

**BEFORE THE  
PUBLIC SERVICE COMMISSION  
STATE OF NEW YORK**

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Application of New York Power Authority for a	)	
Certificate of Environmental Compatibility and	)	
Public Need for the Rebuild of the Existing Moses-	)	
Adirondack 1&2 230 kV Transmission Lines	)	
Extending approximately 86 miles from the Robert	)	Case No.: 18-T-XXXX
Moses Switchyard in the Town of Massena, St.	)	
Lawrence County to the Adirondack Substation in	)	
the Town of Croghan, Lewis County, New York.	)	
	)	

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**NEW YORK POWER AUTHORITY  
MOSES-ADIRONDACK SMART PATH RELIABILITY PROJECT**

**EXHIBIT 4  
ENVIRONMENTAL IMPACTS**

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## **EXHIBIT 4: ENVIRONMENTAL IMPACTS**

Exhibit 4 addresses the requirements of 16 NYCRR § 86.5.

### **4.1. Introduction**

The Power Authority of the State of New York, doing business as New York Power Authority (“NYPA” or the “Applicant”), proposes to rebuild the existing 230 kilovolt (“kV”) Moses-Adirondack 1 & 2 transmission lines (“MA1&2”), which extend approximately 86 miles between the St. Lawrence Power Project’s Robert Moses Power Dam Switchyard (“Moses Switchyard”) in the Town of Massena, St. Lawrence County, New York (“NY”) and the Adirondack Substation in the Town of Croghan, Lewis County, NY (the “Project”). The MA1&2 transmission lines were built in 1942 and transferred to NYPA in 1950. Since that transfer, the MA1&2 lines have at all times been owned, operated, and maintained by NYPA. The MA1&2 lines consist of approximately eight (8) miles of double-circuit lattice structures and approximately seventy-eight (78) miles of single-circuit predominantly wood H-frame structures. The Project proposes to rebuild the MA1&2 lines as two single-circuit 345 kV lines on steel monopoles, operated initially at 230 kV. In addition, the Project includes the future construction of new 345 kV switchyards at the existing Moses Switchyard and at the Adirondack Substation. With the exception of an approximate one-mile re-route of the Project at the State University of New York at Canton (“SUNY Canton”) campus, the Project would be constructed entirely within an existing right-of-way (“ROW”) maintained by NYPA. NYPA will construct the Project in two phases. The first phase of the Project, Phase One, will involve rebuilding the existing approximately 78-mile single-circuit predominantly wood pole portion of the line with single-circuit steel monopoles. Phase Two of the Project will involve rebuilding the existing

eight-mile double-circuit steel lattice with single-circuit steel monopoles, rebuilding 0.4 miles of single-circuit steel lattice structures into Adirondack Substation with single-circuit steel monopoles, and constructing the new 345 kV switchyards at the Moses Switchyard and the Adirondack Substation.

#### *4.1.1. Summary of Exhibit*

The subsequent sections adhere to the requirements of Article VII of New York’s Public Service Law, regarding the siting of major utility transmission facilities, and the statute’s implementing regulations addressing applications for Certificates of Environmental Compatibility and Public Need. *See* 16 NYCRR § 86.5 (addressing the requirements of Exhibit 4).

NYPA completed environmental studies for the Project to assess existing conditions along the ROW proposed to be certificated in this filing (“Proposed ROW”) and the areas proposed for the new 345 kV facilities at the Moses Switchyard and Adirondack Substation, including biological resources; physical conditions; cultural resources; aesthetic, visual, and recreational resources; land use; and noise. These environmental studies were conducted within NYPA’s existing ROW, the proposed re-routed ROW on the SUNY Canton campus and at the Moses Switchyard and Adirondack Substation. After the season for field investigations was over, refined preliminary engineering accounted for constructability and outage considerations which adapted preliminary siting of structures within NYPA’s existing ROW, but at a slightly different orientation within the existing ROW. This resulted in two areas of the Project’s Proposed ROW where environmental studies could not be completed prior to the filing of this Application, including (1) a linear area approximately 6.2 miles long and 40 to 50 feet wide, located to the

north of the existing MA1&2 ROW and at the northern portion of the Proposed ROW and (2) a triangular area of approximately 0.25 miles long and up to 250 feet wide within the SUNY Canton campus. These areas will require field investigations, and applicable updates to existing conditions and potential environmental impacts if necessary, prior to completion of the Project's Environmental Management and Construction Plan ("EM&CP"). The results of the completed environmental studies are summarized in Section 4.2 and have been used to study and evaluate the Project's environmental impacts, including, but not limited to, siting of permanent structure locations, siting of temporary facilities (such as, but not limited to, laydown areas, access roads, and pulling stations) and siting of switchyard facilities. Effects to resources and mitigation and protection measures are summarized in Section 4.3 and Section 4.4, respectively.

Based on the analysis provided within this Exhibit and the mitigation and protection measures proposed by NYPA, the Project presents the minimum adverse impacts considering the state of technology and impacts to environmental resources.

#### **4.2. Environmental Studies Completed (16 NYCRR § 86.5(a))**

*16 NYCRR § 86.5(a) The applicant shall submit a statement describing any study which has been made of the impact of the proposed facility on the environment. That statement shall include a description of the methods employed in making that study and a summary of its findings.*

##### *4.2.1. Introduction of Environmental Studies*

The Project is the rebuild of existing transmission lines on an existing maintained ROW. NYPA has previously identified environmentally sensitive locations along this ROW and is protective of these areas during ROW maintenance activities. To the maximum extent feasible, in order to minimize impacts, NYPA is proposing new structures in the vicinity of existing disturbed

structure locations and will use existing access roads and the existing methods for ROW management.

The Project proposes to install two (2) lines of single-circuit monopoles for the MA1&2 lines. For the first eight (8) miles of Proposed ROW, the proposed monopoles will replace a single line of existing double-circuit lattice structures. For the remaining 78 miles of ROW, the proposed monopoles will replace the two (2) lines of single-circuit predominantly wood H-frame structures. Additionally, the Project proposes constructing 345 kV switchyards at the existing Moses Switchyard and the existing Adirondack Substation.

In addition to the new structures and 345 kV switchyard facilities, construction of the Project would require temporary laydown areas, temporary access roads and temporary pulling stations. To assist with siting these temporary facilities, siting the permanent structure and access road locations, and minimizing the environmental impact of the Project, NYPA completed environmental studies along the ROW. The studies are as follows:

- Study of existing biological resources (e.g., vegetation, wildlife, threatened and endangered species)
- Study of existing physical conditions (e.g., surface waters, wetlands, topography, geology, and soils)
- Study of existing cultural resources (e.g., historic and archaeological)
- Study of the aesthetic, visual, and recreational resources
- Study of existing land use (e.g., agricultural, scenic areas)
- Study of electromagnetic field (“EMF”) strength and noise

The description of the methods employed in conducting the studies and a summary of their findings is included in sections 4.2.1 through 4.2.9.

Field evaluations, existing data review, literature review, and agency consultations were conducted to identify, quantify, and describe existing environmental conditions within the Study Area, as defined below.

Field evaluations during the fall of 2015 through summer of 2016 and fall of 2017 addressed physical conditions (e.g., geology, surface waters), biological resources (e.g., vegetation, wildlife), cultural resources (e.g., historic, archaeological), and land use (e.g., agriculture, scenic areas). Data collected and analyzed included, but were not limited to, the St. Lawrence County and Lewis County Soil Survey, recent aerial photography, United States Geological Survey (“USGS”) topographic quadrangle maps, National Wetland Inventory (“NWI”) maps, New York State Department of Environmental Conservation (“NYSDEC”) Freshwater Wetland Maps, County and NYSDEC mapped streams, and Federal Emergency Management Agency (“FEMA”) Flood Insurance Rate Map (“FIRM”) floodplain mapping. In addition, consultations with local municipalities, the New York State Department of Public Service (“DPS”), the New York State Department of Agriculture and Markets (“NYS DAM”), NYSDEC, the Adirondack Park Agency (“APA”), New York Natural Heritage Program (“NYNHP”), and U.S. Fish and Wildlife Service (“USFWS”) were also conducted, and included letters, telephone and electronic communication, and offsite meetings (*see* Appendix A).

Separate studies were conducted to address specific resources such as a Blanding’s Turtle Habitat Assessment Report (Appendix B), Invasive Species Report (Appendix C), Aquatic

Resource Delineation Report (Appendix D), Phase I Archaeology Report (Appendix E), Architectural Report (Appendix F), Visual Impact Assessment (Appendix G), and an Electric and Magnetic Field Analysis (Appendix H).

A summary of the results of the desktop and field investigations and separate studies is presented below by resource area. The “Study Area,” defined for the purposes of describing the existing environment and any potential environmental effects, varies by resource type. For all resource analysis concerning land use and land features (vegetation, wetlands, soils, etc.), the Study Area consists of the areas where the proposed new 345 kV switchyards would be located, as well as a 250-foot-wide by 86-mile-long (with the exception of 350-foot-wide in the first 1.8 miles) area chosen based on the existing centerline of the existing MA1&2 structures and the proposed re-route within the SUNY Canton campus. The expansion of the Study Area in the first 1.8 miles to 350 feet wide was done to allow NYPA to make an informative decision on the appropriate location of the Proposed ROW within that 350-foot-wide area. The Proposed ROW, however, shall remain at 250 feet wide for the entire length of the Project, including the first 1.8 miles. For cultural resources and visual impacts, the Study Area was increased to encompass additional area beyond the Proposed ROW. These are discussed in Section 4.2.6 for cultural resources and Section 4.2.7 for visual impacts.

The Proposed ROW to be certificated under this Article VII filing will be a 250-foot-wide by 86-mile-long existing MA1&2 ROW, including the re-routed ROW within the SUNY Canton campus. After the season for field investigations was over, refined preliminary engineering accounted for constructability and outage considerations adapting preliminary siting of structures within NYPA’s existing ROW, but at a slightly different orientation within the existing ROW.

This resulted in two areas of the Project's Proposed ROW where environmental studies could not be completed prior to the filing of this Application, including (1) a linear area approximately 6.2 miles long and 40 to 50 feet wide, located to the north of the existing MA1&2 ROW and at the northern portion of the Proposed ROW and (2) a triangular area of approximately 0.25 miles long and up to 250 feet wide within the SUNY Canton campus. Field investigations of these areas will be finished prior to completion of the EM&CP. As a result, Proposed ROW calculations presented in this Exhibit do not include numbers for these additional areas, as applicable. In addition to the MA1&2 rebuild, two new 345 kV switchyard facilities would be certificated, one located at the existing Moses Switchyard and one located adjacent to the existing Adirondack Substation.

#### *4.2.2. Vegetative Communities*

NYPA identified and characterized existing vegetative communities within the Study Area through reconnaissance-level field surveys and using the USGS National Land Cover Dataset ("NLCD") land cover classifications, which are based primarily on Landsat (satellite) imagery. Additionally, NYPA consulted with the NYNHP to determine if any unique, uncommon, or otherwise rare vegetative communities were present within the Study Area or its vicinity (*see* Appendix A).

The 2011 NLCD mapping was used to identify existing land cover types that occur within the Study Area (Figure 4-3: Land Cover). This dataset identifies the following cover types within the Study Area:

- Cultivated Crops – Areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for more than 20% of total vegetation. This class also includes all land being actively tilled.
- Deciduous Forest – Areas dominated by trees generally more than five (5) meters (approximately 16 feet) tall and more than 20% of total vegetation cover. More than 75% of the tree species shed foliage simultaneously in response to seasonal change.
- Developed, Open Space – Areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20% of total cover. These areas most commonly include large-lot, single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.
- Developed, Low Intensity – Areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20-49% of total cover. These areas most commonly include single-family housing units.
- Developed, Medium Intensity – Areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50-79% of the total cover. These areas most commonly include single-family housing units.
- Mixed Forest – Areas dominated by trees generally more than five (5) meters (approximately 16 feet) tall, and more than 20% of total vegetation cover. Neither deciduous nor evergreen species is greater than 75% of total tree cover.

- Woody Wetlands – Areas where forest or shrubland vegetation accounts for more than 20% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.
- Pasture/Hay – Areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for more than 20% of total vegetation.
- Emergent Herbaceous Wetlands – Areas where perennial herbaceous vegetation accounts for more than 80% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.
- Shrub/Scrub – Areas dominated by shrubs; less than five (5) meters (approximately 16 feet) tall with shrub canopy typically more than 20% of total vegetation. This class includes true shrubs, young trees in an early successional stage, or trees stunted from environmental conditions.
- Open Water – Areas of open water, generally with less than 25% cover of vegetation or soil.
- Barren Land (Rock/Sand/Clay) – Areas of bedrock, desert, pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits, and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover.
- Evergreen Forest – Areas dominated by trees generally greater than five (5) meters (approximately 16 feet) tall, and more than 20% of total vegetation cover. More than 75% of the tree species maintain their leaves all year. Canopy is never without green foliage.

- Grassland/Herbaceous – Areas dominated by graminoid or herbaceous vegetation, generally more than 80% of total vegetation. These areas are not subject to intensive management such as tilling, but can be used for grazing.

The NLCD 2011 data was updated to accurately reflect onsite conditions noted during field surveys conducted from October 27 through November 7, 2015; December 10, 2015; December 20 through December 22, 2015; and October 30 through November 1, 2017. The Aquatic Resource Delineation Report, Appendix D, Figure 3: Land Cover, shows the field-surveyed NLCD cover types identified within the Study Area. Table 4-1 provides a summary of these cover types.

**Table 4-1: Field-Surveyed NLCD Cover Types**

Habitat Type	Within Study Area		Within Proposed ROW	
	Acres	Percentage	Acres	Percentage
Barren Land (Rock/Sand/Clay)	128.5	4.8	128.2	5.0
Cultivated Crops	170.4	6.3	169.5	6.6
Deciduous Forest	57.9	2.1	39.5	1.5
Developed, High Intensity	86.6	3.2	52.5	2.1
Developed, Open Space	41.2	1.5	24.8	1.0
Emergent Herbaceous Wetlands	387.3	14.4	381.2	14.9
Grassland/Herbaceous	309.3	11.5	299.9	11.7
Mixed Forest	5.7	0.2	5.4	0.2
Open Water	50.6	1.9	41.4	1.6
Pasture/Hay	325.2	12.1	323.6	12.7
Shrub/Scrub	666.0	24.7	655.6	25.6
Woody Wetlands	465.8	17.3	437.2	17.1
<b>Total</b>	<b>2,694.5</b>	<b>100</b>	<b>2,558.8</b>	<b>100</b>

Field surveys revealed 12 general cover types within the Study Area. They included barren land, cultivated crops, deciduous forest, developed (high intensity), developed (open space), emergent herbaceous wetlands, grassland/herbaceous, mixed forest, open water, pasture/hay, scrub/shrub, and woody wetlands. Scrub-shrub was the most abundant cover type, comprising 24.7% (666.0 acres) of the Study Area. The second-most abundant cover type was woody wetlands, comprising 17.3% (465.8 acres) of the Study Area.

#### 4.2.2.1. *Rare, Threatened and Endangered Plant Species*

According to correspondence with the NYNHP, the following plant species have been documented in the Study Area:

- Drummond's Rock Cress (*Boechera stricta*) – Threatened
- Meadow Horsetail (*Equisetum pretense*) – Threatened
- Mock-pennyroyal (*Hedeoma hispida*) (historical record, 1915) – Threatened
- Wiry Panic Grass (*Panicum flexile*) – Rare
- Calypso (*Calypso bulbosa*) (historical record, 1929) – Endangered

A rare, threatened and endangered (“RTE”) plant survey was completed for the entire Study Area for each of these species. Surveys revealed the presence of three populations of wiry panic grass. The remaining plant species listed by NYNHP as documented within the Study Area were not identified during such survey. In addition to wiry panic grass, two populations of American bittersweet (*Celastrus scandens*), also considered rare in New York, but not documented by NYNHP in the Study Area, were also observed during field surveys. RTE native plants are protected under 6 NYCRR Part 193.3 pursuant to section 9-1503 of the New York

Environmental Conservation Law (“ECL”). No other rare, threatened, or endangered plant species have either been documented to occur within the Study Area or were identified in the Study Area during field surveys.

#### 4.2.2.2. *Significant Ecological Communities*

NYNHP also noted that several significant ecological communities are located in the vicinity of the Study Area, including the maple-basswood rich mesic forests of the Pitcairn Forest and Jerden Falls Forest, a Shallow Emergent Marsh/Shrub Swamp, and Cobble Shore Wet Meadow.

The Pitcairn Forest and Jerden Falls Forest are both considered maple-basswood rich mesic forests. This community type typically occurs on well-drained, moist soils of circumneutral pH (Edinger, 2014). Calcium-rich indicator herbs are predominant in the ground layer and are usually correlated with calcareous bedrock, although bedrock does not have to be exposed. Where bedrock outcrops are lacking, surficial features such as seeps are often present. The dominant trees are sugar maple (*Acer saccharum*), basswood (*Tilia americana*), and white ash (*Fraxinus americana*). This community type is considered “rare or uncommon” in New York; however, this designation does not afford protection by New York State regulation. NYNHP indicates that these two forests occur on New York lands, and are of good quality. Because the ecological community type comprising the Pitcairn and Jerden Falls Forests is located outside the Study Area, no impacts to this known resource would occur as a result of the Project and no further analysis has been conducted.

NYNHP indicates that a Shallow Emergent Marsh/Shrub Swamp wetland complex of excellent quality is located approximately 0.5 miles west of the Study Area within a New York state forest.

Shallow Emergent Marsh typically occurs on mineral soil or deep muck soils (rather than true peat), that are permanently saturated and seasonally flooded (Edinger, 2014). This marsh is better drained than a deep, emergent marsh; water depths may range from 15 centimeters to one (1) meter (six (6) inches to approximately three (3) feet) during flood stages, but the water level usually drops by mid-to-late summer, and the substrate is exposed during an average year. This is a very broadly defined wetland type that includes several distinct variants and many intermediates. Shallow Emergent Marshes are very common and quite variable. They may be co-dominated by a mixture of species or have a single dominant species.

Shrub Swamp occurs along the shores of lakes or rivers; in wet depressions or valleys not associated with lakes; or as transition zones between marshes, fens, or bogs and swamps or upland communities (Edinger, 2014). The substrate is usually mineral soil or muck. This is a very broadly defined type that includes several distinct communities and many intermediates. Shrub Swamps are very common and quite variable. They may be co-dominated by a mixture of species or have a single dominant shrub species.

Shallow Emergent Marsh and Shrub Swamp are considered “demonstrably abundant and secure” in New York and are therefore not afforded protection under RTE species regulation. In addition, the excellent quality Shallow Emergent Marsh/Shrub Swamp wetland complex identified by the NYNHP is not found within the Study Area, and thus, no impacts to these resources would occur as a result of the Project. Therefore, no further analysis is warranted.

NYNHP indicates that two instances of the Cobble Shore Wet Meadow cover type occur in the vicinity of the Study Area. Cobble Shore Wet Meadow communities are considered “imperiled”

in New York; however, these areas are not protected under RTE species regulation. This community occurs on the cobble shores of lakes and streams where the substrate is moist from seepage or intermittent flooding (Edinger, 2014). Known occurrences are found along the St. Lawrence and Wiley Dondero Canal. The substrate is typically a mixture of cobbles (exposed at the surface) and sand but can also include calcareous clay. These areas are likely to be scoured by floods or winter ice floes, but there is apparently no significant accumulation of pack ice. The substrate is typically periodically exposed and submerged with fluctuating water levels. Vegetation may be sparse and is predominately hydrophytic. NYNHP data indicate these two Cobble Shore Wet Meadows do not occur within the Study Area, and thus, no impacts to these resources would occur as a result of the Project. Therefore, no further analysis is warranted.

#### 4.2.2.3. *Invasive Plant Species*

Invasive plants include those that are non-native to a particular ecosystem, and whose introduction causes or is likely to cause economic or environmental harm, or harm to human health. Locating these unwanted species is a critical component of reducing the spread of these plants during and post-construction. The NYSDEC list of invasive plants contained in 6 NYCRR Part 575, dated September 10, 2014, was used as a reference during field surveys. Within the Study Area, 13 species, amounting to 189 invasive plant stands totaling approximately 232.5 acres, were identified during field surveys in the fall of 2015 and 2017. Invasive plant stands varied in size and percent cover. Mapping of these areas is included in the Invasive Species Report (Appendix C).

Table 4-2 provides a summary of the field investigation results and invasive plant species identified. The Invasive Species Report (Appendix C) provides detailed field survey results including estimated percent cover and acreage calculated for each stand identified. Common buckthorn (*Rhamnus cathartica*) was the most abundant invasive plant observed (53 stands comprising 90.9 acres). Tatarian honeysuckle (*Lonicera tatarica*) was the second-most abundant species observed (39 stands comprising 83.8 acres) followed by purple loosestrife (*Lythrum salicaria*) (35 stands comprising 72.5 acres). Invasive plant stands occurred in both upland and wetland areas, including 79.6 acres within NYSDEC jurisdictional wetlands and 24.7 acres within NYSDEC wetland adjacent areas.

**Table 4-2: Invasive Plant Summary**

Scientific Name	Common Name	Number of Stands in Study Area	Total Acreage in Study Area	Total Acreage in Proposed ROW
<i>Alliaria petiolate</i>	garlic mustard	2	0.5	0.5
<i>Cirsium arvense</i>	Canada thistle	11	8.4	8.4
<i>Cirsium vulgare</i>	bull thistle	1	0.7	0.7
<i>Elaeagnus umbellata</i>	autumn olive	1	0.1	0.1
<i>Frangula alnus</i>	glossy buckthorn	12	1.0	0.9
<i>Lonicera morrowii</i>	Morrow's honeysuckle	4	0.1	0.1
<i>Lonicera tatarica</i>	Tartarian honeysuckle	39	83.8	71.0
<i>Lythrum salicaria</i>	purple loosestrife	35	72.5	62.3
<i>Myriophyllum spicatum</i>	Eurasian water-milfoil	1	1.3	1.0
<i>Phragmites australis</i>	common reed	21	10.4	9.1
<i>Polygonum cuspidatum</i>	Japanese knotweed	7	1.6	1.5
<i>Rhamnus cathartica</i>	common buckthorn	53	90.9	77.0
<i>Rosa multiflora</i>	multiflora rose	2	0.1	0.1
	<b>Total</b>	<b>167</b>	<b>271.3</b>	<b>232.7</b>

#### 4.2.3. Fish and Wildlife

Information on the fish and wildlife resources in the Study Area was obtained from the New York Breeding Bird Atlas (“BBA”) (2008), the New York Reptile and Amphibian Atlas (2007), the National Audubon Society, the Hawk Migration Association of North America, NYNHP, and USFWS. Correspondence with NYNHP and the results of online consultation with the USFWS Information for Planning and Conservation (“IPaC”) website are included in Appendix A. Wildlife species and habitats documented during field work conducted in fall 2015 and 2017 are also included in the following section.

##### 4.2.3.1. Wildlife Species

The BBA has documented the presence of 143 breeding bird species in the Study Area (NYSDEC, 2008). Commonly documented species included wild turkey (*Meleagris gallopavo*), great blue heron (*Ardea herodias*), mourning dove (*Zenaida macroura*), northern flicker (*Colaptes auratus*), great crested flycatcher (*Myiarchus crinitus*), eastern kingbird (*Tyrannus tyrannus*), red-eyed vireo (*Vireo olivaceus*), blue jay (*Cyanocitta cristata*), American crow (*Corvus brachyrhynchos*), tree swallow (*Tachycineta bicolor*), barn swallow (*Hirundo rustica*), black-capped chickadee (*Poecile atricapillus*), house wren (*Troglodytes aedon*), veery (*Catharus fuscenscens*), American robin (*Turdus migratorius*), gray catbird (*Dumetella carolinensis*), European starling (*Sturnus vulgaris*), yellow warbler (*Setophaga petechia*), American redstart (*Setophaga ruticilla*), ovenbird (*Seiurus aurocapilla*), common yellowthroat (*Geothlypis trichas*), chipping sparrow (*Spizella passerine*), song sparrow (*Melospiza melodia*), rose-breasted grosbeak (*Pheucticus ludovicianus*), red-winged blackbird (*Agelaius phoeniceus*), common

grackle (*Quiscalus quiscula*), and American goldfinch (*Spinus tristis*). Onsite habitat observations in 2015, as described in the Aquatic Resources Delineation Report (Appendix D), confirmed that the Study Area includes significant habitat for bird species that use Scrub/Shrub and Forest Edge habitats.

The Study Area is located less than one (1) mile from the NYSDEC's listed Upper and Lower Lakes Bird Conservation Area ("BCA"), which is located to the west of the Village of Canton (NYSDEC, 2016d). This BCA is a large complex of open water surrounded by marsh, shrub, swamp, and upland forest. Upland areas include grassland and some shrubland, as well as forest. Species of interest within this BCA include: black tern (*Chlidonias niger* – Endangered), pied-billed grebe (*Podilymbus podiceps* – Threatened), least bittern (*Ixobrychus exilis* – Threatened), northern harrier (*Circus cyaneus* – Threatened), upland sandpiper (*Bartramia longicauda* - Threatened), sedge wren (*Cistothorus platensis* – Threatened), American bittern (*Botaurus lentiginosus* - Special Concern), osprey (*Pandion haliaetus* - Special Concern), common loon (*Gavia immer* - Special Concern), and cerulean warbler (*Setophaga cerulean* - Special Concern). This BCA supports or is likely to support breeding of each of these listed species. The Upper and Lower Lakes BCA is part of the National Audubon Society-identified Lisbon Grasslands Important Bird Area ("IBA") (Audubon, 2017a). As an important wetland complex, this IBA also supports breeding American black duck (*Anas rubripes*), American woodcock (*Scolopax minor*), willow flycatcher (*Empidonax traillii*), and golden-winged warbler (*Vermivora chrysoptera*).

The Study Area also traverses through the Adirondack Forest Tract IBA (Audubon, 2017b) and the Lower St. Lawrence River IBA (Audubon, 2017c). The Adirondack Forest Tract IBA,

crossed by the Project in the Town of Pitcairn and Town of Diana, supports a characteristic forest-breeding bird community, including at-risk species such as the common loon and the peregrine falcon (*Falco peregrinus*), as well as the ruffed grouse (*Bonasa umbellus*), American woodcock, yellow-bellied sapsucker (*Sphyrapicus varius*), eastern wood-pewee (*Contopus virens*), least flycatcher (*Empidonax minimus*), great crested flycatcher, blue-headed vireo (*Vireo solitarius*), veery, wood thrush, northern parula (*Setophaga Americana*), chestnut-sided warbler, black-throated blue warbler (*Setophaga caerulescens*), black-throated green warbler (*Setophaga virens*), blackburnian warbler (*Setophaga fusca*), blackpoll warbler (*Setophaga striata*), black-and-white warbler (*Mniotilta varia*), American redstart, ovenbird, Canada warbler (*Cardellina canadensis*), scarlet tanager (*Piranga olivacea*), rose-breasted grosbeak, and purple finch (*Haemorphous purpureus*).

The Lower St. Lawrence River IBA, along the shoreline of the St. Lawrence River, encompasses a range of wetland and upland habitats. Bald eagles (*Haliaeetus leucocephalus*) winter along the river, and the area also is very important for wintering waterfowl. Additional at-risk species supported in this IBA include the American black duck (winter), common loon, pied-billed grebe, least bittern, northern harrier, wood thrush, and cerulean warbler.

Mapping developed for the New York Reptile and Amphibian Atlas (“Herp Atlas”) indicates that 33 reptile and amphibian species have been documented within the 7.5-minute USGS quadrangle maps that include portions of the Study Area. Based on this mapping, common species within the Study Area could likely include eastern American toad (*Anaxyrus americanus americanus*), gray treefrog (*Hyla versicolor*), bullfrog (*Rana catesbeiana*), green frog (*Rana clamitans*), wood frog (*Rana sylvatica*), northern leopard frog (*Rana pipiens*), common snapping turtle (*Chelydra*

*serpentine*), painted turtle (*Chrysemys picta*), common garter snake (*Thamnophis sirtalis*), and eastern milk snake (*Lampropeltis triangulum triangulum*).

No information is publicly available regarding mammal species occurring in or near the Study Area. The NYSDEC's *Checklist of Amphibians, Reptiles, Birds, and Mammals of New York State* and International Union for Conservation of Nature range maps were used to determine a list of 51 mammal species that may occur within the Study Area. The habitats observed in the Study Area likely support common species such as the white-tailed deer (*Odocoileus virginianus*), black bear (*Ursus americanus*), raccoon (*Procyon lotor*), woodchuck (*Marmota monax*), coyote (*Canis latrans*), and North American beaver (*Castor canadensis*).

#### 4.2.3.2. *Wildlife Habitat*

Shrub/scrub and woody wetland communities are the most prevalent habitat type identified within the Study Area. This habitat type includes many flowering plants that provide nectar, seeds, and insect foods needed by breeding birds and pollinators. Shrub/scrub habitat also offers shelter and nest sites, as well as hunting areas for predatory birds. Invertebrate foods such as grasshoppers, crickets, beetles, dragonflies, wasps, spiders, earthworms, and sow bugs are abundant in shrub/scrub habitat. Additionally, prey items such as mice, voles, shrews, moles, rabbits, snakes, lizards, and small songbirds that aggregate in shrub/scrub habitat are important prey for many predator species. In addition, common shrub species such as gray dogwood (*Cornus racemosa*), wild grape (*Vitis spp.*), buckthorn (*Rhamnus spp.*), honeysuckle (*Lonicera spp.*), sumac (*Rhus spp.*), and brambles produce berries that are a food source for many mammals and birds. Common bird species in the Study Area's shrub/scrub habitats are likely to

include gray catbird, brown thrasher, blue-winged warbler (*Vermivora pinus*), chestnut-sided warbler, eastern towhee (*Pipilo erythrophthalmus*), field sparrow (*Spizella pusilla*), song sparrow, and indigo bunting (*Passerina cyanea*) (Edinger, 2014).

Cropland, pasture, and grassland areas in the Study Area provide potential habitat for bird species such as field sparrow, savannah sparrow, American goldfinch, bobolink, and American kestrel (*Falco sparverius*). These areas are also used as foraging areas by aerial insectivores such as bats, swallows, and flycatchers. During the growing season, the herbaceous vegetation in these areas supports abundant insect populations, which serve as an important food source for nesting songbirds. The vegetation itself provides forage in the form of seeds and foliage, which is used by sparrows, finches, small mammals, woodchuck, and white-tailed deer. Tall grass and weeds are also used as bedding and fawning areas by deer. Birds of prey such as red-tailed hawk (*Buteo jamaicensis*), great horned owl (*Bubo virginianus*), and American kestrel and mammalian predators such as red fox (*Vulpes vulpes*) and eastern coyote use open fields as hunting areas. Corn, soybean, and hay fields in the Study Area provide a food source for animals such as Canada geese (*Branta canadensis*), wild turkey, white-tailed deer, and black bear.

Transmission utility corridors are typically managed for safety and reliability purposes by using Integrated Vegetation Management (“IVM”) practices that include clearing of tall growing vegetation along with maintaining a wire zone and border zone, which are the cornerstone principals of IVM. The value IVM provides to pollinator habitat is becoming more widely recognized (Wojcik and Buchman, 2012). By maintaining utility corridors in this fashion through mechanical (mowing) and chemical means (herbicide application), physical structure and edges are created that allow for the growth and reproduction of understory plants that would

exclude taller growing vegetation. Transmission corridors managed under an IVM approach are continually being maintained and reset to earlier successional stages creating a favorable environment for pollinators. This diversified compatible plant community creates ideal habitat in which many of these early successional plants produce flowers desirable to pollinators, along with fruits, seeds, and berries for birds, mammals, and other wildlife species, ultimately increasing animal diversity, which is instrumental to sustaining pollinators. The IVM approach considers pollinators as part of the total ROW ecosystem management. Where feasible, research would be supported and encouraged and would include pollinator considerations in the goals and objectives, adopting practices when scientifically proven.

Emergent herbaceous wetlands and open water habitat in the Study Area are used as a source of food, water and/or cover by many of the previously mentioned upland species. In addition, these areas provide habitat for various wetland/aquatic wildlife species, including great blue heron, mallard (*Anas platyrhynchos*), wood duck, American bittern, painted turtle, common snapping turtle, bull frog, North American beaver, American mink (*Mustela vison*), and muskrat (*Ondatra zibethicus*).

Forestland is most commonly found along the edge of the Study Area. These wooded areas provide habitat for forest-dwelling bird species such as wood thrush, ovenbird, red-eyed vireo, common yellowthroat, veery, and black-and-white warbler. Common mammals using forest habitats in the Study Area likely include white-tailed deer, black bear, coyote, North American porcupine (*Erethizon dorsatum*), and gray squirrel (*Sciurus carolinensis*). The presence of conifers in mixed forests enhances the diversity of forest-dwelling wildlife. Conifers provide preferred food and/or shelter for certain species of nesting birds, red squirrels (*Tamiasciurus*

*hudsonicus*), and other mammals. Forested wetlands along the edge of the Study Area provide habitat for many of the species listed above, as well as species such as spring peeper (*Pseudacris crucifer*), wood frog, spotted salamander (*Ambystoma maculatum*), and wood duck. Dead trees in these areas are also used by cavity nesting species such as woodpeckers, black-capped chickadee, and squirrels.

The quality of the forested habitat along the Study Area varies based upon the size or contiguous nature of the forested blocks. The quality of forestland along the Study Area, comprised of the existing ROW, in many places is reduced due to the proximity to a forest edge and/or human disturbance. These conditions limit the value of these areas to wildlife species that require forest interior conditions.

#### 4.2.3.3. *Fish Species*

Numerous perennial streams flow through the Study Area and support fish populations. These include Beaver River (Class C(t)<sup>1</sup>), Browns Creek (Class C(t)), Middle Branch Oswegatchie River (Class D), South Creek (Class A(t)), Big Creek (Class C), Oswegatchie River (Class C), Elm Creek (Class C(t)), Grasse River (Class B), and St. Lawrence River (Class C). Many of these waterbodies, as well as numerous smaller streams, are popular recreational fisheries.

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<sup>1</sup> Waters protected under Article 15 of the ECL include any stream, or stream segment, with an NYSDEC assigned classification of AA, A, or B, or classification of C with a standard of (t) or (ts). The classification AA or A is assigned to waters used as a source of drinking water. Classification B indicates a best usage for swimming and other contact recreation, but not for drinking water. Classification C is for waters supporting fisheries and suitable for non - contact activities. The lowest classification and standard is D. A standard of (t) indicates that the water may support a trout population, and a standard of (ts) indicates that it may support trout spawning.

Streams located within the Study Area that are stocked with trout by NYSDEC include Indian River, South Creek, Oswegatchie River, and Grasse River. The NYSDEC's New York Fish Atlas mapping indicates that 76 fish species have been documented in the Study Area or its vicinity.

#### *4.2.3.4. Rare, Threatened, and Endangered Species*

RTE species are those fish and wildlife species for which federal or state agencies afford protection by law, regulation, or policy. Included in this category are federally listed threatened or endangered species; eagles protected by the Bald and Golden Eagle Protection Act ("BGEPA"; 16 USC 668-668d); and species that are designated as state-listed or receive special management consideration by New York.

The following sections provide a discussion of RTE fish and wildlife species and their likelihood of occurrence within the Study Area.

##### *4.2.3.4.1. Federally listed Species*

The federal Endangered Species Act ("ESA") provides for the listing, conservation, and recovery of endangered and threatened species of plants and wildlife. ESA prohibits the "take" of listed species which is defined by the ESA as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" (16 U.S.C. § 1532(19)). USFWS further defines "harm" to include significant habitat modification or degradation (50 CFR § 17.3). The law is jointly administered by USFWS, which is responsible for terrestrial and freshwater species, and National Oceanic and

Atmospheric Administration (“NOA”) Fisheries, which is responsible for marine and anadromous species.

For the Project, the USFWS New York Field Office (“NYFO”) provides information and consultation for the protection of federally listed species consistent with ESA. In accordance with the NYFO guidance, the USFWS IPaC online service was queried on November 4, 2015 and updated October 2, 2017, to determine whether any federally listed endangered or threatened fish and wildlife species may be affected by the Project. The IPaC query identified two federally listed species that may be affected by the Project including the endangered Indiana bat (*Myotis sodalis*) and threatened northern long-eared bat (*Myotis septentrionalis*), and confirmed that no Designated Critical Habitat for federally listed species occurs in the Study Area. NYNHP also provides additional information concerning known records of federally listed species within the vicinity of proposed projects. In a letter dated November 3, 2015 and updated on October 11, 2017, NYNHP indicated that no known records of federally listed species occur in the Study Area.

### Indiana Bat

Indiana bats are listed as endangered at both the state and federal level, and many details of the species ecology are contained in the draft recovery plan prepared by USFWS (USFWS, 2007a). These bats over-winter in caves and mines and migrate to summer habitat as early as mid-April in New York. Suitable winter habitat (hibernacula) includes underground voids such as caves or abandoned mines where winter temperature remains below 50° Fahrenheit (10°C) and above

freezing, and are relatively stable. Suitable summer habitat for the Indiana bat consists of trees, > 5 inches (13 cm) in diameter at breast height (“dbh”), with cracks, crevices, or exfoliating bark.

During summer, groups of females, their dependent pups, and occasional males form groups called maternity colonies. Maternity colonies may be spread among multiple trees with individual bats changing roosts every few days. Trees used by large portions of a maternity colony for all or part of the summer are termed primary roosts. Trees used by smaller numbers of bats for short periods of time are called alternate roosts. Primary roost trees are typically large dead or dying trees with exfoliating bark that usually receive direct sunlight for more than half the day; habitats most typical for primary roosts include riparian zones, bottomland and floodplain forests, forested wetlands, and upland communities at elevations less than 900 feet above mean sea level (“amsl”) (North American Vertical Datum of 1988) (USFWS, 2007a). Males tend to roost individually or in small numbers in trees with exfoliating bark, cracks, and crevices. Throughout the summer, Indiana bats forage in semi-open to closed (open understory) forested habitats, forest edges (i.e., fencerow, maintained ROW corridor), and riparian areas. Most bats leave their summer areas by October and return to the caves.

The NYNHP maintains data regarding known occurrences of Indiana bat hibernacula and summer roosts. NYNHP correspondence indicates no documented occurrences of these features in the Study Area. The nearest Indiana bat hibernaculum is located approximately 30 miles from the Study Area.

## Northern Long-eared Bat

The northern long-eared bat is listed as threatened at the state and federal level. Like the Indiana bat, the northern long-eared bat also winters in caves and mines and migrates seasonally to summer roosts in dead and decadent trees. Northern long-eared bats are typically associated with mature interior forest (Carroll et al., 2002) and tend to avoid woodlands with significant edge habitat (Yates and Muzika, 2006). They can most often be found in cluttered or densely forested areas including in uplands and at streams or vernal pools (Brooks and Ford, 2005). They may use small openings or canopy gaps as well. Some research suggests that northern long-eared bats forage on forested ridges and hillsides rather than in riparian or floodplain forests. Captures from New York suggest that northern long-eared bats may also be found using younger forest types (NYNHP, 2016). This species selects day roosts in dead or live trees under loose bark, or in cavities and crevices, and may sometimes use caves as night roosts (USFWS, 2013). They may also roost in buildings or behind shutters. A variety of tree species are used for roosting. The structural complexity of surrounding habitat and availability of roost trees may be important factors in roost selection (Carter and Feldhamer, 2005). Roosts of female bats tend to be large diameter, tall trees, and in at least some areas, located within a less dense canopy (Sasse and Pekins, 1996). Northern long-eared bats hibernate in caves and mines where the air temperature is constant, preferring cooler areas with high humidity (USFWS, 2013). The NYNHP maintains data regarding known occurrences of northern long-eared bat hibernacula and summer roosts. NYNHP correspondence indicates no documented occurrences of these features in the Study Area or its vicinity. According to publicly available USFWS and NYNHP data, the nearest known northern long-eared bat roost trees are located approximately five (5) miles in an

easterly direction from the Study Area. The exact coordinates of these roost trees are not publicly available. USFWS data indicate the nearest northern long-eared bat hibernaculum is located about 30 miles from the Study Area.

#### 4.2.3.4.2. State-Listed Species

In addition to federal law, threatened and endangered fish and wildlife species are protected in New York under 6 NYCRR Part 182, which is administered by the NYSDEC. In New York, a permit is required for the “take” of protected species under the Uniform Procedures Act, codified at Article 70 of the ECL. “Take” includes direct impact to the species as well as adverse modification to habitat.

The NYNHP provides information regarding state-listed species protected in New York under 6 NYCRR Part 182. On November 3, 2015 and as updated on October 11, 2017, the NYNHP provided a report listing seven rare or state-listed fish and wildlife species that occur or may occur in the Study Area or immediate vicinity, including: eastern pearlshell (*Margaritifera*, unlisted), eastern sand darter (*Ammocrypta pellucida*, threatened), Blanding’s turtle (*Emydoidea blandingii*, threatened), bald eagle (threatened), upland sandpiper (threatened), Iowa darter (*Etheostoma exile*, unlisted), and lake sturgeon (*Acipenser fulvescens*, threatened).

The following paragraphs provide a discussion of each of the above-referenced endangered and threatened fish and wildlife species and their likelihood of occurrence within the Study Area.

### Eastern Pearlshell

The eastern pearlshell is considered rare in New York, and is not protected by state or federal regulation. The species is a freshwater mussel that prefers clean, mixed substrates in fast-flowing unpolluted trout stream and smaller rivers (NYNHP, 2015i). Adult mussels are filter feeders consuming algae, detritus, and bacteria (NYNHP, 2015i). According to NYNHP records, this species is documented in the Grasse River, Elm Creek, and tributaries to these waterways, which are located, in part, in the Study Area and its vicinity. Therefore, this species potentially occurs in the Study Area.

### Eastern Sand Darter

The eastern sand darter is state-listed as threatened. Eastern sand darters mainly inhabit lakeshores up to 20 meters (approximately 66 feet) deep and shallow moderately-sized streams less than 50 centimeters (approximately 20 inches) deep with a clean sandy substrate composed of medium-size sand particles, very little vegetation, and a current swift enough to prevent siltation but slow enough so that sand is not disturbed, about 0-20 centimeters (0-approximately eight (8) inches)/second (Spreitzer, 1979; Smith, 1985; Daniels, 1993). During a habitat study conducted in 1984 by Daniels (1993), the majority of eastern sand darters were captured along the depositional side, a short distance downstream, of a river bend. The eastern sand darter may be found at the extreme northern end of the Study Area in the St. Lawrence River drainage (NYNHP, 2015a). These fish occur within the Grasse River, and historically were present in the St. Lawrence River, both of which are located, in part, within the Study Area. Therefore, this species potentially occurs in the Study Area.

## Blanding's Turtle

The Blanding's turtle is state-listed as threatened. Blanding's turtles have different habitat requirements for different seasonal or life history activities. Wetlands and other freshwater aquatic habitats including emergent marshes, woodland pools, red maple swamps, buttonbush swamps, ponds, lakes, rivers, and streams are used by the species for a variety of activities such as hibernation, mating, feeding, shelter, estivating, and basking (NYNHP, 2015b). Blanding's turtles also use upland areas to migrate between wetland pools, and, in the summer months, females migrate overland from the wetland habitat to nest in upland areas containing well-drained, loose, soil with good solar exposure (Kiviat, 1997). According to information provided by NYSDEC and NYNHP, Blanding's turtles have the potential to occur along the northern 36 miles of the Study Area.

A *Blanding's Turtle Habitat Assessment Report* was prepared for the Study Area along the northern 36 miles of the Study Area where the turtles are known or believed to occur (*see* Appendix B). As detailed in the report, detailed habitat assessments were completed for the Study Area to identify potential "core" and "associated" wetland habitats, as well as upland nesting habitat. A potential core wetland refers to a wetland with high potential suitability for Blanding's turtle use and exhibits an open canopy (or canopy cover less than 50%), a significant shrub component, water levels greater than or equal to 30 centimeters (approximately 12 inches) deep most of the year, deep organic soil layer, and little or no flowing water. An associated wetland refers to a wetland with moderate potential suitability for Blanding's turtle use and is within 1,000 meters (3,280.1 feet) of a core wetland area with water greater than or equal to 30 centimeters (approximately 12 inches) for at least part of the year. Potentially suitable nesting

habitat patches are upland areas within the nesting habitat assessment in the Study Area that consist of loose, dry, sandy/gravelly soils in open areas and/or actively cultivated crops in any soil type.

The Blanding's turtle habitat assessments were completed concurrent with wetland delineations from October 27 through November 7, 2015; on December 19 and 22, 2015; on March 15, 2016, and from October 30 through November 1, 2017. Forty-eight (48) delineated wetlands within the Study Area were assessed for potentially suitable Blanding's turtle habitat. Of 48 wetlands assessed, 15 wetlands contained suitable core or associated wetland habitat. Within these 15 wetlands, 28 potential core wetland habitat patches (totaling 75.7 acres) and 13 potential associated wetland habitat patches (24.8 acres) were identified. Nineteen (19) potentially suitable nesting habitat patches, comprising 59.9 acres, were also identified.

### Bald Eagle

Although the bald eagle was removed from the federal list of threatened and endangered species by USFWS on July 9, 2007 (USFWS, 2007b), bald eagles are still federally protected under the BGEPA, Migratory Bird Treaty Act, and Lacey Act. They are also state-listed as threatened in New York and therefore protected under 6 NYCRR Part 182.

According to USFWS, bald eagles have specific requirements for nesting, foraging, and wintering habitat. Eagles typically select areas with low human disturbance, suitable forest structure, and abundant prey. Because fish are important prey, nests are nearly always associated with fishable waters and built in tall pine, spruce, fir, cottonwood, oak, poplar, or beech trees. Eagles prey on fish, large birds, and mammals and may also feed on carrion, especially in winter.

In winter, eagles congregate at areas with ice-free waters, seclusion from human activity, large trees with stout, easily accessible branches, and protection from strong winds.

Bald eagles may occur throughout the Study Area, but are more likely to occur near the larger waterbodies found in the northern portion of the Study Area, including the St. Lawrence River. The St. Lawrence River has been identified as a bald eagle wintering area since at least 1975 and is currently the second largest known in New York. The wintering area, which annually supports an average of 20 to 30 eagles, lies along the upper reaches of the St. Lawrence between Kingston, Ontario and Cape Vincent, NY on the south, to Cornwall, Ontario and Massena, NY to the north (NYSDEC, 2015). NYNHP correspondence identifies that nonbreeding bald eagles have been documented along the St. Lawrence River near the northern end of the Study Area in winter. No known eagle nests are located within one (1) mile of the Study Area, and no eagle nests or individual eagles were observed during field surveys.

#### Upland Sandpiper

The upland sandpiper is state-listed as threatened. The upland sandpiper is an obligate grassland species. Preferred habitat includes large areas of short grass for feeding and courtship with interspersed or adjacent taller grasses for nesting and brood cover (NYNHP, 2015c). This habitat could be natural grasslands or agricultural lands. NYNHP correspondence indicates that upland sandpipers have been documented near the northern end of the Study Area. Based on this NYNHP data, field surveys were completed along the northern two (2) miles of the Study Area. While the corridor is maintained in a relative open condition, the majority of open upland areas are old-fields dominated by goldenrods (i.e., *Solidago canadensis*, *S. rugosa*) and asters rather

than grass. In addition, no agricultural areas were found in this portion of the corridor. No upland sandpipers, or suitable habitat, were found during field surveys of the northern portion of the Study Area.

#### Iowa Darter

The Iowa darter is considered a rare species in New York and is not protected by state or federal regulation. The fish prefers slow, clear waters of lakes, ponds, and streams that contain submerged aquatic vegetation (NYNHP, 2015j). Preferred substrates include sand, peat, and/or organic material (NYNHP, 2015j). Spawning areas consist of shallower waters with vegetation suitable for egg laying (NYNHP, 2015j). NYNHP reports the species is known to occur in the St. Lawrence River, which is located, in part, in the Study Area and its vicinity. Therefore, this species potentially occurs in the Study Area.

#### Lake Sturgeon

The lake sturgeon is state-listed as threatened. The lake sturgeon is found primarily in freshwater lakes and large rivers in northeastern North America. In New York, lake sturgeon have been collected in St. Lawrence River, Niagara River, Oswegatchie River, Grasse River, Lake Ontario, Lake Erie, Lake Champlain, Cayuga Lake, and in the Seneca and Cayuga canals (NYSDEC, 2016a). NYSDEC has collected lake sturgeon in the South Channel of the St. Lawrence River, which is located, in part, in the Study Area. Therefore, the species potentially occurs within the Study Area.

#### 4.2.4. Hydrology

The following section discusses the surface water and groundwater features located within the Study Area. Data sources used in this evaluation include USGS topographic maps, New York State Department of Health (“NYSDOH”) aquifer mapping, NYSDEC Freshwater Wetland Maps, NYSDEC stream classification mapping, NWI maps, aerial photographs, reconnaissance-level field verification and on-site wetland delineation performed in accordance with the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987), and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (Version 2.0) (USACE, 2012). Mapped hydrologic features in the vicinity of the Study Area are illustrated in Figure 4-4: Mapped Hydrologic Features.

##### 4.2.4.1. Surface Waters and Groundwater

Surface water and groundwater resource information was collected by review of existing mapping and field delineations. NYSDEC mapping indicates that 74 streams occur within the Study Area. NYSDEC-mapped streams, lakes, ponds, and rivers are given class and standard designations based on existing or expected best usage of each water or waterway segment. Waters protected under Article 15 of the ECL include any stream, or stream segment, with an NYSDEC assigned classification of A, A(t), A, A(t), B, B(t) or C(t). NYSDEC-mapped streams within the Study Area include 30 protected streams and 44 unprotected streams (Figure 4-4: Mapped Hydrologic Features).

NYPA-directed field delineations located 71 streams within the Study Area, including 28 streams that are considered protected (classification C(t) or higher) and 43 unprotected (Figure 4-

5: Delineated Streams and Wetlands). Fifty-one (51) streams were classified as perennial, 16 as intermittent, and four (4) as ephemeral. Stream data forms (including information regarding flow regime, water width, ordinary high water width, depth, substrate, observed water quality, bank slope, bank substrate, erosion potential, meander, gradient, and adjacent vegetation) are provided in Appendix C of the Aquatic Resource Delineation Report (Appendix D hereto). Appendix F of the Aquatic Resource Delineation Report (Appendix D hereto) provides information regarding stream name, flow regime, NYSDEC stream classification, agency jurisdiction, acreage within the Study Area, and linear feet within the Study Area. Table 4-3 provides a summary of streams within the Study Area.

**Table 4-3: Delineated Streams**

<b>Flow Regime</b>	<b>Number of Streams Delineated</b>	<b>Total Feet within Study Area</b>	<b>Total Feet within Proposed ROW</b>
Ephemeral	4	294.4	94.8
Intermittent	16	4,840.5	4,843.9
Perennial	51	26,366.5	24,517.5
<b>Total:</b>	<b>71</b>	<b>31,501.4</b>	<b>29,456.2</b>

Ten (10) open water, or palustrine unconsolidated bottom (“PUB”), habitats were delineated during the field survey. Three (3) of these ponded areas occur within NYSDEC Freshwater Wetlands. Table 4-4 provides a summary of the open water areas that occur within the Study Area.

**Table 4-4: Delineated Open Water**

<b>Name</b>	<b>Cowardin Class</b>	<b>NWI-Mapped Wetland</b>	<b>NYSDEC Wetland</b>	<b>Agency Jurisdiction</b>	<b>Acreage in Study Area</b>	<b>Acreage in Proposed ROW</b>
ES1-27	PUB	PEM5E, PSS1E	MO-39	NYSDEC/USACE	0.76	0.76

Name	Cowardin Class	NWI-Mapped Wetland	NYSDEC Wetland	Agency Jurisdiction	Acreage in Study Area	Acreage in Proposed ROW
ES2-100	PUB	PSS5/UBFb	FL-1	NYSDEC/USACE	0.73	0.73
ES3-37	PUB	L2UBHx		USACE	4.28	2.90
ES3-47	PUB	PUBH		USACE	1.89	1.43
ES3-69	PUB			USACE	0.12	0.11
ES4-56	PUB	PEM5E	CM-10	NYSDEC/USACE	1.11	1.11
ES4-60	PUB	PEM5E		USACE	5.27	5.27
HA2-3	PUB	PUBHx		USACE	0.11	0.11
HA2-33	PUB			USACE	0.35	0.35
HA3-75	PUB			USACE	0.08	0.08
<b>Total:</b>					<b>14.70</b>	<b>12.85</b>

As indicated in Figure 4-4: Mapped Hydrologic Features, the Study Area crosses several unconfined, mid-yield aquifers. These areas are within the Towns of Louisville, Norfolk, Russell, Edwards, Pitcairn, Diana, and Croghan. NYSDEC mapping indicates all of these are considered Principal Aquifers, which are known to be highly productive, or whose geology suggests abundant potential water supply, but which are not intensively used as sources of water supply by major municipal systems at the present time.

#### 4.2.4.2. Wetlands

Prior to field delineations, various information sources were reviewed to determine areas within the Study Area that may include wetlands, which are depicted on Figure 4-4: Mapped Hydrologic Features. These sources included:

- USGS topographic maps.
- NWI maps prepared by USFWS.

- Freshwater wetland maps prepared by NYSDEC.
- Soil Survey Geographic (“SSURGO”) soils map prepared by the U.S. Department of Agriculture, Natural Resources Conservation Service (“USDA NRCS”).

Wetland delineations were completed within the Study Area from October 27 through November 7, 2015; on December 10, 2015; from December 20 through December 22, 2015, and from October 30 through November 1, 2017. The delineation methods and results are detailed in the Aquatic Resource Delineation Report (Appendix D).

Wetland boundaries were identified as specified in the *1987 Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) (hereinafter referred to as the “USACE Manual”) and the *2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0* (Regional Supplement) (USACE, 2012). NYSDEC regulated mapped wetlands were identified during the desktop review; therefore, the aquatic resource delineation was also consistent with the *1995 NYSDEC Freshwater Wetlands Delineation Manual* (NYSDEC, 1995) in those locations where NYSDEC regulated mapped wetlands occur. Wetlands identified were classified consistent with the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979). Two-hundred and thirty-eight (238) wetlands were delineated within the Study Area. The boundaries of delineated wetlands are depicted in Figure 4-5: Delineated Streams and Wetlands.

Table 4-5 provides a brief summary of the wetlands identified during the field investigation.

**Table 4-5: Delineated Wetland Summary**

<b>Cowardin Community Type</b>	<b>Number of Wetlands</b>	<b>Acreage in Study Area</b>	<b>NYSDEC Wetland in Proposed ROW (acres)</b>	<b>Other Wetland in Proposed ROW (acres)</b>
PEM	148	160.7	53.2	101.0
PEM/PFO	3	15.0	11.1	0.0
PEM/PSS	36	407.3	374.5	30.8
PEM/PSS/PFO	5	144.9	110.9	13.0
PFO	7	1.8	(<0.1)	0.3
PSS	39	120.0	48.2	67.0
<b>Total:</b>	<b>238</b>	<b>849.7</b>	<b>597.9</b>	<b>212.1</b>
<b>Total Delineated Wetland in Proposed ROW:</b>			<b>810.0</b>	

Both United States Army Corps of Engineers (“USACE”) jurisdictional and New York State jurisdictional wetlands have been considered by NYPA in the assessment of impacts to wetland resource areas. The USACE regulates and permits certain activities in wetlands that are considered “waters of the United States” under Section 404 of the Clean Water Act and navigable waters under Section 10 of the Rivers and Harbors Act of 1899. All wetlands delineated are potentially regulated waters of the United States afforded protection under Section 404 of the Clean Water Act.

The NYSDEC regulates wetlands that are at least 12.4 acres in size, or that are considered to be of unusual local importance pursuant to the Freshwater Wetlands Act, Article 24 of the Environmental Conservation Law. NYSDEC also regulates 100-foot wetland “adjacent areas” or buffer areas, which are generally defined as those areas of land or water that are outside of the wetland and within 100 feet of the surveyed wetland boundary. Forty-six (46) of the 238 wetlands identified during survey efforts occur in areas mapped by the NYSDEC as state regulated resources, and therefore are potentially afforded protection under Article 24.

#### 4.2.5. *Topography, Geology, and Soils*

Information regarding topography, geology, and soils was obtained from on-site observations and existing published sources, including the St. Lawrence County Soil Survey (USDA NRCS, 2005), Lewis County Soil Survey (USDA NRCS, 1960), USGS topographic mapping (Cornwall West, Raquette River, Massena, Louisville, Chase Mills, West Potsdam, Morley, Canton, Hermon, South Edwards, Edwards, Fine, Harrisville, Remington Corners, and Belfort 7.5-minute quadrangles), Statewide Bedrock Geology Mapping, and New York State Surficial Geology Mapping (NY State Museum/NY Geological Survey, 1999a; NY State Museum/NY Geological Survey, 1999b).

##### 4.2.5.1. *Topography*

Topographically, the Study Area is located between two Physiographic Regions: the Champlain Lowlands Section of the St. Lawrence Valley physiographic province and the Adirondack Mountains physiographic province in New York (USGS, 2003). The northernmost portions of the Study Area, located in the Champlain Lowland Section, are generally characterized by little relief, with elevations ranging from approximately 200 feet amsl along Barnhart Island and the St. Lawrence River crossing, to approximately 400 feet amsl approximately half way through the Study Area, west of the Town of Pyrites, NY. The southern portion of the Study Area, located within the Adirondack Mountain province, is characterized by steeper relief with elevations ranging between 400 feet amsl at the center of the Study Area to approximately 1,150 feet amsl in two locations within the southern portions of the Study Area: west of Big Hill, near where the Project intersects the Adirondack State Park, and within the Frank E. Jadwin Memorial State

Forest. Four major river systems drain into the Study Area (the Grasse, Raquette, Oswegatchie, and the Beaver Rivers) from the higher elevations in the south to the St. Lawrence River in the north (Figure 4-1: Project Area Topography).

Potential limitations to development along the Proposed ROW include a few isolated areas of steep slopes associated with stream and/or river valleys throughout the Project. Additional areas of steep slopes limiting development include areas within the Adirondack State Park in Diana, NY, and areas within Croghan, NY (specifically areas to the north and south of the Oswegatchie River). Other limitations on development include isolated areas of rock outcrops within the Frank E. Jadwin Memorial State Forest along the southern interior of the Proposed ROW.

#### 4.2.5.2. *Geology*

The northern portions of the Study Area, located within the St. Lawrence Lowlands, are characterized by areas of low relief developed upon sedimentary bedrock (sandstone and limestone). The bedrock originated from sediments that were deposited in a shallow, Cambrian-aged (540-480 million years ago) sea. Fossils are generally scarce in these bedrock formations as the environment of deposition was not conducive to their preservation. These bedrock formations dip gently northward from the bedrock of the Adirondack dome to the south. Southern portions of the Study Area, located within the Adirondack Mountains, are characterized by complex metamorphic bedrock that formed during the Precambrian eon more than 1,100 million years ago (USDA NRCS Soil Survey, St. Lawrence County). These bedrock units are composed mainly of metasedimentary (sedimentary rocks altered by metamorphism) and metavolcanic (gneiss, marble, and quartzite) rocks. These rocks are connected with the Canadian

Shield physiographic region by the Frontenac Axis, a low arch of exposed bedrock that formed the Thousand Islands in the northwestern corner of St. Lawrence County. The bedrock formations of the Adirondacks have been severely folded, faulted, and sheared during numerous geologic episodes of uplift associated with the rise of the mountains. Major bedrock formations that occur within the Study Area include Valcour Limestone, Day Point Limestone, and the Odgensburg Dolostone of the Beehmantown Group. The Adirondacks also host a large number of metamorphic rocks of unknown or uncertain origin, which are not divided into separate formations but rather divided by rock type. These rock types include biotite-quartz-plagioclase paragneiss, amphibolite, migmatite, green mangerite, pink or grey biotite, hornblende granitic gneiss, and a number of other hybrid rock types (NY State Museum and Science Service, 1971).

The Study Area has experienced glaciation more than once during the previous few million years. The most recent glaciation, the Wisconsin Glaciation (ending approximately 10,000 to 12,000 years ago), resulted in scouring and abrading of the terrain and deposition of various thicknesses of glacial till and stratified materials from associated glacial meltwaters. Surficial geological materials that were deposited throughout the Study Area include kame deposits, outwash sands and gravels, compact lodgment glacial till, and loose ablation glacial till. Deltaic deposits and more recent alluvium also line the northern portions of the Study Area where the lakes and the former Champlain Sea are/were located. All of these distinct materials comprise the parent material for the vast number of and variation in soils throughout the Study Area.

Based upon a review of data available from NYSDEC, a total of 50 sand and gravel pits, four clay pits, one talc pit, and one topsoil pit and are located within three (3) miles of the Study Area

(NYSDEC, 2016b). A total of 24 sand and gravel pits and one clay pit are listed as active (*see* Table 4-6), while the remaining mines have been reclaimed or lack any recent data.

**Table 4-6: Active Mining Operations Located Within 3 Miles of Study Area**

<b>Mine ID</b>	<b>Mine Owner</b>	<b>Mine Name</b>	<b>Town Location</b>	<b>Location/Distance from Study Area</b>
60728	Harmer Construction	Bullock Pit	Edwards	Within Study Area south Edwards-Russell Rd
60876	Wayne French	Pit #2	Edwards	½ Mile East of Hermon/Edwards Town Boundary
60384	Franklin Mackin	Bullock Pit	Edwards	225 Feet East of Edwards-Russell Rd
61099	Town of Hermon	Kirkpatrick Mine	Canton	½ Mile West of Study Area. (West of Hermon-Pyrites Rd)
61009	Mr. Grant Contr Inc	Grant Pit	Pitcairn	Directly Adjacent to Study Area at Edwards Rd
60233	Wayne French	Barraford Pit	Edwards	0.2 Miles East of Study Area at Gaddis Rd
61100	Seaway Timber Harvesting Inc.	Louisville Sand Mine	Louisville	0.5 Miles East of Study Area along Route 39
60461	Wayne French	Edwards Operation	Edwards	0.7 Miles East of Study Area along Hermon Edwards Rd
60380	Janet and Richard Gotham	Gotham/Burch Pit	Russell	0.5 Miles East of Study Area along Hermon Edwards Rd
60238	Town of Hermon	Barry Pit	Russell	0.7 Miles East of Study Area along Hermon Edwards Rd Extension
60906	Town of Pitcairn	East Pitcairn Road Pit	Pitcairn	1 Mile East of Study Area along East Pitcairn Road
61017	Town of Pitcairn	Green Wood Pit	Pitcairn	1.8 Miles East of Study Area (East of Route 3)
61102	William J Hoch	Hoch Pit	Croghan	0.9 Miles Southeast of Study Area along Croghan Reservoir Road
60828	Town of Fine	Javall Mine	Fine	1.5 Miles East of Study Area along Route 58
61104	Town of Diana	Kiggins Pit	Diana	2.3 Miles West of Study Area (East of South Creek Road)
60460	Town of Pitcairn	Macqueen Pit	Pitcairn	1.7 Miles West of Study Area along Garrison Road
61085	Matthew Bush	Matt Bush Pit	Croghan	2.7 Miles Southeast of Study Area along Effley Falls Road
61105	Goldthrite Trucking LLC	Mattis Pit	Croghan	0.8 Miles East of Study Area along Croghan Reservoir Road
61030	Perras Excavating Inc.	Polarolo Mine	Massena	3 Miles Southeast of Study Area along County Route 37
61071	Town of Madrid	Pollock Road Pit	Madrid	1.5 Miles East of Study Area along Pollock Road
61140	Michael W. Brannen	Brannen Sand Pit	Madrid	1.5 Miles West of Study Area along County Route 44
61130	Perras Excavating Inc	Burley Topsoil Mine	Massena	2 miles south of the Study Area, at the intersection of Route 37C and Larue Road

<b>Mine ID</b>	<b>Mine Owner</b>	<b>Mine Name</b>	<b>Town Location</b>	<b>Location/Distance from Study Area</b>
61132	Town of Waddington	Crites Sand Pit	Madrid	1.5 Miles West of Study Area along County Route 44
60696	Town of Russell	Town Of Russell Gravel Pit	Russell	3 miles east of the Study Area east of County Road 17

According to the 2008 USGS National Seismic Hazard Map, seismic hazard varies in the Study Area from low to medium risk. The 2008 USGS National Seismic Hazard Map demonstrates peak ground accelerations as percent “g” within a 2% probability of exceedance in 50 years for the northeastern United States. The seismic hazard for the Study Area is between 0.12 and 0.20 and is therefore generally regarded as low to medium-low risk. This is based on a rating system from 0 through 1.60+, where zero indicates the lowest hazard and 1.60+ indicates the highest hazard. Recent earthquake activity (as recent as November 28, 2015) has been recorded in the vicinity of the Study Area, including within the Town of Rooseveltown, NY, approximately 3.5 miles to the east of the Study Area along the St. Lawrence River. This minor earthquake was recorded as a magnitude 3.3 earthquake with a depth of 5 kilometers (3.1 miles); the epicenter extended into portions of the Study Area including areas within the Town of Massena. Earthquakes of this magnitude can be felt but typically only cause minor damages (Michigan Technological Institute, 2007). The last “moderate” earthquake to affect the Study Area was in April 2002, when a magnitude 5.2 earthquake struck within Peru, NY. There have been no major or “strong” earthquakes with an epicenter located within New York in the last 50 years.

#### 4.2.5.3. *Soils*

In regard to soil studies, the St. Lawrence and the Lewis County Soil Surveys have mapped the majority (94.1%) of the general soil associations and soil types within the Study Area.

Approximately 5.9% of the soils within the Study Area (all located within Lewis County) have not been studied and/or mapped. Within St. Lawrence County, 52 soil series comprise approximately 89 different soil map units located within the Study Area. Within Lewis County, 15 mapped soil series comprise 27 different soil map units within the Study Area. Characteristics of some of the most commonly found soil associations and most dominant soil series within the Study Area are summarized in Table 4-7.

**Table 4-7: Dominant Soil Series within the Study Area**

Soil Association	Main Characteristics
<b>Adams</b>	<ul style="list-style-type: none"> <li>• Very deep, somewhat excessively drained and well drained medium grained soils (sands and sand loams).</li> <li>• Developed on deltas, kame terraces, and outwash plains.</li> <li>• Derived from crystalline rock and/or sandstone.</li> <li>• Slopes are gentle to moderately steep.</li> </ul>
<b>Adjidaumo</b>	<ul style="list-style-type: none"> <li>• Very deep, poorly drained and very poorly drained soils fine grained soils (silty clay and clay).</li> <li>• Developed on marine plains and in basins on uplands.</li> <li>• Derived from fine sediments deposited in marine environments.</li> <li>• Slopes are nearly flat.</li> </ul>
<b>Charlton-Paxton</b>	<ul style="list-style-type: none"> <li>• Deep, well drained medium to fine grained soils (sandy loam and fine sandy loams).</li> <li>• Developed on ridges, hills, till plains.</li> <li>• Derived from acid loamy till and schist, gneiss, or granite.</li> <li>• Slopes are moderately steep.</li> </ul>
<b>Colton-Duxbury complex</b>	<ul style="list-style-type: none"> <li>• Deep to very deep, excessively drained fine, medium, and large grained soils (fine sandy loams to gravelly loamy sands).</li> <li>• Developed on Kame terraces, outwash plains.</li> <li>• Derived from Sandy and gravelly glaciofluvial deposits of predominantly granitic rock, with lesser amounts of sandstone and schist.</li> <li>• Slopes are gentle to moderately steep.</li> </ul>
<b>Deford</b>	<ul style="list-style-type: none"> <li>• Very deep, fine grained soils (mucky loam, loamy fine sands).</li> <li>• Developed within depressions.</li> <li>• Derived from Sandy glaciofluvial deposits.</li> <li>• Slopes are nearly flat.</li> </ul>

Soil Association	Main Characteristics
<b>Hogansburg-Grenville</b>	<ul style="list-style-type: none"> <li>• Deep, fine grained soils (fine sandy loam).</li> <li>• Developed on hills, till plains, and drumlinoid ridges.</li> <li>• Derived from loamy, dense till and limestone or other calcareous rock.</li> <li>• Slopes are nearly flat to gently rolling.</li> </ul>
<b>Malone</b>	<ul style="list-style-type: none"> <li>• Deep, medium to large grained soils (gravelly, sandy loam).</li> <li>• Developed on hills, till plains, and drumlinoid ridges.</li> <li>• Derived from loamy, dense till and limestone, dolomite, sandstone, and gneiss in varying amounts.</li> <li>• Slopes are nearly flat to gently rolling.</li> </ul>
<b>Muskellunge</b>	<ul style="list-style-type: none"> <li>• Deep, very fine grained calcareous soils (silty clay loam).</li> <li>• Developed on lake terraces and marine terraces.</li> <li>• Derived from igneous and sedimentary rock and/or calcareous silty and clayey glaciomarine deposits.</li> <li>• Slopes are nearly flat to gently rolling.</li> </ul>
<b>Swanton</b>	<ul style="list-style-type: none"> <li>• Deep, fine grained loamy soils (fine sandy loam).</li> <li>• Developed in depressions.</li> <li>• Derived from loamy, glaciofluvial or deltaic deposits overlying clayey glaciolacustrine or glaciomarine deposits.</li> <li>• Slopes are nearly flat.</li> </ul>

Source: St. Lawrence County Soil Survey (USDA NRCS, 2005); Lewis County Soil Survey (USDA NRCS, 1960)

Silt loam is the dominant soil texture within the Study Area, however a wide range of textures are present, including muck, sand, peat, clay, channery loam, gravelly loam, and exposed bedrock outcrops. Soil drainage is dominantly in the range of moderately well drained to poorly drained, with 6.4% of Study Area soils being classified as very poorly drained, 11.3% as poorly drained, 22.9% as somewhat poorly drained, 17.8% as moderately well drained, 13.1% as well drained, 11.5% as somewhat excessively drained, and 8.4% as excessively drained. The remaining 8.6% of the Study Area was either characterized as open water (1.3%), gravel and sand pit (<0.01%), or was not mapped.

According to the USDA NRCS (2013) Soil Survey Handbook No. 18, prime farmland is “land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these uses.” It has the soil quality, growing season, and moisture supply needed to produce economically sustained high yields of crops when treated and managed according to acceptable farming methods, including water management. In general, prime farmlands “have an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content, and few or no rocks. They are also permeable to water and air. Prime farmlands are not excessively erodible or saturated with water for a long period of time, and they either do not flood frequently or are protected from flooding.” According to the SSURGO database, 8.6% of the mapped soils within the Study Area are considered prime farmland (includes map units within the Charlton, Elmwood, Flackville, Hogansburg, and Kalurah soil series) and an additional 17.7% are considered prime farmland if drained (includes map units within the Hailesboro, Malone, Muskellunge and Roundabout soil series). The Soil Survey Handbook defines farmland of statewide importance as “those that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some may produce as high a yield as prime farmlands if conditions are favorable.” According to the SSURGO database, 22.1% of soils within the Study Area are considered farmland of statewide importance.

#### *4.2.6. Cultural Resources*

The term cultural resources, as used here, includes archaeological sites, objects, places, historic buildings, structures, and archaeological and historic districts. The Phase I Archaeological

Report and Architectural/Historical Survey Report are each included with this Exhibit as Appendices F and G, respectively. This section summarizes the methodology and results of the surveys conducted for the Project to identify cultural resources.

Archaeological and architectural studies use different Study Areas, which are also known as the area of potential effects (“APE”). The APE is generally defined as the geographic area(s) within which the Project may directly or indirectly change the character or use of historic properties; this includes all land disturbances, indirect land disturbances, and visual impacts. The archaeological APE for the Project focused on archaeologically sensitive areas associated with proposed ground-disturbing activities. The architectural APE encompasses the full extent of any indirect or visual impacts and/or direct physical changes to nearby historic properties caused by the Project. APE and Study Area are synonymous when used to assess potential impacts to archaeological and architectural resources.

#### *4.2.6.1. Archaeology*

Background research was conducted first to assess the presence and potential for archaeological resources within the archaeological APE of the Project.

The archaeological APE for the Project is not yet final. Proposed structure locations have been designed, but design of other temporary and permanent disturbance areas, such as temporary access roads, temporary laydown areas and any new permanent access roads that are necessary, have not been completed. Archaeological investigations of these supplementary ground disturbing impact areas will be addressed after final engineering designs are completed. For purposes of this initial study, the archaeological APE utilized a 0.5-mile buffer from either side

of the centerline of the Proposed ROW. Field subsurface testing was only conducted in archaeologically sensitive areas and where the proposed structures are to be located.

#### 4.2.6.1.1. Background Research and Model Development

Background research included a review of local histories, a study of eighteenth-, nineteenth-, and twentieth-century maps and plans, a check of archaeological site files, and a review of published archaeological and historical studies as well as unpublished cultural resource management reports. This research was subsequently applied to a geographic information system (“GIS”)-based archaeological predictive model. The locations of existing archaeological sites were checked on the Office of Parks, Recreation and Historic Preservation (“OPRHP”) Cultural Resource Information System (“CRIS”) within the archaeological APE.

#### 4.2.6.1.2. Archaeological Sites

A total of 32 archaeological sites were identified within the archaeological APE. Four sites were identified as pre-contact, 25 as historic, two as multicomponent, and one as unknown. The pre-contact sites include sites that date to Paleoindian, Archaic, and Middle to Late Woodland periods. The historic-period sites date from the nineteenth to twentieth centuries. Two sites are listed as eligible for listing in the National Register of Historic Places (“NRHP”): the Massena Center Historic Site and the Club 37 Site. One site has been deemed not eligible, the IGTS 037-1-1 Site. The remaining 29 sites have an undetermined status for listing in the NRHP.

4.2.6.1.3. Cemeteries in the Project Vicinity

Cemetery records were reviewed through the OPRHP CRIS system, other historical records, and online databases to determine if any historical cemeteries are located in the current archaeological APE. The search identified 141 cemeteries for Lewis County, NY. Of these, the Jacox cemetery and the Tinney Corners cemetery are mapped within the archaeological APE, but outside the Proposed ROW, and the Jerden Falls Cemetery is mapped within the Proposed ROW.

A total of 274 cemeteries are listed in St. Lawrence County, NY. Of these, 10 are mapped within the archaeological APE: the Belleville, Foote Family, Gates, Haskell Ridge, Massena Center, Olin, Payne, Pinney, Pitcairn, and St. Mary’s cemeteries. No cemeteries are mapped within the Proposed ROW within St. Lawrence County, NY.

4.2.6.1.4. National Register Listings in the Project Area Vicinity

Background research identified 11 NRHP-listed historic sites/districts within three (3) miles of the Proposed ROW in St Lawrence and Lewis Counties (Tables 4-8 and 4-9).

**Table 4-8: National Register-Listed Properties within 3-Miles of the Proposed ROW in St Lawrence County**

NR Number	NAME	TOWN	ADDRESS
90NR02556	Robinson Bay Archeological District	Massena	N/W of ROW
90NR02569	Herring-Cole Hall, St. Lawrence University	Canton	St. Lawrence University campus
90NR02570	Richardson Hall, St. Lawrence University	Canton	St. Lawrence University campus
90NR02572	St. Lawrence University-Old Campus Historic District	Canton	Park Street
90NR02574	US Post Office	Canton	Park Street

NR Number	NAME	TOWN	ADDRESS
90NR02571/90 NR02573/07N R05785	Village Park Historic District	Canton	Both sides of Main and Park Streets and Park Place
03NR05125	Edwards Town Hall	Edwards	161 Main Street

**Table 4-9: National Register-Listed Properties within 3-Miles of the Proposed ROW in Lewis County**

NR Number	NAME	TOWN	ADDRESS
96NR01024	Alpina Archeological District	Diana	
96NR01022	Lewisburg Archeological District	Diana	

*4.2.6.1.4.1. Previous Surveys Conducted in the Project Vicinity*

According to the CRIS database, 18 surveys have been conducted in the archaeological APE. Surveys were conducted for a variety of purposes, including: a shore structure and shore erodibility study along the St. Lawrence River, NYSDOT projects, NYPA projects, a water line in Massena, the Grasse River Heritage Park project, a proposed U.S. Border Patrol Station, a Remedial Operations Pilot Study for the Grasse River, the Massena Country Club drainage improvements, a Canton nursing home project, Cole’s Creek State Park and Hawkins Point Visitor’s Center, a proposed water district project in the Towns of Louisville and Norfolk, the proposed Grant Wetland Restoration Project in the Town of Potsdam, and a University of Albany Mesonet Weather project. These previous investigations were used to develop the predictive model described in the following section.

#### 4.2.6.1.5. Historical Map Analysis and Archaeological Predictive Model Development

In consultation with OPRHP and interested, federally recognized Native American Nations, NYPA developed a GIS-based predictive model to identify areas with probability to contain archaeological sites. The GIS-based predictive model stratifies the Proposed ROW and surrounding areas into areas of high, moderate, and low probability for archaeological sites. The GIS-based model was built using ArcGIS 10.2.1 for Desktop Model Builder. The GIS-based model incorporates the following five inputs: slope, surficial geology, known archaeological sites, water bodies (streams, lakes, and rivers), and topographic features lying within specific elevation ranges. The input data were gathered from 2015 wetland and stream delineations conducted for the Project, as well as from the Geospatial Data Gateway, OPRHP, and the New York State Museum. The GIS-based model includes the Proposed ROW and surrounding areas out to a distance of 0.8 kilometers (0.5 miles). The area outside the Proposed ROW was included in the model to provide data about archaeological sensitivity for future proposed off-ROW improvements such as access roads and temporary laydown areas associated with the Project, to be developed in the EM&CP. Input features more than 0.5 miles from the Proposed ROW were determined to have no effect on archaeological site probability; therefore, a one (1)-mile buffer was used in the model.

#### 4.2.6.1.6. Prior Disturbance

Not included in the model, but relevant to the archaeological studies, are documented prior disturbances within the Proposed ROW. The first of these documented prior disturbances is the construction of the Wiley Dondero Canal beginning in 1954. Aerial photographs taken during

construction indicate that the northern side of the canal was extensively disturbed, but the south bank of the canal was relatively undisturbed. Despite the modeled result, archaeological sensitivity on the northern side of the canal in the Proposed ROW is considered low. This disturbance also includes the area within and around the Moses Switchyard.

There is an additional documented disturbance in the Proposed ROW described in the Phase I Archaeological Reports (Appendix E). The extent of this disturbance was assessed during the Phase IA archaeological survey, though no modifications to the modeled archaeological sensitivity were proposed.

#### 4.2.6.1.7. Archaeological Resources Survey

An archaeological survey was designed to assess the efficacy of the predictive model and to identify any archaeological sites in the Proposed ROW. The survey was conducted in two phases: the Phase IA (pedestrian reconnaissance) survey, and the Phase IB (subsurface testing) survey (*see* Appendix E).

##### 4.2.6.1.7.1. Pedestrian Reconnaissance Survey

This surface reconnaissance was intended to evaluate archaeological sensitivity that was delineated in the Proposed ROW by the GIS-based archaeological predictive model. It also served to identify areas where the model may lack the necessary resolution to identify potential site locations, especially where historical documentation is lacking or spatially inaccurate when overlain on modern maps. This approach allowed the Project archaeologists to evaluate local topographic or environmental features that are too small to influence the model because of the

low resolution of the data sets. These local landscape features may include benches, rock overhangs, and potential quarry sites.

Phase IA archaeological surface reconnaissance of the Proposed ROW was conducted from June 6 to 10, 2016. The Phase IA pedestrian reconnaissance survey found general agreement between the GIS predictive model and field staff observations in the vicinity of stream crossings throughout the Proposed ROW, and in the southern portion of the Proposed ROW where the model was designed to identify Pleistocene lake-strand features. As the distance from the major waterways increased, the landscape included minimally differentiated upland areas with exposed bedrock, severely eroded soil, or no distinct topographic features. A subsurface survey was therefore recommended for proposed structures adjacent to the major waterways with high and moderate archaeological sensitivity. One site was identified: the Jerden Falls Cemetery.

The Jerden Falls Cemetery (a/k/a the Jordan Falls Cemetery) dates to the nineteenth century. A newspaper story describes services held for those persons who had been buried at the Jerden Falls Cemetery, where the deceased had been wrapped in blankets and buried hastily in unmarked graves (Watertown Daily Times 2012). The contemporary fenced boundary was established based on a review of aerial images dating to the 1960s prior to the loss of the former century-old cemetery fence. According to interviews conducted with the individuals who arranged to have the marker placed, there are no documentary records of the individuals buried at the cemetery, only family oral histories.

The cemetery contains a single marble marker that dates to 1851 and 1852. Other than a granite memorial stone dated 2012, no other grave markers are present. Additionally, the marble grave

marker from the mid-nineteenth century is not in place and at the time of survey, was leaning against the exterior side of the cemetery fence. Because so little documentation is available regarding the number of interments and the interments were originally unmarked, it is not clear how well the existing fence demarcates the actual extent of the cemetery.

#### 4.2.6.1.7.2. Subsurface Testing

The archaeological predictive model identified areas of high and moderate sensitivity along the Grasse River, Harrison Creek, Oswegatchie River, Big Creek, and Jenny Creek, though expectations for archaeological sites in these locations was modified based on conditions within the previously built portions of the Proposed ROW. Based on the results of the pedestrian reconnaissance, the field testing strategy implemented testing along major waterways as a means to satisfy recommendations made by consulting Native American Nations. One of these nations recommended testing these areas at a reduced 7.5-meter (25-foot) shovel test interval. Therefore, archaeological testing of proposed new structure locations was conducted for all archaeologically sensitive areas that correspond to major waterways.

Subsurface testing was conducted in August 2016, at thirteen proposed structure locations corresponding to major waterways, and again, through November 27 through December 1, 2017. Where subsurface testing was employed, generally five tests were placed to identify any cultural resources. One shovel test was placed in the location of the proposed structure, and the remaining four shovel tests were placed in a cross-shaped pattern relative to the proposed structure location. Two tests were aligned parallel to the Project centerline from the initial test. Another two tests were aligned on either side of the proposed structure location perpendicular to

the Project centerline. If a proposed structure location was deemed highly sensitive, an additional four tests were excavated to box in the structure. Locations of shovel tests that fell on steep slopes were photo documented and precluded from excavation.

The Phase IB subsurface survey consisted of the excavation of 152 shovel tests at 33 proposed structure locations. Stratigraphy varied throughout many of the tests at each structure location, indicating at least a mild disturbance. This is likely the result of past transmission line construction activities and subsequent use of the cleared ROW for agriculture and recreational use, such as four wheelers and all-terrain vehicles. Tests were excavated deep into subsoil, deeper than 60 centimeters (approximately two (2) feet), to clearly identify sterile soil and determine the presence of any buried A horizons, especially on the floodplain deposits. No buried A horizons were encountered. Proposed Structure 68/3W on the west side ridge overlooking Jenny Creek in the Town of Pitcairn had three shovel tests that yielded artifacts. One test contained a single wire nail, and one test yielded six fragments of cast iron stove. One radial shovel test contained a single fragment of clear bottle glass. All artifacts were noted as field scatter and discarded at the time of survey. No pre-contact artifacts or features were recorded at any of the 33 proposed structure locations. For the proposed expansion at the Adirondack Substation, 73 shovel tests were excavated at 15-meter (50-foot) intervals outside the currently fenced portion. Heavy disturbance was noted north and east of the substation outside of the fenced area. No archaeological sites were identified at the Adirondack Substation expansion. OPRHP concurred with the recommendations in the Phase IB archaeological report on March 12, 2018 (*see* Appendix A).

#### 4.2.6.2. *Architectural/Historical Resources Survey*

The architectural APE, as with the archaeological APE, encompasses the full extent of any indirect or visual impacts and/or direct physical changes to nearby historic properties caused by the Project. The architectural APE was based on the height and placement of the proposed structures and determined to be a one-mile buffer for the entire length of the Proposed ROW, except for a three-mile buffer around the SUNY Canton re-route based on the *OPRHP/State Historic Preservation Office (“SHPO”) Guidance on Transmission Lines*. The computer-generated viewshed analysis for the areas around and adjacent to each of the identified resources determined those locations from which there is potentially a view of the Project. Based on this refined architectural APE, land parcels with buildings over 50 years of age based on historic aerial photography were noted and those that appeared potentially eligible for SR/NRHP listing were surveyed and documented. The survey reports are found in Appendix F.

##### 4.2.6.2.1. Methodology

The viewshed calculation was performed using a USGS 10-meter digital elevation model, which provided an estimate of the ground surface elevation for every 10x10-square-meter area across the entire Proposed ROW. Using this information, the effects of terrain on line-of-sight visibility of an area can be modeled, allowing the identification of those areas that can and cannot be seen because of intervening topography. Vegetation was modeled by overlaying forest cover data on top of the elevation data layer, assuming an average canopy height of 23 meters (approximately 75 feet). The extent of forest cover was determined by digitizing forested areas based on 2011 imagery. Since the location and height of the transmission line structures is known, the viewshed

model was developed from the perspective of the structure height in relation to the terrain visible from the top of the structure. Other intervening buildings and their positions and heights were not taken into consideration as part of the calculations for the viewshed analysis.

Prior to beginning fieldwork, a file search was conducted in online databases to gather information about known historic resources in the vicinity of the architectural APE. Staff reviewed the NHL online database, the OPRHP CRIS database, and the OPRHP online GIS viewer for the Towns of Massena, Louisville, Norfolk, Madrid, Potsdam, Canton, Russell, Hermon, Edwards, Pitcairn, Diana, and Croghan. Any inventory forms and designation forms for previously documented properties near or in the architectural APE were collected. All previously listed or eligible properties were located on USGS maps and aerial photographs. Staff reviewed local survey reports, histories, and historical maps available online and at the St. Lawrence County Historical Society to gain an understanding of historical development patterns in the architectural APE.

Following the background research, architectural historians conducted the reconnaissance survey to identify potential historic properties in the vicinity of the architectural APE. During the field survey, an architectural historian documented each resource in the architectural APE that appeared to be 50 years or older and potentially eligible for SR/NRHP listing through high-resolution digital photographs and in the CRIS Trekker portable application. Each property was located on aerial base maps, and views of the surrounding landscape were noted. The background research completed prior to the field survey provided data for evaluating each resource's potential eligibility for inclusion in the SR/NRHP, using the NRHP's criteria for evaluation of historical significance and integrity (36 CFR 60.4). The initial architectural survey

was conducted in 2016, but was updated in 2018 to reflect the currently proposed Project design. The additional architectural survey was conducted in January 2018 in previously unsurveyed areas not located within the Project viewshed of the prior Project design.

#### 4.2.6.2.2. Architectural Survey Results

Four previously identified historic properties were located in the architectural APE (Table 4-10). None of these properties are listed in the SR/NRHP, but all four have been formally determined eligible for SR/NRHP listing.

The architectural reconnaissance survey identified 22 additional properties, which were documented and are listed in Table 4-11. Fourteen of these 22 properties were determined eligible for listing in the SR/NRHP through consultation with OPRHP. OPRHP responded via letter on March 23, 2018 that based on review of the study reports, the Project will have no adverse impact on historic resources (*see* Appendix A).

The MA1&2 transmission lines were also evaluated as part of the architectural survey and are recommended as eligible for listing in the SR/NRHP. The MA1&2 transmission lines retain a high degree of integrity of materials, workmanship, design, feeling, location, association, and setting. The linear historic district is recommended as eligible for listing in the SR/NRHP under Criterion A as a vestige of the importance of the region in industrial production during World War II. Although many of the original wood structures have been replaced over time, and the proposed Project includes the introduction of steel monopole towers in place of the parallel circuit H-frames, the linear path of the transmission line remains largely unchanged. The erection of the 78-mile MA1&2 transmission lines through remote areas in just a few months'

time was an important achievement of the War Production Board, which was repeated in various forms all over the nation in support of the country's wartime defense industry.

**Table 4-10: Documented Architectural Resources in the Architectural APE**

USN/NRHP #	PROPERTY ADDRESS	HISTORIC NAME	DATE	EXISTING DESIGNATION STATUS
8920.000067	Barnhart Island Massena, NY 13662	St. Lawrence-FDR Power Project Historic District/ Robert Moses Power Dam	1953- 1961	Eligible
95SD0185	Church St. Hermon, NY 13652	Church Street Historic District	c. 1860- 1920	Eligible
8947.000081	105 Main St. Hermon, NY 13652	Hepburn Library	c. 1920	Eligible
8947.000079	111 German St. Hermon, NY 13652	Residence	c. 1906	Eligible

**Table 4-11: Architectural Properties Surveyed**

PROPERTY ADDRESS*	HISTORIC NAME	DATE	NRHP RECOMMENDATION		EXISTING DESIGNATION STATUS	PREVIOUSLY SURVEYED
			Eligible	Not Eligible		
	St. Lawrence- FDR Power Project Historic District	1958- 1961	X		Eligible	Yes
Church St., Hermon	Church Street Historic District	c. 1860- 1920	X		Eligible	Yes
105 Main St., Hermon	Hepburn Library	c. 1920	X		Eligible	Yes
111 Germain St., Hermon	House	c. 1906	X		Eligible	Yes

PROPERTY ADDRESS*	HISTORIC NAME	DATE	NRHP RECOMMENDATION		EXISTING DESIGNATION STATUS	PREVIOUSLY SURVEYED
153 Kingsley Road, Louisville	House	c. 1830	X		--	No
14971 Route 37, Louisville	House	c. 1860	X		--	No
585 County Route 39, Louisville	House	c. 1850		X	--	No
1667 State Highway 345, Madrid	House	c. 1860		X	--	No
394 Hughes Road, Potsdam	House	c. 1850		X	--	No
175 Sykes Road, Canton	Sykes Homestead	c. 1845	X		--	No
190 County Farm Road, Canton	County Home Outbuilding	c. 1869		X	--	No
5862 Route 11, Canton	Tallman House	c. 1860	X		--	No
2384 County Road 24, Edwards	House	c. 1850	X		--	No
14709 State Route 37 Massena	Dwelling	ca. 1870		X	--	No
10 Buck St Canton	Dwelling	ca. 1860		X	--	No
14 Buck St Canton	Dwelling	ca. 1910		X	--	No
22 Buck St Canton	Dwelling	ca. 1860	X		--	No
114 E. Main St Hermon	Dwelling	ca. 1900	X		--	No
67 Maple Ave Edwards	Dwelling	ca. 1910	X		--	No
9670 Erie Canal Rd Croghan	Dwelling	ca. 1860		X	--	No
9551 Belfort Rd Croghan	St. Vincent de Paul's Church	1843	X		--	No

<b>PROPERTY ADDRESS*</b>	<b>HISTORIC NAME</b>	<b>DATE</b>	<b>NRHP RECOMMENDATION</b>		<b>EXISTING DESIGNATION STATUS</b>	<b>PREVIOUSLY SURVEYED</b>
Massena to Croghan	Moses-Adirondack Transmission Line	1942	X		--	No

*4.2.7. Aesthetic, Visual, and Recreational Resources*

The aesthetic, visual, and recreational resources section addresses the requirements of 16 NYCRR § 86.5 regarding potential visual impacts of the Project. The Visual Impact Assessment (“VIA”), prepared for the Project, is included in Appendix G. The VIA assesses potential impacts within a 1.5-mile radius of the proposed transmission line (the “Visual Study Area”). The VIA describes the appearance of the proposed Project; defines the existing visual setting of the Visual Study Area; inventories the existing visually sensitive resources in the Visual Study Area; classifies the major Landscape Similarity Zones (“LSZs”) and user groups; evaluates the potential visibility of the Project; and simulates and assesses the proposed Project’s visual impacts. The conclusions of the VIA are based on the results of viewshed analysis, field evaluations, and computer-assisted visual simulations performed for the Project.

*4.2.7.1. Viewer/User Groups*

Four categories of viewer/user groups were identified within the Visual Study Area:

*4.2.7.1.1. Commuters and Through-travelers*

Travelers passing through the area view the landscape from motor vehicles on their way to other destinations. Through travelers are typically moving, have a relatively narrow field of view

oriented along the axis of the roadway, and are destination-oriented. Drivers on major roads in the area (e.g., NY-3, NY-58, NY-68, US-11, NY-310, and NY-37) would generally be focused on the road and traffic conditions, but do have the opportunity to observe roadside scenery. Passengers in moving vehicles would have greater opportunities for prolonged off-road views than would drivers, and therefore may be more aware of the quality of surrounding scenery. However, this viewer group is used to seeing overhead transmission/utility lines along area roadways, and their sensitivity to visual changes in the landscape is limited.

#### 4.2.7.1.2. Local Residents

Local residents include those who live, work, and travel for their daily business within the Visual Study Area. They generally view the landscape from their yards, homes, local roads, and places of employment. Residents are concentrated in and around the towns but, occur throughout the Visual Study Area. Except when involved in local travel, residents are likely to be stationary, and have frequent or prolonged views of the landscape. Local residents may view the landscape from ground-level or elevated viewpoints (typically upper floors/stories of homes). Residents' sensitivity to visual quality is variable, and may be tempered by the aesthetic character/setting of their neighborhood or work place. Those living in more densely settled areas with views focused on their neighborhood street or their downtown centers may be less sensitive to landscape changes than those with a view of undeveloped land. It is generally assumed, however, that all residents are familiar with the surrounding landscape and may be sensitive to changes in their views.

#### 4.2.7.1.3. Business Employees

This viewer group is composed of employees of local businesses, primarily in the commercial/industrial portions of the Visual Study Area located in the Towns of Canton and Massena. These employees generally experience limited views of the landscape within the Visual Study Area. Views may be more expansive for those with longer commutes to and from work. Most businesses consist of one- and two-story structures in commercial, industrial, or downtown settings. Views from these structures often include other buildings, paved surfaces, vehicles, and related man-made features. Individuals are likely to be focused on their activities at work, which typically occur inside buildings. Therefore, this group receives relatively little exposure to the landscape, and is generally not highly sensitive to visual changes in their outdoor surroundings.

#### 4.2.7.1.4. Recreational Users

This viewer group consists of residents and visitors who come to the area for the purpose of experiencing its scenic and recreational resources. They may view the landscape on their way to a destination (i.e., on a roadway) or from the destination itself. Recreational users in the area are generally involved in outdoor recreational activities at parks, trails, rivers, lakes, and forests. Typical activities include bicycling, jogging, swimming, recreational boating, hunting, fishing, ATV and snowmobile use and more passive recreational activities (e.g., picnicking or walking). Visual quality/scenery may or may not be an important part of the recreational experience for these viewers. However, recreational users are generally considered to have relatively high sensitivity to aesthetic quality and landscape character. They would often have continuous views

of landscape features over relatively long periods of time, and scenic quality generally enhances the quality of any outdoor recreational activity. Passive recreational activities generally do not require as much concentration as more active recreational activities, and tend to be more focused on the enjoyment of scenery. Those engaged in passive activities, therefore, may be particularly sensitive to visual change. Recreational users would be concentrated in the public lands (e.g., parks, state forests, waterbodies, Upper and Lower Lakes Wildlife Management Area (“WMA”), Robert Moses State Park, and the Adirondack Park) and recreational facilities (e.g., playgrounds, ball fields, and golf courses) in the Visual Study Area.

#### *4.2.7.2. Resource Inventory*

Except for one National Historic Landmark (the Adirondack Forest Preserve), scenic resources of national significance are not present within the Visual Study Area. The Visual Study Area includes no national scenic byways or national recreational/scenic trails (e.g., Appalachian Trail). None of the waterbodies in the Visual Study Area are on the national list of wild, scenic, or recreational rivers, and there are no National Wildlife Refuges, National Parks, National Seashores, National Forests, or National Natural Landmarks located within or adjacent to the Visual Study Area. However, as shown on Figure 4-6 the Visual Study Area includes several resources/sites that could be considered visually sensitive from a statewide, regional, or local perspective. Aesthetic resources considered to be of statewide significance include structures or districts listed in the state/NRHP, state parks, state WMAs, state forests, state-designated wild, scenic or recreational rivers, state scenic byways, state reservations, state recreational/scenic trails, state nature and historic preserve areas, and state-designated scenic areas. Resources of regional or local significance generally include town/county parks and recreational facilities

(including trails, bike paths, golf courses and athletic fields), designated open space (e.g., land trust properties, conservation lands), schools/colleges, cemeteries, waterbodies, and areas of intensive land use (e.g., village centers, apartment complexes, and major transportation corridors). These resources are summarized in the VIA (*see* Appendix G).

#### 4.2.8. *Land Use*

The Project will be constructed on existing ROW except for an approximate one-mile re-route along the perimeter of, and within, the SUNY Canton campus. The Project will not change the current land use on the ROW. Because the Project will remove approximately half of the existing structures, land utilization may increase once the old structures have been removed.

The *New York State Open Space Conservation Plan* (“NY Open Space Plan”) encourages state and local stakeholders to take advantage of opportunities to implement conservation recommendations as these stakeholders develop strategies for achieving conservation goals. Revisions to the NY Open Space Plan were approved in 2016. The 2016 NY Open Space Plan focuses on four major areas: promoting outdoor recreation; addressing climate change; ensuring clean water, air, and land for a healthy public and vibrant economy; and protecting, using, and conserving our natural resources and cultural heritage. The state conservation goals include maintaining viable and representative samples of all ecosystem types in the state; linking state lands to create large-scale biodiversity reserves; maintaining evolutionary and ecological processes (i.e., disturbance regimes, hydrological processes, and nutrient cycles); increasing effectiveness of conservation actions by considering site or parcel location on the landscape; and accounting for human use and impact. The NY Open Space Plan includes a list of more than 100

regional priority conservation projects across the state. The priority conservation projects located in the vicinity of the Study Area are described below.

**Riparian buffers and wetland protection projects aimed to reduce the impacts of storms and flooding on human and natural communities** – The NY Open Space Plan indicates conservation programs and strategies that focus on protecting wetlands, floodplain forests and lake shore coastlines should be the first line of defense to protect adjacent private property and communities from increased storm intensity, flooding and rising coastlines.

**Northern Flow River Corridors (Project 73)** – The NY Open Space Plan indicates a need to preserve the open space character and enhance public use of important northern flow river corridors and adjacent lands. The following corridors have been chosen at this time: the Deer, St. Regis, Grasse, Oswegatchie, Raquette, and Little Rivers within the Adirondack State Park, all of which contain significant stretches of high-quality recreational water particularly suited for canoeing and angling. The Study Area includes one crossing of the Middle Branch Oswegatchie River within the Adirondack State Park.

**St. Lawrence River Islands, Shorelines, and Wetlands (84)** – On the St. Lawrence River, including the Thousand Islands portion, the NY Open Space Plan indicates that conservation priority should apply to lands adjacent to existing state parks, undeveloped islands and shoals, large tracts of forest, grassland, and wetland habitat adjacent to tributaries of the St. Lawrence River, lands with high recreational potential, and scenic,

undeveloped shoreline. The Study Area crosses the St. Lawrence River within Robert Moses State Park.

#### *4.2.8.1. Merchantable Land Uses and Resources*

Merchantable land uses in and around the Study Area include agriculture, forestry, and mining. These land uses are described in the following sections.

##### *4.2.8.1.1. Agriculture*

Agriculture is the primary merchantable land use within the Study Area. Article 25-A of the Agriculture and Markets Law authorizes the creation of local agricultural districts pursuant to landowner initiative, preliminary county review, state certification, and county adoption. These districts encourage improvement and continued use of agricultural land for the production of food and other agricultural products. The Study Area intersects portions of three different Agricultural Districts, which are shown on Figure 4-2: Agricultural Districts. Based upon onsite land cover classifications, approximately 16.4 miles of cropland, pasture, and hay fields would be crossed by the Study Area. Corn and soybeans are common crops throughout the Study Area.

##### *4.2.8.1.2. Forestry*

Much of the Project region is dominated by privately owned forests, interspersed with family farms and small communities. The forests comprise valuable saw timber-sized hardwoods mixed with maturing conifer plantations. From this mix of environmental and social conditions come unique opportunities for families to derive income from timber harvesting, forest farming, and other special forest projects (CCELC, 2016). Common forest types include maple-beech-

birch, white-red-jack pine, and aspen-birch (St. Lawrence County Agricultural and Farmland Protection Board, 2001). Forests are more common in the southern half of the Study Area and generally occur outside of the maintained ROW, with the exception of the proposed re-route around the SUNY Canton campus. Additional information regarding forests is provided in Section 4.2.2.

#### 4.2.8.1.3. Mining

The NYSDEC Division of Mineral Resources Mining Database indicates there are 25 active mines within three (3) miles of the Study Area. All but one of these are sand and gravel mines (the Polarolo Mine in the Town of Massena is a clay mine).

#### 4.2.9. *Electromagnetic Field Strength and Noise*

##### 4.2.9.1. *Electromagnetic Fields*

Electromagnetic fields (“EMF”) are found wherever there is electricity. Appliances, computers, electrical wiring, electrical equipment, and power lines all produce EMFs. Electric fields are produced by voltage and increase in strength as the voltage increases. Electric field strength is measured in units of volts per meter (“V/m”). Magnetic fields result from the flow of current through wires or electrical devices and increase in strength as the current increases. Magnetic fields are measured in units of milligauss (“mG”). Most electrical equipment must be turned on (i.e., current must be flowing) for a magnetic field to be produced. Electric fields are often present even when the equipment is switched off, if it remains connected to the source of electric power.

Electric fields are shielded or weakened by materials that conduct electricity—even materials that conduct poorly, including trees, buildings, and human skin—and are completely shielded by materials such as metal and the earth. Magnetic fields, however, pass through most materials and are therefore more difficult to shield. Both electric fields and magnetic fields decrease rapidly as the distance from the source increases; therefore, they are highest closest to transmission lines (i.e. directly underneath) and decrease as the distance from the conductor to the edge of transmission line ROW corridor increases.

The applicable electric field strength standards established by the Public Service Commission (“PSC”) are set forth in Opinion No. 78-13 (issued June 19, 1978) and reaffirmed in the PSC’s Interim Policy Statement on Magnetic Fields, issued September 11, 1990 (“Interim Policy”). The 1978 Opinion established an electric field strength interim standard of 1.6 kilovolts per meter (“kV/m”) for electric transmission lines, at the edge of the ROW, one meter above ground level, with the line at the rated voltage. The Interim Policy established a magnetic field strength interim standard of 200 mG, measured at one meter above ground level, at the edge of the ROW. This measurement is based on the expected circuit currents being equal to the winter-normal conductor rating.

As a new transmission facility subject to Article VII of the Public Service Law, the preliminary geometry of the re-built MA1&2 lines across a sample of typical cross sections was analyzed to generate typical electrical and magnetic field levels for comparison with the required guidelines. Analyses were performed using the Corona and Field Effects Program developed by the Bonneville Power Authority (“BPA”) in conjunction with the U.S. Department of Energy (“USDOE”).

For the purposes of the analyses, the following MA1&2 transmission line data was entered for typical spans within each area of interest: average span length, average mid-span sag at conductor winter normal temperature and winter normal conductor ratings (as outlined in the Interim Policy), average structure height, typical structure configuration, polarity/phasing arrangement, and, in the case of shared ROW, the location of the maximum mid-span sags of the other line(s) coincided at the same longitudinal location.

The results of the preliminary EMF analysis are provided in the Electric and Magnetic Field (EMF) Analysis report (*see* Appendix H). As indicated by the results of the analysis, the proposed Project complies with the PSC requirements for both the electric and magnetic field levels at the edge of the ROW.<sup>2</sup>

#### 4.2.9.2. *Noise*

Corona-generated audible noise may be of concern with voltages of 345 kV and higher, only during foul weather, when rain droplets can cause exacerbation of the corona effect.

The preliminary geometry of the re-built MA1&2 lines across a sample of typical cross sections was analyzed to generate typical audible noise levels for fair and rain conditions. Analyses were performed using the Corona and Field Effects Program developed by the BPA in conjunction with USDOE (*see* Appendix H).

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<sup>2</sup> This includes the 50-foot residential restriction easement as discussed in Opinion No. 78-13.

As set forth in Appendix H, audible noise calculations showed that the sound associated with 345-kV transmission lines in foul weather is the same as existing conditions. Noise-level changes resulting from additional or replaced equipment for proposed modifications at Moses Switchyard and Adirondack Substation would be minimal because the modifications at both locations will not appreciably change the proximity to any sensitive noise receptors (e.g., residences).

#### **4.3. Effects on Vegetation, Wildlife, Hydrology, Topography, Geology, Soils, Cultural and Scenic Resources, and Land Use (16 NYCRR § 86.5(b)(1))**

*16 NYCRR § 86.5. (b) The applicant shall state: (1) what changes, if any, the construction and operation of the proposed facility might induce in the physical or biological processes of plant life or wildlife through any permanent or significant temporary change in the hydrology, topography or soil of the area;*

The Project is the rebuild of existing MA1&2 transmission lines primarily on an existing, maintained ROW, except for the approximate one-mile re-route on the SUNY Canton campus. Due to the use of existing ROW, the construction of the proposed facility would have a temporary and minor impact to plant life and wildlife as described in more detail in this section. On the Proposed ROW, the operation of the Project is not anticipated to have a permanent or significant change in the hydrology, topography, or soil of the area. The two proposed 345 kV facilities would be located within or immediately outside the fence lines of the existing Moses Switchyard and Adirondack Substation, thereby minimizing environmental impacts. Impacts provided herein are the total impacts from Phase One and Phase Two of the Project.

An assessment of the potential impacts to each resource that may result from Project construction or operation is provided in the following sections. Measures to reduce impacts are described,

and where impacts have been determined to be unavoidable, appropriate mitigation measures are proposed.

NYPA currently maintains its ROW based on existing permits, plans, and regulatory guidance documents (collectively, NYPA's Best Management Practices, or "BMPs"). The construction, operation, and maintenance of the Project would be performed using the methods described in these documents with the ultimate goal of protecting the environment. These documents are listed below with an accompanying hyperlink or attachment in Appendix I:

1. New York State Standards and Specifications for Erosion and Sediment Control ([http://www.dec.ny.gov/docs/water\\_pdf/sect2resplan.pdf](http://www.dec.ny.gov/docs/water_pdf/sect2resplan.pdf))
2. New York Utility Company Best Management Practices for Preventing the Transportation of Invasive Species, Environmental Energy Alliance of New York ("EEANY"), January 2015
3. NYPA's Systemwide Long Range Transmission Right-of-Way Vegetation Management Plan and Program, Revision Date 11/3/2016
4. NYPA's Construction Specification Document, Division 1
5. New York State Department of Agriculture and Markets ("NYSDAM") Guidelines for Electric Transmission Right-of-Way, dated 4-27-2011
6. NYSDEC Permit #0-0000-01153, NYPA Permit for Freshwater Wetland Herbicide Treatment Activities, expiration date December 14, 2020

These documents provide a framework of BMPs to be used; final BMPs for construction, operation, and maintenance of the Project will be provided in the Project's EM&CP.

Mitigation and protection measures are discussed in more detail in Section 4.4.

#### *4.3.1. Construction Impacts*

A detailed construction schedule will not be finalized until final Project approval is granted and contracts have been awarded to all contractors. However, it is anticipated that the Project would be rebuilt in phases or sections. It is likely that one section (or “pull area”) would be worked on at a time, although there may be overlap between sections. NYPA may choose to demolish and rebuild one line at a time or demolish and rebuild sections of both MA1&2 at the same time. This will be determined during final design and described in the EM&CP.

Typical work sequence within a section would be as follows during Phase One:

- Surveying new structure locations,
- Site preparations, including erosion and sediment controls,
- Improving temporary access roads as necessary and laydown areas,
- Mobilizing equipment,
- Removing old structures,
- Foundation installation for new structures,
- Installing new structures and insulators,
- Pulling new conductors and OPGW,
- Securing new conductors and OPGW,
- Placing new line in service, and
- Final restoration and site demobilization.

Typical work sequence within a section would be as follows during Phase Two:

- Surveying new structure locations,
- Site preparations, including erosion and sediments controls,
- Improving temporary access roads as necessary and laydown areas,
- Mobilizing equipment,
- Removing old structures,
- Foundation installation for new structures,
- Installing new structures and insulators,
- Pulling new conductors and OPGW,
- Securing new conductors and OPGW,
- Substation and Switchyard expansion activities,
- Placing new line in service, and
- Final restoration and site demobilization.

#### *4.3.1.1. Vegetation*

Impacts to vegetation would be minimized by following an existing maintained ROW, constructing the proposed 345 kV switchyards within, or immediately adjacent to, the fence lines of the existing Moses Switchyard and Adirondack Substation, and using existing access roads wherever possible. However, both temporary and permanent impacts (e.g., new SUNY Canton ROW) to the identified vegetative community types would result from the construction of the proposed Project. Construction-related impacts to vegetation include clearing of trees and brush

and increased exposure/disturbance of soil along access roads and at structure sites, laydown areas, and pulling stations.

No threatened or endangered plant species were observed on the Proposed ROW, therefore it is anticipated that no impacts to threatened or endangered plant species would occur during construction of the Project. The two rare plant species observed on the Proposed ROW may potentially be impacted during construction.

The introduction or spread of invasive plant species are potential threats to sensitive ecological resources (e.g., wetlands and streams) due to construction activities. Activities that may increase risks associated with invasive species include the movement of topsoil, gravel, and construction equipment and site restoration. Populations of invasive species typically establish most readily in places where the ground has been disturbed and soil has been exposed. Invasive species can cause harm to the natural ecology of an area, often by out-competing native species. The approximately 232.6 acres of invasive plant species populations within the Proposed ROW could be disturbed during construction. The majority of these areas (approximately 226.0 acres) will be restored to pre-existing topography and vegetation, while the remaining areas (approximately 6.6 acres) will be permanently converted to developed land due to structure placement or maintenance of existing access roads. Areas with existing populations of invasive species that are temporarily disturbed during construction are likely to have invasive species return during revegetation due to the existing seedbed. These temporary and permanent impacts may be adjusted once final field delineations and final design have been completed for the EM&CP, including additional temporary and permanent access roads and temporary workspaces such as laydown areas and pulling stations.

The re-route on the SUNY Canton campus would require the clearing of new ROW along the perimeter of SUNY Canton property for an approximate one-mile portion of the Proposed ROW. This would result in a permanent change of approximately 12.7 acres of forested land cover during both construction and operation for that approximate one-mile segment to an open, herbaceous or shrub scrub cover.

There are also some areas of the existing ROW that would require tree clearing to accommodate the new single-circuit monopoles. One section is located in the northern eight-mile section of the existing facility which currently has double-circuit steel lattice structures. Approximately 27.5 acres for approximately eight (8) miles of existing ROW would require tree clearing resulting in a permanent change to the vegetative community during both construction and operation. In addition, approximately 4.8 acres in other areas along the existing ROW would require tree clearing and would result in some permanent change to the vegetative community during both construction and operation.

#### *4.3.1.2. Wildlife*

Construction of the proposed transmission line and the 345 kV switchyards may result in some unavoidable impacts to wildlife. Direct impacts of the proposed Project on fish and wildlife resources could include the following:

- Incidental injury and mortality due to construction activity and vehicle movements,
- Temporary habitat disturbance during construction,
- Construction-related silt and sedimentation impacts on aquatic organisms, and

- Temporary disturbance of wildlife due to increased noise and human activity during construction.

Incidental injury and mortality would likely be limited to slow-moving or sedentary species that are unable to relocate from disturbed areas during construction. It is expected that mobile species would vacate construction areas prior to substantial amounts of disturbance. Incidental injury and mortality would be minimized by avoiding disturbance of forest and wetlands, to the extent practicable, and using existing cleared ROW and access roads for most construction activities.

Habitat loss and alteration would be minimized by routing the line within the existing maintained ROW, for much of the Project. Because the ROW is currently cleared and maintained for the operation of the existing lines, as is the Moses Switchyard and Adirondack Substation, most of the Project's potential impacts to wildlife and wildlife habitat would be temporary and restricted to the period of construction. Human activity, soil disturbance, and loss of vegetation would end after construction is complete. Disturbed areas would then be restored. Additionally, because the proposed 345 kV switchyards would be built either within, or immediately adjacent to, the fence lines of the existing Moses Switchyard and Adirondack Substation, the habitat loss associated with them is minimal.

Wetlands and areas of open water or running water that could provide habitat for aquatic species would be avoided or minimized through appropriate siting and, to the extent practicable, the use of previously disturbed crossings. Where unavoidable, these habitats would be crossed with temporary methods that would be removed following construction. Low impact stream and

wetland crossing techniques (such as dry crossings) would be developed for the EM&CP, and would be based on NYPA's BMP documents as presented in Appendix I. As a result, any impact to aquatic or wetland-dependent species would be minor and short term.

#### 4.3.1.2.1. Rare, Threatened, and Endangered Species

##### 4.3.1.2.1.1. Federally Listed Species

#### Indiana Bat

The Project is within the range of the Indiana bat, but there are no known records of hibernacula or roost trees in the Proposed ROW or its vicinity. The limits of Indiana bat range in the Project area extend north from the Croghan substation to the Town of Pitcairn/Town of Edwards boundary, and are limited to those areas at elevations below 900 feet amsl. Based on field surveys, no suitable summer or winter habitat exists in the Proposed ROW within the range of the Indiana bat. Therefore, the Project is not expected to affect or have any impact on the Indiana bat.

#### Northern Long-eared Bat

The northern long-eared bat was listed as threatened under ESA on April 2, 2015. USFWS issued a 4(d) rule of the ESA for this species, which was published in the *Federal Register* on January 14, 2016. The 4(d) rule prohibits "incidental take" within white-nose impacted areas of the northern long-eared bat's range when a proposed action is (1) within a known hibernaculum, (2) includes tree removal within 0.25 miles of a known hibernaculum, or (3) cuts or destroys a known, occupied maternity roost tree or other trees within a 150-foot radius from the maternity

roost tree during the pup season from June 1 through July 31. Incidental take for other activities is covered under the Programmatic Biological Opinion associated with the 4(d) rule. Notably, “incidental take” is defined by the ESA as take that is “incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.” For example, harvesting trees may result in a “take” of bats that are roosting in the trees, but the purpose of the activity is not to harm bats.

The Project is within the range of the northern long-eared bat. According to NYNHP and USFWS data, no known occurrences of northern long-eared bat hibernacula or summer roosts exist in the Proposed ROW or its vicinity. Based on field surveys, suitable summer habitat exists along the edge of the Proposed ROW in forested areas, and within the approximate one-mile re-route on the SUNY Canton campus. There is no suitable summer habitat within the existing MA1&2 ROW. Therefore, potential impacts to this species along the majority of the Proposed ROW are minimal to non-existent. Impacts to potential suitable summer habitat are likely to occur in the areas requiring tree clearing.

Although impacts to potential suitable summer habitat may occur along the edge of the Proposed ROW in forested areas within the approximate one-mile reroute on the SUNY Canton campus, NYNHP data indicate the Project is not within 0.25 miles of a known hibernaculum or within 150 feet of a known maternity roost. As a result, no avoidance or minimization measures are required to maintain consistency with ESA and the 4(d) rule established by USFWS.

In New York, a permit is required for the “take” of a state-protected species under the Uniform Procedures Act not only when there is a direct impact to the species, but also when there is an adverse modification to its habitat, which refers to the alteration of occupied habitat that is likely

to negatively affect one or more essential behaviors of a species. “Occupied” habitat for northern long-eared bats is defined by NYSDEC as those areas within five (5) miles of a known hibernacula or 1.5 miles from a documented summer occurrence. NYNHP and USFWS data indicate that the Proposed ROW is not within “occupied” habitat. Therefore, no take permit or further avoidance and minimization measures are required under State law.

#### 4.3.1.2.1.2. State-Listed Species

##### Blanding’s Turtle

Blanding’s turtles are listed as threatened in New York. Eighteen (18) suitable core wetland habitat patches (totaling 1.70 acres) and eight (8) potential associated wetland habitat patches (totaling 1.02 acres) would be temporarily impacted by construction of structure foundations and existing access roads. Due to the minimal acreage affected, no significant long term impacts to these habitat patches are anticipated. Following conservation guidelines provided by NYSDEC, during construction of the Project, silt fencing would be placed between construction work spaces and core or associated wetland areas prior to construction. This work would be conducted in the presence of a qualified and permitted environmental monitor in the event turtles must be removed from the Project construction area. In addition, 13 potentially suitable nesting habitat patches (totaling 1.42 acres) may also be impacted by construction of structure foundations and improvements to existing access roads. A summary of preliminary impacts to Blanding’s turtle habitat is provided in Table 4-12. Structure locations and access roads will be located outside of suitable core wetland, associated wetland, and potentially suitable nesting habitat patches in

order to minimize impacts to Blanding’s turtle habitat to the greatest extent practicable during the construction of this Project.

**Table 4-12: Preliminary Impacts to Blanding’s Turtle Habitat**

Potential Habitat Type	Study Area (Acres)	Preliminary Impacts (Acres)
Core Wetlands	75.7	1.70
Associated Wetlands	24.8	1.02
Nesting Areas	59.9	1.42

Notes:

1. Permanent impacts are based on foundation size (diameter) as designed and described in Exhibit 5 and existing access road locations. Final design will be assessed, and impact calculations will be updated, if necessary, for the EM&CP.
2. Laydown areas, temporary access roads, pulling stations, and other temporary workspace areas are not yet designed, therefore temporary impacts associated with these features are not yet known.
3. Additional habitat assessments will be completed in 2018 where the Proposed ROW is outside of the Study Area, once final design is completed. Impact calculations will be updated, if necessary, for the EM&CP.

Eastern Sand Darter

Eastern sand darters occur within the Grasse River, and historically were present in the St. Lawrence River. Field surveys indicated that no other waterbodies in the Proposed ROW contain suitable habitat for this species. No direct impacts to the Grasse or St. Lawrence River would occur for this Project; however, the potential exists for introduction of silt-laden runoff to these waterways. NYNHP considers siltation to waterways causing habitat loss a major threat to the species. As such, the EM&CP would identify appropriate soil erosion and sediment controls to be implemented during construction to avoid these potential impacts.

## Bald Eagle

Bald eagles are known to occur along the northern portion of the Proposed ROW associated with the St. Lawrence River; however, no eagle nests are known to occur within one (1) mile of the Project. To assess and address potential Project impacts on bald eagles, USFWS and NYSDEC recommend adherence to the USFWS' 2007 *National Bald Eagle Management Guidelines* (USFWS, 2007). NYSDEC provides additional guidelines in the Conservation Plan for bald eagles in New York (NYSDEC, 2016c). The largest protective buffer identified in the guidelines for eagle nests is one (1) mile wherein blasting activities or other loud noises are restricted between January 1 and September 30. Because no nests were observed within one (1) mile of the Proposed ROW, the Project is not expected to disturb nesting eagles.

Bald eagles are known to use the St. Lawrence River for foraging, the trees along the shoreline for roosting, and areas of open water that remain during the ice-in period for feeding in winter. Notably, the St. Lawrence River along the northern portion of the Proposed ROW supports an important wintering area for bald eagles. Eagles are anticipated to use or move through portions of the Proposed ROW between the Grasse River and St. Lawrence River in winter. Avoiding Project activities during the wintering period (December 1 to March 31) is usually sufficient to avoid impacts on wintering bald eagles. During this time, the NYSDEC generally recommends restricting tree removal within 0.25 miles of deep winter roosts, aircraft within 0.25 miles from and 1,500 feet above ground level at communal roost sites, and blasting no closer than 0.5 miles with a visual buffer between the activity and communal roost and foraging sites and one (1) mile with no visual buffer.

Because the Project involves rebuilding an existing transmission line within an existing ROW, impacts on foraging and winter roost habitat would be minimal. For instance, tree clearing within the vicinity of the St. Lawrence would be minimal and would only occur in areas where the existing ROW is currently maintained at less than 250-foot wide (approximately 27.5 acres within eight (8) miles of the river). Temporary disturbance to wintering eagles foraging and roosting in the area may occur during construction, which could include temporary displacement of eagles using the area. The presence of construction personnel and equipment in the vicinity of potential foraging and wintering habitat are temporary in nature, and given the abundance of adjacent habitat along the St. Lawrence River corridor, no long-term and/or significant effect on eagles is anticipated during construction. For construction of the line, no blasting or use of aircraft within protective buffers for wintering eagles is planned, and, as discussed, tree clearing in the area would be minimal. Although the St. Lawrence River is a known wintering area, NYNHP did not identify the locations of any deep winter roosts in the Proposed ROW; therefore, the Project as currently designed is not anticipated to significantly impact bald eagles or their habitat, and no additional permits, minimization, or avoidance measures should be required.

### Lake Sturgeon

Lake sturgeon are listed as threatened in New York and are known to occur within the St. Lawrence River and the Grasse River, which in part, are located in the northern portion of the Proposed ROW. Project activities would not involve direct impacts to the St. Lawrence River or the Grasse River. Potential impacts to the species include introduction of silt-laden runoff into the watershed. These potential impacts would be avoided by implementation of soil erosion and sediment controls, to be developed in the Project's EM&CP and BMPs.

### Eastern Pearlshell

The eastern pearlshell is an unlisted species that occurs in the Grasse River, Elm Creek, and tributaries of both waterways, which are located, at least partially, in the Proposed ROW. No direct impacts on these waterways are anticipated at this time; however, the potential exists for placement of culverts or temporary waterway crossings during construction. Impacts associated with new or improved access roads would be addressed upon completion of the access road layout for the Project, during the EM&CP phase and after final design is completed. The Project will use existing access roads to the greatest extent practicable to limit potential temporary or permanent impacts to waterways (*see* Section 4.3.1.4). NYSDEC indicates that the biggest threat to the species is habitat loss as a result of siltation, dredging, channelization, impoundments, and pollution. Siltation of waterways would be avoided by the appropriate use of soil erosion and sediment controls, to be developed in the Project's EM&CP and BMPs. Dredging, channelization, creation of impoundments, and pollution would not occur.

### Iowa Darter

The Iowa darter is an unlisted species known to occur in the St. Lawrence River, which is located partially in the Proposed ROW. No activities that would directly impact the St. Lawrence River are proposed. The potential exists for silt-laden runoff entering the river during construction. These impacts would be avoided by the appropriate use of soil erosion and sediment controls, to be developed in the Project's EM&CP and BMPs; therefore, no impacts to this rare species are expected to occur.

#### 4.3.1.3. *Hydrology*

##### 4.3.1.3.1. Surface Waters and Groundwater

Project access road improvement and/or construction would likely require permanent and temporary surface water crossings in some locations. NYPA would use existing access roads wherever possible; however, upon final design, it is possible that additional permanent or temporary access roads may need to be constructed, existing roads may need to be improved, or existing culverts may need to be replaced. In addition, siltation and sedimentation from soils exposed during construction could temporarily affect streams in the Proposed ROW. Permanent/temporary construction impacts at or near permanent/temporary stream crossings could include loss of habitat for aquatic organisms, constriction or alteration of stream flow, restriction of upstream or downstream passage by aquatic organisms, loss of streamside vegetation and associated shade, streambed disturbance, bank erosion, and downstream turbidity and siltation. These impacts can affect the survival, movement, and reproduction of aquatic organisms and may be particularly significant if they occur on trout streams during the spawning season (October 1-April 30). According to NYSDEC-assigned stream classifications, although none of the streams identified during the field delineations are classified as trout spawning (“ts”) streams, 21 streams are classified as trout supporting (“t”) streams.

The construction process could also impact groundwater if excavation occurs below the water table. Project-related wetland impacts may also have an impact on groundwater because many wetlands serve as groundwater recharge areas. Project construction also could introduce pollutants to groundwater from the discharge of petroleum or other chemicals. Such discharges could occur in the form of minor leaks from fuel and hydraulic systems, as well as more

substantial spills that could occur during refueling or due to mechanical failures and other accidents. These discharges would be minimized by prohibiting refueling within or adjacent to surface water or wetlands and by adhering to the Project’s EM&CP, which will include a Stormwater Pollution Prevention Plan (SWPPP), and maintaining erosion and sediment control BMPs.

Given that the proposed transmission line must aerially cross larger river systems such as the St. Lawrence, Oswegatchie and Grasse Rivers, as well as their tributaries, floodplain areas cannot be avoided in their entirety. However, NYPA has sited structures outside of the floodplains wherever feasible.

At this time, Project design includes the locations of existing permanent access roads; however, final access road design, including placement of culverts in streams, is not known. Table 4-13 presents construction impacts to delineated streams based upon existing access road stream crossings. Although this table assumes NYPA will need to place new permanent culverts at each crossing, actual impacts to these streams may be less if any existing culverts or bridges are sufficient for construction or if temporary bridges and/or culverts are used during construction. Temporary and permanent impacts may be adjusted once final field delineations and final design have been completed for the EM&CP.

**Table 4-13: Preliminary Permanent Construction Impacts to Delineated Streams**

<b>Stream ID</b>	<b>Stream Name</b>	<b>Stream Type</b>	<b>Permanent Impact* (Sq. Ft)</b>	<b>Permanent Linear Impact* (Ft)</b>	<b>Exhibit 4 Figure 5 Sheet Reference</b>
ES1-23	Grasse River	Perennial	372.5	40.9	Page 32
ES2-19	UNT to Oswegatchie River	Intermittent	214.4	42.5	Page 54
ES2-37	Jenny Creek	Perennial	1163.3	77.7	Page 60

<b>Stream ID</b>	<b>Stream Name</b>	<b>Stream Type</b>	<b>Permanent Impact* (Sq. Ft)</b>	<b>Permanent Linear Impact* (Ft)</b>	<b>Exhibit 4 Figure 5 Sheet Reference</b>
HA2-1	UNT to Grass River	Perennial	452.0	43.7	Page 33
HA2-26	UNT to Harrison Creek	Intermittent	100.6	50.4	Page 39
HA2-50	Cedar Lake Stream	Perennial	1.1	2.5	Page 47
HA2-55	Meadow Brook	Perennial	154.0	38.4	Page 61
HA3-14	Balsam Creek	Perennial	431.3	19.7	Page 74
HA3-16	UNT to Balsam Creek	Intermittent	43.7	15.3	Page 75
HA3-18	UNT to Balsam Creek	Intermittent	45.9	15.3	Page 74
HA3-21	UNT to Indian River	Perennial	49.3	16.3	Page 74
HA3-45	Indian River	Perennial	108.6	13.1	Page 73
HA3-49	UNT to West Branch Oswegatchie River	Intermittent	808.6	265.9	Page 72
HA3-51	UNT to West Branch Oswegatchie River	Perennial	207.7	16.1	Page 72/73
HA3-57	West Branch Oswegatchie River	Perennial	320.0	17.1	Page 71
HA3-62	UNT to West Branch Oswegatchie River	Perennial	27.7	9.0	Page 70
HA3-67	UNT to West Branch Oswegatchie River	Perennial	9.8	6.0	Page 69
HA3-A-S	South Creek	Perennial	491.7	24.2	Page 62
HA3-D-S	UNT to South Creek	Perennial	76.3	19.2	Page 62/63
<b>Total:</b>			<b>5078.5</b>	<b>733.3</b>	

\*Permanent impacts to delineated streams are calculated based on existing access road stream crossings.

#### 4.3.1.3.2. Wetlands

Based upon the results of the field delineations and on current design, the Project may permanently impact approximately 25.6 acres of wetlands under USACE jurisdiction, which includes approximately 21.3 acres of wetlands that are also NYDEC jurisdictional wetlands. Preliminary permanent impacts due to structure locations are approximately 0.3 acres, while preliminary permanent impacts due to existing access roads potentially to be improved is approximately 25.3 acres. Total permanent impacts to state-regulated adjacent areas is

anticipated to be approximately 10.5 acres. Temporary and permanent impacts may be adjusted once final field delineations and final design have been completed for the EM&CP.

At this time, the Project design includes the locations of proposed transmission structures, as well as locations of existing permanent access roads. NYPA will avoid or minimize impacts to wetlands to the maximum extent practicable through Project design. For example, wherever practicable, new pole locations have been placed outside of wetland boundaries. Additionally, construction access would primarily use existing access roads to minimize new wetland crossings. Direct impacts to wetlands would primarily occur where construction would require temporary access to work areas and/or new and improved permanent access roads within or adjacent to wetlands. In addition, there are several locations where NYPA is unable to span wetlands and 189 transmission structures will be placed in wetlands. Permanent impacts from structures within wetlands will be minimized due to the small footprint of monopole structures and because the proposed Project would have fewer overall structures than the existing MA1&2 line. No wetlands were present within the areas proposed for the new 345 kV facilities, and therefore construction of the proposed switchyards is not anticipated to have an impact on wetlands.

Existing roads located both within the proposed ROW and outside the proposed ROW will be used during construction to the greatest extent practicable. Tables 4-13 and 4-14 summarize preliminary calculations of impacts to delineated wetlands (including all USACE wetlands, as well as those designated as NYSDEC wetlands) and state-regulated adjacent areas within the proposed ROW. NYPA has assumed a 35 foot width of existing access roads to calculate impacts. Final access road locations and widths will be determined during the EM&CP process,

and additional impacts to wetlands and state-regulated adjacent areas will be minimized to the greatest extent practicable. Additional avoidance, minimization and/or mitigation measures for potential impacts to wetlands, if required, will be determined during the USACE permit application process in consultation with USACE.

Construction activities may have indirect impacts on wetland water quality and vegetation as a result of earth disturbance and soil erosion, siltation, and sedimentation elsewhere on the Proposed ROW. The majority of these impacts would be temporary and could be avoided or minimized through appropriate construction and restoration BMPs (to be detailed in the EM&CP).

**Table 4-14: Preliminary Permanent Construction Impacts to Delineated Wetland Areas**

<b>Cowardin Class</b>	<b>Jurisdiction</b>	<b>Permanent Impact (acres)</b>	<b>Type of Impact</b>
PEM	NYSDEC/USACE	5.2	Existing Access Road
PSS	NYSDEC/USACE	15.9	Existing Access Road
PEM	NYSDEC/USACE	0.1	Structure Foundation
PSS	NYSDEC/USACE	0.1	Structure Foundation
PFO	NYSDEC/USACE	<0.1	Structure Foundation
<b>Preliminary Total Impacts to NYSDEC Wetlands</b>		<b>21.3</b>	
PEM	USACE	2.8	Existing Access Road
PSS	USACE	1.4	Existing Access Road
PEM	USACE	<0.1	Structure Foundation
PSS	USACE	<0.1	Structure Foundation
PFO	USACE	<0.1	Structure Foundation
<b>Preliminary Total Impacts to Non-NYSDEC Wetlands</b>		<b>4.3</b>	
<b>Preliminary Total Impacts to USACE Wetlands</b>		<b>25.6</b>	

Notes:

4. Permanent impacts are based on foundation size (diameter) as designed and described in Exhibit 5 and existing access road locations. Final design will be assessed, and impact calculations will be updated, if necessary, for the EM&CP.
5. Laydown areas, temporary access roads, pulling stations, and other temporary workspace areas are not yet designed, therefore temporary impacts associated with these features are not yet known.
6. Additional wetland and stream delineations will be completed in 2018 where the Proposed ROW is outside of the Study Area, once final design is completed. Impact calculations will be updated, if necessary, for the EM&CP.

**Table 4-15: Preliminary Permanent Construction Impacts to State-Regulated Adjacent Areas**

<b>Cowardin Class of Adjacent Wetland</b>	<b>Jurisdiction</b>	<b>Permanent Impact (acres)</b>	<b>Type of Impact</b>
PEM	State-Regulated Adjacent Area	6.7	Existing Access Road
PSS	State-Regulated Adjacent Area	3.7	Existing Access Road
PFO	State-Regulated Adjacent Area	0	Existing Access Road
PEM	State-Regulated Adjacent Area	0.1	Foundation
PSS	State-Regulated Adjacent Area	0.1	Foundation
PFO	State-Regulated Adjacent Area	<0.1	Foundation
<b>Preliminary Total Impacts</b>		<b>10.6</b>	

Notes:

1. Permanent impacts are based on foundation size (diameter) as designed and described in Exhibit 5 and existing access road locations. Final design will be assessed, and impact calculations will be updated, if necessary, for the EM&CP.
2. Laydown areas, temporary access roads, pulling stations, and other temporary workspace areas are not yet designed, therefore temporary impacts associated with these features are not yet known.
3. Additional wetland and stream delineations will be completed in 2018 where the Proposed ROW is outside of the Study Area, once final design is completed. Impact calculations will be updated, if necessary, for the EM&CP.

*4.3.1.4. Topography, Geology, Soils*

Because the majority of the ROW is already established, construction of the proposed Project would not have a significant adverse impact to the topography, geology, or soils within the Proposed ROW. New permanent access roads would result in additional impervious surfaces,

although they will be minimized as much as practicable by using existing access roads. In addition, existing permanent gravel access roads may require repair or improvement. Soil impacts associated with temporary access roads, pole removal and replacement, laydown areas, and access improvements would generally be temporary due to post-construction restoration efforts to recover environmental quality. Utilizing previously disturbed existing ROW and existing infrastructure would significantly minimize potential impacts to topography, bedrock, and soil conditions.

Temporary disturbance to soils within the Proposed ROW would result from construction activities that could include grading for work areas and installation of temporary access roads. Grading would normally be performed only if necessary to provide a safe, level surface for the passage of construction equipment. Grading would not be required where terrain is flat and open. However, in areas of rock outcropping or irregular terrain, minimal rough grading may be required. Permanent disturbances would be limited to installation of new structures, permanent access roads, and removal of existing structures. NYPA's procedures for removal of wood poles and storage and management of treated wood poles taken out of service are described in Section 4.4.6 below.

Based upon aerial photo interpretation and field observations, approximately 16.35 miles of the proposed electric transmission line route traverse areas that are currently in agricultural production. In these areas, the access roads and work at structure sites would temporarily impact soils associated with agricultural production. As previously stated, approximately 48.4% of the soils within the Proposed ROW are either prime farmland, prime farmland if drained, or

farmland of statewide importance. However, these soils are located throughout the Proposed ROW and are not limited to, or necessarily, within active agricultural lands.

No significant impact to existing geologic features is expected from Project construction. Other than a few limited areas of bedrock outcropping identified within the Frank E. Jadwin Memorial State Forest, rock outcrops have largely been avoided during Project siting. Depth to bedrock is greater than 60 inches throughout the majority of the Project (91.9% of mapped soil areas), which would be sufficient to accommodate Project construction. In remaining areas of the Project, bedrock composition is variable; some of the bedrock in these areas comprises sedimentary rocks such as sandstone and limestone, which are relatively easily excavated and would not likely require blasting, augering, or similar means and methods of removal. In limited areas where bedrock comprises more competent materials (i.e., gneiss, marble, quartzite, or other crystalline rocks), blasting may be necessary. Because blasting would only be used if other techniques, such as auguring or ripping, are not practicable, widespread blasting is not anticipated.

#### *4.3.1.5. Cultural Resources*

Based on the results of the archaeological survey and report (*see* Appendix E), the Project has the potential to affect one single archaeological resource, the Jerden Falls Cemetery; however, NYPA will avoid impacts to the Jerden Falls Cemetery through Project design, as set forth below in Section 4.4.1.

Based on the results of the architectural survey and report (*see* Appendix F), the Project has the potential to affect 14 historic resources which have been determined eligible for listing in the

SR/NRHP through consultation with the OPRHP. Direct impacts are possible to the St. Lawrence- FDR Power Project Historic District and the Moses-Adirondack Transmission Line. Indirect effects, primarily visual, are possible regarding the remaining 12 historic resources. Specific effects cannot be assessed without a final Project design, including the locations and dimensions of each structure.

#### 4.3.1.6. *Visual and Aesthetic Resources*

During construction of the Project, some increased visibility of construction equipment may occur, particularly at road crossings, residential development, and open space areas. The results of the viewshed analysis, field evaluation, and visual simulations (*see* Appendix G) indicate there may also be some increased visibility from the increased height of the proposed transmission line structures. Further discussion is included in Section 4.3.2, *Operation Effects*.

#### 4.3.1.7. *Land Use*

The Project would be developed largely within the existing ROW and, therefore, would be consistent with current land uses. An approximate one-mile section is proposed to be re-routed within the SUNY Canton campus and would require approximately 12.7 acres of tree clearing during construction. Additionally, Project construction would require approximately 27.5 acres of additional tree clearing within the northern eight (8) miles of the Project and 4.8 acres of additional tree clearing elsewhere along the Proposed ROW. The proposed 345 kV switchyards would occur either within, or immediately adjacent to, the fence lines of the existing Moses Switchyard and Adirondack Substation; therefore, land use would not change.

During construction, temporary impacts to agricultural operations will occur as a result of installing the new and removing old structures, access road construction and/or establishment of additional workspace areas. All work within agricultural areas will be coordinated with NYSDAM staff, each affected landowner and conducted generally in accordance with NYSDAM guidelines provided in Appendix I and/or that are agreed upon between all parties. There will potentially be short-term disruptions in agricultural operations in limited areas during construction. However, significant long-term impacts to active agricultural areas are not anticipated from the Project. The Project would have minimal adverse impacts on active farming operations once built because of the reduced number of proposed structures. The EM&CP will provide more detail regarding temporary and permanent impacts to agricultural areas.

Potential encroachments within the Proposed ROW would be surveyed, and individual abutting property owners or occupants would be contacted to address potential encroachments on a case-by-case basis. Any additional encroachments identified during the preparation of the EM&CP would be similarly addressed. Adjacent landowners would be afforded the opportunity to remove any encroaching structures or uses prior to the start of construction.

Impacts to nearby landowners are anticipated to be limited to short-term impacts during construction. These impacts are expected to be typical of any large construction project and may include noise, dust, and local traffic inconvenience. Temporary construction impacts such as these would primarily occur in areas where the Proposed ROW crosses public roadways.

#### 4.3.1.8. *Noise*

The construction of overhead transmission lines typically includes the following noise-generating activities:

- Site and vegetation clearing;
- Foundation form installation;
- Excavation/concrete placement (as needed);
- Structure installation, and;
- Wire stringing.

Noise generated during construction is primarily from two sources: (1) diesel engines, which power construction vehicles and (2) the noise generated from rock drills and jack hammers (if needed).

Engine noise is the dominant source of temporary noise from equipment operation. Contractors will be required to maintain functional mufflers on all applicable equipment. Maximum sound levels associated with the construction equipment typically used in overhead transmission line construction projects are provided in Table 4-16. Each piece of equipment presented in Table 4-16 is not used in all phases of construction, and equipment is not operated continuously and not operated concurrently.

**Table 4-16: Typical Maximum Noise Levels of Major Construction Equipment**

<b>Equipment Type</b>	<b>Construction Equipment Noise Levels at 50 Feet (dBA)</b>	<b>Construction Equipment Noise Levels at 100 Feet (dBA)</b>
Industrial Mower	88	82
Crane	81	75
Dump Trucks	76	70
Chainsaw	84	78
Drill Rig Truck	79	73
Grader	85	79
Concrete Mixer Truck	79	73
Bulldozers	82	76
Pickup Trucks	55	49
Backhoes	78	72
Vibratory Hammer	101	95
Wire Tensioning Equipment	80	74
Pavement Saw	77	71
Impact Pile Driver	101	95
Water Pump	81	75
Roller	80	74
Welder	74	68
Compactor	83	77
Cable Pulling Machine	80	74
Splicing Trailer	50	46
Oil Pump	75	69

Source: Federal Highway Administration, Roadway Construction Noise Model, 2006

The use of helicopters has been found to be effective in areas where access is limited. Helicopters are used to replace upper structural members, install pulling devices, replace insulators, connect wire, and other related tasks. Helicopters generally fly at low altitudes, resulting in temporary increases to ambient sound levels in the area where the helicopter is operating, as well as along its flight path. Typically, helicopters may generate noise levels of 89 dBA to 99 dBA at ground-level receptors, when in flight at 200 feet. If used, helicopter operations would occur for short periods of time during daytime hours. The use of helicopters

does not completely eliminate the need for ground access by field crews. Ground access is still required to pull/tension wire, install structure grounds, or replace lower structural members.

A variety of construction equipment sources would be associated with individual phases of construction. Table 4-17 contains a list of sound levels typically associated with each major construction phase for both overhead lines, and represent the maximum sound levels associated with each anticipated construction equipment source. Sound levels are presented for standard distances of 50, 100, 400, 1,000, and 2,000 linear feet.

**Table 4-17: Typical Range of Sound Levels by Construction Phase – Overhead Lines**

Construction Phase	Typical Range of Sound Levels (dBA)				
	50 Feet	100 Feet	400 Feet	1,000 Feet	2,000 Feet
Site and Vegetation Clearing	60-88	54-82	42-70	34-62	28-56
Foundation Form Installation	60-92	54-86	42-74	34-66	28-60
Excavation/Concrete Placement	60-88	54-82	42-70	34-62	28-56
Structure Installation	60-75	54-69	42-57	34-49	28-43
Wire Stringing	60-80	54-74	42-62	34-54	28-48

Source: Ebasco, 1989

The data presented in Table 4-17 indicate that, for the nearest residences, construction sound levels would temporarily exceed ambient levels for short-term periods, depending upon the intensity of work activity and the type of equipment or noise source. For the majority of residences farther from the corridor, construction noise would be much lower and would generally be below ambient levels.

As demonstrated in Table 4-17, construction noise would be attenuated with distance. Other factors, such as vegetation, terrain, and obstacles such as buildings, would act to further reduce noise levels. Noise levels presented in Table 4-17 are those that would be experienced by people

outdoors and without the mitigating effects of vegetation, topography and intervening structures. A building would provide significant attenuation of associated construction noise. For instance, sound levels can be expected to be up to 27 dBA lower indoors with windows closed (USEPA, 1978). Even in homes with open windows, indoor sound levels can be reduced by up to 17 dBA.

The magnitude of temporary noise impacts was estimated by using the known noise levels of construction equipment, the distance to noise receptors, and the assumed construction methodology. The residences closest to each of the two transmission line alignments were identified, and the distance between the alignment and the residence measured, by examination of aerial photography. The residences nearest to the alignment are located on Edwards Road northwest of the Village of East Pitcairn (*see* Exhibit 4, Figure 4, Tile 109). These residences are situated approximately 80 to 85 feet from the centerline of the closest transmission line.

As shown in Table 4-17, the construction activity expected to generate the highest noise levels is foundation form installation (60-92 dBA at 50 feet). At 80 feet, this noise level would be attenuated to a range of approximately 56 to 88 dBA. These noise levels do not account for any reduction due to ground cover or topography and may be lower.

Noise-level changes resulting from the proposed construction activity associated with the proposed transmission lines would be minimal. Construction noise would be temporary and vary according to the construction equipment in use, the distance to noise receptors (e.g., residences), and existing background or ambient noise. Generally, temporary noise levels are mitigated by the attenuating effects of distance, the intermittent and short-lived character of the noise, the presence of existing vegetation, the presence of homes and buildings (particularly in the more

suburban areas), and the use of functional mufflers on all construction equipment. Transmission line construction is of short duration because equipment is generally located at a structure site for 3 to 5 days, then shifted to the next pole structure site in the Proposed ROW. No one residence would be exposed to significant noise levels for an extended period. Comparable work activity and the associated magnitude of noise level change include public works projects and tree service activity.

#### 4.3.2. *Operation Effects*

##### 4.3.2.1. *Vegetation*

Following construction, vegetation within the Proposed ROW would be reestablished and allowed to regenerate to the pre-existing successional communities. The Proposed ROW would continue to be periodically maintained in accordance with NYPA's *Systemwide Long-Range Transmission Right-of-Way Vegetation Management Plan and Program* (see Appendix I). The Proposed ROW would thus continue to provide habitat for wildlife that prefers old-field and shrub-dominated habitat. Along classified trout streams crossed by the line (and other stream crossings where possible), vegetated streamside buffer areas would be maintained to provide fish cover, wildlife travel corridors, and shade (to maintain cool water temperature).

With the exception of the one-mile re-route within the SUNY Canton campus, where the long-term changes in vegetative character would be permanent; the majority of the Project vegetation removal would be largely confined to the maintained ROW. No permanent or significant changes in character or species composition are anticipated in grassland, pasture, scrub/shrub,

cultivated crop, emergent wetlands, or woody wetland areas because these communities would be reestablished following construction.

#### 4.3.2.2. *Wildlife*

After restoration, habitat on the Proposed ROW would be maintained in low growing vegetation similar to the current conditions. With the reduced number of structures in the Proposed ROW a slight increase in the acreage of early successional communities is expected .

#### 4.3.2.3. *Hydrology*

Following construction, any permanent impacts to wetlands or streams, as described in Section 4.3.1.4 and 4.3.1.5, would remain. In addition, any forested wetlands within the approximately one-mile re-route on the SUNY Canton campus and in areas where the existing maintained ROW needed to be widened (within the first eight miles and small areas along the Proposed ROW) would be permanently maintained as emergent marsh or scrub/shrub wetlands. Operations and maintenance of the MA1&2 lines would utilize permanent access roads certified during this Article VII process. Therefore, there would be no additional effects of the Project during operations.

#### 4.3.2.4. *Topography, Geology, Soils*

The Project utilizes an existing utility ROW, except for the approximate one-mile re-route around the SUNY Canton campus. After construction activities have been completed, permanent access roads will be used during operation and maintenance of the proposed structures and no

disturbance to topography, geology, or soils would be anticipated by operation and maintenance activities.

#### 4.3.2.5. *Cultural Resources*

Based on the results of the architectural survey and report (*see Appendix F*), the Project has the potential to affect 14 historic resources which have been determined eligible for listing in the SR/NRHP through consultation with the OPRHP. Direct impacts are possible to the St. Lawrence-FDR Power Project Historic District and the Moses-Adirondack Transmission Line. Indirect effects, primarily visual, are possible regarding the remaining 12 historic resources. In a letter dated March 23, 2018, OPRHP indicated that based on its review of the survey reports, the Project will have no adverse impact on archaeological and/or historic resources listed in or eligible for the New York State and National Registers of Historic Places (*see Appendix A*).

#### 4.3.2.6. *Visual and Aesthetic Resources*

The results of the viewshed analysis, field evaluation, and visual simulations (*see Appendix G*) indicate the increased height of the proposed transmission line structures may result in some increased visibility. The topographic viewshed analysis indicates the proposed Project would increase visibility by 8.9% over the existing conditions. When the screening effect of mapped forest vegetation is accounted for, the anticipated increase in visibility is approximately 3.9%. However, in some areas (e.g., villages and other developed areas) visibility may remain overstated because this analysis does not account for the screening effects of man-made structures and small patches of vegetation (e.g., street trees, yard trees, landscaping).

The field evaluation generally confirmed the accuracy of the viewshed analysis with the above-mentioned caveats. Visibility of the existing transmission lines is generally limited to areas at or adjacent to sites where the existing ROW crosses public roads, and locations where residential development has occurred in proximity to the existing transmission corridor. This is because of the topographic variation and dense forest vegetation that characterize much of the Visual Study Area. Longer distance views are generally confined to developed open space (including cultivated farmland), several transportation corridors, waterbodies and a few residential developments/neighborhoods with limited vegetative screening. Field verification found the Project would be screened from a large majority of sensitive sites that were visited. A detailed assessment of sensitive resource visibility is provided in Appendix G. The forest vegetation that occurs at many sensitive sites (e.g., parks, cemeteries, and schools) generally impedes the viewer's perception of the line and/or cleared ROW from these areas. At sensitive sites where such screening is lacking (e.g., Robert Moses State Park) open views of the existing transmission lines are already available, and therefore additional visual change (either negative or positive) would be limited.

Visual simulations indicate the small increase in visibility is generally offset by consolidation of the two lines of predominately wooden H-frame transmission lines onto two lines of less visually intrusive steel monopole structures. The increased height of the proposed structures is more noticeable in long range views where the structures can be seen over forested vegetation. In many instances, the MA1&2 lines run adjacent to a 765 kV transmission line with taller lattice structures that would continue to be the dominant features of long-range views. Short-range views (e.g., where public roads pass underneath the transmission line) would generally see

improved views because the cluttered appearance of the H-frame structures would be replaced by the cleaner look of steel monopoles.

#### 4.3.2.7. *Land Use*

The Project would be developed largely within the existing ROW and, therefore, would be consistent with current land uses. An approximate one-mile section is proposed to be re-routed around the SUNY Canton campus, which requires approximately 12.7 acres of tree clearing. This area of clearing would be converted to herbaceous cover and low-growing shrub species and NYPA would maintain it as such during Project operation. The conversion of vegetative cover types in this section is not anticipated to adversely affect land use patterns in the area. Furthermore, operation of the Project would not impact logging activities on adjacent lands as long as all of those activities would occur off the Proposed ROW and do not interfere with operation of the Project.

Because the rebuilt lines would otherwise be located entirely within the existing ROW, NYPA does not anticipate any changes to existing uses adjacent to the Proposed ROW or in surrounding areas. Reducing the number of structures within the Proposed ROW would provide a benefit by reducing the number of obstacles encountered on active cropland.

#### 4.3.2.8. *Noise*

This section identifies the location of any sensitive receptors and describes changes in design made to mitigate potential noise disturbance during construction and operation of the Project.

The existing ROW is used for the majority of the proposed Project except for an approximate one-mile re-route on SUNY Canton campus. The Study Area is primarily rural undeveloped or agricultural land use, and secondarily, rural residential land use. In most cases the proposed transmission lines will be located 350 feet or more from residential buildings, though there are some instances where the lines will be located 100 feet to 350 feet from the edge of a building. Although there are no residential buildings located within the Proposed ROW, in a few select cases the transmission line is within 100 feet of a residential building.

Dense evergreen tree cover, and/or dense leaf-on deciduous tree cover, in many cases would act as a barrier to ambient noise both during construction periods and for noise from the transmission line once it is constructed. The primary background noise sources in the Study Area are traffic on surrounding roadways, railroads, local vehicular operation, lawn mowing and other residential home activities, aircraft over flights, and natural sounds (e.g., birds, insects).

Existing operational noise within the Study Area is associated with transmission line electrostatic or “corona” effect, which occurs during humid days and precipitation events. Existing residences directly adjacent to the Study Area may notice the corona effect depending on the relative distance to the Study Area and background noise levels. The noise resulting from the corona effect, as compared to the background noise level such as a rainfall event, is similar to existing conditions (*see Appendix H*).

#### **4.4. Mitigation and Protection Measures**

##### *4.4.1. Scenic, Recreational, and Historic Areas (16 NYCRR § 86.5(b)(2)(i))*

*16 NYCRR § 86.5. (b) The applicant shall state: (2) what efforts, if any, have been made to assure: (i) that any right-of-way avoids scenic, recreational and historic areas;*

The Project would be constructed on primarily existing ROW or switchyard/substation land owned by NYPA. The only scenic, recreational, or historic property identified on the Proposed ROW is the Jerden Falls Cemetery (historic). NYPA discussed the Jerden Falls Cemetery with OPRHP and proposed placing a 23-meter (75-foot) avoidance buffer around the cemetery within which no ground-disturbing activities would occur. This avoidance plan was submitted to OPRHP on August 3, 2016. OPRHP concurred with the proposed avoidance buffer in a letter dated August 5, 2016. With the implementation of this avoidance plan, there would be no impacts to scenic, recreational, or archaeological, resources as a result of the Project. In addition, on March 23, 2018, OPRHP indicated that based on its review of the survey reports, the Project will have no adverse impact on archaeological and/or historic resources listed in or eligible for the New York State and National Registers of Historic Places (*see Appendix A*).

##### *4.4.2. Visibility (16 NYCRR § 86.5(b)(2)(ii))*

*16 NYCRR § 86.5. (b) The applicant shall state: (2) what efforts, if any, have been made to assure: (ii) that any right-of-way will be routed to minimize its visibility from areas of public view.*

The Project would be constructed on existing ROW. The proposed structures would be taller than the existing structures, but the total number of structures on the ROW would be reduced improving the overall viewshed. NYPA performed a VIA of the new structures (*see Appendix G*). The results of the VIA suggest there is limited visual impact of the proposed Project.

Location of the new line within an existing transmission corridor is considered the best means of reducing perceived visual contrast and change in land use. Although the one-mile re-route along the SUNY Canton campus requires tree clearing for a new ROW, moving the ROW from the middle of the SUNY Canton campus to the western edge of the campus improves the overall visual characteristic of the landscape.

#### *4.4.3. Right-of-Way Siting (16 NYCRR § 86.5(b)(2)(iii))*

*16 NYCRR § 86.5. (b) The applicant shall state: (2) what efforts, if any, have been made to assure: (iii) that any right-of-way has been planned to avoid heavily timbered areas, high points, ridge lines and steep slopes.*

The Project is being constructed on existing ROW except for the approximate one-mile re-route along the perimeter of, and within, the SUNY Canton campus. Approximately 85 miles of the ROW has already been sited. For this new ROW on the SUNY Canton campus, the approximate one-mile re-route within the SUNY Canton campus is being sited in an area that is partially forested and not on steep slopes or along ridge lines or high points. All planning efforts to-date have been conducted to construct and operate the Project within the existing MA1&2 ROW and avoid siting new ROW, including the approximate one-mile re-route, within large forested areas, along ridges, or on steep slopes or high points.

#### *4.4.4. Natural Landscape and Land Use (16 NYCRR § 86.5(b)(2)(iv))*

*16 NYCRR § 86.5. (b) The applicant shall state: (2) what efforts, if any, have been made to assure: (iv) that the selection of any proposed right-of-way preserves the natural landscape and minimizes conflict with any present or future planned land use;*

The Project would be constructed on existing ROW except for the approximate one-mile re-route along the perimeter of, and within, the SUNY Canton campus. The Project would not affect the

natural landscape or change the current land use. Because the Project would reduce the number of structures, land use may improve once the old structures have been removed. For example, reducing the number of structures within the Proposed ROW on active cropland would provide a land use benefit by reducing the number of obstacles encountered for farmers.

The Project would not affect the goals of either the 2009 or 2014 *New York State Open Space Plan*. Likewise, construction and operation of the Project would have a negligible effect on local or regional land use patterns or land use planning because it would be located almost entirely within the existing ROW.

All work within agricultural areas would be conducted in accordance with NYSDAM guidelines and NYPA's BMP documents (*see* Appendix I). Additional agricultural protection and restoration measures are described in Section 4.4.6.1.

The conversion of vegetative cover types in the approximate one-mile re-route within the SUNY Canton campus is not anticipated to adversely affect land use patterns in the area. Furthermore, operation of the Project would not impact logging activities on adjacent lands because all of those activities occur off the Proposed ROW and would not interfere with operation of the Project.

Potential encroachments within the Proposed ROW would be surveyed, and individual abutting property owners or occupants would be contacted to address potential encroachments on a case-by-case basis. Any additional encroachments identified during the preparation of the EM&CP would be similarly addressed. Adjacent landowners would be afforded the opportunity to remove any encroaching structures or uses prior to the start of construction.

4.4.5. *Right-of-Way Clearing Widths (16 NYCRR § 86.5(b)(3))*

*16 NYCRR § 86.5. (b) The applicant shall state: (3) what, if any, plans have been formulated to keep any right-of-way clearing to the minimum width necessary to prevent interference of vegetation with the proposed facility;*

The Project would be constructed on existing ROW except for the approximate one-mile re-route along the perimeter of, and within, the SUNY Canton campus. The existing ROW is 250-feet wide, except in the first 1.8 miles where it is 350-feet-wide. The new design of two single-circuit steel monopole structures requires a certificated Proposed ROW width of 250 feet in all locations.

NYPA anticipates clearing the portion of the Proposed ROW on the SUNY Canton campus and clearing a limited area along the initial eight-mile double-circuit steel lattice structure section and smaller areas along the Proposed ROW.

The width on the new portion of the Proposed ROW within SUNY Canton campus to be cleared is 250 feet, totaling 12.7 acres of tree clearing. The width of clearing in the northern section of the line varies dependent upon final structure height but is estimated to be between 40 and 60 feet, or approximately 27.5 acres of tree clearing. Other tree clearing along the ROW is anticipated to total approximately 4.8 acres. The Proposed ROW width and location is designed to reduce impacts to the maximum extent practicable. The Proposed ROW for the rebuilt MA1&2 would be located primarily within the previously maintained ROW. This area is largely in early successional vegetation currently and would continue to be maintained in a similar manner upon completion of the Project.

4.4.6. *Soil Stability, Protection of Vegetation and Adjacent Resources (16 NYCRR § 86.5(b)(4))*

*16 NYCRR § 86.5. (b) The applicant shall state: (4) what, if any, schedule or method of clearing the right-of-way has been formulated to take into account soil stability, protection of natural vegetation, and the protection of adjacent resources (including the protection of any natural habitat for wildlife);*

Construction of the Project would generally involve the following activities:

- Installation and maintenance of erosion and sediment control,
- ROW preparation, switchyard and substation site grading and construction of improvements to existing access and new access roads, as necessary,
- Structure erection and removal and switchyard/substation installation,
- Stringing of conductors, and
- Clean-up and restoration.

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

The Applicant would prepare an EM&CP in accordance with DPS Staff's Specifications for Development of an EM&CP ("EM&CP Specifications") to be filed at a later date with PSC for approval and use during construction of the Project. Applicable provisions of the Certificate, EM&CP (including the BMPs), and orders approving any revisions to the EM&CP would be

accommodated in any design, construction, ownership, or maintenance contracts associated with the Project.

#### *4.4.6.1. Soil Stability*

Impacts associated with soil disturbance (erosion, sedimentation) would be minimized by siting the majority of the Project within the previously disturbed ROW.

Existing wood poles will be completely removed from the ground in their entirety or cut at the surface where the pole is technically infeasible to be removed or where removal would cause adverse environmental effect. Soils that are excavated for the removal of existing poles would be backfilled into the same hole following pole removal. Any excess soils would be reused onsite or properly disposed of offsite. If excavated soils are deemed unsuitable for use as backfill, suitable clean fill would be used.

Specific erosion control measures would be provided as a part of the final construction documentation and EM&CP to be developed for this Project. Various environmental protection measures are included in NYPA's BMPs (Appendix I), which will be detailed in the EM&CP. Prior to commencing construction activities, erosion and sediment controls would be installed, as needed, between the work areas and any downslope surface waters or wetlands, to reduce the risk of soil erosion and siltation. Following construction, disturbed areas would be stabilized and restored in accordance with the EM&CP and NYPA's BMPs.

Soils located within agricultural lands would be further protected during and after construction; full restoration of soils in active agricultural lands would occur. In agricultural areas, pole

installation would occur only at times when soils are unsaturated to protect the soil horizons from mixing. To the extent practicable, work would be completed in winter months to avoid saturated soil conditions. For excavation activities occurring in warm-weather months, topsoil in the work area would be protected through the use of timber mats, low ground pressure equipment, and/or temporary topsoil segregation and stockpiling. After pole installation, topsoil would be replaced and de-compacted as necessary to restore areas to preconstruction conditions. Additional agricultural protection and restoration measures are described in NYPA's BMP documents included as Appendix I, which will be detailed in the EM&CP.

#### *4.4.6.2. Protection of Natural Vegetation*

Mitigation measures to avoid or minimize impacts to vegetation during construction would include:

- Identifying and delineating sensitive areas (such as wetlands) where no disturbance or vehicular activities are allowed;
- Educating the construction workforce on respecting and adhering to the physical boundaries of off-limit areas;
- Employing BMPs during construction; and
- Maintaining an organized and safe work area within the designated construction sites.

Following construction activities, temporarily disturbed areas would be seeded (and stabilized with mulch if necessary), to reestablish vegetative cover in these areas. Other than in active agricultural fields, annual rye or a seed mix of native plant species appropriate to the Project area

would be used to revegetate these areas. Restoration procedures are provided in NYPA's BMPs in Appendix I and would be detailed in the Project's EM&CP at a later date.

In areas used for agricultural production, measures to protect and restore agricultural lands would be implemented during and after construction in accordance with NYSDAM guidelines or landowner/agricultural operator requests to minimize adverse impacts to the extent practicable. An agricultural inspector will be onsite to ensure compliance with commitments made to NYSDAM and/or landowners. NYPA will also work with landowners and NYSDAM regarding compensation for crop loss or damages suffered during construction activities. See Section 4.4.6.1 and the NYPA's BMPs in Appendix I for further discussion of measures proposed to avoid or mitigate impacts to agricultural land.

Additionally, NYPA's Environmental Health and Safety (EH&S) group has specific procedures for handling and storage of treated wood poles taken out of service. Any existing wood structure being removed as part of the Project would abide by the following procedures.

- Poles will be secured and temporarily stored off of the ground on the ROW. Poles may be backhauled to storage facility when delivering new poles to reduce transportation trips. Poles may not be abandoned once removed from the ground.
- The removed treated wood poles shall not be given away or donated to a third party.
- Transmission may consider continued life application for use by NYPA.
- Any location identified for off ROW storage of waste treated wood poles shall be within an access-controlled area of the facility that is sited in upland areas that are not within

flood plain, and located at a distance from surface water, drinking water, and sensitive receptors.

- The treated wood poles shall be temporarily stored in a manner that keeps the wood poles off the ground. Poles shall be stored in this manner until it is put back into service or disposed of. Poles may be stored for up to 365 days before being placed back into service or disposed of.
- The waste treated wood poles shall be shipped to a NYPA-approved disposal facility for disposal, as listed in Environmental Procedure ENV-PD-53-02
  - Landfills for disposal of the wood poles must be properly lined to prevent groundwater contamination and authorized by permit to accept waste treated wood poles.
  - Shipments of waste treated wood poles shall be coordinated and scheduled in consultation with the Site Environmental Representative.
- When handling treated wood, proper personal protective equipment (PPE) including gloves and long sleeves shall be worn. Sawing and cutting treated wood requires use of goggles, respiratory and hearing protection. Refer to SAFE-POL -21,SAFE-POL-25, and SAFE-POL-37 for safety procedures.
- Care should be taken to collect and properly dispose of saw dust from cutting of treated wood.

4.4.6.3. *Protection of Adjacent Resources (including the protection of natural habitat for wildlife)*

No threatened or endangered plant species were observed during field investigations, therefore no mitigation measures are required to protect threatened or endangered plant species. Rare plant species identified during field investigations do not require mitigation measures per 6 NYCRR Part 193.3.

To reduce the potential introduction or spread of invasive plant species in regulated areas within the Study Area, the procedures outlined in the EEANY *Best Management Practices for Preventing the Transportation of Invasive Plant Species* (2015) will be adhered to. 6 NYCRR Part 575 defines a list of prohibited and regulated invasive species, and these target species would be managed through the implementation of three appropriate measures: (1) construction materials inspection, (2) construction equipment sanitation, and (3) proper site restoration.

Impacts to fish and wildlife resources would be limited by reducing on-ROW and off-ROW disturbance to the extent possible. By routing the line and confining most construction activity to the existing MA1&2 ROW, incidental injury and mortality and habitat alteration would be minimized. Silt and sedimentation impacts on aquatic species would be avoided or reduced to the extent practicable using sediment and erosion controls as described within the EM&CP. Stream and wetland crossings would be reduced to the minimum number possible by using existing crossings, whenever practicable. Whenever possible, crossings will be avoided by accessing structures from either side of a stream or wetland. Where new crossings are required, crossing techniques would be used to minimize adverse effects on aquatic organisms at, and

downstream of, the crossing locations. Site-specific crossing methods would be depicted on the construction drawings contained within the EM&CP. Potential crossing methods may include temporary bridges, culverts, or fords. As discussed in Section 4.4.11, areas disturbed during construction would be restored to their pre-construction soil profile and contours, seeded with an annual rye or native seed mix, and allowed to re-vegetate naturally.

ROW management would involve periodic maintenance to maintain early successional vegetation in accordance with NYPA's *System-wide Long-Range Transmission Right-of-Way Vegetation Management Plan and Program*. The Proposed ROW would thus continue to provide food and cover for wildlife that prefers old-field and shrub-dominated habitat. Along classified trout streams crossed by the line (and other stream crossings where possible), vegetated streamside buffer areas would be maintained to the extent practicable to provide fish cover, wildlife travel corridors, and shade (to maintain cool water temperature).

Impacts to wetland and streams as a result of vehicle crossings would be minimized by using existing crossing locations whenever possible. Crossing methods as identified above, equipment restrictions, and erosion and sedimentation control measures would be used to reduce impacts to water quality, surface water hydrology, and aquatic habitat.

Vegetation clearing along stream banks would be minimized, and disturbance to the bed and banks of protected streams would be avoided with the use of less disruptive crossing techniques such as timber matting.

Where vehicular crossings of surface waters and wetlands are required, NYPA would employ the BMPs associated with particular streamside and wetland activities. Specific mitigation measures

for protecting wetlands and surface water resources would be applied where practicable, and include the following:

- *No Equipment Access Areas*: Where impacts are not otherwise permitted, “No Equipment Access,” would be designated to confine the use of motorized equipment to designated access roads and work areas only.
- *Restricted Activities Area*: Where feasible, a 100-foot adjacent area for state-regulated wetlands and 50 feet for state-protected streams, referred to as a “Restricted Activities Area,” would be established where the Proposed ROW crosses streams, wetlands, and other bodies of water. Restrictions would include:
  - No deposition of cut slash or loose branches within or adjacent to a waterbody;
  - No accumulation of construction debris within the Project area;
  - No degradation of stream banks;
  - No equipment cleaning, washing, or refueling; and
  - No storage of any petroleum or chemical material.
- *Vehicular/Equipment Crossings of Wetlands and Streams*: Vehicle crossings of streams and wetlands would be avoided wherever possible. Along the Proposed ROW, vehicle crossings would be accommodated using existing ford crossings, functioning culverts, or temporary timber matting. Watercourses would not be obstructed in such a way that impedes the free movement of water during vehicle/equipment crossings. Timber mats would span the stream from top of bank to top of bank with a clearance at least three (3) feet above mean high water mark, and would be installed in wetland locations that are narrow or previously disturbed, whenever possible. Temporary crossings would be

removed, and the water resource would be restored to preexisting conditions following removal of temporary crossings.

- *Sediment and Siltation Control*: A formal soil erosion and sedimentation control plan would be included as part of the EM&CP to be submitted at a later date. NYPA's BMPs also outline proposed erosion and sediment control measures proposed for this Project in Appendix I. Areas of exposed soil resulting from Project construction would be seeded and/or mulched to minimize erosion and siltation. An Environmental Monitor would be onsite throughout construction to determine if changes to the SWPPP and sediment and erosion control measures are necessary. Such measures would be implemented on an as-needed basis to ensure the protection of water quality in surface waters, wetlands, and/or groundwater that could be impacted by the Project. Where control devices are installed, they would be inspected throughout the duration of construction until completion of all restoration work (final grading and seeding), to ensure that they remain functional and effective. Inspections would occur at a minimum once weekly and following any significant storm events.

As noted above, the Project is likely to require a wetland and/or stream disturbance permit from USACE in accordance with Section 404 of the Clean Water Act. Compensatory mitigation, if required, would be performed as a part of the Project construction activities. Such mitigation is typically required for permanent impacts only. Wetlands temporarily disturbed during construction would be restored to their original grade and allowed to reestablish naturally following construction.

The type and descriptions of all proposed wetland and stream crossings have not yet been determined, but will be provided in the EM&CP. Preliminary calculations based on structure foundation design and existing access roads are provided in Section 4.3.1.3. To ensure minimization of impacts to wetland resources during construction, NYPA would provide the construction contractor copies of the EM&CP (including BMPs), applicable USACE permits (Section 404), applicable Article 15 and Article 24 permits through the NYSDEC or DPS, 401 Water Quality Certification, and site-specific plans detailing construction methodologies and natural resource protection measures.

Fuel storage, and vehicle refueling restrictions would be employed to protect against leaks or accidental spilling of equipment fuels or lubricants. Appropriate emergency cleanup procedures have been developed to ensure proper agency notification (if necessary) and clean-up of any spills to mitigate the potential impact of such occurrences.

Where grading must occur, temporary erosion control measures would be applied to stabilize disturbed soils. Permanent disturbances would be limited to installation of new structures. Human activity, soil disturbance, and temporary loss of vegetation and habitat would end after construction is complete. Following construction, disturbed areas would be restored to pre-construction conditions.

#### *4.4.7. Protection of Vegetation and Topsoil Not Cleared (16 NYCRR § 86.5(b)(5))*

*16 NYCRR § 86.5. (b) The applicant shall state: (5) what, if any, plans have been made to protect vegetation and topsoil not cleared, from damage from construction and operation of the facility;*

Mitigation measures to be taken to avoid or minimize impacts to vegetation and soil not cleared by the Project during construction would include:

- Identifying and delineating sensitive areas (such as wetlands) where no disturbance or vehicular activities are allowed;
- Educating the construction workforce on respecting and adhering to the physical boundaries of off-limit areas;
- Employing BMPs during construction; and
- Maintaining an organized and safe work area within the designated construction sites.

ROW management would involve periodic maintenance to maintain early successional vegetation in accordance with NYPA's *Systemwide Long-Range Transmission Right-of-Way Vegetation Management Plan and Program* (Appendix I).

#### *4.4.8. Explosives and Pollutants near Waterbodies (16 NYCRR § 86.5(b)(6))*

*16 NYCRR § 86.5. (b) The applicant shall state: (6) what, if any, provision has been made to protect fish and other aquatic life from harm from the use of explosives or pollutants in or near streams and other bodies of water;*

Any necessary blasting activities, including the transport, handling, and disposal of explosives and explosives packaging, would be conducted in accordance with applicable safety regulations and codes and performed only by certified and licensed blasters. Examples of such safety procedures include (but are not limited to) waiting to load holes with explosives until all holes in the given location are drilled, preventing construction vehicle access to areas with live explosives, and the use of and adherence to all warning horns and/or alarms signifying imminent blasts. Blasting mats would be used when necessary to minimize fly rock. In areas of dense

and/or consolidated rock, pole anchors may be used to bolt the transmission poles to the rock in lieu of blasting. Prior to blasting, NYPA would determine if there are any structures or underground facilities in the area close to the work location. Blasting would not be performed in areas where subsurface facilities such as wells are located close to work areas.

Blasting notification would consist of prior notice to affected property owners and tenants, as well as the use of appropriate warning horns (or equivalent) immediately prior to a blast to warn construction workers and others who may be near the construction site. When requested by local authorities, NYPA would provide notice of planned blasting at least four hours in advance.

#### *4.4.9. Pesticides and Herbicides (16 NYCRR § 86.5(b)(7))*

*16 NYCRR § 86.5. (b) The applicant shall state: 7) what, if any, pesticide or herbicide will be used in construction or maintenance of the proposed facility (including the volumes and manner of use);*

NYPA would not use pesticides or herbicides during construction of the Project. During operation, NYPA would follow the procedures and specifications in its *Systemwide Long-Range Transmission Right-of-Way Vegetation Management Plan and Program*, attached hereto as Appendix I. As specified in Appendix I, Buffer Zones, sometimes referred to as “set-back distances” or “no-spray zones,” generally include sites adjacent to residences, streams, public resorts, scenic areas, restricted wetlands, open water, or other areas of special concern where direct application of herbicides and/or pesticides are prohibited. Any pesticides and herbicides determined to be used during operation of the Project would be approved by NYSDEC for use in New York, and NYPA would follow NYSDEC laws and regulations and USEPA-registered label requirements in their use. All pesticide or herbicide application methods would be

determined by NYPA's ROW maintenance staff. Pesticide and herbicide application rates would be in accordance with the label rates for the application technique used.

*4.4.10. Appurtenant Structures (16 NYCRR § 86.5(b)(8))*

*16 NYCRR § 86.5. (b) The applicant shall state: (8) what, if any, plans have been made to locate and design appurtenant structures to minimize the environmental impact of the structures (including visual and noise disturbance); and*

The Project proposes the installation of two new 345 kV facilities, one switchyard located at the existing Moses Switchyard and one switchyard located at the Adirondack Substation. The locations of these proposed facilities have been included in the environmental studies completed to date.

The proposed 345 kV switchyard at the existing Moses Switchyard would be located partially within the existing fence line of the facility. The Moses Switchyard is graveled within the existing fence line and the surrounding area on the island is also previously disturbed land. As such, a review of each environmental resource identified in Section 4.2 above identified no significant impacts to any resource. No wetlands or surface waters were identified within the proposed switchyard location and vegetative communities within the proposed footprint include Developed – High Intensity and Developed – Open Space. No cultural resources or RTE species were found within this area. As the proposed 345 kV switchyard will be located within and adjacent to the existing Moses Switchyard, it is not anticipated to have a significant noise or visual impact to nearby public vantage points or noise sensitive areas.

The proposed 345 kV switchyard at the existing Adirondack Substation would similarly be located adjacent to the existing fence line of the facility. This proposed footprint has also been

field verified as Developed – High Intensity land cover and has been previously disturbed land. No wetlands or surface waters were identified within the proposed substation location. No cultural resources or RTE species were found within this area. The proposed switchyard is not anticipated to have a significant noise or visual impact to nearby public vantage points or noise sensitive areas due to the presence of the existing facility.

*4.4.11. Cleanup and Restoration (16 NYCRR § 86.5(b)(9))*

*16 NYCRR § 86.5. (b) The applicant shall state: (9) what, if any, provisions have been made for cleanup and restoration of the project area after construction.*

Cleanup and restoration activities would be conducted as construction work progresses along the line. Once construction is complete, final site restoration would be conducted as required at any remaining disturbed sites. Restoration would be conducted in accordance with the approved EM&CP. In accordance with the General Guidelines for EM&CPs and issued Certificate Ordering Clauses, NYPA would prepare detailed plan and profile drawings and an associated narrative depicting and describing restoration activities as part of its EM&CP to be filed with the PSC at a later date.

Cleanup activities would involve removal of all debris from the Proposed ROW, with the exception of vegetation debris. Restoration activities would involve regrading disturbed soils to restore contours to their pre-construction condition or to match adjacent contours, repair of all streambeds and banks, and site stabilization and vegetation. Any stockpiled soil would be evenly redistributed near its former location within the Proposed ROW. In areas with active agricultural land, restoration would occur in accordance with NYSDAM guidelines or alternative methods agreed to with certain landowners. Therefore, adverse impacts on active agricultural land would

be minimized to the extent practicable. Site stabilization and restoration would be achieved through seeding and mulching. All erosion control devices would be removed following revegetation.

#### **4.5. Underground Facilities (16 NYCRR § 86.5(c))**

*16 NYCRR § 86.5. (c)(1) If any portion of the proposed facility is to be constructed underground, the applicant shall state what, if any, provisions have been made to avoid clearance of the entire right-of-way. If the clearance proposed will go to the mineral soil, the applicant shall state: (i) the width of the clearance; (ii) what, if any, provisions have been made for the replacement of topsoil removal during construction; (iii) what, if any, provisions have been made for removing excess soil excavated during construction; and (iv) what, if any, plans have been made for stabilizing the cleared area with vegetation and erosion control devices. (2) If any underground portion of the proposed facility will be constructed in or adjacent to a stream or other body of water, the applicant shall state: (i) what, if any, plans have been made to prevent erosion of the banks; (ii) what, if any, techniques (such as cofferdams) will be used; and (iii) what, if any, plans have been made to use the water from such streams or other bodies of water for pipe-testing or other purposes (including volumes of water involved and methods for release of water once used).*

No portion of the existing MA1&2 lines are underground and no portion of the Project is proposed to be built underground. As discussed in Exhibit 3, underground alternatives were determined to not be feasible for this Project.

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