no intervening topography or vegetation was present. The wireframe alignment produced for this report is included in Section 5.2.

Figure 4.2-1 Visual Simulation Methodology

Photographs taken from viewpoints collected in the field are selected to illustrate typical views of the proposed facility that will be available to representative viewer/user groups from the study area.

Orthoimagery and GPS data collected in the field are used to determine the viewpoint location and a virtual 3D camera matching the exact specifications of the photograph is created.

Lidar data is used to generate a model of the existing terrain, vegetation, buildings, and other physical features that are visible in the photograph. This information is used to precisely align the camera to ensure an accurate alignment with the selected photograph.

A three-dimensional computer model of the facility is built based on proposed specifications of the solar panels, racking, and fencing. The model is then placed in the correct geographic position within the 3D model.

Mitigation plantings are sized based upon region-specific growth rates and vegetation models are placed in the scene at the locations specified in the mitigation planting plan.

The appropriate sun angle is simulated based on the specific date, time and location (latitude and longitude) at which each photo was taken. The model is rendered and merged into the scene.

4.2.3 Visual Contrast Rating

To evaluate anticipated visual change associated with the Project, the visual simulations of the completed Facility were compared to photos of existing conditions from each of the 13 selected viewpoints. These "before" and "after" photographs, identical in every respect except for the Facility components shown in the simulated views, were provided 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 was developed by EDR in 1999 (and subsequently updated) based on agency-approved/recommended methodologies (e.g., Smardon, et al., 1988, BLM, 1999). It involves using a short evaluation form and a simple numerical rating process to assign visual contrast ratings on a sale of 0 (insignificant) to 4 (strong). This methodology: 1) documents the basis for conclusions regarding visual impact, 2) allows for independent review and replication of the evaluation, and 3) allows a large number of 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:

- *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 and is 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.
- *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.
- 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 not be sited 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*: Clouds, precipitation, haze, and other ambient air-related conditions, which affect the visibility of an object or objects. These conditions can temporarily impact the visibility and contrast of landscape and project components, 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 will affect the perceived color and reflectivity of PV panels, and can have a significant effect on the visibility and contrast of landscape and project elements.
- *Project Scale*: The apparent size of a proposed project in relation to its surroundings can define the compatibility of its scale within the existing landscape. Perception of project 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.

To conduct their evaluation, the rating panel received the following VSA and viewpoint-specific information (Attachment E).

- General information for the VSA:
    - VSA Location Map
    - LSZ definitions and map
    - Description of user/viewer group types
    - List and map of identified VSRs
    - Contrast rating forms
    - Instructions for the completion of rating forms
    - Information on the Landscape Mitigation Planting Plan
- Specific information for each viewpoint including a Google Earth File (KMZ), indicating:
    - Viewpoint location
    - Direction of view/cone of view
    - Location of adjacent Facility components
    - Distance to nearest Facility component
    - Applicable LSZ, user/viewer groups, and VSRs
    - The selected viewpoint photo (Existing Condition)
    - Context photographs showing the views adjacent to the viewpoint Location
    - Visual simulations (with and without mitigation plantings)

5.0 VISUAL IMPACT ASSESSMENT RESULTS

5.1 Project Visibility

5.1.1 Viewshed Analysis Results

PV Panel Array Viewshed Analysis Results

The PV Panel viewshed analysis (Figure 5.1-1 and Table 5.1-1) suggests visibility of the Facility will be heavily concentrated within the Facility Site and directly abutting open fields. Visibility is largely contained within and adjacent to the Facility Site due to the screening effects of topography, vegetation, and structures. Potential visibility extending beyond the Facility Site itself is largely contained to within the near-foreground (0.5 mile) and occurs in discrete areas of open field. In many of these areas the analysis suggests only a small portion of the Facility would be potentially visible. This condition is most notable along portions of County Route 6, Klondyke Road, Sulpher Springs Road, and Kupta Road where multiple open fields, topography, and lack of screening features allow for open views of the Facility. Potential visibility extends beyond 0.5 mile in isolated locations in the southeastern, eastern, and northern portion of the VSA. These areas of potential visibility beyond 0.5 mile occur on both sides of Camp Road in the Town of Mina, and south of Klondyke Road, Sulpher Springs Road, and South Ripley Road. In these locations, the visibility is generally restricted to topographic highpoints or cleared hillsides oriented toward the Facility Site. The viewshed analysis generally indicates that only a portion of the Facility would be potentially visible at most of these locations. As indicated by the DSM viewshed, topography, in combination with vegetation and structures, will serve to screen views of the solar arrays from approximately 88.6% of the VSA (i.e.,11.4% of the VSA is indicated as having potential PV panel visibility). Based on the results of the DSM viewshed analysis, the greatest level of predicted visibility occurs within the near-foreground distance zone (panels potentially visible within 26.7% of this zone). It should also be noted that visibility within the near-foreground zone occurs primarily within the Facility Site itself, (accounting for 64.8% of all near-foreground visibility). Potential visibility drops off significantly within the foreground zone (panels potentially visible within 2.5% of this zone) and the middle ground zone (panels potentially visible in 1.5% of this zone). As these numbers indicate, potential PV panel visibility diminishes quickly at distances over 0.5 mile. However, some portions of the VSA 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).

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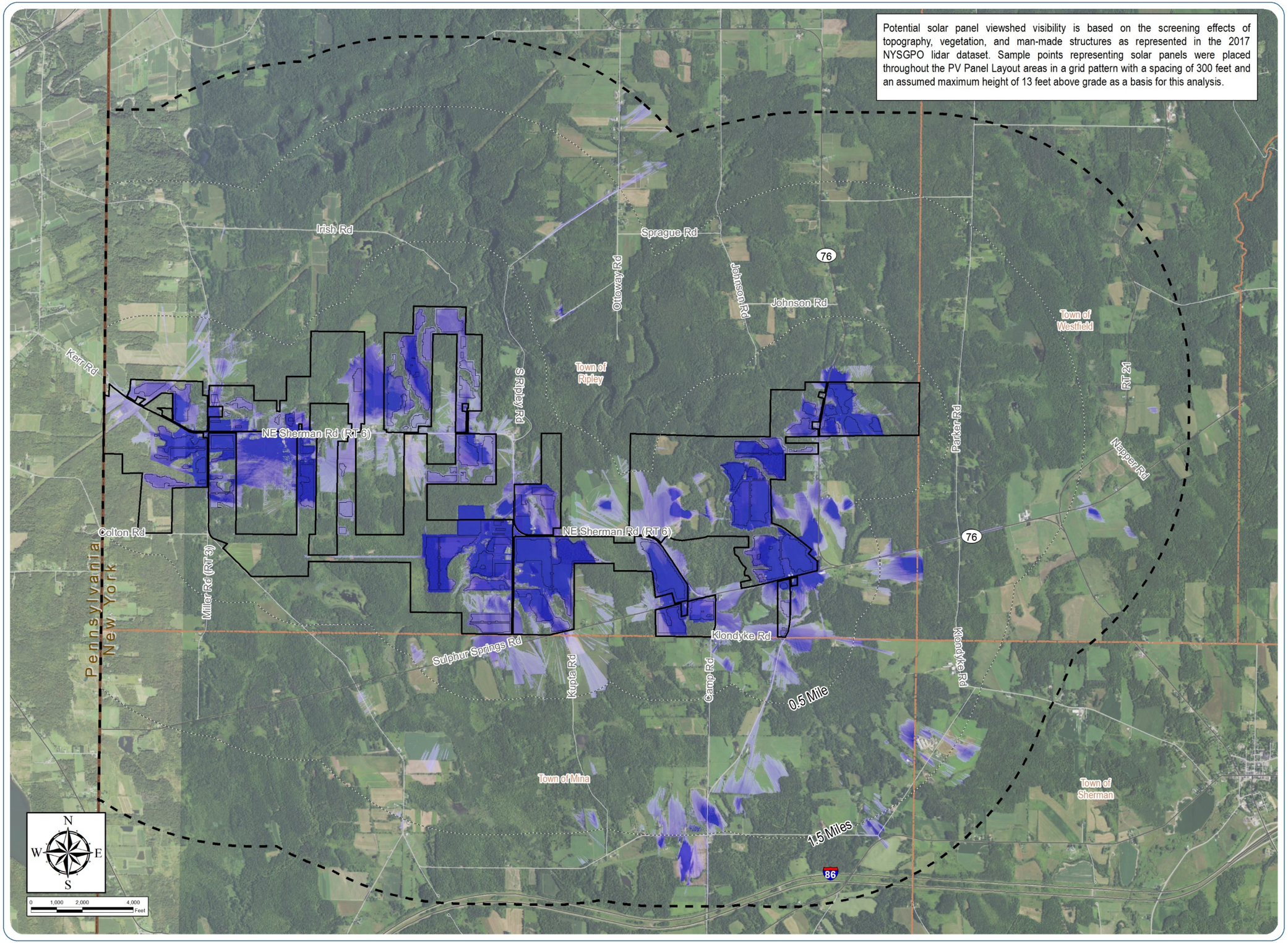
Figure 5.1-1: PV Panel DSM Viewshed Analysis

Potential solar panel viewshed visibility is based on the screening effects of topography, vegetation, and man-made structures as represented in the 2017 NYSGPO lidar dataset. Sample points representing solar panels were placed throughout the PV Panel Layout areas in a grid pattern with a spacing of 300 feet and an assumed maximum height of 13 feet above grade as a basis for this analysis.

Potential PV Panel Visbility
- Many PV Panels Visible
- Few PV Panels Visible

- PV Panel Area
- Distance Zone Transition
- Facility Site
- 2-Mile Visual Study Area
- Town Boundary
- State Boundary

Notes: **1.** Basemap: USDA NAIP "2019 New York 60cm" orthoimagery map service. **2.** This map was generated in ArcMap on July 2, 2021. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.



Potential visibility of the PV arrays (based on DSM viewshed analysis) from the various LSZs within the VSA is summarized as follows:

- The greatest potential for visibility of the proposed arrays is indicated within the Rural Residential/Agricultural LSZ. The DSM viewshed indicates that 28.7% of this LSZ within the VSA could potentially have views of the proposed PV panels. Visibility within this LSZ is most heavily concentrated in the near-foreground distance zone, including the area within the Facility Site itself. Potential visibility within the Rural Residential/Agricultural LSZ extends beyond the near-foreground zone in a few discrete locations south of Klondyke Road and within agricultural fields bordering Camp Road, south of the Facility Site. This condition also occurs in several agricultural fields to the southeast of the Facility Site.
- The potential for PV panel visibility is indicated in approximately 4.2% of the areas within the Forest LSZ. Visibility within the Forest LSZ is primarily the result of tree clearing within the Facility Site to accommodate the installation of PV panels. This clearing will convert approximately 521 acres (3.2%) of the Forest LSZ to non-forested area, thus accounting for almost all increased Facility visibility within this LSZ. The remaining 1% of potential visibility within the Forest LSZ generally occurs along the periphery of forested areas that occur directly adjacent to the Facility Site or have open fields between the Facility and forest edges.
- The Transportation Corridor LSZ will not have significant visibility of the Facility (less than 0.1 acre) due to the screening effects of intervening topography, vegetation, and structures.
- The River Gorge LSZ will not have any potential visibility of the PV panels due to the combined effects of forest vegetation and steep slopes that characterize this LSZ.

Areas where views of the PV panels will actually be available are anticipated to be more limited than indicated by the DSM viewshed analysis due to the low profile of the panels, the effects of distance, and the fact that in many areas views will be limited to only a small portion of the proposed PV panel arrays. However, some portions of the VSA 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).

Collection Substation and BESS Viewshed Analysis Results

As indicated in Figure 5.1-2 and Table 5.1-1, the DSM viewshed analysis suggests that the collection substation and/or BESS will be visible from 0.5% of the VSA while views from the remaining 99.5% of the study area will be screened by vegetation, structures, and/or topography. Consistent with the PV panel array viewshed analysis results, the greatest level of predicted visibility of the collection substation and BESS occurs within the near-foreground distance zone, but even within this area the percentage of the zone with potential views is minimal (0.8%). Visibility within the foreground and middle ground distance zones accounts for <0.1% and 0.2% of these zones, respectively. Based on the results of the DSM viewshed analysis, visibility of the collection substation/BESS will generally be limited to the area immediately adjacent to these Facility components on portions of Northeast Sherman Road. Potential visibility beyond the immediately adjacent area is also indicated along an existing utility corridor and wetland area within the near-foreground, small portions of South Ripley Road within the foreground, and in portions of agricultural fields surrounding Wattlesburg Road within the middle ground distance zone. However, potential visibility at these more distant locations is likely to be limited to the upper portions of the substation due to intervening vegetation, and it may be difficult to distinguish these relatively small components amongst foreground features when viewed at greater distances.

Overhead Collection Line Viewshed Analysis Results

DSM viewshed results for the overhead collection line are depicted in Figure 5.1-3. These results indicate that the overhead collection line will be visible from approximately 5.7% of the VSA, with visibility occupying 15.4% of the near-foreground distance zone. As with the other above-ground Facility components, potential visibility drops off quickly in the foreground and middle ground distance zones. Overhead collection line visibility is most heavily concentrated in agricultural fields that the line passes through, but is also indicated in open areas on more distant Facility-facing slopes.

Table 5.1-1 Summary of Viewshed Results

Analysis	Visibility within the VSA (square miles)	Visibility by Distance Zone (square miles) [1]		
		Near-Foreground 0-0.5 Mile	Foreground 0.5-1.5 Miles	Midground 1.5-2.0 Miles
Total Area	43.8	14.1	17.7	12.0
PV Panel DSM Viewshed Visibility	5.0 (11.4%)	4.4 (31.1%)	0.4 (2.4%)	0.2 (1.5%)
Collection Substation DSM Viewshed Visibility	0.2 (0.5%)	0.1 (1.0%)	<0.1 (<0.1%)	<0.1 (0.2%)
Overhead Collection Line DSM Viewshed Visibility	2.5 (5.7%)	2.2 (15.4%)	0.1 (0.8%)	0.2 (1.5%)
Combined DSM Viewshed Visibility or Area of Potential Effect (APE)	5.4 (12.4%)	4.7 (33%)	0.5 (2.7%)	0.3 (2.3%)

[1]The calculations used to generate this table were based on unrounded numbers, therefore, the rounded results may not add up precisely.

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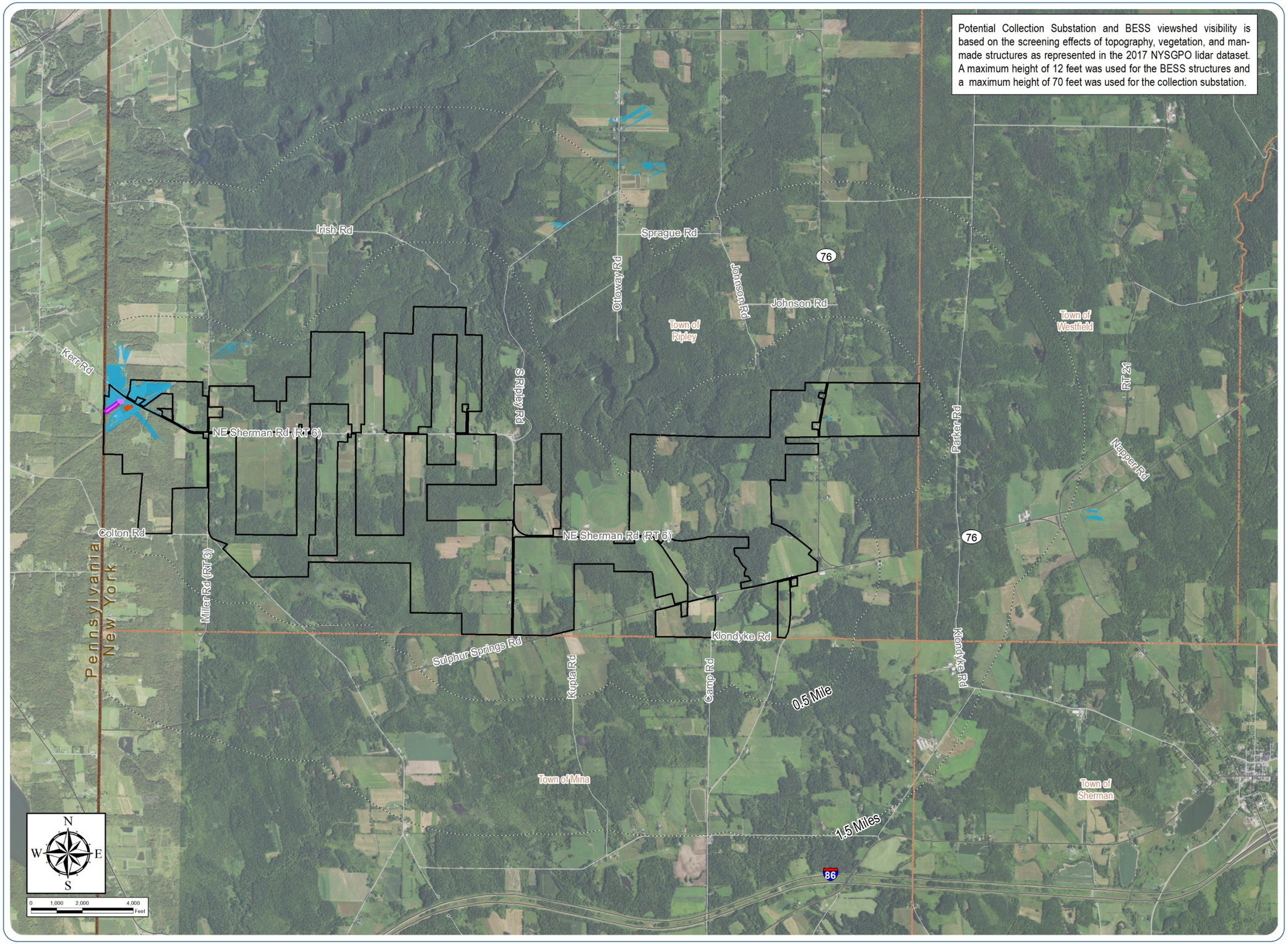
Figure 5.1-2: Collection Substation and BESS DSM Viewshed Analysis

Potential Collection Substation and BESS viewshed visibility is based on the screening effects of topography, vegetation, and man-made structures as represented in the 2017 NYSGPO lidar dataset. A maximum height of 12 feet was used for the BESS structures and a maximum height of 70 feet was used for the collection substation.



- Battery Energy Storage System
- Collection Substation
- Potential Collection Substation and BESS Visibility
- Distance Zone Transition
- Facility Site
- Town Boundary
- State Boundary

Notes: 1. Basemap: USDA NAIP "2019 New York 60cm" orthoimagery map service. **2.** This map was generated in ArcMap on July 2, 2021. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

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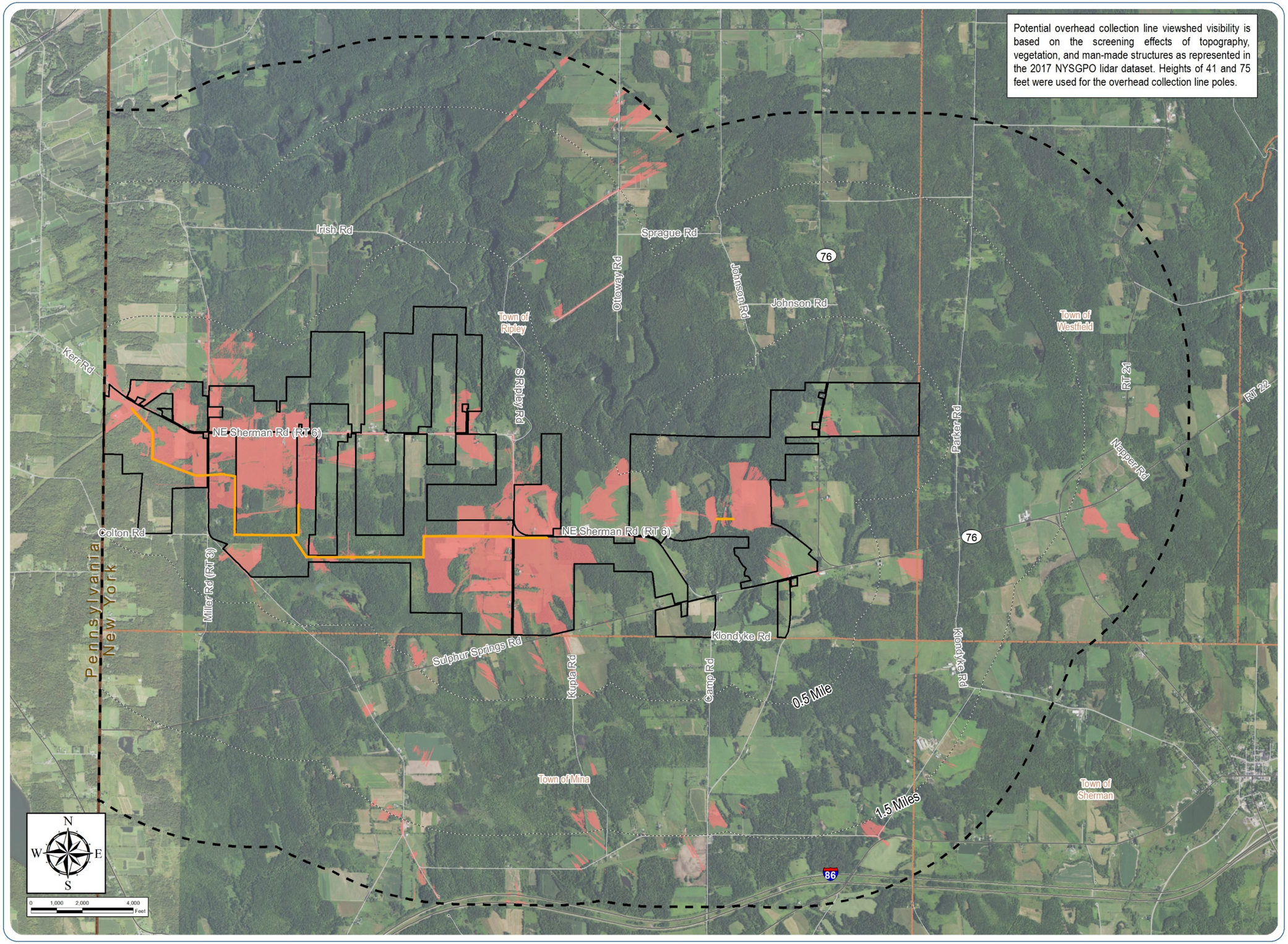
Figure 5.1-3: Overhead Collection Line DSM Viewshed Analysis

Potential overhead collection line viewshed visibility is based on the screening effects of topography, vegetation, and man-made structures as represented in the 2017 NYSGPO lidar dataset. Heights of 41 and 75 feet were used for the overhead collection line poles.



- Overhead Collection Line
- Potential Transmission Line Visibility
- Distance Zone Transition
- Facility Site
- 2-Mile Visual Study Area
- Town Boundary
- State Boundary

Notes: 1. Basemap: USDA NAIP "2019 New York 60cm" orthoimagery map service. **2.** This map was generated in ArcMap on July 2, 2021. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

5.1.2 Area of Potential Effect

Definition of an Area of Potential Effect (APE) allows visual impact evaluations to focus on the resources with the highest probability of project visibility. As described in Section 4.1.1, the DSM viewshed analysis used to define the APE for the proposed Facility considered the screening effects of existing topography, vegetation, and structures in order to delineate those areas that could potentially have views of any portion of the Facility (PV panels, collection substation/BESS, or overhead collection line). As indicated in Table 5.1-1, the APE consists of approximately 5.4 square miles, or 12.4% of the VSA. It is worth noting that over half of the APE (2.9 square miles) occurs within the boundaries of the Facility Site itself. While the VIA considers the existing environment for the entire VSA, the APE was used to define those areas in which further analysis is warranted to determine the degree of Facility visibility and visual impact (see discussion in Section 5.2).

5.1.3 Field Evaluation

Field review suggests that the DSM viewshed results generally provide an accurate indication of potential Facility visibility within the VSA (see Figures 5.1-1 and 5.1-2). As discussed in Section 4.1.2, field crews had the advantage of observing their position relative to the viewshed results while travelling public roads throughout the VSA. The results of EDR's field review are summarized below including viewpoint mapping (see Figure 5.3-3). All photographs referenced in this summary can be found in the viewpoint photolog included as Attachment B.

Forest LSZ

Visibility toward the Facility Site was found to be very limited within the Forest LSZ. Photographs from Viewpoints 64 through 66 illustrate the type of short-distance, enclosed views of the Facility Site occasionally available from within this LSZ. In most instances the forest vegetation completely screens views of more distant landscape features. Views down forest roads (Viewpoint 64) provide opportunities for extended visibility down the road corridor, but such views are tightly framed by forest vegetation. Field review also determined that the proposed vegetative clearing within the Facility Site would generally be difficult to discern due to the distance at which it occurs from public vantage points and the screening provided by the remaining forest stands. Exceptions to this were noted in the vicinity of Viewpoint 5, 20, and 44 where elevated views of the Facility Site allow for extended views toward areas where forest clearing is proposed.

Rural Residential/Agricultural LSZ

Field review within the Rural Residential/Agricultural LSZ revealed that the greatest concentrations of open views toward the proposed Facility occur within this zone, confirming the results of the viewshed analysis. Agricultural fields in the vicinity of the Facility will provide open views of near-foreground PV panels. County Route 6, which essentially bisects the Facility Site from east to west, has the highest probability for visibility of both discrete portions of the Facility in the near-foreground (Viewpoints 5, 15, and 16) and less frequently, broad elevated views of multiple PV arrays (Viewpoints 9 and 20). Sinden Road also bisects a portion of the Facility Site in a north-south direction and includes a similar variability in the number of PV panel arrays that will be potentially visible. Viewpoint 44 on Sinden Road offers a significantly elevated view of multiple PV panel arrays, overhead collection lines, tree clearing, and access roads. However, just a quarter mile to the south, views will include only small discrete portions of the Facility (Viewpoint 49) as a result of intervening topography, hedgerow vegetation, and structures. While County Route 6 and Sinden Road both have a relatively high degree of Facility visibility, these roads also have a variety of natural and build elements

that serve to screen views of significant portions of the Facility. Field review suggests that viewers will experience include irregular, but repeated, exposure to views of the Facility as one progresses along these roads.

Visibility of the Facility Site from the Agricultural/Rural Residential LSZ was significantly less frequent in the foreground zone (0.5-1.5 mile) due to intervening topography, vegetation, and structures. However, elevated views from public roads bordered by open fields did offer potential views from discrete locations. Viewpoints 31, 74, and 75 illustrate long distance views toward the Facility Site from the foreground distance zone. Visibility of the Facility Site at middle ground distances was found to be almost nonexistent from public vantage points within this LSZ due to the combined screening effects of topography and intervening forest vegetation. Photographs from the viewpoints listed above illustrate how slight topographic changes and existing hedgerows within the LSZ will introduce variability to potential views of the Facility. In addition, the wireframe alignment shown in Figure 5.1-3 below also illustrates how the gently rolling topography can limit near-foreground and foreground visibility of the Facility (shown in green) within this LSZ.

Figure 5.1-3: Wireframe Alignment (Viewpoint 51)

River Gorge LSZ

During field review, the River Gorge LSZ was inaccessible due to the lack of public access. However, a detailed review of desktop resources such as Google Earth and Bing Maps suggest that the viewshed accurately predicted no potential visibility of the Facility from within this LSZ.

Transportation Corridor LSZ

No photos were obtained from I-86 during field review due to safety concerns. Viewpoint 33, taken less than 0.3 mile north of Interstate Route 86, suggests that the Facility Site will be significantly screened by the combination of vegetation and topography. In this region, field review confirmed that I-86 includes multiple changes in direction, high speeds, and visual distractions such as exits, bridge overpasses, and other traffic. Given the viewing environment, the distinct lack of visibility (as predicted by the viewshed analysis), and distance from the Facility Site, it is anticipated that the Facility will not be visible from the Transportation Corridor LSZ.

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Figure 5.1-4: Viewpoint Locations

- Viewpoint
- Simulation Location
- Distance Zone Transition
- Overhead Collection Line
- Battery Energy Storage System
- Collection Substation
- PV Panel Area
- Facility Site
- 2-Mile Visual Study Area
- Town Boundary
- State Boundary

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service. **2.** This map was generated in ArcMap on July 2, 2021. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

5.2 Visually Sensitive Resources

A total of 14 VSRs were identified within the VSA, with 11 of those indicated as having potential Facility visibility based on viewshed analysis. Results of this analysis are summarized in Table 5.2-1, followed by a brief description of the specific VSRs that occur within the APE of the proposed Facility.

Table 5.2-1 Total VSRs with Visibility

Visually Sensitive Resources	Total Number of Resources within the VSA	Total Number of Resources within the APE
Properties of Historic Significance [6 NYCRR 617.4 (b)(9)]	**Total 2**	**Total 2**
National Historic Landmarks (NHL)	0	0
Properties Listed on National or State Registers of Historic Places (NRHP/SRHP)	0	0
Properties Eligible for Listing on NRHP or SRHP	2	2
National/State Historic Sites	0	0
Designated Scenic Resources	**Total 0**	**Total 0**
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
Sites, Areas, Lakes, Reservoirs or Highways Designated or Eligible for Designation as Scenic ([ECL Article 49Title 1] or equivalent)	0	0
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 2**	**Total 2**
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	0
Heritage Areas [Parks, Recreation and Historic Preservation Law Section 35.15]	1	1
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	0	0
Designated Trails	1	1
Palisades Park [Palisades Interstate Park Commission]	0	0
Local Parks and Recreation Areas	0	0
Publicly Accessible Conservation Lands/Easements	0	0

Visually Sensitive Resources	Total Number of Resources within the VSA	Total Number of Resources within the APE
Rivers and Streams with public fishing rights easements	0	0
Named Lakes, Ponds, and Reservoirs	0	0
High-Use Public Areas	**Total 3**	**Total 3**
State, US, and Interstate Highways	3	3
Cities, Villages, Hamlets	0	0
Schools	0	0
Native American Lands	**Total 0**	**Total 0**
Other Resources Identified by Stakeholders	**Total 7**	**Total 4**
Total Number of VSRs in the VSA	**14**	**11**

5.2.1 Properties of Historic Significance

Based on EDR's review of the NRHP website, the New York State Office of Parks, Recreation and Historic Resources (NYSOPRHP) Cultural Resources Information System (CRIS) website, and the NYSOPRHP shapefile for buildings, structures, sites and historic districts listed in the NRHP (NPS, 2020c, 2020e; NRHP, 2020a, 2020b; NYSHPO, 2020), there are no NRHP-listed resources within the Facility APE. However, per the requirements set forth in Section 94-c, a Historic Resources Survey (EDR, 2019) was also conducted. Based on that survey, two historic properties were identified within the VSA that have been determined by the NYSOPRHP to be NRHP-eligible. One of these properties, a nineteenth-century farmstead located at 4704 State Route 76, has potential visibility of the overhead collection line at a distance of 0.7 mile. At this distance, the wooden structures associated with the overhead collection line would not be discernable due to their narrow profile. As such, it is anticipated the Facility will not result in visual effects on this resource. The second resource, South Ripley Cemetery, is located adjacent to the PV panel arrays and will have visibility of the Facility. To evaluate the potential visual impacts associated with this resource, two visual simulations are included in the assessment. The Facility visibility is illustrated in Attachment D (Viewpoints 15 and 69) and the results of the impact assessment are presented in Section 5.3.2.

In addition to the analyses included in the VIA, the Historic Resources Survey included as Appendix 9-D to the Section 94-c Application provides additional assessment of the Facility's potential visual effect on these NRHP-eligible properties.

5.2.2 Public Lands and Recreational Resources

The Project's VSA includes two resources identified as public lands and recreational resources, including one heritage area and one snowmobile trail. Viewshed analysis indicates that both these resources occur within the Facility's APE. The Concord Grape Belt State Heritage Area occupies the northern two thirds of the VSA, including the majority of the Facility Site. The New York State Heritage Area System (formerly known as the Urban Cultural Park System) was first established in 1977 and is administered by the NYSOPRHP. This program is a state and local partnership whose goal is to "*…preserve these resources through their identification, interpretation, development and use in a system made up of state designated heritage areas*" (NYS Senate, 2020). The Concord Grape Belt State Heritage Area was established by the New York State Legislature in 2006 and a Management Plan was adopted in 2010 (Peter J. Smith & Company, 2010). This heritage area covers the northern portion of Chautauqua County along Lake Erie and is meant

to highlight the grape growing history of the area. While the Management Plan identifies specific resources within the Concord Grape Belt State Heritage Area, these resources are situated north of the Allegany Plateau Escarpment, and outside the VSA. Additionally, identified scenic vistas are oriented toward Lake Erie, and generally focus on vineyards and other signature features of the grape belt. Given the expanse of this Heritage Area, Facility visibility within this VSR is as described in the overall viewshed analysis results discussion in Sections 5.1.1 and 5.3. As indicated in these sections potential visibility is limited to 28.7% of the Rural Residential/Agricultural LSZ within the VSA and is almost nonexistent in the Forest and River Gorge LSZs.

The overhead collection line viewshed analysis suggested potential Facility visibility from a discrete portion of the Chautauqua Lake Snowmobile Trail at a distance of 2.8 miles. However, at this distance it would not be possible to discern the structures associated with this component of the Facility. Therefore, the Facility will not result in visual impacts to this resource.

5.2.3 High Use Public Areas

Major Transportation Corridors:

The VSA includes two state highways and one interstate highway which 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 5.2-2 indicates NYSDOT 2015 traffic counts for these roadways, as well as percent visibility from each of these roadways within the APE.

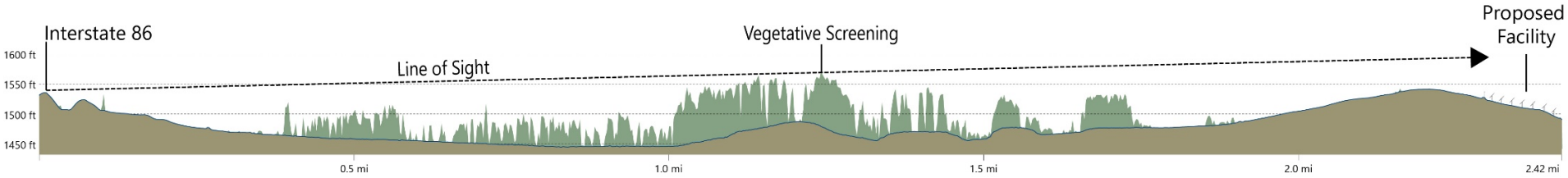
Table 5.2-2 Traffic Counts

Road	Total Length within the VSA (miles)	Average Vehicles/Day on Segments within the VSA	Percent Visibility of Road Segments within the VSA
State Route 76	3.9	249 – 1,148	34.5%
State Route 430	1.4	257 – 520	1.1%
Interstate 86	3.9	4,473 – 9,064	0.3%

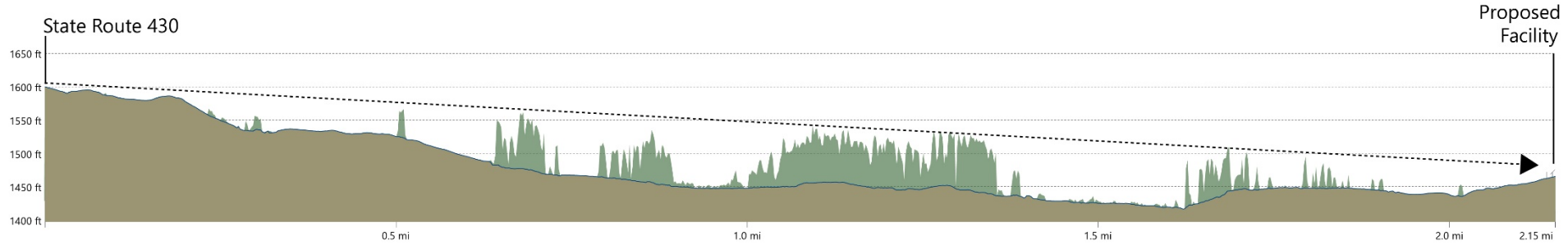
Source: NYSDOT, 2019

Views of the Facility from State Route 76 are represented in the visual simulations illustrated in Attachment D and described in Section 5.3.2. In order to illustrate the minimal visibility from State Route 430 and Interstate 86, two line of sight cross sections are provided below in Figure 5.2-1.

Figure 5.2-1 Line of Sight Cross Sections from Interstate 86 and State Route 430



Section A-A' – Line of sight cross section illustrating a lack of visibility of the PV array from Interstate 86



Section B-B' – Line of sight cross section illustrating minimal visibility of the PV array from State Route 430

As illustrated in the line-of-sight cross sections, the portions of the Facility that are potentially visible from these two state resources are greater than 2 miles from the PV arrays. Given the significant screening provided by topography and vegetation along with the significant distance from the Facility, it is very unlikely that viewers would actually see the Facility from these discrete locations on Interstate 86 and State Route 430.

5.2.4 VSRs Identified Through Stakeholder Outreach

As described in Section 3.6, a total of seven VSRs were identified through the visual stakeholder outreach process. Of these, viewshed analysis indicates that four occur within the Facility APE. Information regarding the identification and inclusion of these resources is described in detail in Attachment F. The resources with potential visibility of the Facility are described below.

- South Ripley Methodist Church – This resource is located adjacent to the Facility Site. A visual simulation was completed from this location and is included in Attachment D (Viewpoint 16). The results of the visual assessment from this resource are presented in Section 5.3.2 Attachment D.
- Ripley Volunteer Fire Department – The Ripley Volunteer Fire Department is approximately 0.2 mile from the nearest PV panel array. Potential visibility from this location is illustrated in Viewpoint 51 which was developed as a wireframe overlay (see Figure 5.1-3 in Section 5.1.2). As illustrated in the wireframe overlay, there will be minimal visibility of the Facility from the Ripley Volunteer Fire Department. As such, no adverse visual effects are anticipated.
- An Unnamed Pond – This VSR is located 0.2 mile south of the nearest Facility component (the overhead collection line). According to the viewshed analysis, the overhead collection line is the only Facility component potentially visible from this location. The narrow corridors of visibility that extend to the pond's southern shore suggest that visibility will be limited to the tops of the wooden structures (Figure 5.1-3). Given the narrow profile of these structures, it is unlikely that this portion of the Facility will be visible amongst the dense foreground vegetation surrounding the pond.
- The Ripley Rod & Gun Club – This site is located 0.4 mile from the Facility. The viewshed analysis suggests a small area of potential visibility occurs at the access road to the Rod & Gun Club. Based on field review and the presence of dense vegetation, it is unlikely that his resource will be adversely affected by the Facility.

5.3 Project Visual Impact

To evaluate anticipated visual change associated with installation of the proposed Facility, photographic simulations of the proposed Facility were compared to photos of existing conditions from each of the 13 selected viewpoints. Attachment D provides a description of the existing and proposed views from each viewpoint, along with a description of the efficacy of the proposed mitigation. A summary of those descriptions is presented below.

5.3.1 Comparison of Existing and Proposed Views

As illustrated in the simulations included in Attachment D, with the proposed Facility in place, new built features are added to a landscape currently characterized by rural residential and agricultural land uses. Based on review of the simulations by a rating panel of four landscape architects, it was noted that the PV modules generally follow the existing topography, and, in most places, there is little evidence of forest clearing to accommodate the Facility. In many instances, significant portions of the Facility are blocked from view by existing hedgerows and woodlots that separate

the existing open fields, thus limiting long-distance views. However, when close to the viewer, the PV arrays serve to enclose some formerly open views, screening visibility of more distant landscape features. The proposed PV arrays also present appreciable contrast with the existing landscape in line, color, texture, and form. This contrast is reduced in views that include existing utility infrastructure and other built features. However, in many near-foreground views presence of the proposed Facility changes the character of the landscape from rural residential and agricultural use to solar energy generation.

With proposed mitigation plantings in place around the perimeter of the PV arrays, and following five to seven years of growth, the visual contrast presented by the Facility would be reduced. In instances where denser plantings are proposed (see discussion of various planting modules in Appendix 8-B of the Section 94-c Application), the plantings largely screen the proposed fencing and PV arrays, and result in the establishment of foreground vegetation similar to that already present in nearby hedgerows and along field edges. In views where less dense plantings were used, (typically where adjacent sensitive resources were lacking) the plantings provide limited screening of the Facility but visually integrate it into the surrounding landscape. In some instances, the effect of the plantings is to simply soften the hard edges of the built Facility. Although the effect is variable depending on the density of plantings, viewer elevation relative to the Facility, and the expansiveness of the view toward the Facility Site, in most cases the plantings help reduce the visual contrast presented by the Facility. See Attachment D for additional detail regarding the efficacy of the proposed mitigation. Additional information on the visual mitigation is provided in the VIMMP (Appendix 8-B of the Section 94-c Application).

5.3.2 Simulation Rating and Assessment of Visual Impact

As described in Section 4.2.3 of this VIA, the rating panel evaluated the contrast and compatibility of the Facility with various components of the landscape (landform, vegetation, land use, water, sky, land use 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 a composite average score for each viewpoint was determined. Attachment D provides a detailed review of the rating panel results and existing and proposed view descriptions for each of the visual simulations. Copies of the completed rating forms are included in Attachment E, and the results of this evaluation process are summarized in Table 5.3-1 and the discussion that follows.

Table 5.3-1 Summary of Rating Panel Results

Viewpoint Number	Distance to Nearest Visible PV Panel	Distance Zone	Landscape Similarity Zone	Viewer Groups			Contrast Rating Scores[1]					
				Local Residents	Through Travelers	Tourists/ Recreation	#1	#2	#3	#4	Average	Contrast Rating Result
Visual Simulations That Depict Facility Components (No Mitigation)												
5	167 ft	Near-Foreground	Rural Residential/Agricultural	•	•		1.9	2.8	3.8	2.7	2.8	Appreciable
15	170 ft	Near-Foreground	Rural Residential/Agricultural	•	•		0.9	1.4	0.9	0.5	0.9	Minimal
16	179 ft	Near-Foreground	Rural Residential/Agricultural	•	•		1.8	2.5	3.2	2.2	2.4	Moderate/Appreciable
20	84 ft	Near-Foreground	Rural Residential/Agricultural	•	•		2.4	2.8	3.4	2.7	2.8	Appreciable
24	654 ft	Near-Foreground	Rural Residential/Agricultural	•	•		0.9	1.9	1.5	1.0	1.3	Minimal/Moderate
40	118 ft	Near-Foreground	Rural Residential/Agricultural	•	•		2.2	3.3	3.6	2.8	3.0	Appreciable
44	344 ft	Near-Foreground	Rural Residential/Agricultural	•			3.3	3.5	3.2	2.2	2.9	Appreciable
56	139 ft	Near-Foreground	Forest	•	•		2.9	2.9	3.3	3.0	3.0	Appreciable
59	203 ft	Near-Foreground	Rural Residential/Agricultural	•	•		2.0	3.7	3.0	2.4	2.8	Appreciable
63S	436 ft	Near-Foreground	Rural Residential/Agricultural	•	•		1.0	2.3	1.2	1.9	1.6	Minimal/Moderate
63SE	453 ft	Near-Foreground	Rural Residential/Agricultural	•	•		2.0	1.8	1.5	2.0	1.8	Moderate
69	417 ft	Near-Foreground	Rural Residential/Agricultural	•		•	3.2	3.0	2.8	2.5	2.9	Appreciable
75	4,450 ft	Foreground	Rural Residential/Agricultural	•	•		0.7	0.3	0.2	0.8	0.4	Insignificant/Minimal
Total average rating for the visual simulations that depict Facility components (No Mitigation)											2.2	Moderate
Visual Simulations That Depict More Mature Mitigation Plantings (5-7 years post-installation)												

Viewpoint Number	Distance to Nearest Visible PV Panel	Distance Zone	Landscape Similarity Zone	Viewer Groups			Contrast Rating Scores[1]					
				Local Residents	Through Travelers	Tourists/ Recreation	#1	#2	#3	#4	Average	Contrast Rating Result
5	167 ft	Near-Foreground	Rural Residential/Agricultural	•	•		1.4	1.5	2.7	2.6	2.1	Moderate
15	170 ft	Near-Foreground	Rural Residential/Agricultural	•	•		0.4	1.1	0.3	0.6	0.6	Insignificant/Minimal
16	179 ft	Near-Foreground	Rural Residential/Agricultural	•	•		1.6	1.4	2.9	2.4	2.1	Moderate
20	84 ft	Near-Foreground	Rural Residential/Agricultural	•	•		1.3	1.6	1.9	2.7	1.9	Moderate
24	654 ft	Near-Foreground	Rural Residential/Agricultural	•	•		0.9	1.8	1.3	1.0	1.3	Minimal/Moderate
40	118 ft	Near-Foreground	Rural Residential/Agricultural	•	•		1.9	2.5	3.6	2.8	2.7	Moderate/Appreciable
44	344 ft	Near-Foreground	Rural Residential/Agricultural	•			2.1	2.3	1.6	2.0	2.0	Moderate
56	139 ft	Near-Foreground	Forest	•	•		2.2	2.1	3.2	3.3	2.7	Moderate/Appreciable
59	203 ft	Near-Foreground	Rural Residential/Agricultural	•	•		1.5	3.1	2.8	2.4	2.5	Moderate/Appreciable
63S	436 ft	Near-Foreground	Rural Residential/Agricultural	•	•		0.4	1.4	0.7	1.7	1.1	Minimal
63SE	453 ft	Near-Foreground	Rural Residential/Agricultural	•	•		1.0	0.6	1.1	1.9	1.2	Minimal
69	417 ft	Near-Foreground	Rural Residential/Agricultural	•		•	2.9	2.8	2.7	2.5	2.7	Moderate/Appreciable
Total average rating for the simulations that depict plantings at 5-7 years post-installation											1.9	Moderate

[1] Contrast Rating Scale: 0.0 - 0.2 (Insignificant), 0.3 – 0.7 (Insignificant/Minimal), 0.8 – 1.2 (Minimal), 1.3 – 1.7 (Minimal/Moderate), 1.8 - 2.2 (Moderate), 2.3 – 2.7 (Moderate/Appreciable), 2.8 – 3.2 (Appreciable) 3.3 – 3.7 Appreciable/Strong), 3.8 – 4.0 (Strong).

As Table 5.3-1 indicates, the composite contrast ratings for the 13 visual simulations ranged from 0.4 to 3.0. without the mitigation plantings in place, and 0.6 to 2.7 with plantings in place after five to seven years of growth. The results of this evaluation are summarized below:

Rating panel results suggest that immediately following installation, the Facility will result in moderate visual contrast with the existing landscape, as indicated by the overall average contrast score of 2.2. With the established mitigation plantings in place, the total average contrast score across all viewpoints dropped to 1.9, indicating moderate visual contrast. This suggests that the proposed mitigation, although useful in screening/softening views of the PV arrays will not substantially reduce the overall visual contrast presented by the Facility. However, from specific affected viewpoint locations, the effectiveness of the mitigation plantings was quite variable.

Review of individual viewpoint scores illustrates this variability. For example, Viewpoints 5, 20, and 44 were noted as having the greatest reduction in visual contrast as a result of the mitigation plantings. Viewpoint 5 received a contrast rating of 2.8 (appreciable visual contrast), but with the mitigation plantings in place after five to seven years the average contrast score was reduced to 2.1 (moderate visual contrast). Viewpoint 20 received an average contrast score of 2.9 (appreciable visual contrast) without mitigation and 1.9 (moderate visual contrast) with the mitigation in place. Viewpoint 44 decreased from a rating of 2.9 (appreciable visual contrast) to 2.0 (moderate visual contrast). In all three instances the plant material provided effective screening of the Facility, successfully integrated it into the existing landscape, and/or introduced a new aesthetic feature into the view that provided visual interest. However, the rating panel noted that the mitigation plantings also served to enclose the view, which in some instances further reduced the visibility of distant background features that were considered contributing elements to the scenic quality of the existing view. Beyond these notable decreases in visual contrast resulting from the mitigation plantings, the remaining views all received a reduction in contrast scores ranging from 0.1 to 0.7, suggesting variable levels of effective mitigation. It should be noted that the contrast scores for Viewpoint 75 remained the same because views from this viewpoint did not include any landscape mitigation.

The viewpoint that received the highest composite contrast rating score of 3.0 was Viewpoint 56, which was distinguished by the expansive views of PV modules and their proximity to the roadway. In addition, screening of distant background views by the Facility is particularly noticeable from this location. The existing view from this viewpoint is of moderate to high scenic quality and was described as having rolling terrain with expansive views and varied textures creating strong linear or striated features that complement the horizon line. Based on its relatively high scenic quality, and expansive view of the Facility Site, this viewpoint received a contrast rating score of 3.0 (appreciable). With the mitigation plantings in place after five to seven years of growth, the contrast score was reduced by 0.3, to 2.7, which is in the moderate to appreciable range. The effectiveness of the landscape mitigation was noted by the rating panel as effective, particularly on the right side of the view, however this is offset by the decrease in long distance visibility from this location.

The lowest composite rating scores were received by Viewpoints 15 and 75. Although Viewpoint 15 is an elevated location with an expansive view of the landscape, contrary to Viewpoint 44, the proposed Facility components in both the near-foreground and foreground are only minimally visible due to screening provided by existing vegetation. Viewpoint 15 received a contrast rating score of 0.9 indicating minimal visual contrast would result without landscape mitigation. With landscape mitigation in place after five to seven years, the contrast score was reduced to 0.6 indicating an insignificant to minimal visual contrast. Viewpoint 75 is approximately 0.8 mile from the Facility and the existing topography, vegetation, and structures serve to screen significant portions of the Facility resulting in visibility of only a small portion of the Facility. Due to the limited visibility and greater distance from the viewer, Viewpoint 75 received a

contrast rating of 0.4 which indicates an insignificant to minimal visual contrast. Additional information on the individual contrast ratings is available in Attachments D and E.

5.3.3 Nighttime Impacts

It is anticipated that the only lighting required for the Facility will include safety/security lighting associated with the BESS and collection substation. These Facility components will utilize full-cut-off light fixtures which will be directed toward the ground to minimize off-site light trespass and sky glow. In these areas lighting will be kept to the minimum 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 spillage. The potential visual impacts will be of short duration and intermittent in nature.

5.3.4 Visual Impact of Above-Ground Interconnection Facilities

The majority of the on-site electrical collection lines will be buried and therefore will not contribute to potential Facility visual impacts. However, as described in Section 2.2, the Facility includes construction of a collection substation, a section of overhead collection line, and a BESS, collectively referred to as the interconnection facilities. Viewpoint 59 includes a view of the proposed collection substation from a distance of 203 feet on County Route 6. This viewpoint received a composite rating panel score of 2.8 (appreciable visual contrast) due primarily to the proximity of the view and the complexity and size of the collection substation components which present appreciable contrast with the natural features of the landscape. With landscape mitigation in place after five to seven years, the contrast score was reduced to 2.5 indicating a moderate to appreciable visual contrast. Rating panel members noted that the visual effects were softened through the use of vegetative mitigation, but also that the existing utility infrastructure present in the view somewhat mitigates the visual contrast presented by the station. It should be noted that Viewpoint 59 is the most open and unobstructed view of the collection substation. Portions of the Facility Site near residences and County Route 6 adjacent to the substation are proposed to receive substantive visual mitigation plantings, which will help to minimize and mitigate the visual impacts associated with this component of the Facility.

Viewpoint 63S illustrates the proposed BESS from County Route 6 from a distance of 436 feet. This viewpoint received a visual contrast rating of 1.6, indicating minimal to moderate contrast. This same view with established vegetative mitigation in place received a contrast rating of 1.1, indicating minimal visual contrast. Viewpoint 63SE is located in essentially the same location on County Route 6, and illustrates both the proposed BESS and collection substation from a distance of 453 feet. Similar to Viewpoint 63S, Viewpoint 63SE received a visual contrast rating of 1.8, indicating moderate contrast, and with established vegetative mitigation in place received a contrast rating of 1.2 indicating minimal contrast. These ratings suggest that the visual impact of the BESS is limited due to its low height of approximately 10 feet, the presence of existing utility infrastructure, and the effectiveness of the mitigation plantings in minimizing visual contrast. The simulation from Viewpoint 63SE also suggests that the BESS, in combination with views of the proposed collection substation, will not result in significant cumulative visual impact at this most open, near-foreground viewpoint on County Route 6.

The overhead collection line, viewed alone is not likely to result in significant visual contrast due to its relatively low/narrow profile, distance from the viewer, and/or similarity to existing utility poles present along roadsides throughout the VSA. However, as discussed in Section 5.3.1, this component of the Facility has the effect of increasing potential visual clutter and contrast with the existing landscape when viewed amongst the Facility's PV panels, access roads,

and fencing. These types of views typically only occur at elevated vantage points with minimal screening features, such as Viewpoint 44 on Sinden Road (see Attachment D for a full viewpoint description).

5.3.5 Visual Impacts During Construction

Visual impacts during construction are short-term and associated with construction activity and temporary Facility Site disturbance. These are anticipated to 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-wheeled delivery trucks.
- During construction, fenced, gravel-surfaced laydown areas will be developed along Facility access roads, the proposed PV arrays. The temporary laydown yards will be occupied by vehicles, equipment, construction trailers, and/or stockpiled materials, for the duration of construction. At the end of construction, the gravel yards will be removed, and the sites restored to pre-construction conditions.
- Temporary erosion control measures will be installed during the construction process. These will consist of low black silt fencing, stone check dams, staked haybales, and other such measures. All erosion control materials will be removed once disturbed soils on site are revegetated.
- Construction equipment, including concrete trucks, excavators, pile driving equipment, and other construction vehicles will be actively operating on the Facility Site for the duration of construction.
- The underground collection lines are typically installed with the use of a cable plow to minimize soil disturbance, although open trenching may be used in places. Stripping and stockpiling of topsoil and subsoil during open trench installation of buried collection lines may be visible during construction, although such work will typically occur in the middle of fields, relatively far from view. All areas disturbed in this manner will be restored and revegetated following installation.
- PV racking assembly will involve a series of steel piles (I-beams) or screw anchors being driven into the ground, without the need for concrete foundations. With the piles in place, the racking equipment used to mount the PV modules is installed on the piles, followed by attachment of the PV panels to each rack. This process is accomplished by the use of light equipment, and completed in sections, thus limiting the extent and duration of visual impact in any one location during the construction period.
- Restoration of all temporarily disturbed areas within and adjacent to solar arrays and other Facility components, will be achieved by seeding with a native seed mix to reestablish vegetative cover in these areas. Restoration will eliminate visual impacts resulting from soil and vegetation disturbance during construction.

Representative photographs of the appearance of typical construction activities at solar facilities are included in Figure 5.3-1, below.

Figure 5.3-1 Representative Photographs of a solar facility during construction.

5.3.6 Glare Impacts

To address the potential for reflected sunlight from the proposed PV panels to create glare that could impact adjacent receptors, a glare assessment was prepared by EDR. This assessment evaluated the potential for glare produced by the Facility to impact non-participating residences and public roadways located adjacent to the facility. The solar glare assessment determined that solar glare exposure at non-participating residences, airports, and public roadways will largely be avoided or minimized, and is not anticipated to result in complaints, impede traffic movements, or create

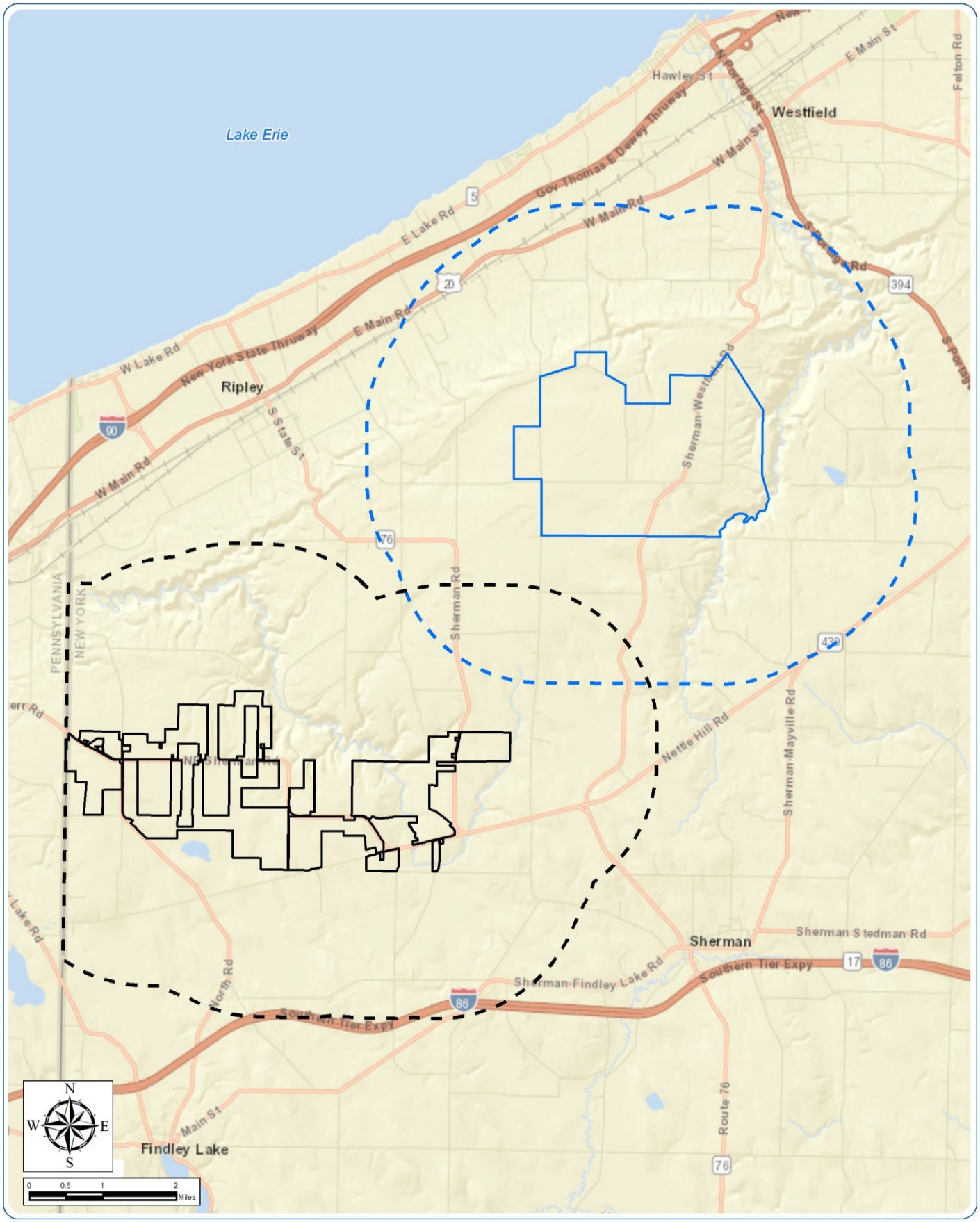
safety hazards. A full discussion of the methodology and results of the glare analysis and proposed mitigation measures is presented in the Visual Impact Minimization and Mitigation Plan (VIMMP), included in Appendix 8-B to the Section 94-c Application.

5.3.7 Cumulative Visual Impacts

Per the requirements set forth in 94-C, the potential cumulative visual effect of renewable energy projects currently operating or proposed in the surrounding region must be considered. Cumulative impacts are two or more individual visual effects which, when taken together, are significant or that compound or increase visual effects. This section addresses the potential cumulative visual impacts that may arise from interactions between the South Ripley Solar Project and the proposed Empire Solar Project. This Empire Solar Project is a proposed 125 MW facility is located in the Town of Westfield, approximately 2.7 miles from the South Ripley Facility (at its closest Point). The Empire Solar Project is in the early stages of application development under 94-c and no facility design or equipment details are currently available; however, the potential for cumulative impacts based on currently available project information is discussed below. Additionally, there are currently no other proposed or operating projects fall within the VSA or the surrounding area.

Consistent with the findings of this study, and based on EDR's experience on other projects, the viewsheds of most large-scale solar projects in Western New York State rarely extend beyond 1 mile due to the relatively low height of the panels and effective screening provided by intervening vegetation, structures, and topography. Visibility beyond this distance is almost always extremely limited, and if views are available, they typically include only small portions of the Facility from limited geographic areas. Given that the Empire Solar Project is approximately 3 miles from the Facility Site (see Figure 5.3-1) the opportunity for cumulative visibility of these projects from any given viewpoint will be minimal.

However, if both solar projects are ultimately approved and built in the area, the more likely cumulative impact will occur when viewers travel through the area and see portions of both projects in sequence. Depending on the specific travel route, this could result in foreground and near-foreground views of PV panel arrays from both solar projects as the viewer passes through or near each facility site. At any given location, visible PV panels are likely to be limited to the closest facility and therefore will not contribute to cumulative visual impacts. The overall effect of sequentially passing through multiple renewable energy projects while traveling through Chautauqua County will likely be the perception of a transition from an agricultural landscape to one that now includes a mix of agriculture and energy generation uses. This perceived transition in land use/landscape character may be modified by proposed mitigation plantings at the solar projects. Over time, perimeter plantings proposed for these projects will serve to screen views of the PV panels from area roadways, which would presumably reduce their cumulative visual impact. However, these plantings are also likely to screen views of other landscape features and thus reduce the availability of open long-distance views. This could also result in a perceived reduction in agricultural use/character, even if the PV panels themselves are largely screened. However, the perceived change in use may be partially mitigated by the replacement of an agricultural use with a natural vegetated border which would be experienced by multiple users from public vantage points and may be seen as aesthetically preferential by some viewers.



South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

Visual Impact Assessment

Figure 5.3-1: Sequential Cumulative Impact

Notes: 1. Basemap: ESRI ArcGIS Online "World Street Map" map service. **2.** This map was generated in ArcMap on July 8, 2021. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

- South Ripley Solar Facility Site
- South Ripley Solar 2-Mile VSA
- Empire Solar Project Area
- Empire Solar 2-Mile VSA

6.0 CONCLUSIONS

6.1 Summary of the VIA

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

1. Viewshed analysis based on existing topography, vegetation and structures indicates that the proposed PV panel arrays will be screened from approximately 88.6% of the VSA (i.e., 11.4% of the VSA is indicated as having potential visibility of the arrays). This limited visibility from the surrounding area is primarily attributable to the low profile/height of the proposed PV panels combined with topographic variation and an abundance of hedgerows and woodlots that obstruct long distance views. The near-foreground zone has the highest level of Facility visibility (4.4 sq. mi. or 31.1%). However, 2.9 sq. mi. (64.8%) of this potentially visible area occurs within the potential Facility Site itself. This suggests that near-foreground visibility will occur within approximately 10% or 1.5 square miles of the off-site near foreground.

2. The greatest potential for visibility of the proposed PV panel arrays occurs within the Rural Residential/Agricultural LSZ. Viewshed analysis indicates that 3.8 sq. mi. (28.7%) of this LSZ, could potentially have views of the arrays. Potential visibility within this LSZ is most heavily concentrated within the near-foreground (0-0.5 mile) distance zone.

3. Based on the viewshed analysis results and field review, the River Gorge and Transportation LSZs will not have any views of the proposed PV panels. The lack of visibility from within these LSZ is primarily attributable to the combined effect of screening provided by existing vegetation, steep topography, and distance from the Facility. According to the PV panel viewshed analysis the 4.2% of the area composing the Forest LSZ will have potential views of the Facility. Seventy six percent of the visible area within the Forest LSZ is directly attributable to the clearing of forest vegetation to accommodate PV panels within the Facility Site.

4. The viewshed analysis indicates that the PV panels could be at least partially visible from 10 (71%) of the 14 identified VSRs that occur within the VSA. As described in Section 4.1.1, the viewshed analysis does not consider screening elements within 50 feet of roadways. Since the significant portion of the identified VSRs occur along these roadways, the viewshed analysis likely overstates potential visibility from these resources. This is particularly the case for resources occurring within the middle ground distance zone where even landscape trees and road signs can provide screening and compete for viewer attention.

5. Two VSRs that will have more direct views of the PV panel arrays based on the viewshed analysis (and visual simulations) are the South Ripley Cemetery (Viewpoints 69) and the Concord Grape Belt State Heritage Area (Viewpoints 5, 15, 16, 20, 24, 40, 44, 51, 56, 59, 63, and 69). According to the rating panel, the Facility will present moderate visual contrast with the existing landscape at these locations. In all instances, the proposed mitigation plantings reduce potential visual contrast to some degree, and it is anticipated that over the lifespan of the Facility, the continued growth of the plantings will further reduce the visual contrast experienced at these locations.

6. Viewshed analysis of the proposed collection substation and BESS indicates that 0.5% of the VSA may have some visibility of these Facility components (i.e., 99.5% of the VSA will be screened from view of the Substation/BESS). Because the viewshed analysis considered the tallest structural components of these

facilities, visibility is likely overstated since the lightning masts at the collection substation are at least 40 feet taller than the majority of the above-ground interconnection equipment and have a relatively narrow profile that is difficult to discern at distances beyond 1 mile. Areas indicated as having potential substation/BESS visibility are largely restricted to County Route 6 and neighboring residential properties. To address potential visual impacts from these adjacent properties, substantial vegetative mitigation is being proposed along the road and along the perimeter of the collection substation and BESS site.

7. Viewshed analysis of the proposed overhead collection line suggests that 5.7% of the VSA could have potential visibility of this Facility component. Visual impacts will be limited by the fact that the overhead collection line is similar in appearance to typical road-side utility poles. However, when viewed in the context of the other Facility components, the structures may contribute to increased visual contrast and clutter. In certain locations, such as Viewpoint 44, vegetative mitigation can effectively reduce these impacts.

8. Field review confirmed that the area with the greatest potential visibility of Facility components occurs within 0.5 mile of the proposed PV panel arrays, where open agricultural fields afford unobstructed views of the landscape. Longer distance views are largely limited to some open hilltops (e.g., Viewpoint 75) within the foreground and middle ground distance zones (0.5 – 2.0 miles). Field review also confirmed that forested areas, and river valleys (River Gorge LSZ) generally offer the least opportunity for open views of the Facility Site. Field review confirmed that VSRs within the near-foreground distance zone will have the greatest potential for unscreened views of the Facility, include two sites eligible for listing on the NRHP (4704 State Route 76 and the South Ripley Cemetery), the Grape Belt State Heritage Area, three roads, and four resources identified through stakeholder outreach.

9. Simulations of the proposed Facility indicate that the visibility and visual impact will be variable. The greatest perceived visual effect is anticipated in near foreground areas when a sizeable area of PV panels will be visible, the solar arrays are unscreened, and/or multiple Facility components are visible. Conversely, impact is reduced when the Facility is viewed at greater distances, in a setting with existing utility infrastructure in place, and/or where partially screened by existing vegetation.

10. As demonstrated by the visual simulations and visual impact assessment rating results, the proposed Landscape Mitigation Planting Plan can be effective in reducing the visual contrast presented by the proposed Facility. The intent of the planting plan is to both screen the Facility and minimize its potential visual effect by visually integrating the Facility into the surrounding landscape. The Landscape Mitigation Planting Plan was most effective at mitigating the visual impact of the Facility where it screened substantial portions of the PV panels, broke up the continuous horizontal and vertical lines of the arrays, and blended with forest vegetation in the surrounding landscape. Conversely, the plantings were least effective in reducing visual impact where they were thin or viewed from more elevated viewpoints.

11. The PV panels, perimeter fencing, and gates will not be lit. The only light sources anticipated at the Facility are safety/security lighting to be installed at the collection substation and BESS. All such lighting will be directed downward at a 30-degree tilt angle to minimize off-site light spillage. 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.

12. Construction impacts are short term/temporary impacts that will last only for the duration of construction (anticipated to be approximately 18 months). Upon completion of construction, construction vehicles and equipment will depart, and disturbed portions of the Facility Site will be restored.

13. Cumulative visual impacts resulting from multiple solar projects are unlikely to occur when considering a single viewer position because these facilities are located sufficiently far apart. However, potential sequential visual effect may result if a traveler is driving a specific route that includes views of both solar projects proposed in the area. Given the fact that frequently traveled connector or arterial roads do not provide direct connection between these projects, these cumulative visual effects are likely to be minor.

6.2 Mitigation of Visual Impacts

The minimization and mitigation of visual impacts is an important consideration when siting and designing solar facilities. The Section 94-c regulations require development of a Visual Impact Minimization and Mitigation Plan (VIMMP) that evaluates potential mitigation options such as relocation, camouflage/disguise, low profile, downsizing, use of alternative technology, non-specular material, lighting, and screening (see Appendix 8-B of the Section 94-c Application). Of these, the use of vegetation to help screen views of a solar facility, and integrate the facility into the surrounding landscape, is widely viewed as the preferred method of mitigating the visual impacts (e.g., NYSERDA, 2019; Scenic Hudson, 2018; Sullivan and Abplanalp, 2013; Walston, et al. 2018). As described in Attachment A to the VIMMP, the proposed Landscape Mitigation Planting Plan calls for the use of different planting modules based on landscape setting and proximity of sensitive receptors. In all of these modules native species and planting arrangements are used to mimic the character of roadside vegetation, hedgerows and woodlots in the VSA, thus minimizing and mitigating 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.

Other mitigation measures proposed in the VIMMP are summarized below:

- Architectural Design – There are no proposed buildings associated with the Facility.
- Reduced Number and Profile (Height) of Facility Components – Facility size has been reduced to 3,382 acres from 3,764 acres to address a number of environmental constraints (coincidentally or purposely including visual resources). Further reduction would not significantly reduce visual impact unless a substantial number of PV arrays were removed. Significantly downsizing the Facility would result in decreased energy output and would not meet the goals of the Project or State climate legislation. The proposed PV panels are relatively low-profile units with a maximum height of 13 feet. At this height, the proposed mitigation plantings along with the existing topography, vegetation, and structures can provide effective screening of the PV arrays. Components of the interconnection facility are proposed at the minimum heights necessary to reliably and safely operate the Facility.
- Alternate Technologies – While single axis tracker panels could potentially reduce the height of the PV panels during a portion of the day, at a height of 13 feet, the proposed fixed-tilt panels will be minimally visible throughout the VSA. Additionally, single axis tracker panels would require additional area for the Project to meet its capacity goals.
- Facility Color/Design – Where possible, the Facility will utilize neutral materials that generally reduce the potential for significant color contrast with the existing environment. However, given the limitations on flexibility

in materials and design, the color of the PV panels and racking system cannot be altered. Regarding the design of the Facility, minimal grading and earthwork is anticipated and therefore the PV arrays will generally follow the contour of the land, resulting in general retention of the existing landform. Color contrast associated with the BESS was noted by the rating panel in review the visual simulations. Due to their white color, the BESS becomes a focal point of views from adjacent roads. The potential for a more neutral, earth tone color could result in minimization of the color contrast with the existing visual environment.

- General Facility Lighting – The only light sources anticipated at the Facility are safety/security lighting to be installed at the portions of the interconnection facility. Lighting will meet all of the requirements of the Section 94-c regulations.
- Minimize Glare – The proposed PV panels will have anti-reflective coating to minimize potential offsite glare. However, a glare analysis prepared by EDR indicated that a small number of nearby receptors located adjacent to PV panels could experience some glare. Proposed vegetative screening and other mitigation measures (e.g., fence slats) will significantly reduce the potential for off-site glare issues. Additional information on glare is included in the Appendix 8-B of the 94-C application.
- Prohibit Advertising/Minimize Signage – The placement of any signage at the Facility, beyond that required for safety and identification purposes, will be prohibited.
- Underground Electrical Collection System – The vast majority of the electrical collection system will be installed underground, with minimal tree clearing required. Significant portions of the overhead the collection line are located away from population centers, homes, and roads.
- Non-specular Conductor and Non-reflective Finishes – Inverters will have a flat, neutral finish. Overhead conductors on the collection line will utilize non-specular materials.

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