
Sediment Deposition				nlargen	nent of and less	Some new increation, mostly		Moderate di gravel, sand	eposition of new	Heavy deposits of fine material, increased bar
Березноп		than <	<20% c	of the bo	ottom	gravel, sand or fi	ne	sediment or	n old and new	development; more than
		affect	ed by s	sedimer	nt deposition.	sediment; 20-509 bottom affected;			% of the bottom ediment deposits	80% of the bottom changing frequently; pools
						deposition in poo		at obstruction		almost absent due to
								constriction	s, and bends;	substantial sediment
								moderate d pools preva	eposition of lent.	deposition.
Score	8	20	19	18 [	<b>_</b> 17 <b>_</b> 16	☐ 15 ☐ 14 ☐ 13	1211	□10 □9	<b>✓</b> 8 □7 □6	5 4 3 2 1 0

5. Channel Flow Status	Water reaches base of both lower banks, and mimimal amount of channel substrate is exposed.	Water fills >/5% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
Score 15	20 19 18 17 16	<b>✓</b> 15	10 0 9 8 7 6	5 4 3 2 1 0
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
Score 10		15 14 13 12 11	<b>✓</b> 10	5
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered coastal plains and other normal lowlying areas. this parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
Score 4	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 🛂 4 🗌 3 🔲 2 🔲 1 📗 0
Bank Stability (score each bank)  Note: determine left or right side by facing downstream.		erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequently along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
Score (LB) 6	<u></u> 10	<b>□</b> 8 <b>□</b> 7 <b>№</b> 6	<u> </u>	<u> </u>
Score (RB) 5	□10 □9	<u> </u>	<b>✓</b> 5	∐2
9. Vegetative Protection (score each bank)  Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zones covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well represented disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
Score (LB) 7	<u></u> 10	_8	<u></u> 5	<u> </u>
Score (RB) 5	<u></u> 10	<u> </u>	<b>√</b> 5	
<ol> <li>Riparian         Vegetative Zone         Width (score each         bank riparian         zone)</li> <li>Note: determine left or         right side by facing</li> </ol>	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
downstream.				
Score (LB) 2	□ 10 □ 9	<u> </u>	<u></u>	<b>✓</b> 2
Score (RB) 2	□ 10 □ 9	□8 □7 □6	<b>□</b> 5 <b>□</b> 4 <b>□</b> 3	<b>✓</b> 2
Total Score 86				

Project ID: Transmission	on Operations Center	Stream Class: Intermittent
Stream ID: 2MS1A		Location; OWENSBORO KY
Lat: 37.77268	Long: -87.15664	River Basin Ohio
Investigators: Dakota S	pruill	
Signature:	Date: 16-May-23	Reason for Survey:
	Time: 10:02 AM	404 functional Assessment:
WEATHER	Current Past 24 Hour	Heavy rain in last 7 days
CONDITIONS		□ No ✓ Yes
	Storm (Heavy Rain) Storm (Heavy Rain)	
	Rain Steady Rain Steady	Air Temp F 66
	Showers (Intermittent) Showers (Intermittent)  Cloud Cover % 0 Cloud Cover % 50	Air Temp C 19
	Cloud Cover %	Other
	Clear/Suriny	
STREAM	Stream Subsystem	Stream Type
CHARACTERIZATION	☐ Perennial ✓ Intermittent ☐ Ephemeral	Coldwater
		✓ Warmwater Catchment Area
	Stream Origin	
	☐ Upland Runoff ✓ Mixture of Origin	Mile <sup>2</sup> 0.00
	Spring-fed/Ground Water Wetland Other	Km <sup>2</sup> 0.00
WATERSHED		
FEATURES	Surrounding Land Use & Percentage	Local Watershed NPS Pollution
	✓ Forest 20 Commercial 0	☐ No evidence ☐ Some potential sources
	☐ Field/Pasture	✓ Obvious sources
	✓ Agriculture 80	Local Watershed Erosion
	Residential 0	☐ None ✔ Moderate ☐ Heavy
DIDADIAN	Tresidential 0	□ None • Noderate □ Fleavy
RIPARIAN VEGETATION	Indicate the dominant type and record the dominant sp	ecies present Dominant Species
(18 meter buffer)	☐ Trees ☐ Shrubs ✔ Grasses ☐ Herbs	None annual and perennial grasses
	☐ Hees ☐ Siliubs ☑ Glasses ☐ Helps	Notic
INSTREAM FEATURES	Est Reach Length ft 100 m	30 Canopy Cover
TEATORES	Est Stream Width ft 5.9 m	1.8 Open Partly Open
	Sampling Reach Area ft <sup>2</sup> 590.0 m <sup>2</sup>	54.8 Shaded Partly Shaded
		04.0
		00055 High Water Mark ft 0.50
	Est Water Depth in 1.0 m	0.0 High Water Mark m 0.15
	Surface Velocity ft/s 0.0 m/s	0.0 % of Stream Morphology
		✓ Riffle % 5 ✓ Run % 90
	Channelized Yes No	✓ Pool % 5 Glide Pool
	Dam Present ☐Yes ✔ No	Step Pool Series
LARGE WOODY	LWD 0.2 <sub>m</sub> 2	2 ft <sup>2</sup>
DEBRIS		0.0001858
A O. LA T.O.	Density of LWD m <sup>2</sup> /km <sup>2</sup> 0.000	ft 2 /mile 2 0.0000000717
AQUATIC VEGETATION	Indicate the dominant type and record the dominant spec	
VEGETATION	☐ Rooted Emergent ☐ Rooted Submergent ☐ F	Rooted Floating  None  Portion of the reactiviting aquatic vegetation
	☐ Free Floating ☐ Attached Algae ☐ F	Floating Algae present: 0
	<u> </u>	
WATER	☐ No Water Present Temperature 0 ° C	0 <sup>o</sup> F Water Odors
QUALITY	✓ No Flow Present Conductivity µs/cm	0 ✓ Normal/None ☐ Sewage ☐ Petroleum
	Total Disolved Solids	0 mg/l
		*
	рН	0 Do: mg/L
	Turbidity	Water Surface Oils
	✓ Clear Slightly Turbid Turbid	☐ Slick ☐ Sheen ☐ Globs ☐ Flecks
	☐ Opaque ☐ Stained ☐ Other	Other

SEDIMENT/		0.1						Б ::		
SUBSTRATE		Odors	; Norma		Sewage	Petroleum	Deposits ☐ Sludge ☐ Sawdust ☐ Paper Fiber			
			Chemi	_	Anaerobic	None		☐ Sludge	Relic Shel	
				cai _	_ Anaerobic	□ None		□ Sand	☐ Relic She	is Utilei
☐ Other Lookin						king at stone	es which are not	deeply		
Oils							embedded, are undersides black in color?			
		✓	Absen	t ∐ S	light  Mod	derate	Profuse ☐ Yes ✔ No			
			UBST		OMPONENT		ORGANIC SUBSTRATE COMPONENTS			
Substrate Type	Diame	eter		% Co	mposite in S Reach	ampling	Substrate Type	e Cha	aracteristic	% Composition in Sampling Reach
Bedrock					0		Dietritus		wood, coarse nt material	2
Boulder	>10				0		Modele	·		0
Cobble Gravel	2.5 - 0.1 - 2				0		Muck- Mud		ck, very fine anic matter	0
Sand	gritt				10		Marl	G	irey, shell	0
Silt	gooe	•			40				ragments	
Clay	slic	k			50					
Habita	at				ŀ	HABITAT ASSESS	SMENT - LO	W GRADIEN	IT STREAMS	Ш
Parame	ter			Optima	al	SubOpt	imal	Ma	arginal	Poor
1. Epifaunal				50% fc		30-50% for low g			low gradient	10% for low gradient
Substrate/ Available				eams) of epifaur	f substrate	streams) mix of s habitat; well-suite		streams) mi	x of stable itat availability	streams)stable habitat; lack of habitat is
Cover		coloni	zation	& fish c	cover; mix of	colonization pote	ntial;	less than de		obvious;substrate unstable
				nerged I	ogs, oble or other	adequate habitat maintenance of p		substrate fre		or lacking.
				at & at s		presence of addit		disturbed of	removed.	
					n potential	substrate in form				
				ags tha	t are not nsient)	but not yet prepa colonization (may				
						high end of scale				
Score	6	20	19	18 L	<b>_</b> 17 <b>_</b> 16	151413	<b>□</b> 12 <b>□</b> 11	□10 □9	<b>8 7 4</b> 6	5 4 3 2 1 0
2. Pool					materials,	Mixture of soft sa		All mud or c		Hardpan clay or bedrock:
Substrate Characterizatio	n			and firm ot mat		clay; mud may be some root mats a			e or no root mat: ed vegetation.	no root mat or vegetation.
		subm	erged	vegetat	tion common.	submerged vege	tation		Ü	
						present.				
Score	9	20	19	<u> </u>	<b>□</b> 17 <b>□</b> 16	151413	1211	□10 🗹 9	8 7 6	5 4 3 2 10
3. Pool Variabil	lity				nallow, large-	Majority of pools	large-deep;		ls much more	Majority of pools small-
			small preser		, small-deep	very few shallow		prevalent the	an deep pools.	shallow or pools absent.
		pools	preser	it.						
Score	5	20	19	18 [	<b>□</b> 17 <b>□</b> 16	15 14 13	1211	109	□8 □7 □6	<b>√</b> 5
4. Sediment		Little		nlargen		Some new increa	ase in bar		eposition of new	Heavy deposits of fine
Deposition					and less	formation, mostly		gravel, sand		material, increased bar
				of the bosedimer	nt deposition.	gravel, sand or fin sediment; 20-50%			old and new of the bottom	development; more than 80% of the bottom
			,		'	bottom affected;	slight	affected; see	diment deposits	changing frequently; pools
						deposition in poo	ls.	at obstruction	ons, s, and bends;	almost absent due to substantial sediment
								moderate de		deposition.
								pools preval		
Score	15	20	19	□ 18	<b>□</b> 17 <b>□</b> 16	<b>✓</b> 15  14  13	1211	☐ 10 ☐ 9	□8 □7 □6	
								•	· - · ·	

5. Channel Flow Status	Water reaches base of both lower banks, and mimimal amount of channel substrate is exposed.	Water fills >/5% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
Score 5	20 19 18 17 16	15 14 13 12 11	□ 10 □ 9 □ 8 □ 7 □ 6 □	<b>√</b> 5
	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
Score 11		15 14 13 12 11	10 9 8 7 6	
,	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered coastal plains and other normal lowlying areas. this parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
Score 5	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	<b>√</b> 5
(score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequently along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
Score (LB) 7	□ 10 □ 9	<b>□</b> 8 <b>⊻</b> 7 <b>□</b> 6	<u> </u>	<u> </u>
Score (RB) 7	□ 10 □ 9	8	<u> </u>	<u> </u>
Protection (score each bank)  Note: determine left or right side by facing	More than 90% of the streambank surfaces and immediate riparian zones covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well represented disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
Score (LB) 8	□ 10 □ 9	<b>№</b> 8	<b>□</b> 5 <b>□</b> 4 <b>□</b> 3	□2   □1   □0
Score (RB) 7	□10 □9	8	<b>□</b> 5 <b>□</b> 4 <b>□</b> 3	□2   □1   □0
Width (score each bank riparian	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clearcuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
downstream.				
Score (LB)   3		□8 □7 □6 □8 □7 □6	5	

Project ID: Transmission	on Operations Center	Stream Class: Ephemeral
Stream ID: 2MS1A1		Location; OWENSBORO KY
Lat: 37.77221	Long: -87.15680	River Basin Ohio
Investigators: Dakota S	pruill	
Signature:	Date: 16-May-23	Reason for Survey:
	Time: 10:12 AM	404 functional Assessment:
WEATHER	Current Past 24 Hour	Heavy rain in last 7 days
CONDITIONS		□ No ✓ Yes
	Storm (Heavy Rain) Storm (Heavy Rain)	
	Rain Steady Rain Steady	Air Temp F 68
	Showers (Intermittent) Showers (Intermittent)  Cloud Cover % 0 Cloud Cover % 50	Air Temp C 20
	Cloud Cover % 0 ✓ Cloud Cover % 50 Clear/Sunny Clear/Sunny	Other
	Clean/Summy	
STREAM	Stream Subsystem	Stream Type
CHARACTERIZATION	☐ Perennial ☐ Intermittent ✔ Ephemeral	Coldwater
		✓ Warmwater Catchment Area
	Stream Origin	
	☐ Upland Runoff ✓ Mixture of Origin	Mile <sup>2</sup> 0.00
	Spring-fed/Ground Water Wetland Other	Km <sup>2</sup> 0.00
WATERSHED		
FEATURES	Surrounding Land Use & Percentage	Local Watershed NPS Pollution
	Forest 10 Commercial 0	☐ No evidence ☐ Some potential sources
	☐ Field/Pasture 0 ☐ Other 0	✓ Obvious sources
	✓ Agriculture 90	Local Watershed Erosion
	Residential 0	☐ None ✓ Moderate ☐ Heavy
RIPARIAN		
VEGETATION	Indicate the dominant type and record the dominant sp	
(18 meter buffer)	✓ Trees ☐ Shrubs ☐ Grasses ☐ Herbs	☐ None Soft Mast Tree Species
INSTREAM		16 Canopy Cover
FEATURES	Est Reach Length ft 53 m	
	Est Stream Width ft 3.4 m	1.0 Open Partly Open
	Sampling Reach Area ft <sup>2</sup> 180.2 m <sup>2</sup>	16.7  ✓ Shaded  ☐ Partly Shaded
	Sampling Area mile <sup>2</sup> 0.000007 km <sup>2</sup> 0.00	0017 High Water Mark ft 0.25
	Est Water Depth in 0.0 m	0.0 High Water Mark m 0.08
	Surface Velocity ft/s 0.0 m/s	
	Surface velocity 10's 0.0 111/5	70 of offeath worphology
	Channelized Yes No	Pool % 5 Glide Pool
	Dam Present	Step Pool Series
LARGE WOODY	LWD 0.5 <sub>m</sub> 2	5 ft <sup>2</sup>
DEBRIS		0.000004704
	Density of LWD m <sup>2</sup> /km <sup>2</sup> 0.000	outle 2   0.0000001794   ft 2 /mile 2   0.0000001794
AQUATIC VEGETATION	Indicate the dominant type and record the dominant speci	
VEGETATION	☐ Rooted Emergent ☐ Rooted Submergent ☐ F	Rooted Floating  None  Portion of the reactiviting aquatic vegetation
	☐ Free Floating ☐ Attached Algae ☐ F	Floating Algae present: 0
WATER QUALITY	✓ No Water Present Temperature 0 °C	0 P Water Odors
QUALITI	□ No Flow Present Conductivity µs/cm	0 Normal/None Sewage Petroleum
	Total Disolved Solids	0 mg/l
	Hq	
		Do.
	Turbidity	Water Surface Oils
	☐ Clear ☐ Slightly Turbid ☐ Turbid	☐ Slick ☐ Sheen ☐ Globs ☐ Flecks
	Opaque Stained Other	Other

SEDIMENT/		o :						- ·		
SUBSTRATE		Odors	s Norma	J [	Sewage	Petroleum		Deposits  Sludge	Sawdust	☐ Paper Fiber
				_				_		
			Chemi	caı _	Anaerobic	None		Sand	Relic Shel	Is U Other
			Other				Loc	king at stone	s which are not o	deeply
		Oils					em	bedded, are ι	ındersides black	
Absent Slight Moderate					derate L Profus					
	1		UBST		OMPONENT		ORGANIC SUBSTRATE COMPONENTS			
Substrate Type	Diame	eter		% Co	mposite in S Reach	ampling	Substrate Type		racteristic	% Composition in Sampling Reach
Bedrock					0		Dietritus		wood, coarse nt material	5
Boulder Cobble	>10				0		Muck-	· ·	k, very fine	0
Gravel	0.1 - 2				0		Mud		anic matter	U
Sand	gritty				10		Marl	G	rey, shell	0
Silt	gooe	y			40				agments	
Clay	slick	(			50					
Habita					l l	HABITAT ASSES	SMENT - LO	W GRADIEN	T STREAMS	
Parame	eter			Optima		SubOpt			rginal	Poor
<ol> <li>Epifaunal Substrate/</li> </ol>				n 50% fo	or low f substrate	30-50% for low g streams) mix of s		10-30% for lostreams) mix		10% for low gradient streams)stable habitat;
Available				r epifau		habitat; well-suite			tat availability	lack of habitat is
Cover					cover; mix of	colonization pote		less than de	,	obvious;substrate unstable
				nerged l nks, col	oble or other	adequate habitat maintenance of p		substrate fre disturbed or		or lacking.
		stable	habita	at & at s	stage to	presence of addi	tional			
					n potential t are not	substrate in form but not yet prepa				
				not trai		colonization (may	y rate at			
0		20	10	10	47 40	high end of scale	<u> </u>	│ │ 10	87 <b>✓</b> 6 [	5 4 3 2 1 0
Score 2. Pool	6		19 re of si	L 18 L	17  L_16 materials,	☐ 15 ☐ 14 ☐ 13 Mixture of soft sa		All mud or cl		5
Substrate		with g	ravel a	and firm	sand	clay; mud may be	e dominant;	bottom: little	or no root mat:	no root mat or vegetation.
Characterizatio	n			ot mat		some root mats a		no submerge	ed vegetation.	
		subm	ergea	vegeta	uon common.	submerged vege present.	tation			
						ľ				
Saara	o	20	<u>19</u>	□ 18 [	17 16	15 14 13	12 11	10 0	<b>✓</b> 8 □7 □6 [	5 4 3 2 1 0
Score 3. Pool Variabil	8 lity	20			⊒17	Majority of pools			s much more	5432 10  Majority of pools small-
3. I doi variabil	iity					very few shallow			n deep pools.	shallow or pools absent.
		pools	preser	nt.						
00000	- ۱۱	20	10	10	17 40	15 14 13	10 44	10 0	0 7 0	<u> </u>
Score 4. Sediment	5	20	☐19 or no e	∐18 l enlarger	17	Some new increa		∐10 ∐9	8	✓5
Deposition		island	ls or po	oint bars	s and less	formation, mostly	/ from	gravel, sand	or fine	material, increased bar
				of the bo		gravel, sand or fi sediment; 20-509			old and new of the bottom	development; more than 80% of the bottom
		anect	eu by s	scuii (16)	nt deposition.	bottom affected;			liment deposits	changing frequently; pools
						deposition in poo		at obstructio	ns,	almost absent due to
								constrictions moderate de	, and bends; position of	substantial sediment deposition.
								pools prevale		
Score	15	20	<u> </u>	□ 18 [	<b>□</b> 17 <b>□</b> 16	<b>✓</b> 15  14  13	12 11	☐ 10 ☐ 9	876 [	5 4 3 2 1 0
									: <b></b> ·	
ĺ										

5. Channel Flow Status	Water reaches base of both lower banks, and mimimal amount of channel substrate is exposed.	Water fills >/5% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
Score 1	20 19 18 17 16	15 14 13 12 11	109876	5
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
Score 11	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered coastal plains and other normal lowlying areas. this parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
Score 5	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	<b>√</b> 5  □4  □3  □2  □ 1  □ 0
8. Bank Stability (score each bank)  Note: determine left or right side by facing downstream.		erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequently along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
Score (LB) 6	<u></u> 10	<u> </u>	<u> </u>	<u> </u>
Score (RB) 7	□ 10 □ 9	<u>8</u> <b>2</b> 7 <u>6</u>	<u> </u>	<u> </u>
9. Vegetative Protection (score each bank)  Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zones covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well represented disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
Score (LB) 6	<b>□</b> 10 <b>□</b> 9	_8 _7 <b>✓</b> 6	<b>□</b> 5 <b>□</b> 4 <b>□</b> 3	□2   □1   □0
Score (RB) 7	<u></u>	8 27 6	5 4 3	
<ol> <li>Riparian         Vegetative Zone         Width (score each         bank riparian         zone)</li> <li>Note: determine left or</li> </ol>	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clearcuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
right side by facing downstream.				
Score (LB) 3	□10 □9	□8 □7 □6	5	□2 □ 1 □ 0
Score (RB) 3	□10 □9	□8 □7 □6	<u>5</u> <u>4</u> <u></u> 4 <u></u> 3	☐2 ☐ 1 ☐ 0
Total Score 83				

Project ID: Transmission	on Operations Center	Stream Class: Ephemeral
Stream ID: 2MS1A2		Location; OWENSBORO KY
Lat: 37.77251	Long: -87.15912	River Basin Ohio
Investigators: Dakota S	pruill	
Signature:	Date: 17-May-23	Reason for Survey:
	Time: 9:53 AM	404 functional Assessment:
WEATHER	Current Past 24 Hour	Heavy rain in last 7 days
CONDITIONS		□ No ✓ Yes
	Rain Steady Rain Steady  Showers (Intermittent) ✓ Showers (Intermittent)	Air Temp F 70
		Air Temp C 21
	✓ Cloud Cover % Cloud Cover % Clear/Sunny	Other
	Gloan-curry	
STREAM	Stream Subsystem	Stream Type
CHARACTERIZATION	Perennial Intermittent  Ephemeral	Coldwater
	·	✓ Warmwater Catchment Area
	Stream Origin	
	☐ Upland Runoff ✓ Mixture of Origin	Mile <sup>2</sup> 0.02
	Spring-fed/Ground Water Wetland Other	Km <sup>2</sup> 0.05
WATERSHED		
FEATURES	Surrounding Land Use & Percentage	Local Watershed NPS Pollution
	Forest 5 Commercial 0	☐ No evidence ☐ Some potential sources
	☐ Field/Pasture ☐ ☐ Other ☐ 0	✓ Obvious sources
	✓ Agriculture 95	Local Watershed Erosion
	Residential 0	☐ None ☑ Moderate ☐ Heavy
RIPARIAN		
VEGETATION	Indicate the dominant type and record the dominant sp	
(18 meter buffer)	✓ Trees ☐ Shrubs ☐ Grasses ☐ Herbs	☐ None Mxed Mast.
INSTREAM		Construction
FEATURES	Est Reach Length ft 37 m	Canopy Cover
	Est Stream Width ft 3.1 m	0.9 Open Partly Open
	Sampling Reach Area ft <sup>2</sup> 114.7 m <sup>2</sup>	10.7 Shaded Partly Shaded
	Sampling Area mile <sup>2</sup> 0.000004 km <sup>2</sup> 0.00	00011 High Water Mark ft 0.20
	Est Water Depth in 0.0 m	0.0 High Water Mark m 0.06
	Surface Velocity ft/s 0.0 m/s	0.0 % of Stream Morphology
		✓ Riffle % 10 ✓ Run % 90
	Channelized Yes V No	Pool % Glide Pool
	Dam Present ☐Yes ✔ No	Step Pool Series
LARGE WOODY	LWD 0.0 <sub>m</sub> 2	0 ft <sup>2</sup>
DEBRIS		00000000
	Density of LWD m <sup>2</sup> / <sub>km</sub> <sup>2</sup> 0.00	outline 2   0.00000000000   ft 2 /mile 2   0.000000000000000000000000000000000
AQUATIC VEGETATION	Indicate the dominant type and record the dominant spec	
VEGETATION	☐ Rooted Emergent ☐ Rooted Submergent ☐ F	Rooted Floating  None  Folition of the reactiviting aquatic vegetation
	☐ Free Floating ☐ Attached Algae ☐ F	Floating Algae present: 0
WATER QUALITY	✓ No Water Present Temperature 0 ° C	0 P Water Odors
QUALITI	□ No Flow Present Conductivity µs/cm	0 Normal/None Sewage Petroleum
	Total Disolved Solids	0 mg/l
	pH	
	·	IIIg/L
	Turbidity	Water Surface Oils
	☐ Clear ☐ Slightly Turbid ☐ Turbid	☐ Slick ☐ Sheen ☐ Globs ☐ Flecks
	☐ Opaque ☐ Stained ☐ Other	☐ Other

SEDIMENT/		0.1						- ·			
SUBSTRATE		Odors	; Norma		Sewage	Petroleum		Deposits  Sludge	e Sawdust	☐ Paper Fiber	
		_		_	_			_	Relic Shel		
			Chemi	cai _	Anaerobic	None		Sand	☐ Relic Shell	lls U Other	
			Other				Loo	king at stone	es which are not o	deeply	
		Oils		_					undersides black		
		✓	Absen	t ∐ S	light 🗌 Mod	derate $\square$ Profus	se 🗆	Yes	<b>✓</b> No		
	INORGA	NIC S	UBSTF	RATE C	OMPONENT	S		ORGANIC SUBSTRATE COMPONENTS			
Substrate Type	Diame	eter		% Co	mposite in S Reach	ampling	Substrate Type	e Ch	aracteristic	% Composition in Sampling Reach	
Bedrock					0		Dietritus		, wood, coarse	5	
Boulder	>10				0			·	ınt material		
Crovel	2.5 -				0		Muck- Mud		ck, very fine anic matter	0	
Gravel Sand	0.1 - 2 gritt				5		Marl	, i	Grey, shell	0	
Silt	good	•			55		Widii		ragments	· ·	
Clay	slic	•			40						
Habita	at				-	HABITAT ASSES	SMENT - LO	W GRADIEN	NT STREAMS		
Parame	ter			Optima		SubOpt		1	arginal	Poor	
1. Epifaunal				50% fc		30-50% for low g			low gradient	10% for low gradient	
Substrate/ Available				ams) of epifaur	f substrate	streams) mix of s habitat; well-suite		streams) m	ix of stable itat availability	streams)stable habitat; lack of habitat is	
Cover		coloni	zation	& fish c	over; mix of	colonization pote		less than de		obvious;substrate unstable	
				nerged I		adequate habitat		substrate from		or lacking.	
				nks, con at & at s	oble or other tage to	maintenance of presence of addition		disturbed or	removea.		
		allow	full col	onizatio	n potential	substrate in form					
				ags tha not trar	t are not	but not yet prepa colonization (may					
		11011	an ana	not trai	ioionty.	high end of scale					
Score	4	20	19	18 _	<b>_</b> 17 <b>_</b> 16	15 14 13	<b>□</b> 12 <b>□</b> 11	□10 □9	8 7 6	5 🛂 4 🗔 2 🗆 1 🗆 0	
2. Pool					materials,	Mixture of soft sa		All mud or o		Hardpan clay or bedrock:	
Substrate Characterizatio	n			ind firm ot mat		clay; mud may be some root mats a			e or no root mat: led vegetation.	no root mat or vegetation.	
						submerged vege	tation		3		
						present.					
Score	6	20	19	18 [	<b>_</b> 17 <b>_</b> 16	15 14 13	<b>□</b> 12 <b>□</b> 11	10 9	<b>8 7 4</b> 6	5 4 3 2 1 10	
3. Pool Variabil	lity				nallow, large-	Majority of pools	large-deep;		ols much more	Majority of pools small-	
			small preser		, small-deep	very few shallow		prevalent th	an deep pools.	shallow or pools absent.	
		pools	preser	IL.							
Score	1	20	19	<u> </u>	<b>_</b> 17 <b>_</b> 16	15 14 13	12 11	10 9	8 7 6	5 4 3 2 1 0	
4. Sediment		l		nlargen		Some new increa		Moderate d	eposition of new	Heavy deposits of fine	
Deposition					and less	formation, mostly		gravel, sand	or fine	material, increased bar	
				of the bo	ottom nt deposition.	gravel, sand or fine sediment; 20-50%			n old and new % of the bottom	development; more than 80% of the bottom	
			-	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	чороскиски	bottom affected;	slight	affected; se	diment deposits	changing frequently; pools	
						deposition in poo	ls.	at obstruction	ons, s, and bends;	almost absent due to substantial sediment	
								moderate d		deposition.	
								pools preva			
Score	15	20	19	□ 18	<b>□</b> 17 <b>□</b> 16	<b>✓</b> 15  14  13	12 11	☐ 10 ☐ 9	□8 □7 □6		
00016	10		19	10 L	, 10	10 14 10		10 9			

Status		lower banks, amount of ch exposed.	and m	imimal	availa	ble ch annel s	nannel; substra	or <25%	availa	able cl substr	ates ar	and/o	r	and mos standing	tly pre	sent	
Score	1	20 19	18 [	<b>_</b> 17 <b>_</b> 16	15	14	□ 13	1211	10				6	<b>□</b> 5 <b>□</b> 4	∐3L	2	1 0
6. Channel Alteration		Channelization absent or mit normal patter	nimal; s		prese bridge of pas dredg 20 yr)	nt, us abut at chai ing, (g may t char	ments; nneliza greater be pre	ion areas of evidence tion, i.e., than past sent, but tion is not	exter shori on bo 80%	nsive; ong stru oth bar of stre	tion ma embank uctures nks; an eam rea d and d	kments prese d 40 to ach	s or nt	Banks s or ceme stream r and disr habitat g removed	nt; ove each c upted reatly	r 80% hann Instre altere	6 of the elized eam
Score	12	20 19	18 [	<b>□</b> 17 <b>□</b> 16	15	14	☐ 13 ·	<b>✓</b> 12 ☐ 11	10	0 🗌 9	8 🗌 8	7	6	5 4	3_	2	1 0
7. Channel Sinuosity		The bends in increase the 4 times longe straight line. braiding is coplains and ot lying areas. t not easily rat	streamer than (Note - onsider the nor	length 3 to if it was in a channel ed coastal mal low- ameter is	increa to 3 ti	se the		m length 2 han if it	incre 1 to 2	ase th 2 times	in the s e strea s longe raight li	m leng r than	gth	Channel has bee long dist	n chan		
Score	2	20 19	18 [	1716	15	14	<u> </u>	1211	10	0 🗆 9	8 🗌 8	7	6	5 4	3 ✓	2	1 0
8. Bank Stability (score each bank)  Note: determine left or right side by facing downstream.		erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.			erosion mostly healed over.			60% areas erosi flood	Moderately unstable; 30- 60% of bank in reach has areas of erosion; high erosion potential during floods.				Unstable; many eroded areas; "raw" areas frequently along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.				
Score (LB)	5			9	L	8	<u> </u>	<u></u> 6		<b>√</b> 5	<u>4</u>	3		2		L	_0
Score (RB)	5	□ 10		9	L	8	∐7	<b>∐</b> 6	-	<b>✓</b> 5	∐4	<b>□</b> 3		<u> </u>	□ 1		<b>」</b> 0
9. Vegetative Protection (sco each bank)  Note: determine right side by fact downstream.	e left or cing	More than 90 streambank simmediate rip covered by n including tree shrubs, or no macrophytes disruption thr mowing minimalmost all plagrow naturall	surface parian a lative vo es, und onwood s; veget rough g mal or	es and zones egetation, erstory y ative prazing or not evident;	surfact vegets plants represe evider plant of great half of	ces co ation, s is no sented nt but growth exten f the p	byered but on t well d disrup not aff h poter t; more potentia	eambank by native e class of otion fecting full nitial to any than one- al plant naining.	surfa vege obvious soil of vege than poter	ces co tation; ous; pa or close tation one-ha	the street land the street lan	by tion of bare oped on; less e	<b>:</b>	Less that streamb covered disruption vegetation vegetation or less in height.	ank suby vegon of stones on is version that the standard transfer of th	rface etation ream ery hi been entim	s on; bank gh; i neters
Score (LB)	5	1(		9		8	7	<u></u> 6		<b>√</b> 5	4	3		2			0
Score (RB)	5	10	o [	9		8	7	<b>□</b> 6		<b>√</b> 5	4	3		2			0
10. Riparian Vegetative Zon Width (score edi bank riparian zone)  Note: determine	ach	Width of ripa meters; hum- parking lots, cuts, lawns, o impacted zor	an activ roadbe or crops	vities (i.e., ds, clear-	meter	s; hur impac	man ac	cone 12-18 ctivities ne only	mete	rs; hui	oarian z man ac oted zor	tivities		Width of meters: vegetation activities	little or on due	no ri	parian
right side by factoring downstream.	cing														, .		
Score (LB)	5	10		9	L	8	<u></u> 7	<u></u> 6		<b>√</b> 5	<u>4</u>	3		2			0
Score (RB)	5	□ 10	) L	9	L	8	∐7	<b>□</b> 6	l	<b>✓</b> 5	∐4	3		<u></u> 2			0
Total Score	71																

Project ID: Transmission	on Operations Center	Stream Class: Intermittent				
Stream ID: 2MS1B		Location;	OWENSBORO K	Υ		
Lat: 37.77216	Long: -87.15490	River Basin	Ohio			
Investigators: Keith Mic	halski					
Signature:	Date: 18-May-23		Reason for Survey			
	Time: 9:10 AM		404 functional Ass	sessment:		
WEATHER CONDITIONS	Current Past 24 Hour	Heavy rain	n in last 7 days			
CONDITIONS	Storm (Heavy Rain) Storm (Heavy Rain)	☐ No	✓ Yes			
	Rain Steady Rain Steady	Air Temp F	72			
	☐ Showers (Intermittent) ✓ Showers (Intermittent)	Air Temp C	22			
		Other				
	Clear/Sunny Clear/Sunny					
STREAM	Otroom Oak and an		Stream Type	<del></del>		
CHARACTERIZATION	Stream Subsystem  ☐ Perennial ✓ Intermittent ☐ Ephemeral		☐ Coldwater			
				0.11		
	Stream Origin		<b>✓</b> Warmwater			
	☐ Upland Runoff ✓ Mixture of Origin			Mile <sup>2</sup> 0.00		
	Spring-fed/Ground Water Wetland Other			Km <sup>2</sup> 0.00		
WATERSHED	Commence discrete and the Commentance	1 1	Watershed NPS Pol	l. di		
FEATURES	Surrounding Land Use & Percentage					
	Forest 5 Commercial 0		evidence $\square$	Some potential sources		
	Field/Pasture 0 Other 0	<b>✓</b> Ob	vious sources			
	✓ Agriculture 50	]	Watershed Erosion			
	✓ Residential 45	☐ No	one 🗹 Moderate	Heavy		
RIPARIAN	Indicate the dominant type and record the dominant sp	pecies present	Dominant Spec	ies		
VEGETATION (18 meter buffer)			Mixed mast tree	1		
(	✓ Trees ☐ Shrubs ☐ Grasses ☐ Herbs	☐ None				
INSTREAM	Est Reach Length ft 100 m	30 Canop	y Cover			
FEATURES	Est Stream Width ft 11.0 m		oen 🗌 Partly Op	pen		
		102.2 <b>✓</b> Sh	aded  Partly Sh	naded		
			,			
			ater Mark ft	1.50		
	Est Water Depth in 4.0 m	0.1 High W	ater Mark m	0.46		
	Surface Velocity ft/s 0.2 m/s		ream Morphology			
		<b>✓</b> Riffl	e % 5	✓ Run % 80		
	Channelized Yes No	<b>✓</b> Poo	1 % 15	Glide Pool		
	Dam Present ☐Yes ✔ No	☐ Step	Pool Series			
LARGE WOODY	LWD 0.2 <sub>m</sub> 2	2 ft <sup>2</sup>				
DEBRIS		22224252	0.00	00000717		
	Density of LWD m <sup>2</sup> /km <sup>2</sup> 0.00	ft <sup>2</sup> /	mile 2 0.00	00000717		
AQUATIC VEGETATION	Indicate the dominant type and record the dominant spec			Portion of the reach with		
VEGETATION	☐ Rooted Emergent ☐ Rooted Submergent ☐ F	Rooted Floating	✓ None	aquatic vegetation		
	☐ Free Floating ☐ Attached Algae ☐ I	Floating Algae		present: 0		
WATED.						
WATER QUALITY	No Water Present Temperature 20 C	68 <sup>o</sup> F	Water Odors			
	□ No Flow Present Conductivity µs/cm	468	✓ Normal/None	☐ Sewage ☐ Petroleum		
	Total Disolved Solids	234 mg/l	Chemical	☐ Anaerobic		
	pH	7.81	Do:	3.46 mg/L		
	Turbidity		er Surface Oils			
	✓ Clear Slightly Turbid Turbid		Slick Sheen	☐ Globs ☐ Flecks		
	Opaque Stained Other		Other			

SEDIMENT/		0.1						- ·			
SUBSTRATE		Odors	; Norma		Sewage	Petroleum		Deposits  Sludge	e Sawdust	☐ Paper Fiber	
		_		_	_			_	Relic Shel		
			Chemi	caı _	Anaerobic	None		Sand	☐ Relic Shel	lls U Other	
			Other				Loo	king at stone	es which are not	deeply	
		Oils							undersides black		
Absent Slight Mo				derate $\square$ Profus	se 🗆	Yes	<b>✓</b> No				
	INORGA	NIC S	UBSTF	RATE C	OMPONENT	S		ORGANIC SUBSTRATE COMPONENTS			
Substrate Type	Diame	eter		% Co	mposite in S Reach	ampling	Substrate Type	e Ch	aracteristic	% Composition in Sampling Reach	
Bedrock					0		Dietritus		, wood, coarse	20	
Boulder	>10				0			·	ant material		
Crovel	2.5 -				0		Muck- Mud		ck, very fine panic matter	10	
Gravel Sand	0.1 - 2 gritt				8		Marl		Grey, shell	0	
Silt	good	•			70		Widii		ragments	· ·	
Clay	slic	•			20						
Habita	at				ŀ	HABITAT ASSES	SMENT - LO	W GRADIEN	NT STREAMS		
Parame	ter			Optima		SubOpt		_	larginal	Poor	
1. Epifaunal				50% fc		30-50% for low g			low gradient	10% for low gradient	
Substrate/ Available				ams) of epifaur	f substrate	streams) mix of s habitat; well-suite		streams) m	ix of stable oitat availability	streams)stable habitat; lack of habitat is	
Cover		coloni	zation	& fish c	over; mix of	colonization pote		less than de		obvious;substrate unstable	
				nerged I		adequate habitat		substrate fr		or lacking.	
				nks, cou at & at s	oble or other tage to	maintenance of presence of addition		disturbed or	r removea.		
		allow	full col	onizatio	n potential	substrate in form					
				ags tha not trar	t are not	but not yet prepa colonization (may					
		11011	an ana	not trai	ioionty.	high end of scale					
Score	8	20	19	18	<b>_</b> 17 <b>_</b> 16	15 14 13	<b>□</b> 12 <b>□</b> 11	□10 □9	<b>✓</b> 8 □7 □6	5 4 3 2 1 0	
2. Pool					materials,	Mixture of soft sa		All mud or o		Hardpan clay or bedrock:	
Substrate Characterizatio	n			ind firm ot mats		clay; mud may be some root mats a			e or no root mat: ged vegetation.	no root mat or vegetation.	
		subm	erged	vegetat	tion common.	submerged vege	tation		, 0		
						present.					
Score	7	20	19	<u> </u>	<b>□</b> 17 <b>□</b> 16	151413	1211	10 🗆 9	8 🗸 7 🗆 6	5 4 3 2 10	
3. Pool Variabil	lity				nallow, large-	Majority of pools	large-deep;		ols much more	Majority of pools small-	
			small :		, small-deep	very few shallow		prevalent th	an deep pools.	shallow or pools absent.	
		pools	preser	it.							
Score	6	20	19	18 _	<b>□</b> 17 <b>□</b> 16	15 14 13	1211	10 9	<b>8 7 4</b> 6	5 4 3 2 1 0	
4. Sediment		Little		nlargen		Some new increa			eposition of new	Heavy deposits of fine	
Deposition					and less	formation, mostly		gravel, sand		material, increased bar	
				of the bo sedimer	nt deposition.	gravel, sand or fine sediment; 20-509	ne % of the		n old and new % of the bottom	development; more than 80% of the bottom	
			,		'	bottom affected;	slight	affected; se	diment deposits	changing frequently; pools	
						deposition in poo	ls.	at obstruction	ons, s, and bends;	almost absent due to substantial sediment	
								moderate d	eposition of	deposition.	
								pools preva	llent.		
Score	9	20	19	<b>□</b> 18 [	<b>□</b> 17 <b>□</b> 16	151413	☐12☐11	10 <b>У</b> 9	8 7 6	_5 _4 _3 _2 _ 1 _ 0	

Status	lower banks, and mimimal amount of channel substrate is exposed.	available channel; or <25% of channel substrate is exposed.	available channel, and/or riffle substrates are mostly exposed.	and mostly present as standing pools.
Score 15		<b>✓</b> 15 □ 14 □ 13 □ 12 □ 11		_5 _4 _3 _2 _ 1 _ 0
6. Channel	Channelization or dredging	Some channelization	Channelization may be	Banks shored with gabion
Alteration	absent or minimal; stream with normal pattern.	present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
Score 9	20 19 18 17 16	15 14 13 12 11	□10 🛂 9 □8 □7 □6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered coastal plains and other normal lowlying areas. this parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
Score 4	<b></b> 20 <b></b> 19 <b></b> 18 <b></b> 17 <b></b> 16	□ 15 □ 14 □ 13 □ 12 □ 11	□10 □9 □8 □7 □6 □	_5 ✓4
8. Bank Stability (score each bank)  Note: determine left or right side by facing	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	erosion mostly healed over.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequently along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
downstream.				
Score (LB) 7	<u></u> 10	<u> </u>	<u> </u>	
Score (RB) 5	☐ 10 ☐ 9	□8 □7 □6	<b>✓</b> 5	☐2 ☐ 1 ☐0  Less than 50% of the
9. Vegetative Protection (score each bank)  Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zones covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well represented disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
Score (LB) 6	109	□8 □7 ✔6	<u></u>	□2 □ 1 □ 0
Score (RB) 6	□10 □9	□8 □7 ✔6	<u>5</u> <u>4</u> <u>3</u>	_210
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clearcuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
Note: determine left or right side by facing downstream.				
Score (LB) 4	☐ 10 ☐ 9	□8 □7 □6	5 🛂 4 🔲 3	
Score (RB)         1           Total Score         87	□ □ 10 □ 9	□8 □7 □6	□5 □4 □3	<u> </u>

### WETLAND DETERMINATION DATA FORM Eastern Mountains and Piedmont

Project/Site: <u>Transmission Operations Center</u>	City/County:	Owensboro/Daviess	Date: <u>16-May-23</u>
Applicant/Owner: BREC		State: KY	Sampling Point: 1MW1
Investigators: Keith Michalski	Sec, Twp, Rn	g: <u>S NA, T NA, R NA</u>	
Landform: Flat	Local Relief:	Flat	Slope %: <u>0.5</u>
Subregion: LRR	Lat: 37.7696	7 N Lon: <u>-87.16095</u>	W Datum: Decimal Degrees
Soil Map Unit Name:	NWI Classific	ation: <u>PFO</u> Area	Ft <sup>2</sup> : 4,045
Are climatic/hydrologic conditions on this	Remarks (If N	lo):	
site typical for this time of year? Yes			
Are Vegetation □, Soil □, or Hydrology □ Signific	antly Disturbed	I? Are "Normal Cire	cumstances" present: <u>Yes</u>
Are Vegetation □, Soil □, or Hydrology □ Natural	ly Problematic	? Remarks:	
SUMMARY OF FINDINGS Attach site map	showing san	pling locations, trans	sects, important features, etc.
Hydrophytic Vegetation Present? Yes	Is	the Sampled Area wit	hin a Wetland? Yes
Hydric Soil Present? Yes			
Wetland Hydrology Present? Yes			
Remarks: Forested patch in agriculture field. Drain	ns via surface	connection that dispers	es along ag field edge.
		'	3 3 3

### **VEGETATION: Scientific Names**

VEGETATION: Scientific Names							
Tree Stratum Plot Size: Unit	Absolute % Cover:	Dominant Species?	Indicator <u>Status</u>	Dominance Test Worksheet:			
1. Quercus palustris	40.0	Yes	FACW	Number of Dominant Species that			
2. Carya illinoinensis	15.0	No	FACU	are OBL, FACW or FAC:4A			
3. Morus rubra	25.0	Yes	FACU	Total Number of Dominant Species			
4. Celtis laevigata	10.0	No	FACW	across all Strata: 6 B			
5.				Percent of Dominant Species that			
	90.0 = To	otal Cover		are OBL, FACW or FAC: 66.7 A/E			
Sapling/Shrub Stratum Plot Size: Unit				Prevalence Index Worksheet:			
1. Morus rubra	20.0	Yes	FACU	Total % Cover of: Multiply by:			
2. Celtis laevigata	5.0	No	FACW	OBL <u>0</u> x1= <u>0</u>			
3.				FACW <u>0</u> x2= <u>0</u>			
4.				FAC <u>0</u> x3= <u>0</u>			
5.				FACU <u>0</u> x4= <u>0</u>			
_	25.0 = To	otal Cover		UPL <u>0</u> x5= <u>0</u>			
Herb Stratum Plot Size: Unit				TOTALS (A) 0 (B) 0			
1. Campsis radicans	25.0	Yes	FAC	· ,			
2. Toxicodendron radicans	25.0	Yes	FAC	Prevalence Index = B/A =			
3. Rumex crispus	10.0	No	FAC	Hydrophytic Vegetation			
4. Carex sp.	5.0	No	NI	Indicators:			
5. Packera glabella	5.0	No	OBL	✓ Dominance Test is >50%			
6. Symphyotrichum lanceolatum		No	FACW	☐ Prevalence Index is ≤ 3.0 <sup>1</sup>			
7.				☐ Morphologic Adaptations <sup>1</sup>			
8.				☐ Problematic Hydrophytic			
9.				Vegetation <sup>1</sup> (Explain)			
10							
_	70.0 = Te	otal Cover		<sup>1</sup> Indicators of hydric soil & wetland			
Woody Vine Stratum Plot Size: Unit				hydrology must be present, unless disturbed or problematic.			
1. Vitis rotundifolia	5.0	Yes	FAC	Hydrophytic Vegetation			
2.		otal Cover		Present? Yes			
Remarks:							

Sampling Point: 1MW1 **SOIL** Profile Description: (Describe to depth needed to document the indicator or confirm the absence of indicators.) Redox Features Matrix Depth Color Color Type<sup>1</sup> Loc<sup>2</sup> (inches) (Moist) % (Moist) % Texture Remarks 0 - 1210YR 6/2 90 7.5YR 5/6 10 С M Loamv <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains, <sup>2</sup> Location; PL=Pore Lining, M=Matrix, **Hvdric Soil Indicators: Indicators for Problematic Hydric** Soils 3: ☐ Red Parent Material (TF2) ☐ Histosol (A1) Sandy Gleved Matrix (S4) ☐ Histic Epipedon (A2) Sandy Redox (S5) □ Very Shallow Dark Surface (TF12) ☐ Black Histic (A3) Stripped Matrix (S6) ☐ Other (Explain in Remarks) ☐ Hydrogen Sulfide (A4) ☐ Dark Surface (S7) ☐ Stratified Layers (A5) ☐ Loamy Gleved Matrix (F2) ☐ 2 cm Muck (A10) (LRR N) <sup>3</sup>Indicators of hydrophytic vegetation Depleted Matrix (F3) ☐ Depleted Below Dark Surface (A11) Redox Dark Surface (F6) and wetland hydrology must be present, unless disturbed or ☐ Thick Dark Surface (A12) Depleted Dark Surface (F7) ☐ Sandy Mucky Mineral (S1) (LRR N) problematic. Redox Depressions (F8) Iron-Manganese Masses (F12)(LRR N) Restrictive Layer (if observed): Type: 0 **Hydric Soil Present?** Yes Depth (inches): 0 Remarks: **Hydrology Wetland Hydrology Indicators:** Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) ☐ Surface Water (A1) Water Stained Leaves (B9) ☐ High Water Table (A2) Sparsely Vegetated Concave Surface (B8) ☐ Aquatic Fauna (B13) ✓ Drainage Patterns (B10) ☐ Saturation (A3) ☐ True Aquatic Plants (B14) Moss Trim Lines (B16) ☐ Water Marks (B1) ☐ Hvdrogen Sulfide Odor (C1) ☐ Sediment Deposits (B2) ☐ Oxidized Rhizospheres on Live ☐ Dry-Season Water Table (C2) ✓ Drift Deposits (B3) ✓ Crayfish Burrows (C8) Roots (C3) ☐ Algal Mat or Crust (B4) Presence of Reduced Iron (C4) ✓ Saturation Visible on Aerial Imagery (C9) ☐ Iron Deposits (B5) ☐ Recent Iron Reduction in Tilled Stunted or Stressed Plants (D1) ☐ Inundation Visible From Aerial Soils (C6) ✓ Geomorphic Position (D2) Imagery (B7) ☐ Thin Muck Surface (C7) Shallow Aquitard (D3) ☐ Other (Explain in Remarks) Microtopographic Reilef (D4) FAC-Neutral Test (D5) **Field Observations:** Surface Water Present? No Depth (inches) 0.0 Water Table Present? No 0.0 Wetland Hydrology Present? Depth (inches) Saturation Present? (including capillary fringe) No Depth (inches) 0.0 Yes Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspection), if available: Remarks:



			Eastern Mountains and Piedmont
Project/Site: <u>Transmission Operations Center</u>	City/Cour	nty: <u>Owensboro/D</u>	aviess Date: 16-May-23
Applicant/Owner: BREC		Sta	te: KY Sampling Point: 1MW1U
Investigators: Keith Michalski		, Rng: <u>S NA, T N</u>	
Landform: Flat	Local Rel	lief: <u>Convex</u>	Slope %: <u>0.5</u>
Subregion: LRR	Lat: <u>37.7</u>	<u>6968 N                                    </u>	37.16096 W Datum: Decimal Degrees
Soil Map Unit Name:	NWI Clas	ssification:	Area Ft²:
Are climatic/hydrologic conditions on this	Remarks	(If No):	
site typical for this time of year? Yes			
Are Vegetation □, Soil □, or Hydrology □ Signi	ficantly Distu	ırbed? Are "N	
Are Vegetation ☐, Soil ☐, or Hydrology ☐ Natur	rally Problem	natic? Remar	ks:
SUMMARY OF FINDINGS Attach site ma	an chawing	sampling location	one transacte important foatures etc
Hydrophytic Vegetation Present? No	ap snowing	Is the Sampled	Area within a Wetland? No
Hydric Soil Present? No		lo tho Gampioa	71.04 William 4 Wollama 1 110
Wetland Hydrology Present? No			
Remarks: Upland assessment located south of	wotland		
Remarks. Opiand assessment located south of	welland.		
VEGETATION: Scientific Names			
<u>Tree Stratum</u> Plot Size: <u>Unit</u>		Dominant Indica	
	% Cover:	Species? Statu	
1.			Number of Dominant Species that
2.			are OBL, FACW or FAC: 0 A
3.			Total Number of Dominant Species
4.			across all Strata: 1 B
5.			Percent of Dominant Species that
	= Tot	al Cover	are OBL, FACW or FAC: 0.0 A/B
Sapling/Shrub Stratum Plot Size: Unit			Prevalence Index Worksheet:
1.			Total % Cover of: Multiply by:
2.			OBL 0 x1= 0
3.			FACW 0 x2= 0
4.			FAC <u>0</u> x3= <u>0</u>
5.			FACU <u>0</u> x4= <u>0</u>
0.	= Tot	al Cover	UPL 0 x5= 0
		ai Covei	TOTALS
Herb Stratum Plot Size: Unit			(A) <u>0</u> (B) <u>0</u>
1. Zea mays	20.0	Yes NI	
2.			Prevalence Index = B/A =
3.			Hydrophytic Vegetation
4.			Indicators:
5.			☐ Dominance Test is >50%
6.			$\square$ Prevalence Index is $\leq 3.0^1$
7.			☐ Morphologic Adaptations <sup>1</sup>
8.			☐ Problematic Hydrophytic
9.			Vegetation <sup>1</sup> (Explain)
10			
	20.0 = Tot	al Cover	<sup>1</sup> Indicators of hydric soil & wetland
Was de Vina Otratama Bl. (C)			hydrology must be present, unless
Woody Vine Stratum Plot Size: Unit			disturbed or problematic.
1.			Hydrophytic Vegetation
2.			Present? No
	= Tot	al Cover	<u> </u>
Remarks:			

Sampling Point: 1MW1U **SOIL** Profile Description: (Describe to depth needed to document the indicator or confirm the absence of indicators.) Redox Features Matrix Depth Color Color Type<sup>1</sup> Loc<sup>2</sup> (inches) (Moist) % (Moist) % Texture Remarks 0-410YR 4/4 100 Loamy 4-10 10YR 5/4 100 Loamy 10-16 10YR 6/3 100 Loamv <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains, <sup>2</sup> Location; PL=Pore Lining, M=Matrix, **Hvdric Soil Indicators: Indicators for Problematic Hydric** Soils 3: ☐ Red Parent Material (TF2) ☐ Histosol (A1) Sandy Gleved Matrix (S4) ☐ Histic Epipedon (A2) Sandy Redox (S5) □ Very Shallow Dark Surface (TF12) ☐ Black Histic (A3) Stripped Matrix (S6) ☐ Other (Explain in Remarks) ☐ Hydrogen Sulfide (A4) Dark Surface (S7) ☐ Stratified Layers (A5) Loamy Gleved Matrix (F2) ☐ 2 cm Muck (A10) (LRR N) <sup>3</sup>Indicators of hydrophytic vegetation Depleted Matrix (F3) ☐ Depleted Below Dark Surface (A11) Redox Dark Surface (F6) and wetland hydrology must be present, unless disturbed or ☐ Thick Dark Surface (A12) Depleted Dark Surface (F7) ☐ Sandy Mucky Mineral (S1) (LRR N) problematic. Redox Depressions (F8) Iron-Manganese Masses (F12)(LRR N) Restrictive Layer (if observed): Type: Hydric Soil Present? No Depth (inches): Remarks: **Hydrology Wetland Hydrology Indicators:** Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) ☐ Surface Water (A1) Water Stained Leaves (B9) ☐ High Water Table (A2) Sparsely Vegetated Concave Surface (B8) ☐ Aquatic Fauna (B13) Drainage Patterns (B10) ☐ Saturation (A3) ☐ True Aquatic Plants (B14) Moss Trim Lines (B16) ☐ Water Marks (B1) ☐ Hvdrogen Sulfide Odor (C1) ☐ Sediment Deposits (B2) Dry-Season Water Table (C2) Oxidized Rhizospheres on Live ☐ Drift Deposits (B3) Crayfish Burrows (C8) Roots (C3) ☐ Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) ☐ Iron Deposits (B5) ☐ Recent Iron Reduction in Tilled Stunted or Stressed Plants (D1) ☐ Inundation Visible From Aerial Soils (C6) Geomorphic Position (D2) Imagery (B7) ☐ Thin Muck Surface (C7) Shallow Aquitard (D3) Microtopographic Reilef (D4) ☐ Other (Explain in Remarks) ▼ FAC-Neutral Test (D5) **Field Observations:** Surface Water Present? No Depth (inches) 0.0 Water Table Present? No 0.0 Wetland Hydrology Present? Depth (inches)

Depth (inches)

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspection), if available:

0.0

Remarks:

Saturation Present? (including capillary fringe) No



Project/Site: <u>Transmission Operations Center</u>	City/County: Owensboro/Daviess Date: 18-May-23
Applicant/Owner: BREC	State: <u>KY</u> Sampling Point: <u>1MW4</u>
Investigators: Keith Michalski	Sec, Twp, Rng: S NA, T NA, R NA
Landform: Flat	Local Relief: Flat Slope %: 0.25
Subregion: LRR	Lat: 37.76481 N Lon: -87.16187 W Datum: Decimal Degrees
Soil Map Unit Name:	NWI Classification: PFO Area Ft <sup>2</sup> : 2,386
Are climatic/hydrologic conditions on this	Remarks (If No):
site typical for this time of year? Yes	
Are Vegetation □, Soil □, or Hydrology □ Signification	antly Disturbed? Are "Normal Circumstances" present: Yes
Are Vegetation □, Soil □, or Hydrology □ Natural	ly Problematic? Remarks:
SUMMARY OF FINDINGS Attach site map	showing sampling locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes	Is the Sampled Area within a Wetland? Yes
Hydric Soil Present? Yes	
Wetland Hydrology Present? Yes	
Remarks: Wet forest edge where ag field drains to	o offsite drain.
,	

Tree Stratum Plot Size: Unit	Absolute % Cover:	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. Acer saccharinum	50.0	Yes	FACW	Number of Dominant Species that
2. Acer rubrum	15.0	No	FAC	are OBL, FACW or FAC: 3 A
3. Morus rubra	10.0	No	FACU	Total Number of Dominant Species
4.	10.0	NO	1 700	across all Strata: 5 B
5.				Percent of Dominant Species that
	75.0 = To	otal Cover		are OBL, FACW or FAC: 60.0 A/B
Sapling/Shrub Stratum Plot Size: Unit				Prevalence Index Worksheet: Total % Cover of: Multiply by:
1. Acer saccharinum	20.0	Yes	FACW	
2. Morus rubra	10.0	Yes	FACU	OBL <u>0</u> x1= <u>0</u>
3.				FACW <u>0</u> x2= <u>0</u>
4.				FAC <u>0</u> x3= <u>0</u>
5.				FACU <u>0</u> x4= <u>0</u>
	30.0 = To	otal Cover		UPL <u>0</u> x5= <u>0</u>
Harl Official Dist Circuit 11:24				TOTALS
Herb Stratum Plot Size: Unit				(A) <u>0</u> (B) <u>0</u>
1. Euonymus fortunei	20.0	Yes	NI	B
2. Verbesina alternifolia	5.0	Yes	FAC	Prevalence Index = B/A =
3. Commelina caroliniana	5.0	No	FAC	Hydrophytic Vegetation
4. Boehmeria cylindrica	5.0	No	FACW	Indicators:
5. Campsis radicans	3.0	No	FAC	☑ Dominance Test is >50%
6. Toxicodendron radicans	3.0	No	FAC	$\square$ Prevalence Index is $\leq 3.0^1$
7.				☐ Morphologic Adaptations <sup>1</sup>
8.				☐ Problematic Hydrophytic
9.				Vegetation <sup>1</sup> (Explain)
10				
	41.0 = To	otal Cover		<sup>1</sup> Indicators of hydric soil & wetland
Woody Vine Stratum Plot Size: Unit				hydrology must be present, unless disturbed or problematic.
1.				Hydrophytic Vegetation
2.				Present? Yes
	= To	otal Cover		- 1.0 <b>36</b>
Remarks:				

Sampling Point: 1MW4 **SOIL** Profile Description: (Describe to depth needed to document the indicator or confirm the absence of indicators.) Redox Features Matrix Depth Color Color Type<sup>1</sup> Loc<sup>2</sup> (inches) (Moist) % (Moist) % Texture Remarks 0 - 1210YR 5/2 95 7.5YR 5/6 С M Loamv <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains, <sup>2</sup> Location; PL=Pore Lining, M=Matrix, **Hvdric Soil Indicators: Indicators for Problematic Hydric** Soils 3: ☐ Red Parent Material (TF2) ☐ Histosol (A1) Sandy Gleved Matrix (S4) ☐ Histic Epipedon (A2) Sandy Redox (S5) □ Very Shallow Dark Surface (TF12) ☐ Black Histic (A3) Stripped Matrix (S6) ☐ Other (Explain in Remarks) ☐ Hydrogen Sulfide (A4) ☐ Dark Surface (S7) ☐ Stratified Layers (A5) ☐ Loamy Gleved Matrix (F2) ☐ 2 cm Muck (A10) (LRR N) <sup>3</sup>Indicators of hydrophytic vegetation Depleted Matrix (F3) ☐ Depleted Below Dark Surface (A11) Redox Dark Surface (F6) and wetland hydrology must be present, unless disturbed or ☐ Thick Dark Surface (A12) Depleted Dark Surface (F7) ☐ Sandy Mucky Mineral (S1) (LRR N) problematic. Redox Depressions (F8) Iron-Manganese Masses (F12)(LRR N) Restrictive Layer (if observed): Type: 0 Hydric Soil Present? Yes Depth (inches): 0 Remarks: **Hydrology Wetland Hydrology Indicators:** Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) ☐ Surface Water (A1) Water Stained Leaves (B9) ☐ High Water Table (A2) Sparsely Vegetated Concave Surface (B8) ☐ Aquatic Fauna (B13) ✓ Drainage Patterns (B10) ☐ Saturation (A3) ☐ True Aquatic Plants (B14) Moss Trim Lines (B16) ☐ Water Marks (B1) ☐ Hvdrogen Sulfide Odor (C1) ☐ Sediment Deposits (B2) ☐ Oxidized Rhizospheres on Live Dry-Season Water Table (C2) ✓ Drift Deposits (B3) Crayfish Burrows (C8) Roots (C3) ☐ Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) ☐ Iron Deposits (B5) ☐ Recent Iron Reduction in Tilled Stunted or Stressed Plants (D1) ☐ Inundation Visible From Aerial Soils (C6) ✓ Geomorphic Position (D2) Imagery (B7) ☐ Thin Muck Surface (C7) Shallow Aquitard (D3) ☐ Other (Explain in Remarks) Microtopographic Reilef (D4) ▼ FAC-Neutral Test (D5) **Field Observations:** Surface Water Present? No Depth (inches) 0.0 Water Table Present? No 0.0 Wetland Hydrology Present? Depth (inches) Saturation Present? (including capillary fringe) No Depth (inches) 0.0 Yes Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspection), if available: Remarks:



				stern Mountains and Piedmont
Project/Site: <u>Transmission Operations Center</u>	City/Cou	ınty: <u>Owens</u>		
Applicant/Owner: BREC			State: <u>K</u>	Y Sampling Point: 1MW4U
Investigators: Keith Michalski	Sec, Tw	p, Rng: <u>S N</u>	IA, T NA, R I	NA
Landform: <u>Flat</u> Subregion: <u>LRR</u>	_ Local Re	elief: <u>Conve</u>	X	Slope %: <u>1</u>
Subregion: LRR	Lat: <u>37.</u>	76482 N	Lon: <u>-87.16</u>	Datum: Decimal Degrees
Soil Map Unit Name:	NWI Cla	assification: _	<i>F</i>	Area Ft <sup>2</sup> :
Are climatic/hydrologic conditions on this	Remark	s (If No):		
site typical for this time of year? Yes				
Are Vegetation □, Soil □, or Hydrology □ Signifi	icantly Dist	urbed?	Are "Norma	ıl Circumstances" present: <u>Yes</u>
Are Vegetation ☐, Soil ☐, or Hydrology ☐ Natura	ally Probler	matic?	Remarks:_	· —
SUMMARY OF FINDINGS Attach site ma	n showing	a sampling	locations, f	transects, important features, etc.
Hydrophytic Vegetation Present? No	<u> </u>	Is the Sa	mpled Area	a within a Wetland? No
Hydric Soil Present? No				<u></u>
Wetland Hydrology Present? No				
Remarks: Upland assessment located in crop fie	ld north of	 wetland		
Memarks. Opiana assessment located in Grop ne	310 HOLLI OL	Wolland.		
VEGETATION: Scientific Names				
	^ la a a luita	Darrinant	lu di actor	Developed Test Washabaati
Tree Stratum Plot Size: Unit	Absolute % Cover:	Dominant Species?	Indicator <u>Status</u>	Dominance Test Worksheet:
Tree Stratum Plot Size: Unit 1.	Absolute % Cover:			Number of Dominant Species that
Tree Stratum Plot Size: Unit 1. 2.	Absolute % Cover:			Number of Dominant Species that are OBL, FACW or FAC:0_A
Tree Stratum Plot Size: Unit  1. 2. 3.	Absolute % Cover:			Number of Dominant Species that are OBL, FACW or FAC:0_A Total Number of Dominant Species
Tree Stratum Plot Size: Unit  1. 2. 3. 4.	Absolute % Cover:			Number of Dominant Species that are OBL, FACW or FAC:0_A Total Number of Dominant Species across all Strata:1_B
Tree Stratum Plot Size: Unit  1. 2. 3.	% Cover:	Species?		Number of Dominant Species that are OBL, FACW or FAC:0A Total Number of Dominant Species across all Strata:1B Percent of Dominant Species that
Tree Stratum Plot Size: Unit  1. 2. 3. 4.	% Cover:			Number of Dominant Species that are OBL, FACW or FAC:0_A Total Number of Dominant Species across all Strata:1_B
Tree Stratum Plot Size: Unit  1. 2. 3. 4. 5.	% Cover:	Species?		Number of Dominant Species that are OBL, FACW or FAC:0A Total Number of Dominant Species across all Strata:1B Percent of Dominant Species that
Tree Stratum Plot Size: Unit  1. 2. 3. 4. 5.  Sapling/Shrub Stratum Plot Size: Unit	% Cover:	Species?		Number of Dominant Species that are OBL, FACW or FAC:0A Total Number of Dominant Species across all Strata:1_B Percent of Dominant Species that are OBL, FACW or FAC:0.0A/B  Prevalence Index Worksheet:
Tree Stratum Plot Size: Unit  1. 2. 3. 4. 5.  Sapling/Shrub Stratum Plot Size: Unit 1.	% Cover:	Species?		Number of Dominant Species that are OBL, FACW or FAC:0A Total Number of Dominant Species across all Strata:1B Percent of Dominant Species that are OBL, FACW or FAC:0.0A/B   Prevalence Index Worksheet:Total % Cover of:Multiply by:
Tree Stratum Plot Size: Unit  1. 2. 3. 4. 5.  Sapling/Shrub Stratum Plot Size: Unit 1. 2.	% Cover:	Species?		Number of Dominant Species that are OBL, FACW or FAC:0A Total Number of Dominant Species across all Strata:1B Percent of Dominant Species that are OBL, FACW or FAC:0.0A/B Prevalence Index Worksheet:Total % Cover of:Multiply by: OBL0x1=0
Tree Stratum Plot Size: Unit  1. 2. 3. 4. 5.  Sapling/Shrub Stratum Plot Size: Unit 1. 2. 3.	% Cover:	Species?		Number of Dominant Species that are OBL, FACW or FAC:0A Total Number of Dominant Species across all Strata:1_B Percent of Dominant Species that are OBL, FACW or FAC:0.0A/B  Prevalence Index Worksheet: Total % Cover of: Multiply by:  OBL0 x1=0 FACW0 x2=0
Tree Stratum Plot Size: Unit  1. 2. 3. 4. 5.  Sapling/Shrub Stratum Plot Size: Unit 1. 2. 3. 4. 4.	% Cover:	Species?		Number of Dominant Species that are OBL, FACW or FAC:0A Total Number of Dominant Species across all Strata:1_B Percent of Dominant Species that are OBL, FACW or FAC:0.0A/B  Prevalence Index Worksheet:  Total % Cover of: Multiply by:  OBL0_ x1=0 FACW0_ x2=0 FAC0_ x3=0
Tree Stratum Plot Size: Unit  1. 2. 3. 4. 5.  Sapling/Shrub Stratum Plot Size: Unit 1. 2. 3.	% Cover:	Species?		Number of Dominant Species that are OBL, FACW or FAC:0 _ A Total Number of Dominant Species across all Strata:1 _ B Percent of Dominant Species that are OBL, FACW or FAC:0.0 _ A/B  Prevalence Index Worksheet:  Total % Cover of: Multiply by:  OBL0 _ x1=0 FACW0 _ x2=0 FAC0 _ x3=0 FACU0 _ x4=0
Tree Stratum Plot Size: Unit  1. 2. 3. 4. 5.  Sapling/Shrub Stratum Plot Size: Unit 1. 2. 3. 4. 4.	% Cover:	Species?		Number of Dominant Species that are OBL, FACW or FAC:0A Total Number of Dominant Species across all Strata:1B Percent of Dominant Species that are OBL, FACW or FAC:0.0A/B  Prevalence Index Worksheet:
Tree Stratum Plot Size: Unit  1. 2. 3. 4. 5.  Sapling/Shrub Stratum Plot Size: Unit 1. 2. 3. 4. 5.	% Cover:	Species?		Number of Dominant Species that are OBL, FACW or FAC:0A Total Number of Dominant Species across all Strata:1B Percent of Dominant Species that are OBL, FACW or FAC:0.0A/B  Prevalence Index Worksheet:  Total % Cover of: Multiply by:  OBL0x1=0 FACW0x2=0 FACW0x3=0 FACU0x4=0 UPL0x5=0 TOTALS
Tree Stratum Plot Size: Unit  1. 2. 3. 4. 5.  Sapling/Shrub Stratum Plot Size: Unit 1. 2. 3. 4. 5.  Herb Stratum Plot Size: Unit	# Cover:  = To	Species?  otal Cover	Status	Number of Dominant Species that are OBL, FACW or FAC:0A Total Number of Dominant Species across all Strata:1B Percent of Dominant Species that are OBL, FACW or FAC:0.0A/B  Prevalence Index Worksheet:
Tree Stratum Plot Size: Unit  1. 2. 3. 4. 5.  Sapling/Shrub Stratum Plot Size: Unit 1. 2. 3. 4. 5.  Herb Stratum Plot Size: Unit 1. 2. 3.	% Cover:	Species?		Number of Dominant Species that are OBL, FACW or FAC:0A Total Number of Dominant Species across all Strata:1B Percent of Dominant Species that are OBL, FACW or FAC:0.0A/B  Prevalence Index Worksheet:  Total % Cover of: Multiply by:  OBL0x1=0 FACW0x2=0 FACW0x3=0 FACU0x4=0 UPL0x5=0 TOTALS
Tree Stratum Plot Size: Unit  1. 2. 3. 4. 5.  Sapling/Shrub Stratum Plot Size: Unit 1. 2. 3. 4. 5.  Herb Stratum Plot Size: Unit 1. Zea mays 2.	# Cover:  = To	Species?  otal Cover	Status	Number of Dominant Species that are OBL, FACW or FAC:0A Total Number of Dominant Species across all Strata:1B Percent of Dominant Species that are OBL, FACW or FAC:0.0A/B  Prevalence Index Worksheet:  Total % Cover of: Multiply by:  OBL0x1=0 FACW0x2=0 FACW0x3=0 FACU0x4=0 UPL0x5=0 TOTALS(A)0(B)0  Prevalence Index = B/A =
Tree Stratum Plot Size: Unit  1. 2. 3. 4. 5.  Sapling/Shrub Stratum Plot Size: Unit 1. 2. 3. 4. 5.  Herb Stratum Plot Size: Unit 1. 2. 3.	# Cover:  = To	Species?  otal Cover	Status	Number of Dominant Species that are OBL, FACW or FAC:0A Total Number of Dominant Species across all Strata:1B Percent of Dominant Species that are OBL, FACW or FAC:0.0A/B  Prevalence Index Worksheet:  Total % Cover of: Multiply by:  OBL0x1=0 FACW0x2=0 FACW0x3=0 FACU0x4=0 UPL0x5=0 TOTALS(A)0(B)0

20.0 = Total Cover

= Total Cover

**Woody Vine Stratum** 

Remarks:

Plot Size: Unit

6.

7. 8. 9.

disturbed or problematic.

Hydrophytic Vegetation

Present? No

☐ Prevalence Index is  $\leq 3.0^1$ 

☐ Morphologic Adaptations¹☐ Problematic Hydrophytic

Vegetation¹ (Explain)

<sup>1</sup>Indicators of hydric soil & wetland

hydrology must be present, unless

Sampling Point: 1MW4U **SOIL** Profile Description: (Describe to depth needed to document the indicator or confirm the absence of indicators.) Redox Features Matrix Depth Color Color Type<sup>1</sup> Loc<sup>2</sup> % (inches) (Moist) % (Moist) Texture Remarks 0-10 10YR 4/4 100 Loamy 10-16 10YR 5/3 100 Loamy <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains, <sup>2</sup> Location; PL=Pore Lining, M=Matrix, **Hvdric Soil Indicators: Indicators for Problematic Hydric** Soils 3: ☐ Red Parent Material (TF2) ☐ Histosol (A1) Sandy Gleved Matrix (S4) ☐ Histic Epipedon (A2) Sandy Redox (S5) □ Very Shallow Dark Surface (TF12) ☐ Black Histic (A3) Stripped Matrix (S6) ☐ Other (Explain in Remarks) ☐ Hydrogen Sulfide (A4) Dark Surface (S7) ☐ Stratified Layers (A5) Loamy Gleved Matrix (F2) ☐ 2 cm Muck (A10) (LRR N) <sup>3</sup>Indicators of hydrophytic vegetation Depleted Matrix (F3) ☐ Depleted Below Dark Surface (A11) Redox Dark Surface (F6) and wetland hydrology must be present, unless disturbed or ☐ Thick Dark Surface (A12) Depleted Dark Surface (F7) ☐ Sandy Mucky Mineral (S1) (LRR N) problematic. Redox Depressions (F8) Iron-Manganese Masses (F12)(LRR N) Restrictive Layer (if observed): Type: Hydric Soil Present? No Depth (inches): Remarks: **Hydrology Wetland Hydrology Indicators:** Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) ☐ Surface Water (A1) Water Stained Leaves (B9) ☐ High Water Table (A2) Sparsely Vegetated Concave Surface (B8) ☐ Aquatic Fauna (B13) Drainage Patterns (B10) ☐ Saturation (A3) ☐ True Aquatic Plants (B14) Moss Trim Lines (B16) ☐ Water Marks (B1) ☐ Hvdrogen Sulfide Odor (C1) ☐ Sediment Deposits (B2) Dry-Season Water Table (C2) Oxidized Rhizospheres on Live ☐ Drift Deposits (B3) Crayfish Burrows (C8) Roots (C3) ☐ Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) ☐ Iron Deposits (B5) ☐ Recent Iron Reduction in Tilled Stunted or Stressed Plants (D1) ☐ Inundation Visible From Aerial Soils (C6) Geomorphic Position (D2) Imagery (B7) ☐ Thin Muck Surface (C7) Shallow Aquitard (D3) Microtopographic Reilef (D4) ☐ Other (Explain in Remarks) ▼ FAC-Neutral Test (D5) **Field Observations:** Surface Water Present? No Depth (inches) 0.0 Water Table Present? No 0.0 **Wetland Hydrology Present?** Depth (inches) Saturation Present? (including capillary fringe) No Depth (inches) 0.0 Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspection), if available: Remarks:

Sampling Point: 1MW4U



Project/Site: <u>Transmission Operations Center</u>	City/County: Owensboro/Daviess Date: 16-May-23
Applicant/Owner: BREC	State: KY Sampling Point: 1MW5
Investigators: Keith Michalski	Sec, Twp, Rng: S NA, T NA, R NA
Landform: Depression	Local Relief: Concave Slope %: 0
Subregion: LRR	Lat: 37.77041 N Lon: -87.16085 W Datum: Decimal Degrees
Soil Map Unit Name:	NWI Classification: PUBG Area Ft <sup>2</sup> : 1,582
Are climatic/hydrologic conditions on this	Remarks (If No):
site typical for this time of year? Yes	
Are Vegetation <b>☑</b> , Soil <b>☑</b> , or Hydrology <b>☑</b> Signification	cantly Disturbed? Are "Normal Circumstances" present: No
Are Vegetation □, Soil □, or Hydrology □ Natural	lly Problematic? Remarks: Old Trash Pit.
SUMMARY OF FINDINGS Attach site map	showing sampling locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes	Is the Sampled Area within a Wetland? Yes
Hydric Soil Present? Yes	
Wetland Hydrology Present? Yes	
Remarks: Old trash pit. No surface connection to	downstream waters.
•	

<u>Tree Stratum</u> Plot Size: <u>Unit</u>	Absolute % Cover:	Dominant Species?	Indicator <u>Status</u>	Dominance Test Worksheet:
1. Celtis laevigata	20.0	Yes	FACW	Number of Dominant Species that
2.				are OBL, FACW or FAC: 5 A
3.				Total Number of Dominant Species
4.				across all Strata: 6 B
5.				Percent of Dominant Species that
_	20.0 = T	otal Cover		are OBL, FACW or FAC: 83.3 A/B
Sapling/Shrub Stratum Plot Size: Unit				Prevalence Index Worksheet:
1. Celtis laevigata	10.0	Yes	FACW	Total % Cover of: Multiply by:
2.			.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	OBL <u>0</u> x1= <u>0</u>
3.				FACW <u>0</u> x2= <u>0</u>
4.				FAC <u>0</u> x3= <u>0</u>
5.				FACU <u>0</u> x4= <u>0</u>
	10.0 = T	otal Cover		UPL <u>0</u> x5= <u>0</u>
Herb Stratum Plot Size: Unit				TOTALS
1. Euonymus fortunei	5.0	Yes	NI	(A) <u>0</u> (B) <u>0</u>
Boehmeria cylindrica	3.0	Yes	FACW	Prevalence Index = B/A =
3. Smilax rotundifolia	2.0	No	FAC	Hydrophytic Vegetation
4.	2.0	140	1710	Indicators:
5.				✓ Dominance Test is >50%
6.				☐ Prevalence Index is ≤ 3.0 <sup>1</sup>
7.				☐ Morphologic Adaptations <sup>1</sup>
8.				☐ Problematic Hydrophytic
9.				Vegetation <sup>1</sup> (Explain)
10				
_	10.0 = T	otal Cover		<sup>1</sup> Indicators of hydric soil & wetland
Woody Vine Stratum Plot Size: Unit				hydrology must be present, unless disturbed or problematic.
1. Vitis rotundifolia	5.0	Yes	FAC	Hydrophytic Vegetation
2. Smilax rotundifolia	5.0	Yes	FAC	Present? Yes
	10.0 = T	otal Cover		11030111: 1103
Remarks:				L

Sampling Point: 1MW5 **SOIL** Profile Description: (Describe to depth needed to document the indicator or confirm the absence of indicators.) Redox Features Matrix Depth Color Color Type<sup>1</sup> Loc<sup>2</sup> (inches) (Moist) % (Moist) % Texture Remarks 0 - 1210YR 5/2 90 7.5YR 5/8 10 С M Loamv <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains, <sup>2</sup> Location; PL=Pore Lining, M=Matrix, **Hvdric Soil Indicators: Indicators for Problematic Hydric** Soils 3: ☐ Red Parent Material (TF2) ☐ Histosol (A1) Sandy Gleved Matrix (S4) ☐ Histic Epipedon (A2) Sandy Redox (S5) □ Very Shallow Dark Surface (TF12) ☐ Black Histic (A3) Stripped Matrix (S6) ☐ Other (Explain in Remarks) ☐ Hydrogen Sulfide (A4) ☐ Dark Surface (S7) ☐ Stratified Layers (A5) ☐ Loamy Gleved Matrix (F2) ☐ 2 cm Muck (A10) (LRR N) <sup>3</sup>Indicators of hydrophytic vegetation Depleted Matrix (F3) ☐ Depleted Below Dark Surface (A11) Redox Dark Surface (F6) and wetland hydrology must be present, unless disturbed or ☐ Thick Dark Surface (A12) Depleted Dark Surface (F7) ☐ Sandy Mucky Mineral (S1) (LRR N) problematic. Redox Depressions (F8) Iron-Manganese Masses (F12)(LRR N) Restrictive Layer (if observed): Type: 0 Hydric Soil Present? Yes Depth (inches): 0 Remarks: **Hydrology Wetland Hydrology Indicators:** Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) ☐ Surface Water (A1) ✓ Water Stained Leaves (B9) ☐ High Water Table (A2) ✓ Sparsely Vegetated Concave Surface (B8) ☐ Aquatic Fauna (B13) Drainage Patterns (B10) ☐ Saturation (A3) ☐ True Aquatic Plants (B14) Moss Trim Lines (B16) ☐ Water Marks (B1) ☐ Hvdrogen Sulfide Odor (C1) ☐ Sediment Deposits (B2) ☐ Oxidized Rhizospheres on Live ☐ Dry-Season Water Table (C2) ☐ Drift Deposits (B3) Crayfish Burrows (C8) Roots (C3) ☐ Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) ☐ Iron Deposits (B5) ☐ Recent Iron Reduction in Tilled Stunted or Stressed Plants (D1) ☐ Inundation Visible From Aerial Soils (C6) Geomorphic Position (D2) Imagery (B7) ☐ Thin Muck Surface (C7) Shallow Aquitard (D3) ☐ Other (Explain in Remarks) Microtopographic Reilef (D4) ▼ FAC-Neutral Test (D5) **Field Observations:** Surface Water Present? No Depth (inches) 0.0 Water Table Present? No 0.0 Wetland Hydrology Present? Depth (inches) Saturation Present? (including capillary fringe) No Depth (inches) 0.0 Yes Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspection), if available: Remarks:



Project/Site: <u>Transmission Operations Center</u>	City/County: Owensboro/Daviess Date: 16-May-23
Applicant/Owner: BREC	State: <u>KY</u> Sampling Point: <u>1MW5U</u>
Investigators: Keith Michalski	Sec, Twp, Rng: S NA, T NA, R NA
Landform: Flat	Local Relief: Flat Slope %: 0.5
Subregion: LRR	Lat: 37.77041 N Lon: -87.16085 W Datum: Decimal Degrees
Soil Map Unit Name:	NWI Classification: Area Ft <sup>2</sup> :
Are climatic/hydrologic conditions on this	Remarks (If No):
site typical for this time of year? Yes	
Are Vegetation □, Soil □, or Hydrology □ Signification	antly Disturbed? Are "Normal Circumstances" present: Yes
Are Vegetation □, Soil □, or Hydrology □ Naturall	y Problematic? Remarks:
SUMMARY OF FINDINGS Attach site map	showing sampling locations, transects, important features, etc.
Hydrophytic Vegetation Present? No	Is the Sampled Area within a Wetland? No
Hydric Soil Present? No	
Wetland Hydrology Present? <u>No</u>	
Remarks: Upland location in forested block adjace	ent to wetland.
,	

VEGETATION: Scientific Names				<u></u>
Tree Stratum Plot Size: Unit	Absolute <u>% Cover:</u>	Dominant Species?	Indicator <u>Status</u>	Dominance Test Worksheet:
1. Fraxinus pennsylvanica	20.0	Yes	FACW	Number of Dominant Species that
2. Sassafras albidum	15.0	Yes	FACU	are OBL, FACW or FAC:5A
3. Celtis laevigata	15.0	Yes	FACW	Total Number of Dominant Species
4. Robinia pseudoacacia	10.0	No	FACU	across all Strata: <u>10</u> B
5. Carya illinoinensis	10.0	No	FACU	Percent of Dominant Species that
_	70.0 = To	otal Cover		are OBL, FACW or FAC: 50.0 A/B
Sapling/Shrub Stratum Plot Size: Unit				Prevalence Index Worksheet:
Celtis laevigata	10.0	Yes	FACW	Total % Cover of: Multiply by:
2. Morus rubra	10.0	Yes	FACU	OBL <u>0</u> x1= <u>0</u>
3. Lonicera tatarica	10.0	Yes	FACU	FACW <u>55</u> x2= <u>110</u>
4. Sambucus canadensis	10.0	Yes	FACW	FAC <u>28</u> x3= <u>84</u>
5.				FACU <u>63</u> x4= <u>252</u>
_	40.0 = To	otal Cover		UPL <u>0</u> x5= <u>0</u> TOTALS
Herb Stratum Plot Size: Unit				(A) 146 (B) 446
1. Euonymus fortunei	90.0	Yes	NI	
2. Laportea canadensis	15.0	No	FAC	Prevalence Index = B/A = 3.05
3. Parthenocissus quinquefolia	5.0	No	FACU	Hydrophytic Vegetation
4. Galium aparine	3.0	No	FACU	Indicators:
5. Toxicodendron radicans	3.0	No	FAC	☐ Dominance Test is >50% ੍ਰ
6.				☐ Prevalence Index is ≤ 3.0 <sup>1</sup>
7.				☐ Morphologic Adaptations¹
8.				☐ Problematic Hydrophytic
9.				Vegetation <sup>1</sup> (Explain)
10				
_	116.0 = To	otal Cover		<sup>1</sup> Indicators of hydric soil & wetland
Woody Vine Stratum Plot Size: Unit				hydrology must be present, unless disturbed or problematic.
1. Vitis rotundifolia	10.0	Yes	FAC	Hydrophytic Vegetation
2. Euonymus fortunei	5.0	Yes	NI	Present? No
_	15.0 = To	otal Cover		
Remarks:				

Sampling Point: 1MW5U **SOIL** Profile Description: (Describe to depth needed to document the indicator or confirm the absence of indicators.) Redox Features Matrix Depth Color Color Type<sup>1</sup> Loc<sup>2</sup> (inches) (Moist) % (Moist) % Texture Remarks 0-410YR 4/2 100 Loamy 4-8 10YR 5/3 100 Loamy 10YR 6/3 100 8-16 Loamv <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains, <sup>2</sup> Location; PL=Pore Lining, M=Matrix, **Hvdric Soil Indicators: Indicators for Problematic Hydric** Soils 3: ☐ Red Parent Material (TF2) ☐ Histosol (A1) Sandy Gleved Matrix (S4) ☐ Histic Epipedon (A2) Sandy Redox (S5) □ Very Shallow Dark Surface (TF12) ☐ Black Histic (A3) Stripped Matrix (S6) ☐ Other (Explain in Remarks) ☐ Hydrogen Sulfide (A4) Dark Surface (S7) ☐ Stratified Layers (A5) ☐ Loamy Gleved Matrix (F2) ☐ 2 cm Muck (A10) (LRR N) <sup>3</sup>Indicators of hydrophytic vegetation Depleted Matrix (F3) ☐ Depleted Below Dark Surface (A11) Redox Dark Surface (F6) and wetland hydrology must be present, unless disturbed or ☐ Thick Dark Surface (A12) Depleted Dark Surface (F7) ☐ Sandy Mucky Mineral (S1) (LRR N) problematic. Redox Depressions (F8) Iron-Manganese Masses (F12)(LRR N) Restrictive Layer (if observed): Type: Hydric Soil Present? No Depth (inches): Remarks: **Hydrology Wetland Hydrology Indicators:** Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) ☐ Surface Water (A1) Water Stained Leaves (B9) ☐ High Water Table (A2) Sparsely Vegetated Concave Surface (B8) ☐ Aquatic Fauna (B13) Drainage Patterns (B10) ☐ Saturation (A3) ☐ True Aquatic Plants (B14) Moss Trim Lines (B16) ☐ Water Marks (B1) ☐ Hvdrogen Sulfide Odor (C1) ☐ Sediment Deposits (B2) Dry-Season Water Table (C2) Oxidized Rhizospheres on Live ☐ Drift Deposits (B3) Crayfish Burrows (C8) Roots (C3) ☐ Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) ☐ Iron Deposits (B5) ☐ Recent Iron Reduction in Tilled Stunted or Stressed Plants (D1) ☐ Inundation Visible From Aerial Soils (C6) Geomorphic Position (D2) Imagery (B7) ☐ Thin Muck Surface (C7) Shallow Aquitard (D3) Microtopographic Reilef (D4) ☐ Other (Explain in Remarks) ▼ FAC-Neutral Test (D5) **Field Observations:** Surface Water Present? No Depth (inches) Water Table Present? No 0.0 Wetland Hydrology Present? Depth (inches) Saturation Present? (including capillary fringe) No Depth (inches) 0.0

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:



Project/Site: <u>Transmission Operations Center</u>	City/County: Owensboro/Daviess Date: 18-May-23
Applicant/Owner: BREC	State: KY Sampling Point: 1MW6
Investigators: Keith Michalski	Sec, Twp, Rng: S NA, T NA, R NA
Landform: Flat	Local Relief: Concave Slope %: 0.25
Subregion: LRR	Lat: <u>37.77046 N</u> Lon: <u>-87.16386 W</u> Datum: <u>Decimal Degrees</u>
Soil Map Unit Name:	NWI Classification: PFO Area Ft <sup>2</sup> : 5,261
Are climatic/hydrologic conditions on this	Remarks (If No):
site typical for this time of year? Yes	
Are Vegetation □, Soil □, or Hydrology □ Signific	antly Disturbed? Are "Normal Circumstances" present: Yes
Are Vegetation □, Soil □, or Hydrology □ Natural	ly Problematic? Remarks:
SUMMARY OF FINDINGS Attach site map	showing sampling locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes	Is the Sampled Area within a Wetland? Yes
Hydric Soil Present? Yes	
Wetland Hydrology Present? <u>Yes</u>	
Remarks: Old drainage ditch wetland. Drains wes	t under and/or south along Highway 60 bypass.
_	

Tree Stratum Plot Size: Unit	Absolute % Cover:	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. Quercus palustris	50.0	Yes	FACW	Number of Dominant Species that
Liquidambar styraciflua	10.0	No	FAC	are OBL, FACW or FAC: 4 A
3. Carya laciniosa	10.0	No	FAC	Total Number of Dominant Species
4. Diospyros virginiana	10.0	No	FAC	across all Strata: 6 B
5. Acer rubrum	10.0	No	FAC	Percent of Dominant Species that
	90.0 = To	otal Cover		are OBL, FACW or FAC: 66.7 A/B
Sapling/Shrub Stratum Plot Size: Unit				Prevalence Index Worksheet:
1. Acer rubrum	5.0	Yes	FAC	Total % Cover of: Multiply by:
2. Corylus americana	5.0	Yes	FACU	OBL <u>0</u> x1= <u>0</u>
3. Celtis laevigata	3.0	No	FACW	FACW <u>0</u> x2= <u>0</u>
4. Quercus macrocarpa	2.0	No	FAC	FAC <u>0</u> x3= <u>0</u>
5.				FACU <u>0</u> x4= <u>0</u>
_	15.0 = To	otal Cover		UPL <u>0</u> x5= <u>0</u>
Herb Stratum Plot Size: Unit				TOTALS (A) 0 (B) 0
1. Toxicodendron radicans	5.0	Yes	FAC	
2. Euonymus fortunei	5.0	Yes	NI	Prevalence Index = B/A =
3. Parthenocissus quinquefolia	2.0	No	FACU	Hydrophytic Vegetation
4. Boehmeria cylindrica	2.0	No	FACW	Indicators:
5. Smilax rotundifolia	2.0	No	FAC	☑ Dominance Test is >50% ੍ਰ
6. Campsis radicans	1.0	No	FAC	$\square$ Prevalence Index is $\leq 3.0^{\circ}$
7. Cinna arundinacea	1.0	No	FACW	☐ Morphologic Adaptations <sup>1</sup>
8.				☐ Problematic Hydrophytic
9.				Vegetation <sup>1</sup> (Explain)
10				
_	18.0 = Te	otal Cover		<sup>1</sup> Indicators of hydric soil & wetland
Woody Vine Stratum Plot Size: Unit				hydrology must be present, unless disturbed or problematic.
1. Smilax rotundifolia	5.0	Yes	FAC	Hydrophytic Vegetation
2.				Present? Yes
	5.0 = To	otal Cover		1.000.001
Remarks:				

Sampling Point: 1MW6 **SOIL** Profile Description: (Describe to depth needed to document the indicator or confirm the absence of indicators.) Redox Features Matrix Depth Color Color Loc<sup>2</sup> Type<sup>1</sup> (inches) (Moist) % (Moist) % Texture Remarks 0-210YR 4/2 100 Loamy 7.5YR 5/8 15 С 2-12 10YR 5/1 85 M Clavev <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains, <sup>2</sup> Location; PL=Pore Lining, M=Matrix, **Hvdric Soil Indicators: Indicators for Problematic Hydric** Soils 3: ☐ Red Parent Material (TF2) ☐ Histosol (A1) Sandy Gleved Matrix (S4) ☐ Histic Epipedon (A2) Sandy Redox (S5) □ Very Shallow Dark Surface (TF12) ☐ Black Histic (A3) Stripped Matrix (S6) ☐ Other (Explain in Remarks) ☐ Hydrogen Sulfide (A4) ☐ Dark Surface (S7) ☐ Stratified Layers (A5) ☐ Loamy Gleved Matrix (F2) ☐ 2 cm Muck (A10) (LRR N) <sup>3</sup>Indicators of hydrophytic vegetation Depleted Matrix (F3) ☐ Depleted Below Dark Surface (A11) Redox Dark Surface (F6) and wetland hydrology must be present, unless disturbed or ☐ Thick Dark Surface (A12) Depleted Dark Surface (F7) ☐ Sandy Mucky Mineral (S1) (LRR N) problematic. Redox Depressions (F8) Iron-Manganese Masses (F12)(LRR N) Restrictive Layer (if observed): Type: 0 Hydric Soil Present? Yes Depth (inches): 0 Remarks: **Hydrology Wetland Hydrology Indicators:** Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) ☐ Surface Water (A1) ✓ Water Stained Leaves (B9) ☐ High Water Table (A2) Sparsely Vegetated Concave Surface (B8) ☐ Aquatic Fauna (B13) ✓ Drainage Patterns (B10) ✓ Saturation (A3) ☐ True Aquatic Plants (B14) Moss Trim Lines (B16) ✓ Water Marks (B1) ☐ Hvdrogen Sulfide Odor (C1) ✓ Sediment Deposits (B2) Dry-Season Water Table (C2) Oxidized Rhizospheres on Live ☐ Drift Deposits (B3) ✓ Crayfish Burrows (C8) Roots (C3) ☐ Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) ☐ Iron Deposits (B5) ☐ Recent Iron Reduction in Tilled Stunted or Stressed Plants (D1) ☐ Inundation Visible From Aerial Soils (C6) ✓ Geomorphic Position (D2) Imagery (B7) ☐ Thin Muck Surface (C7) Shallow Aquitard (D3) ☐ Other (Explain in Remarks) Microtopographic Reilef (D4) ▼ FAC-Neutral Test (D5) **Field Observations:** Surface Water Present? No Depth (inches) 0.0 Water Table Present? No 0.0 Wetland Hydrology Present? Depth (inches) Saturation Present? (including capillary fringe) Yes Depth (inches) 4.0 Yes

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:

Sampling Point: 1MW6



Project/Site: <u>Transmission Operations Center</u>	City/County: Owensboro/Daviess Date: 18-May-23
Applicant/Owner: BREC	State: KY Sampling Point: 1MW6U
Investigators: Keith Michalski	Sec, Twp, Rng: <u>S NA, T NA, R NA</u>
Landform: Flat	Local Relief: Flat Slope %: 0.5
Subregion: LRR	Lat: 37.77043 N Lon: -87.16388 W Datum: Decimal Degrees
Soil Map Unit Name:	NWI Classification: Area Ft <sup>2</sup> :
Are climatic/hydrologic conditions on this	Remarks (If No):
site typical for this time of year? Yes	
Are Vegetation □, Soil □, or Hydrology □ Signific	cantly Disturbed? Are "Normal Circumstances" present: Yes
Are Vegetation □, Soil □, or Hydrology □ Natural	Ily Problematic? Remarks:
SUMMARY OF FINDINGS Attach site map	showing sampling locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes	Is the Sampled Area within a Wetland? No
Hydric Soil Present? No	
Wetland Hydrology Present? <u>No</u>	
Remarks: Upland assessment located in woods n	next to ditch wetland 1MW6.

tor Dominance Test Worksheet:
Number of Dominant Species that
are OBL, FACW or FAC: 5 A
Total Number of Dominant Species
across all Strata: 8 B
Percent of Dominant Species that
are OBL, FACW or FAC: 62.5 A/B
Prevalence Index Worksheet:
Total % Cover of: Multiply by:
OBL <u>0</u> x1= <u>0</u>
FACW <u>0</u> x2= <u>0</u>
/ FAC <u>0</u> x3= <u>0</u>
FACU <u>0</u> x4= <u>0</u>
UPL <u>0</u> x5= <u>0</u>
TOTALS (A) 0 (B) 0
Prevalence Index = B/A =
Hydrophytic Vegetation
Indicators:
✓ Dominance Test is >50%
□ Prevalence Index is ≤ 3.0 <sup>1</sup>
☐ Morphologic Adaptations <sup>1</sup>
☐ Problematic Hydrophytic
Vegetation <sup>1</sup> (Explain)
<sup>1</sup> Indicators of hydric soil & wetland
hydrology must be present, unless disturbed or problematic.
Hydrophytic Vegetation
Present? Yes

Sampling Point: 1MW6U **SOIL** Profile Description: (Describe to depth needed to document the indicator or confirm the absence of indicators.) Redox Features Matrix Depth Color Color Type<sup>1</sup> Loc<sup>2</sup> % (inches) (Moist) % (Moist) Texture Remarks 0-410YR 4/4 100 Loamy 4-16 10YR 5/4 100 Loamy <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains, <sup>2</sup> Location; PL=Pore Lining, M=Matrix, **Hvdric Soil Indicators: Indicators for Problematic Hydric** Soils 3: ☐ Red Parent Material (TF2) ☐ Histosol (A1) Sandy Gleved Matrix (S4) ☐ Histic Epipedon (A2) Sandy Redox (S5) □ Very Shallow Dark Surface (TF12) ☐ Black Histic (A3) Stripped Matrix (S6) ☐ Other (Explain in Remarks) ☐ Hydrogen Sulfide (A4) Dark Surface (S7) ☐ Stratified Layers (A5) Loamy Gleved Matrix (F2) ☐ 2 cm Muck (A10) (LRR N) <sup>3</sup>Indicators of hydrophytic vegetation Depleted Matrix (F3) ☐ Depleted Below Dark Surface (A11) Redox Dark Surface (F6) and wetland hydrology must be present, unless disturbed or ☐ Thick Dark Surface (A12) Depleted Dark Surface (F7) ☐ Sandy Mucky Mineral (S1) (LRR N) problematic. Redox Depressions (F8) Iron-Manganese Masses (F12)(LRR N) Restrictive Layer (if observed): Type: Hydric Soil Present? No Depth (inches): Remarks: **Hydrology Wetland Hydrology Indicators:** Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) ☐ Surface Water (A1) Water Stained Leaves (B9) ☐ High Water Table (A2) Sparsely Vegetated Concave Surface (B8) ☐ Aquatic Fauna (B13) Drainage Patterns (B10) ☐ Saturation (A3) ☐ True Aquatic Plants (B14) Moss Trim Lines (B16) ☐ Water Marks (B1) ☐ Hvdrogen Sulfide Odor (C1) ☐ Sediment Deposits (B2) Dry-Season Water Table (C2) Oxidized Rhizospheres on Live ☐ Drift Deposits (B3) ☐ Crayfish Burrows (C8) Roots (C3) ☐ Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) ☐ Iron Deposits (B5) ☐ Recent Iron Reduction in Tilled Stunted or Stressed Plants (D1) ☐ Inundation Visible From Aerial Soils (C6) Geomorphic Position (D2) Imagery (B7) ☐ Thin Muck Surface (C7) Shallow Aquitard (D3) Microtopographic Reilef (D4) ☐ Other (Explain in Remarks) FAC-Neutral Test (D5) **Field Observations:** Surface Water Present? No Depth (inches) 0.0 Water Table Present? No 0.0 Wetland Hydrology Present? Depth (inches) Saturation Present? (including capillary fringe) No Depth (inches) 0.0 Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspection), if available: Remarks:



Project/Site: <u>Transmission Operations Center</u>	City/County: Owensboro/Daviess	Date: <u>16-May-23</u>
Applicant/Owner: BREC	State: <u>KY</u>	Sampling Point: 2MW1
Investigators: Keith Michalski	Sec, Twp, Rng: SNA, TNA, RNA	L
Landform: Flat	Local Relief: Concave	Slope %: <u>0.25</u>
Subregion: LRR	Lat: <u>37.77241 N</u> Lon: <u>-87.1580</u>	8 W Datum: Decimal Degrees
Soil Map Unit Name:	NWI Classification: PFO Are	ea Ft²: <u>18,456</u>
Are climatic/hydrologic conditions on this	Remarks (If No):	
site typical for this time of year? Yes	·	
Are Vegetation □, Soil □, or Hydrology □ Signification	antly Disturbed? Are "Normal C	Circumstances" present: <u>Yes</u>
Are Vegetation □, Soil □, or Hydrology □ Natural	ly Problematic? Remarks:	
SUMMARY OF FINDINGS Attach site map	showing sampling locations, tra	nsects, important features, etc.
Hydrophytic Vegetation Present? Yes		rithin a Wetland? Yes
Hydric Soil Present? Yes		
Wetland Hydrology Present? Yes		
Remarks: Large old drainage ditch.	•	
-		

Tree Stratum Plot Size: Unit	Absolute	Dominant	Indicator	Dominance Test Worksheet:
<u>-1100 Guatam</u>	% Cover:	Species?	<u>Status</u>	20mmano 100t Hornon
1. Populus deltoides	30.0	Yes	FAC	Number of Dominant Species that
2. Celtis laevigata	20.0	No	FACW	are OBL, FACW or FAC:5A
3. Liquidambar styraciflua	20.0	No	FAC	Total Number of Dominant Species
4. Quercus palustris	20.0	Yes	FACW	across all Strata: <u>6</u> B
5. Ulmus americana	10.0	No	FACW	Percent of Dominant Species that
	100.0 = To	otal Cover		are OBL, FACW or FAC: 83.3 A/B
Sapling/Shrub Stratum Plot Size: Unit				Prevalence Index Worksheet:
1. Celtis laevigata	10.0	Yes	FACW	Total % Cover of: Multiply by:
2. Ulmus americana	10.0	Yes	FACW	OBL <u>0</u> x1= <u>0</u>
3. Liquidambar styraciflua	5.0	No	FAC	FACW <u>0</u> x2= <u>0</u>
4. Fraxinus pennsylvanica	5.0	No	FACW	FAC <u>0</u> x3= <u>0</u>
5. Quercus bicolor	2.0	No	FACW	FACU <u>0</u> x4= <u>0</u>
	32.0 = To	otal Cover		UPL <u>0</u> x5= <u>0</u>
Hank Ctuatum Plat Cizar Unit				TOTALS
Herb Stratum Plot Size: Unit				(A) <u>0</u> (B) <u>0</u>
1. Euonymus fortunei	5.0	Yes	NI	Prevalence Index = B/A =
2. Campsis radicans	3.0	Yes	FAC	
3. Carex cristatella	2.0	No	FACW	Hydrophytic Vegetation
4. Toxicodendron radicans	2.0	No	FAC	Indicators:
5. Smilax rotundifolia	2.0	No	FAC	✓ Dominance Test is >50%
6.				☐ Prevalence Index is ≤ 3.0 <sup>1</sup>
7.				☐ Morphologic Adaptations <sup>1</sup>
8.				☐ Problematic Hydrophytic
9.				Vegetation <sup>1</sup> (Explain)
10				1
_	14.0 = To	otal Cover		<sup>1</sup> Indicators of hydric soil & wetland
Woody Vine Stratum Plot Size: Unit				hydrology must be present, unless disturbed or problematic.
1.				Hydrophytic Vegetation
2.				Present? Yes
	= To	otal Cover		
Remarks:				

SOIL Sampling Point: 2MW1

Profile De		cribe to	depth neede				ator or c	onfirm tl	ne absence of indicators.)
<b>5</b> "	Matrix Redox Features								
Depth	Color	0/	Color	0/	<b>-</b> 1	1	2	T4	Damanda
(inches)	(Moist)	<u>%</u>	(Moist)	<u>%</u>	Type <sup>1</sup>	Loc		<u>Texture</u>	<u>Remarks</u>
0-4	10YR 4/1	80	7.5YR 5/8	20	С	M		Loamy	
4-12	10YR 5/1	85	7.5YR 5/8	15	С	M		Loamy	
<sup>1</sup> Type: C=C	Concentration, D=I	Depletion	RM=Reduce	d Matrix. N	JS=Masked	I Sand G	rains 2	Location:	PL=Pore Lining, M=Matrix.
	il Indicators:		,						for Problematic Hydric
							S	oils³:	•
☐ Histoso	ol (A1)			Sandv Gl	leyed Matri	ix (S4)		Red Par	ent Material (TF2)
	Epipedon (A2)				edox (S5)	()			allow Dark Surface (TF12)
	Histic (A3)				Matrix (S6	)			xplain in Remarks) `
	en Sulfide (A4)				face (S7)	,		,	,
	ed Layers (À5)				leyed Matr	ix (F2)			
	luck (A10) (LRR	N)		Depleted	Matrix (F3	3)	3	Indicators	of hydrophytic vegetation
Deplete	ed Below Dark S	urface (A	<b>4</b> 11) $\square$	Redox Da	ark Surface	e (F6)			d hydrology must be
☐ Thick □	ark Surface (A1	2)		Depleted	Dark Surfa	ace (F7)			less disturbed or
☐ Sandy I	Mucky Mineral (	S1) (LR			epressions		•	oblemation	D.
				Iron-Man	ganese Ma	asses (F	-12 <b>)(LRF</b>	R N)	
Restrictive	e Layer (if obse	rved):							
Type: <u>0</u>		•							
Depth (incl	nes): <u>0</u>					Hydric	Soil Pre	esent? Y	<u>es</u>
Remarks:									
Hydrolog									
Wetland H	lydrology Indic	ators:				S	Secondar	y Indicato	ors
Primary In	ndicators (minim	um of on	e is required	; check a	III that appl	<sub>V)</sub> (r	minimum	n of two re	equired)
	Water (A1)						Surfac	e Soil Crack	(s (B6)
	ater Table (A2)		✓ Water St			ſ			d Concave Surface (B8)
✓ Flight W				Fauna (B				ge Patterns	
	Marks (B1)		☐ True Aqu		` '			Γrim LInes (	
	ent Deposits (B2)	١			Odor (C1) heres on L				r Table (C2)
	eposits (B3)	,	_ Roots (C	•	Heres on L			sh Burrows (	, ,
	lat or Crust (B4)				uced Iron (	-	= -		on Aerial Imagery (C9)
	posits (B5)				action in Til	. í :			
	ion Visible From	Aerial	Soils (C6						ed Plants (D1)
Imager		i / toriai		ck Surfac	e (C7)	l I	=	orphic Positi	` '
imagor	, (5.)				` '	l I		w Aquitard (	•
			□ Other (E	xpiain in	Remarks)	l I		opographic l eutral Test	
						l	V I AC-N	eutiai Test	(53)
Field Obse					D 41 /	(!	0.0		
	ater Present? N					(inches)	_	_	Libertonia December 10
	le Present? Yes		II <b></b>	/		(inches)	_		d Hydrology Present?
	Present? (includ				•	(inches)	_		
Describe F	Recorded Data (S	Stream g	jauge, monito	oring well	, aerial pho	otos, pre	evious in	spection)	, if available:
D									
Remarks:									



Project/Site: <u>Transmission Operations Center</u>	City/County: Owensboro/Daviess Date: 16-May-23
Applicant/Owner: BREC	State: KY Sampling Point: 2MW1U
Investigators: Keith Michalski	Sec, Twp, Rng: S NA, T NA, R NA
Landform: Flat	Local Relief: Convex Slope %: 0.5
Subregion: LRR	Lat: 37.77242 N Lon: -87.15808 W Datum: Decimal Degrees
Soil Map Unit Name:	NWI Classification: Area Ft <sup>2</sup> :
Are climatic/hydrologic conditions on this	Remarks (If No):
site typical for this time of year? Yes	
Are Vegetation □, Soil □, or Hydrology □ Signification	antly Disturbed? Are "Normal Circumstances" present: Yes
Are Vegetation □, Soil □, or Hydrology □ Naturall	ly Problematic? Remarks:
SUMMARY OF FINDINGS Attach site map	showing sampling locations, transects, important features, etc.
Hydrophytic Vegetation Present? No	Is the Sampled Area within a Wetland? No
Hydric Soil Present? No	·
Wetland Hydrology Present? No	
Remarks: Upland assessment located on top of di	litch bank.
•	

VEGETATION: Scientific Names				
Tree Stratum Plot Size: Unit	Absolute <u>% Cover:</u>	Dominant Species?	Indicator <u>Status</u>	Dominance Test Worksheet:
1. Liquidambar styraciflua	60.0	Yes	FAC	Number of Dominant Species that
2. Celtis laevigata	10.0	No	FACW	are OBL, FACW or FAC: 2 A
3. Populus deltoides	10.0	No	FAC	Total Number of Dominant Species
4. Prunus serotina	10.0	No	FACU	across all Strata: 6 B
5.				Percent of Dominant Species that
_	90.0 = To	otal Cover		are OBL, FACW or FAC: 33.3 A/B
Sapling/Shrub Stratum Plot Size: Unit				Prevalence Index Worksheet:
1. Ligustrum obtusifolium	30.0	Yes	NI	Total % Cover of: Multiply by:
2. Lonicera tatarica	20.0	Yes	FACU	OBL <u>0</u> x1= <u>0</u>
3. Euonymous alatus	15.0	Yes	NI	FACW <u>15</u> x2= <u>30</u>
4. Celtis laevigata	5.0	No	FACW	FAC <u>95</u> x3= <u>285</u>
5.				FACU <u>77</u> x4= <u>308</u>
_	70.0 = To	otal Cover		UPL <u>0</u> x5= <u>0</u>
Herb Stratum Plot Size: Unit				TOTALS (B) 623
1. Euonymus fortunei	70.0	Yes	NI	
2. Toxicodendron radicans	10.0	No	FAC	Prevalence Index = B/A = 3.3
3. Galium aparine	4.0	No	FACU	Hydrophytic Vegetation
4. Geum canadense	3.0	No	FACU	Indicators:
5. Chasmanthium latifolium	5.0	No	FACU	☐ Dominance Test is >50% ੍ਰ
6. Parthenocissus quinquefolia	2.0	No	FACU	☐ Prevalence Index is ≤ 3.0 <sup>1</sup>
7. Rosa multiflora	3.0	No	FACU	☐ Morphologic Adaptations¹
8.				☐ Problematic Hydrophytic
9.				Vegetation <sup>1</sup> (Explain)
10				
	97.0 = To	otal Cover		<sup>1</sup> Indicators of hydric soil & wetland
Woody Vine Stratum Plot Size: Unit				hydrology must be present, unless disturbed or problematic.
1. Euonymus fortunei	10.0	Yes	NI	Hydrophytic Vegetation
2.				Present? No
	10.0 = To	otal Cover		
Remarks:				

Sampling Point: 2MW1U **SOIL** Profile Description: (Describe to depth needed to document the indicator or confirm the absence of indicators.) Redox Features Matrix Depth Color Color Type<sup>1</sup> Loc<sup>2</sup> % (inches) (Moist) % (Moist) Texture Remarks 0-6 10YR 4/2 100 Loamy 6-16 10YR 5/3 100 Loamy <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains, <sup>2</sup> Location; PL=Pore Lining, M=Matrix, **Hvdric Soil Indicators: Indicators for Problematic Hydric** Soils 3: ☐ Red Parent Material (TF2) ☐ Histosol (A1) Sandy Gleved Matrix (S4) ☐ Histic Epipedon (A2) Sandy Redox (S5) □ Very Shallow Dark Surface (TF12) ☐ Black Histic (A3) Stripped Matrix (S6) ☐ Other (Explain in Remarks) ☐ Hydrogen Sulfide (A4) Dark Surface (S7) ☐ Stratified Layers (A5) Loamy Gleved Matrix (F2) ☐ 2 cm Muck (A10) (LRR N) <sup>3</sup>Indicators of hydrophytic vegetation Depleted Matrix (F3) ☐ Depleted Below Dark Surface (A11) Redox Dark Surface (F6) and wetland hydrology must be present, unless disturbed or ☐ Thick Dark Surface (A12) Depleted Dark Surface (F7) ☐ Sandy Mucky Mineral (S1) (LRR N) problematic. Redox Depressions (F8) Iron-Manganese Masses (F12)(LRR N) Restrictive Layer (if observed): Type: Hydric Soil Present? No Depth (inches): Remarks: **Hydrology Wetland Hydrology Indicators:** Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) ☐ Surface Water (A1) Water Stained Leaves (B9) ☐ High Water Table (A2) Sparsely Vegetated Concave Surface (B8) ☐ Aquatic Fauna (B13) Drainage Patterns (B10) ☐ Saturation (A3) ☐ True Aquatic Plants (B14) Moss Trim Lines (B16) ☐ Water Marks (B1) ☐ Hvdrogen Sulfide Odor (C1) ☐ Sediment Deposits (B2) Dry-Season Water Table (C2) Oxidized Rhizospheres on Live ☐ Drift Deposits (B3) ☐ Crayfish Burrows (C8) Roots (C3) ☐ Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) ☐ Iron Deposits (B5) ☐ Recent Iron Reduction in Tilled Stunted or Stressed Plants (D1) ☐ Inundation Visible From Aerial Soils (C6) Geomorphic Position (D2) Imagery (B7) ☐ Thin Muck Surface (C7) Shallow Aquitard (D3) Microtopographic Reilef (D4) ☐ Other (Explain in Remarks) FAC-Neutral Test (D5) **Field Observations:** Surface Water Present? No Depth (inches) 0.0 Water Table Present? No 0.0 Wetland Hydrology Present? Depth (inches) Saturation Present? (including capillary fringe) No Depth (inches) 0.0 Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:



Project/Site: <u>Transmission Operations Center</u>	City/County: <u>Owensboro/Daviess</u> Date: <u>16-May-23</u>	
Applicant/Owner: BREC	State: KY Sampling Point: 2MW2	
Investigators: Keith Michalski	_ Sec, Twp, Rng: <u>S NA, T NA, R NA</u>	
Landform: Flat	_ Local Relief: Flat Slope %: 0	.5
Subregion: LRR	Lat: <u>37.77223 N</u> Lon: <u>-87.15747 W</u> Datum: <u>Decimal Deg</u>	rees
Soil Map Unit Name:	NWI Classification: PEM Area Ft <sup>2</sup> : 3,743	
Are climatic/hydrologic conditions on this	Remarks (If No):	
site typical for this time of year? Yes		
Are Vegetation ☐, Soil ☐, or Hydrology ☐ Signific	icantly Disturbed? Are "Normal Circumstances" present: Yes	
Are Vegetation □, Soil □, or Hydrology □ Natural	ally Problematic? Remarks:	
SUMMARY OF FINDINGS Attach site map	p showing sampling locations, transects, important features,	etc.
Hydrophytic Vegetation Present? Yes	Is the Sampled Area within a Wetland? Yes	
Hydric Soil Present? Yes		
Wetland Hydrology Present? Yes		
Remarks: Maintained right of way.	•	
- "		

Tree Stratum Plot Size: Unit	Absolute % Cover:	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1.				Number of Dominant Species that
2.				are OBL, FACW or FAC: <u>5</u> A
3.				Total Number of Dominant Species
4.				across all Strata: 5 B
5.				Percent of Dominant Species that
_	= T	otal Cover		are OBL, FACW or FAC: 100.0 A/B
Sapling/Shrub Stratum Plot Size: Unit				Prevalence Index Worksheet:
1. Populus deltoides	10.0	Yes	FAC	Total % Cover of: Multiply by:
2. Salix nigra	5.0	Yes	OBL	OBL <u>0</u> x1= <u>0</u>
3. Liquidambar styraciflua	5.0	No	FAC	FACW <u>0</u> x2= <u>0</u>
4. Fraxinus pennsylvanica	3.0	No	FACW	FAC <u>0</u> x3= <u>0</u>
5. Carya illinoinensis	2.0	No	FACU	FACU <u>0</u> x4= <u>0</u>
_	25.0 = T	otal Cover		UPL <u>0</u> x5= <u>0</u>
Herb Stratum Plot Size: Unit				TOTALS (A) 0 (B) 0
1. Carex vulpinoidea	20.0	Yes	OBL	
2. Juncus tenuis	10.0	Yes	FAC	Prevalence Index = B/A =
3. Carex cristatella	5.0	No	FACW	Hydrophytic Vegetation
4. Scirpus atrovirens	5.0	No	OBL	Indicators:
5. Eupatorium serotinum	5.0	No	FAC	☑ Dominance Test is >50% ੍ਰ
6. Rubus argutus	5.0	No	FACU	$\square$ Prevalence Index is $\leq 3.0^{\circ}$
7. Juncus effusus	2.0	No	FACW	☐ Morphologic Adaptations¹
8. Rumex crispus	3.0	No	FAC	☐ Problematic Hydrophytic
9. Lonicera japonica	5.0	Yes	FAC	Vegetation <sup>1</sup> (Explain)
10 Sorghum halepense	5.0	No	FACU	
_	65.0 = T	otal Cover		<sup>1</sup> Indicators of hydric soil & wetland
Woody Vine Stratum Plot Size: Unit				hydrology must be present, unless
1.				disturbed or problematic.
2.				Hydrophytic Vegetation
	= T	otal Cover		Present? Yes
Remarks:				•

Sampling Point: 2MW2 **SOIL** Profile Description: (Describe to depth needed to document the indicator or confirm the absence of indicators.) Redox Features Matrix Depth Color Color Type<sup>1</sup> Loc<sup>2</sup> (inches) (Moist) % (Moist) % Texture Remarks 0 - 1210YR 5/2 90 7.5YR 5/8 10 С M Loamv <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains, <sup>2</sup> Location; PL=Pore Lining, M=Matrix, **Hvdric Soil Indicators: Indicators for Problematic Hydric** Soils 3: ☐ Red Parent Material (TF2) ☐ Histosol (A1) Sandy Gleved Matrix (S4) ☐ Histic Epipedon (A2) Sandy Redox (S5) □ Very Shallow Dark Surface (TF12) ☐ Black Histic (A3) Stripped Matrix (S6) ☐ Other (Explain in Remarks) ☐ Hydrogen Sulfide (A4) ☐ Dark Surface (S7) ☐ Stratified Layers (A5) ☐ Loamy Gleved Matrix (F2) ☐ 2 cm Muck (A10) (LRR N) <sup>3</sup>Indicators of hydrophytic vegetation Depleted Matrix (F3) ☐ Depleted Below Dark Surface (A11) Redox Dark Surface (F6) and wetland hydrology must be present, unless disturbed or ☐ Thick Dark Surface (A12) Depleted Dark Surface (F7) ☐ Sandy Mucky Mineral (S1) (LRR N) problematic. Redox Depressions (F8) Iron-Manganese Masses (F12)(LRR N) Restrictive Layer (if observed): Type: 0 **Hydric Soil Present?** Yes Depth (inches): 0 Remarks: **Hydrology Wetland Hydrology Indicators:** Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) ☐ Surface Water (A1) Water Stained Leaves (B9) ☐ High Water Table (A2) Sparsely Vegetated Concave Surface (B8) ☐ Aquatic Fauna (B13) ✓ Drainage Patterns (B10) ✓ Saturation (A3) ☐ True Aquatic Plants (B14) Moss Trim Lines (B16) ☐ Water Marks (B1) ☐ Hvdrogen Sulfide Odor (C1) ☐ Sediment Deposits (B2) ☐ Oxidized Rhizospheres on Live Dry-Season Water Table (C2) ☐ Drift Deposits (B3) ✓ Crayfish Burrows (C8) Roots (C3) ☐ Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) ☐ Iron Deposits (B5) ☐ Recent Iron Reduction in Tilled Stunted or Stressed Plants (D1) ☐ Inundation Visible From Aerial Soils (C6) ✓ Geomorphic Position (D2) Imagery (B7) ☐ Thin Muck Surface (C7) Shallow Aquitard (D3) ☐ Other (Explain in Remarks) Microtopographic Reilef (D4) ▼ FAC-Neutral Test (D5) **Field Observations:** Surface Water Present? No Depth (inches) 0.0 Water Table Present? No 0.0 Wetland Hydrology Present? Depth (inches) Saturation Present? (including capillary fringe) Yes Depth (inches) 2.0 Yes Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:



Project/Site: <u>Transmission Operations Center</u>	City/County: Owensboro/Daviess Date: 16-May-23
Applicant/Owner: BREC	State: <u>KY</u> Sampling Point: <u>2MW2U</u>
Investigators: Keith Michalski	Sec, Twp, Rng: <u>S NA, T NA, R NA</u>
Landform: Flat	Local Relief: Flat Slope %: 0.5
Subregion: LRR	Lat: <u>37.77223 N</u> Lon: <u>-87.15747 W</u> Datum: <u>Decimal Degrees</u>
Soil Map Unit Name:	NWI Classification: Area Ft2:
Are climatic/hydrologic conditions on this	Remarks (If No):
site typical for this time of year? Yes	
Are Vegetation □, Soil □, or Hydrology □ Signification	antly Disturbed? Are "Normal Circumstances" present: Yes
Are Vegetation □, Soil □, or Hydrology □ Naturall	ly Problematic? Remarks:
SUMMARY OF FINDINGS Attach site map	showing sampling locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes	Is the Sampled Area within a Wetland? No
Hydric Soil Present? No	
Wetland Hydrology Present? <u>No</u>	
Remarks: Upland assessment located in tree line	to the west along ditch wetland 2MW1.
·	-

VEGETATION: Scientific Names				
Tree Stratum Plot Size: Unit	Absolute <u>% Cover:</u>	Dominant Species?	Indicator <u>Status</u>	Dominance Test Worksheet:
Liquidambar styraciflua	25.0	Yes	FAC	Number of Dominant Species that
2. Fraxinus pennsylvanica	20.0	Yes	FACW	are OBL, FACW or FAC: 8 A
3. Sassafras albidum	10.0	No	FACU	Total Number of Dominant Species
4.				across all Strata: 9 B
5.				Percent of Dominant Species that
	55.0 = To	otal Cover		are OBL, FACW or FAC: 88.9 A/B
Sapling/Shrub Stratum Plot Size: Unit				Prevalence Index Worksheet:
1. Liquidambar styraciflua	20.0	Yes	FAC	Total % Cover of: Multiply by:
2. Fraxinus pennsylvanica	20.0	Yes	FACW	OBL <u>0</u> x1= <u>0</u>
3. Ulmus rubra	5.0	No	FAC	FACW <u>0</u> x2= <u>0</u>
4. Juniperus virginiana	5.0	No	FACU	FAC <u>0</u> x3= <u>0</u>
5. Ligustrum obtusifolium	5.0	No	NI	FACU <u>0</u> x4= <u>0</u>
	55.0 = To	otal Cover		UPL <u>0</u> x5= <u>0</u>
Herb Stratum Plot Size: Unit				TOTALS (A) 0 (B) 0
1. Cinna arundinacea	10.0	No	FACW	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
2. Toxicodendron radicans	25.0	Yes	FAC	Prevalence Index = B/A =
3. Euonymus fortunei	20.0	Yes	NI	Hydrophytic Vegetation
4. Lonicera japonica	20.0	Yes	FAC	Indicators:
5. Campsis radicans	5.0	No	FAC	✓ Dominance Test is >50%
6.				$\square$ Prevalence Index is $\leq 3.0^1$
7.				☐ Morphologic Adaptations <sup>1</sup>
8.				☐ Problematic Hydrophytic
9.				Vegetation <sup>1</sup> (Explain)
10				
<u> </u>	80.0 = To	otal Cover		<sup>1</sup> Indicators of hydric soil & wetland
Woody Vine Stratum Plot Size: Unit				hydrology must be present, unless disturbed or problematic.
1. Lonicera japonica	5.0	Yes	FAC	Hydrophytic Vegetation
2. Campsis radicans	5.0	Yes	FAC	Present? Yes
_	10.0 = To	otal Cover		
Remarks:				

Sampling Point: 2MW2U **SOIL** Profile Description: (Describe to depth needed to document the indicator or confirm the absence of indicators.) Redox Features Matrix Depth Color Color Type<sup>1</sup> Loc<sup>2</sup> % (inches) (Moist) % (Moist) Texture Remarks 0-16 10YR 4/2 100 Loamv <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains, <sup>2</sup> Location; PL=Pore Lining, M=Matrix, **Hvdric Soil Indicators: Indicators for Problematic Hydric** Soils 3: ☐ Red Parent Material (TF2) ☐ Histosol (A1) Sandy Gleved Matrix (S4) ☐ Histic Epipedon (A2) Sandy Redox (S5) □ Very Shallow Dark Surface (TF12) ☐ Black Histic (A3) Stripped Matrix (S6) ☐ Other (Explain in Remarks) ☐ Hydrogen Sulfide (A4) Dark Surface (S7) ☐ Stratified Layers (A5) Loamy Gleved Matrix (F2) ☐ 2 cm Muck (A10) (LRR N) <sup>3</sup>Indicators of hydrophytic vegetation Depleted Matrix (F3) ☐ Depleted Below Dark Surface (A11) Redox Dark Surface (F6) and wetland hydrology must be present, unless disturbed or ☐ Thick Dark Surface (A12) Depleted Dark Surface (F7) ☐ Sandy Mucky Mineral (S1) (LRR N) problematic. Redox Depressions (F8) Iron-Manganese Masses (F12)(LRR N) Restrictive Layer (if observed): Type: Hydric Soil Present? No Depth (inches): Remarks: Hydrology **Wetland Hydrology Indicators:** Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) ☐ Surface Water (A1) Water Stained Leaves (B9) ☐ High Water Table (A2) Sparsely Vegetated Concave Surface (B8) ☐ Aquatic Fauna (B13) Drainage Patterns (B10) ☐ Saturation (A3) ☐ True Aquatic Plants (B14) Moss Trim Lines (B16) ☐ Water Marks (B1) ☐ Hvdrogen Sulfide Odor (C1) ☐ Sediment Deposits (B2) Dry-Season Water Table (C2) Oxidized Rhizospheres on Live ☐ Drift Deposits (B3) Crayfish Burrows (C8) Roots (C3) ☐ Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) ☐ Iron Deposits (B5) ☐ Recent Iron Reduction in Tilled Stunted or Stressed Plants (D1) ☐ Inundation Visible From Aerial Soils (C6) Geomorphic Position (D2) Imagery (B7) ☐ Thin Muck Surface (C7) Shallow Aquitard (D3) Microtopographic Reilef (D4) ☐ Other (Explain in Remarks) ▼ FAC-Neutral Test (D5) **Field Observations:** Surface Water Present? No Depth (inches) 0.0 Water Table Present? No 0.0 Wetland Hydrology Present? Depth (inches) Saturation Present? (including capillary fringe) No Depth (inches) 0.0 Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspection), if available: Remarks:

Sampling Point: 2MW2U



Project/Site: <u>Transmission Operations Center</u>	City/County: Owensboro/Daviess Date: 22-May-23
Applicant/Owner: BREC	State: KY Sampling Point: 2AW3
Investigators: Keith Michalski	Sec, Twp, Rng: S NA, T NA, R NA
Landform: Flat	Local Relief: Convex Slope %: 0.25
Subregion: LRR	Lat: <u>37.77141 N</u> Lon: <u>-87.15703 W</u> Datum: <u>Decimal Degrees</u>
Soil Map Unit Name: Melvin silt loam	NWI Classification: PUBG Area Ft <sup>2</sup> : 7,107
Are climatic/hydrologic conditions on this	Remarks (If No):
site typical for this time of year? Yes	
Are Vegetation ✓, Soil □, or Hydrology □ Signific	antly Disturbed? Are "Normal Circumstances" present: No
Are Vegetation □, Soil □, or Hydrology □ Natural	ly Problematic? Remarks: Agricultural Drain.
SUMMARY OF FINDINGS Attach site map	showing sampling locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes	Is the Sampled Area within a Wetland? Yes
Hydric Soil Present? Yes	
Wetland Hydrology Present? Yes	
Remarks: Non-farmed, shallow agricultural drain	located within mapped hydric soils. Width = 3 ft.
	• • •

Tree Stratum Plot Size: Unit	Absolute % Cover:	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1.				Number of Dominant Species that
2.				are OBL, FACW or FAC:1A
3.				Total Number of Dominant Species
4.				across all Strata: 2 B
5.				Percent of Dominant Species that
	= Te	otal Cover		are OBL, FACW or FAC: 50.0 A/B
Sapling/Shrub Stratum Plot Size: Unit				Prevalence Index Worksheet: Total % Cover of: Multiply by:
1.				OBL 1 x1= 1
2.				FACW $\frac{1}{3}$ $x^{1-}$ $\frac{1}{6}$
3.				$\begin{array}{cccccccccccccccccccccccccccccccccccc$
4.				FACU $\frac{1}{2}$ $x4=\frac{3}{8}$
5.				$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	= Te	otal Cover		TOTALS X5- 0
Herb Stratum Plot Size: Unit				(A) <u>7</u> (B) <u>18</u>
1. Amaranthus rudis	2.0	Yes	FACW	Durandan as Indan - D/A -
2. Packera glabella	1.0	No	OBL	Prevalence Index = B/A = 2.6
3. Xanthium strumarium	1.0	No	FAC	Hydrophytic Vegetation
4. Persicaria maculosa	1.0	No	FACW	Indicators:
5. Poa annua	2.0	Yes	FACU	☐ Dominance Test is >50%
6.				✓ Prevalence Index is ≤ 3.0¹
7.				☐ Morphologic Adaptations <sup>1</sup>
8.				☐ Problematic Hydrophytic
9.				Vegetation <sup>1</sup> (Explain)
10				1
	7.0 = To	otal Cover		<sup>1</sup> Indicators of hydric soil & wetland
Woody Vine Stratum Plot Size: Unit				hydrology must be present, unless disturbed or problematic.
1.				Hydrophytic Vegetation
2.				Present? Yes
	= Te	otal Cover		
Remarks:				

Sampling Point: 2AW3 **SOIL** Profile Description: (Describe to depth needed to document the indicator or confirm the absence of indicators.) Redox Features Matrix Depth Color Color Type<sup>1</sup> Loc<sup>2</sup> (inches) (Moist) % (Moist) % Texture Remarks 0 - 1210YR 5/1 85 7.5YR 5/8 15 С M Loamv <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains, <sup>2</sup> Location; PL=Pore Lining, M=Matrix, **Hvdric Soil Indicators: Indicators for Problematic Hydric** Soils 3: ☐ Red Parent Material (TF2) ☐ Histosol (A1) Sandy Gleved Matrix (S4) ☐ Histic Epipedon (A2) Sandy Redox (S5) □ Very Shallow Dark Surface (TF12) ☐ Black Histic (A3) Stripped Matrix (S6) ☐ Other (Explain in Remarks) ☐ Hydrogen Sulfide (A4) ☐ Dark Surface (S7) ☐ Stratified Layers (A5) ☐ Loamy Gleved Matrix (F2) ☐ 2 cm Muck (A10) (LRR N) <sup>3</sup>Indicators of hydrophytic vegetation Depleted Matrix (F3) ☐ Depleted Below Dark Surface (A11) Redox Dark Surface (F6) and wetland hydrology must be present, unless disturbed or ☐ Thick Dark Surface (A12) Depleted Dark Surface (F7) ☐ Sandy Mucky Mineral (S1) (LRR N) problematic. Redox Depressions (F8) Iron-Manganese Masses (F12)(LRR N) Restrictive Layer (if observed): Type: 0 Hydric Soil Present? Yes Depth (inches): 0 Remarks: **Hydrology Wetland Hydrology Indicators:** Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) ☐ Surface Water (A1) Water Stained Leaves (B9) ☐ High Water Table (A2) Sparsely Vegetated Concave Surface (B8) ☐ Aquatic Fauna (B13) ✓ Drainage Patterns (B10) ✓ Saturation (A3) ☐ True Aquatic Plants (B14) Moss Trim Lines (B16) ☐ Water Marks (B1) ☐ Hvdrogen Sulfide Odor (C1) ✓ Sediment Deposits (B2) ☐ Oxidized Rhizospheres on Live ☐ Dry-Season Water Table (C2) ☐ Drift Deposits (B3) ✓ Crayfish Burrows (C8) Roots (C3) ✓ Algal Mat or Crust (B4) Presence of Reduced Iron (C4) ✓ Saturation Visible on Aerial Imagery (C9) ✓ Iron Deposits (B5) ☐ Recent Iron Reduction in Tilled Stunted or Stressed Plants (D1) ☐ Inundation Visible From Aerial Soils (C6) ✓ Geomorphic Position (D2) Imagery (B7) ☐ Thin Muck Surface (C7) Shallow Aquitard (D3) ☐ Other (Explain in Remarks) Microtopographic Reilef (D4) FAC-Neutral Test (D5) **Field Observations:** Surface Water Present? No Depth (inches) 0.0 Water Table Present? No 0.0 Wetland Hydrology Present? Depth (inches) Saturation Present? (including capillary fringe) Yes Depth (inches) 1.0 Yes Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspection), if available:



				stern Mountains and Piedmont
Project/Site: <u>Transmission Operations Center</u>	City/Cou	nty: Owens		
Applicant/Owner: BREC			State: <u>k</u>	
Investigators: Keith Michalski			IA, T NA, R	
Landform: Flat	Local Re	elief: <u>Conve</u>	X	Slope %: 1
Subregion: <u>LRR</u>	Lat: <u>37.7</u>	77157 N	Lon: <u>-87.18</u>	5634 W Datum: Decimal Degrees
Soil Map Unit Name:				Area Ft²:
Are climatic/hydrologic conditions on this	Remarks	s (If No):		
site typical for this time of year? Yes				10:
Are Vegetation ✓, Soil ☐, or Hydrology ☐ Signif				al Circumstances" present: <u>Yes</u>
Are Vegetation □, Soil □, or Hydrology □ Natur	ally Problen	natic?	Remarks: <u>A</u>	Agricultural Field.
SUMMARY OF FINDINGS Attach site ma	an chawing	, campling	locations	transacts important foatures etc
Hydrophytic Vegetation Present? No	ap Snowing	Is the St	empled Ares	a within a Wetland? No
Hydric Soil Present? No		13 1116 00	ampied Area	a within a wetland: No
Wetland Hydrology Present? No				
Remarks: Upland assessment located in crop fi	old SE of w	otland acc	ocomont	
Nemarks: Opiand assessment located in crop in	eiu, se oi w	relianu assi	essilielit.	
VEGETATION: Scientific Names				
<u>Tree Stratum</u> Plot Size: <u>Unit</u>	Absolute	Dominant		Dominance Test Worksheet:
	% Cover:	Species?	<u>Status</u>	
1. 2.				Number of Dominant Species that
3.				are OBL, FACW or FAC: 0 A
4.				Total Number of Dominant Species
5.				across all Strata: 1 B
5.	- To	tal Cover		Percent of Dominant Species that are OBL, FACW or FAC: 0.0 A/B
	- 10	ital Covel		· · · · · · · · · · · · · · · · · · ·
Sapling/Shrub Stratum Plot Size: Unit				Prevalence Index Worksheet:
1.				Total % Cover of: Multiply by:
2.				OBL <u>0</u> x1= <u>0</u>
3.				FACW <u>0</u> x2= <u>0</u>
4.				FAC <u>0</u> x3= <u>0</u>
5.				FACU <u>0</u> x4= <u>0</u>
	= To	tal Cover		UPL <u>0</u> x5= <u>0</u>
Herb Stratum Plot Size: Unit				TOTALS (A) 0 (B) 0
1. Zea mays	20.0	Yes	NI	(A) <u>0</u> (B) <u>0</u>
2.	20.0	163	INI	Prevalence Index = B/A =
3.				Hydrophytic Vegetation
4.				Indicators:
5.				☐ Dominance Test is >50%
6.				☐ Prevalence Index is ≤ 3.0 <sup>1</sup>
7.				☐ Morphologic Adaptations <sup>1</sup>
8.				☐ Problematic Hydrophytic
9.				Vegetation <sup>1</sup> (Explain)
10				
	20.0 = To	tal Cover		<sup>1</sup> Indicators of hydric soil & wetland
Woody Vine Stratum Plot Size: Unit				hydrology must be present, unless
				disturbed or problematic.
1.				Hydrophytic Vegetation
2.		ital Cover		Present? No
•	- 10	(N/Or		•

SOIL Sampling Point: 2AW3U

Profile Possible to death people to decument the indicator or confirm the absence of indicators.)

Profile De	scription: (Des <u>Matrix</u>		depth neede		cument the x Features		cator or	confirm t	he absence of indicators.)	)
Depth	Color		Color	1 (040	X i Gataroo			-		
(inches)	(Moist)	<u>%</u>	(Moist)	<u>%</u>	Type <sup>1</sup>	Lo	$c^2$	<u>Texture</u>	Remarks	
0-2	10YR 4/4	100	<del>*                                    </del>	_				Loamy		
2-15	10YR 5/4	100						Loamy		_
15-16+	10YR 6/3	90	7.5YR 5/6	10	С		M	Loamy		
10-101	10111 0/0		7.01100/0	10			VI	Loaning		
										_
										_
										_
<sup>1</sup> Type: C=C	Concentration, D=	-Depletion	n, RM=Reduced	Matrix, N	MS=Masked	Sand	Grains. 2	Location:	PL=Pore Lining, M=Matrix.	_
	il Indicators:	· ·	,	•					for Problematic Hydric	
☐ Histoso	I (A 1)			andy C	leyed Matri	iv (84)		_	ent Material (TF2)	
	pipedon (A2)				edox (S5)	IX (34)			allow Dark Surface (TF12)	
	listic (A3)				Matrix (S6	`			Explain in Remarks)	
	en Sulfide (A4)				face (S7)	)	_		Explain in Nemarks)	
	ed Layers (A5)				Bleyed Matr	riy (F2)	1			
	uck (A10) <b>(LRF</b>	5 M/		•	l Matrix (F3	٠,	'	<sup>3</sup> Indicators	s of hydrophytic vegetation	
	ed Below Dark	-			ark Surfac		,		d hydrology must be	
	ark Surface (A				Dark Surf	٠,			less disturbed or	
	Mucky Mineral			•	epressions	,		oroblemati		
Canay i	vidoky iviiriorai	(O1) <b>(L</b> 1			iganese Ma		•			
Postrictiv	E Layer (if obs	orvod):					(· · – <b>/ – ·</b>	,		_
Type:	E Layer (II ODS	erveu).								
Depth (incl	nes).					Hydri	c Soil P	resent? N	lo	
Remarks:	100).								_	_
rtemarks.										
Lydrolog	.,									
Hydrolog										_
wetiand H	lydrology Indi	cators:						ary Indicate		
Primary In	dicators (minim	num of o	ne is required;	check a	all that appl	y)	(minimu	m of two r	equired)	_
☐ Surface	Water (A1)		□ Water Sta	ained I e	eaves (B9)		Surfa	ce Soil Crac	ks (B6)	
	ater Table (A2)	)	☐ Aquatic F				Spar	sely Vegetate	ed Concave Surface (B8)	
☐ Saturati	` ,		☐ True Aqua	`	,		Drain	age Patterns	s (B10)	
	Marks (B1)				e Odor (C1)	١	☐ Moss	Trim Lines (	(B16)	
	nt Deposits (B2	2)			heres on L		Dry-S	Season Wate	r Table (C2)	
	posits (B3)	-,	_ Roots (C3		JIICICS OII E	-140		ish Burrows		
	at or Crust (B4	)	Presence	of Red	uced Iron (	C4)			on Aerial Imagery (C9)	
	posits (B5)	,			uction in Til		_		ed Plants (D1)	
	ion Visible Fror	n Aerial	Soils (C6)					norphic Posit	<b>'</b>	
Imagery			☐ Thin Mucl		ce (C7)			ow Aquitard (		
	, (= - )				` '			ow Aquitaru ( otopographic		
				piaiii iii	Remarks)			Neutral Test	, ,	
							V I AC-	ineutiai rest	(53)	↲
Field Obse					<b>5</b>	<i>,</i> .	, ,			
	ater Present?				Depth (	•		<u>.0</u>		
	le Present? No	_			Depth (	•	,		nd Hydrology Present?	
	Present? (inclu				Depth (	`	<i>'</i> — —	<u>.0 No</u>		Ц
Describe R	Recorded Data	(Stream	gauge, monitor	ring well	l, aerial pho	otos, p	revious	inspection	), if available:	
Remarks:										$\dashv$
Ī										

Sampling Point: 2AW3U



Project/Site: <u>Transmission Operations Center</u>	City/County: Owensboro/Daviess Date: 16-May-23					
Applicant/Owner: BREC	State: KY Sampling Point: 2MW4					
Investigators: Keith Michalski	Sec, Twp, Rng: S NA, T NA, R NA					
Landform: Depression	Local Relief: Concave Slope %: 1					
Subregion: LRR	Lat: 37.77157 N Lon: -87.15520 W Datum: Decimal Degrees					
Soil Map Unit Name:	NWI Classification: PFO Area Ft <sup>2</sup> : 6,053					
Are climatic/hydrologic conditions on this	Remarks (If No):					
site typical for this time of year? Yes						
Are Vegetation ☐, Soil ☐, or Hydrology ☐ Signification	cantly Disturbed? Are "Normal Circumstances" present: Yes					
Are Vegetation □, Soil □, or Hydrology □ Natural	Ily Problematic? Remarks:					
SUMMARY OF FINDINGS Attach site map	showing sampling locations, transects, important features, etc.					
Hydrophytic Vegetation Present? Yes	Is the Sampled Area within a Wetland? Yes					
Hydric Soil Present? Yes						
Wetland Hydrology Present? Yes						
Remarks: Old drainage ditch.						

<u>Tree Stratum</u> Plot Size: <u>Unit</u>	Absolute % Cover:	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. Quercus palustris	30.0	Yes	FACW	Number of Dominant Species that
Celtis laevigata	20.0	Yes	FACW	are OBL, FACW or FAC: 5 A
3. Acer rubrum	10.0	No	FAC	Total Number of Dominant Species
4. Ulmus americana	10.0	No	FACW	across all Strata: 8 B
5.			. , , , , , , , ,	Percent of Dominant Species that
_	70.0 = To	otal Cover		are OBL, FACW or FAC: 62.5 A/B
Sapling/Shrub Stratum Plot Size: Unit				Prevalence Index Worksheet:
1. Quercus palustris	10.0	Yes	FACW	Total % Cover of: Multiply by:
2. Celtis laevigata	5.0	No	FACW	OBL <u>0</u> x1= <u>0</u>
3. Carya illinoinensis	5.0	Yes	FACU	FACW <u>0</u> x2= <u>0</u>
4. Acer rubrum	5.0	No	FAC	FAC <u>0</u> x3= <u>0</u>
5.				FACU <u>0</u> x4= <u>0</u>
_	25.0 = To	otal Cover		UPL <u>0</u> x5= <u>0</u>
Herb Stratum Plot Size: Unit				TOTALS (A) 0 (B) 0
1. Euonymus fortunei	7.0	Yes	NI	(1)
2. Toxicodendron radicans	5.0	Yes	FAC	Prevalence Index = B/A =
3. Rumex crispus	2.0	No	FAC	Hydrophytic Vegetation
4. Vitis rotundifolia	3.0	No	FAC	Indicators:
5.				✓ Dominance Test is >50%
6.				$\square$ Prevalence Index is $\leq 3.0^1$
7.				☐ Morphologic Adaptations <sup>1</sup>
8.				☐ Problematic Hydrophytic
9.				Vegetation <sup>1</sup> (Explain)
10				
_	17.0 = To	otal Cover		<sup>1</sup> Indicators of hydric soil & wetland
Woody Vine Stratum Plot Size: Unit				hydrology must be present, unless disturbed or problematic.
1. Euonymus fortunei	5.0	Yes	NI	Hydrophytic Vegetation
2. Vitis rotundifolia	2.0	Yes	FAC	Present? Yes
_	$7.0 = T_0$	otal Cover		- 1000
Remarks:				1

Sampling Point: 2MW4 **SOIL** Profile Description: (Describe to depth needed to document the indicator or confirm the absence of indicators.) Redox Features Matrix Depth Color Color Type<sup>1</sup> Loc<sup>2</sup> (inches) (Moist) % (Moist) % Texture Remarks 0 - 1210YR 5/1 85 7.5YR 5/6 15 С M Clavev <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains, <sup>2</sup> Location; PL=Pore Lining, M=Matrix, **Hvdric Soil Indicators: Indicators for Problematic Hydric** Soils 3: ☐ Red Parent Material (TF2) ☐ Histosol (A1) Sandy Gleved Matrix (S4) ☐ Histic Epipedon (A2) Sandy Redox (S5) □ Very Shallow Dark Surface (TF12) ☐ Black Histic (A3) Stripped Matrix (S6) ☐ Other (Explain in Remarks) ☐ Hydrogen Sulfide (A4) ☐ Dark Surface (S7) ☐ Stratified Layers (A5) ☐ Loamy Gleved Matrix (F2) ☐ 2 cm Muck (A10) (LRR N) <sup>3</sup>Indicators of hydrophytic vegetation Depleted Matrix (F3) ☐ Depleted Below Dark Surface (A11) Redox Dark Surface (F6) and wetland hydrology must be present, unless disturbed or ☐ Thick Dark Surface (A12) Depleted Dark Surface (F7) ☐ Sandy Mucky Mineral (S1) (LRR N) problematic. Redox Depressions (F8) Iron-Manganese Masses (F12)(LRR N) Restrictive Layer (if observed): Type: 0 Hydric Soil Present? Yes Depth (inches): 0 Remarks: **Hydrology Wetland Hydrology Indicators:** Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) ☐ Surface Water (A1) ✓ Water Stained Leaves (B9) ☐ High Water Table (A2) ✓ Sparsely Vegetated Concave Surface (B8) ☐ Aquatic Fauna (B13) Drainage Patterns (B10) ✓ Saturation (A3) ☐ True Aquatic Plants (B14) Moss Trim Lines (B16) ✓ Water Marks (B1) ☐ Hvdrogen Sulfide Odor (C1) ☐ Sediment Deposits (B2) ☐ Oxidized Rhizospheres on Live Dry-Season Water Table (C2) ☐ Drift Deposits (B3) Crayfish Burrows (C8) Roots (C3) ✓ Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) ☐ Iron Deposits (B5) ☐ Recent Iron Reduction in Tilled Stunted or Stressed Plants (D1) ☐ Inundation Visible From Aerial Soils (C6) ✓ Geomorphic Position (D2) Imagery (B7) ☐ Thin Muck Surface (C7) Shallow Aquitard (D3) ☐ Other (Explain in Remarks) Microtopographic Reilef (D4) ▼ FAC-Neutral Test (D5) **Field Observations:** Surface Water Present? No Depth (inches) 0.0 Water Table Present? No 0.0 Wetland Hydrology Present? Depth (inches) Saturation Present? (including capillary fringe) Yes Depth (inches) 0.0 Yes Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspection), if available:



City/County: Owensboro/Daviess Date: 16-May-23							
State: <u>KY</u> Sampling Point: <u>2MW4U</u>							
Sec, Twp, Rng: S NA, T NA, R NA							
Local Relief: Convex Slope %: 3							
Lat: 37.77158 N Lon: -87.15521 W Datum: Decimal Degrees							
NWI Classification: Area Ft <sup>2</sup> :							
Remarks (If No):							
Are Vegetation , Soil , or Hydrology Significantly Disturbed? Are "Normal Circumstances" present: Yes							
y Problematic? Remarks:							
showing sampling locations, transects, important features, etc.							
Is the Sampled Area within a Wetland? No							
rm in tree line.							

Tree Stratum Plot Size: Unit	Absolute % Cover:	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. Celtis laevigata	20.0	Yes	FACW	Number of Dominant Species that
2. Ulmus americana	20.0	Yes	FACW	are OBL, FACW or FAC: 4 A
3. Prunus serotina	10.0	No	FACU	Total Number of Dominant Species
4. Robinia pseudoacacia	20.0	Yes	FACU	across all Strata: 7 B
5.	20.0	res	FACU	
5.	70.0 – T	atal Cavan		Percent of Dominant Species that
	70.0 - 10	otal Cover		are OBL, FACW or FAC: 57.1 A/B
Sapling/Shrub Stratum Plot Size: Unit				Prevalence Index Worksheet:
Celtis laevigata	10.0	Yes	FACW	Total % Cover of: Multiply by:
2. Acer negundo	5.0	Yes	FAC	OBL <u>0</u> x1= <u>0</u>
3.				FACW <u>0</u> x2= <u>0</u>
4.				FAC <u>0</u> x3= <u>0</u>
5.				FACU <u>0</u> x4= <u>0</u>
	15.0 = To	otal Cover		UPL <u>0</u> x5= <u>0</u>
				TOTALS
Herb Stratum Plot Size: Unit				(A) <u>0</u> (B) <u>0</u>
1. Euonymus fortunei	70.0	Yes	NI	B
2. Parthenocissus quinquefolia	15.0	No	FACU	Prevalence Index = B/A =
3. Lonicera japonica	5.0	No	FAC	Hydrophytic Vegetation
4. Rubus argutus	3.0	No	FACU	Indicators:
5. Cinna arundinacea	2.0	No	FACW	☑ Dominance Test is >50% ੍ਰ
6.				☐ Prevalence Index is ≤ 3.0 <sup>1</sup>
7.				☐ Morphologic Adaptations¹
8.				☐ Problematic Hydrophytic
9.				Vegetation <sup>1</sup> (Explain)
10				
_	95.0 = To	otal Cover		<sup>1</sup> Indicators of hydric soil & wetland
Woody Vine Stratum Plot Size: Unit				hydrology must be present, unless
1. Euonymus fortunei	25.0	Yes	NI	disturbed or problematic.
2.	20.0	100	111	Hydrophytic Vegetation Present? Yes
	25.0 = To	otal Cover		riesent? <u>res</u>
Remarks:				

Sampling Point: 2MW4U **SOIL** Profile Description: (Describe to depth needed to document the indicator or confirm the absence of indicators.) Redox Features Matrix Depth Color Color Type<sup>1</sup> Loc<sup>2</sup> % (inches) (Moist) % (Moist) Texture Remarks 0-16 10YR 5/2 100 Loamv <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains, <sup>2</sup> Location; PL=Pore Lining, M=Matrix, **Hvdric Soil Indicators: Indicators for Problematic Hydric** Soils 3: ☐ Red Parent Material (TF2) ☐ Histosol (A1) Sandy Gleved Matrix (S4) ☐ Histic Epipedon (A2) Sandy Redox (S5) □ Very Shallow Dark Surface (TF12) ☐ Black Histic (A3) Stripped Matrix (S6) ☐ Other (Explain in Remarks) ☐ Hydrogen Sulfide (A4) Dark Surface (S7) ☐ Stratified Layers (A5) Loamy Gleved Matrix (F2) ☐ 2 cm Muck (A10) (LRR N) <sup>3</sup>Indicators of hydrophytic vegetation Depleted Matrix (F3) ☐ Depleted Below Dark Surface (A11) Redox Dark Surface (F6) and wetland hydrology must be present, unless disturbed or ☐ Thick Dark Surface (A12) Depleted Dark Surface (F7) ☐ Sandy Mucky Mineral (S1) (LRR N) problematic. Redox Depressions (F8) Iron-Manganese Masses (F12)(LRR N) Restrictive Layer (if observed): Type: Hydric Soil Present? No Depth (inches): Remarks: **Hydrology Wetland Hydrology Indicators:** Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) ☐ Surface Water (A1) Water Stained Leaves (B9) ☐ High Water Table (A2) Sparsely Vegetated Concave Surface (B8) ☐ Aquatic Fauna (B13) Drainage Patterns (B10) ☐ Saturation (A3) ☐ True Aquatic Plants (B14) Moss Trim Lines (B16) ☐ Water Marks (B1) ☐ Hvdrogen Sulfide Odor (C1) ☐ Sediment Deposits (B2) Dry-Season Water Table (C2) Oxidized Rhizospheres on Live ☐ Drift Deposits (B3) Crayfish Burrows (C8) Roots (C3) ☐ Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) ☐ Iron Deposits (B5) ☐ Recent Iron Reduction in Tilled Stunted or Stressed Plants (D1) ☐ Inundation Visible From Aerial Soils (C6) Geomorphic Position (D2) Imagery (B7) ☐ Thin Muck Surface (C7) Shallow Aquitard (D3) Microtopographic Reilef (D4) ☐ Other (Explain in Remarks) ▼ FAC-Neutral Test (D5) **Field Observations:** Surface Water Present? No Depth (inches) 0.0 Water Table Present? No 0.0 Wetland Hydrology Present? Depth (inches) Saturation Present? (including capillary fringe) No Depth (inches) 0.0 Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspection), if available: Remarks:



Project/Site: <u>Transmission Operations Center</u>	City/Count	y: <u>Owens</u>	boro/Daviess	Date: <u>17-May-23</u>		
Applicant/Owner: BREC			State: KY	Sampling Point: 1AW2		
Investigators: Dakota Spruill	Sec, Twp,	Rng: S N	IA, T NA, R NA			
Landform: Flat	Local Reli	ef: Flat		Slope %: <u>0.5</u>		
Subregion: LRR	Lat: <u>37.76</u>	943 N	Lon: <u>-87.16252 V</u>	V Datum: Decimal Degrees		
Soil Map Unit Name:	NWI Class	sification:	Area F	-t²: <u>0</u>		
Are climatic/hydrologic conditions on this	Remarks	(If No):				
site typical for this time of year? Yes						
Are Vegetation ☐, Soil ☐, or Hydrology ☐ Significantly Disturbed? Are "Normal Circumstances" present: Yes						
Are Vegetation □, Soil □, or Hydrology □ Natural	ly Problema	atic? Remarks:				
SUMMARY OF FINDINGS Attach site map	showing	sampling	locations, transe	ects, important features, etc.		
Hydrophytic Vegetation Present? No		Is the Sa	ampled Area with	in a Wetland? No		
Hydric Soil Present? No						
Wetland Hydrology Present? No						
Remarks: Barrow Area.						

Tree Stratum Plot Size: Unit	Absolute % Cover:	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1.	<u>70 0010.</u>	<u> </u>	<u>otatao</u>	Number of Dominant Species that
2.				are OBL, FACW or FAC: 1 A
3.				Total Number of Dominant Species
4.				across all Strata: 2 B
5.				Percent of Dominant Species that
_	= T	otal Cover		are OBL, FACW or FAC: 50.0 A/B
Sapling/Shrub Stratum Plot Size: Unit				Prevalence Index Worksheet:  Total % Cover of: Multiply by:
1.				OBL 25 x1= 25
2.				$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
3.				$\begin{array}{cccccccccccccccccccccccccccccccccccc$
<u>4.</u> 5.				FACU 55 $x4 = 220$
5.		-4-1 0		$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
-	= 10	otal Cover		TOTALS — O NO — O
Herb Stratum Plot Size: Unit				(A) <u>80</u> (B) <u>245</u>
1. Poa annua	40.0	Yes	FACU	
2. Packera glabella	25.0	Yes	OBL	Prevalence Index = B/A = 3.06
3. Conyza canadensis	15.0	No	FACU	Hydrophytic Vegetation
4.				Indicators:
5.				☐ Dominance Test is >50% <sub>4</sub>
6.				$\square$ Prevalence Index is $\leq 3.0^1$
7.				☐ Morphologic Adaptations <sup>1</sup>
8.				☐ Problematic Hydrophytic
9.				Vegetation <sup>1</sup> (Explain)
10				
_	$80.0 = T_0$	otal Cover		<sup>1</sup> Indicators of hydric soil & wetland
Woody Vine Stratum Plot Size: Unit				hydrology must be present, unless disturbed or problematic.
1.				Hydrophytic Vegetation
2.				Present? No
_	= T	otal Cover		_
Remarks:				

Sampling Point: 1AW2 **SOIL** Profile Description: (Describe to depth needed to document the indicator or confirm the absence of indicators.) Redox Features Matrix Depth Color Color Loc<sup>2</sup> Type<sup>1</sup> (inches) (Moist) % (Moist) % Texture Remarks 0-6 10YR 4/4 100 Loamv 6-8 10YR 5/4 100 Loamy 8-16 10YR 6/3 7.5YR 5/6 C М 95 5 Loamv <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains, <sup>2</sup> Location; PL=Pore Lining, M=Matrix, **Hvdric Soil Indicators: Indicators for Problematic Hydric** Soils 3: ☐ Red Parent Material (TF2) ☐ Histosol (A1) Sandy Gleved Matrix (S4) ☐ Histic Epipedon (A2) Sandy Redox (S5) □ Very Shallow Dark Surface (TF12) ☐ Black Histic (A3) Stripped Matrix (S6) ☐ Other (Explain in Remarks) ☐ Hydrogen Sulfide (A4) Dark Surface (S7) ☐ Stratified Layers (A5) Loamy Gleved Matrix (F2) ☐ 2 cm Muck (A10) (LRR N) <sup>3</sup>Indicators of hydrophytic vegetation Depleted Matrix (F3) ☐ Depleted Below Dark Surface (A11) Redox Dark Surface (F6) and wetland hydrology must be present, unless disturbed or ☐ Thick Dark Surface (A12) Depleted Dark Surface (F7) ☐ Sandy Mucky Mineral (S1) (LRR N) problematic. Redox Depressions (F8) Iron-Manganese Masses (F12)(LRR N) Restrictive Layer (if observed): Type: 0 Hydric Soil Present? No Depth (inches): 0 Remarks: **Hydrology Wetland Hydrology Indicators:** Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) ☐ Surface Water (A1) Water Stained Leaves (B9) ☐ High Water Table (A2) Sparsely Vegetated Concave Surface (B8) ☐ Aquatic Fauna (B13) Drainage Patterns (B10) ☐ Saturation (A3) ☐ True Aquatic Plants (B14) Moss Trim Lines (B16) ☐ Water Marks (B1) ☐ Hvdrogen Sulfide Odor (C1) ☐ Sediment Deposits (B2) Dry-Season Water Table (C2) Oxidized Rhizospheres on Live ☐ Drift Deposits (B3) ☐ Crayfish Burrows (C8) Roots (C3) ☐ Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) ☐ Iron Deposits (B5) ☐ Recent Iron Reduction in Tilled Stunted or Stressed Plants (D1) ☐ Inundation Visible From Aerial Soils (C6) Geomorphic Position (D2) Imagery (B7) ☐ Thin Muck Surface (C7) Shallow Aquitard (D3) Microtopographic Reilef (D4) ☐ Other (Explain in Remarks) FAC-Neutral Test (D5) **Field Observations:** 

Depth (inches)

0.0

Remarks:

Surface Water Present? No



WETLAND DETERM	<b>OITANIN</b>	N DATA	FORM Eas	stern Mountains and Piedmont
Project/Site: Transmission Operations Center	_ City/Cou	nty: Owens		
Applicant/Owner: BREC			State: K	Y Sampling Point: 1AW3
Investigators: Keith Michalski, Dakota Spruill	_ Sec, Twp	o, Rng: <u>S N</u>	IA, T NA, R I	NA
Landform: Flat	Local Re	lief: Flat		Slope %: <u>0.5</u>
Subregion: LRR	Lat: <u>37.7</u>	6898 N	Lon: <u>-87.16</u>	0051 W Datum: Decimal Degrees
Soil Map Unit Name:	NWI Cla	ssification:		Area Ft <sup>2</sup> : 0
Are climatic/hydrologic conditions on this				
site typical for this time of year? Yes		· · -		
Are Vegetation ☐, Soil ☐, or Hydrology ☐ Signific	cantly Distu	ırbed?	Are "Norma	al Circumstances" present: Yes
Are Vegetation ☐, Soil ☐, or Hydrology ☐ Natura				· —
<b>3</b> —, <b>3</b> , <b>3</b>	,			
SUMMARY OF FINDINGS Attach site may	p showing	sampling	locations, t	transects, important features, etc.
Hydrophytic Vegetation Present? No		Is the Sa	ampled Area	a within a Wetland? No
Hydric Soil Present? No				
Wetland Hydrology Present? <u>No</u>				
Remarks: Barrow Area.		- 1		
VEGETATION: Scientific Names  Tree Stratum Plot Size: Unit A	haaluta	Dominant	Indicator	Dominance Test Worksheet:
<u> </u>	Absolute <u>6 Cover:</u>	Dominant Species?		
1.				Number of Dominant Species that
2.				are OBL, FACW or FAC:0A
3.				Total Number of Dominant Species
4.				across all Strata:1B
5.				Percent of Dominant Species that
	= To	tal Cover		are OBL, FACW or FAC: 0.0 A/B
Sapling/Shrub Stratum Plot Size: Unit				Prevalence Index Worksheet:
1.				Total % Cover of: Multiply by:
2.				OBL <u>0</u> x1= <u>0</u>
3.				FACW <u>0</u> x2= <u>0</u>
4.				FAC 0 x3= 0
5.				FACU 0 x4= 0
- 0.	= To	tal Cover		UPL 0 x5= 0
	- 10	iai Oovei		TOTALS
Herb Stratum Plot Size: Unit				(A) 0 (B) 0
1. Zea mays	20.0	Yes	NI	.,
	20.0	103	141	Prevalence Index = B/A =

20.0 = Total Cover

= Total Cover

US Army Corps of Engineers

Plot Size: Unit

**Woody Vine Stratum** 

3.

4.

5.

6.

7. 8.

9. 10 **Hydrophytic Vegetation** 

□ Dominance Test is >50%□ Prevalence Index is ≤ 3.0¹

☐ Morphologic Adaptations¹☐ Problematic Hydrophytic

<sup>1</sup>Indicators of hydric soil & wetland

hydrology must be present, unless

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

disturbed or problematic.

Hydrophytic Vegetation

Present? No

Indicators:

Sampling Point: 1AW3 **SOIL** Profile Description: (Describe to depth needed to document the indicator or confirm the absence of indicators.) Redox Features Matrix Depth Color Color Type<sup>1</sup> Loc<sup>2</sup> (inches) (Moist) % (Moist) % Texture Remarks 0-6 10YR 4/4 100 Loamy 6-8 10YR 5/4 100 Loamy 8-16 10YR 5/6 100 Loamv <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains, <sup>2</sup> Location; PL=Pore Lining, M=Matrix, **Hvdric Soil Indicators: Indicators for Problematic Hydric** Soils 3: ☐ Red Parent Material (TF2) ☐ Histosol (A1) Sandy Gleved Matrix (S4) ☐ Histic Epipedon (A2) Sandy Redox (S5) □ Very Shallow Dark Surface (TF12) ☐ Black Histic (A3) Stripped Matrix (S6) ☐ Other (Explain in Remarks) ☐ Hydrogen Sulfide (A4) Dark Surface (S7) ☐ Stratified Layers (A5) Loamy Gleved Matrix (F2) ☐ 2 cm Muck (A10) (LRR N) <sup>3</sup>Indicators of hydrophytic vegetation Depleted Matrix (F3) ☐ Depleted Below Dark Surface (A11) Redox Dark Surface (F6) and wetland hydrology must be present, unless disturbed or ☐ Thick Dark Surface (A12) Depleted Dark Surface (F7) ☐ Sandy Mucky Mineral (S1) (LRR N) problematic. Redox Depressions (F8) Iron-Manganese Masses (F12)(LRR N) Restrictive Layer (if observed): Type: 0 Hydric Soil Present? No Depth (inches): 0 Remarks: **Hydrology Wetland Hydrology Indicators:** Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) ☐ Surface Water (A1) Water Stained Leaves (B9) ☐ High Water Table (A2) Sparsely Vegetated Concave Surface (B8) ☐ Aquatic Fauna (B13) Drainage Patterns (B10) ☐ Saturation (A3) ☐ True Aquatic Plants (B14) Moss Trim Lines (B16) ☐ Water Marks (B1) ☐ Hvdrogen Sulfide Odor (C1) ☐ Sediment Deposits (B2) Dry-Season Water Table (C2) Oxidized Rhizospheres on Live ☐ Drift Deposits (B3) Crayfish Burrows (C8) Roots (C3) ☐ Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) ☐ Iron Deposits (B5) ☐ Recent Iron Reduction in Tilled Stunted or Stressed Plants (D1) ☐ Inundation Visible From Aerial Soils (C6) Geomorphic Position (D2) Imagery (B7) ☐ Thin Muck Surface (C7) Shallow Aquitard (D3) Microtopographic Reilef (D4) ☐ Other (Explain in Remarks) ▼ FAC-Neutral Test (D5) **Field Observations:** 

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspection), if available:

Sampling Point: 1AW3



Project/Site: <u>Transmission Operations Center</u>	City/Count	y: Owens	sboro/Daviess	Date: <u>17-May-23</u>		
Applicant/Owner: BREC			State: KY	Sampling Point: 2AW5		
Investigators: Keith Michalski, Dakota Spruill	Sec, Twp,	Rng: S N	NA, T NA, R NA			
Landform: Flat	Local Reli	ef: F <u>lat</u>		Slope %: <u>0.5</u>		
Subregion: LRR	Lat: 37.77	283 N	Lon: <u>-87.15814 \</u>	N Datum: <u>Decimal Degrees</u>		
Soil Map Unit Name:	NWI Class	sification:	Area I	-t <sup>2</sup> : <u>0</u>		
Are climatic/hydrologic conditions on this	Remarks	If No):				
site typical for this time of year? Yes						
Are Vegetation ☐, Soil ☐, or Hydrology ☐ Significantly Disturbed? Are "Normal Circumstances" present: Yes						
Are Vegetation ☐, Soil ☐, or Hydrology ☐ Natural	ly Problema	itic? Remarks:				
SUMMARY OF FINDINGS Attach site map	showing	sampling	locations, trans	ects, important features, etc.		
Hydrophytic Vegetation Present? No				in a Wetland? No		
Hydric Soil Present? Yes						
Wetland Hydrology Present? Yes						
Remarks:						

<u>Tree Stratum</u> Plot Size: <u>Unit</u>	Absolute % Cover:	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1.				Number of Dominant Species that
2.				are OBL, FACW or FAC: 0 A
3.				Total Number of Dominant Species
4.				across all Strata: 1 B
5.				Percent of Dominant Species that
_	= T	otal Cover		are OBL, FACW or FAC: 0.0 A/B
Sapling/Shrub Stratum Plot Size: Unit				Prevalence Index Worksheet:  Total % Cover of: Multiply by:
1.				
2.				$\begin{array}{cccccccccccccccccccccccccccccccccccc$
3.				$\begin{array}{cccccccccccccccccccccccccccccccccccc$
4.				FAC $\frac{0}{65}$ $x4 = \frac{0}{260}$
5.				$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
_	= T	otal Cover		OPL
Herb Stratum Plot Size: Unit				(A) <u>72</u> (B) <u>275</u>
1. Poa annua	60.0	Yes	FACU	
2. Packera glabella	5.0	No	OBL	Prevalence Index = B/A = 3.8
3. Stellaria media	2.0	No	UPL	Hydrophytic Vegetation
4. Conyza canadensis	5.0	No	FACU	Indicators:
5.				☐ Dominance Test is >50% <sub>↓</sub>
6.				☐ Prevalence Index is ≤ 3.0 <sup>1</sup>
7.				☐ Morphologic Adaptations <sup>1</sup>
8.				☐ Problematic Hydrophytic
9.				Vegetation <sup>1</sup> (Explain)
10				] _
_	72.0 = T	otal Cover		<sup>1</sup> Indicators of hydric soil & wetland
Woody Vine Stratum Plot Size: Unit				hydrology must be present, unless disturbed or problematic.
1.				Hydrophytic Vegetation
2.				Present? No
_	= T	otal Cover		_
Remarks:				

SOIL Sampling Point: 2AW5

Profile Description: (Describe to	depth needed			indicator	or confirm	the absence of indicators.)
<u>Matrix</u>	0.1	Redox	x Features			
Depth Color	Color	0/	<b>-</b> 1	2	T	D
(inches) (Moist) %	(Moist)	<u>%</u>	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	<u>Remarks</u>
0-4 10YR 3/1 100					Loamy	Coal Fines
4-14 10YR 4/1 85	7.5YR 4/6	26	С	М	Loamy	
14-16 10YR 5/1 85	7.5YR 4/6	15	С	М	Loamy	
<sup>1</sup> Type: C=Concentration, D=Depletion	, RM=Reduced N	/latrix, N	/IS=Masked	Sand Grains		
Hydric Soil Indicators:					Indicators Soils 3:	for Problematic Hydric
☐ Histosol (A1)	□ Sa	ndv Gl	eyed Matrix	(S4)	☐ Red Pa	rent Material (TF2)
☐ Histic Epipedon (A2)			edox (S5)	. ( )		nallow Dark Surface (TF12)
☐ Black Histic (A3)		-	Matrix (S6)			Explain in Remarks)
Hydrogen Sulfide (A4)			face (S7)		Outlot (I	zxpiaiii iii rtorriamo)
Stratified Layers (A5)			leyed Matri	x (F2)		
2 cm Muck (A10) (LRR N)			Matrix (F3)		3Indicator	s of hydrophytic vegetation
Depleted Below Dark Surface (			ark Surface			nd hydrology must be
☐ Thick Dark Surface (A12)			Dark Surfa			nless disturbed or
Sandy Mucky Mineral (S1) (LR			epressions		problemati	
— Candy Macky Minicral (C1) (L1)			ganese Ma		•	
		TI-IVIAIT	gariese ivia	3303 (1 12)	LIXIX IN	
Restrictive Layer (if observed):						
Type: 0				Judric Soil	Present?	/es
Depth (inches): 0				iyanc oon	i i i cociit:	<u> </u>
Remarks:						
Hydrology						
Wetland Hydrology Indicators:				Seco	ndary Indicat	tors
Primary Indicators (minimum of or	e is required: c	heck a	ll that anniv	/tt.	mum of two เ	
_	ie is required, c	ileck a	п шасарріу	<u> </u>		. ,
☐ Surface Water (A1)	Water Stai			_	urface Soil Crac	* ,
☐ High Water Table (A2)	□ Aquatic Fa					ed Concave Surface (B8)
☐ Saturation (A3)	True Aqua		. ,		rainage Pattern	
☐ Water Marks (B1)					oss Trim Lines	
☐ Sediment Deposits (B2)		hizosp	heres on Li	- =	ry-Season Wate	
☐ Drift Deposits (B3)	Roots (C3)				rayfish Burrows	
☐ Algal Mat or Crust (B4)			uced Iron (C	, —	aturation Visible	e on Aerial Imagery (C9)
☐ Iron Deposits (B5)	□ Recent Iro	า Redu	iction in Tille	ed 🗌 St	tunted or Stress	ed Plants (D1)
II lavadetica Vicible Evene Aeviel						
☐ Inundation Visible From Aerial	_ Soils (C6)			<b>✓</b> G	eomorphic Posi	tion (D2)
Imagery (B7)		Surfac	e (C7)			
	Soils (C6)  Thin Muck		, ,	S	eomorphic Posi	(D3)
	_ Soils (C6)		, ,	☐ SI	eomorphic Posi hallow Aquitard	(D3) Reilef (D4)
Imagery (B7)	Soils (C6)  Thin Muck		, ,	☐ SI	eomorphic Posi hallow Aquitard icrotopographic	(D3) Reilef (D4)
Imagery (B7)  Field Observations:	Soils (C6)  Thin Muck		Remarks)	☐ SI ☐ M ☐ FA	eomorphic Posi hallow Aquitard icrotopographic AC-Neutral Tes	(D3) Reilef (D4)
Imagery (B7)  Field Observations: Surface Water Present? No	Soils (C6)  Thin Muck		Remarks)  Depth (ii	SI M F <i>i</i> nches)	eomorphic Posi hallow Aquitard icrotopographic AC-Neutral Tesi	(D3) Reilef (D4) t (D5)
Imagery (B7)  Field Observations: Surface Water Present? No Water Table Present? No	Soils (C6)  Thin Muck  Other (Exp	lain in	Remarks)  Depth (in Depth	Si M Finches)	eomorphic Posi hallow Aquitard icrotopographic AC-Neutral Tesi 0.0 Wetla	(D3) Reilef (D4)
Imagery (B7)  Field Observations: Surface Water Present? No Water Table Present? No Saturation Present? (including cap	Soils (C6)  Thin Muck  Other (Exp	lain in	Remarks)  Depth (ii  Depth (ii  Depth (ii	S M F nches) nches)	eomorphic Posi hallow Aquitard icrotopographic AC-Neutral Tesi 0.0 Wetla 0.0 Yes	(D3) Reilef (D4) t (D5)  nd Hydrology Present?
Imagery (B7)  Field Observations: Surface Water Present? No Water Table Present? No	Soils (C6)  Thin Muck  Other (Exp	lain in	Remarks)  Depth (ii  Depth (ii  Depth (ii	S M F nches) nches)	eomorphic Posi hallow Aquitard icrotopographic AC-Neutral Tesi 0.0 Wetla 0.0 Yes	(D3) Reilef (D4) t (D5)  nd Hydrology Present?

Sampling Point: 2AW5



WEILAND DEIERN	IINATION	IDAIAF	ORM Eas	stern wo	untains and Pleamont
Project/Site: <u>Transmission Operations Center</u>	City/Coun	ty: <u>Owensk</u>	oro/Davies	S	Date: <u>17-May-23</u>
Applicant/Owner: BREC		-			ampling Point: 2AW6
Investigators: Dakota Spruill	Sec, Twp,	Rng: S NA	4, T NA, R I	NA	-
Landform: Flat	Local Reli	ef: Flat			Slope %: 0.5
Subregion: LRR	Lat: <u>37.77</u>	′212 N	Lon: <u>-87.15</u>	894 W	Datum: Decimal Degrees
Soil Map Unit Name:	NWI Class	sification:		Area Ft <sup>2</sup> :	0
Are climatic/hydrologic conditions on this	Remarks	(If No):			
site typical for this time of year? Yes		· ,			
Are Vegetation □, Soil □, or Hydrology □ Signific	antly Distur	bed?	Are "Norma	I Circums	stances" present: <u>Yes</u>
Are Vegetation □, Soil □, or Hydrology □ Natural	ly Problema	atic?	Remarks:		·
SUMMARY OF FINDINGS Attach site map	showing	sampling l	locations, t	ransects	s, important features, etc.
Hydrophytic Vegetation Present? No		Is the Sar	mpled Area	within a	a Wetland? No
Hydric Soil Present? Yes					
Wetland Hydrology Present? Yes					
Remarks:					
VEGETATION: Scientific Names					
Tree Stratum Plot Size: Unit A	bsolute I	Dominant	Indicator	Domina	ance Test Worksheet

Tree Stratum Plot Size: Unit	Absolute	Dominant	Indicator	Dominance Test Worksheet:
	% Cover:	Species?	<u>Status</u>	
1.				Number of Dominant Species that
2.				are OBL, FACW or FAC: 0 A
3.				Total Number of Dominant Species
4.				across all Strata: 1 B
5.	_			Percent of Dominant Species that
-	= 10	otal Cover		are OBL, FACW or FAC: 0.0 A/B
Sapling/Shrub Stratum Plot Size: Unit				Prevalence Index Worksheet:  Total % Cover of: Multiply by:
1.				
2.				OBL <u>5</u> x1= <u>5</u>
3.				FACW <u>0</u> x2= <u>0</u>
4.				$\begin{array}{cccccccccccccccccccccccccccccccccccc$
5.				FACU <u>72</u> x4= <u>288</u>
_	= To	otal Cover		UPL <u>0</u> x5= <u>0</u>
Herb Stratum Plot Size: Unit				TOTALS
				(A) <u>77</u> (B) <u>293</u>
1. Poa annua	70.0	Yes	FACU	Prevalence Index = B/A = 3.8
2. Packera glabella	5.0	No	OBL	
3. Conyza canadensis	2.0	No	FACU	Hydrophytic Vegetation
4.				Indicators:
5.				☐ Dominance Test is >50%
6.				☐ Prevalence Index is ≤ 3.0 <sup>1</sup>
7.				☐ Morphologic Adaptations¹
8.				☐ Problematic Hydrophytic
9.				Vegetation <sup>1</sup> (Explain)
10				
_	77.0 = Te	otal Cover		<sup>1</sup> Indicators of hydric soil & wetland
Woody Vine Stratum Plot Size: Unit				hydrology must be present, unless disturbed or problematic.
1.				Hydrophytic Vegetation
2.				Present? No
_	= Te	otal Cover		
Remarks:				

Sampling Point: 2AW6 SOIL Profile Description: (Describe to depth needed to document the indicator or confirm the absence of indicators.) Redox Features Matrix Depth Color Color Loc<sup>2</sup> (inches) Type<sup>1</sup> (Moist) % (Moist) % Texture Remarks 0-8 10YR 4/2 95 10YR 4/6 5 С Μ Loamv 8-16 10 10YR 4/1 90 7.5YR 5/6 C Clavev <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix. **Hvdric Soil Indicators: Indicators for Problematic Hydric** Soils 3: ☐ Red Parent Material (TF2) Sandy Gleved Matrix (S4) ☐ Histosol (A1) ☐ Histic Epipedon (A2) Sandy Redox (S5) ☐ Very Shallow Dark Surface (TF12) ☐ Black Histic (A3) ☐ Stripped Matrix (S6) ☐ Other (Explain in Remarks) ☐ Dark Surface (S7) ☐ Hydrogen Sulfide (A4) ☐ Stratified Layers (A5) ☐ Loamy Gleved Matrix (F2) <sup>3</sup>Indicators of hydrophytic vegetation ☐ 2 cm Muck (A10) (LRR N) Depleted Matrix (F3) ☐ Depleted Below Dark Surface (A11) Redox Dark Surface (F6) and wetland hydrology must be

Sandy Mucky Mineral (S1) (LRR N)

Redox Depressions (F8)

Iron-Manganese Masses (F12)(LRR N)

Restrictive Layer (if observed):

Type: 0

Depth (inches): 0

Hydric Soil Present? Yes

Depleted Dark Surface (F7)

Remarks:

☐ Thick Dark Surface (A12)

Hydrology			
Wetland Hydrology Indicators:	Secondary Indicators		
Primary Indicators (minimum of or	(minimum of two required)		
□ Surface Water (A1) □ High Water Table (A2) □ Saturation (A3) □ Water Marks (B1) □ Sediment Deposits (B2) □ Drift Deposits (B3) □ Algal Mat or Crust (B4) □ Iron Deposits (B5) □ Inundation Visible From Aerial Imagery (B7)	<ul> <li>Water Stained Leaves (B9)</li> <li>Aquatic Fauna (B13)</li> <li>True Aquatic Plants (B14)</li> <li>Hydrogen Sulfide Odor (C1)</li> <li>Oxidized Rhizospheres on Live Roots (C3)</li> <li>Presence of Reduced Iron (C4)</li> <li>Recent Iron Reduction in Tilled Soils (C6)</li> <li>Thin Muck Surface (C7)</li> <li>Other (Explain in Remarks)</li> </ul>	✓ Surface Soil Cracks (B6)  ☐ Sparsely Vegetated Concave Surface (B8)  ✓ Drainage Patterns (B10)  ☐ Moss Trim Lines (B16)  ☐ Dry-Season Water Table (C2)  ☐ Crayfish Burrows (C8)  ✓ Saturation Visible on Aerial Imagery (C9)  ☐ Stunted or Stressed Plants (D1)  ✓ Geomorphic Position (D2)  ☐ Shallow Aquitard (D3)  ☐ Microtopographic Reilef (D4)  ☐ FAC-Neutral Test (D5)	
Field Observations: Surface Water Present? No Water Table Present? No Saturation Present? (including cap Describe Recorded Data (Stream of	• •	es) 0.0 Wetland Hydrology Present? es) 0.0 Yes	
Remarks:			

present, unless disturbed or

Sampling Point: 2AW6



Project/Site: <u>Transmission Operations Center</u>	City/Count	y: <u>Owens</u>	boro/Daviess	Date: <u>17-May-23</u>
Applicant/Owner: BREC			State: KY	Sampling Point: 2AW7
Investigators: Dakota Spruill	Sec, Twp,	Rng: S N	IA, T NA, R NA	
Landform: Flat	Local Reli	Slope %: <u>0.5</u>		
Subregion: LRR	Lat: <u>37.77</u>	122 N	Lon: <u>-87.15960 \</u>	V Datum: <u>Decimal Degrees</u>
Soil Map Unit Name:	<b>NWI Class</b>	sification:	Area F	-t <sup>2</sup> : <u>0</u>
Are climatic/hydrologic conditions on this	Remarks	(If No):	_	·
site typical for this time of year? Yes				
Are Vegetation □, Soil □, or Hydrology □ Signification	antly Distur	bed?	Are "Normal Circ	umstances" present: <u>Yes</u>
Are Vegetation □, Soil □, or Hydrology □ Natural	ly Problema	atic?	Remarks:	•
SUMMARY OF FINDINGS Attach site map	showings	sampling	locations, transe	ects, important features, etc.
Hydrophytic Vegetation Present? No		Is the Sa	mpled Area with	in a Wetland? No
Hydric Soil Present? No			•	
Wetland Hydrology Present? Yes				
Remarks:				

Tree Stratum	Plot Size: <u>Unit</u>	Absolute % Cover:	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1.		<u> </u>	<u> </u>	<u> </u>	Number of Dominant Species that
2.					are OBL, FACW or FAC: 0 A
3.					Total Number of Dominant Species
4.					across all Strata: 1 B
5.					Percent of Dominant Species that
	_	= To	otal Cover		are OBL, FACW or FAC: 0.0 A/B
Sapling/Shrub S	Stratum Plot Size: Unit				Prevalence Index Worksheet: <u>Total % Cover of: Multiply by:</u>
1.					
2.					OBL 10 x1= 10
3.					FACW <u>0</u> x2= <u>0</u>
4.					FAC <u>0</u> x3= <u>0</u>
5.					FACU <u>82</u> x4= <u>328</u>
	_	= Te	otal Cover		UPL <u> </u>
<u>Herb Stratum</u>	Plot Size: <u>Unit</u>				(A) <u>92</u> (B) <u>338</u>
1. Poa annua		70.0	Yes	FACU	
2. Packera glabel	la	10.0	No	OBL	Prevalence Index = B/A = 3.7
3. Conyza canade	ensis	10.0	No	FACU	Hydrophytic Vegetation
4. Sorghum halep	ense	2.0	No	FACU	Indicators:
5.					☐ Dominance Test is >50%
6.					$\square$ Prevalence Index is $\leq 3.0^1$
7.					☐ Morphologic Adaptations¹
8.					☐ Problematic Hydrophytic
9.					Vegetation <sup>1</sup> (Explain)
10					
	_	92.0 = To	otal Cover		<sup>1</sup> Indicators of hydric soil & wetland
Woody Vine Str	atum Plot Size: <u>Unit</u>				hydrology must be present, unless disturbed or problematic.
1.					Hydrophytic Vegetation
2.					Present? No
	_	= Te	otal Cover		
Remarks:					•

SOIL Sampling Point: 2AW7

Matrix Redox Features
Depth Color Color <u>nches) (Moist) % (Moist) % Type<sup>1</sup> Loc<sup>2</sup> Texture Remarks</u>
, , , , — , , , — — — — — — — — — — — —
0-2 10YR 4/2 100 Loamy
<u>2-12 10YR 5/2+ 100 Loamy</u> 12-16 10YR 5/1 90 7.5YR 5/6 10 C M Clayey
12-10 10 ft 3/1 90 /.5 ft 3/0 10 C IVI Glayey
C. C
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.   Location: PL=Pore Lining, M=Matrix.
ydric Soil Indicators:  Indicators for Problematic Hydric Soils 3:
Histosol (A1) Sandy Gleyed Matrix (S4) Red Parent Material (TF2)
Histic Epipedon (A2)  Sandy Redox (S5)  Very Shallow Dark Surface (TF12)
☐ Black Histic (A3) ☐ Stripped Matrix (S6) ☐ Other (Explain in Remarks)
Hydrogen Sulfide (A4)  Dark Surface (S7)  Learny Clayed Matrix (52)
Stratified Layers (A5)  Loamy Gleyed Matrix (F2)  2 cm Muck (A10) (LRR N)  Depleted Matrix (F3)  Indicators of hydrophytic vegetation
Depleted Below Dark Surface (A11) Redox Dark Surface (F6) and wetland hydrology must be
Thick Dark Surface (A12)  Depleted Dark Surface (F7)  Depleted Dark Surface (F7)  present, unless disturbed or
Sandy Mucky Mineral (S1) (LRR N) Redox Depressions (F8) problematic.
☐ Iron-Manganese Masses (F12)(LRR N)
estrictive Layer (if observed):
/pe: <u>0</u>
epth (inches): 0 Hydric Soil Present? No
emarks:
ydrology /etland Hydrology Indicators: Secondary Indicators
Vetland Hydrology Indicators:  Secondary Indicators
Primary Indicators (minimum of one is required; check all that apply)  Secondary Indicators (minimum of two required)  The first transfer of the control of
Vetland Hydrology Indicators:  Primary Indicators (minimum of one is required; check all that apply)  Surface Water (A1)  Water Stained Leaves (B9)  Secondary Indicators (minimum of two required)  Surface Soil Cracks (B6)
Vetland Hydrology Indicators:  Primary Indicators (minimum of one is required; check all that apply)  Surface Water (A1)  High Water Table (A2)  Water Stained Leaves (B9)  Aquatic Fauna (B13)  Secondary Indicators (minimum of two required)  Surface Soil Cracks (B6)  Sparsely Vegetated Concave Surface (B8)
Secondary Indicators   Secondary Indicators
Vetland Hydrology Indicators:         Primary Indicators (minimum of one is required; check all that apply)       Secondary Indicators (minimum of two required)         □ Surface Water (A1)       □ Water Stained Leaves (B9)       □ Surface Soil Cracks (B6)         □ High Water Table (A2)       □ Aquatic Fauna (B13)       □ Sparsely Vegetated Concave Surface (B8)         □ Sturation (A3)       □ True Aquatic Plants (B14)       ✓ Drainage Patterns (B10)         □ Water Marks (B1)       □ Hydrogen Sulfide Odor (C1)       □ Moss Trim Lines (B16)
Vetland Hydrology Indicators:         Primary Indicators (minimum of one is required; check all that apply)       Secondary Indicators (minimum of two required)         Surface Water (A1)       Water Stained Leaves (B9)         High Water Table (A2)       Aquatic Fauna (B13)         Saturation (A3)       True Aquatic Plants (B14)         Water Marks (B1)       Hydrogen Sulfide Odor (C1)         Sediment Deposits (B2)       Oxidized Rhizospheres on Live
Vetland Hydrology Indicators:         Primary Indicators (minimum of one is required; check all that apply)       Secondary Indicators (minimum of two required)         □ Surface Water (A1)       □ Water Stained Leaves (B9)       □ Surface Soil Cracks (B6)         □ High Water Table (A2)       □ Aquatic Fauna (B13)       □ Sparsely Vegetated Concave Surface (B8)         □ Sturation (A3)       □ True Aquatic Plants (B14)       ✓ Drainage Patterns (B10)         □ Water Marks (B1)       □ Hydrogen Sulfide Odor (C1)       □ Moss Trim Lines (B16)
Vetland Hydrology Indicators:         Primary Indicators (minimum of one is required; check all that apply)       Secondary Indicators (minimum of two required)         □ Surface Water (A1)       □ Water Stained Leaves (B9)         □ High Water Table (A2)       □ Aquatic Fauna (B13)         □ Saturation (A3)       □ True Aquatic Plants (B14)         □ Water Marks (B1)       □ Hydrogen Sulfide Odor (C1)         □ Sediment Deposits (B2)       □ Oxidized Rhizospheres on Live         □ Drift Deposits (B3)       □ Roots (C3)
Vetland Hydrology Indicators:         Primary Indicators (minimum of one is required; check all that apply)       Secondary Indicators (minimum of two required)         Primary Indicators (minimum of one is required; check all that apply)       Surface Water (A1)       Water Stained Leaves (B9)       Surface Soil Cracks (B6)         High Water Table (A2)       Aquatic Fauna (B13)       Sparsely Vegetated Concave Surface (B8)         Saturation (A3)       True Aquatic Plants (B14)       ✓ Drainage Patterns (B10)         Water Marks (B1)       Hydrogen Sulfide Odor (C1)       Moss Trim Lines (B16)         Secondary Indicators       Drimum of two required)         Drift Deposits (B3)       True Aquatic Plants (B14)       ✓ Drainage Patterns (B10)         Dry-Season Water Table (C2)       Dry-Season Water Table (C2)         Drift Deposits (B3)       Roots (C3)       Crayfish Burrows (C8)         Algal Mat or Crust (B4)       Presence of Reduced Iron (C4)       Saturation Visible on Aerial Imagery (C9)         Iron Deposits (B5)       Recent Iron Reduction in Tilled       Stunted or Stressed Plants (D1)         Inundation Visible From Aerial       Soils (C6)       Geomorphic Position (D2)
Vetland Hydrology Indicators:         Primary Indicators (minimum of one is required; check all that apply)       Secondary Indicators (minimum of two required)         Primary Indicators (minimum of one is required; check all that apply)       (minimum of two required)         Surface Water (A1)       Water Stained Leaves (B9)       Surface Soil Cracks (B6)         High Water Table (A2)       Aquatic Fauna (B13)       Sparsely Vegetated Concave Surface (B8)         Saturation (A3)       True Aquatic Plants (B14)       Moss Trim Lines (B10)         Water Marks (B1)       Oxidized Rhizospheres on Live       Dry-Season Water Table (C2)         Drift Deposits (B3)       Roots (C3)       Crayfish Burrows (C8)         Algal Mat or Crust (B4)       Presence of Reduced Iron (C4)       Saturation Visible on Aerial Imagery (C9)         Iron Deposits (B5)       Recent Iron Reduction in Tilled       Stunted or Stressed Plants (D1)
Tetland Hydrology Indicators:         Primary Indicators (minimum of one is required; check all that apply)       Secondary Indicators (minimum of two required)         Surface Water (A1)       Water Stained Leaves (B9)       Surface Soil Cracks (B6)         High Water Table (A2)       Aquatic Fauna (B13)       Sparsely Vegetated Concave Surface (B8)         Saturation (A3)       True Aquatic Plants (B14)       Moss Trim Lines (B10)         Water Marks (B1)       Hydrogen Sulfide Odor (C1)       Moss Trim Lines (B16)         Sediment Deposits (B2)       Oxidized Rhizospheres on Live Roots (C3)       Dry-Season Water Table (C2)         Drift Deposits (B3)       Roots (C3)       Crayfish Burrows (C8)         Iron Deposits (B5)       Recent Iron Reduction in Tilled Soils (C6)       Stunted or Stressed Plants (D1)         Inundation Visible From Aerial Imagery (B7)       Thin Muck Surface (C7)       Shallow Aquitard (D3)         Microtopographic Reilef (D4)
Vetland Hydrology Indicators:         Primary Indicators (minimum of one is required; check all that apply)       Secondary Indicators (minimum of two required)         Primary Indicators (minimum of one is required; check all that apply)       Secondary Indicators (minimum of two required)         Primary Indicators (minimum of one is required; check all that apply)       Minimum of two required)         Surface Soil Cracks (B6)       Sparsely Vegetated Concave Surface (B8)         Primary Indicators (minimum of two required)       Surface Soil Cracks (B6)       Sparsely Vegetated Concave Surface (B8)         Water Marks (B1)       Hydrogen Sulfide Odor (C1)       Moss Trim Lines (B16)       Moss Trim Lines (B16)       Dry-Season Water Table (C2)       Dry-Season Water Table (C2)       Crayfish Burrows (C8)       Dry-Season Water Table (C2)       Saturation Visible on Aerial Imagery (C9)       Saturation Visible on Aerial Imagery (C9)       Stunted or Stressed Plants (D1)       Stunted or Stressed Plants (D1)       Soils (C6)       Geomorphic Position (D2)       Shallow Aquitard (D3)
Fetland Hydrology Indicators:         Primary Indicators (minimum of one is required; check all that apply)       Secondary Indicators (minimum of two required)         Surface Water (A1)       Water Stained Leaves (B9)       Surface Soil Cracks (B6)         High Water Table (A2)       Aquatic Fauna (B13)       Sparsely Vegetated Concave Surface (B8)         Saturation (A3)       True Aquatic Plants (B14)       Moss Trim Lines (B10)         Water Marks (B1)       Hydrogen Sulfide Odor (C1)       Moss Trim Lines (B16)         Sediment Deposits (B3)       Roots (C3)       Dry-Season Water Table (C2)         Drift Deposits (B3)       Roots (C3)       Crayfish Burrows (C8)         Inon Deposits (B5)       Recent Iron Reduction in Tilled Soils (C6)       Stunted or Stressed Plants (D1)         Inundation Visible From Aerial Imagery (B7)       Thin Muck Surface (C7)       Shallow Aquitard (D3)         Inundation Visible From Aerial Imagery (B7)       Other (Explain in Remarks)       Microtopographic Reilef (D4)         FAC-Neutral Test (D5)       FAC-Neutral Test (D5)
Tetland Hydrology Indicators:  Primary Indicators (minimum of one is required; check all that apply)  Surface Water (A1)
Tetland Hydrology Indicators:  Primary Indicators (minimum of one is required; check all that apply)  Surface Water (A1)
Secondary Indicators   Surface Soil Cracks (B6)   Surface Soil Cracks (B6)   Sparsely Vegetated Concave Surface (B8)   Dephy-Season Water Table (B10)   Moss Triu Hotes (B10)   Moss
Tetland Hydrology Indicators:  Primary Indicators (minimum of one is required; check all that apply)  Surface Water (A1)

Sampling Point: 2AW7



WEILAND DEIERN	IINATION DATA FORIVI Lasteri	ii wouldains and Fleumont
Project/Site: <u>Transmission Operations Center</u>	City/County: Owensboro/Daviess	Date: <u>17-May-23</u>
Applicant/Owner: BREC		Sampling Point: 2AW8
Investigators: Dakota Spruill	Sec, Twp, Rng: S NA, T NA, R NA	
Landform: Flat	Local Relief: Convex	Slope %: <u>0.5</u>
Subregion: LRR	Lat: <u>37.77021 N</u> Lon: <u>-87.15939</u>	W Datum: Decimal Degrees
Soil Map Unit Name:	NWI Classification: Area	ı Ft <sup>2</sup> : 0
Are climatic/hydrologic conditions on this	Remarks (If No):	
site typical for this time of year? Yes	· · · · · ·	
Are Vegetation □, Soil □, or Hydrology □ Signific	antly Disturbed? Are "Normal Cir	rcumstances" present: <u>Yes</u>
Are Vegetation □, Soil □, or Hydrology □ Natural	ly Problematic? Remarks:	
SUMMARY OF FINDINGS Attach site map	showing sampling locations, tran	sects, important features, etc.
Hydrophytic Vegetation Present? No	Is the Sampled Area wit	thin a Wetland? No
Hydric Soil Present? No		
Wetland Hydrology Present? <u>No</u>		
Remarks:	<u> </u>	
		_
VEGETATION: Scientific Names		
Tree Ctreture Diet Circu Linit	assists Deminant Indicator De	!

<u>Tree Stratum</u> Plot Size: <u>Unit</u>	Absolute % Cover:	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1.	70 Cover.	<u>Species :</u>	<u>Status</u>	Number of Dominant Species that
2.				are OBL, FACW or FAC: 0 A
3.				Total Number of Dominant Species
4.				across all Strata: 1 B
5.				Percent of Dominant Species that
_	= To	otal Cover		are OBL, FACW or FAC: 0.0 A/B
Sapling/Shrub Stratum Plot Size: Unit				Prevalence Index Worksheet: Total % Cover of: Multiply by:
1.				
2.				OBL 10 x1= 10
3.				FACW <u>0</u> x2= <u>0</u>
4.				FAC <u>0</u> x3= <u>0</u>
5.				FACU <u>65</u> x4= <u>260</u>
_	= To	otal Cover		UPL <u>0</u> x5= <u>0</u>
Herb Stratum Plot Size: Unit				TOTALS (A) 75 (B) 270
1. Poa annua	50.0	Yes	FACU	
2. Conyza canadensis	15.0	No	FACU	Prevalence Index = B/A = 3.6
3. Packera glabella	10.0	No	OBL	Hydrophytic Vegetation
4.				Indicators:
5.				☐ Dominance Test is >50% ੍ਰ
6.				☐ Prevalence Index is ≤ 3.0 <sup>1</sup>
7.				☐ Morphologic Adaptations <sup>1</sup>
8.				☐ Problematic Hydrophytic
9.				Vegetation <sup>1</sup> (Explain)
10				
_	75.0 = To	otal Cover		<sup>1</sup> Indicators of hydric soil & wetland
Woody Vine Stratum Plot Size: Unit				hydrology must be present, unless disturbed or problematic.
1.				Hydrophytic Vegetation
2.				Present? No
_	= To	otal Cover		
Remarks:				

Sampling Point: 2AW8 SOIL Profile Description: (Describe to depth needed to document the indicator or confirm the absence of indicators.) Redox Features Matrix Depth Color Color Type<sup>1</sup> Loc<sup>2</sup> (inches) (Moist) % (Moist) % Texture Remarks 0-210YR 4/4 100 Loamy 2-15 10YR 5/4 100 Loamv 15-16+ 10YR 6/3 90 7.5YR 5/6 10 С Μ Loamv <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix. **Indicators for Problematic Hydric Hvdric Soil Indicators:** Soils 3: ☐ Red Parent Material (TF2) Sandy Gleved Matrix (S4) ☐ Histosol (A1) ☐ Histic Epipedon (A2) ☐ Sandy Redox (S5) ☐ Very Shallow Dark Surface (TF12) ☐ Black Histic (A3) ☐ Stripped Matrix (S6) ☐ Other (Explain in Remarks) ☐ Dark Surface (S7) ☐ Hydrogen Sulfide (A4) ☐ Stratified Layers (A5) ☐ Loamy Gleyed Matrix (F2) <sup>3</sup>Indicators of hydrophytic vegetation ☐ 2 cm Muck (A10) (LRR N) ☐ Depleted Matrix (F3) ☐ Depleted Below Dark Surface (A11) Redox Dark Surface (F6) and wetland hydrology must be ☐ Thick Dark Surface (A12) present, unless disturbed or Depleted Dark Surface (F7) problematic. ☐ Sandy Mucky Mineral (S1) (LRR N) ☐ Redox Depressions (F8) ☐ Iron-Manganese Masses (F12)(LRR N) Restrictive Layer (if observed): Type: <u>0</u> Hydric Soil Present? No Depth (inches): 0

Hydrology Wetland Hydrology Indicators:				
Wetland Hydrology Indicators:         Primary Indicators (minimum of one is required; check all that apply)         □ Surface Water (A1)       □ Water Stained Leaves (B9)         □ High Water Table (A2)       □ Aquatic Fauna (B13)         □ Saturation (A3)       □ True Aquatic Plants (B14)         □ Water Marks (B1)       □ Hydrogen Sulfide Odor (C1)         □ Sediment Deposits (B2)       □ Oxidized Rhizospheres on Live         □ Drift Deposits (B3)       □ Roots (C3)         □ Algal Mat or Crust (B4)       □ Presence of Reduced Iron (C4)         □ Iron Deposits (B5)       □ Recent Iron Reduction in Tilled         □ Inundation Visible From Aerial Imagery (B7)       □ Thin Muck Surface (C7)         □ Other (Explain in Remarks)		Secondary Indicators (minimum of two required)  Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Reilef (D4) FAC-Neutral Test (D5)		
Field Observations: Surface Water Present? No Water Table Present? No Saturation Present? (including cap Describe Recorded Data (Stream of	Depth (inche Depth (inche illary fringe) <u>No</u> Depth (inche gauge, monitoring well, aerial photos,	es) 0.0 Wetland Hydrology Present? No		



Project/Site: Transmission Operations Center	City/County: Owensboro/Daviess Date: 17-May-23
Applicant/Owner: BREC	State: <u>KY</u> Sampling Point: <u>2AW9</u>
Investigators: Keith Michalski,Dakota Spruill	Sec, Twp, Rng: <u>S NA, T NA, R NA</u>
Landform: Flat	Local Relief: Flat Slope %: 0.5
Subregion: LRR	Lat: 37.77215 N Lon: -87.15581 W Datum: Decimal Degrees
Soil Map Unit Name:	NWI Classification: Area Ft <sup>2</sup> : 0
Are climatic/hydrologic conditions on this	Remarks (If No):
site typical for this time of year? Yes	
Are Vegetation □, Soil □, or Hydrology □ Signific	cantly Disturbed? Are "Normal Circumstances" present: Yes
Are Vegetation □, Soil □, or Hydrology □ Natural	Ily Problematic? Remarks:
SUMMARY OF FINDINGS Attach site map	showing sampling locations, transects, important features, etc.
Hydrophytic Vegetation Present? No	Is the Sampled Area within a Wetland? No
Hydric Soil Present? Yes	
Wetland Hydrology Present? Yes	
Remarks:	

Tree Stratum	Plot Size: Unit	Absolute	Dominant	Indicator	Dominance Test Worksheet:
		% Cover:	Species?	<u>Status</u>	
1. 2.					Number of Dominant Species that
					are OBL, FACW or FAC: 0 A
3.					Total Number of Dominant Species
4.					across all Strata: 1 B
5.					Percent of Dominant Species that
	-	= 10	otal Cover		are OBL, FACW or FAC: 0.0 A/B
Sapling/Shrub S	Stratum Plot Size: Unit				Prevalence Index Worksheet:  Total % Cover of: Multiply by:
1.					
2.					OBL <u>10</u> x1= <u>10</u>
3.					FACW <u>0</u> x2= <u>0</u>
4.					$\begin{array}{cccccccccccccccccccccccccccccccccccc$
5.					FACU <u>65</u> x4= <u>260</u>
	_	= To	otal Cover		UPL <u>0</u> x5= <u>0</u>
Lloub Ctuatum	Diet Sizer Unit				TOTALS
Herb Stratum	Plot Size: <u>Unit</u>				(A) <u>75</u> (B) <u>270</u>
1. Poa annua		50.0	Yes	FACU	Prevalence Index = B/A = 3.6
2. Conyza canade		15.0	No	FACU	
3. Packera glabel	la	10.0	No	OBL	Hydrophytic Vegetation
4.					Indicators:
5.					☐ Dominance Test is >50%
6.					☐ Prevalence Index is ≤ 3.0 <sup>1</sup>
7.					☐ Morphologic Adaptations¹
8.					☐ Problematic Hydrophytic
9.					Vegetation <sup>1</sup> (Explain)
10					
	_	75.0 = To	otal Cover		<sup>1</sup> Indicators of hydric soil & wetland
Woody Vine Str	atum Plot Size: <u>Unit</u>				hydrology must be present, unless disturbed or problematic.
1.					Hydrophytic Vegetation
2.					Present? No
		= To	otal Cover		1.000
Remarks:					

Sampling Point: 2AW9 **SOIL** Profile Description: (Describe to depth needed to document the indicator or confirm the absence of indicators.) Redox Features Matrix Depth Color Color Loc<sup>2</sup> Type<sup>1</sup> (inches) (Moist) % (Moist) % Texture Remarks 0-8 10YR 4/1 90 10YR 3/8 10 С М Loamy 8-16 10YR 5/1 95 10YR 5/8 5 Loamy <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains, <sup>2</sup> Location; PL=Pore Lining, M=Matrix, **Hvdric Soil Indicators: Indicators for Problematic Hydric** Soils 3: ☐ Red Parent Material (TF2) ☐ Histosol (A1) Sandy Gleved Matrix (S4) ☐ Histic Epipedon (A2) Sandy Redox (S5) □ Very Shallow Dark Surface (TF12) ☐ Black Histic (A3) Stripped Matrix (S6) ☐ Other (Explain in Remarks) ☐ Hydrogen Sulfide (A4) ☐ Dark Surface (S7) ☐ Stratified Layers (A5) ☐ Loamy Gleved Matrix (F2) ☐ 2 cm Muck (A10) (LRR N) <sup>3</sup>Indicators of hydrophytic vegetation Depleted Matrix (F3) ☐ Depleted Below Dark Surface (A11) Redox Dark Surface (F6) and wetland hydrology must be present, unless disturbed or ☐ Thick Dark Surface (A12) Depleted Dark Surface (F7) ☐ Sandy Mucky Mineral (S1) (LRR N) problematic. Redox Depressions (F8) Iron-Manganese Masses (F12)(LRR N) Restrictive Layer (if observed): Type: 0 Hydric Soil Present? Yes Depth (inches): 0 Remarks: **Hydrology Wetland Hydrology Indicators:** Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) ☐ Surface Water (A1) Water Stained Leaves (B9) ☐ High Water Table (A2) Sparsely Vegetated Concave Surface (B8) ☐ Aquatic Fauna (B13) ✓ Drainage Patterns (B10) ☐ Saturation (A3) ☐ True Aquatic Plants (B14) Moss Trim Lines (B16) ☐ Water Marks (B1) ☐ Hvdrogen Sulfide Odor (C1) ☐ Sediment Deposits (B2) ☐ Oxidized Rhizospheres on Live ☐ Dry-Season Water Table (C2) ☐ Drift Deposits (B3) Crayfish Burrows (C8) Roots (C3) ✓ Algal Mat or Crust (B4) Presence of Reduced Iron (C4) ✓ Saturation Visible on Aerial Imagery (C9)

Sampling Point: 2AW9



WETLAND DETER	MINATIO	N DATA	FORM Eas	stern Mountains and Piedmont
Project/Site: Transmission Operations Center	City/Cou	nty: <u>Owens</u>		
Applicant/Owner: BREC				Y Sampling Point: 2AW10
Investigators: Keith Michalski, Dakota Spruill			IA, T NA, R	
Landform: Flat			X	
Subregion: LRR				5634 W Datum: Decimal Degrees
Soil Map Unit Name:				Area Ft²: <u>0</u>
Are climatic/hydrologic conditions on this	Remarks	s (If No):		
site typical for this time of year? Yes				
Are Vegetation , Soil , or Hydrology Signif				al Circumstances" present: <u>Yes</u>
Are Vegetation □, Soil □, or Hydrology □ Natur	ally Problem	natic?	Remarks:	
SUMMARY OF FINDINGS Attach site ma	an showing	campling	locations	transacts important features etc
Hydrophytic Vegetation Present? No	ap snowing	Is the Sa	mnled Ares	a within a Wetland? No
Hydric Soil Present? No		13 1110 00	inipica Arce	a within a wettand: 140
Wetland Hydrology Present? No				
Remarks:				
Remarks.				
VEGETATION: Scientific Names				
	Absolute	Dominant		Dominance Test Worksheet:
1.	% Cover:	Species?	<u>Status</u>	No week an of Daneira and Conscious dood
2.				Number of Dominant Species that are OBL, FACW or FAC:0A
3.				Total Number of Dominant Species
4.				across all Strata: 1 B
5.				Percent of Dominant Species that
0.	= To	tal Cover		are OBL, FACW or FAC: 0.0 A/B
				Prevalence Index Worksheet:
Sapling/Shrub Stratum Plot Size: Unit				Total % Cover of: Multiply by:
1.				
2.				$\begin{array}{ccccc} OBL & \underline{  0} & x1 = \underline{  0} \\ FACW & 0 & x2 = \underline{  0} \end{array}$
3.				FACW 0 x2= 0 FAC 0 x3= 0
4.				$\begin{array}{cccccccccccccccccccccccccccccccccccc$
5.	<b>T</b> .	1-1-0		$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	= 10	tal Cover		TOTALS
Herb Stratum Plot Size: Unit				(A) 0 (B) 0
1. Zea mays	20.0	Yes	NI	
2.				Prevalence Index = B/A =
3.				Hydrophytic Vegetation
4.				Indicators:
5.				☐ Dominance Test is >50% ੍ਰ
6.				☐ Prevalence Index is ≤ 3.0 <sup>1</sup>
7.				☐ Morphologic Adaptations¹
8.				☐ Problematic Hydrophytic
9.				Vegetation <sup>1</sup> (Explain)
10				1 1
	20.0 = To	tal Cover		<sup>1</sup> Indicators of hydric soil & wetland
Woody Vine Stratum Plot Size: Unit				hydrology must be present, unless
1.				disturbed or problematic.
2.				Hydrophytic Vegetation Present? No
	= To	tal Cover		FIESCHL! INU

SOIL Sampling Point: 2AW10

Profile Description: (Describe to depth needed to document the indicator or confirm the absence of indicators.)										
<u>Matrix</u>			Redox Features							
Depth (inches)	Color (Moist)	0/.	Color (Moist)	0/_	Tuno <sup>1</sup>	Loc <sup>2</sup>	Toyturo	Domarko		
(inches)	(Moist)	<u>%</u>	(Moist)	<u>%</u>	Type <sup>1</sup>	LUC	<u>Texture</u>	Remarks		
0-2	10YR 4/4	100					Loamy			
2-15 15-16+	10YR 5/4 10YR 6/3	100 90	7.5YR 5/6	10	С	M	<u>Loamy</u>			
10-10+	10117 0/3	90	1.01R 0/0	10		IVI	Loamy			
1 = 0.6			514 B. d		10.54 dead	- 10	. 0 1+:	Di Di III MA MAGGA		
		Depletion	ı, RM=Reduced	d Matrix, i	/IS=Masked	Sand Gra		n: PL=Pore Lining, M=Matrix.		
Hyaric Soi	il Indicators:						Soils 3:	s for Problematic Hydric		
Histoso					leyed Matri	x (S4)				
	pipedon (A2)				edox (S5)			hallow Dark Surface (TF12)		
	Histic (A3)				Matrix (S6)	)	Other (	Explain in Remarks)		
	en Sulfide (A4)				face (S7)	· · (E0)				
	ed Layers (A5)	> AI\			lleyed Matri		3Indicato	of hydrophytic vagatation		
2 cm Muck (A10) <b>(LRR N)</b> Depleted Matrix (F3)  Note: The control of the properties of hydrophytic vegetation of hydrophyti										
	ark Surface (A		, , –		Dark Surfa			inless disturbed or		
	Mucky Mineral (				epressions		problema			
	,	.,			ganese Ma		•			
Restrictive	e Layer (if obs	erved):			<u> </u>		-			
Type: <u>0</u>	, · · · ·									
Depth (inch	nes): <u>0</u>					Hydric S	oil Present?	<u>No</u>		
Remarks:										
Hydrolog Wetland H	<u>ly</u> lydrology Indic	cators:				S-0	ndon/Indioo			
			······································	ماد ماد م	11 414 apply	,	Secondary Indicators (minimum of two required)			
	ndicators (minim	ium of or				<u>λ)                                    </u>		<u> </u>		
	Water (A1)		☐ Water S	tained Le	eaves (B9)		Surface Soil Cra			
	ater Table (A2)			Fauna (B	,		∫ Sparsely Vegeta È Drainage Patterr	ted Concave Surface (B8)		
	ion (A3)			uatic Plar			] Drainage Patterr ] Moss Trim Lines	,		
	Marks (B1) ant Denosits (B2	<b>)</b> \			Odor (C1)		_			
				Oxidized Rhizospheres on Live Roots (C3)			☐ Dry-Season Water Table (C2) ☐ Crayfish Burrows (C8)			
	lat or Crust (B4)	١		ence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)			
	posits (B5)	'			action in Till		Stunted or Stres			
	ion Visible Fron	n Aerial	Soils (C6				Geomorphic Pos	, ,		
Imagery				ck Surfac	e (C7)		Shallow Aquitard	, ,		
☐ Other (Explain in Remarks) ☐ Microtopographic Reilef (D4)										
			,	* * - · ·	,	•	FAC-Neutral Tes			
Field Obse	ervations:									
	ater Present?	<u>No</u>			Depth (i	inches) _	0.0			
	le Present? No	-			Depth (i		0.0 Wetla	and Hydrology Present?		
Saturation	Present? (inclu	ding cap	illary fringe) <u>N</u>	<u> 10</u>	Depth (i	inches) _	0.0 <u>No</u>			
Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspection), if available:										
Remarks:										



				stern Mountains and Pleamont							
	_ City/Cou	City/County: Owensboro/Daviess Date: 17-May-23									
Applicant/Owner: BREC	State: <u>KY</u> Sampling Point: <u>2AW11</u>										
Investigators: Keith Michalski,Dakota Spruill	_ Sec, Tw	o, Rng: <u>S N</u>	A, T NA, R	NA							
Landform: Flat	_ Local Re	lief: <u>Flat</u>		Slope %: <u>0.5</u>							
Subregion: LRR	_ Lat: <u>37.7</u>	76925 N	Lon: <u>-87.15</u>	5667 W Datum: Decimal Degrees							
Soil Map Unit Name:				Area Ft²: <u>0</u>							
Are climatic/hydrologic conditions on this	Remarks	s (If No):									
site typical for this time of year? Yes											
Are Vegetation ☐, Soil ☐, or Hydrology ☐ Significantly Disturbed? Are "Normal Circumstances" present: Yes											
Are Vegetation ☐, Soil ☐, or Hydrology ☐ Natura	ally Problen	natic?	Remarks:_								
SUMMARY OF FINDINGS A											
SUMMARY OF FINDINGS Attach site ma Hydrophytic Vegetation Present? No	p snowing	sampling	locations,	transects, Important features, etc. a within a Wetland? No							
Hydric Soil Present? <u>Yes</u>		is the Sa	inpled Area	a within a wetland? NO							
Wetland Hydrology Present? <u>Yes</u>											
, ,,											
Remarks:											
VEGETATION: Scientific Names											
	Absolute	Dominant	Indicator	Dominance Test Worksheet:							
<u> </u>	% Cover:	Species?	<u>Status</u>	Number of Deminent Consise that							
1. 2.				Number of Dominant Species that							
3.				are OBL, FACW or FAC: 0 A							
4.				Total Number of Dominant Species across all Strata: 1 B							
5.											
0.	- To	tal Cover		Percent of Dominant Species that are OBL, FACW or FAC: 0.0 A/B							
	tai Covei										
Sapling/Shrub Stratum Plot Size: Unit				Prevalence Index Worksheet:							
1.				Total % Cover of: Multiply by:							
2.				OBL <u>0</u> x1= <u>0</u>							
3.				FACW <u>0</u> x2= <u>0</u>							
4.				FAC <u>0</u> x3= <u>0</u>							
5.				FACU <u>0</u> x4= <u>0</u>							
	= To	tal Cover		UPL <u>0</u> x5= <u>0</u>							
Herb Stratum Plot Size: Unit				TOTALS							
	00.0	V	N.II	(A) <u>0</u> (B) <u>0</u>							
1. Zea mays 2.	20.0	Yes	NI	Prevalence Index = B/A =							
3.				Hydrophytic Vegetation							
4.				Indicators:							
5.				☐ Dominance Test is >50%							
6.				☐ Prevalence Index is ≤ 3.0 <sup>1</sup>							
7.				☐ Morphologic Adaptations <sup>1</sup>							
8.				☐ Problematic Hydrophytic							
9.				Vegetation <sup>1</sup> (Explain)							
10				Vegetation (Explain)							
	20.0 = To	tal Cover		<sup>1</sup> Indicators of hydric soil & wetland							
	hydrology must be present, unless										
Woody Vine Stratum Plot Size: Unit	disturbed or problematic.										
1.				Hydrophytic Vegetation							
2.				Present? No							
	= To	tal Cover									

SOIL Sampling Point: 2AW11

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

Profile De	scription: (Des Matrix	cribe to	depth neede		cument the x Features		cator or	confirm t	he absence of indicators.)	
Depth	Color		Color	11000				=		
(inches)	(Moist)	<u>%</u>	(Moist)	<u>%</u>	Type <sup>1</sup>	Lo	oc <sup>2</sup>	<u>Texture</u>	<u>Remarks</u>	
0-10	10YR 5/2	95	10YR 5/6	5	С		M	Loamy		
10-16	10YR 5/1	90	7.5YR 5/6	10	С		M	Loamy		
<sup>1</sup> Type: C=C	Concentration. D=	Depletio	n. RM=Reduced	Matrix. I	MS=Masked	d Sand	Grains, 2	Location:	PL=Pore Lining, M=Matrix.	
	il Indicators:		.,						for Problematic Hydric	
☐ Histoso	J (A1)			andy G	leyed Matr	iv (Q1		_	ent Material (TF2)	
	pipedon (A2)				edox (S5)	IX (34	, [		allow Dark Surface (TF12)	
	listic (A3)				Matrix (S6	6)		Other (Explain in Remarks)		
	en Sulfide (A4)				rface (S7)	,		<b>.</b>	,	
	ed Layers (A5)				Bleyed Mat		)	2		
	uck (A10) (LRR				Matrix (F				s of hydrophytic vegetation	
	ed Below Dark S				ark Surfac				d hydrology must be	
	)ark Surface (A1 Mucky Mineral (				d Dark Surfepressions			oresent, un problematio	lless disturbed or	
	wiucky winerai (	SI) (LI			repressions nganese M		•		<i>5</i> .	
Doctrictiv	e Layer (if obse	\r\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	— II	OII-IVIAI	igariose ivi	a3303	(1 12 ) [			
Type: 0	e Layer (ii obse	ervea):								
Depth (incl	nes):0					Hydri	ic Soil P	resent? Y	<u>es</u>	
Remarks:	, <del>-</del>					<u> </u>				
Hydrolog	IV									
	lydrology Indic	atore:					0			
							Secondary Indicators (minimum of two required)			
	<u>idicators (minim</u>	<u>um ot o</u>	ne is required;	check a	all that app	ly)			. ,	
	Water (A1)				eaves (B9)			ce Soil Cracl	* *	
	ater Table (A2)		Aquatic F	`	,			sely Vegetate age Patterns	ed Concave Surface (B8)	
	ion (A3)		☐ True Aqua			`		Trim Lines (	` ,	
	Marks (B1) ent Deposits (B2	)			Odor (C1	•		Season Wate	·	
	posits (B3)	,	_ Roots (C3		oheres on I	Live		ish Burrows		
	at or Crust (B4)				uced Iron (	(C4)			on Aerial Imagery (C9)	
	posits (B5)				uction in Ti	` '			ed Plants (D1)	
	ion Visible From	n Aerial	Soils (C6)	)				norphic Posit	` '	
Imager	y (B7)		$\square$ Thin Mucl	k Surfac	ce (C7)			ow Aquitard (	` '	
			☐ Other (Ex	plain in	Remarks)	1	Micro	topographic	Reilef (D4)	
			•		,		▼ FAC-	Neutral Test	(D5)	
Field Obs	ervations:									
Surface W	ater Present? <u>I</u>	<u> </u>			Depth	(inche	s) <u> </u>	.0		
	le Present? No				Depth	•		.0 Wetlar	nd Hydrology Present?	
Saturation	Present? (inclu	ding cap	illary fringe) <u>N</u>	<u> </u>	Depth	(inche	s) <u> </u>	<u>.0 Yes</u>		
Describe F	Recorded Data (	Stream	gauge, monitor	ing wel	l, aerial ph	otos, p	previous	nspection)	, if available:	
Remarks:										

Sampling Point: 2AW11



		astern Mountains and Piedmont
Project/Site: <u>Transmission Operations Center</u>		
Applicant/Owner: BREC		KY Sampling Point: 2AW12
Investigators: Keith Michalski,Dakota Spruill	Sec, Twp, Rng: <u>S NA, T NA, F</u>	
Landform: Flat	Local Relief: <u>Flat</u>	
Subregion: LRR	Lat: <u>37.76762 N</u> Lon: <u>-87.</u>	15743 W Datum: Decimal Degrees
Soil Map Unit Name:		Area Ft <sup>2</sup> : 0
Are climatic/hydrologic conditions on this	Remarks (If No):	
site typical for this time of year? Yes		
Are Vegetation □, Soil □, or Hydrology □ Signi		nal Circumstances" present: <u>Yes</u>
Are Vegetation □, Soil □, or Hydrology □ Natur	rally Problematic? Remarks:	
SUMMARY OF FINDINGS Attach site m	an showing sampling locations	transects important features etc
Hydrophytic Vegetation Present? No	Is the Sampled Ar	ea within a Wetland? No
Hydric Soil Present? No	le ine campieu / ii	<u></u>
Wetland Hydrology Present? No		
Remarks:		
Remarks.		
VEGETATION: Scientific Names		
<u>Tree Stratum</u> Plot Size: <u>Unit</u>	Absolute Dominant Indicator	Dominance Test Worksheet:
	<u>% Cover: Species? Status</u>	
1.		Number of Dominant Species that
2.		are OBL, FACW or FAC: 0 A
3.		Total Number of Dominant Species
4.		across all Strata: 1 B
5.		Percent of Dominant Species that
	= Total Cover	are OBL, FACW or FAC: 0.0 A/B
Sapling/Shrub Stratum Plot Size: Unit		Prevalence Index Worksheet:
1.		Total % Cover of: Multiply by:
2.		-  OBL   0  x1=  0
3.		FACW 0 x2= 0
4.		FAC 0 x3= 0
5.		FACU 0 x4= 0
0.	= Total Cover	UPL 0 x5= 0
	- Total Covel	TOTALS
Herb Stratum Plot Size: Unit		(A) <u>0</u> (B) <u>0</u>
1. Zea mays	20.0 Yes NI	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
2.		Prevalence Index = B/A =
3.		Hydrophytic Vegetation
4.		Indicators:
5.		☐ Dominance Test is >50%
6.		$\square$ Prevalence Index is $\leq 3.0^1$
7.		☐ Morphologic Adaptations¹
8.		☐ Problematic Hydrophytic
9.		Vegetation <sup>1</sup> (Explain)
10		
	20.0 = Total Cover	<sup>1</sup> Indicators of hydric soil & wetland
Washing Chatana Blot Obs. 11:3		hydrology must be present, unless
Woody Vine Stratum Plot Size: Unit		disturbed or problematic.
1.		Hydrophytic Vegetation
2.		Present? No
	= Total Cover	
Remarks:		

Sampling Point: 2AW12 **SOIL** Profile Description: (Describe to depth needed to document the indicator or confirm the absence of indicators.) Redox Features Matrix Depth Color Color Type<sup>1</sup> Loc<sup>2</sup> (inches) (Moist) % (Moist) % Texture Remarks 0-6 10YR 4/6 100 Loamy 6-16 10YR 5/6 100 Loamy <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains, <sup>2</sup> Location; PL=Pore Lining, M=Matrix, **Hvdric Soil Indicators: Indicators for Problematic Hydric** Soils 3: ☐ Red Parent Material (TF2) ☐ Histosol (A1) Sandy Gleved Matrix (S4) ☐ Histic Epipedon (A2) Sandy Redox (S5) □ Very Shallow Dark Surface (TF12) ☐ Black Histic (A3) Stripped Matrix (S6) ☐ Other (Explain in Remarks) ☐ Hydrogen Sulfide (A4) Dark Surface (S7) ☐ Stratified Layers (A5) Loamy Gleved Matrix (F2) ☐ 2 cm Muck (A10) (LRR N) <sup>3</sup>Indicators of hydrophytic vegetation Depleted Matrix (F3) ☐ Depleted Below Dark Surface (A11) Redox Dark Surface (F6) and wetland hydrology must be present, unless disturbed or ☐ Thick Dark Surface (A12) Depleted Dark Surface (F7) ☐ Sandy Mucky Mineral (S1) (LRR N) problematic. Redox Depressions (F8) Iron-Manganese Masses (F12)(LRR N) Restrictive Layer (if observed): Type: 0 Hydric Soil Present? No Depth (inches): 0 Remarks: Hydrology **Wetland Hydrology Indicators:** Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) ☐ Surface Water (A1) Water Stained Leaves (B9) ☐ High Water Table (A2) Sparsely Vegetated Concave Surface (B8) ☐ Aquatic Fauna (B13) Drainage Patterns (B10) ☐ Saturation (A3) ☐ True Aquatic Plants (B14) Moss Trim Lines (B16) ☐ Water Marks (B1) ☐ Hvdrogen Sulfide Odor (C1) ☐ Sediment Deposits (B2) Dry-Season Water Table (C2) Oxidized Rhizospheres on Live ☐ Drift Deposits (B3) Crayfish Burrows (C8) Roots (C3) ☐ Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) ☐ Iron Deposits (B5) ☐ Recent Iron Reduction in Tilled Stunted or Stressed Plants (D1) ☐ Inundation Visible From Aerial Soils (C6) Geomorphic Position (D2) Imagery (B7) ☐ Thin Muck Surface (C7) Shallow Aquitard (D3) Microtopographic Reilef (D4) ☐ Other (Explain in Remarks) ▼ FAC-Neutral Test (D5) **Field Observations:** Surface Water Present? No Depth (inches) 0.0 Water Table Present? No 0.0 Wetland Hydrology Present? Depth (inches) Saturation Present? (including capillary fringe) No Depth (inches) 0.0 Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspection), if available:

Remarks:



# **Additional Site Photos**



Looking across surface drain feature (2AW3) and W-ditched field.



Farmed through W-ditch.



2AW3-1: Location where surface drain feature runs along tree line.



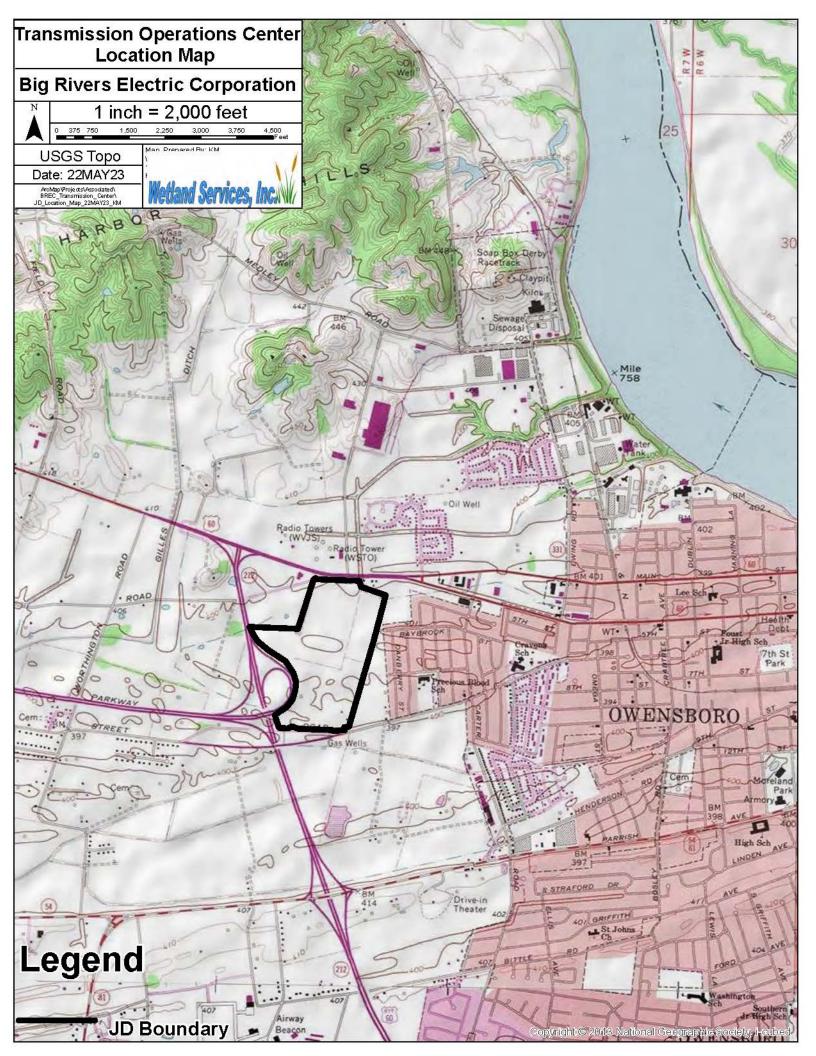
2AW3-2: Southern most portion of surface drain feature.

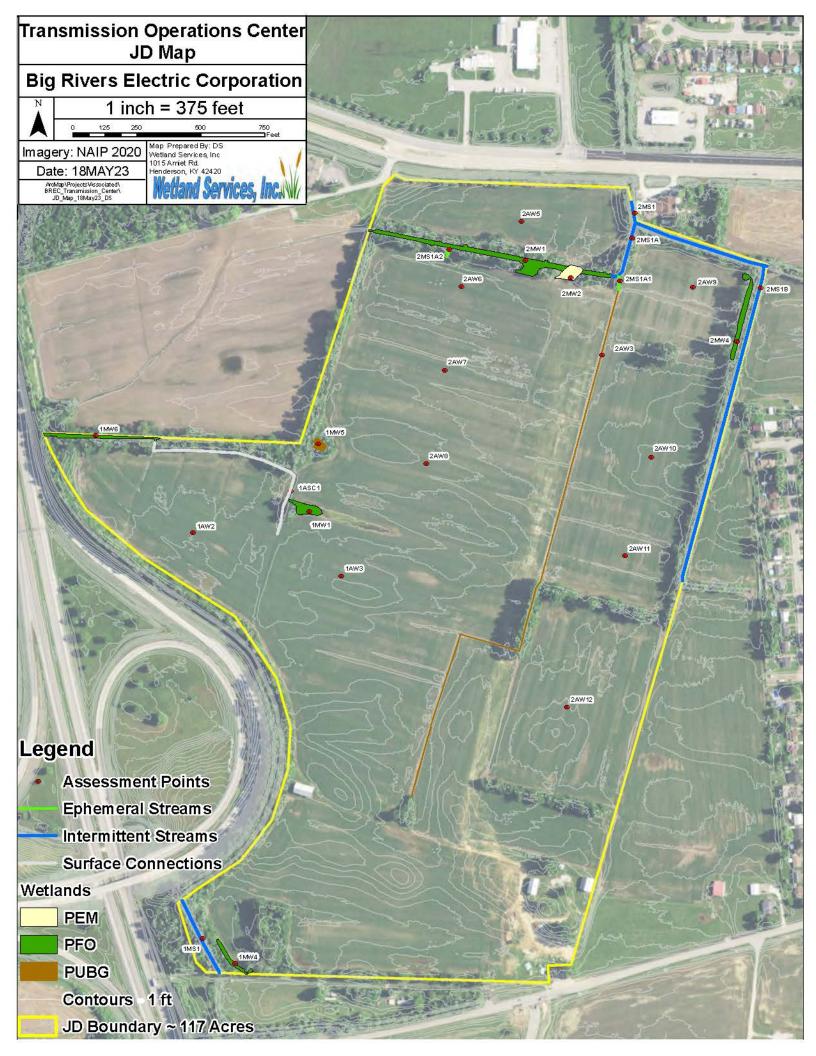


1MW2: Old clay tile exposed with uprooted tree.



Southern boundary of primary development area. Looking WSW towards 1MW1. Upland Soils.





#### PRELIMINARY JURISDICTIONAL DETERMINATION FORM

#### **U.S. Army Corps of Engineers**

#### **BACKGROUND INFORMATION**

# A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): May 22, 2023

#### B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:

Keith Michalski David Lamb

Wetland Services, Inc.

3880 Trigg Turner Road

Corydon, Kentucky 42406

Associated Engineers, Inc

2740 North Main St.

Madisonville, KY 42431

**C. DISTRICT OFFICE, FILE NAME, AND NUMBER:** CELRL-OPF-N, BREC-Transmission Operation Center,

# D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION: (USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State: KY County: Daviess City: Owensboro

Center coordinates of site: Latitude and Longitude (NAD 83):

Latitude: 37.77097° North, Longitude: -87.15917° West

Authority: Section 404 Section 10

Name of nearest waterbody: Canoe Creek, Wilson Creek, Elam Ditch

Identify (estimate) amount of waters in the review area:

Non-wetland waters: 2,557 linear feet: 2.0 - 12.0 width (ft) and/or 0.45 acres.

Cowardin Class: Riverine

Stream Flow: Intermittent, Ephemeral

Wetlands: 1.11 acres

Cowardin Class: Palustrine: Forested, Emergent & Unconsolidated Bottom

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal: N/A

Non-Tidal: N/A

# E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

✓ Office (Desk) Determination. Date: May 15 - 22, 2023

Field Determination. Date(s): May 15 - 18, 2023

The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

1. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "preconstruction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. §331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there "may be" waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

# SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply)

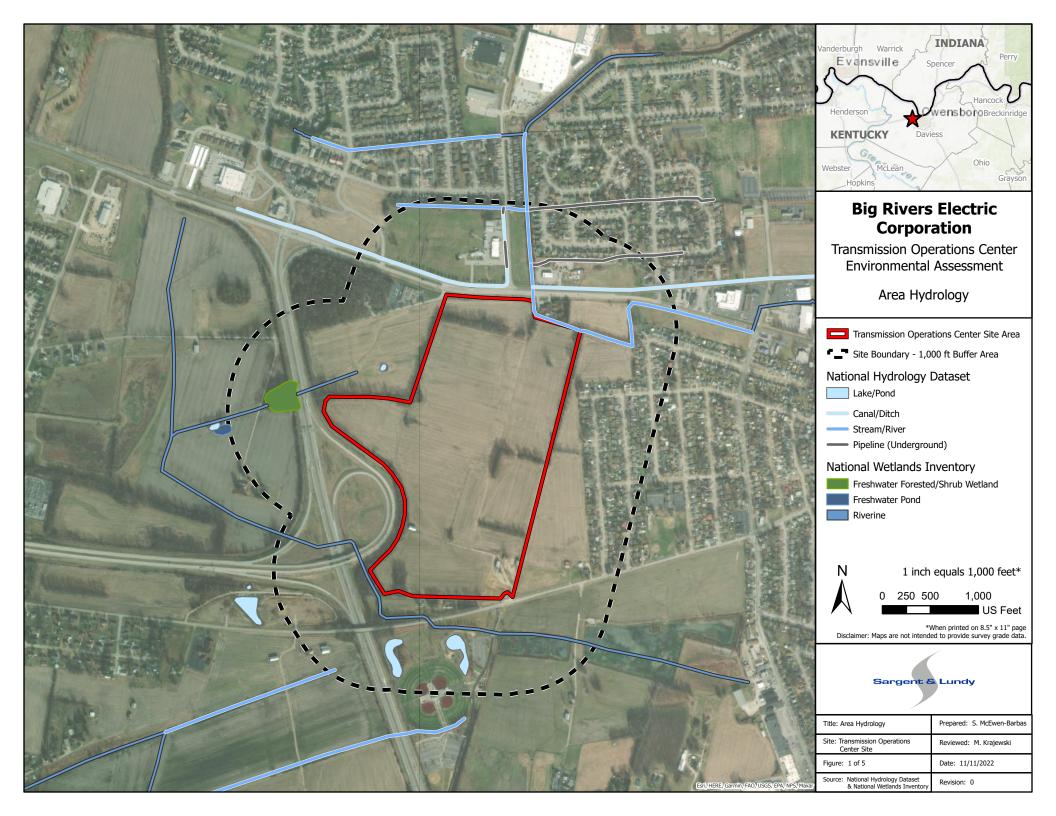
- checked items should be included in case file and, where checked and requested, appropriately reference sources below):

	Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Location/Topo, JD						
P	Data sheets prepared/submitted by or on behalf of the applicant/consultant.						
	Office concurs with data sheets/delineation report.						
	Office does not concur with data sheets/delineation report.						
	Data sheets prepared by the Corps:						
	Corps navigable waters' study:						
U.S. Geological Survey Hydrologic Atlas:							
	□ USGS NHD data.						
	□ USGS 8 and 12 digit HUC maps.						
	U.S. Geological Survey map(s). Cite scale & quad name: 1:24,000						
P	USDA Natural Resources Conservation Service Soil Survey. Citation: USDA Web Soil Survey						
M	National wetlands inventory map(s). Cite name: USFWS Wetland Mapper						
	State/Local wetland inventory map(s):						
	FEMA/FIRM maps:						
	100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)						
	Photographs: Aerial (Name & Date): NAIP 2020						
	or $\square$ Other (Name & Date):						
	Previous determination(s). File no. and date of response letter:						
	Applicable/supporting case law:						
	Applicable/supporting scientific literature:						
	Other information (please specify):						
	PORTANT NOTE: The information recorded on this form has not necessarily been ified by the Corps and should not be relied upon for later jurisdictional determinations.						
VCI.	incu by the corps and should not be rened upon for fater jurisdictional determinations.						
•	gnature and date of Regulatory Project anager (REQUIRED)  Signature and date of person requesting preliminary JD (REQUIRED, unless obtaining the signature is impracticable)						

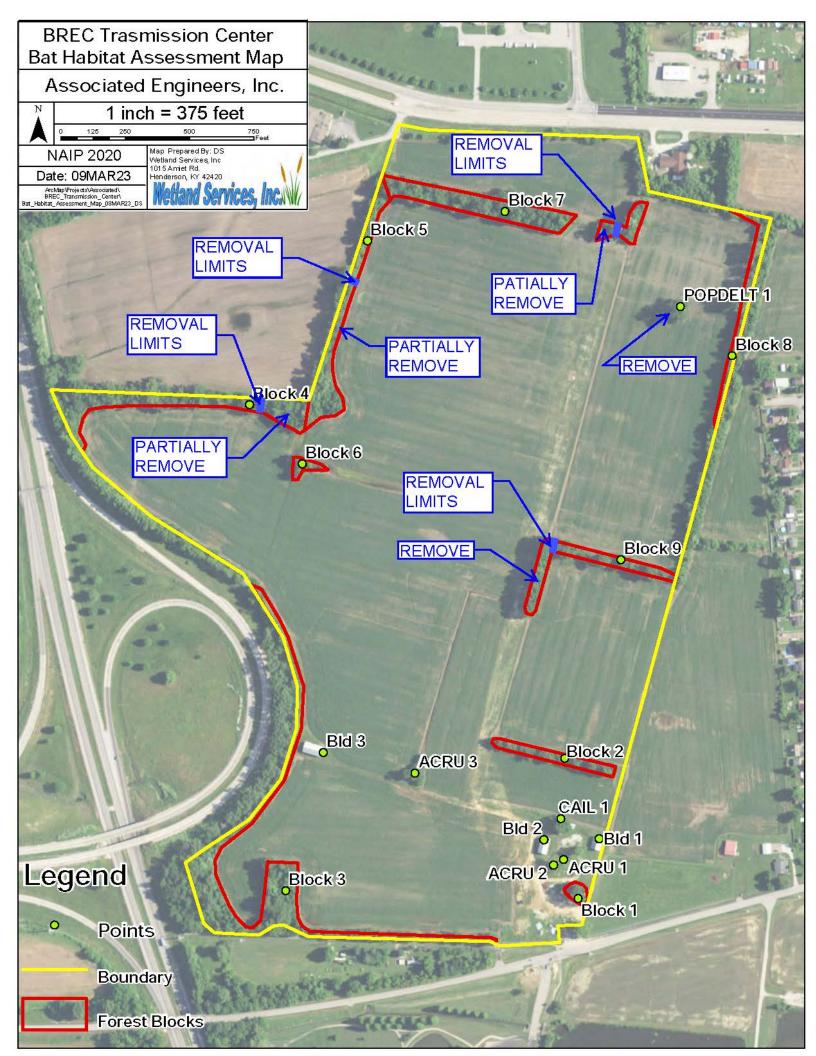
	Streams					
Unit Id	Latitude N	Longitude W	Eph	Int	Class of Aquatic Resource	
1MS1	37.76507	-87.16231	0	319	Non-Section 10, non-tidal	
2MS1	37.77293	-87.15661	0	626		
2MS1A	37.77268	-87.15664	0	246		
2MS1A1	37.77221	-87.15680	53	0		
2MS1A2	37.77251	-87.15912	37	0		
2MS1B	37.77216	-87.15490	0	1,276		
	Feet	90	2,467			

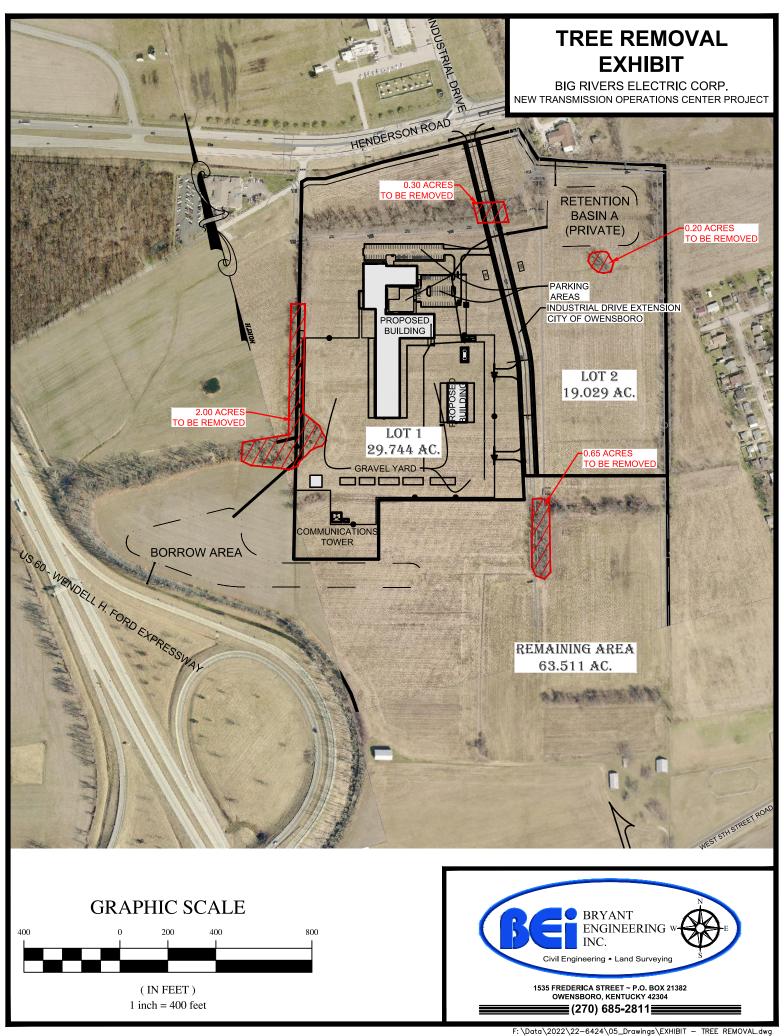
	Wetlands							
Unit Id	Latitude N	Longitude W	Cowardin Class	Connected Area	Class of Aquatic Resource			
2MW1	37.77241	-87.15808	PFO	0.42	Non-Section 10, non-tidal			
2MW2	37.77223	-87.15747	PEM	0.09				
2AW3	37.77141	-87.15703	PUBG	0.16				
2MW4	37.77157	-87.15520	PFO	0.14				
1MW1	37.76967	-87.16095	PFO	0.09				
1MW4	37.76481	-87.16187	PFO	0.05				
1MW5	37.77041	-87.16085	PUBG	0.04				
1MW6	37.77046	-87.16386	PFO	0.12				
Total Acres				1.11				

Attachment G. Hydrology Map



**Attachment H. Tree Removal Maps** 





Attachment I. IPaC Report



# United States Department of the Interior



#### FISH AND WILDLIFE SERVICE

Kentucky Ecological Services Field Office J C Watts Federal Building, Room 265 330 West Broadway Frankfort, KY 40601-8670

Phone: (502) 695-0468 Fax: (502) 695-1024 Email Address: <u>kentuckyes@fws.gov</u>

In Reply Refer To: June 05, 2023

Project Code: 2023-0041139

Project Name: Transmission Operations 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 ECOS-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 ECOS-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.

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:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.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/birds/policies-and-regulations.php.

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/birds/bird-enthusiasts/threats-to-birds.php.

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/birds/policies-and-regulations/executive-orders/e0-13186.php.

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.

06/05/2023

Attachment	(~)	١.
Attachment	S	١.

Official Species List

# **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:

Kentucky Ecological Services Field Office J C Watts Federal Building, Room 265 330 West Broadway Frankfort, KY 40601-8670 (502) 695-0468

#### PROJECT SUMMARY

Project Code: 2023-0041139

Project Name: Transmission Operations Center
Project Type: New Constr - Above Ground

Project Description: Big Rivers is proposing to construct a new Transmission Operations

Center (the "TOC Facility") located south of the intersection of Henderson Road and Industrial Drive near 3740 U.S. Hwy 60 W,

Owensboro, Kentucky (the "Project"). Construction of the TOC Facility will allow Big Rivers to combine its existing Energy Transmission & Substation (ET&S) facility; Energy Control, Planning & Compliance operations; Engineering; and other support operations at one central location. The TOC Facility, which includes an office building, warehouse, enclosed and covered vehicle storage space, outdoor equipment storage, and a loading dock, will be accessible via major thoroughfares in Owensboro, including U.S. Highway 60 W (Wendell Ford Expressway) and Henderson Road (KY-331). Big Rivers anticipates utilizing Rural Utility Service (RUS) loans or loan guarantees to finance construction of the TOC Facility. RUS, a division within the U.S. Department of Agriculture's (USDA) Rural Development Agency, provides financing for

water and waste treatment, electric power, and telecommunications infrastructure or infrastructure improvements serving rural communities.

Construction of the TOC Facility will impact approximately 30 acres of the 114-acre site Big Rivers acquired for the proposed Project.

#### **Project Location:**

The approximate location of the project can be viewed in Google Maps: <a href="https://www.google.com/maps/@37.7690171">https://www.google.com/maps/@37.7690171</a>,-87.15944427348667,14z



Counties: Daviess County, Kentucky

#### **ENDANGERED SPECIES ACT SPECIES**

There is a total of 17 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 9 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 Fisheries<sup>1</sup>, 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.

NOAA Fisheries, 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

#### Gray Bat Myotis grisescens

Endangered

No critical habitat has been designated for this species.

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

• The project area includes potential gray bat habitat.

Species profile: https://ecos.fws.gov/ecp/species/6329

General project design guidelines:

https://ipac.ecosphere.fws.gov/project/V66Y5NWLJJBWNE3WLJ43HAYEKQ/documents/generated/6422.pdf

#### Indiana Bat Myotis sodalis

Endangered

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

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

 The project area includes 'potential' habitat. All activities in this location should consider possible effects to this species.

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

General project design guidelines:

https://ipac.ecosphere.fws.gov/project/V66Y5NWLJJBWNE3WLJ43HAYEKQ/documents/generated/6422.pdf

#### Northern Long-eared Bat Myotis septentrionalis

Endangered

No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a>

General project design guidelines:

https://ipac.ecosphere.fws.gov/project/V66Y5NWLJJBWNE3WLJ43HAYEKQ/documents/generated/6422.pdf

### **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: <a href="https://ecos.fws.gov/ecp/species/758">https://ecos.fws.gov/ecp/species/758</a>

STATUS

Experimental

NonEssential

#### **CLAMS**

NAME STATUS

#### Clubshell Pleurobema clava

Endangered

Population: Wherever found; Except where listed as Experimental Populations

No critical habitat has been designated for this species.

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

• The species may be affected by projects that significantly impact the Ohio River.

Species profile: <a href="https://ecos.fws.gov/ecp/species/3789">https://ecos.fws.gov/ecp/species/3789</a>

General project design guidelines:

https://ipac.ecosphere.fws.gov/project/V66Y5NWLJJBWNE3WLJ43HAYEKQ/documents/generated/5639.pdf

#### Fanshell Cyprogenia stegaria

Endangered

No critical habitat has been designated for this species.

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

• The species may be affected by projects that significantly impact the Ohio River.

Species profile: https://ecos.fws.gov/ecp/species/4822

General project design guidelines:

https://ipac.ecosphere.fws.gov/project/V66Y5NWLJJBWNE3WLJ43HAYEKQ/documents/generated/5639.pdf

#### Longsolid Fusconaia subrotunda

Threatened

There is **final** critical habitat for this species.

Species profile: <a href="https://ecos.fws.gov/ecp/species/9880">https://ecos.fws.gov/ecp/species/9880</a>

#### Northern Riffleshell *Epioblasma rangiana*

Endangered

No critical habitat has been designated for this species.

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

• The species may be affected by projects that significantly impact, directly or indirectly, the following rivers: Green, Licking, or Ohio.

Species profile: <a href="https://ecos.fws.gov/ecp/species/527">https://ecos.fws.gov/ecp/species/527</a>

General project design guidelines:

 $\frac{https://ipac.ecosphere.fws.gov/project/V66Y5NWLJJBWNE3WLJ43HAYEKQ/documents/generated/5639.pdf$ 

#### Orangefoot Pimpleback (pearlymussel) *Plethobasus cooperianus*

Endangered

No critical habitat has been designated for this species.

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

• The species may be affected by projects that significantly impact the Ohio River.

Species profile: https://ecos.fws.gov/ecp/species/1132

General project design guidelines:

https://ipac.ecosphere.fws.gov/project/V66Y5NWLJJBWNE3WLJ43HAYEKQ/documents/generated/5639.pdf

#### Pink Mucket (pearlymussel) *Lampsilis abrupta*

Endangered

No critical habitat has been designated for this species.

Species profile: <a href="https://ecos.fws.gov/ecp/species/7829">https://ecos.fws.gov/ecp/species/7829</a>

General project design guidelines:

https://ipac.ecosphere.fws.gov/project/V66Y5NWLJJBWNE3WLJ43HAYEKQ/documents/generated/5639.pdf

#### Rabbitsfoot Quadrula cylindrica cylindrica

Threatened

NAME STATUS

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

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

• The species may be affected by projects that significantly impact the Ohio River.

Species profile: https://ecos.fws.gov/ecp/species/5165

General project design guidelines:

https://ipac.ecosphere.fws.gov/project/V66Y5NWLJJBWNE3WLJ43HAYEKQ/documents/generated/5639.pdf

#### Ring Pink (mussel) *Obovaria retusa*

Endangered

No critical habitat has been designated for this species.

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

• The species may be affected by projects that significantly impact the Ohio River.

Species profile: <a href="https://ecos.fws.gov/ecp/species/4128">https://ecos.fws.gov/ecp/species/4128</a>

General project design guidelines:

https://ipac.ecosphere.fws.gov/project/V66Y5NWLJJBWNE3WLJ43HAYEKQ/documents/generated/5639.pdf

#### Rough Pigtoe Pleurobema plenum

Endangered

No critical habitat has been designated for this species.

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

• The species may be affected by projects that significantly impact the Ohio River.

Species profile: https://ecos.fws.gov/ecp/species/6894

General project design guidelines:

 $\underline{https://ipac.ecosphere.fws.gov/project/V66Y5NWLJJBWNE3WLJ43HAYEKQ/documents/generated/5639.pdf}$ 

#### Sheepnose Mussel *Plethobasus cyphyus*

Endangered

No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/6903">https://ecos.fws.gov/ecp/species/6903</a>

General project design guidelines:

https://ipac.ecosphere.fws.gov/project/V66Y5NWLJJBWNE3WLJ43HAYEKQ/documents/generated/5639.pdf

#### Snuffbox Mussel Epioblasma triquetra

Endangered

No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/4135">https://ecos.fws.gov/ecp/species/4135</a>

#### Spectaclecase (mussel) *Cumberlandia monodonta*

Endangered

No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/7867">https://ecos.fws.gov/ecp/species/7867</a>

General project design guidelines:

https://ipac.ecosphere.fws.gov/project/V66Y5NWLJJBWNE3WLJ43HAYEKQ/documents/generated/5639.pdf

#### **INSECTS**

NAME STATUS

#### Monarch Butterfly Danaus plexippus

Candidate

No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>

# **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.

# **IPAC USER CONTACT INFORMATION**

Agency: Sargent & Lundy Name: Samantha Country Address: 55 E Monroe St.

City: Chicago

State: IL Zip: 60603

Email samantha.m.country@sargentlundy.com

Phone: 3122696832

# LEAD AGENCY CONTACT INFORMATION

Lead Agency: Department of Agriculture

**Attachment J. USFWS Correspondence** 



# United States Department of the Interior

#### FISH AND WILDLIFE SERVICE

Kentucky Ecological Services Field Office 330 West Broadway, Suite 265 Frankfort, Kentucky 40601 (502) 695-0468

August 3, 2023

Suzanne Kopich USDA, Rural Development Rural Utilities Service 1400 Independence Avenue, S.W. Washington, DC 20250

Subject: FWS 2023-0041139; USDA, Big Rivers Transmission Operations Center;

Daviess County, Kentucky

#### Dear Suzanne Kopich:

The U.S. Fish and Wildlife Service's (Service) Kentucky Field Office (KFO) has reviewed the above-referenced project information and request for concurrence received by our office on June 2, 2023 and additional information provided on July 31, 2023. The United States Department of Agriculture's (USDA) Rural Utilities Service is proposing to fund a transmission operations center in Daviess County, Kentucky. The KFO offers the following comments in accordance with the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

#### **Project Description**

The proposed project consists of constructing one office building, one warehouse, vehicle storage space, outdoor equipment storage, and one loading dock. The project area is located at the southeast intersection of US-60 and KY-331. The project area consists of agricultural field and forested habitat. No stream impacts are proposed. Tree removal is proposed. In addition, Best Management Practices (BMPs) will be implemented to reduce erosion and sedimentation.

#### **Federally Listed Species**

The USDA has determined that the proposed project will have "no effect" on the Clubshell (*Pleurobema clava*), Fanshell (*Cyprogenia stegaria*), Northern Riffleshell (*Epioblasma torulosa rangiana*), Orangefoot Pimpleback (*Plethobasus cooperianus*), Pink Mucket (*Lampsilis abrupta*), Rabbitsfoot (*Quadrula cylindrica cylindrica*), Ring Pink (*Obovaria retusa*), Rough Pigtoe (*Pleurobema plenum*), Sheepnose Mussel (*Plethobasus cyphyus*), Snuffbox Mussel (*Epioblasma triquetra*), and Spectaclecase (*Cumberlandia monodonta*) by utilizing the Service's IPaC Kentucky State-wide Determination Key (IPaC Project code: 2023-0041139). There is no requirement to request concurrence with a "no effect" determination; however, the KFO acknowledges this determination and has no additional comments or concerns regarding these

species. The USDA has also determined that the proposed project has the potential to affect the gray bat (*Myotis grisescens*), Indiana bat (*Myotis sodalis*), and northern long-eared bat (*Myotis septentrionalis*).

#### Gray bat

The KFO has reviewed the concurrence letter generated by the Kentucky State-wide Determination Key (IPaC Record Locator: 690-115540423). Based on the information provided in the concurrence letter, we concur with your determination that the proposed action, "may affect, but is not likely to adversely affect" the gray bat.

#### Indiana bat and northern long-eared bat (NLEB)

No caves or cave-like features that could be used as winter hibernacula by these species are located within the project area. The proposed project will require the removal of 3.15 acres of potential Indiana bat and NLEB habitat. The applicant proposes to remove this habitat during the occupied timeframe, excluding June and July. The applicant has chosen to make a voluntary payment to the Imperiled Bat Conservation Fund (IBCF) as part of the proposed action to address Indiana bat and NLEB habitat loss. A voluntary payment to the IBCF is a conservation measure that is identified in the KFO's 2016 *Revised Conservation Strategy for Forest-Dwelling Bats* (Conservation Strategy). Based on the Conservation Strategy, the voluntary payment to the IBCF should be \$13,702.50\frac{1}{2}.

We have determined that the proposed action is consistent with the actions evaluated in the 2015 Biological Opinion: Kentucky Field Office's Participation in Conservation Memoranda of Agreement for the Indiana Bat and/or Northern Long-eared Bat (BO) that supports the Conservation Strategy. Any incidental take of Indiana bats or NLEBs resulting from forested habitat removal is not prohibited. The BO concludes that this incidental take is not likely to jeopardize the continued existence of the Indiana bat or NLEB. To complete this proposed conservation measure, the applicant should mail the voluntary payment to the Imperiled Bat Conservation Fund administered by Kentucky Natural Lands Trust. The check or money order should be made payable to Kentucky Natural Lands Trust with "Imperiled Bat Conservation Fund" in the memo line. At this time, payments can only be received via U.S. Postal Service delivery due to office closures in response to COVID-19. Payments can be sent by Priority Mail through the U.S. Postal Service for quicker delivery, but do not request a signature.

Mail to:

Imperiled Bat Conservation Fund c/o Kentucky Natural Lands Trust 433 Chestnut Street Berea, KY 40403

<sup>1</sup> The calculated amount is based on the current average value of farm real estate in Kentucky as reported by the U.S. Department of Agriculture in the Land Values and Cash Rents document (\$4,350). This figure is updated annually around the first week in August. If payment is not made prior to August 31, 2023, please contact the KFO to confirm the current cost value.

The voluntary payment should include a cover letter with the following information: the applicant's name, the FWS project number referenced in the subject line of this letter, and a contact name and address to receive the receipt of payment.

#### **Summary**

The KFO concurs that the proposed action, "may affect, but is not likely to adversely affect" the gray bat. The KFO also agrees that the project is consistent with the IBCF process. In view of these findings, we believe that the section 7 requirements of the Endangered Species Act for this project are fulfilled. The USACE should reconsider their section 7 obligation, if: (1) new information reveals that the proposed action may affect listed species in a manner or to an extent not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated.

We appreciate the opportunity to review the proposed project. If you have any questions, please contact Pamela McDill of my staff at <a href="mailto:pamela\_mcdill@fws.gov">pamela\_mcdill@fws.gov</a>.

Sincerely,

VIRGIL ANDREWS Digitally signed by VIRGIL ANDREWS Date: 2023.08.03 16:36:46

Virgil Lee Andrews, Jr. Field Supervisor

**Rural Development** 

June 14, 2023

Rural Utilities Service

Lee Andrews, Jr.

U.S. Fish and Wildlife Service

1400 Independence Ave SW, Room 4121 Stop 1510 Washington, DC

Kentucky Ecological Services Field Office J.C. Watts Federal Building, Room 265

330 West Broadway

Frankfort, Kentucky 40601

Voice 202.961 8514

20250

Re: Project code: 2023-0041139, Transmission Operations Center

Dear Mr. Andrews,

USDA Rural Utilities Service (RUS) is in receipt of an application for financial assistance submitted by Big Rivers Electric Corporation (Big Rivers) for the purpose of constructing a new Transmission Operations Center (TOC Facility/ the Action) located south of the intersection of Henderson Road and Industrial Drive near 3740 U.S. Hwy 60 W, Owensboro, Kentucky. Construction of the TOC Facility would allow Big Rivers to combine its existing Energy Transmission & Substation (ET&S) facility; energy control, planning and compliance operations; engineering; and other support operations at one central location. The proposed TOC Facility would include an office building, warehouse, enclosed and covered vehicle storage space, outdoor equipment storage, and a loading dock. It would be accessible via major thoroughfares in Owensboro, including U.S. Highway 60 W (Wendell Ford Expressway) and Henderson Road (KY-331). The project site currently consists of planted row crop monoculture with approximately 9.26 acres of mixed mast trees and brush on the site. The Action will require the removal of 3.15 acres of trees (site layout and tree removal map follows this letter).

The Information for Planning and Consultation (IPaC) system identified fifteen threatened and endangered species to include 12 mussel species, three bat species, one candidate species, the Monarch Butterfly, and the Whooping Crane, an Experimental Population, Non-Essential.

As the project site is not located in close proximity to streams, RUS is recommending a determination of No Affect for the 12 mussel species. As required by the USFWS, the applicant will complete all excavation and grading and put BMPs in place to stabilize all excavated and graded areas within 1 month. Additionally, there is no suitable habitat or remnants of milkweed that would support the Monarch Butterfly, or marshes and grasslands that would provide suitable habitat for the Whooping Crane.

RUS is recommending a determination of Not Likely to Adversely Affect the Gray Bat, and the Northern Long-eared Bat (NLEB); and May Affect the Indiana Bat. The applicant, Big Rivers, has committed to restricting tree clearing from June 1 through July 31 and will contribute to the Imperiled Bat Conservation Fund as mitigation. The determination letter for the NLEB, dated June 1, 2023, states that the USFWS has 15 days to reconsider their finding of a Not Likely to Adversely Affect the NLEB.

Based on the above analysis, we conclude that financial assistance for this project will have No Effect on the 12 mussel species; is Not Likely to Adversely Affect the NLEB and Gray Bat; and May Affect the Indiana Bat.

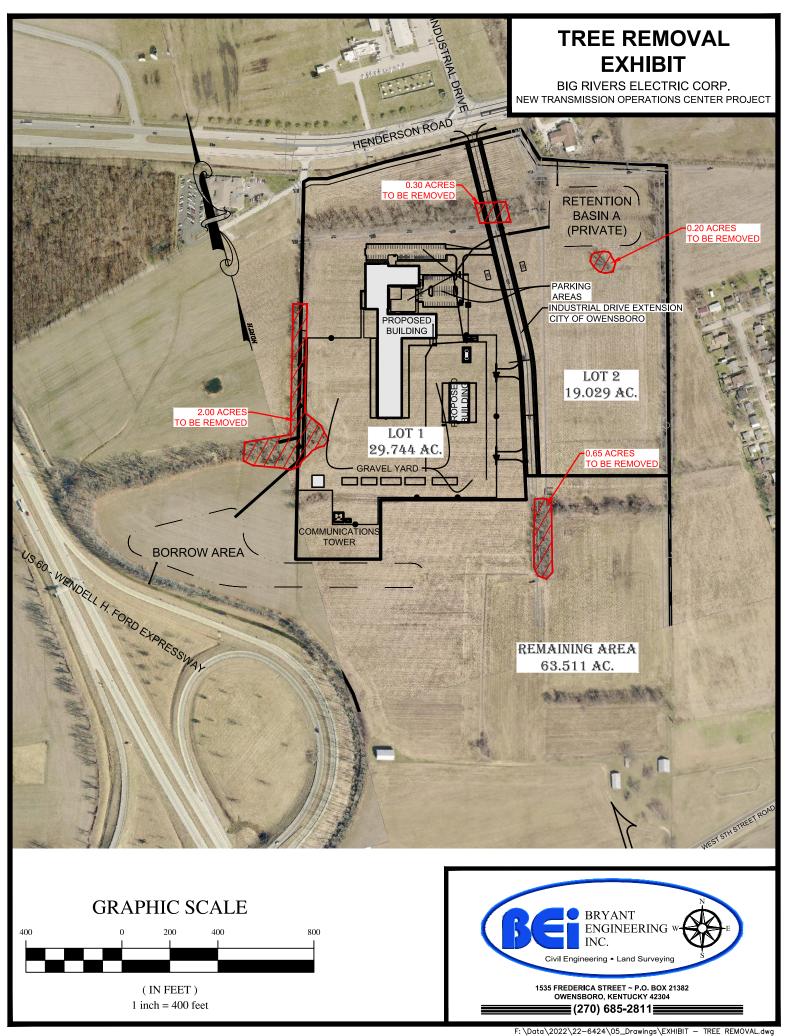
RUS requests that your office review these recommendations for determination of effect and provide comments on this Project as soon as possible. Please feel free to contact me by phone at 202-961-8514, or email for additional information.

Sincerely,

Suzanne Kopich Environmental Protection Specialist Environmental and Historic Preservation Division Rural Utilities Service, Rural Development

#### Attachments

- 1. Revised site layout tree removal map
- 2. June 1, 2023 USFWS Determination Letter
- 3. June 1, 2023 USFWS Determination Letter for NLEB
- 4. April 28, 2023 USFWS Determination Letter for Indiana bat





# United States Department of the Interior



### FISH AND WILDLIFE SERVICE

Kentucky Ecological Services Field Office J C Watts Federal Building, Room 265 330 West Broadway Frankfort, KY 40601-8670

Phone: (502) 695-0468 Fax: (502) 695-1024 Email Address: <u>kentuckyes@fws.gov</u>

In Reply Refer To: June 01, 2023

Project code: 2023-0041139

Project Name: Transmission Operations Center

Subject: Verification letter for the project named 'Transmission Operations Center' for

specified threatened and endangered species that may occur in your proposed project

location consistent with the Kentucky Endangered Species Determination Key

(DKey)

## Dear Suzanne Kopich:

The U.S. Fish and Wildlife Service (Service) received on **June 01, 2023** your effect determination(s) for the 'Transmission Operations Center' (Action) using the Kentucky (DKey) within the Information for Planning and Consultation (IPaC) system. The Service developed this system in accordance with the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

You have agreed to the following conservation measures:

• The project proponent will complete all excavation and grading and put BMPs in place to stabilize all excavated and graded areas within 1 month.

Based on your answers and the assistance of the Service's Kentucky DKey, you made the following effect determination(s) for the proposed Action:

Species	<b>Listing Status</b>	Determination
Clubshell ( <i>Pleurobema clava</i> )	Endangered	No effect
Fanshell ( <i>Cyprogenia stegaria</i> )	Endangered	No effect
Gray Bat (Myotis grisescens)	Endangered	NLAA
Northern Riffleshell ( <i>Epioblasma rangiana</i> )	Endangered	No effect
Orangefoot Pimpleback (pearlymussel) (Plethobasus	Endangered	No effect
cooperianus)		
Pink Mucket (pearlymussel) ( <i>Lampsilis abrupta</i> )	Endangered	No effect
Rabbitsfoot (Quadrula cylindrica cylindrica)	Threatened	No effect
Ring Pink (mussel) ( <i>Obovaria retusa</i> )	Endangered	No effect

Rough Pigtoe (*Pleurobema plenum*)

Sheepnose Mussel (*Plethobasus cyphyus*)

Endangered

No effect

Snuffbox Mussel (*Epioblasma triquetra*)

Endangered

No effect

Spectaclecase (mussel) (*Cumberlandia monodonta*)

Endangered

No effect

#### Consultation Status

**NLAA Determinations:** NLAA determinations are those for which you made a "may affect – not likely to adversely affect" determination for the species for the proposed Action. Species with NLAA determinations are consistent with the programmatic evaluation in the standing analysis of proposed Actions the Kentucky Ecological Services Field Office has identified that typically do not result in significant adverse effects to that species. If you uploaded documents (e.g., survey reports, habitat assessment) to support your "may affect – not likely to adversely affect" (NLAA) determination (these will be listed in the "Qualification Interview" attached to this letter), the Service has 15 calendar days to review those documents and notify you if we determine that those documents are not sufficient to support the determination. If you did not upload supporting documents, the Service has 5 business days to notify you if we determine that the proposed Action does not meet the criteria for a NLAA determination for the species. This verification period allows the Kentucky Ecological Services Field Office to apply local knowledge to evaluation of the Action, as we may identify a small subset of actions having impacts that were unanticipated. In such instances, the Kentucky Ecological Services Field Office may request additional information to verify the effects determination reached through the key. If we do not notify you within the specified timeframes, you may accept this letter as the Service's concurrence with any NLAA determination(s) you made through this key.

The Service recommends that your agency contact the Kentucky Ecological Services Field Office or re-evaluate the Action in IPaC if: 1) the scope, timing, duration, or location of the Action changes, 2) new information reveals the Action may affect listed species or designated critical habitat, or 3) a new species is listed or critical habitat designated. If any of the above conditions occurs, additional consultation with the Kentucky Ecological Services Field Office should take place before project changes are final or resources committed.

The following species and/or critical habitats may also occur in your project area and **are not** covered by this conclusion:

- Indiana Bat Myotis sodalis Endangered
- Longsolid *Fusconaia subrotunda* Threatened
- Monarch Butterfly Danaus plexippus Candidate
- Northern Long-eared Bat Myotis septentrionalis Endangered
- Whooping Crane *Grus americana* Experimental Population, Non-Essential

To address effects to other federally listed or proposed species and/or their designated critical habitat, you can request project-specific review by following the instructions in the "Next Steps" section of your species list letter, or you may use another determination key, if available.

## **Additional Coordination**

To request additional technical assistance or consultation, please email your request to KentuckyES@fws.gov and include relevant site-specific information. The Kentucky Ecological Services Field Office will respond within 30 days of your submittal.

## **Action Description**

You provided to IPaC the following name and description for the subject Action.

#### 1. Name

**Transmission Operations Center** 

## 2. Description

The following description was provided for the project 'Transmission Operations Center':

Big Rivers is proposing to construct a new Transmission Operations Center (the "TOC Facility") located south of the intersection of Henderson Road and Industrial Drive near 3740 U.S. Hwy 60 W, Owensboro, Kentucky (the "Project"). Construction of the TOC Facility will allow Big Rivers to combine its existing Energy Transmission & Substation (ET&S) facility; Energy Control, Planning & Compliance operations; Engineering; and other support operations at one central location. The TOC Facility, which includes an office building, warehouse, enclosed and covered vehicle storage space, outdoor equipment storage, and a loading dock, will be accessible via major thoroughfares in Owensboro, including U.S. Highway 60 W (Wendell Ford Expressway) and Henderson Road (KY-331). Big Rivers anticipates utilizing Rural Utility Service (RUS) loans or loan guarantees to finance construction of the TOC Facility. RUS, a division within the U.S. Department of Agriculture's (USDA) Rural Development Agency, provides financing for water and waste treatment, electric power, and telecommunications infrastructure or infrastructure improvements serving rural communities.

Construction of the TOC Facility will impact approximately 30 acres of the 114-acre site Big Rivers acquired for the proposed Project.

The approximate location of the project can be viewed in Google Maps: <a href="https://www.google.com/maps/@37.7690171,-87.15944427348667,14z">https://www.google.com/maps/@37.7690171,-87.15944427348667,14z</a>



## QUALIFICATION INTERVIEW

1. Will the proposed Action involve Federal funding, permitting, or authorization, or will it be carried out by a Federal Agency?

Yes

2. Are you the lead Federal Action Agency or designated non-federal representative requesting concurrence on behalf of the lead Federal Action Agency?

No

3. [Hidden Semantic] Does the action area intersect critical habitat?

#### **Automatically answered**

No

4. Will the proposed Action involve construction or operation of wind turbines?

No

5. Will the proposed Action involve blasting (other than a fireworks display)?

No

6. Will the proposed Action involve a new point source discharge from a facility other than a water treatment plant or storm water system?

No

- 7. Will the proposed Action involve the creation of a new water-borne contaminant source (e.g. leachate pond, pits containing chemicals that are not NSF/ANSI 60 compliant)?

  No
- 8. Will the proposed Action include the removal, replacement, repair and/or maintenance of an existing bridge or culvert?

No

9. Will the proposed Action involve perennial stream loss that would require an individual permit under 404 of the Clean Water Act?

No

10. Will the proposed Action involve discharge of sediment into a stream?

No

11. Does the Action Area contain any caves (including their associated sinkholes, fissures, or other karst features), rockshelters, underground quarries, or abandoned mine portals (including associated underground workings)?

No

12. [Hidden Semantic] Does the Action Area intersect the Kentucky AOI of the gray bat?

#### Automatically answered

Yes

13. Will the proposed Action involve drilling or boring?

No

14. Based on the responses you have provided, we believe that the proposed Action is consistent with the type of Actions programmatically evaluated by the Service's Kentucky Field Office under the standing analyses that support this determination key. These Actions typically conclude with "no effect" or "may affect - not likely to adversely affect" determinations for the gray bat.

What is your effect determination for the **gray bat**?

**Note:** IPaC will not provide a concurrence for "no effect" determinations, because there is no statutory requirement to request concurrence from the Service. IPaC will provide concurrence for "May affect – not likely to adversely affect" determinations. If you choose "May affect – likely to adversely affect" or "Unsure," additional coordination with the Service is recommended.

- 2. "May affect not likely to adversely affect"
- 15. Will the proposed Action involve a new point source discharge into a stream or change an existing point source discharge (e.g., outfalls; leachate ponds)? *No*
- 16. Will the proposed Action include any activities that would alter stream flow, such as hydropower energy production, impoundments, intake structures, diversion structures, and/or turbines?

No

- 17. Will the proposed Action involve dredging or in-stream gravel mining? *No*
- 18. Will the proposed Action involve resource extraction (e.g., mining, oil/gas, logging), including exploration activities?

No

- 19. Will the proposed Action involve stream impacts (perennial or intermittent) that would require an individual permit under 404 of the Clean Water Act?

  No
- 20. Will the proposed Action involve activities that would contribute measureable nonpoint source pollution to streams (e.g., sediment, nutrients, etc.)? See the following EPA webpage for more examples of nonpoint source pollution and activities that can produce it: <a href="https://www.epa.gov/nps/basic-information-about-nonpoint-source-nps-pollution">https://www.epa.gov/nps/basic-information-about-nonpoint-source-nps-pollution</a>
  No
- 21. Will the proposed Action involve new or increased use of public recreational OHV trails? *No*
- 22. Will the proposed Action disturb the channel or bank of a perennial or intermittent stream? *No*
- 23. Will the proposed Action disturb the channel or bank of an ephemeral stream? *No*

24. Will the proposed Action involve vegetation removal within 200 feet of a perennial stream bank?

No

25. Will the proposed Action involve excavation or grading, including for the construction or improvement of an access road?

Yes

26. Are all areas proposed for excavation or grading situated more than 200 feet from the banks of perennial and intermittent streams?

Yes

27. Are any areas proposed for excavation or grading located in or partly in a "special flood hazard area" as designated by FEMA? You can determine this by searching for your project area at the FEMA Flood Map Service Center (<a href="https://msc.fema.gov/portal/home">https://msc.fema.gov/portal/home</a>. For technical assistance please contact the Field Office listed in the letterhead of your project's official species list.

No

28. Will the excavation or grading create new water bars or ditches that will channel stormwater into a stream?

No

29. Will the project proponent complete all excavation and grading activities and subsequent soil stabilization measures within 1 month?

Yes

30. [Hidden Semantic] Does the project area intersect the AOI of the snuffbox?

## Automatically answered

Yes

31. Based on the responses you have provided, we believe that the proposed Action is consistent with the type of Actions programmatically evaluated by the Service's Kentucky Field Office under the standing analyses that support this determination key. These Actions typically conclude with "no effect" or "may affect - not likely to adversely affect" determinations for the snuffbox.

What determination do you want to make for the **snuffbox**:

**Note:** IPaC will not provide a concurrence for "no effect" determinations, because there is no statutory requirement to request concurrence from the Service. IPaC will provide concurrence for "May affect – not likely to adversely affect" determinations. If you choose "May affect – likely to adversely affect" or "Unsure," additional coordination with the Service is recommended.

1. "No effect"

32. [Hidden Semantic] Does the project area intersect the AOI of the clubshell (*Pleurobema clava*)?

#### Automatically answered

33. Based on the responses you have provided, we believe that the proposed Action is consistent with the type of Actions programmatically evaluated by the Service's Kentucky Field Office under the standing analyses that support this determination key. These Actions typically conclude with "no effect" or "may affect - not likely to adversely affect" determinations for the clubshell.

What determination do you want to make for the **clubshell**:

**Note:** IPaC will not provide a concurrence for "no effect" determinations, because there is no statutory requirement to request concurrence from the Service. IPaC will provide concurrence for "May affect – not likely to adversely affect" determinations. If you choose "May affect – likely to adversely affect" or "Unsure," additional coordination with the Service is recommended.

- 1. "No effect"
- 34. [Hidden Semantic] Does the project area intersect the AOI of the fanshell (*Cyprogenia stegaria*)?

Automatically answered

Yes

35. Based on the responses you have provided, we believe that the proposed Action is consistent with the type of Actions programmatically evaluated by the Service's Kentucky Field Office under the standing analyses that support this determination key. These Actions typically conclude with "no effect" or "may affect - not likely to adversely affect" determinations for the fanshell.

What is your effect determination for the **fanshell**:

**Note:** IPaC will not provide a concurrence for "no effect" determinations, because there is no statutory requirement to request concurrence from the Service. IPaC will provide concurrence for "May affect – not likely to adversely affect" determinations. If you choose "May affect – likely to adversely affect" or "Unsure," additional coordination with the Service is recommended.

- 1. "No effect"
- 36. [Hidden Semantic] Does the project area intersect the AOI of the northern riffleshell (*Epioblasma torulosa rangiana*)?

Automatically answered

37. Based on the responses you have provided, we believe that the proposed Action is consistent with the type of Actions programmatically evaluated by the Service's Kentucky Field Office under the standing analyses that support this determination key. These Actions typically conclude with "no effect" or "may affect - not likely to adversely affect" determinations for the northern riffleshell.

What is your effect determination for the **northern riffleshell**:

**Note:** IPaC will not provide a concurrence for "no effect" determinations, because there is no statutory requirement to request concurrence from the Service. IPaC will provide concurrence for "May affect – not likely to adversely affect" determinations. If you choose "May affect – likely to adversely affect" or "Unsure," additional coordination with the Service is recommended.

- 1. "No effect"
- 38. [Hidden Semantic] Does the project area intersect the AOI of the orangefoot pimpleback (*Plethobascus cooperianus*)?

Automatically answered Yes

39. Based on the responses you have provided, we believe that the proposed Action is consistent with the type of Actions programmatically evaluated by the Service's Kentucky Field Office under the standing analyses that support this determination key. These Actions typically conclude with "no effect" or "may affect - not likely to adversely affect" determinations for the orangefoot pimpleback.

What is your effect determination for the **orangefoot pimpleback**:

**Note:** IPaC will not provide a concurrence for "no effect" determinations, because there is no statutory requirement to request concurrence from the Service. IPaC will provide concurrence for "May affect – not likely to adversely affect" determinations. If you choose "May affect – likely to adversely affect" or "Unsure," additional coordination with the Service is recommended.

- 1. "No effect"
- 40. [Hidden Semantic] Does the project area intersect the AOI of the pink mucket (*Lampsilis abrupta*)?

Automatically answered

41. Based on the responses you have provided, we believe that the proposed Action is consistent with the type of Actions programmatically evaluated by the Service's Kentucky Field Office under the standing analyses that support this determination key. These Actions typically conclude with "no effect" or "may affect - not likely to adversely affect" determinations for the pink mucket.

What is your effect determination for the **pink mucket**:

**Note:** IPaC will not provide a concurrence for "no effect" determinations, because there is no statutory requirement to request concurrence from the Service. IPaC will provide concurrence for "May affect – not likely to adversely affect" determinations. If you choose "May affect – likely to adversely affect" or "Unsure," additional coordination with the Service is recommended.

- 1. "No effect"
- 42. [Hidden Semantic] Does the project area intersect the AOI of the rabbitsfoot (*Theliderma (= Quadrula) cylindrica*)?

Automatically answered

Yes

43. Based on the responses you have provided, we believe that the proposed Action is consistent with the type of Actions programmatically evaluated by the Service's Kentucky Field Office under the standing analyses that support this determination key. These Actions typically conclude with "no effect" or "may affect - not likely to adversely affect" determinations for the rabbitsfoot.

What is your effect determination for the **rabbitsfoot**:

**Note:** IPaC will not provide a concurrence for "no effect" determinations, because there is no statutory requirement to request concurrence from the Service. IPaC will provide concurrence for "May affect – not likely to adversely affect" determinations. If you choose "May affect – likely to adversely affect" or "Unsure," additional coordination with the Service is recommended.

- 1. "No effect"
- 44. [Hidden Semantic] Does the project area intersect the AOI of the ring pink (*Obovaria retusa*)?

Automatically answered

45. Based on the responses you have provided, we believe that the proposed Action is consistent with the type of Actions programmatically evaluated by the Service's Kentucky Field Office under the standing analyses that support this determination key. These Actions typically conclude with "no effect" or "may affect - not likely to adversely affect" determinations for the ring pink.

What is your effect determination for the **ring pink**:

**Note:** IPaC will not provide a concurrence for "no effect" determinations, because there is no statutory requirement to request concurrence from the Service. IPaC will provide concurrence for "May affect – not likely to adversely affect" determinations. If you choose "May affect – likely to adversely affect" or "Unsure," additional coordination with the Service is recommended.

- 1. "No effect"
- 46. [Hidden Semantic] Does the project area intersect the AOI of the rough pigtoe (*Pleurobema plenum*)?

Automatically answered Yes

47. Based on the responses you have provided, we believe that the proposed Action is consistent with the type of Actions programmatically evaluated by the Service's Kentucky Field Office under the standing analyses that support this determination key. These Actions typically conclude with "no effect" or "may affect - not likely to adversely affect" determinations for the rough pigtoe.

What is your effect determination for the **rough pigtoe**:

**Note:** IPaC will not provide a concurrence for "no effect" determinations, because there is no statutory requirement to request concurrence from the Service. IPaC will provide concurrence for "May affect – not likely to adversely affect" determinations. If you choose "May affect – likely to adversely affect" or "Unsure," additional coordination with the Service is recommended.

- 1. "No effect"
- 48. [Hidden Semantic] Does the project area intersect the AOI of the sheepnose (Plethobasus cyphyus)?

Automatically answered

49. Based on the responses you have provided, we believe that the proposed Action is consistent with the type of Actions programmatically evaluated by the Service's Kentucky Field Office under the standing analyses that support this determination key. These Actions typically conclude with "no effect" or "may affect - not likely to adversely affect" determinations for the sheepnose.

What is your effect determination for the **sheepnose**:

**Note:** IPaC will not provide a concurrence for "no effect" determinations, because there is no statutory requirement to request concurrence from the Service. IPaC will provide concurrence for "May affect – not likely to adversely affect" determinations. If you choose "May affect – likely to adversely affect" or "Unsure," additional coordination with the Service is recommended.

- 1. "No effect"
- 50. [Hidden Semantic] Does the project area intersect the AOI of the spectaclecase (*Margaritifera* (= *Cumberlandia*) *monodonta*)?

Automatically answered Yes

51. Based on the responses you have provided, we believe that the proposed Action is consistent with the type of Actions programmatically evaluated by the Service's Kentucky Field Office under the standing analyses that support this determination key. These Actions typically conclude with "no effect" or "may affect - not likely to adversely affect" determinations for the spectaclecase.

What is your effect determination for the **spectaclecase**:

**Note:** IPaC will not provide a concurrence for "no effect" determinations, because there is no statutory requirement to request concurrence from the Service. IPaC will provide concurrence for "May affect – not likely to adversely affect" determinations. If you choose "May affect – likely to adversely affect" or "Unsure," additional coordination with the Service is recommended.

1. "No effect"

## **IPAC USER CONTACT INFORMATION**

Agency: Department of Agriculture

Name: Suzanne Kopich

Address: 1400 Independence Ave, S.W.

City: Washington

State: DC Zip: 20250

Email suzanne.kopich@usda.gov

Phone: 2029618514



# United States Department of the Interior



### FISH AND WILDLIFE SERVICE

Kentucky Ecological Services Field Office J C Watts Federal Building, Room 265 330 West Broadway Frankfort, KY 40601-8670

Phone: (502) 695-0468 Fax: (502) 695-1024 Email Address: <u>kentuckyes@fws.gov</u>

In Reply Refer To: June 01, 2023

Project code: 2023-0041139

Project Name: Transmission Operations Center

Federal Nexus: yes

Federal Action Agency (if applicable): Department of Agriculture

**Subject:** Federal agency coordination under the Endangered Species Act, Section 7 for

'Transmission Operations Center'

## Dear Suzanne Kopich:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on June 01, 2023, for 'Transmission Operations Center' (here forward, Project). This project has been assigned Project Code 2023-0041139 and all future correspondence should clearly reference this number. **Please carefully review this letter. Your Endangered Species Act (Act) requirements may not be complete.** 

### **Ensuring Accurate Determinations When Using IPaC**

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into the IPaC must accurately represent the full scope and details of the Project. Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat Rangewide Determination Key (DKey), invalidates this letter.

### **Determination for the Northern Long-Eared Bat**

Based upon your IPaC submission and a standing analysis completed by the Service, your project has reached the determination of "May Affect, Not Likely to Adversely Affect" the northern long-eared bat. Unless the Service advises you within 15 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that consultation on the Action is complete and no further action is necessary unless either of the following occurs:

- new information reveals effects of the action that may affect the northern long-eared bat in a manner or to an extent not previously considered; or,
- the identified action is subsequently modified in a manner that causes an effect to the northern long-eared bat that was not considered when completing the determination key.

## 15-Day Review Period

As indicated above, the Service will notify you within 15 calendar days if we determine that this proposed Action does not meet the criteria for a "may affect, not likely to adversely affect" (NLAA) determination for the northern long-eared bat. If we do not notify you within that timeframe, you may proceed with the Action under the terms of the NLAA concurrence provided here. This verification period allows the identified Ecological Services Field Office to apply local knowledge to evaluation of the Action, as we may identify a small subset of actions having impacts that we did not anticipate when developing the key. In such cases, the identified Ecological Services Field Office may request additional information to verify the effects determination reached through the Northern Long-eared Bat DKey.

## Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination for the northern long-eared bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Clubshell *Pleurobema clava* Endangered
- Fanshell *Cyprogenia stegaria* Endangered
- Gray Bat Myotis grisescens Endangered
- Indiana Bat Myotis sodalis Endangered
- Longsolid Fusconaia subrotunda Threatened
- Monarch Butterfly Danaus plexippus Candidate
- Northern Riffleshell Epioblasma rangiana Endangered
- Orangefoot Pimpleback (pearlymussel) Plethobasus cooperianus Endangered
- Pink Mucket (pearlymussel) *Lampsilis abrupta* Endangered
- Rabbitsfoot *Quadrula cylindrica cylindrica* Threatened
- Ring Pink (mussel) Obovaria retusa Endangered
- Rough Pigtoe *Pleurobema plenum* Endangered
- Sheepnose Mussel Plethobasus cyphyus Endangered
- Snuffbox Mussel Epioblasma triquetra Endangered
- Spectaclecase (mussel) *Cumberlandia monodonta* Endangered
- Whooping Crane *Grus americana* Experimental Population, Non-Essential

You may coordinate with our Office to determine whether the Action may affect the species and/ or critical habitat listed above. Note that reinitiation of consultation would be necessary if a new species is listed or critical habitat designated that may be affected by the identified action before it is complete.

If you have any questions regarding this letter or need further assistance, please contact the Kentucky Ecological Services Field Office and reference Project Code 2023-0041139 associated with this Project.

## **Action Description**

You provided to IPaC the following name and description for the subject Action.

#### 1. Name

Transmission Operations Center

## 2. Description

The following description was provided for the project 'Transmission Operations Center':

Big Rivers is proposing to construct a new Transmission Operations Center (the "TOC Facility") located south of the intersection of Henderson Road and Industrial Drive near 3740 U.S. Hwy 60 W, Owensboro, Kentucky (the "Project"). Construction of the TOC Facility will allow Big Rivers to combine its existing Energy Transmission & Substation (ET&S) facility; Energy Control, Planning & Compliance operations; Engineering; and other support operations at one central location. The TOC Facility, which includes an office building, warehouse, enclosed and covered vehicle storage space, outdoor equipment storage, and a loading dock, will be accessible via major thoroughfares in Owensboro, including U.S. Highway 60 W (Wendell Ford Expressway) and Henderson Road (KY-331). Big Rivers anticipates utilizing Rural Utility Service (RUS) loans or loan guarantees to finance construction of the TOC Facility. RUS, a division within the U.S. Department of Agriculture's (USDA) Rural Development Agency, provides financing for water and waste treatment, electric power, and telecommunications infrastructure or infrastructure improvements serving rural communities.

Construction of the TOC Facility will impact approximately 30 acres of the 114-acre site Big Rivers acquired for the proposed Project.

The approximate location of the project can be viewed in Google Maps: <a href="https://www.google.com/maps/@37.7690171,-87.15944427348667,14z">https://www.google.com/maps/@37.7690171,-87.15944427348667,14z</a>



## **DETERMINATION KEY RESULT**

Based on the answers provided, the proposed Action is consistent with a determination of "may affect, but not likely to adversely affect" for the Endangered northern long-eared bat (*Myotis septentrionalis*).

## QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of the northern long-eared bat or any other listed species?

**Note:** Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

No

2. Do you have post-white nose syndrome occurrence data that indicates that northern long-eared bats (NLEB) are likely to be present in the action area?

Bat occurrence data may include identification of NLEBs in hibernacula, capture of NLEBs, tracking of NLEBs to roost trees, or confirmed acoustic detections. With this question, we are looking for data that, for some reason, may have not yet been made available to U.S. Fish and Wildlife Service.

No

3. Does any component of the action involve construction or operation of wind turbines?

**Note:** For federal actions, answer 'yes' if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.). *No* 

4. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

Yes

5. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) funding or authorizing the proposed action, in whole or in part?

No

6. Are you an employee of the federal action agency or have you been officially designated in writing by the agency as its designated non-federal representative for the purposes of Endangered Species Act Section 7 informal consultation per 50 CFR § 402.08?

**Note:** This key may be used for federal actions and for non-federal actions to facilitate section 7 consultation and to help determine whether an incidental take permit may be needed, respectively. This question is for information purposes only.

No

7. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)? Is the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC) funding or authorizing the proposed action, in whole or in part?

No

8. Have you determined that your proposed action will have no effect on the northern longeared bat? Remember to consider the <u>effects of any activities</u> that would not occur but for the proposed action.

If you think that the northern long-eared bat may be affected by your project or if you would like assistance in deciding, answer "No" below and continue through the key. If you have determined that the northern long-eared bat does not occur in your project's action area and/or that your project will have no effects whatsoever on the species despite the potential for it to occur in the action area, you may make a "no effect" determination for the northern long-eared bat.

**Note:** Federal agencies (or their designated non-federal representatives) must consult with USFWS on federal agency actions that may affect listed species [50 CFR 402.14(a)]. Consultation is not required for actions that will not affect listed species or critical habitat. Therefore, this determination key will not provide a consistency or verification letter for actions that will not affect listed species. If you believe that the northern long-eared bat may be affected by your project or if you would like assistance in deciding, please answer "No" and continue through the key. Remember that this key addresses only effects to the northern long-eared bat. Consultation with USFWS would be required if your action may affect another listed species or critical habitat. The definition of <a href="Effects of the Action">Effects of the Action</a> can be found here: <a href="https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions">https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions</a>

No

9. Does the action area contain any caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating northern long-eared bats?

No

10. Is suitable summer habitat for the northern long-eared bat present within 1000 feet of project activities?

(If unsure, answer "Yes.")

**Note:** If there are trees within the action area that are of a sufficient size to be potential roosts for bats (i.e., live trees and/or snags ≥3 inches (12.7 centimeter) dbh), answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat can be found at: <a href="https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions">https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions</a>

Yes

11. Will the action cause effects to a bridge?

No

12. Will the action result in effects to a culvert or tunnel?

Nο

13. Does the action include the intentional exclusion of northern long-eared bats from a building or structure?

**Note:** Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local U.S. Fish and Wildlife Services Ecological Services Field Office to help assess whether northern long-eared bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures

No

- 14. Does the action involve removal, modification, or maintenance of a human-made structure (barn, house, or other building) **known or suspected to contain roosting bats?** *No*
- 15. Will the action cause construction of one or more new roads open to the public?

For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

No

16. Will the action include or cause any construction or other activity that is reasonably certain to increase average daily traffic on one or more existing roads?

**Note:** For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

17. Will the increased vehicle traffic occur on any road that lies between any two areas of contiguous forest that are each greater than or equal to 10 acres in extent and are separated by less than 1,000 feet? Northern long-eared bats may cross a road by flying between forest patches that are up to 1,000 feet apart.

**Note:** "Contiguous forest" of 10 acres or more may includes areas where multiple forest patches are separated by less than 1,000 feet of non-forested area if the forested patches, added together, comprise at least 10 acres.

No

- 18. Will the proposed action involve the creation of a new water-borne contaminant source (e.g., leachate pond pits containing chemicals that are not NSF/ANSI 60 compliant)?

  No
- 19. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?
  No
- 20. Will the proposed action involve blasting? *No*
- 21. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use)?
- 22. Will the proposed action involve the use of herbicides or pesticides other than herbicides (e.g., fungicides, insecticides, or rodenticides)?

  No
- 23. Will the action include or cause activities that are reasonably certain to cause chronic nighttime noise in suitable summer habitat for the northern long-eared bat? Chronic noise is noise that is continuous or occurs repeatedly again and again for a long time.

**Note:** Additional information defining suitable summer habitat for the northern long-eared bat can be found at: <a href="https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions">https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions</a> **No** 

24. Does the action include, or is it reasonably certain to cause, the use of artificial lighting within 1000 feet of suitable northern long-eared bat roosting habitat?

**Note:** Additional information defining suitable roosting habitat for the northern long-eared bat can be found at: <a href="https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions">https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions</a> **Yes** 

25. Will the action use only downward-facing, full cut-off lens lights (with same intensity or less for replacement lighting) when installing new or replacing existing permanent lights? Or for those transportation agencies using the Backlight, Uplight, Glare (BUG) system developed by the Illuminating Engineering Society, will all three ratings (backlight, uplight, and glare) be as close to zero as is possible, with a priority of "uplight" of 0?

No

26. Will the proposed action result in the cutting or other means of knocking down, bringing down, or trimming of any trees suitable for northern long-eared bat roosting?

**Note:** Suitable northern long-eared bat roost trees are live trees and/or snags  $\geq 3$  inches dbh that have exfoliating bark, cracks, crevices, and/or cavities.

## **PROJECT QUESTIONNAIRE**

Enter the extent of the action area (in acres) from which trees will be removed - round up to the nearest tenth of an acre. For this question, include the entire area where tree removal will take place, even if some live or dead trees will be left standing.

5.1

In what extent of the area (in acres) will trees be cut, knocked down, or trimmed during the <u>inactive</u> (hibernation) season for northern long-eared bat? **Note:** Inactive Season dates for spring staging/fall swarming areas can be found here: <a href="https://www.fws.gov/media/inactive-season-dates-swarming-and-staging-areas">https://www.fws.gov/media/inactive-season-dates-swarming-and-staging-areas</a>

0

In what extent of the area (in acres) will trees be cut, knocked down, or trimmed during the <u>active</u> (non-hibernation) season for northern long-eared bat? **Note:** Inactive Season dates for spring staging/fall swarming areas can be found here: <a href="https://www.fws.gov/media/inactive-season-dates-swarming-and-staging-areas">https://www.fws.gov/media/inactive-season-dates-swarming-and-staging-areas</a>

5.1

Will all potential northern long-eared bat (NLEB) roost trees (trees ≥3 inches diameter at breast height, dbh) be cut, knocked, or brought down from any portion of the action area greater than or equal to 0.1 acre? If all NLEB roost trees will be removed from multiple areas, select 'Yes' if the cumulative extent of those areas meets or exceeds 0.1 acre.

Yes

Enter the extent of the action area (in acres) from which all potential NLEB roost trees will be removed. If all NLEB roost trees will be removed from multiple areas, entire the total extent of those areas. Round up to the nearest tenth of an acre.

5.1

For the area from which all potential northern long-eared bat (NLEB) roost trees will be removed, on how many acres (round to the nearest tenth of an acre) will trees be allowed to regrow? Enter '0' if the entire area from which all potential NLEB roost trees are removed will be developed or otherwise converted to non-forest for the foreseeable future.

0

Will any snags (standing dead trees) ≥3 inches dbh be left standing in the area(s) in which all northern long-eared bat roost trees will be cut, knocked down, or otherwise brought down?

No

Will all project activities by completed by April 1, 2024?

## **IPAC USER CONTACT INFORMATION**

Agency: Department of Agriculture

Name: Suzanne Kopich

Address: 1400 Independence Ave, S.W.

City: Washington

State: DC Zip: 20250

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# United States Department of the Interior



### FISH AND WILDLIFE SERVICE

Kentucky Ecological Services Field Office J C Watts Federal Building, Room 265 330 West Broadway Frankfort, KY 40601-8670

Phone: (502) 695-0468 Fax: (502) 695-1024 Email Address: <u>kentuckyes@fws.gov</u>

In Reply Refer To: April 28, 2023

Project code: 2023-0041139

Project Name: Transmission Operations Center

Subject: Consistency letter for the project named 'Transmission Operations Center' for the

endangered Indiana bat and its critical habitat in the proposed project location,

pursuant to the Indiana Bat Determination Key (DKey)

### Dear Samantha Country:

The U.S. Fish and Wildlife Service (Service) received on **April 28, 2023** your effect determination(s) for the 'Transmission Operations Center' using the Indiana Bat DKey within the Information for Planning and Consultation (IPaC) system. The Service developed this system in accordance with the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based on your answers and the assistance of the Service's Indiana Bat DKey, you made the following effect determination(s) for the proposed Action:

SpeciesListing StatusDeterminationIndiana Bat (Myotis sodalis)EndangeredMay affect

#### **Consultation Status**

May Affect Determinations: Species with May Affect determinations are those for which the DKey was unable to provide a conclusion or those for which you were either unsure about the determination or you chose to make a "may affect" determination. If the DKey was unable to provide a conclusion, this does not necessarily mean that the project is likely to adversely affect the species. If you think the project may affect the species or want additional technical assistance, please follow the instructions in the "Additional Coordination" section below. If a federal action agency chooses to make a "no effect" determination for the species, there is no statutory requirement to request concurrence with that determination; however, the federal action agency should document the supporting information for this determination in their files. This documentation would typically demonstrate a lack of suitable habitat within the action area,

show that no impacts to suitable habitat would occur, or provide information that the species is not reasonably certain to occur in the action area even though suitable habitat is present.

In addition to the Indiana bat, the following species and/or critical habitats may also occur in your project area and **are not** covered by this conclusion:

- Clubshell *Pleurobema clava* Endangered
- Fanshell *Cyprogenia stegaria* Endangered
- Gray Bat *Myotis grisescens* Endangered
- Longsolid Fusconaia subrotunda Threatened
- Monarch Butterfly Danaus plexippus Candidate
- Northern Long-eared Bat *Myotis septentrionalis* Endangered
- Northern Riffleshell *Epioblasma rangiana* Endangered
- Orangefoot Pimpleback (pearlymussel) Plethobasus cooperianus Endangered
- Pink Mucket (pearlymussel) *Lampsilis abrupta* Endangered
- Rabbitsfoot Quadrula cylindrica cylindrica Threatened
- Ring Pink (mussel) Obovaria retusa Endangered
- Rough Pigtoe *Pleurobema plenum* Endangered
- Sheepnose Mussel Plethobasus cyphyus Endangered
- Snuffbox Mussel Epioblasma triquetra Endangered
- Spectaclecase (mussel) Cumberlandia monodonta Endangered
- Whooping Crane Grus americana Experimental Population, Non-Essential

To address effects to other federally listed or proposed species and/or their designated critical habitat, you can request project-specific review by following the instructions in the "Next Steps" section of your species list letter, or you may use another determination key, if available.

#### **Additional Coordination**

To request additional technical assistance or consultation, please contact the Kentucky Ecological Services Field Office . When you contact the office, please provide all relevant site-specific information regarding the proposed Action. The Kentucky Ecological Services Field Office will respond within 30 to 60 days of your submittal.

## **Action Description**

You provided to IPaC the following name and description for the subject Action.

#### 1. Name

**Transmission Operations Center** 

## 2. Description

The following description was provided for the project 'Transmission Operations Center':

Big Rivers is proposing to construct a new Transmission Operations Center (the "TOC Facility") located south of the intersection of Henderson Road and Industrial Drive near 3740 U.S. Hwy 60 W, Owensboro, Kentucky (the "Project"). Construction of the TOC Facility will allow Big Rivers to combine its existing Energy Transmission & Substation (ET&S) facility; Energy Control, Planning & Compliance operations; Engineering; and other support operations at one central location. The TOC Facility, which includes an office building, warehouse, enclosed and covered vehicle storage space, outdoor equipment storage, and a loading dock, will be accessible via major thoroughfares in Owensboro, including U.S. Highway 60 W (Wendell Ford Expressway) and Henderson Road (KY-331). Big Rivers anticipates utilizing Rural Utility Service (RUS) loans or loan guarantees to finance construction of the TOC Facility. RUS, a division within the U.S. Department of Agriculture's (USDA) Rural Development Agency, provides financing for water and waste treatment, electric power, and telecommunications infrastructure or infrastructure improvements serving rural communities.

Construction of the TOC Facility will impact approximately 30 acres of the 114-acre site Big Rivers acquired for the proposed Project.

The approximate location of the project can be viewed in Google Maps: <a href="https://www.google.com/maps/@37.7690171,-87.15944427348667,14z">https://www.google.com/maps/@37.7690171,-87.15944427348667,14z</a>



## QUALIFICATION INTERVIEW

1. Will the proposed action involve Federal funding, permitting, or authorization, or will it be carried out by a Federal Agency?

Yes

2. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) the lead Federal Agency for this action.

No

3. Are you the lead Federal Action Agency or designated non-federal representative requesting concurrence on behalf of the lead Federal Action Agency?
Ves

4. [Semantic] Is the Action Area within 1/2-mile of a known Indiana bat hibernaculum?

Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact the Field Office listed in the letterhead of this letter.

### Automatically answered

No

5. If you have determined that the Indiana bat is unlikely to occur to within your project's Action Area or that your project is unlikely to have any potential impacts on the Indiana bat, you may wish to make a "No Effect" determination for the Indiana bat. Would you like to make a No Effect determination for the Indiana bat?

**Note:** A "No Effect" determination does not require concurrence from the Service; however, you should document the supporting information for this determination in your files. This documentation would typically demonstrate a lack of suitable habitat within the action area, show that no impacts to suitable habitat would occur, or provide information that the species is not reasonably certain to occur in the action area even though suitable habitat is present. If you believe the Indiana bat may be affected by your project or if you would like assistance in making a determination, please answer "no" and continue through the key.

No

No

- 6. Will the proposed Action involve construction or operation of wind turbines? *No*
- 7. Will the proposed Action involve blasting, other than a fireworks display? *No*
- 8. Will the proposed Action involve a new point source discharge from a facility other than a water treatment plant or storm water system?
- 9. Will the proposed Action involve the creation of a new water-borne contaminant source (e.g., leachate pond, pits containing chemicals that are not NSF/ANSI 60 compliant)? *No*

10. Will the proposed Action include the removal, replacement, repair and/or maintenance of an existing bridge?

No

11. Will the proposed Action involve perennial stream loss that would require an individual permit under 404 of the Clean Water Act?

No

12. Will the proposed Action involve discharge of sediment into a stream?

No

13. Does the Action Area contain any caves (including their associated sinkholes, fissures, or other karst features), rockshelters, underground quarries, or abandoned mine portals (including associated underground workings)?

No

14. Will the proposed project result in the removal of trees?

Yes

15. Did a habitat model applicable to the project site determine the project site to be of low probability for use by Indiana bats?

**Note:** This question will most commonly be answered "no." If the answer to this question is "yes", you will be required to upload your **Habitat Model Report** 

No

16. Will the proposed project result in the removal of potentially suitable summer habitat for the Indiana bat? Suitable summer habitat for Indiana bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel. This includes forests and woodlots, linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree (live tree and/or snag ≥5 inches diameter at breast height (dbh) (12.7 centimeter) that has exfoliating bark, cracks, crevices, and/or hollows) and are located within 1,000 feet (305 meters) of other forested/wooded habitat. See the Indiana Bat Summer Survey Guidelines for addition description (https://www.fws.gov/sites/default/files/documents/Range-wide-Indiana-bat-survey-guidelines-March-23-2020.pdf).

Note: If "no" upload a document with photos representative of the forested habitat to be removed.

17. Will the proposed Action remove any suitable (primary or alternate) Indiana bat roost trees? Suitable Indiana bat roost trees are live trees and/or snags ≥5 inches diameter at breast height (dbh) (12.7 centimeter) that have exfoliating bark, cracks, crevices, and/or hollows.

**Note:** If "no" upload a document with photos representative of the forested habitat to be removed. *Yes* 

18. Will the proposed Action remove any suitable primary roost trees? Suitable Indiana bat primary roost trees are live trees and/or snags 9 inches diameter at breast height (dbh) or greater that have exfoliating bark, cracks, crevices, and/or hollows.

**Note:** If "no" upload a document with photos representative of the forested habitat to be removed.

Yes

19. If appropriate, would you like to conduct a voluntary emergence survey to determine if bats are using all of the suitable roost trees proposed for removal? *Emergence surveys require a surveyor to observe each suitable roost tree for the presence of bats. Surveys should follow the protocol in Appendix E in the USFWS' current Indiana Bat Summer Survey Guidelines at <a href="https://www.fws.gov/sites/default/files/documents/Range-wide-Indiana-bat-survey-guidelines-March-23-2020.pdf">https://www.fws.gov/sites/default/files/documents/Range-wide-Indiana-bat-survey-guidelines-March-23-2020.pdf</a>.* 

No

20. Would you like to conduct a voluntary summer survey presence/absence survey (netting or acoustic) of the project area?

**Note:** If "yes" upload a survey proposal for the Field Office to review. Surveys should be conducted in accordance with the USFWS' current Indiana Bat Summer Survey Guidelines, found at <a href="https://www.fws.gov/sites/default/files/documents/Range-wide-Indiana-bat-survey-guidelines-March-23-2020.pdf">https://www.fws.gov/sites/default/files/documents/Range-wide-Indiana-bat-survey-guidelines-March-23-2020.pdf</a>.

No

## **IPAC USER CONTACT INFORMATION**

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## LEAD AGENCY CONTACT INFORMATION

Lead Agency: Rural Utilities Service Name: Suzanne Kopich

Email: suzanne.Kopich@usda.gov

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