



To: ER Dunsmore, LLC

Date: April 29, 2025

Memorandum

Project #: 57818.02

From: Stephanie Wyman, PE, Civil Engineer

Re: Section 248 Waste Disposal, Soil Erosion Technical
Memorandum

Introduction

At the request of ER Dunsmore, LLC ("Petitioner"), VHB has prepared this technical memorandum in support of a planned 4.95– megawatt ("MW") alternating current ("AC") ground-mounted solar project ("Project"). The Project array is located within a 30-acre fenced area inside an approximately 39.8-acre Project limits of work, located off Dunsmore Road in Saint Albans Town, Vermont (see Site Plan, *Exhibit DRS-TK-2*). The content of this technical memorandum presents the results of an assessment of the Project as it relates to the following criterion under 30 V.S.A. § 248(b)(5), which are given due consideration by the Vermont Public Utility Commission ("PUC") in its review of the Project 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))

Project Description

The proposed Project will consist of the installation of a 4.95-MW AC solar electric generation facility to be located within an approximately 30-acre fenced Project area.

The Project consists of ground-mounted, single axis tracking modules mounted on metal racks arranged in rows extended north to south within an existing open field. The Project will involve the following Project elements:

- Approximately 12,425 photovoltaic panels installed on ground-mounted single-axis tracking racking systems, across 30 acres of the site. The solar panels will be coated with a non-reflective glazing to reduce glare from the array, standing approximately ten to fifteen feet off the ground at their highest point;
- A network of string inverters dispersed across the array connected with underground cables installed in protective conduit;
- Approximately 5,285 feet of agricultural-style perimeter fence, seven to eight feet in height;
- A temporary staging/laydown area for delivery and short-term storage of materials;
- Widening, re-aligning and improving approximately 1,550 linear feet of an existing farm road to provide a 16-foot-wide gravel access road to the solar site and agricultural fields;
- Replacing two undersized, crushed culverts with a 45-foot modular steel bridge, and precast concrete abutments;
- Extending the existing access road approximately 1,250 with varying widths from 16 feet to 12 feet, including turnaround areas;
- An approximate 1,640-foot extension of 3-phase power to the site for interconnection to the Project Area into the existing Green Mountain Power grid, from the existing distribution service on Dunsmore Road. This new line section will require approximately 8 new wooden poles approximately 35 to 45 feet above ground.

- Construction of one gravel wetland and simple disconnection stormwater treatment practices to treat stormwater runoff from the impervious surfaces;
- Two pad-mounted transformers, 2,500-kVA units located on two separate equipment pads, located in the central and east-central Project areas, with secondary oil containment providing 110% of the equipment oil volume with freeboard for 5 inches of rain, and;
- Up to approximately 0.2 acres of tree and brush clearing will be necessary to facilitate construction (areas where woody material will be removed with stump removal/grubbing), which will largely be limited to the Project's access road between Dunsmore Road and the proposed array.

Section 248 Criteria Reviewed

Waste Disposal (10 V.S.A. § 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 ("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 transformers 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 (DEC 2020). General construction waste generated during construction, such as office trash from the contractor's operations trailer, or from portable toilets, will be disposed of properly by the contractor. The Project is not anticipated to generate any waste during operation.

Approximately 0.2 acres of tree clearing will be necessary to install the perimeter fence at the northwest corner and to accommodate temporary widening of the access road at the site entrance and upgrades to the existing stream crossing associated with the grading and installation of a bridge at Jewett Brook. Woody debris generated from tree clearing will be sold for lumber if merchantable, offered as firewood to nearby landowners, or chipped and hauled to an approved disposal site.

The Project site currently utilizes an existing farm road located off Dunsmore Road. To ensure the improvements to the farm road and associated simple disconnection stormwater treatment practices required to treat stormwater from the redevelopment of the existing impervious farm road remain within with subject parcel boundaries, the access road alignment needs to be modified. However, the Project will not significantly modify the existing drainage patterns on the site. The resulting improvements to the existing farm road and extension of the access road through the array will result in the following impervious area breakdowns:

Table 1 Impervious Area Breakdown

Impervious Area Designation	Area (AC)
Existing Impervious	0.43
Proposed New Impervious	0.86
Removed Existing Impervious	0.20
Redeveloped Impervious	0.19
Total Post-Construction Impervious	1.08

The total post-construction impervious surface area on the parcel will be approximately 1.08 acres. Therefore, an operational-phase stormwater discharge permit authorization (3-9050) will be required for discharges of regulated waters of the State. Petitioner will obtain this permit prior to site preparation or construction of the Project.

The Project anticipates installing two pad-mounted transformer (2,500kVA), located along the access road between the north-south section of the array at the center and eastern Project areas, as shown on the Project plans included in the petition material (*Exhibit DRS-TK-2*). The transformers will each contain approximately 500 gallons of organic FR3 oil. The Project is not subject to Spill Prevention Control and Countermeasure ("SPCC") regulations under 40 CFR 112 ("SPCC Regulations"), because the total volume of oil storage at the Project will not exceed 1,320 gallons. Although not subject to SPCC Regulations, the transformers will be placed within secondary containment structures to prevent the release of transformer oil to the environment. The secondary containment systems will have a 110% storage volume and include 5 inches of freeboard.

Though secondary containment will be constructed to prevent the unlikely release of oil to the environment, VHB evaluated the location of the fluid-filled transformers with respect to sensitive receptors near the Project. According to the Agency of Natural Resources ("ANR") Natural Resources Atlas, there are no groundwater source protection areas or surface water source protection areas ("SPA") within the Project Natural Resource Study Area as shown on the site plan in *Exhibit DRS-TK-2*; there are also no nearby ANR-mapped SPAs. ANR-mapped private water supply wells in the vicinity of the Project area are located greater than 1,000 feet from the transformers and are reported to be bedrock wells. Additionally, the transformers are not located within wetlands, wetland buffers, streams, or stream buffers. The distance from sensitive receptors and proposed secondary containment structures will prevent the unlikely release of oil to waters of the U.S. or other sensitive receptors. Accordingly, VHB believes that the proposed transformers do not pose a potential for adverse impacts to sensitive receptors.

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

Soil Erosion (10 V.S.A. § 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)). Compliance with this criterion involves two considerations: (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:

Table 2 Soil Classifications Within Project Area

Soil Classification	K-Value	Hydrologic Soil Group ¹
Covington clay	0.49	D
Georgia stony loam, 0 to 3 percent slopes	0.28	C
Georgia stony loam, 3 to 8 percent slopes	0.28	C
Kingsbury clay, 0 to 3 percent slopes	0.49	D
Lordstown loam, rocky, 3 to 8 percent slopes	0.28	C
St. Albans slaty loam, 3 to 8 percent slopes	0.10	A

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 K-values that are greater than 0.17 but less than 0.36 are generally considered to have a moderate risk of erodibility per the Vermont Standards and Specifications for Erosion Prevention and Sediment Control. Any risks related to potential soil erodibility are intended to be minimized via implementation of a site-specific Erosion Prevention and Sediment Control ("EPSC") plan.

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, with HSG A having the least runoff potential and HSG D having the greatest runoff potential. The Project site is primarily underlain by HSG C/D soils indicating a high potential for runoff. Implementation of the EPSC plan will take these site-specific factors into consideration to reduce potential for runoff.

Soil disturbance for Project construction will total more than one acre (approximately 39.8 acres). Therefore, Petitioner will need to obtain a construction stormwater permit (GP-9020), which Petitioner will do prior to site preparation or construction of the Project. The Project will implement EPSC best management practices ("BMPs") to minimize soil erosion and reduce the potential for sediment-laden runoff to reach receiving waters. The installation and maintenance of BMPs will prevent any undue soil erosion from all areas of earth disturbance. BMPs that will be implemented as part of the Project include, but are not necessarily limited to, a stabilized construction exit to minimize tracking of soil by vehicles, demarcation of disturbed areas with barrier tape, installing perimeter controls such as silt fence and construction fencing, and installing straw wattles at numerous locations, parallel to the slope within the array to prevent erosion and the creation of rills. The BMPs are shown on the site plan sheets; see also Site Details in *Exhibit DRS-TK-2*.

During operation of the Project, stormwater runoff from new and redeveloped impervious surfaces will be treated through a gravel wetland treatment practice, or when conditions allow, through simple disconnection practices located along the Project access road. See Site Plan *Exhibit DRS-TK-2*. These stormwater treatment practices will be reviewed and approved as part of the operational stormwater permit that the Project will obtain prior to construction.

¹ Soils that can be adequately drained are assigned to dual hydrologic soil groups (A/D, B/D, and C/D) based on their saturated hydraulic conductivity and the water table depth when drained. The first letter applies to the drained condition and the second to the undrained condition. For the purpose of hydrologic soil group, adequately drained means that the seasonal high-water table is kept at least 60 centimeters [24 inches] below the surface in a soil where it would be higher in a natural state (USDA NRCS 2007).

These practices will ensure that there are no undue adverse impacts as a result of stormwater runoff during operation of the Project.

Based on evaluation of the proposed Project, it is VHB's opinion that the Project will not cause unreasonable soil erosion or reduction in the capacity of the land to hold water such that a dangerous or unhealthy condition results.

References:

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

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