LETTER OF NOTIFICATION

Trumbull Energy Center Electrical Interconnection

Ohio Power Siting Board Case No. 22-697-EL-BLN

July 18, 2022

Prepared for:

Clean Energy Future – Trumbull, LLC
30 Proctor Street
Manchester-by-the-Sea, Massachusetts 01944
Attn: Steve Remillard
508-578-6317; steve@cleanenergyfuture.com

Bricker & Eckler LLP
100 South Third Street
Columbus, OH 43215
Office: 614.227.2300
Fax: 614.227.2390

Dylan F. Borchers
Direct Dial: 614.227.4914
dborchers@bricker.com
www.bricker.com
info@bricker.com

July 18, 2022

Via Electronic Filing

Ms. Tanowa Troupe
Administration/Docketing
Ohio Power Siting Board
180 East Broad Street, 11th Floor
Columbus, Ohio 43215-3793

Re: Clean Energy Future – Trumbull, LLC
Case No. 22-697-EL-BLN

Dear Ms. McNeal:

Enclosed for filing in the above-referenced case is a copy of the Letter of Notification for the Trumbull Energy Center Electrical Interconnection ("TEC Electrical Interconnection") Village of Lordstown, Trumbull County, Ohio. Pursuant to Ohio Administrative Code Rule 4906-6-05(A), the Applicant makes the following declarations:

Name of Applicant: Clean Energy Future – Trumbull, LLC,
whose authorized representative is:
Steven P. Remillard
Project Development Manager
Clean Energy Future - Trumbull, LLC
33 Proctor Street
Manchester, MA 01944
Telephone: (508) 579-6317
E:mail: steve@cleanenergyfuture.com

Name/Location of Proposed Facility: Trumbull Energy Center Electrical Interconnection
Village of Lordstown, Trumbull County, Ohio

Authorized Representative: Dylan Borchers
Bricker & Eckler LLP
100 South Third Street
Columbus, OH 43215
Telephone: (614) 227-4914
Facsimile: (614) 227-2390
E-Mail: dborchers@bricker.com

Notarized Statement: The Affidavit of Steven Remillard, on behalf of Clean Energy Future - Trumbull, LLC will be filed separately.

Sincerely on behalf of
CLEAN ENERGY FUTURE - TRUMBULL, LLC

Dylan F. Borchers

Attachment

Letter of Notification
Trumbull Energy Center Electrical Interconnection

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ATTACHMENTS

ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
the Applicant	Clean Energy Future - Trumbull, LLC
CEF-T	Clean Energy Future - Trumbull, LLC
Certificate	Certificate of Environmental Compatibility and Public Need
FirstEnergy	FirstEnergy Corporation
the Interconnection ROW	a newly proposed, approximately 0.25-mile 100-foot wide right-of-way in which generator leads supported by three vertical, monopole dead-end structures will be constructed
kV	Kilovolt
LON	Letter of Notification
OAC	Ohio Administrative Code
ODNR	Ohio Department of Natural Resources
OHC	Ohio History Connection
Ohio EPA	Ohio Environmental Protection Agency
OPSB	Ohio Power Siting Board
P1, P2, and P3	pole locations along the proposed TEC Electrical Interconnection
PJM	PJM Interconnection LLC, the regional electric transmission Independent System Operator
SR 45	State Route 45
TEC	Trumbull Energy Center
the TEC Collector Bus	a new collector bus/switchyard to be located on the western portion of the TEC Site, adjacent to the power block
the TEC Site	a 23-acre property on which the Trumbull Energy Center is proposed
the TEC Electrical Interconnection	the proposed activity, a 345-kilovolt electric transmission interconnection between the existing FirstEnergy electrical transmission grid and the Trumbull Energy Center, consisting of the 0.25-mile Interconnection ROW and the 4-acre Utility Switchyard
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
the Utility Switchyard	approximately 4 acres of land located adjacent to the FirstEnergy 345-kV Highland-Hanna circuit in which a new, 3-breaker ringbus will be constructed

4906-6-05 (B) GENERAL INFORMATION

In accordance with Ohio Administrative Code (OAC) Section 4906-6-05, Accelerated Application Requirements, Clean Energy Future - Trumbull, LLC (CEF-T or the Applicant) submits the following information to the Ohio Power Siting Board (OPSB):

4906-6-05(B)(1) Project Name and Reference Number

The Applicant is Clean Energy Future - Trumbull, LLC. The name of the project is the Trumbull Energy Center Electrical Interconnection (the TEC Electrical Interconnection).

4906-6-05(B)(1) Description of the Project

The TEC Electrical Interconnection will interconnect CEF-T's Trumbull Energy Center (TEC), a proposed state-of-the-art, combined cycle, natural gas-fired electric generating facility to an existing FirstEnergy Corporation (FirstEnergy) 345-kilovolt (kV) transmission line. TEC is proposed on a 23-acre property (the TEC Site) located approximately 0.2 mile west of the FirstEnergy 345-kV Highland-Hanna circuit, as shown in Figure 1. TEC is the subject of a separate OPSB filing (Case No. 16-2444-EL-BGN) for which a Certificate of Compatibility and Public Need (Certificate) was issued on October 5, 2017. The TEC Electrical Interconnection was the subject of a Letter of Notification (LON) (Case No. 17-0818-EL-BLN) for which automatic approval occurred on September 18, 2017. **There are no changes in the proposed TEC Electrical Interconnection from that previously approved.**

TEC will produce power at a voltage of 20 kV, which will be increased to 345 kV through the use of generator step-up transformers. An electrical switchyard will be located on the western portion of the TEC Site (the TEC Collector Bus) to gather the output from the generator step-up transformers. Within the TEC Collector Bus, the nine generator leads (three each from the two

combustion turbine generator step-up transformers and the steam turbine generator step-up transformers) will be consolidated such that only three phases, each containing a double conductor, will leave the TEC Site as a part of the TEC Electrical Interconnection. The TEC Electrical Interconnection consists of:

The three consolidated generator leads that will extend approximately 0.25-mile within a 100-foot wide right-of-way (the Interconnection ROW) supported on three vertical monopole dead-end structures; and

The new 3-breaker ringbus, proposed on approximately 4 acres of land located adjacent to the FirstEnergy 345-kV Highland-Hanna circuit (the Utility Switchyard), into which the generator leads interconnect.

The generator leads will extend south approximately 200 feet from the TEC Collector Bus to a dead-end structure (P1), then turn east approximately 500 feet to a dead-end structure (P2) located just north of the Mud Creek wetlands and floodplain. The generator leads will span wetland resources associated with Mud Creek, thereby avoiding direct impact; the span will extend southeasterly approximately 300 feet to a dead-end structure (P3) southeast of Mud Creek, before extending east approximately 300 feet and entering the Utility Switchyard. An access road from the TEC Site will provide access to P1 and P2, while an access road extending north from Hallock Young Road will provide access to P3, thereby avoiding the need to cross Mud Creek; a separate access road will extend north from Hallock Young Road to the Utility Switchyard. The TEC Electrical Interconnection will be capable of delivering TEC's nominal net 940-megawatt capacity to the FirstEnergy 345-kV Highland-Hanna circuit.

All components of the TEC Electrical Interconnection are proposed on property under option by CEF-T and are located entirely within the Village of Lordstown, Trumbull County, Ohio.

Prior to commencement of construction, CEF-T will exercise its options and purchase the properties on which the TEC Electrical Interconnection is proposed. Upon completion of construction, the Utility Switchyard and associated access road will be transferred to FirstEnergy, while the Interconnection ROW (and associated access) will remain under the ownership and control of CEF-T.

4906-6-05(B)(1) Reason the Project Meets Letter of Notification Requirements

The TEC Electrical Interconnection meets the requirements of two components of OAC Section 4906-6-01 that require the submittal of an LON:

> Appendix A(1)(b) states that power transmission lines greater than 0.2 mile in length but not greater than two miles in length require the submittal of an LON; the Interconnection ROW is 0.25 mile in length.
>
> Appendix A(3) states that construction of a new electric power transmission substation requires the submittal of a LON, and the Utility Switchyard is considered by the OPSB to be a substation.

The two components (the Interconnection ROW and the Utility Switchyard) are both addressed in this filing as the TEC Electrical Interconnection. The TEC Electrical Interconnection is solely needed to meet the requirements of a specific customer, CEF-T.

4906-6-05(B)(2) Need for the Project

TEC will generate energy to meet regional demand, and must be connected to the existing transmission grid in order to provide that energy to the market. In October 2015, TEC submitted

an interconnection request to PJM Interconnection LLC (PJM),[1] the regional electric transmission Independent System Operator, and was assigned queue position AB1-105. The PJM Interconnection Process was completed in 2020 when CEF-T executed an Interconnection Services Agreement and an Interconnection Construction Services Agreement with PJM and the Transmission System Owner, First Energy/ATSI. TEC has completed all of the requirements of the PJM interconnection process and is now able to begin construction of the interconnection facilities. The PJM Facility Study and associated interconnection agreements are provided in Attachment A.

4906-6-05(B)(3) Project Location Relative to Existing and Proposed Lines

The location of the TEC Electrical Interconnection in relation to existing FirstEnergy transmission lines is shown in Figure 2.

4906-6-05(B)(4) Alternatives Considered

The FirstEnergy 345-kV Highland-Hanna circuit is the closest 345-kV transmission corridor to the TEC Site. PJM's 2017 System Impact Study for TEC confirmed that TEC can interconnect to the existing electrical grid at this location with only minor system upgrades. The ongoing PJM Facility Study will confirm that the 3-breaker ringbus configuration proposed for the TEC Electrical Interconnection meets applicable FirstEnergy requirements.

No formal siting or routing study was completed for the TEC Electrical Interconnection and no significant alternatives were studied; however, siting and routing utilized a range of considerations. As further discussed in Section 4906-6-05(B)(10)(a), the TEC Electrical

[1] PJM is the regional independent transmission organization that coordinates movement of wholesale electricity in all or part of 13 states (including Ohio) and the District of Columbia. Its name results from its origin serving Pennsylvania (P), New Jersey (J), and Maryland (M).

Interconnection is located on a parcel of land that is contiguous with the industrial area of Lordstown within which TEC will be constructed. By focusing elements of the TEC Electrical Interconnection on an adjacent parcel that is immediately proximate to both TEC and the existing 345-kV electric transmission corridor, a substantial buffer from other surrounding land uses can be maintained. The TEC Electrical Interconnection is not in a densely populated location within the Village of Lordstown.

The location of the Utility Switchyard adjacent to the existing 345-kV electric transmission line corridor will facilitate FirstEnergy's tap into the existing transmission lines and allow for consolidation of property ultimately to be controlled by FirstEnergy. The Utility Switchyard was positioned as close to Hallock Young Road (the point of access) as possible, while avoiding unnecessary impact to wetlands.

Routing of the Interconnection ROW between the TEC Collector Bus and the Utility Switchyard focused on selecting a technically functional design with the shortest distance (to minimize tree clearing and reduce costs) that would also minimize potential wetland and stream impact. Only three structures are proposed within the 100-foot wide Interconnection ROW, and they have been specifically positioned to avoid the need for structures to be located in wetland or floodplain. The resulting Interconnection ROW is only 0.25 mile in length, and represents the most suitable and least-impact routing alternative.

4906-6-05(B)(5) Public Information Program

The TEC Electrical Interconnection is associated with TEC, and has been included in associated community discussions and outreach. Work within the community, including meetings with the local public officials and political leadership of the Village of Lordstown, led by Mayor Arno Hill, has been ongoing since 2013.

CEF-T's public interaction has included mailing letters to residents, tenants, and elected officials; issuing a news release to the local media; and creating a website (*www.cleanenergyfuture.com*). During construction, CEF-T will regularly provide updates via postings on its website.

Prior to filing the full Application for TEC (Case No. 16-2444-EL-BGN) and the original LON for the TEC Electrical Interconnection (Case No. 17-819-EL-BLN), a pre-application meeting was held with the OPSB Staff in Columbus, Ohio on December 16, 2016 to introduce CEF-T and TEC and discuss both filings. On January 23, 2017, CEF-T held a public informational meeting, as required by OAC Rule 4906-3-03(B). Information regarding TEC and the anticipated TEC Electrical Interconnection was shared during this public meeting. The meeting was properly noticed in the local newspaper, in accordance with OAC Rule 4906-3-03(B)(1). In addition, CEF-T and its representatives have held numerous meetings with local public officials and nearby neighbors to discuss TEC, including its interconnections. On September 18, 2017 the TEC Electrical Interconnection received automatic approval, and on October 5, 2017, OPSB issued a Certificate for the construction and operation of TEC.

A notification letter, as required by OAC Rule 4906-6-05(B)(5), was sent to each property owner. A second letter will be sent within seven days of filing this LON, as required by OAC Rule 4906-6-08(B). Later in the process, a third letter, as required by OAC Rule 4906-6-11(C), will be sent at least seven days before construction begins. Attachment B contains the three model letters.

A Complaint Resolution Procedure has been developed for TEC, provided as Attachment C, which will also be implemented during construction of the TEC Electrical Interconnection. All complaints will be addressed in a timely manner, with information sought to correct the cause, as appropriate. Once the TEC Electrical Interconnection is operational, the Utility Switchyard will

be owned and managed by FirstEnergy under its procedures, while the Interconnection ROW will be integrated into the process that will be in place for operation of TEC.

4906-6-05(B)(6) Anticipated Construction Schedule and In-Service Date

Construction of the TEC Electrical Interconnection is expected to begin in the fourth quarter of 2022 and it is scheduled to be in-service by the first quarter of 2024 (prior to TEC's anticipated third quarter 2025 in-service date to allow for backfeed availability).

4906-6-05(B)(7) Maps Depicting Project Location

Figure 1 has been prepared at a scale of 1:24,000 feet to show the proposed location of the TEC Electrical Interconnection. Figure 1 illustrates the location of the TEC Collector Bus, the Interconnection ROW, and the Utility Switchyard, as well as proximate streets, roads, and highways. As can be seen, the TEC Electrical Interconnection is located entirely within the Village of Lordstown, Trumbull County, Ohio, approximately 0.15 mile east of State Route 45 (SR 45) and 0.1 mile north of Hallock Young Road. The TEC Electrical Interconnection extends from the proposed TEC Collector Bus, located on the western portion of the proposed TEC Site, across property optioned by CEF-T, to the existing FirstEnergy 345-kV Highland-Hanna circuit.

4906-6-05(B)(8) Proposed Easements, Options, and Land Use Agreements

The TEC Electrical Interconnection will be constructed within land owned by Clean Energy Future, the owner of CEF-T. The 100-foot wide Interconnection ROW and its associated access road will continue in CEF ownedland, while land, infrastructure, and the access road associated with the Utility Switchyard will be transferred to FirstEnergy upon completion of construction. The name and address of the current landowner for the property is:

Clean Energy Future, LLC

33 Proctor Street

Manchester by the Sea, MA 01944

4906-6-05(B)(9) Technical Features of the Project

4906-6-05(B)(9)(a) Description of Technical Features

The TEC Electrical Interconnection will be designed for and operated at 345 kV, and will consist of three steel, monopole, dead-end structures (P1, P2, and P3), constructed within the Interconnection ROW, and a new 3-breaker ringbus, constructed within the Utility Switchyard. Figure 2 shows the anticipated layout of the TEC Electrical Interconnection; typical drawings of the dead-end structure and the 3-breaker ringbus are provided in Figures 3 and 4, respectively. The vertical monopole dead-end structures will use bundled 954 Rail aluminum conductor steel reinforced conductors, with 7#8 Alumoweld shieldwires for lightening protection. Two access roads extending north off Hallock Young Road will be constructed, one to provide access to the Interconnection ROW and one for the Utility Switchyard.

4906-6-05(B)(9)(a) Number and Type of Structures

As shown on Figure 2, three new steel dead-end structures (P1, P2, and P3) are proposed for the Interconnection ROW, and a new 3-breaker ringbus will be constructed within the Utility Switchyard. Typical drawings of these structures are provided in Figures 3 and 4, respectively.

4906-6-05(B)(9)(a) Right-of-Way and Land Requirements

As discussed above, CEF-T will control all property on which the TEC Electrical Interconnection is proposed. A parcel of land that includes the Utility Switchyard and its associated access road will be transferred to FirstEnergy upon completion of construction. No other land rights are required.

4906-6-05(B)(9)(b) Calculated Electric and Magnetic Field Levels, Line Loadings & Rating

Not required, as no component of the TEC Electrical Interconnection is located within 100 feet of an occupied residence or institution.

4906-6-05(B)(9)(c) Estimated Capital Costs

Estimated capital costs for the TEC Electrical Interconnection have been developed using a standard accounting format. Table 1 provides a breakdown of anticipated costs.

TABLE 1.
ESTIMATED CAPITAL COSTS AND INTANGIBLE COSTS

Description	Cost ($1,000)
New Utility Switchyard	$6,100
Connection of Highland-Hanna Transmission Line to New Utility Switchyard	5,700
Remote End Communications and Relay Work	500
Generator Lead (0.25-mile transmission line, 3 poles) to the TEC Collector Bus	1,000
Total	**$13,330**

4906-6-05(B)(10) Social and Ecological Impacts

4906-6-05(B)(10)(a) Land Use

The 0.25-mile Interconnection ROW is located entirely within the Village of Lordstown in Trumbull County, approximately 0.15 mile east of SR 45 and 0.1 mile north of Hallock Young Road. The Village of Lordstown has a population of 3,70[2] and has an area of 23.3 square miles. Therefore, population density in the area is assumed to be 140.3 people per square mile.

As shown in Figure 5, land uses in the immediate area around the TEC Electrical Interconnection consists of industrial development, utility infrastructure, and forested area. A residential neighborhood is located approximately 0.3 mile east of the TEC Electrical Interconnection, with scattered residences located to the north and south. The future location of TEC and associated facilities are located to the north. Commercial development exists along the nearby roadways, particularly along SR 45 to the west and Salt Springs Road to the north, with agricultural fields scattered throughout the area. Utility easements, including overhead electric transmission lines, also traverse the area. A mixture of agricultural, forested area, residential, and commercial/industrial land use extends in all directions around the Interconnection ROW.

The western portion of the Interconnection ROW is proposed on land that was previously used as construction laydown for the adjacent Lordstown Energy Center but is now vacant, previously disturbed land, with the remainder of the TEC Electrical

[2] 2020 United Status Census

Interconnection located within undeveloped, forested area. Only scattered residential structures exist to the north, west, and south; to the east, a more densely populated neighborhood is located to the east of the existing 345-kV transmission line corridor.

There will be no public access to the TEC Electrical Interconnection, as it will be located on private property. A security fence will be installed around the Utility Switchyard, with a locked gate to control access.

4906-6-05(B)(10)(b) Location and Description of Existing Agricultural Districts

The TEC Electrical Interconnection is not proposed within the limits of an Agricultural District, as defined by Chapter 929 of the Ohio Revised Code, nor is the land currently in agricultural use.

4906-6-05(B)(10)(c) Archaeological and Cultural Resources

No significant impact to the continued meaningfulness of registered landmarks of historic, religious, archaeological, scenic, natural or other cultural significant resource is anticipated as a result of the TEC Electrical Interconnection.

A Phase I archaeological investigation was conducted for an area that includes the TEC Electrical Interconnection. These investigations involved surface collection, subsurface testing, and visual inspection. The work resulted in the identification of one cultural find, which did not possess significant archaeological value. No further archaeological work was recommended.

No cultural resource landmarks or historic structures are located within the area of the TEC Electrical Interconnection. The Utility Switchyard is not anticipated to be significantly visible within its wooded setting, with all components less than 100 feet tall.

The Interconnection ROW will include three 125.5-foot tall monopole structures, but will also be surrounded by wooded vegetation. In addition to the dense vegetation, the TEC Electrical Interconnection is proposed proximate to similar uses, in a setting where viewers are accustomed to seeing transmission structures, including poles and wires, and will not reflect a significant change in the visual landscape, should any portion of the structures be visible.

Since a Historic Structures analysis was completed for the adjacent Lordstown Energy Center and its 5-mile radius, CEF-T has utilized this information. The 5-mile area assessed in the Historic Structures analysis completed for the Lordstown Energy Center encompasses approximately 99 percent of the 5-mile area around the proposed TEC Electrical Interconnection. Based on the Historic Structures analysis for the Lordstown Energy Center, no direct or indirect impacts on document cultural resources are anticipated from construction or operation of the TEC Electrical Interconnection.

On April 28, 2017, the Ohio History Connection (OHC), which serves as the State of Ohio's Historic Preservation Office, concluded that no further coordination is required in association with the property proposed for the TEC and the TEC Electrical Interconnection (Attachment D).

4906-6-05(B)(10)(d) Local, State, and Federal Agencies with Requirements Applicable to the Project

The TEC Electrical Interconnection will be designed, constructed, and operated to meet or exceed the requirements of the National Electric Safety Code, FirstEnergy design standards, and all applicable Occupational Safety and Health Administration standards. A permit to construct curb cuts for the access roads off Hallock Young Road will be obtained

prior to construction of the access roads, to the extent required. Anticipated environmental permits required for construction of the TEC Electrical Interconnection, in addition to this filing with the OPSB, include incorporation of its limited wetland impacts into confirmation of coverage under the nationwide permit program by the United States Army Corps of Engineers (USACE) for wetland alteration (obtained) and an Ohio Environmental Protection Agency (Ohio EPA) stormwater General Permit for construction. As soon as the permits are received, CEF-T will provide them.

Other federal, state, and local agencies with requirements anticipated for the TEC Electrical Interconnection are outlined in Table 2, along with references to applicable documentation provided as attachments to this LON.

TABLE 2.
LOCAL, STATE, AND FEDERAL AGENCIES WITH REQUIREMENTS TO BE MET BY THE PROJECT

Name of Agency	Documents Submitted	Attachment
USACE	Approved Permit for Wetland Impact (latest confirmation of coverage under the Nationwide Permit program, dated March 4, 2022) Wetlands and Other Waters Delineation Report, December 12, 2016	E
U.S. Fish & Wildlife Service (USFWS)	USFWS Response, dated January 4, 2017 Updated response, dated July 15, 2022	F
Ohio Department of Natural Resources (ODNR)	ODNR Response, dated January 3, 2017 ODNR Response, dated March 9, 2017 Updated response, dated July 14, 2022	F
OHC	Archaeological Review and Historic Structures Analysis Submittal dated February 13, 2017 OHC Response, dated April 28, 2017	D
Ohio EPA	General Permit (Stormwater)	To be obtained

Name of Agency	Documents Submitted	Attachment
Ohio Department of Transportation	Heavy Haul Construction Equipment and Manufactured Component Permits	To be obtained
Village of Lordstown	Road Opening Permit Application	To be obtained

There are no other known local, state or federal requirements that must be met prior to commencement of construction on the proposed TEC Electrical Interconnection. CEF-T requests that the Staff Report contain a similar condition to Condition No. 1 in the Staff Report issued on January 23, 2017 in Vectren Energy Delivery of Ohio Cemex-Morris Bean Pipeline Replacement Project (Case No. 16-2175-GA-BLN). That condition stated that Applicant shall obtain and comply with permits or authorizations "prior to the commencement of construction activities in areas that require permits or authorizations."

4906-6-05(B)(10)(e) Federal and State Designated Species

Correspondence from the USFWS dated January 4, 2017 (Attachment F) indicated there were no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the TEC Site, but recommended completion of summer bat surveys based on the large number of trees apparent within the study area (Attachment F). CEF-T will coordinate with the USFWS regarding the planned area of 5.2 acres of tree clearing associated with the TEC Electrical Interconnection, as well as additional clearing associated with TEC, to determine whether summer bat surveys are warranted or if seasonal clearing restrictions will suffice. USFWS confirmation that no changes to species considerations is appropriate was received on July 15, 2022.

A response letter from the ODNR dated January 3, 2017 (Attachment F) provided shapefiles that indicated no records in their database of unique ecological attributes or rare

or endangered species within 1 mile of TEC or its ancillary features, with the exception of a great blue heron rookery, last observed in 2005, in a location on the opposite side of SR 45, adjacent to the General Motors Lordstown Assembly Plant; this is not anticipated to be a significant issue for the TEC Electrical Interconnection.

Additional correspondence from ODNR was received on March 9, 2017. In addition to the species previously noted, the letter references several listed native freshwater mussels, the northern brook lamprey, and the eastern hellbender. Given that no activity associated with the TEC Electrical Interconnection will involve work within Mud Creek, no impact to mussel species is anticipated. Although the TEC Site has also been identified within the range of the eastern massasauga, the spotted turtle, and the black bear, ODNR notes that impacts are unlikely based on the location and type of habitat present.

Three listed bird species were identified by ODNR, the northern harrier, the upland sandpiper, and the least bittern, with a range that overlaps that of the proposed activities. All three are ground-nesting birds, with the northern harrier nesting in large marshes and grasslands (May 15 to August 1); the sandpiper nesting in grasslands (April 15 to July 31); and the least bittern nesting in dense emergent wetlands with thick stands of vegetation interspersed with open water (May 1 to July 31). Because the TEC Electrical Interconnection is proposed on land currently in use as construction laydown or forested area, with wetland areas avoided, no impacts are expected to occur.

Confirmation that no changes in species considerations have occurred was received by ODNR on July 14, 2022.

4906-6-05(B)(10)(f) Areas of Ecological Concern

The ODNR was contacted regarding areas of ecological concern in the vicinity of the TEC Electrical Interconnection. A response letter from ODNR dated January 3, 2017 did not identify any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas nature preserves, parks, forests, national wildlife refuges or other protected natural areas within a 1-mile radius of TEC or ancillary equipment. A copy of their response is provided in Attachment F.

As part of activities associated with TEC, wetland delineations were completed in February and August 2016. Results of these delineations for the TEC Electrical Interconnection are shown in Figure 6 and described in more detail in Attachment E. The network of wetlands delineated around Mud Creek appear to be associated with its Federal Emergency Management Agency mapped 100-year flood zones, as shown in Figure 6. The TEC Electrical Interconnection was carefully sited to minimize impacts to ecological resources to the fullest extent possible.

The Utility Switchyard will require 102 square feet of wetland fill that was unavoidable in its siting. Similarly minor impacts are associated with the two access roads, with a total of 72 square feet proposed. Therefore, the total of wetland fill associated with the TEC Electrical Interconnection is 174 square feet, or approximately 0.004 acre. Three acres of tree clearing is associated with the Utility Switchyard, with an additional 0.75-acre required for the access roads.

No wetland fill is associated with the Interconnection ROW, and no structures will be placed in floodplain; however, a portion of the Interconnection ROW will extend across Mud Creek and approximately 1.5 acres of tree clearing will be required within the 100-

foot wide corridor. Of this cleared area, approximately 0.5 acre is located within Mud Creek and its associated wetlands and floodplain. This will result in a change in character of the wetland, from palustrine-forested to palustrine-scrub shrub wetland, within this limited corridor. Confirmation of authorization for wetland impacts was incorporated in the Nationwide Permit coverage originally issued by the USACE on December 22, 2018; a recent extension of this coverage under the current Nationwide Permit program was issued on March 4, 2022 (Attachment E).

As shown in Figure 5, land use within 1 mile of the TEC Electrical Interconnection is a mixture of industrial, commercial, agricultural, and residential development. The closest recreational use is the Lordstown Village Park, a 60-acre park with picnic pavilions, various sporting fields, and a 1-mile nature trail, located approximately 1.8 miles north of the proposed TEC Electrical Interconnection. The nearest school is the Lordstown High School, located approximately 1.5 miles north-northwest from the Interconnection ROW, with the Lordstown Elementary School located adjacent to the High School, slightly further north.

4906-6-05(B)(10)(g) Additional Information

There are no unusual conditions that will result in significant environmental, social, health or safety impacts from the proposed TEC Electrical Interconnection.

4906-6-07 SERVICE AND PUBLIC DISTRIBUTION OF ACCELERATED CERTIFICATE APPLICATIONS

4906-6-07(A) Service of Application

4906-6-07(A)(1) Service of Application Upon Officials

Simultaneously with the filing of this accelerated application with the OPSB, CEF-T has caused an electronic copy of this LON and a transmittal letter (Attachment G) to be delivered to the public officials identified in Table 3.

TABLE 3.
PUBLIC OFFICIALS WHO RECEIVED THIS LON

Frank S. Fuda, Mauro Cantalamessa Niki Frenchko Trumbull County Commissioners County Administration Building 160 High St. NW, 5th Floor Warren, OH 44481-1061 commissioners@co.trumbull.oh.us	Kellie Bordner Planning & Zoning Administrator/ Economic Development Director Village of Lordstown Administration Center 1455 Salt Springs Rd Lordstown, OH 44481-9623 PlanningZoning@LordstownVillage.com
Randy L. Smith, P.E., P.S. Gary Shaffer, P.E. Trumbull County Engineer 650 North River Road N.W. Warren, OH 44483-2255 rlsmith@co.trumbull.oh.us hwshaffe@co.trumbull.oh.us	Mayor Arno A. Hill Village of Lordstown Administration Center 1455 Salt Springs Rd Lordstown, OH 44481-9623 mayor@lordstownvillage.com
Julie Green, Director Trumbull County Planning Commission 185 E. Market St. NE, Suite A Warren, Ohio 44481-1118 pcgreen@co.trumbull.oh.us	Amy Reeher District Administrator Trumbull Soil & Water Conservation District 520 W. Main St., Suite #3 Cortland, Ohio 44410 amy@trumbullohswcd.org

4906-6-07(A)(2) Service of Application Upon Main Public Libraries of Each Political Subdivision

A copy of this LON is being sent to the Lordstown Branch Library located at 1471 Salt Springs Road, Warren, Ohio 44481.

4906-6-07(A)(3) Project Website

Instructions regarding how to obtain a copy of the generating facility OPSB application and this LON are provided on TEC's web page, located at www.cleanenergyfuture.com.

Interested persons may also contact the CEF-T project manager listed below to obtain either an electronic copy or a paper copy of this LON:

Steve Remillard

Clean Energy Future - Trumbull, LLC

33 Proctor Street

Manchester-by-the-Sea, Massachusetts 01944

(508) 578-6317

steve@cleanenergyfuture.com

4906-6-07(B) Proof of Compliance

Within seven days of filing this LON, CEF-T will cause proof of compliance with OAC 4906-6-07, as outlined in the previous sections, to be filed with the OPSB.

4906-6-08 PUBLIC NOTICE FOR LETTER OF NOTIFICATION APPLICATIONS

4906-6-08(A) Newspaper Notice

Because this filing falls under the definition of an LON, within seven days of the filing of this LON, CEF-T will cause public notice of this LON to be published in the Tribune Chronicle and the Youngstown Vindicator, newspapers of general circulation in Trumbull County, Ohio.

The proposed newspaper publication, provided as Attachment H fulfills the requirements 4906-6-8(A)(1) through (6).

4906-6-08(B) Notice to Property Owners and Tenants

Within seven days of the filing of this LON, CEF-T will also send a letter describing the TEC Electrical Interconnection to each property owner and/or affected tenant (Attachment B). The CEF-T letter will include:

A description of the proposed facility

A map showing the location and general layout of the proposed facility;

A list of officials served with copies of the application;

A list of readily accessible locations where copies of this LON is available for public inspection.

A statement, including the assigned docket number, that this LON to construct, operate, and maintain proposed facilities is pending before the OPSB; and

An explanation of how to participate and comment in the OPSB's proceeding.

These property owner/tenant letters will be sent to property owners and affected tenants who:

Reside or own property within the planned site or along the preferred route.

Reside or own property contiguous to the preferred route

May be approached by CEF-T for an additional easement necessary for the construction, operation, or maintenance of the facility.

If the property owner is not living at the affected property, the letter will be sent to the affected property owner.

When the letters have been sent, CEF-T will cause a proof of compliance with the property owner/tenant letter requirements to be provided to the OPSB Staff.

Figures

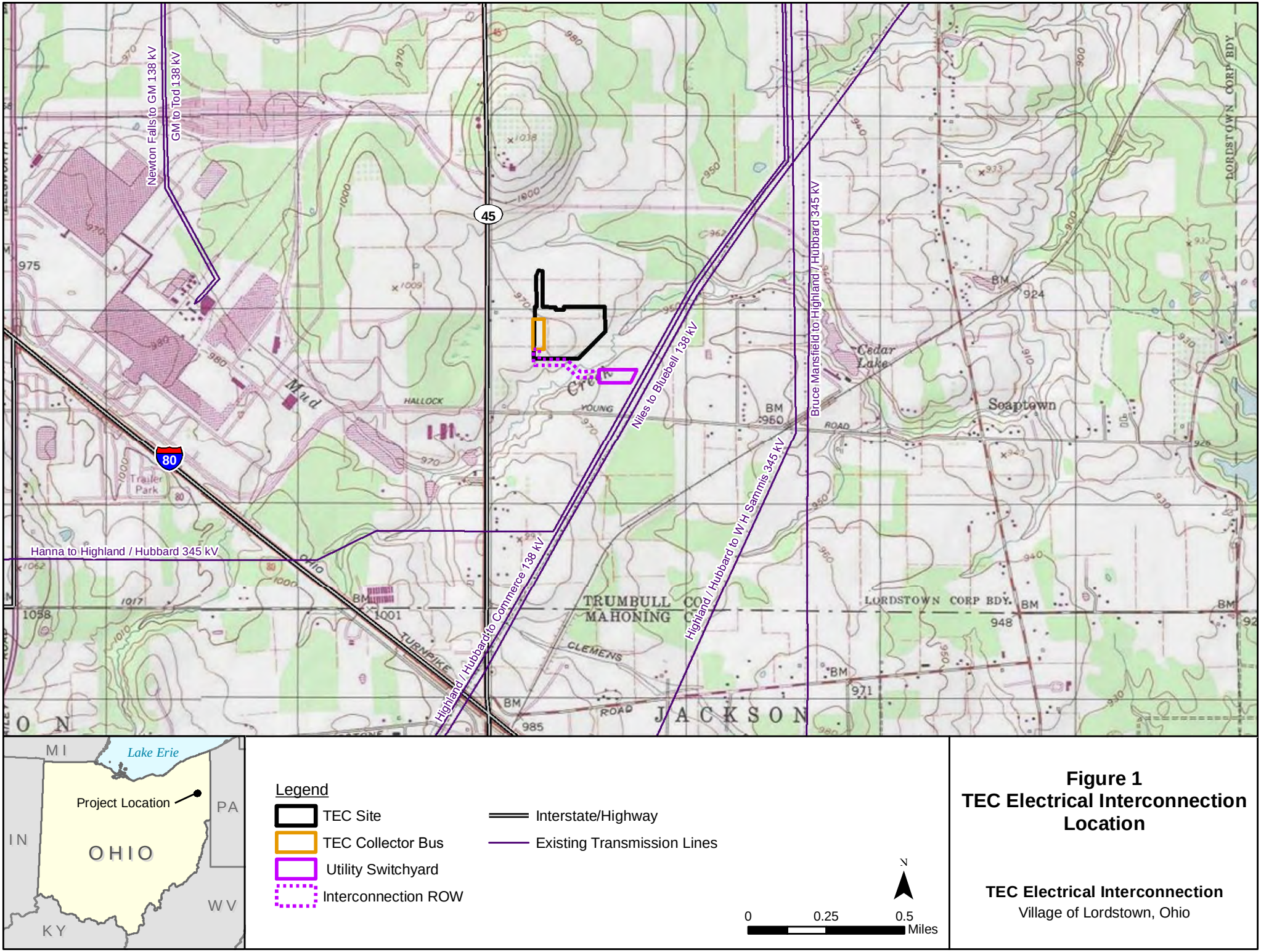


Figure 1
TEC Electrical Interconnection Location

TEC Electrical Interconnection
Village of Lordstown, Ohio

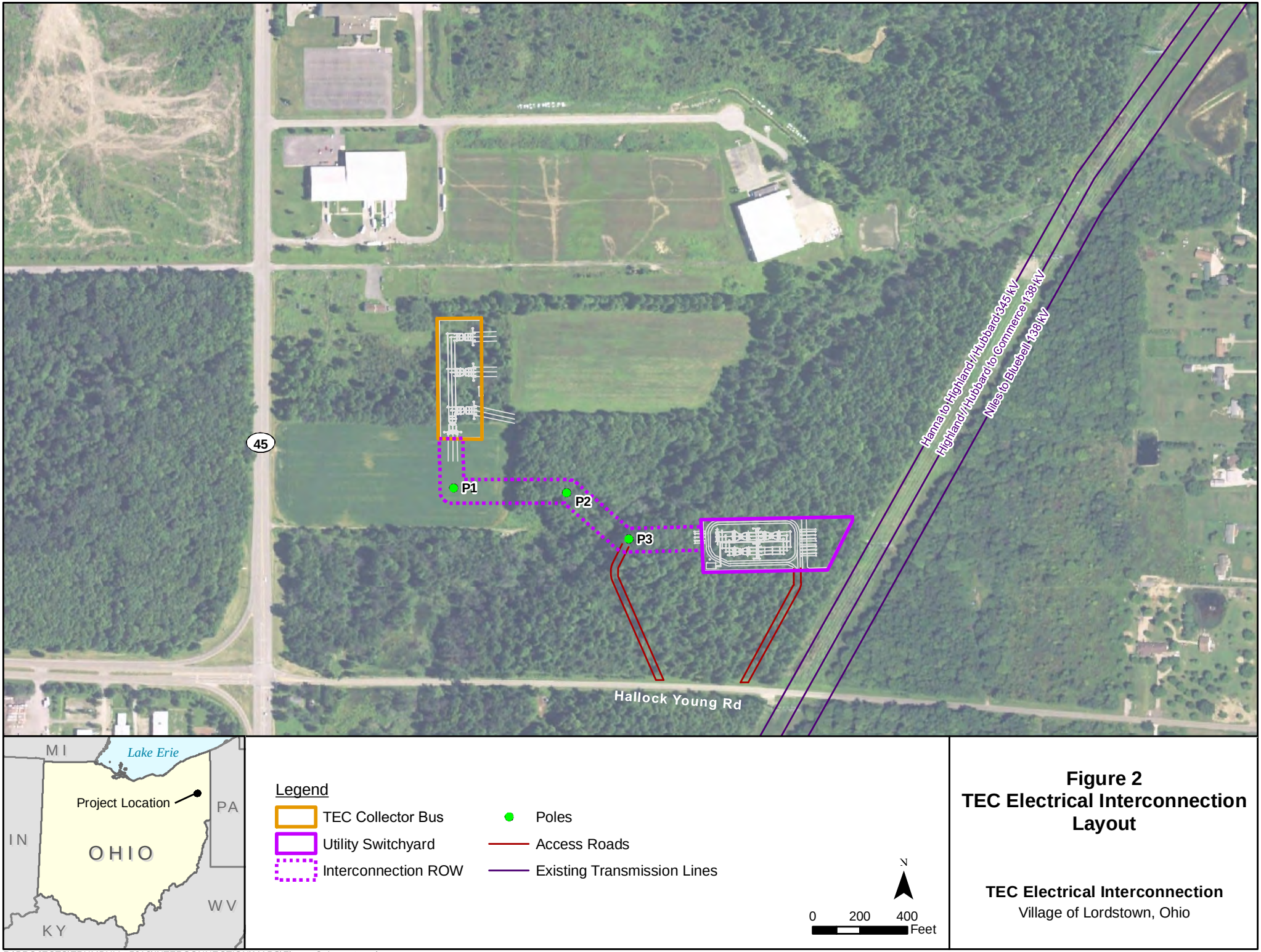
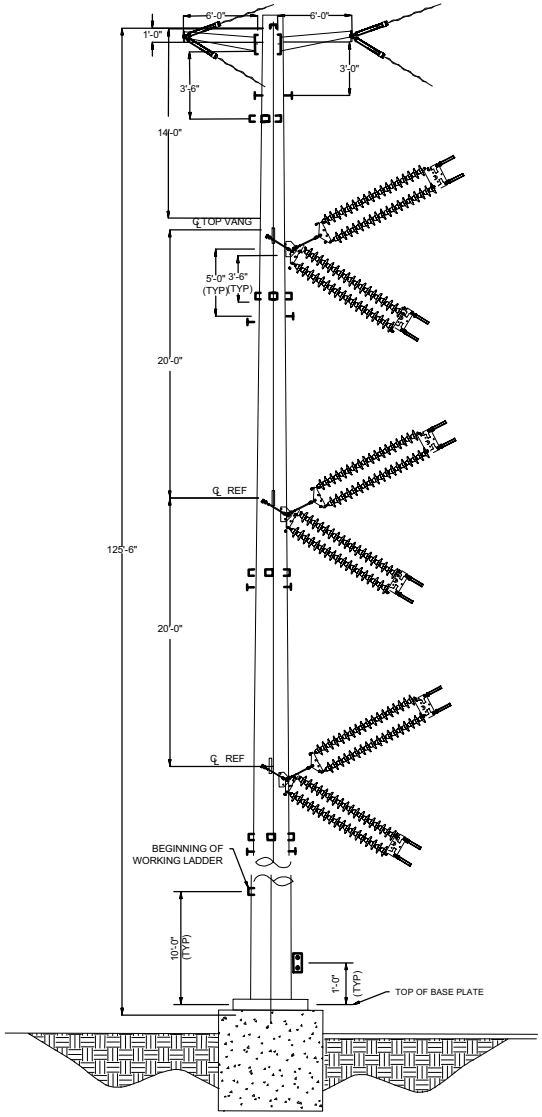


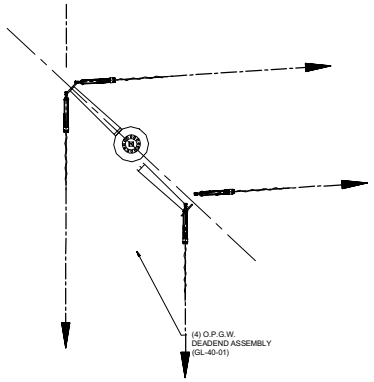
Figure 2
TEC Electrical Interconnection Layout

TEC Electrical Interconnection
Village of Lordstown, Ohio

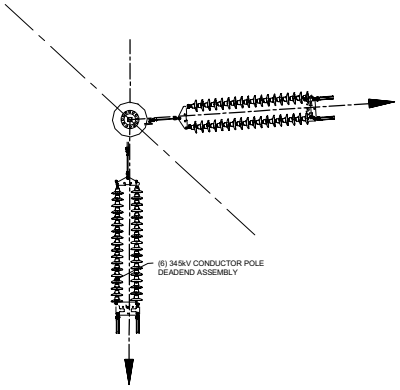
R:\PROJECTS\TRUMBULL_5612\INTERCONNECTION\MAPS\Figure_2_Layout.mxd



ELEVATION OF POLE
(NOT TO SCALE)



O.P.G.W.
PLAN VIEW
(NOT TO SCALE)



CONDUCTOR
PLAN VIEW
(NOT TO SCALE)

NOTES

1. STRUCTURE IS DESIGNED FOR MOUNTING ON A CONCRETE FOUNDATION. A MINIMUM COMPRESSIVE STRENGTH OF 3500 PSI IS USED FOR CALCULATION. 4500 PSI MINIMUM CONCRETE STRENGTH AT 28 DAYS IS REQUIRED. ANCHOR BOLTS SHALL BE PROVIDED IN A PRECLUSTER ASSEMBLY.
2. POLE SHALL COME COMPLETE WITH A LADDER SYSTEM. LADDER SYSTEM SHALL BE OF A TYPE SIMILAR TO THE McGREGOR WORKING LADDER. THE LADDER SHALL START AT APPROX. 10' FROM THE POLE BASE AND END AT 2' BELOW THE POLE TOP. THE LADDER SHALL HAVE PROVISION FOR SECURELY LOCKING INTO THE LADDER LUGS.
3. BAIL STEPS SHALL BE SUPPLIED AND BAIL STEP LUGS SHALL BE PROVIDED @ 3'-6" BELOW THE GROUND WIRE AND CONDUCTOR ATTACHMENTS. THE QUANTITY AND LOCATION OF THE BAIL STEPS AND LUGS SHALL BE DETERMINED BY THE POLE SUPPLIER. STEP DISTANCE FROM ANY LADDER OR BAIL STEP TO BAIL STEP SHALL NOT EXCEED 18". BAIL STEP WIDTH MAY VARY TO AID IN LOCATING BAIL STEP LUGS WITHOUT INTERFERENCE.

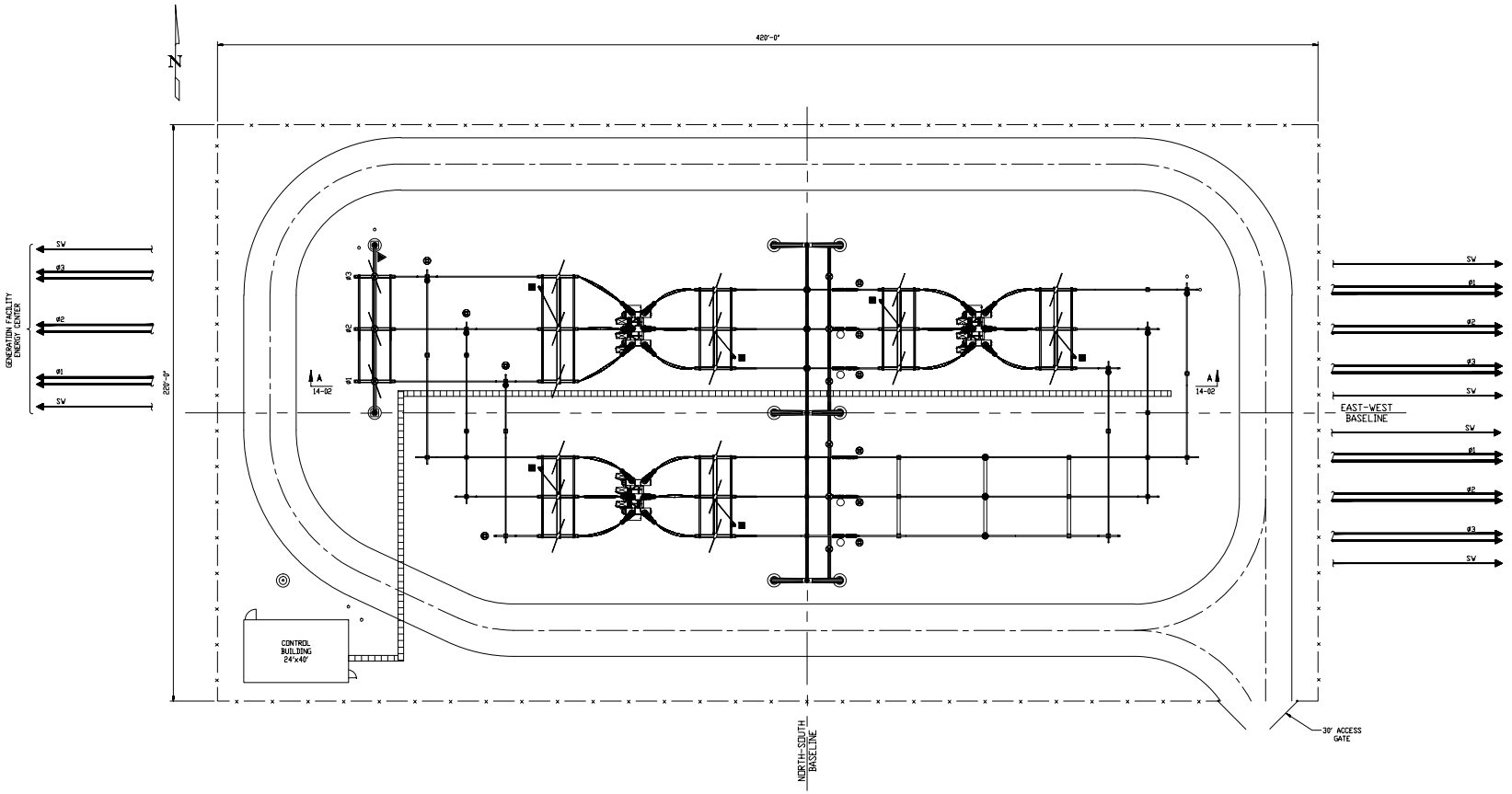
REV.	REVISION DESCRIPTION	DRAWN	CHECKED	APPROVED & DATE
A	ISSUED FOR REVIEW	MAO	JPM	DLC 12-08-16

REALTIME Utility Engineers INCORPORATED
A QUANTA SERVICES COMPANY
2908 Marketplace Drive
Fitchburg, Wi. 53719
608-906-7800 Direct
608-906-7949 Fax
www.realtimeutilityengineers.com

		DATE
ENGINEER:	–	
DESIGNER:	–	
DRAWN:	–	–
CHECKED:	–	–
APPROVED:	–	–

Figure 3
Typical Dead-End Structure

Trumbull Energy Center
Village of Lordstown, Ohio



20' 10' 0 20' 40'

1"=20'

ELECTRICAL DESIGN CLEARANCES				
MAX. SYSTEMS VOLTAGE	MINIMUM	DESIGN	MINIMUM	DESIGN
	ø-G	ø-G	ø-ø	ø-ø
362KV (1300 BIL)	104"	106"	119"	174"

Figure 4
Three-Breaker Ringbus

Trumbull Energy Center
Trumbull County, Ohio

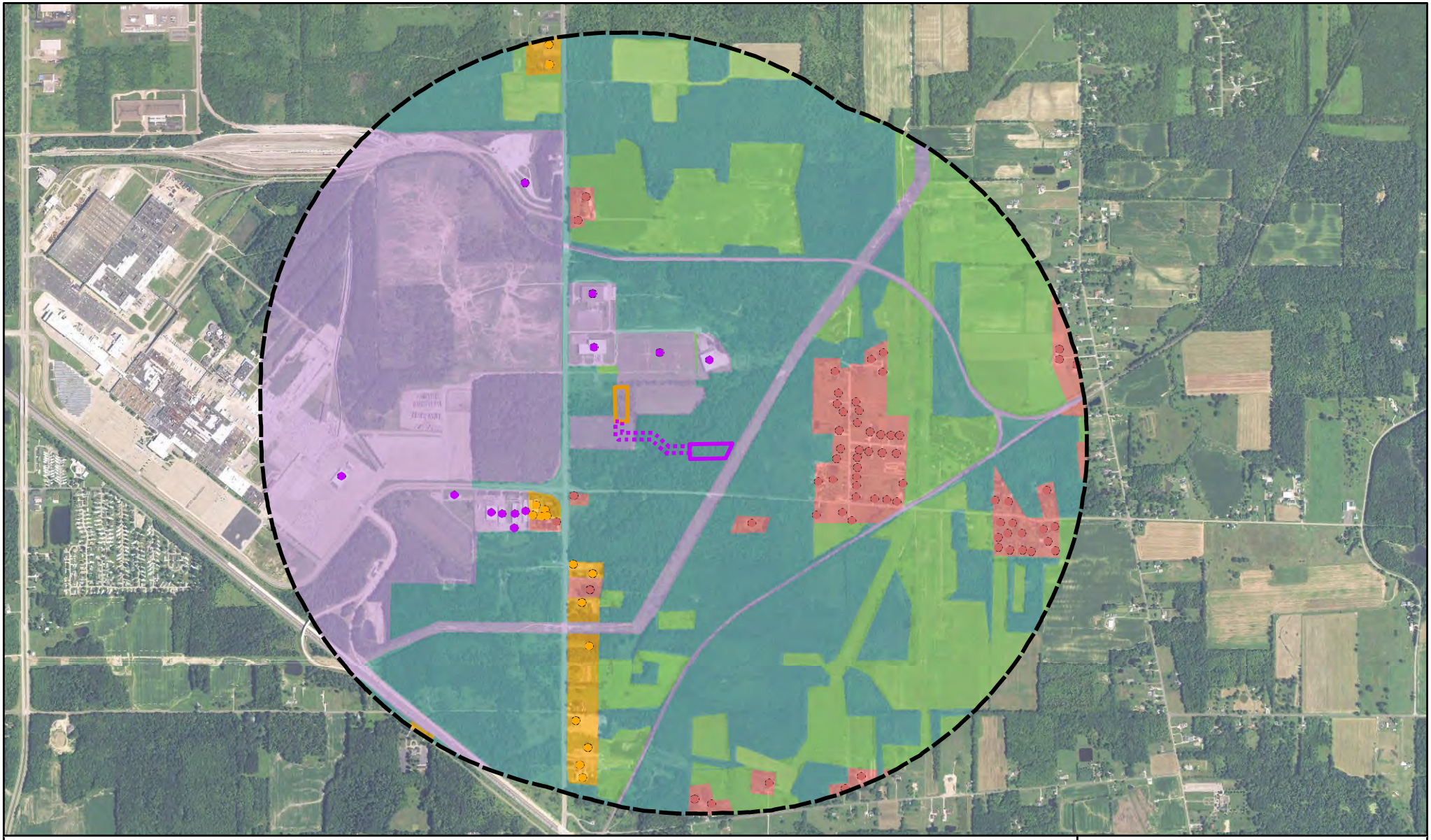
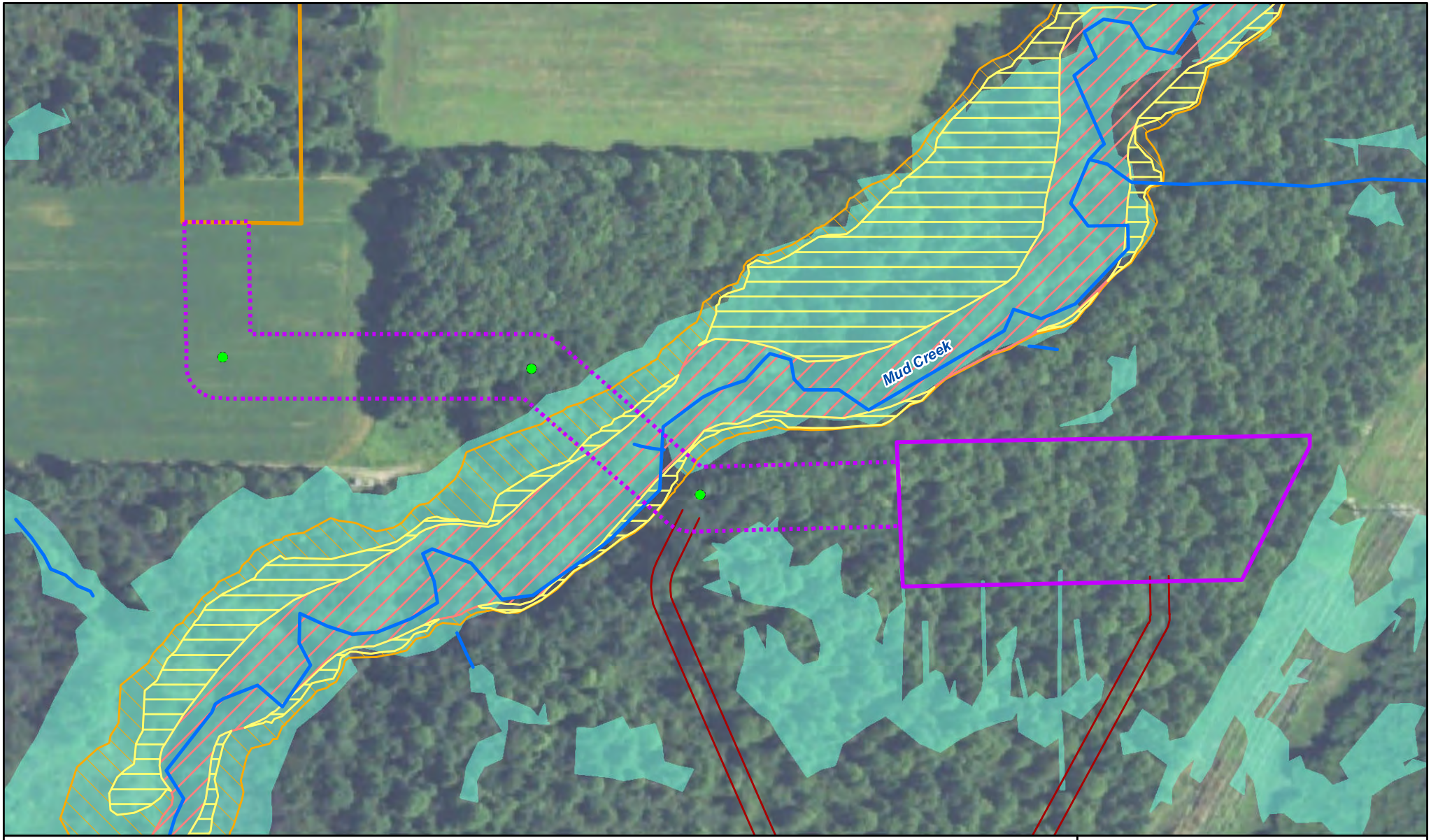


Figure 5
Existing Land Use

TEC Electrical Interconnection
Village of Lordstown, Ohio

R:\PROJECTS\TRUMBULL_5612\INTERCONNECTION\MAPS\Figure_5_Land_Use.mxd



Legend

- TEC Switchyard
- Utility Switchyard
- Interconnection ROW
- Poles
- Access Roads
- Delineated Streams
- Delineated Wetlands

FEMA Flood Zones

- 1% Annual Chance Flood Area
- Floodway
- 0.2% Annual Chance Flood Area

N

0 100 200 Feet

Figure 6
Ecological Resources

TEC Electrical Interconnection
Village of Lordstown, Ohio

R:\PROJECTS\TRUMBULL_5612\INTERCONNECTION\MAPS\Figure_6_Ecol_Resources.mxd

Attachment A – PJM Interconnection Studies

- PJM Feasibility Study
- PJM System Impact Study

Generation Interconnection Feasibility Study Report

For

PJM Generation Interconnection Request Queue Position AB1-105

Highland-Hanna 345kV

February 2016

Preface

The intent of the feasibility study is to determine a plan, with ballpark cost and construction time estimates, to connect the subject generation to the PJM network at a location specified by the Interconnection Customer. The Interconnection Customer may request the interconnection of generation as a capacity resource or as an energy-only resource. As a requirement for interconnection, the Interconnection Customer may be responsible for the cost of constructing: (1) Direct Connections, which are new facilities and/or facilities upgrades needed to connect the generator to the PJM network, and (2) Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system.

In some instances a generator interconnection may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection, may also contribute to the need for the same network reinforcement. The possibility of sharing the reinforcement costs with other projects may be identified in the feasibility study, but the actual allocation will be deferred until the impact study is performed.

The Feasibility Study estimates do not include the feasibility, cost, or time required to obtain property rights and permits for construction of the required facilities. The project developer is responsible for the right of way, real estate, and construction permit issues. For properties currently owned by Transmission Owners, the costs may be included in the study.

General

The Interconnection Customer (IC), has proposed a natural gas generating facility located Trumbull County, Ohio. The installed facilities will have a total capability of 940 MW with 850 MW of this output being recognized by PJM as capacity. The proposed in-service date for this project is October 2020. **This study does not imply a American Transmission Systems, Incorporated (ATSI) commitment to this in-service date.**

Point of Interconnection

AB1-105 will interconnect with the ATSI transmission system at one of two options. Option 1 is the connect along the Highland-Hanna 345kV line. Option 2 is the connect along the Highland-Hanna 345kV and Glen Willow-Mansfield 345kV lines.

Cost Summary

The AB1-105 project will be responsible for the following costs (Option 1 only):

Description	Cost	Tax (if applicable)	Total Cost
Attachment Facilities	$ 0	$ 0	$ 0
Direct Connection Network Upgrades	$ 10,078,400	$ 2,590,800 0	$ 12,669,200
Non Direct Connection Network Upgrades	$ 890,500	$ 228,500 0	$ 1,119,000
Total Costs	**$ 10,968,900**	**$ 2,819,300**	**$ 13,788,200**

In addition, the AB1-105 project may be responsible for a contribution to the following costs:

Description	Cost	Tax (if applicable)	Total Cost
New System Upgrades	$ 285,800	$ 73,600	$ 359,400
Total Costs	**$ 285,800**	**$ 73,600**	**$ 359,400**

Cost allocations for these upgrades will be provided in the System Impact Study Report.

Attachment Facilities

No Attachment Facilities are required to support this interconnection request.

Direct Connection Cost Estimate

The total preliminary cost estimate for the Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Activity Cost	Tax (if applicable)	Total Cost
AB1-105 Interconnect SS. 345kV 3-breaker ring bus, Hannah-Highland line.	$ 8,723,600	$ 2,244,500	$ 10,968,100
Highland 345kV Line Drop into New Ring Bus. Loop the Hanna-Highland 345kV circuit into the new 345kV ring bus to create a new circuit from Highland Sub to the new ring bus.	$ 683,900	$ 174,800	$ 858,700
Hanna 345kV Line Drop into New Ring Bus. Loop the Hanna-Highland 345kV circuit into the new 345kV ring to create a new circuit from Hanna Sub to the new ring bus.	$ 670,900	$ 171,500	$ 842,400
Total Direct Connection Facility Costs	**$ 10,078,400**	**$ 2,590,800**	**$ 12,669,200**

Non-Direct Connection Cost Estimate

The total preliminary cost estimate for the Non-Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Activity Cost	Tax (if applicable)	Total Cost

Description	Activity Cost	Tax (if applicable)	Total Cost
Highland SS. Install new line relaying for future AB1-105 Interconnect line exit.	$ 160,900	$ 41,100	$ 202,000
Hanna SS. Install new communications equipment on existing Hanna future AB1-105 Interconnect and install new line relaying panel.	$ 224,100	$ 57,400	$ 281,500
Highland - AB1-105 Interconnection SS. Install Fiber Optic Cable from the AB1-105 Interconnection to the Highland substations and back.	$ 505,500	$ 130,000	$ 635,500
Total Non-Direct Connection Facility Costs	**$ 890,500**	**$ 228,500**	**$ 1,119,000**

Interconnection Customer Requirements

1. An Interconnection Customer entering the New Services Queue on or after October 1, 2012 with a proposed new Customer Facility that has a Maximum Facility Output equal to or greater than 100 MW shall install and maintain, at its expense, phasor measurement units (PMUs). See Section 8.5.3 of Appendix 2 to the Interconnection Service Agreement as well as section 4.3 of PJM Manual 14D for additional information.

2. The Interconnection Customer may be required to install and/or pay for metering as necessary to properly track real time output of the facility as well as installing metering which shall be used for billing purposes. See Section 8 of Appendix 2 to the Interconnection Service Agreement as well as Section 4 of PJM Manual 14D for additional information.

3. The purchase and installation of fully rated 345 kV circuit breakers to permit tripping of each entire unit.

4. The purchase and installation of the minimum required FE generation interconnection relaying and control facilities. This includes over/under voltage protection, over/under frequency protection, and zero sequence voltage protection relays.

5. The purchase and installation of supervisory control and data acquisition (SCADA) equipment to provide information in a compatible format to the FE Transmission System Control Center.

6. The establishment of dedicated communication circuits for SCADA to the FE Transmission System Control Center.

7. A compliance with the FE and PJM generator power factor and voltage control requirements.

8. The execution of a back-up service agreement to serve the customer load supplied from the Hanna-Highland 345 kV (AB1-105) generation project metering point when the units are out-of-service. This assumes the intent of the Interconnection Customer is to net the generation with the load.

First Energy Protection Requirements

AB1-105 345kV Interconnecting Substation

345kV Transmission Line Protection

- Hanna line exit
  - Primary relay: SEL-421-5 directional comparison blocking line relaying operating over power line carrier (PLC) communications
    - Ametek/Pulsar UPLC on/off carrier set for use with directional comparison blocking line relaying.
    - CCVTs with carrier accessories in one phase and at least two secondary windings, line tuner, and wavetrap for use with PLC relaying and direct transfer trip
  - Backup relay: SEL-421-5 non-pilot direct tripping backup relay
  - Transfer trip: Dual Ametek/Pulsar UPLC FSK TX/RX carrier sets for use with direct transfer trip
  - Line tuner, wavetrap, CCVT with carrier accessories, and hybrids for use with PLC relaying and direct transfer trip

- Highland line exit
  - Primary relay: SEL-411L relay with line current differential protection over fiber
  - Backup relay: SEL-411L relay with line current differential protection over fiber

- AB1-105 generating facility
  - Primary relay: SEL-411L relay with line current differential protection over fiber
  - Backup relay: SEL-411L relay with line current differential protection over fiber

345kV AB1-105 Interconnecting Station Communications

- AB1-105 Interconnecting Station to Highland
  Install two separately routed 1300 nm single mode fiber-optic cable with dedicated fibers for use with SEL-411L primary and SEL-411L backup relaying (approximately 3 miles).
    - Minimum of 12 fibers, separate primary and backup fiber cables

- AB1-105 Interconnecting Station to AB1-105 generating facility
  Install two separately routed 1300 nm single mode fiber-optic cable with dedicated fibers for use with SEL-411L primary and SEL-411L backup relaying.
    - Minimum of 12 fibers, separate primary and backup fiber cables

345kV Breaker Failure to Trip Protection

- 345kV Breaker Failure to Trip Relaying

- SEL-501 breaker failure to trip relaying (1 on each of three 345kV breakers). The breaker failure to trip relaying on each Hanna line exit breaker shall initiate direct transfer trip to Hanna over power line carrier (UPLC). The breaker failure to trip relaying on each Highland line exit breaker shall initiate direct transfer trip to Highland via the SEL-411L primary and backup line relays (fiber). The breaker failure to trip relaying on each LS Power Plant line exit breaker shall initiate direct transfer trip to LS Power Plant via the SEL-411L primary and backup line relays (fiber).

AB1-105 Generating Station 345kV

345kV Transmission Line Protection @ AB1-105 generating station

- AB1-105 Interconnecting Station line exit
  - Primary relay: SEL-411L relay with line current differential protection over fiber
  - Backup relay: SEL-411L relay with line current differential protection over fiber
  - Synch check for manual/SCADA close on the interconnecting line to be done at AB1-105 Generating Station

345kV Breaker Failure to Trip Protection

- 345kV Breaker Failure to Trip Relaying
  - SEL-352-2 breaker failure to trip relaying on each of four 345kV breakers. The breaker failure to trip relaying on the AB1-105 Interconnecting Station line exit breaker shall initiate direct transfer trip via the SEL-411L primary and backup line relays (fiber).

345kV Bus & GSU Transformer Protection @ AB1-105 generating station (minimum protection to meet FE requirements)

- Dual, independent transformer differential protection schemes (Transformer and Overall)
- Transformer neutral time overcurrent relay

The Connecting Party shall provide utility-grade relays for protection of the FE Transmission System. FE shall approve all relays specified for the protection of the FE Transmission System, including time delay and auxiliary relays. Relay operation for any of the listed functions that are required shall initiate immediate separation of the parallel generation from the FE Transmission System:

Relay	**Function**
Frequency	To detect underfrequency and overfrequency operation.
Overvoltage	To detect overvoltage operation.
Undervoltage	To detect undervoltage operation.
Ground Fault Detector	To detect a circuit ground on the FE Transmission System.
Phase Fault Detector	To detect phase to phase faults on the FE Transmission System.
Transfer Trip	To provide tripping logic to the generation owner for isolation of the

Receiver	generation upon opening of the FE supply circuits.
Directional Power	To detect, under all system conditions, a loss of FE primary source. The relay shall be sensitive enough to detect transformer magnetizing current supplied by the generation.

FE System Modifications

Highland Substation

345kV Transmission Line Protection

- AB1-105 Interconnecting Station line exit Primary Relaying
  - Primary relay: SEL-411L relay with line current differential protection over fiber
  - Backup relay: SEL-411L relay with line current differential protection over fiber

Hanna Substation

345kV Transmission Line Protection

- Dual Ametek/Pulsar UPLC FSK TX/RX carrier sets for use with direct transfer trip
- Line tuner, wavetrap, CCVT with carrier accessories, and hybrids for use with PLC relaying and direct transfer trip

Evergreen 138kV Substation

345kV Circuit Breaker Adequacy

- (1) 138kV circuit breakers have been identified by PJM as overdutied with the addition of AB1-105. This would necessitate replacing the existing breaker with a 63kAIC breaker.

Settings Changes

Settings changes are possible at, but not limited to, the following stations:

- Beaver Valley
- Bluebell
- Bruce Mansfield
- Chamberlin
- Darrow
- East Akron
- Evergreen
- GM Lordstown
- Ivanhoe
- Juniper
- Mahoningside
- Newton Falls
- Niles
- Niles Central
- Packard

- Salt Springs
- Sammis
- Shalersville
- Shenango
- West Ravenna

Revenue Metering and SCADA Requirements

PJM Requirements

The Interconnection Customer will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for IC's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Sections 24.1 and 24.2.

First Energy Requirements

The Interconnection Customer will be required to comply with all FE Revenue Metering Requirements for Generation Interconnection Customers. The Revenue Metering Requirements may be found within the "FirstEnergy Requirements for Transmission Connected Facilities" document located at the following links:

http://www.firstenergycorp.com/feconnect
http://www.pjm.com/planning/design-engineering/to-tech-standards.aspx

Network Impacts

Option 1

The Queue Project AB1-105 was evaluated as a 940.0 MW (Capacity 850.0 MW) injection tapping the Highland-Hanna 345kV line in the ATSI area. Project AB1-105 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AB1-105 was studied with a commercial probability of 53% using a 2019 Summer Peak case. Potential network impacts were as follows:

Generator Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

None.

Multiple Facility Contingency

(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies for the full energy output)

None.

Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

None.

Short Circuit

(Summary of impacted circuit breakers)

New circuit breakers found to be over-duty:

#	Area	Bus No.	Bus	Breaker	Rating Type	Rating (A)	Duty Percent Without AB1-105	Duty Percent With AB1-105	Duty Percent Difference
1	ATSI	9104	EVERGREEN138 138.kV	802-B-93	S	36408.2	99.48%	101.73%	2.25%

Note: Please see Attachment 3 for the Single Line Diagram.

First Energy Short Circuit Analysis

The preliminary 345kV fault values for the AB1-105 interconnecting substation (3 breaker ring bus) with all new generation in service are:

Three phase = 29.7kA
Single line to ground = 26.1kA
Z1= (0.048 + j 0.562)%
Z0= (0.128 + j 0.789)%

The 345kV fault values for the AB1-105 interconnection location with all new generation out of service are:

Three phase = 24.6kA
Single line to ground = 17.6kA
Z1= (0.067 + j 0.676)%
Z0= (0.422 + j 1.439)%

Impedances are given on 100 MVA and 345kV bases. The faults provided are bolted, symmetrical values for normal system conditions. Future increases in fault currents are possible and it is the customer's responsibility to upgrade their equipment and/or protective equipment coordination when necessary.

Potential Congestion due to Local Energy Deliverability

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which shall study all overload conditions associated with the overloaded element(s) identified.

None.

New System Reinforcements

(Upgrades required to mitigate reliability criteria violations, i.e. Network Impacts, initially caused by the addition of this project generation)

Violation #	Overloaded Facility	Upgrade Description	Network Upgrade Number	Tax	Upgrade Cost
#1	138kV CB	Replace CB #93 at Evergreen 138kV Substation (see Attachment 3)		$73,600	$ 285,800
		Total New Network Upgrades			**$ 359,400**

Contribution to Previously Identified System Reinforcements

(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project. This project may have a % allocation cost responsibility which will be calculated and reported for the Impact Study)

None.

Option 2

The Queue Project AB1-105 was evaluated as a 940.0 MW (Capacity 850.0 MW) injection double tapping the Highland-Hanna 345kV and Mansfield-Glen Willow 345kV lines in the ATSI area. Project AB1-105 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AB1-105 was studied with a commercial probability of 53% using a 2019 Summer Peak case. Potential network impacts were as follows:

Contingency Descriptions

The following contingencies resulted in overloads:

Contingency Name	Description
02MANSFD_02NFIELD_B	CONTINGENCY '02MANSFD_02NFIELD_B' OPEN BRANCH FROM BUS 930610 TO BUS 239358 CKT 1 /AB1-105 OP2 TAP END
C5-TWL-NR065_A	CONTINGENCY 'C5-TWL-NR065_A' /* HANNA-CHAMBERLIN & MANSFIELD-NORTHFIELD 345KV DISCONNECT BRANCH FROM BUS 238615 TO BUS 238781 CKT 1 /* 02CHAMBR 345.00 02HANNA 345.00 DISCONNECT BRANCH FROM BUS 239358 TO BUS 930610 CKT 1 /* 02NFIELD 345.00 AB1-105 OP2 TAP 345.00 END
C5-TWL-NR066_A	CONTINGENCY 'C5-TWL-NR066_A' /* STAR-JUNIPER & MANSFIELD-NORTHFIELD 345KV DISCONNECT BRANCH FROM BUS 238850 TO BUS 239122 CKT 1 /* 02JUNIPE 345.00 02STAR 345.00 DISCONNECT BRANCH FROM BUS 239358 TO BUS 930610 CKT 1 /* 02NFIELD 345.00 AB1-105 OP2 345.00 END

Generator Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

	Contingency		Affected		Bus			Power	Loading %		Rating		MW	
#	Type	Name	Area	Facility Description	From	To	Circuit	Flow	Initial	Final	Type	MVA	Contribution	Ref
1	N-1	02MANSFD_02NFIELD_B	FE - FE	AB1-105 TAP-02HANNA 345 kV line	930600	238781	1F	DC	75.55	99.92	ER	1554	388.65	

Note: Please see Attachment 4 for projects providing impacts to flowgate violations. The values in the Reference column correspond to the proper table in the Attachment.

Multiple Facility Contingency

(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies for the full energy output)

	Contingency		Affected		Bus			Power	Loading %		Rating		MW	
#	Type	Name	Area	Facility Description	From	To	Circuit	Flow	Initial	Final	Type	MVA	Contribution	Ref
2	DCTL	C5-TWL-NR065_A	FE - FE	02HANNA-02JUNIPE 345 kV line	238781	238850	1F	DC	94.86	101.68	ER	1793	157.6	1
3	DCTL	C5-TWL-NR066_A	FE - FE	AB1-105 TAP-02HANNA 345 kV line	930600	238781	1F	DC	77.77	101.99	ER	1554	425.83	2

Note: Please see Attachment 4 for projects providing impacts to flowgate violations. The values in the Reference column correspond to the proper table in the Attachment.

Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

None.

Short Circuit

(Summary of impacted circuit breakers)

New circuit breakers found to be over-duty:

#	Area	Bus No.	Bus	Breaker	Rating Type	Rating (A)	Duty Percent Without AB1-105	Duty Percent With AB1-105	Duty Percent Difference
4	ATSI	9104	EVERGREEN138 138.kV	802-B-93	S	36408.2	99.48%	103.57%	4.09%
5	ATSI	9104	EVERGREEN138 138.kV	2801-B-16	S	37386.7	96.88%	100.86%	3.98%
6	ATSI	9104	EVERGREEN138 138.kV	2801-B-6	S	37386.7	96.67%	100.63%	3.97%
7	ATSI	9104	EVERGREEN138 138.kV	2801-B-21	S	37386.7	96.55%	100.53%	3.98%
8	ATSI	9104	EVERGREEN138 138.kV	2801-B-20	S	37386.7	96.45%	100.43%	3.98%
9	ATSI	9104	EVERGREEN138 138.kV	2801-B-65	S	37386.7	96.30%	100.28%	3.98%
10	ATSI	9324	NILES S. 138 138.kV	170-B-11	S	36408.2	97.04%	100.24%	3.20%
11	ATSI	9324	NILES S. 138 138.kV	170-B-20	S	36408.2	97.04%	100.24%	3.20%
12	ATSI	9324	NILES S. 138 138.kV	170-B-9	S	36408.2	97.04%	100.24%	3.20%
13	ATSI	9324	NILES S. 138 138.kV	170-B-97	S	36408.2	97.04%	100.24%	3.20%
14	DCLO	13040	BV J5+6 345.kV	Unit2#5Bus	S	72000	98.74%	100.33%	1.58%
15	DCLO	13040	BV J5+6 345.kV	Unit2#6Bus	S	72000	98.74%	100.33%	1.58%
16	DCLO	13040	BV J5+6 345.kV	Mansfield316	S	72000	98.90%	100.20%	1.30%

Potential Congestion due to Local Energy Deliverability

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which shall study all overload conditions associated with the overloaded element(s) identified.

None.

Attachment 1. Project Location

Attachment 2. Single Line Diagram

Attachment 3. Single Line Diagram

Short Circuit Over-duty Breakers

Attachment 4. Option 2 Flowgate Details

The following appendices contain additional information about each flowgate presented in the body of the report. For each appendix, a description of the flowgate and its contingency was included for convenience. However, the intent of the appendix section is to provide more information on which projects/generators have contributions to the flowgate in question. Although this information is not used "as is" for cost allocation purposes, it can be used to gage other generators impact.

It should be noted the generator contributions presented in the appendices sections are full contributions, whereas in the body of the report, those contributions take into consideration the commercial probability of each project.

Appendix 1

(FE - FE) The 02HANNA-02JUNIPE 345 kV line (from bus 238781 to bus 238850 ckt 1F) loads from 94.86% to 101.68% (DC power flow) of its emergency rating (1793 MVA) for the tower line contingency outage of 'C5-TWL-NR065_A'. This project contributes approximately 157.6 MW to the thermal violation.

Bus Number	Bus Name	Full Contribution
240968	02BG2 GEN	-0.55
240969	02BG4 G1	-0.14
240970	02BG4 G2&3	-0.28
240971	02BG4 G4&5	-0.28
240973	02BG6 AMPO	-2.47
239297	02CPPW41	-9.54
238966	02MNFDG2	7.75
238967	02MNFDG3	7.75
239214	02NILE-A	0.24
253925	15AES1	9.96
253926	15AES2	2.49
239276	COLLW 11	-7.99
299984	U3-029 E	1.18
299989	U3-030 E	0.54
241902	Y1-069 GE	-65.3
LTF	Y3-059	27.43
915951	Y3-092	178.66
915691	Y3-103 C	9.66
915692	Y3-103 E	10.75
917131	Z2-028 OP1	87.63
918321	AA1-044 C	96.09

Bus Number	Bus Name	Full Contribution
918322	AA1-044 E	14.36
LTF	AA1-074	16.46
919011	AA1-123 OP	86.67
LTF	AA2-101	5.49
LTF	AA2-102	5.49
920601	AA2-166	1.8
930072	AB1-015 E	2.02
930081	AB1-017 C	7.01
930082	AB1-017 E	8.32
930421	AB1-083	1.91
930601	AB1-105 C1	43.9
930602	AB1-105 C2	43.9
930603	AB1-105 C3	54.71
930604	AB1-105 E1	4.65
930605	AB1-105 E2	4.65
930606	AB1-105 E3	5.79
930702	AB1-114 E	1.3
930982	AB1-147 E	1.83
931152	AB1-166 E	1.37
931281	AB1-178	1.74

Appendix 2

(FE - FE) The AB1-105 TAP-02HANNA 345 kV line (from bus 930600 to bus 238781 ckt 1F) loads from 77.77% to 101.99% (DC power flow) of its emergency rating (1554 MVA) for the tower line contingency outage of 'C5-TWL-NR066_A'. This project contributes approximately 425.83 MW to the thermal violation.

Bus Number	Bus Name	Full Contribution
239297	02CPPW41	-5.04
239214	02NILE-A	0.46
253925	15AES1	7.38
253926	15AES2	1.85
239276	COLLW 11	-4.21
299984	U3-029 E	0.87
299989	U3-030 E	0.4
915951	Y3-092	87.73
915691	Y3-103 C	7.16
915692	Y3-103 E	7.97
917131	Z2-028 OP1	142.9
918321	AA1-044 C	150.05
918322	AA1-044 E	22.42
919011	AA1-123 OP	109.76

Bus Number	Bus Name	Full Contribution
920601	AA2-166	2.67
930072	AB1-015 E	3.87
930081	AB1-017 C	11.43
930082	AB1-017 E	13.58
930421	AB1-083	3.21
930601	AB1-105 C1	118.62
930602	AB1-105 C2	118.62
930603	AB1-105 C3	147.81
930604	AB1-105 E1	12.56
930605	AB1-105 E2	12.56
930606	AB1-105 E3	15.65
930702	AB1-114 E	2.23
930982	AB1-147 E	2.38
931281	AB1-178	2.52

Generation Interconnection
Revised System Impact Study Report

For

PJM Generation Interconnection Request
Queue Position AB1-105

Highland-Hanna 345kV

May 2017

Preface

The intent of the System Impact Study is to determine a plan, with approximate cost and construction time estimates, to connect the subject generation interconnection project to the PJM network at a location specified by the Interconnection Customer. As a requirement for interconnection, the Interconnection Customer may be responsible for the cost of constructing: Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system. All facilities required for interconnection of a generation interconnection project must be designed to meet the technical specifications (on PJM web site) for the appropriate transmission owner.

In some instances an Interconnection Customer may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection or merchant transmission upgrade, may also contribute to the need for the same network reinforcement. The possibility of sharing the reinforcement costs with other projects may be identified in the Feasibility Study, but the actual allocation will be deferred until the System Impact Study is performed.

The System Impact Study estimates do not include the feasibility, cost, or time required to obtain property rights and permits for construction of the required facilities. The project developer is responsible for the right of way, real estate, and construction permit issues. For properties currently owned by Transmission Owners, the costs may be included in the study.

General

Clean Energy Future-Trumbull, LLC, the Interconnection Customer (IC), has proposed a natural gas generating facility located Trumbull County, Ohio. The installed facilities will have a total capability of 940 MW with 850 MW of this output being recognized by PJM as capacity. The proposed in-service date for this project is October 2020. **This study does not imply a American Transmission Systems, Incorporated (ATSI) commitment to this in-service date.**

Point of Interconnection

AB1-105 will interconnect with the ATSI transmission system along the Highland-Hanna 345kV line.

Cost Summary

The AB1-105 project will be responsible for the following costs:

Description	Cost
Attachment Facilities	$ 0
Direct Connection Network Upgrades	$ 10,078,400
Non Direct Connection Network Upgrades	$ 890,500
Allocation for New System Upgrades	$ 19,199,579
Contribution for Previously Identified Upgrades	$ 0
Total Costs	**$ 30,168,479**

Attachment Facilities

There are no Attachment Facilities are required to support this interconnection.

Direct Connection Cost Estimate

The total preliminary cost estimate for the Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Cost
AB1-105 Interconnect SS. 345kV 3-breaker ring bus, Hannah-Highland line. n5196	$ 8,723,600
Highland 345kV Line Drop into New Ring Bus. Loop the Hanna-Highland 345kV circuit into the new 345kV ring bus approximately 1.3 circuit miles southwest of Highland Sub to create a new circuit from Highland Sub to the new ring bus. n5197	$ 683,900
Hanna 345kV Line Drop into New Ring Bus. Loop the Hanna-Highland 345kV circuit into the new 345kV ring bus approximately 1.3 circuit miles southwest of Highland Sub to create a new circuit from Hanna Sub to the new ring bus. n5198	$ 670,900
Total Direct Connection Facility Costs	**$ 10,078,400**

Non-Direct Connection Cost Estimate

The total preliminary cost estimate for the Non-Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Cost
Highland SS. Install new line relaying for future AB1-105 Interconnect line exit. n5199	$ 160,900
Hanna SS. Install new communications equipment on existing Hanna future AB1-105 Interconnect and install new line relaying panel. n5200	$ 224,100
Highland - AB1-105 Interconnection SS. Install Fiber Optic Cable from the AB1-105 Interconnection to the Highland substations and back, approximately 2.9 miles each way. n5201	$ 505,500
Total Non-Direct Connection Facility Costs	**$ 890,500**

Schedule:

A proposed forty-eight (48) month schedule is estimated to complete the engineering, construction and the associated activities, assuming an Interconnection Construction Service Agreement has been fully-executed, and a Construction Kick-Off Meeting has occurred. This schedule assumes that all issues covered by the "Environmental, Real Estate and Permitting Issues" section of this document are resolved, and outages will occur as planned. Construction cannot begin until after all applicable permits and/or easements have been obtained.

Interconnection Customer Requirements

1. An Interconnection Customer entering the New Services Queue on or after October 1, 2012 with a proposed new Customer Facility that has a Maximum Facility Output equal to or greater than 100 MW shall install and maintain, at its expense, phasor measurement units (PMUs). See Section 8.5.3 of Appendix 2 to the Interconnection Service Agreement as well as section 4.3 of PJM Manual 14D for additional information.

2. The Interconnection Customer may be required to install and/or pay for metering as necessary to properly track real time output of the facility as well as installing metering which shall be used for billing purposes. See Section 8 of Appendix 2 to the Interconnection Service Agreement as well as Section 4 of PJM Manual 14D for additional information.

3. The purchase and installation of fully rated 345 kV circuit breakers to permit tripping of each entire unit.

4. The purchase and installation of the minimum required FE generation interconnection relaying and control facilities. This includes over/under voltage protection, over/under frequency protection, and zero sequence voltage protection relays.

5. The purchase and installation of supervisory control and data acquisition (SCADA) equipment to provide information in a compatible format to the FE Transmission System Control Center.

6. The establishment of dedicated communication circuits for SCADA to the FE Transmission System Control Center.

7. A compliance with the FE and PJM generator power factor and voltage control requirements.

8. The execution of a back-up service agreement to serve the customer load supplied from the Hanna-Highland 345 kV (AB1-105) generation project metering point when the units are out-of-service. This assumes the intent of Clean Energy Future-Trumbull, LLC is to net the generation with the load.

Revenue Metering and SCADA Requirements

PJM Requirements

The Interconnection Customer will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for IC's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Sections 24.1 and 24.2.

First Energy Requirements

The Interconnection Customer will be required to comply with all FE Revenue Metering Requirements for Generation Interconnection Customers. The Revenue Metering Requirements may be found within the "FirstEnergy Requirements for Transmission Connected Facilities" document located at the following links:

http://www.firstenergycorp.com/feconnect
http://www.pjm.com/planning/design-engineering/to-tech-standards.aspx

Network Impacts

The Queue Project AB1-105 was evaluated as a 850.0 MW (Capacity 850.0 MW) injection into a tap of the Highland – Hanna 345 kV line in the ATSI area. Project AB1-105 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AB1-105 was studied with a commercial probability of 100%. Potential network impacts were as follows:

Generator Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

None

Light Load Analysis

Light Load Studies to be conducted during later study phases (applicable to wind, coal, nuclear, and pumped storage projects).

Multiple Facility Contingency

(Double Circuit Tower Line contingencies were studied for the full energy output. The contingencies of Line with Failed Breaker and Bus Fault will be performed for the Impact Study.)

None

Short Circuit

(Summary of impacted circuit breakers)

New circuit breakers found to be over-duty:

#	Area	Bus No.	Bus	Breaker	Rating Type	Duty Percent Without AB1-105	Duty Percent With AB1-105	Duty Percent Difference
1	ATSI	9431	SAMMIS 345.kV	B5213(GEN B	S	99.72%	100.41%	0.69%
2	ATSI	9431	SAMMIS 345.kV	B5218(GEN B	S	99.72%	100.41%	0.69%
3	ATSI	9431	SAMMIS 345.kV	BVR VLY(B456	S	99.72%	100.41%	0.69%
4	ATSI	9431	SAMMIS 345.kV	BVR VLY(B459	S	99.72%	100.41%	0.69%
5	ATSI	9431	SAMMIS 345.kV	GEN.3-E(B279	S	99.72%	100.41%	0.69%
6	ATSI	9431	SAMMIS 345.kV	GEN.4-E.(B11	S	99.72%	100.41%	0.69%
7	ATSI	9431	SAMMIS 345.kV	GEN.5-E(B284	S	99.72%	100.41%	0.69%

#	Area	Bus No.	Bus	Breaker	Rating Type	Duty Percent Without AB1-105	Duty Percent With AB1-105	Duty Percent Difference
8	ATSI	9431	SAMMIS 345.kV	GEN.6-E.B(B5	S	99.72%	100.41%	0.69%
9	ATSI	9431	SAMMIS 345.kV	GEN.7-E(B453	S	99.72%	100.41%	0.69%
10	ATSI	9431	SAMMIS 345.kV	HIL-W.B(B280	S	99.72%	100.41%	0.69%
11	ATSI	9431	SAMMIS 345.kV	HL-GEN3(B278	S	99.72%	100.41%	0.69%
12	ATSI	9431	SAMMIS 345.kV	S.CAN-W(B290	S	99.72%	100.41%	0.69%
13	ATSI	9431	SAMMIS 345.kV	SN-GEN5(B287	S	99.72%	100.41%	0.69%
14	ATSI	9431	SAMMIS 345.kV	SR-W.BUS(B17	S	99.72%	100.41%	0.69%
15	ATSI	9431	SAMMIS 345.kV	STRGEN.4(B14	S	99.72%	100.41%	0.69%
16	ATSI	9431	SAMMIS 345.kV	TR-GEN6(B295	S	99.72%	100.41%	0.69%
17	ATSI	9431	SAMMIS 345.kV	TRW.BUS(B298	S	99.72%	100.41%	0.69%

Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

None

Steady-State Voltage Requirements

(Summary of the VAR requirements based upon the results of the steady-state voltage studies)

None

Stability and Reactive Power Requirement for Low Voltage Ride Through

(Summary of the VAR requirements based upon the results of the dynamic studies)

To be provided in a revised Impact Study

New System Reinforcements

(Upgrades required to mitigate reliability criteria violations, i.e. Network Impacts, initially caused by the addition of this project generation)

Affected System Analysis & Mitigation

MISO Impacts:

MISO Impacts to be determined during later study phases (as applicable).

Violation #	Overloaded Facility	Upgrade Description	Network Upgrade Number	Upgrade Cost	AB1-105 Allocation
1	Sammis 345kV Circuit Breaker	At Sammis substation- Replace 345kV Circuit Breaker with a 80kA Breaker B5213(GEN B)	n5194.1	**$ 1,129,387**	**$ 1,129,387**
2	Sammis 345kV Circuit Breaker	At Sammis substation- Replace 345kV Circuit Breaker with a 80kA BreakerB5218(GEN B)	n5194.2	**$ 1,129,387**	**$ 1,129,387**
3	Sammis 345kV Circuit Breaker	At Sammis substation- Replace 345kV Circuit Breaker with a 80kA Breaker BVR VLY(B456)	n5194.3	**$ 1,129,387**	**$ 1,129,387**
4	Sammis 345kV Circuit Breaker	At Sammis substation- Replace 345kV Circuit Breaker with a 80kA Breaker BVR VLY(B459)	n5194.4	**$ 1,129,387**	**$ 1,129,387**
5	Sammis 345kV Circuit Breaker	At Sammis substation- Replace 345kV Circuit Breaker with a 80kA Breaker GEN.3-E(B279)	n5194.5	**$ 1,129,387**	**$ 1,129,387**
6	Sammis 345kV Circuit Breaker	At Sammis substation- Replace 345kV Circuit Breaker with a 80kA Breaker GEN.4-E.(B11)	n5194.6	**$ 1,129,387**	**$ 1,129,387**
7	Sammis 345kV Circuit Breaker	At Sammis substation- Replace 345kV Circuit Breaker with a 80kA Breaker GEN.5-E(B284)	n5194.7	**$ 1,129,387**	**$ 1,129,387**
8	Sammis 345kV Circuit Breaker	At Sammis substation- Replace 345kV Circuit Breaker with a 80kA Breaker GEN.6-E.B(B5)	n5194.8	**$ 1,129,387**	**$ 1,129,387**
9	Sammis 345kV Circuit Breaker	At Sammis substation- Replace 345kV Circuit Breaker with a 80kA Breaker GEN.7-E(B453)	n5194.9	**$ 1,129,387**	**$ 1,129,387**
10	Sammis 345kV Circuit Breaker	At Sammis substation- Replace 345kV Circuit Breaker with a 80kA Breaker HIL-W.B(B280)	n5194.10	**$ 1,129,387**	**$ 1,129,387**
11	Sammis 345kV Circuit Breaker	At Sammis substation- Replace 345kV Circuit Breaker with a 80kA Breaker HL-GEN3(B278)	n5194.11	**$ 1,129,387**	**$ 1,129,387**
12	Sammis 345kV Circuit Breaker	At Sammis substation- Replace 345kV Circuit Breaker with a 80kA Breaker S.CAN-W(B290)	n5194.12	**$ 1,129,387**	**$ 1,129,387**
13	Sammis 345kV Circuit Breaker	At Sammis substation- Replace 345kV Circuit Breaker with a 80kA Breaker SN-GEN5(B287)	n5194.13	**$ 1,129,387**	**$ 1,129,387**

Violation #	Overloaded Facility	Upgrade Description	Network Upgrade Number	Upgrade Cost	AB1-105 Allocation
14	Sammis 345kV Circuit Breaker	At Sammis substation- Replace 345kV Circuit Breaker with a 80kA Breaker SR-W.BUS(B17)	n5194.14	**$ 1,129,387**	**$ 1,129,387**
15	Sammis 345kV Circuit Breaker	At Sammis substation- Replace 345kV Circuit Breaker with a 80kA Breaker STRGEN.4(B14)	n5194.15	**$ 1,129,387**	**$ 1,129,387**
16	Sammis 345kV Circuit Breaker	At Sammis substation- Replace 345kV Circuit Breaker with a 80kA Breaker TR-GEN6(B295)	n5194.16	**$ 1,129,387**	**$ 1,129,387**
17	Sammis 345kV Circuit Breaker	At Sammis substation- Replace 345kV Circuit Breaker with a 80kA Breaker TRW.BUS(B298)	n5194.17	**$ 1,129,387**	**$ 1,129,387**
				Total New Network Upgrades	**$ 19,199,579**

Contribution to Previously Identified System Reinforcements

(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project. This project may have a % allocation cost responsibility which will be calculated and reported for the Impact Study)

None

Potential Congestion due to Local Energy Deliverability

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

None

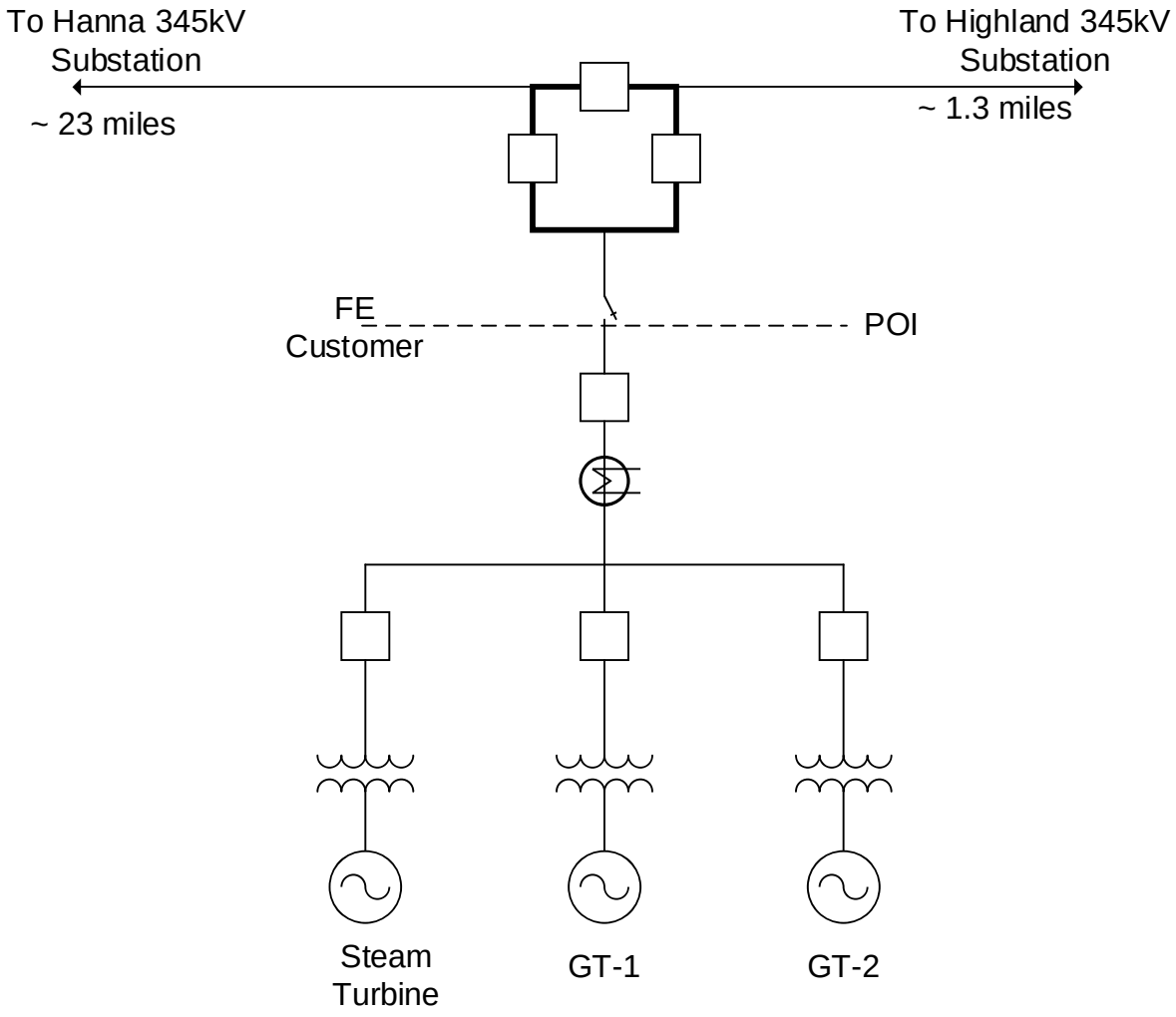
Attachment 1. Project Location

Map Key

345 kV Line

138 kV Line

Attachment 2. Single Line Diagram



Attachment 3. First Energy Protection Requirements

AB1-105 345kV Interconnecting Substation

345kV Transmission Line Protection

- Hanna line exit
  - Primary relay: SEL-421-5 directional comparison blocking line relaying operating over power line carrier (PLC) communications
    - Ametek/Pulsar UPLC on/off carrier set for use with directional comparison blocking line relaying.
    - CCVTs with carrier accessories in one phase and at least two secondary windings, line tuner, and wavetrap for use with PLC relaying and direct transfer trip
  - Backup relay: SEL-421-5 non-pilot direct tripping backup relay
  - Transfer trip: Dual Ametek/Pulsar UPLC FSK TX/RX carrier sets for use with direct transfer trip
  - Line tuner, wavetrap, CCVT with carrier accessories, and hybrids for use with PLC relaying and direct transfer trip

- Highland line exit
  - Primary relay: SEL-411L relay with line current differential protection over fiber
  - Backup relay: SEL-411L relay with line current differential protection over fiber

- AB1-105 generating facility
  - Primary relay: SEL-411L relay with line current differential protection over fiber
  - Backup relay: SEL-411L relay with line current differential protection over fiber

345kV AB1-105 Interconnecting Station Communications

- AB1-105 Interconnecting Station to Highland
  Install two separately routed 1300 nm single mode fiber-optic cable with dedicated fibers for use with SEL-411L primary and SEL-411L backup relaying (approximately 3 miles).
    - Minimum of 12 fibers, separate primary and backup fiber cables

- AB1-105 Interconnecting Station to AB1-105 generating facility
  Install two separately routed 1300 nm single mode fiber-optic cable with dedicated fibers for use with SEL-411L primary and SEL-411L backup relaying.
    - Minimum of 12 fibers, separate primary and backup fiber cables

345kV Breaker Failure to Trip Protection

- 345kV Breaker Failure to Trip Relaying
  - SEL-501 breaker failure to trip relaying (1 on each of three 345kV breakers). The breaker failure to trip relaying on each Hanna line exit breaker shall initiate direct transfer trip to Hanna over power line carrier (UPLC). The breaker failure to trip relaying on each Highland line exit breaker shall initiate direct transfer trip to Highland via the SEL-411L primary and backup line relays (fiber). The breaker failure to trip relaying on each LS Power Plant line exit breaker shall initiate direct

transfer trip to LS Power Plant via the SEL-411L primary and backup line relays (fiber).

AB1-105 Generating Station 345kV

345kV Transmission Line Protection @ AB1-105 generating station

- AB1-105 Interconnecting Station line exit
  - Primary relay: SEL-411L relay with line current differential protection over fiber
  - Backup relay: SEL-411L relay with line current differential protection over fiber
  - Synch check for manual/SCADA close on the interconnecting line to be done at AB1-105 Generating Station

345kV Breaker Failure to Trip Protection

- 345kV Breaker Failure to Trip Relaying
  - SEL-352-2 breaker failure to trip relaying on each of four 345kV breakers. The breaker failure to trip relaying on the AB1-105 Interconnecting Station line exit breaker shall initiate direct transfer trip via the SEL-411L primary and backup line relays (fiber).

345kV Bus & GSU Transformer Protection @ AB1-105 generating station (minimum protection to meet FE requirements)

- Dual, independent transformer differential protection schemes (Transformer and Overall)
- Transformer neutral time overcurrent relay

The Connecting Party shall provide utility-grade relays for protection of the FE Transmission System. FE shall approve all relays specified for the protection of the FE Transmission System, including time delay and auxiliary relays. Relay operation for any of the listed functions that are required shall initiate immediate separation of the parallel generation from the FE Transmission System:

Relay	Function
Frequency	To detect underfrequency and overfrequency operation.
Overvoltage	To detect overvoltage operation.
Undervoltage	To detect undervoltage operation.
Ground Fault Detector	To detect a circuit ground on the FE Transmission System.
Phase Fault Detector	To detect phase to phase faults on the FE Transmission System.
Transfer Trip Receiver	To provide tripping logic to the generation owner for isolation of the generation upon opening of the FE supply circuits.
Directional Power	To detect, under all system conditions, a loss of FE primary source. The relay shall be sensitive enough to detect transformer magnetizing current supplied by the generation.

FE System Modifications

Highland Substation

345kV Transmission Line Protection

- AB1-105 Interconnecting Station line exit Primary Relaying
  - Primary relay: SEL-411L relay with line current differential protection over fiber
  - Backup relay: SEL-411L relay with line current differential protection over fiber

Hanna Substation

345kV Transmission Line Protection

- Dual Ametek/Pulsar UPLC FSK TX/RX carrier sets for use with direct transfer trip
- Line tuner, wavetrap, CCVT with carrier accessories, and hybrids for use with PLC relaying and direct transfer trip

Evergreen 138kV Substation

345kV Circuit Breaker Adequacy

- (1) 138kV circuit breakers have been identified by PJM as overdutied with the addition of AB1-105. This would necessitate replacing the existing breaker with a 63kAIC breaker.

Settings Changes

Settings changes are possible at, but not limited to, the following stations:

- Beaver Valley
- Bluebell
- Bruce Mansfield
- Chamberlin
- Darrow
- East Akron
- Evergreen
- GM Lordstown
- Ivanhoe
- Juniper
- Mahoningside
- Newton Falls
- Niles
- Niles Central
- Packard
- Salt Springs
- Sammis
- Shalersville
- Shenango
- West Ravenna

Attachment B – Model Landowner Letters

EXHIBIT C-1

SAMPLE LETTER TO BE SENT TO LANDOWNERS WITHIN 7 DAYS OF FILING THE APPLICATION per OAC Rule 4906-6-08(B)

Clean Energy Future – Trumbull, LLC

[DATE]

Landowner Name
Landowner Address
Landowner City

Re: Application of Clean Energy Future-Trumbull, LLC
Trumbull Energy Center Electrical Interconnection
OPSB Case No. 22-697-EL-BLN

Dear) Property Owners and Tenants within the route of the proposed project
) Property Owners and Tenants who are located contiguous to the proposed site
) Property Owners and Tenants of Permanent and Temporary Easements within the planned site:
) Property Owners and Tenants of the Existing Right-of-Way
) Property Owners and Tenants who may be approached for any additional easement necessary for the construction operation or maintenance of the project

Description of the New Interconnection Project

We are writing to make you aware that Clean Energy Future-Trumbull, LLC ("CEF-T") is preparing to construct electrical interconnection to the Trumbull Energy Center in the Village of Lordstown, Trumbull County, Ohio. The Trumbull Energy Center Electrical Interconnection ("TEC Electrical Interconnection") consists of: three consolidated generator leads that will extend approximately 0.25-mile within a 100-foot wide right-of-way supported on three vertical, monopole dead-end structures; and new 3-breaker ringbus, proposed on approximately four (4) acres of land located adjacent to the FirstEnergy 345-kV Highland-Hanna circuit into which the generator leads interconnect. There will be two access roads to the TEC Electric Interconnection site. All components of the TEC Electrical Interconnection will be located entirely within the Village of Lordstown, Trumbull County, Ohio. Upon completion of construction, the utility switchyard and associated access road will be transferred to FirstEnergy, while one of the access roads will remain under the ownership and control of CEF-T.

This electrical interconnection was previously approved by the Ohio Power Siting Board in Case No. 17-819-EL-BLN. However due to the impacts of the global pandemic, construction was delayed, but the project is now ready to proceed. There are no changes in the proposed TEC Electrical Interconnection from that previously approved.

It is expected that construction of the TEC Electrical Interconnection could begin in the fourth quarter of 2022 and is scheduled to be in-service by the first quarter of 2026. At the conclusion of construction, as soon as weather permits, disturbed land will be restored.

Map of Location of Proposed Project

The location of the interconnection is shown on the map below:

CEF-T Letter of Notification Pending before the Ohio Power Siting Board (OPSB)

The Letter of Notification has been filed with, and is pending before, the OPSB. It asks for authority to construct the interconnection facility described above. It was assigned **Case No. 22-697-EL-BLN.**

List of Locations Where Copy of the Letter of Notification Can Be Viewed

A copy of the Letter of Notification can be viewed at the Warren-Trumbull County Public Library, Lordstown Branch Library, 1471 Salt Springs Road, Warren, Ohio 44481.

A copy of the Letter of Notification, along with all documents filed, may be viewed online at https://dis.puc.state.oh.us/CaseRecord.aspx?CaseNo=22-697&x=0&y=0. A copy has also been posted to CEF-T's website at http://cleanenergyfuture.com/clean-energy-future-in-ohio/.

Filing to Participate and Comment in this Case

If you would like to participate in this proceeding, you may file a motion to intervene and/or file comments in this matter within ten (10) days from the date of the newspaper publication for this LON. For motions to intervene, please follow the requirements of Ohio Administrative Code Rule 4906-2-12. The intervention rule is available on line at www.opsb.ohio.gov.

Tenants

If you have tenants occupying this property, please advise them of this project.

Questions

Should you have any questions concerning this project, please feel free to contact Steve Remillard at (508) 579-6317 or by e-mail at steve@cleanenergyfuture.com.

Sincerely,

Clean Energy Future-Trumbull, LLC

SAMPLE SECOND PRE-CONSTRUCTION LETTER TO BE SENT TO LANDOWNERS TO BE SENT AT LEAST 7 DAYS PRIOR TO CONSTRUCTION per OAC Rule 4906-6-11(C)

Clean Energy Future – Trumbull, LLC

[DATE]

Landowner Name
Landowner Address
Landowner City

Dear Property Owner or Tenant:

Description of the New Interconnection Project

As we indicated to you in prior letters, Clean Energy Future-Trumbull, LLC ("CEF-T") is preparing to construct the Trumbull Energy Center Electrical Interconnection ("TEC Electrical Interconnection") Village of Lordstown, Trumbull County, Ohio. TEC Electrical Interconnection will interconnect CEF-T's Trumbull Energy Center ("TEC") to an existing FirstEnergy Corporation 345-kilovolt transmission line. The TEC Electrical Interconnection consists of the three consolidated generator leads that will extend from TEC's on-site switchyard approximately 0.25-mile within a 100-foot wide right-of-way (the Interconnection ROW) supported on three vertical, monopole dead-end structures; and the new 3-breaker ringbus, proposed on approximately four (4) acres of land located adjacent to the FirstEnergy 345-kV Highland-Hanna circuit (the Utility Switchyard), into which the generator leads interconnect. Two access roads will be constructed from Hallock Young Road to TEC's on-site switchyard and to the Utility Switchyard.

Timeline for Construction of the Project

It is expected that construction of the TEC Electrical Interconnection could begin in the fourth quarter of 2022 and is scheduled to be in-service by the first quarter of 2026.

Restoration Activities

To the extent that any of your property is disturbed, CEF-T will restore your property to the state that it was in prior to CEF-T's construction activities as soon as weather permits after the project construction is completed.

Tenants

If you have tenants occupying this parcel, please advise them of this project.

Questions/Complaints:

CEF-T has a complaint resolution process. Should you have any questions concerning this project, please contact Steve Remillard at (508) 579-6317 or by e-mail at steve@cleanenergyfuture.com. If you have a complaint during construction or restoration, your call will be returned in a timely manner. Please be aware that CEF-T will make every best effort to resolve issues pertaining to the project.

Sincerely,

Clean Energy Future-Trumbull, LLC

Attachment C – Complaint Resolution Procedure

Complaint Resolution Procedure

Trumbull Energy Center

February 2017

Prepared for:

Clean Energy Future – Trumbull, LLC
24 Proctor Street
Manchester, MA 01944

Prepared by:

Tetra Tech, Inc.
2 Lan Drive, Suite 210
Westford, MA 01886

TETRA TECH

TABLE OF CONTENTS

ATTACHMENTS

1.0 INTRODUCTION

This procedure defines the requirements and process for management of complaints received during the construction, startup, and commissioning of the Trumbull Energy Center (the Project). In all cases, Project representatives will work to resolve or mitigate any issues with those who submit a complaint. During the construction, startup, and commissioning period, the selected Project's the Engineering, Procurement and Construction (EPC) contractor, Fluor Corporation (Fluor), will be in control of this process, and will provide monthly reports to Clean Energy Future – Trumbull, LLC (CEF-T) and the Ohio Power Siting Board (OPSB).

Fluor is committed to reducing employee and subcontractor exposure to high noise levels during construction, commissioning, and initial operation, and will comply with applicable Occupational Safety and Health Administration (OSHA) standards. Fluor is also committed to compliance with OPSB requirements associated with noise and other activities.

Following substantial completion and commercial operation, CEF-T will take control of this process.

2.0 NOISE COMPLAINT PROCESS

Throughout the construction, startup, and commissioning of the Project, Fluor will document, investigate, evaluate, and attempt to resolve all Project-related noise complaints. CEF-T will continue to do so during Project operation. Fluor will:

- Use the Noise Complaint Resolution Form (provided as Attachment A), or a functionally equivalent procedure acceptable to the OPSB, to document and respond to each noise complaint;
- Attempt to contact the person(s) making the noise complaint within 24 hours, or 72 hours if the complaint is made over the weekend;
- Conduct an investigation to determine the source of noise related to the complaint;
- Take all feasible measures to reduce the noise at its source, if the noise is Project-related; and
- Submit a report documenting the complaint and the actions taken.

The report will summarize the complaint, including final results of noise reduction efforts, if applicable. If possible, a signed statement by the complainant stating the issue is resolved will be included. The reports will be filed and maintained by the Fluor or CEF-T Site Manager, as applicable, documenting the resolution of the complaint.

2.1.1 NOISE RESTRICTIONS

Design and implementation of the Project, once completed, will include appropriate noise mitigation measures adequate to ensure that noise levels due to Project operation alone comply with the following:

- Nighttime Project noise contribution, as modeled, will not result in an increase to the ambient sound levels at any identified nearby sensitive receptors of greater than 4 dBA. This condition does not apply to any sensitive receptor for which individual mitigation measures have been implemented including, but not limited to, cooperation agreements or noise easements.

The 30-month construction period is expected to be typical of other power generating facilities in terms of schedule, equipment, and activities. Nighttime construction will be limited; however, activities may occur up to 6 days per week, 10 hours per day.

Impact pile driving and hoe ram operations, if required, will be limited to the hours between 10:00 a.m. to 5:00 p.m., Monday through Friday.

During the high-pressure steam blow process, steam blow piping will be equipped with a temporary silencer that quietens the noise of steam blows.

Haul trucks and other engine-powered equipment will be equipped with adequate mufflers. Haul trucks will be operated in accordance with posted speed limits. Truck engine exhaust brake use will be limited to emergencies.

Certain activities, such as foundation pours, cannot be stopped until the task is completed, which may continue into the nighttime period.

As required, a night shift may be implemented to maintain schedule or complete a continuous task; coordination with local authorities and notifications to neighbors will occur prior to implementation. The last 3 to 4 months of construction would include commissioning and start-up, which would involve steam blows potentially occurring 24 hours a day, 7 days a week.

2.1.2 NOISE COMPLAINT PROCEDURAL STEPS

2.1.2.1 INITIAL CONSTRUCTION NOTIFICATION

At least 10 days prior to the start of ground disturbance, Fluor, or the appropriate EPC contractor, will notify all residents within 1 mile of the Project site and 0.5 mile of any linear facilities, by mail or other effective means, of the commencement of Project construction. Fluor will concurrently establish a telephone number for use by the public to report any undesirable noise conditions associated with the construction and operation of the Project, and will include that telephone number in the above notice. Since the telephone is not staffed 24 hours a day, an automatic answering feature, with date and time stamp recording capability to answer calls when the phone is unattended, will be established. During construction, this telephone number will be posted at the Project site in a manner visible to passersby. The Owner will be notified of such activities in parallel with the resident notifications.

2.1.2.2 BLASTING NOTIFICATION

It is not anticipated that blasting activities will occur in association with construction of the Project. However, if blasting is required, Fluor will notify all residents within 1,000 feet of the blasting location, and shall make the notification available to other area residents in an appropriate manner at least 30 days prior to blasting activities. The notification may be in the form of letters to the area residences, telephone calls, fliers, or other effective means. CEF-T will also be notified of such activities in parallel with the resident notifications. Blasting will be undertaken in accordance with an OPSB-approved blasting plan submitted 30 days prior to the blasting event.

2.1.2.3 STEAM BLOW NOTIFICATION

At least 10 days prior to the first steam blow(s), Fluor will notify all residents within 1 mile of the Project site of the planned steam blow activity and shall make the notification available to other area residents in an appropriate manner. The notification may be in the form of letters to the area residences, telephone calls, fliers or other effective means. The notification will include a description of the purpose and nature of the steam blow(s), the proposed schedule, and the explanation that it is a one-time operation and not part of normal plant operations. CEF-T will also be notified of such activities in parallel with the residents.

3.0 MISCELLANEOUS COMPLAINT PROCESS

Similar to the noise complaint process described in Section 2.0, Fluor will document, investigate, evaluate, and attempt to resolve any other Project-related complaints (e.g., traffic, etc.). Fluor will:

- Use the General Complaint Resolution Form (provided in Attachment A), or a functionally equivalent procedure acceptable to the OPSB, to document and respond to each general complaint;

- Attempt to contact the person(s) making the complaint within 24 hours, or 72 hours if the complaint is made over the weekend;
- Conduct an investigation to determine the cause related to the complaint;
- Take all feasible measures to reduce or prevent the recurrence of the complaint; and
- Submit a report documenting the complaint and the actions taken.

The report will include summary of the complaint, including final results of mitigation efforts, if applicable. If possible, a statement signed by the complainant will be included stating that the problem is resolved to the complainant's satisfaction.

The reports will be filed and maintained by the Fluor Site Manager documenting the resolution of the complaint.

ATTACHMENT A: COMPLAINT RESOLUTION FORMS

Trumbull Energy Center
Noise Complaint Resolution Form

Noise Complaint Log Number: _____ Complainant's name and address: Phone number/email:
Date complaint received: _____ Time complaint received: _____ Date complainant first contacted: _____
Nature of noise complaint:
Definition of problem after investigation:
Initial noise levels at 3 feet from noise source: ____ dBA Date: _____ Initial noise levels at complainant's property: ____ dBA Date: _____ Final noise levels at 3 feet from noise source: ____ dBA Date: _____ Final noise levels at complainant's property: ____ dBA Date: _____
Description of measures taken: Date: _____ Complainant's signature: _____
This information is certified to be correct: Site Manager's Signature Date: _____

(Attach additional pages and supporting documentation, as required.)

Trumbull Energy Center
General Complaint Resolution Form

General Compliant Log Number: _____ Complainant's name and address: Phone number/email:
Date complaint received: _____ Time complaint received: _____ Date complainant first contacted: _____
Nature of complaint:
Definition of problem after investigation:
Description of corrective measures taken: Complainant's signature: _____ Date: _____
This information is certified to be correct: Site Manager's Signature Date: _____

(Attach additional pages and supporting documentation, as required.)

Attachment D – Cultural Correspondence

OHIO HISTORY CONNECTION

In reply refer to
2015-TRU-30840-9

April 28, 2017

Lynn Gresock
Tetra Tech, Inc.
2 Lan Drive, Suite 210
Westford, MA 01886

Dear Ms. Gresock,

RE: Trumbull Energy Center, Lordstown, Trumbull County, Ohio

This is in response to the receipt, on February 28, 2017, of *Phase I Archaeological Investigations for the Approximately 55.9 ha (138 ac) Trumbull Energy Facility in the Village of Lordstown, Trumbull County, Ohio.* The comments of the State Historic Preservation Office are submitted in accordance with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended.

Intensive visual inspection and subsurface testing of the project resulted in the identification of one previously unrecorded archaeological site. Site 33 TR 273 consists of foundation remains of several out buildings associated with the demolished Ohio Historic Inventory (OHI) property identified as TRU-2860-22. This site is not likely to yield additional information about Ohio history. Based on the information provided, it is my opinion that this property is not eligible for inclusion in the National Register of Historic Places. No further coordination is required unless the project changes or archaeological remains are discovered during the course of the project. In such a situation, this office should be contacted as per 36 CFR 800.13.

If you have any questions, please contact me at (614) 298-2000, or by email at nyoung@ohiohistory.org.

Sincerely,

Nathan J. Young, Project Reviews Manager
Resource Protection and Review

Attachment E – Wetlands Documentation

DEPARTMENT OF THE ARMY
PITTSBURGH DISTRICT, CORPS OF ENGINEERS
WILLIAM S. MOORHEAD FEDERAL BUILDING
1000 LIBERTY AVENUE
PITTSBURGH, PA 15222-4186

March 4, 2022

Regulatory Division
LRP 2017-1705

Steven Remillard
Clean Energy Future- Trumbull LLC
40 Beech Street,
Manchester, Massachusetts, 01944

Dear, Mr. Remillard:

I refer to the reverification request, received in this office on March 3, 2022, regarding your proposal to permanently impact 0.4 acre of wetlands and to permanently convert 0.5 acre of palustrine forested (PFO) wetlands to palustrine emergent (PEM) wetlands for the construction and operation of the Trumbull Energy Center, a new natural gas-fired combined cycle turbine electric generating facility; and an electrical interconnection and switchyard located in the village of Lordstown, Trumbull County, Ohio.

Activities associated with projects of this type are authorized by Nationwide Permit (NWP) No. 39, Commercial and Institutional Developments. Water quality certification is waived as published in Public Notice CELRP 21-14 on March 8, 2021.

This project has been verified to comply with all applicable regional conditions. These NWPs were published in the January 13, 2021 issue of the Federal Register. This NWP was previously issued by the Corps of Engineers, for purposes of Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act.

For a list of conditions which must be followed for the NWP to be valid, refer to: https://www.lrp.usace.army.mil/Portals/72/OH%20Public%20Notice%20Final%2041%20NWP%202022.pdf

Special Conditions:

1. The project site lies within the range of the Indiana bat (Myotis sodalis), a federally-listed endangered species and the northern long-eared bat (Myotis

septentrionalis), a federally-listed threatened species. Several factors have contributed to the two species decline, including habitat loss, fragmentation of habitat and the disease White Nose Syndrome. During winter, the two bat species hibernate in caves and abandoned mines. Suitable summer habitat for the Indiana bats and the northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. The permittee will preserve wooded/forested habitats exhibiting any of the characteristics listed above wherever possible. Should suitable habitat be present that cannot be saved during construction activities, any trees ≥3 inches dbh will only be cut between October 1 and March 31.

2. Proof that 1.3 credits has been deducted from a Corps' approved In Lieu Fee Program's ledger with a service area servicing the project's location must be furnished to this office prior to project impacts.

Adherence to these conditions will permit you to proceed with the proposed project. Please note, the enclosed Compliance Certification Form must be signed and returned to this office upon completion of the proposed work.

The verification of this NWP is valid until March 14, 2026, unless the NWPs are modified, suspended, or revoked. If project specifications are changed or work has not been initiated before March 14, 2026, please contact this office for further verification.

The verification of this NWP will not relieve you of the responsibility to obtain any other required state, local, or Federal authorizations.

If you have any questions, please contact Matthew C. Gilbert by phone at (412) 395-7189 or email at matthew.c.gilbert@usace.army.mil. Please complete our customer survey online and provide us with feedback at https://regulatory.ops.usace.army.mil/customer-service-survey/.

Sincerely,

//SIGNED//

Tyler J. Bintrim
Chief, North Branch
Regulatory Division

Compliance Certification Form

PERMIT NO: 2017-1705

NAME OF PERMITTEE: Clean Energy Future- Trumbull LLC

DATE OF ISSUANCE: March 4, 2022

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

U.S. Army Corps of Engineers
Pittsburgh District
Regulatory Division, Room 2200
William S. Moorhead Federal Building
1000 Liberty Avenue
Pittsburgh, PA 15222-4186

Please note that your permitted activity is subject to compliance inspection by a U.S. Army Corps of Engineers Representative. If you fail to comply with this permit, you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

_____
Signature of Permittee

Wetlands and Other Waters

Delineation Report

Prepared for:

Tetra Tech
2 Lan Drive, Suite 210
Westford, Massachusetts 01886

for the

Trumbull Energy Center
Village of Lordstown,
Trumbull County, Ohio

Prepared by:

EnviroScience
Excellence In Any Environment
5070 Stow Rd.
Stow, OH 44224
800-940-4025
www.EnviroScienceInc.com

Project No. 8940

Date: December 12, 2016

STATEMENT OF CERTIFICATION

The analyses, opinions and conclusions in this report are based entirely on EnviroScience's unbiased, professional judgment. EnviroScience's compensation is not in any way contingent on any action or event resulting from this study. Neither EnviroScience nor any EnviroScience employee has any vested interest in the property examined in this study.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

EXECUTIVE SUMMARY

EnviroScience, Inc. performed a delineation of wetlands and other waters in February and August 2016 for Tetra Tech within the 110.1 acre area associated with the proposed Trumbull Energy Center project located in the Village of Lordstown, Trumbull County, Ohio (the Study Area). The Study Area is bound on the south by Hallock-Young Road, on the west by Tod Avenue, and is located south of Henn Parkway. An easement containing overhead transmission lines crosses the eastern portion of the Study Area. This easement is approximately 200 feet wide and runs northeast to southwest through the Study Area. A narrow gravel access driveway, that originates at Hallock-Young Road, is located in the eastern portion of the Study Area. This access drive is approximately 475 feet and ends at a natural gas storage tank.

Seventeen wetlands were identified and delineated within the entire Study Area and account for 35.362 acres. One perennial stream, one intermittent stream, and three ephemeral streams were identified and delineated on-site, accounting for a total of 4,729 linear feet (1.120 acres). No other open water resources were identified within the Study Area. The Study Area is surrounded by industrial, residential, and forested land uses and includes open field, old field, forest, and wetland plant communities with the Study Area. Seven distinct vegetative communities were identified within the Study Area including three wetland community types, palustrine emergent, palustrine scrub/shrub, and palustrine forest.

Wetlands and waterbodies are under the jurisdiction of the Ohio Environmental Protection Agency or United States Army Corps of Engineers. No filling may occur within these areas without their written permission.

1.0 INTRODUCTION AND SITE DESCRIPTION

EnviroScience, Inc. (EnviroScience) performed a delineation of wetlands and other waters in February and August 2016 for Tetra Tech, Inc. (Tetra Tech) within the 110.1 acre area associated with the proposed Trumbull Energy Center (the Project) in the Village of Lordstown, Trumbull County, Ohio (the Study Area). The Study Area is bound on the south by Hallock-Young Road, on the west by Tod Avenue (OH-45), and is located south of Henn Parkway. An easement containing overhead transmission lines crosses the eastern portion of the Study Area. This easement is approximately 200 feet wide and runs northeast to southwest through the Study Area. A narrow gravel access driveway, that originates at Hallock-Young Road, is located in the eastern portion of the Study Area. This access drive is approximately 475 feet and ends at a natural gas storage tank.

Seven distinct vegetative communities were identified within the Study Area, including three wetland community types. The Study Area exists primarily as forest and wetland; the utility easement is dominated by open field, old field, and wetland communities. The land just northwest of the Study Area was actively being constructed during the field visit. The land to the northeast contains industrial buildings and associated stormwater feature. The land east of the Study Area includes residential development. The land use immediately west and south of the Study Area includes forest. The Study Area crosses seventeen wetlands, one perennial stream, one intermittent stream, and three ephemeral streams.

The Study Area is located in the Mahoning River drainage basin (Hydrologic # 05030103) which drains approximately 540 square miles in northeast Ohio and western Pennsylvania. It is within the Erie Drift Plain Plateau ecoregion (Woods *et al.* 1998) of Ohio. The Study Area is located within the area covered by the Northcentral and Northeast Regional Supplement (United States Army Corps of Engineers [USACE] 2012) and associated plant list (Lichvar 2012). The Study Area is regulated by the USACE Pittsburgh District.

2.0 METHODS

Government agencies regulate coastal and inland waters for commerce, flood control, and water quality. These water bodies provide numerous functions and values necessary to protect and sustain our quality of life. Wetlands comprise a significant portion of regulated waters. The USACE and United States Environmental Protection Agency (USEPA) jointly define wetlands as:

> "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a

> prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

The remaining deepwater aquatic habitats (open waters) are defined by the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) as:

> ". . . areas that are permanently inundated at mean annual water depths >6.6 ft or permanently inundated areas <6.6 ft in depth that do not support rooted emergent or woody plant species."

The methods used for determining and delineating wetlands and other waters (ponds, lakes, streams, rivers, etc.) strictly adhere to those found in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (USACE 2012). Wetlands and open water boundaries were determined by the disappearance of one or more of their diagnostic characteristics.

Ordinary high water marks (OHWM) defined the outermost regulatory boundaries of ephemeral and open waters.

Each sample plot and the perimeter of each wetland and other water was surveyed and marked in the field with plain pink flags and pink "wetland boundary" flags, respectively. A global positioning system (GPS) unit with submeter accuracy was used, in conjunction with aerial photography and topographic figures, for the survey. Computer Aided Design (CAD) software was used to determine wetland dimensions and Geographic Information Systems (GIS) software was used to produce a map of the Study Area showing wetlands and other waters.

2.1 WETLANDS

2.1.1 Determination

A review of secondary literature sources was performed to find known wetlands and other significant ecological resources and areas with high potential for wetlands in or near the proposed Study Area. Resources include the following:

1. United States Geological Survey (USGS) topographic maps;
2. National Wetlands Inventory (NWI) maps;
3. Web Soil Survey; and
4. Aerial Photographs.

A field inspection of the Study Area was then completed to identify major plant communities and to visually locate potential wetlands. The routine, on-site (Level 2) wetland determination was used to perform the delineation. Wetland communities were

classified according to the classification scheme of Cowardin *et al.* (1979) (Table 1). Mature non-wetland communities that had reached a stable equilibrium were classified according to Anderson (1982) and Gordon (1966, 1969). Disturbed and successional non-wetland communities were classified as one of the categories described in Table 2.

Table 1. Wetland Communities (Cowardin *et al*. 1979)

Community	Description
PEM	Palustrine Emergent
PSS	Palustrine Scrub-Shrub
PFO	Palustrine Forested
POW	Palustrine Open Water

Table 2. Disturbed and Successional Non-Wetland Communities

Community		Description
Disturbed	Urban	regularly maintained land; residential; industrial
	Agricultural	land used for producing crops or raising livestock; cropland; pastureland
	Cleared	disturbed areas devoid of most vegetation from recent clearing, grading or filling
Successional	Open Field	herbaceous community without woody vegetation
	Old Field	herbaceous community having woody vegetation coverage of <50%
	Scrub-Shrub	community dominated by woody vegetation <6 meters (m) (20 feet [ft]) tall
	Forest	community dominated by woody vegetation >6 m (20 ft) tall

Sample plots were established within each natural community and potential wetland within the Study Area. Complete data for each sample plot were collected and recorded on the USACE's Routine Wetland Determination Data Forms contained in the applicable USACE Regional Supplement (USACE 2012). Vegetation, hydrology, and soils were evaluated at each sample plot.

2.1.1.1 Vegetation

To detect the presence or absence of hydrophytic vegetation, four plant strata were evaluated within specific radii of the plot center. Each stratum was ranked by aerial cover in descending order of abundance. Table 3 provides information on each vegetative stratum.

Table 3. Vegetative Strata

Stratum	Definition	Survey Area
Tree	woody plants > or equal to 3 inches (in) (7.6 centimeters [cm]) diameter at breast height (dbh), regardless of height	30 ft (9.1 m) radius
Sapling/shrub	woody plants < 3 in. (7.6 cm) dbh and ≥3.28 ft (1 m) tall	15 ft (4.6 m) radius
Herbaceous	herbs and woody plants less than 3.28 ft (1 m) in height	5 ft (1.5 m) radius
Woody vines	woody vines > 3.28 ft (1 m) in height	30 ft (9.1 m) radius

Percent dominance was obtained for each species and within each stratum. Dominant species are those which cumulatively totaled in order of abundance immediately exceed 50 percent (%) and also include any individual species with an abundance of 20% or more (USACE 2012). Dominant taxa were identified using recognized local guides: nomenclature follows the *National List of Scientific Plant Names* (USDA 1982). Following the identification of each plant species present within the plot, all dominant species within each stratum were assigned a wetland indicator status according to Lichvar (2014). Indicators are summarized in Table 4.

Table 4. Plant Indicators

Indicator	Category	Definition
OBL	Obligate Wetland	almost exclusively (> 99% of occurrences) found in wetlands
FACW	Facultative Wetland	most likely found in wetlands (67-99% of occurrences)
FAC	Facultative	equally likely found in wetlands or non-wetlands (34-66%)
FACU	Facultative Upland	most likely found in non-wetlands (1-33% occurrence in wetlands)
UPL	Obligate Upland	almost exclusively found in non-wetlands (< 1% occurrence in wetlands)

An 'NI' (no indicator) designation represents species where not enough information is available to assign an indicator; an 'NL' (no listing) designation is given to species whose identification was not determined sufficiently enough to assign an indicator. Once the indicator status is assigned to each dominant species, the evaluator can perform the percent dominance test according to the protocol outlined within the applicable Regional Supplement (USACE 2012) to determine if the plot meets the criterion for hydrophytic vegetation.

2.1.1.2 Hydrology

To detect the presence or absence of wetland hydrology, surface, and subsurface hydrologic indicators were evaluated at the sample plot and throughout the adjacent community. Primary sources of wetland hydrology include direct precipitation, headwater flooding, backwater flooding, groundwater or any combination of these. When obtaining data at each sample plot, the evaluator observes evidence of hydrology. Primary indicators of hydrology (only one of these is necessary to indicate sufficient wetland hydrology) include the presence of surface water, water marks, sediment deposits, drift deposits, etc. (USACE 2012). Secondary indicators of hydrology (which requires two or more at each sample plot) include surface soil cracks, drainage patterns, crayfish burrows, etc. (USACE 2012).

2.1.1.3 Soils

The upper horizons of the soil at each sample plot were examined to detect the presence or absence of hydric soils indicators. Current USACE guidance requires the evaluator to assess the upper 20 inches of soil for hydric soil characteristics. Most indicators of hydric soils require an assessment of soil matrix color and mottle characteristics (Environmental Laboratory 1987, USACE 2012) for each horizon. These characteristics were determined by comparing a moist sample with *Munsell Soil Color Chart* (Munsell Color 2009) or *The Globe Soil Color Book* (Visual Color Systems 2004).

2.1.2 ORAM Categorization

Each wetland system was categorized in accordance with version 5.0 of the Ohio Environmental Protection Agency's (Ohio EPA's) Ohio Rapid Assessment Method for Wetlands (ORAM) (Mack 2000, 2001). Field scoring forms are contained in Appendix D.

Ohio EPA has established three primary and three intermediate categories of wetland quality which are based on a wetland's size, its hydrologic function, the types of plant communities present, the physical structure of the wetland plant community and the wetland's level of disturbance (OAC 3745-1-54). The relationship between the various wetland categories and their respective ORAM scores is presented in Table 5. EnviroScience also evaluated the Study Area for the presence of state threatened and endangered species as part of the ORAM evaluation.

Table 5. ORAM Scores and Categories

ORAM Score	ORAM Category	Description
0-29.9	Category 1	Lowest quality, and are generally characterized by hydrological isolation, lack of plant species diversity, insufficient habitat availability, and limited potential to perform major wetland functions.
30-34.9	Category 1 or 2 (Gray Zone)	ORAM score is insufficient to categorize wetland. In absence of a non-rapid method such as VIBI, assign the wetland to the higher functional category (Category 2)
35-44.9	Modified Category 2 (Modified 2)	Category 2 wetlands that may be of lower quality or degraded but have reasonable potential to be restored.
45-59.9	Category 2	Wetlands that have the capability to support a moderate wildlife community or maintain mid-level hydrological functions.
60-64.9	Category 2 or 3 (Gray Zone)	ORAM score is insufficient to categorize wetland. In absence of a non-rapid method such as VIBI, assign the wetland to the higher functional category (Category 3)
65-100	Category 3	Highest quality, generally characterized by a high level of biological diversity and topographical variation, threatened or endangered species, large numbers of native species, or a high level of functional importance to its surroundings.

Category 3 wetlands have the highest quality, and are generally characterized by a high level of biological diversity and topographical variation, large numbers of native species or a high level of functional importance to its surroundings. Category 2 wetlands have the capability to support a moderate wildlife community or maintain mid-level hydrological functions. Category 2 also includes wetlands that may be of lower quality or degraded, but have reasonable potential to be restored (Modified Category 2). Category 1 wetlands are of the lowest quality, and are generally characterized by hydrological isolation, lack of plant species diversity, insufficient habitat availability, and limited potential to perform major wetland functions (OAC 3745-1-54).

Since the ORAM is a rapid assessment method, there are certain wetland scores which fail to clearly differentiate the wetland's functional category. The so-called "gray zone" wetlands fall between the definite scoring breaks between the categories. Ohio EPA requires that "gray zone" wetlands be considered as the higher category unless more detailed functional assessments such as the VIBI or AmphIBI are conducted on those wetlands. As a result of this requirement, wetlands whose scores fall between the breakpoints for Categories 1 and 2 (1 or 2 gray zone wetlands) wetlands will be considered as Category 2 wetland for purposes of this report. Wetlands whose scores fall between the breakpoints for Categories 2 and 3 wetlands (2 or 3 gray zone wetlands) will be considered a Category 3 wetland for purposes of this report.

2.1.3 Cowardin Wetland Classification

The United States Fish and Wildlife Service (USFWS) NWI uses the *Classification of Wetlands and Deepwater Habitats of the United States* to classify wetland habitat types (Cowardin *et al.* 1979). This classification system is hierarchical and defines five major systems – Marine, Estuarine, Riverine, Lacustrine, and Palustrine. The Palustrine system was the only type of wetland system identified within the Study Area and is defined as including all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean driven-derived salts is below 0.5 percent (Cowardin *et al.* 1979).

2.2 OTHER WATERS

Other waters include ephemeral and open waters. These waters are broken down into two categories: 1) ponds and lakes; and 2) streams and rivers.

2.2.1 Ponds and Lakes

Palustrine systems other than wetlands, and lacustrine waters are addressed as ponds and lakes, respectively. These non-linear open waters may harbor important aquatic communities such as vegetated shallows (aquatic bed) and mud flats. They are classified according to Cowardin *et al.* (1979).

2.2.2 Streams and Rivers

Riverine systems are linear flowing waters bounded by a channel. Cowardin *et al.* (1979) divides these system into four groups, however, for the purpose of this report streams are placed into three regulatory types, listed below.

Ephemeral: An ephemeral stream only conveys runoff precipitation and meltwater. It is permanently located above the water table and is most often dry.

Intermittent: An intermittent stream is located below the water table for parts of the year, but does have dry periods.

Perennial: A perennial stream typically has flowing water throughout the entire year.

In addition to flow characteristics, the USACE has defined other regulatory categories that apply to streams, which are listed below (USACE and USEPA, 2007).

Traditional Navigable Waters (TNW): all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide.

Relatively Permanent Waters (RPW): non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months).

Non-Relatively Permanent Waters (Non-RPW): non-navigable tributaries of traditional navigable waters that are not relatively permanent where the tributaries typically do not have continuous flow at least seasonally (e.g., typically three months).

The USACE and USEPA will assert jurisdiction under the Clean Water Act on Traditional Navigable Waters (TNWs) and all wetlands adjacent to them, non-navigable tributaries of TNWs that are Relatively Permanent Waters (RPW) (i.e., tributaries that typically flow year-round or have continuous flow at least seasonally); and wetlands that directly abut such tributaries. In addition, the agencies will assert jurisdiction over every water body that is not an RPW if that water body is determined (on the basis of a fact-specific analysis) to have a significant nexus with a TNW.

> "A significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or an insubstantial effect on the chemical, physical, and/or biological, integrity of a TNW. Principal considerations when evaluating significant nexus include the volume, duration, and frequency of the flow of water in the tributary and the proximity of the tributary to a TNW, plus the hydrologic, ecologic, and other functions performed by the tributary and all of its adjacent wetlands." (Rapanos 2006).

2.2.3 HHEI and QHEI

Data collection for all streams included the completion of either the Ohio EPA Headwater Habitat Evaluation Index (HHEI) for primary headwater habitat (PHWH) streams or the Qualitative Habitat Evaluation Index (QHEI) for larger streams. Biologists are Ohio EPA trained to assess streams using the QHEI and HHEI. Following the Ohio EPA guidance, any stream with a drainage area of less than or equal to one square mile (2.589 square kilometer) and pools with a maximum water depths less than or equal to 15.75 in (40 cm) were evaluated using the HHEI (Ohio EPA 2012). The QHEI was used to evaluate streams with drainage areas greater than one square mile and pools with maximum water

depths greater than 15.75 in (40 cm; Ohio EPA 2006). The assessment location is representative of the stream/headwater within the Study Area.

3.0 LITERATURE REVIEW

3.1 USGS TOPOGRAPHIC MAP

The USGS 7.5-minute topographic series (Warren Quadrangle) is shown on Figure 2 (Appendix A). The Study Area is depicted as relatively flat with elevations ranging from approximately 950 feet above mean sea level (AMSL) to 970 feet AMSL. One USGS named stream, Mud Creek, is depicted flowing northeast through the Study Area.

3.2 NWI MAP

The NWI map (Warren Quadrangle) of the Study Area is shown on Figure 3 in Appendix A. Two wetland systems are depicted within the Study Area and along Mud Creek. A portion of a palustrine forested, broad-leaved deciduous/emergent, persistent, seasonally flooded (PFO1/EM1C) system is shown along the northern border and a palustrine scrub-shrub, broad-leaved deciduous, temporarily flooded (PSS1A) system is shown in the southwestern portion of the Study Area. Both identified wetland systems correspond with Wetland W-1.

3.3 COUNTY SOIL SURVEY

The Study Area is found on the *Soil Survey of Trumbull County, Ohio* and was accessed on the Soil Survey Geographic (SSURGO) Database (USDA, 2010) (Figure 4, Appendix A). Eight soil types and Water (W), which comprises 1.0 acre (0.7%) of the Study Area, are depicted within the Study Area. Two of these soil types are listed as predominantly hydric within Trumbull County. All soil types and descriptions are listed in Table 6.

Table 6. Soil Types Mapped within the Study Area

Symbol	Soil Type	Status	Common Landform	Percent Hydric	Acres in Study Area	Percent Within Study Area
Ct	Condit silt loam	Predominantly Hydric	depressions on till plains, flats on till plains	95	9.1	8.3
Ho	Holly silt loam, frequently flooded	Predominantly Hydric	flood plains	92	20.8	18.9
MgA	Mahoning silt loam, 0 to 2 percent slopes	Predominantly Non-Hydric	depressions	10	0.8	0.7

Symbol	Soil Type	Status	Common Landform	Percent Hydric	Acres in Study Area	Percent Within Study Area
MgB	Mahoning silt loam, 2 to 6 percent slopes	Predominantly Non-Hydric	depressions	10	4.6	4.2
RsB	Rittman silt loam, 2 to 6 percent slopes	Not Hydric	knolls on till plains	0	3.4	3.1
RsC	Rittman silt loam, 6 to 12 percent slopes	Not Hydric	drainageways on till plains, ridges on till plains	0	3.6	3.3
WbA	Wadsworth silt loam, 0 to 2 percent slopes	Predominantly Non-Hydric	depressions	8	40.1	36.5
WbB	Wadsworth silt loam, 2 to 6 percent slopes	Predominantly Non-Hydric	till plains	8	26.7	24.3

3.4 AERIAL PHOTOGRAPHY

A recent aerial photograph of the Study Area is shown on Figure 5 (Appendix A). The Study Area is bound on the south by Hallock-Young Road, on the west by OH-45, and is located south of Henn Parkway. The Study Area is depicted as predominantly forested land. An easement crosses the eastern portion of the Study Area. This easement is approximately 200 feet wide and runs northeast to southwest through the Study Area. A narrow gravel access driveway, that originates at Hallock-Young Road, is depicted in the eastern portion of the Study Area. This access drive is approximately 475 feet and ends at a natural gas storage tank. The aerial map depicts a structure near the southwest corner of the Study Area. This structure was not present during the field survey. Several wetlands and stream crossings are visible on the aerial map. The surrounding land use consists of residential, forested, and industrial property.

3.5 U.S. FISH AND WILDLIFE SERVICE

The Study Area was examined for suitable habitat for federally listed species whose known range includes Trumbull County, Ohio. These species are the federally endangered Indiana bat (*Myotis sodalis*), the federally threatened northern long-eared bat (*Myotis septentrionalis*), the federally endangered clubshell (*Pleurobema clava*), the federally threatened eastern massasauga (*Sistrurus catenatus catenatus*), the federal species of concern eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*), and the federal species of concern bald eagle (*Haliaeetus leucocephalus*).

Living or dead trees with shedding or peeling bark or cavities may serve as roosting trees for the Indiana bat and/or the northern long-eared bat. In addition, sheds and barns may serve as roosting habitat for the northern long-eared bat. No potential winter

hibernaculum, barns or sheds are located within the Study Area. The Study Area is predominantly forested and contains a significant riparian corridor. An in-depth habitat analysis was not performed; however, all on-site forested areas contained some trees that displayed suitable habitat features. Suitable habitat features include, but are not limited to, larger canopy trees, trees exhibiting peeling bark, holes or crevices, open understory, and stream or wetland corridors. All tree clearing is recommended to occur within the USFWS approved seasonal clearing window of October 1 through March 31. If the seasonal clearing restriction cannot be followed, further coordination with the USFWS is recommended prior to clearing any trees within the Study Area.

The clubshell mussel prefers clean, loose sand and gravel in medium to small rivers and streams. Mud Creek is a larger stream with appropriate substrate for the clubshell. However, Mud Creek is not listed in Appendix A of the Ohio Mussel Protocol and does not have a drainage area over ten square miles.

Preferred habitat for the eastern massasauga includes wet areas including wet prairies, marshes, and low areas along rivers and lakes. Massasaugas also use adjacent uplands during part of the year. The majority of the Study Area is composed of upland and wetland forest, which is not preferable habitat for the eastern massasauga. However, the existing transmission easement has potential eastern massasauga habitat, especially around the delineated PEM wetlands.

The eastern hellbender is found in habitats with swift-running, fairly shallow, and highly oxygenated water. They require an abundance of large, flat rocks or logs for use as cover objects. Mud Creek does not provide appropriate habitat for the eastern hellbender.

The bald eagle nests in large trees near water. No bald eagle habitat was observed within the Study Area.

If wetlands or streams will be impacted in association with the Project, USFWS coordination will be initiated by the USACE. If no wetland or stream impacts are proposed, USFWS coordination is not required. Coordination with the Ohio Department of Natural Resources (ODNR) is recommended in accordance with Ohio's rules regarding threatened and endangered species.

3.6 FEMA Flood Insurance Rate Map

The Federal Emergency Management Agency (FEMA) produces Flood Insurance Rate Maps (FIRM) that shows the locations of predictable floodplain during precipitation flood events. The FIRM map of the Study Area identified one area located within the FEMA-defined 100-year flood zone located within the Study Area (Figure 6, Appendix A). This

area corresponds to the floodplain of Mud Creek. Prior to construction in the 100-year flood zone, coordination with the Village of Lordstown is recommended.

4.0 RESULTS

Thirty-four sample plots were established within seven natural communities. Three of these communities are considered wetland. Table 7 summarizes the sample plot data.

Table 7. Sample Plot Results

Sample Plot	Photo*	Community**	Hydrophytic Vegetation	Wetlands Hydrology	Hydric Soil	Status	Location
SP-1	1	maintained lawn			X	Non-Wetland	SP-1
SP-2	2	PSS	X	X	X	Wetland	W-1
SP-3	3	PFO	X	X	X	Wetland	W-1
SP-4	4	PFO	X	X	X	Wetland	W-2
SP-5	5	Forest		X		Non-Wetland	SP-5
SP-6	6	PFO	X	X	X	Wetland	W-1
SP-7	7	PEM	X	X	X	Wetland	W-1
SP-8	8	PSS	X	X	X	Wetland	W-1
SP-9	9	PFO	X	X	X	Wetland	W-3
SP-10	10	Forest				Non-Wetland	SP-10
SP-11	11	PFO	X	X	X	Wetland	W-4
SP-12	12	PFO	X	X	X	Wetland	W-5
SP-13	13	PFO	X	X	X	Wetland	W-1
SP-14	14	PEM	X	X	X	Wetland	W-1
SP-15	15	PEM	X	X	X	Wetland	W-1
SP-16	16	PFO	X	X	X	Wetland	W-1
SP-17	17	PFO	X	X	X	Wetland	W-1
SP-18	18	Forest		X		Non-Wetland	SP-18
SP-19	19	PFO	X	X	X	Wetland	W-6
SP-20	20	PEM	X	X	X	Wetland	W-7
SP-21	21	Old field			X	Non-Wetland	SP-21
SP-22	22	Forest		X		Non-Wetland	SP-22
SP-23	23	PFO	X	X	X	Wetland	W-7
SP-24	24	PSS	X	X	X	Wetland	W-10
SP-25	25	Open field				Non-Wetland	SP-25
SP-26	26	PEM	X	X	X	Wetland	W-11

Sample Plot	Photo*	Community**	Hydrophytic Vegetation	Wetlands Hydrology	Hydric Soil	Status	Location
SP-27	27	PEM	X	X	X	Wetland	W-13
SP-28	28	PEM	X	X	X	Wetland	W-14
SP-29	29	PFO	X	X	X	Wetland	W-13
SP-30	30	Forest		X		Non-Wetland	SP-30
SP-31	31	PFO	X	X	X	Wetland	W-17
SP-32	32	Open Field				Non-Wetland	SP-32
SP-33	33	PSS	X	X	X	Wetland	W-7
SP-34	34	PFO	X	X	X	Wetland	W-8

*photos are located in Appendix B
** PEM = Palustrine Emergent; PSS = Palustrine Scrub/Shrub; PFO = Palustrine Forest.

Each sample plot, delineated wetland, and other waters are illustrated on Figure 5 (Appendix A). The following section describes general conditions found within each plant community and summarizes relevant information from the data forms, located in Appendix C.

4.1 NON-WETLANDS

Four upland communities exist within the Study Area and include maintained lawn, open field, old field, and forest. The maintained lawn community is represented by Sample Plot 1. Typical vegetation within this community includes Kentucky bluegrass (*Poa pratensis*, FACU), common selfheal (*Prunella vulgaris*, FACU), white clover (*Trifolium repens*, FACU), red clover (*Trifolium pratense*, FACU), bird's foot trefoil (*Lotus corniculatus*, FACU), orchard grass (*Dactylis glomorata*, FACU), reed canary grass (*Phalaris arundinacea*, FACW), Queen Anne's lace (*Daucus carota*, FACU), great plantain (*Plantago major*, FACU), and common dandelion (*Taraxacum officinale*, FACU) in the herbaceous layer.

The open field community is represented by Sample Plots 25 and 32. Dominant herbaceous species within this community include Kentucky bluegrass, orchard grass, oldfield cinquefoil (*Potentilla simplex*, FACU), tall goldenrod (*Solidago altissima*, FACU), Canadian horseweed (*Conyza canadensis*, FACU), common yarrow (*Achillea millefolium*, FAC), flat-top goldenrod (*Euthamia graminifolia*, FAC), rough-leaf goldenrod (*Solidago rugosa*, FAC), eastern daisy fleabane (*Erigeron annuus*, FACU), Canada goldenrod (*Solidago canadensis*, FACU), and common evening primrose (*Oenothera biennis*, FACU).

The old field community is represented by Sample Plot 21. This community consists of similar herbaceous species as the open field community, but has a higher percentage of woody shrub species including Allegheny blackberry (*Rubus allegheniensis*, FACU), rambler rose (*Rosa multiflora*, FACU), and glossy buckthorn (*Frangula alnus*, FAC).

The forested vegetative community is represented by Sample Plots 5, 10, 18, 22, and 30. Typical tree species include pin oak (*Quercus palustris*, FACW), sugar maple (*Acer saccharum*, FACU), red maple (*Acer rubrum*, FAC), black cherry (*Prunus serotina*, FACU), American elm (*Ulmus americana*, FACW), green ash (*Fraxinus americana*, FACW), crab apple (*Malus coronaria*, UPL), and bigtooth aspen (*Populus grandidentata,* FACU). The shrub layer of this community contains tree saplings, glossy buckthorn, rambler rose, Allegheny blackberry, spicebush (*Lindera benzoin*, FACW), and silky dogwood (*Cornus amomum*, FACW). Typical herbaceous plants within the forest include Pennsylvania sedge (*Carex pennsylvanica*, UPL), rough-leaf goldenrod, Christmas fern (*Polystichum acrostichoides*, FAC), Spinulose wood fern (*Dryopteris carthusiana*, FACW), upright wood sorrel (*Oxalis stricta*, FACU), jumpseed (*Persicaria virginiana*, FAC), cream avens (*Geum virginianum*, FACU), woodland strawberry (*Fragaria vesca*, UPL), and common selfheal. The woody vine layer of the forest community is dominated by eastern poison ivy (*Toxicodendron radicans*, FAC).

4.2 WETLANDS

Seventeen wetlands were identified and delineated within the Study Area. On-site wetlands are composed of PEM, PSS, and PFO vegetative communities. The delineated wetlands have been categorized using the ORAM; scoring forms are included in Appendix D. Wetland results are given in Table 8 and are briefly described in the following section. Wetland size has been determined for areas within the Study Area. Wetlands are illustrated on Figure 5 (Appendix A).

Table 8. Wetland Results within the Study Area

Wetland		Photo*	Cowardin Classification	ORAM Score	ORAM Category	Size within Study Area (acres)
W-1	a	35-37	PEM	52	2	1.819
			PSS			2.833
			PFO			13.871
	b		PFO			0.123
W-2		38	PFO	52	2	0.157
W-3		39	PFO	39	Modified 2	0.272
W-4		40	PFO	39	Modified 2	1.951
W-5		41	PFO	52	2	0.064

Wetland	Photo*	Cowardin Classification	ORAM Score	ORAM Category	Size within Study Area (acres)
W-6	42	PFO	35	Modified 2	0.064
W-7	43-44	PEM	44	Modified 2	3.310
		PSS			2.386
		PFO			7.152
W-8	45	PEM	44	Modified 2	0.029
		PFO			0.189
W-9	46	PFO	52	2	0.073
W-10	47	PSS	21.5	1	0.107
W-11	48	PEM	36	Modified 2	0.023
W-12	49	PEM	36	Modified 2	0.032
W-13	50-51	PEM	36	Modified 2	0.081
		PFO			0.729
W-14	52	PEM	36	Modified 2	0.013
W-15	53	PFO	35.5	Modified 2	0.049
W-16	54	PFO	35.5	Modified 2	0.012
W-17	55	PFO	35.5	Modified 2	0.023
Total Wetland					**35.362**

*photos are located in Appendix B

All of Wetlands W-2, W-3, W-4, W-5, W-6, W-9, W-15, W-16, W-17, and a portion of Wetlands W-1, W-7, W-8, and W-13 are dominated by PFO vegetation. On-site PFO wetlands are represented by Sample Plots 3, 4, 6, 9, 11, 12, 13, 16, 17, 19, 23, 29, 31, and 34. Typical trees within the PFO community include red maple, American elm, green ash, pin oak, hawthorn, and silver maple (*Acer saccharinum*, FACW). The shrub layer is comprised of young trees, rambler rose, gray dogwood (*Cornus racemosa*, FAC), glossy buckthorn, and spicebush. The herbaceous layer contains tree and shrub seedlings, common fox sedge (*Carex vulpinoidea*, OBL), lamp rush (*Juncus effusus*, OBL), fowl manna grass (*Glyceria striata*, OBL), rice cut grass (*Leersia oryzoides,* OBL), reed canary grass, farewell summer (*Symphyotrichum lateriflorum*, FACW), white avens (*Geum canadense*, FAC), Spinulose wood fern, harvestlice (*Agrimonia parviflora*, FAC), white grass (*Leersia virginica*, FACW), sensitive fern (*Onoclea sensibilis*, FACW), cream avens, rough-leaf goldenrod, green bulrush (*Scirpus atrovirens*, OBL), spotted touch-me-not (*Impatiens capensis*, FACW), and jumpseed. The vine layer contains eastern poison ivy.

All of Wetland W-10 and portions of Wetlands W-1 and W-7 are dominated by PSS vegetation. On-site PSS wetlands are represented by Sample Plots 2, 8, 24, and 33. Typical shrub species within the on-site PSS wetlands include gray dogwood, spicebush, false glossy buckthorn, and pin oak saplings. Herbaceous vegetation within this

community includes rice cut grass, cardinal flower (*Lobelia cardinalis*, OBL), reed canary grass, arrow leaf tearthumb (*Persicaria sagittata*, OBL), spotted touch-me-not, fowl manna grass, and eastern poison ivy.

All of Wetlands W-11, W-12, W-14, and portions of Wetlands W-1, W-7, W-8, and W-13 are dominated by PEM vegetation. On-site PEM wetlands are represented by Sample Plots 7, 14, 15, 20, 26, 27, and 28. Herbaceous species within on-site PEM wetlands include reed canary grass, broom sedge (*Carex scoparia*, FACW), hop sedge (*Carex lupulina*, OBL), squarrose sedge (*Carex squarrosa*, OBL), cottongrass bulrush (*Scirpus cyperinus*, OBL), flat-top goldenrod, pin oak seedlings, panic grass (*Panicum* sp., NI), poverty rush (*Juncus tenuis*, FAC), lamp rush, rice cut grass, and false glossy buckthorn seedlings.

Wetland W-1 is a large riparian wetland complex that is associated with Mud Creek, a perennial stream. This wetland is largely comprised of PFO vegetation, but also contains portions of PSS and PEM wetland. Wetland W-1 has several ephemeral and intermittent stream channels that provide hydrology. **Wetland W-2**, a PFO wetland, is hydrologically connected to Wetland W-1 by way of Stream S-3. **Wetland W-5**, a PFO wetland, is connected by sheet flow to Stream S-2, which flows into Wetland W-1. **Wetland W-9**, a PFO wetland, is located within the floodplain near Wetland W-1. Due to their proximity, similar plant communities, and hydrologic connection, these wetlands were scored together using the ORAM scoring method. These wetlands fell within the range for Category 2 wetlands due to large size, medium buffers, moderately high interspersion, and moderate amount of microtopographic features. Invasive species, including glossy buckthorn and reed canary grass, are present in extensive amounts.

Wetlands W-3 and **W-4** are both PFO wetlands that are located east of the Mud Creek complex. These wetlands are close in proximity and have a similar plant community and were scored together using the ORAM scoring method. These wetlands scored within the range for Modified Category 2 wetlands. Both wetlands were likely formed due to past farming activities as evidenced by the presence of remnant furrows. These wetlands have medium buffers and low surrounding land use. Modifications are primarily due to past farming and filling. The invasive glossy buckthorn is present in moderate amounts in both wetlands.

Wetland W-6 is a PFO wetland located on the south side of Stream S-1. This wetland is within the range for a Modified Category 2 wetland. This wetland has modifications due to the dredging of Stream S-1. This wetland has a sparse amount of the invasive glossy buckthorn.

Wetlands W-7 and **W-8** are artificially separated by a narrow driveway and were scored together. These wetlands assessed as Modified Category 2 wetlands using the ORAM scoring method. These wetlands have modifications due to road and driveway filling/grading, ATV trails, easement construction, mowing, and dredging. Wetland W-7 has a mix of PEM, PSS, and PFO vegetative communities and is located partially within the cleared transmission easement. Wetland W-8 is dominated by PFO vegetation with a small section of PEM along Hallock Young Road. Invasive species, including glossy buckthorn and reed canary grass are present at a moderate level within these wetlands.

Wetland W-10 is a PSS wetland located within the transmission easement. Due to the easement, this wetland has narrow buffers and moderately high surrounding land use. Impacts due to herbicide application, mowing, clear cutting, ATV activity, and filling are evident within this wetland. This wetland assessed within the range for a Category 1 wetland.

Wetland W-13 has PFO and PEM communities and is partially located within the transmission easement. **Wetlands W-11**, **W-12**, and **W-14** are PEM wetlands located entirely within the transmission easement and are hydrologically connected to Wetland W-13. Therefore, these wetlands were scored together and assessed within the range for Modified Category 2 wetlands. Impacts due to herbicide application, mowing, clear cutting, ATV activity, and filling are evident within these wetlands. These wetlands have a moderate coverage of invasive species cover.

Wetlands W-15 and **W-16** are both PFO wetlands located within the northeast corner of the Study Area. These wetlands were scored together and assessed within the range for Modified Category 2 wetlands. These wetlands have modifications due to ATV usage, filling, and selective cutting. Invasive species coverage is sparse within these wetlands.

Wetland W-17 is located south of Wetland W-13 and has a PFO vegetative cover. This wetland has medium buffers and low surrounding land use. Observed modifications are due to ATV usage, minor filling, and selective cutting. The invasive glossy buckthorn is present in this wetland in sparse amounts.

4.3 STREAMS AND RIVERS

One perennial stream, one intermittent stream, and three ephemeral streams were identified and delineated within the Study Area. The results are depicted in Table 9 and illustrated on Figure 5 (Appendix A). Ephemeral and intermittent streams have been assessed using the HHEI and the perennial stream was assessed using the QHEI; the scoring forms are included in Appendix E. Each stream classification, based on the QHEI

or HHEI score, is located in Table 9. Locations of these streams are depicted in Appendix A, Figure 5 and representative photographs are included in Appendix B.

Table 9. Stream Results within the Study Area

Stream	Photos*	Type	Average Bankfull Width (feet)	Average Depth at Time of Survey (inch)	Length Within Study Area (linear feet)	Area Within Study Area (acres)	QHEI/ HHEI Score
Mud Creek	56-57	Perennial	12	12	3,803	1.048	52.75
S-1	58-59	Ephemeral	4	0	648	0.060	22
S-2	60-61	Ephemeral	1.5	0	44	0.002	23
S-3	62-63	Ephemeral	1.5	0	59	0.002	25
S-4	64-65	Intermittent	2	0	175	0.008	18
Total Stream					**4,729**	**1.120**	

*photos are located in Appendix B

Mud Creek originates within the Study Area from a culvert under Hallock Young Road. Mud Creek is flowing north through the Study Area and draining east into Meander Creek Reservoir. The assessment of the on-site portion of Mud Creek resulted in a QHEI score of 52.75, classifying it as a Warmwater Habitat Aquatic Life Use Potential and 'Fair' using the narrative rating. A white heelsplitter mussel (*Lasmigona complanata*) was identified on-site within Mud Creek. Additionally, beaver activity was observed along the southern reach of the stream.

Stream S-1 is an ephemeral stream that appears to be either man-made or channelized. Stream S-1 originates in Wetland W-7 and flows west into Mud Creek. This stream assessed within the range for a Modified Class I Primary Headwater Habitat (PHWH) stream using the HHEI.

Stream S-2 is an ephemeral stream that is conveying sheet flow west into Mud Creek. This stream assessed as a Class I PHWH stream.

Stream S-3 is an ephemeral stream that connects Wetland W-2 to Wetland W-1, which is located along the banks of Mud Creek. Stream S-3 assessed within the range for a Class I PHWH stream.

Stream S-4 is located within Wetland W-1 and is conveying water east towards Mud Creek. This stream assessed as a Class I PHWH stream.

4.4 PONDS AND LAKES

No open water aquatic resources were identified within the Study Area.

5.0 ASSUMPTIONS AND DISCLAIMERS

The constant influence of human activity on the Study Area can result in a rapid change of ecological boundaries. Over time, natural succession and changes in hydrology can also affect their boundaries. Precision of GPS collected data is subject to variation caused by canopy cover, atmospheric interference and satellite configuration. Because slight inaccuracies are possible, all acreages and derived boundaries presented in this report are approximate.

The results and conclusions contained in this report apply to the year and date in which the data were collected. This report is not considered officially valid until it is approved by the USACE. The report is then valid for a period of five years. Refer to the USACE's Regulatory Guidance Letter # 94-1 (23 May 1994).

REFERENCES

Anderson, D.M. 1982. *Plant Communities of Ohio: A Preliminary Classification and Description*. Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Columbus, Ohio.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe 1979. *Classifications of Wetlands and Deepwater Habitats of the United States*. FWS/OBS-79/31. U.S. Department of Interior, Fish and Wildlife Service, Office of Biological Services, Washington, D.C.

Environmental Laboratory 1987. *Corps of Engineers Wetlands Delineation Manual.* Technical Report Y-87-1. US Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

Gordon, R.B. 1966. *Original Vegetation of Ohio at the Time of the Earliest Land Surveys.* Bulletin of the Ohio Biological Survey, Vol III, No. 2. The Ohio State University, Columbus.

Gordon, R. B. 1969. *The Natural Vegetation of Ohio in Pioneer Days*. Ohio Biological Survey Bulletin (New Series) 3:1-109.

Lichvar, R.W., M. Butterwick, N.C. Melvin, and W.N. Kirchner 2014. The National Wetland Plant List. 2014. Update of Wetland Ratings. Phytoneuron 2014-41: 1-42.

Mack, J.J. 2000. *ORAM v. 5.0 Quantitative Score Calibration*. Ohio Environmental Protection Agency, Division of Surface Water, Wetland Ecology Unit, Columbus, Ohio.

Mack, J.J. 2001. *Ohio Rapid Assessment Method for Wetlands v. 5.0, User's Manual and Scoring Forms*. Ohio EPA Technical Report WET/2001-1. Ohio Environmental Protection Agency, Division of Surface Water, 401/Wetland Ecology Unit, Columbus, Ohio.

Munsell Color 2009. *Munsell Soil Color Charts* (Rev. ed.). Grand Rapids, Michigan.

Ohio EPA 2012. *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams*. Final Version 3.0. Ohio EPA Division of Surface Water, Columbus, Ohio. 117 pp.

Ohio EPA 2006. *Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (QHEI).* Ohio EPA Division of Surface Water, Columbus, Ohio. 26 pp.

Rapanos 2006. Rapanos vs. United States; June Carabell, et al., Petitioners vs. United States Army Corps of Engineers.547 U.S. 715. 2006.

Solid Waste Agency of Northern Cook County vs. U.S. Army Corps of Engineers.531 U.S. 159. 2001.

USACE 1994. Regulatory Guidance Letter 94-01. Expiration of Geographic Jurisdictional Determinations.

USACE 2012. Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Northcentral and Northeast (version 2.0).Technical Report ERDC/EL TR-12-9.US Army Engineer Research and Development Center, Vicksburg, Mississippi.

USACE and USEPA 2007. U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook. Washington, D.C.

USDA 2010. Web Soil Survey. USDA. Natural Resource Conservation Service. http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm.

USDA 1982. *National List of Scientific Plant Names*. 1. List of plant names; 2. Synonymy SCS-13 General Notes and Selected References TP-159. U.S. Department of Agriculture, Washington, DC: 416- 438.

Visual Color Systems. 2004. The Globe Soil Color Book. Mountaindale, New York

Woods, A.J., J.M. Omernick, C.S. Brockman, T.D. Gerber, W.D. Hosteter and S.H. Azevedo. 1998. *Ecoregions of Indiana and Ohio*. U.S. Geological Survey, Denver, Colorado.

Appendix A:

Figures

Figure 1. Location of Site on Highway Map of Trumbull County, Ohio. TetraTech - Lordstown.

Project Area

0 750 1,500 3,000 Feet

0 250 500 1,000 Meters

EnviroScience
Excellence In Any Environment

Date: 9/9/2016 Path: P:\10_Projects\T\TetraTech\470NR\8940_Lordstown\GIS_Lordstown\EasternSect\Map1_Location.mxd

Basemap courtesy of Esri.

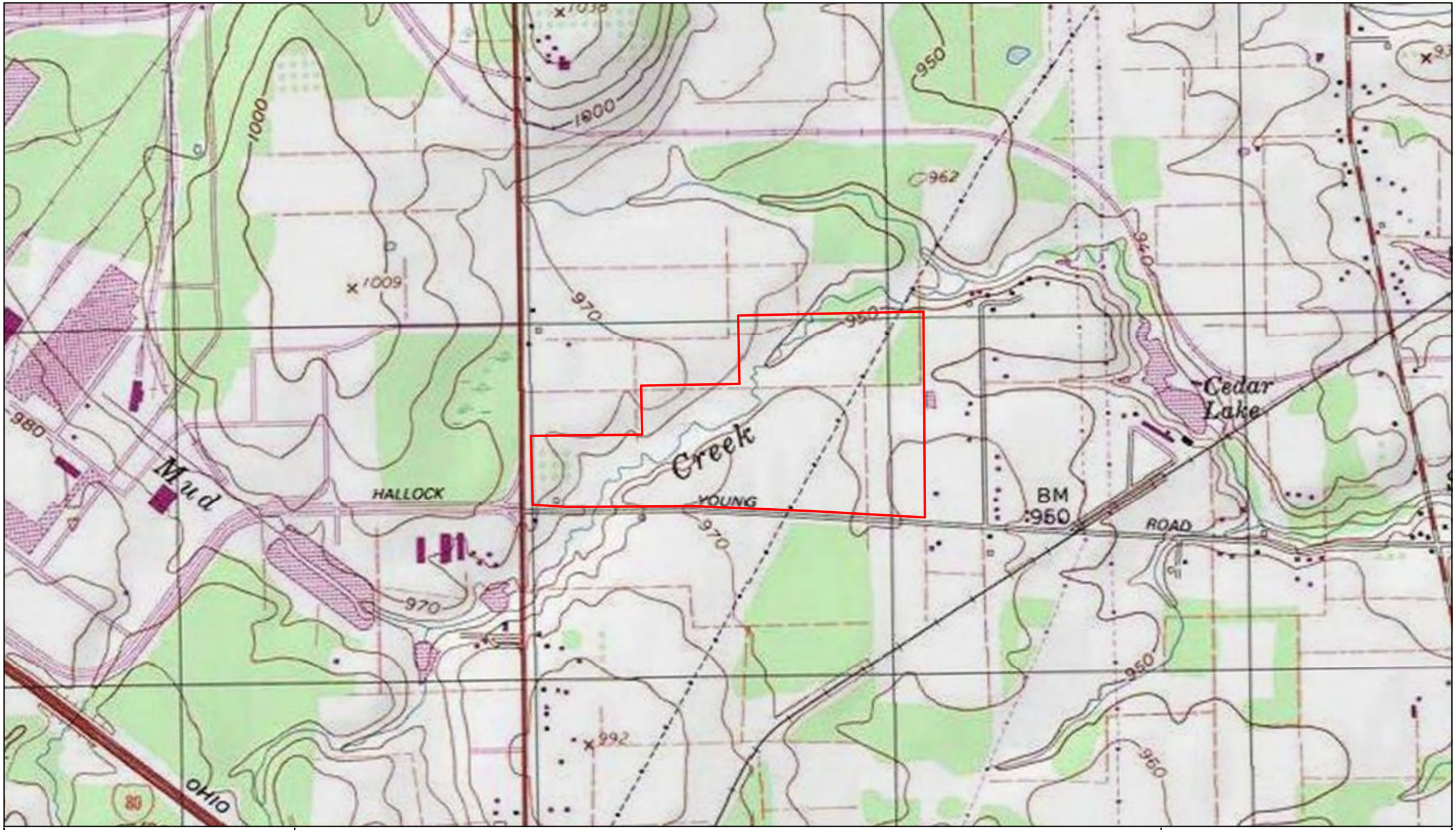


Figure 2. USGS 7.5-minute Topographic Map of Warren Quadrangle. TetraTech - Lordstown.

Project Area

0 750 1,500 3,000 Feet

0 250 500 1,000 Meters

EnviroScience
Excellence In Any Environment

Date: 9/9/2016 Path: P:\10_Projects\T\TetraTech\470NR\8940_Lordstown\GIS_Lordstown\EasternSect\Map2_Topo.mxd

Basemap courtesy of National Geographic Society (2013).

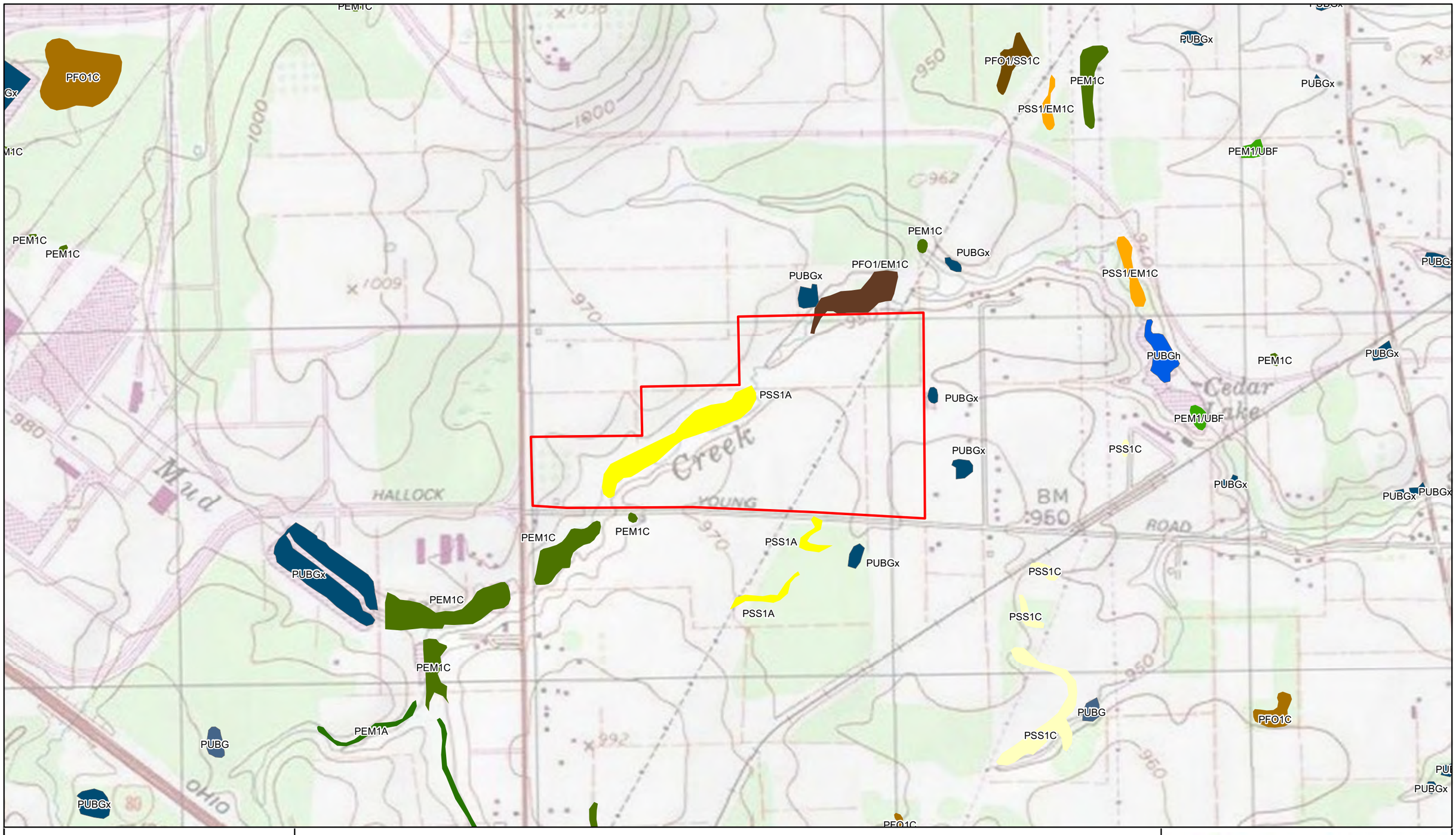


Figure 3.
NWI Map of Site (Warren Quadrangle).
TetraTech - Lordstown.

Project Area

0 750 1,500 3,000 Feet

0 250 500 1,000 Meters

EnviroScience
Excellence In Any Environment

Date: 9/9/2016 Path: P:\10_Projects\TTetraTech\470NR\8940_Lordstown\GIS_Lordstown\EasternSect\Map3_NWI.mxd

Basemap courtesy of National Geographic Society (2013). NWI data courtesy of USFWS (current as of June 1, 2016).

Figure 4.
Soil Map of Site in Trumbull County, Ohio.
TetraTech - Lordstown.

Project Area

0 750 1,500 3,000 Feet

0 250 500 1,000 Meters

EnviroScience
Excellence In Any Environment

Basemap courtesy of Esri. Soil data courtesy of SSURGO.

Date: 9/9/2016 Path: P:\10_Projects\TTetraTech\470NR\8940_Lordstown\GIS_Lordstown\EasternSect\Map4_Soil.mxd

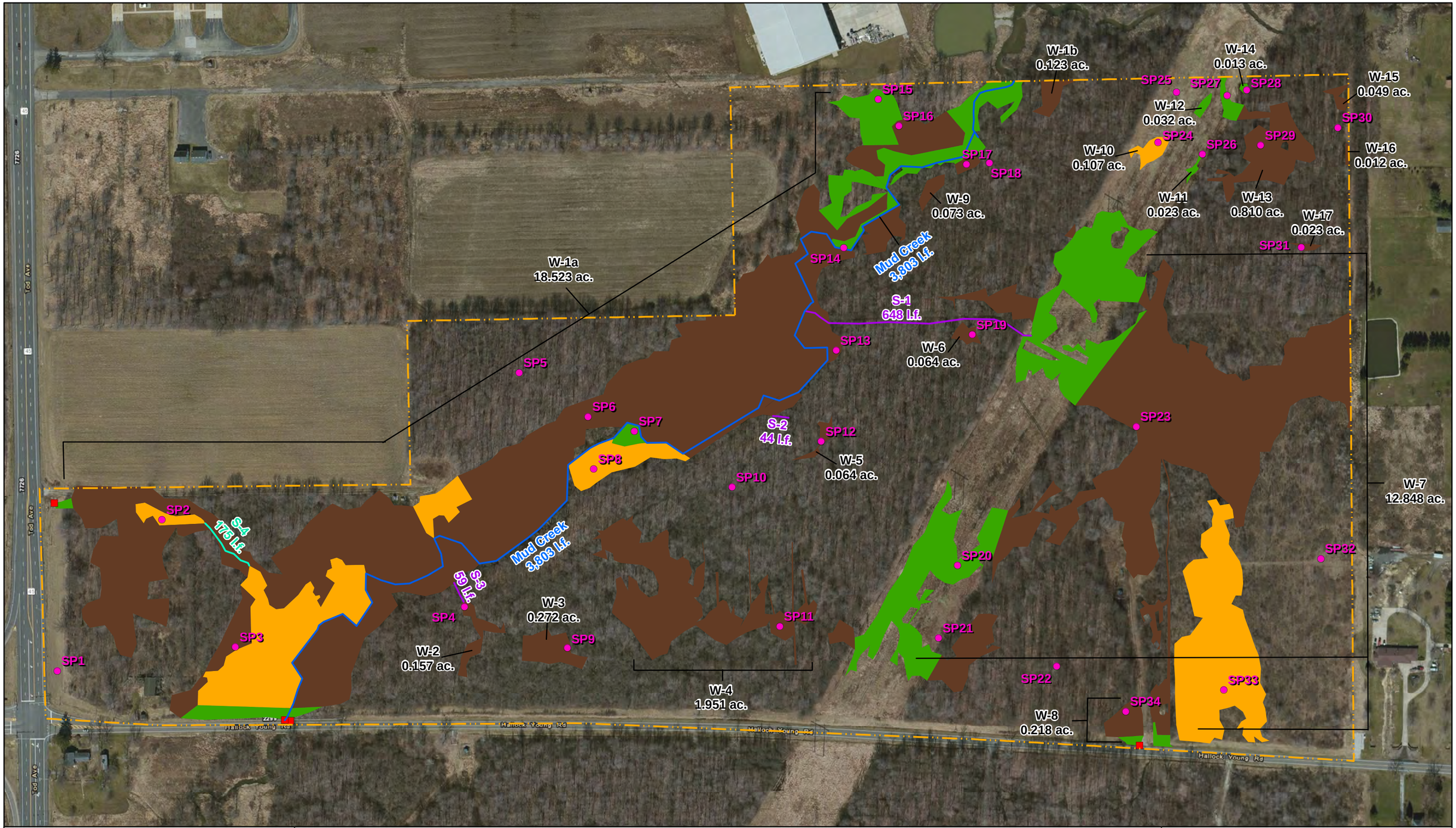


Figure 5. Site Map of
Wetlands and Other Water Resources.
TetraTech - Lordstown.

Sample Plot
Culvert
Project Area
Stream (Ephemeral)
Stream (Intermittent)
Stream (Perennial)
Wetland (PEM)
Wetland (PFO)
Wetland (PSS)

0 250 500 1,000 Feet
0 75 150 300 Meters

EnviroScience
Excellence In Any Environment

Date: 12/10/2016 Path: P:\10_Projects\T\TetraTech\470NR\8940_Lordstown\GIS_Lordstown\EasternSect\Map5_Site_REV.mxd

Basemap courtesy of Esri.

Figure 6.
FEMA Map of Site in Trumbull County, Ohio.
TetraTech - Lordstown.

100-Year Flood Zone
Project Area

0 750 1,500 3,000 Feet
0 250 500 1,000 Meters

EnviroScience
Excellence In Any Environment

Basemap courtesy of Esri. Flood data courtesy of FEMA.

Date: 9/9/2016 Path: P:\10_Projects\TTetraTech\470NR\8940_Lordstown\GIS_Lordstown\EasternSect\Map6_FEMA.mxd

Appendix B:

Photographs

Photo 1. Sample Plot 1 representing mowed field.

Photo 2. Sample Plot 2 within a PSS portion of Wetland W-1a.

Photo 3. Sample Plot 3 within a PFO portion of Wetland W-1a.

Photo 4. Sample Plot 4 within Wetland W-2.

Photo 5. Sample Plot 5 representing a forest community.

Photo 6. Sample Plot 6 within a PFO portion of Wetland W-1a.

Photo 7. Sample Plot 7 within a PEM portion of a Wetland W-1a

Photo 8. Sample Plot 8 within a PSS portion of Wetland W-1a.

Photo 9. Sample Plot 9 within Wetland W-3.

Photo 10. Sample Plot 10 representing a forest community.

Photo 11. Sample Plot 11 in Wetland W-4.

Photo 12. Sample Plot 12 within Wetland W-5.

Photo 13. Sample Plot 13 within a PFO portion of Wetland W-1a.

Photo 14. Sample Plot 14 within a PEM portion of Wetland W-1a.

Photo 15. Sample Plot 15 within a PEM portion of Wetland W-1a.

Photo 16. Sample Plot 16 within a PFO portion of Wetland W-1a.

Photo 17. Sample Plot 17 within a PFO portion of Wetland W-1a.

Photo 18. Sample Plot 18 representing a forest community.

Photo 19. Sample Plot 19 in Wetland W-6.

Photo 20. Sample Plot 20 within a PEM portion of Wetland W-7.

Photo 21. Sample Plot 21 representing an old field community.

Photo 22. Sample Plot 22 representing a forest community.

Photo 23. Sample Plot 23 in a PFO portion of Wetland W-7.

Photo 24. Sample Plot 24 within Wetland W-10.

Photo 25. Sample Plot 25 representing an open field community.

Photo 26. Sample Plot 26 within W-11.

Photo 27. Sample Plot 27 within the PEM portion of Wetland W-13.

Photo 28. Sample Plot 28 within Wetland W-14.

Photo 29. Sample Plot 29 within the PFO portion of Wetland W-13.

Photo 30. Sample Plot 30 representing a forest community.

Photo 31. Sample Plot 31 within Wetland W-17.

Photo 32. Sample Plot 32 representing an open field community.

Photo 33. Sample Plot 33 within the PSS portion of Wetland W-7.

Photo 34. Sample Plot 34 within Wetland W-8.

Photo 35. Wetland W-1, PEM, facing northeast.

Photo 36. Wetland W-1, PSS, facing east.

Photo 37. Wetland W-1, PFO, facing east.

Photo 38. Wetland W-2 facing southeast.

Photo 39. Wetland W-3 facing west.

Photo 40. Wetland W-4 facing west.

Photo 41. Wetland W-5 facing south.

Photo 42. Wetland W-6 facing west.

Photo 43. Wetland W-7, PEM, facing west.

Photo 44. Wetland W-7, PFO, facing west.

Photo 45. Wetland W-8 facing south.

Photo 46. Wetland W-9 facing north.

Photo 47. Wetland W-10 facing northwest.

Photo 48. Wetland W-11 facing southwest.

Photo 49. Wetland W-12 facing northeast.

Photo 50. Wetland W-13, PFO, facing east.

Photo 51. Wetland W-13, PEM, facing south.

Photo 52. Wetland W-14 facing north.

Photo 53. Wetland W-15 facing north.

Photo 54. Wetland W-16 facing north.

Photo 55. Wetland W-17 facing east.

Photo 56. Mud Creek facing south, upstream.

Photo 57. Mud Creek facing north, downstream.

Photo 58. Stream S-1 facing east, upstream.

Photo 59. Stream S-1 facing west, downstream.

Photo 60. Stream S-2 facing east, upstream.

Photo 61. Stream S-2 facing west, downstream.

Photo 62. Stream S-3 facing southeast, upstream.

Photo 63. Stream S-3 facing northwest, downstream.

Photo 64. Stream S-4 facing northwest, upstream.

Photo 65. Stream S-4 facing southeast, downstream.

Attachment F – Species Documentation

USFWS Correspondence, dated July 15, 2022
USFWS Correspondence, dated January 4, 2017
ODNR Correspondence, dated July 14, 2022
ODNR Correspondence, dated January 3, 2017
ODNR Correspondence, dated March 9, 2017

From: Seymour, Megan
To: Gresock, Lynn
Cc: Steven Remillard
Subject: Re: [EXTERNAL] RE: Request for Confirmation - Trumbull Energy Center - TAILS 3 03E15000-2017-TA-0415
Date: Friday, July 15, 2022 9:42:52 AM

CAUTION: External Email

Lynn,
Our prior correspondence on this project, most recently dated July 11, 2017, is still relevant. We have no additional comment at this time. Thank you for checking in with us.
Best,
Megan

Megan Seymour
Wildlife Biologist
U.S. Fish and Wildlife Service
Ohio Ecological Services Field Office
4625 Morse Rd., Suite 104
Columbus, OH 43230
614-416-8993 ext. 116 (office)
614-542-7502 (cell)

From: Gresock, Lynn <LGresock@haleyaldrich.com>
Sent: Thursday, July 14, 2022 11:58 AM
To: Seymour, Megan <megan_seymour@fws.gov>
Cc: Steven Remillard <steve@cleanenergyfuture.com>
Subject: [EXTERNAL] RE: Request for Confirmation - Trumbull Energy Center - TAILS 3 03E15000-2017-TA-0415

In checking with the field office, it sounds like you are in the middle of some pretty intensive field time, so I'm not sure if you know when you might be able to look this request. If it's helpful, we reran an iPaC for the site, which did not show any new species. Good luck with your bat surveys, and let me know if you will be able to respond. Thanks so much!

From: Gresock, Lynn
Sent: Monday, July 11, 2022 6:13 PM
To: 'Seymour, Megan' <megan_seymour@fws.gov>
Cc: Steven Remillard <steve@cleanenergyfuture.com>

Subject: Request for Confirmation - Trumbull Energy Center - TAILS 3 03E15000-2017-TA-0415

Megan, I hope all is well. It was interesting to note, when I went to attach our former correspondence, that it is dated exactly on this day, although some years ago! The project will be moving forward in the near future, and hopes to receive confirmation that your prior correspondence still reflects conditions for the Trumbull Energy Center site. Thanks so much!

Lynn Gresock
Principal Consultant

Haley & Aldrich, Inc.
3 Bedford Farms Drive|Suite 301
Bedford, New Hampshire 03110

T: (603) 391.3325
C: (978) 302.7833

www.haleyaldrich.com

Bruce, Jackie

From: Gresock, Lynn
Sent: Wednesday, January 04, 2017 9:49 AM
To: Bruce, Jackie
Subject: FW: Trumbull Energy Center - Electric Generating Facility, Village of Lordstown

From: susan_zimmermann@fws.gov [mailto:susan_zimmermann@fws.gov] **On Behalf Of** Ohio, FW3
Sent: Wednesday, January 04, 2017 9:36 AM
To: Gresock, Lynn <Lynn.Gresock@tetratech.com>
Cc: nathan.reardon@dnr.state.oh.us; kate.parsons@dnr.state.oh.us
Subject: Trumbull Energy Center - Electric Generating Facility, Village of Lordstown

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

TAILS# 03E15000-2017-TA-0415

Dear Ms. Gresock,

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

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

FEDERALLY LISTED SPECIES COMMENTS: All projects in the State of Ohio lie within the range of the federally endangered **Indiana bat** (*Myotis sodalis*) and the federally threatened **northern long-eared bat** (*Myotis septentrionalis*). In Ohio, presence of the Indiana bat and northern long-eared bat is assumed wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested

habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves and abandoned mines.

Female Indiana bats exhibit strong site fidelity to summer roosting and foraging areas, meaning that they return to the same area, and often the same trees, to roost, year after year. Because the project will result in a large amount of forest clearing relative to the available habitat in the immediately surrounding area, habitat removal could result in significant impacts to Indiana bats. Because of this, the proposed project may result in indirect adverse effects to Indiana bats, even if tree clearing is conducted during the winter season when Indiana bats are not present. **Therefore, we recommend that a summer survey be conducted to determine presence or probable absence of Indiana bats at the project site.** The summer survey must be conducted by an approved surveyor and be designed and conducted in coordination with the Endangered Species Coordinator for this office. In Ohio, summer surveys must be conducted between June 1 and August 15. We recommend that any Indiana bats captured, especially reproductively active females, be monitored through radio-tracking to determine roost locations.

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 also warranted. Portal surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Endangered Species Coordinator for this office.

Survey results should be coordinated with this office prior to initiation of any work. Based on the results of the survey(s), we will evaluate potential impacts to the Indiana bat from the proposed project. If a summer survey documents probable absence of Indiana bats, the 4(d) rule for the northern long-eared bat could be applied (see http://www.fws.gov/midwest/endangered/mammals/nleb/index.html).

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

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, proposed, or candidate species. Should the project design change, or during the term of

this action, additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, consultation with the Service should be initiated to assess any potential impacts

.

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

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

Sincerely,

Dan Everson
Field Office Sup

ervisor

cc: Nathan Reardon, ODNR-DOW

Kate Parson, ODNR-DOW

From: Nathan.Reardon@dnr.ohio.gov
To: Gresock, Lynn
Cc: Steven Remillard; John.Kessler@dnr.ohio.gov
Subject: RE: Trumbull Energy Center - Request for Confirmation - 17-104
Date: Thursday, July 14, 2022 8:11:47 AM
Attachments: image003.png
image005.png

CAUTION: External Email

If there are no new proposed impacts from the original submission in 2017, the comments from 2017 are still valid. Any restrictions or requests for surveys would still apply.

Nathan Reardon
Compliance Coordinator
ODNR Division of Wildlife
2045 Morse Road
Columbus, OH 43229
Phone: 614-265-6741
Email: nathan.reardon@dnr.ohio.gov

Support Ohio's wildlife. Buy a license or stamp at wildohio.gov.

From: Gresock, Lynn <LGresock@haleyaldrich.com>
Sent: Wednesday, July 13, 2022 4:15 PM
To: Reardon, Nathan <Nathan.Reardon@dnr.ohio.gov>
Cc: Steven Remillard <steve@cleanenergyfuture.com>; Parsons, Kate <kate.parsons@dnr.state.oh.us>; Kessler, John <John.Kessler@dnr.ohio.gov>
Subject: RE: Trumbull Energy Center - Request for Confirmation - 17-104

Thanks for asking. No. I was looking for updated information/confirmation on the overall facility site, including the substation area (and pond). Let me know if that was a different file number reference. I will look back at my history in the meantime.

From: Nathan.Reardon@dnr.ohio.gov <Nathan.Reardon@dnr.ohio.gov>
Sent: Wednesday, July 13, 2022 3:46 PM
To: Gresock, Lynn <LGresock@haleyaldrich.com>
Cc: Steven Remillard <steve@cleanenergyfuture.com>; Parsons, Kate <kate.parsons@dnr.state.oh.us>; John.Kessler@dnr.ohio.gov
Subject: RE: Trumbull Energy Center - Request for Confirmation - 17-104

CAUTION: External Email

Lynn,

Are we only talking about the proposed stormwater/cooling tower wastewater pond discharge for which the attached email was referencing?

Nathan Reardon
Compliance Coordinator
ODNR Division of Wildlife
2045 Morse Road
Columbus, OH 43229
Phone: 614-265-6741
Email: nathan.reardon@dnr.ohio.gov

From: Gresock, Lynn <LGresock@haleyaldrich.com>
Sent: Monday, July 11, 2022 6:17 PM
To: Reardon, Nathan <Nathan.Reardon@dnr.ohio.gov>
Cc: Steven Remillard <steve@cleanenergyfuture.com>; Parsons, Kate <kate.parsons@dnr.state.oh.us>; Kessler, John <John.Kessler@dnr.ohio.gov>
Subject: Trumbull Energy Center - Request for Confirmation - 17-104

Nathan, I hope all is well. Please see the attached correspondence from 2017. The Trumbull Energy Center project will be moving forward in the near future, and hopes to receive confirmation that your prior correspondence still reflects conditions for the site. Thanks so much!

Lynn Gresock
Principal Consultant

Haley & Aldrich, Inc.
3 Bedford Farms Drive|Suite 301
Bedford, New Hampshire 03110

T: (603) 391.3325
C: (978) 302.7833

www.haleyaldrich.com

Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR JAMES ZEHRINGER, DIRECTOR

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

3 January 2017

Lynn Gresock
Tetra Tech, Inc.
2 Lan Dr.
Westford, MA 01886

Dear Ms. Gresock,

Per your request, I have e-mailed you a set of shapefiles with our Natural Heritage Program data for the Trumbull Energy Center project, including a one mile radius, in Lordstown Township, Trumbull County, Ohio. This data will not be published or distributed beyond the scope of the project description on the data request form.

Records included in the data layer may be for rare and endangered plants and animals, geologic features, high quality plant communities and animal assemblages. Fields included are scientific and common names, state and federal statuses, as well as managed area and date of the most recent observation. State and federal statuses are defined as: E = endangered, T = threatened, P = potentially threatened, SC = species of concern, SI = special interest, A = recently added to inventory with a state status not yet determined, X = presumed extirpated from Ohio, FE = federal endangered, FT = federal threatened, FC = federal candidate species, and FSC = federal species of concern.

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

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

Sincerely,

Debbie Woischke

Debbie Woischke
Ohio Natural Heritage Program

Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR JAMES ZEHRINGER, DIRECTOR

Office of Real Estate
Paul R. Baldridge, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6649
Fax: (614) 267-4764

March 9, 2017

Lynn Gresock
Tetra Tech Inc.
661 Anderson Drive
Pittsburgh, PA 15220

Re: 17-104; Threatened and Endangered Species Review Information Request, Trumbull Energy Center

Project: The proposed project involves the construction of a 940-megawatt natural gas-fired combined cycle electric generating facility.

Location: The proposed project is located in Lordstown Township, Trumbull 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 Natural Heritage Database has the following record at or within a one mile radius of the project area:

Great Blue Heron Rookery

The review was performed on the project area you specified in your request as well as an additional one-mile radius. Records searched date from 1980. This information is provided to inform you of features present within your project area and vicinity. Additional comments on some of the features may be found in pertinent sections below.

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. Although all types of plant communities have been surveyed, we only maintain records on the highest quality areas.

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

The DOW recommends that impacts to 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 range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species. The following species of trees have relatively high value as potential Indiana bat roost trees to include: shagbark hickory (*Carya ovata*), shellbark hickory (*Carya laciniosa*), bitternut hickory (*Carya cordiformis*), black ash (*Fraxinus nigra*), green ash (*Fraxinus pennsylvanica*), white ash (*Fraxinus americana*), shingle oak (*Quercus imbricaria*), northern red oak (*Quercus rubra*), slippery elm (*Ulmus rubra*), American elm (*Ulmus americana*), eastern cottonwood (*Populus deltoides*), silver maple (*Acer saccharinum*), sassafras (*Sassafras albidum*), post oak (*Quercus stellata*), and white oak (*Quercus alba*). Indiana bat roost trees consists of trees that include dead and dying trees with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. However, Indiana bats are also dependent on the forest structure surrounding roost trees. If suitable habitat occurs within the project area, the DOW recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, the DOW recommends cutting occur between October 1 and March 31. If suitable trees must be cut during the summer months, the DOW recommends a net survey be conducted between June 1 and August 15, prior to any cutting. Net surveys should incorporate either nine net nights per square 0.5 kilometer of project area, or four net nights per kilometer for linear projects. If no tree removal is proposed, this project is not likely to impact this species.

The project is within the range of the clubshell (*Pleurobema clava*), a state endangered and federally endangered mussel, the snuffbox (*Epioblasma triquetra*), a state endangered and federally endangered mussel, and the black sandshell (*Ligumia recta*), a state threatened mussel. 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 (2016), 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 10 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 Ohio Mussel Survey Protocol. The Ohio Mussel Survey Protocol (2016) can be found at:

http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/licenses%20&%20permits/OH%20Mussel%20Survey%20Protocol.pdf

The project is within the range of the northern brook lamprey *(Ichthyomyzon fossor*), a state endangered fish, and the mountain brook lamprey (*Ichthyomyzon greeleyi*), a state endangered fish. The DOW recommends no in-water work in perennial streams from April 15 to June 30 to

reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed, the project is not likely to impact these or other aquatic species.

The project is within the range of the eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*), a state endangered species and a federal species of concern. Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size to provide suitable habitat, this project is not likely to impact this species.

The project is within the range of the eastern massasauga (*Sistrurus catenatus*), a state endangered and a federally threatened snake species. The eastern massasauga uses a range of habitats including wet prairies, fens, and other wetlands, as well as drier upland habitat. Due to the location, and that the eastern massasauga has been determined to not be present at this location, 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 present at the project site and within the vicinity of the project area, this project is not likely to impact this species.

The project is within the range of the northern harrier (*Circus cyaneus*), 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 May 15 to August 1. If this habitat will not be impacted, this 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 to 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 to 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 black bear (*Ursus americanus*), a state endangered species. Due to the mobility of this species, the 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 comments.

The local floodplain administrator should be contacted concerning the possible need for any floodplain permits or approvals for this project. Your local floodplain administrator contact information can be found at the website below.

http://water.ohiodnr.gov/water-use-planning/floodplain-management#PUB

ODNR appreciates the opportunity to provide these comments. Please contact John Kessler at (614) 265-6621 if you have questions about these comments or need additional information.

John Kessler
ODNR Office of Real Estate
2045 Morse Road, Building E-2
Columbus, Ohio 43229-6693
John.Kessler@dnr.state.oh.us

Attachment G – Transmittal Notice to Appropriate Officials

Clean Energy Future – Trumbull, LLC Trumbull Energy Center Electrical Interconnection, Letter of Notification Application, Ohio Power Siting Board Case No. 22-697-EL-BLN

Clean Energy Future-Trumbull, LLC is proposing to construct the Trumbull Energy Center Electrical Interconnection (TEC Electrical Interconnection) Village of Lordstown, Trumbull County. The TEC Electrical Interconnection will consist of three consolidated generator leads that will extend from the Trumbull Energy Center's on-site switchyard approximately 0.25-mile within a 100-foot wide right-of-way supported on three vertical, monopole dead-end structures; and the new 3-breaker ringbus, proposed on approximately four (4) acres of land located adjacent to the FirstEnergy 345-kV Highland-Hanna circuit into which the generator leads interconnect. The TEC Electrical Interconnection will be capable of delivering the TEC's maximum gross 940-megawatt capacity to the FirstEnergy 345-kV Highland-Hanna circuit serving the electric needs of northeast Ohio. You are receiving this copy as required by Ohio Administrative Code ("O.A.C.") Rule 4906-3-07(A)(1). This electrical interconnection was previously approved. However due to the impacts of the global pandemic, construction was delayed, but the project is now ready to proceed. **There are no changes in the proposed TEC Electrical Interconnection from that previously approved**.

In accordance with Ohio Revised Code Section 4906.03(F)(3), this project falls within the requirements for an accelerated review by the Ohio Power Siting Board ("OPSB"). A copy of the Letter of Notification application that has been filed today with the OPSB for its review and approval in compliance with Ohio Administration Code Rule 4906-6-07(A)(1), along with all filings in this case, can be located at https://dis.puc.state.oh.us/CaseRecord.aspx?CaseNo=22-697&x=0&y=0. You may request a paper copy of the Application by contacting Teresa Orahood at (614) 227-4821 or by responding to this email.

If you have any questions regarding this project, please contact Steve Remillard at 508-579-6317 or sremillard@enervenresources.com.

Dylan F. Borchers
Partner
dborchers@bricker.com
t:*614.227.4914*
f:*614.227.2390*
[v-card]

Bricker&Eckler
ATTORNEYS AT LAW

100 South Third Street
Columbus, OH 43215-4291
www.bricker.com

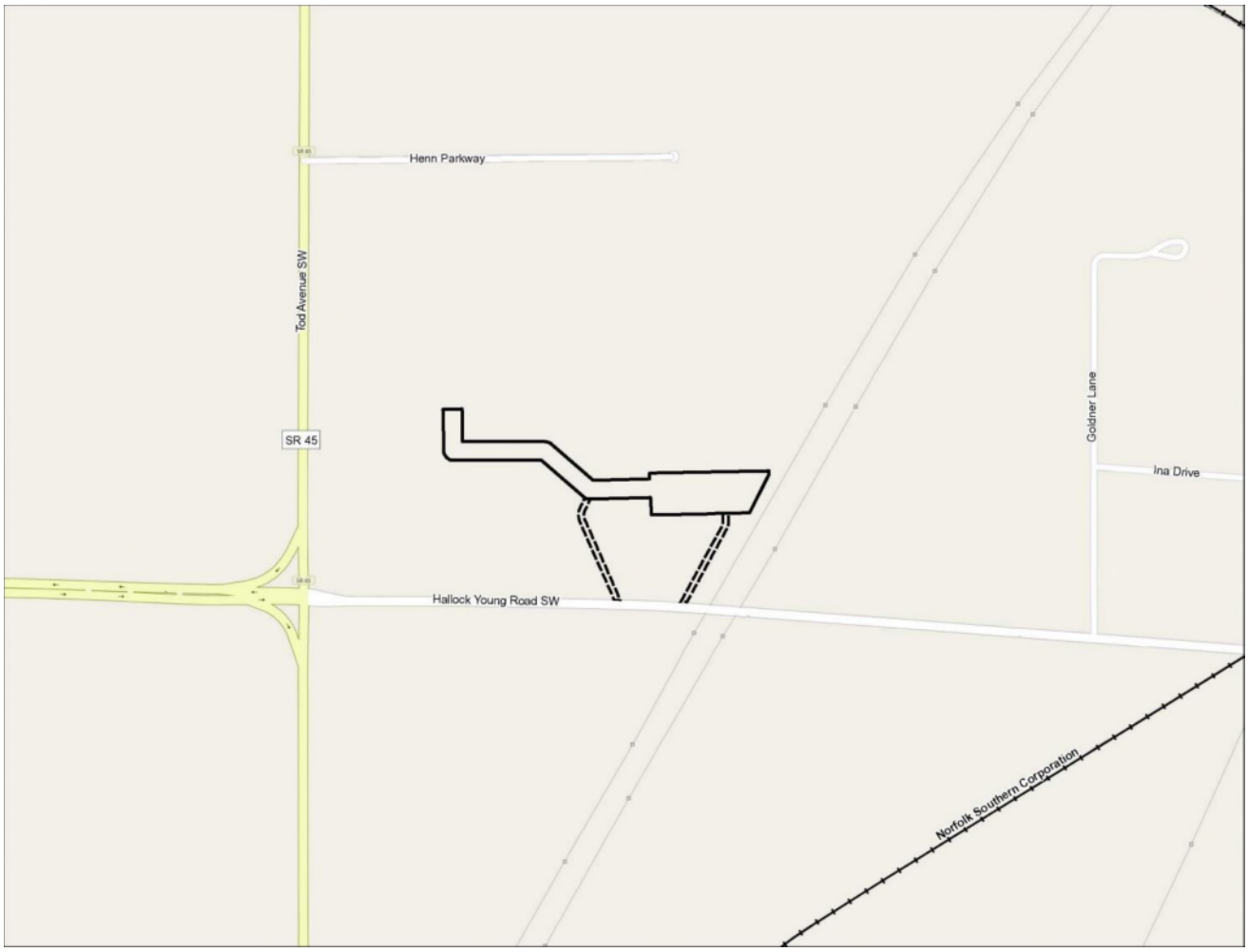
We've proudly earned Mansfield Rule 4.0 Certified Plus Status. *Learn more* about how law firms like ours are committing to operationalizing diversity, equity and inclusion and making meaningful progress.

Attachment H – Newspaper Notice

Notice of Proposed Major Utility Facility (New Interconnection Facility Construction)

Clean Energy Future–Trumbull, LLC (CEF-T) is planning to construct the Trumbull Energy Center Electrical Interconnection (TEC Electrical Interconnection) Village of Lordstown, Trumbull County, Ohio. The TEC Electrical Interconnection will consist of three consolidated generator leads that will extend from the Trumbull Energy Center's on-site switchyard approximately 0.25-mile within a 100-foot wide right-of-way supported on three vertical, monopole dead-end structures; and the new 3-breaker ringbus, proposed on approximately four (4) acres of land located adjacent to the FirstEnergy 345-kV Highland-Hanna circuit into which the generator leads interconnect. The TEC Electrical Interconnection will be capable of delivering the TEC's maximum gross 940-megawatt capacity to the FirstEnergy 345-kV Highland-Hanna circuit.

The location of the proposed TEC Electrical Interconnection is shown on the map below:



A Letter of Notification (LON) has been filed with the Ohio Power Siting Board (Board) as Case No. 22-697-EL-BLN in order to construct, operate and maintain the proposed interconnection facility described above.

The following public officials were served a complete copy of the LON:

Village of Lordstown Mayor Arno Hill; Village of Lordstown; Planning & Zoning Administrator/Economic Development Director Kellie Bordner; Trumbull County Commissioners Frank S. Fuda, Mauro Cantalamessa, and Niki Frenchko; Trumbull County Engineer Randy L. Smith and Gary Schaffer; Julie Green, Director of the Trumbull County Planning Commission; and Amy Reeher, District Administrator of the Trumbull Soil & Water Conservation District.

The LON is available for public inspection at the Warren-Trumbull County Public Library, Lordstown Branch Library, 1471 Salt Springs Road, Warren, Ohio 44481.

A copy of the LON is located on CEF-T's web page at http://cleanenergyfuture.com/clean-energy-future-in-ohio/. A copy of the Letter of Notification, along with all documents filed, may be viewed online at https://dis.puc.state.oh.us/CaseRecord.aspx?CaseNo=22-697&x=0&y=0.

The Ohio Power Siting Board will review the Letter of Notification in accordance with Ohio Revised Code Section 4906.10(A) which states that the Board shall not grant a certificate for the construction, operation, and maintenance of a major utility facility, either as proposed or as modified by the Board, unless it finds and determines all of the following: (1) The basis of the need for the facility; (2) The nature of the probable environmental impact; (3) That the facility represents the minimum adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives, and other pertinent considerations; (4) In the case of an electric transmission line, that the facility is consistent with regional plans for expansion of the electric power grid of the electric systems serving this state and interconnected utility systems and that the facility will serve the interests of electric system economy and reliability; (5) That the facility will comply with Chapters 3704, 3734, and 6111 of the Revised Code and all rules and standards adopted under those chapters and under Sections 1501.33, 1501.34, and 4561.32 of the Revised Code. In determining whether the facility will comply with all rules and standards adopted under Section 4561.32 of the Revised Code, the board shall consult with the office of aviation of the division of multi-modal planning and programs of the department of transportation under Section 4561.341 of the Revised Code; (6) That the facility will serve the public interest, convenience, and necessity; (7) In addition to the provisions contained in divisions (A)(1) to (6) of this section and rules adopted under those divisions, what its impact will be on the viability as agricultural land of any land in an existing agricultural district established under Chapter 929 of the Revised Code that is located within the site and alternative site of the proposed major utility facility; rules adopted to evaluate impact under Division (A)(7) of this section shall not require the compilation, creation, submission, or production of any information, document, or other data pertaining to land not located within the site and alternative site; and (8) That the facility incorporates maximum feasible water conservation practices as determined by the board, considering available technology and the nature and economics of the various alternatives.

Affected persons may file comments or motions to intervene in accordance with Ohio Administrative Code Rule 4906-2-12 with the Board up to ten (10) days following the publication of this notice. Comments or motions should be addressed to the Ohio Power Siting Board, 180 East Broad Street, Columbus, Ohio 43215-3793 and cite Case No. 22-697-EL-BLN. Persons may contact the Ohio Power Siting Board at 1-866-270-OPSB (6772) or contactOPSB@puc.state.oh.us.

Summary: Letter of Notification for the Trumbull Energy Center Electrical Interconnection electronically filed by Teresa Orahood on behalf of Dylan F. Borchers