

Exhibit CS-BW-76

Docket 8302

Partial MOU with DPS 02.09.15

**STATE OF VERMONT PUBLIC
SERVICE BOARD**

Petition of Chelsea Solar LLC, pursuant to 30	)	
V.S.A. § 248, for a Certificate of Public Good	)	
authorizing the installation and operation of a	)	
2.0 MW solar electric generation facility to be	)	
located at 500 Apple Hill Road in Bennington,	)	
Vermont	)	Docket No.8302

PARTIAL MEMORANDUM OF UNDERSTANDING

This Partial Memorandum of Understanding (“MOU”) dated as of February 9, 2015 is between Chelsea Solar LLC (“Petitioner”) and the Vermont Public Service Department (the “Department”) with respect to the installation and operation of a 2.0MW solar electric generation facility located at 500 Apple Hill Road in Bennington, Vermont (the “Project”). Petitioner and the Department are also referred to collectively herein as the “Stipulating Parties” and individually as a “Party.”

The Parties have discussed various aspects of the Project and have resolved all outstanding issues between them related to the solar array portion of the Project, and as such wish to memorialize their mutual understandings in this Partial Memorandum of Understanding and stipulate as to certain conditions, as set forth below. This is the first of two anticipated Memoranda to cover the Project. The Second MOU will address that portion of the Project involving the Green Mountain Power distribution line extension and placement of utility poles on the Project site and south and east of the Project. While the parties agree to attempt to reach a second MOU concerning the GMP line extension after the appropriate studies have been completed, they expressly reserve the right to litigate any issues that may arise concerning the location or construction of the GMP distribution line notwithstanding anything contained herein.

1. All prefiled direct and supplemental testimony and exhibits of Chelsea Solar, this MOU and the Petition shall be admitted without objection as evidence in this proceeding, along with the Petitioner’s initial and supplemental responses to the first and second set of discovery requests propounded by the Department. (Attached hereto as Exhibits A-C). The Hearing Officer and the Board may rely on this evidence to issue findings of fact, conclusions of law and an Order and a Certificate of Public Good consistent with the Proposal for Decision to be submitted within 15 days of the filing of the second MOU.

2. The Stipulating Parties agree that the filings described in paragraph 1 above, as modified by the terms and conditions of this Stipulation comply with each of the section 248 criteria; provided that the Department's support thereof shall be subject to its obligations under Title 30 of the Vermont Statutes Annotated.
3. Given that Chelsea Solar has represented that its Project will comply with the National Electric Code ("NEC"), the Department recommends that the Board approve Chelsea Solar's request for a waiver of PSB Rule 3.500 with respect to compliance with the National Electrical Safety Code ("NESC").
4. Should the Board waive PSB Rule 3.500 with respect to compliance with the NESC, the Department supports the project so long as Chelsea Solar asserts the project complies with the NEC. Should the Board not approve Chelsea Solar's request to waive Rule 3.500 with respect to compliance with the NESC, Chelsea Solar agrees that its Project will comply with the NESC along with all of the applicable Section 248 criteria.
5. The Stipulating Parties further agree that the CPG should be conditioned as follows:
 - a) The central equipment skid referenced on Page 4, Line 12 of the Pre-filed Testimony of Brad Wilson will be a dark grey color.
 - b) The Project must comply with the applicable requirements of the NEC.
 - c) Petitioner agrees to maintain, for the life of the Project, the Supplemental Mitigation Plan described in Exhibit SUP-MK-1 (Figure 2) to the Supplemental Pre-filed Testimony of Mark Kane. The parties hereto agree that if Petitioner adheres to and maintains the Supplemental Mitigation Plan for the life of the Project, the Project will comply with the section 248(b)(5) criteria pertaining to aesthetics, and visual impacts
 - d) In order to implement the Supplemental Mitigation Plan, the parties agree that as a condition to any CPG issued for this project, the Board ~~to~~ should conduct a post-construction site visit with the Petitioner's landscape architect and the Department's aesthetic expert to determine what areas along the northern boundary of the Project require additional screening (if any) to satisfy the intent of the Supplemental Mitigation Plan. Following that site visit, Petitioner shall file a recommendation on additional screening and the Department shall file a response indicating their concurrence or their alternative recommendation.
 - e) Petitioner shall define the limits of clearing of any vegetation outside the actual array on construction diagrams to be submitted as an attachment to the Proposal for Decision in this matter and shall verify that those limits are known and understood by personnel

involved in the construction and maintenance of the project. Petitioner acknowledges that this is particularly critical for the southwestern boundary of the project.

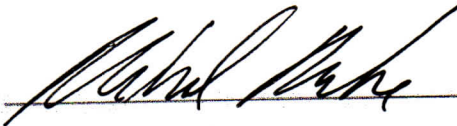
6. This Stipulation represents an agreement among the Stipulating Parties with respect to the Project. It may be modified only upon the mutual written agreement by the Stipulating Parties, and is subject to any necessary Board approvals.
7. The Stipulating Parties agree that this Stipulation shall not be construed by any party or tribunal as having precedential impact on any future proceeding involving the Stipulating Parties, except as necessary to implement this Stipulation or to enforce an order of the Board resulting from this Stipulation.
8. The Stipulating Parties agree that this Stipulation should not be construed by any party or tribunal as having precedential or any other impact on any other proceedings involving a different project, different subject matter, or other parties. With respect to such proceedings, the Stipulating Parties reserve the right to advocate positions that differ from those set forth in this Stipulation.
9. The Stipulating Parties agree that, should the Board fail to approve this Stipulation in all material aspects, the Stipulating Parties' agreements set forth herein shall terminate and the Stipulating Parties shall have the right to submit filings in this docket and the Stipulating Parties' agreements in this Stipulation shall not be construed by any party or tribunal as having precedential impact on any testimony or positions that may be advanced in these proceedings. Any disputes arising under this Stipulation shall be resolved by the Board under Vermont law.

[SIGNATURE PAGES TO FOLLOW]

Docket 8302
Memorandum of Understanding

Date this February 9, 2015

CHELSEA SOLAR LLC

By: 

VERMONT PUBLIC SERVICE DEPARTMENT

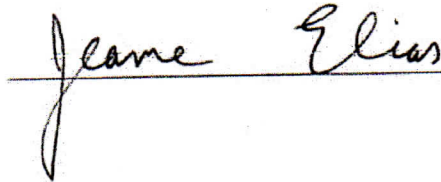
By: 

EXHIBIT A

CHELSEA SOLAR

c/o ALLCO RENEWABLE ENERGY LIMITED
14 Wall Street - 20th Floor
New York, NY 10005
mjmelone@allcous.com

November 14, 2014

Ms. Jeanne Elias
Special Counsel
Vermont Department of Public Service
112 State Street
Montpelier, VT 05620

Re: Chelsea Solar LLC 248 Petition (Docket No. 8302) – Petitioner’s Responses to the Vermont Department of Public Service’s First Discovery Requests

Dear Ms. Elias:

Enclosed please find for your review our responses to the Vermont Department of Public Service’s *First Set of Information Requests on Petitioner* dated as of November 6, 2014.

Please feel free to contact me with any questions.

Kind Regards,

A handwritten signature in black ink, appearing to read 'M Melone', is positioned above the printed name.

Michael Melone

CC: Service List

**STATE OF VERMONT
PUBLIC SERVICE BOARD**

Docket No.8302

Petition of Chelsea Solar LLC, pursuant)
to 30 V.S.A. § 248, for a certificate of public)
good authorizing the installation and)
operation of a 2.0 MW solar electric generation)
facility located at 500 Apple Hill Road in)
Bennington, Vermont)

CERTIFICATE OF SERVICE

I, Michael Melone, certify that on November 14, 2014, I forwarded copies of
Chelsea Solar LLC's Responses to the Vermont Department of Public Service's First Set of
Information Requests on Petitioner by e-mail and FedEx to the following parties:

Mrs. Susan Hudson, Clerk
Vermont Public Service Board
112 State Street, Drawer 20
Montpelier, VT 05620-2701

20Office of Planning and Legal Affairs
Agency of Natural Resources
Attention: Mr. Donald Einhorn
1 National Life Drive – Davis Building, 2nd Fl.
Montpelier, VT 05620-3901

Vermont Department of Public Service
Attention: Jeanne Elias
112 State Street, Drawer 20
Montpelier, VT 05620

Dated this 14th day of November, 2014.

By:



Michael Melone

QUESTION 1: “During the site visit it was not possible to visualize or assess the footprint of the project because the boundaries were not marked. Given that the site is heavily wooded this made it problematic to assess the visual impacts of the project. The Department requests that Chelsea Solar make arrangements to stake out the corners of the project site with orange flagging on stakes. Ideally this should be done as soon as possible so the Department can revisit the site before snowfall. We request that the flagging specifically indicate the corners of fencing. We further request that Chelsea Solar mark separately the extent of any clearing beyond the fence.”

RESPONSE 1: Because the site is heavily wooded, physically staking the requested boundaries would be overly burdensome from a cost and time perspective. This is because lines of sight would have to be cleared between the boundary corners for survey equipment to function correctly. The total area that would need to be cleared would be approximately 1 acre. On November 6, we suggested a better alternative to the Department that would not require partial site clearing, which is that we would revisit the site with the Department and bring along a geo-referenced site plan on an iPad tablet. This would allow us to walk around the site and track our current position with a GPS locator directly on top of the project site plan.

QUESTION 2: “Site plans appear to indicate that clearing of trees is planned up to the boundary between Route 7 and the project site. This boundary is marked by a fence. It appeared that the project setback would vary along Route 7. Part of the Route 7 right-of-way is currently cleared (grass), and part is wooded. Please identify the setbacks and depth of trees that would remain between the highway r.o.w. and the project at three points: the northwest corner, the southwest corner and a mid-point in between. This should refer to the tree trunks not overhead canopy. Describe the size and types of trees or shrubs that would remain between the project and the roadway.”

RESPONSE 2: The distance between the western Project property boundary and the eastern boundary of the northbound Highway 7 road surface (including onramp G) is 90 feet at the southwestern Project boundary corner and 120 feet at the northwestern Project boundary corner. A midpoint between these two markers would have a distance of 105 feet. This distance has been professionally surveyed (see Exhibit CS-ECOS-2).

The distance between the property boundary and Highway 7 is not entirely wooded. At the northwestern property corner, the width of wooded vegetation in the right-of-way is approximately 65 feet. At the southwestern corner, a width of approximately 40 feet. At a mid-point, approximately 50 feet.

The specific species that make up the mix of vegetation currently covering the Project property can be found beginning on the 5th page of Exhibit CS-DB-3. The sizes of specific plants on the property have not been surveyed.

QUESTION 3: “Provide a vegetation management plan. Describe what, if any vegetation would be allowed within the cleared areas identified on the site plans. Would, for example the honeysuckle which is abundant on much of the site be retained? Would the cleared areas beyond the fence be kept as meadow or would natural vegetation be managed in some fashion?”

RESPONSE 3: All areas cleared for the project will be re-seeded with a low/slow growing native seed mix. The resulting groundcover would be considered meadow in nature. This groundcover will be maintained with periodic mowing to keep it at a height of 18 inches or less. None of the existing vegetation is suitable to remain after site clearing; for example honeysuckle grows far too tall and would cast shade upon the Project’s solar modules, reducing electric output. For uniformity, ease of maintenance, and aesthetics, the cleared areas outside of the Project fenceline will be seeded with the same mix as that used inside the Project fenceline.

QUESTION 4: “Please describe the new southern access road. How long would it extend from the end of the maintained portion of Willow Road the project? Will any re-grading of the road be required?”

RESPONSE 4: This access road will be used for Project clearing and construction only and will not be used at all after Project construction is completed. Therefore, it will be treated as a temporary access drive only and will not require a permanent road surface to be installed. A non-paved drive already exists from the end of the paved section of Willow Road to the southern Project property boundary. This drive runs approximately 1,600 feet and is suitable for temporary construction access in its current condition.

Once onto the Project property, a 30 foot wide corridor will be cleared to connect the southern boundary of the Project with the location where Willow Road abuts the southern property boundary. This corridor will run a length of approximately 830 feet and is detailed on Sheet 6 of 8 of Exhibit CS-ECOS-4. Grading of this corridor is not anticipated, as it is only meant for temporary construction access and the GMP interconnection line.

QUESTION 5: “How many new power poles [sic] needed along the southern access road and where would they be located? Provide diagram.”

RESPONSE 5: We have enclosed an interconnection diagram as Exhibit A that details the upgrades that GMP will be installing in order to provide electrical service to the Project property. These upgrades are designed, installed, owned, and maintained by GMP. There will be 9 new three-phase poles along Hewett Drive, 9 new three-phase poles along Willow Road and 11 new three-phase poles on the Project property. Also, 3 existing single phase poles along Willow Drive will be removed and replaced with three-phase poles.

QUESTION 6: “How wide an area would need to be cleared to accommodate the power poles along the access road?”

RESPONSE 6: A 30-foot wide corridor will be cleared on the Project property to accommodate the temporary construction access road and interconnection power poles. This corridor is approximately 1,100 feet in length. Along Willow Road and Hewett Drive, GMP requires a 10-foot wide clear right-of-way for the three-phase line. Some tree-trimming may be necessary along Willow Road and Hewett Drive, but GMP does not anticipate the need for tree removal because the utility r.o.w’s along these roads are already mostly clear.

QUESTION 7: “Please indicate the extent of clearing resulting from regarding, power lines and the road on a site plan.”

RESPONSE 7: The clearing boundaries are marked on Sheet 6 of 8 of Exhibit CS-ECOS-4.

QUESTION 8: “Please provide a photographic simulation of the project from the vantage point of Route 7.”

RESPONSE 8: Mark Kane, our consultant for Project aesthetic qualities, was not able to generate a response to this question in the timeframe given. He has committed to providing a response that we can send to DPS by Friday, November 21.

QUESTION 9: “Please provide a photographic simulation of the project viewed from the front/entry area of the Welcome Center (or adjacent picnic area). Please include in the simulation: 1) the extent of the solar panels, 2) the extent of cleared areas, 3) the inverter structure, 4) the location of poles and roads. If a simulation is not possible, explain why. Alternately, indicate the project using shading superimposed on a photograph, including the four project components noted above.”

RESPONSE 9: See Response 8, above.

QUESTION 10: “Provide a photographic simulation of the project or illustrate the extent of the project and clearing on a photograph from Route 279 at approximately Viewpoint 1 (see Visual Assessment Report on page 16). Will the inverter structure be visible from this vantage point?”

RESPONSE 10: See Response 8, above.

QUESTION 11: “Provide a photograph taken toward the project site from the Bennington Battle Monument (standard 35mm digital/50mm film equivalent). Indicate on a copy of the photograph an outline of the area that the project would occupy.”

RESPONSE 11: The battle monument is closed until mid-April, so this photograph cannot be provided. However, the battle monument only has four viewing windows, one pointed towards a bearing of 70°, one pointed towards a bearing of 160°, one pointed towards a bearing of 250°, and one pointed towards a bearing of 340°. The project site is located at a distance of 1.5 miles from the monument at a bearing of 20°, which is almost exactly directly between the fields of view of the two windows at 340° and 70°. Therefore, visibility of the Project site from the battle monument would be minimal.

QUESTION 12: “The removal of trees from the project site may create increased noise impacts given that the project is sited on a wooded tract of land between Route 7 and a residential development that may currently be providing noise buffering. Please provide noise monitoring data for current noise levels at project boundaries and at nearest residences for daytime and nighttime.”

RESPONSE 12: A desktop level road noise analysis was performed using publicly available noise data. A copy of this analysis is included with this response as Exhibit B. The analysis concludes that:

“Based on the TNM model results, peak hour traffic noise levels in the area are typical of that of quiet rural and suburban areas. Peak hour traffic sound levels do not exceed 60 dBA with or after development of the proposed project at any of the modeled residences. The removal of the tree barrier associated with the proposed project would not result in substantial increases in noise for all of the receptors, except for the nearest one, Receptor 2. However, while the increase in peak hour traffic noise may be noticeable on a comparative basis at Receptor 2, it is still well below the Town of Bennington criteria, and is still within the normal sound levels associated with rural areas. Therefore, surrounding residential units would not be exposed to unusual or unacceptable traffic noise levels in excess of criteria, and no substantial noise effect is anticipated to be caused by the removal of trees from the proposed project site.”

QUESTION 13: “Provide noise modeling to simulate the impact of the tree removal on noise levels at project boundaries and at nearest residences for daytime and nighttime.”

RESPONSE 13: See Response 12, above. Also please table 3 included in the noise analysis.

QUESTION 14: “Please describe whether current noise levels at the project site comply with the World Health Organization Noise Guidelines as they have been applied by the Vermont Public Service Board in Section 248 proceedings.”

RESPONSE 14: See Response 12, above. Specifically Table 3 on page 5 of the Road Noise Analysis. Project construction would not create decibel levels out of compliance with the WHO noise guidelines.

QUESTION 15: “Please describe whether current noise levels at the project site comply with existing noise regulations in local or regional law that would be applicable to the project?”

RESPONSE 15: See Response 12, above. Noise levels are well within local regulations, both pre- and post- Project construction.

QUESTION 16: “Please describe what mitigation Chelsea Solar would propose should monitoring and modeling show that the removal of trees at the project site will increase the noise levels from below the WHO guidelines to above them.”

RESPONSE 16: See Response 12, above. Noise levels would not be significantly increased as a result of Project construction, so no mitigation measures are proposed.

QUESTION 17: “The removal of trees from the project site may create increase wind impacts given that the project is sited on a wooded tract of land and the tree cover may be deflecting winds. Please provide wind monitoring data for current wind levels at the project boundaries and at the nearest residences.”

RESPONSE 17: Some high-level wind speed information does exist publicly, such as the NREL map enclosed herein as Exhibit C that shows that the site location is in one of the least windy areas in the State of Vermont. Wind speed data at the property level requested is not publicly available and Petitioner does not possess any such wind data.

QUESTION 18: “Provide wind modeling to simulate the impact of the tree removal on wind levels at project boundaries and at the nearest residences.”

RESPONSE 18: This request is unduly burdensome due to the high cost and long lead times involved with installing and operating the location-specific met towers that would be necessary to collect the requested data. After preliminary consultations with several anemometry experts, we have been told the towers would need to collect data for a number of months to get a useable baseline. That timeline would put us past the Project’s required commercial operation date.

Moreover, (i) as explained in question 17, the Project site exists in one of the least windy areas in the State of Vermont and (ii) we do not believe that any facts exist or reasoning supports the concern that removal of 15 acres of wooded vegetation on an away-facing slope would create an excessive or even measureable increase in the wind speeds at the nearest residences.

QUESTION 19: “Please describe what mitigation Chelsea Solar would propose should monitoring and modeling show that the removal of trees at the project site will increase the wind levels at the project boundaries and at the nearest residences.”

RESPONSE 19: See Response to Question 18 above. No mitigation measures are being proposed because we do not believe there is an impact to be mitigated.

Person Responsible for Response: Brad Wilson

Title: Project Developer

Date: November 14, 2014

EXHIBIT A

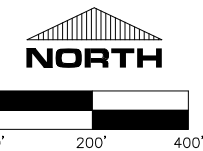
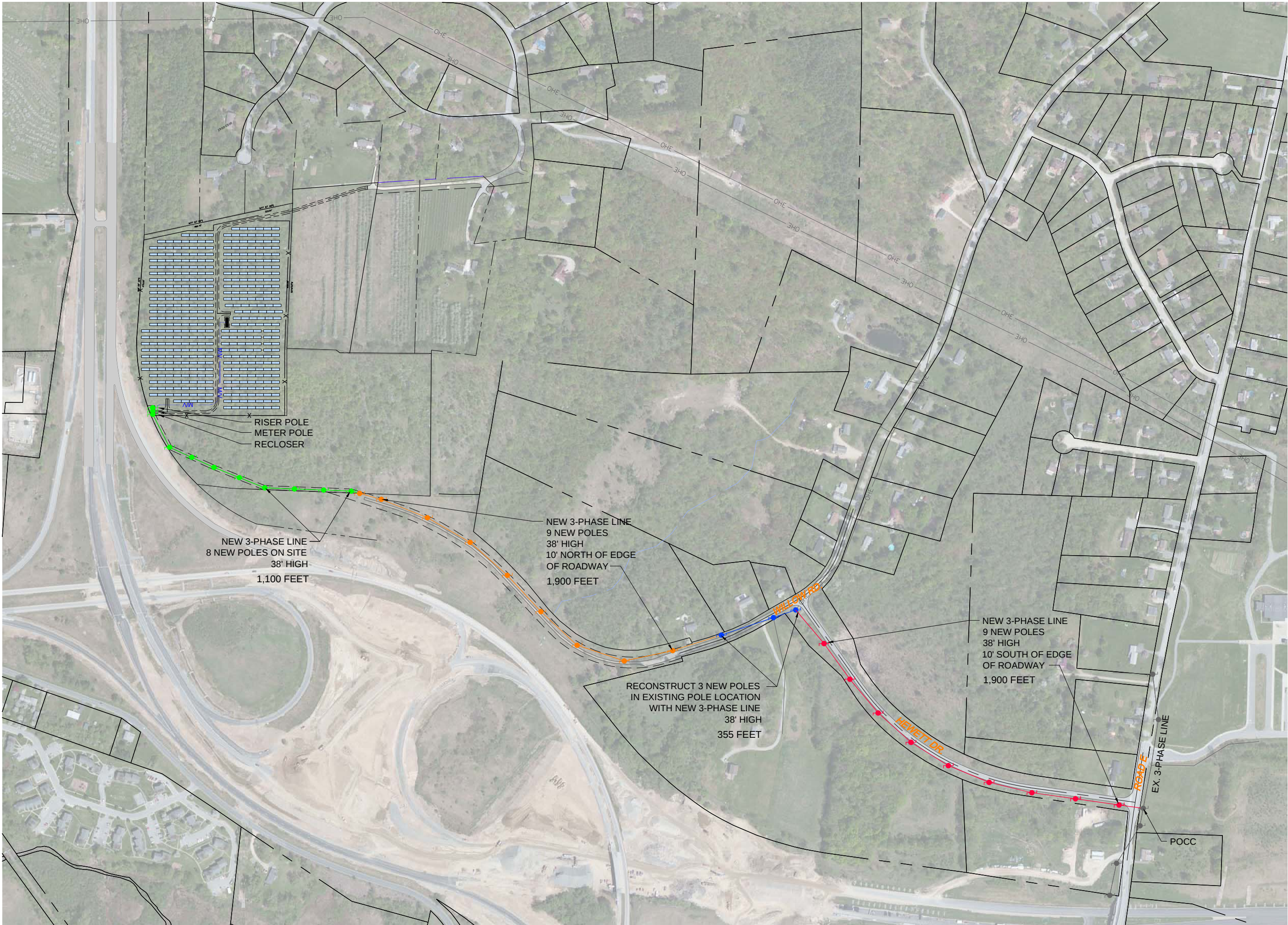


EXHIBIT B

Ecos Energy LLC

Chelsea Solar Facility Project

Noise Study



October 2014

E n v i r o n m e n t a l S c i e n t i s t s P l a n n e r s E n g i n e e r s

NOISE STUDY

CHELSEA SOLAR FACILITY PROJECT BENNINGTON, VERMONT

Prepared for:

Ecos Energy LLC
222 South 9th Street, Suite 1600
Minneapolis, Minnesota 55402

Prepared by

Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, California 93003

October 2014

This report prepared on 50% recycled paper with 50% post-consumer content.

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Appendix A Transportation Noise Model Files



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CHELSEA SOLAR FACILITY PROJECT TOWN OF BENNINGTON NOISE STUDY

This report is an analysis of the potential noise impacts of the proposed 27.3 acre Chelsea Solar Facility located northeast of the US Route 7 and Vermont Highway 279 intersection, and adjacent to US Route 7, in Bennington, Vermont. The report has been prepared by Rincon Consultants, Inc. under contract to Ecos Energy, LLC. The purpose of this study is to assess existing noise related to traffic on US Route 7 and analyze whether or not the loss of forested area associated with development of the proposed solar facility would result in substantial increases in traffic noise levels at nearby residences.

PROJECT DESCRIPTION

The site is located at 500 Apple Hill Road in the northern part of the Town of Bennington, Vermont. Apple Hill Road is the primary access route to the project site. The site currently is covered with trees and forestland, and is adjacent to single-family residences to the north, northeast, and east. US Route 7 is adjacent to the west boundary of the project site, and to the southwest is a cloverleaf intersection consisting of a ramp that merges onto northbound US Route 7 from Vermont Highway 279.

The proposed project would include a 2 MW solar electric generation system. The project will use 72 cell 305-watt solar modules. The modules will be attached to a fixed mounting system composed of steel and aluminum support pieces. The mounting structure will be arranged in east to west rows with panels placed high in landscape on each row. The panels will be tilted toward the south, away from the nearest residences, which are located to the north. No noise sources are associated with the project besides occasional maintenance vehicles.

SETTING

Overview of Sound Measurement

Noise level (or volume) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels to be consistent with that of human hearing response, which is most sensitive to frequencies around 4,000 Hertz (about the highest note on a piano) and less sensitive to low frequencies (below 100 Hertz).

Sound pressure level is measured on a logarithmic scale with the 0 dBA level based on the lowest detectable sound pressure level that people can perceive (an audible sound that is not zero sound pressure level). Based on the logarithmic scale, a doubling of sound energy is equivalent to an increase of 3 dBA, and a sound that is 10 dBA less than the ambient sound level has no effect on ambient noise. Because of the nature of the human ear, a sound must be about 10 dBA greater than the reference sound to be judged as twice as loud. In general, a 3 dBA change in community noise levels is noticeable, while 1-2 dBA changes generally are not perceived. Quiet suburban

areas typically have noise levels in the range of 40-50 dBA, while arterial streets are in the 50-60+ dBA range. Normal conversational levels are in the 60-65 dBA range, and ambient noise levels greater than 65 dBA can interrupt conversations.

Noise levels typically attenuate (or drop off) at a rate of 6 dBA per doubling of distance from point sources (such as industrial machinery). Noise from lightly traveled roads typically attenuates at a rate of about 4.5 dBA per doubling of distance. Noise from heavily traveled roads typically attenuates at about 3 dBA per doubling of distance; while noise from a point source typically attenuates at about 6 dBA per doubling of distance. Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA. Standard new residential construction typically provides a reduction of exterior-to-interior noise levels of 25 dBA or more (Federal Transit Administration, May 2006).

In addition to the actual instantaneous measurement of sound levels, the duration of sound is important since sounds that occur over a long period of time are more likely to be an annoyance or cause direct physical damage or environmental stress. One of the most frequently used noise metrics that considers both duration and sound power level is the equivalent noise level (Leq). The Leq is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period of time (essentially, the average noise level). Typically, Leq is summed over a one-hour period. For other time periods, the duration is shown in brackets; for example, a 30-minute Leq would be shown as Leq[30].

Sensitive Receptors

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with those uses. Noise sensitive land uses typically include residences, hospitals, schools, guest lodging, libraries, and parks. Noise sensitive land uses in the area are predominantly single-family residences. Local nearby residents are concerned that the removal of forested land between them and the highways will result in substantial noise level increases. The primary source of noise for these single-family residences is traffic on a ramp that merges onto northbound US Route 7 and the beginning of US Route 7 immediately adjacent to the site as it abuts the project site to the west. The sensitive receptor nearest to a freeway that may be impacted by development of the proposed project is located within approximately 400 feet of US Route 7.

Regulatory Setting

Article 24 of the Town of Bennington Book of Ordinances establishes criteria for noise control to protect public tranquility. Article 24-2G provides the General Property Line Standard for determining whether the sound from a particular source is a violation of Article 24. The sound pressure level is measured at or within the property lines of a receiving property. When a sound exceeds the dBA sound level specified in Table 1, it is a violation of Article 24.

Table 1
Town of Bennington Noise Standards by Time of Day

Receiving Property	Time of Day	
	6:00 a.m. to 10:00 p.m.	10:00 p.m. to 6:00 a.m.
Residential	60 dBA	45 dBA
Commercial/Industrial	70 dBA	55 dBA

Source: Town of Bennington Book of Ordinances. Article 24 Noise Control, Article 24-2G

The project during operations does not generate significant sound levels, so these standards are not specifically applicable to the project since the actual sources of noise are the existing highways, not the project. Nonetheless, these standards illustrate the levels at which sound levels may be considered intrusive to the normal use of a property. The sensitive receptors for this analysis are single-family homes, therefore, the criteria used herein is 60 dBA based on peak traffic hours occurring during the daytime (between 6:00 a.m. to 10:00 p.m.).

IMPACT ANALYSIS

Methodology and Significance Thresholds

Traffic noise levels were estimated using the Federal Highway Administration Traffic Noise Model (TNM) Version 2.5 (U.S. Department of Transportation, Federal Highway Administration [FHWA], April 2004) (noise modeling data sheets are provided in Appendix A). The model calculations are based on the 2012 Route Log Annual Average Daily Traffic (AADT) volume for US Route 7 and Vermont Route 279 provided by the Vermont Agency of Transportation, as shown in Table 2. Peak hour traffic volumes (PHV) were calculated using 10% of the AADT as a conservative estimate for worst-case PHV. Furthermore, it was assumed that 95% of the vehicles for each PHV were passenger vehicles travelling at the speed limit of 45 miles per hour (mph), 3% were medium-duty trucks travelling at 45 mph, and the remaining 2% were heavy-duty trucks travelling at 40 mph. Noise receptors in the TNM Model were modeled at 17 points to simulate noise conditions to existing residences north and northwest of the proposed project site, and adjacent east of US Route 7. Variances in elevation was factored into all modeled roadways, tree zones, and noise receptors at numerous points using elevation data from Google Earth and the site plans.

Table 2
2012 Estimated Peak Hour Traffic Volumes

Beginning Reference	Ending Reference	2012 AADT	Estimated Peak Hour Traffic Volume (PHV, 10% of AADT)	Passenger Vehicle (95% of PHV)	Medium Duty Truck (3% of PHV)	Heavy Duty Truck (2% of PHV)
Begin Divided Hwy (US 7)	VT 279	4,950 *	495	470	15	10
VT 279	Bennington North Exit 2 (US 7)	4,500 *	450	428	14	9
VT 67A Ramps	Route 7 Ramp A/C	2900	290	276	9	6
US 7 Ramp A/C	US 7	3700	370	352	11	7

Source: Vermont Agency of Transportation. Policy, Planning, and Intermodal Development Division. Traffic Research Unit. 2012 (Route Log) AADTs State Highways. May 2013.

* Single direction only. Data from Route Log is by segment for both directions; where divided highway was modeled with separate roadway segments, each direction estimated to carry half the total segment volume.

The existing project site is covered by trees and forested land. Several tree zones were modeled in TNM to represent the trees in the vicinity, which provide shielding and attenuation from the existing traffic noise. One central tree zone represents the project site where trees would be removed for construction of the proposed solar facility, while additional tree zones represent areas north, east, and south of the project site where existing trees would remain after project construction. The average tree height within each tree zone was estimated at 15 feet, based on a review of street-level imagery along roadways adjacent to the project site. The TNM model calculated noise levels at the 17 sensitive noise receptors under existing conditions (with all existing tree zones included), as well as under post-project construction conditions (with the project site tree zone removed to reflect removal of trees and forested land at the proposed project site after project development is completed).

TNM Noise Results

Modeled existing exterior noise levels for the 17 receptor locations north and northwest of the proposed project site are shown in Table 3. As shown, modeled existing exterior noise levels during peak hour traffic are estimated to range from an Leq of 29.7 dBA to 46.1 dBA. Modeled exterior noise levels with the modified tree zone (post-project) range from 32.7 dBA to 46.1 dBA. As shown in Table 3, the daytime 60 dBA noise criteria (based on Article 24 of the Town of Bennington Book of Ordinances) for residences during peak hour traffic would not be exceeded at any receptor after development of the proposed project. Furthermore, the increase in noise level associated with removal of the existing trees would not exceed 3 dBA at any receptor with the exception of Receptor 2. As described above, a 3 dBA change in community noise levels is generally noticeable, while 1-2 dBA changes generally are not perceived by the average person. The change in peak hour sound levels at Receptor 2 could be noticeable, but the traffic noise levels at this location are relatively quiet. As previously noted, sound levels in quiet suburban areas are typically in the 40 dBA range, while in quiet rural areas, are in the range of 30 dBA or more. The projected post-project sound levels during peak hour traffic of an Leq of 33 dBA is still

well within the typical range for rural areas. Please note that traffic sound levels during off-peak hours will be less than for peak hour.

Table 3
TNM Noise Modeling Results

Receptor	Existing dBA with tree zone	Exceed 60 dBA Standard?	Future dBA with modified tree zone	Exceed 60 dBA Standard?	Difference in dBA
1	41	No	42.1	No	1.1
2	29.7	No	33.3	No	3.6
3	37.1	No	38.7	No	1.6
4	39.8	No	40.9	No	1.1
5	39.3	No	39.3	No	0
6	39	No	39	No	0
7	46.1	No	46.1	No	0
8	37.2	No	38.2	No	1
9	45.7	No	45.7	No	0
10	42.1	No	42.1	No	0
11	37.7	No	37.7	No	0
12	38.9	No	38.9	No	0
13	33.9	No	33.9	No	0
14	33.9	No	33.9	No	0
15	32.7	No	32.7	No	0
16	37.3	No	38.2	No	0.9
17	38.5	No	39.4	No	0.9

CONCLUSIONS

Based on the TNM model results, peak hour traffic noise levels in the area are typical of that of quiet rural and suburban areas. Peak hour traffic sound levels do not exceed 60 dBA with or after development of the proposed project at any of the modeled residences. The removal of the tree barrier associated with the proposed project would not result in substantial increases in noise for all of the receptors, except for the nearest one, Receptor 2. However, while the increase in peak hour traffic noise may be noticeable on a comparative basis at Receptor 2, it is still well below the Town of Bennington criteria, and is still within the normal sound levels associated with rural areas. Therefore, surrounding residential units would not be exposed to unusual or unacceptable traffic noise levels in excess of criteria and no substantial noise effect is anticipated to be caused by the removal of trees from the proposed project site.

REFERENCES

Federal Transit Administration, Office of Planning and Environment. Transit Noise and Vibration Impact Assessment. May 2006.

Town of Bennington. Book of Ordinances. Article 24 Noise Control, 24-2G General Property Line Standard.

<http://www.townofbennington.org/TOB/wpcontent/uploads/2012/11/BookofOrdinances.pdf>

Vermont Agency of Transportation. Policy, Planning and Intermodal Development Division. Traffic Research Unit. 2012(Route Log) AADTs State Highways. May 2013

http://vtransplanning.vermont.gov/sites/aot_policy/files/Final%20Web.pdf

Appendix A

Transportation Noise Model Tables

Route	Begin Reference	End Reference	TNM Roadway	AADT	AADT (one way)	peak hour traffic (10%)	auto (95%)	med (3%)	heavy (2%)
US 7	Begin Divided Highway Route 7	VT 279	Begin Divided Highway to Exit 2, 7 to 279 before split	9900	4950	495	470	15	10
US 7	VT 279	Bennington North Exit 2	Southbound 7 to 279	9000	4500	450	428	14	9
VT 279	VT 67A RAMPS	US 7 Ramp A/C	279 EB to 7 SB	2900	2900	290	276	9	6
VT 279	US 7 RAMP A/C	US 7	to 279 after split	3700	3700	370	352	11	7

Vermont Agency of Transportation. Policy, Planning and Intermodal Development Division. Traffic Research Unit. 2012(Route Log) AADTs State Highways. May 2013
http://vtransplanning.vermont.gov/sites/aot_policy/files/Final%20Web.pdf

INPUT: TRAFFIC FOR LAeq1h Volumes
Chelsea Solar Facility

Rincon Consultants, Inc.
<Analysis By?>

9 October 2014
TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes

PROJECT/CONTRACT:

Chelsea Solar Facility

RUN:

Site with Existing Tree Zone

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Begin Divided Hlghway to Exit 2	point55	55	470	45	15	45	10	40	0	0	0	0
	point56	56	470	45	15	45	10	40	0	0	0	0
	point57	57	470	45	15	45	10	40	0	0	0	0
	point58	58	470	45	15	45	10	40	0	0	0	0
	point59	59	470	45	15	45	10	40	0	0	0	0
	point60	60	470	45	15	45	10	40	0	0	0	0
	point61	61	470	45	15	45	10	40	0	0	0	0
	point62	62	470	45	15	45	10	40	0	0	0	0
	point63	63	470	45	15	45	10	40	0	0	0	0
	point64	64	470	45	15	45	10	40	0	0	0	0
	point65	65	470	45	15	45	10	40	0	0	0	0
	point66	66	470	45	15	45	10	40	0	0	0	0
	point67	67	470	45	15	45	10	40	0	0	0	0
	point68	104	470	45	15	45	10	40	0	0	0	0
	point103	103	470	45	15	45	10	40	0	0	0	0
	point102	102	470	45	15	45	10	40	0	0	0	0
	point101	101	470	45	15	45	10	40	0	0	0	0
	point100	100	470	45	15	45	10	40	0	0	0	0
	point99	99	470	45	15	45	10	40	0	0	0	0
	point106	106	470	45	15	45	10	40	0	0	0	0
	point105	107	470	45	15	45	10	40	0	0	0	0
	point110	110	470	45	15	45	10	40	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes
Chelsea Solar Facility

	point107	70	470	45	15	45	10	40	0	0	0	0
	point71	71	470	45	15	45	10	40	0	0	0	0
	point72	72	470	45	15	45	10	40	0	0	0	0
	point73	73	470	45	15	45	10	40	0	0	0	0
	point74	74										
7 to 279 before split	point75	75	470	45	15	45	10	40	0	0	0	0
	point76	76	470	45	15	45	10	40	0	0	0	0
	point77	77	470	45	15	45	10	40	0	0	0	0
	point78	78	470	45	15	45	10	40	0	0	0	0
	point79	79	470	45	15	45	10	40	0	0	0	0
	point80	80										
to 279 after split	point81	81	352	45	11	45	7	40	0	0	0	0
	point82	82	352	45	11	45	7	40	0	0	0	0
	point83	83	352	45	11	45	7	40	0	0	0	0
	point84	84	352	45	11	45	7	40	0	0	0	0
	point85	85										
Southbound 7 to 279	point86	86	428	45	14	45	9	40	0	0	0	0
	point87	87	428	45	14	45	9	40	0	0	0	0
	point88	88	428	45	14	45	9	40	0	0	0	0
	point89	89	428	45	14	45	9	40	0	0	0	0
	point90	90	428	45	14	45	9	40	0	0	0	0
	point91	91	428	45	14	45	9	40	0	0	0	0
	point92	92	428	45	14	45	9	40	0	0	0	0
	point93	93	428	45	14	45	9	40	0	0	0	0
	point94	94										
279 EB to 7 SB	point119	119	276	45	9	45	6	40	0	0	0	0
	point120	120	276	45	9	45	6	40	0	0	0	0
	point121	121	276	45	9	45	6	40	0	0	0	0
	point122	122	276	45	9	45	6	40	0	0	0	0
	point123	123	276	45	9	45	6	40	0	0	0	0
	point124	124	276	45	9	45	6	40	0	0	0	0
	point125	125	276	45	9	45	6	40	0	0	0	0
	point126	126	276	45	9	45	6	40	0	0	0	0
	point127	127	276	45	9	45	6	40	0	0	0	0
	point128	128	276	45	9	45	6	40	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes

Chelsea Solar Facility											
	point129	129	276	45	9	45	6	40	0	0	0
	point130	130	276	45	9	45	6	40	0	0	0
	point131	131	276	45	9	45	6	40	0	0	0
	point132	132	276	45	9	45	6	40	0	0	0
	point133	133	276	45	9	45	6	40	0	0	0
	point134	134	276	45	9	45	6	40	0	0	0
	point135	135	276	45	9	45	6	40	0	0	0
	point136	136									

INPUT: TREE ZONES

Chelsea Solar Facility

Rincon Consultants, Inc.
<Analysis By?>

9 October 2014
TNM 2.5

INPUT: TREE ZONES

PROJECT/CONTRACT:

Chelsea Solar Facility

RUN:

Site with Existing Tree Zone

Tree Zone		Points			
Name	Average Height ft	No.	Coordinates (ground)		
			X ft	Y ft	Z ft
Tree Zone10	15.00	225	2,120,658.8	15,592,185.0	762.00
		226	2,120,688.8	15,592,185.0	764.00
		227	2,120,736.8	15,592,326.0	778.00
		228	2,120,682.8	15,592,380.0	786.00
		229	2,120,751.8	15,592,509.0	792.00
		230	2,120,850.5	15,592,461.0	786.00
		231	2,120,769.5	15,592,598.0	797.00
		232	2,120,865.5	15,592,733.0	808.00
		233	2,120,757.8	15,592,766.0	810.00
		237	2,120,673.8	15,592,700.0	808.00
		238	2,120,584.0	15,592,766.0	809.00
		239	2,120,278.5	15,592,733.0	783.00
		240	2,120,296.5	15,592,101.0	753.00
		290	2,120,318.0	15,591,842.0	734.00
		361	2,120,344.2	15,591,844.0	734.00
		400	2,120,572.8	15,591,868.0	750.00
		362	2,120,783.8	15,591,893.0	740.00
		291	2,121,014.0	15,591,923.0	764.00
		292	2,121,056.5	15,591,926.0	751.00
		293	2,121,081.0	15,592,032.0	759.00
		294	2,120,835.5	15,592,194.0	764.00
		295	2,120,703.8	15,591,958.0	742.00
		296	2,120,658.8	15,591,931.0	738.00

INPUT: TREE ZONES
Chelsea Solar Facility

		297	2,120,596.0	15,591,934.0	738.00
		298	2,120,557.0	15,591,979.0	741.00
		299	2,120,548.0	15,592,026.0	746.00
		300	2,120,581.0	15,592,110.0	755.00
Tree Zone11	15.00	250	2,120,763.8	15,590,670.0	642.00
		251	2,121,009.2	15,590,562.0	657.00
		252	2,121,114.0	15,590,520.0	668.00
		253	2,121,808.8	15,590,313.0	677.00
		255	2,121,916.5	15,590,421.0	674.00
		256	2,121,401.5	15,590,676.0	699.00
Tree Zone14	15.00	364	2,121,483.0	15,590,695.0	715.00
		301	2,121,431.5	15,590,695.0	715.00
		302	2,122,060.2	15,590,436.0	664.00
		303	2,122,440.8	15,590,083.0	659.00
		304	2,122,737.2	15,590,080.0	673.00
		305	2,122,749.0	15,590,074.0	673.00
		306	2,122,827.0	15,590,173.0	673.00
		307	2,122,827.0	15,590,272.0	666.00
		308	2,122,937.8	15,590,296.0	675.00
		309	2,123,027.8	15,590,233.0	687.00
		310	2,123,069.5	15,590,245.0	688.00
		311	2,123,078.5	15,590,248.0	689.00
		312	2,123,105.5	15,590,355.0	688.00
		313	2,123,219.2	15,590,367.0	691.00
		314	2,123,249.2	15,590,334.0	693.00
		315	2,123,324.0	15,590,400.0	698.00
		316	2,123,491.8	15,590,484.0	701.00
		317	2,123,327.0	15,590,583.0	694.00
		318	2,123,482.8	15,590,769.0	709.00
		319	2,123,476.8	15,590,885.0	709.00
		320	2,123,159.5	15,591,059.0	700.00
		321	2,122,752.0	15,591,068.0	729.00
		322	2,122,719.2	15,591,008.0	722.00
		323	2,122,815.0	15,590,885.0	691.00
		324	2,122,332.8	15,590,391.0	654.00

INPUT: TREE ZONES
Chelsea Solar Facility

		325	2,122,240.0	15,590,442.0	657.00
		326	2,122,482.5	15,590,823.0	707.00
		327	2,122,725.2	15,591,143.0	740.00
		328	2,122,973.8	15,591,248.0	744.00
		329	2,123,153.5	15,591,221.0	722.00
		330	2,123,336.0	15,591,050.0	706.00
		331	2,123,506.8	15,591,011.0	712.00
		332	2,123,455.8	15,591,113.0	709.00
		333	2,123,569.8	15,591,155.0	715.00
		334	2,123,698.5	15,591,104.0	722.00
		335	2,123,737.2	15,591,200.0	724.00
		336	2,123,638.5	15,591,239.0	718.00
		337	2,123,692.5	15,591,350.0	722.00
		338	2,123,569.8	15,591,428.0	717.00
		339	2,123,458.8	15,591,526.0	741.00
		340	2,123,554.8	15,591,721.0	748.00
		341	2,122,605.2	15,592,170.0	790.00
		342	2,122,413.8	15,592,311.0	812.00
		343	2,122,138.2	15,592,374.0	819.00
		344	2,122,114.2	15,592,188.0	810.00
		345	2,122,042.2	15,592,131.0	804.00
		346	2,122,183.0	15,591,996.0	792.00
		347	2,122,258.0	15,592,026.0	792.00
		348	2,122,234.0	15,592,143.0	806.00
		349	2,122,356.8	15,592,185.0	803.00
		350	2,122,437.8	15,592,032.0	781.00
		351	2,122,347.8	15,591,856.0	764.00
		352	2,122,449.8	15,591,739.0	742.00
		353	2,122,368.8	15,591,616.0	732.00
		354	2,122,231.0	15,591,637.0	746.00
		355	2,122,189.0	15,591,745.0	762.00
		356	2,121,979.5	15,591,775.0	785.00
		357	2,121,946.5	15,591,565.0	776.00
		358	2,121,865.8	15,591,344.0	770.00
		359	2,121,741.8	15,591,338.0	769.00

INPUT: TREE ZONES
Chelsea Solar Facility

		363	2,121,740.8	15,591,314.0	769.00
		360	2,121,738.8	15,590,703.0	704.00
Tree Zone17	15.00	382	2,120,340.2	15,591,795.0	730.00
		394	2,120,503.2	15,591,815.0	736.00
		393	2,120,663.5	15,591,836.0	742.00
		392	2,120,847.0	15,591,863.0	750.00
		399	2,121,047.5	15,591,887.0	742.00
		398	2,121,032.0	15,591,765.0	734.00
		397	2,121,017.0	15,591,645.0	726.00
		396	2,121,002.0	15,591,528.0	712.00
		395	2,120,992.0	15,591,434.0	704.00
		384	2,120,981.8	15,591,340.0	706.00
		385	2,121,673.5	15,591,332.0	769.00
		386	2,121,668.2	15,590,754.0	704.00
		387	2,120,729.5	15,590,722.0	642.00
		388	2,120,561.0	15,590,869.0	647.00
		389	2,120,429.5	15,591,101.0	660.00
		390	2,120,350.8	15,591,361.0	678.00

INPUT: TERRAIN LINES**Chelsea Solar Facility**

Rincon Consultants, Inc.
<Analysis By?>

9 October 2014
TNM 2.5

INPUT: TERRAIN LINES**PROJECT/CONTRACT:****Chelsea Solar Facility****RUN:****Site with Existing Tree Zone**

Terrain Line		Points		
Name	No.	Coordinates (ground)		
		X	Y	Z
		ft	ft	ft
Terrain Line9	83	2,120,327.5	15,591,806.0	784.00
	79	2,120,332.5	15,591,445.0	715.00
	78	2,120,338.5	15,591,350.0	678.00
	77	2,120,422.2	15,591,083.0	660.00
	76	2,120,551.0	15,590,856.0	647.00
	84	2,120,733.5	15,590,694.0	642.00
Terrain Line10	82	2,121,694.5	15,591,343.0	769.00
	81	2,120,994.2	15,591,356.0	706.00
	80	2,121,060.8	15,591,898.0	751.00
Terrain Line11	85	2,120,339.2	15,591,809.0	732.00
	98	2,120,568.2	15,591,836.0	746.00
	86	2,120,808.2	15,591,867.0	738.00
	87	2,121,048.2	15,591,898.0	764.00
Terrain Line12	88	2,120,769.8	15,590,705.0	642.00
	89	2,121,372.0	15,590,720.0	699.00
	90	2,121,433.8	15,590,725.0	715.00
	91	2,121,685.8	15,590,730.0	704.00
	92	2,121,696.2	15,591,317.0	769.00

RESULTS: SOUND LEVELS

Chelsea Solar Facility

Rincon Consultants, Inc.
<Analysis By?>

9 October 2014

TNM 2.5

Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT:

Chelsea Solar Facility

RUN:

Site with Existing Tree Zone

BARRIER DESIGN:

INPUT HEIGHTS

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

ATMOSPHERICS:

68 deg F, 50% RH

Receiver

Name	No.	#DUs	Existing LAeq1h	No Barrier					Type Impact	With Barrier			
				LAeq1h		Increase over existing		Calculated LAeq1h		Noise Reduction		Calculated minus Goal	
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal		
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB	
1	1	1	0.0	41.0	66	41.0	10	----	41.0	0.0	8	-8.0	
2	2	1	0.0	29.7	66	29.7	10	----	29.7	0.0	8	-8.0	
3	3	1	0.0	37.1	66	37.1	10	----	37.1	0.0	8	-8.0	
4	5	1	0.0	39.8	66	39.8	10	----	39.8	0.0	8	-8.0	
5	6	1	0.0	39.3	66	39.3	10	----	39.3	0.0	8	-8.0	
6	7	1	0.0	39.0	66	39.0	10	----	39.0	0.0	8	-8.0	
7	8	1	0.0	46.1	66	46.1	10	----	46.1	0.0	8	-8.0	
8	9	1	0.0	37.2	66	37.2	10	----	37.2	0.0	8	-8.0	
9	10	1	0.0	45.7	66	45.7	10	----	45.7	0.0	8	-8.0	
10	11	1	0.0	42.1	66	42.1	10	----	42.1	0.0	8	-8.0	
11	12	1	0.0	37.7	66	37.7	10	----	37.7	0.0	8	-8.0	
12	13	1	0.0	38.9	66	38.9	10	----	38.9	0.0	8	-8.0	
13	14	1	0.0	33.9	66	33.9	10	----	33.9	0.0	8	-8.0	
14	15	1	0.0	33.9	66	33.9	10	----	33.9	0.0	8	-8.0	
15	16	1	0.0	32.7	66	32.7	10	----	32.7	0.0	8	-8.0	
16	17	1	0.0	37.3	66	37.3	10	----	37.3	0.0	8	-8.0	
17	18	1	0.0	38.5	66	38.5	10	----	38.5	0.0	8	-8.0	

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	17	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

RESULTS: SOUND LEVELS

Chelsea Solar Facility

Rincon Consultants, Inc.
<Analysis By?>

9 October 2014

TNM 2.5

Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT:

Chelsea Solar Facility

RUN:

Site with Project and Modified Tree Zone

BARRIER DESIGN:

INPUT HEIGHTS

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

ATMOSPHERICS:

68 deg F, 50% RH

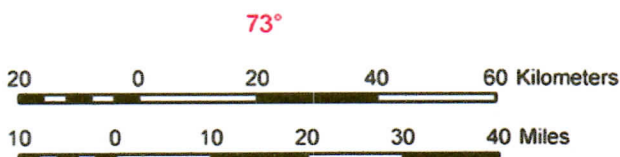
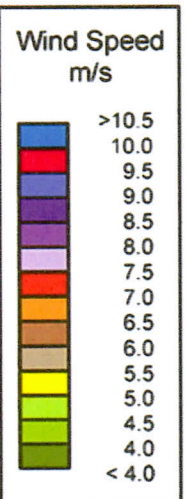
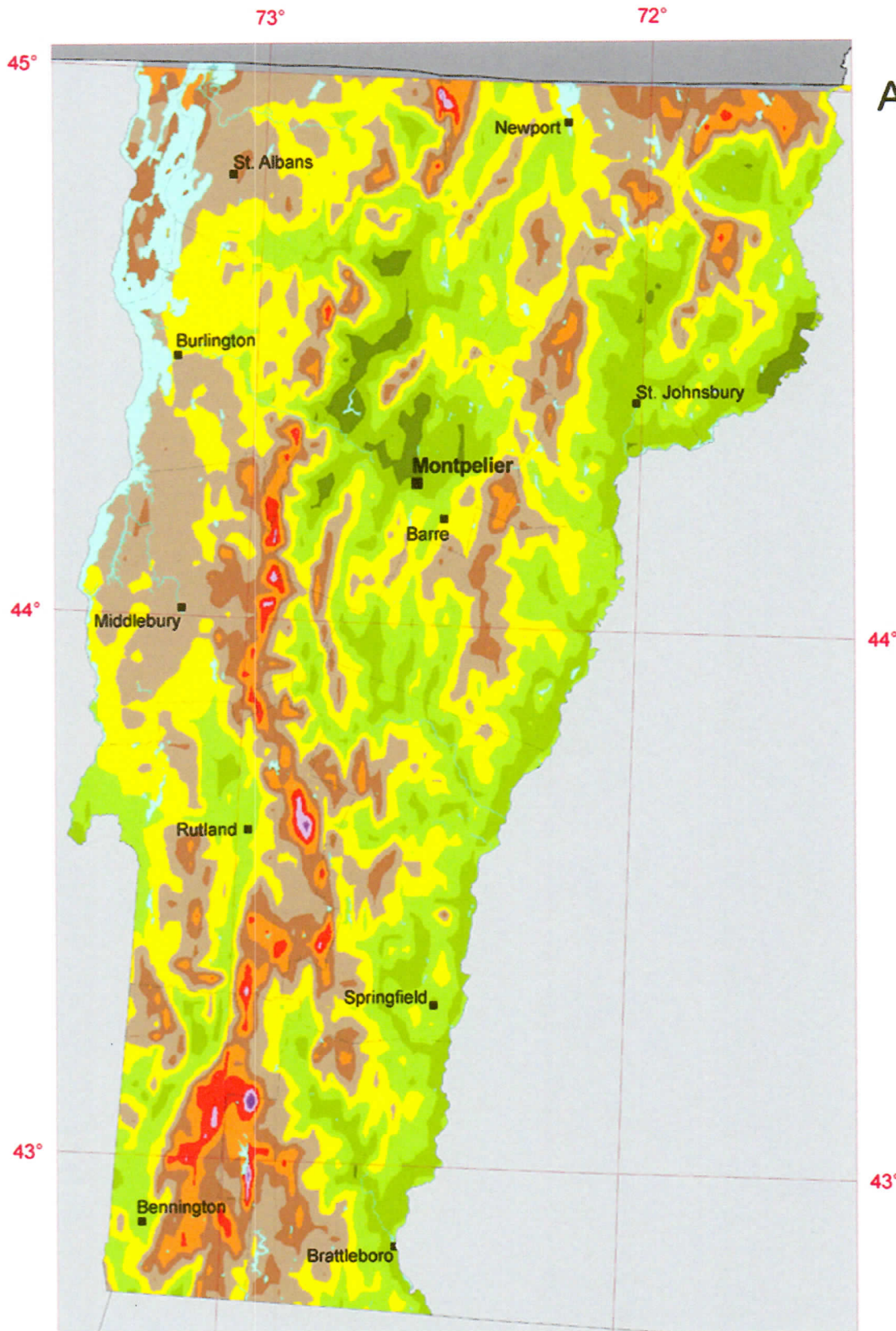
Receiver

Name	No.	#DUs	Existing LAeq1h	No Barrier				Type Impact	With Barrier			
				LAeq1h		Increase over existing			Calculated LAeq1h	Noise Reduction		Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
1	1	1	0.0	42.1	66	42.1	10	----	42.1	0.0	8	-8.0
2	2	1	0.0	33.3	66	33.3	10	----	33.3	0.0	8	-8.0
3	3	1	0.0	38.7	66	38.7	10	----	38.7	0.0	8	-8.0
4	5	1	0.0	40.9	66	40.9	10	----	40.9	0.0	8	-8.0
5	6	1	0.0	39.3	66	39.3	10	----	39.3	0.0	8	-8.0
6	7	1	0.0	39.0	66	39.0	10	----	39.0	0.0	8	-8.0
7	8	1	0.0	46.1	66	46.1	10	----	46.1	0.0	8	-8.0
8	9	1	0.0	38.2	66	38.2	10	----	38.2	0.0	8	-8.0
9	10	1	0.0	45.7	66	45.7	10	----	45.7	0.0	8	-8.0
10	11	1	0.0	42.1	66	42.1	10	----	42.1	0.0	8	-8.0
11	12	1	0.0	37.7	66	37.7	10	----	37.7	0.0	8	-8.0
12	13	1	0.0	38.9	66	38.9	10	----	38.9	0.0	8	-8.0
13	14	1	0.0	33.9	66	33.9	10	----	33.9	0.0	8	-8.0
14	15	1	0.0	33.9	66	33.9	10	----	33.9	0.0	8	-8.0
15	16	1	0.0	32.7	66	32.7	10	----	32.7	0.0	8	-8.0
16	17	1	0.0	38.2	66	38.2	10	----	38.2	0.0	8	-8.0
17	18	1	0.0	39.4	66	39.4	10	----	39.4	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	17	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

EXHIBIT C

Vermont Annual Average Wind Speed at 80 m



Source: Wind resource estimates developed by AWS Truepower, LLC for windNavigator®. Web: <http://www.windnavigator.com> | <http://www.awstruepower.com>. Spatial resolution of wind resource data: 2.5 km. Projection: UTM Zone 19 WGS84.



AWS Truepower™
Where science delivers performance.



EXHIBIT B

CHELSEA SOLAR

c/o ALLCO RENEWABLE ENERGY LIMITED
14 Wall Street - 20th Floor
New York, NY 10005
mjmelone@allcous.com

November 24, 2014

Ms. Jeanne Elias
Special Counsel
Vermont Department of Public Service
112 State Street
Montpelier, VT 05620

Re: Chelsea Solar LLC 248 Petition (Docket No. 8302) – Petitioner’s Supplemental Responses to the Vermont Department of Public Service’s First Discovery Requests

Dear Ms. Elias:

Enclosed please find for your review our supplemental responses to the Vermont Department of Public Service’s *First Set of Information Requests on Petitioner* dated as of November 6, 2014.

Please feel free to contact me with any questions.

Kind Regards,

A handwritten signature in black ink, appearing to read 'M Melone', is positioned above the printed name.

Michael Melone

CC: Service List

**STATE OF VERMONT
PUBLIC SERVICE BOARD**

Docket No.8225

Petition of Sudbury Solar LLC, pursuant	)
to 30 V.S.A. § 248, for a certificate of public	)
good authorizing the installation and	)
operation of a 2.0 MW solar electric generation	)
facility located on Vermont Route 30 in	)
Sudbury, Vermont	)

CERTIFICATE OF SERVICE

I, Michael Melone, certify that on November 24, 2014, I forwarded copies of
Chelsea Solar LLC's Responses to the Vermont Department of Public Service's First Set of
Information Requests on Petitioner by e-mail and FedEx to the following parties:

Office of Planning and Legal Affairs
Agency of Natural Resources
Attention: Mr. Donald Einhorn
1 National Life Drive – Davis Building, 2nd Fl.
Montpelier, VT 05620-3901

Vermont Department of Public Service
Attention: Jeanne Elias
112 State Street, Drawer 20
Montpelier, VT 05620

Dated this 24th day of November, 2014.

By:



Michael Melone

QUESTION 8: “Please provide a photographic simulation of the project from the vantage point of Route 7.”

RESPONSE 8: In this context, given the complexities of the road and transportation environment, getting photographs on the various approach ramps is unsafe. In lieu of a traditional photosimulation, I have prepared a 3D model view from various vantage points, including Route 7. A series of viewpoint indicators (black circles) are presented on the attached Figure 1 (Context Plan, November 20, 2014). These correspond to the same viewpoints previously referenced in my testimony and Visual Assessment Report (Exhibit Petitioner MK-2, June 19, 2014). Viewpoint “B” as shown on this new Figure 1 and as described in my early report, is within the southbound lane of Route 7, to the west of the Project site. Figure 2 of this discovery response (3D Perspective – View B, Dated November 20, 2014) provides a 3D model simulation of the view from this viewpoint “B”. The reference photograph (existing conditions) is shown in the lower left corner. This simulation illustrates that from this location, intermittent glimpses of the rear (back) of some panels might be possible through retained vegetation along the western edge of the Project. The density of the understory, as shown in the reference photograph, coupled with the likely darkening of the shadowed “back” sides of the panels will greatly curtail the appearance of the Project. The 3D modelling does not address shadowing. It should also be stressed that this view would be to an observers left and not a primary focal point. It is located on a major roadway with a high travel speed (55 mph), so any glimpses would also be short in duration.

Additionally, I have prepared a second 3D simulation from viewpoint “E” on the northbound ramp of Route 7. This is shown as Figure 4 (Dated November 20, 2014) and entitled “3D Perspective – View E. This 3D simulation indicates no visibility of the Project from this viewpoint.

Person Responsible for Response: Mark Kane, Director of Community Planning and Design, SE Group

QUESTION 9: “Please provide a photographic simulation of the project viewed from the front/entry area of the Welcome Center (or adjacent picnic area). Please include in the simulation: 1) the extent of the solar panels, 2) the extent of cleared areas, 3) the inverter structure, 4) the location of poles and roads. If a simulation is not possible, explain why. Alternately, indicate the project using shading superimposed on a photograph, including the four project components noted above.”

RESPONSE 9: In supplemental testimony for this docket dated September 26, 2014, I provided a Figure 6 entitled “Supplemental 3D Perspective” which addressed visibility of the Project from a location referenced as Viewpoint A. This location is within the parking area of the Welcome Center. Recently a new aerial photograph became available that shows the constructed Welcome Center on it. This photograph was used for Figure 1, Context Plan provided with this discovery response. While this viewpoint “A” is not at the entry to the Welcome Center, it is closer to the Project site and essentially at the same elevation. I would assert the perspective is nearly identical. This aforementioned Figure 6 illustrates how the expanse of retained woods between the Project Site and the transportation corridor precludes visibility of project components.

Person Responsible for Response: Mark Kane, Director of Community Planning and Design, SE Group

QUESTION 10: “Provide a photographic simulation of the project or illustrate the extent of the project and clearing on a photograph from Route 279 at approximately Viewpoint 1 (see Visual Assessment Report on page 16). Will the inverter structure be visible from this vantage point?”

RESPONSE 10: Similar to my response in Question 8 above, I have prepared a 3D simulation of a viewpoint identified as “C” which is on 279 heading eastwards about 0.4 miles away from the Project. This simulation is provided as Figure 3 (3D Perspective – View C, dated November 20, 2014). The simulation show visibility of a small portion of the array though a small gap in the existing woods along the Route 7 corridor (western edge of the Property). This is the area where I had previously recommended mitigation (See Figure 2 from my Visual Impact Assessment Report, dated June 19, 2014). While this new 3D simulation includes the mitigation, given the orientation of the observer from this location, those plantings will not (at time of installation) screen all elements of the Project. The inverter, or a portion thereof, may be visible from this location. The direction of view from this location is such that an observer would have to be looking to the left, not forward. Given that this location is a slip lane on 279 where observers will be traveling at a high rate of speed, the Project is not a focal point and any views would be of very short duration and not likely to make any significant impression.

Person Responsible for Response: Mark Kane, Director of Community Planning and Design, SE Group

QUESTION 11: “Provide a photograph taken toward the project site from the

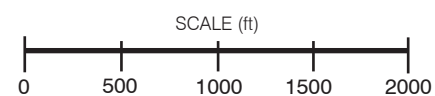
Bennington Battle Monument (standard 35mm digital/50mm film equivalent). Indicate on a copy of the photograph an outline of the area that the project would occupy.”

RESPONSE 11: As noted in my original pre-filed testimony and assessment report “Given the great distance and the limited field of view from the narrow windows, visibility would be minimal” (MK-2, Visual Impact Assessment Report, dated June, 19, 2014, page 12). On August 5, 2014, Mitch Lefevre from SE Group, on my direction, visited the Bennington Battle Monument and observed the surrounding landscape from the observation area with the objective of identifying potential visibility of the Project. Using a Sony SLT A55V camera with a 52mm (35 mm equivalent) focal length, Mr. Lefevre was able to take a photograph out the eastern window by holding the camera outwards beyond the window frame. The limited scope of visibility makes distinction of the Project very unlikely. The approximately location of the Project is indicated on the Photograph. No visibility was possible from the north window given the structures relative position with respect to the cardinal directions. The photograph taken is provided on the attached Figure 1, Context Plan. This figure also shows the location of the Bennington Battle Monument with respect to the Project.

Person Responsible for Response: Mark Kane, Director of Community Planning and Design, SE Group



Prepared By:



| Chelsea Solar Project

CONTEXT PLAN | Figure 1

November 20, 2014



VIEW LOOKING SOUTH FROM ROUTE 7 TOWARDS THE PROJECT SITE

Legend	
	Tax Parcel Boundary
	Project Fenceline
	Viewpoint

Notes: The site information depicted on this 3D perspective was provided by Ecos Energy. SE Group has used this information as part of its analysis of the project, but makes no warrants as to the accuracy of it. This material is provided for review purposes only.
View B was derived from Google Earth Street View as depicted in May 2012

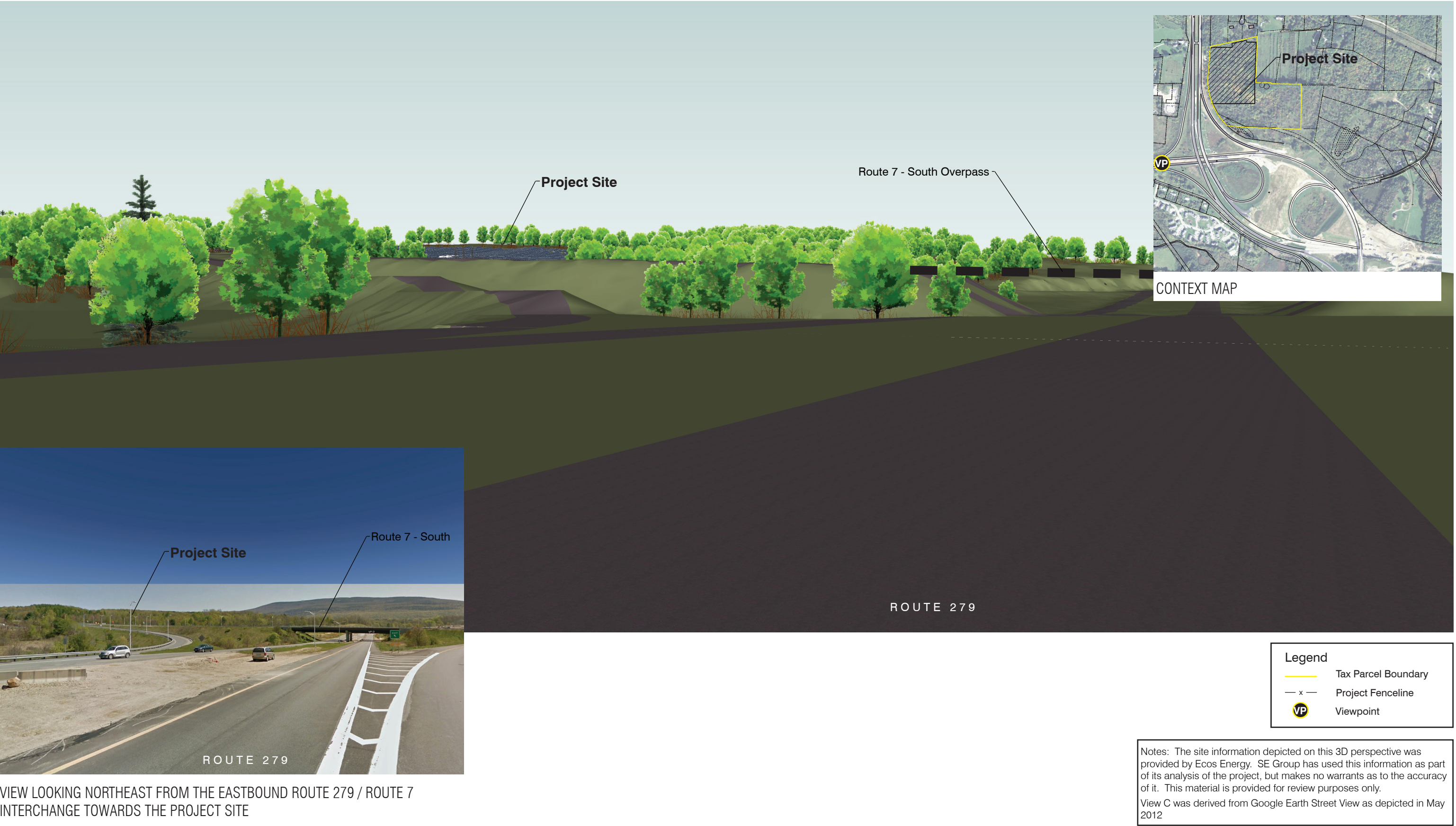
Prepared By:



| Chelsea Solar Project

3D PERSPECTIVE - View B | Figure 2

November 20, 2014



VIEW LOOKING NORTHEAST FROM THE EASTBOUND ROUTE 279 / ROUTE 7 INTERCHANGE TOWARDS THE PROJECT SITE

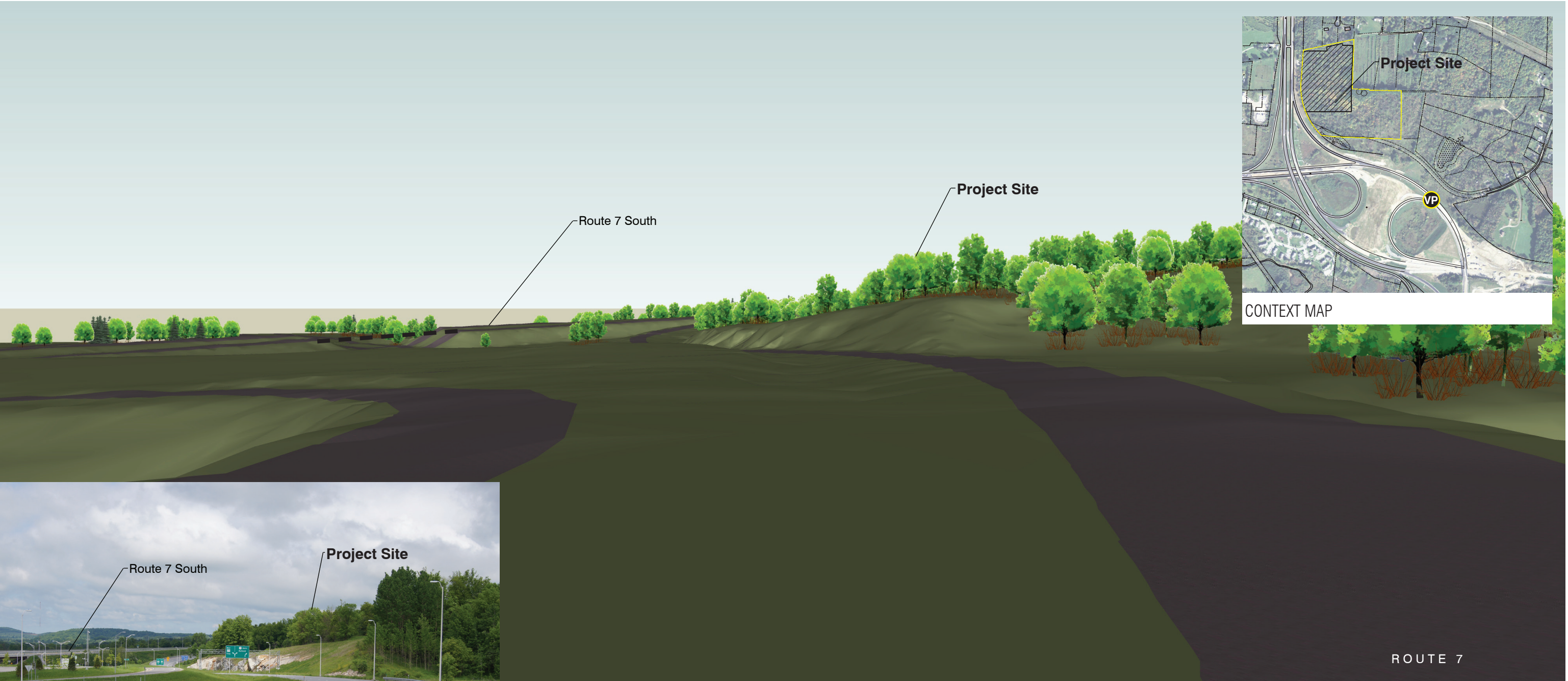
Prepared By:



| Chelsea Solar Project

3D PERSPECTIVE - View C | Figure 3

November 20, 2014



VIEW LOOKING NORTH AND WEST FROM ROUTE 7 NORTHBOUND RAMP

Legend

Tax Parcel Boundary

— x —

Project Fenceline

Viewpoint

Notes: The site information depicted on this 3D perspective was provided by Ecos Energy. SE Group has used this information as part of its analysis of the project, but makes no warrants as to the accuracy of it. This material is provided for review purposes only.

Photograph was taken by SE Group using a Sony SLT A55V camera with a 52mm focal length (35 mm equivalent) on 06/04/2014 at 9:30 AM

EXHIBIT C

CHELSEA SOLAR

c/o ALLCO RENEWABLE ENERGY LIMITED
14 Wall Street - 20th Floor
New York, NY 10005
mjmelone@allcous.com

December 30, 2014

Ms. Jeanne Elias
Special Counsel
Vermont Department of Public Service
112 State Street
Montpelier, VT 05620

Re: Chelsea Solar LLC 248 Petition (Docket No. 8302) – Petitioner’s Responses to the Vermont Department of Public Service’s Second Discovery Requests

Dear Ms. Elias:

Enclosed please find for your review our responses to the Vermont Department of Public Service’s *Second Set of Information Requests on Petitioner* dated as of December 18, 2014.

Please feel free to contact me with any questions.

Kind Regards,

A handwritten signature in black ink, appearing to read 'M Melone', is positioned above the printed name.

Michael Melone

CC: Service List

**STATE OF VERMONT
PUBLIC SERVICE BOARD**

Docket No.8225

Petition of Sudbury Solar LLC, pursuant	)
to 30 V.S.A. § 248, for a certificate of public	)
good authorizing the installation and	)
operation of a 2.0 MW solar electric generation	)
facility located on Vermont Route 30 in	)
Sudbury, Vermont	)

CERTIFICATE OF SERVICE

I, Michael Melone, certify that on December 30, 2014, I forwarded copies of
Chelsea Solar LLC's Responses to the Vermont Department of Public Service's Second Set
of Information Requests on Petitioner by e-mail and FedEx to the following parties:

Office of Planning and Legal Affairs
Agency of Natural Resources
Attention: Mr. Donald Einhorn
1 National Life Drive – Davis Building, 2nd Fl.
Montpelier, VT 05620-3901

Vermont Department of Public Service
Attention: Jeanne Elias
112 State Street, Drawer 20
Montpelier, VT 056

Dated this 30th day of December, 2014.

By:



Michael Melone

QUESTION 1: “In Mr. Wilson’s response to Q39 page 21 of his pre-filed testimony he states “At the distances to and outside of the Project boundary, these sounds will be inaudible or indistinguishable from ambient environmental noise.” Please supply a study or other documentation to substantiate this assertion specifying the expected sounds levels at the nearest residence(s) to the project.”

RESPONSE 1: As stated in the testimony, the loudest generator of noise within the Project is the single medium voltage transformer located at the Project’s center. This piece of equipment is manufacturer rated for a maximum noise output of 60 decibels at a distance of 10 feet. 60 decibels is commonly referred to being equivalent to the sound level of normal human conversation heard from three feet away. We know that the closest Project property boundary is approximately 320 feet from the medium voltage transformer location. The inverse square calculation ($\frac{1}{d^2} = \left[\frac{1}{d_0^2} \right]$) is commonly used to approximate the decibel level of a sound as the distance from the source increases. Using this equation gives a decibel reading of 26 decibels at 320 feet. 26 decibels is less than 30 decibels, which is commonly referred to being equivalent to a whisper quiet library, a quiet bedroom at night, or a quiet rural area. Because of the already very low decibel levels at the Project property boundary, there is no need to perform additional calculations for locations beyond the Project property boundary.

QUESTION 2: “Will site clearing along the west side of the project site continue up to the existing highway (Route 7) fence?”

RESPONSE 2: Yes, assuming that the existing fence is correctly placed directly upon the western property boundary. The Project clearing plan calls for clearing all the way to the western property boundary for the Project footprint.

QUESTION 3: “Will Chelsea Solar install a new fence on the west side of the project? Where will it be located in relation to the existing highway fence? Would there be sufficient room to install landscape plantings between the two fences should screening be needed?”

RESPONSE 3: For the western side of the Project, the existing western property boundary fence would be removed and a new fence would be installed in its place, directly along the western property boundary. There would be no property to the west of the fence available for additional screening because the fence would be directly on the property boundary. The testimony of Mark Kane in this docket indicates additional screening along this property boundary is not necessary.

QUESTION 4: “The supplemental testimony of Mark Kane suggests that the inverter structure may be visible along Route 279. Can equipment associated with the inverter structure be painted a dark gray color in order to minimize its visibility and contrast?”

RESPONSE 4: Yes. The pad equipment can be specified in dark gray color.

QUESTION 5: “Given the proposed new route of the line extension, depicted on attached Exhibit 1, coming into the project at its southern end, could the proposed plantings at the southwest corner of the project be supplemented, since this is the area where the project will be most visible from Route 7?”

RESPONSE 5: In response to this question, a new exhibit (attached hereto as Exhibit A) was prepared providing supplemental information on the location of the proposed line extension relative to the Project. Figure 1 of this information includes a supplemental site plan identifying three (3) components of this new extension. The segment in orange represents new poles along the access road (Willow Road) the Project. The segment in blue represents the upgrade of three existing poles to the new ones carrying the three-phase extension. The segment in red includes nine (9) new poles along Hewitt Drive. The final segment (in orange) includes nine (9) new poles and terminates at the interconnection point for the Project. All new poles will be wooden with cross-arms and be approximately 38 feet in height.

As the figure suggests, the line extension in question is actually entering the Project in the center of the array, not at the southwest corner. In this configuration, we do not expect any visibility of the line extension to areas along Route 7. To help explore this, an updated cross section is included (Site Section 1, Figure 2), that shows the relative position and height of the poles along a section line from the northbound access ramp to Route 7. While portions of the access road and/or poles will be visible from the this northbound ramp of Route 7, the views will be partially broken up by existing vegetation which gets denser as it moves westward towards the proposed array.

QUESTION 6: “Please provide a visual impact assessment for the proposed new line extension to be located along Willow Road, Duffy Drive, and the new access road. Specifically address clearing that will occur along the roadside to accommodate the new or upgraded line. Please include the entire line extension in the assessment, whether on lands owned by the Petitioner or others.

RESPONSE 6: As discussed in the response to question #5, supplemental exhibits were prepared to help evaluate aesthetic impact of the line extension as it relates to the overall Project. The supplemental site plan (Figure 1) identifies the route of the line extension which includes both new and upgraded components. The line, as proposed, extends along Hewitt Drive not Duffy Drive. Figure 1 identifies site photographs (See Figure 3 and 4) taken by SE Group highlighting the existing character of the route. The existing and proposed conditions for each of the three segments are described below:

Orange Segment: This segment consists of nine (9) new poles of 38 feet in height and extends about 1,500 feet from the end of the paved portion of Willow Road to the interconnection point at the center of the proposed array. The poles and line will be placed along the northern edge of the proposed gravel access road. This area is north of

the Route 7 interchange (northbound on-ramp) and as shown on the existing conditions photograph “B” (See Figure 3), portions of the road and the new poles will be seen from the northbound ramp. The poles, however, will be set against a backdrop of existing vegetation to the north and slightly uphill. One residential structure will be impacted by the extension of the existing line. As shown on existing condition photograph “C” (See Figure 3), the character along portions of Willow Road includes existing poles of similar height and character to what is proposed.

Blue Segment: This segment extends along 325 feet of Willow Road and includes the upgrading of three (3) existing poles. The upgrading might increase the height from approximately 35 feet to 43 feet in order to accommodate the three-phase line. Existing conditions photograph “A” (See Figure 3), was taken looking west towards the intersection of Hewitt Drive and Willow Road. This photograph shows the existing poles to be upgraded. The location of the line is not planned to change and the roadside character not materially altered by the additional height of the upgraded poles. Three existing residential structures are within this area, all of which have views of the existing roadside poles and power lines.

Red Segment: This segment provides extend approximately 1,900 feet from the easternmost upgraded pole along Hewitt Drive to existing GMP infrastructure located along East Road. The existing visual character of the roadway is presented in existing conditions photographs “E” through “H” (See Figures 3 and 4). Within this segment are proposed nine (9) wooden poles of approximately 38 feet in height. Along this segment there is only one residential structure near the intersection of Hewitt Drive and East Road. The roadway is paved and slightly elevated to its surroundings. The line extension is proposed along the southern edge of the roadway. Both sides of the roadway are largely wooded and the grade rises slightly to the south. Some limited clearing of trees might be needed to accommodate the poles. The final appearance of the design will be visually consistent with typical roadside line infrastructure commonly seen in and around the area.

Overall, while the extension to connect the Project with the GMP grid is longer than often seen in solar projects, the infrastructure proposed by GMP has little impact on either the general public or residential properties. Only portions of the proposed line within the “orange” segment (along the proposed access road) will be visible from Route 7. Where visible, however, the poles will be largely set against a backdrop of existing woods and will be of a form and character that is both familiar and not likely to shock or offend an average person. Some areas of woods will break up the line in this segment. Observers from Route 7 are moving at a fair rate of speed as they navigate the on ramp to the limited access highway; limiting the duration of views and shifting the focus away from the proposed line. Areas to the south of the Route 7 interchange (including Route 279 and the Vermont Welcome Center) are not likely to have any direct views of the line extension as the grade falls away; placing observers lower in elevation.

Within the “blue segment” where upgrading of an existing line is proposed, the impact will be minimal. While the height will increase, the roadside configuration will remain and the few residential structures will have largely the same view.

The new segment (“red”) along Hewitt Drive introduces new infrastructure into the landscape, but its form and character is largely consistent with other roadways in the area. Only one residential structure is located at the intersection of Hewitt Drive and East Road. While the new line extension will pass them along the southern side of Hewitt Drive, they do not inhibit views or otherwise compromise the visual qualities of the area. This structure has views of the current roadside poles along East Road. The proposed extension along Hewitt Road will be set along the southern edge of the road; against a backdrop of trees, lessening visual impact. Existing vegetation is relatively mature and will be effective in softening the visual presence of any roadside extension.

QUESTION 7: “What general impacts, if any, would be experienced by property owners along the line extension route?”

RESPONSE 7: See response to Question #6. Generally, with the exception of one residential property at the intersection of Hewitt Drive and East Road, only the proposed upgraded segment of the line extension will be visible to residential properties. The route proposed has the minimal amount of impact on surrounding residential areas.

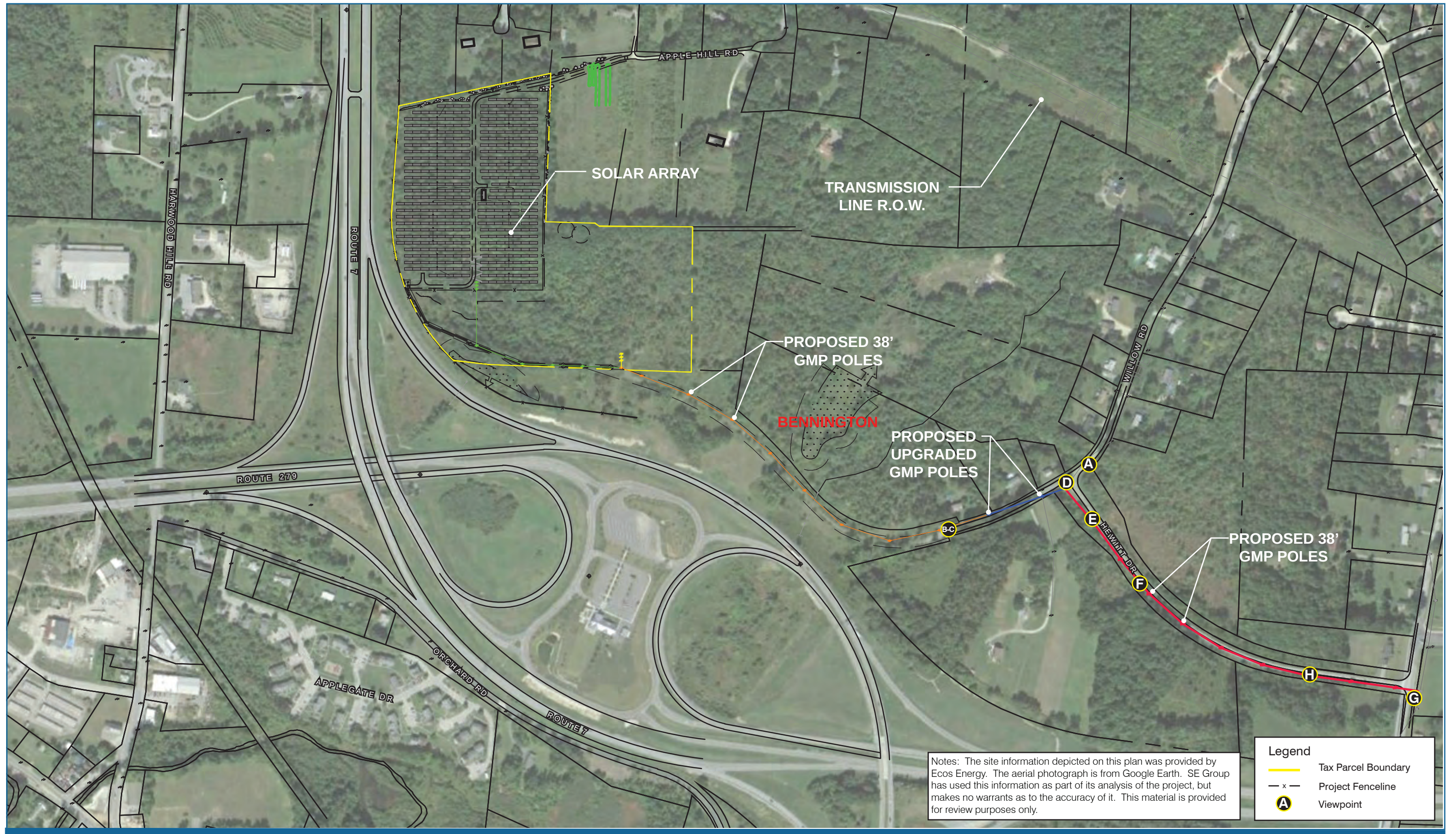
QUESTION 8: “Describe the visibility of the new line extension from Route 279, Route 7, and the Welcome Center.”

RESPONSE 8: See response to Question #6. As noted above, portions of the ‘orange’ segment (particularly those near to the connection with the paved portion of Willow Road), may be visible from the northbound ramp to Route 7. Areas to the west and south (including Route 279 and the Vermont Welcome Center) will have little to no direct visibility of the line extension given the changes in grade, retention of vegetation south of the proposed alignment, and limited height of the poles as compared to existing vegetation to the north.

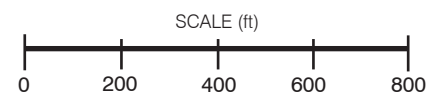
QUESTION 9: “What functions will the new line extension serve beyond off taking power generated by the proposed solar project? Are there any existing residences, structures, or other facilities along the line extension route that would be served by the new line?”

RESPONSE 9: The proposed line extension will provide three-phase electrical service to all properties along Hewitt Drive. These properties do not currently have electrical service available. The proposed line extension will provide three-phase electrical service to all properties between the Project property and the end of the existing single-phase GMP circuit along Willow Road. These properties do not currently have electrical service available. The proposed line extension will provide three-phase electrical service to four existing residences that are currently served by single-phase lines.

EXHIBIT A



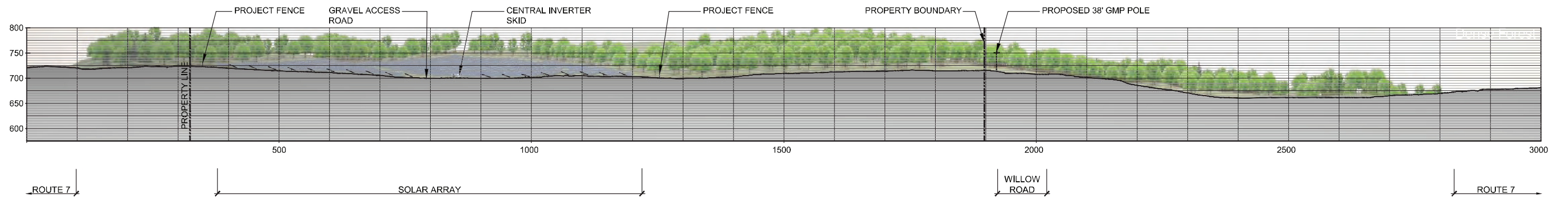
Prepared By:



| Chelsea Solar Project

SUPPLEMENTAL SITE PLAN | Figure 1

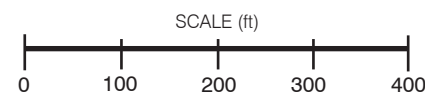
December 2014



CROSS-SECTION B



Prepared By:



| Chelsea Solar Project

SUPPLEMENTAL SITE SECTION 1 | Figure 2

December 2014



A- VIEW LOOKING WEST FROM WILLOW ROAD TOWARDS THE (3) PROPOSED GMP POLES BEING UPGRADED



B - VIEW LOOKING WEST FROM THE END OF PAVED AREA ON WILLOW ROAD TOWARDS THE PROPOSED GMP LINE UPGRADE (THE ROUTE 7 INTERCHANGE IS IN THE BACKGROUND)



C - VIEW LOOKING EAST FROM THE END OF PAVED AREA ON WILLOW ROAD TOWARDS THE (3) PROPOSED GMP POLES BEING UPGRADED



D - VIEW LOOKING SOUTH AND EAST FROM THE INTERSECTION OF WILLOW ROAD AND HEWITT DRIVE TOWARDS THE PROPOSED GMP LINE UPGRADE



E- VIEW LOOKING NORTH AND WEST OUT FROM SIDE OF HEWITT DRIVE TOWARDS THE PROPOSED GMP LINE UPGRADE



F - VIEW LOOKING SOUTH AND EAST FROM SIDE OF HEWITT DRIVE TOWARDS THE PROPOSED GMP LINE UPGRADE

All Photographs taken by SE Group using a Sony SLT A55V camera with a 52mm focal length (35 mm equivalent) on 08/05/2014 from 9:00- 11:00 AM

Prepared By:



| Chelsea Solar Project

SUPPLEMENTAL SITE PHOTOGRAPHS | Figure 3

December 2014



G - VIEW LOOKING WEST FROM EAST RD DOWN HEWITT DRIVE TOWARDS THE PROPOSED GMP LINE UPGRADE



H - VIEW LOOKING WEST FROM SIDE OF HEWITT DRIVE TOWARDS THE PROPOSED GMP LINE UPGRADE

All Photographs taken by SE Group using a Sony SLT A55V camera with a 52mm focal length (35 mm equivalent) on 08/05/2014 from 9:00- 11:00 AM

Prepared By:



| Chelsea Solar Project

SUPPLEMENTAL SITE PHOTOGRAPHS | **Figure 4**

December 2014