



**Cultural Historic Investigations for the Proposed Windfall Switch-
North Waldo Station 138 kV Rebuild Project,
Richland Township, Marion County, Ohio**

Prepared for:

**AEP Transco Ohio
700 Morrison Road
Gahanna, OH 43230**

Prepared by:

**Weller & Associates, Inc.
1395 West Fifth Ave
Columbus, Ohio 43212
(614) 485-9435**

Written by:

Jacquelyn Lehmann, M.H.P

A handwritten signature in black ink, reading "Christopher L. Nelson".

**Christopher L. Nelson
Principal Investigator**

May 11, 2016

**Lead Agency: Ohio Power Siting Board
Ohio State Historic Preservation Office ID: not assigned**

ABSTRACT

Under contract with AEP Transco Ohio, Weller & Associates, Inc., conducted a cultural historic survey for the proposed rebuild of the existing Windfall Switch-North Waldo Station 138 kV Rebuild line within Marion County, Ohio. This is part of a larger electric line considered as the West Mount Vernon -South Kenton 138 kV. The existing right-of-way is the only route currently under consideration and the replacement structures will be constructed within the cleared right of way. The existing wooden H-frames will be replaced with steel monopoles. The line is approximately 3.87 miles in length and located in Richland Township, Marion County. Preliminary provided information indicates that the route will cross a mixture of agricultural, and residential properties. The project is subject to Ohio Power Siting Board Application requirements under Chapter 4906 of the Ohio Revised Code. The investigations, including a background literature review and intensive field survey, were conducted in accordance with the guidelines set forth by the Ohio State Historic Preservation Office and Ohio Administrative Code Chapter 4906-15-06(F), which concerns socioeconomic and land use impact analysis in applications for certificates for electric transmission facilities through the Ohio Power Siting Board.

The investigations were conducted in two parts: cultural historic (architectural) survey and archaeological investigation. This report covers the results of the cultural historic survey of the entire area that may be affected by the proposed development of the project. The cultural historic investigations consisted of a systematic survey of all properties 50 years of age or older that are situated within 1,000 feet of the proposed project site. The results of the archaeological investigations will be presented in a separate report.

In total, eleven individual properties 50 years of age or older were identified within the survey APE that may have a direct line-of-sight to the project. Photographs and structural data for each property were collected in the field. Seven properties were determined not eligible for listing in the National Register of Historic Places. The remaining four properties within the survey area were advanced to detailed study, but not found eligible for listing in the National Register of Historic Places. Therefore, Weller & Associates, Inc. recommends that no historic properties will be affected by the project.

This page intentionally left blank.

TABLE OF CONTENTS

	<u>Page</u>
ABSTRACT	ii
Introduction	1
Research Design	1
Methods	2
Historic context	3
Results	7
Assessment of Effects	14
Conclusions	18
References Cited	20

LIST OF FIGURES

- Figure 1. Project location map.
- Figure 2. Portion of USGS 1988 Marion East, 1988 Waldo, and the 1999 Ashley, Ohio 7.5 Minute Series Topographic Maps Indicating the Project Location.
- Figure 3. Aerial Map Indicating the Project Location.
- Figure 4. Portion of the USGS 1915 Marengo, Ohio 15 Minute Series Topographic Map Indicating the Project Location.
- Figure 5. MAR047714, Lee House.
- Figure 6. MAR047814, Temple House Gable End.
- Figure 7. MAR047814, Temple House Façade.
- Figure 8. MAR047914, Fox House Façade.
- Figure 9. MAR0488014, Campbell House.

LIST OF TABLES

Table 1: Summary Data on Survey Results

LIST OF APPENDICES

Appendix

- A Photographs of All Resources 50 Years of Age or Older Not Advanced to Detailed Study
- B Project Mapping Resource Locations
- C Table 1: Summary Data on Survey Results

INTRODUCTION

Under contract with AEP Transco Ohio, Weller & Associates, Inc., conducted a cultural historic survey for the proposed rebuild of the existing 3.87 mile Windfall Switch-North Waldo Station 138 kV in Richland Township, Marion County, Ohio. The existing right-of-way (ROW) is the only route currently under consideration and the replacement structures will be constructed within the cleared ROW. The existing wooden H-frames will be replaced with steel monopoles. The existing right-of-way for this project includes an approximate 100 ft. wide transmission line corridor. The lines will be rebuilt for continued operation at 138 kV.

The investigations, including a background literature review and intensive field survey, were conducted in accordance with the guidelines set forth by the Ohio State Historic Preservation Office (SHPO) and Ohio Administrative Code Chapter 4906-15-06(F), which concerns socioeconomic and land use impact analysis in applications for certificates for electric transmission facilities through the Ohio Power Siting Board (OPSB).

The investigations were conducted in two parts: cultural historic (architectural) survey and archaeological investigation. This report covers the results of the cultural historic survey of the entire area that may be affected by the proposed development of the project. The cultural historic investigations consisted of a systematic survey of all properties 50 years of age or older that are situated within 1,000 feet of the proposed project site. The results of the archaeological investigations will be presented in a separate report.

The proposed transmission line will follow the right-of-way for the existing line to be replaced in a general north-south and west-east orientation. The line runs through portions of Marion County. A large majority of the line will run through rural areas and agricultural areas with intermittent forested areas dominating the landscape.

The documentation of properties in the field, archival research, and report authoring were conducted by Christopher Nelson who served as Principal Investigator for the project and Jacquelyn Lehmann. Mapping for the project was generated by Jacquelyn Lehmann. The field survey and archival research was conducted on May 10, 2016.

RESEARCH DESIGN

The purpose of the cultural historic portion of the project was to identify any historic properties in the area that may be affected by the proposed development of the project. These effects may be direct or indirect. Direct effects occur within the boundaries of the project, while indirect effects can occur for areas outside the direct boundaries and can include visual, audible, and atmospheric effects that are associated with the development of the project. Based on the nature of the project, the cultural historic investigations consisted of a systematic survey of all properties 50 years of age or older that are situated within 1,000 feet of the centerline of the proposed project.

METHODS

This survey was conducted following the guidelines established in *Archeology and Preservation: Secretary of the Interior's Standards and Guidelines* (National Park Service 1983) and *Guidelines for Local Surveys: A Basis for Preservation Planning. National Register Bulletin No. 24* (National Park Service 1997). When properties are identified, they are subjected to the guidelines outlined in *National Register Bulletin 15, How to Apply the National Register Criteria for Evaluation* (National Park Service 1996).

There are four criteria for eligibility to be listed in the National Register of Historic Places (NRHP). Only one of these criteria must be met to be considered eligible for listing; however, oftentimes more than one of the criteria is met. The criteria for significance include:

- A. Association with historic events or patterns of events;
- B. Association with persons important to our past;
- C. Exceptional or important architectural characteristics; and/or
- D. Data potential.

Architectural properties typically qualify under Criteria A, B, or C. Criterion D is typically reserved for archaeological sites.

In addition to meeting at least one of the established criteria, the appropriate integrity must also be retained by the resource. There must be integrity of location, design, workmanship, setting, materials, feeling, and association.

Prior to commencing fieldwork, a literature review was conducted to determine if any previously recorded architectural properties, NRHP properties, or Ohio Genealogical Society cemeteries were present within the APE. Historic maps were also reviewed to aid in guiding the fieldwork and detecting the possible presence of properties 50 years of age or older within the APE. Background research was also conducted in order to establish a historic context of the region. The context was compiled by utilizing materials from the SHPO, archival materials at the respective county courthouses, local libraries, and several online resources. The establishment of the historic context helped to guide the interpretation of the field survey results.

The field survey included a systematic approach to identifying all properties 50 years of age or older within the survey APE (1,000 feet to either side of project) of the proposed project. Some areas will be blocked from having a direct line-of-sight to the proposed project by topography and forested areas. The areas that did not have a direct line-of-sight to the project were visually verified in the field and the survey did not include all of these areas. An advantage for this project is the presence of an existing line to gauge the direct line-of-sight from properties through field verification during the survey. Each property identified within the survey area that will have a direct line-of-sight was photographed and annotated on appropriate mapping and included in the report. Each property identified within the survey area was photographed and annotated on appropriate mapping and included in the report. The approach was to identify those properties with NRHP potential, followed by a more intensive documentation and evaluation of those potentially eligible aboveground resources. The comprehensive survey

involved recording of each property 50 years of age or older to a baseline level of documentation.

Weller focused on the ground plan, the height, and the roof configuration of each structure, noting all visible materials, appendages, extensions, or other alterations. Housing types and structural details within the report and utilized on OHI forms follow the terminology used by geographers Jakle, Bastian, and Meyer (1988), architectural historians McAlester and McAlester (1992), and Gordon (1992). Weller then supplemented the field survey data with an examination of available tax records, aerial photographs, and cartographic sources.

A summary and analysis of the field data detailing the overall architectural character of the survey APE is included as a narrative in the report. Photographs of every resource that is 50 years of age or older that were not advanced to detailed study as discussed below are included as an appendix to the report (Appendix A). Weller historians analyzed the data and identified properties that are clearly not eligible for the NRHP due to a lack of significance or loss of integrity, as well as identified potential NRHP properties and advanced them to a more advanced level of documentation and evaluation.

Definitions

Within this report, an *architectural resource* is defined as aboveground buildings or structures that are 50 years of age or older. A *historic property* is defined as a building, structure, object, or site that is listed in, or considered eligible for listing in, the NRHP. An *effect* is defined as an activity associated with the project that alters a characteristic of a historic property that qualified it for inclusion in the NRHP.

HISTORIC CONTEXT

Marion County History

Nathan Brundige and Nathaniel Wyatt were the first settlers within modern Marion County, coming to the region in 1806 while the land was still part of Franklin County. The Greenville Treaty Line placed most of the modern county in Indian Territories, a small portion was part of the Virginia Military District, and the remainder was within U.S. Military Lands. Migration was mild until the end of the War of 1812 and after new treaties had been struck with the very near Indian neighbors. The 1820s brought new citizens from New England, Pennsylvania, Kentucky, and Virginia. From the 1830s to the 1860s a significant influx of international immigration added to Marion County's citizenry, mostly German and later Irish (Howe 1888; Jacoby 1907; Leggett, Conway, & Co. 1883; Wilson and Wilson 1950).

The State Legislature created Marion County in 1820. The name they chose to honor the Revolutionary general and hero Francis Marion, "The Swamp Fox." For its first three years, Marion depended on Delaware County for its judicial and legal affairs. In 1823, Marion detached itself and thenceforward functioned as a separate county. The borders of the county changed in 1845 and 1848 with the erection of Wyandot and Morrow Counties respectively. The State appointed three men to choose the new county a seat of justice; and in 1822, they

selected the town of Marion (Jacoby 1907; Leggett, Conway, & Co. 1883; Wilson and Wilson 1950).

Eber Baker, acting as a land agent for the proprietor Alexander Holmes, came to Holmes' holdings in 1821 and found some squatters at a place they were calling 'Jacob's Well.' Baker and Holmes' son Samuel laid out a town the following spring. This location was the one that the county seat agents chose in 1822 and the little whole in the forest became Marion. The village became a town in 1830, but slow growth warranted a revocation of the charter until increased population and demand commanded a reinstatement of town status in 1847. City class came in 1890. Marion remains the only city in the county. Other villages are Caledonia, Green Camp, LaRue, Morral, New Bloomington, Prospect, and Waldo (Jacoby 1907; Wilson and Wilson 1950).

Marion City continues to be a center for business, industry, commercial, and residential development. Today, Marion County is dominated by the agricultural industry along with some gravel quarrying found in the southern portion of the county. Clay was also quarried in the early days for use in pottery and brick manufacture. One of the most famous items within Marion is the grave of President Warren G. Harding, who lived in Marion for some time during his adult life (Jacoby 1907; Wilson and Wilson 1950).

Richland Township History

Richland Township was organized in the year 1827. It is located in the southeast portion of Marion County. Neighboring townships include Claridon to the north, Cardington to the east, Waldo to the southeast, and Pleasant to the west. The topography is level with little to no rolling areas (Howe 1854). In the years prior to European settlement dense forests populated Richland Township. The timber was later removed to clear space for agricultural land. It was also used for the construction of homes, barns, churches, and schools. The main crops consisted of corn, wheat, potatoes, and apples. During this period, children were steady farm hands who helped with farm duties when not attending school. Schooling frequently fell low on the list of priorities for farm children. Children would often skip lessons to instead work on the farm (Winter 1917).

School houses were typically constructed with one room and a fireplace for winter sessions. During the early years of settlement, schools were not given an adequate amount of funding. The windows were composed of greased paper and text books were in short supply. Funding was not only lacking in the educational system, but in the church as well (Howe 1854).

Churches in the beginning stages of Richland Township's settlement were similar to the school houses. They too consisted of one room cabins. Religion was an important facet within the culture. The primary denomination was Methodist. Gatherings at the church allowed for residents to seek spiritual solace, discuss local issues and organize community events (Howe 1854).

RESULTS

The project APE consisted of primarily rural farms and rural residential areas. The residences within the APE consists of a mixture of older farm dwellings as well as modern houses (see maps in Appendix B). The terrain within the APE was mostly flat or lightly rolling with agricultural fields.

In total, 11 individual resources 50 years of age or older were identified within the survey APE that may have a direct line-of-sight to the project. Summarized data for all documented structures within the APE is provided in Table 1 (Appendix C).

In light of the results of the field survey, the historic context, the condition of the resources, and larger setting, Weller concluded that 7 of the 11 remaining individual architectural resources are clearly not individually eligible for the NRHP. These architectural resources are not individually eligible for inclusion in the NRHP under Criteria A, B, or C due to a lack of associative significance, a loss of integrity, or a lack of character defining features. A large portion of these resources have experienced multiple alterations that have compromised their historic integrity. Photographs of each of these resources are provided in Appendix A.

Following is a summary of the seven structures that were not advanced to detailed study. The houses dated to an age range of ca. 1850 to 1922, with most structures dating to within the later nineteenth and early twentieth centuries. All resources were of vernacular design with no specific subtypes represented, or had deteriorated beyond identification. The twenty-one resources were dominated by farm house types.

The numbers of stories on the houses were represented by one story (1), one and a half story (2), and two story (4) dwellings. All structures were of wood frame construction. Foundation materials were of concrete block (2), cut stone (4), and unknown foundation types (1) that were not visible due to vegetation coverage or distance from the ROW. Windows within the structures had various arrangements, but primarily consisted of modern replacement windows, and a 2/2. All of the structures featured alterations of some type and many had additions. Most of the homes lacked integrity either through replacement of their historic materials, significant alterations, or physical deterioration. All of the resources lacked character defining features or have since otherwise undergone significant alterations.

The four remaining identified resources exhibited potential NRHP significance and they were advanced to detailed study and are discussed below. The resources were placed within the historic context and Weller evaluated them to determine if they had potential for inclusion in the NRHP. Since Weller did not have access to the interiors of the properties and access to resources was generally restricted to the public right-of-way during the survey, no documentation for any resource interiors are included unless available through archival records.

S-3/ MAR047714/Lee House

Location: 4280 Berringer Road, Cardington, OH

Construction Date: 1850

Description: The Lee House is a Vernacular two story, wood frame house. The house is protected by a cross gable asphalt shingle roof. The roof supports a centrally located chimney. The house is clad with vinyl siding and features 6/6 and modern replacement windows. An addition is present on the front façade and southern elevation, altering the house from its original gable front type to a cross gable (Figure 5).

The property has several outbuildings including a detached garage built in 1995 and several sheds built in 1910, 1920, and as recently as 2008.

History: The Lee House is visible in aerial photographs as early as 1959. The addition is visible in 1988 aerial photos. The transmission line and house are visible on the Marion East 1961 topographic map. The Lee House is visible as early as the 1903 Marion topographic map. The property was owned by W. M Brickler in 1878.

NRHP Evaluation: The Lee House was not found to be substantially associated with events, patterns of events, or individuals important to our history in a manner necessary for inclusion in the NRHP under Criteria A and B. The Lee house has experienced alterations in siding, roofing, fenestration, and significant additions that have altered the massing and style of the original house form. As such the house is not eligible under Criterion C.

S-7/ MAR047814/Temple House

Location: 3456 Berringer Road, Cardington, OH

Construction Date: 1888

Description: The Temple House is a Vernacular, two story, wood frame house. The eight bay house is sheltered by a side gable metal roof, with slightly extended eaves, and supports a centrally located brick chimney. The house is protected by vinyl siding, and is lit with two over two frame windows. An enclosed front porch addition is located at the façade entrance. The five bay porch is sheltered by a metal shed roof. The porch is lit by six over six frame windows and a modern glass screen door that covers a wood paneled door. Four wood steps lead up to this entrance. A large addition similarly clad in vinyl siding with a metal roof, is attached at the rear north elevation. (Figures 6 and 7).

Several outbuildings are located to the northwest of the house, including an aluminum detached garage built in 1984, a granary, and two sheds built ca. 1900.

History: The Temple House property was owned by a J.G Grompf in 1878, at which time it consisted of 77.5 acres. John G. Gompf was born in Richland Township in 1837. His father had emigrated two years earlier from Hesse/Hessia, Germany, and his mother from Pennsylvania four years earlier. Gompf married Julia A. Pontius in 1862 with whom he had nine children, one of which died in infancy. He was noted to own two hundred sheep. He became a land appraiser in 1870 and later the President of the Board of Education. Aerial photographs of the property date back to 1959, and show that the rear addition was built by this time. Silos are also evident, which disappear by 2004 aerial images. The 1903 Marion topographic map shows the presence of a building on the Temple House property. The transmission line appears on the 1961 Marion East topographic map. The property is currently 5.626 acres in size.

NRHP Evaluation: The Temple House was not found to be substantially associated with events, patterns of events, or individuals important to our history in a manner necessary for inclusion in the NRHP under Criteria A and B. The house does not represent a specific architectural type. The Temple house has experienced alterations such as modern vinyl siding, and roofing, as well as a large addition at the north elevation, and an enclosed porch addition on the façade. The property has been significantly reduced in size, agricultural outbuildings such as silos have been removed, and the property is no longer utilized for its historic use of farming. As such the house is not eligible under Criterion C.

S-10/ MAR047914/Fox House

Location: 1481 Myers Road, Cardington, OH

Construction Date: 1922

Description: The Fox House is a one and half story, three bay, Craftsman style, wood frame house. The asphalt shingle gable front roof has side dormers with shed roofs on located on the eaves sides of the house. Extended eaves are visually supported by decorative brackets. The house is clad in vinyl siding with modern fenestration. A casement window is located beneath the gable peak. An open porch shelters the entrance, with an asphalt shingle shed roof. The porch is supported by low piers with columns above, and wood railings connect the stone piers. A wood paneled door serves as the final exterior entry detail. An addition is attached at the southern elevation.
(Figure 8).

A detached two door garage located to the southwest of the house has a metal gable roof and aluminum siding, was built in 2013. One shed outbuilding was built prior to 1959. Several other shed outbuildings were built in the late 1990's, with the most recent shed outbuilding having been built in 2007.

History: The Fox House was owned by Jacob Ulmer in 1878, at which time the property was 63 acres in size. Aerial photographs of the Fox House and an outbuilding southwest of the house, date back to 1959. The house and nearby transmission line are visible on the 1961

Marion East topographic map. The substation appears on the 1986 Marion topographic map. The Fox House property is currently 1.743 acres in size.

NRHP Evaluation: The Fox House was not found to be substantially associated with events, patterns of events, or individuals important to our history in a manner necessary for inclusion in the NRHP under Criteria A and B. The Fox house has experienced alterations such as modern vinyl siding, and fenestration, as well as an addition at the south elevation that have affected the historic integrity of the house. As such the house is not eligible under Criterion C.

S-11/MAR0488014/Campbell House

Location: 1425 Myers Road, Cardington, OH

Construction Date: 1887

Description: The Campbell House is an 1887 Vernacular style, wood frame house. The one and a half story house rests on a brick foundation. The five bay house is sheltered by a side gable asphalt shingle roof, that extends to create a single story full width porch. The porch is supported by six wood poles. A centrally located dormer on the façade has an asphalt shingle, hipped roof, and modern dual windows. The house is clad in vinyl siding, with a large single story addition attached at the easterly elevation. Another smaller single story addition is attached at the southwest elevation.

(Figure 9).

A small wood shed or outhouse is located at the westerly elevation.

History: Topographic maps from 1903 onwards show a structure on the property. Historical aerial photographs of the property and house date back to 1959. The easterly addition begins to appear on the 1970 aerial photographs. The photographs show agricultural outbuildings that decrease over the years until disappearing completely by 2004. The nearby transmission line is visible in the 1959 aerial photographs. The North Waldo Station is visible in the 1970 aerial photographs. The property belonged to a Jacob Ulmer in 1878, at which time the property was 63 acres in size. according to the Marion County Atlas. The property has since been divided up, and the Campbell House now sits on a property 1.415 acres in size, with the Fox House occupying another portion of the former 63 acres.

NRHP Evaluation: The Campbell house was not found to be substantially associated with events, patterns of events, or individuals important to our history in a manner necessary for inclusion in the NRHP under Criteria A and B. The house does not represent a specific architectural type or subtype. The house has been altered with vinyl siding, modern fenestration, roofing, and has had significant additions visible from the façade view. As such, the Campbell house is not eligible under Criterion C.

CONCLUSIONS

Under contract with AEP Transco Ohio, Weller & Associates, Inc., conducted a cultural historic survey for the proposed rebuild of the existing 3.87-mile Windfall Switch-North Waldo Station 138kV Rebuild Project in Richland Township, Marion County, Ohio. The existing right-

of-way (ROW) is the only route currently under consideration and the replacement structures will be constructed within the cleared ROW. The existing wooden H-frames will be replaced with steel monopoles. The existing right-of-way for this project includes an approximate 100 ft. wide transmission line corridor. The lines will be rebuilt for continued operation at 138 kV.

The project is subject to Ohio Power Siting Board Application requirements under Chapter 4906 of the Ohio Revised Code.

The investigations were conducted in two parts: cultural historic (architectural) survey and archaeological investigation. This report covers the results of the cultural historic survey of the entire area that may be affected by the proposed development of the project. The results of the archaeological investigations are presented in a separate report.

The APE contained a mix of, modern and older residential properties, of which farm houses were predominant. Overall the survey area was contained within rural agricultural areas.

The viewshed within the survey APE includes several modern intrusions. Besides the existing 138 kV transmission line, there are multiple additional transmission, telephone, and other types of lines crossing throughout the APE and areas beyond. In addition, there are several cell towers, and other tall tower types within portions of the APE. The APE was largely rural during the nineteenth century as it still is today. Many of the modern rural residential areas occur along the outer boundaries of farmlands where farmers have parceled off small lots for modern residential development. While some older farmsteads remain, a vast majority of the residential properties and the structures on them have been modified.

In total, 11 individual resources 50 years of age or older were identified within the survey APE that may have a direct line-of-sight to the project. 7 resources were determined not eligible for listing in the National Register of Historic Places. The remaining 4 properties within the survey area were advanced to detailed study, but not found eligible for listing in the National Register of Historic Places. Therefore, Weller & Associates, Inc. recommends that no historic properties will be affected by the project.

REFERENCES CITED

Gordon Stephen

1992 *How to Complete the Ohio Historic Inventory*. Ohio State Historic Preservation Office, Columbus, Ohio.

1997 *Guidelines for Local Surveys: A Basis for Preservation Planning*. NRHP Bulletin 24. National Park Service, Department of the Interior, Washington, D.C.

Harrison, Sutton, & Hare, pubs.

1878 *Atlas of Marion County, Ohio*. Harrison, Sutton, & Hare, Philadelphia

Historical Marker Database

2012a Johnny Appleseed's Early Landholdings.

<http://www.hmdb.org/marker.asp?marker=13875> Accessed September 10, 2012.

Historic Aerials

NETR online. Electronic Document, <http://www.historicaerials.com/>, accessed May 23, 2016.

1996 *How to Apply the NRHP Criteria for Evaluation*. NRHP Bulletin 15. National Park Service, Department of the Interior, Washington, D.C.

Howe, H.

1888 *Historical Collections of Ohio, Vol. I*. H. Howe & Son, Columbus.

Howe, H.

1888 *Historical Collections of Ohio, Vol. II*. H. Howe & Son, Columbus, Ohio.

Jacoby, J. W.

1907 *History of Marion County, Ohio and Representative Citizens*. Biographical Publishing Company, Chicago.

Jakle, J.A., R.W. Bastian, and D.K. Meyer

1988 *Common Houses in America's Small Town: The Atlantic Seaboard to the Mississippi Valley*. University of Georgia, Athens, Georgia.

2005 Kenyon College.

<http://www.ohiohistorycentral.org/entry.php?rec=738&nm=Kenyon-College> Accessed September 10, 2012.

Leggett, Conway, & Company, pubs.

1883 *The History of Marion County, Ohio*. Leggett, Conway, & Company, Chicago.

2012b Mary Ann Ball "Mother Bickerdyke."

<http://www.hmdb.org/marker.asp?marker=12723> Accessed September 10, 2012.

McAlester, V. and L.

1992 *A Field Guide to American Houses*. Alfred A. Knopf, New York.

National Park Service

1983 *Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines*. National Park Service, Department of the Interior, Washington, D.C.

Norton, A. Banning

1862 *A History of Knox County, Ohio from 1779 to 1862 Inclusive*. Richard Nevins, Printer, Columbus, Ohio.

Nelson, Christopher L.

2014 *Cultural Historic Survey for the AEP Biers Run-Hopetown-Delano 138 kV Transmission Line Project, Union and Green Townships, Ross County, Ohio*. Cultural Resource Analysts, Inc., Lancaster, Ohio. Copy on file at the Ohio State Historic Preservation Office, Columbus, Ohio.

Ohio Department of Agriculture

2006 *Bicentennial Farm Profile – Cromley Farms*. Electronic document.

<<http://www.ohioagriculture.gov/pubs/divs/cent/arks/news/COMM-bicentennialfarm-cromleyconner.htm>> Accessed February 7, 2006.

Ohio History Central

2005 Knox County. <http://www.ohiohistorycentral.org/entry.php?rec=1954> Accessed September 10, 2012.

United States Department of Agriculture (USDA)

1986 *Soil Survey of Knox County, Ohio*. U.S. Government Printing Office, Washington D.C.

Wilson, S. D. and R. E. Wilson, eds.

1950 *Biographies of Many Residents of Marion County, Ohio: and review of the history of Marion County*. Sylvia D. Wilson and Ruth E. Wilson, Marion, Ohio.

Figures



Figure 1. Political map of Ohio showing the approximate location of the project.

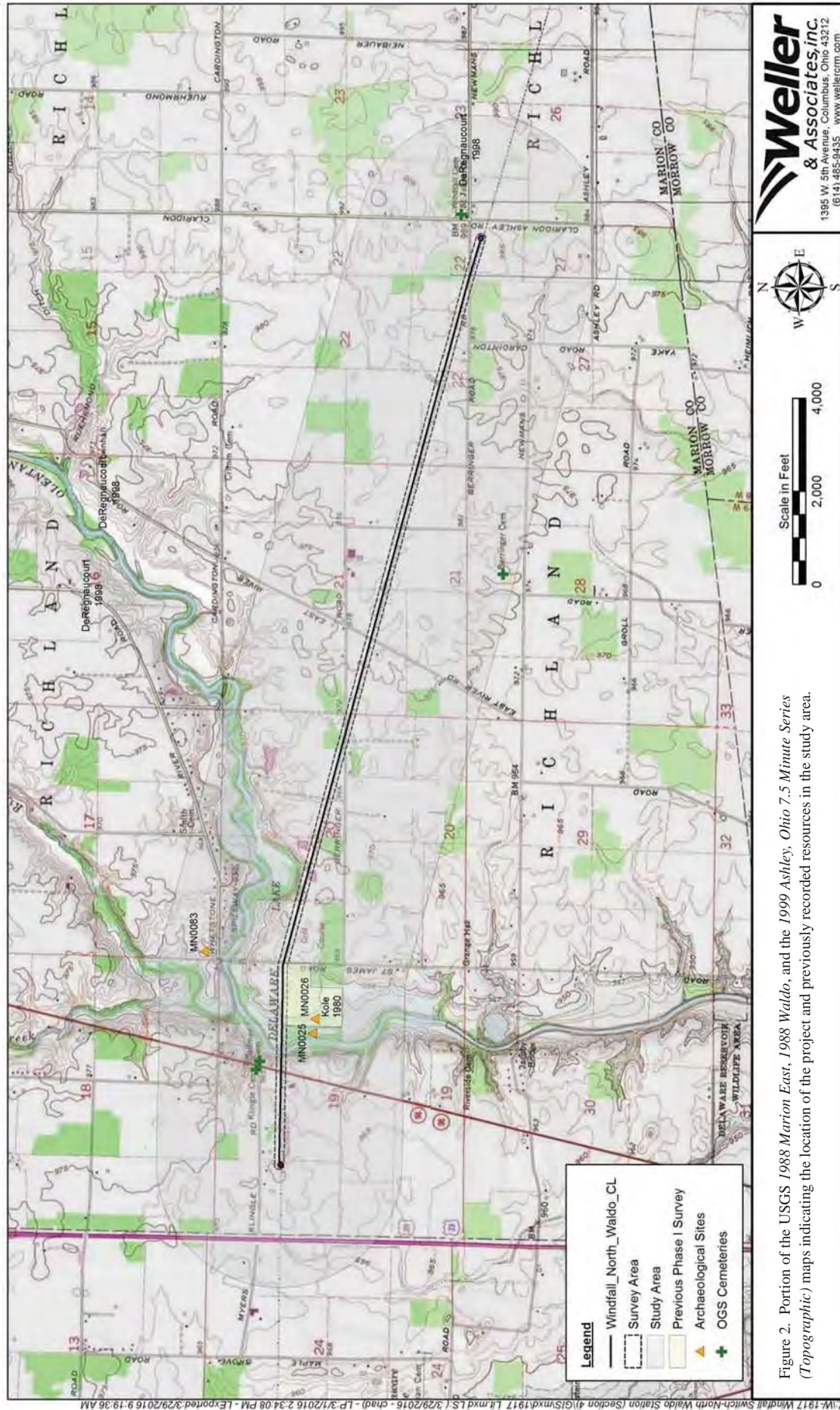


Figure 2. Portion of the USGS 1988 Marion East, 1988 Waldo, and the 1999 Ashley, Ohio 7.5 Minute Series (Topographic) maps indicating the location of the project and previously recorded resources in the study area.



Figure 3. Aerial map indicating the location of the project and previously recorded resources in the study area.

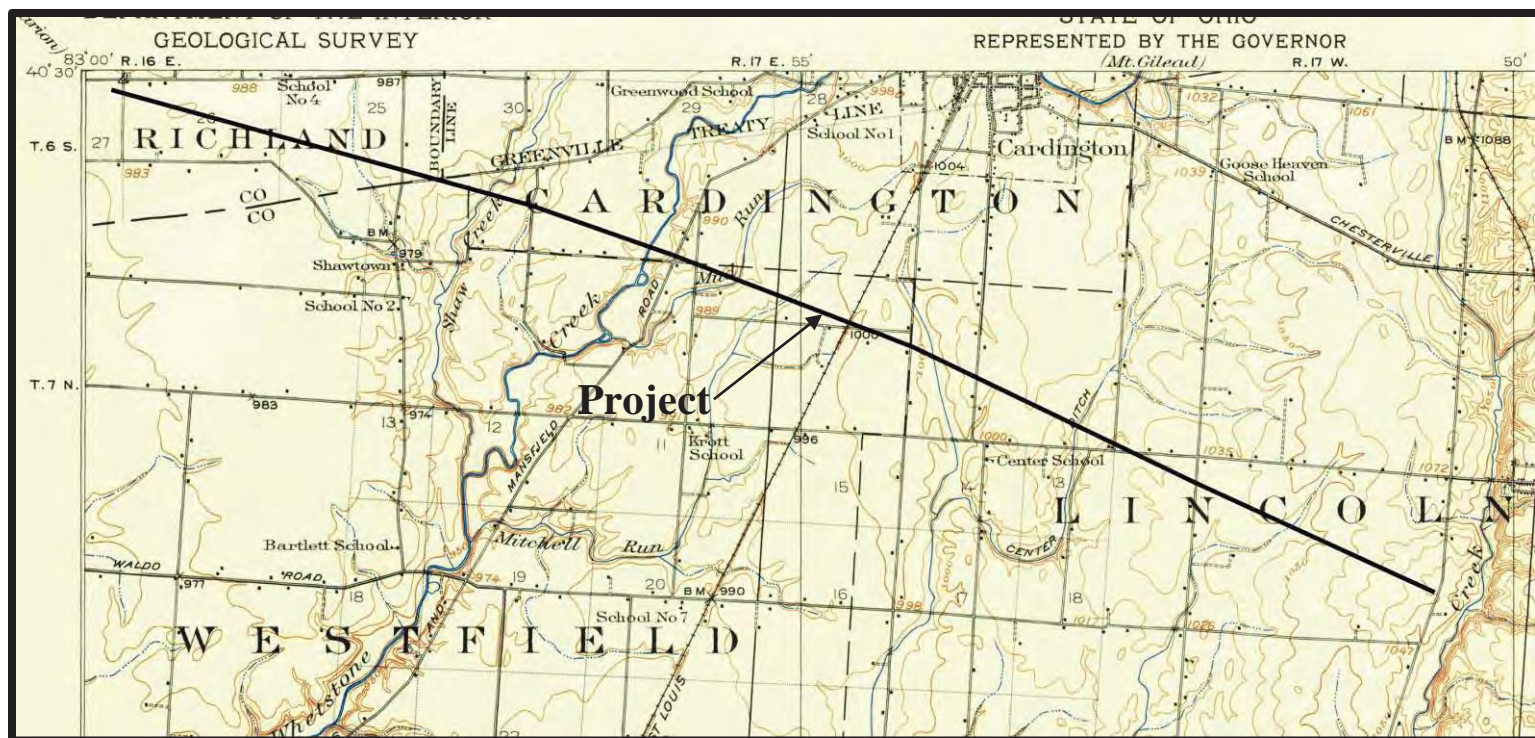


Figure 4. Portion of the USGS 1915 Marengo, Ohio 15 Minute Series (Topographic) map indicating the location of the project.



Figure 5: S-3/ MAR047714/Lee House



Figure 6: S-7/ MAR047814/Temple House Gable End



Figure 7: S-7/ MAR047814/Temple House Façade



Figure 8: S-10/ MAR047914/Fox House Façade



Figure 9: S-11/MAR0488014/Campbell House

Appendix A

Photographs of All Resources 50 Years of Age or Older Not Advanced to Detailed Study



S-1



S-2



S-4



S-5



S-6



S-8



S-9

Appendix B
Project Mapping Resource Locations

W-1917 Resource Map



W-1917 Resource Map



W-1917 Resource Map



W-1917 Resource Map



W-1917 Resource Map



Appendix C

Table 1

Table 1. Summary Data on Survey Results

Field #	County	Map #	Classification	Historic Function	Current Function	Date	Stylistic influence	Type	Bays	Rooms Deep	Stories	Roof Type	Construction	Foundation	Walls	Roof	Windows	Additions	Altered	Individual NHP Status
S-1	Marion	Appendix B: Map 1	Building	Domestic - Single Dwelling	Domestic - Single Dwelling	Ca. 1910	Vernacular	Gable Front House	6	2	1.5	Side Gable	Wood Frame	Concrete Block	Vinyl	Asphalt Shingle	Modern Replacement	Yes	Yes	Not Eligible
S-2	Marion	Appendix B: Map 1	Building	Domestic - Single Dwelling	Domestic - Single Dwelling	1898	Vernacular	Cross Gable House	3	2	2	Cross Gable	Wood Frame	Cut Stone	Vinyl	Asphalt Shingle	Modern Replacement	Yes	Yes	Not Eligible
S-3/ MAR047714	Marion	Appendix B: Map 2	Building	Domestic - Single Dwelling	Domestic - Single Dwelling	1850	Vernacular	Cross Gable House	Unknown	2	2	Cross Gable	Wood Frame	Unknown	Vinyl	Asphalt Shingle	Modern Replacement/ 6/6	Yes	Yes	Detailed Study
S-4	Marion	Appendix B: Map 2	Building	Domestic - Single Dwelling	Domestic - Single Dwelling	Ca.1900	Vernacular	Vernacular House	6	1	1.5	Monitor	Wood Frame	Cut Stone	Weatherboard	Asphalt Shingle	Modern Replacement	No	Yes	Not Eligible
S-5	Marion	Appendix B: Map 2	Building	Domestic - Single Dwelling	Domestic - Single Dwelling	Ca.1900	Vernacular	Cross Gable House	3	2	2	Cross Gable	Wood Frame	Cut Stone	Vinyl	Asphalt Shingle	Modern Replacement	Yes	Yes	Not Eligible
S-6	Marion	Appendix B: Map 3	Building	Agricultural – Barn	Agricultural – Barn	1920	Vernacular	Gable Front Barn	1	2	1	Gable Front	Wood Frame	Unknown	Vinyl	Slate Shingles	2/2	No	Yes	Not Eligible
S-7 / MAR047814	Marion	Appendix B: Map 3	Building	Domestic - Single Dwelling	Domestic - Single Dwelling	1888	Vernacular	Cross Gable House	8	1	2	Cross Gable	Wood Frame	Unknown	Vinyl	Metal	6/6 and 2/2	Yes	Yes	Detailed Study
S-8	Marion	Appendix B: Map 5	Building	Domestic - Single Dwelling	Domestic - Single Dwelling	1903	Vernacular	Vernacular Farm House	4	2	2	Multiple Facade Orientation	Wood Frame	Concrete Block	Vinyl	Asphalt Shingle	Modern Replacement	Yes	Yes	Not Eligible
S-9	Marion	Appendix B: Map 4	Building	Domestic - Single Dwelling	Domestic - Single Dwelling	1891	Vernacular	Side Gable House	2	2	2	Side Gable	Wood Frame	Cut Stone	Vinyl	Asphalt Shingle	Modern Replacement	Yes	Yes	Not Eligible
S-10/ MAR047914	Marion	Appendix B: Map 4	Building	Domestic - Single Dwelling	Domestic - Single Dwelling	1922	Craftsman	Gable Front House	3	2	1.5	Gable Front	Wood Frame	Unknown	Vinyl	Asphalt Shingle	Modern Replacement	Yes	Yes	Detailed Study
S-11/ MAR0488014	Marion	Appendix B: Map4	Building	Domestic - Single Dwelling	Domestic - Single Dwelling	1887	Vernacular	Side Gable House	5	1	1.5	Side Gable	Wood Frame	Brick	Vinyl	Asphalt Shingle	4/4	Yes	Yes	Detailed Study

**Windfall Switch to North Waldo Station
138 kV Transmission Line Rebuild
Project, Marion County, Ohio**

**Ecological Resources Inventory
Report**



Prepared for:
AEP Ohio Transmission Company, Inc.
700 Morrison Road
Gahanna, Ohio 43230

Prepared by:

Stantec Consulting Services Inc.
11687 Lebanon Road
Cincinnati, Ohio 45241

October 28, 2016

WINDFALL SWITCH TO NORTH WALDO STATION 138 KV TRANSMISSION LINE REBUILD PROJECT, MARION COUNTY, OHIO

Table of Contents

1.0	INTRODUCTION	1
2.0	METHODS	2
2.1	WETLAND DELINEATION	2
2.2	STREAM DELINEATION	2
2.3	RARE SPECIES	2
3.0	RESULTS	3
3.1	TERRESTRIAL HABITAT	3
3.2	WETLANDS	4
3.3	STREAMS	4
3.4	RARE, THREATENED, OR ENDANGERED SPECIES HABITAT	5
4.0	CONCLUSIONS AND RECOMMENDATIONS	9
5.0	REFERENCES	11

LIST OF TABLES

Table 1. Vegetation Communities and Land Cover Found within the Windfall Switch to North Waldo Station 138 kV Transmission Line Rebuild Project Area, Marion County, Ohio	3
Table 2. Summary of Stream Resources Found within the Windfall Switch to North Waldo Station 138 kV Transmission Line Rebuild Project Area, Marion County, Ohio	4
Table 3. Summary of Potential Ohio State-Listed Species within the Windfall Switch to North Waldo Station 138 kV Transmission Line Rebuild Project Area, Marion County, Ohio	5
Table 4. Summary of Potential Federally-Listed Species within the Windfall Switch to North Waldo Station 138 kV Transmission Line Rebuild Project Area, Marion County, Ohio	8

LIST OF APPENDICES

APPENDIX A	FIGURES	A.1
A.1	Figure 1 – Project Location Map	A.1
A.2	Figure 2 – Wetland and Waterbody Delineation Map	A.2
A.3	Figure 3 – Habitat Assessment Map	A.3
APPENDIX B	AGENCY CORRESPONDENCE	B.1
APPENDIX C	REPRESENTATIVE PHOTOGRAPHS	C.1
APPENDIX D	QHEI DATA FORMS	D.1

WINDFALL SWITCH TO NORTH WALDO STATION 138 KV TRANSMISSION LINE REBUILD PROJECT, MARION COUNTY, OHIO

1.0 Introduction

AEP Ohio Transmission Company, Inc. (AEP) is proposing to rebuild/upgrade 33 structures on the Windfall Switch to North Waldo Station 138 kilovolt (kV) Transmission Line in Marion County, Ohio (Figure 1, Appendix A). The Project will include the rebuild/upgrade of these structures within the existing right-of-way (ROW) and construction of associated access roads needed to perform the rebuild/upgrade activities (Figure 1, Appendix A). The existing ROW, including workspaces surrounding each of the 33 structures to be replaced, and proposed access roads were surveyed for wetlands, waterbodies, and potential threatened, endangered, and rare species habitat by Stantec Consulting Services Inc. (Stantec) biologists on September 26 and 27, 2016. The approximate locations of features located up to approximately 50 feet outside of the ROW limits were also recorded during the field surveys, where landowner access was permitted. However, no data forms were collected on features that did not extend into the ROW. These features are shown on the Figure 2 maps in Appendix A as "approximate" wetlands, streams (waterways), and upland drainage features.

WINDFALL SWITCH TO NORTH WALDO STATION 138 KV TRANSMISSION LINE REBUILD PROJECT, MARION COUNTY, OHIO

2.0 Methods

2.1 WETLAND DELINEATION

Prior to completing the field surveys, a desktop review of the Project area was conducted using U.S. Geological Survey (USGS) topographic mapping, National Wetlands Inventory (NWI) maps, U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil surveys, and aerial imagery mapping. Stantec completed a wetland delineation study in accordance with the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (Version 2.0) (USACE 2010). Wetland categories were classified using the Ohio Rapid Assessment Method (ORAM) for Wetlands Version 5.0 (Mack 2001).

2.2 STREAM DELINEATION

Streams that demonstrated a continuously defined channel (bed and bank), ordinary high water mark (OHWM), and the disturbance of terrestrial vegetation were delineated within the Project area, per the protocols outlined in the USACE's Guidance on Ordinary High Water Mark Identification (Regulatory Guidance Letter, No. 05-05) (USACE 2005). Delineated streams were classified as ephemeral, intermittent, or perennial per definitions in the Federal Register/Vol. 67, No. 10 (USACE 2002). Functional assessment of streams within the Project area was based on completion of the Ohio Environmental Protection Agency's (OEPA) Headwater Habitat Evaluation Index (HHEI) and/or Qualitative Habitat Evaluation Index (QHEI; OEPA 2006). The centerline and/or the OHWM locations of each waterway were identified and surveyed using a handheld sub-meter accuracy GPS unit and mapped with GIS software. Additionally, the locations of ponds/open water features and upland drainage features (which lacked a continuously defined bed and bank/OHWM) identified within the Project area were also recorded with a sub-meter accuracy GPS unit during the field surveys.

2.3 RARE SPECIES

Prior to conducting the field surveys, Stantec contacted the Ohio Department of Natural Resources (ODNR) and the U.S. Fish and Wildlife Service (USFWS) for information regarding rare, threatened, or endangered species and their habitats of concern within the vicinity of the Project area (Appendix B – Agency Correspondence). To assess potential impacts to rare, threatened, or endangered species, Stantec scientists conducted a pedestrian reconnaissance of the proposed Project area, collected information on existing habitats within the Project area, and assessed the potential for these habitats to be used by these species.

WINDFALL SWITCH TO NORTH WALDO STATION 138 KV TRANSMISSION LINE REBUILD PROJECT, MARION COUNTY, OHIO

3.0 Results

3.1 TERRESTRIAL HABITAT

Stantec completed field surveys within the Project area on September 26 and 27, 2016, for wetlands, waterbodies, and threatened and endangered species or their habitats. Figure 2 (Appendix A) shows the wetlands and waterbodies identified by Stantec within the Project area, as well as the locations of upland drainage features identified within the Project area. Figure 3 (Appendix A) shows the habitats and locations of any identified rare, threatened or endangered species habitat observed within the Project area during the rare, threatened, and endangered species habitat assessment surveys. Only one stream and a few upland drainage features were identified within the Project area during the field surveys. Representative photographs of the stream, upland drainage features, and other habitats identified within the Project area are included in Appendix C of this report (photo locations are shown on Figures 2 and 3, Appendix A). Completed QHEI data forms are included in Appendix D. No wetlands were identified during the field surveys. Therefore, not wetland determination data forms or ORAM data forms were completed for the Project.

Table 1. Vegetation Communities and Land Cover Found within the Windfall Switch to North Waldo Station 138 kV Transmission Line Rebuild Project Area, Marion County, Ohio

Vegetation Communities and Land Cover Types within the Project Area	Degree of Human-Related Ecological Disturbance	Unique, Rare, or High Quality?	Approximate Acreage Within Project Area
Agricultural Row Crop	Extreme Disturbance/Ruderal Community (dominated by planted non-native row crop species, opportunistic invaders, and/or native highly tolerant taxa)	No	37.2
Golf Course	Extreme Disturbance/Ruderal Community (dominated by planted non-native grasses, opportunistic invaders, and/or native highly tolerant taxa)	No	6.6
Institutional (Church)	Extreme Disturbance/Ruderal Community (dominated by opportunistic invaders, planted non-native species, and/or native highly tolerant taxa)	No	0.8
Industrial	Extreme Disturbance/Ruderal Community (free of vegetation or dominated by opportunistic invaders and/or native highly tolerant taxa)	No	0.3
Old Field	Extreme Disturbance/Ruderal Community (dominated by opportunistic invaders and/or native highly tolerant taxa)	No	1.5

**WINDFALL SWITCH TO NORTH WALDO STATION 138 KV TRANSMISSION LINE REBUILD
PROJECT, MARION COUNTY, OHIO**

Vegetation Communities and Land Cover Types within the Project Area	Degree of Human-Related Ecological Disturbance	Unique, Rare, or High Quality?	Approximate Acreage Within Project Area
Residential Lawn	Extreme Disturbance/Ruderal Community (dominated by opportunistic invaders, planted non-native species, and/or native highly tolerant taxa)	No	0.5
Existing Paved Road	Extreme Disturbance/existing paved road	No	0.8
Total			47.7

3.2 WETLANDS

No wetlands were identified within the Project area.

3.3 STREAMS

Table 2. Summary of Stream Resources Found within the Windfall Switch to North Waldo Station 138 kV Transmission Line Rebuild Project Area, Marion County, Ohio

Stream Name	Photo Numbers¹	Receiving Waters	Stream Flow Regime²	Stream Evaluation Method	Stream Evaluation Score	OHWM Width (feet)³	Delineated Length (feet) within Project Area
Stream 1 (Olentangy River)	5, 6	Scioto River	Perennial	QHEI	74	75.0	112.3
TOTAL							112.3
¹ Appendix C – Representative Photographs							
² Stream classification is based on Federal Register/Vol. 67, No. 10 (USACE 2002).							
³ OHWM = Ordinary High Water Mark							

WINDFALL SWITCH TO NORTH WALDO STATION 138 KV TRANSMISSION LINE REBUILD PROJECT, MARION COUNTY, OHIO

3.4 RARE, THREATENED, OR ENDANGERED SPECIES HABITAT

Table 3. Summary of Potential Ohio State-Listed Species within the Windfall Switch to North Waldo Station 138 kV Transmission Line Rebuild Project Area, Marion County, Ohio

Common Name	Scientific Name	State ¹ Listing	Known to Occur in Marion County? ²	Known Within One Mile of Project Area? ³	Habitat Preference	Potential Habitat Observed in Project Area?	Impact Assessment	ODNR Comments/Recommendations
Birds								
Northern Harrier	Circus cyaneus	E	Yes	No	This bird hunts low over grassland and marshes and breeds in large marshes and grasslands (ODNR 2016b). Breeding Northern harriers are most common in large, undisturbed tracts of wetlands and grasslands with low, thick vegetation (The Cornell Lab of Ornithology 2016).	No	No suitable nesting habitat (large areas of marshes and/or grasslands) was observed within the Project area. Additionally, this species is not known to occur within one mile of the Project area. Therefore, no impacts are anticipated.	ODNR Office of Real Estate comments are pending.
Butterflies/Moths								
Regal Fritillary	Speyeria idalia	E	Yes	No	Occurs in tallgrass prairie remnants (Butterflies and Moths of North America 2016). This species prefers open grassland, savannah, and old field habitats, all with varying degrees of hydrology. Heavily treed areas are not utilized due to the impediment of movement and migration (NatureServe 2016).	No	Only a small amount of potentially suitable habitat (old field) was observed within the Project area and this area was surrounded by forest and agricultural fields. Additionally, this species is not known to occur within one mile of the Project area. Therefore, no impacts are anticipated.	ODNR Office of Real Estate comments are pending.
Reptiles								
Eastern Massasauga	Sistrurus catenatus catenatus	E	Yes	No	This species is found in wet prairies, sedge meadows, and early successional fields. Preferred wetland habitats are marshes and fens. They avoid open water and seem to prefer the cover of broad-leaved plants, emergent plants, and sedges (ODNR 2016b).	Yes	Only a small amount of potentially suitable habitat (old field) was observed within the Project area and this area was surrounded by forest and agricultural fields. Additionally, this species is not known to occur within one mile of the Project area. Therefore, no impacts are anticipated.	ODNR Office of Real Estate comments are pending.
Mussels								
Snuffbox	Epioblasma triquetra	E	Yes	Yes	Occurs in medium-sized streams to large rivers generally on mud, rocky, gravel, or sand substrates in flowing water. Often deeply buried in substrate and overlooked by collectors (NatureServe 2016).	Yes	Some potentially suitable habitat was observed within the Project area (Olentangy River). However, no in-water work is proposed to occur in perennial streams by AEP. Therefore, no impacts are anticipated.	ODNR Office of Real Estate comments are pending.

WINDFALL SWITCH TO NORTH WALDO STATION 138 KV TRANSMISSION LINE REBUILD PROJECT, MARION COUNTY, OHIO

Common Name	Scientific Name	State ¹ Listing	Known to Occur in Marion County? ²	Known Within One Mile of Project Area? ³	Habitat Preference	Potential Habitat Observed in Project Area?	Impact Assessment	ODNR Comments/Recommendations
Clubshell	<i>Pleurobema clava</i>	E	Yes	No	The clubshell is found in small to medium rivers, but occasionally found in large rivers, especially those having large shoal areas. It is generally found in clean, coarse sand and gravel in runs, often just downstream of a riffle and cannot tolerate mud or slackwater conditions (USFWS 1994). (Badra 2001) found the clubshell in gravel/sand substrate, runs having laminar flow (0.06-0.25 m/sec) within small to medium sized streams.	Yes	Some potentially suitable habitat was observed within the Project area (Olenitangy River). However, no in-water work is proposed to occur in perennial streams by AEP. Therefore, no impacts are anticipated.	ODNR Office of Real Estate comments are pending.
Rabbitsfoot	<i>Quadrula cylindrica cylindrica</i>	E	Yes	No	The typical habitat for this species is small to medium rivers with moderate to swift currents, and in smaller streams it inhabits bars or gravel and cobble close to the fast current. Found in medium to large rivers in sand and gravel shoals (NatureServe 2016).	Yes	Some potentially suitable habitat was observed within the Project area (Olenitangy River). However, no in-water work is proposed to occur in perennial streams by AEP. Therefore, no impacts are anticipated.	ODNR Office of Real Estate comments are pending.
Rayed Bean	<i>Villosa fabalis</i>	E	Yes	Yes	The rayed bean is generally known from smaller headwater creeks, but records exist in larger rivers. They usually are found in or near shoal or riffle areas, and the shallow wave-washed area of glacial lakes (NatureServe 2016).	Yes	Some potentially suitable habitat was observed within the Project area (Olenitangy River). However, no in-water work is proposed to occur in perennial streams by AEP. Therefore, no impacts are anticipated.	ODNR Office of Real Estate comments are pending.
Pondhorn	<i>Unio merus tetralasmus</i>	T	Yes	No	This species typically inhabits the quiet or slow-moving, shallow waters of sloughs, borrow pits, ponds, ditches, and meandering streams. It is tolerant of poor water conditions and can be found well buried in a substrate of fine silt and/or mud. It has been known to survive for extended periods of time when a pond or slough has temporarily dried up by burying itself deep into the substrate (NatureServe 2016).	Yes	Some potentially suitable habitat was observed within the Project area (Olenitangy River). However, no in-water work is proposed to occur in perennial streams by AEP. Therefore, no impacts are anticipated.	ODNR Office of Real Estate comments are pending.
Round Pigtoe	<i>Pleurobema sinuoxia</i>	SOC	Yes	Yes	This species is found in medium to large rivers in mixed fine substrates such as mud, sand and gravel. This species also occurs in Lake Erie and Lake St. Clair. However, it is most abundant in medium-sized and big rivers and in current with firm substrate of coarse gravel and sand with water depths of less than three feet to more than 20 feet (NatureServe 2016).	Yes	Some potentially suitable habitat was observed within the Project area (Olenitangy River). However, no in-water work is proposed to occur in perennial streams by AEP. Therefore, no impacts are anticipated.	ODNR Office of Real Estate comments are pending.
Mammals								
Indiana bat	<i>Myotis sodalis</i>	E	Yes	No	The Indiana bat is likely distributed over the entire State of Ohio, though not uniformly. This species generally forages in openings and edge habitats within upland and floodplain forest, but they also forage over old fields and pastures (Black et al. 2010). Natural roost structures include trees (live or dead) with exfoliating bark, and exposure to solar radiation. Other important	No	No potential hibernacula or potential roost trees were observed within the Project area. Therefore, no adverse effects are anticipated.	ODNR Office of Real Estate comments are pending.

WINDFALL SWITCH TO NORTH WALDO STATION 138 KV TRANSMISSION LINE REBUILD PROJECT, MARION COUNTY, OHIO

Common Name	Scientific Name	State ¹ Listing	Known to Occur in Marion County ²	Known Within One Mile of Project Area ^{2a}	Habitat Preference	Potential Habitat Observed in Project Area?	Impact Assessment	ODNR Comments/Recommendations
					factors for roost trees include relative location to other trees, a permanent water source and foraging areas; Dead trees are preferred as maternity roosts; however, live trees are often used as secondary roosts depending on microclimate conditions (USFWS 2007; USFWS 2015a). Roosts have also occasionally been found to consist of cracks and hollows in trees, utility poles, buildings, and bat boxes. Primarily use caves for hibernacula, although are also known to hibernate in abandoned underground mines (Brack et al. 2010).			

¹E=Endangered; T=Threatened; SOC=Species of Concern
²According to Ohio Department of Natural Resources, State Listed Wildlife Species by County (ODNR 2016a).
^{2a}According to Ohio Natural Heritage Program (Appendix B).

WINDFALL SWITCH TO NORTH WALDO STATION 138 KV TRANSMISSION LINE REBUILD PROJECT, MARION COUNTY, OHIO

Table 4. Summary of Potential Federally-Listed Species within the Windfall Switch to North Waldo Station 138 kV Transmission Line Rebuild Project Area, Marion County, Ohio

Common Name	Scientific Name	Federal Listing ¹	Known to Occur in Marion County? ²	Habitat Preference	Potential Habitat Observed in Project Area?	Impact Assessment	USFWS Comments/Recommendations
Mammals							
Indiana Bat	Myotis sodalis	E	Yes	The Indiana bat is likely distributed over the entire State of Ohio, though not uniformly. This species generally forages in openings and edge habitats within upland and floodplain forest, but they also forage over old fields and pastures (Brack et al. 2010). Natural roost structures include trees (live or dead) with exfoliating bark, and exposure to solar radiation. Other important factors for roost trees include relative location to other trees, a permanent water source and foraging areas. Dead trees are preferred as maternity roosts; however, live trees are often used as secondary roosts depending on microclimate conditions (USFWS 2007; USFWS 2015a). Roosts have also occasionally been found to consist of cracks and hollows in trees, utility poles, buildings, and bat boxes. Primarily use caves for hibernacula, although are also known to hibernate in abandoned underground mines (Brack et al. 2010).	No	No potential hibernacula or potential roost trees were observed within the Project area. Therefore, impacts to this species are not anticipated.	If no caves or abandoned mines may be disturbed and tree removal is unavoidable, seasonal tree cutting (clearing of trees 23 inches diameter at breast height between October 1 and March 31) is recommended. Following this seasonal tree clearing recommendation should ensure that no adverse effects to the Indiana bat will occur.
Northern Long-eared Bat	Myotis septentrionalis	T	Yes	The northern long-eared bat is found throughout Ohio. This species generally forages in forested habitat and openings in forested habitat and utilizes cracks, cavities, and loose bark within live and dead trees, as well as buildings as roosting habitat (Brack et al. 2010; USFWS 2016). The species utilizes caves and abandoned mines as winter hibernacula. Various sized caves are used providing they have a constant temperature, high humidity, and little to no air current (Brack et al. 2010).	No	No potential hibernacula or potential roost trees were observed within the Project area. Therefore, impacts to this species are not anticipated.	If no caves or abandoned mines may be disturbed and tree removal is unavoidable, seasonal tree cutting (clearing of trees 23 inches diameter at breast height between October 1 and March 31) is recommended. Following this seasonal tree clearing recommendation should ensure that no adverse effects to the northern long-eared bat will occur. Incidental take of northern long-eared bats from most tree clearing is exempted by the 4(d) rule.
Reptiles							
Eastern Massasauga	Sistrurus catenatus catenatus	T	Yes	This species is found in wet prairies, sedge meadows, and early successional fields. Preferred wetland habitats are marshes and fens. They avoid open water and seem to prefer the cover of broad-leaved plants, emergents, and sedges (ODNR 2016b).	Yes	Only a small amount of potentially suitable habitat (old field) was observed within the Project area and this area was surrounded by forest and agricultural fields. Additionally, this species is not known to occur within one mile of the Project area. Therefore, no impacts are anticipated.	Due to the Project type, size, and location, the USFWS does not anticipate adverse effects to this species.
Rayed Bean	Villosa fabalis	E	Yes	The rayed bean is generally known from smaller headwater creeks, but records exist in larger rivers. They usually are found in or near shoal or riffle areas, and the shallow wave-washed area of glacial lakes (NatureServe 2016).	Yes	Some potentially suitable habitat was observed within the Project area (Olenitangy River). However, no in-water work is proposed to occur in perennial streams by AEP. Therefore, no impacts are anticipated.	Due to the Project type, size, and location, the USFWS does not anticipate adverse effects to this species.
¹ E=Endangered, T=Threatened ² According to USFWS (2015a).							

WINDFALL SWITCH TO NORTH WALDO STATION 138 KV TRANSMISSION LINE REBUILD PROJECT, MARION COUNTY, OHIO

4.0 Conclusions and Recommendations

Stantec conducted a wetland and waterbodies delineation and a preliminary habitat assessment for threatened and endangered species or their habitats within the Project area on September 26 and 27, 2016. During the field surveys, one perennial stream (the USGS-named Olentangy River) totaling approximately 112 linear feet in length, was delineated within the Project area. See Table 2 for more information regarding the streams identified within the Project area.

The information provided by Stantec regarding wetland and stream boundaries is based on an analysis of the wetland and upland conditions present within the Project area at the time of the fieldwork. The delineations were performed by experienced and qualified professionals using regulatory agency-accepted practices and sound professional judgment.

The Project area includes potentially suitable habitat for the following state-listed threatened and endangered species: eastern massasauga, snuffbox, clubshell, rabbitsfoot, rayed bean, and pondhorn. According to a response letter from ODNR's Ohio Natural Heritage Program (ONHP), rayed bean and snuffbox, which are both state-listed and federally-listed as endangered, are known to occur within one mile of the Project area, although not within the Project area. The other state-listed threatened and endangered species are not known to occur within the Project area or a one-mile radius of it, according to correspondence received from the ODNR's ONHP (Appendix B). Only a small amount of potentially suitable habitat (old field) for the eastern massasauga was observed within the Project area and this area was surrounded by forest and agricultural fields. Therefore, no impacts to the eastern massasauga are anticipated.

The ODNR's ONHP also indicated that they have records of round pigtoe (*Pleurobema sintoxia*), a state species of concern, within one mile of the Project area. Potentially suitable habitat for round pigtoe is present within the Olentangy River within the Project area. However, no impacts to round pigtoe, snuffbox, clubshell, rabbitsfoot, rayed bean, or pondhorn are anticipated because no in-stream work within the Olentangy River will be required for the Project. The ODNR ONHP is also unaware of any geologic features, animal assemblages, scenic rivers, state nature preserves, parks or forests or national wildlife refuges, parks or forests within a one-mile radius of the Project area.

A technical assistance request letter was submitted to the USFWS. The USFWS response letter indicated that, due to the project type, size, and location, if caves and mines (potential bat hibernacula) will not be disturbed and seasonal tree cutting (clearing of trees ≥ 3 inches diameter at breast height between October 1 and March 31) to avoid impacts to Indiana bats and northern long-eared bats is implemented, they do not anticipate adverse effects to any federally endangered, threatened, proposed or candidate species (Appendix B). Additionally, the USFWS indicated that there are no federal wilderness areas, wildlife refuges, or designated critical habitat within the vicinity of the Project area (Appendix B).

WINDFALL SWITCH TO NORTH WALDO STATION 138 KV TRANSMISSION LINE REBUILD PROJECT, MARION COUNTY, OHIO

No potential Indiana bat/northern long-eared bat roost trees or hibernacula were identified within the Project area during the field surveys. Therefore, the Project is not likely to adversely affect, the Indiana bat and northern long-eared bat.

The USFWS recommended that impacts to wetlands and other water resources be avoided or minimized to the fullest extent possible, and that best management practices be utilized to minimize erosion and sedimentation.

A technical assistance/environmental review request letter has been sent to ODNR Office of Real Estate. However, a response has not been received as of the date of this report.

WINDFALL SWITCH TO NORTH WALDO STATION 138 KV TRANSMISSION LINE REBUILD PROJECT, MARION COUNTY, OHIO

5.0 References

- Badra, P. J., and R. R. Goforth. 2001. Surveys for the clubshell (*Pleurobema clava*) and other rare clams in Michigan: Final Report – 2000. Michigan Natural Features Inventory Technical Report 2001-07.
- Brack, Virgil Jr., Dale W. Sparks, John O. Whitaker Jr., Brianne L. Walters, and Angela Boyer. 2010. Bats of Ohio. Indiana State University Center for North American Bat Research and Conservation.
- Butterflies and Moths of North America. 2016. Regal Fritillary. Available at <http://www.butterfliesandmoths.org/species/Speyeria-idalia>. Accessed on 29 February 2016.
- Cowardin, L.M., V. Carter V., F.C. Golet, E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service Report No. FWS/OBS/-79/31. Washington, D.C.
- Lichvar, R.W. 2013. The National Wetland Plant List: 2013 wetland ratings. Phytoneuron 2013-49:1-241.
- Lichvar, R.W., M. Butterwick, N.C. Melvin, and W.N. Kirchner. 2014. The National Wetland Plant List: 2014 Update of Wetland Ratings. Phytoneuron 2014-41: 1-42.
- Mack, J.J. 2001. Ohio Rapid Assessment Method for Wetlands, Manual for Using Version 5.0. Ohio EPA Technical Bulletin Wetland/2001-1-1. Ohio Environmental Protection Agency, Division of Surface Water, 401 Wetland Ecology Unit, Columbus, Ohio.
- NatureServe. 2016. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.0. NatureServe, Arlington, VA. U.S.A. Available at <http://explorer.natureserve.org>. Accessed August 15, 2016.
- Ohio Department of Natural Resources (ODNR) Division of Wildlife. 2016a. Species Guide Index. Available at <http://wildlife.ohiodnr.gov/species-and-habitats/species-guide-index/>. Accessed August 15, 2016.
- Ohio Department of Natural Resources (ODNR) Division of Wildlife. 2016b. State Listed Wildlife Species by County. Available at <http://wildlife.ohiodnr.gov/species-and-habitats/state-listed-species/state-listed-species-by-county>. Accessed August 15, 2016.
- Ohio Environmental Protection Agency (OEPA). 2006. Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (QHEI).

WINDFALL SWITCH TO NORTH WALDO STATION 138 KV TRANSMISSION LINE REBUILD PROJECT, MARION COUNTY, OHIO

- OEPA. 2012. Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams, Version 3.0. Ohio EPA Division of Surface Water, Columbus, Ohio. 117 pp.
- The Cornell Lab of Ornithology. 2016. All About Birds: Northern Harrier – *Circus cyaneus*. Available online at https://www.allaboutbirds.org/guide/Northern_Harrier/lifehistory. Accessed October 25, 2016.
- U.S. Army Corps of Engineers (USACE), Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterway Experiment Station, Vicksburg, Mississippi.
- USACE. 2002. Issuance of Nationwide Permits; Notice, 67 Fed. Reg. 10. January 15, 2002. Federal Register: The Daily Journal of the United States. Available at <https://www.gpo.gov/fdsys/pkg/FR-2002-01-15/pdf/02-539.pdf>.
- USACE. 2005. *Guidance on Ordinary High Water Mark Identification* (Regulatory Guidance Letter, No. 05-05). Available online at <http://www.usace.army.mil/Portals/2/docs/civilworks/RGLS/rgl05-05.pdf>. Accessed August 2016.
- USACE. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)*, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- United States Fish and Wildlife Service (USFWS). 1994. Clubshell (*Pleurobema clava*) and Northern Riffleshell (*Epioblasma torulosa rangiana*) Recovery Plan. Prepared for the U.S. Fish and Wildlife Service, Hadley, Massachusetts. 68 pp.
- United States Fish and Wildlife Service (USFWS). 2007. Indiana bat (*Myotis sodalis*) draft recovery plan: First revision. U.S. Fish and Wildlife Service, Ft. Snelling, Minnesota. 258 pp.
- USFWS. 2015a. 2015 Range-wide Indiana Bat Summer Survey Guidelines, April 2015. Available at [http://www.fws.gov/arkansas/docs/FINAL%202015%20Indiana%20Bat%20Summer%20Survey%20Guidelines%20\(with%20blue%20revisions\)%2004-01-2015.pdf](http://www.fws.gov/arkansas/docs/FINAL%202015%20Indiana%20Bat%20Summer%20Survey%20Guidelines%20(with%20blue%20revisions)%2004-01-2015.pdf). Accessed November 20, 2015.
- USFWS. 2015b. Federally Listed Species by Ohio Counties. Available at <https://www.fws.gov/midwest/ohio/pdf/OhioTEListByCountyOct2015.pdf>. Accessed September 5, 2016.
- USFWS. 2016. Environmental Conservation Online System (ECOS): Species Profile for Northern Long-eared Bat (*Myotis septentrionalis*). Available online at https://ecos.fws.gov/tess_public/profile/speciesProfile?spcode=A0JE. Accessed August 12, 2016.

WINDFALL SWITCH TO NORTH WALDO STATION 138 KV TRANSMISSION LINE REBUILD
PROJECT, MARION COUNTY, OHIO

Appendix A Figures

A.1 FIGURE 1 – PROJECT LOCATION MAP

WINDFALL SWITCH TO NORTH WALDO STATION 138 KV TRANSMISSION LINE REBUILD
PROJECT, MARION COUNTY, OHIO

A.2 FIGURE 2 – WETLAND AND WATERBODY DELINEATION MAP

Figure No.

2

Title

Wetland and Waterbody Delineation Map

Client/Project

AEP Ohio Transmission Company
Windfall Switch - North Waldo Station
138 kV Transmission Line Rebuild Project

Project Location

Marion County, Ohio

19270.0275

Prepared by: JHB on 2016-10-18

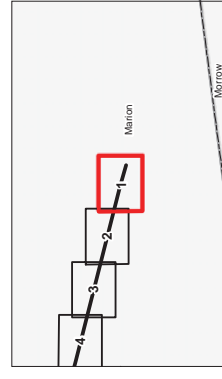
Technical Review by: JHB on 2016-10-19

Independent Review by: JHB on 2016-10-19



Legend

- AEP Substation
- Structure to be Replaced
- 138 kV Transmission Line
- Proposed Access Road
- Project Area (100' ROW and 30' Access Roads)
- Existing Culvert
- Photo Location
- Field Delineated Waterway
- Approximate Waterway
- Upland Drainage Feature
- Approximate Upland Drainage Feature
- Field Delineated Open Water
- 100-year Flood Zone
- 100-year Floodway



Notes

- Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
- Data Sources Include: Stantec, AEP, MADS, FEMA, USGS, USFWS
- Aerial Photography: 2015 NADP



Page 1 of 9



Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims, damages in any way from the content or provision of the data.

Figure No.

2

Title

Wetland and Waterbody Delineation Map

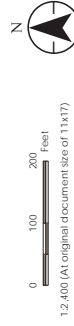
Client/Project

AEP Ohio Transmission Company
Windfall Switch - North Waldo Station
138 kV Transmission Line Rebuild Project

Project Location

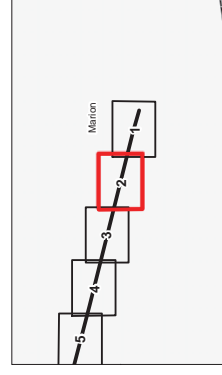
Marion County, Ohio

19270.0272
Prepared by: HBB on 2016-10-18
Technical Review by: JDE on 2016-10-18
Independent Review by: JDE on 2016-10-18



Legend

- AEP Substation
- Structure to be Replaced
- 138 kV Transmission Line
- Proposed Access Road
- Project Area (100' ROW and 30' Access Roads)
- Existing Culvert
- Photo Location
- Field Delineated Waterway
- Approximate Waterway
- Upland Drainage Feature
- Approximate Upland Drainage Feature
- Field Delineated Open Water
- 100-year Flood Zone
- 100-year Floodway



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, AEP, MADS, FEMA, USGS, USFWS
3. Orthophotography 2015 NAD



Figure No.

2

Title

Wetland and Waterbody Delineation Map

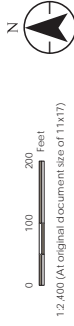
Client/Project

AEP Ohio Transmission Company
Windfall Switch - North Waldo Station
138 kV Transmission Line Rebuild Project

Project Location

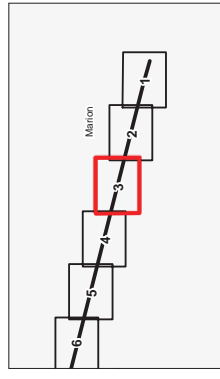
Marion County, Ohio

1970/0272
Prepared by HBB on 2016-10-18
Technical Review by JDE on 2016-10-19
Independent Review by JDE on 2016-10-19



Legend

- AEP Substation
- Structure to be Replaced
- 138 kV Transmission Line
- Proposed Access Road
- Project Area (100' ROW and 30' Access Roads)
- ▲ Existing Culvert
- Photo Location
- Field Delineated Waterway
- Approximate Waterway
- Upland Drainage Feature
- Approximate Upland Drainage Feature
- Field Delineated Open Water
- 100-year Flood Zone
- 100-year Floodway



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, AEP, MADS, FEMA, USGS, USFWS
3. Orthophotography 2015 NALP



Figure No.

2

Title

Wetland and Waterbody Delineation Map

Client/Project

AEP Ohio Transmission Company
Windfall Switch - North Waldo Station
138 kV Transmission Line Rebuild Project

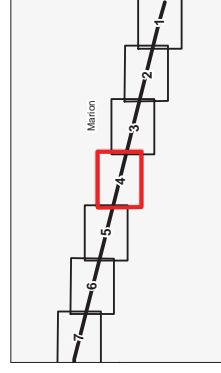
Project Location

Marion County, Ohio
Prepared by: HBB on 2016-10-18
Technical Review by: JDE on 2016-10-19
Independent Review by: JDE on 2016-10-19



Legend

- AEP Substation
- Structure to be Replaced
- 138 kV Transmission Line
- Proposed Access Road
- Project Area (100' ROW and 30' Access Roads)
- Existing Culvert
- Photo Location
- Field Delineated Waterway
- Approximate Waterway
- Upland Drainage Feature
- Approximate Upland Drainage Feature
- Field Delineated Open Water
- 100-year Flood Zone
- 100-year Floodway



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources include: Stantec, AEP, MADS, FEMA, USGS, USFWS
3. Orthophotography 2015 MAP



Figure No.

2

Title

Wetland and Waterbody Delineation Map

Client/Project

AEP Ohio Transmission Company
Windfall Switch - North Waldo Station
138 kV Transmission Line Rebuild Project

Project Location

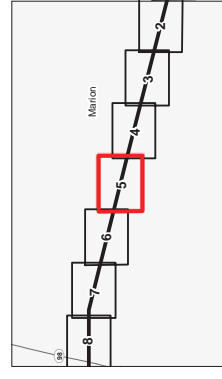
Marion County, Ohio

193704272
Prepared by: HBB on 2016-10-18
Technical Review by: JDE on 2016-10-19
Independent Review by: JDE on 2016-10-19



Legend

- AEP Substation
- Structure to be Replaced
- 138 kV Transmission Line
- Proposed Access Road
- Project Area (100' ROW and 30' Access Roads)
- ▲ Existing Culvert
- 📍 Photo Location
- Field Delineated Waterway
- Approximate Waterway
- Upland Drainage Feature
- Approximate Upland Drainage Feature
- Field Delineated Open Water
- 100-year Flood Zone
- 100-year Floodway



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, AEP, MADS, FEMA, USGS, USFWS
3. Orthophotography 2015 NAD



Figure No.

2

Title

Wetland and Waterbody Delineation Map

Client/Project

AEP Ohio Transmission Company
Windfall Switch - North Waldo Station
138 kV Transmission Line Rebuild Project

Project Location

Madison County, Ohio

19270.0275

Prepared by: HBB on 2016-10-18

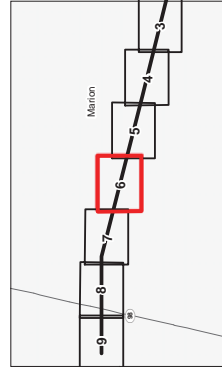
Technical Review by: JDE on 2016-10-19

Independent Review by: JDE on 2016-10-19



Legend

- AEP Substation
- Structure to be Replaced
- 138 kV Transmission Line
- Proposed Access Road
- Project Area (100' ROW and 30' Access Roads)
- ▲ Existing Culvert
- Photo Location
- Field Delineated Waterway
- Approximate Waterway
- Upland Drainage Feature
- Approximate Upland Drainage Feature
- Field Delineated Open Water
- 100-year Flood Zone
- 100-year Floodway



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, AEP, MADS, FEMA, USGS, USFWS
3. Orthophotography 2015 NAD



Figure No.

2

Title

Wetland and Waterbody Delineation Map

Client/Project

AEP Ohio Transmission Company
Windfall Switch - North Waldo Station
138 kV Transmission Line Rebuild Project

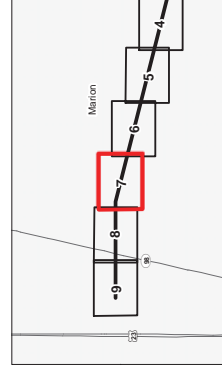
Project Location

Maion County, Ohio
Prepared by: HBB on 2016-10-18
Technical Review by: JDE on 2016-10-19
Independent Review by: JDE on 2016-10-19



Legend

- AEP Substation
- Structure to be Replaced
- 138 kV Transmission Line
- Proposed Access Road
- Project Area (100' ROW and 30' Access Roads)
- Existing Culvert
- Photo Location
- Field Delineated Waterway
- Approximate Waterway
- Upland Drainage Feature
- Approximate Upland Drainage Feature
- Field Delineated Open Water
- 100-year Flood Zone
- 100-year Floodway



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources include: Stantec, AEP, MADS, FEMA, USGS, USFWS
3. Orthophotography 2015 NAD

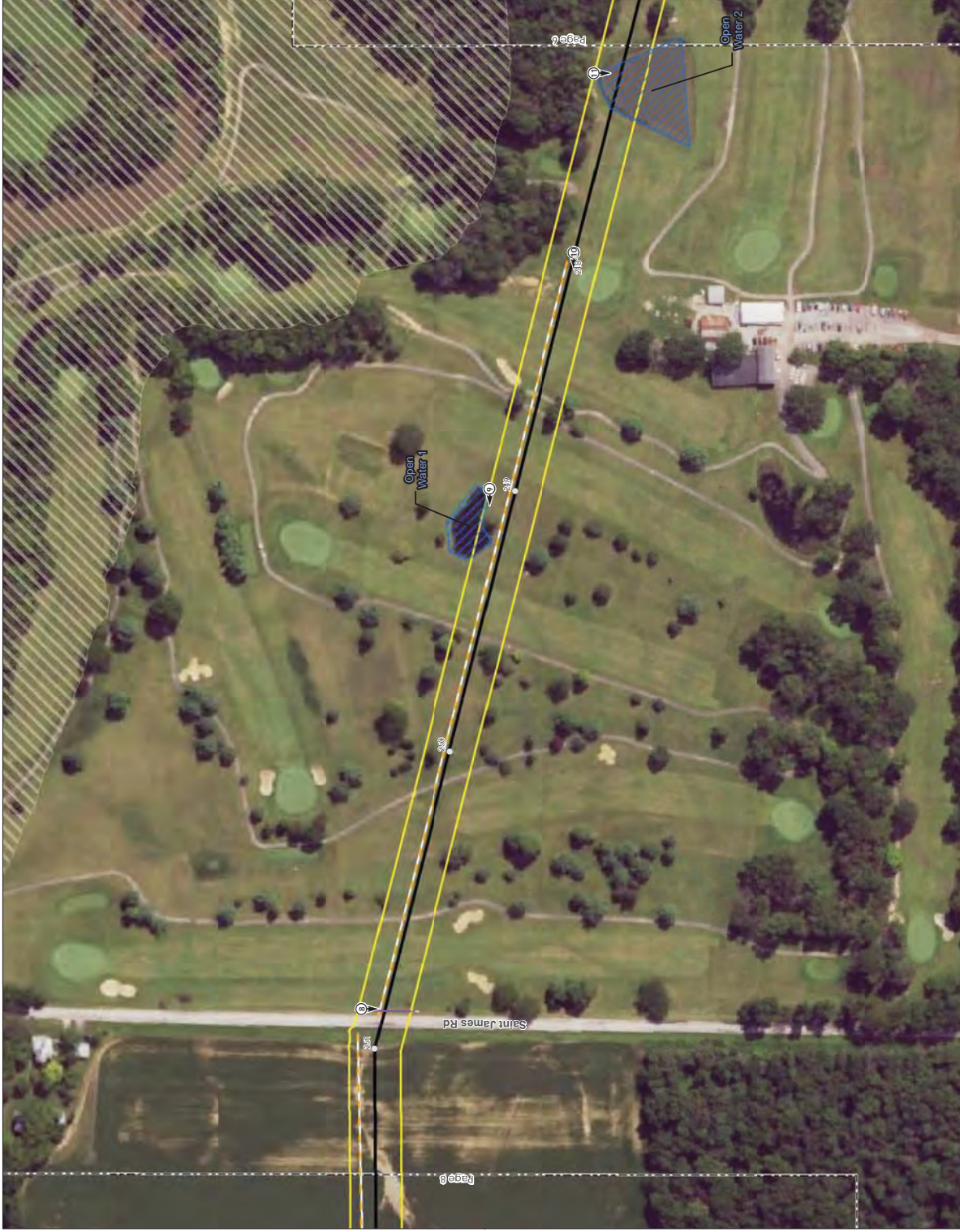
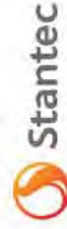


Figure No.

2

Title

Wetland and Waterbody Delineation Map

Client/Project

AEP Ohio Transmission Company
Windfall Switch - North Waldo Station
138 kV Transmission Line Rebuild Project

Project Location

Marion County, Ohio

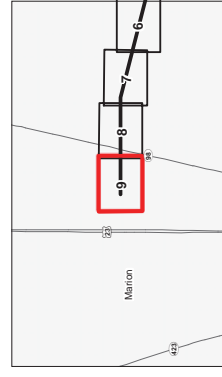
1970-0272
Prepared by: HBS on 2016-10-18
Technical Review by: JDE on 2016-10-18
Independent Review by: JDE on 2016-10-18



12,400 (At original document size of 11x17)

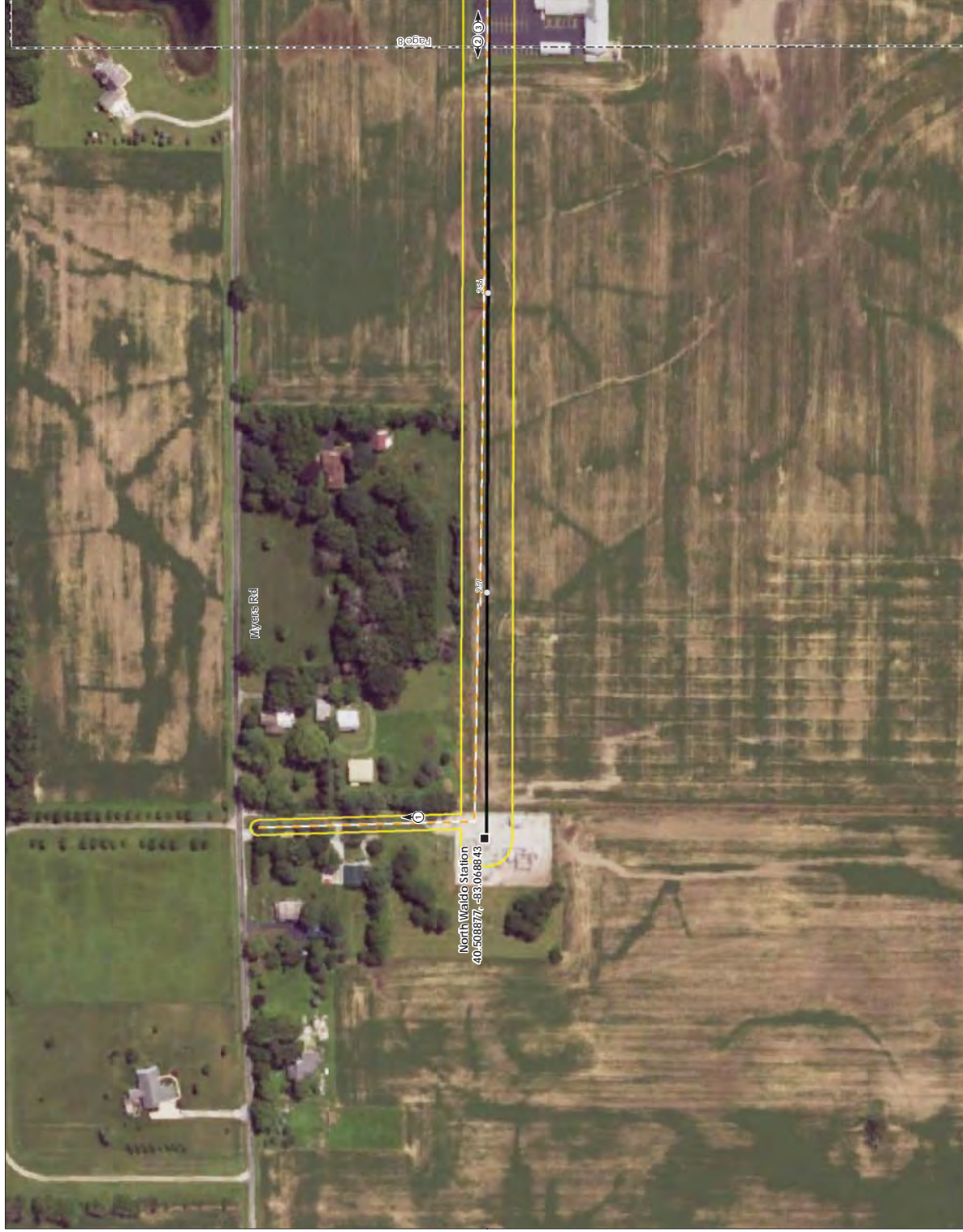
Legend

- AEP Substation
- Structure to be Replaced
- 138 kV Transmission Line
- Proposed Access Road
- Project Area (100' ROW and 30' Access Roads)
- Existing Culvert
- Photo Location
- Field Delineated Waterway
- Approximate Waterway
- Upland Drainage Feature
- Approximate Upland Drainage Feature
- Field Delineated Open Water
- 100-year Flood Zone
- 100-year Floodway



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, AEP, MADS, FEMA, USGS, USFWS
3. Orthophotography 2015 NAD



WINDFALL SWITCH TO NORTH WALDO STATION 138 KV TRANSMISSION LINE REBUILD
PROJECT, MARION COUNTY, OHIO

A.3 FIGURE 3 – HABITAT ASSESSMENT MAP

Figure No.

3

Title

Habitat Assessment Map

Client/Project

AEP Ohio Transmission Company
Windfall Switch - North Waldo Station
138 kV Transmission Line Rebuild Project

Project Location

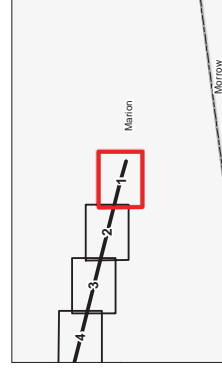
Madison County, Ohio
Prepared by: HBB on 2016-10-18
Technical Review by: JDE on 2016-10-19
Independent Review by: JDE on 2016-10-19

19270.0272



Legend

- AEP Substation
- Structure to be Replaced
- 138 kV Transmission Line
- Proposed Access Road
- Project Area (100' ROW and 30' Access Roads)
- ▲ Existing Culvert
- 📍 Photo Location
- Field Delineated Waterway
- Approximate Waterway
- Upland Drainage Feature
- Approximate Upland Drainage Feature
- Field Delineated Open Water
- Existing Road
- Residential Lawn
- Institutional (Church)
- Industrial
- Golf Course
- Old Field
- Agricultural/Row Crop



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, AEP, MADS, FEMA, USGS, USFWS
3. Orthophotography 2015 NAD



Figure No.

3

Title

Habitat Assessment Map

Client/Project

AEP Ohio Transmission Company
Windfall Switch - North Waldo Station
138 kV Transmission Line Rebuild Project

Project Location

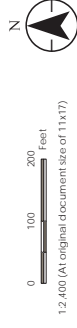
Marion County, Ohio

19270.0272

Prepared by: JHB on 2016-10-18

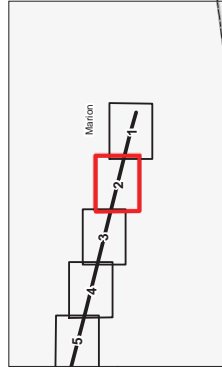
Technical Review by: JHB on 2016-10-19

Independent Review by: JHB on 2016-10-19



Legend

- | | |
|--|------------------------|
| ■ AEP Substation | Field Delineated |
| ● Structure to be Replaced | Open Water |
| — 138 kV Transmission Line | Existing Road |
| — Proposed Access Road | Residential Lawn |
| — Project Area (100' ROW and 30' Access Roads) | Institutional (Church) |
| ▲ Existing Culvert | Industrial |
| 📍 Photo Location | Golf Course |
| Field Delineated Waterway | Old Field |
| Approximate Waterway | Agricultural/Row Crop |
| Upland Drainage Feature | |
| Approximate Upland Drainage Feature | |



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, AEP, MADS, FEMA, USGS, USFWS
3. Orthophotography 2015 NAD



Figure No.

3

Title

Habitat Assessment Map

Client/Project

AEP Ohio Transmission Company
Windfall Switch - North Waldo Station
138 kV Transmission Line Rebuild Project

Project Location

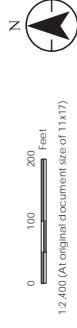
Marion County, Ohio

19370.0272

Prepared by: HBB on 2016-10-18

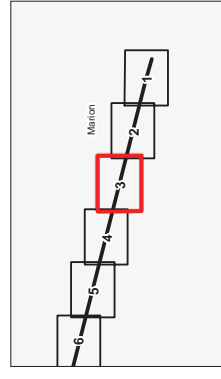
Technical Review by: JDE on 2016-10-19

Independent Review by: JDE on 2016-10-19



Legend

- | | |
|--|------------------------|
| ■ AEP Substation | Field Delineated |
| ● Structure to be Replaced | Open Water |
| — 138 kV Transmission Line | Existing Road |
| — Proposed Access Road | Residential Lawn |
| — Project Area (100' ROW and 30' Access Roads) | Institutional (Church) |
| ▲ Existing Culvert | Industrial |
| 📍 Photo Location | Golf Course |
| — Field Delineated Waterway | Old Field |
| — Approximate Waterway | Agricultural/Row Crop |
| — Upland Drainage Feature | |
| — Approximate Upland Drainage Feature | |



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, AEP, MADS, USGS, USFWS
3. Orthophotography 2015 NALP



Figure No.

3

Title

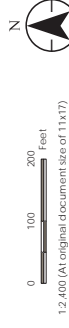
Habitat Assessment Map

Client/Project

AEP Ohio Transmission Company
Windfall Switch - North Waldo Station
138 kV Transmission Line Rebuild Project

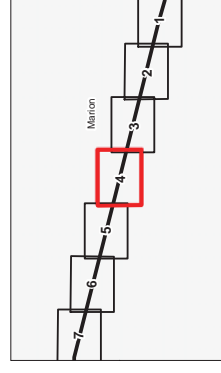
Project Location

Marion County, Ohio
Prepared by: JHB on 2016-10-18
Technical Review by: JHB on 2016-10-18
Independent Review by: JHB on 2016-10-18



Legend

- | | |
|--|------------------------|
| ■ AEP Substation | Field Delineated |
| ● Structure to be Replaced | Open Water |
| — 138 kV Transmission Line | Existing Road |
| — Proposed Access Road | Residential Lawn |
| — Project Area (100' ROW and 30' Access Roads) | Institutional (Church) |
| ▲ Existing Culvert | Industrial |
| 📍 Photo Location | Golf Course |
| — Field Delineated Waterway | Old Field |
| — Approximate Waterway | Agricultural/Row |
| — Upland Drainage Feature | Crop |
| — Approximate Upland Drainage Feature | |



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, AEP, MADS, FEMA, USGS, USFWS
3. Orthophotography 2015 NAD



Figure No.

3

Title

Habitat Assessment Map

Client/Project

AEP Ohio Transmission Company
Windfall Switch - North Waldo Station
138 kV Transmission Line Rebuild Project

Project Location

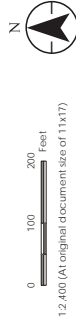
Marion County, Ohio

193704272

Prepared by: HBB on 2016-10-18

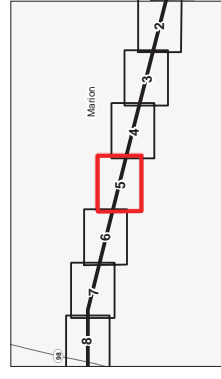
Technical Review by: JDE on 2016-10-19

Independent Review by: JDE on 2016-10-19



Legend

- | | |
|--|------------------------|
| ■ AEP Substation | Field Delineated |
| ● Structure to be Replaced | Open Water |
| — 138 kV Transmission Line | Existing Road |
| — Proposed Access Road | Residential Lawn |
| — Project Area (100' ROW and 30' Access Roads) | Institutional (Church) |
| ▲ Existing Culvert | Industrial |
| 📍 Photo Location | Golf Course |
| — Field Delineated Waterway | Old Field |
| — Approximate Waterway | Agricultural/Row Crop |
| — Upland Drainage Feature | |
| — Approximate Upland Drainage Feature | |



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources include: Stantec, AEP, MADS, FEMA, USGS, USFWS
3. Orthophotography 2015 NAD



Figure No.

3

Title

Habitat Assessment Map

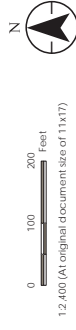
Client/Project

AEP Ohio Transmission Company
Windfall Switch - North Waldo Station
138 kV Transmission Line Rebuild Project

Project Location

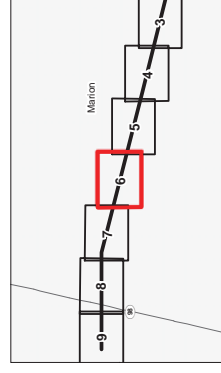
Maion County, Ohio

19270.0275
Prepared by HBB on 2016-10-18
Technical Review by JDE on 2016-10-19
Independent Review by JDE on 2016-10-19



Legend

- | | |
|--|------------------------|
| ■ AEP Substation | Field Delineated |
| ● Structure to be Replaced | Open Water |
| — 138 kV Transmission Line | Existing Road |
| — Proposed Access Road | Residential Lawn |
| — Project Area (100' ROW and 30' Access Roads) | Institutional (Church) |
| ▲ Existing Culvert | Industrial |
| 📍 Photo Location | Golf Course |
| — Field Delineated Waterway | Old Field |
| — Approximate Waterway | Agricultural/Row |
| — Upland Drainage Feature | Crop |
| — Approximate Upland Drainage Feature | |



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, AEP, MADS, FEMA, USGS, USFWS
3. Orthophotography 2015 NAD



Figure No.

3

Title

Habitat Assessment Map

Client/Project

AEP Ohio Transmission Company
Windfall Switch - North Waldo Station
138 kV Transmission Line Rebuild Project

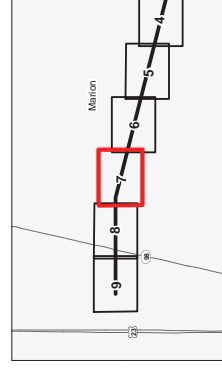
Project Location

Maion County, Ohio
Prepared by: HBB on 2016-10-18
Technical Review by: JDE on 2016-10-19
Independent Review by: JDE on 2016-10-19



Legend

- | | |
|--|------------------------|
| ■ AEP Substation | Field Delineated |
| ● Structure to be Replaced | Open Water |
| — 138 kV Transmission Line | Existing Road |
| — Proposed Access Road | Residential Lawn |
| — Project Area (100' ROW and 30' Access Roads) | Institutional (Church) |
| ▲ Existing Culvert | Industrial |
| 📍 Photo Location | Golf Course |
| — Field Delineated Waterway | Old Field |
| — Approximate Waterway | Agricultural/Row Crop |
| — Upland Drainage Feature | |
| — Approximate Upland Drainage Feature | |



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources include: Stantec, AEP, MADS, USGS, USFWS
3. Orthophotography 2015 NAD



Figure No.

3

Title

Habitat Assessment Map

Client/Project

AEP Ohio Transmission Company
Windfall Switch - North Waldo Station
138 kV Transmission Line Rebuild Project

Project Location

Marion County, Ohio

193704272

Prepared by: HBS on 2016-10-18

Technical Review by: JDE on 2016-10-19

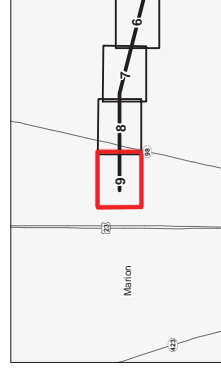
Independent Review by: JDE on 2016-10-19

0 100 200 Feet
12,400 (At original document size of 11x17)



Legend

- AEP Substation
- Structure to be Replaced
- 138 kV Transmission Line
- Proposed Access Road
- Project Area (100' ROW and 30' Access Roads)
- ▲ Existing Culvert
- 📍 Photo Location
- Field Delineated Waterway
- Approximate Waterway
- Upland Drainage Feature
- Approximate Upland Drainage Feature
- Field Delineated Open Water
- Existing Road
- Residential Lawn
- Institutional (Church)
- Industrial
- Golf Course
- Old Field
- Agricultural/Row Crop



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, AEP, MADS, FEMA, USGS, USFWS
3. Orthophotography 2015 NAD



WINDFALL SWITCH TO NORTH WALDO STATION 138 KV TRANSMISSION LINE REBUILD
PROJECT, MARION COUNTY, OHIO

Appendix B Agency Correspondence



Ohio Department of Natural Resources

JOHN R. KASICK, GOVERNOR

JAMES ZEHRINGER, DIRECTOR

Ohio Division of Wildlife

Raymond W. Petering, Chief
2045 Morse Rd., Bldg. G
Columbus, OH 43229-6693
Phone: (614) 265-6300

September 22, 2016

Dan Godec
Stantec Consulting Services, Inc.
11687 Lebanon Rd.
Cincinnati, OH 45241

Dear Mr. Godec,

I have reviewed the Natural Heritage Database for the Windfall Switch-North Waldo Substation 138 kV Transmission Line Rebuild project area, including a one mile radius, in Richland Township, Marion County, Ohio. The numbers on the list below correspond to the areas marked on the accompanying map. Common name, scientific name and status are given for each species.

1. *Epioblasma triquetra* – Snuffbox, state endangered, federal endangered
Pleurobema sintoxia – Round Pigtoe, species of concern
Villosa fabalis – Rayed Bean, state endangered, federal endangered
Mussel Bed (breeding animal concentration)

We are unaware of any geologic features, scenic rivers, state wildlife areas, nature preserves, parks or forests, national wildlife refuges, parks or forests, or other protected natural areas within a one mile radius of the project area.

Our inventory program has not completely surveyed Ohio and relies on information supplied by many individuals and organizations. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. This letter only represents a review of rare species and natural features data within the Ohio Natural Heritage Database. It does not fulfill coordination under the National Environmental Policy Act (NEPA) or the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and does not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

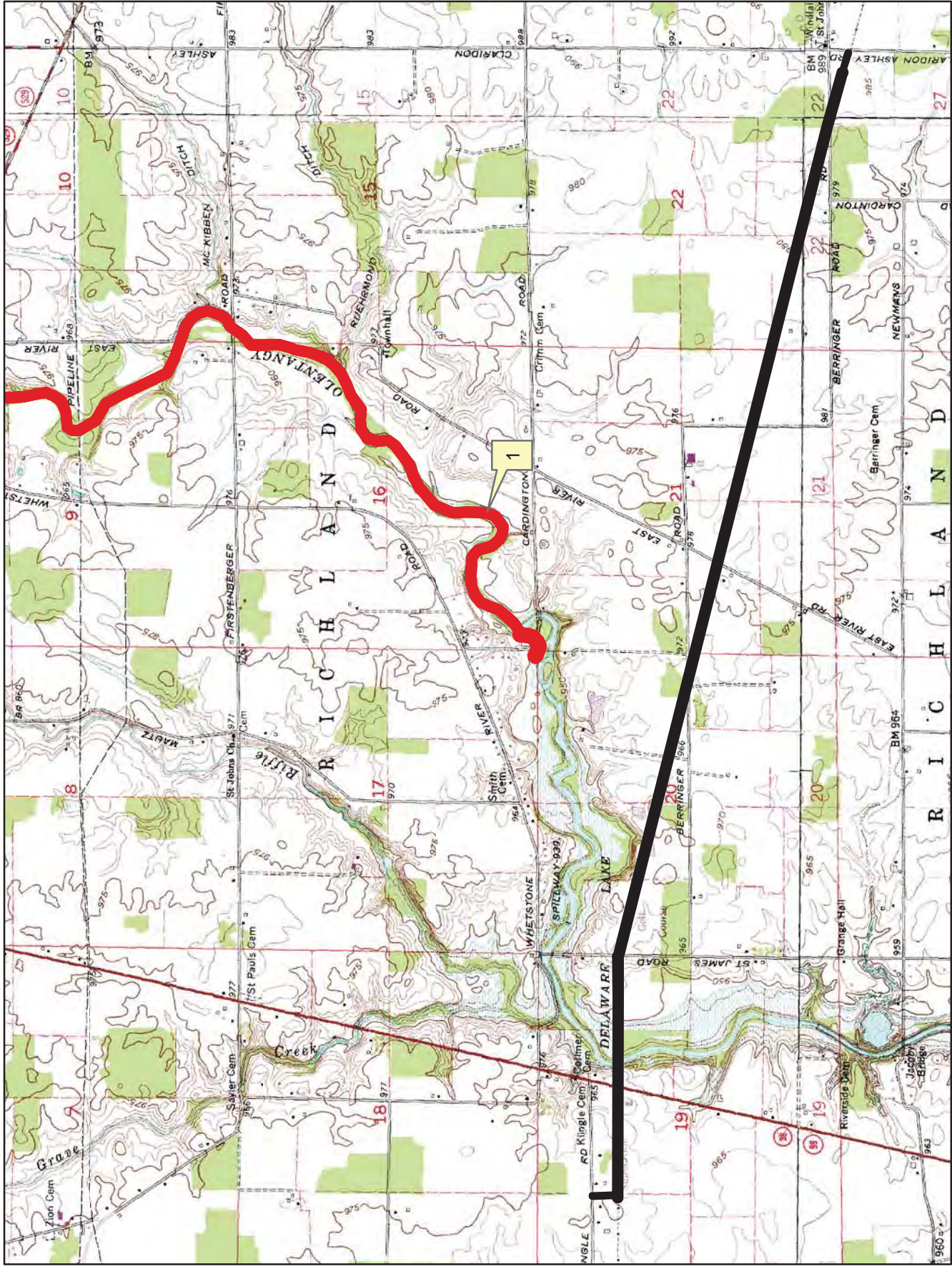
Please contact me at 614-265-6818 if I can be of further assistance.

Sincerely,

A handwritten signature in blue ink that reads "Debbie Woischke".

Debbie Woischke
Ohio Natural Heritage Program

Windfall Switch-N. Waldo Station 138 kV Transmission Line Rebuild Project



Godec, Daniel

From: susan_zimmermann@fws.gov on behalf of Ohio, FW3 <ohio@fws.gov>
Sent: Wednesday, October 05, 2016 12:59 PM
To: Godec, Daniel
Cc: nathan.reardon@dnr.state.oh.us; kate.parsons@dnr.state.oh.us
Subject: AEP - Windfall Switch-North Waldo Station 138 kV TL Rebuild, Marion Co.



UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. Fish and Wildlife Service
Ecological Services Office
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / Fax (614) 416-8994



TAILS# 03E15000-2016-TA-1759

Dear
Mr. Godec

We have received your recent correspondence requesting information about the subject proposal. There are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the project area. The following comments and recommendations will assist you in fulfilling the requirements for consultation under section 7 of the Endangered Species Act of 1973, as amended (ESA).

The U.S. Fish and Wildlife Service (Service) recommends that proposed developments avoid and minimize water quality impacts and impacts to high quality fish and wildlife habitat (e.g., forests, streams, wetlands). Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the Corps of Engineers should be contacted to determine whether a Clean Water Act section 404 permit is required. Best management practices should be used to minimize erosion, especially on slopes. All disturbed areas should be mulched and revegetated with native plant species. Prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

FEDERALLY LISTED SPECIES COMMENTS: All projects in the State of Ohio lie within the range of the federally endangered **Indiana bat** (*Myotis sodalis*) and the federally threatened **northern long-eared bat** (*Myotis septentrionalis*). In Ohio, presence of the Indiana bat and northern long-eared bat is assumed wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥ 3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities), as well as 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 and are located within

1,000 feet (305 meters) of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves and abandoned mines.

Should the proposed site contain trees ≥ 3 inches dbh, we recommend that trees be saved wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees ≥ 3 inches dbh cannot be avoided, we recommend that removal of any trees > 3 inches dbh only occur between October 1 and March 31. Seasonal clearing is being recommended to avoid adverse effects to Indiana bats and northern long-eared bats. While incidental take of northern long-eared bats from most tree clearing is exempted by a 4(d) rule (see <http://www.fws.gov/midwest/endangered/mammals/nleeb/index.html>), incidental take of Indiana bats is still prohibited without a project-specific exemption. Thus, seasonal clearing is recommended where Indiana bats are assumed present.

If implementation of this seasonal tree cutting recommendation is not possible, summer surveys may be conducted to document the presence or probable absence of Indiana bats within the project area during the summer. If a summer survey documents probable absence of Indiana bats, the 4(d) rule for the northern long-eared bat could be applied. Surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Endangered Species Coordinator for this office. Surveyors must have a valid federal permit. Please note that summer surveys may only be conducted between June 1 and August 15.

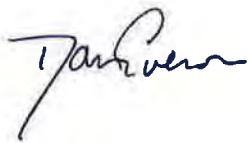
If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), no tree clearing should occur on any portion of the project area until consultation under section 7 of the ESA, between the Service and the federal action agency, is completed. We recommend that the federal action agency submit a determination of effects to this office, relative to the Indiana bat and northern long-eared bat, for our review and concurrence.

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, proposed, or candidate species. Should the project design change, or during the term of this action, additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, consultation with the Service should be initiated to assess any potential impacts.

These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the ESA, and are consistent with the intent of the National Environmental Policy Act of 1969 and the Service's Mitigation Policy. This letter provides technical assistance only and does not serve as a completed section 7 consultation document. We recommend that the project be coordinated with the Ohio Department of Natural Resources due to the potential for the project to affect state listed species and/or state lands. Contact John Kessler, Environmental Services Administrator, at (614) 265-6621 or at john.kessler@dnr.state.oh.us.

If you have questions, or if we can be of further assistance in this matter, please contact our office at (614) 416-8993 or ohio@fws.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Dan Everson". The signature is fluid and cursive, with the first name "Dan" being more prominent than the last name "Everson".

Dan Everson

Field Supervisor

cc: Nathan Reardon, ODNR-DOW

Kate Parsons, ODNR-DOW

WINDFALL SWITCH TO NORTH WALDO STATION 138 KV TRANSMISSION LINE REBUILD
PROJECT, MARION COUNTY, OHIO

Appendix C Representative Photographs

AEP Ohio Transmission Company
Windfall Switch to North Waldo Station 138 kV Transmission Line Rebuild Project
Marion County, Ohio



Photograph 1. Representative view of existing gravel access road. Photograph taken facing north.



Photograph 2. View of agricultural row crop habitat. Photograph taken facing west.

AEP Ohio Transmission Company
Windfall Switch to North Waldo Station 138 kV Transmission Line Rebuild Project
Marion County, Ohio



Photograph 3. Representative view of parking lot of institutional (church) habitat. Photo taken facing east.



Photograph 4. Representative view of residential lawn habitat. Photo taken facing east.

AEP Ohio Transmission Company
Windfall Switch to North Waldo Station 138 kV Transmission Line Rebuild Project
Marion County, Ohio



Photograph 5. View of Stream 1 (Olentangy River). Photograph taken facing upstream/north.



Photograph 6. View of Stream 1 (Olentangy River). Photograph taken facing downstream/south.

AEP Ohio Transmission Company
Windfall Switch to North Waldo Station 138 kV Transmission Line Rebuild Project
Marion County, Ohio



Photograph 7. Representative view of agricultural row crop (soybean) habitat. Photograph taken facing east.



Photograph 8. Representative view of upland drainage feature. Photograph taken facing southeast.

AEP Ohio Transmission Company
Windfall Switch to North Waldo Station 138 kV Transmission Line Rebuild Project
Marion County, Ohio



Photograph 9. View of Open Water 1. Photograph taken facing west.



Photograph 10. View of Open Water 2. Photograph taken facing south.

AEP Ohio Transmission Company
Windfall Switch to North Waldo Station 138 kV Transmission Line Rebuild Project
Marion County, Ohio



Photograph 11. View of golf course habitat. Photograph taken facing west.



Photograph 12. View of Open Water 3. Photograph taken facing north.

AEP Ohio Transmission Company
Windfall Switch to North Waldo Station 138 kV Transmission Line Rebuild Project
Marion County, Ohio



Photograph 13. View of upland drainage feature along existing road. Photograph taken facing south.



Photograph 14. Representative view of old field habitat. Photograph taken facing north.

WINDFALL SWITCH TO NORTH WALDO STATION 138 KV TRANSMISSION LINE REBUILD
PROJECT, MARION COUNTY, OHIO

Appendix D QHEI Data Forms



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: **74**

Stream & Location: Stream 1 (Olenka River) / Marion CRM Date: 9/26/16

Windfall to N. Waldo Line Rebuild Project Scorers Full Name & Affiliation: M. Kearns

River Code: - STORET #: - Lat/ Long: 40.5089 183.0602 Office verified location ☒

1) SUBSTRATE

Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

BEST TYPES		POOL RIFFLE		OTHER TYPES		POOL RIFFLE		ORIGIN		QUALITY		Substrate <div>16</div> Maximum 20
<input type="checkbox"/> BLDG/SLABS [10]	<input checked="" type="checkbox"/> POOL	<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/> DETRITUS [3]	<input type="checkbox"/> LIMESTONE [1]	<input type="checkbox"/> HEAVY [-2]	<input type="checkbox"/> COBBLE [9]	<input type="checkbox"/> MUCK [2]	<input checked="" type="checkbox"/> SILT	<input type="checkbox"/> TILLS [1]	<input type="checkbox"/> MODERATE [-1]	<input type="checkbox"/> NORMAL [0]	
<input type="checkbox"/> GRAVEL [7]	<input type="checkbox"/> SAND [6]	<input type="checkbox"/> SILT [2]	<input type="checkbox"/> ARTIFICIAL [0]	<input type="checkbox"/> WETLANDS [0]	<input type="checkbox"/> FREE [1]	<input type="checkbox"/> BEDROCK [5]	<input type="checkbox"/> SLUDGE	<input type="checkbox"/> HARDPAN [0]	<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/> EXTENSIVE [-2]	<input type="checkbox"/> MODERATE [-1]	
<p>(Score natural substrates; ignore sludge from point-sources)</p>												
NUMBER OF BEST TYPES: <input checked="" type="checkbox"/> 4 or more [2] <input type="checkbox"/> 3 or less [0]												

Comments

2) INSTREAM COVER

Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT		Cover Maximum 20
<input type="checkbox"/> UNDERCUT BANKS [1]	<input type="checkbox"/> POOLS > 70cm [2]	
<input type="checkbox"/> OVERHANGING VEGETATION [1]	<input type="checkbox"/> ROOTWADS [1]	<input checked="" type="checkbox"/> MODERATE 25-75% [7]
<input type="checkbox"/> SHALLOWS (IN SLOW WATER) [1]	<input type="checkbox"/> BOULDERS [1]	<input type="checkbox"/> SPARSE 5-25% [3]
<input type="checkbox"/> ROOTMATS [1]	<input type="checkbox"/> OXBOWS, BACKWATERS [1]	<input type="checkbox"/> NEARLY ABSENT < 5% [1]
<input type="checkbox"/> AQUATIC MACROPHYTES [1]	<input type="checkbox"/> LOGS OR WOODY DEBRIS [1]	

Comments

3) CHANNEL MORPHOLOGY

Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	Channel Maximum 20
<input type="checkbox"/> HIGH [4]	<input type="checkbox"/> EXCELLENT [7]	<input checked="" type="checkbox"/> NONE [0]	<input type="checkbox"/> HIGH [3]	
<input type="checkbox"/> MODERATE [3]	<input checked="" type="checkbox"/> GOOD [5]	<input type="checkbox"/> RECOVERED [4]	<input type="checkbox"/> MODERATE [2]	
<input checked="" type="checkbox"/> LOW [2]	<input type="checkbox"/> FAIR [3]	<input type="checkbox"/> RECOVERING [3]	<input type="checkbox"/> LOW [1]	
<input type="checkbox"/> NONE [1]	<input type="checkbox"/> POOR [1]	<input type="checkbox"/> RECENT OR NO RECOVERY [1]		

Comments

4) BANK EROSION AND RIPARIAN ZONE

Check ONE in each category for EACH BANK (Or 2 per bank & average)

RIPARIAN WIDTH		FLOOD PLAIN QUALITY		Riparian Maximum 10
<input checked="" type="checkbox"/> EROSION	<input checked="" type="checkbox"/> WIDE > 50m [4]	<input type="checkbox"/> FOREST, SWAMP [3]	<input type="checkbox"/> CONSERVATION TILLAGE [1]	
<input type="checkbox"/> MODERATE [2]	<input type="checkbox"/> MODERATE 10-50m [3]	<input checked="" type="checkbox"/> SHRUB ON OLD FIELD [2]	<input type="checkbox"/> URBAN OR INDUSTRIAL [0]	
<input type="checkbox"/> HEAVY / SEVERE [1]	<input type="checkbox"/> NARROW 5-10m [2]	<input type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1]	<input type="checkbox"/> MINING / CONSTRUCTION [0]	
	<input type="checkbox"/> VERY NARROW < 5m [1]	<input type="checkbox"/> FENCED PASTURE [1]		
	<input type="checkbox"/> NONE [0]	<input checked="" type="checkbox"/> OPEN PASTURE, ROWCROP [0]		

Comments

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH		CHANNEL WIDTH		CURRENT VELOCITY		Recreation Potential Primary Contact Secondary Contact (circle one and comment on back)
<input type="checkbox"/> > 1m [6]	<input checked="" type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]	<input type="checkbox"/> TORRENTIAL [-1]	<input type="checkbox"/> SLOW [1]			
<input checked="" type="checkbox"/> 0.7-1m [4]	<input type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]	<input type="checkbox"/> VERY FAST [1]	<input type="checkbox"/> INTERSTITIAL [-1]			
<input type="checkbox"/> 0.4-0.7m [2]	<input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH [0]	<input type="checkbox"/> FAST [1]	<input type="checkbox"/> INTERMITTENT [-2]			
<input type="checkbox"/> 0.2-0.4m [1]		<input checked="" type="checkbox"/> MODERATE [1]	<input type="checkbox"/> EDDIES [1]			
<input type="checkbox"/> < 0.2m [0]		Indicate for reach - pools and riffles.				

Comments

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

RIFFLE DEPTH		RUN DEPTH		RIFFLE / RUN SUBSTRATE		RIFFLE / RUN EMBEDDEDNESS		Riffle / Run Maximum 8
<input checked="" type="checkbox"/> BEST AREAS > 10cm [2]	<input checked="" type="checkbox"/> MAXIMUM > 50cm [2]	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]	<input type="checkbox"/> NONE [2]					
<input type="checkbox"/> BEST AREAS 5-10cm [1]	<input type="checkbox"/> MAXIMUM < 50cm [1]	<input checked="" type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input type="checkbox"/> LOW [1]					
<input type="checkbox"/> BEST AREAS < 5cm [metric=0]		<input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]	<input checked="" type="checkbox"/> MODERATE [0]					
			<input type="checkbox"/> EXTENSIVE [-1]					

Comments

6) GRADIENT <u>4.76</u> (m/m)	<input type="checkbox"/> VERY LOW - LOW [2-4]	% POOL: <u>75</u>	% GLIDE: <u>0</u>	Gradient Maximum 10
DRAINAGE AREA <u>1240</u> (m ²)	<input checked="" type="checkbox"/> MODERATE [6-10]	% RUN: <u>0</u>	% RIFFLE: <u>25</u>	
	<input type="checkbox"/> HIGH - VERY HIGH [10-6]			

Comment RE: Reach consistency/ Is reach typical of stream?, Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.

AJ SAMPLED REACH

Check ALL that apply

METHOD

- ☐ BOAT
☒ WADE
☐ L LINE
☐ OTHER
☐ DISTANCE
☐ 0.5 Km
☐ 0.2 Km
☐ 0.15 Km
☐ 0.1 Km
☐ 0.05 Km
☐ OTHER

STAGE

- 1st sample pass-- 2nd
☐ HIGH
☐ UP
☐ NORMAL
☐ LOW
☒ DRY

CLARITY

- 1st sample pass-- 2nd
☒ < 20 cm
☐ 20-40 cm
☐ 40-70 cm
☐ > 70 cm
☐ SECCHI DEPTH

CANOPY

- ☒ > 45% OPEN
☐ 45%-65%
☐ 65%-85%
☐ 85%-100%
☐ 100% CLOSED

CJ RECREATION

POOL: ☐ > 100m² ☐ > 3ft

BJ AESTHETICS

- ☐ NUISANCE ALGAE
☐ INVASIVE MACROPHYTES
☐ EXCESS TURBIDITY
☐ DISCOLORATION
☐ FOAM / SCUM
☐ OIL SHEEN
☐ TRASH / LITTER
☐ NUISANCE ODOR
☐ SLUDGE DEPOSITS
☐ CSO / SSO / OUTFALLS

AREA DEPTH
POOL: ☐ > 100m² ☐ > 3ft

DJ MAINTENANCE

- PUBLIC / PRIVATE / BOTH / NA
ACTIVE / HISTORIC / BOTH / NA
YOUNG-SUCCESSION-OLD
SPRAY / SNAG / REMOVED
MODIFIED / DIPPED OUT / NA
LEVEED / ONE SIDED
RELOCATED / CUTOFFS
MOVING-BEDLOAD-STABLE
ARMORED / SLUMPS
(ISLANDS) / SCOURED
IMPOUNDED / DESICCATED
FLOOD CONTROL / DRAINAGE

EJ ISSUES

- WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT & GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H₂O / TILE / H₂O TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

- width
depth
max depth
bankfull width
bankfull depth
W/D ratio
bankfull max depth
bankfull min depth
bankfull width
bankfull depth
bankfull ratio
Legacy Tree:

Stream Drawing:

N →

Ag field

Forest

Gravel / boulder (no flow)

island

water willow

water willow island

Pool

boulders

Forest

Forest

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

11/2/2016 12:52:53 PM

in

Case No(s). 16-1775-EL-BLN

Summary: Letter of Notification 2 electronically filed by Mr. Hector Garcia on behalf of AEP Ohio Transmission Company