

Threatened and Endangered Species Assessment

American Electric Power
Sparrow 138 kV Transmission Line Loop Project

Cadiz and Green Townships
Harrison County, Ohio

GAI Project Number: C091118.51, Task 002

September 2014

Prepared for: American Electric Power
700 Morrison Road
Gahanna, OH 43230

Prepared By: GAI Consultants, Inc.
Greater Cincinnati Office
1830 Airport Exchange Boulevard, Suite 220
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1.0 Project Description

AEP proposes the construction of a new 138 kV transmission line (Project) within new right-of-way (ROW) from their East Cadiz to Cadiz 138 kV line to the Markwest Utica EMG Stabilization Plant being constructed northwest of Cadiz, Ohio. The length of the transmission line is approximately 1.97 miles. The Project would be constructed to 138 kV specifications for future long-term development of the shale gas industry and projected demand increase; however, the line will be operated at 69 kV for the foreseeable future. Approximately 1.3 miles of new access roads will be constructed or improved. Based on GIS calculations and field observations (not a land survey), approximately 20 acres of forest areas will be cleared during Project construction within a 100-foot right-of-way (ROW) including access road areas. The project is located in Harrison County, Ohio, in Cadiz and Green Townships near the Village of Cadiz. A Project Location Map is included as Figure 1 in Appendix B.

As part of the OH Power Siting Board Letter of Notification requirements, AEP is required to investigate and report the presence or absence of federal and state listed species and assess potential impacts by the Project, as stated in OH Administrative Code Rule 4906-11-01(E)(1). These rules state:

(E) Environmental data. Describe the environmental impacts of the project. This description shall contain the following information:

- (1) A description of the applicant's investigation concerning the presence or absence of federal and state designated species (including endangered species, threatened species, rare species, species proposed for listing, species under review for listing, and species of special interest) that may be located within the area likely to be disturbed by the project, a statement of the findings of the investigation, and a copy of any documents produced as a result of the investigation.*

This document will assist AEP's efforts to avoid impacts to federal and state-listed species.

2.0 Methods

GAI Consultants, Inc. conducted a threatened and endangered species review and field habitat survey within a study area that encompassed the 100-foot wide Project corridor. GAI reviewed online data from the OH Department of Natural Resources (ODNR) and the United States Fish and Wildlife Service (USFWS). In addition, GAI requested GIS records from the ODNR Biodiversity Database for species of concern in proximity to the Project and submitted initial consultation letters soliciting technical assistance on the Project from the ODNR and the USFWS. A response has not yet been received from either agency as of this writing. GAI reviewed agency identified species and available species-specific information on the agencies' websites to review the listed species and associated habitat types. This information was also used during the field survey to assess the potential for these species of concern in or near the Project study area.

GAI biologists conducted habitat assessments, often combined with reviews of water resources, on August 19-20 and September 17, 2014. A specific survey of potential bat roost trees was conducted on September 23, 2014. Due to the anticipated concern for the federally listed Indiana bat within forested habitat along the project, the survey primarily focused on identifying and marking potential bat roosting habitat within the Project ROW and access roads. The detailed findings from this survey are included in the report in Appendix B of this document.

3.0 Results

3.1 State Species of Concern

GAI conducted a web-based literature review of ODNR State-Listed species considered to be Endangered, Threatened, a Species of Concern, and a Special Interest. GAI also contacted ODNR to request information regarding state listed species that could potentially occur within the vicinity of the proposed Project area. Although a response from the ODNR has not yet been received, the Table 1 below lists the species identified by the ODNR via their county-specific listing of species based on their status.

Table 1: State of Ohio Designated Species that Could Inhabit the Project Area

Common Name	Scientific Name	State Status
Mammals		
Indiana bat	<i>Myotis Sodalis</i>	Endangered
Bobcat	<i>Lynx rufus</i>	Threatened
Birds		
Sharp-shinned Hawk	<i>Accipiter striatus</i>	Species of Concern
Henslow's Sparrow	<i>Ammodramus henslowii</i>	Species of Concern
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Federal Species of Concern only
Sora Rail	<i>Porzana Carolina</i>	Species of Concern
Bobolink	<i>Dolichonyx oryzivorus</i>	Species of Concern
Plants		
Philadelphia Panic Grass	<i>Panicum philadelphicum</i>	Endangered
Narrow-leaved Blue-eyed-grass	<i>Sisyrinchium mucronatum</i>	Threatened
Drummond's Aster	<i>Symphyotrichum drumondii</i>	Threatened

Indiana Bat: This endangered species utilizes a variety of trees during the summer roosting period including dead and dying trees with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees with exfoliating bark or hollow areas formed from broken branches or tops. If suitable habitat occurs and trees must be cut, the ODNR recommends cutting occur between October 1 and March 31. The ODNR will likely provide direction on net surveys if tree cutting during summer months is necessary.

Bobcat: The bobcat is highly mobile and a wide-ranging species. Based on the size of the area to be cleared of vegetation for this project, and the adjacent forested areas, it is anticipated there would not likely be an impact on the bobcat. Also, the restored corridor for the project would serve as habitat for the bobcat along with surrounding undeveloped areas.

Birds: Each of the birds listed in Table 1 is considered a state species of concern, or in the case of the Bald eagle a federal species of concern only. Considering the mobility of these birds, and the abundant area adjacent to the Project that could serve as possible suitable habitat, no impact to these species is anticipated. However, a detailed survey of adjacent areas has not been conducted for purposes of a habitat survey for these species.

Plants: Much of the construction will be performed at localized structure locations and will not require extensive ground-disturbing access road improvements. To the extent possible, off-site access routes to the structures will follow existing improved roads and driveways. Additionally, tree cutting along stream or wetland areas is planned to be performed in a manner that avoids grubbing the stumps and roots. With minimization of ground-disturbing activities and SWPPP compliance, the Project is not likely to impact these species.

3.2 Federal Species of Concern

GAI conducted a web-based literature review of USFWS Federally Listed Threatened, Endangered, Proposed, and Candidate Species' County Distribution (revised in 2014), to identify the species that may potentially occur in Harrison County. In addition, GAI contacted the USFWS to request their consultation and assistance, however a response had not been received as of this writing.

Table 2: Federal Species that Could Inhabit the Project Area

Common Name	Scientific Name	State Status
Mammals		
Indiana Bat	<i>Myotis sodalist</i>	Endangered
Northern Long-Eared Bat	<i>Myotis septentrionalis</i>	Proposed Endangered

Indiana Bat and Northern Long-eared Bat: Both bat species listed utilize forested habitat and may occur within the Project area. The northern long-eared bat typically roosts singly or in colonies under bark, in cavities, and in crevices in live and dead trees during summer. The species may also summer roost in cooler locations such as caves and mines. Individuals have also been found roosting under eaves on houses, behind window shutters, in bat-houses, and in open and enclosed buildings. They are documented to enter hibernation in caves, mines, and tunnels within 60 miles of their summer roosts. The Indiana bat utilizes dead or dying trees with exfoliating bark for cover, roosts, and breeding/nursery activities during the warmer months of the year. Males generally spend the summer alone or in small groups. The females may form nursery colonies ranging from a few individuals to 100 or more. During the colder winter months, individuals migrate to hibernate in caves and mines; therefore, they are not present in the Project area during that time.

The USFWS is expected to provide an informal consultation letter to GAI. It is anticipated that, based on similar project experience and precedence, the agency will recommend that, if trees must be cut in order to construct the project, then cutting should occur between October 1 and March 31 to avoid impacts to the Indiana bat and northern long-eared bat.

The Project corridor will require that a 100-foot wide ROW be cleared of trees and shrub vegetation. GAI biologists conducted a bat habitat survey and identified potentially suitable roosting trees for Indiana bats within the planned 100-foot ROW and along any access roads that may need widening. Potential roost trees for the northern long-eared bat were not specifically identified due to species status as a proposed endangered species. Results from the habitat assessment are documented in the *Potential Bat Roost Tree Identification Survey for the Sparrow 138 kV Loop Project* Letter Report in Appendix B. Potential roost trees will not be removed between April 1 and September 30 in order to avoid impacts to the Indiana bat. Removal of potential bat trees will be done between October 1 and March 31.

4.0 Summary

GAI conducted a threatened and endangered species review for areas located in the vicinity of the proposed Project's transmission line, including both a field review within the 100-foot Project corridor and a literature review. This report will assist AEP's efforts to avoid impacts to threatened and endangered species potentially present in the study area. GAI biologists conducted a field habitat assessment in conjunction with the stream and wetland field surveys on August 19-20 and September 17 and a focused bat roost tree survey on September 23, 2014. The Project does contain potential habitat for the Indiana bat. For other State and Federal-listed species, either no suitable habitat or occurrences were observed or no impacts are anticipated in light of the construction activity and availability of habitat adjacent to the Project area.

5.0 Conclusion

Based upon the nature of the Project, the review of available current literature, the review of federal and state records of species of concern, and field observations, GAI is of the opinion that the Project study area does contain habitat for some listed species. However, by adhering to the USFWS and ODNR's anticipated tree cutting restrictions, the potential for impacts to the Indiana bat will be avoided and minimized to the extend practical. The following summarizes AEP's planned actions:

- AEP plans to follow the anticipated recommendations of the USFWS and the ODNR and perform necessary tree cutting between October 1 and March 31 to avoid impacts to the Indiana bat.
- Conduct further coordination with the ODNR, if requested, regarding specific recommendations from the agency concerning other plant or animal species.

APPENDIX B

Species Habitat Survey

September 30, 2014

Project C091118.51

Ms. Rebekah Hovermale
Transmission Line Siting Specialist
American Electric Power
700 Morrison Road
Gahanna, Ohio 43230

Potential Bat Roost Tree Identification Survey along the Sparrow 138 kV Loop Project in Harrison County, Ohio

Dear Ms. Hovermale:

American Electric Power (AEP) contracted GAI Consultants, Inc. (GAI) to perform a potential roost tree identification survey along the Sparrow 138 kV Loop Project in Harrison County, Ohio (Project). In accordance with GAI's scope of work, GAI bat biologists evaluated and inventoried all potential bat roost trees in the Project area suitable for use by the federally endangered Indiana bat (*Myotis sodalis*). The location of each tree was recorded and the tree was marked with red flagging tape.

1.0 Project Information

AEP proposes construction of a new 138 kV transmission line within new right-of-way (ROW) from their East Cadiz to Cadiz 138 kV line to the Markwest Utica EMG Stabilization Plant being constructed to the northwest (Figure 1, Attachment A). The Project would be constructed with 138 kV specifications for future work associated with long-term development of the shale gas industry; however, the line will be operated at 69 kV initially. The proposed ROW is approximately 2.0 miles long, of which, approximately 1.4 miles are forested. Approximately 1.3 miles of new access roads will be constructed, of which, approximately 0.7 mile is forested. Based on GIS calculations and field observations (not a land survey), approximately 20.3 acres of forest will be cleared during Project construction. The Project is located in Harrison County, Ohio, in Cadiz Township and the Village of Cadiz.

2.0 Methods

On September 23, 2014, two GAI biologists (including Ms. Cynthia Hauser, a federally permitted bat biologist) searched on foot within forested portions of the proposed ROW and evaluated all potential bat roost trees that were encountered. Where applicable, trees that appeared to be on or just outside (but adjacent to) the proposed ROW boundary were also evaluated, in the event they will be removed for safety or constructability purposes. The proposed ROW boundaries were located in the field using a handheld, sub-meter-accurate GPS receiver.

Species, diameter at breast height (dbh), status, roost type, roost quality, and location of each potential roost tree were recorded on GAI's Indiana Bat Potential Roost Trees data sheets (Attachment B). A photograph was taken of each potential roost tree (Attachment C), and then a length of red flagging tape was tied around the bole. Each potential roost tree was assigned a unique identification number which was written on the flagging tape and recorded on the data sheet. The GPS location of each tree was also recorded. Potential roost trees were identified based on information available in the literature and in current state and federal guidelines; however, the biologists' experience tracking bats to known roosts across the range of the species was also considered.

2.1 Indiana Bat

The United States Fish and Wildlife Service (USFWS) defines¹ Indiana bat roost trees as live trees and/or snags ≥ 5 inches dbh that have exfoliating bark, cracks, crevices, and/or hollows. Because there were many trees that met the above criteria but had no potential to support roosting bats, the biologists considered potential roost trees to be those that met the above criteria and could be suitable for roosting bats.

Each potential roost tree was assigned a subjective roosting potential value of high, moderate, or low based on whether or not the tree could support Indiana bats. Factors taken into consideration for assigning roost potential values included: tree diameter, amount of exfoliating bark, solar exposure, location/height of exfoliating bark or other potential roosting feature, tree health or status, slope, aspect, susceptibility of roost to predators, etc. Multiple factors were used to subjectively determine roost potential values; therefore, it is difficult to describe rigid classification criteria that fit all compounding variables associated with different trees. The following describes general qualitative guidelines that were used to subjectively determine rankings:

- + High – High potential roost trees are those that are highly likely to contain multiple bats, including maternity individuals. Primary maternity roost trees would fit within this category. These trees are generally dead or dying and contain abundant roosting opportunities under exfoliating bark; however, certain live trees (such as large shagbark hickories) can also possess significant roosting opportunities. These trees also typically (but not always) have high solar exposure, little to no canopy coverage, and (if applicable) are often on a southerly aspect. These trees are generally large (> 16 inches) in diameter, thus making them reach above the canopy but also provide some heat retention at night. Potential roosting crevices, cavities, or bark on these trees would not make individuals vulnerable to predation.
- + Moderate – Moderate potential roost trees could contain one or several roosting bats if they are present in the area; however, the overall features or microhabitat of roosting locations are not ideal for one reason or another. For example, most shagbark hickories (*Carya ovata*) fit into this category, since they can possess abundant physical roosting opportunities; however, available roosting locations on the tree trunk are often small in surface area and under shaded canopy. Moderate potential roost trees do not make good primary maternity roosts; however, they could be used by bats as secondary maternity roosts if other high potential roosts are in the immediate vicinity. Moderate potential roost trees might only contain very few individual roosting features. Alternatively, they could contain one or multiple types and quantities of potential roosting features; however, aspect, solar exposure, risk of predation, or some other factor(s) may reduce the overall suitability from being high potential.
- + Low – Low potential roost trees may occasionally serve as roosts for one or more bats, but likely only on a temporary basis if nothing better is available nearby. These trees typically do not make good maternity roosts; however, they may be occupied by single males or bachelor colonies. These trees may be small in diameter or they have only one or a few small potential roosting spots. If suitable roosting features are available, microhabitat conditions or other factors greatly reduce the suitability or probability of bat roosting. Examples could include trees with partially-dead limbs, small shagbark hickories, snags with very little remaining bark, hollow trees under canopy, etc.

¹ USFWS. 2014. 2014 range-wide summer survey guidelines. USFWS, Bloomington, Indiana. 41 pp.

Certain live trees, including shagbark hickory and white oak (*Quercus alba*) have exfoliating bark that may provide suitable roost sites. Suitability of these trees may vary, depending on size of tree, amount of exfoliating bark, degree to which bark is exfoliating, and other factors. All trees were evaluated on their ability to provide suitable roosts, regardless of species.

3.0 Results

A total of 20 potential roost trees was identified in the Project area. Figure 2 (Attachment A) shows the location of each tree within the Project area. Potential roost trees included eight black locust (*Robinia pseudoacacia*), three shagbark hickory, two wild black cherry (*Prunus serotina*), two black walnut (*Juglans nigra*), two red elm (*Ulmus rubra*), two tree-of-heaven (*Ailanthus altissima*), and one osage orange (*Maclura pomifera*; Attachment D). Ten (50 %) potential roost trees were live, five (25 %) were dead, and five (25 %) were partially dead. Of these, four (20 %) potential roost trees were considered to be of high value to Indiana bats, while ten (50 %) were considered to be of moderate value, and six (30 %) were considered to be of low value.

4.0 Conclusion

A total of 20 potential roost trees were found along the proposed route. Overall, forested habitat along the proposed route was of moderate value for roosting Indiana bats.

If you have any questions, please contact us at the numbers below.

Respectfully submitted,
GAI Consultants, Inc.



Jason Duffey
Senior Project Environmental Specialist
937-554-8488



Adam Mann, MS
Assistant Environmental Technical Leader
859-444-7734

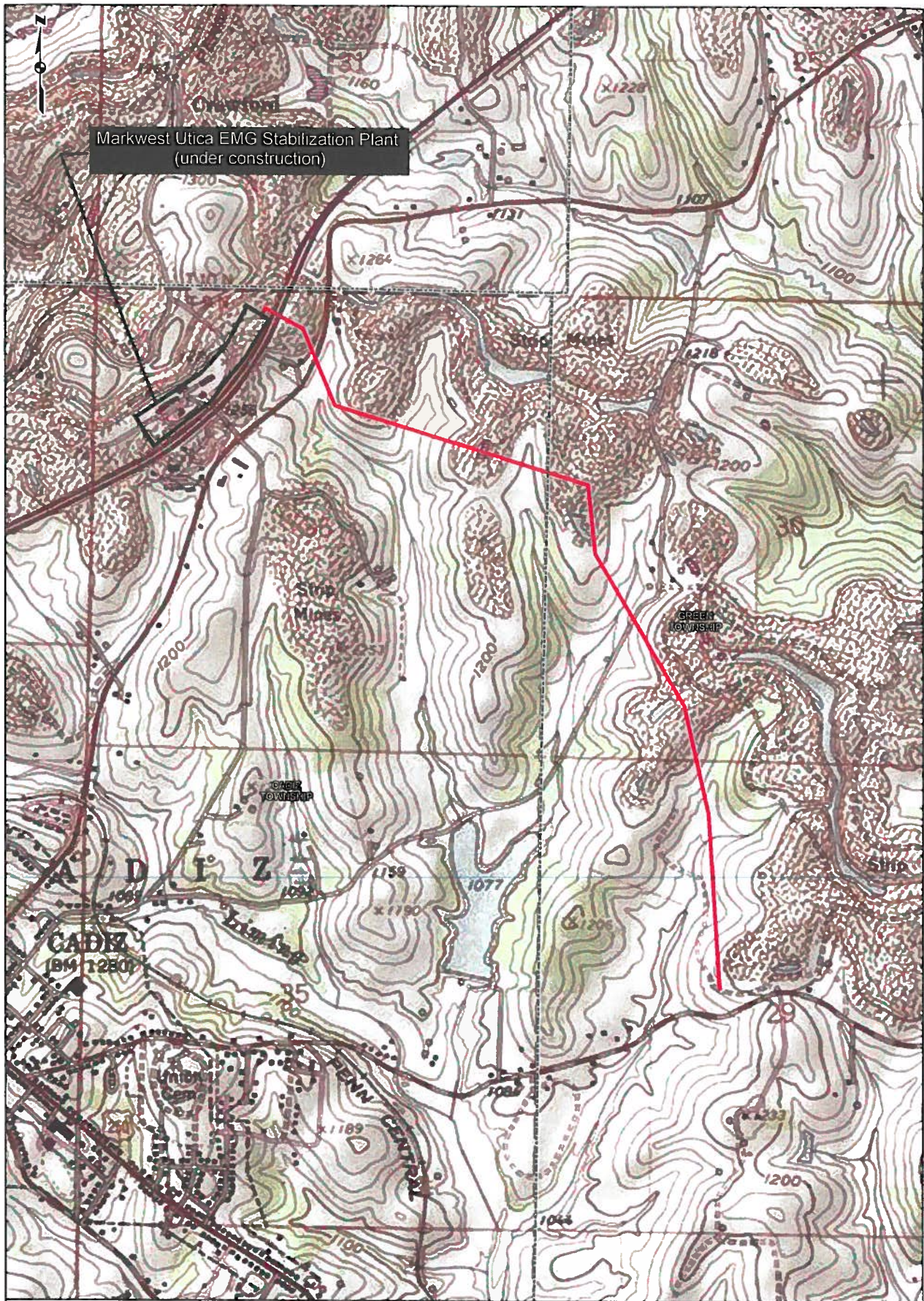
JAD:AMM/pat

Enc.: Attachment A. Figures
Attachment B. Data Sheets
Attachment C. Photographs
Attachment D. Table 1

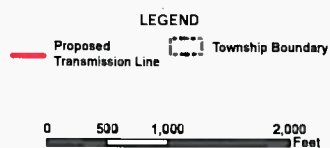
cc: Mr. Mike Frank, GAI
Mr. George Reese, GAI

ATTACHMENT A

Figures



REFERENCE
USGS 7.5 TOPOGRAPHIC
QUADRANGLE: CADIZ (1873)
OHIO: ESRI USA TOPO 2013
USGS AND NATIONAL GEOGRAPHIC
TOPO, ACCESSED 8/2014.



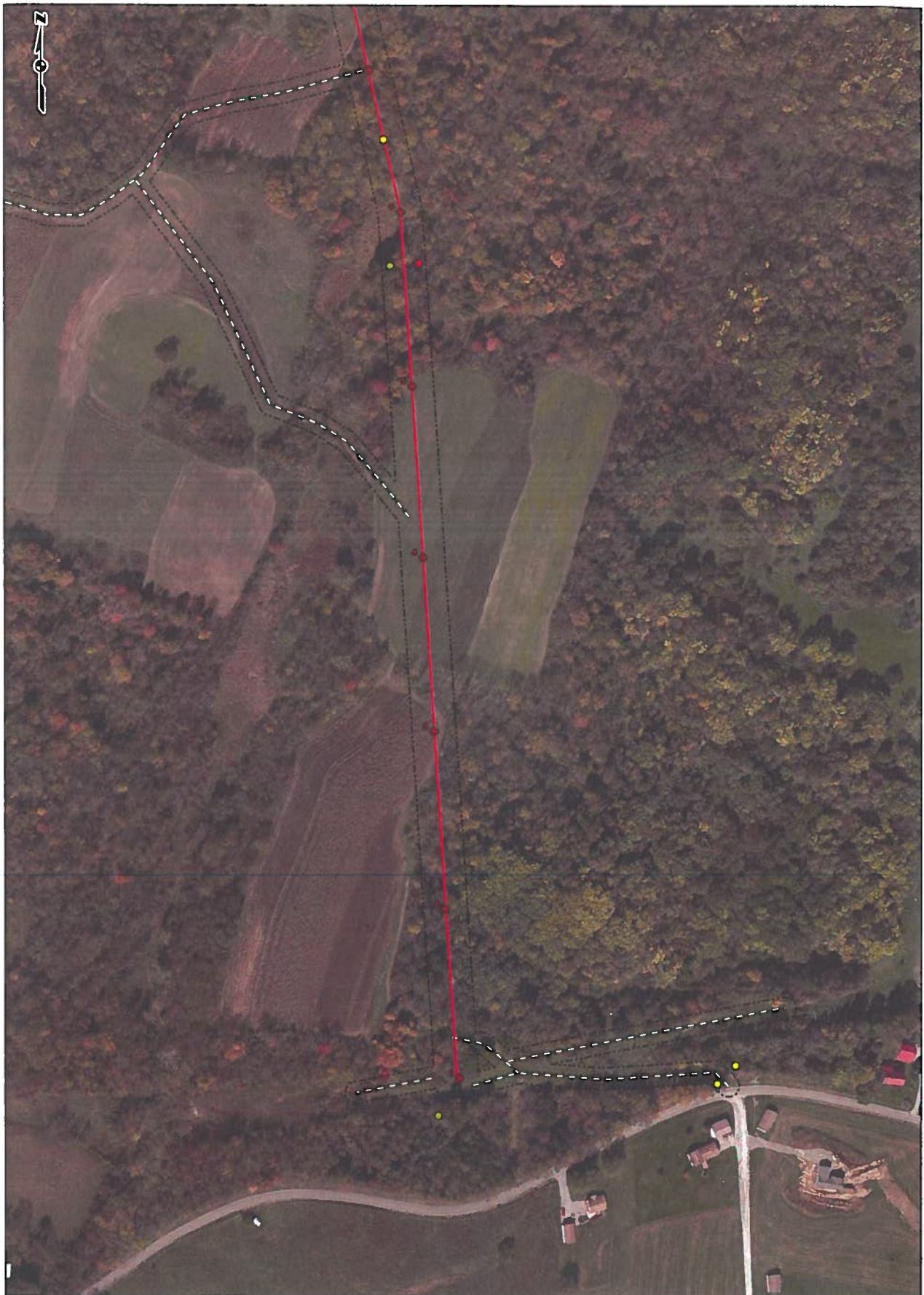
**FIGURE 1
PROJECT LOCATION MAP**

SPARROW 138 KV LOOP
AMERICAN ELECTRIC POWER

AEP

DRAWN BY: GHH
CHECKED: PMH

DATE: 9/30/2014
APPROVED: MAF



REFERENCE
ESRI WORLD IMAGERY 2011
ESRI ARCGIS ONLINE AND MICROSOFT
CORPORATION, ACCESSED 9/2014

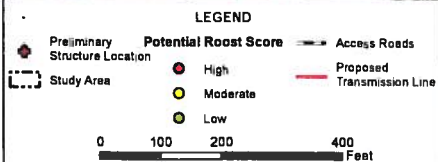


FIGURE 2
POTENTIAL ROOST LOCATION MAP
SHEET 1 OF 5

SPARROW 138 kV LOOP **AEP**
AMERICAN ELECTRIC POWER

DRAWN BY: GHH
CHECKED: PMH

DATE: 9/30/2014
APPROVED: MAF



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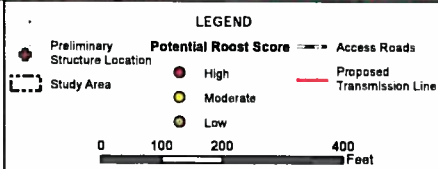
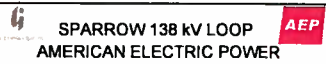


FIGURE 2
POTENTIAL ROOST LOCATION MAP
SHEET 2 OF 5



DRAWN BY: GHH
CHECKED: PMH
DATE: 9/30/2014
APPROVED: MAF



REFERENCE:
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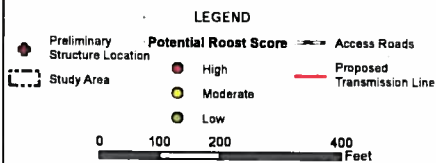


FIGURE 2
POTENTIAL ROOST LOCATION MAP
SHEET 3 OF 5

SPARROW 138 KV LOOP
AMERICAN ELECTRIC POWER

DRAWN BY: GHM DATE: 9/30/2014
CHECKED: PMH APPROVED: MAF



REFERENCE:
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ESRI ARCGIS ONLINE AND MICROSOFT
CORPORATION, ACCESSED 9/2014

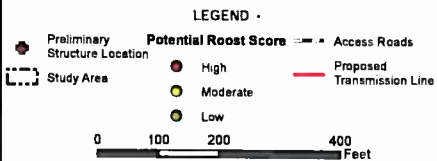


FIGURE 2
POTENTIAL ROOST LOCATION MAP
SHEET 4 OF 5

SPARROW 138 KV LOOP **AEP**
AMERICAN ELECTRIC POWER

DRAWN BY: GHH
CHECKED: PMH

DATE: 9/30/2014
APPROVED: MAF



REFERENCE:
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ESRI ARCGIS ONLINE AND MICROSOFT
CORPORATION. ACCESSED 8/2014

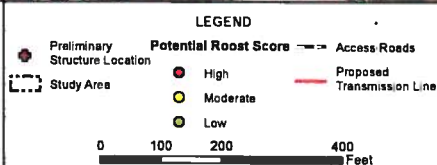


FIGURE 2
POTENTIAL ROOST LOCATION MAP
SHEET 5 OF 5

SPARROW 138 kV LOOP
AMERICAN ELECTRIC POWER

DRAWN BY: GHH DATE: 9/30/2014
CHECKED: PMH APPROVED: MAF

September 30, 2014
Sparrow 138 kV Loop Project

ATTACHMENT B

Data Sheets



gai consultants

Indiana Bat Potential Roost Trees

Project Name: AEP - Sparrow Project #: Co91118.51 State: OH County: Harrison
 Biologist(s): Cynthia Hawser, Joseph Nail Date: 23 Sept 2014 GPS: C5051 Camera: 9993

Name	Species	Tree DBH	Tree Status	Roost Type	Roosting Potential	GPS (Wpt. or Coords.)	Photo(s)	Description/Comments
TREE-1	Robinia pseudacacia	12"	D	EB	M	-80.27714	100-1107	Snag w/ poison ivy, good solar exposure
TREE-2	"	18"	P	EB	L	-80.27714	100-1108	Some exfoliating bark, good exposure
TREE-3	Maclura pomifera	26"	P	EB	M	-80.27714	100-1109	good solar exposure
TREE-4	Robinia pseudacacia	18"	P	CA	M	-80.27714	100-1110	good solar exposure
TREE-5	Prunus serotina	16"	P	EB	L	-80.27714	100-1118	good exposure, flaky bark extensive but not
TREE-6	Carya ovata	14"	L	EB	L	-80.27714	100-1119	2 additional cavities w/in 5ft; 5" dbh + 10" dbh flaky bark on poor solar exposure
TREE-7	Ulmus rubra	15"	D	EB	H	-80.27714	100-1123	Snag very good solar exposure
TREE-8	Prunus serotina	8"	D	EB	M	-80.27714	100-1124	Snag; no crown
TREE-9	Ailanthus altissima	10"	D	EB	L	-80.27714	100-1125	lots of exfoliating bark + some exposure
TREE-10	Ailanthus altissima	11"	D	EB	L	-80.27714	100-1126	"
TREE-11	Robinia pseudacacia	18"	P	EB	M	-80.27714	100-1127	Partial solar exposure but a lot of exfoliating
TREE-12	Ulmus rubra	30"	D	EB	H	-80.27714	100-1128	fully exposed
TREE-13	Robinia pseudacacia	17"	D	EB	L	-80.27714	100-1129	"
TREE-14	"	14"	D	EB	M	-80.27714	100-1130	good exposure, some cavity but partial sun
TREE-15	"	12"	L	CA	M	-80.27714	100-1131	cavity is ~15' up, Snag, Partial sun

Tree DBH (Diameter at Breast Height): measured in inches
 Tree Status: L = Live; D = Dead (Snag); P = Partially Dead
 Property of GAI Consultants, Inc.

Roost Type: EB = Exfoliating Bark; CA = Cavity; CR = Crevice
 Roosting Potential: H = High; M = Moderate; L = Low



gai consultants

Indiana Bat Potential Roost Trees

Project Name: AEP-SparrowProject #: C091118.51State: OHCounty: HarrisonBiologist(s): Cynthia Hauser, Joseph NollDate: 23 Sept 2014GPS: C5051Camera: 9993

Name	Species	Tree DBH	Tree Status	Roost Type	Roosting Potential	GPS (Wpt. or Coords.)	Photo(s)	Description/Comments
TREE-16	Juglans nigra	16"	D	EB	L	40.28936 -80.9728	100-1132	good solar exposure, bark starting to exfoliate
TREE-17	Robinia pseudoacacia	17"	D	EB	M	40.28938 -80.9737	100-1133	Same exfoliating bark on branches solar exp. Very good
TREE-18	Juglans nigra	31"	L	EB	H	*40°17' 29.51"N 80°58' 50.08"W	100-1135	Exfoliating bark on branches. Full sun exposure.

Note: The waypoint for Tree 6 includes two additional trees:

Tree 19	Carya ovata	5	L	EB	L	40.27794 -80.96568	1119	Same location and photo as Tree 6. Not flagged.
Tree 20	Carya ovata	10	L	EB	L	40.27794 -80.96568	1119	Same location and photo as Tree 6. Not flagged.

Tree DBH (Diameter at Breast Height): measured in inches
Tree Status: L = Live; D = Dead (Snag); P = Partially Dead

Property of GAI Consultants, Inc.

* Trimble battery died - Coordinates taken using Tablet GPS.

Roost Type: EB = Exfoliating Bark; CA = Cavity; CR = Crevice
Roosting Potential: H = High; M = Moderate; L = Low

September 30, 2014
Sparrow 138 kV Loop Project

ATTACHMENT C

Photographs



Tree 1



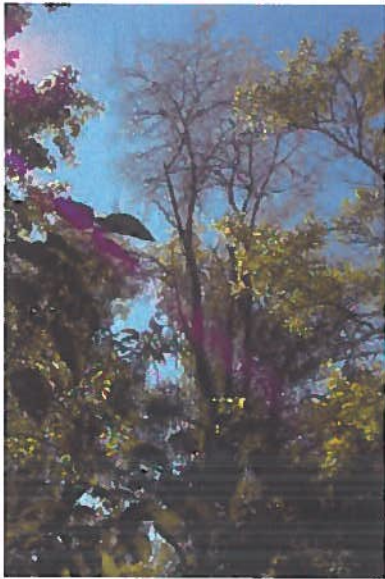
Tree 2



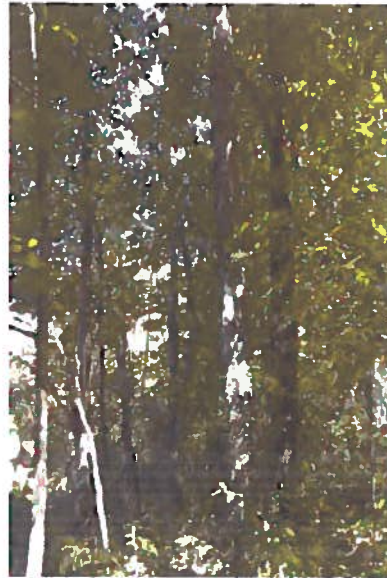
Tree 3



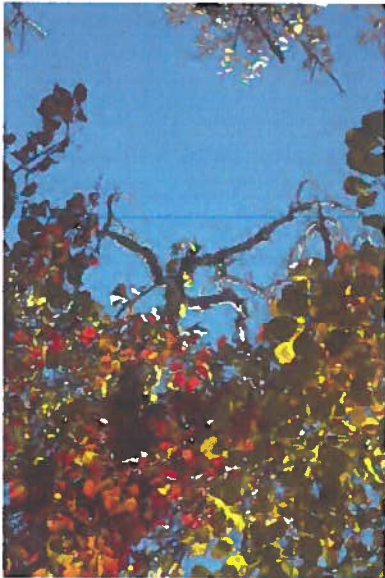
Tree 4



Tree 5



Tree 6



Tree 7



Tree 8



Tree 9



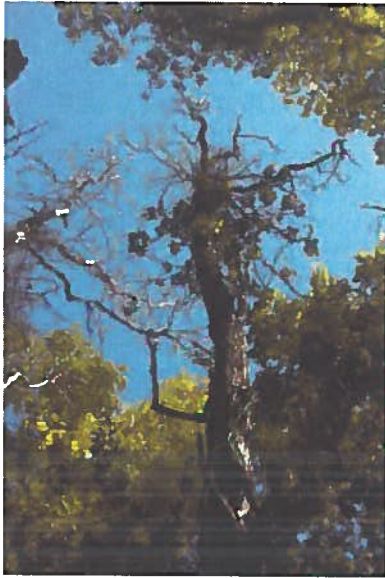
Tree 10



Tree 11



Tree 12



Tree 13



Tree 14



Tree 15



Tree 16



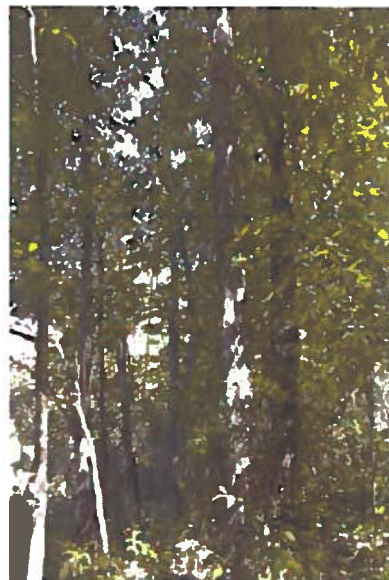
Tree 17



Tree 18



Tree 19 (left of center)



Tree 20 (in background)

ATTACHMENT D

Table 1

Table 1
Potential Indiana Bat Roost Trees along the Sparrow Loop 138 kV Transmission Line
in Harrison County, Ohio.

ID #	SPECIES	DBH (inches)	TREE STATUS	ROOST TYPE	ROOST POTENTIAL	COORDINATES (NAD83)		PHOTO #
						LATITUDE	LONGITUDE	
Tree 1	Black Locust	14	Dead	Exfoliating Bark	Moderate	40.28972	-80.97136	1107
Tree 2	Black Locust	18	Partial	Exfoliating Bark	Low	40.28962	-80.97136	1108
Tree 3	Osage Orange	26	Partial	Exfoliating Bark	Moderate	40.27291	-80.96300	1109
Tree 4	Black Locust	18	Partial	Cavities	Moderate	40.27280	-80.96315	1110
Tree 5	Wild Black Cherry	16	Partial	Exfoliating Bark	Low	40.27263	-80.96542	1118
Tree 6	Shagbark Hickory	14	Live	Exfoliating Bark	Low	40.27794	-80.96568	1119
Tree 7	Slippery Elm	15	Dead	Exfoliating Bark	High	40.27795	-80.96544	1123
Tree 8	Wild Black Cherry	8	Dead	Exfoliating Bark	Moderate	40.27873	-80.96571	1124
Tree 9	Tree-of-Heaven	10	Dead	Exfoliating Bark	Moderate	40.27995	-80.96604	1125
Tree 10	Tree-of-Heaven	12	Dead	Exfoliating Bark	Moderate	40.27999	-80.96598	1126
Tree 11	Black Locust	18	Partial	Exfoliating Bark	Moderate	40.28062	-80.96625	1127
Tree 12	Slippery Elm	30	Dead	Exfoliating Bark	High	40.28087	-80.96628	1128
Tree 13	Black Locust	17	Dead	Exfoliating Bark	High	40.28171	-80.96658	1129
Tree 14	Black Locust	16	Dead	Exfoliating Bark	Moderate	40.28286	-80.96756	1130
Tree 15	Black Locust	12	Live	Cavities	Moderate	40.28297	-80.96762	1131
Tree 16	Black Walnut	15	Dead	Exfoliating Bark	Low	40.28936	-80.97276	1132
Tree 17	Black Locust	17	Dead	Exfoliating Bark	Moderate	40.28938	-80.97368	1133
Tree 18	Black Walnut	31	Live	Exfoliating Bark	High	40.29153	-80.98051	1134
Tree 19	Shagbark Hickory	5	Live	Exfoliating Bark	Low	40.27794	-80.96568	1119
Tree 20	Shagbark Hickory	10	Live	Exfoliating Bark	Low	40.27794	-80.96568	1119

ATTACHMENT D

WETLAND DELINEATION AND STREAM IDENTIFICATION REPORT

Wetland Delineation and Stream Identification Report

American Electric Power
Sparrow 138 kV Loop Project
Cadiz and Green Townships
Harrison County, Ohio

GAI Project Number: C091118.51

October 2014

Prepared For: American Electric Power
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1.0 Introduction

American Electric Power (AEP) is proposing to construct an electric transmission line which is referred to as the Sparrow 138 kilovolt (kV) Loop Project (Project), located in Harrison County, Ohio. The Project involves the construction of an approximately 1.97-mile overhead 138 kV electric transmission line, beginning at the East Cadiz-Cadiz 69 kV line and terminating at the Markwest Utica EMG Stabilization Plant, west of State Route 22. The Project will involve the construction of one 138 kV transmission line and the installation of approximately 28 embedded steel pole structures within a new 100-foot wide right-of-way (ROW), with associated access roads. The new transmission line will operate at 69 kV for the foreseeable future. A Project Location Map is included as Figure 1.

GAI Consultants, Inc. (GAI), on behalf of AEP, conducted an environmental field survey of the Project study area on August 19 -20 and September 17, 2014. The purpose of the environmental field survey was to identify wetlands and streams present within the proposed Project Area of Interest (AOI). A 150-foot wide study corridor centered along the proposed transmission line was surveyed for aquatic resources. Along access roads, a 50-foot-wide study corridor was investigated.

The following sections of this report describe the methods used to identify and delineate wetlands and streams within the Project AOI, the results of the field survey, and the associated documentation of any streams and wetlands identified within the AOI. It will be used to assist AEP's efforts to avoid and/or minimize impacts to these features during site design and development, and will serve as a supporting document to the Letter of Notification that will be submitted to the Ohio Power Siting Board.

2.0 Transmission Line ROW Description

Information available for the Project AOI was collected and examined prior to the initial field visit. The United States Geological Survey (USGS) 7.5-minute topographic quadrangle of Cadiz (1973), Ohio and United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping (USFWS, 2012) were examined for documented wetlands. The USGS National Hydrography Dataset (NHD) mapping was examined for documented streams. United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS) soil mapping was also reviewed (USDA-NRCS, 2010). These publications were examined and evaluated in order to gain a preliminary understanding of the Project AOI.

For the field surveys, the AOI consisted of a 100-foot wide corridor centered along the proposed transmission line ROW, which was evaluated to determine the extent of aquatic resources. Wetlands and streams were identified and assigned a GAI designation code identifying each feature by type, state, personnel, feature number and sequential flag number. For example, a wetland or stream would be identified as WOH-BJM-001 or SOH-BJM-001, respectively. The methods used during the field review are described further in the following sections.

2.1 Methods For Field Identification Of Wetlands And Streams

Section 404 of the United States Clean Water Act (CWA) and state regulations in Ohio serve to protect wetlands. The United States Army Corps of Engineers (USACE) *Corps of Engineers Wetlands Delineation Manual* (Delineation Manual, Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (Regional Supplement, USACE, 2012) were used to identify wetlands that may be under the jurisdiction of the USACE or Ohio Environmental Protection Agency (OEPA). Wetlands were delineated by evaluating three wetland indicators: hydrophytic vegetation, hydric soils, and wetland hydrology.

As regulated by Ohio Administrative Code (OAC) rules 3745-1-50 through 3745-1-54, wetlands were also evaluated using the Ohio Rapid Assessment Method for Wetlands v. 5.0 (ORAM) to determine the appropriate wetland category. Any wetland score that fell within a gray zone between categories was scored one of two ways. Either the wetland was assigned to the higher of the two categories or it was assessed using a non-rapid method to determine its quality (Mack, 2001). The category assigned to a

particular wetland determines the requirement, if any, for additional levels of protection administered by the OEPA.

As regulated by Sections 404 of the CWA, and Section 10 of the Rivers and Harbors Act of 1899, streams were classified as perennial, intermittent, or ephemeral based upon presence of flow, estimated duration of flow, stream bed characteristics, and presence of aquatic biota. The USACE Jurisdictional Determination Form Instructional Guidebook (USACE, 2007) was used to determine stream classification and flow status.

As regulated by OAC Chapter 3745 and the Section 401 Water Quality Certification, streams were also assessed according to OEPA guidance using either the Primary Headwater Habitat Evaluation Index (HHEI) for watersheds less than one square mile in size, or the Qualitative Habitat Evaluation Index (QHEI) for watersheds between one and 20 square miles in size.

Plant species in all strata and stream habitats were used to evaluate the location and extent of wetlands, streams and groundwater features that exist within the Project AOI. The USACE Cold Regions Research and Engineering Laboratory (CRREL) Eastern Mountains and Piedmont Region National Wetland Plant List (Lichvar, 2014) was used to determine the indicator status of identified plants.

3.0 Results

3.1 Desktop Evaluation And General Habitat Description

The proposed Project is located in the east-central portion of Harrison County near rural residential and farm properties and public/county roads. Land uses within the Project AOI include mixed deciduous forest fragmented by agricultural and residential areas.

According to a desktop review of available USFWS NWI digital data for the Project, one Palustrine Emergent (PEM) wetland and three freshwater ponds were identified within the AOI. An examination of the USGS mapping for the Project AOI showed two USGS streams and two ponds intersecting the AOI. A review of the *Soil Survey of Harrison County, OH* indicates that four soils containing hydric inclusions are present within the Project AOI (Figure 3). The topography of the Project area is comprised of moderately rolling hills, ridge tops, and stream or river valleys. Land surface elevations range from approximately 1,260-feet above mean sea level (amsl) to approximately 1,120-feet amsl in the stream valley.

All hydrologic features in the Project AOI are within the Middle Fork Short Creek [USGS Hydrologic Unit Code (HUC) #050301060202) watershed. A review of Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map Panel 39067C revealed that the Project AOI is located within Zone X (FEMA, 2012). None of the AOI is located with the 100-year floodplain (Figure 2).

The field-identified wetlands and streams are summarized in Tables 1 and 2. Color photographs of each feature accompany these tables. Wetland data forms are included in Appendix A and upland data forms are included in Appendix B. ORAM and HHEI forms are provided in Appendices C and D, respectively.

3.2 Wetlands

Eight wetlands were identified and delineated within the Project AOI (Figure 2). Of the delineated wetlands, six were classified as Palustrine Emergent (PEM) and two were classified as Palustrine Emergent/Palustrine Forested (PEM/PFO). Detailed information regarding the wetlands are outlined in Table 1, and the attached photographs document the conditions of each wetland. The wetland and upland data forms are provided in Appendices A and B, respectively, and ORAM data forms are included in Appendix C.

3.3 Streams

Four intermittent streams were identified and delineated within the Project AOI (Figure 2). All streams identified within the AOI are Unnamed Tributaries (UNT's) to Liming Creek. Liming Creek flows into

Sally Buffalo Creek, which is designated a Modified Warmwater Habitat (MWH) stream by the Ohio Administrative Code, Chapter 3745-1-13. Sally Buffalo Creek is a tributary to Short Creek, which eventually flows into the Ohio River, a traditionally navigable waters (TNW). Detailed information regarding the streams are outlined in Table 2, and the attached photographs document the conditions of each stream. HHEI forms are provided in Appendix D.

4.0 Conclusions

GAI conducted an environmental field survey of the Project AOI on August 19-20 and September 17, 2014 to identify wetlands and streams. The proposed Project consists of the construction of an approximately 2.0-mile overhead transmission line within new ROW, and the construction of associated access roads. Tree clearing within the new ROW is proposed.

A total of twelve jurisdictional features were identified and delineated within the Project AOI, including four intermittent streams, six PEM wetlands, and two PEM/PFO wetlands. The Project AOI consists primarily of forested uplands and valleys, open agricultural fields, and residential areas.

All statements in this document pertaining to the jurisdictional status of wetlands with regard to USACE and OEPA regulations represent the opinion of GAI and are based on present regulatory guidance. The jurisdictional status of water resources has not been confirmed by the USACE jurisdictional determination process.

Respectfully submitted,

GAI Consultants, Inc.



Michael A. Frank
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MAF:vel

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This foregoing document was electronically filed with the Public Utilities

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in

Case No(s). 14-1768-EL-BLN

Summary: Letter of Notification for the Sparrow 138kV Transmission Line Loop Project (Part 2 of 6) electronically filed by Mr. Yazen Alami on behalf of AEP Ohio Transmission Company