



Memorandum

To: BDE East Montpelier Lazar Solar
Project File

Date: December 29, 2015

Project #: 57746.04

From: Rachel Lomonaco
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CESSWI

Re: East Montpelier Lazar Solar Project, East Montpelier, VT
Section 248 Waste Disposal & Soil Erosion Criteria
VT PSB CPG Section 248 Assessments

At the request of Bullrock Deutsche-Eco ("BDE"), VHB prepared this memorandum to provide technical information related to the East Montpelier Lazar Solar Project (the "Project") to be located off of Route 2 behind the property located at 2537 Route 2 in East Montpelier, Vermont. The content of this technical memorandum presents the results of an assessment of the Project as it relates to the following Act 250 Criteria, given due consideration by the Vermont Public Service Board ("PSB") under 30 V.S.A. Section 248 review for a Certificate of Public Good ("CPG"):

- Waste Disposal (Section 248(b)(5) / 10 V.S.A. § 6086(a)(1)(B))
- Soil Erosion (Section 248(b)(5) / 10 V.S.A. § 6086(a)(4))

To assist in evaluating the Project as it relates to the aforementioned criteria, VHB has relied upon BDE-provided Project information, the Project's 45-day filing letter to the PSB, dated November 3, 2015, and Project site plans, which are included with the petition material.

PROJECT DESCRIPTION

The Project Site currently consists of an open field surrounded by residential, forested and agricultural land. On-site slopes are generally to the southeast. Currently there is no direct road access to the Project Site. As described in the 45-day filing letter to the PSB, the Project will consist of the installation and operation of a 500 kilowatt ("kW") alternate current ("AC") solar electric generation facility. The Project will consist of:

- Installing solar panels that are on pile-driven fixed post-mounted racking systems that do not have above-ground concrete foundations (or similar);
- Installing a new approximately 317 foot long gravel access road from Route 2 to the Project Site for use during construction, as well as future use for operation and maintenance of the facility;
- Upgrading interconnection between the system and Green Mountain Power's ("GMP") existing three-phase service line along Route 2, including installation of three new distribution poles between the Project Site and Route 2 generally along the access roadway, with the northern most pole anticipated to carry pole mounted fluid-filled transformers;
- Installing an eight-foot high perimeter fence; and
- Selective tree clearing to the southwest of the Project Site to minimize shading.



SECTION 248 NATURAL RESOURCES CRITERIA

Waste Disposal (§ 6086(a)(1)(B))

The Waste Disposal criterion incorporated into Section 248 review provides that the Project must meet applicable health and Vermont Department of Environmental Conservation ("VT DEC") regulations regarding the disposal of waste, and must not involve the injection of waste materials into groundwater or wells. For the Project, VHB's consideration of waste disposal involves sanitary wastewater, stormwater runoff, and general construction waste including tree and brush debris. VHB's consideration of the injection of waste materials into groundwater or wells also involves the Project's storage of transformer oil and the potential for a leak or spill.

The Project will not need permanent sanitary waste treatment, will not require on-site sanitary waste treatment or use of public waste treatment facilities, and will not involve any on-site waste disposal or the injection of waste materials or any harmful or toxic substances into groundwater or wells.

The Project will generate minor amounts of scrap and waste material during installation, and this waste will be disposed of or recycled at an approved disposal facility in accordance with Vermont solid waste management rules and procedures. General construction waste generated during construction, such as office trash from the contractor's operations trailer, or from portable toilets, would be the responsibility of the contractor to dispose of properly. The Project is not anticipated to generate any wastes during operation.

There will be limited tree clearing to the southwest of the Project Site associated with Project construction. Woody debris generated from construction will be offered as firewood to the landowner or adjacent landowners, or it will be chipped/hailed to an approved disposal site.

Operational-phase stormwater discharge permit authorization is required under the VT DEC for discharges of regulated stormwater runoff to waters of the State from new development, redevelopment, and/or expansion of existing development that results in at least one acre of impervious surface. Based on review of the Project site plans, proposed impervious surfaces include a 317 foot extension to the gravel access driveway, concrete pads, driven posts, and electrical boxes, totaling approximately 4,634 square feet (0.10 acre). No existing impervious surfaces are located within the Project parcel. Thus, the total impervious area is less than one acre and therefore does not trigger the threshold for requiring authorization by VT DEC under their operational-phase stormwater discharge permit.

The Project involves the installation and use of three 167 kVA pole mounted, fluid-filled transformers along the southeastern Project Site boundary near the proposed roadway extension. The transformer fluid will consist of a non-hazardous vegetable-based dielectric fluid (ABB BIOTEMP® or similar). A VHB hydrogeologist evaluated the location of the fluid-filled transformers with respect to sensitive receptors in the vicinity of the Project. According to the Agency of Natural Resources ("ANR") Natural Resources Atlas, there are no public water supply wells within or immediately



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adjacent to the Project Site and no groundwater or surface water source protection areas intersect the Project Site. The closest mapped water supply well is located approximately 500 feet to the south and hydrologically downgradient from the Project Site. Although, the transformers are not located within a wetland or stream buffer, a VHB proposed Class III wetland is located approximately 160 feet southeast of the proposed transformer area. In the event of a transformer leak, surface flow from a spill would be generally to the southeast toward this proposed Class III wetland. Based on the separation distance and the presence of a densely vegetated area between the proposed transformer area and the proposed Class II wetland, it is not considered likely that a release from these transformers could reach this wetland. Additionally, it is not considered likely that a release from these transformers could reach the nearby mapped water supply wells. Furthermore, the transformer fluid will be non-hazardous. Accordingly, VHB believes that the proposed pole-mounted transformers do not pose a potential for adverse impacts to sensitive receptors. Additionally, the fluid-filled transformers will be supplied, owned and operated by GMP, and the transformers would be covered by GMP's existing protocol for oil spill prevention and clean up.

As indicated above, the Project will meet the applicable health and VT DEC regulations regarding the disposal of waste, and does not involve the injection of waste materials into groundwater or wells, therefore the Project will comply with this criterion.

Soil Erosion (§ 6086(a)(4))

Act 250 Criterion 4, which is to be accorded due consideration as part of Section 248, requires a finding that the Project "will not cause unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition may result." (10 V.S.A. § 6086(a)(4)). Determination of compliance with this criterion involves two components: (1) preventing soil erosion, and (2) preventing a reduction in the land's capacity to hold water.

According to the Natural Resources Conservation Service ("NRCS") soils report, underlying soils within the Project Site are described in the table below:

Soil Classifications Located Within the Project Site		
Soil Classification	K-value	Hydrologic Soil Group
Buxton silt loam, 15 to 25 percent slopes	Not rated	D
Lamoine silt loam, 8 to 15 percent slopes	0.37	C/D

Erodibility ratings (or "K-values") indicate the susceptibility of soil to erosion by water. Values typically range from 0.02 to 0.69, with higher values more susceptible to erosion. Soils with a K-values that are greater than 0.36, such as those that underlie the Project Site, are generally considered to have a moderate to high risk of erodibility per the *Vermont Standards and Specifications for Erosion Prevention and Sediment Control* (VT DEC 2008). This risk is intended to be maintained via implementation of the *Low Risk Site Handbook for Erosion Prevention and Sediment Control* (VT DEC 2006).



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Hydrologic soil groups ("HSG") established by the NRCS are based on estimates of runoff potential, with four classifications (A, B, C, and D) based on their rate of water infiltration under certain conditions. The soils that underlie the Project Site that are primarily part of HSG D, which typically has a very slow infiltration rate and typically consists of clay soils, soils with a high water table, and/or soils with a claypan or clay layer at or near the surface. Implementation of the *Low Risk Site Handbook for Erosion Prevention and Sediment Control* (VT DEC 2006) takes these site-specific factors into consideration in order to reduce potential for runoff.

For Project construction, only minimal site grading to facilitate access and structure installation, and earthwork to trench utilities are expected. Access during Project construction, as well as post-construction for routine operation and maintenance, will be achieved via upgrades and an extension to an existing gravel access road located off Route 2. During construction, materials and equipment will be staged within the Project Site.

As a Project with less than one acre of proposed earth disturbance, it does not require coverage under the VT DEC construction-phase stormwater discharge permit for construction activities. However, it is the Project's intent to comply with *Low Risk Site Handbook for Erosion and Sediment Control* (VT DEC 2006) to manage stormwater runoff from areas of exposed soil during construction. In turn, implementation of these measures will minimize the potential for sediment-laden runoff to reach the nearby receiving waters, thereby addressing the high erodibility ratings and low infiltration ratings associated with soils that underlie the Project Site. Examples of erosion prevention and sediment control ("EPSC") measures to be implemented include: project demarcation (e.g., construction fence and flagging) along the perimeter of the Project Site, silt fence between the Project Site and receiving waters, stabilized construction entrance/exit, and on-going stabilization of exposed soil using seed and mulch, seed and rolled erosion control product ("RECP"), and/or a gravel surface (in the access road). Therefore, the Project will not result in unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition results.



References:

Argentine, C.C. 2008. *Vermont Act 250 Handbook*. Putney Press, Brattleboro, VT.

ANR. 2010. Environmental Protection Rules, Water Supply Rule, Chapter 21.

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VT DEC. 2011. Stormwater Management Rule- Stormwater for Unimpaired Water: Available:
<http://www.anr.state.vt.us/dec/rulesum.htm>

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