

Letter of Notification for the Howard – Fostoria 138 kV Transmission Line Rebuild Project (Chatfield – Melmore)



An **AEP** Company

BOUNDLESS ENERGY™

PUCO Case No. 25-0042-EL-BLN

Submitted to:
The Ohio Power Siting Board
Pursuant to Ohio Administrative Code
Section 4906-6-05

Submitted by:
AEP Ohio Transmission Company, Inc.

February 10, 2025

**LETTER OF NOTIFICATION FOR HOWARD – FOSTORIA 138 kV TRANSMISSION LINE REBUILD PROJECT
(CHATFIELD – MELMORE)**

LETTER OF NOTIFICATION

AEP Ohio Transmission Company, Inc.

Howard – Fostoria 138 kV Transmission Line Rebuild Project (Chatfield – Melmore)

4906-6-05 Accelerated Application Requirements

AEP Ohio Transmission Company, Inc. (“AEP Ohio Transco” or the “Company”) provides the following information to the Ohio Power Siting Board (“OPSB”) in accordance with the accelerated application requirements of Ohio Administrative Code Section 4906-6-05.

4906-6-05(B) General Information

B(1) Project Description

The name of the project and applicant's reference number, names and reference number(s) of resulting circuits, a brief description of the project, and why the project meets the requirements for a Letter of Notification.

The Company proposes the Howard – Fostoria 138 kilovolt (“kV”) Transmission Line Rebuild Project (Chatfield – Melmore section) (the “Project”), located in Bloom and Eden townships within Seneca County, Ohio, and in Chatfield and Lykens townships within Crawford County, Ohio. The Project will rebuild approximately 11.5 miles of the existing Howard-Fostoria 138-kV Transmission Line, between the Chatfield and Melmore stations. The existing 138 kV line was built with steel lattice towers which will be replaced with steel monopole structures within the existing right-of-way (ROW). The Company proposes to rebuild the remaining 34 miles of the Howard-Fostoria 138 kV transmission line, between the Howard and Chatfield stations and the Melmore and Fostoria stations at a later date and will file separate applications with the OPSB. The location of the Project is shown on Figures 1 and 2 in **Appendix A**.

The Project meets the requirements for a Letter of Notification (“LON”) as defined by Items 2(b) of Appendix A to Ohio Administrative Code Section 4906-1-01, *Application Requirement Matrix for Electric Power Transmission Lines*:

(2) Adding new circuits on existing structures designed for multiple circuit use, replacing conductors on existing structures with larger or bundled constructors, adding structures to an existing transmission line, or replacing structures with a different type of structure, for a distance of:

(b) More than two miles.

The Project has been assigned Case No. 25-0042-EL-BLN.

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B(2) Statement of Need

If the proposed Letter of Notification project is an electric power transmission line or gas or natural gas transmission line, a statement explaining the need for the proposed facility.

A portion of the Howard-Fostoria 138 kV Transmission Line between Chatfield Station and Melmore Station has a PJM mandated baseline reliability upgrade needed to address a thermal overload on a 11.5-mile section of line. To address the thermal overloads identified in PJM’s RTEP assessment between Chatfield and Melmore stations, the Company needs to rebuild the transmission line and install a larger capacity conductor to address the baseline violation and meet the required in-service date of February 2026. Rebuilding this portion of the transmission line will address both baseline and additional supplemental needs for the larger asset, as discussed below.

The Howard – Fostoria 138 kV Transmission Line was originally constructed in 1928 using double-circuit lattice structures and is part of on-going efforts to rebuild aging transmission infrastructure that is critical to the electric grid. The line exhibits conditions similar to those concerns discussed in AEP's presentation to PJM on pre-1930's steel lattice towers lines ("AEP Eastern System Pre-1930s Era Latic Tower and Transmission Line System", from the December 2019 PJM SRRTEP-Western meeting). Lastly, the pre-existing 1930's steel lattice structures fail to comply with current National Electric Safety Code Grade B loading criteria and with current American Society of Civil Engineers structural strength criteria. Present degradation of transmission line components and failure to meet current strength criteria could result in future transmission line outages.

Over 48% of the structures along the entire 45.5-mile transmission line have at least one open condition including bent lacing, rusting structure supports, vegetation concerns, broken or loose conductors, deteriorating insulators, and worn shield wires. Over the last nine years, 11 momentary outages and two sustained outages occurred along this line.

Failure to move forward with this Project may result in potential real-time operating concerns if the contingencies identified in the RTEP analysis occur as well as the need to continue to operate and maintain a line that has reached the end of its useful life. If potential real-time overloads are identified by AEP or PJM Operations, switching procedures will need to be taken to eliminate the identified overload, up to and including potential load drop in the area as best determined by Operations. A separate LON application will be submitted to the OPSB to address the remaining supplemental portions of the Howard-Fostoria 138 kV Transmission Line rebuild.

The need was presented and reviewed with stakeholders at the April 11, 2021, PJM TEAC meeting. The solution was presented and reviewed at the April 8, 2022, PJM TEAC meeting, and subsequently assigned the PJM identifier, of b3249. This project was included in the Company’s 2024 Long-Term Forecast Report on Page 72, see **Appendix B**.

B(3) Project Location

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The applicant shall provide the location of the project in relation to existing or proposed lines and substations shown on an area system map of sufficient scale and size to show existing and proposed transmission facilities in the Project area.

The location of the Project in relation to existing transmission lines and substations is shown on Figure 1, in **Appendix A**. Figure 2, in **Appendix A**, identifies the Project components on a 2022 aerial photograph.

B(4) Alternatives Considered

The applicant shall describe the alternatives considered and reasons why the proposed location or route is best suited for the proposed facility. The discussion shall include, but not be limited to, impacts associated with socioeconomic, ecological, construction, or engineering aspects of the project.

The entire existing 138 kV transmission line will be rebuilt on centerline and within existing ROW. The goal of selecting a suitable route for the Project was to minimize impacts on land use and natural and cultural resources while avoiding circuitous routes, significantly higher costs, and non-standard design requirements.

The Project route is direct and impacts no new parcels or landowners; therefore, the Project reduces viewshed impacts and would not limit future development in the area. Additionally, the design provides for proper clearances within the existing ROW and existing ROW easements permit rebuilding and upgrading the existing line. Thus, major route alternatives were not considered for rebuilding the existing transmission line. Additionally, the ecological and cultural field surveys conducted within the existing easements determined that no wetlands or streams or cultural features would be permanently impacted by the Project. Based on desktop and field examinations, the Company identified rebuilding the entire 11.5-mile-long 138 kV transmission line in-place as the most feasible route.

B(5) Public Information Program

The applicant shall describe its public information program to inform affected property owners and tenants of the nature of the project and the proposed timeframe for project construction and restoration activities.

The Company will inform affected property owners and tenants about this Project through several different mediums. Within seven days of filing this LON, the Company will issue a public notice in a newspaper of general circulation in the Project area. The notice will comply with all requirements of OAC Section 4906-6-08(A)(1-6). Further, the Company will mail a letter, via first class mail, to affected landowners, tenants, contiguous owners and any other landowner the Company may approach for an easement necessary for the construction, operation, or maintenance of the Project. The letter will comply with all requirements of OAC Section 4906-6-08(B). The Company maintains a website (<http://aeptransmission.com/ohio/>) which hosts an electronic copy of this LON and the public notice

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of this LON. An electronic and paper copy of the LON will be served to the public library in each political subdivision affected by this Project. In addition, the Company retains ROW land agents that discuss Project timelines, construction and restoration activities and convey this information to affected owners and tenants.

B(6) Construction Schedule

The applicant shall provide an anticipated construction schedule and proposed in-service date of the project.

Construction of the Project is planned to begin in May 2025 with an anticipated in-service date of February 2026.

B(7) Area Map

The applicant shall provide a map of at least 1:24,000 scale clearly depicting the facility with clearly marked streets, roads, and highways, and an aerial image.

Figure 1, in **Appendix A**, identifies the location of the Project area on a United States Geological Survey 1:24,000 quadrangle map in Bloomfield, Chatfield, Lykens, and Tiffin South Quadrangles. **Appendix A**, Figure 2 displays the Project components on a 2022 aerial photograph.

B(8) Property Agreements

The applicant shall provide a list of properties for which the applicant has obtained easements, options, and/or land use agreements necessary to construct and operate the facility and a list of the additional properties for which such agreements have not been obtained.

The Project will be constructed within existing ROW and will not impact any new parcels or landowners. **Appendix C** provides a table of property parcel numbers with an indication as to whether the easement/option necessary to construct and operate the facility has been obtained.

B(9) Technical Features

The applicant shall describe the following information regarding the technical features of the project:

B(9)(a) Operating characteristics, estimated number and types of structures required, and right-of-way and/or land requirements.

The rebuilt Howard-Fostoria 138 kV Transmission Line (between Chatfield and Melmore stations) is estimated to include the following:

Voltage:	138 kV
Conductors:	1033 kcmil 54/7 ACSR "Curlew"
Static Wire:	7#8 Alumoweld, 96 OPGW
Insulators:	Polymer

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ROW Width: 100 feet
Structure Types: (62) Monopole DC Suspension
(2) Monopole DC Deadend
(3) Two Pole DC Deadend

B(9)(b) Electric and Magnetic Fields

For electric power transmission lines that are within one hundred feet of an occupied residence or institution, the production of electric and magnetic fields during the operation of the proposed electric power transmission line.

B(9)(b)(i) Calculated Electric and Magnetic Field Strength Levels

i) Calculated Electric and Magnetic Field Levels

Not applicable. No occupied residences or institutions are located within 100 feet of the Project.**B(9)(b)(ii) Design Alternatives**

A discussion of the applicant's consideration of design alternatives with respect to electric and magnetic fields and their strength levels, including alternate conductor configuration and phasing, tower height, corridor location, and right-of-way width.

Not applicable. No occupied residences or institutions are located within 100 feet of the Project.

B(9)(b)(ii)(c) Project Cost

The estimated capital cost of the project.

The capital costs estimate for the proposed Project, which is comprised of applicable tangible and capital costs, is approximately \$34.1 million using a Class 4 estimate. Pursuant to the PJM OATT, the costs for this Project will be recovered in the AEP Ohio Transmission Company's FERC formula rate (Attachment H-20 to the PJM OATT) and allocated to the AEP Zone.

B(10) Social and Ecological Impacts

The applicant shall describe the social and ecological impacts of the project:

B(10)(a) Land Use

Provide a brief, general description of land use within the vicinity of the proposed project, including a list of municipalities, townships, and counties affected.

The Project is located in Chatfield and Lykens townships within Crawford County, Ohio, and Bloom and Eden townships within Seneca County, Ohio. No municipalities are crossed by the Project.

Existing land uses within and surrounding the Project predominantly consist of agricultural land (cultivated cropland or pasture/hayfield) and woodlots used for screening between agricultural and

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residential properties. Forested cover is also present along the riparian corridors of various streams and creeks throughout the area.

Rebuilding the existing transmission line entirely within existing ROW minimizes effects on the existing viewshed and existing land use to the best extent practicable.

B(10)(b) Agricultural Land Information

Provide the acreage and a general description of all agricultural land, and separately all agricultural district land, existing at least sixty days prior to submission of the application within the potential disturbance area of the project.

The Project occupies approximately 137 acres, the majority of which has been historically used as agricultural land, including cropland or pasture/hay field. No Ohio Department of Agriculture (ODA) Office of Farmland Preservation easements are crossed by the Project.

Auditor offices of Crawford County and Seneca County were contacted on January 9, 2025, requesting agricultural district land information for their respective townships crossed by the Project. Based on email correspondence with the Crawford County Auditor’s Office on January 9, 2025, no properties are registered as agricultural district land are crossed by the Project. Based on email correspondence with the Seneca County Auditor’s Office on January 14, 2025, 17 properties are registered as agricultural district land are crossed by the Project.

Overall, the Project crosses 35.5 acres of agricultural district land. However, agricultural impacts will be minimized by the Project, as the existing steel lattice towers will be replaced with steel monopoles, which require smaller foundations.

B(10)(c) Archaeological and Cultural Resources

Provide a description of the applicant’s investigation concerning the presence or absence of significant archaeological or cultural resources that may be located within the potential disturbance area of the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.

The Company’s consultant completed Phase I Archaeological and History/Architectural surveys, which involved subsurface testing and visual inspection and was coordinated with the State Historic Preservation Office (“SHPO”) between February and March 2022. The Company’s consultant recommended that the Project would have no adverse effect on historic properties and no further cultural resource work would be necessary. In the responses received on August 17, 2022, SHPO supported the consultant’s recommendations and indicated that no additional archaeological survey is recommended. A copy of the concurrence letters from SHPO are provided in **Appendix D**.

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B(10)(d) Local, State, and Federal Agency Correspondence

Provide a list of the local, state, and federal governmental agencies known to have requirements that must be met in connection with the construction of the project, and a list of documents that have been or are being filed with those agencies in connection with siting and constructing the project.

A summary of anticipated permits and authorizations for the Project is provided in the **Table 1**, below. There are no other known local, state, or federal requirements that must be met prior to commencement of the Project.

Table 1 – Anticipated Permits

Permit/Authorization/Coordination	Agency	Date
Storm Water Pollution Prevention Plan	Ohio Environmental Protection Agency	Expected February 2025
	Seneca County	
	Crawford County	
Archaeology/Architectural	Ohio Historic Preservation Office	Coordination complete 8/17/2022, no additional work required
Threatened and Endangered Species	United States Fish and Wildlife Service	Consultation complete 6/2/2022
Threatened and Endangered Species	Ohio Department of Natural Resources	Consultation complete 6/28/2022
Floodplain	Seneca County	Anticipated filing January 2025
	Crawford County	

B(10)(e) Threatened, Endangered, and Rare Species

Provide a description of the applicant's investigation concerning the presence or absence of federal and state designated species (including endangered species, listing, and species of special interest) that may be located within the potential disturbance area of the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.

Coordination letters were submitted to the United State Fish and Wildlife Service (USFWS) and the Ohio Department of Natural Resources (ODNR) Ohio Natural Heritage Program (ONHP) and Division of Wildlife (DOW), seeking an environmental review of the Project for potential impacts to state and/or federally protected species. ODNR and USFWS provided responses on June 28, 2022 and June 3, 2022, respectively. Copies of the agencies’ responses are presented in **Appendix D**.

Table 4-6, in **Appendix E** lists the federal and state threatened or endangered species in the Project area.

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Based on the nature of the proposed Project activities and habitat characteristics of the surrounding vicinity, construction impacts to protected species are not anticipated.

B(10)(f) Areas of Ecological Concern

Provide a description of the applicant's investigation concerning the presence or absence of areas of ecological concern (including national and state forests and parks, floodplains, wetlands, designated or proposed wilderness areas, national and state wild and scenic rivers, wildlife areas, wildlife refuges, wildlife management areas, and wildlife sanctuaries) that may be located within the potential disturbance area of the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.

In May 2022, wetland and stream delineation surveys were completed by the Company's consultant for a 100-foot-wide environmental survey corridor (ESC) of the Project. The Project's ecological survey report is summarized below and presented in its entirety in **Appendix E**.

Within the 100-foot-wide ESC encompassing the Project, the Company's consultant identified two freshwater emergent ("PEM") wetlands and seven streams, including three perennial streams, three intermittent streams, and one ephemeral stream. No existing or proposed structures are located within the delineated wetland or stream areas; therefore, the Company does not anticipate any impacts to these features as a result of the Project.

The Honey Creek Riparian Forest, a conservation area managed by the Black Swamp Conservancy, is crossed by the Project just north of County Road 6 (see Page 14 of Figure 2 in **Appendix A**). No impacts are anticipated for the Honey Creek Riparian Forest since the existing lattice towers will be replaced structure-for-structure with steel monopoles within the existing ROW, which require smaller foundations.

FEMA Flood Insurance Rate Maps ("FIRMs") were reviewed to identify floodplains/flood hazard areas within the Project area: FIRM panels 39033C0025D, 39033C0029D, 39033C0030D, 39147C0370D, 39147C0400D, 39147C0550D, and 39147C0575D. Based on this mapping, the Project crosses the floodplain of Honey Creek; however, no proposed structures are located within FEMA-designated 100-year floodplain areas. No FEMA regulatory floodways are located within the Project area.

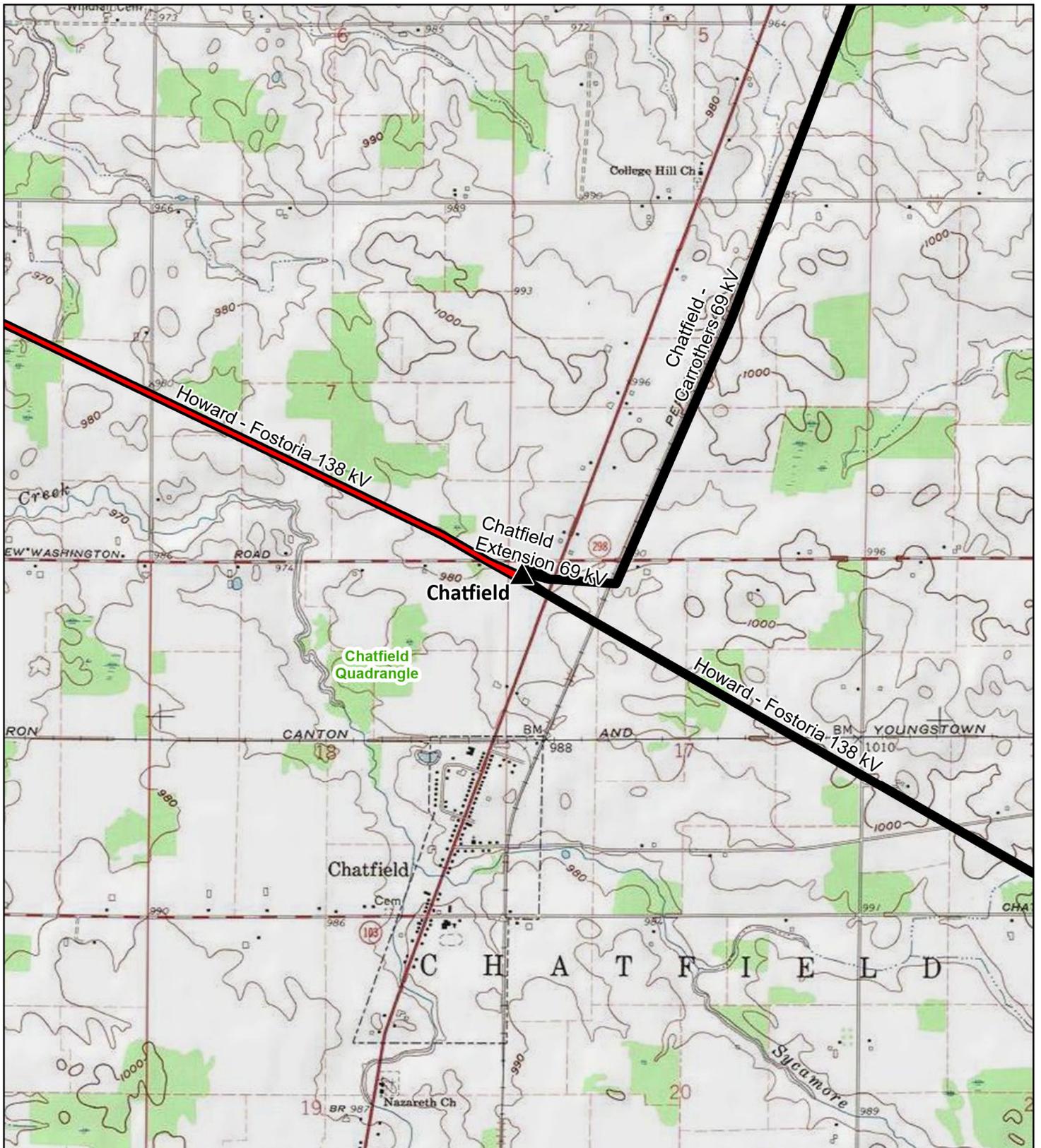
No other areas of ecological concern were identified within the Project area.

B(10)(g) Unusual Conditions

Provide any known additional information that will describe any unusual conditions resulting in significant environmental, social, health, or safety impacts.

To the best of the Company's knowledge, no unusual conditions exist that would result in significant environmental, social, health, or safety impacts.

Appendix A Project Maps



- Existing AEP Substation
- Howard-Fostoria 138 kV
- Transmission Line (Chatfield-Melmore)
- Existing AEP Transmission Line
- USGS 7.5' Topographic Quad Boundary

Sources:
USGS (2020)

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State Plane Ohio
South NAD 83

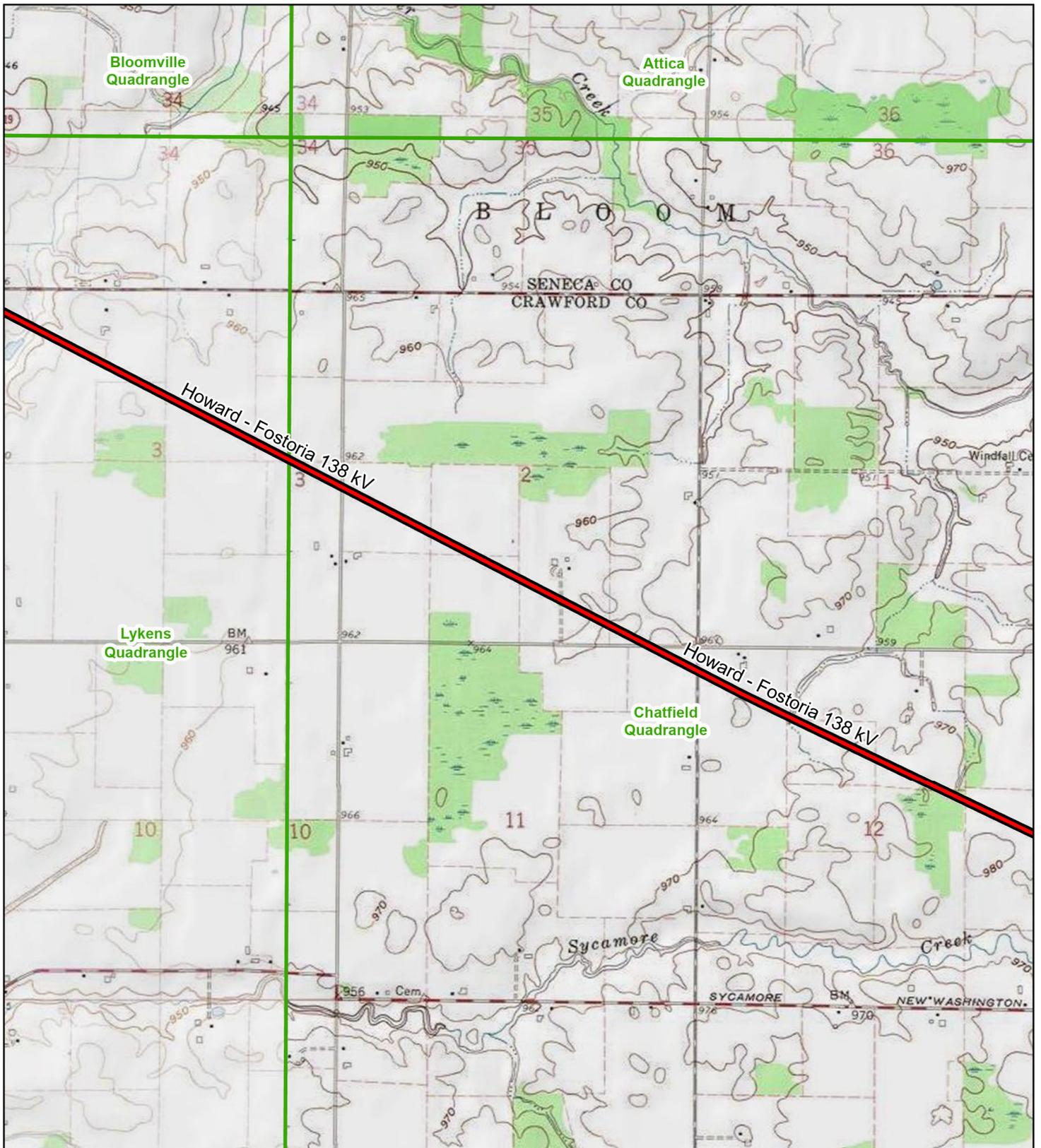
January 31, 2025



Figure 1 Project Area

Howard-Fostoria 138 kV
Transmission Line Rebuild Project
(Chatfield-Melmore)

0 1,000 2,000 3,000
Feet



-  Existing AEP Substation
- Howard-Fostoria 138 kV
-  Transmission Line (Chatfield-Melmore)
-  Existing AEP Transmission Line
-  USGS 7.5' Topographic Quad Boundary

Sources:
USGS (2020)

Page 2 of 5

State Plane Ohio
South NAD 83

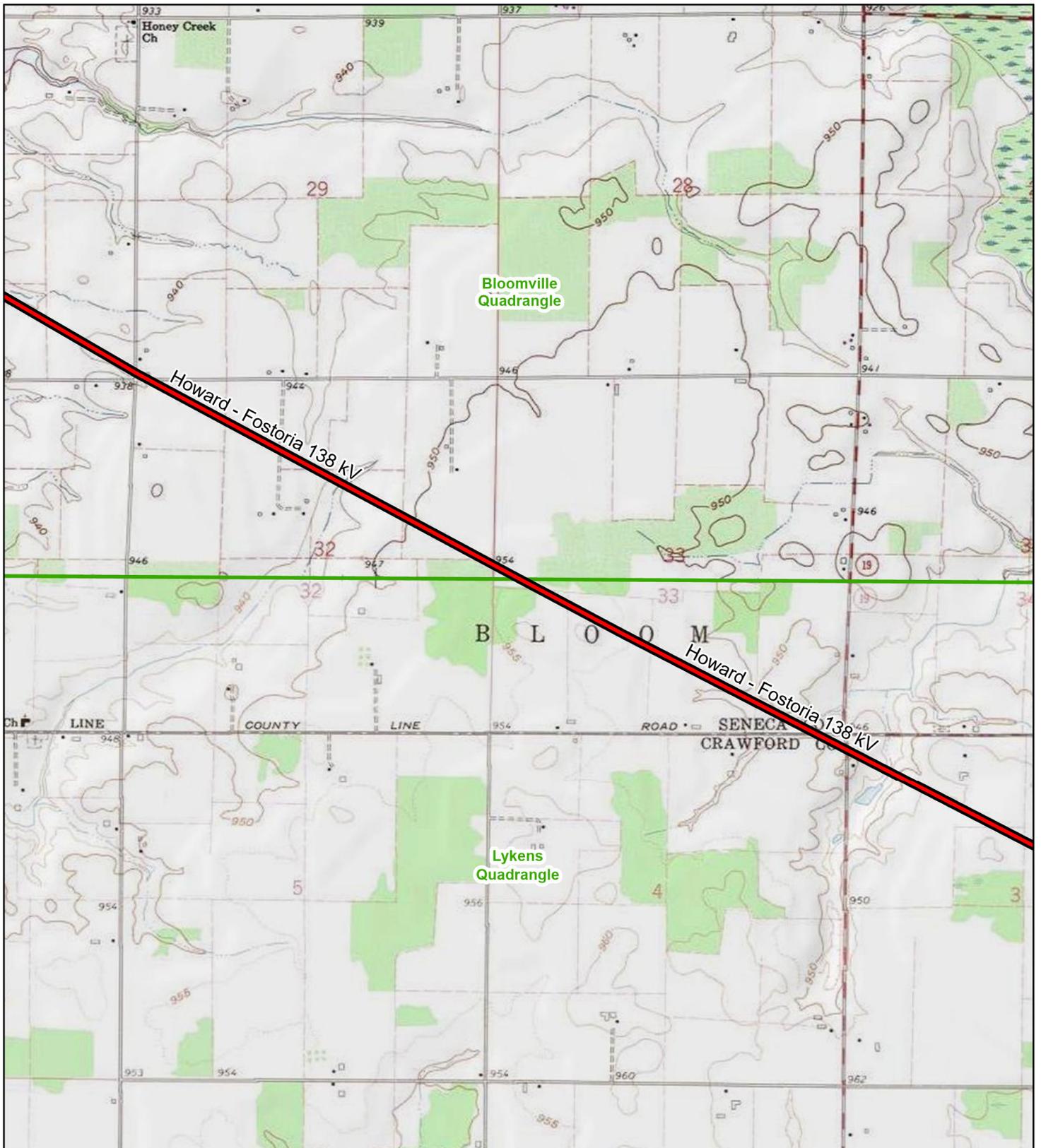
January 31, 2025



Figure 1
Project Area

 Howard-Fostoria 138 kV
Transmission Line Rebuild Project
(Chatfield-Melmore)

0 1,000 2,000 3,000
Feet



- ▲ Existing AEP Substation
- Howard-Fostoria 138 kV
- Transmission Line (Chatfield-Melmore)
- Existing AEP Transmission Line
- USGS 7.5' Topographic Quad Boundary

Sources:
USGS (2020)

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South NAD 83

January 31, 2025

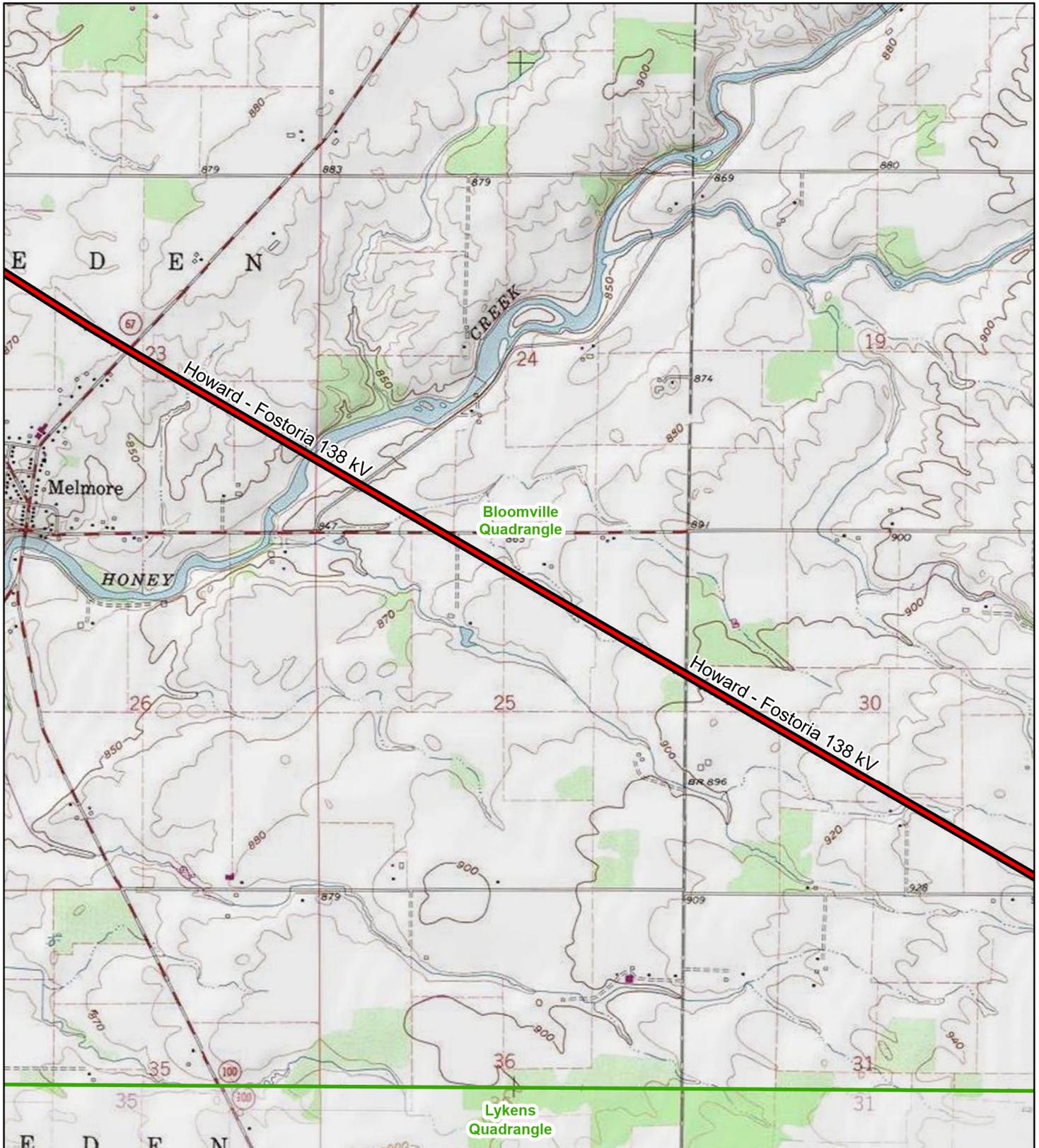


Figure 1
Project Area

AMERICAN ELECTRIC POWER

Howard-Fostoria 138 kV
Transmission Line Rebuild Project
(Chatfield-Melmore)

0 1,000 2,000 3,000
Feet



-  Existing AEP Substation
- Howard-Fostoria 138 kV
-  Transmission Line (Chatfield-Melmore)
-  Existing AEP Transmission Line
-  USGS 7.5' Topographic Quad Boundary

Sources:
USGS (2020)

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South NAD 83

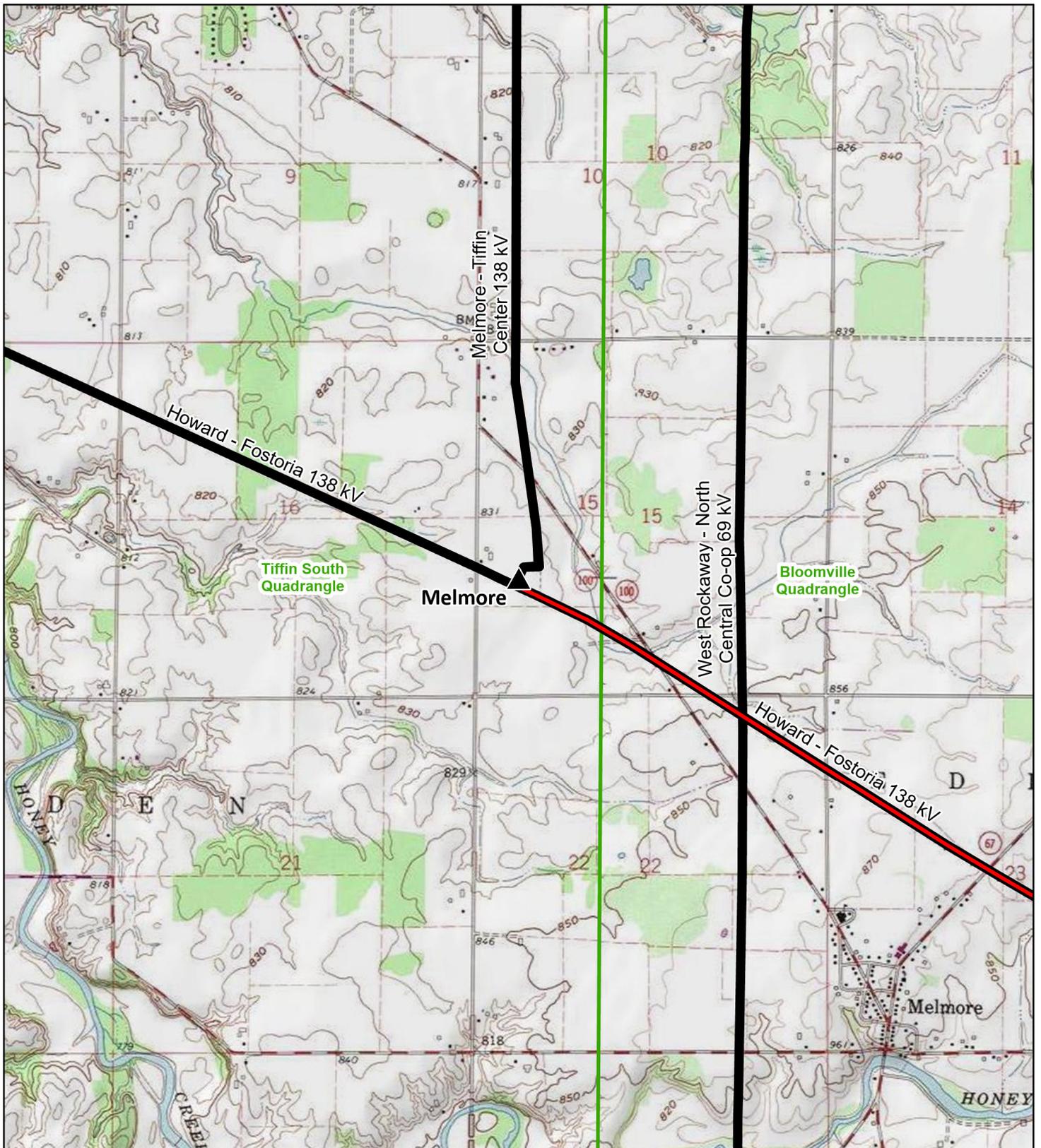
January 31, 2025



Figure 1
Project Area

 Howard-Fostoria 138 kV
Transmission Line Rebuild Project
(Chatfield-Melmore)

0 1,000 2,000 3,000
Feet



-  Existing AEP Substation
- Howard-Fostoria 138 kV
-  Transmission Line (Chatfield-Melmore)
-  Existing AEP Transmission Line
-  USGS 7.5' Topographic Quad Boundary

Sources:
USGS (2020)

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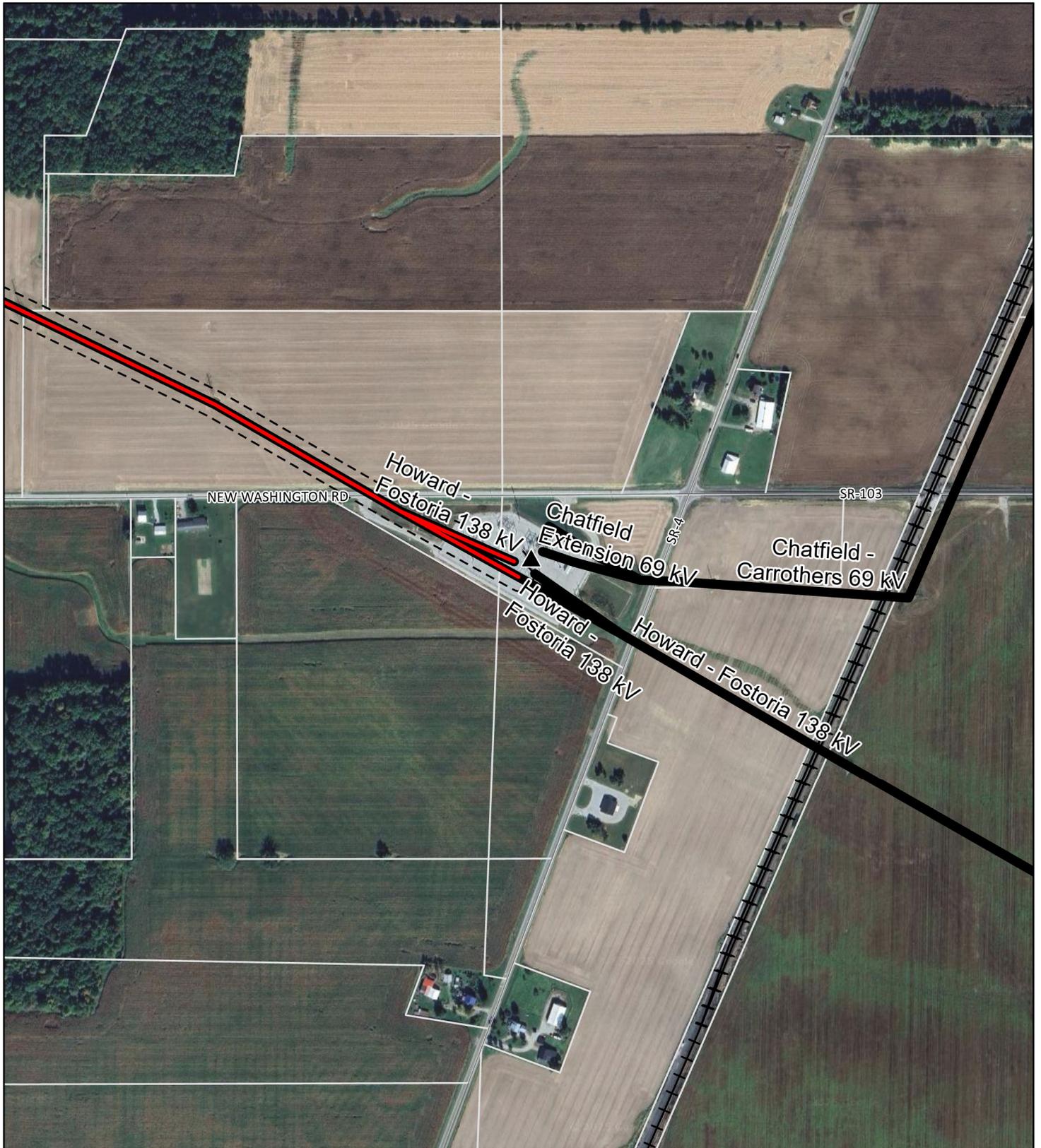
January 31, 2025



Figure 1
Project Area

 Howard-Fostoria 138 kV
Transmission Line Rebuild Project
(Chatfield-Melmore)

0 1,000 2,000 3,000
Feet



- ▲ Existing AEP Substation
Howard-Fostoria 138 kV
- Transmission Line (Chatfield-Melmore)
- Existing AEP Transmission Line
- ⊕ Railroad
- ▭ Parcel Boundary
- - - Existing 100-foot ROW

Sources:
ESRI Imagery (2022)
County Parcels (2023)

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South NAD 83



February 06, 2025

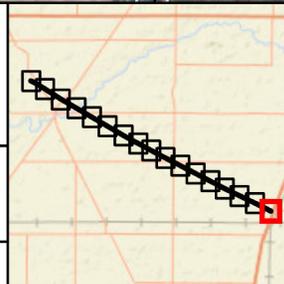
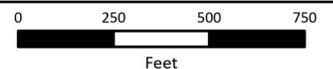


Figure 2
Aerial Map



Howard-Fostoria 138 kV
Transmission Line Rebuild Project
(Chatfield-Melmore)





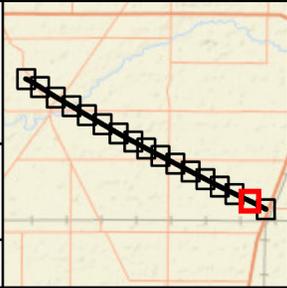
Howard-Fostoria 138 kV
 — Transmission Line (Chatfield-Melmore)
 — Existing AEP Transmission Line
 □ Parcel Boundary
 - - - Existing 100-foot ROW

Sources:
 ESRI Imagery (2022)
 County Parcels (2023)

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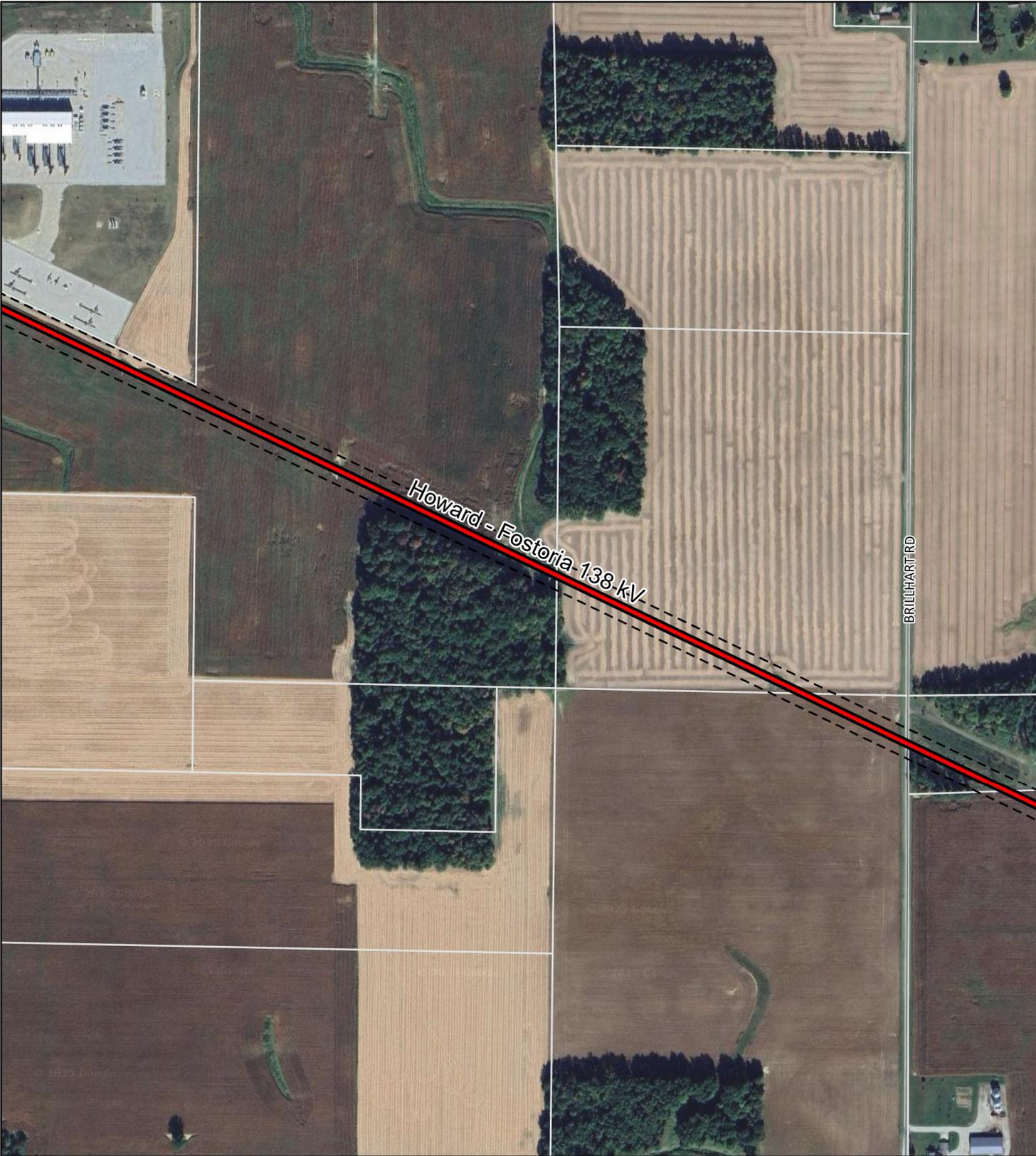
**Figure 2
 Aerial Map**

**AMERICAN
 ELECTRIC
 POWER**

Howard-Fostoria 138 kV
 Transmission Line Rebuild Project
 (Chatfield-Melmore)

0 250 500 750
 Feet



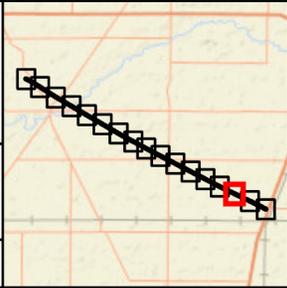


Howard-Fostoria 138 kV
 — Transmission Line (Chatfield-Melmore)
 — Existing AEP Transmission Line
 □ Parcel Boundary
 - - - Existing 100-foot ROW

Sources:
 ESRI Imagery (2022)
 County Parcels (2023)
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**Figure 2
 Aerial Map**

**AMERICAN
 ELECTRIC
 POWER**

Howard-Fostoria 138 kV
 Transmission Line Rebuild Project
 (Chatfield-Melmore)

0 250 500 750
 Feet





Howard-Fostoria 138 kV
 — Transmission Line (Chatfield-Melmore)
 — Existing AEP Transmission Line
 □ Parcel Boundary
 - - - Existing 100-foot ROW

Sources:
 ESRI Imagery (2022)
 County Parcels (2023)

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February 06, 2025



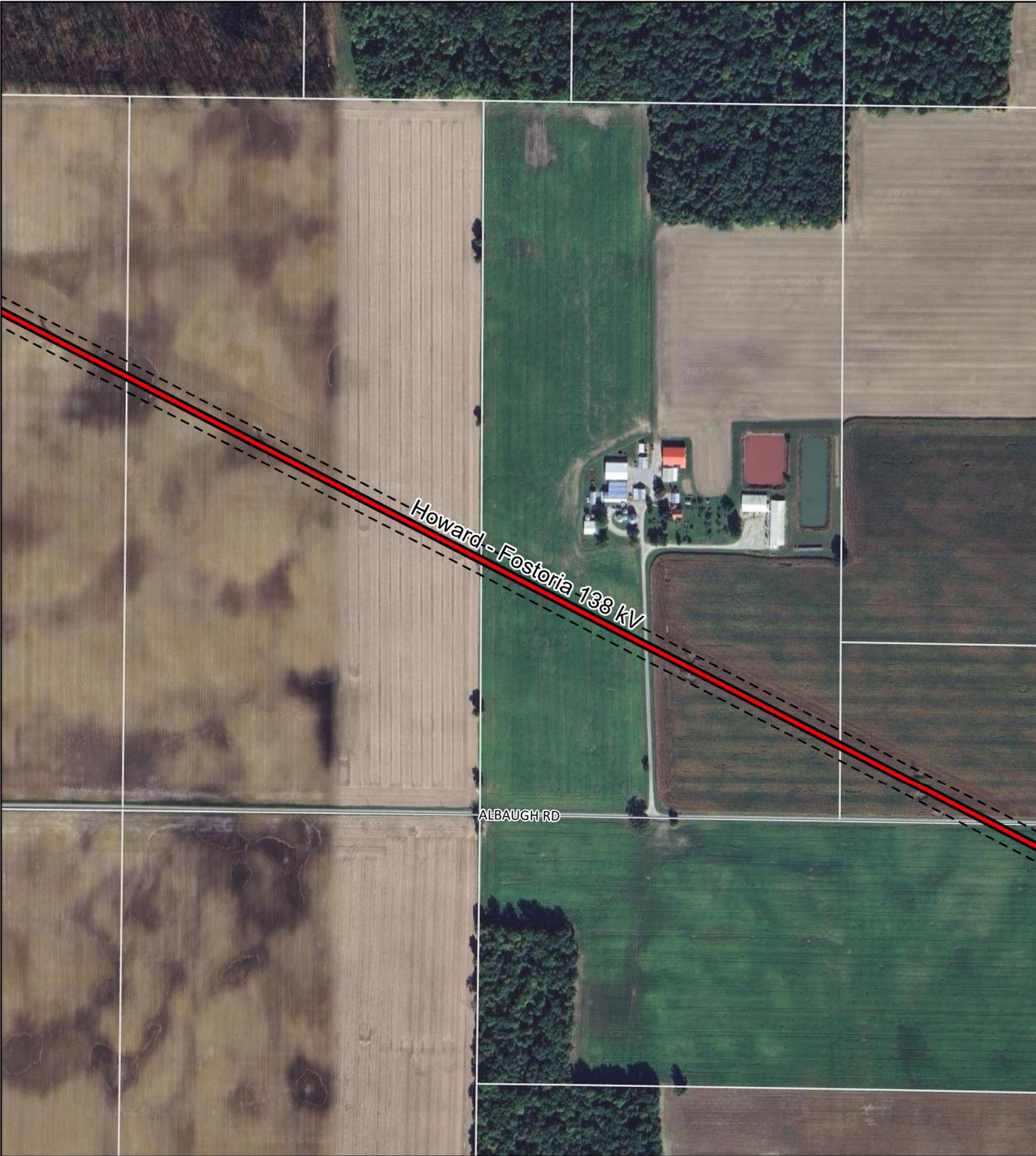

**Figure 2
 Aerial Map**

**AMERICAN
 ELECTRIC
 POWER**

Howard-Fostoria 138 kV
 Transmission Line Rebuild Project
 (Chatfield-Melmore)

0 250 500 750
 Feet





Howard-Fostoria 138 kV

ALBAUGH RD

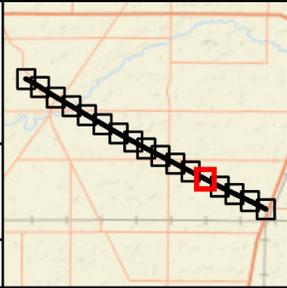
- Howard-Fostoria 138 kV
- Transmission Line (Chatfield-Melmore)
- Existing AEP Transmission Line
- Parcel Boundary
- Existing 100-foot ROW

Sources:
 ESRI Imagery (2022)
 County Parcels (2023)

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February 06, 2025



**Figure 2
Aerial Map**

**AMERICAN
ELECTRIC
POWER**

Howard-Fostoria 138 kV
Transmission Line Rebuild Project
(Chatfield-Melmore)

0 250 500 750

 Feet



Howard-Fostoria 138 kV

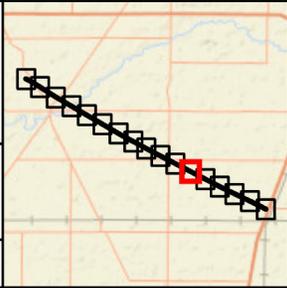
-  Transmission Line (Chatfield-Melmore)
-  Existing AEP Transmission Line
-  Parcel Boundary
-  Existing 100-foot ROW

Sources:
 ESRI Imagery (2022)
 County Parcels (2023)

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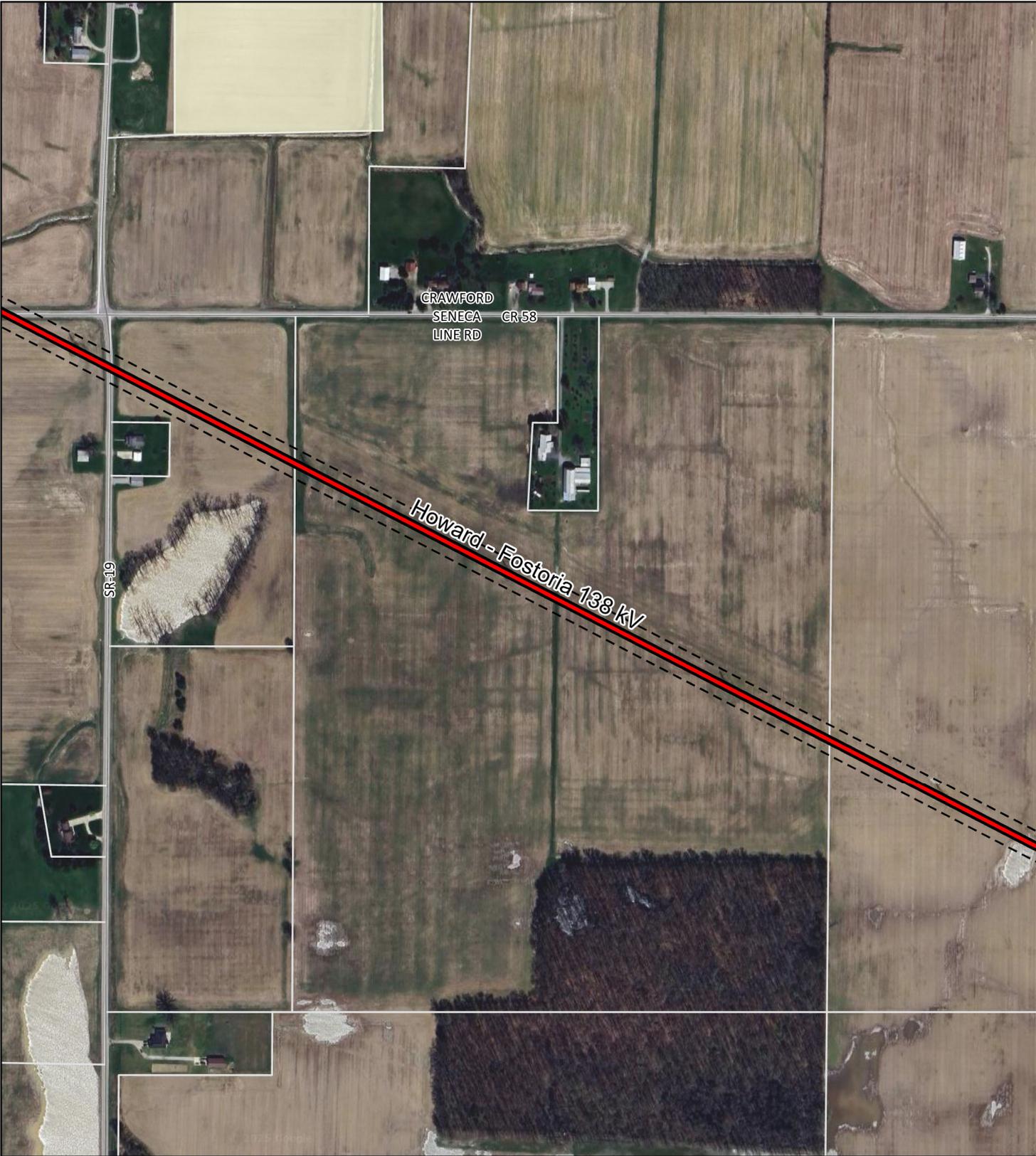
February 06, 2025

**Figure 2
 Aerial Map**

 Howard-Fostoria 138 kV
 Transmission Line Rebuild Project
 (Chatfield-Melmore)

0 250 500 750
 Feet



- Howard-Fostoria 138 kV
- Transmission Line (Chatfield-Melmore)
- Existing AEP Transmission Line
- Agricultural District Parcel
- Parcel Boundary
- Existing 100-foot ROW

Sources:
 ESRI Imagery (2022)
 County Parcels (2023)

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February 06, 2025

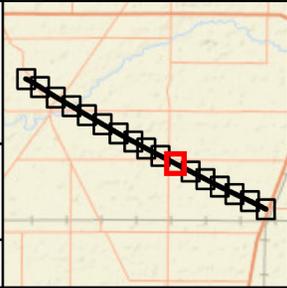


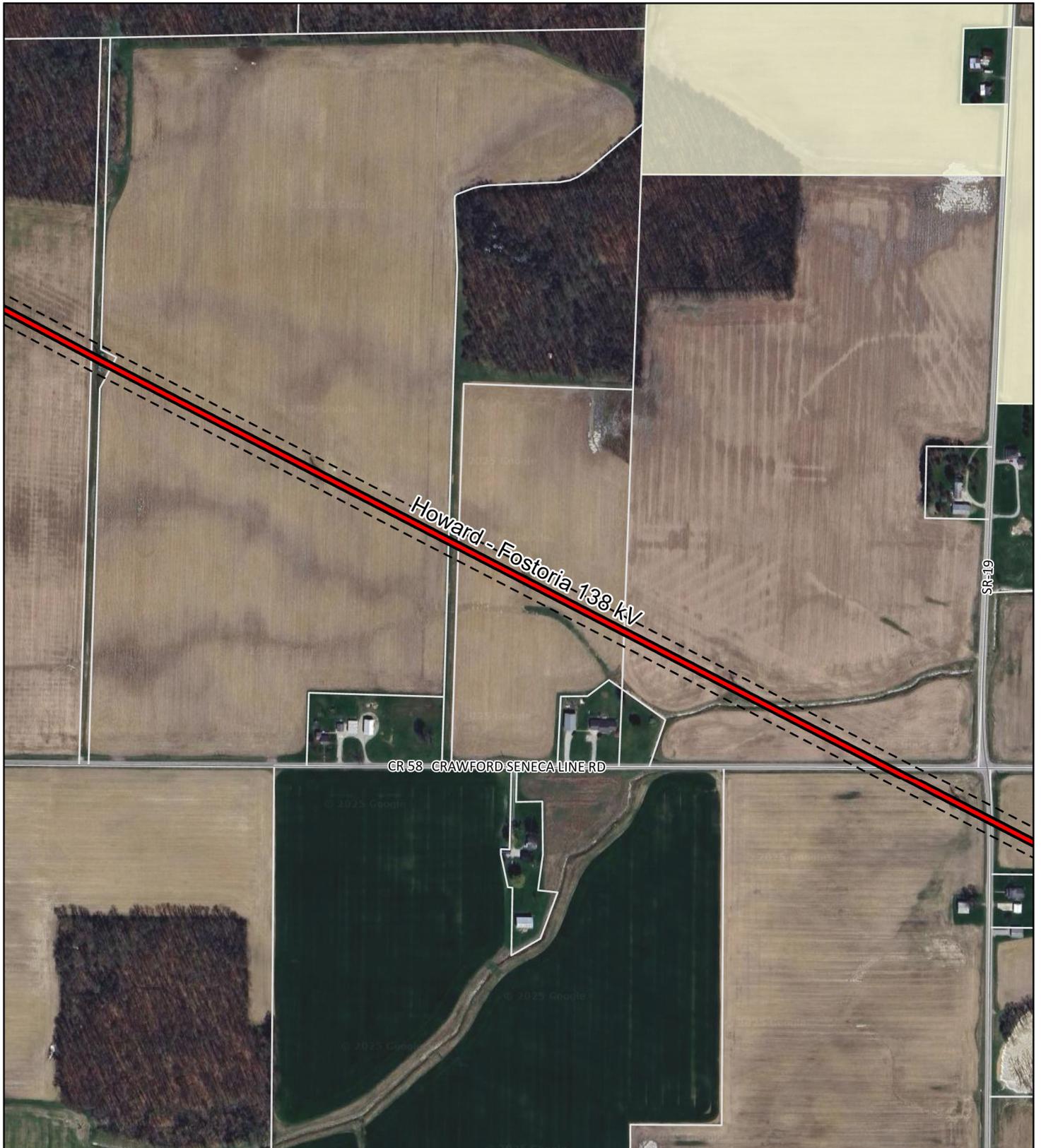
Figure 2
Aerial Map

AMERICAN ELECTRIC POWER

Howard-Fostoria 138 kV
 Transmission Line Rebuild Project
 (Chatfield-Melmore)

0 250 500 750

 Feet



- Howard-Fostoria 138 kV
- Transmission Line (Chatfield-Melmore)
- Existing AEP Transmission Line
- Agricultural District Parcel
- Parcel Boundary
- Existing 100-foot ROW

Sources:
 ESRI Imagery (2022)
 County Parcels (2023)

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**Figure 2
 Aerial Map**

**AMERICAN
 ELECTRIC
 POWER**

Howard-Fostoria 138 kV
 Transmission Line Rebuild Project
 (Chatfield-Melmore)

0 250 500 750
 Feet



Howard-Fostoria 138 kV
 Transmission Line (Chatfield-Melmore)

Existing AEP Transmission Line

Agricultural District Parcel

Parcel Boundary

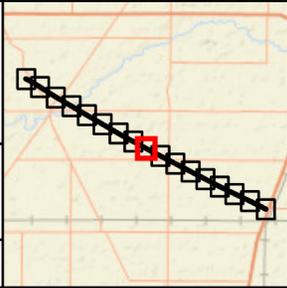
Existing 100-foot ROW

Sources:
 ESRI Imagery (2022)
 County Parcels (2023)

Page 9 of 17

State Plane Ohio
 South NAD 83

February 06, 2025

**Figure 2
 Aerial Map**

**AMERICAN
 ELECTRIC
 POWER**

Howard-Fostoria 138 kV
 Transmission Line Rebuild Project
 (Chatfield-Melmore)

0 250 500 750
 Feet





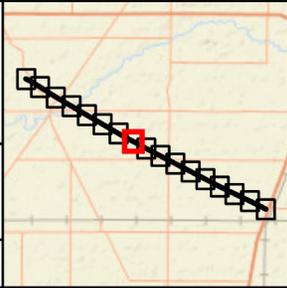
- Howard-Fostoria 138 kV
- Transmission Line (Chatfield-Melmore)
- Existing AEP Transmission Line
- Agricultural District Parcel
- Parcel Boundary
- Existing 100-foot ROW

Sources:
 ESRI Imagery (2022)
 County Parcels (2023)

Page 10 of 17

State Plane Ohio
 South NAD 83

February 06, 2025

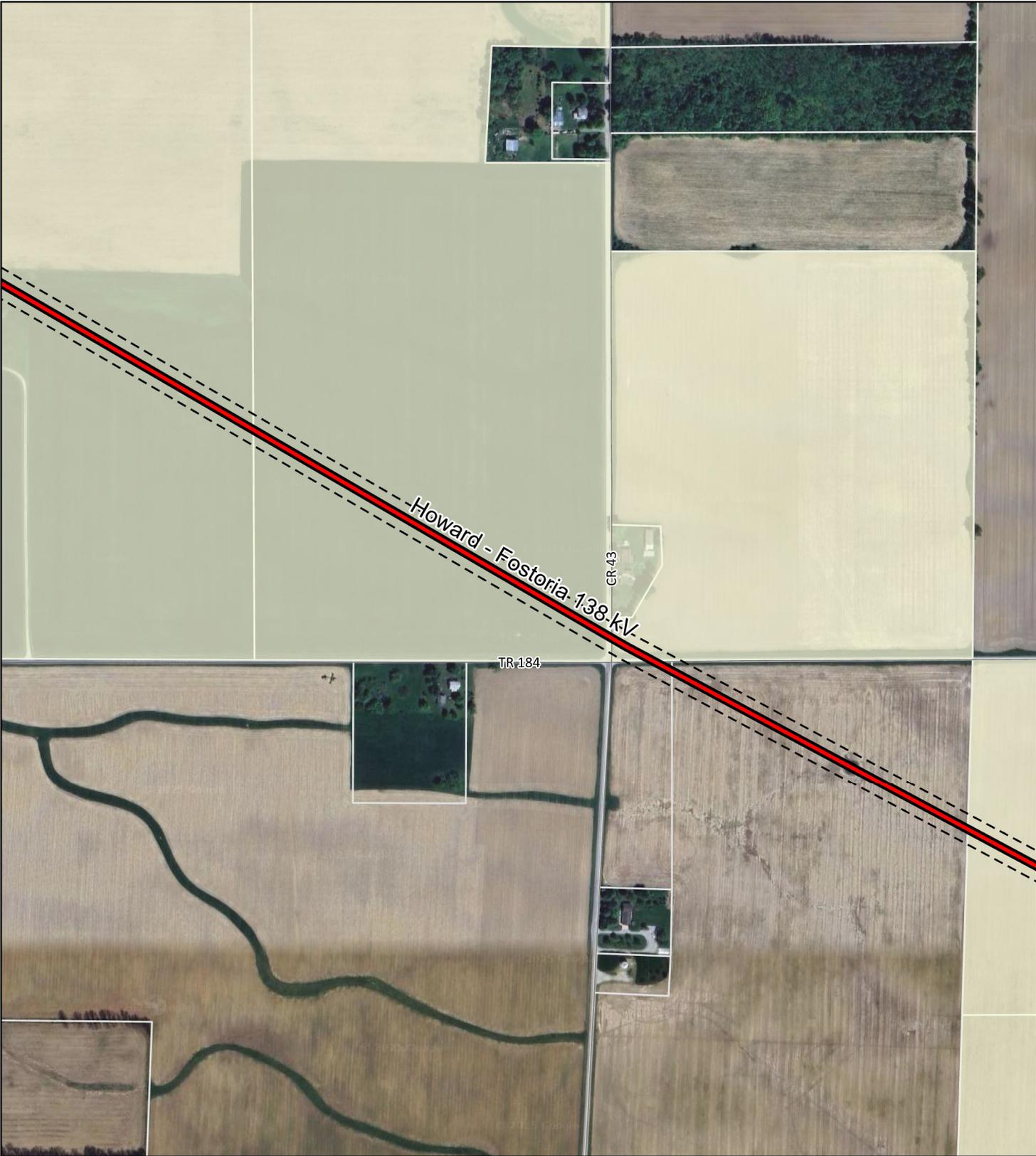


**Figure 2
 Aerial Map**

**AMERICAN
 ELECTRIC
 POWER**

Howard-Fostoria 138 kV
 Transmission Line Rebuild Project
 (Chatfield-Melmore)

0 250 500 750
 Feet



Howard-Fostoria 138 kV

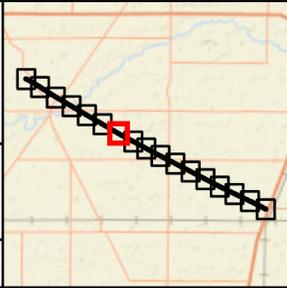
- Transmission Line (Chatfield-Melmore)
- Existing AEP Transmission Line
- Agricultural District Parcel
- Parcel Boundary
- Existing 100-foot ROW

Sources:
 ESRI Imagery (2022)
 County Parcels (2023)

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State Plane Ohio
 South NAD 83

February 06, 2025

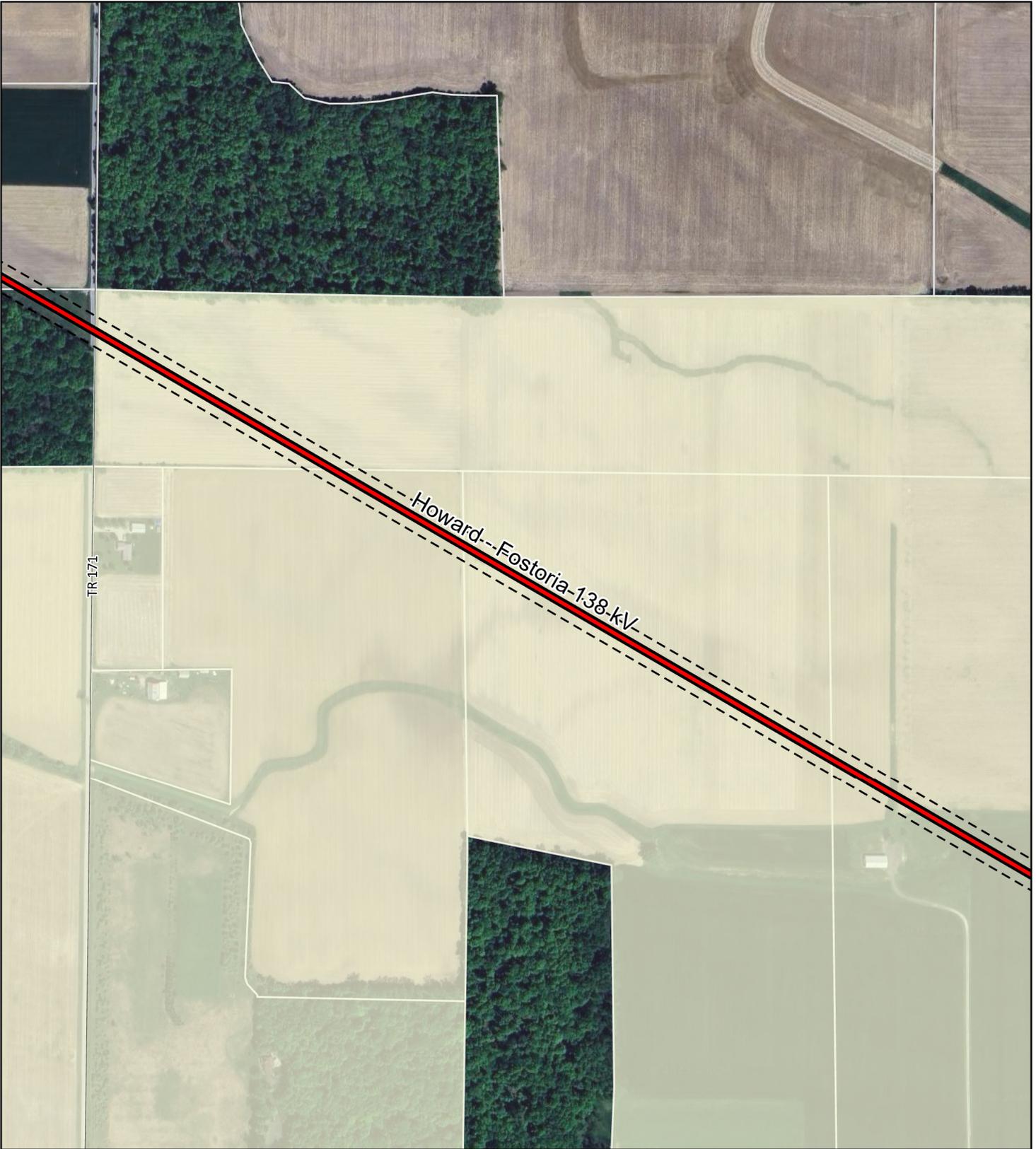



**Figure 2
 Aerial Map**

**AMERICAN
 ELECTRIC
 POWER**

Howard-Fostoria 138 kV
 Transmission Line Rebuild Project
 (Chatfield-Melmore)

0 250 500 750
 Feet



- Howard-Fostoria 138 kV
- Transmission Line (Chatfield-Melmore)
- Existing AEP Transmission Line
- Agricultural District Parcel
- Parcel Boundary
- Existing 100-foot ROW

Sources:
 ESRI Imagery (2022)
 County Parcels (2023)

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State Plane Ohio
 South NAD 83

February 06, 2025

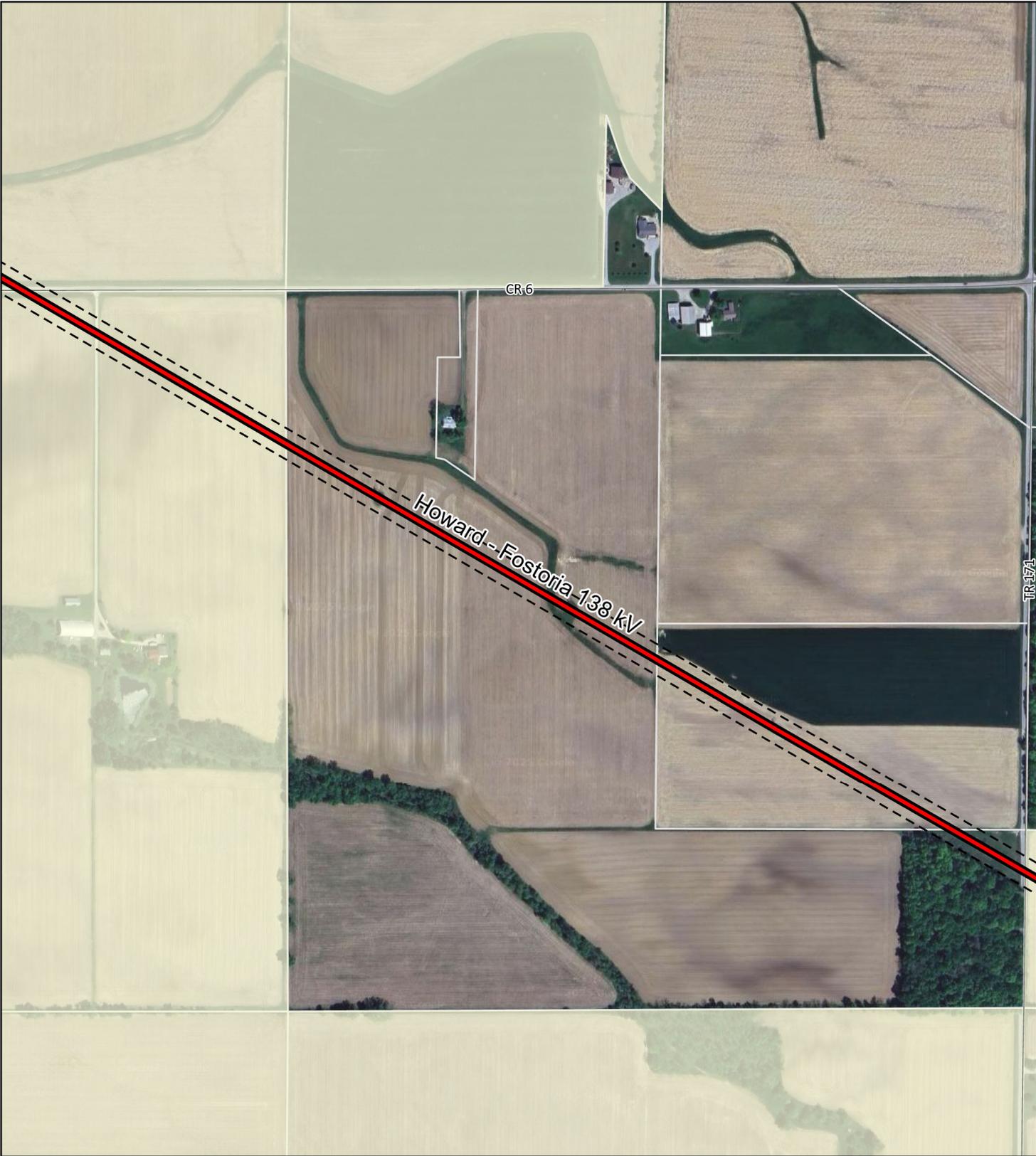


Figure 2
Aerial Map

Howard-Fostoria 138 kV
Transmission Line Rebuild Project
(Chatfield-Melmore)

0 250 500 750

 Feet



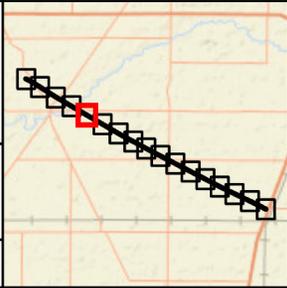
- Howard-Fostoria 138 kV
— Transmission Line (Chatfield-Melmore)
- Existing AEP Transmission Line
- Agricultural District Parcel
- Parcel Boundary
- Existing 100-foot ROW

Sources:
 ESRI Imagery (2022)
 County Parcels (2023)

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State Plane Ohio
 South NAD 83

February 06, 2025

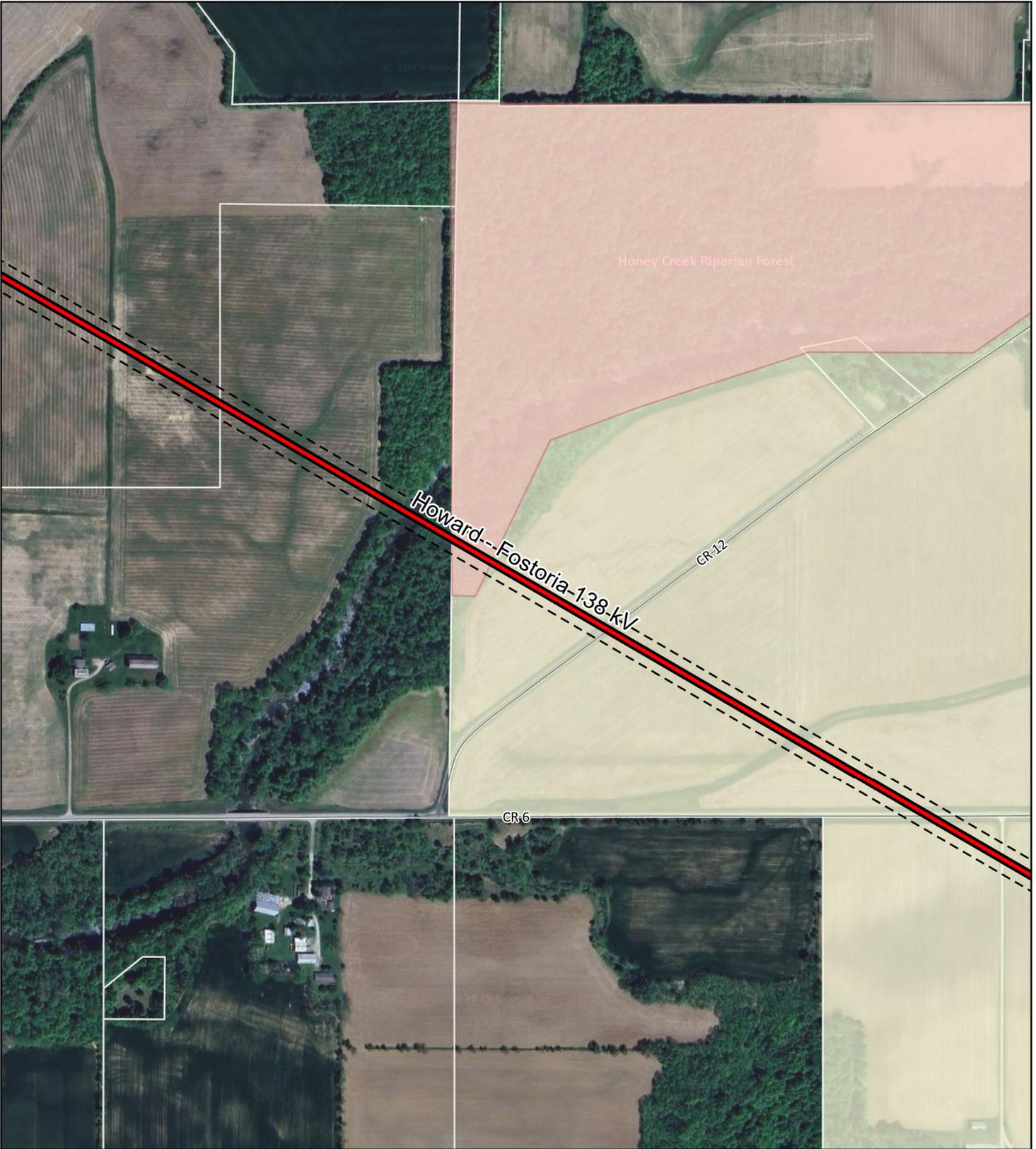


**Figure 2
 Aerial Map**

**AMERICAN
 ELECTRIC
 POWER**

Howard-Fostoria 138 kV
 Transmission Line Rebuild Project
 (Chatfield-Melmore)

0 250 500 750
 Feet



- Howard-Fostoria 138 kV
- Transmission Line (Chatfield-Melmore)
- Existing AEP Transmission Line
- Agricultural District Parcel
- Parcel Boundary
- Non-Governmental Organization (NGO) Land
- Existing 100-foot ROW

Sources:
 ESRI Imagery (2022)
 County Parcels (2023)

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State Plane Ohio
 South NAD 83

February 06, 2025



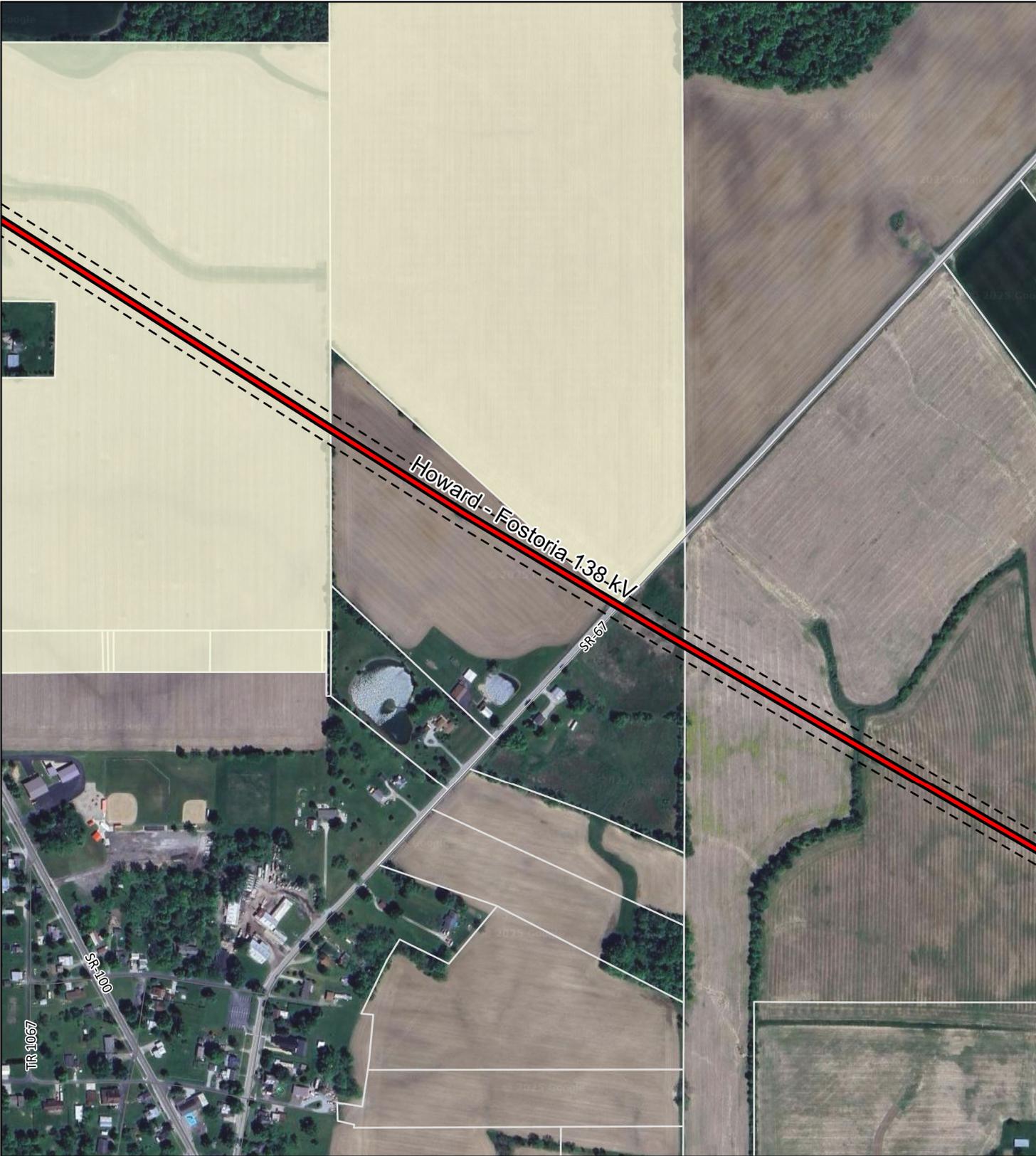
Figure 2 Aerial Map

AMERICAN ELECTRIC POWER

Howard-Fostoria 138 kV
 Transmission Line Rebuild Project
 (Chatfield-Melmore)

0 250 500 750

 Feet

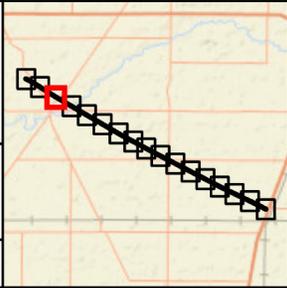


Howard-Fostoria 138 kV
 — Transmission Line (Chatfield-Melmore)
 — Existing AEP Transmission Line
 Agricultural District Parcel
 Parcel Boundary
 Existing 100-foot ROW

Sources:
 ESRI Imagery (2022)
 County Parcels (2023)
 Page 15 of 17

State Plane Ohio
 South NAD 83

February 06, 2025

**Figure 2
 Aerial Map**

**AMERICAN
 ELECTRIC
 POWER**

Howard-Fostoria 138 kV
 Transmission Line Rebuild Project
 (Chatfield-Melmore)

0 250 500 750
 Feet





Howard-Fostoria 138 kV
— Transmission Line (Chatfield-Melmore)
— Existing AEP Transmission Line
 Agricultural District Parcel
 Parcel Boundary
 Existing 100-foot ROW

Sources:
 ESRI Imagery (2022)
 County Parcels (2023)
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State Plane Ohio
 South NAD 83

February 06, 2025




**Figure 2
 Aerial Map**

**AMERICAN
 ELECTRIC
 POWER**

Howard-Fostoria 138 kV
 Transmission Line Rebuild Project
 (Chatfield-Melmore)

0 250 500 750
 Feet





- ▲ Existing AEP Substation
- Howard-Fostoria 138 kV
- Transmission Line (Chatfield-Melmore)
- Existing AEP Transmission Line
- Agricultural District Parcel
- Parcel Boundary
- - - Existing 100-foot ROW

Sources:
 ESRI Imagery (2022)
 County Parcels (2023)

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State Plane Ohio
 South NAD 83

February 06, 2025



**Figure 2
 Aerial Map**

**AMERICAN
 ELECTRIC
 POWER**

Howard-Fostoria 138 kV
 Transmission Line Rebuild Project
 (Chatfield-Melmore)

0 250 500 750
 Feet

Appendix B Long Term Forecast Report and PJM Solutions



AEP Transmission Zone: Baseline Chatfield - Melmore Rebuild

Process Stage: Recommended Solution

Criteria: Summer Generation Deliverability

Assumption Reference: 2025 RTEP assumption

Model Used for Analysis: 2025 RTEP cases

Proposal Window Exclusion: Below 200 kV

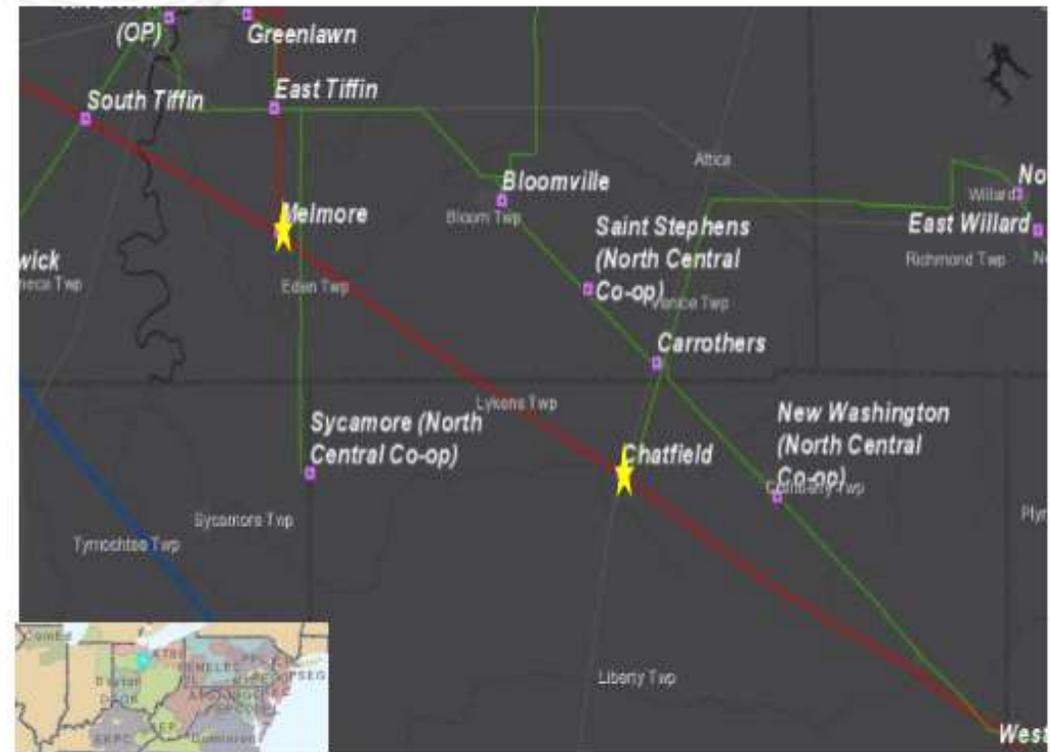
Problem Statement:

FG: GD-S293

The Chatfield – Melmore 138kV line is overloaded for a line with stuck breaker contingency.

Existing Facility Rating:

Branch	SN/SE/WN/WE (MVA)
05CHATFL – 05MELMOR	167/167/210/210





AEP Transmission Zone: Baseline Chatfield - Melmore Rebuild

Proposed Solution: Rebuild the Chatfield – Melmore 138kV line (~ 10miles) to 1033 ACSR conductor (B3249)

Preliminary Facility Rating:

Branch	SN/SE/WN/W/E (MVA)
05CHATFL – 05MELMOR	296/413/375/464

Estimated Cost: \$27.2M

Ancillary Benefit:

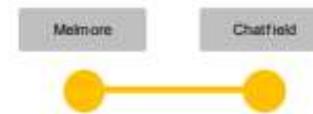
Project will rebuild approximately 10 miles of the 45 mile long Howard – Fostoria 138 kV double circuit line that utilizes lattice structures and 397.5 ACSR conductor that date back to the 1920's.

- From 2014-2019 there were 6 momentary and 3 permanent outages on the line.
- There are currently 232 open conditions identified on the 45 mile long Howard – Fostoria line related to structure and hardware issues.
- 248 of the 258 structures that make up the 45 mile Howard – Fostoria double circuit 138 kV line are lattice structures from the 1920's. The other 10 structures that make up the line are a mix of steel and wood structures dating between 1962 and 2016.
- ~99% of the circuit conductor is 397.5 ACSR that was installed in the 1920's.
- The baseline proposal is rebuilding 10 miles of the existing 45 mile long line to address the overloaded 397.5 ACSR conductor between Chatfield and Melmore.

Required In-Service: 6/1/2025

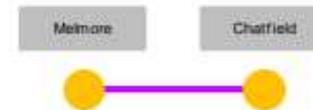
Previously Presented: 1/15/2021

Existing Configuration:



Legend	
100 kV	
345 kV	
138 kV	
88 kV	
34.5 kV	
23 kV	
New	

Future Configuration:



PUCO Form FE-T9: Ohio Transmission Company
Specifications of Planned Electric Transmission Lines

12	CONSEQUENCES OF LINE CONSTRUCTION DEFERMENT OR TERMINATION	Increased risk of equipment failure, reliability, and operational issues
13	MISCELLANEOUS:	
1	LINE NAME AND NUMBER:	Chatfield - Melmore 138kV (B3249 TP2020255)
2	POINTS OF ORIGIN AND TERMINATION	Chatfield - Melmore INTERMEDIATE STATIONS - N/A
3	RIGHTS-OF-WAY: LENGTH / WIDTH / CIRCUITS	11.2 mi / 100ft / 2 circuit
4	VOLTAGE: DESIGN / OPERATE	138 kV / 138 kV
5	APPLICATION FOR CERTIFICATE:	2023
6	CONSTRUCTION:	2024 - 2026
7	CAPITAL INVESTMENT:	\$24.59M
8	PLANNED SUBSTATION:	N/A
9	SUPPORTING STRUCTURES:	Steel
10	PARTICIPATION WITH OTHER UTILITIES	N/A
11	PURPOSE OF THE PLANNED TRANSMISSION LINE	The Chatfield – Melmore 138kV line is overloaded for a line with stuck breaker contingency
12	CONSEQUENCES OF LINE CONSTRUCTION DEFERMENT OR TERMINATION	Increased risk of equipment failure, reliability, and operational issues
13	MISCELLANEOUS:	
1	LINE NAME AND NUMBER:	Hemlock - Meigs 69kV (B3285 TP2018243)
2	POINTS OF ORIGIN AND TERMINATION	Hemlock - Meigs INTERMEDIATE STATIONS - N/A

Appendix C Property Agreement Table

Parcel ID	Agreement Type	Easement Obtained
E18000293920601	Station/AEP Parcels	Yes
E18000277120000	Existing Rights	Yes
E18000278800100	Existing Rights	Yes
E18000278800000	Existing Rights	Yes
E18000278800200	Existing Rights	Yes
Across SR 100-ODOT District 2 (WC)		
E18000262320000	Existing Rights	Yes
Across TR 58-Eden Twp, Seneca Co, OH (WC)		
E18000279240000	Existing Rights	Yes
Across TR 159-Eden Twp, Seneca Co, OH (WC)		
E18000275480000	Existing Rights	Yes
E18000269080000	Existing Rights	Yes
E18000275600000	Existing Rights	Yes
Across SR 67-ODOT District 2 (WC)		
E18000256880000	Existing Rights	Yes
E18000293240000	Existing Rights	Yes
E18000255880200	Existing Rights	Yes
E18000293280000	Existing Rights	Yes
E18000280160000	Existing Rights	Yes
Across CR 12-Seneca Co, OH (WC)		
Across CR 6-Seneca Co, OH (WC)		
E18000252640000	Existing Rights	Yes
E18000277040000	Existing Rights	Yes
E18000275120200	Existing Rights	Yes
Across TR 171-Unknown Agency		
C13000141960000	Existing Rights	Yes
C13000144840200	Existing Rights	Yes
C13000141920100	Existing Rights	Yes
C13000142000000	Existing Rights	Yes
C13000134320000	Existing Rights	Yes
Across CR 43-Seneca Co, OH (WC)		
C13000133440000	Existing Rights	Yes
Across TR 44 (E TR 184)-Bloom Twp, Seneca Co, OH (WC)		
C13000139680000	Existing Rights	Yes
C13000139560000	Existing Rights	Yes

Parcel ID	Agreement Type	Easement Obtained
C13000139560100	Existing Rights	Yes
C13000139520000	Existing Rights	Yes
C13000133360000	Existing Rights	Yes
C13000131480000	Existing Rights	Yes
C13000133320000	Existing Rights	Yes
C13000144720000	Existing Rights	Yes
C13000136480500	Existing Rights	Yes
C13000136480400	Existing Rights	Yes
C13000136480000	Existing Rights	Yes
C13000136480300	Existing Rights	Yes
C13000136400000	Existing Rights	Yes
Across CR 58-Seneca Co, OH (WC)		
Across CR 14 (Crawford Seneca Line Rd)-Crawford Co, OH (WC)		
300008002000	Existing Rights	Yes
Across SR 19-ODOT District 3 (WC)		
300008001002	Existing Rights	Yes
300008010000	Existing Rights	Yes
300008005000	Existing Rights	Yes
300008023000	Existing Rights	Yes
300007976000	Existing Rights	Yes
300008022000	Existing Rights	Yes
Across TR 37 (Kennedy Rd)-Lykens Twp, Crawford Co, OH (WC)		
300007933000	Existing Rights	Yes
300007932000	Existing Rights	Yes
300007935000	Existing Rights	Yes
300007936000	Existing Rights	Yes
Across TR 24 (Albaugh Rd)-Lykens Twp, Crawford Co, OH (WC)		
300007938000	Existing Rights	Yes
Across TR 38 (Ross Rd)-Unknown Agency		
110001952000	Existing Rights	Yes
100001620000	Existing Rights	Yes
100001875000	Existing Rights	Yes
100001583000	Existing Rights	Yes
100001657000	Existing Rights	Yes
Across TR 131 (Brillhart Rd)-Chatfield Twp, Crawford Co, OH (WC)		

Parcel ID	Agreement Type	Easement Obtained
100001835001	Existing Rights	Yes
100001835002	Existing Rights	Yes
100001742000	Existing Rights	Yes
100001847000	Existing Rights	Yes
100001937002	Existing Rights	Yes
100001937001	Existing Rights	Yes
100001631000	Existing Rights	Yes
Across CR 5 (New Washington Rd)-Crawford Co, OH (WC)		
100060259000	Station/AEP Parcels	Yes
100060258000	Station/AEP Parcels	Yes

Appendix D Agency Coordination Letters



In reply, refer to
2022-CRA-55410

August 17, 2022

Mr. Ryan J. Weller
Weller & Associates, Inc.
1395 West Fifth Avenue
Columbus, Ohio 43212

RE: Chatfield-Melmore 138kV Rebuild Project in Chatfield and Lykens Townships, Crawford County and Eden and Bloom Township, Seneca County, Ohio

Dear Mr. Weller:

This letter is in response to the correspondence received July 22, 2022 regarding the proposed Chatfield-Melmore 138kV Rebuild Project in Chatfield and Lykens Townships, Crawford County and Eden and Bloom Township, Seneca County, Ohio. We appreciate the opportunity to comment on this project. The comments of the Ohio State Historic Preservation Office (SHPO) are made pursuant to Section 149.53 of the Ohio Revised Code and the Ohio Power Siting Board rules for siting this project (OAC 4906-5). The comments of the Ohio SHPO are also submitted in accordance with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. 306108 [36 CFR 800]).

The following comments pertain to the *Phase I Archaeological Investigations for the 18.5 km (11.5 mi) Chatfield-Melmore 138kV Rebuild Project in Chatfield and Lykens Townships, Crawford County and Eden and Bloom Township, Seneca County, Ohio* by Ryan J. Weller (Weller & Associates, Inc. 2022).

A literature review, visual inspection, surface collection, shovel test unit and shovel probe excavation was completed as part of the investigations. Four (4) previously identified archaeological sites are located within the project area, Ohio Archaeological Inventory (OAI) #33SE0741 and 33CR1058-33CR1060. Only one of those four sites were reidentified during survey, OAI#33SE0741. The site was recommended not eligible for listing in the National Register of Historic Places (NRHP). Our office agrees with this recommendation. Six (6) new archaeological sites were identified during survey, OAI#33SE1012-33SE1013 and 33CR1261-33CR1264. None of the sites were recommended eligible for listing in the NRHP. Our office agrees with this recommendation and no additional archaeological survey is needed.

The following comments pertain to the *History/Architecture Investigations for the 18.5 km (11.5 mi) Chatfield-Melmore 138kV Rebuild Project in Chatfield and Lykens Townships, Crawford County and Eden and Bloom Township, Seneca County, Ohio* by Scott McIntosh (Weller & Associates, Inc. 2022).

A literature review and field survey were completed as part of the investigations. A total of fifty (50) extant resources 50 years of age or older were identified within the Area of Potential Effects (APE). One resource (CRA0072103) has previously been determined eligible for listing in the NRHP. None of the remaining resources are recommended eligible for NRHP listing. Our office agrees with Weller's recommendations regarding eligibility. While the project area may be visible from the NRHP-eligible resource, the nature of the project only upgrades the existing transmission line. Therefore, our office concurs that the work as proposed should have no adverse effect on historic properties.

Based on the information provided, we agree that the project as proposed will have no adverse effect on historic properties. No further coordination with this office is necessary, unless the project changes or unless new or additional historic properties are discovered during implementation of this project. In such a situation, this office should be contacted. Our office requests Weller & Associates, Inc. complete the OAI forms for OAI#33SE1012-33SE1013 and 33CR1261-



Ohio Department of Natural Resources

MIKE DeWINE, GOVERNOR

MARY MERTZ, DIRECTOR

Office of Real Estate

John Kessler, Chief

2045 Morse Road – Bldg. E-2

Columbus, OH 43229

Phone: (614) 265-6621

Fax: (614) 267-4764

June 28, 2022

Bradley Rolfes
WSP USA Inc.
312 Elm Street, Suite 2500
Cincinnati, Ohio 45202

Re: 22-0572; Chatfield - Melmore 138 kV Transmission Line Project

Project: The proposed project involves the construction of the Chatfield – Melmore 138 kV transmission line.

Location: The proposed project is located in Lykens and Chatfield townships, Crawford County, and Seneca Bloom and Eden townships, Seneca County, Ohio.

The Ohio Department of Natural Resources (ODNR) has completed a review of the above referenced project. These comments were generated by an inter-disciplinary review within the Department. 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 National Environmental Policy Act, the Coastal Zone Management Act, Ohio Revised Code and other applicable laws and regulations. These comments are also based on ODNR's experience as the state natural resource management agency and do 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.

Natural Heritage Database: A review of the Ohio Natural Heritage Database indicates there are no records of state or federal listed plants or animals within one mile of the project area. Other records are as follows:

Great Blue Heron Rookery

The review was performed on the project area centerline specified in the request as well as an additional one-mile radius. Records searched date from 1980.

An additional search of the Ohio Natural Heritage Database for state or federally listed bat species or geological features (e.g., caves, caverns or cliffs) found no records within 3 miles of the specified project centerline.

This information is provided to inform you of features present within your project area and vicinity. Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area.

Fish and Wildlife: The Division of Wildlife (DOW) has the following comments.

The DOW recommends that impacts to streams, wetlands and other water resources be avoided and minimized to the fullest extent possible, and that Best Management Practices be utilized to minimize erosion and sedimentation.

The project is within the vicinity of records for the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species, and the little brown bat (*Myotis lucifugus*), a state endangered species. Because presence of state endangered bat species has been established in the area, summer tree cutting is not recommended, and additional summer surveys would not constitute presence/absence in the area. However, limited summer tree cutting inside this buffer may be acceptable after further consultation with DOW (contact Eileen Wyza at Eileen.Wyza@dnr.ohio.gov).

In addition, the entire state of Ohio is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species, the northern long-eared bat (*Myotis septentrionalis*), a state endangered and federally threatened species, the little brown bat (*Myotis lucifugus*), a state endangered species, and the tricolored bat (*Perimyotis subflavus*), a state endangered species. During the spring and summer (April 1 through September 30), these bat species predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves. However, these species are also dependent on the forest structure surrounding roost trees. The DOW recommends tree cutting only occur from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with DBH \geq 20 if possible.

The DOW also recommends that a desktop habitat assessment is conducted, followed by a field assessment if needed, to determine if a potential hibernaculum is present within the project area. Direction on how to conduct habitat assessments can be found in the current USFWS "[Range-wide Indiana Bat Survey Guidelines](#)." If a habitat assessment finds that a potential hibernaculum is present within 0.25 miles of the project area, please send this information to Eileen Wyza for project recommendations. If a potential or known hibernaculum is found, the DOW recommends a 0.25-mile tree cutting and subsurface disturbance buffer around the hibernaculum entrance, however, limited summer or winter tree cutting may be acceptable after consultation with the DOW. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.

This project must not have an impact on freshwater native mussels at the project site. This applies to both listed and non-listed species. Per the Ohio Mussel Survey Protocol (2020), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 5 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. This is further explained within the Ohio Mussel Survey Protocol. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, as a last resort, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the 2022 [Ohio Mussel Survey Protocol](#).

The project is within the range of the longnose sucker (*Catostomus catostomus*), a state endangered fish, and the greater redhorse (*Moxostoma valenciennesi*), a state threatened fish. The DOW recommends no in-water work in perennial streams from March 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact these or other aquatic species.

The project is within the range of the Blanding's turtle (*Emydoidea blandingii*), a state threatened species. This species inhabits marshes, ponds, lakes, streams, wet meadows, and swampy forests. Although essentially aquatic, the Blanding's turtle will travel over land as it moves from one wetland to the next. Due to the location, the type of habitat within the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the spotted turtle (*Clemmys guttata*), a state threatened species. This species prefers fens, bogs and marshes, but also is known to inhabit wet prairies, meadows, pond edges, wet woods, and the shallow sluggish waters of small streams and ditches. Due to the location, the type of habitat within the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the king rail (*Rallus elegans*), a state endangered bird. Nests for this species are deep bowls constructed out of grass and usually hidden very well in marsh vegetation. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 through July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the least bittern (*Ixobrychus exilis*), a state threatened bird. This secretive marsh species prefers dense emergent wetlands with thick stands of cattails, sedges, sawgrass or other semiaquatic vegetation interspersed with woody vegetation and open water. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 through July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the loggerhead shrike (*Lanius ludovicianus*), a state endangered bird. The loggerhead shrike nests in hedgerows, thickets and fencerows. They hunt over hayfields, pastures, and other grasslands. If thickets or other types of dense shrubbery habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 1 through July 31. If this habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the northern harrier (*Circus hudsonis*), a state endangered bird. This is a common migrant and winter species. Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds a nest out of sticks on the ground, often on top of a mound. Harriers hunt over grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this habitat will not be impacted, the project is not likely to impact this species.

The project is within the range of the upland sandpiper (*Bartramia longicauda*), a state endangered bird. Nesting upland sandpipers utilize dry grasslands including native grasslands, seeded grasslands, grazed and ungrazed pasture, hayfields, and grasslands established through the Conservation Reserve Program (CRP). If this type of habitat will be impacted, construction

should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

Due to the potential of impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the US Fish & Wildlife Service.

Water Resources: The Division of Water Resources has the following comment.

The [local floodplain administrator](#) should be contacted concerning the possible need for any floodplain permits or approvals for this project.

ODNR appreciates the opportunity to provide these comments. Please contact Mike Pettegrew at mike.pettegrew@dnr.ohio.gov if you have questions about these comments or need additional information.

Mike Pettegrew
Environmental Services Administrator

33CR1264 and update the OAI form for OAI#33SE0741 as soon as possible. Please notify our office when that form have been completed. If you have any questions, please contact me at (614) 298-2022, or by e-mail at khorricks@ohiohistory.org, or Joy Williams at jwilliams@ohiohistory.org. Thank you for your cooperation.

Sincerely,



Krista Horrocks, Project Reviews Manager
Resource Protection and Review

RPR Serial No: 1094258-1094259

Rolfes, Brad

From: Ohio, FW3 <ohio@fws.gov>
Sent: Friday, June 3, 2022 10:26 AM
To: Rolfes, Brad
Cc: nathan.reardon@dnr.state.oh.us; Thomayer, Matthew; Shannon T Hemmerly
Subject: AEP Chatfield - Melmore 138 kV Transmission Line Project, Seneca and Crawford Counties, Ohio

Follow Up Flag: Follow up
Flag Status: Flagged



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

Project Code # 2022-0028760

Dear Mr. Rolfes,

The U.S. Fish and Wildlife Service (Service) has received your recent correspondence requesting information about the subject proposal. We offer the following comments and recommendations to assist you in minimizing and avoiding adverse impacts to threatened and endangered species pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq), as amended (ESA).

Federally Threatened and Endangered Species: The endangered Indiana bat (*Myotis sodalis*) and threatened northern long-eared bat (*Myotis septentrionalis*) occur throughout the State of Ohio. The Indiana bat and northern long-eared bat may be found 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 breed that may also include adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, woodlots, fallow fields, and pastures. Roost trees for both species include live and standing dead trees ≥ 3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities. These roost trees may be located in forested habitats as well as linear features such as fencerows, riparian forests, and other wooded corridors. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet 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, rock crevices and abandoned mines.

Seasonal Tree Clearing for Federally Listed Bat Species: The proposed project is in the vicinity of one or more confirmed records of Indiana bats. Should the proposed project site contain trees ≥ 3 inches dbh, we recommend avoiding tree removal 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 removal of any trees ≥ 3 inches dbh only occur between October 1 and March 31. Seasonal clearing is 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/angered/mammals/nleb/index.html>), incidental take of Indiana bats is still prohibited without a project-specific exemption. Thus, seasonal clearing is recommended where Indiana bats are known or assumed present. Please note that, because Indiana bat presence has already been confirmed in the project vicinity, any additional summer surveys would not constitute presence/absence surveys for this species.

Section 7 Coordination: If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), then 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 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. This letter provides technical assistance only and does not serve as a completed section 7 consultation document.

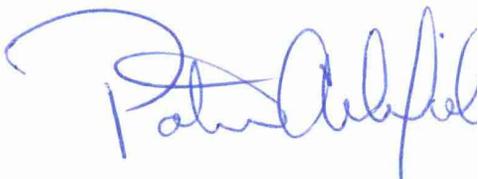
Stream and Wetland Avoidance: Over 90% of the wetlands in Ohio have been drained, filled, or modified by human activities, thus is it important to conserve the functions and values of the remaining wetlands in Ohio (https://epa.ohio.gov/portals/47/facts/ohio_wetlands.pdf). We recommend avoiding and minimizing project impacts to all wetland habitats (e.g., forests, streams, vernal pools) to the maximum extent possible in order to benefit water quality and fish and wildlife habitat. Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the U.S. Army 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. Disturbed areas should be mulched and revegetated with native plant species. In addition, prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, or proposed species, or proposed or designated critical habitat. Should the project design change, or 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, coordination with the Service should be initiated to assess any potential impacts.

Thank you for your efforts to conserve listed species and sensitive habitats in Ohio. We recommend coordinating with the Ohio Department of Natural Resources due to the potential for the proposed project to affect state listed species and/or state lands. Contact Mike Pettegrew, Acting Environmental Services Administrator, at (614) 265-6387 or at mike.pettegrew@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,



Patrice Ashfield
Field Office Supervisor

cc: Nathan Reardon, ODNR-DOW

Appendix E Wetland Delineation Report



CHATFIELD – MELMORE 138 KV TRANSMISSION LINE PROJECT ECOLOGICAL SURVEY REPORT



PROJECT NO.: 31300107.035

DATE: AUGUST 2022

AEP Transmission
8500 Smith's Mill Road
New Albany, OH 43054



An AEP Company

BOUNDLESS ENERGY™

WSP USA
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1 INTRODUCTION

On behalf of American Electric Power (AEP) Ohio Transmission Company, Inc. (AEP Ohio Transco), WSP USA (WSP) conducted environmental surveys for the existing approximately 11.5-mile-long Chatfield – Melmore 138 kV Transmission Line Project (“Project”), located in Bloom and Eden, Townships, in Seneca County, and Chatfield and Lykens Townships, in Crawford County, Ohio. The environmental survey included a wetland and water resource delineation and characterization of potential habitat for state and federally listed species. The wetland delineation was performed to determine whether wetlands and streams are present within the vicinity of the Project that would meet the definition of Waters of the United States (WoUS) or be subject to regulations implemented by the Ohio Environmental Protection Agency (OEPA), and to document their extents and current conditions if present. The wetland delineation was performed by individuals trained in the three-parameter methodology (hydrophytic vegetation, wetland hydrology, and hydric soils) adopted by the U.S. Army Corps of Engineers (USACE) as outlined in the USACE *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* (USACE, 2010) and in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987).

The report presents the results of the ecological considerations and review of the site’s existing and reasonably foreseeable site conditions at the time of the environmental surveys. The results cannot apply to site changes occurring after the survey which WSP has not had the opportunity to review. During the course of any survey, site conditions may change over time due to human and/or natural causes; as such, the results presented in this report may be invalidated, either wholly or in part, by changes beyond the control of WSP.



2 BACKGROUND INFORMATION

2.1 PROJECT AREA

The approximately 11.5-mile Project is located within Bloom and Eden, Townships, in Seneca County, and Chatfield and Lykens Townships, in Crawford County, Ohio. The Environmental Survey Corridor (ESC) varies in width (between 100 and 300 feet) and originates at the existing Melmore Substation (approximate coordinate: 41.04161°, -83.12946°) and extends generally south and east to the existing Chatfield Substation (approximate coordinate: 40.96423°, -82.93898°) (Figure 1, Appendix A). The 143.1-acre ESC also includes proposed access roads, pull pads and potential laydown yards. The ESC is located within the Bloomville, Chatfield, and Tiffin South, Ohio U.S. Geological Survey (USGS) 7.5-minute topographic map quadrangle boundaries. Table 2-1 provides an overview of the project location.

TABLE 2-1: GENERAL PROJECT INFORMATION

COUNTY:	Crawford and Seneca
TOWNSHIP:	Bloom, Chatfield, Eden, and Lykens
END POINT COORDINATES:	Melmore Substation: 41.04161°, -83.12946° Chatfield Substation: 40.96423°, -82.93898°
USGS QUADRANGLE:	Bloomville, Chatfield, and Tiffin South
ENVIRONMENTAL SURVEY CORRIDOR LENGTH (mi.):	11.5
ENVIRONMENTAL SURVEY CORRIDOR WIDTH (ft.):	Varying (100 – 300)
ENVIRONMENTAL SURVEY CORRIDOR SIZE (ac.):	143.1
ELEVATION RANGE (ft. above sea level):	822 – 983
8-DIGIT HYDROLOGIC UNIT CODE:	04100011
12-DIGIT HYDROLOGIC UNIT CODE(S) :	04100011-08-04 04100011-08-06 04100011-09-02
DATE(S) OF SURVEY :	May 11, 2022

2.1.1 DRAINAGE BASINS

All streams in the vicinity of the ESC drain to the Sandusky River, which is a traditionally navigable waterway (TNW). The ESC is located entirely within the Sandusky (HUC 04100011) drainage basin. The ESC lies within three 12-digit HUCs, as outlined in Table 2-2 (USDA, 2019).

The OEPA 401 Water Quality Certification for the Nationwide Permits Web Mapping Application indicates that field-assessed streams within all three of the 12-digit sub-watersheds are denoted as “Eligible” indicating impacts to streams



may require an individual 401 water quality certification if Ohio general and special limitations and conditions for the nationwide permits are not met (OEPA, 2020).

TABLE 2-2: 12-DIGIT HUC'S CROSSED BY THE PROJECT

8-DIGIT HUC CODE ¹	8-DIGIT HUC CODE NAME ¹	12-DIGIT HUC CODE ¹	12-DIGIT HUC NAME ¹	OHIO EPA SECTION 401 ELIGIBILITY ²
04100011	Sandusky	04100011-08-04	Silver Creek	Eligible
		04100011-08-06	Lower Honey Creek	Eligible
		04100011-09-02	Headwaters Sycamore Creek	Eligible

¹Source: USDA, 2019

²Source: OEPA, 2020



3 METHODOLOGY

On May 11, 2022, two WSP ecologists traversed the approximately 11.5-miles long ESC (approximately 143.1-acres) to conduct a wetland and waters delineation. The physical boundaries of aquatic resources were recorded using a Trimble Global Positioning System (GPS) unit rated for sub-decimeter accuracy. The GPS data was then geo-corrected using Trimble GPS Pathfinder Office software (version 5.60) and reviewed for quality control.

Prior to conducting field surveys, WSP ecologists completed a desktop review by analyzing several federal and state documents for the presence of wetland and streams. This review included Natural Resources Conservation Service (NRCS) soil survey data, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps of Ohio, USGS 7.5-minute topographic maps, and USGS National Hydrography Dataset (NHD) stream and river data as an exercise to identify the occurrence and location of potential wetlands and streams.

3.1 WETLAND AND STREAM DELINEATION

3.1.1 WETLAND DELINEATION

The USACE and the U.S. Environmental Protection Agency (USEPA) define wetlands as areas inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR, Part 328.3).

Wetlands were delineated according to Section 404 of the Clean Water Act, Technical Report Y-87-1 *Corps of Engineers Wetlands Delineation Manual ('87 Manual)* (Environmental Laboratory, 1987), and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest, (Version 2.0) (Regional Supplement)* (USACE, 2010). Representative data points were collected for wetlands and corresponding, adjacent upland areas. Wetland data was recorded on the USACE *Regional Supplement Wetland Determination Data Forms*.

Wetland vegetation communities were classified according to the *Classification of Wetlands and Deepwater Habitats of the United States*, commonly referred to as the Cowardin Classification System (Cowardin et al., 1979). Wetlands within the ESC were assessed using the OEPA *Ohio Rapid Assessment Method for Wetlands v. 5.0* (ORAM) to determine the ecological quality and level of disturbance (Mack, 2001).

3.1.2 STREAM DELINEATION AND ASSESSMENT

Streams were identified by the presence of a defined bed and bank, and evidence of an ordinary high water mark (OHWM). The OHWM is defined in the USACE *Regulatory Guidance Letter No. 05-05* (USACE, 2005). Generally, the OHWM is identified by a clearly defined, natural line along the stream bank created by fluctuations and flow of water; this may include changes in contours, substrate, vegetation, and debris (USACE, 2005).

Stream assessments were conducted using the methods described in the OEPA's Methods for Assessing Habitat in Flowing Waters: Using OEPA's *Qualitative Habitat Evaluation Index* (Rankin, 2006) and *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams, Version 3* (Davic, 2012).



4 RESULTS

Two WSP ecologists surveyed the ESC on May 11, 2022, by walking the approximately 143.1-acre ESC and evaluating for wetlands and other WoUS. The WSP ecologists identified two wetlands and seven streams within the ESC. Multiple non-jurisdictional drainages were also identified within the ESC. The identified water resources are depicted on the Delineated Features Map (Figure 3, Appendix A).

4.1 DESKTOP REVIEW

4.1.1 SOILS EVALUATION

According to the NRCS Soil Data for Crawford and Seneca Counties, Ohio, there are 26 soil map units identified within the ESC, as presented in Table 4-1. The soils observed by the WSP ecologists during the reconnaissance of the ESC were consistent with the NRCS soil survey mapping.

TABLE 4-1: SOIL UNITS MAPPED WITHIN THE ESC

SOIL UNIT SYMBOL	SOIL UNIT NAME	PERCENT HYDRIC	HYDRIC RATING ¹	AREA WITHIN ESC (ac.)
BeA	Bennington silt loam, 0 to 2 percent slopes	8	Predominately Non-Hydric	6.7
BgB	Bennington silt loam, 2 to 6 percent slopes	6	Predominately Non-Hydric	21.7
BgB2	Bennington silt loam, 2 to 6 percent slopes, eroded	0	Non-Hydric	0.9
Ble1A1	Blount silt loam, end moraine, 0 to 2 percent slopes	6	Predominately Non-Hydric	5.1
Ble1B1	Blount silt loam, end moraine, 2 to 4 percent slopes	6	Predominately Non-Hydric	10.1
Blg1A1	Blount silt loam, ground moraine, 0 to 2 percent slopes	9	Predominately Non-Hydric	0.9
Ch	Chagrin silt loam, occasionally flooded	0	Non-Hydric	0.9
Cr	Condit-Bennington silt loams	60	Partially Hydric	21.3
Crd1B1	Cardington silt loam, 2 to 6 percent slopes	7	Predominately Non-Hydric	1.2
Crd1C2	Cardington silt loam, 6 to 12 percent slopes, eroded	4	Predominately Non-Hydric	1.0
DmA	Digby loam, 1 to 4 percent slopes	5	Predominately Non-Hydric	0.7
GaB	Gallman loam, 2 to 6 percent slopes	0	Non-Hydric	2.4
Gwd5C2	Glynwood clay loam, 6 to 12 percent slopes, eroded	0	Non-Hydric	1.5
Gwe1B1	Glynwood silt loam, end moraine, 2 to 6 percent slopes	6	Predominately Non-Hydric	4.4
HaB	Haney loam, 2 to 6 percent slopes	0	Non-Hydric	0.1
Mm	Millsdale silty clay loam	95	Predominately Hydric	2.0



TABLE 4-1: SOIL UNITS MAPPED WITHIN THE ESC

SOIL UNIT SYMBOL	SOIL UNIT NAME	PERCENT HYDRIC	HYDRIC RATING ¹	AREA WITHIN ESC (ac.)
MoB	Milton variant loam, 2 to 6 percent slopes	7	Predominately Non-Hydric	4.7
Pa	Pandora silt loam	92	Predominately Hydric	12.4
Pm	Pewamo silty clay loam, low carbonate till, 0 to 2 percent slopes	94	Predominately Hydric	2.4
RmB	Rawson loam, 2 to 6 percent slopes	0	Non-Hydric	0.7
Sb	Sebring silt loam	100	All Hydric	0.6
Sh	Shoals silt loam, 0 to 2 percent slopes, frequently flooded	8	Predominately Non-Hydric	2.4
TrA	Tiro silt loam, 0 to 2 percent slopes	8	Predominately Non-Hydric	36.5
TrB	Tiro silt loam, 2 to 6 percent slopes	3	Predominately Non-Hydric	1.5
TuB	Tuscola-Bennington complex, 2 to 6 percent slopes	20	Predominately Non-Hydric	0.7
Ud	Udorthents, loamy	0	Non-Hydric	0.3

Total Area of Non-Hydric Soils 7.0
 Total Area of Predominately Non-Hydric Soils 97.5
 Total Area of Partially Hydric Soils 21.3
 Total Area of Predominately Hydric Soils 16.7
 Total Area of All Hydric Soils 0.6

¹Non-Hydric = 0% hydric soil component; Predominately Non-Hydric = 1-32%; Partially Hydric =33-65%; Predominately Hydric = 66-99%; and All Hydric = 100%.
 Source: Soil Survey Staff, NRCS. Web Soil Survey.

4.1.2 NATIONAL WETLAND INVENTORY REVIEW

According to the NWI maps of the Bloomfield, Chatfield, and South Tiffin, Ohio quadrangle boundaries, there are nine mapped NWI features within the ESC. The documented NWI features within the ESC and associated identified resources are presented in Table 4-2. The location of the NWI mapped wetlands are shown on Figure 2 (Appendix A).

TABLE 4-2: NWI FEATURES MAPPED WITHIN THE ESC

NWI CODE	NWI DESCRIPTION	MAP PAGE	ASSOCIATED DELINEATED RESOURCE
R5UBH	Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded	Pages 1 – 2 of 23	Stream C-M 001 (Perennial) / Stream AR 001 (Intermittent)
R4SBC	Riverine, Intermittent, Stream Bed, Seasonally Flooded	Page 4 of 23	Stream C-M 002 (Ephemeral)
R2UBH	Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded	Page 4 of 23	Stream C-M 003 (Perennial) - Honey Creek
R4SBC	Riverine, Intermittent, Stream Bed, Seasonally Flooded	Pages 6 – 8 of 23	Stream C-M 004 (Intermittent)
R4SBC	Riverine, Intermittent, Stream Bed, Seasonally Flooded	Page 9 of 23	No Resources Identified
R4SBC	Riverine, Intermittent, Stream Bed, Seasonally Flooded	Page 11 of 23	No Resources Identified



TABLE 4-2: NWI FEATURES MAPPED WITHIN THE ESC

NWI CODE	NWI DESCRIPTION	MAP PAGE	ASSOCIATED DELINEATED RESOURCE
R4SBC	Riverine, Intermittent, Stream Bed, Seasonally Flooded	Page 15 of 23	Stream C-M 005 (Perennial)
R4SBC	Riverine, Intermittent, Stream Bed, Seasonally Flooded	Page 20 of 23	No Resources Identified
PFO1C	Palustrine, Forested, Broad Leaf Deciduous, Seasonally Flooded	Page 23 of 23	No Resources Identified

Source: USFWS National Wetlands Inventory Map.

4.1.3 FEMA FLOODPLAIN REVIEW

According to Federal Emergency Management Agency (FEMA) National Flood Hazard Layer, the Project crosses the 100-year floodplains of Honey Creek and Sycamore Creek. The location of the documented 100-year floodplain boundaries in relation to the ESC is depicted on Figure 2 (Appendix A).

4.2 DELINEATED WETLANDS

During environmental surveys of the ESC, the WSP ecologists identified two wetlands totaling 0.10 acres, containing a mix of wet-mesic species. The identified wetlands were both 0.05 acres within the ESC. Both delineated wetlands were identified as a palustrine emergent (PEM) wetlands. Both identified wetlands were determined to be Category One wetlands. No Category Two or Category Three wetlands were identified within the ESC. One identified wetland (Wetland C-M 001) appears to drain to an adjacent surface water (Stream C-M 006) and will likely be considered jurisdictional. The remaining wetland appears to be hydrologically isolated and is therefore not likely to be considered jurisdictional by the USACE. It should be noted that final determination of wetland jurisdiction will be made by the USACE. The identified wetlands in relation to the ESC are shown on Figure 3, Appendix A.

Table 4-3 provides specific wetland habitat types, acreages within the ESC, ORAM category, as well as information regarding jurisdictional status. USACE wetland determination forms are provided in Appendix B. ORAM forms are included in Appendix C. Representative photographs of the wetland as well as the upland verification data point were taken and are provided in Appendix E.

TABLE 4-3: WETLANDS DELINEATED WITHIN THE ESC

WETLAND ID	LOCATION		COWARDIN CLASS. ¹	DELINEATED AREA ² (acres)	ORAM		HYDROLOGIC CONNECTION	PROXIMAL WATERBODY
	LAT.	LON.			SCORE	CATEGORY		
Wetland C-M 001	40.9735	-82.9649	PEM	0.05	23	Category 1	Yes	Stream C-M 006
Wetland C-M 002	40.9713	-82.9587	PEM	0.05	18	Category 1	No	N/A
Sum of PEM Wetland Areas				0.10				
Total Wetland Area				0.10				

¹PEM = palustrine emergent, PSS = palustrine scrub/shrub. PFO = palustrine forested;

²Acreages reflect the area delineated within the ESC and are approximate based on GPS data and are rounded to the nearest 0.01-acre.



4.3 STREAMS AND RIVERS

During the environmental survey, the WSP ecologists identified seven streams totaling 1,013 linear feet within the ESC. Three of the seven streams were identified as perennial (641 linear feet) and were actively flowing during the May 11, 2022, field survey. Three streams were identified as intermittent (257 linear feet), and the remaining stream was identified as ephemeral (115 linear feet). One perennial stream (Stream C-M 003) was named stream Honey Creek and is designated as a Warm Water Habitat (WWH) and was not assessed using the QHEI or HHEI methodology. One perennial stream (Stream C-M 001) was assessed using the QHEI methodology. One perennial stream (Stream C-M 005) and all intermittent and ephemeral streams were assessed using the HHEI methodology. All unnamed streams were identified to be unnamed tributaries to Honey Creek or Silver Creek, which drain to the Sandusky River, which is a TNW. It should be noted that the USACE will make the final determination of jurisdictional status. All identified streams had defined bed and bank, with substrates containing bedrock, boulders, gravel, silt, clay, and/or leaf pack, and had drainage basins ranging in size from 146 mi² (Honey Creek) to <0.01 mi² (Unnamed Tributaries).

Locations of the identified streams within the ESC are shown in Figure 3 (Appendix A). Table 4-4 provides waterbody name, flow regime, stream length within the ESC, field evaluation data and Ohio EPA Section 401 eligibility. Completed OEPA HHEI and QHEI forms are provided in Appendix D. Representative photographs were taken of each stream during the field survey and are provided in Appendix E.

In addition to the jurisdictional streams identified, all swales, ditches, erosional features, and other surface drainages within the ESC were also evaluated for consideration as jurisdictional Waters of the U.S. with respect to the Clean Water Act. Jurisdictional ditches must meet the definition of tributary, have an OHWM, and flow directly or indirectly through another water to a TNW. Multiple erosional features, roadside ditches, and vegetated swales were observed throughout the ESC, however, none of the identified ditches or drainages would be considered jurisdictional within the ESC. These features were excavated in upland soils to convey upland drainage and had no defined bed and bank or flow regime to constitute a Waters of the U.S. designation. Locations of identified non-jurisdictional drainages identified within the ESC are shown in Figure 3, Appendix A.

TABLE 4-4: STREAMS MAPPED WITHIN THE ESC

STREAM ID	LOCATION		STREAM NAME	STREAM TYPE	DELINEATED LENGTH (FEET)	BANKFULL WIDTH (FEET)	OHWM WIDTH (FEET)	FIELD EVALUATION			OHIO EPA 401 ELIGIBILITY
	LAT	LONG						METHOD	SCORE	CLASS	
Stream C-M 001	41.0397	-83.1253	UNT to Honey Creek	Perennial	320	12	4	QHEI	37	Poor	Eligible
Stream C-M 002	41.0285	-83.101	UNT to Honey Creek	Ephemeral	115	6	2	HHEI	26	Modified Ephemeral Stream	Eligible
Stream C-M 003	41.0257	-83.0946	Honey Creek	Perennial	102	80	65	N/A	0	WWH	Eligible
Stream C-M 004	41.0234	-83.0893	UNT to Honey Creek	Intermittent	114	6	2	HHEI	37	Modified Small Drainage Warmwater Stream	Eligible
Stream C-M 005	40.9943	-83.0191	UNT to Silver Creek	Perennial	219	9	3	HHEI	61	Modified Small Drainage Warmwater Stream	Eligible
Stream C-M 006	40.9732	-82.9639	UNT to Silver Creek	Intermittent	121	15	3	HHEI	56	Modified Small Drainage Warmwater Stream	Eligible



TABLE 4-4: STREAMS MAPPED WITHIN THE ESC

STREAM ID	LOCATION		STREAM NAME	STREAM TYPE	DELINEATED LENGTH (FEET)	BANKFULL WIDTH (FEET)	OHWM WIDTH (FEET)	FIELD EVALUATION			OHIO EPA 401 ELIGIBILITY
	LAT	LONG						METHOD	SCORE	CLASS	
Stream AR 001	41.0367	-83.1174	UNT to Honey Creek	Intermittent	22	5	2	HHEI	36	Modified Small Drainage Warmwater Stream	Eligible

Length of Perennial Streams	641
Length of Intermittent Streams	257
Length of Ephemeral Streams	115
Total Stream Length in ESC	1,013

Notes: UNT = unnamed tributary, WWH = Warmwater Habitat, EWH = Exceptional Warmwater Habitat
 Lengths are approximate based on GPS data and are rounded to the nearest foot.

4.4 PONDS AND OPEN WATER

During the May 11, 2022, field surveys, WSP ecologists did not identify any open water features within the 143.1-acre ESC. Representative photographs of the ESC are provided in Appendix E.

4.5 VEGETATIVE COMMUNITIES

The WSP ecologists conducted a general habitat survey in conjunction with the stream and wetland field surveys. A variety of woody and herbaceous habitats, as described below in Table 4-5, are present within the ESC. A breakdown of vegetated land cover is provided, overlain on aerial photography in Figure 4 (Appendix A).

The ESC is primarily comprised of Cultivated Cropland and Old Field habitat among others, which were less prevalent.



TABLE 4-5: VEGETATIVE COMMUNITIES WITHIN THE ESC

VEGETATIVE COMMUNITY	DESCRIPTION	ACREAGE WITHIN THE ESC	PERCENTAGE OF ESC
Cultivated Cropland	Agricultural land primarily consisting of soybean and corn fields were present within the ESC.	127.8	89.3%
Developed, High Intensity	These areas consist of developed residential, industrial, and commercial land uses, including roads, buildings, and parking lots. These areas are generally devoid of significant vegetation.	4.7	3.3%
Developed, Open Space	Developed areas, including residential and commercial properties, were observed within the ESC. These landscaped areas are frequently mowed or maintained grasses and forbs.	5.6	3.9%
Old Field	Old Field habitats represent the successional stage between Developed, Open Space and Scrub/Shrub habitat. Often times these areas are previously developed areas that have been left fallow, which area maintained (mowed) once or twice a year.	4.84	5.7%
Wetlands, Streams and Waterbodies	Wetlands, Streams, and Open Water features delineated within the ESC boundaries.	0.1	0.1%
Total		143.1	100%

4.6 THREATENED AND ENDANGERED SPECIES COORDINATION

The first phase of the evaluation involved a review of online lists of federal and state species of concern. In addition to the review of available literature and a request for Environmental Review was submitted to the Ohio Department of Natural Resources (ODNR). A coordination letter was also submitted to the USFWS soliciting comments on the Project. Detailed descriptions of the agency coordination are provided in proceeding sections. Correspondence from the USFWS and ODNR is included as Appendix G.

4.6.1 USFWS COORDINATION

A request for review was submitted to the USFWS on June 1, 2022. In an email dated June 3, 2021 the USFWS provided comments on the Project with regard to federally-listed threatened and endangered species within the Project vicinity. The USFWS indicated that there are no federal wildlife refuges, wilderness areas, or critical habitat within the vicinity of the Project. Comments from USFWS regarding protected species are provided in Table 4-6. The USFWS review comments has been included in Appendix G.



4.6.2 ODNR COORDINATION

A request for Environmental Review was submitted to the ODNR on June 1, 2022. The ODNR Environmental Review response dated June 28, 2022 included comments from the Ohio Natural Heritage Database Program, Division of Wildlife (DOW), and Division of Water Resources. A review of Natural Heritage Database identified no records of state- and/or federally-listed species, high-quality native communities, or protected natural areas within the vicinity of the Project. However, the ranges of multiple species were within a one-mile radius of the ESC. Using this as guidance, WSP has provided observations of threatened and endangered species habitat within the vicinity of the ESC in Table 4-6. The ODNR Environmental Review has been included in Appendix G.

TABLE 4-6: LISTED SPECIES COMMENTED ON BY ODNR AND USFWS

COMMON NAME (SCIENTIFIC NAME)	STATE STATUS	FEDERAL STATUS	HABITAT DESCRIPTION	POTENTIAL HABITAT OBSERVED IN ESC	AGENCY COMMENT	WSP IMPACT ASSESSMENT
Mammals						
Indiana bat (<i>Myotis sodalis</i>)	Endangered	Endangered	Winter hibernacula are provided by caves and mines. Summer roost habitat typically includes live or dead trees with exfoliating bark, crevices, or cavities that can be used for roosting. Open sub-canopy areas and flight corridors are important to allow maneuvering during foraging. Proximity to water sources provides a greater density of insect prey.	Yes	USFWS and ODNR comments recommended seasonal tree clearing dates (October 1 through March 31) to avoid impacts protected bat species.	Potentially suitable habitat may be provided by forested areas within the ESC. No potential hibernacula were identified within 0.25-miles of the ESC.
little brown bat (<i>Myotis lucifugus</i>)	Endangered	Not Listed			Additionally, the ODNR indicated that the Project is in the vicinity of records of the little brown bat and Indiana bat. Because of the presence of the state-endangered bat species, summer tree clearing is not recommended.	No impact to these species or their habitat is anticipated to occur if seasonal tree-clearing windows are observed.



TABLE 4-6: LISTED SPECIES COMMENTED ON BY ODNR AND USFWS

COMMON NAME (SCIENTIFIC NAME)	STATE STATUS	FEDERAL STATUS	HABITAT DESCRIPTION	POTENTIAL HABITAT OBSERVED IN ESC	AGENCY COMMENT	WSP IMPACT ASSESSMENT
northern long-eared bat (<i>Myotis septentrionalis</i>)	Threatened	Threatened	<p>Winter hibernacula are provided by caves and mines. Summer roost habitat typically includes live or dead trees with exfoliating bark, crevices, or cavities that can be used for roosting. Open sub-canopy areas and flight corridors are important to allow maneuvering during foraging. Proximity to water sources provides a greater density of insect prey.</p>	Yes	<p>USFWS and ODNR comments recommended seasonal tree clearing dates (October 1 through March 31) to avoid impacts protected bat species and a desktop hibernacula survey to be completed for presence of potential winter habitat.</p>	<p>Potentially suitable habitat may be provided by forested areas within the ESC.</p>
tri-colored bat (<i>Perimyotis subflavus</i>)	Endangered	Not Listed				<p>No potential hibernacula were identified within 0.25-miles of the ESC.</p> <p>No impact to these species or their habitat is anticipated to occur if seasonal tree-clearing windows are observed.</p>
Reptiles						
Blanding's turtle (<i>Emydoidea blandingii</i>)	Threatened	Not Listed	<p>This species inhabits marshes, ponds, lakes, streams, wet meadows, and swampy forests. Although essentially aquatic, the Blanding's turtle will travel over land as it moves from one wetland to the next.</p>	No	<p>ODNR indicated that due to the location, the type of habitat within the project area, and the type of work proposed, this project is not likely to impact this species.</p>	<p>No impact to this species or its habitat is anticipated to occur.</p>
spotted turtle (<i>Clemmys guttata</i>)	Threatened	Not Listed	<p>This species prefers fens, bogs and marshes, but also is known to inhabit wet prairies, meadows, pond edges, wet woods, and the shallow sluggish waters of small streams and ditches.</p>	No		



TABLE 4-6: LISTED SPECIES COMMENTED ON BY ODNR AND USFWS

COMMON NAME (SCIENTIFIC NAME)	STATE STATUS	FEDERAL STATUS	HABITAT DESCRIPTION	POTENTIAL HABITAT OBSERVED IN ESC	AGENCY COMMENT	WSP IMPACT ASSESSMENT
Fish						
longnose sucker (<i>Catostomus</i> <i>Catostomus</i>)	Endangered	Not Listed	Inhabits cold, clear waters, including lakes, pools, rivers and streams, and occasionally also brackish waters	Yes	The DOW recommends no in-water work in perennial streams from March 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact these or other aquatic species.	No in-stream work is anticipated, therefore no impacts to these species or their habitat is anticipated.
greater redhorse (<i>Moxostoma valenciennesi</i>)	Threatened	Not Listed	Partial to clean, fresh water. It is usually found in the sandy or rocky bottoms of medium to large rivers, creeks, and lakes. It needs clean gravel or riffles in order to spawn.	Yes		
Birds						
king rail (<i>Rallus elegans</i>)	Endangered	Not Listed	Nests for this species are deep bowls constructed out of grass and usually hidden very well in marsh vegetation.	No	If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 through July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.	Potentially suitable habitat was not identified within the ESC, therefore no impacts to these species or their habitat are anticipated to occur.
least bittern (<i>Ixobrychus exilis</i>)	Threatened	Not Listed	This secretive marsh species prefers dense emergent wetlands with thick stands of cattails, sedges, sawgrass or other semiaquatic vegetation interspersed with woody vegetation and open water.	No		



TABLE 4-6: LISTED SPECIES COMMENTED ON BY ODNR AND USFWS

COMMON NAME (SCIENTIFIC NAME)	STATE STATUS	FEDERAL STATUS	HABITAT DESCRIPTION	POTENTIAL HABITAT OBSERVED IN ESC	AGENCY COMMENT	WSP IMPACT ASSESSMENT
loggerhead shrike (<i>Lanius ludovicianus</i>)	Endangered	Not Listed	The loggerhead shrike nests in hedgerows, thickets and fencerows. They hunt over hayfields, pastures, and other grasslands.	No	If thickets or other types of dense shrubbery habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 1 through July 31. If this habitat will not be impacted, this project is not likely to impact this species.	Potentially suitable habitat was not identified within the ESC, therefore no impacts to these species or their habitat are anticipated to occur.
northern harrier (<i>Circus hudsonis</i>)	Endangered	Not Listed	Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds a nest out of sticks on the ground, often on top of a mound. Harriers hunt over grasslands.	No	If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this habitat will not be impacted, the project is not likely to impact this species.	
upland sandpiper (<i>Bartramia longicauda</i>)	Endangered	Not Listed	Nesting upland sandpipers utilize dry grasslands including native grasslands, seeded grasslands, grazed and ungrazed pasture, hayfields, and grasslands established through the Conservation Reserve Program (CRP).	No	If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this habitat will not be impacted, the project is not likely to impact this species.	



5 SUMMARY

WSP conducted environmental surveys of the proposed approximately 11.5-mile-long Chatfield – Melmore 138 kV Transmission Line Project on May 11, 2022. Two wetlands and seven streams were delineated by WSP ecologists within the 143.1-acre ESC. No potential hibernacula were identified within 0.25-miles of the ESC and no potential hibernacula were identified within the ESC during the field survey.

WSP Ecologists delineated two wetlands totaling 0.1 acres, within the 143.1-acre ESC. The identified wetlands were identified as PEM wetlands, measuring 0.05 acres each, within the ESC. Both identified wetlands were determined to be Category One wetlands. No Category Two or Category Three wetlands were identified within the ESC. One identified wetland (Wetland C-M 001) appears to drain to an adjacent surface water (Stream C-M 006) and will likely be considered jurisdictional. The remaining wetland appears to be hydrologically isolated and is therefore not likely to be considered jurisdictional by the USACE. Seven streams totaling 1,013 linear feet within the ESC. Three of the seven streams were identified as perennial and were actively flowing during the May 11, 2022, field survey. Three of the seven streams were identified as intermittent, and the remaining stream was identified as ephemeral. One named stream (Honey Creek) was identified as perennial and is designated as a Warm Water Habitat (WWH) and was not assessed using the QHEI or HHEI methodology. One perennial stream was assessed using the QHEI methodology. One perennial stream and all intermittent and ephemeral streams were assessed using the HHEI methodology. No open water features were identified, within the ESC. The results discussed in this report are confined to the ESC limits described in earlier sections and depicted on Figure 3 (Appendix A).

Based on observations within the ESC during environmental surveys, USFWS comments, and ODNR comments, potential impacts to the Indiana bat and northern long-eared bat are not anticipated if the recommended seasonal clearing dates are utilized. Forested areas that would typically provide potential summer roost habitat for bat species, were located within the ESC, however forested areas had been cleared and/or impacted at the time of the environmental survey and no longer provide potential habitat to bat species during summer months.

WSP performed a desktop review for potential hibernacula within the vicinity of the Project as a result of comments from ODNR relating to state- and federally-listed bat species. Topographic maps did not depict caves, cliffs/ledges, or karst topography within a three-mile radius of the ESC. A review of aerial imagery also did not provide evidence of these habitat types. No abandoned underground mines (AUMs) or potential hibernacula were identified within 0.25-miles of the ESC and no potential hibernacula were identified within the ESC during the field survey. All tree clearing will occur within the recommended clearing window (October 1st – March 31st), to avoid any impacts to these species or their habitat. If any tree clearing will occur outside the recommended clearing window appropriate coordination with USFWS and ODNR will occur to seek permission for out of season tree clearing. Additional information pertaining to the state- and federally-listed bat species is provided in Table 4-6.

It is anticipated that in-stream work is not necessary, therefore no mussel surveys are necessary related to protected mussel species. Additionally, no construction timing windows are required to protect any state- and/or federally-listed fish species.

Potentially suitable habitat for some state and/or federally listed bird species was not identified within the ESC. Based on the response from ODNR-DOW, due to the location, the type of habitat within the Project area, and the type of work proposed, this Project is not likely to impact these species, or their habitat.

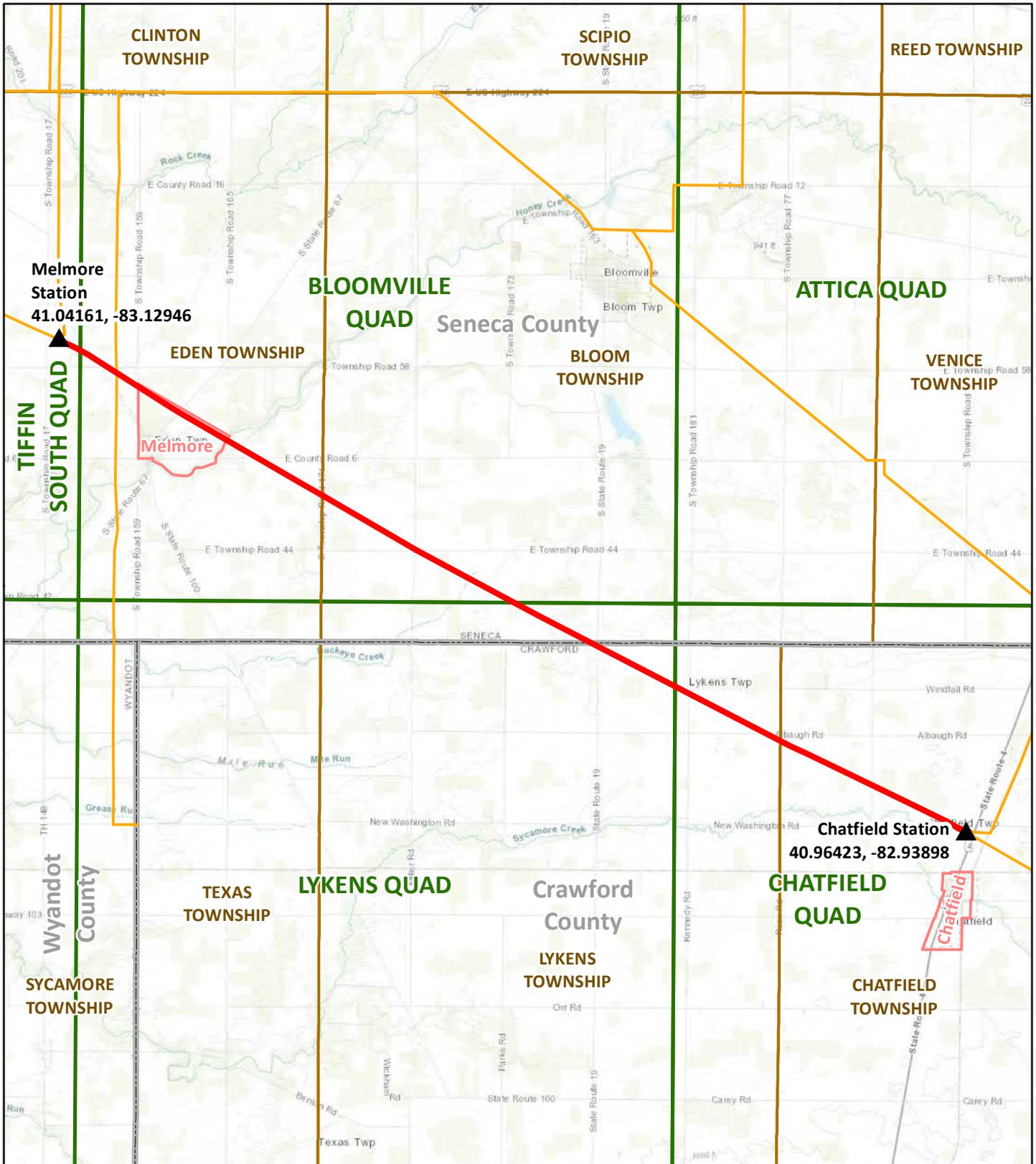


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APPENDIX

A FIGURES



- ▲ Existing Substation
- Chatfield - Melmore 138 kV Transmission Line
- Existing Transmission Line
- ▭ Municipal Boundary
- ▭ Township Boundary
- ▭ County Boundary
- ▭ USGS 24k Topo Quad Boundary

Sources:
 Census Boundaries (ESRI 2021)
 Topo Quads (USGS 2019)

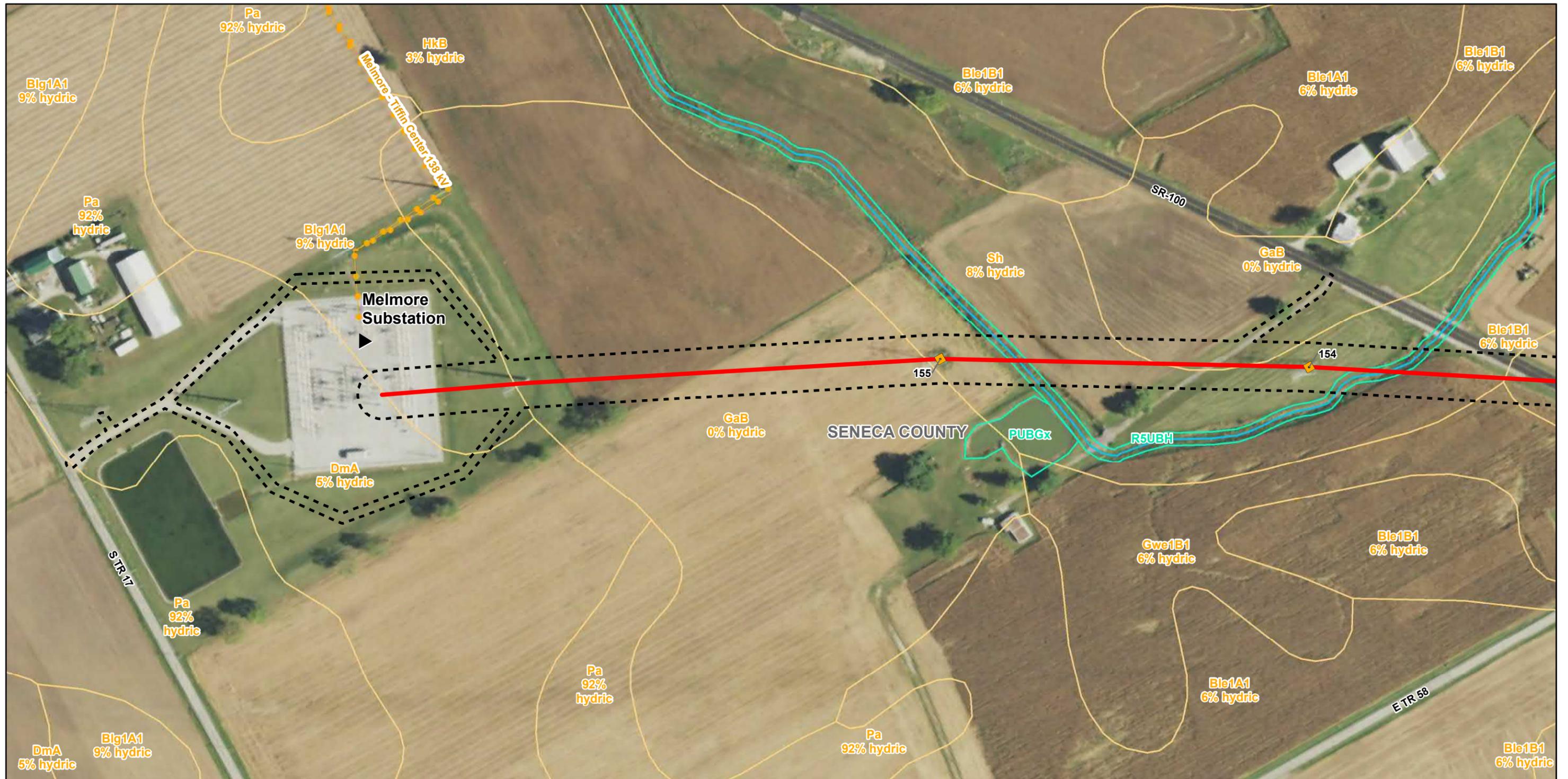
Coordinate System:
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 NAD 1983

April 4, 2022



CHATFIELD - MELMORE 138 KV TRANSMISSION LINE PROJECT
Figure 1. Project Location Map





- ▲ Substation
- Existing Structure
- Chatfield - Melmore 138 kV Transmission Line
- - - Environmental Survey Corridor
- NHD Stream
- NWI Wetlands
- Soil Map Unit
- Existing Transmission Line

▭ County Boundary

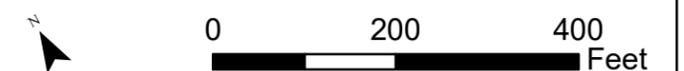
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 NRCS Soil Units (USDA 2021)
 Wetlands (USFWS 2020)

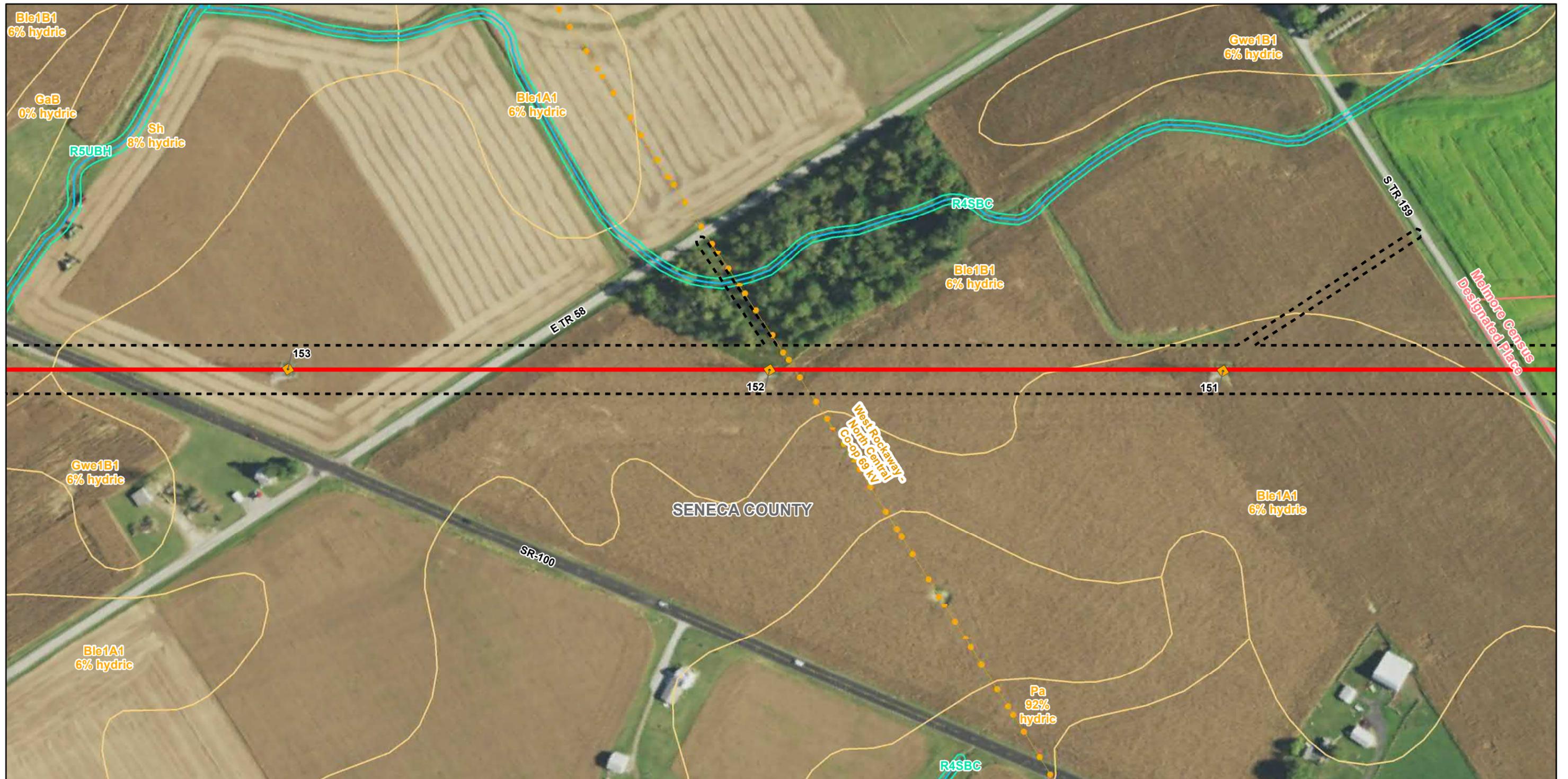
Coordinate System:
 Ohio State Plane North
 NAD 1983

August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT
Figure 2. Environmental Basemap





■ Existing Structure
— Chatfield - Melmore 138 kV Transmission Line
 Environmental Survey Corridor
— NHD Stream
 NWI Wetlands
 Soil Map Unit
—●— Existing Transmission Line
 Municipal Boundary

County Boundary

Page 2 of 23

Sources:
 Floodplains (FEMA 2017)
 Hydrography (USGS 2020)
 NAIP Imagery (USDA 2021)
 NRCS Soil Units (USDA 2021)
 Wetlands (USFWS 2020)

Coordinate System:
 Ohio State Plane North
 NAD 1983

August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT
Figure 2. Environmental Basemap

0
200
400
Feet



- Existing Structure
- Chatfield - Melmore 138 kV Transmission Line
- Environmental Survey Corridor
- NHD Stream
- NWI Wetlands
- Soil Map Unit
- Municipal Boundary
- County Boundary

Sources:
 Floodplains (FEMA 2017)
 Hydrography (USGS 2020)
 NAIP Imagery (USDA 2021)
 NRCS Soil Units (USDA 2021)
 Wetlands (USFWS 2020)

Coordinate System:
 Ohio State Plane North
 NAD 1983

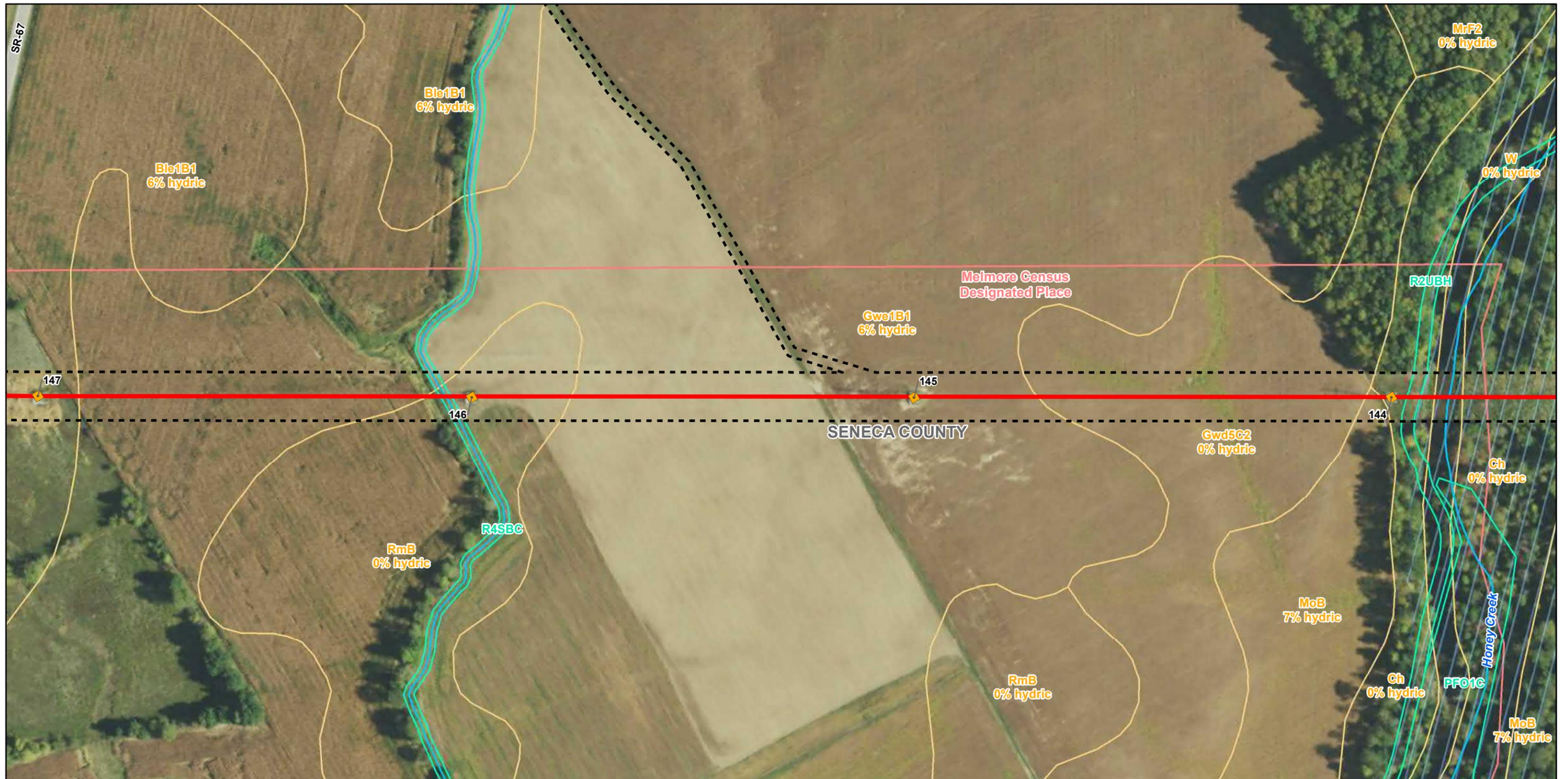
August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 2. Environmental Basemap





■ Existing Structure
— Chatfield - Melmore 138 kV Transmission Line
 Environmental Survey Corridor
— NHD Stream
 NWI Wetlands
 Soil Map Unit
 FEMA 100-Yr Floodplain
 Municipal Boundary

County Boundary

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Sources:
 Floodplains (FEMA 2017)
 Hydrography (USGS 2020)
 NAIP Imagery (USDA 2021)
 NRCS Soil Units (USDA 2021)
 Wetlands (USFWS 2020)

Coordinate System:
 Ohio State Plane North
 NAD 1983

August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT
Figure 2. Environmental Basemap

0
200
400
Feet



<ul style="list-style-type: none">  Environmental Survey Corridor  NHD Stream  NWI Wetlands  Soil Map Unit  County Boundary 	<p>Page 5 of 23</p> <p>Sources: Floodplains (FEMA 2017) Hydrography (USGS 2020) NAIP Imagery (USDA 2021) NRCS Soil Units (USDA 2021) Wetlands (USFWS 2020)</p>		<p>CHATFIELD - MELMORE 138 KV TRANSMISSION LINE PROJECT</p> <p>Figure 2. Environmental Basemap</p>
	<p>Coordinate System: Ohio State Plane North NAD 1983</p> <p>August 25, 2022</p>		 <p> 0 200 400 Feet</p>



- Existing Structure
- Chatfield - Melmore 138 kV Transmission Line
- Environmental Survey Corridor
- NHD Stream
- NWI Wetlands
- NHD Waterbody
- Soil Map Unit
- FEMA 100-Yr Floodplain
- Municipal Boundary
- County Boundary

Sources:
 Floodplains (FEMA 2017)
 Hydrography (USGS 2020)
 NAIP Imagery (USDA 2021)
 NRCS Soil Units (USDA 2021)
 Wetlands (USFWS 2020)

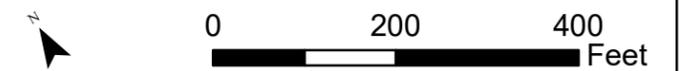
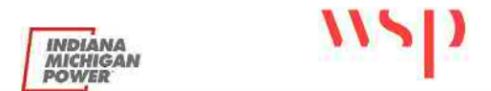
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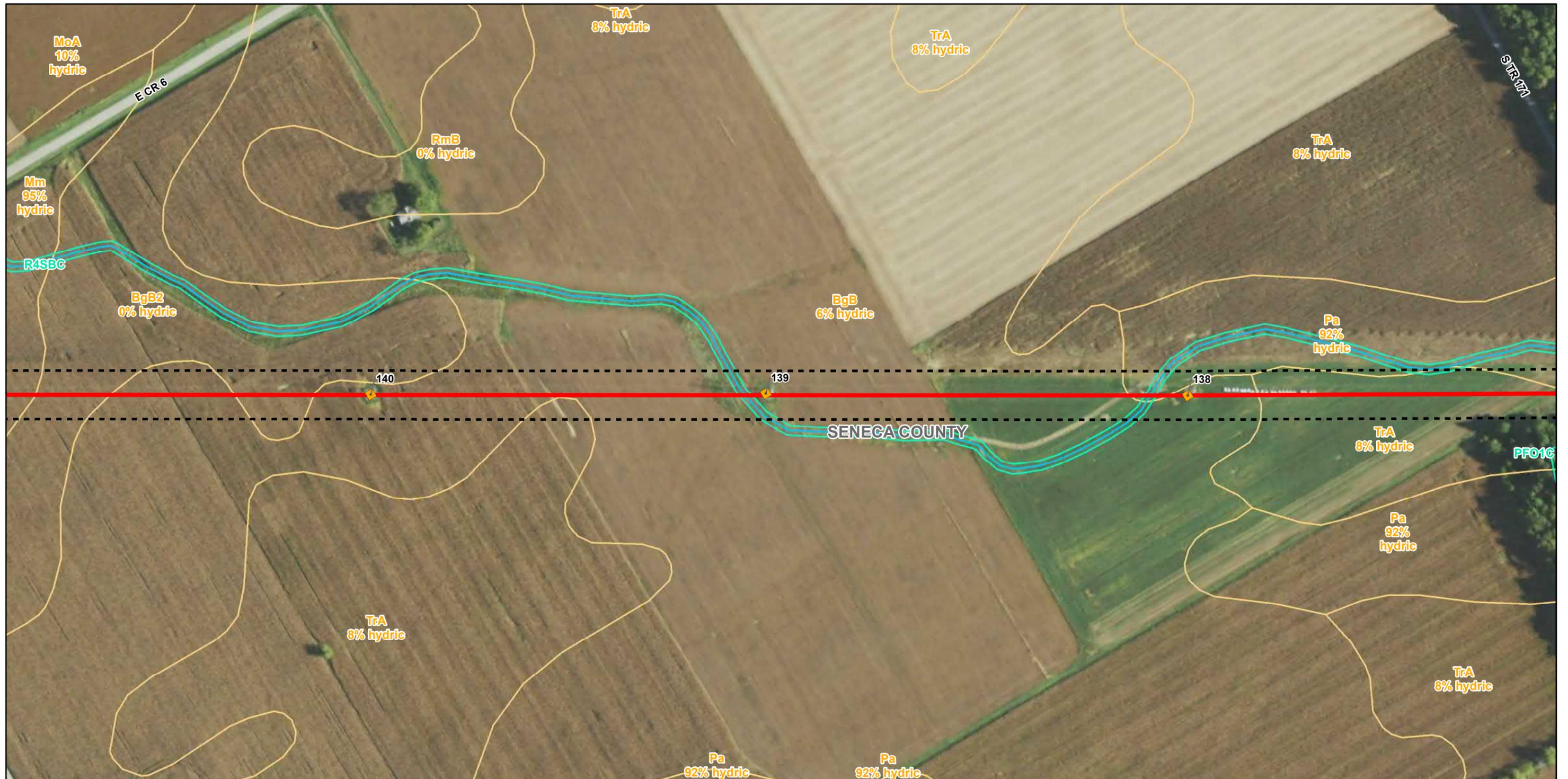
August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 2. Environmental Basemap





- Existing Structure
- Chatfield - Melmore 138 kV Transmission Line
- Environmental Survey Corridor
- NHD Stream
- NWI Wetlands
- Soil Map Unit
- County Boundary

Sources:
 Floodplains (FEMA 2017)
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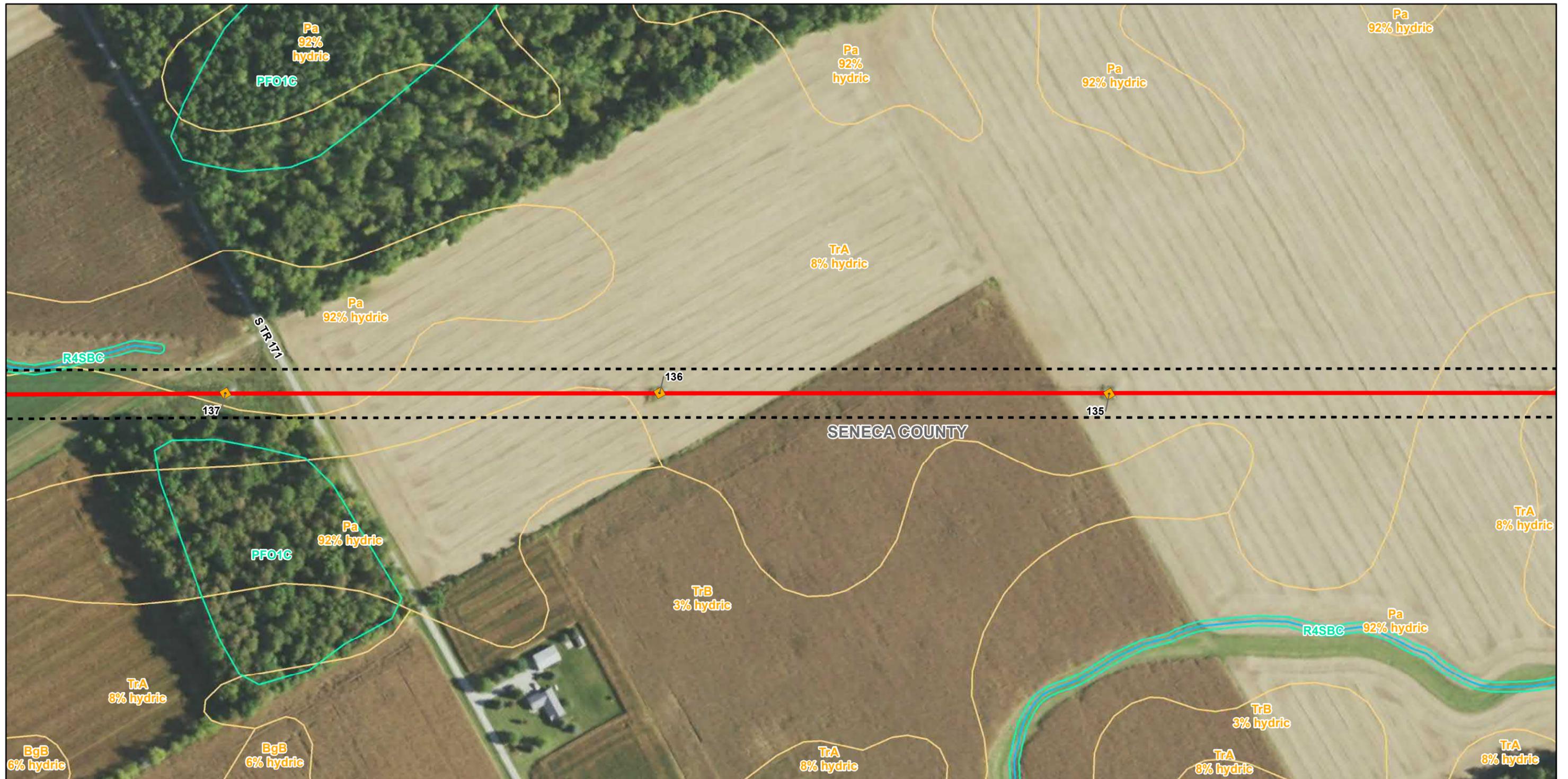
August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 2. Environmental Basemap





■ Existing Structure
— Chatfield - Melmore 138 kV Transmission Line
 Environmental Survey Corridor
— NHD Stream
 NWI Wetlands
 Soil Map Unit
 County Boundary

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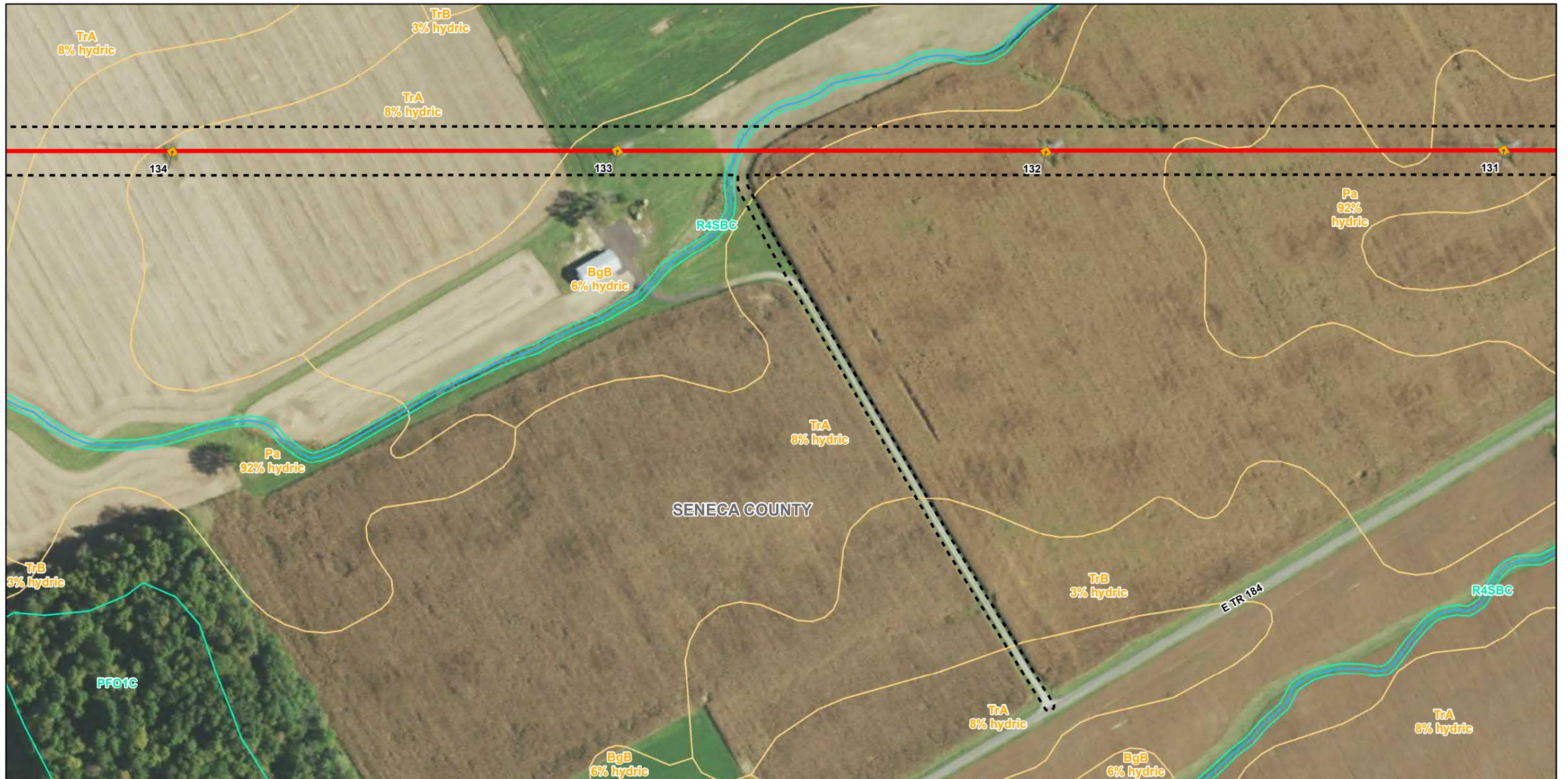
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 NRCS Soil Units (USDA 2021)
 Wetlands (USFWS 2020)

Coordinate System:
 Ohio State Plane North
 NAD 1983

August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT
Figure 2. Environmental Basemap



- Existing Structure
- Chatfield - Melmore 138 kV Transmission Line
- Environmental Survey Corridor
- NHD Stream
- NWI Wetlands
- Soil Map Unit
- County Boundary

Sources:
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 Hydrography (USGS 2020)
 NAIP Imagery (USDA 2021)
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 Wetlands (USFWS 2020)

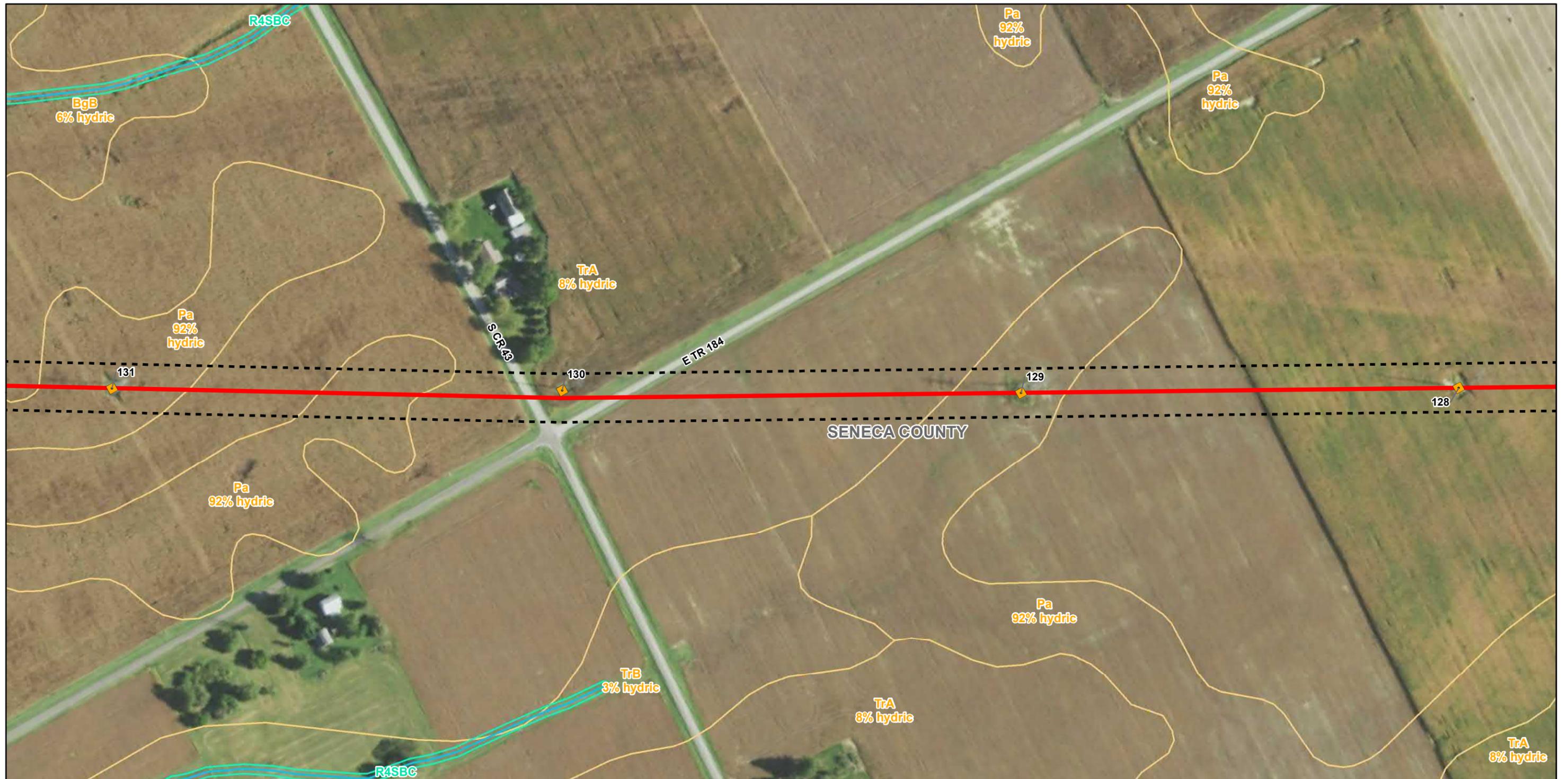
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August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT
Figure 2. Environmental Basemap





■ Existing Structure
— Chatfield - Melmore 138 kV Transmission Line
 Environmental Survey Corridor
— NHD Stream
 NWI Wetlands
 Soil Map Unit
 County Boundary

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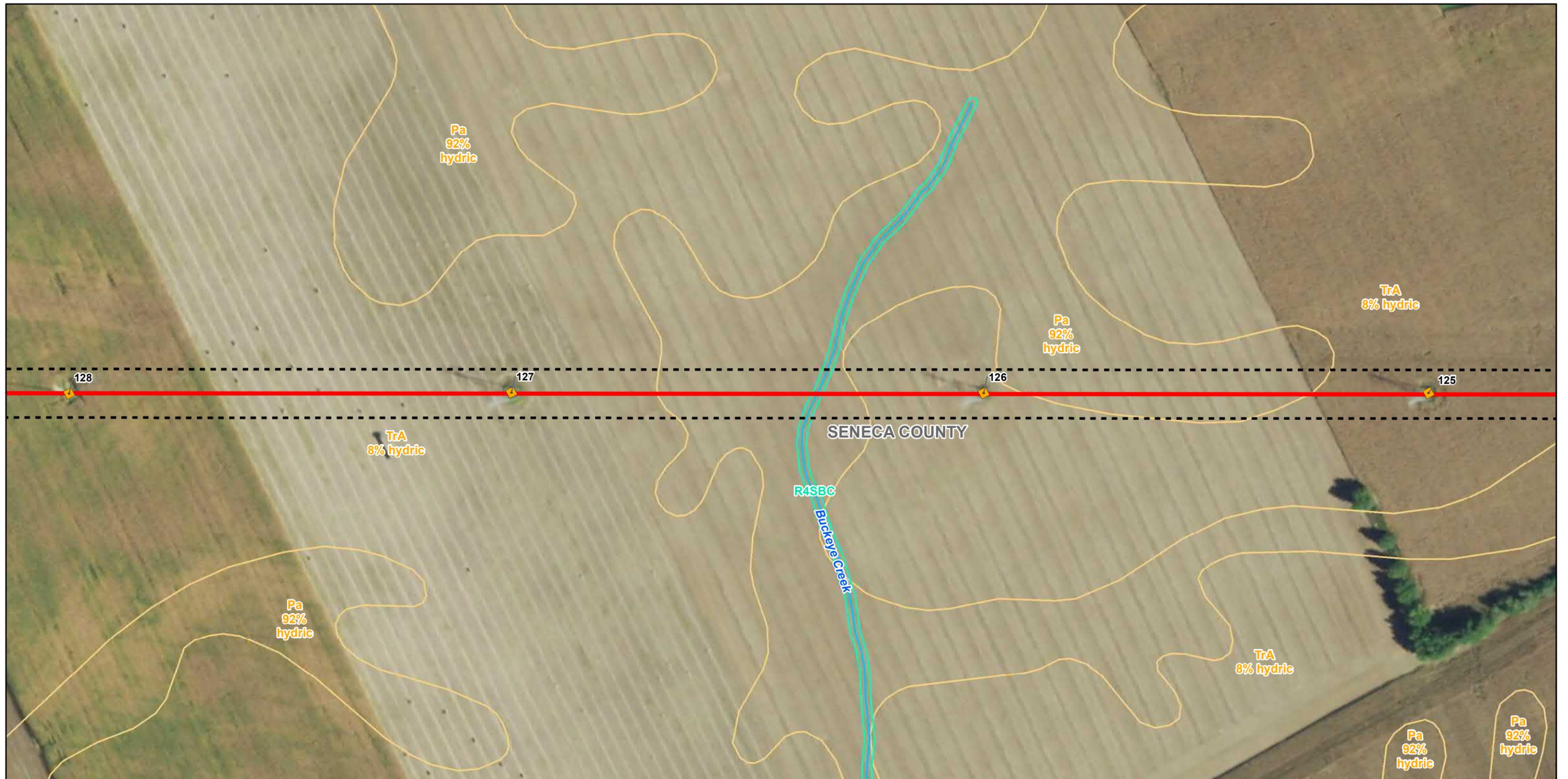
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 Wetlands (USFWS 2020)

Coordinate System:
 Ohio State Plane North
 NAD 1983

August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT
Figure 2. Environmental Basemap



- Existing Structure
- Chatfield - Melmore 138 kV Transmission Line
- Environmental Survey Corridor
- NHD Stream
- NWI Wetlands
- Soil Map Unit
- County Boundary

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 Wetlands (USFWS 2020)

Coordinate System:
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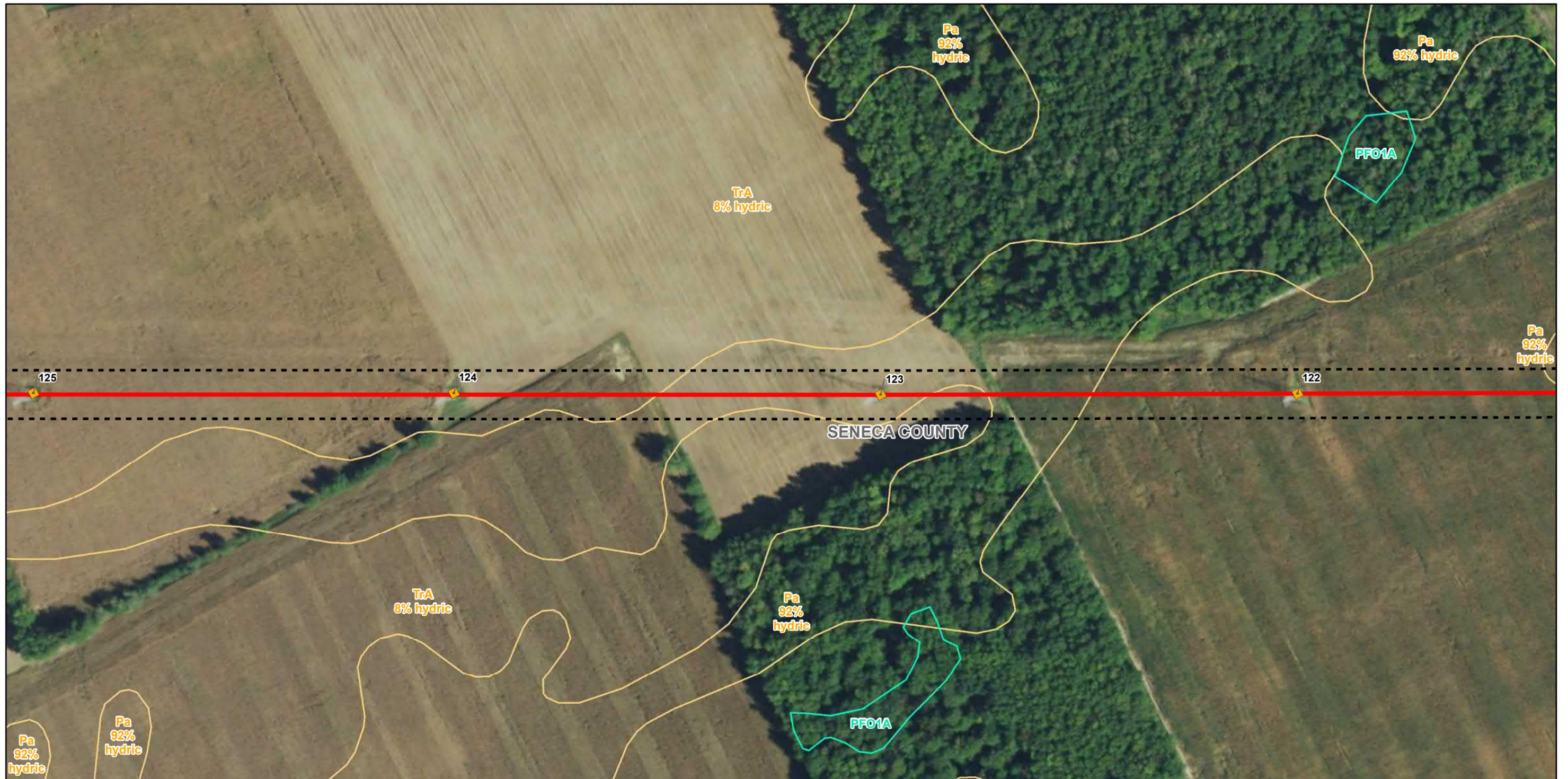
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CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 2. Environmental Basemap





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Sources:
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 Hydrography (USGS 2020)
 NAIP Imagery (USDA 2021)
 NRCS Soil Units (USDA 2021)
 Wetlands (USFWS 2020)

Coordinate System:
 Ohio State Plane North
 NAD 1983

August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 2. Environmental Basemap



■ Existing Structure
— Chatfield - Melmore 138 kV Transmission Line
 Environmental Survey Corridor
— NHD Stream
— NWI Wetlands
 Soil Map Unit
 County Boundary

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Sources:
 Floodplains (FEMA 2017)
 Hydrography (USGS 2020)
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 NRCS Soil Units (USDA 2021)
 Wetlands (USFWS 2020)

Coordinate System:
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 NAD 1983

August 25, 2022

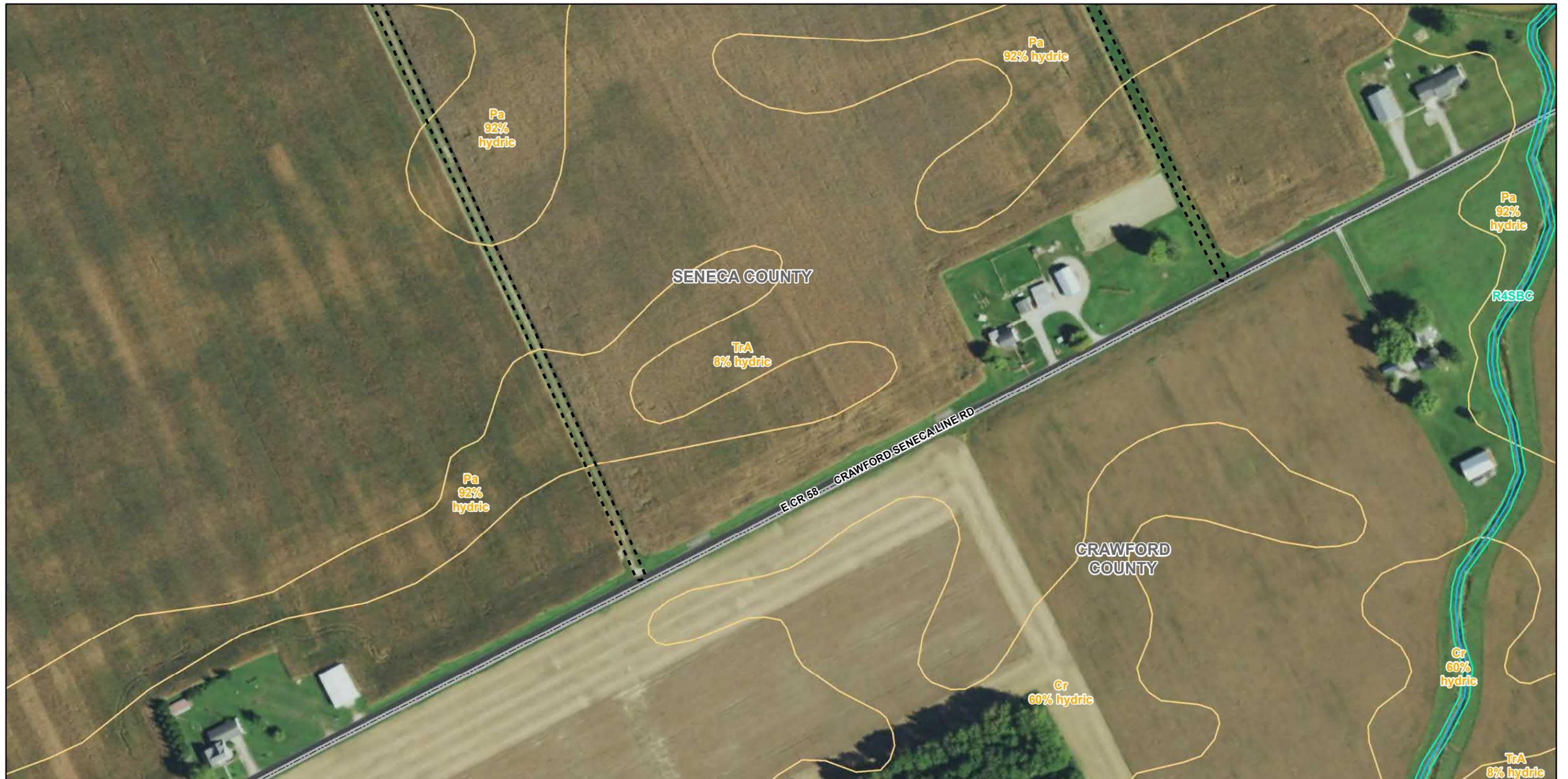


CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT
Figure 2. Environmental Basemap









-  Environmental Survey Corridor
-  NHD Stream
-  NWI Wetlands
-  Soil Map Unit
-  County Boundary

Sources:
 Floodplains (FEMA 2017)
 Hydrography (USGS 2020)
 NAIP Imagery (USDA 2021)
 NRCS Soil Units (USDA 2021)
 Wetlands (USFWS 2020)

Coordinate System:
 Ohio State Plane North
 NAD 1983

August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 2. Environmental Basemap





- Existing Structure
- Chatfield - Melmore 138 kV Transmission Line
- Environmental Survey Corridor
- NHD Stream
- NWI Wetlands
- NHD Waterbody
- Soil Map Unit
- County Boundary

Sources:
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 Wetlands (USFWS 2020)

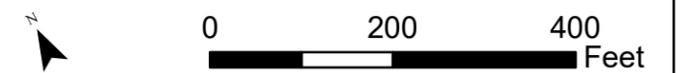
Coordinate System:
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 NAD 1983

August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 2. Environmental Basemap





■ Existing Structure
— Chatfield - Melmore 138 kV Transmission Line
 Environmental Survey Corridor
— NHD Stream
 NWI Wetlands
 Soil Map Unit
 County Boundary

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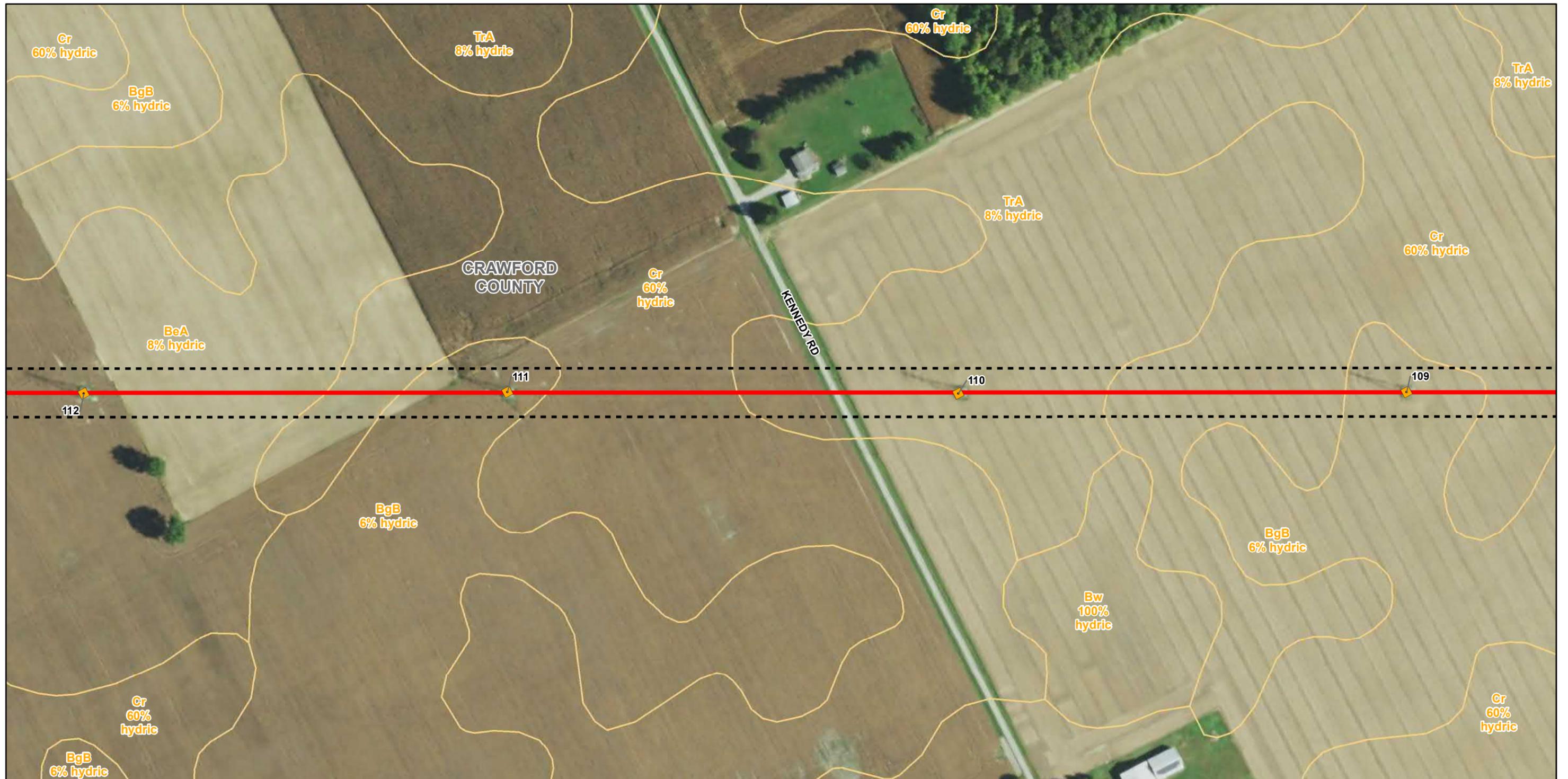
Sources:
 Floodplains (FEMA 2017)
 Hydrography (USGS 2020)
 NAIP Imagery (USDA 2021)
 NRCS Soil Units (USDA 2021)
 Wetlands (USFWS 2020)

Coordinate System:
 Ohio State Plane North
 NAD 1983

August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT
Figure 2. Environmental Basemap



-  Existing Structure
-  Chatfield - Melmore 138 kV Transmission Line
-  Environmental Survey Corridor
-  Soil Map Unit
-  County Boundary

Sources:
 Floodplains (FEMA 2017)
 Hydrography (USGS 2020)
 NAIP Imagery (USDA 2021)
 NRCS Soil Units (USDA 2021)
 Wetlands (USFWS 2020)

Coordinate System:
 Ohio State Plane North
 NAD 1983

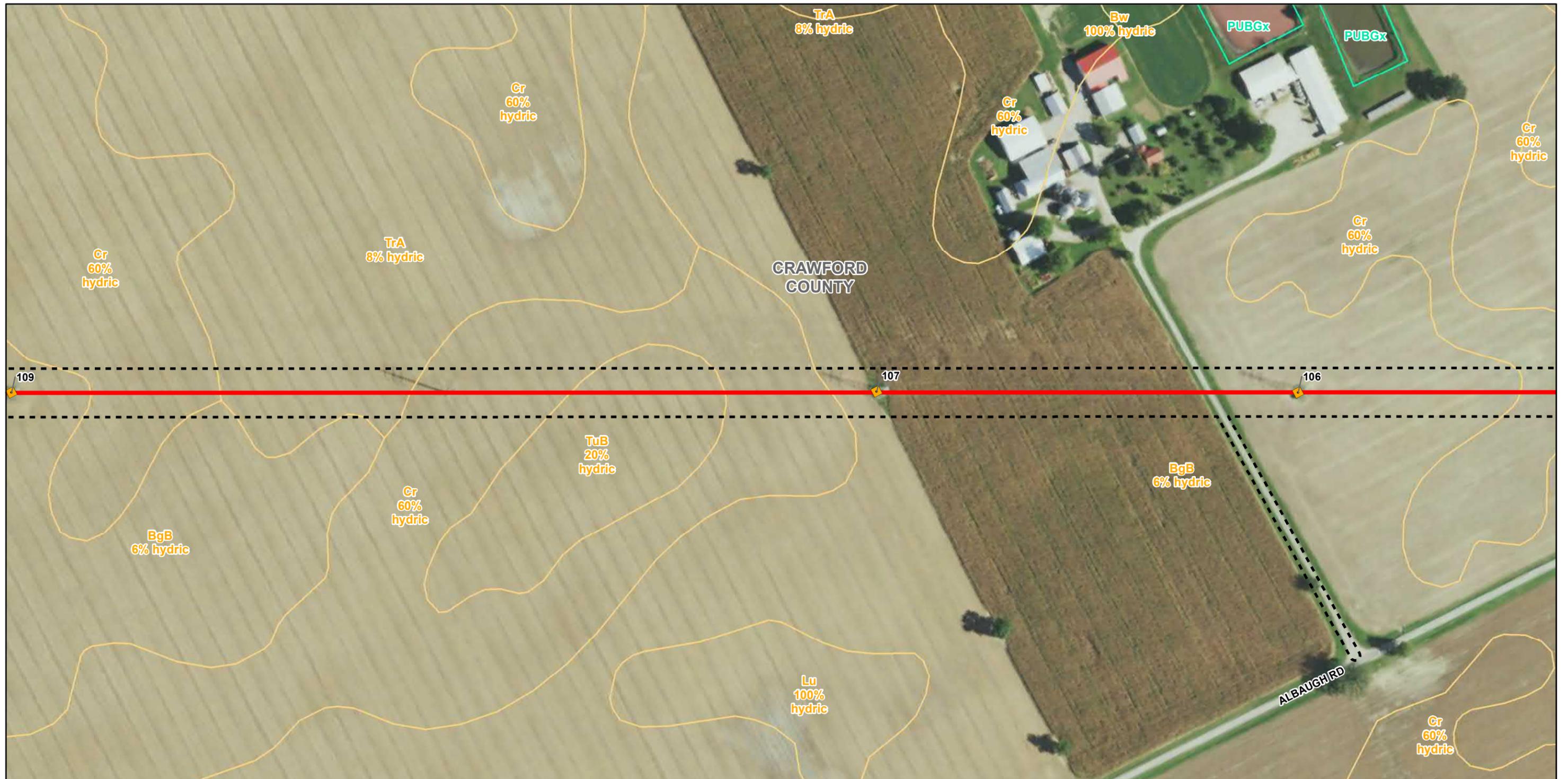
August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 2. Environmental Basemap





■ Existing Structure
— Chatfield - Melmore 138 kV Transmission Line
 Environmental Survey Corridor
 NWI Wetlands
 Soil Map Unit
 County Boundary

Page 18 of 23

Sources:
 Floodplains (FEMA 2017)
 Hydrography (USGS 2020)
 NAIP Imagery (USDA 2021)
 NRCS Soil Units (USDA 2021)
 Wetlands (USFWS 2020)

Coordinate System:
 Ohio State Plane North
 NAD 1983

August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT
Figure 2. Environmental Basemap

0
200
400
Feet



■ Existing Structure
— Chatfield - Melmore 138 kV Transmission Line
 Environmental Survey Corridor
 NWI Wetlands
 Soil Map Unit
 County Boundary

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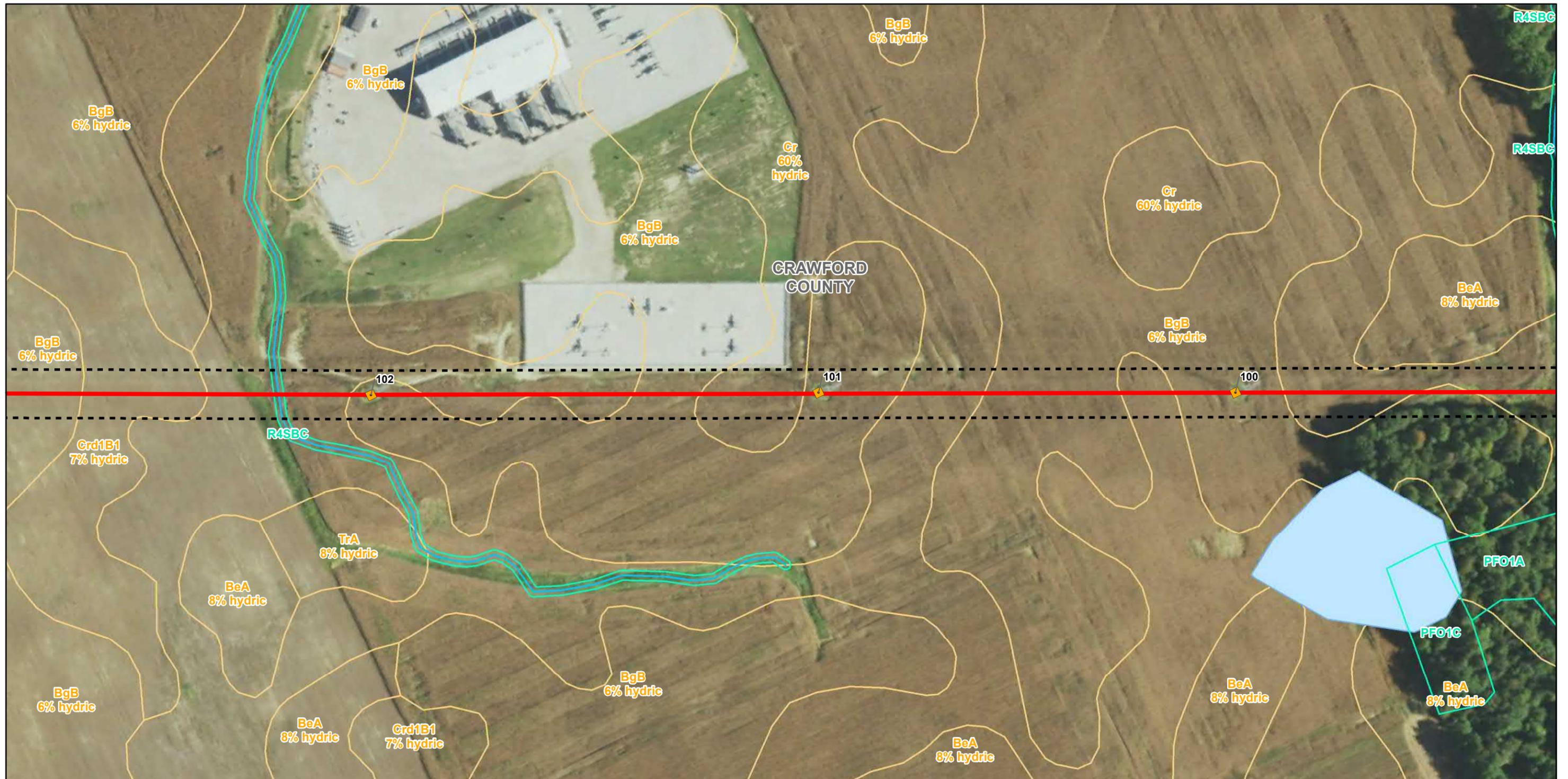
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 Hydrography (USGS 2020)
 NAIP Imagery (USDA 2021)
 NRCS Soil Units (USDA 2021)
 Wetlands (USFWS 2020)

Coordinate System:
 Ohio State Plane North
 NAD 1983

August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT
Figure 2. Environmental Basemap



■ Existing Structure
— Chatfield - Melmore 138 kV Transmission Line
 Environmental Survey Corridor
— NHD Stream
 NWI Wetlands
 NHD Waterbody
 Soil Map Unit
 County Boundary

Page 20 of 23

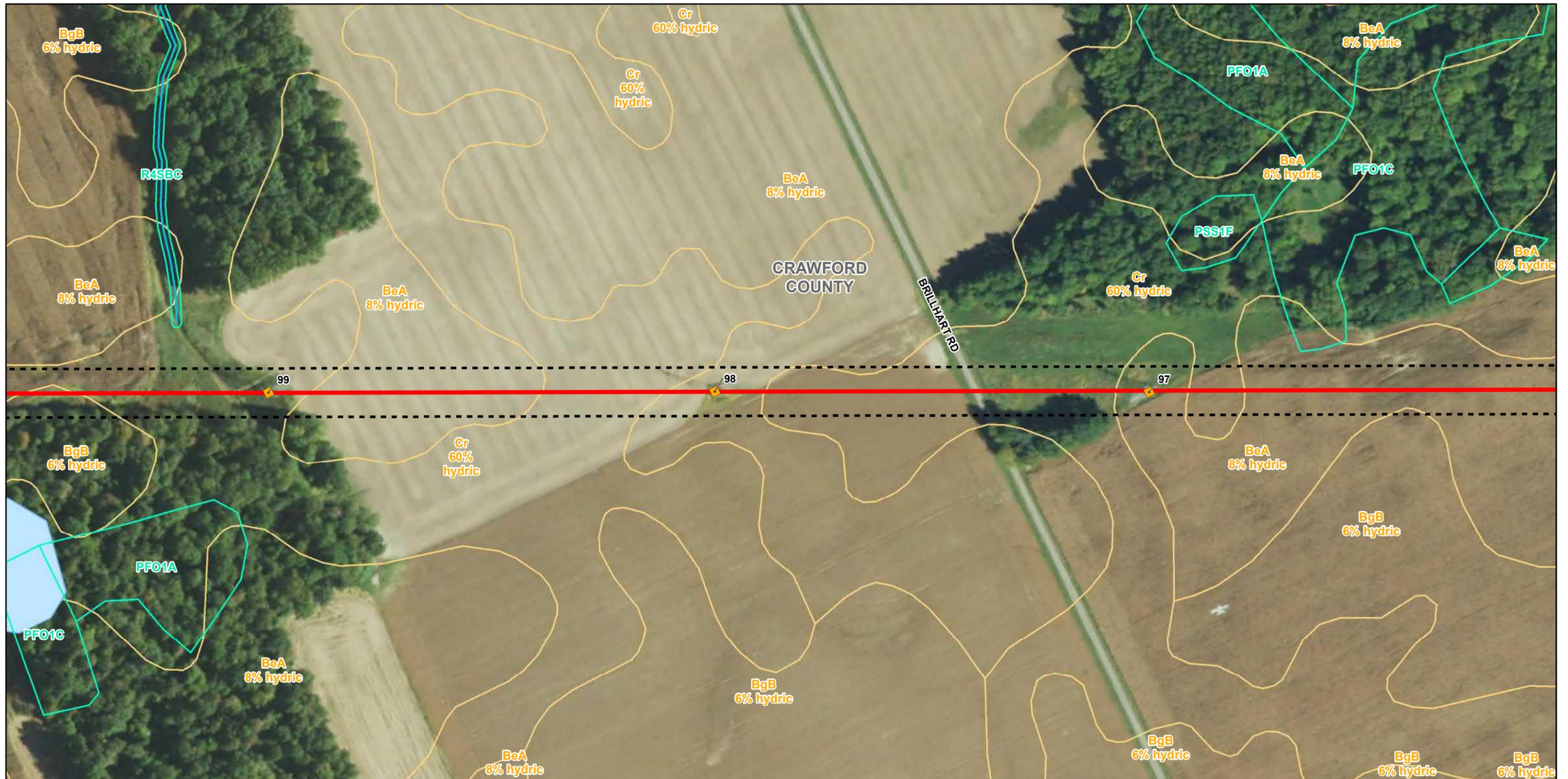
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 Hydrography (USGS 2020)
 NAIP Imagery (USDA 2021)
 NRCS Soil Units (USDA 2021)
 Wetlands (USFWS 2020)

Coordinate System:
 Ohio State Plane North
 NAD 1983

August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT
Figure 2. Environmental Basemap



■ Existing Structure
— Chatfield - Melmore 138 kV Transmission Line
 Environmental Survey Corridor
— NHD Stream
 NWI Wetlands
 NHD Waterbody
 Soil Map Unit
 County Boundary

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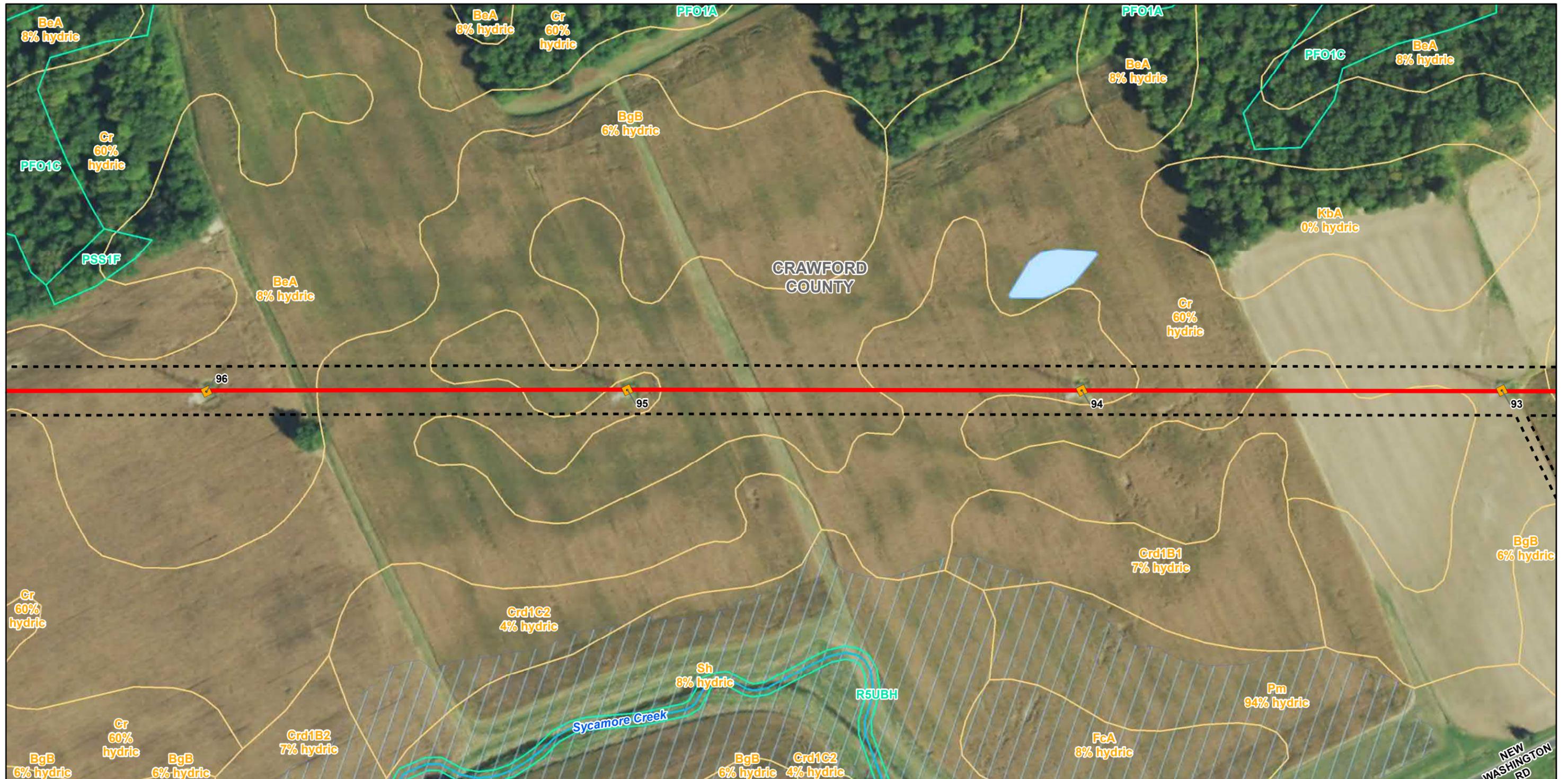
Sources:
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 Hydrography (USGS 2020)
 NAIP Imagery (USDA 2021)
 NRCS Soil Units (USDA 2021)
 Wetlands (USFWS 2020)

Coordinate System:
 Ohio State Plane North
 NAD 1983

August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT
Figure 2. Environmental Basemap



- Existing Structure
- Chatfield - Melmore 138 kV Transmission Line
- Environmental Survey Corridor
- NHD Stream
- NWI Wetlands
- NHD Waterbody
- Soil Map Unit
- FEMA 100-Yr Floodplain
- County Boundary

Sources:
 Floodplains (FEMA 2017)
 Hydrography (USGS 2020)
 NAIP Imagery (USDA 2021)
 NRCS Soil Units (USDA 2021)
 Wetlands (USFWS 2020)

Coordinate System:
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 NAD 1983

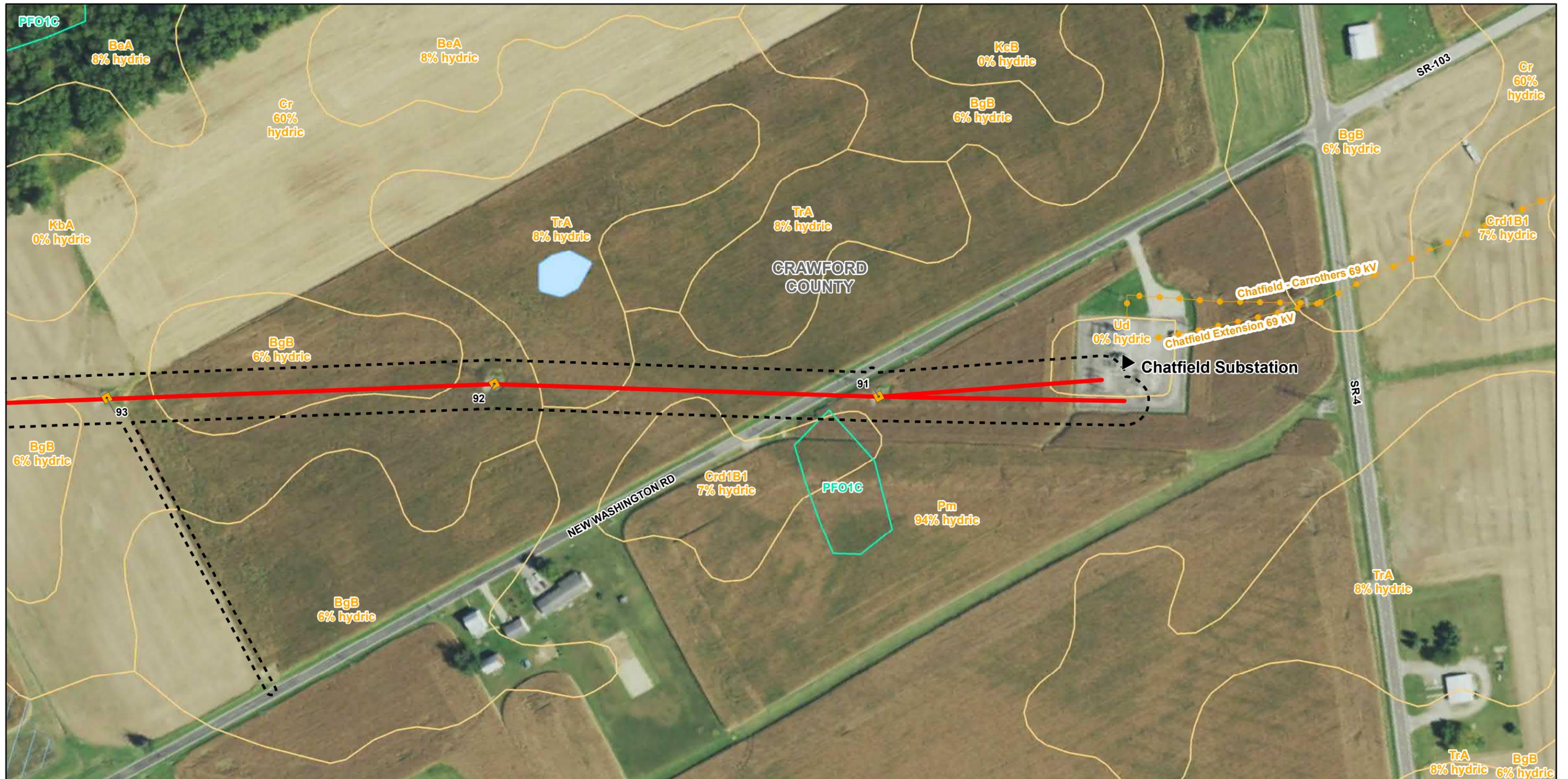
August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 2. Environmental Basemap





- ▲ Substation
- Existing Structure
- Chatfield - Melmore 138 kV Transmission Line
- - - Environmental Survey Corridor
- NWI Wetlands
- NHD Waterbody
- Soil Map Unit
- FEMA 100-Yr Floodplain

- Existing Transmission Line
- County Boundary

Sources:
 Floodplains (FEMA 2017)
 Hydrography (USGS 2020)
 NAIP Imagery (USDA 2021)
 NRCS Soil Units (USDA 2021)
 Wetlands (USFWS 2020)

Coordinate System:
 Ohio State Plane North
 NAD 1983

August 25, 2022

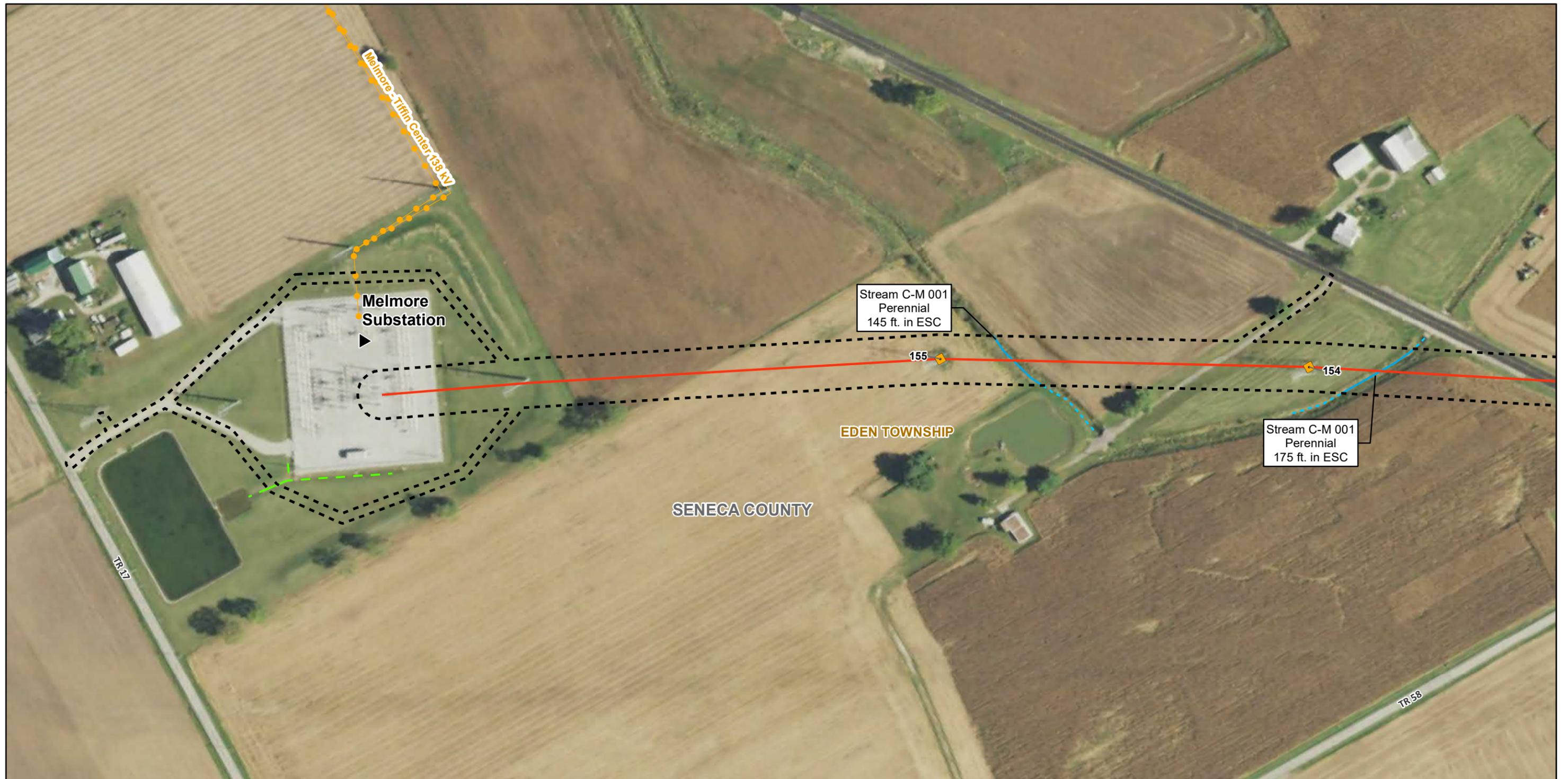


CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT
Figure 2. Environmental Basemap

INDIANA MICHIGAN POWER

wsp

0 200 400 Feet



- ▲ Substation
- Existing Structure
- Chatfield - Melmore 138 kV Transmission Line
- - - Environmental Survey Area
- Delineated Stream
- - - Approximate Stream
- Non-JD Drainage
- - - Approximate Non-JD Drainage
- Existing Transmission Line
- ▭ Township Boundary
- ▭ County Boundary

Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

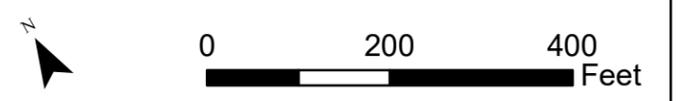
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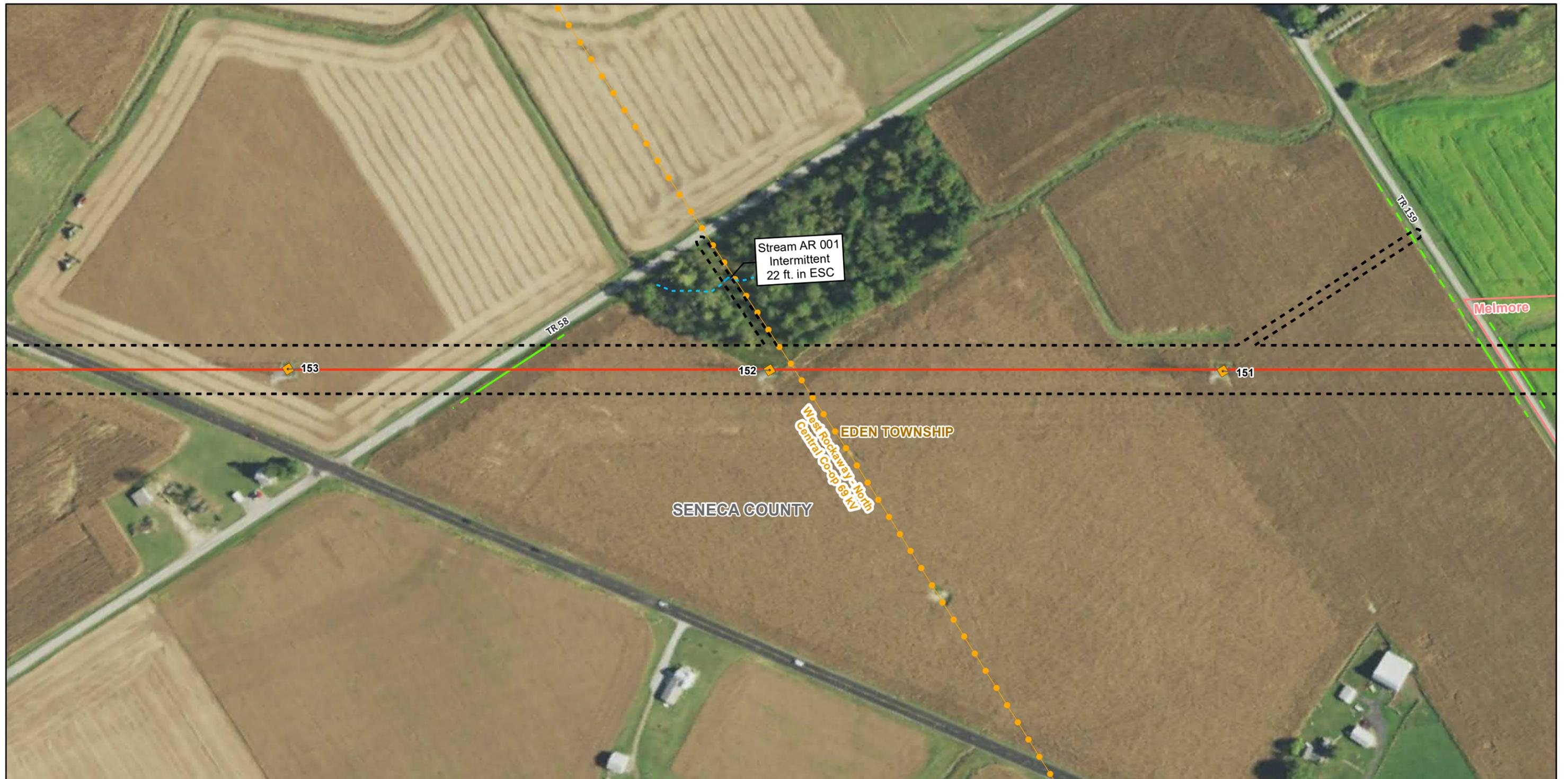
August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 3. Delineated Features





Existing Structure	Approximate Non-JD Drainage	Page 2 of 23
Chatfield - Melmore 138 kV Transmission Line	Existing Transmission Line	
Environmental Survey Area	Municipal Boundary	Sources: Floodplains (FEMA 2018) Hydrography (USGS 2019) NAIP Imagery (2021) NRCS Soil Units (USDA 2019) Wetlands (USFWS 2020)
Delineated Stream	Township Boundary	
Approximate Stream	County Boundary	Coordinate System: GCS WGS 1984
Non-JD Drainage		August 25, 2022



CHATFIELD - MELMORE 138 KV TRANSMISSION LINE PROJECT

Figure 3. Delineated Features

0 200 400 Feet



-  Existing Structure
-  Chatfield - Melmore 138 kV Transmission Line
-  Environmental Survey Area
-  Non-JD Drainage
-  Approximate Non-JD Drainage
-  Municipal Boundary
-  Township Boundary
-  County Boundary

Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

Coordinate System:
 GCS WGS 1984

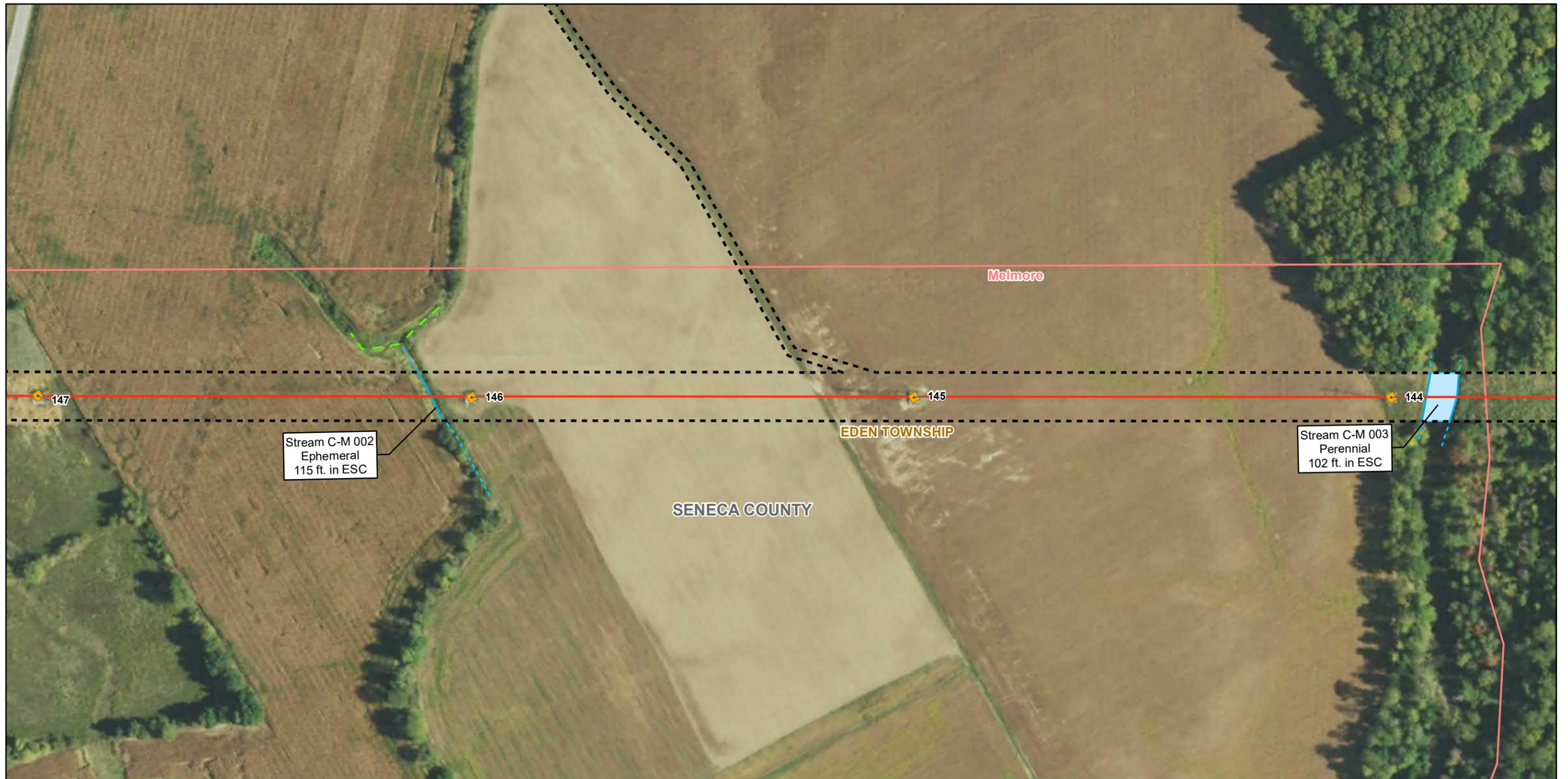
August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 3. Delineated Features





<ul style="list-style-type: none"> Existing Structure Chatfield - Melmore 138 kV Transmission Line Environmental Survey Area Delineated Stream Delineated Stream Polygon Approximate Stream 	<ul style="list-style-type: none"> Approximate Non-JD Drainage Municipal Boundary Township Boundary County Boundary 	<p>Page 4 of 23</p>
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Sources:
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 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

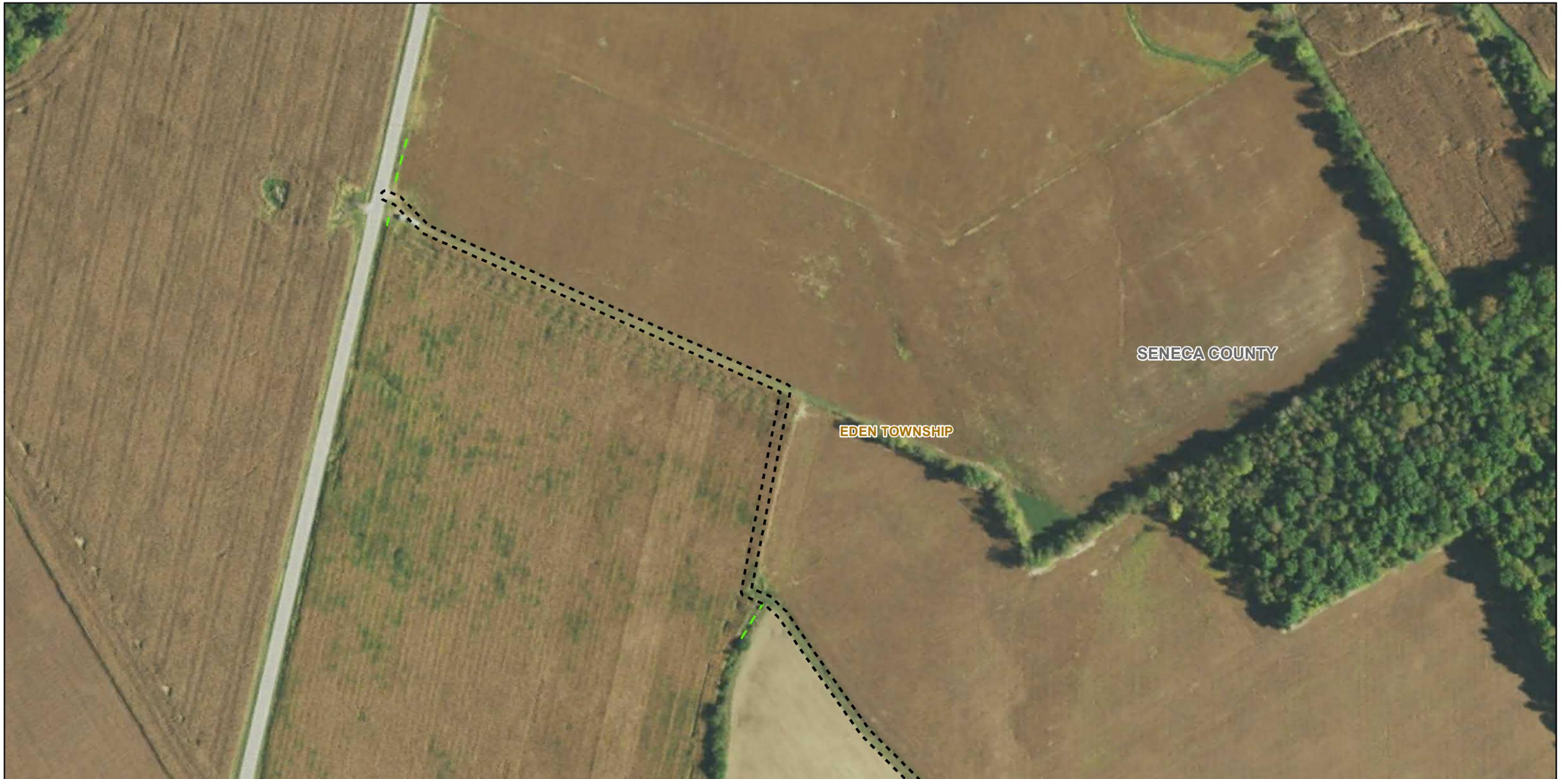
Coordinate System:
 GCS WGS 1984

August 25, 2022



CHATFIELD - MELMORE 138 KV TRANSMISSION LINE PROJECT

Figure 3. Delineated Features



<ul style="list-style-type: none">  Environmental Survey Area  Non-JD Drainage  Approximate Non-JD Drainage  Township Boundary  County Boundary 	<p>Page 5 of 23</p> <p>Sources: Floodplains (FEMA 2018) Hydrography (USGS 2019) NAIP Imagery (2021) NRCS Soil Units (USDA 2019) Wetlands (USFWS 2020)</p>		<p>CHATFIELD - MELMORE 138 KV TRANSMISSION LINE PROJECT</p> <p>Figure 3. Delineated Features</p>
	<p>Coordinate System: GCS WGS 1984</p>		 
	<p>August 25, 2022</p>		 



- Existing Structure
- Chatfield - Melmore 138 kV Transmission Line
- Environmental Survey Area
- - - Delineated Stream
- · - · Approximate Stream
- Non-JD Drainage
- - - Approximate Non-JD Drainage
- Municipal Boundary
- Township Boundary
- County Boundary

Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

Coordinate System:
 GCS WGS 1984

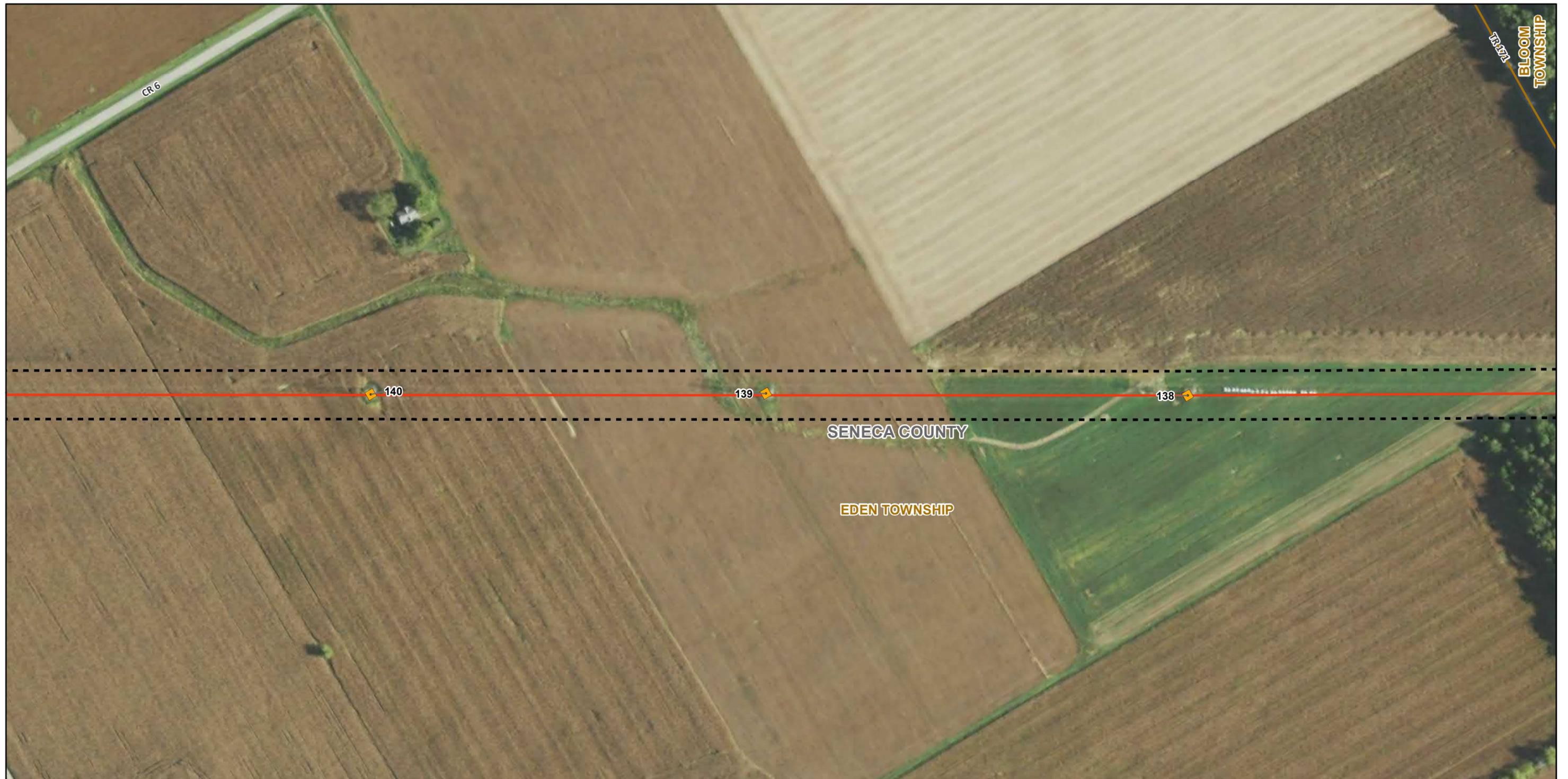
August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 3. Delineated Features





■ Existing Structure
— Chatfield - Melmore 138 kV Transmission Line
 Environmental Survey Area
 Township Boundary
 County Boundary

Page 7 of 23

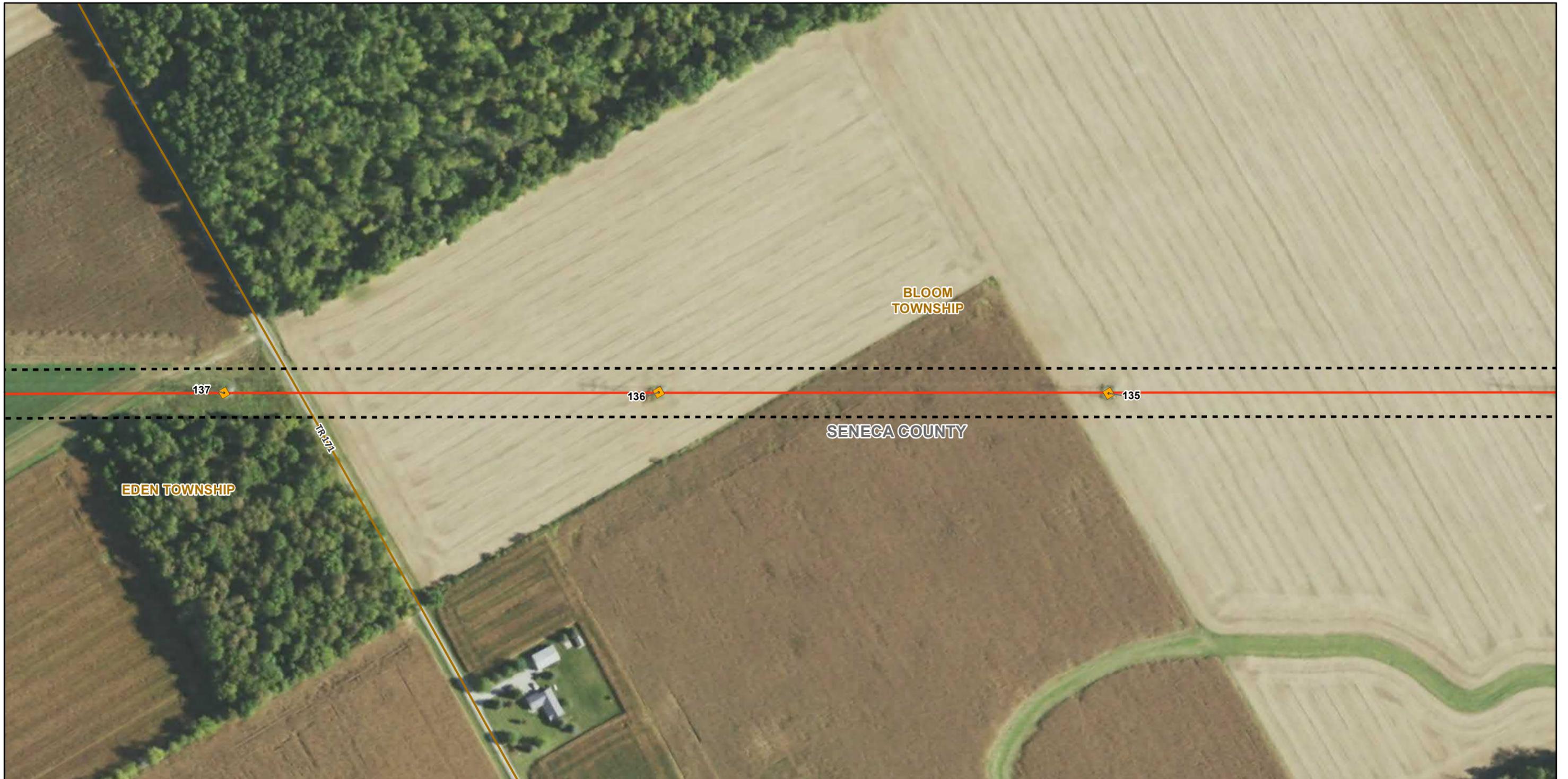
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 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

Coordinate System:
 GCS WGS 1984

August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT
Figure 3. Delineated Features



◆ Existing Structure
— Chatfield - Melmore 138 kV Transmission Line
 Environmental Survey Area
 Township Boundary
 County Boundary

Page 8 of 23

Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

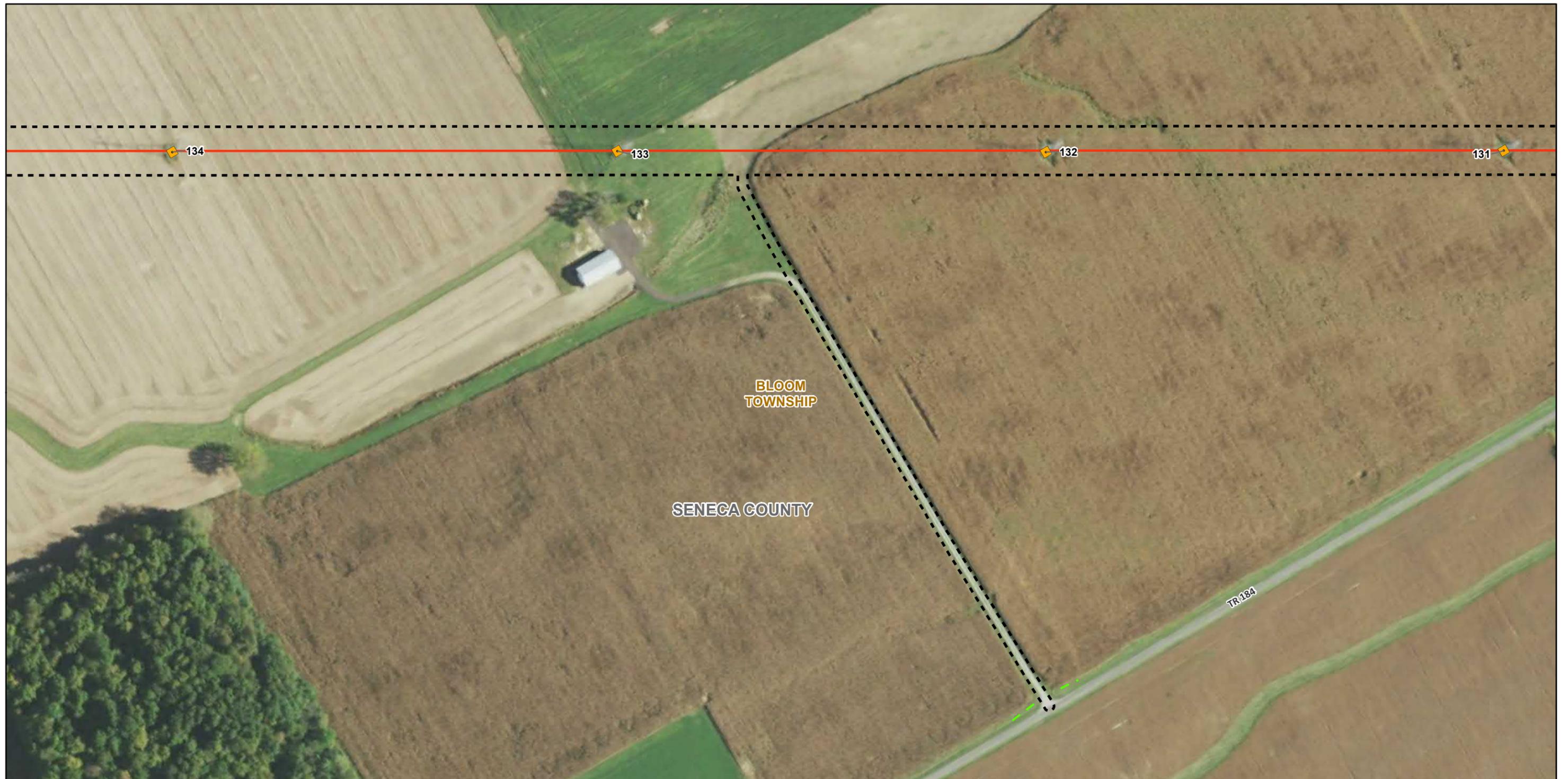
Coordinate System:
 GCS WGS 1984

August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT
Figure 3. Delineated Features

0 200 400
Feet



■ Existing Structure
— Chatfield - Melmore 138 kV Transmission Line
 Environmental Survey Area
— Approximate Non-JD Drainage
 Township Boundary
 County Boundary

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Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

Coordinate System:
 GCS WGS 1984

August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT
Figure 3. Delineated Features



◆ Existing Structure
— Chatfield - Melmore 138 kV Transmission Line
 Environmental Survey Area
 Township Boundary
 County Boundary

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Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

Coordinate System:
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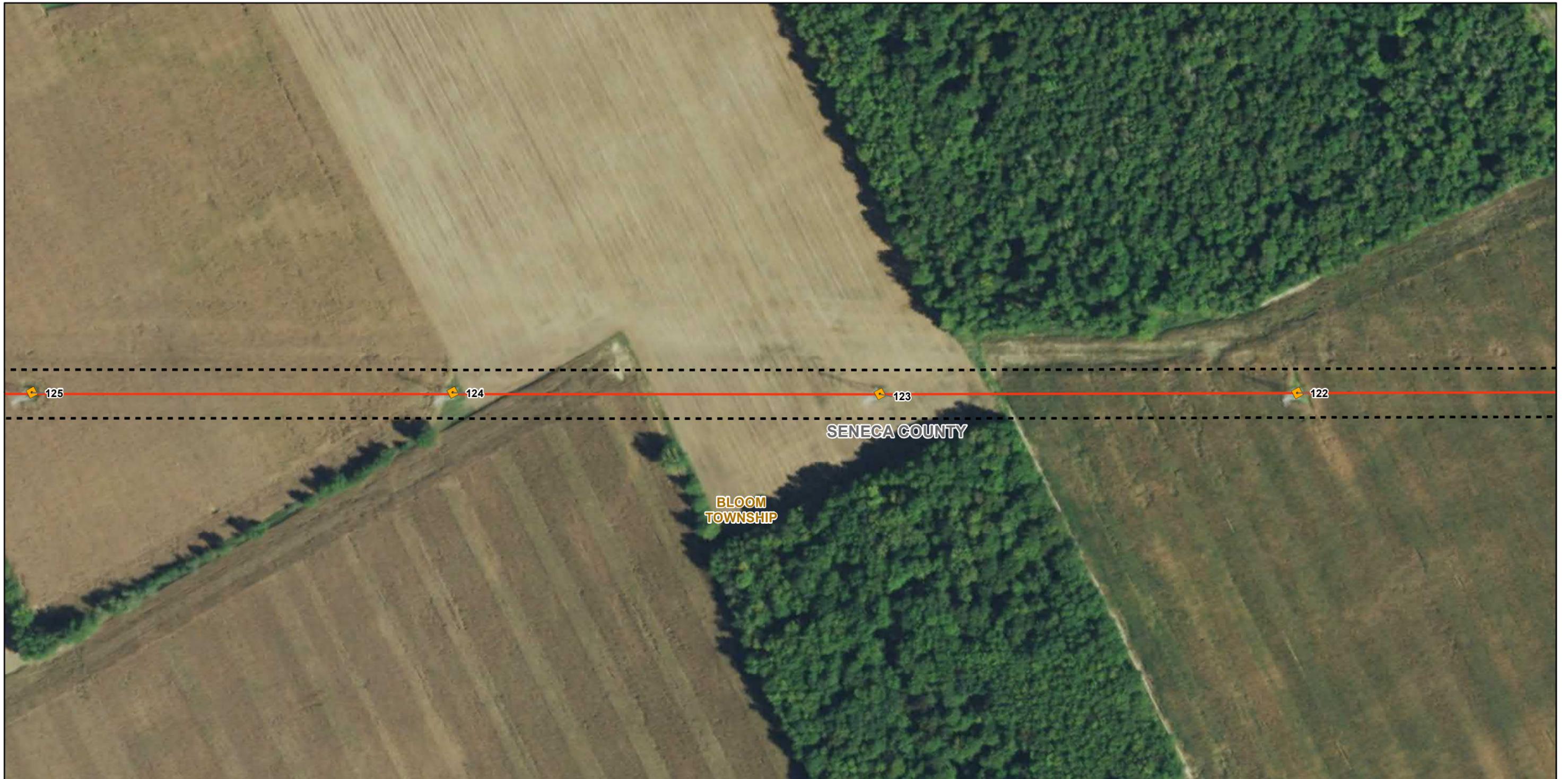
August 25, 2022

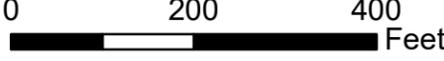


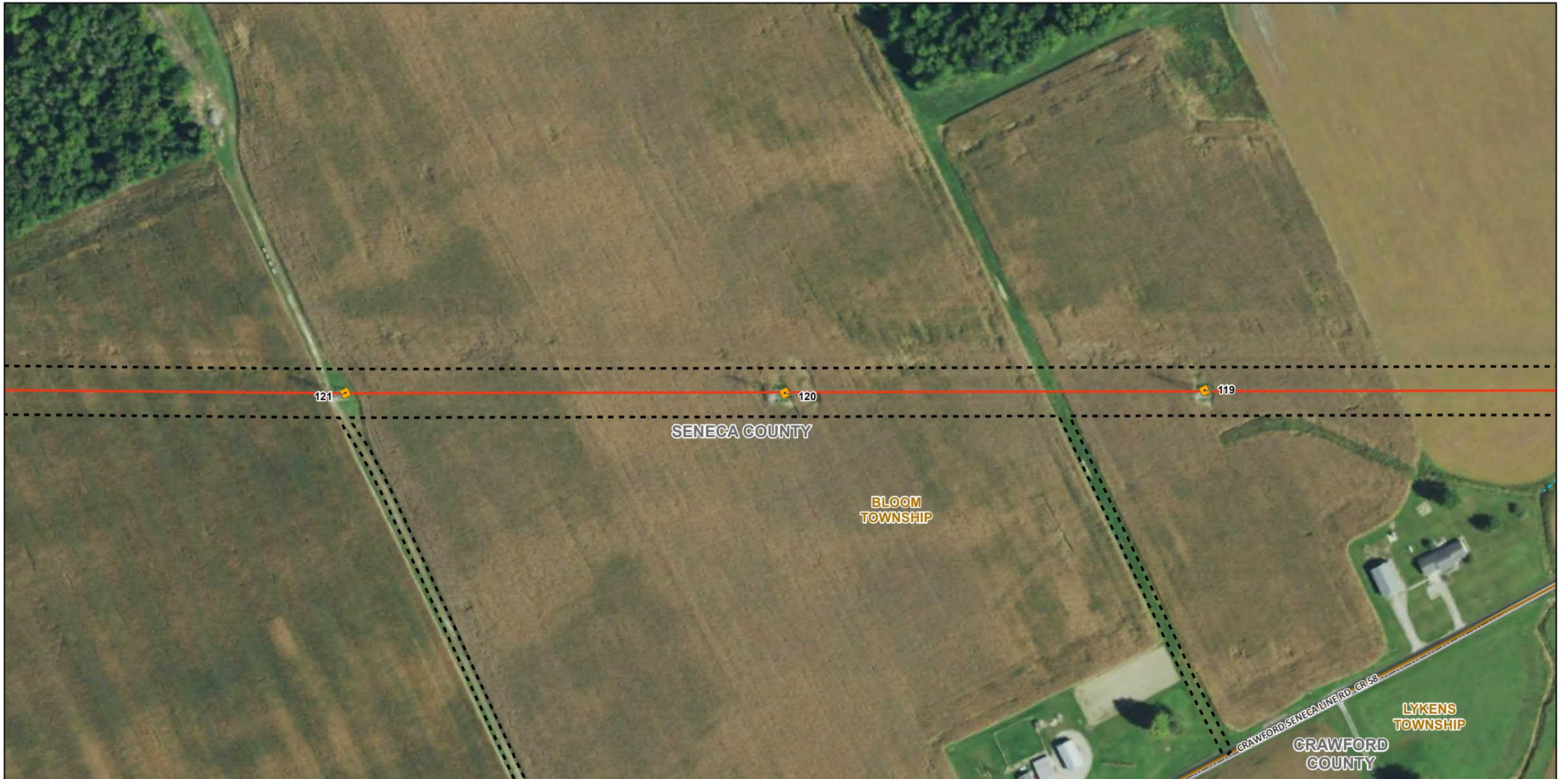
**CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT**
Figure 3. Delineated Features



<ul style="list-style-type: none"> Existing Structure Chatfield - Melmore 138 kV Transmission Line Environmental Survey Area Township Boundary County Boundary 	<p>Page 11 of 23</p> <p>Sources: Floodplains (FEMA 2018) Hydrography (USGS 2019) NAIP Imagery (2021) NRCS Soil Units (USDA 2019) Wetlands (USFWS 2020)</p>		<p>CHATFIELD - MELMORE 138 KV TRANSMISSION LINE PROJECT</p> <p>Figure 3. Delineated Features</p>
	<p>Coordinate System: GCS WGS 1984</p>		
	<p>August 25, 2022</p>		



<ul style="list-style-type: none">  Existing Structure  Chatfield - Melmore 138 kV Transmission Line  Environmental Survey Area  Township Boundary  County Boundary 	<p>Page 12 of 23</p> <p>Sources: Floodplains (FEMA 2018) Hydrography (USGS 2019) NAIP Imagery (2021) NRCS Soil Units (USDA 2019) Wetlands (USFWS 2020)</p>		<p>CHATFIELD - MELMORE 138 KV TRANSMISSION LINE PROJECT</p> <p>Figure 3. Delineated Features</p>
	<p>Coordinate System: GCS WGS 1984</p> <p>August 25, 2022</p>		 



■ Existing Structure
— Chatfield - Melmore 138 kV Transmission Line
 Environmental Survey Area
- - - Approximate Stream
 Township Boundary
 County Boundary

Page 13 of 23

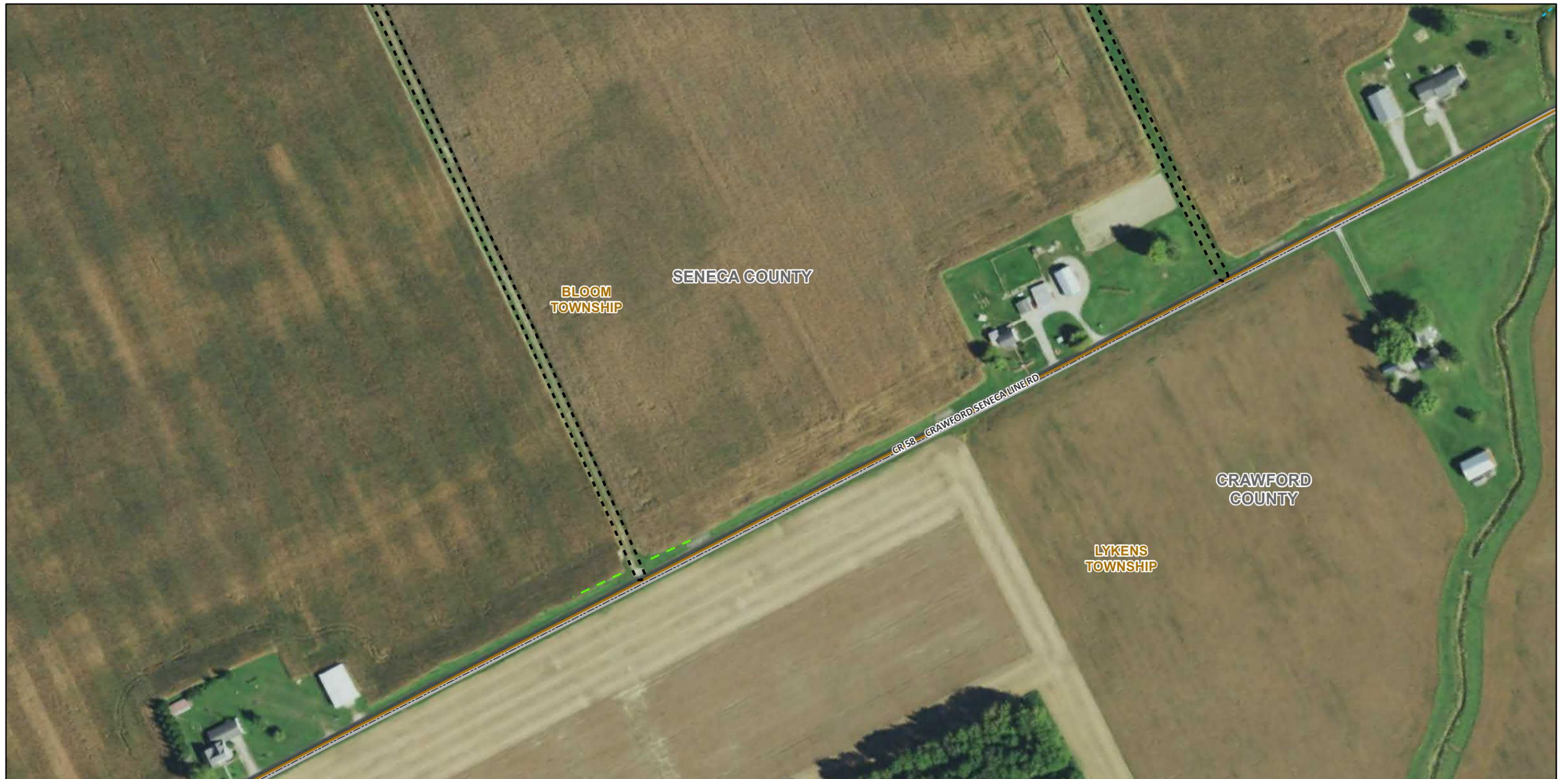
Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

Coordinate System:
 GCS WGS 1984

August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT
Figure 3. Delineated Features



-  Environmental Survey Area
-  Approximate Stream
-  Approximate Non-JD Drainage
-  Township Boundary
-  County Boundary

Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

Coordinate System:
 GCS WGS 1984

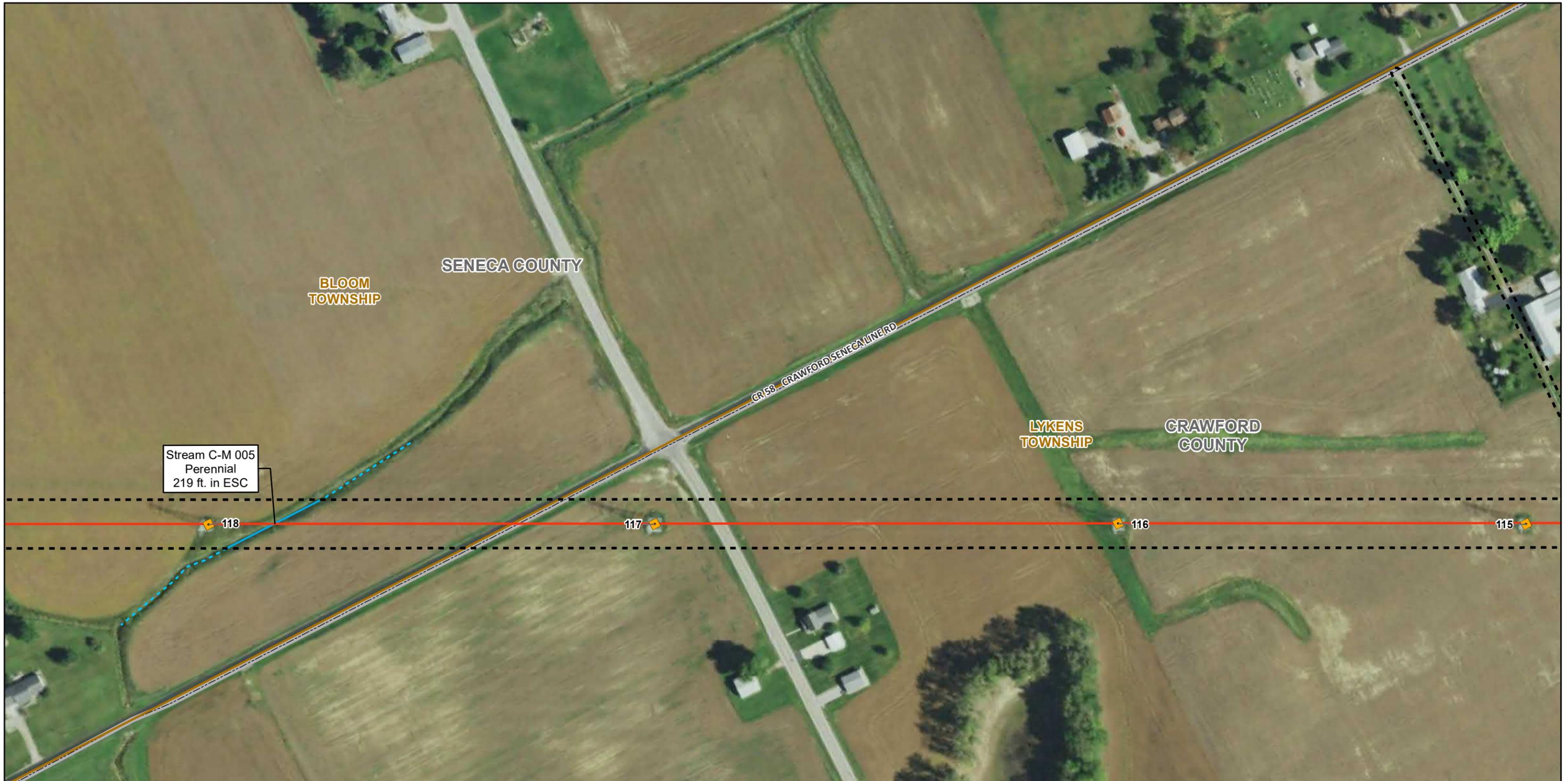
August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

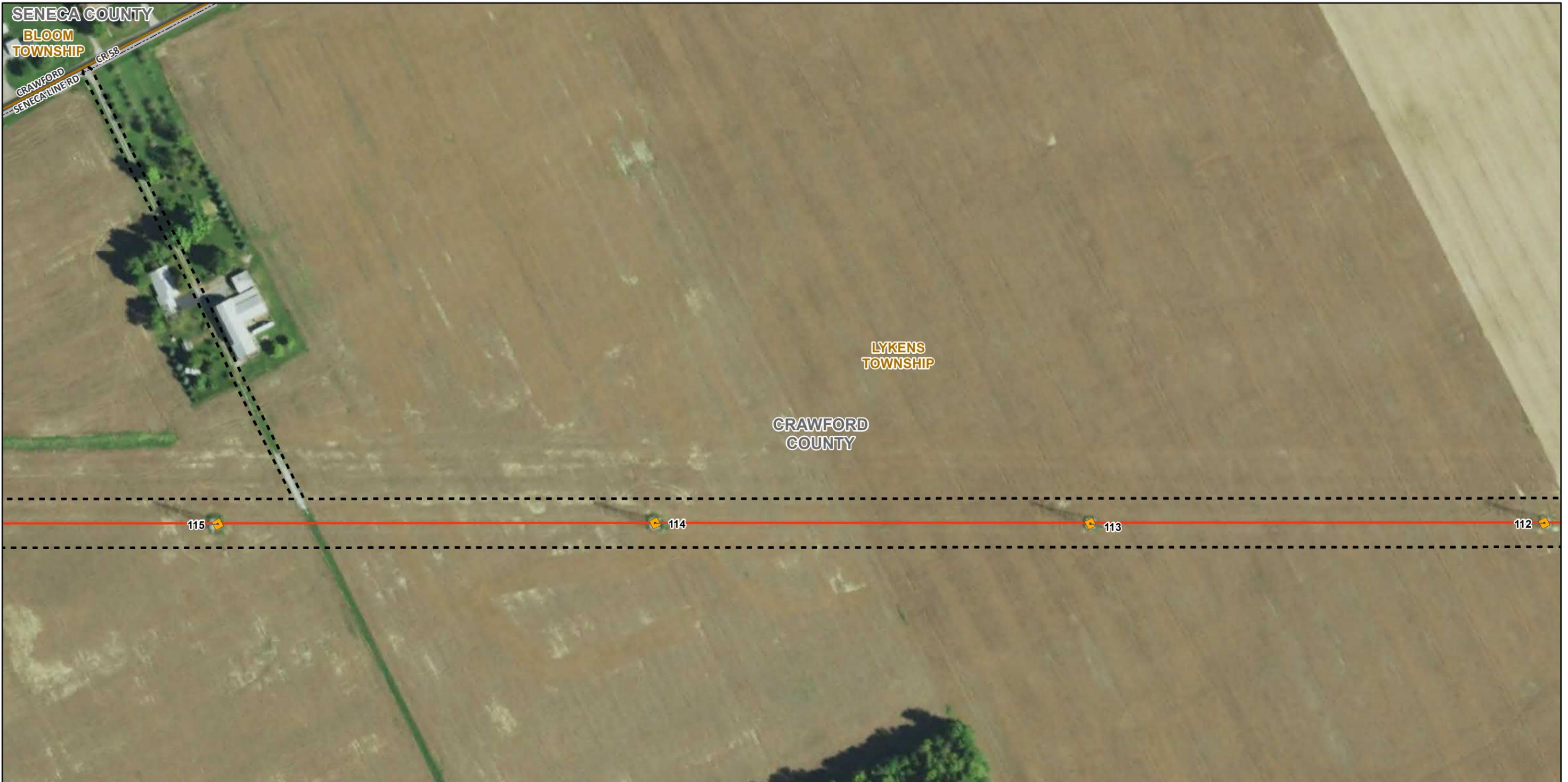
Figure 3. Delineated Features





Stream C-M 005
Perennial
219 ft. in ESC

<ul style="list-style-type: none"> Existing Structure Chatfield - Melmore 138 kV Transmission Line Environmental Survey Area Delineated Stream Approximate Stream Township Boundary 	<ul style="list-style-type: none"> County Boundary 	<p>Page 15 of 23</p> <p>Sources: Floodplains (FEMA 2018) Hydrography (USGS 2019) NAIP Imagery (2021) NRCS Soil Units (USDA 2019) Wetlands (USFWS 2020)</p> <p>Coordinate System: GCS WGS 1984</p> <p>August 25, 2022</p>		<p>CHATFIELD - MELMORE 138 KV TRANSMISSION LINE PROJECT</p> <p>Figure 3. Delineated Features</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div> <div style="display: flex; align-items: center; justify-content: center;">   </div>
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-  Existing Structure
-  Chatfield - Melmore 138 kV Transmission Line
-  Environmental Survey Area
-  Township Boundary
-  County Boundary

Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

Coordinate System:
 GCS WGS 1984

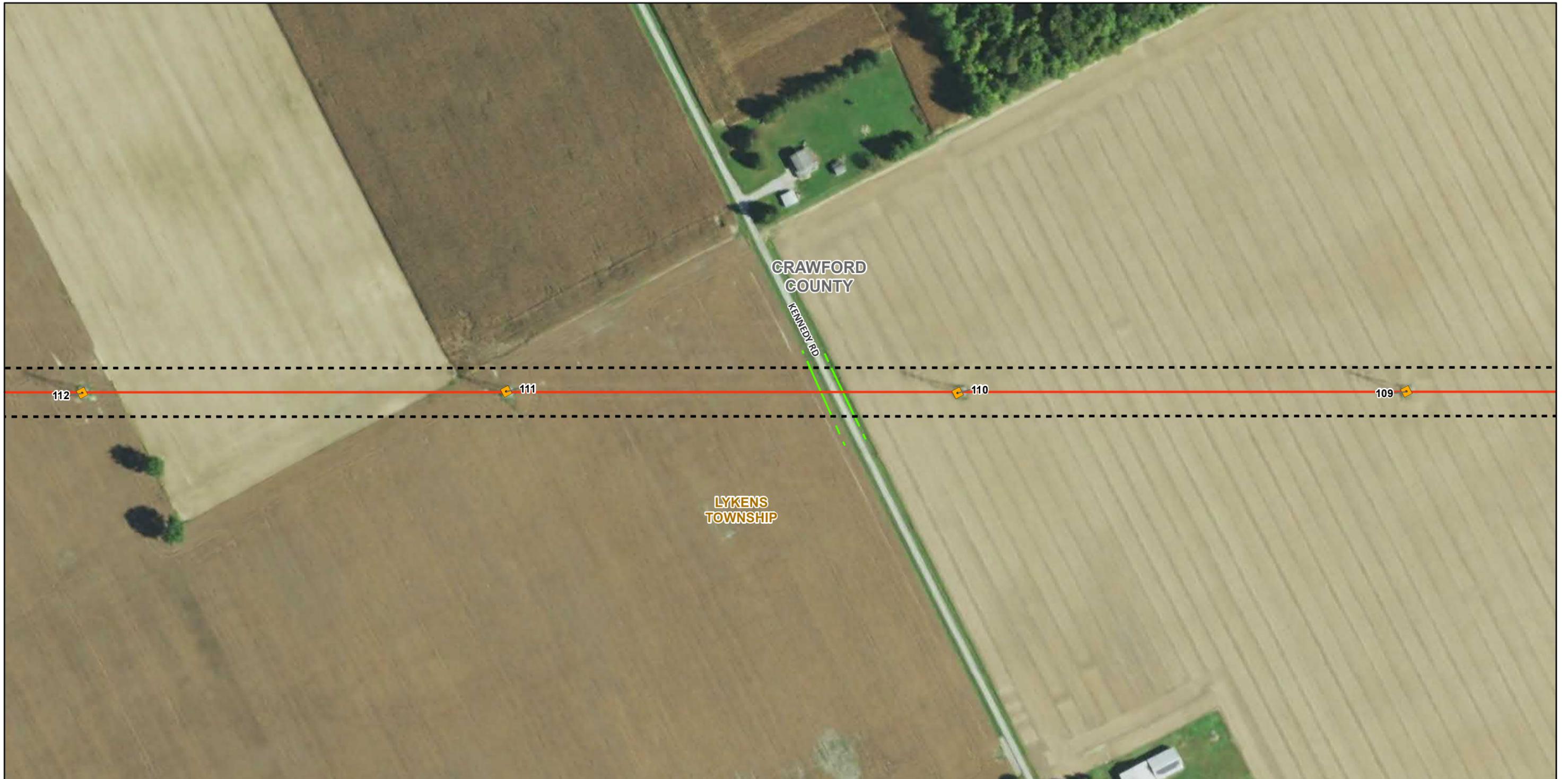
August 25, 2022



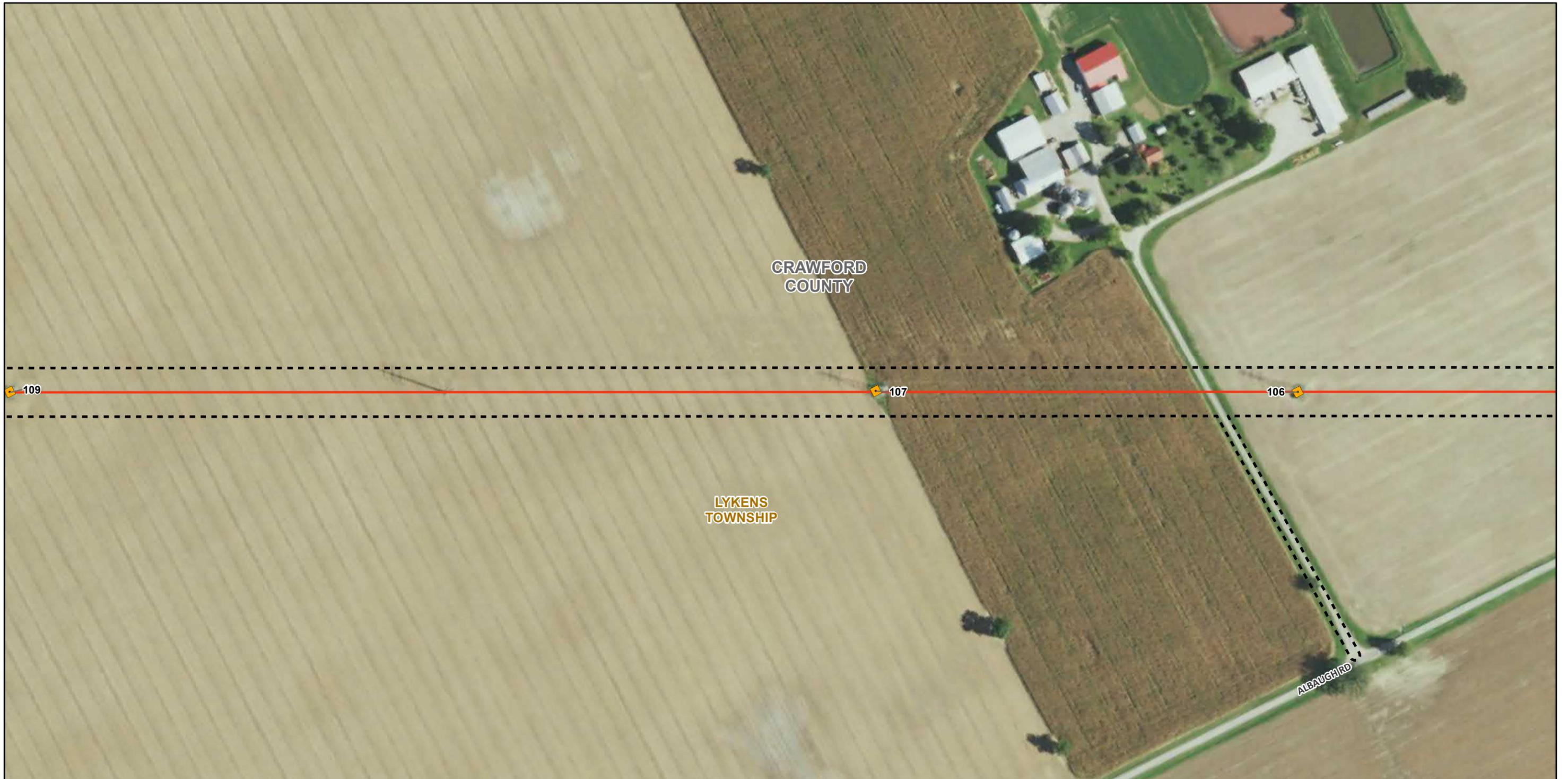
CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 3. Delineated Features





<ul style="list-style-type: none">  Existing Structure  Chatfield - Melmore 138 kV Transmission Line  Environmental Survey Area  Non-JD Drainage  Approximate Non-JD Drainage  Township Boundary 	<ul style="list-style-type: none">  County Boundary <p style="text-align: center;">Page 17 of 23</p> <p style="text-align: center;">Sources: Floodplains (FEMA 2018) Hydrography (USGS 2019) NAIP Imagery (2021) NRCS Soil Units (USDA 2019) Wetlands (USFWS 2020)</p> <p style="text-align: center;">Coordinate System: GCS WGS 1984</p> <p style="text-align: center;">August 25, 2022</p>		<p style="text-align: center;">CHATFIELD - MELMORE 138 KV TRANSMISSION LINE PROJECT</p> <p style="text-align: center;">Figure 3. Delineated Features</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div> <div style="display: flex; justify-content: space-between; align-items: center;">   </div>
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-  Existing Structure
-  Chatfield - Melmore 138 kV Transmission Line
-  Environmental Survey Area
-  Township Boundary
-  County Boundary

Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

Coordinate System:
 GCS WGS 1984

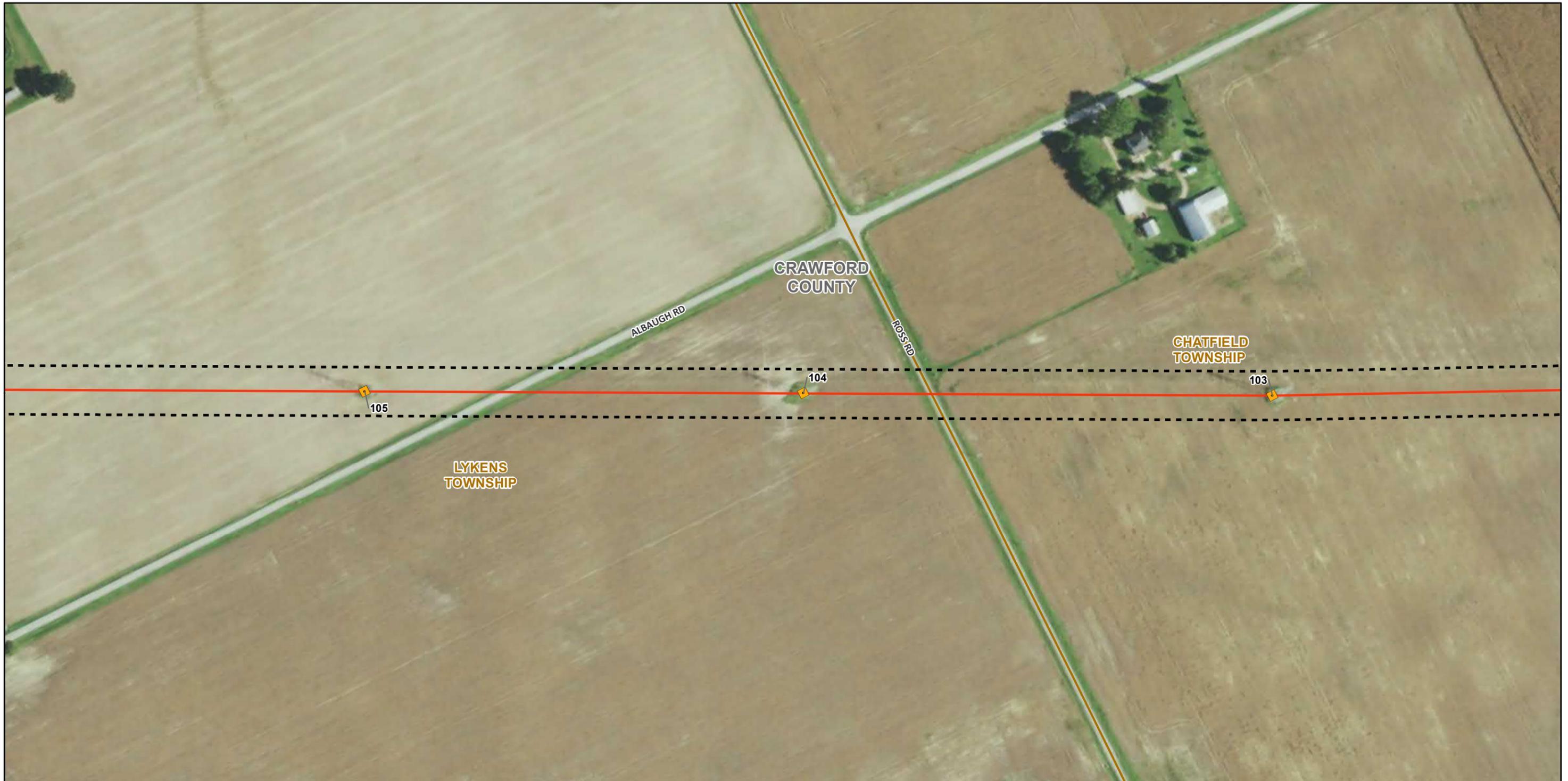
August 25, 2022



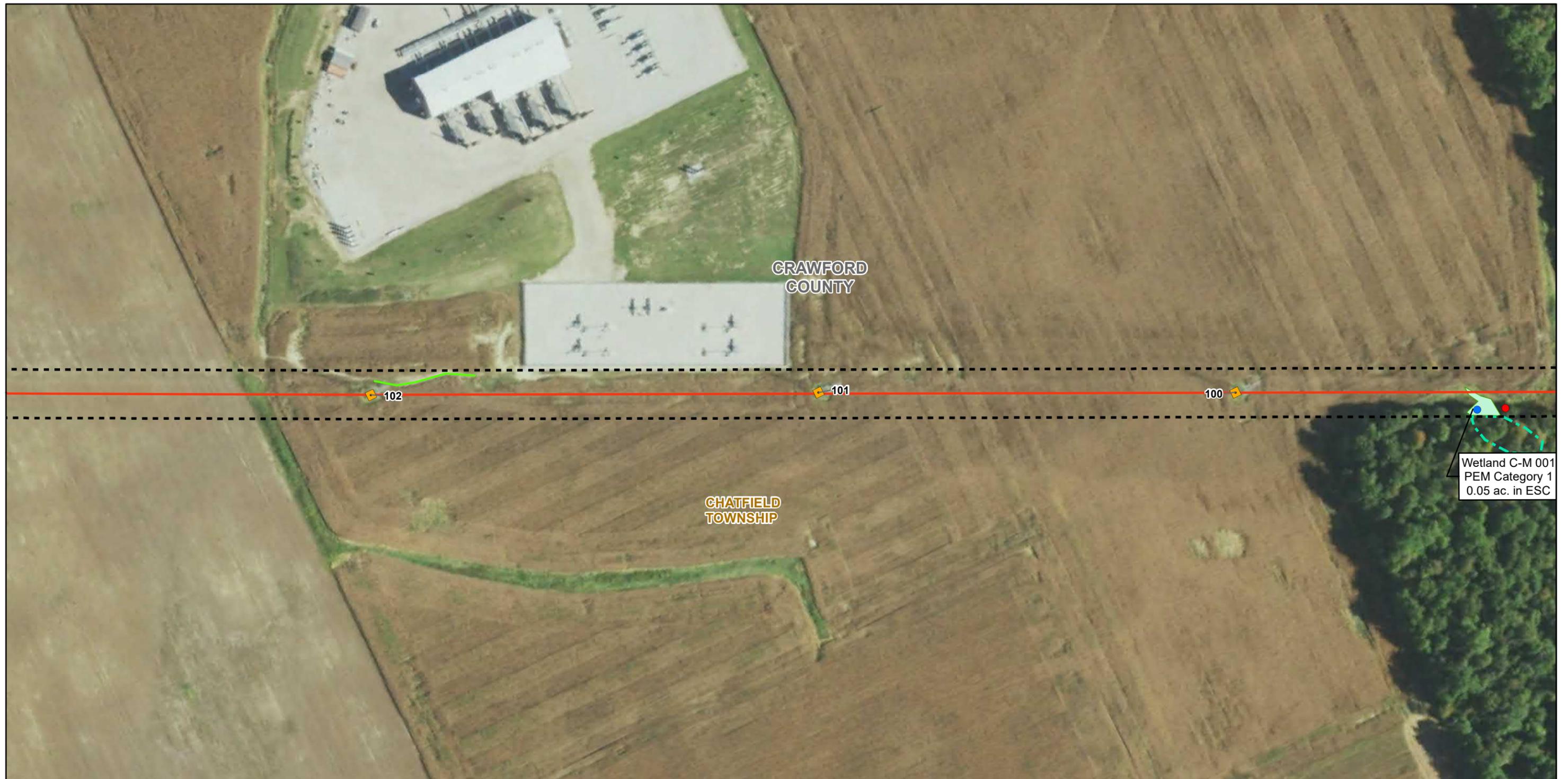
CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 3. Delineated Features

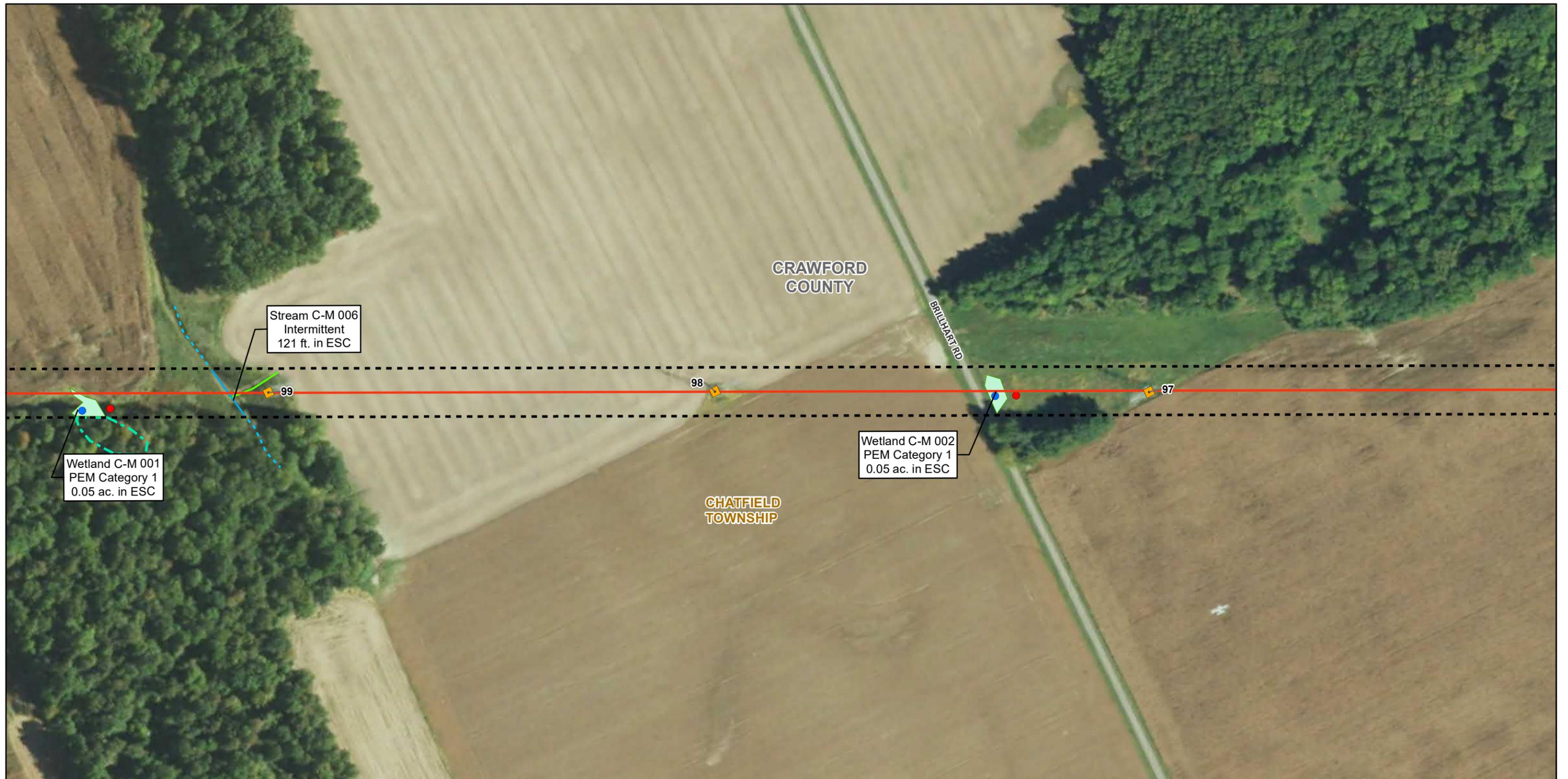




<ul style="list-style-type: none">  Existing Structure  Chatfield - Melmore 138 kV Transmission Line  Environmental Survey Area  Township Boundary  County Boundary 	<p>Page 19 of 23</p> <p>Sources: Floodplains (FEMA 2018) Hydrography (USGS 2019) NAIP Imagery (2021) NRCS Soil Units (USDA 2019) Wetlands (USFWS 2020)</p>		<p>CHATFIELD - MELMORE 138 KV TRANSMISSION LINE PROJECT</p> <p>Figure 3. Delineated Features</p>
	<p>Coordinate System: GCS WGS 1984</p> <p>August 25, 2022</p>		 



<ul style="list-style-type: none"> Existing Structure Chatfield - Melmore 138 kV Transmission Line Environmental Survey Area Delineated PEM Wetland Approximate Delineated Wetland Non-JD Drainage 	<ul style="list-style-type: none"> Upland Data Point Wetland Data Point Township Boundary County Boundary 	Page 20 of 23	<p>Sources: Floodplains (FEMA 2018) Hydrography (USGS 2019) NAIP Imagery (2021) NRCS Soil Units (USDA 2019) Wetlands (USFWS 2020)</p>		<p>CHATFIELD - MELMORE 138 KV TRANSMISSION LINE PROJECT</p> <p>Figure 3. Delineated Features</p>
			<p>Coordinate System: GCS WGS 1984</p>		
			<p>August 25, 2022</p>		



- Existing Structure
- Chatfield - Melmore 138 kV Transmission Line
- Environmental Survey Area
- Delineated PEM Wetland
- Approximate Delineated Wetland
- Delineated Stream
- Approximate Stream
- Non-JD Drainage
- Upland Data Point
- Wetland Data Point
- Township Boundary
- County Boundary

Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

Coordinate System:
 GCS WGS 1984

August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 3. Delineated Features





-  Existing Structure
-  Chatfield - Melmore 138 kV Transmission Line
-  Environmental Survey Area
-  Township Boundary
-  County Boundary

Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

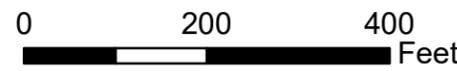
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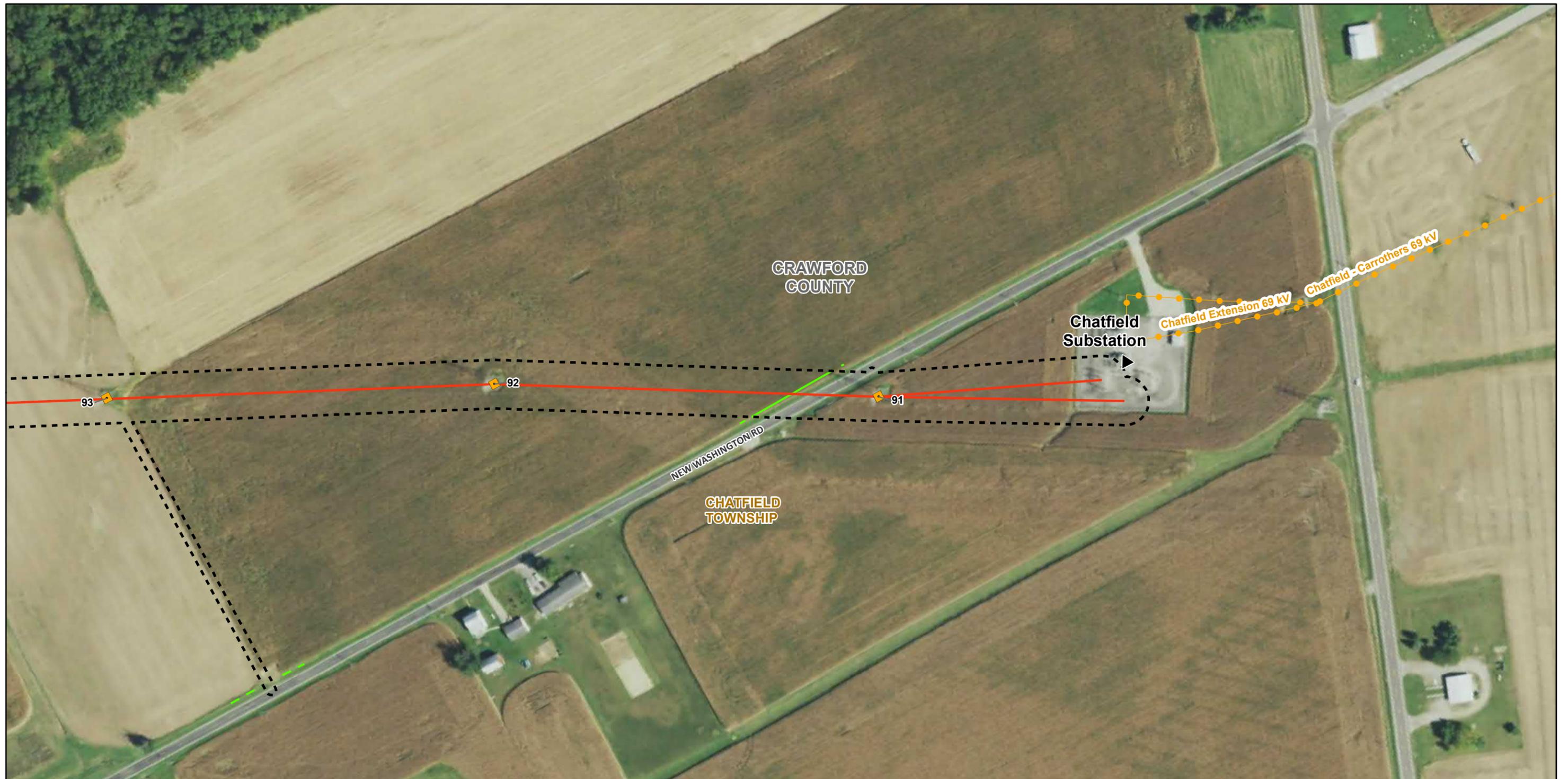
August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 3. Delineated Features





- ▲ Substation
- Existing Structure
- Chatfield - Melmore 138 kV Transmission Line
- - - Environmental Survey Area
- Non-JD Drainage
- - - Approximate Non-JD Drainage

- Existing Transmission Line
- Township Boundary
- County Boundary

Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

Coordinate System:
 GCS WGS 1984

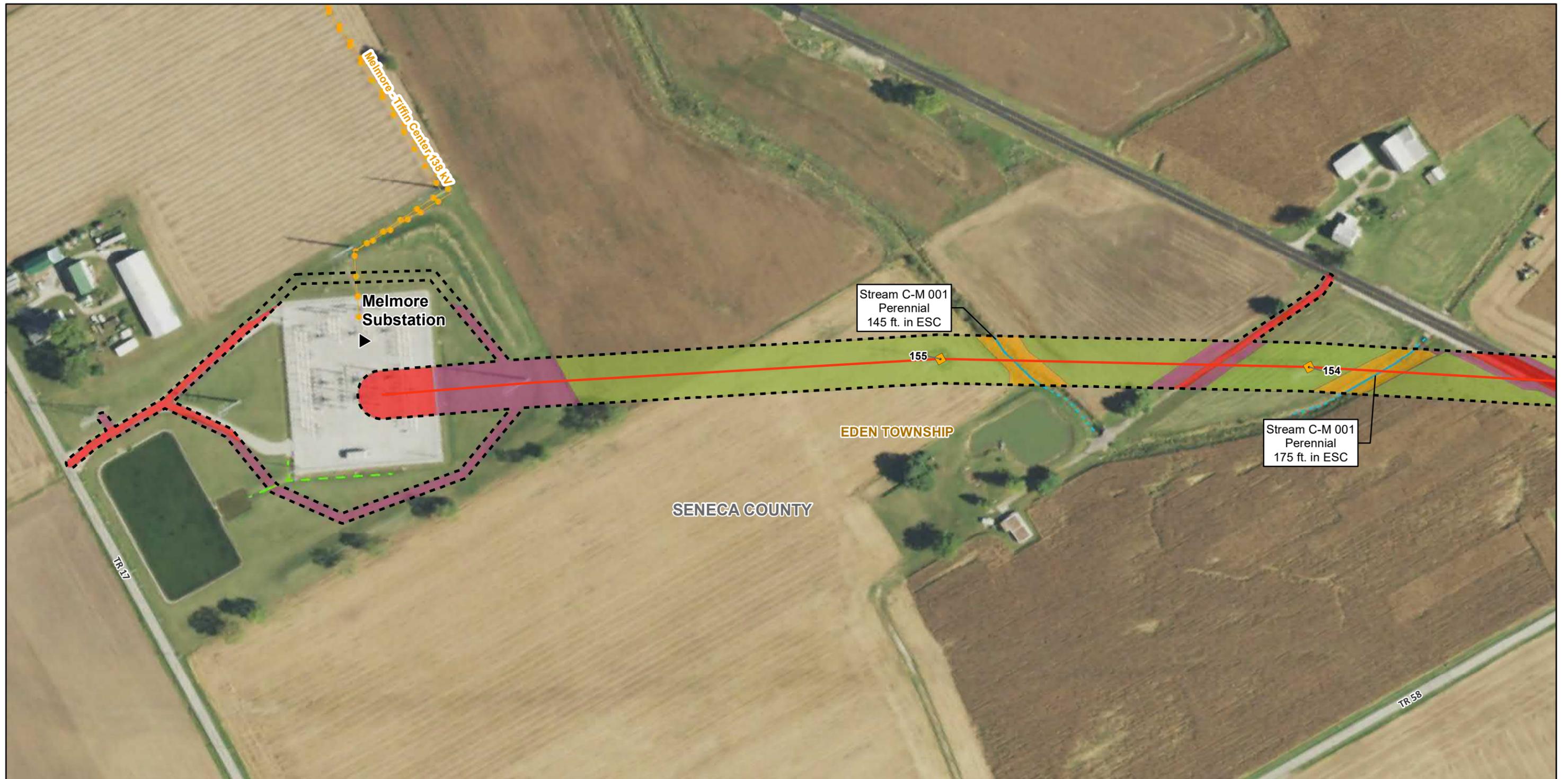
August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 3. Delineated Features





- ▲ Substation
- Existing Structure
- Chatfield - Melmore 138 kV Transmission Line
- - - Environmental Survey Corridor
- Delineated Stream
- - - Approximate Stream
- Non-JD Drainage
- - - Approximate Non-JD Drainage

- Cultivated Cropland
- Developed, High Intensity
- Developed, Open Space
- Old Field
- Existing Transmission Line
- Township Boundary
- County Boundary

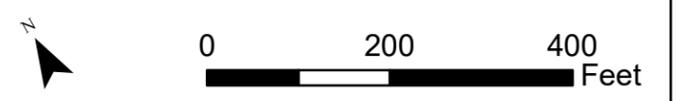
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 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
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 Wetlands (USFWS 2020)

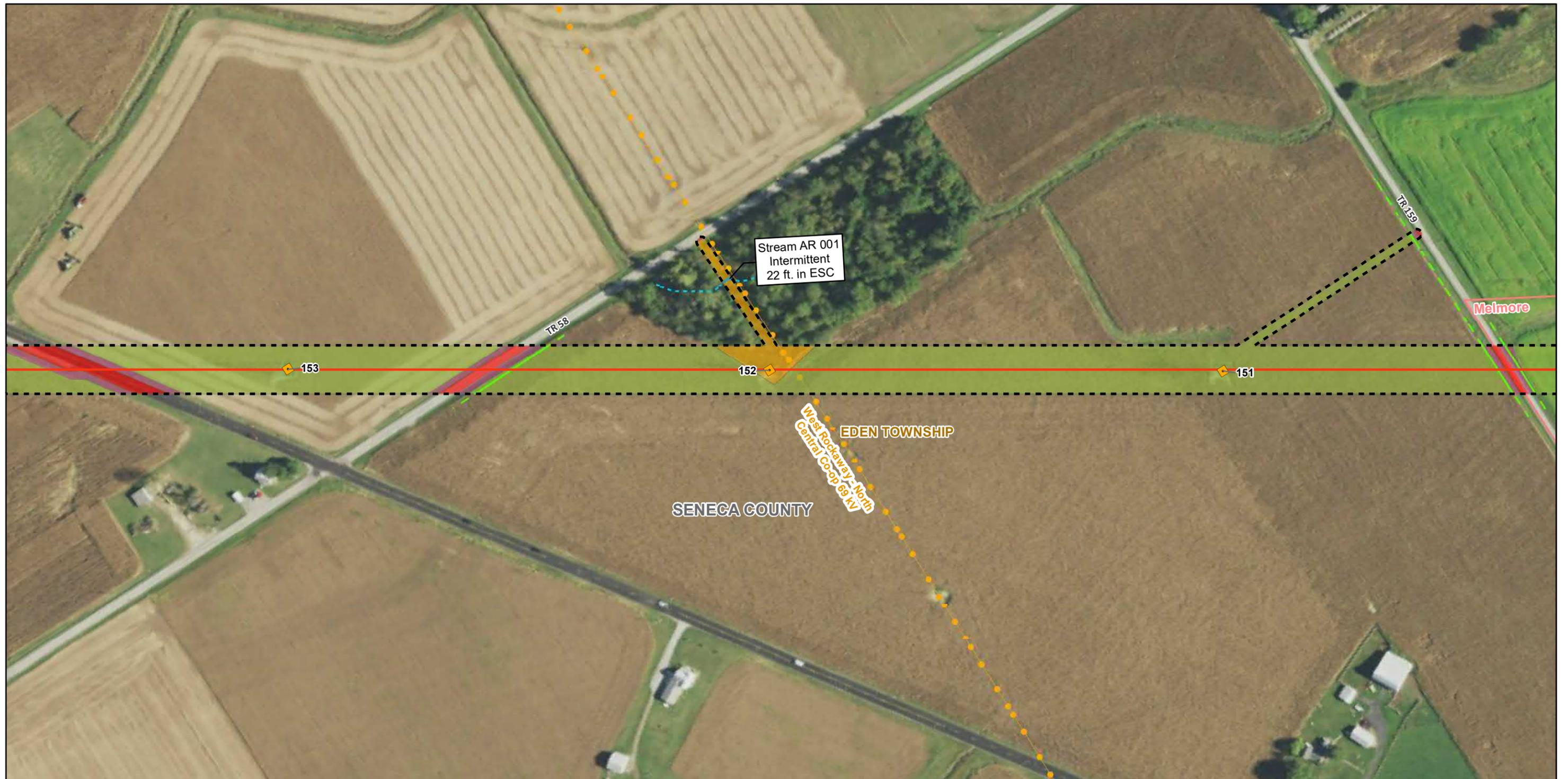
Coordinate System:
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August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT
Figure 4. Vegetation Coverage





Existing Structure	Developed, High Intensity	Page 2 of 23
Chatfield - Melmore 138 kV Transmission Line	Developed, Open Space	
Environmental Survey Corridor	Old Field	Sources: Floodplains (FEMA 2018) Hydrography (USGS 2019) NAIP Imagery (2021) NRCS Soil Units (USDA 2019) Wetlands (USFWS 2020)
Delineated Stream	Existing Transmission Line	
Approximate Stream	Municipal Boundary	Coordinate System: GCS WGS 1984
Non-JD Drainage	Township Boundary	August 25, 2022
Approximate Non-JD Drainage	County Boundary	
Cultivated Cropland		



CHATFIELD - MELMORE 138 KV
TRANSMISSION LINE PROJECT

Figure 4. Vegetation Coverage

0 200 400 Feet



- Existing Structure
- Chatfield - Melmore 138 kV Transmission Line
- Environmental Survey Corridor
- Non-JD Drainage
- Approximate Non-JD Drainage
- Cultivated Cropland
- Developed, High Intensity
- Developed, Open Space
- Municipal Boundary
- Township Boundary
- County Boundary

Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

Coordinate System:
 GCS WGS 1984

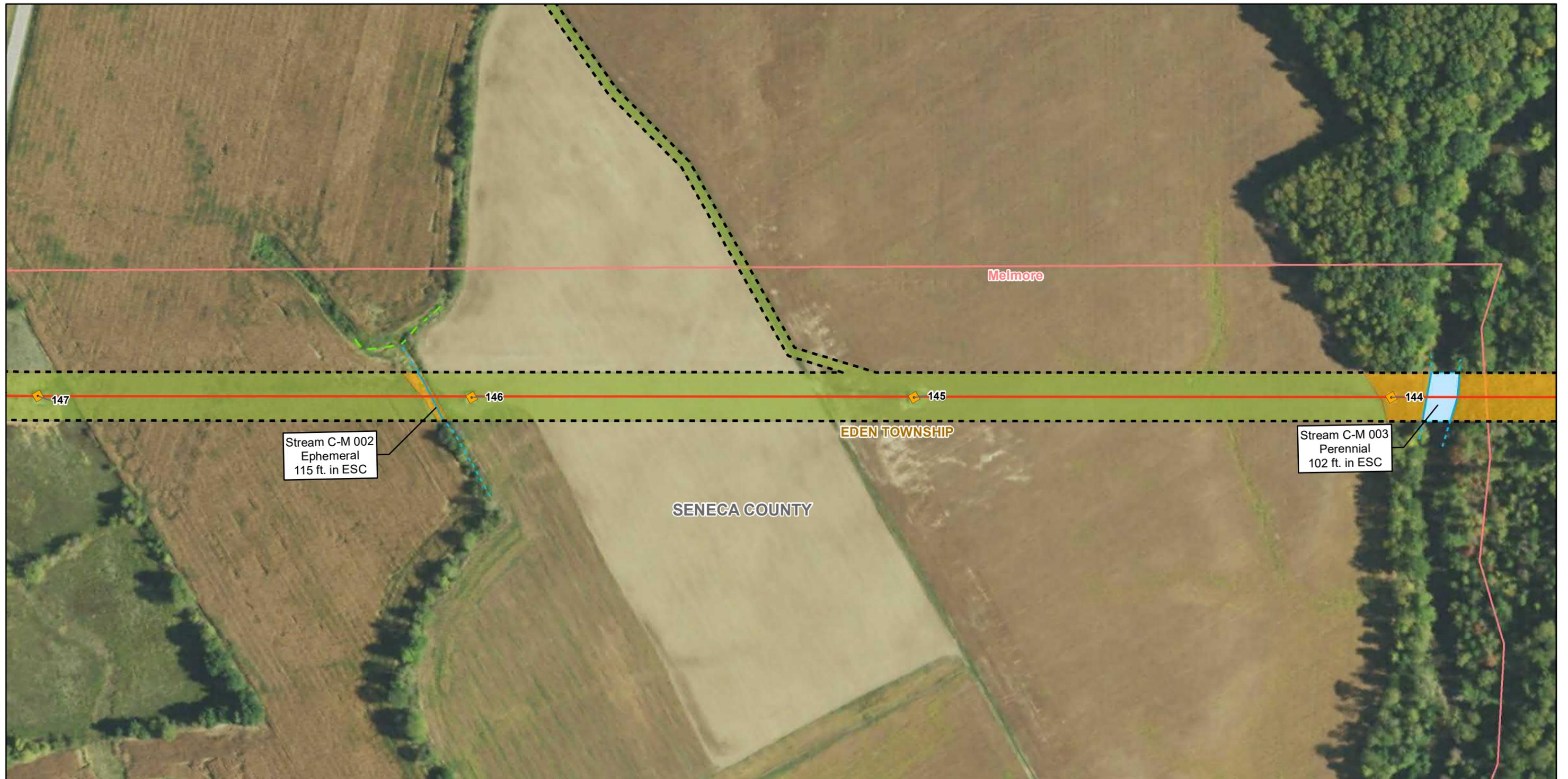
August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 4. Vegetation Coverage

0 200 400 Feet



- Existing Structure
- Old Field
- Chatfield - Melmore 138 kV Transmission Line
- Environmental Survey Corridor
- Municipal Boundary
- Delineated Stream
- Township Boundary
- Delineated Stream Polygon
- Approximate Stream
- Approximate Non-JD Drainage
- County Boundary
- Cultivated Cropland

Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

Coordinate System:
 GCS WGS 1984

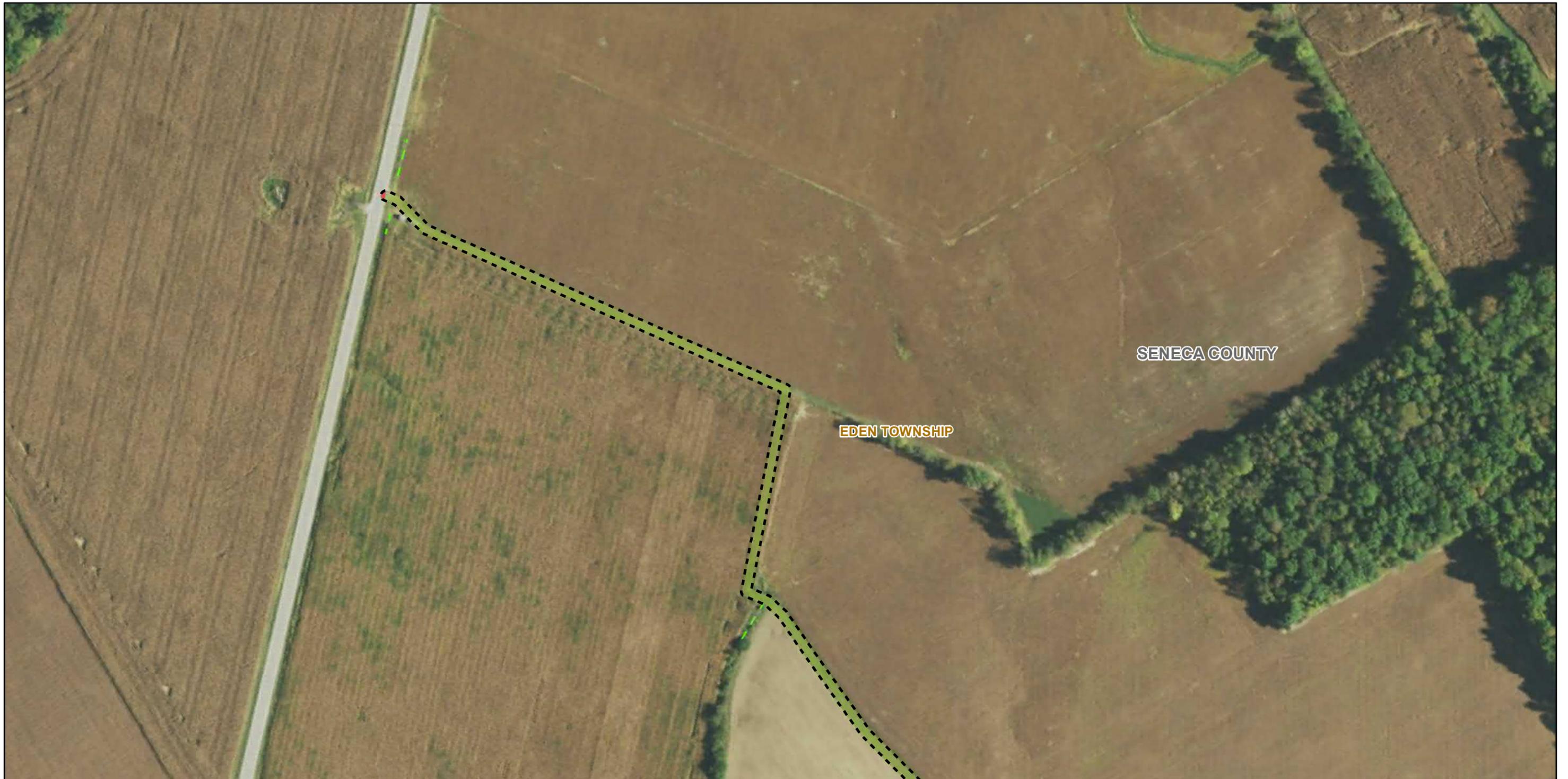
August 25, 2022



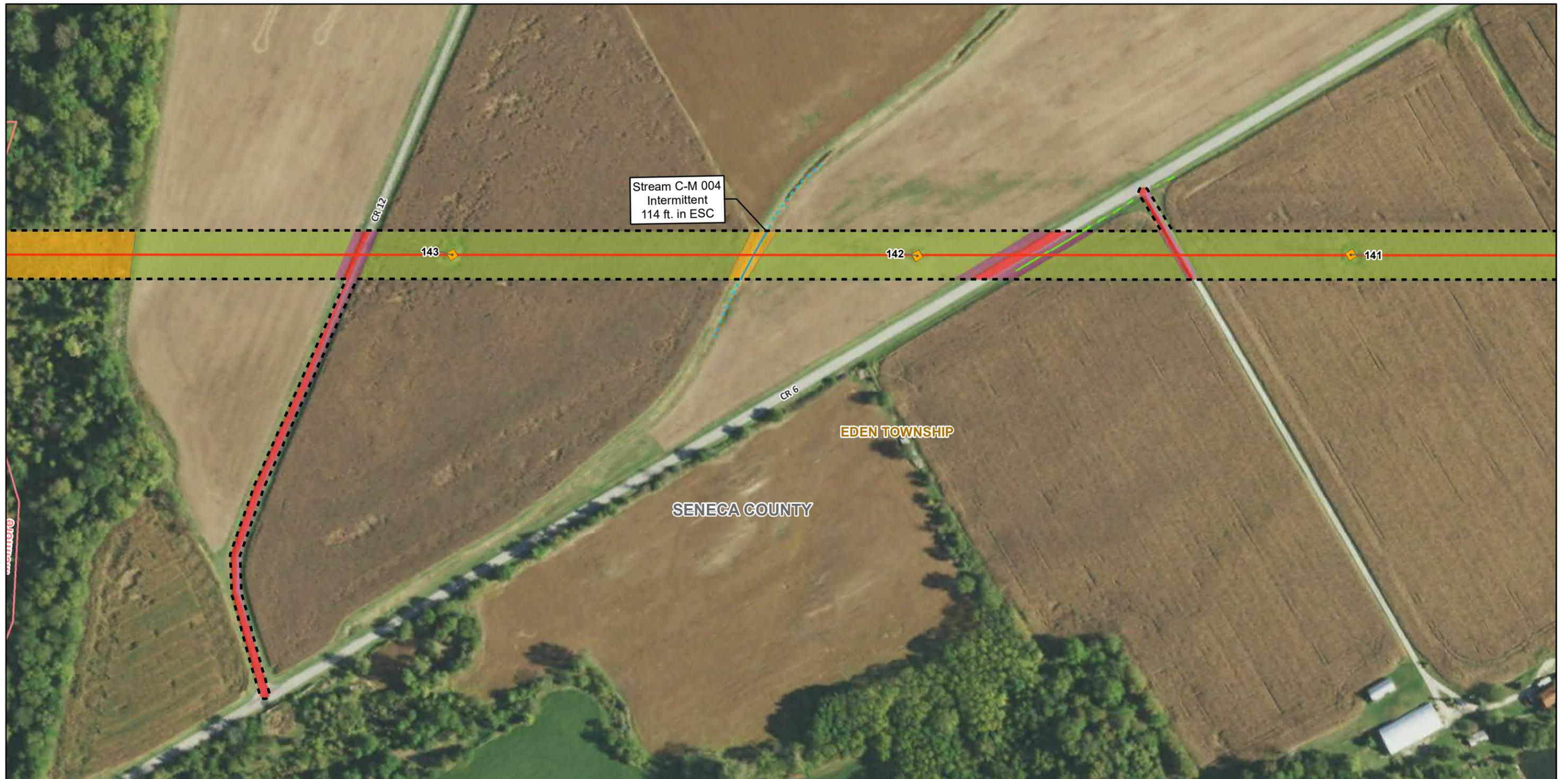
CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 4. Vegetation Coverage





<ul style="list-style-type: none">  Environmental Survey Corridor  Non-JD Drainage  Approximate Non-JD Drainage  Cultivated Cropland  Developed, High Intensity  Township Boundary  County Boundary 	<p>Page 5 of 23</p> <p>Sources: Floodplains (FEMA 2018) Hydrography (USGS 2019) NAIP Imagery (2021) NRCS Soil Units (USDA 2019) Wetlands (USFWS 2020)</p>		<p>CHATFIELD - MELMORE 138 KV TRANSMISSION LINE PROJECT</p> <p>Figure 4. Vegetation Coverage</p>
	<p>Coordinate System: GCS WGS 1984</p>		 
	<p>August 25, 2022</p>		 



Page 6 of 23

<ul style="list-style-type: none"> Existing Structure Chatfield - Melmore 138 kV Transmission Line Environmental Survey Corridor Delineated Stream Approximate Stream Non-JD Drainage Approximate Non-JD Drainage Cultivated Cropland 	<ul style="list-style-type: none"> Developed, High Intensity Developed, Open Space Old Field Municipal Boundary Township Boundary County Boundary
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Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

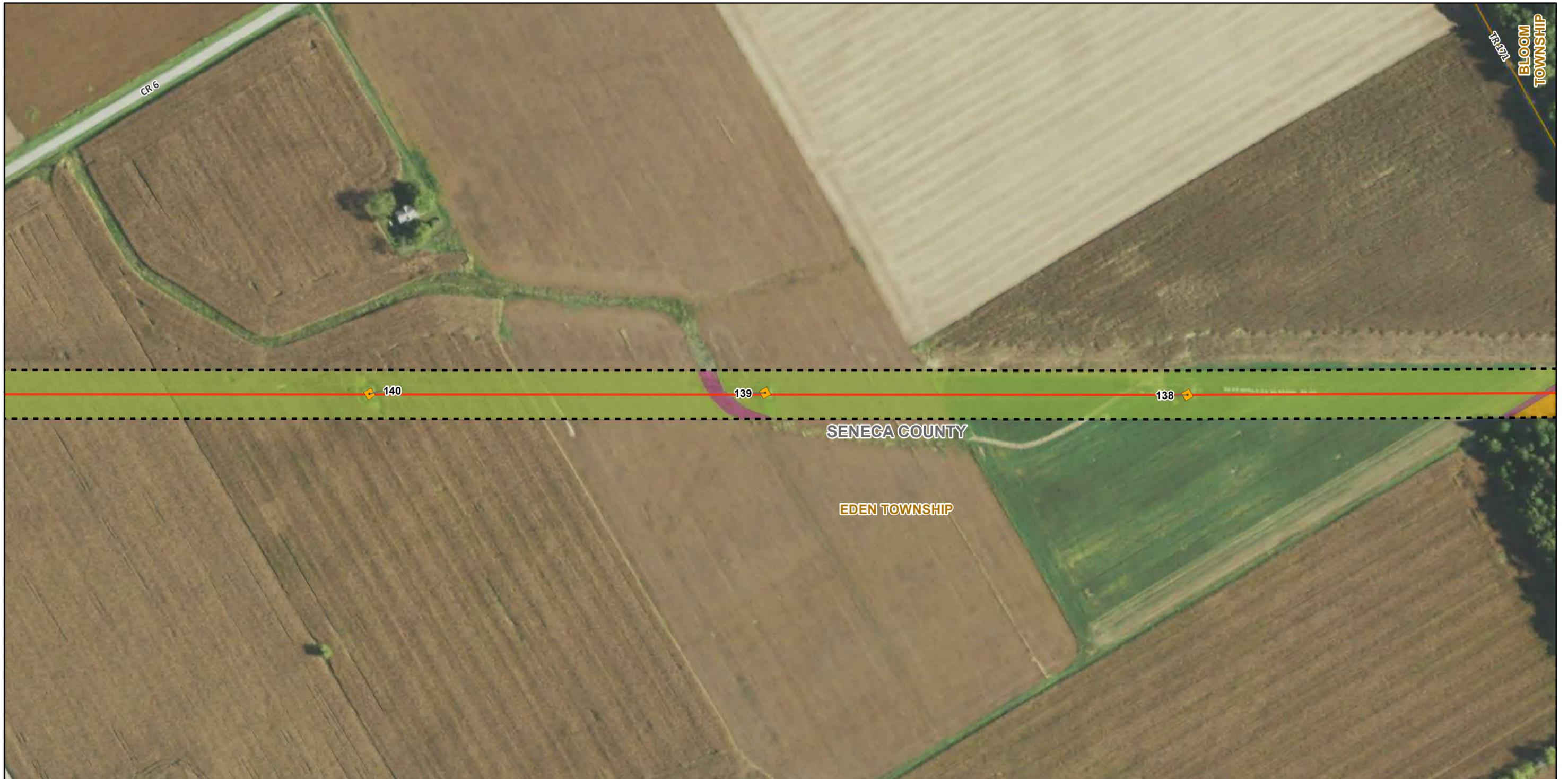
Coordinate System:
 GCS WGS 1984

August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 4. Vegetation Coverage



■ Existing Structure
— Chatfield - Melmore 138 kV Transmission Line
 Environmental Survey Corridor
 Cultivated Cropland
 Developed, Open Space
 Old Field
 Township Boundary
 County Boundary

Page 7 of 23

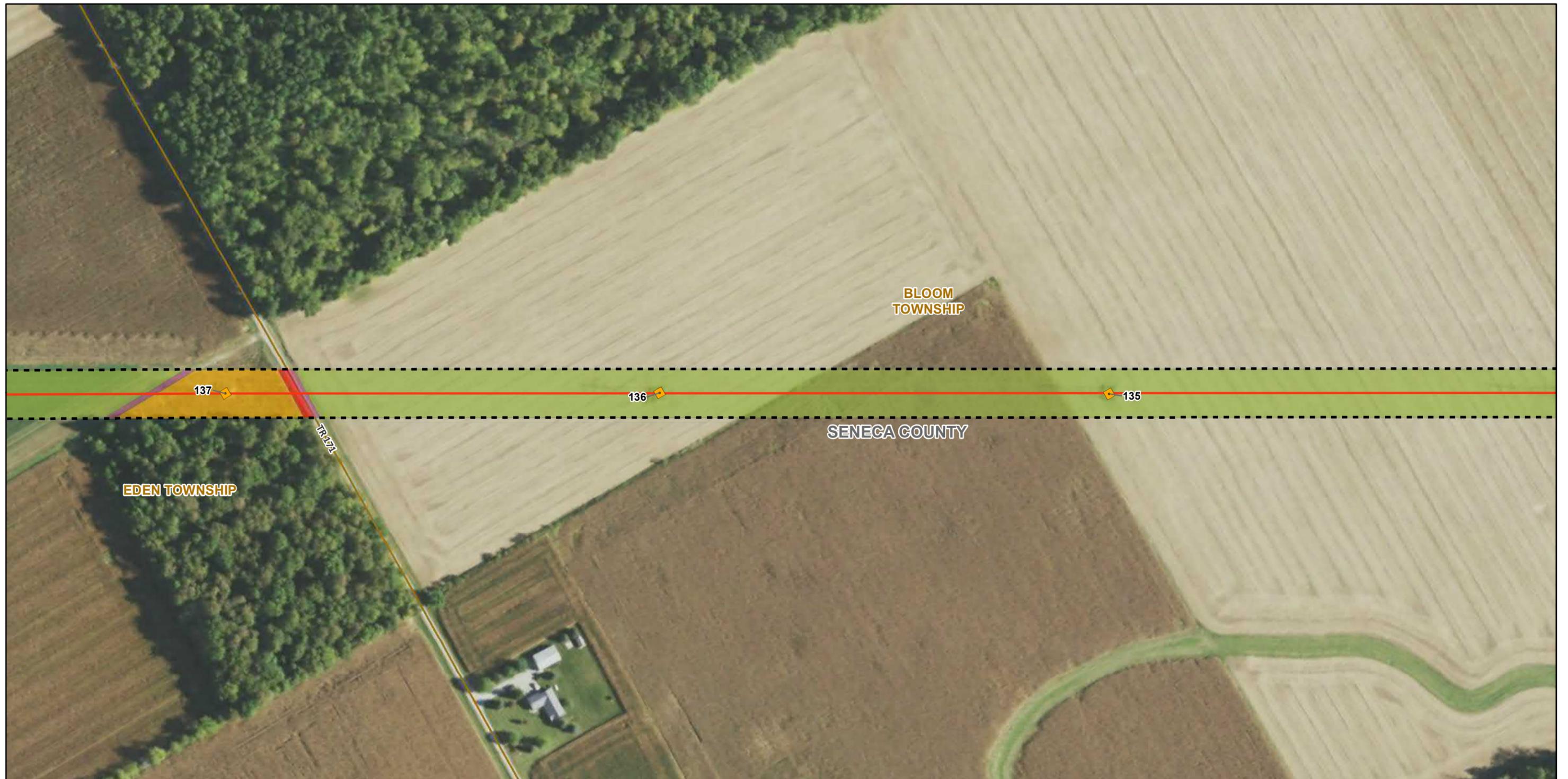
Sources:
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 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

Coordinate System:
 GCS WGS 1984

August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT
Figure 4. Vegetation Coverage



<ul style="list-style-type: none"> Existing Structure Chatfield - Melmore 138 kV Transmission Line Environmental Survey Corridor Cultivated Cropland Developed, High Intensity Developed, Open Space Old Field Township Boundary 	<ul style="list-style-type: none"> County Boundary 	Page 8 of 23
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Sources:
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 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

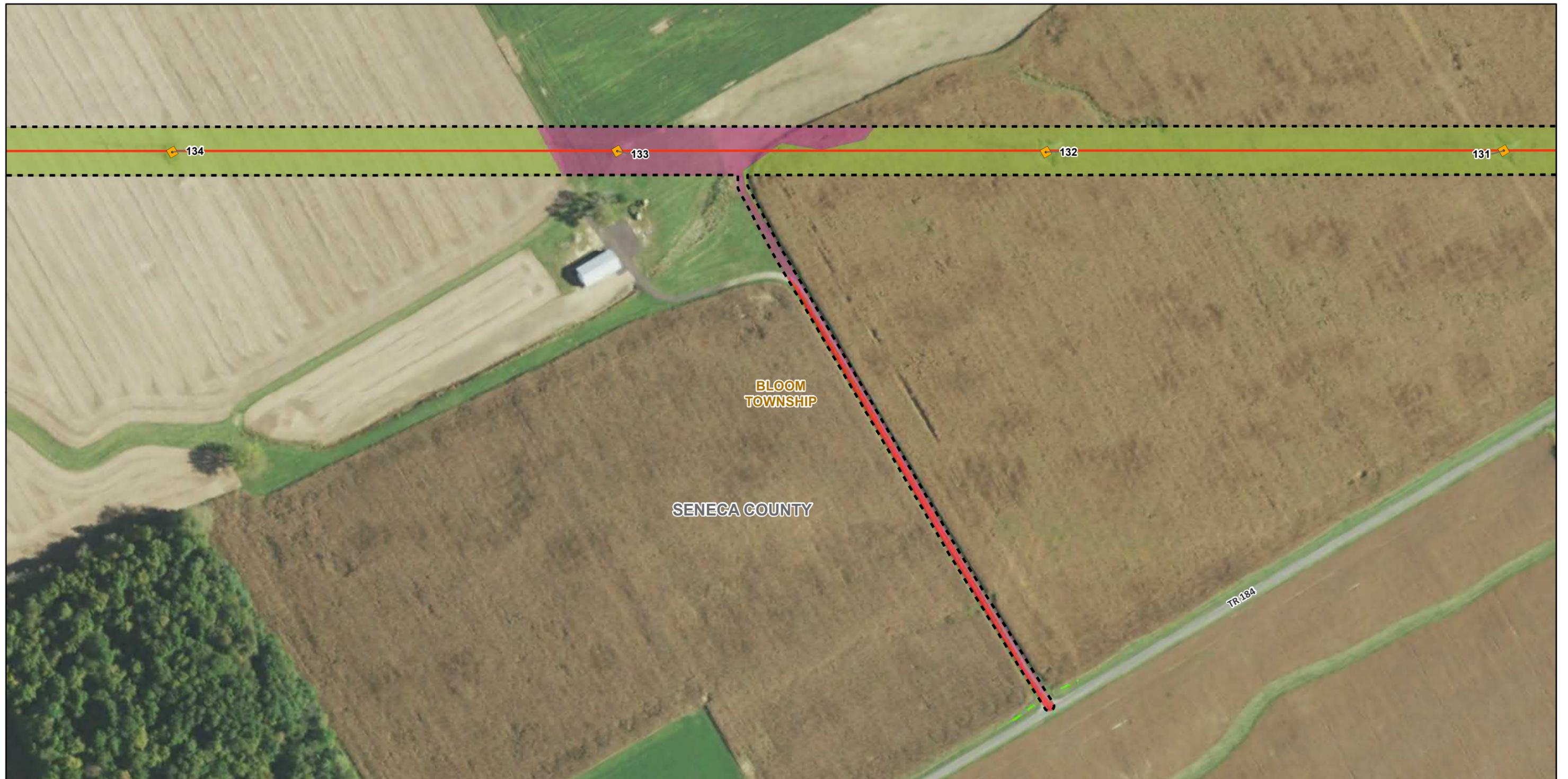
Coordinate System:
 GCS WGS 1984

August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 4. Vegetation Coverage



Existing Structure	County Boundary	Page 9 of 23
Chatfield - Melmore 138 kV Transmission Line		
Environmental Survey Corridor		
Approximate Non-JD Drainage		
Cultivated Cropland		
Developed, High Intensity		
Developed, Open Space		
Township Boundary		

Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

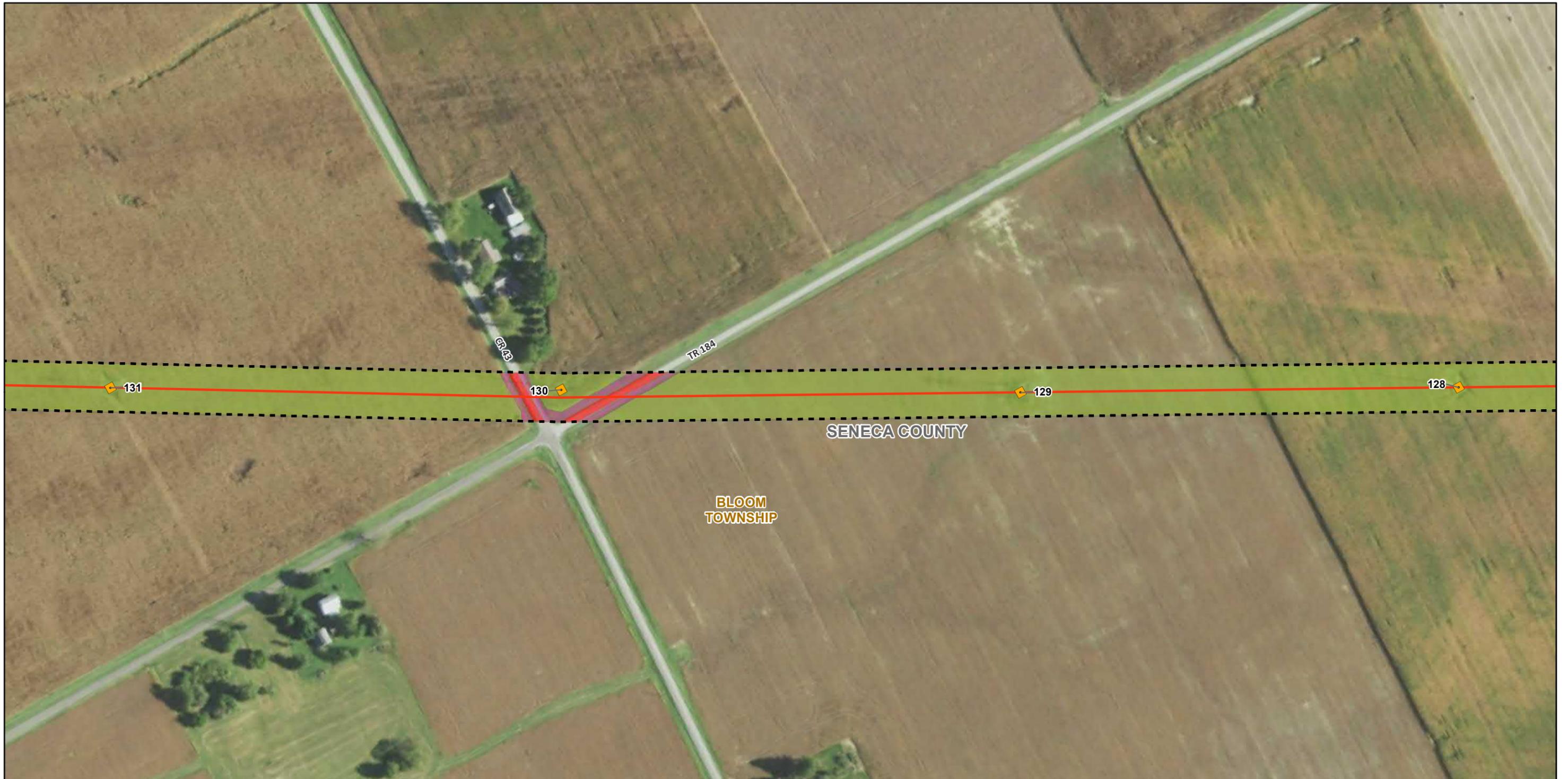
Coordinate System:
 GCS WGS 1984

August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 4. Vegetation Coverage



■ Existing Structure
— Chatfield - Melmore 138 kV Transmission Line
 Environmental Survey Corridor
 Cultivated Cropland
 Developed, High Intensity
 Developed, Open Space
 Township Boundary
 County Boundary

Page 10 of 23

Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

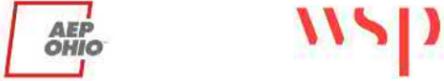
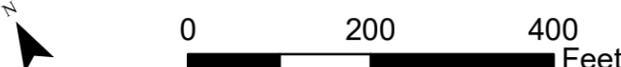
Coordinate System:
 GCS WGS 1984

August 25, 2022



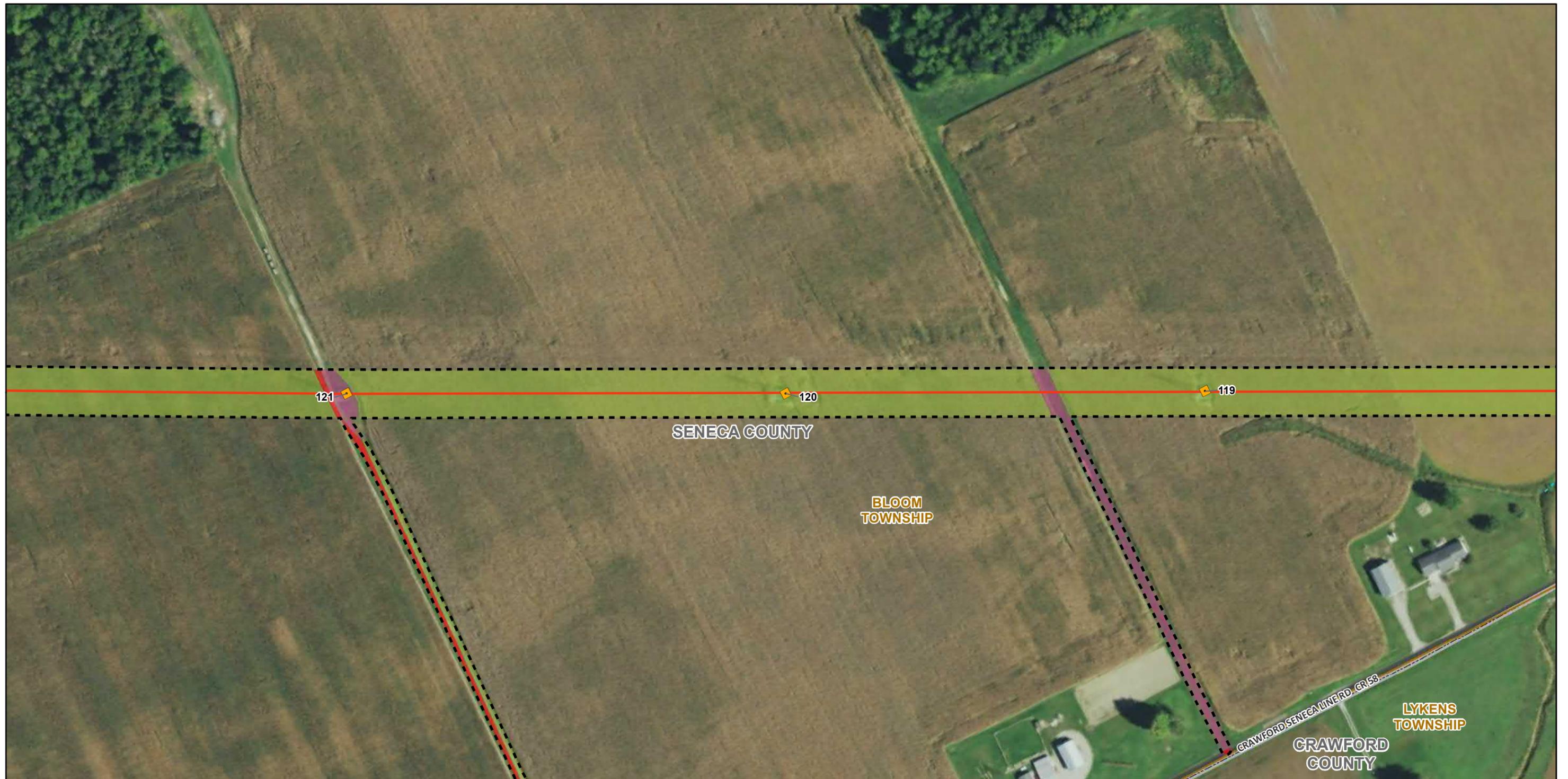
CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT
Figure 4. Vegetation Coverage



<ul style="list-style-type: none">  Existing Structure  Chatfield - Melmore 138 kV Transmission Line  Environmental Survey Corridor  Cultivated Cropland  Township Boundary  County Boundary 	<p>Page 11 of 23</p> <p>Sources: Floodplains (FEMA 2018) Hydrography (USGS 2019) NAIP Imagery (2021) NRCS Soil Units (USDA 2019) Wetlands (USFWS 2020)</p>		<p>CHATFIELD - MELMORE 138 KV TRANSMISSION LINE PROJECT</p> <p>Figure 4. Vegetation Coverage</p>
	<p>Coordinate System: GCS WGS 1984</p> <p>August 25, 2022</p>		 



<ul style="list-style-type: none"> Existing Structure Chatfield - Melmore 138 kV Transmission Line Environmental Survey Corridor Cultivated Cropland Township Boundary County Boundary 	<p>Page 12 of 23</p> <p>Sources: Floodplains (FEMA 2018) Hydrography (USGS 2019) NAIP Imagery (2021) NRCS Soil Units (USDA 2019) Wetlands (USFWS 2020)</p>		<p>CHATFIELD - MELMORE 138 KV TRANSMISSION LINE PROJECT</p> <p>Figure 4. Vegetation Coverage</p>
	<p>Coordinate System: GCS WGS 1984</p> <p>August 25, 2022</p>		



Existing Structure	County Boundary	Page 13 of 23
Chatfield - Melmore 138 kV Transmission Line		
Environmental Survey Corridor		
Approximate Stream		
Cultivated Cropland		
Developed, High Intensity		
Developed, Open Space		
Township Boundary		

Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

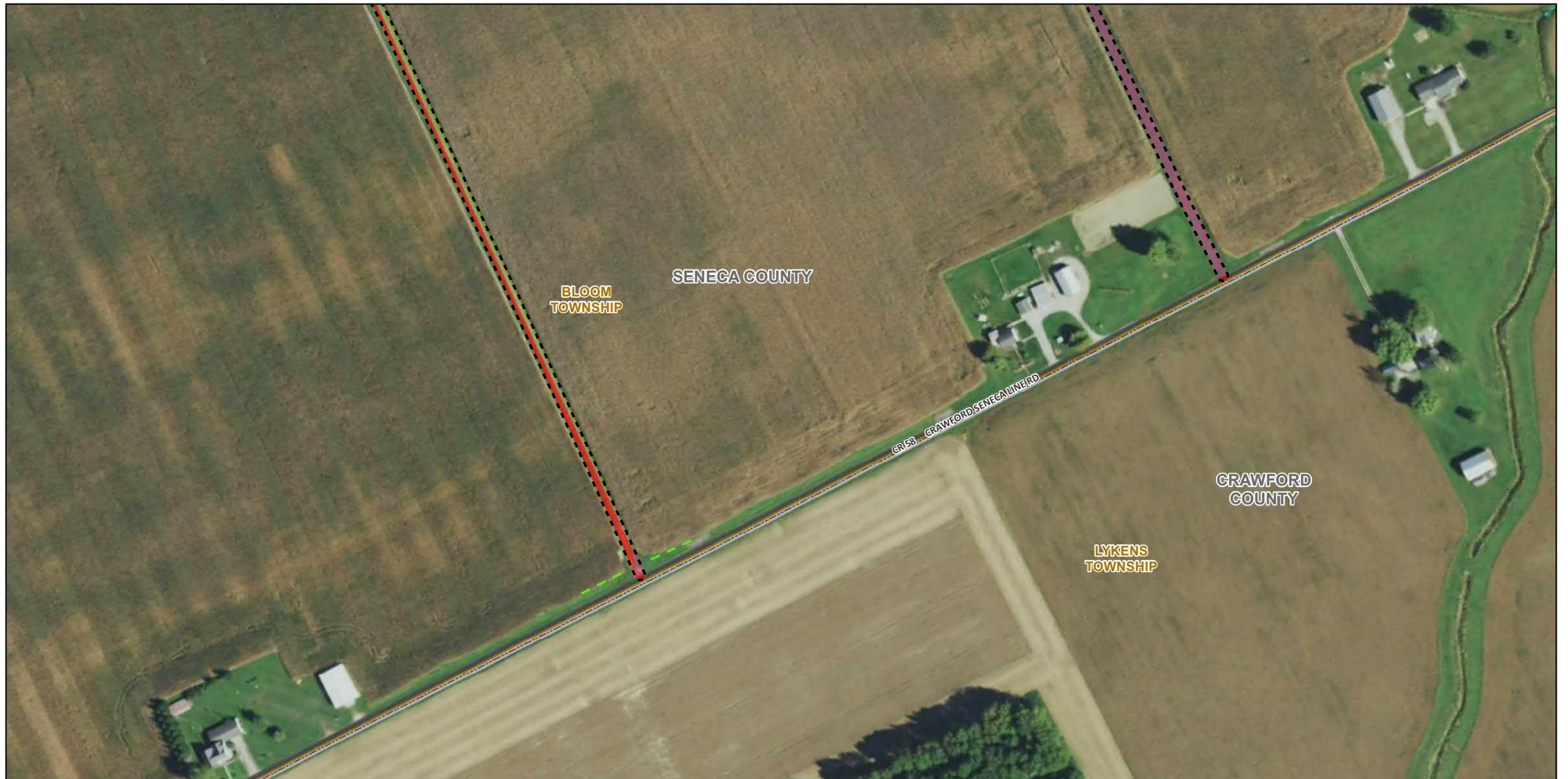
Coordinate System:
 GCS WGS 1984

August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 4. Vegetation Coverage



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- Environmental Survey Corridor
- Approximate Stream
- Approximate Non-JD Drainage
- Cultivated Cropland
- Developed, High Intensity
- Developed, Open Space
- Township Boundary
- County Boundary

Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

Coordinate System:
 GCS WGS 1984

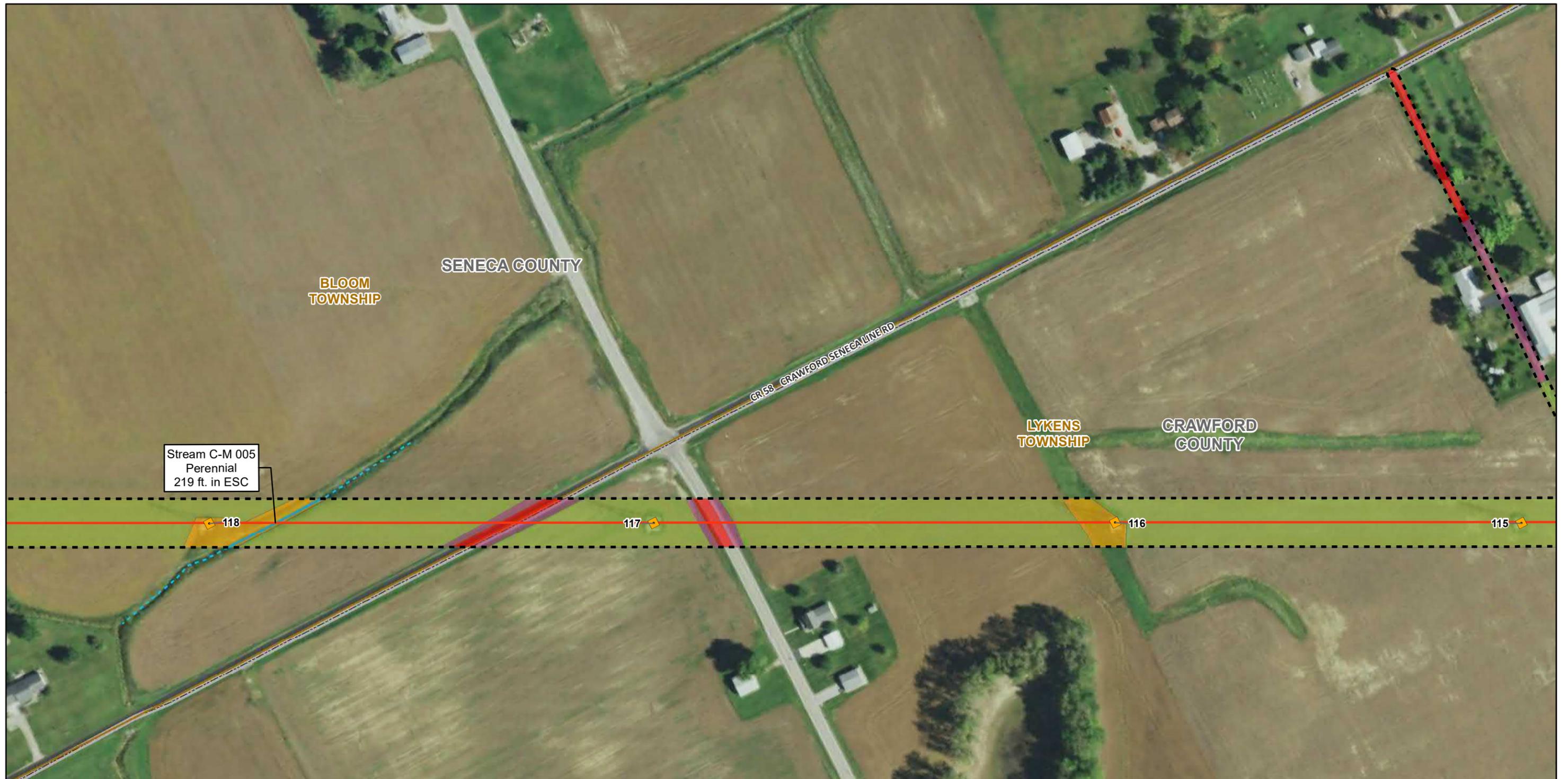
August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 4. Vegetation Coverage

0 200 400 Feet



Stream C-M 005
Perennial
219 ft. in ESC

SENECA COUNTY

BLOOM
TOWNSHIP

CR 53 CRAWFORD SENECA LINE RD

LYKENS
TOWNSHIP

CRAWFORD
COUNTY

118

117

116

115

- Existing Structure
- Chatfield - Melmore 138 kV Transmission Line
- Environmental Survey Corridor
- Delineated Stream
- Approximate Stream
- Cultivated Cropland
- Developed, High Intensity
- Developed, Open Space
- Old Field
- Township Boundary
- County Boundary

Sources:
Floodplains (FEMA 2018)
Hydrography (USGS 2019)
NAIP Imagery (2021)
NRCS Soil Units (USDA 2019)
Wetlands (USFWS 2020)

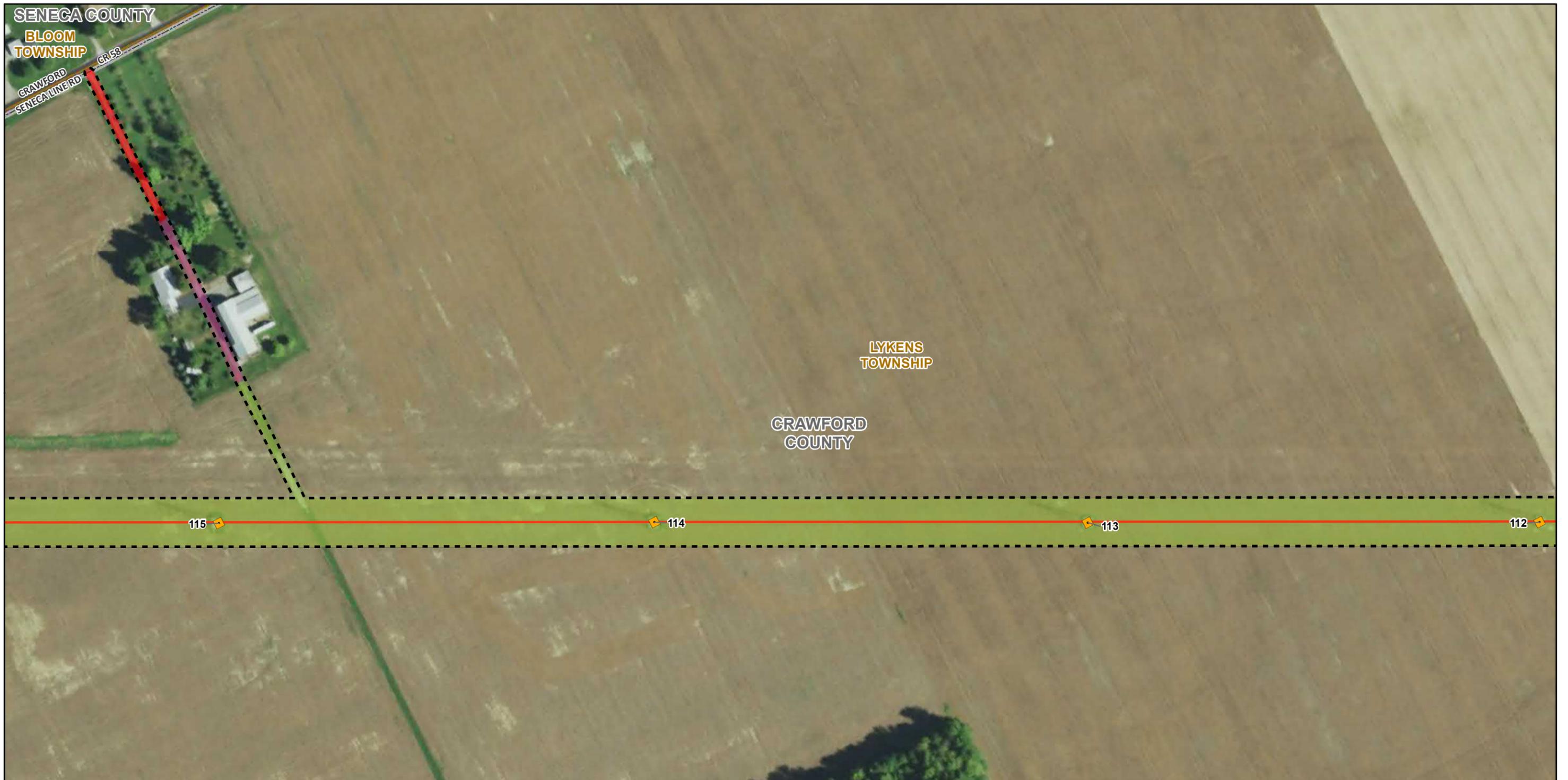
Coordinate System:
GCS WGS 1984

August 25, 2022



CHATFIELD - MELMORE 138 KV
TRANSMISSION LINE PROJECT
Figure 4. Vegetation Coverage





-  Existing Structure
-  Chatfield - Melmore 138 kV Transmission Line
-  Environmental Survey Corridor
-  Cultivated Cropland
-  Developed, High Intensity
-  Developed, Open Space
-  Township Boundary
-  County Boundary

Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

Coordinate System:
 GCS WGS 1984

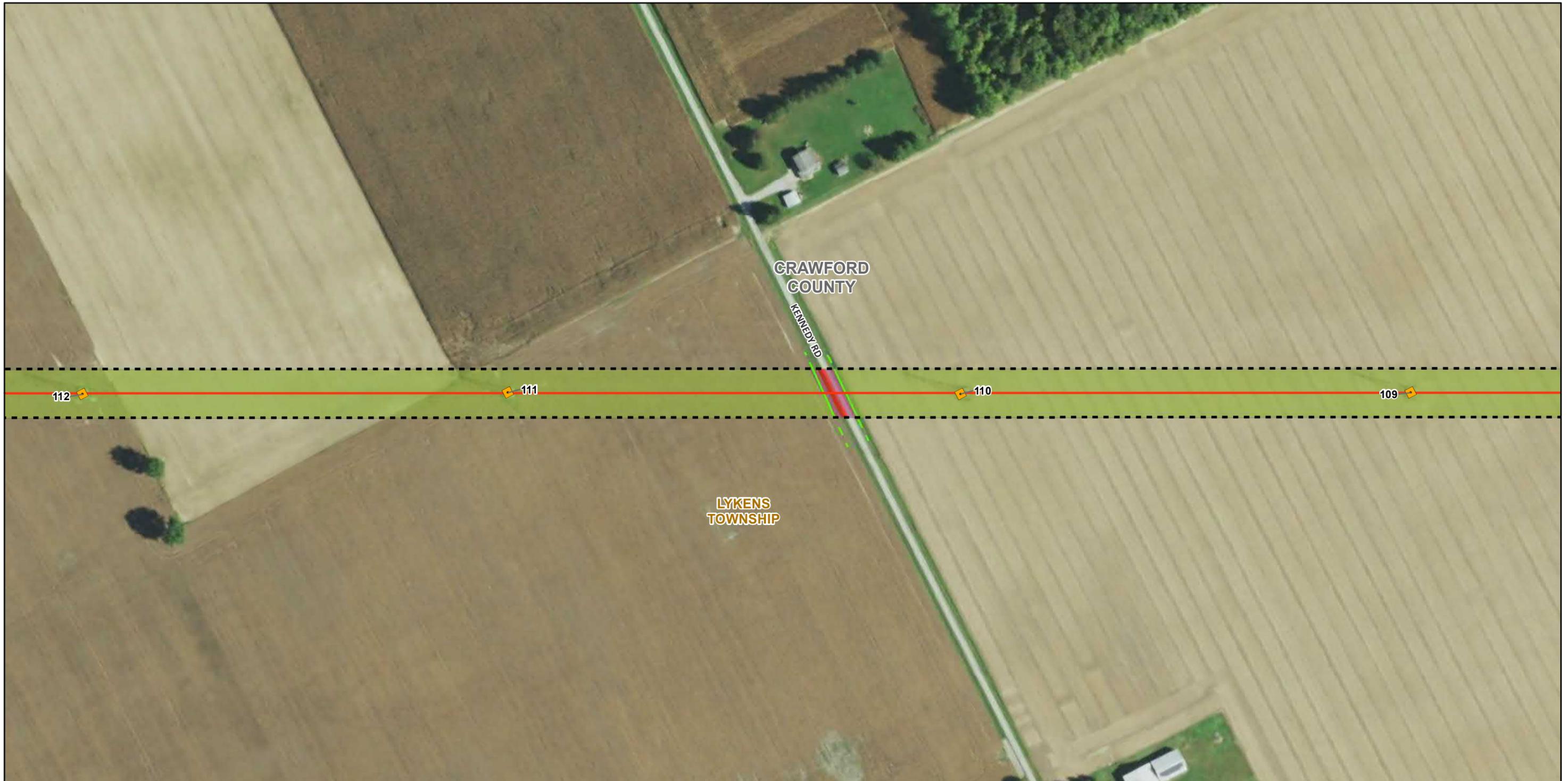
August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 4. Vegetation Coverage





-  Existing Structure
-  Chatfield - Melmore 138 kV Transmission Line
-  Environmental Survey Corridor
-  Non-JD Drainage
-  Approximate Non-JD Drainage
-  Cultivated Cropland
-  Developed, High Intensity
-  Developed, Open Space
-  Township Boundary
-  County Boundary

Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

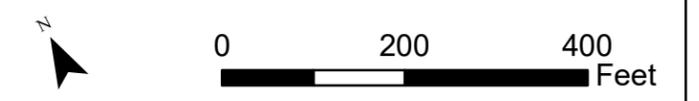
Coordinate System:
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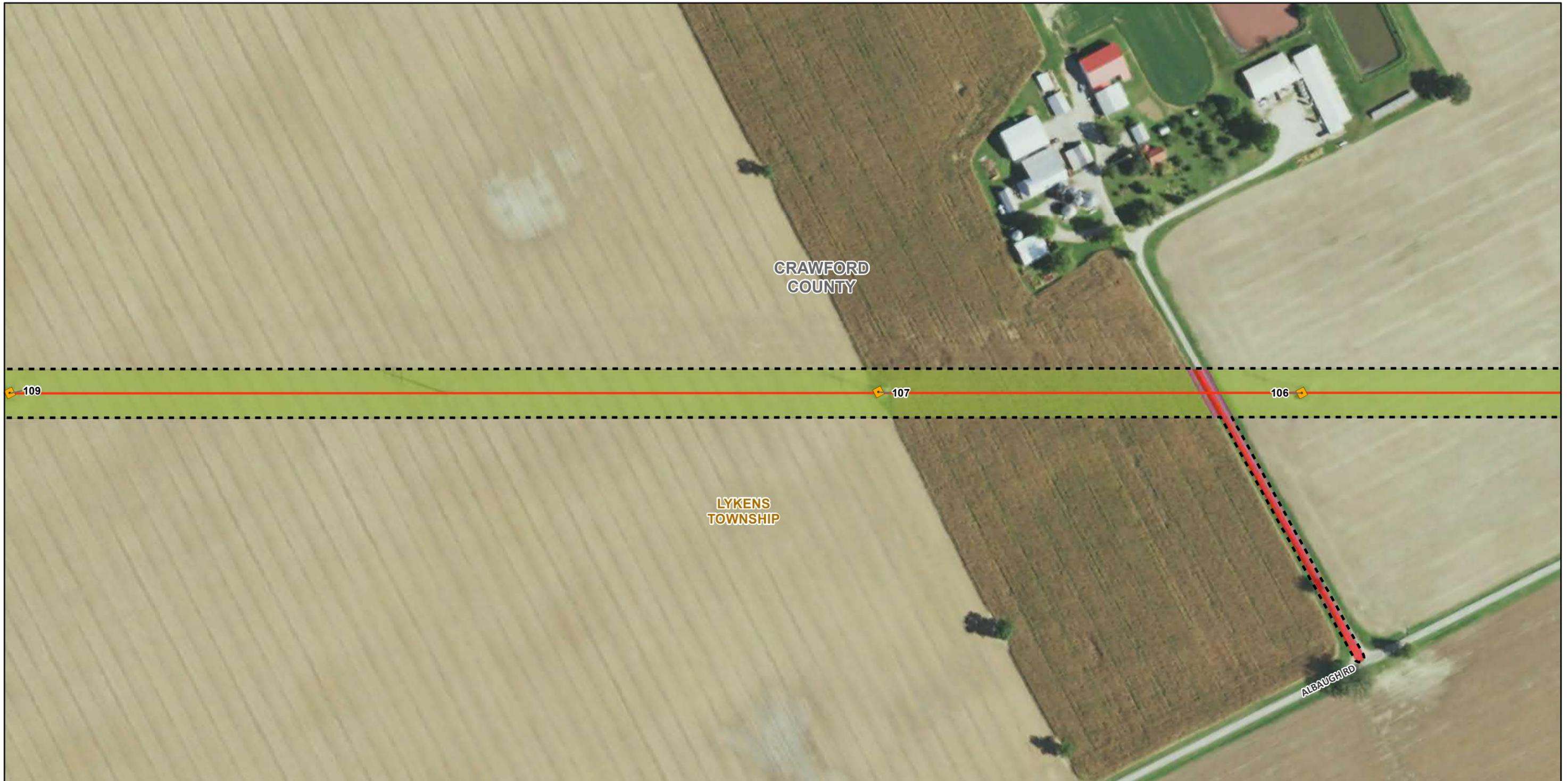
August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 4. Vegetation Coverage





- Existing Structure
- Chatfield - Melmore 138 kV Transmission Line
- Environmental Survey Corridor
- Cultivated Cropland
- Developed, High Intensity
- Developed, Open Space
- Township Boundary
- County Boundary

Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

Coordinate System:
 GCS WGS 1984

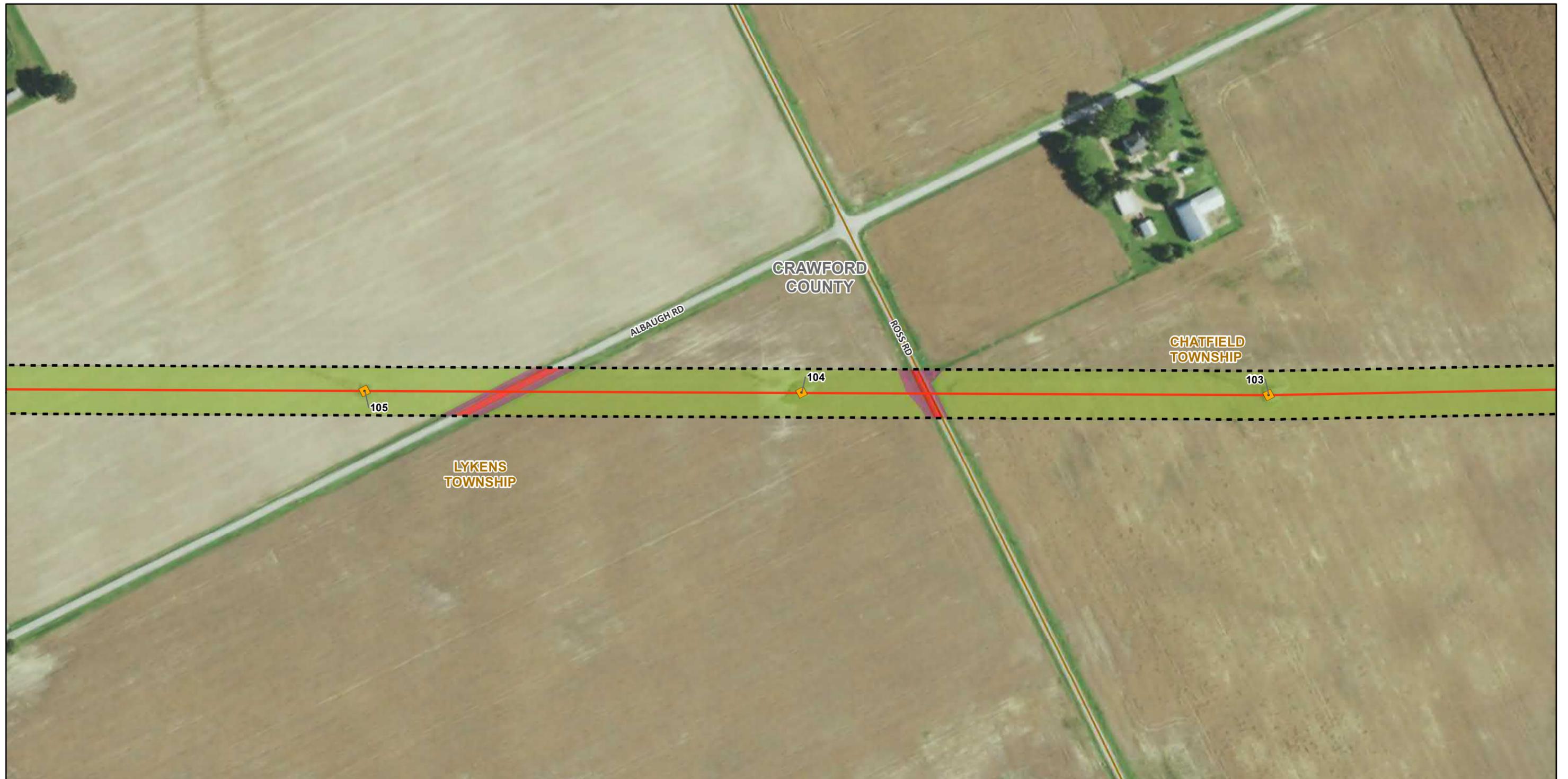
August 25, 2022



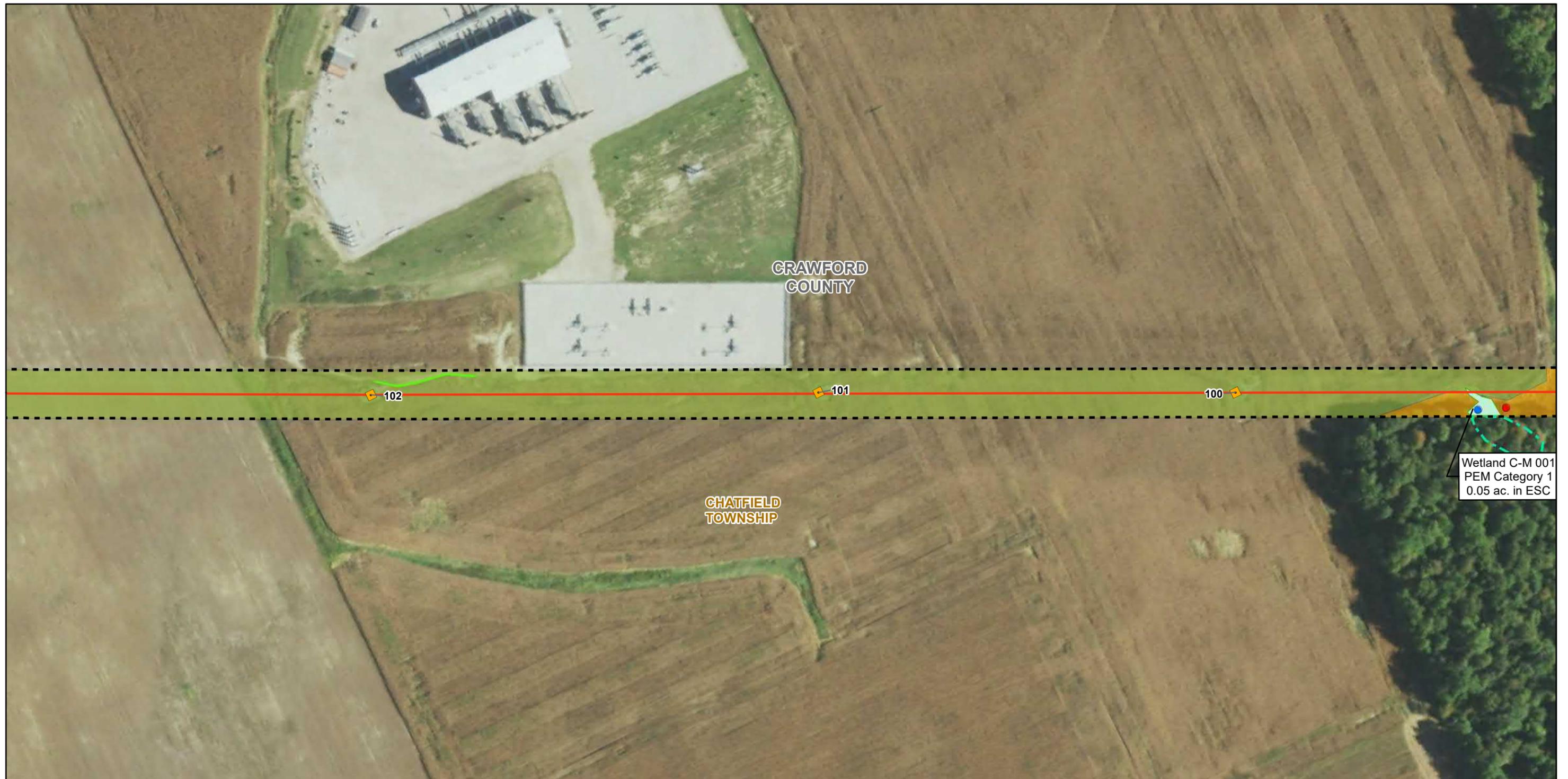
CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 4. Vegetation Coverage



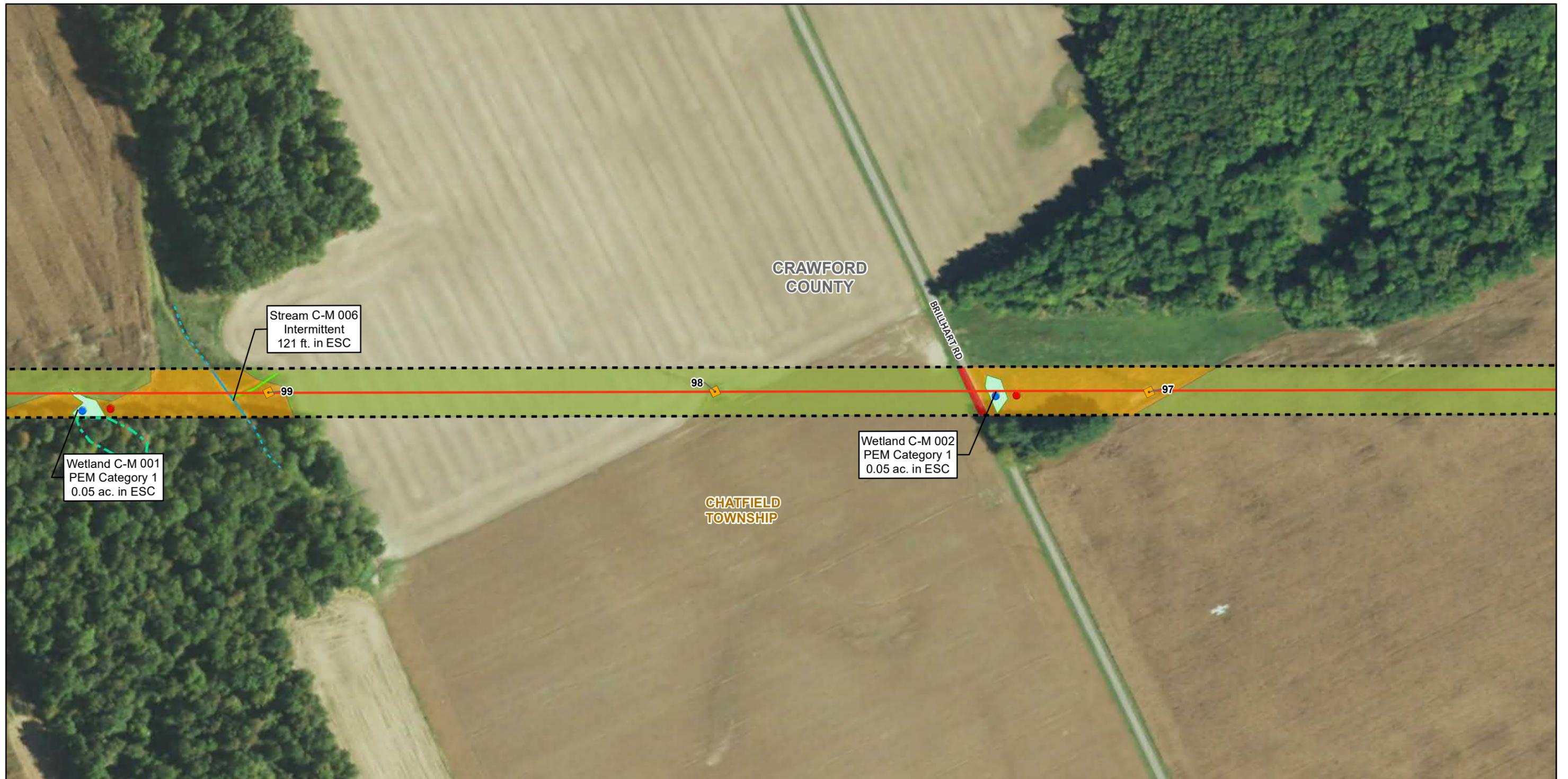


<ul style="list-style-type: none"> Existing Structure Chatfield - Melmore 138 kV Transmission Line Environmental Survey Corridor Cultivated Cropland Developed, High Intensity Developed, Open Space Township Boundary County Boundary 	<p>Page 19 of 23</p> <p>Sources: Floodplains (FEMA 2018) Hydrography (USGS 2019) NAIP Imagery (2021) NRCS Soil Units (USDA 2019) Wetlands (USFWS 2020)</p>		<p>CHATFIELD - MELMORE 138 KV TRANSMISSION LINE PROJECT</p> <p>Figure 4. Vegetation Coverage</p>
	<p>Coordinate System: GCS WGS 1984</p>		
	<p>August 25, 2022</p>		



Wetland C-M 001
 PEM Category 1
 0.05 ac. in ESC

<ul style="list-style-type: none"> Existing Structure Chatfield - Melmore 138 kV Transmission Line Environmental Survey Corridor Delineated PEM Wetland Approximate Delineated Wetland Non-JD Drainage Upland Data Point Wetland Data Point 	<ul style="list-style-type: none"> Cultivated Cropland Old Field Wetlands and Waterbodies Township Boundary County Boundary 	<p>Page 20 of 23</p> <p>Sources: Floodplains (FEMA 2018) Hydrography (USGS 2019) NAIP Imagery (2021) NRCS Soil Units (USDA 2019) Wetlands (USFWS 2020)</p> <p>Coordinate System: GCS WGS 1984</p> <p>August 25, 2022</p>		<p>CHATFIELD - MELMORE 138 KV TRANSMISSION LINE PROJECT</p> <p>Figure 4. Vegetation Coverage</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div> <div style="display: flex; justify-content: space-between; align-items: center;">   </div>
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<ul style="list-style-type: none"> Existing Structure Chatfield - Melmore 138 kV Transmission Line Environmental Survey Corridor Delineated PEM Wetland Approximate Delineated Wetland Delineated Stream Approximate Stream Non-JD Drainage 	<ul style="list-style-type: none"> Upland Data Point Wetland Data Point Cultivated Cropland Developed, High Intensity Old Field Wetlands and Waterbodies Township Boundary County Boundary 	<p>Page 21 of 23</p> <p>Sources: Floodplains (FEMA 2018) Hydrography (USGS 2019) NAIP Imagery (2021) NRCS Soil Units (USDA 2019) Wetlands (USFWS 2020)</p> <p>Coordinate System: GCS WGS 1984</p> <p>August 25, 2022</p>		<p>CHATFIELD - MELMORE 138 KV TRANSMISSION LINE PROJECT</p> <p>Figure 4. Vegetation Coverage</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div> <div style="display: flex; justify-content: space-between; align-items: center;">   </div>
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-  Existing Structure
-  Chatfield - Melmore 138 kV Transmission Line
-  Environmental Survey Corridor
-  Cultivated Cropland
-  Township Boundary
-  County Boundary

Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

Coordinate System:
 GCS WGS 1984

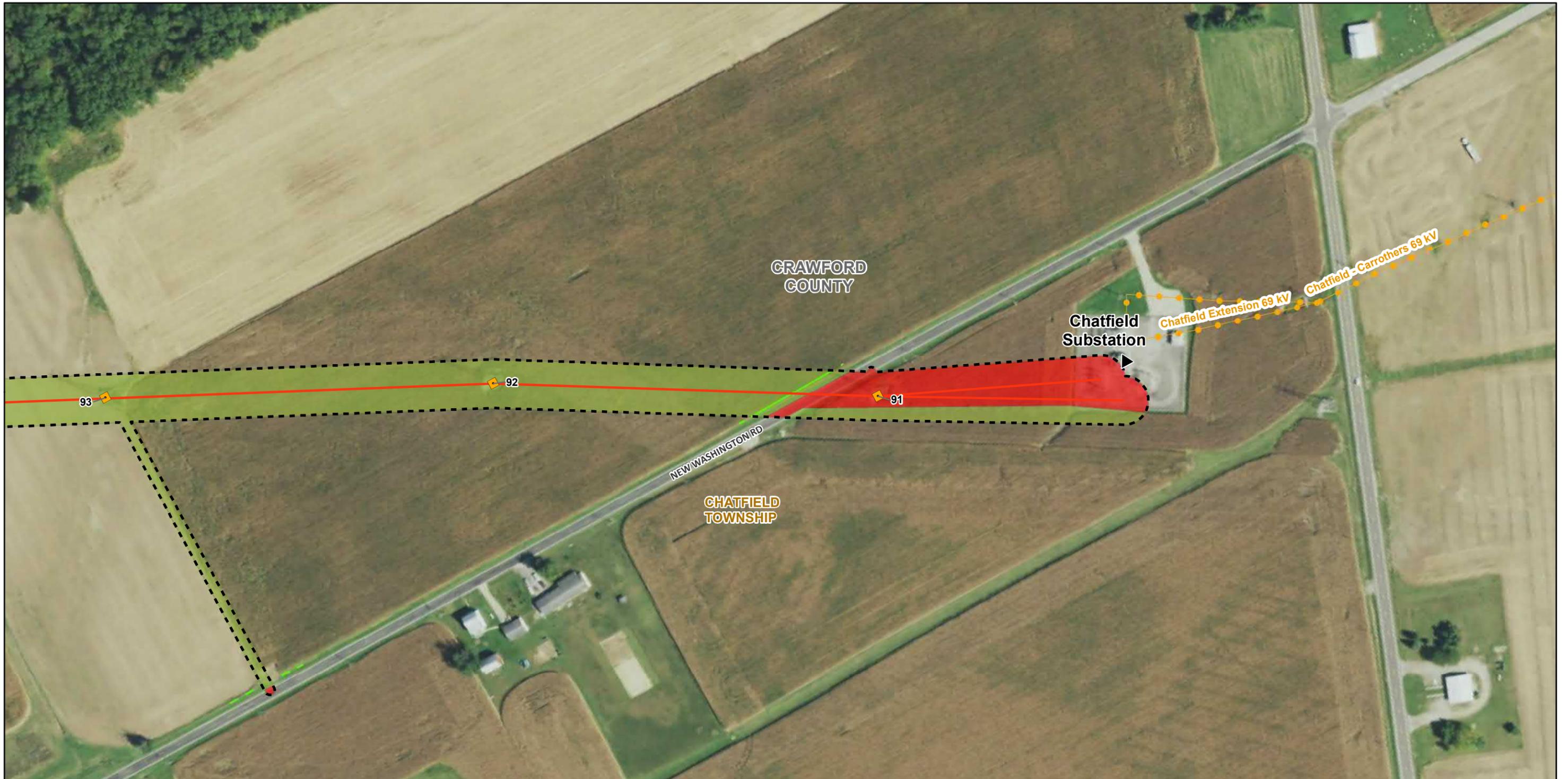
August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT

Figure 4. Vegetation Coverage





- ▲ Substation
- Existing Structure
- Chatfield - Melmore 138 kV Transmission Line
- - - Environmental Survey Corridor
- Non-JD Drainage
- - - Approximate Non-JD Drainage
- Cultivated Cropland
- Developed, High Intensity

- Existing Transmission Line
- Township Boundary
- County Boundary

Sources:
 Floodplains (FEMA 2018)
 Hydrography (USGS 2019)
 NAIP Imagery (2021)
 NRCS Soil Units (USDA 2019)
 Wetlands (USFWS 2020)

Coordinate System:
 GCS WGS 1984

August 25, 2022



CHATFIELD - MELMORE 138 KV
 TRANSMISSION LINE PROJECT
Figure 4. Vegetation Coverage



APPENDIX

B USACE WETLAND DETERMINATION FORMS – MIDWEST REGION

Project/Site: Chatfield - Melmore City/County: Crawford County Sampling Date: 5/11/2022
 Applicant/Owner: AEP Ohio State: OH Sampling Point: WDP 001
 Investigator(s): B. Rolfes, P. Renner Section, Township, Range: _____
 Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 40.9735 Long: -82.9649 Datum: WGS 84
 Soil Map Unit Name: BgB - Bennington silt loam, 2 to 6 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
---	---

Remarks:
 Depressional PEM Wetland, within existing Transmission line ROW.

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____					Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____					
3. _____					
4. _____					
5. _____					
		_____ =Total Cover			
Sapling/Shrub Stratum	(Plot size: <u>20</u>)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FACU species _____ x 3 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. <u>Cephalanthus occidentalis</u>		15	Yes	OBL	
2. _____					
3. _____					
4. _____					
5. _____					
		15 =Total Cover			
Herb Stratum	(Plot size: <u>10</u>)				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Impatiens capensis</u>		35	Yes	FACW	
2. <u>Phalaris arundinacea</u>		15	Yes	FACW	
3. <u>Carex lurida</u>		15	Yes	OBL	
4. <u>Onoclea sensibilis</u>		10	No	FACW	
5. <u>Rumex crispus</u>		10	No	FAC	
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
		85 =Total Cover			
Woody Vine Stratum	(Plot size: _____)				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____					
2. _____					
		_____ =Total Cover			

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: WDP 001

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1	100					Muck	
4-16	10YR 3/2	100						

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Red Parent Material (F21)
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Other (Explain in Remarks)
<input checked="" type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Dark Surface (S7)	
<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	

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

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

Remarks:

HYDROLOGY

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

Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>4</u> Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>8</u> Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>12</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Project/Site: Chatfield - Melmore City/County: Crawford Sampling Date: 5/11/2022
 Applicant/Owner: AEP Ohio State: OH Sampling Point: UDP 001
 Investigator(s): B. Rolfes, P. Renner Section, Township, Range: _____
 Landform (hillside, terrace, etc.): plain Local relief (concave, convex, none): none
 Slope (%): 0 Lat: 40.9734 Long: -82.9647 Datum: WGS 84
 Soil Map Unit Name: Cr - Condit-Bennington silt loams NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
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Remarks:
 Upland Data Point corresponding to PEM Wetland C-M 001, within existing transmission line ROW.

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
				=Total Cover
<u>Sapling/Shrub Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
				=Total Cover
<u>Herb Stratum</u> (Plot size: <u>10</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Setaria faberi</u>	45	Yes	FACU	
2. <u>Poa pratensis</u>	20	Yes	UPL	
3. <u>Impatiens capensis</u>	15	No	FACW	
4. <u>Verbascum thapsus</u>	10	No	UPL	
5. <u>Viola sororia</u>	5	No	FAC	
6. <u>Trillium grandiflorum</u>	5	No	UPL	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
				100 =Total Cover
<u>Woody Vine Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
				=Total Cover

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
 Total Number of Dominant Species Across All Strata: 2 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>15</u>	x 2 = <u>30</u>
FAC species <u>5</u>	x 3 = <u>15</u>
FACU species <u>45</u>	x 4 = <u>180</u>
UPL species <u>35</u>	x 5 = <u>175</u>
Column Totals: <u>100</u> (A)	<u>400</u> (B)
Prevalence Index = B/A = <u>4.00</u>	

Hydrophytic Vegetation Indicators:
 ___ 1 - Rapid Test for Hydrophytic Vegetation
 ___ 2 - Dominance Test is >50%
 ___ 3 - Prevalence Index is ≤3.0¹
 ___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>
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Remarks: (Include photo numbers here or on a separate sheet.)
 Hydrophytic vegetation not observed .

SOIL

Sampling Point: UDP 001

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹		
0 - 12	10YR 4/3	100				Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Red Parent Material (F21) <input type="checkbox"/> Very Shallow Dark Surface (F22) <input type="checkbox"/> Other (Explain in Remarks)
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³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks:
No indicators of hydric soils observed.

HYDROLOGY

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

Remarks:
No indicators of wetland hydrology observed.

Project/Site: Chatfield - Melmore City/County: Crawford County Sampling Date: 5/11/2022
 Applicant/Owner: AEP Ohio State: OH Sampling Point: WDP 002
 Investigator(s): B. Rolfes, P. Renner Section, Township, Range: _____
 Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 40.9713 Long: -82.9587 Datum: WGS 84
 Soil Map Unit Name: Cr - Condit-Bennington silt loams NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
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Remarks:
 Depressional PEM Wetland, within existing Transmission line ROW.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ =Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ =Total Cover				
Herb Stratum (Plot size: <u>10</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Phalaris arundinacea</u>	<u>95</u>	<u>Yes</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>95</u> =Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ =Total Cover				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)
 Total Number of Dominant Species Across All Strata: _____ (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

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

Hydrophytic Vegetation Indicators:
X 1 - Rapid Test for Hydrophytic Vegetation
 _____ 2 - Dominance Test is >50%
 _____ 3 - Prevalence Index is ≤3.0¹
 _____ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 _____ Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: WDP 002

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 2/2	100					Muck	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

<p>Hydric Soil Indicators:</p> <p><input type="checkbox"/> Histosol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input checked="" type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5)</p> <p><input type="checkbox"/> 2 cm Muck (A10)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)</p>	<p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Dark Surface (S7)</p> <p><input type="checkbox"/> Loamy Mucky Mineral (F1)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p>	<p>Indicators for Problematic Hydric Soils³:</p> <p><input type="checkbox"/> Coast Prairie Redox (A16)</p> <p><input type="checkbox"/> Iron-Manganese Masses (F12)</p> <p><input type="checkbox"/> Red Parent Material (F21)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (F22)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
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³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<p>Restrictive Layer (if observed):</p> <p>Type: _____ Rock _____</p> <p>Depth (inches): _____ 6 _____</p>	<p>Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____</p>
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Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <p><input checked="" type="checkbox"/> Surface Water (A1)</p> <p><input checked="" type="checkbox"/> High Water Table (A2)</p> <p><input checked="" type="checkbox"/> Saturation (A3)</p> <p><input type="checkbox"/> Water Marks (B1)</p> <p><input type="checkbox"/> Sediment Deposits (B2)</p> <p><input type="checkbox"/> Drift Deposits (B3)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4)</p> <p><input type="checkbox"/> Iron Deposits (B5)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p>	<p><u>Secondary Indicators (minimum of two required)</u></p> <p><input type="checkbox"/> Water-Stained Leaves (B9)</p> <p><input type="checkbox"/> Aquatic Fauna (B13)</p> <p><input type="checkbox"/> True Aquatic Plants (B14)</p> <p><input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)</p> <p><input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</p> <p><input type="checkbox"/> Thin Muck Surface (C7)</p> <p><input type="checkbox"/> Gauge or Well Data (D9)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>	<p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input type="checkbox"/> Stunted or Stressed Plants (D1)</p> <p><input checked="" type="checkbox"/> Geomorphic Position (D2)</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</p>
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<p>Field Observations:</p> <p>Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>2</u></p> <p>Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>8</u></p> <p>Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>12</u></p> <p>(includes capillary fringe)</p>	<p>Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____</p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Project/Site: Chatfield - Melmore City/County: Crawford Sampling Date: 5/11/2022
 Applicant/Owner: AEP Ohio State: OH Sampling Point: UDP 002
 Investigator(s): B. Rolfes, P. Renner Section, Township, Range: _____
 Landform (hillside, terrace, etc.): plain Local relief (concave, convex, none): none
 Slope (%): 0 Lat: 40.9713 Long: -82.9586 Datum: WGS 84
 Soil Map Unit Name: Cr - Condit-Bennington silt loams NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
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Remarks:
 Upland Data Point corresponding to PEM Wetland C-M 002, within existing transmission line ROW.

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
				=Total Cover
<u>Sapling/Shrub Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
				=Total Cover
<u>Herb Stratum</u> (Plot size: <u>10</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Poa pratensis</u>	35	Yes	FAC	
2. <u>Geum canadense</u>	15	Yes	UPL	
3. <u>Achillea millefolium</u>	10	No	FACU	
4. <u>Taraxacum officinale</u>	10	No	FACU	
5. <u>Setaria faberi</u>	10	No	FACU	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
				80 =Total Cover
<u>Woody Vine Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
				=Total Cover

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
 Total Number of Dominant Species Across All Strata: 2 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	<u>0</u>	x 1 =	<u>0</u>
FACW species	<u>0</u>	x 2 =	<u>0</u>
FAC species	<u>35</u>	x 3 =	<u>105</u>
FACU species	<u>30</u>	x 4 =	<u>120</u>
UPL species	<u>15</u>	x 5 =	<u>75</u>
Column Totals:	<u>80</u> (A)		<u>300</u> (B)
Prevalence Index = B/A = <u>3.75</u>			

Hydrophytic Vegetation Indicators:
 ___ 1 - Rapid Test for Hydrophytic Vegetation
 ___ 2 - Dominance Test is >50%
 ___ 3 - Prevalence Index is ≤3.0¹
 ___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
 Hydrophytic vegetation not observed .

SOIL

Sampling Point: UDP 002

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹		
0 - 6	10YR 4/3	100				Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Dark Surface (S7)	
<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	

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

Restrictive Layer (if observed): Type: _____ Rock _____ Depth (inches): _____ 6 _____	Hydric Soil Present? Yes _____ No <u>X</u>
--	---

Remarks:
No indicators of Hydric Soils observed.

HYDROLOGY

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

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

Remarks:
No indicators of wetland hydrology observed.

APPENDIX

C OEPA ORAM DATA FORMS

Background Information

Name:	Philip Renner
Date:	5/11/2022
Affiliation:	WSP USA
Address:	312 Elm Street; Cincinnati, OH
Phone Number:	937.570.7691
e-mail address:	philip.renner@wsp.com
Name of Wetland:	Wetland C-M 1
Vegetation Community(ies):	PEM
HGM Class(es):	Depression
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
<p>Please refer to attached mapping.</p>	
Lat/Long or UTM Coordinate	40.9735, -82.9649
USGS Quad Name	Chatfield Quad
County	Crawford
Township	Chatfield
Section and Subsection	
Hydrologic Unit Code	
Site Visit	X
National Wetland Inventory Map	X
Ohio Wetland Inventory Map	
Soil Survey	X
Delineation report/map	

Scoring Boundary Worksheet

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

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

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

Narrative Rating

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

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

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

Table 1. Characteristic plant species.

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

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

Site: Chatfield-Melmore	Rater(s): B. Rolfes, P. Renner	Date: 5/11/2022
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1	1
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

- Select one size class and assign score.
- >50 acres (>20.2ha) (6 pts)
 - 25 to <50 acres (10.1 to <20.2ha) (5 pts)
 - 10 to <25 acres (4 to <10.1ha) (4 pts)
 - 3 to <10 acres (1.2 to <4ha) (3 pts)
 - 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
 - 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
 - <0.1 acres (0.04ha) (0 pts)

5	6
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
 - MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
 - NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
 - VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
 - LOW. Old field (>10 years), shrub land, young second growth forest. (5)
 - MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
 - HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

10	16
max 30 pts.	subtotal

Metric 3. Hydrology.

- 3a. Sources of Water. Score all that apply.
- High pH groundwater (5)
 - Other groundwater (3)
 - Precipitation (1)
 - Seasonal/Intermittent surface water (3)
 - Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 100 year floodplain (1)
 - Between stream/lake and other human use (1)
 - Part of wetland/upland (e.g. forest), complex (1)
 - Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3)
 - 0.4 to 0.7m (15.7 to 27.6in) (2)
 - <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4)
 - Regularly inundated/saturated (3)
 - Seasonally inundated (2)
 - Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.
- None or none apparent (12)
 - Recovered (7)
 - Recovering (3)
 - Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input checked="" type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other _____

7	23
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
 - Recovered (3)
 - Recovering (2)
 - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
 - Very good (6)
 - Good (5)
 - Moderately good (4)
 - Fair (3)
 - Poor to fair (2)
 - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- None or none apparent (9)
 - Recovered (6)
 - Recovering (3)
 - Recent or no recovery (1)

Check all disturbances observed	
<input checked="" type="checkbox"/> mowing	<input checked="" type="checkbox"/> shrub/sapling removal
<input checked="" type="checkbox"/> grazing	<input checked="" type="checkbox"/> herbaceous/aquatic bed removal
<input checked="" type="checkbox"/> clearcutting	<input checked="" type="checkbox"/> sedimentation
<input checked="" type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input checked="" type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

23
subtotal this page

Site: Chatfield-Melmore	Rater(s): B. Rolfes, P. Renner	Date: 5/11/2022
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23

subtotal first page

0	23
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max 10 pts. subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

0	23
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max 20 pts. subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- 1 Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other _____

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- 0 Vegetated hummocks/tussucks
- 0 Coarse woody debris >15cm (6in)
- 0 Standing dead >25cm (10in) dbh
- 0 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

23

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1. Critical Habitat	YES NO ✓	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO ✓	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO ✓	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO ✓	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO ✓	If yes, Category 1.
	Question 6. Bogs	YES NO ✓	If yes, Category 3.
	Question 7. Fens	YES NO ✓	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO ✓	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO ✓	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES NO ✓	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO ✓	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO ✓	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO ✓	If yes, Category 3
Question 11. Relict Wet Prairies	YES NO ✓	If yes, evaluate for Category 3; may also be 1 or 2.	
Quantitative Rating	Metric 1. Size	1	
	Metric 2. Buffers and surrounding land use	5	
	Metric 3. Hydrology	10	
	Metric 4. Habitat	7	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersions, microtopography	0	
	TOTAL SCORE	23	Category based on score breakpoints 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

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

Final Category

Choose one	Category 1 ✓	Category 2	Category 3
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End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name:	Philip Renner
Date:	5/11/2022
Affiliation:	WSP USA
Address:	312 Elm Street; Cincinnati, OH
Phone Number:	937.570.7691
e-mail address:	philip.renner@wsp.com
Name of Wetland:	Wetland C-M 2
Vegetation Community(ies):	PEM
HGM Class(es):	Depression
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
<p>Please refer to attached mapping.</p>	
Lat/Long or UTM Coordinate	40.9713, -82.9587
USGS Quad Name	Chatfield Quad
County	Crawford
Township	Chatfield
Section and Subsection	
Hydrologic Unit Code	
Site Visit	X
National Wetland Inventory Map	X
Ohio Wetland Inventory Map	
Soil Survey	X
Delineation report/map	

Scoring Boundary Worksheet

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

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

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

Narrative Rating

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

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

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

Table 1. Characteristic plant species.

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

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

Site: Chatfield-Melmore	Rater(s): B. Rolfes, P. Renner	Date: 5/11/2022
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0	0
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

- Select one size class and assign score.
- >50 acres (>20.2ha) (6 pts)
 - 25 to <50 acres (10.1 to <20.2ha) (5 pts)
 - 10 to <25 acres (4 to <10.1ha) (4 pts)
 - 3 to <10 acres (1.2 to <4ha) (3 pts)
 - 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
 - 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
 - <0.1 acres (0.04ha) (0 pts)

4	4
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
 - MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
 - NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
 - VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
 - LOW. Old field (>10 years), shrub land, young second growth forest. (5)
 - MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
 - HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

7	11
max 30 pts.	subtotal

Metric 3. Hydrology.

- 3a. Sources of Water. Score all that apply.
- High pH groundwater (5)
 - Other groundwater (3)
 - Precipitation (1)
 - Seasonal/Intermittent surface water (3)
 - Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 100 year floodplain (1)
 - Between stream/lake and other human use (1)
 - Part of wetland/upland (e.g. forest), complex (1)
 - Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3)
 - 0.4 to 0.7m (15.7 to 27.6in) (2)
 - <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4)
 - Regularly inundated/saturated (3)
 - Seasonally inundated (2)
 - Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.
- None or none apparent (12)
 - Recovered (7)
 - Recovering (3)
 - Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input checked="" type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input checked="" type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other _____

7	18
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
 - Recovered (3)
 - Recovering (2)
 - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
 - Very good (6)
 - Good (5)
 - Moderately good (4)
 - Fair (3)
 - Poor to fair (2)
 - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- None or none apparent (9)
 - Recovered (6)
 - Recovering (3)
 - Recent or no recovery (1)

Check all disturbances observed	
<input checked="" type="checkbox"/> mowing	<input checked="" type="checkbox"/> shrub/sapling removal
<input checked="" type="checkbox"/> grazing	<input checked="" type="checkbox"/> herbaceous/aquatic bed removal
<input checked="" type="checkbox"/> clearcutting	<input checked="" type="checkbox"/> sedimentation
<input checked="" type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input checked="" type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

18
subtotal this page

Site: Chatfield-Melmore	Rater(s): B. Rolfes, P. Renner	Date: 5/11/2022
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18

subtotal first page

0	18
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max 10 pts. subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

0	18
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max 20 pts. subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other _____

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- 0 Vegetated hummocks/tussucks
- 0 Coarse woody debris >15cm (6in)
- 0 Standing dead >25cm (10in) dbh
- 0 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

18

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1. Critical Habitat	YES NO ✓	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES NO ✓	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES NO ✓	If yes, Category 3.
	Question 4. Significant bird habitat	YES NO ✓	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES NO ✓	If yes, Category 1.
	Question 6. Bogs	YES NO ✓	If yes, Category 3.
	Question 7. Fens	YES NO ✓	If yes, Category 3.
	Question 8a. Old Growth Forest	YES NO ✓	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO ✓	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES NO ✓	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO ✓	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO ✓	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES NO ✓	If yes, Category 3
Question 11. Relict Wet Prairies	YES NO ✓	If yes, evaluate for Category 3; may also be 1 or 2.	
Quantitative Rating	Metric 1. Size	0	
	Metric 2. Buffers and surrounding land use	4	
	Metric 3. Hydrology	7	
	Metric 4. Habitat	7	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersions, microtopography	0	
	TOTAL SCORE	18	Category based on score breakpoints 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

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

Final Category

Choose one	Category 1 ✓	Category 2	Category 3
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End of Ohio Rapid Assessment Method for Wetlands.

APPENDIX

D OEPA STREAM DATA FORMS

Stream & Location: Stream C-M 001 RM: Date: 5/11/22

Scorers Full Name & Affiliation: BJR, PJR

River Code: STORET #: Lat./Long.: 41.0397 / 81.1253 Office verified location

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present. Check ONE (Or 2 & average). BEST TYPES, OTHER TYPES, POOL RIFFLE, ORIGIN, QUALITY. Includes checkboxes for BLDR/SLABS, BOULDER, COBBLE, GRAVEL, SAND, BEDROCK, HARDPAN, DETRITUS, MUCK, SILT, ARTIFICIAL, LIMESTONE, TILLS, WETLANDS, SANDSTONE, RIP/RAP, LACUSTURINE, SHALE, COAL FINES, HEAVY, MODERATE, NORMAL, EXTENSIVE, FREE, MODERATE, NORMAL, NONE.

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts. AMOUNT. Check ONE (Or 2 & average). EXTENSIVE >75%, MODERATE 25-75%, SPARSE 5-25%, NEARLY ABSENT <5%.

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average). SINUOSITY, DEVELOPMENT, CHANNELIZATION, STABILITY. Includes checkboxes for HIGH, MODERATE, LOW, NONE, EXCELLENT, GOOD, FAIR, POOR, NONE, RECOVERED, RECOVERING, RECENT OR NO RECOVERY, HIGH, MODERATE, LOW.

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average). RIVER RIGHT LOOKING DOWNSTREAM. EROSION, RIPARIAN WIDTH, FLOOD PLAIN QUALITY, CONSERVATION TILLAGE, URBAN OR INDUSTRIAL, MINING / CONSTRUCTION.

5] POOL / GLIDE AND RIFFLE / RUN QUALITY MAXIMUM DEPTH, CHANNEL WIDTH, CURRENT VELOCITY, Recreation Potential. Includes checkboxes for >1m, 0.7-1m, 0.4-0.7m, 0.2-0.4m, <0.2m, POOL WIDTH > RIFFLE WIDTH, POOL WIDTH = RIFFLE WIDTH, POOL WIDTH < RIFFLE WIDTH, TORRENTIAL, VERY FAST, FAST, MODERATE, SLOW, INTERSTITIAL, INTERMITTENT, EDDIES.

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average). NO RIFFLE [metric=0]. RIFFLE DEPTH, RUN DEPTH, RIFFLE / RUN SUBSTRATE, RIFFLE / RUN EMBEDDEDNESS. Includes checkboxes for BEST AREAS > 10cm, BEST AREAS 5-10cm, BEST AREAS < 5cm, MAXIMUM > 50cm, MAXIMUM < 50cm, STABLE, MOD. STABLE, UNSTABLE, NONE, LOW, MODERATE, EXTENSIVE.

6] GRADIENT (ft/mi) DRAINAGE AREA (mi^2) VERY LOW - LOW [2-4], MODERATE [6-10], HIGH - VERY HIGH [10-6]. %POOL, %GLIDE, %RUN, %RIFFLE. Includes input fields for values and checkboxes for categories.

AJ SAMPLED REACH

Check ALL that apply

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

- METHOD**
- BOAT
 - WADE
 - L. LINE
 - OTHER

- STAGE**
- 1st -sample pass- 2nd
- HIGH
 - UP
 - NORMAL
 - LOW
 - DRY

- DISTANCE**
- 0.5 Km
 - 0.2 Km
 - 0.15 Km
 - 0.12 Km
 - OTHER

- CLARITY**
- 1st --sample pass-- 2nd
- < 20 cm
 - 20-<40 cm
 - 40-70 cm
 - > 70 cm/ CTB
 - SECCHI DEPTH

- CANOPY**
- 1st _____ cm
- pass
- 2nd _____ cm
- > 85%- OPEN
 - 55%-<85%
 - 30%-<55%
 - 10%-<30%
 - <10%- CLOSED

- BJ AESTHETICS***
- NUISANCE ALGAE
 - INVASIVE MACROPHYTES
 - EXCESS TURBIDITY
 - DISCOLORATION
 - FOAM / SCUM
 - OIL SHEEN
 - TRASH / LITTER
 - NUISANCE ODOR
 - SLUDGE DEPOSITS
 - CSOs/SSOs/OUTFALLS

- DJ MAINTENANCE***
- Circle some & COMMENT
- PUBLIC / PRIVATE / BOTH / NA
 - ACTIVE / HISTORIC / BOTH / NA
 - YOUNG-SUCCESSION-OLD
 - SPRAY / SNAG / REMOVED
 - MODIFIED / DIPPED OUT / NA
 - LEVEED / ONE SIDED
 - RELOCATED / CUTOFFS
 - MOVING-BEDLOAD-STABLE
 - ARMOURED / SLUMPS
 - ISLANDS / SCOURED
 - IMPOUNDED / DESICCATED
 - FLOOD CONTROL / DRAINAGE

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

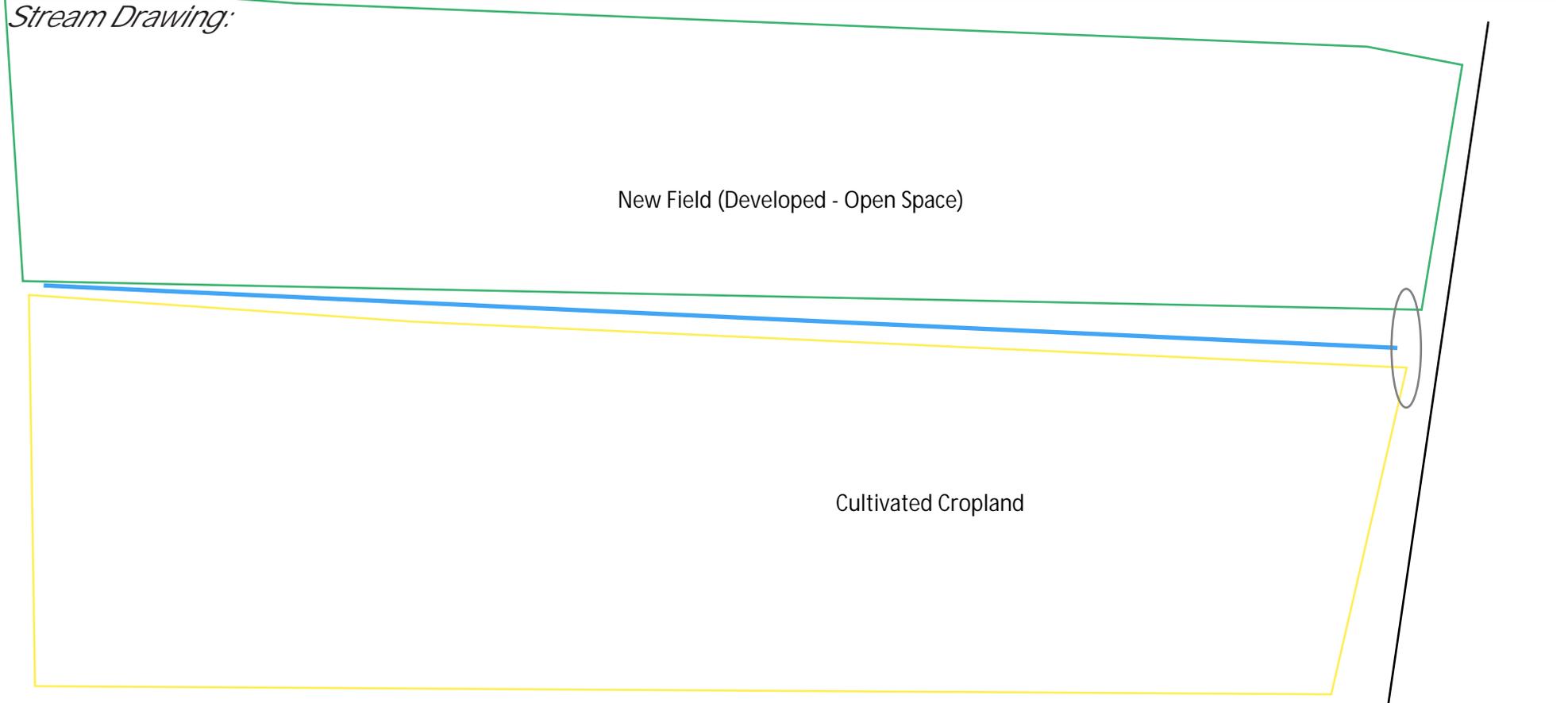
- FJ MEASUREMENTS***
- \bar{x} width
 - \bar{x} depth
 - max. depth
 - \bar{x} bankfull width
 - bankfull \bar{x} depth
 - W/D ratio
 - bankfull max. depth
 - floodprone x^2 width
 - entrench. ratio

- CJ RECREATION***
- AREA DEPTH
- POOL: >100ft² >3ft

Stream Drawing:

New Field (Developed - Open Space)

Cultivated Cropland



SITE NAME/LOCATION **Chatfield - Melmore**

SITE NUMBER **C-M 002** RIVER BASIN _____ DRAINAGE AREA (mi²) **0.15**

LENGTH OF STREAM REACH (ft) **179** LAT. **41.02850** LONG. **-83.10100** RIVER CODE _____ RIVER MILE _____

DATE **05/11/22** SCORER **BJR, PJR** COMMENTS **Ephemeral Stream**

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input checked="" type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	60%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	25%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	15%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

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

Substrate Percentage Check (B)

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

HHEI Metric Points

Substrate Max = 40

6

A + B

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

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

COMMENTS _____ **MAXIMUM POOL DEPTH (centimeters): 5**

Pool Depth Max = 30

5

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

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

COMMENTS _____ **AVERAGE BANKFULL WIDTH (meters): 1.50**

Bankfull Width Max=30

15

This information must also be completed

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

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

COMMENTS _____

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

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

COMMENTS _____

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

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

STREAM GRADIENT ESTIMATE

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

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

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

DOWNSTREAM DESIGNATED USE(S)

<input checked="" type="checkbox"/> WWH Name: Honey Creek	Distance from Evaluated Stream	0.05
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

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

USGS Quadrangle Name: **Bloomville** NRCS Soil Map Page: NRCS Soil Map Stream Order
County: **Seneca** Township / City: **Eden Township**

MISCELLANEOUS

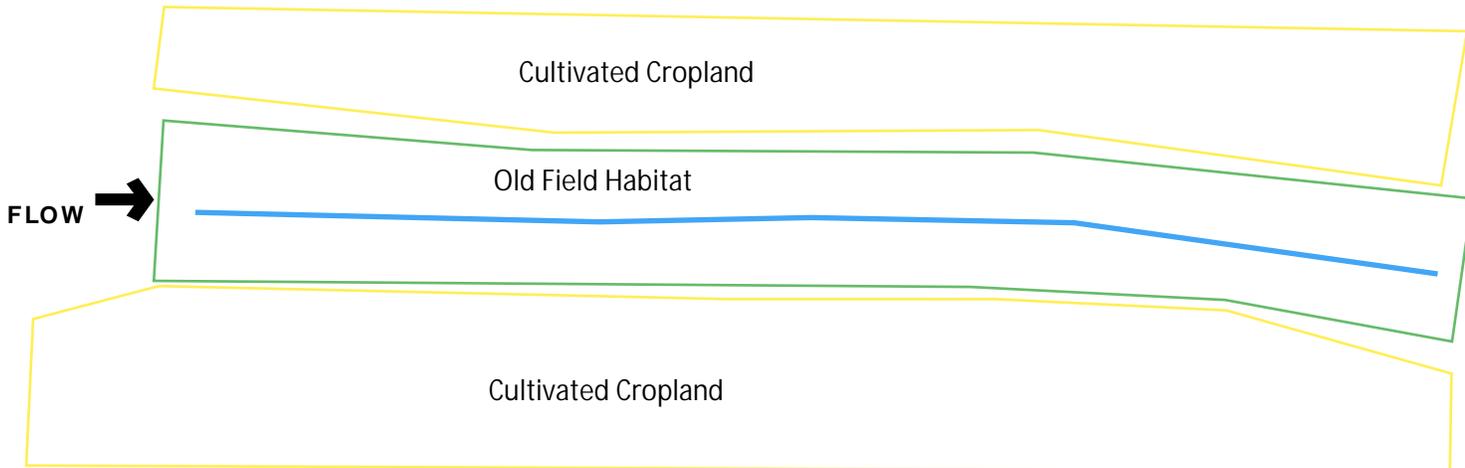
Base Flow Conditions? (Y/N): Y Date of last precipitation: **05/08/22** Quantity: **0.01**
Photograph Information:
Elevated Turbidity? (Y/N): N Canopy (% open): **100%**
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) N If not, please explain:
Additional comments/description of pollution impacts:

BIOTIC EVALUATION

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

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

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



SITE NAME/LOCATION **Chatfield - Melmore**

SITE NUMBER **C-M 004** RIVER BASIN _____ DRAINAGE AREA (mi²) **0.25**

LENGTH OF STREAM REACH (ft) **176** LAT. **41.02340** LONG. **-83.08930** RIVER CODE _____ RIVER MILE _____

DATE **05/11/22** SCORER **BJR, PJR** COMMENTS **Ephemeral Stream**

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input checked="" type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	60%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	10%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	20%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

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

Substrate Percentage Check (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

HHEI Metric Points

Substrate Max = 40

7

A + B

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

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

COMMENTS _____ **MAXIMUM POOL DEPTH (centimeters): 10**

Pool Depth Max = 30

15

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

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

COMMENTS _____ **AVERAGE BANKFULL WIDTH (meters): 1.50**

Bankfull Width Max=30

15

This information must also be completed

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY	
L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Narrow <5m		Residential, Park, New Field	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture	
COMMENTS _____			

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

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

COMMENTS _____

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

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

STREAM GRADIENT ESTIMATE

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

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

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

DOWNSTREAM DESIGNATED USE(S)

<input checked="" type="checkbox"/> WWH Name: Honey Creek	Distance from Evaluated Stream	0.05
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

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

USGS Quadrangle Name: **Bloomville** NRCS Soil Map Page: NRCS Soil Map Stream Order
County: **Seneca** Township / City: **Eden Township**

MISCELLANEOUS

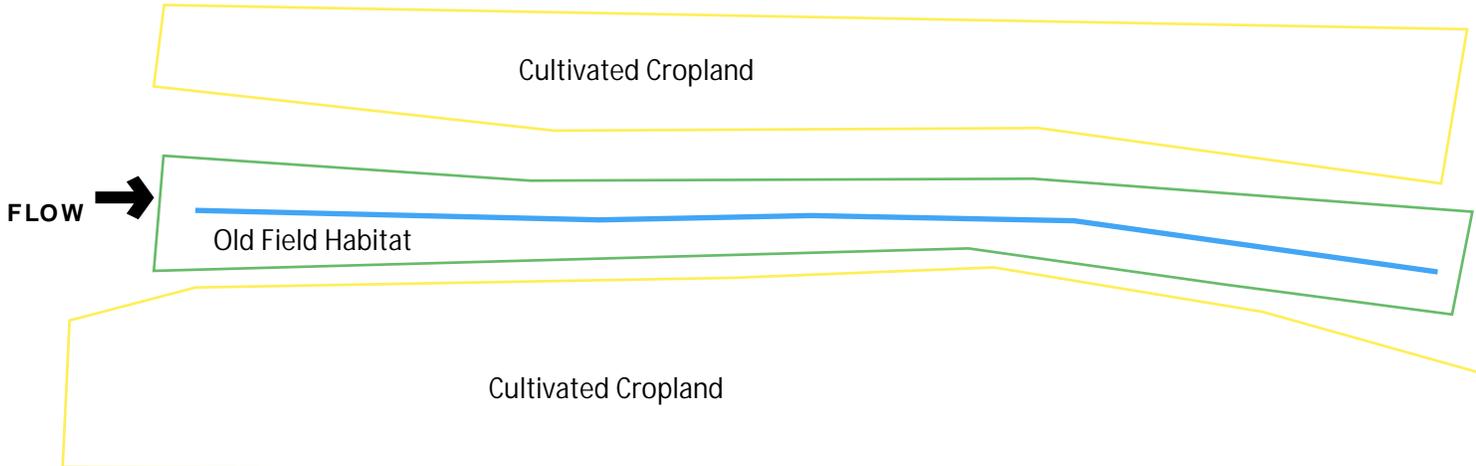
Base Flow Conditions? (Y/N): Y Date of last precipitation: **05/08/22** Quantity: **0.01**
Photograph Information:
Elevated Turbidity? (Y/N): N Canopy (% open): **100%**
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) N If not, please explain:
Additional comments/description of pollution impacts:

BIOTIC EVALUATION

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

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

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



SITE NAME/LOCATION **Chatfield - Melmore**

SITE NUMBER **C-M 005** RIVER BASIN _____ DRAINAGE AREA (mi²) **0.30**

LENGTH OF STREAM REACH (ft) **365** LAT. **40.99430** LONG. **-83.01910** RIVER CODE _____ RIVER MILE _____

DATE **05/11/22** SCORER **BJR, PJR** COMMENTS **Perennial Stream**

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="text" value="0%"/>	<input checked="" type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<input type="text" value="60%"/>
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="text" value="0%"/>	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="text" value="5%"/>
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="text" value="0%"/>	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="text" value="0%"/>
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="text" value="0%"/>	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="text" value="15%"/>
<input type="checkbox"/> <input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="text" value="20%"/>	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="text" value="0%"/>
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="text" value="0%"/>	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="text" value="0%"/>

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

Substrate Percentage Check (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **12**

TOTAL NUMBER OF SUBSTRATE TYPES: **4**

HHEI Metric Points

Substrate Max = 40

16

A + B

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

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

COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): **20**

Pool Depth Max = 30

25

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

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

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters): **3.00**

Bankfull Width Max=30

20

This information must also be completed

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

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

COMMENTS _____

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

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

COMMENTS _____

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

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

STREAM GRADIENT ESTIMATE

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

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

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

DOWNSTREAM DESIGNATED USE(S)

<input checked="" type="checkbox"/> WWH Name: Silver Creek	Distance from Evaluated Stream	0.25
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

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

USGS Quadrangle Name: **Lykens** NRCS Soil Map Page: NRCS Soil Map Stream Order
County: **Seneca** Township / City: **Bloom Township**

MISCELLANEOUS

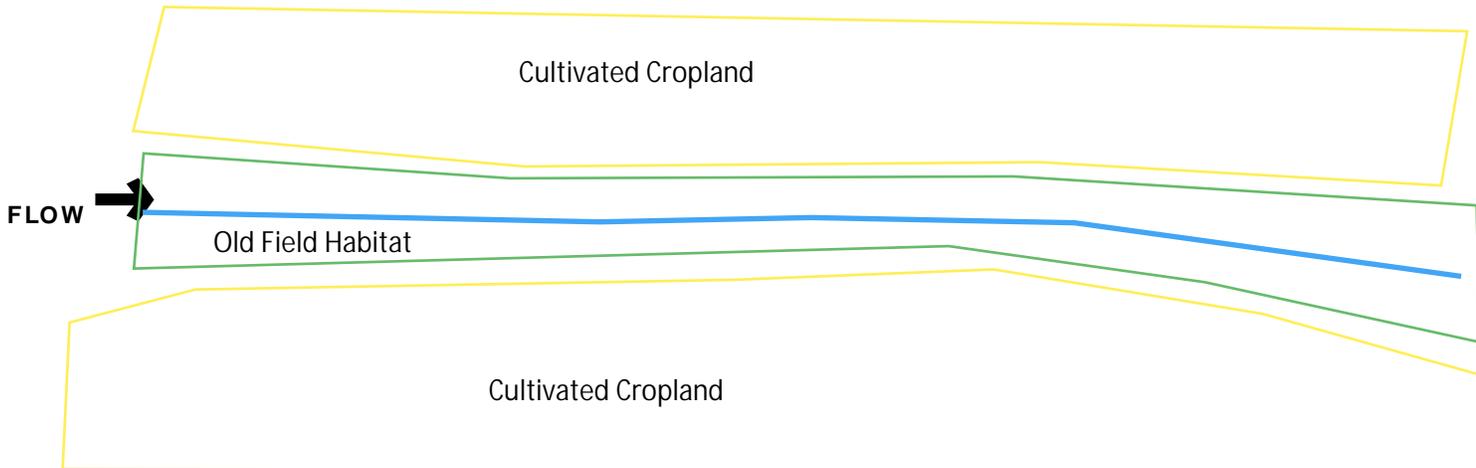
Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **05/08/22** Quantity: **0.01**
Photograph Information:
Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) **N** If not, please explain:
Additional comments/description of pollution impacts:

BIOTIC EVALUATION

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

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

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



SITE NAME/LOCATION **Chatfield - Melmore**

SITE NUMBER **C-M 006** RIVER BASIN _____ DRAINAGE AREA (mi²) **0.30**

LENGTH OF STREAM REACH (ft) **138** LAT. **40.97320** LONG. **-82.96390** RIVER CODE _____ RIVER MILE _____

DATE **05/11/22** SCORER **BJR, PJR** COMMENTS **Intermittent Stream**

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input checked="" type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	55%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	5%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	15%
<input type="checkbox"/> <input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	25%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

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

Substrate Percentage Check (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

HHEI Metric Points

Substrate Max = 40

16

A + B

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

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

COMMENTS _____ **MAXIMUM POOL DEPTH (centimeters): 10**

Pool Depth Max = 30

15

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

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

COMMENTS _____ **AVERAGE BANKFULL WIDTH (meters): 3.00**

Bankfull Width Max=30

25

This information must also be completed

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

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

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

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

COMMENTS _____

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

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

STREAM GRADIENT ESTIMATE

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

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

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

DOWNSTREAM DESIGNATED USE(S)

<input checked="" type="checkbox"/> WWH Name: Silver Creek	Distance from Evaluated Stream	0.25
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

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

USGS Quadrangle Name: **Lykens** NRCS Soil Map Page: NRCS Soil Map Stream Order
County: **Seneca** Township / City: **Bloom Township**

MISCELLANEOUS

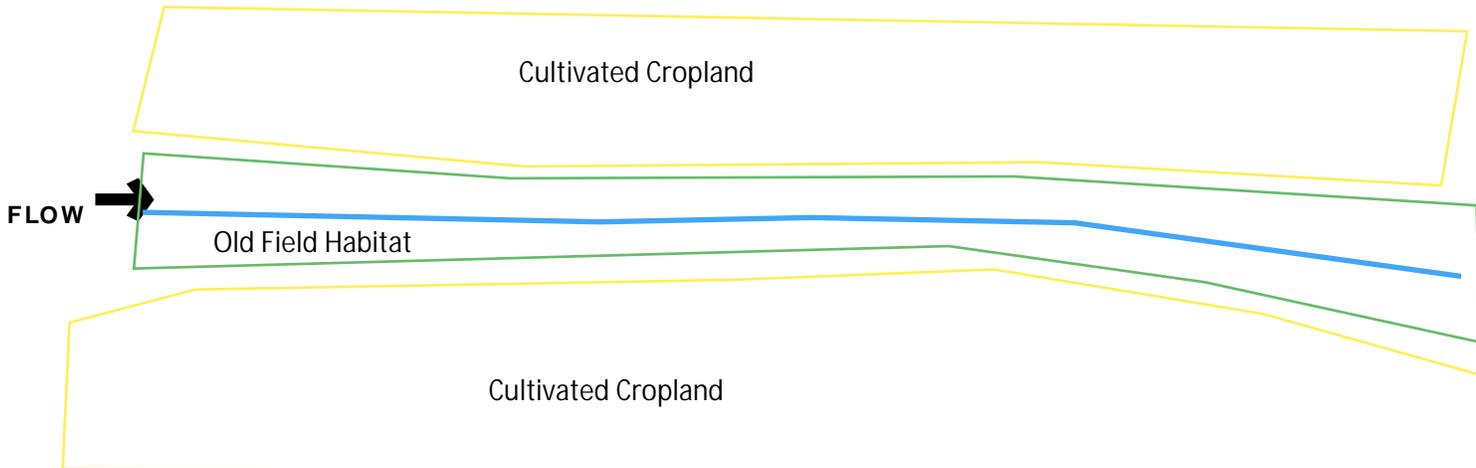
Base Flow Conditions? (Y/N): Y Date of last precipitation: **05/08/22** Quantity: **0.01**
Photograph Information:
Elevated Turbidity? (Y/N): N Canopy (% open): **100%**
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) N If not, please explain:
Additional comments/description of pollution impacts:

BIOTIC EVALUATION

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

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

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



SITE NAME/LOCATION **Howard - Fostoria**

SITE NUMBER **AR 001** RIVER BASIN _____ DRAINAGE AREA (mi²) **0.25**

LENGTH OF STREAM REACH (ft) **66** LAT. **41.03670** LONG. **-83.11740** RIVER CODE _____ RIVER MILE _____

DATE **05/11/22** SCORER **BJR, PJR** COMMENTS **Intermittent Stream**

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input checked="" type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 65%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 10%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 10%
<input type="checkbox"/> <input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 15%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

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

Substrate Percentage Check (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **12**

TOTAL NUMBER OF SUBSTRATE TYPES: **4**

HHEI Metric Points

Substrate Max = 40

16

A + B

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

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

COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): **8**

Pool Depth Max = 30

15

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

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

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters): **0.75**

Bankfull Width Max=30

5

This information must also be completed

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

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

COMMENTS _____

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

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

COMMENTS _____

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

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

STREAM GRADIENT ESTIMATE

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

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

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

DOWNSTREAM DESIGNATED USE(S)

<input checked="" type="checkbox"/> WWH Name: Honey Creek	Distance from Evaluated Stream	4.00
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

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

USGS Quadrangle Name: **Bloomville** NRCS Soil Map Page: NRCS Soil Map Stream Order
 County: **Seneca** Township / City: **Eden Township**

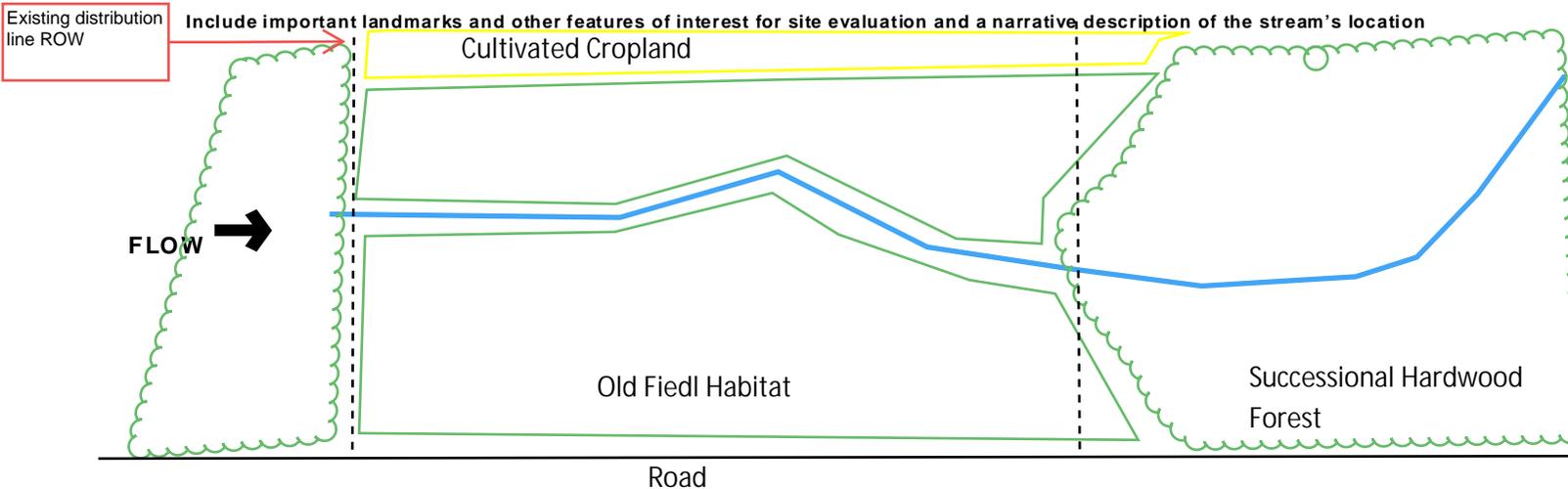
MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **05/14/22** Quantity: **0.75**
 Photograph Information:
 Elevated Turbidity? (Y/N): **N** Canopy (% open): **80%**
 Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:
 Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
 Is the sampling reach representative of the stream (Y/N) **N** If not, please explain:
 Additional comments/description of pollution impacts:

BIOTIC EVALUATION

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

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



APPENDIX

E REPRESENTATIVE PHOTOGRAPHS

PHOTOGRAPH 1



Wetland C-M 001 (PEM), facing north on May 11, 2022.

PHOTOGRAPH 2



Wetland C-M 001 (PEM), facing south on May 11, 2022.

PHOTOGRAPH 3



Wetland C-M 001 (PEM), facing east on May 11, 2022.

PHOTOGRAPH 4



Wetland C-M 001 (PEM), facing west on May 11, 2022.

PHOTOGRAPH 5



Upland C-M 001, facing north on May 11, 2022.

PHOTOGRAPH 6



Upland C-M 001, facing east on May 11, 2022.

PHOTOGRAPH 7



Wetland C-M 002 (PEM), facing north on May 11, 2022.

PHOTOGRAPH 8



Wetland C-M 002 (PEM), facing south on May 11, 2022.

PHOTOGRAPH 9



Wetland C-M 002 (PEM), facing east on May 11, 2022.

PHOTOGRAPH 10



Wetland C-M 002 (PEM), facing west on May 11, 2022.

PHOTOGRAPH 11



Upland C-M 002, facing north on May 11, 2022.

PHOTOGRAPH 12



Upland C-M 002, facing south on May 11, 2022.

PHOTOGRAPH 13



Stream C-M 001 – Perennial, facing upstream on May 11, 2022.

PHOTOGRAPH 14



Stream C-M 001 – Perennial, facing downstream on May 11, 2022.

PHOTOGRAPH 15



Stream C-M 001 - Perennial, substrate on May 11, 2022.

PHOTOGRAPH 16



Stream C-M 002 – Ephemeral, facing upstream on May 11, 2022.

PHOTOGRAPH 17



Stream C-M 002 – Ephemeral, facing downstream on May 11, 2022.

PHOTOGRAPH 18



Stream C-M 002 - Ephemeral, substrate on May 11, 2022.

PHOTOGRAPH 19



Stream C-M 003 – Perennial, (Honey Creek) facing upstream on May 11, 2022.

PHOTOGRAPH 20



Stream C-M 003 – Perennial, (Honey Creek) facing downstream on May 11, 2022.

PHOTOGRAPH 21



Stream C-M 003 - Perennial, (Honey Creek) substrate on May 11, 2022.

PHOTOGRAPH 22



Stream C-M 004 - Intermittent, (UNT to Honey Creek) facing upstream on May 11, 2022.

PHOTOGRAPH 23



Stream C-M 004 – Intermittent, facing downstream on May 11, 2022.

PHOTOGRAPH 24



Stream C-M 004 - Intermittent, substrate on May 11, 2022.

PHOTOGRAPH 25



Stream C-M 005 – Perennial, facing upstream on May 11, 2022.

PHOTOGRAPH 26



Stream C-M 005 – Perennial, facing downstream on May 11, 2022.

PHOTOGRAPH 27



Stream C-M 005 - Perennial, substrate on May 11, 2022.

PHOTOGRAPH 28



Stream C-M 006 – Intermittent, facing upstream on May 11, 2022.

PHOTOGRAPH 29



Stream C-M 006 – Intermittent, facing downstream on May 11, 2022.

PHOTOGRAPH 30



Stream C-M 006 - Intermittent, substrate on May 11, 2022.

PHOTOGRAPH 31



Stream AR 001 (Intermittent), facing upstream, May 11, 2022.

PHOTOGRAPH 32



Stream AR 001 (Intermittent), facing downstream, May 11, 2022.

PHOTOGRAPH 33



Stream AR 001 (Intermittent), substrate, May 11, 2022.

PHOTOGRAPH 34



Representative Cultivated Cropland, May 11, 2022.

PHOTOGRAPH 35



Representative Pastureland / Hayfield, May 11, 2022.

PHOTOGRAPH 36



Representative Developed – High Intensity land use, May 11, 2022.

PHOTOGRAPH 37



Representative Pastureland / Hayfield, May 11, 2022.

PHOTOGRAPH 38



Representative Developed – High Intensity land use, May 11, 2022.

PHOTOGRAPH 39



Representative Old Field Habitat, May 11, 2022.

APPENDIX

F AGENCY COORDINATION

Rolfes, Brad

From: Ohio, FW3 <ohio@fws.gov>
Sent: Friday, June 3, 2022 10:26 AM
To: Rolfes, Brad
Cc: nathan.reardon@dnr.state.oh.us; Thomayer, Matthew; Shannon T Hemmerly
Subject: AEP Chatfield - Melmore 138 kV Transmission Line Project, Seneca and Crawford Counties, Ohio

Follow Up Flag: Follow up
Flag Status: Flagged



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

Project Code # 2022-0028760

Dear Mr. Rolfes,

The U.S. Fish and Wildlife Service (Service) has received your recent correspondence requesting information about the subject proposal. We offer the following comments and recommendations to assist you in minimizing and avoiding adverse impacts to threatened and endangered species pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq), as amended (ESA).

Federally Threatened and Endangered Species: The endangered Indiana bat (*Myotis sodalis*) and threatened northern long-eared bat (*Myotis septentrionalis*) occur throughout the State of Ohio. The Indiana bat and northern long-eared bat may be found 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 breed that may also include adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, woodlots, fallow fields, and pastures. Roost trees for both species include live and standing dead trees ≥ 3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities. These roost trees may be located in forested habitats as well as linear features such as fencerows, riparian forests, and other wooded corridors. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet 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, rock crevices and abandoned mines.

Seasonal Tree Clearing for Federally Listed Bat Species: The proposed project is in the vicinity of one or more confirmed records of Indiana bats. Should the proposed project site contain trees ≥ 3 inches dbh, we recommend avoiding tree removal 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 removal of any trees ≥ 3 inches dbh only occur between October 1 and March 31. Seasonal clearing is 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/nleb/index.html>), incidental take of Indiana bats is still prohibited without a project-specific exemption. Thus, seasonal clearing is recommended where Indiana bats are known or assumed present. Please note that, because Indiana bat presence has already been confirmed in the project vicinity, any additional summer surveys would not constitute presence/absence surveys for this species.

Section 7 Coordination: If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), then 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 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. This letter provides technical assistance only and does not serve as a completed section 7 consultation document.

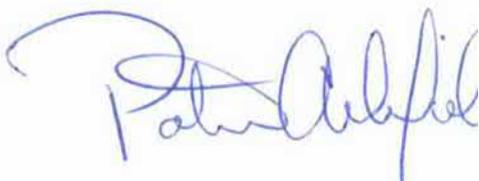
Stream and Wetland Avoidance: Over 90% of the wetlands in Ohio have been drained, filled, or modified by human activities, thus is it important to conserve the functions and values of the remaining wetlands in Ohio (https://epa.ohio.gov/portals/47/facts/ohio_wetlands.pdf). We recommend avoiding and minimizing project impacts to all wetland habitats (e.g., forests, streams, vernal pools) to the maximum extent possible in order to benefit water quality and fish and wildlife habitat. Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the U.S. Army 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. Disturbed areas should be mulched and revegetated with native plant species. In addition, prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, or proposed species, or proposed or designated critical habitat. Should the project design change, or 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, coordination with the Service should be initiated to assess any potential impacts.

Thank you for your efforts to conserve listed species and sensitive habitats in Ohio. We recommend coordinating with the Ohio Department of Natural Resources due to the potential for the proposed project to affect state listed species and/or state lands. Contact Mike Pettegrew, Acting Environmental Services Administrator, at (614) 265-6387 or at mike.pettegrew@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,



Patrice Ashfield
Field Office Supervisor

cc: Nathan Reardon, ODNR-DOW



Ohio Department of Natural Resources

MIKE DEWINE, GOVERNOR

MARY MERTZ, DIRECTOR

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June 28, 2022

Bradley Rolfes
WSP USA Inc.
312 Elm Street, Suite 2500
Cincinnati, Ohio 45202

Re: 22-0572; Chatfield - Melmore 138 kV Transmission Line Project

Project: The proposed project involves the construction of the Chatfield – Melmore 138 kV transmission line.

Location: The proposed project is located in Lykens and Chatfield townships, Crawford County, and Seneca Bloom and Eden townships, Seneca County, Ohio.

The Ohio Department of Natural Resources (ODNR) has completed a review of the above referenced project. These comments were generated by an inter-disciplinary review within the Department. 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 National Environmental Policy Act, the Coastal Zone Management Act, Ohio Revised Code and other applicable laws and regulations. These comments are also based on ODNR's experience as the state natural resource management agency and do 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.

Natural Heritage Database: A review of the Ohio Natural Heritage Database indicates there are no records of state or federal listed plants or animals within one mile of the project area. Other records are as follows:

Great Blue Heron Rookery

The review was performed on the project area centerline specified in the request as well as an additional one-mile radius. Records searched date from 1980.

An additional search of the Ohio Natural Heritage Database for state or federally listed bat species or geological features (e.g., caves, caverns or cliffs) found no records within 3 miles of the specified project centerline.

This information is provided to inform you of features present within your project area and vicinity. Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area.

Fish and Wildlife: The Division of Wildlife (DOW) has the following comments.

The DOW recommends that impacts to streams, wetlands and other water resources be avoided and minimized to the fullest extent possible, and that Best Management Practices be utilized to minimize erosion and sedimentation.

The project is within the vicinity of records for the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species, and the little brown bat (*Myotis lucifugus*), a state endangered species. Because presence of state endangered bat species has been established in the area, summer tree cutting is not recommended, and additional summer surveys would not constitute presence/absence in the area. However, limited summer tree cutting inside this buffer may be acceptable after further consultation with DOW (contact Eileen Wyza at Eileen.Wyza@dnr.ohio.gov).

In addition, the entire state of Ohio is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species, the northern long-eared bat (*Myotis septentrionalis*), a state endangered and federally threatened species, the little brown bat (*Myotis lucifugus*), a state endangered species, and the tricolored bat (*Perimyotis subflavus*), a state endangered species. During the spring and summer (April 1 through September 30), these bat species predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves. However, these species are also dependent on the forest structure surrounding roost trees. The DOW recommends tree cutting only occur from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with DBH \geq 20 if possible.

The DOW also recommends that a desktop habitat assessment is conducted, followed by a field assessment if needed, to determine if a potential hibernaculum is present within the project area. Direction on how to conduct habitat assessments can be found in the current USFWS "[Range-wide Indiana Bat Survey Guidelines](#)." If a habitat assessment finds that a potential hibernaculum is present within 0.25 miles of the project area, please send this information to Eileen Wyza for project recommendations. If a potential or known hibernaculum is found, the DOW recommends a 0.25-mile tree cutting and subsurface disturbance buffer around the hibernaculum entrance, however, limited summer or winter tree cutting may be acceptable after consultation with the DOW. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.

This project must not have an impact on freshwater native mussels at the project site. This applies to both listed and non-listed species. Per the Ohio Mussel Survey Protocol (2020), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 5 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. This is further explained within the Ohio Mussel Survey Protocol. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, as a last resort, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the 2022 [Ohio Mussel Survey Protocol](#).

The project is within the range of the longnose sucker (*Catostomus catostomus*), a state endangered fish, and the greater redhorse (*Moxostoma valenciennesi*), a state threatened fish. The DOW recommends no in-water work in perennial streams from March 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact these or other aquatic species.

The project is within the range of the Blanding's turtle (*Emydoidea blandingii*), a state threatened species. This species inhabits marshes, ponds, lakes, streams, wet meadows, and swampy forests. Although essentially aquatic, the Blanding's turtle will travel over land as it moves from one wetland to the next. Due to the location, the type of habitat within the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the spotted turtle (*Clemmys guttata*), a state threatened species. This species prefers fens, bogs and marshes, but also is known to inhabit wet prairies, meadows, pond edges, wet woods, and the shallow sluggish waters of small streams and ditches. Due to the location, the type of habitat within the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the king rail (*Rallus elegans*), a state endangered bird. Nests for this species are deep bowls constructed out of grass and usually hidden very well in marsh vegetation. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 through July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the least bittern (*Ixobrychus exilis*), a state threatened bird. This secretive marsh species prefers dense emergent wetlands with thick stands of cattails, sedges, sawgrass or other semiaquatic vegetation interspersed with woody vegetation and open water. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 through July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the loggerhead shrike (*Lanius ludovicianus*), a state endangered bird. The loggerhead shrike nests in hedgerows, thickets and fencerows. They hunt over hayfields, pastures, and other grasslands. If thickets or other types of dense shrubbery habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 1 through July 31. If this habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the northern harrier (*Circus hudsonis*), a state endangered bird. This is a common migrant and winter species. Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds a nest out of sticks on the ground, often on top of a mound. Harriers hunt over grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this habitat will not be impacted, the project is not likely to impact this species.

The project is within the range of the upland sandpiper (*Bartramia longicauda*), a state endangered bird. Nesting upland sandpipers utilize dry grasslands including native grasslands, seeded grasslands, grazed and ungrazed pasture, hayfields, and grasslands established through the Conservation Reserve Program (CRP). If this type of habitat will be impacted, construction

should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

Due to the potential of impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the US Fish & Wildlife Service.

Water Resources: The Division of Water Resources has the following comment.

The [local floodplain administrator](#) should be contacted concerning the possible need for any floodplain permits or approvals for this project.

ODNR appreciates the opportunity to provide these comments. Please contact Mike Pettegrew at mike.pettegrew@dnr.ohio.gov if you have questions about these comments or need additional information.

Mike Pettegrew
Environmental Services Administrator