Mohawk SOLAR

Visual Impact Analysis

Mohawk Solar (Case No. 17-F-0182)

Towns of Canajohaire and Minden, Montgomery County, New York

Prepared for:

Mohawk Solar, LLC
A subsidiary of Avangrid Renewables LLC
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Lowville, New York 13367

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May 2019

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NYSDPS Case No. 17-F-0182

Prepared For:

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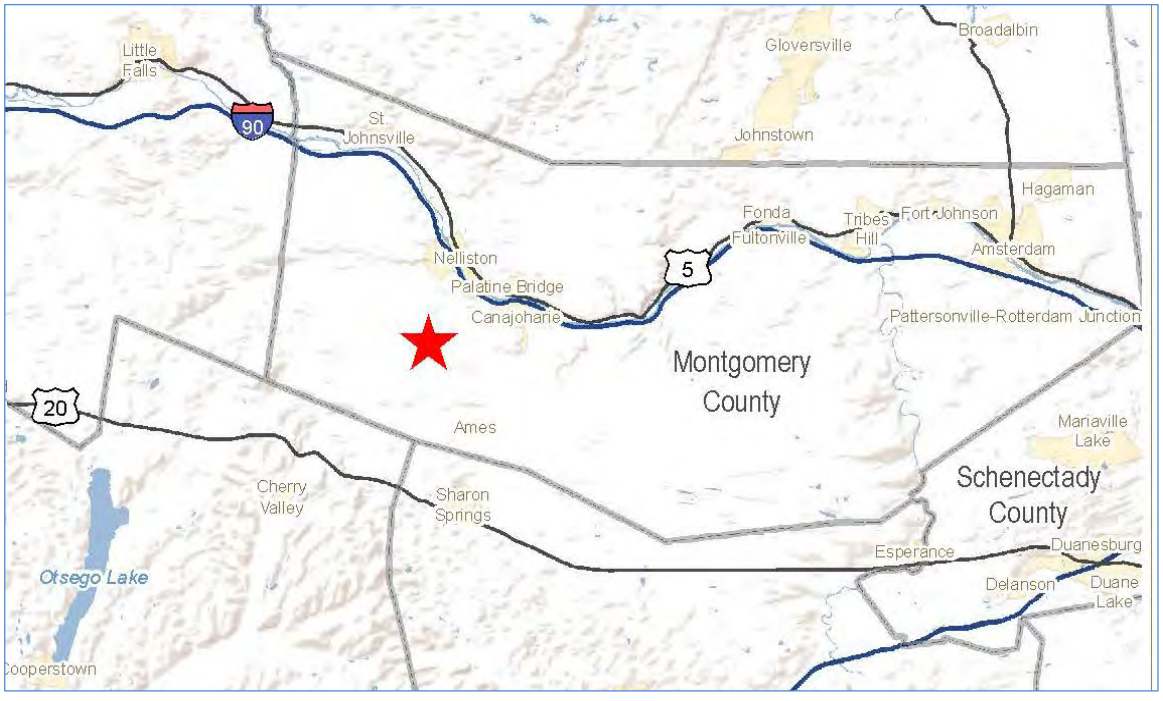
1.0 Introduction

On behalf of Mohawk Solar LLC, Environmental Design & Research, Landscape Architecture, Engineering, & Environmental Services, D.P.C. (EDR) prepared this Visual Impact Assessment (VIA) for the proposed Mohawk Solar Facility (the Facility). The Facility is a proposed solar energy generating installation located in the Towns of Canajoharie and Minden, Montgomery County, New York (see Inset 1.01). This VIA was prepared in support of the Facility's review under Article 10 (Certification of Major Electrical Generating Facilities) of the New York State Public Service Law and is intended to assist the Department of Public Service (DPS), other state agencies, interested stakeholders, and the public in their review of the proposed Facility in accordance with the requirements of Article 10. The purpose of this VIA is to:

- Define the aesthetic character of the visual study area
- Inventory and evaluate existing visual resources and viewer groups within the visual study area
- Describe the appearance of the visible components of the proposed Facility
- Evaluate potential Facility visibility within the visual study area
- Identify key views for visual assessment
- Assess the visual impacts associated with the proposed Facility
- Determine the need for and propose conceptual mitigation options



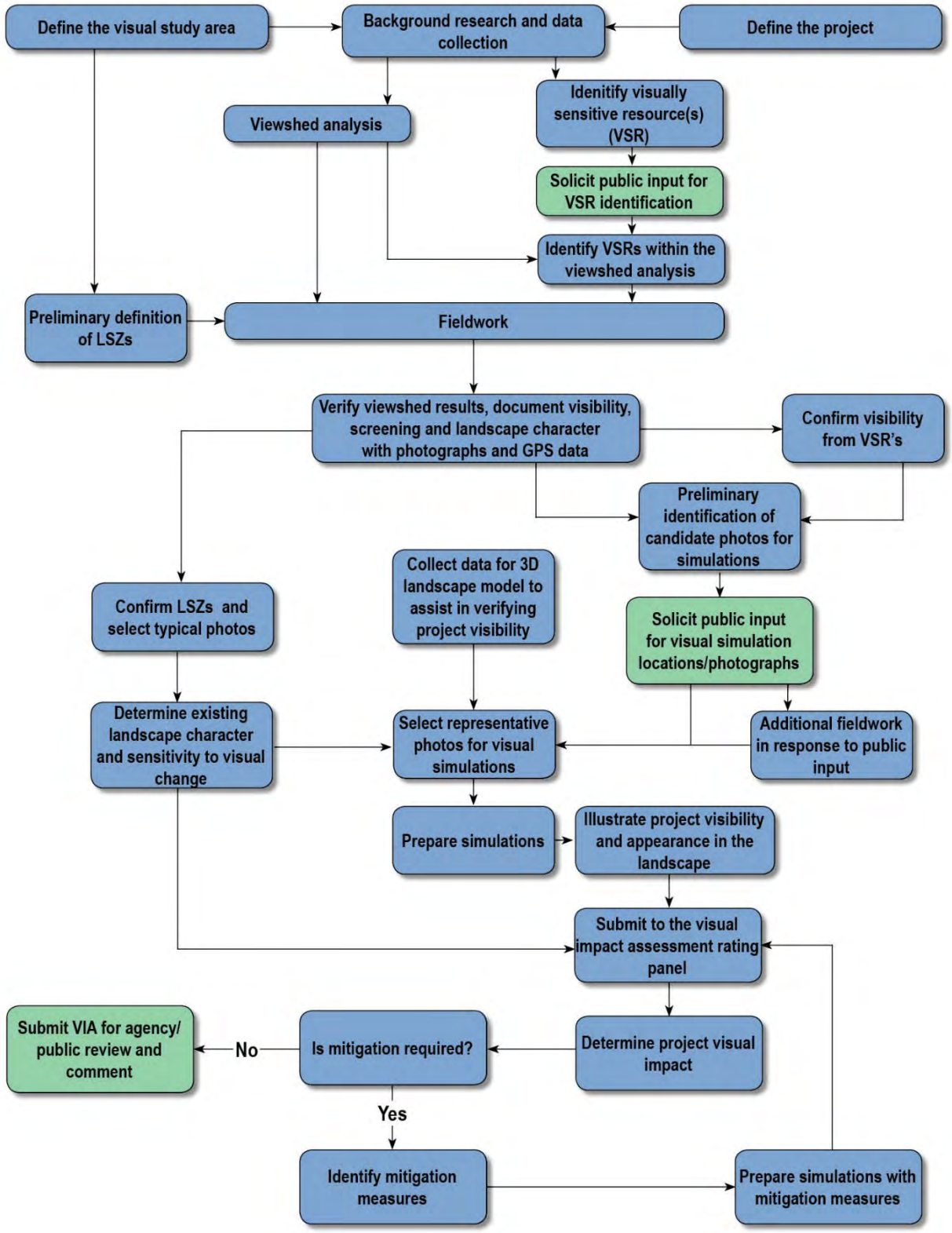
Inset 1.01 – Regional location map (red star denotes area of Facility Site)

This VIA was prepared by environmental professionals with educational and career experience in the evaluation of visual impact. Its methodology and content are consistent with the policies, procedures, and guidelines contained in established VIA methodologies (see Literature Cited/References in Section 7.0 of this report), and complies with the requirements of Section 24 of the Facility's Preliminary Scoping Statement (PSS; EDR, 2017) and Stipulations,[1] which was prepared in accordance with the requirements of Article 10 (EDR, 2017). The VIA process followed by EDR is outlined in Inset 1.02 (see next page).

The following terms are used throughout this document to describe the proposed Facility:

Facility:	Collectively refers to all components of the proposed project, including PV panels and support structures, inverters, access roads, buried and above-ground collection lines, above-ground interconnection facilities and a staging area.
Facility Site:	Those parcels currently under, or being pursued, for lease (or other real property interests) with the Applicant within which all proposed Facility components would be located. The Facility Site totals approximately 2,360 acres.
PV Panels	Refers to the photovoltaic (PV) panels that are fixed to a ground mounted, single axis racking system.
PV Arrays	Refers to the rows/columns of combined PV panels and racking systems that make up the Facility Layout.
Racking	A single axis tracker system that the PV panels will be mounted on.
Solar Array	Refers to the continuous collection of PV arrays at a single location.
Visual Study Area:	The area within a 5-mile radius of all Facility components, as well as additional areas defined as a result of agency and stakeholder correspondence (described in Section 3.0 of this report).
Landscape Similarity Zones	Subsets of the visual study area defined based on the similarity of various landscape characteristics including landform, vegetation, water, and land use patterns, in accordance with established visual assessment methods (see Section 3.3 of this report).
Visually Sensitive Resources	Visual/aesthetic resources of local, regional, statewide and/or national significance identified as part of this VIA (described in Section 3.6 of this report).

[1] The final Stipulations for the Mohawk Solar Facility are dated March 1, 2019 and were officially adopted by Parties and posted to the NYSDPS Document Matter Master (DMM) for Case No. 17-00668/17-F-0182 on May 13, 2019, available here: http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={9FCC9312-4EB3-4426-A94D-1AD91324EA63}.



Inset 1.02 Visual Impact Assessment Process

For the purpose of evaluating the potential visibility and visual effect associated with the Facility, the proposed Facility is described below in Section 2.0. The land use and visual characteristics of the Facility Site are described below in Section 2.1, and the physical and visual characteristics of Facility components are described in Section 2.2. Following this description of the proposed Facility, the visual study area, Landscape Similarity Zones (LSZs), distance zones, and viewer/user groups within the visual study area are described below in Section 3.0. The viewshed analysis and visually sensitive resources (VSRs) present within the visual study area are described in Section 4.0. VIA methodology, including the design of the conceptual planting plan and methods to assess Facility visibility and Facility visual impact are described in Section 5.0. The results of the VIA are described in Section 6.0 and conclusions are summarized in Section 7.0. References cited within the VIA are listed in Section 8.0.

The locations of Facility components, VSRs, viewpoint locations, and landscape similarity zones are shown in the Composite Overlay Map in Appendix A. Appendix B includes a photograph from each viewpoint location visited during field verification. Information regarding VSRs within the visual study area and their distance from the facility and potential visibility of the Facility is included in the VSR visibility analysis in Appendix C. The visual simulations of the proposed Facility from representative viewpoints are illustrated in Appendix D. The visual impact assessment rating forms used by members of the rating panel to evaluate the visual impact of the proposed Facility are included in Appendix E. A record of stakeholder outreach and correspondence conducted during sensitive sites research is included in Appendix F. Proposed locations of the conceptual planting modules and the mitigation photolog are shown in Appendix G.

2.0 Facility Description

Mohawk Solar LLC (the Applicant), a wholly owned subsidiary of Avangrid Renewables, LLC, proposes to construct a solar energy generating facility in Montgomery County, New York, (see Figure 1). The Facility will have a nameplate capacity of 90.5 megawatts ("MW") and is expected to generate approximately 206,000 MWh of energy annually. This will be enough electricity to meet the average annual consumption of over 28,000 New York households, based on average annual electric consumption of 7.2 MWh (EIA, 2014). The physical and visual characteristics of the Facility are described in greater detail in Section 2.2 of this report: However, the proposed components of the Facility are summarized below, and will include:

- 37 solar arrays of PV panels. These solar arrays (made up of PV panels and a single axis tracker racking system) are sited throughout the Facility in individual areas that would be enclosed by chain link fencing, and range in size from 1.5 to 90 acres. In total, the solar arrays total 530 acres within the 2,360-acre Facility Site (see Figure 1). The PV arrays will produce direct current (DC) electricity and will be mounted on single-axis tracking structures that will follow the sun throughout the day.
- A medium voltage collection system that will deliver power from the PV panels to the collection substation. The collection system includes approximately 18 miles of electrical cable that will be installed entirely underground.
- A collection substation where the Facility's electrical output voltage will be combined and increased to the existing grid voltage of 115 kV via step-up transformers.
- A generation tie line (gen-tie) that will connect the collection substation to the POI switchyard. The gen-tie will be constructed as an overhead line carried on 12 wood poles with an anticipated height of 65 feet over a distance of approximately 200 feet.
- A point-of-interconnection (POI) switching station (or POI switchyard), where the electricity will contribute to the existing bulk transmission system for delivery to homes and businesses.
- The PV panels will be served by a network of unpaved access roads, which will be 20 feet wide and total approximately 30 miles in length. Two types of roads will be built for the Facility. Access roads from public roads to the fenced gate of each array will be surfaced with crushed stone/gravel. In addition, each PV array will be circumscribed by a maintenance road along the inside of each perimeter fence. These maintenance roads will be maintained as grass (i.e., no crushed-stone or other paving).
- All PV panels will be enclosed by galvanized chain link fence (required for safety and security purposes). The Facility includes approximately 27 miles of fencing around the PV panels. For the purpose of this VIA, the Facility design assumes that the fences will be 8.5 feet tall in the Town of Minden and 8.0 feet tall in the Town of Canajoharie, consistent with the zoning ordinances for each Town.

- The substation and switchyard will be enclosed by an 8.5-foot galvanized chain link fence with angled barbed wire at the top of the chain-link (required for safety and security purposes).
- Temporary laydown areas for equipment staging during construction, which will cover approximately 8.0 acres to accommodate storage containers, Facility components (PV panels, racking systems, electrical cable), and parking for construction workers.
- Perimeter plantings to screen/soften views of the Facility from adjacent roads and residences.
- An operations and maintenance (O&M) building and yard, which will be centrally located in the Facility Site and will cover approximately 1,280 square feet. The O&M building will house permanent staff offices and store maintenance equipment and supplies.

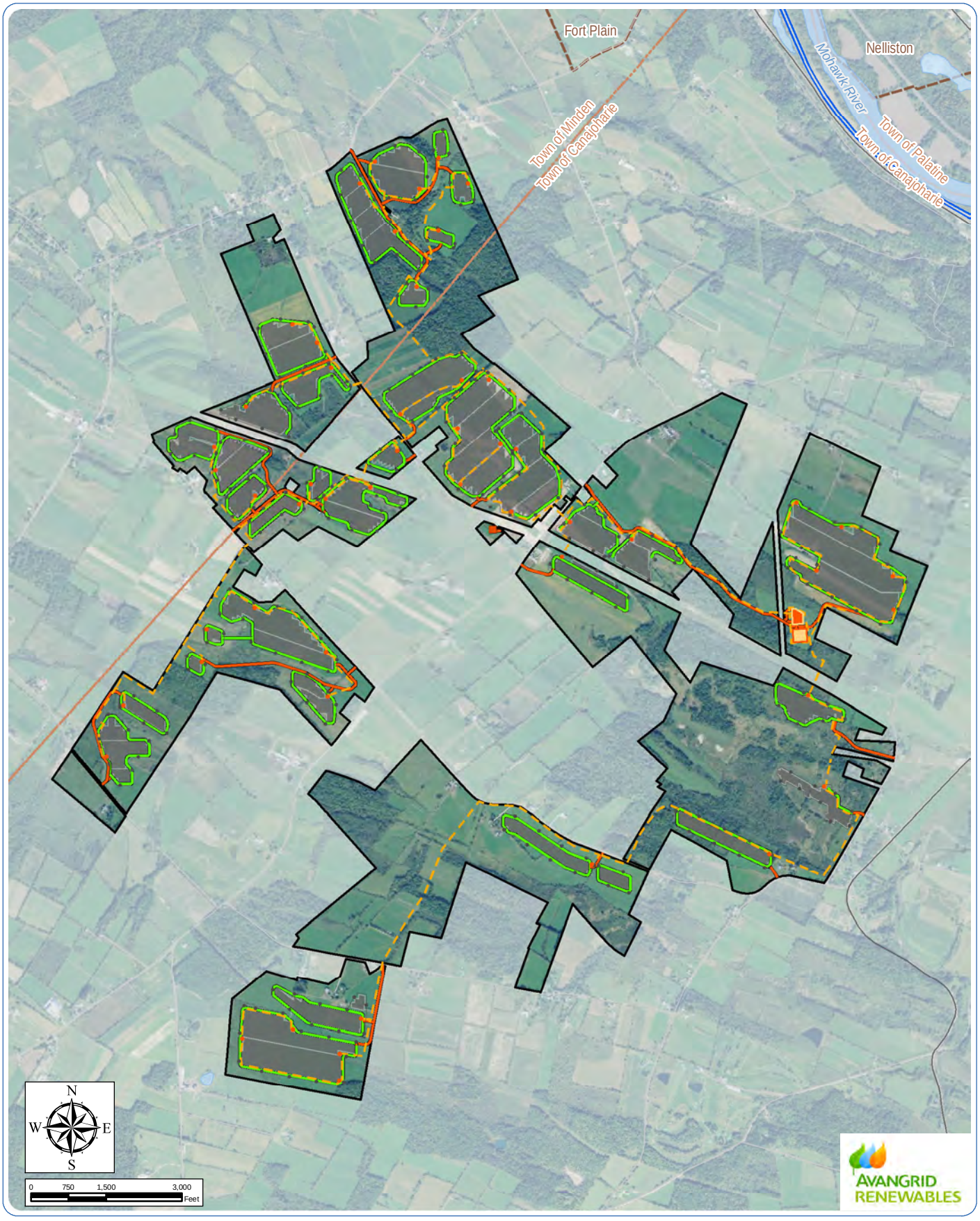
2.1 Facility Site

The proposed Facility Site, which will host the components described above, includes approximately 2,360 acres in the Towns of Canajoharie and Minden, in Montgomery County, New York (see Figure 1). As measured to the nearest PV array, the Facility Site is 0.5 mile southwest of the Village of Fort Plain, 1.0 mile southwest of the Village of Canajoharie, and 2.5 miles northwest of the Village of Ames. The Facility Site is bounded on the east by State Route 10, on the west by State Route 163, to the south by Bowman's Creek, and to the north by Heiser Road and Seebers Lane in the Town of Canajoharie.

Land within the Facility Site consists primarily of open fields, woodlots, areas of successional shrubland, and wetlands. Land use is dominated by cultivated crops, as well as active and reverting hayfields and pasture, interspersed with farms and low density rural residential development along area roadways. Specifically, 309 acres of the Facility Site (12.8%) are used for dairy farming, 511 acres (21.2%) as rural residential land, 202 acres (8.4%) for cattle, horse, or poultry farms, 84 acres (3.5%) for field crop farms, 61 acres (2.5%) private forest, and the remaining 1,193 acres (51.5%) is classified by the New York State Office of Real Property Tax Services (NYSORPTS) as either agricultural vacant or unclassified vacant land.

Topography within the Facility Site is characterized by rolling hills with elevations ranging from 600 feet above mean sea level (AMSL) along an stream valley in the northwest to 990 feet AMSL in the southernmost portion of the Facility Site, east of County Road 84. The proposed solar arrays are primarily located on flat land on top of plateaus and ridgelines, or on south-facing hillsides. The rolling topography is covered by a mosaic of agricultural fields, hedgerows, and forested woodlots dispersed throughout the landscape, particularly in the upland areas. According to the 2011 United State Geological Survey (USGS) National Landcover Dataset (NLCD), approximately 72% of the Facility Site is comprised of cultivated crops and pasture/hay land, while 11% of the site is forested, and 8% consists of woody wetlands. The remaining 9% of the Facility

Site includes shrub/scrub land, grassland, emergent wetlands, and disturbed or developed land. See Figure 1 for a map of the Facility Site and component layout.



Mohawk Solar

Towns of Canajoharie and Minden, Montgomery County, New York

Visual Impact Assessment

Figure 1: Project Site and Facility Layout

Notes: 1. Basemap: USDA NAIP "2017 New York" Orthoimagery, ESRI StreetMap North America, 2008. 2. This map was generated in ArcMap by Environmental Design and Research on May 24, 2019. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Proposed Facility Components

- O&M Building
- Transformer
- Collection Substation
- POI Switchyard
- Fence Line
- Buried Collection Line
- Grass Access Road
- Gravel Access Road
- PV Panel Array
- Facility Site

Civil Boundaries

- County Boundary
- City/Village Boundary
- Town Boundary

2.2 Proposed Facility

The major components of the proposed 90.5 MW Mohawk Solar Facility are described below and illustrated in Figure 2:

2.1.1 Solar Array

The Facility will be grouped into 37 separate, contiguous clusters (or "solar arrays") ranging in size from 1.5 to 90 acres. These solar arrays will consist of PV panels mounted on racking arranged in parallel rows (linear arrangements) called PV arrays. The preliminary design specifies that the distance between rows of PV arrays would be 20 feet on-center, with row length ranging from 180 to 280 feet. In total, the solar arrays will occupy 530 acres within the 2,360-acre Facility Site.

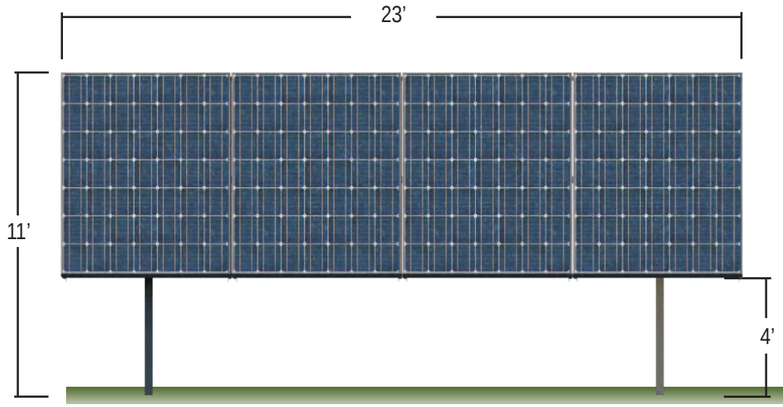
PV panels will be installed on a low-profile single axis tracker, racking system, consisting of steel I-beam posts driven into the ground and tubular steel horizontal beams to allow attachment and articulation of the PV panels. The proposed racking system minimizes soil disturbance so that the land can return to its current agricultural use following decommissioning of the Facility. The PV arrays will generally follow the existing topography of the Facility Site and minimal grading will be required. The PV arrays are equipped with horizontal single-axis balanced-mass trackers composed of galvanized and stainless steel. When using a system with single axis tracking technology, the PV arrays will be oriented in a north-south direction and equipped with electric motors that slowly rotate the PV panels from east to west, to maintain a 90-degree angle relative to the direction of sunlight. Tracking PV arrays will face east at sunrise, rotate throughout the day, and end up facing west at sunset. At the end of the day, the PV panels will be re-set to the east. The height of the panels will vary as the structures tilt to follow the sun throughout the day, but the typical maximum height of the structures when at their tallest position will be approximately 11 feet (note the height will be variable given undulations in the existing terrain).

Fencing and Setbacks: The above-ground components of the Facility need to be fenced for safety and security purposes. As currently proposed, the PV arrays will be surrounded by chain-link fence. The total length of the perimeter fencing will be approximately 27 miles. For the purpose of this VIA, the Facility design assumes that the fences will be 8.5 feet tall in the Town of Minden and 8.0 feet tall in the Town of Canajoharie, consistent with the zoning ordinances for each Town. The Facility substation will be enclosed by an 8.5-foot galvanized chain link fence with angled barbed wire at the top of the chain-link (required for safety and security purposes). All fencing materials, including the posts, mesh, rails, and top wires will be composed of galvanized steel.

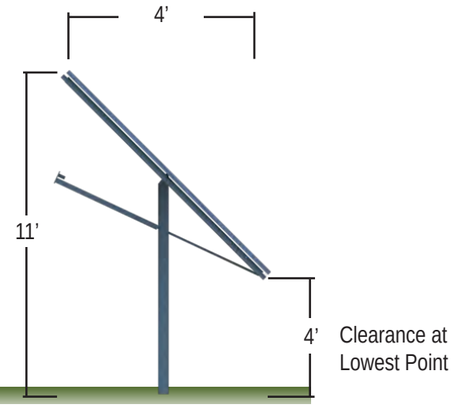
The general design criteria for the Facility included setbacks established in consideration of local zoning requirements to allow a sufficient buffer between Facility components and public rights of way ("ROW") and private residences/property lines. The general design criteria for the Facility included the following setbacks:

- Within the Town of Canajoharie, a 200-foot setback between the PV arrays and the property line of any parcel whose owner is not hosting Facility components (i.e., a "non-participating parcel") and/or the edge of any public road ROW.
- Within the Town of Minden, a 100-foot setback between the PV arrays and the property line of any parcel whose owner is not hosting Facility components (i.e., a "non-participating parcel") and/or the edge of any public road ROW.

These general design criteria are incorporated into the proposed Facility layout, as illustrated in the visual simulations included in this VIA. To further protect the public, appropriate warning signs will be posted on the gates and/or fences that enclose the PV arrays. Such signs are not considered in the VIA due to their relatively small size and because their design and placement are unknown at this time.

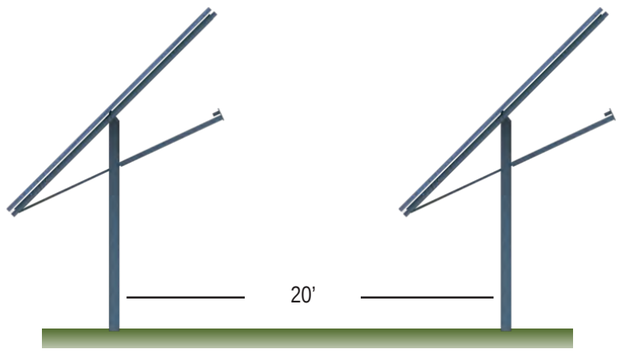


PV Panel - Typical (Front Elevation)

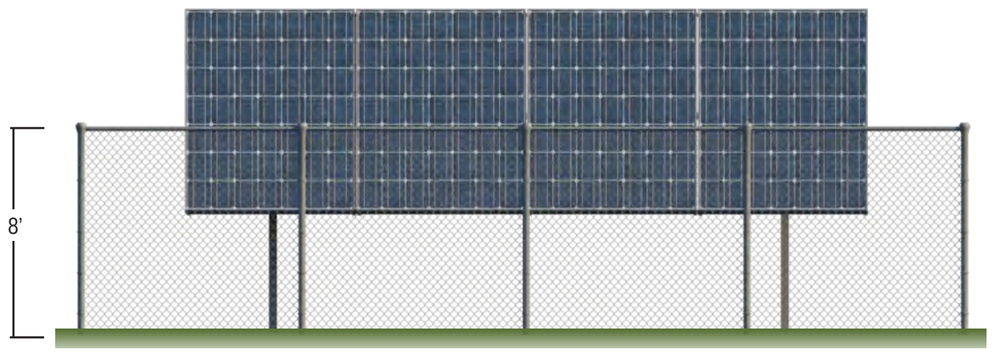


PV Panel - Typical (Side Elevation)

PV Panel - Typical (Back Elevation)

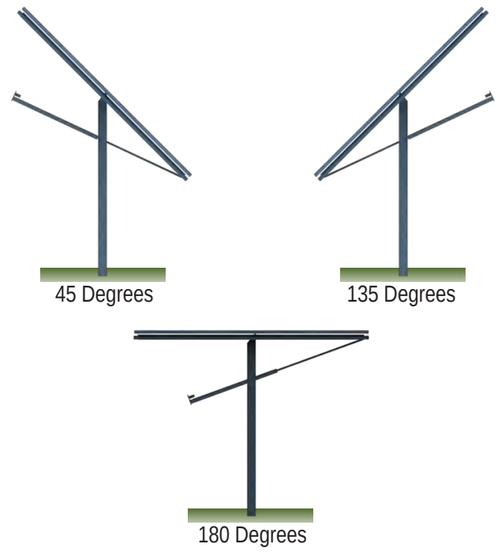


20’ Spacing Between Rows



Proposed Fencing - Galvanized Chain link Fence

PV Panel - Sun Angle Based Tracking



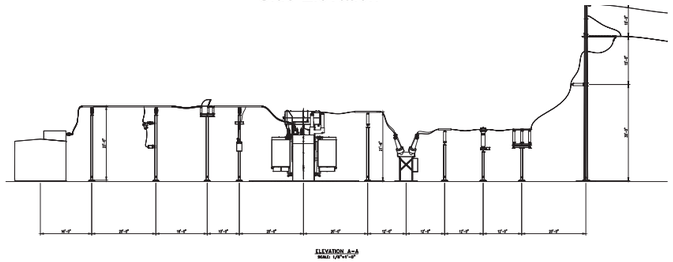
Mohawk Solar

Towns of Canajoharie and Minden, Montgomery County, New York

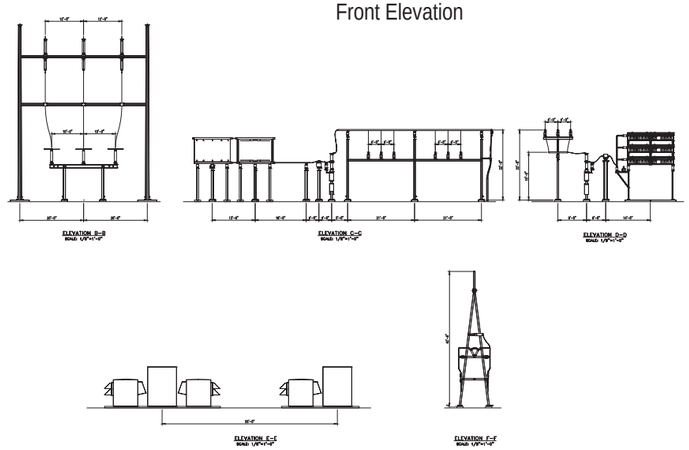
Visual Impact Assessment | Figure 2: Facility Components - PV Panel and Racking

PROPOSED COLLECTION SUBSTATION

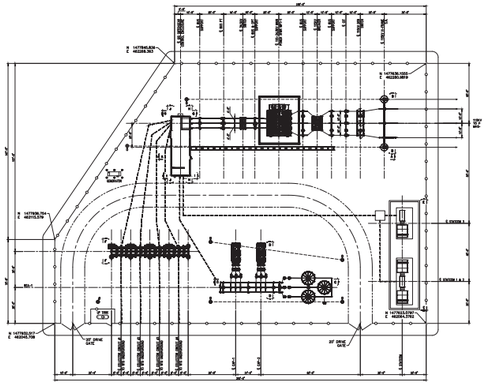
Side Elevation



Front Elevation

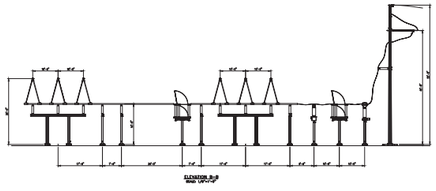


Site Plan

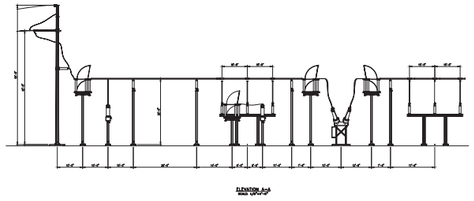


PROPOSED POINT OF INTERCONNECTION SWITCHYARD

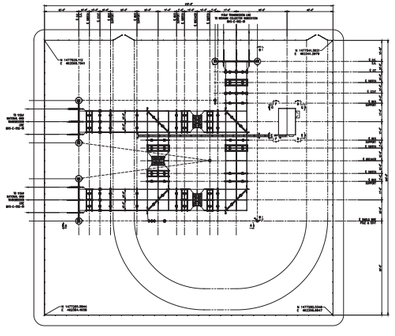
Side Elevation



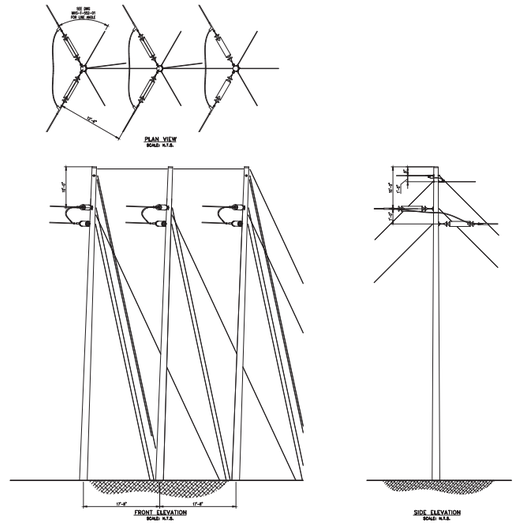
Front Elevation



Site Plan



PROPOSED GENERATION TIE LINE STRUCTURE



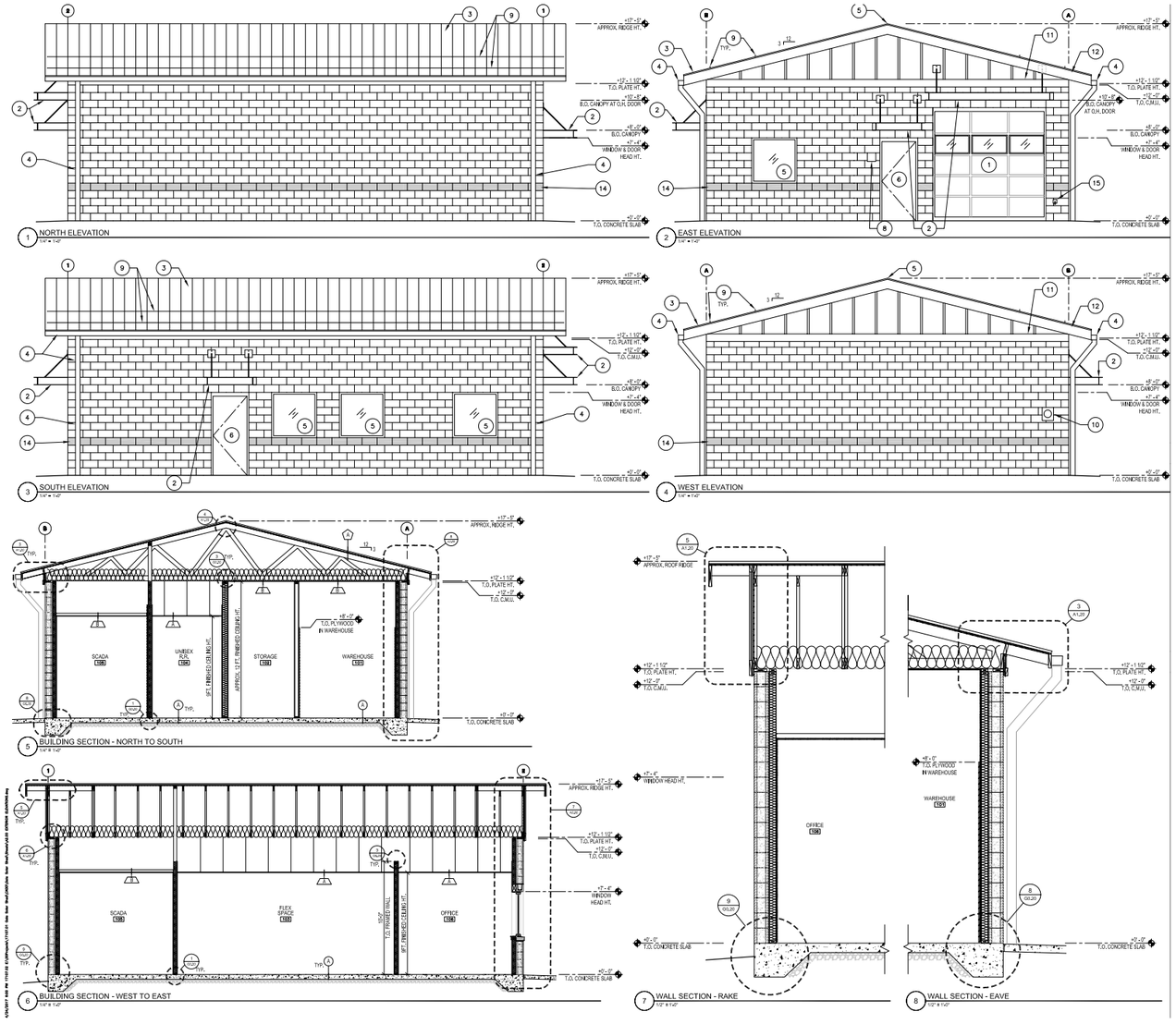
Mohawk Solar

Towns of Canajoharie and Minden, Montgomery County, New York

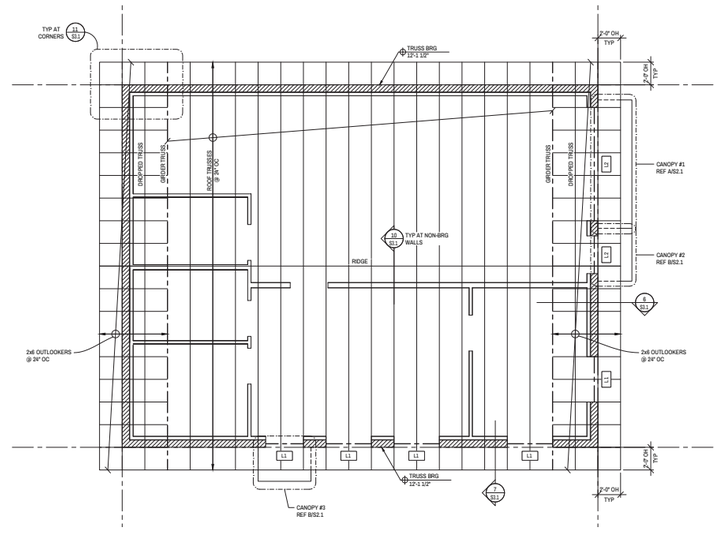
Visual Impact Assessment | Figure 2: Facility Components - Above-Ground Electrical Components

PROPOSED O&M FACILITY

Side Elevations & Profiles



Roof Plan Elevation



2.1.2 Electrical System

The Facility will have an electrical system that consists of: 1) a network of intra array cables, including 5.5 miles of 480V AC motor cables (which will be mounted on the PV racking structures) and 18.3 miles of 1500V DC homerun cables, 2) buried 34.5 kV cables that will collect power from each inverter (collection lines), 3) a collection substation to step up the power from 34.5 kV to 115 kV, 4) a 153 foot long gen-tie line to connect the substation to the POI Switchyard, and 5) a POI Switchyard to allow interconnection at National Grid's St. Johnsville-Marshville 115-kV transmission line in the Town of Canajoharie. Each of these components is further described below:

Collection System: Within and between each solar array, a network of buried electric lines will collect power from the groups of PV arrays and transmit it to the collection substation. Most of the collection system will be buried to a depth of 3 feet; cables in areas that will continue to be used for agricultural production will be buried to a minimum depth of 4 feet. Potential visual impacts resulting from the installation of the collection lines could occur if any forest or hedgerow clearing is necessary to accommodate installation of the line. If present and visible, this clearing is considered in the visual simulations included in this VIA.

Inverters: Inverter systems are relatively low profile (measuring less than three feet tall) and they are either attached directly to the racking system or the PV panels. Therefore, the inverters are not considered a major visual component of the facility and are not further considered in this VIA.

Transformers: Each PV array will include one or more transformers, which resemble storage or shipping containers, and will be built on concrete pads set on the ground surface. The transformers are located within the solar arrays and are anticipated to have a maximum height of approximately nine feet. Therefore, it is not anticipated that the transformers will contribute to the overall visibility of the Facility. At the time of simulation production there was not sufficient detail to include the transformers in the simulations. However, their contribution to overall Facility visibility is expected to be negligible and would not contribute to the potential visual impact of the Facility.

Facility Substation: The collection substation will be located on a parcel of land off Fredricks Street on the eastern side of the Facility Site. The existing St. Johnsville-Marshville 115 kV transmission line is located immediately to the west of both the Facility substation and proposed POI switchyard. An existing substation associated with this transmission line, the Marshville substation, is located along Route 10, just east of the Facility Site. The Facility substation will include standard electrical, control, and protective equipment, which may include collection line

feeders and breakers, a 34.5 kV bus, a main power transformer (to increase the voltage from 34.5 kV to 115 kV), a high-voltage breaker, metering/relaying transformers, disconnect switches, an equipment enclosure containing power control electronics, and one or more lightning masts. Most of the equipment will remain below a height of 25 feet with the exception of the lightning masts, which will have a maximum height of 65 feet. The equipment for the collection substation will be installed on concrete foundations and enclosed by chain link fencing.

POI Switchyard: To deliver power to the New York State power grid, the Applicant proposes to interconnect with the existing St. Johnsville-Marshville 115-kV transmission line, which is owned and operated by National Grid. The proposed POI switchyard will be constructed adjacent to the Facility substation and will contain equipment that mimics the heights typically found in the Facility substation. The POI includes the 65-foot-tall lightning masts, which will be the tallest components within the switchyard.

Transmission or Gen-tie Line: A generation tie line (gen-tie) will connect the collection substation to the POI switchyard. The gen-tie will be constructed as an overhead line carried on 12 pole structures with an anticipated height of 65 feet over a distance over 200 feet between the collection and POI substations.

Components of the above-ground electrical collection and interconnection system are specifically described in Section 6.2.4 of this VIA.

2.1.3 Access Roads

The PV arrays will be served by a network of unpaved access roads. Two types of roads will be built for the Facility. Access roads from public roads to the fenced gate of each array will surfaced with crushed stone/gravel. In addition, each PV array will be circumscribed by a maintenance road along the inside of each perimeter fence. These maintenance roads will be maintained as grass (i.e., no crushed-stone or other paving).

The Facility access roads will be approximately 20 feet wide. In total, approximately 6.5 miles of gravel access roads will be constructed, and 24.1 miles of grass maintenance roads. The gravel access roads will be comprised of 8-inch deep stone underlain by woven geotextile fabric. In addition, each PV array will have a "ring-road" (or maintenance road) around its perimeter to allow for maintenance and access. These roads will be unsurfaced during construction and will subsequently be re-seeded with grass. The proposed access roads represent minor alterations to the landscape that are rarely visible due to their low profile, unpaved surface, and location primarily within the solar array. However, as part of this VIA, access roads are shown in any simulations where they would be visible.

2.1.4 Temporary Construction Staging/Laydown Yard

Construction of the Facility will require the development of one temporary construction staging/laydown yard to accommodate trailers, storage containers, large Facility components, and parking for construction workers. The staging area will be in an agricultural field on the west side of Nestle Road in the Town of Minden and is anticipated to be up to approximately 8.0 acres in size. The staging area is a temporary feature that includes no permanent fencing or lighting and will be restored to preconstruction conditions when construction of the Facility is complete. Temporary visual impacts associated with the construction and use of the staging/laydown yard are discussed in Section 6.2.5 of this VIA.

2.1.5 O&M Building

An O&M building will house the permanent operations staff and maintenance equipment. The O&M building is anticipated to be an approximately 1,280 square foot structure located on a fenced site 3.0 acres in size, along Nestle Road in the Town of Canajoharie. The land adjacent to the O&M building will be used to store equipment and materials as necessary. Due to its relatively small size, low height, and similarity in appearance to other pole barns and agricultural structures in the area, the visibility and appearance of the O&M building are not evaluated as part of this VIA.

2.1.6 Vegetative Screening

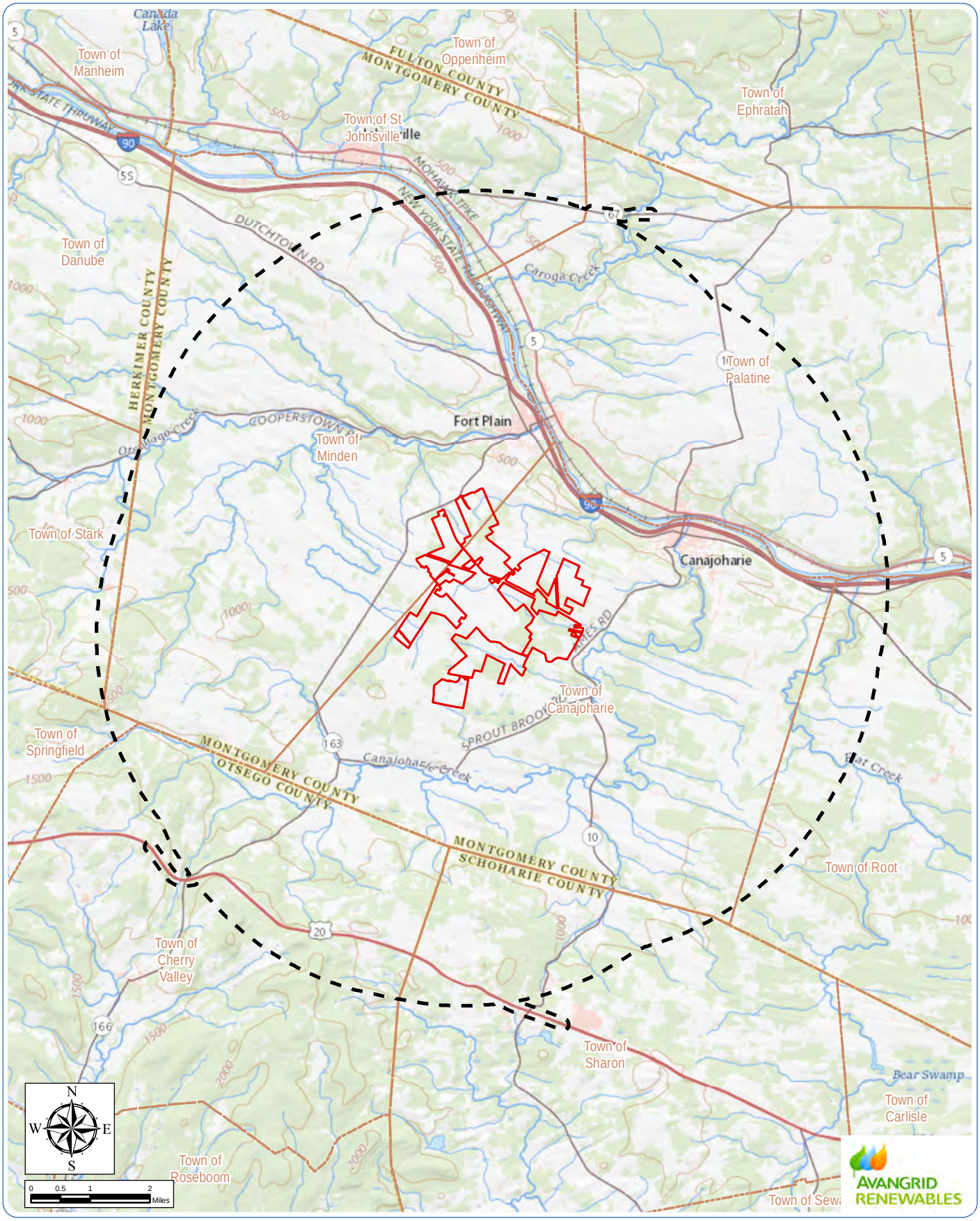
The Facility will include vegetative screening at identified locations to integrate the proposed PV arrays with adjacent vegetation and soften views of the Facility within the surrounding landscape. For more information on the Facility's conceptual planting plan, see Section 4.2.

3.0 Existing Visual Character

3.1 Visual Study Area

According to the requirements set forth in 16 NYCRR § 1000.2(ar) the visual study area to be used for analysis of major electric generating facilities is defined as "*an area generally related to the nature of the technology and the setting of the proposed site. For large facilities or wind power facilities with components spread across a rural landscape, the study area shall generally include the area within a radius of at least five miles from all generating facility components, interconnections and related facilities and alternative location sites. For facilities in areas of significant resource concerns, the size of a study area shall be configured to address specific features or resource issues*."

Per the requirements set forth in set forth in 16 NYCRR § 1000.24(ar) (see above), the Visual Study Area is defined as the area within five miles of the Facility. In addition, as requested in review correspondence from the DPS, the Visual Study Area was expanded to include "selected areas extending beyond that radius for one mile along the Route 20 Scenic Byway corridor travelling west towards East Springfield and for one mile along Route 67 North towards the Fulton County line" (DPS, 2019). The Visual Study Area, which includes these areas requested by DPS, is shown on Figure 3.



Mohawk Solar

Towns of Canajoharie and Minden, Montgomery County, New York

Visual Impact Assessment

Figure 3: Visual Study Area

Notes: 1. Basemap: ESRI ArcGIS Online "USGSTopo" map service. 2. This map was generated in ArcMap by Environmental Design and Research on May 15, 2019. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Proposed Facility
- Visual Study Area
- Facility Site

Civil Boundaries
- County Boundary
- City/Village Boundary
- Town Boundary

3.1.1 Physiographic Setting

The visual study area lies within the Glaciated Low Allegheny Plateau and Mohawk Valley physiographic regions of New York State (Bryce et al., 2010). Most of the visual study area lies within the Glaciated Low Allegheny Plateau section, while the north-northeastern boundary falls within the Mohawk Valley section. The Glaciated Low Allegheny Plateau is a broad, homogenous area primarily consisting of a mosaic of farmland and woodlots on low, rolling hills. This portion of the Allegheny Plateau is glacially smoothed with flattened hilltops and wide stream valleys. It has lower relief and gentler slopes than the rugged, unglaciated sections, although dissection by both water and ice erosion has given the upland a somewhat rugged relief (NYSDOT, 2013).

The Mohawk Valley region separates the Glaciated Low Allegheny Plateau from the Adirondack Mountains. The topography of these lowlands has been shaped by glacial lakes and episodic glacial flooding. The valley is underlain by limestone and shale, with moist, loamy soils derived from glacial till that support farming. The Mohawk Valley, although broad, is irregular and hilly, and the flat Mohawk River floodplain is quite narrow in places (Bryce et al., 2010). The lowlands in this region are characterized as a relatively level lacustrine terrace flanked by undulating ice-contact and water-sorted deposits, and then by glacial till borders (NYSDOT, 2013).

The Mohawk River runs generally east to west through the northeastern portion of the visual study area, and several tributaries of the Mohawk River cut through the eastern and central portions of the visual study area. Ground surface elevation within the visual study area ranges from approximately 285 to 2,306 feet AMSL. Vegetation throughout the area is dominated by a mosaic of agricultural fields and pasture delineated by wooded hedgerows. Forested areas are dispersed throughout the landscape, particularly in the steeper upland portions of the visual study area. Forest is primarily deciduous, consisting of oak forest on drier slopes and northern hardwoods-conifer forest on moist slopes and in ravines and riparian areas.

3.1.2 Land Use

Land use within the visual study area is dominated by agriculture and single-family rural residences, often found on lots with 10 or more acres of land. The primary agricultural activity is dairy farming, and consequently pastures and hay fields are more common than row crop fields. The visual study area generally lacks large, commercial farms, and these fields are generally associated with rural farmsteads that include a single-family residence, barns and silos. Higher density residential and commercial development is concentrated in settlements along State Routes 80, 10, and 5 and Interstate 90 (NYS Thruway), including the Villages of Fort Plain, Nelliston, Canajoharie, Palatine Bridge, Ames, and Sharon Springs. These villages are characterized by a well-defined central business district surrounded by traditional residential neighborhoods,

and in the case of Fort Plain, Nelliston, Palatine Bridge, and Canajoharie, commercial development along the Mohawk River. Hamlets within the visual study area, including Sprakers and Salt Springville, are relatively small communities within the rural/agricultural landscape. They are typically located at major crossroads and consist of residences, along with one or more stores or churches.

Interstate 90 runs along the Mohawk River for the length of the visual study area, with State Route 5S paralleling it to the south and State Route 5 paralleling the Mohawk River to the north. State Route 10 runs north and south on the eastern side of the visual study area, and State Route 80 runs diagonally through the western portion of the visual study area, before terminating at Route 5, just north of the Mohawk River. The Iroquois and Dominion Gas Pipelines run through the center of the visual study area, parallel to each other, bisecting County Road 80 and running parallel to County Roads 85 and 86. An Amtrak/Conrail railway runs along the north side of the Mohawk River, parallel to State Route 5.

3.1.3 Water Features

Water features within the visual study area include the Mohawk River/Erie Canal, Fort Plain Reservoir, Bowmans Creek, Brimstone Creek, Canajoharie Creek, Caroga Creek, Flat Creek, Mill Creek, Mother Creek, and Otsquago Creek. These water features occur primarily on private land, but where publicly accessible, these water features are used for fishing and boating. The Mohawk River is the dominant water feature within the visual study area. Located in the northern section of the visual study area, it is part of the NYS Barge Canal System and is characterized by a broad width and gentle curves. Within the visual study area, the Mohawk River runs within a deeply incised and relatively narrow valley, which includes areas of agricultural land, forest, and most of the larger villages and highways within the visual study area. Canajoharie Creek, a tributary of the Mohawk River, is also a major water feature within the visual study area and includes small waterfalls and gorges. However, in most places the creek valley is relatively wide and shallow and surrounded by wooded areas. The visual study area also includes scattered ponds located within agricultural fields or adjacent to residential properties.

3.2 Visual Character of the Host Communities

Aesthetic resources and landscape character have been identified as important concerns in regional planning documents prepared by municipal authorities and non-profit groups. A summary of goals/objectives in regional planning documents regarding aesthetic assets and visual character of the project's setting is provided below:

- The *Town of Palatine Comprehensive Plan* was prepared in 1998 by the Town of Palatine Planning Board to provide a "coherent vision of the future" for the Town of Palatine. Similar to the county plans and the *Town of Minden Comprehensive Plan*, this document focuses first and foremost on measures that may encourage and maintain the agricultural industry of the town. Goal Number Three of the plan is to "Preserve the Town's Rural Character and Open Spaces." To that end, the plan recommends limiting light industrial and commercial development as close to built-up areas as possible (Town of Palatine, 1998).
- The *Western Montgomery County Local Waterfront Revitalization Program* was prepared in 2005 to establish a vision and create policies with which to guide development along the waterfront. A significant portion of this document includes measures designed to protect the character of the visual resources in Western Montgomery County in general and not specific to the waterfront areas. Policy 13 (p.28) recommends the protection of historic resources and landscapes and avoiding incompatible uses (Carlson, 2005).
- The *Mohawk River Basin Action Agenda* was prepared in 2010 to provide a framework for planning and management of the environmental and cultural resources of the Mohawk River Watershed, supported by five thematic goals. Goal Five, "Working Landscapes, land use and Open Space" includes a reference to "protect and enhance open space and rural development patterns and provide for the sustainable use and protection of resources." The section elaborates on Goal Five mentions that one of the advantages of open spaces are "scenic views." Actions prescribed to protect these open spaces and viable agricultural land are to encourage the development of land trusts, further planning and local legislation to regulate use, and marketing open spaces to tourists and agri-business (NYSDEC, 2010).
- The *Mohawk Valley Regional Economic Development Council 2012 Action Plan* was prepared in 2012 by the Mohawk Valley Regional Economic Development Council (MVREDC) in pursuit of the grant-funding program set forth by New York Governor Andrew Cuomo. The plan focused mainly on building on existing businesses or constructing new facilities for education and commerce. There was no mention of the preservation of open spaces or visual character, and none of the recommended projects were related (MVREDC, 2012).
- The 2012 Town of Minden Comprehensive Plan was prepared in 2012 to update a previous plan completed in 1999 based on community input and newly re-evaluated information on local resources. In the section on Long Term Goals, the plan gives priority to the careful management of the landscape. Goal Number One is "To Protect and Maintain the Town of Minden's Agricultural Industry and lands," and Number Two is "Maintain and Enhance the Aesthetics of the Town." A further elaboration of the plan's goals specifically states that the Town of Minden wants to "preserve Rural character, open spaces, the small town feeling with friendly people and a strong sense of community" and wants to "preserve natural beauty and scenic views." The town wants to eliminate "negative viewscapes." The document is broken into sections that address the topics referenced in the goals and offers

recommendations. The section on Rural and Small Town Character provides a robust set of recommendations for zoning amendments and regulations to preserve the open spaces and scenic character of the Town of Minden. While this section seems to primarily focus on future housing subdivisions, there is sufficient flexibility in the language to account for other types of projects. The plan recommends the Town of Minden require a visual impact analysis for new projects. It also recommends improving visual quality and scenic vistas, using language adapted from the 2005 Western Montgomery County Local Waterfront Revitalization Program (Town of Minden, 2012).

- The *Mohawk Valley Regional Sustainability Plan* was completed in 2013 by a consortium led by the Otsego County Planning Department. This plan was funded by the New York State Energy Research and Development Authority. While this plan doesn't engage in any direct or explicit discussions about preserving the visual character of the region, it does indirectly refer to certain aspects. Goal 3 under Land Use and Livable Communities (LULC) states, "Identify, preserve, and Protect Lands Suitable for viable agriculture." Overall, the plan focuses on sustainability training and economic revitalization through programs such as Brownfield Opportunity Areas (BOA) and promotion of homeownership (Otsego County, et al., 2013).
- The results of the *Erie Canalway National Heritage Corridor Visitor Research* were released in February of 2018. This research study was conducted with over 1,000 participants inside and outside of New York State. The study found that "scenic beauty" was among the top associations with region for New York State residents as well as outsiders (Level 7, 2018).
- The *Montgomery County Agricultural and Farmland Protection Plan,* in draft form as of February 2018. The plan was drafted by Environmental Design and Research (EDR) in 2017 to develop a framework to strengthen and preserve agriculture in Montgomery County, and served to update an earlier plan from 1999. One of the economic development measures discussed in the plan is the preservation of open space, which is argued to cost the county less than residential areas. Regulations to control open spaces is recommended. The report reviews the various land use policies and comprehensive plans of the towns within Montgomery County. The Towns of Canajoharie and Minden are "Right-to-Farm" municipalities that do not allow any local law to "unreasonably restrict" farm operations. The Town of Palatine is currently drafting its own Comprehensive Plan which is investigating "Right-to-Farm" law. The preservation of open spaces is mainly concerned with economic development in the context of this planning document, and no explicit reference is made to scenic views or visual character, except when referencing the earlier 1999 plan (EDR, 2017b).

As further described in Section 5.0 of this report, the proposed Facility's visibility and visual effect will be concentrated in and around the Facility Site. Therefore, the greatest potential for visual effects will be experienced by viewers in close proximity to the Facility, within the host communities of Canajoharie and Minden. The existing visual setting for each of these communities is described in greater detail below.

3.2.1 Town of Canajoharie

Inset 3.01: View from County Road 88 (West Ames Road), Town of Canajoharie (Appendix G [i.3], Viewpoint 10).

Physical Characteristics:

The Town of Canajoharie lies in the south-central part of Montgomery County (Inset 3.01). It is bounded on the north by the Mohawk River, on the east by the Town of Root, to the south by Otsego and Schoharie Counties, and on the west by the Town of Minden. The town has a total area of 43.1 square miles, of which 42.6 square miles is land and 0.5 square mile is water. State Route 10 crosses the town in a north to south direction and is intersected by the east-west oriented Interstate 90 at the northern border of the town.

Cultural Characteristics:

The Town of Canajoharie was formed in 1788. It is a rural town with a population of approximately 3,730 residents according to the 2010 census. Most of the land in the Town of Canajoharie is in agricultural production. The Village of Canajoharie and several other incorporated villages and unincorporated hamlets occur within the town. These areas consist of densely situated homes and commercial development along main roads such as State Route 10. Outside the village and hamlets, development becomes sparse with occasional homes and farms situated along rural roads, surrounded by large open fields and forest land.

Land Use Planning:

Town of Canajoharie's Zoning Law regulates the use of land and the location, siting, alteration, maintenance, and occupancy of structures in the town in order to promote public health, safety, and general welfare. The town includes a Scenic Resources (SR) Overlay District, the goal of which is to preserve the visual assets of the town, including ridgelines, scenic road corridors, viewsheds, and vistas. Development within these visually sensitive areas should be harmonious with the scenic character of the area. (Local Law No. 1 of 2001, Article II §B7). As indicated in Section B.7.1 of the Zoning Law:

> *"In furtherance of this purpose, the Town may conduct a Scenic Resources Survey to identify scenic resources worthy of preservation. This section shall not become effective until the Town Board adopts a map which delineates boundaries of this district and which is entitled "Scenic Overlay District" as part of Local Law"*

At the time of this report, the Town had not yet designated a "Scenic Overlay District" map.

In addition to the Zoning Law, the Town of Canajoharie also adopted a local law in 2017 to establish town-wide rules and regulations regarding the permitting and installation of utility-scale solar collector systems, roof-top flush-mounted and ground-mounted racks, and freestanding solar collectors. The local law aims to preserve the rights of property owners to install solar collection systems without excess regulation while still balancing the potential impact on neighbors. Pertinent to the visual impact of the proposed facility, Utility-scale Solar Collector System Section (C) General Provisions states:

> *(a) Utility-scale solar collector systems shall be sited in a manner to have the least possible practical visual effect on the environment.*
> *(b) A visual environmental assessment form, landscaping plan and visual assessment report shall be required.*
> *(c) Landscaping, screening, and/or earth berming shall be provided to minimize the potential visual impacts associated with the utility-scale solar collector systems and its accessory buildings, structures, and/or equipment.*
> *(d) The associated structure shall be screened, placed underground, depressed, earth bermed, or sited below the ridgeline to the greatest extent feasible, particularly in areas of high visibility.*

Vegetation/Land Use*:* According to the U.S. Geological Survey (USGS) 2011 National Land Cover Dataset (NLCD), the Town of Canajoharie is comprised of approximately of 2.9% developed land 6.9% open water/wetlands, 0.7% shrub/scrub, 5% developed open space, 14% forest, 26% cultivated crops, and 39.4% hay/pasture/grassland. Land use on the Facility Site is predominately agricultural and dominated by actively farmed hay/pasture and cultivated crops. Pockets of low-density residential development and farm complexes are also present. Most of the Facility components and associated support facilities within the Town of Canajoharie occur within open fields.

Topography*:* Topography within the Town of Canajoharie is characterized by rural uplands separated by the valleys associated with the Canajoharie Creek and its associated tributaries. The northern portion of the town is dominated by the Mohawk Valley, which is relatively flat and comprised of open, rural fields. The Facility Site within the Town of Canajoharie is characterized by open fields on rolling hills and gentle valley slopes, with elevations ranging from 690 feet to 990 feet AMSL. The proposed solar arrays are primarily located along flat land on top of plateaus and ridgelines or on gentle hillsides.

3.2.2 Town of Minden

Inset 3.02: View overlooking the State Route 80 corridor from County Route 66 (Saunders Road), Town of Minden (Appendix G [i.3], Viewpoint 90).

Physical Characteristics:

The Town of Minden lies in the western part of Montgomery County (Inset 3.02). It is bounded on the north by the Towns of St. Johnsville and Palatine, to the east by the Town of Canajoharie, to the South by Otsego County, and to the West by Herkimer County. The town has a total area of 51.4 square miles, of which 51.0 square miles is land and 0.5 square mile is water. State Route 80 bisects the town in an east to west direction and is intersected by Interstate 90 in the northeast corner of the town. The Mohawk River forms the northern border of the Town of Minden.

Cultural Characteristics:

The Town of Minden was formed in 1798. It is a rural town with a population of approximately 4,297 residents according to the 2010 census. Most of the land in the Town of Minden is agricultural, primarily associated with dairy farming. Approximately 70% of the residential housing stock consists of single-family homes. The Village of Fort Plain occurs within the town and was one of the main defensive forts of the Mohawk Valley during the Revolutionary War. The Village of Fort Plain consists of densely situated homes and commercial development concentrated along State Routes 80 and 5S. The Town of Minden also includes one rural hamlet, the Hamlet of Salt Springville. Outside of the village and hamlets, development becomes sparse with widely scattered homes and farms situated along rural roads and surrounded by large open lots, farm fields, and forest land.

Land Use Planning:

The Town of Minden's Comprehensive Plan was updated in July 2012 to reflect the goals, policies, and strategies for the growth and development of the community, including addressing the potential for future renewable energy development. The comprehensive plan provides guidance for preserving the town's rural, historical, and agricultural heritage and community assets, while still promoting a sustainable local economy. A 2017 local law (90-52.24 Solar Facilities) sets provisions for the placement, design, construction, and operation of solar facilities in accordance with the Town of Minden Comprehensive Plan. Pertinent to the visual impact of the proposed Facility, Section (3) General Provisions, states:

> *(i) Native grasses and vegetation shall be maintained below the arrays.*
> *(j) The solar facility, including any proposed off-site infrastructure, shall be located and screened in such a way as to avoid or minimize visual impacts from:*
> *(1) Publicly dedicated roads and highways, including Route 5S, 163, 80 and I-90;*
> *(2) Existing residential dwellings located on contiguous parcels;*
> *(k) A berm, landscape screen or other opaque enclosure, or any combination thereof acceptable to the Town capable of fully screening the site, shall be provided.*

Vegetation/Land Use*:* According to the USGS 2011 NLCD, the Town of Minden is comprised of approximately 2.6% developed land, 2.4% open water and wetlands, 5% developed open space, 7% shrub/scrub, 19.2% forest, 30% cultivated crops, and 35.5% hay/pasture/grassland. Land use on the Facility Site is predominately agricultural and dominated by actively farmed hay/pasture and cultivated crops. Pockets of low-density residential development and farm complexes are also present. Most of the Facility components within the Town of Minden occur within open fields.

Topography*:* Topography within the Town of Minden consists of rolling hills dissected by Otsquago Creek and its associated tributaries, which form wide valleys throughout the area. The Facility Site within the Town of Minden is characterized by rolling hills covered in a mosaic of agricultural fields, pastures, hedgerows, and forested woodlots. Elevations range from

600 feet to 860 feet AMSL. The proposed solar arrays are primarily located on flat land on top of plateaus and ridgelines or on gentle hillsides.

3.3 Landscape Similarity Zones

In accordance with the requirements set forth in 16 NYCRR § 1000.24(b)(1), Landscape Similarity Zones (LSZs) were defined and mapped within the visual study area. Defining distinct landscape types within a given study area provides a useful framework for the analysis of a project's potential visual effects. LSZs within the visual study area were defined based on the similarity of various landscape characteristics including landform, vegetation, water, and land use patterns, in accordance with established visual assessment methods (notably, USDA Forest Service, 1995; Smardon et al., 1988; USDOT Federal Highway Administration, 1981; USDI Bureau of Land Management, 1980). Within the visual study area, the following five distinct LSZs were identified:

- Rural Uplands
- Forest
- Mohawk Valley
- Village
- Transportation Corridor

LSZs within the visual study area were mapped using a Geographic Information System (GIS) classification exercise. The LSZ classifications are based on mapped land cover and proximity to various landscape or land use features. The classification analysis is subtractive, meaning that a given criterion is used to classify a portion of the visual study area as a particular LSZ, and then the next criterion is applied to classify portions of the remaining land, and so forth until the entire visual study area is mapped. The classification and mapping of LSZs within the visual study area followed this order of criteria:

- The Transportation Corridor LSZ was identified as the area within 300 feet of Interstate 90 or within 100 feet of U.S. Highway 20.
- The Village LSZ was identified as the area inside the mapped boundary of any village within the visual study area.
- The Mohawk Valley was then defined manually as any remaining area within the Mohawk River Valley, as defined by the steep-sloped valley walls.

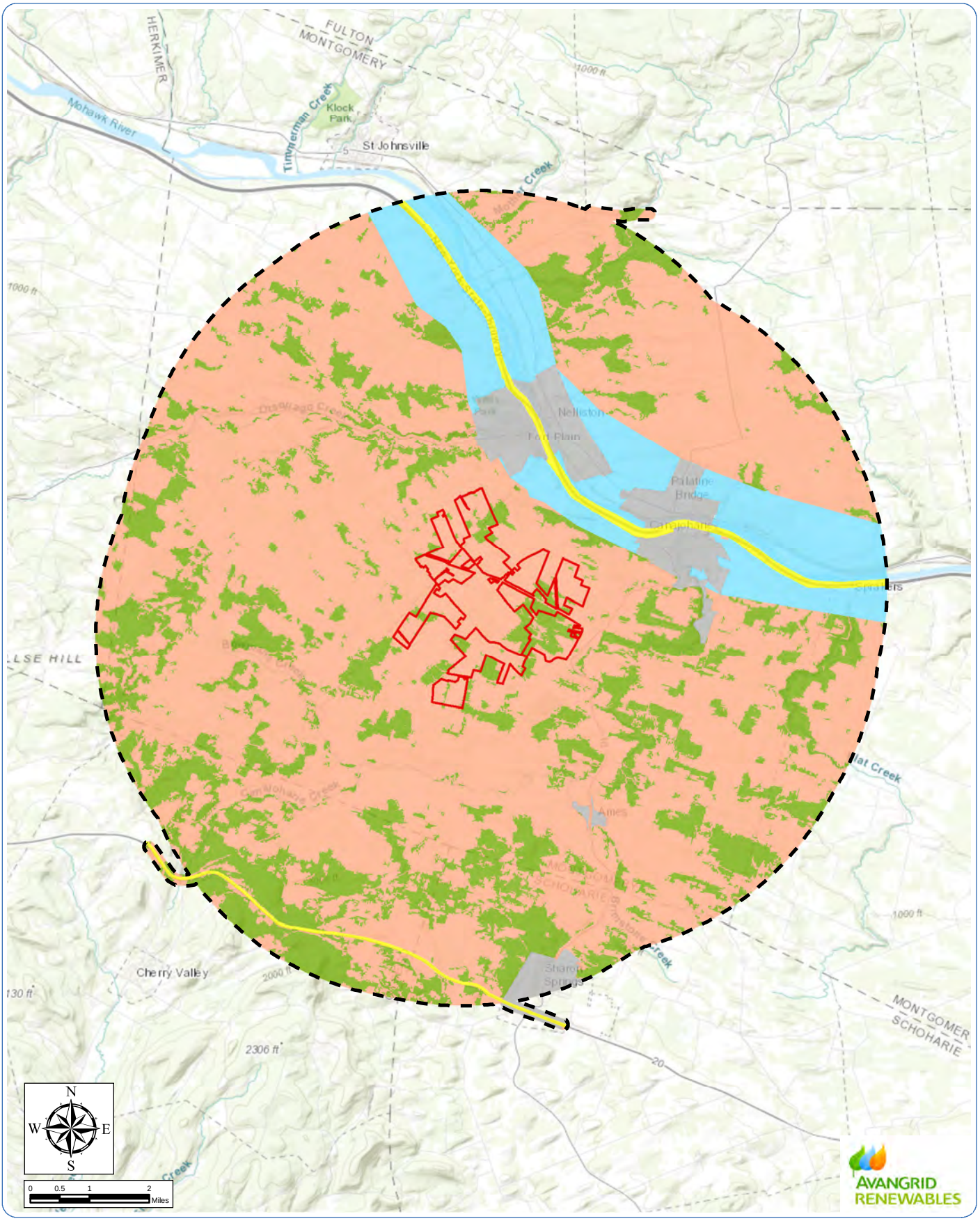
- The Forest LSZ was then defined as any remaining areas identified as deciduous, evergreen, or mixed forest and wooded wetland in the USGS 2011 NLCD.
- The Rural Uplands LSZ was then defined as any area remaining within the visual study area not categorized above.

The extent of each LSZ within the visual study area is summarized in Table 1 and depicted on Figure 4. Please note that the mapping of LSZs is a generalization exercise intended for viewing at the macroscopic scale of the entire visual study area. Therefore, it is possible that field review at a given viewpoint would change the initial GIS-derived LSZ classification based on observed landscape characteristics that are beyond the scale of the GIS analysis. Descriptions of the visual characteristics of each LSZ, along with representative photographs, are provided in Sections 3.3.1 through 3.3.5, below.

Table 1. Landscape Similarity Zones by Total Area

Landscape Similarity Zone	Total Area of LSZ within the Visual Study Area (square miles)	Percent of Total Area[1] within Visual Study Area
Rural Uplands	90.5	64.6%
Forest	29.3	20.9%
Mohawk Valley	12.8	9.1%
Village	5.6	4.0%
Transportation Corridor	1.9	1.4%

[1]The visual study area includes approximately 140.0 square miles, or approximately 89,590 acres.



Mohawk Solar

Towns of Canajoharie and Minden, Montgomery County, New York

Visual Impact Assessment

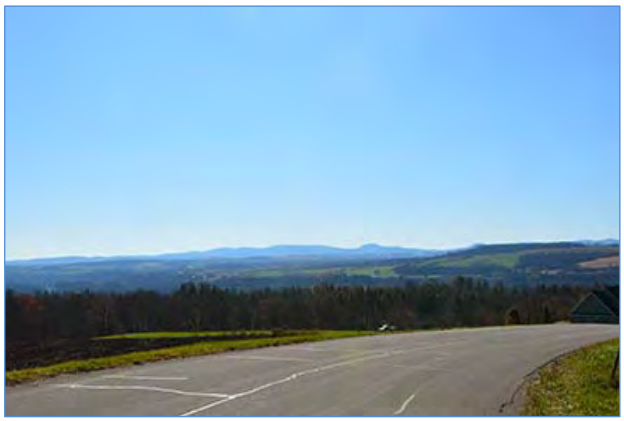
Figure 4: Landscape Similarity Zones

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service. 2. This map was generated in ArcMap by Environmental Design and Research on May 14, 2019. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

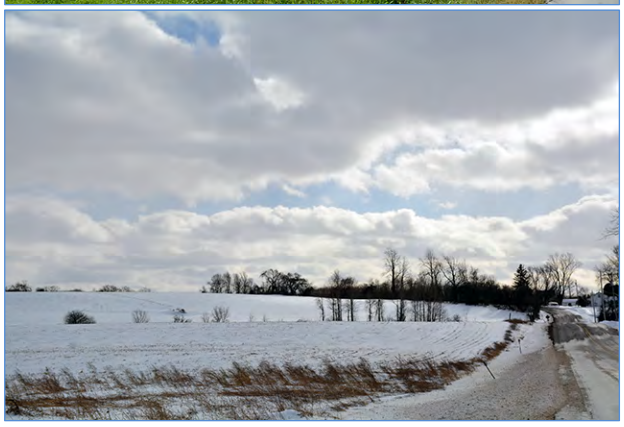
Landscape Similarity Zones
- Rural Uplands
- Forest
- Mohawk Valley
- Village
- Transportation Corridor

Proposed Facility
- Visual Study Area
- Facility Site

3.3.1 Rural Uplands








Inset 3.03 Representative Photographs of the Rural Uplands Landscape Similarity Zone.

Top left – State Route 67 (New Turnpike Road) at County Road 54 (Fox Road) Town of St. Johnsville, (Viewpoint 41).

Top right – County Road 86 (Marshville Road), southeast of Clinton Road, Town of Canajoharie, (Viewpoint 16).

Middle left – State Route 67 (New Turnpike Road) at County Road 54 (Fox Road) Town of St. Johnsville, (Viewpoint 41).

Middle right – County Road 86 (Marshville Road), southeast of Clinton Road, Town of Canajoharie, (Viewpoint 16).

Bottom left – State Route 163 (Cherry Valley Road Town of Minden, (Viewpoint 155).

Bottom right – County Road 34 (Stone Arabia Road) at State Route 10, Town of Palatine, (Viewpoint 049).

Rural Uplands represent the largest LSZ within the visual study area, covering 64.6% of the total land area. This LSZ occurs on plateaus, hilltops and elevated ridges and is characterized by an expansive mosaic of agricultural fields, and farm complexes, interspersed with distinct hedgerows and woodlots. Widely dispersed rural residences along a network of state, county and local roads, round out the land uses found in this LSZ. The landscape mosaic is highlighted by the varying types of active agricultural fields, including pastureland, corn, hay, and soybeans, that create a patchwork of differing colors and textures. Topography in this LSZ is generally characterized by gently rolling hills separated by relatively broad, shallow valleys. This zone includes several heavily traveled two-lane roads such as State Routes 80, 10, 67, and 5. U.S. Highway 20 also runs through the Rural Uplands LSZ but has a distinctly different visual character, and therefore falls within the Transportation Corridor LSZ described below. Dominant activities in the Rural Uplands LSZ are farming and local travel. Because of the relatively high elevation and abundance of open farmland, sites within this LSZ often offer expansive views of the surrounding landscape. Examples of views within this LSZ are shown in Inset 3.03.

3.3.2 Forest

Inset 3.04 Representative Photographs of the Forest Landscape Similarity Zone.

Left – View of typical deciduous forest located within the Facility Site, Town of Canajoharie.

Right – County Road 85 (Dygert Road), west of Bowerman Road, Town of Canajoharie, (Viewpoint 7).

Note the degree to which vegetation screens outward views from and outward views through the forested areas.

The Forest LSZ covers approximately 20.9% of the visual study area. This zone is characterized by the dominance of mixed deciduous tree species, often in association with moderately steep topography. The Forest LSZ is most prevalent in the southeastern portion of the visual study area where U.S. Highway 20 crosses through the visual study area, and steeper slopes restrict opportunities for agricultural and residential development. These steep hills give way to more gentle terrain north of U.S. Highway 20 Scenic Byway, where the landscape is typically composed of smaller woodlots interspersed with agricultural fields. The forests are dissected by small streams, including Canajoharie Creek, Bowmans Creek, Otsquago Creek, Flat Creek, and Brimstone Creek, which run through small valleys between the hills. Views within this zone are generally restricted to areas where small clearings and road cuts provide breaks in the tree canopy. Where long distance views are available they are typically of short duration, limited distance, and tightly framed by trees and adjacent slopes. Land use in this zone includes low-density residential development and recreational activities such as hiking, hunting, and snowmobiling. Examples of this zone are shown in Inset 3.04. The majority of these forested areas occur on private lands with limited public access.

3.3.3 Mohawk Valley

Inset 3.05 Representative Photographs of the Mohawk Valley Landscape Similarity Zone.

Top left – County Road 44 (Brower Road) at County Road 54 (Fox Road), Town of Palatine, (Viewpoint 69).

Top right – State Route 5 (Main Street West) at Budnick Road, Town of Palatine, (Viewpoint 37).

Bottom left – State Route 5 (Mohawk Turnpike), Town of St. Johnsville, (Viewpoint 39).

Bottom right – State Route 5S at Park Street, Hamlet of Sprakers, Town of Root, (Viewpoint 74).

The Mohawk Valley LSZ occupies 9.1% of the visual study area. This zone is relatively broad and flat and defined by the presence of the Mohawk River/Erie Canal, its level floodplain, and well-defined valley walls to the north and south. Land use is characterized by a mix of open agricultural fields, hedgerows, and woodlots interspersed with major roadways and several villages, including Fort Plain, Nelliston, Palatine Bridge, and Canajoharie (see description of Village LSZ). Residential development within this LSZ is generally characterized by low density single-family residences, farmhouses/clusters of agricultural buildings, and associated structures located along the frontage of roads. This zone is bisected by Interstate 90 and the Amtrak/Conrail railroad which parallel the Mohawk River/Erie Canal. Residential and commercial development, along with canal infrastructure (locks and associated facilities) and bridges are concentrated along the Mohawk River/Erie Canal. Dominant activities in the Mohawk Valley LSZ include typical residential activities, farming, local travel, and recreational activities such as boating, snowmobiling, and hunting. Due to the abundance of

farmland, proximity to population centers, and larger transportation corridors, lands in the Mohawk Valley LSZ include a larger number of viewers than the previous LSZs. Viewing conditions within this LSZ are variable, consistent with the wide variety of land uses occurring there. Open views are concentrated along the Mohawk River, Interstate 90, and open agricultural fields. However, in all cases, the valley is enclosed by wooded slopes which generally block views of the surrounding rural uplands. Representative views in this LSZ are shown in Inset 3.05.

3.3.4 Village

Inset 3.06 Representative Photographs of the Village Landscape Similarity Zone.

Top left – State Route 10 (Main Street), Village of Sharon Springs, (Viewpoint 79).

Top right – State Route 10 (Church Street), Village of Canajoharie, (Viewpoint 73).

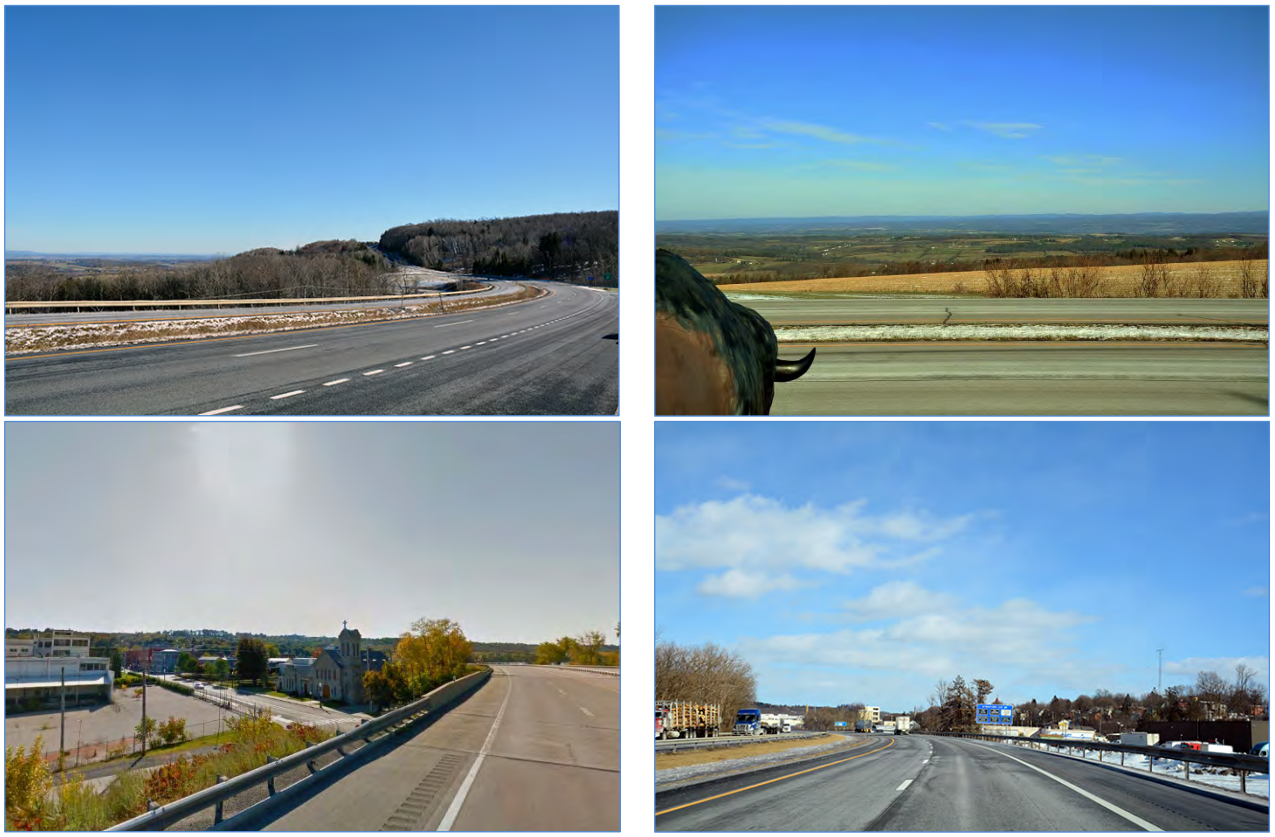
Bottom left – State Route 5S (Canal Street), Village of Fort Plain, (Viewpoint 92).

Bottom right – State Route 10 (Ephratah Road), Village of Palatine Bridge, (Viewpoint 65).

The Village LSZ occupies 4.0% of the visual study area and includes the Villages of Sharon Springs, Canajoharie, Palatine Bridge, Fort Plain, and Nelliston. This landscape similarity zone is characterized by moderate to high-density residential and commercial development, most of which is concentrated within the Mohawk River Valley. Buildings (typically 1-3 stories

tall) and other man-made features dominate the landscape. Representative views are shown in Inset 3.06. The character of buildings and structures within this zone can be highly variable, although most of the villages include traditional commercial blocks and historic buildings in the central downtown district. The buildings are typically arranged along an organized street pattern that tends to screen outward views and focus views along the main streets and crossroads. In some areas, trees and vegetation along the streets and within yards also tend to enclose and screen views within this zone. The periphery of the villages typically includes more widely spaced residential structures, and limited highway commercial development. However, these areas read as part of the village, rather than surrounding common suburban sprawl. Village edges are generally well-defined, and offer the best opportunity for open, outward views to the surrounding landscape.

3.3.5 Transportation Corridor



Inset 3.07 Representative Photographs of the Transportation Landscape Similarity Zone.

Top left – **U.S. Highway 20 (**Route 20 Scenic Byway), Town of Cherry Valley, (Viewpoint 380.

Top right – **U.S. Highway 20 (**Route 20 Scenic Byway) at the "Tepee", Town of Cherry Valley, (Viewpoint 85).

Bottom left – Interstate 90 (NYS Thruway) west bound, Village of Canajoharie, (Viewpoint 72).

Bottom right – Interstate 90 (NYS Thruway) east bound, Village of Canajoharie, (Viewpoint 72).

The Transportation Corridor LSZ occupies approximately 1.4% of the visual study area and includes divided, multi-lane highways with limited access. These include Interstate 90 and U.S. Highway 20, which run adjacent to the northern and southern ends of the visual study area, respectively. Views along each of these routes are different from one another. Interstate 90 runs along level ground, within the Mohawk River Valley, adjacent to the Mohawk River/Erie Canal. Views from this high-speed roadway are dominated by automobiles, pavement, guard rails, and signs in the foreground, backed by views of the Mohawk River/Erie Canal and adjacent fields and riverside communities. Long-distance views to the north and south are blocked by the forested walls of the Mohawk River Valley. U.S. Highway 20 traverses a rolling, elevated landscape of upland fields and forest, with less signage and highway infrastructure than found along Interstate 90. At times views along U.S. Highway 20 are enclosed by trees adjacent to the highway, while in other locations, lack of adjacent forest and elevated viewer position provide for long-distance views, primarily to the north toward the Mohawk Valley. Representative views in this LSZ are shown in Inset 3.07.

3.4 Distance Zones

Three distinct distance zones are typically defined in visual studies. Consistent with well-established protocols (e.g., Jones and Jones 1977; USDA, U.S. Forest Service, 1995), EDR defines these zones as follows:

- *Foreground*: 0 to approximately 0.5 mile. At these distances, a viewer is able to perceive details of an object with clarity. Surface textures, small features, and the full intensity and value of color can be seen in foreground objects.

- *Middle ground*: Approximately 0.5 to 4.0 miles. The middle ground is usually the predominant distance at which landscapes are seen. At these distances a viewer can perceive individual structures and trees but not in great detail. This is the zone where the parts of the landscape start to join together; individual hills become a range, individual trees merge into a forest, and buildings appear as simple geometric forms. Colors will be clearly distinguishable, but will have a bluish cast and a softer tone than those in the foreground. Contrast in color and texture among landscape elements will be reduced.

- *Background*: Over 4.0 miles. The background defines the broader regional landscape within which a view occurs. Within this distance zone, the landscape has been simplified; only broad landforms are discernable, and atmospheric conditions often render the landscape an overall bluish color. Texture has generally disappeared and color has flattened, but large patterns of vegetation are discernable. Silhouettes of one land mass set against another and against the skyline or horizon are the dominant visual characteristics in the background. The

background contributes to scenic quality by providing a softened backdrop for foreground and middle ground features, an attractive vista, or a distant focal point.

The land area of each LSZ within the visual study area, broken down by distance from the nearest proposed PV panel locations, is summarized in Table 2.

Table 2. Distance Zones by Landscape Similarity Zone

Landscape Similarity Zone	Total Area[1] (square miles) and Percent of LSZ		
	Foreground (<0.5-mile)	Middle Ground (0.5 – 4.0 miles)	Background (>4.0miles)
Rural Upland	11.2 *(12.4%)*	55.2 (61.0%)	24.1 (26.6%)
Forest	2.1 *(7.2%)*	16.4 (56.0%)	10.8 (36.9%)
Mohawk Valley	0.0 *(0.0%)*	9.7 (75.2%)	3.2 (24.8%)
Village	0.0 *(0.0%)*	4.7(85.5%)	0.8 (14.5%)
Transportation Corridor	0.0 *(0.0%)*	1.2(63.2%)	0.7 (36.8%)
Total Distance Zone Area	13.3	87.2	39.6

[1]The 5-mile study area includes approximately 140.0 square miles, or approximately 89,590 acres.

3.5 Viewer/User Groups

Three categories of viewer/user groups were identified within the visual study area. These groups include local residents, through-travelers/commuters, and tourists/recreational users.

3.5.1 Local Residents

Local residents include those who live and work within the visual study area. They generally view the landscape from their yards, homes, local roads, schools, and places of employment, and are the group with the greatest opportunity for views of the proposed Facility. The largest number of local residents is found in the Town of Minden which has a population of 4,154, followed by the Town of Canajoharie (population 3,730), and the Town of Palatine (3,221). Villages within the visual study area have the highest concentration of local residents. The Villages of Canajoharie and Fort Plain each have populations of over 2,200, while the Villages of Sharon Springs, Fort Plain, and Nelliston have populations between 500 and 1,000. The smallest village, the Village of Ames, has a population of only 145.

People living outside of the main population centers reside in relatively low density throughout the visual study area. Except when involved in local travel, residents are likely to be stationary and have frequent or prolonged views of the landscape. Local residents may view the landscape from ground level or from elevated viewpoints, such as windows in the upper

stories of their homes. Residents' sensitivity to visual quality is variable. However, it is assumed that local residents may be very sensitive to changes in views from their homes, yards and local roads.

3.5.2 Through-Travelers/Commuters

Through-travelers and commuters passing through the area view the landscape from motor vehicles on their way to work or other destinations. They are moving, have a relatively narrow field of view, and are destination oriented. Drivers on major roads in the area (e.g., Interstate 90, State Routes 80, 10, 67, 5 and 5S) will most often be focused on the road and traffic conditions but will also have the opportunity to observe roadside scenery. U.S. Highway 20 is the exception to this and will have a large number of travelers traveling the route specifically for scenic reasons. However, these views will generally be peripheral and fleeting. Passengers in moving vehicles will have greater opportunities for prolonged views of the surrounding countryside than will drivers, and so may have greater perception of changes in the visual environment. Commuters' and travelers' sensitivity to visual quality is variable. However, it is assumed that through-travelers will generally have limited perception of, or sensitivity to, visual change, while local commuters may be very sensitive to changes in views of areas that they travel through on a regular basis.

3.5.3 Tourists/Recreational Users

Tourists and recreational users include local residents and out-of-town visitors involved in cultural and recreational activities at parks, historic sites, water bodies, state byways, and trails. These viewers are concentrated at the recreational and cultural sites located within the visual study area (see Section 3.6) and view the landscape from area highways while on their way to these destinations, as well as from the destinations themselves. This group includes snowmobilers, cyclists, boaters, hunters, fishermen, hikers, and those involved in more passive recreational activities such as picnicking, sightseeing, and walking. Tourists and recreational users will often have continuous but changing views of landscape features over relatively long periods of time. Visual quality may or may not be an important part of the recreational experience for these viewers. However, in most cases, scenic quality is assumed to enhance recreational experiences.

3.6 Visually Sensitive Resources

Visually Sensitive Resources (VSRs) within the visual study area were identified in accordance with guidance provided by New York State Department of Environmental Conservation (NYSDEC) Program Policy DEP-00-2 *Assessing and Mitigating Visual Impacts* (NYSDEC, 2000) and the requirements of Article 10, as described in 16 NYCRR § 1000.24(b)(4). In addition, EDR identified other resources that could be considered visually sensitive based on the type or intensity of use they receive. The categories of VSRs that would be typically required for consideration in VIAs include the following:

- Properties of Historic Significance (National Historic Landmarks, Sites Listed on the National or State Registers of Historic Places [NRHP, SRHP]; Properties Eligible for Listing on the NRHP or SRHP; National or State Historic Sites).
- Designated Scenic Resources (Rivers Designated as National or State Wild, Scenic, or Recreational; Adirondack Park Scenic Vistas; Sites, Areas, Lakes, Reservoirs or Highways Designated or Eligible for Designation as Scenic; Scenic Areas of Statewide Significance; Other Designated Scenic Resources)
- Public Lands and Recreational Resources (National Parks, Recreation Areas, Seashores, and/or Forests; National Natural Landmarks; National Wildlife Refuges; Heritage Areas; State Parks; State Nature and Historic Preserve Areas; State Forest Preserves; Other State Lands; Wildlife Management Areas & Game Refuges; State Forests; State Boat Launches/Waterway Access Sites; -Designated Trails; Palisades Park; Local Parks and Recreation Areas; Publicly Accessible Conservation Lands/Easements; Rivers and Streams with Public Fishing Rights Easements; Named Lakes, Ponds, and Reservoirs)
- High Use Public Areas (State, US, and Interstate Highways, Cities, Villages and Hamlets; Schools)
- Locally Identified Resources

To identify VSRs within the visual study area, EDR consulted a variety of data sources including digital geospatial data (shapefiles) obtained primarily through the NYS Geographical Information System (GIS) Clearinghouse or the Environmental Systems Research Institute (ESRI); national, state, county, and local agency websites as well as websites specific to identified resources; the DeLorme Atlas and Gazetteer for New York State; USGS 7.5-minute topographic maps; and web mapping services such as Google Maps. Resources relied on for the identification of VSRs are included in the Literature Cited section of this report (see Section 7.0).

In accordance with the requirements set forth in 16 NYCRR § 1000.24(b)(4), as well as Section 24 of the Facility's PSS, Mohawk Solar LLC also conducted a systematic program of public outreach to assist in the identification of VSRs. Copies of the correspondence sent by the Applicant as part of this process, as well as responses received from stakeholders, are included as Appendix F of this VIA. This outreach effort included the following:

- The Applicant distributed a request on October 18, 2017 to appropriate municipal planning representatives, town and village historians, local and regional chambers of commerce, along with multiple local environmental groups. For a full distribution list of the 77 identified contacts please see Appendix F.

- The Applicant sent a visual outreach letter to an additional contact, Otsego 2000, in November of 2017 asking for their help as well in identifying VSRs that should be included in the VIA.
- The Applicant received one response to this outreach that highlighted the importance of two VSRs already included in the VIA inventory and analysis.
- The Applicant has engaged in consultation with the New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP) in order to evaluate the Facility's potential effect on historic resources listed or eligible for listing in the S/NRHP (EDR, 2019). Through this correspondence with NYSOPRHP, 19 additional properties were identified as S/NRHP eligible, including a rural historic district. The additional resources identified through the consultation process are included in the Table 3.

As a result of the database review and outreach effort described above, VSRs of national, regional and statewide significance, as well as locally significant aesthetic resources, were identified within the visual study area. The mapped locations of inventoried VSRs are shown in Figure 5 (at the end of Section 5.1) and on the composite overlay map included in Appendix A. Table 3 includes a summary of all of the identified VSRs within the visual study area.

Table 3. Total Visually Sensitive Resources Identified

Visually Sensitive Resources	Total Number of Resources within the Visual Study Area
Properties of Historic Significance [6 NYCRR 617.4 (b)(9)]	Total 61
National Historic Landmarks (NHL)	2
Properties Listed on National or State Registers of Historic Places (NRHP/SRHP)	31
Properties Eligible for Listing on NRHP or SRHP	28
National/State Historic Sites	0
Designated Scenic Resources	Total 2
Rivers Designated as National or State Wild, Scenic or Recreational	0
Adirondack Park Scenic Vistas [Adirondack Park Land Use and Development Map]	0
Sites, Areas, Lakes, Reservoirs or Highways Designated or Eligible for Designation as Scenic ([ECL Article 49Title 1] or equivalent)	2
Scenic Areas of Statewide Significance [Article 42 of Executive Law]	0
Other Designated Scenic Resources (Easements, Roads, Districts, and Overlooks)	0
Public Lands and Recreational Resources	Total 27
National Parks, Recreation Areas, Seashores, and/or Forests [16 U.S.C. 1c]	0
National Natural Landmarks [36 CFR Part 62]	2
National Wildlife Refuges [16 U.S.C. 668dd]	0
Heritage Areas [Parks, Recreation and Historic Preservation Law Section 35.15]	2
State Parks [Parks, Recreation and Historic Preservation Law Section 3.09]	0
State Nature and Historic Preserve Areas [Section 4 of Article XIV of the State Constitution]	0
State Forest Preserves [NYS Constitution Article XIV]	0
Other State Lands	0
Wildlife Management Areas & Game Refuges	0
State Forests	0
State Boat Launches/Waterway Access Sites	1
Designated Trails	7
Palisades Park [Palisades Interstate Park Commission]	0
Local Parks and Recreation Areas	7
Publicly Accessible Conservation Lands/Easements	0
Rivers and Streams with Public Fishing Rights Easements	0
Named Lakes, Ponds, and Reservoirs	10
High-Use Public Areas	Total 25
State, US, and Interstate Highways	9
Cities, Villages, Hamlets	8
Schools	8
Resources Identified by Stakeholders	Total 0
Total Number of Visually Sensitive Resources in the Visual Study Area	115

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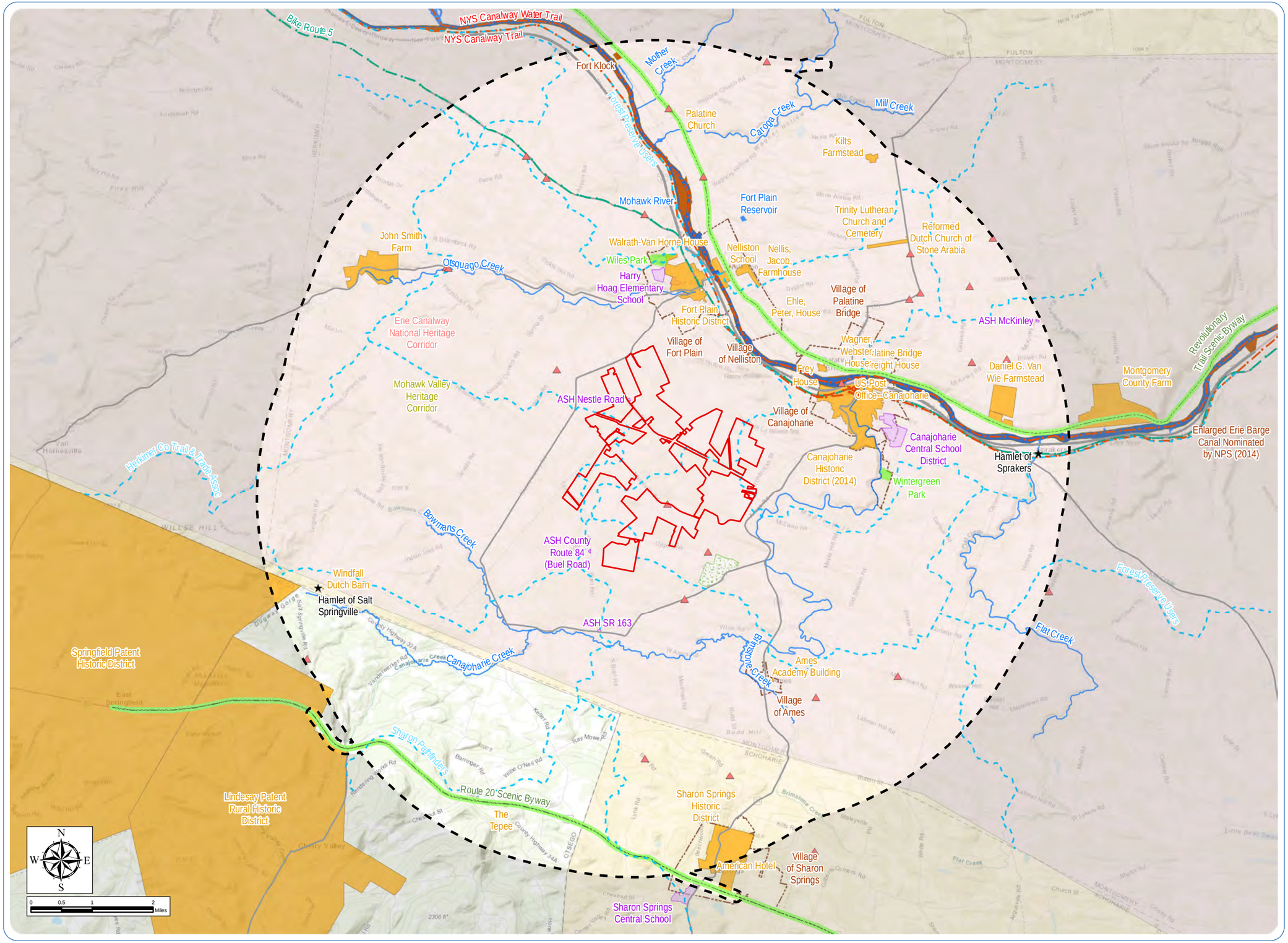
Figure 5: Visually Sensitive Resources



Visually Sensitive Resources

- NRHP-Eligible Resource
- Hamlet
- Local Trail
- Snowmobile Trail
- NYS Trail
- NYS Bike Route
- NYS Scenic Byway
- Major Road
- National Historic Landmark
- NRHP-Listed Resource
- NYSDEC Land
- Local Recreation Area
- Golf Course
- Named Lakes, Rivers, and Streams
- School
- Village Boundary
- National Heritage Area
- NYS Heritage Area

Proposed Facility

- Visual Study Area
- Facility Site

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service. 2. This map was generated in ArcMap by Environmental Design and Research on May 14, 2019. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

AVANGRID RENEWABLES

4.0 Methodology

The Visual Impact Assessment (VIA) procedures used for this study are consistent with methodologies developed by the U.S. Department of the Interior, Bureau of Land Management (1980), U.S. Department of Agriculture, National Forest Service (1995), the U.S. Department of Transportation, Federal Highway Administration (1981), U.S. Army Corps of Engineers (Smardon, et al., 1988), and the NYSDEC (2000). These procedures are widely accepted as standard visual impact methodology for large energy projects (CEIWEP, 2007) and are consistent with the requirements of Section 24 of the Facility's PSS. The specific techniques used to assess potential Facility visibility and visual impacts are described in the following section.

4.1 Facility Visibility

An analysis of Facility visibility was undertaken to identify those locations within the visual study area where there is potential for the proposed PV panels, and above-ground interconnection facilities (including the Facility substation, POI Switchyard, and above-ground transmission, or gen-tie, line poles to be seen from ground-level vantage points. This analysis included identifying potentially visible areas on viewshed maps and verifying Facility visibility in the field. The methodology employed for each of these assessment techniques is described below.

4.1.1 Viewshed Analysis

PV Panel Viewshed Analysis

A topographic viewshed map for the proposed PV panels was prepared using the following data and assumptions:

- A 2-meter resolution bare earth digital elevation model (DEM) derived from the 2014 USGS and 2007 Federal Emergency Management Agency's (FEMA) Light Detection and Ranging (lidar) data for Schoharie, Montgomery, and Fulton Counties, New York;
- sample points representing PV panel locations;[2]
- an assumed maximum PV panel height of 11 feet.[3]
- an assumed viewer height of 6 feet;

[2] Sample points representing the PV panels were placed 200 feet apart in a grid pattern throughout all developable areas within the Facility Site.
[3] The height of the panels will vary as the structures tilt to follow the sun throughout the day and will be variable given undulations in the existing terrain, but the typical maximum height of the structures when at their tallest position will be approximately 11 feet.

- potential vegetation clearing along roadside areas to accommodate installation of proposed underground collection lines, and
- ESRI ArcGIS® software with the Spatial Analyst extension.

The ArcGIS program defines the viewshed (using topography only) by reading every cell of the bare earth (or ground surface) DEM data and assigning a value based upon the existence of a direct, unobstructed line of sight to PV panel sample point location/elevation coordinates from observation points throughout the visual study area. The resulting topographic viewshed map defines the maximum area from which any PV panel sample point could potentially be seen within the visual study area (i.e., ignoring the screening effects of existing vegetation and built structures). Because the screening provided by vegetation and buildings is not considered in this stage of the analysis, the topographic viewshed is very accurate in predicting where visibility will not occur due to topographic interference.

In addition, a second-level analysis was conducted to incorporate the screening effect of structures and vegetation by using the USGS and FEMA lidar datasets. A 2-meter resolution digital surface model (DSM) of the visual study area was created from these lidar data, which includes the elevations of buildings, trees, and other objects large enough to be resolved by lidar technology. Because this data can include narrow hedgerows or overhead electrical lines as potential screening features, an additional 35 feet of clearing was added on each side of every road to avoid introducing artificial screening from roadside distribution lines and thin hedgerows. Additionally, relatively small woodlots and hedgerows that may potentially be cleared during construction of the Facility were removed from the resulting DSM to reflect the bare-earth elevation in these locations. The modified DSM was then used as a base layer for the viewshed analysis, as described above. Once the viewshed analysis was completed, a conditional statement was used to set PV panel visibility to zero in locations where the DSM elevation exceeded the bare earth elevation by 6 feet or more. This was done for two reasons: 1) in locations where trees or structures are present in the DSM, the viewshed would reflect visibility from the vantage point of standing on the tree top or building roof, which is not the intent of this analysis and 2) to reflect the fact that ground-level vantage points within buildings or areas of vegetation exceeding 6 feet in height will generally be screened from views of the Facility. See Figure 6 for further information on the viewshed analysis process.

Because it accounts for the screening provided by structures and trees, this second-level analysis is a more accurate representation of probable Facility visibility. However, it is worth noting that because certain characteristics of the Facility and the visual study area that may influence visibility (e.g., color, atmospheric/weather conditions, distance from viewer) are not into taken consideration in the viewshed analyses, being located within the DSM viewshed does not necessarily equate to actual Facility visibility.

Above-Ground Interconnection Facilities Viewshed Analysis

Topographic and DSM viewshed maps also were prepared for the above-ground interconnection facilities (including the collection substation, POI Switchyard, and associated above-ground gen-tie line poles). The tallest proposed component of the substation are narrow lightning masts, with a maximum height of 65 feet. The precise location of these structures is not known at this time, so the analysis was run based on representative points at each corner of the substation and switchyard footprints, each with an assigned height of 65 feet. Additionally, sample points at a height of 65 feet were also included at the proposed locations of all above-ground transmission, of gen-tie, poles. All other data sources and assumptions used in the substation viewshed analysis are as described above for the PV panel viewshed analysis.

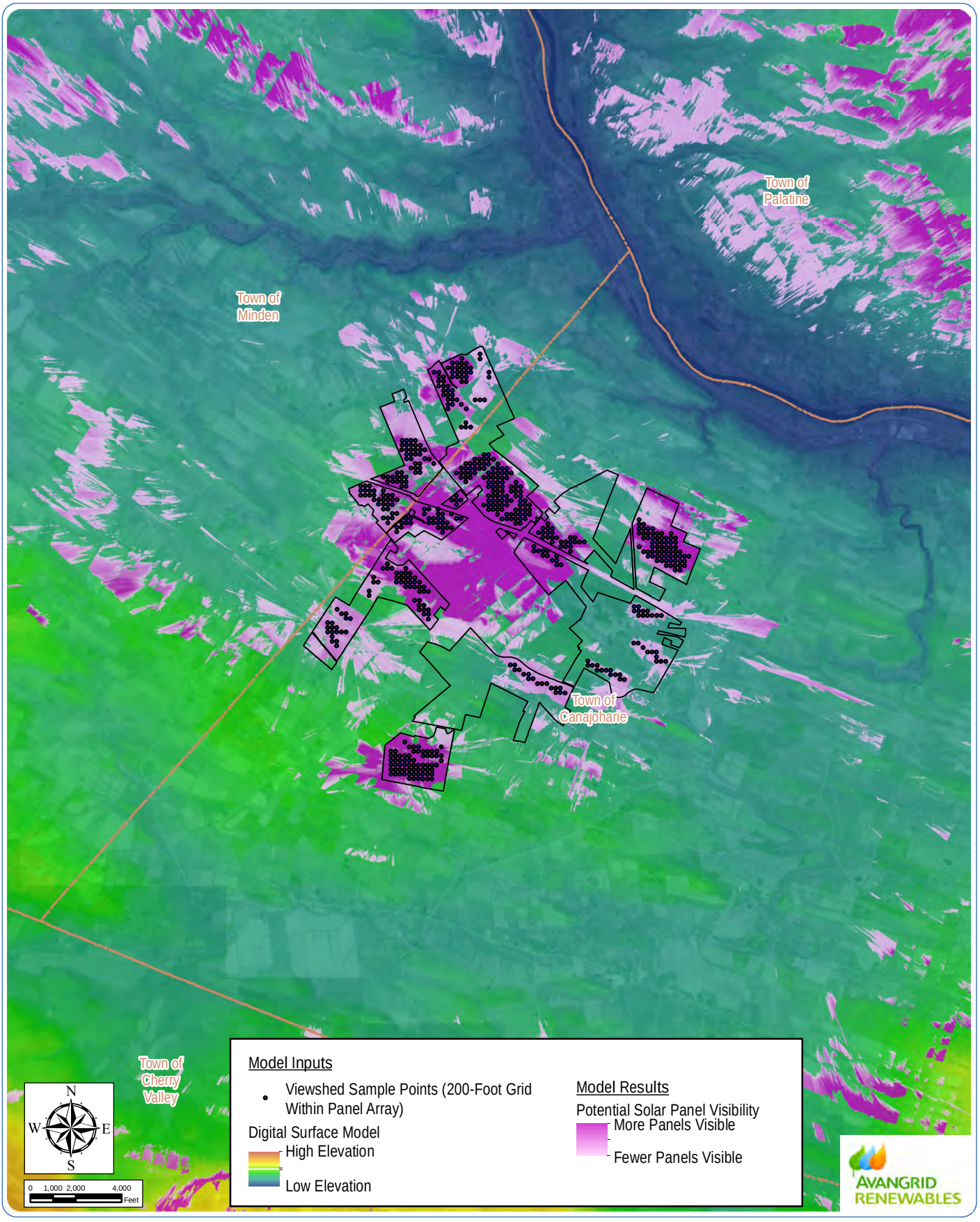


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Figure 6: Viewshed Methodology

Notes: 1. Basemap: ESRI ArcGIS Online "World Imagery" map service. 2. This map was generated in ArcMap by Environmental Design and Research on May 21, 2019. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Proposed Facility
- Visual Study Area
- Facility Site

Civil Boundaries
- Town Boundary

4.1.2 Field Verification

To verify results of the viewshed analysis, EDR personnel conducted field review in the visual study area on multiple occasions between October 2017 and February 2019 (October 27, 2017, November 8 & 21, 2017, September 24, 2018, and February 26, 2019). During these site visits, EDR staff members drove public roads and visited public vantage points within the visual study area to document locations from which the PV panels and other Facility components would likely be visible, partially screened, or fully screened. This determination was based on the visibility of the distinctive Facility Site ridges/landforms, as well as existing built structures (such as silos, barns, and communications towers) on or around the Facility Site, which served as locational and scale references. During field review, photographs were obtained from 193 separate viewpoints to document potential visibility of the Facility from the various LSZs, distance zones, directions, and VSR's throughout the visual study area. A photolog, including a representative photograph toward the Facility Site from each viewpoint, is included in Appendix B and Appendix G.

Weather conditions during the field visits were generally sunny and clear with low humidity and little cloud cover. Such weather conditions represented the highest visibility conditions and, therefore, the potential "worst case" in terms of potential Facility visibility and visual impact. Partly cloudy conditions were evident occurred at times during the February 26, 2019 visit, however overall conditions affecting visibility remained suitable. In obtaining photos, consideration was also given to viewer orientation and time of day by strategically capturing a variety of lighting conditions (front lit, side lit, and backlit) as well as the different angles at which the PV panels may be viewed.

The October 27, 2017, November 8 & 21, 2016, and February 26, 2019 field review focused on documenting existing landscape characteristics and verifying potential visibility of the proposed Facility from identified VSRs, all with the idea that the viewpoints/photographs might subsequently be selected development of visual simulations. Representative photos were taken throughout the day and represent landscape and sky conditions typical of the fall and winter season. During each site visit, photos were taken using digital SLR cameras with a minimum resolution of 24.1 megapixels.[4] All cameras utilized a focal length between 28 and 35 mm (equivalent to between 45 and 55 mm on a standard 35 mm film camera). This focal length is the standard used in visual impact assessment because it most closely approximates normal human perception of spatial relationships and scale in the landscape (CEIWEP, 2007). At each viewpoint, a series of overlapping photos were taken to cover the full field of view toward the Facility Site. Viewpoint locations were determined using hand-held global positioning system (GPS) units and high resolution aerial photographs (digital ortho quarter quadrangles). The time and location of each photo were documented on all electronic equipment (cameras, GPS units, etc.) and noted on field maps

[4] Digital SLR cameras used in the photography fieldwork included Nikon D7100 and Cannon EOS 5D Mark IV.

and data sheets. Viewpoints photographed during field review generally represented the most open, unobstructed available views toward the Facility.

An additional site visit was conducted on September 24, 2018 to assist in the development of planting plans that will help to minimize and mitigate the potential visual effect of the Facility. Specifically, EDR personnel reviewed and documented the existing vegetation, landform, and landscape character within the visual study area in order to inform the development of a planting plan (see Sections 4.2 and 5.1 for more information). An additional photolog documenting the landscape conditions and characteristics observed during this field visit is included in Appendix G.

4.2 Mitigation Planting Plan Design Methodology

The Mohawk Solar Facility will include the installation of a variety of visual screening treatments at different areas throughout the Facility Site. A conceptual visual mitigation planting plan was developed as part of the VIA for the Facility with the intention to minimize and mitigate the Facility's visual effects. The VIA provides a conceptual planting plan that consists of a master plant list (see Inset 4.01 and Appendix G), locations of proposed installations, (see Figure 7) and detailed planting modules designed for specific circumstances (see Insets 4.02-4.05). While the planting modules were not designed to completely screen views of the proposed Facility, the introduction of native tree and shrub mixes interspersed with pollinator plants along the roadsides adjacent to the Facility are intended to soften the visual effect of the Facility with natural forms and colors to divert attention from the modern materials and inorganic forms of the PV panel arrays. The proposed plantings are included in the visual simulations provided in Appendix D as part of this VIA. For a complete package of the insets and figures associated with the conceptual planting plan please see Appendix G).

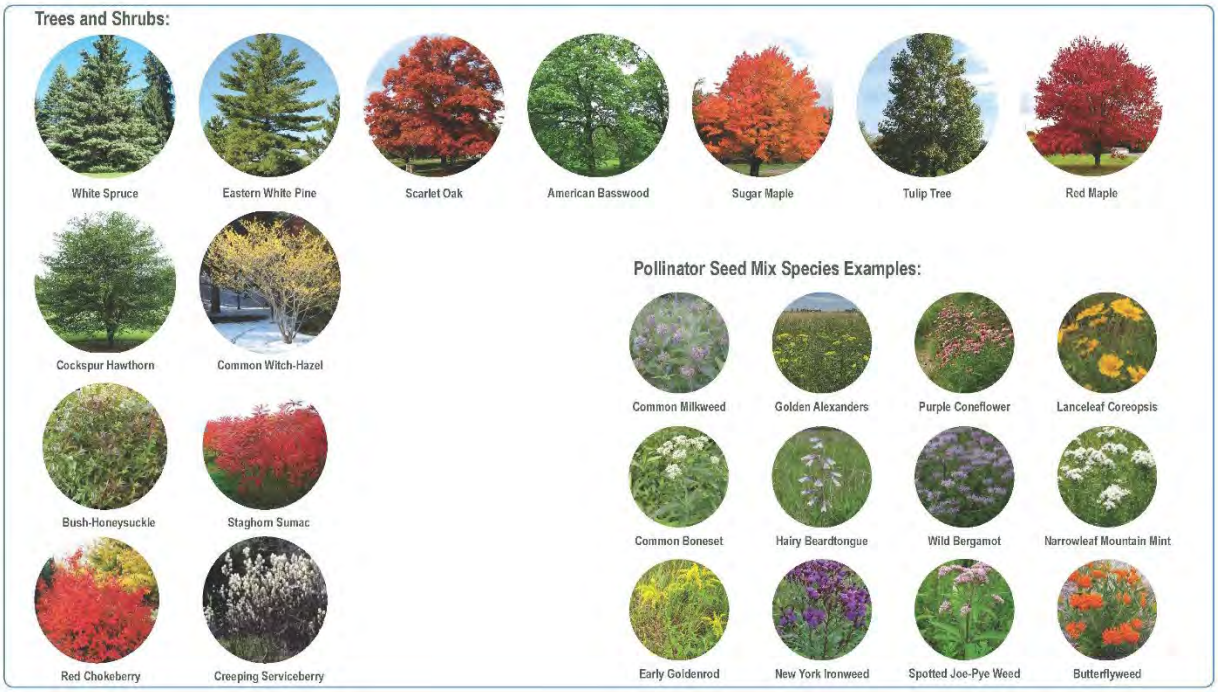
The conceptual planting plan design was developed using the following methodology:

- Review local zoning guidelines.
- Document existing visual character and vegetation within the Facility site and surrounding area.
- Take design and material cues from the surrounding landscape.
- Maintain open roadsides and vistas where possible.
- Maintain existing vegetation/hedgerows where feasible.
- Soften the appearance of the perimeters of the PV arrays/fences so that they blend into the existing landscape.
- Install native, noninvasive species that provide ecological benefits.

4.2.1 Selection of Plant Materials

When designing a conceptual planting plan, it is important to propose a site-specific selection of plant materials for the Facility Site that would provide the appropriate level of vegetative screening, match the vegetation and visual character of the existing landscape, and prioritize the use of native vegetation species. To create the master plant list, EDR conducted field reconnaissance throughout the visual study area to document existing vegetation along roadsides, within hedgerows, occupying successional fields, and installed around residential properties (see Mitigation Photolog, Appendix G). An EDR team made up of staff with expertise in cultural resources, visual impact assessment, and landscape architecture conducted a site review of the Facility Site and adjacent areas. The vegetation that was noted and documented varied from wildflowers and shrubby dogwoods (*Cornus sp.)* and red chokeberry (*Aronia arbutifolia*), to roadside white pines (*Pinus strobus)* and maples (*Acer sp.)*. Existing hedgerows included staghorn sumac (*Rhus typhina*), creeping serviceberry (*Amelanchier spicata*), and oak (*Quercus sp.*), all in different stages of growth and health. In general, the vegetation communities observed in open fields within most portions of the Facility Site and surrounding areas included existing agricultural crops and successional (i.e., old field) communities. The planting plan that was subsequently developed for the Facility intentionally mimics the vegetation species and character of these successional old-field areas to integrate the appearance of the Facility into the surrounding landscape.

These on-site observations provided the basis for the plant material to be included in the master plant list (see Inset 4.01 and Appendix G). In addition, the NYSDEC *Prohibited and Regulated Invasive Species* (NYSDEC, 2014) guidance was also consulted to assure that no invasive species were being proposed. Other resources that were utilized in creation of the master plant list include the Audubon Vermont Pollinator and Bird Friendly Solar Program (Audubon Vermont, 2019), which includes recommended native vegetation that can provide ecological benefits at solar facilities. A full master plant list can be found in Appendix G.



Inset 4.01: Examples of vegetative material that can be found on the master plant list.

4.2.2 Proposed Locations of Mitigation Plantings

EDR landscape architects utilized field analysis, municipal regulations, and outreach responses, both locally and from state representatives, to delineate proposed planting areas around Facility components. These areas include open fields adjacent to roadsides, thin/partial hedgerows abutting neighboring residences, and areas adjacent to residences and/or VSRs throughout the Facility Site. The goal of selecting locations for plantings was to prioritize locations where otherwise open or uninterrupted views of the PV arrays had the potential to result in substantial visual effects. A total of approximately 27 acres of mitigation plantings (7 acres in Minden, 20 acres in Canajoharie) were identified as potential planting area within the Facility Site. See Figure 7 for the delineated mitigation planting areas.

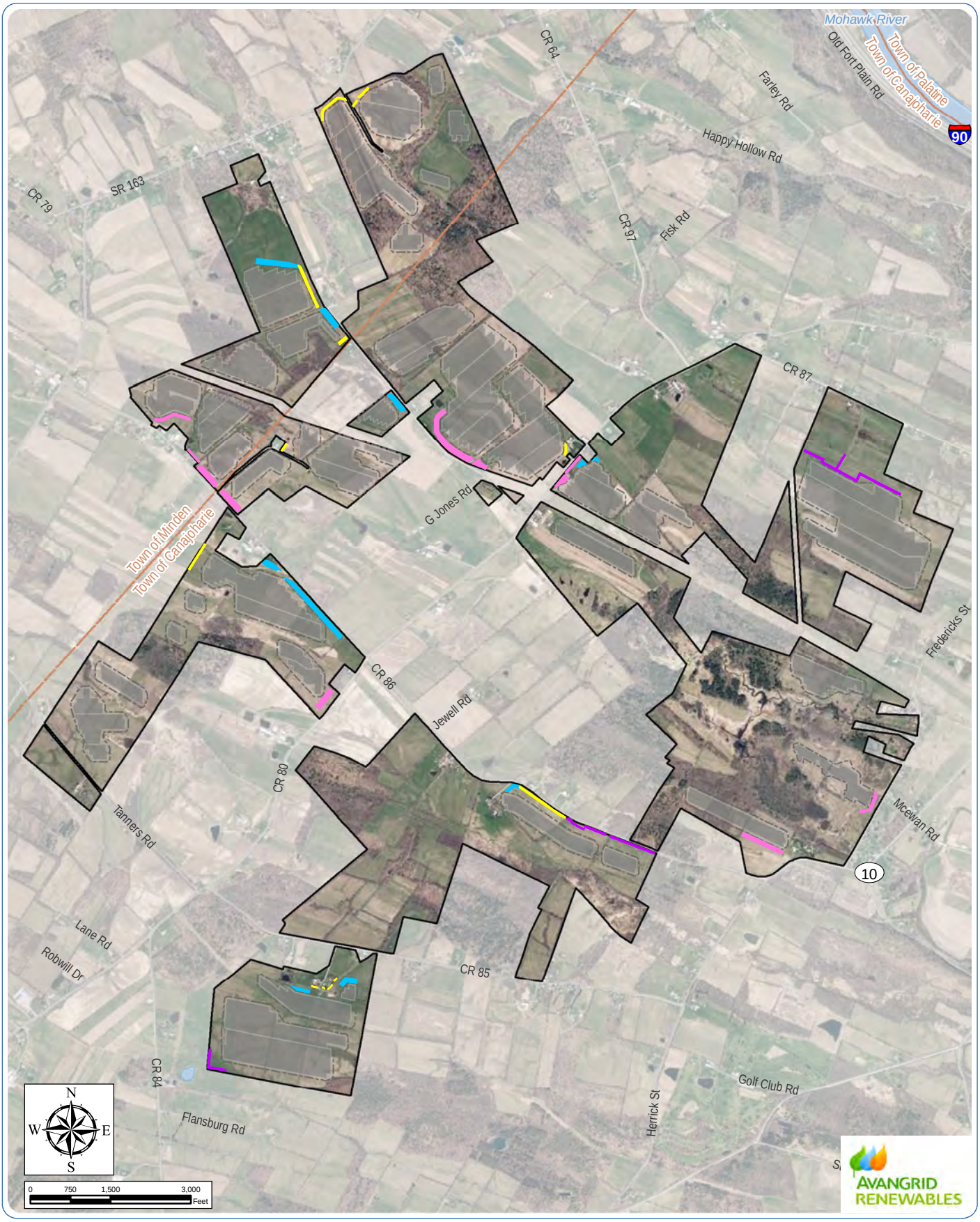


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Figure 7: Proposed Locations of Planting Modules

Notes: 1. Basemap: DHSES 2017 Orthoimagery, ESRI StreetMap North America, 2008. 2. This map was generated in ArcMap by Environmental Design and Research on May 23, 2019. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Proposed Facility Components

- Fence Line
- PV Panel Array
- Facility Site
- Town Boundary

Plantings

- Module 1 - Roadside Enhancement A
- Module 2 - Roadside Enhancement B
- Module 3 - Hedgerow In-Fill
- Module 4 - Adjacent Resource/Residence

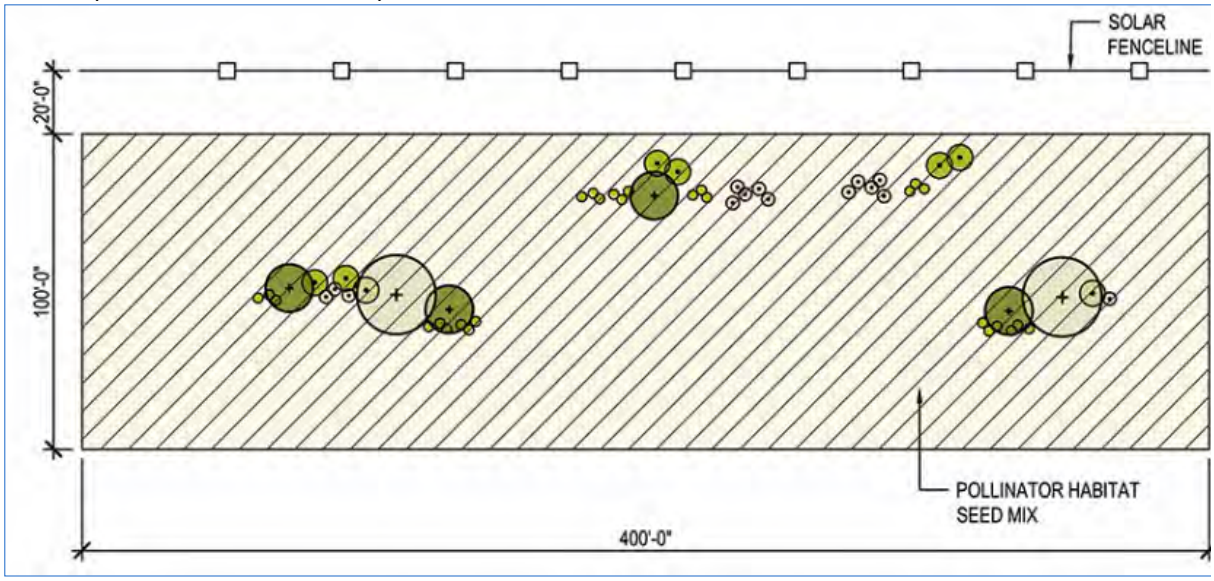
4.2.3 Conceptual Planting Modules

The Applicant developed four individual planting modules, each designed to apply to a specific circumstance within the Facility Site or accomplish a different set of goals. The four modules include:

1) Roadside Enhancement A;
2) Roadside Enhancement B;
3) Hedgerow In-fill; and
4) Adjacent Resource/Residence Screening.

Descriptions of these modules are provided below:

Module 1 (Roadside Enhancement A)



Inset 4.02 Module 1 – Conceptual planting plan.

Inset 4.03 Module 1 – Conceptual planting section.

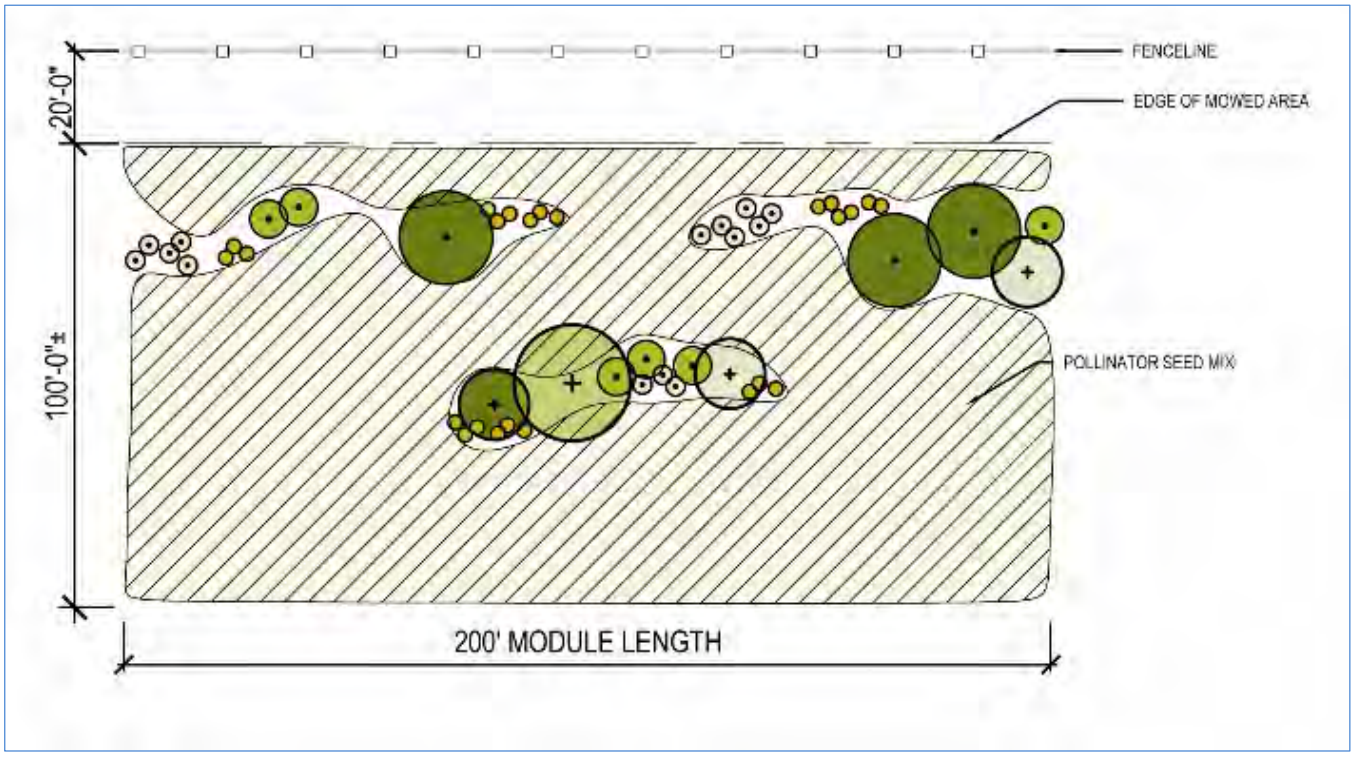
Module 1 seeks to integrate the Facility Site into the landscape by mimicking the surrounding vegetation, which includes different stages of successional fields, pockets of shrubs, and large spacing between woody vegetation[5]. Consequently, Module 1 utilizes a selection of large to medium-sized shrubs small trees, and herbaceous perennials that will remain relatively low at mature height. Along with preserving outward views, Module 1 incorporates low growing material because it is designed to be located on the southern, eastern, and western sides of the proposed arrays, where shadow throw from adjacent vegetation could adversely impact power generation. The master plant list for Module 1 is included in Appendix G (i).

The Module 1 planting plan is designed to mimic the spacing and pattern of existing successional vegetation as perceived by viewers that will be traveling along the adjacent roadway and therefore experiencing the landscape while in a moving vehicle. Large spacing distances are thus proposed for the plant material both parallel to the roadway (i.e., lateral to the direction of travel) and perpendicular to the roadway (i.e., from the road toward the PV panel arrays). Lateral spacing of 150-250 feet combined with 25-50 feet of spacing widthwise is proposed within a 100-foot planting area. While such spacing would be ineffective to completely screen views from a residence or other permanent vantage point, this design works well when viewed from a moving vehicle. To create the needed space to accomplish the goals of Module 1, the planting area is located away from the roadside and placed 20 feet from the solar array fence line.

In addition to the proposed shrubs, the areas between shrubs within planting Module 1 will be planted with a pollinator-friendly seed mix. The seed mix under consideration is the Xerces Society Northeastern Pollinator Mix (XERC00103) from Ernst Seed. This mix consists of a blend of 23 uplands and meadows species such as little bluestem (*Schizachyrium scoparium*), partridge pea (*Chamaecrista fasciculata*), lanceleaf coreopsis (*Coreopsis lanceolata*), purple coneflower (*Echinacea purpurea*), and others.

[5] For an example of the installed appearance of Module 1, refer to the visual simulations included in VIA Appendix D for Viewpoint 24 (Nestle Road, Canajoharie) and Viewpoint 26 (H Jones Road, Canajoharie). These are also included as insets in Section 4.3.2 of this report.

Module 2 (Roadside Enhancement B)



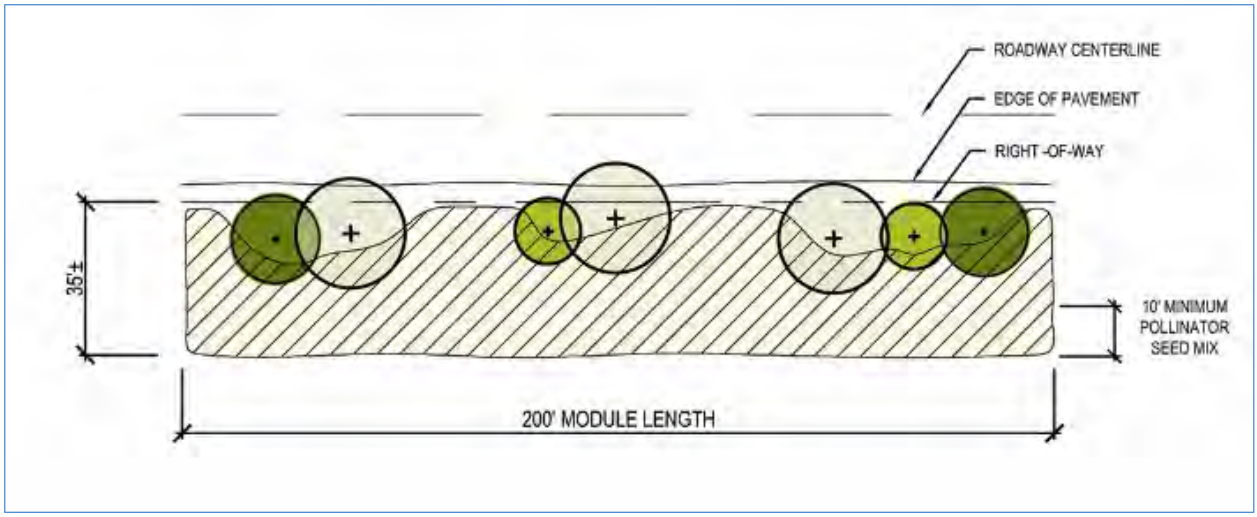
Inset 4.04 Module 2 – Conceptual planting plan.

Inset 4.05 Module 2 – Conceptual planting section.

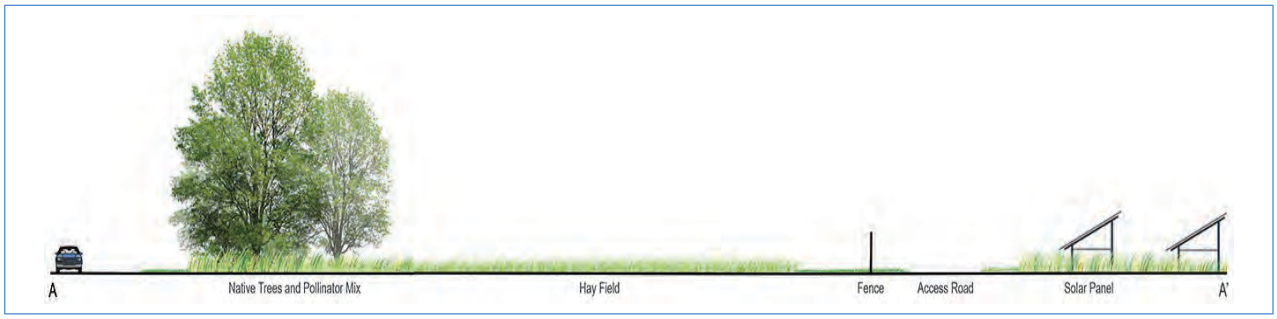
Module 2 is designed to be used along roadways that are located on the north sides of proposed arrays. It incorporates much of the same spacing, however it utilizes larger plant material in selected locations. The additional height of screening is proposed because shadows are not a concern on the northern side of the PV arrays, and the larger material will provide

more substantial screening of the Facility[6]. Otherwise, the selection and spacing of plant materials is similar to Module 1. The total acreage of this module is only slightly less than Module 1, at approximately 8.5 acres.

Module 3 – Hedgerow In-Fill



Inset 4.06 Module 3 – Conceptual planting plan.



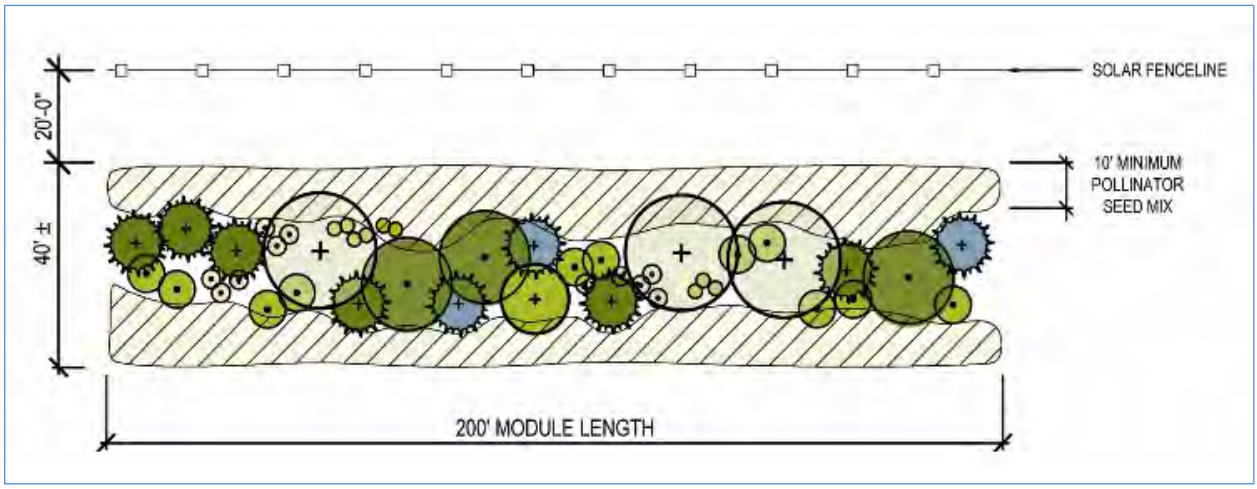
Inset 4.07 Module 3 – Conceptual planting section.

Throughout the visual study area, narrow hedgerows commonly occur between the road shoulder and adjacent open fields. These hedgerows contribute to the overall character of the visual study area by reinforcing the mosaic pattern of vegetation and enclosing portions of the road system. Module 3 occupies approximately 4.0 acres and aims to enhance the screening function of roadside hedgerows through supplemental plantings.

[6] For an example of the installed appearance of Module 2, refer to the visual simulation included in VIA Appendix D for Viewpoint 16 (Marsh Road, Canajoharie). The visual simulations are also included as insets in Section 4.3.2 of this report.

During the September 24, 2018 site visit, hedgerows adjacent to the proposed arrays were reviewed to understand their current stage of growth, material make-up, and screening capabilities. This included identifying areas where the hedgerows break and allow for unimpeded views into the adjacent fields. Module 3 is designed to mimic the material and scale of the existing hedgerow vegetation within a 35-foot planting area abutting the road right-of-way, with larger vegetation closer to the right-of-way.[7] By implementing this design, the proposed planting plan blends into the existing roadside hedgerows and creates more continuous visual screening along portions of the road corridor.

Module 4: Adjacent Resource/Residence Screening



Inset 4.08 Module 4 – Conceptual planting plan.

Inset 4.09 Module 4 – Conceptual planting section.

Designed to provide the greatest amount of visual screening at locations with sensitive adjacent resources, Module 4 combines the plant material from the other three modules into a 40-foot planting area with herbaceous plantings in front

[7] For an example of the installed appearance of Module 3, refer to the visual simulations included in VIA Appendix D for Viewpoint 38 (Seebers Lane, Canajoharie) and Viewpoint 30 (Marshville Road, Canajoharie). The visual simulations are also included as insets in Section 4.3.2 of this report.

and behind larger tree and shrub plantings. The goal of Module 4 is to provide a robust planting plan that will function to limit visibility of the solar arrays from adjacent receptors, both in the summer (leaf-on conditions) and to lesser extent in the winter (leaf-off conditions).[8] Module 4 is proposed to be installed on approximately 3.7 acres.

4.2.4 Consistency with Local Solar Ordinances

As stated in the above goals, the conceptual planting plan is intended to address local solar ordinances and guidelines and provide an appropriate solution through site-specific vegetative screening. The Applicant has designed the Facility to include a planting plan that will provide screening and coverage in order to minimize, to the greatest extent possible, views of the Facility. The planting plan has been designed to use native shrubs and grasses based on the character of existing vegetation communities within the Facility Site and surrounding parcels. The intent of the planting plan is to both screen the Facility and minimize the potential visual effect of the Facility by visually integrating the project into the surrounding landscape. However, there will be portions of the Facility that will be visible. There are no design configurations that would allow the Facility to be fully screened from view without resulting in additional environmental impacts. The use of other visual mitigation measures such as berms, opaque enclosures, or evergreen hedges have been considered but are not being proposed. The use of berms would require large areas of soil disturbance, which is contrary to the design objective of the Facility to minimize soil disturbance to the greatest extent practicable and could interfere with current or future agricultural uses of the Facility Site. In addition, the use of berms, opaque enclosures, or evergreen hedges would introduce new visual elements into the landscape that would be inconsistent with the character of the existing visual environment and therefore result in unnecessary visual impacts. It is the Applicant's position that the conceptual planting plan as proposed meets or exceeds the understood design intent of the various guidelines set forth by the Towns of Canajoharie and Minden.

Town of Canajoharie: The Town of Canajoharie has not officially adopted a map which delineates boundaries of a district entitled "Scenic Overlay District" as part of local law. However, as part of the conceptual planting plan, consideration of the purpose of the Scenic Overlay District was incorporated. This included preserving visual assets of the town, such as scenic road corridors and vistas, and ensuring that the Facility is compatible with the scenic character of the area. By selecting native plant material and basing the design on landscape cues and elements from the existing vernacular, the conceptual planting plan seeks to integrate the Facility into the landscape. By utilizing the various conceptual planting modules, open vistas within the Facility site are maintained through the use of intermittent plantings of low growing vegetation while screening of the PV panels is accomplished with appropriately placed larger vegetation. Earthen berms and unnatural

[8] For an example of the installed appearance of Module 4, refer to the visual simulations included in VIA Appendix D for Viewpoints 153 (Nestle Road Schoolhouse, Minden) and 154 (NYS Route 163, Minden). The visual simulations are also included as insets in Section 4.3.2 of this report.

evergreen hedges were not incorporated into the plan because they would be inconsistent with the existing visual character of the surrounding landscape, appear artificial, and block existing views and open vistas.

Town of Minden: The Town of Minden's recently developed Local Law (90-52.24 Solar Facilities) was reviewed, and applicable considerations were incorporated into the conceptual planting plan. This includes elements that are key design features of the conceptual planting modules, such as native grasses and vegetation below and around the arrays and fencing, as well as specific planting modules that provide screening and minimize visual impacts to State Route 163 and adjacent existing residential dwellings. Although suggested as a potential mitigation/screening measure, earthen berms, opaque enclosures, and rows of evergreens were not proposed as they would add new, discordant elements within the existing landscape. Rather, the conceptual plan aims to integrate the Facility into the landscape, which is the overachieving goals of both the Towns of Minden and Canajoharie laws.

4.3 Facility Visual Impact

Beyond evaluating potential Facility visibility, the VIA also examined the visual impact of the proposed Facility on the LSZs, VSRs, and viewer groups within the visual study area. This assessment involved creating computer models of the proposed PV panels and layout, selecting representative viewpoints within the visual study area, and preparing computer-assisted visual simulations of the proposed Facility. The visual simulations were evaluated by a rating panel consisting of three professionals with experience in the visual/aesthetics field to determine the type and extent of visual impact likely to result from installation of the proposed Facility. Further information on rating panel personnel and procedures can be found in Appendix E. Details of the visual impact assessment procedures are described below.

4.3.1 Viewpoint Selection

16 NYCRR § 1000.24(b)(4) includes the requirements that "*the applicant shall confer with municipal planning representatives, DPS, DEC, OPRHP, and where appropriate, APA in its selection of important or representative viewpoints*." Building on the previous consultation with municipal representatives and stakeholders to identify visually sensitive sites (as described above in Section 3.6 of this VIA), EDR conducted additional outreach to agency staff and stakeholder groups to determine an appropriate set of viewpoints for the development of visual simulations. This outreach effort included the following:

- On April 2, 2018, in accordance with Article 10, Exhibit 24, Part 1001.24(b)(4), EDR distributed a letter entitled "Mohawk Solar (DPS Case 17-F-0182 - Recommendations Viewpoints – Official Request for Information", to

appropriate municipal planning representatives and State of New York interested parties. This memo included 1) a summary of research and consultation undertaken as part of the VIA to date, 2) a description of the field review/photography conducted for the Facility, 3) the rationale for viewpoint selection, 4) recommendations regarding viewpoints to be selected for the preparation of visual simulations, and 5) an invitation to a webinar to discuss viewpoint selection.

- On April 11, 2018, EDR hosted an on-line webinar that included, 1) a review of the visual studies conducted to date, 2) discussion of proposed and alternate viewpoints for the development of simulations, and 3) a request that stakeholders provide any additional suggestions or comments regarding viewpoint selection via email.

For a full accounting of the recommended viewpoint outreach please see Appendix F.

Based on the outcome of stakeholder and agency consultation, a total of nine viewpoints were selected for the development of visual simulations. These viewpoints were selected based upon the following criteria:

- They provide open views of proposed PV Panels (as indicated by field verification),
- They illustrate Facility visibility from VSRs identified by local stakeholders and state agencies.
- They illustrate typical views from LSZs where views of the Facility will be available.[9]
- They illustrate typical views of the proposed Facility that will be available to representative viewer/user groups within the visual study area, including adjacent residences.
- They illustrate typical views of different numbers of PV Panels, from a variety of viewer distances, and under different lighting/sky conditions, to illustrate the range of visual change that will occur with the Facility in place.
- The photos obtained from the viewpoints generally displayed good composition, lighting, and exposure.

[9] Most of the simulations represent the Rural Uplands LSZ due to the fact that the Facility Site is located (nearly) entirely within this LSZ. In addition, as described below in Sections 5.1.1 and 5.1.4, visibility of the Facility is mostly concentrated within open areas within this LSZ within foreground viewing distance (i.e., within 0.5-mile) of the Facility. In general, visibility of the Facility from the Mohawk Valley, Forest, and Village LSZs is very limited and therefore no visual simulations were prepared. The remaining selected viewpoints illustrate the relative lack of visibility/visual effect from greater distances and/or other LSZs, such as the Transportation Corridor LSZ.

Locational details and the criteria for selection of each simulation viewpoint are summarized in Table 4, below:

Table 4. Viewpoints Selected for Production of Visual Simulations

Viewpoint Number	Location and/or Visually Sensitive Resource	LSZ Represented	Viewer Group Represented	Viewing Distance[1]	View Orientation[2]
16	County Route 86, Town of Canajoharie	Rural Uplands	Local Residents	0.1	WNW
24	Nestle Road, Town of Canajoharie	Rural Uplands	Local Residents	0.1	ESE
26	H Jones Road, Town of Canajoharie	Rural Uplands	Local Residents, Through Travelers/Commuters	0.4	NE
28	County Route 87 (Seebers Lane), Town of Canajoharie	Rural Uplands	Local Residents	0.3	SSW
32	State Route 10, Town of Palatine	Rural Uplands	Local Residents, Through Travelers/Commuters	3.1	SW
82	Route 20 Scenic Byway, Town of Cherry Valley	Transportation Corridor	Through Travelers/Commuters, Tourist/Recreational User	4.3	N
130	County Route 86 (Marshville Road), Town of Canajoharie	Rural Uplands	Local Resident	0.1	WNW
153	Nestle Road, Amish School House, Town of Minden	Rural Uplands	Local Residents	0.04	WNW
154	State Route 163 (Cherry Valley Road), Town of Minden	Rural Uplands	Local Residents, Through Travelers/Commuters	0.1	SSW

[1]Distance from viewpoint to nearest visible PV Panel (in miles)
[2]N = North, S = South, E = East, W = West

4.3.2 Visual Simulations

To show anticipated visual changes associated with the proposed Facility, high-resolution computer-enhanced image processing was used to create realistic photographic simulations of the proposed Facility from each of the nine selected viewpoints. The photographic simulations were developed by using Autodesk 3ds Max Design® to create a simulated perspective (camera view) to match the location, bearing, and focal length of each existing conditions photograph. Existing elements in the view (e.g., topography, buildings, roads, and silos) were modeled based on aerial photographs and DEM data in AutoCAD Civil 3D®. A three dimensional (3-D) topographic mesh of the landform (based on DEM data) was then brought into the 3-D model space. At this point minor adjustments were made to camera and target location, focal length, and camera roll to align all modeled elements with the corresponding elements in the photograph. This assures that any elements introduced to the model space (e.g., the proposed PV panels) will be shown in proportion, perspective, and proper relation to the existing landscape elements in the view. Consequently, the alignment, elevations, dimensions and locations of the proposed Facility structures will be accurate and true in their relationship to other landscape elements in the photograph.

Computer models of the proposed panel layout and fence line were prepared based on specifications and data provided by the Applicant. For the purposes of this analysis it was assumed that all PV arrays will be single axis trackers with a maximum height of 11 feet. Using the camera view as guidance, the visible portions of the modeled Facility components were imported to the landscape model space described above, and set at the proper coordinates. Coordinates for proposed Facility components, were provided to EDR by the Applicant.

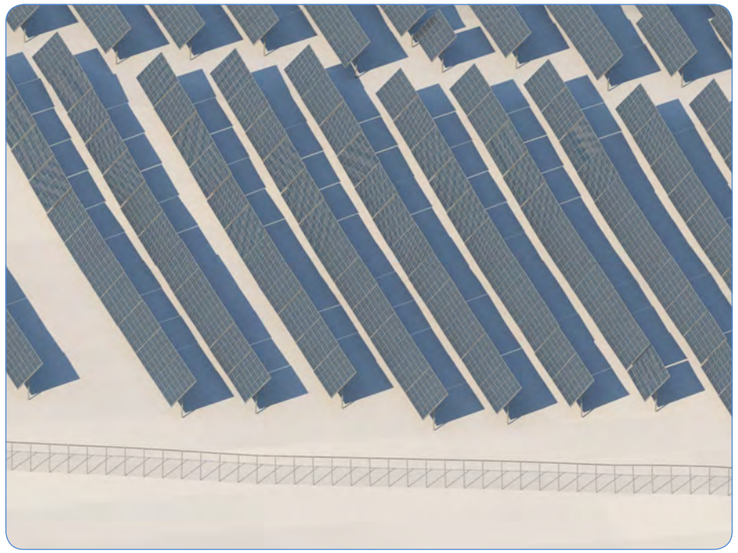
Once the proposed Facility was accurately aligned within the camera view, a lighting system was created based on the actual time, date, and location of the photograph. Using the Mental Ray Rendering System® with Final Gather and Mental Ray Daylight System® within the Autodesk 3ds Max Design® software, light reflection, highlights, color casting, and shadows were accurately rendered on the modeled Facility based on actual environmental conditions represented in the photograph. The rendered Facility was then superimposed over the photograph in Adobe Photoshop® and portions of the Facility components that fall behind vegetation, structures or topography were masked out. Photoshop was also used to take out any existing structures or vegetation proposed to be removed as part of the Facility. Once the solar arrays were added to the photo, any shadows cast on the ground by the proposed structures were also included by rendering a separate "shadow pass" over the DEM model in Autodesk 3ds Max Design® and then overlaying the shadows on the simulated view with the proper fall-off and transparency using Adobe Photoshop®. A graphic illustration of the simulation process is presented in Figure 8.

For each viewpoint that featured a foreground or near-midground view (i.e., where details of the Facility would be apparent to viewers) two versions of each visual simulation were prepared. The first shows the Facility in a newly installed conditions, with the visual mitigation plantings (see Section 4.2) shown at the size that would be expected within a year of being installed. In addition, a second visual simulation was prepared for these viewpoints that shows the planting plan in a mature condition, within approximate 5-7 years following installation of the Facility. These simulations are intended to demonstrate and allow for evaluation of the efficacy of the proposed conceptual planting plan. Simulations showing the newly installed and mature condition are included in Appendix D and discussed in Sections 5.3.1 and 5.3.2 of this report.

Wireframe Renderings

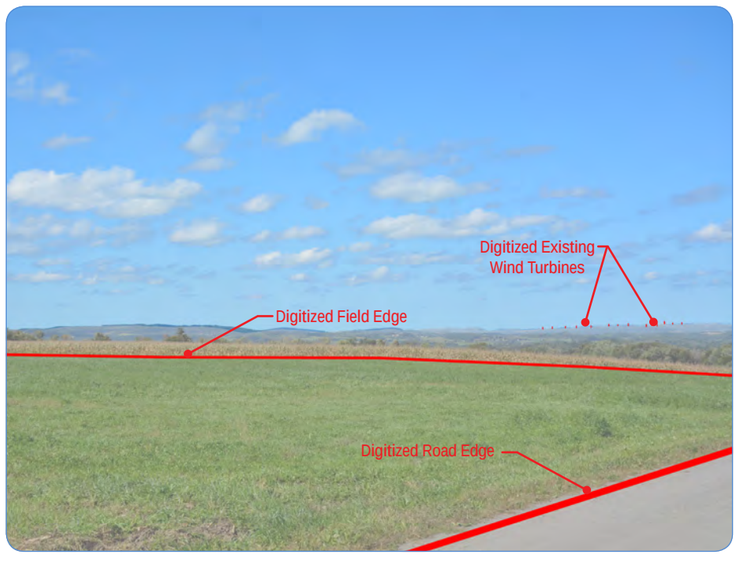
In addition, for selected viewpoints located at background distances from the Facility and/or where the Facility will be largely screened, wireframe renderings were prepared to better illustrate the location of the proposed Facility within the photograph. In these wireframe renderings, the portions of the proposed solar arrays that will be screened by vegetation (or other landscape features) are shown in a bright green color (for illustrative purposes). The wireframe renderings were prepared for the explicit purpose of illustrating the effects of screening and distance. The wireframe renderings are included as insets to support the discussion of potential Facility visibility in Section 5.1.4 of this VIA.

1. Photos are selected to illustrate typical views of the proposed facility that will be available to representative viewer/user groups from the major landscape similarity zones and sensitive sites within the study area.

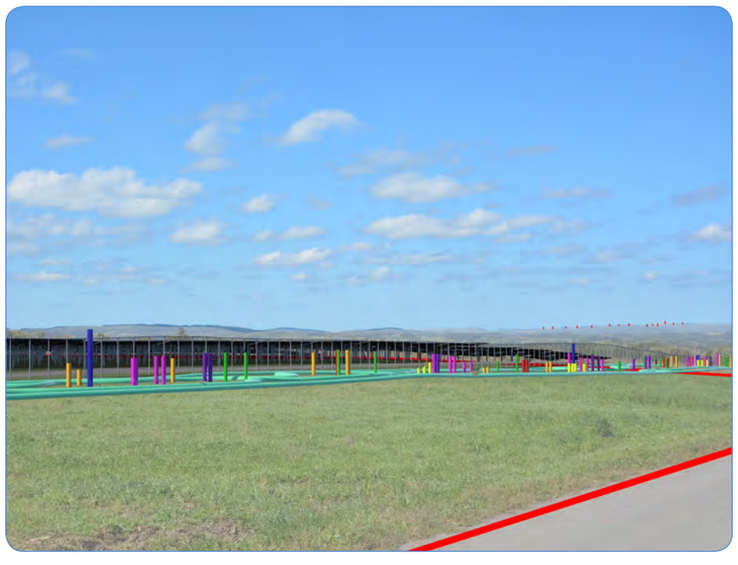


2. A three-dimensional computer model of the facility is built based on proposed specifications of the solar panels, racking and fencing

3. Aerial photographs and GPS data collected in the field are used to create an AutoCAD Civil 3D® drawing.



4. These data are superimposed over photographs from each of the viewpoints, and minor camera changes are made to align all known reference points within the view.



5. View of the three-dimensional computer model made from DEM information and digitized reference points shown within the photograph.

6. The proposed exterior color/finish of the facility components and proposed plantings are then added to the model and the appropriate sun angle is simulated based on the specific date, time and location (latitude and longitude) at which each photo was taken.

Mohawk Solar
Towns of Canajoharie and Minden, Montgomery County, New York
Visual Impact Assessment | Figure 8: Visual Simulation Methodology
Sheet 1 of 1

AVANGRID RENEWABLES

4.3.3 Visual Contrast Rating

To evaluate anticipated visual change associated with installation of the PV panels, the photographic simulations of the completed Facility were compared to photos of existing conditions from each of the nine selected viewpoints. These "before" and "after" photographs, identical in every respect except for the Facility components shown in the simulated views, were provided as 11 x 17 inch color prints to the rating panel, who were then asked to determine the effect of the proposed Facility in terms of its contrast with existing elements of the landscape. The methodology utilized in this evaluation is based on the U.S. Bureau of Land Management (BLM) contrast rating methodology (USDI BLM, 1980), and was developed by EDR in 1999, (and subsequently updated), for use on utility scale renewable energy projects. It involves using a short evaluation form and a simple numerical rating process. This methodology 1) documents the basis for conclusions regarding visual impact, 2) allows for independent review and replication of the evaluation, and 3) allows many viewpoints to be evaluated in a reasonable amount of time. Landscape, viewer, and Facility-related factors considered by the rating panel in their evaluation included the following:

- *Landscape Composition:* The arrangement of objects and voids in the landscape that can be categorized by their spatial arrangement. Basic landscape components include vegetation, landform, water and sky. Some landscape compositions, especially those that are distinctly focal, enclosed, detailed, or feature-oriented, are more vulnerable to modification than panoramic, canopied, or ephemeral landscapes.

- *Form, Line, Color, and Texture*: These are the four major compositional elements that define the perceived visual character of a landscape, as well as a project. Form refers to the shape of an object that appears unified; often defined by edge, outline, and surrounding space. Line refers to the path the eye follows when perceiving abrupt changes in form, color, or texture; usually evident as the edges of shapes or masses in the landscape. Texture in this context refers to the visual surface characteristics of an object. The extent to which form, line, color, and texture of a project are similar to, or contrast with, these same elements in the existing landscape is a primary determinant of visual impact.

- *Focal Point*: Certain natural or man-made landscape features stand out and are particularly noticeable as a result of their physical characteristics. Focal points often contrast with their surroundings in color, form, scale or texture, and therefore tend to draw a viewer's attention. Examples include prominent trees, mountains, and water features. Cultural features, such as a distinctive barn or steeple, can also be focal points. If possible, a proposed project should be sited so as not to obscure or compete with important existing focal points in the landscape.

- *Order*: Natural landscapes have an underlying order determined by natural processes. Cultural landscapes exhibit order by displaying traditional or logical patterns of land use/development. Elements in the landscape that are inconsistent with this natural order may detract from scenic quality. When a new project is introduced to the landscape, intactness and order are maintained through the repetition of the forms, lines, colors, and textures existing in the surrounding built or natural environment.

- *Scenic or Recreational Value*: Designation as a scenic or recreational resource is an indication that there is broad public consensus on the value of that particular resource. The particular characteristics of the resource that contribute to its scenic or recreational value provide guidance in evaluating a project's visual impact on that resource.

- *Duration of View*: Some views are seen as quick glimpses while driving along a roadway or hiking a trail, while others are seen for a more prolonged period of time. Longer duration views of a project, especially from significant aesthetic resources, have the greatest potential for visual impact.

- *Atmospheric Conditions*: This refers to clouds, precipitation, haze, and other ambient air related conditions, which affect the visibility of an object or objects. These conditions can greatly affect the perceived contrast of project components with the landscape, in terms of and the design elements of form, line, color, texture, and scale.

- *Lighting Direction*: Backlighting refers to a viewing situation in which sunlight is coming toward the observer from behind a feature or elements in a scene. Front lighting refers to a situation where the light source is coming from behind the observer and falling directly upon the area being viewed. Side lighting refers to a viewing situation in which sunlight is coming from the side of the observer to a feature or elements in a scene. Lighting direction can have a significant effect on the visibility and contrast of landscape and project elements.

- *Facility Scale*: The apparent size of a proposed project in relation to its surroundings can define the compatibility of its scale within the existing landscaping. Perception of Facility scale is likely to vary depending on the distance from which it is seen and other contextual factors.

- *Spatial Dominance*: The degree to which an object or landscape element occupies space in a landscape, and thus dominates landscape composition from a particular viewpoint.

- *Visual Clutter*: Numerous unrelated built elements occurring within a view can create visual clutter, which adversely impacts scenic quality.

5.0 Results

5.1 Facility Visibility

5.1.1 PV Panel Viewshed

Potential PV panel visibility, as indicated by viewshed analysis, is illustrated in Figure 9 and summarized in Table 5. Based on the screening provided by topography alone, the viewshed analysis indicates some portion of the proposed PV arrays could potentially be visible in approximately 58.1% of the visual study area (Figure 9, Sheet 1; Table 5). This "worst case" assessment of potential visibility indicates the area where any portion of any PV panel could potentially be seen, without considering the screening effect of existing vegetation and structures. It is therefore better at predicting where views of the Facility will not be available. Areas where there is no possibility of seeing the proposed solar arrays include locations on hillsides oriented away from the Facility Site and in the wide rural valleys associated with small streams and creeks. These screened areas are concentrated in the southwestern portion of the visual study area around Canajoharie Creek and Bowmans Creek. The valley associated with the Mohawk River (Section 3.3.3 Mohawk Valley LSZ) is largely screened from view of the PV panels by topography alone, but areas of Facility visibility do exist in a few locations within the river valley such as north of State Route 5 in the eastern portion of the visual study area, between the Villages of Palatine Bridge and Nelliston, and southwest of State Route 5S in the northern portion of the visual study area.

The topographic viewshed analysis indicates that 85 inventoried VSRs will receive some level of topographic screening (see Appendix C). Of those 85 VSRs, topography will fully screen potential views of the Facility from 11 individual resources. VSRs that will be fully screened from view by topography alone include four NRHP-listed sites, the Nelliston NYSDEC boat launch, two water resources (Bowmans Creek and Mill Creek), the Hamlet of Salt Springville, one public school (Sharon Springs Central School), and two Amish schoolhouses.

Table 5. Summary of PV Panel Viewshed Results

	Potential Visibility in Visual Study Area[1]									
PV Panel Visibility	Visual Study Area		Foreground		Middle Ground				Background	
	5 miles		*0.0 - 0.5 Miles*		*0.5 - 1.5 Miles*		*1.5- 4.0 Miles*		*4.0 - 5.0 Miles*	
	Sq. Mi.	*%*	*Sq. Mi.*	*%*	*Sq. Mi.*	*%*	*Sq. Mi.*	*%*	*Sq. Mi.*	*%*
Topography Only (DTM)	81.3	100	12.1	14.9%	7.3	9.0%	41.0	50.4%	21.0	25.8%
Topography Vegetation and Structures (DSM)	17.5	100	5.1	29.1%	0.5	2.9%	7.6	43.4%	4.4	25.1%

[1]The 5-mile visual study area includes approximately 140.0 square miles, or approximately 89,590 acres.

Factoring vegetation into the viewshed analysis significantly reduces potential PV panel visibility throughout the visual study area (Figure 9, Sheet 2; Table 5). Vegetation and structures, in combination with topography, will serve to block views of the solar arrays from approximately 87.5% of the visual study area (i.e., 12.5% of the visual study area is indicated as having potential visibility). Based on the results of the viewshed analysis, visibility will generally be most available in open agricultural areas within 0.5-mile of the PV panels. These areas of visibility are concentrated in the open fields within and adjacent to the Facility Site. Beyond 1 mile, woodlots and hedgerows serve to interrupt the areas of potential visibility. Actual Facility visibility in these areas may be more limited than indicated by the vegetation viewshed analysis due to the low profile of the PV panels and the effects of distance. However, some areas of the Facility predicted as being screened by wooded hedgerows may have some degree of Facility visibility depending on the density of the vegetation and the time of year (i.e. leaf-on vs. leaf-off conditions).

The viewshed analysis indicates that areas of more distant visibility are concentrated in the northern portion of the visual study area, both north and south of the Interstate 90 corridor, between 2.5 and 4.5 miles from the Facility. Views of the Facility may be available north of the Mohawk Valley in the area of Stone Arabia. Although the viewshed analysis indicates areas of visibility from this area, as further described below in Section 5.3 of this report, the distance across the Mohawk Valley will help to minimize the actual perceived visibility from these distances. Minimal visibility is predicted throughout the villages and hamlets within the visual study area, including the Villages of Fort Plain, Nelliston, Palatine Bridge, Canajoharie, Ames, and Sharon Springs, and from the hamlet of Sprakers. In these areas, outward views toward the Facility are likely screened by intervening tracts of vegetation between the Facility and the population centers, as well as dense clusters of man-made elements within the villages themselves. Potential visibility of the Facility from other VSRs within the visual study area is summarized in Appendix C and described further below in Section 5.2.

Potential solar panel viewshed visibility is based on the screening effects of topography as represented in the FEMA 2007 and USGS 2014 lidar-derived DEM datasets (resampled to 2 meter resolution). Screening effects of buildings, trees or other factors are not accounted for. Sample points representing solar panels were placed throughout the proposed array in a grid pattern with a spacing of 200 feet as a basis for this analysis. Viewshed Analysis based on maximum solar panel height of 3.35 meters (11 feet).

Mohawk Solar

Towns of Canajoharie and Minden, Montgomery County, New York

Visual Impact Assessment

Figure 9: Panel Viewshed Analysis

Sheet 1: PV Panel Visibility Based on Topography Only

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service. 2. This map was generated in ArcMap by Environmental Design and Research on May 15, 2019. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Proposed Facility

- Visual Study Area
- Facility Site

Potential Visibility

- More Panels Potentially Visible
- Fewer Panels Potentially Visible

Distance Zones

- 0.0 to 0.5 Mile Foreground Distance Zone
- 0.5 to 1.5 Mile Near Middle Ground Distance Zone
- 1.5 to 4.0 Mile Middle Ground Distance Zone
- 4.0 to 5.0 Mile Background Distance Zone

Civil Boundaries

- City/Village Boundary
- Town Boundary
- County Boundary

AVANGRID RENEWABLES

Potential solar panel viewshed visibility is based on the screening effects of topography, vegetation, and man-made structures as represented in the FEMA 2007 and USGS 2014 lidar datasets (resampled to 2 meter resolution). Sample points representing solar panels were placed throughout the proposed array in a grid pattern with a spacing of 200 feet as a basis for this analysis. Viewshed Analysis based on maximum solar panel height of 3.35 meters (11 feet).

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Figure 9: Panel Viewshed Analysis

Sheet 2: PV Panel Visibility Based on Topography, Vegetation, and Structures

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service. 2. This map was generated in ArcMap by Environmental Design and Research on May 15, 2019. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Proposed Facility
- Visual Study Area
- Facility Site

Potential Visibility
- More Panels Potentially Visible
- Fewer Panels Potentially Visible

Distance Zones
- 0.0 to 0.5 Mile Foreground Distance Zone
- 0.5 to 1.5 Mile Near Middle Ground Distance Zone
- 1.5 to 4.0 Mile Middle Ground Distance Zone
- 4.0 to 5.0 Mile Background Distance Zone

Civil Boundaries
- City/Village Boundary
- Town Boundary
- County Boundary

AVANGRID RENEWABLES

Potential Facility visibility within the various LSZs is summarized in Table 6 and discussed below:

Table 6. Summary of PV Panel Viewshed Results by Landscape Similarity Zone

	Viewshed Results by Landscape Similarity Zone Area in Visual Study Area[1] (Sq. Mi. and % of LSZ with Potential Facility Visibility)									
PV Panel Visibility	Forest		Rural Uplands		Village		Transportation Corridor		Mohawk Valley	
	Sq. Mi.	*%*	*Sq. Mi.*	*%*	*Sq. Mi.*	*%*	*Sq. Mi.*	*%*	*Sq. Mi.*	*%*
Topography Only (DTM)	16.5	56.3%	54.9	60.7%	2.4	42.9%	0.5	26.3%	6.9	53.9%
Topography Vegetation and Structures (DSM)	0.5	1.7%	15.3	16.9%	0.1	1.8%	<0.1	1.6%	1.7	13.3%

[1]The 5-mile visual study area includes approximately 140.0 square miles, or approximately 89,590 acres.

- The greatest potential for visibility of the proposed Facility is indicated within the Rural Uplands LSZ. The DSM viewshed indicates that 16.9% of this LSZ could potentially offer views of the Facility. Portions of this LSZ that are screened from view include the regions surrounding Canajoharie Creek and Bowman's Creek and their associated valleys, as well as areas screened by adjacent forestland. In general, visibility within this LSZ is most heavily concentrated in proximity to the proposed Facility and in the background distance zone from the Facility. The viewshed analysis also predicted potential views of the Facility in the northeastern portion of the visual study area across the Mohawk Valley.
- The potential for Facility visibility is indicated in approximately 13.3% of the Mohawk Valley LSZ. The portions of this LSZ that may have views of the proposed Facility include the outer (higher elevation) portions of the LSZ, including areas north-northeast of the Villages of Fort Plain and Nelliston. The Mohawk River itself is completely screened from view, along with the southeastern portion of the Mohawk Valley LSZ, with potential views from this LSZ primarily limited to the northeastern portion of the valley outside of the village areas.
- The LSZs with the least amount of potential Facility visibility are Transportation Corridor, Forest, and Village. The proposed Facility may be visible from approximately 1.6% of the Transportation Corridor LSZ. This LSZ includes the corridors of Interstate 90 and Route 20 Scenic Byway, which are located 1.2 and 4.2 miles from a proposed PV panel at their nearest points, respectively. Throughout much of the LSZ, intervening topography and vegetation effectively screen outward views. The viewshed analysis indicates that potential Facility visibility will primarily be limited to a small stretch in the northern portion of Interstate 90 west of the Village of Fort Plain and the central portion of U.S. Highway 20 in the area of the Tepee.
- The potential for Facility visibility is indicated in approximately 1.7% of the areas mapped as being within the Forest LSZ. Forested areas offer essentially no outward views due to the screening effects of the forest canopy. However, small portions of the Forest LSZ may offer limited outward views due to categorization errors by the USGS when classifying land-cover as Forested with a 30-meter x 30-meter cell resolution, especially at the edges of forested

areas or along hedgerows. Additionally, these digital data do not recognize small clearings or other breaks in the vegetation that may allow for occasional outward views from forest areas. However, the occurrence of these areas is generally limited, and there will be little to no Facility visibility from forested areas, especially during the growing season.

- Viewshed results indicate 1.8% of the more populated portions of the visual study area that make up the Village LSZ offer potential Facility visibility. Portions of this LSZ that are fully screened from view include the Villages of Canajoharie and Ames. The small areas within villages where viewshed analysis indicates potential visibility are concentrated in the Villages of Fort Plain, Nelliston, and Palatine Bridge. However, visibility in these areas is primarily limited to the outskirts of the village areas and does not extend into downtown areas. In the Village of Sharon Springs, visibility is limited to the outskirts of the village.

5.1.2 Above-Ground Interconnection Facilities Viewshed

Potential visibility of the Facility's above-ground interconnection facilities (including the collection substation, POI switchyard, and an overhead transmission, or gen-tie, line), as indicated by the topographic viewshed analysis, is illustrated in Figure 10, Sheet 1 and summarized in Table 7, below. This analysis, based on the tallest proposed structures and topography alone, indicates that these components of the facility will be fully screened from 72.2% of the visual study area. Visibility is effectively eliminated within the Mohawk River valley and surrounding area. Similarly, the areas surrounding Otsquago Creek, Bowman's Creek, and the western portion of Canajoharie Creek are not predicted to have visibility of the substation based on topography alone. The largest area of potential visibility extends from the proposed substation location between the northern portion of Canajoharie Creek and Flat Creek.

When vegetation is factored into the analysis, potential visibility of the above-ground interconnection facilities is reduced to approximately 5.6% of the visual study area (Figure 10, Sheet 2; Table 7). Views from the remaining 94.5% of the study area are screened by the combination of topography structures, and forest vegetation. Remaining areas of potential visibility include the area immediately adjacent to the proposed stations, elevated areas surrounding U.S. Highway 20, and the region north of the Village of Palatine Bridge. Visibility of the substations and gen-tie poles is effectively limited to the eastern portion of the visual study area, except for some hilltops along the southwestern border of the visual study area.

Table 7. Summary of Substation Viewshed Results

Substation Visibility	Potential Visibility in Square Miles and Percent of Visual Study Area[1]									
	Visual Study Area		Foreground		Middle Ground				Background	
	5 miles		*0.0 - 0.5 Miles*		*0.5 - 1.5 Miles*		*1.5- 4.0 Miles*		*4.0 - 5.0 Miles*	
	Sq. Mi.	*%*	*Sq. Mi.*	*%*	*Sq. Mi.*	*%*	*Sq. Mi.*	*%*	*Sq. Mi.*	*%*
Topography Only (DTM)	38.9	100	6	15.4	2.6	6.7	17.9	46.0	12.4	31.9
Topography Vegetation and Structures (DSM)	4.1	100	1.0	24.4	0.1	2.4	1.6	39.0	1.4	34.1

[1]The 5-mile visual study area includes approximately 140.0 square miles, or approximately 89,590 acres.

Potential substation and/or gen-tie pole visibility is based on the screening effects of topography as represented in the FEMA 2007 and USGS 2014 lidar-derived DEM datasets (resampled to 2 meter resolution). Screening effects of buildings, trees or other factors are not accounted for. Sample points representing maximum height of substation equipment were placed on at each corner of the substation/switchyard footprints. Sample points representing gen-tie poles were placed at each proposed gen-tie pole location. Viewshed Analysis based on maximum substation and gen-tie pole height of 19.8 meters (65 feet).

Substation Area Detail Inset

See Inset

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Figure 10: Above-Ground Interconnection Facilities Viewshed Analysis

Sheet 1: Substation and Gen-Tie Pole Visibility Based on Topography Only

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service. 2. This map was generated in ArcMap by Environmental Design and Research on May 15, 2019. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Proposed Above-Ground Electrical Components

- Gen-Tie Poles
- Collection Substation
- POI Switchyard
- Visual Study Area
- Facility Site

Potential Visibility

- Components Potentially Visible

Distance Zones

- 0.0 to 0.5 Mile Foreground Distance Zone
- 0.5 to 1.5 Mile Near Middle Ground Distance Zone
- 1.5 to 4.0 Mile Middle Ground Distance Zone
- 4.0 to 5.0 Mile Background Distance Zone

Civil Boundaries

- City/Village Boundary
- Town Boundary
- County Boundary

AVANGRID RENEWABLES

Potential substation and/or gen-tie pole visibility is based on the screening effects of topography, vegetation, and man-made structures as represented in the FEMA 2007 and USGS 2014 lidar datasets (resampled to 2 meter resolution). Sample points representing maximum height of substation equipment were placed on at each corner of the substation/switchyard footprints. Sample points representing gen-tie poles were placed at each proposed gen-tie pole location. Viewshed Analysis based on maximum substation and gen-tie pole height of 19.8 meters (65 feet).

Substation Area Detail Inset

See Inset

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Figure 10: Above-Ground Interconnection Facilities Viewshed Analysis

Sheet 2: Substation and Gen-Tie Pole Visibility Based on Topography, Vegetation, and Structures

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service. 2. This map was generated in ArcMap by Environmental Design and Research on May 15, 2019. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Proposed Above-Ground Electrical Components

- Gen-Tie Poles
- Collection Substation
- POI Switchyard
- Visual Study Area
- Facility Site

Potential Visibility

- Components Potentially Visible

Distance Zones

- 0.0 to 0.5 Mile Foreground Distance Zone
- 0.5 to 1.5 Mile Near Middle Ground Distance Zone
- 1.5 to 4.0 Mile Middle Ground Distance Zone
- 4.0 to 5.0 Mile Background Distance Zone

Civil Boundaries

- City/Village Boundary
- Town Boundary
- County Boundary

AVANGRID RENEWABLES

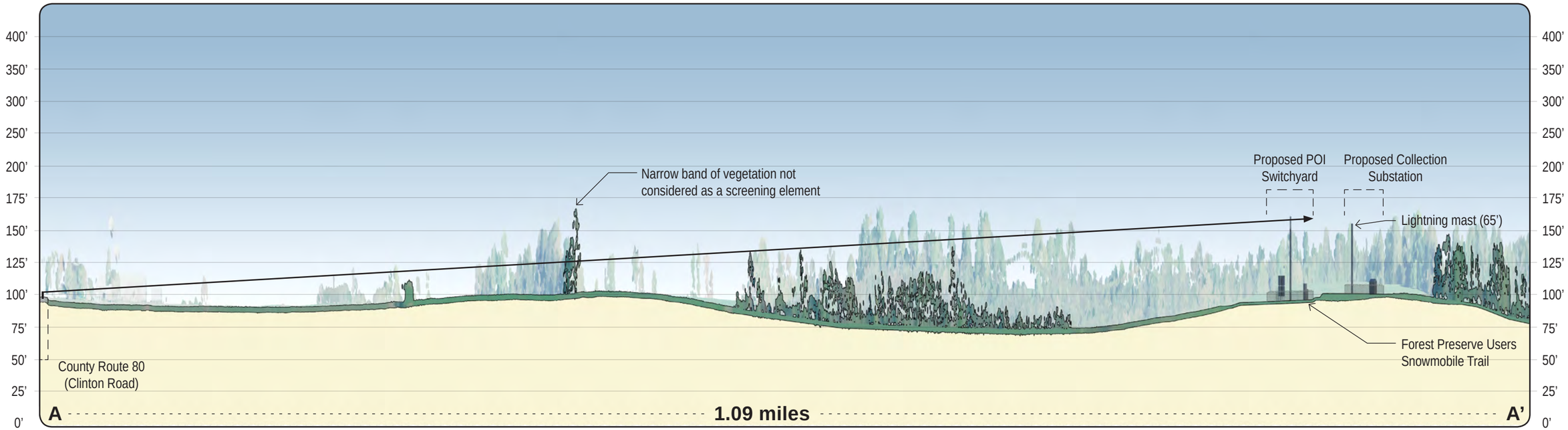
5.1.3 Line of Sight Cross Sections

Line of sight (LOS) cross sections provide a "cut" through the landscape and allow analysis of the screening effects of elements in the landscape, including topography, vegetation, and structures. One cross section analysis was completed to determine visibility and screening of the proposed substation facilities. The result of this analysis is provided below and shown on Figure 11.

Section A-A' – County Route 80 (Clinton Road)

Section A-A' runs 1.09 miles from County Route 80 (Clinton Road) to an agricultural field past the proposed substation location. The cross section begins at an elevation of approximately 100 feet and continues southwest through a rural region. This region consists of relatively flat terrain covered in a matrix of agricultural fields broken up by the occasional woodlot. Hedgerows intermittently interrupt the view, but these narrow bands of vegetation do not provide significant screening. While the foreground of this section is dominated by open fields, an intervening stand of mature forest in the middle ground effectively blocks views of more distant features. The gently rolling terrain slightly dips down in this forested region, which may allow for views of the tallest Facility components, the 65-foot substation lightning masts, to be seen just above or through the tops of the tree canopy. Intervening vegetation, such as hedgerows and woodlots, interrupts the views available from the adjacent agricultural fields. As a result, only the taller components of the substation are anticipated to be potentially visible above the intervening vegetation. Although these lightning masts may be visible, given their narrow profile and the effect of distance (the substation site is located approximately 0.4-mile from the nearest roadway), it is not anticipated that the structures would attract viewer attention.

Above-ground Interconnection Facilities Line-of-Sight A - A' County Route 80 (Clinton Road)



Substation line-of-sight based on lidar data. Vertical scale includes a 5x exaggeration.

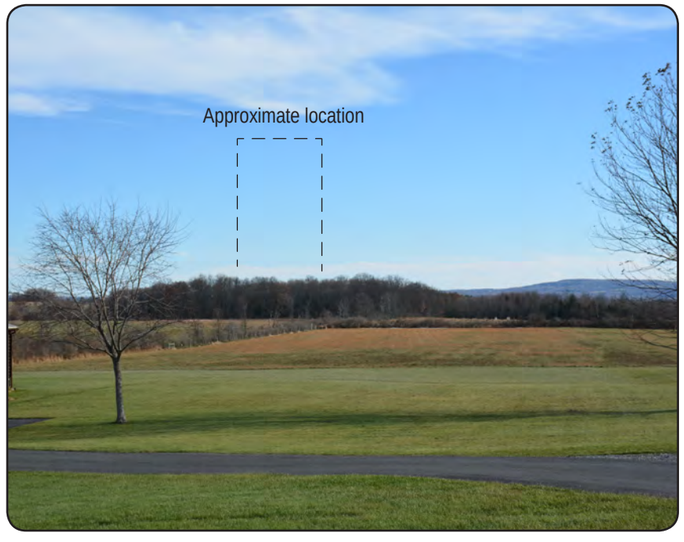


Photo 1. View southeast towards the above-ground interconnection facilities from County Route 80 (Clinton Road), Viewpoint 117.

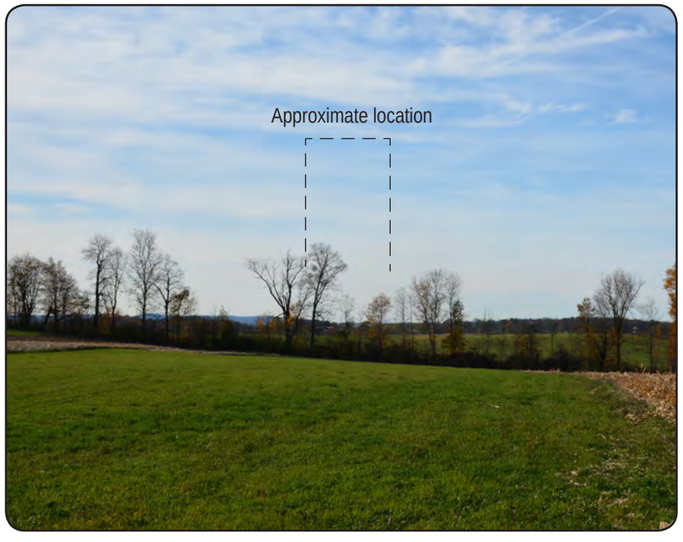
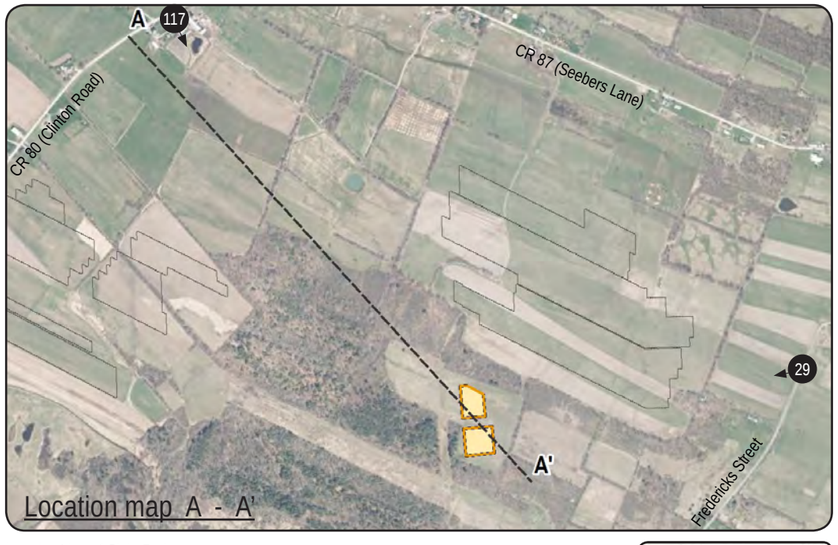


Photo 2. View southwest towards the above-ground interconnection facilities from Frederick Street, Viewpoint 29.



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Visual Impact Assessment | Figure 11: Above-ground Interconnection Facilities Line-of-Sight from County Route 80 (Clinton Road)

5.1.4 Field Evaluation

As noted in Section 4.1.2, field review for the visual study area was conducted on multiple dates from October 2017 through February 2019 and resulted in photographic documentation from a combined 177 representative viewpoints (see Figure 12). A representative photograph documenting the general view toward the Facility Site from each viewpoint is included in the photolog in Appendix B.

During the field review, a total of 47 VSRs (including 34 with potential visibility as predicted by viewshed analyses) were visited, photographed, and evaluated as part of the review of the visual study area. Contextual photos documenting the various LSZs, existing conditions, landscape character, and community vernacular were taken from 130 additional locations throughout the visual study area.

The introduction of lidar data to the viewshed analysis results in very accurate viewshed data and facilitates the identification of locations that require field verification. However, as noted previously, due to the precision of the lidar data, overhead utility lines and narrow hedgerows were interpreted by the viewshed analysis as screening elements. However, in the field it was observed that visibility, although at times partially screened, was readily available through these features (e.g. along Nestle Road in the Town of Canajoharie). As a result, the road ROW clearing utilized during viewshed analyses was offset to exclude these features from the analyses (see Section 4.1.1). This iterative approach between visual impact analysis and field review provides for an accurate analysis of potential Facility visibility.

Field review confirmed that Facility visibility is likely to be more limited than suggested by viewshed mapping due to the role that distance plays in a viewer's ability to discern Facility components within the landscape, as further described below.

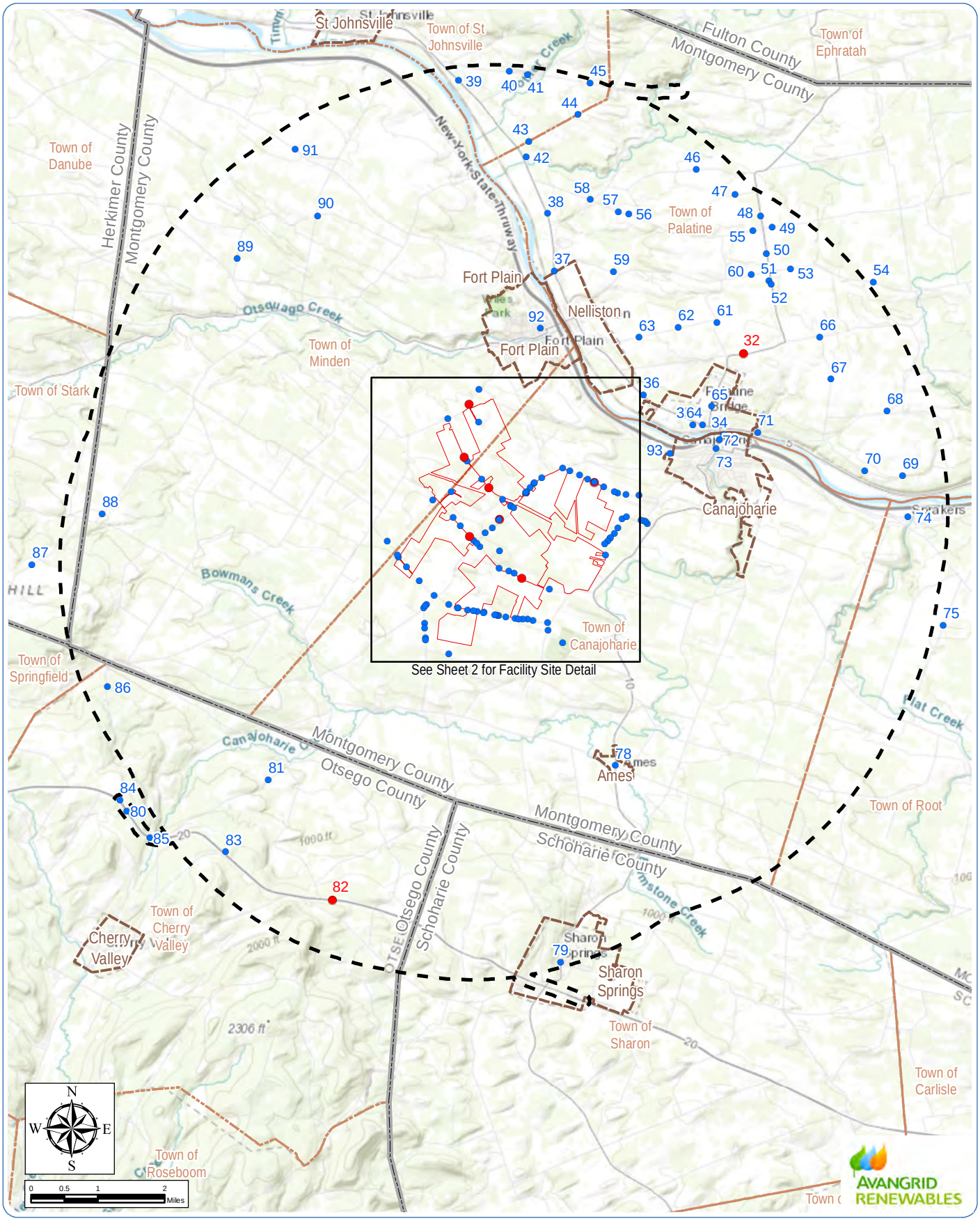

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Figure 12: Viewpoint Locations

Sheet 1: Visual Study Area

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service. 2. This map was generated in ArcMap by Environmental Design and Research on May 15, 2019. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Viewpoint Locations

- Simulation Viewpoint Location
- Viewpoint

Proposed Facility

- Visual Study Area
- Facility Site

Civil Boundaries

- City/Village Boundary
- Town Boundary
- County Boundary

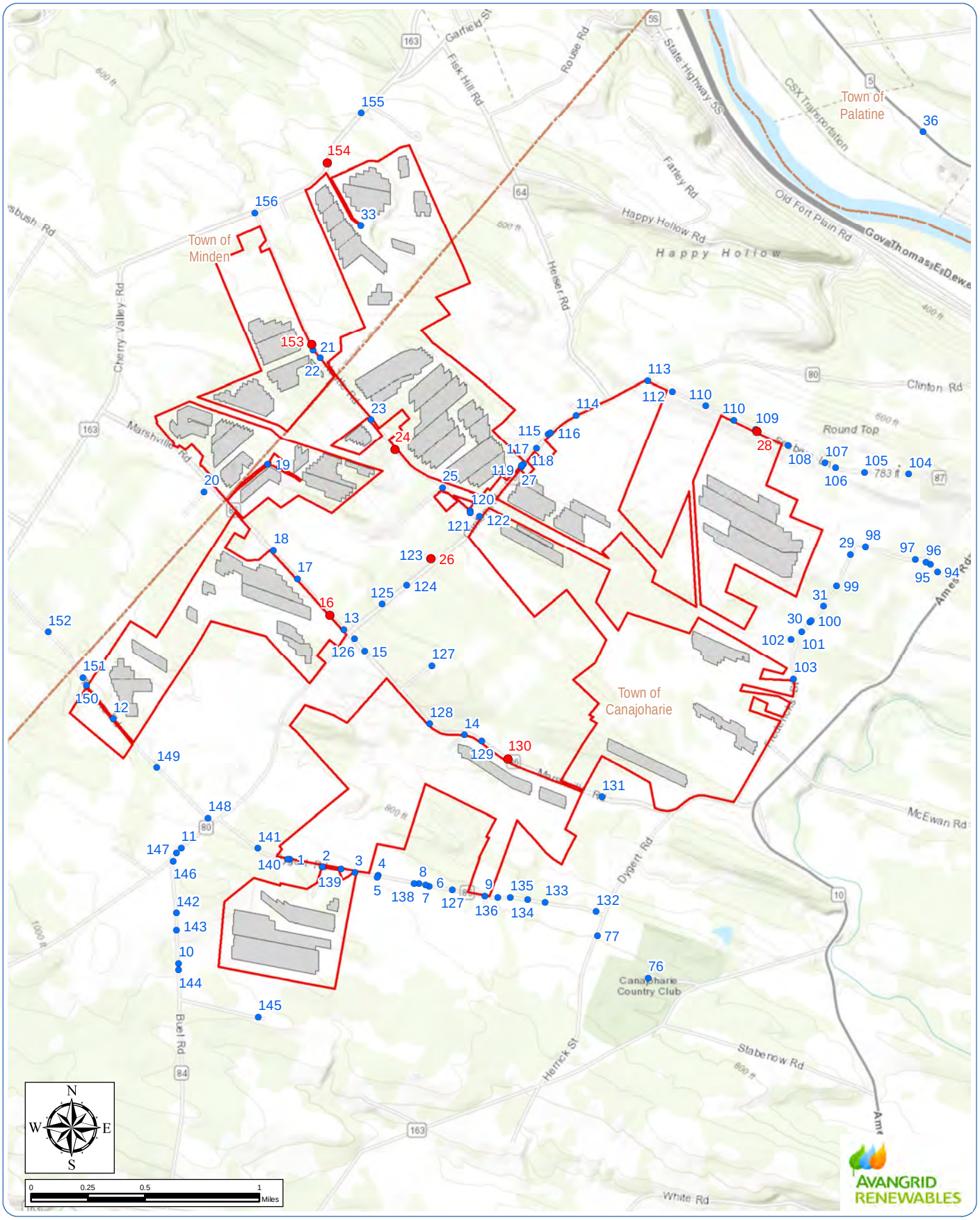

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Figure 12: Viewpoint Locations

Sheet 2: Facility Site

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service. 2. This map was generated in ArcMap by Environmental Design and Research on May 15, 2019. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Viewpoint Locations

- Simulation Viewpoint Location
- Viewpoint

Proposed Facility

- PV Panel Array
- Facility Site

Civil Boundaries

- Town Boundary

AVANGRID RENEWABLES

Inset 5.01: View looking south/southwest from Palatine Church Road North in the Town of Palatine. Note how the patchwork of fields, hedgerows, forest plots and structures combine to make the identification or individual areas difficult (Viewpoint 44).

The results of EDR's field review organized according to Landscape Similarity Zone are summarized below.

Rural Uplands LSZ

The Facility Site and surrounding areas (but for a few forested areas) are for the most part located within Rural Uplands LSZ. Areas within this LSZ generally offer the greatest opportunity for views of the Facility within the visual study area. Photographs of typical views from the Rural Uplands LSZ are included in Section 3.3.1. The Rural Uplands LSZ offers an abundance of foreground views from adjacent roadsides which allow for unimpeded, open views of the landscape. Middle ground views of the Facility Site are less abundant due to the pattern of topography and woody vegetation. While views of the Facility Site are not readily available in the near middle ground (0.5 to 1.5 miles), visibility increases in the far middle ground (1.5 to 4.0 miles), where higher elevation vantage points are more common. Higher elevations minimize the screening effects of intervening topography and often offer open, long distance views toward the Facility Site within this LSZ. Additionally, the open and agricultural character of the landscape within most of this zone limits the amount of screening offered by surrounding vegetation. A wireframe rendering of the simulation from New York State Route 10, Palatine, Viewpoint 32 was created to demonstrate the lack of visibility of the Facility Site from middle ground and further distances (see Inset 5.02).

Inset 5.02 Wireframe rendering from State Route 10 (Ephratah Road) in the Town of Palatine. The bright green denotes areas of the Facility Site, without the screening effects of topography, vegetation and structures, showing the whole extent of the project.

Throughout the Rural Upland LSZ, it was observed that hedgerows and successional fields interspersed between agricultural fields are a major component of the visual landscape. These areas are characterized by generally low, patchy native vegetation less than 20 feet in height. The majority of this vegetation is comprised of successional shrubland and woody wetlands, but these areas also include successional old fields, emergent wetlands, and occasional larger trees. These areas contribute to the mosaic patchwork pattern of the landscape.

This LSZ has relatively few VSRs due to the low density of human settlement/development. VSRs within this LSZ are primarily limited to trails, historic farmsteads, and schoolhouses. Portions of the Forest Preserve Users, Sharon Pathfinders, and Herkimer Co. Trail and Trade Association Snowmobile Trails cross open areas and follow local roadways within the Rural Uplands LSZ. These trails offer foreground, middle ground, and background views toward the proposed Facility. Other VSRs located within this zone include the NRHP-listed John Smith Farm (11NR06276), Canajoharie Country Club, and numerous Amish School Houses.

Field review of the State Route 80 (Cooperstown Road) corridor, along which the John Smith Farm is located, showed that views of the Facility from the roadway will be very limited due to the concentration of structures along the corridor and the ravine-like nature of the topography around County Route 73 (Brookmans Corners Road). Visibility from the John Smith Farm will be limited to portions of the back fields that are more elevated than the farmstead itself.

Visibility of the Facility Site from the Canajoharie Country Club will be limited to specific areas on the golf course. Most views from this area, including from the Club House and adjacent holes, will be at least partially screened by existing vegetation, and only small portions of the PV arrays will be visible (see Viewpoints 76 & 77).

Four Amish School Houses were identified during field reconnaissance and added to the master list of VSRs. Of these properties, the schoolhouse located on Nestle Road at the border of the Town of Minden and Town of Canajoharie will have open foreground views of the Facility Site (see Viewpoints 21, 142, & 153). The other Amish schools are not anticipated to have visibility of the Facility.

Forest LSZ

Field review confirmed that actual visibility of the Facility from the Forest LSZ is very limited. Photographs of typical views from the Forest LSZ are included in Section 3.3.2. Even under leaf-off conditions, the density of mature trees in forest stands and woodlots block nearly all outward views toward the Facility Site. VSRs located within this LSZ are rare and often portions of linear features (such as trails) or large areas (such as scenic or heritage areas) that are in multiple LSZs. These include portions of the Revolutionary Trail Scenic Byway, Erie Canalway National Heritage Corridor, Mohawk Valley Heritage Corridor, and portions of the Caroga and Mother Creeks. Field review confirmed minimal to no Facility visibility from these VSRs (see Viewpoints 6, 58, 86, 127, & 131).

Mohawk Valley LSZ

The Mohawk Valley LSZ highlights the landscape characteristics and local vernacular that make this region visually unique. Two general types of open views were present and noted while traversing this LSZ. These were immediate foreground views of adjacent fields and farmsteads, and far middle ground and background views across and down the valley. Views towards the Facility Site are rare within this LSZ and available where the elevation begins to raise along the valley walls.

This LSZ contains VSRs of state and national importance, such as the NRHP-listed Daniel G. Van Wie Farmstead, portions of the Mohawk Valley Heritage and Erie Canalway National Heritage Corridors, the Revolutionary Trail Scenic Byway, the Canalway Trail and Water Trail, the Mohawk River/Erie Canal and State Bike Route 5. Most of these VSRs are linear features that cover broad geographic areas, along with the vistas and views associated with the valley. Any visibility of the Facility Site from these VSRs will be fleeting and through gaps in the surrounding vegetation and structures. Where open views are available, the Facility will be viewed at distances over 2-miles and not anticipated to be prominent features in the view.

Village LSZ

Visibility of the Facility from the Village LSZ was confirmed by field review to be variable. Photographs of typical views from this LSZ are included in Section 3.3.4. In villages predicted by the viewshed analysis to have potential visibility of the Facility, such as the Villages of Fort Plain, Palatine Bridge, Nelliston and Sharon Springs, commercial structures, residential buildings and street and yard plantings effectively screen outward views. In these areas, views of the Facility will generally be reduced to glimpses of partially screened PV panels between buildings and vegetation, except in areas where the PV panels are located on a ridge or in an open agricultural area directly adjacent to the village. Areas with the greatest opportunity for open views of the Facility are generally located on the Village outskirts, or where relatively large, open areas (e.g., parks, ponds, school grounds, and athletic fields) occur within a village.

Appendix B includes representative views from the Villages of Fort Plain (Viewpoint 92), Canajoharie (Viewpoints 34, 72, 73, & 93), Palatine Bridge (Viewpoints 35, 64, & 65), Nelliston (Viewpoint 37), Ames (Viewpoint 78), Sharon Springs (Viewpoint 79), and the Hamlet of Sprakers (Viewpoint 74).

Most of the NRHP-listed and eligible properties and districts identified in the visual study area are located within the Village LSZ. Views available from these sensitive resources will depend on their location and the degree of foreground screening. As observed during field review, views from areas of concentrated development will be partially screened or include only a limited number of PV panels (e.g., narrow views available between nearby structures or through gaps in vegetation), while open views are more likely from historic sites on the periphery of the village areas.

Transportation Corridor LSZ

Field review revealed that potential Facility visibility from the Transportation Corridor LSZ will be minimal along the Interstate 90 corridor, and relegated to a few distant, open vistas along U.S. Highway 20. No foreground views of the Facility are available from this LSZ. Due to their length, these highways run through a variety of landscapes, from areas of concentrated settlement, to rural valleys and uplands, to forested areas. Photographs of typical views from the Transportation Corridor LSZ are included in Section 3.3.5. Visibility of the proposed PV panels from visually sensitive resources along the transportation corridors will be variable due to the fleeting nature of the viewer experience within this LSZ as well as the variation in the surrounding landscape. For example, there are no scenic overlooks or rest areas located on the stretch of Interstate 90 through the visual study area, but background views of the Facility will be available from U.S Highway 20 at the NRHP-listed site, the Tepee. Additionally, a small portion of the Lindesay Patent Rural Historic District is located within the Transportation Corridor LSZ along Route 20 Scenic Byway. Visibility from this section of road as well as the east and west bound Cherry Valley parking areas are partially screened by intervening topography and vegetation.

Inset 5.03 Wireframe rendering from U.S. Highway 20 (Route 20 Scenic Byway) in the Town of Cherry Valley. The bright green denotes areas of the Facility Site, without the screening effects of topography, vegetation and structures.

A wireframe rendering of the proposed Facility from U.S. Highway 20 (Viewpoint 82; see Inset 5.03) was created to demonstrate the difficulty a viewer will have discerning the Facility from background distances.

5.2 Visually Sensitive Resources

A total of 116 VSRs were identified within the visual study area, with 66 of those showing potential Facility visibility according to the viewshed analysis. Results of this analysis are presented in Table 8, followed by a brief description of the VSRs that could potentially have views of the proposed Facility.

Table 8. Total Visually Sensitive Resources with Visibility

Visually Sensitive Resources	Total Number of Resources within the Visual Study Area	Total Number of Resources with Visibility
Properties of Historic Significance [6 NYCRR 617.4 (b)(9)]	Total 61	Total 36
National Historic Landmarks (NHL)	2	0
Properties Listed on National or State Registers of Historic Places (NRHP/SRHP)	31	11
Properties Eligible for Listing on NRHP or SRHP	28	25
National/State Historic Sites	0	0
Designated Scenic Resources	Total 2	Total 2
Rivers Designated as National or State Wild, Scenic or Recreational	0	0
Adirondack Park Scenic Vistas [Adirondack Park Land Use and Development Map]	0	0

Visually Sensitive Resources	Total Number of Resources within the Visual Study Area	Total Number of Resources with Visibility
Properties of Historic Significance [6 NYCRR 617.4 (b)(9)]	Total 61	Total 36
Sites, Areas, Lakes, Reservoirs or Highways Designated or Eligible for Designation as Scenic ([ECL Article 49Title 1] or equivalent)	2	2
Scenic Areas of Statewide Significance [Article 42 of Executive Law]	0	0
Other Designated Scenic Resources (Easements, Roads, Districts, and Overlooks)	0	0
Public Lands and Recreational Resources	Total 27	Total 12
National Parks, Recreation Areas, Seashores, and/or Forests [16 U.S.C. 1c]	0	0
National Natural Landmarks [36 CFR Part 62]	0	0
National Wildlife Refuges [16 U.S.C. 668dd]	0	2
Heritage Areas [Parks, Recreation and Historic Preservation Law Section 35.15]	2	0
State Parks [Parks, Recreation and Historic Preservation Law Section 3.09]	0	0
State Nature and Historic Preserve Areas [Section 4 of Article XIV of the State Constitution]	0	0
State Forest Preserves [NYS Constitution Article XIV]	0	0
Other State Lands	0	0
Wildlife Management Areas & Game Refuges	0	0
State Forests	0	0
State Boat Launches/Waterway Access Sites	1	0
Designated Trails	7	4
Palisades Park [Palisades Interstate Park Commission]	0	0
Local Parks and Recreation Areas	7	2
Publicly Accessible Conservation Lands/Easements	0	0
Rivers and Streams with Public Fishing Rights Easements	0	0
Named Lakes, Ponds, and Reservoirs	10	4
High-Use Public Areas	Total 25	Total 16
State, US, and Interstate Highways	9	9
Cities, Villages, Hamlets	8	3
Schools	8	4
Resources Identified by Stakeholders	Total 0	Total 0
Total Number of Visually Sensitive Resources in the Visual Study Area	115	66

5.2.1 Properties of Historic Significance

EDR reviewed the NRHP website, the NYSOPRHP Cultural Resources Information System (CRIS) website, and the NYSOPRHP shapefile for buildings, structures, sites and historic districts listed in the NRHP to identify significant historic

buildings and/or districts located within 5 miles of the Facility Site (National Park Service [NPS], 2018a; NRHP, 2018a, 2018b; NYSHPO, 2018).

The Facility's visual study area includes 61 resources of historic significance including two National Historic Landmarks (NHL), 31 sites and/or districts listed on the NRHP, and 28 sites and/or districts eligible for listing on the NRHP. There are no National or State Historic sites located in the visual study area. Representative examples of NRHP-listed and eligible properties within the visual study area are shown in Inset 5.01, below.




Inset 5.01. Representative Photographs of NRHP-listed and NRHP-eligible Properties within the Study Area

Upper Left: Palatine Church (90NR01539) (Viewpoint 42)

Upper Right: Fort Plain Historic District (12NR06341) (Viewpoint 92)

Lower Left: The Tepee (11NR06217) (Viewpoint 82)

Lower Right: Reformed Dutch Church of Stone Arabia (90NR01541) (Viewpoint 51)

The two NHL sites located within the visual study area, the Enlarged Erie Barge Canal Nominated by NPS (2014) and Fort Klock are indicated as having no potential Facility visibility and therefore not analyzed further.

The NRHP-listed sites found throughout the visual study area include pastoral farmsteads, unique mill buildings, and intact commercial districts. According to the viewshed analysis, of the 31 identified sites (including 25 individual properties and six historic districts), one site was indicated as having visibility of the proposed Facility and 10 were shown to have partial visibility. Of these 11 resources with potential visibility, four individual sites and one district had scenic views or an intact setting as the reason for listing on the NRHP. These resources are discussed in more detail below:

- *John Smith Farm* (11NR06276) is an approximately 199-acre historic farmstead with eight contributing resources located at 1059 State Route 80 in the Town of Minden. This site is in the western portion of the visual study area, 3.9 miles from the Facility Site. The property includes the main residence, dairy barn, carriage house, granary, chicken coop, corn crib, hog pen, scale house, and integral rural landscape features including stone walls, rolling hay fields, mature hedgerows, and the Otsquago Creek which bisects the property. The John Smith Farm is significant due to its associations with local historic agricultural settlement patterns and for its high level of architectural and landscape integrity. It was listed in the NRHP in 2011 (Bowman, 2011).
- *Daniel G. Van Wie Farmstead* (10NR06181), also known as the Valley View Farm, is an approximately 150-acre historic farmstead with six contributing resources located at 268 Brower Road in the Town of Palatine. It is in the north-central portion of the visual study area, 3.8 miles from the Facility Site. The six contributing resources include a circa-1870 farmhouse, a carriage house, and four barns of different function types. The property is significant due to its associations with historic hop production and dairy farming in the region, and for possessing an Italianate farmhouse with a high level of integrity in an intact setting. The setting includes common dairy farm vernacular such as a mix of adjacent pasture and crop fields mixed within the farmstead buildings. The property was listed in the NRHP in 2010 (Bowman, 2010).
- *The Tepee* (11NR06217) is a roadside tourist attraction and gift shop constructed in the form of an oversized Plains Indian Tepee. It is located at 7632 U.S. Highway 20 in the Town of Cherry Valley in the southern portion of the visual study area, approximately 4.2 miles from the Facility Site. The Tepee was constructed in 1954 of wood framing and a galvanized sheet metal exterior. Its position on the south side of U.S. Highway 20 offers expansive views to the north toward the Facility Site. It is listed as significant for being an intact example of 1950s roadside attractions associated with tourism and automobile culture, however the location and available views of the Mohawk Valley were part of the appeal of this resource. It was listed in the NRHP in 2011 (LaFrank, 2011).
- *Lindesay Patent Rural Historic District* (95NR00877) is an approximately 9,200-acre historic district comprised of 583 contributing properties in a largely rural setting in Otsego County. The closest portion of the district is located in the southern portion of the visual study area, 4.9 miles from the Facility Site. The properties included in the district are representative of New York's agricultural heritage and include historic farmsteads and scenic vistas of rural landscapes. The concentration of scenic vistas and rural landscapes associated with this district are focused

south on Otsego Lake and the surrounding Cherry Valley landscpae. The district was listed in the NRHP in 1995 (Ravage, 1995).

Additionally, per the requirements set forth in 16 NYCRR § 1000.20(b), a *Historic Architectural Resources Survey* (EDR, 2018) was conducted that identified a total of 29 historic properties within the visual study area that have been determined by NYSOPRHP to be NRHP-eligible. The NRHP-eligible sites include mostly farmsteads with intact agricultural buildings and residences in a rural setting that retain a high level of integrity, but also include cemeteries, churches, and agricultural support buildings. Twenty-five of the 29 resources were shown to have potential partial visibility of the proposed Facility according to the viewshed analysis. In addition, a *Historic Resources Effects Analysis* (EDR, 2019) was prepared and submitted to NYSOPRHP, which provides further consideration of the Facility's potential visual effect on historic properties.

5.2.2 Designated Scenic Resources

The Facility's visual study area includes two designated scenic resources; the Revolutionary Trail Scenic Byway and U.S. Highway 20. There are no rivers designated as wild, scenic, or recreational, Adirondack Park scenic vistas, Scenic Areas of Statewide Significance, or other designated scenic resources in the visual study area. The viewshed analysis indicated that both of the above-mentioned scenic byways have the potential for partial visibility of the Facility Site, and are discussed in further detail below.

- *Revolutionary Trail Scenic Byway:* This scenic byway runs from Schenectady to Port Ontario, running along State Route 5 while traversing the visual study area. The byway features a variety of significant scenic, natural, recreational, cultural, and historic resources, and within the visual study area provides sweeping views of the Mohawk River Valley. The visual study area includes approximately 11.7 miles of the Revolutionary Trail Scenic Byway, which is located approximately 1.3 miles northeast of the proposed Facility at its closest point. There are no identified destinations along the trail located within the visual study area (Visit Adirondacks, 2019).
- *Route 20 Scenic Byway:* This scenic byway runs the length of New York State from west to east and was originally a segment of the 1927 transcontinental U.S. Highway 20, connecting the Atlantic and Pacific oceans. It features a variety of significant scenic, natural, recreational, cultural, and historic resources. Within the visual study area, the highway runs along the escarpment in Cherry Valley, providing scenic views north toward the Facility Site and the Mohawk Valley, and south to the surrounding countryside. The byway runs for approximately 19.9 miles within the visual study area and is located approximately 4.1 miles south-southwest of the proposed Facility at its nearest point. There are east-bound and west-bound parking areas located at the western boundary of the visual study area that provide a place for eating, resting, and enjoying the scenic qualities of the byway (NYSDOT, 2019b).

5.2.3 Public Lands and Recreational Resources

The Facility's visual study area includes 26 public lands and recreational resources, including two heritage areas, one state fishing/waterway access site, six trails, seven local parks and recreation areas, and 10 named lakes, ponds, or reservoirs. The visual study area does not include any National Parks, Recreation Areas, Seashores, and/or Forests; National Natural Landmarks; National Wildlife Refuges; State Parks; State Nature and Historic Preserve Areas; State Forest Preserves; Wildlife Management Areas, State Forests; Palisades Parkland; publicly accessible conservation lands/easements; or rivers and streams with public fishing rights easements. Of the 26 identified resources, the viewshed analysis indicated that 12 resources potentially have views of portions of the proposed Facility. These resources are described below:

- *Erie Canalway National Heritage Corridor:* The Erie Canalway National Heritage Corridor extends 524 miles across the length of the historic Erie Canal, from Buffalo to Albany, and includes 234 municipalities in 23 counties, and existing portions of the Erie Canal and several other rivers and feeder canals. Interstate 90 runs parallel to the historic Erie Canal alignment and is a major roadway within the Heritage Area. Within the visual study area, the Erie Canalway National Heritage Corridor includes the Mohawk River and the rolling hills and rural farmsteads rising out of the Mohawk River Valley. The corridor encompasses 127 square miles or 90.5% of the visual study area (Erie Canalway Heritage Corridor, 2018, NYSOPRHP, 2019a; NPS, 2019).
- *Mohawk Valley Heritage Corridor:* The Mohawk Valley Heritage Corridor extends 130 miles from Oneida Lake and the western border of Oneida County to the Hudson River, and spans 70 miles north to south at its widest point. It encompasses eight counties and 203 communities. This state-designated area holds resources from several centuries of New York history, including the Iroquois nations that first populated the banks of the Mohawk River, the early European colonists, American Revolutionaries, the Erie Canal, and the later industrial strength of the region. The corridor includes population centers along the Mohawk River and rural farmland rising out the Mohawk River Valley (NYSOPRHP, 2019a).
- *State Bike Route 5:* State Bike Route 5 is a shared roadway route that extends 365 miles from Niagara Falls to the Massachusetts state line. The route parallels the Erie Canal and the New York State Canalway Trail and Water Trail, which are fully screened from view of the proposed facility. State Bike Route 5 traverses the northeastern portion of the visual study area for 13.2 miles and at its closest point is approximately 1.2 miles from the proposed Facility (NYSDOT, 2019a; NYSOPRHP, 2019b).
- *Snowmobile Trails:* Three snowmobile clubs maintain trails within the visual study area. The Forest Preserve Users Snowmobile club maintains approximately 87 miles of snowmobile trails within the visual study area, one of which runs directly adjacent to a proposed solar array. Sharon Pathfinders maintains approximately 11 miles of

snowmobile trails within the visual study area. At their closest point, these trails are located approximately 2.2 miles south-southwest of the Facility. The Herkimer County Trail and Trade Association maintains approximately 1.3 miles of snowmobile trails within the visual study area, the closest of which is approximately 4.1 miles west of the Facility.

- *Canajoharie Country Club:* The Canajoharie Country Club is an 18-hole public golf facility located approximately 0.6 mile southeast of the proposed Facility. The golf course offers scenic views of the surrounding landscape.
- *Wiles Park:* Wiles Park is a public park located in the Village of Fort Plain, approximately 1.2 miles north of the proposed facility. The park is noted for its scenery and includes a playground, picnic areas, ball fields, and horseshoe pits.
- *Mohawk River:* The Mohawk River is the largest tributary of the Hudson River and drains 3,412 square miles. The river is 149 miles long, approximately 14 miles of which are contained within the northeastern portion of the visual study area. The river is used by commercial vessels and pleasure boats, and at its closest point, comes within 0.9 mile of the proposed Facility.
- *Fort Plain Reservoir:* Fort Plain Reservoir is an approximately 3.6-acre water body located within Montgomery County, outside of the Village of Fort Plain. It is connected to North Creek, a tributary of the Mohawk River, and provides public fishing opportunities. At its closest point, this water body is 2.5 miles north-northeast from the proposed Facility.
- *Caroga Creek:* Caroga Creek is in the Village of Palatine Church, approximately 3.5 miles north of the proposed Facility. It originates at East Caroga Lake and flows south through Rockwood Lake before converging with the Mohawk River within the visual study area. The creek provides public fishing opportunities.
- *Mother Creek:* Mother Creek is in the Village of Palatine Church, approximately 3.9 miles north of the proposed Facility. The creek flows into the Mohawk River and provides public fishing opportunities.

5.2.4 High-Use Public Areas

Major Transportation Corridors: The visual study area includes a total of nine state and federal highways that all have potential views of the Facility and could be considered visually sensitive due to the number of vehicles that travel these roads on a daily basis. Table 9 indicates NYSDOT 2015 traffic counts for major roadways within the visual study area.

Table 9. Traffic Counts for Major Transportation Corridors

Road	Total Length within the Visual Study Area (miles)	Average Vehicles/Day on Segments within the Visual Study Area
Interstate 90	13.5	21,956 – 22,572
State Route 5	10.8	3,382 – 7,873
State Route 80	7.6	804 – 5,779
State Route 10	15.0	1,037 – 5,712
State Route 5S	12.3	1,154 – 5,654
U.S. Route 20	7.5	1,786 – 3,315
State Route 162	1.6	1,476
State Route 163	11.8	289 – 1,393
State Route 166	0.2	896

Source: NYSDOT, 2015

Villages and Hamlets:

The visual study area includes a total of six incorporated villages and two hamlets. Of these areas of high public use, four of the villages were indicated to have potential views of the proposed Facility.[10] These villages and their distance to the Facility site at its closest point are listed below:

- The Village of Fort Plain has a population of 2,322 and is located approximately 0.5-mile northwest of the proposed Facility.
- The Village of Palatine Bridge has a population of 737 and is located approximately 0.5-mile northeast of the proposed Facility.
- The Village of Nelliston has a population of 596 and is located approximately 1.0-mile northwest of the proposed Facility.
- The Village of Sharon Springs has a population of 547 and is located approximately 4.3 mile south of the proposed Facility

Public Schools:

The visual study area includes five schools that could have views of the proposed Facility. These schools and their distance from the proposed Facility are described below:

- *Harry Hoag Elementary School:* Harry Hoag Elementary School is a public school located in the Village of Fort Plain, approximately 1.1 miles north of the proposed Facility. The school serves 462 students in grades Pre-kindergarten-6 (Public School Review, 2019).

[10] Villages and hamlets within the visual study area where viewshed analysis and/or field review indicate that the Facility will not be visible, such as the Village of Canajoharie, are not discussed here because there is no potential visibility of the Facility from these areas.

- *Amish School Houses:* There are four identified Amish schoolhouses within the visual study area, two of which indicate potential Facility visibility. The closest of these two schools is located on Nestle Road, approximately 200 feet from the Facility site.

5.3 Facility Visual Impact

5.3.1 Analysis of Existing and Proposed Views

To illustrate anticipated visual change associated with the proposed Facility, photographic simulations of the installed PV panels were prepared from the nine selected viewpoints indicated in Figure 12 and Table 4. These simulations are presented as insets on the following pages and are also included as stand-alone images in Appendix D. As described in Section 4.3.3. of this report, review of these images, along with photos of the existing view, allowed for comparison of the aesthetic character of each view with and without the proposed Facility in place. Results of this evaluation are presented below.

Viewpoint 16 (see Appendix D – Sheets 1-4)

Inset 5.04: Existing view from County Route 86 (Marshville Road), Town of Canajoharie

Existing View

Viewpoint 16 is located along County Route 86 (Marshville Road) in the Town of Canajoharie. It is approximately 0.1 mile from the nearest Facility component that would be visible in this view. This viewpoint is representative of the Rural Uplands LSZ and looks west-northwest toward the proposed Facility. The typical viewer would be a local resident driving along the road or working in the fields. The existing view features an open hayfield in the immediate foreground separated from a two-lane paved road by a roadside ditch. As the field proceeds away from the viewer over somewhat rolling topography, it is divided from more distant fields by a scrubby hedgerow comprised of low shrubs and some smaller trees. Two farm complexes, including red barns, out buildings and silos, can be seen behind the hedgerow. Beyond the farmsteads, the land drops out of view into a valley. The visible horizon is formed where the overcast sky meets the dark silhouette of a distant ridgeline, which forms the background of the view. The overall scenic quality of this working agricultural landscape is considered moderate.

Inset 5.05: Visual simulation from County Route 86 (Marshville Road), Town of Canajoharie – newly installed condition.

Proposed Facility (1 Year Post-Install)

With the proposed Facility in place, the field adjacent to County Route 86 (Marshville Road) is now occupied by an array of PV panels enclosed by galvanized chain-link fencing. Although the PV panels are set back from the roadside, and a substantial band of old field vegetation separates the PV panels from the road edge, the solar array and associated fencing now become the dominant built features in the view. They draw attention away from the farmsteads and replace the active hayfield in the foreground, thus reducing the agricultural character of the view. They also eliminate the former hedgerow vegetation, create a hard edge in the landscape, and partially screen views of the background fields and vegetation. Introduction of the Facility reduces the sense of open space, but other adjacent fields will remain in agricultural use, and the farms and background ridge remain visible above the PV panels. Although the addition of the PV panels adds a utilitarian character to the view, in the broader context, the landscape retains its rural agricultural character. The initial installation of an assortment of small shrubs and trees planted between the road and the Facility fencing do not screen views of the solar arrays but are compatible with the existing landscape and disrupt the dark shadows on the ground underneath the PV panels. The Facility's overall impact on this viewpoint is moderate to appreciable.

Inset 5.06: Visual simulation from County Route 86 (Marshville Road), Town of Canajoharie – mature planting condition.

Proposed Facility (5-7 Years Post-Install)

With more mature plantings in place, the mowed grassy area between the solar array and the roadside is now occupied by a mix of native vegetation, including taller grasses, herbaceous pollinator species, mature shrubs, and small trees. The vegetation partially screens views of the Facility, but multiple PV panels can still be seen between clumps of trees and shrubs. The planted vegetation creates a new landscape pattern and breaks up the expanse of shadow beneath the PV panels as well as the vertical lines of the arrays and fenceposts. While the plantings do not fully conceal views of the Facility, they redirect the viewer's eye to the foreground and down the adjacent road. The planting plan is reminiscent of a maturing successional old field and is compatible with the rural character of this viewpoint. However, it does reduce the open character and long-distance views previously available at this viewpoint. With the mature plantings in place, overall visual impact at this viewpoint is minimal to moderate.

Viewpoint 24 (see Appendix D – Sheets 5-8)

Inset 5.07: Existing view from Nestle Road, Town of Canajoharie

Existing View

Viewpoint 24 is located along Nestle Road in the Town of Canajoharie, approximately 0.1 mile from the nearest proposed Facility component that would be visible in this view. This viewpoint is representative of the Rural Uplands LSZ and looks east-southeast toward the proposed Facility. The typical viewer would be a local resident driving down the road or working in the fields or around their residence. The existing view looks from the roadside onto an open pasture enclosed by a barbed wire fence wrapped around cedar fence posts. Beyond the pasture, a mosaic of harvested corn fields, hay fields, and hedgerows continue to a wooded background ridge that defines the visible horizon. A corridor of wooden H-frame transmission structures and several barns are visible in the background of this viewpoint. The presence of the transmission structures adds a utilitarian character to an otherwise rural agricultural landscape. The overall scenic quality at this viewpoint is moderate.

Inset 5.08: Visual simulation from Nestle Road, Town of Canajoharie – newly installed condition.

Proposed Facility (1 Year Post-Install)

With the proposed Facility in place, crop and pasture fields in the foreground are now occupied by PV panels. Portions of the middle ground and background landscape are screened by the equipment and the linear solar arrays contrast with the surrounding rolling landform. The forest in the background remains visible above the PV panels and maintains the irregular horizon line. While the PV panels are set back from the edge of the road, the Facility becomes the dominant built feature in the view and changes the character of the landscape from agricultural to utilitarian. Although the Facility components are consistent in scale with existing landscape features and are compatible with existing utility structures in this viewpoint, they alter the rural character of this view. With the initial perimeter plantings in place, the PV panels remain largely unscreened. However, the small shrubs and trees break up the continuous horizontal and vertical lines of the perimeter fencing. The Facility's overall impact on this viewpoint is moderate to appreciable.

Inset 5.09: Visual simulation from Nestle Road, Town of Canajoharie – mature planting condition.

Proposed Facility (5-7 Years Post-Install)

Once the perimeter plantings mature, an irregular arrangement of small trees and shrubs now borders the fence outside of the solar array, and the previously grazed pasture along the roadside has transitioned to a successional field. The planted vegetation partially screens views of the PV panels and adds new colors and textures to the view that blend with the surrounding area. The plantings also partially screen the existing transmission structures in the background and create a sense of enclosure in what was a much more open view. While the PV panels are not completely screened from view, the scattered shrubs and trees somewhat soften the appearance of the installation by breaking up the expanse of visible PV panels and reducing visible contrast between the Facility and the existing landscape. With the mature plantings in place, the Facility's overall visual impact on this viewpoint is moderate.

Viewpoint 26 (see Appendix D – Sheets 9-12)

Inset 5.10: Existing panoramic view from H. Jones Road, adjacent to State Route 80 (Clinton Road), Town of Canajoharie

Existing View

Viewpoint 26 is located on H. Jones Road in the Town of Canajoharie, approximately 0.3 mile from the nearest proposed Facility component that would be visible in this view. This viewpoint is representative of the Rural Uplands LSZ and looks northeast toward the proposed Facility. The typical viewer would be a local resident driving along the road or working the fields. The existing view looks out over an open expanse of crop fields and pasture. In the center of the view, a two-lane road lined with utility poles bisects the fields as it continues over gently rolling land toward the horizon. Farm structures and associated residences occur on either side of the road in the middle ground. These structures, in particular the red barn and silos, are the focal point in this view and reinforce its rural agrarian character. In the background, fields are interrupted by hedgerows and woodlots, and an existing transmission line spans the view and adds a degree of visual clutter. The rolling landform rises to the horizon, which is defined by the crest of a grassy hill, hedgerows, and a distant woodlot. Overall scenic quality at this viewpoint is moderate.

Inset 5.11: Visual simulation from H Jones Road, adjacent to State Route 80 (Clinton Road), Town of Canajoharie – newly installed condition.

Proposed Facility (1 Year Post Install)

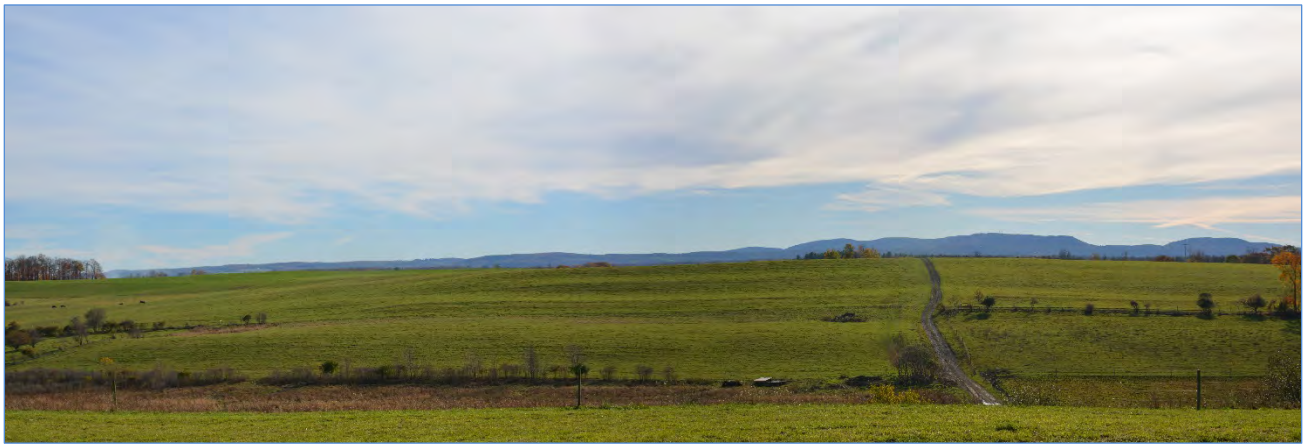
With the proposed Facility in place, the background fields are now filled with PV panels, and a gravel access road now passes through an active agriculture field toward the PV panels to the east. While fields in the foreground maintain an open, agricultural feel, the man-made nature of the proposed Facility and its physical extent over the landscape alters the rural agrarian character of the existing view. The solar arrays now compete with the existing farm structures for viewer attention and accentuate the presence of the existing utility infrastructure. Although the contrast of the PV panels is somewhat lessened by their low height and the presence of the existing utility structures within this viewpoint, the arrays represent a noticeable change in land use. The Facility introduces a change in color and texture on the hillside, but the fit of the PV panels within the existing field and vegetation patterns helps accommodate the Facility. The Facility's overall visual effect at this viewpoint is moderate.

Inset 5.12: Visual simulation from H Jones Road, adjacent to State Route 80 (Clinton Road), Town of Canajoharie – mature planting condition.

Proposed Facility (5-7 Years Post Install)

In 5-7 years following Facility installation, the agricultural fields immediately adjacent to the PV panels have been replaced with fields of successional herbaceous vegetation. Despite this change, the Facility remains a dominant or co-dominant focal point in the middle ground of the view. Although screening of the facility is not enhanced by perimeter plantings from this viewpoint, the dark green color of the vegetation in front of the PV panels reduces the contrast presented by the dark PV panels, allowing the Facility to blend better with the surrounding landscape. The Facility's overall visual effect remains moderate from this viewpoint.

Viewpoint 28 (see Appendix D – Sheets 13-16)



Inset 5.13: Existing view from County Route 87 (Seebers Lane), southeast of State Route 80 (Clinton Road), Town of Canajoharie

Existing View

Viewpoint 28 is located on County Route 87 (Seebers Lane) in the Town of Canajoharie, approximately 0.3 mile from the nearest proposed Facility component that would be visible in this view. This viewpoint is representative of the Rural Uplands LSZ and is oriented to the south-southwest toward the proposed Facility. The typical viewer would be a local resident driving along the road or enjoying their residence. The existing view looks across a broad expanse of grassy fields, that descend into a foreground valley before rising to a high point in the middle ground. On the righthand side of view, the fields are bisected by an unpaved farm road, the start of which is screened by intervening topography in the foreground. The tops of shrubby vegetation can be seen emerging from the valley, and in the middle ground a sparse, scrubby hedgerow runs perpendicular to the road. In the background, some forest vegetation can be seen beyond the crest of the hill, but most of it is screened from view by the intervening grassy hillside. A distant, irregular ridgeline forms the horizon where it meets the sky. The ridgeline adds an element of interest to the view and reinforces the sense of openness and distance. The overall scenic quality at this viewpoint is moderate to high.

Inset 5.14: Visual simulation from County Route 87 (Seebers Lane), southeast of State Route 80 (Clinton Road), Town of Canajoharie – newly installed condition.

Proposed Facility (1 Year Post-Install)

With the proposed Facility in place, an array of PV panels enclosed by fencing is now visible atop the rolling hill in the middle ground of the view. In this view, the PV panels blanket the crest of the middle ground hilltop and contrast with the generally undeveloped character of the existing landscape. The PV panels to the left are at positioned (at this time of day) to reflect the sun and appear bright white, while the PV panels to the right are oriented away from the viewer and appear dark against the surrounding green vegetation. Despite their contrast, the PV panels follow the existing landform, and their size is consistent in scale with existing features in this viewpoint. Although the PV panels partially screen views of forest vegetation in the background, they do not disrupt views of the grassy hillside in the foreground, and the distant background ridgeline remains clearly visible above the PV panels. An existing transmission structure is visible in the background but is subordinate to the installation of the PV panels. Outside of the fencing, an assortment of young trees has been planted in front of the Facility. While the young trees offer minimal screening of the Facility, the plantings mimic the arrangement of existing vegetation. The Facility's overall visual impact at this viewpoint is appreciable.

Inset 5.15: Visual simulation from County Route 87 (Seebers Lane), southeast of State Route 80 (Clinton Road), Town of Canajoharie – mature planting condition.

Proposed Facility (5-7 Years Post-Install)

With the mature plantings in place, an assortment of small trees now appears more prominently in front of the solar array installation and along portions of the (existing) unpaved farm road. While the plantings provide only minimal screening of the Facility, they are compatible in scale and arrangement with existing vegetation in the landscape and continue to allow views of the background ridge. The plantings provide visual interest in the middle ground of the view and add texture to the otherwise open fields; however, they do little to break up the contiguous expanse of PV panels visible from this viewpoint. Even with the mature plantings in place, viewers will notice the "crop" of PV panels stretching along the middle ground. Consequently, the Facility's overall visual effect remains appreciable from this viewpoint.

Viewpoint 32 (see Appendix D – Sheets 17-19)

Inset 5.16: Existing view from State Route 10 (Ephratah Road), east of Gerhatz Street, Town of Palatine

Existing View

Viewpoint 32 is located on State Route 10 (Ephratah Road) in the Town of Palatine, approximately 3.1 miles from the nearest proposed Facility component that would be visible in this view to the southwest. This viewpoint is representative of a more distant view from the Rural Uplands LSZ and the typical viewer would be a through-traveler/commuter driving along the road or a local resident driving or working the fields. The existing view looks out from the roadside onto an adjacent corn field bordered by an overhead utility line and communications tower. The field gently descends to a wooded hedgerow that defines a sharp break between the foreground and background of this view. Behind the hedgerow, the middle ground land drops out of view into a broad valley, before rising into a rolling patchwork of open fields and woodlands on the opposite side of the valley. The rolling topography extends into the background to a distant ridgeline that forms an irregular horizon where it meets the light sky. Under existing conditions, the sky is streaked with clouds and the background of the view is somewhat obscured by atmospheric haze. Overall scenic quality at this viewpoint is moderate to high.

Inset 5.17: Visual simulation from State Route 10 (Ephratah Road), east of Gerhatz Street, Town of Palatine.

Proposed Facility

With the proposed Facility in place, the PV panels are largely screened from view by wooded vegetation that surrounds fields in the background. Although a solar array is visible as a thin, dark line across one of the distant open fields in the center of the view, the Facility presents only slight contrast in linear form along the edge of the fields. The Facility may become more obvious under leaf-off conditions, but its contrast with the existing landscape character will be minimal, and from this distance and vantage point, viewers are unlikely to notice the Facility. The Facility's overall visual impact at this viewpoint is insignificant.

Viewpoint 82 Winter (see Appendix D – Sheets 20-22)

Inset 5.18: Existing view from U.S. Highway 20 (Route 20 Scenic Byway), Town of Cherry Valley

Existing View

Viewpoint 82 is located along the west-bound lane of U.S. Highway 20 across the roadway from the NRHP-listed Tepee, in the Town of Cherry Valley, approximately 4.4 miles from the nearest proposed Facility component that would be visible in this view to the north. This viewpoint is representative of longer distance views available from the Transportation Corridor and Rural Uplands LSZs during leaf-off conditions. The existing view features open, snow-covered fields that descend to an intermediate plateau before dropping into the Mohawk Valley. The field in the foreground is broken up by a row of scrubby vegetation that emerges from the snow and is backed by a more solid line of trees downslope. Beyond the tree line, a patchwork of fields separated by hedgerows and woodlots is visible on the plateau and broad valley below. The valley continues to the distant horizon, which is hazily defined due the low-hanging cloud cover. Duration of viewer exposure at this viewpoint will generally be limited, due to the speed at which travelers drive on this road, unless visiting the Tepee. Overall scenic quality of this expansive open view is high.

Inset 5.19: Visual simulation from U.S Highway 20 (Route 20 Scenic Byway), Town of Cherry Valley

Proposed Facility

With the proposed Facility in place, a few of the open fields in the background now accommodate solar arrays. From this distance, it is difficult to distinguish the arrays, as their arrangement and linear form blends with the surrounding patchwork of distant fields and woodlots. Under the winter conditions illustrated in this photo, the dark PV panels are consistent in color and scale with the surrounding woodlots, and from this distance could easily be mistaken as extensions of these wooded areas. They do not become focal points, and the presence of the solar arrays does little to alter the visual character of this viewpoint. The open field in the foreground and the patchwork of fields and woodlots in the background remain the dominant, character-defining elements of the view. Although the Facility may become more noticeable under leaf-on and/or clearer atmospheric conditions, its overall visual effect is insignificant to minimal from this viewpoint.

Viewpoint 82 Fall (see Appendix D – Sheets 23-25)

Inset 5.20: Existing view from the Tepee parking lot, U.S. Highway 20 (Route 20 Scenic Byway), Town of Cherry Valley

Existing View

Viewpoint 82 is in the NRHP-listed Tepee parking lot, along the east-bound lane of U.S. Highway 20 in the Town of Cherry Valley, at approximately the same location as the previous viewpoint. The typical viewer would be a local resident, through-traveler/commuter, or tourists/recreational user, traveling along the highway. The existing view to the north from this location looks out across a divided two-lane highway toward an open field. The highway is bordered by shrubby vegetation and a few small trees, which frame the view on the right side and a house (just outside the field of view of the selected photo) on the left. The foreground is dominated by a gently sloping harvested agricultural field that descends to the north. The field, as well as the center divider on the highway, is sparsely covered with snow. The field is backed by blocks of deciduous and coniferous trees that are partially screened by the high point of the field. Beyond the line of trees, the landscape descends to a level plateau before dropping further into the Mohawk Valley in the background of the view. The plateau and valley contain a mosaic of agricultural fields, woodlots, hedgerows, farms, and rural residences. Land on the opposite side of the

valley continues to the horizon, where a distant ridgeline meets the hazy blue sky. Details of the background landscape are somewhat obscured by atmospheric haze. Overall scenic quality at this viewpoint is high.

Inset 5.21: Visual simulation from U.S. Highway 20 (Route 20 Scenic Byway), Town of Cherry Valley

Proposed Facility

With the proposed Facility in place, a few fields in the background valley are now occupied by solar arrays. The solar arrays present some visible contrast with the landform due to their linear form, but at this distance they appear comparable in size and color with the existing vegetation. Because they are consistent with the pattern of the existing landscape, the PV panels are difficult to detect in the background of the view and could easily be mistaken as portions of the surrounding woodlots. At this location, the presence of the Facility will likely go unnoticed by viewers, especially by drivers focused on the road. The addition of the Facility has a minimal to insignificant effect on the overall scenic quality or the existing visual character and this viewpoint.

Viewpoint 130 (see Appendix D – Sheets 26-29)

Inset 5.22: Existing view from County Route 86 (Marshville Road), Town of Canajoharie

Existing View

Viewpoint 130 is located on County Route 86 (Marshville Road) in the Town of Canajoharie, approximately 0.1 mile from the nearest proposed Facility component that would be visible in this view. This viewpoint is representative of the Rural Uplands LSZ and looks west-northwest towards the proposed Facility. The typical viewer would be a local resident. The existing view looks across a paved two-lane road toward a mowed hay field. The field is backed by a band of forest vegetation, interspersed with houses, including an NRHP-eligible historic farmstead. Views of the field are partially shielded by a fairly continuous band of roadside trees, although screening provided by the tree coverage is less pronounced under the existing leaf-off conditions. The farmstead is backed by a dark woodlot, which blocks views of more distant landscape features. The existing view is a pleasant rural landscape with moderate scenic quality.

Inset 5.23: Visual simulation from County Route 86 (Marshville Road), Town of Canajoharie – newly installed condition.

Proposed View (1 Year Post Install)

With the proposed Facility in place, the grassy field visible across the road is now largely occupied by PV panels enclosed by fencing. The solar array is set back from the road which serves to maintain a sense of open space and preserve partial views of the NRHP-eligible farmstead in the background. Views of the Facility are somewhat obscured by the wooded hedgerow along the roadside but breaks in the vegetation provide open views of the PV panels. While the Facility adds a utilitarian character to an otherwise rural residential setting, the tree-lined rural road and adjacent houses continue to define the character of the view. As illustrated in the simulation, a row of irregularly spaced trees and shrubs have been planted between the solar array and the existing roadside hedgerow, in areas that the hedgerow breaks. In its young, leaf-off condition, the plantings provide minimal screening of the Facility. However, they reinforce the roadside band of vegetation and direct the viewer's focus down the road corridor. The Facility's overall visual impact at this viewpoint is moderate.

Inset 5.24: Visual simulation from County Route 86 (Marshville Road), Town of Canajoharie – mature planting condition.

Proposed View (5-7 Years Post Install)

With more mature plantings in place, a row of larger shrubs and small trees are now visible between the fencing surrounding the solar array and the roadside hedgerow. The spacing and arrangement of the new planting is consistent with the character of the existing hedgerow, and the overall effect is that of a contiguous vegetated lane rather than distinct plantings. While the plantings provide only moderate screening of the proposed Facility in their leaf-off condition, the increased density of vegetation along the roadside moderates the overall effect of the Facility by breaking up the visible length of the array and reducing the line contrast presented by the Facility. The plantings also provide additional elements of visual interest in the foreground of the view and help direct the viewer's focus down the road, away from the Facility. Screening provided by both the plantings and the existing hedgerow will be substantially more effective during the growing season. Overall visual impact at this viewpoint remains moderate.

Viewpoint 153 (see Appendix D – Sheets 30-33)

Inset 5.25: Existing view from Nestle Road, Town of Minden

Existing View

Viewpoint 153 is located on Nestle Road in the Town of Minden. It is located within the Erie Canalway National Heritage Corridor, approximately 200 feet from the nearest proposed Facility component that would be visible in this view to the west-northwest. This viewpoint is representative of the Rural Uplands LSZ and the typical viewer would be a local resident driving along the road or working the fields. Additionally, an Amish school house is located directly behind the viewer. The existing view looks out onto a gently rolling hilltop hayfield. The hayfield abuts an active cornfield at the crest of the hill, which descends the hill out of view. In the background, the tops of trees bordering the cornfield are visible. Beyond the treetops, the view looks out over a rolling rural landscape containing a mix of agricultural fields and wooded areas. From this elevated viewpoint the land continues to a distant horizon, which is formed where an irregular wooded ridge meets the hazy blue sky. Multiple wind turbines from the Hardscrabble Wind Farm located in the Town of Fairfield are visible on the background ridge to the right-hand side of the frame. Overall scenic quality at this viewpoint is moderate to high.

Inset 5.26: Visual simulation from Nestle Road, Town of Minden – newly installed condition.

Proposed Facility (1 Year Post-Install)

With the proposed Facility in place, the former agricultural fields in the foreground are now occupied by PV panels enclosed in fencing. The PV panels are set back from the roadside, leaving a sizeable strip of grassy field between the Facility and the road. Because they are the only nearby built structures within the view, the PV panels present contrast in line, form, and color with the existing natural features in the view. Furthermore, the addition of the PV panels adds a utilitarian character to the view, altering the perceived land use. An assortment of small shrubs and trees planted in front of the Facility fencing provide limited screening of the PV panels but do serve to break up the long visual extent and vertical lines of the array. The young plantings also provide additional visual interest and texture in the foreground and are compatible with the existing character of the landscape. The Facility's overall visual effect is appreciable from this viewpoint.

Inset 5.27: Visual simulation from Nestle Road, Town of Minden – mature planting condition.

Proposed Facility (5-7 Years Post-Install)

With the mature plantings (5-7 years post-installation) in place, the PV panels are almost entirely screened from view by a mix of tall shrubs and small trees. Additionally, the grassy field between the PV panels and the road has been allowed to grow and is now occupied with tall grass and herbaceous vegetation. The resulting view is reminiscent of a successional old field and is compatible with the rural character of the existing landscape. The mature vegetation provides an aesthetically pleasing screen that reduces the perceived presence of the Facility at this viewpoint. However, the mature plantings also partially block views of the rural landscape and ridgeline in the background. Long distance views to the horizon are now limited and the viewpoint feels much more enclosed. The overall visual impact on this viewpoint is moderate.

Viewpoint 154 (see Appendix D – Sheets 34-37)

Inset 5.28: Existing view from State Route 163 (Cherry Valley Road), Town of Minden

Existing View

Viewpoint 154 is located along State Route 163 (Cherry Valley Road) in the Town of Minden, approximately 0.1 mile from the nearest Facility component that would be visible in this view to the south-southwest. This viewpoint is representative of the Rural Uplands LSZ and the typical viewer would be a local resident or through-traveler/commuter driving along the roadway. The existing view features a two-lane paved road in the foreground, which curves to the right and proceeds outside the field of view. Directional signage and a guard rail line the left side of the road, and an overhead utility line crosses the road on the righthand side of view. Beyond the road a snow-covered, harvested cornfield rises to the top of a low hill. Treetops extend above the crest of the hill, which otherwise blocks views of more distant landscape features. Views along the road will be relatively fleeting, but the foreground hillside is directly in the line of sight of a driver approaching this curve. Overall scenic quality at this viewpoint is considered low to moderate.

Inset 5.29: Visual simulation from State Route 163 (Cherry Valley Road), Town of Minden – newly installed condition.

Proposed Facility (1 Year Post-Install)

With the proposed Facility and initial plantings in place, the field on the hillside adjacent to State Route 163 (Cherry Valley Road) is now occupied by a solar array enclosed by fencing. Due to the rising landform, most of the PV panels are fully visible in well-defined rows/arrays as they gently curve over the hill's surface. Under winter conditions, the dark PV panels and their shadows present strong color contrast with the white snow. Although they are not the only manmade features in the view (i.e. the road, signs, utility poles), the PV panels become a visual focal point and redefine the character of the landscape. A scattered arrangement of small shrubs and young trees have been planted in front of the fencing, but due to their early growth stage and winter conditions, the plantings do little to mitigate the visual effect of the solar array installation. The vegetation is compatible with the existing landscape and provides some visual interest in the foreground, but the solar array installation is now the dominant landscape feature. Overall visual impact at this viewpoint is appreciable.

Inset 5.30: Visual simulation from State Route 163 (Cherry Valley Road), Town of Minden – mature planting condition.

Proposed Facility (5-7 Years Post-Install)

With more mature plantings (5-7 years post installation) in place, a row of shrubs and trees begin to provide some screening of the solar array. Under the winter conditions illustrated in the selected photograph, the trees and shrubs are relatively bare, with a scattering of evergreen trees that offer limited screening of the Facility. However, the addition of this vegetation breaks up views of the fencing and the nearest edge of the solar array and softens the contrast of the Facility with existing landscape features. The plantings provide and additional element of visual interest in the foreground, but the rising topography of the hillside highlights the presence of the PV panels. Although screening will be more effective during the growing season, until the plantings achieve significantly greater height, the overall visual impact will remain appreciable.

5.3.2 Visual Impact Assessment Rating

As described in Section 4.2.3 of this VIA, three professionals with experience in the visual/aesthetics field (one in-house, two independent) evaluated the visual impact of the proposed Facility. Utilizing 11 x 17-inch digital color prints of the nine visual simulations, the rating panel members reviewed the existing and proposed views, evaluated the contrast/compatibility of the Facility with various components of the landscape (landform, vegetation, land use, water, sky, and viewer activity), and assigned quantitative visual contrast ratings on a scale of 0 (insignificant) to 4 (strong). The average contrast score assigned by each rating panel member was calculated for each viewpoint, and an average score for each viewpoint was determined. Copies of the completed rating forms are included in Appendix E, and the results of this evaluation process are summarized in Table 10, below.

Table 10. Summary of Results of Contrast Rating Panel Review of Simulations

Viewpoint Number	Distance to Nearest Visible Facility Component[1]	Distance Zone	Landscape Similarity Zone	Viewer Groups			Contrast Rating Scores[2]				
				Local Residents	Through Travelers/ Commuters	Tourists/ Recreation	#1	#2	#3	Average	Contrast Rating Result
Visual Simulations That Depict Newly Installed Condition (Year 1)											
16	0.1	Foreground	Rural Uplands	●			3.1	2.6	1.9	2.5	Moderate / Appreciable
24	0.1	Foreground	Rural Uplands	●			3.4	2.5	2.1	2.7	Moderate / Appreciable
26	0.4	Foreground	Rural Uplands	●	●		2.1	2.0	1.7	1.9	Moderate
28	0.3	Foreground	Rural Uplands	●			3.0	2.9	3.1	3.0	Appreciable
130	0.1	Foreground	Rural Uplands	●			2.5	2.6	1.8	2.3	Moderate
153	0.4	Foreground	Rural Uplands	●			3.7	2.9	2.4	3.0	Appreciable
154	0.1	Foreground	Rural Uplands	●	●		3.9	2.2	2.8	3.0	Appreciable
Total average rating for the simulations that depict the newly installed condition (Year 1)										2.6	Moderate / Appreciable
Visual Simulations That Depict Mature Plantings (5-7 years post install)											
16	0.1	Foreground	Rural Uplands	●			2.1	1.8	1.3	1.7	Minimal / Moderate
24	0.1	Foreground	Rural Uplands	●			2.5	2.2	2.1	2.3	Moderate

Viewpoint Number	Distance to Nearest Visible Facility Component[1]	Distance Zone	Landscape Similarity Zone	Viewer Groups			Contrast Rating Scores[2]				
				Local Residents	Through Travelers/ Commuters	Tourists/ Recreation	#1	#2	#3	Average	Contrast Rating Result
Visual Simulations That Depict Mature Plantings (5-7 years post install, continued)											
26	0.4	Foreground	Rural Uplands	●	●		2.1	1.9	1.7	1.9	Moderate
28	0.3	Foreground	Rural Uplands	●			3.0	2.9	3.1	3.0	Appreciable
130	0.1	Foreground	Rural Uplands	●			1.8	2.4	1.4	1.9	Moderate
153	0.4	Foreground	Rural Uplands	●			1.4	1.6	2.7	1.9	Moderate
154	0.1	Foreground	Rural Uplands	●	●		3.7	2.2	2.7	2.9	Moderate / Appreciable
Total average rating for the simulations that depict mature plantings (5-7 years post-install)										2.2	Moderate
Visual Simulations That Do Not Depict Planting Modules (due to distance)											
32	3.1	Middle ground	Rural Uplands	●	●		0.0	0.2	0.3	0.2	Insignificant
82 snow	4.3	Background	Transportation Corridor		●	●	0.7	1.1	0.4	0.7	Insignificant/ Minimal
82 fall	4.3	Background	Transportation Corridor		●	●	0.2	1.4	0.3	0.6	Insignificant/ Minimal
Total average rating for the simulations that do not depict planting modules										0.5	Insignificant/ Minimal

[1]Distance in miles.
[2]Contrast Rating Scale: 0.0 - 0.4 (Insignificant), 0.5 – 0.9 (Insignificant/Minimal), 1 – 1.4 (Minimal), 1.5 – 1.9 (Minimal/Moderate), 2 - 2.4 (Moderate), 2.5 – 2.9 (Moderate/Appreciable), 3 – 3.4 (Appreciable) 3.5 – 3.9 Appreciable/Strong), 4 (Strong).

As indicated by the contrast ratings/summary in Table 10 (see also Appendix E), the average overall composite contrast ratings for the visual simulations ranged from 0.2 (Insignificant) to 3.0 (Appreciable). The rating scores provided by the rating panel were generally consistent, with few outliers or conflicting scores. Rating panel results indicate that the proposed Facility will add a highly visible utilitarian feature to the landscape, which presents strong contrast with the current land use and viewer activity. Although appreciable contrast was noted for some viewpoints, the overall contrast presented by the Facility is considered moderate when the mature planting plan is included in the evaluation. Rating panel results indicate that the number of PV panels visible and their scale and form contrast with the existing landform and vegetation were the primary sources of visual contrast with the existing landscape. The greatest perceived visual impact typically occurs when a broad extent of PV panels is visible, when the solar arrays are unscreened and in close proximity to the viewer, or when the PV panels appear out of place in their setting (e.g., change the character of agricultural/agrarian landscapes). These conditions tend to heighten the Facility's contrast with existing elements of the landscape in terms of line, form, and land

use. However, at many viewpoints this contrast was effectively reduced with the installation of plantings along the perimeter fencing. The results of this evaluation are summarized as follows.

Visual Simulations that do not Depict the Planting Modules (Due to Distance)

Mitigation planting modules were not incorporated in the visual simulations for viewpoints located at midground or background distances (i.e., between 3.1 and 4.3 miles) from the proposed Facility, such as Viewpoints 32 and 82 (both fall and winter conditions). The contrast rating scores for simulations of the Facility from these viewpoints ranged from 0.2 (for Viewpoint 32) to 0.7 (for Viewpoint 82). On average, these simulations received a contrast rating score of 0.5, indicating an insignificant to minimal impact. The overall low contrast ratings for these viewpoints is largely attributable to the distance of the proposed Facility from the viewer. Comments from the rating panel indicated that the PV array would be visible but would not have a substantial impact on the existing scenic quality of this viewpoint. For all three viewpoints, members of the rating panel noted that long distance views of the Facility (including both middle ground and background views) have little visual impact on scenic quality. From these distances, the presence or design of a planting plan does not influence the visual effect of the proposed Facility.

Newly Installed Condition - Year 1

Simulations of the Facility showing the newly installed condition (Year 1) received average contrast rating scores that ranged from 1.9 (for Viewpoint 26) to 3.0 (for Viewpoints 28, 153, and 154). On average, simulations of the Facility with initial plantings received a contrast rating score of 2.6, indicating a moderate to appreciable visual contrast or effect.

The lower contrast rating for Viewpoint 26 is largely attributable to the fit of the PV arrays within the existing landform. From this viewpoint, the Facility appears as a “field” of PV panels that is compatible (in terms of arrangement) with the surrounding agricultural fields, reducing the contrast of the solar array with the surrounding landform and vegetation. Members of the rating panel also noted that the existing view was already compromised by utility infrastructure and other distracting structures. Viewer activity was unlikely to be impacted by the presence of the Facility, and the visual effect was also mitigated by the absence of identified VSRs and limited scenic quality at this viewpoint.

Viewpoints 28, 153, and 154 received contrast ratings of 3.0 due largely to the substantial line, form, color, and texture contrast of the PV panels with the natural landscape and the Facility’s perceived reduction in the sense of open space. Higher ratings were also noted at locations where the PV panels introduced a distinctly different land use in areas that currently have a strong rural/agricultural character. For Viewpoint 153, members of the rating panel also noted the attractive quality of the existing view and that the presence of the PV panels and associated plantings interfered with long distance views to the horizon and screened views of the rural valley in the background. Increased ratings were also noted where the

PV arrays were in close proximity to the viewer and at viewpoints where the position of the PV panels atop rising or elevated topography highlighted the presence of the Facility.

Mature Plantings Condition – 5-7 Years Post-Install

The visual simulations that depict the mature plantings condition (5-7 years post-install) received average contrast rating scores that ranged from 1.7 (for Viewpoint 16) to 3.0 (for Viewpoint 28). The average contrast rating score for simulations showing the mature planting condition was 2.2, indicating moderate visual impact, and a substantial reduction in visual contrast relative to the newly installed condition.

The low contrast rating for Viewpoint 16 is largely attributable to the compatibility of the proposed Facility with the existing landscape. Comments from the rating panel indicated that the PV arrays created lines that resembled the existing the landform and that the array occupied the agricultural field as a crop field would. It was also noted that the existing view represented a typical agricultural landscape and was not particularly unique or outstanding. Lower contrast ratings were also noted at viewpoints where existing utility infrastructure was present in the view or where a smaller extent of the PV array was visible.

Conversely, Viewpoint 28 received a contrast rating of 3.0 due to the high quality of the existing view, the number of PV panels visible, and their contrast in form, line, and color with the surrounding landform. Even with the mature plantings, members of the rating panel noted that the presence of the Facility would notably change the viewer experience at this viewpoint. While the mitigation planting plan is compatible with the existing vegetation, it was ineffective (in this instance) in breaking up the view of arrays from this distance or softening the new linear features in the landscape. Higher contrast ratings were noted where the mitigation planting was considered insufficient at either screening views of the Facility or increasing its compatibility with the existing landscape.

The effectiveness of the conceptual planting plan in minimizing or mitigating the visual effect of the proposed Facility varied between viewpoints. As summarized in Tables 10 and 11, the simulations that depicted the mature plantings received a decreased average contrast rating score from 2.6 (moderate to appreciable impact) at their initial installation, to 2.2 (moderate impact) at 5-7 years post-installation. While the planting modules were not intended to fully screen views of the proposed Facility, at some viewpoints the plantings did provide a significant degree of screening and/or partially screen long lengths of the arrays. Additionally, the planting modules generally proved effective in breaking up the continuous horizontal and vertical lines of solar arrays and fencing as well as disrupting the modern materials and inorganic forms of the PV panels. In some situations, the plantings also obscured the shadow beneath the solar arrays, which again helped break up the visual mass of the solar array. Members of the rating panel also noted that the addition of the PV panels

created a hard edge in the landscape, but the planting scheme minimizes this impact and softens the contrast of the arrays with surrounding features.

Table 11. Summary of Change in Contrast of Simulation Rating Between Initial Plantings and Mature Installations

Viewpoint Number	Difference in Contrast Rating Scores between Initial and Mature Planting				
	#1	#2	#3	Average	Visual Impact Summary
16	-1	-0.8	-0.6	-0.8	Impact decreased
24	-0.9	-0.3	0	-0.4	Impact decreased
26	0	-0.1	0	-0.03	Negligible change
28	0	0	0	0.0	No change
130	-0.7	-0.2	-0.4	-0.4	Impact decreased
153	-2.3	-1.3	0.3	-1.1	Impact decreased
154	-0.2	-0.7	-0.1	-0.3	Impact decreased

In terms of the effectiveness of the individual planting modules, the Roadside Enhancement modules (i.e., Modules 1 and 2 – refer to Section 4.2 for descriptions of planting modules) were most consistently noted as being effective by members of the rating panel. The plantings were noted as being effective in redirecting the viewer's gaze from the Facility to the foreground and down the adjacent roadside. In some situations, members of the rating panel also noted that the plantings provide a pleasing screen that reduces the "presence" of the Facility, The Hedgerow In-fill and Adjacent Resource/Residence Screening modules (i.e., Modules 3 and 4) were effective to varying degrees at reducing the visual impact of the proposed Facility.

While the plantings did soften the contrast of the Facility and/or increase its compatibility with the surrounding landscape, the rating panel noted that at some viewpoints the planting modules did not effectively screen the Facility. For instance, in areas where the panels are mounted along a rising hillside or elevated ridge, the plantings are ineffective at breaking up views of the arrays because and only serve to add texture to the foreground. In some instances, it was suggested that the mitigation effect could be improved with a denser planting, an increase in taller species, and/or plantings closer to the road's edge. However, it was also noted that while the planting modules may be effective in screening views of the Facility or softening its impact, the plantings could also inadvertently create a new landscape pattern that alters the existing character of the area. This effect was noted at Viewpoint 153, where the mature plantings reduced the availability of long-distance views to the horizon in addition to screening views of the roadside solar array.

In addition to the mitigating plantings, factors mitigating visual impact within the visual study area include, 1) the low profile of the proposed PV panels that limits visibility of the Facility over long distances, 2) the relatively few viewers present on the rural uplands (i.e., relative to other portions of the visual study area) where views of numerous solar arrays will be available, 3) the substantial screening provided by existing foreground landscape features in forested areas and areas of concentrated human settlement, and 4) the pattern of fields and woodlots that help integrate the "fields" of panels into the landscape in which the Facility would be viewed.

5.3.3 Nighttime Impacts

The PV panel arrays and fences will not be lit. The only light sources that are anticipated to be installed for the Facility are safety/security lighting to be installed at the collection substation and the O&M building. All such lighting will be directed downward at a 30-degree tilt angle to minimize the effects of light pollution. Lighting will also be kept to a minimum and will use the lowest intensity required to assure safety and security. Additionally, all lighting will be operated manually or placed on an auto-off switch to further minimize the impacts of off-site light trespass.

5.3.4 Visual Impact of Above-Ground Interconnection Facilities

The PV panels are the visually dominant feature of the proposed Facility and therefore are the focus of the detailed analyses presented in this VIA. All the on-site collection lines will be buried to minimize visual impact. However, as described in Section 2 of this VIA, the Facility includes construction of a collection substation, POI switchyard and transmission, or gen-tie, line, collectively known as the above-ground interconnection facilities. These components of the Facility are in the Town of Canajoharie, off Fredricks Street, immediately east of the existing St. Johnsville-Marshville 115 kV transmission line (see Figure 1). Field review indicates that the above-ground interconnection facilities have been well-sited and will be screened from view by surrounding vegetation. The site of the proposed interconnection facilities is set back within a forested area approximately 0.4 mile from Fredricks Street and 1 mile from State Route 10 (Ames Road). There are no residences immediately adjacent to the site, and forest vegetation screens the site from nearby homes on County Route 80 (Clinton Road) and Fredericks Street (see Figure 11). Thus, visibility and viewer exposure at this site are anticipated to be minimal.

As described in Sections 5.1.2 and 5.1.3, viewshed and cross-section analyses confirmed that visibility of the above-ground interconnection facilities will be very limited. As depicted in Figure 11, only the uppermost portions of these structures will be visible above the upper portions of the forests that screen views of the substation site. Although these lightning masts may be visible, given their narrow profile and the effect of distance (the substation site is located approximately 0.4-mile from the nearest roadway), it is not anticipated that the structures would attract viewer attention. In addition, as described

in Section 5.3.3, all security and work-related lights at the substations will be shielded, downward facing fixtures that will be operated by manual switch or timer to minimize off-site lighting impacts. Consequently, visibility and visual impact of the above-ground interconnection facilities is anticipated to be localized and minor. Although visibility of these facilities from public vantage points is anticipated to be minimal, representative of the typical appearance of these types of facilities are included in Inset 5.31.

Inset 5.31 Representative photographs of above-ground interconnection facilities.
Note, these photographs are not depictions nor simulations of the facilities that would be constructed for Mohawk Solar. These photographs are representative depictions of the typical appearance of such facilities.

5.3.5 Visual Impacts During Construction

Visual impacts during construction are anticipated to be relatively minor and entirely temporary in nature. Potential visual impacts associated with construction may include the following:

- A temporary increase in truck traffic on area roadways. Construction vehicles for the Facility will include pickup trucks, dump trucks, and 18-wheeler delivery trucks.
- Development of temporary staging areas for the storage of Facility components, such as PV panels and racking systems. Electric and communication lines will be brought in from existing distribution poles to allow connection with construction trailers. During Facility construction, the yard will be occupied by vehicles, construction trailers, and stockpiled materials, all of which will be removed at the end of construction, with the site ending up as part of the Facility with PV panels installed
- Large earth moving equipment, land clearing equipment, concrete trucks, excavators, pile driving equipment, and construction vehicles will be present over the course of several months.
- Each solar array will have internal access roads and a grass “ring-road” around its perimeter to allow for maintenance and access. Construction of internal access roads will involve topsoil stripping and grading, as

necessary. Stripped topsoil will be stockpiled along the road corridor for use in site restoration. Following removal of topsoil, subsoil will be graded, compacted, and surfaced with approximately 12 inches of gravel or crushed stone. The ring roads will be left unsurfaced during construction and will subsequently be re-seeded.

- Whenever possible, collection lines will be installed in open trenches. During excavation, topsoil and subsoil will be segregated and stockpiled adjacent to the trench. Following cable installation, the trenches will be backfilled, and areas will be returned to pre-construction grades and revegetated.
- PV panel assembly typically involves a series of steel piles or screw anchors placed into the ground, without the need for concrete foundations. With the piles in place, the racking equipment used to support the PV panels is installed on the piles and then the PV panels are attached to each rack. Electrical cables are then run along the length of each array to an inverter system (also attached to a pile). The cable from each array is then buried with the collection system.
- Restoration of temporarily disturbed areas will be achieved by restoring original grades where feasible and seeding with a native seed mix to reestablish vegetative cover in these areas. This will minimize visual impacts associated with soil and vegetation disturbance during construction.
- Security lighting will be used at the staging areas and office trailers during construction. Lighting will be kept to the minimum necessary and directed downward to minimize the effects of light pollution. Where possible, motion-sensing lights will be used at all fenced staging areas to minimize impact.

Representative photographs of the appearance of typical construction activities at solar facilities are included in Inset 5.32.

Inset 5.32 Representative Photographs of solar farms during construction.
Note, these photographs are not depictions nor simulations of actual construction activities at Mohawk Solar. These photographs are representative depictions of the typical appearance of construction activities at solar project sites.

6.0 Conclusions

6.1 Summary of the VIA

The results of the VIA for the Mohawk Solar Facility are summarized as follows:

1. Viewshed analysis based on topography alone indicates that the proposed solar arrays will be fully screened from approximately 42% of the visual study area. Factoring vegetation and structures into the viewshed analysis further reduces potential Facility visibility. Vegetation and structures, in combination with topography, will serve to block views of the Facility from approximately 87.5% of the visual study area (i.e., only 12.5% of the visual study areas is indicated as having potential visibility of the Facility). This relatively minimal visibility of the Facility from the surrounding area is attributed primarily to the low profile/height of the proposed PV arrays. Potential Facility visibility (based on DSM viewshed analysis) from the various LSZs within the visual study area is summarized as follows:

    - Areas with the least amount of potential Facility visibility are the Transportation Corridor, Forest, and Village LSZs. The proposed Facility will likely be screened from view from approximately 98.4% of the Transportation Corridor LSZ due to the screening provided by intervening topography, vegetation, and structures. Visibility within this zone is primarily limited to small stretches of Interstate 90 where potential views would be fleeting and at a 90-degree angle as the viewer travels along the road. Similar types of views could also be available from remote areas of U.S. Highway 20 and from select, designated parking areas/overlooks along this highway.
    - Only approximately 1.7% of the Forest LSZ provides potential opportunities for views of the proposed Facility. Visibility within this zone is generally limited by the screening effects of the forest canopy and adjacent topography. While views of the Facility may be available through small clearings or breaks in the vegetation, there will be generally little to no Facility visibility from forested areas, especially during the growing season.
    - The more populated portions of the visual study area that make up the Village LSZ are indicated as having potential Facility visibility from only 1.8% of their total areas. Opportunities for views of the Facility are generally limited to the outskirts of village areas due the screening provided by buildings and associated vegetation. The potential for views from the villages will be further limited by their distance from the proposed Facility.
    - The potential for Facility visibility is indicated in approximately 13.3% of the Mohawk Valley LSZ. The Mohawk River itself is largely screened from view, and long-distance visibility within this zone is generally limited by the adjacent valley walls.
    - The greatest potential for visibility of the proposed Facility is indicated within the Rural Uplands LSZ. The DSM viewshed indicates that 16.9% of this LSZ could potentially offer views of the Facility due to the elevated topography within this zone and the prevalence of open fields. In general, potential visibility within this LSZ is most

heavily concentrated within 0.5 mile of the proposed Facility. There are additional scattered, limited areas of potential visibility within this LSZ at distances ranging from 1.5 to 4 miles from the Facility.

2. Viewshed analysis indicates that the Facility could be at least partially visible from approximately 57% of the identified VSRs that occur within the visual study area (see Appendix C). However, field review indicated that Facility visibility at VSRs within the visual study area will generally be much more limited than suggested by viewshed analysis because of distance and screening provided by existing vegetation, structures, or other objects in the landscape. At many of the VSRs, visibility will be limited to specific locations within and around the resource.

3. Viewshed analysis of the proposed above-ground interconnection facilities (collection substation, POI switchyard, and overhead gen-tie poles) indicate that potential visibility of these Facility components will be very limited (5.6% of the visual study area) and will affect few VSRs. Areas with potential views of these components are largely restricted to the region north of the Village of Palatine bridge and the eastern portion of the visual study area, including elevated areas surrounding U.S. Highway 20. However, the substation site is well screened by existing surrounding vegetation and only the uppermost portions of the lightning mast structures will be visible above the upper portions of the forests that surround the substation site. Although these lightning masts may be visible, given their narrow profile and the effect of distance (the substation site is located approximately 0.4-mile from the nearest roadway), it is not anticipated that the structures would attract viewer attention.

4. Field review confirmed that the area with greatest potential visibility of the Facility occurs within 0.5-mile of the Facility, where open agricultural and successional fields afford unobstructed views of the landscape. Somewhat longer distance views are available from open hilltops and slopes within and adjacent to the Facility Site. Forested areas, transportation corridors, and village centers generally offer the least opportunity for open views of the Facility. However, field review indicated that partial views of the Facility may be available from some open corridors along the outskirts of village areas.

5. Simulations of the proposed Facility indicate that the visibility and visual impact of the Facility will be variable, based largely on distance of the viewer from the Facility and the availability of screening. The presence of other man-made features in the view, baseline scenic quality, viewer sensitivity, the amount of PV panels visible in the view, and the effectiveness of the conceptual planting modules also influence the degree of Facility visibility and visual impact. Due to the low profile of the PV arrays, distance appears to be the most significant factor that minimizes the potential visual effect of the Facility from areas located generally greater than 0.5-mile from the proposed PV arrays.

6. Evaluation by a rating panel of three professionals with experience in the visual/aesthetics field indicates that the Facility's overall contrast with the visual/aesthetic character of the area will generally be moderate when viewed with the conceptual planting plans depicted in a mature condition (i.e., 5-7 years post-installation). The greatest perceived visual effect is anticipated in those instances where a broad extent of PV panels is visible, when the solar arrays are unscreened and in close proximity to the viewer, and/or when the PV panels appear out of place in their setting (e.g., change the character of agricultural/agrarian landscapes). Conversely, contrast is reduced when the Facility is viewed at greater distances, viewed in a setting with existing infrastructure in place, partially screened by vegetation, and/or seen in the context of the larger landscape, which includes a patchwork of woodlots and agricultural fields.

7. As demonstrated by the visual simulations and visual impact assessment rating results, the perimeter plantings can be effective in mitigating the visual impact of the proposed Facility. The average contrast rating score for the simulations that depict the Facility in a newly installed condition was 2.6 out of 4.0 (i.e., a moderate to appreciable visual effect). The average contrast rating score decreased to 2.2 (i.e., a moderate impact) for the simulations that depict the Facility with the planting plan in a mature condition (i.e., 5-7 years post installation). The conceptual planting modules were most effective at mitigating the visual impact of the Facility where they screened views of the PV panels, broke up the continuous horizontal and vertical lines of the solar arrays, and softened the Facility's contrast with the surrounding landform and vegetation. Conversely, the conceptual planting modules were less effective in reducing visual impact where the solar arrays were mounted on rising or elevated topography or introduced screening that obstructed desirable aspects of existing views (such as distant views of background features).

8. Based on the fact that no solar facilities of this size currently exist in the state, public reaction to the aesthetic qualities of the proposed Mohawk Solar arrays is unknown and likely to be highly variable. Reactions will be based on viewer proximity to the PV panels, viewer's familiarity with or perception of the affected landscape, and the extent of the Facility that is visible from a given viewpoint. The planting plan has been designed to use native shrubs and grasses based on the character of existing vegetation communities within the Facility Site and surrounding parcels. The intent of the planting plan is to both screen the Facility and minimize the potential visual effect of the Facility by visually integrating the project into the surrounding landscape. While the planting modules were not designed to completely screen views of the proposed Facility, the introduction of native tree and shrub mixes interspersed with pollinator plants along the roadsides adjacent to the Facility will present natural forms and colors to divert attention from the modern materials and inorganic forms of the PV panel arrays. The Applicant intends that the planting plan will be perceived as a positive addition to the local environment.

9. Visibility and visual impact of the above-ground interconnection facilities will be very limited/minimal. The above-ground interconnection facilities have been well-sited and will be screened from view by surrounding vegetation. The site of the proposed interconnection facilities is set back within a forested area approximately 0.4 mile from the nearest road. There are no residences immediately adjacent to the site, and forest vegetation screens the site from nearby residences. Thus, visibility and viewer exposure at this site are anticipated to be minimal. Only the uppermost portions of the lightning mast structures will be visible above the upper portions of the forests that surround the substation site. Given their narrow profile and the effect of distance, it is not anticipated that the structures would attract viewer attention.

10. Lighting at the proposed substation and O&M building could result in a nighttime visual impact on a small number of viewers. The PV panel arrays and fences will not be lit. The only light sources that are anticipated to be installed for the Facility are safety/security lighting to be installed at the collection substation and the O&M building. All such lighting will be directed downward at a 30-degree tilt angle to minimize the effects of light pollution. Lighting will also be kept to a minimum and will use the lowest intensity required to assure safety and security. Additionally, all lighting will be operated manually or placed on an auto-off switch to further minimize the impacts of off-site light trespass.

11. Construction impacts are short term/temporary impacts that will last only for the duration of construction (anticipated to be less than one year). Upon completion of construction, construction vehicles and equipment will depart, and disturbed portions of the site will be restored.

6.2 Mitigation of Visual Impacts

The minimization and mitigation of visual impacts is an important consideration when siting and designing solar facilities. The NYSDEC Program Policy *Assessing and Mitigating Visual Impacts* provides general guidance regarding appropriate considerations to address visual effects for development projects of all types, such as relocation, camouflage/disguise, low profile, downsizing, use of alternative technology, non-specular material, lighting, and screening (NYSDEC, 2018). Some of these considerations (e.g., low-profile, downsizing) are more applicable to large/tall structures than to solar facilities; however, the use of vegetation to help screen views of a solar facility, improve the aesthetics of projects, and provide ecological/wildlife benefits is becoming well-established as the preferred method of mitigating visual impacts for solar facilities (e.g., NYSERDA, 2019; Scenic Hudson, 2018; Sullivan and Abplanalp, 2013; Walston, *et al*. 2018).

As described in Section 4.2 of this VIA, the Applicant has developed a conceptual visual mitigation planting plan, using native species and mimicking the character of successional fields in the study area, to minimize and mitigate the Facility's

visual effect on the surrounding landscape. This conceptual planting plan was developed as a site-specific solution appropriate to the scale of the Facility and visual character of its setting. However, a variety of visual mitigation options can be considered for solar projects, such as selection of equipment/technology, siting/setbacks, fencing, and screening. These mitigation options and their applicability to the proposed Mohawk Solar Facility are discussed below:

Equipment/Technology

PV panels have a low-profile (in this case, anticipated to be no greater than 11 feet in height), which limits their visibility and potential visual effect in terms of the distance from which the PV panels will be visible. However, the large areas of land required to achieve the necessary scale of electrical production for utility-scale solar projects can result in a substantial change in the visual character of the environment for viewers located in areas adjacent to the Facility. Other elements of Facility design, such as burying proposed electrical interconnects, are intentionally designed to avoid visual impacts (i.e., relative to the use overhead lines for electrical collection within the Facility).

Siting

Proper siting considerations for solar projects include avoidance of areas with significant VSRs and high density of residents. The Mohawk Solar Facility has been sited so as to avoid or minimize visual impacts to population centers. Due to the screening provided by vegetation and topography, visibility is generally concentrated within 0.5 mile of the Facility. Additionally, siting the proposed Facility in open agricultural lands minimizes the potential need for tree clearing and associated visual impacts, and the patchwork of existing woodlots and hedgerows around those agricultural fields help to minimize Facility visibility. In addition, the arrays generally will follow the existing topography of the Facility Site and will require little grading.

Setbacks

The general design criteria for the Facility included setbacks established in consideration of local zoning requirements to allow a sufficient buffer between Facility components and public rights of way ("ROW") and private residences/property lines. Within the Town of Canajoharie, a 200-foot setback between the PV arrays and the property line of any parcel whose owner is not hosting Facility components (i.e., a "non-participating parcel") and/or the edge of any public road ROW. Within the Town of Minden, a 100-foot setback between the PV arrays and the property line of any parcel whose owner is not hosting Facility components (i.e., a "non-participating parcel") and/or the edge of any public road ROW.

Screening

As describe above, the Applicant has developed a conceptual perimeter planting plan intended to block or soften views of the solar arrays from surrounding areas. Alternate approaches to visual screening considered for use in the Mohawk Solar Facility site are described below:

Berms, Opaque Enclosures, and Evergreen Hedges

Visual mitigation for solar facilities can include installing earthen berms, opaque enclosures (such as vinyl fencing or similar), and/or a screening hedge made up of evergreen trees. These approaches can be effective to fully screen views of a project and might be appropriate in urban and suburban settings. In addition, there are no design configurations or solutions for these types of screening measures that would allow the Facility to be fully screened from view without resulting in additional environmental impacts. The use of berms would require large areas of soil disturbance, which is contrary to the design objective of the Facility to minimize soil disturbance to the greatest extent practicable and could interfere with current or future agricultural uses of the Facility Site. In addition, the use of berms, opaque enclosures, or evergreen hedges would introduce new visual elements into the landscape that would be inconsistent with the character of the existing visual environment and therefore result in unnecessary visual impacts. In a rural/agricultural setting, such as the Facility Site, the introduction of berms, opaque enclosures, and/or uniform evergreen hedges would be inconsistent with the native vegetation and existing visual character. Consequently, no such treatment is proposed as visual mitigation for the Mohawk Solar Facility. As indicated in the description of proposed planting modules (see Section 4.2 of this report), the proposed installation of evergreens will be intermittent, in keeping with the existing visual character of the visual study area.

Native Shrubs and Trees

An alternative to berms and evergreen hedges, which may not appear natural or appropriate in many settings, is the use of native shrub and tree plantings between adjacent roads and the fencing that encloses the solar arrays. A well-designed solar facility should include a planting plan with thoughtful selection of appropriate, native plants installed in locations that will screen or soften views of the facility from adjacent properties or roadways. The selection of plant materials is an important consideration not only for aesthetics but also to provide habitat for pollinators and other wildlife (Eskew, 2018; Walston, *et al*., 2018). Scenic Hudson, Inc., a New York-based land use advocacy and land preservation organization in the Hudson River Valley, has established five criteria for plant selection when screening a solar project. These criteria include: (1) plants large enough to screen the facility from the time of their installation; (2) be selected to provide year-round screening; (3) enhance the area's existing beauty; (4) provide long-lived, resilient and dense bank of vegetation; (5) use of native species mix (Scenic Hudson, 2018). In addition to these criteria, a diverse selection of native tree and shrub species, varying in height, should be used (North Carolina Pollinator Conservation Alliance, 2018).

In addition, removing vegetation from a given facility site can result in a strong visual contrast between a project and the surrounding environment (Sullivan and Abplanalp, 2013). The Mohawk Solar Facility has been designed to retain existing on-site vegetation wherever feasible, particularly along roadways and property lines to retain the screening benefits of existing vegetation. Maintaining existing vegetation enables the Facility Site to preserve the visual and ecological character of the surrounding landscape.

For the Mohawk Solar Facility, the Applicant selected combinations of trees and shrubs that mimic early successional and/or hedgerow communities observed within and adjacent to the Facility Site (see Appendix G.ii). While the use of native shrubs and trees will not necessarily result in plantings that completely screen views of the Facility, it will serve to soften the overall visual effect and help to better integrate the Facility into the surrounding landscape. Plantings were selected to match or complement the existing composition and pattern of vegetation within the Facility Site. In addition to helping blend the Facility into the surrounding landscape, use of native plant species also provides ecological benefits, such as food and cover for local wildlife communities.

Pollinator-Friendly Grasses and Wildflowers

Planting pollinator-friendly species can aid in the aesthetics of a solar facility, while also providing habitat for wildlife such as hummingbirds, butterflies, and bees (Eskew, 2018; NYSERDA, 2019; Scenic Hudson, 2018; Walston, *et al*., 2018). Agricultural settings include areas characterized by open fields and unimpeded long-distance views. To match the character of these areas, the Applicant intends to install tall native grasses and wildflowers along selected roadsides to soften the appearance of a project and better integrate it into the landscape. In the case of Mohawk Solar, regionally appropriate herbaceous plantings were included in the conceptual planting modules to provide habitat for pollinator species when planted around the periphery of the site and/or in locations on site where mowing can be restricted during the summer months. Pollinator seed mixes can provide a colorful backdrop, particularly in the spring, summer, and fall months. Leaving the taller plants un-mowed during the summer provides benefits to pollinators, habitat for ground nesting/feeding birds, and cover for small mammals, in addition to softening the appearance of the Facility.

Lighting

The substations and O&M building will need to be equipped with lights for safety and security. Light fixtures will be directed downward at a 30-degree angle to minimize the effects of light pollution. Additionally, lighting at the Facility will be kept to a minimum and turned on only as needed, by manual switch or timer. These measures will effectively minimize and mitigate the potential visual effect of any proposed lighting at the Facility.

Relocation

Due to the geographic extent of the Facility and the variety of viewpoints from which the Facility can be seen within the visual study area, the relocation of PV panels would generally not significantly alter the visual effect of the Facility. Moving individual solar arrays to different sites would not necessarily reduce impacts, but rather relocate them. Additionally, because the Facility layout is restricted to participating parcels and has been designed to accommodate various set-backs from roads and residences, options for relocation of individual Facility components are limited.

Downsizing

Reducing the number of PV panels could reduce visual impact from certain viewpoints, but from most locations within the visual study area where more than one solar array is visible, the visual impact of the Facility would change only marginally unless a substantial number of PV panels were removed. Along with affecting the financial viability of the Facility, downsizing the Facility would significantly reduce the local socioeconomic benefits of the Facility and reduce the Facility's ability to assist the State in meeting its energy policy objectives and goals.

Decommissioning

As described in the Article 10 Application, the Applicant will establish a decommissioning fund to assure that all above-ground components of the Facility are removed at the end of their operational life.

In summary, while the conceptual planting plan for the Mohawk Solar Facility was not designed to completely screen views of the proposed Facility, the introduction of native tree and shrub mixes interspersed with pollinator plants along the roadsides adjacent to the Facility will provide a visual buffer of natural vegetation between the Facility and the viewer. These natural forms and colors are intended to divert attention from the modern materials and inorganic forms of the PV panel arrays. As demonstrated in the visual simulations included in this VIA, the installation of the proposed planting plan, upon reaching maturity, would better integrate the PV arrays into the character of the existing landscape. With the inclusion of these measures, the Applicant has developed a plan that effectively minimizes the potential visual effect of the Facility.

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