

Chelsea Solar Project

Bennington, Vermont



Aesthetic and Orderly Development Analysis Report

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A. Introduction

T.J. Boyle Associates, LLC (“TJB”), a landscape architecture and planning firm located in Burlington, Vermont, was retained by Chelsea Solar LLC (the “Applicant”) to conduct a visual analysis to evaluate potential impacts due to a proposed 2.0 MW (AC) solar project in the Town of Bennington, Vermont (the “Chelsea Solar Project” or “Project”). The aesthetic analysis determines whether changes to the landscape’s visual character attributable to the proposed Project are adverse, and if so, whether they are also undue.

T.J. Boyle Associates has conducted field visits, analyzed GIS data, aerial photography and detailed design plans, and used computer technologies to best understand the Project and how planned improvements would alter the visual character of the landscape in which they are proposed.

After reviewing the existing conditions around the Project site and surrounding area, it is apparent that there would be limited visibility of the Project array from the surrounding area. Where the Project elements would be visible, the low elevation of the site, the low profile of Project equipment, and intervening vegetative screening significantly obscure the Project elements. Where views of the Project may be considered adverse, landscape revegetation has been proposed to improve the harmony of the project with its surroundings. Therefore, the proposed Project would not have an undue adverse effect on the scenic or natural beauty or aesthetics of the area. This report presents the findings and conclusions of the aesthetic analysis. A review of whether the proposed project would unduly interfere with the orderly development of the region and any land conservation measures contained in the town plan of the affected municipality is included in *Section G. Orderly Development*.



Figure 1: View from US Route 7 southbound looking southeast towards the proposed Project location (Viewpoint 33)

B. Description of the Project, Project Site, and Surrounding Area

The Applicant is seeking approval under 30 V.S.A. § 248 from the Vermont Public Utility Commission (“Commission”) for a Certificate of Public Good to construct and operate a 2.0 MW (AC) ground-mounted solar electric generation facility. The fenced portion of the Project would occupy approximately 7.1 acres, on a parcel of land totaling approximately 27.3 acres. The closest panels would be located approximately 215 feet from paved edge of US Route 7, within an area that can be described as the northeast quadrant of the US Route 7 and VT Route 279 interchange. The Project includes approximately 33 east-west linear rows of panels, mounted with a fixed-tilt. The panels would face south with a 15 degree tilt. Each row would consist of panels mounted on vertical post foundations driven into the ground. The panels would be approximately 3 feet above the ground on the south side of each row, extending to a height of approximately 7-8 feet above the ground on the north side of each row. To provide access within the Project, a 14-foot wide private gravel access road would extend southeast approximately 850 feet to the western extent of Willow Road. The Project would be secured by a 10-foot tall chain-link style fence with metal steel posts. Certain portions of the fence would be covered with a partially opaque mesh screening. The general arrangement of the Project is illustrated in Figure 2 (see also Exhibit CS-IJ-2 – Project Site Plans).

The site is located within the Vermont Valley physiographic region of Vermont, with the Southern Green Mountains to the east and the Taconic Mountains to the northwest and southwest. The Project is surrounded by US Route 7 to the west, the US Route 7 & VT Route 279 interchange to the south and southwest, Russet Drive to the north, Apple Hill Road to the northeast, and Willow Road to the southeast. Existing forest would buffer the site on the north, west, and south sides. A remnant apple orchard borders the site to the east. The site is located on the southeastern end of a small rise of land that has a highpoint approximately 3,000 feet further northeast of the site.

Electricity from the solar modules would be connected to string inverters located behind the racking rows and mounted throughout the array. Underground collection wiring would connect the inverters to an equipment skid located near the southern end of the proposed array. The equipment skid would house the switchboard, transformer, and communications and monitoring equipment for the Project, with most equipment being roughly 9 feet high and a camera pole up to 12 feet high. The skid supports the equipment atop a pre-fabricated steel floor that includes a secondary transformer oil containment system built into the base. The major equipment cabinets on the skid, as well as the skid frame and floor, would be painted ANSI 61 dark gray. Underground cabling

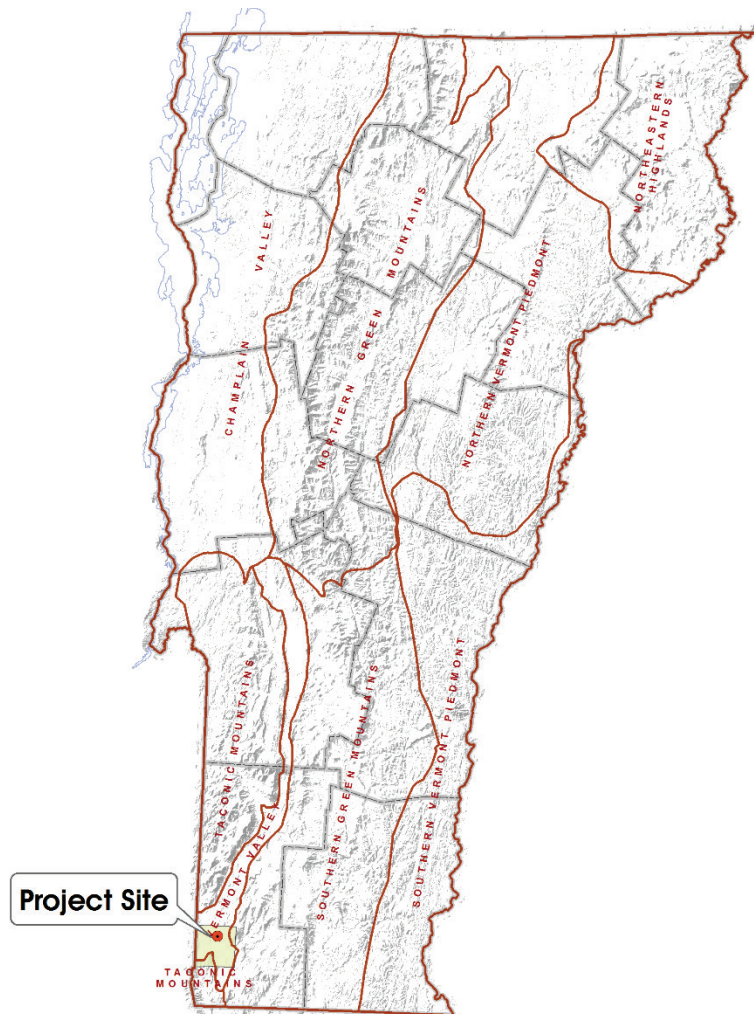


Figure 1: Vermont Physiographic Regions Map and Project Location

would connect the skid location to a set of pole-mounted utility equipment located at the southern end of the array footprint. At this location the pad-mounted utility interconnection equipment would be installed and electricity would run above-ground via a new overhead power line that follows the access road to Willow Road, where it would connect with an overhead electric line that Green Mountain Power (“GMP”) would install along Willow Road and Hewett Drive.

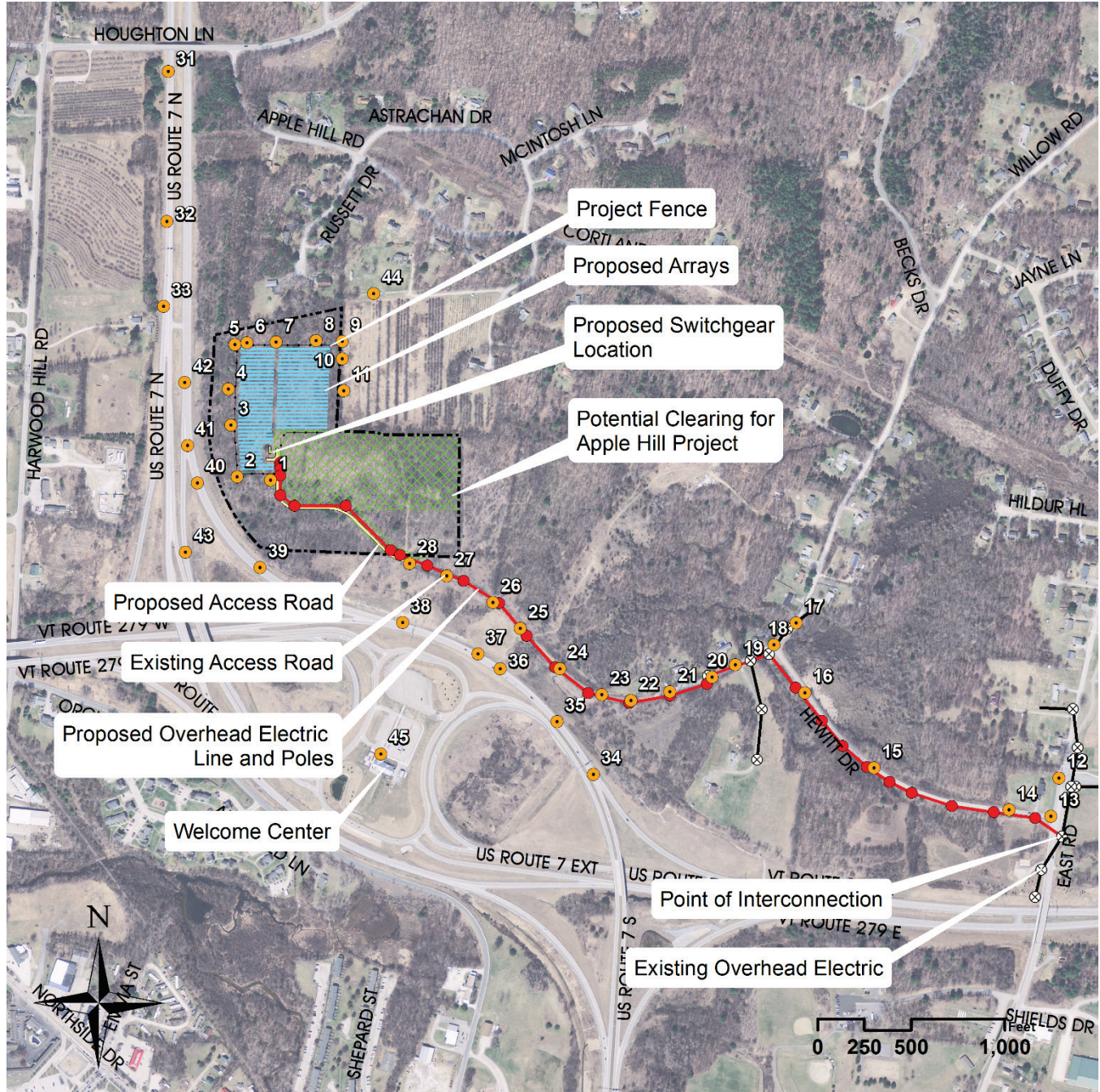


Figure 2: Detailed aerial photo of Project site and surrounding area.

C. Methodology

Section 248(b)(5) of Title 30, Vermont Statutes Annotated requires the Commission to make a finding that a proposed electrical transmission Project would not have an undue adverse effect on aesthetics, as outlined in the so-called “Quechee Lakes Decision.”¹ As explained in the Commission’s order in Docket No. 6860, the Commission applies the Quechee Test in Section 248 proceedings, as follows:

The Public Service Board has adopted the Environmental Board’s Quechee analysis for guidance in assessing the aesthetic impacts of proposed projects under Section 248. We have previously explained the components of the Quechee analysis as follows:

In order to reach a determination as to whether the project would have an undue adverse effect on the aesthetics of the area, the Board employs the two-part test first outlined by the Vermont Environmental Board in Quechee, and further defined in numerous other decisions.

Pursuant to this procedure, first a determination must be made as to whether a project would have an adverse impact on aesthetics and the scenic and natural beauty. In order to find that it would have an adverse impact, a project must be out of character with its surroundings. Specific factors used in making this evaluation include the nature of the project's surroundings, the compatibility of the project's design with those surroundings, the suitability of the project's colors and materials with the immediate environment, the visibility of the project, and the impact of the project on open space.

The next step in the two-part test, once a conclusion as to the adverse effect of the project has been reached, is to determine whether the adverse effect of the project is “undue.” The adverse effect is considered undue when a positive finding is reached regarding any one of the following factors:

1. Does the project violate a clear, written community standard intended to preserve the aesthetics or scenic beauty of the area?
2. Have the applicants failed to take generally available mitigating steps which a reasonable person would take to improve the harmony of the project with its surroundings?
3. Does the project offend the sensibilities of the average person? Is it offensive or shocking because it is out of character with its surroundings or significantly diminishes the scenic qualities of the area?

Our analysis, however, does not end with the results of the Quechee test. Instead, our assessment of whether a particular project would have an “undue” adverse effect on aesthetics and scenic or natural beauty is “significantly informed by overall societal benefits of the project.”²

¹ Quechee Lakes Corporation, Applications #3W0411-EB and #3W0439-EB at pgs. 18-20

² Petition of Vermont Electric Power Company, Inc. (VELCO), Vermont Transco, Docket No. 6860, Vt. Pub. Serv. Bd. (Jan. 28, 2005) at 79-80.

T.J. Boyle Associates interprets the first prong of the Quechee test to first require an assessment of the project's visibility. Visibility establishes the underlying method for which all visual aesthetics are evaluated to comply with the purpose of the Quechee Test. For instance, a project's design, materials and colors may be completely out of character with its surroundings, but if such project is not visible to the general public (or "average person"), then there would be no adverse visual effect. Likewise, when a project is determined to be out of character with its surroundings, one solution that the Quechee Test offers to mitigate this is to visually obscure the project with landscape mitigation or other screening, which itself is a simple reduction or occlusion of project visibility. In this way, TJB interprets the first prong of the Quechee Test to be asking, "What is the project's visibility, and is that visibility out of character with its surroundings?" In our experience, if the Quechee Test were not interpreted in this way then a given project could be considered adverse even if it was completely invisible from surrounding areas, which would be an unreasonable interpretation and inconsistent with the purpose of the test.

Our study area for potential adverse aesthetic effects of solar generation facilities extends approximately two miles from a project location. This distance tells us whether a given project is, or is not, visible from prominent or protected locations in the study area, or, perhaps more importantly, if a project itself is in a prominent or highly visible location. We may find that a project has an adverse effect on a particular viewpoint, but that the project does not have an adverse impact on the surrounding area as a whole.

In conducting the Quechee Analysis and preparing this report, four distinct methods have been used: (1) background data collection, (2) GIS viewshed analysis mapping, (3) field investigation, and (4) Project visualization. The GIS viewshed mapping and field investigation are used to identify areas with potential visibility of the Project. The background data and field investigation are used to characterize the study area. For the Project visualization, a simulation is prepared to accurately visualize the Project. All four methods are used to evaluate whether there are in fact 'adverse' impacts and if so, whether those impacts could be considered 'undue.'

- (1) **Background Data Collection.** Standard data that can help describe the landscape of the Project site, the surrounding area, and the Project are assembled. These data include available Project plans and details, aerial photography, topographical maps, Geographical Information System ("GIS") data including digital elevation model data, water and land cover information, transportation data and primary building data (public, commercial, residential), and applicable regulations such as the town plan and the regional plan.
- (2) **GIS Viewshed Analysis.** Following the background data collection, ESRI ArcGIS software is used to calculate a GIS viewshed or visibility analysis of potential visibility of the Project. Viewshed analysis can identify areas that have potential views of a project, and when mapped it shows the Project viewshed. The analysis applies a line-of-sight method from a prescribed point or points representing the Project (such as the top of an upright solar tracker, substation equipment, or power line structure), to all other locations within a designated study area. Figure 3 illustrates how line-of-sight is determined visibility. The analysis results (portrayed as two viewshed maps), and background data review form the basis for organizing the field investigation.
 - a. A "Terrain Viewshed" map (see Appendix A, Map 2) represents how landform may block views of Project upgrades. This analysis only accounts for intervening landform and does not incorporate how vegetation, buildings, hedgerows, street trees or any other vegetation or buildings would screen visibility of the Project. However, to facilitate interpretation of the results, the map differentiates between areas with and without forest cover, since there would be no distant views if one is standing in the forest. This map represents the maximum area



from which the Project could be visible, and in almost every case overstates the probable visibility.

- b. A “Vegetated Viewshed.” Map (see Appendix A, Map 3) represents a “Vegetated Viewshed.” This map shows how vegetation, buildings and other obstructions in the landscape may act in addition to landform, to block views of the Project. The Lidar data used to identify obstructions is available through the Vermont Center for Geographic Information. Lidar data allows a much more accurate Vegetated Viewshed, as data include specific structure and vegetation elevation. This map is a more realistic representation of the area from which the Project is potentially visible.

When properly taken into consideration, these maps indicate areas most likely to have views, emphasizing areas vulnerable to the greatest impacts while also identifying areas that are unlikely to have views. The assumptions used to calculate these maps are conservative, and tend to over-estimate Project visibility. Rather than serving as a final result, these maps are primarily used in preparation of the field investigation, which more fully evaluates the landscape context, views, and potential impacts based on the visibility indicated on the maps. Therefore, it is inappropriate to use these maps as the only basis to evaluate visual extent and impacts. Figure 3 illustrates the difference between the Terrain Viewshed and the Vegetated Viewshed maps.

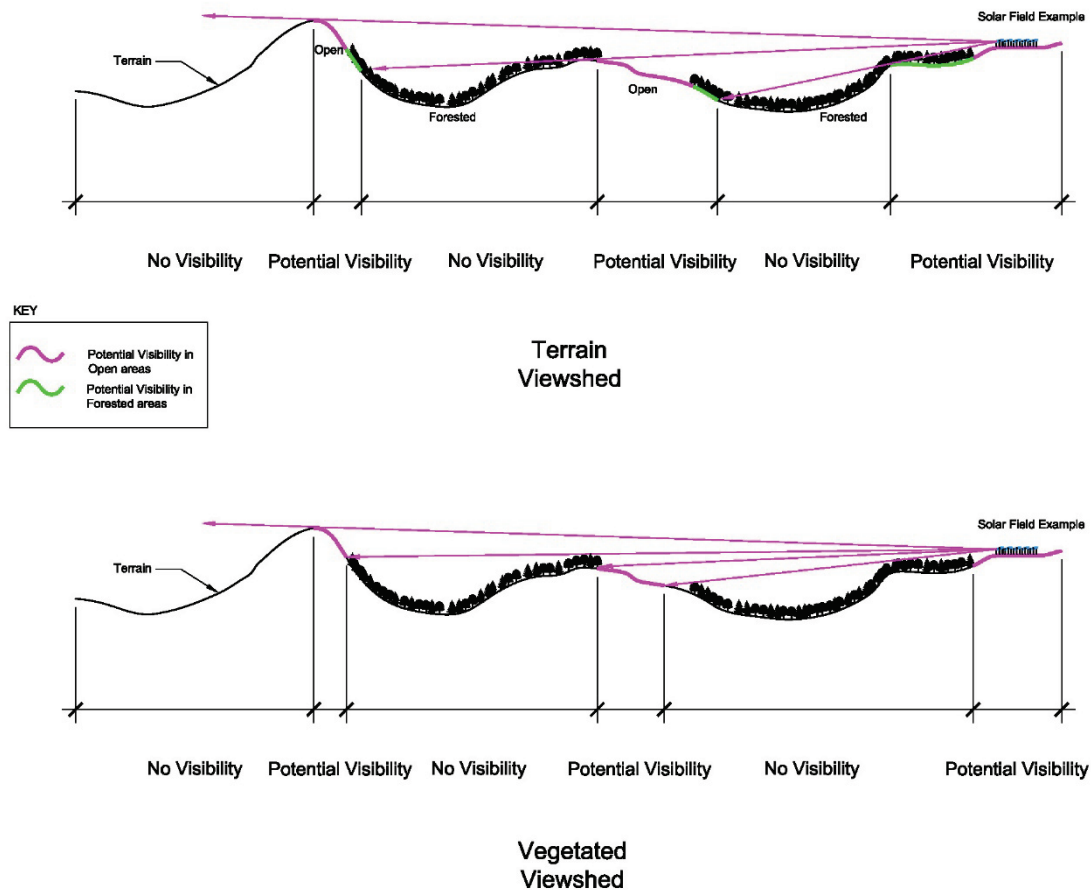


Figure 3. Terrain Viewshed and Vegetated Viewshed Diagrams. (Please note this diagram is for illustrative purposes only to portray the results of a GIS Viewshed analysis and is not representative of the proposed Project.)

(3) **Field Investigation.** The viewshed maps are used to focus the field investigation on areas most likely to have views of the Project. The purpose of the field investigation is to:

- a. Verify potential visibility as indicated on the viewshed maps
- b. Photograph views toward the Project from these and any other sensitive areas (parks, public facilities, etc.)
- c. Photographically document the landscape's visual character within the study area
- d. Record notes concerning each viewpoint where photographs are taken
- e. Identify location of photograph viewpoints using a global positioning system ("GPS") unit

On completion of the field investigation, the GPS data is transferred to a GIS database and synchronization of the data and photograph locations are verified. Photo locations and the actual photos are coordinated through indexed viewpoint numbers. Documentation of the field investigation is then prepared, which includes: (1) mapping of the routes traveled and locations of photograph viewpoints, displayed on mapping within Appendix A, and (2) a catalog of photography included as Appendix B - Photographic Inventory. Appendix B includes a series of panoramic views, to provide context of the surrounding conditions, and single-frame photographs to represent views to the Project site. Unless otherwise noted, single-frame photos utilize a focal length approximately equivalent to 50mm on a 35mm film or FX digital single lens reflex camera, which is considered a 'normal lens'. A normal lens reproduces a field of view that generally looks "natural" to a human observer. Panoramic views result in significant spatial distortion but are beneficial by providing a very wide field of view to illustrate the existing surroundings.

(4) **Project Visualization.** It is normally helpful to create visualizations as an aid to evaluate visual impacts. In many situations, GIS information prepared with the viewshed analysis can also be used to create a three-dimensional (3D) model. The model can help to better understand the visual relationship of the basic landscape features to the Project elements. The advantage of this approach is the ease in representing the view from any viewpoint; the disadvantage is the relative coarseness of the data and the schematic quality of the image.

Photos captured during field investigation can also be used to create realistic photographic quality simulations of a Project. The specific selection of a simulation viewpoint is based on the extent of the Project's visibility, the probable frequency and sensitivity of viewers, and the availability of a suitable photograph from the field investigation. There may be more than one viewpoint for a particular Project component. However, each simulation attempts to illustrate the most visible condition for the area it represents. The following process is used to create the simulation.

- a. Three-dimensional computer-aided design ("CAD") drawings of the proposed Project elements and site plan are obtained or created.
- b. The CAD data is georeferenced to aerial photographs of the area, and reference markers representing fixed landscape elements visible in the photograph are added (i.e. existing buildings, utility poles, etc...)
- c. A viewpoint or camera view including optical characteristics of the lens used to take the photograph is created within the CAD drawing and a perspective image of the proposed Project is produced that matches the photograph.
- d. The perspective image is introduced as an independent layer into the digital image file of the simulation photograph. The reference markers are used to evaluate the accuracy of the



- perspective settings. The settings of the perspective drawing are fine-tuned to ensure the reference markers coincide with the photograph.
- e. Elements of the perspective drawing that would be visible are rendered into the photograph using texture and colors that occur on the site or are specified in the Project documents or from other similar projects.

TJB evaluates data from the steps above and compares existing conditions with plans for the proposed Project. The following sections of this report describe in detail the collection and evaluation of data and the resulting conclusions.

D. Quechee Test Part I

i. Evaluation of Potential Adverse Impacts

As noted above, GIS viewshed mapping was utilized as a preliminary evaluation method. Field investigation found that the GIS viewshed was mostly accurate, and potential views of the Project would be limited. Otherwise, the assessment of visibility confirmed that the Project would not be highly visible from other surrounding public locations. The attached photographic inventory (Appendix B) includes views from the locations that were investigated during the site visit, which also help to illustrate the character of the surrounding area.

1. US Route 7

US Route 7 is a major north-south transportation route within western Vermont. Near the Project site, it is configured as a four-lane expressway with grade-separated interchanges and a posted speed limit of 55 miles per hour. South of the Project, there is a major interchange with Vermont Route 279, which includes the Vermont Bennington Welcome Center, and further south Route 7 transitions to a two-lane highway as it enters downtown Bennington. There are a mix of land uses adjacent to US Route 7, including highway commercial, residential, agricultural, and public/institutional, which are interspersed between forested areas. With exception to the Vermont Bennington Welcome Center, surrounding land uses are not accessible directly from Route 7. Views of the surrounding landscape are largely buffered by mature vegetation and landform along Route 7, although when traveling southbound, views into the Bennington valley are oriented to the south along the roadway.

Views from the southbound lanes approaching the Project from the north are represented in Appendix B, from Viewpoint 29 through Viewpoint 33. The *2004 Bennington Scenic Resource Inventory* (“2004 SRI”, see Exhibit CS-BW-24) identifies the northern gateway to the town of Bennington north of the Project site on US Route 7, as located on the Overview Map of Scenic Resources (CS-BW-24 at 42). “From the north, as Route 7 sweeps around a bend and begins to descend toward the valley, a gateway scene featuring the Battle Monument set against Mount Anthony comes into view in dramatic fashion. This sweeping view is one of the most distinctive in Bennington” (CS-BW-24 at 20-21). A gateway location icon is shown on the Overview Map of Scenic Resources, just north of the Houghton Lane overpass. However, the view described in the 2004 SRI is further north, near the interchange with Vermont Route 7A. This view is illustrated in Appendix B, Viewpoint 29, which is taken approximately 3,775 feet north of the northwest corner of the fenced Project area. Views toward the Project site from locations north of Houghton Lane are blocked by intervening landform. Continuing south along Route 7, the 2004 SRI goes on to note, “The commercial buildings adjacent to the intersection at the bottom of the hill are not particularly attractive, although they do create an abrupt change from the rural to the developed landscape of Town” (CS-BW-24 at 21). This statement more closely describes views that are proximate to the Project location, which itself is at the northeast quadrant of the Route 7/Route 279 interchange.

Based on field investigations that included analysis from the Project site and along Route 7, the forested buffer and associated understory vegetation that would remain along the Route 7 corridor would significantly screen the proposed Project. Through analysis undertaken along the southwestern and western edge of the of the proposed clearing, it was determined that limited and highly filtered visibility may be possible from the Route 7 northbound lanes that are traversing the interchange (see Appendix B, Viewpoints 1 through 3 and 43), but the understory vegetation is sufficiently dense to provide leaf-off screening of the Project from areas of Route 7 that are immediately west and northwest of the Project (see Appendix B, Viewpoints 4 and 5). In particular, the vehicular traffic along Route 7 was partially visible from the southwest corner of the proposed tree clearing, with visibility of the vehicular traffic diminishing when viewed from viewpoints further north along the western clearing boundary.



When viewed from areas of Route 7 that lie west of the Project, the existing vegetation and landform would appear virtually unchanged, particularly during leaf-on conditions (see Appendix B, Viewpoints 29 through 33 and 40 through 42). A heavily filtered view of the Project may be possible from this area of Route 7, though this would generally be at 45 to 90 degrees to the direction of travel and not significantly noticeable to the average traveler. Other solar installations are located near Route 7 in the area, including an unfiltered view of a building-mounted installation (see Appendix B, Viewpoint 29, right side of panoramic view). Additionally, it should be noted that two ground-mounted solar installations are currently visible (see Appendix B, Viewpoint 57) at the southernmost Route 7 gateway location described in the 2014 SRI (see Exhibit CS-BW-24 at 21-22 and 42). Other roads in the area, such as Route 9 near the New York border also have visibility of ground-mounted solar installations (see Appendix B, Viewpoint 58).

Due to intervening vegetation and landform, the Project array is not expected to have visibility from areas of Route 7 (northbound) that lie south and southeast of the site (see Appendix B, Viewpoints 34 through 39). However, travelers moving northbound would have visibility of the proposed distribution line and structures as they proceed along Willow Road and onto the Project site (see Exhibit CS-BW-11). The view would be similar to that of the distribution line along Orchard Road in the southwest quadrant of the interchange, as Orchard Road parallels Route 7 southbound in a similar fashion. Views of the distribution line from Route 7 would be backgrounded, and at some locations, substantially screened by mature vegetation along Willow Road. The configuration of the proposed distribution line and structures will be identical to distribution lines along roads throughout Bennington and the State of Vermont.

Overall, visibility from Route 7 will be extremely limited. Potential views are limited to locations immediately west and south of the array. Potential views would be heavily filtered by buffer vegetation and visibility is not expected during leaf-on times of year. Route 7 is a four-lane expressway near the Project, the speed limit is posted at 55 miles per hour, and travelers will be negotiating the Route 7 / Route 279 interchange. Prominent views are towards the Bennington Monument, Welcome Center and Mount Anthony. It is not anticipated that the Project will be noticeable to the public from Route 7.

2. VT Route 279

Vermont Route 279, also known as the Bennington Bypass, is a regional east-west transportation route that begins at the New York state line west of Bennington and loops north around downtown Bennington to an intersection with Vermont Route 9 east of downtown Bennington. Near the Project site, it is configured as a two- to four-lane expressway with a major grade-separated interchange with US Route 7, which includes the Bennington Welcome Center. Southeast of the Project, beyond the interchange, Route 279 transitions to a three-lane highway as it bypasses downtown Bennington. There are a mix of land uses adjacent to VT Route 279, including highway commercial, residential, agricultural, public/institutional, and utility infrastructure, which are interspersed between forested areas. With exception to the Vermont Bennington Welcome Center, surrounding land uses are not accessible directly from Route 279. Views of the surrounding landscape are largely buffered by mature vegetation along Route 279, although when approaching from New York, views into the Bennington valley are oriented to the east along the roadway.

The 2004 SRI identifies two western gateway views located west of the Project site on US Route 279, which are both located on the Overview Map of Scenic Resources (CS-BW-24 at 42). “Route 279 traverses a shoulder of Whipstock Hill near the Town’s western border. As the highway clears the hill, a beautiful view of the Green Mountains serves as a very well-defined gateway. Further along, the road begins to drop toward the Route 67A intersection, with a view framed between Harwood Hill and the Bennington Battle Monument” (CS-BW-24 at 21). At this second location, where the road drops toward the Route 67A intersection, a view towards the Project site is possible for eastbound travelers (see Appendix B, Viewpoint 46).

Based on analysis from Viewpoint 46, visibility of the Project array is expected to be screened by the mature vegetated buffer retained between the Project and Route 7. It should be noted that other development does stand out in the environment, visible from Viewpoint 46, including commercial development along Route 67A, the Route 7 and Route 279 interchange, the Bennington Welcome Center, Mt. Anthony Union Middle School, and Route 279 and associated bridges crossing Route 279 as it proceeds east. Continuing east on Route 279 up to the interchange with Route 7, there are few locations that offer open views towards the northeast. At any location where views do exist, visibility of the Project will be screened by the buffer vegetation retained west and south of the Project.

When viewed from areas along Route 279 that lie south and southeast of the Project, motorists are not generally oriented towards the Project except where Route 279 westbound overlaps with US Route 7 northbound immediately southeast of the Project. Due to intervening vegetation and landform, the Project array is not expected to have visibility from this area (see Appendix B, Viewpoints 34 through 38). However, travelers moving westbound would have visibility of the proposed distribution line and structures as they proceed along Willow Road and onto the Project site (see Exhibit CS-BW-11). The view would be similar to that of the distribution line along Orchard Road in the southwest quadrant of the interchange, as Orchard Road parallels Route 7 southbound in a similar fashion. Views of the distribution line from Route 279 would be backgrounded, and at some locations, substantially screened by mature vegetation along Willow Road. The configuration of the proposed distribution line and structures will be identical to distribution lines along roads throughout Bennington and the State of Vermont.

Other areas of VT Route 279 further to the southeast are not expected to have significant visibility of the Project due to intervening landform and vegetation.

3. Bennington Welcome Center

Constructed in 2013, the Bennington Welcome Center (“Welcome Center”) services southwestern Vermont and visitors traveling along US Route 7, VT Route 279, and VT Route 9.³ Based on the limited information available on the Vermont Information Centers Division website and the 2007 Bennington Regional Plan, the primary purpose of the Welcome Center is to provide information on area attractions to passing motorists (see Exhibit CS-BW-79 at 71).

The Welcome Center is located within the Route 7 and Route 279 interchange, and can only be accessed by those roads at the interchange. Two parking areas are provided, one for semi-trailers and one for passenger vehicles, both of which are located northeast of the Welcome Center buildings. Visitors to the Welcome Center must first navigate the looping access roads that encircle the site, and then approach the Welcome Center building from the parking area towards the southwest. Views from the Welcome Center and associated patios are generally oriented to the southwest, where Mount Anthony and the Bennington Battle Monument are the main scenic attraction. Views toward the Project area to the north and northeast are not particularly emphasized, and visitors would typically only be looking in the Project direction either incidentally or when returning to the parking area (see Appendix B, Viewpoint 45).

To better understand visibility from the Welcome Center, a photographic simulation of the proposed Project was prepared from this viewpoint (see Appendix C – Simulation 1). Based on analysis of the simulation, which involves creating a 3-Dimensional model of the Project elements and tree clearing, the Project array is expected to be screened from the Welcome Center by the vegetated buffer that would remain along the south side of the Project. There would be visibility of several of the proposed distribution structures as they proceed along Willow Road and into the Project site. These structures would be visible where they proceed up the

³ <http://informationcenter.vermont.gov/centers/bennington>



landform, and would appear somewhat similar to distribution structures that parallel Orchard Road in the southwest quadrant of the interchange, as well as along other public roadways in the area and throughout Vermont. There would be an observable change in the tree line, but due to the mature and understory vegetation that would remain, the view to the northeast would remain similar to the existing conditions.

4. Willow Road, Hewitt Drive and East Road

A three-phase roadside distribution line extension along Willow Road, Hewitt Drive, and across East Road would be installed and operated by GMP, which would connect power from the Project to the existing distribution system that runs along East Road (see Exhibit CS-BW-11). These are local roads that provide access to the Project parcel and residential properties, and Hewitt Drive acts mostly as a connection between Willow Road and East Road.

Currently, a single-phase distribution line exists along the eastern portion Willow Road (Appendix B, Viewpoints 16 through 19), and a three-phase distribution line exists along East Road (Appendix B, Viewpoints 12 and 13), but there is no distribution line along the western portion of Willow Road (Appendix B, Viewpoints 20 through 28) or Hewitt Drive (Appendix B, Viewpoints 14 and 15).

As described earlier in this report, several of the structures proposed along the western portion of Willow Road would be visible from Route 7 and Route 279, and these would appear somewhat similar to existing distribution structures that parallel Orchard Road in the southwest quadrant of the Route 7/Route 279 interchange, as well as three-phase distribution lines along other public roadways in the area and throughout Vermont.

To better understand the visibility of a new distribution line along Hewitt Drive, a photographic simulation of the proposed Project was prepared from Viewpoint 14 (see Appendix C – Simulation 3). Based on analysis of the simulation, which involves creating a 3-Dimensional model of the distribution line as shown in Exhibit CS-BW-11, the proposed distribution structures would appear similar to distribution structures that parallel East Road, as well as along other public roadways in the area and throughout Vermont. There would likely be an observable change in the adjacent vegetation to maintain safe clearance, but this would also appear similar to distribution line maintenance practices elsewhere in the area and throughout Vermont.

5. Other Surrounding Roads and Public Areas

Several other areas were investigated during field investigation that were noted as having potential visibility on the GIS viewshed maps. Areas investigated included Bank Street (Appendix B, Viewpoint 47), the view from the Bennington Battle Monument (Appendix B, Viewpoint 50), Apple Hill Road, Route 67A, and other locations within 2 miles of the Project. From these locations, views toward the Project were so minimal as to not be readily noticeable, or were screened by intervening vegetation, small hedgerows, buildings and other elements in the view.

6. Private Properties

There are several private residences that may have potential visibility of the Project. These include two houses at the southern extent of Russet Drive are located approximately 315 feet north of the northern border of the Project site, several houses located approximately 530 feet or more northeast of the Project site along Apple Hill Road, and one residence located approximately 705 feet east of the Project site at the southern extent of Apple Hill Road. Two other residences are located approximately 450 feet or greater to the west of the Project site.

Based on field observations during leaf-off conditions, the residence located north of the Project and accessed by Russet Drive (see Appendix B, Viewpoints 6 through 8) and a few residences to the northeast accessed by Apple Hill Road (see Appendix B, Viewpoints 9 through 11) would potentially have visibility of the Project

elements. Views from the house immediately north of the Project (along Russet Drive) would be possible through the wooded buffer due to deciduous understory vegetation and elevation of the residence relative to the Project array. Views from the residences to the northeast (along Apple Hill Road) would potentially be possible due to the elevation of the residences relative to the Project array, although much of the array if not most, may be screened by the drop in elevation.

Because the landform between the Apple Hill Road residences and the Project site becomes lower in elevation in the southwest direction, the Project array would low on the horizon and below any views of Mount Anthony and the Bennington Battle Monument to the southwest.

To better understand the potential visibility of the Project from the residences along Apple Hill Road, a photographic simulation of the proposed Project was prepared from Viewpoint 44 on the old apple orchard property that lies immediately east of the Project (see Appendix C, Simulation 2). Access to the abutting residential properties themselves was not given by the land owners. Based on analysis of this simulation, which involves creating a 3-Dimensional model of the Project elements and tree clearing, the Project array is expected to be very low on the horizon when seen from the residences to the northeast of the Project. There would be an observable change in the existing vegetation at the Project site, which would be cleared. This clearing would create or expand existing views to Mount Anthony, the Bennington Battle Monument and the Bennington valley to the southwest.

There would also potentially be views of the Project from the Southern Vermont College property, which is located more than 2 miles south of the Project area (see Appendix B, Viewpoints 51 through 56 and Appendix D, Cross Section 1). Together, the Everett mansion and nearby lookouts currently offer visibility of most of the development in the valley, including the Route 7 corridor, residential and commercial development, and an existing solar array located off of Shields Drive (Maple Leaf Solar, see PUC Docket No. 16-002-NMP). Based on the cross-section analysis, the proposed array would likewise potentially be visible in the landscape among these other existing developments. However, the distance, angle of view, and context would significantly limit visibility and the Project would not generally be noticeable.

The Mount Anthony Country Club (“Country Club”) and associated golf course would also potentially have visibility of the Project (see Appendix B, Viewpoints 47 through 49 and Appendix D, Cross Sections 2 and 3). This is due to the clearing associated with the golf course itself, which opens views to the valley, hills and mountains to the northwest, north and northeast. Based on field investigations, the Project is not likely to be significantly visible from the dining patio outside the Country Club’s main building (Viewpoint 48), but would potentially be visible from the southern fairways on the property. The southern fairways are located up the hill, and other development in the Bennington valley are currently visible from the fairways, including residential and commercial uses and the Route 7 and Route 279 corridors (Viewpoint 49).

7. Suitability of Colors and Materials for the Project

The Project materials and colors would be dark black photovoltaic panels, metal array frames, metal fence posts and fence mesh, and the power wooden poles and metal conductors. Other similar materials currently exist in the nearby area, including the existing metal conductors and wooden poles of the GMP and VELCO transmission lines that cross Route 7 and Apple Hill Road north of the Project site. Metal materials such as roofs and street lights are located around or near the Project, and other solar installations are visible from nearby roadways. Additionally, the Project is located near agricultural, residential and municipal uses, which



has previously been recognized as compatible with larger solar electric generation facilities.⁴ For these reasons, the Project's colors and materials are considered compatible with the surroundings.

8. Impact on Open Space

Act 250 and Section 248 do not clearly define what is meant by the term "open space." The *2007 Bennington Regional Plan* adopted May 17, 2007 ("Regional Plan", see Exhibit CS-BW-79) also does not clearly define open space. The United States Environmental Protection Agency Region 1: New England answers "What is Open Space/Green Space" as; "Open space is any open piece of land that is undeveloped (has no buildings or other built structures **and is accessible to the public.**"⁵ (emphasis added)

The *2010 Bennington Town Plan* adopted October 11, 2010 ("Town Plan", see Exhibit CS-BW-81) includes description for a Public Open Space District, which is generally described as public parks, properties, and wetlands within the town:

The purpose of the district is to recognize the existence of the major community open spaces and to provide for their continuation. (Exhibit CS-BW-81 at 27)

The Town Plan also references the *Bennington Park and Open Space Plan (2009)* ("Open Space Plan", see Exhibit CS-BW-49) where parks, recreation facilities, and open space resources were inventoried. No other language defining open space were found in the Town Plan. The Open Space Plan broadly refers to various types of land such as forests, rivers, streams, ponds, recreational resources, natural corridors, protected land, open fields, and wooded hillsides (Exhibit CS-BW-49 at 1). In the section on types of park and open space areas, the Open Space Plan describes, community parks, neighborhood parks, school recreational facilities, special use parks, trails and greenways, water resources, and conserved open space (Exhibit CS-BW-49 at 2-4). Additionally, the Bennington Park and Open Space Inventory Map 1 (Exhibit CS-BW-49 at 11) does not identify the Project parcel as within a park or open space area.

The Project site is not identified as open space in either the Town Plan or Open Space Plan. Even if it were, then it should be noted that the Project site is located in an area that is not readily accessible to the general public (in fact it is posted with no trespassing signs) and is sited adjacent to a busy interchange. The Project is within the context of a landscape characterized by the nearby vehicular traffic associated with the Route 7 and Route 279 corridors, and the nearby existing transmission lines, all of which include materials that are considered compatible with the proposed Project. Further, the Project will be decommissioned and the site restored after 25 years, and therefore any impacts are temporary. Given that the site does not appear to be considered open space, is not readily accessible to or used by the public, will be decommissioned, and visibility of the Project would be highly limited due to the vegetated buffers that would remain to the south, west and north of the Project, the average person would not experience a loss of open space as a result of the Project.

9. Summary of Potential Adverse Impacts

This review of potential aesthetic impacts found that the proposed Project is significantly screened from the nearest public roads in the study area, in particular from US Route 7, VT Route 279, and the Bennington Welcome Center. The colors and materials of visible elements of the Project would be comparable with nearby

⁴ The Public Utility Commission has previously recognized that a 2.2 MW solar electric generation facility "... is compatible with nearby land uses, which includes residential, municipal, industrial, commercial, and agricultural uses." Petition of Cross Pollination, Inc. PUC Docket No. 7645 at p. 5

⁵ <https://www3.epa.gov/region1/eco/uep/openspace.html>

development and utility infrastructure, and the impact on open space would be considered highly limited. Although the Project will have some limited visibility from nearby private properties, the site is not located in a prominent location and the retained vegetation around the Project would prevent visibility from public areas. For these reasons, the Project would not result in an adverse impact to the aesthetics and scenic and natural beauty of the area. However, because of the contentious nature of the Project, we have provided an analysis of the Project under the three factors of the second part of the Quechee Test, as follows.



E. Quechee Test Part II

i. Community Standards

Although Section 248 does not require local permitting of projects seeking a Certificate of Public Good, local plans and regulations are reviewed under the second part of the *Quechee* analysis (described in Section II of this Report) where it has been determined that a project may have a potential adverse visual impact. Under *Quechee*, this involves an assessment as to whether or not a project violates a clear, written community standard intended to preserve the aesthetics or scenic beauty of the area. The Public Utility Commission has previously concluded that “[i]n order for a provision to be considered a clear, written community standard, it must be ‘intended to preserve the aesthetics or scenic beauty of the area’ where the proposed project is located and must apply to specific resources in the proposed project area” (*Petition of Georgia Mountain Community Wind, LLC*, Docket No. 7508, Order of Vt. Pub. Serv. Bd. Jun. 11, 2010 at 52). There, the Commission clarified that “The general scenic resource protection policies contained in these documents are not focused on a particular scenic resource and, in any case, do not offer specific guidance or measures to protect that resource. Therefore, we conclude that the regional and town plans do not set forth any clear, written community standards” (*Id.* at 53). More recently, the Commission has further clarified that any such standard must expressly “designate the [project] parcel as a scenic resource worthy of protection.” *Petition of Rutland Renewable Energy, LLC*, Docket No. 8188, Order of 3/11/15 at 85-86.

For the Chelsea Solar Project, available local and regional planning documents were reviewed to determine if the Project would violate a clear written community standard. As per the Commission’s order entered May 17, 2018, “The Chelsea Solar Project has a vested right to the plans and documents that were in effect at the time of its initial filing on June 19, 2014.” These plans and documents include: *The Regional Plan: Bennington County, Vermont*, Adopted May 17, 2007 (“Regional Plan”, see Exhibit CS-BW-79); the *2009 Bennington Regional Energy Plan*, September 2009 (“Regional Energy Plan”, see Exhibit CS-BW-80); the *2010 Bennington Town Plan*, adopted October 11, 2010 (“Town Plan”, see Exhibit CS-BW-81); the *Bennington, Vermont Park and Open Space Plan* prepared February, 2009 (“Open Space Plan”, see Exhibit CS-BW-49); the *Town of Bennington, Vermont Scenic Resource Inventory*, prepared December 2004 (“SRI 2004”, see Exhibit CS-BW-24); the *Bennington Municipal Energy Plan*, prepared July 2012 (“Municipal Energy Plan” see Exhibit CS-BW-88); and the *Town of Bennington, Vermont Land Use & Development Regulations*, adopted February 23, 2004 and last amended June 12, 2006 (“LUDR 2006”, see Exhibit CS-BW-27). Some language of these plans pertaining to aesthetics or the Project site is as follows:

1. Regional Plans

The Regional Plan was reviewed to assess Project effects per the policies and goals of the larger area. The Regional Plan includes discussions on scenic resources and recognizes the importance scenic quality has to the region:

(T)he natural appearance of the region’s landscape is fundamental to its rural character and appeal. As such, it is clear that scenery is a very real economic asset. People are drawn to this area by the beauty of the hillsides, mountains, rivers, fields, and the traditional townscapes that are complemented by this natural landscape. These scenic values should be protected.

(Exhibit CS-BW-79 at 45)

Section 6.6 Unique Natural Features and Scenic Resources, under Chapter VI continues to discuss how scenic resources can be protected, however promotes individual towns to conduct scenic resource inventories and the development of bylaws to protect scenic resources.

Scenic resources are often taken for granted until they are compromised or threatened. With assistance from the BCRC, several towns in the region have recently completed scenic resource inventories. Once identified, a town could utilize one of the following measures to protect scenic resources:

- purchase of scenic lands,
- scenic easements or purchase of development rights,
- consideration of scenic impacts of public investment activities such as utility poles, street lights, and cleared power line rights-of-way,
- public education, and
- regulation through zoning, subdivision regulations, and the Act 250 review process.

The BCRC has developed several model bylaws to help communities protect scenic mountainsides and ridgelines.

(Exhibit CS-BW-79 at 45)

Policies and Actions in Chapter VI include:

12. New construction on visually prominent shorelines, hillsides, or ridges should include provisions for siting and screening buildings to protect important scenic values. Towns in the Bennington region are strongly encouraged to adopt appropriate ordinances to ensure that scenic values, including the natural appearance of view sheds and ridgelines, are protected adequately.
22. The BCRC should prepare background information and model regulations to be used by municipalities to support the protection of agricultural lands, scenic uplands, and other important open space areas. The BCRC has worked with the Town of Bennington to develop such provisions, which have been adopted as permanent amendments to the Town's Land Use and Development Regulations.

(Exhibit CS-BW-79 at 48-49)

In Chapter IX, the Regional Plan also lists a select number of scenic roads within the region,

Scenic Roads:

The scenic roadways that wind through Bennington County are a fundamentally important element of the region's valued rural character. Wherever possible, these roads should be preserved in their present state; care should be taken to maintain their existing dimensions, surface, and roadside vegetation. It is possible for municipalities to formally designate local scenic roads and adopt ordinances to protect their character. Residential developments in areas served by scenic roads should be planned to minimize heavy use of such roads and subsequent demands for improvement.

Following is a partial list of particularly scenic roads in the region that can, and should, be refined by towns...

Bennington: Carpenter Hill Road, South Stream Road, Vermont Route 9



(Exhibit CS-BW-79 at 48-49)

The scenic roads identified in the Regional Plan within Bennington would not have visibility of the Project.

As is often true of Regional Plans, encouragement is offered for the constituent towns to review their own needs and desires, and there are rarely any specific guidelines for scenic quality control. The Bennington Regional Plan recognizes the importance of scenic quality for the area, but it does not designate specific scenic resources or provide standards for how to protect or preserve scenic quality of the area. The Regional Plan does not contain specific language that would constitute a clear written community standard that the proposed Project violates.

In addition, the Bennington County Regional Commission prepared the Bennington Regional Energy Plan, September 2009. The Regional Energy Plan discusses several energy related topics, including energy for residential, commercial and transportation uses. It discusses renewable energy sources, such as solar, biomass, wind, hydroelectric, biofuels, and geothermal. The Regional Energy Plan includes a single reference to aesthetic or scenic quality, pertaining specifically to aesthetic concerns regarding the height of industrial wind turbines on ridgelines.

2. Town Plans

The Bennington Town Plan clearly recognizes scenic quality as an important resource of the town:

The scenic quality of the landscape is one of Bennington's most important assets. The visual appearance of the town's natural and built environment, and the quality of life that it represents, is important to residents, tourists, businesses, and to future economic development... The scenic quality of a landscape can be affected, positively or negatively, by change. A number of landscape features are particularly sensitive to change, among them views across open fields, prominent ridge lines or hillsides, historical buildings and districts and gateways to those districts, and scenes that include important contracting elements such as water."

(Exhibit CS-BW-81 at 41)

Protection of scenic resources is incorporated into several goals listed in Chapter 1, A Vision for Bennington's Future. As well, the development of renewable energy sources is also a town goal.

1.2 Town Goals

2. ...Development in rural areas shall respect the need to protect the town's natural resources and scenic landscapes.

3. Recognize the importance of significant natural, scenic, and historic resources. Make use of public investment, regulation, and creative development techniques to protect open spaces, natural and fragile areas, scenic views, and historic sites, structures, and districts that are significant to the community.

Support appropriate utilization of local natural resources for economic and renewable energy development while ensuring that any resource extraction is accomplished in an environmentally sensitive manner.

7. Promote the safe and efficient use of energy and utilization of renewable energy resources.

Support efforts to develop renewable energy facilities, a smart grid, and other technologies that will help the area meet a significant share of its energy needs.

(Exhibit CS-BW-81 at 2-3)

Chapter 3, Land Use identifies the Project site as being located in the Rural Conservation land use district.

Rural Conservation Districts are located in valley areas outside the Urban Growth Area which have retained their rural and open space character...

Specific design standards shall apply to new development in the Rural Conservation Districts in recognition of the existence of a concentration of agriculture and forest lands and to protect the extraordinary scenic resources such lands and uses provide... Development in this area cannot be sited in prominently visible locations on hillsides or ridgelines, shall utilize earth tone colors and non-reflective materials on exterior surfaces of all structures, and must minimize clearing of natural vegetation.

(Exhibit CS-BW-81 at 25-26)

Language within Chapter 4, Natural, Scenic, and Historical Resources, directly addresses scenic resources within Bennington.

Many individual factors come together to create Bennington's special visual landscapes. These "scenic elements" reflect both characteristics that are unique to Bennington and certain features that are widely recognized as adding visual interest to a landscape. The town's Scenic Resource Inventory (December 2004) discusses each of these elements in detail: open fields, mountains, water, distant views, gateways, scenic roads and public places, historical sites and districts, and the Bennington Battle Monument...

...The town's land use plan and regulations are designed to reinforce the scenic quality of the landscape by focusing development in historical village centers and preserving the rural character of the outlying countryside. Special regulations also have been adopted that preserve scenic resources by requiring aesthetically sensitive design of subdivisions and commercial buildings. In addition, zoning regulations establish very specific standards and review procedures for new and altered buildings in the town's designated historic design review district.

Nonregulatory tools also can be used to protect identified scenic resources. The town should work with conservation organizations such as the Vermont Land Trust to acquire properties, or conservation or scenic easements to properties, that have particular scenic significance to the community. Local and state designated scenic roads, such as Route 9, the "Molly Stark Byway" can help provide funding and impetus for preserving and promoting scenic roadway corridors.

Special attention should be given to visual gateways: points of transition along a public highway where it is evident that the traveler is arriving at a unique place. Gateways are located at entry points to the historical downtown and at places along rural highways where significant visual elements of the town's landscape first appear. These features can be improved through effective planning of adjacent land uses and integration of site features such as landscaping and careful placement of historic district signs.



Recent interest in development of renewable energy resources raises a number of important issues. Commercial-scale wind turbines will be highly visible and should be located only in locations approved by the community. Biomass (wood) heating and electric generation will involve significant tree harvesting and may include plants with smokestacks and visible plumes of steam; the environmental and scenic impacts of those operations must be considered. Finally, small-scale hydroelectric generation can impact stream water quality, fish habitat, and aesthetics; restricting development to existing dam sites (Paper Mill Village) will greatly minimize any such concerns.

(Exhibit CS-BW-81 at 41-42)

4.5 Natural, Scenic, and Historical Resources Policies and Recommendations

11. Development of renewable energy resources should consider both the need for locally produced energy and the need to protect natural and scenic resources.
12. New development shall be sensitive to scenic resources and shall be planned in a manner that preserves the visual integrity of critical scenic elements and visual qualities.
13. The town should work with conservation organizations to permanently protect important viewsheds through purchase of properties or scenic easements. The town should continue to participate in and support local and state scenic roads programs.
14. Protect and enhance existing visual gateways to the community and downtown, and seek opportunities to establish new gateways at appropriate locations.

(Exhibit CS-BW-81 at 45)

20. The town should develop an inventory of irreplaceable natural, scenic, and historical resources - "Landmarks" - that must be protected. These landmarks include, but are not limited to, features such as the Bennington Battle Monument, the covered bridges, the Hotel Putnam, Mount Anthony, and similar features that are of fundamental importance in establishing Bennington's unique character.

(Exhibit CS-BW-81 at 46)

Continuing from Chapter 4, the Town Plan cover topics including Housing, Transportation, Community Facilities and Services, and Energy. Sensitivity to scenic resources is repeated throughout the remainder of the Town Plan. However, scenic resources are not formally listed and the Town Plan does not offer specific guidelines on how to protect scenic resources. It does however, reference the 2004 *Scenic Resource Inventory*.

The Town has recognized the value of its scenic resources, dedicating a section of the 2000 Bennington Town Plan to the subject. That document offers a general overview of the features that contribute to the community's scenic character and identifies specific landscape elements that are of special significance. The Plan also enumerates a set of policies designed to promote scenic preservation through public and private action.

In this report we will attempt to expand upon the discussion contained in the Town Plan by providing a context for describing the Town's scenic character and by identifying the critical elements that make the local scenery unique and valuable. We will observe that the features which provide the Town with its scenic character are the same assets that have attracted settlement and economic vitality to the community

since its founding. A town-wide inventory of scenic views from public vantage points will provide specific examples of those features and the visual qualities that give special value to them.

The final section of this report will identify strategies for protection and enhancement of scenic resources. The guidelines used in the development of this report are taken largely from Vermont's Scenic Landscapes: A Guide for Growth and Protection, published in 1991 by the Vermont Agency of Natural Resources. That document acknowledges the complexity of attempting to inventory scenic resources as well as the need to integrate any such effort with effective land use planning. This report is intended to provide a solid locally-driven framework for future planning, regulation, and decision-making.

(Exhibit CS-BW-24 at 1)

The SRI 2004 begins by providing an overview of the landscape context of Bennington and then describes different elements that create the scenic landscape, described as Critical Scenic Elements. The Critical Scenic Elements are described as several categories including open fields, mountains, water, distant views, gateways, historic sites and districts, scenic roads, and the Bennington Battle Monument. The description of these categories is generalized and do not include specific lists of resources, although several scenic resources are mentioned throughout the text. The SRI 2004 continues to talk about 'Visual Qualities' or "...the particular qualities that make a view more attractive, and more important." (Exhibit CS-BW-24 at 33)

Methods for protecting scenic resources is described next. This section describes how the comprehensive plan and zoning regulations emphasize growth and development towards the center of town and talks in general terms of how to guide development outside of the town center. It provides recommendations of how lands or scenic easements can be purchased to protect scenic resources and how local designation of scenic roads can prevent alterations "that would damage their scenic character without a significant level of public review." (Exhibit CS-BW-24 at 40).

Of most importance, the SRI 2004 includes the Overview Map of Scenic Resources that identifies 16 Scenic Views, 11 Gateway Locations, 4 Scenic Roads, 3 Covered Bridges, the Molly Stark Trail Scenic Byway, and the Bennington Battle Monument. This map provides the clearest definition of designated scenic resources within Bennington, including the primary direction of scenic views. The location with the greatest potential for visibility is the second gateway when approaching Bennington from the west on Vermont Route 279. However, as described in the Evaluation of Potential Adverse Impacts, the Project is not expected to be visible from Vermont Route 279. Even if it would be visible, views would be distant, and the Town has supported other solar projects with much closer visibility from an identified gateway location, such as the southern gateway on US Route 7. Furthermore, the Project site is not specifically identified as a scenic resource nor is there guidance in protecting scenic quality of the Project site.

Within the Municipal Energy Plan, the only reference to scenic or aesthetic concerns is within the section, Commercial Wind Energy Potential, and is specifically related to commercial scale wind turbines on ridgelines. The Municipal Energy Plan expressly encourages widespread development of solar in the town of Bennington: "Given the huge amount of solar energy striking the earth's surface (the cumulative solar energy irradiating the earth in a day is equal to the energy in billions of barrels of oil), there are compelling reasons to attempt to implement solar technologies wherever possible." (Exhibit CS-BW-88 at 43)

Lastly, the Bennington Land Use & Development Regulations were reviewed. Under section 248 zoning standards are preempted. They cannot be considered a clear written community standard because of the flexibility in which zoning regulations allow town review boards to provide exemptions. For context and



clarification, these regulations were reviewed for the Project because as they are specifically referenced within the scenic resource section of the Town Plan, and they do provide an overall intent for the Rural Conservation District to allow energy facilities within the RCON.

Table 3.13 RURAL CONSERVATION (RC) DISTRICT

- (A) **Purpose:** The purpose of the Rural Conservation District is to preserve the rural character, scenic landscape and natural resources of the area while accommodating low density residential development in a manner that avoids the need for public water supply and public sewer systems.
- (B) **Allowed Uses -- with Zoning Permit:** The following uses are allowed with the approval of the Administrative Officer in accordance with Section 10.3:
- (1) Accessory Apartment (see section 5.2)
 - (2) Accessory Use/Structure (see Section 5.3)
 - (3) Agriculture
 - (4) Forestry
 - (5) Home Child Care
 - (6) Home Occupation (see Section 5.3)
 - (7) Single family dwelling
- (C) **Allowed Uses -- with DRB Approval:** The following uses are allowed with the approval of the Development Review Board in accordance with Article 6:
- (1) Accessory Use/Structure (see Section 5.3)
 - (2) Adaptive Reuse (see Section 5.4 and subsection (E))
 - (3) Agricultural Retail (see Section 5.9)
 - (4) Cemetery
 - (5) College/University (see Section E)
 - (6) Cultural Facility (see subsection (E))
 - (7) Extraction of Earth Resources (see Section 5.8)
 - (8) Golf Course (see Section 5.11)
 - (9) Kennel (see Section 5.15)
 - (10) Public Facility (see subsection (E))
 - (11) Sawmill
 - (12) Veterinary Clinic (see Section 5.15)
- (E) **Supplemental District Standards**
- (2) Additional Use Standards: In addition to other standards related to specific uses set forth in these regulations, within the RC District the following restrictions also shall apply:
 - d. Public Facilities shall be limited to public utilities (e.g., electric facilities), resource based activities associated with other municipal activities (e.g., highway maintenance facilities).
- (EXHIBIT CS-BW-27 at 53-54)

As per the allowed uses within the district, it is clear that the town anticipates and allows development within the RC District, including large scale development. In fact, even under zoning standards electrical facilities are specifically called out as an anticipated use.

In review, the Regional Plan and Town Plan provide strong encouragement to protect scenic resources, but neither of these plans specifically address the Project site or provide criteria specific to preserving the scenic quality of the site. While the SRI 2004 and LUDR 2006 Amendment provide additional criteria in which the town can evaluate impacts to scenic resources, they do not provide clear written community standards that the Project violates.

ii. Review of Project Mitigation

A mitigation plan and other mitigative measures have already been proposed for the Project. Although this review did not find the Project as revised to be adverse with respect to aesthetics, a review of the proposed mitigation measures has been conducted to determine what effect the design changes would have, and (with respect to landscape plantings) whether the proposed mitigation is effective at further reducing Project visibility from off-site locations.

1. The proposed clearing area for the Project was reduced in the amended site plan compared to the original design. Upon review of the amended plan and our field investigations during leaf-off and leaf-on conditions, we agree with the Prefiled Direct Testimony of Brad Wilson dated November 27, 2017 that the reduced clearing results in significantly increased setbacks and substantial vegetation being retained which would help to naturally screen the Project from surrounding areas. In particular, the fence line was moved away from the western and northern property lines to retain the existing vegetation, which was accomplished through a change in solar module, tilt angle, and space between rows of the array. See Exhibit CS-BW-28 and CS-BW-3 for the amended site plan and a comparison of approximate clearing boundaries between the original and amended site plans. These revisions have significantly reduced potential visibility of the Project from areas around the site.
2. A landscape mitigation plan was prepared as part of the Visual Assessment Report dated November 2017 (Exhibit CS-MK-2) and included as part of the visual assessment figures (see Exhibit CS-MK-3 – page CS-03). This mitigation plan utilizes 365 (or more) proposed trees and shrubs to further reduce offsite visibility of the Project, with the plants to be arranged based on post-construction conditions. With this in mind, the location of the plants as shown on page CS-03 are presumed subject to change, with an additional flexible number of 20-24' high evergreen trees to be planted along the northern fence line.

Proposed mitigation plantings include:

- a mix of evergreen and deciduous shrubs along the western fence line to augment existing vegetation retained between the Project and US Route 7
- a mix of evergreen and deciduous trees and shrubs extending east from the northeast corner of the array to screen views from abutting residential properties to the northeast
- large evergreen trees to screen views from abutting residential properties to the north
- evergreen trees southeast of the Project, to soften views from the south of upgrades to Willow Road, including the distribution line extension.

Based on our observations from the site (see Appendix B, Viewpoints 1 through 11) and from the surrounding area (Appendix B, Viewpoints 12 through 58), the plantings proposed by the Applicant would augment existing vegetation and landform that already substantially screen the Project. The chosen species are appropriate for the Project site, and the mix of evergreen and deciduous would help further screen the Project during leaf-on and leaf-off conditions. Locating proposed plantings after construction, including input from abutting neighbors to the north and northeast, will help ensure the most effective use of mitigation plantings. In review of proposed mitigation plantings, and considering the extremely limited visibility of the Project, proposed plantings will further increase screening of the Project.



3. A partially-opaque mesh screening material that would be affixed to the exterior of certain portions of the project fence to provide additional reduction in visibility through existing vegetation or new landscaping has also been proposed. We agree that a fence mesh would further reduce visibility of the Project elements within the fenced area. Due to the number of landscape plants proposed for the Project and the extent that these constitute reasonable mitigation, we do not feel that a mesh should be specifically required as part of the Project mitigation as the proposed plantings alone would reasonably screen the array.

Based on our experience onsite, it will be critical to locate plantings after construction has been completed. Available locations for plantings along the western edge may not support the full extent of plantings as proposed; post-construction review would allow plantings to be located where they can be most effective. Additionally, as part of CPG conditions, individual mitigation plantings are generally required to be replaced if the individual plants are in poor health or dead. For this Project, compulsory replacement of dead or dying plants throughout the life of Project may be unreasonable if the remaining plants are adequately performing the intended function, and in particular because of our conclusion that this Project is not considered adverse with respect to aesthetics of the area.

iii. Shocking or Offensive

When evaluating whether a project would offend the sensibilities of the average person, the criterion to make this assessment is related back to the first part of the Quechee Test: how the project ‘fits’ within its surroundings. An ‘average person’ is considered a disinterested or neutral party, not an affected neighbor. The threshold for a project to be shocking or offensive is generally considered high, and a project would need to be entirely inconsistent with the surrounding land uses or exceptionally out of scale with the surroundings.

The evaluation of impacts found that the Project would not be considered adverse. The average visitor to the area would not likely notice the Project array due to the vegetative buffers that would remain to the south, west and north of the Project. For the vast majority of the study area, the Project elements would not be visible from public locations. The Project site is located in an area where nearby electrical transmission and distribution infrastructure is currently visible. The Project is not sited in a prominent location, and the low profile of the Project array and slope of the site lessen visibility from areas to the northeast. In addition, a landscape mitigation plan has been prepared for the Project that would further help soften and harmonize visibility of the Project elements when seen from nearby residential properties. For these reasons, the proposed Project is not expected to offend the sensibilities of the average person.

F. Conclusion of Aesthetic Analysis

In review, the findings of this analysis conclude the overall visual impact of the Chelsea Solar Project in Bennington, Vermont would not result in ADVERSE impacts to the aesthetics of the area in which it is being proposed. Furthermore, these impacts would NOT be considered UNDUE for the following reasons:

- 1) The conformance review found that the Project did not violate a clear, written community standard intended to preserve the aesthetics or scenic beauty of the area.
- 2) Although the Project is not considered adverse, the Applicant has taken reasonable mitigation steps to mitigate the Project from previous designs, including:

- a. Reducing the proposed size and required clearing for the Project, which maintains vegetative buffers to the south, west and north.
 - b. Proposed landscape mitigation plantings would soften and harmonize incidental views of the Project when seen from the adjacent roadways, as well as from private properties to the north and northeast.
- 3) The Project would not be considered shocking or offensive.
- a. The average visitor to the area would not likely notice the Project array due to the vegetative buffers that would remain to the south, west and north of the Project.
 - b. For the vast majority of the study area, the Project elements would not be visible from public locations.
 - c. The Project site is located in an area where nearby electrical transmission and distribution infrastructure is currently visible.
 - d. The Project is not sited in a prominent location, and the low profile of the Project array and slope of the site lessen visibility from areas to the northeast.
 - e. A landscape mitigation plan has been prepared for the Project that would further help soften and harmonize visibility of the Project elements when seen from nearby areas.

In conclusion, we believe the Chelsea Solar Project meets the Quechee Test insofar as its impact on aesthetics would NOT be UNDULY ADVERSE.



G. Orderly Development

Section 248(b)(1) of Title 30 of the Vermont Statutes Annotated requires that the Vermont Public Service Board find that a proposed project will not unduly interfere with the orderly development of the region, with due consideration having been given to the recommendations of the municipal legislative bodies, and the land conservation measures contained in the plan of any affected municipality.

The PUC has issued an order that “Chelsea has a vested right to the laws that were in effect at the time it filed its complete Chelsea I petition on June 19, 2014.”⁶ At that time, the plans and studies in effect included:

- *The Regional Plan: Bennington County, Vermont*, adopted May 17, 2007 (the “Regional Plan”) (Exhibit CS-BW-79)
- *2009 Bennington Regional Energy Plan*, prepared in September 2009 (Exhibit CS-BW-80)
- *Landscape-Based Forest Stewardship: Bennington County, Vermont*, prepared in July 2012. (See Appendix E – Forest Stewardship Report Excerpts)
- *2010 Bennington Town Plan*, adopted October 11, 2010 (“Town Plan”) (Exhibit CS-BW-81)
- *Town of Bennington, Vermont Scenic Resource Inventory*, prepared December 2004 (Exhibit CS-BW-24)
- *Bennington, Vermont Park and Open Space Plan*, prepared February 2009 (Exhibit CS-BW-49)
- *Bennington Municipal Energy Plan*, prepared July 2012. (Exhibit CS-BW-88)

The following discusses the standards and land conservation measures as detailed in the Regional and Town Plans.

Regional Plan

The Regional Plan establishes the goal to “Encourage the efficient use of energy and the development of renewable energy resources” (Exhibit CS-BW-79 at 6).

Chapter 7 Land Use “directs new growth to urban and village areas and allows the type of development in rural areas that will not prove costly to municipalities nor detract from the region's rural character” (Exhibit CS-BW-79 at 51). The Project is located in the Rural Area district where “Agriculture, forestry, recreation, and other land uses that rely on the region's natural resources are appropriate uses in rural areas” (Exhibit CS-BW-79 at 56). The intent is to avoid scattered development in remote areas and promote development in and around urban and village centers.

Chapter 6 Natural Resources describes the character of eight natural resources: Water Resources, Clean Air, Agricultural and Forest Lands, Earth Resources, Wildlife Resources, Unique Natural Features, and Scenic and Recreational Resources. Based on the descriptive and mapped information presented, the Project site does not involve areas identified as having important natural resources.

Chapter 8 Energy establishes the region’s goal to “encourage the development of renewable energy resources” (Exhibit CS-BW-79 at 65). “Solar radiation” is recognized as a possible fuel to generate electricity, but its potential contribution is not discussed.

The *2009 Bennington Regional Energy Plan* (“Energy Plan”) identifies solar energy as an important source of renewable energy but does not anticipate photovoltaic (“pv”) panels will be used for grid-scale projects.

Although not likely a cost-effective use of solar energy in New England, commercial generation of electricity using either large scale arrays of pv panels, or, more likely, parabolic mirrors that concentrate

⁶ Order Granting Chelsea’s Request that the Vested Rights Doctrine Apply to the Review of the Petition, Case No. 17-5024-PET, order of 05/17/2018.

sunlight to produce heat – which in turn produces steam to drive turbines, show significant promise in locations with reliable long-duration sunlight. Electricity from such facilities can offset coal, natural gas, and nuclear fuel use, adding valuable years to the generating capacity of those energy sources, and can be used to produce other alternative fuels such as hydrogen and related products (Exhibit CS-BW-80 at 36).

The *Landscape-Based Forest Stewardship* (2012) report (“Stewardship Report”) seeks “to provide information and tools needed by public and private sector decision-makers to ‘keep forests as forests’” (Stewardship Report at 4). It locates the Project site in the Rural Valley landscape (Stewardship Report at 9, Map 4-2), where it is not part of the county’s extensive conserved lands (Stewardship Report at 13, Map 4-3). “The lowest ranked habitat blocks in the rural valley landscape zone are those closest to developed areas (especially in Bennington) and in areas where the forested blocks are relatively small (Shaftsbury and Rupert)” (Stewardship Report at 17-18). The Project site is not identified as important for its:

- individual forest ecological resource element (Stewardship Report at 19, Map 5-3)
- water resources area (Stewardship Report at 21, Map 5-4)
- recreational resource area (Stewardship Report at 23, Map 5-5)
- sensitive soil constraints (Stewardship Report at 26, Map 6-1)
- highly productive soils (Stewardship Report at 31, Map 6-2)
- conservation lands (Stewardship Report at 33, Map 7-1)

The Stewardship Report concludes with “a map of overall ‘forest stewardship potential’ that aggregates many of those values for forests located on private lands (Map 9-1). It is interesting to observe that while the “high potential” stewardship lands are found in all landscape types, many are found in rural valleys and near population centers where competing uses may pose challenges for conservation and forest management” (Stewardship Report at 45-46). The Project site is not identified as an area of high forest stewardship potential.

The above review demonstrates that the Project is compatible with the orderly growth of the region. On a four-level forest habitat blocks priority ranking, it the site appears to be one step above the lowest rank (Stewardship Report at 17, Map 5-2).

Town Plan

The Town Plan “provides the basis for many town regulations, it should be consulted by developers interested in investing in the town and by local and state regulatory boards when reviewing land use applications” (Exhibit CS-BW-81 at vi).

Chapter 3 Land Use plan “seeks to direct growth and development in a way that reinforces the existing settlement pattern of a concentration of mixed uses within the Urban Growth Area surrounded by open rural countryside” (Exhibit CS-BW-81 at 16). The objectives of the land use plan include:

- Encourage relatively dense and diverse development within the Urban Growth Area and ensure that there is a clear demarcation between urban and rural areas at the Urban Growth Boundary.
- Maintain the rural character of the outlying countryside and support agriculture, forestry, and recreational uses in these areas as well as carefully planned low-density residential uses.
- Plan development in a manner that avoids commercial or residential sprawl and which is consistent with the efficient provision of municipal services and the protection of important natural, scenic, and historic resources.

The Project site is an isolated pocket with limited access highways to the south and west adjacent to the Urban Growth Area, an agricultural field to the north and east, and forest to the southeast. There are residential areas to the north and east, and the project will not generate sufficient traffic to disturb these areas. It is not the type of concentrated commercial, residential, cultural, or institutional development envisioned for the Urban Growth Area, since it does not create social interactions or traffic. Locating the Project in this isolated pocket preserves the Urban Growth Area’s integrity without adding to sprawl or fragmentation.



The Project site is in the Rural Conservation district, the purpose of which “is to preserve this distinctive rural character while accommodating low density residential development in a manner that avoids the need for public water supply and public sewer systems” (Exhibit CS-BW-81 at 26). Contemplating proposals for residential or similar low-density development, the land use plan states:

Specific design standards shall apply to new development in the Rural Conservation Districts in recognition of the existence of a concentration of agricultural and forest lands and to protect the extraordinary scenic resources such lands and uses provide. Any use in the Rural Conservation District, including single-family dwellings, shall require approval under those regulatory guidelines. Development in this area cannot be sited in prominently visible locations on hillsides or ridgelines, shall utilize earth tone colors and non-reflective materials on exterior surfaces of all structures, and must minimize clearing of natural vegetation.

The referenced regulatory guidelines appear to be the *Amendment to the Bennington Land Use and Development Regulations: Addition of Scenic Resource Review Criteria to Rural Conservation (RC) District*, adopted by Select Board October 23, 2006. These guidelines are directed toward siting single-family houses and focus on minimizing the visual impact from public roads and lands. The general principles are in open fields to build near forest edges, minimize the size of new forest openings, a structure is not to be seen rising above the height of land serving as the visual backdrop to the site. These standards have been discussed above in the evaluation of visual effects.

Chapter 4 Natural, Scenic, and Historical Resources seeks to encourage the “wise use and conservation of these resources [in order to] ensure that future generations will benefit from them” (Exhibit CS-BW-81 at 34). The Project site is not identified as important for its:

- Agricultural land (Exhibit CS-BW-81 at 35, Map 4-1)
- Forest land (not mapped)
- Water resources (Exhibit CS-BW-81 at 47, Map 4-2)
- Floodplains and fluvial erosion hazard (Exhibit CS-BW-81 at 48, Map 4-2(A))
- Air quality (not mapped)
- Fish and wildlife (Exhibit CS-BW-81 at 49, Map 4-3)
- Unique natural areas (not mapped, not among specific listed areas)
- Scenic resources (not mapped)
- Historic resources (not mapped, not among specific listed areas)

In the discussion of air quality, the Town Plan states that “Economic development in Bennington has emphasized “clean industries” that do not emit dangerous amounts of air pollution and this approach should be continued” (Exhibit CS-BW-81 at 39).

Chapter 8 Energy identifies photovoltaic solar cells as potential renewable energy resources for Bennington. It establishes as a goal to “create and support programs and facilities that provide stable, affordable, and clean renewable sources of energy” (Exhibit CS-BW-81 at 96). However, specific guidelines for solar energy projects are not provided.

The Town has prepared several studies and plans that consider specific resources in greater detail than presented in the Town Plan. The SRI 2004 does not identify any scenic resources associated with the Project site (Exhibit CS-BW-24 at 45, Overview Map of Scenic Resources). The *Park and Open Space Plan* (2009) does

not identify any open space or recreation resources associated with the Project site (Exhibit CS-BW-49 at 11, Map 1).

The *Bennington Municipal Energy Plan* (2012) (“Municipal Energy Plan”) focuses on conservation strategies for each planning sector. However, the plan also recognizes the potential for utility scale solar energy projects.

In addition, there is significant potential for utility scale production of electricity from solar energy. Solar energy technologies are proven and continually being refined. They also have a relatively minor environmental impact and produce energy by capturing ambient sunlight (environmental costs and energy expenditures are primarily associated with production of solar panels and other equipment). Given the huge amount of solar energy striking the earth’s surface (the cumulative solar energy irradiating the earth in a day is equal to the energy in billions of barrels of oil), there are compelling reasons to attempt to implement solar technologies wherever possible (Municipal Energy Plan at 43).

The Municipal Energy Plan does not provide guidelines for identifying potential sites for utility scale solar energy development; it does not prohibit or allow solar projects in the RCON district. However, upon review of Map 3-2 Land Use Plan (Exhibit CS-BW-81 at 31), it appears that as much as fifty percent of Bennington is falls within this land use district. By excluding solar projects from the RCON district, it would be difficult, if not impossible, to achieve goals for utility scale solar projects as stated in the Municipal Energy Plan.

Based on this review, the Project is compatible with the Town Plan and the supporting studies and does not conflict with provisions of these plans.

Overall, a main focus of the Regional and Town Plans and supporting studies is to direct and ensure orderly development. In particular they identify areas that have specific limitations or otherwise are unsuitable for development. The Project does not conflict with any identified limitations. The plans also include statements supporting the use of renewable energy. Based upon review of these planning documents, the Chelsea Solar Project **will not** interfere with the orderly development of the region.



H. References

Bennington County Regional Commission. 2012. *Landscape-Based Forest Stewardship: Bennington County Vermont*. (Prepared July 2012).