Canisteo Wind Transmission Facility

Case No. 19-T-~~_____~~-0041

Exhibit 4

ENVIRONMENTAL IMPACT

Revision 1

EXHIBIT 4 - ENVIRONMENTAL IMPACT

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ENVIRONMENTAL IMPACT

This Exhibit addresses the requirements of 6 NYCRR § 86.5.

Introduction

Canisteo Wind Energy, LLC (the Applicant) (CWE) proposes to construct and operate the Canisteo Wind Transmission Facility consisting of an approximately 15-mile 115 kV overhead Transmission Facility and a new point-of-interconnection substation (hereinafter referred to as the Transmission Facility). The Transmission Facility will connect the proposed Canisteo Wind Energy Facility in the Towns of Canisteo, Cameron, Greenwood, Jasper, West Union, and Troupsburg, Steuben County, New York (Canisteo Wind Farm DPS Case Number 16-F-0205) to the regional grid through the existing Bennett Substation in the Town of Hornellsville, Steuben County, New York (see Figure 2-1).

The Transmission Facility will be comprised of the following components:

- Approximately 15 miles of 115 kV overhead transmission line located in the Towns of Jasper, Canisteo, and Hornellsville. Structure locations where steel monopoles will be used will have a designated ROW of 80-feet. All other sections of the ROW will have a 100-foot ROW. Steel monopoles will be used in certain areas to reduce and mitigate Facility impact (e.g., farm fields);

- A collection substation in the Town of Jasper associated with CWE. The collection substation will step up electricity generated by CWE turbines from 34.5 kV to 115 kV. The “low side” of the collection substation (i.e., 34.5 kV) falls under New York Public Service Law (PSL) Article 10, while the “high side” (i.e., 115 kV) of the collection substation falls under PSL Article VII; and

- A point of interconnection (POI) at the existing Bennett Substation which is owned by NYSEG and located on State Route 32 in the Town of Hornellsville. The POI is anticipated to occur within an existing open switch and will not require any additional improvements.

As the Transmission Facility is greater than 100 kV and exceeds 10 miles in length, the Applicant is subject to Article VII of the Public Service Law. The proposed Transmission Facility, including the “high side” of the collection substation, is subject to 16 NYCRR Part 86, which Section 86.5 requires a statement of the impact of the proposed facility on the environment. The studies of anticipated environmental impacts are addressed herein.

The CWE Transmission Facility will comply with all applicable federal, state, and local laws, ordinances, and policies addressing impacts on the environment during construction and operation/maintenance (physical conditions, land uses, and biological resources). The CWE Transmission Facility was sited and will be constructed in a way that avoids or minimizes environmental impacts within and adjacent to the proposed right-of-way (ROW) and substation properties to the maximum extent practicable.

Field evaluations, existing data review, and agency consultations were conducted to identify, quantify, and describe existing environmental conditions in the vicinity of the Transmission Facility. Field evaluations addressed physical conditions (e.g., geology, surface waters), biological resources (e.g., vegetation, wildlife, aquatic resources), and land use (e.g., agriculture, scenic areas) in the vicinity of the Transmission Facility. Existing data collected and analyzed as part of the review included, but were not limited to, Steuben County Soil Surveys, New York State Department of Environmental Conservation (NYSDEC) Freshwater Wetland Maps, U.S. Fish & Wildlife Service (USFWS) National Wetland Inventory (NWI) Maps, recent high resolution aerial photography (April, 2018), U.S. Geological Survey (USGS) topographic quadrangle maps, and Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) floodplain mapping. In addition, data collected for studies related to the Canisteo Wind Farm (e.g., Wetland Delineation, Invasive Species Control Plan) were also reviewed. Consultations were conducted with local municipalities, the New Yok State Department of Public Service (NYSDPS), NYS Department of Environmental Conservation, New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP), New York State Department of Agriculture and Markets (NYSDAM), U.S. Army Corps of Engineers (USACE), and the USFWS, and included letters, telephone and electronic communication, off-site meetings, and on-site field reviews.

The results of these investigations are presented below by resource type. The descriptions of existing conditions are followed by an assessment of the potential impacts to each resource that may result from construction and operation of the CWE Transmission Facility. Measures to reduce impacts are described in this Exhibit.

Construction and Operational Methods/Procedures

As previously stated, the Applicant proposes to construct, operate, and maintain the Transmission Facility to transmit power from the proposed Canisteo Wind Energy Facility to the regional power grid. The transmission line will run approximately 15 miles from the proposed collection substation (in the Town of Jasper), through the Towns of Jasper, Canisteo, and Hornellsville and the Village of Canisteo to the POI substation in the Town of Hornellsville. The transmission line will terminate at the existing NYSEG Bennett Substation property. The proposed route is depicted in Figures 2-1 and 2-3.

Right-of-Way and Land Ownership

The proposed collection substation, located in the Town of Jasper, will be constructed entirely within one privately owned parcel (305.00-03-003.000), leased by the Applicant. The POI substation, located in the Town of Hornellsville, is located on land owned by NYSEG. Land along the Transmission Facility is privately owned. The Applicant has obtained easements, or is in advanced stage of negotiations, to construct, operate, and maintain the Transmission Facility and ROW from each property owner along the Transmission Facility route.

Construction Methods and Schedule

The CWE Transmission Facility will be constructed as reflected on the Preliminary Design Drawings (see Exhibit 5). A detailed construction schedule will not be finalized until final Facility approval is granted and contracts have been awarded to all contractors. Upon receipt of all required permits, and approvals and following completion of all required notifications, the Applicant's contractor will prepare the site for construction. All construction activities will be conducted in accordance with Certificate Conditions and Best Management Practices (BMPs). All contractors will also be required to adhere to the Applicant's health and safety requirements. Construction of the Project will involve the following activities:

- Installation of Stormwater Pollution Prevention Plan (SWPPP) prescribed temporary erosion and sediment controls;
- Designation of areas for vegetation clearing, trimming, and disposal;
- Site grading;
- Installation of access roads and any laydown yards;
- Excavation for tower and substation foundations;
- Installation of grounding system;
- Substation erection;
- Fence installation;
- Installation of poles;
- Wire stringing;
- Installation of permanent stormwater control structures (if needed); and
- Clean-up and restoration, including any plantings.

Substation Construction

Substation construction will involve the following activities:

- Installation of temporary erosion and sediment controls, and maintenance and protection of traffic signage (as needed);
- Designation of areas for vegetation clearing, trimming, and disposal;
- Site grading;
- Installation of access road and parking areas;
- Excavation for station foundations, conduit, and trench;
- Installation of the grounding system;
- Station erection;
- Fence installation;
- Activities related to installation of the 115-kV connection (e.g., excavation for pole foundations, pole erection); and
- Clean-up and restoration, including any plantings.

Final site restoration will be conducted as required at any remaining disturbed sites. Cleanup activities will involve removal of all debris from the site. Restoration activities will involve re-

grading disturbed soils to restore contours to their preconstruction condition or to match adjacent contours, and site stabilization and restoration. Any stockpiled topsoil will be evenly redistributed in its former location. Site stabilization and restoration will be achieved through seeding and mulching. All permanent seeding and tree and shrub planting work will be conducted during the appropriate growing season. All erosion control devices will be removed following revegetation.

Transmission Line Construction

The construction of the transmission line will require the installation of steel monopoles, wood H-frame, and wood 3-pole structures at approximately 106 locations along the route. The ROW width and location are designed to reduce impacts to the maximum extent practicable. Construction of the transmission line will involve the following activities:

- Installation and maintenance of erosion and sediment control;
- ROW preparation;
- Structure erection,
- Stringing of conductors; and
- Clean-up and restoration.

Clearing of the ROW prior to and during construction will require the use of manual and/or mechanical methods such as chainsaws, pruners, or heavy machinery. Portions of trees and other vegetation that extend into the clearing regions may be trimmed. Low-growing vegetation that is completely within the vegetation clearing area may be trimmed down to a low level or be completely removed. Trees within the ROW will be completely removed for safety and ease of access during construction. New transmission structures will be assembled and framed at each structure site. After holes are augured, poles will be directly embedded in the holes and backfilled. Blasting will only be used during pole installation if other techniques, such as auguring or hammering, are not sufficient. Upon completion of new structure erection, the conductors will be strung.

Temporary roads will be installed to provide workers and equipment access to the proposed ROW. It is anticipated that the roads will be between 12 and 16 feet wide.

The Applicant will coordinate the construction activities of all the consultants and contractors to assure that appropriate environmental standards are met. To the maximum extent possible, natural vegetation buffers will be maintained adjacent to highway crossings, streams, rivers, and wetlands. The placement of structures in wetland areas and on steep slopes will be avoided where possible. During construction and operation, the Applicant will comply with all applicable water quality standards for streams and wetlands, as required.

Description of Study Area

The study area was defined for the purposes of describing the existing environment and any potential environmental effects by resource type. For all resource analysis concerning land use and land features (geology, topography, soils, etc.), a study area of approximately 50 feet on either side of the centerline of the proposed Transmission Facility was evaluated. For ecological

resources (vegetation, wetlands, etc.), a study area of 200 feet (100 feet on either side of the centerline) was evaluated. For other resources, including visual and cultural resources (e.g., historic structures), a study area of 3 miles and 1 mile, respectively, from the centerline of the Transmission Facility was established.

Land Use

The Applicant has evaluated land/water uses within the Study Area, including the Transmission Facility ROW and the collection substation site. Land and water use around the substations and along the Transmission Facility were identified from local town codes, tax parcel maps and New York State Office of Real Property (NYSORP) classification codes, aerial photographs, and field verification during site visits conducted in 2018. Land use in the vicinity of the Transmission Facility is characterized by a mix of undeveloped forest land, successional old field and shrubland, agricultural land, wetlands, and suburban areas characterized by low to medium density residential and light commercial development.

The existing land use for each component of the Transmission Facility are described below:

Transmission Facility

The proposed transmission line will travel approximately 15 miles through the Towns of Jasper, Canisteo, and Hornellsville, and the Village of Canisteo (see Figures 2-1 and 2-3 for the proposed route). Land use in the area can be generally described as forested or agricultural with scattered residences along roadways.

The Towns of Jasper and Canisteo do not have any zoning regulations. The Town of Hornellsville and the Village of Canisteo have adopted zoning laws. A full review of local laws for each municipality is presented in Exhibit 7. (see Case Number 16-F-0205).

The transmission line runs through the Village of Canisteo for approximately 1 mile. The land uses of the parcels through which the Transmission Facility runs include agriculture, vacant land, community services, and public services. Based on the Village of Canisteo zoning map, the transmission line and associated ROW cross parcels zoned as General Commercial (C), Medium Density Residential (MDR) district and flood control zone (FCZ). See Exhibit 7 for additional information. transmission line transmission line. The existing land cover types within the ROW are summarized in Table 4-1, below.

Table 4-1. Land Cover Types Along Transmission Facility Route

Land Cover Type[1]	Acreage of ROW	Percentage of ROW
Water	0.2	<0.01%
Developed	2.2	1.2%
Forest	91.1	51.7%
Shrubland	6.5	3.7%
Agriculture	63.3	35.9%
Wetland	12.8	7.3%

[1] Source: USGS NLCD, 2011

The CWE transmission line is not anticipated to significantly affect land use. The Transmission Facility is sited in a rural area away from areas frequently used by the public. The footprint of the Transmission Facility will be limited to the pole structures and will allow for continued agricultural production.

Collection Substation Site

The collection substation and related infrastructure is proposed to be constructed on a 14.3-acre parcel in the Town of Jasper. The parcel is located along County Route (CR) 63, west of North Road. The site is bordered to the north by undeveloped land and to the south, east, and west by agricultural fields. The land surrounding the parcel is primarily forested or agricultural fields with scattered residences along roadways.

The collection substation associated with CWE is located on a parcel with minimal development in the surrounding area. Land use codes from parcel mapping indicate that land surrounding the collection substation is categorized as agricultural, rural/seasonal residences, or vacant. No impacts to land use are anticipated as a result of the construction or operation of the collection substation.

The POI substation associated with CWE is a currently existing substation south of the City of Hornell. Minimal construction activities are planned for this site, therefore, no impacts to land use are anticipated as a result of the Transmission Facility.

Floodplains

The Federal Emergency Management Act (FEMA) flood hazard maps (https://msc.fema.gov/portal/home) indicate that portions of the Transmission Facility and associated ROW are located in Zone AE, which is an area that has a 1% probability of flooding every year (also known as a "100-year floodplain"). The floodplains are associated with the Canisteo River and Colonel Bill's Creek (see Figure 4-1). A total of 44 poles are proposed to be erected within 100-year floodplain areas, including monopole and H-frame structures. The cross-section width of the floodplain for each pole location averages approximately 1,447 feet. Each pole will account for approximately 10 square feet of fill within the floodplain, totaling an estimated area of 440 square feet within all impacted areas. When compared to the floodplain width at each pole location, the addition of poles for the transmission line to the floodplain area is not anticipated to negatively impact hydrologic functioning in the area or downstream, especially considering the minimal impact this introduction will have in the context of other land use in the area (e.g., croplands, farms, public roads, existing utilities, and residential development).

Portions of the Canisteo River in the Town of Canisteo are designated as Floodway areas by FEMA (1984). However, based on a preliminary review of publicly available floodway mapping (see Appendix 31d), it does not appear that any pole structures for the transmission line may occur in a floodway area in the Town of Canisteo. Although floodways may exist, floodway maps are not readily available within all mapped floodplains for each FEMA FIRM panel. The Applicant will continue to consult with NYSDEC regarding the proposed transmission line in areas where floodplains and floodways may exist.

As the construction and operation of the Transmission Facility will not require significant grading or changes in topography, flood zones will not be permanently impacted. Additionally, erosion controls will be employed during construction to minimize stormwater runoff and soil erosion. In particular, the Applicant will prepare a SWPPP as required under NYSDEC's SPDES General Permit for Stormwater Discharges from Construction Activity. Prior to construction, erosion control devices will be installed between all work areas and downslope surface waters to reduce the risk of soil erosion and siltation. Following construction, disturbed areas will be stabilized and restored.

Agricultural Districts

Agricultural Districts are a designation authorized by the NYS Department of Agriculture and Markets which aims to support agricultural operations and help prevent conversion of farmland to non-agricultural uses. Agricultural Districts are not zoning districts *per se* but include several benefits to farmers such as preferential real estate taxes, lawsuit protection for farmers to conduct farming operations without risk of suit, and protection against overly restrictive local laws against farming.

Approximately 5.7 miles of the transmission line and the proposed collection substation are located within agricultural districts (see Figure 4-2). The transmission line will be constructed and operated in a manner which still allows for continued agricultural production and minimal soil disturbance to the land.

Conformance with Comprehensive Plans

A review of local laws and ordinances applicable to the Transmission Facility can be found in Exhibit 7. A review of the following state and local comprehensive plans was conducted:

- New York State Open Space Conservation Plan
- Steuben County Economic Development Plan 2014 – 2015
- Steuben County Agricultural & Farmland Protection Plan
- Comprehensive Economic Development Strategy 2016 – 2021
- Town of Hornellsville Comprehensive Master Plan (1970)
- Town of Jasper Planning Studies (1978)

The relevant content of these plans in relation to the proposed Facility is summarized below:

<u>New York State Open Space Conservation Plan</u>

The New York State Open Space Conservation Plan prepared by the NYSDEC and New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP) was approved by former Governor Patterson in June 2009. This plan detailed the State's recommended plans for open space conservation and associated actions for responding to climate change, fostering green healthy communities, connecting New Yorkers with nature and recreation, and safeguarding the natural and cultural heritage of the area. Open space resources (wetlands, historic resources, etc.) generically identified in this plan that are potentially affected by the

proposed Transmission Facility are discussed throughout this Exhibit. The proposed CWE Transmission Facility is anticipated to have limited adverse effects on these resources and is consistent with the Open Space Conservation Plan.

Steuben County Economic Development Plan (2014 - 2015)

The Steuben County Economic Development Plan was adopted in 2011. The overall goal of the plan is to "implement a county-wide economic development strategy for Steuben County, New York that will increase support of existing businesses, attract new business, develop an enhanced business environment, and promote regional collaboration." The plan establishes that there is an opportunity for wind energy in Steuben County, with a potential for 200 MW of additional wind power development. As the Transmission Facility is proposed to connect CWE with the regional power grid, it is consistent with the Economic Development Plan.

Steuben County Agricultural & Farmland Protection Plan

The Steuben County Agricultural & Farmland Protection Plan was adopted in 2015 to promote and enhance the county's agricultural economy and to ensure that farming continues to play a central role in the community. Five goals were established through community engagement with farmers, residents, business owners, and stakeholders, to achieve the county's vision. These goals include:

- Economic development
- Agribusiness development
- Farmland preservation
- Agri-tourism
- Education, outreach, and partnerships.

The plan identified encouraging the use of renewable resources of agricultural lands as a way to meet the economic development goal. Strategies include developing local wind and solar power ordinances to encourage farmers to implement projects on portions of their agricultural land. The CWE Transmission Facility meets these objectives, as portions of the ROW include active agricultural land and the Transmission Facility will not interfere with continued agricultural activity.

Comprehensive Economic Development Strategy 2016 – 2021

The Southern Tier Central Regional Planning and Development Board consists of Chemung, Schuyler, and Steuben Counties. The board works with local government, economic and community development organizations, and human services agencies to improve the local economy, environment, and the quality of life in the region. The board adopted a Comprehensive Economic Development Plan in 2016. The plan identifies wind speeds that reach commercially viable wind power levels as a notable and significant environmental resource of the region. The report recognizes wind and solar energy development as a regionally significant source of economic development.

Town of Hornellsville Comprehensive Master Plan

In 1970, the Town of Hornellsville published the third volume (Implementation Phase) of the Comprehensive Master Plan. The implementation phase proposes a zoning ordinance and land subdivision regulations, designed to ensure a high standard of development. The purpose of the zoning ordinance was to encourage the most appropriate use of land throughout the Town of Hornellsville while maintaining safety, promote health and general welfare, to prevent overcrowding, regulate building sizes and densities, and identify appropriate locations of each use within the town. Public utilities are listed as an approved use (with a Special Use Permit) in the zoning ordinance. The land subdivision regulations were adopted as part of a plan for the efficient and economical development of the town. All land to be subdivided shall be in harmony with the development pattern of the neighborhood, for building purposes without danger to health, and for improvements to location neighborhoods. The proposed Transmission Facility will not require the subdivision of any lands.

Town of Jasper Planning Studies

The Town of Jasper Planning Studies was prepared by the Jasper Planning Board in 1978 under the Comprehensive Planning Assistance Program of the New York Department of State. The plan included an analysis of existing land use, physical features, populations, transportation, and municipal facilities. The document lists 12 goals and objectives upon which the Development Plan was based. The goals and objectives are listed below:

- Measure the magnitude and direction of current development trends
- Assess the probable impact of current development trends
- Provide an information base to assist local officials in making decisions dealing with development
- Identify particular problems needing governmental attention
- Assess the adequacy of town facilities
- Determine the need for new town facilities
- Identify growth potentials and problems
- Evaluate the physical resources of the town in terms of their capability to support development
- Prepare a Land Use and Development Plan oriented towards
    - Encourage efficient use of tax dollars through development
    - Protect natural features and scenic values
    - Encourage the preservation of agriculture
    - Discourage development in areas with natural development limitations or hazards
    - Encourage the most appropriate use of land in order to enhance property values and long-term development potential
- Monitor State and Federal programs for potential impact or application to local needs
- Identify major human resource needs and recommend potential solutions
- Encourage inter-organizational cooperation.

The Transmission Facility is consistent with the Development Plan in its recommendations for the natural environment and land use. The plan states that development should be discouraged or strictly regulated in areas with slopes in excess of 15%, in areas that have poor drainage, in flood hazard areas, and in poor soil areas, and that the rural character of the town should be maintained. The collection substation and the portion of the transmission line that is within the Town of Jasper generally avoids areas of steep slopes. Both the collection substation and transmission line are located in a rural area that is not frequently visited by the public. These facilities are not anticipated to detract from the rural character of the area. The Development Plan also emphasizes the protection of open space and agriculture in the town. The Transmission Facility passes through agricultural areas in the Town of Jasper. However, the footprint of the Transmission Facility will be limited to the pole structures and the construction and operation of the Transmission Facility will be done in a manner that will allowed for continued farming on agricultural land over which the Transmission Facility passes. In addition, no portions of the Transmission Facility are proposed to be constructed within flood hazard areas in the Town of Jasper.

Community Outreach

An initial Public Involvement Program (PIP) Plan for CWE and the proposed transmission line was submitted to the Siting Board on April 14, 2016. Comments on the PIP were received from the DPS on May 16, 2016, and the PIP was updated, finalized and filed by the Applicant on March 16, 2017. The PIP can be accessed, viewed, and downloaded on the online case record maintained by the Siting Board on Document Matter Master (DMM) and on the Facility-specific website maintained by the Applicant:

- http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterSeq=50610&MNO=16-F-0205
- https://canisteowind.com/

Opportunities for public involvement since the PIP was filed include the following:

- The Applicant has hosted a project website (https://canisteowind.com/), which includes extensive information about the Transmission Facility, maps, a list of frequently asked questions, and links to key project-related documents. The website provides a mechanism to obtain information from, and provide comments to, the Applicant.
- The Applicant has established a phone number (607-330-0399) for public questions and comments.
- The Applicant has prepared a fact sheet and project information details for distribution to the public and has hosted public forums to provide information about the Facility.
- The Applicant has posted paper copies of all key documents, including the PIP, at the following repositories:
    - Canisteo Town Hall, 35 Main St., Canisteo, NY 14823
    - Hornell Public Library 64 Genesee St., Hornell, NY 14843

- Jasper Town Hall 3807 Preacher Rd., Jasper, NY 14855
- Jasper Free Library, 3807 Library Street, Jasper, NY 14855
- Wimodaughsian Free Library, 19 W Main St., Canisteo, NY 14823
- Hornellsville Town Hall, 4 Park Avenue, Arkport, NY 14807
- Canisteo Village Hall, 8 Green Street, Canisteo, NY 14823

Potential Effects and Mitigation

In general, the proposed Transmission Facility is not anticipated to have an adverse impact on local land uses and is consistent with state and local land use plans. Potential secondary impacts, such as socioeconomic benefits, are addressed in Exhibit 6.

Because the proposed POI substation is an existing substation, and the collection substation will be constructed entirely within a single parcel that is surrounded by undeveloped, vacant, or agricultural land, impacts to land use are anticipated to be minimal. Permanent impacts will include the conversion of a total of approximately three acres of agricultural land to built facilities, including the collection substation and access road. Any temporary impacts caused by the collection substation may include temporary access roads (as needed), or a laydown yard used during construction, which will likely not exceed 1 acre in size.

For construction of the transmission line, 106 tower structures will be erected. Prior to construction, landowners immediately adjacent to the site will be notified that construction is commencing and the anticipated duration of construction in the vicinity. Forty-two pole locations are proposed to be erected within the 100-year floodplain in the Towns of Canisteo and Hornellsville, with an anticipated permanent impact of 440 square feet throughout the entire floodplain. All but one of the pole locations within the floodplain will be constructed with steel monopoles, rather than an H-frame structure, thereby reducing the number of structures erected. As stated above, no negative impacts to the floodplain are expected due to the minimal amount of area impacted compared with the floodplain cross-section width at each tower location (approximately 1,447 feet).

Environmental Site Assessment

After a call with DEC, the Applicant was made aware that USEPA Superfund Site 851002 is located near a section of the transmission line. This site was once a public and industrial landfill and may have contamination in the form of heavy metals, PAHs, or other substances yet to be determined. These contaminants have leached into nearby surface water features, as leachate outbreaks were identified by DEC in the 1980s, and have not yet been fully contained, although no direct link to hazardous waste disposal at the site can be made with the contaminants observed (DEC, 2014). CWE will continue to consult with DEC Division of Environmental Remediation regarding this site.

Topography, Geology, and Soils

Information regarding topography, geology, and soils for the Transmission Facility was obtained from existing published sources including the Steuben County Soil Survey (NRCS, 1978), USGS topographic mapping (Hornell, Canisteo, and South Canisteo 7.5-minute quadrangles), Statewide Bedrock Geology Mapping (NYS Museum/NYS Geological Survey, 1999a), and New York State Surficial Geology Mapping (NYS Museum/NYS Geological Survey, 1999b).

Topography

The Transmission Facility is located in the Allegany Plateau physiographic province. The Canisteo and Cohocton Rivers drain most of the interior part of the county. These rivers create valleys that are as deep as 300 feet to 600 feet. The southern portion Transmission Facility is located in a steeply sloped ridge between valleys that drain Bennett Creek and Colonel Bill's/Milwaukee Creek. As the Transmission Facility travels north, it enters the Canisteo River valley, an area of relatively low relief along the Canisteo River until its termination at the POI substation. Elevations along the Transmission Facility route range from 1,140 feet above mean sea level (amsl) to 2,400 feet amsl. The elevation at the POI Substation is approximately 1,140 feet amsl and is relatively level. The elevation at the collection substation parcel ranges from 2,280 feet amsl to 2,360 feet amsl, and generally slopes to the northwest, but is relatively level where the substation is proposed. Topographic contours are presented on Figure 2-1.

Geology

All of the bedrock in Steuben County is from the Devonian age and formed generally from deltaic deposits (NRCS, 1978). Major bedrock formations include shale, siltstone, and sandstone (NYSM, 1999a). Steuben County experienced several glacial advances and retreats during the Pleistocene Age. In general, three types of glacial materials were deposited as a result of the several modes of deposition that occurred either during or shortly after the glacial retreat: till, lacustrine, and outwash material (NRCS, 1978). Till is dominant within Steuben County and resulted from debris that was deposited beneath a moving glacier. The makeup of till is influenced by the bedrock over which the glacier has moved and picked up particles (NRCS, 1978).

Soils

The Steuben County Soil Survey has mapped soil types within the county. The soil survey indicates that 33 different soil units are mapped within the Transmission Facility ROW from 19 soil series. Characteristics of the dominant soil series are summarized in Table 4-2.

Table 4-2. Soil Series within Transmission Facility ROW

Soil Series	Main Characteristics
Alton Series	Deep, well drained, and somewhat excessively drained Found on nearly level to steep outwash plains, kames, and stream terraces in valley areas Slopes 0 to 12%
Arnot Series	Shallow, well drained, and moderately well drained Found on convex, nearly level to very steep uplands Slopes 2 to 20%
Bath Series	Deep, well drained Found on uplands at higher elevations in the north-central part of county Slopes 3 to 30%
Braceville Series	Deep, moderately well drained Found on glacial outwash terraces, fans, and along water sorted moraines Slopes 0 to 3%
Chenango	Deep, well drained to somewhat excessively drained Found on old gently sloping alluvial fans
Fluvaquents	Well drained to poorly drained Dominantly loamy or silty material Found in narrow strips along streams and rivers Slopes 0 to 8%
Hornell Series	Moderately deep, somewhat poorly drained Found on gently sloping to steep uplands Slopes 1 to 60%
Howard Series	Deep, well drained to somewhat excessively drained soils Found on outwash plains, valley trains, and kame terraces Nearly level to steep
Kanona Series	Deep, poorly drained Nearly level to moderately steep on uplands
Lordstown Series	Moderately deep, well drained Found on gently sloping to very steep bedrock-controlled ridges, hilltops, and steep valley sides Slopes generally 3 to 40%
Mardin Series	Deep, moderately well drained Gently sloping to moderately steep on upland plateaus
Middlebury Series	Deep, moderately well drained and somewhat poorly drained Nearly level Found on flood plains of rivers and smaller streams
Morris Series	Deep, somewhat poorly drained Found on uniform valley sides and broad divides on uplands in the southwestern part of the county Slopes 2 to 15%
Ochrepts and Orthents	Very steep areas deeply dissected by streams Slopes are nearly vertical and range from having large amounts of rock outcrop to extremely thick soils
Scio Series	Deep, moderately well drained soils Found on nearly level stream terraces
Tioga Series	Deep, well drained

Soil Series	Main Characteristics
	Found on nearly level flood plains along major streams and tributaries throughout the county
Unadilla Series	Deep, well drained Found on nearly level terraces in the valleys along rivers and major tributaries
Volusia Series	Deep, somewhat poorly drained Long uniform slopes that are on valley sides and broad divides on uplands Slopes 3 to 25%
Wayland Series	Deep, very poorly drained, and poorly drained Found in level or depressed slack-water areas on flood plains

Soil characteristics of each of the mapped soil units within the Transmission Facility ROW, collection substation, and POI substation, including the slope, and drainage class, and hydric rating are listed in Table 4-3.

Table 4-3. Soil Characteristics

Map Unit	Soil Name	Slope (%)	Drainage Class	Hydric Rating	Percent of Area
AlA	Alton gravelly fine sandy loam , 0-3 percent slopes	0-3	WD	0	1.4
ARC	Arnot channery silt loam, 2 to 20 percent slopes	2-20	SED	0	3.1
BaC	Bath channery silt loam, 12 to 20 percent slopes	12-20	WD	0	1.0
BBE	Bath soils, steep	30-50	WD	0	0.6
BrA	Braceville gravelly silt loam, 0 to 3 percent slopes	0-3	MWD	0	0.3
CF	Cut and fill land	0-15	MWD	5	0.6
Ch	Chenango channery silt loam, fan	3-8	WD	0	0.4
FL	Fluvaquents and Ochrepts	0-3	PD	55	3.3
HfB	Hornell-Fremont silt loams,1 to 6 percent slopes	1-6	SPD	5	0.1
HfC	Hornell-Fremont silt loams, 6 to 12 percent slopes	6-12	SPD	5	0.6
HgD	Hornell-Fremont silt loams, 12 to 20 percent slopes	12-20	SPD	0	0.6
HHE	Hornell-Fremont silt loams, 20 to 50 percent slopes	20-50	SPD	0	0.1
HrD	Howard-Madrid complex, 20 to 30 percent slopes	15-25	WD	0	1.1
HtD	Howard and Alton gravelly soils, 20 to 30 percent slopes	20-30	WD	0	0.3
HtE	Howard and Alton gravelly soils, 30 to 45 percent slopes	30-45	WD	0	>0.1
KaD	Kanona silty clay loam, 6 to 20% slopes	6-20	SPD	35	0.4
LoB	Lordstown channery silt loam, 3 to 12 percent slopes	3-12	WD	0	2.0
LoC	Lordstown channery silt loam, 12 to 20 percent slopes	12-20	WD	0	5.8
LRE	Lordstown-Arnot Association, steep	20-40	WD	0	7.0
LRF	Lordstown-Arnot Association, very steep	40-70	WD	0	13.4
MdB	Mardin channery silt loam, 2 to 8 percent slopes	2-8	MWD	0	1.6

Map Unit	Soil Name	Slope (%)	Drainage Class	Hydric Rating	Percent of Area
MdC	Mardin channery silt loam, 8 to 15 percent slopes	8-15	MWD	0	3.3
MdD	Mardin channery silt loam, 15 to 25 percent slopes	15-25	MWD	0	3.5
Mp	Middlebury silt loam	0-3	MWD	10	19.1
MrC	Morris channery silt loam, 8 to 15 percent slopes	8-15	SPD	5	1.2
OC	Ochrepts and Orthents	35-70	MWD	0	5.9
Sc	Scio silt loam	0-3	MWD	0	0.1
Tg	Tioga silt loam	0-3	WD	0	7.9
Un	Unadilla silt loam	0-3	WD	0	12.6
VoB	Volusia channery silt loam, 3 to 8 percent slopes	3-8	SPD	5	10.8
VoC	Volusia channery silt loam, 8 to 15 percent slopes	8-15	SPD	4	49.8
VoD	Volusia channery silt loam, 15 to 25 percent slopes	15-25	SPD	3	16.5
Wn	Wayland soils complex, non-calcareous substratum, 0 to 3 percent slopes, frequently flooded	0-3	PD	90	1.0

Potential Effects and Mitigation

It is not anticipated that construction and/or operation of the proposed Transmission Facility will have a significant adverse impact to the topography, geology, or soils. Areas with obvious soil-based limitations to development (e.g., shallow bedrock) are being avoided. Rock outcrops have been avoided during siting of the Transmission Facility. Although shallow bedrock is present in some locations along the proposed transmission line route, no bedrock has been identified that would require blasting for installation of the tower structures. Therefore, blasting is not anticipated to be needed during construction of the Transmission Facility. A final geotechnical investigation at each pole location will be performed prior to construction to confirm that no blasting is required.

Temporary disturbance to soils will result from construction activities that could include grading for access routes and work areas. Grading will not be required where terrain is flat and open but may be necessary in areas of irregular terrain. Where grading must occur, temporary erosion control measures will be applied to stabilize disturbed soils. Following construction, disturbed areas will be restored to a stabilized condition. Vehicle access during operation will be restricted to areas within the ROW to minimize potential impacts on soils and adjacent lands.

Temporary disturbance to soils will result from the construction of new access roads and staging and/or laydown areas. It is anticipated that the temporary soils disturbance associated with construction access will be approximately 44 acres (assuming a road width of 16 feet). Approximately 5,000 square feet of soil around the base of each tower structure will be temporarily disturbed at the time of installation. Thus, temporary tower-related disturbance will result in approximately 12 acres of temporary soil disturbance at each tower location. In wetland areas and other sensitive sites, matting and spanning will be used to reduce temporary impacts.

Permanent disturbance will be limited to installation of new structures and any permanent access. Permanent impacts to soils will include the creation of approximately two acres of impervious surface for the collection substation. No permanent impacts are anticipated from the construction of Transmission Facility towers as no grading is anticipated.

The Best Management Practices (BMPs) to be implemented during construction may include hay bales and silt fence barriers, stabilized construction entrances and exits, and covering stockpiled soils. These mitigation measures will be described in detail in the EM&CP and the SWPPP. Excavated soils will be used for backfill, as needed, during construction of the collection substation and transmission line. If any soils to be excavated are unsuitable for use as backfill, suitable clean fill will be used. Any excess soils will be reused on site or properly disposed of off-site.

Vegetative Communities

Terrestrial Communities

Within the Study Area, existing plant communities were identified and characterized along the proposed Transmission Facility using field data and aerial photography obtained from Thew Associates PE-LS, PLLC. Characterization and approximate acreage of each community were determined using the aerial photographs and GIS software. Detailed wetland delineations were also performed and are described below in Section 4.6.2. The vegetative communities identified along the proposed route are depicted in Figure 4-3.

The Transmission Facility will be located within a new utility ROW that extends approximately 15 miles between the Canisteo Wind Farm to the interconnection at the existing Bennet Substation. The proposed ROW corridor is predominately undeveloped agricultural land and woodlots. The proposed corridor includes six vegetative communities, as well as surface waters and disturbed or developed areas. Table 4-4 summarizes the characterization and total acreage of each community type in the new ROW.

Table 4-4. Occurrences of Vegetative Communities

Community	Total Acreage in Study Area
Beech-Maple Mesic	47.9
Hemlock-Northern Hardwoods	145.1
Successional Shrubland	23.0
Successional Old Field	13.3
Cropland	102.5
Pastureland	11.0
Developed/Disturbed	3.8
Open Water	5.3

These plant communities are common in New York State. A brief description of each community type based upon the classification outlined in *Ecological Communities of New York State* (Edinger, 2014) is provided as follows:

Beech-Maple Mesic, which comprises approximately 14 percent of the 200-foot study area, is defined by Edinger (2014) as a "northern hardwood forest with sugar maple (*Acer saccharum*) and American beech (*Fagus grandifolia*) codominant. This is a broadly defined community type with several regional and edaphic variants." This ecological community is scattered throughout the 200-foot study area, primarily in the form of forest pockets. Tree species in this ecological community typically include yellow birch (*Betula alleghaniensis*), white ash (*Fraximus americana*), hop hornbeam (*Ostrya virginiana*), and red maple (*Acer rubrum*). Small trees and shrubs typically include hobblebush (*Viburnum lantanoides*), American hornbeam (*Carpinus caroliniana*), striped maple (*Acer pensylvanicum*), and witch-hazel (*Hamamelis virginiana*).

Comprising approximately 41 percent of the 200-foot study area, *Hemlock-Northern Hardwoods* are "mixed forests that typically occur on middle to lower slopes of ravines, on cool, mid-elevation slopes, and on moist, well-drained sites at the margins of swamps (Edinger, 2014)." This community type comprises the majority of forestland within the 200-foot study area and is typically comprised of eastern hemlock (*Tsuga canadensis*) which is codominant with one to three of the following species: sugar maple, red maple, yellow birch, black birch (*Betula lenta*), red oak (*Quercus rubra*), American beech. This community type is broadly defined and widespread, with many regional and edaphic variants.

Successional Old Field, which comprises approximately 4 percent of the 200-foot Study Area, is defined by Edinger (2014) as "a meadow dominated by forbs and grasses that occurs on sites that have been cleared and plowed (for farming or development), and then abandoned". This ecological community is found mainly in the northern portion of the 200-foot study area, primarily in the form of

field edges or reverting or abandoned agricultural fields. Herb species found in these areas include goldenrods (*Solidago spp.*), bluegrasses (*Poa spp.*), orchard grass (*Dactylis glomerata*), timothy (*Phleum pratense*), and quackgrass (*Elymus repens*). Sparse shrubs that may be present typically include gray dogwood (*Cornus foemina*) and saplings from adjacent woodlots.

Comprising approximately 7 percent of the 200-foot study area, *Successional Shrubland* is frequently located in association with old fields and young woodlots on the periphery of agricultural areas. According to Edinger (2014), successional shrubland is "shrubland that occurs on sites that have been cleared (for farming, logging, development, etc.) or otherwise disturbed. This ecological community has at least 50 percent shrub cover and is found scattered throughout the 200-foot study area. Characteristic shrubs include gray dogwood (*Cornus racemosa*), eastern red cedar (*Juniperus virginiana*), and raspberries (*Rubus* spp.).

Pastureland, which comprises approximately 3 percent of the 200-foot study area is defined as "agricultural land permanently maintained (or recently abandoned) as a pasture area for livestock (Edinger, 2014)."

Cropland comprises approximately 29 percent of the 200-foot study area and is found scattered throughout the area. The cropland is a mix of field crops and row crops, with the valleys and low-lying agricultural areas dominated by row crops such as corn and soybeans.

The remaining 3 percent of the 200-foot study area is either disturbed or developed land (such as paved surfaces, roadways, or residential neighborhoods) or open water.

Aquatic Communities

Wetlands and other surface waters occur within the study area and generally include emergent wetland, scrub-shrub wetland, forested wetland, open water, riverine upper perennial, riverine intermittent, and riverine ephemeral. Wetland features accounted for approximately 8 percent of the 200-foot study area. A detailed delineation of wetlands and surface waters was performed along the proposed right-of-way. The results of the delineation are provided comprehensively in below in Wetlands and Hydrology and in Appendix 4e.

Environmental Effects and Mitigation

There will be temporary and permanent impacts to terrestrial plant communities resulting from the construction and operation of the Transmission Facility. Areas associated with the collection substation, transmission line, and temporary access roads may result in either temporary or permanent impact, or both.

Table 4-5. Preliminary Estimate of Impacts to Vegetative Communities

Category	Transmission Facility	Construction Disturbance	Permanent Disturbance	Permanent Forest Conversion
Beech-Maple Mesic	34.3	9.1	0	24.2
Hemlock-Northern Hardwoods	81.8	14.1	0	72.0
Conifer Plantation	2.0	0	0	2.0
Successional Shrubland	12.2	3.6	0	--
Successional Old Field	6.3	2.1	0	--
Cropland	63.1	13.2	1.3	--
Pastureland	6.2	1.5	0	--
Developed/Disturbed	9.5	0.9	0	--
Open Water	2.0	0.6	0	--

Notes:

1. All impact calculations are represented in acres.
2. Areas were calculated using an assumed 20-foot travel corridor along the ROW and a 50-foot by 100-foot work pad area around poles.
3. Construction disturbances include all areas to be disturbed during construction whether those areas will only be disturbed temporarily or permanently. Permanent forest conversion impacts are areas occupied by project components and areas of planned vegetation management along the ROW.
4. Permanent disturbance includes:
    a. Areas to be occupied by poles along the transmission line, although the total area will be negligible
    b. Areas inside the fence of the Collection substation
5. Impact calculations for the collection substation have been previously reported in the Article 10 Application. These impacts are represented again here but should not be interpreted as an additional impact.

To further minimize impacts to vegetative communities, a comprehensive Invasive Species Control Plan (ISCP) and sediment and erosion control plan will be developed/implemented prior to construction to protect adjacent undisturbed vegetation and other ecological resources.

Vegetation Management Plan

The Vegetation Management Plan developed for the Transmission Facility can be referenced in Appendix 4i. The plan describes the techniques and procedures CWE will use to remove timber during construction and maintain vegetation during Transmission Facility operation. Felled timber will be stacked outside of the ROW or transported off-site for sale or processing. Danger trees will be removed if deemed a significant risk to the transmission line; property owners will be notified of tree removal activities. Trees and shrubs within the ROW will be maintained to not exceed heights of 25 feet. Vegetation within the “wire zone” (as defined in Appendix 4i) will be managed to promote low-growing plant communities, including grasses, herbs, and small shrubs under 3-feet tall. Access points and roads will be maintained to ensure a cleared shoulder of 2 feet, and to clear low-hanging branches and brush. CWE plans to periodically use herbicides or mechanical means to clear areas within the collection substation fence; the POI substation will be maintained by NYSEG. Vegetation management activities are anticipated to take place once yearly, with some activities, such as mowing of road shoulders, taking place more often.

Fish and Wildlife Resources

Existing Environment

Fish and wildlife resources in the vicinity of the proposed Transmission Facility were determined based on information included in the New York State Breeding Bird Atlas (New York State BBA, 2000), the New York State Amphibian and Reptile Atlas, NYSDEC Fish Atlas Maps of New York, and other publications. The information was supplemented through correspondence with the New York Natural Heritage Program (NYNHP), online consultation with the USFWS Information, Planning, and Conservation System (IPaC) website to determine the potential presence of state or federally listed endangered, threatened, or state designated species of special concern. In addition, wildlife occurrence and potential wildlife habitat were observed and documented during field observation and assessment of existing habitat conducted during 2017-2018. Wildlife observation in the area also took place during avian surveys designed for reports associated with the Article 10 Application for CWE.

Wildlife Species

Birds and Other Avian Species

The New York State Breeding Bird Atlas (BBA) is a comprehensive, statewide survey that indicates the distribution of breeding birds in New York State. Point counts are conducted by volunteers within 5-kilometer by 5-kilometer survey blocks across the state (McGowan & Corwin, 2008). The Transmission Facility is located within six survey blocks (2768B, 2768D, 2868C, 2867A, 2867C, and 2866A). The BBA has documented the presence of 106 breeding bird species in the six survey blocks. Common breeding species include American robin (*Turdus migratorius*), gray catbird (*Dumetella carolinensis*), blue jay (*Cyanocitta cristata*), black-capped chickadee (*Poecile atriapillus*), and red-tailed hawk (*Buteo jamaicensis*). Of the bird species identified by the BBA in the vicinity of the Transmission Facility, none were listed by the U.S. Fish and Wildlife Service (USFWS) or the NYSDEC as endangered. One species, the northern harrier (*Circus* cyaneus*)*, is a state-listed threatened species, and six species, the cerulean warbler (*Dendroica cerulea*), Cooper's hawk (*Accipiter cooperii*), grasshopper sparrow (*Ammondramus savannarum*), horned lark (*Eremophila alpestris*), sharp-shinned hawk (*Accipiter striatus*), and vesper sparrow (*Pooecetes gramineus*), are state-listed as species of special concern.

There are no designated Important Bird Areas (IBAs) or Bird Conservations Areas (BCAs) in the vicinity of the Transmission Facility. Keeney Swamp, located approximately 14 miles northwest of the Transmission Facility in Allegany County, is the closest IBA and BCA to the Transmission Facility (Audubon, 2018 and NYSDEC, 2018a).

Amphibians and Reptiles

Other than the New York State Amphibian and Reptile Atlas, no existing data were available concerning reptiles and amphibians in the area of the proposed Transmission Facility. Based on the atlas data, species range, and existing habitat conditions, it is estimated that 23 species could occur in the vicinity of the Transmission Facility. These species include green frog (*Rana*

clamitans), American toad (*Bufo americanus*), spotted salamander (*Ambystoma maculatum*), painted turtle (*Chrysemys picta*), and common gartersnake (*Thamnophis sirtalis*). No listed endangered, threatened, or special concern species of reptile or amphibian were identified by the atlas.

Mammals

Publicly available information regarding the occurrence of mammalian species in the vicinity of the Transmission Facility is generally not available. Therefore, mammal occurrence was documented through species observations made during on-site field surveys. Mammals expected to be present in the vicinity of the Transmission Facility based on available habitat and wide occurrence throughout New York State include common porcupine (*Erethizon dorsatum*), striped skunk (*Mephitis mephitis*), white-tailed deer (*Odocoileus virginianus*), mink (*Neovison vison*), coyote (*Canis latrans*), black bear (*Ursus americanus*), bobcat (*Lynx rufus*), American beaver (*Castor canadensis*), eastern chipmunk (*Tamias striatus*), and eastern cottontail (*Sylvilagus floridanus*). In addition, a variety of mice, voles, shrews, and moles are expected to use the Facility. Of all the mammal species likely to occur on site, the northern long-eared bat (*Myotis septentrionalis*) is the only one listed by the U.S. Fish and Wildlife Service as threatened and the NYSDEC as endangered. A discussion of this and other listed species that could be present in the area is presented below under the heading Threatened and Endangered Species.

Fish and Benthic Communities

The proposed route intersects several perennial streams that support fish populations. Data were retrieved from Version 45 of the NYSDEC Statewide Fisheries Database via a site-specific request to the Region 8 office of the NYSDEC. The following streams were queried for a list of fish species documented to live in those streams: Cunningham Creek, Hammer Creek, Bennetts Creek, Canisteo River, Colonel Bills Creek, Two Bridge Run, and Red Spring Run. A total of 27 species have been documented within these streams by the NYSDEC. Common species include common shiner (*Luxilus cornutus*), creek chub (*Semotilus atromaculatus*), eastern blacknose dace (*Rhinichthys atratulus*), and longnose dace (*Rhinichthys cataractae*). Two trout streams, Bennetts Creek and Canisteo Creek support a coldwater fish community including brook trout (Salvelinus fontinalis), brown trout (Salmo trutta), creek chub, and mottled sculpin (*Cottus bairdii*). Canisteo Creek is an important recreational fishery. No listed endangered, threatened or special concern fish species have been documented in the project area.

Threatened and Endangered Species

The Applicant has corresponded with the NYNHP and the USFWS for information pertaining to State- and federally-listed rare, threatened, and endangered (RTE) species within the Study Area. Specifically, this correspondence included inquiries to the NYNHP and to the USFWS IPaC website to determine the potential presence of State- or federally-listed endangered, threatened, or special concern species within the Study Area. Copies of agency responses to these inquiries are attached as Appendix 4d. Additionally, the Applicant has corresponded with the DEC regarding threatened and endangered species for this project. During a project status call with

the DEC on January 4, 2018 a bald eagle (*haliaeetus leucocephalus*) nest was identified south of the POI substation and within approximately 1,800-feet of the proposed transmission line. The Applicant will continue to work with the DEC to monitor eagle activity and to avoid/minimize activity that could disturb the nest.

The NYNHP response, received November 2, 2018, indicated that two State-listed species, have been documented in the vicinity of the proposed Transmission Facility. These species include one salamander and three birds. The species and their status are listed in Table 4-5, below. The USFWS IPaC database was queried to determine federally-listed threatened and endangered species that could potentially be impacted by the Transmission Facility. The IPaC identified the northern long-eared bat as potentially occurring in the vicinity of the Facility. A discussion of each of these species is provided below.

Table 4-5. Federally- and State-listed Species in the Vicinity of the Transmission Facility

Common Name	Scientific Name	Status[1]
Longtail salamander	*Eurycea longicauda*	NY-SC
Northern long-eared bat	*Myotis septentrionalis*	NY-T, FED-T
Northern harrier	*Circus cyaneus*	NY-T
Bald eagle	*Haliaeetus leaucocephalus*	NY-T

[1] NY-SC = State-listed species of concern, NY-T = State-listed threatened, FED-T = Federally-listed threatened.

- Longtailed salamander – This species is at the northern extent of its range in New York State. It is associated with wet or moist terrestrial habitats, inhabiting slow moving streams, fens, and swamps, but may also be found in abandoned mines or caves that are have calcareous groundwater. The salamanders hide in rock crevices and under rocks, logs, and other stream sides, in spring runs, cave mouths, and abandoned mines. Habitat loss and degradation are responsible for the decline of the species (NYSDEC, 2015).

- Northern long-eared bat – The northern long-eared bat is found across much of the eastern and north central United States. The bats spend winter hibernating in caves and mines, called hibernacula. During the summer months, northern long-eared bats roost singly or in colonies underneath bark, in cavities or crevices of trees (living or dead). White-nose syndrome, a fungal disease, is the predominant threat to this species. Since white-nose syndrome was discovered in New York in 2006, numbers of northern long-eared bats have declined by up to 99% (USFWS, 2015).

- Northern harrier – The northern harrier is a slim, medium-sized hawk with long broad wings and long legs and tail that are found in New York in the Great Lakes plain, open habitats of the Adirondacks, western Finger Lakes, Long Island, and the Hudson, Saint Lawrence, and Lake Champlain valleys (NYNHP, 2018). This species uses a wide range of open grasslands, shrubland, and salt and freshwater marshes. They nest on the ground, usually in dense cover. The loss of suitable grassland habitats is the most significant threat to northern harrier populations in New York.

- Bald eagle- The bald eagle is one of the largest birds of prey of prey in North America with a wingspan of nearly six feet. Bald eagles exist throughout North America and are typically found in undisturbed areas near large bodies of water, marshes, swamps, and rivers where fish and waterfowl populations are plentiful. They nest in forested areas in tall deciduous or coniferous trees, and usually return to the same general area for nesting each year. Threats to this species include bioaccumulation of contaminants in the food web, habitat destruction and forest fragmentation due to human development, and collisions with vehicles, towers, a utilities (NYNHP, 2017).

Environmental Effects and Mitigation

In general, impacts to fish and wildlife will be limited due to the proposed routing of the transmission line and the location of towers and access roads. A large portion of the Transmission Facility route traverses or borders open agricultural land where impacts to wildlife are minimal. Clearing of forestland will also occur within large portions of the ROW. Along with direct loss of (and damage to) vegetation, these impacts can result in a loss of wildlife food and cover. However, the acreage impacted is minor considering the available forest habitat that will be remaining.

~~There will be no significant construction-related impacts to streams, waterbodies, or wetlands. Consequently, no impacts to fish or other aquatic organisms are anticipated. However, c~~Construction and operation of the proposed Transmission Facility ~~will~~ may result in some unavoidable impacts to wildlife. Direct impacts of the proposed Transmission Facility on wildlife resources could include the following:

- Incidental injury and mortality due to construction activity and vehicle movements,
- Minor temporary habitat disturbance during construction, and
- Temporary disturbance of wildlife due to increased noise and human activity during construction.

Incidental injury and mortality should be limited to sedentary and slow-moving species that are unable to relocate from disturbed areas during construction (e.g., salamanders, toads, etc.). More mobile species should be able to vacate the areas that will be disturbed. Direct loss of wildlife will also be minimized by avoiding disturbance of forest to the extent practicable, avoiding impacts to streams and wetlands, and utilizing the existing cleared ROW for Transmission Facility access.

Most of the potential impacts to wildlife will be minor and/or temporary. Once construction has been completed, species displaced or disturbed by the increased noise and human activity are expected to return to the area. The Transmission Facility will be built in accordance with the Applicant's BMPs addressing vegetative clearing and disposal, invasive species management, sediment and erosion control measures, and wetland protection.

To avoid potential impacts to roosting northern long-eared bats, clearing of trees and shrubs greater than 3 inches diameter at breast height (dbh) is anticipated to be restricted to the period between November 1 and March 31, when the bats are hibernating off-site. If work is required outside this winter clearing period the Applicant will follow the USFWS 4d rule and the NYSDEC guidance[1]. This includes no cutting of any trees within 1/4 mile buffer of a hibernaculum. For cutting of trees outside of the ¼ mile buffer around hibernacula or within 1.5 miles of a summer occurrence, snag and cavity trees will remain uncut unless their removal is necessary for protection of human life and property. Additionally, any documented roost trees and any trees within a 150-foot radius of a documents summer occurrence will remain uncut.

Consultation with the NYSDEC indicated that there is a documented northern harrier breeding record in an open hayfield near two proposed pole locations. The NYSDEC provides best management practices (BMPs) for grassland bird species that are a high priority for protection and management. Since the northern harrier is listed as threatened in NYS, the Applicant will work with the DEC to identify BMPS to avoid potential impact to these species. BMPs that may be implemented include no mowing, planting, harvesting, driving, or any other mechanized means during the nesting season (April 23 to August 15). Following these BMPs will limit impacts to northern harriers. No long-term impacts to this species are expected.

Wetlands and Hydrology

The following section discusses the characteristics of the surface water and groundwater features, and wetlands located within the Study Area. Data sources used in this evaluation include existing agency information, USGS topographic maps, New York State Department of Health (NYSDOH) aquifer mapping, NYSDEC Freshwater Wetland Maps, USFWS National Wetland Inventory maps, NYSDEC Waterbody Classification Maps, aerial photographs, reconnaissance level field verification, and an on-site wetland delineation performed in accordance with the 1987 *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987). The wetland study area consists of a 200-foot corridor along the ROW for the Transmission Facility, and at the collection substation.

Surface Waters and Ground Water

Surface water and groundwater resources along the proposed Transmission Facility were identified through a review of existing mapping and field investigations conducted within the 200-foot study corridor (i.e. 100 feet on either side of proposed Transmission Facility). The investigation resulted in the identification of 36 surface water features along the proposed route.

Water resources within the 200-foot study corridor are primarily associated with the Tioga River Basin. Many surface water features are unnamed tributaries which connect to the following navigable waterways: Canisteo River, Hammer Creek, Red Spring Run, Two Bridge Run, Colonel Bills Creek, and Colby Creek.

[1] https://www.dec.ny.gov/animals/106090.html

Characteristics of delineated surface waters varied throughout the study corridor due to changing topographic features. The natural topography traversed by the proposed Transmission Facility varies from gently sloping to steeply sloping, with numerous steep ravines and rock faces. Vegetative communities surrounding streams also changed with changing topographic features. Upland areas consist of successional old field, successional northern hardwood, cropland, mesophytic forest, pine-northern hardwood, and hemlock-northern hardwood communities while wetland areas include shallow and emergent marsh, and hardwood swamp communities. Substrate materials in delineated streams primarily consist of cobble, gravel, and silt. Stream widths vary throughout the study corridor with the maximum stream width totaling approximately 95 feet, and the smallest stream width totaling 1 foot. The average stream width is between 2 feet and 10 feet.

A survey of the boundaries of delineated surface waters within the 200-foot study corridor was performed by EDI wetland biologists in July and October of 2018. The surveyed streams are summarized in Table 4-6. Additional information is provided in Appendix 4e.

Table 4-6. Streams identified in the 200-foot study corridor around the proposed Transmission Facility

Stream ID[1]	Waterway[2]	DEC Class	Linear Feet On-Site	Highwater Width (ft)	Flow Regime	Substrate	Anticipated Jurisdiction
Stream 1	Canisteo River	C	225	65	Perennial	Silt	Jurisdictional
Stream 2	UNT to Canisteo River	N/A	374	3-4	Intermittent	Silt	Jurisdictional
Stream 3	UNT to Canisteo River	N/A	257	4	Perennial	Silt	Jurisdictional
Stream 4	Canisteo River	C	218	55	Perennial	Silt	Jurisdictional
Stream 5	UNT to Canisteo River	N/A	230	5	Intermittent	Silt Vegetated	Jurisdictional
Stream 6	Cunningham Creek	C	214	15	Intermittent	Gravel Cobble	Jurisdictional
Stream 7	UNT to Canisteo River	N/A	269	10	Intermittent	Vegetated	Jurisdictional
Stream 8	UNT to Canisteo River	N/A	107	8	Intermittent	Silt	Jurisdictional
Stream 9	UNT to Canisteo River	N/A	129	10	Intermittent	Vegetated	Jurisdictional
Stream 10	UNT to Canisteo River	N/A	88	20	Intermittent	Vegetated	Jurisdictional
Stream 11	UNT to Canisteo River	N/A	141	5	Intermittent	Vegetated	Jurisdictional
Stream 12	Bennetts Creek	C	237	95	Perennial	Cobble Gravel	Jurisdictional
Stream 13	Colonel Bills Creek	C	442	38	Perennial	Cobble Gravel	Jurisdictional
Stream 14	UNT to Colonel Bills Creek	N/A	343	2	Ephemeral	Gravel	Jurisdictional

Stream ID[1]	Waterway[2]	DEC Class	Linear Feet On-Site	Highwater Width (ft)	Flow Regime	Substrate	Anticipated Jurisdiction
Stream 15	UNT to Colonel Bills Creek	N/A	1,128	8-10	Intermittent	Cobble Gravel	Jurisdictional
Stream 16	Canisteo River	C	474	60	Perennial	Silt	Jurisdictional
Stream 17	Hammer Creek	C	312	4	Intermittent	Gravel	Jurisdictional
Stream 18	UNT to Canisteo River	N/A	844	6	Intermittent	Silt	Jurisdictional
Stream 19	Colonel Bills Creek	C	205	58	Perennial	Boulders Cobble	Jurisdictional
Stream 20	UNT to Colonel Bills Creek	N/A	221	2	Ephemeral	Cobble Sand Gravel	Jurisdictional
Stream 21	UNT to Colonel Bills Creek	N/A	303	3	Ephemeral	Silt Sand Gravel	Jurisdictional
Stream 22	UNT to Colonel Bills Creek	C	279	15	Perennial	Bedrock	Jurisdictional
Stream 23	UNT to Red Spring Run	N/A	221	3	Intermittent	Cobble Gravel	Jurisdictional
Stream 24	UNT to Red Spring Run	N/A	281	5	Ephemeral	Gravel Cobble Debris	Jurisdictional
Stream 25	UNT to Colonel Bills Creek	N/A	287	8	Intermittent	Bedrock	Jurisdictional
Stream 26	UNT to Colonel Bills Creek	N/A	427	10	Intermittent	Cobble Gravel	Jurisdictional
Stream 28	UNT to Bennetts Creek	N/A	237	2	Intermittent	Cobble Gravel	Jurisdictional
Stream 29	UNT to Two Bridge Run	N/A	512	3	Ephemeral	Cobble Silt	Jurisdictional
Stream 30	Two Bridge Run	C	251	20	Perennial	Cobble Bedrock	Jurisdictional
Stream 31	UNT to Red Spring Run	N/A	241	4	Intermittent	Cobble	Jurisdictional
Stream 32	UNT to Red Spring Run	N/A	236	6	Perennial	Cobble	Jurisdictional
Stream 33	UNT to Red Spring Run	N/A	174	3	Ephemeral	Sand	Jurisdictional
Stream 34	UNT to Red Spring Run	N/A	224	1-2	Intermittent	Cobble Sand	Jurisdictional
Stream 35	UNT to Colby Creek	N/A	171	1	Intermittent	Cobble Sand	Jurisdictional

Stream ID[1]	Waterway[2]	DEC Class	Linear Feet On-Site	Highwater Width (ft)	Flow Regime	Substrate	Anticipated Jurisdiction
Stream 36	UNT to Colby Creek	N/A	195	2	Intermittent	Silt Sand	Jurisdictional

[1] Stream IDs were assigned by EDI
[2] UNT= Unnamed Tributary

According to NYSDOH mapping, publicly available data, and NYSDEC Region 8, two potential aquifer areas occur within the 200-foot study corridor. These mapped aquifers include unconsolidated aquifers occurring in northern portion of the proposed Transmission Facility in the Towns of Canisteo and Hornellsville. According to data retrieved by the NYSDOH, there are community water systems which likely serve as water sources for the surrounding communities. CWE does not anticipate impacts to groundwater resources from construction of the Transmission Facility.

Wetlands

A total of 15 wetlands were identified and delineated in the 200-foot study corridor surrounding the proposed Transmission Facility. Wetlands were identified using NYSDEC Environmental Resource Mapper and the USFWS National Wetland Inventory (NWI). Three NYSDEC-mapped wetlands were identified within or adjacent to the northern portion of the study corridor. Wetlands HR-7 and HR-8 are located south of the Village of Hornell and East Avenue, and west of Ice House Road. NYSDEC-mapped wetland CS-5 is located in the Town of Canisteo, north of the Village of Canisteo, south of Cunningham Creek, and southwest of County Road (CR) 29. In addition to state-mapped wetlands, numerous NWI wetlands were identified along the proposed Transmission Facility.

Field delineations were conducted in July and October of 2018. The determination of wetland boundaries was made using the methodology presented in the Corps Wetland Delineation Manual (Environmental Laboratory, 1987). Wetland determinations at sampling locations were based on the three criteria of vegetation, soils, and hydrology. At each wetland, data were collected from one or more points located perpendicular to the wetland boundaries. Additional information on methodology is provided in Appendix 4e. The surveyed wetland boundaries are shown in Figures included in Appendix 4e. Each wetland is summarized in Table 4-7 with additional information available in Appendix 4e.

Table 4-7. Wetlands identified in the 200-foot study corridor

Delineation ID	Wetland Type[1]	Wetland Acreage	Anticipated Federal Jurisdiction[2]	Anticipated State Jurisdiction[3]
W1	PEM	0.66	Yes	No
W2	PEM	1.65	Yes	No
W3	PEM	0	No	No
W4	PEM/PFO/POW	19.89	Yes	Yes

W5	PFO	0.44	Yes	No
W6	PEM/POW	2.14	Yes	No
W7	PEM	0.27	No	No
W8	PEM	0.52	No	No
W9	POW	0.02	No	No
W10	PEM	0.07	Yes	No
W11	PEM	0.08	No	No
W12	PEM	0.22	Yes	No
W13	PEM/PFO	0.46	Yes	No
W14	PEM	0.17	Yes	No
W15	PEM	0.03	No	No
W16	PFO	0.10	Yes	No
W17	PEM	0.02	No	No
W18	PFO	0.07	No	No
Total Acreage		26.81		

[1]Wetland community types noted are based upon the Cowardin et al. classification system. PEM = Palustrine Emergent; PFO = Palustrine Forested

[2]The federal jurisdictional determinations are based on field observations of hydrologic connectivity. The final federal jurisdictional determination will be made by the USACE.

[3]The State jurisdictional determinations are based on existing NYSDEC mapping of freshwater wetlands.

Wetlands within the 200-foot study corridor are a mix of shallow emergent, deep emergent, and forested wetland cover types. These wetland communities are common in New York State. Brief descriptions of each community type, based upon the classification outlined in *Ecological Communities of New York State* (Reschke, 1990), are provided as below:

Emergent Marsh communities occur in small areas, typically in association with other, more dominant, wetland community types within the corridor. Emergent marshes are also common on the wet edges of agricultural fields and pastures. Reschke (1990) describes these shallow areas as “a marsh meadow community that occurs on mineral or muck soils that are permanently saturated and seasonally flooded. Dominant plant species noted during the delineation field survey include primarily herbaceous species, ferns, and grasses, including: sedges (*Carex* spp.), Bebb willow (*Salix bebbiana*), pussy willow (*Salix discolor*), purple loosestrife (*Lythrum salicaria*) American burreed (*Sparganium americanum*), cattails (*Typha* spp.), and reed canary grass (*Phalaris arundinacea*).

Forested wetlands are scattered throughout the right-of-way and have variable tree species composition, depending upon what region of the study area they occur within. Forested wetlands with groundwater seeps tend to occur in the eastern portion of the study area and are dominated by an overstory of hemlocks (*Tsuga canadensis*). The forested wetlands in the western and central portions of the study area are often associated with stream channels (including intermittent streams) and groundwater seeps but tend to be dominated by second growth deciduous tree species. The study corridor identified one forested wetland which was dominated by green ash

(*Fraxinus pennsylvania*), Tatarian honeysuckle (*Lonicera tatarica*), jewelweed (*Impatiens capensis*) and true forget-me-not (*Myosotis scorpioides*).

Environmental Effects and Mitigation

Streams and waterbodies

Stream impacts will be limited by keeping soil removal and distribution to a minimum and employing a comprehensive erosion and sediment control program. The direct impacts of stream crossings will be minimized by utilizing existing crossing locations whenever possible. It is anticipated that all stream crossings will temporary and that timber mats will be used rather than culverts (see Appendix 4k). Armoring of existing ford crossings will have a long-term beneficial effect on water quality. Special crossing techniques, equipment restrictions, herbicide use restrictions and erosion and sedimentation control measures will be utilized to reduce impacts to water quality, surface water hydrology and aquatic organisms.

Although some clearing of tall – growing trees will be required at several proposed stream crossings, including ravine areas in the middle portion of the line. Permanent impacts to streams will be reduced or eliminated to the extent practicable by the following measures: 1) no tower structures will be located where the area of disturbance for installation will disturb the bed or bank of a stream, 2) of the 37 streams that occur in the study area, access road crossings at approximately 14 streams will be avoided through dead ending and the use of off-right-of-way access roads (see Figure 4-3; and 3) of the 23 stream crossings by proposed access roads, all will be temporary. No permanent disturbances to the banks of protected streams is anticipated.

New access roads, where needed, will minimize impacts to stream through installation of ~~appropriately sized culverts backfilled with clean gravel fill.~~temporary crossing roads. Access roads will not exceed 16 feet in width. Site specific locations of access roads across streams within the right-of-way have not been finalized. Final construction drawings will be prepared and will provide additional information regarding the type and location of stream crossings within the Transmission Facility study area. Stream impacts resulting from the construction of off-right-of-way access roads will be limited, as these have been sited to avoid additional stream crossings or utilizing existing crossings.

Wetlands

Indirect impacts to wetland water quality and vegetation will occur as a result of clearing activities and soil erosion, siltation and sedimentation from construction activities on the right-of-way. These impacts are temporary and will be minimized through appropriate construction practices. Permanent impacts to wetlands will occur as a result of access road construction through certain areas (e.g. forested wetlands) and through placement of poles. Potential impacts associated with access road crossings of wetlands include loss of fish and wildlife habitat, alteration of wetland hydrology, degradation of water quality, and/or reduction of other wetland functions and values (e.g. flood storage, groundwater recharge, etc.). To reduce such impacts, wetland areas have been avoided to the extent practicable during the siting of the transmission line route and all access roads. It is anticipated that the construction of new temporary access roads will impact 11

wetlands on the right-of-way. During siting of the facility, placement of permanent structures in wetlands was minimized to the extent practicable. Of the 108 towers to be installed in the right-of-way, 8 are located within the boundary of a delineated wetland. These structures will result in the permanent disturbance of approximately 80 square feet of wetland. Required spans between towers may preclude elimination of all of these impacts, especially in the case of Structure 13-15. However, it is the intention of the applicant to relocate structures 6 and 21out of wetland areas if at all possible during final project design efforts. A summary of potential wetland impacts resulting from temporary access road construction or pole placement is provided in Table 4-8.

Table 4-8 Potential Wetland Impacts

Delineation ID	Wetland Type[1]	Wetland Area (acres)	Temporary Impact (acres)	Permanent Impact (sq. ft)	Permanent Forest Conversion (acres)	Component Impacting Wetland	Avoidance/ Crossing Methods
W1	PEM	0.66	0	--	--	--	Matt and Span
W2	PEM	1.65	0.4	10	--	Travel Lane, Work Pad, 1 Pole	Matt and Span
W3	PEM	0.02	0	--	--	--	Avoid
W4	PEM/ PFO/POW	19.89	3.9	60	4.0	Travel Lane, Work Pad, ROW, 6-Poles	Matt and Span, Avoid, Drive Around
W5	PFO	0.44	0.05	0	0.23	Travel Lane, Work Pad, ROW	Matt and Span
W6	PEM/ POW	2.14	0.5	10	--	Travel Lane, Work Pad, 1 Pole	Avoid, Matt and Span
W7	PEM	0.27	0	--	--	--	Avoid
W8	PEM	0.52	0.02	0	--	Travel Lane	Matt and Span
W9	PEM	0.02	0	--	--	--	Avoid
W10	PEM	0.07	0	--	--	--	Avoid
W11	PEM	0.08	0.01	0	--	Travel Lane	Matt and Span
W12	PEM	0.22	0.02	0	--	Travel Lane	Matt and Span
W13	PEM/ PFO	0.46	0.2	0	0.13	Travel Lane	Matt and Span
W14	PEM	0.17	0	--	--	--	Avoid
W15	PEM	0.03	0.04	--	--	Travel Lane	Avoid, Drive Around
W16	PFO	0.03	0.01	--	0.04	Travel Lane	Matt and Span
W17	PEM	0.02	0	--	--	--	Avoid

Delineation ID	Wetland Type[1]	Wetland Area (acres)	Temporary Impact (acres)	Permanent Impact (sq. ft)	Permanent Forest Conversion (acres)	Component Impacting Wetland	Avoidance/ Crossing Methods
W18	PFO	0.07	0	0	0.02	ROW	Avoid, Matt and/or Span
Total:		26.81 acres	5.15 acres	80 sq.ft.	4.4 acres		

[1]Wetland community types noted are based upon the Cowardin et al. classification system. PEM = Palustrine Emergent; PFO = Palustrine Forested

As indicated above two NYSDEC mapped wetlands (HR-7 and HR-8) where identified within and adjacent to the proposed ROW. It is anticipated that a small portion (0.33 acre) of the State regulated wetland buffers will be directly impacted by temporary access road construction. Additionally, the regulated buffer of NYSDEC Wetland HR-8 will be impacted by clearing for the ROW. A summary of potential regulated adjacent area impacts resulting from temporary access road construction is provided in Table 4-9.

Table 4-9 Potential NYSDEC Adjacent Area Impacts

NYSDEC Wetland ID	Delineation ID	Adjacent Area Cover Type	Temporary Soil Disturbance (acres)	Permanent Forest Conversion (acres)
HR-7	W2	Cropland	0.20	0
HR-8	W4	Forested	0.12	0.53

Avoidance and Mitigation

Where crossings of streams are required, the CWE Transmission Facility will employ the Best Management Practices associated with applicable streamside and wetland activities, as recommended by the NYSDEC. Otherwise, general standards and practices (such as matting and spanning) will be followed where impacts are unavoidable. Specific mitigation measures for protecting surface water resources, regardless of stream classification, will include the following:

- No Equipment Access Areas. If available and practical, alternate access will be used and the stream channel or waterbody designated “No Equipment Access,” thus prohibiting the use of motorized equipment. These areas will be shown on the Plan and Profile drawings.
- Restricted Activities Area. A buffer zone of 100 feet, referred to as “Restricted Activities Area”, will be established where the Transmission Facility right-of-way traverses streams and other bodies of water. These areas will be shown on the Plan and Profile drawings. Restrictions will include:
    - No deposition of slash within or adjacent to a stream channel;
    - No accumulation of construction debris within area;

- Herbicide restrictions within 100 feet of a stream or as required per manufacturer's instructions;
- No degradation of stream banks;
- No equipment washing or refueling within restricted area; and
- No storage of any petroleum or chemical material.

CWE will work in close cooperation with NYSDEC in developing low impact stream crossing techniques and will consider seasonal restrictions and alternative stream crossing methods, including temporary bridging and installation of crossings "in the dry". Site specific crossing techniques will be indicated on the final construction drawings.

To assure compliance with proposed mitigation measures during construction, the Applicant will provide the construction contractor copies of applicable Corps permits (Section 10 and 404), 401 Water quality Certification, and site-specific plans detailing construction methodologies sediment and erosion control plans and required natural resource protection measures. The Applicant will employ an Environmental Monitor during construction to ensure compliance with all plans and permit conditions.

The Spill Prevention Control and Countermeasure Plan (SPCC) prepared for the CWE Article 10 Application will be followed to prevent and mitigate impacts to groundwater resources due to fuel storage and/or refueling as necessary for the construction of the CWE Transmission Facility.

Indirect impacts to wetland water quality and vegetation may occur as a result of clearing activities and soil erosion, siltation and sedimentation from construction activities. Although the Transmission Facility will cross over wetlands, only minor permanent impacts are anticipated to occur from pole placement. The Applicant will work with the DEC and the USACE through final design to avoid impacts to wetlands and streams to the maximum extent practicable.

Aesthetic, Visual and Recreational Resources

This section addresses the visual and aesthetic impacts resulting from the construction and operation of the proposed Transmission Facility. The study examines the visual and aesthetic resources within an area extending out to a 3-mile radius from the centerline of the proposed transmission route. This visual study, also called the Visual Impact Assessment (VIA), evaluates the potential impacts on these resources, so as to determine whether the proposed Transmission Facility and its right-of-way, "avoid scenic, recreational, and historic areas," and whether the right-of-way has been, "routed to minimize its visibility from areas of public view."

The VIA of the proposed Transmission Facility was conducted by EDR and was prepared in accordance with 16 NYCCR §86.5(b)(2)(i), (ii), and (iv) (8) (see Appendix 4f). This study evaluates the potential project visibility and visual impact through the use of viewshed analysis, line-of-sight cross section analysis, field evaluation, and computer-assisted visual simulations.

Existing Resource Inventory

The visual study for the proposed Transmission Facility includes the characterization of Landscape Similarity Zones (LSZ) and the identification and location of visually-sensitive or significant resources. To identify the LSZs and significant resources within the visual study area., EDR consulted a variety of data sources, including: digital geospatial data (shapefiles) obtained primarily through the NYS GIS Clearinghouse and/or Environmental Systems Research Institute (ESRI); numerous national, State, county and local agency/program websites.

Five distinct LSZs were identified within the visual study area including: (1) Forest, (2) Rural Upland, (3) Rural Valley, (4) City/Village, and (5) Hamlet. These LSZs were defined based on the similarity of various landscape characteristics including landform, vegetation, water, and land use patterns in accordance with visual methods established by the USDA Forest Service, USDOT Federal Highway Administration, and Bureau of Land Management. Further discussion of LSZs are included in Section 3.3 of the VIA (Appendix 4f).

In accordance with standard visual impact assessment practice in New York State, visually sensitive resources (VSRs) were identified in accordance with guidance provided by NYSDEC Program Policy DEP-00-2 Assessing and Mitigating Visual Impacts (NYSDEC, 2000), which defines specific types of properties as VSRs of statewide significance. In addition, EDR identified other resources that could be considered visually sensitive based on the type or intensity of use they receive. The categories of VSRs that require consideration in this VIA and their occurrence within the visual study area are listed below in Table 4-8. See Appendix 4f for a complete list of resources and their potential visibility.

Table 4-10. Visually Sensitive Resources Types and Occurrence within the Visual Study Area

Visually Sensitive Resource Type	Occurrence within the Visual Study Area
Properties Listed on the National or State Register of Historic Places	8
Properties Eligible for Listing on the National /State Register of Historic Places	12
National Wildlife Refuges, State Game Refuges and State Wildlife Management Areas	0
National Natural Landmarks	0
National Parks, Recreation Areas, Seashores and/or Forests	0
National or State Designated Wild, Scenic, or Recreational Rivers (NYSDEC pursuant to ECL Article 15 or the U.S. Department of the Interior pursuant to 16 USC Section 1271) & Nationwide Rivers Inventory (NRI)	1
Federal and State Designated Trails	2
NYSDEC Trails	3
Snowmobile Trails	1
State Parks	0
State Designated Heritage Areas	0
State Forest Preserve Lands (Adirondack and Catskill Parks)	0

Visually Sensitive Resource Type	Occurrence within the Visual Study Area
State Nature and Historic Preserve Areas	0
NYSDEC Lands	5
Sites, Areas, Lakes, Reservoirs or Highways Designated or Eligible as Scenic	0
Scenic Areas of State Wide Significance (SASS)	0
Adirondack Park Scenic Vistas	0
Palisades Park	0
Areas of Intensive Land Use (City, Village, Hamlet)	4
Transportation Corridors	3
Local Parks and Recreation Areas	3
NYSDEC Public Fishing Rights	1
School and College Campuses	2
Cemeteries	8
Locally Identified Resources	11
Total VSRs	64

Viewshed Analysis

As part of the VIA, an analysis of potential project visibility was undertaken to identify those locations where there is a relatively high probability that the proposed Transmission Facility will be visible from ground-level vantage points. Topographic viewshed maps for the Transmission Facility were prepared using 10-meter digital elevation model (DEM) data, the location and height of the tallest proposed station component (tower structures), and ESRI ArcGIS® software with the Spatial Analyst extension. See Appendix 4f for a complete discussion on the methodology for conducting the viewshed analysis.

Visual Simulations

To show anticipated visual changes associated with the proposed Transmission Project, high-resolution computer-enhanced image processing was used to create realistic photographic simulations of the proposed Project from each of the nine selected viewpoints. Coordinates for proposed pole locations and 2D and 3D drawings of the proposed transmission line were provided to EDR by the Applicant. EDR used these drawings as a template to generate 3D models of each structure type, insulators, conductors, and static wire. See Appendix 4f for a complete discussion on the methodology for preparing the visual simulations.

Environmental Effects and Mitigation

As part of the VIA, an analysis of potential project visibility was undertaken to identify those locations where there is a relatively high probability that the proposed transmission line will be visible. This analysis includes identifying potentially visible areas based on viewshed mapping, line-of-sight cross section analysis, and field verification.

Generally speaking, topography provides little screening in areas within 0.5 to 1 mile of the proposed centerline and increasingly limits views as distance from the centerline increases. Portions of the visual study area where there is no possibility of seeing the proposed transmission structures include most stream valleys that lie in the outer portions of the visual study area, more than 0.5 mile from the transmission line (e.g. portions of Crosby Creek, Cunningham Creek, Purdy Creek, Stephens Creek, Fall Creek, Bennett Creek, and Milwaukee Creek). NYS Route 417 is fully screened from the Transmission Facility views by intervening topography, as is a long section of NYS Route 248. Factoring vegetation into the viewshed analysis, in combination with topography, significantly reduces potential visibility throughout the visual study area. The combination of these features will serve to block views of the Transmission Facility from approximately 86% of the 3-mile radius study (i.e., 14% of the visual study area is indicated as having potential visibility).

Beyond evaluating potential Project visibility, the VIA also examined the visual impact of the proposed Transmission Facility on the LSZs, identified VSRs, and viewer groups within the visual study area. This assessment involved creating computer models of the proposed transmission line structures, selecting representative viewpoints, and preparing computer-assisted visual simulations of the proposed Transmission Facility. See Appendix 4f for a complete discussion on the existing and proposed views along with the visual simulations.

Cultural Resources

CWE contracted with Panamerican Consultants, Inc. (PCI) to conduct a Phase 1A Cultural Resources Investigation, Phase 1B Archaeological Investigation, and Phase 1B Architectural Resource Survey for CWE and the associated Transmission Facility (PCI, 2017; PCI, 2018b; PCI, 2018a). This investigation examines archaeological and architectural/historic resources within the area of potential effect (APE) using data reviews and field surveying techniques. Results of the Phase 1A Cultural Resources Investigation are discussed below, and the Phase 1B Archaeological Investigation is included in Appendix 4b.

Background

The area surrounding CWE and the Transmission Facility has primarily been affected by agricultural land use and forest clearing in recent centuries. Prior to that, Paleo-Indians occupied various parts of New York State. These nomadic people eventually began settling into hunting camps and building communities in the late Woodland Period. When European settlers came to New York, many Native Americans engaged in fur trade. Haudenosaunee people engaged on either side of the Revolutionary War and eventually lost their claim to the land at the Treaty of Big Tree. The land that would eventually become Steuben County was home to several industries, including agriculture, dairying, lumbering, oil drilling, and salt mining. Today, the primary industry is agriculture, with many communities remaining small and rural in character. In their Cultural Resources investigation, PCI identified several farmsteads, school, cemeteries, and churches within the study area for the CWE Transmission Facility.

Archaeological Resources Survey

CWE contracted with PCI to conduct a Phase I A Cultural Resources Investigation and a Phase 1B Archaeological Investigation to evaluate archaeological sensitive areas in proximity to the Transmission Facility. The Phase 1A report examined previously identified archaeological sites and historic maps to determine survey locations for the Phase 1B Archaeological Investigation (PCI, 2018). Based on the Phase 1A findings, field investigations for the Phase 1B Archaeological Investigation focused on the 4.4-mile stretch of Transmission Facility that runs closest to the Canisteo River.

Field investigations for the Phase 1B Archaeological Investigation were conducted in July and August of 2018 within a 100-foot ROW along a 4.4-mile stretch of the proposed Transmission Facility (hereafter referred to as the area of potential effect or APE). Field surveys included shovel pit tests and systematic surface inspections. Laboratory analysis included the grouping and categorization of lithic artifacts and debitage by morphology, material, and function. The purpose of such analysis is to distinguish tool manufacturer from tool maintenance activities and enable inferences to be made about prehistoric site use and settlement patterns.

A total of 2,563 shovel test pits and 15 acres of surface surveys were performed within the APE. Field surveys identified four broadly defined, precontact or historic Native American, archaeological sites, and scattered artifacts within the APE. All of the site were in proximity to the Canisteo River.

Additional artifacts were identified outside of the four precontact sites; however, these were not considered to represent archaeological sites due to their isolated locations or surrounding disturbances. Additional information regarding archaeological findings is provided in Appendix 4b.

Architectural/Historic Property Structures Survey

CWE contracted with PCI to conduct an architectural/historic resources survey for the Transmission Facility. The purpose of the study was to identify and assess all buildings/structures of at least 50 years of age or older to determine the potential of New York State/National Register of Historic Places (S/NRHP) eligibility using National Register Criteria for Evaluation. The survey also examines resources previously inventoried for listing or eligibility with S/NRHP.

Data sources for the survey include archival, documentary, and historical map research; New York State Historic Preservation Office (NYSHPO) Cultural Resources Information System (CRIS) database; and field reconnaissance of historical structures (i.e. minimum of 50 years old). Field reconnaissance was conducted in August 2018 and was broken out into previously inventoried resources and newly inventoried resources. For previously inventoried resources, survey methods included the collection of GIS data, building information, and photographs. For newly inventoried resources, data collection included location, architectural style, physical characteristics, building material, integrity of the resource and its setting, current/historic use, and other defining features.

The architectural survey was conducted in the following municipalities for which the Transmission Facility traverses: Towns of Canisteo, Hornellsville, and Jasper, City of Hornell, and the Village of

Canisteo. A summary of the architectural resources survey is outlined below by municipality. Additional information is provided in Appendix 4b.

Town of Canisteo

A total of 13 historic resources were identified in the Town of Canisteo by PCI. Two of the resources were previously inventoried and evaluated as National Register- Eligible (S/NRE); the Laurel Glen Stock Farm and the Catatunk Road Bridge. The following unevaluated resources, three newly inventoried and one previously inventoried, were recommended for S/NRE status:

- South Canisteo United Methodist Church & Rectory
- Stephens House/Willow Bend Farm (USN 10107.000039)
- Stephens Cemetery
- Bennetts Cemetery

Additional unevaluated resources identified in the Town of Canisteo include five newly inventoried cemeteries and two previously inventoried resources. These resources were not recommended for New York State/National Register-Eligible (S/NRE) or New York State/National Register-Listed (S/NRL) status by PCI.

Town of Hornellsville

Three historic resources were identified in the Town of Hornellsville, including two previously inventoried and one newly inventoried resource. One previously inventoried, unevaluated resource (USN 10117.000026) was recommended by PCI to not be eligible for S/NRE or S/NRL status. The other previously inventoried, unevaluated resource is the McBurney House (USN 10117.000001/000002), located along McBurney Road, which is recorded as the oldest house in Steuben County. Local historians have also identified the house as being associated with the Underground Railroad. PCI recommends further evaluation for the McBurney House in its NRHP status.

Another house located along McBurney Road was identified and newly inventoried by this survey. The Federal-styled residence was largely obscured from the road by trees and vegetation, so PCI recommended the site hold a status of unevaluated.

Town of Jasper

A total of 19 resources were identified in the Town of Jasper, by the architectural resources survey. One previously inventoried resource, a Queen Anne residence located off of Highup Road, has the status of S/NRE. Seven additional, previously inventoried resources were identified in the Town of Jasper including five cemeteries), “The Wigwams,” and an unidentified building. The five cemeteries were recommended by PCI to be evaluated as not eligible for NRHP inclusion due to lacking criteria.

Additionally, 11 newly inventoried resources were identified in the Town of Jasper by PCI. Of these resources, seven were recommended to be evaluated as S/NRE. The seven resources include:

- Jasper Grange Hall
- Residence, Greek Revival
- Five Corners Cemetery
- Schenck Cemetery
- Hampshire Cemetery
- Jasper Village Cemetery
- Talbot Cemetery

The remaining four newly inventoried resources were identified as cemeteries and were recommended to be categorized as unevaluated.

City of Hornell

A total of 194 architectural/historic structures were identified in the City of Hornell based on historic database reviews and field surveys. Of the 194 resources, 185 were previously inventoried and unevaluated. PCI recommends that the 185 resources be not eligible for listing under NRHP. These resources represent buildings that have been altered, changed, stripped, or removed, thereby negating individual and/or collective characteristics that are required for the NRHP.

One S/NRL resource and one S/NRE resource were identified in the City of Hornell, the Lincoln School, and the Erie Railroad Station, respectively. Additionally, seven newly inventoried resources were recommended by PCI to be evaluated as S/NRE. Those resources include:

- Rehobeth Deliverance Ministry (USN 10141.000898)
- Craftsman residence (USN 10141.000110)
- Residence, Greek Revival (USN 10141.000158)
- Late 19th-century residence with gable details (USN 10141.000756)
- Residence, late 19th century
- Residence, Queen Anne
- Residence, Queen Anne, brick

Village of Canisteo

Within the Village of Canisteo, 39 architectural/historic resources were identified by the survey. Three of these resources were previously inventoried and evaluated as S/NRL or S/NRE. The Canisteo Living Sign located along NY 248 is currently listed on the NRHP, while the Canisteo-Greenwood High School and a commercial building at 1 Main Street are evaluated as S/NRE.

Of the 39 identified resources, 24 newly inventoried resources were recommended for S/NRE status. Thirteen of these resources are recommended for individual S/NRE status, but also contribute to the establishment of two historic districts; the East Main Street Historic District and the Prospect Avenue Historic District. The remaining 11 newly inventoried resources recommended for S/NRE status are located outside of the historic districts.

Additionally, 12 previously inventoried resources were identified by the survey and recommended to be evaluated as not eligible for NRHP status due to lack required criteria. For further information, reference Appendix 4b.

Impacts and Mitigation

Archaeological Resources

Based on the results of archaeological field surveys, Precontact Sites 1 through 4 are potentially eligible for listing in the NRHP. However, CWE anticipates avoiding precontact sites to the maximum extent practicable by making the construction APE smaller than the 100-foot APE used in the Phase 1A and Phase 1B surveys, by using steel monopole tower structures, which would reduce the APE to 80-feet. Timber matting may be used during construction to mitigate potential site damage. Where archaeological sites are unavoidable, CWE will perform Phase 2B surveys in coordination with SHPO, USACE, and tribal authorities.

CWE will not initiate additional investigation for the isolated artifacts. According to PCI, the isolated artifacts are stray deposits and are not indicative of the presence of archaeological sites with potential for listing in the NRHP.

Historic Property Visual Resources

The most significant impacts will occur in rural agricultural landscapes, and other open/clear views of the proposed Transmission Facility. Some screening will be afforded by natural landscape, trees, shrubs, and other vegetation.

CWE will mitigate adverse visual effects to S/NRE and S/NRL properties in accordance with Section 106 of the National Historic Preservation Act and Article 8 of the New York State Environmental Conservation Law. CWE proposes the following criteria for “historical mitigation”:

- Be consistent with the guidance of NYSHPO
- Have historical significance
- Serve a public historic purpose
- Be a good investment
- Be appropriate to the state of preservation of local historical resources

Noise Impacts

Potential impacts as a result of noise generally occur within two categories: short-term impact from construction and long-term impact from operation. Construction-related noise could result from construction of the substations and installation of the Transmission Facility. Long-term related noise impacts would potentially result from the operation of the Transmission Facility, primarily from the collection or POI substation. Hankard Environmental Inc. (HEI) has evaluated predicted noise levels during construction and operation of the Transmission Facility, as well as applicable standards and potential mitigation measures in the Pre-Construction Noise Analysis (Appendix 4g). These impacts are summarized below by project component.

Construction

In general, the sound levels from construction activities will be dominated by the loudest piece of equipment operating at the time. Therefore, at any given point along the work area, the loudest piece of equipment will be the most representative of the expected sound levels in that area. Construction equipment is generally not operated continuously at maximum load, with significant variation in power and usage. Actual received sound levels fluctuate depending on the construction activity, equipment type, and separation distances between source and receiver. Other factors, such as terrain and obstacles such as buildings, will act to further limit the impact of construction noise levels.

Construction activity noise levels will vary depending on the phase of construction in progress at any one time. These construction phases include site preparation, installation, and site finishing. HEI evaluated noise under two different conditions including the one-hour average noise level, and a maximum noise level. Then taking those conditions, HEI analyze noise levels as distance from the construction area increases. Distances used for the purpose of the analysis were 180 feet (closest residence to construction), 350 feet, 1,000 feet, and 0.5 mile.

Table 4-11. Predicted Construction Noise Levels

Construction Phase	Noise Level at 180 feet (dBA)	Noise level at 350 feet (dBA)	Noise level at 1,000 feet (dBA)	Noise Level at 0.5 mile (dBA)
Clearing	84	76	67	59
Foundation	81	73	64	56
Setting	82	74	65	57
Stringing	81	73	64	56
Underground	80	72	63	55

Predicted sound levels resulting from construction ranges from 55 dBA to 84 dBA, depending on location from the site and phase of construction. However, much of the time, levels will range from about 55 dBA to 75 dBA when construction is occurring at further distances. Construction will be temporary, lasting approximately for approximately 16 weeks, and will be conducted during daytime hours. Therefore, construction of the Transmission Facility is not anticipated to create any significant noise impacts.

NYSDEC recommended noise mitigation for any given project and the applicability to the Transmission Facility are discussed below:

- Replacing back-up beepers on machinery with strobe lights to eliminate annoying impulse beeping. This mitigation measure is appropriate for nighttime work or on projects where work is concentrated in one area for an extended period of time. It is not necessary for the Transmission Facility given that no nighttime work is proposed and construction near any one residence will not last more than a few days to a week at a time.
- Using appropriate mufflers to reduce the frequency of sound on machinery that pulses, such as diesel engines and compressed air machinery. Construction equipment for the

Transmission Facility will have functional, well-maintained mufflers on all engine-equipped machinery.

- Reduce noise duration by limiting the number of days of operation, hours of operation, and specifying the time of day and limiting noisier operations to normal work day hours. All construction activities for the Transmission Facility will take place during daytime hours (7:00 AM to 7:00 PM) and no construction will be allowed on Sundays.

The Applicant will also communicate with the public and respond to complaints as indicated in the Complaint Resolution Plan, outlined in the Article 10 Application. Further information on construction impacts and mitigations measures are provided in Appendix 4g.

Operation

After construction, the only noise from the Transmission Facility operation is that of the relatively faint "corona effect" which can occur during damp weather. Under these conditions, power lines sometimes emit a crackling sound due to the small amount of electricity ionizing the moist air near the wires. HEI analyzed the noise levels from corona discharge using methods and equations developed by the Bonneville Power Administrations (BPA). Noise levels were predicted 40 feet from either side of the Transmission Facility, at the single closest residence (180 feet), and at a distance of 250 feet that is representative of the next few closest residences. At all locations and under all conditions, corona noise is expected to be inaudible and is not expected to increase ambient noise levels at any of the residences located adjacent or near the Transmission Facility. Further details are provided in the Pre-Construction Noise Analysis (Appendix 4g).

Electric and Magnetic Field Strengths

The proposed transmission line and the respective right-of-way cross-sections were analyzed to determine compliance with the PSC's requirements referenced in the Statement of Interim Policy and Magnetic Fields, dated September 11,1990 and in Opinion No. 78-13. The PSC requires that the electric field strength measured at one meter above the ground at all locations along the edge of the ROW shall be less than 1.6 kV/m. The PSC also requires that the electric field strength at one meter above ground within the ROW shall be less than 7.0 kV/m over public roads, 11.0 kV/m over private roads, and 11.8 kV/m over all other areas. The PSC requires that magnetic field strength at one meter above ground at the edge of the ROW does not exceed 200 milligauss (mG).

Electric and magnetic field (EMF) values were calculated using PLS-CADD software, based on preliminary structure drawings prepared by ECI (see Appendix 4j). Calculations were made using typical values for two structure types: steel monopole and wooden H-frame. The line currents used for the EMF calculations were based on the maximum load for this line of 290 MW for 100% loading and 92.8 MW for a capacity factor of 32%. The resulting line currents of 1,454 Amps and 465 Amps, respectively, assume a power factor of 100%.

The maximum electric field density observed at 100% loading capacity along the ROW was 1.94 kV/m between towers 33 and 34. This is well below the New York State guideline of 11.8 kV/m.

The maximum magnetic field density observed at 100% loading capacity along the edge of the ROW was 106.07 mG; this value is also well below the State guideline of 200 mG. For more information regarding the EMF Study, please reference Appendix 4j.

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