

WETLAND DELINEATION AND STREAM ASSESSMENT REPORT

FREMONT AREA IMPROVEMENTS: MELMORE TO TIFFIN CENTER 138KV LINE REBUILD

SENECA COUNTY, OHIO

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1.0 INTRODUCTION

On September 11 and 12, 2013, Doug Longpre of Commonwealth Associates Inc. (CAI) along with Timothy Walters, Ph.D. of EnviroScience, Inc., performed a field study on behalf of American Electric Power (AEP) along the approximately 7 mile long Tiffin Center 138kV Extension transmission line located in Seneca County, Ohio. AEP requested the study to identify and locate any wetlands and streams that might be present within the 100-foot wide right of way that will be occupied by the rebuilt 138kV line as well as the new 85-foot wide right of way that will be occupied by the Tiffin Center 69kV line.

The Tiffin Center 138kV Extension extends north from the Howard to Fostoria 138kV transmission line in Eden Township to the Tiffin Center Substation in Clinton Township. AEP intends to rebuild the 138kV line by removing the existing wood H-frame structures and replacing them with single steel poles that will be installed on poured in place reinforced concrete pile foundations. Once complete, the new poles will support a double circuit line and the line will be renamed the Melmore to Tiffin Center 138kV Line. In addition to the 138kV rebuild, AEP intends to remove the Tiffin Center 69kV Extension underbuild from the existing Tiffin Center 138kV Extension and install it on new right of way that will adjoin the Tiffin Center 138kV Extension right of way on the west side. The Tiffin Center 69kV Extension is approximately 2 miles long and extends south from the Tiffin Center Station to the Greely 69kV Extension. The line will be rebuilt with single steel poles and all of the poles will be placed on concrete foundations. To accommodate for the increase in new pole heights on both the rebuild and on the install, AEP will replace the first poles on the existing Greenlawn 138kV Extension and the Greely 69kV Extension, both in Clinton Township.

This report presents the results of the field study and office review. It will be used to assist AEP's efforts to avoid impacting these areas as much as feasibly possible during site design and development and as part of the Letter of Notification (LON) that will be prepared by CAI and submitted to the Ohio Power Siting Board (OPSB).

2.0 METHODS

2.1 Preliminary Resource Review

Prior to conducting a site visit a preliminary review of available resources was conducted. The review provided valuable site information such as relief, cover, and land use, and allowed preliminary determination to be made regarding potential wetlands and stream that might be present at the project site. The review included the following resources:

- Google Earth, digital aerial photographs
- U.S. Geological Survey (USGS), topographic quadrangle maps
- Natural Resources Conservation Service (NRCS), *Web Soil Survey* (WSS)
- Natural Resources Conservation Service (NRCS), WETS data
- U.S. Fish and Wildlife Service (USFWS), National Wetlands Inventory (NWI) *Wetlands Mapper*

2.2 Field Review

After completing the preliminary review, a site visit was then conducted to verify any preliminary wetland or stream determination that was made and to make new determinations by identifying vegetation communities, characterizing soils, assessing hydrology, and noting any disturbances. Two methodologies were used during the field review; one for identifying and delineating wetlands and the other for assessing rivers and streams. The methods are described further in the following sections.

2.2.1 Wetland Identification and Delineation

Identifying and delineating wetlands followed those methods outlined in the U.S. Army Corps of Engineers (USACE) *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)*, the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)*, and the USACE *1987 Wetland Delineation Manual* (1987 Manual). The Regional Supplements and the 1987 Manual define “wetlands” as areas that have positive evidence of three parameters - hydric soils, wetland hydrology, and hydrophytic vegetation. During the study, available information regarding the three parameters was collected and the data used to make a determination of wetland presence. A site visit was then conducted to identify the vegetation communities, characterize soils, assess hydrology, and note disturbances. Data forms were used to record the information collected during the visit. Where one or more of the parameters gave way to upland characteristics, a wetland boundary was established. The boundary was then followed around the wetland, with points where the boundary turned being identified with pink flagging, until the boundary either reconnected with itself or continued outside of the limits of the right of way. At points where sample plots were established and boundaries were flagged, GPS survey methods were used to locate the points.

Preliminary data gathered prior to the site visit is summarized in Section 3.1 of this report. Data collected during the delineation of any wetland is summarized in Section 3.2 of this report. The methodology used to examine each parameter is described in the following sections.

Soils: Soil profiles were examined by digging soil pits and recording hydric soil characteristics. A *Munsell Soil Color Chart* was used to identify the hue, value, and chroma of the matrix and mottles of the soil. Generally, mottled soils with a matrix chroma of two or less, or unmottled soils with a matrix chroma of one or less are considered to exhibit hydric soil characteristics. In sandy soils, mottled soils with a matrix chroma of three or less, or unmottled soils with a matrix chroma of two or less are considered to be hydric soils.

Hydrology: The 1987 Manual requires that an area be inundated or saturated to the surface for a minimum of five percent of the growing season (areas saturated between five percent and 12.5 percent of the growing season may or may not be wetlands, while areas saturated over 12.5 percent of the growing season fulfill the hydrology requirements for wetlands). The Regional Supplements state that the growing season dates are determined through onsite observations of the following indicators of biological activity in a given year: (1) above-ground growth and development of vascular plants, and/or (2) soil temperature at the 12-in. depth is 41 °F or higher. Therefore, the beginning of the growing season in a given year is indicated by whichever condition occurs earlier, and the end of the growing season by whichever persists later. The Regional Supplements also state that if onsite data gathering is not practical, the growing season can be approximated by the median dates (i.e., 5 years in 10, or 50 percent probability) of 28°F.

The soils and ground surface were examined for evidence of wetland hydrology in lieu of detailed hydrological data. This is an acceptable approach according to the 1987 Manual and the Regional Supplements. Evidence indicating wetland hydrology typically includes primary indicators such as surface water (A2), saturation (A3), water marks (B1), sediment deposits (B2), drift deposits (B3), water-stained leaves (B9), and oxidized rhizospheres along living roots (C3); and secondary indicators such as, drainage patterns (B10), geomorphic position (D2), saturation visible on aerial imagery (C9), FAC-neutral test (D5).

Vegetation: Dominant vegetation was visually assessed for each stratum (tree, sapling/shrub, herb and woody vine) and an indicator status of obligate (OBL), facultative wet (FACW), facultative (FAC),

facultative upland (FACU), and/or upland (UPL) was assigned to each plant species based on the 2012 *National Wetland Plant List*. The wetland indicator status reflects the likelihood of a species occurring in a wetland versus non-wetland habitat. The various indicator status designations are explained further in Table 1 below. An area is determined to have hydrophytic vegetation when, under normal circumstances, 50 percent or more of the composition of the dominant species are OBL, FACW and/or FAC species. Vegetation of an area was determined to be non-hydrophytic when more than 50 percent of the composition of the dominant species was FACU and/or UPL species. In addition to the dominance test, the FAC-Neutral test and prevalence tests are used to determine if a wetland has a predominance of hydrophytic vegetation.

Table 1: Wetland indicator status designations.

Indicator Category	Indicator Symbol ¹	Definition
Obligate Wetland Plants	OBL	Almost always is a hydrophyte, rarely in uplands
Facultative Wetland Plants	FACW	Usually is a hydrophyte but occasionally found in uplands
Facultative Plants	FAC	Commonly occurs as either a hydrophyte or non-hydrophyte
Facultative Upland Plants	FACU	Occasionally is a hydrophyte but usually occurs in uplands
Upland Plants	UPL	Rarely is a hydrophyte, almost always in uplands

¹ Indicator status modifiers (+ and -) are no longer used

2.2.2 Rivers and Streams Assessment

Rivers and streams were assessed using the methods described in the Ohio EPA's *Methods for Assessing Habitat in Flowing Waters: Using Ohio EPA's Qualitative Habitat Evaluation Index and Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams*. No Ohio EPA Qualitative Habitat Evaluation Index (QHEI) or Headwater Habitat Evaluation Index (HHEI) forms were completed during the assessments and no scores were produced. However, information regarding the physical and biological factors that are typically collected and noted on the forms was recorded and forms can be generated as needed. Rivers and streams that were assessed were GPS surveyed.

3.0 RESULTS

3.1 Preliminary Data

Growing Season: The National Weather Service WETS data for Seneca County, obtained from the NRCS National Water and Climate Center, reveals that in an average year, the growing season begins on April 13 and lasts until October 27, or 197 days. At the study site five percent of the growing season equates to approximately 10 days.

Hydrologic Units: A review of United States Geological Survey (USGS) watershed data indicates the study site is located within the Lower Honey Creek (HUC 041000110806), Rock Creek (HUC 041000111101), Willow Creek-Sandusky River (HUC 041000111103), Morrison Creek (HUC 041000111102), Spicer Creek-Sandusky River (HUC 041000111105)) sub-watersheds of the Rock Creek-Sandusky River watershed. Within this watershed, the site crosses a tributary of Honey Creek, Rock Creek and several of its tributaries, Willow Creek, and Morrison Creek and several of its tributaries. The HUC's and their boundaries have been included on the survey map sheets provided in this report.

Soils: The USDA NRCS Web Soil Survey (WSS) was utilized to identify soil map units within the project site. Results from the WSS produced 18 different mapping units within 13 different soil series. Seven of the

series are on the NRCS 2012 National Hydric Soils List for Seneca County, Ohio and are hydric either because they contain a minor soil component that is hydric or because the series itself is hydric. Of the 76 structures to be installed, 39 will be installed in soils that are hydric. A list of the soils, along with their basic attributes, is shown in Table 2 below. A copy of the WSS map is provided in Appendix A.

Table 2: USDA mapped soils occurring at or near the project site.

Soil Series or Name	Map Unit Symbol	Map Unit Description	Hydrologic Soils Group ¹	Hydric Soil? (Y/N)	Hydric Component?	Hydric Criteria ²
Belmore	BdB	Belmore loam, 2 to 6% slopes	B	N	N	n/a
	BfF2	Belmore-Morley complex, 18 to 50% slopes, eroded	B	N	N	n/a
Blount	BoA	Blount silt loam, 0 to 2% slopes	C/D	Y	Y	2B3, 3
	BoB	Blount silt loam, 2 to 6% slopes	C/D	Y	Y	2B3, 3
Chagrin	Ch	Chagrin silt loam, 0 to 2% slopes, occasionally flooded	B	N	N	n/a
Digby	DmA	Digby loam, 1 to 4% slopes	B/D	Y	Y	2B3, 3
Gallman	GaA	Gallman loam, 0 to 2% slopes	B	N	N	n/a
	GaB	Gallman loam, 2 to 6% slopes	B	N	N	n/a
Glynwood	GwB	Glynwood silt loam, 2 to 6% slopes	D	Y	Y	2B3, 3
	GxB2	Glynwood silty clay loam, 2 to 6% slopes, eroded	D	Y	Y	2B3, 3
Haney	HaA	Haney loam, 0 to 2% slopes	B	N	N	n/a
	HaB	Haney loam, 2 to 6% slopes	B	N	N	n/a
Haskins	HkB	Haskins loam, 2 to 6% slopes	C/D	Y	Y	2B3, 3
Millgrove	Mf	Millgrove loam, 0 to 2% slopes	B/D	Y	N	2B3, 3
Pandora	Pa	Pandora silt loam, 0 to 2% slopes	C/D	Y	Y	2B3, 3
Pewamo	Pm	Pewamo silty clay loam, 0 to 2% slopes	C/D	Y	Y	2B3, 3
Rawson	RmB	Rawson loam, 2 to 6% slopes	D	N	N	n/a
Shoals	Sh	Shoals silt loam, 0 to 2% slopes, frequently flooded	B/D	N	N	n/a

¹ USDA-NRCS. Engineering Staff. *Urban Hydrology for Small Watersheds*, Technical Release 55, Chapter 7. 1986

² USDA-NRCS. Soil Survey Staff. *Soil Taxonomy, A Basic System of Soil Classification for Making and Interpreting Soil Surveys*, Agriculture Handbook, Second Edition, Service Number 436. 1999

National Wetland Inventory: According to the National Wetland Inventory (NWI) *Wetlands Mapper*, two freshwater wetlands and five freshwater ponds are at or near the project site. Of those, only one will be crossed by the line and none will be accessed for pole replacement or installation. NWI mapped wetlands and ponds are included on the survey map sheets provided in this report. A summary of each wetland and pond is presented in Table 3 below.

Table 3: NWI Mapped Wetlands

NWI Code	Feature Type	Code Description ^{1,2}	Location	Crossed? ³
PFO1C	Forested Swamp	Palustrine, Forested, Broad-leaved Deciduous, Seasonally Flooded	East of #17	No
PUBGx	Pond	Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated	North of #24	No
PUBGx	Pond	Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated	South of #25	No
PUBGx	Pond	Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated	North of #25	No

PUBGx	Pond	Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated	North of #27	No
PUBGx	Pond	Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated	East of #29	No
PEM1C	Marsh	Palustrine, Emergent, Persistent, Seasonally Flooded	South of #30	Yes

¹ USFWS National Wetlands Inventory Wetland Code Interpreter

² *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al, 1979)

³ Crossed by the centerline of the right of way.

3.2 Wetland Assessment

Three wetlands were identified and delineated at the project site. All of the wetlands are believed to be jurisdictional (i.e., “Waters of the U.S.”), and all are of the palustrine emergent (PEM) habitat type. Wetland 01 is approximately 100 feet south of proposed structure #18, but is not likely to be impacted during pole construction or conductor stringing because vehicular access into the wetland is prohibited and the structure can be accessed away from the wetland; Wetland 02 is approximately 280 feet south of proposed structure #21 and is not likely to be impacted during pole construction or conductor stringing because vehicular access into the wetland is prohibited; Wetland 03 is approximately 20 feet southwest of proposed structure #30, but is not likely to be impacted during pole construction or conductor stringing because vehicular access into the wetland is prohibited and the structure can be accessed away from the wetland. Wetlands identified at the project sites are summarized in Table 4 below. The location and approximate extent of each wetland is shown on the survey map sheets provided in this report. Photographs taken during the field portion of the study are provided in Appendix B.

Table 4: Identified Wetlands

ID	Type ¹	Description	Size ²
Wetland 01	PEM	Palustrine Emergent, adjoins Stream 03	0.24
Wetland 02	PEM	E Palustrine Emergent, adjoins Stream 04 off-site	0.11
Wetland 03	PEM	Palustrine Emergent, artificially created	0.40
Total			0.75

¹ H = herbaceous, SH = scrub-shrub

² Acres of wetland within right of way.

3.3 Stream Assessment

Eight streams were identified at the project site: two ephemeral, one intermittent, and five perennial. All of the streams were assessed in the field and all are believed to be jurisdictional (i.e., “Waters of the U.S.”). Stream 01, a tributary of Honey Creek, is approximately 90 feet from proposed structure #7, but is not likely to be impacted during pole removal or installation activities; Stream 03, Rock Creek, is approximately 180 feet away from and downslope of proposed structure #18, but is not likely to be impacted during pole removal or installation activities; Stream 06, Willow Creek, is approximately 75 feet away from proposed structures 34A and 34B and 70 feet away from proposed structure #224, but is not likely to be impacted during pole removal or installation activities. Each of the remaining streams is several hundred feet or more away from the nearest structure and not likely to be impacted during pole removal or installation activities. Streams identified at the project site are summarized in Table 5 below. The location and approximate extent of each stream is shown on the survey map sheets provided in this report. Photographs taken during the field portion of the study are provided in Appendix B.

Table 5: Identified Streams

ID	Type	Description	Length (feet) ¹	Width ²
Stream 1	Intermittent	Tributary of Honey Creek	145	15
Stream 2 (south part)	Ephemeral	Tributary of Rock Creek	100	20
Stream 2 (north part)	Ephemeral	Tributary of Rock Creek	100	20
Stream 3	Perennial	Rock Creek	105	55
Stream 4	Ephemeral	Tributary of Rock Creek	185	40
Stream 5	Perennial	Tributary of Rock Creek	55	15
Stream 6	Perennial	Willow Creek	105	20
Stream 6 (Greenlawn Ext.)	Perennial	Willow Creek	200	40
Stream 7	Perennial	Morrison Creek	250	35
Stream 8	Perennial	Tributary of Morrison Creek	360	60
Total			1,605	320

¹ Within the right of way.

² Crossed by the centerline of the right of way.

4.0 SUMMARY

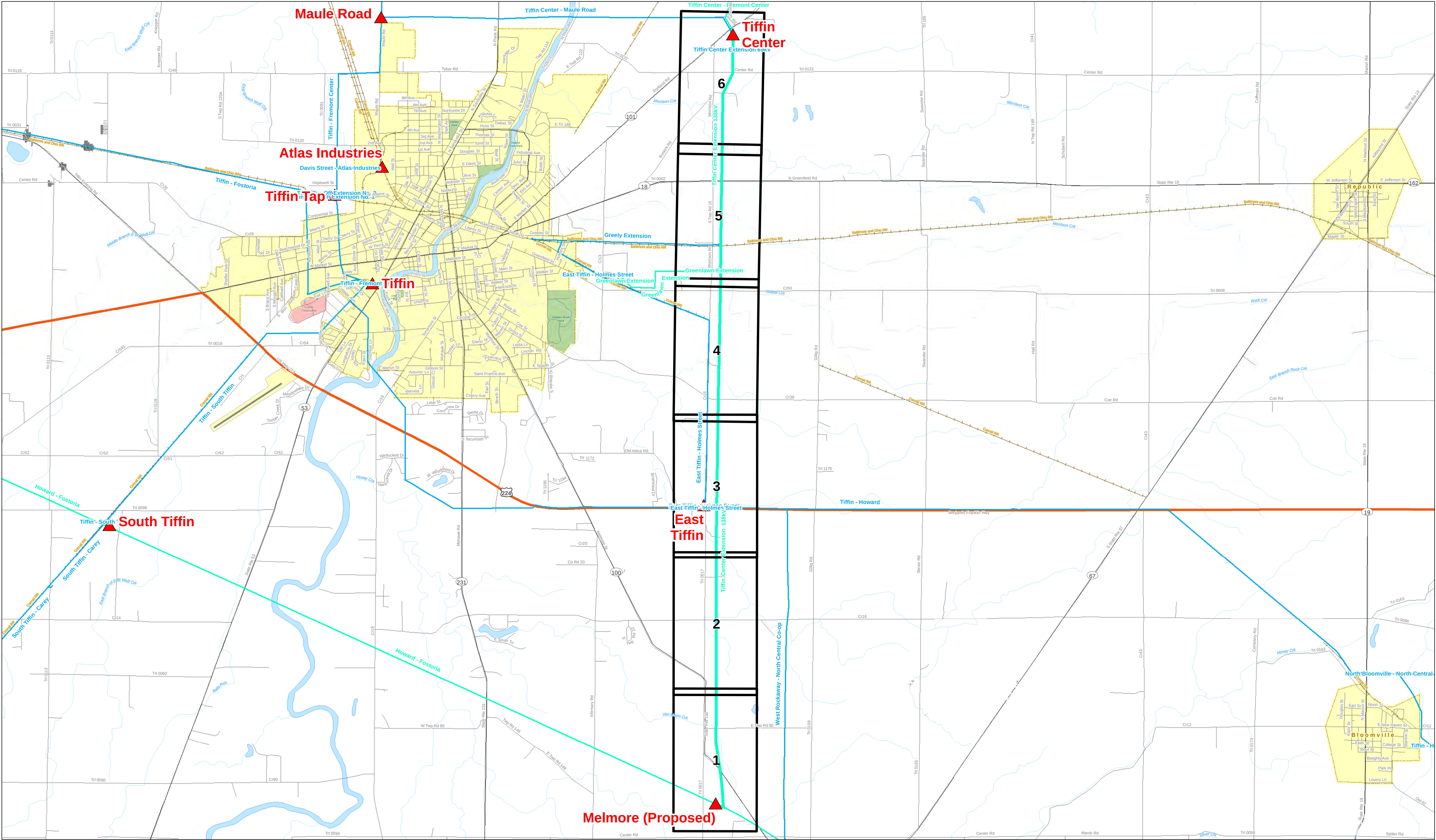
During the study, a total of three wetlands were identified at the project site. The wetlands total 0.75 acres and are of a palustrine emergent (PEM) habitat type. It is likely that all of the wetlands are jurisdictional and that none are likely to be permanently impacted by activities associated with pole removal and installation.

Eight streams were identified at the project site: two ephemeral, one intermittent, and five perennial. The streams cross approximately 1,605 feet of right of way and account for a total width, crossed by the centerline of the right of way, of approximately 320 feet. It is likely that all of the streams are jurisdictional and that none are likely to be permanently impacted by activities associated with pole removal and installation.

Where temporary impacts are possible or likely, erosion, runoff, and sedimentation control measures shall be installed. These measures may include temporary and permanent seed, mulch, silt fence, erosion control blankets, temporary construction entrances, inlet protection devices, concrete washouts, and temporary timber mat roads. Installing the measures will help minimize stream and wetland impacts by protecting the soil surface from raindrop impact, controlling overland flow of storm water runoff, and capturing sediment before it can be discharged with storm water runoff to off-site areas. The specific location and type of each control measure to be installed shall be addressed in detail in the overall Construction and Storm Water Pollution Prevention Plan (SWP3) for the project.

5.0 CONCLUSION

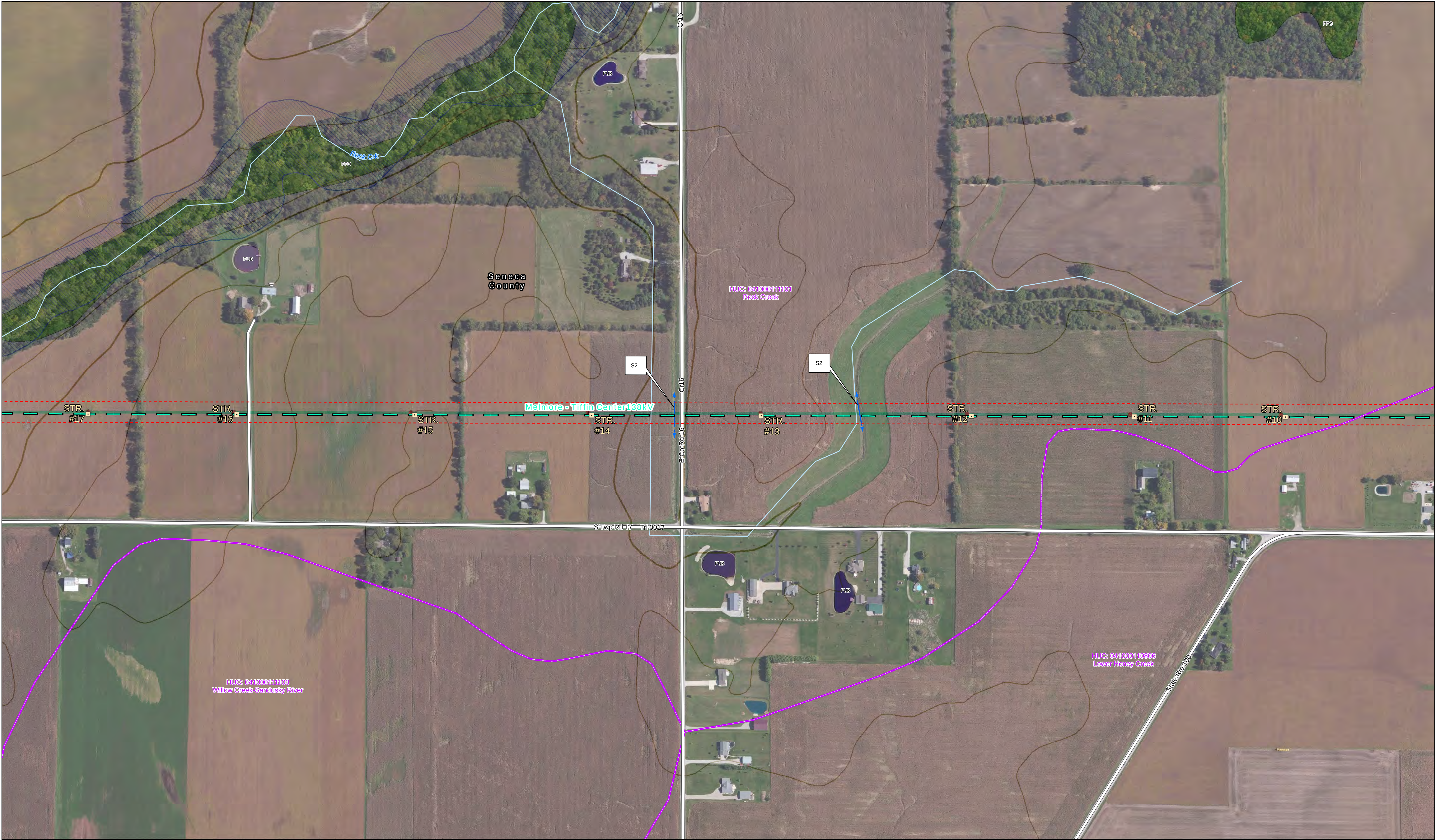
This report will be used to assist American Electric Power in its efforts to avoid impacting wetlands and streams as much as feasibly possible during site design and development and as part of the Letter of Notification (LON) that will be prepared by CAI and submitted to the Ohio Power Siting Board. While site development plans have not been finalized, no stream or wetland is expected to be permanently impacted by pole removal and installation activities. Because the wetlands and streams are all likely to be considered jurisdictional and temporary impacts are expected, permits from the Ohio EPA and the USACE under Sections 401 and/or 404 of the Clean Water Act may be required.



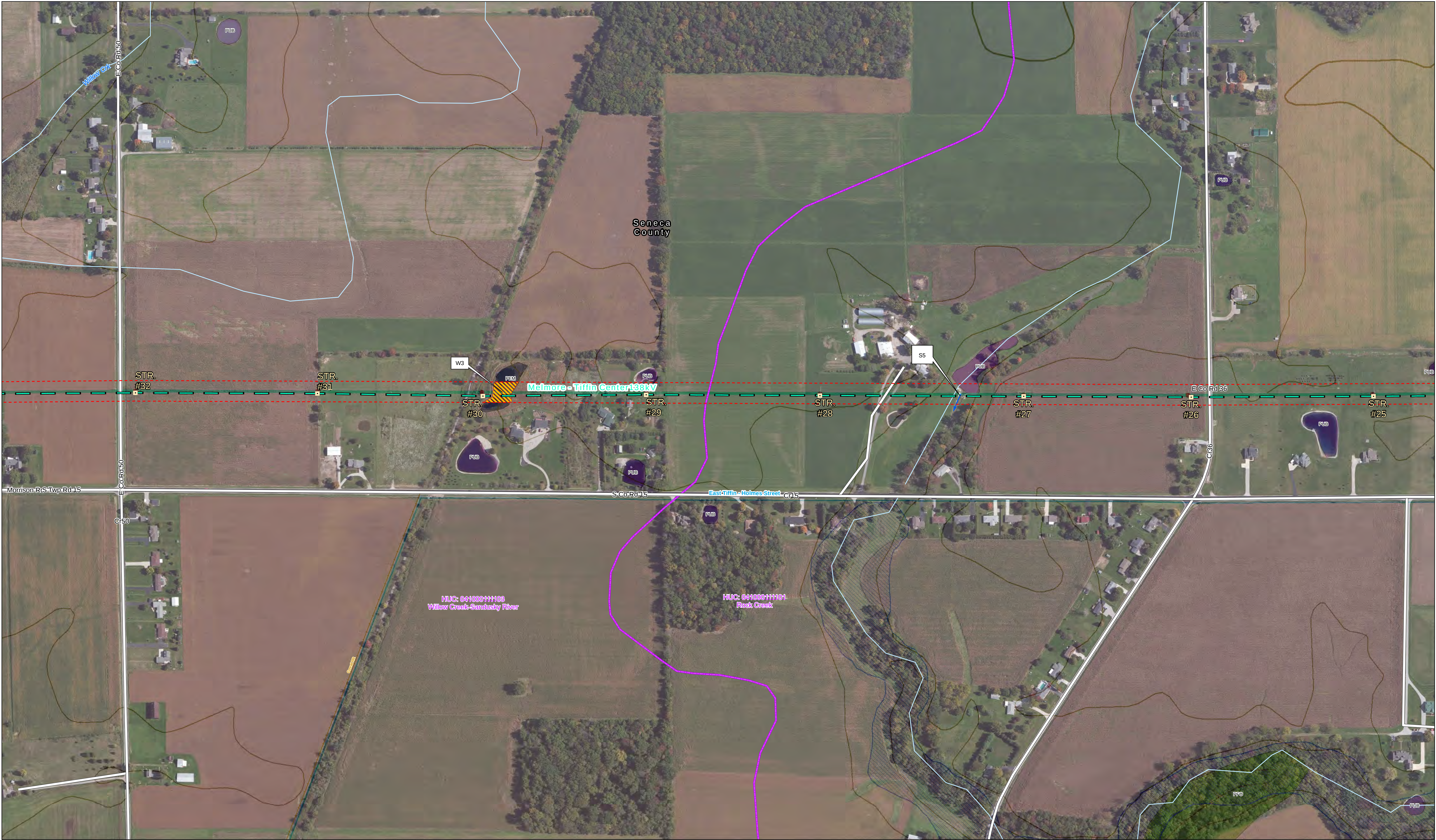
SYM Existing Substation & Transmission Line ▲ Substation ● Existing Structure ◻ Angle Structure — Existing 69 kV — Existing 88 kV — Existing 115 kV — Existing 138 kV — Existing 161 kV	SYM Proposed Features — Proposed Structure — Proposed 69 kV — Temp. Construction Entrance — Access Road — Access Road (Paved) — Access Road (Gravel or Dirt) — Timber Mat Bridge — Silt Fence — Culvert	SYM Transportation & Hydrology — Interstate — Highway — Railroad — Major/Local Road — USGS River/Stream/Lake — CAI Delineated Stream — Lake (Location Map) — Lake (Map Sheet) — 100yr Floodplain	SYM Wetlands — Palustrine Emergent — Palustrine Forested — Palustrine Unconsolidated Bottom — CAI Delineated	SYM Boundary & Feature — Municipal — County — Map Index — Contour — Hydrologic Unit Code — Right of Way — UG Pipeline	N W E S AEP Ohio Transmission Company Fremont Area Improvements Melmore - Tiffin Center 138kv Line Seneca County, Ohio Projected Coordinate System: Ohio State Plane Datum: North American Datum of 1983 Projection: Lambert Conformal Conic Zone: North Linear Unit: Feet DSNR: DAL DRAWN: JEK CHECKED: AMS Scale: 1" = 2,000' (1:24,000) Date: 9/20/2013 Location Map
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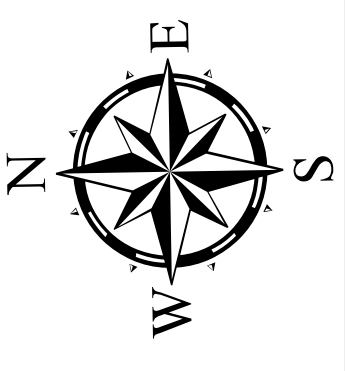
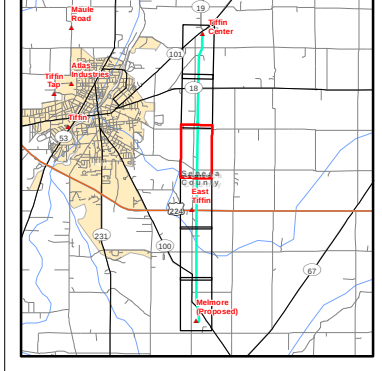
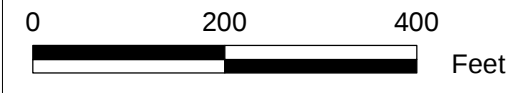


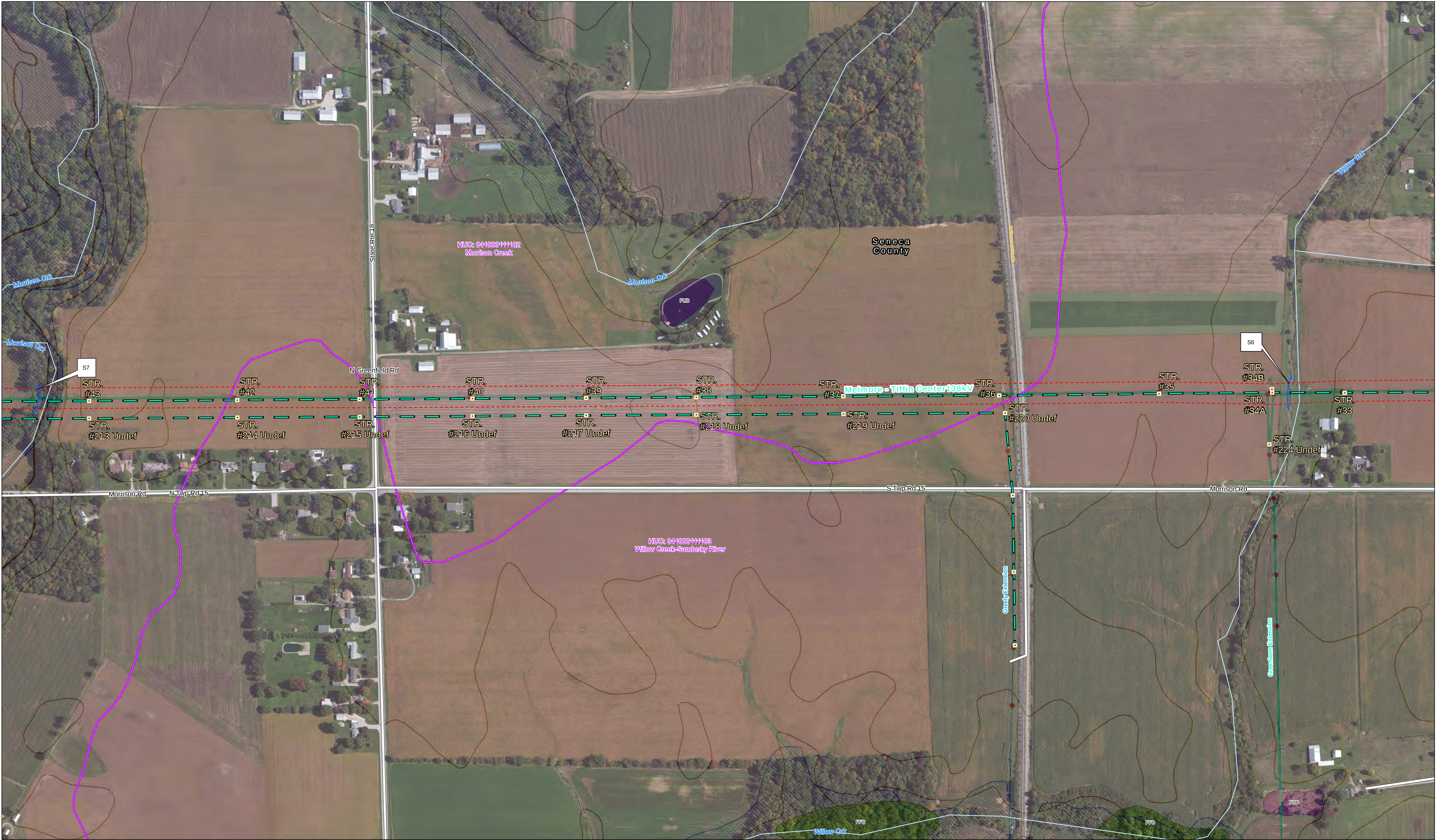
SYM Existing Substation & Transmission Line ▲ Substation ● Existing Structure □ Angle Structure — Existing 69 kV — Existing 88 kV — Existing 115 kV — Existing 138 kV — Existing 161 kV	SYM Proposed Features ■ Proposed Structure ■ Proposed 69 kV ■ Temp. Construction Entrance ■ Access Road ■ Access Road (Paved) ■ Access Road (Gravel or Dirt) ■ Timber Mat Bridge ■ Silt Fence ■ Culvert □ Laydown Area	SYM Transportation & Hydrology — Interstate — Highway — Railroad — Major/Local Road — USGS River/Stream/Lake — CAI Delineated Stream — Lake (Location Map) — Lake (Map Sheet) — 100yr Floodplain	SYM Wetlands ■ Palustrine Emergent ■ Palustrine Forested ■ Palustrine Unconsolidated Bottom ■ CAI Delineated	SYM Boundary & Feature □ Municipal □ County □ Map Index □ Contour □ Hydrologic Unit Code — Right of Way — UG Pipeline		AEP Ohio Transmission Company Fremont Area Improvements Melmore - Tiffin Center 138kv Line Seneca County, Ohio	Projected Coordinate System: Ohio State Plane Datum: North American Datum of 1983 Projection: Lambert Conformal Conic Zone: North Linear Unit: Feet		DSNR: DAL DRAWN: JEK CHECKED: AMS	Scale: 1" = 200' (1:2,400) Date: 9/20/2013 Figure 1A 	
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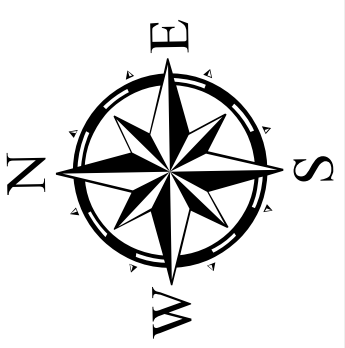
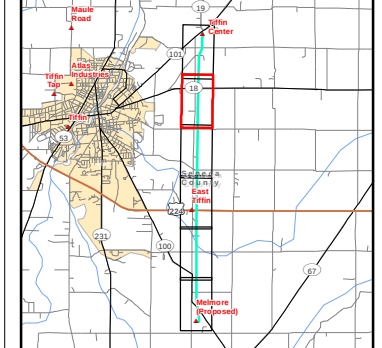
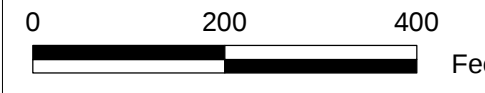


SYM Existing Substation & Transmission Line		SYM Proposed Features		SYM Transportation & Hydrology		SYM Wetlands		SYM Boundary & Feature			AEP Ohio Transmission Company Fremont Area Improvements Melmore - Tiffin Center 138kv Line Seneca County, Ohio	Projected Coordinate System: Ohio State Plane Datum: North American Datum of 1983 Projection: Lambert Conformal Conic Zone: North Linear Unit: Feet		DSNR: DAL		Scale: 1" = 200' (1:2,400) Date: 9/20/2013	Figure 2A 		
▲ Substation	Existing 230 kV	■ Proposed Structure	■ Proposed 69 kV	— Interstate	■ Palustrine Emergent	■ Municipal	DRAWN: JEK												
● Existing Structure	Existing 345 kV	■ Temp. Construction Entrance	■ Access Road	— Highway	■ Palustrine Forested	■ County		CHECKED: AMS											
□ Angle Structure	Existing 500 kV	■ Access Road (Paved)	■ Access Road (Gravel or Dirt)	— Railroad	■ Palustrine Unconsolidated Bottom	■ Map Index													
— Existing 69 kV	Existing 765 kV	■ Silt Fence	■ Culvert	— Major/Local Road	■ CAI Delineated	■ Contour													
— Existing 88 kV				— USGS River/Stream/Lake		■ Hydrologic Unit Code													
— Existing 115 kV				— CAI Delineated Stream		■ Right of Way													
— Existing 138 kV				■ Lake (Location Map)		■ UG Pipeline													
— Existing 161 kV				■ Lake (Map Sheet)															
				■ 100yr Floodplain															

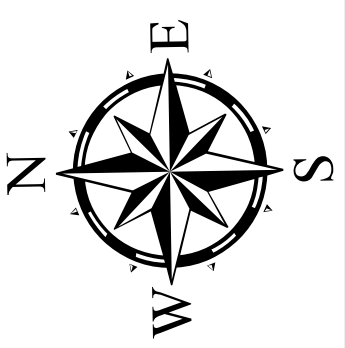
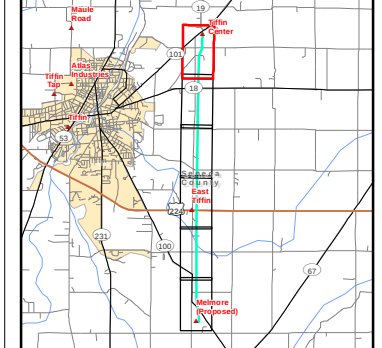
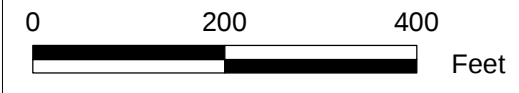


SYM Existing Substation & Transmission Line		SYM Proposed Features		SYM Transportation & Hydrology		SYM Wetlands		SYM Boundary & Feature			AEP Ohio Transmission Company Fremont Area Improvements Melmore - Tiffin Center 138kv Line Seneca County, Ohio	Projected Coordinate System: Ohio State Plane Datum: North American Datum of 1983 Projection: Lambert Conformal Conic Zone: North Linear Unit: Feet		Scale: 1" = 200' (1:2,400)		Date: 9/20/2013
▲ Substation	Existing 230 kv	■ Proposed Structure	■ Proposed 69 kv	— Interstate	■ Palustrine Emergent	■ Municipal	DSNR: DAL									
● Existing Structure	Existing 345 kv	■ Temp. Construction Entrance	■ Access Road	— Highway	■ Palustrine Forested	■ County	DRAWN: JEK									
□ Angle Structure	Existing 500 kv	■ Access Road (Paved)	■ Access Road (Gravel or Dirt)	— Railroad	■ Palustrine Unconsolidated Bottom	■ Map Index	CHECKED: AMS									
— Existing 69 kv	Existing 765 kv	■ Access Road (Gravel or Dirt)	■ Timber Mat Bridge	— Major/Local Road	■ CAI Delineated	■ Contour										
— Existing 88 kv		■ Silt Fence	■ Culvert	— USGS River/Stream/Lake		■ Hydrologic Unit Code										
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— Existing 138 kv				— Lake (Location Map)		■ UG Pipeline										
— Existing 161 kv				— Lake (Map Sheet)												
				— 100yr Floodplain												



SYM Existing Substation & Transmission Line ▲ Substation ● Existing Structure □ Angle Structure — Existing 69 kV — Existing 88 kV — Existing 115 kV — Existing 138 kV — Existing 161 kV	SYM Proposed Features ■ Proposed Structure ■ Proposed 69 kV ■ Temp. Construction Entrance ■ Access Road ■ Access Road (Paved) ■ Access Road (Gravel or Dirt) ■ Timber Mat Bridge ■ Silt Fence ■ Culvert □ Laydown Area	SYM Transportation & Hydrology — Interstate — Highway — Railroad — Major/Local Road — USGS River/Stream/Lake — CAI Delineated Stream — Lake (Location Map) — Lake (Map Sheet) — 100yr Floodplain	SYM Wetlands ■ Palustrine Emergent ■ Palustrine Forested ■ Palustrine Unconsolidated Bottom ■ CAI Delineated	SYM Boundary & Feature □ Municipal □ County □ Map Index □ Contour □ Hydrologic Unit Code — Right of Way — UG Pipeline		AEP Ohio Transmission Company Fremont Area Improvements Melmore - Tiffin Center 138kv Line Seneca County, Ohio	Projected Coordinate System: Ohio State Plane Datum: North American Datum of 1983 Projection: Lambert Conformal Conic Zone: North Linear Unit: Feet		DSNR: DAL DRAWN: JEK CHECKED: AMS	Scale: 1" = 200' (1:2,400) Date: 9/20/2013 Figure 5A  0 200 400 Feet	 
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SYM Existing Substation & Transmission Line ▲ Substation ● Existing Structure □ Angle Structure — Existing 69 kV — Existing 88 kV — Existing 115 kV — Existing 138 kV — Existing 161 kV	SYM Proposed Features ■ Proposed Structure --- Proposed 69 kV --- Temp. Construction Entrance — Access Road — Access Road (Paved) — Access Road (Gravel or Dirt) — Timber Mat Bridge — Silt Fence — Culvert □ Laydown Area	SYM Transportation & Hydrology — Interstate — Highway — Railroad — Major/Local Road — USGS River/Stream/Lake — CAI Delineated Stream — Lake (Location Map) — Lake (Map Sheet) — 100yr Floodplain	SYM Wetlands ■ Palustrine Emergent ■ Palustrine Forested ■ Palustrine Unconsolidated Bottom ■ CAI Delineated	SYM Boundary & Feature □ Municipal □ County □ Map Index □ Contour □ Hydrologic Unit Code - - - Right of Way - - - UG Pipeline	 AEP Ohio Transmission Company Fremont Area Improvements Melmore - Tiffin Center 138kv Line Seneca County, Ohio	Projected Coordinate System: Ohio State Plane Datum: North American Datum of 1983 Projection: Lambert Conformal Conic Zone: North Linear Unit: Feet  DSNR: DAL DRAWN: JEK CHECKED: AMS	Scale: 1" = 200' (1:2,400) Date: 9/20/2013 Figure 6A  0 200 400 Feet 
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APPENDICIES

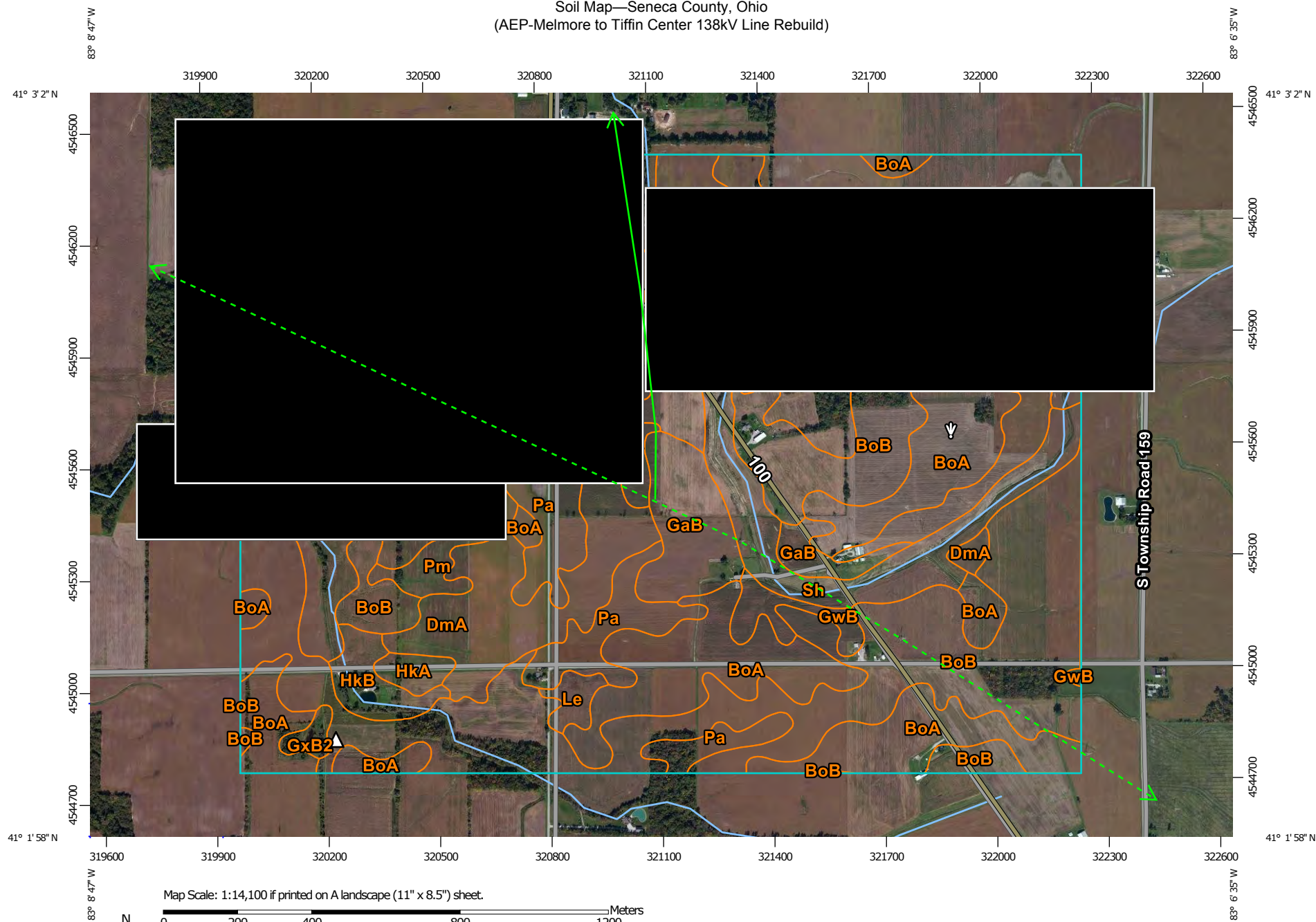
Appendix A – USDA Web Soil Survey (WSS) Map

Appendix B – Site Photographs

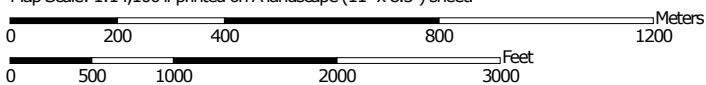
APPENDIX A

USDA Web Soil Survey (WSS) Map

Soil Map—Seneca County, Ohio
(AEP-Melmore to Tiffin Center 138kV Line Rebuild)



Map Scale: 1:14,100 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

9/4/2013
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Map Unit Legend

Seneca County, Ohio (OH147)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BoA	Blount silt loam, 0 to 2 percent slopes	184.2	19.8%
BoB	Blount silt loam, 2 to 6 percent slopes	334.5	35.9%
Bp	Bono silty clay, loamy substratum	3.0	0.3%
DmA	Digby loam, 1 to 4 percent slopes	136.2	14.6%
GaB	Gallman loam, 2 to 6 percent slopes	28.0	3.0%
GwA	Glynwood silt loam, 0 to 2 percent slopes	6.5	0.7%
GwB	Glynwood silt loam, 2 to 6 percent slopes	7.5	0.8%
GxB2	Glynwood silty clay loam, 2 to 6 percent slopes, eroded	5.1	0.6%
HkA	Haskins loam, 0 to 2 percent slopes	5.9	0.6%
HkB	Haskins loam, 2 to 6 percent slopes	46.4	5.0%
Le	Lenawee silty clay loam	22.0	2.4%
Pa	Pandora silt loam	85.5	9.2%
Pm	Pewamo silty clay loam	19.1	2.1%
RmB	Rawson loam, 2 to 6 percent slopes	0.3	0.0%
Sh	Shoals silt loam, frequently flooded	47.4	5.1%
Totals for Area of Interest		931.9	100.0%

Soil Map—Seneca County, Ohio
(AEP-Melmore to Tiffin Center 138kV Line Rebuild)

Map Scale: 1:15,300 if printed on A landscape (11" x 8.5") sheet.

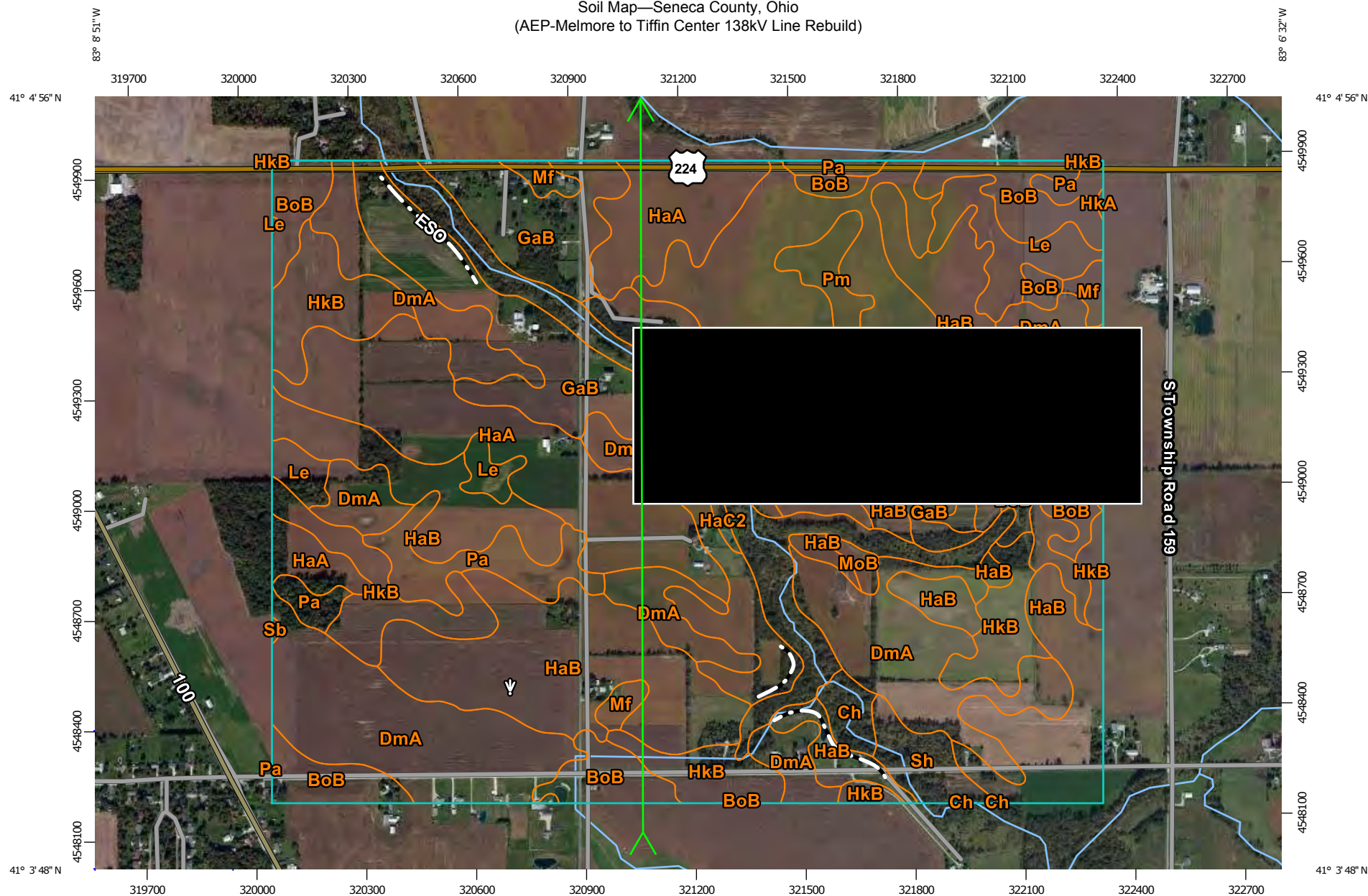
0 200 400 800 1200 Meters

N

Map Unit Legend

Seneca County, Ohio (OH147)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BoA	Blount silt loam, 0 to 2 percent slopes	99.3	9.8%
BoB	Blount silt loam, 2 to 6 percent slopes	529.6	52.2%
Ch	Chagrin silt loam, occasionally flooded	24.3	2.4%
DmA	Digby loam, 1 to 4 percent slopes	100.6	9.9%
GwA	Glynwood silt loam, 0 to 2 percent slopes	2.9	0.3%
GwB	Glynwood silt loam, 2 to 6 percent slopes	3.7	0.4%
Gwg5C2	Glynwood clay loam, ground moraine, 6 to 12 percent slopes, eroded	0.0	0.0%
HaB	Haney loam, 2 to 6 percent slopes	6.3	0.6%
HaC2	Haney loam, 6 to 12 percent slopes, eroded	1.8	0.2%
HkA	Haskins loam, 0 to 2 percent slopes	16.9	1.7%
HkB	Haskins loam, 2 to 6 percent slopes	38.3	3.8%
Le	Lenawee silty clay loam	14.6	1.4%
Pa	Pandora silt loam	69.3	6.8%
Pm	Pewamo silty clay loam	79.1	7.8%
Sh	Shoals silt loam, frequently flooded	25.6	2.5%
W	Water	2.8	0.3%
Totals for Area of Interest		1,015.3	100.0%

Soil Map—Seneca County, Ohio
(AEP-Melmore to Tiffin Center 138kV Line Rebuild)



Map Scale: 1:14,800 if printed on A landscape (11" x 8.5") sheet.

0 200 400 800 1200 Meters

0 500 1000 2000 3000 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84



Natural Resources
Conservation Service

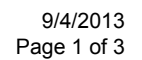
Web Soil Survey
National Cooperative Soil Survey

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Page 1 of 3

Map Unit Legend

Seneca County, Ohio (OH147)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BoB	Blount silt loam, 2 to 6 percent slopes	60.3	6.1%
Ch	Chagrin silt loam, occasionally flooded	6.2	0.6%
DmA	Digby loam, 1 to 4 percent slopes	263.9	26.8%
GaB	Gallman loam, 2 to 6 percent slopes	105.4	10.7%
HaA	Haney loam, 0 to 2 percent slopes	104.9	10.7%
HaB	Haney loam, 2 to 6 percent slopes	193.1	19.6%
HaC2	Haney loam, 6 to 12 percent slopes, eroded	1.2	0.1%
HkA	Haskins loam, 0 to 2 percent slopes	0.3	0.0%
HkB	Haskins loam, 2 to 6 percent slopes	72.3	7.3%
Le	Lenawee silty clay loam	25.5	2.6%
Mf	Millgrove loam	11.0	1.1%
MoB	Milton variant loam, 2 to 6 percent slopes	2.5	0.3%
Pa	Pandora silt loam	46.9	4.8%
Pm	Pewamo silty clay loam	10.9	1.1%
RmB	Rawson loam, 2 to 6 percent slopes	18.7	1.9%
Sb	Sebring silt loam	0.3	0.0%
Sh	Shoals silt loam, frequently flooded	61.2	6.2%
Totals for Area of Interest		984.4	100.0%

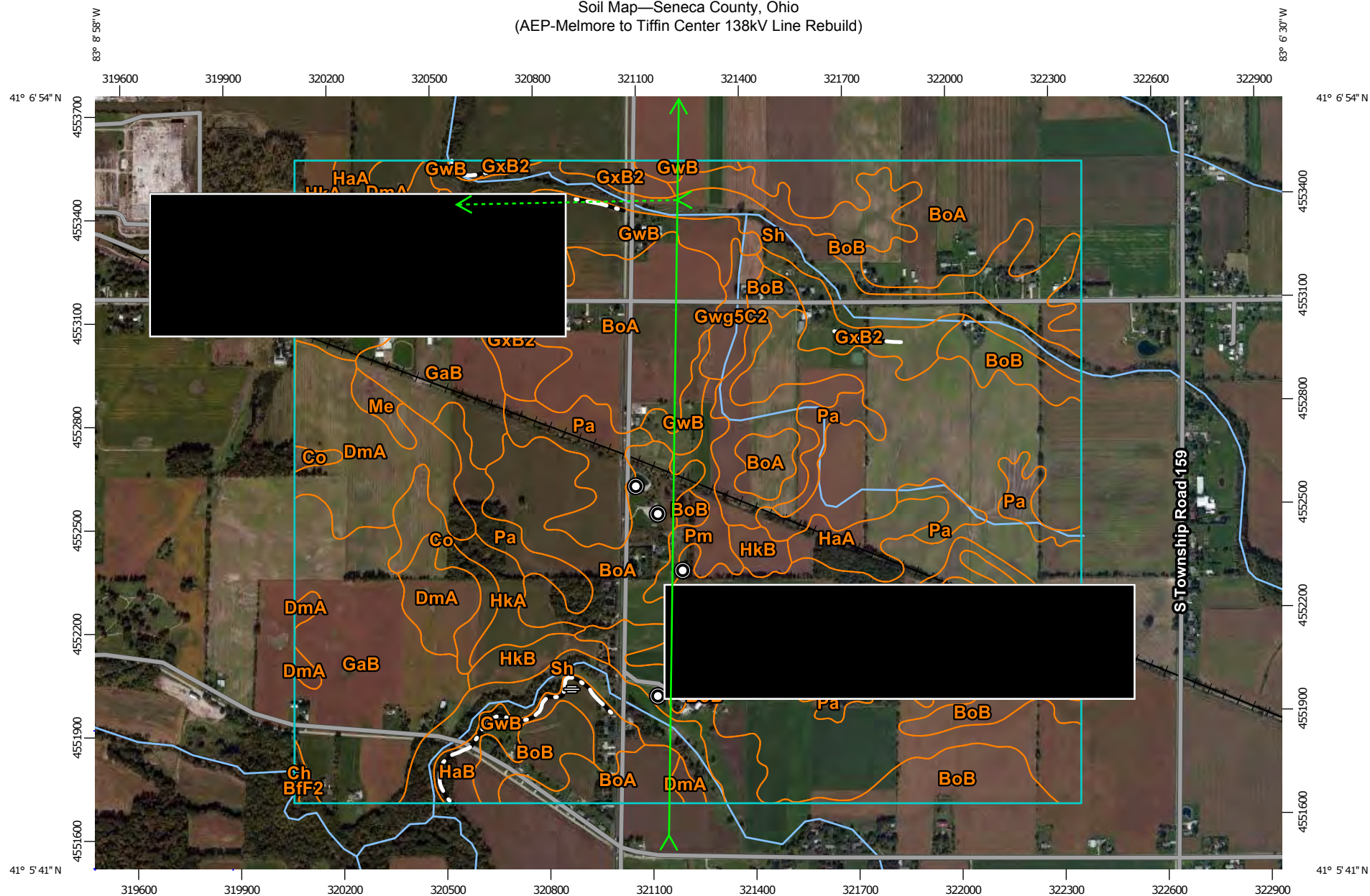
(AEP-Melmore to Tiffin Center 138kV Line Rebuild)



Map Unit Legend

Seneca County, Ohio (OH147)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BfF2	Belmore-Morley complex, 18 to 50 percent slopes, eroded	1.3	0.1%
BoA	Blount silt loam, 0 to 2 percent slopes	152.8	15.0%
BoB	Blount silt loam, 2 to 6 percent slopes	314.4	30.8%
Ch	Chagrin silt loam, occasionally flooded	0.7	0.1%
DmA	Digby loam, 1 to 4 percent slopes	115.8	11.3%
GaB	Gallman loam, 2 to 6 percent slopes	124.8	12.2%
Gwg5C2	Glynwood clay loam, ground moraine, 6 to 12 percent slopes, eroded	9.7	1.0%
HaA	Haney loam, 0 to 2 percent slopes	49.4	4.8%
HaB	Haney loam, 2 to 6 percent slopes	14.5	1.4%
HaC2	Haney loam, 6 to 12 percent slopes, eroded	0.3	0.0%
HkA	Haskins loam, 0 to 2 percent slopes	19.0	1.9%
HkB	Haskins loam, 2 to 6 percent slopes	58.1	5.7%
Mf	Millgrove loam	7.5	0.7%
Pa	Pandora silt loam	70.2	6.9%
Pm	Pewamo silty clay loam	2.7	0.3%
Sh	Shoals silt loam, frequently flooded	79.7	7.8%
Totals for Area of Interest		1,020.9	100.0%

Soil Map—Seneca County, Ohio
(AEP-Melmore to Tiffin Center 138kV Line Rebuild)



Map Scale: 1:15,800 if printed on A landscape (11" x 8.5") sheet.

0 200 400 800 1200 Meters

0 500 1000 2000 3000 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

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Map Unit Legend

Seneca County, Ohio (OH147)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BfF2	Belmore-Morley complex, 18 to 50 percent slopes, eroded	1.2	0.1%
BoA	Blount silt loam, 0 to 2 percent slopes	416.4	39.3%
BoB	Blount silt loam, 2 to 6 percent slopes	136.4	12.9%
Ch	Chagrin silt loam, occasionally flooded	0.6	0.1%
Co	Colwood silt loam	18.0	1.7%
DmA	Digby loam, 1 to 4 percent slopes	58.8	5.6%
GaB	Gallman loam, 2 to 6 percent slopes	98.7	9.3%
GwB	Glynwood silt loam, 2 to 6 percent slopes	52.5	5.0%
Gwg5C2	Glynwood clay loam, ground moraine, 6 to 12 percent slopes, eroded	8.3	0.8%
GxB2	Glynwood silty clay loam, 2 to 6 percent slopes, eroded	46.7	4.4%
HaA	Haney loam, 0 to 2 percent slopes	16.3	1.5%
HaB	Haney loam, 2 to 6 percent slopes	4.9	0.5%
HkA	Haskins loam, 0 to 2 percent slopes	15.1	1.4%
HkB	Haskins loam, 2 to 6 percent slopes	12.4	1.2%
Me	Mermill loam	4.2	0.4%
Pa	Pandora silt loam	68.3	6.4%
Pm	Pewamo silty clay loam	29.8	2.8%
RmB	Rawson loam, 2 to 6 percent slopes	6.0	0.6%
Sh	Shoals silt loam, frequently flooded	64.4	6.1%
Totals for Area of Interest		1,059.1	100.0%

Soil Map—Seneca County, Ohio
(AEP-Melmore to Tiffin Center 138kV Line Rebuild)

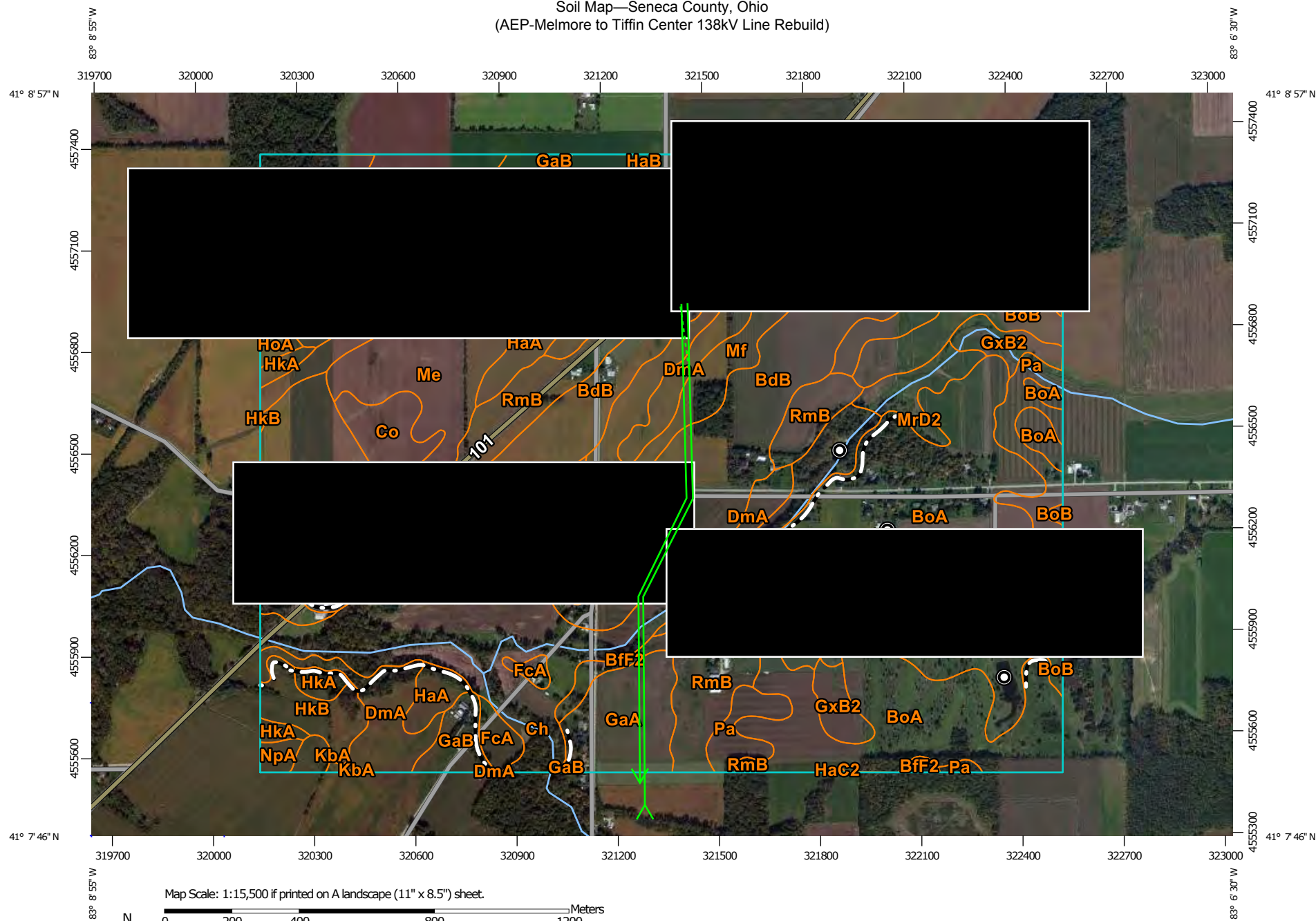


Map Unit Legend

Seneca County, Ohio (OH147)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BdB	Belmore loam, 2 to 6 percent slopes	24.2	2.1%
BfF2	Belmore-Morley complex, 18 to 50 percent slopes, eroded	10.2	0.9%
BoA	Blount silt loam, 0 to 2 percent slopes	301.7	25.8%
BoB	Blount silt loam, 2 to 6 percent slopes	78.3	6.7%
Ch	Chagrin silt loam, occasionally flooded	65.6	5.6%
Co	Colwood silt loam	16.7	1.4%
DmA	Digby loam, 1 to 4 percent slopes	120.3	10.3%
FcA	Fitchville silt loam, 1 to 4 percent slopes	0.2	0.0%
GaA	Gallman loam, 0 to 2 percent slopes	5.4	0.5%
GaB	Gallman loam, 2 to 6 percent slopes	91.8	7.9%
GwB	Glynwood silt loam, 2 to 6 percent slopes	44.2	3.8%
GxB2	Glynwood silty clay loam, 2 to 6 percent slopes, eroded	59.2	5.1%
HaA	Haney loam, 0 to 2 percent slopes	35.3	3.0%
HaB	Haney loam, 2 to 6 percent slopes	61.3	5.3%
HaC2	Haney loam, 6 to 12 percent slopes, eroded	13.4	1.2%
HkA	Haskins loam, 0 to 2 percent slopes	17.5	1.5%
HkB	Haskins loam, 2 to 6 percent slopes	55.0	4.7%
HoA	Hoytville clay loam, 0 to 1 percent slopes	0.9	0.1%
KbA	Kibbie fine sandy loam, 0 to 2 percent slopes	30.5	2.6%
Le	Lenawee silty clay loam	0.3	0.0%
Me	Mermill loam	1.5	0.1%
Mf	Millgrove loam	2.6	0.2%
NpA	Nappanee silt loam, 0 to 2 percent slopes	4.9	0.4%
Pa	Pandora silt loam	34.2	2.9%

Seneca County, Ohio (OH147)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Pm	Pewamo silty clay loam	23.0	2.0%
RmB	Rawson loam, 2 to 6 percent slopes	17.0	1.5%
Sh	Shoals silt loam, frequently flooded	52.1	4.5%
Totals for Area of Interest		1,167.4	100.0%

Soil Map—Seneca County, Ohio
(AEP-Melmore to Tiffin Center 138kV Line Rebuild)

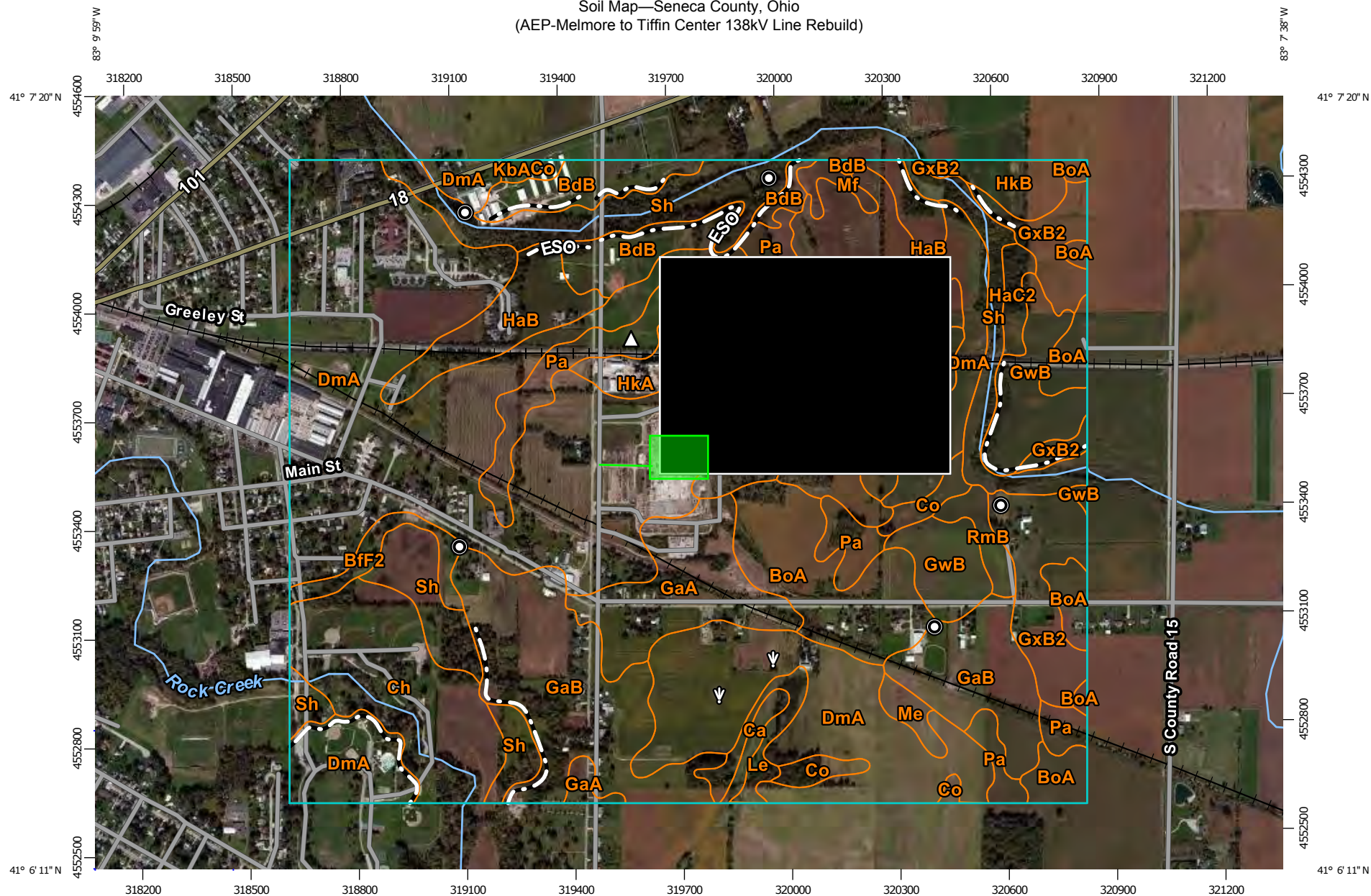


Map Unit Legend

Seneca County, Ohio (OH147)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BdB	Belmore loam, 2 to 6 percent slopes	165.0	15.3%
BfF2	Belmore-Morley complex, 18 to 50 percent slopes, eroded	18.2	1.7%
BoA	Blount silt loam, 0 to 2 percent slopes	159.9	14.8%
BoB	Blount silt loam, 2 to 6 percent slopes	26.8	2.5%
Ch	Chagrin silt loam, occasionally flooded	80.1	7.4%
Co	Colwood silt loam	37.2	3.5%
DmA	Digby loam, 1 to 4 percent slopes	104.3	9.7%
FcA	Fitchville silt loam, 1 to 4 percent slopes	11.5	1.1%
GaA	Gallman loam, 0 to 2 percent slopes	43.0	4.0%
GaB	Gallman loam, 2 to 6 percent slopes	23.0	2.1%
GwB	Glynwood silt loam, 2 to 6 percent slopes	8.9	0.8%
GxB2	Glynwood silty clay loam, 2 to 6 percent slopes, eroded	13.1	1.2%
HaA	Haney loam, 0 to 2 percent slopes	14.1	1.3%
HaB	Haney loam, 2 to 6 percent slopes	6.9	0.6%
HaC2	Haney loam, 6 to 12 percent slopes, eroded	0.1	0.0%
HkA	Haskins loam, 0 to 2 percent slopes	58.6	5.4%
HkB	Haskins loam, 2 to 6 percent slopes	41.6	3.9%
HoA	Hoytville clay loam, 0 to 1 percent slopes	17.8	1.6%
KbA	Kibbie fine sandy loam, 0 to 2 percent slopes	25.4	2.4%
Me	Mermill loam	46.4	4.3%
Mf	Millgrove loam	45.5	4.2%
MrD2	Morley silt loam, 12 to 18 percent slopes, eroded	42.9	4.0%
NpA	Nappanee silt loam, 0 to 2 percent slopes	4.4	0.4%

Seneca County, Ohio (OH147)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Pa	Pandora silt loam	25.6	2.4%
RmB	Rawson loam, 2 to 6 percent slopes	57.5	5.3%
Totals for Area of Interest		1,077.6	100.0%

Soil Map—Seneca County, Ohio
(AEP-Melmore to Tiffin Center 138kV Line Rebuild)



Map Scale: 1:15,000 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

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Map Unit Legend

Seneca County, Ohio (OH147)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BdB	Belmore loam, 2 to 6 percent slopes	31.1	3.2%
BfF2	Belmore-Morley complex, 18 to 50 percent slopes, eroded	7.9	0.8%
BoA	Blount silt loam, 0 to 2 percent slopes	55.5	5.7%
Ca	Carlisle muck	3.3	0.3%
Ch	Chagrin silt loam, occasionally flooded	49.6	5.1%
Co	Colwood silt loam	9.8	1.0%
DmA	Digby loam, 1 to 4 percent slopes	358.1	36.8%
GaA	Gallman loam, 0 to 2 percent slopes	37.0	3.8%
GaB	Gallman loam, 2 to 6 percent slopes	86.6	8.9%
GwB	Glynwood silt loam, 2 to 6 percent slopes	33.1	3.4%
GxB2	Glynwood silty clay loam, 2 to 6 percent slopes, eroded	38.8	4.0%
HaA	Haney loam, 0 to 2 percent slopes	20.7	2.1%
HaB	Haney loam, 2 to 6 percent slopes	32.1	3.3%
HaC2	Haney loam, 6 to 12 percent slopes, eroded	4.9	0.5%
HkA	Haskins loam, 0 to 2 percent slopes	43.2	4.4%
HkB	Haskins loam, 2 to 6 percent slopes	9.1	0.9%
KbA	Kibbie fine sandy loam, 0 to 2 percent slopes	1.1	0.1%
Le	Lenawee silty clay loam	8.2	0.8%
Me	Mermill loam	20.1	2.1%
Mf	Millgrove loam	3.4	0.3%
Pa	Pandora silt loam	42.8	4.4%
RmB	Rawson loam, 2 to 6 percent slopes	6.0	0.6%
Sh	Shoals silt loam, frequently flooded	70.2	7.2%
Totals for Area of Interest		972.6	100.0%

Soil Map—Seneca County, Ohio
(AEP-Melmore to Tiffin Center 138kV Line Rebuild)

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Seneca County, Ohio

Survey Area Data: Version 11, Oct 2, 2012

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 18, 2011—Mar 21, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

APPENDIX B

Site Photographs



Photograph 1: Between structures 6 and 7, facing southeast and overlooking Stream 01. Water flow in the stream is northwest to Mohawk Lake.



Photograph 2: Between structures 12 and 13, facing west and overlooking Stream 02. Water flow in the stream is west, then east to Rock Creek.



Photograph 3: Between structures 13 and 14, facing east and overlooking Stream 02. Water flow in the stream is east to Rock Creek.



Photograph 4: Between structures 17 and 18, facing west and overlooking Stream 03 (Rock Creek). Water flow in the stream is northwest to the Sandusky River.



Photograph 5: South of structure 18, facing southeast, and overlooking Wetland 01. The wetland adjoins the north side of Stream 03 (not in the photo). Pink flagging near the center of the photo denotes the location of the wetland sample point.



Photograph 6: Between structures 20 and 21, facing northwest and looking down Stream 04. Water flow in the stream is northwest to Rock Creek.



Photograph 7: South of structure 21, facing north, and overlooking Wetland 02. The wetland adjoins the east side of Stream 03 (not in the photo).



Photograph 8: Between structures 27 and 28, facing northwest and looking down Stream 05. Water flow in the stream is west to Rock Creek.



Photograph 9: South of structure 30, facing north, and overlooking Wetland 03. Structure 30, in the background, is approximately 35 feet from the edge of the wetland.



Photograph 10: South of structures 34A and B, facing east, and looking down Stream 06 (Willow Creek). Water flow in the stream is west to the Sandusky River.



Photograph 11: Between structures 43 and 44, facing east, and overlooking Stream 07 (Morrison Creek). Water flow in the stream is northwest to the Sandusky River.



Photograph 12: Between structures 46 and 47, facing east, and overlooking Stream 08. Surface water flow in the stream is west to Morrison Creek.

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

10/29/2013 11:28:40 AM

in

Case No(s). 13-2009-EL-BLN

Summary: Letter of Notification Part 2 of 3- Melmore-Tiffin Center 138k V Line Improvement Project electronically filed by Mr. Yazen Alami on behalf of AEP Ohio Transmission Company