NORTH SENECA
SOLAR PROJECT

North Seneca Solar Project

ORES Permit Application No. 23-00036

1100-2.12 Exhibit 11

Terrestrial Ecology

REDACTED

REVISION 1

Table of Contents

List of Tables

List of Figures

List of Appendices

EXHIBIT 11 TERRESTRIAL ECOLOGY

(a) Identification and Description of Plant Communities

North Seneca Solar Project, LLC (the Applicant) proposes to construct the North Seneca Solar Project, an up to 90-megawatt solar energy generating facility located within the towns of Waterloo and Junius, Seneca County, New York (the Facility). The Facility Site encompasses approximately 940 acres and is largely comprised of rural agricultural and forested lands. Plant communities within the Facility Site were classified into specific community descriptions provided in *Ecological Communities of New York State* (Edinger et al., 2014). Environmental Design & Research, Landscape Architecture, Engineering, and Environmental Services, D.P.C (EDR) classified and mapped each plant community using a combination of desktop review of recent (2022) aerial imagery, publicly available datasets for land cover and soil, and data collected during on-site ecological field surveys conducted between May 2022 and April 2023 (e.g., wetland delineations, a rare plant survey, a targeted wildlife species habitat assessment, and avian surveys). As a result, EDR has identified 16 different communities, which are described in Section (a)(2). The majority of the site is dominated by agricultural communities (row and field crops, pastureland, and an apple orchard), representing approximately 64% of the Facility Site.

Figure 11-1 illustrates the plant communities and anticipated impacts within the Facility Site. Table 11-1 in Section (b) provides the total acreage for each plant community identified within the Facility Site, as well as the anticipated impacts in each community.

(1) Significant Natural Communities and Rare Plants

The Applicant coordinated with state and federal agencies to determine the presence of special status plant communities in the vicinity of the Facility Site. The Official Species List provided by the U.S. Fish and Wildlife Service (USFWS) via the Information for Planning and Consultation (IPaC) system, pursuant to Section 7 of the Endangered Species Act (Appendix 12-A), did not identify any federally listed plants or rare communities in the vicinity of the proposed Facility.

The New York Natural Heritage Program (NYNHP) maintains data on state listed rare, threatened, and endangered plant and animal species, as well as significant ecological communities. Site-specific requests for documented occurrences were most recently submitted to NYNHP in April 2022. The NYNHP response received on May 19, 2022 (Appendix 12-A) identified the following significant natural communities and rare or state listed plants within the Facility Site or in its immediate vicinity:

- Rich shrub fen
- Meromictic lake
- Rich graminoid fen
- Red maple-hardwood swamp
- Marl fen
- Shallow emergent marsh
- Shrub swamp

- **BEGIN CONFIDENTIAL INFORMATION<** [redacted] **>END CONFIDENTIAL INFORMATION**– Threatened, Imperiled in NYS
- **BEGIN CONFIDENTIAL INFORMATION<** [redacted] **>END CONFIDENTIAL INFORMATION** – Threatened, Imperiled in NYS
- **BEGIN CONFIDENTIAL INFORMATION<** [redacted] **>END CONFIDENTIAL INFORMATION** – Threatened, Imperiled in NYS
- **BEGIN CONFIDENTIAL INFORMATION<** [redacted] **>END CONFIDENTIAL INFORMATION** – Threatened, Imperiled in NYS
- **BEGIN CONFIDENTIAL INFORMATION<** [redacted] **>END CONFIDENTIAL INFORMATION** – Endangered, Critically Imperiled in NYS
- **BEGIN CONFIDENTIAL INFORMATION<** [redacted] **>END CONFIDENTIAL INFORMATION** – Endangered, Critically Imperiled in NYS
- **BEGIN CONFIDENTIAL INFORMATION<** [redacted] **>END CONFIDENTIAL INFORMATION** – Endangered, Critically Imperiled in NYS
- **BEGIN CONFIDENTIAL INFORMATION<** [redacted] **>END CONFIDENTIAL INFORMATION** – Threatened, Imperiled in NYS

The Applicant also consulted with the Office of Renewable Energy Siting and Electric Transmission (ORES) and the NYS Department of Environmental Conservation (NYSDEC) to obtain more specific location information of the identified significant natural communities and rare or state listed plants. The rare plants and significant natural communities identified by the NYNHP are largely associated with specific habitat requirements found within the Junius Ponds Unique Area located northwest of the Facility Site. The proposed Facility design includes a buffer of more than 0.23 miles between the closest proposed Facility component and the Junius Ponds Unique Area. Consequently, the siting of the Facility has avoided impacts to the Junius Ponds habitat complex, and the rare species and communities documented therein.

Based on the findings of field studies already completed, the Facility Site does not include any fens or unusual plant communities like those associated with Junius Ponds. Therefore, due to a lack of suitable potential habitat within the Facility Site, no on-site surveys were warranted for the species associated with Junius Ponds Unique Area. However, a targeted rare plant survey was conducted for one of the identified plants within the Facility Site: **BEGIN CONFIDENTIAL INFORMATION<** [redacted] **>END CONFIDENTIAL INFORMATION**, a plant generally found in early successional or human-influenced habitats such as powerlines and roadsides and are therefore more likely to be found within the habitats at the Facility Site.

The Applicant conducted a targeted rare plant survey for **BEGIN CONFIDENTIAL INFORMATION<** [redacted]

[redacted]>END **CONFIDENTIAL INFORMATION** The results of the rare plant survey are included in the Targeted Rare Plant Survey Report (Appendix 11-A).

Based on the results of the targeted rare plant survey, no impacts to **BEGIN CONFIDENTIAL INFORMATION<** [redacted] **>END CONFIDENTIAL INFORMATION** Therefore, impacts to rare plants have been avoided.

Please see Exhibit 12 for a detailed discussion on the rare, threatened, and endangered animals in the vicinity of the Facility.

(2) Plant Community Descriptions

Descriptions of the ecological communities and dominant vegetation within the Facility Site and within 100 feet of areas proposed for disturbance are provided below and presented in Figure 11-1. Detailed descriptions of wetland community types encountered during on-site wetland delineations are provided in Exhibit 14 and Appendix 14-A (Wetland and Stream Delineation Report).

Active Agricultural Lands

Combined, active agricultural lands represent approximately 64% (600 acres) of the Facility Site. The primary agricultural uses are row crops of corn and soybeans, field crops (e.g., hay), and limited occurrences of pasturelands and apple orchard. In some locations, emergent wetlands were observed within small portions of agricultural lands. Emergent wetlands were present in approximately 2% (17 acres) of the site and were characterized by the dominance of erect, rooted herbaceous wetland plants and evidence of persistent inundation or saturation. Refer to Exhibit 15 (Agricultural Resources) for a more detailed description of active agricultural land within the Facility Site.

Forestland

The Facility Site includes a variety of deciduous, coniferous, and mixed forest communities. As defined in *Ecological Communities of New York State* (Edinger et al., 2014), the specific forest types include successional northern hardwoods, rich mesophytic forest, hemlock-northern hardwoods, and conifer plantation. These forests make up approximately 17% (157 acres) of the Facility Site, and occur on hillsides, hedgerows, and in woodlots interspersed among agricultural fields and successional shrubland communities. Common species in the successional northern hardwoods community within the Facility Site typically include quaking aspen (*Populus tremuloides*), black cherry (*Prunus serotina*), red maple (*Acer rubrum*), white pine (*Pinus strobus*), white ash (*Fraxinus americana*), and green ash (*F. pennsylvanica*). Rich mesophytic forests typically have a variety of tree species that are codominant, including species such as red oak (*Quercus rubra*), white oak (*Q. alba),* red maple, white ash, American beech (*Fagus grandifolia*), tulip tree (*Liriodendron tulipifera*), basswood (*Tilia americana*), sugar maple

(*Acer saccharum*), and bitternut hickory (*Carya cordiformis*). Species present in the hemlock-northern hardwoods include eastern hemlock (*Tsuga canadensis),* which is typically codominant with one or a combination of sugar maple, red maple, yellow birch (*Betula allegheniensis)*, black birch (*B. lenta)*, or American beech. The understory of forested communities in the Facility Site is typically comprised of saplings of the species listed above, but also include dogwoods (*Cornus* sp.), multiflora rose (*Rosa multiflora*), wild grape (*Vitis* spp.), sedges (*Carex* spp.), and various ferns, along with other woody and herbaceous plants.

Additionally, forested wetlands are present within or adjacent to the Facility Site's forested areas, in riparian locations, and in woodlots interspersed between agricultural and successional communities. These forested wetlands are primarily silver maple-ash swamps which comprise approximately 10% (91 acres) of the Facility Site. Common species within this community include silver maple (*Acer saccharinum*), white and green ash, American elm (*Ulmus americana*), red maple, and swamp white oak (*Quercus bicolor*). The understory of this community is typically comprised of saplings of the species previously listed as well as prickly ash (*Zanthoxylum americanum*), spicebush (*Lindera benzoin*), various viburnums (*Viburnum* spp.), Virginia creeper (*Pathenocissus quinquefolia*), and poison ivy (*Toxicodendron radicans*).

Although not designated a significant natural community by NYNHP, forest and woodland community types with a state conservation status rank of S1 through S3 are considered rare in New York State, which includes the rich mesophytic forest, hemlock-northern hardwood forest, and silver maple ash swamp communities within the Facility Site. The rich mesophytic forest has a rank of S2S3 indicating it is imperiled or vulnerable in New York. The hemlock-northern hardwood forest and silver maple ash swamp communities are ranked S3 indicating they are vulnerable but not currently imperiled.

Developed/Disturbed

Disturbed/developed land consists of a combination of several "cultural communities" as defined in the *Ecological Communities of New York State* (Edinger et. al., 2014). Disturbed/developed land occurs throughout the Facility Site, and is characterized by the presence of buildings, paved and unpaved roads, lawns, quarries, or transmission line rights-of-way. Vegetation in these areas is generally either lacking or highly managed (e.g., mowed lawns or routinely maintained rights-of-way), and volunteer vegetation that naturally reestablishes in these areas is typically comprised of old field, often non-native, herbaceous species such as bull thistle (*Cirsium vulgare*), curly dock (*Rumex crispus*), spotted knapweed (*Centaurea maculosa*), and various upland grasses. Developed/disturbed lands comprise approximately 2% (22 acres) of the Facility Site.

Within the Facility Site, approximately 3% (29 acres) of the area was identified as brushy cleared lands, which are defined by Edinger et. al., (2014) as, "a former forest, woodland, or shrubland that has been clearcut or cleared by brush-hog. The cut stumps of trees and shrubs are evident and usually common. There may be considerable woody debris, such as branches and slashings from trees that were logged, and vegetation is patchy, with scattered herbs, shrubs, and tree saplings. The amount of vegetative cover is typically dependent on soil fertility and the length of time since the land was cleared."

Successional Shrubland

Successional shrubland occurs on sites that have been previously cleared for farming, logging, development, or otherwise disturbed (Edinger et. al., 2014). Successional shrublands comprise approximately 1% (10 acres) of the Facility Site. Species observed within this community include dogwood, wild grape, raspberries (*Rubus* spp.), various viburnums, prickly ash, chokecherry (*Prunus virginiana*), staghorn sumac (*Rhus typhina*), and invasive shrubs such as multiflora rose, autumn olive (*Elaeagnus umbellata*), bush honeysuckle (*Lonicera* spp.), and common buckthorn (Edinger et. al., 2014).

Scrub-shrub wetlands were in some instances associated with successional shrublands and comprise approximately 1% (10 acres) of the Facility Site. Scrub-shrub wetlands included many of the understory species described in silver maple-ash swamp communities listed above.

Successional Fields

As defined by Edinger et al. (2014), a successional old field is a meadow dominated by forbs and grasses that occurs on sites that have been cleared and plowed for farming and/or development. This includes fields that are mowed at infrequent intervals (typically less than once per year), which promotes the reproduction of characteristic successional old field species, such as goldenrods (*Solidago* spp.), ryegrass (*Lolium* sp.), woolgrass (*Scirpus cyperinus*), raspberry, blackberry (*Rubus* sp.) (and several other upland grasses and forbs. Successional old fields comprise less than 1% (4 acres) of the Facility Site.

Open Waters

Open water features are present at the Facility Site and include streams, ponds, farm ponds, and open water wetlands. Less than 1% of the Facility Site (0.5 acre) can be described as open water.

(b) Impact to Plant Communities

Construction and operation of the Facility will result in impacts to plant communities. To estimate impacts to the plant communities within the Facility Site, the Applicant has developed the following limits of disturbances, all of which are presented on Figure 11-1:

- Limit of Construction Activity (LOCA): This limit encompasses the anticipated outer bounds of where construction and related impacts may occur for the Facility. This boundary includes defined work corridors along Facility components, security fencing, and proposed planting modules and incorporates areas where construction vehicles and/or personnel may need extra room to construct the Facility.

- Limit of Vegetation Management (LOVM): Represents all areas where vegetation will be managed for the life of the Facility. This generally includes all areas within the fence line, areas adjacent to access roads outside the fence line where road edges will be mowed/maintained, areas adjacent to the collection substation and point of interconnection (POI) substation, visual screening plantings, and areas maintained for stormwater purposes. Plant communities within the LOVM will be

converted to and maintained in an early successional community for the duration of Facility operation.

- Limits of Impervious Surfaces (LOIS): Represents all areas that will host built components of the Facility and will be maintained in an unvegetated state for the life of the Facility. The LOIS includes areas where the collection substation, POI, storage trailer, inverter pads, and access roads will be located. These areas will be cleared of all vegetation, grubbed, and graded prior to installation, as needed. The LOIS represents permanent impacts to existing plant communities during construction and operation of the Facility.

Within the LOCA, existing vegetation will be cleared or mowed to an appropriate height prior to installation of Facility components. The use of machinery to install Facility components within the LOCA may also result in temporary soil impacts, further described in Exhibits 10 and 15. As stated above, vegetation in areas within the LOVM will be maintained for the life of the Facility. Areas within the LOIS will house built facilities components for the life of the Facility. Within the LOIS, only the POI substation and its access road and overhead generation tie-line will not be decommissioned at the end of the Facility's useful life as they will be owned by National Grid and not the Applicant. All other areas within the defined limits of disturbances will be restored following decommissioning of the Facility and allowed to revegetate naturally or at the discretion of the landowner (see Exhibit 23 [Site Restoration and Decommissioning] for additional information).

A total of 74 acres of forest are anticipated to be cleared during the construction of the Facility. Forest clearing impacts associated with the Facility can be characterized as one of three types: permanent loss, forest conversion, and natural regeneration. In areas subject to permanent loss, forested areas will be replaced with Facility components (e.g., access roads, collection substation, etc.). The second is forest conversion, where forests will be cleared and maintained as successional communities for the life of the Facility (e.g., areas within collection line rights-of-way, some small areas at the edge of PV arrays). These two types of forest disturbance are accounted for in the LOVM and the LOIS, respectively, and will collectively impact 26% (63 acres) of forestland within the Facility Site. The third type of impact to forest communities is natural regeneration, where forests will be initially cleared, but will not be maintained during Facility operation. Instead, vegetation in these areas, which totals 10 acres of forestland within the Facility Site (i.e., forested areas outside the LOVM but within in the LOCA), will be allowed to regenerate naturally following construction.

During operation, areas within the LOVM will be mowed as necessary to allow for Facility operations. The partial shading of the areas underneath PV arrays may result in very minor changes to these communities as soil temperatures are expected to decrease and species recruitment will favor more shade-tolerant plants, similar to ecological succession in communities with shrub or forest cover. However, the seed mix chosen for post-construction restoration in these areas will be selected with potential shading in mind.

Facility-related impacts to vegetation were calculated using the LOCA, LOVM, and LOIS as described above. These potential impact areas were generated based on the actual proposed locations of components and grading limits necessary for construction, as identified in the Preliminary Site Plan Drawings (Appendix 5-

A). Table 11-1 summarizes the anticipated impacts to plant communities due to construction and operation of the Facility. Figure 11-1 presents the community types identified within the Facility Site relative to the defined limits of disturbances.

Table 11-1. Estimated Temporary and Permanent Impacts to Plant Communities

Plant Community Type	Facility Site (acres)	Temporary Impact during Construction (acres)[1]	Permanent Conversion (acres)[2]	Permanent Loss (acres)[3]
Active Row Cropland	552.6	40.2	317.4	10.7
Active Field Cropland	46.8	8.0	5.8	0.2
Rich Mesophytic Forest	91.1	7.8	49.0	0.5
Silver Maple-Ash Swamp	90.7	0.0	0.0	0.0
Emergent Herbaceous Wetland	16.5	<0.1	<0.1	<0.1
Successional Northern Hardwood Forest	25.0	1.2	2.1	0.1
Hemlock-Northern Hardwood Forest	21.1	<0.1	0.5	0.0
Conifer Plantation	19.8	1.3	11.2	0.3
Brushy Cleared Land	29.3	2.6	16.9	0.1
Developed/Disturbed	22.0	0.8	1.3	<0.1
Pastureland	0.4	0.0	0.0	0.0
Scrub Shrub Wetland	10.4	<0.1	<0.1	<0.1
Successional Shrubland	9.8	0.7	1.8	0.1
Successional Old Field	3.6	0.1	<0.1	0.0
Open Water	0.5	0.0	0.0	0.0
Apple Orchard	0.4	0.0	0.0	0.0
TOTAL [4]	**939.9**	**62.8**	**406.1**	**12.0**
Subtotal, forest[5]	247.6	10.3	62.8	0.8
Subtotal, ag land[6, 7]	600.3	48.2	323.2	10.9

[1] Impacts that will occur only during construction which include plant communities within the LOCA but outside of the LOVM. Temporarily impacted areas will be restored following construction and will be allowed to revegetate naturally (i.e., will not be further disturbed during Facility operation).

[2] Areas within the LOVM that will be cleared during Facility construction and maintained as early successional communities during Facility operation.

[3] Areas within the LOIS that will be graded and converted to built structures and impervious surfaces during construction and operation of the Facility.

[4] The sum of individual plant community types may not equal the total due to rounding of numbers displayed in the table.

[5] Forest includes communities of rich mesophytic forest, successional northern hardwood forest, hemlock-northern hardwood forest, silver maple-ash swamp, and conifer plantations.

[6] Agricultural lands include communities of active row crops, active field crops, pastureland, and apple orchard.

[7] Agricultural lands are expected to remain viable for future agricultural production upon decommissioning of the Facility. Refer to Exhibit 15(a)(7)-(8) for additional detail regarding impacts to agricultural resources.

A total of up to approximately 481 acres of vegetation (51% of the Facility Site) will experience temporary or permanent impacts during Facility construction, of which approximately 79% of the impacted area will occur within agricultural communities (382 acres) and 15% within forested communities (74 acres).

As presented in Table 11-1, a total of 12 acres (1%) of vegetation within the Facility Site are anticipated to be converted to built facilities and impervious surfaces within the LOIS which occurs primarily within row cropland (11 acres), of which only 1.8 acres associated with the POI and associated aboveground facilities will not be decommissioned. Approximately 406 acres (43%) of the Facility Site will be maintained as an early successional community for the life of the Facility, largely in areas underneath PV arrays; nearly 80% of areas to be maintained in this manner within the LOVM are currently in agricultural areas. Temporary impacts to vegetation are anticipated to total 63 acres (7%) of the Facility Site and include areas within the LOCA that will be restored following construction or will be allowed to revegetate naturally. See Exhibit 15 (Agricultural Resources) for a more detailed characterization of the impacts expected to active agricultural land within the Facility Site.

Temporary and permanent impacts to plant communities will not result in the eradication or significant reduction of any natural ecological community type, or in the significant reduction of any anthropogenic community type (e.g., agricultural land, disturbed/developed) within the Facility Site. At the end of the Facility lifespan, Facility components will be decommissioned, and the land restored, as described in Exhibit 23 of this Application. Following completion of decommissioning and restoration, lands within the Facility Site are expected to revegetate naturally or return to pre-construction land uses at the discretion of the landowner.

(c) Measures to Avoid or Mitigate Plant Community Impacts

Avoidance, minimization, and mitigation of impacts to vegetation have been and will be accomplished primarily through careful site planning. As described and quantified in Section (b), the majority of Facility components have been sited in open agricultural communities to the maximum extent practicable, thus avoiding significant impacts to natural forested areas. However, some clearing of forested areas will be necessary for Facility components. The majority of forest clearing is limited to the northwest portion of the Facility Site, where forestland (more specifically, rich mesophytic forest) is most abundant. This clearing is proposed for PV arrays and associated access roads and collections lines that are critical to meeting the Project's nameplate capacity. Most of this clearing occurs at the edge of forest where there is existing disturbance associated with the agricultural use common to this area, thus minimizing impacts to the interior forest cover. Approximately 37% (33.7 acres) of the rich mesophytic forest, 97% (20.6 acres) of the hemlock northern hardwood forest, and 100% (90.7 acres) of the silver maple-ash swamp within the Facility Site have been avoided entirely in the proposed Facility layout. Additionally, an area in the northwestern corner of the Facility Site was previously considered for development but was ultimately removed from the Project to avoid and minimize potential impacts to the adjacent Junius Ponds Unique Area and the rare plants and significant natural communities that are associated with it. This change in design also avoids areas of rich mesophytic forests. No clearing of silver maple-ash swamp and forested wetland communities will occur in areas proposed to host PV arrays, and these ecologically valuable communities within the Facility Site will be largely protected from disturbance (see Exhibit 14 for further discussion of avoidance of wetland impacts). Areas of disturbance will be confined to the smallest area necessary.

To protect adjacent undisturbed vegetation and other ecological resources, a comprehensive sediment and erosion control plan will be developed and implemented prior to Facility construction (see the Preliminary

Stormwater Pollution Prevention Plan [SWPPP] in Appendix 13-B). Other mitigation measures to avoid or minimize impacts to vegetation include marking sensitive areas (such as wetlands) where no disturbance or vehicular activities will be allowed consistent with 16 NYCRR Section 1100-6.4 (e), educating the construction workforce on respecting and adhering to the physical boundaries of off-limit areas, employing best management practices during construction, and maintaining a clean work area within the designated construction sites. An independent environmental monitor will conduct inspections of all areas requiring environmental compliance during construction activities, with an emphasis on those activities that are occurring within sensitive areas.

As previously discussed in Section (a) above, all plant communities identified within the Facility Site are relatively common to New York State. Following construction activities, temporarily disturbed areas will be seeded (and stabilized with mulch and/or straw, if necessary) to reestablish vegetative cover in these areas. Except in active agricultural fields, native species will be allowed to revegetate all temporarily disturbed areas.

At the end of the Facility's life, the Applicant will remove Facility components and restore the land, as described in Exhibit 23 consistent with requirements outlined in 16 NYCRR Section 1100-6.6(a). Following completion of decommissioning and restoration, lands within the Facility Site are expected to return to preconstruction conditions.

(d) Species List

A Plant Species List and a Wildlife Species List are included in Appendix 11-B. The Plant Species List includes all plant species observed during on-site ecological field studies, including wetland delineations and habitat assessments. The Wildlife Species List identifies species that may occur within the ecological communities present in the Facility Site at some time during the year. It is also based on site-specific field survey results, such as the breeding bird survey, as well as assessments of habitat availability and existing publicly available data, summarized in the Wildlife Site Characterization Report (Appendix 12-A).

(e) Impacts to Wildlife, Wildlife Habitats, and Wildlife Travel Corridors

As discussed in Section (b) and shown in Figure 11-1, temporary and permanent impacts to plant communities will occur in approximately 382 acres of agricultural lands, 74 acres of forestland, 20 acres of brushy cleared land, 3 acres of successional shrubland, 2 acres of developed or disturbed lands, and less than 1 acre of successional old field within the Facility Site. With the exception of developed and disturbed lands, these plant community types each provide some level of habitat value for a variety of wildlife species.

Agricultural lands generally provide limited or seasonal habitat for wildlife due to regular modification by human activities, such as tilling, planting, cultivating, or mowing. Active fields of row crops, such as corn and soybeans, typically provide marginal habitat for many wildlife species, as these habitats are often too disturbed for nesting and breeding to be successful. Depending on the extent and frequency of site disturbance, hay and pasture fields can provide habitat for foraging and breeding activities for a variety of migratory species, grassland birds, and small mammal species.

Maintained early successional areas under PV arrays are expected to provide habitat for a number of wildlife species including pollinators and other invertebrates, small mammals, reptiles, amphibians, and avian species that utilize old field and grassland habitat. Converting these areas out of active agricultural use could provide a benefit to these species by providing a more dense, year-round, diverse ground cover than that found in areas used for agricultural production.

The construction and operation will not result in any significant reduction, fragmentation, or eradication of plant communities or wildlife habitat. The majority of the Facility Site is comprised of row cropland which does not provide high-quality habitat for wildlife. Therefore, impacts to wildlife are expected to be minimal. Additional discussion regarding impacts to state or federally listed threatened or endangered species, or species of concern, are discussed in Exhibit 12.

(1) Construction-Related Impacts to Wildlife and Wildlife Habitats

Construction-related impacts to wildlife are anticipated to be limited to incidental injury and mortality due to construction activity and vehicular movement, habitat disturbance or loss associated with clearing and earth-moving activities, and displacement of wildlife due to increased noise and human activities. Each of these potential impacts is described below.

Incidental Injury or Mortality

Direct impacts from construction may include incidental injury or mortality due to construction equipment. Potential mortality is expected to be low as equipment used in solar energy facility construction generally moves at slow rates or is stationary for long periods (e.g., earth moving equipment, pile driving equipment). In addition, much of the land within the Facility Site is currently used for the active production of row and field crops, pastureland, and apple orchard. Such areas typically provide limited food and cover for most wildlife species, and routinely subject to disturbance-related farming activities (e.g., plowing, mowing, pesticide application). Incidental injury and mortality should be limited to juvenile and sedentary/slow-moving species that are unable to move out of the area being disturbed by construction. More mobile species and mature individuals should be able to vacate areas being disturbed by construction. Vehicle-related mortality may increase temporarily due to the increased traffic during construction; however, as traffic decreases upon the completion of construction, so will the potential for wildlife-vehicle collisions.

For most of the wildlife species potentially present, overall populations are stable and any adverse impacts would be localized and minimal; impacts to species nesting in active farm fields, for instance, should not differ greatly from impacts from normal plowing, seeding, and mowing of these fields for farming purposes. Furthermore, as discussed in Exhibit 12 (NYS Threatened and Endangered Species), ORES determined there is no occupied breeding habitat for any state listed threatened or endangered species within the Facility Site. Several bird species of special concern were present within the Facility Site during the breeding season. Minimization measures will be implemented during Facility construction to reduce potential impacts to protected birds. For example, some vegetation clearing/grubbing activities will occur at times of the year when most bird species are not actively

nesting. In addition, if an active nest of a federally and/or state protected bird species is identified during construction activities, the permittee shall adjust the limits of disturbance and/or adjust the construction schedule to avoid work in the area until nesting has been completed. Any direct impacts associated with disturbance and displacement from construction areas would be a temporary impact and individuals would be able to return to disturbed areas following completion of construction activities.

Habitat Disturbance and Loss Due to Clearing and Earth-moving Activities

Facility components have been sited to minimize impacts to wildlife habitat. This includes preferentially siting PV arrays in agricultural fields and successional areas to avoid or minimize impacts to forestland and wetland communities. As detailed above, it is anticipated that agricultural plant communities (both row and field croplands), forestland, and successional shrubland and old field habitat will be directly impacted by construction-related disturbance. On a landscape scale, an abundance of these habitats occurs within the Facility Site, in nearby areas, and in the broader region. Moreover, a portion of these habitats will only be temporarily impacted during construction, therefore it is anticipated that the majority of wildlife present in the Facility Site could return to these areas that were temporarily disturbed following the completion of construction activity.

As described in Section (b) of this Exhibit, the majority of areas underneath the PV arrays will generally not be subject to grading or stripping of topsoil. In some PV array areas, minor grading will occur, typically associated with access road installation, and existing vegetation will be cleared or mowed to an appropriate height prior to installation of the arrays. Vegetation will also be cleared and maintained around the collection substation, security fence, and planting modules. These areas will be maintained as an early successional grassland community for the life of the Facility. Maintained early successional areas are expected to provide considerable habitat value for many wildlife species including pollinators and other invertebrates, small mammals, reptiles and amphibians, and avian species. For many species, the conversion from row crops to early successional communities is expected to improve habitat conditions (e.g., through year-round vegetation, increased diversity of vegetation, increased density of vegetation, and reduction in mechanical disturbances). A total of approximately 323 acres of agricultural land, 63 acres of forestland, 2 acres of successional shrubland, and less than 1 acre of successional old field will be maintained as early successional communities around and under the PV arrays, collection substation, within the security fence, and at planting module locations.

Changes in vegetation could influence the behavior of wildlife species by changing the quality of habitat for foraging, nesting, or roosting, although significant adverse impacts on wildlife are not expected. As indicated above, the row crop fields being disturbed by Facility construction provide habitat for relatively few wildlife species.

Displacement of Wildlife

Some wildlife displacement may occur due to increased noise and human activity associated with Facility construction. The significance of this impact will vary by species and the seasonal timing of

construction activities. These impacts are not expected to be significant due to the limited habitat value of much of the area being impacted (i.e., row cropland), and because a sizeable amount of suitable habitat will remain undisturbed by Facility construction within and adjacent to the Facility Site. As mentioned previously, the majority of land proposed to host Facility components is subject to frequent mechanical disturbance associated with farming activities. Consequently, it is anticipated that many of the wildlife species within the Facility Site are accustomed to disturbances such as those that will occur during Facility construction. Outside of localized displacement due to construction disturbance in the immediate vicinity of Facility components, no significant displacement impacts on wildlife species are anticipated during construction.

(2) Operation-Related Impacts to Wildlife and Wildlife Habitats

Operation-related impacts to wildlife include direct habitat loss and disturbance or displacement of wildlife due to the placement of PV arrays, access roads, and other Facility components.

Habitat Loss

The area underneath the PV arrays, and surrounding the collection substation, fence line, and planting modules (406 acres [43% of the Facility Site]) will be maintained as early successional habitat for the life of the Facility, the majority of which is currently active row cropland. This early successional habitat is expected to provide increased habitat value for many wildlife species over that of existing conditions. However, certain wildlife species that require large uninterrupted open fields, such as grassland raptors, may no longer use these areas (see Exhibit 12 for more information).

Forestland is the second most abundant community type in the Facility Site, at 248 acres (26%), trailing only agricultural lands (64% of the Facility Site). Of the approximately 74 total acres of tree clearing, less than one acre of forestland will be converted to built facilities and impervious surfaces for the life of the Facility and an estimated 63 acres will be converted to early successional fields within the LOVM during Facility operations. Forest clearing or conversion will reduce available habitat and could result in impacts to certain forest avian species that are sensitive to edge effects and habitat fragmentation. In addition, forest loss and fragmentation could result in adverse impacts to bat species based upon each species' ecology (e.g., preferred prey, foraging areas, roosting needs, and flight morphology). Suitable roosting areas for some species may be lost as a result of Facility construction; however, the creation of open areas and forest edge may benefit some species (such as little brown bat and big brown bat) by increasing foraging opportunities.

Publicly available data from the National Landcover Dataset (USGS, 2023) indicate that forestlands are prevalent throughout Seneca County with Core Forest Blocks (i.e., contiguous areas 150 acres or larger) comprising nearly 27,276 acres within the County. Core forest blocks are depicted in Figure 6 of the Wildlife Site Characterization Report (Appendix 12-A). Permanent forest impacts within the LOIS and LOVM represent only 26% of all forested lands in the Facility Site, and only 0.2% of forests within core forest blocks in the County, suggesting that the loss of forest habitat will be small relative to regional availability. The areas that will have some forest clearing have similar forested habitat nearby. Since the

amount of habitat fragmentation will be low and there will not be a landscape-level change in habitat, any impacts to wildlife species from forest fragmentation are expected to be limited. In addition, habitat conversion is expected to provide an increase in habitat for early successional species.

The overall acreage of agricultural habitats and forested lands will be reduced within the Facility Site. However, given the limited habitat quality of the relatively small extant areas of lost or converted natural communities, and/or the abundance of such communities on the adjacent/nearby landscape, habitat loss/conversion resulting from Facility operation is not considered significant. Operation of the Facility will not result in additional habitat loss beyond areas disturbed by construction.

Disturbance/Displacement of Wildlife

Habitat alteration and disturbance resulting from Facility operation may render some areas within the Facility Site unsuitable or less suitable for nesting, foraging, roosting, or other wildlife use. The Facility is sited in an agricultural landscape that is subject to frequent disturbances associated with farming activities such as tilling, plowing, pesticide application, mowing/harvesting, and livestock grazing. PV arrays have been preferentially sited in these areas to avoid the need to clear significant areas of forest or impact other valuable wildlife habitat such as grasslands or wetlands. Given that the area underneath the PV arrays will be maintained as early successional habitat for the life of the Facility, it is expected that more generalist grassland avian species will successfully utilize these areas. Nonetheless, the presence of PV arrays in existing row and field croplands within the Facility Site will likely render these habitats unsuitable for certain species that would otherwise utilize these areas for foraging, roosting, and breeding habitat. This may particularly be the case for avian species that generally require large, open grassland areas to hunt for insects or small mammals and establish breeding territories. However, significant adverse impacts to grassland and forestland species are not anticipated as these habitats are common in the region and the Applicant will implement avoidance, minimization, and mitigation measures as presented in Section (f). Furthermore, the Applicant has developed a Net Conservation Benefit Plan (NCBP) to mitigate for unavoidable impacts to occupied grassland bird wintering habitat that was determined to be taken by the Facility layout, While the NCBP is targeted to a specific state-listed species, it is expected that other wildlife species will similar grassland habitat requirements would also benefit from the area conserved. See Exhibit 12 and Appendix 12-G for additional detail on impacts and mitigation to grassland bird species.

Impacts to Wildlife Travel Corridors and Concentration Areas

The Applicant conducted research presented in the Wildlife Site Characterization Report (Appendix 12-A) to determine the presence of documented wildlife travel/migration corridors or concentration areas within or adjacent to the proposed Facility. The Facility is located along the avian Atlantic Flyway, a major north/south corridor utilized by migratory birds, and wholly within NYSDEC Grassland Focus Area 3 (NYSDEC, 2012). There are no other wildlife concentration areas within the Facility Site; however, other wildlife concentration areas are present in the vicinity of the Facility including the Junius Ponds Unique Area, which is located approximately 0.2 mile northwest of the Facility Site, the Montezuma National Wildlife Refuge approximately 6 miles east of the Facility Site, and the Iroquois National Wildlife Refuge

approximately 4 miles northwest of the Facility Site. Figures 3 and 4 of the Wildlife Site Characterization Report (Appendix 12-A) show the distribution of resources which contribute to wildlife travel corridors and concentration areas (e.g., National Wildlife Refuges, State Forests, State Unique Natural Areas, and Grassland Focus Area 3, etc.).

The Atlantic Flyway extends across the eastern continental U.S. and overlays several developed and industrial areas. NYSDEC Grassland Focus Area 3 covers over 875,000 acres of land in the Finger Lakes region, including several developed or industrial areas. Therefore, the Facility Site represents only a small fraction of the land area of the Atlantic Flyway and NYSDEC Grassland Focus Area 3 and as such impacts are not anticipated from Facility construction or operation. The Wildlife Site Characterization Report (Appendix 12-A) presents more information regarding the wildlife travel corridors and concentration areas in the vicinity of the Facility and Exhibit 3 presents a cumulative analysis of potential renewable energy development impacts to land use within 5-miles of the Facility.

The Facility is also not anticipated to have adverse impacts to regional migration corridors. Smaller scale travel corridors that are not used for migration but are used for local movement between resource patches likely exist within the Facility Site. These include deer trails, areas between wetlands and uplands that reptiles and amphibians cross in order to access breeding grounds, and patches of forest that mammals may travel through while foraging. Locating the Facility primarily within active agricultural fields will minimize impacts on local wildlife travel corridors.

(f) Measures to Avoid or Mitigate Impacts to Wildlife and Wildlife Habitats

As previously indicated, the initial siting of the Facility included the avoidance of parcels, or portions of parcels, that were known to provide habitat to rare, threatened, or endangered species or significant or unique natural communities, in addition to avoidance of other sensitive resources (e.g., cultural resources, utilities, etc.) to the extent feasible (see Figure 2-3 for a comprehensive depiction of design constraints). More specifically, the adjacent Junius Ponds Unique Area was buffered to avoid and minimize potential disturbance to rare plants, wildlife, and wildlife habitats occurring in the vicinity. As previously noted, forest clearing was avoided and minimized to the maximum extent practicable by siting Facility components in previously disturbed open agricultural fields which typically provide marginal habitat for many wildlife species. Additionally, several large Class 2, state regulated wetland complexes were identified at the southeast portion of the Facility Site where parcels were being considered for development. Given the extent of forested wetland habitat, several parcels were removed from the final Facility Site and Facility components were sited to avoid direct impact to the mapped wetlands and their adjacent areas, to the extent practicable. See Exhibit 14 (Wetlands) for additional discussion regarding proposed wetland impacts. Several parcels that were found to provide suitable grassland bird habitat were also removed from the final Facility Site. As presented in Exhibit 12 (NYS Threatened or Endangered Species), an NCBP has been developed to mitigate the unavoidable taking of grassland bird wintering habitat. It is anticipated that other wildlife species with similar grassland habitat preferences would also benefit from the land conserved during Facility operation. See Exhibit 12 for additional discussion of the avian surveys conducted at the Facility Site and an evaluation of impacts to threatened and endangered grassland bird species.

Areas within the Facility Site that will be disturbed are primarily dominated by row cropland with smaller areas of disturbance planned within field cropland and forestland communities, which currently comprise 59%, 5%, and 26% of the Facility Site, respectively. The successional communities maintained during the life of the Facility may offer similar habitat for the types of species currently occupying these areas. Mature forested areas and wetlands will be avoided to the maximum extent practicable. Therefore, impacts to wildlife and wildlife habitats are expected to be minor. To further avoid or minimize impacts to wildlife and wildlife habitat, the Facility has been thoughtfully sited to minimize construction and operation disturbance to the extent practicable. During construction, the Applicant will require all contractors to adhere to designated construction limits.

In addition, forested areas cleared for construction of the Facility will be allowed to regenerate wherever practicable, which will provide habitat for early successional species over the short term and will eventually return to forested habitat. These areas include those unmaintained areas outside security fencing, areas adjacent to access roads on the periphery of PV arrays, and temporary construction laydown areas.

REFERENCES

Edinger, G.J., D.J. Evans, S. Gebauer, T.G. Howard, DM. Hunt, and A.M. Olivero (editors). 2014. *Ecological Communities of New York State*. Second Edition: A Revised and Expanded Edition of Carol Reschke's *Ecological Communities of New York State* (1990). New York Natural Heritage Program, New York State Department of Environmental Conservation, Albany, NY.

New York Natural Heritage Program. 2024. Online Conservation Guide for *Hypericum prolificum*. Available from: https://guides.nynhp.org/shrubby-st-johns-wort/. Accessed February 1, 2024.

New York State Department of Environmental Conservation. 2012. *Grassland LOP: Focus Areas Map*. Available at: https://www.dec.ny.gov/pubs/32975.html (Accessed January 2024).

United States Geological Survey Multi-Resolution Land Characteristics Consortium. 2023. National Land Cover Database 2021. Available at: https://www.mrlc.gov/viewer/