Attachment F1

GARNET ENERGY CENTER

Case No. 20-F-0043

1001.22 Exhibit 22

Terrestrial Ecology and Wetlands

UPDATED: January 7, 2022

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Exhibit 22: Terrestrial Ecology and Wetlands

This Exhibit will track the requirements of Final Stipulation 22, dated March 5, 2021, and therefore, the requirements of 16 New York Codes, Rules and Regulations (NYCRR) § 1001.22.

The Project has been sited to avoid and/or minimize impacts to terrestrial ecology and wetlands to the maximum extent practicable, as detailed in this Exhibit. Temporary, permanent, and conversion impacts to the representative plant communities within the Project Area are not expected to result in the significant loss or extirpation of any representative plant community (see Section 22(b)). Further, no take of listed species will result from Project development (see Section 22(f)). Of the 2,288.7-acre Project Area, only 20.52 ~~24.46~~ acres of wildlife habitat will be permanently lost due to the placement of Project Components. No occupied habitat for threatened or endangered species is present within the Project Area. Moreover, 19.10 ~~21.87~~ of the 20.52 ~~24.46~~ acres (~~89~~ 93.06 percent) of wildlife habitat permanently lost consists of agricultural areas providing limited perpetual wildlife habitat due to the regular disturbances and anthropogenic pressures of active farming practices (see Section 22(f)(4)). There will be minor impacts, including wetland type conversions, to New York State Department of Environmental Conservation (NYSDEC or DEC)-mapped regulated wetlands and 100-foot adjacent areas. However, Project Components were sited to avoid these areas to the maximum extent practicable (see Section 22(l). Additionally, as noted in Section 22(m), the Project satisfies the weighing tests in 6 NYCRR Part 663 including addressing a pressing social need (renewable energy production) that clearly outweighs the potential loss of or detriment to the benefit(s) of the wetlands on site. Permanent impacts, such as fill, are minimized to the maximum extent practicable within all wetlands (see Section 22(l)).

Project Component siting in previously cleared and regularly disturbed areas has been favored to the maximum extent practicable. Publicly-accessible historic aerial imagery is available only back to the early 1980's and depicts agricultural uses within open areas of the Project. The Project will be a less impactful use of the land relative to active agriculture while advancing the goals of the New York State Climate Leadership and Community Protection Act (CLCPA) by providing 200 megawatts (MW) of clean, renewable energy in addition to a 20 MW / four-hour duration energy storage system (refer to Exhibit 10 for additional details on the Project's consistency with State goals). Indeed, following restoration of the disturbed areas post-construction with reseeding and the reestablishment of native vegetation, the quality of these wetlands will be improved and less

adversely affected, given biocides and fertilizers would no longer be applied to the portions of the Project Area that have been farmed.

To the maximum extent practicable, the Applicant has designed and will construct the Project to avoid, minimize, and, where applicable, monitor and restore impacts to environmental resources, such as wetlands, streams, and threatened and endangered (T&E) species and their habitat. Toward this end, the Applicant will implement the following strategies:

- To minimize impacts to plant communities, solar panels and work areas are located within previously disturbed agricultural areas and open fields to the maximum extent practicable.
- Temporary and permanent impacts proposed within the Project Area to mapped NYSDEC-regulated wetlands have been minimized to the maximum extent practicable.
- Impacts to non-state regulated wetlands have been avoided to the maximum extent practicable by siting Project Components, wherever possible, within upland, typically agricultural, areas. BMPs will be applied to these areas consistent with Siting board precedent.
- To minimize or eliminate the loss of wildlife connectivity, the Applicant is proposing fencing with a 6-inch space between the bottom of the chain-link fabric and the ground.
- To minimize impacts to amphibians and reptiles, the Project has prioritized siting of Project Components in previously cleared areas and areas that undergo frequent disturbance through active agriculture.
- To the maximum extent practicable, large stands of forest within the Project Area will not be impacted.
- Access roads crossing streams will be sited on existing stream crossings where practicable and were designed to minimize impacts where unavoidable.
- Environmental compliance and monitoring programs will be implemented during and after Project construction as needed to ensure adherence to all certificate conditions to protect wetlands, streams, and other waterbodies and resources.
- Avoidance and minimization of impacts to vegetative communities will also occur by complying with guidance from the on-site Environmental Monitor, maintaining clean work sites, reseeding and restoration measures, employing BMPs (e.g., Appendix 22-6) during construction, operation, and maintenance to reduce the spread of invasive species, and

by demarcating areas highly susceptible to adverse disturbances. These confined areas will be deemed inaccessible to construction equipment and any other disturbance activity.

22(a) Plant Communities

The Project Area is located within the Eastern Great Lakes Lowlands ecological region (ecoregion), as defined by the Bryce et al. (2010). This ecoregion includes valleys and lowlands underlain by interbedded limestone, shale, and sandstone rocks that are more erodible than the more resistant rocks composing adjacent mountainous areas. The topography and soils of the lowlands have also been shaped by glacial lakes and episodic glacial flooding. Limestone-derived soils are fine-textured, deep, and productive. As a result, much of the region was cleared for agriculture or urban development and fewer native forests remain than in surrounding ecoregions (Bryce et al., 2010).

More specifically, the Project Area is within the Ontario Lowlands ecoregion. This ecoregion separates the Finger Lakes Uplands and Gorges to the south from the Erie/Ontario Lake Plain to the north. Historically, this region was dominated by beech-maple forests, but only scattered woodlots remain due to the area's high agriculture activity. Soils are loamy, moist Alfisols derived from limestone and calcareous shale that support dairy farming, livestock, and are suitable for growing fruits, vegetables, and other specialty crops (Bryce et al., 2010).

The Project Area encompasses approximately 2,288.7 acres and is composed predominately of agricultural land and forestland. Publicly-accessible historic aerial imagery is only available back to the early 1980's and depicts agricultural uses within open areas of the Project. Agricultural areas were confirmed during on site investigations during 2020 to consist predominately of corn and soybean fields. Land cover in the Project Area was determined using the National Land Cover Database (NLCD), aerial photography, and on-site observations (Table 22-1).

Plant community mapping was compiled from numerous sources including data collected during on-site field survey work, roadside observations, desktop analysis, interpretation of aerial imagery, and NLCD mapping. All documented plant communities within the Project Area are common in the State of New York. Descriptions of these plant communities and their dominant plant species are provided below. Note that the cover types on Figures 22-1 and 22-2, respectively, include the communities described in *Ecological Communities of New York State* (Edinger et al., 2014) listed below. Invasive species are discussed in Section 22(o) and Appendix 22-6. A complete and compiled list of plant species observed within the Project Area is provided

as Appendix 22-1. There were no documented occurrences of giant hogweed (*Heracleum mantegazzianum*) or wild parsnip (*Pastinaca sativa*), both of which are recognized by the NYSDEC to pose a health and safety hazard.

Table 22-1. Land Cover Types within the Project Area

Cover Type	Acreage	Percent of Project Area
Beech-maple mesic forest	229.10	10.0
Cropland/field crops	53.55	2.3
Cropland/row crops	1177.63	51.5
Deep emergent marsh	62.26	2.7
Farm ponds/artificial ponds	0.29	0.0
Hemlock-northern hardwood forest	30.14	1.3
Mowed lawn	2.03	0.1
Pastureland	20.19	0.9
Paved road/path	1.58	0.1
Red-maple hardwood swamp	445.24	19.5
Rural structure exterior	28.03	1.2
Shallow emergent marsh	72.00	3.1
Shrub swamp	15.61	0.7
Successional Old Field	3.32	0.1
Successional Shrubland	18.30	0.8
Successional southern hardwoods	129.46	5.7
Total	**2,288.72**	**100**

Agricultural Land

Active agricultural land in the form of hay fields and cultivated crops, and some pastureland is extremely common within the Project Area and covers approximately 1,251.37 acres (55%) of the Project Area. The majority of the agricultural land is located in the central and western portions of the Project Area. Approximately ~~806.21~~ 750.59 acres of agricultural land will be used for Project Components and then restored following the decommissioning of the Project. In *Ecological Communities of New York*, there are multiple types of terrestrial cultural communities within the

agricultural land designation, including cropland/row crops (Heritage Rank: unranked cultural), cropland/field crops (unranked cultural), and pastureland (unranked cultural) (Edinger et al., 2014). Most row crops established within the Project Area are corn (*Zea mays*) and soybean (*Glycine max*), both observed on June 15, 2020. Dominant plants in hayfields in the Project Area were annual wheat (*Triticum aestivum*) and timothy grass (*Phleum pretense*), both first observed May 27, 2020. Refer to section 22(f)(10) of this Exhibit and Exhibit 4 for additional information on agriculture uses within the Project Area.

Forestland

Forested land covers approximately 833.93 acres (36.4%) of the total land coverage for the Project Area. The majority of the forestland is located within the central and northern portions of the Project Area. Within this cover type are a variety of forested communities that support some local animal populations. Specific forest communities as defined in *Ecological Communities of New York* found within the Project Area and their descriptions are below.

Beech-maple mesic forest (Heritage Rank: G4 S4 [Apparently secure globally and in New York State]) – Beech-maple mesic forest is common within the Project Area. This community occurs on moist, well-drained soils with usually an acidic content. This forest is described as a northern hardwood forest with sugar maple (*Acer saccharum*) and American beech (*Fagus grandifolia*) occurring as codominant species, both first observed June 16, 2020. Common associates occurring in the community are yellow birch (*Betula alleghaniensis*, first observed June 16, 2020), white ash (*Fraxinus americana*), first observed June 19, 2020), and red maple (*Acer rubrum*, first observed June 16, 2020). Eastern hemlock (*Tsuga canadensis*, first observed June 16, 2020), may also occur. The shrub layer of this forest includes saplings of the tree species along with American hornbeam (*Carpinus caroliniana*, first observed on June 16, 2020). Saplings of sugar maple and American beech comprise the ground layer.

Hemlock-northern hardwood forest (Heritage Rank: G4G5 S4 [Apparently secure globally and in New York State]) – Hemlock-northern hardwood forest communities are mixed and generally occur on the middle to lower cool slopes of shaded ravines and hillslopes. These communities occur on moist, well-drained, loamy soils. Eastern hemlock is predominant within the tree stratum and can range in coverage from pure stands to comprising only 20% of the tree canopy. Along with eastern hemlock, there is an assortment of tree species that can act as a codominant within this community. Relative to the Project Area, American basswood (*Tilia americana*, first observed on June 16, 2020), American beech, and sugar maple have been observed to be codominant tree

species. Along with the saplings of the canopy trees, nannyberry and a range of raspberries and blackberries (*Rubus* spp.) populate the shrub layer. Due to the low light environment created by the hemlock dominant tree stratum, the ground layer of this community is generally sparse.

Red maple-hardwood swamp (Heritage Rank: G5 S4S5 [Demonstrably secure globally, apparently or demonstrably secure in New York State]) – Red maple-hardwood swamps occur in poorly drained depressions, usually on inorganic soil, but occasionally on muck or shallow peat. It is a broadly defined community with several regional variants. Generally, red maple is either the only canopy dominant or codominant with one or more hardwoods, including green ash (*Fraxinus pennsylvanica*), American elm (*Ulmus americana*), both first observed on June 16, 2020, and yellow birch. Other trees present could include American hornbeam and eastern white pine (*Pinus strobus*, first observed on June 17, 2020. The shrub layer is usually well-developed and may be quite dense due to characteristic shrubs such as northern spicebush (*Lindera benzoin* first observed on June 16, 2020), southern arrowwood (*Virburnum dentatum*), and silky dogwood (*Cornus amomum)*, both first observed on June 19, 2020. The herbaceous layer may be quite diverse and is often dominated by ferns, including sensitive fern (*Onoclea sensibilis*, first observed on June 16, 2020).

Successional southern hardwoods (Heritage Rank: G5 S5 [Demonstrably secure globally and in New York State]) – Successional southern hardwoods are common throughout the Project Area. Most of the Project Area was likely forested and has been cleared for agriculture. Successional forests can develop either after man-made clearing events or in the wake of destructive natural events (floods, blow-downs during high wind events, forest fires, etc.). After clearing has occurred, and the impacted land begins to revert to forests, plant species that are well-adapted to establishment after disturbances begin to populate the area. Characteristic trees dominating successional northern hardwoods within the Project Area include black cherry (*Prunus serotina*, first observed June 16, 2020), red maple, and eastern white pine. White ash, green ash (*Fraxinus pennsylvanica*, first observed June 16, 2020), and American elm, can be found in this community as well but at lesser numbers.

Disturbed/Developed Land

Disturbed/developed land covers approximately 31.65 acres (1.4%) of the Project Area. Disturbed/developed land is primarily located adjacent to roadways throughout the entirety of the Project Area. Developed lands represent areas with extreme anthropogenic influence and are characterized by the presence of buildings, roadways, quarries, residential areas, commercial

properties, industrial sites, and maintained greenspaces (e.g., mowed lawns, gardens, and parks). Developed land communities in the Project Area include mowed lawn (Heritage Rank: unranked cultural), mowed roadside/pathway (Heritage Rank: unranked cultural), unpaved road/path (Heritage Rank: unranked cultural), paved road/path (Heritage Rank: unranked cultural), and rural structure exterior (Heritage Rank: unranked cultural). Vegetation within these areas tend to be sparse when not artificially planted or influenced. However, when present, certain species that thrive in disturbed environments act as pioneer species or become directly or indirectly introduced. Often in developed areas, non-native plant species flourish in a community that generally characterizes old-field appearances and functions. Non-native species such as multiflora rose (*Rosa multiflora*, first observed June 16, 2020) and common buckthorn (*Rhamnus cathartica*, first observed June 16, 2020), and various upland grasses generally populate these developed areas.

Successional Old Field

Successional old fields (Heritage Rank: G5 S5) cover approximately 3.32 acres (0.1%) of the Project Area. Successional old fields are located in the northeastern portion of the Project Area. This community is defined as a meadow dominated by forbs and grasses that occur on sites that have been cleared or plowed due to agriculture or development, and subsequently abandoned. Most old-field communities are irregularly and infrequently mowed. As such, conditions favor the establishment and spread of representative old-field species. Characteristic herbaceous species include many goldenrods (*Solidago* spp., first observed June 16, 2020), timothy grass, Queen Anne's lace (*Daucus carota*, first observed November 4, 2020), bedstraw (*Galium* spp., first observed June 19, 2020), and common milkweed (*Asclepias syriaca*, first observed June 16, 2020). Shrubs can be present within successional old-field communities but represent less than 50% of the community. Common shrubs found in this community are honeysuckles (*Lonicera* spp.), dogwoods (*Cornus* spp.), and viburnums (*Viburnum* spp.). If not maintained by infrequent mowing, this relatively short-lived community succeeds to a successional shrubland, woodland, or forest community.

Wetlands

Wetlands comprise 595.11 acres (26%) of the delineated Project Area. Specific wetland communities within the Project Area include shallow emergent marshes (Heritage Rank: G5 S5), deep emergent marshes (Heritage Rank: G5 S5), shrub swamps (Heritage Rank: G5 S5), and red maple hardwood swamps (Heritage Rank: G5 S4S5 [Demonstrably secure globally,

apparently or demonstrably secure in New York State]). A more detailed characterization of the wetland communities can be found in Section 22(i).

Successional Shrubland

Successional shrubland (Heritage Rank: G5 S5) covers approximately 18.30 acres (0.8%) of the Project Area. Successional shrublands are located within the northern portion of the Project Area. This community represents shrublands that have established after a site has been cleared (e.g., for agriculture, logging, or development) or was disturbed by natural events. This community is defined by at least a 50% cover of shrub species (Edinger et al., 2014). Successional shrublands are transitory communities between old-field and successional forest communities. Characteristic shrubs found within the Project Area are silky dogwood, multiflora rose, common blackberry, southern arrowwood, gray dogwood (*Cornus racemosa*, first observed June 17, 2020), common buckthorn, various shrub willows, and honeysuckles. Herbaceous species are diverse in this community but typically represent less than 50% of total vegetative cover. Within the Project Area, common herbaceous plants within this community are goldenrods, Kentucky bluegrass (*Poa pratensis*), and sweet-scent bedstraw (*Galium mollugo*), both first observed June 19, 2020.

Open Water

Open water communities are sparse within the Project Area, covering approximately 0.29 acres of the Project Area. Open water communities are located within the southern portion of the Project Area. Open water areas are characteristic of man-made and natural lacustrine and riverine systems located within the Project Area. Specific lacustrine systems (i.e., relating to ponds and lakes) within the Project Area include farm pond/artificial pond (heritage Rank: unranked cultural). Specific riverine systems (i.e., relating to confined waterbodies) in the Project Area include intermittent streams (Heritage Rank: G4 S4) and ditch/artificial intermittent streams (Heritage Rank: unranked cultural). Aquatic vegetation grows within some of these communities, as does emergent wetland vegetation along the periphery of the open water communities. Typical emergent wetland species associated with open water communities within the Project Area include narrowleaf cattail (*Typha angustifolia*, first observed on June 16, 2020) and softstem bulrush (*Schoenoplectus tabernaemontani*, first observed on June 18, 2020).

Vernal Pools

A vernal pool survey was conducted during April 2021. No vernal pools were identified. However, several potential vernal pools were identified and thoroughly investigated in the Project Area (Figure 22-3). No egg masses were identified in these potential vernal pools. These potential vernal pools were predominantly co-located with forested wetland complexes previously delineated during the wetland and stream delineation surveys. See Section 22(d)(6) for more information about vernal and potential vernal pools.

22(b) Impacts to Plant Communities

(1) Proposed Temporary and Permanent Impacts

The Limit of Disturbance (LOD) for the Project is approximately ~~1,199.84~~ 1,054.1 acres, which represents approximately ~~52~~ 46 percent of the Project Area. The construction and operation of the Project will cause temporary and relatively small permanent impacts to some of the ecological communities and associated plant communities through vegetation clearing necessary for safe Project-related construction and activities. Areas that are temporarily impacted will be restored to their original condition. Permanent impacts to plant communities will occur in areas designated for permanent operation of the Project. Calculations of specific impacts to these communities within the Project Area are based on disturbance areas assigned to each Project Component as well as the Preliminary Design Drawings in Exhibit 11. These disturbance areas are described in Table 22-2:

Table 22-2. Project Component Impact Areas

Project Components	Vegetative Clearing Area (acres)	Soil Disturbance Area (acres)	Area of Permanent Impact (acres)
Solar Panel Installations	670.06 ~~824.55~~	180.55 ~~240.83~~	0.35 ~~0.55~~
Access Roads	24.86 ~~25.86~~	25.35 ~~26.45~~	15.85 ~~19.02~~
Culvert/Riprap	0.22 ~~0.25~~	0.27 ~~0.31~~	0.27 ~~0.31~~

Table 22-2. Project Component Impact Areas

Project Components	Vegetative Clearing Area (acres)	Soil Disturbance Area (acres)	Area of Permanent Impact (acres)
Basins/Drain Tile/Level Spreader/Dry Swale	0.82 ~~1.27~~	0.82 ~~1.27~~	0.71 ~~0.92~~
Collection Lines/HDD Bore Pits	25.75 ~~25.95~~	31.3 ~~30.54~~	-
Laydown/Parking	7.03 ~~7.40~~	7.06 ~~7.50~~	-
Collection Substation/ Switchyard/Inverters/ Battery Storage	5.19 ~~6.55~~	5.19 ~~6.55~~	3.73 ~~4.19~~
Fence	3.42 ~~3.53~~	3.44 ~~3.54~~	-
Tree Clearing	159.61 ~~260.32~~	159.61 ~~260.32~~	-

While the Project layout may ultimately co-locate various components (e.g., electric collection lines and access roads), the potential impacts identified for this analysis assume no co-location and are instead presented for each component. As such, impact calculations were completed in a conservative manner, and likely overstate the potential impacts, as the potential for overlap in component impact areas is not assumed in the calculations. This method of impact calculation also alleviates temporal variation of impacts to vegetative communities within the Project Area.

Construction of the Project will result in a temporary disturbance of approximately ~~5.05~~ 4.53 acres of vegetation associated with field crops and pastures. Agricultural areas with pre-existing hayfield communities will be temporarily impacted by the installation of the solar arrays and energy storage systems but will be re-seeded to native grasses following construction. Temporary impacts to agricultural land will occur from the siting of underground collection lines and the clearing of vegetation needed for various components during the construction phase of the Project. Temporarily disturbed active agricultural areas will be stripped of topsoil and set aside prior to construction. The topsoil will be returned upon completion of the construction phase of the Project.

Agricultural areas underneath and in the immediate vicinity of the solar panels will be maintained as grasses and forbs that require periodic mowing. Agricultural areas with row crops will be employed for the useful life of the Project due to the installation of the solar arrays and energy storage systems. The plant community that will be maintained beneath the arrays will be different from the pre-existing row crops. Agricultural land that is used for Project Components will be substantially restored and agricultural activities can be resumed following decommissioning of the Project. A total of approximately ~~806.21~~ 750.59 acres of agricultural land will be employed for Project Components for the useful life of the Project.

The clearing of forested cover types within the Project Area was minimized to the maximum extent practicable. Permanent impacts occur where forestland will be directly replaced with Project Components. There will be approximately ~~2.52~~ 1.37 acres of permanent impact to forests within the Project Area.

There will be ~~4.61~~ 2.45 acres of temporary impacts to forests within the Project Area. Forest conversion impacts will occur within the Project Area where forests are initially cleared for Project construction and then maintained as successional old-field or shrubland communities for the life of the Project, due to clearance constraints. Forest conversion, deemed neither a temporary nor permanent impact, is anticipated to occur in approximately ~~254.23~~ 167.60 acres of forestland in the Project Area. This status as neither temporary nor permanent stems from the fact that the duration of impact falls between the two, being too long to constitute a temporary impact, and too short to be thought of as permanent. The Applicant plans to remove stumps so as to not impact Project Components in areas designated as Type I tree clearing on the site plan drawings included as Appendix 11-1. Areas designated as Type II tree clearing will have growth cut as close to the ground as practical and will not exceed six inches in height. No soil disturbance, such as grubbing or root removal, is proposed in Type II clearing areas. This type of clearing will be utilized in areas of steep slopes, environmentally sensitive areas such as stream corridors, and areas not requiring equipment access or storage of equipment or materials (areas outside the bound of access, grading and most work areas) but where clearing is needed typically to avoid shading impacts on arrays.

Forested areas within the Project Area consist of both small, isolated patches and larger forest blocks that are contiguous with extensive forest tracts extending off-site. Isolated patches occurring within the Project Area are unlikely to support conditions consistent with interior forest, or communities of forest-obligate and forest interior species, whereas larger forest blocks promote

connectivity to extensive forest habitat in the surrounding vicinity. In general, forest fragmentation is the process by which forest areas are divided into smaller, isolated patches of forest. Fragmentation can result from the creation of openings, farmland expansion, creation or widening of road corridors, or the establishment of developed areas. To the extent possible, connectivity of forested corridors with surrounding forest patches has been maintained. Forest clearing is expected to occur on ~~260.32~~ 159.61 acres as a result of Project construction. The proposed Project layout and tree clearing will result in the conversion of ~~51.09~~ 72.44 acres of interior forest into peripheral forest area, defined as forest within 300 feet of the forest edge, which is an increase of ~~8.8~~ 13 percent from current conditions. The additional peripheral forest will be created through the addition of access roads and solar arrays within existing forest patches. The creation of peripheral forest can result in edge effects which affect animal and plant populations or community structures that occur at the boundary of fragmented habitats. These effects are most evident in species that exhibit edge-sensitivity. Increasing the amount of peripheral forest in this landscape is not likely to result in additional edge effects. Physical barriers resulting from this action are minor and unlikely to alter existing avian communities or significantly change their behaviors. For more information on habitat fragmentation and edge effects caused by the Project, please refer to the subheading *Impacts to Wildlife and Wildlife Habitat,* within Section 22(f) of this Exhibit.

The construction of the Project will also result in the temporary disturbance of approximately ~~0.82~~ 0.80 acres of successional shrubland communities, and ~~1.06~~ 1.17 acres of successional old-field communities~~, and 11.11 acres of developed land communities~~. Temporary impacts will occur from the initial clearing and disturbance of these cover types for purposes of construction access, the siting of Project Components, and the burying of underground collection lines. Once the Project becomes operational, these areas will return to their preexisting condition. There will be no permanent loss to successional shrubland communities or successional old fields due to the siting of Project Components (Table 22-3). ~~will occur to approximately 0.02 acres of successional shrubland communities and 0.5 acres of developed land communities.~~

Some agricultural communities, including hayfields and pastures, were observed in limited extents and may have the potential to provide conditions that support grassland breeding birds. However, during on-site habitat assessments and surveys conducted in 2020, hay fields were converted to row crop agriculture following the first cutting in mid-June (Appendix 22-2). There are 23.51 acres of pasturelands and successional old field within the Project Area, distributed in non-contiguous patches, none of which is greater than 15 acres. Although species composition and vegetation characteristics align with requirements for many grassland birds, the size of the fields precludes

use by most species, specifically those that are area sensitive. The generally accepted minimum field size for grassland breeding birds is 25 acres. Therefore, habitat for grassland-obligate and grassland associated species (including T&E species) is not present within the Project Area, and fragmentation within this community type is not anticipated to occur as a result of Project construction. Rather, re-seeding of panel array areas following construction will promote improved conditions for grassland birds relative to row crop agriculture (Section 22 (f)(8)).

No impacts are anticipated to open-water vegetation communities within the Project Area. A description of impacts to all surface waters within the Project Area is included in Exhibit 23.

Temporary, permanent, and conversion impacts to the representative plant communities within the Project Area are not expected to result in the significant loss or extirpation of any representative plant community. Temporary, permanent, and conversion impact acreages for each representative community in the Project Area are provided in Table 22-3 below. See Figure 22-2 for a depiction of the extent of impacts to plant communities. Temporary and permanent impacts to wetlands are discussed in Section 22(m) of this Exhibit.

Table 22-3. Vegetation Impact Calculations

Cover Type/Habitat	Permanent Impact (Acres)	Temporary Impact (Acres)	Conversion (Acres)	Interior Forest		
				Permanent Loss (Acres)	Temporary Impact (Acres)	Conversion (Acres)
Forestland	~~2.52~~ 1.37	~~4.61~~ 2.45	~~254.23~~ 167.60	~~0.63~~ 0.08	~~0.66~~ 0.52	~~34.98~~ 16.08
Cropland/ field crops	0.44 ~~0.76~~	4.37 ~~4.70~~	28.55 ~~30.02~~			
Cropland/ Row crops	18.66 ~~21.12~~	95.17 ~~80.71~~	721.60 ~~775.95~~			
Mowed lawn	0.00	0.66 ~~0.63~~	0.04 ~~0.06~~			
Pastureland	0.00	0.15 ~~0.35~~	0.43 ~~0.23~~			
Shallow emergent marsh	0.01	1.12 ~~0.89~~	~~4.82~~ 2.83			

Table 22-3. Vegetation Impact Calculations

Cover Type/Habitat	Permanent Impact (Acres)	Temporary Impact (Acres)	Conversion (Acres)	Interior Forest		
				Permanent Loss (Acres)	Temporary Impact (Acres)	Conversion (Acres)
Shrub swamp	0.05 ~~0.04~~	0.18 ~~0.17~~	1.24 ~~1.26~~			
Successional old field	~~0.00~~ 0.00	~~1.06~~ 1.17	~~0.60~~ 0.45			
Successional shrubland	0.00 ~~0.02~~	0.80 ~~0.82~~	1.37 ~~1.73~~			
Total	20.52 ~~24.46~~	~~93.93~~ 106.08	924.11 ~~1,068.91~~	0.08 ~~0.63~~	~~0.66~~ 0.52	16.08 ~~34.98~~

Table 22-4 below further quantifies the impacts to plant communities. The Applicant has developed a Preliminary Operation and Maintenance (O&M) Plan (Appendix 5-3) outlining routine monitoring and maintenance activities to ensure successful establishment or vegetation in re-seeded areas. The O&M Plan describes inspection schedules and protocols for evaluating the success of seeding efforts, documenting conditions, and determining the need for remedial action. Additionally, the Applicant has provided a Landscaping Plan as Appendix 11-2 to the Application. The Landscaping Plan details the types and design of plantings to be used as visual screening throughout the Project Area. The Applicant is proposing the installation of approximately 31,480 linear feet of vegetative landscaping, inclusive of landscaping proposed for visual mitigation, consisting of various native tree and shrub species. Monitoring and maintenance for these plantings is also discussed in detail in the O&M Plan. A discussion of the Invasive Species Management and Control Plan (ISMCP) is provided in the following section.

(2) Vegetation Management Plans for Construction and Operation

Vegetation management will occur throughout the Project Area for siting of Project components during construction and to maintain safe operation for the useful life of the Project. The limits of proposed tree clearing are shown on the Preliminary Design Drawings provided in Exhibit 11. Tree clearing for siting of Project components is proposed to occur on ~~260.32~~ 159.61 acres.

As part of the Application, and in preparation for construction, an ISMCP was prepared to describe the survey methods that were used to identify invasive species populations present on-site, as

well as control methods moving forward with the Project. The ISMCP is further detailed in Section 22(p) of this Exhibit. Control and management methods for high priority invasive species in the Project Area are further addressed in Appendix 22-6.

Prior to the start of construction, crews will be educated regarding the contents of the ISMCP to ensure that their activities on-site comply with best management practices (BMPs) outlined in the Plan. Additionally, the limits of tree clearing will be clearly marked. To prevent introduction and spread of listed species, management actions can be grouped into four main categories: material inspection, targeted species treatment and removal, sanitation, and restoration. Within each category, specific actions or combinations thereof can be taken depending on characteristics of a specific species and its density within the target area.

Following the construction phase of the Project, the Applicant will restore temporarily disturbed areas. The area around and between solar arrays will be planted with a solar farm grass seed mix comprised of grasses that are indigenous to the area. These grasses will mature to a height of approximately 2 to 2.5 feet. The re-established groundcover between solar arrays will require periodic maintenance in the form of mowing. Trees and shrubs will be planted around the solar arrays to create a visual buffer. Periodic pruning of these trees and shrubs will be necessary to keep branches from growing over the solar arrays and to prevent shading of solar panels. See Appendix 11-1 for a detailed Landscaping Plan of the Project Area. See Exhibit 5 for additional information on proposed vegetation management practices. Section 5(j) explains vegetation management practices during the initial operation period and ongoing operation.

22(c) Avoidance and Mitigation Measures for Plant Community Impacts

(1) Avoidance and Minimization of Plant Community Impacts

The Applicant performed an evaluation of reasonable alternatives for the construction of the Project to avoid unnecessary impacts to grasslands, interior forests, wetlands, shrublands, and young successional forests (Exhibit 9). Where avoidance was infeasible, Project Components were sited to minimize impacts to these communities and confine disturbances to the smallest area possible. To minimize impacts to plant communities, solar panels, energy storage systems and work areas are proposed within previously disturbed agricultural areas and open fields to the maximum extent practicable.

Linear Project Components such as access roads and collection lines have been co-located to avoid and minimize impacts to plant communities.

A comprehensive erosion and sediment control plan will be developed and used to protect adjacent resources during the construction and associated remediation phases of this Project. See Section 23(c)(1) of Exhibit 23 for those details and a summary of the Stormwater Pollution Prevention Plan (SWPPP), available as Appendix 23-3.

Avoidance and minimization of impacts to vegetative communities will also occur by complying with guidance from the on-site Environmental Monitor, maintaining clean work sites, reseeding and restoration measures, employing BMPs as described in the SWPPP (Appendix 23-3) and ISMCP (Appendix 22-6) during construction, operation, and maintenance, and by demarcating areas highly susceptible to adverse disturbances. These confined areas will be deemed inaccessible to construction equipment and any other disturbance activity.

As discussed in Section 22(b), the Applicant will implement BMPs in accordance with the ISMCP (Appendix 22-6) to prevent the introduction or spreading of invasive species within the Project Area.

(2) Post-construction Vegetation Restoration

Following the construction phase of the Project, restoration of temporarily disturbed areas will take place. Temporarily disturbed areas will be seeded with a typical native species mix. These seeded areas will be further stabilized with mulch and left to reestablish vegetation. As discussed in Section 22(b)(2) of this Exhibit, the area around and between the solar arrays will be planted with a solar farm grass seed mix comprised of grasses that are native or indigenous to the area. This grass seed mix will provide favorable wildlife habitat to grassland species. Native trees and shrubs will be planted in select areas around the solar arrays to create a visual buffer.

Woody-type plantings of native species found to be beneficial to pollinators, such as red twig dogwood *(Cornus sericea)*, downy shadbush (*Amelanchier arborea*), red chokeberry (*Aronia arbutifolia*), common witch hazel (*Hamamelis virginiana*), common winterberry *(Ilex verticillata*), and highbush blueberry (*Vaccinium corymbosum*) may be included in the proposed landscape buffer.

(3) Summary Impact Table

A summary impact table quantifying anticipated temporary and permanent impacts associated with the various Project Components in relation to Project Area vegetation cover types is provided as Table 22-4 below.

Table 22-4. Summary Vegetation Cover Type Impact Table

Cover Type/Habitat Vegetative Classes	Project Components															
	Permanent Loss (Acres)					Temporary Impact (Acres)				Conversion (Acres)						
	Solar Panel Installations	Collection Substation/ Switchyard/ Inverters/ Battery Storage	Access Rd	Basin/ Drain Tile/Dry Swale/Level Spreader	Culvert/Rip Rap	Access Road	Collection Lines/ HDD Bore Pits	Laydown Area/ Parking	Remaining LOD	Solar Panel Installations	Collection Substation/ Switchyard/ Inverters/ Battery Storage	Access Road	Basin/ Drain Tile/Dry Swale/Level Spreader	Fence (1ft Wide)	Remaining Fenced Area	Remaining Tree Clearing
Forestland																
Beech-maple mesic forest	0.027 0.014	0.12 0.04	0.78 0.75	0.07 0.01	-	-	0.01 1.24	-	0.120.18	0.0138.06	-	0.00	-	0.28 0.00	2.380.01	70.60 41.55
Hemlock-northern hardwood forest	0.00	-0.01	-0.42	-	-	-	-0.43	-	0.010.00	3.63	-	-	-	-0.07	-	9.618.29
Red-maple hardwood swamp	0.04 0.01	-	0.10 0.12	0.00-	0.06 0.04	0.04 -	0.000.13	-	0.950.10	0.0265.01	-	0.00	-	-0.15	6.880.21	21.54 30.63
Successional southern hardwoods	0.02 0.01	0.01	0.38 0.68	0.00 0.15	0.02 0.01	0.03 0.00	0.501.78	0.030.00	0.820.71	0.0624.05	-	0.01 0.00	-	0.0030	0.01	56.4941.98
Non-Forestland																
Cropland/field crops	0.02 0.01	0.02 0.01	0.40 0.63	0.07 0.00	0.02 0.01	-	0.600.64	0.510.29	3.263.76	25.3725.78	0.012	0.13 0.09		0.14 0.10	2.983.95	0.00 -
Cropland/row crops	0.44 0.31	3.68 4.04	13.81 15.86	0.63 0.70	0.15 0.16	0.50 0.84	16.8415.58	6.855.92	71.5757.78	573.92646.19	1.0675	4.24 4.69	0.210.09	2.46 2.58	139.72120.66	0.00 -
Mowed lawn	0.00	-	-	-	-	-	0.390.36	-	0.27	0.010.02	-	-	-	0.00	0.020.03	-
Pastureland	-	-	-	-	-	-	-	-	0.150.35	0.420.14	-	-	-	0.01 0.02	-0.07	-
Shallow emergent marsh	0.00	-	0.01	-	-	-	0.200.25	-	0.910.64	1.862.91	0.06	0.00	-	0.01 0.02	0.901.83	-
Shrub swamp	0.00	-	0.03	-	-	-	0.05	-	0.130.11	0.200.97	-	0.01 0.00	-	0.00	1.030.02	0.27 0.01
Successional Old Field	0.00	-		-	-	-	0.320.31	0.080.06	0.780.68	0.340.48	-	-	-	0.01	0.100.11	-
Successional Shrubland	0.00	-	0.02 0.00	-	-	-	0.27	-	0.530.55	0.991.33	-	0.010.01	-	0.02 0.01	0.370.37	0.00 0.00
Interior Forest																
Beech-maple mesic forest	0.002 0.001	-	0.07	-	0.07-	-	0.10-	-	0.0030.00	-3.46	-	-	-	-0.01	-0.39	2.35 0.73
Hemlock-northern hardwood forest	0.003 0.002	-0.01	-0.42	-	0.00-	-	-0.43	-	0.010.00	-3.53	-	-	-	-0.06	-	9.61 7.26
Red-maple hardwood swamp	0.010 0.000	-	0.05 0.01	-	0.01-	-	-0.04	-	0.510.00	-14.62	-	-	-	-0.03	0.41-	2.25 4.36
Successional southern hardwoods	0.000	-	-0.07	-	0.00-	-	-0.08	-	0.00-	-0.52	-	-	-	-0.00	-	1.08 0.39

[1] Interior Forest communities overlap Forestland communities.

(4) Perimeter Fencing Potential Impacts

Proposed perimeter fencing is shown on the Preliminary Design Drawings provided in Exhibit 11 and Figure 22-7. Fencing is primarily proposed in discrete blocks, forming a perimeter around panel arrays that are primarily located in agricultural fields throughout the Project Area. The Nature Conservancy (TNC) Resiliency Data was reviewed to evaluate the level of existing connectivity of wildlife habitat within the Project Area. Much of the Project Area contains open habitat, which provides below average or limited natural flow of animal movements (Figure 22-6). Some areas containing forestland provide above average connectivity to support movement of local animal populations. A large undisturbed tract of forested habitat is located in the central portion of the Project Area between Slayton Road and Cooper Street (Figure 22-6). This is contiguous with forested habitat that extends off-site to the southwest, southeast, and northwest. The Project layout maintains connectivity to allow for uninhibited movement through these large forested blocks both north-south and east-west. To further eliminate the loss of connectivity for wildlife, the Applicant is proposing fencing with a 6-inch space between the bottom of the chain-link fabric and the ground. Perimeter fencing as proposed is primarily sited within areas of low existing connectivity and flow, and therefore is likely to have little impact on the movements of wildlife within the Project Area and wildlife habitat nearby.

22(d) Characterization of Vegetation, Wildlife, and Wildlife Habitats

Vegetation was characterized through ecological community mapping conducted within the Project Area and proposed LOD for the Project. Several ecological communities were mapped in the Project Area during field surveys conducted in 2020 (see Section 22(a)). TRC biologists documented specific plant species and general plant communities during on-site field surveys in the summer and fall of 2020. During field efforts, TRC biologists conducted a species inventory and general plant community survey for the Project Area, identifying plants to the species or genera and delineating the boundaries of established plant communities within the proposed LOD within the larger Project Area. Plant taxonomy was determined and reported based on the New York Flora Atlas (Weldy et al., 2019) and ecological communities described according to Edinger et al., 2014. A complete and compiled list of plant species observed within the Project Area is provided as Appendix 22-1. A list and description of plant communities identified are detailed in Section 22(a) of this Exhibit. Wetlands and wetland wildlife habitat are addressed separately in Sections 22(i) through Section 22(o).

Wildlife and wildlife habitat were evaluated through field reconnaissance and ecological surveys conducted on-site, in conjunction with publicly available data from the following sources:

- New York Natural Heritage Program (NYNHP) database;
- New York State Amphibian and Reptile Atlas Project (Herp Atlas);
- New York State Breeding Bird Atlas (BBA) and range maps;
- United States Geological Survey (USGS) Breeding Bird Survey (BBS) data;
- National Audubon Society Christmas Bird Count (CBC) data;
- Hawk Migration Association of North America (HMANA) hawk watch count data;
- eBird;
- TNC data; and
- The Kingbird publication.

A list of all wildlife identified within the Project Area is included as Appendix 22-1. Species with potential to occur based on site habitat mapping and information provided in the above-mentioned sources are discussed in Section 22(e).

(1) Assessment of Wildlife Habitat

The Applicant referenced the United States Fish and Wildlife Service (USFWS) Environmental Conservation Online System (ECOS) (USFWS, n.d.), NYSDEC Environmental Resource Mapper (ERM) (NYSDEC, n.d.), and the *Protected Areas Database of the United States* (Gergely & McKerrow, 2013) to determine the presence and extent of significant natural communities or habitats of special concern located within the Project Area, as well as occurrences of state-listed T&E species.

Consultation with the NYNHP, provided as Appendix 22-7, indicated no records of rare or state-listed animals or plants, or significant natural communities within the Project Area. The response indicated that there was a historical occurrence of a state-endangered plant, Northern Adder's Tongue (*Ophioglossum pusillum*) within vicinity of the Project Area, however, its presence has not been documented since 1979.

Adjacent to the Project Area is the Northern Montezuma Wildlife Management Area (WMA) which is part of the larger 50,000-acre Montezuma Wetlands Complex which begins approximately 1.2 miles west of the Project Area. The Northern Montezuma WMA is managed by the NYSDEC with

the purpose of managing wildlife populations, preserving wildlife habitat, and promoting wildlife-dependent recreational opportunities.

No habitats of concern were found to occur within the Project Area. As such, the Applicant does not anticipate impacts to any federal or state-listed significant natural community, habitat of special concern, U.S. National Wilderness Area, or USFWS-Critical Wildlife Habitat. Additionally, no unusual habitats or significant natural communities were identified during field efforts conducted within the Project Area. Ecological communities observed are prevalent throughout New York State.

Blanding's Turtle

According to the most recent data available through the New York Herp Atlas Project, a single record for the state-listed threatened Blanding's turtle (*Emydoidea blandingii*) exists within Cayuga County, recorded in May of 1997 (New York Herp Atlas, 2020). The exact location of this record is not publicly available. However, the NYNHP project review response did not indicate any known occurrences of the Blanding's turtle within the Project Area.

Blanding's turtles occupy a broad spectrum of wetland environments including shrub swamps, vernal pools and emergent wetlands with shallow water composed of grasses, reeds, and cattails, with a soft organic bottom and abundant aquatic vegetation (Ross and Johnson, 2018). Nest sites are typically found in areas with loose, well-drained, often sandy to gravelly loam with open canopies allowing for sun exposure, and low to no vegetation (Ross and Johnson, 2018). While not all mapped features within the Project Area contain appropriate vegetation or landscape characteristics to support Blanding's turtles, two wetland features (W-NSD-1 and W-NSD-2) and adjacent agriculture fields located in the north and southeast portions of the Project Area may provide conditions suitable for Blanding's turtle.

However, no evidence of this species was observed during these investigations. Additionally, the lack of recent records from publicly available data sources indicates that the species is unlikely to be present within the Project Area, particularly considering its rarity even within the known distribution of the species.

(2) Survey Reports for NYSDEC

Survey reports identified in this Exhibit have been included with this Application for NYSDEC review. Specifically, the Application includes reports for the Applicant's breeding bird surveys

(Appendix 22-2), wintering grassland raptor surveys (Appendix 22-3), wetland and stream delineations (Appendix 22-4) and other relevant survey information as noted in this Exhibit.

(3) Wildlife Surveys

Several on-site investigations to characterize wildlife or wildlife habitats in the Project Area were performed. Additionally, desktop reviews of publicly available data sources were conducted to evaluate and compile a list of species with potential to occur. Results of survey efforts are provided below and as Appendices to this Exhibit. The findings of database reviews regarding potential wildlife habitat and species with potential to occur are described below.

Avian Surveys

On-site observations, field surveys, and inquiries into existing data sources were conducted to create a complete list of bird species present within the Project Area. Sources of publicly available information are listed below along with general discussions of the databases queried.

Grassland Breeding Bird Survey

A preconstruction monitoring survey of grassland bird species was requested by the NYSDEC after a review of avian observations from publicly available data and a habitat assessment (Appendix 22-7). The grassland breeding bird survey was conducted during the 2020 breeding season by TRC biologists. The objective of the grassland breeding bird survey was to determine the presence and site use by state-listed T&E grassland birds within the proposed Project Area. No observations of any state-listed T&E species were documented within the Project Area during the grassland breeding bird survey.

Bird species for which the presence and site use were surveyed include:

- northern harrier (*Circus hudsonius*);
- upland sandpiper (*Bartramia longicauda*);
- short-eared owl (*Asio flammeus*);
- Henslow's sparrow (*Ammodramus henslowii*);
- sedge wren (*Cistothorus platensis*);
- grasshopper sparrow (*Ammodramus savannarum*);
- vesper sparrow (*Pooecetes gramineus*); and

- horned lark (*Eremophila alpestris*).

Additional grassland bird species which were the subject of the survey include:

- American kestrel (*Falco sparverius*);
- bobolink (*Dolichonyx oryzivorus*);
- eastern meadowlark (*Sturnella magna*);
- golden-winged warbler (*Vermivora chrysoptera*); and
- savannah sparrow (*Passerculus sandwichensis*).

The survey methodology followed the NYSDEC *Draft Survey Protocol for State-listed Breeding Grassland Bird Species* (NYSDEC, 2015a). A review of the proposed Project Area and potential need for grassland breeding bird surveys was submitted to the NYSDEC on April 28, 2020 (Appendix 22-7). In a response dated May 15, 2020, the NYSDEC indicated that breeding bird surveys should be conducted in areas of potential habitat for grassland breeding birds based on the proximity of the Project to the Montezuma WMA.

TRC biologists completed a site visit to verify field conditions within the Project Area on May 27, 2020. A total of six patches of potential habitat for grassland breeding birds were confirmed within the Project Area, totaling approximately 231 acres (Figure 1 of Appendix 22-2). Three of the six patches were monotypic fields of winter or common wheat (*Triticum* spp.) and comprised the largest areas of contiguous habitat observed (154.5 acres). Two areas of fallow field were observed, and ground conditions indicate fields were likely planted to corn in the prior growing season with stubble observed throughout. Fallow fields constituted approximately 63.1 acres of confirmed potential habitat. The remaining habitat patch was a cow pasture, which at the time of the site visit had not been grazed in the growing season. The pasture was approximately 13 acres and contained several electrified fences running along the north-south extent. On the eastern side of the pasture, several scattered large trees were documented, primarily black cherry, as well as scattered shrubs. The pasture slopes steeply to the east and west. Additionally, adjacent landowners confirmed that the pasture will ultimately be grazed, hosting several head of cattle.

Surveys were implemented at seven locations within the hay/pasture and fallow fields identified and continued until fields were ultimately converted to row crop agriculture in mid-June. Each survey point consisted of a 100-meter radius plot centered on the observation point with a minimum distance of 250 meters (m) between observation points. In conformance with the

NYSDEC survey protocol, 16 surveys were performed at the Project Area between May 27 and June 19, 2020, with each location available for surveys visited every 10 to 11 days during the survey period.

Experienced field biologists conducted weekly point count surveys starting at one-half hour before sunrise until no later than 10:30 AM, per NYSDEC survey protocol. Surveys were not conducted during inclement weather, including precipitation, fog, or strong winds (i.e., greater than 10 to 12 miles per hour). Each survey was conducted for 5 minutes at each location. All birds observed within 100 m of the survey point were recorded, and birds observed beyond 100 m from the survey point and during meander surveys (i.e., while traveling between points within the Project Area) were recorded as incidental observations.

Biologists recorded a total of 260 observations representing 47 bird species. Red-winged blackbird (*Agelaius phoeniceus*; n = 14) were the most commonly observed bird species comprising 28.8 percent of all birds observed, followed by killdeer (*Charadrius vociferous*; n=10; 13.7% of all observations) and savannah sparrows (n=8; 11.0%). No state-listed T&E species were documented during the grassland breeding bird survey. One state-listed species of special concern (SSC), horned lark, was observed. Four individual horned lark were documented at two locations in the same hayfield on June 19, 2020.

A detailed description of the grassland breeding bird survey results, including incidental observations, can be found in Appendix 22-2.

Wintering Grassland Raptor Surveys

TRC conducted a partial survey of wintering grassland raptors at the Project Area during the winter of early 2020. A follow-up season of wintering grassland raptor surveys were conducted from November 16, 2020 through March 31, 2021. The objective of the wintering grassland raptor survey was to determine the presence and site use of state-listed T&E grassland raptors within the proposed Project Area. Target species included short-eared owl and northern harrier. Northern harrier were observed on a single occasion for two minutes on February 24, 2021. One additional state-listed species, bald eagle (*Haliaeetus leucocephalus*; state-listed Threatened), was observed during surveys in both years of the study. Sharp-shinned hawk (*Accipiter striatus*), a species of special concern, was observed during both years of the survey.

The survey methodology followed the *NYSDEC Draft Survey Protocol for State-listed Wintering Raptor Species* (NYSDEC, 2015b). The Applicant prepared a site-specific protocol for the Project Area. Surveys were performed using both rotating stationary survey points and weekly driving surveys along roads in areas of potential habitat for wintering grassland raptors. Stationary survey points were situated in or near grassland habitat within the Project Area with clear visibility in all or most directions. Stationary survey points were no further than 1,000 m apart when multiple stationary survey points were needed to cover an area of grassland habitat. Six stationary survey points were selected within the Project Area, providing visibility of habitats that may be used by short-eared owls and/or northern harriers for foraging or roosting. The driving route used roads at the Project Area that bordered grassland habitat. Short-duration (approximately five minutes) survey points along this route were performed at every location where habitat could be observed from the road and safety was not compromised.

Surveys were performed in the winter of early 2020 and were conducted between February 4, 2020 and March 29, 2020. The second season of surveys occurred between November 16, 2020 and March 31, 2021. In accordance with the identified protocol, the study included both stationary and driving surveys throughout the Project Area in areas of potential habitat for state-listed overwintering grassland raptors. A total of six stationary survey points and one driving route consisting of 15 driving survey stops were established in areas of potential habitat throughout the Project Area for the 2020 early winter survey. A total of 27 stationary surveys and 60 driving route survey stops were completed over 4.5 survey events, amounting to a total survey effort of 47.2 stationary survey hours and 7.5 driving survey hours.

During 2020-2021, five of the six original stationary survey locations, and 14 of 15 driving route stops were surveyed. One stationary and one driving location were eliminated due to access, and two additional stationary survey locations were added to survey newly acquired parcels that were not included in the original Study Area. A total of 69 stationary surveys and 140 driving route survey stops were completed over 10 survey events, amounting to a total survey effort of 139.5 stationary survey hours and 18.1 driving survey hours.

Survey dates were targeted to take advantage of the best weather conditions during each week. Stationary surveys were initiated one hour before sunset and concluded when it was too dark to see flying birds, up to one hour after sunset.

No short-eared owls were observed during the study. Two state-listed threatened species, the bald eagle and northern harrier, were documented during the two seasons of study.

One observation of a state-listed northern harrier was documented on February 24, 2020. The individual was observed flying east across an open field in the northwest portion of the Project Area. The species was only seen for two minutes. No essential behavior was observed for this species.

Bald eagles were observed on six occasions during early 2020 surveys and on four occasions during the 2020-2021 survey. Observations primarily indicated the species used the Project Area as a travel corridor. Observations were distributed throughout the Project Area, encompassing roadsides, open areas, and forested areas. Three of the 10 observations were recorded in forest patches located outside of the Project Area between Spook Woods and Montana Roads, and east of Egypt Road. No nests or nesting behaviors were documented for this species.

One state-listed SSC, the sharp-shinned hawk (*Accipiter striatus*), was observed on one occasion during each year of the survey. An individual was observed flying north across an open field in the southern portion of the Project Area during early 2020 surveys. A sharp-shinned hawk was observed on five occasions during 2020-2021 surveys, including one incidental sighting. Observations were recorded throughout the study period, with one observation recorded during each month from December through March. In addition to raptors, 18 non-raptor bird species were observed during the study, including snow bunting (*Plectrophenax nivalis*), a winter resident grassland songbird.

For a more detailed description of the wintering grassland raptor survey, including a list of incidental bird observations, please refer to Appendix 22-3, which contains both the early 2020 and winter 2020-2021 survey reports.

Grassland Habitat

Based on the grassland breeding bird survey, agricultural activities resulted in the conversion of 231 acres of potential habitat to row crop agriculture during the breeding season. Habitat for grassland breeding birds that was observed during the early nesting period was predominantly comprised of fallow fields and hay. Only one observation of a northern harrier flying over the Project Area was observed, and no observations of short-eared owl were documented during wintering grassland raptor surveys conducted on-site.

Bat Surveys

No bat surveys have been conducted for the Project as of the filing of this Application. However, the USFWS has recommended presence/probable absence surveys for the forested portions of the Project Area where tree clearing is proposed due to mapping of this species in the surrounding area. Indiana bat presence/probable absence surveys are proposed to be conducted during the summer of 2021. Results of these surveys will be submitted to the agencies after they have been completed. A further description of consultation with USFWS, NYSDEC, and NYNHP regarding known occurrences of bat species is provided in Section 22(f)(2) below. Additional information regarding wildlife habitats and terrestrial vegetation is discussed in 22(f)(5) below.

Terrestrial Invertebrates

Terrestrial invertebrates are likely to use habitats within the Project Area. Terrestrial invertebrates are a diverse group of animals residing on dry land that neither possess nor develop a backbone. These include a variety of arthropods, including insects (e.g., beetles, bugs, ants, bees, butterflies, moths, cockroaches, mantis, stick insects, dragonflies, mosquitoes, fleas, crickets, grasshoppers, fireflies, cicadas, and flies), arachnids (e.g., various spider species, ticks, and mites), and myriapods (e.g., millipedes and centipedes) among many others. Terrestrial species include earthworms and nematodes, which are very common invertebrates that live in the topsoil. Mollusks are another vast group of invertebrates. A portion of mollusks are terrestrial and include snails and slugs.

Invertebrates are often the keystone components to the health of habitats and ecosystems and support more familiar vertebrate species. Most of the terrestrial invertebrates' importance is due to the variety of services and functions this animal group provides, including pollination, decomposition, nutrient cycling, and the promotion of soil fertility for plant growth. Terrestrial invertebrates are also a vital food source for many larger species within ecosystems due to their population abundance. Terrestrial invertebrates common to Upstate New York are presumed present within the Project Area.

Active Agriculture

Active agriculture (e.g., row crops and fields mowed during the nesting season) provides marginal habitat for most species with potential to occur within the Project Area (see Appendix 22-1) due to the increased anthropogenic disturbance in these areas. Although agricultural areas may be too frequently disturbed for nesting and breeding, some birds use these areas for foraging and as

a stop-over during migration. Characteristic birds of active agriculture observed during grassland breeding bird surveys include:

- barn swallow (*Hirundo rustica*);
- bobolink;
- brown-headed cowbird (*Molothrus ater*);
- European starling (*Sturnus vulgaris*);
- horned lark;
- killdeer;
- red-winged blackbird; and
- savannah sparrow.

Additionally, various mammals may eat agricultural crops as a supplement to natural food sources. The agricultural row crops at the Project Area may provide suitable feeding habitat for the wildlife observed in these areas. According to the NLCD, United States Department of Agriculture (USDA) Cropland Data and on-site observations, corn is the primary agricultural row crop at the Project Area (513.5 acres or 22.4 percent of the Project Area), followed by soy (387.0 acres or 16.9 percent of the Project Area). Non-alfalfa hay and fallow croplands cover approximately 26.0 acres or 1.1 percent of the Project Area. Birds identified in pastures and hayfields at the Project Area are noted in the grassland breeding bird survey and the wintering grassland raptor survey described above and in Appendix 22-2 and Appendix 22-3, respectively.

Forestland

Forest communities within the Project Area are predominantly comprised of deciduous species including red maple hardwood swamps, beech-maple mesic forests, and successional southern hardwood stands. The largest forest patches are in the central and northern portions of the Project Area and connect to larger forested areas that extend off-site. Forests contain many characteristics and components that can be used to the benefit of individual organisms. Some features include decreased anthropogenic disturbance levels, lower light levels, relatively protected nesting sites, increased shelter structure, dry shelter sites, concealment/camouflage, variable food sources, and high moisture levels. Representative mammals that have habitat requirements which overlap with conditions present in the forested habitat within the Project Area and vicinity include the following:

- coyote (*Canis latrans*);
- eastern chipmunk (*Tamias striatus*);
- eastern cottontail (*Sylvilagus floridanus*);
- eastern gray squirrel (*Sciurus carolinensis*);
- eastern raccoon (*Procyon lotor*);
- fisher (*Martes pennanti*);
- gray fox (*Urocyon cinereoargenteus*);
- long-tailed weasel (*Mustela frenata*);
- North American porcupine (*Erethizon dorsatum*);
- red fox (*Vulpes vulpes*);
- red squirrel (*Tamiasciurus hudsonicus*);
- southern flying squirrel (*Glaucomys volans*);
- striped skunk (*Mephitis mephitis*);
- various mice (*Mus* spp.);
- various moles (*Condylura* spp.*, Scalopus* spp.*, Parascalops* spp.);
- various shrews (*Blarnia* spp., *Cryptotis* spp., *Sorex* spp.);
- various bats (*Myotis* spp., *Eptesicus* spp.; *Lasiurus* spp., *Permimyotis* spp.);
- Virginia opossum (*Didelphis virginiana*); and
- white-tailed deer (*Odocoileus virginianus*).

Many of the species observed are adapted to increasingly fragmented habitats and are considered generalists which may inhabit a wide range of habitat types including agricultural, residential, and urban landscapes.

Reptiles and amphibians are believed to inhabit forest communities within the Project Area, based on observations of frogs in forested and emergent wetlands on-site. Species with potential to use forest communities at the Project Area include the following:

- eastern American toad (*Anaxyrus americanus*), observed on site;
- gray tree frog (*Hyla versicolor*);
- northern leopard frog (*Lithobates pipiens*), observed on site;

- northern two-lined salamander (*Eurycea bislineata*);
- spotted salamander (*Ambystoma maculatum*);
- Jefferson salamander (*Ambystoma jeffersonianum*);
- spring peeper (*Pseudacris crucifer*); and
- wood frog (*Rana sylvatica*).

Bird species observed within forested habitats in the Project Area during site visits completed in May 2020 include the following:

- American redstart (*Setophaga ruticilla*);
- belted kingfisher (*Megaceryle alcyon*);
- cedar waxwing (*Bombycilla cedrorum*);
- eastern wood-pewee (*Contopus virens*);
- great-crested flycatcher (*Myiarchus crinitus*);
- indigo bunting (*Passerina cyanea*);
- Nashville warbler (*Oreothlypis ruficapilla*);
- northern flicker (*Colaptes auratus*);
- northern waterthrush (*Parkesia noveboracensis*);
- red-bellied woodpecker (*Melanerpes carolinus*);
- red-eyed vireo (*Vireo olivaceus*);
- rose-breasted grosbeak (*Pheucticus ludovicianus*);
- wood thrush (*Hylocichla mustelina*); and
- yellow-throated vireo (*Vireo flavifrons*).

Of the forest-associated species observed or with potential to occur, none are considered interior forest specialists, or species that rely on expanses of undisturbed forested land where the forest contains a core area at least 300 feet from the nearest habitat edge or patches greater than 100 acres.

Forests within the Project Area include a variety of tree species. Dominant trees observed include red and sugar maples, white and green ash, American beech, and black cherry. TNC has defined matrix forest blocks as large contiguous areas capable of supporting species that require interior

forest conditions (Anderson and Bernstein, 2003). Forest patches at the Project Area and LOD range from ~~2.78~~ 2.26 ~~-~~acres to 181.18 acres. None of the forests at the Project Area are part of a TNC matrix forest blocks or serve as a corridor to a TNC matrix forest block. Approximately 555.12 ~~555.2~~ acres of the forestland at the Project Area, can be classified as edge forest, which is defined as forestland within 300 feet of the forest's edge along agricultural land and roads.

Successional Shrubland

Successional shrublands are highly dynamic habitats as characterized by successional vegetation regenerating after a disturbance. The variability present in these environments creates wildlife habitat for wildlife species that are adapted to the complex structure created by regeneration processes across stratums (NRCS, 2007). In many early successional communities, annual plants produce an abundance of seeds, which are consumed by granivorous birds and small mammals. A multitude of species including forbs and woody plants provide highly nutritious forage material for herbivore and browser species. Additionally, the low and oftentimes dense herbaceous and shrub vegetation that regenerates naturally following disturbance provides cover for birds and small mammals that prefer open habitats but are heavily preyed upon. A lack of a closed canopy also allows light and heat to penetrate to the ground and is an essential habitat feature for reptiles that depend on heat sources outside their body for temperature regulation.

Mammals that may use successional shrubland communities within the Project Area include:

- coyote;
- eastern chipmunk, observed on site;
- eastern cottontail, observed on site;
- eastern gray squirrel, observed on site;
- eastern raccoon;
- gray fox;
- long-tailed weasel;
- red fox, observed on site;
- striped skunk;
- various mice;
- various shrews;
- various moles;

- Virginia opossum;
- white-tailed deer, observed on site; and
- woodchuck (*Marmota monax*), observed on site.

Reptiles and amphibians with potential to occur in successional shrubland communities within the Project Area include:

- common garter snake (*Thamnophis sirtalis*), observed on site;
- eastern American toad, observed on site;
- eastern milk snake (*Lampropeltis Triangulum*);
- northern two-lined salamander;
- spring peeper;
- northern leopard frog (*Lithobates pipiens*); and
- northern water snake (*Nerodia sipedon*).

Bird species that use successional shrubland habitat and with potential to occur in the Project Area include:

- American goldfinch (*Carduelis tristis*), observed on site;
- American woodcock (*Scolopax minor*);
- Baltimore oriole (*Icterus galbula*), observed on site;
- brown thrasher (*Toxostoma rufum*), observed on site;
- chipping sparrow (*Spizella passerina*), observed on site;
- common yellowthroat (*Geothlypis trichas*), observed on site;
- eastern towhee (*Pipilo erythrophthalmus*), observed on site;
- field sparrow (*Spizella pusilla*), observed on site;
- gray catbird (*Dumetella carolinensis*), observed on site;
- indigo bunting (*Passerina cyanea*), observed on site;
- least flycatcher (*Empidonax minimums*), observed on site;
- song sparrow (*Melospiza melodia*), observed on site;
- yellow-billed cuckoo (*Coccyzus americanus*); and

- yellow warbler (*Setophaga petechia*), observed on site.

The successional shrublands at the Project Area provide a variety of food and cover for wildlife. The location of some of the successional shrublands in relation to open fields means they provide some wildlife protection from predators. Invasive shrubs such as multiflora rose, common buckthorn, and Morrow's honeysuckle (*Lonicera morrowii*) may dominate the successional shrublands over time. If left unmanaged, the successional shrublands may advance into successional hardwood forests. Due to the limited extent of successional shrubland within the Project Area, it does not provide sufficient habitat for all of the mammal, bird, reptile, and amphibian species mentioned above. While each of the species may use successional shrubland, none use this habitat type exclusively.

Successional Old Field

The open grassland habitats of successional old fields contain a vast array of grass, sedge, and rush species among many other herbaceous plant species. These open areas provide habitat for many species that prefer open grassland settings. As with successional shrublands, the variable assortment of plant species provides forage material for herbivore species. Successional old-field habitats typically have a high diversity and abundance of flowering forbs, which provide food for pollinators such as bees, flies, and butterflies, as well as grasses which support macroinvertebrate populations and provide nesting material and cover for grassland nesting species.

Mammals believed to use grassland communities within the Project Area include:

- coyote;
- eastern cottontail;
- gray fox;
- long-tailed weasel;
- red fox;
- striped skunk;
- various mice;
- various shrews;
- various moles;
- white-tailed deer; and

- woodchuck.

Reptiles and amphibians believed to populate successional old-field communities within the Project Area include:

- common garter snake;
- eastern American toad;
- eastern milk snake;
- green frog (*Lithobates clamitans*);
- northern leopard frog; and
- spring peeper.

Several bird species that use successional old fields were observed during field surveys. Bird species that may use successional old fields in the Project Area include:

- American goldfinch, observed on site;
- American woodcock;
- bobolink, observed on site;
- eastern bluebird (*Sialia sialis*);
- eastern kingbird, observed on site;
- field sparrow, observed on site;
- house finch (*Haemorhous mexicanus*);
- house wren (*Troglodytes aedon*);
- red-winged blackbird, observed on site;
- savannah sparrow, observed on site; and
- tree swallow (*Tachycineta bicolor*), observed on site.

Due to the limited extent of successional old field within the Project Area, it does not provide sufficient habitat for all of the mammal, bird, reptile, and amphibian species mentioned above. While each of the species may use successional shrubland, none use this habitat type exclusively. Most successional old-field habitat at the Project Area was comprised of fallow/idle agricultural land that was ultimately converted to row crop agriculture during June 2020. If left unmanaged, successional old-field habitat will turn into successional shrubland over time.

(4) Impacts of Fencing

Approximately ~~833.05 acres~~ 901.6 ~~of~~ acres of Project facilities will be enclosed by fencing. ~~and the total fenced area is 1,053.71 acres.~~ Proposed perimeter fencing is shown on the Preliminary Design Drawings provided in Exhibit 11. Fencing will consist of 2-inch diamond mesh chain link and will be 7 to 8 feet in height with a 6-inch clearance from the bottom of the fence to grade to allow for small animal access. This fencing will go through active agriculture, forestland, successional shrubland, successional old field, and wetland communities. Larger mammals such as white-tailed deer, eastern cottontail, coyote, and racoon may be affected by the perimeter fencing. The access to foraging habitat may be reduced by the perimeter fencing. Proper siting of fencing will minimize the impact on wildlife travel corridors to the maximum extent practicable. This will be accomplished by preserving existing corridors (i.e., riparian corridors) where possible to allow for wildlife and agricultural access. Small losses in connectivity of habitat will occur within a contiguous forest patch located between Slayton Road and Cooper Street. Proposed placement of Project Components will fragment the larger forested patch into two smaller isolated patches. The fencing as proposed may hinder some species of wildlife traveling between patches, particularly relative to movements east to west across the Project Area. However, an existing power line right-of-way (ROW) located north of Cooper Street will be maintained in current cover conditions allowing for unencumbered access to navigate around Project Components and associated security fencing.

The perimeter fencing as proposed allows for space for wildlife crossing between forested and wetland habitats in the northern portions of the Project to those located in the central and southern portions of the Project and connecting to habitat off site; e.g., there are multiple corridors (mostly forested) allowing wildlife to travel between forested patches in the central and northern portions of the Project Area. A discussion of reasonable alternatives to the proposed fencing to avoid or minimize impacts to wildlife habitat is provided in Exhibit 9.

(5) Aquatic and Terrestrial Vegetation, Wildlife, and Wildlife Habitats

Habitats Known to Support or Could Potentially Support State SGCN

A detailed list of species of greatest conservation need (SGCN) that have the potential to occur within the Project Area is available in Table 22-12. Additionally, information regarding potential habitat within the Project Area, potential impacts, and impact avoidance measures for SGCN have also been provided in Table 22-12. Several avian species of SGCN have been documented on site in forest patches and successional old fields (Table 22-12). Locations of species observed

are provided in Appendices 22-2 and 22-3, respectively. Impacts to these areas are described in Section 22(b) and are shown in the Preliminary Design Drawings in Exhibit 11. Impacts to these habitats have been minimized through the siting and design process in efforts to preserve the existing character of wildlife habitat throughout the Project Area.

Calcareous Shoreline Outcrops and Karst Features

No calcareous shoreline outcrops are present within the Project Area. The Project Area is located within a portion of the state underlain by carbonate karst formations (Figure 22-5). These formations contain carbonate rocks within 50 feet of the soil surface, overlain by insoluble glacial materials. Areas of karst containing carbonate rock are prone to the formation of caves and sinkholes, which may provide habitat for unique plants and animals. Although karst features are mapped within the local setting, no specific karst features were observed in the Project Area during on-site investigations. Further discussion of potential impacts to karst features can be found in Section 21(m) of Exhibit 21.

(6) Vernal Pools

A vernal pool survey was conducted during April 2021. Surveys followed a methodology developed based on several sources including the U.S. Army Corps of Engineers (USACE) New England District Vernal Pool Assessment Draft (USACE 2013); Maine Association of Wetland Scientists Vernal Pool Technical Committee (MAWS VPTC 2014); the Vermont Department of Environmental Conservation (VTDEC 2003); and existing TRC vernal pool methodologies implemented in various New England states. The April 2021 vernal pool survey did not identify any vernal pools within the Project Area. However, several potential vernal pools were identified in the Project Area (Figure 22-3) and were thoroughly investigated; no egg masses were identified in these potential vernal pools. These potential vernal pools were predominantly co-located with forested wetland complexes previously delineated during the wetland and stream delineation surveys.

No vernal pools or amphibian breeding areas were identified in the Project Area, therefore, impacts to vernal pools are not anticipated.

22(e) Plant and Wildlife Species Inventory

This Application includes master species lists of both plants and wildlife including species documented during field surveys (e.g., ecological cover type assessments, habitat assessments, bird surveys, and wetland delineations) and species identified based on data available from state

and nationwide publicly available databases. Existing data from the following sources were used to compile this inventory of plant and wildlife species known to occur, or reasonably likely to occur, at the Project Area at some point during the year: NYNHP; NYSDEC; USFWS; local bird/wildlife experts; Herp Atlas; NYSDEC BBA; USGS North American BBS; CBCs; HMANA; eBird; TNC surveys/reports; Kingbird publications; and county-based hunting and trapping records maintained by the NYSDEC. These sources were supplemented with reasonably available public information, including those identified in Section 22(d) above, and/or not already listed in this paragraph. TRC biologists documented a total of 131 native and invasive plant species through this effort and created a master plant list based on this field effort, which is included in this Application. See Appendix 22-1 for the master plant and wildlife species lists.

Birds

USGS Breeding Bird Survey

The USGS BBS is conducted by the Patuxent Wildlife Research Center of the USGS. This survey is an international avian monitoring program that is designed to track the status and trends of North American bird populations over a large scale and long timeframe. Each survey route is approximately 24.5 miles long. During the survey, 3-minute point counts are conducted at 0.5-mile intervals. During the point counts, every bird seen or heard within a 0.25-mile radius is recorded (Pardieck et al., 2015).

There are 2 survey routes located within 10 miles of the Project Area. The N Victory 2 route is located 8.5 miles north of the Project Area and the Cayuga survey route is located 10 miles south of the Project Area. Both survey routes traverse west to east. A total of 103 species have been documented during the lifetime of the N Victory 2 survey route, which has been surveyed annually for the last 41 years. A total of 101 species have been documented during the lifetime of the Cayuga survey route, which has been surveyed 25 out of the last 50 years. Most birds documented have been common species found within the forests, forest edge, shrublands, old fields, and wetlands throughout New York State. Given the proximity of these observations to the Project Area (≤10 miles), these occurrences should indicate the potential for occurrence within the Project Area.

The most common species documented on the N Victory 2 survey route include the following:

- Red-winged blackbird;
- European starling;
- American robin (*Turdus migratorius*);
- American crow (*Corvus brachyrhynchos*);
- Red-eyed vireo;
- Song sparrow;
- Rock pigeon *(Columba livia*);
- Mourning dove *(Zenaida macroura*); and
- Warbling vireo *(Vireo gilvus*).

The most common species documented on the Cayuga survey route include the following:

- Red-winged blackbird;
- European starling;
- American robin;
- American crow;
- Song sparrow;
- Rock pigeon;
- Mourning dove;
- Warbling vireo;
- House Sparrow *(Passer domesticus*); and
- Common Grackle *(Quiscalus quiscula*).

Of the species documented by the USGS BBS that were predicted to occur within the Project Area, 45 of them have been observed at the Project Area during field surveys (Appendix 22-2, Appendix 22-3). Most of these observed species are common and widely distributed throughout their respective ranges. Additionally, many of the species listed are habitat generalists, which are adapted to changing and increasingly human-altered landscapes. Project development is not expected to impact any species at the population level, or significantly impact local populations in proximity to the Project Area.

New York State Breeding Bird Atlas

The New York State BBA statewide survey resource was used to identify any bird species with potential to breed within the Project Area. Survey point counts are conducted by volunteers in a 5 square kilometer survey block across New York State (McGowan and Corwin, 2008). The Project Area is located within two of New York State BBA blocks, 3677A and 3677C. A BBA dataset provided a detailed distribution of bird species located within these specific survey blocks inside the Project Area. A total of 86 species were observed to occur within the noted survey blocks, with species observed in one or more blocks that overlap the Project Area. A complete list of species can be found in Appendix 22-1.

One state-listed threatened species, bald eagle, was documented in 2004 within the BBA survey blocks that overlap the Project Area. A bald eagle was observed during breeding bird surveys conducted at the Project (see Section 22(d)(3) above). Four state-listed SSC including: cerulean warbler, horned lark, sharp-shinned hawk, and Cooper's hawk were documented during the New York State BBA survey blocks that overlap the Project Area in 2003 and 2004. However, the location of these observations within the survey block is unable to be determined, therefore it cannot be assumed that the species were observed within or even near the Project Area. Consultation with the NYNHP did not identify any state-listed species within the Project Area. Horned lark and sharp-shinned hawk were observed in the Project Area during surveys conducted by the Applicant (see Section 22(d)(3) above).

Audubon Christmas Bird Count

Data from the Audubon CBC was obtained to gain understanding on year-round and wintering avian inhabitants of the Project Area. The CBC provides a summary of avian species that inhabit regions during the early winter months. The primary objective of the CBC is to monitor the status and distribution of wintering bird populations in the Western Hemisphere. Counts occur in a single day during a three-week period around Christmas. A 15-mile diameter search area is created around a central point in a given area and all bird species and individuals observed within this search radius are recorded on the day of the count. The closest CBC circle to the Project Area is the Montezuma search area (Audubon Count Code: NYMZ). The center of this search area is approximately 8.5 miles southwest from the Project Area and the entire Project Area is within the 15-mile search radius. A total of 71 avian species were reported during the 2019 count that took place on December 16, 2019. Two state-listed threatened species, bald eagle, and northern

harrier were identified during the CBC as well as two state-listed SSC, sharp-shinned hawk and Cooper's hawk.

No federally listed T&E species were identified within the Project Area in the CBC database. Again, the exact location of these observations is not provided in the source data, therefore, these observations are of limited utility in documenting potential occurrence within the Project Area and rather indicate only that these species are locally occurring.

The Cornell Lab of Ornithology eBird

Citizen science data from eBird was obtained for Cayuga County to gain information on public observations within the Project Area. Managed by the Cornell Lab of Ornithology, eBird is the world's largest citizen science project related to biodiversity. Birders submit when, where, and how they went birding and complete a checklist of all birds seen or heard. Observations of listed species were reviewed for proximity to the Project Area, and only those species documented within 5 miles of the Project Area are reported, though the full list of species is provided in Appendix 22-1.

Several state-listed T&E species have been documented by eBird users within five miles of the Project Area including:

- peregrine falcon (*Falco peregrinus*) (E), last observed in 2020;
- black tern (*Chlidonias niger*) (E), last observed in 2020;
- short-eared owl (E), last observed in 2020;
- golden eagle (*Aquila chrysaetos*) (E), last observed in 2019;
- bald eagle (T), last observed in 2020;
- sedge wren (T), last observed in 2019;
- common tern (*Sterna hirundo*) (T), last observed in 2019;
- upland sandpiper (T), last observed in 2005;
- red knot (*Calidris canutus*) (T), last observed in 2014;
- pied-billed grebe (*Podilymbus podiceps*) (T), last observed in 2020; and
- northern harrier (T), last observed in 2020.

Most of these species were documented on Howland Island. This area is located approximately 2.5 miles southwest of the Project Area. Habitat adjacent to and within Howland Island likely attracts a variety of species that would be unlikely to occur in the landscape present within the Project Area. Open water and riverine habitats that would likely attract species reliant upon aquatic environments (i.e., terns, grebes) are not present within the Project Area.

Thirteen state-listed SSC have been documented from locations within five miles of the Project Area in this citizen database, of which two have been observed at the Project (horned lark and sharp-shinned hawk). Of the species documented in eBird, 89 were not reported in other sources reviewed. A full list of these species can be found in Appendix 22-1.

Hawk Migration Association of North America

HMANA is a non-profit organization consisting of over 200 members and affiliate organizations that collectively aim to record and summarize data on raptor populations and migration across the North American continent. Hawkwatch stations are independently operated and report data either as part of long-term monitoring, or short-term, research-focused efforts. The closest Hawkwatch station to the Project Area is Derby Hill Hawkwatch in Mexico, NY. This station is 45 miles northeast of the Project Area. Given the proximity of the Hawkwatch station to the Project Area, data collected there has little relevancy to the Project and is therefore not summarized here.

In total, 251 avian species were documented in the above-referenced sources. A complete list of avian species that were observed or are presumed to occur within the Project Area based on the data above can be found in the master wildlife inventory list attached in Appendix 22-1.

Bats

Refer to Section 22(f)(2) for information on correspondence with the USFWS and NYNHP indicating no known bat hibernacula or maternity roost trees at the Project Area. The January 28, 2021 NYNHP response indicated that there are no records of rare or state-listed animals in the vicinity of the Project Area. Based on publicly available information at the time of this Application, NYSDEC lists no known winter occurrences of northern long-eared bats (*Myotis septentrionalis)* in all of Cayuga County and no summer occurrences in the Town of Conquest or surrounding towns as of June 2018. Research on the extent of the current distribution of common bat species ranges in New York is undeveloped. No bat species were observed within the Project Area. Based on the knowledge of habitat requirements for tree-roosting bat species, forested habitat within the Project Area contains structural elements that may provide suitable roosting and/or foraging

habitat for species with ranges overlapping the Project Area. Based on range and distribution information provided by the NYNHP, USFWS ECOS, Bat Conservation International (BCI), NYSDEC Nature Explorer and the NYSDEC State Wildlife Action Plan (SWAP), the following species have the potential to occur within the Project Area:

- Indiana bat (*Myotis sodalis*);
- little brown bat (*Myotis lucifugus*);
- tri-colored bat (*Perimyotis subflavus*);
- big brown bat (*Eptesicus fuscus*);
- eastern small-footed bat (*Myotis leibii*);
- eastern red bat (*Lasiurus borealis*);
- silver-haired bat (*Lasionycteris noctivagans*); and
- hoary bat (*Lasiurus cinereus*).

The Indiana bat is a federally and New York State-listed endangered species and has been documented within Cayuga County. Based upon a review of the NYSDEC ERM and consultation with the NYNHP, the Project is not located within known occurrences of the Indiana bat (see Appendix 22-7). An USFWS Information for Planning and Consultation (IPaC) Official Species List was retrieved on May 17, 2021 and indicated the potential for Indiana bat to occur within the Project Area. There is potential roosting and foraging habitat for the Indiana bat within the vicinity of the Project Area based on field surveys. Forested areas and forested riparian corridors that could be used as foraging, travelling, and roosting habitat are present within the Project Area. As discussed in Sections 22(d)(3) and 22(f)(2) of this Exhibit, the USFWS has recommended presence/probable absence surveys for the forested portions of the Project Area where tree clearing is proposed due to record mapping of this species in the surrounding area. Indiana bat presence/probable absence surveys are proposed to be conducted during the summer of 2021, the results of which will be provided to USFWS, DEC, and DPS.

Potential suitable roosting and/or foraging habitat within the Project Area, including forested riparian areas, forest edges, wetlands, open water, and open fields is also present for the remaining bat species listed above. Table 22-12 further describes this habitat. However, given the limited known occurrences, and the minimal amount of disturbance to existing habitat within the Project Area, and the availability of extensive habitat in the immediate surrounding area, it is unlikely that these species will be adversely impacted within the Project Area.

Mammals

Several common mammal species can be found near the Project Area. Observations of mammals were documented during the various on-site field studies conducted as part of this Application. Field observations encompassed the visual siting of specific species and discovery of signs of presence, including tracks, scat, and general habitat manipulation. Documentation and evaluation of available habitat for local mammals were also noted. Chiropteran mammals (i.e. bats) are discussed above. Mammalian species known or presumed to occur within the Project Area based on observation of individuals and signs include:

- white-tailed deer;
- eastern gray squirrel;
- eastern cottontail;
- eastern chipmunk;
- eastern raccoon; and
- beaver.

Additional mammals with potential to occur within the Project Area based on habitat suitability include:

- fisher;
- coyote;
- American mink;
- red fox;
- long-tailed weasel;
- Virginia opossum;
- striped skunk;
- northern flying squirrel (*Glaucomys sabrinus*);
- various shrews (*Blarnia* spp., *Cryptotis* spp., *Sorex* spp.); and
- various moles (*Condylura* spp., *Scalopus* spp., *Parascalops* spp.).

NYSDEC Hunting and Trapping Records

NYSDEC keeps records of all white-tailed deer and black bear (*Ursus americanus*) harvested during each season. In 2020, 2,094 adult buck white-tailed deer (over 1.5 years old) and a total of 5,340 white-tailed deer were harvested in Cayuga County (NYSDEC, 2020a). There were no black bears harvested in Cayuga County during 2020 (NYSDEC, 2020b). Records are also kept for total fisher, North American river otter (*Lontra canadensis*), bobcat (*Lynx rufus*), and American marten (*Martes americana*) that are trapped for their pelts. During the 2018-2019 season, three fisher, zero North American river otters, zero bobcats, and zero American marten were trapped in Cayuga County (NYSDEC, 2020).

A complete list of mammal species that were observed or presumed to occur within the Project Area can be found in the master wildlife inventory list attached as Appendix 22-1.

Amphibians and Reptiles

Amphibian and reptile distribution information for the Project Area was accessed through the NYSDEC's continuation of the "Amphibian and Reptile Atlas Project" (Herp Atlas Project) website. The Herp Atlas Project was a 10-year survey from 1990 to 1999 with additional reports that were gathered up to 2007, designed to document the distribution of the approximately 70 species of amphibians and reptiles found in New York State. The standard "unit of measurement" used to map the distribution of amphibians and reptiles is the USGS 7.5-minute series quadrangle. The Project Area is in the Victory, Cato, Montezuma, and Weedsport NY 7.5-minute series quadrangles, and based on the Herp Atlas Project distribution maps, the reptiles and amphibians documented on these quadrangles can be found in Table 22-5 below.

Table 22-5. Amphibians and Reptiles Potentially Occurring within the Project Area

Scientific Name	Common Name	7.5 Minute Quadrangle
Amphibians		
Lithobates pipiens	Northern leopard frog	Victory, Cato, Montezuma, Weedsport
Bufo a. americanus	American toad	Victory, Cato, Montezuma, Weedsport
Lithobates catesbeianus	Bullfrog	Victory, Cato, Montezuma, Weedsport

Table 22-5. Amphibians and Reptiles Potentially Occurring within the Project Area

Scientific Name	Common Name	7.5 Minute Quadrangle
Hyla versicolor	Gray treefrog	Montezuma, Weedsport
Lithobates sylcatica	Wood frog	Victory, Cato, Montezuma, Weedsport
Lithobates palustris	Pickerel frog	Montezuma, Cato
Ambystoma laterale	Blue-spotted salamander	Victory
Ambystoma jeffersonianum	Jefferson salamander	Victory
Plethodon cinereus	Red-backed salamander	Victory, Cato, Montezuma, Weedsport
Eurycea bislineata	Two-lined salamander	Victory, Cato, Montezuma, Weedsport
Notophthalmus viridescens	Red-spotted newt	Victory, Weedsport
Ambystoma maculatum	Spotted salamander	Victory, Cato, Weedsport
Pseudacris crucifer	Spring peeper	Victory, Cato, Montezuma, Weedsport
Lithobates (Rana) clamitans	Green frog	Victory, Cato, Montezuma, Weedsport
Pseudacris triseriata sylvatica	Western chorus frog	Victory, Montezuma
Reptiles		
Chelydra s. serpentina	Common snapping turtle	Victory, Cato, Montezuma, Weedsport
Chrysemys picta	Painted turtle	Victory, Cato, Montezuma, Weedsport
Emydoidea blandingii	Blanding's turtle	Cato
Clemmys guttata	Spotted turtle	Victory, Cato
Storeria occipitomaculata	Red-bellied snake	Victory
Thamnophis sirtalis	Common garter snake	Victory, Cato, Montezuma, Weedsport
Lampropeltis triangulum	Eastern milk snake	Weedsport
Nerodia sipedon	Northern water snake	Victory, Cato, Montezuma, Weedsport
Storeria dekayi	Dekay's brown snake	Victory, Cato

An amphibian's lifecycle is dependent on water. As such, amphibian habitat preferences are assumed to incorporate wetland and waterbody features and any adjacent upland areas. Twenty-two of the 45 delineated wetlands within the Project Area are associated with a watercourse. Eight of these wetlands are assumed to support fish populations, leaving perhaps six wetlands that may contain habitat suitable for amphibians where fish would not be a predatory concern. Wetlands that were forested and/or associated with forested upland areas within the Project Area were noted as having less disturbances. Reduced disturbance levels in habitats tend to be beneficial to most amphibian species as many are very vulnerable to compromised homeostasis and are known to be good indicators of environmental stress (Blaustein, 1994; Blaustein and Bancroft, 2007). Wetland and waterbody areas that were not encompassed by forest tended to be surrounded by active agriculture lands or were areas that were cleared and mowed periodically. Periodic plowing, clearing, and mowing disturbances are believed to moderate the presence of amphibians in these areas.

Reptiles are a very diverse class of fauna and include very mixed habitat preferences specific to their life cycles. It is presumed that representative reptiles can be found throughout the Project Area and in a myriad of microhabitats. Specifically, turtle and snake species are known to use a variety of habitats in New York, including emergent, scrub-shrub, forested, and open water wetlands; and upland areas, including woodlands, old fields, scrublands, meadows, and residential areas. Snakes tend to traverse and use a multitude of habitats. Semi-aquatic turtles, which could occur in the Project Area, are believed to prefer slow-moving, open water wetlands with vegetated banks and a benthic zone of soft soil. Upland areas with little to no canopy cover are also sought after as the turtles can bask and absorb thermal energy from the vantage point of fallen logs or rocks. A select number of delineated wetlands and waterbodies within the Project Area were deemed habitable for turtles.

A vernal pool survey was conducted during April 2021 and no vernal pool features were identified. See Section 22 (d)(6) for more information on vernal pool studies.

A complete list of amphibian and reptile species that were observed or presumed to occur within the Project Area can be found in the master wildlife inventory list attached as Appendix 22-1.

Terrestrial Invertebrates

Terrestrial invertebrates are discussed above in 22(d).

An analysis of the Project's construction, operation, post-construction, and maintenance impacts on vegetation cover types is included in Section 22(b). An analysis of the Project's impacts on wildlife and wildlife habitats is included in Section 22(f).

22(f) Vegetation, Wildlife, and Wildlife Habitat Impacts from Construction, Operation, Post-Construction Restoration, and Maintenance

Impacts to vegetative cover due to construction, operation, post-construction restoration, and maintenance are addressed above in Section 22(b)(2). Approximately ~~93.93~~ 106.08 acres of vegetation will be temporarily impacted, and an additional ~~1,068.91 acres~~ 924.11 acres will be employed for the useful life of the Project due to the siting of Project Components. Although the siting of Project Components will result in the loss in acreage of plant communities within the Project Area, no specific plant community will be significantly reduced or completely eradicated due to the Project. The Applicant has taken measures to avoid, minimize, and reseed or restore temporary vegetation impacts to the maximum extent practicable.

(1) Avian Analysis

Grassland Breeding Bird Survey

A discussion of the extent, methodology, and results of the grassland breeding bird survey can be found in Section 22(d)(2) above. Results from the grassland breeding bird survey are summarized in Table 22-6 below.

Table 22-6 Number of Observations and Locations of Grassland Birds Observed During Breeding Bird Surveys, Garnet Energy Center, Spring–Summer 2020

Grassland Species	Scientific Name	Hayfield Total	Total Observed[1]	Percent Composition[2]
Bobolink	*Dolichonyx oryzivorus*	1	1	1.4
Horned Lark	*Eremophila alpestris*	3	3	4.1
Savannah Sparrow	*Passerculus sandwichensis*	8	8	11.0
Total		20	20	16.5

[1] Does not include incidental observations
[2] Percent composition among all species observed, including non-grassland birds. See Appendix 22-2 for full species list

For a detailed description of the grassland breeding bird survey, including figures showing survey locations, methods, and results, please refer to Appendix 22-2.

Wintering Grassland Raptor Survey

A discussion of the extent, methodology, and results of the grassland breeding bird survey is provided in Section 22(d)(2). The results from both years of wintering grassland raptor survey are summarized in Tables 22-7 and 22-8, respectively. The number of observations does not include incidental observations. For a more detailed description of the wintering grassland raptor survey, please refer to Appendix 22-3.

Table 22-7. Frequency of Raptor and Owl Observations During Stationary Surveys as Part of the Wintering Grassland Raptor Survey

Grassland Species	Scientific Name	Total	Percent Composition
Bald Eagle	*Haliaeetus leucocephalus*	5	7.4
Red Tailed Hawk	*Buteo jamaicensis*	29	42.6
Sharp-shinned Hawk	*Accipiter striatus*	4	5.9
Turkey Vulture	*Cathartes aura*	30	44.1
Total Observations		**68**	100.0

Table 22-8. Frequency of Raptor and Owl Observations During Driving Surveys as Part of the Wintering Grassland Raptor Survey

Grassland Species	Scientific Name	Total	Percent Composition
Bald Eagle	*Haliaeetus leucocephalus*	3	7.0
Northern Harrier	*Circus cyaneus*	1	2.3
Red-tailed Hawk	*Buteo jamaicensis*	29	67.4
Sharp-shinned Hawk	*Accipiter struatus*	1	2.3
Turkey Vulture	*Cathartes aura*	8	18.6
Unknown Raptor	*N/A*	1	2.3
Total Observations		**43**	**100.0**

No short-eared owls were observed during the study. Two state-listed threatened species, the bald eagle and northern harrier, were documented during the study. Bald eagles were observed on eight occasions, including three observations of individuals outside of the Project Area, and observations primarily indicated the species used the Project Area as a travel corridor. No nests or nesting behaviors were documented for this species. One northern harrier was observed for two minutes flying across open areas of the Project. One state-listed SSC, the sharp-shinned hawk, was observed on five occasions within the Project Area. No state-listed species documented during the study were observed exhibiting essential behaviors that would indicate use of habitat within the Project Area. Additional details regarding the nature of these observations are provided in Appendix 22-3.

Overall, construction of the Project will result in temporary impacts to ~~6.11~~ 0.44 acres of grassland habitat and conversion of ~~30.86~~ 29.44 acres of grassland to support Project Components during its useful life. The currently proposed LOD encompass an area that is ~~73~~ 80.3% row crop agriculture, offering marginal habitat for grassland-obligate species such as bobolink, grasshopper, and savannah sparrow (Morgan and Burger, 2008). While some of this acreage will be employed for Project Components, the area between and under solar arrays will be converted to successional old field with vegetative structure and floristic diversity comparable with natural grassland and meadow habitat. These areas will constitute improved habitat quality for species of grassland birds that are not adapted to using active agriculture during the breeding, nesting, and post-breeding periods (DeVault et al., 2014). The disturbance regime associated with Project operations will be significantly less frequent than what is typical of agricultural operations, again reducing the overall direct impact to grassland nesting birds and representing an improvement to the existing habitat within the Project Area. With the above in mind, the intended grassland conversion will not represent an adverse modification of grassland habitat.

(2) Bat Hibernacula and Maternity Roosts

Consultation with the NYSDEC, NYNHP, and USFWS was conducted to determine the presence and extent of occupied habitat for state and federally listed bat species that have the potential to occur within the Project Area. The Official Species Lists were retrieved from the USFWS IPaC system on January 29, 2021 and May 17, 2021. The Official Species Lists indicated the potential for Indiana bats to occur within the vicinity of the Project Area (Appendix 22-7). Additionally, a consultation letter was sent to USFWS on April 7, 2021 and an email response was received on May 6, 2021. The May 6, 2021 USFWS email response indicated that there are Indiana bat

records to the west, east, and south of the Project Area and that presence/probable absence surveys are recommended (Appendix 22-7). A USFWS letter response dated May 13, 2021, reiterated that previous telemetry studies have documented several Indiana bat roosts within the Project vicinity (however, distance was not specified), and that presence/probable absence surveys are recommended.

Consultation with the NYSDEC was requested to review and provide information and locations of any occurrences or occupied habitats of state-listed species, including bats. A response was provided on November 19, 2020 indicating no records of state-listed species within the Project Area.

Based upon review of the NYSDEC ERM and consultation with the NYNHP, the Project is not located within any known records of state-listed animals (see Appendix 22-7). Although no known hibernacula or known maternity roost trees are located within the Project Area or its vicinity , Indiana bats may use the forested areas of the Project during the summer months for roosting and foraging.

The Indiana bat often roosts underneath loose bark, and sometimes in cavities or crevices, of live and dead trees (USFWS, 2019). Forested habitat within the Project Area contains structures that may provide roosting and foraging habitat for bat species. Tree species with a diameter at breast height (DBH) greater than 5 inches observed included red maple, sugar maple, American beech, black walnut (*Juglans nigra*), bitternut hickory (*Carya cordiformis*), shagbark hickory (*Carya ovata*), tulip poplar (*Liriodendron tulipifera*), American elm, American basswood, quaking aspen (*Populus tremuloides*), white ash, green ash, black cherry, eastern hemlock, and white pine. There are various trees on the Project Area that contain exfoliating bark, hollows, or furrows and crevices that could provide suitable summer roosting habitat for bat species, including the Indiana bat. There are forested areas and forested riparian corridors within the Project Area, that could be used as foraging, travelling, and roosting habitat.

The levels of disturbance for the proposed Project include temporary impacts to ~~4.61~~ 2.45 acres of forested habitat, permanent loss of ~~2.52~~ 1.37 acres and conversion of an additional 167.60 ~~254.23~~ acres. Per the USFWS request, presence/probable absence surveys will be conducted in the forested portions of the Project Area and if Indiana bats are considered present appropriate avoidance and minimization conservation efforts will be followed. This could include conducting all tree clearing between October 1 to March 31 to avoid impacts to roosting bats. Additionally,

surrounding forested habitat will remain and new edge habitat will be created. Based on the factors considered herein, the Project may affect, but is not likely to adversely impact the Indiana bat. Bat species that may be present in the Project Area are listed in Section 22(e). No bat species were observed within the Project Area.

(3) Amphibian and Reptile Habitat

Amphibians and reptiles observed or that have the potential to occur within the Project Area based on the New York State Amphibian and Reptile Atlas Project (Herp Atlas) database and other sources are listed in Section 22(e). The USFWS IPaC official species list did not identify federally listed amphibian or reptile species within the vicinity of the Project Area. Additionally, the NYNHP response did not identify any known occurrences of state-listed amphibian or reptile species within the vicinity of the Project Area. Wetland delineation efforts conducted in 2020 identified 45 wetlands and 24 streams within the Project Area. Aquatic fauna, including green frogs and eastern American toad, were observed utilizing some of these features (see Appendix 22-4). Characteristics observed and documented in the 596.57 acres of wetland and stream habitat may provide habitat for reptiles and amphibians listed in Section 22(d)(2). A vernal pool survey was conducted during April 2021 and the survey did not identify any vernal pools within the Project Area. However, several potential vernal pools were identified in the Project Area (Figure 22-3) and thoroughly investigated. No egg masses were identified in these potential vernal pools. These potential vernal pools were predominantly co-located with forested wetland complexes previously delineated during the wetland and stream delineation surveys. Siting of Project Components and the final layout of solar arrays have been designed to avoid wetlands to the maximum extent practicable. See Section 22 (m) and 22 (n) for a detailed discussion of impacts, avoidance, and mitigation specific to wetland habitats.

(4) Construction-related Impacts to Wildlife

Direct and indirect impacts to wildlife will occur due to Project construction. Impacts are anticipated to be restricted to incidental injury and mortality due to various construction activities, displacement due to increased human activity during construction, and habitat disturbance and/or loss (including the loss of travel corridors) due to clearing, earth-moving, and the siting of Project Components. Each listed impact is addressed in more detail below.

Incidental Injury and Mortality

Although calculating the incidental injury and/or mortality of wildlife individuals is inherently difficult, it is understood that construction activities could generate injury or mortality to local wildlife in isolated, random occurrences. It is presumed that injury and mortality will be inflicted more directly upon sedentary species during construction (e.g., small or young mammals, reptiles, invertebrates, and amphibians). Species that are more mobile have a better ability to vacate construction areas prior to the onset of disturbance.

Mortality events due to vehicular activity are presumed to increase due to increased traffic from construction activities within the Project Area. Upon the completion of construction, traffic is expected to return to more standard patterns and frequencies so mortality events due to vehicular traffic will reduce to pre-construction levels. A full analysis of traffic volumes associated with construction and operation of the Project is provided in Exhibit 25.

Anecdotally, solar farms are described as producing a “lake effect” wherein the glare of solar panels may mimic the appearance of large open water, serving as an attractant for migratory songbirds and waterfowl. The concept asserts that birds will fly-in to land on these “waters” and collide with solar arrays, causing injury or death. To date, the literature on avian mortality would suggest that the idea of a “lake effect” is not well founded. Overall, mortality at PV solar facilities is estimated at ranging from 2.49 birds/MW/year (Kosciuch et al., 2020) to 9.9 birds/MW/year (Walston et al., 2016), though only data from solar facilities in the southwestern U.S. has been published. Mortality from solar facilities represent less than one percent of anthropogenic sources of avian mortality, with annual mortalities across all operational utility-scale solar facilities estimated at ~37,800 to 136,800 deaths per year, versus greater than 300 million deaths caused from collisions with windows or buildings (Walston et al., 2016). See Table 22-10 for additional details.

Wildlife Displacement

Project construction may cause both temporary and permanent wildlife displacement. The extent of displacement will vary between species and will fluctuate depending on the nature and seasonal timing of construction activities. Displacement impacts such as noise or human presence may affect breeding, nesting, denning, and other routine use (e.g., travel, foraging, communication, and territorial marking). If construction begins before the initiation of breeding, nesting, denning, or other routine activities, then the associated wildlife will generally avoid the

impact area and navigate through or re-establish in adjacent habitat. If construction occurs while the area is in use by a wildlife individual, then the species that are accustomed to similar land clearing disturbances are expected to relocate and use similar habitats near the construction impact area. Species unable to relocate may become at risk to incidental injury or mortality. Displacement impacts due to the Project will be relatively minor due to the availability of habitat nearby for many local wildlife species. These animals will remain within or adjacent to the Project Area. Additionally, portions of the Project Area are actively farmed/hayed, and therefore subject to considerable disturbance throughout the growing season. Construction activities are not expected to exceed the existing level of disturbance that would otherwise occur due to routine agricultural activities in the Project Area.

Additionally, avoidance of wetland habitat to the maximum extent practicable has been incorporated in Project siting and design to mitigate temporary or permanent loss of wetland habitat and displacement of wetland-associated species.

Habitat Disturbance and Loss

Approximately ~~93.30~~ 105.41 acres of wildlife habitat will be temporarily impacted during construction of the Project. While permanent and conversion impacts to wildlife habitat have decreased by 3.94 acres and 144.76 acres respectively, temporary impacts to wildlife habitat have slightly increased due to the siting of additional Project Components in agricultural lands. In order to achieve the significant reduction in proposed permanent and temporary impacts to wetlands and forested areas, and still achieve the Project's required generating capacity of 200 MW, a minor addition of arrays is proposed in an area located in the northeastern portion of the Project west of Schooley Road, where approximately 13.8 acres of panels have been added. These panels are presented in the Updated layout and are sited almost entirely within agricultural lands. The updated impacts are summarized below in Table 22-9. Approximately ~~1,068.85~~ 924.11 acres of potential wildlife habitat will be employed for the Project and only ~~24.46~~ 20.52 acres of wildlife habitat will be permanently impacted for Project Components. Moreover, ~~21.87~~ 19.10 of the ~~24.46~~ 20.52 acres of potential wildlife habitat permanently impacted, along with all ~~85.76~~ 99.85 acres temporarily impacted, are currently active agricultural areas that are disturbed regularly and provide limited perpetual habitat for wildlife due to these regular disturbances and anthropogenic pressures of active farming practices.

Specifically, it is anticipated that approximately ~~0.82~~ 0.80 acre of successional scrubland, ~~1.06~~ 1.17 acres of successional old fields, and ~~85.76~~ 99.85 acres of active agricultural lands will be

temporarily disturbed during construction. Areas will be reseeded and restored following construction. Approximately ~~4.61~~ 2.45 acres of temporary disturbance will occur within forestland. Concurrently, approximately ~~2.52~~ 1.37 acres of forestland, 0.0~~2~~ acre of successional scrubland, and 19.10 ~~21.87~~ acres of active agricultural lands will be permanently impacted due to the placement of Project Components. No permanent impacts will occur within successional old fields. Note, disturbed/developed areas were excluded from these calculations as wildlife habitat in these areas are presumably present but more marginal in nature where wildlife has adapted to survive in a disturbed setting. The Project avoids direct impacts to open-water habitats. See Exhibit 23 for a detailed discussion on impacts to surface waters defined by on-site wetland and waterbody delineations conducted within the Project Component impact areas.

In areas where the siting of Project Components requires placement in forestland, successional shrubland, or successional old field, impacts will occur in areas where there is an abundance of available habitat directly adjacent to the impact area. As such, overall impacts to the habitat for wildlife individuals or species in the Project Area will be minor. Construction-related impacts will not be significant enough to adversely affect local populations of any resident or migratory wildlife species.

(5) Summary Impact Table

Table 22-9 quantifies anticipated temporary and permanent impacts to wildlife habitats identified within the Project Area and LOD due to Project construction and operation. Impacts by Component type are provided in Table 22-4 above.

Table 22-9. Summary of Impacts to Wildlife Habitat

Habitat[1,2]	Acres within Project Area and LOD	Permanent Loss (acres)	Temporary Impacts (acres)	Conversion (acres)	Acres Remaining within Project Area and LOD	Acres within 100 Feet of Disturbance
Cropland/ row crops	~~1,181.53~~ 1,181.58	18.66 ~~21.12~~	~~80.71~~ 95.17	~~775.95~~ 721.60	346.14 ~~303.74~~	~~193.25~~ 209.04
Deep emergent marsh	62.26	0.00	0.00	0.00	62.26	1.92 ~~3.65~~
Farm ponds/ artificial ponds	0.29	0.00	0.02	0.24	0.04	0.05

Table 22-9. Summary of Impacts to Wildlife Habitat

Habitat[1,2]	Acres within Project Area and LOD	Permanent Loss (acres)	Temporary Impacts (acres)	Conversion (acres)	Acres Remaining within Project Area and LOD	Acres within 100 Feet of Disturbance
Forest Edge Communities	555.12 ~~606.03~~	~~1.94~~ 1.29	1.94 ~~4.06~~	~~224.64~~ 151.52	400.37 ~~375.38~~	147.58 ~~151.18~~
Grassland	58.59	0.44 ~~0.76~~	5.55 ~~5.75~~	29.00 ~~30.63~~	~~21.45~~ 23.60	~~28.07~~ 26.67
Interior Forest	~~229.98~~ 280.82	0.08 ~~0.58~~	~~0.54~~ 0.52	16.08 ~~29.59~~	264.14 ~~199.27~~	~~14.25~~ 17.65
Pastureland	20.19	0.00	~~0.35~~ 0.15	0.43 ~~0.23~~	19.61	~~0.00~~ 31.52
Shallow emergent marsh	72.52	0.01	1.12 ~~0.89~~	2.83 ~~4.82~~	~~66.81~~ 68.57	~~15.57~~ 12.40
Shrub swamp	15.64	0.03 ~~0.04~~	~~0.17~~ 0.18	1.25 ~~1.26~~	14.18	~~1.36~~ 1.25
Successional Shrubland	18.74	0.00 ~~0.02~~	~~0.82~~ 0.80	~~1.73~~ 1.37	16.17	6.96 ~~6.92~~
Total:	**~~2,265.79~~ 2,265.76**	**~~24.46~~ 20.50**	**~~93.32~~ 105.43**	**~~1,069.10~~ 924.34**	**~~1,078.92~~ 1,215.48**	**~~414.31~~ 455.02**

[1]There is no young successional forest habitat present within the Project Area.
[2]Does not include developed and disturbed land.

(6) Assessment of Herbicide Application

As noted in the Appendix 22-6, the ISMCP, and Appendix 5-3, Preliminary O&M Plan, the selective use of herbicides may be necessary for vegetation not effectively removed by the preferred method of mechanical means which includes mowing and trimming of vegetation. The use of herbicides will be determined on an as-needed basis for both the construction, restoration and operation phases of the Project, though use during construction is not anticipated. If needed, herbicide application will be performed by spot treatment at targeted areas of invasive plant species occurrences to minimize the risk of spraying non-target plant species. Short-term impacts from herbicide application can occur from physical contact and direct toxicity with non-target plant species (Briggs, 1992). The long-term effect of herbicide application is potential change to the vegetation community structure from large-scale, non-selective spraying. Herbicide application at the Project, however, will not be performed by broad-scale non-selective spraying. Therefore, long-term impacts resulting in large-scale changes to vegetation community structure including

impacts to plants, crops (human and livestock), grazing lands, animals (wildlife and livestock), trees, groundcover, and/or planted vegetation are not anticipated. The Project will primarily seek to hire local/regional personnel to perform the maintenance as much as practicable. If herbicide application is required in aquatic resources, the Applicant will follow the NYSDEC's *Recommendations Regarding the Use of Aquatic Herbicides in Fish-Bearing Waters of the State* (2015d). The Applicant will use Environmental Protection Agency (EPA) and NYSDEC registered and approved herbicides. Herbicide application will be performed by someone with a Commercial Pesticide Use Applicator's License from the NYSDEC. All herbicide application will comply with state and federal regulations. The use of fertilizers and pesticides, both of which are commonly used for agricultural purposes, is not proposed.

(7) Operation and Maintenance Related Impacts to Wildlife

Once construction has been completed and the Project is operational, there will be few, if any, impacts to wildlife. Mortality during the operations phase is expected to be negligible. Though few peer-reviewed studies exist that estimate mortality from PV solar arrays, research indicates collision risk is the primary cause for injury and death (Smith and Dwyer, 2016). Mortality rates at commercial scale solar facilities account for less than one percent of mortality from anthropogenic sources (Walston Jr. et al., 2016), with reported estimates in the range of 2.7 to 9.9 birds/MW/year. However, even these estimates may overstate facility-related mortality as some events could not be directly attributable to collision with facility infrastructure. The solar panels, energy storage system, and collection substation are stationary and will not impact wildlife due to their operation.

Vehicles will visit the site infrequently and will stay on the access roads. Therefore, there will be little opportunity to impact wildlife by driving on the site.

During the operational phase of the Project, disturbance will be limited, and displacement impacts are likely to be negligible. Routine maintenance, including mowing the grass, will occur approximately 2 to 6 times a year, depending on seasonal conditions. Most wildlife that will be within the fenced in areas of the Project are mobile enough to avoid being impacted due to that activity.

There are wildlife concentration areas that are apparent within the Project Area, based on review of aerial imagery and observations during field surveys conducted on-site, as well as an analysis of TNC's Resilient Land Mapping Tool (TNC, 2020). Riparian corridors are present that connect

forested wetlands on-site to larger forested wetland complexes off site (Figures 22-3 and 22-4, respectively). These areas may serve as travel corridors or foraging areas for volant species (i.e. bats, avian predators, etc.), and may also provide cover for terrestrial wildlife present and traveling throughout the Project Area. Project siting efforts have been designed to retain riparian areas, and no open-water habitats will be impacted.

There are relatively few studies quantifying the effects of utility scale solar projects on biodiversity. The currently availably peer-reviewed publications on renewable energy, including solar, are insufficient to thoroughly assess the impact of utility scale solar projects on wildlife populations (Lovich and Ennen, 2011). Impacts to birds are the most well-studied, though even this research is limited. The two types of direct impacts to birds from utility scale solar projects occur in the form of burning and collisions (Walston Jr. et al., 2016), though mortality events caused by burning occur exclusively at heliostat solar facilities (Walston Jr. et al., 2016). Mortality studies are inherently lacking with specific reference to utility-scale ground-mounted solar. Of studies that investigated direct impacts to birds from solar facilities, all were conducted on facilities in the southwestern United States and therefore are only moderately applicable to projects in the northeast, which contain significantly different habitat, species assemblages, and associated population trends.

One study by Walston Jr. et al. (2016) estimated bird mortality from solar facilities in comparison to other anthropogenic sources of bird mortality. The table from this study is shown in Table 22-10 below.

Table 22-10. Estimated Annual Avian Mortality from Anthropogenic Sources in the U.S.

Mortality Source	Estimated Annual Mortality	Percent of Overall Mortality
Buildings and Windows	365–988 million	73–75%
Roadway Vehicles	89–340 million	20–25%
Fossil Fuel Power Plants	14.5 million	1–3%
Communication Towers	4.5–6.8 million	<1%
Wind Energy Developments	140,000–573,000	<1%
Utility Scale Solar Energy Developments	37,800–138,600	<1%

The avian mortality at utility scale solar energy facilities accounts for fewer than one percent of avian mortality and is insignificant when compared to other anthropogenic sources. Solar facilities primarily affect birds at the local scale and not at the population level (Sánchez-Zapata et al., 2016). However, even effects to local populations are minimal at PV solar facilities (Walston Jr. et al. 2016).

Walston Jr. and the Argonne Lab reviewed synthesized data from seven utility-scale solar facilities in California and Nevada to evaluate avian mortality, including data from some of the studies noted above. Data was collected through both systematic and incidental monitoring from 2011-2014. Over 1,300 mortality events were documented. However, cause of death could not be determined for 50 percent of the observations. Therefore, a direct link between mortality and the facilities monitored cannot be established (Walston et al. 2015). Mortality is expected to vary seasonally, influenced by influx of migrants and departure of residents, as well as based on local avian abundance, non-facility related causes of mortality, and factors influencing detectability of mortality events (e.g., predation and scavenging). Numerous design factors may influence mortality, however, given the complexity of determining facility-related mortality events, the current understanding of these factors is exceedingly limited.

Further discussion of impacts to reptiles, amphibians, mammal species, and avian species are discussed below.

(8) Impacts to Wildlife and Wildlife Habitat

Operation-related impacts, or impacts that can potentially occur to vegetation, wildlife, and wildlife habitat while the solar facility is functioning include direct habitat loss and habitat degradation through forest fragmentation, disturbances associated with solar array operation and maintenance, and specific mortality due to solar array collisions.

Potential Habitat Loss

A direct and permanent loss of approximately ~~24.46~~ 20.52 acres of wildlife habitat will result from the Project due to placement of Project Components. Total habitat loss represents ~~1.07~~ 0.9 percent of the total 2,288.72 acres included in the Project Area. Of this percentage, approximately ~~0.1~~ 6.68 percent of the loss is to forestland, while ~~the majority~~, ~~0.96~~ 93.06 percent, is to active agriculture. Approximately ~~254.23~~ 167.60 acres of forest land will also be converted into successional communities, that are of value to several wildlife species within the Project Area. As stated previously, active agriculture supports wildlife habitat of marginal quality, and revegetation efforts following construction may improve habitat quality for grassland-associated species. Considerable habitat is available in the surrounding 2-mile Study Area including 13,471.65 acres of forest (deciduous, evergreen, mixed, and woody wetlands), 80.6 acres of shrubland, and 2,486.11 acres of open habitat (i.e., grasslands, old fields, pasture). In comparison to the surrounding 2-mile Study Area, only approximately ~~4~~ 0.5 percent of habitat will be lost or converted due to the Project which represents an insignificant impact to habitat availability in the local area.

The Project is located on the edge of the Finger Lakes Grassland Focus Area as defined by the NYSDEC Grassland Landowner Incentive Program, which promotes habitat protection for grassland birds. Additionally, the Project is located adjacent to a recognized Global Important Bird Area, the Montezuma Wetlands Complex, that supports an abundance and diversity of wetland-dependent species.

Grassland birds are declining in New York State due to the loss of agricultural lands such as pastures and hay fields. The NYSDEC commissioned a study of breeding grassland birds across New York State that used BBA data to identify regions (i.e., focus areas) with significant remaining grassland bird populations (Morgan and Burger, 2008). As a result, the NYSDEC created a

grassland landowner incentive program to protect grassland bird habitat on private lands within these focus areas. The principal bird species targeted for conservation within the Finger Lakes Grassland Focus Area are vesper sparrow, grasshopper sparrow, horned lark, savannah sparrow, and short-eared owl. Of the highest priority species identified by NYSDEC, none have been observed within the vicinity of the Project Area. Horned lark, an SSC and a target species within the Focus Area, were observed on one occasion (see Section 22(d)(1), Appendices 22-2 and 22-3, respectively).

To date, there has been only one peer-reviewed study of the indirect effects of ground-mounted solar systems and birds (DeVault et al., 2014). This study found that bird density was greater at solar systems when compared with managed grassland at nearby airfields. The same study found several grassland species using solar systems including eastern meadowlark, grasshopper sparrow, and savannah sparrow (DeVault et al., 2014). Several grassland bird species in fact may benefit from the conversion of agriculture to more structurally diverse vegetation typically seeded beneath and between solar panels. Following construction, solar energy facilities typically use grass seed mixes to establish a stabilized vegetative ground cover. These grass seed mixes are comprised of grasses that are native and/or indigenous to the area and are considered favorable for wildlife habitat and sustainable growth. Additionally, the effects of climate change have been identified as a preeminent threat to continental bird populations (National Audubon Society, 2017). Increasing the capacity to generate energy from renewable sources will indirectly benefit birds through climate change mitigation.

Potential Habitat Degradation (Forest Fragmentation)

As stated previously, forest fragmentation occurs when large tracts of forestland are divided into smaller patches due to canopy removal or the overall clearing of forestland. The potential effects of forest habitat fragmentation depend in part on previous land use, the original extent of intact forested habitat, the extent of habitat that will be impacted during and after construction, and the behavioral sensitivity of potentially affected species or species groups, which include both residents and migrants. Impacts to species due to forest fragmentation may vary temporally and may have short-term or long-term effects depending on the species.

Fragmentation creates edge effects in areas that were previously contiguous forest habitat. Edge effects are changes in species populations or community structure at the periphery of two habitats. Edge effects are most apparent where patches of habitat are isolated by surrounding patches of dissimilar habitat. Edge effects in forested environments vary somewhat with distance

from forest edge, depending on the type of effect and species of plant or wildlife (USDA NRS, 2012). However, within the State of New York, 300 feet is frequently used as a general range for the edge effect disturbance line, which is the distance into a forest patch where the edge effect dissipates and interior forest conditions are generally expected (USDA NRS, 2012). Interior forest is defined as core forest areas containing a specific ecology and community structure occurring at least 300 feet from the forest edge.

Forested areas comprise approximately ~~36.4~~ 36.8 percent of land cover within the Project Area. While large forested complexes remain in the central portion of the Project Area, most forestland within the Project Area has been previously cleared for agriculture, resulting in small, non-contiguous fragments. Approximately ~~555.2~~ 555.12 acres of the forestland at the Project Area and LOD, can be classified as edge forest. It is expected that clearing for all Project Components (solar arrays, energy storage units, access roads, collection lines, and laydown areas) associated with the Project may remove up to ~~260.32~~ 159.61 forested acres, reducing the amount of forest land from 833.93 acres to ~~573.61~~ 674.32 acres within the Project Area. This would amount to approximately ~~31~~ 19 percent less forestland within the Project Area under the proposed conditions. There will be an assumed decrease of ~~36.26~~ 15.35 acres of interior forest due to the placement of Project Components. Concurrently, forest clearing would result in ~~51.09~~ 72.44 acres of interior forest converted to peripheral forest. Forested areas within the Project Area consist of both small, isolated patches that are unlikely to support structures and communities of forest-obligate or forest interior species; and larger forest blocks that are contiguous with extensive forest tracts extending off site. For those patches that have been previously fragmented to produce the agricultural landscape present in the Project Area currently, changes to forested conditions resulting from Project construction are unlikely to alter species behaviors or diversity following initial disturbances associated with construction activity. Larger tracts that are present at the Project boundaries are likely already subject to edge effects given immediate adjacency to farmed areas and human development. The wildlife communities present there are likely to represent edge-tolerant species, and would therefore be adaptable to changing conditions, simply receding to the shifting boundary of the forest edge.

Amphibians and Reptiles

Immediate disturbances during the construction phase of the Project may cause temporary disruption of amphibians and reptiles at the Project Area. Travel between habitats that may be used by amphibians and reptiles may be temporarily disrupted. Amphibians and reptiles are less

mobile than other species, therefore, injury and mortality are more likely to result from the construction of the Project than to other more mobile taxa. Potential habitat impacted includes open water wetlands, and forested areas. However, no amphibian or reptilian species of concern have been identified within the Project Area.

Game Species

Immediate disturbances during the construction phase of the Project will cause temporary disruption of local game species (e.g., white-tailed deer, ruffed grouse, and turkey). However, other than nest sites (eggs) and infant fawns, these species are very mobile. Consequently, injury and mortality are not expected from immediate disturbance. After the construction phase of the Project is completed, game species generally will adapt to the cleared areas and perimeter fencing. The perimeter fencing will inhibit travel and foraging of larger game species such as whitetail deer. Therefore, it is presumed they will search for new foraging habitat elsewhere within the Project Area and in the surrounding areas.

(9) Impacts to State and Federally Listed Species

A “take” of state- or federally listed T&E species will not be caused by the construction or operation of the Project. Correspondence with NYSDEC and NYNHP confirmed there were no data records for T&E species at the Project Area. Based on consultation with USFWS, presence/probable absence surveys for the Indiana bat are recommended as the USFWS has records of several Indiana bat roosts within the Project vicinity. If Indiana bats are determined to be present, then the appropriate avoidance and minimization efforts will be followed in order to avoid take of the species. It is anticipated that post-construction monitoring will not be necessary because take of state- or federally listed T&E species is not anticipated. Refer to section 22(n)(2) for further discussion on impacts to state- and federally listed species.

(10) Avoidance and Minimization of Impacts to Vegetation, Wildlife, and Wildlife Habitat

Discussion on avoiding or minimizing the impact to plant communities within the Project Area can be reviewed in Section 22(c)(1).

To the maximum extent practicable, the Project Components have been intentionally sited within active agricultural fields. This effort was done largely to reduce impacts to natural communities and wildlife habitat. Active agricultural areas provide limited wildlife habitat due to recurrent disturbances in the form of clearing, mowing, plowing, and harvesting. Agricultural fields are often

monotypic in nature consisting of large expanses of a single crop, offering reduced floristic diversity and structural complexity that supports more diverse wildlife assemblages. Prioritizing construction of the Project and siting of components within these areas will minimize the species and habitats impacted by the Project. The revegetation effort following construction is likely to produce higher quality habitat in the areas beneath and between panels, containing a greater diversity of plants and insect prey, providing additional cover for ground-nesting species, and providing novel perching substrate. Furthermore, agricultural land used for Project Components can be restored for agricultural use at the end of the Project's active operational life as part of the Project's Decommissioning Plan (see Exhibit 29). Access road widths have been proposed at the minimum width necessary to provide adequate area for maintenance and emergency vehicle access in order to reduce the amount of permanent land impacts.

Overall mortality resulting from Project construction and operation is expected to be negligible, with no significant impact to local or regional populations of any species. Total habitat loss will occur in habitats representing approximately 4 percent of available habitat within the surrounding 2-mile Study Area, and no single habitat present within the Project Area will be entirely eradicated. As discussed in Section 22 (d)(1) above, no habitats identified in the Project Area represent significant natural communities and all are abundant in the immediate vicinity of the Project and throughout New York State.

The lack of recent records from publicly available data sources and field observations indicates that Blanding's turtles are unlikely to be present within the Project Area, particularly considering their rarity even within the known distribution of the species. Therefore, avoidance and minimization measures for the Blanding's turtle are not necessary for this Project.

As noted in Section 22(f)(9), there is no anticipated take of state- or federally listed species at the Project Area during construction or operation. Therefore, neither a discussion of mitigation for state-listed species nor a net conservation benefit plan is required.

22(g) Avian and Bat impacts from Wind Powered Facilities

Specific impacts to avian and bat species related to wind powered facilities is not applicable to this Project.

22(h) Map Depicting Wetland Boundaries

(1) Wetland Mapping

Field surveys were conducted to identify all wetlands and streams within the 2,288.7-acre Project Area, regardless of size or connectivity, and within 100 feet of areas to be disturbed by Project construction where the survey teams had property access. Surveys were performed in accordance with the *USACE 1987 Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the *2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)* (USACE, 2012), the *New York State Freshwater Wetlands Delineation Manual* (Browne et al., 1995), and the Department of Public Service (DPS) Staff interpretation dated May 31, 2018, concerning the delineation of all federal, state, and locally regulated wetlands present at the Project Area and within 100 feet of areas to be disturbed by construction, including the interconnections. In addition, TRC predicted, via desktop and remote survey, the presence and extent of wetlands on the remainder of the Project Area properties and adjacent properties within 100 feet of areas to be disturbed by construction. TRC conducted on-site wetland surveys for 2,288.7 acres of leased private lands within the Project Area. This area is referred to as the Wetland Delineation Survey Area throughout this Exhibit. Wetland and waterbody delineations took place on June 15 through June 23, 2020, ~~and~~ November 3 through November 6, 2020, as well as May 12 and October 21, 2021. See Figure 22-3 depicting TRC delineated wetlands within the Wetland Delineation Survey Area. Additionally, see Figure 22-7 for Impacts to Wetlands and Streams.

(2) Predicted Wetlands

Within this Exhibit, wetlands identified beyond the established Wetland Delineation Survey Area are referred to as “predicted wetlands.” Predicted wetlands are located outside the Project Area, but within 100 feet of related disturbance. Predicted wetland boundaries were approximated through on-site observations and observations made from public roads and, where accessible, adjacent Project parcels, as well as the interpretation of aerial imagery, USDA soils mapping, and the analysis of topography and existing databases of wetland mapping maintained by the USFWS National Wetland Inventory (NWI) and NYSDEC (see Figure 22-3 depicting predicted wetlands).

(3) Wetland Boundaries

Wetlands identified within the established Wetland Delineation Survey Area are referred to as delineated wetlands. The boundaries of delineated wetlands were recorded with a Juniper system Geode real-time sub-meter external Global Navigation Satellite System (GNSS) receiver. See

Appendix 22-4, Wetland and Stream Delineation Report, for a detailed description of the determination of wetland boundaries for the Project. The Applicant conducted a field verification visit with the NYSDEC and USACE on May 11, October 15, and November 9, 2021 to confirm delineated wetland boundaries.

(4) Regulated Wetlands

TRC conducted a wetland and stream delineation of the Project Area on behalf of Garnet Energy Center on June 15 through June 23, 2020, and November 3 through November 6, 2020, and May 12 and October 21, 2021. TRC identified and delineated a total of 45 wetlands (597.14613.50 wetland acres) within the Project Area and LOD. In addition, TRC predicted 21 wetlands (22.57 predicted wetland acres), as described above, which are outside the Project Area and LOD, but within 100 feet of the LOD.

United States Army Corps of Engineer's Jurisdiction: TRC conducted a site visit with the USACE on May 11, 2021and October 15, 2021 to confirm the delineated wetland boundary accuracy and USACE jurisdiction over delineated wetlands. An initial review of these wetlands by TRC resulted in an assumption that 30 wetlands would be USACE-jurisdictional. Nonetheless, following the second site visit, a Preliminary Jurisdictional Review (PJD) was requested of the USACE on all but 13 wetlands (for which an Approved Jurisdictional Review [AJD] was requested). The Approved Jurisdictional Determination was received on December 14, 2021is still under review as of the filing of this Application, but it was assumed by USACE personnel in the field that 7 of the 13 wetlands under the AJD review would be deemed not USACE-jurisdictional. and included wetlandsThese include:

- W-BTF-32,
- W-BTF-4,
- W-BTF-9,
- W-BTF-11, and
- W-BTF-14,
- W-BTF-15, and
- W-NSD-3.

Wetland W-NSD-9 is still under USACE jurisdictional review. All other wetlands, e.g., those not listed above, are assumed to be likely USACE-jurisdictional under the PJD that was received on

November 18, 2021. ~~None of these conclusions are yet official, as the Applicant still awaits the official USACE JD conclusion, which will be filed with the Secretary upon receipt.~~

New York State Department of Environmental Conservation Jurisdiction: Mapping by the NYSDEC depicts seven NYSDEC-regulated wetlands within or extending onto the Project Area. Of these wetlands, five are NYSDEC Class II and two are NYSDEC Class III. Fourteen of the wetlands delineated by TRC inside the Project Area overlap these NYSDEC-mapped freshwater wetlands, and thus are presumed to be at least in-part, NYSDEC-regulated pursuant to Article 24 of the New York State Environmental Conservation Law (ECL) and 6 NYCRR Parts 663-4. Regulated wetlands located within the Project Area are listed in Table 2 of Appendix 22-4. Table 4 of Appendix 22-4 identifies the wetlands that overlap with DEC-mapped wetlands, with at least portions presumed partially jurisdictional. All features delineated during the on-site wetland surveys, as well as existing mapped features and their status, are shown in Figure 22-3.

Final impact calculations to state-regulated wetlands and the 100-foot adjacent area of state-regulated wetlands will be submitted in the Compliance Filing. ~~As with the USACE,~~ TRC conducted a site visit with the NYSDEC on May 11, , ~~2021~~October 15, and November 9, 2021, to confirm delineated wetland boundary accuracy. The visit resulted in the NYSDEC requesting modification to only one delineated wetland boundary: W-NSD-10, which is affiliated with DEC Class II wetland W-1. TRC re-delineated wetland W-NSD-10 on May 12, 2021, and the delineated boundary was confirmed by NYSDEC staff during the second visit on October 15, 2021. Additionally, TRC modified wetland W-BTF-1 by removing a portion of the delineated wetland on October 21, 2021, and the delineated boundary was confirmed by NYSDEC on the third and final site visit on November 9, 2021.

~~Although the final boundary of wetland W-NSD-10 and the precise boundaries of other NYSDEC-regulated wetlands has as yet not been agreed to by NYSDEC staff, the Applicant must base Project Design and impact calculations on an assumed NYSDEC-regulated boundary.~~ The Applicant's initial thought was to apply the NYSDEC "500-foot rule;" a practice that has been used by the NYSDEC staff to extend mapped boundaries out 500 feet when mapping by the NYSDEC might prove inaccurate. This practice is not codified anywhere in law or regulation but has historically been applied in the field to determine a maximum map boundary adjustment by NYSDEC field biologists, permit administrators, and law enforcement. This field approach, however, was considered unreasonable for the Project by the Applicant upon determining that this ad hoc extension, when applied at the Garnet Energy Center, increases regulated wetland

area within the Project Area by 49.9 percent. As demanded by state regulations at 6 NYCRR Part 664.2(i), significant expansions of DEC-mapped wetland boundaries require an official map amendment. Believing an expansion of 50% to be significant, thus requiring an official amendment, the Applicant assumed application of the 500-foot rule to be inappropriate. The Applicant further notes these same regulations state no activity which has already been initiated at the time of the (intended map amendment) announcement, within an area that is proposed as an addition to the map, will be subject to such regulation. With these considerations in mind, the Applicant has relied upon the NYSDEC wetland map boundaries for calculating impacts to NYSDEC-regulated wetlands.

Those wetlands not mapped by the NYSDEC, and therefore not subject to regulation by the State Freshwater Wetland Act, would be subject to the Siting Board's Clean Water Act 401 Water Quality Certification jurisdiction, as affirmed by the Siting Board in the Atlantic Wind decision (Case 16-F-0267, Order dated 6/30/20, pp.12-13), where the Board stated as follows: "The State water quality standards apply not only to State-regulated waterbodies, but to federally regulated waterbodies as well."

The Siting Board's Atlantic Wind decision also makes it clear that wetlands that have not proceeded through the DEC mapping or remapping process are subject only to the Board's application of BMPs to activities within these wetlands as part of the 401 WQC process. This is consistent with regulatory limitations within the State's wetland regulations prohibiting all but very minor extensions of ECL jurisdiction beyond a State-mapped wetland boundary without a formal map amendment process. As stated in the Freshwater Wetlands Map and Classification regulations at 6 NYCRR Part 664.7, the (NYSDEC) Commissioner may make minor adjustments to a map for such purposes as clarifying the boundaries of any wetlands, or to correct minor errors. These adjustments may be made only after notice by certified mail to each owner of record, as shown on the latest completed tax assessment rolls, of land involved in the adjustment and to the chief administrative officer of each affected local government, at least 30 days prior to the issuance of an order adjusting the map. The regulations also state the Commissioner may amend a map by significantly expanding or contracting the boundaries of a wetland shown on the map, provided a copy of the proposed amended map is made available for public inspection in the appropriate regional office of the department and in the office of the clerk of each affected local government, after the Commissioner has provided notice of the proposed amendment and an opportunity for a public hearing on the proposal. The notice shall be sent by certified mail, not fewer than 30 days prior to any such hearing, to each owner of record, as shown on the latest

completed tax assessment rolls, of land involved in the proposed amendment and also to the chief administrative officer and clerk of each affected local government. Notice of the proposed amendment shall also be published at least once in at least two newspapers having a general circulation in the area that is the subject of the proposed amendment, and also in the Department's environmental notice bulletin. If a hearing is scheduled, notice shall be provided to the same parties, and also published, in the same manner, not more than 30 nor fewer than 10 days before the date set for the hearing.

As stated above, 6 NYCRR Part 664.7(a)(2)(i) is designed to protect a proposed development from regulation, if that development has already been initiated at the time of the aforementioned announcement by the NYSDEC Commissioner, that proposed additions to a mapped wetland will undergo the public notice and hearing review process. Although this required public review process has not been commenced by the NYSDEC Commissioner, the regulations are instructive that additions to mapped wetlands cannot be made without due regard to the status of the proposed development and whether “activity” has already been initiated. Here, the Applicant officially initiated the Article 10 process for the Project with the Department of Public Service with the Applicant’s Public Involvement Plan submission, which itself was preceded by a substantial period of project planning, and was followed by the filing of the Preliminary Scoping Statement, the completion of public comment and response procedures, the negotiating and filing of Stipulations, and the undertaking of numerous Article 10 studies, and PIP activities.

The proposal being made here by the Applicant is reasonable considering regulatory precedent. As noted above, 6 NYCRR Part 664.7(a)(2)(ii) allows the DEC Commissioner to make minor adjustments to a map for specified reasons such as the clarification of boundaries or the reflection of natural changes that have occurred. In this instance as well, the commissioner must notify owners of record, and the affected local government at least 30 days prior to the issuance of an order adjusting the map. There is no regulatory definition of “minor adjustment”. Even in instances where wetlands are contiguous or otherwise could be argued to function as one unit, and no more than 50 meters (or 165 feet) apart, the proposed amendment must still proceed through the public notice and review process detailed in the regulations (at) 6 NYCRR Part 664.7(2)(b). In at least one DEC commissioner decision and order, it was held as follows:

> *“Where the official maps have been duly promulgated, as in this case involving a site in the Town of Chester in Orange County, the landowner is entitled to reasonably rely on the map. Whether the map affords a landowner reasonable notice that his land may be*

> *regulated wetland is an issue of fact to be determined by the particular circumstances, including the exact location involved as shown on the official map, and any other relevant factors such as past course of conduct or indications of actual notice. If a particular property or site of a proposed activity is clearly outside a mapped wetland boundary, the landowner is not afforded reasonable notice that it may be regulated wetland. In this situation, the site is not a regulated wetland although it may in fact contain wetland vegetation or wetland characteristics which would cause a Department Staff expert to designate it as a regulated wetland.* ***The field delineation procedure is designed to precisely define wetland boundaries but may not be used to extend or alter the officially mapped wetland boundaries. That may only be done according to the authorized procedures for map amendments and adjustments in 6 NYCRR § 664.7(a)(2).*** Case 3-1769/8909 In the Matter of the Alleged Violation of the Environmental Conservation Law ("ECL") § 24-0701 by Spectrum Associates, L.P., Decision and Order (Aug. 2, 1990).

Furthermore, in the David Watts DEC order and decision, it was held that "… It is not "unwritten rules" but the existing regulatory standards that do not allow the expansion of applicants' dwelling or the construction of the addition" 2005 WL 815534 (NYSDEC., 2005, p. 9).

As to the non-state-mapped wetlands, they are predominantly agricultural wetlands where farming has had a recurring impact. Associated frequent application of herbicides, pesticides, plowing, harvesting, and other disturbance experienced in these areas will be halted by the Project and replaced by the non-intensive, comparatively benign, activity of a highly-regulated solar farm, for which numerous best management practices shall be employed to insure impact avoidance and minimization. Accordingly, with the application of BMPs, the Project will improve areas of mapped and non-mapped wetlands. As with regulated wetlands, the Applicant has attempted to the extent practicable to avoid and minimize impacts. A concerted effort to allow a buffer around even unmapped wetlands has resulted in less than 0.2 acre of permanent impact within a 25-foot adjacent area to these wetlands. With this in mind, and as explained above and below, impacts in the non-mapped wetlands and their adjacent areas would be compatible with the preservation, protection and conservation of the wetland and its existing, albeit currently somewhat degraded benefits, as there would be no more than insubstantial degradation or loss to the wetlands. Likewise, the construction of a renewable energy facility promoting the goals of the State Climate Act would be compatible with public health and safety.

As explained further below, the proposed impacts to regulated mapped wetlands and their regulated adjacent areas, even assuming some amount of non-mapped wetlands are subject to Part 663 regulation, the Project would satisfy the weighing standards in Part 663.5 (see below Section 22(m)(1)).

(5) Wetland Maps and Shapefiles

See Appendix 22-4, Wetland and Waterbody Delineation Report, for a detailed description of the delineated wetlands. Figure 22-3 depicts the TRC field-delineated and predicted wetlands within the Wetland Delineation Survey Area and adjoining 100-foot area from Project Components. See Figure 22-4 for the extent of the federally, and state-mapped wetlands. Shapefiles of the delineated wetlands and other waterways will be provided to the NYSDEC and DPS.

22(i) Characterization of Wetlands within the Project Area

Wetland and stream cover types delineated within the Wetland Delineation Survey Area associated with the Project Area are described in detail below. Each wetland was assigned one or more cover types based on the Cowardin classification system (Federal Geographic Data Committee, 2013). In some instances, a delineated wetland or stream contained multiple cover types due to its more complex community character. Boundaries were demarcated and data plots were taken from each specific cover type. This method was used to establish a more complete depiction of wetlands and a more informative approach to any potential future mitigation efforts. Further information on each individual wetland identified is provided within the Wetland Delineation Report, included as Appendix 22-4.

Palustrine Emergent Wetlands (PEM) – Twenty-five wetlands delineated within the Project Area contain characteristics representative of the emergent wetland classification. Emergent wetlands are dominated by an herbaceous layer of hydrophytic (water-tolerant) plant species. Emergent wetlands typically contain deep, nutrient rich soils that remain heavily saturated or even inundated throughout the year.

Emergent wetlands encountered in the Wetland Delineation Survey Area were typically dominated by reed canary grass (Phalaris arundinacea), sensitive fern, various sedges (*Carex* spp.), common boneset (*Eupatorium perfoliatum*) and narrowleaf cattail. Evidence of wetland hydrology for these wetlands included surface water, saturation, high water table, sediment deposits, water marks, aquatic fauna, oxidized rhizospheres on living roots, inundation visible on aerial imagery, algal mat or crust, sparsely vegetated concave surface, water stained leaves,

hydrogen sulfide odor, recent iron reduction in tilled soils, surface soil cracks, drainage patterns, geomorphic position, shallow aquitard, microtopographic relief, and passing the FAC-neutral test. Hydric soil indicators adhered to descriptions and guidelines outlined in Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils, Version 8.2 (NRCS, 2018). Although hydric soils indications were variable, emergent wetlands within the Wetland Delineation Survey Area typically displayed (2.5YR 3/1 – 10YR 6/3) loam, clay, clay loam, sandy clay loam, rocky loam, sand, and silty loam soils. Variations of characteristics in the soil matrices generally demonstrated Histosol (A1), Depleted Matrix (F3), Redox Dark Surface (F6), and Hydrogen Sulfide (A4) hydric soil indicators.

Palustrine Scrub-shrub wetlands (PSS) – Three wetlands delineated within the Project Area contained characteristics representative of a scrub-shrub wetland community. Scrub-shrub wetlands are dominated by woody shrub vegetation that stand less than 20 feet tall. Shrub species dominating the wetland could include true shrubs, a mixture of young trees and shrubs, or trees that are small or stunted due to stressors from explicit environmental conditions.

Scrub-shrub wetlands encountered in the Wetland Delineation Survey Area were typically dominated by silky dogwood and southern viburnum. Herbaceous species included sensitive fern, reed canary grass, shallow sedge (*Carex lurida*), and sweet Joe-pye-weed (*Eutrochium purpureum*). Evidence of hydrology for these wetlands included saturation, geomorphic position, and FAC-neutral test. Although hydric soils indications were variable, scrub-shrub wetlands within the Study Area typically displayed (5YR 3/2 – 10YR 3/2) sandy loam soils. Variations of characteristics in the soil matrices generally demonstrated Redox Dark Surface (F6) hydric soil indicators.

Palustrine Forested wetlands (PFO) – Twenty-nine wetlands delineated within the Project Area contained characteristics representative of a forested wetland. Forested wetlands are sometimes referred to as swamps and are dominated by tree species 20 feet or taller with an understory of shrub and herbaceous species. Understory vegetation presence readily varies, as the upper canopy of tree species may block light needed for extensive vegetative growth in the understory. Coniferous swamps, lowland hardwood swamps, and floodplain forests are common types of forested wetlands. Soils in forested wetlands are typically inundated or saturated early spring into summer. Some forested wetlands may dry up entirely, revealing water stain marks along the trunks of exposed tree species and shallow, buttressed root systems indicative of periods of heavy inundation events.

Forested wetlands encountered in the Wetland Delineation Survey Area were typically dominated by green ash, red maple, American elm, and yellow birch. Understory vegetation typically included saplings of common buckthorn, silky dogwood, and American hornbeam. Herbaceous species included jewelweed (*Impatiens capensis*), sensitive fern, and various sedges. Evidence of hydrology for these wetlands included surface water, saturation, a high water table, sediment deposits, algal mat or crust, water marks, aquatic fauna, inundation visible on aerial imagery, sparsely vegetated concave surface, surface soil cracks, moss trim lines, oxidized rhizospheres on living roots, drainage patterns, drift deposits, geomorphic position, water stained leaves, thin muck surface, stunted or stressed plants, saturation visible on aerial imagery, geomorphic position, microtopographic relief, and FAC-neutral test. Although hydric soils indications were variable, forested wetlands within the Study Area typically displayed (5YR 5/3 – 10YR 7/2) silt loam, muck, mucky silt loam, fibric silt loam, sandy loam, silty clay loam, and loam soils. Variations of characteristics in the soil matrices generally demonstrated Historic Epipedon (A2), Redox Dark Surface (F6), Sandy Mucky Mineral (S1), Depleted Matrix (F3), Depleted Below Dark Surface (A11), Thin Dark surface (S9), and Thick Dark Surface (A12) hydric soil indicators.

Palustrine Unconsolidated Bottom (PUB) – Four wetlands delineated within the Wetland Delineation Survey Area contained characteristics representative of unconsolidated bottom wetlands. Unconsolidated bottom wetlands are characterized by surface water and have less than 30 percent vegetative cover and at least 25 percent cover of particles less than stones. As these are bodies of standing water, evidence of wetland hydrology was decisively present with standing water ranging from approximately 2 to 4 feet in depth. Evidence of wetland hydrology included surface water, high water table, saturation, algal mat or crust, inundation visible on aerial imagery, water-stained leaves, aquatic fauna, moss trim lines, geomorphic position, microtopographic relief and FAC-neutral test. Dominant herbaceous species included narrowleaf cattail, and common reed (*Phragmites australis*).

Streams (RUP, RIN, REPH) – Twenty-~~four~~ seven streams were delineated within the Project Area. Classification of streams were dependent on a temporal description of their usual level of flow regimes. Perennial streams (RUP) tend to flow all year, except during severe drought conditions. Perennial streams can flow below the water table and receive groundwater flow sources from springs or groundwater seepages on slopes. Intermittent streams (RIN) flow only during certain times of the year from alternating springs, snow melts, or from runoff from seasonal precipitation events. Intermittent streams can flow above or below the water table. Ephemeral streams (REPH) flow sporadically and are entirely dependent on transient precipitation from storm

events or from periodic snow melts. These streams tend to flow above the water table and are often found as drainage features adjacent to, or within, the headwaters of a more major stream system.

Streams encountered in the Project Area were mostly Intermittent in nature along gentle to moderate gradients (0 to 10 percent). Stream widths ranged from 2 to 6 feet. Streams generally contained channel substrates of silt, clay, cobble, gravel, and sand with probed stream depths in the range of 0 to 6 inches. Most streams were determined to lack substantial features to permit the prevalence of aquatic ecologies. Only a small number of streams within the Project Area were determined to contain significant aquatic habitat to establish and support fish and wildlife populations. Most of the stream systems supporting aquatic habitats were found to be perennial, as an annual flow regime allows for a more readily established life cycle. Ten streams within the Project Area are classified as Class C by NYSDEC, a classification suggesting the ability to support fish populations.

Further characterization of the wetlands and streams can be found in Appendix 22-4.

22(j) Qualitative and Descriptive Wetland Function Assessment

Recognizing the limitations of wetland assessment in only the aspect of numerical weightings and averaging, stresses the need for a qualitative description of the physical, chemical, biological, and geological characteristics of wetlands to identify and measure exhibited functions and values. For many audiences, such a measurement can be highly subjective. In the past, efforts to use best professional judgments to interpret functions and values would often be unorganized, unpredictable, and legally difficult to defend and document (USACE, 1995). In response, the USACE developed a supplement to the *Highway Methodology Workbook entitled Functions and Values: A Descriptive Approach* (Supplement). This assessment example was created to collect and describe the functions and values assessment of wetlands in a measurable and un-biased perspective. It is for these reasons that the Applicant elects to use elements of the USACE, Highway Methodology, and processes outlined in the Supplement, to conduct a qualitative assessment of the physical characteristics of the wetlands and identify the functions and values that they exhibit.

The functions and values of wetlands are the favorable roles that a wetland provides to its surrounding environment and towards the benefit of human society. Functions and values are a result of specific biological, chemical, and physical characteristics within the wetland and any

complex relationships maintained by the wetland within its watershed, local environment, and the public.

Assessing a specific wetland's function and value is needed to determine the overall effects an impact or alteration may have on a wetland feature. Ultimately, such a measurement aids in establishing the appropriate type and amount, if any, of possible mitigation after impacts to a wetland occur. More recently, the assessment of the functions and values for wetlands have been used to consider wetland features for their value and functional significance, to better ensure that wetlands with specific and higher functions or values receive proper vindication. Toward that end, a wetland functions and values assessment was undertaken for the Project Area. A comprehensive description of the functions and values of all wetlands delineated follows.

The thirteen functions and values that are considered by the USACE through their Supplement are listed below. The list includes eight functions and five values. Although the functions and values listed are not the only wetland functions and values possible, they do represent the current working suite provided by the USACE for regulatory consideration and do match well with the wetland benefits depicted within ECL Article 24. As such, they are thought to provide an objective and meaningful representation of the wetland resources associated with the Project. Based on processes outlined in the Supplement, a spreadsheet was created to include several basic considerations ("qualifiers") that help identify the functions and values provided by wetlands. These considerations are numerous, but include observed vegetation conditions, hydrologic conditions, size, adjacent area conditions, and the availability of public access. To see the spreadsheet and receive more detail on the functions and values assessment, see Appendix 22-5. Each wetland's functions and values were evaluated based on data collected during field delineation meeting specific conditions. All wetlands identified within the Wetland Delineation Survey Area were entered into the spreadsheet. Various wetland characteristics were identified for each wetland. Based on these data, the functions and values provided by each wetland were determined.

Wetland Functions

Wetland functions are the properties or process of a wetland ecosystem that aid in promoting a homeostatic natural environment in the absence of human interference. A wetland's specific function(s) results from both organic and inorganic components, including physical, geologic, hydrologic, chemical, and biological systems. These components include all processes necessary for the self-maintenance of the wetland ecosystem and relate to the ecological significance of

wetland properties without regard to subjective human values. The eight functions defined by the Supplement including short descriptions defining each function are as follows:

1. Flood-flow Alteration - This function applies to the effectiveness of the wetland in reducing flood damage by containing an enhanced ability to store floodwaters for an extended period following heavy precipitation events.
2. Groundwater Recharge/Discharge - This function defines the potential for a wetland to act as a source of groundwater recharge and/or discharge. Recharge describes the potential for the wetland to contribute water to an underlying aquifer. Discharge relates to the potential for the wetland to act as a source of groundwater transfer to the surface i.e., springs and hillside seeps.
3. Sediment/Pollutant Retention - This function describes the ability of a wetland to hinder the degradation of water qualities downstream. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens based on its geomorphic position, connectivity, soil thickness, and other physical characteristics.
4. Fish and Shellfish Habitat - This function defines a wetland's ability to contain or influence suitable habitats for fish and shellfish species.
5. Sediment/Shoreline Stabilization - This function defines a wetland's ability to effectively stabilize streambanks and shorelines against future erosion events.
6. Production (Nutrient) Export - This function relates to a wetland's ability to produce food or usable products for organisms, including humans, within the trophic levels associated with the watershed.
7. Nutrient Removal/Retention/Transformation - This function relates to the wetland containing the ability to prevent excess nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers, or estuaries.
8. Wildlife Habitat - This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and their periphery. Resident and migrating species were considered along with the potential for any state or federally listed species occurring within the target wetland.

Wetlands within the Wetland Delineation Survey Area displayed multiple functions based on their specific site characteristics. All delineated wetlands were determined to have the ability to provide some function of flood-flow alteration, sediment/toxicant/pathogen retention, and nutrient

removal/retention/transformation. The primary functions displayed by wetlands within the Wetland Delineation Survey Area include:

- Wildlife Habitat (37 wetlands)
- Groundwater Recharge or Discharge (37 wetlands)
- Production Export (26 wetlands)
- Sediment/Shoreline Stabilization (22 wetlands)
- Fish and Shellfish Habitat (8 wetlands)

Wetland Values

Wetland Values are the societal benefits stemming from one or more of the functions associated with a wetland. Most wetlands have corresponding public value to an assessable degree. The value of a wetland function, or a combination of functions, is based on the interpretative judgment of the significance attributed to the wetlands through the various functions it provides. The five values defined by the Supplement and adopted for use in this assessment, including short descriptions defining each value, are documented below.

1. Recreation - This value indicates if the wetland is effective in providing, or assisting in the establishment of, recreational opportunities such as boating, fishing, hunting, and other leisurely pursuits. Recreation in this capacity includes both consumptive and non-consumptive activities. Consumptive activities consume or diminish the plants, animals, or other resources that are naturally located in the wetland, whereas non-consumptive activities do not.
2. Education/Scientific - This value considers the effectiveness of the wetland as a site for public education or as a location for scientific research.
3. Uniqueness/Heritage - This value applies to wetlands that contain a singular or rare quality. Special qualities may include such things as the wetland's history and the presence of archaeological sites, historical events that may have taken place at the wetland, or unique plants, animals, or geologic features located within, or supported by, the wetland feature.
4. Visual Quality/Aesthetics - This value relates to the visual and aesthetic qualities of the wetland.

5. T&E Species Habitat - This value relates to the effectiveness of the wetland or associated waterbodies to specifically support T&E species.

Wetland Values are limited within this Study Area due to the wetlands being largely inaccessible to the public. The primary values displayed by wetlands within the Wetland Delineation Survey Area include:

- Recreation (25 Wetlands)
- Visual Quality/Aesthetics (24 Wetlands)

The qualitative and descriptive wetland functions and values assessment, including seasonal variations, for all delineated wetlands is included as Appendix 22-5 of this Application.

(1) Vernal Pools

For this Exhibit, vernal pools are defined as any woodland pool or non-manmade water filled depression that hosts egg masses of indicator species. Indicator species in the Project Area and surrounding region include the following obligate vernal pool breeding amphibians: spotted salamander (*Ambystoma maculatum*), blue spotted salamander (*Ambystoma laterale*), Jefferson salamander (*Ambystoma jeffersonianum*), and wood frog (*Lythobates sylvaticus*). These species require vernal pool habitat or similar features to reproduce. Potential vernal pools are woodland depressions that exhibit physical characteristics of vernal pools such as sparsely vegetated concave surfaces and signs of vernal pool hydrology but lack indicator species egg masses. These features may be actual vernal pools observed at a time when water levels are not conducive to amphibian breeding. Amphibian breeding areas are areas of anthropogenic origin such as ditches, tire ruts, and skidder tracks that contain amphibian egg masses.

The April 2021 vernal pool survey did not identify any vernal pools within the Project Area, therefore, impacts to vernal pools are not anticipated.

22(k) Off-Site Wetlands Hydrological and Ecological Influence Analysis

As described previously, wetlands outside of the Wetland Delineation Survey Area, and therefore outside of the Project Area, were approximated within at least 100 feet of Project Components using interpretation of aerial imagery, review of wetland mapping databases maintained by the NWI and NYSDEC, reference to on-site observations, and an analysis of publicly available topographic contour mapping. The approximation of wetlands within at least 100 feet of Project Components is included as Figure 22-3 and was used to determine hydrological connections to

these off-site wetlands, including off-site state-mapped wetlands regulated by NYSDEC that may be near Project Components, but outside the Project Area. Twenty-one predicted off-site wetlands were identified. These wetlands are extensions of field-delineated wetlands within the Project Area. These predicted wetlands are likely federally jurisdictional by the USACE.

22(l) Temporary and Permanent Wetland Impacts

As reported above in Section 22(h)(4) and the Wetland and Stream Delineation Report (see Appendix 22-4), 45 wetlands have been delineated in the Project Area. In addition, outside the Wetland Delineation Survey Area, but within 100 feet of proposed impact areas (including collector lines occurring outside of the Project Area within existing road ROWs), 21 wetlands have been predicted as to their boundaries. For the purposes of this Section, delineated wetlands shall be defined as the 45 delineated wetlands, plus the 21 predicted wetlands, for a total of 66 wetlands. Of these, ~~23~~ 22 delineated wetlands and ~~3~~ 2 predicted wetlands will experience impacts from the proposed Project. Predicted wetland impacts are minor, amounting to less than ~~0.01 acres of conversion impacts and~~ ~~0.46~~ 0.02 acres of temporary impacts likely subject to USACE jurisdiction.

A description of temporary, permanent, and conversion impacts to the ~~23~~ 26 impacted delineated wetlands and ~~3~~ 2 impacted predicted wetlands follows. This description focuses on the categories of (1) ~~Likely~~ USACE-Jurisdictional Wetlands; (2) DEC-Mapped Wetlands; (3) DEC-Mapped Wetland Adjacent Areas, and (4) Non-jurisdictional Wetlands. Because of overlap between USACE-Jurisdictional and DEC-Jurisdictional wetland area, the various categories cannot simply be added to arrive at a total impact area.

(1) ~~Likely~~ USACE-Jurisdictional Wetland Impacts:

~~Eight~~ Nineteen delineated wetlands and ~~no~~ one predicted wetland~~s~~ are subject to permanent impacts of ~~11,086~~447,321 sq. ft (10.27~~0.25~~ acres) for the placement of Project Components. ~~Eleven~~ Seven delineated wetlands ~~and one predicted wetland~~ are subject to conversion impacts of ~~3,807,403~~ 612,712 sq. ft. (~~87.41~~14.07 acres), of which ~~3,735,572~~568,810 sq. ft. (~~85.76~~13.06 acres) are subject to permanent forest conversion impacts. ~~Nine~~ Eighteen delineated wetlands and two predicted wetlands are subject to temporary impacts to wetlands, consisting of ~~202~~236,~~688~~ 387 sq. ft. (~~4.65~~5.43 acres) for construction purposes. Cover types associated with these impacts include the following:

- PEM – ~~3.78~~ 3.34 acres of temporary impacts and ~~<0.01~~0.21 acres of permanent wetland impacts;
- PFO – ~~86.51~~13.18 acres of conversion impacts (~~85.76~~13.06 acres that consist of permanent forest conversion impacts), ~~0.69~~1.60 acres of temporary impacts, and ~~0.22~~10.02 acres of permanent wetland impacts;
- PSS – ~~0.90~~ 0.89 acres of conversion impacts, ~~0.18~~ 0.19 acres of temporary impacts, and ~~0.04~~ 0.03 acres of permanent wetland impacts; and
- PUB – ~~no impacts~~0.28 acres of temporary impacts.
- Total – ~~92.31~~29.75 acres

(2) DEC-Mapped Wetland Impacts:

Based on the proposed updates to the Project layout, impacts to DEC mapped-regulated wetlands have been reduced by 98.86 percent. Of the seven DEC mapped-regulated wetlands, only ~~four~~ four wetlands are directly impacted~~, though all seven have adjacent area impacts, albeit of a minor nature~~. The ~~four~~ four DEC-mapped regulated wetlands are subject to permanent impacts of ~~5,480~~11,711 sq. ft (~~0.13~~ 0.27acres), ~~1,264,789~~5,017 sq. ft. (~~29.04~~0.12 acres) of conversion impacts, of which ~~1,263,084 sq. ft. (29.00 acres)~~all 0.12 acres are subject to permanent forest conversion impacts, and ~~640,044~~ 4,840 sq. ft. (~~14.69~~0.12 acres) of temporary wetland impacts. Temporary construction impacts equate to ~~14.69~~0.12 acres, while 0.~~13~~ 27 acres of permanent impacts are proposed for the placement of Project Components. ~~-~~Although overall impacts to wetlands have been reduced significantly as stated above, the category of permanent impacts to wetlands has increased primarily as a result of reclassifying Type I tree clearing (which includes tree stump removal and associated ground disturbances) as a permanent impact rather than a conversion as it was classified in the Article 10 Application.~~Wetland W-NSD-10 was redelineated as requested by the NYSDEC field visit mentioned above in Section 22(h)(4). The revised boundary has not yet been reviewed by the NYSDEC relative to location, but encompasses an area in production as upland cornfield, hence the initial delineation. Precise impact calculations await review of the boundary. Updates to the associated delineation (shapefile, figures, and impact calculations) will be provided to DPS upon completion.~~

Cover types associated with these impacts include the following:

- PEM – ~~14.43~~0.05 acres of temporary impacts and 0.02 acres of permanent wetland impacts;
- PFO – ~~29.04~~0.12 acres of conversion impacts (~~29.00 acres that~~all of which~~ ~~ consist of permanent forest conversion impacts), ~~0.27~~ 0.06 acres of temporary impacts, and ~~0.11~~ 0.25 acres of permanent wetland impacts;
- PSS – no impacts;
- PUB – no impacts; and
- Total – ~~43.85~~0.5 acres.

(3) DEC-Mapped Wetland Adjacent Area Impacts:

~~Seven~~ Five DEC-mapped regulated wetland adjacent areas are subject to permanent impacts of ~~29,104~~127,755 sq. ft (~~0.67~~2.93 acres), ~~1,169,353~~96.967 sq. ft. (~~26.84~~2.23 acres) of conversion impacts, and ~~770,695~~231,409 sq. ft. (~~17.69~~5.32 acres) of temporary wetland impacts. Although overall impacts to wetlands have been reduced significantly as stated above, the category of permanent impacts to wetlands has increased primarily as a result of reclassifying Type I tree clearing (which includes tree stump removal and associated ground disturbance) as a permanent impact rather than a conversion as it was classified in the Article 10 Application.

Cover types associated with these impacts include the following:

- PEM – ~~12.92~~3.96 acres of temporary impacts and ~~0.14~~ 0.62 acres of permanent wetland impacts;
- PFO – ~~26.84~~2.23 acres of conversion impacts, ~~4.30~~1.35 acres of temporary impacts, and ~~0.53~~2.31 acres of permanent wetland impacts;
- PSS – no impacts; and
- PUB – ~~0.48 acres of temporary~~no impacts.
- Total – ~~45.21~~10.47 acres

(4) Non-Jurisdictional Wetland Impacts:

~~Eight~~ Three delineated wetlands are subject to permanent impacts of ~~284~~ 205,993 sq. ft (~~0.01~~4.73 acres) for the placement of Project Components. No predicted non-jurisdictional wetlands are subject to permanent impacts. ~~Five~~ Two delineated wetlands and no predicted wetlands are

subject to permanent forest conversion impacts of ~~403,967~~31,871 sq. ft. (~~9.27~~0.73 acres). ~~Eight~~ Two delineated wetlands and ~~one~~ no predicted wetland are subject to temporary impacts to wetlands, consisting of ~~96,127~~22,893 sq. ft. (~~2.21~~0.52 acres) for construction purposes.

Cover types associated with these impacts include the following:

- PEM – ~~1.94~~ 0.53 acres of temporary impacts and ~~<0.01~~ 0.04 acres of permanent wetland impacts;
- PFO – 0.74 ~~9.27~~ acres of conversion impacts (~~9.27 acres that~~all of which consist of permanent forest conversion impacts), ~~0.01 acres of temporary impacts,~~ and ~~0.01~~ 4.69 acres of permanent wetland impacts;
- PSS – no impacts; and
- PUB – ~~0.26 acres of temporary impacts and <0.01 acres of permanent wetland~~no impacts.
- Total – ~~11.49~~5.99 acres

As indicated above, there are some impacts to NYSDEC-mapped regulated wetlands or their 100-foot adjacent areas. However, as documented elsewhere, Project Components were sited to avoid these areas to the maximum extent practicable. Impacts to surface waters, including a discussion of temporary and permanent impacts from stream crossings, are discussed in Exhibit 23. As discussed in Section 22(m)(1) herein, the Project satisfies the regulated wetland weighing standards in Part 663. See Appendix 11-1 and Figure 22-7 for areas of potential impacts to delineated wetlands and streams. The Applicant's field boundary verification with NYSDEC and USACE occurred on May 11, October 15, and November 9, 2021. Final feedback~~conclusions~~ from NYSDEC staff are pending.

The Applicant has taken steps to distance Project Components from mapped wetlands to the maximum extent practicable, especially non-agricultural wetlands (i.e., those not situated within agricultural fields). Wetlands that will be impacted are shown in Table 22-11. Table 22-11a. shows temporary and permanent impacts specific to DEC-mapped wetlands and their adjacent areas.

Impacts to wetlands have been avoided to the maximum extent practicable by siting Project Components within upland (typically agricultural) areas wherever possible. Pursuant to the Siting Board's Atlantic Wind decision, the BMPs in Appendix 22-6 will be applied to DEC

mapped and unmapped wetlands. However, due to the amount of land within the Project Area occupied by wetlands, impacts to these features are, in places, unavoidable in order to achieve the Applicant's goal of developing a 200 MW solar renewable energy generating facility, in compliance with the Part 663 weighing standards discussed herein at Section 22(m)(1). Where wetland impacts could not be avoided, impacts are minimized through project design and the application of BMPs including stormwater prevention control measures, equipment restrictions, and the use of existing access roads and crossings.

Additional wetland impacts are in the form of conversion which total ~~4,211,369~~644,831 sq. ft, or ~~96.68~~14.80 acres of which ~~4,139,539~~600,681 sq. ft (~~95.04~~13.79 acres) is proposed to be permanent forest conversion for USACE jurisdictional and non-jurisdictional wetlands. The wetland impacts for permanent forest conversion for NYSDEC mapped-regulated wetlands is ~~1,263,084~~5,017 sq. ft., or ~~29.00~~0.12 acres, as stated above. These impacts are typically conversion of land cover through clearing of non-aquatic vegetation associated with panel installation to eliminate the potential of problematic shading effects caused by vegetation adjacent to Project Components. Such a small percentage of land undergoing vegetation clearing spaced out over a 2,288.7-acre Project Area will not significantly adversely affect wetland functions within the Project Area. Additionally, conversion impacts can enhance vegetative community diversity. Following construction, the Applicant will use grass seed mixes to establish a stabilized vegetative ground cover. These grass seed mixes are comprised of grasses that are native and/or indigenous to the area and are considered favorable for wildlife habitat and sustainable growth. Additionally, the Applicant is proposing to install ~~31,480~~30,235-linear feet of vegetative landscaping, inclusive of landscaping proposed for visual mitigation, consisting of various native tree and shrub species.

Solar arrays will be located within portions of ~~15~~ 11 of the 45 delineated wetlands within the Project Area. Posts supporting these arrays will be installed within some wetland areas. Due to the limited size of the posts (approximately 6 in. x 6 in. diameter post or 0.25 sq. ft), the cumulative impact of these posts is approximately ~~2,072~~15,338 sq. ft. (~~0.05~~ 0.35 acres). The USACE interprets pile driving for solar arrays with no grading or other earth work as neither a dredge nor a fill, and therefore this activity is non-jurisdictional to the USACE. The need for grading in delineated wetland areas was minimized to the maximum extent practicable. Only ~~12.93~~ 0.96 acres of grading will occur within delineated wetlands. Grading for Project Components will occur within 11~~14~~ wetlands, and tree clearing (Type I) that would constitute soil disturbance (e.g., stump removal) will occur within ~~19~~ 15 wetlands, for a total of ~~23~~ 18

wetlands impacted by these actions. The USACE interprets these actions (i.e., vegetative clearing to include grading or other earth disturbance) as a fill necessitating a federal permit. Resulting in However, only 0.2615.0 acres will beof permanent impacts forto USACE and non-jurisdictional wetlands.

Table 22-11 Temporary and Permanent Impacts to Delineated Wetlands

Field ID	Wetland Classification	Jurisdiction	Conversion (Sq. Ft/ Acres)	Temporary Impacts (Sq. Ft/ Acres)	Permanent Impacts (Sq. Ft/ Acres)	Total Impacts (Sq. Ft/ Acres)	Permanent Forest Conversion (Sq. Ft/ Acres)	Impact Types to Wetlands Only	Impact Avoidance Measures	Page Number from Civil Drawing
W-BTF-1	PEM	USACE	-	32,375123/ 0.7400	13/ 0.00	32,388123 / 0.7400	-	Array Area, Tree Clearing Type I & II#,Fence, Fenced Area, LOD	Tree clearing necessary for preventing shading on nearby solar arrays has been limited to the maximum extent practicable. Part of this wetland is previously disturbed by agricultural practices. State-mapped wetlands that overlap with this delineated wetland have been avoided and will not be impacted. Impacts to the 100-ft adjacent area are required due to Project Components.	C. 315, C.316, C. 320, C. 321,
W-BTF-1	PFO	USACE	1,907,88312 0.818/ 43.822.77	29413,580/ 0.010.31	2,3971,476/ 0.0603	1,910,574 135,874/ 43.863.12	1,888,10312 0.816/ 43.352.77	Access Road, Array Area, Collector, Culvert/Riprap, Fence, Fenced Area, Grading, Tree Clearing Type I & II*, LOD	Tree clearing necessary for preventing shading on nearby solar arrays has been limited to the maximum extent practicable. Impacts to the 100-ft adjacent area are required due to Project Components.	C. 315, C.316, C. 320, C. 321
W-BTF-2*	PEM	Non-Jurisdictional	-	3,2543/ 0.07	2/ 0.00	3,2565/ 0.07	-	Array, Grading, LOD	This wetland is previously disturbed by agricultural practices.	C. 321
W-BTF-9	PFO	Non-JurisdictionalUSACE	171,643/ 3.94-	-	115171,758 / 3.940.00	171,758/ 3.94	171,643/ 3.94-	Array, Tree Clearing Type I, Grading, LOD	Tree clearing necessary for preventing shading on nearby solar arrays has been limited to the maximum extent practicable. Impacts to palustrine forested wetlands have been minimized to maximum extent practicable.	C. 318
W-BTF-11	PFO	Non-Jurisdictional	216,549/ 4.9731,534/ 0.72	-	199,396113 / 0.004.58	216,66223 0,930/ 4.975.30	216,54931,2 86/ 4.970.72	Array Area, Tree Clearing Type I & II, LODFenced Area	Tree clearing necessary for preventing shading on nearby solar arrays has been limited to the maximum extent practicable. Setbacks have been proposed for stream crossing this wetland.	C. 318, C.319, C. 320
W-BTF-11	PEM	Non-Jurisdictional	-	19,639/ 0.45	1,623/ 0.04	21,262/ 0.49	-	Array Area, Fenced Area	This wetland is previously disturbed by agricultural practices.	C. 318, C.319, C. 320
W-BTF-12	PFO	USACE	49,700/ 1.14-	--	-142/ 0.00	49,700142 / 1.140.00	49,700/ 1.14-	Fence, Tree Clearing Type I & II, LOD	Tree clearing necessary for preventing shading on nearby solar arrays has been limited to the maximum extent practicable. Setbacks have been proposed for stream crossing this wetland.	C. 319

Table 22-11 Temporary and Permanent Impacts to Delineated Wetlands

Field ID	Wetland Classification	Jurisdiction	Conversion (Sq. Ft/ Acres)	Temporary Impacts (Sq. Ft/ Acres)	Permanent Impacts (Sq. Ft/ Acres)	Total Impacts (Sq. Ft/ Acres)	Permanent Forest Conversion (Sq. Ft/ Acres)	Impact Types to Wetlands Only	Impact Avoidance Measures	Page Number from Civil Drawing
W-BTF-14	PEM	~~Non-Jurisdictional~~USACE	-	~~10,396~~2,270/ ~~0.24~~0.05	~~-~~8,128/ 0.19	~~10,396~~10,398/ 0.~~24~~24	-	Array, Fence, Tree Clearing Type I, LOD	Tree clearing necessary for preventing shading on nearby solar arrays has been limited to the maximum extent practicable. A portion of this wetland is previously disturbed by agricultural practices. Impacts to palustrine emergent wetlands have been minimized to maximum extent practicable by siting most of the Project Components in agricultural and previously disturbed areas wherever possible.	C. 318
W-BTF-15	PFO	~~Non-Jurisdictional~~USACE	9,905/ 0.23	-	6/ 0.00	9,911/ 0.23	9,905/ 0.23	Array, Fence, Fenced Area Tree Clearing Type I & II, LOD	Tree clearing necessary for preventing shading on nearby solar arrays has been limited to the maximum extent practicable. Impacts to palustrine forested wetlands have been minimized to maximum extent practicable by siting most of the Project Components in agricultural and previously disturbed areas wherever possible.	C. 320
W-BTF-16	PFO	~~Non-Jurisdictional~~USACE	~~683/ 0.02-~~	-	683/ 0.02~~-~~	683/ 0.02	~~683/ 0.02-~~	Tree Clearing Type I~~, LOD~~	A small portion of tree clearing necessary for preventing shading on nearby solar arrays has been limited to the maximum extent practicable. Impacts to palustrine forested wetlands have been minimized to maximum extent practicable by siting most of the Project Components in agricultural and previously disturbed areas wherever possible.	C. 327, C. 328
W-BTF-17	PFO	USACE	~~686,969~~407,794/ 9.36~~15.77~~	~~4,351/ 0.10-~~	~~2,026~~1,789/ 0.0~~45~~	~~693,346~~409,583/ ~~15.92~~9.40	~~679,242~~407,794/ ~~15.59~~9.36	Access Road, Array Area, Collector, Culvert/Riprap, Fence, Grading, Tree Clearing Type~~I &~~ II, LOD	Tree clearing necessary for preventing shading on nearby solar arrays has been limited to the maximum extent practicable. Setbacks have been proposed for stream crossing this wetland. Impacts to palustrine forested wetlands have been minimized to maximum extent practicable by siting most of the Project Components in agricultural and previously disturbed areas wherever possible.	C.326, C.327, C.328, C.329

Table 22-11 Temporary and Permanent Impacts to Delineated Wetlands

Field ID	Wetland Classification	Jurisdiction	Conversion (Sq. Ft/ Acres)	Temporary Impacts (Sq. Ft/ Acres)	Permanent Impacts (Sq. Ft/ Acres)	Total Impacts (Sq. Ft/ Acres)	Permanent Forest Conversion (Sq. Ft/ Acres)	Impact Types to Wetlands Only	Impact Avoidance Measures	Page Number from Civil Drawing
W-BTF-17	PEM	USACE	-	~~19,291~~412/ 0.0144	~~4/ 0.00~~	~~19,295~~412 / 0.0144	-	~~Array Area,~~ Collector~~, Fence, Grading, Tree Clearing Type I & II~~, LOD	Impacts to palustrine emergent wetlands have been minimized to maximum extent practicable by siting most of the Project Components in agricultural and previously disturbed areas wherever possible. ~~Tree clearing necessary for preventing shading on nearby solar arrays has been limited to the maximum extent practicable~~.	C.326
W-BTF-18	PEM	USACE	-	4,618/ 0.11	-	4,618/ 0.11	-	Grading, LOD	Impacts to palustrine emergent wetlands have been minimized to maximum extent practicable by siting most of the Project Components in agricultural and previously disturbed areas wherever possible. Impacts to a small portion of this wetland is unavoidable due to siting of proposed substation.	C.322, C.327
W-JJB-1	PFO	USACE	~~15,276~~5,253/ 0.~~35~~12	-	410,026/ 0.~~00~~23	15,279/ 0.35	~~15,276~~5,253/ 0.~~35~~12	Array ~~Area, Fence, Grading,~~ Tree Clearing Type I & II~~, LOD~~	Tree clearing necessary for the placement of Project Components and for preventing shading on nearby solar arrays has been limited to the maximum extent practicable. Impacts to palustrine forested wetlands have been minimized to maximum extent practicable by siting most of the Project Components in agricultural and previously disturbed areas wherever possible.	C. 337
~~W-JJB-2~~	~~PFO~~	~~USACE~~	~~279,941/ 6.43~~	~~1,524/ 0.03~~	~~426/ 0.01~~	~~281,890/ 6.47~~	~~279,941/ 6.43~~	~~Temporary Access Road, Array Area, Culvert/Riprap, Fence, Grading, Tree Clearing Type I & II, LOD~~	~~Tree clearing necessary for the placement of Project Components and for preventing shading on nearby solar arrays has been limited to the maximum extent practicable. Impacts to palustrine forested wetlands have been minimized to maximum extent practicable by siting most of the Project Components in agricultural and previously disturbed areas wherever possible. Setbacks have been proposed for stream crossing this wetland. Impacts to this wetland is unavoidable to meet the 200 MW contracted generation and to prevent shading of nearby panels.~~	~~C. 311~~

Table 22-11 Temporary and Permanent Impacts to Delineated Wetlands

Field ID	Wetland Classification	Jurisdiction	Conversion (Sq. Ft/ Acres)	Temporary Impacts (Sq. Ft/ Acres)	Permanent Impacts (Sq. Ft/ Acres)	Total Impacts (Sq. Ft/ Acres)	Permanent Forest Conversion (Sq. Ft/ Acres)	Impact Types to Wetlands Only	Impact Avoidance Measures	Page Number from Civil Drawing
W-JJB-3	PEM	USACE	-	31,~~685~~173/ 0.7~~23~~	-512/ 0.01	31,685/ 0.73	-	Fence, Grading, Tree Clearing Type I, LOD	Impacts to palustrine emergent wetlands have been minimized to maximum extent practicable by siting most of the Project Components in agricultural and previously disturbed areas wherever possible. Portions of this wetland are previously disturbed by agricultural practices.	C.323, C.326, C.330, C.331, C.332
W-JJB-3*	PFO	USACE	~~6,402~~2/ 0.~~15~~00	~~2,282~~315/ 0.0~~15~~	~~1,893~~10,562/ 0.2~~0~~4	10,~~577~~879 / 0.2~~5~~4	~~6,399/ 0.15-~~	Access Road, Collector, Grading, Tree Clearing Type I, LOD	Tree clearing necessary for the placement of Project Components and for preventing shading on nearby solar arrays has been limited to the maximum extent practicable. Impacts to palustrine forested wetlands have been minimized to maximum extent practicable by siting most of the Project Components in agricultural and previously disturbed areas wherever possible. HDD will be utilized within this portion of wetland.	C. 322, C.323, C.324, C.325, C.326, C.330, C.331
W-JJB-4	PEM	USACE	-	3,435/ 0.08	-	3,435/ 0.08	-	Collector, LOD	Impacts to palustrine emergent wetlands have been minimized to maximum extent practicable by siting most of the Project Components in agricultural and previously disturbed areas wherever possible. Portions of this wetland are previously disturbed by agricultural practices.	C.335, C.336
W-JJB-4	PSS	USACE	439~~204~~/ 0.01~~0~~	7,658~~901~~/ 0.18	1,51607/ 0.03	9,6132/ 0.22	-	Access Road, Collector, Grading, LOD	Impacts to palustrine scrub-shrub wetlands have been minimized to maximum extent practicable by siting most of the Project Components in agricultural and previously disturbed areas wherever possible.	C.335, C.336
W-JJB-6	PEM	USACE	-~~-~~	~~15,825~~15,389/ 0.3~~56~~	~~10~~446/ 0.01~~0~~	~~15,835~~15,835/ 0.36	-	Array, Tree Clearing Type I, LOD	Impacts to palustrine emergent wetlands have been minimized to maximum extent practicable by siting most of the Project Components in agricultural and previously disturbed areas wherever possible. This wetland is previously disturbed by agricultural practices.	C.332, C.336

Table 22-11 Temporary and Permanent Impacts to Delineated Wetlands

Field ID	Wetland Classification	Jurisdiction	Conversion (Sq. Ft/ Acres)	Temporary Impacts (Sq. Ft/ Acres)	Permanent Impacts (Sq. Ft/ Acres)	Total Impacts (Sq. Ft/ Acres)	Permanent Forest Conversion (Sq. Ft/ Acres)	Impact Types to Wetlands Only	Impact Avoidance Measures	Page Number from Civil Drawing
W-JJB-6	PFO	USACE	~~105,675~~6,311/ ~~2.43~~0.14	-133/ 0.00	~~30~~91,406/ 2.10~~0.00~~	~~105,705~~97,850/ 2.25~~2.43~~	~~100,436~~1,070/ 0.02~~2.31~~	Array, Fence, Grading, Tree Clearing Type I, LOD	Tree clearing necessary for the placement of Project Components and for preventing shading on nearby solar arrays has been limited to the maximum extent practicable. Impacts to palustrine forested wetlands have been minimized to maximum extent practicable by siting most of the Project Components in agricultural and previously disturbed areas wherever possible.	C.332, C.336
W-JJB-6	PSS	USACE	38,~~871~~218/ 0.8~~9~~	7~~4~~37/ 0.0~~2~~0	~~198~~/ 0.00	38,96~~9~~7/ 0.89	-	~~Array,~~ Fence, Fenced Area, LOD, Tree Clearing Type I	Impacts to palustrine scrub-shrub wetlands have been minimized to maximum extent practicable by siting most of the Project Components in agricultural and previously disturbed areas wherever possible. Impacts to this wetland is unavoidable to meet the 200 MW contracted generation and to prevent shading of nearby panels.	C.332, C.336
W-JJB-8	PEM	USACE	-	~~55,596~~28/ ~~1.28~~0.00	~~19/ 0.00~~	~~55,614~~28/ ~~1.28~~0.00	-	~~Array Area, Fence, Grading,~~ Tree Clearing Type ~~I &~~ II, LOD	Impacts to palustrine emergent wetlands have been minimized to maximum extent practicable by siting most of the Project Components in agricultural and previously disturbed areas wherever possible. Impacts to this wetland is unavoidable to meet the 200 MW contracted generation.	C. 302
W-JJB-8	PFO	USACE	~~705,173~~33,877/ ~~16.19~~0.78	~~1,862~~35,368/ 0.0~~4~~81	~~2,739~~133,561/ ~~0.06~~3.07	~~709,774~~202,806/ ~~16.29~~4.66	~~705,166~~33,877/ ~~16.19~~0.78	Access Road, Array Area, Culvert/Riprap, Fence, Grading, Tree Clearing Type ~~I &~~ II, LOD	Tree clearing necessary for the placement of Project Components to meet the 200 MW contracted generation and for preventing shading on nearby solar arrays has been limited to the maximum extent practicable. Impacts to palustrine forested wetlands have been minimized to maximum extent practicable by siting most of the Project Components in agricultural and previously disturbed areas wherever possible.	C. 302

Table 22-11 Temporary and Permanent Impacts to Delineated Wetlands

Field ID	Wetland Classification	Jurisdiction	Conversion (Sq. Ft/ Acres)	Temporary Impacts (Sq. Ft/ Acres)	Permanent Impacts (Sq. Ft/ Acres)	Total Impacts (Sq. Ft/ Acres)	Permanent Forest Conversion (Sq. Ft/ Acres)	Impact Types to Wetlands Only	Impact Avoidance Measures	Page Number from Civil Drawing
W-NSD-3	PFO	Non-Jurisdictional	~~5,187~~585/ 0.~~12~~01	~~369/ 0.01-~~	1/ 0.00	~~5,557~~4,972/ 0.1~~13~~	5,~~187~~557/ 0.1~~32~~	~~Temporary Access Road, Array Area, Fence, Grading,~~Arrays, Tree Clearing Type I & II~~, LOD~~	Tree clearing necessary for the placement of Project Components and for preventing shading on nearby solar arrays has been limited to the maximum extent practicable. Impacts to palustrine forested wetlands have been minimized to maximum extent practicable by siting most of the Project Components in agricultural and previously disturbed areas wherever possible.	C. 305
W-NSD-5	PFO	USACE	~~11,227/ 0.26-~~	-	-	~~11,227~~5,116/ 0.1~~226~~	~~11,227/ 0.26-~~	~~Fence,~~ Tree Clearing Type I ~~& II, LOD~~	Tree clearing necessary for the placement of Project Components and for preventing shading on nearby solar arrays has been limited to the maximum extent practicable. Impacts to palustrine forested wetlands have been minimized to maximum extent practicable by siting most of the Project Components in agricultural and previously disturbed areas wherever possible.	C. 304
W-NSD-7	PUB	~~Non-Jurisdictional~~USACE	-	~~11,241~~12,750/ 0.~~2286~~	42/ 0.00	~~11,245~~12,752/ 0.~~2628~~	-	Array Area, Fence~~, Grading~~, LOD	Impacts to this ~~non-jurisdictional~~ farm pond are required due to Project Components.	C. 313
W-NSD-8	PEM	USACE	-	1,737/ 0.04	-	1,737/ 0.04	-	Fence, LOD	This wetland is previously disturbed by agricultural practices. Impacts to wetlands have been minimized to maximum extent practicable by siting most of the Project Components in agricultural and previously disturbed areas wherever possible.	C. 310
W-NSD-9	PEM	~~Non-Jurisdictional~~USACE	-	51,739/ 1.19	35/ 0.00	51,774/ 1.19	-	Array Area, ~~Grading,~~ LOD	This wetland is previously disturbed by agricultural practices. Impacts to wetlands have been minimized to maximum extent practicable by siting most of the Project Components in agricultural and previously disturbed areas wherever possible.	C. 307, C. 310
W-NSD-15	PEM	~~Non-Jurisdictional~~USACE	-	5,669/ 0.13	-	5,669/ 0.13	-	Collector, LOD	Impacts to this roadside wetland have been minimized, however, impacts are necessary for the installation of the collector line alongside the road.	C. 326

Table 22-11 Temporary and Permanent Impacts to Delineated Wetlands

Field ID	Wetland Classification	Jurisdiction	Conversion (Sq. Ft/ Acres)	Temporary Impacts (Sq. Ft/ Acres)	Permanent Impacts (Sq. Ft/ Acres)	Total Impacts (Sq. Ft/ Acres)	Permanent Forest Conversion (Sq. Ft/ Acres)	Impact Types to Wetlands Only	Impact Avoidance Measures	Page Number from Civil Drawing
W-NSD-18	PEM	~~Non-Jurisdictional~~USACE~~I~~	-	13,~~452~~419/ 0.31	~~7~~40/ 0.00	13,459/ 0.31	-	Array, Fenced Area, Tree Clearing Type I, ~~LOD~~	Tree clearing necessary for preventing shading on nearby solar arrays has been limited to the maximum extent practicable. Part of this wetland is previously disturbed by agricultural practices.	C. 314, C. 322
~~PW-3[1]~~	~~PEM~~	~~Non-Jurisdictional~~	~~-~~	~~9/ 0.00~~	~~-~~	~~9/ 0.00~~	~~-~~	~~Collector, LOD~~	~~Impacts to this roadside wetland have been minimized, however, impacts are necessary for the installation of the collector line alongside the road.~~	~~C.320~~
PW-20[1]	PFO	USACE	-	18,767/ 0.43	-	18,767/ 0.43	-	Collector, LOD	Impacts to this roadside wetland have been minimized, however, impacts are necessary for the installation of the collector line alongside the road.	C.339
PW-26	PFO	USACE	~~83/ 0.00~~	~~1,068~~950/ 0.02	~~-~~200/ 0.00	1,~~151~~150/ 0.03	~~83/ 0.00~~	Collector, Tree Clearing Type I, LOD	Impacts to this roadside wetland have been minimized, however, impacts are necessary for the installation of the collector line alongside the road.	C.326, C.328, C.329
Totals			~~4,211,369~~644,831/ ~~96.68~~14.80	~~298,815~~259,280/ ~~6.86~~5.94	~~11,370~~653,314/ ~~0.26~~15.00	~~4,521,554~~1,557,425/ ~~103.80~~35.75	~~4,139,539~~600,681/ ~~95.04~~13.79			

#Type I tree clearing includes ground disturbances (e.g. grubbing, root removal); Type II tree clearing does not include ground disturbance and vegetation is cut to a minimum height of 6-inces above grade
*Crossing done via HDD
[1] Predicted Wetlands (PW) based on aerial imagery review

Table 22-11a. Temporary and Permanent Impacts to DEC Mapped Wetlands and Adjacent Areas

Wetland ID	Wetland Classification	Conversion (Sq. Ft/ Acres)	Temporary Impacts (Sq. Ft/ Acres)	Permanent Impacts (Sq. Ft/ Acres)	Total Impacts (Sq. Ft/ Acres)	Permanent Forest Conversion (Sq. Ft/ Acres)	Impact Types to NYSDEC Wetlands Only*	Conversion Impacts In 100-Ft Adjacent Areas (Sq. Ft/ Acres)	Temporary Impacts In 100-Ft Adjacent Areas (Sq. Ft/ Acres)	Permanent Impacts In 100-Ft Adjacent Areas (Sq. Ft/ Acres)	Total Impacts in 100-Ft Adjacent Area (Sq. Ft/ Acres)	Impact Avoidance Measures	Page Number from Civil Drawing
C-33	PEM	-	~~82,352/ 1.89~~ -	~~9/ 0.00~~ -	~~82,361/ 1.89~~ -	-	Access Road, Temporary Access Road, Array Area, Collector, Culvert/Riprap, Fence, Grading, HDD Bore Pits, Tree Clearing Type I & II, LOD	-	~~179,468/ 4.12~~71,121/ 1.63	~~599/ 0.01~~129/ 0.00	~~180,067/ 4.13~~71,250/ 1.64	Tree clearing is necessary for the placement of Project Components and for preventing shading on nearby solar arrays has been limited to the maximum extent practicable. Impacts to palustrine forested wetlands have been minimized to	C.305, C.330-324, C.326, C.333-335, C.339, C.405, C.430-424, C.426, C.433-435, C.439
	PFO	~~319,620/ 7.34~~ -	~~7,078~~2,518/ 0.0~~1~~6	~~2,014~~8,801/ 0.0~~5~~20	~~328,711~~11,319/ ~~7.55~~0.26	~~319,620/ 7.34~~ -		~~528,079~~87,429/ ~~12.12~~2.01	~~130,823~~41,622/ 0.9~~6~~3.00	~~15,394~~60,982/ 0.3~~5~~1.40	~~674,296~~190,033/ ~~15.48~~4.36		
	PUB	-	-	-	-	-		-	~~20,774/ 0.48~~ -	-	~~20,774/ 0.48~~ -		
V-19	~~PEM~~ PFO	~~-~~ ~~940,677~~5,017/ ~~21.60~~0.12	~~6,289/ 0.14~~ ~~999/ 0.02~~ -	~~5/ 0.00~~ 2,~~677~~132/ 0.0~~56~~	~~6,293/ 0.14~~ ~~944,353~~7,149/ ~~21.68~~0.16	~~-~~ ~~940,447~~5,017/ ~~21.59~~0.12	Access Road, Array Area, Collector, Culvert/Riprap, Grading, Tree Clearing Type I & II, LOD	~~-~~ ~~535,124~~9,358/ ~~12.28~~0.22	~~634/ 0.01~~ ~~5,140~~13,247/ 0.30~~12~~	~~-~~ ~~5,927~~23,605/ 0.5~~1~~4	~~634/ 0.01~~ ~~546,191~~46,390/ 1~~2.54~~.06	Tree clearing is necessary for preventing shading on nearby solar arrays and has been limited to the maximum extent practicable. Part of this wetland is previously disturbed by	C.315, C.316, C.320, C.321, C.415, C.416, C.420, C.421

Table 22-11a. Temporary and Permanent Impacts to DEC Mapped Wetlands and Adjacent Areas

Wetland ID	Wetland Classification	Conversion (Sq. Ft/ Acres)	Temporary Impacts (Sq. Ft/ Acres)	Permanent Impacts (Sq. Ft/ Acres)	Total Impacts (Sq. Ft/ Acres)	Permanent Forest Conversion (Sq. Ft/ Acres)	Impact Types to NYSDEC Wetlands Only*	Conversion Impacts In 100-Ft Adjacent Areas (Sq. Ft/ Acres)	Temporary Impacts In 100-Ft Adjacent Areas (Sq. Ft/ Acres)	Permanent Impacts In 100-Ft Adjacent Areas (Sq. Ft/ Acres)	Total Impacts in 100-Ft Adjacent Area (Sq. Ft/ Acres)	Impact Avoidance Measures	Page Number from Civil Drawing
												agricultural practices. Project Components will be sited in agricultural and previously disturbed areas wherever possible.	
V-20	PEM	-	~~16,488~~2,322/ 0.~~38~~05	~~522/ 0.01-~~	~~17,010~~2,322/ 0.~~39~~05	-	Access Road, Array Area, Fence, Grading, Tree Clearing Type I, LOD	-	~~50,182~~35,154/ ~~1.15~~0.81	~~2,985~~282/ 0.0~~17~~	~~53,167~~35,436/ ~~1.22~~0.81	Impacts to palustrine emergent wetlands have been minimized to maximum extent practicable by siting most of the Project Components	C.326, C.426
	~~PFO-~~	~~3,714/ 0.09-~~	~~3,485/ 0.08-~~	-	~~7,199/ 0.17-~~	~~2,239/ 0.05-~~		~~53,298/ 1.22-~~	~~12,877~~1,812/ 0.04~~30~~	~~1,118~~5,911/ 0.0~~3~~14	~~67,292~~7,723/ ~~1.54~~0.18		
W-1	PEM	-	~~523,353/ 12.01-~~	~~254~~778/ 0.0~~21~~	~~523,607~~778/ 0~~12~~.02	-	Array Area, Collector, Fence, Grading, Tree Clearing Type I, LOD	-	~~332,248~~66,070/ ~~7.63~~1.52	~~2,446~~26,724/ 0.0~~.06~~1	~~334,694~~92,654/ ~~7.68~~2.13	Tree clearing is necessary for the placement of Project Components and for preventing shading on nearby solar arrays has been limited to the maximum	C.303, C.307, C.308, C.403, C.407, C.408
	PFO	~~778/ 0.02-~~	-	-	~~778/ 0.02-~~	~~778/ 0.02-~~		~~45,522/ 1.05-~~	~~36,134/ 0.83-~~	~~628~~9,458/ 0.2~~01~~	~~82,284~~9,458/ ~~1.89~~0.22		

Table 22-11a. Temporary and Permanent Impacts to DEC Mapped Wetlands and Adjacent Areas

Wetland ID	Wetland Classification	Conversion (Sq. Ft/ Acres)	Temporary Impacts (Sq. Ft/ Acres)	Permanent Impacts (Sq. Ft/ Acres)	Total Impacts (Sq. Ft/ Acres)	Permanent Forest Conversion (Sq. Ft/ Acres)	Impact Types to NYSDEC Wetlands Only*	Conversion Impacts In 100-Ft Adjacent Areas (Sq. Ft/ Acres)	Temporary Impacts In 100-Ft Adjacent Areas (Sq. Ft/ Acres)	Permanent Impacts In 100-Ft Adjacent Areas (Sq. Ft/ Acres)	Total Impacts in 100-Ft Adjacent Area (Sq. Ft/ Acres)	Impact Avoidance Measures	Page Number from Civil Drawing
~~W-2~~	~~PFO~~	-	-	-	-	-	-	~~1,962/ 0.05~~	-	-	~~1,962/ 0.05~~	~~There are no impacts to the State-mapped wetland. Impacts to the 100-foot adjacent are necessary for siting of~~	~~C.404~~
~~M-2~~	~~PFO~~	-	-	-	-	-	-	~~4,705/ 0.11~~	~~32/ 0.00~~	~~7/ 0.00~~	~~4,744/ 0.11~~	~~There are no impacts to the State-mapped wetland. Impacts to~~	~~C.318, C.418~~
M-4	PEM	-	-	-	-	-	-Tree Clearing Type I, LOD	-	157/ 0.00	-	157/ 0.00	There are no impacts to the State-mapped wetland. Impacts to the 100-foot adjacent are necessary for siting of Project Components.	C.308
	PFO	-	-	-	-	-		664/ 0.02	2,2265/ 0.05	-664/ 0.02	2,89089/ 0.07		
Totals	-	~~1,264,7895,017~~/ ~~29.040~~.12	~~640,0444,840~~/ ~~14.690~~.11	~~5,480~~11,711/ **0.**~~13~~27	~~1,910,312~~21,568/ ~~43.850~~.50	~~1,263,0845~~,017/ 0.12~~29.00~~	-	~~1,169,353~~96,967/ ~~26.84~~2.23	~~770,695~~231,409/ ~~5.32~~17.~~69~~	~~29,104~~27,755/ ~~0.67~~2.93	~~1,969,151~~455,991/ ~~45.21~~10.47		

#Type I tree clearing includes ground disturbances (e.g. grubbing, root removal); Type II tree clearing does not include ground disturbance and vegetation is cut to a minimum height of 6-inces above grade

* Project Components causing direct impacts to wetlands only (i.e. conversion impacts, temporary impacts, permanent impacts, and permanent forest conversion).

22(m) Avoidance and Minimization of Impacts on Wetlands and Adjacent Areas

The Project layout design process used information from the wetland and waterbody delineation to place Project components where they would avoid and/or minimize impacts to state-regulated wetlands and on-site waterbodies wherever practicable. The Project layout also minimizes impacts to non-state-mapped wetlands by locating fill activities, including access roads and collection lines, around delineated wetland features, where practicable. Whenever practicable, where streams and wetlands are encountered and must be crossed by Project Components, the narrowest and/or previously disturbed portions of the stream or wetland will be used. Where beneficial, and practical, the Applicant will utilize horizontal directional drilling (HDD) to avoid impacts to stream channels and wetlands during the placement of buried collection line. The Project is not assumed to be a substantive contributor to sources of phosphorus and nitrogen. In fact, through the cessation of agriculture, these potential contaminants will be lessened. In addition, in contrast to the existing situation, these compounds will be contained throughout the duration of the Project by best management practices (BMPs) that control potential runoff and erosion that would otherwise contribute to any phosphorus and/or nitrogen release.

Additionally, where wetland impacts may be necessary to achieve the Applicant's commitment to a 200 MW renewable energy generating project, areas previously disturbed by agricultural practices were given preference. The Project will, improve the conditions of these previously disturbed areas by providing a stabilized vegetative ground cover and significantly less intensive land disturbance throughout the anticipated 30 year operation of the solar energy center, resulting in less soil erosion, sedimentation, and the application of potentially harmful chemicals than current agricultural practices performed within the Project Area, while providing a habitat much more favorable to wildlife than the monoculture nature of an agricultural field.

Ultimately, careful siting and several design iterations of Project layout and components results in a final proposal with only ~~6.86~~5.94 acres of temporary impacts and ~~0.26~~15.0 acres of permanent impacts to the ~~597.14~~613.50 acres of wetlands delineated and predicted within the 2,288.7-acre Project Area and LOD. For DEC mapped wetlands, there are ~~14.69~~0.11 acres of temporary impacts, ~~29.04~~0.12 acres of conversion impacts, and 0.~~13~~ 27 acres of permanent impacts within the Project Area and LOD. For the DEC 100-foot adjacent areas, there are ~~26.84~~2.23 acres of conversion impacts, ~~17.69~~5.31 acres of temporary impacts, and ~~0.67~~2.93 acres of permanent impacts within the Project Area and LOD. Though additional wetland acreage is being converted,

generally from forested to wet meadow, this is not a permanent or significant impact to wetland functionality of the Project Area.

Impacts associated with this conversion of forest are temporary in nature, owing to the temporary nature of the assumed 30-year operational period of the Garnet Energy Center. Decommissioning at the end of the operational period will allow natural succession of the landscape, with no anthropogenic interference in the reestablishment of forested wetland. That the area will, in the interim, remain wetland, albeit in a different form, i.e., wet meadow vs. forested, will promote reestablishment of a future wetland ecosystem that shall have benefited from a more passive land use than the current agricultural practices occurring throughout the Project Site. As for the functions and values of wetlands on site, it is well established that greater biodiversity represents a healthier ecosystem. That there currently exists substantial forested wetland on site and in the vicinity, yet limited wet meadow environment, is a deficiency partially remedied by the Project to the ultimate benefit of grassland birds and many other herbivore and pollinator species.

Exhibit 9: Alternatives, provides a detailed explanation of the various constraints and considerations that led to the Project layout depicted in the site plan drawings included as Appendix 11-1. From the start, the Applicant has taken all efforts to avoid impacts to wetland areas to the maximum extent practicable. However, a number of other factors weigh into the siting of a large-scale solar renewable energy generating facility. The Applicant expended significant time and effort analyzing numerous factors to address stakeholder concerns, while achieving the Project's objectives, including the minimization of impacts to the maximum extent practicable. Community members in the Town of Conquest, including adjacent landowners, have emphasized their desire for appropriate setbacks from residences and property lines where residences exist. The Project will therefore provide significant setbacks from residences (minimum 250 feet) and adjoining property lines (minimum 100 feet). Additionally, the Applicant sought to avoid areas of steep slopes to reduce the amount of earthwork required for the Project. Doing so resulted in a nearly balanced cut/fill Project design that eliminates the need to import or export material to or from the Project Area. This outcome significantly reduces construction traffic and the need for imported fill with its inherent problems, e.g., potential for added siltation and introduction of unwanted species.

(1) 6 NYCRR 663.5 (e) and (f)

6 NYCRR Part 663.5(e) and (f) describe the tests for compatibility and the weighing standards as they relate to various regulated activities and wetland classifications within DEC-regulated wetlands.

A total of seven wetlands on site are DEC-regulated, by virtue of having been previously mapped by the NYSDEC. As noted above, five of these wetlands are NYSDEC Class II and two are NYSDEC Class III. Fourteen of the wetlands delineated by TRC inside the Project Area and LOD overlap these NYSDEC-mapped freshwater wetlands, and thus are presumed to be at least in-part NYSDEC-regulated. One of these overlapping wetlands is a predicted wetland. Regulated wetlands located within the Project Area are listed in Table 2 of Appendix 22-4. Presumed DEC jurisdictional status is provided in Section 22(h)(4) above, again, with TRC-delineated wetlands overlapping DEC-mapped wetlands presumed at least partially jurisdictional. All features delineated during the on-site wetland surveys, as well as existing mapped features and their status, are shown in Figure 22-3.

Compliance with the provisions of Part 663 relies upon a determination of compatibility and a weighing of need against benefits lost. If the proposed activity is pre-identified in Part 663.4 as incompatible, then, for a permit to be issued, the activity must meet each of the weighing standards listed in subdivision (e) of this section for the classification of the wetland that would be affected by the proposed activity. The NYSDEC has previously testified in the Matter of the Application of Trelina Solar Energy Center, LLC for a Certificate of Environmental Compatibility and Public Need Pursuant to Article 10 for a Proposed Solar Energy Project (Case No.: 19-F-0366), dated April 16, 2021, that solar facilities are a form of industrial facility, any portion of which is thought to be incompatible with any class of wetland and its regulated adjacent area. It is noted the law in question is from 1975, which predates the concept of modern renewable energy facilities, including solar farms.

Contrasting the NYSDEC contention that the proposed Project is incompatible as an industrial facility is that portion of Part 663.4 more specific to Utilities. Specifically, Part 663.4(d)--Utilities, states, “Installing utilities in or adjacent to wetlands will be presumed to cause less damage to those wetlands if little or no additional clearing and grading is necessary. Where extensive clearing and construction of access or maintenance roads occurs, erosion and sedimentation may be the most serious problems.” This Part, at item 37, further notes impacts within the regulated adjacent area may in some cases be insignificant enough to be compatible. For such activities, if

all three of the following tests of compatibility are met, no other weighing standards need be met, regardless of the wetland class. A permit, or an Article 10 certificate in the instant case, with or without conditions, may be issued for a proposed activity in a DEC-regulated wetland's adjacent area, if it is determined that the activity (i) would be compatible with preservation, protection and conservation of the wetland and its benefits, and (ii) would result in no more than insubstantial degradation to, or loss of, any part of the wetland, and (iii) would be compatible with public health and welfare.

Permanent impacts to wetland adjacent areas of DEC-mapped regulated wetlands amount to only ~~0.67~~2.93 acres on this 2,288.7-acre Project Area. These impacts are not directly affecting the wetland area, and, for the reasons articulated above demonstrating that the areas will be improved, will be compatible with the preservation, protection and conservation of the wetland and its benefits, especially given much of this area is currently in agricultural production. Lastly, the Project in its entirety is not only compatible with, but very much supporting of, public health and welfare.

Rather than the above-referenced compatibility tests, weighing standards would be applied to all activities identified as P(X) in section 663.4(d), which, as noted earlier, is how the NYSDEC may categorize the Project in its entirety (an industrial facility). Likewise, for any actions thought not to meet the above-referenced compatibility tests. For such actions, compliance with Part 663 is demonstrated if the proposed activity meets each of the standards below for the Class II and III wetlands located within the Project Area:

1. The proposed activity must be compatible with the public health and welfare,
2. The proposed activity must be the only practicable alternative that could accomplish the applicant's objectives and have no practicable alternative on a site that is not a freshwater wetland or adjacent area, and
3. The proposed activity must minimize degradation to, or loss of, any part of the wetland or its adjacent area and must minimize any adverse impacts on the functions and benefits that the wetland provides.

In addition, for Class II wetlands, compliance is demonstrated if it is determined that the proposed activity satisfies a pressing economic or social need that clearly outweighs the loss of or detriment to the benefit(s) of the Class II wetland. Whereas, for Class III wetlands on Site, compliance is

demonstrated if it is determined that the proposed activity satisfies an economic or social need that outweighs the loss of or detriment to the benefit(s) of the Class III wetland.

The Project is fully intended to not only be compatible with, but to substantially promote public health and welfare through its service to the renewable energy needs of New York State as required under the Climate Leadership and Community Protection Act (CLCPA). The CLCPA, signed into law in 2019, expands on the 2015 State Energy Plan's goals and the Clean Energy Standard by requiring that 70% of electricity be generated from renewable energy sources by 2030 and that New York's electricity generation be carbon-free by 2040. The CLCPA also requires programs be established to ensure that 6 gigawatts of solar generation be developed by 2025. The State Energy Plan was amended in April 2020 to include the CLCPA's renewables mandates. Refer to Exhibit 10 for additional details.

In addition to being compatible with the public health and safety, the Project layout is the only practicable alternative that could allow construction of the Project approved by NYSERDA for a Renewable Energy Contract (REC contract), as explained in Exhibit 9 of this Application.

As noted above, the Applicant has avoided wetland impacts to the maximum extent practicable. This has been accomplished by avoiding where possible wetland and water features, in particular state-regulated wetlands. Activities within federally jurisdictional wetlands are, as much as possible, limited to actions not regulated by the USACE. In addition, the Applicant is minimizing required impacts by utilizing existing or narrow crossing locations wherever possible, alternative siting or routing options, trenchless crossings (such as HDD or other special crossing techniques) where feasible. The Applicant is also implementing equipment and herbicide use restrictions and using erosion and sedimentation control measures as needed to ensure no impacts to wetland or water quality.

The Project will minimize adverse impacts on the already degraded wetland functions and benefits. In fact, the Project will benefit the wetlands in many respects through the cessation of intensive land management. The Project satisfies a pressing social need that clearly outweighs the potential loss of or detriment to the benefit(s) of the wetlands on Site. In the Atlantic Wind order, the Siting Board made the finding with respect to impacts that the Climate Act "…establishes a pressing social and economic need that outweighs the limited loss of wetland benefits provided by Freshwater Wetlands…." (p.22). The same may be said for the relatively negligible impacts associated with the Garnet Energy Center. Almost all permanent impacts

occurring within DEC-mapped regulated wetlands at the Project Site stem from the access roads, culverts, and riprap. Comparatively minor temporary impacts stem from other actions as described above in Table 22-11a, i.e., only ~~14.69~~ 0.11 acres out of a Project Area of 2,288.7 acres. As also noted above, and as taken from the regulations at Part 663.4, where extensive clearing and construction of access or maintenance roads occurs, erosion and sedimentation may be the most serious problems. The Applicant shall address this concern through the imposition of a Stormwater Pollution Prevention Plan (SWPPP) being prepared for the Project for coverage under the State Pollutant Discharge Elimination System (SPDES) General Permit for Discharges from Construction Activity (GP-0-20-001). The SWPPP is being prepared in accordance with the New York State Standards and Specifications for Erosion and Sediment Control (SSESC; NYSDEC 2016) and the New York State Stormwater Management Design Manual (NYSDEC 2015). In accordance with GP-0-20-001, Site inspections will be performed to ensure that all required erosion and sediment control measures are in place, properly positioned, and in good condition. These inspections will be continued for the duration of the construction phase, or until earth-disturbing construction activities have been discontinued and acceptable ground cover has been established.

The Applicant acknowledges that wetlands on site not mapped by NYSDEC and thus not regulated by the NYSDEC may be impacted. The most common impact includes clearing of non-aquatic vegetation associated with panel installation to eliminate the potential of problematic shading effects caused by trees adjacent to Project Components. Although some amount of terrestrial habitat alteration and visual quality/aesthetic changes are inevitable, vegetation clearing in the amounts proposed will not significantly adversely affect wetland functions within the Project Area as determined by functions and values assessments conducted by TRC (see Section 22(j) and Appendix 22-5). The Applicant notes that the cutting, but not complete elimination or destruction, of vegetation, does allow continuation of wetland functions and benefits. As explained above, if these wetlands were mapped, and the Atlantic Wind Order rationale were not applicable, Siting Board review would be predicated on applying the compatibility and weighing standards in the NYSDEC Part 663 regulations and the Project would comply. The Project is compatible with the preservation, protection, and conservation of the wetlands and its benefits, resulting in no more than insubstantial degradation to, or loss of, any part of the wetland. The Project is also compatible with public health and welfare.

No Class I wetlands occur within the Project Area. Of those wetlands associated with DEC-mapped wetland areas, the vast majority of impacts occur to Class III wetlands, and are caused

typically by vegetation clearing, an activity often exempt from federal jurisdiction, though regulated at the State level when conducted within DEC-regulated wetlands. As noted within the standards for permit issuance at 6 NYCRR Part 663.5(e), “Class III wetlands supply wetland benefits, the loss of which is acceptable only after the exercise of caution and discernment. A permit shall be issued only if it is determined that the proposed activity satisfies an economic or social need that outweighs the loss of or detriment to the benefit(s) of the Class III wetland.” As further explained within 6 NYCRR Part 663.5(f), this means that permits could be issued for activities that could not avoid loss of or detriment to a benefit provided by a Class III wetland, but only after careful evaluation. The need for the activity must be real and undeniable, though it does not have to be necessary, unavoidable, urgent or intense. Moreover, the need for the activity must outweigh the loss of or detriment to a benefit, but the balance in favor of the activity does not have to be beyond serious debate.

As detailed above, the need for this project stems from New York’s energy needs and energy plan, including in particular the CLCPA. In its effort to fill this need, the Applicant has attempted to avoid and minimize wetland impacts to the extent practicable, ultimately producing a Project proposal that meets the issuance standards described with 6 NYCRR Part 663. Having met these standards, a permit can be issued without mitigation. Although allowed by regulation at 6 NYCRR Part 663.5(g), the facts support the conclusion that it is not necessary for the Applicant to voluntarily propose mitigation by creating and maintaining or enhancing new wetland benefits in order to increase the likelihood that the proposed activity will meet the applicable standards for permit issuance. With the above in mind, the Applicant has and will attempt to work with the NYSDEC and DPS staff to arrive at mutually agreeable certificate conditions.

(2) Off Site Mitigation (if necessary)

Wetland and waterbody impacts were avoided or minimized to the maximum extent practicable. Nevertheless, pursuant to Stipulation 22(m)(2), the following information is provided: Mitigation, on or off-site, if required by the Siting Board, would include a conceptual mitigation plan for impacts to regulated wetlands, including a discussion of adaptive management actions to be implemented if the wetland mitigation is not successful. If mitigation is deemed necessary by the Siting Board, it will first be sought on or in the immediate vicinity of the Project Area (preferably in or adjoining the same wetland). It is expected that mitigation, if required, will provide substantially the same or more benefits than will be lost through the proposed activity. A final mitigation plan,

as applicable, would be provided in the Compliance Filing after consultation with the reviewing agencies.

Though not anticipated, any impacts to mapped wetlands determined by the Siting Board to require mitigation would be mitigated with consideration for the NYSDEC Freshwater Wetlands Regulation Guidance on Compensatory Mitigation (NYSDEC 1993). These requirements must, however, be simultaneously reconciled with the mitigation guidelines at 33 CFR 332, in the event mitigation is also required by the USACE, which has as its stated preference either wetland banking or an in-lieu fee arrangement with an acceptable third party.

Environmental compliance and monitoring programs would be implemented during Project construction to ensure adherence to certificate and permit conditions to protect wetlands, streams, and other waterbodies at both the construction site and any required mitigation site. The programs would include an Environmental Monitor during construction and restoration activities on the Project Area, whose duties it would be to oversee compliance and minimization of Project impacts. The Environmental Monitor would inspect and approve the locations of all staging areas, temporary spoil or woody debris stockpiles, “extra work” areas, and other places material or equipment may be placed on site. Prior to construction, the limits of disturbance around all such areas would be clearly defined in plan maps, and physically marked in the field using orange construction fencing or other similar indicators. Plans to restore all temporary disturbances in regulated areas would be provided to construction personnel so they are familiar with expected management practices and outcomes. The final programs would be submitted in the Compliance Filing. Any required mitigation would adhere to the Freshwater Wetlands Act and 6 NYCRR Part 663 after mitigation measures are completed.

In the course of Project approval, the Applicant will require a Permit from the USACE for fill within waters of the US under Section 404 of the Clean Water Act. Mitigation relative to these impacts is anticipated. The amount of mitigation will be determined during the ACOE 404 permit application review process. The Applicant anticipates providing mitigation in the form of an in-lieu fee arrangement, which as noted above, is a preference of the USACE. At this time, mitigation for impacts to state-regulated wetlands is not required as explained above because the compatibility and weighing tests are satisfied. Nonetheless, if required, the Applicant will request consultation between state and federal agencies to ensure a mutually-compatible solution, as opposed to dual mitigation efforts.

22(n) Identification of State- and Federally listed Species Subject to Potential Impacts

(1) Table of State- and Federally Listed Species, SSC, and SGCN

Table 22-12 below includes a list of state- and federally listed species, SSC, and SGCN, occurring or likely to occur within the Project Area.

(2) Minimization of Impacts

Discussion on minimizing the impact to plant communities within the Project Area can be reviewed in Section 22(c), Avoidance and Minimization Measures for Plant Community Impacts. Construction-related impacts to fish and wildlife will be limited to incidental injury and mortality due to construction activity. These activities include use of heavy machinery, vehicular traffic, and minimal silt and sedimentation events due to construction occurring within or adjacent to aquatic ecosystems. Also, habitat disturbance and loss will occur due to vegetation clearing, earth moving activities, and the placement of Project Components. Displacement events will also occur due to increased noise, vibration, and human presence during construction in previously undisturbed areas. The avoidance and/or minimization of these construction related impacts will be accomplished through continued careful site design, best management practices, and construction monitoring. Site design practices avoid sensitive habitats by siting solar arrays primarily in agricultural fields, minimizing construction disturbances to the extent practicable, adhering to designated construction limits, and avoiding off-limit sensitive areas. Sensitive habitats are included in Figure 22-5.

To reduce impacts to aquatic resources resulting from construction-related siltation and sedimentation events, the Applicant will use an approved sediment and erosion control plan and implement a SWPPP for the construction phase of the Project. The sediment and erosion control plan and Preliminary SWPPP are described in more detail in Exhibit 23. Also, the Preliminary SWPPP is attached as Appendix 23-3, and a Spill Prevention, Containment, and Control (SPC) Plan will be developed for implementation within the Project Area to mitigate any potential spill of hazardous chemicals during the construction and operation phases of the Project. Further detail of the SPC plan is provided in Exhibit 23 of this Application. A final SPC plan will be filed as an Information Report with the Secretary.

Through initial impact analysis and careful site design, as explained above in Sections 22(d)(3) and 22(f)(9), permanent habitat loss and forest fragmentation have been avoided or minimized, to the maximum extent practicable. Siting of Project Components prioritized placement within

agricultural fields to minimize impacts to natural communities. ~~In one instance involving a DEC wetland, (Class II DEC wetland W-1), solar arrays are sited within a portion of what is mapped as DEC-regulated wetland, but is in reality an upland cornfield. The wetland functions and benefits of this area were effectively eliminated by ongoing agriculture.~~ Improvements to wildlife habitat, ~~and conceivably reversion to wetland~~ should be experienced immediately after panel installation. Generally speaking, restoration of the agricultural fields may be expected following the decommissioning of the Project.

State and Federally Listed Species

Based on Project-specific information received from NYNHP, NYSDEC, USFWS, and direct on-site observations, a list was compiled of state- and federally-listed species and SGCN that are believed to occur, or have the potential to occur, within the Project Area (Table 22-12 below). Site-specific information requests to state and federal agencies were made to determine the presence of rare, threatened, endangered, and special concern species (see Appendix 22-7). Similarly, a list of species encountered during on-site survey work was documented by field staff. Any species that was visually identified on-site that was on the state or federal registry was also included in the list of state and federally listed species occurring within the Project Area. Information from the USGS BBS, NY BBA, Audubon CBC, Herp Atlas, eBird and other publicly available sources was used to find state- and federally listed species, SSC, and SGCN. A summary impact table containing information on all listed species identified through the above-mentioned procedures was also compiled (see Table 22-12). The list contains a brief description of the specific habitat requirements for each identified species, the approximated source whereby each species is known to potentially occur within the vicinity of the Project, and if each species was directly observed on-site. Two state-listed species, the bald eagle (T) and northern harrier (T), and one SSC, the sharp-shinned hawk, were observed. Observations of state-listed species were exclusively of individuals flying over or traveling through the Project Area. No state-listed species was determined to utilize habitat within the Project Area to perform essential behaviors (e.g., foraging, roosting, nesting, breeding, etc.), and therefore no occupied habitat is present. Habitat for many of the species listed in Table 22-12 is not present within the Project Area. Where habitat for non-listed species observed on-site exists, efforts have been made to avoid impacts through the conscientious siting of Project Components.

As discussed in Section 22(f), it is not anticipated there would be any avian or bat mortality from collisions with the solar panels. Studies regarding collision-related mortality are extremely limited,

and to date no studies have been conducted on solar facilities in the eastern United States. Studies conducted on similar facilities (e.g., ground-mounted photovoltaic solar arrays) have indicated that mortality events are rare (~0.5 birds/MW/year) and substantially lower than other sources of mortality from human development (see Section 22(f)(7)), representing less than 1 percent of avian mortalities from anthropogenic sources annually. Post-construction monitoring will be unnecessary as impacts have been minimized through careful siting. As previously mentioned in Section 22(f)(4) and 22(f)(10), there will be no take of T&E species during construction or operation; therefore, post-construction monitoring for these species is not necessary.

Impacts to forested habitat will occur on ~~260.32~~ 159.61 acres that will be cleared for Project development, representing a reduction of approximately ~~31~~ 37 percent of forested habitat within the Project Area. This reduction of forested area is marginal, relative to the surrounding 2-mile study area which contains 13,471.65 acres of forest. Tree removal is necessary to reduce shading and safety hazards posed by overhang within panel areas. Tree removal has been minimized to the maximum extent practicable, but cannot be completely avoided within the Project Area. However, to the maximum extent practicable, panels have been sited away from forest edges to reduce the overall area of vegetation clearing in forested habitat. Indirect impacts associated with disturbance from construction activities will be temporary and is not likely to greatly exceed the levels of disturbance associated with agricultural production that occurs annually within the Project Area.

Table 22-12. Summary of Impacts to Listed Species with Potential to Occur in the Project Area

Common Name	Scientific Name	Federal Status[1]	NYS Status[2]	SGCN Listing[3]	Habitat Preference[4]	Source of Potential Presence[5]	Observed On-Site	Potential Impacts	Impact Avoidance Measures
Birds									
American Bittern	*Botaurus lentiginosus*	-	SSC	SGCN	This species breeds in freshwater wetlands with tall emergent vegetation, such as freshwater marshes and scrub-shrub wetlands. Nesting can occur in grasslands and successional old fields adjacent to wetland habitat. Habitat for this species occurs within the Project Area.	G, J	No	Potential direct impacts could include habitat disturbance, degradation and loss, particularly for nesting habitat adjacent to wetlands. Temporary impacts to nesting habitat in grassland and successional old fields could occur. Indirect impacts could include noise from construction activities.	Impacts to wetland habitat have been avoided and minimized to the maximum extent practicable by siting Project Components in agricultural fields and using HDD when necessary.
American Black Duck	*Anas rubripes*	-	-	SGCN-HP	This species prefers marshes, ponds, rivers, and lakes. This species breeds in freshwater wetlands such as freshwater marshes and forested wetlands. Habitat for this species occurs within the Project Area.	F, G	No	Potential direct impacts could include habitat disturbance, degradation and loss, particularly marshes and forest wetlands (see Appendix 22-4 for a description of wetland habitat in Project Area). Potential indirect impacts are from habitat disturbance due to noise from construction activities near wetland habitat.	Impacts to wetland habitat have been minimized to the maximum extent practicable by siting Project Components in agricultural fields wherever possible and using HDD when necessary.
American Kestrel	*Falco sparverius*	-	-	SGCN	This species prefers open areas, such as successional old fields, forest edges, scrublands, pastures and hay fields. Habitat for this species occurs within the Project Area.	E, F, G, J	No	Potential direct impacts include habitat conversion of 1,062.78 acres of agricultural land, successional old fields, successional shrublands, and forest to early successional grasslands. There will be a permanent habitat loss of ~~24.41~~ 20.52 acres of potential habitat to Project Components. Potential indirect impacts could include habitat disturbance due to construction activities.	Impacts to agricultural land are unavoidable, however, conversion of agricultural land to planted early successional grasslands at solar facilities has been shown to benefit grassland species with habitat requirements similar to American kestrel (see section 22(f)(6)). The project layout will create forest edges that may be used by the American kestrel.
American Woodcock	*Scolopax minor*	-	-	SGCN	This species prefers moist successional shrublands near successional forests and scrub- shrub wetlands. Habitat for this species occurs within the Project Area.	E, G	No	Potential direct impacts are minimal due to the limited amount of successional shrublands (~~18.30~~ 18.74 acres or 0.8 percent of the Project Area) and scrub-shrub wetlands (see Appendix 22-4) present. Potential direct impacts include habitat degradation and fragmentation from the conversion of 1.37 ~~1.73~~ acres of successional shrublands to early successional fields. Potential direct impacts include habitat displacement from the temporary conversion of 0.80 ~~0.82~~ acre and the permanent loss of ~~0.02~~ 0.00 acres of successional shrubland. Potential indirect impacts could include habitat disturbance due to noise from construction activity.	Potential impacts to successional shrublands and scrub-shrub wetlands have been minimized to the maximum extent practicable by siting Project Components in agricultural land wherever possible.

Table 22-12. Summary of Impacts to Listed Species with Potential to Occur in the Project Area

Common Name	Scientific Name	Federal Status[1]	NYS Status[2]	SGCN Listing[3]	Habitat Preference[4]	Source of Potential Presence[5]	Observed On-Site	Potential Impacts	Impact Avoidance Measures
Bald Eagle	*Haliaeetus leucocephalus*	-	THR	SGCN	This species prefers undisturbed areas near large lakes, reservoirs, marshes, swamps, or stretches along rivers where they can breed and forage for fish. Habitat does not exist at the Project Area, as waterbodies are not large enough to support prey fish populations, however, some are located nearby (Duck Lake, Otter Lake Parker Pond). Therefore, this species has potential to occur within the Project Area. Additionally, no known nests occur within proximity of the Project Area, however nesting substrate suitable for this species may occur.	A, B, D, E, F, G, J	Yes	Bald eagles were observed within the Project Area, however no nests were observed. Bald eagles are assumed to be using the Project Area infrequently as a travel corridor to access more suitable nesting and foraging habitat in the surrounding area. No impacts to open water habitats will occur from Project development.	None proposed as no impacts are anticipated.
Black-bellied Plover	*Pluvialis squatarola*	-	-	SGCN	This species tends to gather along sandy coastal beaches, tidal creeks, and estuaries. Habitat does not exist within the Project Area, as it is not located in a coastal area. However, they may use Montezuma National Wildlife Refuge during migration.	G	No	None, as habitat for Black-bellied Plovers is not present at the Project Area.	None proposed as no impacts are anticipated.
Black-billed Cuckoo	*Coccyzus erythropthalmus*	-	-	SGCN	This species prefers thickets, successional old-field, orchards, and along forest edges. Nests in shrublands and forest edges. Habitat for this species occurs within the Project Area.	D, G, J	No	Potential direct impacts include habitat conversion of 169.42 ~~256.57~~ acres of successional shrublands, successional old fields, and forest to early successional grasslands. Potential direct impacts include habitat displacement due to the temporary conversion of ~~6.49~~ 4.43 acres of successional shrubland, successional old fields, and forest. Potential direct impacts include permanent habitat loss of ~~2.54~~ 1.37 acres of successional shrubland, successional old fields, and forest. Potential indirect impacts could include habitat disturbance due to noise from construction activity.	Potential impacts to successional shrublands have been minimized to the maximum extent practicable by siting Project Components in agricultural land wherever possible. The project layout will create forest edges that may be used by Black-billed Cuckoo.
Black-crowned Night-heron	*Nycticorax*	-	-	SGCN	This species prefers a variety of aquatic habitats around both fresh and salt water, including marshes, rivers, lakes, and ponds. No habitat for this species occurs within the Project Area; however, they may use Montezuma National Wildlife Refuge during migration.	G	No	None, as habitat for Black-crowned Night Herons is not present at the Project Area.	None proposed as no impacts are anticipated.

Table 22-12. Summary of Impacts to Listed Species with Potential to Occur in the Project Area

Common Name	Scientific Name	Federal Status[1]	NYS Status[2]	SGCN Listing[3]	Habitat Preference[4]	Source of Potential Presence[5]	Observed On-Site	Potential Impacts	Impact Avoidance Measures
Black-throated Blue Warbler	*Setophaga caerulescen*	-	-	SGCN	This species prefers large tracts of mature mixed and deciduous woodlands with a thick understory. Habitat for this species occurs within the Project Area.	G	No	Potential direct impacts include habitat conversion of ~~254.23~~ 167.60 acres of forests to early successional grasslands. Potential direct impacts include a habitat loss of 1.37 ~~2.52~~ acres of forests. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to forests have been minimized to the maximum extent practicable by siting Project Components in agricultural land wherever possible. Tree clearing is necessary to avoid trees overhanging solar arrays, but clearing is limited to only what is necessary for Project operation.
Blue-winged Teal	*Anas discors*	-	-	SGCN	This species prefers to nest in shallow marshes, sloughs, flooded ditches, and seasonal ponds. Habitat for this species occurs within the Project Area.	G, J	No	Potential direct impacts could include habitat disturbance, degradation and loss, particularly marshes (see Appendix 22-4 for a description of wetland habitat in Project Area). Approximately 1.12 ~~0.89~~ acres of shallow emergent marsh will be temporary impacted and approximately ~~4.82~~ 2.83 acres of shallow emergent marsh will be converted. Potential indirect impacts are from habitat disturbance due to noise from construction activities near wetland habitat.	Impacts to wetland habitat have been avoided and minimized to the maximum extent practicable by siting Project Components in agricultural fields and using HDD when necessary.
Blue-winged Warbler	*Vermivora pinus*	-	-	SGCN	This species prefers brushy hillsides, overgrown pastures, and stream and woodland edges. Breeds in dry uplands in low shrublands. Habitat for this species occurs within the Project Area.	E, G, J	No	Direct impacts are unlikely due to the limited area of successional shrubland habitat (18.30 acres or 0.8 percent of the Project Area). Potential direct impacts include habitat conversion of ~~1.73~~ 1.37 acres of successional shrublands to early successional grasslands. Potential direct impacts include habitat displacement due to the temporary conversion of ~~0.82~~ 0.80 acre of successional shrublands. Potential direct impacts include a habitat loss of ~~0.02~~ 0.00 acre of successional shrubland. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to successional shrublands have been minimized to the maximum extent practicable by siting Project Components in agricultural land wherever possible. Some successional shrubland clearing is necessary to avoid woody encroachment into the solar arrays, but clearing is limited to only what is necessary for Project operation.

Table 22-12. Summary of Impacts to Listed Species with Potential to Occur in the Project Area

Common Name	Scientific Name	Federal Status[1]	NYS Status[2]	SGCN Listing[3]	Habitat Preference[4]	Source of Potential Presence[5]	Observed On-Site	Potential Impacts	Impact Avoidance Measures
Bobolink	*Dolichonyx oryzivorus*	-	-	SGCN-HP	This species prefers grasslands, including pastures, successional old fields, and meadows. Habitat for this species occurs within the Project Area.	B, D, E, G, J	Yes	Potential direct impacts include habitat conversion of ~~806.81~~ 750.59 acres of agricultural land and successional old fields to early successional fields. Potential direct impacts include habitat displacement and degradation from the temporary conversion of ~~86.82~~ 95.85 acres of agricultural land and successional old fields. There will be a habitat loss of ~~21.87~~ 19.10 acres of agricultural land and successional old fields to Project Components. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to agricultural land is unavoidable, as most of the Project Components have been sited in agricultural areas to avoid wetlands and minimize tree clearing. Active agricultural land provides limited wildlife habitat for Bobolink. Conversion of agricultural land to planted early successional grasslands has been shown to benefit grassland bird species (see Section 22(f)(6)) and may improve habitat quality for this species at the Project.
Brown Thrasher	*Toxostoma rufum*	-	-	SGCN-HP	This species prefers successional shrublands, dense regenerating woods, and forest edges. Habitat for this species occurs within the Project Area.	B, E, G, J	Yes	Potential direct impacts include habitat conversion of ~~255.96~~ 24.07 acres of successional shrublands and forest to early successional grasslands. Potential direct impacts include habitat displacement due to the temporary conversion of ~~5.43~~ 24.07 acres of successional shrubland and forest. Potential direct impacts include habitat loss of ~~2.54~~ 1.37 acres of successional shrubland and forest. The Project layout will create forest edges that may be used by Brown Thrashers. Potential indirect impact from habitat disturbance due to noise and construction activity.	Impacts to successional shrublands and forests have been minimized to the maximum extent practicable by siting Project Components in agricultural land wherever possible. Tree and shrub clearing is necessary to prevent trees and shrubs overhanging solar arrays, but clearing is limited to only what is necessary for Project operation.
Canada Warbler	*Wilsonia canadensis*	-	-	SGCN-HP	This species prefers forest undergrowth and shady thickets. Breeding occurs in mixed hardwoods of extensive forests and streamside thickets and nesting occurs near moist habitat. Habitat for this species occurs limitedly within the Project Area.	D, G	No	Potential direct impacts include habitat conversion of ~~254.23~~ 24.07 acres of forests to early successional grasslands. Potential direct impacts include a habitat loss of 1.37 ~~2.52~~ acres of forests.	Impacts to forests have been minimized to the maximum extent practicable by siting Project Components in agricultural land wherever possible. Tree clearing is necessary to avoid trees overhanging solar arrays, but clearing is limited to only what is necessary for Project operation.
Cerulean Warbler	*Setophaga cerulea*	-	SSC	SGCN	This species prefers large tracts of deciduous forests with tall, large-diameter canopy trees and a diverse vertical structure. Marginal habitat for this species is occurs within the Project Area.	D, E, G, J	No	Potential direct impacts include habitat conversion of 24.07 ~~254.23~~ acres of forests to early successional grasslands. Potential direct impacts include a habitat loss of 1.37 ~~2.52~~ acres of forests. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to forests have been minimized to the maximum extent practicable by siting Project Components in agricultural land wherever possible. Tree clearing is necessary to avoid trees overhanging solar arrays, but clearing is limited to only what is necessary for Project operation.

Table 22-12. Summary of Impacts to Listed Species with Potential to Occur in the Project Area

Common Name	Scientific Name	Federal Status[1]	NYS Status[2]	SGCN Listing[3]	Habitat Preference[4]	Source of Potential Presence[5]	Observed On-Site	Potential Impacts	Impact Avoidance Measures
Common Goldeneye	*Bucephala clangula*	-	-	SGCN	This species prefers freshwater habitats such as ponds, lakes, rivers, and forested wetlands. Nests in tree cavities in mature boreal forests. Habitat for this species may occur limitedly within the Project Area, although there are no boreal forests.	F, G	No	Potential direct impacts include habitat degradation and fragmentation from the impacts to forested wetlands Potential indirect impacts could include habitat disturbances due to noise from construction activity near wetland habitats.	Impacts to wetland habitat have been avoided and minimized to the maximum extent practicable by siting Project Components in agricultural fields and using HDD when necessary.
Common Nighthawk	*Chordeiles minor*	-	SSC	SGCN-HP	This species prefers open or semi-open areas such as forest clearings, grasslands, and suburbs. Habitat for this species occurs within the Project Area.	G	No	Potential direct impacts include habitat conversion of ~~806.81~~ 750.59 acres of agricultural land and successional old fields to early successional fields. Potential direct impacts include habitat displacement from the temporary conversion of 95.58 ~~86.82~~ acres of agricultural land and successional old fields. There will be a habitat loss of 19.10 ~~21.87~~ acres of agricultural land and successional old fields to Project Components. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to successional old fields have been minimized to maximum extent practicable. Impacts to open agricultural areas are unavoidable. Most of the Project Components have been sited within agricultural areas to avoid wetlands and minimize tree clearing.
Cooper's Hawk	*Accipiter cooperii*	-	SSC	-	This species prefers to reside in deciduous, mixed, and coniferous forests. Habitat for this species occurs within the Project Area.	E, F, G, J	No	Potential direct impacts include habitat conversion of ~~254.23~~ 24.07 acres of forests to early successional grasslands. Potential direct impacts include a habitat loss of 1.37 ~~2.52~~ acres of forests. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to forested areas have been minimized to maximum extent practicable by siting most of the Project Components in agricultural areas. Tree clearing is necessary to prevent trees from overhanging solar arrays, but clearing is limited to only what is necessary for Project operation.
Eastern Meadowlark	*Sturnella magna*	-	-	SGCN-HP	This species prefers large expanses of farm fields, pastures, grasslands, and wet fields. Habitat for this species occurs within the Project Area.	E, G, J	No	Potential direct impacts include habitat conversion of ~~806.81~~750.59 acres of agricultural land and successional old fields to early successional fields. Potential direct impacts include habitat displacement from the temporary conversion of 95.58 ~~86.82~~ acres of agricultural land and successional old fields. There will be a habitat loss of 19.10 ~~21.87~~ acres of agricultural land and successional old fields to Project Components. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to agricultural land are unavoidable, as most of the Project Components have been sited in agricultural areas to avoid wetlands and minimize tree clearing. Conversion of land to planted early successional grasslands at solar facilities has been shown to benefit grassland birds (see Section 22(f)(6)) and may improve habitat quality for this species at the Project.

Table 22-12. Summary of Impacts to Listed Species with Potential to Occur in the Project Area

Common Name	Scientific Name	Federal Status[1]	NYS Status[2]	SGCN Listing[3]	Habitat Preference[4]	Source of Potential Presence[5]	Observed On-Site	Potential Impacts	Impact Avoidance Measures
Eastern Whip-poor-will	*Antrostomus vociferous*	-	SSC	SGCN-HP	This species prefers upland, mixed and deciduous forests with well-spaced trees and a low canopy adjacent to large clearings Habitat for this species occurs within the Project Area.	D	No	Potential direct impacts include habitat conversion of ~~254.23~~ 24.07 acres of forests to early successional grasslands. Potential direct impacts include a habitat loss of 1.37 ~~2.52~~ acres of forests. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to forested areas have been minimized to maximum extent practicable by siting most of the Project Components in agricultural areas. Tree clearing is necessary to prevent trees from overhanging solar arrays, but clearing is limited to only what is necessary for Project operation.
Golden Eagle	*Aquila chrysaetos*	-	END	SGCN	This species prefers partially or completely open country surrounding mountains, hills, or cliffs. Habitat for this species generally does not occurs within the Project Area, however they may migrate through the area.	D, G	No	There are unlikely to be direct or indirect impacts due to the lack of habitat. However golden eagles may migrate through the area.	None proposed as no impacts are anticipated.
Golden-winged Warbler	*Vermivora chrysoptera*	Under Review	SSC	SGCN-HP	This species prefers open woodlands, wet thickets, and successional shrublands. A mosaic of shrubby, open areas and mature forests are important for this species. Habitat for this species occurs within the Project Area.	D, G, J	No	Potential direct impacts include habitat ~~255.96~~ 24.07 acres of successional shrublands and forests to early successional grasslands. Potential direct impacts include habitat displacement due to the temporary conversion of ~~0.8~~ 20.80 acre of successional shrubland. Potential direct impacts include habitat loss of ~~2.54~~ 1.37 acres of successional shrubland and forest. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to successional shrublands and forested areas have been minimized to maximum extent practicable by siting most of the Project Components in agricultural areas. Tree and shrub clearing are necessary to prevent trees from overhanging solar arrays, but clearing is limited to only what is necessary for Project operation.
Grasshopper Sparrow	*Ammodramus savannarum*	-	SSC	SGCN-HP	This species prefers open fields and prairie including active hay fields, successional old field, and minimally in successional shrublands. Habitat for this species occurs within the Project Area.	G, J	No	There are unlikely to be direct or indirect impacts due to the limited grassland habitat suitable for Grasshopper Sparrow. Potential direct impacts include habitat conversion of ~~806.81~~ 750.59 acres of agricultural land and successional old fields to early successional fields. Potential direct impacts include habitat displacement from the temporary conversion of 100.72 ~~86.58~~ acres of agricultural land and successional old fields. There will be a habitat loss of ~~21.87~~ 19.10 acres of agricultural land and successional old fields to Project Components. Potential indirect impacts could include disturbance due to noise and construction activity.	Impacts to agricultural land is unavoidable, as most of the Project Components have been sited in agricultural areas to avoid wetlands and minimize tree clearing. Active agricultural land provides limited wildlife habitat for Grasshopper Sparrow. Conversion of agricultural land to planted early successional grasslands for solar facilities has been shown to benefit grasshopper sparrow (see Section 22(f)(6)) and may improve habitat quality for this species at the Project.
Great Egret	*Ardea alba*	-	-	SGCN	This species prefers to be near water and feed in wetlands, streams, ponds, and tidal flats. Habitat for this species occurs within the Project Area.	G	No	Potential direct impacts include habitat degradation and fragmentation from the impacts to wetlands. Potential indirect impacts could include habitat disturbances due to noise from construction activity near wetland habitats.	Impacts to wetland habitat have been avoided and minimized to the maximum extent practicable by siting Project Components in agricultural fields and using HDD when necessary.

Table 22-12. Summary of Impacts to Listed Species with Potential to Occur in the Project Area

Common Name	Scientific Name	Federal Status[1]	NYS Status[2]	SGCN Listing[3]	Habitat Preference[4]	Source of Potential Presence[5]	Observed On-Site	Potential Impacts	Impact Avoidance Measures
Greater Yellowlegs	*Tringa melanoleuca*	-	-	SGCN	This species prefers a variety of wetland habitats with taller vegetation. Habitat for this species occurs within the Project Area.	G	No	Potential direct impacts include habitat degradation and fragmentation from the impacts to wetlands. Potential indirect impacts could include habitat disturbances due to noise from construction activity near wetland habitats.	Impacts to wetland habitat have been avoided and minimized to the maximum extent practicable by siting Project Components in agricultural fields and using HDD when necessary.
Horned Lark	*Eremophila alpestris*	-	SSC	SGCN-HP	This species prefers open fields, agricultural areas, and open habitats with sparse vegetation such as prairies and heavily grazed pastures. Habitat for this species occurs within the Project Area.	B, E, G, J	Yes	Potential direct impacts include habitat displacement from the temporary conversion of ~~86.58~~ 100.72 acres of agricultural land (which currently provides limited habitat) and successional old fields. There will be a habitat loss of ~~21.87~~ 19.10 acres of agricultural land and successional old fields to Project Components. Potential indirect impacts could include disturbance due to noise and construction activity.	Impacts to agricultural land is unavoidable, as most of the Project Components have been sited in agricultural areas to avoid wetlands and minimize tree clearing. Active agricultural land provides limited wildlife habitat for Horned Lark. Conversion of agricultural land to planted and managed early successional grasslands for solar facilities has been shown to benefit grassland bird species with habitat requirements similar to Horned Lark (see Section 22(f)(6)) and may improve habitat quality for this species at the Project.
Least Bittern	*Ixobrychus exilis*	-	THR	SGCN	Breeds in marsh environments which contain tall reeds such as cattails and rushes, interspersed with pockets of open water and woody vegetation. Limited habitat for this species occurs within the Project Area.	G	No	There are unlikely to be direct or indirect impacts due to the limited area of optimal habitat. Potential direct impacts include habitat degradation and fragmentation from the impacts to wetlands. Potential indirect impacts could include habitat disturbances due to noise from construction activity near wetland habitats.	Impacts to wetland habitat have been minimized to the maximum extent practicable by siting Project Components in agricultural fields wherever possible and using HDD when necessary.
Northern Harrier	*Circus cyaneus*	-	THR	SGCN	This species prefers freshwater marshes, wet grasslands, lightly grazed pastures, successional old field, and croplands. Habitat for this species occurs within the Project Area.	B, F, G, J	No	There are unlikely to be direct or indirect impacts due to the limited area of optimal habitat. Potential direct impacts include habitat conversion of 750.59 ~~806.81~~ acres of agricultural land and successional old fields to early successional fields. Potential direct impacts include habitat displacement from the temporary conversion of 100.72 ~~86.58~~ acres of agricultural land and successional old fields. There will be a habitat loss of 19.10~~21.87~~ acres of agricultural land and successional old fields to Project Components. Potential indirect impacts could include disturbance due to noise and construction activity.	Impacts to agricultural land are unavoidable, as most of the Project Components have been sited in agricultural areas to avoid wetlands and minimize tree clearing. Conversion of agricultural land to planted early successional grasslands may benefit Northern Harrier as availability of prey resources may increase in this cover type relative to actively farmed lands.

Table 22-12. Summary of Impacts to Listed Species with Potential to Occur in the Project Area

Common Name	Scientific Name	Federal Status[1]	NYS Status[2]	SGCN Listing[3]	Habitat Preference[4]	Source of Potential Presence[5]	Observed On-Site	Potential Impacts	Impact Avoidance Measures
Northern Pintail	*Anas acuta*	-	-	SGCN	This species prefers freshwater marshes and nests in pastures, hay fields, croplands, and successional old field. Habitat for this species occurs within the Project Area.	F, G	No	Potential direct impacts include habitat conversion of ~~806.81~~ 750.59 acres of agricultural land and successional old fields to early successional fields. Potential direct impacts include habitat displacement from the temporary conversion of 100.72 ~~86.58~~ acres of agricultural land and successional old fields. There will be a habitat loss of 19.10 ~~21.87~~ acres of agricultural land and successional old fields to Project Components. Potential indirect impacts could include disturbance due to noise and construction activity.	Impacts to agricultural land are unavoidable, as most of the Project Components have been sited in agricultural areas to avoid wetlands and minimize tree clearing. Converted agricultural areas may provide reduced nesting habitat quality, however successional grassland habitat under and between solar panels has proven beneficial to some grassland species (see Section 22(f)(6)) and may still provide limited nesting habitat for this species.
Peregrine Falcon	*Falco peregrinus*	-	END	SGCN	The species nests at high elevations on cliffs or tall man-made structures. In migration and winter, this species will use nearly any open habitat. Nesting habitat is not present within the Project Area, however wintering habitat is available.	G	No	There are unlikely to be direct or indirect impacts due to the lack of optimal nesting habitat. Potential direct impacts include habitat displacement from temporarily converting ~~87.64~~ 99.85 acres of successional shrubland, agricultural land, and successional old field to early successional grassland. Potential direct impacts include a habitat loss of ~~21.897~~ 79.41 acres converted to Project Components. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to successional shrublands and successional old fields have been minimized to maximum extent practicable by siting most of the Project Components in agricultural areas. Impacts to agricultural land are unavoidable, as most of the Project Components have been sited in agricultural areas to avoid wetlands and minimize tree clearing. However, grassland habitat created under and between solar panels may provide improved habitat quality over active agriculture within the Project (see Section 22(f)(6)).
Prairie Warbler	*Setophaga discolor*	-	-	SGCN	This species prefers successional shrubland, successional old-field, brush piles, and pastures. Breeds in dry old field and clearing, edges of forest, and sandy pine barrens. Habitat for this species occurs within the Project Area.	G	No	Potential direct impacts include habitat conversion 750.59 ~~808.55~~ acres of agricultural land, successional shrubland, and successional old fields to early successional grassland. Potential direct impacts include habitat displacement from temporarily converting ~~87.64~~ 99.85 acres of successional shrubland, agricultural land, and successional old field to early successional grassland. Potential direct impacts include a habitat loss of ~~21.89~~ 924.34 acres converted to Project Components. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to successional shrublands and successional old fields have been minimized to maximum extent practicable by siting most of the Project Components in agricultural areas. Impacts to agricultural land are unavoidable, as most of the Project Components have been sited in agricultural areas to avoid wetlands and minimize tree clearing. However, grassland habitat created under and between solar panels may provide improved habitat quality over active agriculture within the Project (see Section 22(f)(6)).

Table 22-12. Summary of Impacts to Listed Species with Potential to Occur in the Project Area

Common Name	Scientific Name	Federal Status[1]	NYS Status[2]	SGCN Listing[3]	Habitat Preference[4]	Source of Potential Presence[5]	Observed On-Site	Potential Impacts	Impact Avoidance Measures
Red-headed Woodpecker	*Melanerpes erythrocephalus*	-	SSC	SGCN-HP	This species prefers open deciduous forests, forest edges, groves, and orchards. Habitat for this species occurs within the Project Area.	G, J	No	Potential direct impacts include habitat conversion of ~~254.23~~ 167.60 acres of forests to early successional grasslands. Potential direct impacts include a habitat loss of ~~2.52~~ 1.37 acres of forests. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to forested areas have been minimized to maximum extent practicable by siting most of the Project Components in agricultural areas. Tree clearing is necessary to prevent trees from overhanging solar arrays, but clearing is limited to only what is necessary for Project operation.
Red-shouldered Hawk	*Buteo lineatus*	-	SSC	SGCN	This species prefers bottomland hardwood or upland mixed forests, though are also typically found inhabiting residential areas. Habitat for this species occurs within the Project Area.	G	No	Potential direct impacts include habitat conversion of ~~254.23~~167.60 acres of forests to early successional grasslands. Potential direct impacts include a habitat loss of 1.37 ~~2.52~~ acres of forests. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to forested areas have been minimized to maximum extent practicable by siting most of the Project Components in agricultural areas. Tree clearing is necessary to prevent trees from overhanging solar arrays, but clearing is limited to only what is necessary for Project operation.
Ruddy Turnstone	*Arenaria interpres*	-	-	SGCN	This species prefers to nest on high tundra. During migration, it prefers coastal habitats, or large lakes such as the Great Lakes. No habitat for this species occurs within the Project Area; however, there are large lakes adjacent to the Project Area which may support this species during migration.	D, G	No	None, as no habitat for Ruddy Turnstones is located within the Project Area.	None Proposed as no impacts are anticipated.
Ruffed Grouse	*Bonasa umbellus*	-	-	SGCN	This species prefers a mix of mature forests, successional forests, and successional shrublands. Habitat for this species occurs within the Project Area.	G, J	No	Potential direct impacts include habitat ~~255.96~~ 24.07 acres of successional shrublands and forests to early successional grasslands. Potential direct impacts include habitat displacement due to the temporary conversion of ~~5.43~~ 3.25 acre of successional shrubland and forests. Potential direct impacts include habitat loss of ~~2.54~~ 1.37 acres of successional shrubland and forests. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to forested areas and successional shrublands have been minimized to maximum extent practicable by siting most of the Project Components in agricultural areas. Tree and shrub clearing is necessary to prevent trees and shrubs from overhanging solar arrays, but clearing is limited to only what is necessary for Project operation.
Rusty Blackbird	*Euphagus carolinus*	-	-	SGCN-HP	Typically found within wet forest environments, breeding in fens, bogs, and near beaver ponds. Winters in swamps and wet woodlands. Habitat for this species occurs within the Project Area.	G	No	Potential direct impacts include habitat conversion of ~~254.23~~ 167.60 acres of forests to early successional grasslands. Potential direct impacts include a habitat loss of 1.37 ~~2.52~~ acres of forests. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to forested areas have been minimized to maximum extent practicable by siting most of the Project Components in agricultural areas. Tree clearing is necessary to prevent trees and shrubs from overhanging solar arrays, but clearing is limited to only what is necessary for Project operation.

Table 22-12. Summary of Impacts to Listed Species with Potential to Occur in the Project Area

Common Name	Scientific Name	Federal Status[1]	NYS Status[2]	SGCN Listing[3]	Habitat Preference[4]	Source of Potential Presence[5]	Observed On-Site	Potential Impacts	Impact Avoidance Measures
Scarlet Tanager	*Piranga olivacea*	-	-	SGCN	This species prefers expansive deciduous and mixed forest canopies. Habitat for this species occurs within the Project Area.	E, G, J	No	Potential direct impacts include habitat conversion of ~~254.23~~ 167.60 acres of forests to early successional grasslands. Potential direct impacts include a habitat loss of 1.37 ~~2.52~~ acres of forests. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to forested areas have been minimized to maximum extent practicable by siting most of the Project Components in agricultural areas. Tree clearing is necessary to prevent trees and shrubs from overhanging solar arrays, but clearing is limited to only what is necessary for Project operation.
Sedge Wren	*Cistothorus platensis*	-	THR	SGCN-HP	During the breeding season, this species occupies meadows and wet grasslands with dense tall grasses and sedges for nest building. The Project Area contains habitat for this species.	G, J	No	Potential direct impacts include habitat conversion of 0.80 ~~0.84~~ acres of pastureland and successional old fields to early successional fields. Potential direct impacts include habitat displacement from the temporary conversion of ~~1.41~~ 1.32 acres of pastureland and successional old fields. There will be no permanent habitat loss of pastureland and successional old fields to Project Components. Potential indirect impacts could include disturbance due to noise and construction activity.	Impacts to pastureland and successional old fields have been minimized to maximum extent practicable by siting most of the Project Components in cropland areas. Impacts to cropland are unavoidable, as most of the Project Components have been sited in agricultural areas to avoid wetlands and minimize tree clearing. However, grassland habitat created under and between solar panels may provide improved habitat quality over active agriculture within the Project (see Section 22(f)(6)).
Semipalmated Sandpiper	*Calidris pusilla*	-	-	SGCN-HP	This species breeds on the tundra, and overwinters/migrates along coastal beaches, lake and river shores, mudflats and salt marshes. No suitable habitat occurs within the Project Area as there are no lakes or rivers large enough to support it; however, they may use Montezuma National Wildlife Refuge during migration.	D, G	No	None, as no habitat for Semipalmated Sandpiper is located within the Project Area.	None proposed as no impacts are anticipated.
Sharp-shinned Hawk	*Accipiter striatus*	-	SSC	-	This forest-dwelling raptor prefers to reside in deciduous forests, thickets, forest edges, and mixed woodlands. Habitat for this species occurs within the Project Area.	A, B, E, F, G, J	Yes	Potential direct impacts include habitat conversion of ~~254.23~~ 167.60 acres of forests to early successional grasslands. Potential direct impacts include a habitat loss of 1.37 ~~2.52~~ acres of forests. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to forested areas have been minimized to maximum extent practicable by siting most of the Project Components in agricultural areas. Tree clearing is necessary to prevent trees and shrubs from overhanging solar arrays, but clearing is limited to only what is necessary for Project operation.

Table 22-12. Summary of Impacts to Listed Species with Potential to Occur in the Project Area

Common Name	Scientific Name	Federal Status[1]	NYS Status[2]	SGCN Listing[3]	Habitat Preference[4]	Source of Potential Presence[5]	Observed On-Site	Potential Impacts	Impact Avoidance Measures
Short-billed Dowitcher	*Limnodromus grises*	-	-	SGCN-HP	This species prefers to breed in areas where spruce, tamarack, or birch become stunted and give way to tundra. They nest along the edges of wetlands or river floodplains. During migration, they are opportunistic and can appear in a variety of manmade environments including impoundments, sewage ponds, or flooded farm fields. Suitable migratory habitat occurs within the Project Area, such as flooded farm fields. They also may use Montezuma National Wildlife Refuge during migration.	D	No	Potential direct impacts include habitat degradation and fragmentation from the impacts to wetlands, particularly wetlands within agricultural land. Potential indirect impacts could include habitat disturbances due to noise from construction activity near wetland habitats.	Impacts to wetland habitat have been minimized to the maximum extent practicable by siting Project Components in agricultural fields wherever possible and using HDD when necessary. Impacts to agricultural land are unavoidable, as most of the Project Components have been sited in agricultural areas to avoid wetlands and minimize tree clearing.
Short-eared Owl	*Asio flammeus*	-	END	SGCN-HP	This species prefers open areas grasslands, prairies, marshes, and meadows. Habitat for this species occurs within the Project Area.	G	No	Potential direct and indirect impacts are unlikely due to the limited area of optimal grassland habitat and lack of prairie habitat. Potential direct impacts include habitat conversion of 95.58 ~~806.81~~ acres of agricultural land and successional old fields to early successional fields. Potential direct impacts include habitat displacement from the temporary conversion of 100.72 ~~86.58~~ acres of agricultural land and successional old fields. There will be a habitat loss of ~~21.87~~19.10 acres of agricultural land and successional old fields to Project Components. Potential indirect impacts could include disturbance due to noise and construction activity.	Impacts to agricultural land is unavoidable, as most of the Project Components have been sited in agricultural areas to avoid wetlands and minimize tree clearing. Impacts to wetlands have been minimized and avoided by using HDD when necessary. Active agricultural land provides limited wildlife habitat for short-eared owl. Conversion of agricultural land to planted early successional grasslands has been shown to benefit grassland bird species (see Section 22(f)(6)) and may improve habitat quality for this species at the Project.
Upland Sandpiper	*Bartramia longicauda*	-	THR	SGCN-HP	This species prefers prairies, grasslands, and successional old field. Habitat for this species occurs within the Project Area.	G	No	There are unlikely to be direct or indirect impacts due to the limited area of optimal grassland and lack of prairie habitat. Potential direct impacts include habitat conversion of ~~806.81~~ 95.58 acres of agricultural land and successional old fields to early successional fields. Potential direct impacts include habitat displacement from the temporary conversion of ~~86.58~~100.72 acres of agricultural land and successional old fields. There will be a habitat loss of 19.10 ~~21.87~~ acres of agricultural land and successional old fields to Project Components. Potential indirect impacts could include disturbance due to noise and construction activity.	Impacts to agricultural land is unavoidable, as most of the Project Components have been sited in agricultural areas to avoid wetlands and minimize tree clearing. Active agricultural land provides limited wildlife habitat for Upland Sandpiper. Conversion of agricultural land to planted early successional grasslands has been shown to benefit grassland bird species (see Section 22(f)(6)) and may improve habitat quality for this species at the Project.

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Common Name	Scientific Name	Federal Status[1]	NYS Status[2]	SGCN Listing[3]	Habitat Preference[4]	Source of Potential Presence[5]	Observed On-Site	Potential Impacts	Impact Avoidance Measures
Vesper Sparrow	*Pooecetes gramineus*	-	SSC	SGCN-HP	This species responds quickly to changes in habitat and often occupies abandoned old farm fields and successional shrublands as they return to forest. Habitat for this species occurs within the Project Area.	G, J	No	Potential direct impacts include habitat conversion of ~~2.34~~ 1.82 acres of successional old fields and successional shrublands to early successional fields. Potential direct impacts include habitat displacement from the temporary conversion of ~~1.88~~1.97 acre of successional shrublands and successional old fields. There will be habitat loss of 0.00 ~~0.02~~ acre of successional shrubland and successional old fields to Project Components. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Project Components have been sited in agricultural areas to the maximum extent possible to avoid successional shrublands and successional old fields. Further, conversion of agricultural land to planted early successional grasslands has been shown to benefit grassland bird species (see Section 22(f)(6)) and may improve habitat quality for this species at the Project.
Wood Thrush	*Hylocichla mustelina*	-	-	SGCN	This species prefers deciduous and mixed forests with large trees, moderate understory, shade, and abundant leaf litter. Habitat for this species occurs within the Project Area.	B, D, E, G, J	Yes	Potential direct impacts include habitat conversion of ~~254.23~~ 167.90 ~~-~~acres of forests to early successional grasslands. Potential direct impacts include a habitat loss of 1.37 ~~2.52~~ ~~-~~acres of forests. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to forested areas have been minimized to maximum extent practicable by siting most of the Project Components in agricultural areas. Tree clearing is necessary to prevent trees and shrubs from overhanging solar arrays, but clearing is limited to only what is necessary for Project operation.
Mammals									
Eastern Red Bat	*Lasiurus borealis*	-	-	SGCN	This migratory bat species resides in forested areas and does not overwinter in caves. This species roosts in tree foliage of a variety of deciduous tree species. They forage in wooded areas, over waterbodies, open areas, and along edge habitat. Potential summer habitat occurs within the Project Area.	C, K, L	No	Potential direct impacts include habitat conversion of ~~254.23~~ 167.60 ~~-~~acres of forests to early successional grasslands. Potential direct impacts include a habitat loss of 1.37 ~~2.52~~ acres of forests. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to forested areas have been minimized to the maximum extent practicable by siting most of the Project Components in agricultural areas. Tree clearing is necessary to prevent trees from overhanging solar arrays, but clearing is limited to only what is necessary for Project operation. Tree clearing is proposed to be conducted during the winter when bats are not actively roosting in trees.
Eastern Small-footed Bat	*Myotis leibii*	-	-	SGCN	This species hibernates in caves or mines during the winter. In the summer they roost in rock crevices, ledges, and talus areas. Foraging occurs in forested areas and over ponds, streams, and roads. While rock roosting habitat is not prevalent within the Project Area, there is potential summer foraging habitat within the Project Area.	C, K	No	Potential direct impacts include habitat conversion of ~~254.23~~ 167.60 ~~-~~acres of forests to early successional grasslands. Potential direct impacts include a habitat loss of 1.37 ~~2.52~~ ~~-~~acres of forests. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to forested areas have been minimized to the maximum extent practicable by siting most of the Project Components in agricultural areas. Tree clearing is necessary to prevent trees from overhanging solar arrays, but clearing is limited to only what is necessary for Project operation. This species generally roosts in rocky ledges/crevices, talus slopes, which is not prevalent within the Project Area.

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Common Name	Scientific Name	Federal Status[1]	NYS Status[2]	SGCN Listing[3]	Habitat Preference[4]	Source of Potential Presence[5]	Observed On-Site	Potential Impacts	Impact Avoidance Measures
Hoary Bat	*Lasiurus cinereus*	-	-	SGCN	This migratory bat species roosts in forested areas, among the foliage of deciduous and coniferous trees, and forages along open and edge habitat and over open areas or large open bodies of water. This species is not known to hibernate in caves. Potential summer habitat for this species occurs within the Project Area.	C, K, L	No	Potential direct impacts include habitat conversion of ~~254.23~~ 167.60 acres of forests to early successional grasslands. Potential direct impacts include a habitat loss of 1.37 ~~2.52~~ acres of forests. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to forested areas have been minimized to the maximum extent practicable by siting most of the Project Components in agricultural areas. Tree clearing is necessary to prevent trees from overhanging solar arrays, but clearing is limited to only what is necessary for Project operation. Tree clearing may be proposed to be conducted during the winter when bats are not actively roosting in trees. Presence/probable absence surveys are proposed to be conducted in Summer 2021 and additional conservation measures will be followed as applicable.
Indiana bat	*Myotis sodalis*	END	END	SGCN-HP	This species roosts in tree cavities or loose bark during the summer. This species hibernates during the winter in caves or abandoned mines. Potential summer habitat is within the forested portions of the Project Area.	C, D, K, L, M	No	Potential direct impacts include habitat conversion of ~~254.23~~ 167.60 acres of forests to early successional grasslands. Potential direct impacts include a habitat loss of 1.37 ~~2.52~~ acres of forests. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to forested areas have been minimized to the maximum extent practicable by siting most of the Project Components in agricultural areas. Tree clearing is necessary to prevent trees from overhanging solar arrays, but clearing is limited to only what is necessary for Project operation. Based on results of presence/probable absence surveys, tree clearing may be proposed to be conducted during the winter when bats are not actively roosting in trees. Presence/probable absence surveys are proposed to be conducted in Summer 2021 and additional conservation measures will be followed as applicable.
Little Brown Bat	*Myotis lucifugus*	-	-	SGCN-HP	This species roosts in buildings or trees, under rocks or wood piles during the summer. Foraging habitat includes over wetlands, open water, and other riparian habitat. This species hibernates during the winter in caves or abandoned mines. Potential summer habitat occurs within the Project Area.	C, K, L	No	Potential direct impacts include habitat conversion of ~~254.23~~ 167.60 acres of forests to early successional grasslands. Potential direct impacts include a habitat loss of 1.37 ~~2.52~~ acres of forests. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to forested areas have been minimized to the maximum extent practicable by siting most of the Project Components in agricultural areas. Tree clearing is necessary to prevent trees from overhanging solar arrays, but clearing is limited to only what is necessary for Project operation. Tree clearing may be proposed to be conducted during the winter when bats are not actively roosting in trees. Presence/probable absence surveys are proposed to be conducted in Summer 2021 and additional conservation measures will be followed as applicable.

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Common Name	Scientific Name	Federal Status[1]	NYS Status[2]	SGCN Listing[3]	Habitat Preference[4]	Source of Potential Presence[5]	Observed On-Site	Potential Impacts	Impact Avoidance Measures
Silver-haired Bat	*Lasionycteris noctivagans*	-	-	SGCN	This bat species may migrate through the Project Area. This migratory bat species resides in forested areas and does not typically overwinter in caves. This species roosts in trees and forages in wooded areas, over waterbodies, and along edge habitat. Summer habitat occurs within the Project Area.	C, K, L	No	Potential direct impacts include habitat conversion of ~~254.23~~ 167.60 acres of forests to early successional grasslands. Potential direct impacts include a habitat loss of 1.37 ~~2.52~~ acres of forests. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to forested areas have been minimized to the maximum extent practicable by siting most of the Project Components in agricultural areas. Tree clearing is necessary to prevent trees from overhanging solar arrays, but clearing is limited to only what is necessary for Project operation. Tree clearing may be proposed to be conducted during the winter when bats are not actively roosting in trees. Presence/probable absence surveys are proposed to be conducted in Summer 2021 and additional conservation measures will be followed as applicable.
Eastern Pipistrelle (Tri-colored Bat)	*Perimyotis subflavous*	-	-	SGCN-HP	This species hibernates in abandoned mines and caves during the winter. They roost in tree foliage and occasionally in buildings. Foraging habitat includes wooded riparian areas, over water, and forest-field edges. Summer habitat occurs within the Project Area.	C, K	No	Potential direct impacts include habitat conversion of 167.60 ~~254.23~~ acres of forests to early successional grasslands. Potential direct impacts include a habitat loss of ~~2.52~~ 1.37 ~~-~~acres of forests. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to forested areas have been minimized to the maximum extent practicable by siting most of the Project Components in agricultural areas. Tree clearing is necessary to prevent trees from overhanging solar arrays, but clearing is limited to only what is necessary for Project operation. Tree clearing may be proposed to be conducted during the winter when bats are not actively roosting in trees. Presence/probable absence surveys are proposed to be conducted in Summer 2021 and additional conservation measures will be followed as applicable.

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Common Name	Scientific Name	Federal Status[1]	NYS Status[2]	SGCN Listing[3]	Habitat Preference[4]	Source of Potential Presence[5]	Observed On-Site	Potential Impacts	Impact Avoidance Measures
Reptiles & Amphibians									
Blanding's Turtle	*Emydoidea blandingii*	-	THR	SGCN-HP	This species uses a variety of wetland habitats, including shallow and deep pools, clear, standing water with abundant aquatic vegetation. Two wetland features (W-NSD-1 and W-NSD-2) and the adjacent agriculture fields may provide conditions suitable for Blanding's turtle. Habitat for this species occurs within the Project Area. However, the only indication that this species may be present on-site is a historic listing in the Herp Atlas.	H	No	There are unlikely to be direct or indirect impacts due to the limited area of optimal habitat. There will be no direct impacts to the potential habitat of W-NSD-1 and W-NSD-2). However, potential direct impacts include habitat degradation and fragmentation from the conversion of the agricultural land adjacent to these features. Potential indirect impacts could include habitat disturbance due to noise and construction activity. However, the only indication that this species may be present on-site is a historic listing in the Herp Atlas.	Impacts to wetland habitat have been avoided and minimized to the maximum extent practicable by siting Project Components in agricultural fields and using HDD when necessary. Impacts to agricultural land is unavoidable, as most of the Project Components have been sited in agricultural areas to avoid wetlands and minimize tree clearing.
Blue-spotted Salamander	*Ambystoma lateral*	-	SSC	SGCN-HP	This species prefers deciduous and deciduous forests and are most abundant in moist woodlands with sandy soil. Habitat for this species occurs within the Project Area.	H	No	Potential direct impacts include habitat conversion of ~~254.23~~ 167.60 acres of forests to early successional grasslands. Potential direct impacts include a habitat loss of 1.37 ~~2.52~~ acres of forests. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to forested areas have been minimized to the maximum extent practicable by siting most of the Project Components in agricultural areas. Tree clearing is necessary to prevent trees from overhanging solar arrays, but clearing is limited to only what is necessary for Project operation. No vernal pools were identified.
Jefferson Salamander	*Ambystoma jeffersonianum*	-	SSC	-	This species prefers deciduous forests with steep, rocky areas containing cover such as rotten logs or duff layers. Habitat for this species occurs within the Project Area.	H	No	Potential direct impacts include habitat conversion of 167.60~~254.23~~ acres of forests to early successional grasslands. Potential direct impacts include a habitat loss of 1.37 ~~2.52~~ acres of forests. Potential indirect impacts could include habitat disturbance due to noise and construction activity.	Impacts to forested areas have been minimized to the maximum extent practicable by siting most of the Project Components in agricultural areas. Tree clearing is necessary to prevent trees from overhanging solar arrays, but clearing is limited to only what is necessary for Project operation. No vernal pools were identified.
Snapping Turtle	*Cheylydra serpentina*	-	-	SGCN	This species prefers open water habitats such as deep freshwater marshes, ponds, lakes and river. Habitat for this species occurs within the Project Area.	A, H	Yes	Potential direct impacts include habitat degradation and fragmentation from the impacts to wetlands and areas adjacent to wetlands. Potential indirect impacts could include habitat disturbances due to noise from construction activity near wetland habitats.	Project Components have been sited in agricultural areas to avoid wetlands and minimize tree. Impacts to wetlands have been minimized and avoided by using HDD when necessary.
Spotted Turtle	*Clemmy guttata*	-	SSC	SGCN-HP	This species prefers marshy meadows, bogs, swamps, ditches, or other small bodies of water. Habitat for this species occurs within the Project Area.	H	No	Potential direct impacts include habitat degradation and fragmentation from the impacts to wetlands and areas adjacent to wetlands. Potential indirect impacts could include habitat disturbances due to noise from construction activity near wetland habitats.	Project Components have been sited in agricultural areas to avoid wetlands and minimize tree. Impacts to wetlands have been minimized and avoided by using HDD when necessary.

Table 22-12. Summary of Impacts to Listed Species with Potential to Occur in the Project Area

Common Name	Scientific Name	Federal Status[1]	NYS Status[2]	SGCN Listing[3]	Habitat Preference[4]	Source of Potential Presence[5]	Observed On-Site	Potential Impacts	Impact Avoidance Measures
Western Chorus Frog	*Pseudacris triseriata*	-	-	SGCN	This species prefers open habitats such as wetlands or fields nears trees. They breed in shallow waters such as temporary wetlands or ditches. Habitat for this species occurs within the Project Area.	H	No	Potential direct impacts include habitat degradation and fragmentation from the impacts to wetlands and areas adjacent to wetlands. Potential indirect impacts could include habitat disturbances due to noise from construction activity near wetland habitats.	Project Components have been sited in agricultural areas to avoid wetlands and minimize tree. Impacts to wetlands have been minimized and avoided by using HDD when necessary.

1- 'Federal Status' refers to the species listing as federally endangered (END), threatened (THR), or conservation concern (BCC).
2 - 'NYS Status' refers to the species listing as a state-listed END, THR, or species of special concern (SSC).
3- 'SGCN Listing' refers to is the species state listed as a Species of Greatest Conservation Need – High Priority (SGCN-HP), Species of Greatest Conservation Need (SGCN), or a Species of Potential Conservation Need (SPCN). Status was determined from the published list available at: https://www.dec.ny.gov/docs/wildlife_pdf/sgnc2015list.pdf
4- References for habitat preference were Audubon.org, Allaboutbirds.org, and NYSDEC State Wildlife Action Plan (SWAP)
5- "Source of Potential Presence" refers to the source of information indication the potential presence of the species at the Project Area:
A: Observed on-site by TRC Biologists
B: Observed on-site during avian surveys
C: NYSDEC/NYNHP mammals webpage Range Maps and Descriptions
D: Species identified by USFWS online database (IPaC)
E: Species identified in the NYS Breeding Bird Atlas (BBA)
F: Species identified in the Audubon Christmas Bird Count (CBC)
G: Species identified in eBird
H: Species identified in the NYS Amphibian & Reptile Atlas Project
I: Species identified in the NYSDEC Statewide Fisheries Database
J: Species identified by USGS Breeding Bird Survey
K: Species distribution range in the NYSDEC SWAP
L: Species identified in the Bat Conservation International (BCI) Range Maps
M: Species identified during consultations with state or federal agencies

22(o) Invasive Species Management and Control Plan

Outside of a direct and physical impact to local vegetation communities through construction, the disturbance of naturally occurring ecologies can occur through the introduction of non-native species. While all species compete in the environment to survive, non-native or invasive species appear to have specific traits or specific combinations of traits that allow them to outcompete native species. As invasive species spread, native species begin to reduce in population as suitable habitat and nutrient resources become more limited. During the wetland delineations, a total of 11 invasive plant species were observed within the Project Area. These species are included in the *New York State Prohibited and Regulated Invasive Plants* (NYSDEC, 2014) and below, as follows:

- Canada thistle (*Cirsium arvense*);
- Common buckthorn;
- Common reed;
- European frogbit (*Hydrocharis morsus-ranae*);
- Garlic mustard (*Alliaria petiolata*);
- Hydrilla (*Hydrilla verticillata*);
- Morrow's honeysuckle;
- Multiflora rose;
- Purple loosestrife (*Lythrum salicaria*);
- Reed manna grass (*Glyceria maxima*); and
- Yellow iris (*Iris pseudacorus*).

As part of the Application and in preparation for construction, an ISMCP was prepared to describe the survey methods used to identify invasive species populations currently present on-site, and to minimize their spread during soil disturbance, vegetation management, transport of materials, and landscaping/revegetation (Appendix 22-6). This management plan also includes proposed control procedures of current and introduced invasive populations, including locating and identifying target species, establishing a removal protocol, inspecting construction materials (including fill) and equipment, cleaning equipment, and site restoration. The ISMCP also discusses in detail the monitoring methods that will take place during the construction phase of the Project. As part of the on-site monitoring effort, management guidelines will be established

and strictly adhered to. This will be done to ensure that all Project workers are informed of the threat of spreading invasive species and be educated on the BMPs that will be implemented during construction and restoration of the Project.

The Applicant anticipates that post-construction monitoring will occur over a five-year period, with monitoring events being conducted in years one, three, and five following the completion of construction and restoration. Should new occurrences of invasive species become established, the ISMCP contains a treatment plan to control the introduction and spread of invasive species. Due to invasive species outcompeting native species, invasive populations may naturally increase in distribution and density over time. However, the general goal for the ISMCP is to prevent an increase in invasive species population size or density as a direct or indirect result of the Project. Should the ISMCP fail due to an unforeseen circumstance, a revised management plan will be written with new guidelines and/or protocols to create an adaptable and responsive management framework.

22(p) Temporary and Permanent Impacts on Agricultural Resources

Within the Project Area, approximately 767.3 acres (33.5 percent) of soil are classified as being within mineral soil groups 1-4 and 1,520.4 acres (66.4 percent) of soil are classified as being within soil groups 5-10. Soil mineral groups 1-4 are considered by the New York State Department of Agriculture and Markets (NYSAGM) to represent the most productive farmland within the state and are primarily used for the production of food and fiber, whereas soil groups 5-10 are considered to have limitations for agricultural production (Mulford Affidavit 2020). Of the 767.3 acres of soil within the Project Area that are classified in mineral groups 1-4, only ~~1.9~~1.6% percent (~~14.4~~12.6 acres) will be permanently impacted.

As shown in Table 22-1, active agriculture covers ~~1,251.37~~ 1271.56 ~~-~~acres (54.7%) of the Project Area. However, based on the Cropland Data Layer, 2.5 acres (0.11%) of the Project Area is fallow/idle cropland while another 30.3 acres (1.32%) of the Project Area is composed of non-alfalfa hay. Agricultural land at the Project Area is within New York State Certified Agricultural District - Cayuga County District 5. A more detailed discussion on the agricultural use of the Project Area can be found in Exhibit 4. A map depicting areas of Prime Farmland, Prime Farmland if Drained, and Farmland of Statewide Importance is included as Figure 21-2.

As noted in Section 22(b)(1), temporary impacts to agricultural land will occur primarily from burying underground collection lines and clearing vegetation. Impacts in agricultural land for the

economic life of the Project include siting the solar arrays, collection substation, switchyard and associated fencing and access roads. A total of approximately 806.21 acres of agricultural land will be employed to nonagricultural use due to the siting of Project Components during the useful economic life of the project (30+ years).

The NYSAGM has issued *Guidelines for Agricultural Mitigation for Solar Energy Projects* (2019). Project construction and operation will comply with these guidelines to the maximum extent practicable to minimize and/or mitigate impacts to agricultural resources. If these guidelines cannot be met, then the Applicant with consult with the NYSAGM to discuss acceptable alternatives. Documentation of the Project's consistency with these guidelines is included in Exhibit 21 at Section 21(w).

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