



To: GlobalFoundries Williston G Katie Lane
Solar Project File

Date: September 22,
2025

Memorandum

Project #: 58972.07

From: Allison Slaney, PWS;
Environmental Scientist and
Carla Fenner, PWS, CWS, Team Leader –
Ecological Services

Re: Section 248 Natural Resources Assessment

Introduction

On behalf of Williston G Katie Lane Solar, LLC ("Petitioner") and at the request of Encore Renewable Energy ("Encore"), VHB conducted natural resource assessments in support of a planned 2.900-megawatt ("MW") alternating current ("AC") ground-mounted solar project ("Project"). The Project is sited on approximately 11.1 acres of land within a 440-acre parcel, located north of Mountain View Road, on GlobalFoundries ("GF") Williston Campus, in Williston, Vermont (see the Natural Resource Map in **Attachment 1**). Natural resources assessments were conducted on an approximately 31.4-acre portion of the overall parcel, referred to herein as the "Study Area". The 11.1-acre Project extent includes all Project components: the solar array, access roads, interconnection, and supporting infrastructure ("Project Area"). This technical memorandum includes an overview of the proposed Project, site conditions in the Study Area, descriptions of the methodologies used for each assessment, assessment findings, and an evaluation of the Project with respect to the applicable 30 V.S.A. § 248(b)(5) natural resources criteria reviewed by the Vermont Public Utility Commission ("PUC").

The natural resources assessment that VHB conducted in support of the Project included database reviews as well as field assessments, and was designed to include an evaluation of the following criteria, which are given due consideration under PUC review for a Certificate of Public Good ("CPG"):

- Outstanding Resource Waters (10 V.S.A. § 1424a(d));
- Headwaters (§ 6086(a)(1)(A));
- Floodways (10 V.S.A. § 6086(a)(1)(D));
- Streams (10 V.S.A. § 6086(a)(1)(E));
- Shorelines (10 V.S.A. § 6086(a)(1)(F));
- Wetlands (10 V.S.A. § 6086(a)(1)(G));
- Rare and Irreplaceable Natural Areas ("RINA") (§ 6086(a)(8)); and
- Necessary Wildlife Habitat and Endangered Species (§ 6086 (a)(8)(A)).

In making assessments of potential Project impacts to natural resources, VHB reviewed prior findings made as part of the IBM Photovoltaic Regional Test Center ("RTC") project (PSB Docket No. 8045) which involved lands that are now part of this Project, in part. This review is for consistency, but given the time that has lapsed since those findings were made, VHB conducted natural resources field assessments within the Project lands beginning in September 2022, with follow up visits as necessary to capture seasonal studies or changing iterations, including June and September 2023, various dates throughout 2024, and final site visits to inform these assessments occurred in the summer of 2025. In making impact assessments, VHB relied on Project information provided by Encore and Project site plans prepared by VHB civil engineers.

Project Description

The Project Area was selected and designed after considering all site constraints – including topography, environmental resources, existing infrastructure and land uses, and aesthetic impacts – while maximizing the potential energy generation benefits. The Project will consist of the installation and operation of a solar electric generation facility, capable of generating up to 2.900 MW AC. The Project will consist of non-reflective photovoltaic modules installed on fixed-tilt racking units within a fenced area of panels spread across the Project Area. The Project as designed consists of two array areas: a northern array and a southern array, which have been designed to avoid environmental and natural resource impacts to the extent practicable. As depicted on Project site plans, the design has utilized existing on-site infrastructure to the extent that impacts are minimized and compatible with the Project. The existing infrastructure for the RTC installation to be used for the Project include an existing access road which extends north from Mountain View Road, an existing perimeter fence, and an existing concrete pad where the Project's point of interconnection and point of common coupling will occur at a Green Mountain Power ("GMP") meter. Much of the southern array portion will occur within the existing perimeter fencing installed for the RTC project.

The Project's rows of panels will be constructed largely in fallow or early successional old fields. The array will be installed on ground-mounted racking systems with posts driven into the existing ground. The Project will utilize an existing gravel access road and then will upgrade and extend the existing road generally to the north to access the northern array, where it will be constructed as a pervious gravel surface. Construction staging and equipment storage will occur in two temporary staging areas: one staging area is to the south of the northern array and the other is in between the southern array and the existing gravel access road. The Project will interconnect with the distribution system at the same location used formerly used by the RTC Project. Distribution line upgrades are not necessary.

Approximately 0.03 acre of tree clearing will be necessary to widen the existing access driveway leading toward the northern array and approximately 1.18 acres of shrub/sapling clearing will be necessary for the installation of the southern array. Approximately 0.18 acre of potential future operational phase vegetation management has been identified at the south of the Project area to maintain a maximum woody vegetation height of 25-feet throughout the life of the Project in that area. A more detailed description of the Project is provided in the prefiled testimony of Jake Clark and site plans submitted as Exhibit WGKL-JC-2.

Site Description

The Study Area occurs in the Champlain Valley biophysical region of Vermont, which is characterized as one of the warmest regions of Vermont, with low-elevation level plains of clay and silt soils, often dry and receiving less than half the annual precipitation of the Green Mountains to the east. Topography in the region increases to the east as the valley reaches the Green Mountains (Thompson et al. 2019) and on-site elevation within the Study Area ranges from approximately 300 to 500 feet above mean sea level. The Natural Resources Conservation Services ("NRCS") has mapped the dominant soils within the Study Area as Adams and Windsor loamy sands, 0 to 5 percent slopes; Duane and Deerfield soils, 0 to 5 percent slopes; and Hartland very fine sandy loam, 25 to 60 percent slopes. The Study Area is within Basin 8 of the Winooski River Watershed (HUC12: 043001030704). One Class II wetland as mapped by the Vermont Significant Wetland Inventory ("VWSI") barely intersects the western corner of the Study Area, and the next closest VSWI-mapped wetland is to the north of the Study Area along the Winooski River. VHB's field natural

resources delineations confirmed the presence of several wetland complexes within the Study Area, which are depicted on the Natural Resources Map included as **Attachment 1**.

Conditions within the arrays are open (not forested) and consist of an intermittently mowed, fallow hayfield, the open and maintained RTC Solar Project area, and a smaller area of early successional fallow scrub cover between the field edge and Mountain View Drive. Adjacent lands surrounding the Study Area include areas that are forested, rural residential development, and the RTC solar installation, which is bounded by an existing chain link fence. In addition to the two fields where the Project arrays are proposed, conditions within the Study Area included developed areas such as the existing access road and RTC infrastructure, a forested river escarpment in the northernmost portion, and multiple wetland areas with variable scrub-shrub and tree cover as well as areas of emergent, non-woody vegetation. Typical vegetation in delineated wetlands included Bebb's willow (*Salix bebbiana*), reed canary grass (*Phalaris arundinacea*), greater bladder sedge (*Carex intumescens*), field horsetail (*Equisetum arvense*), and spotted joe pye weed (*Eutrochium maculatum*), among others. There are also several non-native invasive plant species ("NNIS") observed within the Study Area including oriental bittersweet (*Celastrus orbiculatus*), glossy buckthorn (*Frangula alnus*), dames rocket (*Hesperis matronalis*), Morrow's honeysuckle (*Lonicera morrowii*), purple loosestrife (*Lythrum salicaria*), wall-lettuce (*Mycelis muralis*), the above-mentioned reed canarygrass, and common buckthorn (*Rhamnus cathartica*),

VHB field reviewed all adjoining lands at least 50-feet from all Project components, with exception of lands along the southeastern corner of the southern array where future vegetation management has been prescribed approximately up to the property line in that location. VHB did not have access permission to enter those lands but was able to confirm from vantages on the Project property that there are not any resources in that area that would create protected buffers extending into the Project land. Accordingly, results from VHB's assessments are described in the following sections of this memorandum and depicted in the Natural Resources Map in **Attachment 1**. Representative site photographs are included in **Attachment 2**.

SECTION 248 NATURAL RESOURCES CRITERIA

OUTSTANDING RESOURCE WATERS (10 V.S.A. § 1424a (d))

The Vermont Water Quality Standards ("VWQS", ANR 2022b), under section 29A-105(d), state that the Secretary of the Vermont Agency of Natural Resources ("ANR") may, under 10 V.S.A. Section 1424(a), designate Outstanding Resource Waters ("ORW"). The following waterways have been designated ORWs:

1. Batten Kill River, Towns of Dorset and Arlington;
2. Pike's Falls/Ball Mountain, Town of Jamaica;
3. Poultney River, Towns of Poultney and Fair Haven; and,
4. Great Falls, Ompompanoosuc River, Town of Thetford.

The Study Area was reviewed against this list to determine if it is located within the vicinity of any listed ORW. None of these waters is within or near the Study Area, and therefore, the Project will not result in any impact to Outstanding Resource Waters.

HEADWATERS (10 V.S.A. § 6086(a)(1)(A))

The Headwaters criterion under Act 250, given due consideration under Section 248 review, requires that a project — if located in a headwater — meet any applicable health and department of environmental conservation regulations regarding reduction of the quality of the ground or surface waters flowing through or upon lands that are not devoted to intensive development. The sub-categories for headwaters are:

- i. Headwaters of watersheds characterized by steep slopes and shallow soils; or
- ii. Drainage areas of 20 square miles or less; or
- iii. Above 1,500 feet elevation; or
- iv. Watersheds of public water supplies designated by ANR; or
- v. Areas supplying significant amounts of recharge waters to aquifers.

VHB analyzed available geospatial information, including soils data, topographic maps, and state-mapped public water supply source protection areas, in addition to the field assessment, to determine if the Study Area is located on any lands that meet the Headwaters criterion.

Subcategory (i)

The majority of the Project Area, where work will occur, includes mapped soils that NRCS has characterized as not having steep slopes (generally less than 15 percent), including Adams and Windsor loamy sands (0 to 5 percent slopes) and Duane and Deerfield soils (0 to 5 percent slopes). Additional all soils present within the Study Area are not characterized as shallow soils (generally 20 inches to restrictive features). Moreover, shallow soils were not observed in the Study Area during field investigations. As such, the Project does not meet criteria for subcategory (i).

Subcategory (ii)

The Project Area is located in the Winooski River watershed within close proximity and direct drainage to the mainstem of the Winooski River. Because the drainage area of the watershed is greater than 20 square miles, and directly connects to on-site waters via tributaries, it is VHB's opinion that the Study Area does not meet the protective intents of subcategory (ii). The Docket 8045 petition also found that the RTC installation was within a drainage area of less than 20 square miles, and additionally noted that no streams were present within the RTC project area.

Subcategory (iii)

The Project area is below 1,500 feet in elevation; therefore, the Project does not meet subcategory (iii).

Subcategory (iv)

There are no watersheds of public water supplies designated by ANR within the Study Area, therefore the Project does not meet subcategory (iv).

Subcategory (v)

The Study Area does not supply significant amount of recharge waters to aquifers therefore, the Project does not meet subcategory (v).

The Study Area does not meet any of the headwater sub-categories. It is VHB's finding that the Project site should not be considered a headwaters location. Further, the Project will not produce wastewater, and other limited pollutants (e.g. transformer oil) and stormwater runoff will be appropriately managed during construction and operation as applicable. 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.

VHB has prepared a separate analysis of Project waste disposal and stormwater plans that provides further detail regarding pertinent aspects and regulations (see the prefiled testimony of Stephanie Wyman), but in brief summary, the Project will adhere to the requirements of the Vermont Department of Environmental Conservation ("DEC") construction stormwater discharge requirements and will include measures to protect against impacts in the event of an inadvertent release of transformer oil. As such, even though the site is not considered a Headwaters location, the Project will meet applicable health and DEC regulations regarding the quality of groundwater and surface waters.

FLOODWAYS (10 V.S.A. § 6086(a)(1)(D))

The Floodways criterion under Act 250, given due consideration under 248 review, takes into consideration a project's effect on both floodways and floodway fringes. The Floodways criterion under Act 250, as incorporated into Section 248 review, takes into consideration a project's effect on flood hazard areas and river corridors. Per Section 6001(6), a "flood hazard area" is "the land in the flood plain within a community subject to a 1 percent or greater chance of flooding in any given year, defined in 44 CFR 59.1. A project's impacts are also considered with respect to both flood inundation and fluvial erosion hazards pursuant to the *Flood Hazard Area and River Corridor Protection Procedure* ("FHARC Procedure" ANR 2017a). The FHARC Procedure addresses both inundation risks as represented by Federal Emergency Management Agency ("FEMA")-mapped flood information, and potential fluvial erosion risks associated with the geomorphic principles necessary to achieve stable fluvial processes to establish a River Corridor protected under the Flood Hazard Area and River Corridor Rule ("FHARC Rule"). The River Corridor consists of the meander belt or fluvial erosion hazard area, which is defined as the lateral width of a stream corridor that may be subject to fluvial erosion from stream channel lateral migration as well as a 50-foot riparian buffer outside of this meander belt (ANR 2017). The meander belt is typically determined by geomorphic assessments of channel bankfull width, meander centerline, confining lateral topography, channel type, and current channel adjustments, which is then translated into the channel-width-to-belt-width ratio, dependent on stream sensitivity type and adjacent landform.

VHB reviewed the available FEMA data for the Town of Williston, Vermont, to determine if the Study Area is located within any designated floodway or floodway fringe. VHB also reviewed available mapping from the State of Vermont River Corridor Mapping.

There are no FEMA-mapped floodways or floodplains within the Study Area according to Flood Insurance Rate Maps ("FIRM") Community Panel Numbers # 50007C0276D and # 50007C0278D (Effective July 18, 2011). ANR defines "River Corridors" for many streams and rivers in Vermont. Based on the review of ANR mapping, there is a state-mapped River Corridor and FEMA floodway, associated with the Winooski River, located approximately 65 feet north of the Study Area but these resources are not present within the Study Area. There are also no delineated perennial streams or respective River Corridors mapped by VHB within the Study Area. Therefore, the Project will not restrict or divert the flow of flood waters (floodway or floodway fringe), or endanger the health, safety, and welfare of the public, or of riparian landowners during flooding or from potential erosion.

STREAMS (10 V.S.A. § 6086(a)(1)(E))

The Streams criterion under Act 250, given due consideration under Section 248 review, requires that projects will, when feasible, maintain natural stream channel condition, and will not endanger the health, safety, or welfare of the public or adjoining landowners.

When applicable, VHB's stream delineation flagging is conducted pursuant to ANR's Guidance for Agency Act 250 and Section 248 Comments Regarding Riparian Buffers ("Riparian Buffer Guidance" 2005). Stream and Ordinary High Water ("OHW") width determinations follow guidance provided in the U.S. Army Corps of Engineers ("USACE") Regulatory Guidance Letter: Subject- Ordinary High Water Identification (2005). Stream top of bank ("TOB") and top of slope ("TOS") are flagged in the field according to the ANR Riparian Buffer Guidance (ANR 2005). Stream TOB and TOS are flagged on larger channels, generally wider than six feet, using blue survey tape and labeling that includes the stream ID and flag number. Stream center ("SC") is flagged for smaller channels, generally less than six feet wide, with blue survey tape, and labeling that includes the stream ID and flag number. When applicable, stream TOS, TOB, or OHW limits in the investigated area are marked with blue flagging tape and labeled by stream ID and flag number. Flow regimes are preliminarily classified in the field as ephemeral, intermittent, or perennial, and are determined based on qualitative observations of in-stream hydrology indicators at the time of observation, as well as geomorphic characteristics (i.e., stream bed and bank development), and are subject to professional judgment. When present, stream flagging is mapped in the field using sub-meter capable mobile data collection equipment.

VHB Environmental Scientists conducted stream assessments included with other natural resources surveys within the Study Area. One intermittent stream, a tributary to the Winooski River, was delineated within the Study Area and is depicted as 2024-SC-11 on the Natural Resources Map in **Attachment 1**. VHB also documented one ephemeral feature, identified as 2024-SC-310. The limits of the delineated stream segments and associated buffer on the intermittent channel are shown on **Attachment 1**. Further data characterizing the stream is provided in the Summary of Delineated Wetlands and Streams (**Attachment 3**). The riparian buffer for Stream 2024-SC-11 extends 50-feet beyond the limits of the associated riparian wetland areas (Wetland 2024-101). With that riparian buffer extent, the Project's access road rehabilitation and extension at the northern array cannot feasibly avoid work within the riparian buffer. The access drive rehabilitation is depicted in detail in Project site plans and generally will consist of replacing or extending an existing 18-inch culvert, grading, shaping, and the addition of a pervious drive surface to extend the existing access. The 18-inch culvert provides driveway cross-drainage from the upgradient wetland, but does not convey the stream channel, which originates approximately 45-feet down gradient from the existing culvert. VHB civil engineers evaluated the existing 18-inch culvert and determined the culvert or its replacement is sized appropriately to convey the 25-year storm event and maintain the existing hydrologic connection between wetland areas above and below the road crossing.

No Project components are proposed to be located within stream channels, and no tree clearing in riparian buffers is proposed except for the potential for one single American elm (*Ulmus americana*) tree to be trimmed or cut, if trimming is not sufficient for construction. Because the Project will be utilizing the existing access road and culvert, there are no new access roads or crossings. Project impacts under this criterion have been minimized by utilizing the existing access road and designing the rehabilitation and improvements to the road to be narrow enough to avoid the need for tree clearing or any actions within stream channels themselves. Given the nature of the access road work described above, temporary construction measures such as erosion prevention and sediment control ("EPSC") will also occur within a portion of the riparian buffer and will minimize risk of inadvertent runoff from the Project site into sensitive resources, including the riparian buffer area, beyond the Project limits. EPSC demarcation will be removed after construction and there will be no permanent alteration of riparian buffer proposed as part of the Project; potential trimming or removal of a single tree adjacent to the existing access road is proposed to be de minimis. As such, the Project will maintain the natural condition of the stream channel, and will not endanger the health, safety, or welfare of the public or of adjoining landowners.

SHORELINES (§ 6086(a)(1)(F))

Shorelines are defined under Act 250 as “the land adjacent to the waters of lakes, ponds, reservoirs, and rivers. Shorelines shall include the land between the mean high-water mark and the mean low-water mark of such surface waters” (10 V.S.A. § 6001(17); Argentine 2008). The Study Area was reviewed against these criteria to determine if it is located on or adjacent to any shoreline areas.

The Project is not located on or adjacent to any shoreline areas. The nearest shoreline area to the Study Area is more than 350 feet from the closest edge of the Study Area and more than 525 feet from the closest edge of Project activities and no Project activities will affect or alter conditions within any shoreline area. There will be no impacts to shorelines or their protected values as defined under this criterion.

WETLANDS (§ 6086(a)(1)(G))

The Wetlands criterion under Act 250, given due consideration under Section 248, requires that a proposed project comply with the Vermont Wetland Rules (“VWR”) (ANR 2023). The VWR apply to significant wetlands (Class I and Class II wetlands) and their buffers. Impacts to Class III wetlands are not considered under Act 250 Criterion 1(G) but are generally reviewed under Section 248(b)(5) through the PUC’s consideration of the potential for undue adverse impacts on the natural environment. Further, nearly all wetlands are regulated by the USACE under Section 404 of the Clean Water Act (“CWA”) permit program, as well as the integrated DEC CWA Section 401 Water Quality Certification (“WQC”) review process.

VHB’s wetland delineations are made pursuant to applicable methodologies outlined in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region Routine Determination Method. When applicable, wetlands are identified in the field with pink flagging and are mapped in the field using mobile data collection equipment capable of sub-meter accuracy. Field notes are taken to record information such as potential wetland classifications, general characteristics, wetland functions and values, and any unique qualities observed during the site assessment, along with other conditions relevant to support site findings. Wetlands are classified in accordance with the Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979). The presence and significance of wetland functions and values are evaluated based on field notes and observations according to the VWR (ANR 2023).

As part of natural resource assessments conducted during its 2022, 2023, and 2024 field investigations, VHB delineated portions of seven wetlands within the Study Area, five of which meet the definition of categorical Class II wetlands. In addition to the five wetlands in the Study Area meeting categorical Class II definitions, there is one buffer to a presumed Class II wetland which was observed just beyond the Study Area limits and which has a buffer that extends into the western edge of the northern Study Area. On site wetlands were observed to provide the following functions, described in the VWR: Water Storage for Flood Water and Storm Runoff (5.1), Surface and Ground Water Protection (5.2), and/or Erosion Control through Binding and Stabilizing the Soil (5.10) (see Natural Resources Map, **Attachment 1**). Two Class III wetlands were delineated in the Study Area (Wetland 2024-1 and Wetland 2024-500), and each were found to be small in size, isolated from other wetland areas, and providing minimal function and value per the VWR. VHB’s wetland boundaries and proposed classifications were field-confirmed by DEC Wetland Ecologist Tina Heath on September 17, 2024. Further data characterizing on-site wetlands are presented in the Summary of Delineated Wetlands (**Attachment 3**), and the U.S. Army Corps of Engineers Wetland Determination data sheets (**Attachment 4**).

The Project was designed to first avoid impacts to wetlands and Class II buffers and then minimize unavoidable impacts. Multiple design iterations and revisions were made to previous Project layouts and the final proposed

design of the northern array is largely based on avoidance of wetlands and buffers that bisect the northern field. This avoidance creates a notable reduction in the overall potential array size and efficiency, and an increase in expense. Similar to the access road rehabilitation described under the Streams criterion above, the access road improvements for use by the Project will necessarily result in wetland and buffer impacts, though minimal. Total wetland impacts from the Project would consist of less than 150 square feet of impact to Wetland 2024-101, and less than 4,000 square feet of buffer impact in the portion of the buffer of Wetland 2024-101 that is adjacent to the existing road but beyond the current limits of road fill. The potential single tree that could be trimmed or cut by the Project occurs within the buffer of Wetland 2024-101. No tree clearing in wetlands or buffers is proposed, either for temporary construction access, beyond the single elm tree mentioned above. No permanent, or operational phase, tree clearing or cutting in wetlands or buffers are proposed.

Although the Project will result in minimal unavoidable impacts to a Class II wetland and buffer zones, the Petitioner has implemented a number of avoidance and minimization measures into the Project design, in order to ensure the Project, as proposed, will avoid impacts to wetlands and minimize impacts to buffers. These measures include:

- Avoidance of impacts to Class II (or III) wetlands or buffers from array infrastructure or for operational vegetation management;
- Utilizing existing road infrastructure for access to the Project;
- Where proximal to wetlands and buffers, minimizing the access road width to the narrowest dimension feasible while still meeting design and engineering and safety requirements;
- Implementation of the EPSC plan which includes measures of Project demarcation to prevent unintended impacts or incursions to wetlands, buffers, and other sensitive resources outside of the Project area, prevent indirect discharges of sediment, stabilize and revegetate disturbed soils, and minimize introduction of new non-native invasive species ("NNIS") of plants through use of weed-free stabilization mulches and seed mixtures.

The Petitioner will require authorization under a Vermont Wetland Permit ("VWP"). The Project has already acknowledged conceptual impacts from this Project within a request for VWP authorization for another project on Global Foundries' campus. This Project's VWP application will be submitted subsequent to the CPG petition with the detailed Project design included with the CPG petition. The application is anticipated to include a description of avoidance and minimization measures summarized above and the authorization would include requirements to prevent the spread of NNIS. Construction will not commence until applicable permits are approved. A USACE Section 404 Permit is also required and assumed to qualify as a Self-Verification under a Vermont General Permit, for the proposed fill within Waters of the U.S., where the access road will impact Wetland 2024-101. The Project will not result in undue, adverse impacts to wetlands, and will comply with the VWR and Section 404 of the CWA.

RARE AND IRREPLACEABLE NATURAL AREAS (RINA) (10 V.S.A. § 6086(a)(8)), AND NECESSARY WILDLIFE HABITAT AND ENDANGERED SPECIES (10 V.S.A. §6086(a)(8)(A))

Under Act 250 Criteria 8 & 8(A), given due consideration under Section 248 review, a project must be shown to have no undue adverse effect on Rare and Irreplaceable Natural Areas ("RINA"). Additionally, a project must not destroy or significantly endanger Necessary Wildlife Habitat ("NWH") or any Endangered Species.

RINA

Per the Vermont Fish and Wildlife Department (“FWD”), significant natural communities can be deemed RINA as part of the four-part test required by Act 250 Criterion 8. Determinations of “Significance” are made by applying a combination of community ranking, current condition (age, degree of disturbance), and landscape context (size, degree of fragmentation) to determine an “Element (or Community) Occurrence Ranking”. Rare (S1 and S2) natural communities can be considered significant when quality-ranked A, B, or C. Uncommon (S3) and common (S4) types require a quality rank of A or B to be considered significant. Very common (S5) types require an A-rank to be considered significant (ANR 2016). Additional considerations for RINA include the presence of rare, threatened, or endangered (“RTE”) species in these communities, or the presence of an association of natural communities that characterize a part of the landscape and for which ecologically intact examples are rare or declining in the state (ANR 2004).

To identify potential occurrences of known significant natural communities, VHB queried the Vermont Natural Heritage Inventory (“NHI”) database (most recently reviewed in June 2024) for the presence of known Element Occurrences (“EOs”) of significant natural community types within, adjacent to, and within one mile of the Study Area. There are no natural communities mapped within the Study Area or within a one-mile radius of the Study Area.

During the 2023 and 2024 field assessments, VHB Environmental Scientists compared the on-site vegetative assemblages within the Study Area against characteristics of Natural Community types described in *Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont* (Thompson et al., 2019). The Study Area has largely been managed for use associated with agricultural purposes in the past, and the northernmost forested portion of the Study Area consists of a successional forest edge and an area of mixed eastern hemlock (*Tsuga canadensis*) with common hardwood species such as red maple (*Acer rubrum*) and gray birch (*Betula populifolia*) and not meeting the size, condition, and/or landscape context thresholds of significance for any recognized natural community. The Project design limits Project development to existing open fields, roadside fallow scrub, and existing access road and corridor. From both the database review and field assessment, VHB found that there are no significant natural communities or other areas that could constitute a RINA within the Project Area. Representative photographs of plant communities in the Study Area are included in **Attachment 2**.

Endangered Species

Endangered Species include those that are defined as “threatened” or “endangered” on the Vermont state endangered and threatened species lists, and that are protected under the Vermont Endangered Species Law (10 V.S.A. Chapter 123). Species protected under the federal Endangered Species Act are included as well.

To identify the potential occurrence of rare or sensitive species, particularly those that are federally or Vermont listed threatened or endangered, and to assess available on-site habitat condition relative to each, VHB queried the NHI database for the presence of known EOs of rare, threatened, and endangered (“RTE”) species within and adjacent to the Study Area. VHB used a one-mile radius to query for RTE species so that EO records in surrounding habitats which may have similar conditions to those found in the Study Area could be analyzed. Details for all EOs identified in the database review, including species name, rarity rank and protection status, known habitat and potential on-site habitat are included in **Attachment 5**. Based on the results of the database query, there are no records of Vermont threatened or endangered species or state-rare plants or animals mapped within the Study Area.

No RTE animal species were observed during VHB's field investigations. To avoid adverse or undue impact to RTE plant species, VHB Botanists conducted a general plant inventory in accordance with ANR's *Guidance for Conducting Rare, Threatened, and Endangered Plant Inventories in Connection with Section 248 Projects* (ANR 2016a). The plant surveys occurred on September 12, 2024, and August 19, 2025. In addition to the general survey, VHB targeted its review of the Project site for potential habitat or occurrence of the hairy wood mint (*Blephilia hirsuta* var. *hirsuta*), a Vermont-threatened plant species that has been recorded within one mile of the Project, albeit more than 100 years ago and under very different existing conditions. VHB's field survey also consisted of general review of all identifiable plants within the Project site and at least a 50 foot vicinity, with a particular interest in surveying suitable habitats for listed species previously recorded in the NHI database within a one-mile radius of the Project, as noted in **Attachment 5**, as well as the RTE plants which are characteristic of Vermont's rare sandplain natural communities and habitats (as the Study Area is partially underlain by sand-dominated mapped soils). Although not a specific target for the RTE plant surveys, the presence of a mapped occurrence of marsh woundwort (*Stachys pilosa* var. *pilosa*, rare/S2?) within a wetland habitat roughly 145 feet from the southeastern portion of the Project was noted. As the marsh woundwort is associated with wetland habitats, the closest potential habitat within the Study Area is much farther than 145 feet and with intercepting vegetation cover of fallow upland field and agriculturally managed field, which are not compatible or suitable as potential habitat. All plant species identified in the inventory were checked against the current *Rare and Uncommon Native Vascular Plants of Vermont* list (ANR 2024), as well as the *Endangered and Threatened Plants of Vermont* (ANR 2022a), to determine their rarity rank and any potential protections under endangered species law. No RTE plant species were observed during field investigations. A complete list of identified on site vascular plants is included in **Attachment 6**.

Additionally, VHB queried the U.S. Fish and Wildlife Service ("USFWS") Information for Planning and Consultation ("IPaC") system project review database on June 17, 2024 to identify any federally listed threatened or endangered species or critical habitat within the Project region. Based on this review, the Study Area is within the known range of the federal and state-listed endangered northern long-eared bat (*Myotis septentrionalis*) ("MYSE") and tricolored bat (*Perimyotis subflavus*, proposed federal endangered), but no critical habitat is located within the Project location for either species (see **Attachment 7**). The NHI database has no mapped occurrences of MYSE within at least a one-mile radius of the Study Area boundary. As there are no known occurrences of MYSE summer habitat or winter hibernacula, the Project is assumed to occur within "Potential Summer Habitat," according to applicable FWD guidance (2017b). If tree clearing in assumed Potential Summer Habitat is less than one percent of the available MYSE habitat within one mile of the Project center, no additional conservation measures are necessary. The Project is proposing approximately 0.05 acre of tree clearing (tree removal with stumping/ grubbing). Using ANR's Natural Resources Atlas "Summarize Landcover" tool¹ which analyzes forested landcover, VHB determined that the total forested area within one mile of the Project is approximately 2,583 acres. Therefore, the total area of tree cutting for the Project represents less than 0.01 percent and the Project will not require tree clearing restrictions or conservation measures subject to the FWD Guidance. The Project is designed to generally avoid tree clearing, with tree clearing minimized to minimal trimming and clearing at the edge of the access road wetland crossing as well as along the southern and eastern edge of the northern array. Although there are no known MYSE records within one mile, there is a record for an acoustic detection of a tri-colored bat with the NHI polygon intersecting the adjacent solar project to the east of the Project site.

¹ ANR's Natural Resources Atlas, accessed at: <https://anrmaps.vermont.gov/websites/anra5/>; analysis most recently conducted on 8/2024.

Based on the description of RTE database and field surveys described above and proposed avoidance and mitigation efforts related to forested bats, there will be no adverse undue impact on endangered species.

Necessary Wildlife Habitat

The types of habitats that typically constitute Necessary Wildlife Habitat ("NWH") include deer (*Odocoileus virginianus*) wintering habitat, black bear (*Ursus americanus*) mast stands [concentrated stands of American beech (*Fagus grandifolia*) and oak (*Quercus* spp.)], black bear wetland feeding habitat, and in some cases, moose (*Alces alces*) overwintering areas, grassland bird habitat, vernal pools, and upper elevation habitats utilized by Bicknell's thrush (*Catharus bicknellii*).

VHB reviewed deer wintering habitat, black bear travel corridors, and black bear feeding habitat mapping available from ANR to determine if the Study Area is situated within or adjacent to mapped habitats that could constitute NWH. Additionally, VHB Environmental Scientists assessed the Study Area for the presence and (if present), the quality and condition of NWH as included in field resource surveys.

The Study Area does not contain forest species composition suitable for providing a bear mast feeding resource and is in a landscape setting with extensive commercial and residential developments which compromise the potential for black bear use, so VHB did not conduct specific assessments for black bear NWH.

There is an ANR-mapped Deer Wintering Area ("DWA") located in the north portion of the Study Area and depicted in the **Attachment 1** Natural Resources Map. During field assessments, VHB Environmental Scientists assessed existing stand conditions on site, and determined that there is nothing in the mapped area that provides suitable deer wintering habitat. VHB's determination is based largely on topography (dominated by steep slopes) within areas where a softwood canopy is present, the small and fragmented size and landscape setting of forest patches along the Winooski River but otherwise not contiguous to a larger habitat block, a partially fragmented, patchy canopy closure, and lack of evidence of deer use (browse, scat, spoor) including during the winter and spring seasons. The Study Area, including the portion of the ANR-mapped DWA within the Study Area, was therefore found to not provide habitat that would be anticipated to provide adequate for shelter to deer in winter conditions (per ANR 1990), and observations of sign in the field of winter habitat use were absent. Although DWA habitat was found to not be present, the Project is not proposing to cut any trees within the ANR-mapped DWA polygon and so the Project will not alter existing forest stand conditions.

There are no database-mapped vernal pools per the ANR Atlas (last checked August 24, 2025) and also no field observations of vernal pools or potential vernal pools during the course of VHB's natural resource assessments.

The 2021 FWD guidance document *Guidance for the review and Mitigation of Impacts to Grassland Bird Habitat in Connection with Regulated Projects in Vermont* (ANR, 2021) defines the environmental and land cover/vegetation conditions that are recognized as potentially suitable habitat for a suite of bird species with a nesting biology associated with grassland habitats. The fields within the Project Area are less than 20 acres each, and they are also not part of a larger field or contiguous fields that, when considered together, could be potential habitat. The northern Project array field was observed to be a hay field which may be not intensively managed or harvested for hay and so is converting into a naturalized meadow. The southern Project array is in a field with a mix of grasses and forbs and also appears to not be actively or intentionally managed for hay such that a dense homogenous cover of grass is present.

Therefore, the Project Area would not be considered to support grassland bird populations under normal circumstances, and therefore grassland bird population surveys were not performed.

Based on the assessment results and the fact that no NWH was observed or mapped within, or in the vicinity of the Study Area, the Project will not destroy or significantly imperil necessary wildlife habitat.

Although not NWH, the Town of Williston's Town Plan ("Town Plan", adopted August 19, 2025) includes provisions for protecting certain conservation areas, land-based conservation resources, and watershed resources which are established by some of the same natural resource considerations described herein. Map 16 of the Town Plan depicts Conservation Areas, Map 19a and 19b^{2 3} depict the extent of ANR-mapped resources, which coincide with the conservation areas shown in Map 16. Map 19a, titled State Known Constraints, depicts the State-mapped DWA which is described above and which does not extend into the Project area. It was, however, assessed within VHB's Study Area and found unsuitable overwintering habitat for deer. Map 19b, titled State Possible Constraints, depicts database layers sourced from ANR which are included in Vermont Conservation Design ("VCD") and its online BioFinder data viewer⁴. Based on this mapping, the Project's northern array would occur within what the Town Plan Map 19b identifies as "Highest Priority Physical Landscape Blocks, Interior Forest Blocks, and Connectivity Blocks". Upon review of the ANR BioFinder databases, the northern array is within what is termed a "Highest Priority Physical Landscape Block", a designation within the VCD terminology based on a mapped polygon of highest priority for the Surface Water Priority. There are no mapped Interior Forest Blocks or Connectivity Blocks within the Project limits. As described in the Streams and Wetlands sections above, the Project would not result in undue adverse effects to Streams or Wetlands, and therefore will not conflict with the Town Plan or VCD's priority of protecting surface water areas depicted in the VCD database^{5 6}.

The Town Plan Map 19c and 19d, titled Local Known Constraints and Local Potential Constraints respectively, do not indicate any constraints to the Project or impacts to local priority areas. Map 19c depicts areas with greater than 30 percent slope. The mapped resolution of the Town Plan Map 19c does not afford a detailed review of the Project site for intersection with mapped polygons, however VHB's existing conditions survey included with Project site plans have been created and show that the Project is not designed to be constructed in areas with a slope of greater than 30 percent. Based on this, the Project design meets the intent of the Map 19c constraint.

Of all the resources depicted on the Town Plan Map 16, titled Conservation Areas, the map layers for Wildlife Core Habitat and Wildlife Travel Corridors are mapped as overlapping the northern portion of the Project site where the northern array is proposed. According to the Town Plan Map 16, these map layers were generated utilizing information developed by the University of Vermont Spatial Analysis Lab "SAL" in 2011. The SAL data, as described in its 2011 report *An Assessment of Wildlife Habitat in Williston, Vermont: Expanded Land-cover Mapping and Corridor Modeling*⁷ was created by GIS desktop analysis, to be used for town planning purposes. As described in more detail in

² https://www.town.williston.vt.us/vertical/sites/%7BF506B13C-605B-4878-8062-87E5927E49F0%7D/uploads/Map19aWilliston_StateKnownConstraints.pdf

³ https://www.town.williston.vt.us/vertical/sites/%7BF506B13C-605B-4878-8062-87E5927E49F0%7D/uploads/Map19b_StatePossibleConstraints.pdf

⁴ <https://anr.vermont.gov/maps-and-mapping/biofinder>

⁵ <https://anr.vermont.gov/sites/anr/files/documents/Surface%20Waters%20Abstract.pdf>

⁶ <https://anr.vermont.gov/sites/anr/files/documents/Surface%20Waters%20Summary.pdf>

⁷ https://www.town.williston.vt.us/vertical/Sites/%7BF506B13C-605B-4878-8062-87E5927E49F0%7D/uploads/WillistonWildlifeHabitatAnalysis2011_FinalReport.pdf

the Project witness Jeremy Owen's review of Orderly Development criterion, the Town mapping was published with a disclaimer that the GIS based assessment should not be substituted for on the ground locations or surveying.

Based on VHB's field resource assessments, delineations, and analysis described in sections above, the Project site does not contain resource areas or habitats that are consistent with a Core Habitat or Wildlife Travel Corridor as constituted under NWH analysis incorporated for due consideration under Section 248. As described above, the Project is sited within fallow fields and proposes utilizing existing on-site infrastructure to the extent possible. The detailed on-site natural resource assessments and delineation as described above and on the attachments is of a higher level of precision and more accurate of current existing conditions than the SAL-created mapping derived from data at least 14 years old and at a scale intended for town-wide planning rather than regulatory review of a detailed Project design. As such, VHB concludes the Project is not sited in areas that should be considered significant wildlife core or travel habitat for regulatory purposes.

Regardless, the Project's perimeter fence as depicted in site plans, is purposefully designed to enable passage of small mammals and other wildlife below and through the fence mesh openings, and exclude large wildlife to avoid entrapment. Additionally, the northern and southern arrays will be individually enclosed by perimeter fence, allowing unimpeded wildlife movement between and around them. The area between the two arrays would not be fenced and will provide wildlife travel between and along the mapped Wildlife Travel Corridor. It is notable that the Town polygon for Wildlife Travel Corridor is not mapped in the area between the arrays where VHB's on site field investigations identified a Class II wetland that is contiguous to the riparian corridor and mapped Wildlife Travel Corridor to the west/northwest, and which is actually providing wildlife movement function. This function is maintained by the Project's design to avoid this riparian wetland area. Cutting of forested areas for the Project is not proposed and the Project avoids fragmentation of existing contiguous naturalized habitats.

Conclusion

Based on VHB's assessment of the Project, with respect to the natural resources criteria listed above and assessed, VHB concludes that the Project, upon receipt of all permits, will be able to be constructed and operated to not have undue adverse effects. In addition to a CPG, the Project will require collateral permit authorizations from DEC for construction stormwater discharges (anticipated to be general permit 3-9020) and a VWP for wetland and buffer impacts (potentially qualifies as a General Permit), as well as coverage under the federal USACE General Permit for wetland impacts.

Attachments

1. Natural Resources Map
2. Representative Site Photographs
3. Summary of Delineated Wetlands and Streams
4. USACE Wetland Determination Data Forms
5. Potential Rare, Threatened, and Endangered Plant Species and Significant Natural Communities Summary in the Project Region and Onsite Habitats
6. Partial Floristic Inventory
7. USFWS IPaC Official Species List

Resources and References

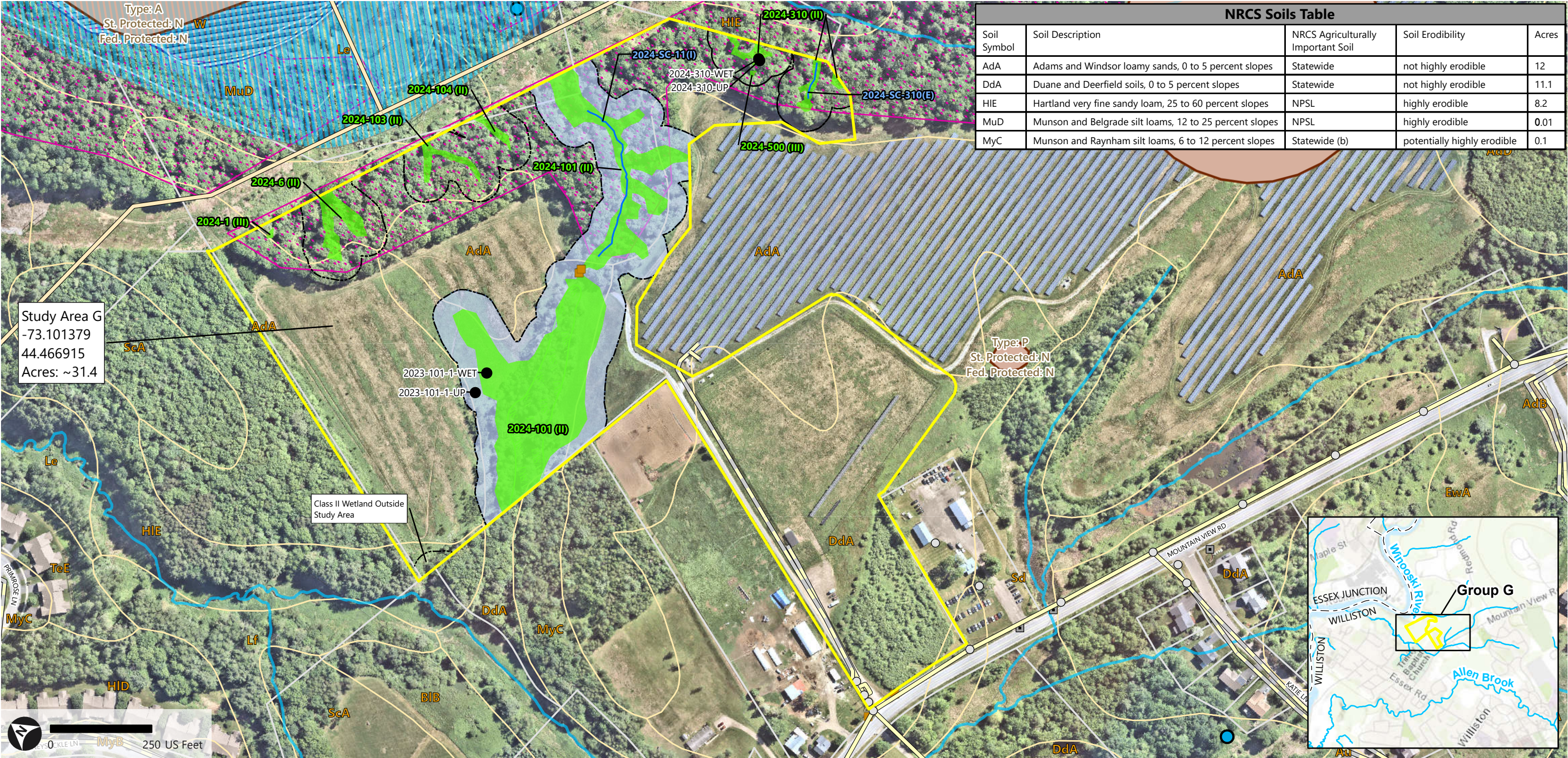
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- 2022b. *Vermont Water Quality Standards*. Environmental Protection Rule, Chapter 29A. Department of Environmental Conservation. Effective November 15, 2022.
- 2021. *Guidance for the review and Mitigation of Impacts to Grassland Bird Habitat in Connection with Regulated Projects in Vermont*. Effective October 26, 2021.
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- 2020b. *The Vermont Standards and Specifications for Erosion Prevention and Sediment Control*. Department of Environmental Conservation. Effective 2020.
- 2017a. *Flood Hazard Area and River Corridor Protection Procedure*. Environmental Protection Rule Chapter 29. Department of Environmental Conservation. Effective September 7, 2017.
- 2017b. *Regulatory Review Guidance for Protecting Northern Long-eared Bats and Their Habitats*. Fish and Wildlife Department. Effective February 2017.
- 2016a. *Guidance for Conducting Rare, Threatened, and Endangered Plant Inventories in Connection with Section 248 Projects*. Fish and Wildlife Department. Effective October 5, 2016.
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- 2015a. *Guidance to Address Impacts to Deer Winter Habitat Associated with Solar Energy Projects*. Fish and Wildlife Department. Effective November 12, 2015.
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- US Army Corps of Engineers (USACE). 2011. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeastern Region (Version 2.0), Final Report*.
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- US Fish and Wildlife Service (USFWS). 2016. *Key to the Northern Long-Eared Bat 4(d) Rule for Federal Actions that May Affect Northern Long-Eared Bats*. Created January 13, 2016; Revised February 17, 2016.
- US Geological Survey (USGS). 2024. *StreamStats, Version 4.2.1*.

Attachment 1

Natural Resources Map - GlobalFoundries Williston G Katie Lane Solar

Williston, VT



NRCS Soils Table				
Soil Symbol	Soil Description	NRCS Agriculturally Important Soil	Soil Erodibility	Acres
AdA	Adams and Windsor loamy sands, 0 to 5 percent slopes	Statewide	not highly erodible	12
DdA	Duane and Deerfield soils, 0 to 5 percent slopes	Statewide	not highly erodible	11.1
HIE	Hartland very fine sandy loam, 25 to 60 percent slopes	NPSL	highly erodible	8.2
MuD	Munson and Belgrade silt loams, 12 to 25 percent slopes	NPSL	highly erodible	0.01
MyC	Munson and Raynham silt loams, 6 to 12 percent slopes	Statewide (b)	potentially highly erodible	0.1

- Study Area (VHB)

Delineated Wetland (Class) (VHB) (9)

Class II Wetland Buffer (VHB)

Delineated Waters (Flow Regime) (VHB) (2)

50 ft Riparian Buffer (VHB) (1)

Delineation Data Point (VHB) (4)

Culvert (VHB)

Culvert (VHB) (6)

VSWI (ANR) (1)

Stream (ANR) (8)

Waterbody (ANR) (0)

Surface Water SPA (ANR) (0)

Ground Water SPA (ANR) (0)

Public Water Source (ANR) (0)

Private Well (ANR) (2)

River Corridor (ANR)

100 Year Flood Zone (FEMA) (2)

Regulatory Floodway (FEMA) (1)

AE/VCE Confirmed Vernal Pools (0)

VT Rare, Threatened and Endangered Species (FWD) (3)

Significant Natural Communities (ANR) (0)

NRCS Soils (VCGI)

Deer Wintering Areas (FWD) (3)

Existing Utility Pole - GMP (VCGI) (16)

Existing Overhead Electric (GMP) (20)

Underground Electric (GMP) (30)

Transmission Line Corridors (VCGI) (3)

Parcel Boundary (VCGI) (30)

Town Boundary (VCGI)
- Notes:**
VHB delineated wetlands and waters on September 15, 2022; October 18 and 19, 2022; November 11, 2022; June 22, 2023; September 5, 2023; January 17, 2024; May 10 and 15, 2024; and June 6, 2024; August 8, 2024; June 19, 2025; August 19, 2024; September 17, 2024; and August 21, 2025.

Wetland boundaries and classifications within the delineated Study Area were reviewed by Tina Heath on September 17th, 2024.

Field surveys by VHB between 2022 and 2024 determined that DWA is not present in areas within the map extent. ANR-mapped DWA polygon is shown here, but suitable habitat conditions are absent.

Wetland delineations are subject to review and confirmation by US Army Corps of Engineers for jurisdiction.
- (#) Count of feature visible within map extent.
Sources: Background Imagery by VCGI (2024); VCGI (Vermont Center for Geographic Information - Various Dates); ANR (Vermont Agency of Natural Resources - Various Dates); FWD (Vermont Fish & Wildlife Department - Various Dates); VTrans (Vermont Department of Transportation - Accessed 2025); VHB - 2023-2025.
- Path: \\vhb.com\gis\proj\SBurlington\58972.00 Encore Global Foundries\Project\NR Figures\Group G.aprx (User: JGrossman, Date: 8/27/2025)

Attachment 2



Williston G Katie Lane Solar- Representative Photographs

PROJECT NUMBER

58972.07

CLIENT

Encore Renewable Energy

PO Box 107

Burlington, VT 05401

LOCATION

GlobalFoundries; Mountain View Road

Williston, Vermont, 05495



NO. 1 / 9.15.2022

DESCRIPTION

Representative view of fallow field in northern portion of Study Area where the array would be sited, view is looking east.



NO. 2 / 9.15.2022

DESCRIPTION

Representative view of fallow field in northern portion of Study Area, view is looking north.



NO. 3 / 9.15.2022

DESCRIPTION

Representative view of existing access road in southern portion of Study Area, view is looking south toward the buffer at the existing wetland crossing. The elm tree to the right of the road (center of photo view) may need to be cut for the proposed access road improvements).



NO. 4 / 5.15.2024

DESCRIPTION

Representative view of intermittent Stream 2024-SC-11, view is looking south.



NO. 5 / 10.18.2022

DESCRIPTION

Representative view of Wetland 2024-101 within the emergent portion of the wetland, view is looking west.



NO. 6 / 5.10.2024

DESCRIPTION

Representative view of sloping topography and mixed hardwood and softwood cover within the ANR-mapped DWA in the forested area north of the proposed northern array (area does not support suitable DWA habitat conditions).

NO. 7 / 5.10.2024

DESCRIPTION

Another representative view of sloping topography and mixed hardwood and softwood cover within the ANR-mapped DWA but which does not provide suitable DWA habitat, in the forested area nor of the proposed northern array.



NO. 8 / 5.10.2024

DESCRIPTION

Existing culvert under the existing access road that extends through Wetland 2024-101; culvert will be lengthened and road upgrades performed for the Project.





NO. 9 / 8.19.2025

DESCRIPTION

Representative view of the existing fence that encloses the existing IBM RTC solar project.



NO. 10 / 7.19.2025

DESCRIPTION

Representative view of the existing vegetative cover within the fallow early successional area at the southernmost end of the Study Area near Mountain View Road.



NO. 11 / 10.22.2024

DESCRIPTION

Representative view of the existing IBM RTC installation field with the existing buildings visible in the photo view midground.

Attachment 3

Summary of Delineated Wetlands

Project: Williston G Katie Lane Solar

Client: Encore Renewable Energy

Location: Williston, Vermont

Prepared By: VHB (B. Galligan)

Delineation Date(s): VHB (M. Jackman, B. Galligan, A. Pierce) Various; 2022-2025



VHB Delineated Wetlands												
Wetland ID	Delineated Area (Square Feet) ¹	Cowardin Classification ²	Hydrology Indicator	Hydric Soil Indicator	Vermont Wetland Rules Classification						Typical Vegetation	Comments
					Contiguous to a VSWI- mapped Wetland?	Riparian Wetland Contiguous to Stream Channel? (Flow Regime) ³	VWR Section 4.6 Categorical Class II Wetlands ⁴	VWR Section 5 Functional Criteria Presence / Significance		VHB-Proposed VWR Classification ⁶		
								Type ⁵	VHB-Proposed Significant?			
2024-1	182	PFO	Geomorphic Position (D2), Drainage Patterns (B10)	Depleted Matrix (F3)	No	No	None	5.1, 5.2	No	III	<i>Tsuga canadensis, Matteuccia struthiopteris</i>	Small hillside seep draining to downslope upland forest.
2024-6	8,678	PEM	Surface Water (A1), Saturation (A3), Water-Stained Leaves (B9)	Depleted Matrix (F3)	No	No	a	5.1, 5.2	Yes	II	<i>Arisaema triphyllum, Betula alleghaniensis, Dryopteris intermedia</i>	Seepy drainage flowing downhill from maintained fields.
2024-101	131,172	PEM, PFO	Surface Water (A1), Saturation (A3), Water-Stained Leaves (B9), Oxidized Rhizospheres on Living Roots (C3), Saturation Visible on Aerial Imagery (C9), Geomorphic Position (D2)	Redox Dark Surface (F6), Depleted Matrix (F3)	No	Yes (I)	a, b	5.1, 5.2, 5.10	Yes	II	<i>Lythrum salicaria, Salix bebbiana, Typha angustifolia, Arisaema triphyllum, Betula alleghaniensis, Dryopteris intermedia</i>	Forested and old field depression, and seepy drainage system with flow conveyed by intermittent stream 2024-SC-1 to a wetland complex north of the Study Area.
2024-103	3,247	PFO	Surface Water (A1), Saturation (A3), Water-Stained Leaves (B9)	Depleted Matrix (F3)	No	No	a	5.1, 5.2	Yes	II	<i>Arisaema triphyllum, Betula alleghaniensis, Dryopteris intermedia</i>	Seepy drainage flowing downhill from maintained fields.
2024-104	1,666	PEM	Surface Water (A1), Saturation (A3), Water-Stained Leaves (B9)	Depleted Matrix (F3)	No	No	a	5.1, 5.2	Yes	II	<i>Arisaema triphyllum, Betula alleghaniensis, Dryopteris intermedia</i>	Seepy drainage flowing downhill from maintained fields.
2024-310	6,204	PEM, PFO	High Water Table (A2), Saturation (A3), Drainage Patterns (B10), Geomorphic Position (D2), FAC-Neutral Test (D5)	Depleted Matrix (F3)	No	No	a	5.1, 5.2	Yes	II	<i>Impatiens capensis, Matteuccia struthiopteris</i>	Hillside seep with wetland drainage patterns, continues/connects to outside of Study Area.
2024-500	109	PEM, PFO	Saturation (A3), Drainage Patterns (B10), Geomorphic Position (D2)	Depleted Matrix (F3)	No	No	None	5.1, 5.2	No	III	<i>Impatiens capensis, Matteuccia struthiopteris</i>	Hillside seep that infiltrates before connecting to 2024-310.

¹All wetlands field delineated per the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northeast and North Central Region. U.S. Army Corps of Engineers. 2011; Delineated Wetlands that extend outside the Study Area are denoted with **bold** text.

²Classification follows Cowardin, L.M., Carter, V., Golet, F.C. and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitat of the United States. U.S. Fish and Wildlife Service. FWS/OBD-79/31. 103pp.

³Wetland contiguity to streams as defined in the Vermont ANR (2005) *Guidance for Agency Act 250 and Section 248 Comments Regarding Riparian Buffers* and confirmed if a delineated perennial or intermittent stream channel inflows, through flows, and outflows from a delineated wetland (ephemeral channels not typically being subject to ANR Riparian Buffer Guidance). The vegetative assemblage or natural community type is used when determining riparian vegetation function. Flow regime determined based on qualitative observations of instream hydrology indicators and geomorphic characteristic and are subject to professional judgment (P=perennial, I=intermittent, E=ephemeral).

⁴Alpha-numeric codes correspond with Section 4.6 Presumptions of the 2023 Vermont Wetland Rules.

⁵VWR Section 5: Functional Criteria for Evaluating a Wetland's Significance: 5.1=Water Storage for Flood Water and Storm Runoff, 5.2=Surface and Groundwater Protection, 5.3=Fish Habitat, 5.4=Wildlife Habitat, 5.5=Exemplary Wetland Natural Community, 5.6=Rare, Threatened or Endangered Species Habitat, 5.7=Education and Research in Natural Sciences, 5.8=Recreational Value and Economic Benefits, 5.9=Open Space and Aesthetics, 5.10=Erosion Control Through Binding and Stabilizing the Soil. (P)= Present, (H)=High, (L)=Low; Correspond to observed level of functionality.

⁶VHB-Proposed VWR Classification is based on review and application of the VWR, particularly VHB's interpretation of Section 4.6 Wetlands delineations and classifications were reviewed and confirmed by DEC on September 17, 2024.

Summary of Delineated Streams

Project: Williston G Katie Lane Solar
Client: Encore Renewable Energy
Location: Williston, Vermont
Prepared By: VHB (B. Galligan)
Delineation Date(s): VHB (M. Jackman, B. Galligan, A. Pierce) Various; 2022-2025

VHB Delineated Streams													
Stream ID	Stream Name	Associated Wetlands	Average Ordinary High Water (OHW) Width (Feet) ¹	Dominant Substrate	Water Depth (Inches)	Bank Height (Feet)	Flow Regime (Ephemeral, Intermittent, or Perennial) ²	Watershed Size (Square Miles) ³	VWQS Classification (2022) ⁴	ANR-Mapped Stream/River (Yes/No)	ANR-Mapped River Corridor? (Yes/No) ⁵	VHB-Proposed Riparian Buffer ? (Yes/No) ⁶	Comments
2024-SC-11	-	2024-101	3.0	Silt	3	2.00	Intermittent	<0.05	B	No	No	Yes	Stream channel definition forms below (downslope) from existing culvert under access road; upslope from stream channel is wetland 101; topography of stream is steep within Study Area; drains to Winooski River
2024-SC-310	-	2024-310	45659.0	Silt	1	1.0	Ephemeral	<0.05	B	No	No	No	Poorly formed channel conveying flow along Wetland 2024-301 downhill.

¹ U.S. Army Corps of Engineers. 2005. *Regulatory Guidance Letter. Subject: Ordinary High Water Mark Identification. No. 05-05.*

² Stream flow regime determined based on qualitative observations of in stream hydrology indicators and geomorphic characteristic and are subject to professional judgment.

³ Watershed size determined from Vermont Agency of Natural Resources ("ANR") Stream Alteration Regulatory Program mapping or USGS Stream Stats

⁴ From ANR. 2022. *Vermont Water Quality Standards. 303(d) Assessment of the Condition of Vermont Waters. Priority Listing of Vermont Waters. Vermont Department of Environmental Conservation.*

⁵ List of River Corridors from the ANR Atlas.

⁶ Determined through guidance from Vermont ANR (2005) *Guidance for Agency Act 250 and Section 248 Comments Regarding Riparian Buffers.*

Attachment 4



WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2023-101-Wet

Project Site:	Williston G Katie Lane Solar	City/County:	Chittenden	Samp. Date:	6/7/2023
Applicant/Owner:	Encore Renewable Energy	State:	Vermont	Sampling Point:	2023-101-Wet
Investigator(s):	BG	Section, Township, Range:	Williston		
Landform (hillslope, terrace, etc.):	Terrace	Local relief (concave, convex, none):	convex	Slope (%):	0-5
Subregion (LRR or MLRA):	LRR R	Lat:	44.468878	Long:	-73.102821
Soil Map Unit:	Duane and Deerfield soils, 0 to 5 percent slopes			Datum:	NAD83
				NWI Class:	PEM
Are climatic/hydrologic conditions on the site typical for this time of year? No (If no, explain in Remarks.)					
Are Vegetation, Soil, or Hydrology significantly disturbed? No Normal Circumstances? Yes					
Are Vegetation, Soil, or Hydrology naturally problematic? No (If needed, explain any answers in Remarks.)					

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	YES	Is This Sample Area Within a Wetland?	YES
Hydric Soil Present?	YES		
Wetland Hydrology Present?	YES		
Remarks: Wetland data taken in a finger in the southwest portion of wetland 101. Climatic conditions were mild drought but did not impede with delineation process, therefore conditions were normal and chapter 5 was not used.			

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)			
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9)	☐ Surface Soil Cracks (B6)	
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)	☐ Drainage Patterns (B10)	
☐ Saturation (A3)	☐ Marl Deposits (B13)	☐ Moss Trim Lines (B16)	
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Dry-Season Water Table (C2)	
☐ Sediment Deposits (B2)	☒ Oxidized Rhizospheres on Living Roots (C3)	☐ Crayfish Burrows (C8)	
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Saturation Visible on Aerial (C9)	
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☒ Stunted or Stressed Plants (D1)	
☐ Iron Deposits (B5)	☐ Thin Muck Surface (C7)	☒ Geomorphic Position (D2)	
☐ Inundation Visible on Aerial (B7)	☐ Other (Explain in Remarks)	☐ Shallow Aquitard (D3)	
☐ Sparsely Vegetated Concave Surface (B8)		☐ Microtopographic Relief (D4)	
		☐ FAC-Neutral Test (D5)	
Field Observations:			
Surface Water Present?	Depth (inches):	Wetland Hydrology Present? YES	
Water Table Present?	Depth (inches):		
Saturation Present?	Depth (inches):		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: 0.57 inches of rain in Burlington, VT (NWS 2023); PDSI -1.47 (Mild Drought) in five days prior for week ending 6/10/2023.			
Remarks: Due to mild drought conditions, hydrological indicators appeared weaker than expected.			

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth	Matrix		Redox Features				
(in)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture
0-4	10YR 2/2	95%	10YR 3/6	5%	C	M	FINE SANDY LOAM
4-16	10YR 4/1	90%	10YR 3/6	10%	C	M	SANDY LOAM
-							
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix.							
Hydric Soil Indicators:				Indicators for Problematic Hydric Soils ³ :			
☐ Histosol (A1)	☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)			☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
☐ Histic Epipedon (A2)	☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)			☐ Coast Prairie Redox (A16) (LRR K, L, R)			
☐ Black Histic (A3)	☐ Loamy Mucky Mineral (F1) (LRR K, L)			☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
☐ Hydrogen Sulfide (A4)	☐ Loamy Gleyed Matrix (F2)			☐ Dark Surface (S9) (LRR K, L, M)			
☐ Stratified Layers (A5)	☒ Depleted Matrix (F3)			☐ Polyvalue Below Surface (S8) (LRR K, L)			
☐ Depleted Below Dark Surface (A11)	☐ Redox Dark Surface (F6)			☐ Thin Dark Surface (S9) (LRR K, L)			
☐ Thick Dark Surface (A12)	☐ Depleted Dark Surface (F7)			☐ Iron-Manganese Masses (F12) (LRR K, L, R)			
☐ Sandy Mucky Mineral (S1)	☐ Redox Depressions (F8)			☐ Piedmont Floodplain Soils (F19) (MLRA 149B)			
☐ Sandy Gleyed Matrix (S4)				☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
☐ Sandy Redox (S5)				☐ Red Parent Material (F21)			
☐ Stripped Matrix (S6)				☐ Very Shallow Dark Surface (TF12)			
☐ Dark Surface (S7) (LRR R, MLRA 149B)				☐ Other (Explain in Remarks)			
³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.							
Restrictive Layer (if observed):				Hydric Soil Present? YES			
Type: _____							
Depth (inches): _____							
Remarks:							

Tree Stratum	(Plot size: 30' RAD)	Absolute % Cover	Dom. Sp?	Indicator Status	
1.					Dominance Test Worksheet: # Dominants OBL, FACW, FAC: 3 (A) # Dominants across all strata: 4 (B) % Dominants OBL, FACW, FAC: 75% (A/B)
2.					
3.					
4.					
5.					
6.					
7.					
		= Total Cover			Prevalence Index Worksheet: Total % Cover of: OBL 40 x 1 = 40 FACW 25 x 2 = 50 FAC 30 x 3 = 120 FACU 5 x 4 = 25 UPL 100 (A) x 5 = 235 (B) Sum: 100 (A) 235 (B) Prevalence Index = B/A = 2.35
Sapling Stratum	(Plot size: 15' RAD)				
1.	Salix bebbiana	5	X	FACW	
2.					
3.					
4.					
5.					
6.					
7.					
		= Total Cover			Hydrophytic Vegetation Indicators: ☒ Dominance Test is > 50% ☒ Prevalence Index is <= 3.0 ☐ Problematic Hydrophytic Vegetation ¹ (explain) ☐ Rapid Test for Hydrophytic Vegetation ☐ Morphological Adaptations ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Shrub Stratum	(Plot size: 15' RAD)				
1.					
2.					
3.					
4.					
5.					
6.					
7.					
		= Total Cover			Definitions of Vegetation Strata: Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH). Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH. Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height. Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height. Woody vine - All woody vines, regardless of height.
Herb Stratum	(Plot size: 5' RAD)				
1.	Lythrum salicaria	30	X	OBL	
2.	Solidago canadensis	30	X	FACU	
3.	Phalaris arundinacea	20	X	FACW	
4.	Typha angustifolia	10		OBL	
5.	Vicia cracca L.	5		UPL	
6.					
7.					
8.					
9.					
10.					
11.					
12.					
		= Total Cover			
Woody Vines	(Plot size: 15' RAD)				
1.					
2.					
3.					
4.					
5.					
		= Total Cover			Hydrophytic Vegetation Present? YES

Remarks: (If observed, list morphological adaptations below).



WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2023-101-Up

Project Site:	Williston G Katie Lane Solar	City/County:	Chittenden	Samp. Date:	6/7/2023
Applicant/Owner:	Encore Renewable Energy	State:	Vermont	Sampling Point:	2023-101-Up
Investigator(s):	BG	Section, Township, Range:	Williston		
Landform (hillslope, terrace, etc.):	Terrace	Local relief (concave, convex, none):	concave	Slope (%):	0-5
Subregion (LRR or MLRA):	LRR R	Lat:	44.468864	Long:	-73.103036
Soil Map Unit:	Duane and Deerfield soils, 0 to 5 percent slopes			Datum:	NAD83
				NWI Class:	Upland
Are climatic/hydrologic conditions on the site typical for this time of year?	No	(If no, explain in Remarks.)			
Are Vegetation, Soil, or Hydrology significantly disturbed?	No	Normal Circumstances?	Yes		
Are Vegetation, Soil, or Hydrology naturally problematic?	No	(If needed, explain any answers in Remarks.)			

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	NO	Is This Sample Area Within a Wetland?	NO
Hydric Soil Present?	NO		
Wetland Hydrology Present?	NO		
Remarks: Climatic conditions were mild drought but did not impede with delineation process.			

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)			
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9)	☐ Surface Soil Cracks (B6)	
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)	☐ Drainage Patterns (B10)	
☐ Saturation (A3)	☐ Marl Deposits (B13)	☐ Moss Trim Lines (B16)	
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Dry-Season Water Table (C2)	
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Crayfish Burrows (C8)	
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Saturation Visible on Aerial (C9)	
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Stunted or Stressed Plants (D1)	
☐ Iron Deposits (B5)	☐ Thin Muck Surface (C7)	☐ Geomorphic Position (D2)	
☐ Inundation Visible on Aerial (B7)	☐ Other (Explain in Remarks)	☐ Shallow Aquitard (D3)	
☐ Sparsely Vegetated Concave Surface (B8)		☐ Microtopographic Relief (D4)	
		☐ FAC-Neutral Test (D5)	
Field Observations:			
☐ Surface Water Present?	Depth (inches):	Wetland Hydrology Present?	NO
☐ Water Table Present?	Depth (inches):		
☐ Saturation Present?	Depth (inches):		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: 0.57 inches of rain in Burlington, VT (NWS 2023); PDSI -1.47 (Mild Drought) in five days prior for week ending 6/10/2023.			
Remarks:			

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth	Matrix		Redox Features			Texture	Remarks
(in)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	
0-3	10YR 3/3	100%	-	-	-	-	FINE SANDY LOAM
3-16	10YR 3/3	70%	10YR 5/6	0.3			SANDY LOAM
-							
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.				² Location: PL=Pore Lining, M=Matrix.			
Hydric Soil Indicators:				Indicators for Problematic Hydric Soils ³ :			
☐ Histosol (A1)	☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)			☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
☐ Histic Epipedon (A2)	☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)			☐ Coast Prairie Redox (A16) (LRR K, L, R)			
☐ Black Histic (A3)	☐ Loamy Mucky Mineral (F1) (LRR K, L)			☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
☐ Hydrogen Sulfide (A4)	☐ Loamy Gleyed Matrix (F2)			☐ Dark Surface (S9) (LRR K, L, M)			
☐ Stratified Layers (A5)	☐ Depleted Matrix (F3)			☐ Polyvalue Below Surface (S8) (LRR K, L)			
☐ Depleted Below Dark Surface (A11)	☐ Redox Dark Surface (F6)			☐ Thin Dark Surface (S9) (LRR K, L)			
☐ Thick Dark Surface (A12)	☐ Depleted Dark Surface (F7)			☐ Iron-Manganese Masses (F12) (LRR K, L, R)			
☐ Sandy Mucky Mineral (S1)	☐ Redox Depressions (F8)			☐ Piedmont Floodplain Soils (F19) (MLRA 149B)			
☐ Sandy Gleyed Matrix (S4)				☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
☐ Sandy Redox (S5)				☐ Red Parent Material (F21)			
☐ Stripped Matrix (S6)				☐ Very Shallow Dark Surface (TF12)			
☐ Dark Surface (S7) (LRR R, MLRA 149B)				☐ Other (Explain in Remarks)			
³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.							
Restrictive Layer (if observed):				Hydric Soil Present?			
Type: _____				NO			
Depth (inches): _____							
Remarks:							

Tree Stratum	(Plot size: 30' RAD)	Absolute % Cover	Dom. Sp?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
7.				
		= Total Cover		
Sapling Stratum (Plot size: 15' RAD)				
1.	Betula populifolia	20	X	FAC
2.				
3.				
4.				
5.				
6.				
7.				
		= Total Cover		
Shrub Stratum (Plot size: 15' RAD)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
		= Total Cover		
Herb Stratum (Plot size: 5' RAD)				
1.	Solidago canadensis	80	X	FACU
2.	Erigeron annuus	10		FACU
3.	Asclepias syriaca	5		UPL
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		= Total Cover		
Woody Vines (Plot size: 15' RAD)				
1.				
2.				
3.				
4.				
5.				
		= Total Cover		

Dominance Test Worksheet:

Dominants OBL, FACW, FAC: **1** (A)

Dominants across all strata: **2** (B)

% Dominants OBL, FACW, FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply By:
OBL _____ x 1 = _____	
FACW _____ x 2 = _____	
FAC 20 x 3 = 60	
FACU 90 x 4 = 360	
UPL 5 x 5 = 25	
Sum: 115 (A)	445 (B)
Prevalence Index = B/A = 3.87	

Hydrophytic Vegetation Indicators:

_____ Dominance Test is > 50%

_____ Prevalence Index is <= 3.0

_____ Problematic Hydrophytic Vegetation¹ (explain)

_____ Rapid Test for Hydrophytic Vegetation

_____ Morphological Adaptations

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **NO**

Remarks: (If observed, list morphological adaptations below).

Carex sp. was also observed with unidentified fern sp. In herbaceous layer both at 5% abundance.



WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2024-310-Wet

Project Site:	Williston G Katie Lane Solar	City/County:	Chittenden	Samp. Date:	5/15/2024
Applicant/Owner:	Encore Renewable Energy	State:	Vermont	Sampling Point:	2024-310-Wet
Investigator(s):	AP	Section, Township, Range:	Williston		
Landform (hillslope, terrace, etc.):	Terrace	Local relief (concave, convex, none):	concave	Slope (%):	30
Subregion (LRR or MLRA):	LRR R	Lat:	44.4686495	Long:	-73.0988927
Soil Map Unit:	Hartland very fine sandy loam, 25 to 60 percent slopes			Datum:	NAD83
Are climatic/hydrologic conditions on the site typical for this time of year?	No	(If no, explain in Remarks.)		NWI Class:	PFO
Are Vegetation, Soil, or Hydrology significantly disturbed?	No	Normal Circumstances?	Yes		
Are Vegetation, Soil, or Hydrology naturally problematic?	No	(If needed, explain any answers in Remarks.)			

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	YES	Is This Sample Area Within a Wetland?	YES
Hydric Soil Present?	YES		
Wetland Hydrology Present?	YES		
Remarks: Data collected few feet from western edge of feature; climatic conditions wetter than typical; soils, hydrology and vegetation determined to be suitable for on site data collection, no Chapter 5 methods needed.			

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)			
☐ Surface Water (A1)	☒ Water-Stained Leaves (B9)	☐ Surface Soil Cracks (B6)	
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)	☐ Drainage Patterns (B10)	
☒ Saturation (A3)	☐ Marl Deposits (B13)	☐ Moss Trim Lines (B16)	
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Dry-Season Water Table (C2)	
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Crayfish Burrows (C8)	
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Saturation Visible on Aerial (C9)	
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Stunted or Stressed Plants (D1)	
☐ Iron Deposits (B5)	☐ Thin Muck Surface (C7)	☒ Geomorphic Position (D2)	
☐ Inundation Visible on Aerial (B7)	☐ Other (Explain in Remarks)	☐ Shallow Aquitard (D3)	
☐ Sparsely Vegetated Concave Surface (B8)		☐ Microtopographic Relief (D4)	
		☒ FAC-Neutral Test (D5)	
Field Observations:			
Surface Water Present?	Depth (inches):	Wetland Hydrology Present? YES	
Water Table Present?	Depth (inches):		
Saturation Present?	Depth (inches): Surface		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: 0.48 inches of rain in Burlington, VT (NWS 2023); PDSI 4.55 (Extremely Moist) in five days prior for week ending 5/18/2024.			
Remarks:			

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (in)	Matrix		Redox Features				Texture	Remarks
0-8	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
8-12	5Y 4/1	80%	10YR 4/6	20%	C	M	SANDY LOAM	
12-16	5Y 4/1	55%	10YR 4/3	45%	C	M	SANDY CLAY	
	10Y 5/1	90%	5Y 3/3	10%	C	M	CLAY	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.								
² Location: PL=Pore Lining, M=Matrix.								
Hydric Soil Indicators:				Indicators for Problematic Hydric Soils ³ :				
☐ Histosol (A1)	☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)			☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)				
☐ Histic Epipedon (A2)	☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)			☐ Coast Prairie Redox (A16) (LRR K, L, R)				
☐ Black Histic (A3)	☐ Loamy Mucky Mineral (F1) (LRR K, L)			☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)				
☐ Hydrogen Sulfide (A4)	☐ Loamy Gleyed Matrix (F2)			☐ Dark Surface (S9) (LRR K, L, M)				
☐ Stratified Layers (A5)	☒ Depleted Matrix (F3)			☐ Polyvalue Below Surface (S8) (LRR K, L)				
☐ Depleted Below Dark Surface (A11)	☐ Redox Dark Surface (F6)			☐ Thin Dark Surface (S9) (LRR K, L)				
☐ Thick Dark Surface (A12)	☐ Depleted Dark Surface (F7)			☐ Iron-Manganese Masses (F12) (LRR K, L, R)				
☐ Sandy Mucky Mineral (S1)	☐ Redox Depressions (F8)			☐ Piedmont Floodplain Soils (F19) (MLRA 149B)				
☐ Sandy Gleyed Matrix (S4)				☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)				
☐ Sandy Redox (S5)				☐ Red Parent Material (F21)				
☐ Stripped Matrix (S6)				☐ Very Shallow Dark Surface (TF12)				
☐ Dark Surface (S7) (LRR R, MLRA 149B)				☐ Other (Explain in Remarks)				
³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.								
Restrictive Layer (if observed):				Hydric Soil Present? YES				
Type: _____								
Depth (inches): _____								
Remarks:								

Tree Stratum	(Plot size: 30' RAD)	Absolute % Cover	Dom. Sp?	Indicator Status	
1. <i>Tsuga canadensis</i>		3	X	FACU	Dominance Test Worksheet: # Dominants OBL, FACW, FAC: 4 (A) # Dominants across all strata: 6 (B) % Dominants OBL, FACW, FAC: 67% (A/B)
2.					
3.					
4.					
5.					
6.					
7.					
		3	= Total Cover		Prevalence Index Worksheet: Total % Cover of: OBL 15 x 1 = 15 FACW 30 x 2 = 60 FAC 15 x 3 = 45 FACU 9 x 4 = 36 UPL x 5 = Sum: 69 (A) 156 (B) Prevalence Index = B/A = 2.26
Sapling Stratum (Plot size: 15' RAD)					
1.					
2.					
3.					
4.					
5.					
6.					
7.					
			= Total Cover		Hydrophytic Vegetation Indicators: ☒ Dominance Test is > 50% ☒ Prevalence Index is <= 3.0 ☐ Problematic Hydrophytic Vegetation ¹ (explain) ☐ Rapid Test for Hydrophytic Vegetation ☐ Morphological Adaptations ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Shrub Stratum (Plot size: 15' RAD)					
1. <i>Hamamelis virginiana</i>		3	X	FACU	
2.					
3.					
4.					
5.					
6.					
7.					
		3	= Total Cover		Definitions of Vegetation Strata: Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH). Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH. Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height. Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height. Woody vine - All woody vines, regardless of height.
Herb Stratum (Plot size: 5' RAD)					
1. <i>Carex gynandra</i>		15	X	OBL	
2. <i>Parathelypteris noveboracensis</i>		15	X	FAC	
3. <i>Impatiens capensis</i>		15	X	FACW	
4. <i>Onoclea sensibilis</i>		15	X	FACW	
5. <i>Cornus alternifolia</i>		3		FACU	
6.					
7.					
8.					
9.					
10.					
11.					
12.					
		63	= Total Cover		
Woody Vines (Plot size: 15' RAD)					Hydrophytic Vegetation Present? YES
1.					
2.					
3.					
4.					
5.					
			= Total Cover		

Remarks: (If observed, list morphological adaptations below).



WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2024-310-Up

Project Site:	Williston G Katie Lane Solar	City/County:	Chittenden	Samp. Date:	5/15/2024
Applicant/Owner:	Encore Renewable Energy	State:	Vermont	Sampling Point:	2024-310-Up
Investigator(s):	AP	Section, Township, Range:	Williston		
Landform (hillslope, terrace, etc.):	hillslope	Local relief (concave, convex, none):	concave	Slope (%):	25
Subregion (LRR or MLRA):	LRR R	Lat:	44.4686375	Datum:	NAD83
		Long:	-73.0989015	NWI Class:	Upland
Soil Map Unit:	Hartland very fine sandy loam, 25 to 60 percent slopes				
Are climatic/hydrologic conditions on the site typical for this time of year? No (If no, explain in Remarks.)					
Are Vegetation, Soil, or Hydrology significantly disturbed?				Normal Circumstances?	Yes
Are Vegetation, Soil, or Hydrology naturally problematic?				(If needed, explain any answers in Remarks.)	

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	YES	Is This Sample Area Within a Wetland?	NO
Hydric Soil Present?	NO		
Wetland Hydrology Present?	NO		
Remarks: Data collected few feet beyond western edge of feature; climatic conditions wetter than typical; soils, hydrology and vegetation determined to be suitable for on site data collection, no Chapter 5 methods needed.			

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)			
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9)	☐ Surface Soil Cracks (B6)	
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)	☐ Drainage Patterns (B10)	
☐ Saturation (A3)	☐ Marl Deposits (B13)	☐ Moss Trim Lines (B16)	
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Dry-Season Water Table (C2)	
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Crayfish Burrows (C8)	
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Saturation Visible on Aerial (C9)	
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Stunted or Stressed Plants (D1)	
☐ Iron Deposits (B5)	☐ Thin Muck Surface (C7)	☐ Geomorphic Position (D2)	
☐ Inundation Visible on Aerial (B7)	☐ Other (Explain in Remarks)	☐ Shallow Aquitard (D3)	
☐ Sparsely Vegetated Concave Surface (B8)		☐ Microtopographic Relief (D4)	
		☐ FAC-Neutral Test (D5)	
Field Observations:			
Surface Water Present?	Depth (inches):	Wetland Hydrology Present?	NO
Water Table Present?	Depth (inches):		
Saturation Present?	Depth (inches):		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: 0.48 inches of rain in Burlington, VT (NWS 2023); PDSI 4.55 (Extremely Moist) in five days prior for week ending 5/18/2024.			
Remarks:			

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features					
(in)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-6	2.5Y 4/2	100%	-	-	-	-	CLAY LOAM	
6-16	2.5Y 5/2	80%	2.5Y 5/1	12%			CLAY LOAM	8% 7.5YR 4/4
-								
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.						² Location: PL=Pore Lining, M=Matrix.		
Hydric Soil Indicators:								Indicators for Problematic Hydric Soils ³ :
☐ Histosol (A1)	☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)			☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)				
☐ Histic Epipedon (A2)	☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)			☐ Coast Prairie Redox (A16) (LRR K, L, R)				
☐ Black Histic (A3)	☐ Loamy Mucky Mineral (F1) (LRR K, L)			☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)				
☐ Hydrogen Sulfide (A4)	☐ Loamy Gleyed Matrix (F2)			☐ Dark Surface (S9) (LRR K, L, M)				
☐ Stratified Layers (A5)	☐ Depleted Matrix (F3)			☐ Polyvalue Below Surface (S8) (LRR K, L)				
☐ Depleted Below Dark Surface (A11)	☐ Redox Dark Surface (F6)			☐ Thin Dark Surface (S9) (LRR K, L)				
☐ Thick Dark Surface (A12)	☐ Depleted Dark Surface (F7)			☐ Iron-Manganese Masses (F12) (LRR K, L, R)				
☐ Sandy Mucky Mineral (S1)	☐ Redox Depressions (F8)			☐ Piedmont Floodplain Soils (F19) (MLRA 149B)				
☐ Sandy Gleyed Matrix (S4)				☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)				
☐ Sandy Redox (S5)				☐ Red Parent Material (F21)				
☐ Stripped Matrix (S6)				☐ Very Shallow Dark Surface (TF12)				
☐ Dark Surface (S7) (LRR R, MLRA 149B)				☐ Other (Explain in Remarks)				
³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.								
Restrictive Layer (if observed):							Hydric Soil Present?	NO
Type: _____ Depth (inches): _____								
Remarks:								

Tree Stratum (Plot size: 30' RAD)		Absolute % Cover	Dom. Sp?	Indicator Status	Dominance Test Worksheet: # Dominants OBL, FACW, FAC: 5 (A) # Dominants across all strata: 6 (B) % Dominants OBL, FACW, FAC: 83% (A/B)
1.	Acer rubrum	35	X	FAC	
2.	Betula alleghaniensis	25	X	FAC	
3.	Tsuga canadensis	10		FACU	
4.	Quercus rubra	5		FACU	
5.	Fagus grandifolia	2		FACU	
6.					
7.					
		77	= Total Cover		
Sapling Stratum (Plot size: 15' RAD)					Prevalence Index Worksheet: Total % Cover of: 110 Multiply By: OBL 1 x 1 = 110 FACW 2 x 2 = 220 FAC 3 x 3 = 330 FACU 4 x 4 = 440 UPL 5 x 5 = 550 Sum: 167 (A) 558 (B) Prevalence Index = B/A = 3.34
1.					
2.					
3.					
4.					
5.					
6.					
7.					
			= Total Cover		
Shrub Stratum (Plot size: 15' RAD)					Hydrophytic Vegetation Indicators: X Dominance Test is > 50% Prevalence Index is <= 3.0 Problematic Hydrophytic Vegetation ¹ (explain) Rapid Test for Hydrophytic Vegetation Morphological Adaptations ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	Hamamelis virginiana	15	X	FACU	
2.					
3.					
4.					
5.					
6.					
7.					
		15	= Total Cover		
Herb Stratum (Plot size: 5' RAD)					Definitions of Vegetation Strata: Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH). Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH. Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height. Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height. Woody vine - All woody vines, regardless of height.
1.	Parathelypteris noveboracensis	20	X	FAC	
2.	Arisaema triphyllum	15	X	FAC	
3.	Osmunda claytoniana	15	X	FAC	
4.	Polystichum acrostichoides	10		FACU	
5.	Erythronium americanum	10		FACU	
6.	Celastrus orbiculatus	5		FACU	
7.					
8.					
9.					
10.					
11.					
12.					
		75	= Total Cover		
Woody Vines (Plot size: 15' RAD)					Hydrophytic Vegetation Present? YES
1.					
2.					
3.					
4.					
5.					
			= Total Cover		

Remarks: (If observed, list morphological adaptations below).

Attachment 5

Vermont Potential Rare, Threatened, and Endangered Species and Natural Communities in the Project Region and Onsite Habitats Summary

Client: Encore Renewable Energy
Project: Williston G Katie Road Solar
Prepared by: VHB (W. Durkin), August 14, 2025



	Species	Common Name	Type	State Rank	Global Rank	Vermont Status	Federal Status	EO last Observed	Habitat Description ¹	Occurrence Description ²	Optimal Survey Time ³	EO Mapped within Study Area?	Potential for Habitat to Occur Onsite?	Survey Recommended?	
														(yes/no)	Comments
Element Occurrences- 1 Mile Radius	<i>Blephilia hirsuta</i> var. <i>hirsuta</i>	Hairy Wood-mint	Plant	S2	G5T5?	T	-	3/15/1905	Rich upland and riparian forests, cliff bases, and dry fields.	Historically found within the area above the falls in Essex	Summer	No	Yes	Yes	Species is state threatened and has potential habitat on site.
	<i>Corylus americana</i>	American Hazelnut	Plant	S2S3	G5	-	-	10/15/2009	Disturbed habitats, forests and forest borders, sandy thickets, fields, hedge rows, roadsides.	Found growing beneath transmission lines.	Spring to Fall	No	Yes	No	Not a listed species; EO polygon not within Study Area
	<i>Erigeron hyssopifolius</i>	Hyssop-leaved Fleabane	Plant	S2	G5	-	-	6/21/2019	Cliffs, gorges, and river shore legdes in regions with high-pH bedrock	Found on a bedrock outcrop adjacent to the Winooski River.	Summer	No	No	No	Not a listed species; EO polygon not within Study Area; Suitable habitat not present
	<i>Erigeron philadelphicus</i> var. <i>provancheri</i>	Provancher's Dwarf Fleabane	Plant	S1	G5T3	-	-	7/5/2018	Crevice in shale or dolomite, usually beside rivers or lakes, receiving splashed water	Found on a bedrock outcrop adjacent to the Winooski River.	Late Spring to Late Summer	No	No	No	Not a listed species; EO polygon not within Study Area; Suitable habitat not present
	<i>Graphephorum melicoides</i>	Purple False Oats	Plant	SH	G4G5	-	-	8/21/1899	Ice-scoured river shores, river shore rock ledges, and cliffs, usually on calcareous rock or soils	Historically found along the rocky and sandy banks of the Winooski River	Summer	No	No	No	Not a listed species; EO polygon not within Study Area; Suitable habitat not present
	<i>Hybognathus hankinsoni</i>	Brassy Minnow	Animal	S2S3	G5	-	-	2012	Creeks and headwaters of small to medium rivers. Substrates where it has been found include fine gravel or sand	Winooski River	Summer	No	No	No	Not a listed species; EO polygon not within Study Area; Suitable habitat not present

Vermont Potential Rare, Threatened, and Endangered Species and Natural Communities in the Project Region and Onsite Habitats Summary

Client: Encore Renewable Energy
Project: Williston G Katie Road Solar
Prepared by: VHB (W. Durkin), August 14, 2025



	Species	Common Name	Type	State Rank	Global Rank	Vermont Status	Federal Status	EO last Observed	Habitat Description ¹	Occurrence Description ²	Optimal Survey Time ³	EO Mapped within Study Area?	Potential for Habitat to Occur Onsite?	Survey Recommended?	
														(yes/no)	Comments
Element Occurrences- 1 Mile Radius	<i>Lasmigona compressa</i>	Creek Heelsplitter	Animal	S2	G5	-	-	5/1/2005	In creeks and headwaters of small to medium rivers, fine gravel or sand channel beds	Winooski River	Spring to Fall	No	No	No	Not a listed species; EO polygon not within Study Area; Suitable habitat not present
	<i>Myosotis laxa</i>	Smaller Forget-me-not	Plant	S2	G5	-	-	6/27/2012	Stream banks and channels, pond shores, seepages	Roadside ditch and adjacent wetland	Summer	No	Yes	No	Species is not state or federally protected and EO polygon not within Study Area
	<i>Phegopteris hexagonoptera</i>	Broad Beech-fern	Plant	S2S3	G5	-	-	6/28/2012	In moist woods, usually in full shade, often in moderately acid soils	Young forest, reverted from old pasture but becoming mature, mixed hardwoods and softwoods	Summer to Late Summer	No	Yes	No	Species is not state or federally protected and EO polygon not within Study Area
	<i>Stachys pilosa</i> var. <i>pilosa</i>	Marsh Woundwort	Plant	S2?	G5T5	-	-	7/7/2015	Fields, meadows, roadsides, shorelines, wetland borders, forest edges	Found in open wetland, south of adjacent solar field	Summer	No	Yes	No	Species is not state or federally protected and EO polygon not within Study Area
	<i>Symphyotrichum tradescantii</i>	Tradescant Aster	Plant	S2	G4	-	-	8/12/2018	Rocky and ledgy shorelines, of seasonally flooded rivers	On ledge outcrops at falls of the Winooski River	Summer to Late Summer	No	No	No	Not a listed species; EO polygon not within Study Area; Suitable habitat not present

¹Potential sources for habitat description listed below
Ahles, Harry E. and Magee, Dennis W. 2007. *Flora of the Northeast* . A Manual of the Vascular Flora of New England and Adjacent New York
Animal Diversity Web. Retrieved from: <https://animaldiversity.org/accounts>
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Gilman, Arthur V. 2015. *New Flora of Vermont* . The New York Botanical Garden.
Gleason, Henry A. and Cronquist, Arthur. 1991. *Manual of Vascular Plants of Northeast United States and Adjacent Canada*. The New York Botanical Garden.
Haines, Arthur. 2011. *Flora Novae Angliae* . New England Wildflower Society/Yale University Press, New Haven, CT . 973 Pp.
Langdon, Richard W., Ferguson, Mark T. and Cox, Kenneth M. 2006. *Fishes of Vermont* . Vermont Department of Fish and Wildlife.
Newcomb, Lawrence. 1977. *Newcomb's Wildflower Guide* . Little, Brown, and Company, Boston
Northern Prairie Wildlife Research Center. <http://www.npwrc.usgs.gov/resource/distr/insects/tigb/usa/49.htm>
Seymour, Frank Conkling. 1982. *The Flora of New England* . 2d ed. Phytologia Memoirs 5, Plainfield, NJ: Harold N. Moldenke and Alma L. Moldenke. 611 p. [7604]
Thompson, Elizabeth H., Sorenson, Eric R. and Zaino, Robert J. 2019. *Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont* . Vermont Department of Fish and Wildlife and The Nature Conservancy.
Vermont Natural Resources Atlas, Accessed June 2024. Element Occurrence Reports
²Sources for occurrence description listed below:
Vermont Natural Heritage Inventory - Vermont Fish & Wildlife Department - Element Occurrence Reports.
³Flowering Time: Spring (April-May), Summer (June-July), Late Summer (August-September), Fall (October-November)

Attachment 6

Partial Floristic Inventory

Client: Encore Renewable Energy

Project: Williston G Katie Lane Solar

Survey Date(s): VHB (W. Durkin) August 7-8, 2024, September 12, 2024, August 19, 2025

Prepared by: VHB (W. Durkin, C. Fenner), August 25, 2025

Scientific Name ¹	Common Name	Family	Observed Habitat		VT Rarity Rank ^{2,3}	Non-Native Invasive Species ⁴
			Upland	Wetland		
<i>Acer rubrum</i> L.	red maple	Aceraceae	x		-	-
<i>Acer saccharum</i> Marshall	sugar maple	Aceraceae	x		-	-
<i>Achillea millefolium</i> L.	common yarrow	Asteraceae	x		-	-
<i>Actaea pachypoda</i> Elliott	white baneberry	Ranunculaceae	x		-	-
<i>Agrimonia striata</i> Michx.	roadside agrimony	Rosaceae	x		-	-
<i>Alopecurus</i> L.	foxtail	Poaceae	x		-	-
<i>Ambrosia artemisiifolia</i> L.	annual ragweed	Asteraceae	x		-	-
<i>Amphicarpaea bracteata</i> (L.) Fernald	American hogpeanut	Fabaceae	x		-	-
<i>Aralia hispida</i> Vent.	bristly sarsaparilla	Araliaceae	x		-	-
<i>Aralia nudicaulis</i> L.	wild sarsaparilla	Araliaceae	x		-	-
<i>Arisaema triphyllum</i> (L.) Schott	Jack in the pulpit	Araceae		x	-	-
<i>Artemisia vulgaris</i> L.	common wormwood	Asteraceae	x		-	-
<i>Asclepias syriaca</i> L.	common milkweed	Asclepiadaceae	x		-	-
<i>Athyrium filix-femina</i> (L.) Roth	common ladyfern	Dryopteridaceae	x		-	-
<i>Betula alleghaniensis</i> Britton	yellow birch	Betulaceae	x		-	-
<i>Betula populifolia</i> Marshall	gray birch	Betulaceae	x		-	-
<i>Bidens vulgata</i> Greene	big devils beggartick	Asteraceae	x		-	-
<i>Brassica rapa</i> L.	field mustard	Brassicaceae	x		-	-
<i>Calystegia sepium</i> (L.) R. Br.	hedge false bindweed	Convolvulaceae	x		-	-
<i>Carex debilis</i> Michx.	white edge sedge	Cyperaceae	x		-	-
<i>Carex intumescens</i> Rudge	greater bladder sedge	Cyperaceae		x	-	-
<i>Carex gynandra</i> Schwein.	nodding sedge	Cyperaceae		x	-	-
<i>Carex rosea</i> Schkuhr ex Willd.	rosy sedge	Cyperaceae	x		-	-
<i>Celastrus orbiculatus</i> Thunb.	Oriental bittersweet	Celastraceae	x		-	B
<i>Circaea xintermedia</i> Ehrh. (pro sp.) [alpina x lutetiana]	enchanter's nightshade	Onagraceae	x		-	-
<i>Cirsium vulgare</i> (Savi) Ten.	bull thistle	Asteraceae	x		-	-
<i>Clematis virginiana</i> L.	devil's darning needles	Ranunculaceae	x		-	-
<i>Conyza canadensis</i> (L.) Cronquist var. <i>canadensis</i>	Canadian horseweed	Asteraceae	x		-	-
<i>Cornus alternifolia</i> L. f.	alternateleaf dogwood	Cornaceae	x		-	-
<i>Cyperus esculentus</i> L.	yellow nutsedge	Cyperaceae	x		-	-
<i>Dactylis glomerata</i> L.	orchardgrass	Poaceae	x		-	-
<i>Daucus carota</i> L.	Queen Anne's lace	Apiaceae	x		-	-
<i>Dennstaedtia punctilobula</i> (Michx.) T. Moore	eastern hayscented fern	Dennstaedtiaceae	x		-	-
<i>Dianthus armeria</i> L.	Deptford pink	Caryophyllaceae	x		-	-
<i>Digitaria ischaemum</i> (Schreb.) Schreb. ex Muhl.	smooth crabgrass	Poaceae	x		-	-
<i>Dryopteris intermedia</i> (Muhl. ex Willd.) A. Gray	intermediate woodfern	Dryopteridaceae	x		-	-
<i>Dryopteris marginalis</i> (L.) A. Gray	marginal woodfern	Dryopteridaceae	x		-	-
<i>Epilobium hirsutum</i> L.	codlins and cream	Onagraceae	x	x	-	-
<i>Epipactis helleborine</i> (L.) Crantz	broadleaf helleborine	Orchidaceae	x		-	-
<i>Equisetum arvense</i> L.	field horsetail	Equisetaceae	x	x	-	-
<i>Erigeron annuus</i> (L.) Pers.	eastern daisy fleabane	Asteraceae	x		-	-
<i>Erigeron strigosus</i> Muhl. ex Willd.	prairie fleabane	Asteraceae	x		-	-
<i>Eupatorium perfoliatum</i> L.	common boneset	Asteraceae	x		-	-
<i>Eurybia divaricata</i> (L.) G.L. Nesom	white wood aster	Asteraceae	x		-	-
<i>Euthamia graminifolia</i> (L.) Nutt.	flat-top goldentop	Asteraceae	x		-	-
<i>Eutrochium maculatum</i> (L.) E.E. Lamont	spotted joe pye weed	Asteraceae		x	-	-
<i>Fagus grandifolia</i> Ehrh.	American beech	Fagaceae	x		-	-
<i>Festuca</i> L.	fescue	Poaceae	x		-	-
<i>Fragaria virginiana</i> Duchesne	Virginia strawberry	Rosaceae	x		-	-
<i>Frangula alnus</i> Mill.	glossy buckthorn	Rhamnaceae	x		-	B
<i>Geum canadense</i> Jacq.	white avens	Rosaceae	x		-	-
<i>Glyceria melicaria</i> (Michx.) F.T. Hubbard	melic mangrass	Poaceae		x	-	-
<i>Hamamelis virginiana</i> L.	American witchhazel	Hamamelidaceae	x		-	-
<i>Hepatica nobilis</i> Schreb. var. <i>acuta</i> (Pursh) Steyerem.	sharplobe hepatica	Ranunculaceae	x		-	-
<i>Hesperis matronalis</i> L.	dames rocket	Brassicaceae		x	-	WL
<i>Hypericum perforatum</i> L.	common St. Johnswort	Clusiaceae	x		-	-
<i>Impatiens capensis</i> Meerb.	jewelweed	Balsaminaceae	x		-	-
<i>Juncus effusus</i> L.	common rush	Juncaceae	x		-	-
<i>Juncus tenuis</i> Willd.	poverty rush	Juncaceae	x		-	-
<i>Lactuca biennis</i> (Moench) Fernald	tall blue lettuce	Asteraceae	x		-	-
<i>Lactuca serriola</i> L.	prickly lettuce	Asteraceae	x		-	-
<i>Lobelia inflata</i> L.	Indian-tobacco	Campanulaceae	x		-	-
<i>Lonicera morrowii</i> A. Gray	Morrow's honeysuckle	Caprifoliaceae	x		-	B
<i>Lotus corniculatus</i> L.	bird's-foot trefoil	Fabaceae	x		-	-
<i>Lycopus uniflorus</i> Michx.	northern bugleweed	Lamiaceae		x	-	-
<i>Lysimachia nummularia</i> L.	creeping jenny	Primulaceae	x		-	-
<i>Lythrum salicaria</i> L.	purple loosestrife	Lythraceae		x	-	B
<i>Medicago lupulina</i> L.	black medick	Fabaceae	x		-	-
<i>Mitchella repens</i> L.	partridgeberry	Rubiaceae	x		-	-
<i>Monotropa uniflora</i> L.	Indianpipe	Monotropaceae	x		-	-
<i>Mycelis muralis</i> (L.) Dumort.	wall-lettuce	Asteraceae	x	x	-	WL
<i>Oenothera parviflora</i> L.	northern evening primrose	Onagraceae	x		-	-

Partial Floristic Inventory

Client: Encore Renewable Energy

Project: Williston G Katie Lane Solar

Survey Date(s): VHB (W. Durkin) August 7-8, 2024, September 12, 2024, August 19, 2025

Prepared by: VHB (W. Durkin, C. Fenner), August 25, 2025

Scientific Name ¹	Common Name	Family	Observed Habitat		VT Rarity Rank ^{2,3}	Non-Native Invasive Species ⁴
			Upland	Wetland		
<i>Onoclea sensibilis</i> L.	sensitive fern	Dryopteridaceae	x		-	-
<i>Osmunda cinnamomea</i> L.	cinnamon fern	Osmundaceae		x	-	-
<i>Osmunda claytoniana</i> L.	interrupted fern	Osmundaceae	x		-	-
<i>Oxalis dillenii</i> Jacq.	slender yellow woodsorrel	Oxalidaceae	x		-	-
<i>Oxalis stricta</i> L.	common yellow oxalis	Oxalidaceae	x		-	-
<i>Parthenocissus quinquefolia</i> (L.) Planch.	Virginia creeper	Vitaceae	x		-	-
<i>Phalaris arundinacea</i> L.	reed canarygrass	Poaceae	x		-	WL
<i>Phegopteris connectilis</i> (Michx.) Watt	long beechfern	Thelypteridaceae	x		-	-
<i>Phleum pratense</i> L.	timothy	Poaceae	x		-	-
<i>Physalis heterophylla</i> Nees	clammy groundcherry	Solanaceae	x		-	-
<i>Pinus strobus</i> L.	eastern white pine	Pinaceae	x		-	-
<i>Plantago lanceolata</i> L.	narrowleaf plantain	Plantaginaceae	x		-	-
<i>Plantago major</i> L.	common plantain	Plantaginaceae	x		-	-
<i>Polystichum acrostichoides</i> (Michx.) Schott	Christmas fern	Dryopteridaceae	x		-	-
<i>Populus deltoides</i> W. Bartram ex Marshall	eastern cottonwood	Salicaceae	x		-	-
<i>Populus tremuloides</i> Michx.	quaking aspen	Salicaceae	x		-	-
<i>Potentilla recta</i> L.	sulphur cinquefoil	Rosaceae	x		-	-
<i>Prenanthes alba</i> L.	white rattlesnakeroot	Asteraceae	x		-	-
<i>Prenanthes altissima</i> L.	tall rattlesnakeroot	Asteraceae	x		-	-
<i>Prunus serotina</i> Ehrh.	black cherry	Rosaceae	x		-	-
<i>Pseudognaphalium obtusifolium</i> (L.) Hilliard & B.L. Burt	rabbit-tobacco	Asteraceae	x		-	-
<i>Pteridium aquilinum</i> (L.) Kuhn	western brackenfern	Dennstaedtiaceae	x		-	-
<i>Quercus rubra</i> L.	northern red oak	Fagaceae	x		-	-
<i>Quercus velutina</i> Lam.	black oak	Fagaceae	x		-	-
<i>Rhamnus cathartica</i> L.	common buckthorn	Rhamnaceae	x		-	B
<i>Rhus typhina</i> L.	staghorn sumac	Anacardiaceae	x		-	-
<i>Ribes cynosbati</i> L.	eastern prickly gooseberry	Grossulariaceae	x		-	-
<i>Rubus allegheniensis</i> Porter	Allegheny blackberry	Rosaceae	x		-	-
<i>Rubus hispidus</i> L.	bristly dewberry	Rosaceae	x		-	-
<i>Rubus idaeus</i> L.	American red raspberry	Rosaceae	x	x	-	-
<i>Rubus occidentalis</i> L.	black raspberry	Rosaceae	x		-	-
<i>Rubus odoratus</i> L.	purpleflowering raspberry	Rosaceae	x	x	-	-
<i>Rubus pubescens</i> Raf.	dwarf red blackberry	Rosaceae	x	x	-	-
<i>Rudbeckia hirta</i> L.	blackeyed Susan	Asteraceae	x		-	-
<i>Rumex acetosa</i> L.	garden sorrel	Polygonaceae	x		-	-
<i>Salix bebbiana</i> Sarg.	Bebb willow	Salicaceae		x	-	-
<i>Salvia officinalis</i> L.	kitchen sage	Lamiaceae	x		-	-
<i>Setaria italica</i> (L.) P. Beauv.	foxtail millet	Poaceae	x		-	-
<i>Silene vulgaris</i> (Moench) Garcke	maidenstears	Caryophyllaceae	x		-	-
<i>Solanum dulcamara</i> L.	climbing nightshade	Solanaceae	x	x	-	-
<i>Solidago altissima</i> L.	Canada goldenrod	Asteraceae	x		-	-
<i>Solidago canadensis</i> L.	Canada goldenrod	Asteraceae	x		-	-
<i>Solidago gigantea</i> Aiton	giant goldenrod	Asteraceae	x	x	-	-
<i>Solidago rugosa</i> Mill.	wrinkleleaf goldenrod	Asteraceae	x		-	-
<i>Spiraea alba</i> Du Roi	white meadowsweet	Rosaceae	x		-	-
<i>Spiraea tomentosa</i> L.	steplebush	Rosaceae	x	x	-	-
<i>Stellaria media</i> (L.) Vill.	common chickweed	Caryophyllaceae	x		-	-
<i>Symphotrichum lanceolatum</i> (Willd.) G.L. Nesom	white panicle aster	Asteraceae	x		-	-
<i>Symphotrichum lateriflorum</i> (L.) Á. Löve & D. Löve	calico aster	Asteraceae	x		-	-
<i>Symphotrichum novae-angliae</i> (L.) G.L. Nesom	New England aster	Asteraceae	x	x	-	-
<i>Symphotrichum puniceum</i> (L.) Á. Löve & D. Löve	purplestem aster	Asteraceae		x	-	-
<i>Thelypteris noveboracensis</i> (L.) Nieuwl.	New York fern	Thelypteridaceae	x		-	-
<i>Tiarella cordifolia</i> L.	heartleaf foamflower	Saxifragaceae	x	x	-	-
<i>Tilia americana</i> L.	American basswood	Tiliaceae	x		-	-
<i>Tragopogon dubius</i> Scop.	yellow salsify	Asteraceae	x		-	-
<i>Trifolium aureum</i> Pollich	golden clover	Fabaceae	x		-	-
<i>Trifolium pratense</i> L.	red clover	Fabaceae	x		-	-
<i>Trillium erectum</i> L.	red trillium	Liliaceae	x		-	-
<i>Tsuga canadensis</i> (L.) Carrière	eastern hemlock	Pinaceae	x		-	-
<i>Typha angustifolia</i> L.	narrowleaf cattail	Typhaceae		x	-	-
<i>Typha latifolia</i> L.	broadleaf cattail	Typhaceae		x	-	-
<i>Ulmus americana</i> L.	American elm	Ulmaceae	x		-	-
<i>Verbascum thapsus</i> L.	common mullein	Scrophulariaceae	x		-	-
<i>Verbena hastata</i> L.	swamp verbena	Verbenaceae		x	-	-
<i>Viburnum acerifolium</i> L.	mapleleaf viburnum	Caprifoliaceae	x		-	-
<i>Vicia cracca</i> L.	bird vetch	Fabaceae	x		-	-
<i>Vitis riparia</i> Michx.	riverbank grape	Vitaceae	x		-	-

X - Plant species was found in this community type.

¹ Nomenclature follows USDA-NRCS PLANTS database (plants.usda.gov/) (2024).

² The Vermont Rarity Rank from the "Rare and Uncommon Native Vascular Plants of Vermont - Vermont Natural Heritage Inventory - Vermont Fish & Wildlife Department", version dated June 10, 2024.

³ The Vermont Rarity Rank from the "Endangered and Threatened Plants of Vermont - Vermont Natural Heritage Inventory - Vermont Fish & Wildlife Department", version dated February 10, 2022.

⁴ **Class B Noxious Weeds Species (B)** from: Quarantine #3- Noxious Weeds (2012).

Watch List Species (WL) from: Vermont Invasive Exotic Plant Committee. 2017. Quarantine and Watch List Update.

Attachment 7



United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104



In Reply Refer To:

06/17/2024 12:56:00 UTC

Project Code: 2024-0104589

Project Name: 58972.07 Encore GF Group G

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Updated 4/12/2023 - Please review this letter each time you request an Official Species List, we will continue to update it with additional information and links to websites may change.

About Official Species Lists

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Federal and non-Federal project proponents have responsibilities under the Act to consider effects on listed species.

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested by returning to an existing project's page in IPaC.

Endangered Species Act Project Review

Please visit the “**New England Field Office Endangered Species Project Review and Consultation**” website for step-by-step instructions on how to consider effects on listed

species and prepare and submit a project review package if necessary:

<https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review>

NOTE Please do not use the **Consultation Package Builder** tool in IPaC except in specific situations following coordination with our office. Please follow the project review guidance on our website instead and reference your **Project Code** in all correspondence.

Northern Long-eared Bat - (Updated 4/12/2023) The Service published a final rule to reclassify the northern long-eared bat (NLEB) as endangered on November 30, 2022. The final rule went into effect on March 31, 2023. You may utilize the **Northern Long-eared Bat Rangewide Determination Key** available in IPaC. More information about this Determination Key and the Interim Consultation Framework are available on the northern long-eared bat species page:

<https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis>

For projects that previously utilized the 4(d) Determination Key, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective. If your project was not completed by March 31, 2023, and may result in incidental take of NLEB, please reach out to our office at newengland@fws.gov to see if reinitiation is necessary.

Additional Info About Section 7 of the Act

Under section 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether projects may affect threatened and endangered species and/or designated critical habitat. If a Federal agency, or its non-Federal representative, determines that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Federal agency also may need to consider proposed species and proposed critical habitat in the consultation. 50 CFR 402.14(c)(1) specifies the information required for consultation under the Act regardless of the format of the evaluation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/service/section-7-consultations>

In addition to consultation requirements under Section 7(a)(2) of the ESA, please note that under sections 7(a)(1) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Please contact NEFO if you would like more information.

Candidate species that appear on the enclosed species list have no current protections under the ESA. The species' occurrence on an official species list does not convey a requirement to

consider impacts to this species as you would a proposed, threatened, or endangered species. The ESA does not provide for interagency consultations on candidate species under section 7, however, the Service recommends that all project proponents incorporate measures into projects to benefit candidate species and their habitats wherever possible.

Migratory Birds

In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see:

<https://www.fws.gov/program/migratory-bird-permit>

<https://www.fws.gov/library/collections/bald-and-golden-eagle-management>

Please feel free to contact us at **newengland@fws.gov** with your **Project Code** in the subject line if you need more information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat.

Attachment(s): Official Species List

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office

70 Commercial Street, Suite 300

Concord, NH 03301-5094

(603) 223-2541

PROJECT SUMMARY

Project Code: 2024-0104589
Project Name: 58972.07 Encore GF Group G
Project Type: Power Gen - Solar
Project Description: Solar power generation construction
Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@44.469165700000005,-73.10269399744804,14z>



Counties: Chittenden County, Vermont

ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Will Durkin
Address: 40 IDX Drive
City: South Burlington
State: VT
Zip: 05403
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