HIGH RIVER ENERGY CENTER

Case No. 17-F-0597

1001.24 Exhibit 24

Visual Impacts

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Exhibit 24: Visual Impacts

24(a) Visual Impact Assessment

This Exhibit will track the requirements of proposed Stipulation 24, August 26, 2019, and therefore, the requirements of 16 NYCRR § 1001.24.

In order to determine the extent and assess the significance of the visibility of the Project, a Visual Impact Assessment (VIA) has been conducted (see Appendix 24-1). The VIA includes both quantitative and qualitative identification of visually sensitive resources, viewshed mapping, confirmatory visual assessment fieldwork, visual simulations (photographic overlays), and proposed visual impact mitigation. Exhibit 24 provides an abbreviated version of the VIA and addresses the issues presented herein. Please refer to the full VIA in Appendix 24-1 of the Article 10 Application for greater detail.

The Project proposes to install fixed, tracker, or a combination of both types of racking systems. As the technology is rapidly evolving for solar panel technology, and market conditions at the time procurement decisions need to be made are unknown at this time, the Applicant is proposing in this Application to evaluate both types of racking systems, with the final decision to be made and detailed in the Compliance Filing. The tracking and fixed array racking systems to be utilized would be similar to the Gamechange Solar Genius Tracker™ and the Gamechange Maxspan™ Pile Driven System, respectively, specification sheets of which have been included in Appendix 2-2 and Appendix 2-3. Regardless of the type of array racking system ultimately selected for the Project, the Applicant intends to utilize a solar module similar to the Jinko Solar Eagle 72HM G2 380-400 Watt Mono Perc Diamond Cell. A specification sheet for this module has been included in Appendix 2-1. Only selected elements of the Project would change based upon the combination of array racking system types used, but all changes would be within the Component fenceline and to the same land uses shown in the Proposed Layout. The location of interior access roads and inverters, depending upon the final locations, could differ from that shown in the Preliminary Design Drawings in Appendix 11-1. Land coverage ratios will also be adjusted but they are not expected to be substantial or significant. Again, land uses are the same in all locations.

Accordingly, the drawings, plans, and maps required by Exhibit 11 depict a combination of both panel types, fixed and tracker. Approximately 50% of the panels are fixed and 50% are trackers. As part of the alternative layout evaluation, Exhibit 9 presents a site plan depicting all fixed panels. Consistent with that potential layout, the glare analysis contained in the VIA is premised upon an

all-fixed layout in order to present results that do not understate potential glare visibility, which will be mitigated to the maximum extent practicable.

(1) Character and Visual Quality of the Existing Landscape

The visual study area (VSA) for the Project is a 5-mile radius around the fenceline of the Facility and includes portions of Montgomery and Schenectady Counties with a small corner of Saratoga County in the northeast segment near the VSA boundary. Towns that are within the VSA are the Town of Amsterdam, City of Amsterdam, Charlton, Duanesburg, Florida. Glenville, Princetown, and Rotterdam.

The Town of Florida is located south of the Mohawk River while the City of Amsterdam and Town of Amsterdam lie north of the river. The Mohawk River flows east-west approximately 0.75 miles north of the site and historically formed part of the Erie Canal in the New York State Canal System. The City of Amsterdam lies 2 miles northwest of the site and consists of low to medium intensity urban development with an estimated 2017 population of 17,974. The Town of Amsterdam is primarily suburban in character with an estimated population of 6,001. The Town of Florida where the Project is located is a rural, agricultural community with a population of approximately 2,718.

Interstate-90 New York State (NYS) Thruway, a major east-west expressway, crosses the VSA and lies adjacent to and north of northern most part of the Project. Routes 5N and 5S are two state highways that allow for through travelling, located 0.8 miles north and 0.5 miles south of the Mohawk River respectively, and generally run east-west, paralleling the river. NY-30 is another highway located 2.0 miles west of the Project that provides high travel speeds with minimal disruption to the through traveling vehicles. NY-165 (Thayer Road) and CR 151 (Bulls Head Road) are perimeter roads around the arrays and have more drive access points and generally operate at lower operating speeds. The remaining roadways within the Project Area are classified as local roads and account for the largest percentage of total roadway miles. These roadways are short and facilitate direct access to adjacent property owners with many driveways and access points.

The landscape in the VSA south of the river and the NYS Thruway where the Project is located is primarily a rural mix of rolling farmland consisting of cultivated crops and hay-pasture land with small intermittent and isolated forest groups, several of which serve as vegetated riparian zones for local streams. Within the VSA, aside from the urban characteristic of the City of Amsterdam, housing in Florida reflects its mostly rural character. Residences are generally on large lots with

many being farmsteads. Dense rural forested areas become more predominant trending easterly between 2 and 5 miles in Princetown, Glenville, and Rotterdam.

Few water resources are within the VSA. Most are small unnamed tributary streams that drain into the larger Mohawk River that is located 0.6 mile to the north. One of the more substantial named streams in the vicinity is Terwilliger Creek along the northwestern border of the Project Area. Other larger creeks are Sandsea Kill that is 1.8 miles to the east and South Chuctanunda Creek that is 3.1 miles to the west. There are no New York State Department of Environmental Conservation (NYSDEC) Fishing Areas within the VSA. Few water bodies exist as well. Mariaville Lake is a larger water body that is 4 miles to the south and will not have views of the Project.

Landscape Similarity Zones

To help define the quality and character of the visual landscape, Landscape Similarity Zones (LSZ) were defined as required per 16 NYCRR § 1000.24(b)(1). LSZs are areas of similar landscape/aesthetic character based on patterns of landform, vegetation, water resources, land use, and user activity. These zones provide additional context for evaluating viewer circumstances and visual experiences. The United States Geological Survey (USGS) 2016 National Land Cover Database (NLCD) land cover classification dataset is available for Geographic Information Systems (GIS) analysis and was used for an initial establishment of LSZs as they provide distinct and usable landscape categories. These NLCD land cover groupings were then refined based on aerial photo interpretation and general field review. This effort resulted in the definition of four final LSZs within the full five-mile VSA. LSZs with respective visual impacts are described in greater detail in the VIA and include the following:

- Zone 1 - Agricultural/Open Field

Agricultural and open field consists of cultivated crops, hay, or pasture or general open land. Views from this zone are typically from larger open areas along roadsides and can include homes offset farther from the road that are not included in the Zone 3 Developed category. Frequently there are hedgerows or small tree groups that provide intermittent screening.

- Zone 2 - Forested

Views from inside the Forest Zone are highly limited since it is assumed that tree canopy precludes outward views unless there are intermittent gaps in trees. Forested areas may include roadway segments where there are permanent residents.

- Zone 3 - Developed

The City of Amsterdam falls under this category. However generally in the VSA residential housing consists of single-family dwellings or a larger farm complex. The Developed Zone in towns outside of the city also includes the local roadways where rural residential development is intermittently established adjacent and along the existing road network as well as accounting for roadway travelers. Often adjacent buildings in this zone are visual impediments for views as well as roadside vegetation. However, there may be open road corridors with less screening that could afford longer distant views.

- Zone 4 – Mohawk River Corridor

This LSZ is a major water feature that runs east-west through the VSA. This Zone is constrained to the Mohawk River and shoreline areas.

Below is a table that shows the distribution of LSZs at various distances within the VSA: Distance Zone 1 (0-0.5 miles), Distance Zone 2 (0.5-2.0 miles), and Distance Zone 3 (2.0-5.0 miles).

Table 24-1. Percentage of Landscape Similarity Zones within Five Mile VSA

LSZ	Distance Zone 1 0-0.5 Miles		Distance Zone 2 0.5-2 Miles		Distance Zone 3 2.0-5.0 Miles		Total	
	Square Miles	% of LSZ w/in VSA	Square Miles	% of LSZ w/in VSA	Square Miles	% of LSZ w/in VSA	Total Square Miles of LSZ	Total % of LSZ in VSA
LSZ 1 Agriculture/ Open Land	4.11	3.67%	10.32	9.21%	33.92	30.28%	48.35	**43.16%**
LSZ 2 Forested	1.90	1.70%	9.02	8.05%	44.54	39.75%	55.46	**49.51%**
LSZ 3 Developed	0.17	0.15%	1.14	1.02%	5.39	4.81%	6.70	**5.98%**
LSZ 4 Mohawk River Corridor	0.00	0.00%	0.74	0.66%	0.77	0.69%	1.52	**1.35%**
Totals	**6.18**	**5.52%**	**21.23**	**18.95%**	**84.62**	**75.53%**	**112.03**	**100.00%**

LSZs 1 and 2 are comprised of fairly similar area percentages within the VSA. Zone 2 Forested is the dominant LSZ found within the 5-mile VSA, comprising 49.5% of the land area and appears

the most in Distance Zone 3 out beyond 2 miles. LSZ 1 Agricultural/Open Land accounts for 43.2% of the total VSA land area and occurs the most in Distance Zones 1 and 2. Zone 3 Developed areas consist of approximately 6% of the VSA. LSZ 4 Mohawk River Corridor is a prominent feature but only comprises 1.4% of the VSA. It does not appear within 0.5 mile of the Project but passes through Distance Zones 2 and 3.

Distance Zones

Distance Zones are based on Project distances to an observer. Three distance zones are applied to the Project: foreground, middleground, and background. Each of these areas will determine the level of detail and acuity of objects. Distance Zones are often identified by the definitions in the United States Forest Service Landscape Aesthetics – A Handbook for Scenery Management (1995). The effects of distance are highly dependent on the characteristics of the landscape. However, size, level of visibility perceived for this particular type of project (solar panels), and panel position in the landscape should also be considered in determining zones. Distance Zones for this Project have been reasonably modified from the United States Forest Service Handbook to accommodate the VSA radius, limitations of human vision and perceptible detail of the low profile of the Project Components, and how much of the Project can actually be seen. Solar panels are of a different character than wind turbines or tall buildings, as they have a low vertical height profile (proposed 8 feet high for fixed arrays and 13 feet high for tracker arrays) in comparison to other larger objects found in the landscape such as houses, barns, and trees in addition to the rolling topography in the area that could easily act as a visual obstruction for locations farther out. Solar projects typically have lateral breadth, but as such, solar projects in the northeast often do not offer substantial far reaching vistas of many miles, because of frequent and highly vegetated narrow ridge and valleys and dense forest areas surrounding agricultural lands.

Distance Zones for this project is as follows:

- Distance Zone 1: Foreground (up to 0.5 mile from the viewer). This is the closest distance at which details of the landscape and the solar panels can be seen. Individual landscape forms are typically dominant and individual panel strings and racking system detail may be seen. The concentration of predicted visible areas lies within this zone.

- Distance Zone 2: Middleground (0.5 to 2 miles from the viewer). At this distance individual tree forms and building detail can still be distinguished at for example, one mile. The outer boundary of this Distance Zone is defined as the point where the texture and form of

individual plants are no longer as visibly acute in the landscape. In some areas, atmospheric conditions can reduce visibility and shorten the distance normally covered by each zone. Solar panels lose level of detail and are seen as a continuous mass of form and/or color.

- Distance Zone 3: Background (2 to 5 miles from the viewer to the horizon). At the extent of background distances, texture disappears, and color flattens, but large light and dark patterns of vegetation or open land due to shape or color are distinguishable, and ridgelines and horizon lines are the dominant visual characteristics. Landscapes are simplified and are viewed in groups or patterns. Solar panels can be detected as a distant form and color change but are not as discernible.

(2) Visibility of the Project

To understand the locations from which the Project may be visible, viewshed maps were developed (see description of methodology in Exhibit 24(b)(2)). From the results of the viewshed analysis, the percent visibility of the land area located in the 5-mile VSA is shown in Table 24-2.

Table 24-2. Percent Visibility of the Five Mile VSA

Distance Zone	Total Area Comprising Distance Zone Acres	Total Area Comprising Distance Zone Square Miles	Visibility Within Distance Zone Square Miles	% Visibility Within Distance Zone	% Visibility Within Full VSA
Zone 1 0-0.5 Mile	3,956.74	6.18	2.02	**32.71%**	**1.80%**
Zone 2 0.5-2.0 Miles	13,585.45	21.23	0.72	**3.41%**	**0.65%**
Zone 3 2.0-5.0 Miles	54,158.07	84.62	0.93	**1.10%**	**0.83%**
Total VSA	**71,700.26**	**112.03**	**3.68**	**3.28%**	**3.28%**

Table 24-2 parses out predicted visibility within Distance Zones as well as within the entire VSA (112.03 square miles). GIS viewshed analysis results in Table 24-2 shows that based on the land area of each Distance Zone, the highest amount of visibility occurs within Zone 1 at 32.7%. This makes sense because there is a concentrated amount of visibility in proximity to the Project within the half mile acreage, much of it within the solar array parcels themselves. There is an abrupt difference once one travels outside of a half mile where visibility for respective Distance Zones

trends downward to less than 3.5% as distance increases into the larger acreages of Zones 2 and 3. There are approximately 3.7 square miles of total visibility within the entire 112.03 square miles that comprises the VSA, or rather, 3.3% of the VSA is predicted to experience partial, close, or distant views of the Project.

As expected, visibility is generally concentrated within the 0.5-mile Distance Zone as noted by the results, with the most visibility expected in the open farmland Project parcels themselves as well as adjacent open land. The Project will utilize both fixed and tracking array systems with maximum panel heights above ground at 8 and 13 feet, respectively. Although the panels are sited in open farmland, the low-profile panels set against existing riparian tree buffers, hedgerows, and tree groups that frame the panel locations begin to obscure many views outside of one-half mile. Because of an 8 or 13-foot panel maximum height in relation to the mature vegetation, there are minimal far reaching views outside of the general array locations. Many of these far views are in farm fields and open land where the public is not expected to be while short segments of roadway may have transient and distant intermittent views. Predicted views that are in outer Distance Zones south of the river tend to be smaller isolated blocks of visibility mainly occurring west of the Project. In some upper valley locations north of the Mohawk River in the Town of Amsterdam there will be visibility from fields, along roadways, and at some residences (predominantly from the Swart Hill Road area) with open views facing the Project (see Simulation VP26). The NYS Thruway lies north and adjacent to the site. Minimal and transient views are expected along the NYS Thruway. As noted by the results, the most visibility is expected along the roads interior and/or adjacent to the Project such as Pattersonville Road, Bulls Head Road, Mohr Road, Thayer Road, and Persons Road.

(3) Visibility of Above-Ground Interconnections and Roadways

The proposed collection substation and switchyard have been sited approximately 560 feet southwest of the NYS Thruway and 363 feet northeast of Pattersonville Road.

With respect to anticipated visibility of the collection substation site, as a result of line of sight viewpoint (VP) L1 (Attachment 4 of Appendix 24-1) it is expected that there will be short duration intermittent views from the NYS Thruway. Most station Components such electrical equipment will likely be visible in the early years from locations on Pattersonville Road prior to the growth of landscape mitigation that is proposed at the fenceline. Line of sight viewpoint L2 shows in later years following vegetative mitigation growth, the upper portions of lightning masts (~18 inches in diameter) and an A-frame electrical Component may be visible in the near vicinity from

Pattersonville Road as the roadway passes by the Project. The lightning masts will be similar in look to other utility poles in the area.

Roads used to access solar arrays will follow existing farm roads and trails where practicable in order to minimize the need for new roads. The same access roads used during construction will be used during operation of the Facility and will be gravel surfaced and approximately 16 feet (4.88 meters) wide. The total length of access roads is approximately 6.56 linear miles.

(4) Appearance of the Facility Upon Completion

Coordinates of camera locations intended for simulations as well as other reference points within the view were collected via Global Positioning System (GPS). These reference locations were later used to refine the placement of the facility within the simulation photographs.

To create visual simulations, Autodesk 3DS MAX visualization software was used to correctly dimension the 3d model into the digital photographic image from each viewpoint location. The 3d model of the solar layout was created by TRC using engineering specifications. The simulation model was further developed to position the viewer at the selected vantage point. For a given vantage point, the visualization software is capable of providing and adjusting a camera view that matches that of the actual photograph. From the field effort, the documented camera coordinate (x, y, z) positions were entered into the model. Reference locations, which are existing visible objects in the photograph such as light posts, building corners, placed stakes, gate posts or utility poles, were obtained by GPS to assist with refined placement of the proposed Project within the photograph. In some instances, GIS terrain modeling and analysis helped in locking in the 3D facility model within the photograph. Ground point elevations of the camera location and other referenced objects were obtained from the most recently available Light Detection and Ranging (LiDAR) data for the Schoharie-Montgomery (2014), Capital District (2008), and Mohawk (2007) regions dated 2014 and provided by the New York State GIS Program Office.

The day and time of the photographs were also recorded and typically exist as electronic information embedded in the respective digital photograph files. This information was used to adjust for sun angle in the simulation software in order to represent lighting conditions for the time of day and year.

The photographic simulations of the Project upon completion for varying distances and LSZs are provided in the VIA along with a description of the visual impacts and appearance for each of the viewpoints.

(5) Lighting

Lighting is only proposed for security, safety, and maintenance purposes and is not proposed for the solar arrays. Manually-operated security lighting is proposed at the collection substation and switchyard. To reduce potential impacts to the surrounding areas, lighting will be installed facing downward and will not be illuminated during unoccupied periods. Additionally, all lighting proposed for the Project will be full cut off fixtures with no drop-down optical elements. The Lighting Plan is included in Appendix 11-1 Preliminary Design Drawings.

(6) Photographic Overlays and Lines of Sight

In order to simulate the visual changes that are anticipated from introducing the built facilities into the Project Area, high-resolution computer-enhanced render processing was used to create realistic photographic simulations of the proposed Components from selected viewpoints.

The Applicant proposes to use both fixed and tracking array systems that are 8 feet and 13 feet high, respectively. Locations where each of these systems will be installed can be obtained from Attachment 1 in Appendix 24-1.

The following is a summary of the potential visibility to viewers at simulation locations. The complete visual simulations for the Project are provided in Appendix 24-1.

VP12 Bulls Head Road, View Southeast – Florida (LSZ 1,3; Distance 380 feet)

VP12 is along Bullshead Road approximately 1500 feet west of Mohr Road. The viewer is approximately 380 feet from the fenceline and looking at the proposed fixed arrays. The Project side of the road is vegetated. The view is looking southeast through a gap in roadside vegetation to a level field that is generally surrounded by trees rows. Existing conditions show several bands of horizontal shapes sweeping across the view consisting of the field as well as the distant background trees. From this location, the sight lines show clear views of solar panels. The arrays in general are somewhat consistent with this pattern providing similar narrow horizontal shapes in relation to the view. Color contrasts are weak to moderate as color values are similar to that of the wood line. The panels fall well under the horizon line and the arrays hold a shape and pattern

similar to the horizontal sweep of the foreground as well as background vegetation. Due to proximity, the Project is apparent and is co-dominant in the view.

The Applicant is proposing vegetative screening in this area as depicted on the Landscaping Plan drawings included in Appendix 11-1. In order to assess the potential visibility of the arrays, the proposed vegetative screening is not depicted in the simulation. Accordingly, there will be limited to no views of the arrays from this location due to the proposed landscaping.

VP15c Mohr Road – Florida (LSZ 1,3; Distance 437 feet)

VP15c was taken to show a view in close proximity to the Project approximately 437 feet from the fenceline. As VP15c indicates, not all views in close proximity are full-on views. Although the (fixed) panels can be seen through the gap in the treerow and partial views of panels on the hill can be seen, much of the project is behind the existing treerow. However, the arrays that are visible provide visual contrasts with new form, line, and color introduced into the environment. The partial views of the panels at this location are dominant in the view due to the close and proximal distance.

VP26 Swart Hill Road – Amsterdam (LSZ 1,(2),3; Distance 1.5 miles)

VP26 was taken to show a distant higher elevation view looking at the hillsides where the Project is located approximately 1.5 miles away. The viewpoint is at an available publicly accessible open point along Swart Hill Road north of the Mohawk River in the Town of Amsterdam where there is a view across a farm field to the Project located on the south side of the river. The view primarily shows the fixed arrays proposed along Pattersonville and Persons Roads (and depicted in VP29). The Project will have no more development to the left (east) than that which is seen in the simulation. The view does include some of the tracker arrays located north of Bulls Head Road and near Hutchinson Road but those are partially blocked by vegetation on the right side of the photograph.

Existing conditions show north facing valley hillsides with a mosaicked pattern of field interspersed with forest groups and tree rows. While the level of discernible detail is low and there is no horizon line interrupted for proposed conditions, there is a new color contrast made by the introduction of the darker arrays against lighter colored ochre (and green) fields. The solar arrays are similar in color and value to that of the trees at this time of year. The placement of the panels in geometric arrangement as well as providing gaps within the arrays is similar to and mimics the existing field-forest pattern and line. However, while not all of the open fields have solar arrays, the lateral

extent of the Project occupies a portion of the view and will show a visual change in color and pattern. The view from this roadside location will be of short duration for travelers on Swart Hill Road with a focus on driving while some nearby residences with open sight lines will have longer duration views.

VP27 Bulls Head Road, View North – Florida (LSZ 1,3; Distance 0.7 miles)

This VP was taken due to the concern of homeowner views. It is a view from Bulls Head Road approximately 400 feet east of the intersection with Thayer Road. The view is looking north to the tracker arrays at a distance of approximately 0.7 mile. The existing view shows a contrasting pattern of light-colored fields against dark colored tree groups. Residential houses are in view in the fore to middleground and the City of Amsterdam can be seen in the left background. The proposed panels appear in the middleground within an open, light-colored field. The size and scale of the Project has a small low-profile appearance in comparison to the trees that surround the field with a horizontal linear flow that conforms to the topography. There are no proposed vertical elements from the Project that interrupt the horizon line. The largest contrast that the Project provides is a lateral breadth of color change from light to dark. The color contrast is apparent against the field color itself and changes the look of the middleground. However, the new color is fairly compatible against the existing trees that the panels are visually set against. Although the Project appears somewhat small vertically, it is co-dominant in the view because of the horizontal breadth and color change.

The Applicant is proposing vegetative screening in this area as depicted on the Landscape Plan drawings included in Appendix 11-1. In order to assess the potential visibility of the arrays, the proposed vegetative screening is not depicted in the simulation. The proposed landscaping will obstruct the view of portions of the arrays, primarily in the foreground.

VP28 Bulls Head Road, View North – Florida (LSZ 1,3; Distance 0.3 miles)

Similar to VP27, VP28 photo was taken due to the concern of homeowner views. It is a view of tracker arrays from Bulls Head Road looking north at approximately 0.3 mile near Leahy Road. The existing view shows mostly open land consisting of a contrasting pattern of light-colored fields against dark colored tree groups. A farm is seen in the left middleground and the City of Amsterdam can be seen behind the farm. The proposed panels appear in the middleground within open land. The size and scale of the Project has a small low-profile appearance in comparison to the trees that surround the field with a horizontal shape that conforms to the topography. There

are no proposed vertical elements from the Project that interrupt the horizon line. The largest contrast that the Project provides is a lateral breadth of color change from light to dark. The color contrast the panels provide is apparent against the field and vegetation colors and changes the look of the middleground by disrupting the existing color and shape patterns. The viewer is 0.4 mile closer at this location than at VP27 but the level of discernible detail is still low. Although low-profile, the Project could be considered as dominant in the view because of the amount of "space" the panels take up in the view in addition to lateral breadth and color contrast.

The Applicant is proposing vegetative screening in this area as depicted on the Landscape Plan drawings included in Appendix 11-1. In order to assess the potential visibility of the arrays, the proposed vegetative screening is not depicted in the simulation. The proposed landscaping will obstruct the view of portions of the arrays, primarily in the foreground.

VP29 Pattersonville Road, View South – Florida (LSZ 1,3; Distance 0.2 miles)

VP29 photo was taken due to a concern for homeowner views and to represent a viewpoint from Pattersonville Road which runs east-west and adjacent to Project fixed arrays. At this viewpoint, sightlines are unimpeded with roadside open views to the Project approximately 0.2 miles from the viewer. Forest land in the background and the open field is viewed as large homogeneous shapes where existing form and color are prominent in the view. The proposed Project is seen on the hill at the wood line and follows the contours down the hill.

The long horizontal shape and line of the arrays visually mimics both the color and horizontal landscape shape of the trees at the top of the hill and seemingly merges into the wood line. The dark color of the panels shows weak to moderate contrast against the darker trees. The low profile of the panels does not interrupt the horizon line. Setback distance from the road helps with offsetting some visual impacts as the arrays appear smaller at distance. Overall, the panels are subordinate in the view. There will be long duration views held by a few nearby residents that are adjacent to the field. There will be shorter duration views to motorists associated with local or commuter viewer types.

For this VP, representative mitigation is shown where the effects of screening can be seen at planting time and 5 years into the future. For this location, a robust Special Planting Area (SPA) mitigation effort is proposed where there will be a maximum visual screening effort for the arrays along Pattersonville Road using mature nursery stock. Tree heights at planting time will be 7-8 feet. Please refer to Exhibit 24(a)(10) on vegetative mitigation.

VP30 Thayer Road – Florida (LSZ 1,3; Distance 648 feet)

The VP30 photo was taken to show a representative view of the western-most fixed arrays located on Thayer Road. As this location shows, there is no existing roadside vegetation that would block views and the simulation shows views of the solar panels. However, the panels are distant from the road approximately 648 feet away from the viewer. There is vegetative screening proposed, however, for clarity purposes and presenting the worse-case scenario, the simulation is rendered without mitigation. Here at VP30, one can observe the effectiveness of road offsets combined with placement against existing tree rows at field edges. In the view, the arrays appear as a distant, narrow, horizontal band of color set against the forest at the edge of field. The horizontal band, shape, and look of the panels mimics that of horizontal brown-green field-forest interface as well as the existing tree row in the middle ground and the ridge in the background. The low profile of the Project does not provide a vertical interruption of the ridgeline. Color contrast is apparent but contrasts moderately against the summer vegetation. Overall, the Project is subordinate in the view. There will be limited to no views of the arrays from this location due to the proposed landscaping.

Lines of Sight

Line of sight profiles were performed for some viewpoints where there is limited or questionable visibility. Line of sight analyses are able to provide the viewer with information that assists in examining the reasons why objects such as solar arrays may have obstructed views or no views. The underlying topography of a sight line in addition to vegetative obstructions can be produced as well as an estimated amount of visibility of the upper portion of an object if it is visible.

LiDAR data obtained for the Project was used for an elevation source. ArcGIS Environmental System Research Institute (ESRI) 3D Analyst was used to produce elevation samples across select sight lines for bare earth topography and for vegetation. Please refer to the profiles in Attachment 4 of Appendix 24-1.

L1 - NYS Thruway to Collection Substation, Florida (LSZ 3; Profile Line Length 1300 feet)

The proposed collection substation and switchyard have been sited in an open field approximately 575 feet southwest of the NYS Thruway. Short duration views of the collection substation site are expected from this location. Two sixty-foot lightning masts are proposed within the fenceline that will be 32 inches in diameter at the base tapering to 18 inches in diameter at the top. Terrain is generally level with little topographic variation. The highest switchyard Component will be an A

frame that is 65 feet high with a 10-foot lightning arrester. The next highest switchyard Component is 26 feet high. There will also be one 50-foot wood pole with affixed lighting and a control building that will be 14.5 feet high.

Line of sight L1 in Attachment 4 of Appendix 24-1 shows the various Component profile heights as well as visibility of solar panels. and switchyard Components in view of the L1 location. Generally, from this NYS Thruway location, the profile shows most of the collection substation site will be visible. However, view duration will be limited due to the viewers rate of speed from this Interstate Highway viewpoint.

L2 - Pattersonville Road to Collection substation, Florida (LSZ 1,3; Profile Line Length 700 feet)

Line of sight L2 is a second profile to the collection substation with a location from Patterson Road, a residential road that is southwest of the site. There are several residential houses located along this road. L2 is approximately 283 feet to the fenceline, 480 feet to switchyard equipment, and 617 feet to a lightning mast. The terrain drops slightly from L2 to the station site and Components are expected to be visible following construction. However, vegetative mitigation is proposed at the fenceline as the L2 profile indicates. Visibility of the shorter switchyard Components would still be visible at planting time and as the plantings grow. At about 5 years, the landscape plantings are expected to block views to the lower Components, leaving approximately 20 feet of the upper part of lightning masts and 15 feet of the upper portion of a switchyard A frame visible. The lightning masts will be similar in appearance to the numerous existing transmission poles that are located within this area.

Tree and shrub plantings are predicted to reach heights averaging from 8 to 17 feet within 5 years. Several of the deciduous and coniferous tree species could reach 25 feet in height by ten years thereby reducing the visibility of the lightning masts even further.

L3 - Revolutionary Trail Scenic Byway (Route 5N), Town of Amsterdam (LSZ 3; Profile Line Length 1.6 miles)

The Revolutionary Trail is a New York State Scenic Byway which runs east-west from Albany to Lake Ontario and is approximately 158 miles long. In the vicinity of the Project the Byway is on Route 5N and parallels the north bank of the Mohawk River. About 12.2 miles of the Byway runs through the VSA with approximately 5.9 linear miles within Distance Zone 2 between 0.5 and 2 miles. The Byway does not appear within 0.5 miles. Few if any small, isolated spots along the highway will have views to the Project because of a low valley location, intervening vegetation

and topography that impedes as demonstrated by Insets 12 and 13 in Section 3.3 of the VIA. Both Insets 12 and 13 show photos and the character of views from the scenic byway looking towards the Project from across the Mohawk River. An attempt was made for a simulation using Inset 12, but there were no arrays in the view. L3 in Attachment 4 of the VIA is a line of sight profile from a different location showing visibility of the Project is not expected. The L3 profile is 1.6 miles.

L4 – Strawberry Fields Nature Preserve, Town of Amsterdam (LSZ 1,2; Profile Line Length 2.9 miles)

Strawberry Fields Nature Preserve is in the Town of Amsterdam off of Cranes Hollow Road. It is 118 acres of protected land that includes the nature preserve, a family homestead, and a working farm made available to the public in 2017. The preserve consists of open fields surrounded by forested areas and tree rows. The majority of the property will not have views due to the trees acting as an obstruction. The main (northern) property where there are ponds, the working farm, and visitors parking will not have views of the Project as this section is enclosed by trees. See VP24 of the Project Photolog in Appendix 24-1 which shows the view of a forested area to the south looking towards the Project.

There are open fields at the southern section of the property on the opposite and southern side of the forested areas (those of which impedes the view at VP24). These fields will have few views in this southern property location there is a short, isolated section of a walking trail that may have a limited view of some solar arrays as shown in L4 Line of sight Profile (See also Appendix 24-1). The L4 profile is 2.9 miles.

L5 – Mohawk River, City of Amsterdam (LSZ 4; Profile Line Length 3.7 miles)

The Mohawk River is expected to have limited to no views of the Project due to the low valley location in relation to topography or vegetation existing on the northern and southern sides. VIA Photo Insets 10-13 show the character and general views looking south towards the Project. L5 is a line of sight profile taken from the water at the City of Amsterdam where visibility analysis predicts there may be views. L5 line of sight profile (approximately 3.7 miles) however, shows that there will likely not be views of the Project at this location due to vegetative obstructions.

L6 – Denice Road, Florida (LSZ 1,3; Profile Line Length 5.7 miles)

There are few areas beyond the two-mile Distance Zone where there may be views of the Project in public locations. Attachment 2 in Appendix 24-1 of the VIA indicates several views beyond 2 miles may be obtained. The L6 line of sight profile is at Denice Road at a location within a small

isolated area of predicted visibility as a result of the viewshed analysis. Denice Road and nearby Morris Road lie within open field and farmland where there are few residents save for two large farm type properties that are in the vicinity. The L6 location is approximately 420 feet from the nearest residential property on Denice Road. Views of the Project may be experienced at open portions of the property, but views are not expected from the house itself as there are existing privacy hedgerows and trees that surround the house on several sides.

The L6 profile for Denice Road shows a view that overlooks a valley area that is lower in terrain that increases with elevation as the profile distance approaches the Project. There is vegetation at the crest of the hill where there may be some distant views to solar arrays approximately 5.7 miles away that can be seen just above the vegetation.

L7 – Fuller Road, Florida (LSZ 1,3; Profile Line Length 3.6 miles)

Inset 2 in Section 3.2 of the VIA shows a picture from Fuller Road looking east to the northern arrays (2.4 miles away) that are south of the NYS Thruway. There will be no views to these northern arrays. Viewshed results show some level of visibility is predicted at Fuller Road. The L7 line of sight profile in the VIA indicates potential views southeasterly to the far side of the Project where arrays and a partial view of the Project located at Mohr and Bulls Head Road might be seen. The L7 profile distance is approximately 3.6 miles.

L8 – Riverlink Park, City of Amsterdam (LSZ 3,4; Profile Line Length 3.5 miles)

Riverlink Park is a local waterfront park located in the City of Amsterdam just south of the railroad tracks and Front Street. Viewshed results suggest there could be views to some panels. However, L8 line of sight in the VIA demonstrates a profile obtained from Riverlink Park where views are not predicted from the L8 location due to vegetative obstructions. The L8 profile is approximately 3.5 miles.

(7) Nature and Degree of Visual Change from Construction

Visual impacts during construction are anticipated to be minor and temporary in nature and typical of a relatively large construction Project. Construction activities for a solar facility are site and project dependent; however, construction of a typical facility would normally involve the following major actions with potential visual impacts: building/upgrading roads; constructing laydown areas; potentially removing some vegetation from construction; transporting Components and other materials and equipment related to the solar site; assembling the solar panels; constructing ancillary structures (e.g., collection substation, fences) and installing power-conducting cables

(typically buried). Potential visual contrasts that could result from construction activities include contrasts in form, line, color, and texture resulting from; road upgrading; construction and use of staging and laydown areas; vehicular, equipment, and worker presence and activity; dust; and emissions.

Construction visual contrasts would vary in frequency and duration throughout the course of construction; there may be periods of intense activity followed by periods with less activity and associated visibility would vary in accordance with construction activity levels. Construction schedules are project dependent.

(8) Nature and Degree of Visual Change from Operation

The information in the VIA (Appendix 24-1) can provide a more complete understanding of the particular issues involved in the visual relationship between the Project and its surrounding context. The viewshed analysis in the VIA makes it clear that there is minimal expected visibility (3.3%) within the overall VSA but there would be limited areas from which the Project would be visible and, in contrast, a multitude of areas from which it would not be seen. There is existing topography and many tree groups surrounding the Project that will block views. There are also significant attributes of the design of this solar project and its relationship to its particular surroundings that would minimize the Project's impacts as discussed in Exhibit 24(a)(10).

The arrays will be located on parcels of land currently used for agricultural purposes. The general visual appearance of the low-profile panels as a group contribute to a homogenous form at distance which consists of a strong new horizontal pattern similar to the background forested areas and field edges found in many views. The horizontal shapes en masse in many instances provides a visual flow that is repeated or similar to what is in the landscape as the panels follow the existing contours. Color differences between the Project and the landscape may provide some contrast but will vary throughout the seasons. Overall Project contrast and the overall visual effect will vary depending on the extent of panel visibility (partial or full), distance of the arrays from the viewer, and if the panels are seen in the context of other existing noticeable modifications to the local natural landscape. The Applicant is proposing to install landscaping along portions of the Project to provide nearby residences with screened views towards the Facility. Landscaping will consist of a variety of evergreen trees and shrubs that will provide year-round screening. Visual Project contrast from solar panels is anticipated to be avoided or minimized in areas where landscaping is proposed. Contrast may also occur for short durations for travelers in vehicles on roads that are not heavily traveled as, say, the NYS Thruway.

With respect to anticipated visibility of the collection substation site, as a result of line of sight viewpoint L1 (Attachment 4 in the VIA) it is expected that there will be short duration intermittent views from the NYS Thruway. Station Components such as electrical equipment will likely be visible in the early years from locations on Pattersonville Road prior to the growth of landscape mitigation that is proposed at the fenceline. Line of sight viewpoint L2 shows in later years following vegetative mitigation growth, the upper portions of some lightning masts (~18 inches in diameter) and an A-frame electrical Component may be visible in the near vicinity from Pattersonville Road as the roadway passes by the Project but will be similar in look to other utility poles in the area.

Other factors assessing the degree of visual change other than percentages of visibility expected (Table 24-2) as a result of the Project can be considered:

- The towns that fall within the 5-mile VSA are rural with an agricultural economy. Agricultural practices and revenue will not be degraded in the region. Farming practices will continue on portions of the Project Area not utilized for the Project Components and, in fact, participating landowners will continue to receive consistent income throughout the economic useful life of the Project.

- Project Facilities are set back from property lines to both reduce visibility and to not disturb surrounding agricultural activities on adjacent parcels.

- Through the use of both fixed and tracking solar arrays where best suited due to existing topography, the Applicant is able to limit the ground cover required to achieve its objective of a 90 megawatt (MW) generating capacity. Additionally, solar farms typically result in a minimal amount of ground disturbance for the installation of racking and mounting posts, thereby preserving the ability to utilize the land for agricultural purposes in the future following decommissioning.

- The alternating current (AC) collection lines will be placed underground for the entirety of their length and installed primarily via direct trenching with some portions to be proposed via horizontal direction drill (HDD) in order to avoid wetland resources and roadways.

- While the Project Area consists of many pastoral views, landscape features are similar to each other and landscape characteristics are typical of what you would find in a rural area in this part of New York. The Project will not impair these landscape characteristics.

- The Project does not always appear as a dominant feature in a view and due to limited and/or long-range visibility, it should not interfere with the general enjoyment of recreational resources in the area.

- The Applicant has employed reasonable mitigation measures in the overall design and layout of the proposed Project so that it fits reasonably well into the available parcels and landscape.

- Vertical scale is typically not an issue in relation to surrounding features such as trees, hills, and barns. Lateral extent may be an issue if the arrays appear to overwhelm a ridgeline, scenic water body, or cultural feature that appears diminished in prominence. The Project solar arrays, considering their layout, spacing and the topography and resources in the area, do not overwhelm such physical geographic areas.

- Visual clutter often is adversely perceived and commonly results from the combination of human-made elements in close association that are of differing shapes, colors, forms, patterns, or scales. Generally, solar farms offer simple and uniform or geometrically patterned arrays or groupings that may be more visually appealing than mixed types and sizes of objects. At distance, the arrays usually appear as a continuous nearly homogenous shape or color following the grade as opposed to randomly scattered objects.

- Aside from normal road traffic (see Average Annual Daily Traffic (AADTs) in Appendix 24-1) except for the NYS Thruway, the public areas nearest to the Facility are not exceedingly high-use destination areas.

- The Project does not have an adverse effect on a known listed scenic vista.

- The Project does not damage or degrade existing scenic resources.

- The Project will not impede the use of recreational activities, including the Mohawk River.

- The Project does not create a new source of substantial light which would adversely affect nighttime views in the area. Glare from the solar modules and associated equipment would be negligible as they would consist of a non-reflective coating and would be at least partially screened by the proposed fencing and perimeter landscaping.

(9) Operational Effects of the Facility

The Facility is not predicted to emit significant glare into the existing environment. Panels are designed to absorb sunlight and will be treated with anti-reflective coatings that will absorb and transmit light rather than reflect it. In general, solar panels are less reflective than window glass or water surfaces (NYSERDA, 2019) and any reflected light from solar panels will have a significantly lower intensity than glare from direct sunlight (Mass. Department of Energy Resources, 2015). A Glint and Glare Analysis was performed in order to identify any potential impacts on nearby residences and roads. Based on the results of the analysis and the proposed mitigation measures, no significant impacts from glare are expected as a result of the Project.

Refer to the VIA and Appendix 24-2 for details on the glint and glare analysis.

(10) Measures to Mitigate for Visual Impacts

Mitigation includes siting and design and vegetative plantings to help moderate visibility. To maximize the benefits of siting renewable energy facilities on agricultural lands, solar installations can also be co-located with ongoing agricultural operations for the parcel owner. Solar facilities can be designed to be compatible with continued farming practices in order to limit the amount of land taken out of agricultural production.

When a solar farm is decommissioned and removed, the land can be returned to other productive use, including farming. In this way, a solar lease can be a way to preserve land for potential future agricultural use.

Large-scale solar projects can be made less visible from roads or other public vantage points. Several techniques for minimizing and mitigating visual impacts from large-scale solar projects can be made by keeping facility Components at low profile and designing the site to take advantage of natural topographic and vegetative screening and setbacks, such as vegetation and berms along a roadway, siting against tree lines, and avoid use of overhead interconnection lines.

Siting and Design

For High River siting considerations held a high priority. Current siting is optimized such that attempts to minimize visibility have been created by the placement of the arrays in certain ways. Roadside vegetation has been used in some areas that offer minimal open gaps to the Project where views are obtained as in for example, Simulations VP12 and 15c. Siting against tree lines and within forested areas (Simulation VP27) as well as setback distances of several hundred feet

(Simulation VP30) are effective in reducing visibility. Also, placing panels within array groups that is similar to existing forest and field patterns where there may be higher elevation views is shown in Simulation VP26. Siting layout and design considerations that offer mitigation are summarized as follows:

- Use of surrounding woodlands, hedgerows, and topography as existing visual barriers.
- Setbacks and offsets: panels proposed on interior fields as opposed to adjacent roadways to further the distance from travel corridors or those areas that may experience glare.
- Solar photovoltaic panels are designed to absorb light, not reflect light, and therefore produce minimal glare
- Use of antireflective coatings on solar panels.
- Strong regular geometry was reduced by providing an overall shape that follows the edges of natural forested areas or create patterns that mimic existing landscape patters at distance.
- General site location placed far from sensitive recognized and listed visual receptors.
- The Project has been sited away from the population centers in order to minimize potential visibility by a relatively larger number of viewers.
- Collection substation located proximal to existing National Grid substation.
- Vegetative buffers: plantings of native pollinator species included in proposed buffer.
- Additionally, collection lines have been placed underground to the maximum extent practicable to decrease additional aboveground impacts. This configuration allows continued use of the land within the Project Site and will not impede the land uses that have created the rural character of the VSA.
- Minimized vegetation clearing outside of the arrays.

Vegetative Mitigation

From a scenery point of view, methods and techniques of hiding/screening solar farms can be quite effective. Typically, selected landscaping is chosen to provide year-round screening, provide

a long-lived, resilient and dense bank of vegetation, and be a native and/or pollinator species readily available in the area.

The Landscaping Plan can be found in Appendix 11-1 of the Application. The following items and concepts were applied to the plan:

- The Town of Florida Land Use Code and Zoning Law was reviewed to understand how and where to apply visual screening. The screening proposed herein complies with any substantive requirements of that Code.

- Native evergreen and deciduous shrubs and trees were chosen for the vegetative barriers. Species chosen needed to reach an adequate height and width to provide visual screening yet not be too high at maturity that they could ultimately produce shade over the Project in later years. Deciduous and evergreen tree species include: Black Gum (Nyssa Sylvatica), Balsam Fir (*Abies balsamea*), Eastern Red Cedar (*Juniperus virginiana*), White Spruce (*Picea glauca*), Northern White Cedar (*Thuja occidentalis*), Black Cherry (*Prunus serotina*), and Downy Shadbush (*Amelanchier arborea*). Shrub species include: Red Chokeberry (*Aronia arbutifolia*), Red Twig Dogwood (*Cornus sericea*), Common Witch Hazel (*Hamamelis*), Common Snowberry (*Symphoricarpos*), and Highbush Blueberry (*Vaccinium corymbosum*). Pollinator species were also considered. Of the above listing, the following are pollinator species:

  Black Cherry (Prunus serotina)
  Downy Shadbush (Amelanchier arborea)
  Red Chokeberry (Aronia arbutifolia)
  Common Witch Hazel (Hamamelis virginiana)
  Common Snowberry (Symphoricarpos)
  Highbush Blueberry (Vaccinium corymbosum)

- Three types of planting “templates” are proposed. Type 1 is a robust planting scheme that will provide a maximum buffer screening of the Project. Type 2 proposes a reduced buffer screening effort and is primarily used to supplement visual mitigation in areas with existing vegetation (i.e. existing wooded hedgerows consisting primarily of deciduous vegetation) or to provide screening where limited residential receptors are located. A third planting area, referred to as the SPA, is proposed where there will be a robust maximum visual screening effort along Pattersonville Road using mature nursery stock.

- Areas 2, 2a, and 3: Both Type 1 robust screening and Type 2 reduced planting schedule will occur for the tracking system arrays at the northern part of the project north of Bulls Head Road and between Pattersonville and Thayer Roads.
- Area 6 at the switchyard location and tracker arrays will have Type 1 plantings on the Pattersonville Road side of the Project.
- Areas 1 and 4: Type 2 planting schedule will occur for the fixed arrays that are proposed south of Bulls Head Road in Area 1 west of Thayer Road and Area 4 between Thayer and Mohr Roads.
- Area 5: These are all fixed arrays. The northern and northeastern portion of Area 5 adjacent to and south of Pattersonville Road are robust (SPA) locations. The remaining Area 5 plantings will predominantly be Type 1 plantings with Type 2 at the northwestern edge.

(11) Description of Visual Resources to be Affected

Exhibit 24(b)(4) discusses the visual resources in the 5-mile VSA in detail and includes Table 24-3 that indicates the distance zones and the extent the Project is visible from these visual resources. Mapped locations of the resources can be found in Attachment 2 of Appendix 24-1.

24(b) Viewshed Analysis

(1) Viewshed Maps

A viewshed analysis is a computerized GIS analytical technique that illustrates the predicted visibility that may potentially be expected for a project. It allows one to determine if and where objects, such as a solar array, can geographically be seen within a larger regional area. The viewshed model accounts for topography, vegetation, and the height of the solar panels. The results of the viewshed analysis, typically displayed over a USGS topographic map or aerial photo, are combined with other Article 10 listed visual receptors such as historic places, national forests, or state parks, etc. Incorporating GIS integrated data along with a viewshed analysis assists in understanding the potential for Project visibility at sensitive resource locations.

(2) Methodology

A viewshed analysis out to the 5-mile VSA extents was performed. This analysis used point cloud LiDAR data for Schoharie-Montgomery (2014), Capital District (2008), and Mohawk (2007) and provided as las datasets by the New York State GIS Program Office. LiDAR data is the best

available elevation data for this analysis as it includes high resolution ground elevations in addition to building heights and individual tree heights that offer realistic physical visual impediments in the landscape. ESRI Spatial and 3D Analyst GIS software was used to develop the viewshed model.

For the analysis, data was controlled within the model to ensure that the vertical offsets of the solar panels were embedded properly against the LiDAR surface elevation and existing trees. The Component height information was based on client specifications for the Jinko Solar Eagle 72HM G2 380-400 Watt Mono Perc Diamond Cell. The Project will utilize both fixed tilt and tracking array systems, similar to the Gamechange Maxspan™ Pile Driven System and the Gamechange Solar Genius Tracker™, respectively. A height of 8 feet was use for the fixed arrays and 13 feet was used for the tracking arrays.

The viewshed model was further developed by establishing an observer height of 5.5 feet, and the assumption that the Project would not be visible to a viewer who is standing amongst trees in a forested area. The final resulting output identified those areas from which viewers would potentially see all or some part of the proposed solar panels.

Assumptions and Limitations of the Viewshed Model

The viewshed analysis identifies cells (image pixels) that contain elevation information and computes the differences along the terrain surface between an observer in the landscape and a target (e.g. solar panel). The analysis is a clear line of sight and therefore certain factors in the interpretation of results need to be considered:

- The model, because of its computerized aspect, assumes the observer to have perfect vision at all distances. Therefore, a certain amount of reasonable interpretation needs to be considered because of the limitations of human vision at greater distances or those atmospheric/meteorological conditions that may cause imperfect vision, such as haze or inclement weather. Additionally, an object is naturally smaller and shows much less detail at distances and will have less visual impact. These aspects cannot be conveyed with this analysis.
- Because an area may show visibility, it does not mean the entirety of the Project will be seen. The viewshed analysis depicts areas of visibility over a regional area. It can only predict geographically on a map, areas where some part of the solar panels might be seen. It does not and cannot determine if it is seeing a full-on view or a partial view.

Additionally, if visibility is occurring in an area, it may sometimes only be a result of glimpsing a portion of the Project over undulating treetops between gaps of trees, or visibility of the tops of panels and not a full-on view. Likewise, there may be understory tree gaps where there may be visibility of the Project.

- The viewshed model assumes that any vegetation is opaque and therefore represents a leaf-on condition. By nature of the software model and available parameters, the trees are treated as an opaque object and therefore leaf on conditions are assumed. Transparency predictions through something similar to bare-branched trees under leaf off conditions cannot be made.
- The model was developed with the assumption that a viewer would not see the panels if standing amongst trees in forested areas as it is assumed the tree canopy would preclude outward looking views.

(3) Viewer Groups Overview

Sensitivity levels are a measure of public concern for scenic quality. Visual sensitivity is dependent upon user or viewer attitudes, the amount of use and the types of activities in which people are engaged when viewing an object. Overall, higher degrees of visual sensitivity are correlated with areas where people live and with people who are engaged in recreational outdoor pursuits or participate in scenic driving. Conversely, areas of industrial or commercial use are considered to have low to moderate visual sensitivity because the activities conducted are not significantly affected by the quality of the environment.

These concepts are applied when evaluating the visual landscape and assessing the importance of a viewpoint location if it falls in an area of visibility. Viewer groups and associated responses to visual changes are analyzed from a variety of factors including:

Viewer group – Types of viewers will vary by geographic region, as well as by travel route or use areas, such as a developed recreation site, urban area, or back yard. Viewer groups include:

- *Local constituency*: - People living in the local area and/or surrounding communities who interpret the significance of where they live and interact with others; these people may include local residents and members of groups to which the local area is important in different ways.

- *Commuter constituency*: - People who use or are generally restricted to travel corridors that are destination oriented towards places of employment. These people generally have transient short duration views.
- *Visitor or recreational constituency*: Individuals who visit the area to experience its natural appearance, cultural landscape qualities or recreational opportunities. Visitors may be of local, regional, or national origin.

Context of viewer - The viewer group and associated viewer sensitivity is distinguished among viewers in residential, recreational/open space, tourist commercial establishments, and workplace areas, with the first two having relative high sensitivity.

Number of viewers - The number of viewers is established by the amount of people estimated to be exposed to the view. In comparing viewing locations to each other, one can consider if the area is a high public use area or if it is a location that is less frequently visited or more inaccessible where the public is not expected to be present (such as marshes or swamps).

Duration of view - Duration of view is the amount of time a viewer would actually be looking at a particular site. Use areas are locations that receive concentrated public-use viewing with views of long duration such as residential back yards. Recreational long duration views include picnic areas, favorite fishing spots, campsites, or day use in smaller local parks. Comparatively, drivers, hikers, snowmobilers, or canoeists will likely encounter a shorter, more rapid transient experience as a person transitions from one linear segment to the next but will encounter more visually varied experiences.

Viewer activities - Activities can either encourage a viewer to observe the surrounding area more closely (hiking) or discourage close observation (commuting in traffic).

(4) Scenic Resources Inventory

An inventory of publicly available and accessible visual resources out to the 5-mile VSA was explored through the acquisition of GIS data, review of town, county, and agency reports, topographic data, and site visits along with photographic documentation. This inventory is intended to address locations that have been officially designated for their aesthetic, recreational, or historic qualities and that are accessible to the public at large as opposed to places that have individual or private importance only. Visual resources within the 5-mile VSA are listed in Table

24-3 and are explained below. Locations of these visual resources can be found with the VIA in Attachment 2 of Appendix 24-1.

Local, state, and federal visual resources were investigated per 16 NYCRR §1001.24. For historic sites, listed National Register of Historic Places (NRHP) and eligible historic properties obtained from New York State Cultural Resource Information System (CRIS) are addressed in this report. Refer to Exhibit 20 of the Article 10 application for greater detail on cultural resources.

According to 16 NYCRR §1001.24, the following were reviewed:

- *Landmark landscapes;*

  There are no landmark landscapes found within five miles of the Project.

- *Wild, scenic or recreational rivers administered respectively by either the NYSDEC or the Adirondack Park Agency (APA) pursuant to ECL Article 15 or Department of Interior pursuant to 16 USC Section 1271;*

  There are no NYSDEC or APA wild, scenic or recreational rivers found within five miles of the Project.

- *Forest preserve lands, conservation easement lands, scenic byways designated by the federal or state governments;*
  - There are no federal or state forest preserve lands in the 5-mile VSA.
  - Four federal conservation easements are held by Natural Resources Conservation Service. One each in:
    a. Amsterdam, Unique Identification Number 963020: 3 miles north of site on Manny Corners Road
    b. Florida, 964588: 1.9 miles west near Fuller Road
    c. Glenville, 964577: 4.5 miles northeast on Hart Road
    d. Rotterdam, 956915: 3.6 miles southeast of site at Turnbull Lane
  - Route 5, The Revolutionary Trail, which runs east west in the Town of Amsterdam paralleling the north side of the Mohawk River located approximately one mile north of the site is designated as a New York State Scenic Byway.

- *Scenic districts and scenic roads, designated by the Commissioner of Environmental Conservation pursuant to ECL Article 49 scenic districts;*

There are no state designated scenic districts in the 5-mile VSA pursuant to ECL Article 49.

- *Scenic Areas of Statewide Significance*;

There are no Scenic Areas of Statewide Significance found within the 5-mile VSA.

- *State parks;*

  There are no State parks managed by the Office of Parks, Recreation and Historic Preservation (OPRHP).

- *Sites listed on National or State Registers of Historic Places (NRHP)*;

The evaluation for Exhibit 24 is focused on listed NRHP and potentially eligible historic sites using Distance Zones around the fenceline (visible elements of the Project). As noted above, listed NRHP and eligible historic properties for Exhibit 24 purposes were obtained from CRIS. CRIS listed NRHP sites, historic districts, and potentially eligible historic sites are found in Table 24-3.

A Historic Architecture Reconnaissance Survey for the Project has been completed for the Section 106 process. The goal of this survey is to document all previously recorded and newly identified above-ground architectural resources 50 years of age or older within the Project's historic designated APE of 5 miles and evaluate their eligibility for listing in the NRHP in consultation with OPRHP. Further detail on Cultural Studies for the Project can found in Exhibit 20.

- *Areas covered by scenic easements, public parks or recreation areas*;

  - There are no scenic easements found in the VSA.
  - There are several public parks and recreation areas in the VSA. Veteran's Memorial Park is 3.0 miles to the west on Fort Hunter Road in Florida, Lock 9 State Canal Park in Glenville is 4 miles to the east, Moccasin Kill County Sanctuary is 4.5 miles to the southeast, Sanders Town Preserve is 4.9 miles to the east, Featherstonhaugh State Forest is 4.9 miles south, and Indian Lookout Country

Club is 4.4 miles south of the Project. There are fifteen local city parks in the City of Amsterdam and one in Rotterdam. Please refer to Table 24-3 and Appendix 24-1.

- Various unnamed snowmobile trails are located in Amsterdam, Charlton, Duanesburg, Florida, and Glenville traversing within Distance Zone 3 between 2 and 5 miles from the Project.
- There are two state boat launches north of the Project along the Mohawk River: one in the Town of Amsterdam, 1.4 miles northwest, and one in Florida, 0.9 miles north of the site.
- There are three state bikeways that run east to west crossing the VSA, generally paralleling the Mohawk River approximately 0.5 mile north of the site. These are the Erie Canal Trailway and Bikeway, and State Bikeway Route 5 and the Mohawk Hudson Bike Hike Trail.
- There are two trails highlighted within the VSA. The Chuctanunda Creek Trail is a mixed used recreational and educational trail located in the City of Amsterdam. It starts south of the Mohawk River, crosses the river north on the pedestrian Mohawk Valley Gateway Overlook Bridge, follows the waterfront to Riverlink Park where the trail then goes north along a greenway into the city terminating at the Mohasco Powerhouse.

  The second are the trails at the Strawberry Fields Nature Preserve. The Valley View Trail is located in the south fields approximately 1.4 miles from the Project.

- Six local conservation easements held by the Mohawk Hudson Land Conservancy are found in the VSA:
    a. Crauer Easement in Glenville, Unique Identification Number 64066: 1.8 miles east on Touareuna Road
    b. John Szurek Farm in Charlton, 29148: 4.9 miles northeast on Western Avenue
    c. Schmidt Easement in Glenville, 64070: 3.7 miles northeast on Potter Road
    d. Schenectady County Preservation parcel in Glenville, 29128: 2 miles from the Project on Touareuna Road

e. Strawberry Field Preserve in Amsterdam, 29093: 1.4 miles north of Project on Cranes Hollow Road

f. one parcel in Princetown, 64067: 3 miles southeast on Ennis Road

g. Mosher Marsh Preserve in Amsterdam, 3.2 miles north on Manny's Corners Road.

- *Locally designated historic or scenic districts and scenic overlooks;*

  - There are no locally known scenic districts or overlooks in the 5-mile VSA.
  - Several cemeteries and facilities are listed out as having local historic or community importance (these are listed in Table 24-3 and mapped in Appendix 24-1.

    a. St. Casimer's Cemetery: 1.7 miles northwest on 98 Cemetery Road, Amsterdam,

    b. Fairview Cemetery, 4.8 miles northwest on Upper Steadwell Avenue, Amsterdam

    c. St. John's Cemetery: 1.5 miles northwest off of Widow Susan Road, Amsterdam

    d. Crane Cemetery; 2.5 miles north on Cranes Hollow Road, Amsterdam

    e. St. Mary's Cemetery: 4.9 miles northwest off of 29 East Main Street, Fort Johnson

    Mariaville Lake Bed and Breakfast: 3.9 miles south in Pattersonville

- *High-use public areas;*

  - The Heritage Area System (formerly known as the Urban Cultural Park System) is a state-local partnership established to preserve and develop areas that have special significance to New York State. The Erie Canal Heritage Corridor includes the City of Amsterdam and the Towns of Amsterdam, Florida, Glenville and Rotterdam and follow the Mohawk River approximately 0.6 miles north of the Project.

Table 24-3 provides the results of this investigation listing the resources found within the full 5-mile VSA with other information regarding location characteristics such as Distance Zones, LSZ, and potential for visibility.

Table 24-3. Inventory of Visual Resources within VSA

Resource Name	Town/City	Distance Zone	LSZ	Expected Visibility*
Federal/State/County Recreation Lands				
Featherstonhaugh State Forest	Duanesburg	3	2	No
Lock 9 State Canal Park	Glenville	3	1	No
Indian Lookout Country Club	Pattersonville	1	1,3	No
Moccasin Kill County Sanctuary	Rotterdam	3	2	No
Local Parks				
Coessans Park	City of Amsterdam	2	2,3	No
5th Avenue Park	City of Amsterdam	3	1,2,3	No
Amsterdam Municipal Golf Course	City of Amsterdam	3	2	No
Arnold Avenue Park	City of Amsterdam	3	1,3	No
Bergen Park	City of Amsterdam	3	1,3	No
Guy Park	City of Amsterdam	3	1,3	No
Isabel's Park	City of Amsterdam	3	1,3	No
Kirk Douglas Park	City of Amsterdam	3	1,3	No
Osone Park	City of Amsterdam	3	1,3	No
Riverlink Park	City of Amsterdam	3	1,3	Possible
Sassafrass Park	City of Amsterdam	3	1,3	No
Shuttleworth Park	City of Amsterdam	3	1,3	No
Sirchia Park	City of Amsterdam	3	1,3	No
Southside Boat Launch (Port Jackson Bocce Club	City of Amsterdam	3	1,3	No
Veterans Field (Bigelow Sanford Field)	City of Amsterdam	3	1,3	No
Veteran's Memorial Park	Florida	3	1,3	No
Sanders Town Preserve	Glenville	3	2	No
Woestina Park	Rotterdam	2	1,3	No
Heritage Sites				
Erie Canalway National Heritage Corridor	Amsterdam, City of Amsterdam, Florida, Glenville, Rotterdam	1,2,3	1,2,3	Yes
Community Concern				
St. Casimer's Cemetery, 98 Cemetery Rd	Amsterdam	2	1	No
Fairview Cemetery, Upper Steadwell Ave	Amsterdam	3	1	No
St John's Cemetery	Amsterdam	2	1	No
Crane Cemetery	Amsterdam	3	1	No
St. Mary's Cemetery, 29 E Main St	Fort Johnson	3	1	No

Resource Name	Town/City	Distance Zone	LSZ	Expected Visibility*
Mariaville Lake Bed & Breakfast	Pattersonville	3	3	No
Conservation Easements				
Federal Held by NRCS (4 parcels)	Amsterdam (1), Florida (1), Glenville (1) Rotterdam (1)	2,3	1	No
NGO held by Mohawk Hudson Land Consrv. – Strawberry Field Nature Preserve	Amsterdam	2	1,2	Yes, isolated segment of trail (see Trails)
NGO held by Mohawk Hudson Land Consrv. – Mosher Marsh Preserve	Amsterdam	3	1,2	No
NGO held by Mohawk Hudson Land Consrv.	Princeton	3	2	No
NGO held by Mohawk Hudson Land Consrv. – Crauer Easement	Glenville	3	2	No
NGO held by Mohawk Hudson Land Consrv. – John Szurek Farm	Charlton	3	2	No
NGO held by Mohawk Hudson Land Consrv. – Schmidt Easement	Glenville	3	1,2	No
NGO held by Mohawk Hudson Land Consrv. – Schenectady County Preservation	Glenville	3	1,2	No
State Bikeways and Trails				
Erie Canal Trailway & Bikeway	City of Amsterdam, Florida, Glenville, Rotterdam	1,2,3	1,2,3	No
State Bikeway Route 5	City of Amsterdam, Florida, Glenville, Rotterdam	1,2,3	1,2,3	No
Mohawk Hudson Bike Hike Trail	Rotterdam	3	2,3	No
Chuctanunda Creek Trails	City of Amsterdam	3	3,4	Unlikely (See L8 Appendix 24-1)
Trail at Strawberry Fields Nature Preserve (Valley View Trail)	Amsterdam	2	1	Yes, isolated segment of trail
Scenic Byways				
Revolutionary Trail (Route 5)	Amsterdam, City of Amsterdam, Glenville	1,2,3	3	Possible, few, minimal

Resource Name		Town/City	Distance Zone	LSZ	Expected Visibility*
Snowmobile Trails					
Various, unnamed		Amsterdam, Charlton, Duanesburg, Florida, Glenville	2,3	1,2,3	Yes
State Boat Launch					
State Boat Launch		Amsterdam	2	1	No
State Boat Launch		Florida	1	1	No
Historic NRHP Sites					
5701.000024	Jones Farmhouse	Amsterdam	3	1,2	No
5701.000048	Hurricana Farm (Sanford Stud Farm)	Amsterdam	3	1,3	No
5740.000001	Guy Park Manor	City of Amsterdam	3	3	No
5740.000009	US Post Office	City of Amsterdam	3	3	No
5740.000019	Amsterdam City Hall (Sanford Mansion)	City of Amsterdam	3	3	No
5740.000020	Greene Mansion	City of Amsterdam	3	3	No
5740.000058	Vrooman Avenue School	City of Amsterdam	2	3	No
5740.000228	Temple Of Israel	City of Amsterdam	3	3	No
5740.000231	Amsterdam Castle (46th Separate Company) Armory	City of Amsterdam	3	3	No
5740.000232	Samuel Sweet Canal Store	City of Amsterdam	3	3	No
5740.000233	Guy Park Ave Elementary School (Walter Elwood Museum)	City of Amsterdam	3	3	No
5740.000265	St Stanislaus Roman Catholic Church	City of Amsterdam	3	3	No
5740.000266	St Stanislaus School	City of Amsterdam	3	3	No
5740.000267	St Stanislaus Convent	City of Amsterdam	3	3	No
5740.000268	Rectory St Stanislaus Parish	City of Amsterdam	3	3	No
5740.000348	Gray Jewett House	City of Amsterdam	3	3	No
5740.000378	Green Hill Cemetery	City of Amsterdam	3	3	No
9301.000122	George Lasher Home	Duanesburg	3	1	No
9301.000147	Joseph Greene Farm House	Duanesburg	3	1,2	No
9302.000011	Swart House And Tavern	Glenville	3	3	No
9305.000163	Mabee House	Rotterdam	3	1,3	No
05745.000001	Fort Johnson	Fort Johnson	3+	3	No

Resource Name		Town/City	Distance Zone	LSZ	Expected Visibility*
Historic Districts					
5740.000480	***Sanford Mills Historic District***	**City of Amsterdam**	**3**	**3**	***No***
5740.000406	Sanford Co. Office (former); Noteworthy Indian Museum	100 Church Street, City of Amsterdam			
5740.000481	Clock Tower Building	37 Prospect Street, City of Amsterdam			
5740.000513	***West End Historic District***	***City of Amsterdam***	***3***	***3***	***No***
5740.000010	Schuyler (Heath Res)	263 Guy Park Ave, City of Amsterdam			
5740.000233	Guy Park Ave Elementary School (Walter Elwood Museum)	300 Guy Park Ave, City of Amsterdam			
5740.000329	Unnamed	243 Division St, City of Amsterdam			
5740.000330	Unnamed	352 Guy Park Ave, City of Amsterdam			
5740.000512	Residence	237 Guy Park Ave., City of Amsterdam			
9301.000053	***Mariaville Historic District***	***Duanesburg***	***3***	***1,3***	***No***
9301.000054	First Presbyterian Church Of Duanesburg	8800 Ny 159, Duanesburg			
9301.000055	First Presbyterian Church Parsonage	8812 Ny 159, Duanesburg			
9301.000056	Hiram Hansett Home	8822 Ny 159, Duanesburg			
9301.000057	Frost Homestead	8840-886 Ny 159, Duanesburg			
9301.000058	Silas March General Store	Ny 159, Duanesburg			
9301.000059	Silas Marsh Home	216 Batter St, Duanesburg			
9301.000157	A-Frame	176 Batter St, Duanesburg			
9301.000158	J. Conner House	8915 Mariaville Rd, Duanesburg			
Historic Eligible					
5701.000045	Movable Dam #6 at Lock E-10	City of Amsterdam	2	1	No
5701.000131	Manny Corners Cemetery	Amsterdam	3	1	No
5704.000001	Schoharie Crossing State Historic Site	Florida	3	1,3	No

Resource Name		Town/City	Distance Zone	LSZ	Expected Visibility*
5704.000119	Fosgate House And Farmstead	Florida	3	1	No
5704.000145	NYSDOT Bridge BIN 1002970	Florida	2	3	No
5740.000010	Schuyler (Heath Res)	City of Amsterdam	3	3	No
5740.000013	St. Ann's Church;	City of Amsterdam	3	3	No
5740.000016	First National Bank Bldg	City of Amsterdam	3	3	No
5740.000171	Unnamed	City of Amsterdam	3	3	No
5740.000229	YMCA	City of Amsterdam	3	3	No
5740.000234	Unnamed	City of Amsterdam	3	3	No
5740.000260	Amsterdam Free Library	City of Amsterdam	3	3	No
5740.000297	Unnamed	City of Amsterdam	3	3	No
5740.000300	Unnamed	City of Amsterdam	3	3	No
5740.000301	Unnamed	City of Amsterdam	3	3	No
5740.000318	Culvert	City of Amsterdam	3	3	No
5740.000319	World War I Memorial	City of Amsterdam	3	3	No
5740.000321	Moveable Dam 7/Lock E-11	City of Amsterdam	3	3	No
5740.000329	Unnamed	City of Amsterdam	3	3	No
5740.000330	Unnamed	City of Amsterdam	3	3	No
5740.000360	285 E. Main	Amsterdam	2	3	No
5740.000361	Unnamed	City of Amsterdam	3	3	No
5740.000362	Unnamed	City of Amsterdam	3	3	No
5740.000365	Unnamed	City of Amsterdam	3	3	No
5740.000366	Unnamed	City of Amsterdam	3	3	No
5740.000367	Unnamed	City of Amsterdam	3	3	No
5740.000380	First National Bank Bldg	City of Amsterdam	3	3	No
5740.000386	Lynch Literacy Academy	City of Amsterdam	3	3	No
5740.000387	Unnamed	City of Amsterdam	3	3	No
5740.000388	Unnamed	City of Amsterdam	3	3	No
5740.000389	Unnamed	City of Amsterdam	3	3	No
5740.000394	McClumpha Block	City of Amsterdam	3	3	No
5740.000397	[Former Wrestling Hall of Fame]	City of Amsterdam	3	3	No
5740.000406	Sanford Co. Office (former); Noteworthy Indian Museum	City of Amsterdam	3	3	No
5740.000433	Barge/Erie Canal	Amsterdam, City of Amsterdam, Florida, Glenville, Rotterdam	3	3	No
5740.000438	Farmers' National Bank. 1875.	City of Amsterdam	3	3	No

Resource Name		Town/City	Distance Zone	LSZ	Expected Visibility*
5740.000439	Stephen Sanford Apartments	City of Amsterdam	3	3	No
5740.000440	2 story 1950 Colonial Revial; brick	City of Amsterdam	3	3	No
5740.000441	2.5 story; late 19thc; shingle style; cross gable; diamond trace windows	City of Amsterdam	3	3	No
5740.000442	1917 Gardiner Cooper House	City of Amsterdam	3	3	No
5740.000443	1930s Colonial Revival	City of Amsterdam	3	3	No
5740.000444	1952 house	City of Amsterdam	3	3	No
5740.000445	Geo. Striker House	City of Amsterdam	3	3	No
5740.000446	Trinity Lutheran Church & Parsonage; 1887; brick	City of Amsterdam	3	3	No
5740.000447	YMCA	City of Amsterdam	3	3	No
5740.000449	Amsterdam Savings Bank; 1913; sandstone; neoclassical; columned porch	City of Amsterdam	3	3	No
5740.000468	late 19th c	City of Amsterdam	3	3	No
5740.000469	late 19th c	City of Amsterdam	3	3	No
5740.000470	late 19th c	City of Amsterdam	3	3	No
5740.000471	Former Key Bank	City of Amsterdam	3	3	No
5740.000473	Lustron house	City of Amsterdam	3	3	No
5740.000474	Lustron house with garage	City of Amsterdam	3	3	No
5740.000475	Lustron house	City of Amsterdam	3	3	No
5740.000481	Clock Tower Building	City of Amsterdam	3	3	No
5740.000512	Residence	City of Amsterdam	3	3	No
9302.000092	Moveable Dam 4 Lock E-8	Glenville	3	1	No
9302.000129	Five	Glenville	3	3	No
9302.000130	Frame Farmhouse and Barn	Glenville	3	1	No
9302.000147	Movable Dam #5	Glenville	3	1	No
9304.000061	Vedder House 300p	Princetown	2	3	No
9305.000001	Van Slyke House	Rotterdam	2	3	No
9305.000048	Sandsea Kill Aqueduct	Rotterdam	2	3	No
9305.000078	Aaron Bradt House/Keepers of the Circle	Rotterdam	3	1	No

*Expected visibility determination is made from the results of the viewshed analysis (Appendix 24-1, Attachment 2)

(5) Viewpoint Selection

Integrating the results of the GIS resources inventory data along with the viewshed analysis results provided initial desktop reconnaissance for recognizing areas with potential visibility and identifying candidate locations for photosimulations. While focusing on inventoried locations as listed in Section 6.0, an additional objective in the viewpoint selection process is to also choose locations for simulations that represent the various LSZs as well as Distance Zones. As well, site field visits are necessary for ground-truthing and increasing the understanding of the visual environment. In April 2018, the Applicant began site visits to acquire on-the-ground information to support the VIA and the photosimulation site selection process.

The viewshed results in Appendix 24-1 show the most prominent visibility is within 0.5 mile of the Project. Outside of 0.5 mile, there are isolated areas that may have views of solar arrays that are generally within open agricultural areas where most of the public will not be. These are located to the west and small areas in elevated areas just north of the Mohawk River. Some of those areas will be along public roadways having short duration views.

As noted in Table 24-3 Visual Resources Inventory, few of the listed visual receptors may experience views of the Project save for snowmobile trails, a small isolated area at Strawberry Fields Nature Preserve Valley View Trail and possibly minor portions of the Revolutionary Trail NYS Scenic Byway, Riverlink Park, or the Mohawk River may have partial views. Therefore, most of the photo viewpoints that show a good part of the Project with clearer and unobstructed lines of site are from interior or Project perimeter roads. Attempts to represent all LSZs are typically made, however, obtaining photo viewpoints from a representative forested area is often moot, since there are not expected to be outward views from within a forested area. As well, most recreational and public (state) forest parcels are outside of two miles and several are at the five-mile perimeter, all of which are not expected to have visibility of the Project. Most viewpoints then are taken in the remaining two but abundant LSZs which is agricultural open land and roads and closer to the Project. A few viewpoint photos were taken to represent views from residential areas.

16 NYCRR § 1000.24(b)(4) requires both general and specific consultations with affected agencies and municipalities. *"The applicant shall confer with municipal planning representatives, New York State Department of Public Service (NYSDPS), NYSDEC, OPRHP, and where*

appropriate, APA in its selection of important or representative viewpoints that may be subject to project visibility". On July 10, 2019 an information request was sent out to stakeholders. In this request, a preliminary visual report was provided, indicating the extent and findings of visibility studies at that point in time which consisted of identified visual resources as well as the result of the trees-only viewshed analysis. Opportunity was provided for municipalities to suggest additional and reasonable candidate locations for photosimulations or append additional visual resources of concern to the inventory. Correspondence can be found in Appendix 24-1.

In summary, viewpoints were selected based on representations of the Project as well as the need to incorporate the LSZs, inventoried locations, different distance zones as best as Project views allowed, different viewer types, varying lighting conditions, views that offered a clear unobstructed sightline and consideration of NYSDPS comments and stakeholder and agency consultations.

Table 24-4 provides a summary of this information considered in the adoption of the viewpoints. Line of Sight analysis was performed for additional and/or questionable areas. Seven simulations and eight line of sight analyses were performed and are noted in the table.

Table 24-4. Summary Table Simulation and Line of Sight Viewpoints

Viewpoint	Location	Significance	Landscape Similarity Zone	Distance Zone	Viewer Type
Simulation					
12	Bulls Head Road	Proximal view in farmland looking Eat fixed arrays at southern section of Project.	1,3	1	Local traveler
15c	Mohr Rd	Proximal view in farmland looking W at fixed arrays at southern section of Project.	1.3	1	Local traveler
26	Swart Hill Road	Higher elevation and distance view of fixed arrays from across valley, north of Mohawk River. View SW.	1, (2), 3	2	Residence, local traveler
27	Bulls Head Road	Landowner concern. Representative view across open land to tracker arrays. View N.	1,3	1	Residence, local traveler

Viewpoint	Location	Significance	Landscape Similarity Zone	Distance Zone	Viewer Type
28	Bulls Head Road	Landowner concern. Representative view across open land to tracker arrays. View N.	1,3	1	Residence, local traveler
29	Pattersonville Road	Landowner concern. Representative view of fixed arrays at northern section of Project. View S.	1,3	1	Residence, local traveler
30	Thayer Road	Proximal open view from road towards fixed arrays located farthest west. View S.	1,3	1	Local traveler
Line of Sight					
L1	NYS Thruway to Collection Substation	Line of sight to collection substation from busy public interstate	3	1	Local traveler, commuter, through-traveler, tourist
L2	Pattersonville Road to Collection Substation	Line of sight to collection substation from local road	1,3	1	Local traveler, commuter
L3	Revolutionary Trail Scenic Byway (Route 5N)	Line of sight to Project from scenic byway	3	2	Local traveler, commuter, tourist
L4	Strawberry Fields Nature Preserve	Line of sight to Project from higher elevation location at distance, north of Mohawk River	1,2	2	Local traveler, through-traveler, tourist
L5	Mohawk River	Line of sight to Project from Mohawk River near City of Amsterdam	4	3	Recreation, water related activity
L6	Denice Road	Line of sight to Project at distance near residential	1,3	3	Residence, local traveler

Viewpoint	Location	Significance	Landscape Similarity Zone	Distance Zone	Viewer Type
L7	Fuller Road	Line of sight to Project at distance near residential	1,3	3	Residence, local traveler
L8	Riverlink Park, City of Amsterdam	Waterfront Park	3, 4	3	Recreational, Tourist, Local

(6) Photographic Simulations and Lines of Sight

As described previously, photographic simulations were prepared using high-resolution photos with three-dimensional visualization software in order to realistically represent the built facilities from each of the selected viewpoints. The photographic simulations are presented in Attachment 4 of Appendix 24-1.

Visibility is not relatively extensive in all LSZs or Distance Zones nor is visibility expected at most of the listed Table 24-3 visual receptors, except for snowmobile trails, a small isolated area at Strawberry Field Nature Preserve Valley View Trail and possibly minor portions of the Revolutionary Trail NYS Scenic Byway, Riverlink Park, or the Mohawk River may have partial views. However, these views are distant, ranging from 1.0 to 4.6 miles. Attempts to represent all LSZs are typically made however obtaining photo viewpoints from a representative forested area is often moot, since there are not expected to be outward views from within a forested area. As well, most recreational and public (state) forest parcels are outside of two miles and several are at the five-mile perimeter, all of which do not expect to have visibility of the Project. Most viewpoints then are taken in the remaining two but abundant LSZs which is agricultural open land and roads and closer to the Project. A few viewpoint photos were taken to represent views from residential areas.

The lines of sight are presented in Attachment 4 of Appendix 24-1.

(7) Mitigation Strategies

Landscape mitigation for visual screening.is proposed in numerous areas of the Project. See Exhibit 24(a)(10) for a discussion of mitigation strategies that include siting considerations and vegetative mitigation to reduce visual impacts from the Project.

(8) Visual Impact Rating of Project Photo Simulations

TRC has developed a visual impact rating form for use in comparing Project photosimulations. This form is a simplified version of various federal agency visual impact rating systems. It includes concepts and applications sourced from:

- U.S. Bureau of Land Management (BLM), Handbook H-8431: Visual Contrast Rating, January 1986 (USDOI, 1986).
- Visual Resources Assessment Procedure For U.S. Army Corps Of Engineers, March 1988 (Smardon, et al., 1988).
- National Park Service Visual Resources Inventory View Importance Rating Guide, 2016 (NPS, 2016c).
- USDA Forest Service (USFS), United States Department of Agriculture Forest Service, Landscape Aesthetics: A Handbook for Scenery Management. USDA Forest Service Agriculture Handbook No. 701, 1995 (USDA, 1995).

Depending on the project location, a variety of VIA guidance and established procedures exist as noted above that apply to management of federal lands that fall under a specific agency such as the U.S. Forest Service or Bureau of Land Management. These guidance documents vary in regard to agency specific rating systems or procedures and often begin with the evaluation of existing conditions such as scenic quality or presence of sensitive resource locations.

This form has been developed by TRC for efficient and streamlined use with projects that undergo state environmental permitting processes. It is assumed that visual resource inventories, terrain analyses, development of LSZs or viewshed analyses have already been performed in the Project VIA according to state regulatory requirements or other visual policy. This form was developed to be used as a numerical rating system for the comparison of Existing Conditions (Before) vs. With Project (After) photosimulations of final selected viewpoint locations and is meant to accompany the Project VIA.

For evaluating visual change there are two parts to the form. Part 1 is *Visual Contrast Rating* which rates the Project as it contrasts against compositional visual elements of the viewpoint scene. This includes compositional contrasts against the existing and natural environment such as vegetation, water, sky, landform, or structures. The higher the rating total the higher the contrast. Part 2 is *Viewpoint Sensitivity Rating*. This section rates the sensitivity of the viewpoint location which inherently considers the importance of the viewpoint (if it falls within a visual resource area), duration of view, if it is a high use area, as well as general scenic quality. The higher the rating total, the more sensitive the viewpoint is. Part 3 is an overall *General Scenic Quality of the View* which rates the view of existing conditions only, without the influence of the Project. A more in-depth discussion of how Parts 1-3 were rated can be found in the VIA in Appendix 24-1.

Visual Contrast Ratings Results

The VIA in Appendix 24-1 describes the concepts and methodology applied to rating visual change incurred by the proposed Project by evaluating the Project photosimulations. Only the proposed layout simulations with views were rated. Three panelists evaluated and scored the simulations where there were views of the Project under the proposed layout. Panelist 1 has been trained in the visual arts with a B.F.A. with a minor in art history as well as having an environmental background with an M.S. in Soil Science. Panelist 2 is a landscape architect. Panelist 3 has no visual arts study or landscape architecture experience but understands solar projects in addition to the Article 10 process. The raw evaluation forms for each viewpoint can be found in the VIA. However, Table 24-5 below summarizes the final scores and averages for Part 1 Visual Contrast, Part 2 Viewpoint Sensitivity, and Part 3 Existing Scenic Quality. Here trends of contrast ratings where those VP locations that are considered to have the highest or lowest visual change in relation to each other can be obtained. Mean deviations are also calculated to gauge the variation between each of the panelists.

Table 24-5. Visual Impact Rating Results Summary

VP	Location	Contrast Rating Panelist 1			Contrast Rating Panelist 2			Contrast Rating Panelist 3			Avg Part 1	MDev Part 1	Avg Part 2	MDev Part 2	Avg Part3	MDev Part 3
		Part 1	Part 2	Part 3	Part 1	Part 2	Part 3	Part 1	Part 2	Part 3						
12	Bulls Head Rd	12.5	4.5	2.0	10.0	5.0	1.5	13.0	6.0	2.0	11.8	1.2	5.2	0.6	1.8	0.2
15c	Mohr Rd	14.5	3.0	1.5	15.0	6.0	1.5	14.5	4.5	2.0	14.7	0.2	4.5	1.0	1.7	0.2
26	Swart Hill Rd	11.0	9.0	2.0	6.0	6.0	2.0	13.5	7.5	2.5	10.2	2.8	7.5	1.0	2.2	0.2
27	Bulls Head Rd	14.0	7.0	1.5	6.0	5.0	1.5	13.5	7.5	2.5	11.2	3.4	6.5	1.0	1.8	0.4
28	Bulls Head Rd	14.0	7.0	1.5	8.0	6.0	1.5	14.4	6.5	2.0	12.1	2.8	6.5	0.3	1.7	0.2
29	Pattersonville Rd	11.0	7.0	1.5	11.0	5.5	2.0	14.0	7.0	2.0	12.0	1.3	6.5	0.7	1.8	0.2
30	Thayer Rd	10.5	3.5	2.0	12.5	4.5	1.0	13.5	4.5	1.0	12.2	1.1	4.2	0.4	1.3	0.4

MDev = Mean Deviation

Part 1 Contrast Rating

Part 1 Contrast rates proposed visual change with respect to compositional elements such as newly introduced line, shape, color, project scale, broken horizon lines, etc. Under Part 1 there are 9 categories to rate, where the total rating ranges from 0 to 27. The viewpoint with the highest Part 1 Contrast is VP15c on Mohr Road with an average rating of 14.5. This simulation shows the panels 437 feet offset from the road with partial views to the Project. The majority of the arrays are behind existing vegetation but can be seen through a gap in the vegetation as well as partial views of panels on the hill behind the shrubs and trees. Although much of the arrays are mitigated by the flora, the contrast rating is higher due to new form, color, line, and texture contrasts of discernible detail and proximity to the viewer, compared to what is currently there.

VPs 29, 28, and 30 basically have the same average ratings with 12.0, 12.1 and 12.2, respectively. VPs 28 and 29 are at similar distances at 0.3 and 0.2 miles while VP30 is 648 feet (0.12 miles) from the viewer. Much of the Project is nestled against existing forest in VPs 28 and 29 and do not show much discernible detail at the viewer distances. The horizontal extent of the arrays and color change likely provides contrasts against the existing ochre colored fields. Interestingly, VP30 where the fenceline is 0.12 miles from the viewer, has a similar contrast rating to those arrays that are approximately a quarter mile away. This could be the difference in season but the view in VP30 shows the Project as fairly small and subordinate in the view, suggesting that offsets of several hundred feet placed against existing tree lines can be effective in reducing visual contrasts and impacts.

VP12 shows the project viewed through a gap in roadside vegetation with clear lines of sight. VP12 is rated at 11.8 with an average Part 1 contrast rating close to VPs 28-30. The viewer is 380 feet to the fenceline and discernible detail is observed but again with a comparatively lower contrast rating. Placing arrays at offsets from the road, nearing edges of opposing fields and against existing tree lines in the background, appears to be effective at reducing visibility.

VPs 26 and 27, the VPs most distant from the Project, have the lowest contrast ratings of the simulation suite with average ratings of 10.2 and 11.2 respectively. VP26 is 1.5 miles away while VP27 is 0.7 mile away. VP26 shows a view from across the Mohawk River on the north side at an elevated valley slope location. The view shows an extensive open panoramic view of the hills and mosaicked field-forest pattern. Although there is an open view, a clear sight-line to the Project, and color contrast can be noted against existing conditions, the contrast rating might be on the

relatively lower side because the array color resembles that of the forested areas in view. The gaps and spacing of array groups on the hills resembles that of the forest group and field pattern at distance. VP27 has a similar view as that of VP28 but is 0.4 mile away from the viewer. At VP27 the arrays are nestled within and behind existing forested areas and are lower than the trees and do not break the horizon line. The rating forms indicate that the contrasts are attributed to color and form against existing conditions yet are somewhat mitigated by the placement of the panels against the existing forested areas.

Mean deviations were calculated to observe the level of variance between the panelists within each simulation evaluation. Mean deviations ranged between 0.2 and 3.4. It appears panelist opinion varied the most regarding contrast changes when assessing VP27 that had the highest mean deviation of 3.4. As noted above panelists observed Project contrast against the existing open ochre colored field while one panelist thought that placement of arrays nestled within trees reduced contrast. There is very little difference in panelist opinion with VP15c with a mean deviation of 0.2. The remaining mean deviations of VP12, 26, 28, 29, and 30 lie in between the extremes where there might be slight differences in opinion when it came to how much form, line, and color contrast the panels provided against existing conditions.

Part 2 Viewer Sensitivity

There are 8 categories to rate under Part 2, where the total rating ranges from 0 to 24. Part 2 takes into account viewer sensitivity, in particular whether the VP falls within or has a view of an existing visual receptor, as well as the character of viewer groups such as number of viewers, duration of view, presence of existing development, etc. Since Table 24-3 indicates minimal views of the Project will occur at visual receptors most of the viewer sensitivity issues focus on viewer groups related to the community travelers or residents. The highest Part 2 viewer sensitivity is at VP26, likely because of its elevation view towards the Project across the Mohawk River at an upper valley slope location with a more panoramic view over other viewpoints.

VP 27, 28, and 29 resulted in an average rating of 6.5. These three simulations are similar in that they are representative of longer duration homeowner views at distance.

VP12 and 15c were somewhat similar with an average sensitivity rating of 5.2 and 4.5. These two are similar in that they are proximal views along a local road.

VP30 had the lowest viewer sensitivity rating, as it is also not listed as a scenic receptor and is located along a general local travel corridor with expected low number of viewers.

Mean deviations for Part 2 Viewer Sensitivity do not show a lot of variance between panelist opinion, with ratings between 0 and 1.0. This can be somewhat expected as the Part 2 categories are less subjective than Part 1. VPs 15c, 26, and 27 has the highest mean deviation all at 1.0. The remaining mean deviations are less than 0.8, indicating similar agreement.

Part 3 Scenic Quality

Part 3 Scenic Quality is a standalone single rating that assesses the overall scenic quality of the VP's existing conditions (see also Appendix 24-1). Here there is no evaluation of visual change but a simple appraisal of the scenic quality of the view. A rating of 1 is weak; 2 is moderate; 3 is strong.

VP 26 was rated highest with an average scenic quality value of 2.2. It is likely the highest because of the upper elevation panoramic distance view over the valley towards agricultural fields and forest. Remaining VPs are rated similarly with average ratings of 1.3 to 1.8. Overall, the ratings indicate moderate to weak scenic quality indicating that either views are not outstanding according to criteria in the VIA in Appendix 24-1 and/or are typical of the area

Mean deviations for Part 3 are comparatively very low, ranging between 0.2 and 0.4. This suggests the panelist's opinions on scenic quality regarding each viewpoint were very similar.

(9) Visible Effects Created by the Project

As applicable to the proposed Project technology and as part of this Application, the comprehensive VIA examined the overall appearance, operational characteristics, and general visible effects of the Project by means of computerized GIS viewshed and terrain analysis and with the use of specialized 3d visualization software. Viewshed analyses results are mapped for illustrating geographic locations of predictive visibility as well as having used resultant data to quantify and compare amounts of visibility within varying parameters such as Distance Zones, LSZs, and sensitive receptors. More descriptive and qualitative assessments of the proposed Project was further provided with photo simulations that show comparisons between existing conditions and conditions with the Project.

Portions of the VIA have been discussed in previous sections per Article 10 requirements of Proposed Stipulation 24, Exhibit 24(a) and Exhibit 24(b). However please refer to Appendix 24-1 for the full detailed VIA.

The viewshed analysis concludes that 3.3% of the land area within the VSA expects some level of full or partial views of the Project where there would be some areas from which the Project would be in view and, in contrast, a multitude of areas from which it would not be seen. There is existing topography and many tree groups surrounding the Project that will block views. There are also significant attributes of the design of this solar project and its relationship to its particular surroundings that would minimize the Project's impacts as discussed in under 24(a) (10). Refer to 24(a)(8) for a discussion on the nature and degree of visual change during operation of the Project.

Article 10 Resources

Visibility is not relatively extensive nor is visibility expected in most of the listed Table 24-3 visual receptors. Those resources that may experience some level of visibility are noted in Table 24-3 and itemized out below.

Federal Scenic Resources

Federal visual resources consist of the Erie Canalway National Heritage Corridor, four NRCS owned conservation easements and fifty National Register of Historic Places sites and three historic districts. There will be areas within the geographic demarcation of the Erie Canalway Heritage Corridor that will have views since the Heritage site within the VSA is all of the land area for the Town of Amsterdam, City of Amsterdam, Florida, Glenville, and Rotterdam. None of NRCS conservation easements will have views of the Project nor are there any historic sites and districts with expected views (listed in Table 24-3). Eligible historic sites as obtained from CRIS will also not have views of the Project.

State Scenic Resources

The Mohawk River – New York State Barge Canal may have a view of solar arrays as a result of the viewshed analysis but several line of sight profiles in some locations on the water and near the shore suggest no views. Discrepancies between viewshed and line of sight analyses are suggestive of views that are so minimal that extremely minor portions of the tops of some panels might be seen due to very minor differences in the shape of the upper tree foliage and would likely be too difficult to discern in a simulation. The Revolutionary Trail NYS Scenic Byway (Route 5N)

may also have few extremely small isolated views (possible noise in the results), although a line of sight analysis was performed near an area of predicted visibility that did not show views. Other state or county visual receptors such as Featherstonhaugh State Forest, Lock 9 State Canal Park, Moccasin Kill County Sanctuary, Erie Canal Trailway & Bikeway, State Bikeway Route 5, Mohawk Hudson Bike Hike Trail, Chuctanunda Creek Trail, and two state boat launches in Amsterdam and Florida are not expected to see the solar arrays.

Local Scenic Resources

There are seven conservation easements held by the Mohawk Hudson Land Conservancy within the VSA. Six will not have views but intermittent areas at the Strawberry Fields Nature Preserve will likely experience distant views from the southern fields. There is an isolated area along the Valley View Trail in the southern field which may experience views.

Several snowmobile trails that cross in the VSA in the towns of Amsterdam and Florida will likely have short duration intermittent views in a few isolated areas as they pass through open land in Distance Zone 3 between two and five miles.

The remaining local receptors are local parks in the VSA, the majority of which are located in the City of Amsterdam (see Table 24-3) where there are no expected views of the Project except for possibly a portion of Riverlink Park. There is also Sanders Town Preserve in Glenville and Woestina Park in Rotterdam. Both of these resources will not have views of the Project. Several local areas of community concern such as Indian Lookout Country Club in Pattersonville, Mariaville Lake and Bed and Breakfast, and five cemeteries as listed in Table 24-3 do not expect visibility of the Project.

(10) Outreach to Visual Stakeholders

16 NYCRR § 1000.24(b)(4) requires both general and specific consultations with affected agencies and municipalities. *"The applicant shall confer with municipal planning representatives, NYSDPS, NYSDEC, OPRHP, and where appropriate, APA in its selection of important or representative viewpoints that may be subject to project visibility".* This requirement was fulfilled. On July 10, 2019 an information request was sent out to stakeholders. In this request, a preliminary visual report was provided, indicating the extent and findings of visibility studies at that point in time which consisted of identified visual resources as well as the result of the visibility analysis and a current photolog of candidate simulation viewpoints. Opportunity was provided for the town and agencies to suggest additional and reasonable locations for photosimulations or

append additional visual resources of concern to the inventory. Correspondence can be found in Attachment 6 of Appendix 24-1.

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