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February 6, 2018

~~Eric Remick~~, Chair
Planning Commission
Town of Hardwick
P.O. Box 523
Hardwick, VT 05843

Re: **45-Day Notice to Entities Entitled to Notice Pursuant to 30 V.S.A. § 248(f) for the Town of Hardwick Electric Department's Proposed 1.65 MW Solar Project to be located at 464 Billings Road in the Town of Hardwick, Vermont**

Dear, Eric:

I. Introduction and Background

The Hardwick Electric Department ("Applicant") is pleased to provide you with this 45-Day Notice in advance of filing an Application for a Certificate of Public Good ("CPG") with the Vermont Public Utility Commission ("Commission" or "PUC"), by the Applicants for an approximate 1.65 MW ground mounted solar array (the "Project") to be located in a former gravel and sand pit along Vermont Route 15 in Hardwick, Vermont (the "Site"). This notice is provided in accordance with 30 V.S.A. § 248 ("Section 248") and PUC Rule 5.400.

Pursuant to PUC Rule 5.402(A), the following letter includes information sufficient to understand the overall Project and its impacts and benefits, including the location of the facility, a description of the proposed Project, a narrative summary of construction plans and equipment to be used. This letter also describes the rights of the noticed parties to comment on the Project plans and participate in the Commission review process.

This notice replaces an earlier 45-day notice from Applicant related to the same parcel dated July 6, 2015.

II. Notice of 30 V.S.A. Section 248 Application

The state permitting process for projects of this size requires the Applicant provide notice to certain entities and persons forty-five days prior to a formal filing with the Commission. These include:

- The legislative bodies and municipal and regional planning commissions in the communities where the Project will be located.

Per PUC Rule 5.402(A), recipients of this 45-Day Notice may file inquiries or comments with the Applicants with respect to the Project.

Please send all inquiries or comments during this 45-Day Notice period to:

Michael Sullivan
c/o Primmer Piper Eggleston & Cramer PC
100 East State Street
P.O. Box 1309
Montpelier, VT 05602
Office: (802) 472-5201
E-mail: msullivan@hardwickelectric.com

Applicant intends to file its Petition with the Commission on April 10, 2018.

III. Project Description

The Applicant is proposing to develop an approximate 1.65 MW ground-mounted solar facility at the Site. The Project will consist of ground-mounted array running east to west in orientation and fixed at a 30-degree angle. The Project will cover approximately seven and a half acres (7.5) of the approximate 320-acre parcel owned by Hardwick Electric.

When complete, the Project will be a 1.65 MW AC (1.975 MW DC) solar generating facility. The Project is expected to generate approximately 1,860 megawatt hours (MWh) of electrical energy per year, enough to power over 300 homes.

A basic preliminary site layout is provided as Exhibit 1. The final site design and equipment selection will occur post permit issuance; however, such design will be substantially the same as shown in Exhibit 1. The Project's site layout was designed to meet the following objectives: 1) minimize the Project footprint while maintaining the economic viability of the solar electric generation facility; 2) maintain appropriate separation or screening from surrounding land uses; 3) minimize shading of the solar panels; and 4) minimize impacts to environmental resources including wetlands and sensitive natural communities.

In summary, the Project will consist of:

- Approximately 6,992 panels, 310 watts;
- Approximately 70 string inverters dispersed across the array that would convert the direct current (DC) generated by the panels to alternate current (AC);
- A line extension running along an existing snow mobile trail on Hardwick's property

Solar Panels and Racking System

The Project will utilize tier one 72 cell 310 watt panels (or higher wattage if available) and string inverters that are attached near the end of the rows of racks on the western side. The final panel

selection will be made prior to the initiation of construction based upon market conditions. The solar panels are designed to absorb, rather than reflect light; any reflectivity will be minimal. The Project transformer will be located at the southwest corner of the site, adjacent to the Project access road. The Project will interconnect with the Hardwick system at a distribution pole located on the southern end of the Site.

The rows will be set a sufficient distance apart to minimize self-shading. The individual solar panels comprising each "array" are mounted on a rack system. The solar arrays and associated equipment will occupy approximately seven and a half (7.5) acres of the parcel. Approximately 325 racks will be utilized, depending on the final panel selection. The racks will be set on driven steel or aluminum foundation piles to hold the solar panels at a fixed angle of 15 -20 degrees, to maximize solar radiance collection. The support structures are designed to hold the bottom of the solar panels at approximately three (3) feet above existing grade, high enough to allow snow to shed and minimize snow buildup on the ground that can impact energy production. The top of the solar panels will be approximately eight (8) feet above grade.

The arrays will be connected via electrical cable to the inverters, which in turn will connect to transformers. In areas outside of wetlands and its 50-foot buffer zone, the electrical lines from the arrays to the inverter and the primary voltage lines to the Hardwick interconnection point will be buried underground in conduit.

Inverters and Transformers

The Project currently anticipates using approximately 70 (23.2 kW) inverters. The string inverters are small inverters located discretely on the racking system underneath the backside of solar panels and convert the DC current generated by the solar panels into AC current. The inverters will be connected to step up transformer/transformers located on the south side of the Project for interconnection to Hardwick's distribution system. Transformer/transformers will either be installed with oil containment systems, or utilize biodegradable cooling fluids – either option of which will eliminate any associated environmental concerns.

The Project will also include the necessary upgrades to the local electric system to interconnect the Project to the grid. See Exhibit 1 for a layout of the necessary distribution line.

Project Benefits

The Project will provide direct energy benefits to the Applicant and its ratepayers when the Project is producing power. The Project will also provide capacity benefits by reducing the impact of the electricity needs from the Applicant on the regional system. The Project is also expected to benefit the Applicant and its ratepayers financially through less reliance on the statewide and regional transmission system as well as the neighboring territories' distribution system. Another benefit of the Project is that the Applicant would have the ability to decide how the renewable attributes generated by the Project are used.

IV. Construction & Transportation

Project construction is expected to take approximately 16 weeks. The general sequence of construction will be as follows:

Phase I: Grading and minor vegetation/tree removal required of the Project area for panel and equipment installation and to reduce shading; construction of the access drives as needed.

Phase II: Construction of the array and support structures.

Phase III: Install the solar modules, placement of the string inverters, and wiring to the transformer. Following completion of these activities, the system will be tested and commissioned for operation.

The Project will incorporate low-impact design characteristics including:

- Impervious new surfaces will be limited to transformer pads, equipment pads, and construction of gravel access roads on the site.
- Following the initial site grading, areas beneath the panels will be left to re-vegetate and routinely mowed thereafter.
- Some limited tree trimming/clearing may be necessary on the east side of the array to minimize shading of the solar panels. If any trees are removed, stumps will be left in place.

Following construction, daily access to the array is not necessary. The solar array production will be monitored remotely, with technicians visiting the Site on only an as-needed basis.

Site Access and Equipment Delivery

The Project will be accessed from Billings Road and the existing access will be maintained. The existing driveway leading into the Site may be upgraded and modified during construction to conform to a proposed grading plan for the Project to bring the site to a more level, workable grade.

The solar panels and rack components will be shipped on pallets, typically delivered by standard tractor-trailer truck. Hardwick expects approximately 30 (+/-) truckloads will be needed to deliver the solar panels and racks over a 6-week period. In addition, other equipment will be delivered by tractor-trailer after the solar array is installed. All materials and equipment will be transported to the Site utilizing standard-width trucks.

Construction equipment for installing electrical conduit and the solar array will likely include a tire or track mounted excavator and a small pile driver to install the foundation posts.

V. Rights of the local and regional planning commissions to comment on the Project plans

Section 248(f) of Title 30 of the Vermont Statutes Annotated ("VSA") and Commission Rule 5.402(A), provides that municipal and regional planning commissions are entitled to receive this notice and make recommendations to the Commission and to the Applicant at least 7 days prior to filing of the petition with the Commission. So that Hardwick has sufficient time to incorporate your feedback prior to April 10, 2018 anticipated filing date, Hardwick is requesting that comments be submitted by April 2, 2018.

Planning commissions also have the right to make revised recommendations within 45 days after the date the Petition is filed with the Commission, if the petition contains new or more detailed information that was not previously included in these plans. Recommendations made to the Commission under Section 248(b)(1), or the lack of such recommendations, do not preclude the municipal governing body or the planning commissions from presenting evidence during technical hearings if they exercise their right to appear as a party under Section 248(a)(1)(G) and (H).

For additional information regarding the Commission processes, including your right to participate in the proceeding, please refer to the "Citizen's Guide to the Vermont Public Service Board's Section 248 Process." The Citizens Guide can be found on the PUC's website: http://bit.ly/2tZzOx2.

The PUC's website (http://puc.vermont.gov/document/section-248-procedures) also includes a public participation section that contains information on the PUC process.

VI. Preliminary Impact Assessment

A. Interconnection

The proposed Project would interconnect to the Hardwick distribution system. The Applicant have filed a 5.500 interconnection application be filed with Hardwick. Hardwick will then conduct a system impact study. The Applicant will file the system impact study as part of the petition and will implement the study's recommendations.

B. Aesthetics

The Applicants hired T.J. Boyle Associates, LLC ("T.J. Boyle"), specializing in landscape architecture and planning to provide a preliminary assessment of the Project's potential aesthetic impacts. Based on the preliminary design, T.J. Boyle does not believe that the Project will have an undue adverse impact on the visual resources of the area. This preliminary assessment is based upon the following findings:

Based on the preliminary design, T.J. Boyle does not believe the Project will have an undue adverse impact on the visual resources of the area. The proposed location is well suited to avoid significant visibility from Route 14, Route 15 and other roads throughout the town of Hardwick.

The proposed site which consists of two areas would be surrounded by existing vegetation. Although there is some limited clearing of vegetation proposed, and any views from the adjacent lake would be screened by intervening shoreline vegetation that would remain.

It is anticipated that the vast majority of the surrounding area would not have visibility of the Project. If visible, the Project elements would be at least partially screened by intervening vegetation. After a preliminary review of the Hardwick Town Plan, the Regional Plan for the Northeast Kingdom, and Vermont Scenic Byways, the Project does not appear to violate any clear, written community standards intended to preserve the aesthetics of the area. Due to the surrounding screening, the Project is not anticipated to cause undue adverse effects to the scenic and natural beauty of the surrounding landscape.

Please see the Preliminary Aesthetic Assessment attached as Exhibit 2. The Applicant will file a complete aesthetic assessment of the Project as part of its petition with the Commission.

C. Environmental Impacts

The Applicant hired Arrowwood Environmental ("AE") to assess the Project's potential environmental impacts.

AE concludes that the Project, which is primarily located in a previously disturbed abandoned gravel pit, has been sited and designed to avoid adverse impacts to environmental resources including shorelines, streams and headwaters, outstanding resource waters, wetlands, and necessary wildlife habitat.

As currently proposed, the northern end of the Project is within a mapped FEMA flood-hazard zone. In addition, some minor clearing may be necessary within the 250' Shoreland Protection Zone for Hardwick Lake. Finally, some very limited tree clearing may be considered along the border of the state-mapped Deer Wintering Area on the eastern side of the Project.

Arrowwood's preliminary Natural Resources Memo is attached as Exhibit 3. The Applicant will be conducting detailed field surveys/mapping and anticipates reviewing the results with the Agency of Natural Resources in order to include a more detailed analysis of environmental impacts with the Application.

VII. Discussion of Alternatives Evaluated

An analysis of the need for the Project demonstrates that the introduction of a larger-sized solar distributed generation resource is the most cost-efficient and effective way to meet Hardwick's power supply and renewable energy obligations. Hardwick has explored a number of different structures and configurations and has determined the aforementioned Project best fulfills its needs. There are simply not enough demand-side management ("DSM") measures, including energy efficiency and load control, available to address Hardwick's power supply needs. Even with the Project permitted and operational, DSM will still play a role in Hardwick's planning to meet its power supply needs. Thus, Hardwick's decision to move forward with Project does not foreclose any future efforts to implement DSM in its service territory. Moreover, it adds to the State's local and renewable energy mix.

VIII. Conclusion

The Project is not expected to result in undue adverse impacts to the applicable criteria. The Applicants looks forward to submitting the full Sections 248 filing package, which will contain all information required by the Commission, and for others, to evaluate the merits of the Project for potential award of a Certificate of Public Good.

Regards,

Elijah D. Emerson, Esq.

Attachments:

Exhibit 1 – Preliminary Site Plan
Exhibit 2 – Preliminary Aesthetic Assessment
Exhibit 3 – Preliminary Natural Resources Assessment

Cc: Mike Sullivan, Hardwick Electric Department

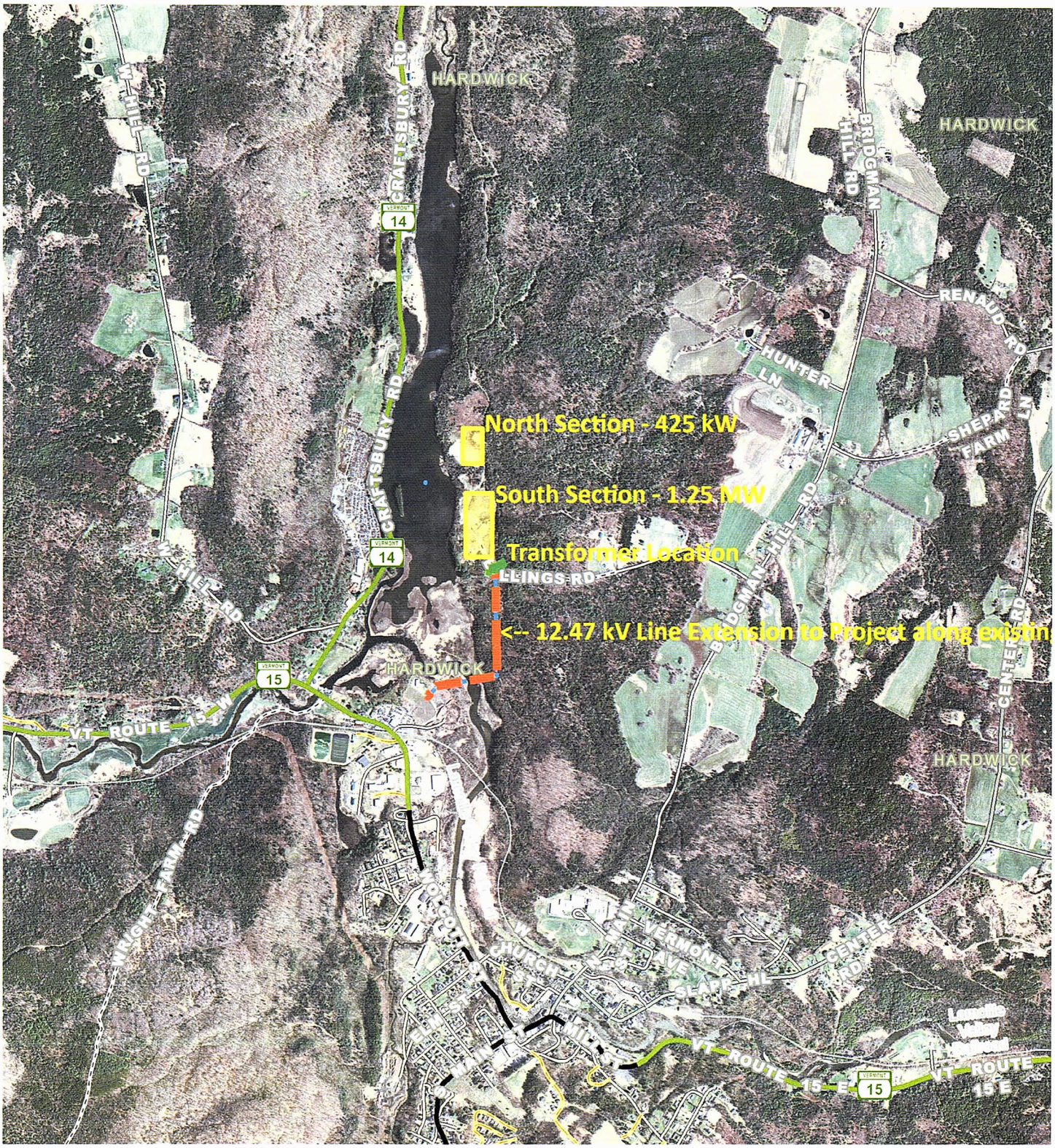
Exhibit 1

Preliminary Site Plan

VERMONT

E9-1-1 Viewer

e911.vermont.gov/e911viewer



0.69 0 0.34 0.69

Miles

January 31, 2018

CALL IF YOU CAN 911 TEXT IF YOU CAN'T

DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. E911 and the State of Vermont make no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.

N

CONCEPTUAL

NOTES

1. NOMINAL SIZE OF PV SYSTEM IS 1,701.36 KW DC USING QTY (5004) LG 340-WATT MODULES MOUNTED ON GAMECHANGE POST DRIVEN RACKING SYSTEM
2. FINAL COMPONENTS AND CONFIGURATION ARE SUBJECT TO CHANGE.
3. PROPOSED PV SYSTEM LAYOUT BASED ON 20° TILT ANGLE AT 180° AZIMUTH. ROW SPACING ESTIMATED AT 11' AS SHOWN. SYSTEM DESIGNED FOR NO INTER ROW SHADING ON DECEMBER 21 BETWEEN THE HOURS OF 10:00 AM AND 2:00 PM APPROXIMATELY
4. SYSTEM DESIGN ASSUMES SITE TO BE GRADED APPROXIMATELY 5% TO THE SOUTH. CERTIFIED SURVEY AND GRADING PLAN WILL NEED TO OCCUR PRIOR TO FINAL DESIGN

DRAWN BY	APPROVED BY	DESCRIPTION
JPS		REVISED PER SITE VISIT DISCOVERY
DATE		COPYRIGHT 2016 AMERICAN CAPITAL ENERGY INC ALL RIGHTS RESERVED
05/20/16		

HARDWICK ELECTRIC DEPARTMENT
GROUND MOUNTED SOLAR ARRAY
CONCEPTUAL LAYOUT

PV-1

Exhibit 1 - Preliminary Site Plan (B)

Exhibit 2

Preliminary Aesthetic Assessment

T. J. Boyle Associates, LLC
landscape architects • planning consultants
301 college street • burlington • vermont • 05401

MEMORANDUM

To: Mike Sullivan

From: Jeremy Owens

Date: July 14, 2017

Re: Hardwick Solar Project

T. J. Boyle Associates ("TJB") has reviewed the preliminary design of the Hardwick Solar Project ("Project") as it pertains to potential aesthetic impacts. The Project involves installing a new 1.65 MW solar array in Hardwick, Vermont. The site selected is located approximately ½ mile north of Vermont Route 15 and 150 feet east of Hardwick Lake, and is located on a parcel formerly used for sand and gravel extraction.

TJB's preliminary analysis of the Project shows that there would be limited potential for visibility of the solar array from the surrounding area. The proposed location is well suited to avoid significant visibility from nearby Route 14, Route 15 and other roads throughout the town of Hardwick. The proposed site, which consists of two areas, would be surrounded by existing vegetation. Although there is some limited clearing of vegetation proposed, and any views from the adjacent lake would be screened by intervening shoreline vegetation that will remain.

It is anticipated the vast majority of the surrounding area would not have visibility of the Project. If visible, the Project elements would be at least partially screened by intervening vegetation. After a preliminary review of the Hardwick Town Plan, the Regional Plan for the Northeast Kingdom, and Vermont Scenic Byways, the Project does not appear to violate any clear, written community standards intended to preserve the aesthetics of the area. Due to the surrounding screening, the Project is not anticipated to cause undue adverse effects to the scenic or natural beauty of the surrounding landscape.

A more thorough analysis of potential aesthetic impacts under the 'Quechee Test' will be prepared prior to filing of a CPG petition.

Exhibit 3

Preliminary Natural Resources Memo

ARROWWOOD ENVIRONMENTAL
950 BERT WHITE ROAD
HUNTINGTON, VT 05462
(802 434-7276 FAX: (802) 329-2259

MEMORANDUM

Date: January 29, 2018
To: Mike Sullivan, Hardwick Electric Department
From: Michael Lew-Smith, Arrowwood Environmental
Re: Hardwick Electric Department Solar Facility

Arrowwood Environmental, LLC (AE) conducted a remote environmental assessment for the proposed Hardwick Electric Department Solar Project ("the Project") located at 454 Billings Road in Hardwick, Vermont. The Project site is characterized as a previously disturbed abandoned gravel pit. This remote assessment consisted of a desktop review of existing digital databases relevant to the following resources: shorelines, streams and headwaters, outstanding resource waters, wetlands, rare and irreplaceable natural areas, rare, threatened and endangered plant and animal species, and necessary wildlife habitat.

The proposed site is not located in a headwaters area since the watershed is greater than 20 square miles. The nearest streams are Alder Brook/Hardwick Lake and an unnamed tributary to Alder Brook/Hardwick Lake approximately 300' north of the Project. No impacts to headwaters or streams are therefore expected. According to the Vermont Significant Wetland Inventory database, there are no wetlands mapped within the Project area. The closest mapped wetlands are east of the Project and associated with Alder Brook/Hardwick Lake. There are no Outstanding Resource Waters in the Project vicinity. According to the Vermont Natural Heritage Project database, there are no rare, threatened or endangered species known from the Project site nor any significant natural communities currently mapped in the vicinity.

The Project is located adjacent to Hardwick Lake. As currently proposed, the northern end of the Project is within a mapped FEMA flood-hazard zone. In addition, some minor clearing may be necessary within the 250' Shoreland Protection Zone for the Lake. Finally, some very limited tree clearing may be considered along the border of the state-mapped Deer Wintering Area on the eastern side of the project. If these considerations develop further, the Hardwick Electric Department intends to collaborate with appropriate agencies in developing those plans.

During the growing season of 2018, AE will conduct the appropriate field assessments to complete a full natural resources review of the proposed Project.