Visual Impact Assessment

August 2019

East Point Energy Center
Town of Sharon, New York

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ATTACHMENTS

1.0 INTRODUCTION

East Point Energy Center, LLC, (EPEC) a wholly-owned, indirect subsidiary of NextEra Energy Resources, LLC is proposing to construct, operate and maintain the East Point Energy Center (Project), and is submitting an Article 10 application to the NYS Siting Board on Electric Generation Siting and the Environment in pursuit of a Certificate of Environmental Compatibility and Public Need.

EPEC is providing herein a Visual Impact Assessment (VIA) that addresses the potential for visual impacts from the major components of the Project. The focus of this VIA includes the potential for visual impacts from the proposed solar panels and the Project collector station.

Within the framework of the Article 10 process, the purpose of this VIA is to:

- Describe the visual character of the Visual Study Area (VSA)
- Perform a visual resources inventory that identifies potentially sensitive receptors
- Evaluate potential Project visibility within the VSA
- Provide the results of computerized visualization studies that support the evaluation of Project visibility as well as field observations during the site visits
- Assess the potential for visual impacts associated with the proposed Project

The VIA was performed according to the requirements in 16 NYCRR §1001.24 with results included within Exhibit 24 in the Article 10 application. The VSA for the Project is a 5-mile radius around the fence line of the Facility.

2.0 THE PROJECT

The following definitions will be used to describe various areas or boundaries of the Project:

Project: the proposed East Point Energy Center solar energy facility.

Project Area: the 1,313-acre area encompassing all Project parcels located within the Town of Sharon.

Visual Study Area: A five-mile radius around the fence line of the Facility specifically designated for the study of visual impacts.

Component or Facility: an individual piece, or collection of equipment or improvement of the Project, including a solar array, access road, fencing, inverters, buried electric collection lines, electrical interconnection facilities, and laydown areas.

The East Point Energy Center Project will have a generating capacity of 50 MW of power and will be located on land either leased or purchased from owners of private property

located in the Town of Sharon, Schoharie County, New York (see Figure C-001, Attachment 1 and Figure 1, Attachment 2). The Project will include commercial-scale solar arrays, access roads, inverters, fencing, buried electric collection lines, and electrical interconnection facilities. The proposed interconnection facilities will include a 69-kilovolt (kV) switchyard which will be transferred to National Grid to own and operate. The proposed collection substation and interconnection facilities will be located on land within the Project Area, in relative proximity to National Grid's existing Sharon – Marshville 69 kV transmission line, which is adjacent to the existing Sharon substation.

- **Solar Arrays:** As solar technology is rapidly advancing, it is not possible to determine the exact module type that will be utilized for a project with a commercial operation date of 2021. However, the Applicant intends to utilize a module similar to the Jinko Solar Eagle 72HM G2 380-400 Watt Mono Perc Diamond Cell. The Project will utilize a tracking array system similar to the Gamechange Solar Genius Tracker™.

- **Access Roads**: Roads used to access solar arrays will follow existing farm roads, where practicable, 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 proposed is approximately 4.4 miles.

- **Collection Lines:** The 34.5 kV collection lines will connect inverters with the Project collection substation. The total length of collection line being included as part of the Application for the Project is approximately 32,650 feet (9951.72 meters). Collection lines will be installed underground via direct burial (approximately 31,405 feet [9,572.24 meters]) and horizontal directional drilling (HDD) (approximately 1,245 feet [379.47 meters]).

- **Fencing:** Fencing will be placed around the perimeter of the arrays and associated structures. Fencing will be chain-link and 8.5 feet in height per local regulations.

- **Project Collection Substation:** The 34.5 kV collection lines within the Project Area will gather power from the inverters and transport it underground to a new, centrally located Project collection substation. The collection substation will be located north of Route 20 (see Figures 1 and 4, Attachment 2). The construction of the collection substation is anticipated to occupy approximately 0.91 acres (3,682.639 square meters) of land.

- **Project Interconnection Facilities:** Power from the collection substation will step up the voltage to 69 kV and then will be transported to an immediately adjacent switchyard that will interconnect with the existing National Grid Marshville – Sharon #16 transmission line.

For this report there is one solar array alignment that is considered as the primary base option which is the Proposed Layout. A second option is the Alternate Layout which is presented as an alternative. The array alignments between the two options north of Route 20 are minimal. The Alternate Layout has solar arrays located directly south of Route 20 and along Beech Road. The Proposed Layout has those arrays removed from south of Route 20 and re-located 3700 feet westerly farther down Beech Road in a more secluded field surrounded by tree rows. The primary focus of this report is solely on the Proposed Layout except for some comparison photosimulations between each layout option that are provided in Attachment 4 and discussed in Section 10.2.1.

3.0 VISUAL CHARACTER OF THE EXISTING LANDSCAPE

Solar panels are proposed in the Town of Sharon, NY. The VSA is a 5-mile radius around the fence line of the Facility.

As a result of the larger VSA under consideration for this report, a number of additional towns are included over that of the Project location in Sharon, NY.

Towns that fall within One Half Mile Distance Zone: Sharon.

Towns that fall within Two Mile Distance Zone: Carlisle, Root, Seward, Sharon.

Towns that fall between Two- and Five Mile Distance Zone: Canajoharie, Carlisle, Cherry Valley, Cobleskill, Root, Roseboom, Seward, Sharon.

3.1 PHYSIOGRAPHY AND LANDFORM

Topography is an important feature that can determine sightlines to a project. The site is within the rolling low hills and flats of the glaciated Allegheny Plateau and the Catskill Mountains physiographic provinces.

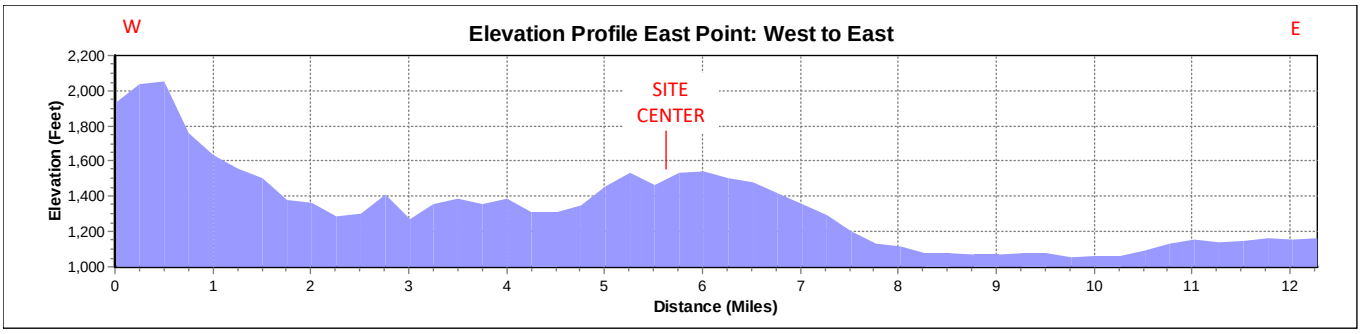
The glaciated Allegheny Plateau, which includes about one-third of the state, is the most extensive province in the State. To the eastern side of the state near the Project, the plateau is separated from the Hudson-Mohawk lowlands (Mohawk River Valley) located approximately 4.3 miles north of the site and, to the southeast, grades into the Catskill Mountains Province. The plateau is thought to represent ancient erosion surfaces and gives a rather flat-topped appearance when viewed from a distance. Numerous "through" valleys and troughs are found in this province. The elevation of the Catskill Mountain Province rises considerably higher than the neighboring parts of the Plateau upland. However, the Project VSA lies at the northwest boundary of the province where valley sideslopes still remain gently sloping.

Within the VSA, topography generally varies from hilly with steeper slopes in the west-southwest to nearly regularly spaced areas that are flat and level. Drumlin features are

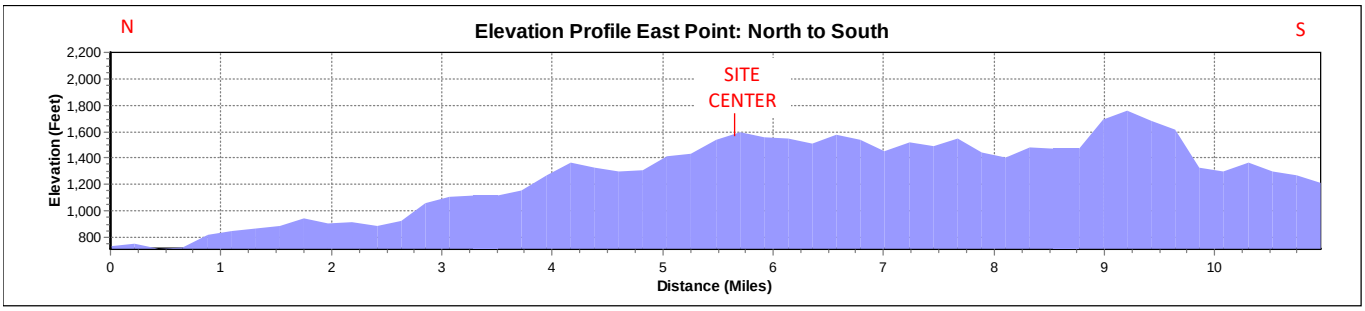
present in the vicinity, resulting in many of the hillsides facing north and south, with ridgelines oriented in a generally east to west fashion.

Approximate elevations within the VSA range between 700 and 2,100 feet mean sea level (msl) as noted with terrain Elevation Profiles 1-2 below. A Light Detection and Radar (LiDAR) elevation heat map for the VSA also shows the topography trend increasing from east to west and north to south (Figure 2, Attachment 2).

Elevation Profile 1



Elevation Profile 2



3.2 LAND USE PATTERNS

The landscape within the VSA is primarily a rural mix of farmland consisting of cultivated crops and hay-pasture land with intermittent and isolated forest groups. The Project Area and VSA economy and land use is primarily that of an agricultural community. Nearly the entire VSA within Schoharie County lies in Agricultural District #3 while nearly all of the VSA in Montgomery County lies in Agricultural Districts #1 and #3. Larger tracts of forested areas become more predominant near the western boundary of the VSA in Cherry Valley and Roseboom. All of Schoharie and Montgomery County is included in the Mohawk Valley Heritage Area. The site itself is largely open, undeveloped, and consistent in character with the neighboring agricultural parcels that immediately surround the property.

The Project Area is rural and far from major metropolitan centers with few major transportation routes. Cobleskill is the nearest larger town with the general larger aggregation of residents located approximately 6.5 miles southeast of the Project. The

estimated 2017 populations for Sharon and Seward are 2,047 and 1,644, respectively. Cobleskill population is approximately 6,484 while the Village of Cobleskill is 4,694. Scenic US Route 20 is a major east-west travel corridor running through the middle of the VSA. Most other roads are local rural roads.

Single-family is the most predominant residential land use in the vicinity of the Project location. Commercial development is concentrated along Route 20 with the greatest concentration in the Sharon Hill area. There are also spots of concentrated commercial development within a mile and half to the west in the Village of Sharon Springs and commercial development along US Route 20 within the immediate vicinity of the Project Area.

The following inset photos show the character of the VSA. Insets 1-5 illustrate the farmsteads and agricultural land use with intermittent forested areas. One can also discern the terrain characteristic and flat to gently sloping of the project in most of the photos. Inset 1, 3, and 4 show the show the rural nature of the county roads while insets 5, 6, and 7 show more heavily traveled corridors and/or the nature of either small village development or single-family development along roadways.

Inset 1. View NE from Parsons Road, Sharon.

Inset 2. View NW from Slate Hill Road, Sharon.

Inset 3. View SE from Gilberts Corner Road, Sharon.

Inset 4. View NW from Empie Road, Sharon.

Inset 5. Scenic Route 20, Sharon.

Inset 6. Route 20 at Sharon Springs.

Inset 7. State Highway 10, Sharon.

Towns have been developed in the pattern of small densely settled villages surrounded by large regions of farm and forest land. Residential development is generally of two types: rural residential along roadways and village. Rural residential housing consists of agricultural units and also non-farm units. Insets 1- 4 show agricultural units while Inset 7 shows a non-farm unit. Insets 6 and 8-10 are representative of village or town “centers”.

Inset 8. Historic village of Sharon Springs.

Inset 9. Village of Ames.

Inset 10. Town of Seward.

3.3 WATER RESOURCES

Few water resources are within the VSA. Most are small unnamed tributary streams that drain into the larger Mohawk River 6 miles to the north or ultimately to the Susquehanna River 17 miles to the southwest. Three of the more substantial named streams in the VSA include Flat Creek to the northeast, West Creek to the west, and Brimstone Creek to the north. There are no DEC Fishing Areas within the VSA. Few water bodies exist as well. Within 2 miles, Claussen Pond and Bowmakers Pond lie to the west near State Highway 10. Each are between 10-14 acres. At 3.25 miles, Engleville Pond, a 28-acre water body along Mill Pond Road lies to the west.

Inset 11. Bowmaker Pond on State Highway 10 in Sharon.

Inset 12. Flat Creek on Hoyt Road in Sharon.

Inset 13. West Creek on State Highway 10 in Sharon.

3.4 TRAVEL CORRIDORS AND SCENIC ROADS

Route 20 (Insets 5 and 6) has been designated a New York State Scenic Byway, is a major Point A to Point B travel road and passes through the VSA.

Upon review of the Sharon Comprehensive Plan (Amended 2012), two excursions to the Route 20 Byway are also located in the Town of Sharon within the VSA; along Route 10 and Route 145. The excursion routes are not officially part of the Route 20 Scenic Byway but are locally recognized. Apart from NYS Route 20 Scenic Byway, local Route 10, and local Route 145, the Town of Sharon recognizes the following additional local roads as scenic:

1. Argusville Road
2. Beechwood Road
3. Center Valley Road
4. Chestnut Street
5. Engleville Road
6. Gilberts Corners Road
7. Goodrich Road
8. Green Road
9. Hanson Crossing Road
10. Kilts Road
11. Lynk Road

Roads other than Route 20 are less travelled but they are vital corridors for local residents in getting from Point A to Point B. To help describe the rural nature of the area and thus provide an understanding of the intensity of vehicle travel (a category of viewer group Section 8.0), annual average daily traffic (AADT) counts (2015) are provided in the Table 1 listing of roadways as available with the VSA. AADT is a measure used primarily in transportation planning and transportation engineering. Traditionally, it is the total volume of vehicle traffic of a highway or road for a year divided by 365 days. For perspective, the nearest major interstate highway such as I-90 NYS Thruway approximately 7 miles to the north has an AADT of 22,572.

Table 1. Major Roads

Route	AADT* 2015	Begin Segment	End Segment
10	1476	Sharon Springs N Ln	Village of Sharon
10	1424	Schoh/Mont Co Line	Town of Sharon
10	1079	Rt 163 Jct On Left	Town of Canajoharie
10	1403	Rt 20 Sharon	Town of Sharon
10	3388	Rt 165	Town of Seward
20	2424	CR 7 - 1st Time	Town of Carlisle
20	2492	Rt 10 Sharon	Town of Sharon

Route	AADT* 2015	Begin Segment	End Segment
20	3315	Rt 145 Sharon	Town of Sharon
20	1806	Otsego/Schoh Co	Town of Cherry Valley
145	3126	CR 29	Town of Cobleskill
145	1602	Rt 20 Sharon End Rt	Town of Seward
165	723	CR 5 Seward	Town of Seward
165	877	Otsego/Schoh Co	Town of Roseboom
165	753	Rt 10 End Rt 165	Town of Seward
Argusville Rd N	204	Mtgy Co Ln	Town of Sharon
Argusville Rd S	230	CR 5b	Town of Sharon
Argusville Rd S	522	CR 34a	Town of Sharon
Carlisle Rd	297	CR 98 Flat Creek Rd	Town of Canajoharie
Carlisle Rd	286	CR100 Mahr Rd	Town of Root
Carlisle Rd	251	Corbin Hl Rd	Town of Root
E Lykers Rd	294	NY 162	Town of Root
Gardnersville	127	NYS Rt 10	Town of Seward
Gardnersville	154	NYS Rt 145	Town of Seward
Latimer Hill Rd	174	W Lykers Rd	Town of Root
W Lykers Rd	158	Carlisle Rd	Town of Root
West Ames Rd	350	NY10 Main St	Town of Canajoharie
West Ames Rd	283	Budd St	Town of Canajoharie
West Richmdvl	280	NYS 165	Town of Seward

**Annual average daily traffic count*

4.0 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 US 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 US 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 not wind turbines or tall buildings. They are of a different character with a low vertical height profile (13 feet) 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, visibility of solar projects in the northeast, because of frequent and highly vegetated narrow ridge and valleys and dense forest areas surrounding agricultural lands often do not offer substantial far reaching vistas of many miles.

Distance Zones for this project are as follows:

- Distance Zone 1: Foreground (up to 0.5 miles 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, 1 mile. The outer boundary of this distance zone however 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 is 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.

Further discussion on the percentages of visibility for each Distance Zone can be found in Section 10.1.3 and Table 5.

5.0 LANDSCAPE SIMILARITY ZONES

Landscape Similarity Zones (LSZ) are areas of similar landscape and 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. Land cover classification datasets from the 2016 USGS National Land Cover Dataset (NLCD) are available for GIS analysis and were 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 three final LSZs within the VSA as depicted in Figure 3, Attachment 2, and include the following:

Zone 1 - Agricultural/Open Field

Agricultural and open field consists of cultivated crops, hay, or pasture or general open land that may include small ponds. Views from this zone are typically from larger open areas where the influence of tree cover as a visual impediment is not great. Frequently there are hedgerows or small tree groups at field edges or riparian zones that provide intermittent screening.

Zone 2 - Forested

While forested areas may be present, views of the Project 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

Generally in the VSA, residential housing consists of single family dwellings or a larger farm complex. The Developed Zone also includes the small villages or local roadways where residential development is intermittently established along the existing road network as well as accounting for roadway travelers. Adjacent buildings in this zone can be visual impediments for views as well as roadside vegetation. Table 2 summarizes the percentage of LSZs in the VSA.

Table 2. Percentage of Landscape Similarity Zones within Five Mile VSA

	Distance Zone 1 0-0.5 Miles		Distance Zone 2 0.5-2 Miles		Distance Zone 3 2.0-5.0 Miles			
LSZ	**Square Miles**	**% of Five Mile Distance Zone**	**Square Miles**	**% of Five Mile Distance Zone**	**Square Miles**	**% of Five Mile Distance Zone**	**Total Square Miles**	**Total % of Five Mile Distance Zone**
LSZ 1	4.2	3.65%	14.6	12.72%	52.8	45.98%	71.5	**62.34%**

	Distance Zone 1 0-0.5 Miles		Distance Zone 2 0.5-2 Miles		Distance Zone 3 2.0-5.0 Miles			
LSZ	**Square Miles**	**% of Five Mile Distance Zone**	**Square Miles**	**% of Five Mile Distance Zone**	**Square Miles**	**% of Five Mile Distance Zone**	**Total Square Miles**	**Total % of Five Mile Distance Zone**
Agriculture/Open Land								
LSZ 2 Forested	1.5	1.31%	7.4	6.49%	32.7	28.52%	41.7	**36.32%**
LSZ 3 Developed	0.1	0.08%	0.5	0.41%	1.0	0.85%	1.5	**1.34%**
Totals	**5.8**	**5.03%**	**22.5**	**19.62%**	**86.5**	**75.35%**	**114.8**	**100.00%**

Zone 1 Agricultural/Open is the dominant LSZ found within the 5-mile VSA, comprising 62.3% of the land area and is the dominant LSZ within all Distance Zones as well. Zone 2 Forested accounts for 36.3% of the total VSA land area. As noted in Section 3.2, most forest groups are smaller isolated sections within Zone 1 lands. Larger tracts of forested areas become more predominant near the western boundary of the VSA in Cherry Valley and Roseboom. Zone 3 Developed areas consist of 1.34% of the VSA.

6.0 VISUAL RESOURCE 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 3 and are explained below. Locations of these visual resources are mapped in Figures 1 and 4 in Attachment 2.

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 and historical resources.

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

1) Landmark landscapes;

    - There are no landmark landscapes found within 5 miles of the Project.

2) Wild, scenic or recreational rivers administered respectively by either the NYSDEC or the 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 5 miles of the Project.

3) 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.

   - Ten federal conservation easements are held by Natural Resources Conservation Service.
     a. Canajoharie: two easements (Unique ID Numbers as recorded by the National Conservation Easement Database):

        962654 and 966815: two parcels 4.1 and 4.6 miles north of site on Blain Road

     b. Root: three easements

        956914: 3.5 miles north of site Conway Road,
        957705: 4.1 miles northeast of site on Full Tan Road,
        963382: 2.7 miles north on Mapletown Road.

     c. Roseboom: two easements

        Two adjacent parcels 963382 and 968078 are State Highway 165, 5 miles southwest of the site.

     d. Seward: two easements

        967843: 3.1miles southeast of site on Rheinebeck Road.
        968796: along State Route 145 and Gardnersville Road 2 miles southeast of site.

     e. Sharon: one easement

        965126: along Oderdunk Road 0.25 miles east of Project.

   - Approximately 12.1 miles of Route 20 that runs east west through the entire VSA is designated as a New York State Scenic Byway. An approximate 0.9-mile segment lies adjacent to Project parcels in the town of Sharon that will be developed with solar panels.

4) 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.

5) Scenic Areas of Statewide Significance;

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

6) State parks;

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

7) Sites listed on National or State Registers of Historic Places;

- The historic sites in Table 3 and in Attachment 6 reflect listed NRHP and eligible historic properties obtained from CRIS that occur within the 5-mile VSA.

    a. There is one historic district, Sharon Springs Historic District, with the outer boundary 1.8 miles from the Project. There are 88 properties in the district and are listed in Attachment 6.

    b. There are 4 listed NRHP sites not with the Sharon Springs Historic District; two are between 0.5 and 2 miles and two are outside of two miles.

    c. There are eight eligible historic sites; two are between 0.5 and 2 miles and the remaining six are outside of 2 miles.

- A Historic Architecture Reconnaissance Survey for the Project was not determined necessary by the OPRHP. .

8) Areas covered by scenic easements, public parks or recreation areas;

- There are several public parks and recreation areas within the 5-mile VSA:

    a. Sharon Springs Recreation Center, 1.8 miles northwest of the site.
    b. Bowmaker Pond in Sharon, 2 miles west of site along Highway 10
    c. Honey Hill State Forest in Roseboom and Sharon on Edwards Road located 3.5 miles southwest of the site.
    d. Various, unnamed snowmobile trails belonging to or maintained by Sharon Pathfinders or Cave Country Riders in the towns of

Canajoharie, Carlisle, Cherry Valley, Cobleskill, Root, Roseboom, Seward, Sharon.

e. Two local conservation easements held by Schoharie County Land Trust are found in Sharon (Unique ID Numbers as recorded by the National Conservation Easement Database):

923781: 2.6 miles southwest of site on Rosenberg Road.
923787: 1.2 miles southwest of site on Slate Hill Road.

9) Locally designated historic or scenic districts and scenic overlooks;

- There are no locally known scenic districts or overlooks in the 5-mile VSA.

- Several local historic sites are noted and include Sharon Battleground - 916 Route 20, Camp of Cedar Swamp - near 867 Route 20, and Sharon Airport - near 951 Route 20. These sites are within a mile of the Project.
- Two categories of locally designated scenic roads are found in the Project VSA. There is:
  a. Local Scenic Excursions from Scenic Byway Route 20 consisting of Route 10 to the west and south and Route 145.
  b. Locally designated scenic roads according to Sharon Comprehensive Plan. These roads in the town of Sharon include:

     1. Gilberts Corners Road: within 0.5 miles
     2. Kilts Road: within 0.5 miles
     3. Argusville Road: between 0.5 and 2 miles
     4. Goodrich Road: between 0.5 and 2 miles
     5. Hanson Crossing Road: between 0.5 and 2 miles
     6. Beechwood Road: between 2 and 5 miles
     7. Center Valley Road: between 2 and 5 miles
     8. Chestnut Street: between 2 and 5 miles
     9. Engleville Road: between 2 and 5 miles
     10. Green Road: between 2 and 5 miles
     11. Lynk Road: between 2 and 5 miles

10) 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 entirety of Schoharie and Montgomery counties fall within the Mohawk Valley Heritage Area. This

heritage area represents history that includes Iroquois encounters with fur-traders and missionaries, European settlement, colonial wars, the Erie Canal and industrialization.

Table 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, landscape similarity zones, and potential for visibility.

6.1 RESULTS OF ARTICLE 10 SCENIC RESOURCES INVESTIGATION

Table 3 shows results of the investigatory findings of scenic resources that are required by the regulatory guidelines set forth for Article 10 (Section 6.0). Figures 1 and 4 in Attachment 2 show resource locations.

Table 3. Inventory of Visual Resources Within 5 Mile VSA

Resource Name	Town	Distance Zone	LSZ	Expected Visibility*
Federal/State/Local Recreation Lands				
Bowmaker Pond	Sharon	2	1,2	No
Sharon Springs Recreation Center	Sharon Springs	2	1,2	No
Honey Hill State Forest	Roseboom, Sharon	3	2	No
Scenic Byways				
New York State Route 20 Scenic Byway	Carlisle, Cherry Valley, Sharon	1,2,3	1,2,3	Limited, partial
Local Excursion from Scenic Byway 20: Route 10	Sharon	3	1,2,3	No
Local Excursion from Scenic Byway 20: Route 145	Sharon	2	1,3	No
Local Scenic Road: Argusville Rd	Sharon	1,2	1,2,3	No
Local Scenic Road: Beechwood Rd	Sharon	3	2,3	No
Local Scenic Road: Center Valley Rd	Sharon	3	1,2,3	No
Local Scenic Road: Chestnut St	Sharon	3	1,2,3	No
Local Scenic Road: Engleville Rd	Sharon	3	1,2,3	No
Local Scenic Road: Gilberts Corners Rd	Sharon	1,2	1,3	Yes
Local Scenic Road: Goodrich Rd	Sharon	3	1,2,3	No
Local Scenic Road: Green Rd	Sharon	3	1,3	No
Local Scenic Road: Hanson Crossing Rd	Sharon	3	1,3	Yes
Local Scenic Road: Kilts Rd	Sharon	1,2	1,3	No
Local Scenic Road: Lynk Rd	Sharon	3	1,3	No

Resource Name		Town	Distance Zone	LSZ	Expected Visibility*
Heritage Areas					
NYS Mohawk Valley Heritage Area		Schoharie and Montgomery Counties	1,2,3	1,2,3	Yes
Conservation Easements					
Federal Held by NRCS (10 parcels; refer to #3a-e under Section 6 for locations)		Canajoharies (2), Root (3), Roseboom (2), Seward (2), Sharon (1)	1,2,3	1,2	No
NGO Held by Schoharie Trust (2 parcels; refer to #8e under Section 6 for locations)		Sharon	2,3	1,2	No
Snowmobile Trails					
Various, unnamed trails (Clubs: Sharon Pathfinders, Cave Country Riders)		Canajoharie, Carlisle, Cherry Valley, Cobleskill, Root, Roseboom, Seward, Sharon	1,2,3	1,2,3	Yes
Historic NRHP					
5743.000011	Ames Academy (Ames Village Hall) - 611 Latimer Hill Road	Canajoharie	3	3	No
9514.000001	Hilton, Peter A., House (Pindar Farm) - 6605 Ny 10	Beekman Corners	3	1,3	No
9514.000023	St. John's Lutheran Church - 6569 Ny 10	Beekman Corners	2	1,3	No
9514.000025	John Lehman House - 407 Kilts Rd	Sharon	2	1,3	No
9545.0000050	The American Hotel - 192 Main Street**	Sharon Springs	3	2, 3	No
9545.000136	Sharon Springs Historic District ***	Sharon Springs	2,3	2, 3	No
Local Historic Importance to the Community					
N/A	Sharon Battleground - 916 Route 20	Sharon	2	1	No
N/A	Camp of Cedar Swamp - near 867 Route 20	Sharon	2	2	No
N/A	Sharon Airport - near 951 Route 20	Sharon	1	1	No
Historic Eligible					

Resource Name		Town	Distance Zone	LSZ	Expected Visibility*
5702.000052	Mapletown Cemetery - Mapletown Road & Blaine Road	Canajoharie	3	1,2	No
5702.000156	Old Baptist Church Cemetery - Old Sharon Rd	Canajoharie	3	1	No
9514.000002	Beekman Mansion - 6725 State Route 10	Sharon	3	1	No
9514.000024	BIN 2263190 Hanson Crossing Rd	Sharon	3	1,2	No
9514.000029	254 Buel Road	Sharon	3	1	No
9514.000030	130 Zeller Road	Sharon	3	1	No
9514.000031	375 Kilts Road	Sharon	2	1,2	No
9545.000133	Sharon Springs Center School 514 State Highway 20	Sharon	3	3	No

*Expected visibility determination is made from the results of the viewshed analysis (Figure 4, Attachment 2)

**The American Hotel is located within the Sharon Springs Historic District but is listed as its own separate NRHP entry per request of the Town of Sharon.

***Please see full listing of historic sites for NRHP Sharon Springs Historic District in Attachment 6.

7.0 GIS AND 3D ANALYSIS FOR VISUAL IMPACT EVALUATION - METHODOLOGY

7.1 VIEWSHED ANALYSIS

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 information 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 receptors.

7.1.1 Methodology

A viewshed analysis out to the 5-mile VSA extents was performed. This analysis used Light Detection and Ranging (LiDAR) data for Schoharie-Montgomery counties dated

2014 and provided 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 modules and Genius Tracker racking system discussed in Section 2.0. An assumed panel height of 13 feet was used.

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.

7.1.2 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:

1. 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.

2. 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 or between gaps of trees and not a full-on view. Likewise, there may be understory tree gaps where there may be visibility of the Project.

3. 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.

4. 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.

7.2 LINE OF SIGHT ANALYSIS

Line of Sight profiles were performed for some viewpoints where there is limited or questionable visibility. Lines 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 impeded 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 noted in Section 7.1.1 was used for an elevation source. ArcGIS ESRI 3D Analyst was used to produce elevation samples across select sight lines for bare earth topography and for vegetation. Section 10.2.2 provides results discussion and Attachment 4 contains the profiles.

7.3 PHOTOGRAPHIC SIMULATIONS

Field surveys began in early May 2018 in order to acquire photographs for simulations during leaf-off conditions. Attempts were made to take photographs that provided the most unobstructed views possible at north, south, east, and west positions and/or in areas where the viewshed maps represent visibility and that which offers varying representation from Landscape Similarity and Distance Zones as best as possible. Simulations are presented in Attachment 4.

7.3.1 Methodology

Coordinates of camera locations intended for simulations as well as other reference points within the view were collected via GPS. These reference locations were later used to refine the placement of the facility within the simulation photographs. Heights of select high reference points were measured with a Nikon Forestry 550 digital rangefinder.

To create visual simulations, 3DS MAX 2016 software was used to correctly dimension the 3d models 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, trees, gate posts or utility poles were obtained by GPS to assist with refined placement of the proposed Project within the photograph. GIS terrain modeling using LiDAR data as well as the use of measured high point references were also used to accurately place the 3d facility model within the photograph. Ground point elevations of the camera location and other referenced objects were obtained from the LiDAR data.

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.

7.3.2 Viewpoint Selection for Photosimulations

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 noted 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 noted in Section 6.0 the visual resources inventory is intended to address locations that have been officially designated for their aesthetic or recreational qualities and that are accessible to the public at large as opposed to places that have individual or private importance only. Therefore, only publicly accessible locations are considered for simulation viewpoints.

Visibility as noted by the viewshed results in Figures 1 and 4, Attachment 2 is not relatively extensive in all LSZs or Distance Zones, nor is visibility expected at most of the listed Table 3 visual receptors, save for snowmobile trails, a locally designated scenic road to the north and few but minor intermittent and isolated areas along NYS Scenic Route 20 that will have limited, short duration views due to an existing berm along the roadway as demonstrated in simulation VP3 in Attachment 4. This therefore limits the choice of numerous and diverse locations for photosimulations in publicly accessible locations that would have views of the Project. Attempts to have photo viewpoints from a representative forested area is often moot, since there are not expected to be outward views from within a forested area. Additionally, recreational and public forest parcels that are near the Project are not expected to have views. Nearly all remaining forested area is private land. Most viewpoints considered then, were in the remaining two but abundant LSZs which is agricultural open land and developed (roads/residences). The VPs that are expected to show the Project the most are along Empie Road, Gilberts Corners Road, a short segment of Beech, and a minimal area along Route 20 and were focused as candidate locations for simulations.

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, DPS, DEC, 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 June 5, 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 visibility analysis and a current photolog of candidate simulation viewpoints. Opportunity was provided for municipalities to suggest additional and reasonable locations for photosimulations or append additional visual resources of concern to the inventory. Correspondence can be found in Attachment 7.

In summary, viewpoints were selected based on optimal 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 DPS comments and stakeholder and agency consultations.

Although the primary focus of visual impacts is directed towards the Proposed Layout as presented in Attachment 4 and this report, there are some photosimulations, particularly along NYS Route 20 Scenic Byway, that represent the Alternate Layout in order to provide a comparison.

8.0 ADDITIONAL VISUAL CONCEPTS TO CONSIDER: VIEWER SENSITIVITY LEVELS

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:

<u>Viewer group</u> – 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).

9.0 VISUAL IMPACT RATING

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 visual impact assessment (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 landscape similarity zones 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.

The rating scale is as follows:

Rating Scale	
0	None
0.5	
1	Weak
1.5	
2	Moderate
2.5	
3	Strong

Degree of Contrast Criteria

None The element contrast is not visible or perceived.
Weak The element contrast can be seen but does not attract attention.
Moderate The element contrast begins to attract attention and begins to dominate the characteristic landscape.
Strong The element contrast demands attention, will not be overlooked, and is dominant in the landscape.

9.1 PART 1 VISUAL CONTRAST RATING

Form Contrast: Form in this sense generally means the shape of an object or unification of shapes massed together by perceived pattern or color. In many rural undeveloped areas, the landscape may consist of homogenous or visually restful views of large shapes or shapes of color belonging to expanses of open field or forested areas. New project elements may provide a contrast or interruption against existing homogenous shapes within the view (strong). Conversely, there may be much visual existing clutter comprised of multiform shapes found in developed or urban areas where newly introduced project elements may better be visually absorbed in the view (weak).

Line Contrast: Line generally refers to the perceived edges of shapes as well as the orientation of these line edges. An undeveloped area at distance may be mostly horizontal line comprised of distant ridges or forest treetops as well as forest and field interfaces. New project elements may disrupt some of the line or they may introduce new vertically oriented lines as such as from a transmission line or wind farm (strong).

Texture Contrast: Trees and their leaves or buildings at close proximity will offer higher detail (strong). Texture and the level of discernible detail decreases with distance (weak). Objects at distance may appear as one homogenous texture or shape.

Color Contrast: Does the project color contrast greatly against color in the existing view (strong)? Color contrast may occur with the terrestrial background or the sky.

Project Scale Contrast/Spatial Dominance: Is the project size and scale dominant (strong), co-dominant, or subordinate (weak) in the view in relation to the rest of the surroundings?

Broken Horizon Line: Does the project remain below the horizon line (weak) or is the horizon line broken by project elements (strong)?

Visual Acuity: Visual acuity is the acuteness or clarity of vision, most often related to the amount of discernible detail or contrast with distance. Atmospheric conditions may also decrease visual acuity, especially on humid days.

Amount of Project Clearing Perceived: The With Project (After) simulation may show extensive clearing that has occurred compared to existing conditions, thereby showing a large visual change from the project (strong). In many cases, no clearing is required (none), or minimal clearing might be seen from a viewpoint location (weak or moderate).

Screening/Mitigation Needed: This category is treated in two ways. 1) Is the project at a particular viewpoint seen because of being mostly in the open which would require some type of vegetative or structural mitigation (strong) to obscure direct views? Conversely, is there some type of existing screening that blocks partial or whole views such as trees, buildings, or topography that act as visual impediments in the landscape (weak). Or 2)

How important is it to mitigate at a certain area or how high is the visual absorption capacity? For example there may be a clear unobstructed view of a new transmission structure in the view, but if there are existing transmission poles or cell towers, or distribution lines along the street in a more urban area providing similar utility development it may not be necessary to mitigate (weak). Is a substation being proposed where there is a clear view but within industrial development (weak)? Or, there may be visible modifications to an existing substation but proposed elements are visually absorbed by the substation because of "like" components and thereby requires no mitigation (weak).

9.2 PART 2 VIEWPOINT SENSITIVITY RATING

Within a Visual Resource: Is the viewpoint located within a visual resource as listed in the Visual Resources Inventory section of the VIA? This is a yes or no question, therefore either a rating 0 (none) or 3 (strong) should be applied. If yes, then viewer expectations and sensitivity may be higher.

View of Other Visual Resources: Can you see a visual resource listed in the Visual Resources Inventory from the viewpoint location in combination with the Project? This is a yes or no question, therefore either a rating 0 (none) or 3 (strong) should be applied.

A Listed/Known Scenic Area of Visual Quality: Is the viewpoint located within a listed or known scenic area of visual quality? This is a yes or no question, therefore either a rating 0 (none) or 3 (strong) should be applied. If yes, this location would also be identified as a visual resource as listed in the Visual Resources Inventory section of the VIA. It is evaluated in the Viewpoint Sensitivity Rating because there are often town by-laws, master plans, or regional planning documents that call out specifically named locations that have been designated as a scenic viewing area and is important to note. It means that the location has added importance to the community and if yes, then viewer expectations and sensitivity are likely higher. This will be used infrequently.

Number of Viewers/High Use Activity: An area of high use and high number of viewers will incur a greater amount of visual impact to the community (strong). These areas may consist of high destination type locales visited by the public such as recreational areas, shopping centers, densely populated areas, or highways with large traffic counts. A roadway may not always be considered as high use. There may be viewpoints along local rural roadways that have relatively very low traffic counts. This category accounts for the immediate vicinity; the simulation might only show a roadway, but a resident may be very nearby or behind the viewer.

Duration of View: The duration of views is categorized as Long Duration (strong), Short Duration (weak) or Infrequent (weak). Residents or workers with views from the workplace or day long use at a picnic area would be a long duration view. Short duration views imply movement and are transient, such as passing the site on a highway, glimpsing a project from an open area on a hiking or snowmobile trail. A moderate duration view might be a destination type location such as a summit or historic landmark

where the visitor seeks the location with purpose but only stays for a few hours. However care must be taken when attributing an area to a short duration view. There could be short duration views encountered frequently over distance, such as a snowmobile trail.

Presence of Existing Development: For this category we are looking at intactness and how much the landscape has been altered by the presence of people. Is there much existing development consisting of commercial, utility, or industrial development or densely populated residential or urban neighborhoods in the photo or near vicinity? If so, then the sense of place or importance may be diminished and decreases viewer sensitivity as a place that does not have high value and should be rated as weak. Conversely, the lack of existing development contributes to the intactness of a more undisturbed natural environment a gives a sense of greater value. However, development is not all negative. Some development may have altered the environment but has only "somewhat" changed the view over time and may not be as visually impactful, such as a farm and associated farm fields. In this case, the Presence of Existing Development could be rated as moderate.

Uniqueness of Landscape Compared to Region: Photographs for project simulations are generally taken within a designated VSA. Landscape features or scenic quality shown in simulations may be found to be consistently similar or unvaried (weak). If the viewpoint shows a view that is unique to the area such as an outstanding water feature, a series of dramatic cliffs, or mountain views not typically found elsewhere in the vicinity then it should be rated as strong.

Presence of Water: Generally the presence of water implies greater scenic quality or importance. This is a yes or no question, therefore either a rating 0 (none) or 3 (strong) should be applied. If there is the presence of water and it is not very discernible in the view, then a rating of 2 (moderate) can be applied.

9.3 PART 3 SCENIC QUALITY OF THE VIEW

Note that a higher rating of scenic quality does not always have to be within natural or rural environments. This can also occur within urban or other man-made cultural type environments that consist of pleasing building structures, hardscaping, or landscaping.

Landscape Diversity: The degree of existing scenic quality is usually correlated with landscape diversity – the more natural diversity, generally, the greater the scenic quality. For example, landscapes with greater diversity in vegetation and topography are more likely to be scenic than flat landscapes with uniform vegetation. Water features such as rivers or ponds tend to add diversity as do natural rock outcroppings. High scenic quality often results from the contrast among landscape features such as field and forest, steep and flat or rolling, village and countryside.

Intactness: Another relevant factor in determining scenic quality is the intactness of the landscape. A lack of landscape degradation contributes to the "intactness" of the

landscape. Landscapes where there is a clear underlying order or logic tend to be more visually appealing. Natural landscapes exhibiting little evidence of human alteration (e.g. an intact prairie landscape) are likely to have high visual as well as natural value. In the human (built) landscapes too much diversity can lead to visual chaos or clutter, for example strip development in which every business vies for one's attention by looking different from its neighbor. But landscapes which retain 19th early 20th century landscape patterns, places with split-rail fencing or stone walls are often visually appealing in their simplicity and clear connections of use to the land itself.

Focal Point: Focal points are elements in the landscape that stand out due to their contrasting shape (form), color or pattern. Often distinct focal points enhance scenic quality. They can be natural elements such as a lake, river or mountain; or they can be built elements such as an important public building, or a central green.

Unity in a landscape provides a sense of order.

Harmony exhibits a combination of parts of a landscape into a pleasing or orderly whole and a state of agreement, congruity, or proportionate arrangement of form, line, color, and texture.

Pattern includes pleasing repetitions and configurations of line, form, color, or textures.

Strong values might consist of areas where landform, vegetation patterns, water characteristics, and cultural features combine to have unique and strong positive attributes of variety, unity, vividness, mystery, intactness, order, harmony, uniqueness, pattern, and balance.

Moderate values are generally areas where landform, vegetation patterns, water characteristics, and cultural features use combine to provide ordinary or common scenic quality. These landscapes have generally positive, yet common, attributes of variety, unity, vividness, mystery, intactness, order, harmony, uniqueness, pattern, and balance. Normally they would form the basic typical matrix within the Study Area.

Weak values are areas where landform, vegetation patterns, water characteristics, and cultural land use have lower scenic quality. Often water and rockform of any consequence are missing in these landscapes. These landscapes have weak or missing attributes of variety, unity, vividness, mystery, intactness, order, harmony, uniqueness, and balance.

9.4 ASSESSING THE OUTCOME OF THE RATING

The rating system and those developed by the other aforementioned agencies are designed to guide a subjective process (visual observation) objectively, by using straightforward common language that involves the discussion of compositional

elements. A rating system is applied from low to high with the intent to provide consistent comparison between or across subject matter.

The simulations show varying distance zones and landscape zones. The rating is also meant to provide comparison of the project within these zones as seen across the Study Area. The rating form is not meant as a public survey or to assess or appeal to how one feels about the development at a more emotional level.

However it should be noted that when evaluating the outcome of the ratings, a high rating of form or texture contrast for example, does not necessarily imply a negative or disturbing result. Nor may the project be offensive to the average person. As well, there may be visual impacts implied by the rating forms but they may not be adverse.

In many cases the building design or choice of building material can be aesthetic and visually pleasing to the viewer and/or remain consistent with other development in the area. With utility development for example, a battery storage facility that may have a high texture, line, or form rating that is proposed within a seaside environment may incorporate weathered cedar shakes, white trim, and dormers into the building design in order to remain similar to cape style houses in the area. Although compositionally it may have a high contrast rating against what is currently there, the project may be considered to be aesthetically pleasing and interesting to look at. Similarly, a converter building project in a rural area may elect to design the building to look like a red barn. Although the proposed building may provide a large form with new vertical elements against the current landscape, and its red color may contrast highly against either green vegetation or white winter snow, the design choice of a red barn could be considered aesthetically pleasing and suitable while also remaining consistent with other large development (farms) in the area. Or perhaps there are brick materials proposed as building materials or hardscape for a project which could be considered aesthetically pleasing and visually interesting. In the case of solar development, although a solar panel could provide color contrast, the look of a solar panel itself may not be displeasing. Although basic solar panel design cannot be changed, the project can be combined with vegetative mitigation of native flowering and pollinator species implemented and spaced in a naturalized manner resulting in overall aesthetic and interesting landscape screening.

The rating forms are not standalone nor are results provided without context. The rating results are typically accompanied by a summary discussion that considers project design aspects as noted in the above examples as well as how the overall project fits within the landscape.

Viewers can be categorized as having low, medium, or high sensitivity to changes in the viewed environment. Viewer sensitivity is strongly influenced by a viewer's activity, awareness of his or her surroundings, and amount of time spent looking at a view. People who view a landscape infrequently, view it for short periods of time (often as they pass through it), or are not attentive to it due to focusing on other activities (such as driving) are often less sensitive to changes and are assumed to have low viewer sensitivity.

Viewers with average viewer sensitivity include workers and customers who may expect a somewhat pleasant visual setting for the establishments they work in or frequent but are in the locations for purposes other than enjoying its scenery or visual quality. The visual quality of an area can provide a good indication of how responsive an area's most sensitive viewers would likely be to changes in the visual environment. For example, viewers with high viewer sensitivity in areas that are categorized as having high visual quality would be expected to react more to changes in the visual environment than they would in areas that have medium or low visual quality. This concept can help determine areas where a project might be expected to have its greatest impacts on visual resources.

10.0 VISUAL IMPACT ANALYSIS RESULTS

10.1 VIEWSHED RESULTS AND DISCUSSION

The viewshed analysis results (Figures 1 and 4, Attachment 2), or that area colored in pink, show areas of potential visibility.

As expected, the presence of trees in the landscape offers the most visual impediment against the low-profile solar panels. Visibility is generally concentrated within the 0.5-mile Distance Zone as noted by the results, with the most visibility expected in the proposed open farmland Project parcels themselves. In proximity to the Project there are very limited and partial views of the tops of the first few rows of panels along a relatively short section of Route 20 due to an existing berm along the roadway (see VP3). This limited partial view to the solar arrays located north of Route 20 will, nonetheless, be mitigated with landscape plantings There will be no other views from Route 20. There may be a fairly distant, small area of limited visibility to panels that are 1.9 miles away from the nearest visible array, however, siting the array in this area with limited distance views resulted in not requiring the siting of arrays to the immediate south of Route 20 where visibility would be more prevalent.

There will be limited partial views to the solar arrays located on Beech Road as well due to vegetation that surrounds the field. There is visibility along the open farmland at the northern end of Empie Road where there are several array groups proposed, and along the segment of Gilberts Corners Road between Sharon Hill Road and Staleyville Road.

Careful siting of the arrays avoided the usage of all available participating parcels where there could have been more open views along Route 20 if all were used. Current siting therefore was optimized such that visual impacts to Route 20 were minimized by compacting the alignment to within fewer parcels.

Project visibility is minimized as well, by choosing parcels that are framed by mature trees on 2 to 3 sides of an array grouping. Because of a 13-foot panel maximum height in relation to a mature forest group, far reaching views in public areas outside of the general array locations do not exist or are very limited. Those views that occur farther out to the eastern extent of the VSA such as Crosby Road, South Crosby Road, Bear Swamp Road,

and Carlisle Road are generally restricted to open field where the public is not expected to be. Due to an open valley view with little topographic obstructions, there may be a few intermittent, short duration and partial views of panels from vehicles driving the roadway along South Crosby and Bear Swamp Roads at approximately four miles from the Project.

Similarly, three miles to the southeast there are isolated areas of predicted visibility from open fields in the vicinity of Thor Hill Lane, Lane Cross Road, Burr Lane, and Rosenberg Road. These areas have little to no predicted views from public roads but are mostly from private land.

Several roads cross through the Project Area. Much of the proposed arrays are placed on farmland surrounded by trees where there is little exposure to “the next road over”. Generally, views of the Project occur on roads that cross directly through array groupings as opposed to those roads and road segments that are beyond the perimeter of the Project.

Refer to Tables 6 and 7 for percent visibility within the 5-Mile VSA.

10.1.1 Article 10 Impacted Resources

Visibility is not relatively extensive nor is visibility expected in most of the listed Table 3 visual receptors, save for snowmobile trails and one locally designated scenic road to the north (Gilberts Corners Road). With respect to Route 20, scenic quality of the near view in proximity to solar arrays at VP3 is rated low (see Section 10.3.3). There will be short segments (1600 feet or less) of partial visibility in few areas where only limited portions of the tops of solar arrays may potentially be seen for short durations by travellers in vehicles. Approximately 12.1 miles of Route 20 passes through the study area but only approximately 0.75 total non-contiguous miles of intermittent stretches of roadway may have short duration views. There are no listed recreational, local public open space parcels or conservation easements that are expected to have views. There is no expected visibility to state forests or local parks, federal, state, or local historic sites, or the historic district in the Village of Sharon Springs.

10.1.1.1 Federal Scenic Resources

Federal visual resources consist of NRCS owned conservation easements and 92 National Register of Historic Places sites (88 sites located in the Sharon Springs Historic District). None of these properties will have views of the Project due to distance and obstruction of topography and trees.

Eligible historic sites as obtained from CRIS resulted in 8 sites within the VSA. None of these sites will have views of the Project.

10.1.1.2 State Scenic Resources

State visual resource NYS Scenic Byway Route 20 will have short segments of visibility consisting of 1600 feet or less in varying areas. Approximately 12.1 miles of Route 20 passes through the study area but only approximately 0.75 miles of intermittent stretches of roadway will have short duration partial views.

A small portion of the Mohawk Valley Heritage Area consisting of all of Schoharie and Montgomery Counties will have comparatively few views that are only already restricted to locations within the VSA. Remaining state visual resources will not expect visual impacts from the Project. The one state forest recreation land (Honey Hill) is heavily wooded and located nearly five miles away and will not have views.

10.1.1.3 Local Scenic Resources

Local recreation areas such as Sharon Spring Recreation Center, Bowmaker Pond, and conservation easements held by Schoharie Trust will not have views of the Project. Several snowmobile trails that cross in the VSA will likely have short duration intermittent views as they pass through the proximity of the Project.

One locally designated scenic road (Gilberts Corners Road) will have prominent views of the Project as this road runs adjacent to a portion of the Project in open land with direct line of sight views. Hanson Crossing Road, another locally designated scenic road shows that a short 570 foot stretch of road could possibly have partial views of solar panels. It appears that most of the views near this road segment is actually in elevated fields adjacent to the public roadway that are on private lands that are inaccessible to the public.

Remaining public resources include segments of local roads that run between solar array areas where there will be short duration intermittent views from roadway vehicles or bicyclists.

Non-public community resources include private residences where there will be potential views. Landscaped vegetative screening is proposed near property owners in the immediate areas of the solar arrays (see Landscaping Plan in Appendix 11-2).

Locally important historic areas called out in Table 3 will not have views of the Project.

10.1.2 Visibility Within Landscape Similarity Zones

For reference, a reiteration of the total percentage of LSZ within 5 miles outlined in Section 5.0 Table 2 is recapped as follows:

- <u>LSZ Percent of 5 Miles</u>
  Agricultural: 62.34%
  Forested: 36.32%
  Developed: 1.34%

Table 4. Percent Visibility within Landscape Similarity Zones Within Five Mile VSA

LSZ	Total LSZ Acres Within 5 Miles	Total LSZ Sq Miles Within 5 Miles	LSZ Sq Miles of Visibility	% Visibility within LSZ
Zone 1 Agriculture/Open Land	45,789.4	71.5	1.87	**2.61%**
Zone 2 Forested	26,676.2	41.7	0.11	**0.25%**
Zone 3 Developed	984.3	1.5	0.07	**4.45%**
Total VSA	**73,449.9**	**114.8**	**2.04**	**1.78%**

When using Table 4 one can begin to distinguish or make assumptions on which viewer types may be impacted visually. For example, Table 2 (recap above) states that 1.3% of the land area within 5 miles falls in the Developed Zone which is fairly low. Of that, 4.45% of that Developed Zone may experience visibility. Section 5.0 describes this zone as primarily single-family dwellings or a larger farm complex. The Developed Zone also includes the small villages or local roadways where residential development is intermittently established along the existing road network as well as accounting for roadway travelers. Note that calculated percentages do not indicate the actual amount of viewers that would be impacted. The percentage numbers indicate how much visual change could take place within a designated area outlined by LSZs. Table 1 provides the types of roads and traffic counts within the Project Area and indicates the roads are rural low traffic types of roads. One may assume then, that upon land area relative to viewer types (inferred by LSZ category) and location density, numbers of residents that may see some portion of the Project is low.

Comparing the Agricultural/Open Field category is a similar exercise. LSZ 1 - Agricultural/Open Fields comprise about 62.3% of the 5-mile VSA however only 2.6% of that Zone 1 area may experience visibility of the Project. As described in Section 4.0 this LSZ predominantly consists of large farm complexes with cultivated crops, hay, or pasture. Frequently there are hedgerows or small tree groups that provide intermittent screening. One can infer which viewer type might be affected (refer to Section 8.0 for discussion of viewer groups and other factors that assist in evaluating visual change). Much of this land is active farmland assumed to be infrequently visited and not accessible to the public. It belongs to private landowners or rather, the local constituency viewer type who themselves may not access parts of their larger properties at all times. However, caution in assumptions still need to be taken. If one reviews the visual

resources in the area, other viewer activities may be taking place in open areas such as snowmobiling in the winter. This activity would be expected to provide intermittent visibility of short duration compared to a person at home. Snowmobilers infer a lower number of repeat viewers likely of a local constituency. However intermittent or low the exposure is or where the constituency is from, visibility may diminish the viewer experience depending on viewer expectations or reactions to solar development.

In using the 5-mile VSA again, Table 2 shows that approximately 36.3% of the land area belongs to the Forested LSZ. Although this is over a third of the 5-mile VSA, Table 4 shows that 0.25% of the land area within this zone will have visibility from forested areas. This low number in part is due to the fact that the viewshed model assumes that viewers in the interior of tree groups will not have outward views through the density of tree trunks or through the canopy above.

10.1.3 Visibility Within Distance Zones

Table 5 shows that based on the land area of each Distance Zone, the highest amount of visibility occurs within Zone 1 at 14.7%. This makes sense because there is a concentrated amount of visibility in proximity to the Project within the half mile acreage. There is an abrupt difference once one travels outside of a half mile where visibility drastically trends downward to less than 1.3% as distance increases into the larger acreages of Zones 2 and 3. There is approximately 2 square miles of total visibility within the entire 114.8 square miles that comprises the VSA, or rather, 1.8% of the VSA may experience views of the Project, including partial and distant views.

Table 5. Visibility within Distance Zones

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 Miles	3,695.1	5.8	0.8	14.7%	**0.74%**
Zone 2 0.5-2.0 Miles	14,409.1	22.5	0.2	0.8%	**0.15%**
Zone 3 2.0-5.0 Miles	55,345.7	86.5	1.0	1.2%	**0.89%**
Total VSA	**73,449.9**	**114.8**	**2.0**	**1.78%**	**1.78%**

10.2 PHOTOSIMULATION AND LINE OF SIGHT RESULTS AND DISCUSION

The discussion of predicted visibility in Section 10.1 focuses on relative quantities of visibility (how much is seen and where) under various conditions such as within LSZs and Distance Zones all in an effort to understand the level of change in the landscape.

Photosimulations from representative vantage points have been developed to provide the quality of the view that will be obtained as a result of the Project (what does it look like). Typically, representative simulations are often obtained from visual receptors in the area where visual change will occur. There are expected to be few to no sensitive resources impacted by the Project that are listed in Table 3 Section 6.0. However, two significant resources were a focus: NYS Route 20 Scenic Byway and Gilberts Corners Road, a locally designated scenic road. Remaining simulations show views from other locally travelled roads and what the general community might experience along the travelways. Simulations also usually show representative locations within various Landscape Similarity and Distance Zones. However, Distance Zone simulations for this Project have a heavy focus on Zone 1 because of expected prominent clear line of sight views in some areas proximal to the Project. It should be noted there are no photos directly within Forested LSZs as those environments typically preclude outward views. Forested LSZs as they occur in the simulation view extents however are present in the photos.

Photos then were taken to show the most unobstructed views as possible. In order to provide a rounded approach with respect to Distance Zones, two vantage points looking towards the Project from farther away were included although there will not be views of the solar arrays. Three Lines of Sight were also included for either locations at distance or for those vantage points with questionable visibility. Table 6 summarizes information for each simulation and line of sight viewpoint.

Table 6. Summary Table Simulation and Line of Sight Viewpoints

Viewpoint	Location	Significance	Landscape Similarity Zone	Distance Zone	Viewer Type
Proposed Layout					
3	Route 20	Proximal view from Scenic Route 20 looking N showing travel corridor, and agricultural land use	1,3	1	Local traveler, commuter, tourist
6	Beech Road	Proximal views through roadside vegetation looking N at southern	1,(2),3	1	Local traveler, residence

Viewpoint	Location	Significance	Landscape Similarity Zone	Distance Zone	Viewer Type
		section of Project.			
9	Main St, Sharon Springs	View from historic Sharon Springs area.	2,3	3	Residence, local traveler, tourist
10a	Gilberts Corners Rd, West	Representative view of northern section of Project with view from local scenic road looking S in substantial open agricultural land. View shows forested LSZ interspersed with farmlands.	1, (2), 3	1	Residence, local traveler
12	Gilberts Corners Rd, East	Proximal view of northern section of Project from local scenic road looking SW.	1, (2), 3	1	Residence, local traveler
14	Parsons Rd	Representative view from the west showing terrain influences	1 (2),3	2	Local traveler

Viewpoint	Location	Significance	Landscape Similarity Zone	Distance Zone	Viewer Type
		and nature of tree groups.			
Alternate Layout – Shows alternative option if solar arrays are placed directly south and adjacent to Route 20					
1a	Beech Rd	Proximal views in farmland looking W at southern section of Project.	1, 3	1	Local traveler
4	Slate Hill Rd	Representative view across farmland from the east. View NW.	1,3	2	Residence, local traveler
17c	Route 20	Proximal view from Scenic Route 20 looking SW showing travel corridor, agricultural land, and residential.	1,3	1	Residence, Local traveler, commuter, tourist
18	Route 20	Proximal view from Scenic Route 20 looking S showing open agricultural land, and residential.	1,3	1	Local traveler, commuter, tourist
Line of Sight					

Viewpoint	Location	Significance	Landscape Similarity Zone	Distance Zone	Viewer Type
L1	Route 20	Profile to north towards collector station	1,3	1	Local traveler, commuter, tourist
L2	Bear Swamp Road	Profile to west from road at 4 miles	1,3	3	Local traveler
L3	Route 20	Profile to southern portion of Project south of Route 20.	1,3	2	Local traveler, commuter, tourist

10.2.1 Discussion of Simulations

The following discusses the visual change to viewers at or in the immediate vicinity of the photo viewpoint. Simulations are presented as sets of Existing Conditions and Proposed Conditions based on VP (viewpoint) number and can be found in Attachment 4.

The Proposed Layout is the primary focus of this report. However several Alternate Layout simulations are included to demonstrate and show reduction of visual impacts to Route 20 and at a location on Gilberts Corners Road as a result of siting considerations.

<u>Proposed Layout</u>

10.2.1.1 VP3 Route 20, Sharon, View North – Proposed Layout

Route 20 is the major travel corridor which runs east west through the entire VSA and is also designated as a New York State Scenic Byway. VP3 photo was taken as a representative viewpoint in a location along the scenic byway. Solar arrays are proposed approximately 1315 feet away near VP3 on the north side of the road. There also is an elevated berm paralleling along the north side of the roadway which, according to the visibility results and site visits, has the potential to preclude most views to those northern panels. The view faces north to an open field where evidence of former row crops can be seen. Other land use in the area visible in the photo consists of utility (existing Sharon-Marshville 69 kV transmission line and Sharon substation). The VP3 simulation shows the berm as a visual obstruction to views of the Project where partial views of the upper portions of panels are barely discernible. Visual contrast and change are minimal as the Project appears subordinate in the view.

10.2.1.2 VP6 Beech Road, Sharon – Proposed Layout

The location of this viewpoint is on a local road that is perpendicular to and joins up with Route 20. Beech Road is a rural cross road between Routes 10 and 20 and has seasonal access restrictions. As the road travels west from the Project it becomes more isolated and remote running through wooded areas, open field, and large farm parcels. As noted by the viewshed maps in Attachment 2 there will be few perimeter roads that will have views of the arrays south of Route 20. Beech Road has vegetation that lines the side of the road that the arrays are located on. There may be few intermittent views from the road through gaps in the vegetation and/or fragmented views during leaf off conditions. VP6 represents such a location and was chosen to show views of this southern array section from the closest public point possible. From this location, the sight lines show partial views of some solar panels through gaps in the vegetation as well as fragmented views through bare-branched trees. 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.

10.2.1.3 VP9 Sharon Springs – Proposed Layout

Sharon Springs is significant to the community. Within the Village of Sharon Springs is the Sharon Springs Historic District with numerous sites listed as NRHP and many eligible sites as well. The District is approximately 2.2 miles west of the Project. VP9 shows the nature of the visual obstructions to the Project and is located on Main Street at the southern end of the District. Due to the significance of the historic district, VP9 was chosen to categorically demonstrate that there will be no views of the Project.

10.2.1.4 VP10a Gilberts Corners Road, West, Sharon – Proposed Layout

Gilberts Corners Road is designated as a local scenic road in the Town of Sharon Comprehensive Plan. This viewpoint along Gilberts Corners Road is at the northwest portion of the Project, north of Route 20. The vantage point was chosen to show a proximal as well as a somewhat level sweeping view of the open agricultural land at this section of the Project. Since this is a roadside vantage point it also represents an intermittent short duration view of what motorists would see when traveling along the local road. Generally, the existing view shows large homogeneous uninterrupted simple shapes of horizontal field or forest. Empie Road can be seen running through the middle-ground as well as one residence.

The nearest fence line is approximately 180 feet away and the closest panels are approximately 218 feet from the viewer. New line, shape, and form are introduced into the environment. There is moderate to strong color contrast against the darker bare earth and background trees. Due to proximity the panels are dominant in the view. The profile of the panels is nearly even with and slightly exceed the horizon line of the distant

treetops. The proximity, scale, and discernible detail of the hard-edged panels and metallic fencing provides the biggest visual contrasts in the view.

The VP10a suite of simulations also shows a representative example of proposed landscape mitigation for the Project. As noted in Section 12.2, two planting template types are proposed: Type 1 which is a robust planting scheme for maximum screening and Type 2 which is less robust and is primarily used to supplement visual mitigation in areas with existing vegetation (i.e. existing wooded hedgerows consisting primarily of deciduous vegetation). Type 1 planting scheme is proposed for the VP10a area. The mitigation simulations show the effects of the proposed landscaping at the time of planting, and at 2 and 5 years into the future.

10.2.1.5 VP12 Gilberts Corners Road, East, Sharon – Proposed Layout

As Gilberts Corners Road is a designated local scenic road adjacent to fields where solar arrays are proposed, a second simulation viewpoint was chosen to represent the roadway at a more easterly location from VP10a. At VP12 the viewer is approximately 453 feet to the fence line. Here, the viewer has full on views of the panels located at the northern part of the Project. Existing conditions show several bands of horizontal shapes sweeping across the view consisting of the plowed field, foreground green unplowed ground as well as the distant background trees. The arrays in general are somewhat consistent with this pattern providing similar narrow horizontal shapes in relation to the view. As the view looks towards the right (west), the panels follow the downward slope of the topography maintaining the flow of the land. The closest panels show detail that is discernible at this range and the solar panels closer to the viewer break the horizon line in some areas. Color contrast decreases with distance and the farther panels appear to blend in with the leaf-off hills in the background.

10.2.1.6 VP14 Parsons Road, Sharon – Proposed Layout

Significant amounts of farmland lie just outside of the Project area in Distance Zone 2. This photo was taken to represent a view from the west in an area where there is abundant open land. VP14, at a little over one mile from the Project, will not have a view but demonstrates some of the terrain influences that occur outside of Distance Zone 1. The lands surrounding the Project provide a mosaicked pattern with geometric agricultural land parcels interspersed with small or linear tree groups. The viewpoint also shows the landscape pattern and nature of the tree rows that typically line the edges of fields.

<u>Additional - Alternate Layout</u>

As noted above, several Alternate Layout simulations are included to demonstrate and show reduction of visual impacts to Route 20 and at a location on Gilberts Corners Road as a result of siting considerations. The Alternate Layout is discussed in detail Exhibit 9: Alternatives. However, the layout presented in these simulations is not the Proposed Layout and are for informational purposes only.

10.2.1.7 VP1a Beech Road, Sharon – Alternate Layout

The location of this viewpoint along Beech Road is approximately 650 feet west from the junction with Route 20. The nearest solar panels are 886 feet away. The photo location on Beech Road is representative of the southern Alternate Layout with an open view facing westerly to the solar arrays that are proposed south of Route 20 and west of Beech Road. It represents an agricultural area as well as the local constituency.

At this viewpoint sightlines are unimpeded with roadside open views to the Project. Forest land in the background and the open field is viewed as large homogeneous horizontal shapes where form and color are prominent in the view and provides a sweeping pattern across the landscape. The long contiguous horizontal shape and line of the arrays is consistent with these horizontal landscape shapes, generally following the topographic contour. The dark color of the panels shows moderate contrast against the darker trees however the hard-edged nature of materials contrasts with the natural amorphous vegetation appearing in the view. The low profile of the panels generally does not interrupt the horizon line. Setback distance from the road helps with offsetting some visual impacts where the panels overall remain co-dominant in the view against the existing similar horizontal trend of the larger shapes. 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.

10.2.1.8 VP4 Slate Hill Road, Sharon – Alternate Layout

This viewpoint location is approximately 0.8 miles to the fence line north of Route 20 and 1.0 mile to the fence line of the arrays south of Route 20. Slate Hill Road is generally forested on either side of the road in proximity to its intersection with Route 20. VP4 on Slate Hill Road for The Alternate Layout represents one of the first open spots along the road showing views from the west towards the Project across open agricultural fields, in addition to be being in front of a residential house. There are minimal and distant partial views across the field in view to the arrays located south of Route 20 and partial and fragmented views through trees to panels north of Route 20.

10.2.1.9 VP17c Route 20, Sharon – Alternate Layout

VP17c is located on NYS Route 20 Scenic Byway in the vicinity of residences and is looking at the arrays south of the highway under the Alternate Layout. Under existing conditions, the background has large light and dark horizontal shapes while foreground objects offer attention diverting features consisting of large bare-branched trees and other varying colors, patterns and shapes due to residential use. Although adding a new consistently low profile geometry that matches the rhythm of the forms and conforms to the undulating topography, the proposed panels provide a distinct darker color change from the existing light colored fields. A fairly high level of discernible detail can be seen

with the closest panels. The fence line is 647 feet from the viewer and approximately 348 feet from the back of the house.

Due to distance and low profile of project components the panels lay in the view smoothly and horizon lines remain intact. Overall from this viewpoint location the new shape offered by the Project and perceived in the landscape is compatible with other existing shapes and is co-dominant in the view. Mature trees in the foreground offers some line of sight obstruction to the arrays. Long duration views will be obtained from the residence while intermittent short duration views will from motorists traveling along the road primarily in a westerly direction.

10.2.1.10 VP18 Route 20 Eastbound, Sharon- Alternate Layout

Portions of Route 20 are tree lined and VP18 under the Alternate Layout was taken to represent the first view one receives of the Project as a motorist traveling eastbound that passes roadside trees and emerges to an extensive view of open field south of the highway. Existing conditions for VP18 show an open unobstructed view south and easterly consisting of open cultivated and fallow field. The view visually shows that a large simple dominant field shape comprises the foreground, middleground, and some of the background. The distant background shows a long linear group of dark green trees as well as a ridgeline. A portion of Route 20 can be seen as well.

The closest fence line to the viewer is about 130 feet away perpendicular to the viewer and road while the farthest fence line is 677 feet to the south. The simulation shows a panoramic view and within the extent there are varying and changing viewing angles and parts of the solar arrays that can be seen. As one looks westerly the viewer is seeing the front of panels directly perpendicular to the Project and to the right. Because of viewing angles and time of day, the panels appear brighter and offers some contrast to the green field and dark background trees. However as one starts looking south and southeasterly one begins to see the backs of the solar panels that appear darker. Under this condition color contrast is less and blends in more efficiently with the darker background trees. There is form and texture contrasts that are incongruous with existing conditions. Generally the Project is presented as a low profile horizontal shape similar to the background trees and horizon lines are basically uninterrupted. The Project is just about even with the tops of trees closer to the viewpoint location and remains dominant in the view. As one sweeps their view to the south east the arrays drop beneath the treetop horizon line and the Project appears more co-dominant in the view.

10.2.2 Discussion – Line of Sight Results

10.2.2.1 L1 - Route 20, Sharon, View North towards Collector Station

The proposed collector station and switchyard has been sited approximately 1100 feet north of Route 20 and 900 feet northeast of the existing substation location. Prevalent views of the collector station site components are not expected. Six 60-foot lightning

masts are proposed within the fence line that will be 32 inches in diameter at the base tapering to 18 inches in diameter at the top. An existing berm, approximately 14 feet higher than the road on the north side assists in impeding views. Terrain then slopes down northerly on the opposing side of the berm to the collector station location. The highest switchyard components will be 26 feet high.
Additionally, the following components are proposed for the Project: one switchyard control house (17.5 foot), and one collector control house (14.0 foot).

Line of Sight L1 in Attachment 4 shows that because of the berm and drop in slope, Route 20 is not expected to receive views of the buildings and switchyard components from the L1 location. There will be partials views of some lightning masts. Approximately 20 feet of the upper part of the closest ones are expected to be visible. However, these masts will be similar in appearance to the numerous existing transmission poles that are located within this area.

10.2.2.2 L2 - Bear Swamp Road, Carlisle

There are few areas beyond the two-mile Distance Zone where there may be views of the Project in public locations. Figure 4 in Attachment 4 viewshed analysis indicates many views beyond 2 miles may be obtained but in open private land and farm fields away from houses and not where the public is expected to be. However, there is a travel corridor to the east (Bear Swamp Road) in the town of Carlisle that may have views of the project.

Line of Sight L2 (Attachment 4) is a line of sight location on Bear Swamp Road that is approximately 4 miles from visible panels that are proposed north of Route 20. The viewpoint is at an elevation location looking across lower elevation topography across to the Project. Partial views of the Project may be obtained while there is some vegetation surrounding the arrays that will block views.

10.2.2.3 L3 - Route 20, Sharon Springs, View Southeast

Line of Sight L3 is along Route 20 with a sightline looking southeast towards the southernmost arrays off of Beech Road. This location is across from a Walmart Distribution Center and Dollar General approximately 0.9 miles east of the junction with Main Street in Sharon Springs. The road and vicinity are open but there is a field that rises in elevation south of the highway and precludes most distant views to the southeast. However, there is approximately 5 feet of vertical viewing space above the crest of the hill where partial views of a portion of the arrays sited on higher elevation may be obtained as the land rises closer to the Project as noted in Line of Sight L3. L3 is approximately 1.9 miles to the nearest panels.

10.3 VISUAL IMPACT RATING RESULTS

Section 9.0 describes the concepts and methodology applied to rating visual change incurred by the proposed Project by evaluating the Project photosimulations. Only the

primary Proposed Layout simulations without mitigation 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. (traditional printmaking) 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 Attachment 5. However, Table 7 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 7. Visual Impact Rating Results Summary

Viewpoint	Location	Contrast Rating Panelist 1			Contrast Rating Panelist 2			Contrast Rating Panelist 3			Avg Part 1	Mean Dev* Part 1	Avg Part 2	Mean Dev* Part 2	Avg Part3	Mean Dev* Part 3
		Part 1	Part 2	Part 3	Part 1	Part 2	Part 3	Part 1	Part 2	Part 3						
3	Route 20	5.5	11.5	1.5	8	12	1	7	11.5	1.5	6.8	0.9	11.7	0.2	1.3	0.2
6	Beech Road	13.5	3	2	14	5.5	1.5	12	4	2	13.2	0.8	4.2	0.9	1.8	0.2
10a	Gilberts Corners Rd, West	18.5	11.5	2.5	14.5	11	1.5	17	12	2	16.7	1.4	11.5	0.3	2.0	0.3
12	Gilberts Corners Road, East	14	13.5	2	16	11	2	14	12	2	14.7	0.9	12.2	0.9	2.0	0.0

*Mean Dev = Mean Deviation

10.3.1 Part 1 Contrast Rating

Part 1 Contrast as outlined in Section 9.0 rates proposed visual change with respect to compositional elements such as newly introduced line, shape, color, project scale, broken horizon lines, etc. The viewpoint with the highest Part 1 Contrast is VP10a on Gilberts Corners Road (west) with an average rating of 16.7. This simulation shows an open field with clear proximal unobstructed sightlines to the Project. At this location the viewer is about 180 feet to the fence line where project elements and scale are prominent in view.

VP3 along the Route 20 NY Scenic Byway has the lowest contrast rating with an average of 6.8 and the Project can be assumed to have the most capability of being visually

absorbed into the environment. Here, applied siting considerations and use of the existing berm on the north side of the road greatly reduces visual contrast at this location.

VPs 6 and 12 lie in between with average contrasts that are rated 13.2 and 14.7

Mean deviations were calculated to observe the level of variance between the panelists within each simulation evaluation. Mean deviations ranged between 0.8 and 1.4. Most results show reasonable compatibility with each other however it appears the panelist opinion varied the most when assessing VP10a 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.

10.3.2 Part 2 Viewer Sensitivity

Viewpoints 3, 10a, and 12 had very similar high Part 2 Viewer Sensitivity rating averages at 12.2, 11.7, and 11.5, respectively. That is because these three VPs are listed in Table 3 as scenic receptors. VP3 is along NYS Route 20 Scenic Byway and VPs 10a and 12 are along Gilberts Corners Road, a local scenic road recognized by the Town of Sharon.

VP6 had the lowest viewer sensitivity rating as it is not listed as a scenic receptor and is located along a general local travel corridor with a low number of viewers where the view is typical of the area and/or lacks certain outstanding features such as a water view.

10.3.3 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 Section 9.3). 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.

VPs 10a and 12 located along locally designated scenic Gilberts Corners Road were equally rated as having moderate scenic quality with a value of 2. VP6 at Beech Road, a local rural travel corridor was rated at 1.6 or as having a somewhat moderate scenic quality. VP3 a location that may have Project views along NYS Route 20 Scenic Byway was found to have the lowest scenic quality with a weak rating of 1.3. This is likely because within the view of the Project is the Sharon substation. As well. the viewer is looking at a roadside berm in addition to a typical cornfield. The view and the rating also suggest that not all parts of NYS Route 20 Scenic Byway has outstanding or scenic views.

Mean deviations for Part 3 are comparatively very low, ranging between 0 and 0.3. This suggests the panelist's opinions on scenic quality regarding each viewpoint were very similar.

11.0 LIGHTING

Lighting is not proposed for the solar arrays. Lighting is only proposed at the Project interconnection facilities and is only for security, safety and maintenance purposes. Details regarding the Project's Lighting Plan are included in Appendix 11-1, Preliminary Design Drawings. This includes details regarding lighting for the collection substation and switchyard. Manually operated security lighting is proposed at the collection substation and switchyard. This plan was developed to minimize fugitive light while meeting lighting standards established by the National Electric Safety Code (NESC). The collection substation and switchyard will normally be unoccupied. At the perimeter of the interconnection facilities, lighting will be turned on manually by a switch. In work areas, lighting will be activated manually turned on by a switch. Lighting will be installed facing downward to minimize potential impacts to the surrounding public. Lighting has been designed to provide a 2.4 foot-candle average, to eliminate unnecessary light trespass beyond the collection substation and switchyard and will be equipment or pole structure mounted. During unoccupied periods, lighting will not be illuminated. All lighting for the Project will be full cut off fixtures with no drop-down optical elements.

12.0 MITIGATION

Mitigation includes siting and design and vegetative plantings to help moderate visual impacts. 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—provided the facility is properly operated, maintained and removed—can be a way to preserve land for potential future agricultural use. It is also possible that during the term of operation, soils can rest and rebuild if certain plants that help to add organic matter and topsoil are grown in and among the panels. This restoration opportunity would not be afforded if a developer acquired the land and sought to have another development built on the land, such as a subdivision of homes.

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 site 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.

12.1 SITING AND DESIGN

For the Project, siting considerations held a high priority. Carefully optimized and compacted siting downsized the use of all available participating parcels in the Project Area and thereby reduced areas where there could be more open views along Route 20. Current siting is optimized such that visual impacts and those to Route 20 are made minimal by compacting the alignment to as few available parcels as possible and those that are not spread out over various non-contiguous acreage. Initially, the Alternate Layout with solar arrays directly south of Route 20 was considered as a primary option but has now been included as an alternative. The Proposed Layout has the arrays removed from south of Route 20 and re-located 3700 feet westerly farther down Beech Road in a more secluded field surrounded by tree rows.

In addition, engineering choices opted for stacking solar panels two in portrait thereby increasing the Project MW output while maintaining the same area coverage and still maintaining a low Project vertical profile. The proposed overall extent Project visibility is minimized as well, by having chosen many parcels that are framed by mature trees on 2 to 3 sides of an array grouping. Because of a maximum 13-foot panel (tilt) in relation to a mature forest group, there are minimal far reaching views outside of the general array locations. Much of the views that occur farther out to the eastern extent of the VSA such as Crosby Road, Bear Swamp Road, Carlisle and Helmire Road are generally restricted to open land where the public is not expected to be. Similarly, to the southwest near the VSA extents areas near Lane Cross Road and Thor Hill Lane may experience views mostly in the open private farm field. There are few travel corridors that immediately surround the arrays. Much of the proposed arrays are placed on “interior” farmland surrounded by trees where there is less exposure to local roads and therefore population centers.

Siting layout and design considerations that offer mitigation are summarized as follows:

- Reduction of footprint by carefully optimized and compacted siting. This decreases the amount of land required for the Project and the potential for community character impacts.

- 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.

- Tracker technology keeps panel at a 90 degree angle from sun reflecting any glare back towards the sky

- Reduce strong regular geometry by providing an overall organic shape that follows the edges of natural forested areas.

- 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 impacts.

- Collector station 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 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.

12.2 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 Exhibit 11 Appendix 11-2. The following items and concepts were applied to the plan:

- The Town of Sharon 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 could ultimately produce shade over the Project in later years. Pollinator species were also considered. Deciduous and evergreen tree species include: 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*).

- Two types of planting "templates" are proposed. Type 1 is a robust planting scheme that will provide a maximum buffer screening of the Project. A second planting, 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.

- With respect to the northern most arrays: Type 1 robust screening will occur along portions of the Project facing Gilberts Corners and Empie Roads west of a stream branch to Flat Creek, that which crosses Gilberts Corners Road. Type 2 plantings will occur along portions of the Project that face Gilberts Corners Road east of the Flat Creek stream branch.

- Plantings at the arrays located north of Route 20 will generally consist of Type 1 plantings along portions of the south side of the array group. Type 2 plantings will occur at the southwest and southeast corners of the same array group. This "southeast corner" also includes the collector station site such that mitigation is proposed at the fence line of the station that faces a couple of residences as well as Route 20. Type 1 plantings are proposed along Beech Road.

13.0 VISUAL IMPACTS DURING 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., collector station, fences) and installing power-conducting cables (typically buried). Additional construction activities may also be necessary at very remote locations or for very large projects; they may include constructing temporary offices or sanitary facilities. 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 visual impacts would vary in accordance with construction activity levels. Construction schedules are project dependent.

14.0 CONCLUSIONS – VISUAL IMPACTS DURING OPERATION

The information in this visual impact assessment can provide an understanding of the particular issues involved in the visual relationship between the Project and its surrounding context. In- depth compilation of computerized analyses results and corresponding discussion was provided in Section 10.0. The viewshed analysis makes it clear that there is minimal expected visibility (1.8%) 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 Mitigation Section 12.0.

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 day as the panels rotate to track the sun from east to west. Color contrasts will be different between seasons as well. 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 ultimately 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 reduced in areas where landscaping is proposed. Contrast may also occur for short durations for travelers in vehicles on non-perimeter roads that are not heavily traveled compared to Route 20, where potential visibility has been minimized significantly due to siting design.
With respect to anticipated visual impacts from the collector station site as a result of LOS1 (Attachment 4), it is expected that the upper portions of some lightning masts (~18 inches in diameter) may be minimally visible in the near vicinity as well as from isolated areas along Route 20 (near the existing National Grid Sharon Substation and associated transmission towers) as the roadway passes through the Project. Other station components such as control buildings and electrical equipment may be minimally visible or not visible at all even prior to landscape mitigation that is proposed at the fence line. Additionally, the collector station is 900 feet northeast from existing Sharon substation and could be considered as in-kind development within the view that is compatible with and offering a lower contrast against existing land use in the near vicinity.

Other factors assessing the degree of visual change other than percentages of visibility expected 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.

- State Route 20 Scenic Byway is recognized as an important visual receptor in the VSA. The Byway runs east-west where approximately 12.1 miles of the roadway passes through the VSA. Based on GIS viewshed analysis using the best accurate and available LiDAR data, it is expected that only 0.75 total miles of intermittent (not contiguous) roadway may experience partial and transient views of the Project.

- A stretch of Gilberts Corners Road, a local scenic road will experience views of the Project. Arrays facing the road will be mitigated with vegetative landscaping.

- Nearby Sharon Springs Historic District will not have views of the Project.

- 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 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 solar arrays do not overwhelm such physical 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 following the grade as opposed to randomly scattered objects.

- Aside from normal road traffic (see AADTs in Table 1) the public areas in the 5-mile VSA 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 adversely affect scenic resources or degrade the existing visual character or quality of the area.
- 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.

14.1 GLARE

The Project is not anticipated 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. The Gamechange Solar Genius Tracker system will rotate the panels, so they are aimed at the sun throughout most of the day, and any reflected sunlight will be aimed directly back at the sun. In general, solar panels are less reflective than window glass or water surfaces (NYSERDA, 2019).

A Glint and Glare Analysis was performed in order to identify any potential impacts on Sharon Airport operations and also considered impacts on vehicles and residences on nearby roads. The full report, which can be found in Appendix 24-2, was prepared by Capitol Airspace Group utilizing the Solar Glare Hazard Analysis Tool (SGHAT). SGHAT is a very conservative tool in that:

- Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover, and geographic obstructions; and,
- The glare analysis assumes clear, sunny skies for 365 days of the year and does not take into account meteorological conditions that would nullify predicted glare.

In summary, the results indicate that no unacceptable glare is predicted from the project arrays for the approaches to Runways 13/31 at Sharon Airport. Although not applicable to the Project, the Project is compliant with the FAA interim policy for Solar Energy System Projects on Federally Obligated Airports. Additionally, the report indicates that there will

be no predicted glint and glare from the solar arrays along highways or local roadways for cars or large trucks.

Based on the results of the viewshed analysis, all residential receptors near the Project Area identified as having visibility of the Project were assessed for glint and glare in the 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.

The Applicant is proposing the Project such that there will be no unacceptable glint or glare impacts to residences. The report findings indicate that there is some predicted yellow level glare for three residences that could be observed between May and August. Yellow level glare is defined as glare which is expected to cause a temporary after-image. One house (OP 1; Lat 42.770112, Long -74.560245) is predicted to observe less than 10 minutes of glare a day from May to August while the remaining two houses (OP 3 and OP 4; Lat 42.769604, Long -74.555642 and Lat 42.769619, Long -74.554698, respectively) may observe a predicted 2 minutes of glare a year on the second floor, which will be observed in June. No glare was predicted for the remainder of residences analyzed.

Residence OP 1 is located over 685 feet from the nearest proposed array and only has the potential to see very limited portions of the array due to existing vegetation and obstructions (see inset 1 below). In order to mitigate any potential glint or glare impacts, the Applicant is proposing a landscape buffer to obstruct views of the Project from this residence. Accordingly, no glint or glare impacts to Residence OP 1 are proposed as a result of the Project.

Residence OP 3 is a single-story structure and yellow glare was only predicted for 2 minutes per year only at the second floor. Accordingly, no unacceptable glare impacts are proposed as a result of the Project. Residence OP 4, located approximately 265 feet from the nearest proposed array, is a two-story structure and is predicted to observe 2 minutes of glare per year only at the second floor. OP 4 will only have partial views of the Project due to existing vegetative screening. Additionally, a landscape buffer is proposed between the Project and OP 4 to further reduce the visibility of the Project. Due to the limited duration of the potential for glare in a given year (2 minutes) and the restricted views of the Project, no unacceptable glint or glare impacts are proposed as a result of the Project.

Inset 14. View from Residence OP 1 looking northeast toward Project Area. The proposed solar arrays will be behind the red structure and existing vegetation in the background of the photograph.

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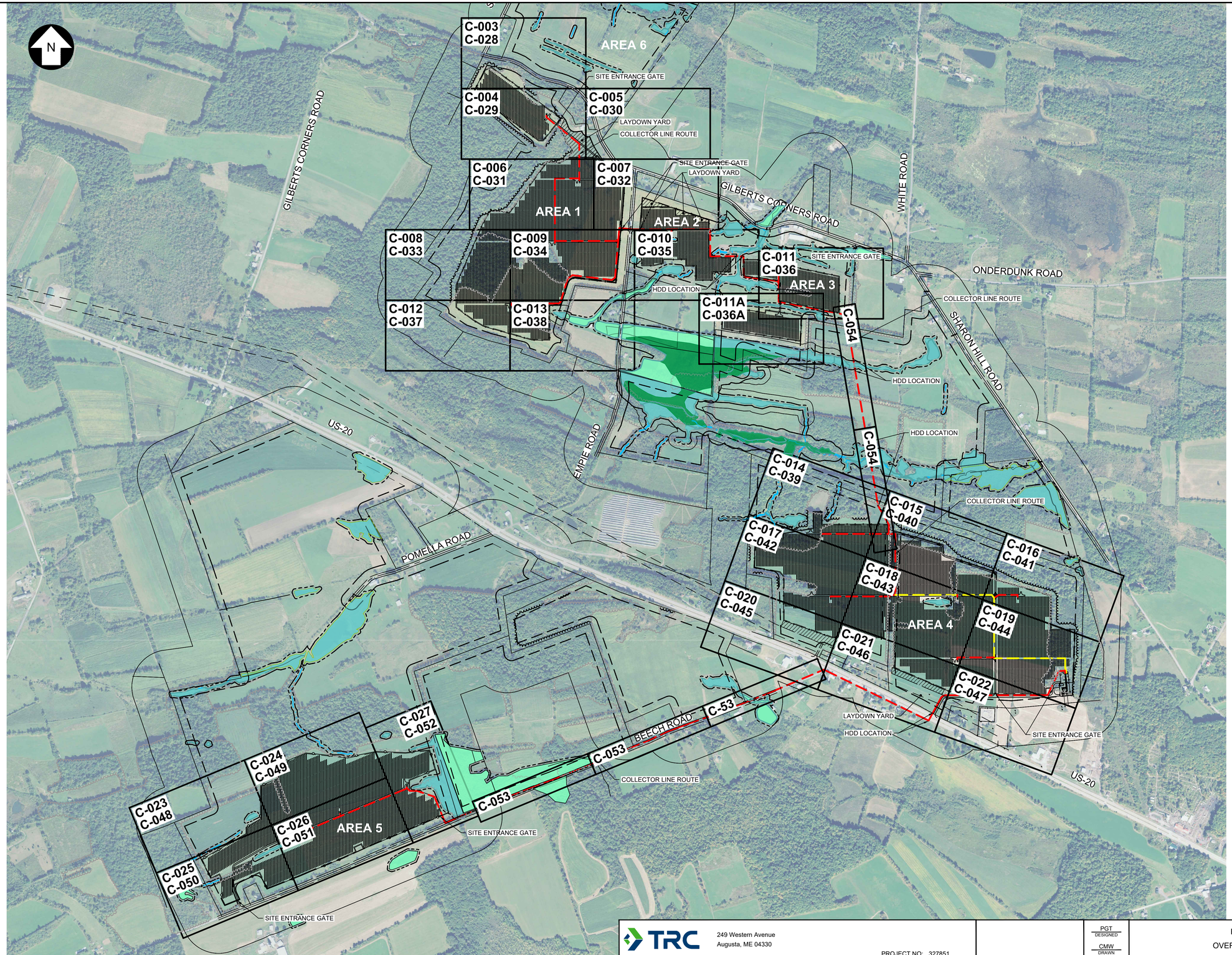
ATTACHMENT 1

SITE PLAN



UNDER NEW YORK STATE EDUCATION LAW ARTICLE 145 (ENGINEERING), SECTION 7209 (2), IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

600 0 600 1200 FT

SCALE: 1" = 600'

PRELIMINARY
NOT FOR CONSTRUCTION

Call811 before you dig

TRC
249 Western Avenue
Augusta, ME 04330

PROJECT NO: 327851

REFERENCE ITEMS	REV	DESCRIPTION	DATE	DES	CHK	APP
	C	ISSUED FOR CLIENT REVIEW	08-22-19	CMW	RAY	
	B	ISSUED FOR CLIENT REVIEW	08-02-19	SEK	PMM	
	A	ISSUED FOR CLIENT REVIEW	06-20-19	CMW	PMM	

PGT DESIGNED
CMW DRAWN
PMM CHECKED
APPROVED
REVIEW 1
REVIEW 2

PRELIMINARY
OVERALL SITE LAYOUT
EAST POINT ENERGY CENTER
EAST POINT ENERGY CENTER, LLC
SHARON SCHOHARIE CO., NY

04/08 DATE
AS NOTED SCALE

TRC

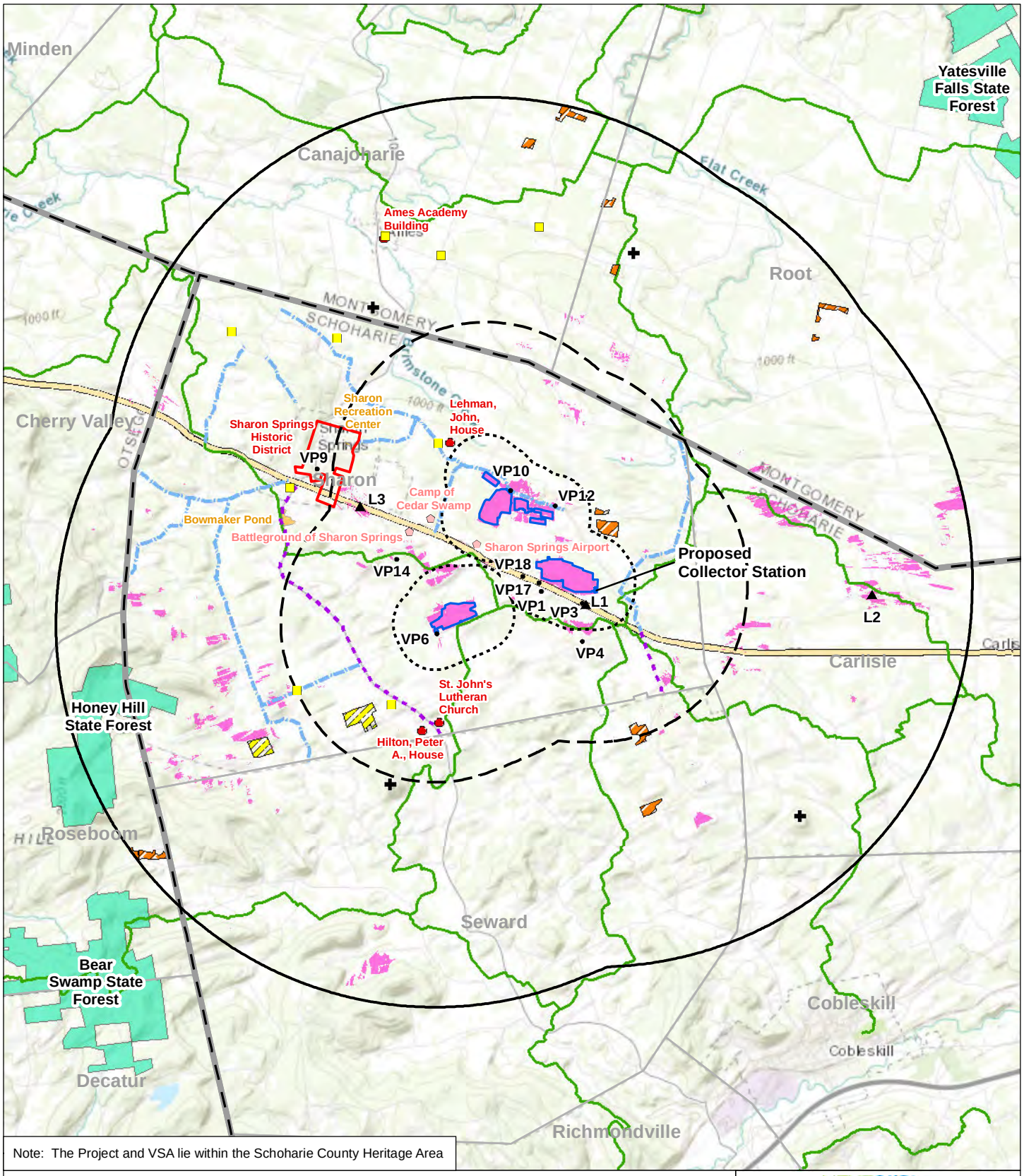
C-001

REV. B

327851-1-EAST POINT-OPT 2_C-001.dwg 2019.08.28

ATTACHMENT 2

MAPS



Note: The Project and VSA lie within the Schoharie County Heritage Area

- Simulation Viewpoint
- Line of Sight Location
- Predicted Visibility
- National Register of Historic Places Sites
- Eligible Historic Sites
- Historic District
- NYS Route 20 Scenic Byway
- Snowmobile Trail
- Federal-State-County Recreation
- High Point Location
- Local Park
- Local Historic

LOCAL SCENIC ROAD
- Excursion from Scenic Byway
- Scenic Rd listed in Sharon Comp Plan

CONSERVATION EASEMENT
- Federal
- Schoharie Land Trust

- Solar Arrays

DISTANCE ZONES
- Half Mile Radius
- Two Mile Radius
- Five Mile Radius

N

0 1 2 Miles

NEXTera ENERGY

OVERVIEW MAP WITH VISUAL RESOURCES

EAST POINT ENERGY CENTER
TOWN OF SHARON, NY

FIGURE 1	AUGUST 2019

Map Produced by TRC

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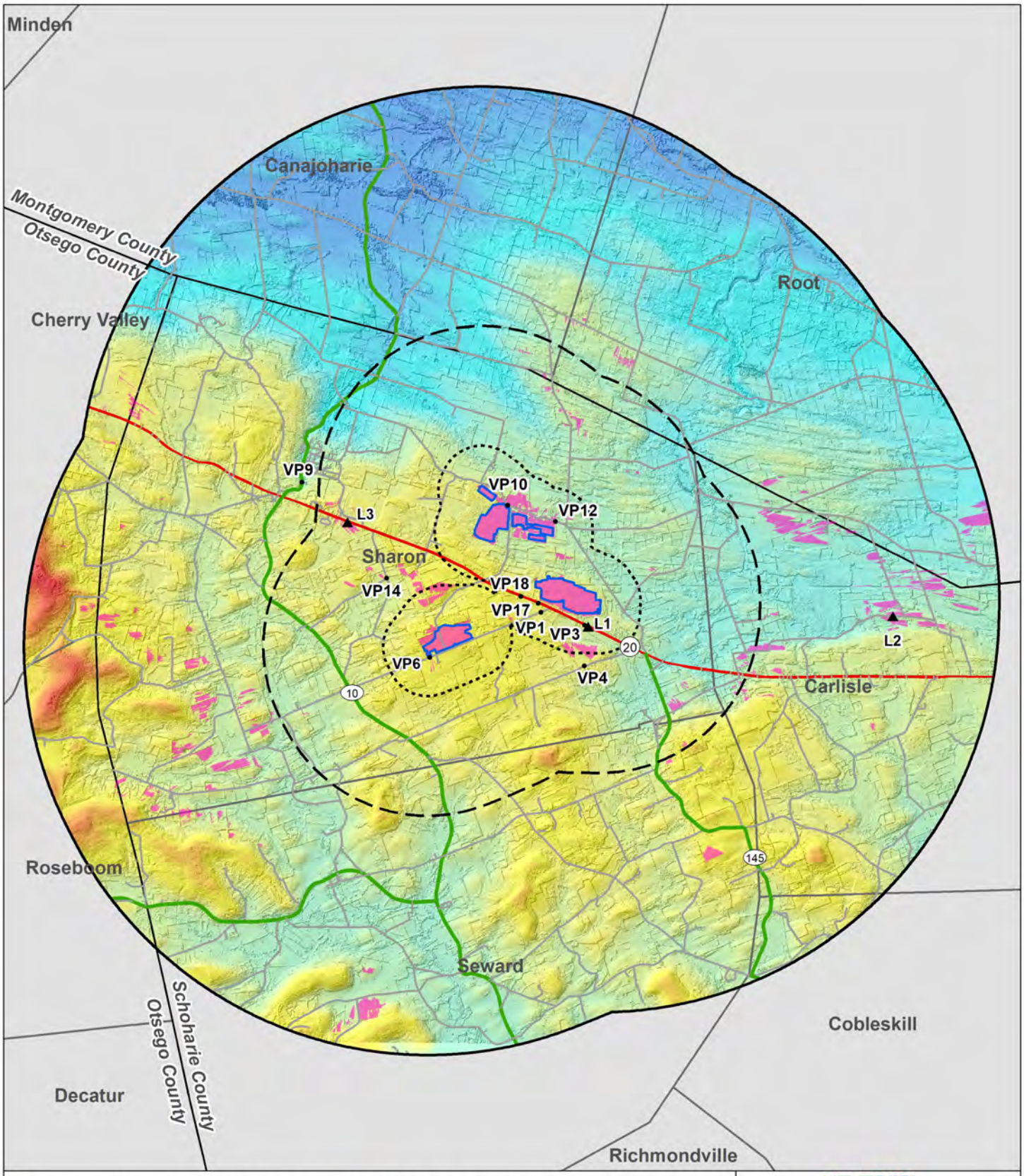

1 Simulation Viewpoint
▲ Line of Sight Location
Solar Arrays
Predicted Visibility

DISTANCE ZONES
Half Mile Radius
Two Mile Radius
Five Mile Radius

LIDAR ELEVATION (FEET MSL)
High : 2717.08
Mid :~1150
Low : 194.39

N

0 1 2 Miles

NEXTera ENERGY

LIDAR ELEVATION MAP

EAST POINT ENERGY CENTER
TOWN OF SHARON, NY

FIGURE 2 | AUGUST 2019

Map Produced by TRC

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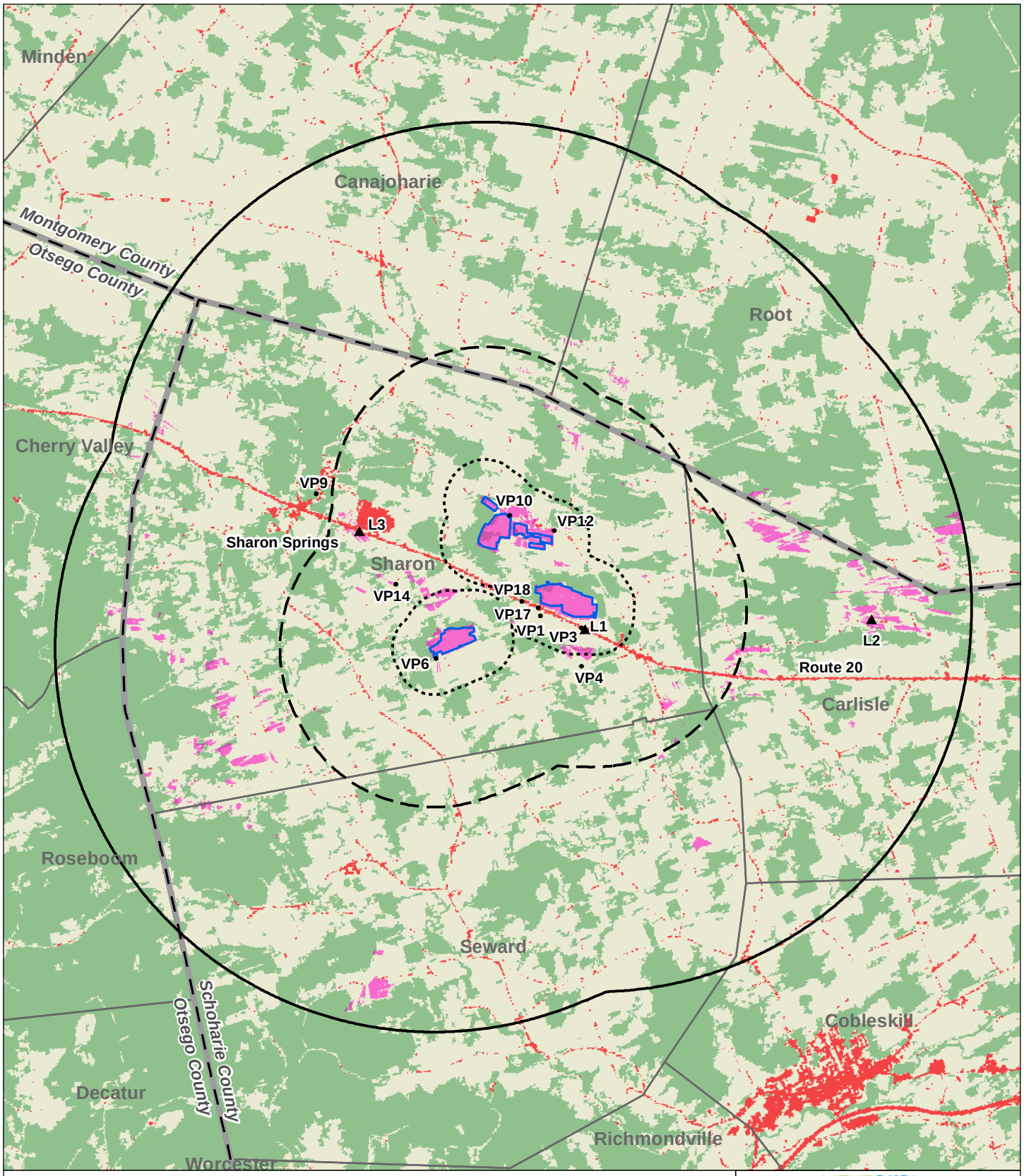

- Simulation Viewpoint
- Line of Sight Location
- Solar Arrays
- Predicted Visibility

LANDSCAPE SIMILARITY ZONES
- Agricultural/Open Land
- Forest
- Developed

DISTANCE ZONES
- Half Mile Radius
- Two Mile Radius
- Five Mile Radius

N

0 1 2 Miles

NEXTera ENERGY

LANDSCAPE SIMILARITY ZONES

EAST POINT ENERGY CENTER
TOWN OF SHARON, NY

FIGURE 3	AUGUST 2019

Map Produced by TRC

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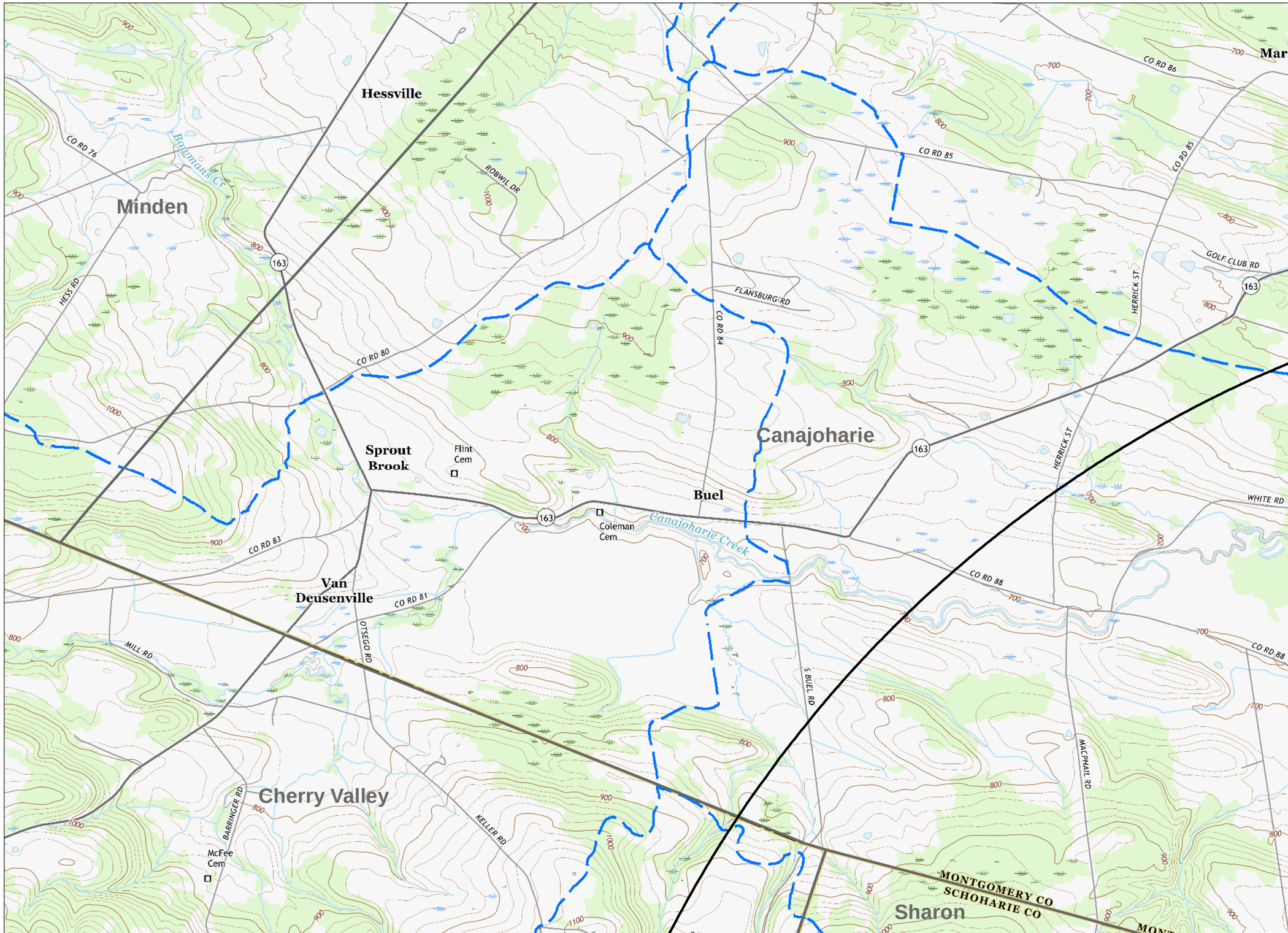

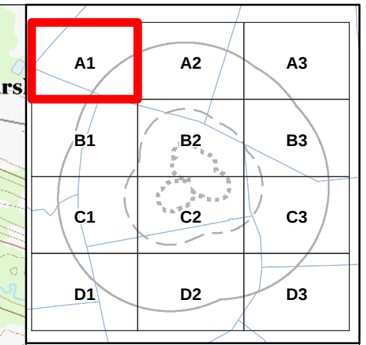

Proposed Solar Array
Collector Station
Simulation Viewpoint
Line of Sight Location
Predicted Visibility
National Register of Historic Places Site
Historic District
Eligible Historic Sites
Local Historic
Federal-State-County Recreation
NYS Route 20 Scenic Byway
Snowmobile Trail
Local Park
High Point

LOCAL SCENIC ROAD
Excursion From Scenic Byway
Scenic Rd Listed in Sharon Comp Plan

CONSERVATION EASEMENT
Federal
Schoharie Land Trust

DISTANCE ZONES
Half Mile Radius
Two Mile Radius
Five Mile Radius

Note: The Project and VSA lie within the Schoharie County Heritage Area

Map Page A1

N

0 2,000 Feet

1:24,000

Base Map: USGS 2016 GeoPDF acquired at https://viewer.nationalmap.gov/

NEXTera ENERGY

VIEWSHED ANALYSIS

EAST POINT ENERGY CENTER
TOWN OF SHARON, NY

FIGURE 4	AUGUST 2019

Map Produced by TRC

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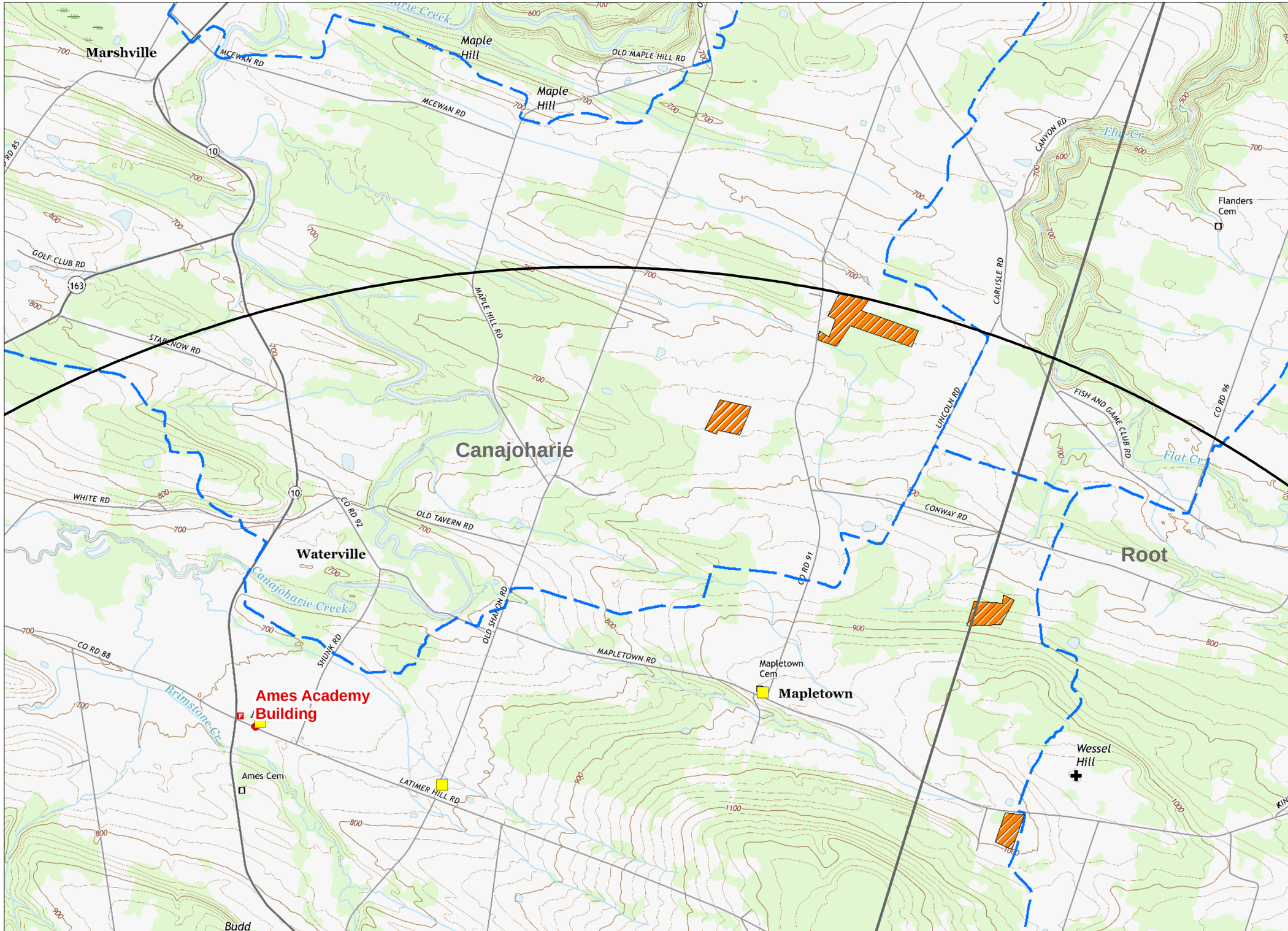

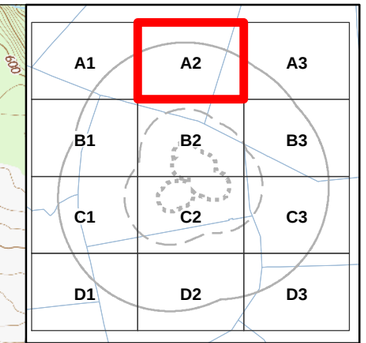

Proposed Solar Array
Collector Station
Simulation Viewpoint
Line of Sight Location
Predicted Visibility
National Register of Historic Places Site
Historic District
Eligible Historic Sites
Local Historic
Federal-State-County Recreation
NYS Route 20 Scenic Byway
Snowmobile Trail
Local Park
High Point

LOCAL SCENIC ROAD
Excursion From Scenic Byway
Scenic Rd Listed in Sharon Comp Plan

CONSERVATION EASEMENT
Federal
Schoharie Land Trust

DISTANCE ZONES
Half Mile Radius
Two Mile Radius
Five Mile Radius

Note: The Project and VSA lie within the Schoharie County Heritage Area

Map Page A2

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Base Map: USGS 2016 GeoPDF acquired at https://viewer.nationalmap.gov/

NEXTera ENERGY

VIEWSHED ANALYSIS

EAST POINT ENERGY CENTER
TOWN OF SHARON, NY

FIGURE 4	AUGUST 2019

Map Produced by TRC

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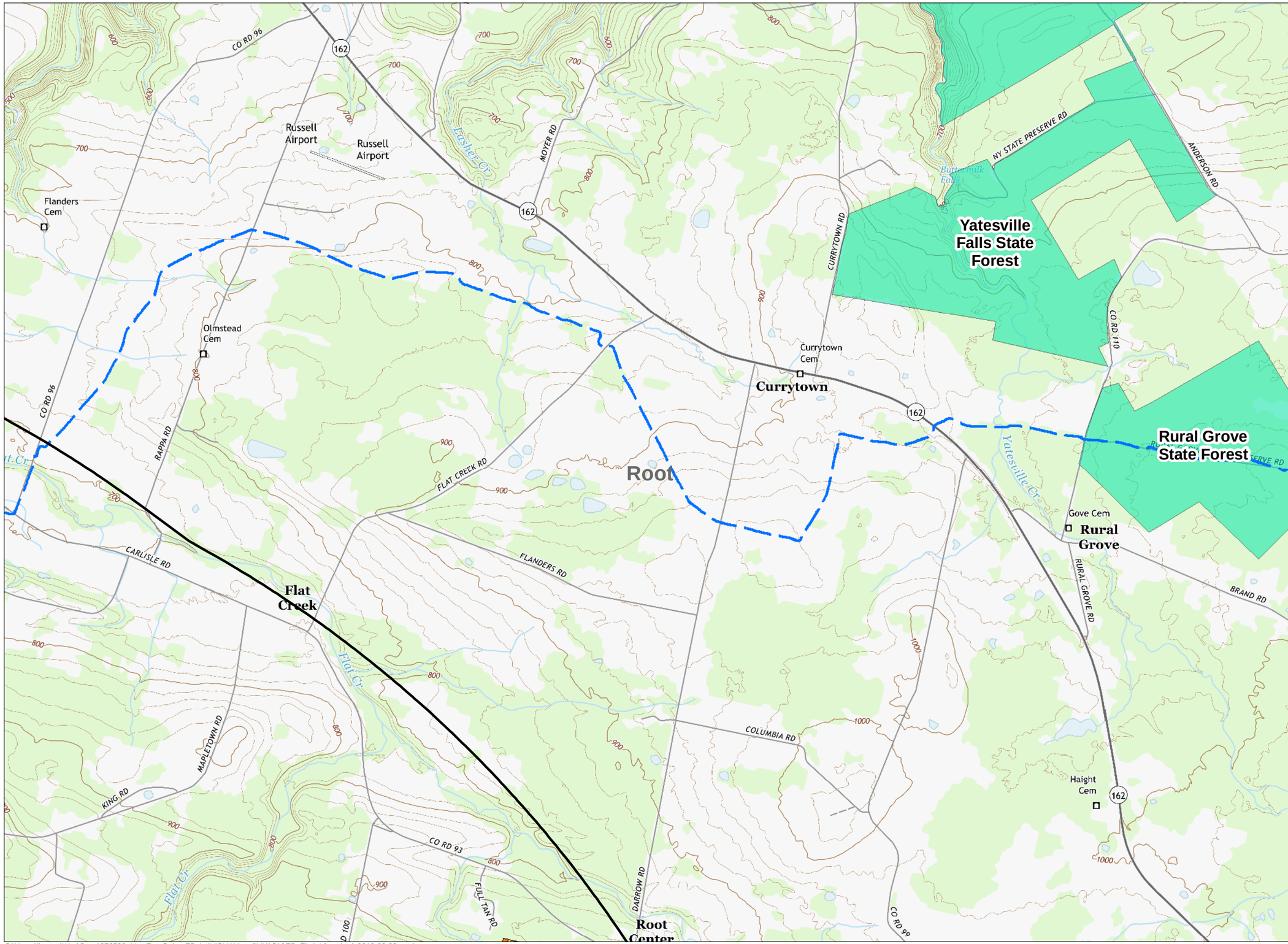

A1	A2	A3
B1	B2	B3
C1	C2	C3
D1	D2	D3

- Proposed Solar Array
- Collector Station
- Simulation Viewpoint
- Line of Sight Location
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NEXTera ENERGY

VIEWSHED ANALYSIS

EAST POINT ENERGY CENTER

TOWN OF SHARON, NY

FIGURE 4	AUGUST 2019

Map Produced by TRC

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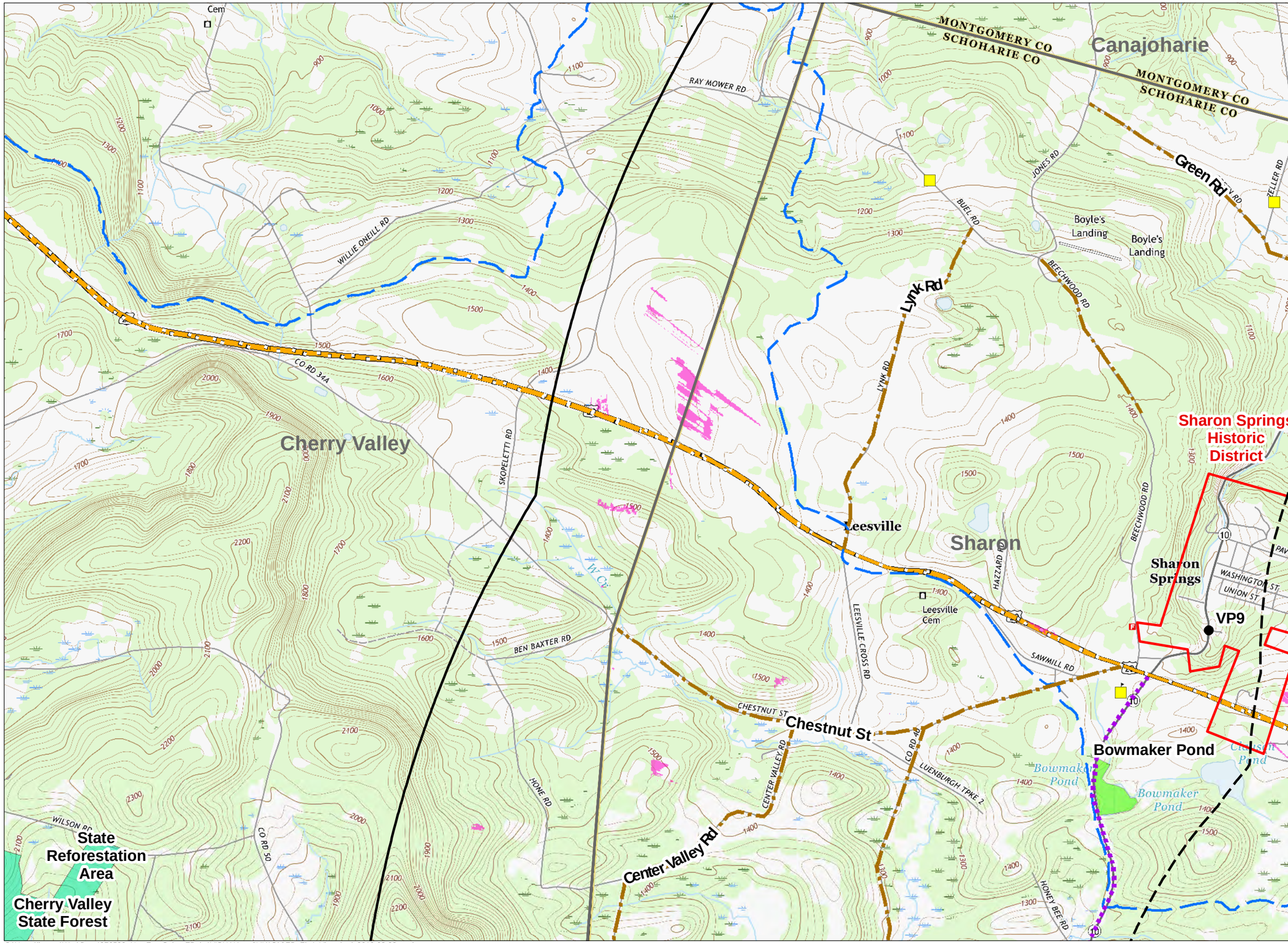

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NEXTera ENERGY

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EAST POINT ENERGY CENTER
TOWN OF SHARON, NY

FIGURE 4	AUGUST 2019

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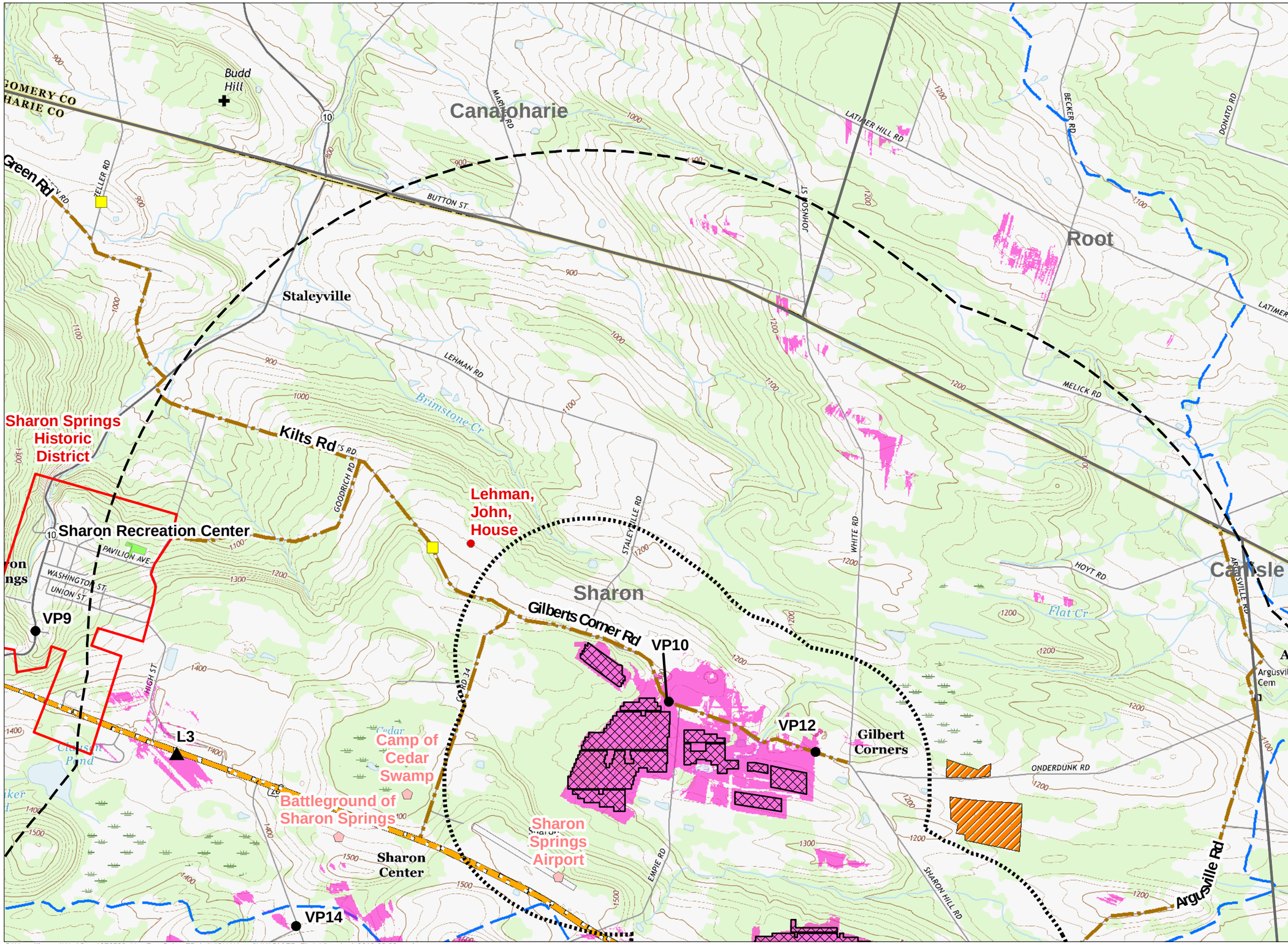

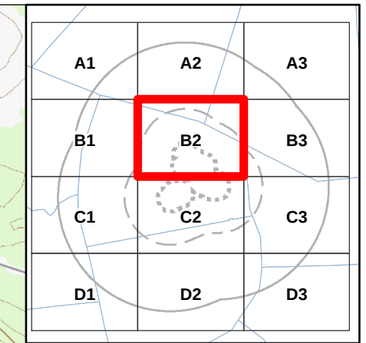

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EAST POINT ENERGY CENTER

TOWN OF SHARON, NY

FIGURE 4	AUGUST 2019

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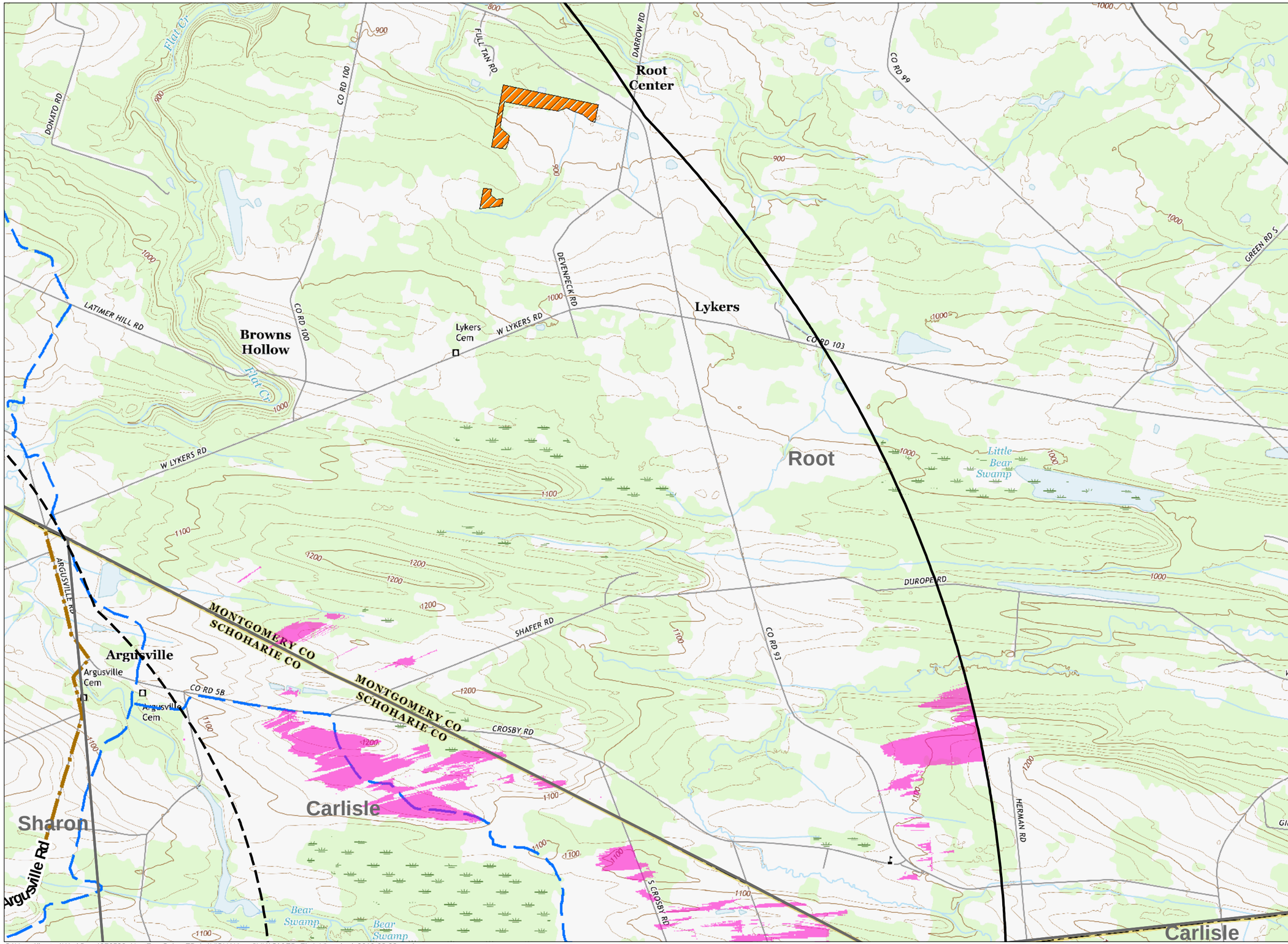

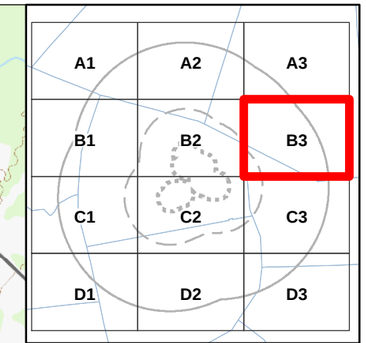

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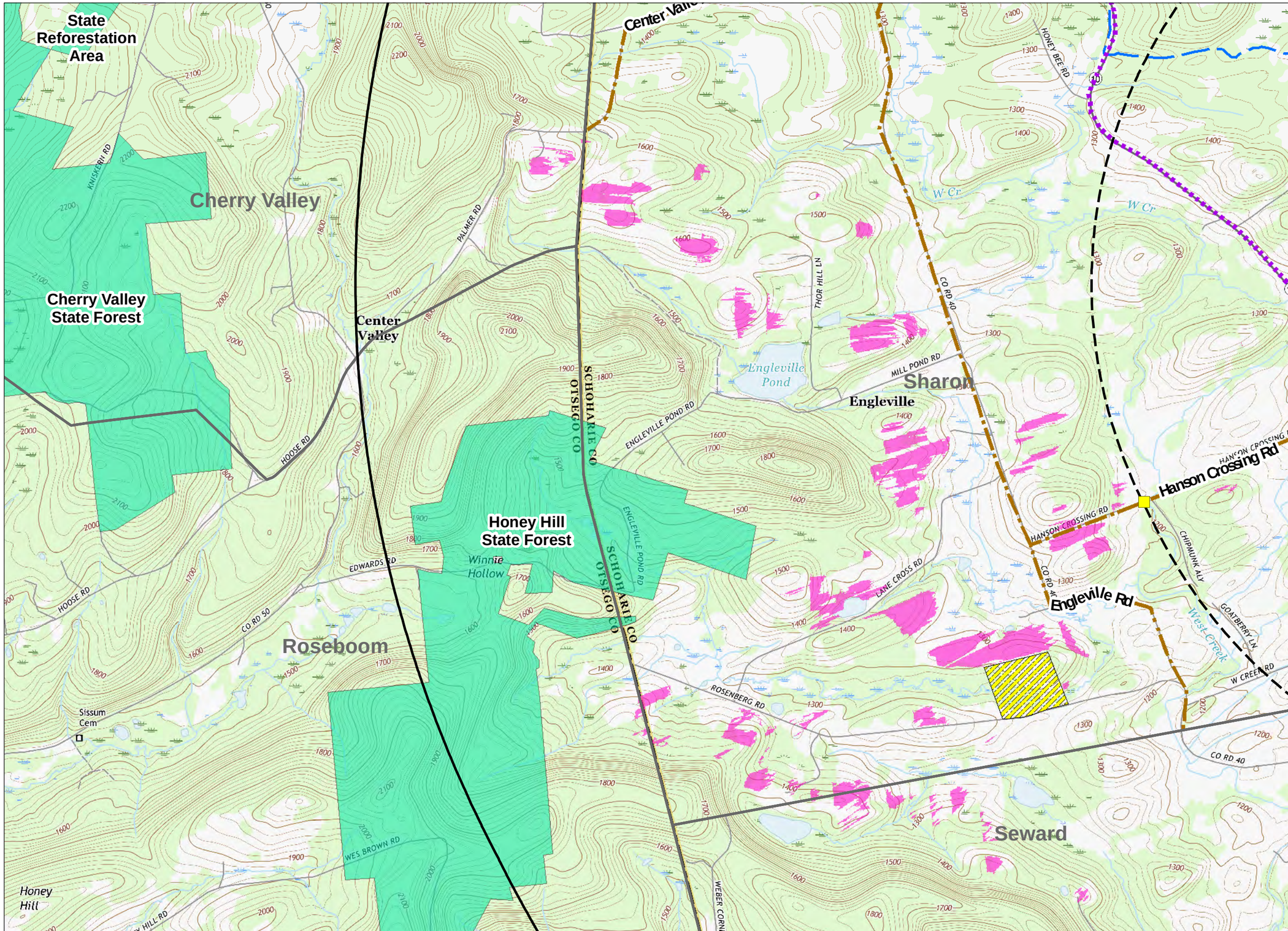

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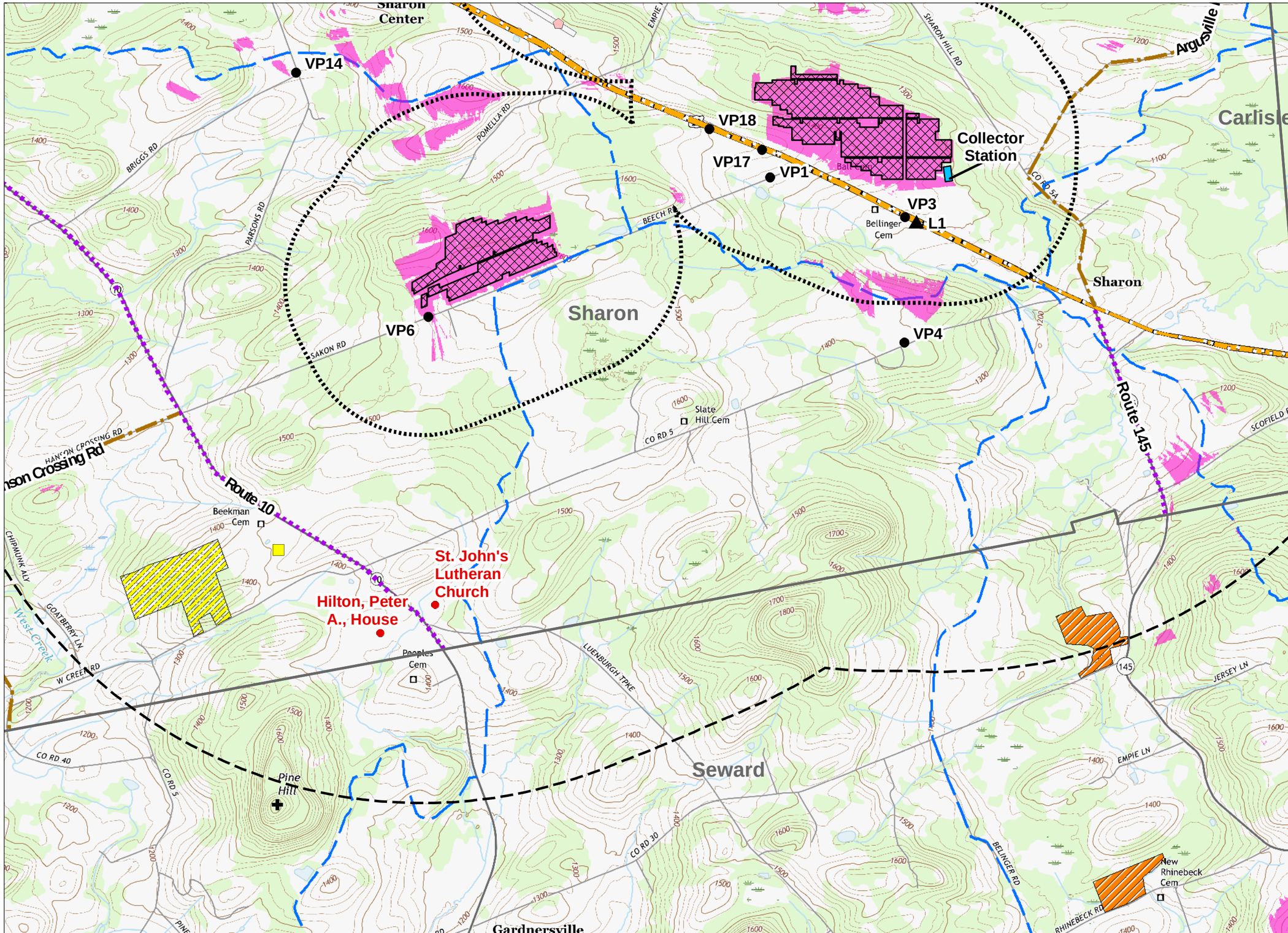

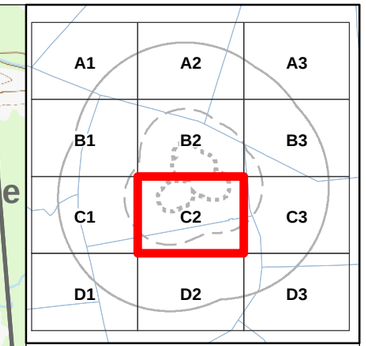

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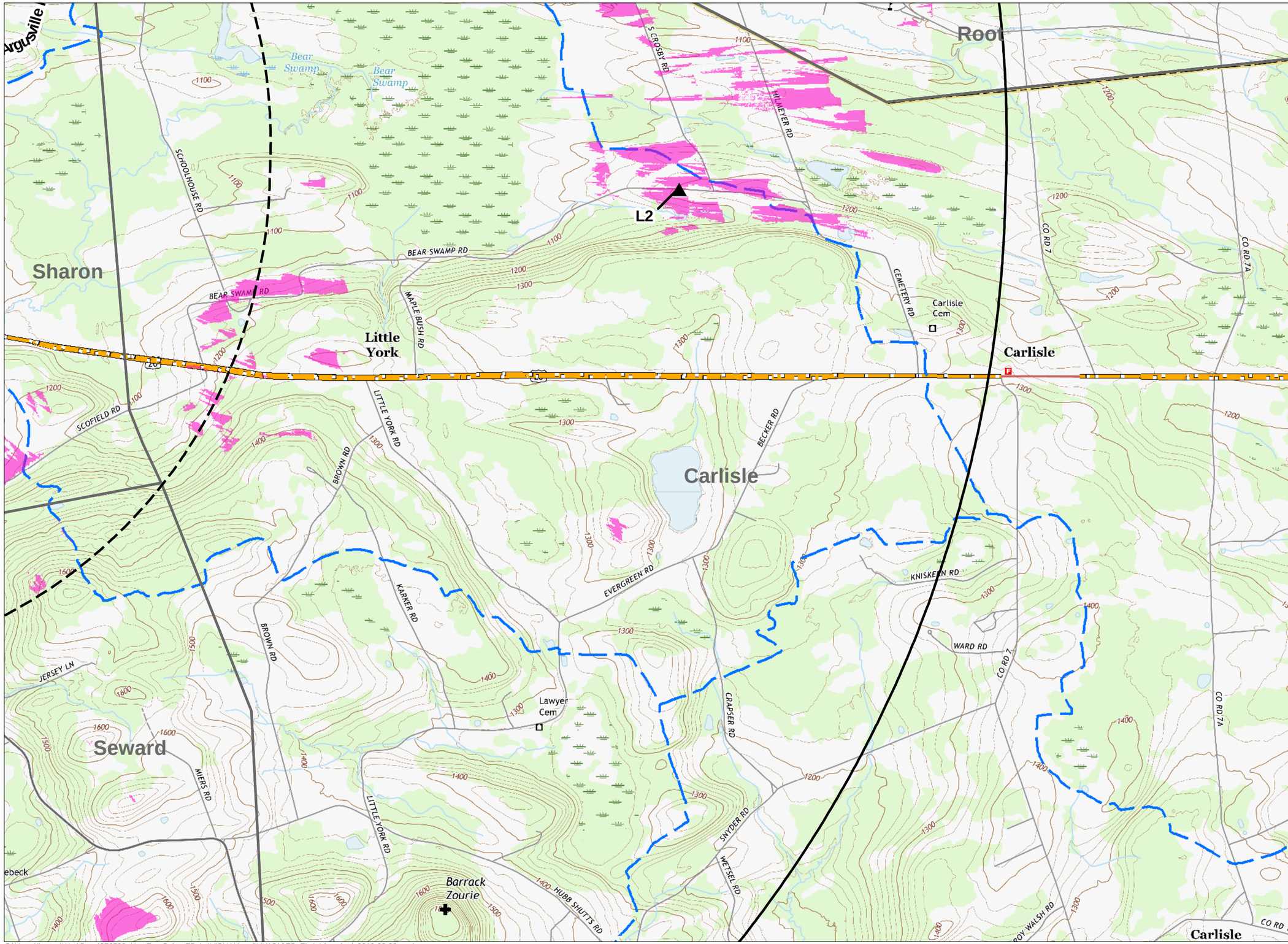

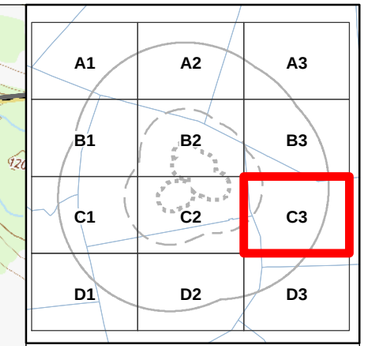

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TOWN OF SHARON, NY

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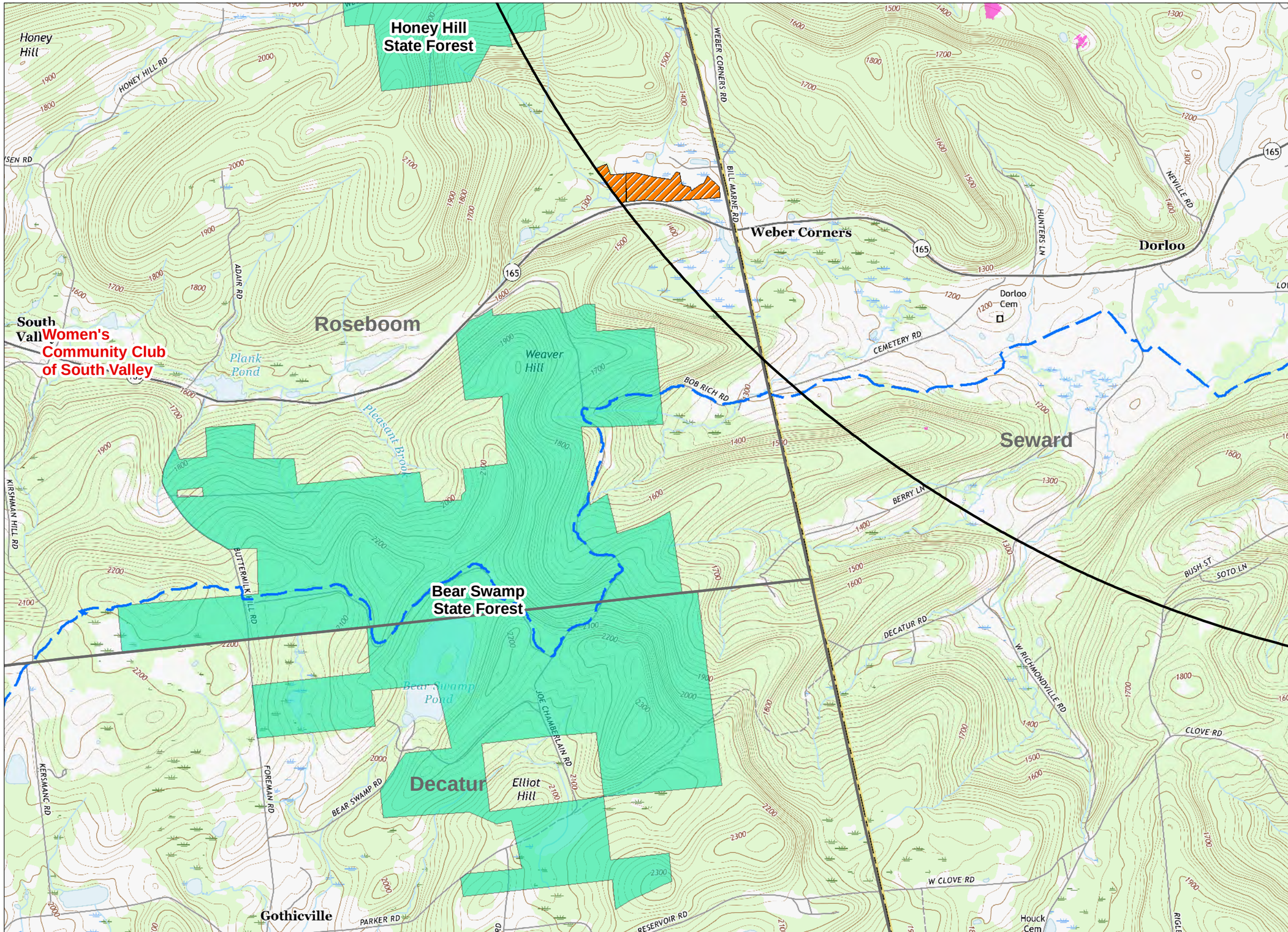

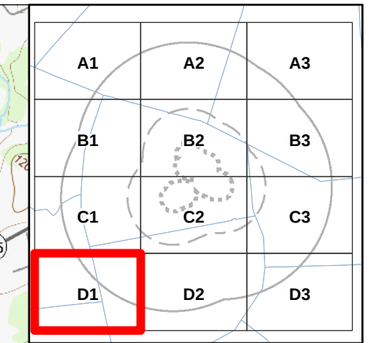

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TOWN OF SHARON, NY

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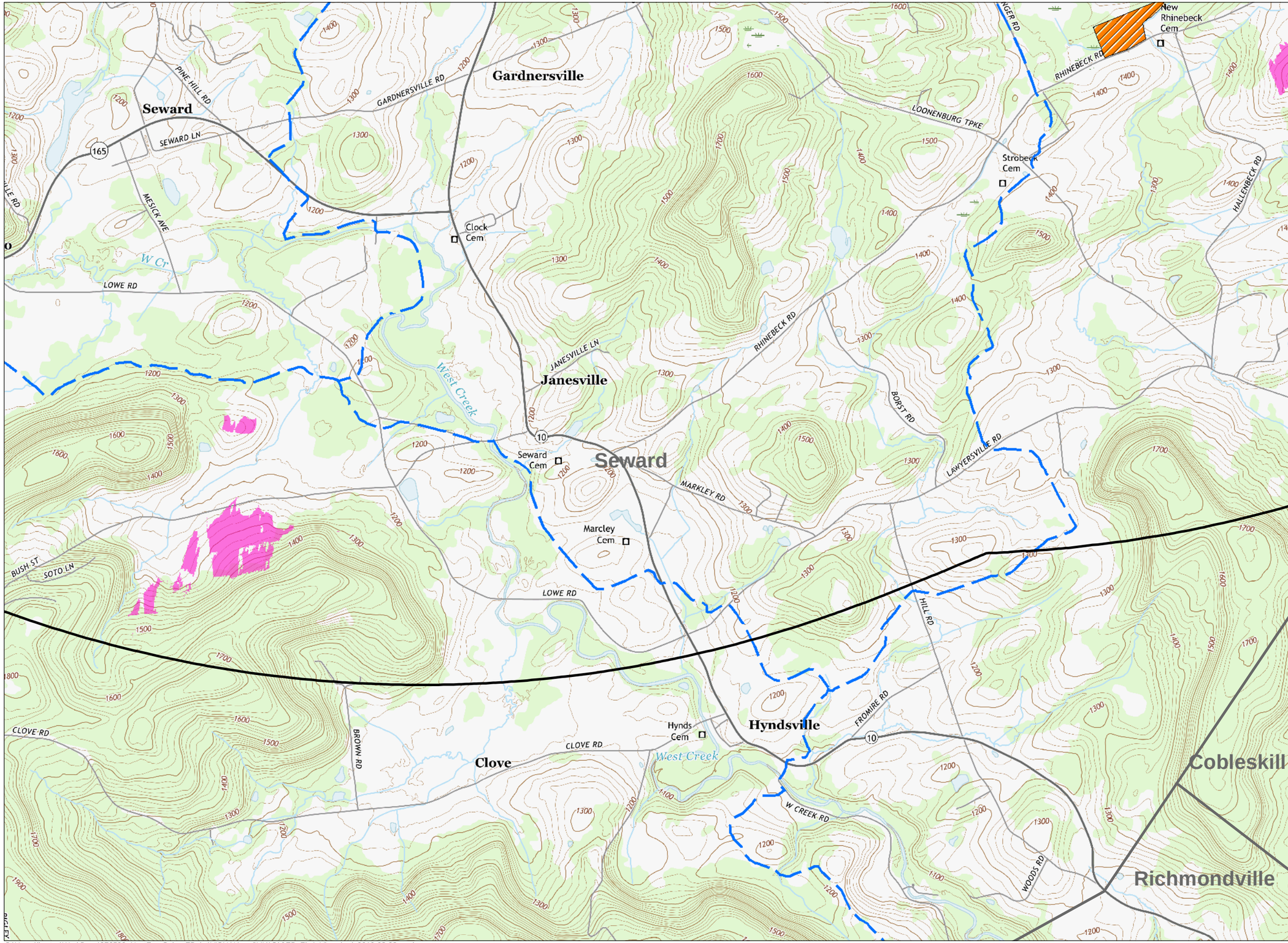

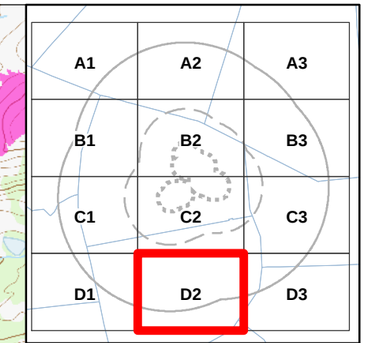

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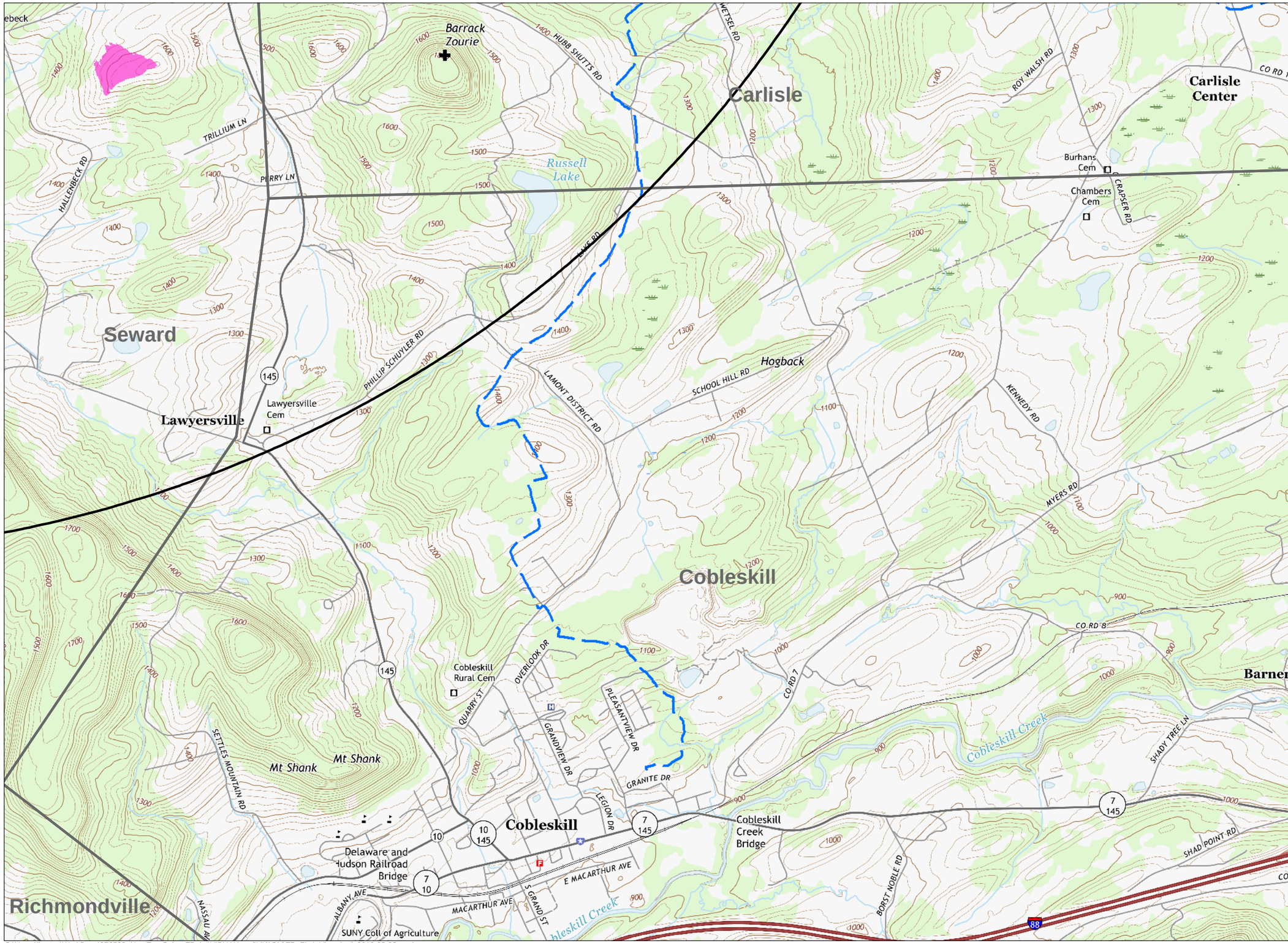

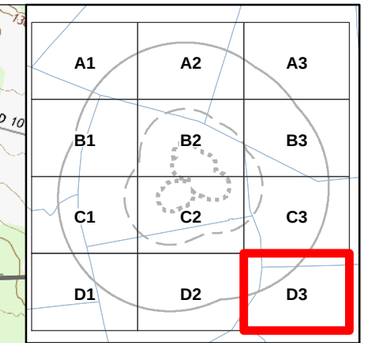

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