



Town of North Yarmouth

SITE PLAN REVIEW & CONDITIONAL USE APPLICATION

including applications for

MDEP Stormwater Permit by Rule,
MDEP Tier II Natural Resources Protection Act Permit, and
MDEP Solar Decommissioning Permit

APPLICANT:

Water Line Solar, LLC
8 Quarry Ridge
North Yarmouth, ME 04097

March 14, 2022

Ryan Keith
Code Enforcement Officer
Town of North Yarmouth
10 Village Square
North Yarmouth, ME 04097

Re: Water Line Solar Project – Site Plan Review and Conditional Use Application

Dear Ryan,

I appreciate the time you have spent with me to review the North Yarmouth land use process. I have incorporated early feedback from North Star Planning, and I would like to formally initiate a Site Plan Review and Conditional Use application for the Water Line Solar Project (Project).

Water Line Solar, LLC, a subsidiary of Branch Renewable Energy, is proposing the development of a ground-mounted solar energy facility in North Yarmouth. The Project is a 1.99-megawatt solar array that will deliver clean energy to the grid and contribute to Maine's renewable energy goals. The proposed site is located off of Sweetser Road, and will occupy approximately 14.4 acres of the 100-acre Lot 2 on Tax Map 5. This location was selected as an out-of-sight and previously disturbed area with existing infrastructure and a willing property owner.

In addition to the North Yarmouth Site Plan Review and Conditional Use application, the Project team is applying to the Maine Department of Environmental Protection for a Tier 2 Natural Resources Protection Act permit, Stormwater permit by rule, and Solar Decommissioning permit.

Solar projects are very low-impact in nature. A conservation/wildlife seed mix will be used to maintain meadow conditions throughout the life of the Project, and there is no need for foundations or significant impermeable surfaces. At the end of its useful life, the Project will be removed and the site will be returned to a natural state suitable for other uses.

On a more personal note, as a resident of North Yarmouth I am proud and excited for the opportunity to develop solar energy in my home town. I look forward to continuing to work with you to deliver a project that will promote clean energy and benefit North Yarmouth.

If you have any questions about the attached application, please contact me at (207) 653-9864, or by email at cbyers@branchrenewables.com.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Byers", with a long horizontal stroke extending to the right.

Chris Byers, Principal
Branch Renewable Energy, LLC
8 Quarry Ridge
North Yarmouth, ME 04097



TOWN OF NORTH YARMOUTH
PLANNING BOARD
REQUEST FOR HEARING

NAME OF APPLICANT: Water Line Solar, LLC PHONE #: (207) 653-9864
EMAIL: cbyers@branchrenewables.com ALT. PHONE#: _____
FULL ADDRESS: 8 Quarry Ridge, North Yarmouth, ME 04097
PROPERTY ADDRESS: 238 Sweetser Road, North Yarmouth, ME 04097
MAP: 5 LOT: 2 ZONE: Farm and Forest (with Groundwater Protection Overlay)

AGENT/REPRESENTATIVE (if other): Biodiversity Research Institute PHONE #: 414-758-7319
EMAIL: merrill.read@BRlenvironmental.org
FULL ADDRESS: 30 Danforth Street, Suite 213, Portland, ME 04101

The undersigned requests the North Yarmouth Planning Board consider the following application for:


<input type="checkbox"/>	Pre-application Sketch Plan Review	<input type="checkbox"/>	Major Subdivision
<input type="checkbox"/>	Minor Subdivision	<input checked="" type="checkbox"/>	Site Plan Review
<input type="checkbox"/>	Contract Zoning		
<input checked="" type="checkbox"/>	Other (Specify): <u>and Conditional Use</u>		

NOTE TO APPLICANT:

1. This form and appropriate materials must be filed at the Code Enforcement Office no later than (fourteen) 14 days prior to the regular meeting of the Board (2nd Tuesday monthly). Applications shall be accompanied by all applications fee and materials required by the applicable ordinance(s), checklists and fee schedule.
2. All applications shall include all materials and copies as specified on the submittal requirements form.
3. All materials in color shall be copied in color.

Application Authorization

I hereby make application to the Town of North Yarmouth for the above-referenced property(ies) and the development as described. To the best of my knowledge, the information provided herein is accurate and is in accordance with the Zoning and Subdivision Ordinances of the Town, except where waivers are requested. The Town of North Yarmouth Planning Board and/or town employees are authorized to enter the property(ies) for purposes of reviewing this proposal and for inspecting improvements as a result of an approval of this proposal. I understand that I am responsible for appearing, or having someone appear on my behalf, at all meetings before the Planning Board.

Signature:  Date: 3/14/2022
Printed Name: Chris Byers

Please identify yourself (check one): ~~Agent*~~ Applicant Property Owner



**TOWN OF NORTH YARMOUTH
PLANNING BOARD**

SITE PLAN REVIEW AND CONDITIONAL USE APPLICATION
(See Section 4 pages 23 through 36 of the North Yarmouth Land Use Ordinance)

NAME OF APPLICANT: Water Line Solar, LLC PHONE #: (207) 653-9864
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EMAIL: merrill.read@BRlenvironmental.org
FULL ADDRESS: 30 Danforth Street, Suite 213, Portland, ME 04101

1. Names and Addresses of ALL property owners within 500' of any and all property boundaries **(use a separate sheet). Please contact the code office for an updated list)** - See Attachment 4

2. Plan preparer information if other than property owner:

Name: Ian Jewkes (Krebs & Lansing Consulting Engineers)
Address: 164 Main Street, Suite 201, Colchester, VT 05446
Phone Number: (802) 878-0375 Professional Lic. # 17165
Email: ian.jewkes@krebssandlansing.com

3. Zoning Classification of the Property

Village Center Village Residential Farm and Forest
 Shoreland Residential Resource Protection Royal River Overlay
 Groundwater Protection Overlay


4. Provide a General Description of the proposed use or activity, including but not limited to the type of use, square footage involved, hours of operation, types and amount of traffic to be generated **(use separate sheet).** - See Attachment 1

5. Historic Structures: Are there any historic structures or areas of historical importance on the property? YES NO

6. Complete List of all chemicals, pesticides, fuels, nutrients and other potentially toxic or hazardous materials to be used or stored on the premises, and the quantities of these materials **(use a separate sheet).** - See Attachment 1

7. List of Equipment to be used, parked or stored **(use a separate sheet).** - See Attachment 1

8. To the best of my knowledge, all the above-stated information, and all prepared submissions in this application are correct.



Signature of Applicant/Owner

3/14/2022

Date



**TOWN OF NORTH YARMOUTH
PLANNING BOARD
FEE CALCULATION SHEET**

NAME OF APPLICANT: Water Line Solar, LLC
 PROPERTY ADDRESS: 238 Sweetser Road, North Yarmouth, ME 04097
 MAP: 5 LOT: 2

SITE PLAN FEES

<u>Description</u>	<u>Fees</u>	<u>Total</u>
Preliminary Sketch Plan Review	\$0	<hr/>
Site Plan Review Permit	\$250.00	\$250 <hr/>
Amendment to Site Plan Review Permit	\$75.00	<hr/>

SUBDIVISION APPROVAL FEES
MINOR SUBDIVISION (4 lots or less)

<u>Description</u>	<u>Fees</u>	<u>Total</u>
Non-refundable Application Fee	\$250.00	<hr/>
Each Lot/Dwelling Unit	\$100.00	<hr/>
Technical Review	Cost + \$25.00	<hr/>

MAJOR SUBDIVISION (5 lots or more)

<u>Description</u>	<u>Fees</u>	<u>Total</u>
Non-refundable Application Fee	\$350.00	<hr/>
Each lot/Dwelling Unit	\$100.00	<hr/>
Technical Review	Cost + \$25.00	<hr/>

<u>TOTAL FEES REQUIRED</u>	\$250 <hr/>
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NOTE: Certain Subdivisions will be required to complete a Site Plan Review Permit. Review fees are not typically refundable. If extenuating circumstances occur, the Board may consider a partial or full refund.



**TOWN OF NORTH YARMOUTH
PLANNING BOARD
WAIVER OR NOT APPLICABLE REQUEST**

NAME OF APPLICANT: Water Line Solar, LLC PHONE #: (207) 653-9864

AGENT/REPRESENTATIVE (if other): Biodiversity Research Institute PHONE #: 414-758-7319

PROPERTY ADDRESS: 238 Sweetser Road, North Yarmouth, ME 04097

MAP: 5 LOT: 2 ZONE: Farm and Forest with Groundwater Protection Overlay

(CIRCLE ONE) WAIVER NOT APPLICABLE

WAIVER OR N/A TYPE: SUBMITTAL ITEM STANDARD

(CIRCLE ONE)

ORDINANCE SECTION#: 10.3(C)

ORDINANCE LANGUAGE:

1. Vegetative buffers shall be located between all disturbed areas of a development and streams, ponds, vernal pools and high value wetlands.

6. Buildings and other structures must be set back a minimum of 50 feet from all low value wetlands. A buffer strip as described in subsections 4 and 5 above shall be maintained within 25 feet of all low value wetlands.

SUPPORTING EVIDENCE FOR WAIVER CONSIDERATION: (use separate sheet is necessary)

See Attachment 9 for a full discussion of the wetlands in question, and the proposed project impacts.

Wetlands will be altered, not destroyed, by the proposed project. They will retain many of their principal functions and values. The Maine Department of Environmental protection regulates the extent of wetland impacts, and the project team is applying for a Tier 2 Natural Resources Protection Act permit.

(CIRCLE ONE) WAIVER NOT APPLICABLE
WAIVER OR N/A TYPE: (CIRCLE ONE) SUBMITTAL ITEM STANDARD

ORDINANCE SECTION#: _____

ORDINANCE LANGUAGE:

SUPPORTING EVIDENCE FOR WAIVER CONSIDERATION: (use separate sheet is necessary)



BRANCH
RENEWABLE ENERGY

AGENT AUTHORIZATION FORM

February 23, 2022

To Whom It May Concern,

This letter serves as acknowledgement of authorization for Biodiversity Research Institute to act as an agent on behalf of Branch Renewable Energy, LLC regarding the submission and subsequent follow up of any municipal, state, or federal permits for the North Yarmouth Solar Project ("Water Line Solar, LLC") in Maine.

Any questions or clarifications regarding the representation can be directed to Chris Byers, Principal at Branch Renewable Energy (cbyers@branchrenewables.com).

Sincerely,

Chris Byers, Principal
Branch Renewable Energy, LLC
8 Quarry Ridge
North Yarmouth, ME 04097
207-653-9864
cbyers@branchrenewables.com

State of Maine



Department of the Secretary of State

I, the Secretary of State of Maine, certify that according to the provisions of the Constitution and Laws of the State of Maine, the Department of the Secretary of State is the legal custodian of the Great Seal of the State of Maine which is hereunto affixed and of the reports of formation, amendment and cancellation of articles of organization of limited liability companies and annual reports filed by the same.

I further certify that WATER LINE SOLAR, LLC is a duly formed limited liability company under the laws of the State of Maine and that the date of formation is March 02, 2022.

I further certify that said limited liability company has filed annual reports due to this Department, and that no action is now pending by or on behalf of the State of Maine to forfeit the articles of organization and that according to the records in the Department of the Secretary of State, said limited liability company is a legally existing limited liability company in good standing under the laws of the State of Maine at the present time.

In testimony whereof, I have caused the Great Seal of the State of Maine to be hereunto affixed. Given under my hand at Augusta, Maine, this fourth day of March 2022.



Shenna Bellows

Shenna Bellows
Secretary of State

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ATTACHMENT 1

General Description

Attachment 1: General Description

Project Summary

Water Line Solar, LLC, a subsidiary of Branch Renewable Energy, LLC (Branch), is proposing to develop the Water Line Solar Project (Project), a ground-mounted solar energy generation facility. The Project's limit of disturbance (LOD)—including all clearing, infrastructure, and equipment—will occupy a total of 14.4 acres in North Yarmouth. The Project will provide approximately 1.99 megawatts of renewable power to the local electrical grid by interconnecting with existing roadside three-phase power lines.

The Project features a racking type called a single-axis tracker, which allows the solar panels to move from east to west each day as the sun moves across the sky, maximizing the solar energy potential of the site. Single-axis trackers afford an approximately 15% increase in solar energy production, compared to a fixed-tilt racking assembly. The renewable energy generated from this Project will benefit Maine ratepayers and contribute to the State's long-term renewable energy production goals.

The Project parcel was chosen due to its previously disturbed nature; its out-of-sight and out-of-hearing location; the presence of existing infrastructure, such as three-phase power lines and access roads; the willingness of the landowner; and the existing capacity at the Elm Street Substation in Yarmouth, which is the dedicated substation for energy produced by the Project. The Project is capable of producing clean renewable electricity for more than 30 years, requiring no fuel and producing no emissions to operate.

The site is owned by the Yarmouth Water District (YWD), and contains producing water wells. Because of this, Branch has worked closely with the YWD and the Maine Department of Health and Human Services to ensure that the Project does not interfere with YWD operations and does not pose a risk to drinking water. The Project has been strategically located outside the Zone 1 Well Protection Areas (200-day travel areas) surrounding the three on-site producing YWD wells. No project equipment is located in the Zone 1 areas, and the Project has chosen equipment that does not contain or require any petroleum-based liquids.

In addition to the North Yarmouth Site Plan Review and Conditional Use Permit, the Project is also applying for a Maine Department of Environmental Protection (MDEP) Stormwater Permit by Rule (PBR), a Tier II Natural Resources Protection Act (NRPA) permit, and a Solar Decommissioning permit. The Project team is filing these state permit applications concurrently with the North Yarmouth permit application. Copies of all submissions and approvals will be provided to the Town of North Yarmouth.

Once construction is complete, the Project will operate autonomously with 24/7/365 remote monitoring. For safety reasons, the Project will not be accessible to the public. Occasional site visits from Project personnel will be necessary for routine maintenance (e.g., mowing) and periodic inspections of equipment and stormwater management controls. Such visits are not expected to occur more often than once per quarter.

Project Location

The Project is proposed to be located at 238 Sweetser Road, on Lot 2 of Tax Sheet 5 in North Yarmouth. This parcel is in the Farm and Forest District, and a large portion of the parcel is within the Groundwater Protection Overlay District. The Project LOD is proposed to be located entirely within the Groundwater Protection Overlay District, between existing overhead power lines and an existing private dirt road. This private road will connect the 16-foot-wide Project access road with Sweetser Road.

More details, including existing buildings, roads, and setbacks, as well as proposed structures and clearing, can be found in the Site Plans included in **Attachment 2**. Additionally, **Attachment 3** includes the following maps:

- Project Location Map (Aerial)
- Project Location Map (Topographic)
- Town Tax Map
- 500-foot Abutters Map
- Town Zoning Map
- Sensitive Groundwater Protection Map
- Sand and Gravel Aquifers Map
- Natural Resources Map
- Wetland Impact Map
- Surface Water Drainage Map
- FEMA 100-year Flood Map
- High Value Plant and Wildlife Habitat Map
- Yarmouth Water District Contiguous Property Ownership Map

Dimensional Requirements

The proposed LOD, including undeveloped open areas, is 14.4 acres, which constitutes 14.4% of the 100-acre parcel, and is well below the maximum of 20% coverage. The LOD is outside of the 50-foot front setback and 20-foot side and rear setbacks, as seen in the Site Plan in **Attachment 2**. With the exception of power poles, no structure will be taller than 35 feet.

Because the Project parcel does not have the 200 feet of street frontage required within the Farm and Forest District, the parcel is non-conforming. According to § 2.5(A) of the *Town of North Yarmouth Land Use Ordinance*, however, the parcel may be built on, and does not need to be combined with contiguous lots under the same ownership, because it was a non-conforming lot of record as of the date of the *Ordinance* (June 14, 2005).

Abutters

A map of abutting properties within 500 feet of the Project parcel is provided in **Attachment 3**, along with a list of those property owners and addresses in **Attachment 4**. The Project team will notify the listed abutting property owners by certified mail at least 14 days prior to the Planning Board meeting at which this application is to be considered. A copy of the notification and evidence of certified mailing will be provided to the Planning Board at that time.

Title, Right, or Interest

The Project parcel is owned by the Yarmouth Water District. Water Line Solar, LLC has acquired an option to lease the parcel for up to 30 years. This option agreement is included in **Attachment 5**. There are no known restrictions or easements on the property that the Project team is aware of at this time. A comprehensive boundary survey and title search will be conducted before construction begins.

Utility Notification

An application for interconnection was submitted to Central Maine Power (CMP) on November 30, 2021. The application was deemed complete and a substation queue position was assigned to the Project on December 14, 2021. The Notification of Completion from CMP is included in **Attachment 6**.

Technical and Financial Capacity

The Project team is based in North Yarmouth and includes established leaders from the Maine solar energy industry. The team has decades of combined experience in natural resources protection, solar energy development, environmental permitting, stormwater engineering, and construction oversight. More information about the Project team is included in **Attachments 7-A** and **7-B**.

The estimated cost of the Project is \$4.2 million. Water Line Solar, LLC has obtained a letter of financial capability from Gorham Savings Bank affirming its confidence in the ability of the Project and Branch Renewable Energy to construct the Project. The letter is included in **Attachment 7-C**.

Existing Site Conditions

The Project parcel is predominantly forested, but has previously been significantly disturbed. The depression in which the Project LOD is proposed to be located is the result of previous grading and activity to construct the YWD infrastructure decades ago. The surrounding area includes agriculture and low-density residential development, as well as a railroad and an out-of-use gravel pit.

The YWD has three producing wells on the property, as well as various water quality testing wells. The producing wells, as listed on the Site Plan (**Attachment 2**), are the Stevens and Reinsborough Wells, south of the main Project area; and the Estabrook Well, north of the Project area. The YWD has provided shapefile data of underground water infrastructure. This data is shown on the Site Plan (**Attachment 2**).

The producing wells are accessed via an existing private dirt road, which connects to Sweetser Road. They are powered by three-phase overhead power lines, which also run into the parcel from Sweetser Road. To reach the northerly Estabrook Well, the dirt road and power lines diverge, with the power lines cutting through an area of forest and scrub-shrub wetlands. There are no other structures within the parcel, and no structures are proposed within the LOD.

Natural Resources

The Project parcel is predominantly characterized by forested uplands, and overlies sand and gravel aquifers of moderate to excellent groundwater yield (see the Aquifer Map in **Attachment 3**). No vernal pools or potential vernal pools were identified during an on-site natural resources survey. The survey did delineate several small scrub-shrub and forested wetlands, as well as a large scrub-shrub wetland east of the proposed LOD (see the Natural Resources Map in **Attachment 3**). This large wetland is bordered to the east by a railroad, and has been cleared where power lines cross it to reach the Estabrook Well.

No Wetlands of Special Significance (WOSS) were identified within the Project parcel, as defined by MDEP in 06-096 CMR 310 (rules governing “Wetlands and Waterbodies Protection”). No streams were identified within the parcel. For more information about natural resources within the Project area, see the Natural Resources Report in **Attachment 8**.

Three wetlands were identified within the proposed Project LOD, one of which is considered a high-value wetland per § 10.3 of the *Town of North Yarmouth Land Use Ordinance*. See **Attachment 9** for a discussion of the functions, values, and proposed Project impacts in this wetland, which is referred to as Wetland W-MR-06.

Soils

Soil map units within the Project parcel were identified through the Natural Resources Conservation Service (NRCS) Web Soil Survey for Cumberland County. Four soil types underlie the proposed LOD: Lamoine silt loam, gravel pits, Hartland very fine sandy loam, and Hinckley loamy sand. These soils are not hydric, and range from excessively drained to somewhat poorly drained. Slopes within the LOD range mostly from 3 to 8 percent. More details are available in the full NRCS report, which is included in the Natural Resources Report in **Attachment 8**.

Protected Species and Sensitive Habitats

The Maine Natural Areas Program (MNAP) and the Maine Department of Inland Fisheries and Wildlife (MDIFW) were contacted on December 15, 2021 regarding the presence of any rare, threatened, or endangered botanical species, or any other protected communities or habitats within the Project parcel. MNAP's review and response, included in **Attachment 10**, found no rare botanical species documented within the Project area. MDIFW responded that it has not mapped any Essential Habitats that would be directly affected by the Project, nor any Significant Wildlife Habitats such as significant vernal pools or waterfowl habitats. MDIFW's response is included in **Attachment 10**.

Historic Structures

No known historic structures exist on the Project property. The National Register of Historic Places does not identify any sites that would be impacted, visually or otherwise, by the Project. The nearest listed structure is the Captain Reuben Merrill House in Yarmouth, 1.9 miles from the Project site.

An inquiry was sent to the Maine Historic Preservation Commission (MHPC) on February 18, 2021 regarding the documented or potential presence of historic resources within the Project area. The inquiry is included in **Attachment 10**. As of the date of this filing, MHPC has yet to provide a response. When a response is received, it will be shared with the Planning Board.

Proposed Site Conditions

Solar projects are low-impact in nature, and the proposed Project will minimize impacts by using the existing access road and power lines. Racking posts will be driven or screwed directly into the ground, without the need for cement foundations or cemented post holes. Wiring will run underground throughout the Project area, until the point where a series of typical aboveground power poles must be installed to interconnect with existing overhead three-phase power lines.

The Project will result in 13.4 acres of clearing between the existing access road and power lines. Total impervious area will be 3,720 square feet (0.09 acres). The only impervious surfaces will be the gravel access road, an equipment pad, the power poles, the fence posts, and the racking posts. Solar panels are not considered impervious by MDEP. The area around the solar panels will be re-vegetated with a native conservation seed mix. This creates meadow conditions and a stormwater buffer so that the Project area can self-treat stormwater runoff. Per MDEP rules, in order for the meadow to qualify as a stormwater buffer, the Project cannot not be mowed more than twice per year.

The proposed solar panels and solar panel racking will have a maximum height of 9–13 feet, depending on the final racking and solar panel configuration. The Project does not propose the construction of any buildings, and due to the low traffic volume during Project operation, no parking areas are proposed. A turnaround along the Project access road will provide sufficient parking for maintenance vehicles during operation. A laydown area has been proposed at the southern end of the LOD in order to temporarily stage materials, but no fuel or vehicles will be stored in this area, as it falls within a Zone 1 Well Protection Area.

Solar projects can be built in and over a variety of different soil types, from sand to wet meadow to ledge. A full geotechnical analysis will be conducted prior to finalizing construction plans, to ensure that the Project is structurally sound. Final designs will be stamped by a licensed structural engineer.

Wetland Impacts

The Project has been designed to avoid wetland impacts to the greatest extent practicable. Total wetland impacts across the Project include 20 square feet of permanent fill from racking posts and fence posts; 6,100

square feet (0.14 acres) of shading, where solar panels will span wetlands; and 16,335 square feet (0.38 acres) of clearing, where scrub-shrub and forested wetlands will be converted to wet meadow or emergent wetlands.

There will be no grading or stumping within wetlands. The conversion of scrub-shrub and forested wetlands to wet meadow or emergent wetlands will change—but not significantly diminish—the productive habitat, biological ecosystems, and natural functions and values of these wetlands. While many generalist species will continue to use the wetlands, overall use will likely shift toward species that prefer open habitats.

Impacts to the high-value W-MR-06 wetland will include 10 square feet of fill, 4,843 square feet of shading, and 13,260 square feet of clearing. For further discussion of Wetland W-MR-06, see **Attachment 9**.

Groundwater Impacts

Solar projects have minimal groundwater impacts. During construction, no fuel will be stored and no equipment or vehicles will be parked overnight in the Zone 1 Well Protection Areas. Construction and operations teams will work closely with the YWD to prevent spills or groundwater contamination of any kind during construction and long-term operation of the Project. During Project operation, stormwater will be directed to fully vegetated buffers, where it will continue to recharge the underlying aquifer, resulting in no change to recharge volume. All permanent Project equipment is proposed to be located outside of the Zone 1 Well Protection Areas.

The Project team has worked with the Yarmouth Water District to identify solar panel racking motors that use high-density plastic bushings instead of petroleum-based lubricants. As an additional precaution, the access road and equipment platform will be sited as far as practicable from either of the Zone 1 Well Protection Areas. Surface flow directions within the site are predominantly downhill to the east, away from either of the Protection Areas (see the Surface Water Drainage Map in **Attachment 3**). Meadow buffers will be maintained under the solar panels, and wetlands within the LOD will continue to provide stormwater attenuation.

In consultation with the YWD, the Project does not pose a risk to groundwater because there is no proposed discharge or release of effluent waste water. Current and future test well data is available upon request from the YWD, but is not required because no septic system or effluent discharge is proposed.

The Project will acquire an MDEP Stormwater Permit by Rule, and will follow all MDEP best management practices, during both construction and operation. A Spill Prevention, Control, and Countermeasures (SPCC) Plan has been prepared for the Project, which details the methods, plans, and procedures to prevent impacts to groundwater during construction and operation. All personnel working on the Project will be trained in and required to follow the SPCC Plan procedures. The SPCC Plan is included in **Attachment 11**. The SPCC Plan is also referenced in the Operations and Maintenance Plan, which is included in **Attachment 12**.

In order to maintain a meadow under the solar panels, mowing and hand trimmers will be used. The use of pesticides is prohibited per MDEP rules, so no pesticides will be sprayed on this Project area.

List of Equipment and Chemicals

Solar projects require little large equipment and few chemicals during construction and operation. The following is a list of anticipated equipment and chemicals.

Equipment for Construction

- Construction vehicles (trucks, excavators, skid steers, bulldozers, private cars)
- Wood chipper
- Hydraulic foundation driver
- Portable toilet

Equipment for Operation

- Single-axis tracker solar panels
- Electrical inverters
- Electrical transformer
- Power lines (underground and overhead)
- Power poles

Chemicals for Construction

- Petroleum products for vehicles (diesel, gas, and oil for construction equipment and private vehicles)

Chemicals for Operation

- Envirotemp FR3 transformer fluid (see below for more information about this non-toxic, vegetable-based fluid commonly used in transformers)

Instead of mineral oil or petroleum products, the electrical transformer will use Envirotemp FR3 fluid, a vegetable-based, non-toxic, non-hazardous, biodegradable, recyclable liquid. Additional information about Envirotemp FR3 fluid is included in **Attachment 13**. Although this fluid is biodegradable, the Project will install secondary containment around the transformer, as well as pipe bollards to protect against vehicle impacts. Envirotemp FR3 also acts as a fire retardant.

Hydroseeding may be used to re-vegetate disturbed areas of the Project following construction. Hydroseeding sometimes incorporates a binder, which prevents seeds from washing away, while stabilizing the soil and controlling dust. If a binder is needed to re-vegetate the Project area, a non-toxic, non-hazardous, biodegradable, 100% organic and plant-based product will be used.

No pesticides or herbicides will be used for Project maintenance, and no hazardous chemicals will be stored on-site. The proposed project is located in the Royal River Watershed. The Project is not located within the direct watershed of a lake or lake most-at-risk, as listed in 06-096 CMR 502 (“Direct Watersheds of Lakes Most at Risk from New Development, and Urban Impaired Streams”). The Phosphorus Standard does not apply to this project.

Yarmouth Water District Project Review Letter

Because the Project is located on land owned by the Yarmouth Water District (YWD), and because the Project is within the Groundwater Protection Overlay, YWD has prepared a Project Review Letter. The letter summarizes YWD’s due diligence performed to date, as well as a groundwater analysis of the proposed activity and equipment on-site. See **Attachment 14** for a copy of the Project Review Letter.

Noise

During operation of the Project, minimal noise will be generated, mostly from electrical transformers. The Project also proposes the installation of single-axis tracker solar arrays, which use motors that produce low sound levels. Noise levels are expected to be below all daytime and nighttime limits established in the *Town of North Yarmouth Land Use Ordinance*, and should not adversely impact nearby properties. See **Attachment 15** for specific details about expected noise levels.

Stormwater Management and Erosion Control

Construction and operation will be conducted in accordance with 38 MRS § 420-C and § 420-D (Erosion and Sedimentation Control, and Stormwater Management). The Project will employ best management practices from the *Maine Erosion and Sediment Control Best Management Practices Manual for Designers and Engineers* and the *Maine Erosion and Sediment Control Practices Field Guide for Contractors*.

Erosion and sedimentation control measures will be in place prior to the start of ground disturbance associated with construction, and will be maintained until the site is stabilized. Construction activity will not impede or otherwise alter drainageways so as to have an unreasonable adverse impact on any wetland, waterbody, or adjacent downslope parcel. Complete erosion and sedimentation control plans are included in the Stormwater Permit by Rule application in **Attachment 16**.

A meadow conditions buffer across the Project area under the solar arrays will treat stormwater created by the impervious equipment pad, access road, fence posts, and solar panel racking posts. Following construction, disturbed areas of the site will be seeded with a native conservation seed mix in order to create meadow conditions. Seed will be reapplied as necessary until the site is permanently stabilized (95% vegetated).

MDEP Stormwater Permit by Rule Application

A Stormwater Permit by Rule (PBR) application has been prepared for the Project by the registered professional engineers at BH2M. The application has been designed in accordance with the most recent version of the *Maine Stormwater Best Management Practices Manual* in order to satisfy MDEP rules governing Stormwater Management (06-096 CMR 500, 501, and 502). The application includes an Erosion and Sedimentation Control Plan; an Inspection and Maintenance Plan for erosion and sedimentation controls; and performance standards to prevent spills and protect groundwater. See **Attachment 16** for the full Stormwater PBR application.

MDEP Tier II Natural Resources Protection Act Application

In addition to the Stormwater PBR permit application, the Project team is applying for an MDEP Tier II NRPA permit application. This application identifies impacted wetlands, describes their functions and values, and discusses alternative development scenarios. A Public Notice of Intent to File is required as a part of this application. See **Attachment 17** for the full Tier II NRPA permit application.

MDEP Solar Decommissioning Application

The Project owner will be responsible for decommissioning the Project at the end of its operational life, or the expiration/termination of the lease agreement. MDEP requires projects greater than 3 acres to apply for a Decommissioning Permit and provide a form of surety to cover the estimated costs of decommissioning. This form of surety is due prior to the start of construction. Such surety can be in the form of a certified check, performance bond, or irrevocable letter of credit. A copy of this surety will be provided to the Town of North Yarmouth prior to the start of construction. The MDEP Solar Decommissioning Application, which includes estimated costs of decommissioning, is included in **Attachment 18**.

Exterior Lighting and Signs

The Project will install a small informational placard near the entrance gate to list 24-hour emergency contact information. Trespassing and warning signs will be installed around the Project fence, and will not exceed 2 square feet in area. No advertising or other signage is proposed. No signs or placards will be illuminated and there will be no exterior lighting for the Project.

Visual Buffering and Landscaping

The Project has been designed to preserve a vegetated buffer of at least 150 feet between equipment and abutting properties. Because Project solar panels will be a maximum of 9–13 feet tall, this buffer will screen the Project from abutters and from public roads. No landscaping is being proposed, therefore, aside from re-seeding the Project area following construction with a native wildlife/conservation seed mix.

Floodplains

The Project does not propose to locate any infrastructure or equipment within areas that have a 1% or higher annual flood hazard, as seen in the FEMA 100-year Flood Map included in **Attachment 3**.

Fencing, Security, and Emergency Access

The Project proposes a 7-foot-tall agricultural-style wooden post fence around the solar arrays, as required by the National Electric Code. The agricultural fence will match the local character, and will include either 6-inch wire mesh or a 6-inch gap along the bottom, to allow small wildlife to move freely through the site.

To prevent unauthorized access, the Project will include a locked entrance gate. The gate will be equipped with a KnoxBox for emergency personnel access. The access road will include a turnaround suitable for fire trucks and other emergency vehicles, and will be constructed with materials adequate to support the weight class of these emergency vehicles.

Solar generation facilities include redundant protective equipment and disconnect switches to prevent electrical faults. All three Yarmouth Water District wells located on the property are equipped with existing hydrants, which can be used by the North Yarmouth Fire Department in case of a fire. No water should be used on fires within the facility, as such a fire could be electrical in nature. The Project team will conduct training for local fire departments, in order to demonstrate system shutdowns and fire safety at an electrical facility.

Traffic, Parking, and Roads

Following construction, the traffic volume created by the Project will be minimal. Routine inspection and maintenance visits are expected no more than once per month. Inspection and maintenance personnel will be able park vehicles in the turnaround along the access road within the fence. No additional parking areas are proposed. For safety and security reasons, the site will be inaccessible the public.

Water Supply

The Project will not require any water supply or subsurface wastewater disposal during operation. During construction, water may be used for dust control on the access road. Such water will be drawn from off-site sources and spread on-site by tanker trucks. Any wash water produced during construction will be released on concrete pads or gravel surfaces, or into appropriate containers. The construction team will work closely with the Yarmouth Water District to ensure that there are no unauthorized releases.

Sewage Disposal

Portable toilets serviced by a state-licensed service provider will be used on-site during Project construction. During operation, there will be no day-to-day on-site personnel, and no need for sewage disposal or a septic system.

Solid Waste

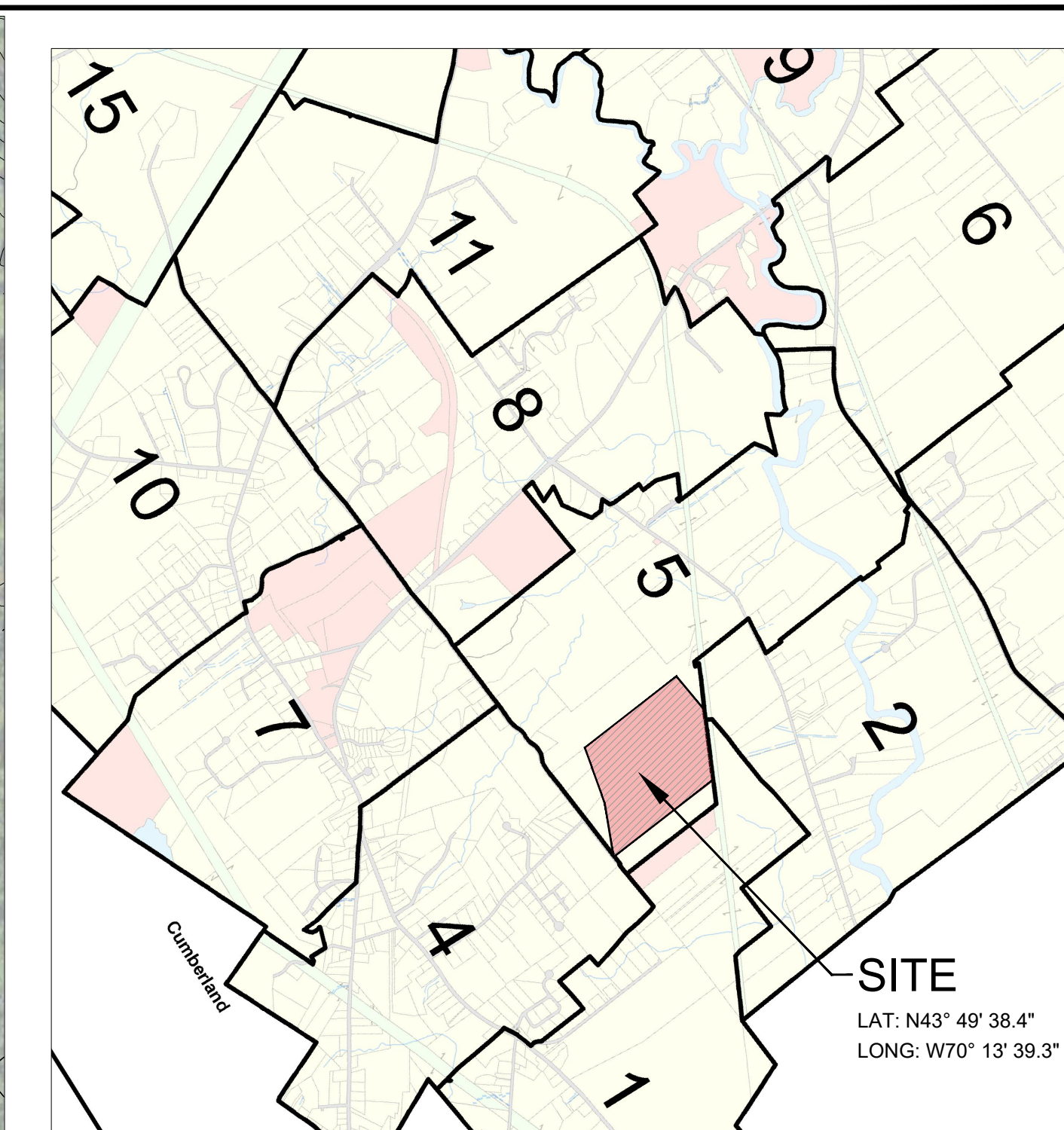
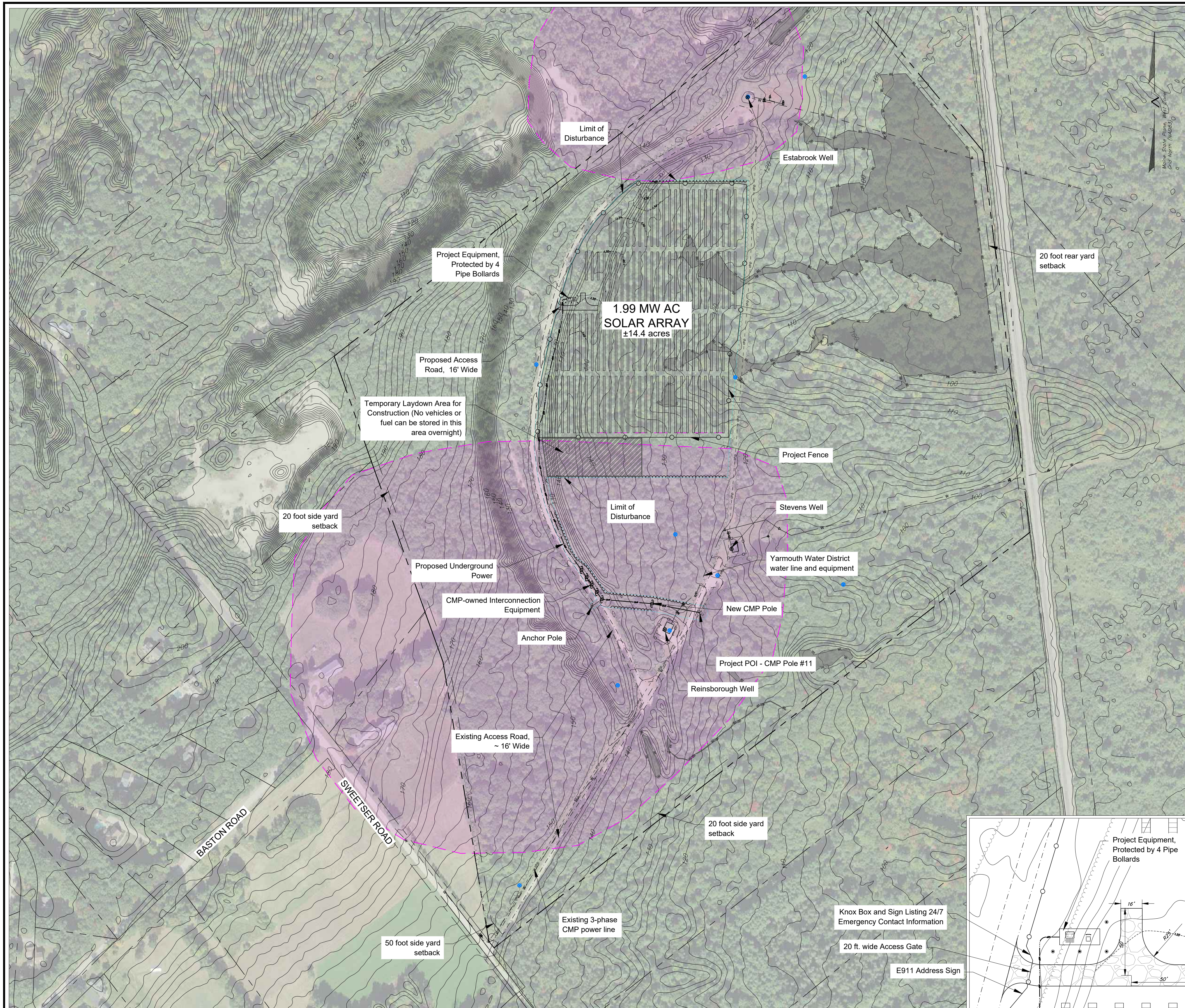
Solid waste generation will be limited to the construction phase of the Project. Waste will primarily derive from tree clearing, construction, and packaging materials associated with the shipment of equipment (solar panels, racking, conductors, inverters, and transformers). Solid waste generated during clearing and construction will be hauled and disposed of by a Category A, state-licensed transporter. After tree clearing, remaining stumps will either be left in place or ground on-site to make erosion control mulch. No hazardous waste or wastewater will be generated by the Project.

Waiver Request

The Project team requests a waiver for the buffering and setback requirements outlined in § 10.3(C) (restrictions relating to high-value wetlands). Requiring structures to be set back at least 50 feet from all wetlands (low- and high-value), as well as prohibiting clearing, will make the Project non-viable. The Project will alter but not destroy the functions and values of the existing forested and scrub-shrub wetlands within the proposed LOD. See *Wetland Impacts*, above, and **Attachment 9** for a discussion of impacts and mitigation measures. The Project proposes to convert but maintain wetland areas to the greatest extent practicable, sustaining the intent of § 10.3 while also enabling clean energy development in North Yarmouth.

ATTACHMENT 2

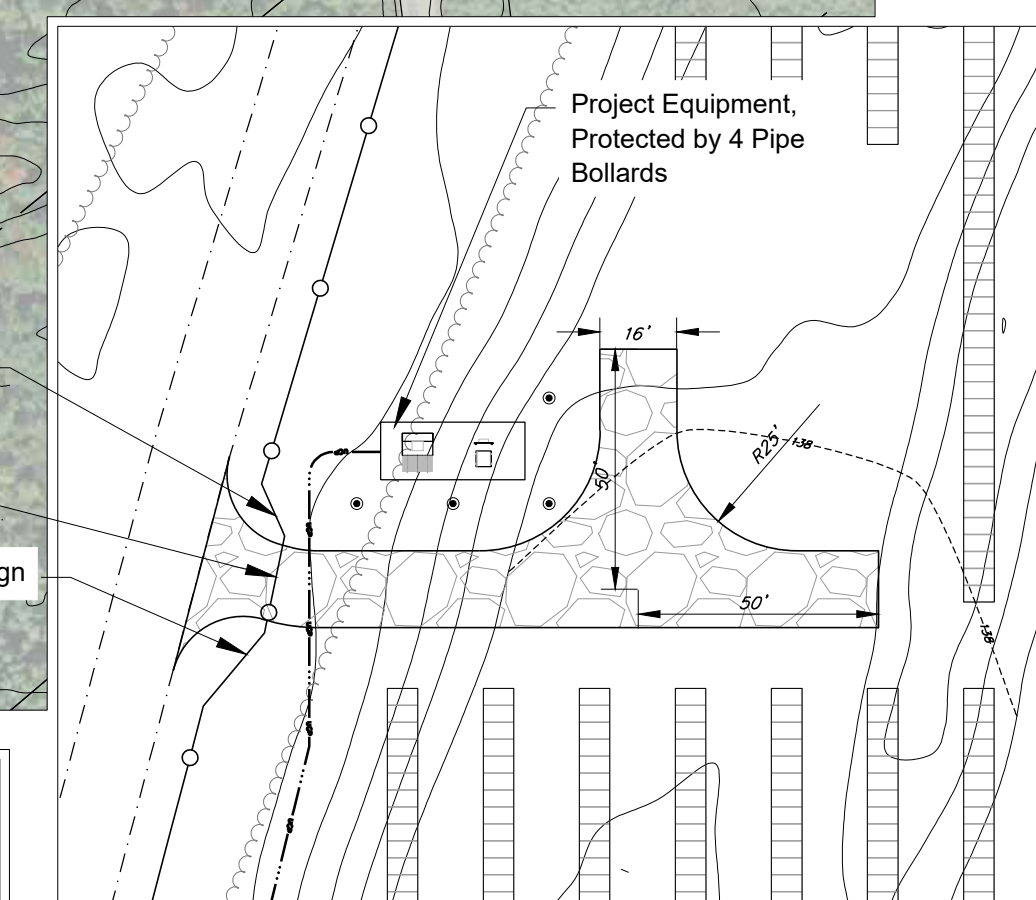
Site Plans



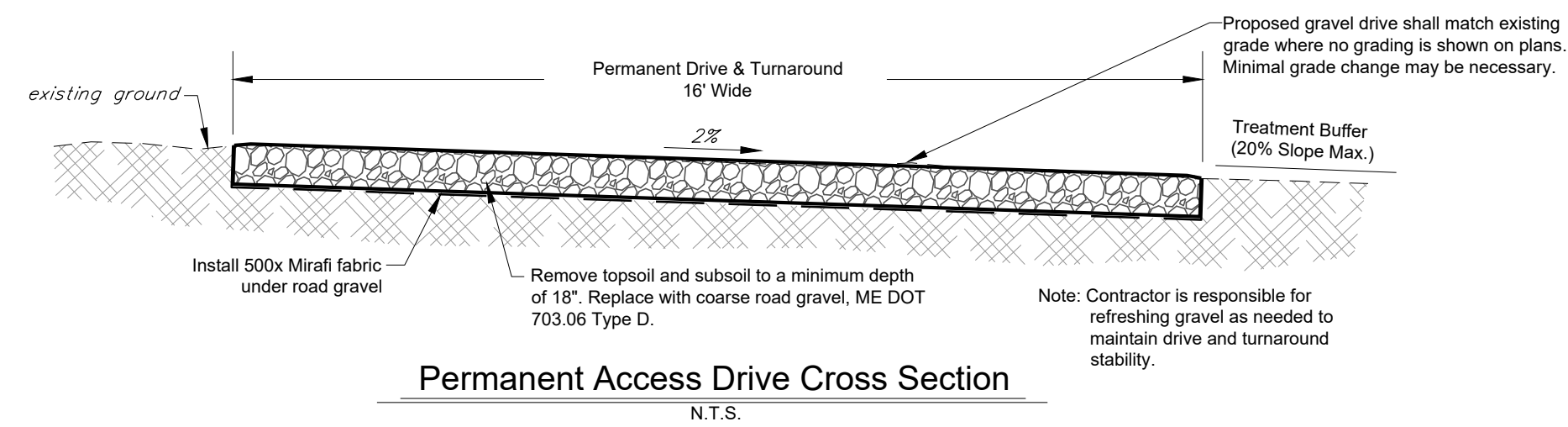
LOCATION MAP
SCALE: 1" = 1/2 Mile

LEGEND

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	APPROXIMATE PROPERTY LINES
	APPROXIMATE PROJECT PARCEL
	PROPERTY LINE SETBACK
	EXISTING GRADE CONTOUR LINES (10 FOOT INTERVALS)
	PROPOSED GRADE CONTOUR LINES (10 FOOT INTERVALS)
	EXISTING TREELINE
	PROPOSED PROJECT FENCE
	PROPOSED TREELINE
	EXISTING OVERHEAD POWER
	PROPOSED OVERHEAD POWER
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	PROPOSED PROJECT EQUIPMENT
	PROPOSED TRACKER UNIT SOLAR PANEL RACKING
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	PROPOSED 16' GRAVEL ACCESS DRIVE
	EXISTING GRAVEL ACCESS DRIVE
	LIMIT OF DISTURBANCE
	EXISTING FENCE
	EXISTING YARMOUTH WATER DISTRICT TEST WELL
	EXISTING YARMOUTH WATER DISTRICT WELL
	EXISTING YARMOUTH WATER DISTRICT WATER VALVE
	EXISTING YARMOUTH WATER DISTRICT HYDRANT
	EXISTING YARMOUTH WATER DISTRICT WATER LINE
	200-DAY WELL PROTECTION AREA ZONE 1



Turnaround Detail
1 INCH = 40 FEET



Permanent Access Drive Cross Section
N.T.S.

APPROVED: TOWN OF NORTH YARMOUTH,
NORTH YARMOUTH PLANNING BOARD

DATE _____

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North Yarmouth, Maine



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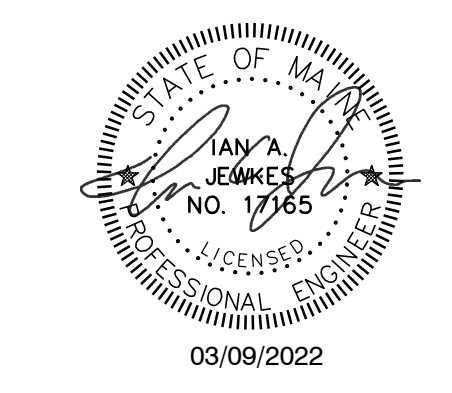
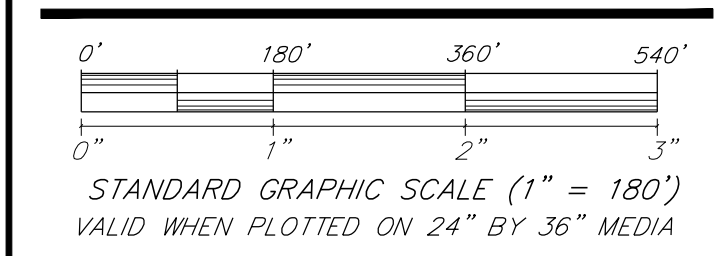
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Portland, ME 04101

Record Holder:
Yarmouth Water District
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207-846-5821



REV. NO.	REVISIONS/COMMENTS	DATE

NORTH YARMOUTH SOLAR SINGLE AXIS TRACKER SITE PLAN

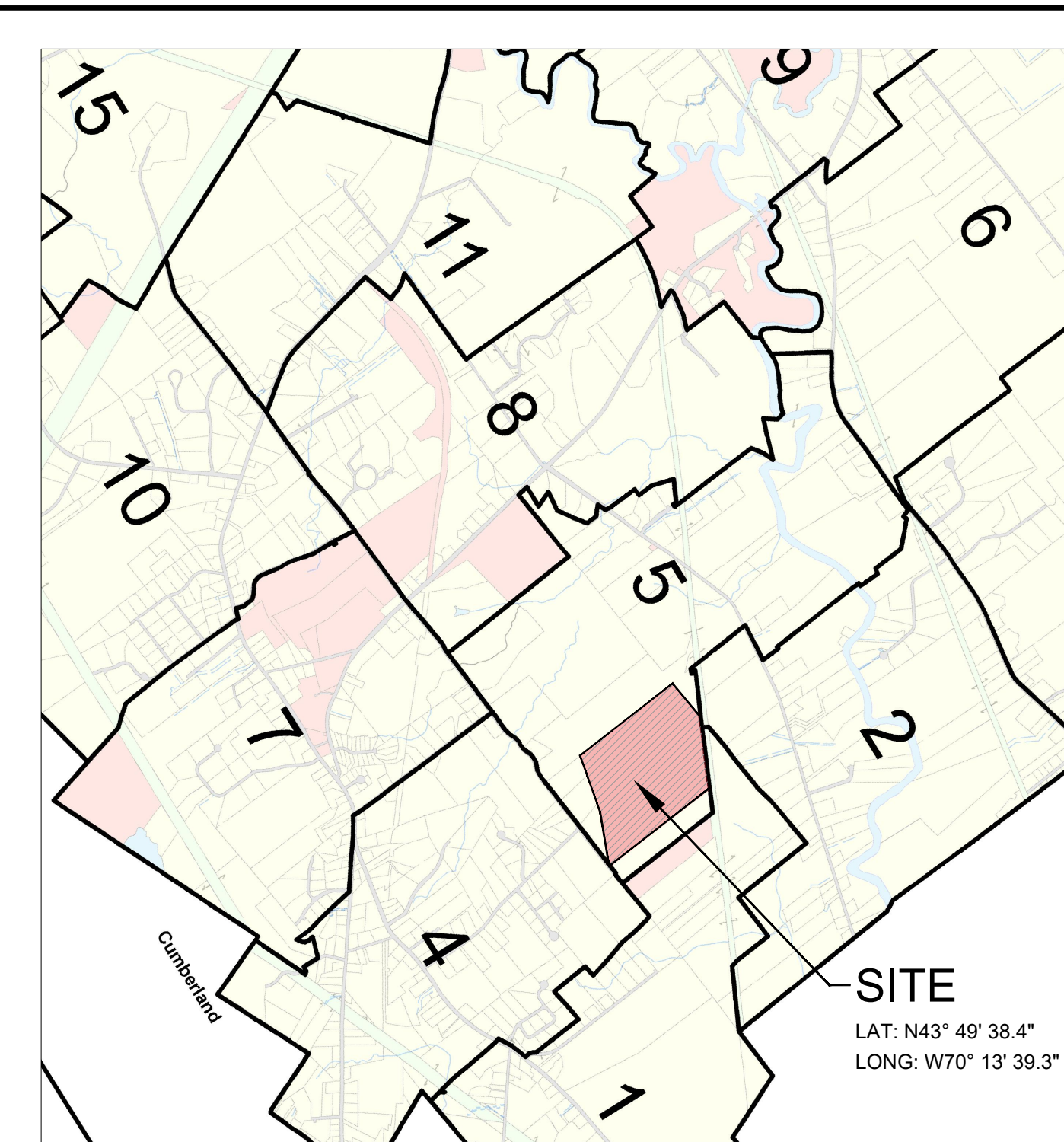
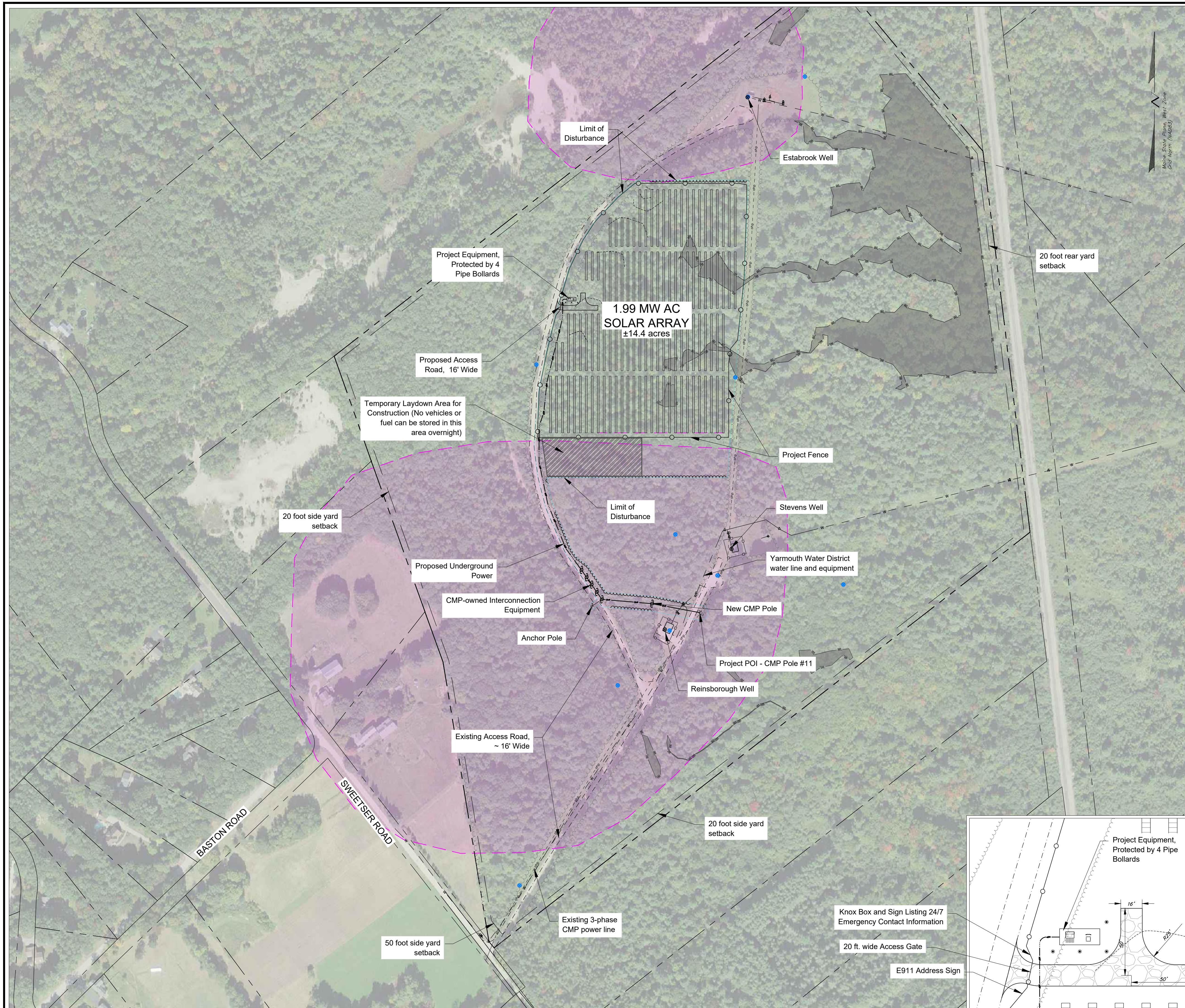
DATE of Issue: 03/09/2022

Drawn by: EJM Checked by: IAJ

Project No.: 21388 Scale: 1" = 180'

Drawing No.: _____ Rev No.: _____

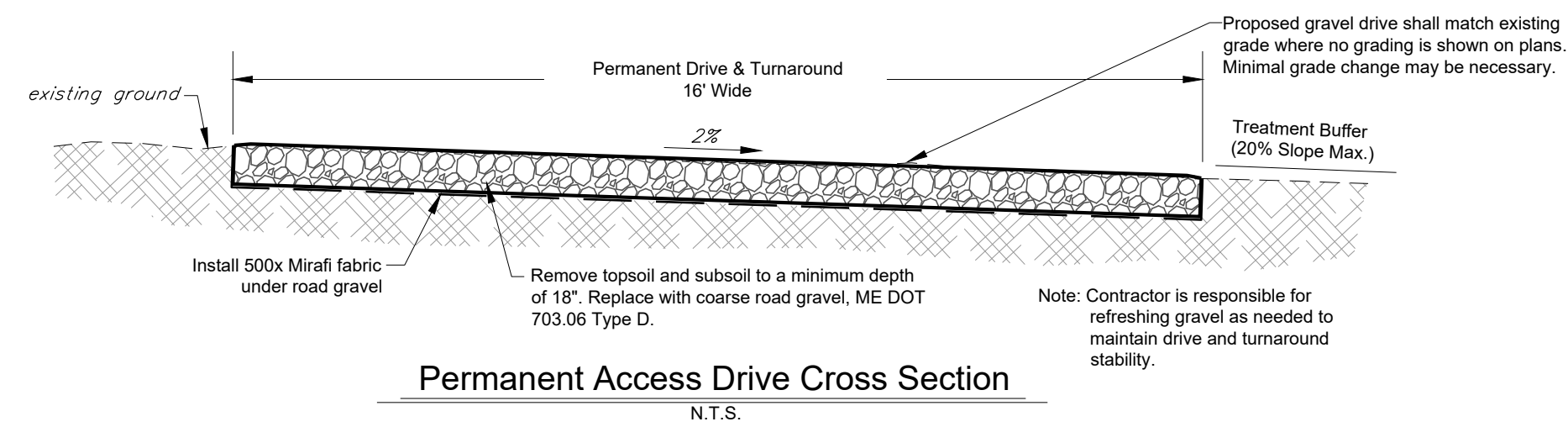
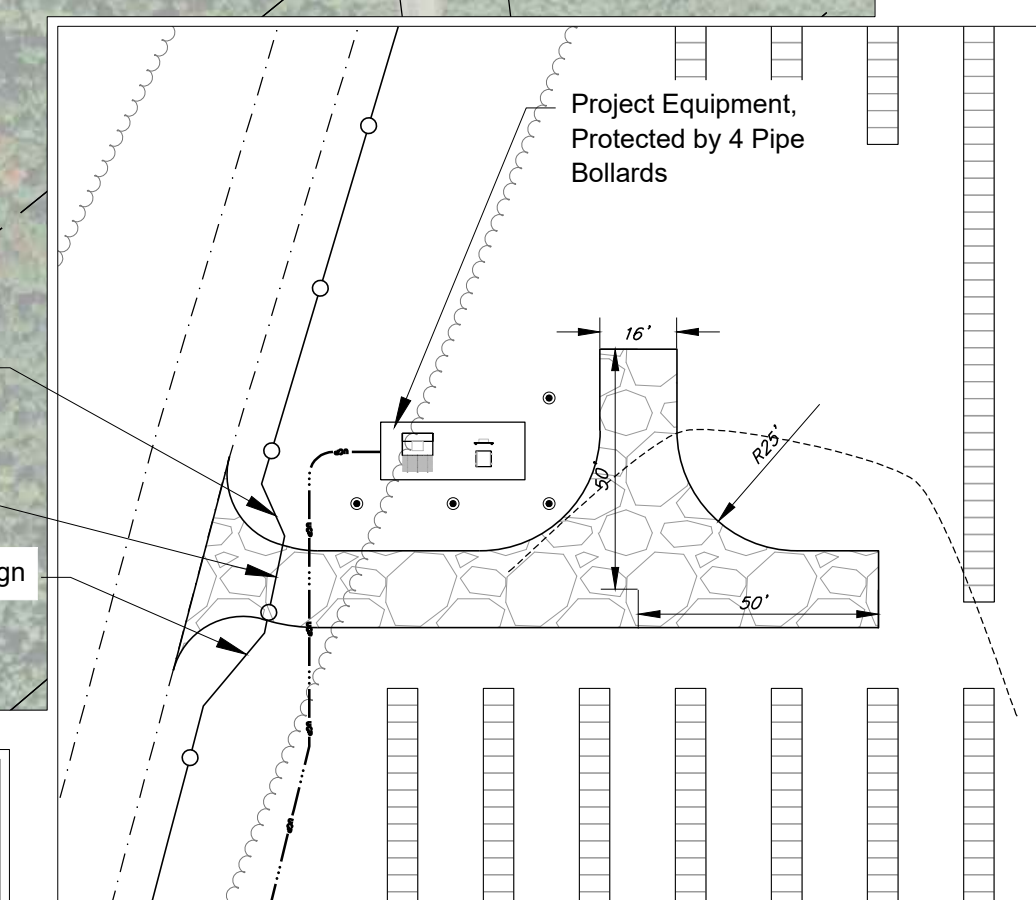
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LOCATION MAP
SCALE: 1" = 1/2 Mile

LEGEND

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- APPROXIMATE PROPERTY LINES
- APPROXIMATE PROJECT PARCEL
- PROPERTY LINE SETBACK
- EXISTING GRADE CONTOUR LINES (10 FOOT INTERVALS)
- PROPOSED GRADE CONTOUR LINES (10 FOOT INTERVALS)
- EXISTING TREELINE
- PROPOSED PROJECT FENCE
- PROPOSED TREELINE
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- PROPOSED OVERHEAD POWER
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- DELINEATED WETLAND
- PROPOSED 16' GRAVEL ACCESS DRIVE
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- LIMIT OF DISTURBANCE
- EXISTING FENCE
- EXISTING YARMOUTH WATER DISTRICT TEST WELL
- EXISTING YARMOUTH WATER DISTRICT WELL
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- EXISTING YARMOUTH WATER DISTRICT WATER LINE
- 200-DAY WELL PROTECTION AREA ZONE 1



APPROVED: TOWN OF NORTH YARMOUTH,
NORTH YARMOUTH PLANNING BOARD DATE

NOTES:

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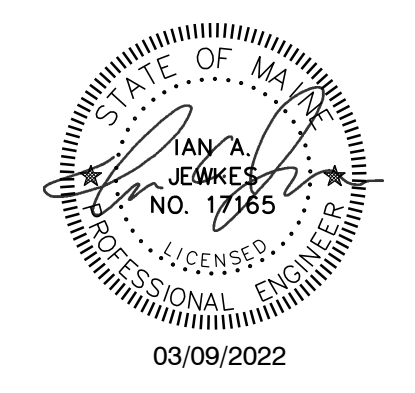
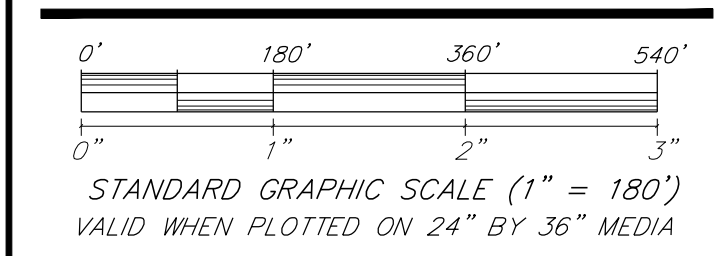
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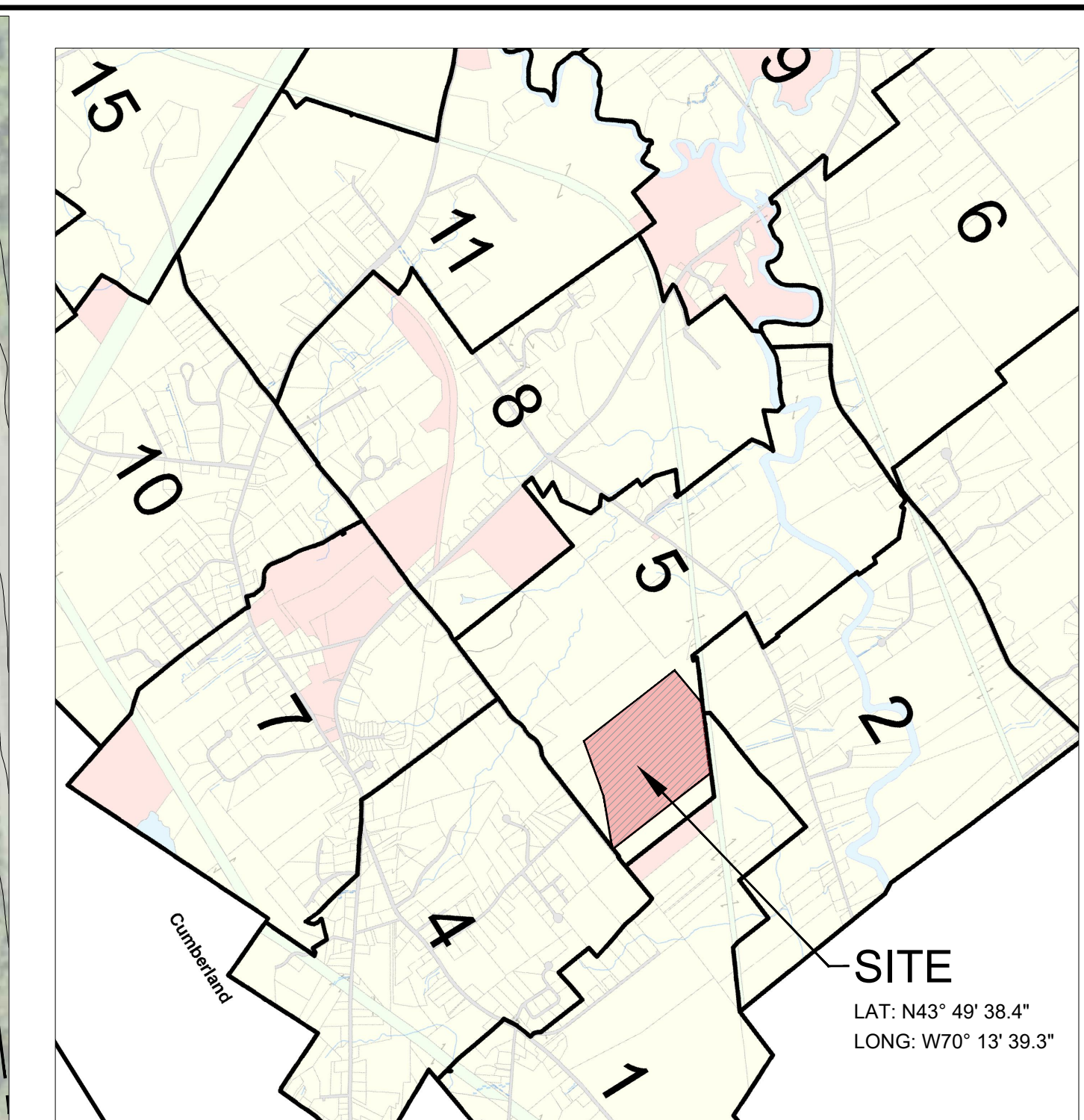


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NORTH YARMOUTH SOLAR SINGLE AXIS TRACKER SITE PLAN

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Project No.: 21388 Scale: 1" = 180'
Drawing No.: Rev No.:

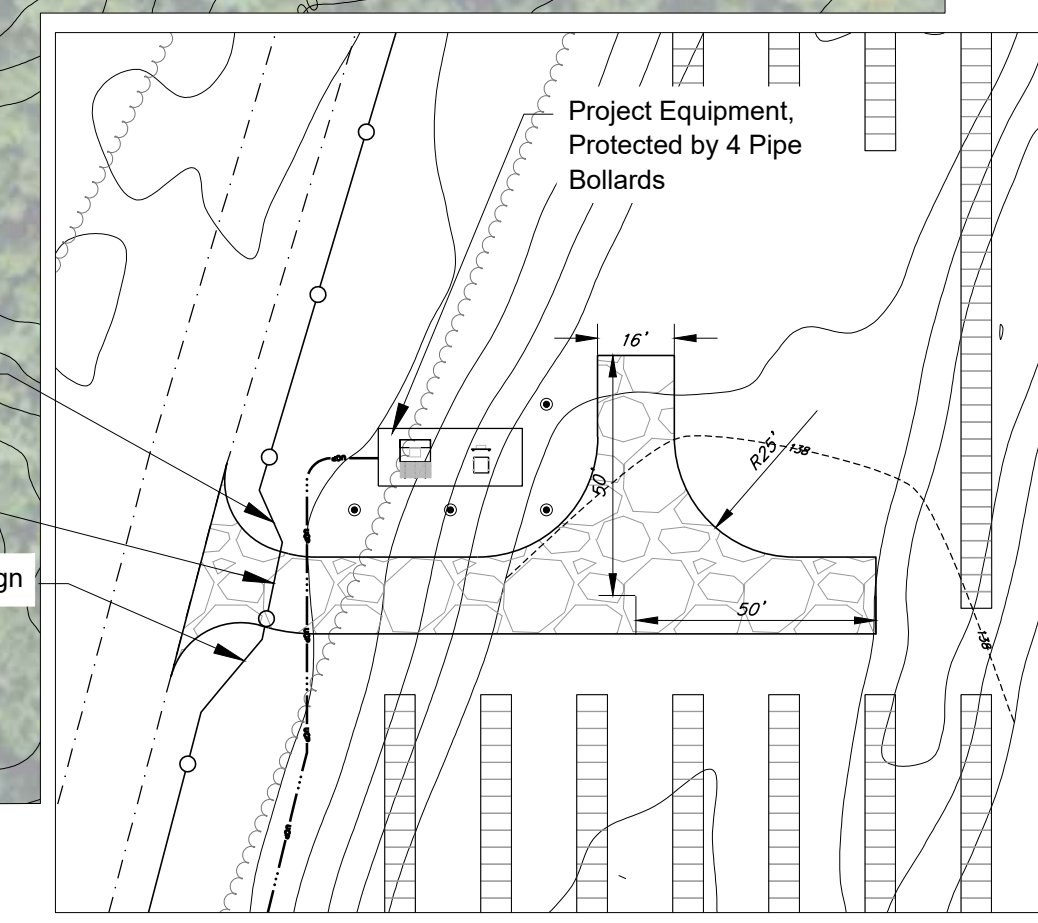
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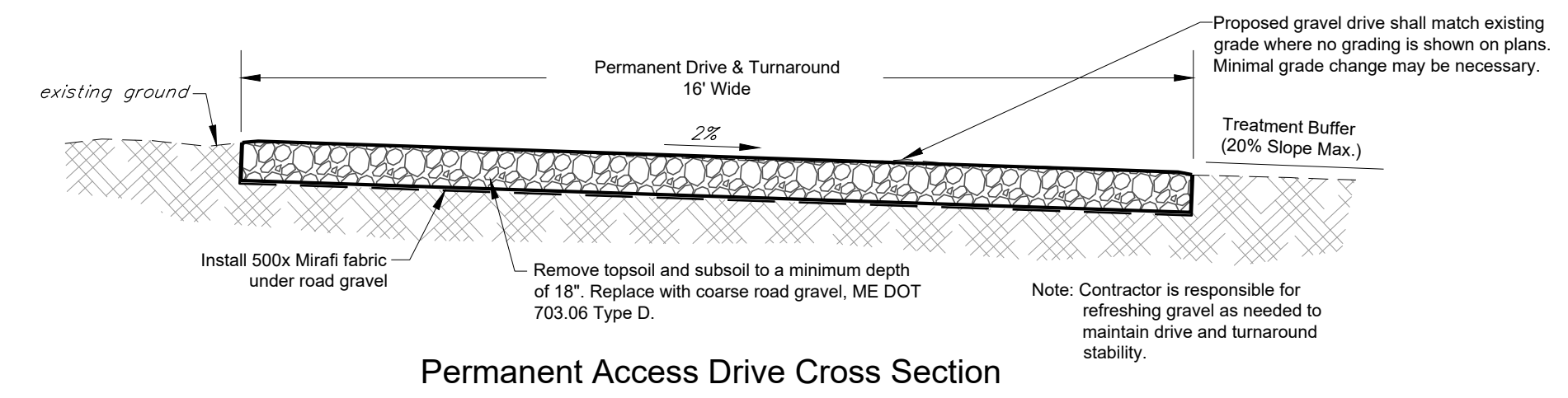
LOCATION MAP
SCALE: 1" = 1/2 Mile

LEGEND

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	APPROXIMATE PROJECT PARCEL
	EXISTING GRADE CONTOUR LINES (5 FOOT INTERVALS)
	EXISTING TREELINE
	PROPOSED PROJECT FENCE
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	EXISTING YARMOUTH WATER DISTRICT WATER VALVE
	EXISTING YARMOUTH WATER DISTRICT HYDRANT
	EXISTING YARMOUTH WATER DISTRICT WATER LINE
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Turnaround Detail
1 INCH = 40 FEET



Permanent Access Drive Cross Section

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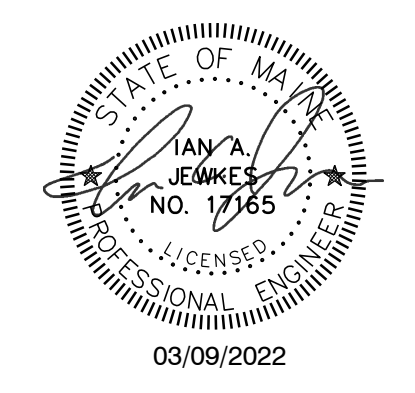
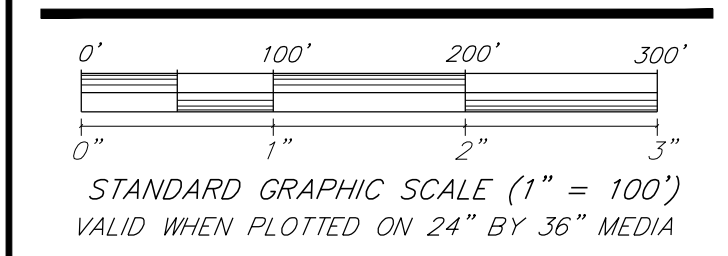


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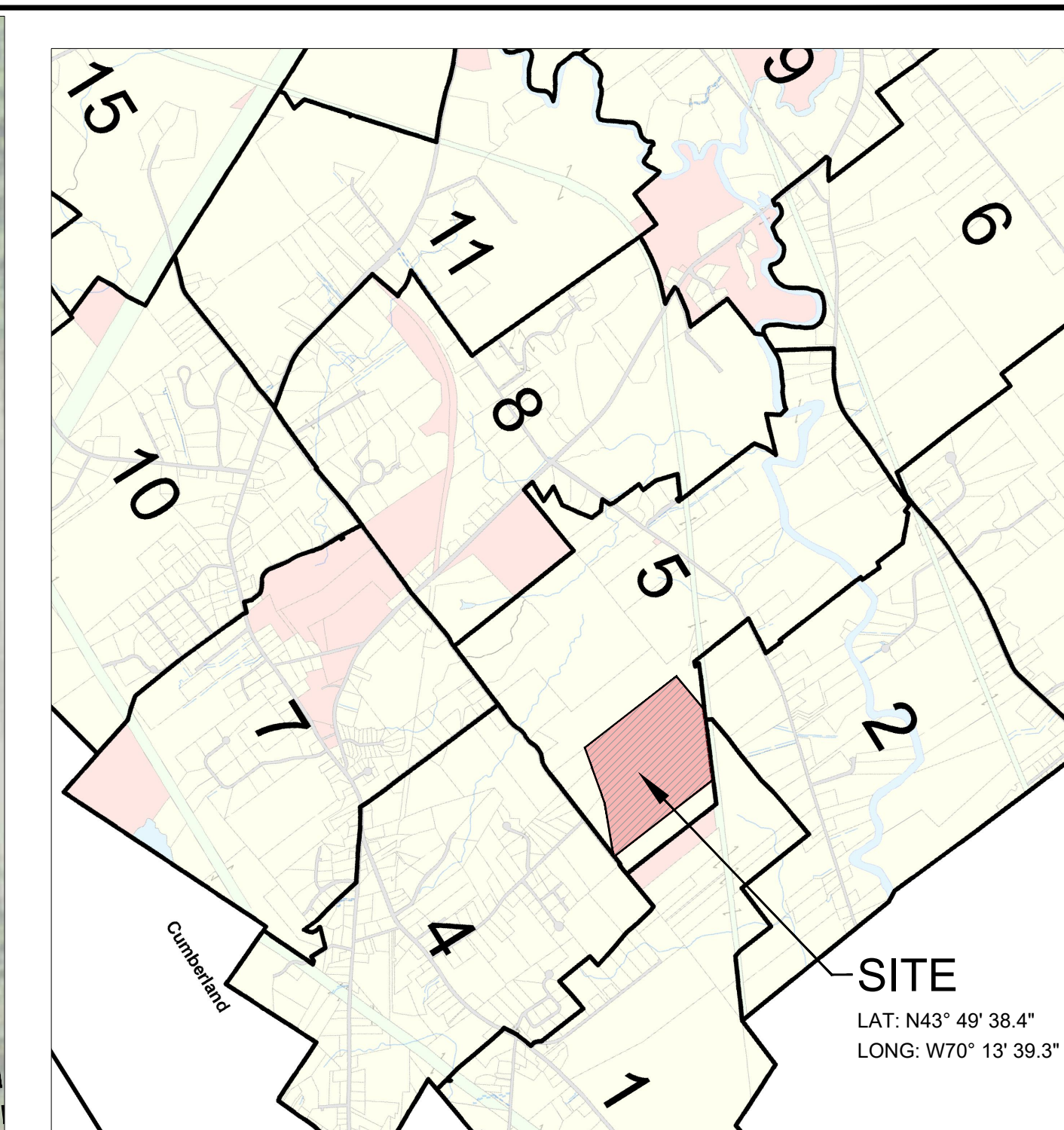
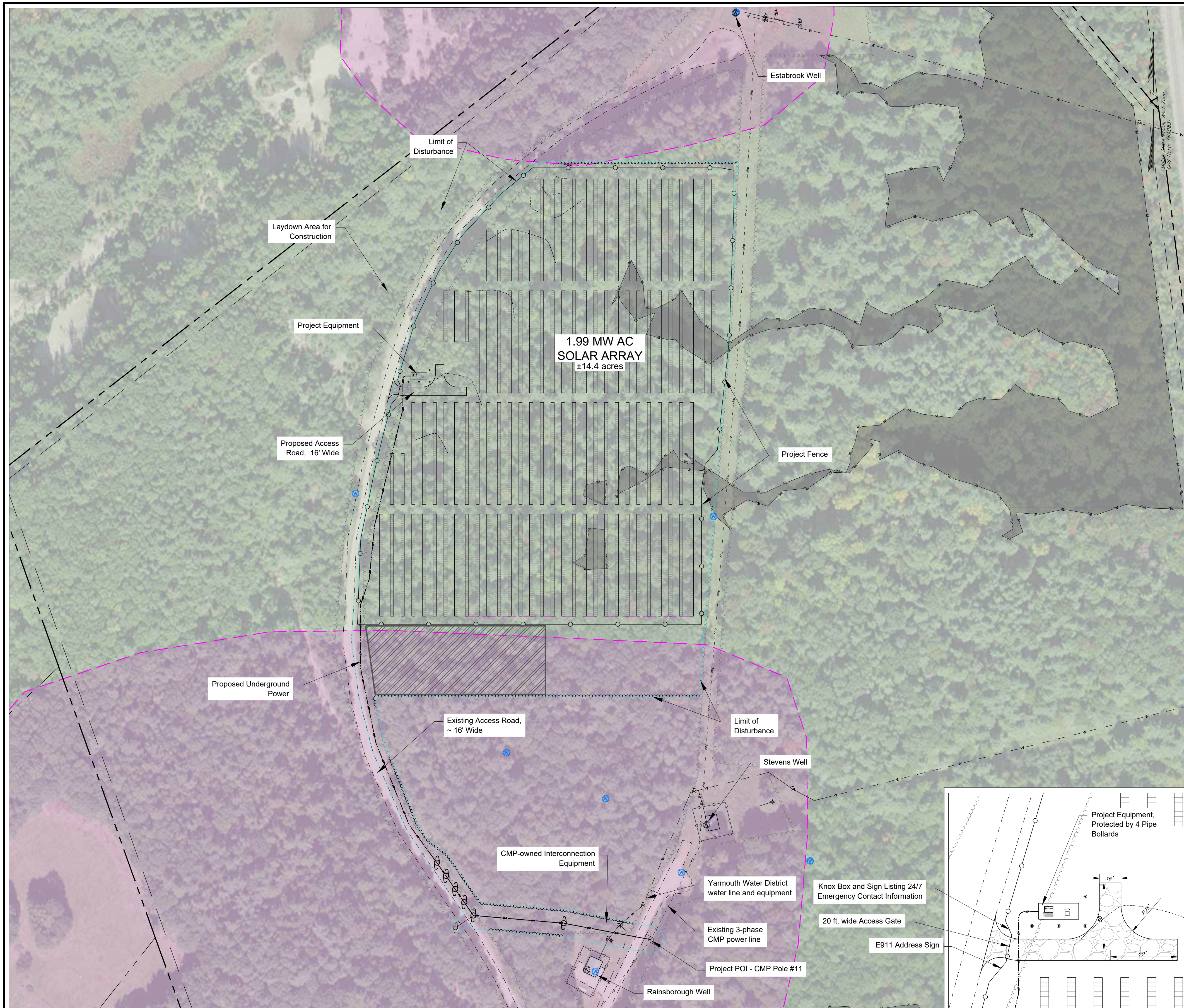


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NORTH YARMOUTH SOLAR SINGLE AXIS TRACKER SITE PLAN DETAIL

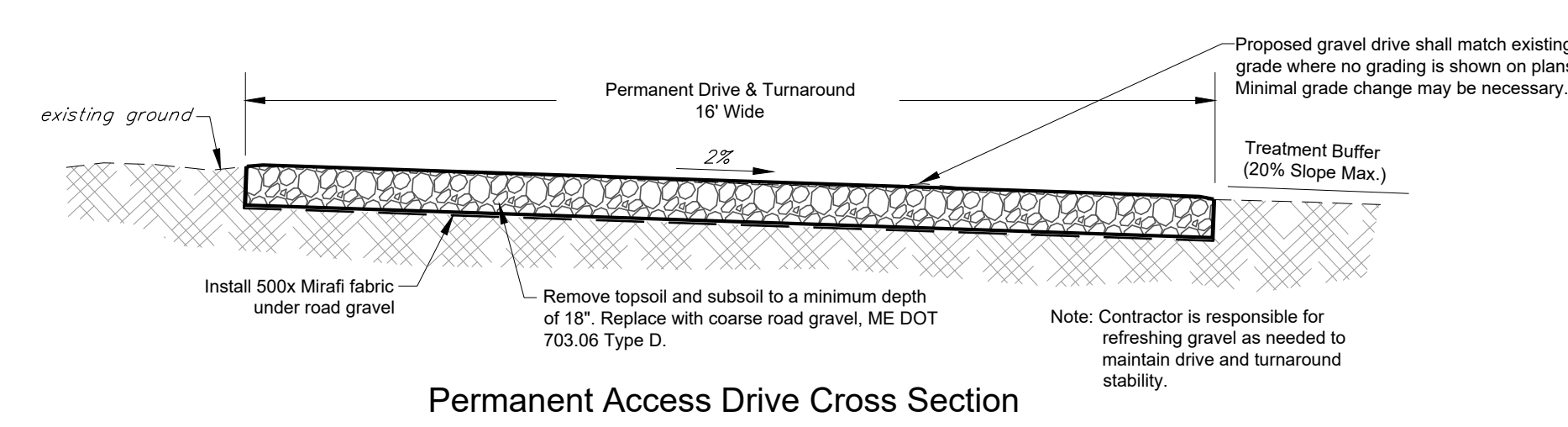
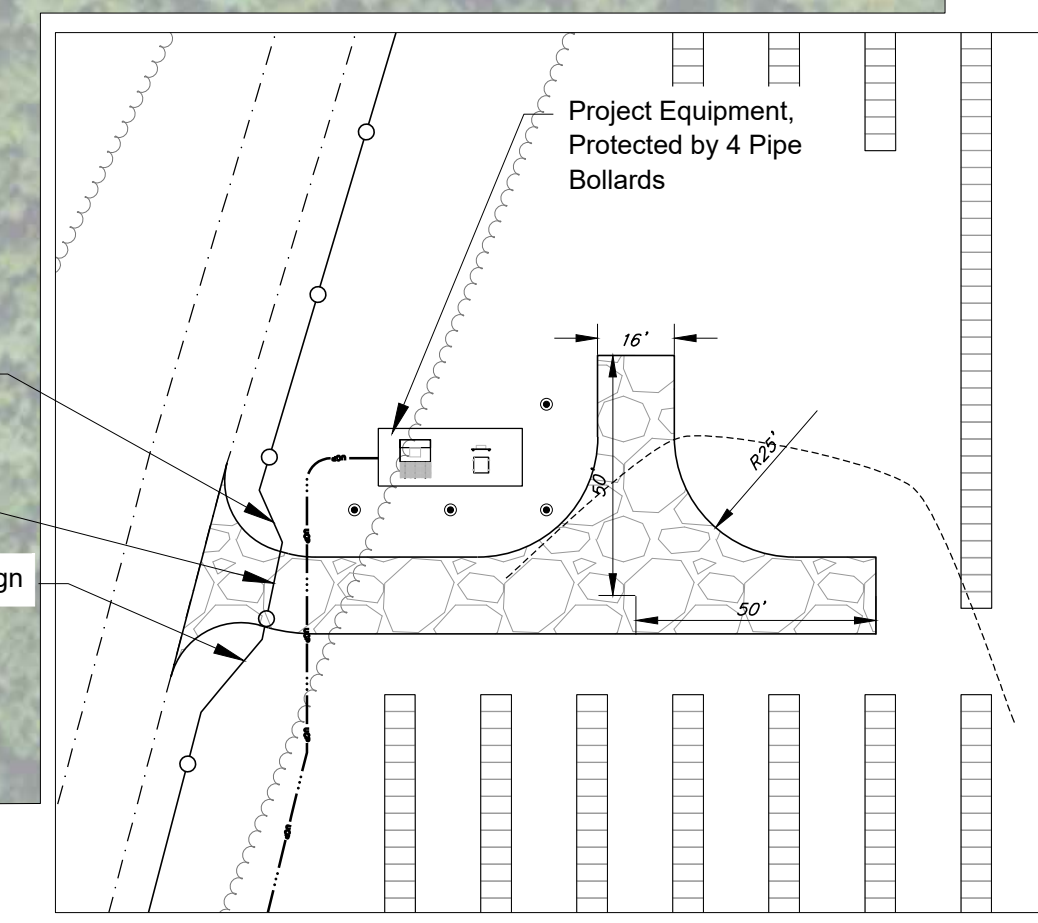
DATE of Issue: 03/09/2022
Drawn by: EJM Checked by: IAJ
Project No.: 21388 Scale: 1" = 100'
Drawing No.: C-1.1 Rev No.:

C-1.1



LOCATION MAP
SCALE: 1" = 1/2 Mile

- LEGEND**
- EXISTING POWER POLE / PROPOSED POLE
 - APPROXIMATE PROPERTY LINES
 - APPROXIMATE PROJECT PARCEL
 - EXISTING GRADE CONTOUR LINES (5 FOOT INTERVALS)
 - EXISTING TREELINE
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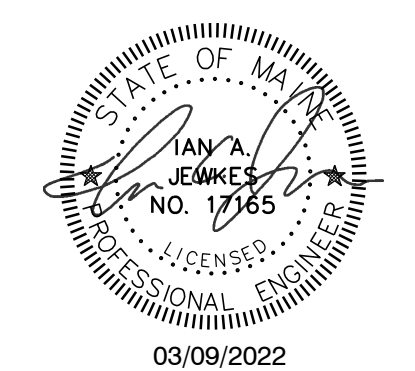
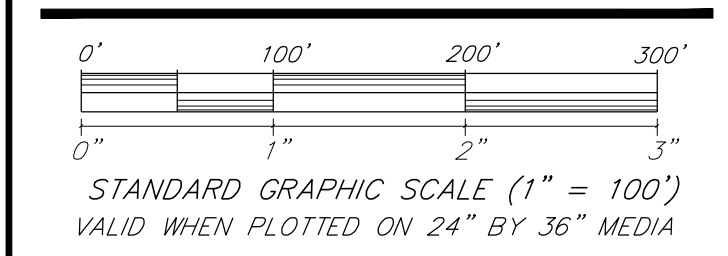
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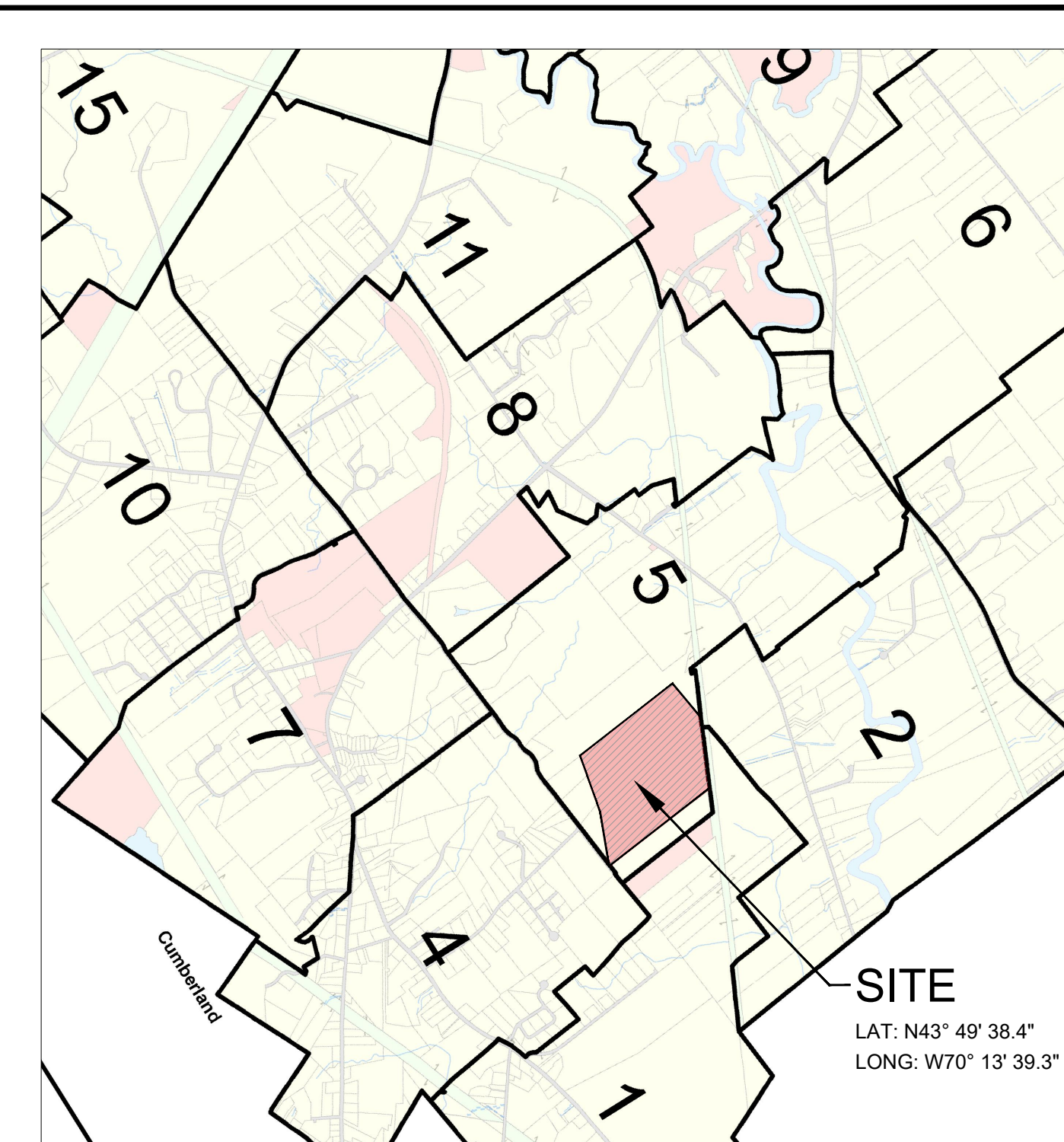


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NORTH YARMOUTH SOLAR SINGLE AXIS TRACKER SITE PLAN DETAIL

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LEGEND

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- PROPOSED GRADE CONTOUR LINES (10 FOOT INTERVALS)
- PROPOSED GRADE CONTOUR LINES (2 FOOT INTERVALS)
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING OVERHEAD POWER
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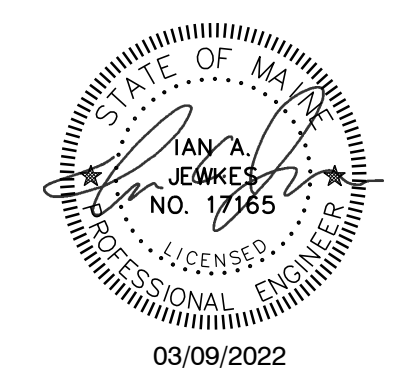
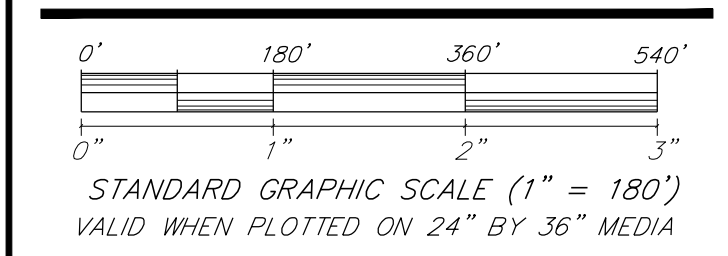


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REV. NO.	REVISIONS/COMMENTS	DATE

DRAWING TITLE:

NORTH YARMOUTH SOLAR GRADING PLAN

DATE of Issue: 03/09/2022

Drawn by: EJM Checked by: IAJ

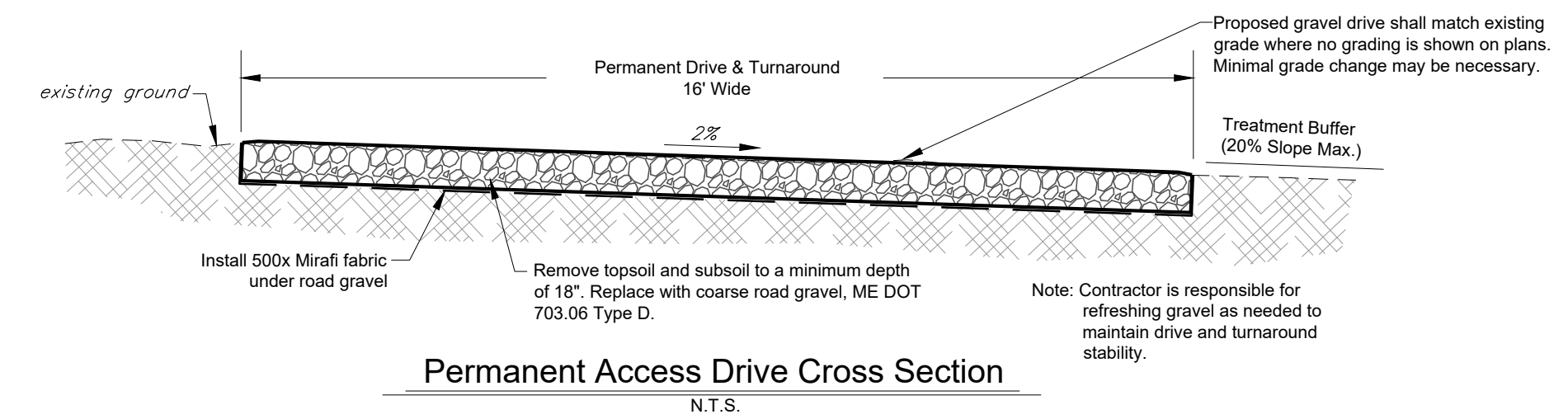
Project No.: 21388 Scale: 1" = 180'

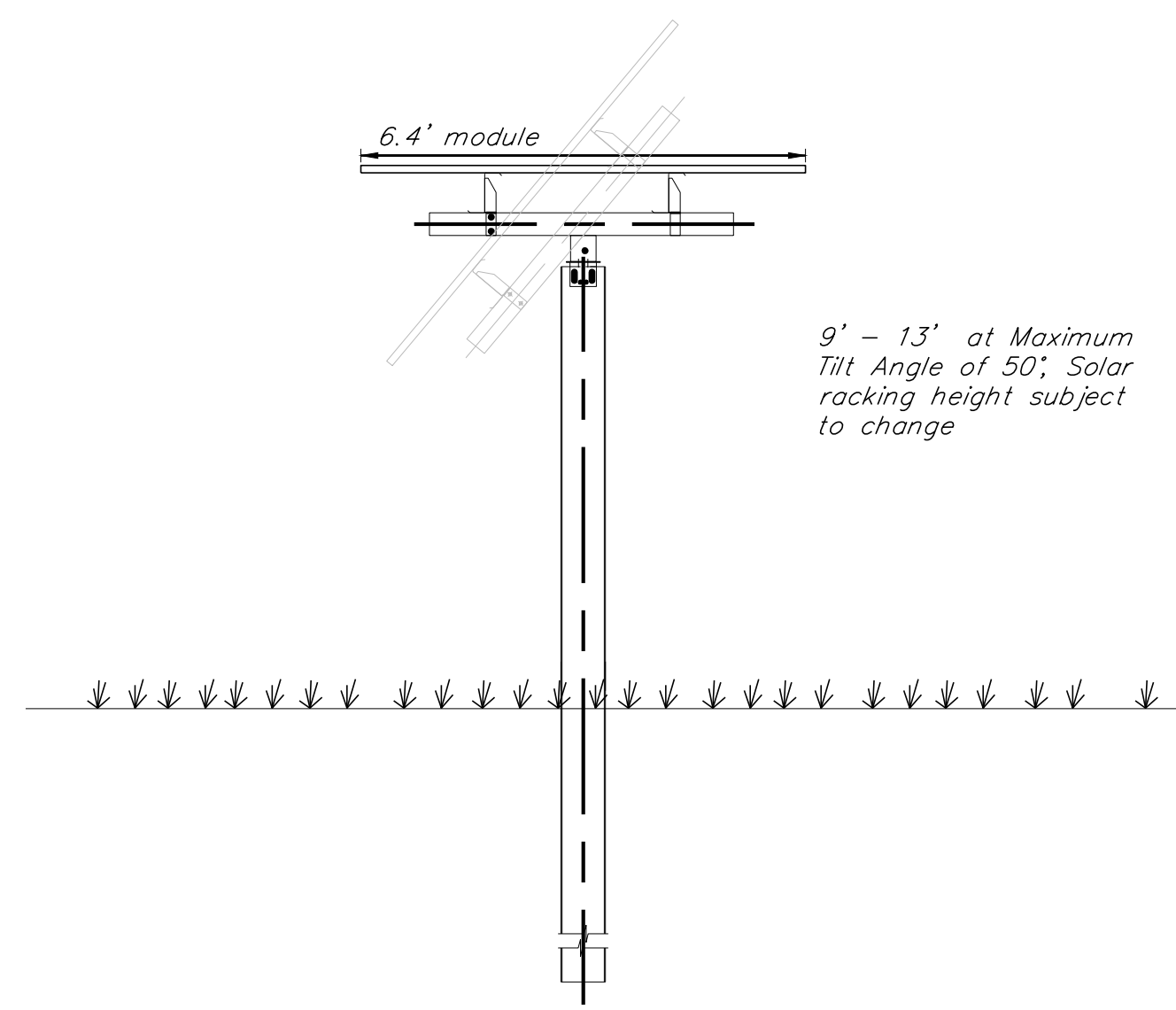
Drawing No.: Rev No.:

C-2.0

NOTES:

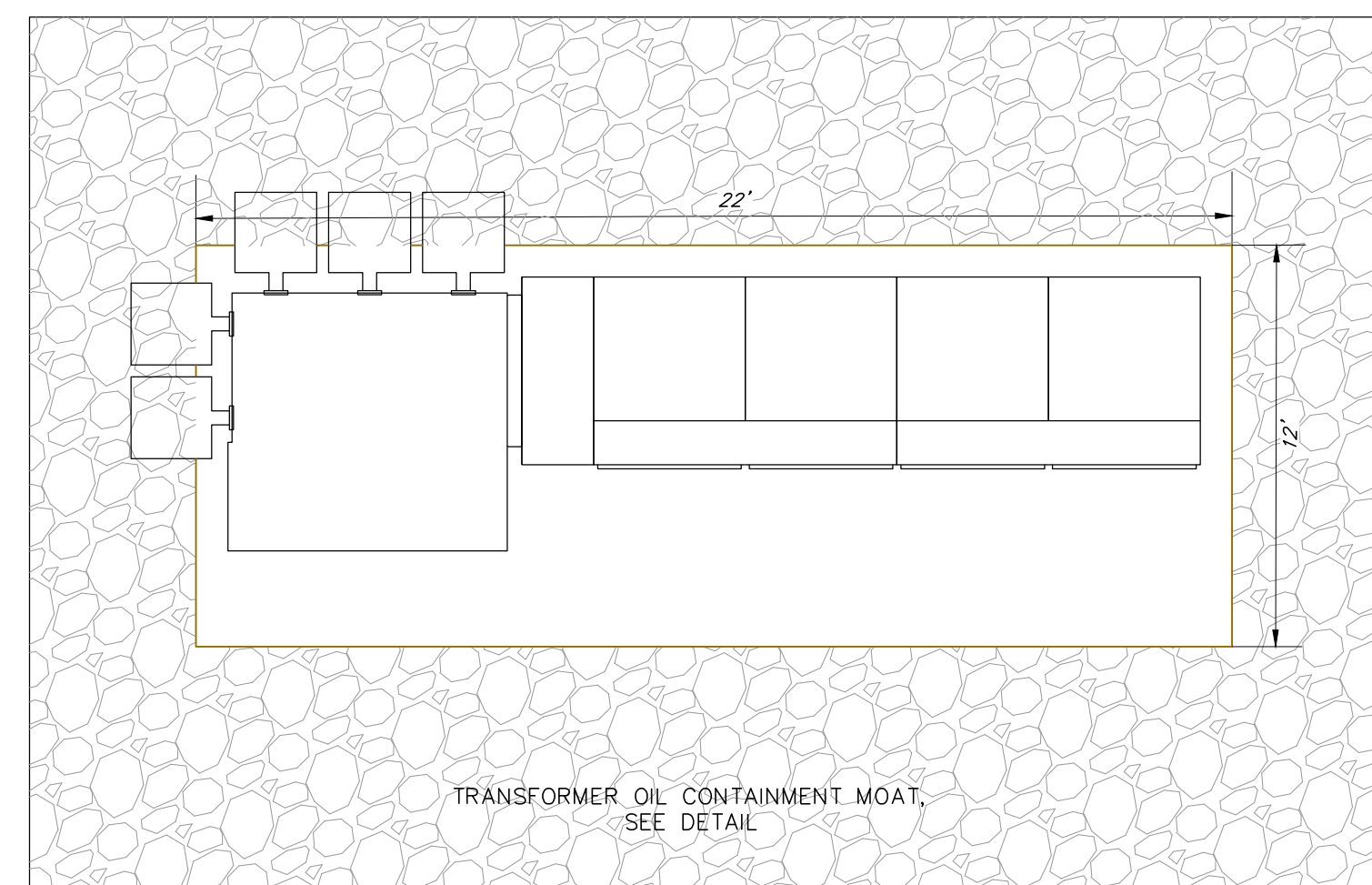
1. ASPECTS OF PLAN ARE APPROXIMATE AND DERIVED FROM AERIAL PHOTOGRAPHY.
2. THE HORIZONTAL COORDINATE SYSTEM IS BASED ON NAD83 MAINE STATE PLANES, EAST ZONE (US SURVEY FEET). ELEVATIONS ARE BASED ON THE NAVD88 (US SURVEY FEET).
3. EXISTING GROUND CONTOUR ELEVATIONS ARE BASED ON LIDAR DATA DOWNLOADED FROM NOAA DATAVIEWER IN OCTOBER, 2021.
4. UTILITIES ARE NOT WARRANTED TO BE COMPLETE OR ACCURATE. CONTRACTOR SHALL CONTACT DIG SAFE BEFORE BEGINNING ANY EXCAVATION.
5. THIS IS IN NO WAY A BOUNDARY SURVEY. PROPERTY LINES SHOWN ARE FROM TOWN TAX MAPS.
6. THIS IS PRELIMINARY DESIGN PLAN. FINAL DESIGN WILL BE MODIFIED TO MATCH EQUIPMENT PURCHASED.
7. ENVIRONMENTAL SITE REVIEW DATA IS BASED ON DATA FROM BRI ENVIRONMENTAL.





Solar Module & Racking Profile

N.T.S.



Schematic of Transformer and Grounding Transformer Pad With Secondary Oil Containment

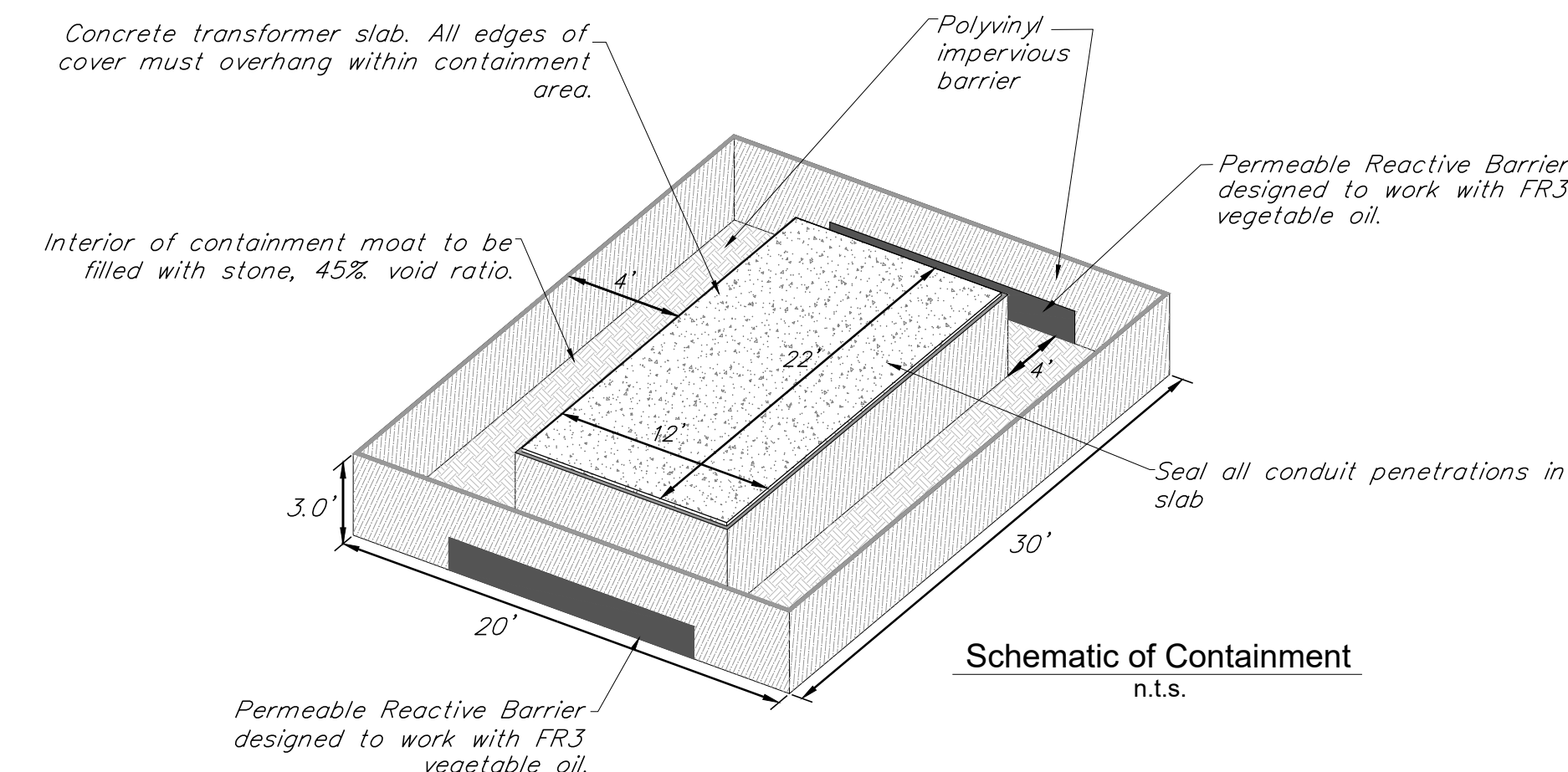
CONTRACTOR TO PROVIDE TWO PRE-CAST CONCRETE SLABS, NOTE: POURED IN PLACE SLABS ARE ACCEPTABLE AS AN ALTERNATIVE

VOLUME CALCULATIONS:

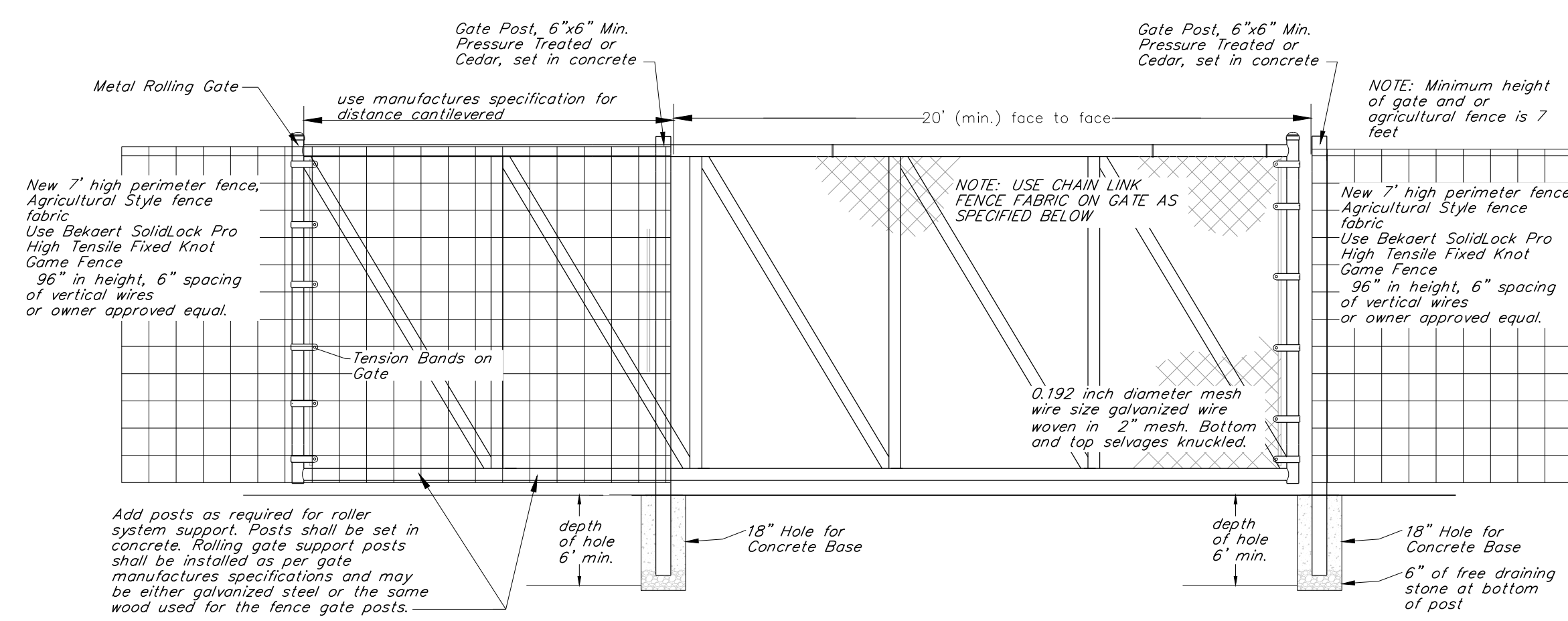
Required Capacity:
 125% of the 550 Gallons of Transformer Oil = 687.5 gal. = 92.0 c.f.
 Required minimum freeboard (24-hour Duration, 25 Year Storm) = 5.8" or 0.48'
 Containment Area & Pad = 20' x 30' = 600.0 s.f.
 Volume of freeboard required = 600.0 s.f. x 0.48 ft. = 288.0 c.f.
 Total Capacity Required = 92.0 c.f. + 288.0 c.f. = 380.0 c.f.

Capacity Provided in Secondary Oil Containment System:
 Area of containment = (20'x30') - (12'x22') = 336.0 s.f.
 Volume of Containment = 336.0 s.f. x 3.0' of depth = 1,008.0 c.f.
 When filled with stone with 45% void ratio = 1,008.0 c.f. * 0.45 = 453.4 c.f.
 Total Capacity Provided = 453.4 c.f. > 380.0 c.f. required

NOTE: SEE SECONDARY OIL CONTAINMENT DETAIL AND SPCC PLAN. TRANSFORMER OIL IS PROPOSED TO BE FR3 VEGETABLE OIL.

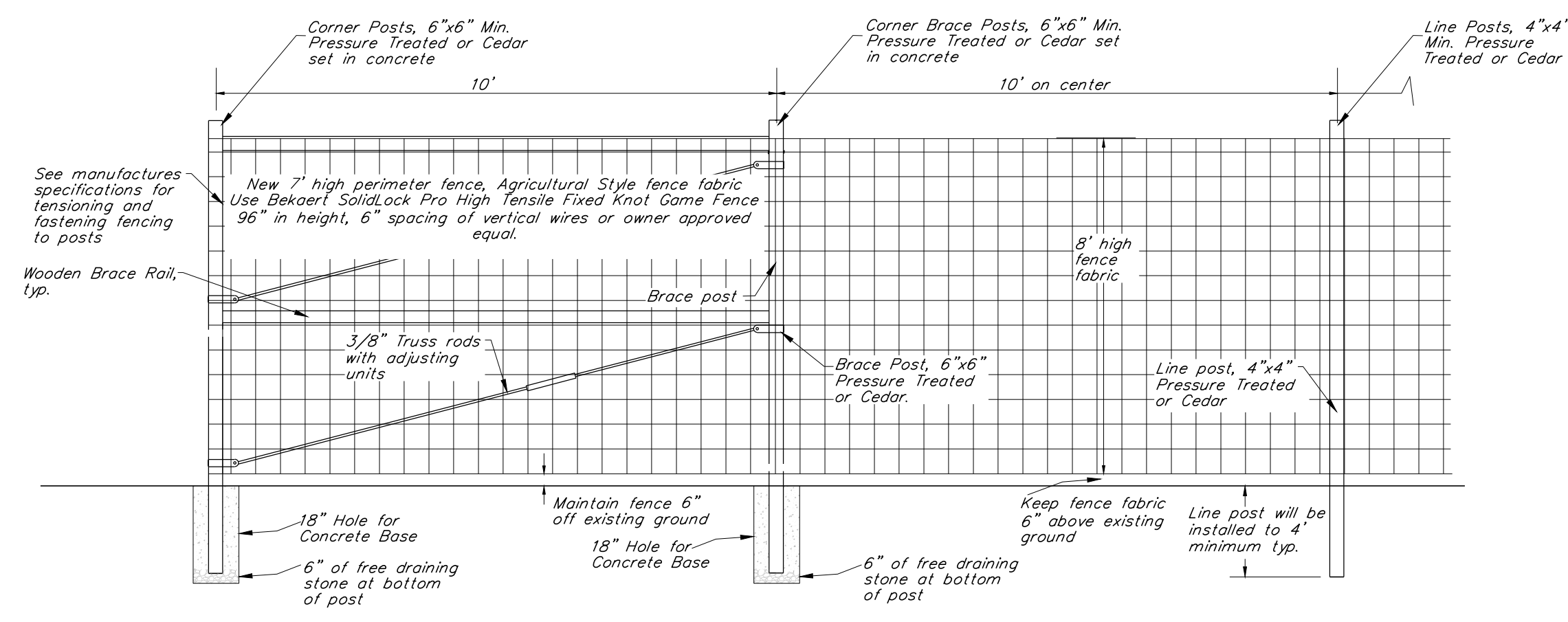


Schematic of Containment n.t.s.



Permanent Rolling Gate

N.T.S.

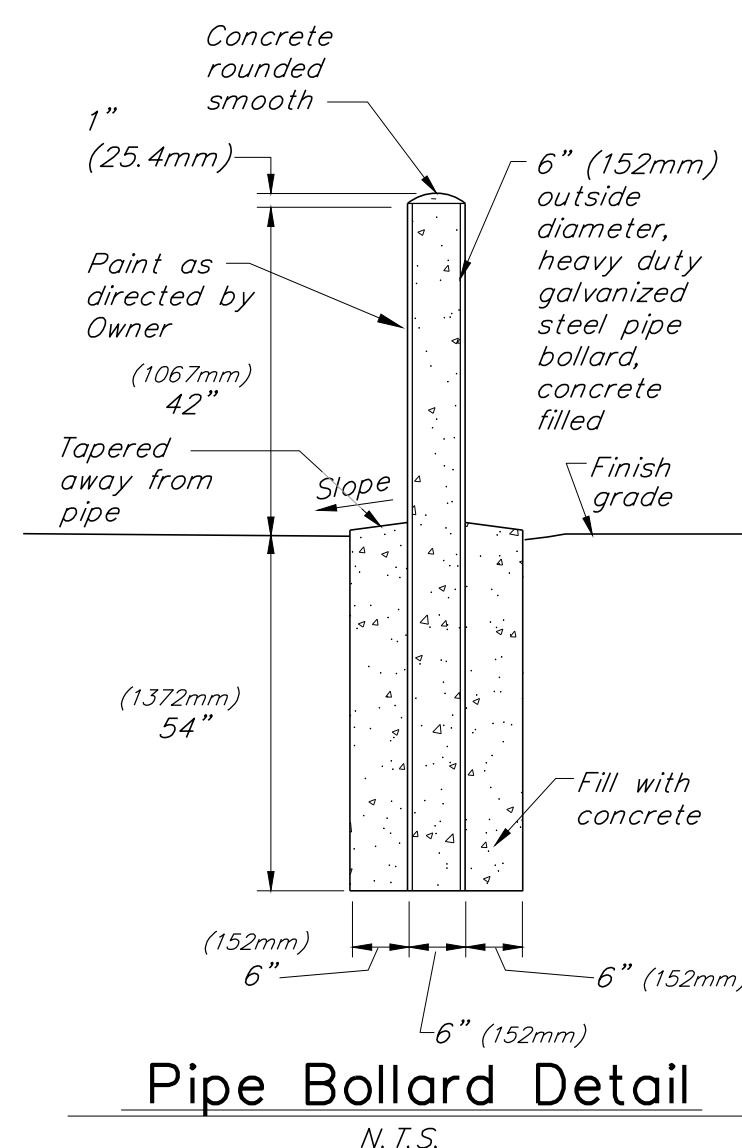


Typical Agricultural Fence

N.T.S.

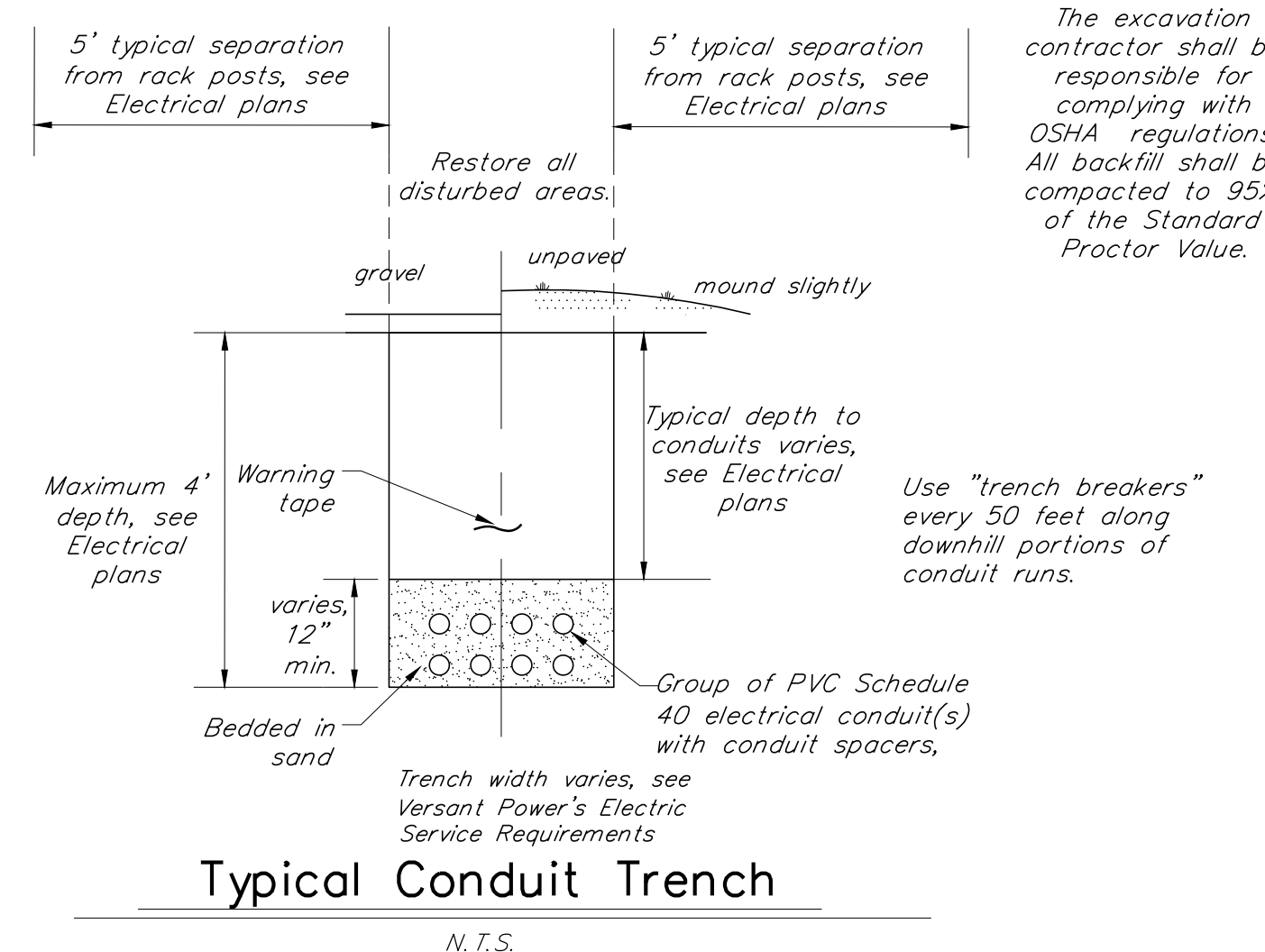
Construction Notes

- The methods and materials of construction shall be in conformance with all permits and approvals issued for the project. In case of conflict, the more stringent specification shall apply as directed by Engineer. All work shall be done in a workmanlike manner and completed in the time specified by Owner.
- The Contractor shall be responsible for all work and materials shown and required to make the job complete. These drawings do not show every fitting or appurtenance. Materials shall be as specified on the drawings. Manufacturer's product specifications shall be submitted for all materials to the Engineer for approval prior to installation.
- The location and size of existing underground utilities is not warranted to be exact or complete. The Contractor shall field locate all utilities and shall contact the affected utility company, the Engineer and the Town prior to making any hook ups. The Contractor shall be solely responsible for all existing utilities and their uninterrupted services. All off-site backfill, sheeting and shoring, dewatering, clearing and grubbing, erosion control, dust control, traffic control, grading, and all incidents shall be included as part of the required work.
- The Contractor shall verify all temporary bench marks before use.
- The workmen and public shall be protected by the Contractor from any and all hazards connected with the construction work. Open trenches, materials, or equipment within the working limits are to be guarded by the use of adequate barricades or flagmen. All barricades left in position overnight are to be properly lighted. Kerosene pots are not acceptable. When work narrows the usable pavement, flagmen shall be employed to aid the flow of traffic so that there will be no undue delays. The Contractor shall be held responsible for the safety of all workmen and the general public and all damages to property occurring from or upon the work occasioned by negligence or otherwise growing out of a failure on the part of the Contractor to protect persons or property from hazards of open trenches, materials, or equipment at any time of the day or night within the working area. All work shall be in conformance to OSHA regulations, Title 19, Parts 1926.651 and 1926.652.
- The Contractor shall verify all utility intersections and contact Engineer and Owner with conflicts.
- The Contractor shall call, Dig Safe or other approved equal underground utility identifier prior to any excavation.
- The Contractor shall coordinate with final electrical, structural and landscaping plans.



Pipe Bollard Detail

N.T.S.



Typical Conduit Trench

N.T.S.

Conduit Trenching Notes:

- The methods and materials of construction shall conform to the latest standards of Versant Power's Handbook of Requirements and the State of Maine. All work shall be in conformance with all permits and approvals issued for the project. In case of conflict, the more stringent specification shall apply as directed by the Owners Representative.
- The excavation contractor shall dig the conduit trenching and assist the Electrician in placing the conduit. The conduits shall be placed with conduit spacers when more than two conduits are placed in a trench. All conduit and spacers shall be provided by the Electrical Contractor.
- The excavation contractor shall allow sufficient time for the conduit to be inspected prior to backfilling. If any conduit is backfilled without inspection it will be the excavation contractor's responsibility to uncover the conduit for inspection and backfill the trench without charge.
- The workers and public shall be protected by the excavation contractor from any and all hazards connected with the construction work. Open trenches, materials, or equipment within the working limits are to be guarded by the use of adequate barricades or flaggers. All barricades left in position overnight are to be properly lighted. When work narrows the usable pavement, flaggers shall be employed to aid the flow of traffic so that there will be no undue delays. All work shall be in conformance to OSHA regulations, Title 19, Parts 1926.651 and 1926.652.
- The excavation contractor is responsible for compacting all trench backfill to 95% of the Standard Proctor Value.
- The excavation contractor is responsible for all conduit excavation and backfill necessary to complete the project.

Water Line Solar, LLC.

North Yarmouth, Maine



238 Sweetser Road, North Yarmouth, Maine 04097



164 Main Street, Suite 201 Colchester, Vermont 05446 P: (802) 878-0375 www.krebsandlansing.com

CIVIL DESIGN SET FOR PERMIT REVIEW

MAPPING SOURCE DATA USED FOR PLAN COMPILATION

Civil Engineering:

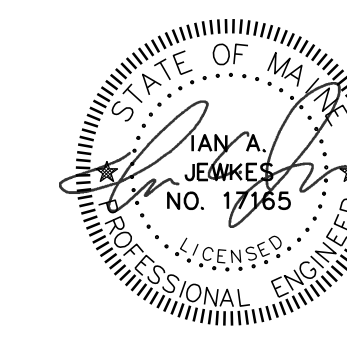
Krebs and Lansing Consulting Engineers, Inc. 164 Main Street, Suite 201 Colchester, Vermont 05446

Environmental:

BRI Environmental 30 Danforth Street, Suite 213 Portland, ME 04101

Record Holder:

Yarmouth Water District 181 Sligo Road Yarmouth, ME 04096 207-846-5821



REVISIONS/COMMENTS	DATE

DRAWING TITLE:

NORTH YARMOUTH SOLAR STANDARD DETAILS

DATE of Issue: 03/09/2022

Drawn by: EJM Checked by: IAJ

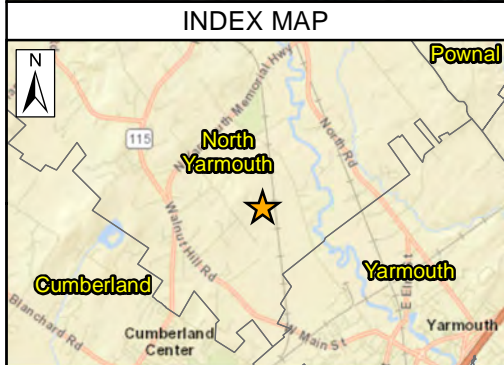
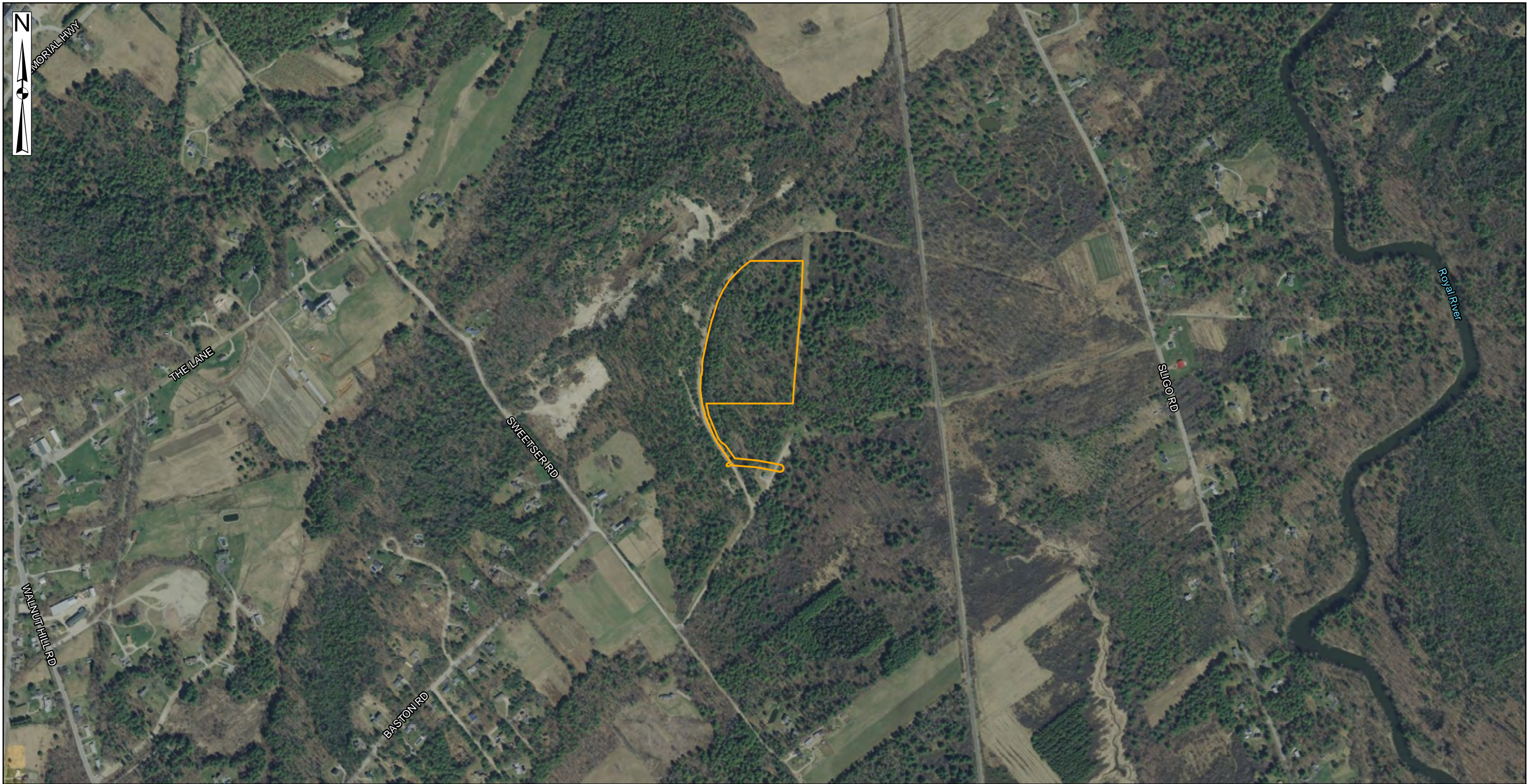
Project No.: 21388 Scale: NTS

Drawing No.: Rev No.:

C-3.0

ATTACHMENT 3

Project Maps



LEGEND

— Project Limit of Disturbance

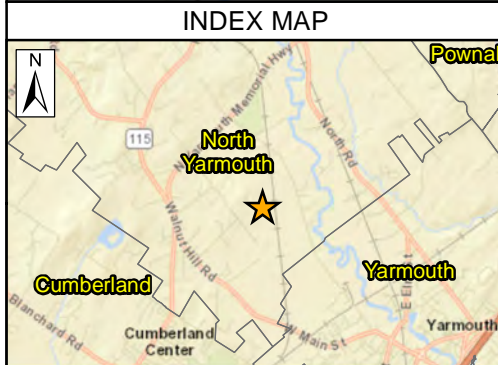
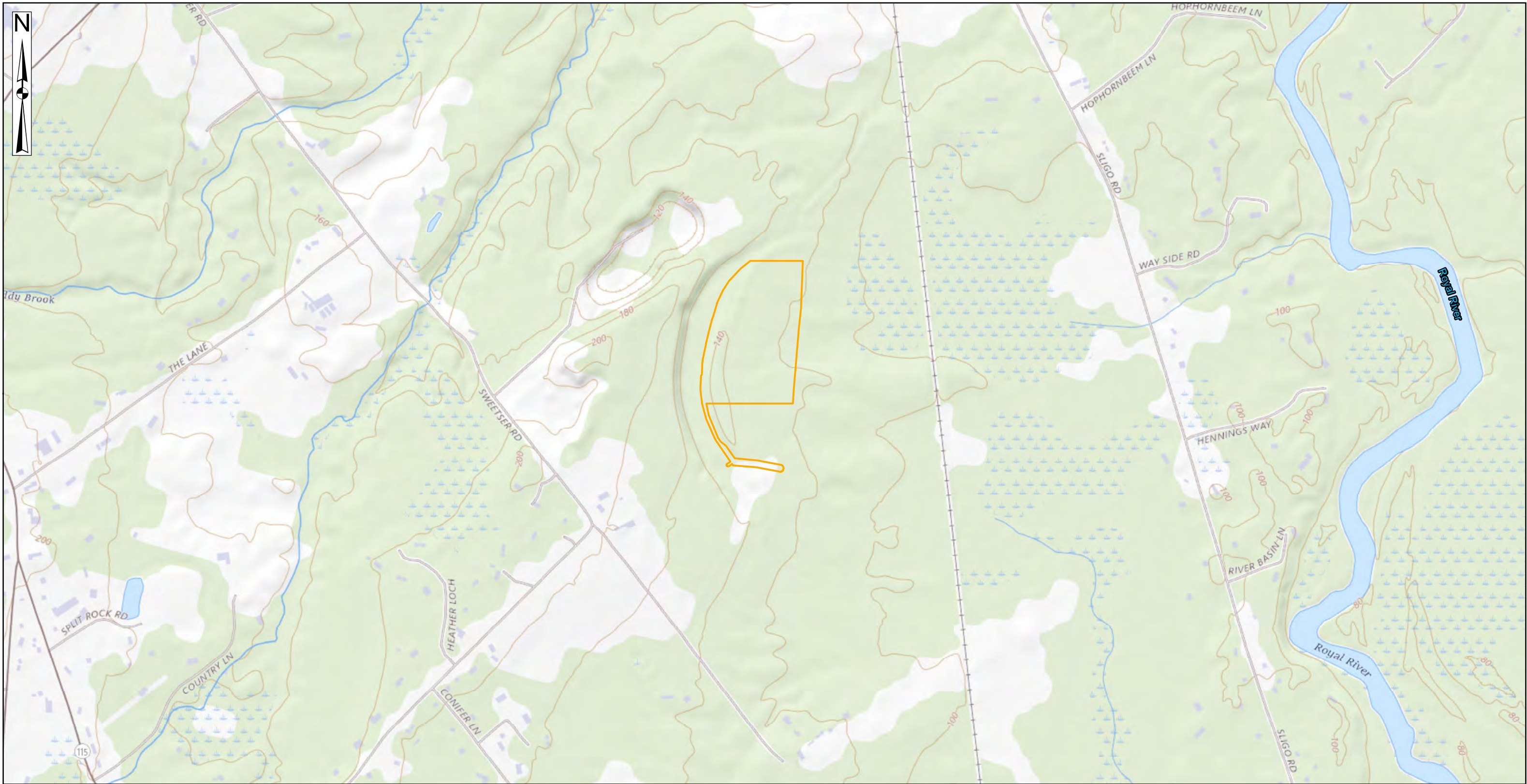
SCALE:

0 650 1,300 Feet

1 inch = 650 feet

PROJECT LOCATION MAP - AERIAL
WATER LINE SOLAR, LLC:
NORTH YARMOUTH, MAINE

MARCH 10, 2022



LEGEND

— Project Limit of Disturbance

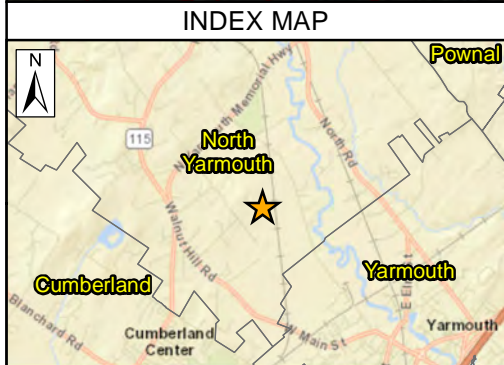
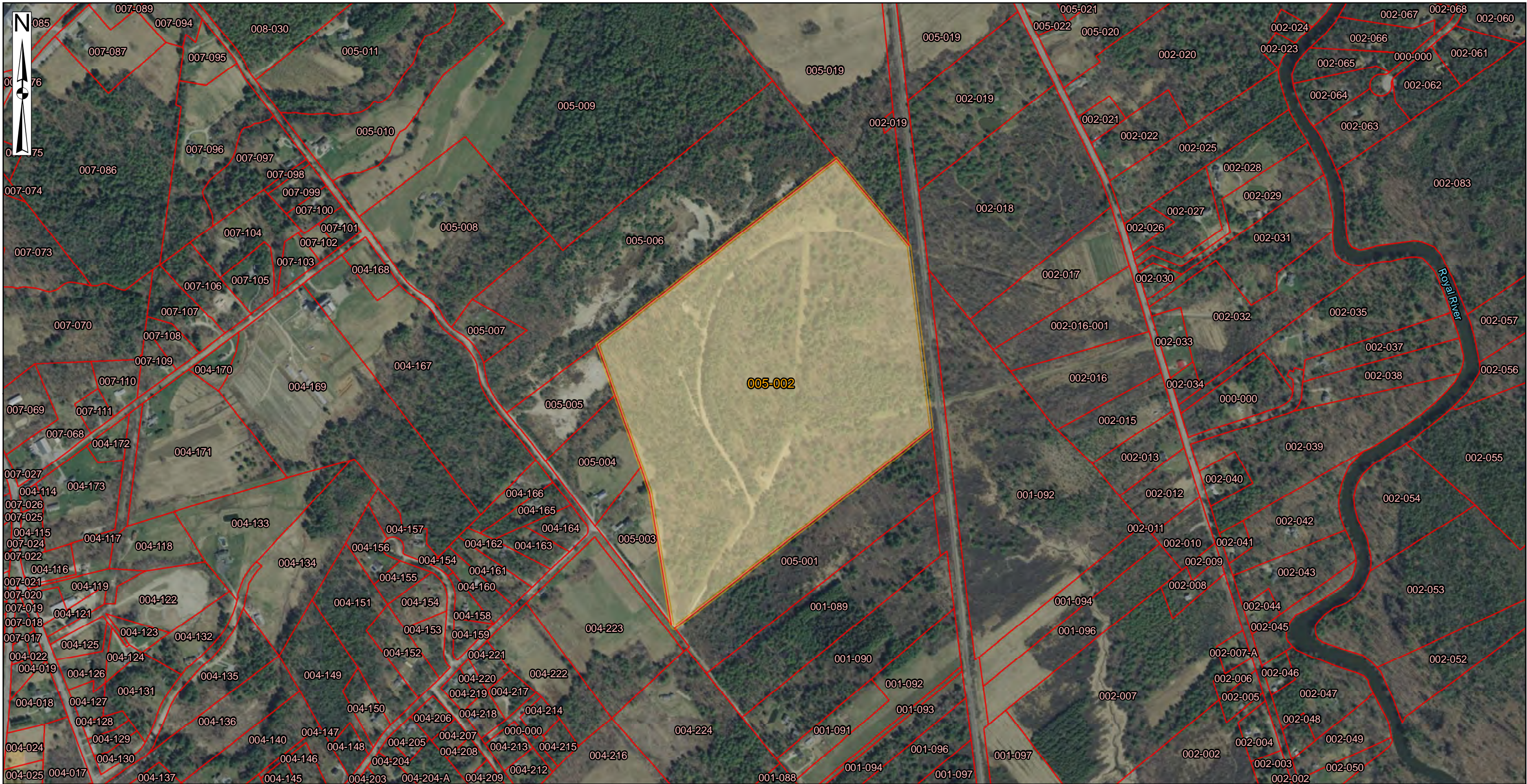
SCALE:

0 650 1,300 Feet

1 inch = 650 feet

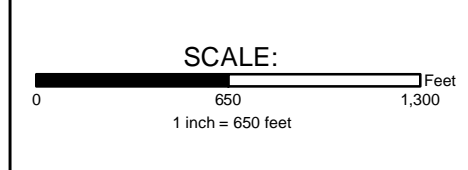
PROJECT LOCATION MAP - USGS TOPOGRAPHIC
WATER LINE SOLAR, LLC:
NORTH YARMOUTH, MAINE

MARCH 8, 2022



LEGEND

- Approximate Town Parcel
- Approximate Project Parcel

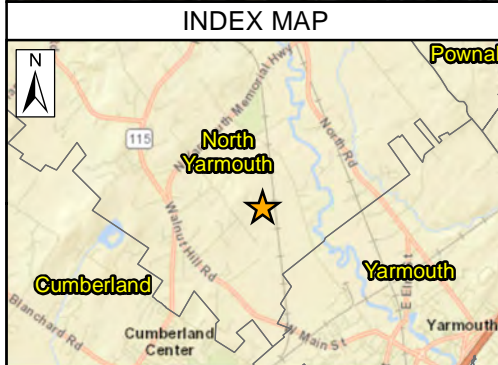


**TOWN TAX MAP
 WATER LINE SOLAR, LLC:
 NORTH YARMOUTH, MAINE**

MARCH 10, 2022



500ft Abutters List	
Parcel #	Owner Name
001-089	NORTH YARMOUTH, TOWN OF
001-092	BASTON, RICHARD M. AND CLARK M.
002-016-001	YARMOUTH WATER DISTRICT
002-017	MILLIKEN, PETER G.
002-018	MILLIKEN, PETER G.
002-019	MILLIKEN, PETER G.
004-164	KAECHELE, JILLIAN S.
004-223	YARMOUTH WATER DISTRICT
004-224	BROWN, JOSEPH G. C.
005-001	YARMOUTH WATER DISTRICT
005-003	WILLIAMS, JOHN W.
005-004	BAKUTIS, ALAN T.
005-005	CUMBERLAND, TOWN OF
005-006	YARMOUTH WATER DISTRICT
005-019	GAMBIT, LLC



LEGEND

500ft Abutting Town Parcel
 Approximate Project Parcel Boundary

Non-Abutting Town Parcel

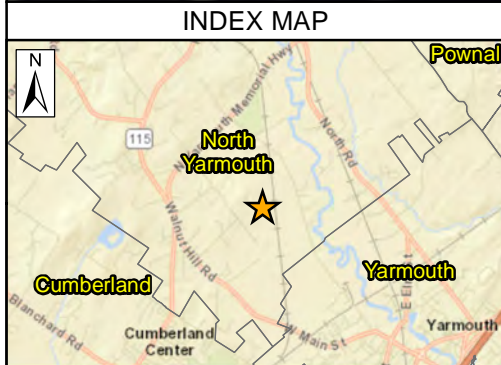
SCALE:

0 850 1,700 Feet

1 inch = 850 feet

500-FOOT ABUTTERS MAP
WATER LINE SOLAR, LLC:
NORTH YARMOUTH, MAINE

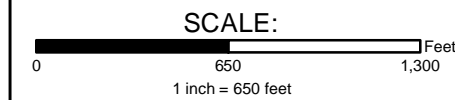
MARCH 10, 2022



LEGEND

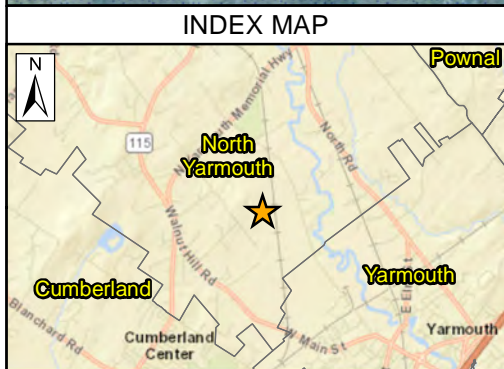
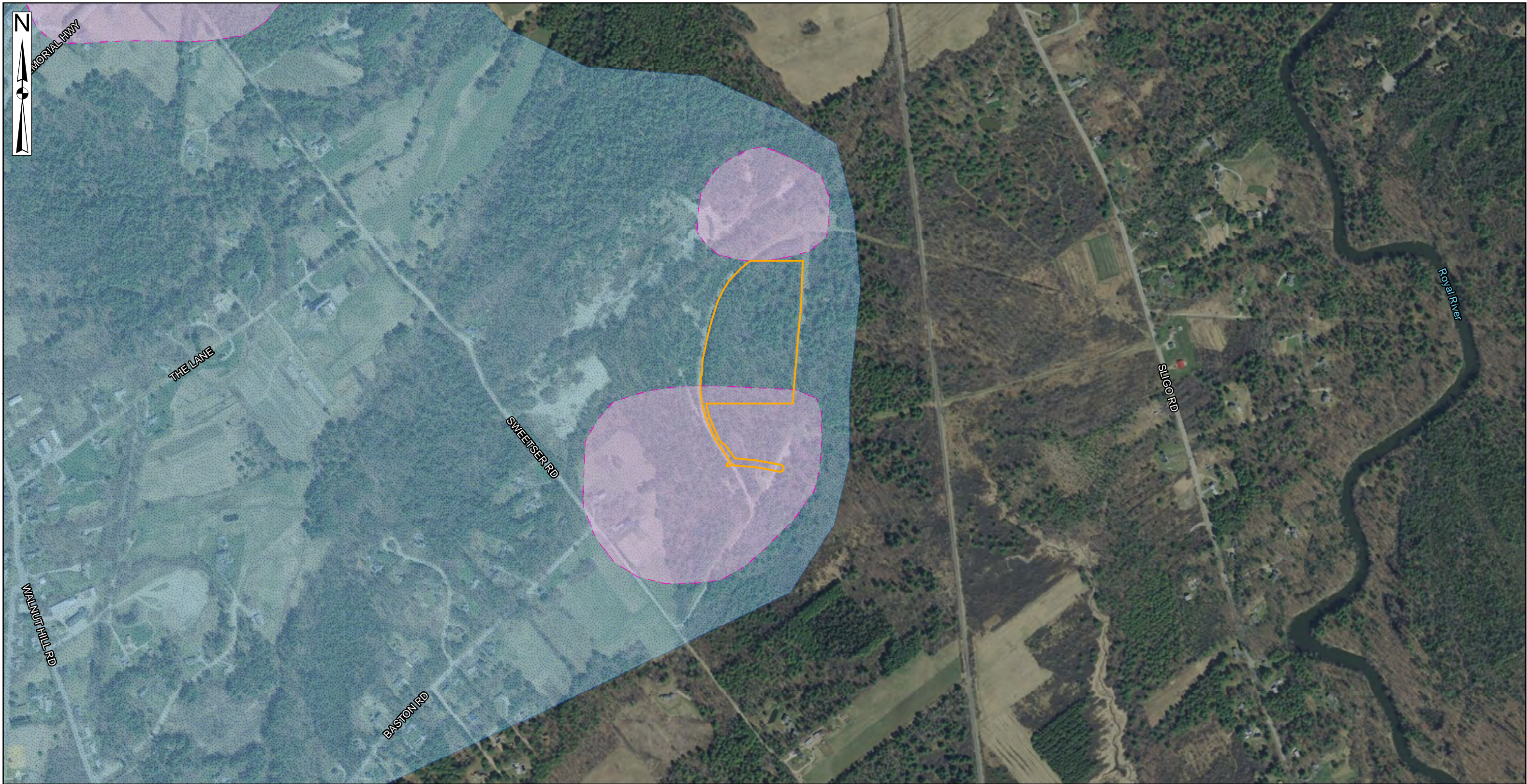
— Project Limit of Disturbance

- Contract Zone Agreement
- Village Center
- Village Residential
- Farm and Forest
- Groundwater Protection Overlay
- Shoreland Zoning & Resource Protection
- Royal River Corridor



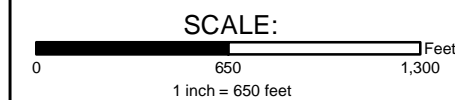
**TOWN ZONING MAP
WATER LINE SOLAR, LLC:
NORTH YARMOUTH, MAINE**

MARCH 8, 2022



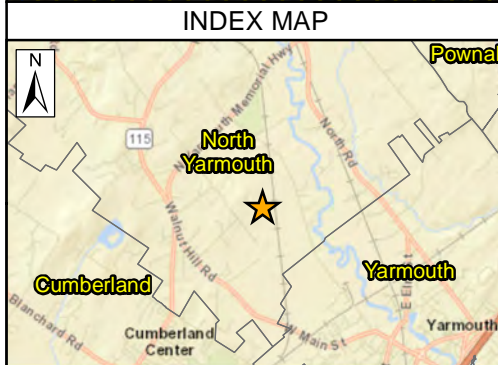
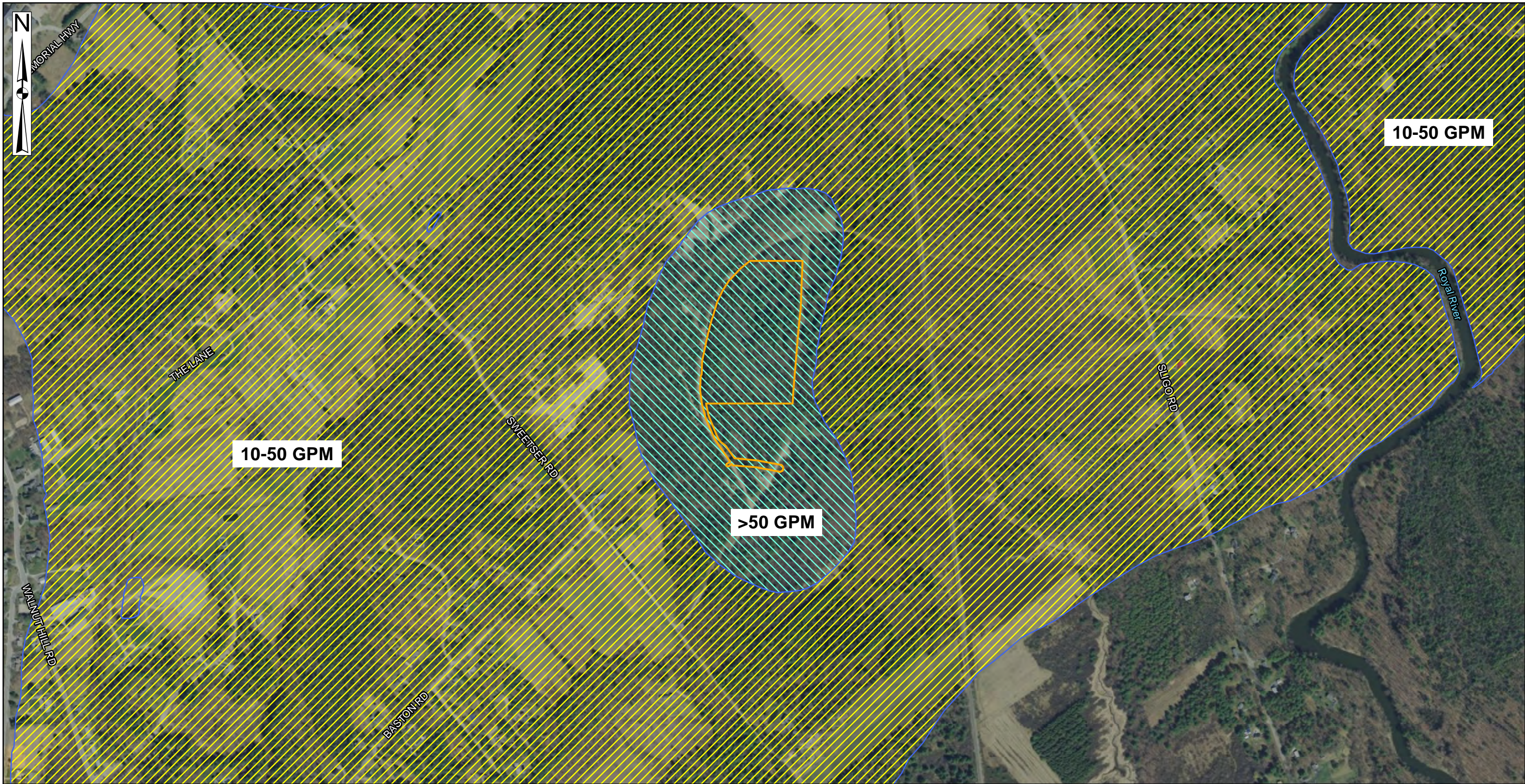
LEGEND

-  Groundwater Protection Overlay
-  Yarmouth Water District Zone 1 Well Protection Area
-  Project Limit of Disturbance



**SENSITIVE GROUNDWATER PROTECTION MAP
WATER LINE SOLAR, LLC:
NORTH YARMOUTH, MAINE**


MARCH 10, 2022



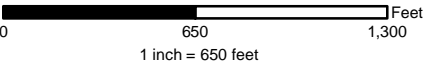
LEGEND

- Yields: 10-50 GPM
- Yields: >50 GPM
- Project Limit of Disturbance


GPM = Gallons Per Minute. Yield rate is an estimate of yield to a properly constructed well. Data from the Maine Geological Survey's "Yarmouth Quadrangle, Maine."



SCALE:

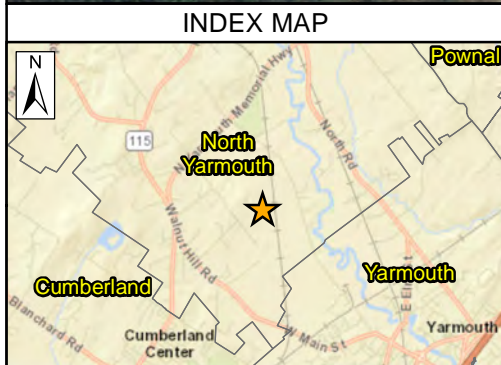
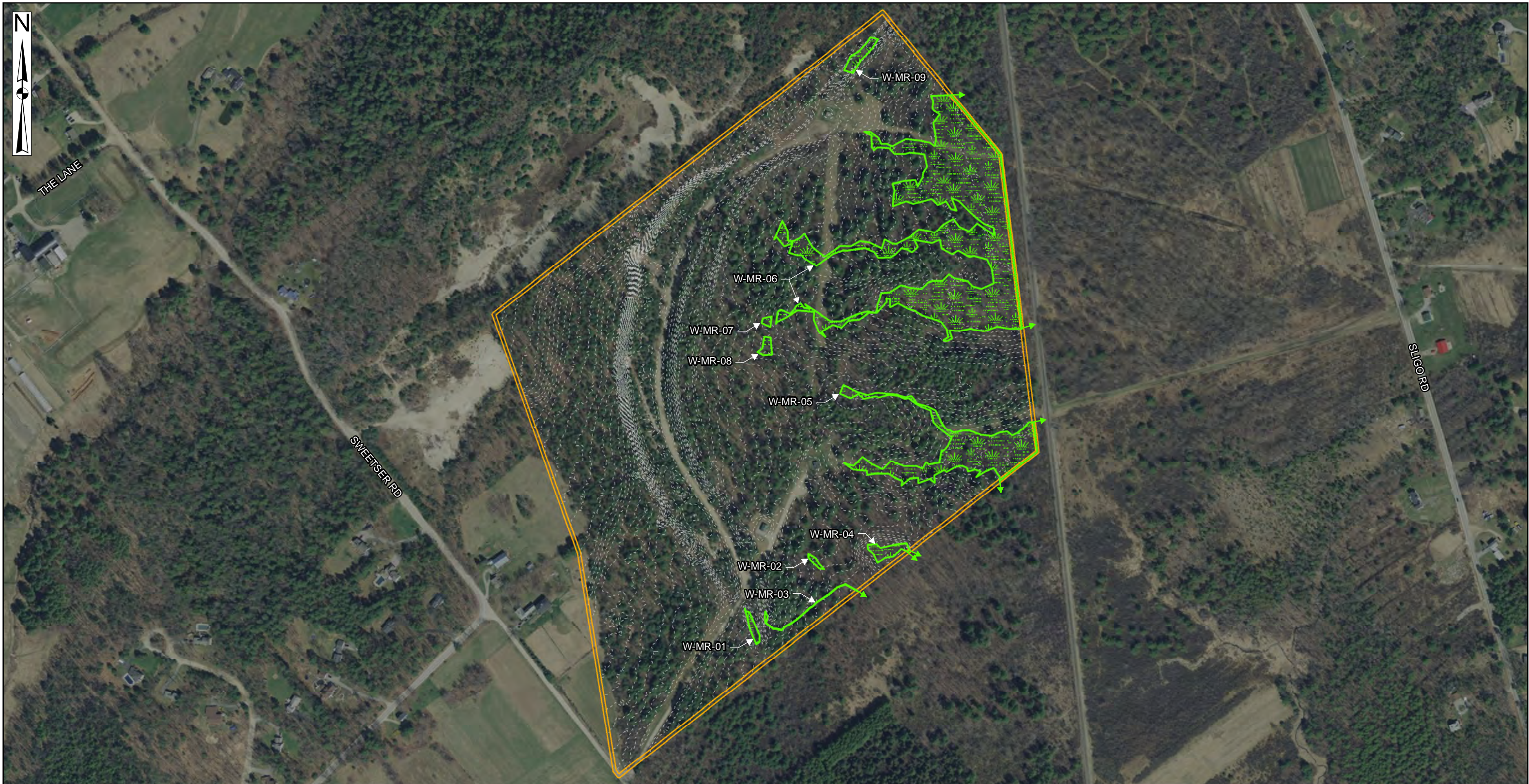


1 inch = 650 feet



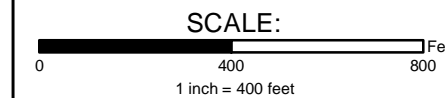
SAND & GRAVEL AQUIFERS MAP
WATER LINE SOLAR, LLC:
NORTH YARMOUTH, MAINE

MARCH 10, 2022



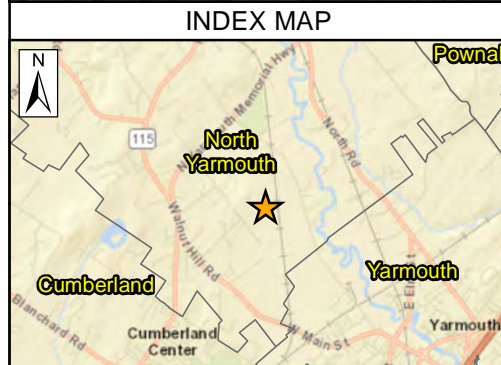
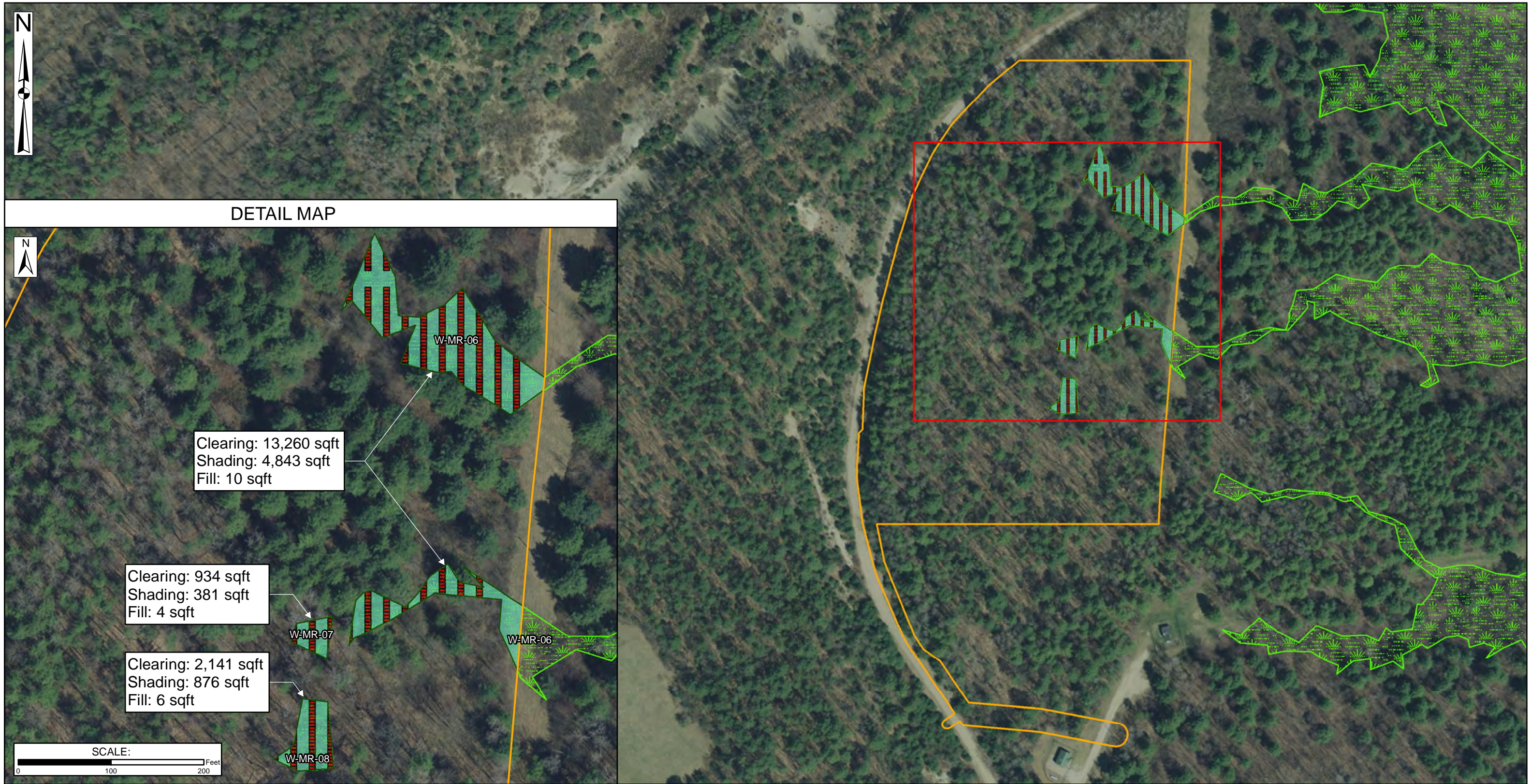
LEGEND

-  Wetland
-  Project Survey Boundary
-  2ft Contour Interval



**NATURAL RESOURCES MAP
WATER LINE SOLAR, LLC:
NORTH YARMOUTH, MAINE**

MARCH 10, 2022



LEGEND

- Wetland
- Proposed Wetland Clearing: Total 16,335 sqft
- Proposed Wetland Shading: Total 6,100 sqft
- Proposed Limit of Disturbance

NOTE - Not represented - Proposed Wetland Racking/Fence Post Fill: Total 20 sqft

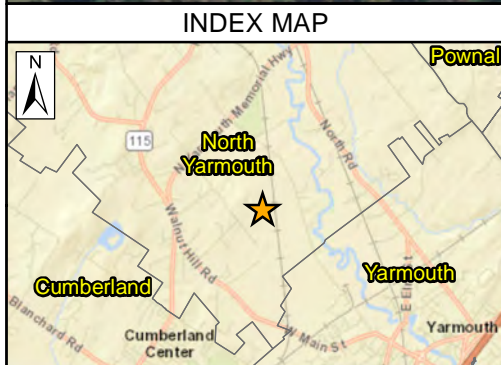
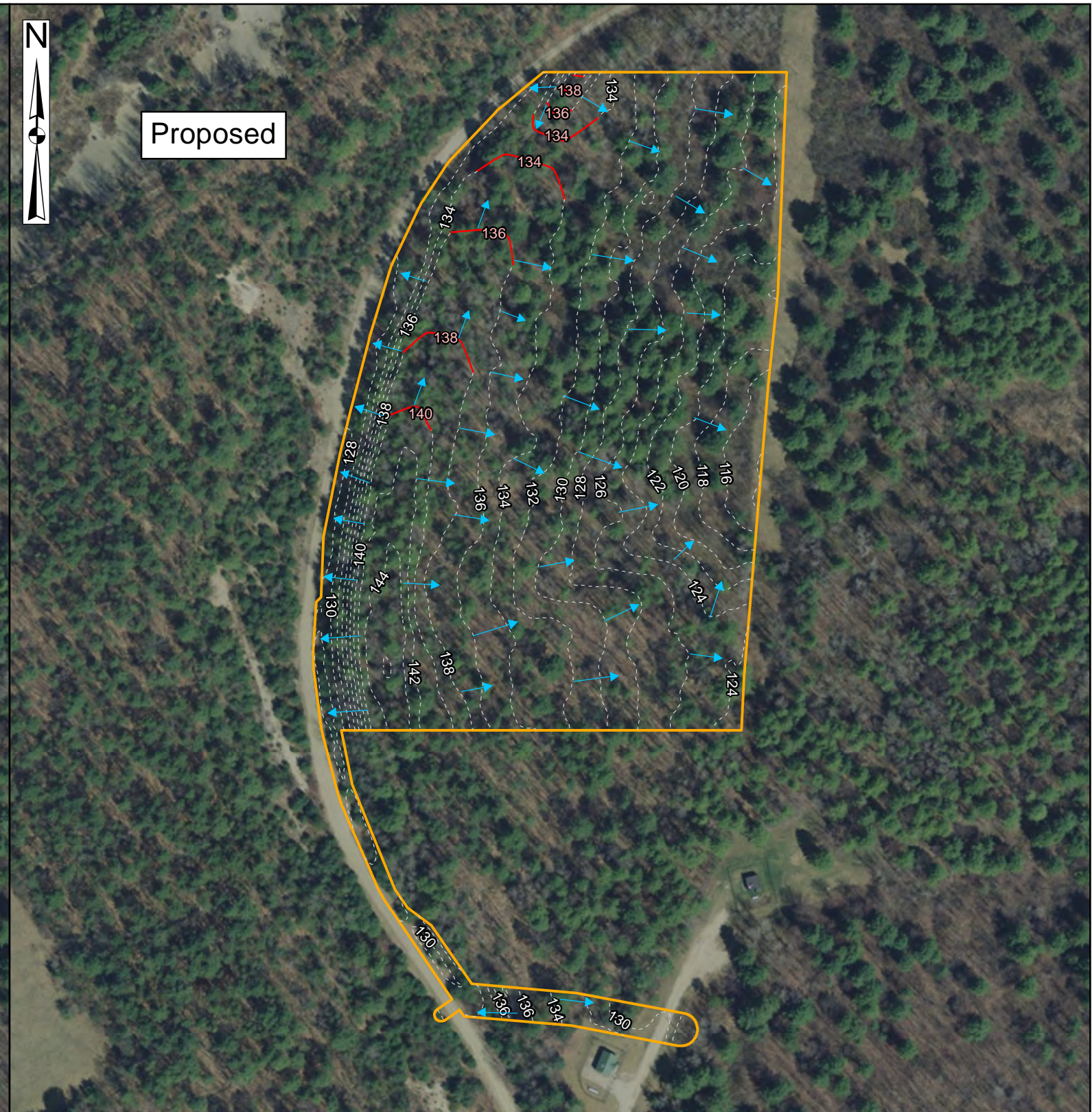
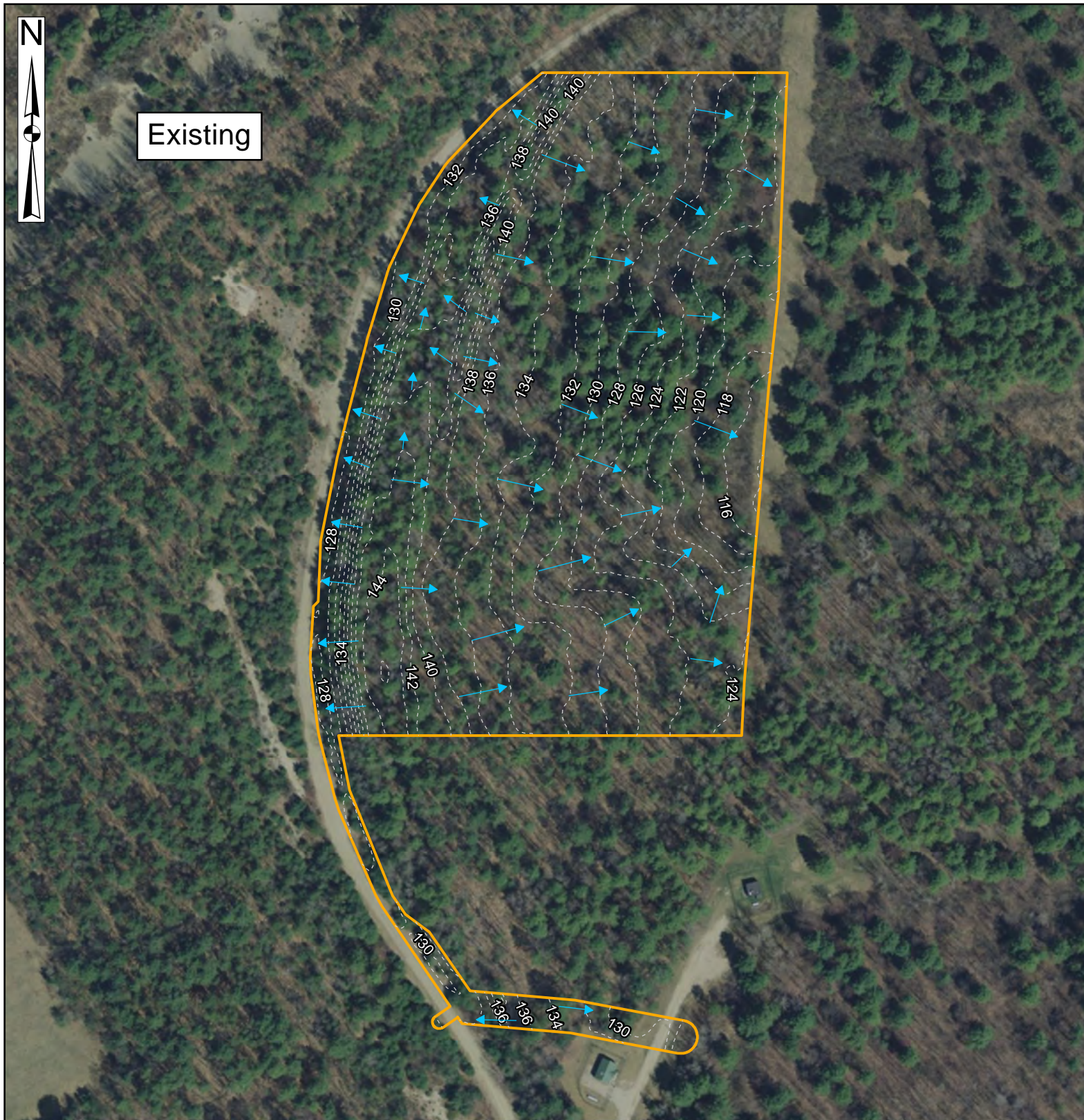
bri
BIODIVERSITY RESEARCH INSTITUTE
innovative wildlife science

SCALE: 0 200 400 Feet
1 inch = 200 feet





BRANCH
RENEWABLE ENERGY

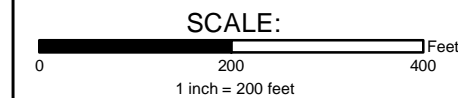
WETLAND IMPACT MAP
WATER LINE SOLAR, LLC:
NORTH YARMOUTH, MAINE

MARCH 10, 2022



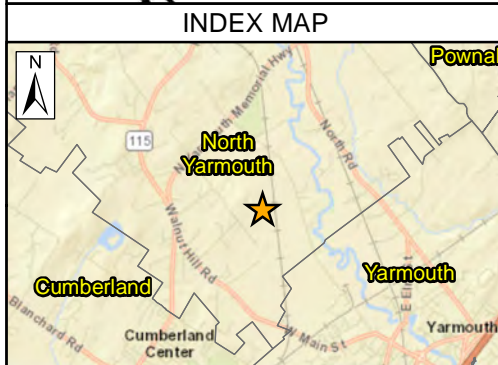
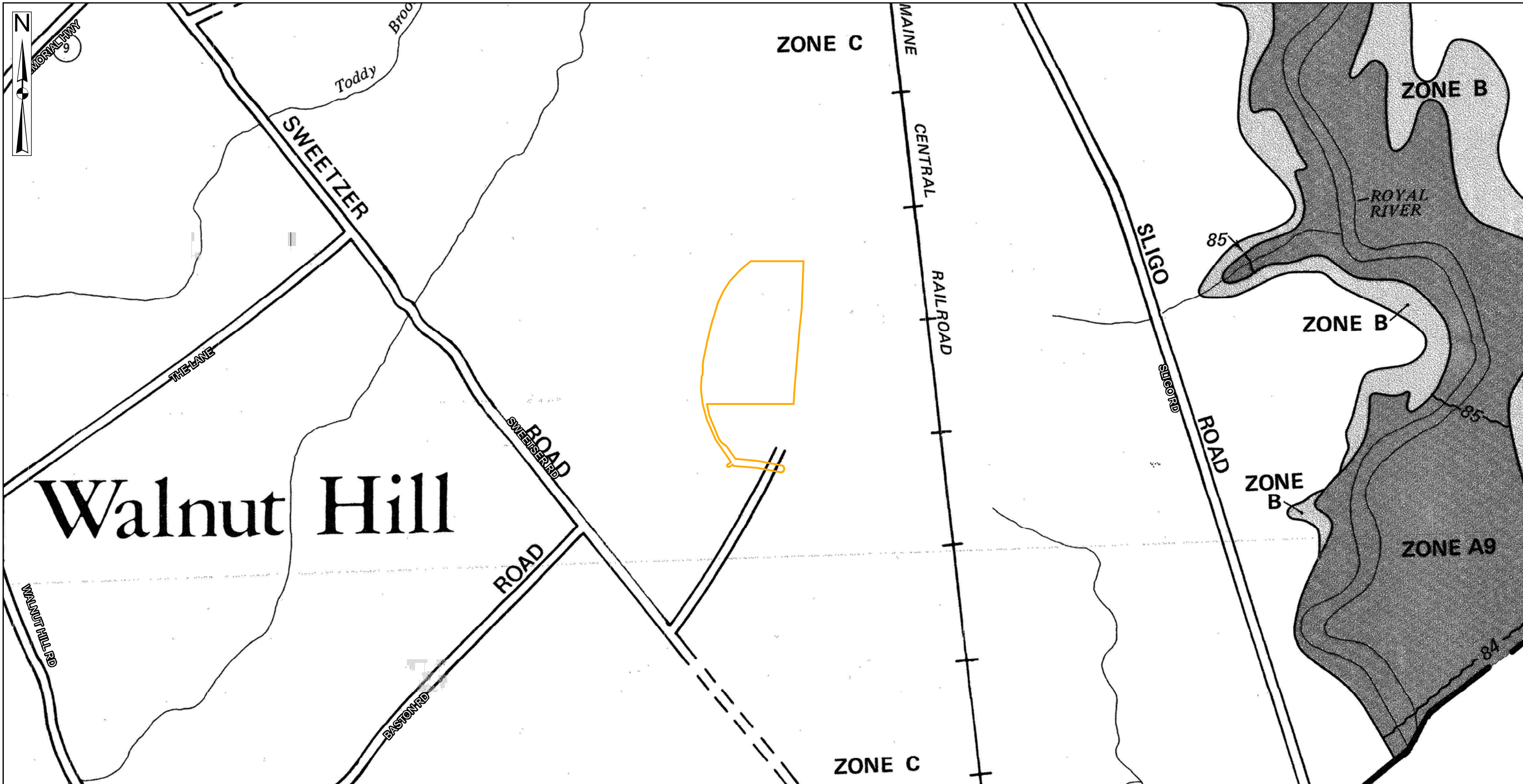
LEGEND

-  Approximate Flow Direction
-  2ft Contour Interval - Existing Topography
-  2ft Contour Interval - Proposed Grading
-  Project Silt Fence







SURFACE WATER DRAINAGE MAP
WATER LINE SOLAR, LLC:
NORTH YARMOUTH, MAINE

MARCH 10, 2022

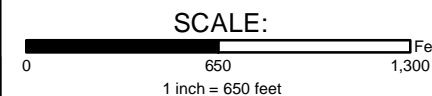


LEGEND

-  ZONE A - Areas of 100-year flood
-  ZONE B - Areas between limits of 100 and 500-year flood
-  ZONE C - Minimal Flood Hazard
-  Project Limit of Disturbance

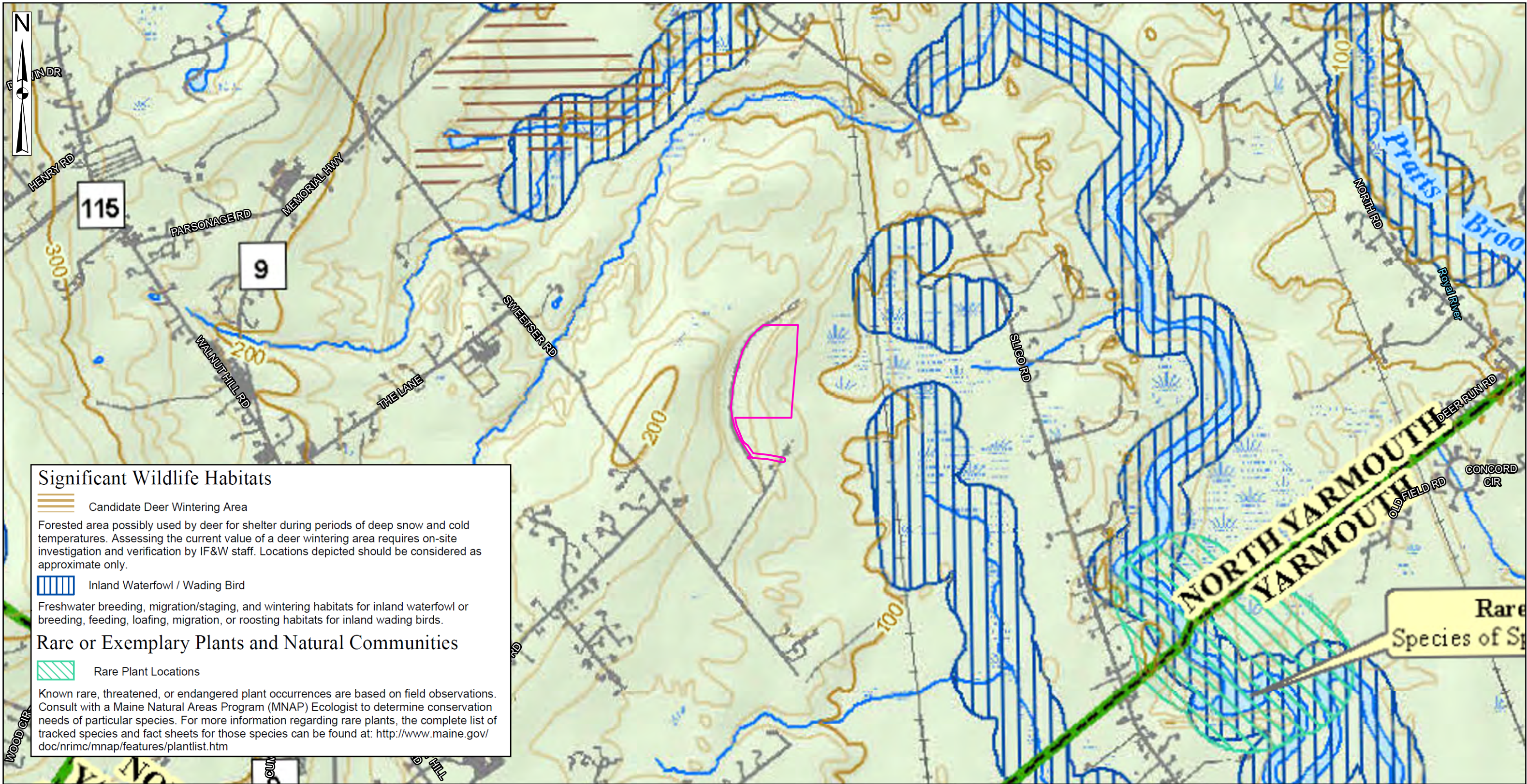
Special Flood Hazard Areas Inundated by 100-Year Flood.
No base flood elevation determined. Data Derived from FEMA MSC

FEMA FIRM Panel:
2302020010B





FEMA 100-YEAR FLOOD MAP
WATER LINE SOLAR, LLC:
NORTH YARMOUTH, MAINE


MARCH 8, 2022

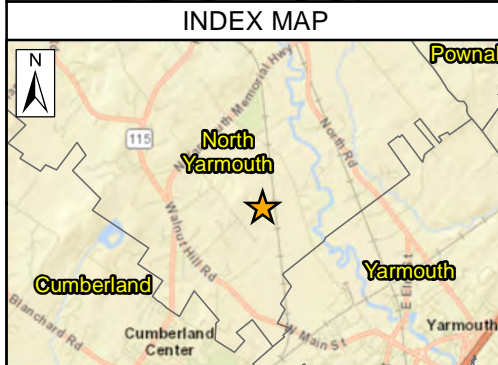


Significant Wildlife Habitats


-  Candidate Deer Wintering Area
Forested area possibly used by deer for shelter during periods of deep snow and cold temperatures. Assessing the current value of a deer wintering area requires on-site investigation and verification by IF&W staff. Locations depicted should be considered as approximate only.
-  Inland Waterfowl / Wading Bird
Freshwater breeding, migration/staging, and wintering habitats for inland waterfowl or breeding, feeding, loafing, migration, or roosting habitats for inland wading birds.

Rare or Exemplary Plants and Natural Communities

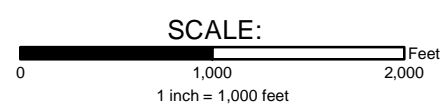
-  Rare Plant Locations
Known rare, threatened, or endangered plant occurrences are based on field observations. Consult with a Maine Natural Areas Program (MNAP) Ecologist to determine conservation needs of particular species. For more information regarding rare plants, the complete list of tracked species and fact sheets for those species can be found at: <http://www.maine.gov/doc/nrimc/mnap/features/plantlist.htm>



LEGEND

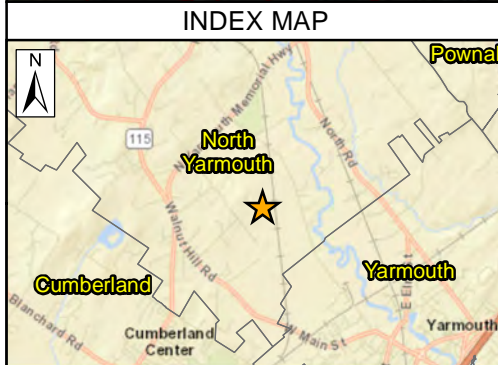
-  Project Limit of Disturbance

Data source: Maine Department of Inland Fisheries & Wildlife, Beginning with Habitat - High Value Plant & Animal Habitats Map - North Yarmouth, 2018



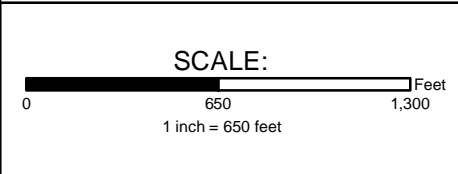
HIGH VALUE PLANT & WILDLIFE HABITAT MAP
WATER LINE SOLAR, LLC:
NORTH YARMOUTH, MAINE

MARCH 11, 2022



LEGEND

- Yarmouth Water District - Contiguous Property
- Approximate Town Parcel
- Approximate Project Parcel Boundary



**YWD CONTIGUOUS PROPERTY OWNERSHIP MAP
WATER LINE SOLAR, LLC:
NORTH YARMOUTH, MAINE**

MARCH 10, 2022

ATTACHMENT 4

500-foot Abutters List and Letter



500 foot Abutters List Report

North Yarmouth, ME

February 25, 2022

Subject Property:

Parcel Number: 005-002
CAMA Number: 005-002
Property Address: 238 SWEETSER RD

Mailing Address: YARMOUTH WATER DISTRICT
P. O. BOX 419
YARMOUTH, ME 04096-0419

Abutters:

Parcel Number: 001-089
CAMA Number: 001-089
Property Address: 0 SWEETSER RD

Mailing Address: NORTH YARMOUTH, TOWN OF
10 VILLAGE SQUARE ROAD
NORTH YARMOUTH, ME 04097

Parcel Number: 001-092
CAMA Number: 001-092
Property Address: 0 SWEETSER RD

Mailing Address: BASTON, RICHARD M. AND CLARK M.
282 SWEETSER RD
NORTH YARMOUTH, ME 04097

Parcel Number: 002-016-001
CAMA Number: 002-016-001
Property Address: SLIGO RD

Mailing Address: YARMOUTH WATER DISTRICT
P. O. BOX 419
YARMOUTH, ME 04096-0419

Parcel Number: 002-017
CAMA Number: 002-017
Property Address: 0 SLIGO RD

Mailing Address: MILLIKEN, PETER G.
754 SLIGO RD
NORTH YARMOUTH, ME 04097

Parcel Number: 002-018
CAMA Number: 002-018
Property Address: 0 SLIGO RD

Mailing Address: MILLIKEN, PETER G.
754 SLIGO ROAD
NORTH YARMOUTH, ME 04097

Parcel Number: 002-019
CAMA Number: 002-019
Property Address: 754 SLIGO RD

Mailing Address: MILLIKEN, PETER G.
754 SLIGO RD
NORTH YARMOUTH, ME 04097

Parcel Number: 004-164
CAMA Number: 004-164
Property Address: 3 BRYN LANE

Mailing Address: KAECHLE, JILLIAN S.
P.O. BOX 94
CUMBERLAND, ME 04021-0094

Parcel Number: 004-223
CAMA Number: 004-223
Property Address: 129 BASTON RD

Mailing Address: YARMOUTH WATER DISTRICT
PO BOX 419
YARMOUTH, ME 04096

Parcel Number: 004-224
CAMA Number: 004-224
Property Address: 243 SWEETSER RD

Mailing Address: BROWN, JOSEPH G. C.
243 SWEETSER RD
NORTH YARMOUTH, ME 04097

Parcel Number: 005-001
CAMA Number: 005-001
Property Address: 0 SWEETSER RD

Mailing Address: YARMOUTH WATER DISTRICT
P. O. BOX 419
YARMOUTH, ME 04096-0419



www.cai-tech.com

Data shown on this report is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this report.



500 foot Abutters List Report

North Yarmouth, ME
February 25, 2022

Parcel Number: 005-003
CAMA Number: 005-003
Property Address: 208 SWEETSER RD

Mailing Address: WILLIAMS, JOHN W.
208 SWEETSER RD
NORTH YARMOUTH, ME 04097

Parcel Number: 005-004
CAMA Number: 005-004
Property Address: 200 SWEETSER RD

Mailing Address: BAKUTIS, ALAN T.
200 SWEETSER RD
NORTH YARMOUTH, ME 04097

Parcel Number: 005-005
CAMA Number: 005-005
Property Address: 0 GRAVEL PIT OFF SWEETSER
RD

Mailing Address: CUMBERLAND, TOWN OF
290 TUTTLE RD
CUMBERLAND, ME 04021

Parcel Number: 005-006
CAMA Number: 005-006
Property Address: SWEETSER RD

Mailing Address: YARMOUTH WATER DISTRICT
P. O. BOX 419
YARMOUTH, ME 04096-0419

Parcel Number: 005-019
CAMA Number: 005-019
Property Address: 774 SLIGO RD

Mailing Address: GAMBIT, LLC
754 SLIGO RD
NORTH YARMOUTH, ME 04097



www.cai-tech.com

Data shown on this report is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this report.



March 14, 2022

Water Line Solar Project, North Yarmouth

Dear North Yarmouth Resident,

Water Line Solar, LLC, a subsidiary of Branch Renewable Energy, LLC, is proposing the development of the Water Line Solar Project (Project), a ground-mounted solar energy generation facility located off of Sweetser Road in North Yarmouth. Branch Renewable Energy has engaged Biodiversity Research Institute (BRI) as the lead consultant to support the Project.

The goal of the Project is to provide approximately 2 megawatts of renewable energy to the local electrical grid, benefitting Maine ratepayers and contributing to the State's renewable energy goals. The Project will be located at 238 Sweetser Road, on Lot 2 of Tax Map 5. It will have a footprint of approximately 14.4 acres, and will use the existing overhead powerlines and access road.

In addition to the North Yarmouth Site Plan Review and Conditional Use permit application, the Project team is submitting the following permit applications to the Maine Department of Environmental Protection: a Stormwater Permit by Rule application; a Tier II Natural Resources Protection Act permit application; and a Solar Decommissioning permit application.

The Site Plan Review and Conditional Use permit application will be considered by the North Yarmouth Planning Board at its regularly scheduled meeting on April 12, 2022 at 7:00PM. This meeting will be held at Westcustogo Hall, #120 Memorial Highway, North Yarmouth, ME 04097. It can also be streamed online using Town Hall Stream and Channel 1301 on Spectrum. Please see the Planning Board website for more information about streaming.

The permit application will be on file at the North Yarmouth town offices at 10 Village Square Road.

If you have any questions, please feel free to email me at cbyers@branchrenewables.com, or call me at 207-653-9864.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Byers".

Chris Byers, Principal
Branch Renewable Energy, LLC
8 Quarry Ridge
North Yarmouth, ME 04097

ATTACHMENT 5

Title, Right, or Interest

OPTION AGREEMENT

THIS OPTION AGREEMENT FOR SOLAR ENERGY SITE LEASE ("Option Agreement") is made and entered into as of 11/11/21 ("Effective Date"), by and between Yarmouth Water District ("Landowner"), a Quasi Municipal Organization with a mailing address of 181 Sligo Road, Yarmouth, Maine 04096, and Branch Renewable Energy, a LLC with a mailing address of 8 Quarry Ridge, North Yarmouth, ME 04097 ("Developer" and, together with Landowner, each, a "Party" and together, the "Parties").

WHEREAS, Landowner is the owner of property in the Town/City of North Yarmouth, County of Cumberland, State of Maine, with a physical address of 238 Sweetser Road, North Yarmouth, ME 04097, and generally depicted on the Town of North Yarmouth Tax Map 5 as Lot 2 (the "Larger Property"); and

WHEREAS, Developer desires to enter into an exclusive option to lease an approximately 20 acre area or less (the "Option Property") of the Larger Property, as more particularly described in the Memorandum of Option attached hereto as Exhibit B.

NOW, THEREFORE, in consideration of the mutual promises and covenants contained in this Option Agreement, the adequacy and sufficiency of which are hereby acknowledged, Developer and Landowner agree as follows:

1. **Grant of Option.** Landowner hereby grants Developer an exclusive option (the "Option") to enter into a lease of the Option Property (the "Lease") and obtain through such Lease any corresponding easements for access and transmission lines extending from Sweetser Road to the Option Property. Developer and Landowner shall negotiate exclusively in good faith regarding the terms and provisions of the Lease for the Option Property, which Lease shall include the general terms described on the term sheet attached hereto as Exhibit A and incorporated by reference herein (the "Term Sheet"), and shall also contain such other reasonable terms and provisions as the parties may agree. Landowner and Developer recognize that successful negotiation of the Lease will also entail substantial definition and refinement of the concepts expressed in the Term Sheet and final mutual agreement on all of the terms and conditions set forth herein.

2. **Term.** The Option term (the "Option Term") will be for a period of twenty-four (24) months commencing with the execution of this Option Agreement. Developer may terminate this Option Agreement at any time, in its sole discretion, by delivering written notice to Landowner, in which case Landowner shall retain any option payments paid by Developer but shall not be entitled to receive any additional payments.

3. **Option Term Payment.** As consideration for the Option, Developer shall pay to Landowner consideration as follows, with the first payment payable within thirty (30) days of the date of this Option Agreement, and any future installments payable within thirty (30) days of the applicable monthly anniversary of the date of this Option Agreement.



4. Option Property. Landowner and Developer acknowledge that the general depiction of the Option Property attached to this Option Agreement on the Effective Date may be legally insufficient. Landowner and Developer confirm to one another that, notwithstanding any insufficiency, the Parties desire to enter this Option Agreement. Therefore, Landowner and Developer agree that (i) they are experienced in transactions of the nature provided for in this Option Agreement, (ii) they are thoroughly familiar with the location of the Option Property, and (iii) each Party waives any and all claims or defenses of an insufficient legal description in a cause of action for specific performance under this Option Agreement. Upon determination of the specific size and location of the Option Property, a detailed description of such location shall become the final description of the leased property for the Lease, and the Parties will amend Exhibit B to reflect that final Option Property description.

5. Due Diligence. During the Option Term, Landowner grants Developer an easement onto the Larger Property and Developer shall be permitted to conduct complete and thorough due diligence activities incident to the transactions contemplated by the Term Sheet. In connection therewith, Landowner shall make available to Developer any and all documents, reports, studies, contracts or other tangible or electronic items as may exist with respect to the Larger Property, its history and/or use, all as may be reasonably requested from time to time by Developer. Without limiting the generality of the foregoing, within five (5) business days after this Option Agreement is signed, Landowner shall provide complete copies of any title insurance policy or report pertaining to the Larger Property, and of any survey plan of the Larger Property, in Landowner's control. Developer and its representatives shall be permitted to visit the Larger Property site on any number of occasions during the Option Term upon reasonable advance notice to Landowner, and to conduct any reasonable studies, including geotechnical investigations, that Developer determines are necessary for the evaluation of the Option Property. The parties understand and acknowledge that the consummation of the transactions contemplated by the Term Sheet is subject to the results of such due diligence process. All information, studies, reports and business documents relating to the Larger Property obtained by Developer, either by examination of its agents or representatives, or observation, or disclosed to it by Landowner, shall remain confidential.

6. Use of Option Property by Landowner. Upon the execution of this Option Agreement until the later of (i) the termination or expiration of the Option Term, or (ii) the execution of the Lease, Landowner shall maintain the Larger Property in good condition and in a manner consistent with Landowner's past practices. Landowner agrees to keep the Larger Property free from materialmen's, mechanics' and construction liens. Landowner will not, without the prior written consent of Developer, convey any right, title and interest in the Larger Property to any third party or change the ownership, operation or control, of the Larger Property. Owner will not subject the Larger Property to any additional liens, encumbrances, covenants, conditions, easements, rights-of-way, or similar matters after the Effective Date of this Agreement. Landowner will not enter into any contracts, leases, or other agreements, allowing anyone other than Landowner to occupy or use the Option Property, nor any other contract, or agreement, or consent, to permit any lien or encumbrance (whether written or oral) that will be an obligation affecting the Option Property without Developer's prior written consent. Other than agreements that Developer has agreed to assume in writing, Landowner shall terminate, at its sole expense, all contracts, or other agreements affecting the Option Property prior to execution of the Lease. During the Option Term and any extension thereof, Landowner shall pay all taxes, fees, and other charges assessed against, or related to, the Option Property.

7. Exercise of Option. Developer may exercise the Option at any time, and as to all, or any part of, the Option Property, by delivering written notice to the Landowner. If the Developer exercises the Option as to a part of the Option Property, such exercise notice shall reasonably describe that part of the portion of the Option Property being leased. The Parties shall enter into the Lease, as negotiated and agreed upon by the Parties, within fifteen (15) calendar days from the date such notice is delivered.

8. **Confidentiality.** Except as expressly authorized in advance in writing, the Parties shall keep confidential the terms of this Option Agreement and information and materials concerning the proposed transaction that are provided by Developer and/or Landowner and designated as confidential ("**Confidential Information**"). The Parties agree to use commercially reasonable efforts (equivalent to the efforts each Party applies to maintaining the confidentiality of its own confidential information) to maintain as confidential all Confidential Information, except that a Party may disclose such information (a) to persons employed or engaged by such Party who are informed of the confidentiality obligation hereunder and agree to be bound thereby; (b) to an advisor, agent, or representative of such Party or whether directly or indirectly a lender or potential lender to, or purchaser or potential purchaser of ownership interests or assets of, one of the Parties provided such parties are informed of the confidentiality obligation hereunder and agree to be bound thereby; (c) as reasonably believed by such Party to be compelled by any court decree, subpoena or legal or administrative order or process; (d) to any government agency from who Developer and/or Landowner may require information from, or from whom Developer and/or Landowner requires a necessary permit, approval or other entitlement in order to develop, construct, operate or maintain any proposed improvements under the Lease; (e) as is required by applicable laws; or (f) that ceases to be confidential through no fault of such Party or any of its employees or agents.


9. **Exclusive Negotiation in Good Faith.** During the Option Term, the Parties agree to exclusively negotiate in good faith to develop mutually acceptable terms and documentation for the transactions described above and to comply with the due diligence and other provisions set forth in the Term Sheet prior to execution of a Lease; provided, however, that until the Lease is executed by both Parties, Developer may at any time and for any or no reason terminate its negotiations with Landowner by a written notice, without penalty.

10. **Memorandum.** Landowner agrees to execute the Memorandum of Option attached hereto as **Exhibit B** which Developer may record at any time in the Cumberland County Registry of Deeds.

11. **Counterparts.** This Option Agreement may be executed in counterparts, each of which shall be deemed an original regardless of the date of its execution and delivery. Signatures on Portable Document Format delivered by electronic mail will be treated as original signature; however, each party agrees to promptly forward original executed documents to the other party.

12. **Governing Law.** This Option Agreement shall be governed by the laws of the State of Maine.

LANDOWNER:

By: 
Name: ERIC GAGNON
Title: SUPERINTENDENT

DEVELOPER:

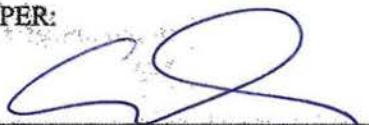
By: 
Name: Chris Byers, Branch Renewable
Energy
Title: Principal

EXHIBIT A
TERM SHEET

Parties:	Yarmouth Water District, a Quasi Municipal Organization with an address of 181 Sligo Road, Yarmouth, ME 04096 (“Landowner” or “Lessor”) and Branch Renewable Energy, a limited liability company, or its affiliate or nominee to be designated prior to execution of the Lease (“Developer” or “Lessee”).								
Option Property:	See Exhibit A to the Memorandum of Option to Lease attached to this Option Agreement as Exhibit B.								
Transaction purpose:	Lessee has been granted an exclusive Option for a Lease to develop, construct and operate a solar energy facility (the “Project”). The Lease would include an initial development period, followed by an operating term, both of which could be extended under certain conditions. The Lease would include the grant of access and transmission easements across the remaining portions of the Larger Property to the Option Property.								
Lease term:	Initial development period will be one (1) year commencing on the execution date, plus an option to extend the development period for two (2) additional one (1) year terms (collectively, the “Development Term”). Once the Project is constructed, the operating period shall be twenty (20) years from the commercial operation date (the “Operating Term”).								
Option to renew lease:	Lessee shall have an option to extend the Operating Term for two (2) additional terms of five (5) years each and upon such extensions the Operating Term lease rent shall be reset to the market rate at the time of such extension.								
Development Term lease rent:	<p>Initial Development Term of Lease:</p> <table border="0"> <tr> <td style="text-align: center;"><u>Year</u></td> <td style="text-align: center;"><u>Lease rent payment</u></td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">██████████</td> </tr> </table> <p>Development Term Extension Periods:</p> <table border="0"> <tr> <td style="text-align: center;"><u>Years</u></td> <td style="text-align: center;"><u>Lease rent payment</u></td> </tr> <tr> <td style="text-align: center;">2-3</td> <td style="text-align: center;">██████████</td> </tr> </table>	<u>Year</u>	<u>Lease rent payment</u>	1	██████████	<u>Years</u>	<u>Lease rent payment</u>	2-3	██████████
<u>Year</u>	<u>Lease rent payment</u>								
1	██████████								
<u>Years</u>	<u>Lease rent payment</u>								
2-3	██████████								
Operating Term lease rent:	In the event the Project is constructed and commences operation on the Option Property, the Operating Term Lease rent will increase to ██████████ of the portion of the Option Property on which panels are situated per year. The Operating Term Lease rent ██████████								
Other payments:	Upon execution of the Lease, Lessee will be responsible for all real property taxes applicable to Lessee’s improvements constructed on the Option Property.								
Decommissioning:	During the Development Term of the Lease and prior to the development of a municipal site plan review application, a								

	decommissioning plan and cost estimate shall be written and included in the municipal site plan review application. A form of surety acceptable to the municipality shall be submitted equal to the projected cost estimates of the decommissioning plan prior to the issuance of a building permit.
Termination of Lease:	During the Development Term of the Lease, Lessee shall have the right to terminate the Lease as to all or any part of the Option Property at any time upon at least thirty (30) days advance written notice to Lessor. In the event of any such termination by Lessee, Lessor shall retain any and all lease rent payments previously made by Lessee, and Lessee shall waive any right to the return of said lease rent payments.
Access:	During the term of the Lease, and any extension thereof, Lessee shall have access to the Option Property for any legitimate purpose for which the Option Property may be utilized pursuant to State of Maine and Town of North Yarmouth rules, regulations, ordinances, statutes and laws.
Title:	At the time that the parties execute the Lease, the Option Property shall be free and clear of any and all liens (other than customary permitted liens), charges or encumbrances.
Lease instrument:	The transaction contemplated herein is subject to the good faith negotiation and execution of a Lease instrument, a draft of which to be provided by Developer upon its satisfaction of initial due diligence and inspections. The Lease instrument will contain all of the relevant terms of this Term Sheet together with general terms and conditions as are typically included in similar agreements for transactions of the nature herein described. The parties shall use their best efforts to negotiate and agree upon a Lease within the Option Term. Prior to execution of the Lease, the Yarmouth Water District will require final approval of the terms and conditions within the Lease from the Maine Public Utilities Commission.
Brokerage commission:	The parties agree that neither utilized the services of a broker and that no brokerage commissions shall be paid.
Expenses:	Whether or not the transaction(s) contemplated by this Term Sheet are consummated, each party will pay its own costs and expenses incurred in connection with the negotiation, execution and closing of the transaction(s) contemplated herein.
Assignment:	Lessee may assign its interest in the Lease, and Lessee may, at any time, without the consent of Lessor grant to any entity or person providing financing for the Project (a "Lender"), one or more collateral assignments, liens, and/or security interests in all or any part of its interests in the Lease. Lessor agrees to execute such estoppel certificates, consents to assignment or non-disturbance agreements as the Lender may reasonably request.

Counterparts and delivery by electronic mail:	The Lease may be executed in counterparts, each of which shall be deemed an original regardless of the date of its execution and delivery. Signatures on Portable Document Format delivered by electronic mail will be treated as original signature; however, each party agrees to promptly forward original executed documents to the other party.
Memorandum	The parties shall execute a memorandum of Lease which Lessee may record in the appropriate jurisdiction.
Governing law:	The Lease and all related agreements shall be governed by the laws of the State of Maine.
Confidentiality:	The parties agree that the provisions of this Term Sheet, including any facts relating to the negotiation thereof or the transactions contemplated herein, shall remain confidential and that prior to the closing, if any, of the Lease of the Option Property, no press or other publicity release or communication to the general public regarding the same will be issued without the other party's prior written consent. Following the closing, if any, of the Lease of the Option Property, either party may disclose that a transaction was consummated, but shall not disclose the terms of such transaction.

EXHIBIT B

(See Memorandum of Option to Lease attached hereto.)

RECORDING REQUESTED BY
AND WHEN RECORDED RETURN TO:

County of _____
Town of _____ Tax Parcel ID No(s): Map ___ Lot ___

MEMORANDUM OF OPTION TO LEASE

By this Memorandum of Option to Lease (this "Memorandum"), _____ ("Owner") evidences that she has entered into an Exclusive Option to Lease Agreement dated _____, 2021 (the "Agreement") with _____, a _____ limited liability company ("Optionee") granting the Optionee an exclusive option to lease and obtain access and transmission easements over certain real property situated in the Town of _____, County of _____, State of Maine, more particularly described on Exhibit A attached hereto and made a part hereof (the "Property"), on the terms and conditions set forth in the Agreement.

The term of the option commenced on _____, 2021 and shall expire, unless earlier terminated, on 12:01 on _____, 202_ (the "Expiration Date"). Unless this Memorandum has been terminated prior to the Expiration Date by the recordation of a Release of Option in the Official Records of the County of _____, State of Maine, signed by Optionee and specifically referencing this Memorandum, this Memorandum shall automatically cease to impart constructive notice of the Agreement from and after the Expiration Date.

The parties have executed and recorded this instrument for the purpose of imparting notice to all third parties of the Agreement.

This Memorandum and the Agreement shall bind and inure to the benefit of the parties and their respective heirs, successors and assigns.

This Memorandum and the Agreement are governed by Maine law.

This Memorandum may be executed in counterparts, all of which together shall constitute one instrument.

The addresses of Owner and Optionee for purposes of notice are:

Optionee:

Attention: _____

Owner:

IN WITNESS WHEREOF, Owner and Optionee have executed this Memorandum as of the dates of the notary acknowledgements below.

OWNER:

By: _____
Name:
Title:

STATE OF _____
COUNTY OF _____, 202_

Then personally appeared the above-named _____, _____ of _____, as aforesaid, and acknowledged the foregoing instrument to be her/his free act and deed in his capacity and the free act and deed of said limited partnership.

Notary Public/Attorney-at-Law
Print Name: _____
Commission Expires: _____

OPTIONEE:

By: _____

Name:

Title:

STATE OF _____
COUNTY OF _____

_____, 202_

Then personally appeared the above-named _____, _____ of _____, as aforesaid, and acknowledged the foregoing instrument to be her/his free act and deed in his capacity and the free act and deed of said limited partnership.

Notary Public/Attorney-at-Law

Print Name: _____

Commission Expires: _____

EXHIBIT A

All that real property situated in the Town of North Yarmouth, Maine, Cumberland County, State of Maine, described as follows:

An approximately 20 acre portion or less (the "Option Property") of property in the Town/City of North Yarmouth, County of Cumberland, State of Maine, with a physical address of 238 Sweetser Rd, North Yarmouth, ME 04097, and generally depicted on the Town of North Yarmouth Tax Map 5 as Lot 2 (the "Larger Property")

The Option Property is further illustrated below as the area within the bold lines and marked "Option Property."



ATTACHMENT 6

CMP Notification of Completion



From: MITCHELL, JOSHUA joshua.mitchell@cmpco.com

Subject: Notification of Completion for PRJ 690 - BRANCH RENEWABLE ENERGY LLC

Date: December 14, 2021 at 1:40 PM

To: Chris Byers cbyers@branchrenewables.com

Cc: STEVENSON2, CORNELIUS2 cornelius2.stevenson2@cmpco.com, CMP - Interconnection Services CMP-Interconnection.Services@cmpco.com, BUZZELL, JOHANNA johanna.buzzell@cmpco.com

Good afternoon,

We wanted to make you aware that we have deemed the Level 4 Application for PRJ 690 complete, however if there is any missing required information it will need to be received prior to

Project number	690
Received Date:	11/30/21
Developer:	BRANCH RENEWABLE ENERGY LLC
Gen Type:	Solar
Gen Size	4500 kW AC
Primary Voltage feed:	12.47 kV AC
Non-FERC	Non-FERC
Circuit:	620D4
Served from Substation:	Elm Street
Street Address	238 Sweetser Rd
Town	North Yarmouth
Interconnection Pole Number	11
Estimated In-Service Date?	12/31/2022

*As applicable, please submit updates to the above information

The proposed interconnection will now be deemed Queue Position: #2 for the **Elm Street Substation**.

No scoping meeting will be established until the prior queued positions have been studied and committed, in writing, to proceed forward or not in which we will inform you and establish a

IMPORTANT INFORMATION:

Please note that as a new requirement, each project is now required to submit the HECO Rule #14 Certification letter for their inverter(s) and the PSCAD model from the inverter manufa PSCAD version 4.5.3 or higher, and should be in the native PSCAD file extensions for use with PSCAD software.

Please see below links as per the ISO has specific requirements related to the size of your proposed interconnection.

- https://www.iso-ne.com/static-assets/documents/2017/07/a5_distributed_connected_generation_guidance.pdf
- https://www.iso-ne.com/static-assets/documents/rules_proceeds/operating/isone/op14/op14_rto_final.pdf

Please email your comments, questions, and concerns to CMP-Interconnection.Services@cmpco.com. Thank you.

Best regards,

Josh



Joshua Mitchell
Independent Contractor to AVANGRID
Project Support Analyst
83 Edison Drive, Augusta, Maine 04336
joshua.mitchell@cmpco.com



Please consider the environment before printing this email.

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Chapter 324
Small...res.pdf

Revised CMP -
T&C 55.pdf

Sch B -
Transm...n....pdf

In the interests of the environment,
please print only if necessary and recycle.

ATTACHMENT 7-A

Technical and Financial Capacity

Attachment 7-A: Technical and Financial Capacity

Project Team

The Project team includes established leaders with decades of combined experience in Maine's solar energy industry, from natural resource surveys and permitting to civil engineering and construction oversight. Selected resumes are included in **Attachment 7-B**.

Project Lead

Chris Byers lives in North Yarmouth. He has 12 years' experience in the solar industry, from project development and operations to construction and contract administration. He has worked on over 100 solar projects in Maine, ranging in size from 1 to 50 megawatts.

Biodiversity Research Institute

The consulting team at Biodiversity Research Institute (BRI) focuses on permitting for renewable energy development. BRI staff have decades of demonstrated experience in natural resources science and surveying; environmental project management; wildlife studies; and local, state, and federal permitting and compliance. The BRI environmental consulting team has assisted clients throughout New England on a variety of projects, providing technical support in natural resources assessments and resource impact analysis.

Berry, Huff, McDonald, Milligan

Berry, Huff, McDonald, Milligan (BH2M) is a locally owned civil engineering, planning, and surveying firm located in Gorham. BH2M has a multifaceted staff of 12 that includes engineers, planners, project managers and surveyors. BH2M will support the Project in the development of a Stormwater Permit by Rule, an Erosion and Sedimentation Control plan, and an Erosion and Sedimentation Control Inspection and Maintenance Plan.

Krebs & Lansing Consulting Engineers

Krebs & Lansing is an engineering firm based in Vermont that has been supporting site design projects such as solar development since 1978. Krebs & Lansing staff provide civil engineering support, including site design, layout, and stormwater buffering plans.

Financial Capacity and Decommissioning Surety

Water Line Solar, LLC has obtained a letter of financial capability from Gorham Savings Bank demonstrating confidence that the Project and Branch Renewable Energy have the financial means to construct the Project. The letter is included in **Attachment 7-C**. Project decommissioning will be fully funded before construction begins, as required by the Maine Department of Environmental Protection (MDEP). Financial assurance will be demonstrated through a performance bond, surety bond, irrevocable letter of credit, or other form acceptable to MDEP. Decommissioning costs will be reviewed after 15 years, and every five years thereafter, and the financial assurance will be updated accordingly. Each update to the financial assurance will be submitted to MDEP for review and approval. For more detail on decommissioning, including estimated costs, see the Decommissioning Application in **Attachment 18**.

ATTACHMENT 7-B

Project Team Resumes

CHRIS BYERS

207-653-9864

cnbyers@gmail.com

linkedin.com/in/byers
chris

Early-Stage Solar Project Development: Land origination, natural resource evaluation, site plan and SLD coordination, lease option negotiations, town meetings, interconnection studies.

Late-Stage Solar Project Development: Finalize utility land easements, incentives, town/planning board approval, off take negotiations, and other deliverables to reach NTP.

EPC: Senior EPC project management experience working with engineers, contractors, attorneys, state agencies, landowners, and other stakeholders from NTP to COD.

PROFESSIONAL EXPERIENCE

PRINCIPAL/OWNER

Branch Renewable Energy- North Yarmouth, ME

November 2021–Current

Facilitate phases of development including land origination, site control, site plan layout, interconnection studies and off-take strategy.

- Developing solar projects in Maine ranging in size from 1-50 MW
- Coordinate electrical, civil, GIS, wildlife, visual and cultural partners to spearhead permitting requirements
- Provide turn key permitting costs for projects that trigger various permitting requirements
- Advise on solar site plan layout in order to balance natural resource impacts and overall system footprint

SENIOR PROGRAM MANAGER-SOLAR

Biodiversity Research Institute- Portland, ME

April 2021–November 2021

Advise solar developer clients on solar project permitting strategy in Maine and serve as quarterback for all phases of development related to obtaining a permit including land selection, site control, site plan layout, interconnection studies and off-take strategy.

- Working on solar projects in Maine ranging in size from 3-50 MW
- Coordinate electrical, civil, GIS, wildlife, visual and cultural partners to spearhead permitting requirements
- Provide turn key permitting costs for projects that trigger various permitting requirements
- Advise on solar site plan layout in order to balance natural resource impacts and overall system footprint
- Meet with landowners on behalf of solar developers

SKILLS

Project Development through Construction Life Cycle Expertise

Maine + New England Permitting Requirements

Senior Level Project Management

Scheduling Software (Microsoft Project)

Contract Administration and Negotiations

Public Speaking and Outreach

Construction Prints Literacy

Cash Flow Tracking

Google Sketchup

Adobe Photoshop/Illustrator

OSHA 10

HIGHLIGHTS

Consultant/Developer on 100+ solar projects in Maine from 2019 to 2022

Construction Project Manager for 26 MW of projects in past 36 months, mostly ground mount solar projects

NABCEP Certified, PV Technical Sales (expired 2015)

Directly Managed largest ground mount solar project in PA at a college/university (2.6 MW)

Created "Ride Solar" Bike Ride to raise \$13,000 for off grid solar project in Haiti

Former Board Member Namaste Solar Foundation

UN Microgrids Working Group

SENIOR PROGRAM MANAGER-SOLAR

Boyle Associates- Portland, ME

May 2019–April 2021

Advise solar developer clients on solar project permitting strategy in Maine and serve as quarterback for all phases of development related to obtaining a permit including land selection, site control, site plan layout, interconnection studies and off-take strategy.

- Working on solar projects in Maine ranging in size from 3-50 MW
- Coordinate electrical, civil, GIS, wildlife, visual and cultural partners to spearhead permitting requirements
- Provide turn key permitting costs for projects that trigger various permitting requirements
- Advise on solar site plan layout in order to balance natural resource impacts and overall system footprint
- Meet with landowners on behalf of solar developers

NORTHEAST PROJECT DEVELOPER

Namaste Solar- Portland, ME

June 2018–April 2019

Execute early and late-stage development strategy to build a pipeline of self-originated projects to either sell at NTP, or to bring the project to COD alongside Namaste Solar EPC Operations Team.

- Site origination via desktop survey and site walks
- Work with local towns on approvals and permitting including public presentations during planning board meetings
- Conduct state-specific solar policy research
- Site plan design and layout strategy optimized for buildability
- Negotiate PPA and off-take agreements
- Coordinate natural resource surveys with local partners

NORTHEAST REGIONAL OPERATIONS MANAGER

Namaste Solar- Portland, ME

April 2016–June 2018

Streamlined EPC operations in the Northeast with a focus on identifying key project partners and building projects in remote locations throughout New England, New York, and Pennsylvania.

- Living in Maine, led a team of four people that managed \$30MM portfolio of utility-scale solar project construction over 3 years
- Managed successful, complex interconnection strategies that require collaboration with utilities, engineers, contractors, landowners, and environmental professionals
- Negotiated contracts with subcontractors
- Monitored schedules and budgets during construction across multiple projects

EDUCATION

Bachelor of Arts

Gordon College- Wenham, MA

altMBA

Seth Godin's intensive business course for entrepreneurs and change-makers

RECOMMENDATIONS ON LINKEDIN

David Starbuck

"Chris loves his job and cares about solar as much as he cares about his customers. He is a strong leader with a rare balance of humility and industry-leading expertise. I appreciate how he speaks highly of his staff and values their input."

Laurie Lanser

"Chris is a highly motivated team player within our company. He works very well with people and is very knowledgeable. Chris thinks quickly on his feet to solve problems and has a great vision for the future. I believe Chris would be an asset to any company that he is involved with."

Mike Newman

"After leaving ASI, I have continued to work with Chris on legislative issues and other PASEIA business; his positive attitude and work ethic have continued to prove himself to be an asset in PASEIA's solar lobby efforts."

CEO

Advanced Solar Industries- New Holland, PA

February 2013-April 2016

Drove business development activities and oversaw strategic planning activities related to all grid-tied and off-grid solar projects.

- Increased revenue of organization in 2015 by 90% compared to the previous year, growing the company from a residential group to a commercial/industrial capable installation EPC
- Monitored project profitability, inventory management, and sales tracking
- Closed the company's largest solar project in its 10-year history: 2.6 MW. This is the largest ground mount solar project at a university in Pennsylvania

DIRECTOR OF SALES AND MARKETING

Advanced Solar Industries- New Holland, PA

January 2011-February 2013

Trained internal sales team, and closed commercial and residential sales leads. This role evolved out of an initial public-facing job role called Creative Relations Director.

- Generated sales leads and trained sales staff
- Implemented new CRM for improved sales process tracking
- Drafted and submitted press releases to local, regional, and national media sources
- Interfaced with lobbying staff at PASEIA to promote pro-solar policy

DIRECTOR OF INTERNATIONAL PROJECTS

Advanced Solar Industries- New Holland, PA

January 2011-April 2016

Developed and built meaningful projects for non-profit organizations operating in countries with unreliable grid power.

- Managed solar project construction in Haiti and Kenya
- Organized local bike ride called Ride Solar to raise capital for the off-grid solar project in Haiti
- Consulted for Partners in Health on solar projects across their nine medical facilities in Haiti
- Participated in UN Microgrids Working Group

SOLAR FIELD INSTALLER

Advanced Solar Industries- New Holland, PA

June 2010-January 2011

- Performed field-based electrical and mechanical installation of racking, modules, inverters and DAS
- Comfortable working outside on pitched roof, flat roof, and ground mount project types
- Performed work to OSHA safety standards

ENGLISH TEACHER/INSTRUCTIONAL SUPPORT TEACHER

Brewster Academy- Wolfeboro, NH/ 2005-2010

- Taught high school sophomore students descriptive writing skills, textual analysis strategies, and grammar

FUN

Mountain Biking

Backcountry Skiing

Rock Climbing

Woodworking

Building Science and Passive House

Steve Knapp, PWS, LSE

Biodiversity Research Institute, Portland ME
Telephone: (207) 570-9462
Email: steve.knapp@brienvironmental.org



BRI Position: Senior Environmental Scientist – with over 18 years’ experience specializing in wetland delineations, wetland habitat assessments, vernal pool identification and assessments, stream assessments, and permitting. Project work includes designing, implementing, and monitoring wetland restoration/ mitigation projects, stream restoration projects, and invasive species management. Also performs wetland functional and wildlife habitat assessments, environmental permitting, botanical inventories, stream surveys, terrestrial and aquatic invertebrate surveys, and amphibian surveys.

Education: 2004 B.S., University of Maine, Wildlife Ecology, concentration in conservation biology

Notable Projects: (over 35,000 acres of natural resource delineation surveys performed)

2019-Present **Three Corners Solar Project** (~900 Acres)

Senior Consultant responsible for providing oversight of natural resource surveys and conducting agency consultation for the Three Corners project in Maine.

2019-2021 **Maine Small Site Solar Due Diligence** (~1,000 Acres)

Senior Consultant performing wildlife, wetland, and permitting consulting services for 13 various solar sites throughout Maine.

2019 **Barefoot and Broadhead Solar** (~200 Acres)

Senior Consultant responsible for managing the State and Federal permitting including the preparation of an Environmental Assessment (EA) for the Federal Aviation Administration (FAA).

2018 **Horseshoe Wind Project** (200 Acres)

Senior Project Scientist responsible for completing natural resource surveys and agency consultation for a proposed wind project in Rumford, Maine.

2011 **Bingham Wind Project** (~900 Acres)

Senior Project Scientist responsible for completing natural resource surveys a proposed wind project in Bingham, Maine.

Selected Publications:

Knapp, S., M. Bernier, B. Lake, J. Burrows, D. Kircheis, T. Trinko Lake. 2011. West Winterport: A Successful Dam Removal and Habitat Restoration Case Study. Maine Water Conference. Augusta, Maine. March 16, 2011.

Kircheis, D., T. Trinko, M. Bernier, M. Philips, **S. Knapp**, J. Austin. 2012. A Systematic Approach to Improve Fish Passage at Dams Necessary for Recovery of Endangered Atlantic Salmon. Maine Water Conference.

Certifications and Professional Affiliations:

Licensed Site Evaluator 376

Professional Wetland Scientist 2231

Vernal Pool Technical Committee member and Past Secretary, Maine Association of Wetland Scientists

Maine Chapter of The Wildlife Society

Merrill Read

Biodiversity Research Institute, Portland ME
Telephone: (414) 758-7319
Email: merrill.read@brienvironmental.org



BRI Position: Project Manager – Merrill Read is an Environmental Scientist and Project Manager with over three years of experience in the environmental consulting industry. Competent in a variety of roles, she specializes in wetland delineation, vernal pool surveys, stream surveys, environmental impact assessments, invasive species monitoring, erosion and sediment control inspection, reporting, and project permitting and due diligence. She has led delineations of over 6,000 acres throughout the northeast and been fundamental in permitting projects for nationally ranked solar development companies.

An effective communicator with a strong attention to detail and organization, she focuses on addressing client satisfaction through consistency and execution by engaging with various stakeholders in the project development and construction life cycles including landowners, engineers, municipal officials, and state and federal agencies.

Education: 2019 B.A., Colby College, Geology, Creative Writing

Recent Experience:

2022-Present **Project Manager**, *Biodiversity Research Institute*
2021-2022 **Environmental Scientist**, *Biodiversity Research Institute*
2019-2021 **Environmental Scientist**, *Boyle Associates*
2018 **Intern**, *Bat Conservation International*

Notable Projects: (over 15 grid-scale solar projects and 60 natural resource delineation surveys preformed)

- 2021-2022** **ReneSola** (Mars Hill Solar Project)
Field Lead on wetland delineations and vernal pool surveys for 2.6-megawatt solar facility in Mars Hill. Responsible for creating a culture of safety, diligently collecting field data, setting field crew expectations, assisting in environmental impact studies, and performing QA/QC of delineated resources mapping and field data forms. Key in permitting the project at the municipal, state, and federal level as well as producing project schedules and timelines.
- 2020-2021** **Longroad Energy** (~2,500 Acres)
Conducted natural resources and vernal pool surveys across 25 potential solar sites throughout Maine, adding up to approximately 50 MW AC. Reported and consolidated data for each project and assisted in permitting them at the local level.
- 2020** **Walden Renewables** (three grid-scale solar projects totaling 42 MW)
Responsible for the natural resources delineation, vernal pool surveys, and development of Site Location of Development Act (SLODA), Natural Resources Protection Act (NRPA) permit applications, and municipal permit applications.
- Sanford Solar development 20 MW Gravel pit and landfill
 - Wells Gravel Pit Solar 5 MW Gravel pit development
 - Fryeburg Solar 17 MW Forested development

Certifications and Professional Affiliations:

MDEP Erosion and Sediment Control Certified Inspector No. 3555
OSHA 40 Hour HAZWOPER
Member Maine Association of Wetland Scientists, Program Committee Member



Berry, Huff, McDonald, Milligan Inc.

STEVEN J. BLAKE, PE #11695

Steve has 17 years of experience in both public and private sector infrastructure planning, design, permitting and construction administration. His expertise includes site design, utility design, stormwater management design, local permitting, and environmental permitting for municipal, institutional, and commercial projects.

The following is a list of recent projects worked on by Steve:

- City of Biddeford
Hills Beach Road Reconstruction
Main Street Sewer Separation
Mile Stretch Road Reconstruction
- Town of Dayton
Buzzell Road Stream Crossing &
Stream Crossing Public Infrastructure Grant Application
- Town of Arundel
Old Alfred Road Roadway Reconstruction
Downing Road Stream Crossing &
Stream Crossing Public Infrastructure Grant Application
Limerick/Brimstone Road Intersection Realignment
- Town of Kennebunk
Route 1 South Pump Station and Sewer Extension
Lower Village Improvement Project Streetscape Design
Alfred Road Reconstruction
- Town of York
Bog Road Athletic Field Facility
(Land and Water Conservation Fund (6f) Project)
Mt. Agamenticus Visitor Center Master Planning

Other Relevant Project Experience

- Idexx Synergy Center Infrastructure Design & Permitting
- Gorham Elementary School Infrastructure Design & Permitting
- Mt. Blue Learning Center Infrastructure Design & Permitting
- Bingham Wind Project Infrastructure Design & Permitting
- Oakfield Wind Project Infrastructure Design & Permitting

Steven J. Blake, P.E.
Senior Engineer
Project Manager

EDUCATION

The University of
New Hampshire
Durham, New Hampshire
2001
- B. S. Civil Engineering

PROFESSIONAL BACKGROUND

Senior Engineer
BH2M - Gorham, ME
2014 - Present

Maine Licensed Engineer
since 2008
PE #11695

Maine DOT Certified
Local Project Administrator

28 State Street Gorham, Maine 04038 (207) 839-2771



Berry, Huff, McDonald, Milligan Inc.

ROBERT C. LIBBY, JR. PLS #2190

Bob has worked for BH2M for over 34 years with experience in both the public and private sector working throughout York, Cumberland, Oxford & Androscoggin Counties. His experience includes Boundary Survey, ALTA Surveys, Road Projects, Site Topography, As-Built Surveys and Construction Layout Surveys.

The following is a list of recent projects worked on by Bob:

- Town of Lyman Hill Street
Topography for Road Redesign
- Town of Old Orchard Beach Ross Road
Topography for Eastern Trail Connection
- Town of Standish Cargill Lot Beach Project
Boundary and Topographic Survey
- Route 25 & Oak Hill Road Intersection Relocation
and Sidewalk Project, for Town of Standish
- Town of York Public Safety Building Topography &
Boundary Survey
- Town of Limington Salt Shed & Boundary Survey
- Town of Standish, Route 25 and Oak Hill Road
Improvement Project Boundary & Topographic Survey
- Town of Gorham
Village Square Sidewalk Design
- Town of Gorham
Topography for design of 1.6 miles of recreational pedestrian
& bike trail along a discontinued railroad bed
- Idexx Synergy Center - Phase 2

Robert C. Libby, Jr.
Professional Land Surveyor
PLS #2190

REGISTRATION

Professional Land Surveyor
Maine #2190
Licensed since August 1990

EDUCATION

B.S. Forestry Management/
Recreational Park Management
University of Maine 1982

PROFESSIONAL SOCIETIES

Maine Society of Land Surveyors
President 2009 - 2011

Narragansett Chapter
Former President &
Current Treasurer

PROFESSIONAL BACKGROUND

Survey Party/Chief
Engineering Technician
BH2M Gorham, Maine
1985 - 1993

Survey Department Head
BH2M Gorham, Maine
1993 - Present

28 State Street Gorham, Maine 04038 (207) 839-2771



Berry, Huff, McDonald, Milligan Inc.

CHRISTOPHER R. MacDONALD, PE #11985

Chris has 17 years of experience in road and highway design, dam relicensing, design and construction, feasibility studies, wind power development, municipal water, sewer and stormwater projects. As well as commercial land development and general site design and permitting.

The following is a list of recent projects worked on by Chris:

- Saxon Partners
Site Design & Permits
250 Residential Apartment Units
Biddeford, Maine
- Campground Expansion
SeaCoast RV
Old Orchard Beach, Maine
- McIntire Woods
121 Single Family Unit Clyster Style Development
York, Maine
- 82 Ocean Ave.
Design & Permitting for Shoreline Stabilization
Kennebunk, Maine
- Massachusetts Department of Transportation
Add-a-Lane Widening Project
Needham and Newton, Massachusetts
- Number 9 Wind Farm
Preliminary road layout, tower layout & grading for wind farm
Bridgewater, Maine
- Vermont Community Wind Farm
Preliminary layout, design & permitting of the 80 MW Project
Rutland, Vermont

Christopher R. MacDonald
Professional Engineer

EDUCATION

The University of
New Hampshire
Durham, New Hampshire
2001
- B. S. Civil Engineering

PROFESSIONAL BACKGROUND

Professional Engineer
BH2M - Gorham, ME
2018 - Present

Maine Licensed Engineer
since 2009
PE #11985

Maine DOT Certified
Local Project Administrator

American Society of
Civil Engineers (ASCE)
Maine Section, Member

OSHA 40-hour HAZWOPER
General On-Site Staff Cert.

OSHA 10-hour Construction
Safety and Health Course

OSHA 8-hour Hazardous Waste
Operations Supervisor Training



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Ian.Jewkes@KrebsandLansing.com

IAN A. JEWKES, P.E., L.L.S.

Principal

Mr. Jewkes joined Krebs and Lansing in 1984 and became owner in 2002. Mr. Jewkes has worked on a variety of civil engineering designs, permitting, and construction services for many renewable energy, commercial, industrial, residential, and institutional civil site design projects. Mr. Jewkes is well established and provides expert knowledge in civil engineering site and stormwater design, utility, and surveying.

Mr. Jewkes is well versed in the coordination of permit applications at City & State levels, including various levels of local planning. He has extensive experience with renewable energy projects with hundreds of megawatts of electrical generation capacity. He has provided testimony for numerous regulatory hearings for project review.

EDUCATION

Civil Engineering, University of Vermont

Burlington, Vermont

Bachelor of Science, 1984

PROFESSIONAL LICENSES

Registered Professional Engineer, State of Vermont #7200

Licensed Land Surveyor, State of Vermont #639

State of Vermont ANR Licensed Designer

EMPLOYMENT HISTORY

Senior Engineer, Licensed Land Surveyor & Partner, 2002 – Present

Krebs & Lansing Consulting Engineers, Inc.

Colchester, Vermont

Professional Civil Engineer & Licensed Land Surveyor, 1984 – 2002

Krebs & Lansing Consulting Engineers, Inc.

Colchester, Vermont

PROFESSIONAL ORGANIZATIONS

Vermont Society of Professional Land Surveyors



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Evan.Moreau@KrebsandLansing.com

EVAN J. MOREAU, E.I.

Staff Engineer

Mr. Moreau joined Krebs and Lansing just before graduating from the University of Vermont and received his Engineer Intern certification in August of 2018. Mr. Moreau has worked on a variety of civil engineering designs, permitting, and construction services for many renewable energy, commercial, industrial, residential, and institutional civil site design projects. These projects include the design of roads, construction access roads, solar arrays, production modeling, water/wastewater systems, stormwater treatment systems and site grading and erosion control measures.

Mr. Moreau has extensive experience in AutoCAD Civil 3D to produce existing condition plans, grading plans, ALTA/NSPS survey plans, and construction as-built plans. Mr. Moreau can also use his experience surveying with GPS and Total Station units to perform topographic surveys, construction layouts, as-built locations and utility investigations.

EDUCATION

Environmental Engineering, University of Vermont

Burlington, Vermont

Bachelor of Science, 2018

PROFESSIONAL LICENSES

Registered Engineer Intern, State of Vermont #017.0134152

EMPLOYMENT HISTORY

Staff Engineer, 2018 – Present

Krebs & Lansing Consulting Engineers, Inc.

Colchester, Vermont

Technician, 2018

Krebs & Lansing Consulting Engineers, Inc.

Colchester, Vermont

Water Resources Engineering Intern, 2017-2018

Milone & MacBroom, Inc.

Waterbury, Vermont

ATTACHMENT 7-C

**Gorham Savings Bank
Letter of Financial Capability**



March 10, 2022

Town of North Yarmouth
Code Enforcement Office/Planning Board
10 Village Square
North Yarmouth, Maine 04097

RE: Proposed 238 Sweetser Road Solar Project

To Whom It May Concern:

Water line Solar LLC and Branch Renewable Energy are established customers of Gorham Savings Bank.

Based on the initial review of the information provided by Waterline Solar LLC and Branch Renewable Energy (Christopher Byers) has the adequate experience, expertise, financial acumen, and ability to successfully develop and complete the proposed solar project located at 238 Sweetser Road, North Yarmouth, Maine.

Should you need further information or clarification, please contact me at (207) 221-8428.

Thank you.

Sincerely,

David N. Moravick
Vice President – Commercial Services

ATTACHMENT 8

Natural Resources Report

Natural Resources Report

North Yarmouth Solar Project



Prepared by BRI Environmental

February 2022



Contents

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Exhibits

Exhibit A: Location Map

Exhibit B: Natural Resources Map

Exhibit C: Natural Resources Photographs

Exhibit D: NRCS Soils Map

Exhibit E: USACE Wetland Determination Forms

Exhibit F: Agency Correspondence

1.0 Introduction

Biodiversity Research Institute (BRI) was retained by Branch Renewable Energy (Branch Renewable) to complete regulated natural resource delineations on an approximately 100-acre survey area located off of Sweetser Road in North Yarmouth, Maine (Site). The survey area is located on one parcel and Site visits were conducted on December 9, December 10, and December 13, 2021. The survey area is shown in **Exhibit A**.

2.0 Geographic Setting

The Site is characterized by forested uplands and several forested and scrub-shrub wetlands. A review of aerial photos shows that logging activity has been common in recent decades. The southwestern site boundary abuts an active agricultural field as well as sparse residential development along Sweetser Road. Several inactive gravel pits abut the property to the northwest and a railroad abuts the eastern boundary. The nearest waterbody is the Royal River, located approximately 0.5 miles to the east.

The Site falls within the US Environmental Protection Agency's (EPA) Eco-region of the Gulf of Maine Coastal Lowland within the Northeastern Coastal Zone. The EPA's description of the region is as follows:

The Gulf of Maine Coastal Lowland ecoregion is a 10- to 20-mile wide coastal strip, stretching from Casco Bay in Maine to Plymouth Bay in Massachusetts. It is mostly an arcuate embayment type of coast, a different form from coastal ecoregions Midcoast and Downeast Coast to the northeast. Extensive glacial sand, silt, and clay deposits blanket this region, with a coastal pattern typified by plutonic capes and intervening sand beaches that front the region's largest salt marshes. The ecoregion has relatively low relief, and elevations are mostly from sea level to 250 feet. Mt. Agamenticus, west of Ogunquit, Maine, is the atypical high spot at 691 feet. Bedrock geology consists mostly of metasedimentary rocks, intruded by several Paleozoic and Mesozoic plutonic bodies. Soils have a mesic temperature regime in most of the region, although frigid soils occur in the Maine portion. The vegetation mosaic includes white oak and red oak forests, some isolated chestnut oak woodlands, extensive post-settlement white pine, pitch pine in sandy areas, pitch pine bogs, some Atlantic white cedar swamps, red maple swamps, and Spartina saltmarsh. The vegetation contains some southern hardwood species (e.g., shagbark hickory, flowering dogwood, and chestnut oak) that reach the northern limit of their range within this ecoregion. There are also some subarctic maritime species that reach their southern limit in Ecoregion Gulf of Maine Coastal Lowland, such as crowberry, golden heather, and oysterleaf. The region's forests and farm are being rapidly converted to residential developments and bedroom communities of larger nearby cities.¹

¹ Ecoregions of New England http://ecologicalregions.info/data/vt/new_eng_front.pdf

3.0 Methods

Prior to the initial Site visit, BRI conducted a desktop review of publicly available data, which included the National Wetlands Inventory (NWI)², Natural Resources Conservation Service (NRCS) Soil Survey³, Beginning with Habitat data (BWH)⁴, topographic maps, and aerial photos. A vernal pool survey and natural resources survey were completed to formally map resources on Site using the methodologies described below. These methods represent the current standard of practice for the delineation of regulated natural resources.

3.1 Wetland Delineation

Wetlands on the Site were delineated according to the survey techniques described in the *1987 US Army Corps of Engineers Wetland Delineation Manual*⁵ and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, v2.0*⁶. In areas where evidence of hydrology or hydrophytic plants were observed, samples of the soil profile were taken to further investigate evidence of saturated conditions within the upper part of the soil profile. Survey flags were hung along the wetland-upland boundaries. The flags were labeled with a unique alpha-numeric code and sequence denoting the resource type, delineator initials, wetland identification number, and flag number (e.g., W-MR-01-1, W-MR-01-02 etc.).

3.2 Stream Identification

The survey area was reviewed for conditions that meet the definition of river, stream, or brook. Features mapped meet the definition described in Article 5-A of the Natural Resource Protection Act (NRPA)⁷. Where streams less than 6 feet in bank width were identified, survey flags were hung along the centerline of the stream. For streams with bank width equal to or greater than 6 feet, both banks (i.e., the ordinary high-water mark) of the stream were flagged. Flags were labeled with a unique alpha-numeric code and sequence denoting the resource type, delineator initials, stream identification number, and flag number (e.g., S-MR-01-1, S-MR-01-2 etc.).

3.3 Vernal Pool Survey

During the natural resources survey, potentially significant vernal pool surveys were completed based on methodologies described in detail in the *April 2014 Maine Association of Wetland Scientists Vernal Pool Technical Committee Vernal Pool Survey Protocol*⁸. Chapter 335 of the Maine Department of Environmental Protection (MDEP) NRPA includes the following definition of a vernal pool:

² U.S. Fish and Wildlife Service National Wetland Inventory Mapper <https://www.fws.gov/wetlands/data/mapper.html>

³ U.S. NRCS Web Soil Survey <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

⁴ Maine Beginning with Habitat Online Mapper <https://webapps2.cgis-solutions.com/beginningwithhabitat/>

⁵ US Army Corps of Engineers Wetland Delineation Manual (1987)
<https://www.nae.usace.army.mil/Portals/74/docs/regulatory/JurisdictionalLimits/wlman87.pdf>

⁶ US Army Corps of Engineers *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, v2.0*
<https://www.nae.usace.army.mil/Portals/74/docs/regulatory/JurisdictionalLimits/RegionalSupplement2012.pdf>

⁷ Natural Resource Protection Act, Maine Statute Title 38, Chapter 3, subchapter 1, Article 5-A, §480-B
<http://www.mainelegislature.org/legis/statutes/38/title38sec480-B.html>

⁸ Maine Association of Wetland Scientist 2014 Vernal Pool Survey Protocol <http://mainewetlands.org/vptc>

*“A vernal pool, also referred to as a seasonal forest pool, is a natural, temporary to semi-permanent body of water occurring in a shallow depression that typically fills during the spring or fall and may dry during the summer. Vernal pools have no permanent inlet or outlet and no viable populations of predatory fish. A vernal pool may provide the primary breeding habitat for wood frogs (*Rana* [*Lithobates*] *sylvatica*), spotted salamanders (*Ambystoma maculatum*), blue-spotted salamanders (*Ambystoma laterale*), and fairy shrimp (*Eubranchipus* sp.), as well as valuable habitat for other plants and wildlife including several rare, threatened, and endangered species. A vernal pool intentionally created for the purposes of compensatory mitigation is included in this definition.”*

The field surveys completed by BRI were completed outside of the recommended period for vernal pool egg mass surveys (mid-April through late May) and therefore features that exhibited the characteristics of a vernal pool were flagged at the approximate center point and located with a GPS device and identified as a potential vernal pool.

3.4 Function and Values

BRI preliminarily evaluated wetland functions and values using the U.S. Army Corps of Engineers (USACE) Highway Methodology⁹. Functions and values are assessed based on a descriptive approach and characteristics observed within the field as well as a review of pertinent desktop and publicly available information. Functions and values are assigned either a Principal or Secondary function based on the assessment of the wetland to provide functions and values at high levels.

4.0 Results

Field surveys were completed on December 9, December 10, and December 13, 2021. Weather at the time of the survey ranged from cloudy to overcast with a dusting of snow on the ground. Temperatures ranged from 25° to 15° F. **Exhibit B** includes the natural resources mapped on Site and **Exhibit C** includes photographs of mapped natural resources. The NRCS soil survey is included as **Exhibit D**.

4.1 Upland Habitats

Upland habitats on the Site are dominated by forestland that is characteristic of the Gulf of Maine Coastal Lowland region. Overstory vegetation was not dense as recent tree harvesting activities has taken place, but uplands were dominated by white pine (*Pinus strobus*), red oak (*Quercus rubra*), red maple (*Acer rubrum*), American beech (*Fagus grandifolia*), eastern hemlock (*Tsuga canadensis*), and green ash (*Fraxinus pennsylvanica*). Shrub vegetation was scarce in portions of the Site and it consisted of primarily overstory species, paper birch (*Betula papyrifera*), and marrow’s honeysuckle (*Lonicera morrowii*). Herbaceous vegetation includes Oriental bittersweet (*Celastrus orbiculatus*), Christmas fern (*Polystichum acrostichoides*), and wood fern (*Dryopteris*

⁹ USACE Highway Method

<https://www.nae.usace.army.mil/Portals/74/docs/regulatory/Forms/HighwaySupplement6Apr2015.pdf>

spp.). Overall the landscape was dominated by areas of sloped hillside topography with a steep hill, likely caused by the gravel operation, northwest of the access road.

Soils on the Site are varied, with six soil types comprising approximately 88 percent of the Site. Three soils are most common onsite: Hinckley loamy sand, Lamoine silt loam, and Gravel pits. Hinckley loamy sand is a very deep, excessively drained soil formed in glaciofluvial materials on outwash terraces, plains, deltas, kames, kame terraces, and eskers. Lamoine silt loam is a somewhat poorly drained soil formed in glaciolacustrine or glaciomarine deposits on coastal lowlands and river valleys. Several gravel pits are found on site, these soils are excessively drained as they are mostly sand and gravel deposits. Representative upland soils on Site are characterized generally by 0-10" of 10 YR 4/3 silt loam and 10-20" of 2.5Y 5/2 silt loam. Photo 1 and 2 shows representative views of upland habitats on the Site.



Photo 1. Representative view of the upland forest on Site.



Photo 2. Representative view of regenerating upland forest on Site.

4.2 Wetland Habitats

Nine wetlands were delineated on the Site, totaling approximately 10 acres of the survey area. Wetland W-MR-06 is the largest wetland on Site and is predominantly scrub-shrub with forested portions. Forested wetlands on site have an overstory that consists of red maple, black ash, eastern hemlock, and yellow birch (*Betula alleghaniensis*). Scrub shrub dominated wetlands include overstory species as well as speckled alder (*Alnus incana*), winterberry (*Ilex verticillata*), highbush blueberry (*Vaccinium corymbosum*), Japanese barberry (*Berberis thunbergii*), and Marrow's honeysuckle. Herbaceous vegetation includes cinnamon fern (*Osmunda cinnamomea*), sensitive fern (*Onoclea sensibilis*), lamp rush (*Juncus effusus*), fringed willow herb (*Epilobium ciliatum*), fringed sedge (*Carex crinita*) and wrinkled golden rod (*Solidago rugosa*).

The hydric soil indicator within these wetlands is typically a depleted matrix. Representative soils on Site are characterized generally by 0-4" of 10YR 4/3 silt loam, 4-16" of Gley 1 4/10Y with redoximorphic features of 10YR 4/2 concentrations within the matrix, and 16+ Gley 1 4/5GY with redoximorphic features of 10YR 4/4 at 15% concentrations within the matrix. Photo 3 and 4 show representative views of wetland habitats identified on the Site. USACE Wetland Determination Forms are provided in **Exhibit E**. Table 1 includes a summary of information of each mapped wetland on Site.



Photo 3. Representative view of a forested and scrub/shrub wetland on Site (W-MR-06).



Photo 4. Representative view of a forested wetland on Site (W-MR-04).

Table 1. North Yarmouth Wetland Summary Table

Wetland ID	Wetland Type ¹⁰	Wetland of Special Significance	Acreage
W-MR-01	PSS/PFO	No	0.08
W-MR-02	PSS	No	0.03
W-MR-03	PSS	No	0.03
W-MR-04	PFO	No	0.17
W-MR-05	PSS	No	2.1
W-MR-06	PSS	No	7.87
W-MR-07	PSS	No	0.03
W-MR-08	PSS/PFO	No	0.07
W-MR-09	PSS/PFO	No	0.16
Total			10.54

4.3 Streams and Aquatic Habitats

No streams and other aquatic habitats were identified on Site.

4.4 Vernal pools

Although field surveys were completed outside of the amphibian breeding season, no depressional areas were identified that would support vernal pool breeding amphibians. As a result, no potential vernal pools were identified on Site.

4.5 Wildlife

The survey area includes both upland and wetland habitats, which are likely to be utilized by a wide variety of birds and wildlife. Based on the proximity of residential development, most wildlife present are likely habitat generalists which are accustomed to disturbance. Species such as white-tailed deer (*Odocoileus virginianus*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), red squirrel (*Sciurus vulgaris*), porcupine (*Erethizon dorsatum*), and red fox (*Vulpes vulpes*) are likely all present within the Site.

It is also possible that bat species may be present during the breeding and pupping season at the Site. This is based on the habitat on and adjacent to the Site, which includes large-diameter trees for roosting and breeding. Herptiles onsite likely include common species such as the common garter snake (*Thamnophis sirtalis*), which are likely in forested areas and edge habitats.

A wide variety of bird species are likely present, examples include Chickadee (*Poecile atricapillus*), European Starling (*Sturnus vulgaris*), White throated Sparrow (*Zonotrichia albicollis*), Bobolink (*Dolichonyx oryzivorus*), Downy Woodpecker (*Picoides pubescens*), and Partridge (*Bonasa umbellus*).

¹⁰ PFO-Palustrine Forested Wetland, PSS-Palustrine Scrub-Shrub Wetland, PEM-Palustrine Emergent Wetland, PUB-Palustrine Unconsolidated Bottom Wetland

5.0 Functions and Values

BRI preliminarily evaluated wetland functions and values using the USACE Highway Methodology. Functions and values are assessed based on characteristics observed within the field as well as a review of pertinent desktop and publicly available information. All the wetlands on the Site are adjacent to areas of development, and as such, principal functions for wetlands on the Site are related to water quality improvements. Important functions provided by all wetlands on the Site include sediment and toxicant retention and nutrient removal and retention. All wetlands provide wildlife habitat, as evidenced by wildlife signs (i.e., tracks and scat) as well as observations of wildlife. Wetland services (i.e., visual quality, education, or aesthetics) on Site are limited as the wetlands occur on privately owned property, and therefore public access is limited.

6.0 Agency Consultation

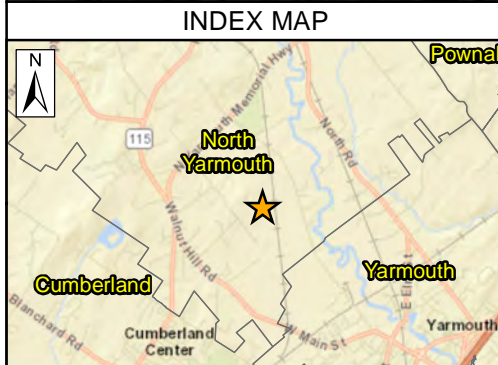
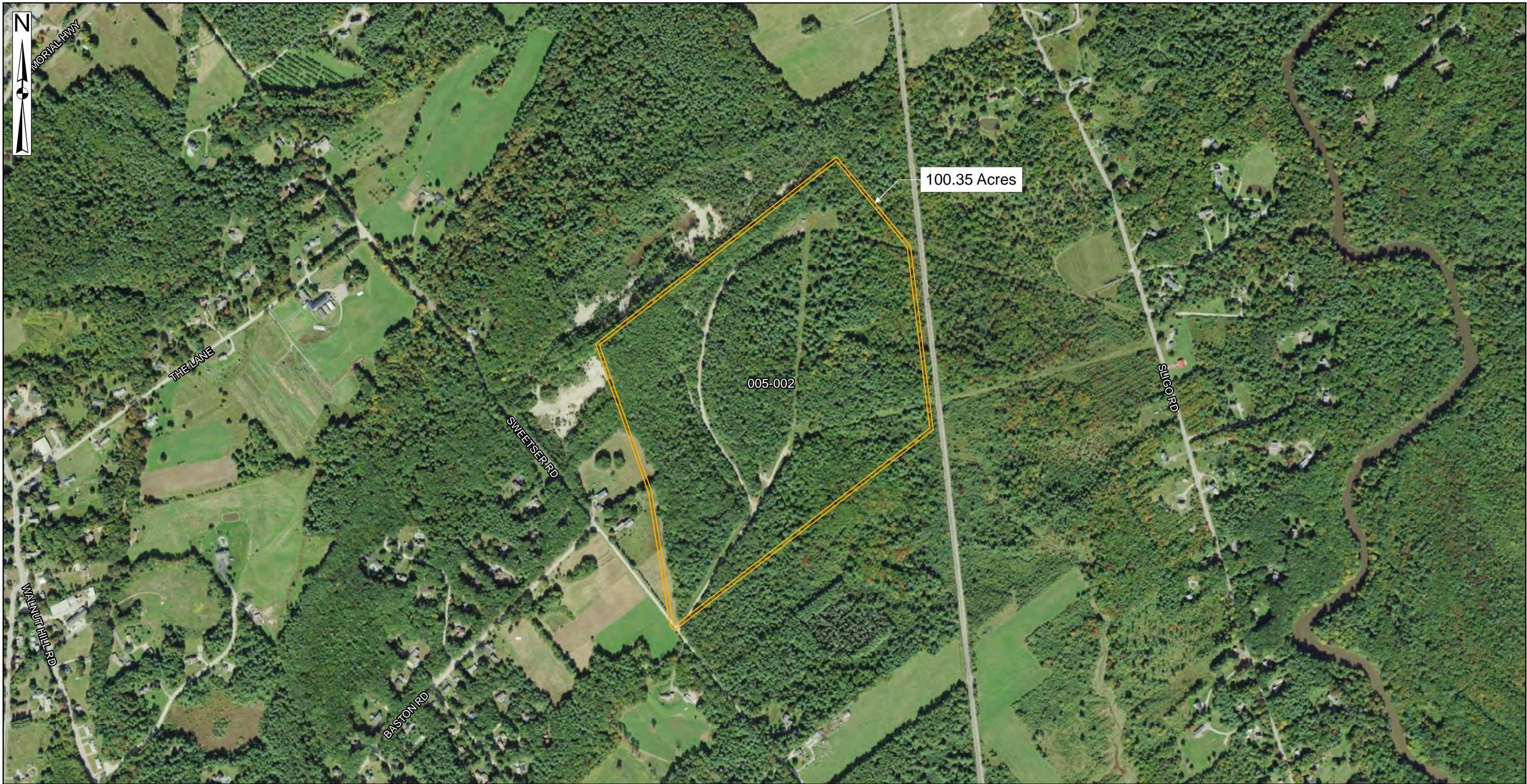
Inquiry letters were sent to the Maine Department of Inland Fisheries and Wildlife (MDIFW) and the Maine Natural Areas Program (MNAP) on December 15, 2021 to identify any rare, threatened, or endangered species within the Site.

MNAP responded on December 15, 2021 and stated there are no rare botanical features documented specifically within the Project Site. MDIFW responded on January 20, 2022 and stated that they have not mapped any essential habitats that would be directly affected by the project. However, based on historical evidence, the MDIFW believes that several of the bat species occur within the project area during the fall/spring migration, the summer breeding season and/or for overwintering. These responses are located in **Exhibit F**.

7.0 Discussion

The eastern portion of the parcel is dominated by hillslope wetlands with the largest wetland, W-MR-06, comprising approximately 8 acres. Of the nine wetlands identified on Site, none of them are partially or entirely considered Wetlands of Special Significance (WOSS). No potential vernal pools or streams were identified on Site. The uplands in the south, central and western portions of the Site are mostly located along moderate sloped hillsides, but there is a steep slope located in the western portion of the Site between the access road the gravels pits off Site.

Exhibit A:
Location Map



LEGEND

— Approximate Parcel Boundary

SCALE:

0 650 1,300 Feet

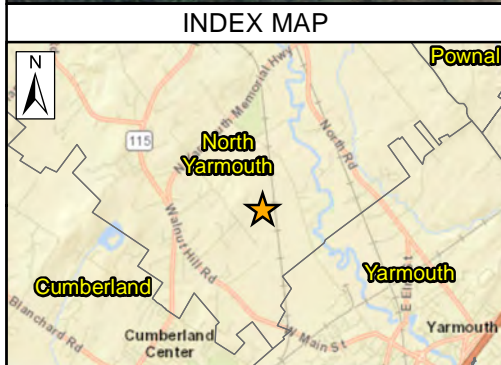
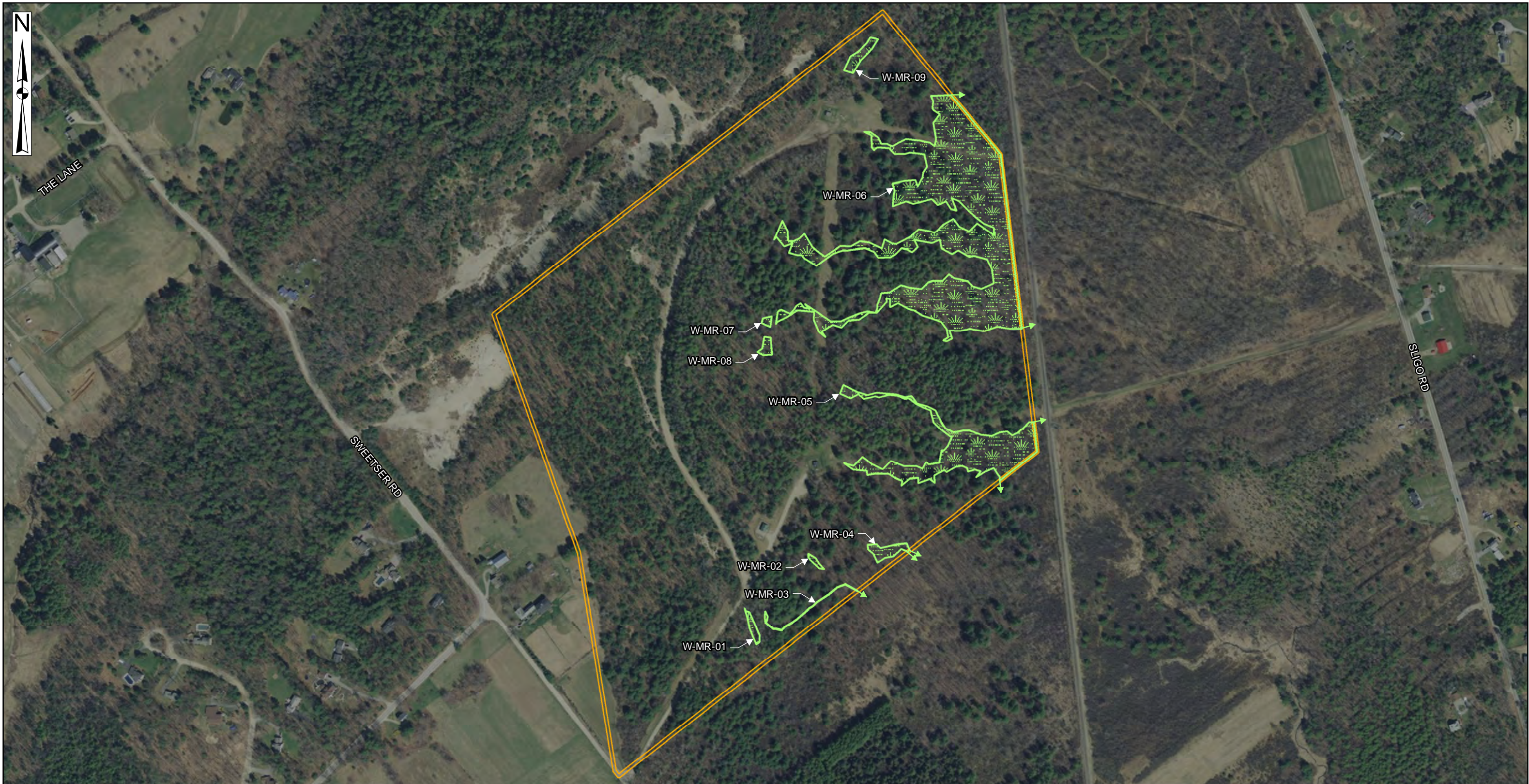
1 inch = 650 feet

PROJECT LOCATION MAP - AERIAL
NORTH YARMOUTH COMMUNITY SOLAR:
NORTH YARMOUTH, MAINE



DECEMBER 13, 2021

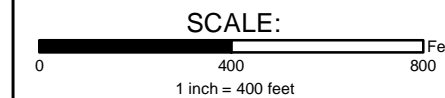
Exhibit B:

Natural Resources Map



LEGEND

-  Wetland
-  Project Survey Boundary



**NATURAL RESOURCES MAP
NORTH YARMOUTH COMMUNITY SOLAR:
NORTH YARMOUTH, MAINE**

FEBRUARY 8, 2022

Exhibit C:

Natural Resources Photographs



Photo 1. View of Wetland W-MR-01



Photo 2. View of Wetland W-MR-02



Photo 3. View of Wetland W-MR-03



Photo 4. View of Wetland W-MR-04



Photo 5. View of Wetland W-MR-05



Photo 6. View of Wetland W-MR-06



Photo 7. View of Wetland W-MR-07



Photo 8. View of Wetland W-MR-08



Photo 9. View of Wetland W-MR-09



Photo 12. View of representative Uplands



Photo 13. View of representative Uplands



Photo 14. View representative Uplands

Exhibit D:
NRCS Soil Report



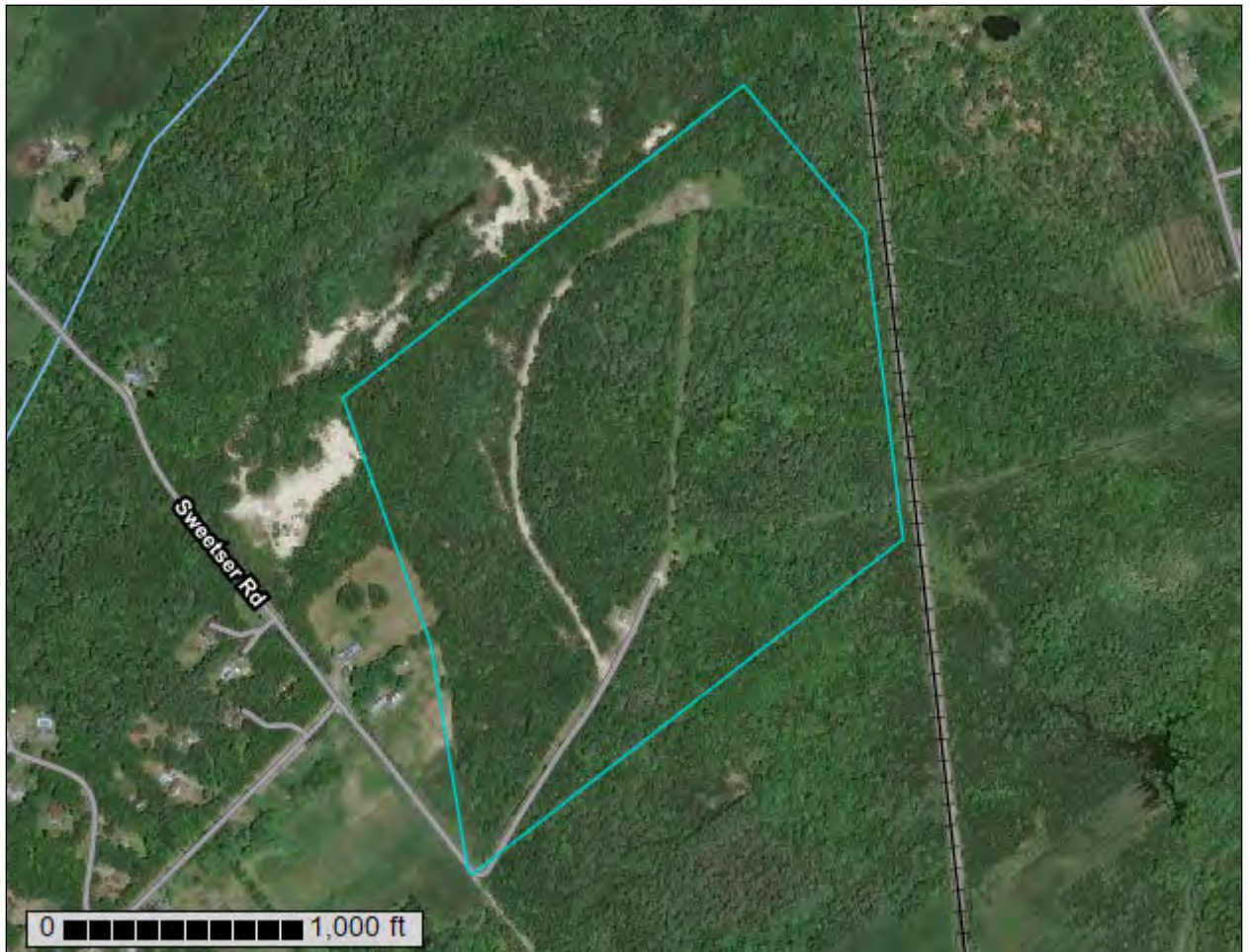
United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Cumberland County and Part of Oxford County, Maine



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

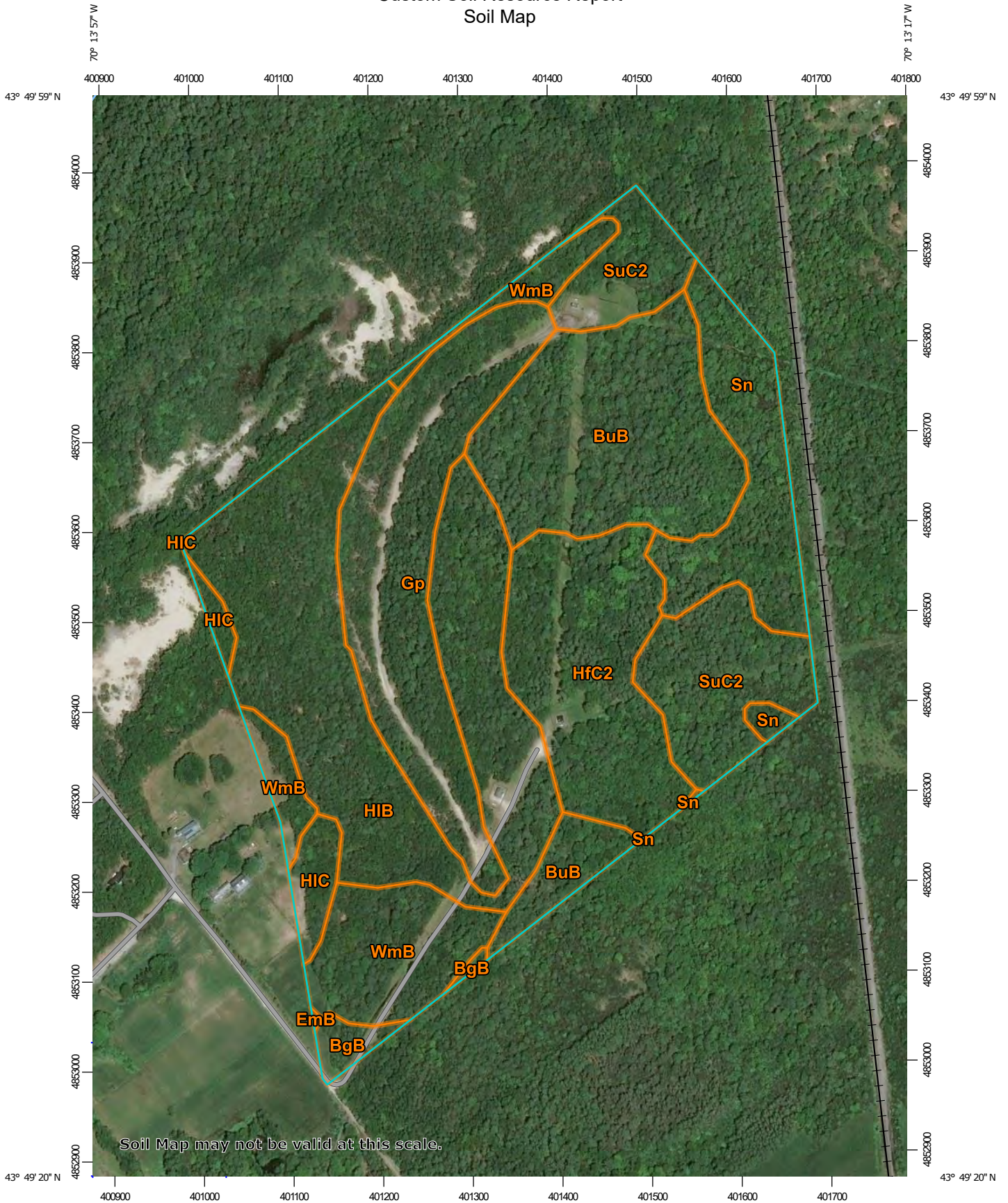
Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Soil Map may not be valid at this scale.

Map Scale: 1:5,860 if printed on A portrait (8.5" x 11") sheet.

0 50 100 200 300 Meters

0 250 500 1000 1500 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)




















Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features






-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features


Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
 Survey Area Data: Version 18, Aug 31, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 7, 2019—Jul 2, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BgB	Nicholville very fine sandy loam, 0 to 8 percent slopes	1.1	1.1%
BuB	Lamoine silt loam, 3 to 8 percent slopes	16.8	16.7%
EmB	Elmwood fine sandy loam, 0 to 8 percent slopes	0.0	0.0%
Gp	Gravel pits	15.1	15.0%
HfC2	Hartland very fine sandy loam, 8 to 15 percent slopes, eroded	12.2	12.1%
HIB	Hinckley loamy sand, 3 to 8 percent slopes	25.3	25.2%
HIC	Hinckley loamy sand, 8 to 15 percent slopes	2.0	2.0%
Sn	Scantic silt loam, 0 to 3 percent slopes	8.5	8.4%
SuC2	Suffield silt loam, 8 to 15 percent slopes, eroded	10.3	10.3%
WmB	Windsor loamy sand, 0 to 8 percent slopes	9.0	9.0%
Totals for Area of Interest		100.4	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties

and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Custom Soil Resource Report

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Cumberland County and Part of Oxford County, Maine

BgB—Nicholville very fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2yjg5

Elevation: 20 to 2,300 feet

Mean annual precipitation: 34 to 50 inches

Mean annual air temperature: 37 to 45 degrees F

Frost-free period: 90 to 160 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Nicholville and similar soils: 85 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nicholville

Setting

Landform: Lakebeds (relict)

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Coarse-silty glaciomarine deposits

Typical profile

Ap - 0 to 7 inches: very fine sandy loam

Bs - 7 to 19 inches: very fine sandy loam

BC - 19 to 30 inches: very fine sandy loam

C - 30 to 65 inches: loamy very fine sand

Properties and qualities

Slope: 0 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)

Depth to water table: About 18 to 30 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C

Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)

Hydric soil rating: No

BuB—Lamoine silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2t0kc

Elevation: 10 to 490 feet

Mean annual precipitation: 33 to 60 inches

Mean annual air temperature: 36 to 52 degrees F

Frost-free period: 90 to 160 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Lamoine and similar soils: 85 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lamoine

Setting

Landform: Marine terraces, river valleys

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Fine glaciomarine deposits

Typical profile

Ap - 0 to 7 inches: silt loam

Bw - 7 to 13 inches: silt loam

Bg - 13 to 24 inches: silty clay loam

Cg - 24 to 65 inches: silty clay

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)

Depth to water table: About 6 to 17 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: C/D

Ecological site: F144BY401ME - Clay Flat

Hydric soil rating: No

EmB—Elmwood fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: blh8
Elevation: 10 to 900 feet
Mean annual precipitation: 38 to 55 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 130 to 195 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Elmwood and similar soils: 88 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elmwood

Setting

Landform: Stream terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy glaciolacustrine deposits

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 25 inches: sandy loam
H3 - 25 to 65 inches: silty clay loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B
Ecological site: F144BY402ME - Clay Hills
Hydric soil rating: No

Gp—Gravel pits

Map Unit Composition

Gravel pits: 92 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gravel Pits

Typical profile

H1 - 0 to 6 inches: extremely gravelly sand

H2 - 6 to 60 inches: extremely gravelly sand

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Hydric soil rating: No

HfC2—Hartland very fine sandy loam, 8 to 15 percent slopes, eroded

Map Unit Setting

National map unit symbol: blhc

Elevation: 0 to 310 feet

Mean annual precipitation: 48 to 49 inches

Mean annual air temperature: 45 to 46 degrees F

Frost-free period: 150 to 160 days

Farmland classification: Not prime farmland

Map Unit Composition

Hartland and similar soils: 85 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hartland

Setting

Landform: Lakebeds

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Coarse-silty glaciolacustrine deposits

Typical profile

H1 - 0 to 9 inches: very fine sandy loam

H2 - 9 to 29 inches: silt loam

H3 - 29 to 65 inches: silt loam

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: More than 80 inches

Custom Soil Resource Report

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 11.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: B

Ecological site: F144BY508ME - Silty Slope

Hydric soil rating: No

HIB—Hinckley loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2svm8

Elevation: 0 to 1,430 feet

Mean annual precipitation: 36 to 53 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Hinckley and similar soils: 85 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Outwash plains, eskers, moraines, kame terraces, kames, outwash terraces, outwash deltas

Landform position (two-dimensional): Summit, shoulder, backslope, footslope

Landform position (three-dimensional): Nose slope, side slope, base slope, crest, riser, tread

Down-slope shape: Concave, convex, linear

Across-slope shape: Convex, linear, concave

Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material

A - 1 to 8 inches: loamy sand

Bw1 - 8 to 11 inches: gravelly loamy sand

Bw2 - 11 to 16 inches: gravelly loamy sand

BC - 16 to 19 inches: very gravelly loamy sand

C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 3 to 8 percent

Custom Soil Resource Report

Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

HIC—Hinckley loamy sand, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2svm9
Elevation: 0 to 1,480 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Hinckley and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Kame terraces, outwash plains, kames, eskers, moraines, outwash terraces, outwash deltas
Landform position (two-dimensional): Shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, riser
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand
Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Custom Soil Resource Report

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Sn—Scantic silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2slv3
Elevation: 10 to 900 feet
Mean annual precipitation: 33 to 60 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Scantic and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Scantic

Setting

Landform: Marine terraces, river valleys
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glaciomarine deposits

Typical profile

Ap - 0 to 9 inches: silt loam
Bg1 - 9 to 16 inches: silty clay loam
Bg2 - 16 to 29 inches: silty clay
Cg - 29 to 65 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches

Custom Soil Resource Report

Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: D
Ecological site: F144BY304ME - Wet Clay Flat
Hydric soil rating: Yes

SuC2—Suffield silt loam, 8 to 15 percent slopes, eroded

Map Unit Setting

National map unit symbol: blk1
Elevation: 10 to 900 feet
Mean annual precipitation: 34 to 48 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Suffield and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Suffield

Setting

Landform: Coastal plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fine glaciolacustrine deposits

Typical profile

H1 - 0 to 6 inches: silt loam
H2 - 6 to 23 inches: silt loam
H3 - 23 to 33 inches: silty clay
H4 - 33 to 65 inches: silty clay

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 18 to 30 inches

Custom Soil Resource Report

Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: F144BY402ME - Clay Hills
Hydric soil rating: No

WmB—Windsor loamy sand, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w2x2
Elevation: 0 to 1,410 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Windsor and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Windsor

Setting

Landform: Outwash terraces, deltas, outwash plains, dunes
Landform position (three-dimensional): Tread, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Loose sandy glaciofluvial deposits derived from granite and/or loose sandy glaciofluvial deposits derived from schist and/or loose sandy glaciofluvial deposits derived from gneiss

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loamy sand
Bw - 3 to 25 inches: loamy sand
C - 25 to 65 inches: sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Custom Soil Resource Report

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: A

Ecological site: F144BY601ME - Dry Sand

Hydric soil rating: No

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Custom Soil Resource Report

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Exhibit E:

USACE Wetland Determination Forms

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: North Yarmouth Solar Project City/County: North Yarmouth Sampling Date: 12/13/2021
 Applicant/Owner: Branch Renewable Energy State: ME Sampling Point: PLOT-W-MR-06-UP
 Investigator(s): Merrill Read Section, Township, Range: North Yarmouth
 Landform (hillside, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 6
 Subregion (LRR or MLRA): LRR R Lat: 43.829251 N Long: 70.224661W Datum: Maine State Plane West
 Soil Map Unit Name: Lamoine silt loam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Remarks: (Explain alternative procedures here or in a separate report.)			

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 No Hydrology

VEGETATION – Use scientific names of plants.

Sampling Point: .OT-W-MR-06-L

	Absolute % Cover	Dominant Species?	Indicator Status																	
Tree Stratum (Plot size: <u>30</u>)																				
1. <u><i>Pinus strobus</i></u>	<u>40</u>	<u>Yes</u>	<u>FACU</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)																
2. <u><i>Acer rubrum</i></u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>																	
3. <u><i>Fraxinus pennsylvanica</i></u>	<u>15</u>	<u>No</u>	<u>FACW</u>																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	<u>85</u> =Total Cover			Prevalence Index worksheet: <table style="width:100%; border:none;"> <tr> <td style="text-align:right;">Total % Cover of:</td> <td style="text-align:right;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>15</u></td> <td>x 2 = <u>30</u></td> </tr> <tr> <td>FAC species <u>85</u></td> <td>x 3 = <u>255</u></td> </tr> <tr> <td>FACU species <u>40</u></td> <td>x 4 = <u>160</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>140</u></td> <td>(A) <u>445</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>3.18</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>15</u>	x 2 = <u>30</u>	FAC species <u>85</u>	x 3 = <u>255</u>	FACU species <u>40</u>	x 4 = <u>160</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>140</u>	(A) <u>445</u> (B)	Prevalence Index = B/A = <u>3.18</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>15</u>	x 2 = <u>30</u>																			
FAC species <u>85</u>	x 3 = <u>255</u>																			
FACU species <u>40</u>	x 4 = <u>160</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>140</u>	(A) <u>445</u> (B)																			
Prevalence Index = B/A = <u>3.18</u>																				
Sapling/Shrub Stratum (Plot size: <u>15</u>)																				
1. <u><i>Acer rubrum</i></u>	<u>55</u>	<u>Yes</u>	<u>FAC</u>																	
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	<u>55</u> =Total Cover																			
Herb Stratum (Plot size: <u>5</u>)																				
1. <u><i>Dryopteris</i></u>	<u>5</u>	<u>Yes</u>		Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is $\leq 3.0^1$ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
	<u>5</u> =Total Cover																			
Woody Vine Stratum (Plot size: _____)																				
1. _____				Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height.																
2. _____																				
3. _____																				
4. _____																				
	_____ =Total Cover																			

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: OT-W-MR-06-L

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 4/3							Silt Loam
10-20	2.5Y 5/2							Silt Loam

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> High Chroma Sands (S11) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Marl (F10) (LRR K, L)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Dark Surface (S7)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Type: _____	
Depth (inches): _____	

Remarks:
 This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: North Yarmouth Solar Project City/County: North Yarmouth Sampling Date: 12/13/2021
 Applicant/Owner: Branch Renewable Energy State: ME Sampling Point: PLOT-W-MR-06-WET
 Investigator(s): Merrill Read Section, Township, Range: North Yarmouth
 Landform (hillside, terrace, etc.): Basin Local relief (concave, convex, none): Concave Slope (%): 2
 Subregion (LRR or MLRA): LRR R Lat: 43.828961 Long: 70.224584 Datum: Maine State Plane West
 Soil Map Unit Name: Lamoine silt loam NWI classification: PSS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, optional Wetland Site ID: <u>W-MR-06</u>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: (Explain alternative procedures here or in a separate report.)			

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) ___ Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) ___ Marl Deposits (B15) ___ Water Marks (B1) ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3) ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5) ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7) ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Field Observations: Surface Water Present? Yes ___ No <input checked="" type="checkbox"/> Depth (inches): ___ Water Table Present? Yes <input checked="" type="checkbox"/> No ___ Depth (inches): <u>4</u> Saturation Present? Yes <input checked="" type="checkbox"/> No ___ Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Basin Wetland

VEGETATION – Use scientific names of plants.

Sampling Point: OT-W-MR-06-W

	Absolute % Cover	Dominant Species?	Indicator Status																	
Tree Stratum (Plot size: <u>30</u>)																				
1. <u><i>Acer rubrum</i></u>	<u>5</u>	Yes	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B) Prevalence Index worksheet: <table style="width:100%; border:none;"> <tr> <td style="width:50%; text-align:center;">Total % Cover of:</td> <td style="width:50%; text-align:center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>173</u></td> <td>x 2 = <u>346</u></td> </tr> <tr> <td>FAC species <u>10</u></td> <td>x 3 = <u>30</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>183</u></td> <td>(A) <u>376</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>2.05</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>173</u>	x 2 = <u>346</u>	FAC species <u>10</u>	x 3 = <u>30</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>183</u>	(A) <u>376</u> (B)	Prevalence Index = B/A = <u>2.05</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>173</u>	x 2 = <u>346</u>																			
FAC species <u>10</u>	x 3 = <u>30</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>183</u>	(A) <u>376</u> (B)																			
Prevalence Index = B/A = <u>2.05</u>																				
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	<u>5</u>	=Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15</u>)																				
1. <u><i>Ilex verticillata</i></u>	<u>10</u>	No	FACW	Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u><i>Alnus incana</i></u>	<u>70</u>	Yes	FACW																	
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	<u>80</u>	=Total Cover																		
Herb Stratum (Plot size: <u>5</u>)																				
1. <u><i>Solidago rugosa</i></u>	<u>5</u>	No	FAC																	
2. <u><i>Onoclea sensibilis</i></u>	<u>90</u>	Yes	FACW																	
3. <u><i>Epilobium ciliatum</i></u>	<u>3</u>	No	FACW																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
	<u>98</u>	=Total Cover																		
Woody Vine Stratum (Plot size: _____)																				
1. _____				Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height.																
2. _____																				
3. _____																				
4. _____																				
				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: OT-W-MR-06-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 4/3							Silt
4-16	Gley 1 4/10Y		10YR 4/2	5				Silt
16+	Gley 1 4/5GY		10YR 4/4	15				Silt

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> High Chroma Sands (S11) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Marl (F10) (LRR K, L)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Dark Surface (S7)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <u>X</u> No _____
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Remarks:
 This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

Exhibit F:

Agency Correspondence



STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

December 15, 2021

Steve Knapp
BRI
30 Danforth Street, Suite 213
Portland, ME 04101

Via email: steve.knapp@brienvironmental.org

Re: Rare and exemplary botanical features in proximity to: #1342, Solar Project, Sweetser Road, North Yarmouth, Maine

Dear Mr. Knapp:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received December 15, 2021 for information on the presence of rare or unique botanical features documented from the vicinity of the project in North Yarmouth, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM
BLOSSOM LANE, DEERING BUILDING



PHONE: (207) 287-804490
WWW.MAINE.GOV/DACF/MNAP

Letter to BRI
Comments RE: Solar, North Yarmouth
December 15, 2021
Page 2 of 2

The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

The Maine Natural Areas Program has instituted a fee structure of \$75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for \$150.00 for two hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,



Kristen Puryear | Ecologist | Maine Natural Areas Program
207-287-8043 | kristen.puryear@maine.gov

Rare and Exemplary Botanical Features within 4 miles of Project: #1342, Solar Project, Sweetser Road, North Yarmouth, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Adder's Tongue Fern						
	SC	S1	G5	1905-08-10	7	Non-tidal rivershore (non-forested, seasonally wet),Open wetland, not coastal nor rivershore (non-forested, wetland),Old field/roadside (non-forested, wetland or upland)
American Chestnut						
	SC	S4	G3	2001-02-13	2	Hardwood to mixed forest (forest, upland)
Hollow Joe-pye Weed						
	SC	S2	G5?	2015-10-15	26	Open wetland, not coastal nor rivershore (non-forested, wetland),Old field/roadside (non-forested, wetland or upland)
Oak - Hickory Forest						
	<null>	S1	G4G5	2014-08-21	5	Hardwood to mixed forest (forest, upland)
Rattlesnake Hawkweed						
	E	S1	G5T4Q	1909-07	1	Dry barrens (partly forested, upland)
Salt-hay Saltmarsh						
	<null>	S3	G5	2009	24	Tidal wetland (non-forested, wetland)
	<null>	S3	G5	2015-08-19	62	Tidal wetland (non-forested, wetland)
Spotted Wintergreen						
	T	S2	G5	2009-07-26	30	Conifer forest (forest, upland),Hardwood to mixed forest (forest, upland)
Upper Floodplain Hardwood Forest						
	<null>	S3	GNR	2017-05-17	18	Forested wetland
Water-plantain Spearwort						
	PE	SH	G4	1903-07-29	2	Open water (non-forested, wetland)
Wild Leek						
	SC	S3	G5	2017-05-17	28	Hardwood to mixed forest (forest, upland),Forested wetland

Conservation Status Ranks

State and Global Ranks: This ranking system facilitates a quick assessment of a species' or habitat type's rarity and is the primary tool used to develop conservation, protection, and restoration priorities for individual species and natural habitat types. Each species or habitat is assigned both a state (S) and global (G) rank on a scale of 1 to 5. Factors such as range extent, the number of occurrences, intensity of threats, etc., contribute to the assignment of state and global ranks. The definitions for state and global ranks are comparable but applied at different geographic scales; something that is state imperiled may be globally secure.

The information supporting these ranks is developed and maintained by the Maine Natural Areas Program (state ranks) and NatureServe (global ranks).

Rank	Definition
S1 G1	Critically Imperiled – At very high risk of extinction or elimination due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors.
S2 G2	Imperiled – At high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
S3 G3	Vulnerable – At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
S4 G4	Apparently Secure – At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
S5 G5	Secure – At very low risk of extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.
SX GX	Presumed Extinct – Not located despite intensive searches and virtually no likelihood of rediscovery.
SH GH	Possibly Extinct – Known from only historical occurrences but still some hope of rediscovery.
S#S# G#G#	Range Rank – A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem.
SU GU	Unrankable – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
GNR SNR	Unranked – Global or subnational conservation status not yet assessed.
SNA GNA	Not Applicable – A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities (e.g., non-native species or ecosystems).
Qualifier	Definition
S#? G#?	Inexact Numeric Rank – Denotes inexact numeric rank.
Q	Questionable taxonomy that may reduce conservation priority – Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable. The “Q” modifier is only used at a global level.
T#	Intraspecific Taxon (trinomial) – The status of intraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank.

State Status: Endangered and Threatened are legal status designations authorized by statute. Please refer to MRSA Title 12, §544 and §544-B.

Status	Definition
E	Endangered – Any native plant species in danger of extinction throughout all or a significant portion of its range within the State or Federally listed as Endangered.
T	Threatened – Any native plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range in the State or Federally listed as Threatened.
SC	Special Concern – A native plant species that is rare in the State, but not rare enough to be considered Threatened or Endangered.
PE	Potentially Extirpated – A native plant species that has not been documented in the State in over 20 years, or loss of the last known occurrence.

Element Occurrence (EO) Ranks: Quality assessments that designate viability of a population or integrity of habitat. These ranks are based on size, condition, and landscape context. Range ranks (e.g., AB, BC) and uncertainty ranks (e.g., B?) are allowed. The Maine Natural Areas Program tracks all occurrences of rare plants and natural communities/ecosystems (S1-S3) as well as exemplary common natural community types (S4-S5 with EO ranks A/B).

Rank	Definition
A	Excellent – Excellent estimated viability/ecological integrity.
B	Good – Good estimated viability/ecological integrity.
C	Fair – Fair estimated viability/ecological integrity.
D	Poor – Poor estimated viability/ecological integrity.
E	Extant – Verified extant, but viability/ecological integrity not assessed.
H	Historical – Lack of field information within past 20 years verifying continued existence of the occurrence, but not enough to document extirpation.
X	Extirpated – Documented loss of population/destruction of habitat.
U	Unrankable – Occurrence unable to be ranked due to lack of sufficient information (e.g., possible mistaken identification).
NR	Not Ranked – An occurrence rank has not been assigned.

Visit the Maine Natural Areas Program website for more information
<http://www.maine.gov/dacf/mnap>





STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
353 WATER STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041



January 20, 2022

Steve Knapp
Biodiversity Research Institute
276 Canco Road
Portland, ME 04103

RE: Information Request – Sweetser Road Solar Project, North Yarmouth

Dear Steve:

Per your request received on December 15, 2021, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and inland fisheries habitat concerns within the vicinity of the *Sweetser Road Solar* project in North Yarmouth. Note that as project details are lacking, our comments are non-specific and should be considered preliminary.

Our Department has not mapped any Essential Habitats that would be directly affected by your project.

Endangered, Threatened, and Special Concern Species

Bats - Of the eight species of bats that occur in Maine, the three *Myotis* species are afforded special protection under Maine's Endangered Species Act (MESA, 12 M.R.S §12801 et. seq.): little brown bat (State Endangered), northern long-eared bat (State Endangered), and eastern small-footed bat (State Threatened). The five remaining bat species are designated as Species of Special Concern: big brown bat, red bat, hoary bat, silver-haired bat, and tri-colored bat. While a comprehensive statewide inventory for bats has not been completed, based on historical evidence, it is likely that several of these species occur within the project area during the fall/spring migration, the summer breeding season, and/or for overwintering. If the proposed project has a Federal nexus, either via funding or permitting, or if the project is not consistent with the USFWS "4(d) Rule", we recommend that you contact the U.S. Fish and Wildlife Service--Maine Fish and Wildlife Complex (Wende Mahaney, Wende_Mahaney@fws.gov, 207-902-1569) for further guidance on their perspective, as the northern long-eared bat is also listed as a Threatened Species under the Federal Endangered Species Act. The USFWS "4(d) Rule" provides guidance for protection of bat winter hibernacula and maternity roost trees for northern long-eared bats (see <https://www.fws.gov/midwest/endangered/mammals/nleb/4drule.html>). MDIFW Endangered Species Rules for bats (Chapter 8.06; see link at <http://www.maine.gov/sos/cec/rules/09/137/137c008.docx>) provide equivalent seasonal protection of maternity roost trees for any of the three state-listed bats, seasonally prohibits entry into subsurface winter hibernacula, and has additional protections for tree removal within ¼ mile of subsurface winter hibernacula. At present, no maternity roost trees have been designated for protection.

In addition to traditional hibernacula like caves and old mines, recent findings indicate that *Myotis* and big brown bats may also overwinter in exposed rocky features. To date, Maine talus and rocky outcrop studies have focused on relatively exposed slopes with minimal canopy cover, although ongoing research has shown that bats use rocky areas under the forest canopy. Occupied talus slopes in Maine have

consisted of variable rock sizes, ranging in size from softball-sized to car-sized boulders. Rock piles, rock ledges, and small vertical cracks in rocks (>1/2-inch-wide) create crevices that allow bats to access deeper cavities that provide protection for predators and suitable temperature and humidity conditions. Some species of bat, like the eastern small-footed bat, use rocky features year-round. A desktop GIS analysis does not indicate the presence of these features in your project area; however, not all talus and rocky features have been mapped statewide. Therefore, we advise that all areas of talus and rocky features of approximately 1,000 square feet or greater in size be documented on and within 250 feet of your project area, including smaller areas of rock piles and tailings (i.e., quarry spoils). See attached photographs for representative features—these photographs are not all-inclusive and should be used for guidance purposes only. Detailed photographs and coordinates should be submitted to MDIFW for review, and acoustic monitoring may be recommended to document occupancy. Alternatively, these features should be appropriately buffered commensurate with the size and layout of the project. If these features are not present in the project area, our Agency does not anticipate significant impacts to any of the bat species as a result of this project based on currently best available science.

Significant Wildlife Habitat

Significant Vernal Pools - At this time MDIFW Significant Wildlife Habitat (SWH) maps indicate no known presence of SWHs subject to protection under the Natural Resources Protection Act (NRPA) within the project area, which include Waterfowl and Wading Bird Habitats, Seabird Nesting Islands, Shorebird Areas, and Significant Vernal Pools. However, a comprehensive statewide inventory for Significant Vernal Pools has not been completed. Therefore, we recommend that surveys for vernal pools be conducted within the project boundary by qualified wetland scientists prior to final project design to determine whether there are Significant Vernal Pools present in the area. These surveys should extend up to 250 feet beyond the anticipated project footprint because of potential performance standard requirements for off-site Significant Vernal Pools, assuming such pools are located on land owned or controlled by the applicant. Once surveys are completed, survey forms should be submitted to our Agency for review well before the submission of any necessary permits. Our Department will need to review and verify any vernal pool data prior to final determination of significance.

Fisheries Habitat

We generally recommend maintaining 100-foot undisturbed vegetated buffers from the upland edge of all intermittent and perennial streams and any contiguous wetlands. Maintaining and enhancing buffers along these resources is critical to the protection of water temperatures, water quality, natural inputs of coarse woody debris, and various forms of aquatic life necessary to support fish and other aquatic species. Riparian buffers also provide critical habitat and important travel corridors for a variety of wildlife species. Stream crossings should be avoided, but if a stream crossing is necessary, or an existing crossing needs to be modified, it should be designed to provide for full aquatic passage. Small streams, including intermittent streams, can provide crucial rearing habitat, cold water for thermal refugia, and abundant food for juvenile salmonids on a seasonal basis. Undersized crossings may inhibit these functions and become a frequent maintenance problem that causes reoccurring damage to the resource. Generally, MDIFW recommends that all new, modified, and replacement stream crossings be sized to span at least 1.2 times the bankfull width of the stream. In addition, we generally recommend that stream crossings be open bottomed (i.e. natural bottom), although embedded structures which are backfilled with representative streambed material have been shown to be effective in providing habitat connectivity for fish and other aquatic organisms. Construction Best Management Practices should be closely followed to avoid erosion, sedimentation, alteration of stream flow, and other impacts as eroding soils can travel

significant distances as well as transport other pollutants resulting in direct impacts to fish, other aquatic life, and their habitats. In addition, we recommend that any necessary instream work occur between July 15 and October 1.

Wildlife Permeable Fencing

To enhance the use of the project area by smaller animals, and in consideration of the need for site safety and security, we recommend the use of wildlife-permeable fencing. Options for wildlife-permeable fencing includes the use of larger mesh fencing, similar to typical highway right-of-way fencing, with large (12-in. x 12-in.) holes along the bottom of the fence, spaced evenly along the entire perimeter of the fence line every 20-25 feet. Alternatively, the fence can be installed so that there is at least 12 inches of clearance along the entire perimeter bottom.

This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance we recommend additional consultation with the municipality, and other state resource agencies including the Maine Natural Areas Program, Maine Department of Marine Resources, and Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance.

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,



Becca Settele
Wildlife Biologist

400000

402000

4854000

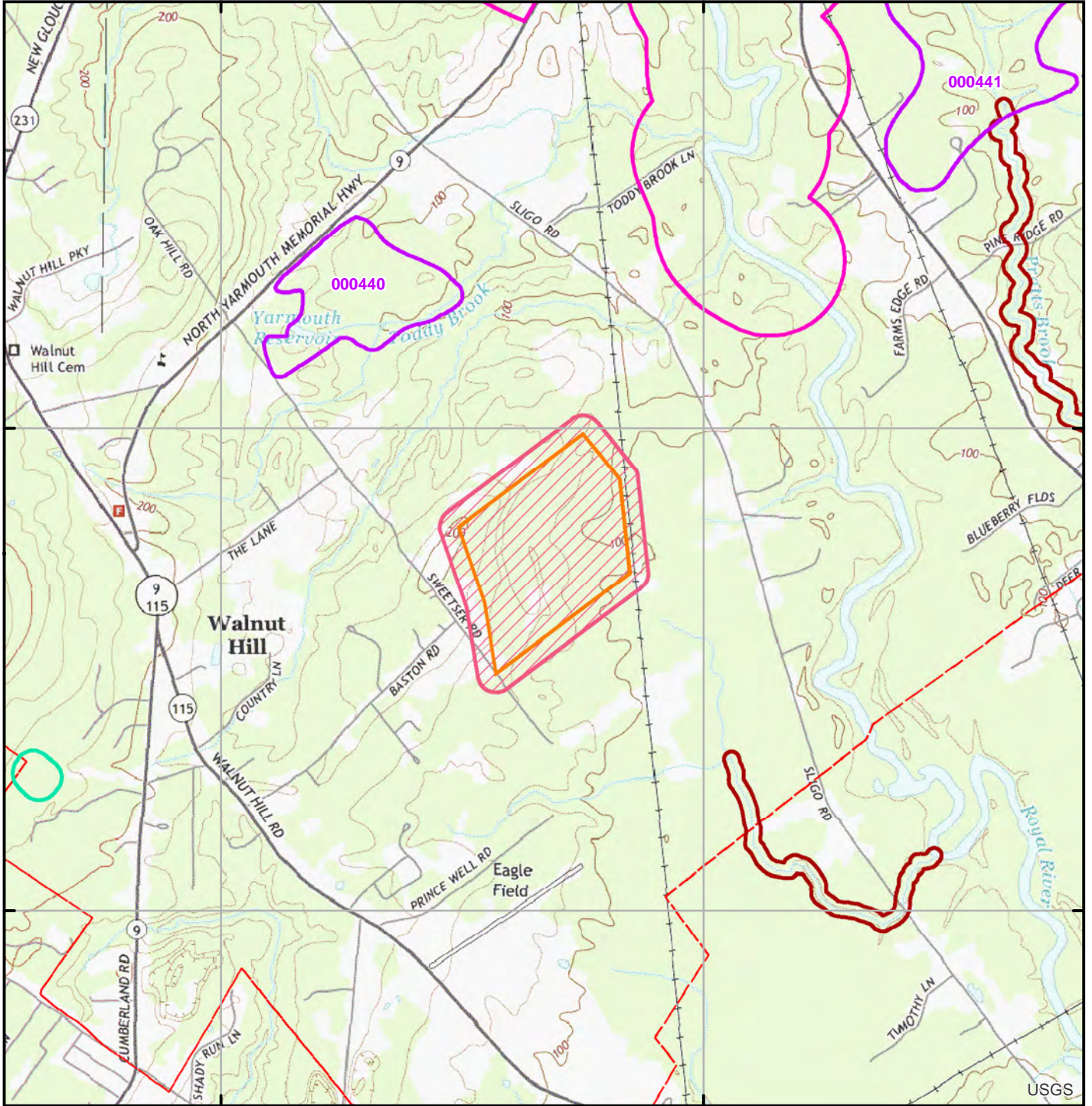
4854000

4852000

4852000

400000

402000

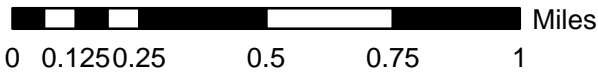


Environmental Review of Fish and Wildlife Observations and Priority Habitats

Project Name: Sweetser Road Solar, North Yarmouth
(Version 1)



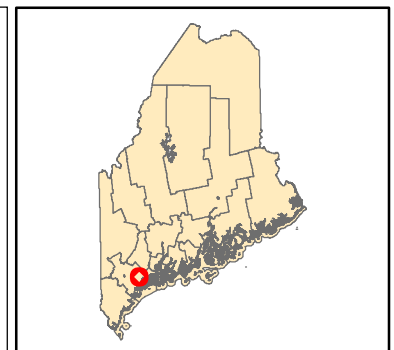
Maine Department of
Inland Fisheries and Wildlife



Projection: UTM, NAD83, Zone 19N

Date: 12/16/2021

- | | | |
|-----------------------------------|----------------------------------|---------------------------------------------------------|
| ProjectSearchAreas - All Versions | Deer Winter Area | Roseate Tern |
| Maine Cliff and Talus Areas | LUPC p-fw | Piping Plover and Least Tern |
| Cooperative DWAs | Seabird Nesting Islands | Aquatic ETSc - 2.5 mi review |
| Shorebird Areas | Inland Waterfowl and Wading Bird | Rare Mussels - 5 mi review |
| 2008 Iwwh - Shoreland Zoning | Tidal Waterfowl and Wading Bird | Maine Heritage Fish Waters |
| Significant Vernal Pools | Environmental Review Polygons | Arctic Charr Habitat |
| | | Redfin Pickerel and Swamp Darter Habitats - buffer100ft |
| | | Special Concern occupied habitats - 100ft buffer |
| | | Wild Lake Trout Habitats |



ATTACHMENT 9

High-value Wetlands

Attachment 9: High-value Wetlands

The wetlands that lie within the proposed LOD are W-MR-06, W-MR-07, and W-MR-08 (see the Natural Resources Map in **Attachment 3**). According to § 10.3 of the *Town of North Yarmouth Land Use Ordinance*, Wetlands W-MR-07 and W-MR-08 are classified as low-value wetlands, while Wetland W-MR-06 is classified as a high-value wetland.

Wetlands W-MR-07 and W-MR-08 are considered “low-value” because they do not meet the parameters for a high-value wetland. W-MR-06 is considered “high-value” because more than 50% of the dominant species in all strata of vegetation are facultative wetland and obligate wetland plant species. These include winterberry (*Ilex verticillate*), speckled alder (*Alnus incana*), sensitive fern (*Onoclea sensibilis*), and fringed sedge (*Carex crinita*).

Impacts

The Project has been designed to avoid wetland impacts to the greatest extent practicable, with total impacts to Wetland W-MR-06 limited to 10 square feet of fill, 4,843 square feet of shading, and 13,260 square feet of clearing. The areas of W-MR-06 that the Project proposes to clear are the tips of elongate lobes, which have been fragmented by prior clearing under the power lines to the Estabrook Well.

There will be no grading or stumping within wetlands at any time. In order to avoid ground disturbance, the Project proposes to conduct all activities within wetlands during frozen winter conditions. Fence posts and solar racking posts totaling 10 square feet will therefore constitute the full extent of ground disturbance within Wetland W-MR-06. See the Tier II Natural Resources Protection Act (NRPA) permit application in **Attachment 17** for more details on wetland impacts.

Buffering

The purpose of § 10.3 is to “protect water quality, aquatic life, and wildlife habitat in and adjacent to... wetlands... and to protect private and public property from flooding and poor drainage conditions caused by locating buildings in or close to these areas.” To do this, the *Ordinance* states that “vegetative buffers shall be located between all disturbed areas of a development and... high value wetlands.”

As the *Ordinance* does not define “disturbed,” the Project team has referred to the MDEP rules governing Stormwater Management (06-096 CMR 500) that state “A land area on which the cutting of trees, without grubbing, stump removal, disturbance or exposure of soil has taken place is not considered a ‘disturbed area.’” There will be no grading or stumping within wetlands at any time. Working under winter frozen conditions will prevent ground disturbance. Clearing, shading, and fill will alter—but not significantly diminish—the productive habitat, biological ecosystems, and natural functions and values of Wetland W-MR-06. Generalist species will continue to use the habitat, while overall use will shift toward species that prefer open habitats.

Waiver Request

The Project team believes the Project sustains the intent § 10.3 by maintaining certain wetland functions and values, including water quality, aquatic life, and wildlife habitat. In addition, stormwater buffers make the Project fully self-treating, so that there is no threat to public or private property from “poor drainage conditions.”

The Project team is requesting a waiver of the requirement to maintain a 50-foot uncleared buffer around Wetland W-MR-06, as the Project will maintain vegetated meadow conditions within the LOD, is applying for an MDEP Tier II NRPA permit, and has minimized impacts to wetlands to the greatest extent practicable, while also maintaining Project viability.

ATTACHMENT 10

Agency Consultation



STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

December 15, 2021

Steve Knapp
BRI
30 Danforth Street, Suite 213
Portland, ME 04101

Via email: steve.knapp@brienvironmental.org

Re: Rare and exemplary botanical features in proximity to: #1342, Solar Project, Sweetser Road, North Yarmouth, Maine

Dear Mr. Knapp:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received December 15, 2021 for information on the presence of rare or unique botanical features documented from the vicinity of the project in North Yarmouth, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM
BLOSSOM LANE, DEERING BUILDING



PHONE: (207) 287-804490
WWW.MAINE.GOV/DACF/MNAP

Letter to BRI
Comments RE: Solar, North Yarmouth
December 15, 2021
Page 2 of 2

The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

The Maine Natural Areas Program has instituted a fee structure of \$75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for \$150.00 for two hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,



Kristen Puryear | Ecologist | Maine Natural Areas Program
207-287-8043 | kristen.puryear@maine.gov

Rare and Exemplary Botanical Features within 4 miles of Project: #1342, Solar Project, Sweetser Road, North Yarmouth, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Adder's Tongue Fern						
	SC	S1	G5	1905-08-10	7	Non-tidal rivershore (non-forested, seasonally wet),Open wetland, not coastal nor rivershore (non-forested, wetland),Old field/roadside (non-forested, wetland or upland)
American Chestnut						
	SC	S4	G3	2001-02-13	2	Hardwood to mixed forest (forest, upland)
Hollow Joe-pye Weed						
	SC	S2	G5?	2015-10-15	26	Open wetland, not coastal nor rivershore (non-forested, wetland),Old field/roadside (non-forested, wetland or upland)
Oak - Hickory Forest						
	<null>	S1	G4G5	2014-08-21	5	Hardwood to mixed forest (forest, upland)
Rattlesnake Hawkweed						
	E	S1	G5T4Q	1909-07	1	Dry barrens (partly forested, upland)
Salt-hay Saltmarsh						
	<null>	S3	G5	2009	24	Tidal wetland (non-forested, wetland)
	<null>	S3	G5	2015-08-19	62	Tidal wetland (non-forested, wetland)
Spotted Wintergreen						
	T	S2	G5	2009-07-26	30	Conifer forest (forest, upland),Hardwood to mixed forest (forest, upland)
Upper Floodplain Hardwood Forest						
	<null>	S3	GNR	2017-05-17	18	Forested wetland
Water-plantain Spearwort						
	PE	SH	G4	1903-07-29	2	Open water (non-forested, wetland)
Wild Leek						
	SC	S3	G5	2017-05-17	28	Hardwood to mixed forest (forest, upland),Forested wetland

Conservation Status Ranks

State and Global Ranks: This ranking system facilitates a quick assessment of a species' or habitat type's rarity and is the primary tool used to develop conservation, protection, and restoration priorities for individual species and natural habitat types. Each species or habitat is assigned both a state (S) and global (G) rank on a scale of 1 to 5. Factors such as range extent, the number of occurrences, intensity of threats, etc., contribute to the assignment of state and global ranks. The definitions for state and global ranks are comparable but applied at different geographic scales; something that is state imperiled may be globally secure.

The information supporting these ranks is developed and maintained by the Maine Natural Areas Program (state ranks) and NatureServe (global ranks).

Rank	Definition
S1 G1	Critically Imperiled – At very high risk of extinction or elimination due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors.
S2 G2	Imperiled – At high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
S3 G3	Vulnerable – At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
S4 G4	Apparently Secure – At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
S5 G5	Secure – At very low risk of extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.
SX GX	Presumed Extinct – Not located despite intensive searches and virtually no likelihood of rediscovery.
SH GH	Possibly Extinct – Known from only historical occurrences but still some hope of rediscovery.
S#S# G#G#	Range Rank – A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem.
SU GU	Unrankable – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
GNR SNR	Unranked – Global or subnational conservation status not yet assessed.
SNA GNA	Not Applicable – A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities (e.g., non-native species or ecosystems).
Qualifier	Definition
S#? G#?	Inexact Numeric Rank – Denotes inexact numeric rank.
Q	Questionable taxonomy that may reduce conservation priority – Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable. The “Q” modifier is only used at a global level.
T#	Intraspecific Taxon (trinomial) – The status of intraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank.

State Status: Endangered and Threatened are legal status designations authorized by statute. Please refer to MRSA Title 12, §544 and §544-B.

Status	Definition
E	Endangered – Any native plant species in danger of extinction throughout all or a significant portion of its range within the State or Federally listed as Endangered.
T	Threatened – Any native plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range in the State or Federally listed as Threatened.
SC	Special Concern – A native plant species that is rare in the State, but not rare enough to be considered Threatened or Endangered.
PE	Potentially Extirpated – A native plant species that has not been documented in the State in over 20 years, or loss of the last known occurrence.

Element Occurrence (EO) Ranks: Quality assessments that designate viability of a population or integrity of habitat. These ranks are based on size, condition, and landscape context. Range ranks (e.g., AB, BC) and uncertainty ranks (e.g., B?) are allowed. The Maine Natural Areas Program tracks all occurrences of rare plants and natural communities/ecosystems (S1-S3) as well as exemplary common natural community types (S4-S5 with EO ranks A/B).

Rank	Definition
A	Excellent – Excellent estimated viability/ecological integrity.
B	Good – Good estimated viability/ecological integrity.
C	Fair – Fair estimated viability/ecological integrity.
D	Poor – Poor estimated viability/ecological integrity.
E	Extant – Verified extant, but viability/ecological integrity not assessed.
H	Historical – Lack of field information within past 20 years verifying continued existence of the occurrence, but not enough to document extirpation.
X	Extirpated – Documented loss of population/destruction of habitat.
U	Unrankable – Occurrence unable to be ranked due to lack of sufficient information (e.g., possible mistaken identification).
NR	Not Ranked – An occurrence rank has not been assigned.

Visit the Maine Natural Areas Program website for more information
<http://www.maine.gov/dacf/mnap>





STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
353 WATER STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041



January 20, 2022

Steve Knapp
Biodiversity Research Institute
276 Canco Road
Portland, ME 04103

RE: Information Request – Sweetser Road Solar Project, North Yarmouth

Dear Steve:

Per your request received on December 15, 2021, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and inland fisheries habitat concerns within the vicinity of the *Sweetser Road Solar* project in North Yarmouth. Note that as project details are lacking, our comments are non-specific and should be considered preliminary.

Our Department has not mapped any Essential Habitats that would be directly affected by your project.

Endangered, Threatened, and Special Concern Species

Bats - Of the eight species of bats that occur in Maine, the three *Myotis* species are afforded special protection under Maine's Endangered Species Act (MESA, 12 M.R.S §12801 et. seq.): little brown bat (State Endangered), northern long-eared bat (State Endangered), and eastern small-footed bat (State Threatened). The five remaining bat species are designated as Species of Special Concern: big brown bat, red bat, hoary bat, silver-haired bat, and tri-colored bat. While a comprehensive statewide inventory for bats has not been completed, based on historical evidence, it is likely that several of these species occur within the project area during the fall/spring migration, the summer breeding season, and/or for overwintering. If the proposed project has a Federal nexus, either via funding or permitting, or if the project is not consistent with the USFWS "4(d) Rule", we recommend that you contact the U.S. Fish and Wildlife Service--Maine Fish and Wildlife Complex (Wende Mahaney, Wende_Mahaney@fws.gov, 207-902-1569) for further guidance on their perspective, as the northern long-eared bat is also listed as a Threatened Species under the Federal Endangered Species Act. The USFWS "4(d) Rule" provides guidance for protection of bat winter hibernacula and maternity roost trees for northern long-eared bats (see <https://www.fws.gov/midwest/endangered/mammals/nleb/4drule.html>). MDIFW Endangered Species Rules for bats (Chapter 8.06; see link at <http://www.maine.gov/sos/cec/rules/09/137/137c008.docx>) provide equivalent seasonal protection of maternity roost trees for any of the three state-listed bats, seasonally prohibits entry into subsurface winter hibernacula, and has additional protections for tree removal within ¼ mile of subsurface winter hibernacula. At present, no maternity roost trees have been designated for protection.

In addition to traditional hibernacula like caves and old mines, recent findings indicate that *Myotis* and big brown bats may also overwinter in exposed rocky features. To date, Maine talus and rocky outcrop studies have focused on relatively exposed slopes with minimal canopy cover, although ongoing research has shown that bats use rocky areas under the forest canopy. Occupied talus slopes in Maine have

consisted of variable rock sizes, ranging in size from softball-sized to car-sized boulders. Rock piles, rock ledges, and small vertical cracks in rocks (>1/2-inch-wide) create crevices that allow bats to access deeper cavities that provide protection for predators and suitable temperature and humidity conditions. Some species of bat, like the eastern small-footed bat, use rocky features year-round. A desktop GIS analysis does not indicate the presence of these features in your project area; however, not all talus and rocky features have been mapped statewide. Therefore, we advise that all areas of talus and rocky features of approximately 1,000 square feet or greater in size be documented on and within 250 feet of your project area, including smaller areas of rock piles and tailings (i.e., quarry spoils). See attached photographs for representative features—these photographs are not all-inclusive and should be used for guidance purposes only. Detailed photographs and coordinates should be submitted to MDIFW for review, and acoustic monitoring may be recommended to document occupancy. Alternatively, these features should be appropriately buffered commensurate with the size and layout of the project. If these features are not present in the project area, our Agency does not anticipate significant impacts to any of the bat species as a result of this project based on currently best available science.

Significant Wildlife Habitat

Significant Vernal Pools - At this time MDIFW Significant Wildlife Habitat (SWH) maps indicate no known presence of SWHs subject to protection under the Natural Resources Protection Act (NRPA) within the project area, which include Waterfowl and Wading Bird Habitats, Seabird Nesting Islands, Shorebird Areas, and Significant Vernal Pools. However, a comprehensive statewide inventory for Significant Vernal Pools has not been completed. Therefore, we recommend that surveys for vernal pools be conducted within the project boundary by qualified wetland scientists prior to final project design to determine whether there are Significant Vernal Pools present in the area. These surveys should extend up to 250 feet beyond the anticipated project footprint because of potential performance standard requirements for off-site Significant Vernal Pools, assuming such pools are located on land owned or controlled by the applicant. Once surveys are completed, survey forms should be submitted to our Agency for review well before the submission of any necessary permits. Our Department will need to review and verify any vernal pool data prior to final determination of significance.

Fisheries Habitat

We generally recommend maintaining 100-foot undisturbed vegetated buffers from the upland edge of all intermittent and perennial streams and any contiguous wetlands. Maintaining and enhancing buffers along these resources is critical to the protection of water temperatures, water quality, natural inputs of coarse woody debris, and various forms of aquatic life necessary to support fish and other aquatic species. Riparian buffers also provide critical habitat and important travel corridors for a variety of wildlife species. Stream crossings should be avoided, but if a stream crossing is necessary, or an existing crossing needs to be modified, it should be designed to provide for full aquatic passage. Small streams, including intermittent streams, can provide crucial rearing habitat, cold water for thermal refugia, and abundant food for juvenile salmonids on a seasonal basis. Undersized crossings may inhibit these functions and become a frequent maintenance problem that causes reoccurring damage to the resource. Generally, MDIFW recommends that all new, modified, and replacement stream crossings be sized to span at least 1.2 times the bankfull width of the stream. In addition, we generally recommend that stream crossings be open bottomed (i.e. natural bottom), although embedded structures which are backfilled with representative streambed material have been shown to be effective in providing habitat connectivity for fish and other aquatic organisms. Construction Best Management Practices should be closely followed to avoid erosion, sedimentation, alteration of stream flow, and other impacts as eroding soils can travel

significant distances as well as transport other pollutants resulting in direct impacts to fish, other aquatic life, and their habitats. In addition, we recommend that any necessary instream work occur between July 15 and October 1.

Wildlife Permeable Fencing

To enhance the use of the project area by smaller animals, and in consideration of the need for site safety and security, we recommend the use of wildlife-permeable fencing. Options for wildlife-permeable fencing includes the use of larger mesh fencing, similar to typical highway right-of-way fencing, with large (12-in. x 12-in.) holes along the bottom of the fence, spaced evenly along the entire perimeter of the fence line every 20-25 feet. Alternatively, the fence can be installed so that there is at least 12 inches of clearance along the entire perimeter bottom.

This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance we recommend additional consultation with the municipality, and other state resource agencies including the Maine Natural Areas Program, Maine Department of Marine Resources, and Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance.

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,



Becca Settele
Wildlife Biologist

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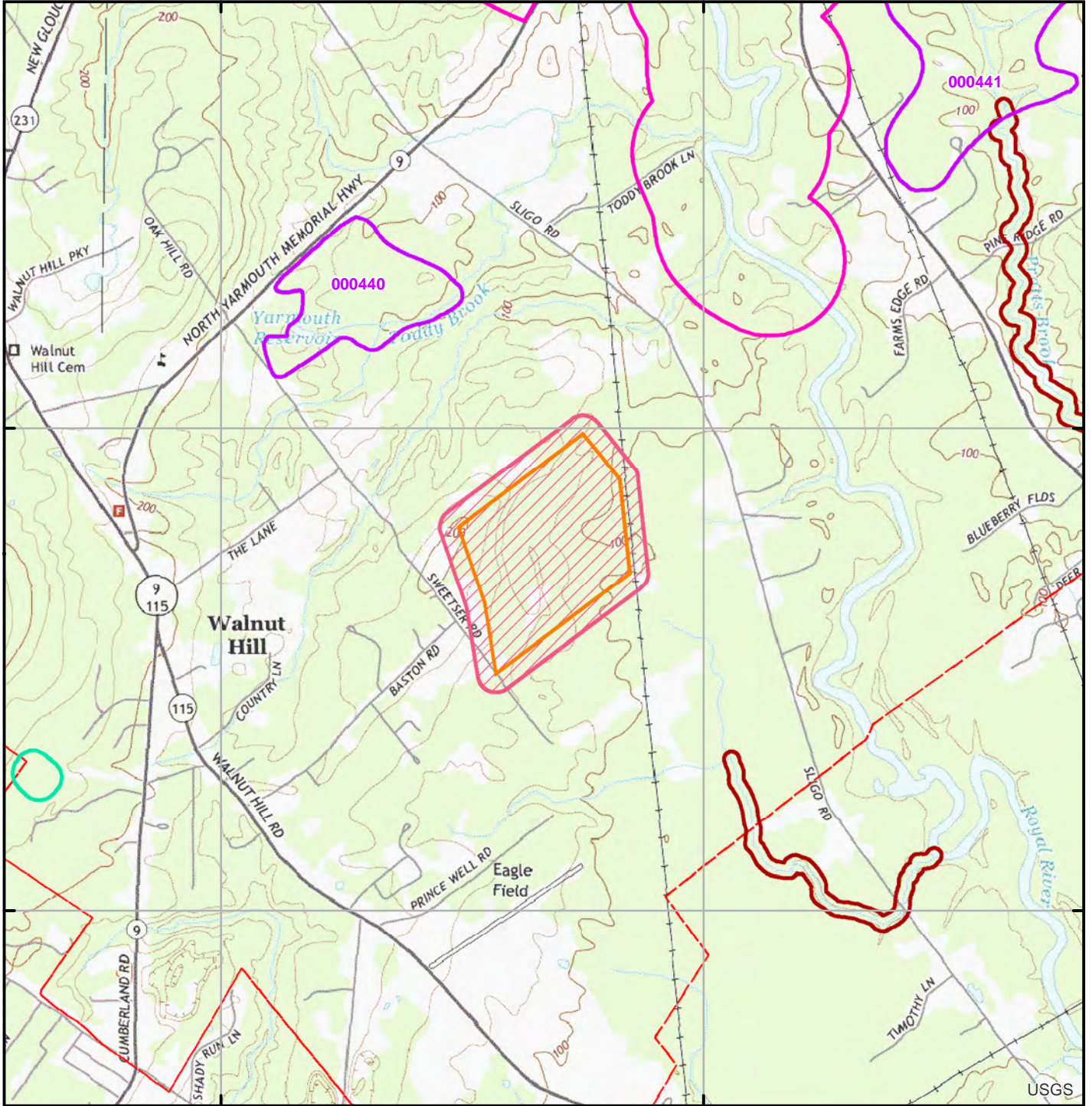
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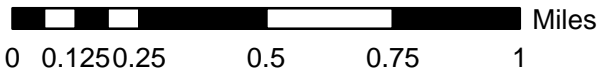


Environmental Review of Fish and Wildlife Observations and Priority Habitats

Project Name: Sweetser Road Solar, North Yarmouth
(Version 1)



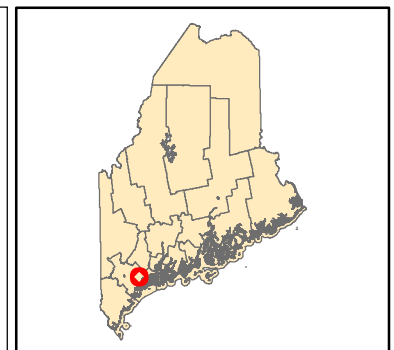
Maine Department of
Inland Fisheries and Wildlife



Projection: UTM, NAD83, Zone 19N

Date: 12/16/2021

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| 2008 Iwwh - Shoreland Zoning | Tidal Waterfowl and Wading Bird | Maine Heritage Fish Waters |
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| | | Special Concern occupied habitats - 100ft buffer |
| | | Wild Lake Trout Habitats |





February 18, 2022

Kirk F. Mohney
Director and State Historic Preservation Officer
55 Capitol Street
65 State House Station
Augusta, Maine 04333-0065

RE: North Yarmouth Community Solar, Maine Project Site Review

Dear Kirk,

Biodiversity Research Institute (BRI) is completing a Natural Resources Protection Act (NRPA) permit for an approximately 14.2 acre project located on Sweetser Road in North Yarmouth, Maine. The project is proposed on land that has been previously selectively harvested. Permits will be required for wetland impacts related to installing solar arrays over the wetlands.

As part of the permit preparation, BRI is requesting any information regarding documented or potential presence of historic resources from the Maine Historic Preservation Commission. Construction of the project is expected to require the installation of pilings/fence posts for the purposes of developing a distributed solar generation facility.

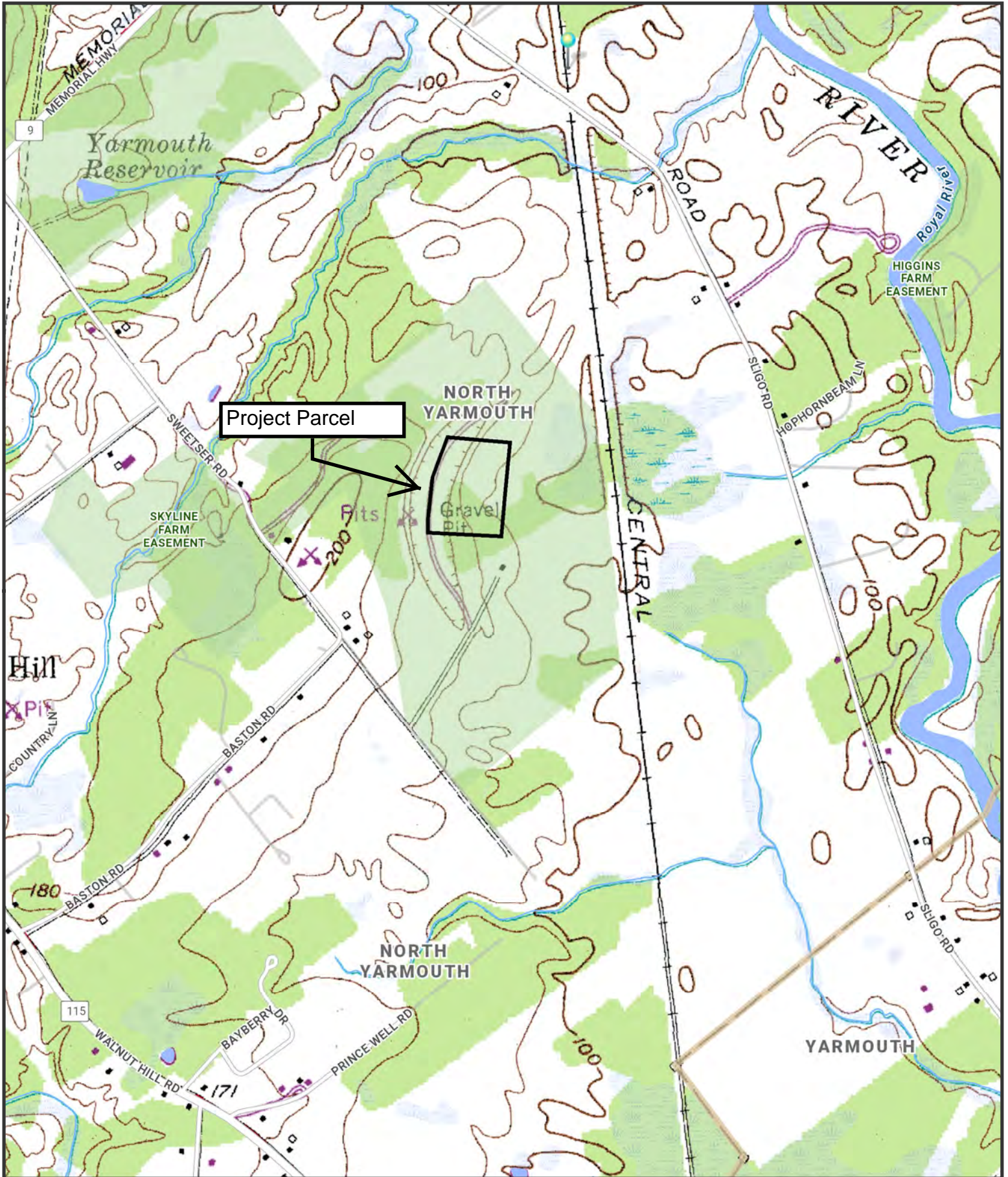
We have included a map showing the project boundary to aid in your review. If you have any questions please contact me at merrill.read@brienvironmental.org or call 414-758-7319.

Respectfully submitted,

A handwritten signature in black ink that reads "Merrill Read". The signature is written in a cursive, flowing style.

Merrill Read
Project Manager
BRI Environmental

NORTH YARMOUTH COMMUNITY SOLAR



The Maine Department of Transportation provides this publication for information only. Reliance upon this information is at user risk. It is subject to revision and may be incomplete depending upon changing conditions. The Department assumes no liability if injuries or damages result from this information. This map is not intended to support emergency dispatch.

0.25
Miles
1 inch = 0.28 miles

Date: 2/17/2022
Time: 2:28:13 PM

ATTACHMENT 11

Spill Prevention, Control, and Countermeasures Plan

Spill Prevention, Control, and Countermeasures Plan

Water Line Solar Project
North Yarmouth, Maine

Submitted on behalf of:



&



Prepared by:



Krebs & Lansing Consulting Engineers, INC.
164 Main Street
Colchester, Vermont 05446
(802) 878-0375

March 14th, 2022

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6.0 – Reporting	Page 3

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Appendix B – Transformer Secondary Oil Containment Plan

Appendix C – Transformer Secondary Oil Containment Capacity Calculations

Appendix D – U.S. EPA Tier I Qualified Facility SPCC Plan Template

Appendix E – Oil Spill Contingency Plan

Appendix F – Transformer Specifications

Appendix G – Material Safety Data Sheet for Transformer Oil

Section 1.0 – Introduction

The proposed 1.99 MW AC Solar Array will be located 238 Sweetser Road in North Yarmouth, Maine and will be owned and operated by Branch Renewable Energy. This facility will have one oil filled transformer located in the central area of the proposed solar array adjacent to the access roads. Each of these transformers contain approximately 550 gallons of FR3 dielectric fluid derived from vegetable oil. The transformers make the site a "Tier I qualified facility". Therefore, secondary transformer oil containment will be provided for all the transformer.

Section 2.0 – Purpose

This plan will prescribe the minimum requirements to be met in order to create a self-certifying Spill Prevention, Control, and Countermeasures (SPCC) Plan. A copy of this plan shall be kept on site at the project substation, and will be kept available for review by Project Owner or their representative.

Section 3.0 – Regulatory Authority

The U.S. Environmental Protection Agency has issued the Spill Prevention, Control, and Countermeasures Rule (SPCC), last revised November 10, 2010 and codified under 40 C.F.R. Part 112. This plan will describe the manner in which this facility will comply with the requirements prescribed under 40 C.F.R. § 112.7 and the attached EPA document entitled "U.S. Environmental Protection Agency Tier I Qualified Facility SPCC Plan Template".

Section 4.0 – Responsible Parties

The Owner of the facility, their heirs and assigns, is ultimately responsible for the correct formulation and implementation of the SPCC. The firm contracted to complete the Operations and Maintenance (O&M) for the facility will assume this responsibility for the Owner. Only firms qualified to complete the environmental work, qualified to perform the limited work within the transformer, and properly insured will be contracted to this work. The firm contracted to complete the operations and maintenance work will be responsible for any and all reporting required by the current EPA SPCC Rule, any and all updates of that rule, any and all State of Maine land use and environmental permit reporting requirements. The plan must be periodically reviewed, at least once every five years. The plan must also be updated if any changes are made to the facility. Prior to operations, the O&M firm shall be responsible for providing a quantity of spill control materials such as sorbents, tools and any other necessary materials to be kept on site in the vicinity of the project transformers in a secure central location to deal with small spills from maintenance vehicles and project equipment. All project transformers have a secondary oil containment area designed to sufficiently capture and contain all the oil present within each transformer. At a minimum, the following materials will be available on site:

- A 32-gallon barrel marked "Spill Kit"

- Sorbents capable of absorbing up to 21 gallons of oil
- Large “industrial” garbage bags and a small shovel

In addition, the O&M representative shall carry their own small spill kit to deal with spills from maintenance vehicles.

Space provided below for future determination of responsible parties.

Plan Preparer/ Project Design Engineer: Ian A. Jewkes, Maine PE #17165
Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446
(802) 878-0375

Project Owner: Branch Renewable Energy

O&M Firm:

Section 5.0 – Inspection Procedure

The Operations and Maintenance (O&M) Firm will complete the following inspections of the site:

- Daily
Inspection of Oil Gauge Alarm if tripped.
- Monthly
Visual inspection of the site to look for evidence of leaking oil or spills, obvious faulty operation of the transformer, and obvious physical damage or deterioration of the transformer. Faulty transformer operation would be indicated by excessive noise or transformer surface temperature. If any oil discharges are noted, or the potential for an oil discharge is noted, measures shall be deployed to contain the oil in place before initiating cleanup. The intent of this requirement is to ensure that transformer oil does not reach sensitive environmental features. All materials necessary for the containment

and clean-up of a spill shall be inventoried to determine a sufficient quantity is on-site and checked for expiration each month.

- Bi-Annually

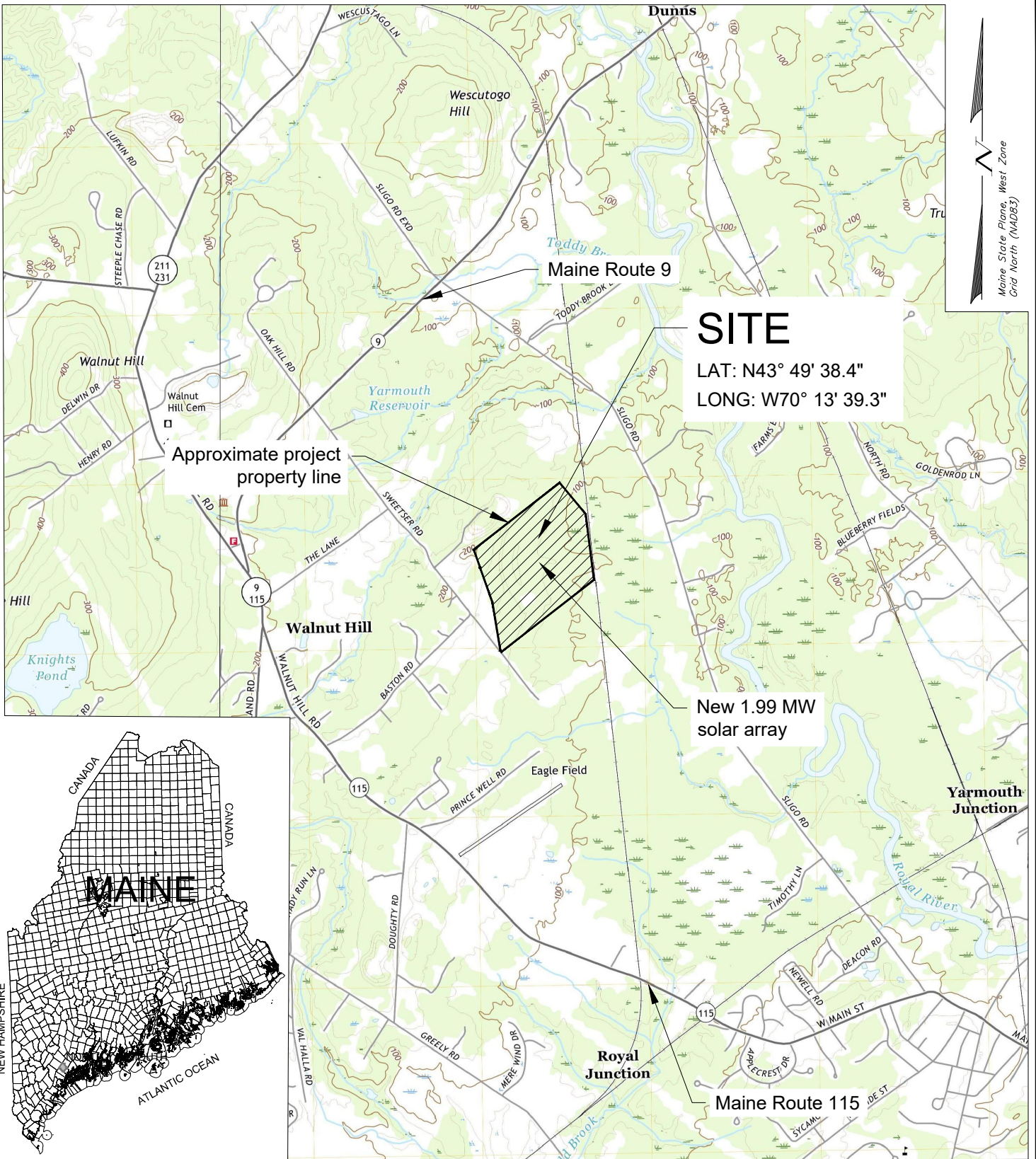
Same as monthly inspection plus a more detailed examination of the transformer. The exterior of the transformer will be carefully inspected for signs of corrosion, deterioration, or physical damage. This inspection will include opening the transformer cabinet. The interior of the cabinet area will be examined for corrosion. The oil level sight glass inside the transformer will be examined and the oil level recorded. The oil level will be compared to earlier measurements. Sampling port and pressure relief valve will be examined for damage or any signs of oil leakage/discharge. No inspection of the permeable reactive barrier membrane is required for systems with a permeable reactive barrier window in the containment membrane. If the system has been fitted with any Petro Plug type permeable reactive barrier control a detailed examination of the Petro-Pipe reactive plug outlet shall be completed. Plug should be functioning properly. Debris shall be cleaned from around the filter cage. Plug should be replaced if not functioning properly, i.e. water is dammed in secondary containment basin or plug is physically damaged. The O&M Firm will also review the Tier I Spill Prevention, Control, and Countermeasures Plan and the associated Oil Spill Contingency Plan documents and determine if any updates are needed. Any updates will be completed prior to the next monthly inspection.

Section 6.0 – Reporting Requirements

The Operations and Maintenance Firm (O&M Firm) will report any deficiencies to the Owner. If repairs are needed, the Operations and Maintenance Firm (O&M Firm) will return to the site after the repairs and complete the "Bi-Annual" inspection procedure. If the transformer oil is discharged for any reason this event will be reported to the EPA. This reporting will be in strict conformance with the requirements defined in the attached U.S. Environmental Protection Agency Tier I Qualified Facility SPCC Plan Template. Additionally, the Maine DEP has stringent oil spill reporting requirements. All spills must be reported to the Maine DEP within two hours of discovery. To report an oil spill, call the Maine DEP's 24-hour emergency spill hotline at (800) 482-0777.

Appendix A

Location Map

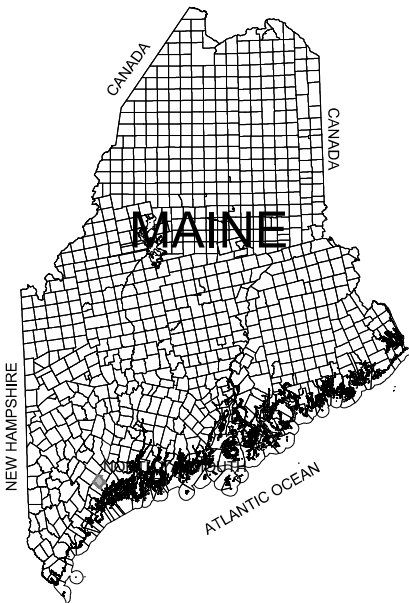


Maine State Plane, West Zone
Grid North (NAD83)

SITE
LAT: N43° 49' 38.4"
LONG: W70° 13' 39.3"

Approximate project property line

New 1.99 MW solar array



164 Main Street, Suite 201
Colchester, Vermont 05446
P: (802) 878-0375
www.krebsandlansing.com

LOCATION MAP

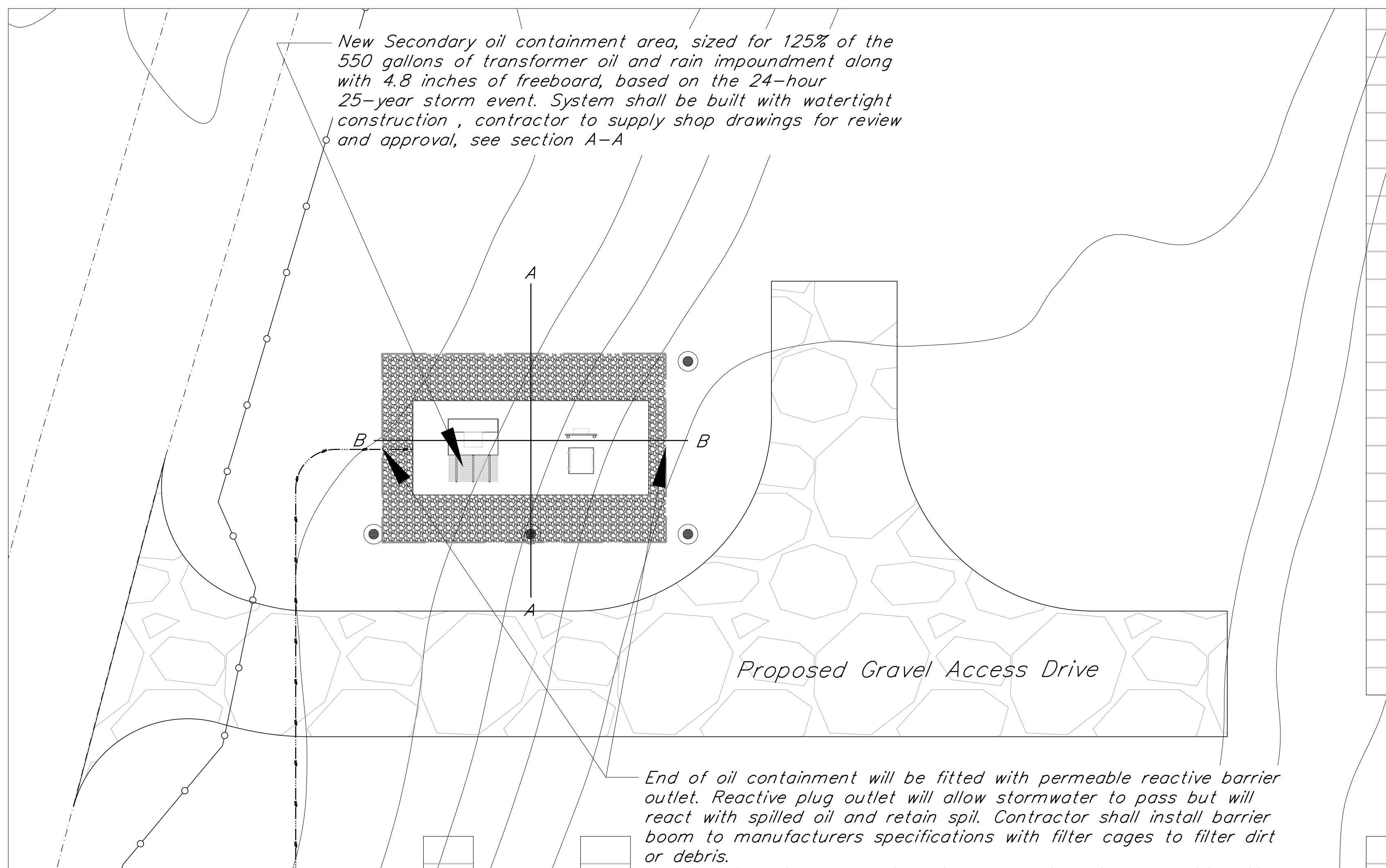
WATER LINE SOLAR
North Yarmouth, Maine



Drawn by: EJM
Date: March 14, 2022
Project #: 21388
Scale: 1" = 1/2 Mile

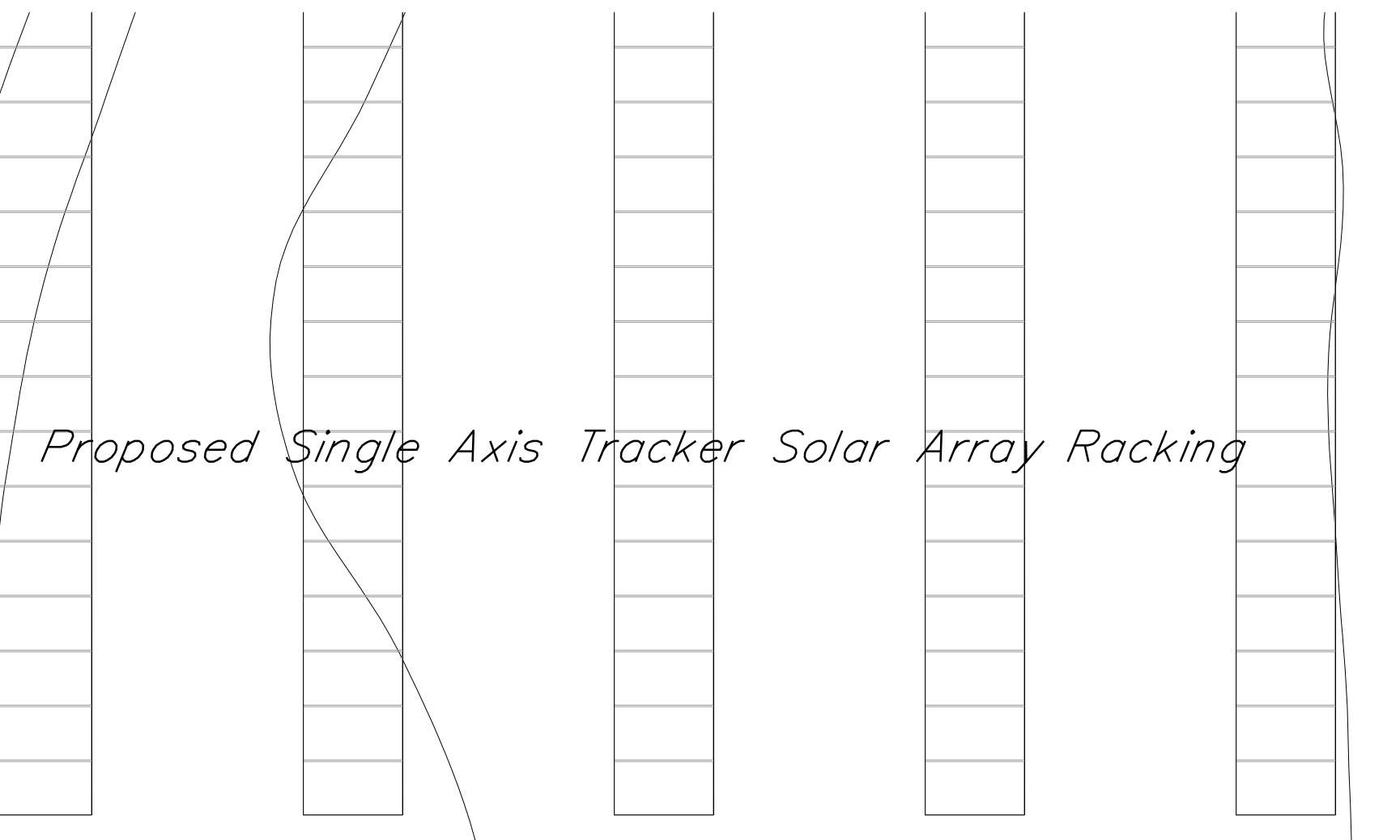
Appendix B

Transformer Secondary Oil Containment Plan



Note:

The O&M firm will review the installation for safety and code compliance (by the appropriate qualified licensed mechanical and electrical professional), accurate and up to date reporting information and updates required. please note that the Krebs and Lansing Consulting Engineers Inc. work pertains to the stormwater controls only. the safety and code compliance portion of the design and review shall be completed by the appropriate licensed mechanical and electrical professionals (engineers) hired by the O&M firm prior to construction of the project. Any appropriate code or safety modifications dictated by that review shall be incorporated into O&M protocols for the site prior to construction commencing.



VOLUME CALCULATIONS:

Required Capacity:
 125% of the 550 Gallons of Transformer Oil = 687.5 gal. = 92.0 c.f.

Required minimum freeboard (24-hour Duration, 25 Year Storm) = 5.8" or 0.48'

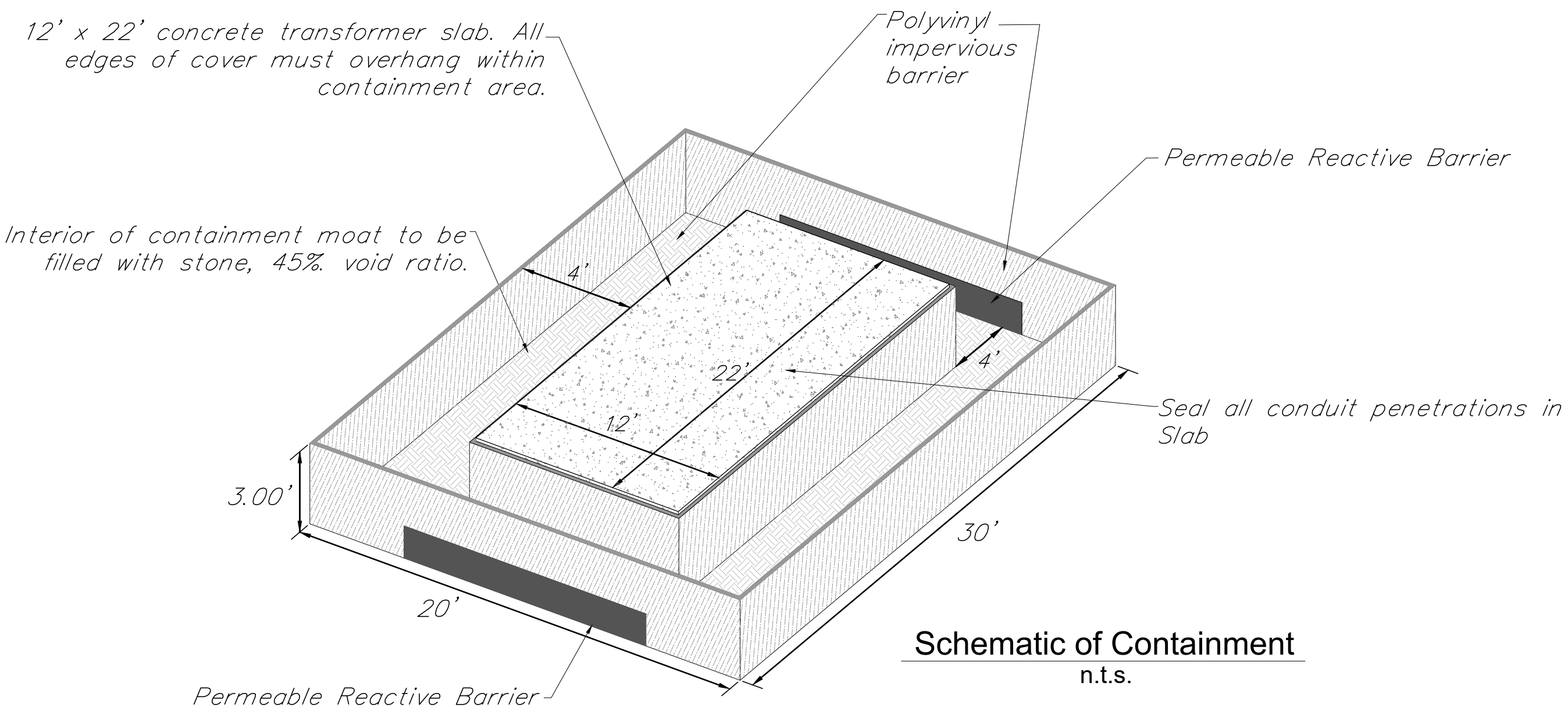
Containment Area & Pad = 20' x 30' = 600 s.f.
 Volume of freeboard required = 600 s.f. x 0.48 ft. = 288.0 c.f.

Total Capacity Required = 92.0 c.f. + 288.0 c.f. = 380.0 c.f.

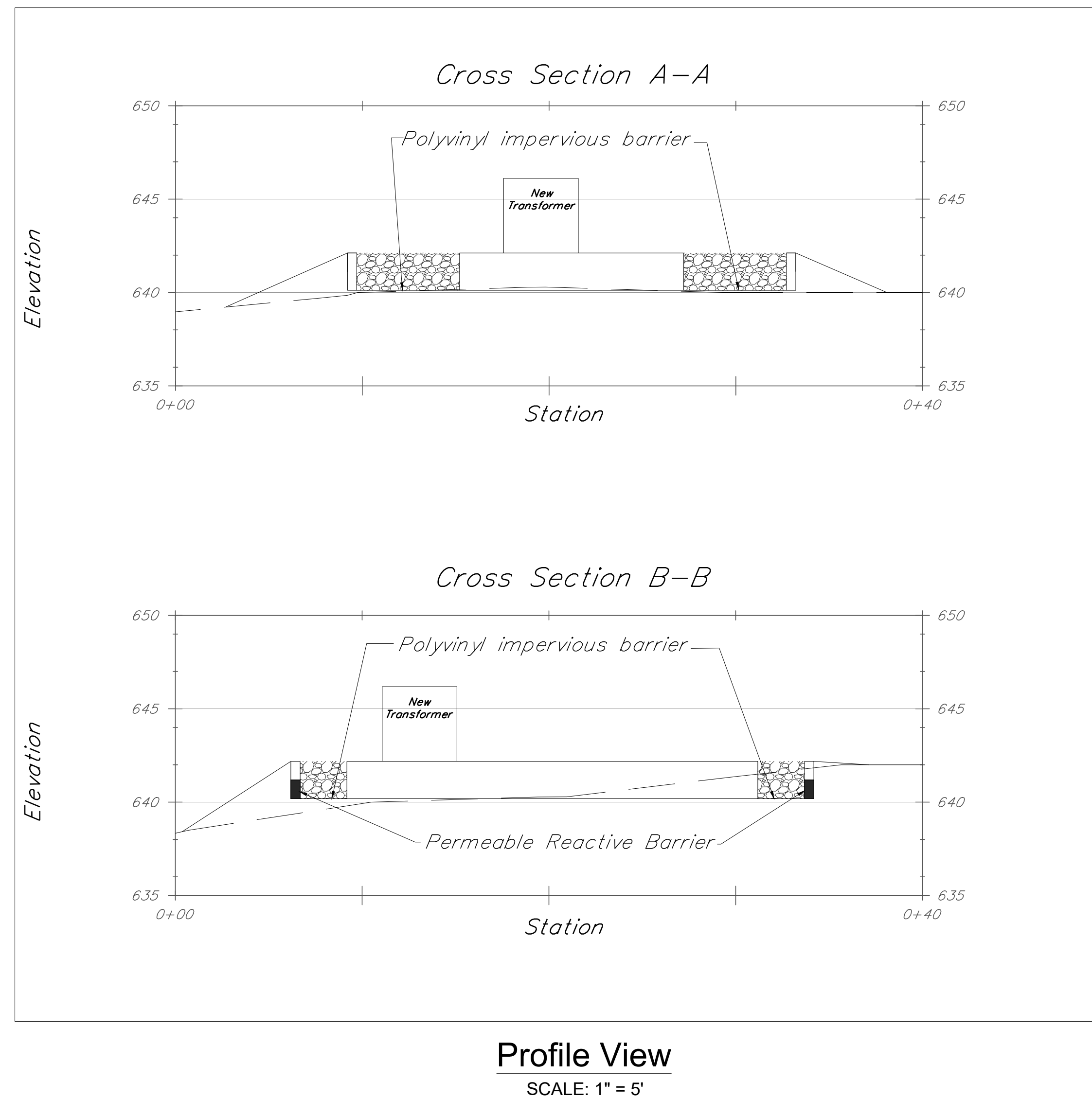
Capacity Provided in Secondary Oil Containment System:
 Area of containment = (20'x30') - (12'x22') = 336.0 s.f.
 Volume of Containment = 336.0 s.f. x 3.00' of depth = 1,008.0 c.f.
 When filled with stone with 45% void ratio = 1,008.0 c.f. * 0.45 = 453.4 c.f.
 Total Capacity Provided = 453.4 c.f. > 380.0 c.f. required

Plan View of Typical Transformer Area

SCALE: 1" = 10'



Typical Transformer Site Area



WATER LINE SOLAR

North Yarmouth, Maine

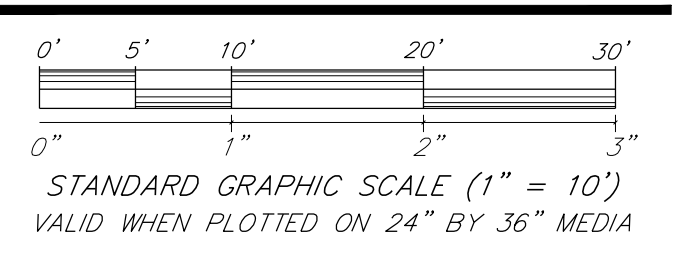


238 Sweetser Road, North Yarmouth, Maine 04097



ISSUED FOR CLIENT REVIEW
NOT FOR CONSTRUCTION

SOURCE DATA LEGEND
 MAPPING SOURCE DATA USED FOR PLAN COMPILATION
 Civil Engineering:
 Krebs and Lansing Consulting Engineers, Inc.
 164 Main Street, Suite 201
 Colchester, Vermont 05446



Secondary Transformer Oil Containment Plan

REV. NO.	REVISIONS/COMMENTS	DATE

Drawing Title:

**WATER LINE SOLAR
SECONDARY TRANSFORMER
OIL CONTAINMENT**

DATE of Issue: 03/14/2022
 Drawn by: EJM Checked by: IAJ
 Project No.: 21388 Scale: N/A
 Drawing No.: Rev No.:

C-1.0

Appendix C

Transformer Secondary Oil Containment Capacity Calculations

Water Line Solar
North Yarmouth, Maine

Required Capacity:

125% of the 550 Gallons of Transformer Oil = 687.5 gal. = 92.0 c.f.

Required minimum freeboard (24-hour Duration, 25 Year Storm) = 5.8" or 0.48'

Containment Area & Pad = 20' x 30' = 600 s.f.

Volume of freeboard required = 600 s.f. x 0.48 ft. = 288.0 c.f.

Total Capacity Required = 92.0 c.f. + 288.0 c.f. = **380.0 c.f.**

Capacity Provided in Secondary Oil Containment System:

Area of containment = (20'x30') - (12'x22') = 336.0 s.f.

Volume of Containment = 336.0 s.f. x 3.0' of depth = 1,008.0 c.f.

When filled with stone with 45% void ratio = 1,008.0 c.f. * 0.45 = 453.4 c.f.

Total Capacity Provided = **453.4 c.f. > 380.0 c.f. required**

Appendix D

U.S. EPA Tier I Qualified Facility
SPCC Plan Template



U.S. ENVIRONMENTAL PROTECTION AGENCY TIER I QUALIFIED FACILITY SPCC PLAN TEMPLATE

Instructions to Complete this Template

This template is intended to help the owner or operator of a Tier I qualified facility develop a self-certified Spill Prevention, Control, and Countermeasure (SPCC) Plan. To use this template, your facility must meet all of the applicability criteria of a Tier I qualified facility listed under §112.3(g)(1) of the SPCC rule. This template provides every SPCC rule requirement necessary for a Tier I qualified facility, which you must address and implement.

You may use this template to comply with the SPCC regulation or use it as a model and modify it as necessary to meet your facility-specific needs. If you modify the template, your Plan must include a section cross-referencing the location of each applicable requirement of the SPCC rule and you must ensure that your Plan is an equivalent Plan that meets all applicable rule requirements of 40 CFR 112.6(a)(3).

You may complete this template either electronically or by hand on a printed copy. This document is a reformatted version of the template found in Appendix G of 40 CFR part 112.^a No substantive changes have been made. Please note that a "Not Applicable" ("N/A") column has been added to both Table G-10 (General Rule Requirements for Onshore Facilities) and Table G-11 (General Rule Requirements for Onshore Oil Production Facilities). The "N/A" column should help you complete your self-certification when a required rule element does not apply to your facility. Use of the "N/A" column is optional and is not required by rule.

All Tier I qualified facility self-certifiers must complete Sections I, II, and III. Additionally, the owner or operator of an:

- Onshore facility (excluding production) must complete Section A.
- Onshore oil production facility (excluding drilling and workover facilities) must complete Section B.
- Onshore oil drilling and workover facility must complete Section C.

Complete and include with your Plan the appropriate attachments. You should consider printing copies of the attachments for use in implementing the SPCC Plan (e.g. Attachment 3.1 - Inspection Log & Schedule; Attachment 4 - Discharge Notification Form).

To complete the template, check the box next to the requirement to indicate that it has been adequately addressed. Either write "N/A" in the column or check the box under the "N/A" column to indicate those requirements that are not applicable to the facility. Where a section requires a description or listing, write in the spaces provided (or attach additional descriptions if more space is needed).

Below is a key for the colors used in the section headers:

Sections I, II, and III: Required for all Tier I qualified facilities
Section A: Onshore facilities (excluding production)
Section B: Onshore oil production facilities (excluding drilling and workover facilities)
Section C: Onshore oil drilling and workover facilities
Attachments: 1 - Five Year Review and Technical Amendment Logs 2 - Oil Spill Contingency Plan and Checklist 3 - Inspections, Dike Drainage and Personnel Training Logs 4 - Discharge Notification Form

After you have completed all appropriate sections, certify and date your Plan, and then implement it by the compliance date. If your facility was in operation before August 16, 2002, and you do not already have a Plan, then implement this template immediately. Conduct inspections and tests in accordance with the written procedures that you have developed for your facility. You must keep with the SPCC Plan a record of these inspections and tests, signed by the appropriate supervisor or inspector, for a period of three years.

Do not forget to periodically review your Plan (at least once every five years) or to update it when you make changes to your facility. You must prepare amendments within six months of the facility change, and implement them as soon as possible, but not later than six months following preparation of any amendment.

^a Please note that the use of this template is not mandatory for a Tier I qualified facility. You may also meet the SPCC Plan requirement by preparing a satisfactory Tier II qualified facility Plan, preparing a satisfactory Plan that is certified by a Professional Engineer, or by developing an equivalent Plan for a Tier I qualified facility. Further information on the requirements of these methods can be found in 40 CFR part 112.6(a)(1). If you use any of these alternative methods you must include a cross reference in your Plan that shows how the equivalent Plan meets all applicable 40 CFR part 112 requirements.

In the event that your facility releases oil to navigable waters or adjoining shorelines, immediately call the National Response Center (NRC) at 1-800-424-8802. The NRC is the federal government's centralized reporting center, which is staffed 24 hours

Tier I Qualified Facility SPCC Plan

per day by U.S. Coast Guard personnel.

This template constitutes the SPCC Plan for the facility, when completed and signed by the owner or operator of a facility that meets the applicability criteria in §112.3(g)(1). This template addresses the requirements of 40 CFR part 112. Maintain a complete copy of the Plan at the facility if the facility is normally attended at least four hours per day, or for a facility attended fewer than four hours per day, at the nearest field office. When making operational changes at a facility that are necessary to comply with the rule requirements, the owner/operator should follow state and local requirements (such as for permitting, design and construction) and obtain professional assistance, as appropriate.

Facility Description

Facility Name Water Line Solar

Facility Address _____

City North Yarmouth State Maine ZIP 04097

County Piscataquis County Tel. Number () -

Owner or Operator Name _____

Owner or Operator Address _____

City _____ State _____ ZIP _____

County _____ Tel. Number () -

I. Self-Certification Statement (§112.6(a)(1))

The owner or operator of a facility certifies that each of the following is true in order to utilize this template to comply with the SPCC requirements:

I _____ certify that the following is accurate:

1. I am familiar with the applicable requirements of 40 CFR part 112;
2. I have visited and examined the facility;
3. This Plan was prepared in accordance with accepted and sound industry practices and standards;
4. Procedures for required inspections and testing have been established in accordance with industry inspection and testing standards or recommended practices;
5. I will fully implement the Plan;
6. This facility meets the following qualification criteria (under §112.3(g)(1)):
 - a. The aggregate aboveground oil storage capacity of the facility is 10,000 U.S. gallons or less; and
 - b. The facility has had no single discharge as described in §112.1(b) exceeding 1,000 U.S. gallons and no two discharges as described in §112.1(b) each exceeding 42 U.S. gallons within any twelve month period in the three years prior to the SPCC Plan self-certification date, or since becoming subject to 40 CFR part 112 if the facility has been in operation for less than three years (not including oil discharges as described in §112.1(b) that are the result of natural disasters, acts of war, or terrorism); and
 - c. There is no individual oil storage container at the facility with an aboveground capacity greater than 5,000 U.S. gallons.
7. This Plan does not deviate from any requirement of 40 CFR part 112 as allowed by §112.7(a)(2) (environmental equivalence) and §112.7(d) (impracticability of secondary containment) or include any measures pursuant to §112.9(c)(6) for produced water containers and any associated piping;
8. This Plan and individual(s) responsible for implementing this Plan have the full approval of management and I have committed the necessary resources to fully implement this Plan.

I also understand my other obligations relating to the storage of oil at this facility, including, among others:

1. To report any oil discharge to navigable waters or adjoining shorelines to the appropriate authorities. Notification information is included in this Plan.
2. To review and amend this Plan whenever there is a material change at the facility that affects the potential for an oil discharge, and at least once every five years. Reviews and amendments are recorded in an attached log [See Five Year Review Log and Technical Amendment Log in Attachments 1.1 and 1.2.]
3. Optional use of a contingency plan. A contingency plan:
 - a. May be used in lieu of secondary containment for qualified oil-filled operational equipment, in accordance with the requirements under §112.7(k), and;
 - b. Must be prepared for flowlines and/or intra-facility gathering lines which do not have secondary containment at an oil production facility, and;
 - c. Must include an established and documented inspection or monitoring program; must follow the provisions of 40 CFR part 109; and must include a written commitment of manpower, equipment and materials to expeditiously remove any quantity of oil discharged that may be harmful. If applicable, a copy of the contingency plan and any additional documentation will be attached to this Plan as Attachment 2.

I certify that I have satisfied the requirement to prepare and implement a Plan under §112.3 and all of the requirements under §112.6(a). I certify that the information contained in this Plan is true.

Signature _____

Title: _____

Name _____

Date: ____ / ____ / 21

II. Record of Plan Review and Amendments

Five Year Review (§112.5(b)):

Complete a review and evaluation of this SPCC Plan at least once every five years. As a result of the review, amend this Plan within six months to include more effective prevention and control measures for the facility, if applicable. Implement any SPCC Plan amendment as soon as possible, but no later than six months following Plan amendment. Document completion of the review and evaluation, and complete the Five Year Review Log in Attachment 1.1. If the facility no longer meets Tier I qualified facility eligibility, the owner or operator must revise the Plan to meet Tier II qualified facility requirements, or complete a full PE certified Plan.

Table G-1 Technical Amendments (§§112.5(a), (c) and 112.6(a)(2))	
This SPCC Plan will be amended when there is a change in the facility design, construction, operation, or maintenance that materially affects the potential for a discharge to navigable waters or adjoining shorelines. Examples include adding or removing containers, reconstruction, replacement, or installation of piping systems, changes to secondary containment systems, changes in product stored at this facility, or revisions to standard operating procedures.	<input checked="" type="checkbox"/>
Any technical amendments to this Plan will be re-certified in accordance with Section I of this Plan template. [§112.6(a)(2)] [See Technical Amendment Log in Attachment 1.2]	<input checked="" type="checkbox"/>

III. Plan Requirements

1. Oil Storage Containers (§112.7(a)(3)(i)):

Table G-2 Oil Storage Containers and Capacities		
This table includes a complete list of all oil storage containers (aboveground containers ^a and completely buried tanks ^b) with capacity of 55 U.S. gallons or more, unless otherwise exempt from the rule. For mobile/portable containers, an estimated number of containers, types of oil, and anticipated capacities are provided.		<input checked="" type="checkbox"/>
Oil Storage Container <i>(indicate whether aboveground (A) or completely buried (B))</i>	Type of Oil	Shell Capacity (gallons)
(A) Transformer A	FR3 Dielectric Fluid	550

Total Aboveground Storage Capacity ^c 550 gallons
Total Completely Buried Storage Capacity 0 gallons
Facility Total Oil Storage Capacity 550 gallons

^a Aboveground storage containers that must be included when calculating total facility oil storage capacity include: tanks and mobile or portable containers; oil-filled operational equipment (e.g. transformers); other oil-filled equipment, such as flow-through process equipment. Exempt containers that are not included in the capacity calculation include: any container with a storage capacity of less than 55 gallons of oil; containers used exclusively for wastewater treatment; permanently closed containers; motive power containers; hot-mix asphalt containers; heating oil containers used solely at a single-family residence; and pesticide application equipment or related mix containers.

^b Although the criteria to determine eligibility for qualified facilities focuses on the aboveground oil storage containers at the facility, the completely buried tanks at a qualified facility are still subject to the rule requirements and must be addressed in the template; however, they are not counted toward the qualified facility applicability threshold.

^c Counts toward qualified facility applicability threshold.

2. Secondary Containment and Oil Spill Control (§§112.6(a)(3)(i) and (ii), 112.7(c) and 112.9(c)(2)):

Table G-3 Secondary Containment and Oil Spill Control	
Appropriate secondary containment and/or diversionary structures or equipment ^a is provided for all oil handling containers, equipment, and transfer areas to prevent a discharge to navigable waters or adjoining shorelines. The entire secondary containment system, including walls and floor, is capable of containing oil and is constructed so that any discharge from a primary containment system, such as a tank or pipe, will not escape the containment system before cleanup occurs.	<input checked="" type="checkbox"/>

^a Use one of the following methods of secondary containment or its equivalent: (1) Dikes, berms, or retaining walls sufficiently impervious to contain oil; (2) Curbing; (3) Culverting, gutters, or other drainage systems; (4) Weirs, booms, or other barriers; (5) Spill diversion ponds; (6) Retention ponds; or (7) Sorbent materials.

Table G-4 below identifies the tanks and containers at the facility with the potential for an oil discharge; the mode of failure; the flow direction and potential quantity of the discharge; and the secondary containment method and containment capacity that is provided.

Table G-4 Containers with Potential for an Oil Discharge					
Area	Type of failure (discharge scenario)	Potential discharge volume (gallons)	Direction of flow for uncontained discharge	Secondary containment method ^a	Secondary containment capacity (gallons)
<i>Bulk Storage Containers and Mobile/Portable Containers^b</i>					
<i>Oil-filled Operational Equipment (e.g., hydraulic equipment, transformers)^c</i>					
Transformer	Breach of Transformer wall from accident or corrosion, discharge from pressure relieve valve due to overpressure condition	550		Rectangular Remote Impoundment Structure	3,392 per transformer
<i>Piping, Valves, etc.</i>					
Fittings on Transformers	Relief Valve			Rectangular Remote Impoundment Structure	3,392 per transformer
	Level Gauge			Rectangular Remote Impoundment Structure	3,392 per transformer
<i>Product Transfer Areas (location where oil is loaded to or from a container, pipe or other piece of equipment.)</i>					
<i>Other Oil-Handling Areas or Oil-Filled Equipment (e.g. flow-through process vessels at an oil production facility)</i>					

^a Use one of the following methods of secondary containment or its equivalent: (1) Dikes, berms, or retaining walls sufficiently impervious to contain oil; (2) Curbing; (3) Culverting, gutters, or other drainage systems; (4) Weirs, booms, or other barriers; (5) Spill diversion ponds; (6) Retention ponds; or (7) Sorbent materials.

^b For storage tanks and bulk storage containers, the secondary containment capacity must be at least the capacity of the largest container plus additional capacity to contain rainfall or other precipitation.

^c For oil-filled operational equipment: Document in the table above if alternative measures to secondary containment (as described in §112.7(k)) are implemented at the facility.

3. Inspections, Testing, Recordkeeping and Personnel Training (§§112.7(e) and (f), 112.8(c)(6) and (d)(4), 112.9(c)(3), 112.12(c)(6) and (d)(4)):

Table G-5 Inspections, Testing, Recordkeeping and Personnel Training	
An inspection and/or testing program is implemented for all aboveground bulk storage containers and piping at this facility. [§§112.8(c)(6) and (d)(4), 112.9(c)(3), 112.12(c)(6) and (d)(4)]	<input checked="" type="checkbox"/>
The following is a description of the inspection and/or testing program (e.g. reference to industry standard utilized, scope, frequency, method of inspection or test, and person conducting the inspection) for all aboveground bulk storage containers and piping at this facility:	
<p>1) Assign qualified employees of the firm hired to complete the Operations and Maintenance of the facility (the O&M Firm) to perform periodic inspections of the transformer and surrounding area.</p> <p>2) The O&M Firm will review the SPCC Plan for completeness, accurate and up to date reporting information and updates required. O&M Firm shall complete all updates to the SPCC Plan.</p> <p>3) The firm shall complete the inspections, associated logs and record keeping as detailed below:</p> <p>Daily - Inspection of oil gauge alarm if tripped.</p> <p>Monthly - Visual inspection of the site to look for leaking oil, obvious faulty operation of the transformer, and obvious physical damage to the transformer. Faulty transformer operation would be indicated by excessive noise or transformer surface temperature.</p> <p>Bi-Annually - Same as monthly inspection plus a more detailed examination of the transformer. The exterior of the transformer will be carefully inspected for signs of corrosion, deterioration, or physical damage. This inspection will include opening the transformer cabinet. The interior of the cabinet area will be examined for corrosion. The oil level sight glass inside the transformer will be examined and the oil level recorded. The oil level will be compared to earlier measurements. Sampling port and pressure relief valve will be examined for damage or any signs of oil leakage/discharge. The O&M Firm will also examine review the Tier I Spill Prevention, Control, and Countermeasures Plan and the associated Oil Spill Contingency Plan documents and determine if any updates are needed. Any updates will be completed prior to the next monthly inspection.</p>	
Inspections, tests, and records are conducted in accordance with written procedures developed for the facility. Records of inspections and tests kept under usual and customary business practices will suffice for purposes of this paragraph. [§112.7(e)]	<input checked="" type="checkbox"/>
A record of the inspections and tests are kept at the facility or with the SPCC Plan for a period of three years. [§112.7(e)] [See Inspection Log and Schedule in Attachment 3.1]	<input checked="" type="checkbox"/>
Inspections and tests are signed by the appropriate supervisor or inspector. [§112.7(e)]	<input checked="" type="checkbox"/>
Personnel, training, and discharge prevention procedures [§112.7(f)]	
Oil-handling personnel are trained in the operation and maintenance of equipment to prevent discharges; discharge procedure protocols; applicable pollution control laws, rules, and regulations; general facility operations; and, the contents of the facility SPCC Plan. [§112.7(f)]	<input checked="" type="checkbox"/>
A person who reports to facility management is designated and accountable for discharge prevention. [§112.7(f)]	<input checked="" type="checkbox"/>
Name/Title: <u>(Add name of responsible party once O&M firm has been selected)</u>	
Discharge prevention briefings are conducted for oil-handling personnel annually to assure adequate understanding of the SPCC Plan for that facility. Such briefings highlight and describe past reportable discharges or failures, malfunctioning components, and any recently developed precautionary measures. [§112.7(f)]	<input checked="" type="checkbox"/>
[See Oil-handling Personnel Training and Briefing Log in Attachment 3.4]	

4. Security (excluding oil production facilities) §112.7(g):**Table G-6 Implementation and Description of Security Measures**

Security measures are implemented at this facility to prevent unauthorized access to oil handling, processing, and storage area.	<input type="checkbox"/>
----------------------------------------------------------------------------------------------------------------------------------	--------------------------

The following is a description of how you secure and control access to the oil handling, processing and storage areas; secure master flow and drain valves; prevent unauthorized access to starter controls on oil pumps; secure out-of-service and loading/unloading connections of oil pipelines; address the appropriateness of security lighting to both prevent acts of vandalism and assist in the discovery of oil discharges:

- 1) The facility will have restricted gated access and perimeter fencing. Only authorized personnel from Branch Renewable Energy and the O&M Firm will have access to the site.
- 2) The transformer cabinet will be locked.

5. Emergency Procedures and Notifications (§112.7(a)(3)(iv) and 112.7(a)(5)):**Table G-7 Description of Emergency Procedures and Notifications**

The following is a description of the immediate actions to be taken by facility personnel in the event of a discharge to navigable waters or adjoining shorelines [§112.7(a)(3)(iv) and 112.7(a)(5)]:

- 1) Contact Central Maine Power and have the transformer disconnected.
- 2) Contact Maine DEP within 2 hours of discovery of the spill.
- 3) Contact Cleanup Contractor and complete actions necessary to contain and clean up spill.
- 4) Concurrently contact the Owner, National Response Center, Environmental Assistance Hotline, Fire Department, Police.
- 5) Review the spill and any possible effects on the surrounding area. Determine if any actions are needed and complete those actions.

6. Contact List (§112.7(a)(3)(vi)):

Table G-8 Contact List	
Contact Organization / Person	Telephone Number
National Response Center (NRC)	1-800-424-8802
Cleanup Contractor(s) ACV Enviro Skowhegan, ME	207-474-0530
Key Facility Personnel	
Designated Person Accountable for Discharge Prevention:	Office:
	Emergency:
Central Maine Power	Office: 800-565-3181
	Emergency: 1-800-696-1000
Maine Department of Environmental Protection	Office: 207-287-7688
	Emergency: 800-482-0777
	Office:
	Emergency:
State Oil Pollution Control Agencies Maine DEP Hazardous Material Spill Hotline (24/7/365)	800-452-4664
Other State, Federal, and Local Agencies Cumberland County EMA	207-892-6785
Local Fire Department North Yarmouth Fire Department	207-829-3025
Local Police Department Cumberland Police Department	207-829-6391
Hospital Mid Coast Hospital	207-373-6000
Other Contact References (e.g., downstream water intakes or neighboring facilities)	

7. NRC Notification Procedure (§112.7(a)(4) and (a)(5)):

Table G-9 NRC Notification Procedure	
In the event of a discharge of oil to navigable waters or adjoining shorelines, the following information identified in Attachment 4 will be provided to the National Response Center immediately following identification of a discharge to navigable waters or adjoining shorelines [See Discharge Notification Form in Attachment 4]: [§112.7(a)(4)]	<input checked="" type="checkbox"/>
<ul style="list-style-type: none"> • The exact address or location and phone number of the facility; • Date and time of the discharge; • Type of material discharged; • Estimate of the total quantity discharged; • Estimate of the quantity discharged to navigable waters; • Source of the discharge; 	<ul style="list-style-type: none"> • Description of all affected media; • Cause of the discharge; • Any damages or injuries caused by the discharge; • Actions being used to stop, remove, and mitigate the effects of the discharge; • Whether an evacuation may be needed; and • Names of individuals and/or organizations who have also been contacted.

8. SPCC Spill Reporting Requirements (Report within 60 days) (§112.4):

Submit information to the EPA Regional Administrator (RA) and the appropriate agency or agencies in charge of oil pollution control activities in the State in which the facility is located within 60 days from one of the following discharge events:

- A single discharge of more than 1,000 U.S. gallons of oil to navigable waters or adjoining shorelines or
- Two discharges to navigable waters or adjoining shorelines each more than 42 U.S. gallons of oil occurring within any twelve month period

You must submit the following information to the RA:

- (1) Name of the facility;
- (2) Your name;
- (3) Location of the facility;
- (4) Maximum storage or handling capacity of the facility and normal daily throughput;
- (5) Corrective action and countermeasures you have taken, including a description of equipment repairs and replacements;
- (6) An adequate description of the facility, including maps, flow diagrams, and topographical maps, as necessary;
- (7) The cause of the reportable discharge, including a failure analysis of the system or subsystem in which the failure occurred; and
- (8) Additional preventive measures you have taken or contemplated to minimize the possibility of recurrence
- (9) Such other information as the Regional Administrator may reasonably require pertinent to the Plan or discharge

* * * * *

NOTE: Complete one of the following sections (A, B or C) as appropriate for the facility type.

A. Onshore Facilities (excluding production) (§§112.8(b) through (d), 112.12(b) through (d)):

The owner or operator must meet the general rule requirements as well as requirements under this section. Note that not all provisions may be applicable to all owners/operators. For example, a facility may not maintain completely buried metallic storage tanks installed after January 10, 1974, and thus would not have to abide by requirements in §§112.8(c)(4) and 112.12(c)(4), listed below. **In cases where a provision is not applicable, write "N/A".**

Table G-10 General Rule Requirements for Onshore Facilities		N/A
Drainage from diked storage areas is restrained by valves to prevent a discharge into the drainage system or facility effluent treatment system, except where facility systems are designed to control such discharge. Diked areas may be emptied by pumps or ejectors that must be manually activated after inspecting the condition of the accumulation to ensure no oil will be discharged. [§§112.8(b)(1) and 112.12(b)(1)]	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Valves of manual, open-and-closed design are used for the drainage of diked areas. [§§112.8(b)(2) and 112.12(b)(2)]	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The containers at the facility are compatible with materials stored and conditions of storage such as pressure and temperature. [§§112.8(c)(1) and 112.12(c)(1)]	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Secondary containment for the bulk storage containers (including mobile/portable oil storage containers) holds the capacity of the largest container plus additional capacity to contain precipitation. Mobile or portable oil storage containers are positioned to prevent a discharge as described in §112.1(b). [§112.6(a)(3)(ii)]	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If uncontaminated rainwater from diked areas drains into a storm drain or open watercourse the following procedures will be implemented at the facility: [§§112.8(c)(3) and 112.12(c)(3)] <ul style="list-style-type: none"> • Bypass valve is normally sealed closed • Retained rainwater is inspected to ensure that its presence will not cause a discharge to navigable waters or adjoining shorelines • Bypass valve is opened and resealed under responsible supervision • Adequate records of drainage are kept [See Dike Drainage Log in Attachment 3.3] 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
For completely buried metallic tanks installed on or after January 10, 1974 at this facility [§§112.8(c)(4) and 112.12(c)(4)]: <ul style="list-style-type: none"> • Tanks have corrosion protection with coatings or cathodic protection compatible with local soil conditions. • Regular leak testing is conducted. 	<input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
For partially buried or bunkered metallic tanks [§112.8(c)(5) and §112.12(c)(5)]: <ul style="list-style-type: none"> • Tanks have corrosion protection with coatings or cathodic protection compatible with local soil conditions. 	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Each aboveground bulk container is tested or inspected for integrity on a regular schedule and whenever material repairs are made. Scope and frequency of the inspections and inspector qualifications are in accordance with industry standards. Container supports and foundations are regularly inspected. [See Inspection Log and Schedule and Bulk Storage Container Inspection Schedule in Attachments 3.1 and 3.2] [§112.8(c)(6) and §112.12(c)(6)(i)]	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Outsides of bulk storage containers are frequently inspected for signs of deterioration, discharges, or accumulation of oil inside diked areas. [See Inspection Log and Schedule in Attachment 3.1] [§§112.8(c)(6) and 112.12(c)(6)]	<input checked="" type="checkbox"/>	<input type="checkbox"/>
For bulk storage containers that are subject to 21 CFR part 110 which are shop-fabricated, constructed of austenitic stainless steel, elevated and have no external insulation, formal visual inspection is conducted on a regular schedule. Appropriate qualifications for personnel performing tests and inspections are documented. [See Inspection Log and Schedule and Bulk Storage Container Inspection Schedule in Attachments 3.1 and 3.2] [§112.12(c)(6)(ii)]	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Table G-10 General Rule Requirements for Onshore Facilities		N/A
Each container is provided with a system or documented procedure to prevent overfills for the container. Describe: 1) The transformer has an oil level gauge inside the cabinet. The oil level shall be monitored when filling. 2) Drip pans shall be used under fittings if refilling of the transformer oil is required. 3) A spill kit will be used to contain any small spills.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Liquid level sensing devices are regularly tested to ensure proper operation [See Inspection Log and Schedule in Attachment 3.1] . <i>[\$112.6(a)(3)(iii)]</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Visible discharges which result in a loss of oil from the container, including but not limited to seams, gaskets, piping, pumps, valves, rivets, and bolts are promptly corrected and oil in diked areas is promptly removed. <i>[\$112.8(c)(10) and 112.12(c)(10)]</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Aboveground valves, piping, and appurtenances such as flange joints, expansion joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and metal surfaces are inspected regularly. [See Inspection Log and Schedule in Attachment 3.1] <i>[\$112.8(d)(4) and 112.12(d)(4)]</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Integrity and leak testing are conducted on buried piping at the time of installation, modification, construction, relocation, or replacement. [See Inspection Log and Schedule in Attachment 3.1] <i>[\$112.8(d)(4) and 112.12(d)(4)]</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

B. Onshore Oil Production Facilities (excluding drilling and workover facilities) (§112.9(b), (c), and (d)):

The owner or operator must meet the general rule requirements as well as the requirements under this section. Note that not all provisions may be applicable to all owners/operators. **In cases where a provision is not applicable, write "N/A".**

Table G-11 General Rule Requirements for Onshore Oil Production Facilities		N/A
At tank batteries, separation and treating areas, drainage is closed and sealed except when draining uncontaminated rainwater. Accumulated oil on the rainwater is returned to storage or disposed of in accordance with legally approved methods. [§112.9(b)(1)]	<input type="checkbox"/>	<input type="checkbox"/>
Prior to drainage, diked areas are inspected and [§112.9(b)(1)]: <ul style="list-style-type: none"> Retained rainwater is inspected to ensure that its presence will not cause a discharge to navigable waters Bypass valve is opened and resealed under responsible supervision Adequate records of drainage are kept [See Dike Drainage Log in Attachment 3.3] 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Field drainage systems and oil traps, sumps, or skimmers are inspected at regularly scheduled intervals for oil, and accumulations of oil are promptly removed [See Inspection Log and Schedule in Attachment 3.1] [§112.9(b)(2)]	<input type="checkbox"/>	<input type="checkbox"/>
The containers used at this facility are compatible with materials stored and conditions of storage. [§112.9(c)(1)]	<input type="checkbox"/>	<input type="checkbox"/>
All tank battery, separation, and treating facility installations (except for flow-through process vessels) are constructed with a capacity to hold the largest single container plus additional capacity to contain rainfall. Drainage from undiked areas is safely confined in a catchment basin or holding pond. [§112.9(c)(2)]	<input type="checkbox"/>	<input type="checkbox"/>
Except for flow-through process vessels, containers that are on or above the surface of the ground, including foundations and supports, are visually inspected for deterioration and maintenance needs on a regular schedule. [See Inspection Log and Schedule in Attachment 3.1] [§112.9(c)(3)]	<input type="checkbox"/>	<input type="checkbox"/>
New and old tank batteries at this facility are engineered/updated in accordance with good engineering practices to prevent discharges including at least one of the following: <ul style="list-style-type: none"> i. adequate container capacity to prevent overflow if regular pumping/gauging is delayed; ii. overflow equalizing lines between containers so that a full container can overflow to an adjacent container; iii. vacuum protection to prevent container collapse; or iv. high level sensors to generate and transmit an alarm to the computer where the facility is subject to a computer production control system. [§112.9(c)(4)] 	<input type="checkbox"/>	<input type="checkbox"/>
Flow-through process vessels and associated components are: <ul style="list-style-type: none"> Are constructed with a capacity to hold the largest single container plus additional capacity to contain rainfall. Drainage from undiked areas is safely confined in a catchment basin or holding pond; [§112.9(c)(2)] and That are on or above the surface of the ground, including foundations and supports, are visually inspected for deterioration and maintenance needs on a regular schedule. [See Inspection Log and Schedule in Attachment 3.1] [§112.9(c)(3)] <p>Or</p> <ul style="list-style-type: none"> Visually inspected and/or tested periodically and on a regular schedule for leaks, corrosion, or other conditions that could lead to a discharge to navigable waters; and Corrective action or repairs are applied to flow-through process vessels and any associated components as indicated by regularly scheduled visual inspections, tests, or evidence of an oil discharge; and Any accumulations of oil discharges associated with flow-through process vessels are promptly removed; and Flow-through process vessels are provided with a secondary means of containment for the entire capacity of the largest single container and sufficient freeboard to contain precipitation within six months of a discharge from flow-through process vessels of more than 1,000 U.S. gallons of oil in a single discharge as described in §112.1(b), or a discharge more than 42 U.S. gallons of oil in each of two discharges as described in §112.1(b) within any twelve month period. [§112.9(c)(5)] <i>(Leave blank until such time that this provision is applicable.)</i> 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Table G-11 General Rule Requirements for Onshore Oil Production Facilities		N/A
All aboveground valves and piping associated with transfer operations are inspected periodically and upon a regular schedule. The general condition of flange joints, valve glands and bodies, drip pans, pipe supports, pumping well polish rod stuffing boxes, bleeder and gauge valves, and other such items are included in the inspection. [See Inspection Log and Schedule in Attachment 3.1] [§112.9(d)(1)]	<input type="checkbox"/>	<input type="checkbox"/>
An oil spill contingency plan and written commitment of resources are provided for flowlines and intra-facility gathering lines [See Oil Spill Contingency Plan and Checklist in Attachment 2 and Inspection Log and Schedule in Attachment 3.1] [§112.9(d)(3)] or Appropriate secondary containment and/or diversionary structures or equipment is provided for flowlines and intra-facility gathering lines to prevent a discharge to navigable waters or adjoining shorelines. The entire secondary containment system, including walls and floor, is capable of containing oil and is constructed so that any discharge from the pipe, will not escape the containment system before cleanup occurs.	<input type="checkbox"/>	<input type="checkbox"/>
A flowline/intra-facility gathering line maintenance program to prevent discharges from each flowline has been established at this facility. The maintenance program addresses each of the following: <ul style="list-style-type: none"> • Flowlines and intra-facility gathering lines and associated valves and equipment are compatible with the type of production fluids, their potential corrosivity, volume, and pressure, and other conditions expected in the operational environment; • Flowlines, intra-facility gathering lines and associated appurtenances are visually inspected and/or tested on a periodic and regular schedule for leaks, oil discharges, corrosion, or other conditions that could lead to a discharge as described in §112.1(b). The frequency and type of testing allows for the implementation of a contingency plan as described under part 109 of this chapter. • Corrective action and repairs to any flowlines and intra-facility gathering lines and associated appurtenances as indicated by regularly scheduled visual inspections, tests, or evidence of a discharge. • Accumulations of oil discharges associated with flowlines, intra-facility gathering lines, and associated appurtenances are promptly removed. [§112.9(d)(4)] 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
The following is a description of the flowline/intra-facility gathering line maintenance program implemented at this facility:		

C. Onshore Oil Drilling and Workover Facilities (§112.10(b), (c) and (d)):

The owner or operator must meet the general rule requirements as well as the requirements under this section.

Table G-12 General Rule Requirements for Onshore Oil Drilling and Workover Facilities	
Mobile drilling or worker equipment is positioned or located to prevent discharge as described in §112.1(b). [§112.10(b)]	<input type="checkbox"/>
Catchment basins or diversion structures are provided to intercept and contain discharges of fuel, crude oil, or oily drilling fluids. [§112.10(c)]	<input type="checkbox"/>
A blowout prevention (BOP) assembly and well control system was installed before drilling below any casing string or during workover operations. [§112.10(d)]	<input type="checkbox"/>
The BOP assembly and well control system is capable of controlling any well-head pressure that may be encountered while the BOP assembly and well control system are on the well. [§112.10(d)]	<input type="checkbox"/>

ATTACHMENT 1 – Five Year Review and Technical Amendment Logs

ATTACHMENT 1.1 – Five Year Review Log

I have completed a review and evaluation of the SPCC Plan for this facility, and will/will not amend this Plan as a result.

Table G-13 Review and Evaluation of SPCC Plan for Facility			
Review Date	Plan Amendment		Name and signature of person authorized to review this Plan
	Will Amend	Will Not Amend	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	

ATTACHMENT 1.2 – Technical Amendment Log

Any technical amendments to this Plan will be re-certified in accordance with Section I of this Plan template.

Table G-15 Description and Certification of Technical Amendments		
Review Date	Description of Technical Amendment	Name and signature of person certifying this technical amendment

ATTACHMENT 2 – Oil Spill Contingency Plan and Checklist

An oil spill contingency plan and written commitment of resources is required for:

- Flowlines and intra-facility gathering lines at oil production facilities and
- Qualified oil-filled operational equipment which has no secondary containment.

An oil spill contingency plan meeting the provisions of 40 CFR part 109, as described below, and a written commitment of manpower, equipment and materials required to expeditiously control and remove any quantity of oil discharged that may be harmful is attached to this Plan.	<input checked="" type="checkbox"/>
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------

Complete the checklist below to verify that the necessary operations outlined in 40 CFR part 109 - Criteria for State, Local and Regional Oil Removal Contingency Plans - have been included.

Table G-15 Checklist of Development and Implementation Criteria for State, Local and Regional Oil Removal Contingency Plans (§109.5)^a

(a) Definition of the authorities, responsibilities and duties of all persons, organizations or agencies which are to be involved in planning or directing oil removal operations.	<input checked="" type="checkbox"/>
(b) Establishment of notification procedures for the purpose of early detection and timely notification of an oil discharge including: (1) The identification of critical water use areas to facilitate the reporting of and response to oil discharges. (2) A current list of names, telephone numbers and addresses of the responsible persons (with alternates) and organizations to be notified when an oil discharge is discovered. (3) Provisions for access to a reliable communications system for timely notification of an oil discharge, and the capability of interconnection with the communications systems established under related oil removal contingency plans, particularly State and National plans (e.g., NCP). (4) An established, prearranged procedure for requesting assistance during a major disaster or when the situation exceeds the response capability of the State, local or regional authority.	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
(c) Provisions to assure that full resource capability is known and can be committed during an oil discharge situation including: (1) The identification and inventory of applicable equipment, materials and supplies which are available locally and regionally. (2) An estimate of the equipment, materials and supplies which would be required to remove the maximum oil discharge to be anticipated. (3) Development of agreements and arrangements in advance of an oil discharge for the acquisition of equipment, materials and supplies to be used in responding to such a discharge.	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
(d) Provisions for well defined and specific actions to be taken after discovery and notification of an oil discharge including: (1) Specification of an oil discharge response operating team consisting of trained, prepared and available operating personnel. (2) Predesignation of a properly qualified oil discharge response coordinator who is charged with the responsibility and delegated commensurate authority for directing and coordinating response operations and who knows how to request assistance from Federal authorities operating under existing national and regional contingency plans. (3) A preplanned location for an oil discharge response operations center and a reliable communications system for directing the coordinated overall response operations. (4) Provisions for varying degrees of response effort depending on the severity of the oil discharge. (5) Specification of the order of priority in which the various water uses are to be protected where more than one water use may be adversely affected as a result of an oil discharge and where response operations may not be adequate to protect all uses. (6) Specific and well defined procedures to facilitate recovery of damages and enforcement measures as provided for by State and local statutes and ordinances.	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>

^a The contingency plan must be consistent with all applicable state and local plans, Area Contingency Plans, and the National Contingency Plan (NCP)

ATTACHMENT 3 – Inspections, Dike Drainage and Personnel Training Logs

ATTACHMENT 3.1 – Inspection Log and Schedule

Table G-16 Inspection Log and Schedule
 This log is intended to document compliance with §§112.6(a)(3)(iii), 112.8(c)(6), 112.8(d)(4), 112.9(b)(2), 112.9(c)(3), 112.9(d)(1), 112.9(d)(4), 112.12.(c)(6), and 112.12(d)(4), as applicable.

Date of Inspection	Container / Piping / Equipment	Describe Scope (or cite Industry Standard)	Observations	Name/ Signature of Inspector	Records maintained separately ^a
		Monthly visual inspection of transformer and surrounding site as prescribed in G-5			<input type="checkbox"/>
		Monthly visual inspection of transformer and surrounding site as prescribed in G-5			<input type="checkbox"/>
		Monthly visual inspection of transformer and surrounding site as prescribed in G-5			<input type="checkbox"/>
		Monthly visual inspection of transformer and surrounding site as prescribed in G-5			<input type="checkbox"/>
		Monthly visual inspection of transformer and surrounding site as prescribed in G-5			<input type="checkbox"/>

^a Indicate in the table above if records of facility inspections are maintained separately at this facility.

ATTACHMENT 3.2 – Bulk Storage Container Inspection Schedule – onshore facilities (excluding production):

To comply with integrity inspection requirement for bulk storage containers, inspect/test each shop-built aboveground bulk storage container on a regular schedule in accordance with a recognized container inspection standard based on the minimum requirements in the following table.

Table G-17 Bulk Storage Container Inspection Schedule	
Container Size and Design Specification	Inspection requirement
Portable containers (including drums, totes, and intermodal bulk containers (IBC))	Visually inspect monthly for signs of deterioration, discharges or accumulation of oil inside diked areas
55 to 1,100 gallons with sized secondary containment	Visually inspect monthly for signs of deterioration, discharges or accumulation of oil inside diked areas plus any annual inspection elements per industry inspection standards
1,101 to 5,000 gallons with sized secondary containment and a means of leak detection ^a	
1,101 to 5,000 gallons with sized secondary containment and no method of leak detection ^a	Visually inspect monthly for signs of deterioration, discharges or accumulation of oil inside diked areas, plus any annual inspection elements and other specific integrity tests that may be required per industry inspection standards

^a Examples of leak detection include, but are not limited to, double-walled tanks and elevated containers where a leak can be visually identified.

ATTACHMENT 3.3 – Dike Drainage Log

Table G-18 Dike Drainage Log

Date	Bypass valve sealed closed	Rainwater inspected to be sure no oil (or sheen) is visible	Open bypass valve and reseal it following drainage	Drainage activity supervised	Observations	Signature of Inspector
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

ATTACHMENT 3.4 – Oil-handling Personnel Training and Briefing Log

Table G-19 Oil-Handling Personnel Training and Briefing Log

Date	Description / Scope	Attendees
	To be completed by O&M firm at commissioning of facility	

ATTACHMENT 4 – Discharge Notification Form

In the event of a discharge of oil to navigable waters or adjoining shorelines, the following information will be provided to the National Response Center [also see the notification information provided in Section 7 of the Plan]:

Table G-20 Information provided to the National Response Center in the Event of a Discharge			
Discharge/Discovery Date		Time	
Facility Name	Water Line Solar		
Facility Location (Address/Lat-Long/Section Township Range)	N43° 49' 38.4" W70° 13' 39.3"		
Name of reporting individual		Telephone #	
Type of material discharged		Estimated total quantity discharged	Gallons/Barrels
Source of the discharge		Media affected	<input type="checkbox"/> Soil
			<input type="checkbox"/> Water (specify)
			<input type="checkbox"/> Other (specify)
Actions taken			
Damage or injuries	<input type="checkbox"/> No <input type="checkbox"/> Yes (specify)	Evacuation needed?	<input type="checkbox"/> No <input type="checkbox"/> Yes (specify)
Organizations and individuals contacted	<input type="checkbox"/> National Response Center 800-424-8802 Time		
	<input type="checkbox"/> Cleanup contractor (Specify) Time		
	<input type="checkbox"/> Facility personnel (Specify) Time		
	<input type="checkbox"/> State Agency (Specify) Time		
	<input type="checkbox"/> Other (Specify) Time		

Appendix E

Oil Spill Contingency Plan

OIL SPILL CONTINGENCY PLAN

Instructions: Complete the following information to (1) generate an Oil Spill Contingency Plan that meets the provisions of 40 CFR part 109 and (2) provide a written commitment of manpower, equipment and materials required to expeditiously control and remove any quantity of oil discharged that may be harmful. The contingency plan must be consistent with all applicable state and local plans, Area Contingency Plans, and the National Contingency Plan (NCP). Attach all of the information in this Appendix to your SPCC Plan.

DISCLAIMER: Completion of this Oil Spill Contingency Plan Template does not guarantee compliance. Each owner/operator is responsible for ensuring that his or her facility meets the requirements of 40 CFR 109 and 40 CFR 112 (74 FR 58811) and its proposed revisions.

List the authorities, responsibilities, and duties of all persons, organizations or agencies which are to be involved in planning or directing oil removal operations.

Water Line Solar

Operations and Maintenance Firm (to be identified prior to site commissioning) Duties will include all inspections, reporting, SPCC Plan updates, contact with appropriate State and Federal regulatory agencies, contact and direction of Cleanup Contractor needed. ACV Enviro (Cleanup Contractor) Duties will include all removal and cleanup of spilled oil.

Establish notification procedures for the purpose of early detection and timely notification of an oil discharge including:

Identify critical water use areas.

The site eventually drains to wetlands and tributaries of the Royal River, and from there to Casco Bay.

Provide a current list of names, telephone numbers and addresses of the responsible persons and organizations to be notified when an oil discharge is discovered

See Emergency Contact Information and Table 10: Discharge Notification Form in the SPCC Plan

Access to a reliable communication system is provided for timely notification of an oil discharge. This system is capable of interconnection with the communications systems established under related oil removal contingency plans, particularly State and National Plans (e.g., NCP).

See Emergency Contact Information in the SPCC Plan

What is the procedure for requesting assistance during a major disaster or when the situation exceeds the response capability of the State, local, or regional authority?

All parties listed in Table 10 of the SPCC Plan shall be notified. All parties will be notified and the National Response Center shall be contacted in the unlikely event that the situation (spill of any transformer with up to 550 gallons of dielectric vegetable oil) exceeds the response capability of the State, local, or regional authorities.

The following provisions have been made to assure that all available resources have been identified and can be committed during an oil discharge situation including:

Identify and list applicable equipment, materials and supplies which are available locally and regionally	See <i>Emergency Cleanup Contractors/Individuals</i> information in the SPCC Plan
Estimate the type and amount of equipment, materials, and supplies which could be required to remove the maximum potential oil discharge to be anticipated	
	<p>Equipment To be completed by O&M Firm with assistance of Cleanup Contractor (ACV Enviro) prior to commissioning of facility.</p> <p>Materials To be completed by O&M Firm with assistance of Cleanup Contractor (ACV Enviro) prior to commissioning of facility.</p> <p>Supplies To be completed by O&M Firm with assistance of Cleanup Contractor (ACV Enviro) prior to commissioning of facility.</p>
<p>List entities for which agreements and arrangements in advance of an oil discharge have been developed:</p> <p>To be completed by O&M Firm with assistance of Cleanup Contractor (ACV Enviro) prior to commissioning of facility.</p>	

The following information describes the provisions made for well defined and specific actions to be taken after an oil discharge has been discovered and reported.

<p>List name and phone numbers of your designated oil discharge response team. This team must consist of trained, prepared, and available operating personnel.</p> <p>To be completed by O&M Firm with the assistance of Cleanup Contractor (ACV Enviro) prior to commissioning of facility.</p>
<p>Name the designated oil discharge response coordinator.</p> <p><input checked="" type="checkbox"/> This coordinator has the responsibility and delegated commensurate authority to direct and coordinate response operations.</p> <p><input checked="" type="checkbox"/> This coordinator knows how to request assistance from Federal authorities operating under existing national and regional contingency plans.</p>

Location of oil discharge response operations center and reliable communications system:

To be completed by the O&M Firm prior to commissioning of the facility.

Describe the response efforts and procedures that will be used for oil discharges of different severities:

To be completed by the O&M Firm prior to commissioning of the facility.

List the order in which the critical water use areas need to be protected:

Yarmouth Water District Well-Protection Areas
Royal River

Provide the well defined and detailed procedures that are in place to facilitate the recovery of damages and enforcement measures as provided for by State and local statues and ordinances:

Contact all parties as described in Item 5 of the SPCC Plan after cleanup and verify all damages are corrected or paid. Also verify that all enforcement measures resulting from the incident are completed.

WRITTEN COMMITMENT OF RESOURCES (§112.7(d)(2)):

Instructions: In the space and table below describe the manpower, equipment, and materials committed to quickly controlling and removing any quantity of discharged oil that may be harmful. List any arrangements made with individuals or contractors to share personnel, and/or equipment¹, supplies², and services³ during an emergency cleanup of an oil discharge. Attach any written agreements to this plan.

To be completed by the O&M Firm with the assistance of the Cleanup Firm (ACV Envrio) prior to site commissioning.

Table 13: Emergency Cleanup Contractors

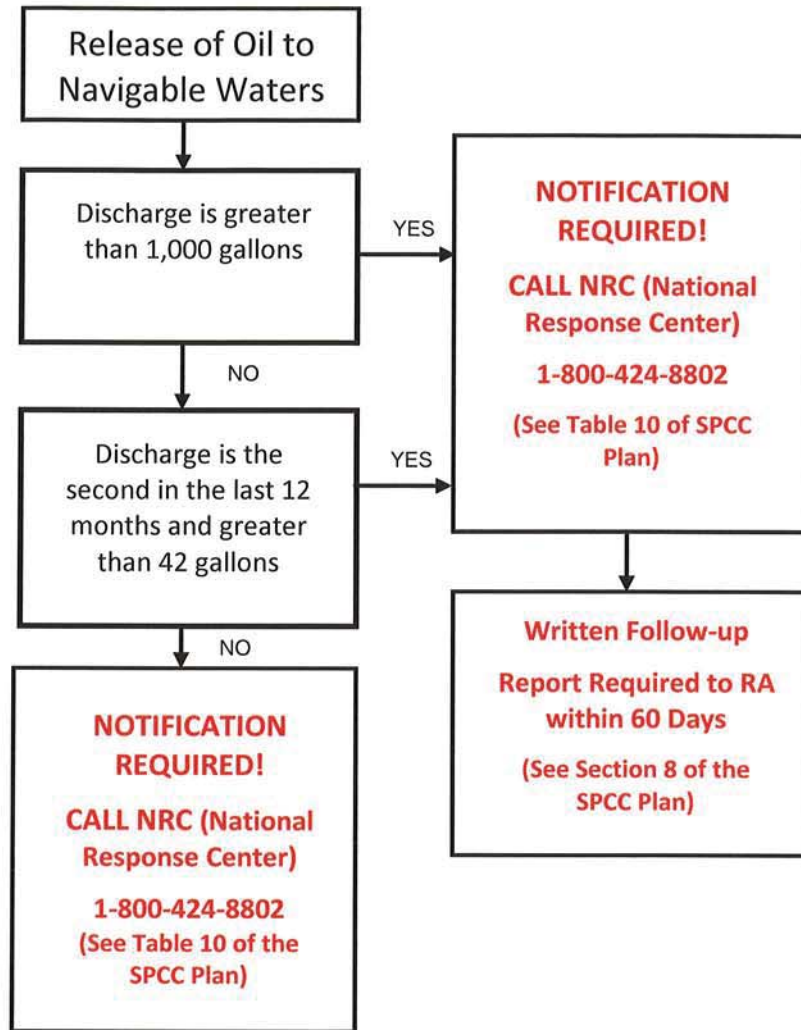
Name/Company	Signed Agreement?	Phone	Location/Address	Equipment ^a , Supplies ^b , Services ^c Provided
Branch Renewable Energy	Yes <input type="checkbox"/> No <input type="checkbox"/>			
ACV Enviro	Yes <input type="checkbox"/> No <input type="checkbox"/>			
(O&M Firm, name to be added)	Yes <input type="checkbox"/> No <input type="checkbox"/>			
	Yes <input type="checkbox"/> No <input type="checkbox"/>			
	Yes <input type="checkbox"/> No <input type="checkbox"/>			

¹ Example equipment: vacuum slurry tank, irrigation pumps, bulldozer/track loader, backhoe

² Example supplies: oil absorbent materials (pads, pillows, socks, booms)

³ Example services: emergency response cleanup

Discharge Reporting and Notification Requirements



Appendix F

Transformer Specifications

Three-phase pad-mounted compartmental type transformer



General

At Eaton, we are constantly striving to introduce new innovations to the transformer industry, bringing you the highest quality, most reliable transformers. Eaton's Cooper Power series Transformer Products are ISO 9001 compliant, emphasizing process improvement in all phases of design, manufacture, and testing. In order to drive this innovation, we have invested both time and money in the Thomas A. Edison Technical Center, our premier research facility in Franksville, Wisconsin. Such revolutionary products as distribution-class UltraSIL™ Polymer-Housed Evolution™ surge arresters and Envirotemp™ FR3™ fluid have been developed at our Franksville lab.

With transformer sizes ranging from 45 kVA to 12 MVA and high voltages ranging from 2400 V to 46 kV, Eaton has you covered. From fabrication of the tanks and cabinets to winding of the cores and coils, to production of arresters, switches, tap changers, expulsion fuses, current limit fuses, bushings (live and dead) and molded rubber goods, Eaton does it all. Eaton's Cooper Power series transformers are available with electrical grade mineral oil or Envirotemp™ FR3™ fluid, a less-flammable and bio-degradable fluid. Electrical codes recognize the advantages of using Envirotemp™ FR3™ fluid both indoors and outdoors for fire sensitive applications. The bio-based fluid meets Occupational Safety and Health Administration (OSHA) and Section 450.23 NEC Requirements.

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Powering Business Worldwide

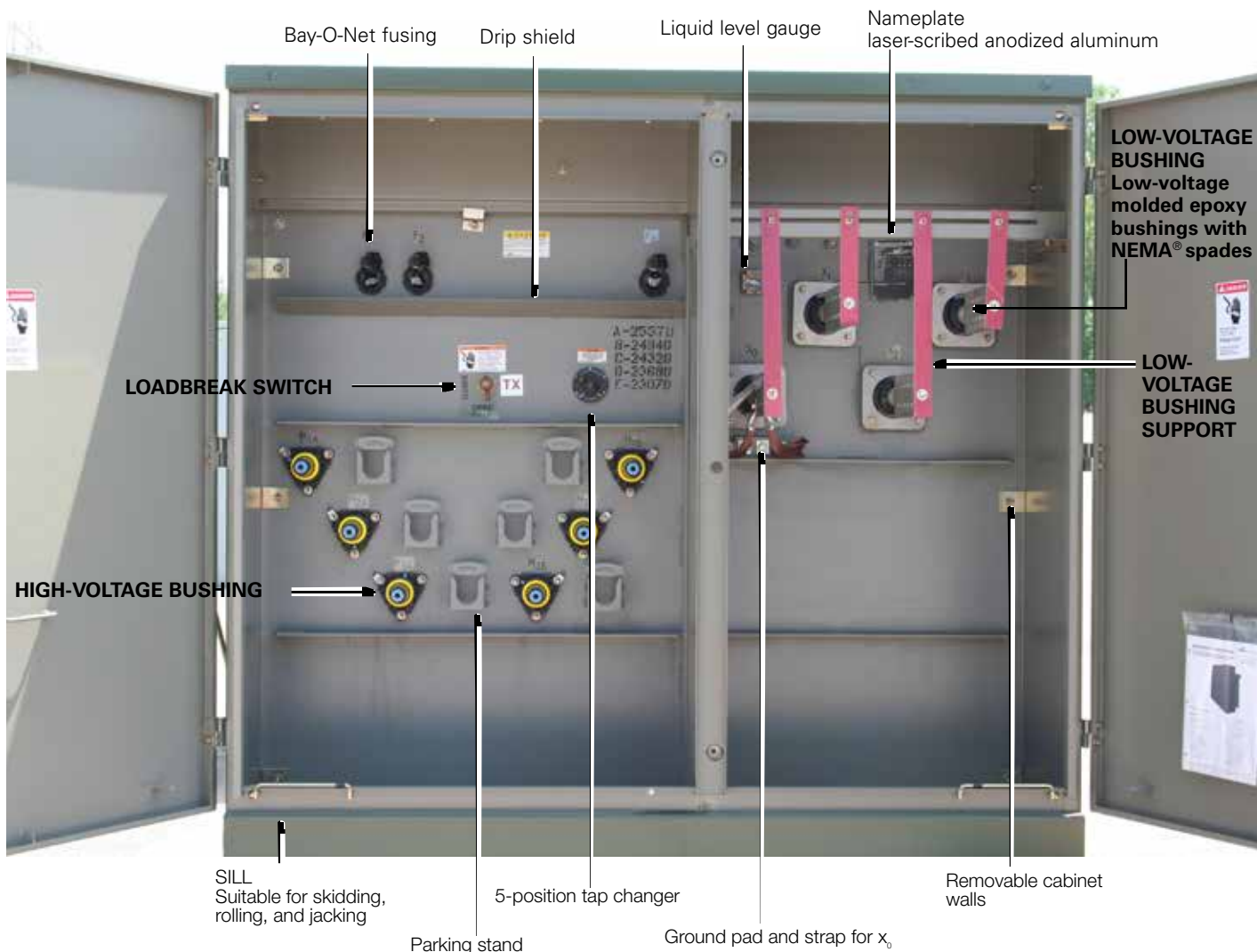


Figure 1. Three-phase pad-mounted compartmental type transformer.

Table 1. Product Scope

Type	Three Phase, 50 or 60 Hz, 65 °C Rise (55 °C, 55/65 °C), 65/75 °C, 75 °C
Fluid Type	Mineral oil or Envirotemp™ FR3™ fluid
Coil Configuration	2-winding or 4-winding or 3-winding (Low-High-Low), 3-winding (Low-Low-High)
Size	45 – 10,000 kVA
Primary Voltage	2,400 – 46,000 V
Secondary Voltage	208Y/120 V to 14,400 V
Specialty Designs	Inverter/Rectifier Bridge
	K-Factor (up to K-19)
	Vacuum Fault Interrupter (VFI)
	UL® Listed & Labeled and Classified
	Factory Mutual (FM) Approved®
	Solar/Wind Designs
	Differential Protection
	Seismic Applications (including OSHPD)
	Hardened Data Center

Table 2. Three-Phase Ratings

Three-Phase 50 or 60 Hz

kVA Available¹

45, 75, 112.5, 150, 225, 300, 500, 750, 1000, 1500, 2000, 2500, 3000, 3750, 5000, 7500, 10000

¹Transformers are available in the standard ratings and configurations shown or can be customized to meet specific needs.

Table 3. Impedance Voltage

Rating (kVA)	Low-voltage rating		
	≤ 600 V	2400 Δ through 4800 Δ	6900 Δ through 13800GY/7970 or 13800 Δ
45-75	2.70-5.75	2.70-5.75	2.70-5.75
112.5-300	3.10-5.75	3.10-5.75	3.10-5.75
500	4.35-5.75	4.35-5.75	4.35-5.75
750-2500	5.75	5.75	5.75
3750	5.75	5.75	6.00
5000		6.00	6.50

Note: The standard tolerance is ± 7.5%

Table 4. Audible Sound Levels

Self-Cooled, Two Winding kVA Rating	NEMA® TR-1 Average
	Decibels (dB)
45-500	56
501-700	57
701-1000	58
1001-1500	60
1501-2000	61
2001-2500	62
2501-3000	63
3001-4000	64
4001-5000	65
5001-6000	66
6001-7500	67
7501-10000	68

Table 5. Insulation Test Levels

KV Class	Induced Test 180 or 400 Hz 7200 Cycle	kV BIL Distribution	Applied Test 60 Hz (kV)
1.2	Twice Rated Voltage	30	10
2.5		45	15
5		60	19
8.7		75	26
15		95	34
25		125	40
34.5		150	50

Table 6. Temperature Rise Ratings 0-3300 Feet (0-1000 meters)

	Standard	Optional
Unit Rating (Temperature Rise Winding)	65 °C	55 °C, 55/65 °C, 75 °C
Ambient Temperature Max	40 °C	50 °C
Ambient Temperature 24 Hour Average	30 °C	40 °C
Temperature Rise Hotspot	80 °C	65 °C

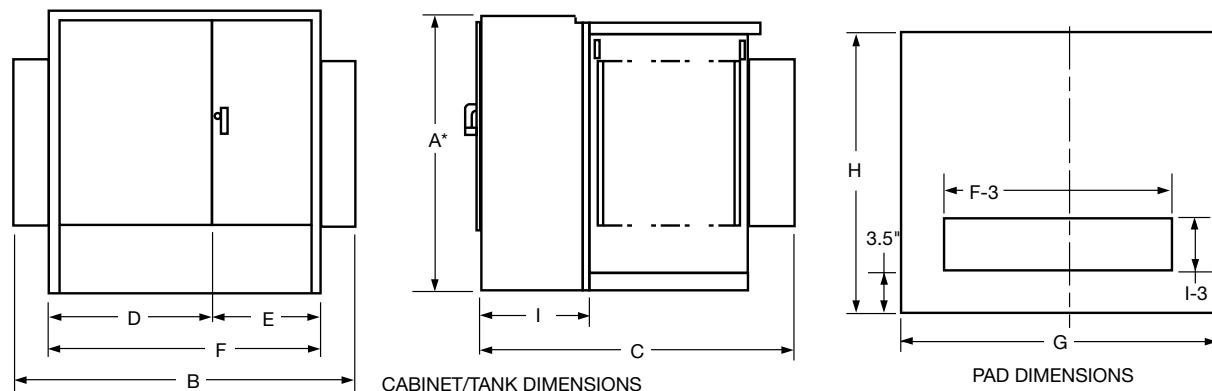


Figure 2. Transformer and pad dimensions.

* Add 9" for Bay-O-Net fusing.

Table 7. Fluid-filled—aluminum windings 55/65 °C Rise¹

65° Rise kVA Rating	DEAD-FRONT—LOOP OR RADIAL FEED—BAY-O-NET FUSING OIL FILLED—ALUMINUM WINDINGS									Gallons of Fluid	Approx. Total Weight (lbs.)
	OUTLINE DIMENSIONS (in.)										
	A*	B	C	D	E	F	G	H	I		
45	50	68	39	42	26	68	72	43	20	110	2,100
75	50	68	39	42	26	68	72	43	20	115	2,250
112.5	50	68	49	42	26	68	72	53	20	120	2,350
150	50	68	49	42	26	68	72	53	20	125	2,700
225	50	72	51	42	30	72	76	55	20	140	3,150
300	50	72	51	42	30	72	76	55	20	160	3,650
500	50	89	53	42	30	72	93	57	20	190	4,650
750	64	89	57	42	30	72	93	61	20	270	6,500
1000	64	89	59	42	30	72	93	63	20	350	8,200
1500	73	89	86	42	30	72	93	90	24	410	10,300
2000	73	72	87	42	30	72	76	91	24	490	12,500
2500	73	72	99	42	30	72	76	103	24	530	14,500
3000	73	84	99	46	37	84	88	103	24	620	16,700
3750	84	85	108	47	38	85	88	112	24	660	19,300
5000	84	96	108	48	48	96	100	112	24	930	25,000
7500	94	102	122	54	48	102	100	126	24	1,580	41,900

¹ Weights, gallons of fluid, and dimensions are for reference only and not for construction. Please contact Eaton for exact dimensions.

* Add 9" for Bay-O-Net fusing.

Table 8. Fluid-Filled—Copper Windings 55/65 °C Rise¹

65° Rise kVA Rating	DEAD-FRONT—LOOP OR RADIAL FEED—BAY-O-NET FUSING OIL FILLED—COPPER WINDINGS									Gallons of Fluid	Approx. Total Weight (lbs.)
	OUTLINE DIMENSIONS (in.)										
	A*	B	C	D	E	F	G	H	I		
45	50	64	39	34	30	64	69	43	20	110	2,100
75	50	64	39	34	30	64	69	43	20	115	2,350
112.5	50	64	49	34	30	64	69	53	20	115	2,500
150	50	64	49	34	30	64	69	53	20	120	2,700
225	50	64	51	34	30	64	73	55	20	140	3,250
300	50	64	51	34	30	64	75	55	20	160	3,800
500	50	81	53	34	30	64	85	57	20	200	4,800
750	64	89	57	42	30	72	93	61	20	255	6,500
1000	64	89	59	42	30	72	93	63	20	300	7,800
1500	73	89	86	42	30	72	93	90	24	410	10,300
2000	73	72	87	42	30	72	76	91	24	420	11,600
2500	73	72	99	42	30	72	76	103	24	500	14,000
3000	73	84	99	46	37	84	88	103	24	720	18,700
3750	84	85	108	47	38	85	88	112	24	800	20,500
5000	84	96	108	48	48	96	100	112	24	850	25,000
7500	94	102	122	54	48	102	100	126	24	1,620	46,900

¹ Weights, gallons of fluid, and dimensions are for reference only and not for construction. Please contact Eaton for exact dimensions.

* Add 9" for Bay-O-Net fusing.

Standard features

Connections and neutral configurations

- Delta - Wye: Low voltage neutral shall be a fully insulated X0 bushing with removable ground strap.
- Grounded Wye-Wye: High voltage neutral shall be internally tied to the low voltage neutral and brought out as the H0X0 bushing in the secondary compartment with a removable ground strap.
- Delta-Delta: Transformer shall be provided without a neutral bushing.
- Wye-Wye: High voltage neutral shall be brought out as the H0 bushing in the primary compartment and the low voltage neutral shall be brought as the X0- bushing in the secondary compartment.
- Wye-Delta: High voltage neutral shall be brought out as the H0 bushing in the primary compartment. No ground strap shall be provided (line to line rated fusing is required).

High and low voltage bushings

- 200 A bushing wells (15, 25, and 35 kV)
- 200 A, 35 kV Large Interface
- 600 A (15, 25, and 35 kV) Integral bushings (dead-front)
- Electrical-grade wet-process porcelain bushings (live-front)

Tank/cabinet features

- Bolted cover for tank access (45-2500 kVA)
- Welded cover with hand hole (>2500 kVA)
- Three-point latching door for security
- Removable sill for easy installation
- Lifting lugs (4)
- Stainless steel cabinet hinges and mounting studs
- Steel divider between HV and LV compartment
- 20" Deep cabinet (45-1000 kVA)
- 24" Deep cabinet (1500-7500 kVA)
- 30" Deep cabinet (34.5/19.92 kV)
- Pentahead captive bolt
- Stainless steel 1-hole ground pads (45-500 kVA)
- Stainless steel 2-hole ground pads (750-10,000 kVA)
- Parking Stands (dead-front)

Valves/plugs

- One-inch upper filling plug
- One-inch drain plug (45-500 kVA)
- One-inch combination drain valve with sampling device in low voltage compartment (750-10,000 kVA)
- Automatic pressure relief valve

Nameplate

- Laser-scribed anodized aluminum nameplate



Figure 3. Drain valve with sampler.



Figure 4. Automatic Pressure relief valve.



Figure 5. Liquid level gauge.



Figure 6. External Gauges.



Figure 7. External visible break with gauges.

Optional features

High and low voltage bushings

- 200 A (15, 25 kV) bushing inserts
- 200 A (15, 25 kV) feed thru inserts
- 200 A (15, 25 kV) (HTN) bushing wells with removable studs
- High-voltage 600 A (15, 25, 35 kV) deadbreak one-piece bushings
- Low voltage 6-, 8-holes spade
- Low voltage 12-, 16-, 20-holes spade (750-2500 kVA)
- Low voltage bushing supports

Tank/cabinet features

- Stainless steel tank base and cabinet
- Stainless steel tank base, cabinet sides and sill
- 100% stainless steel unit
- Service entrance (2 inch) in sill or cabinet side
- Touch-up paint (domestic)
- Copper ground bus bar
- Kirk-Key provisions
- Nitrogen blanket
- Bus duct cutout

Special designs

- Factory Mutual (FM)
- UL® Classified
- Triplex
- High altitude
- K-Factors
- Step-up
- Critical application
- Modulation transformers
- Seismic applications (including OSHPD)

Switches

- One, two, or three On/Off loadbreak switches
- 4-position loadbreak V-blade switch or T-blade switch
- Delta-wye switch
- 3-position V-Blade selector switch
- 100 A, 150 A, 300 A tap changers
- Dual voltage switch
- Visible break with VFI interrupter interlock
- External visible break (15, 25, and 35 kV, up to 3 MVA)
- External visible break with gauges (15, 25, and 35 kV, up to 3 MVA)

Gauges and devices

- Liquid level gauge (optional contacts)
- Pressure vacuum gauge (optional contacts and bleeder)
- Dial-type thermometer (optional alarm contacts)
- Cover mounted pressure relief device (optional alarm contacts)
- Ground connectors
- Hexhead captive bolt
- Molded case circuit breaker mounting provisions
- External gauges in padlockable box

Overcurrent protection

- Bay-O-Net fusing (Current sensing, dual sensing, dual element, high amperage overload)
- Bay-O-Net expulsion fuse in series with a partial range under-oil ELSP current limiting fuse (below 23 kV)
- Cartridge fusing in series with a partial range under-oil ELSP current limiting fuse (above 23 kV)
- MagneX™ interrupter with ELSP current-limiting fuse
- Vacuum Fault Interrupter (VFI)
- Visible break window
- Fuse/switch interlock

Valves/plugs

- Drain/sampling valve in high-voltage compartment
- Globe type upper fill valve

Overvoltage protection

- Distribution-, intermediate-, or station-class surge arresters
- Elbow arresters (for dead-front connections)

Metering/fan/control

- Full metering package
- Current Transformers (CTs)
- Metering Socket
- NEMA® 4 control box (optional stainless steel)
- NEMA® 7 control box (explosion proof)
- Fan Packages

Testing

- Customer test witness
- Customer final inspection
- Zero Sequence Impedance Test
- Heat Run Test
- ANSI® Impulse Test
- Audible Sound Level Test
- RIV (Corona) Test
- Dissolved Gas Analysis (DGA) Test
- 8- or 24-Hour Leak Test

Coatings (paint)

- ANSI® Bell Green
- ANSI® #61 Light Gray
- ANSI® #70 Sky Gray
- Special paint available per request

Nameplate

- Stainless steel nameplate

Decals and labels

- High voltage warning signs
- Mr. Ouch
- Bi-lingual warning
- DOE compliant
- Customer stock code
- Customer stenciling
- Shock and arc flash warning decal
- Non-PCB decal

Construction

Core

The three-legged, step-lap mitered core construction is manufactured using a high-quality cutting machine. For maximum efficiency, cores are precisely stacked, virtually eliminating gaps in the corner joints.

Five-legged wound core or shell-type triplex designs are used for wye-wye connected transformers, and other special transformer designs.

Cores are manufactured with precision cut, burr-free, grain-oriented silicon steel or amorphous metal, depending on customer preference or optimal material based upon performance requirements. Many grades of core steel are available for optimizing core loss efficiency.

Coils

Pad-mounted transformers feature a rectangular coil configuration with wire-wound, high-voltage primaries and sheet-wound secondaries. The design minimizes axial stress developed by short circuits and provides for magnetic balancing of tap connections.

Coils are wound using the highest quality winding machines providing exacting tension control and conductor placement for superior short-circuit strength and maximum efficiency.

Extra mechanical strength is provided by diamond pattern, epoxy-coated paper insulation, used throughout the coil, with additional epoxy at heavy stress points. The diamond pattern distribution of the epoxy and carefully arranged ducts, provide a network of passages through which cooling fluid can freely circulate.

Coil assemblies are heat-cured under calculated hydraulic pressure to ensure performance against short-circuit forces.

Core and coil assemblies

Pad-mounted transformer core and coil assemblies are braced with heavy steel ends to prevent the rectangular coil from distorting under short-circuit conditions. Plates are clamped in place using presses, and welded or bolted to form a solid core and coil assembly. Core and coil assemblies exceed ANSI® and IEEE® requirements for short-circuit performance. Due to the rigidity of the design, impedance shift after short-circuit is comparable to that of circular wound assemblies.

Tanks

Transformer tanks are designed for high strength and ease of handling, installation, and maintenance. Tanks are welded using precision-cut, hot rolled, pickled and oiled steel. They are sealed to protect the insulating fluid and other internal components.

Transformer tanks are pressure-tested to withstand 7 psig without permanent distortion and 15 psig without rupture.

Tank finish

An advanced multi-stage finishing process exceeds IEEE Std C57.12.28™-2014 standards. The eight-stage pre-treatment process assures coating adhesion and retards corrosion. It converts tank surfaces to a nonmetallic, water insoluble iron phosphate coating.

The paint method consists of two distinct layers of paint. The first is an epoxy primer (E-coat) layer which provides a barrier against moisture, salt and corrosives. The two-component urethane final coat seals and adds ultraviolet protection.

Vacuum processing

Transformers are dried and filled with filtered insulating fluid under vacuum, while secondary windings are energized. Coils are heated to drive out moisture, ensuring maximum penetration of fluid into the coil insulation system.

Insulating fluid

Eaton's Cooper Power series transformers are available with

electrical-grade mineral insulating oil or Envirotemp™ FR3™ fluid. The highly refined fluids are tested and degassed to assure a chemically inert product with minimal acid ions. Special additives minimize oxygen absorption and inhibit oxidation. To ensure high dielectric strength, the fluid is re-tested for dryness and dielectric strength, re-filtered, heated, dried, and stored under vacuum before being added to the completed transformer.

Eaton's Cooper Power series transformers filled with Envirotemp™ FR3™ fluid enjoy unique fire safety, environmental, electrical, and chemical advantages, including insulation life extending properties.

A bio-based, sustainable, natural ester dielectric coolant, Envirotemp™ FR3™ fluid quickly and thoroughly biodegrades in the environment and is non-toxic per acute aquatic and oral toxicity tests.

Building for Environmental and Economic Sustainability (BEES) total life cycle assessment software, utilized by the US Dept. of Commerce, reports its overall environmental performance impact score at 1/4th that reported for mineral oil. Envirotemp™ FR3™ fluid has also earned the EPA Environmental Technology Verification of transformer materials.

With a fire point of 360 °C, Envirotemp™ FR3™ fluid is FM Approved® and Underwriters Laboratories (UL®) Classified "Less-Flammable" per NEC® Article 450-23, fitting the definition of a Listed



Figure 8. VFI transformer with visible break.

Product per NEC®.

Pad-mounted VFI transformer

Eaton's Cooper Power series VFI transformer combines a conventional distribution transformer with the proven Vacuum Fault Interrupter (VFI). This combination provides both voltage transformation and transformer over current protection in one space saving and money saving package. The pad-mounted VFI transformer protects the transformer and provides proper coordination with upstream protective devices. When a transformer fault or overload condition occurs, the VFI breaker trips and isolates the transformer.

The three-phase VFI breaker has independent single-phase initiation, but is three-phase mechanically gang-tripped. A trip signal on any phase will open all three phases. This feature eliminates single-phasing of three phase loads. It also enables the VFI breaker to be used as a three-phase load break switch.

Due to the resettable characteristics of the VFI breaker, restoring three-phase service is faster and easier.

The sealed visible break window and switch is an option that can be installed to provide visible break contact. This feature provides enhanced safety and allows an operator to see if the loadbreak switch contacts are in an open or closed position before performing

Effective April 2016

maintenance.

Envirotran™ FM Approved special protection transformer

Eaton's Cooper Power series Envirotran™ transformer is FM Approved and suitable for indoor locations. Factory Mutual Research Corporation's (FMRC) approval of the Envirotran transformer line makes it easy to comply with and verify compliance with Section 450.23, 2008 NEC, Less-Flammable Liquid-Filled Transformer Requirements for both indoor and outdoor locations.

Envirotran FM Approved transformers offer the user the benefit of a transformer that can be easily specified to comply with NEC, and makes FM Safety Data Sheet compliance simpler, while also providing maximum safety and flexibility for both indoor and outdoor installations.

Because the "FM Approved" logo is readily visible on the transformer and its nameplate, NEC compliance is now easily verifiable by the inspector.

Envirotran FM Approved transformers are manufactured under strict compliance with FMRC Standard 3990 and are filled with



FM Approved Envirotemp™ FR3™ fluid, a fire-resistant dielectric coolant.

Special application transformers

Data Center transformer

With focus rapidly shifting from simply maximizing uptime and supporting demand to improving energy utilization, the data center industry is continually looking for methods to increase its energy efficiency and reliability. Utilizing cutting edge technology, Eaton's Cooper Power series Hardened Data Center (HDC) transformers are the solution. Designed with special attention given to surge protection, HDC liquid-filled transformers provide superior performance under the harshest electrical environments. Contrary to traditional dry-type units, HDC transformers provide unsurpassed reliability, overloadability, operational life, efficiency, thermal loading and installed footprint. These units have reliably served more than 100 MW of critical data center capacity for a total of more than 6,000,000 hours without any reported downtime caused by a thermal or short-circuit coil failure.

The top priority in data center operations is uninterrupted service. Envirotran HDC transformers from Eaton, having substantially higher levels of insulation, are less susceptible to voltage surges. Eaton has experienced zero failures due to switching transients. The ANSI® and IEEE® standard impulse withstand ratings are higher for liquid-filled transformers, making them less susceptible to insulation failure. The Envirotran HDC transformer provides ultimate protection by increasing the BIL rating one level higher than standard liquid-filled transformer ratings. The cooling system of liquid-filled transformers provides better protection from severe overloads—overloads that can lead to significant loss of life or failure.

Data center design typically includes multiple layers of redundancy, ensuring maximum uptime for the critical IT load. When best in class transformer manufacturing lead times are typically weeks, not days, an unexpected transformer failure will adversely affect the facility's reliability and profitability. Therefore, the ability to determine the electrical and mechanical health of a transformer can reduce the probability of costly, unplanned downtime. Routine diagnostic tests, including key fluid properties and dissolved gas analysis (DGA), can help determine the health of a liquid-filled transformer. Although sampling is not required for safe operation, it will provide the user with valuable information, leading to scheduled repair or

replacement, and minimizing the duration and expense of an outage. With a dry-type transformer, there is no reliable way to measure the health or likelihood of an impending failure.

Solar transformer

As a result of the increasing number of states that are adopting aggressive Renewable & Alternative Energy Portfolio Standards, the solar energy market is growing—nearly doubling year over year. Eaton, a key innovator and supplier in this expanding market, is proud to offer its Cooper Power series Envirotran transformers specifically designed for Solar Photovoltaic medium-voltage applications. Eaton is working with top solar photovoltaic developers, integrators and inverter manufacturers to evolve the industry and change the way we distribute power.

In accordance with this progressive stance, every Envirotran Solar transformer is filled with non-toxic, biodegradable Envirotemp™ FR3™ dielectric fluid, made from renewable seed oils. On top of its biodegradability, Envirotemp™ FR3™ fluid substantially extends the life of the transformer insulation, saving valuable resources. What better way to distribute green power than to use a green transformer. In fact, delaying conversion to Envirotran transformers places the burden of today's environmental issues onto tomorrow's generations. Eaton can help you create a customized transformer, based on site specific characteristics including: temperature profile, site altitude, solar profile and required system life. Some of the benefits gained from this custom rating include:

- Reduction in core losses
- Improved payback on investment
- Reduction in footprint
- Improved fire safety
- Reduced environmental impact

For the solar photovoltaic industry, Eaton is offering standard step up transformers and dual secondary designs, including 4-winding, 3-winding (Low-High-Low) and 3-winding (Low-Low-High) designs.

Wind transformer

Eaton is offering custom designs for renewable energy power generation. Eaton manufactures its Cooper Power series Generator Step-Up (GSU) transformers for installation at the base of every wind turbine. Additionally, grounding transformers are available for wind power generation.

DOE efficiency

The United States Department of Energy (DOE) has mandated efficiency values for most liquid type, medium voltage transformers. As a result, all applicable Eaton's Cooper Power series transformers 2500 kVA and below conform to efficiency levels as specified in the DOE ruling "10 CFR Part 431 Energy Conservation Program."

Underwriters Laboratories® (UL®) Listed and Labeled/ Classified

The Envirotran transformer from Eaton can be specified as UL® Listed & Labeled, and/or UL® Classified. Underwriters Laboratories (UL®) listing is a verification of the design and construction of the transformer to the ANSI® and IEEE® standards. UL® listing generally is the most efficient, cost-effective solution for complying with relevant state and local electrical codes. UL® Combination Classification/Listing is another way in which to comply with Section 450.23, 2008 NEC® requirements. This combines the UL® listed transformer with a UL® Classified Less-Flammable Liquid and complies with the use restrictions found within the liquid Classification.



K-Factor transformer

With a drastic increase in the use of ferromagnetic devices, arcing devices, and electric power converters, higher frequency loads have increased significantly. This harmonic loading has the potential to generate higher heat levels within a transformer's windings and leads by as much as 300%. Harmonic loading has the potential to induce premature failure in standard-design distribution transformers.

In addition to standard UL® "K-Factor" ratings, transformers can be designed to customer-provided specifications detailing precise loading scenarios. Onsite measurements of magnitude and frequency, alongside harmonic analysis of the connected load can be performed by Eaton engineers or a third party consultant. These field measurements are used to determine exact customer needs and outline the transformer specifications.

Eaton will design harmonic-resistant transformers that will be subjected to the unique harmonic loads. These units are designed to maintain normal temperature rise under harmonic, full-load conditions. Standard UL® "K-Factor" designs can result in unnecessary costs when the "next-highest" K-Factor must be selected for a calculated design factor. To save the customer these unnecessary costs, Eaton can design the transformer to the specific harmonic spectrum used in the application. Eaton's Cooper Power series K-factor transformers are filled with mineral oil or Envirotemp™ FR3™ fluid and enjoy the added benefits of dielectric cooling such as higher efficiencies than dry-type transformers.

Modulation transformer

Bundled with an Outboard Modulation Unit (OMU) and a Control and Receiving Unit (CRU), a Modulation Transformer Unit (MTU) is designed to remotely achieve two way communication.

The use of an MTU reduces travel time and expense versus traditional meter reading performed by high voltage electricians. Additionally, with MTU it is possible to manage and evaluate energy consumption data, providing reduced metering costs and fewer tenant complaints.

An MTU utilizes existing utility infrastructure, therefore eliminating the need to engineer and construct a dedicated communication network.



Figure 9. Modular transformer.

Inverter/rectifier bridge

Eaton complements its range of applications for transformers by offering dual winding designs. These designs are intended for connection to 12-pulse rectifier bridges.

Product attributes

To set us apart from other transformer manufactures, Eaton includes the following guarantees with every three-phase pad-mounted transformer.

Engineered to order (ETO)

Providing the customer with a well developed, cost-effective solution is the number one priority at Eaton. Using customer specifications, Eaton will work with the customer from the beginning to the end to develop a solution to fit their needs. Whether it is application specific, site specific, or a uniquely specified unit, Eaton will provide transformers with the best in class value and performance, saving the customer time and money.

Made in the U.S.A.

Eaton's three-phase pad-mounted transformers are produced right here in the United States of America. Our manufacturing facilities are positioned strategically for rapid shipment of products. Furthermore, should the need arise, Eaton has a broad network of authorized service repair shops throughout the United States.

Superior paint performance

Protecting transformers from nature's elements worldwide, Eaton's E-coat system provides unrivaled transformer paint life, and exceeds IEEE Std C57.12.28™-2014 and IEEE Std C57.12.29™-2005 standards. In addition to the outside of the unit, each transformer receives a gray E-coat covering in the interior of the tank and cabinet, providing superior rust resistance and greater visibility during service.

If the wide range of standard paint selections does not suit the customer's needs, Eaton will customize the paint color to meet their requirements.

Rectangular coil design

Eaton utilizes a rectangular coil design. This winding technique results in a smaller overall unit footprint as well as reducing the transformer weight. The smaller unit size does not hinder the transformer performance in the least. Units have proven short circuit withstand capabilities up to 10 MVA.

Testing

Eaton performs routing testing on each transformer manufactured including the following tests:

- **Insulation Power Factor:** This test verifies that vacuum processing has thoroughly dried the insulation system to required limits.
- **Ratio, Polarity, and Phase Relation:** Assures correct winding ratios and tap voltages; checks insulation of HV and LV circuits. Checks entire insulation system to verify all live-to-ground clearances.
- **Resistance:** This test verifies the integrity of internal high-voltage and low-voltage connections; provides data for loss upgrade calculations.
- **Routine Impulse Tests:** The most severe test, simulating a lightning surge. Applies one reduced wave and one full wave to verify the BIL rating.
- **Applied Potential:** Applied to both high-voltage and low-voltage windings, this test stresses the entire insulation system to verify all live-to-ground clearances.
- **Induced Potential:** 3.46 times normal plus 1000 volts for reduced neutral designs.
- **Loss Test:** These design verification tests are conducted to assure that guaranteed loss values are met and that test values are

within design tolerances. Tests include no-load loss and excitation current along with impedance voltage and load loss.

- Leak Test: Pressurizing the tank to 7 psig assures a complete seal, with no weld or gasket leaks, to eliminate the possibility of moisture infiltration or fluid oxidation.

Design performance tests

The design performance tests include the following:

- Temperature Rise: Our automated heat run facility ensures that any design changes meet ANSI® and IEEE® temperature rise criteria.
- Audible Sound Level: Ensures compliance with NEMA® requirements.
- Lightning Impulse: To assure superior dielectric performance, this test consists of one reduced wave, two chopped waves and one full wave in sequence, precisely simulating the harshest conditions.

Thomas A Edison Research and Test Facility

We are constantly striving to introduce new innovations to the transformer industry, bringing you the highest quality transformer for the lowest cost. Eaton's Cooper Power series Transformer Products are ISO 9001 compliant, emphasizing process improvement in all phases of design, manufacture, and testing. We have invested millions of dollars in the Thomas A. Edison Technical Center, our premier research facility in Franksville, Wisconsin affirming our dedication to introducing new innovations and technologies to the transformer industry. This research facility is fully available for use by our customers to utilize our advanced electrical and chemical testing labs.

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Appendix G

Material Safety Data Sheet For Transformer Oil

FR3[®] fluid: Acceptable delivery specifications

Electrical Apparatus
R2000

DESCRIPTION

Cargill FR3[®] fluid is a renewable, biobased natural ester dielectric coolant for use in distribution and power class transformers where its unique fire safety, environmental, electrical, and chemical properties are advantageous. Acceptance limits for new fluid are shown in Table 1. More than 20 years of field experience - with more than two million FR3 fluid filled transformers in service - confirms excellent performance.

FR3 fluid is formulated from seed oils and performance enhancing additives. It does not contain petroleum, halogens, silicones or corrosive sulfur. It quickly and thoroughly biodegrades¹ in the environment. The fluid is non-toxic in acute aquatic² and oral toxicity tests³. The Color Green tint reflects its favorable environmental profile (See Table 2) and readily distinguishes it from petroleum based oils.

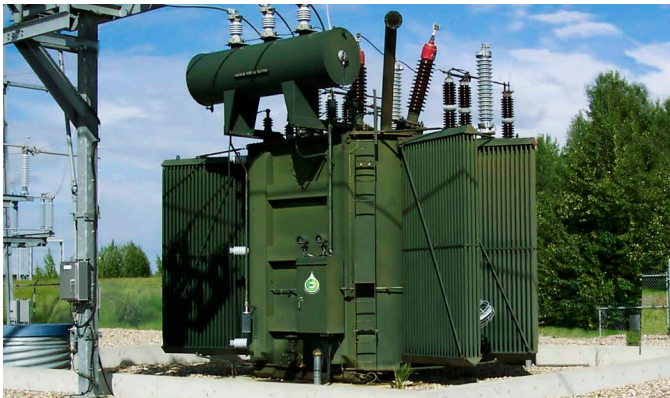
FR3 fluid has exceptionally high flash/fire points of approximately 330/360 °C - the highest ignition resistance of any high fire point dielectric fluid currently available. It qualifies as a “high-fire-point,” “less-flammable,” “IEC Class K,”

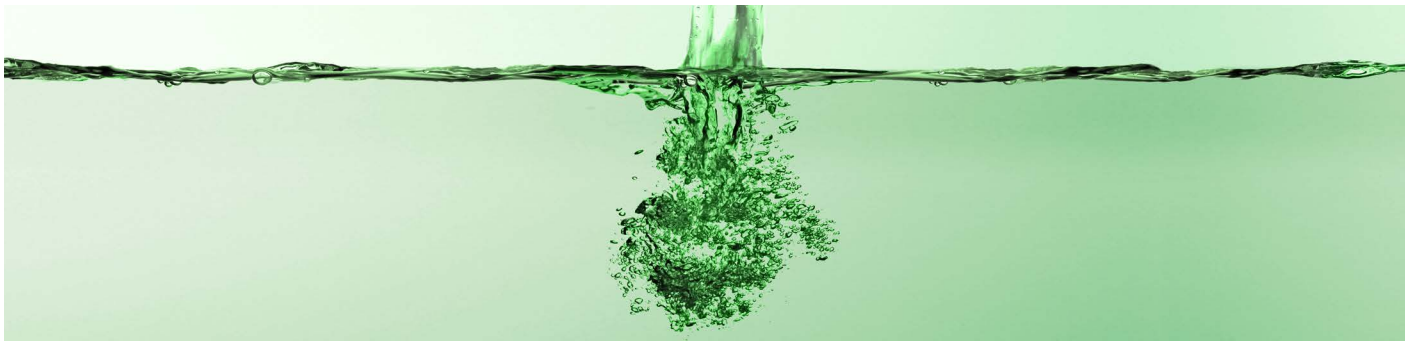
and “non-propagating” fluid. FR3 fluid is Approved⁴ by FM Global and Classified⁵ by Underwriters Laboratories as a Less-Flammable Dielectric Liquid for use in complying with the National Electric Code⁶ (NEC) and insurance listing requirements⁷.

FR3 fluid is compatible with standard transformer construction materials and components. FR3 fluid should be stored, handled, and processed in a similar meticulous manner as transformer mineral oil. See Cargill’s FR3 Fluid Storage and Handling Guide, S10, for additional information.

A transformer filled with FR3 fluid complies with the transformer temperature operating range requirements defined in IEEE C57.12.00 and IEC 60076-2.

In addition to new distribution and power class transformers, a variety of other equipment, including voltage regulators, sectionalizing switches, transformer rectifiers, and electromagnets use FR3 fluid. The fluid is also used in retrofill applications for transformers and other fluid-filled distribution and power equipment.





Acceptable limits for receipt of shipments of Cargill FR3 fluid

Table 1
FR3 fluid Acceptance Limits

PROPERTY	Standard test methods		ASTM D6871/IEEC C57.147	IEC 62770	FR3 fluid	
	ASTM	ISO/IEC	As-received new fluid property requirements	Unused new fluid property requirements	TYPICAL	
Physical						
Color	D1500	ISO 2211	≤1.0	–	0.5	
Flash Point PMCC (°C)	D93	ISO 2719	–	≥250	260-270	
Flash Point COC (°C)	D92	ISO 2592	≥275	–	320-330	
Fire Point (°C)	D92	ISO 2592	≥300	>300	350-360	
Pour Point (°C)	D97	ISO 3016	<-10	≤-10	-18 to -21	
Density at 20°C (g/cm ³)	–	ISO 3675	–	≤1.0	0.92	
Relative Density (Specific Gravity) 15°C	D1298	–	≤0.96	–	0.92	
Viscosity (mm ² /sec)						
	100°C	D445	ISO 3104	≤15	7.7 - 8.3	
	40°C			≤50	≤50	32 - 34
	0°C			≤500	–	190
	-20°C					650*
Visual Examination	D1524	IEC 62770 4.2.1	bright and clear	clear, free from sediment and suspended matter	clear, light green	
Biodegradation	OECD 301B		readily biodegradable	readily biodegradable	readily biodegradable	
Aquatic and Oral Acute Toxicity	OECD 202, 203, OECD 420		non-toxic	non-toxic	non-toxic	
Electrical						
Dielectric Breakdown (kV)	D877	–	≥30	–	>45	
Dielectric Breakdown (kV)						
	1 mm gap	D1816	–	≥20	>25	
	2 mm gap	D1816	–	≥35	>50	
	2.5 mm gap	–	IEC 60156	–	>55	
Dielectric Breakdown under Impulse (kV)						
	25.4 mm gap	D3300	–	>130	140	
Gassing Tendency (μl/min)	D2300	–	≤0	–	-79	
Dissipation Factor						
	25°C (%)	D924	–	≤0.20	0.010 - 0.15	
	90°C (tan δ)	–	IEC 60247	–	≤0.05	
	100°C (%)	D924	–	≤4.0	1.00 - 3.85	
Chemical						
Corrosive Sulfur	D1275	IEC 62697	non-corrosive	non-corrosive	non-corrosive	
Water Content (mg/kg)	D1533	IEC 60814	≤200	≤200	4 - 50	
Acid Number (mg KOH/g)	D974	IEC 62021.3	≤0.06	≤0.06	0.01 - 0.05	
PCB Content (mg/kg)	D4059	IEC 61619	not detectable	free from PCBs	not detectable	
Total Additives	–	IEC 60666	–	Max weight fraction 5%	<2%	
Oxidation Stability (48 hrs, 120°C)	–	IEC 61125 IEC 62770				
	Total Acidity (mg KOH/g)	–	IEC 62621.3	–	≤0.6	
	Viscosity at 40°C (mm ² /sec)	–	ISO 3104	–	≤30% increase over initial	
	Dissipation Factor at 90°C (tan δ)	–	IEC 60247	–	≤0.5	
Oxidation Induction Time 130°C/500psi (min)	D6186**				62±2 min	

* Measurement of viscosity near pour point may be inaccurate.

** A more specific version of the test indicated by ASTM D6186 is under development.

NOTE: Specifications should be written referencing only the defined ASTM or IEC industry standard acceptance values and test methods. The listed 'typical' values are average values summarized from a significant number of data points over many years; they are not to be identified as acceptance values.

ASTM D6871 Standard Specification for Natural (Vegetable Oil) Ester Fluids Used in Electrical Apparatus. IEC 62770: Fluids for electrotechnical applications – Unused natural esters liquids for transformers and similar electrical equipment. A transformer filled with FR3 fluid complies with the transformer temperature operating range requirements defined in IEC 60076-1.

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Table 2
FR3 fluid's environmental attributes

Attribute	Results	Method
Readily Biodegradation	Readily	EPA OPPTS 835.3110 or OECD 301B, C or F
Biodegradation	>99%	Comprehensive analysis ⁸
Acute Aquatic Toxicity	Non-toxic	OECD 203
Acute Oral Toxicity	Non-toxic	OECD 420
Biobased Material Content	>95%	USDA Biopreferred Program
Total Life Cycle Carbon Footprint	Carbon Neutral	Department of Commerce NIST BEES V4.0
Overall Environmental Impact	1/4 impact of mineral oil	Department of Commerce NIST BEES V4.0

ENVIRONMENTAL AND HEALTH

FR3 fluid is specifically formulated to help minimize health and environmental risks. The base oils come from renewable resources - commodity seeds - and are recyclable and reusable.

The US and California Environmental Protection Agencies published CARGILL FR3 fluid's Environmental Technology Verification Report in 2003. The verification process includes biodegradation and toxicity testing. Results from the aquatic biodegradation test confirm that FR3 fluid's rate of biodegradation is the same as that of the standard reference material. FR3 fluid meets the "ultimately biodegradable" criteria (Figure 1). When tested for acute oral toxicity, FR3 fluid is not toxic.

The Edible Oil Regulatory Reform Act (US Public Law 104-55, 1995) makes FR3 fluid eligible for current and future regulatory relief. The options of alternative spill response procedures, such as bio-based remediation, are now available. The fluid's inherent viscosity and tendency of thin layers to polymerize help prevent migration along the surface and into subsurface soils.

The EPA, Occupational Safety & Health Administration

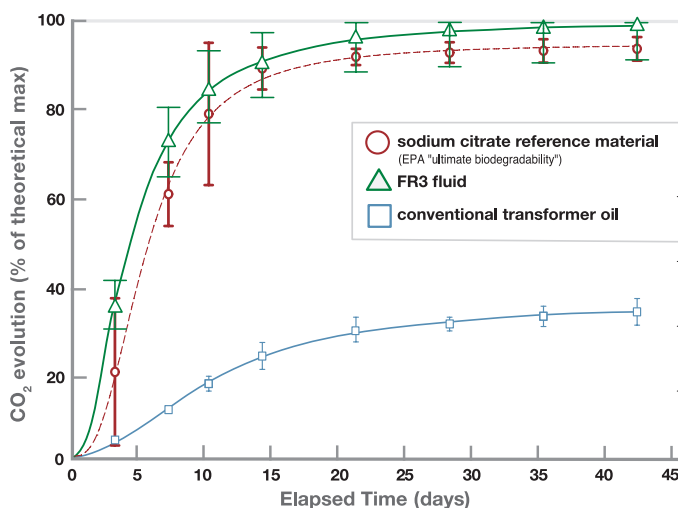


Figure 1
Aerobic Aquatic Biodegradation Graph EPA Test OPPTS 835.3100

(OSHA), and the Department of Transportation (DOT) do not list Cargill FR3 fluid as hazardous. Its Hazardous Material Information System (HMIS) rating is 1 for both health and reactivity. FR3 fluid is not classified as bio-accumulating or mutagenic. It is not listed as a carcinogen by National Toxicology Program (NTP), in International Agency for Research on Cancer (IARC) monographs, or by OSHA Regulation. The products of complete combustion of FR3 fluid are essentially carbon dioxide and water.

SUSTAINABILITY

Building for Environmental and Economic Sustainability (BEES) software⁹, available from the National Institute of Standards and Technology, uses a life-cycle assessment approach, analyzing raw material acquisition, manufacture, transportation, installation, use, and recycling and waste management, to determine a product's global warming potential.

Table 3 shows the BEES amounts of greenhouse gas generated from raw materials through end of life for mineral oil and FR3 fluid. The cost of mineral oil, in terms of carbon emissions, is expensive. Meanwhile, FR3 fluid is relatively inexpensive, about 8.2 lb/gal less green house gas emitted to produce it. Additionally, the study reports that FR3 fluid's overall environmental performance impact score is 1/4th that reported for mineral oil (and that's without consideration for FR3 fluid's transformer insulation life extending properties). This cumulative score results from adding the impacts of water intake, smog, ozone depletion, indoor air, human health, habitat alteration, global warming, fossil fuel depletion, eutrophication, ecological toxicity, critical air pollutants, and acidification.

FR3 fluid, and transformers filled with FR3 fluid are listed in the US Federal BioPreferredSM Products Program, making them readily identifiable as BioPreferred to all applicable Federal agencies. FR3 fluid is an excellent option for ISO 14000, Green Build, and other similar environmental programs that promote the use of alternative, environmentally preferable and sustainable materials and procedures.

Table 3
Greenhouse gases^a attributed to transformer fluid for its complete life cycle.

Category	Grams Per Unit ^b		Tons Per 1000 Gallons	
	Mineral oil	FR3 fluid	Mineral oil	FR3 fluid
Raw materials	1,048,184	-381,590	2.306	-0.839
Manufacturing	544,363	160,212	1.198	0.352
Transportation	122,478	71,498	0.269	0.157
Use	154,124	153,450	0.339	0.338
End of life	30,825	30,690	0.068	0.068
Total	1,899,973	34,260	4.180	0.075

^a carbon dioxide equivalents

^b In BEES 4.0e, one unit is a 1000 kVA transformer containing 500 gallons of fluid

FIRE SAFETY

FR3 fluid has a fire point of approximately 360°C, well above the minimum of 300°C required for high fire point fluid classifications. Its flash point (approximately 330°C) is higher than the fire point of most other ignition resistant dielectric fluids in use today (Figure 2).

In laboratory and full-scale ignition tests, FR3 fluid has demonstrated greater fire resistance than other dielectric fluid types. Based on large-scale arc ignition testing, FM Global concluded that the probability of a pool fire evolving from FR3 fluid was so low that a heat release rate need not be determined or considered for FM Global approval.

Based on large-scale arc ignition and hot metal ignition tests, FM Global recognizes FR3 fluid as an equivalent safeguard to space separation, fire barriers, and fire suppression systems for most installations.

FM Global recognizes FR3 fluid as a component of Approved transformers per FM Global Standard 3990. When used in transformers containing 10,000 gallons of fluid or less, transformers' separation distance to buildings and other equipment may be up to 1/10th the distance required for mineral oil filled transformers, without fire walls or deluge systems.

OSHA recognizes this FM Global standard as fitting the definition of a Listed and Labeled Product per NEC Section 110-3(b). The standard permits FR3 fluid-filled transformers to be installed indoors, typically without sprinklers or vaults, with a minimum clearance to walls of just 3 feet (0.9m).

UL Standard 340 compares the fire hazard ratings of various fluids. Figure 3 shows the favorable rating assigned to FR3 fluid.

There are no known reports of dielectric pool fires involving FR3 fluid filled transformers.

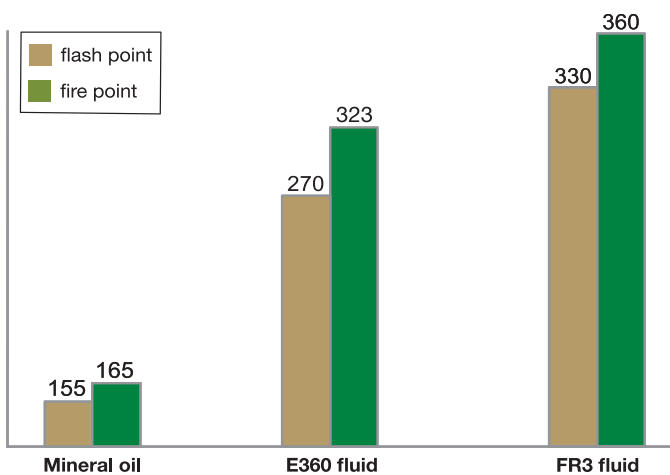


Figure 2
Flash & Fire Point of Dielectric Fluids (°C).

MEETING THE CODES

Less-Flammable fluids are recognized as a fire safeguard in Section 15 of the National Electrical Safety Code (Accredited Standards Committee C2) for generation and distribution substations. Cargill FR3 fluid meets the National Electrical Code Section 450-23 requirements as a listed less-flammable liquid. It is covered by OSHA Article §1910.305, Section 5(v).

FR3 fluid is FM Global Approved and Underwriters Laboratories Classified "Less-Flammable" per NEC Article 450-23, fitting the definition of a Listed Product per NEC. For additional information, request Cargill's NEC Requirement Guidelines 2008 Code Options for the Installation of Listed Less-Flammable Liquid Filled Transformers.

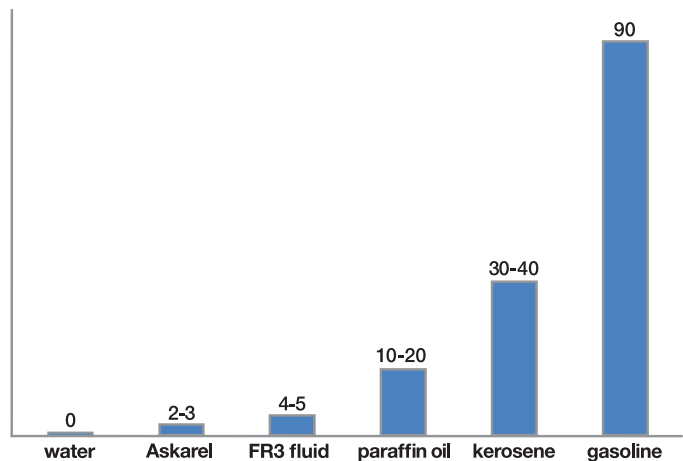


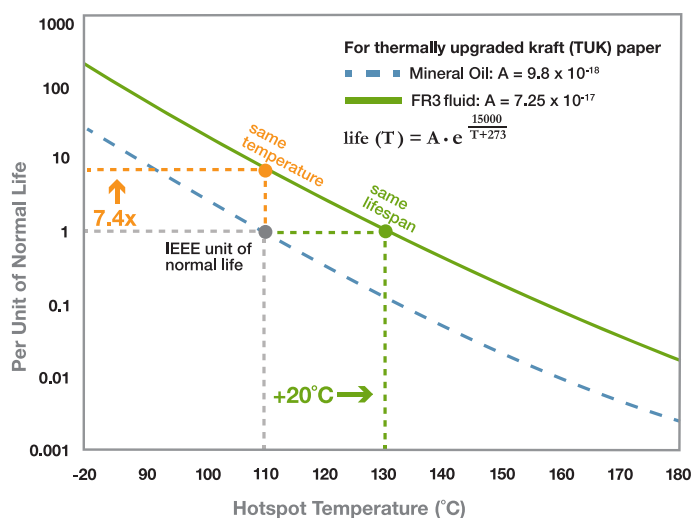
Figure 3
Fire Hazard Rating UL Standard 340.

FLUID/PAPER INSULATION SYSTEM

The unique chemical structure of Cargill FR3 fluid provides superior insulation system performance compared to other types of dielectric fluids. The thermal properties of FR3 fluid make it a more efficient coolant than higher molecular weight silicone and hydrocarbon dielectric coolants.

FR3 fluid has an exceptional ability to remove water generated by aging paper. This enables the fluid to significantly reduce the aging rate of transformer insulating paper. Per IEEE C57.100, accelerated aging tests show that Thermally Upgraded Paper (TUK) paper insulation aged in FR3 fluid takes 5-8 times longer to reach the same end-of-life points as TUK paper insulation aged in conventional mineral oil.

Table 4
Arrhenius curve for thermally upgraded kraft paper immersed in mineral oil and in natural ester liquids.



The chart presented in Table 4 brings the Arrhenius curves for TUK paper both immersed in mineral oil and in FR3 fluid, as in Annex B of IEEE C57.154 or in Annex C IEC 60076-14. The degradation rate of thermally upgraded kraft paper immersed in FR3 fluid is either reduced by 7.4x or the temperature can be increased by 20°C. Any balance in between leads to relevant benefits, including:

- Higher thermal class of cellulose insulation allows increasing average winding and hotspot temperature limits without sacrificing paper life.
- Higher thermal class of liquid insulation allows increasing average winding and hotspot temperature limits without sacrificing paper life.
- Improved transformer reliability as, in a sealed unit, moisture content remains relatively constant through the years, preserving the dielectric capacity.
- No transformer outages from drying the insulation
- Extended capability and lifespan

APPLICATIONS

New Transformers

Distribution and Power class transformers filled with FR3 fluid for indoor, submersible and outdoor applications are available from manufacturers worldwide.

For indoor applications, FR3 fluid-filled transformers provide the proven technical and performance advantages of liquid-filled designs over dry types as well as a lower total life cycle cost when compared to all other transformer types.

Many types of FR3 fluid-filled transformers are in service: polemounted, pad-mounted, networks, reactors, small, medium and large substations, transmission substations, and generator step-ups. FR3 fluid-filled transformers are accepted in both industry and government. Contact Cargill for a copy of the FR3 Fluid User's List, Bulletin B110.

Retrofilling Transformers

FR3 fluid is especially suited for upgrading the environmental and fire safety of mineral oil-filled transformers. It is miscible with mineral oil, high molecular weight hydrocarbons and other ester fluids. FR3 fluid is not miscible with silicone and should not be applied in transformers previously containing silicone. FR3 fluid can also be used in PCB (Askarel) replacement initiatives.

Additional advantages of retrofilling with FR3 fluid include high dielectric strength, better match of dielectric constant to Kraft paper insulation, excellent lubricity, material compatibility, and a coefficient of expansion similar to conventional transformer oil. FR3 fluid has superior resistance to coking and sludge formation when compared to conventional transformer oil. In addition to passing the Power Factor Valued Oxidation (PFVO) test, Doble Laboratories' Sludge-Free Life tests resulted in no measurable sludge. The fluid also acts as a drying agent for transformer insulation that has become wet from aging, extending the useful life of the transformer insulation system.

Switching Devices

With excellent dielectric strength retention (Figure 5), lubricity, and gassing tendencies, FR3 fluid is an excellent switching medium at normal operating temperatures. Proven applications include new and retrofilled sectionalizing switches and transformers with load break accessories such as Bay-O-Net and current-limiting fusing, on-off and four position switches, and Vacuum Fault Interruption protection devices.

Accelerated life tests confirm stationary contacts are most stable in FR3 fluid¹⁰. In coking tests, FR3 fluid produced less than 1/20th of the deposits that were produced in conventional mineral oil.

Due to the low temperature viscosity difference of FR3 fluid compared to conventional transformer oil, the equipment manufacturer should verify applications at low ambient temperatures.

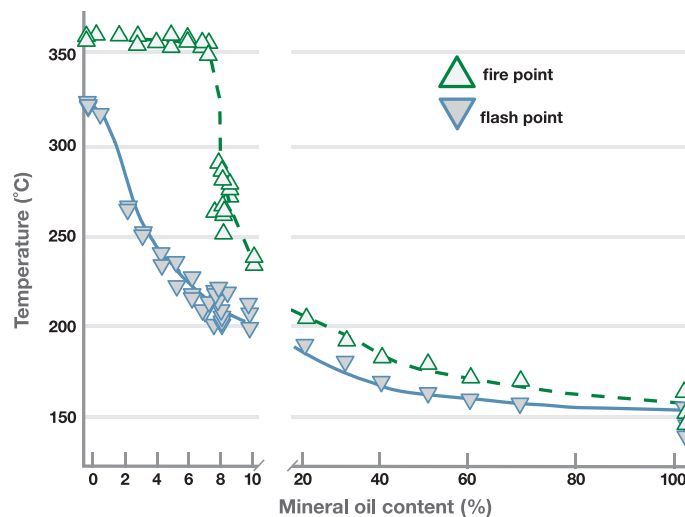


Figure 4
FR3 fluid Flash & Fire Point Variation with Conventional Transformer Oil Content.

Other applications

The inherent safety and performance properties of FR3 fluid have led to its application in electrical equipment other than transformers, including industrial electromagnets, superconducting motors, klystron modulators, transformer/rectifier sets, and heat transfer applications. FR3 fluid has excellent lubricity, an important characteristic for application in equipment with moving parts. High voltage bushing applications also appear promising due to the fluid's excellent ability to minimize insulating paper degradation and its low gassing tendency value of approximately -79 $\mu\text{l}/\text{min}$.

NOTE: The suitability of each application of FR3 fluid is the responsibility of the user. Contact Cargill for application guidelines.

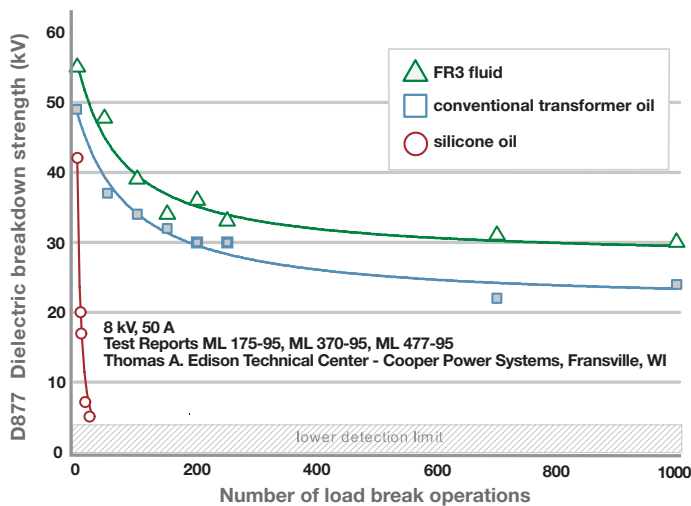


Figure 5
Fluid loadbreak dielectric strength retention comparison.

STORAGE AND HANDLING

Similar meticulous procedures for storing and handling conventional transformer mineral oil should be followed with FR3 fluid. To help maintain the extremely low percent moisture saturation at time of fluid manufacture, exposure time to air should be minimized. Drum and tote storage should be indoors or outdoors protected from the elements, including sunlight. Refer to the Cargill FR3 Fluid Storage and Handling Guide S10.

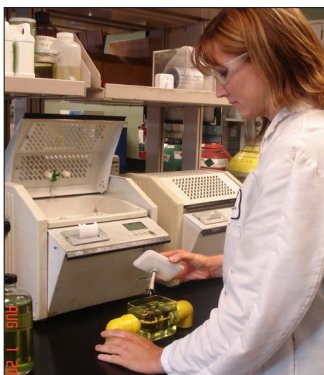


Figure 6
Prior to shipment, FR3 fluid undergoes extensive quality assurance testing. The facilities producing FR3 fluid are ISO 9001 Certified.

NOTE: To maintain the optimal fluid properties for its intended use as an electrical insulating fluid, exposure to oxygen, moisture, and other contaminants must be minimized. Except for short storage periods, material that has been immersed in FR3 fluid should not be exposed to air. Thin films of natural esters tend to polymerize much faster than conventional transformer oil. For equipment drained of FR3 fluid, it is recommended that the equipment be placed in an inert gas environment, be re-immersed in fluid, or rinsed with mineral oil. Where the transformer power factor is a concern, hot air drying is an unacceptable process for assemblies already impregnated with a natural ester fluid. For impregnated assemblies that require additional drying, method of drying that does not expose the impregnated insulation to air is required to avoid excessive oxidation of the dielectric fluid.

FLUID MAINTENANCE

Periodic preventive maintenance tests for FR3 fluid-filled equipment should follow the same schedule used for transformers filled with conventional transformer oil. Key tests on fluid samples include:

1. Dielectric Strength: The IEEE C57.147 minimum acceptable ASTM D1816, 2mm gap limits for continued use of service-aged FR3 fluid are 40 kV (≤ 69 kV), 47 kV ($69 \leq \text{kV} < 230$), and 50 kV (≥ 230 kV).
2. Flash Point and Fire Point. Small amounts of mineral oil will not significantly reduce the fire point of FR3 fluid. Contamination above 7% may lower the fire point below 300°C. If contamination is suspected the flash and fire points should be measured.
3. Dissolved gas analysis of FR3 fluid is particularly useful for high value equipment or equipment servicing critical loads.
4. Color and appearance, dissipation factor, acid number, resistivity, viscosity, and interfacial tension are indicators of possible fluid contamination or unusual degradation.

For fluid that cannot be reconditioned, disposal options include selling to lube oil recyclers, rendering companies, or providers of fuel for industrial boilers and furnaces. Used fluid uncontaminated by controlled hazardous materials does not fall under the jurisdiction of the Federal Used Oil Regulation (CFR Title 40 Part 279).

FUNCTIONAL SPECIFICATION FOR NEW CARGILL FR3 NATURAL ESTER LESS-FLAMMABLE TRANSFORMER DIELECTRIC COOLANT

1.0 Scope

1.1. This specification describes a non-toxic (in acute aquatic¹¹, and oral toxicity¹² tests), biodegradable¹³, fire resistant, bio-based¹⁴ natural ester dielectric fluid. It is intended for use in electrical equipment as an environmentally preferred, less flammable insulating and cooling medium.

2.0 Requirements

2.1 Fluid Manufacturer

Fluid manufacturer shall have a minimum of ten (10) years experience producing and testing dielectric coolants. Manufacturer upon request shall provide AC withstand and impulse withstand for both gap and creep from 3mm to 150mm.

2.2 Dielectric Coolant

The dielectric coolant shall be a biobased biodegradable, be FM Global Approved, UL® Classified as a less-flammable fluid. It shall meet the property limits listed below. The base fluid shall be 100% derived from seed oils. The dielectric coolant should have undergone accelerated aging studies via sealed tube and Lockie test methods, and have published its A & B factors.

2.3 Acceptable values for receipt of shipments of new FR3 fluid are shown in Table 1.

2.4 Environmental and Health Third Party Validations

The fluid shall have a US EPA Environmental Technology Verification (ETV) Statement published. The fluid shall meet the test limits shown in Table 2.

2.5 Packaging

The electrical insulating fluid shall be furnished in sealed vessels suitable for the purpose, including 5-gallon containers, 55-gallon drums, 330-gallon totes, or in bulk. Each vessel shall have tampering indicating devices.



3.0 Recommended Customer Receiving Quality Control

3.1 Inspection

Each lot received shall be visibly inspected for container integrity. Verify that tamper proof seals are intact and no leaks are visible.

3.2 Receiving Tests

Samples shall be taken from containers per ASTM D 923 Section 2.2, as follows:

Table 5
FR3 fluid lot size and containers sampled

Lot Size (gallons)	Number of Containers Sampled
600 or less	1
601-3000	2-6
3001 or more	6 minimum (10% of quantity of containers recommended)

When material will be combined for production, samples may be mixed together in equal proportions to create a composite sample for testing. Minimum tests required are dielectric strength and visual inspection. Dissipation factor test is highly recommended, although not essential.

4.0 Important information

4.1 Storage

Avoid storing drums and totes outdoors. Extreme temperature variations can stress the integrity of container protective seals. Exposure of totes to sunlight can cause fluid discoloration.

4.2 Intended Use

The use of electrical insulating and cooling fluid is generally dictated by the engineering design of the electrical apparatus. The electrical insulating fluid covered by this specification is intended for use as an insulating and cooling medium in electrical equipment.

4.3 Fluid Transfer

When transferring electrical insulating fluid from its original container, take care to prevent contamination with moisture, dust, and foreign matter. These impurities can cause deterioration of the dielectric strength and electrical performance.

4.4 Partial Containers

Provide nitrogen blanket for partially filled containers, and properly seal to prevent contamination.

REFERENCES AND FOOTNOTES

¹ Per OPPTS 835.3110

² Per OECD 203, Method B

³ Per OECD 420

⁴ Less-flammable transformer fluids, Approval guide – Electrical equipment, FM Approvals, FM Global, Norwood, MA, USA

⁵ EOVK.MH10678, Transformer fluids, UL Listed and Classical Products, Underwriters Laboratories, Northbrook, IL, USA EOUV.MH10678, Dielectric mediums, UL Listed and Classified Products, Underwriters Laboratories, Northbrook, IL, USA

⁶ National Electric Code, NFPA 70, National Fire Protection Association, Quincy, MA, USA

⁷ Transformers, 5-4, Property Loss Prevention Sheets, FM Global, Norwood, MA, USA

⁸ TSR IS-PG-047-1920, "Biodegradation of FR3 Fluid", Cargill technical report.

⁹ BEES, Version 4.0e, Building and Fire Research Laboratory, National Institute of Standards and Technology, August 2007, <http://www.bfrl.nist.gov/oea/software/bees/>

¹⁰ P.J. Hopkinson, L. Dix, "Tapchangers for De-energized Operation in Natural Ester Fluid, Mineral Oil, and Silicone" IEEE/PES Transmission & Distribution Conference & Exposition, July 26-30, 2009, Calgary, Canada

¹¹ Per OECD 203, Method B

¹² Per OECD 420

¹³ Per US EPA OPPTS 835.3110 and US EPA OPPTS 835.8110 (ii)

¹⁴ Per USDA Biopreferred minimum biobased content for Fluid-Filled Transformers - Vegetable Oil-Based

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FM Global® is a registered trademark of Factory Mutual Insurance Company

UL® is a registered trademark of the Underwriters Laboratories Inc.

NEC® is a registered trademark of the National Electrical Code.

ANSI® is a registered trademark of the American National Standards Institute

ATTACHMENT 12

Operations and Maintenance Plan

Operations and Maintenance Plan

Water Line Solar, LLC

Water Line Solar’s Project team will manage all operational and commercial matters related to the project. The Project will work with local, qualified subcontractors that can be deployed to ensure the safe and efficient operation of the Project and to comply with all permit conditions as directed by the various authorities having jurisdiction.

Safety and Training

Paramount to the Project is the safety of the personnel that work on site. Each deployment to the site begins with a safety overview, or a “tail gate meeting” outlining the tasks to be performed and to identify risk points that contractors and visitors should be aware of. All contractors will wear appropriate personal protection equipment (PPE), and hold the required training certifications for any electrical work or equipment operation while on site. A certificate of insurance will also be required for any contractor that performs work on site. Additionally, any specific training required by the Yarmouth Water District will be performed in order to ensure that there are no impacts to the operations of the Yarmouth Water District’s infrastructure as well as the groundwater.

Once the Project has reached its commercial operational status, the Project team will hold trainings for the North Yarmouth Fire Department and any other local first responders that seek to better understand how the project works and how to safely interact with the equipment in the case of an emergency.

Routine/Preventative Maintenance

In order to ensure that all Project equipment is functioning as specified by the original equipment manufacturer, the following checklist will serve as a general guideline for routine and preventative maintenance.

Racking Inspection	
Visual Inspection	Module clamps, racking hardware, PV modules, foundations, torqued bolts, enclosures
Electrical Inspection	Grounding terminations and torque checks, wire management, corrosion inspection, wire jacket abrasions
Mechanical Inspection	Drive shafts, couplers, universal joints, and PVC support sleeves, steel member integrity

Combiner Box Inspection	
Visual Inspection (Exterior)	Enclosure is free of debris, peeling paint, scratches and dents. Signage is present and visible, weather proofing is functional, PVC expansion joints are not damaged.
Visual Inspection (Interior)	Signs of discoloration, conductor labeling present and visible, thermal imaging on overcurrent devices, signs of condensation
Electrical Inspection	Disconnect grounding continuity, termination torque settings, wire colored/marketing tape
Inverters	
Visual Inspection (Exterior)	Pad is level and conduit is secure, corrosion on metal parts, signage is present and visible, remove debris, air intake screens, conduit and joints are secure and sealed
Visual Inspection (Interior)	Signs of discoloration, conductor labeling is present and visible, thermal imaging on overcurrent devices, signs of condensation
Electrical Inspection	Termination torque settings, wire colored/marketing tape, surge arrestor, wire abrasion, locking devices functional, fans are working, switching operations, grounding continuity, thermal imaging on overcurrent devices and terminations
Transformer	
Exterior Inspection	Oil level, oil pressure, oil temperature, oil leaks, disconnect and drain valve sealed and secured by lock, welded and painted seams for rust formation
Interior Inspection	Primary and secondary cable terminations, leaking bushings and spades, oil sampling and testing, welded seams and earth connections
Gang Operated Air Break Switch (GOAB)	
Visual Inspection	Confirm switch is not corroded
Mechanical Inspection	Confirm switch operation, perform greasing as needed, verify grounding is present and corrosion free

Data Acquisition System (DAS)	
Visual Inspection	Enclosures free of debris, conduit connections sealed, labels are present and visible
Electrical/Data Inspection	Backup power supply, internet connectivity
Sensor Inspection	Clean all DAS weather sensors, verify equipment is secured
Fence	
Visual Inspection	Fence is clear of debris and is not damaged, posts are not rotting, all gates are secure
Vegetation	
Visual Inspection	Meadow grasses are >95% grown across the site, remove tall weeds mechanically, mow not more than 2x/year, remove trash and debris
Road Maintenance	
Visual Inspection	Identify erosion areas and areas in need of additional seeding
Signage	
Visual Inspection	Ensure signs are in place per as-built drawings, repair/replace as necessary

Unscheduled Maintenance and Emergency Response

Maintenance personnel should be familiar with the Spill Prevention, Control and Countermeasures (SPCC) Plan. In the case of an unexpected release, the SPCC Plan outlines contingency plans and procedures. In addition, the project will assign a 24/7 emergency operator and post their contact information on the gate to the Project area. This representative will be responsible for all labor and materials required to address any equipment alerts generated from the data acquisition system, or to respond to a phone call from someone reporting an issue. If necessary, the operator will coordinate with local first responders.

Reporting and Documentation

The system operator will keep records of all inspection events and provide the owner a list of issues that need to be remedied or addressed.

ATTACHMENT 13

Envirotemp FR3 Fluid

EnvirotempTM FR3TM fluid Formulated for performance.



Envirotemp™ FR3™ fluid.
Trusted worldwide
a million times over.





With over one million installations across six continents and validated in over 250 tests, Cargill's Envirotemp™ FR3™ natural ester fluid is trusted by our customers to deliver cost-effective solutions that help improve transformer performance reliably and safely.

Our team of dielectric experts is active in the standards community globally and has extensive knowledge of not only dielectric fluid properties but also fluid performance in

application. And they have transformer design experience, too. This means our customers adopting FR3 natural ester technology have comprehensive dielectric fluids support from initial planning stages through best practices implementation and beyond.

Backed by Cargill's global supply chain network, our customers can rely on us to deliver the best solution for their application - when they need it, anywhere in the world.

With FR3 fluid, our customers can:

- Gain cost efficiencies either on initial cost or total cost of ownership without sacrificing reliability.
- Extend transformer insulation and asset life.
- Optimize load capacity.
- Significantly improve fire safety.
- Enhance their environmental footprint and sustainable supply chain initiatives.

Improve performance with life extension and loading flexibility.

Protect insulation life to extend asset life.

Insulation paper is one of the primary factors that determines the life of a transformer. FR3™ fluid's unique chemistry absorbs free water and essentially wicks it away from the insulation paper. FR3 fluid has 10 times the water saturation level of mineral oil. This results in extending the insulation life 5-8 times longer than mineral oil.



Insulation aging study comparing thermally upgraded paper using FR3 fluid vs. mineral oil.

- Save significantly on replacement costs by extending the asset life with FR3 fluid.
- Reduce the risk of failure to improve reliability of the transformer.
- Reduce processing maintenance costs, since FR3 fluid does not sludge like mineral oil.

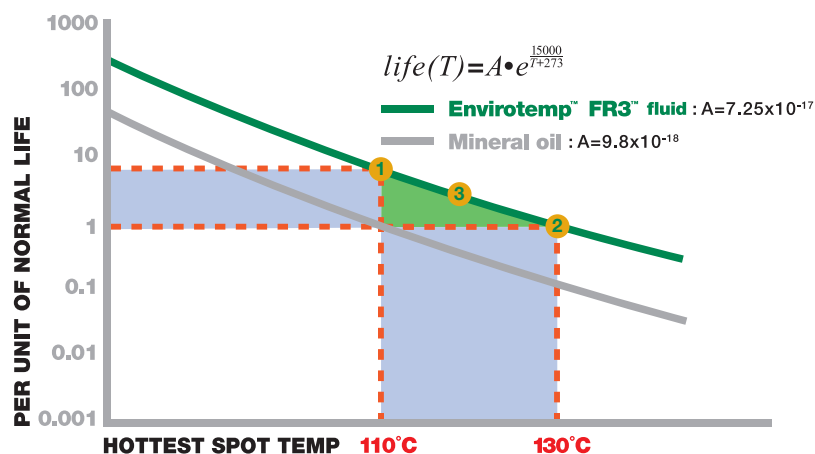
With FR3™ fluid’s unique capabilities to extend insulation life and increase load capacity, organizations now have the flexibility to optimize their transformer fleet loading profiles in order to gain cost savings without sacrificing reliability.

Leverage higher thermal capability with FR3 fluid.

Historically, standards were written to accommodate a 95°C or 110°C hot spot for cellulose and Thermally Upgraded Kraft (TUK), respectively. However, published high temperature insulation system standards - IEC (60076-14) and IEEE (C157.154) – accommodate a 15°C or 20°C increase in hot spot without sacrificing the life or reliability of the transformer, when immersed in natural ester fluid.

Paper	Dielectric Fluid	Thermal Class	Hot spot	IEEE AWR	IEC AWR
TUK	Mineral Oil	120	110°C	65°C	75K
TUK	Natural Ester	140	130°C	85°C	95K

TUK life curves



- OPTION 1:** Extend asset life at current 110° hotspot.
- OPTION 2:** Increase load capability up to 20% with 130°C hotspot.
- OPTION 3:** Incrementally extend asset life and increase load capability with 120°C hotspot.

IEC 60076-14 Part 14: Liquid-immersed power transformers using high-temperature insulation materials. Edition 1.0 September 2013.
 IEEE C57.154 Standard for the Design, Testing, and Application of Liquid-Immersed Distribution, Power, and Regulating Transformers Using High-Temperature Insulation Systems and Operating at Elevated Temperature. Published October 30, 2012.

Improve fire safety.

Add more sustainability to your sustainable supply chain.



Reduce costs while increasing fire safety.

FR3™ fluid has the highest fire point of any dielectric fluid (360°C compared to 160°C for mineral oil) making it the ideal choice for densely populated areas where transformers are positioned indoors, underground or in close proximity to buildings and other equipment. FR3 fluid is a K-class, less flammable fluid as certified by Underwriters Laboratory and approved by FM Global.

- Reduce clearance to buildings which saves precious real estate, particularly in space-constrained areas.
- Retrofill older transformers with FR3 fluid instead of replacing or moving them to help comply with current fire code regulations.
- For power transformers, potentially eliminate the need for expensive fire walls and deluge systems (and their ongoing maintenance costs).



“Being green” also benefits your bottom line.

FR3 fluid not only has best-in-class environmental properties, but with its enhanced thermal capabilities enabling smaller transformer designs, your supply chain just got a whole lot more sustainable.

- Smaller, more efficient transformer designs:
 1. Use less fluid and construction materials.
 2. Are typically lighter which could make installations easier for work crews and could reduce transportation costs.

Envirotemp™ FR3™ fluid properties: standard acceptance values and typical values

PROPERTY	Standard test methods		ASTM D6871/IEEE C57.147	IEC 62770	Envirotemp FR3 fluid
	ASTM	ISO/IEC	As-received new fluid property requirements	Unused new fluid property requirements	TYPICAL
Physical					
Color	D1500	ISO 2211	≤1.0	–	0.5
Flash Point PMCC (°C)	D93	ISO 2719	–	≥250	255
Flash Point COC (°C)	D92	ISO 2592	≥275	–	320-330
Fire Point (°C)	D92	ISO 2592	≥300	>300	350-360
Pour Point (°C)	D97	ISO 3016	<-10	≤-10	-18 - -23
Density at 20°C (g/cm³)	–	ISO 3675	–	≤1.0	0.92
Relative Density (Specific Gravity) 15°C	D1298	–	≤0.96	–	0.92
Viscosity (mm²/sec)					
100°C	D445	ISO 3104	≤15	≤15	7.7 - 8.3
40°C			≤50	≤50	32 - 34
0°C			≤500	–	190
Visual Examination	D1524	IEC 62770 4.2.1	bright and clear	clear, free from sediment and suspended matter	clear, light green
Biodegradation	OECD 301		readily biodegradable	readily biodegradable	readily biodegradable
Electrical					
Dielectric Breakdown (kV)	D877	–	≥30	–	47
Dielectric Breakdown (kV)					
1mm gap	D1816	–	≥20	–	28
2mm gap	D1816	–	≥35	–	48-75
2.5mm gap	–	IEC 60156	–	≥35	73
Gassing Tendency (mm/min)	D2300	–	≤0	–	-79
Dissipation Factor					
25°C (%)	D924	–	≤0.20	–	0.010 - 0.15
90°C (tan δ)	–	IEC 60247	–	≤0.05	0.02
100°C (%)	D924	–	≤4.0	–	0.41 - 3.85
Chemical					
Corrosive Sulfur	D1275	IEC 62697	non-corrosive	non-corrosive	non-corrosive
Water Content (mg/kg)	D1533	IEC 60814	≤200	≤200	4 - 50
Acid Number (mg KOH/g)	D974	IEC 62021.3	≤0.06	≤0.06	0.013 - 0.042
PCB Content (mg/kg)	D4059	IEC 61619	not detectable	free from PCBs	not detectable
Total Additives	–	IEC 60666	–	Max weight fraction 5%	<2%
Oxidation Stability (48 hrs, 120°C)	–	IEC 61125C	–	–	–
Total Acidity (mg KOH/g)	–	IEC 62621.3	–	≤0.6	0.1
Viscosity at 40°C (mm²/sec)	–	ISO 3104	–	≤ 30% increase over initial	17.1% increase
Dissipation Factor at 90°C (tan δ)	–	IEC 60247	–	≤ 0.5	0.1

NOTE: Specifications should be written referencing only the defined ASTM or IEC industry standard acceptance values and test methods. The listed 'typical' values are average values summarized from a significant number of data points over many years; they are not to be identified as acceptance values.

ASTM D6871 Standard Specification for Natural (Vegetable Oil) Ester Fluids Used in Electrical Apparatus.

IEC 62770: Fluids for electrotechnical applications – Unused natural esters liquids for transformers and similar electrical equipment.

A transformer filled with FR3™ fluid complies with the transformer temperature operating range requirements defined in IEEE C57.12.00 and IEC 60076-1.

This document is provided for your information and convenience only. All information, statements, recommendations and suggestions are believed to be true and accurate but are made without guarantee, express or implied. WE DISCLAIM, TO THE FULLEST EXTENT PERMITTED BY LAW, ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE and FREEDOM FROM INFRINGEMENT and disclaim all liability in connection with the storage, handling or use of our products or information, statements, recommendations and suggestions made by Cargill. All such risks are assumed by you/user. The labeling, substantiation and decision making relating to the regulatory approval status of, the labeling on and claims for your products is your responsibility. We recommend you consult regulatory and legal advisors familiar with applicable laws, rules and regulations prior to making regulatory, labeling or claims decisions for your products. The information, statements, recommendations and suggestions contained herein are subject to change without notice. Tests conducted by Cargill labs unless otherwise noted.

- Made from a renewable source with global, reliable supply.
- Carbon neutral (according to BEES 4.0 lifecycle analysis).
- Non-toxic and non-hazardous in soil and water.
- Readily Biodegradable per OECD 301.
- Contains no petroleum, halogens, silicones or sulfurs.
- Recyclable.



contact us - envirotempfluids.com

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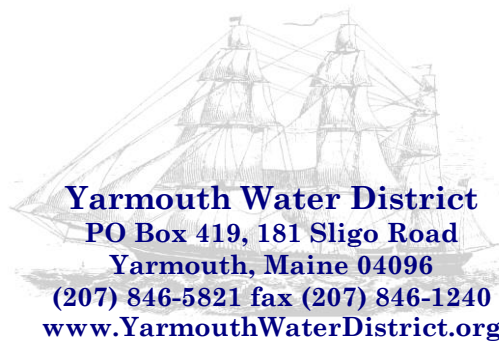
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ATTACHMENT 14

**Yarmouth Water District
Project Review Letter**

Eric Gagnon
Superintendent



Irving C. Felker, Jr.
Chairman, Board of Trustees

March 11, 2022

North Yarmouth Planning Board
Via Email: tcox@northyarmouth.org

RE: Solar Project on 238 Sweetser Road, (Water Line Solar, LLC)

Dear Planning Board Members,

The Yarmouth Water District has been working closely with Branch Renewable Energy as they progress in the development of a solar generation facility on District property at 238 Sweetser Road in North Yarmouth. This project is within the groundwater protection overlay district zone of North Yarmouth zoning. This area requires extra scrutiny as it is a contributor to the areas drinking water.

The District has consulted with our hydrogeologist and the Maine Drinking Water Program in regards to potential impacts to the water supply. After reviewing the site plan and proposed location of equipment we have provided a list of comments and conditions should the project be approved by the planning board:

1. This project does not require water supply or septic systems, therefore there is no impact to capacity or effluent sewer water impacts.
2. No permanent equipment can be in Zone One of the aquifer protection area. Zone One is described as the 200-day travel time contribution area. This project does not have any permanent equipment proposed in Zone One, but tree clearing for the purposes of limiting shade on the solar panels is permitted in Zone One.
3. The equipment for the project cannot use petroleum based liquids. The proposal states vegetable grade oil will be used in the transformer and no petroleum based oils of any kind are designed to be present in the solar panel tracker motors.
4. The transformer must use vegetable grade oil, be installed on a pad, and have secondary containment. The proposed plan meets these requirements.
5. Solar panels must document that they do not contain PFAS.
6. All equipment must be outside of any new potential well sites. The District's hydrogeologist is comfortable that the project area is outside of any new well development since it is outside of Zone One.
7. A fueling area and plan must be provided and approved by the Water District before construction commences.
8. Any maintenance personnel performing work on-site, including but not limited to cutting grass and solar equipment service work, must meet first with the Water District prior to any work

being done on the property to discuss aquifer protection standards in regards to fueling and the impacts to the aquifer. Only clean sand can be used to treat roadways.

9. The Water District and the Developer must receive MPUC approval for leasing of water resource land before construction commences.
10. A full decommissioning plan and form of surety as approved by the DEP, which includes aquifer protection practices, must be in place before construction commences.

The Yarmouth Water District's first priority is to provide safe, plentiful, high quality drinking water to the community it serves and we feel that this project will not adversely impact water quality. The fact that it does not have any water use, effluent water, and maintenance practices will be approved by the District we do not feel a hydrogeologic study nor water testing is necessary for this project.

We look forward to working through this project as it progresses. Feel free to contact the District with any questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read 'Eric Gagnon', with a stylized flourish at the end.

Eric Gagnon
Superintendent

ATTACHMENT 15

Noise

Attachment 15: Noise

Project noise levels are not expected to have any adverse effect on neighboring properties. This includes sound generated from construction activities, routine operation, and routine maintenance.

Construction

Typical heavy equipment will be used during construction, including hydraulic foundation drivers to install solar racking posts. Noise from construction activities between 7:00 a.m. and 7:00 p.m. will comply with the hourly sound level limits prescribed by MDEP for protected locations in 06-096 CMR 375 (“No Adverse Environmental Effect Standards of the Site Location of Development Act”). These limits are listed in Table 1.

All construction activity outside of these hours will strictly adhere to the sound level limits prescribed for “regular or frequent” noise in § 10.16 of the *Town of North Yarmouth Land Use Ordinance*. No construction activities will occur between the hours of 7:00 p.m. and 6:00 a.m.

Table 1. Noise Limits at Protected Locations During Construction Activities

Duration of Activity	Hourly Sound Level Limit
12 hours	87 dBA
8 hours	90 dBA
6 hours	92 dBA
4 hours	95 dBA
3 hours	97 dBA
2 hours	100 dBA
1 hour or less	105 dBA

Operation

During normal Project operation, some noise will be generated by the proposed transformer. Additionally, the Project proposes to install single-axis tracker solar arrays, which include motors that produce low sound levels. The motors will run for a few seconds approximately every 15 minutes during the day to adjust the position of the solar panels. According to National Electrical Manufacturers Association (NEMA) TR1 Standards, the typical sound level emitted by a similar transformer is 63 dB(A) at 33 feet. The sound level emitted from a single-axis tracker motor is 63 dB(A) at 3.3 feet.

As seen in the Site Plan (**Attachment 2**), the Project transformer will be located over 300 feet from the nearest property boundary. All single-axis trackers will be installed over 180 feet from the nearest property boundary. Based on these distances, the maximum sound levels measured at property boundaries are estimated to be 43.8 dB(A) from the transformer, and 28.3 dB(A) from the tracker motors.

These noise levels are below all daytime and nighttime limits listed in § 10.16 of the *Town of North Yarmouth Land Use Ordinance*.

ATTACHMENT 16

Stormwater PBR Application

**STORMWATER PERMIT BY RULE APPLICATION
FOR THE
WATER LINE SOLAR PROJECT
238 Sweetser Road
North Yarmouth, Maine**

**For
Water Line Solar, LLC**

A Subsidiary



Prepared by:



Date:
March 2022



WILLIAM A. THOMPSON
ROBERT C. LIBBY, Jr.
WALTER E. PELKEY
ANDREW S. MORRELL
STEVEN J. BLAKE

Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors

380B Main Street Tel. (207) 839-2771
Gorham, Maine 04038 www.bh2m.com

March 10, 2022

Marybeth Richardson
Regional Licensing and Compliance Manager Bureau of Land Recourses
Southern Maine Regional Office Maine Department of Environmental Protection
312 Canco Road
Portland, Maine 04103

Re: Water Line Solar Project
 Proposed 1.99-MW Solar Array
 238 Sweetser Road, North Yarmouth
 Stormwater Permit by Rule Application

Dear Marybeth,

On behalf of the Applicant, Water Line Solar LLC, a subsidiary of Branch Renewable Energy, we are submitting a Stormwater Permit by Rule Application for a proposed 1.99-MW solar array located in the town of North Yarmouth Maine. BRI Environmental and BH2M have worked collaboratively to prepare this permit application package. BH2M has prepared the erosion and sedimentation control plans for the project, in accordance with Maine DEP guidelines. BRI Environmental has prepared the preliminary site plan and will serve as the direct Agent for the Applicant.

Development Description

The Applicant is proposing to construct a single axis tracker solar array with a total output of 1.99 MW on a previously undeveloped site in North Yarmouth, Maine. The project is located along Sweetser Road in North Yarmouth. The site is a wooded area. Development of the proposed project will include new construction of solar panels, gravel access road, temporary staging area, underground conductors, and project equipment. The total area proposed for disturbance is approximately 14.42 acres, of this there will be approximately 13.37 acres of tree clearing. Construction of the project will occur incrementally in blocks of no more than 5 acres. Sequencing of construction will be structured so that 5-acre blocks will be stabilized prior to commencing construction of subsequent 5-acre blocks. Access to the proposed array will be from a gravel access road connecting to Sweetser Road.

Permit Application Attachments

In support of the Application, we are including the receipt of payment and the following:

- Stormwater Permit by Rule Application
- Attachment A – Figures
- Attachment B – Site Plan
- Attachment C – Erosion and Sedimentation Control Plans
- Attachment D – Erosion and Sedimentation Control Inspection and Maintenance Plan
- Attachment E – Site Photos
- Attachment F – Certificate of Good Standing
- Attachment G – Soils Report
- Attachment H – Construction Schedule

If you have any questions about this application, or require any additional information for this submission please contact myself or Merrill Read with BRI Environmental. We look forward to working with you on this project.

Sincerely,



Steven J. Blake, PE
Senior Engineer

1 Name of Applicant: Water Line Solar, LLC		5 Name of Agent: BRI Environmental, Merrill Read	
2 Applicant's Mailing Address: 8 Quarry Ridge North Yarmouth, ME 04097		6 Agent's Mailing Address: 30 Danforth Street, Suite 213 Portland, ME 04101	
3 Applicant's Daytime Phone: (207) 653-9864		7 Agent's Daytime Phone: 414-758-7319	
4 Applicant's Email Address: cbyers@branchrenewables.com		8 Agent's Email Address: merrill.read@brienviornmental.org	
9 Location of Project: (Road, Street, Rt.) 238 Sweetser Road		10 Location Town: North Yarmouth	11 Location County: Cumberland
12 Is this PBR for renewal of an individual stormwater permit? If yes, skip to Block 29 and signature page.			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
13 Type of Direct Watershed: (Check all that apply.) <input type="checkbox"/> Lake not most at risk <input type="checkbox"/> Lake most at risk <input type="checkbox"/> Lake most at risk, severely blooming <input checked="" type="checkbox"/> River, stream or brook <input type="checkbox"/> Urban impaired stream <input type="checkbox"/> Freshwater wetland <input type="checkbox"/> Coastal wetland <input type="checkbox"/> Wellhead of public water supply		14 Amount of Developed Area: Total <u>0.09</u> acres OR Total <u>3,720</u> square feet	
		15 Amount of Impervious Area: Total <u>0.09</u> acres OR Total <u>3,720</u> square feet	
		16 Amount of Occupied Area: Total <u>14.42</u> acres	
17 Part of a Subdivision? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		18 Is this Activity Part of a Larger Project? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
19 Name of Waterbody(ies) Drained to: Unnamed Brook to Royal River		20 Name of Impaired Waterbody (if applicable) N/A	
21 Brief Project Description: The Water Line Solar LLC, solar project proposes to construct solar arrays with an output of 1.99 MW on land comprised of primarily woodlands.			
22 Size of Lot or Parcel: <input type="checkbox"/> _____ square feet OR <input checked="" type="checkbox"/> <u>100</u> acres		UTM Northing, if known: 15,923,287	UTM Easting, if known: 1,316,580
23 Deed Reference Numbers: Book: _____ Page: _____		24 Map and Lot Numbers: Map: 5 Lot: 2	
25 DEP Staff Previously Contacted:		26 Project started prior to application? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes, Completed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
27 Resubmission of PBR Application? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes →	If yes, prior application number:	Prior Project Manager:	
28 Written Notice of Violation? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes →	If yes, name of DEP enforcement staff involved:		
29 Detailed Directions to the Project Site: From the I-295N take Exit 17 toward Yarmouth/Freeport keep left at the fork and turn left onto US-1 S for 1.2 mi. Turn right onto School St., turn right onto ME-115 W for 3.2 mi, turn right onto Baston Rd for 0.7 mil, then turn right onto Sweetser Rd for 0.2 mi, and the site will be on the left (east) side.			
30 Renewal of individual stormwater permit? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes →	DEP Permit No:	Project Manager:	
31 SUBMISSIONS			
<input checked="" type="checkbox"/> This Form (signed and dated)	<input type="checkbox"/> Dept. of Inland Fisheries and Wildlife Approval (if in Essential Habitat)	<input checked="" type="checkbox"/> Photos of Area	<input checked="" type="checkbox"/> ESC Plan
<input checked="" type="checkbox"/> Fee		<input checked="" type="checkbox"/> Location Map	<input checked="" type="checkbox"/> Site Plan
For Renewal of an individual Stormwater permit only: <input type="checkbox"/> This form (signed and dated) <input type="checkbox"/> Copy of original stormwater permit <input type="checkbox"/> Fee			
FEE: Pay by credit card at the Payment Portal. The Stormwater Permit-by-Rule fee may be found here: https://www.maine.gov/dep/feeschedule.pdf . <input checked="" type="checkbox"/> Attach payment confirmation from the Payment Portal when filing this notification form.			

Does the agent have an interest in this project? If yes, what is the interest?

No vested interest in project.

CERTIFICATIONS / SIGNATURES

Applicant's Statement:

I am applying for a Stormwater PBR and have attached the required PBR submissions. I have read the requirements herein and I affirm that my project satisfies the applicable stormwater management standards. I authorize staff of State and Federal agencies having jurisdiction over this activity, to access the project site for the purpose of determining compliance with the rules. *If typing your signature below, you are agreeing to and acknowledging the above information is true.*

Signature (may be typed): Men' A Reed Date: 03/14/2022

Notice of Intent to Comply with Maine Construction General Permit

With this Stormwater PBR notification form and my signature below, I am filing notice of my intent to carry out work which meets the requirements of the Maine Construction General Permit. I have read and will comply with all of the MCGP standards. In addition, I will file a Notice of Termination (NOT) within 20 days of project completion.

If this form is not being signed by the landowner or lessee of the property, attach documentation showing authorization to sign. *If typing your signature below, you are agreeing to and acknowledging the above information is true.*

Signature (may be typed): Men' A Reed Date: 03/14/2022



AGENT AUTHORIZATION FORM

February 23, 2022

To Whom It May Concern,

This letter serves as acknowledgement of authorization for Biodiversity Research Institute to act as an agent on behalf of Branch Renewable Energy, LLC regarding the submission and subsequent follow up of any municipal, state, or federal permits for the North Yarmouth Solar Project ("Water Line Solar, LLC") in Maine.

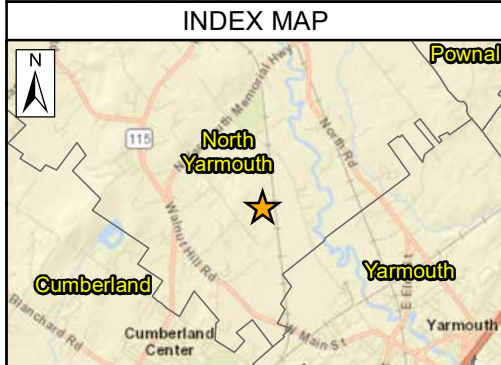
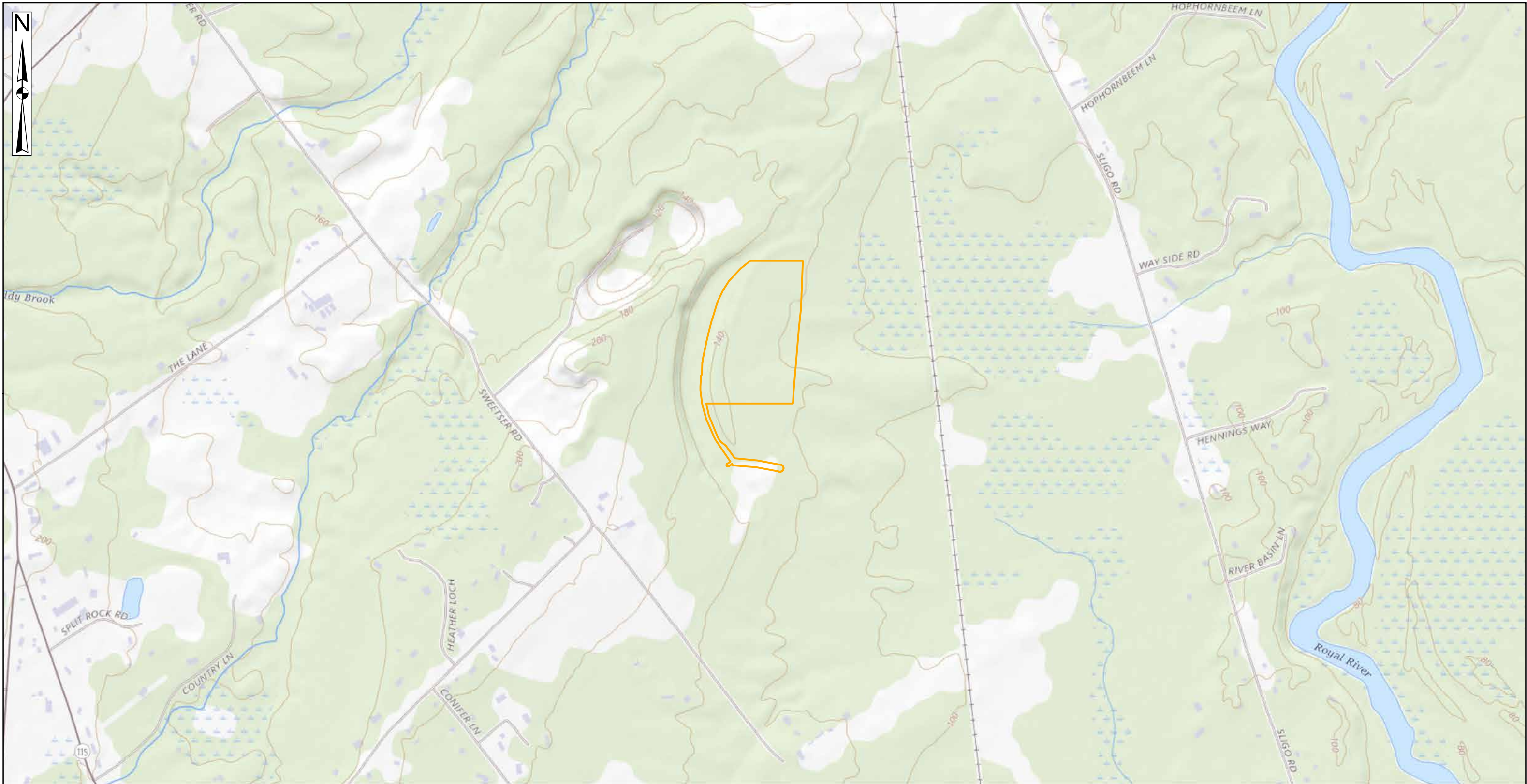
Any questions or clarifications regarding the representation can be directed to Chris Byers, Principal at Branch Renewable Energy (cbyers@branchrenewables.com).

Sincerely,

A handwritten signature in black ink, appearing to be "Chris Byers", with a stylized flourish at the end.

Chris Byers, Principal
Branch Renewable Energy, LLC
8 Quarry Ridge
North Yarmouth, ME 04097
207-653-9864
cbyers@branchrenewables.com

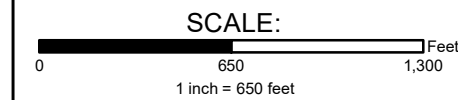
Attachment A
Figures



INDEX MAP

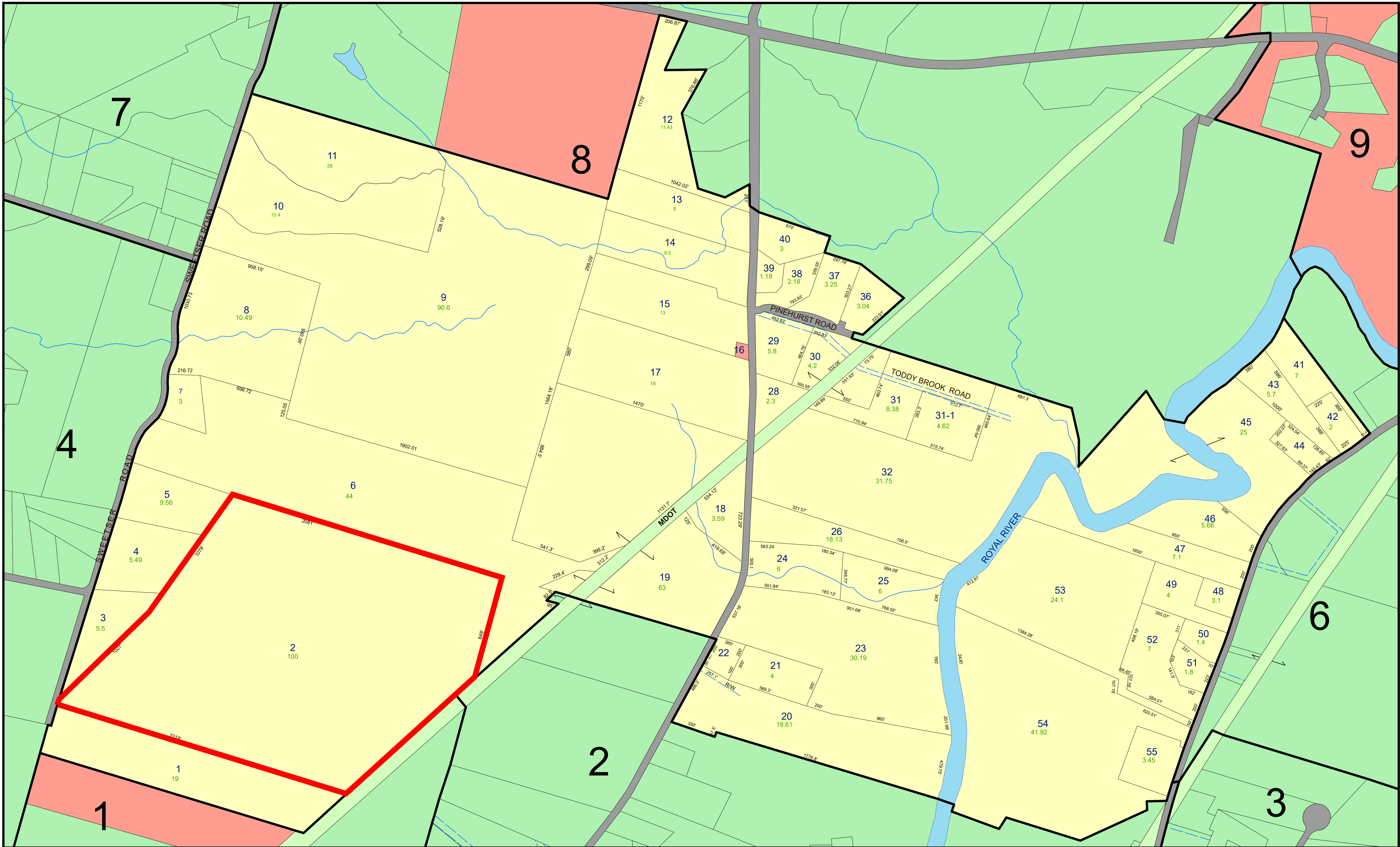
LEGEND

— Project Limit of Disturbance



**PROJECT LOCATION MAP - USGS TOPOGRAPHIC
WATER LINE SOLAR, LLC:
NORTH YARMOUTH, MAINE**

MARCH 07, 2022



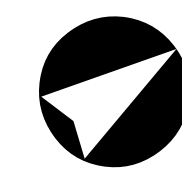
Tax Sheets are intended for assessing purposes only. Boundary locations are approximate and should not be used for conveyance of property.

Maps updated - 01/28/2021

Legend

Parcel	Cemetery
Town	ROW
Railroad	Stream
Road	
Water	

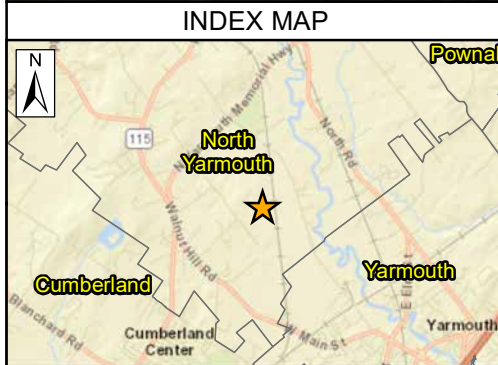
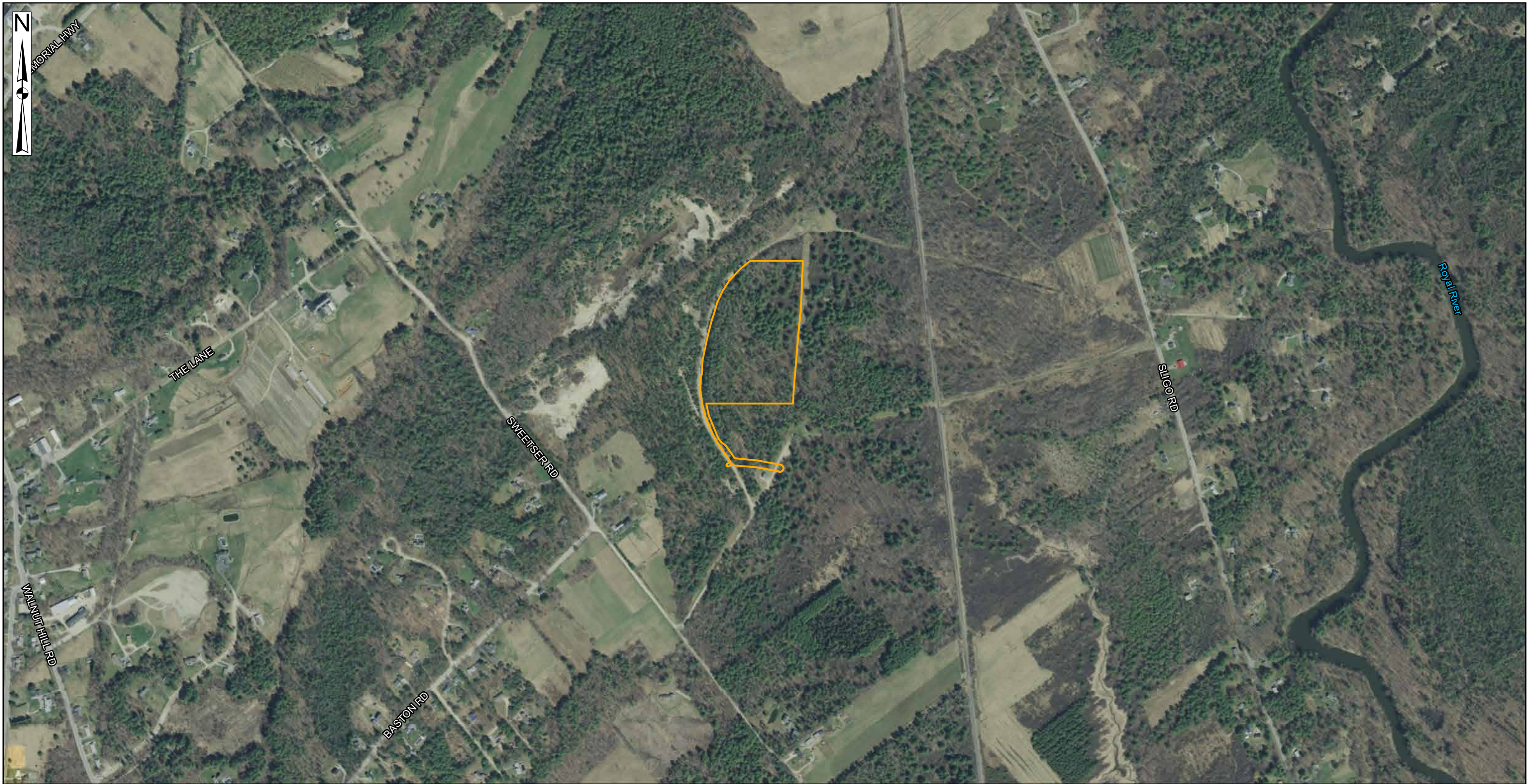
North Yarmouth, Maine



Maps Prepared by:
**Cumberland County
 Regional Assessing**

0 300 600
 1 inch = 300 Feet

Tax Sheet
5



LEGEND

— Project Limit of Disturbance

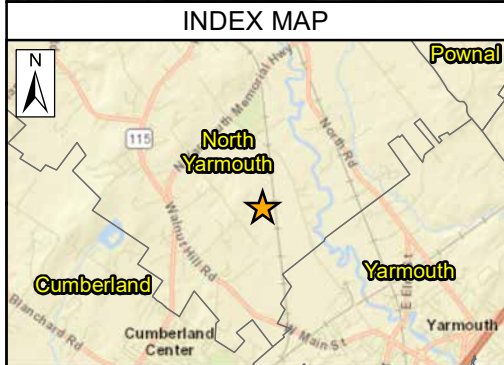
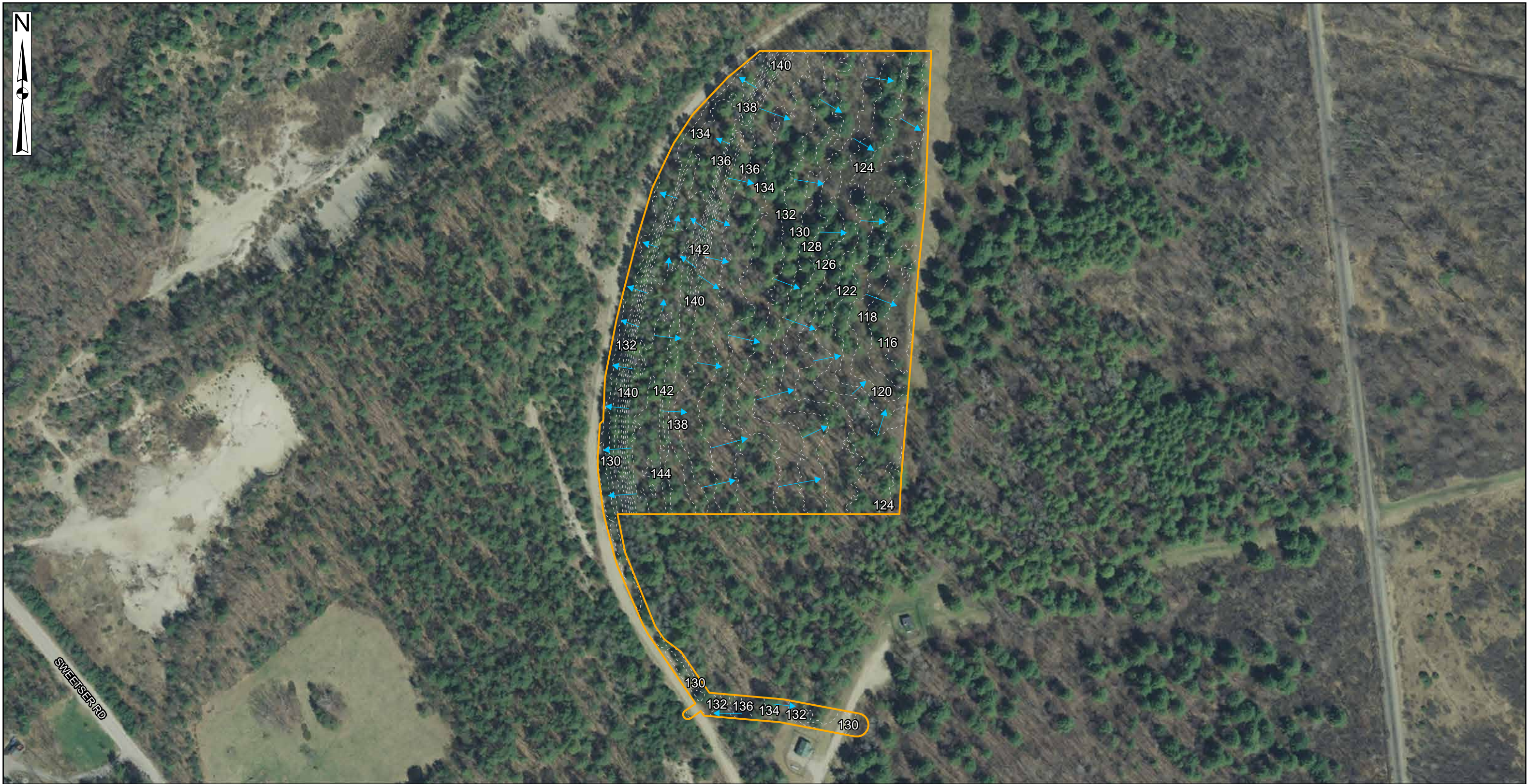
SCALE:

0 650 1,300 Feet

1 inch = 650 feet

PROJECT LOCATION MAP - AERIAL
WATER LINE SOLAR, LLC:
NORTH YARMOUTH, MAINE

MARCH 07, 2022



LEGEND

- 2ft Contour Interval
- Project Silt Fence

SCALE:

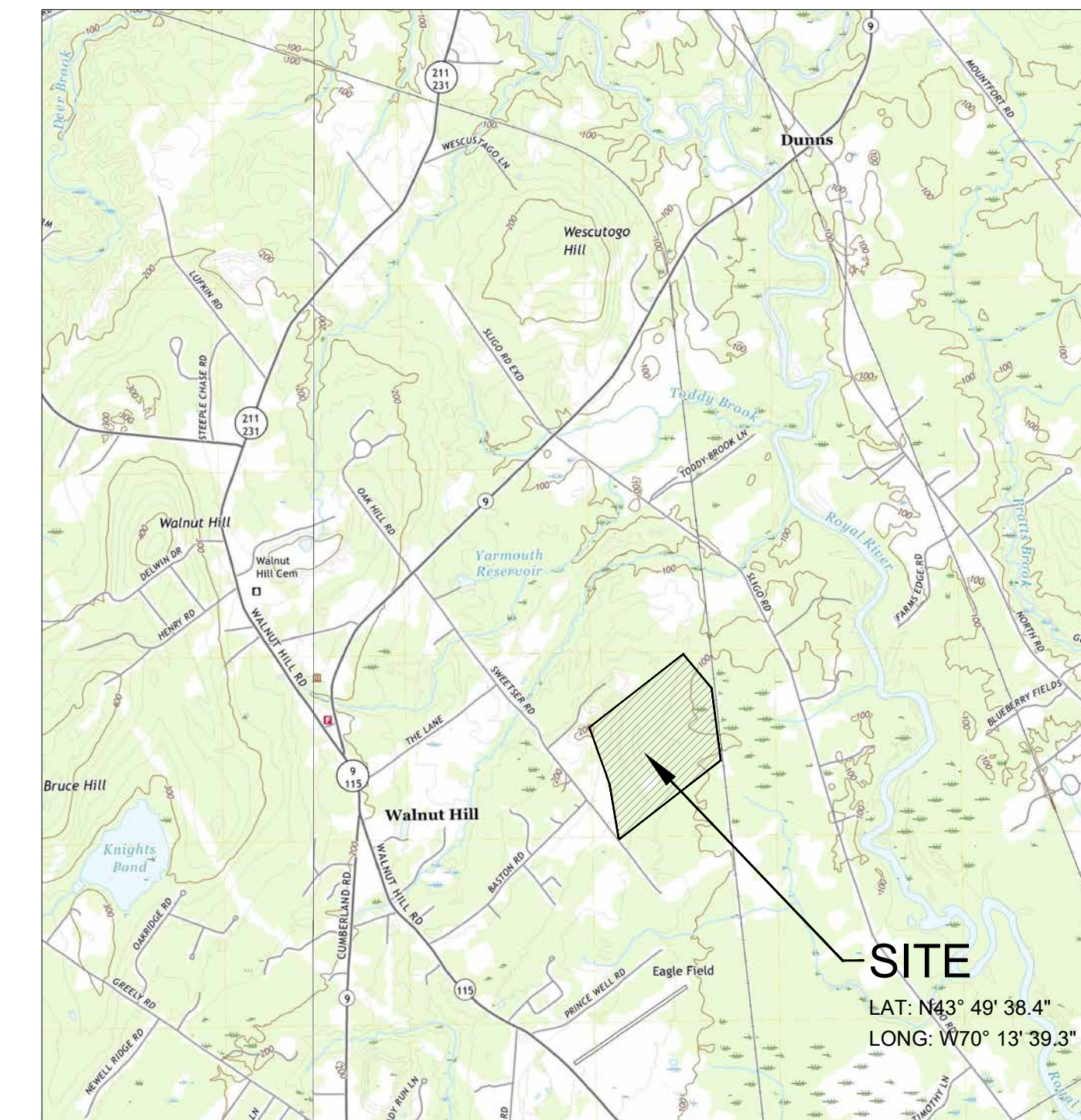
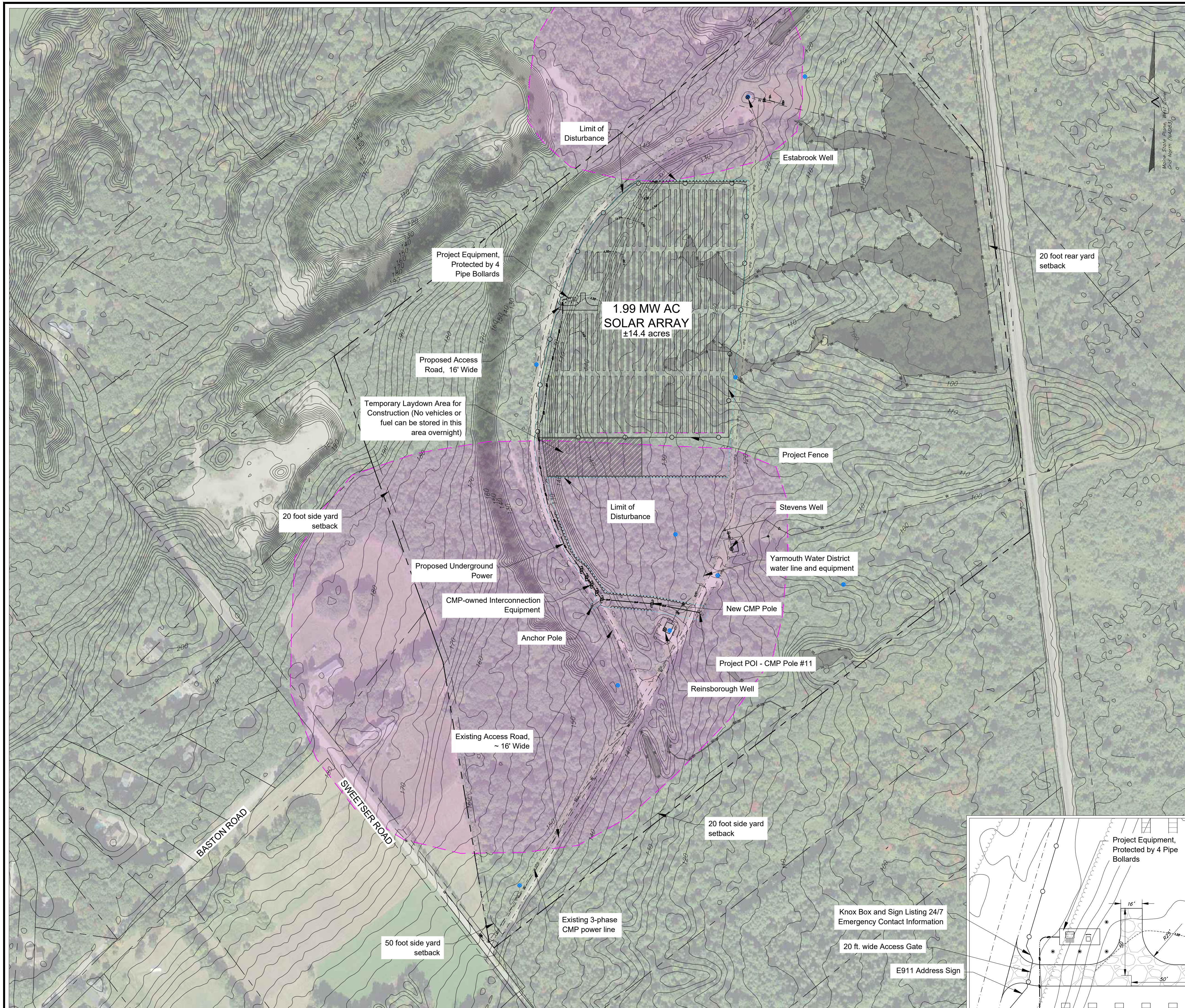
0 200 400 Feet

1 inch = 200 feet

TOPOGRAPHIC DATA FLOW MAP
WATER LINE SOLAR, LLC:
NORTH YARMOUTH, MAINE

MARCH 07, 2022

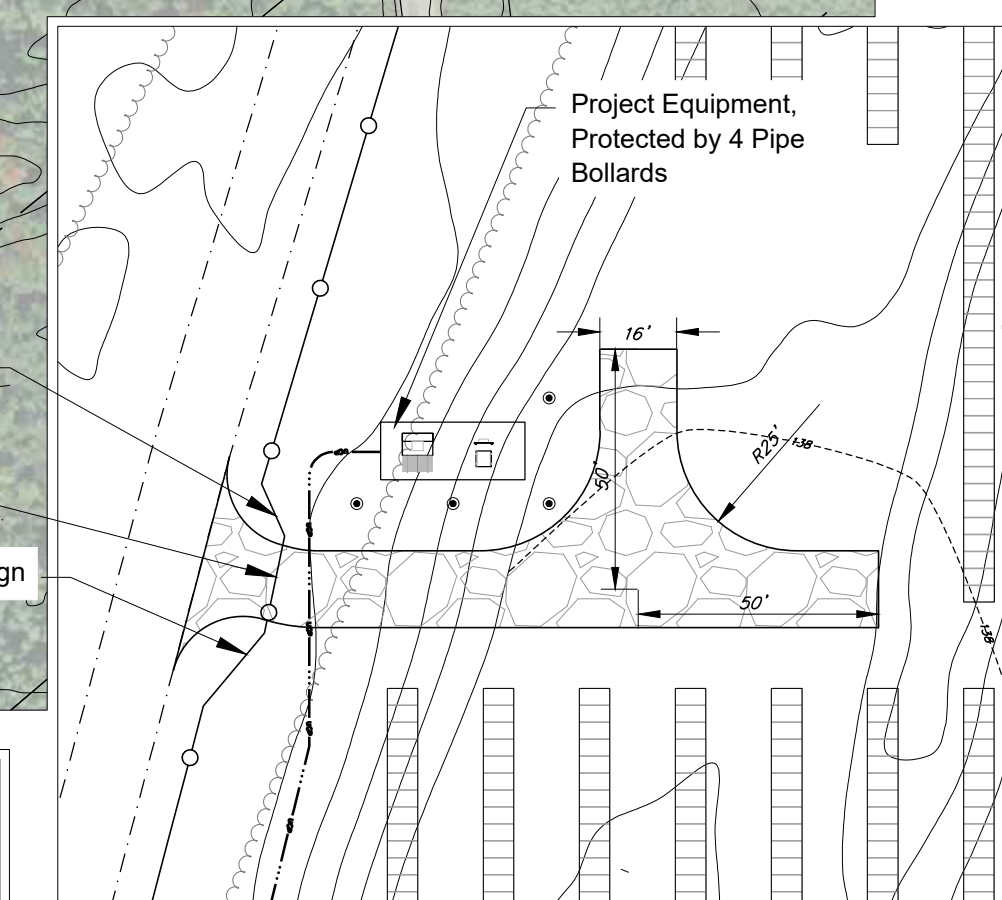
Attachment B
Site Plan



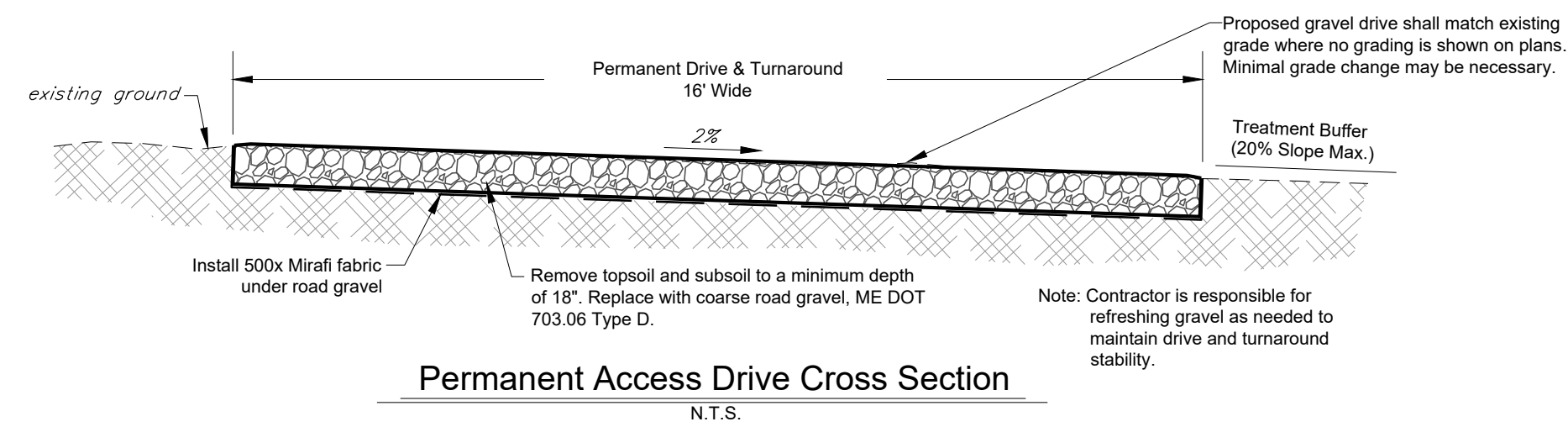
LOCATION MAP
SCALE: 1" = 1/2 Mile

LEGEND

- EXISTING POWER POLE / PROPOSED POLE
- APPROXIMATE PROPERTY LINES
- APPROXIMATE PROJECT PARCEL
- PROPERTY LINE SETBACK
- EXISTING GRADE CONTOUR LINES (10 FOOT INTERVALS)
- PROPOSED GRADE CONTOUR LINES (10 FOOT INTERVALS)
- EXISTING TREELINE
- PROPOSED PROJECT FENCE
- PROPOSED TREELINE
- EXISTING OVERHEAD POWER
- PROPOSED OVERHEAD POWER
- PROPOSED UNDERGROUND POWER
- PROPOSED PROJECT EQUIPMENT
- PROPOSED TRACKER UNIT SOLAR PANEL RACKING
- DELINEATED STREAM
- ENVIRONMENTAL RESOURCE BUFFER
- DELINEATED WETLAND
- PROPOSED 16' GRAVEL ACCESS DRIVE
- EXISTING GRAVEL ACCESS DRIVE
- LIMIT OF DISTURBANCE
- EXISTING FENCE
- EXISTING YARMOUTH WATER DISTRICT TEST WELL
- EXISTING YARMOUTH WATER DISTRICT WELL
- EXISTING YARMOUTH WATER DISTRICT WATER VALVE
- EXISTING YARMOUTH WATER DISTRICT HYDRANT
- EXISTING YARMOUTH WATER DISTRICT WATER LINE
- 200-DAY WELL PROTECTION AREA ZONE 1



Turnaround Detail
1 INCH = 40 FEET



Permanent Access Drive Cross Section
N.T.S.

APPROVED: TOWN OF NORTH YARMOUTH,
NORTH YARMOUTH PLANNING BOARD

DATE _____

NOTES:

1. ASPECTS OF PLAN ARE APPROXIMATE AND DERIVED FROM AERIAL PHOTOGRAPHY.
2. THE HORIZONTAL COORDINATE SYSTEM IS BASED ON NAD83 MAINE STATE PLANES, EAST ZONE (US SURVEY FEET). ELEVATIONS ARE BASED ON THE NAVD88 (US SURVEY FEET).
3. EXISTING GROUND CONTOUR ELEVATIONS ARE BASED ON LIDAR DATA DOWNLOADED FROM NOAA DATAVIEWER IN OCTOBER, 2021.
4. UTILITIES ARE NOT WARRANTED TO BE COMPLETE OR ACCURATE. CONTRACTOR SHALL CONTACT DIG SAFE BEFORE BEGINNING ANY EXCAVATION.
5. THIS IS IN NO WAY A BOUNDARY SURVEY. PROPERTY LINES SHOWN ARE FROM TOWN TAX MAPS.
6. THIS IS PRELIMINARY DESIGN PLAN. FINAL DESIGN WILL BE MODIFIED TO MATCH EQUIPMENT PURCHASED.
7. ENVIRONMENTAL SITE REVIEW DATA IS BASED ON DATA FROM BRI ENVIRONMENTAL.

Water Line Solar, LLC.

North Yarmouth, Maine



238 Sweetser Road, North Yarmouth, Maine 04097



164 Main Street, Suite 201 Colchester, Vermont 05446 P: (802) 878-0375 www.krebsandlansing.com

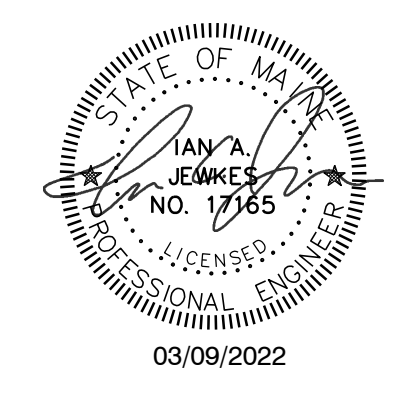
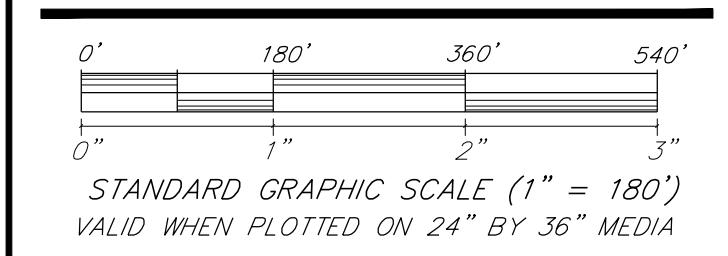
CIVIL DESIGN SET FOR PERMIT REVIEW

MAPPING SOURCE DATA USED FOR PLAN COMPILATION

Civil Engineering:
Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

Environmental:
BRI Environmental
30 Danforth Street, Suite 213
Portland, ME 04101

Record Holder:
Yarmouth Water District
181 Sligo Road
Yarmouth, ME 04096
207-846-5821



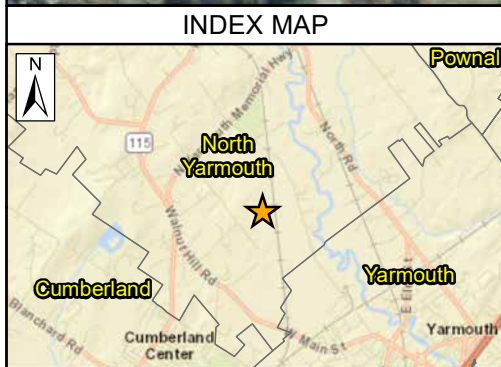
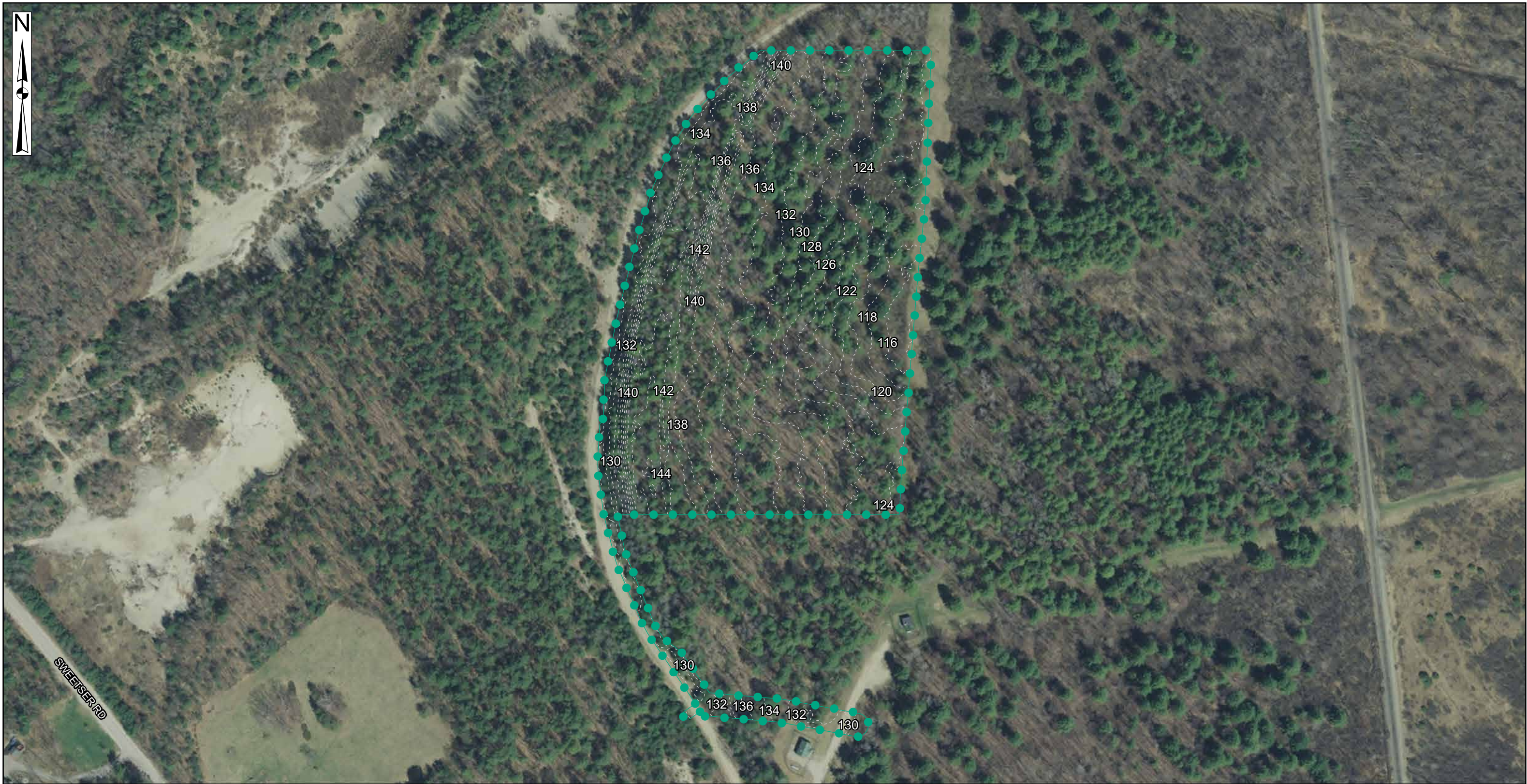
REV. NO.	REVISIONS/COMMENTS	DATE

DRAWING TITLE:
NORTH YARMOUTH SOLAR SINGLE AXIS TRACKER SITE PLAN

DATE of Issue: 03/09/2022
Drawn by: EJM Checked by: IAJ
Project No.: 21388 Scale: 1" = 180'
Drawing No.: _____ Rev No.: _____

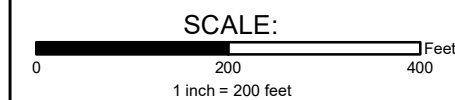
C-1.0

Attachment C
Erosion and Sedimentation Control Plans



LEGEND

- 2ft Contour Interval
- Project Silt Fence



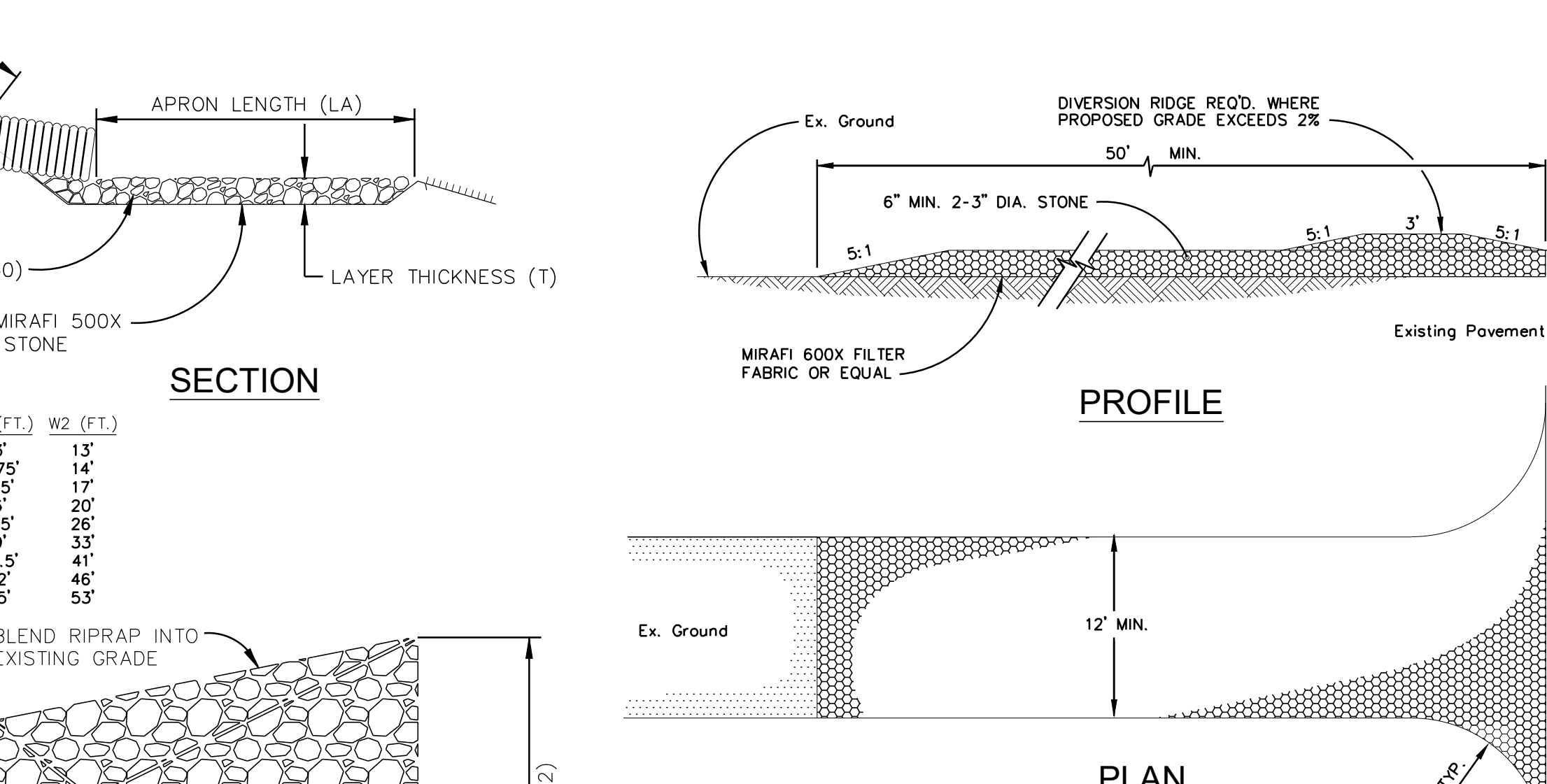
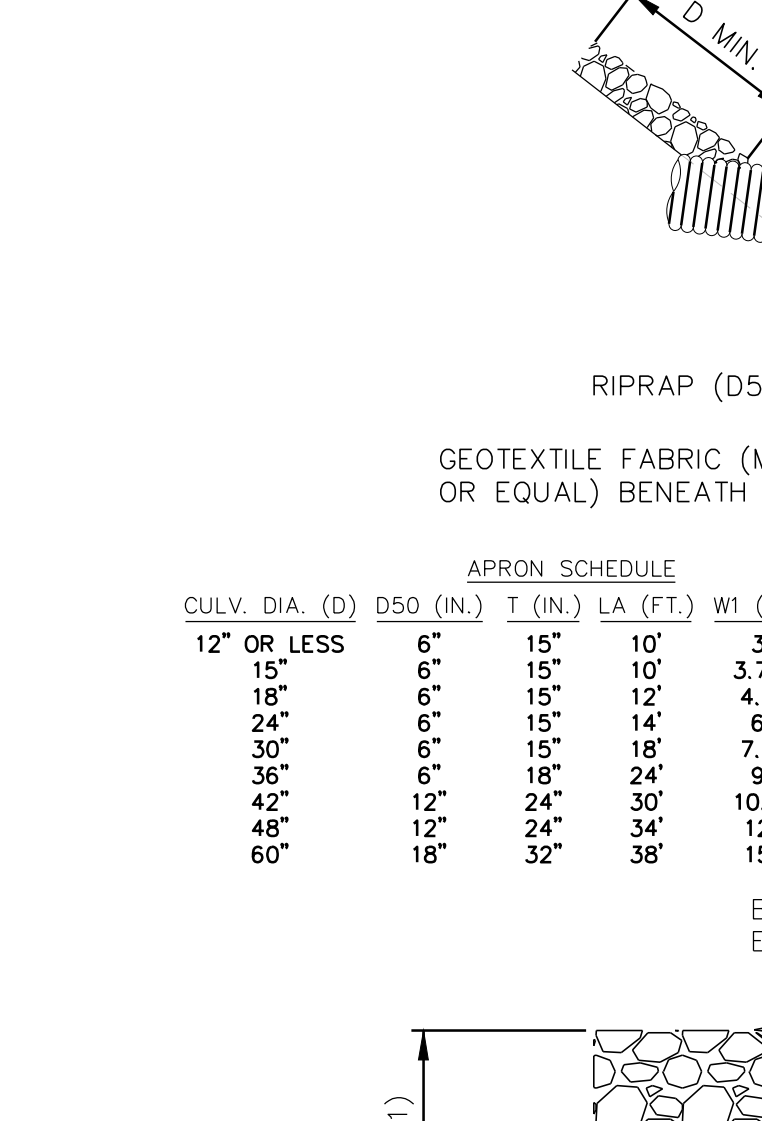
SEDIMENT & EROSION CONTROL MAP
WATER LINE SOLAR, LLC:
NORTH YARMOUTH, MAINE

MARCH 07, 2022

EROSION AND SEDIMENT CONTROL PLAN
THIS PLAN HAS BEEN DEVELOPED AS A STRATEGY TO CONTROL SOIL EROSION AND SEDIMENTATION DURING AND AFTER CONSTRUCTION. THIS PLAN IS BASED ON THE STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION IN DEVELOPING AREAS AS CONTAINED IN THE LATEST REVISION OF THE 2016 MAINE EROSION AND SEDIMENT CONTROL BMP'S HANDBOOK FOR DESIGNERS AND ENGINEERS, AND THE LATEST REVISION TO THE 2014 MAINE EROSION AND SEDIMENT CONTROL FIELD GUIDE FOR CONTRACTORS. SEE MANUALS FOR ADDITIONAL INFORMATION AND DETAILS.

THE PROPOSED LOCATIONS OF SILTATION AND EROSION CONTROL STRUCTURES ARE SHOWN ON THE SITE PLAN.
1. ALL CONSTRUCTION INSPECTIONS SHALL BE CONDUCTED BY SOMEONE WITH KNOWLEDGE OF EROSION AND STORMWATER CONTROL INCLUDING STANDARDS AND PERMIT CONDITIONS. CONSTRUCTION INSPECTIONS SHALL BE PERFORMED AT LEAST ONCE A WEEK, AND PRIOR TO AND 24 HOURS AFTER A WET WEATHER EVENT (0.5 INCHES OR MORE IN A 24 HOUR PERIOD). CONSTRUCTION INSPECTION AND CORRECTIVE ACTION DOCUMENTATION RECORDS SHALL BE MAINTAINED FOR A MINIMUM OF 2 YEARS.
2. THE SCOPE OF CONSTRUCTION INSPECTIONS INCLUDE THE EROSION AND SEDIMENTATION CONTROL MEASURES AS WELL AS DISTURBED AREAS, MATERIAL STORAGE AREAS, AND LOCATIONS WHERE VEHICLES ENTER AND EXIT THE SITE.
3. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE MAINE EROSION AND SEDIMENT CONTROL "BMP'S", DEPARTMENT OF ENVIRONMENTAL PROTECTION, LATEST REVISION.
4. THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE LEFT IN AN UNTREATED OR UNVEGETATED CONDITION FOR A MINIMUM TIME. AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 7 DAYS OF FINAL GRADING AND TEMPORARILY STABILIZED WITHIN 7 DAYS OF INITIAL DISTURBANCE OF THE SOIL. IF THE DISTURBANCE IS WITHIN 75 FEET OF A WETLAND OR WATERBODY, THE AREA SHALL BE STABILIZED WITHIN 2 DAYS OR PRIOR TO ANY STORM EVENT, WHICHEVER COMES FIRST.
5. SEDIMENT BARRIERS (EROSION CONTROL MIX, STONE CHECK DAMS, STABILIZED CONSTRUCTION ENTRANCE, ETC.) SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF THE CONTRIBUTING DRAINAGE AREA ABOVE THEM. ALL DISTURBED AREAS ARE STABILIZED. EROSION CONTROL MIX SHALL REMAIN IN PLACE PER NOTE #7. THE USE OF AN EROSION CONTROL MIX BERM IS PROHIBITED AT THE BASE OF SLOPES STEEPER THAN 8% OR WHERE THERE IS FLOWING WATER.
7. ALL EROSION CONTROL STRUCTURES WILL BE INSPECTED, REPLACED, AND/OR REPAIRED EVERY 7 DAYS AND IMMEDIATELY BEFORE AND FOLLOWING ANY SIGNIFICANT RAINFALL (0.5 INCH OR MORE IN A 24-HOUR PERIOD) OR SNOW MELT OR WHEN NO LONGER SERVICABLE DUE TO SEDIMENT ACCUMULATION OR DECOMPOSITION. IF AN INSPECTION DETERMINES THAT A CORRECTIVE ACTION IS REQUIRED, THE ACTION OR REPAIR SHALL BE STARTED BY THE END OF THE NEXT WORKDAY AND COMPLETED WITHIN SEVEN DAYS AFTER THE END OF THE NEXT WORKDAY. TEMPORARY DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE STABILIZED BY TURF. EROSION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS OF PERMANENT STABILIZATION. PERMANENT STABILIZATION IS 90% GRASS CATCH IN VEGETATED AREAS.
8. NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN ONE AND ONE HALF TO ONE (1.5 TO 1).
9. IF FINAL SEEDING OF THE DISTURBED AREAS IS NOT COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST, USE TEMPORARY MULCHING (DORMANT SEEDING MAY BE ATTEMPTED AS WELL) TO PROTECT THE SITE AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
10. DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT WILL BE RETURNED TO THE SITE AND REGRADED ONTO OPEN AREAS. POST SEEDING SEDIMENT, IF ANY WILL BE DISPOSED OF IN AN ACCEPTABLE MANNER.
11. REVEGETATION MEASURES WILL COMMENCE UPON COMPLETION OF CONSTRUCTION EXCEPT AS NOTED ABOVE. ALL DISTURBED AREAS NOT OTHERWISE STABILIZED WILL BE GRADED, SMOOTHED, AND PREPARED FOR FINAL SEEDING AS FOLLOWS:
a. PROVIDE LOAM, EROSION CONTROL MIX, AND COMPOST OVER DISTURBED AREAS AND SMOOTH TO A UNIFORM SURFACE AS REQUIRED TO PROMOTE GROWTH OF VEGETATION.
b. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TESTING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 800 POUNDS PER ACRE OR 18.4 POUNDS PER 1,000 SQUARE FEET USING 10-20-20 OR 200S-200S OR EQUIVALENT. APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 LB PER 1,000 SQ. FT.).
c. FOLLOWING SEED BED PREPARATION, DITCHES AND BACK SLOPES WILL BE SEEDDED WITH NEW ENGLAND CONSERVATION WILDLIFE MIX BY NEW ENGLAND WETLAND PLANTS, INC. OF ANHEMIST, MASSACHUSETTS OR APPROVED EQUAL.
d. HAY MULCH AT THE RATE OF 70-80 LBS PER 1,000 SQUARE FEET FOR OVER 70% COVERAGE. FOR UNPROTECTED OR WINDY AREAS, ANCHOR MULCH WITH PEG AND TWINE (1 1/2" 50/10/BLOCK). HYDRAULIC MULCHES MAY ALSO BE USED, APPLIED AT A RATE OF 5 LBS PER 1,000 SQUARE FEET FOR PAPER MULCH OR 40 LBS PER 1,000 SQUARE FEET OR AS DIRECTED BY THE MANUFACTURER. ON SLOPES GREATER THAN 3:1 EROSION CONTROL MIX MAY BE USED. SEE EROSION CONTROL MIX NOTES BELOW.
12. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS ONCE THE SITE IS STABILIZED WITH 90% GRASS CATCH IN VEGETATED AREAS. TEMPORARY EROSION AND SEDIMENT CONTROL BLANKET SHALL BE USED IN ALL DITCHES AND SWALES WITH GRADES ABOVE 5% AS SHOWN IN DETAILS.
13. WETLANDS WILL BE PROTECTED WITH EROSION CONTROL MIX OR SILT FENCE INSTALLED AT THE EDGE FOR THE WETLAND OR THE BOUNDARY OF THE WETLAND DISTURBANCE. SEE EROSION CONTROL PLAN. ALL AREAS WITHIN 75 FEET OF A PROTECTED NATURAL RESOURCE MUST BE PROTECTED WITH A DOUBLE ROW OF SEDIMENT BARRIERS DURING WATER CONSTRUCTION.
14. ALL STORMWATER WILL BE PREVENTED FROM RUNNING ONTO STOCKPILES. SEDIMENT BARRIERS WILL BE INSTALLED DOWNSTREAM OF ALL STOCKPILES.

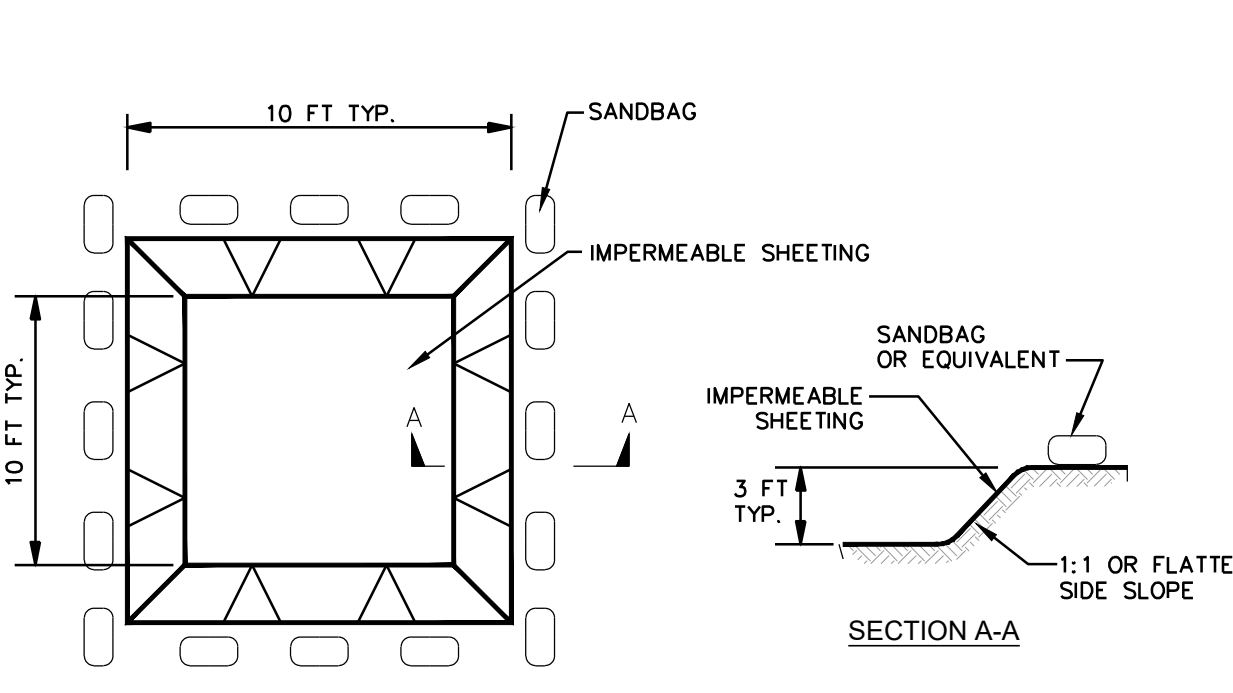
EROSION CONTROL DURING CONSTRUCTION
WINTER CONSTRUCTION
1. WINTER CONSTRUCTION PERIOD: NOVEMBER 1 THROUGH APRIL 15.
2. TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINAL GRADED SHALL BE COMPLETED BY SEPTEMBER 1 OR 45 DAYS PRIOR TO THE FIRST KILLING FROST (OCT. 15) TO PROTECT FROM SPRING RUNOFF PROBLEMS.
3. CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED SUCH THAT NO MORE THAN ONE ACRE OF THE SITE IS WITHOUT EROSION CONTROL PROTECTION.
4. OVERWINTER STABILIZATION OF DITCHES AND CHANNELS.
ALL STONE-LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED BY NOVEMBER 15. ALL GRASS LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED BY SEPTEMBER 1. IF A DITCH OR CHANNEL IS NOT GRASS-LINED BY SEPTEMBER 1, THEN ONE OF THE FOLLOWING ACTIONS MUST BE TAKEN TO STABILIZE THE DITCH FOR LATE FALL AND WINTER.
A. INSTALL A SOIL LINING IN THE DITCH:
A DITCH MUST BE LINED WITH PROPERLY INSTALLED SOG BY OCTOBER 1. PROPER INSTALLATION INCLUDES: PINNING THE SOG INTO THE SOIL WITH WIRE STAKES, ROLLING THE SOG TO GUARANTEE CONTACT BETWEEN THE SOG AND UNDERLYING SOIL, WATERING THE SOG TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL, AND ANCHORING SOG AT THE BASE OF THE DITCH WITH JUTE OR PLASTIC NETTING TO PREVENT SOG FROM SLIDING DURING FLOW CONDITIONS. SEE THE PERMANENT VEGETATION BMP SECTION.
B. INSTALL A STONE LINING IN THE DITCH:
A DITCH MUST BE LINED WITH STONE RIPRAP BY NOVEMBER 15. A REGISTERED PROFESSIONAL ENGINEER MUST BE HIRED TO DETERMINE THE STONE SIZE AND LINING THICKNESS NEEDED TO WITHSTAND THE ANTICIPATED FLOW VELOCITIES AND FLOW DEPTHS WITHIN THE DITCH. IF NECESSARY, THE CONTRACTOR WILL REGRADE THE DITCH PRIOR TO PLACING THE STONE LINING SO TO PREVENT THE STONE LINING FROM REDUCING THE DITCH'S CROSS-SECTIONAL AREA.
4. OVERWINTER STABILIZATION OF DISTURBED SLOPES:
ALL STONE-COVERED SLOPES MUST BE CONSTRUCTED AND STABILIZED BY NOVEMBER 15. ALL SLOPES TO BE VEGETATED MUST BE SEEDDED AND MULCHED BY SEPTEMBER 1. THE DEPARTMENT WILL CONSIDER ANY AREA HAVING A GRADE GREATER THAN 15% TO BE A SLOPE. IF A SLOPE TO BE VEGETATED IS NOT STABILIZED BY SEPTEMBER 1, THEN ONE OF THE FOLLOWING ACTIONS MUST BE TAKEN TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER: STABILIZE THE SLOPE WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS. BY OCTOBER 1. THE DISTURBED SLOPE MUST BE SEEDDED WITH 3 POUNDS PER 1000 SQUARE FEET AND UNDERLYING SOIL, AND WATERING THE SOG TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL. THE CONTRACTOR WILL NOT USE LATE SEASON SOG INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 3:1 (3H:1V) OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.
A. STABILIZE THE SOIL WITH SOG:
THE DISTURBED SOIL MUST BE STABILIZED WITH PROPERLY INSTALLED SOG BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE CONTRACTOR PINNING THE SOG ONTO THE SLOPE WITH WIRE STAKES, ROLLING THE SOG TO GUARANTEE CONTACT BETWEEN THE SOG AND UNDERLYING SOIL, AND WATERING THE SOG TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL. THE CONTRACTOR WILL NOT USE LATE SEASON SOG INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 3:1 (3H:1V) OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.
B. STABILIZE THE SOIL WITH EROSION CONTROL MIX:
EROSION CONTROL MIX MUST BE PROPERLY INSTALLED BY NOVEMBER 15. THE CONTRACTOR WILL NOT USE EROSION CONTROL MIX TO STABILIZE SLOPES HAVING GREATER THAN SOE (2H:1V) OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE. SEE THE EROSION CONTROL MIX NOTES FOR ADDITIONAL CRITERIA.
C. STABILIZE THE SOIL WITH STONE RIPRAP:
PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 15. THE DEVELOPER'S OWNER WILL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE NEEDED FOR STABILITY ON THE SLOPE AND TO DESIGN A FILTER LAYER FOR UNDERNEATH THE RIPRAP.
5. OVERWINTER STABILIZATION OF DISTURBED SLOPES:
BY SEPTEMBER 15, ALL DISTURBED SOILS ON AREAS HAVING A SLOPE LESS THAN 15% MUST BE SEEDDED AND MULCHED. IF THE DISTURBED AREAS ARE NOT STABILIZED BY THIS DATE, THEN ONE OF THE FOLLOWING ACTIONS MUST BE TAKEN TO STABILIZE THE SOIL FOR LATE FALL AND WINTER.
A. STABILIZE THE SOIL WITH TEMPORARY VEGETATION:
BY OCTOBER 1, SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET, LIGHTLY MULCH THE SEEDS WITH FINE GRADE OR MULCH. PROVIDE PROTECTIVE MULCH WITHIN 24 HOURS OF SEEDING. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR FAILS TO COVER AT LEAST 75% OF THE SLOPE BY NOVEMBER 1, THEN MULCH THE AREA FOR OVER-WINTER PROTECTION AS DESCRIBED BELOW.
B. STABILIZE THE SOIL WITH SOG:
STABILIZE THE DISTURBED SOIL WITH PROPERLY INSTALLED SOG BY OCTOBER 1. PROPER INSTALLATION INCLUDES PINNING THE SOG INTO THE SOIL WITH WIRE STAKES, ROLLING THE SOG TO GUARANTEE CONTACT BETWEEN THE SOG AND UNDERLYING SOIL, AND WATERING THE SOG TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL.
C. STABILIZE THE SOIL WITH MULCH:
BY NOVEMBER 15, MULCH THE DISTURBED SOIL BY SPREADING HAY OR STRAW AT A RATE OF AT LEAST 150 POUNDS PER 1000 SQUARE FEET ON THE AREA SO THAT NO SOIL IS VISIBLE THROUGH THE MULCH. APPLY THROUGHOUT THE MULCH WITH PLASTIC NETTING TO PREVENT WIND FROM MOVING THE MULCH OFF THE DISTURBED SOIL. PROVIDE NETTING ON ALL SLOPES GREATER THAN 8%.



APRON SCHEDULE

CULV. DIA. (D)	D50 (IN.)	T (IN.)	LA (FT.)	W1 (FT.)	W2 (FT.)
12" OR LESS	6"	15"	10'	3'	13'
	6"	15"	10'	3.75'	14'
	6"	15"	12'	4.5'	17'
	6"	15"	14'	6'	20'
	6"	15"	18'	7.5'	25'
	6"	15"	24'	9'	33'
	6"	18"	24'	30'	41'
	6"	18"	24'	34'	46'
	12"	32"	34'	15'	53'

EROSION CONTROL MIX
EROSION CONTROL MIX (ECM) SHALL MEET THE REQUIREMENTS PROVIDED IN THE LATEST REVISION OF MAINE DEP'S EROSION AND SEDIMENTATION CONTROL BMP MANUAL. ECM IS ACCEPTABLE FOR SLOPES OF GREATER THAN 3:1 BUT LESS THAN 1:1. ECM SHALL CONSIST OF WELL-GRADED ORGANIC COMPONENT 50 - 100% OF DRY WEIGHT, AND COMPOSED OF FIBROUS AND ELONGATED FRAGMENTS. ECM SHALL BE FREE FROM REFUSE, MATERIAL TOXIC TO PLANT GROWTH OR CONSTRUCTION DEBRIS. ECM SHALL BE EVENLY DISTRIBUTED AND APPLIED AT A THICKNESS OF 2" ON 3:1 SLOPES, WITH AN ADDITIONAL 1/2" PER 20' OF SLOPE FOR A MAXIMUM OF 10" ON SLOPES GREATER THAN 3:1. ECM SHALL BE APPLIED AT THICKNESS OF 4" OR 5" FOR SLOPES GREATER THAN 60' IN LENGTH.
SLOPES GREATER THAN 3:1 MAY ALSO REQUIRE ADDITIONAL SLOPE STABILIZATION DEPENDING ON UPGRADIENT RUNOFF AND OTHER SITE SPECIFIC CONDITIONS. SEE SLOPE STABILIZATION DETAIL FOR ADDITIONAL INFORMATION.



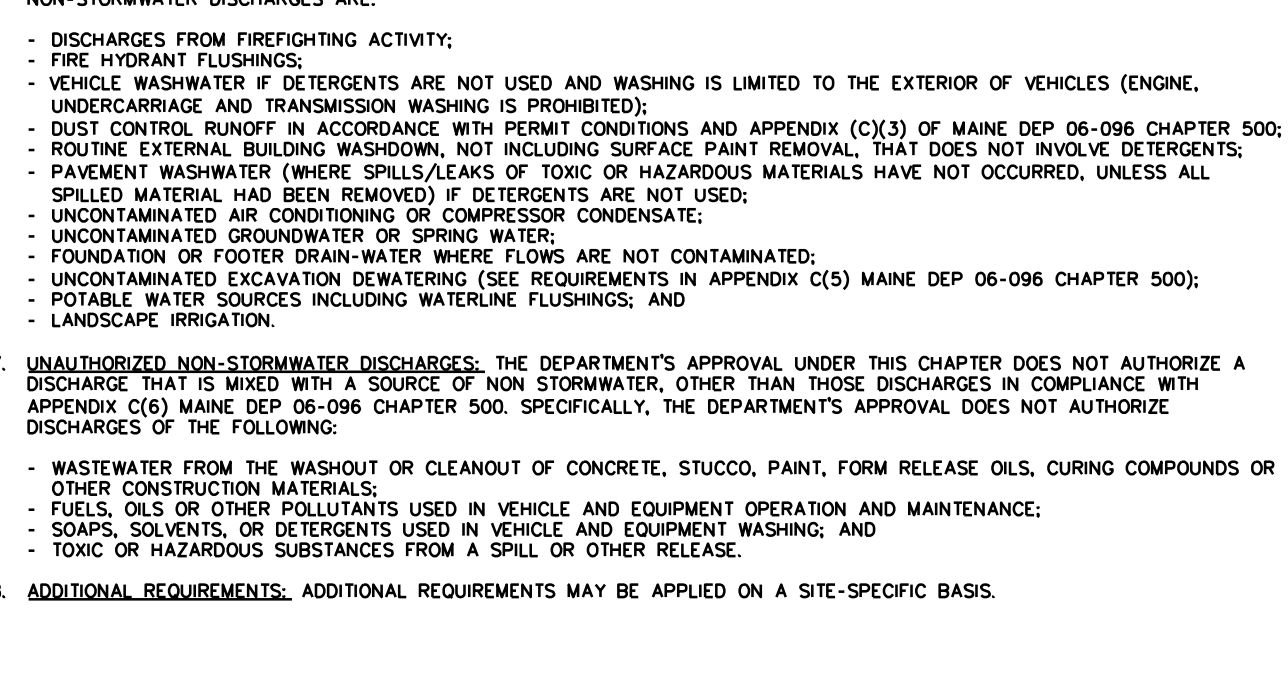
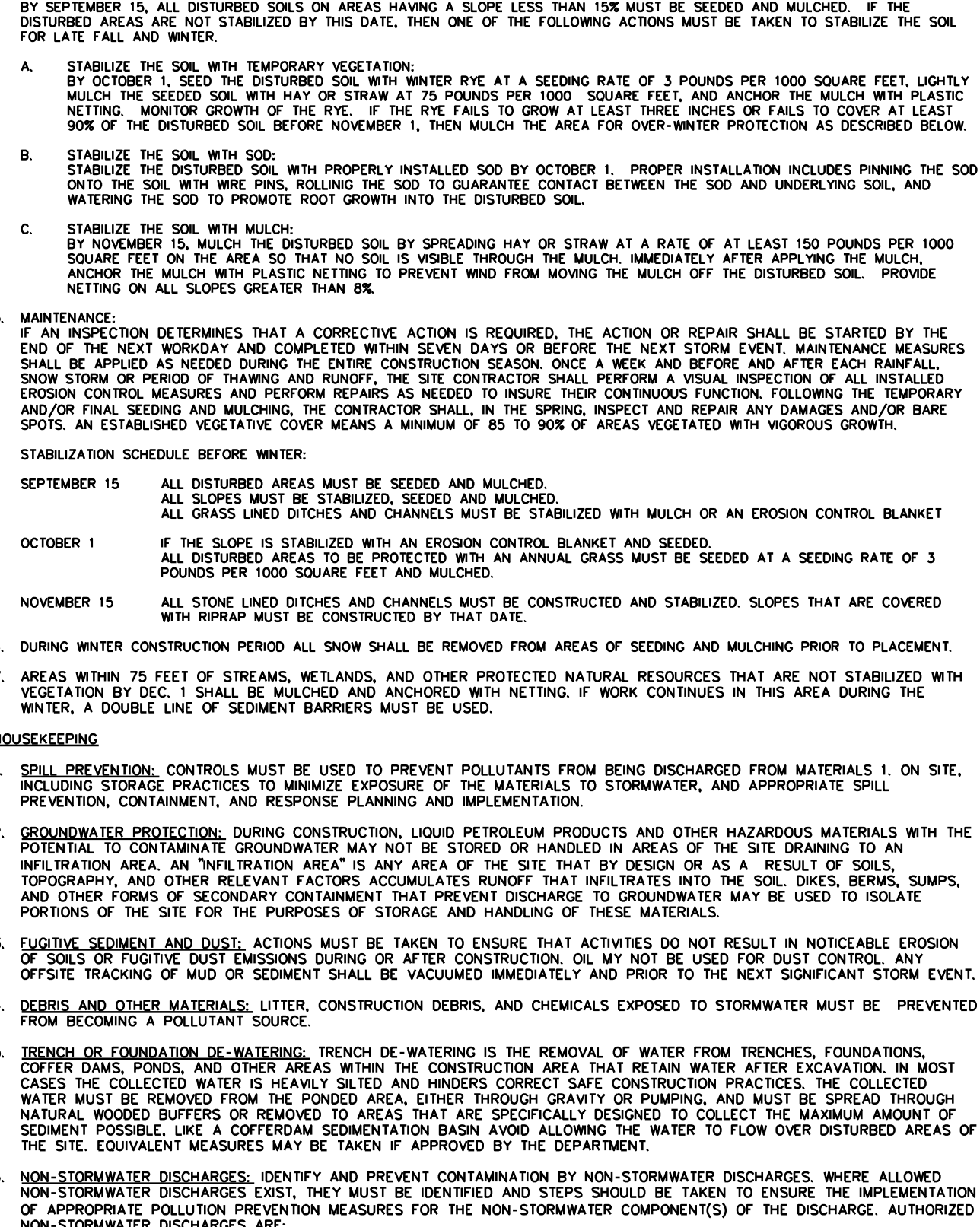
SEASON SEED MIXTURE (FOR PERIODS LESS THAN 12 MONTHS)

SEASON	SEED	RATE
SUMMER (5/15 - 8/15)	SUDANGRASS	40 LBS/ACRE
DATS	PERENNIAL RYEGRASS	80 LBS/ACRE
LATE SUMMER/EARLY FALL (8/15 - 9/15)	PERENNIAL RYEGRASS	40 LBS/ACRE
FALL (9/15 - 11/1)	WINTER RYE	112 LBS/ACRE
WINTER (11/1 - 4/1)	MULCH W/ DORMANT SEED	80 LBS/ACRE**
SPRING (4/1 - 7/1)	DATS	80 LBS/ACRE
**SEED RATE ONLY	ANNUAL RYEGRASS	40 LBS/ACRE

CONSTRUCTION SPECIFICATIONS

- LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
- SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
- PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
- PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
- KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET-VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.

APRON LENGTH (LA)
RIPRAP (D50)
LAYER THICKNESS (T)
GEOTEXTILE FABRIC (MIRAFI 500X OR EQUAL) BENEATH STONE
APRON SCHEDULE
BLENDED RIPRAP INTO EXISTING GRADE
PIPE OUTLET PROTECTION NTS
STABILIZED CONSTRUCTION ENTRANCE NTS
CONCRETE WASHOUT STRUCTURE NTS
LOW POINTS SEDIMENT CONTROL BARRIER NTS
PUMPED DISCHARGE SEDIMENT CONTROL DEVICE ("DIRT BAG") NTS
STONE CHECK DAM DETAIL NTS



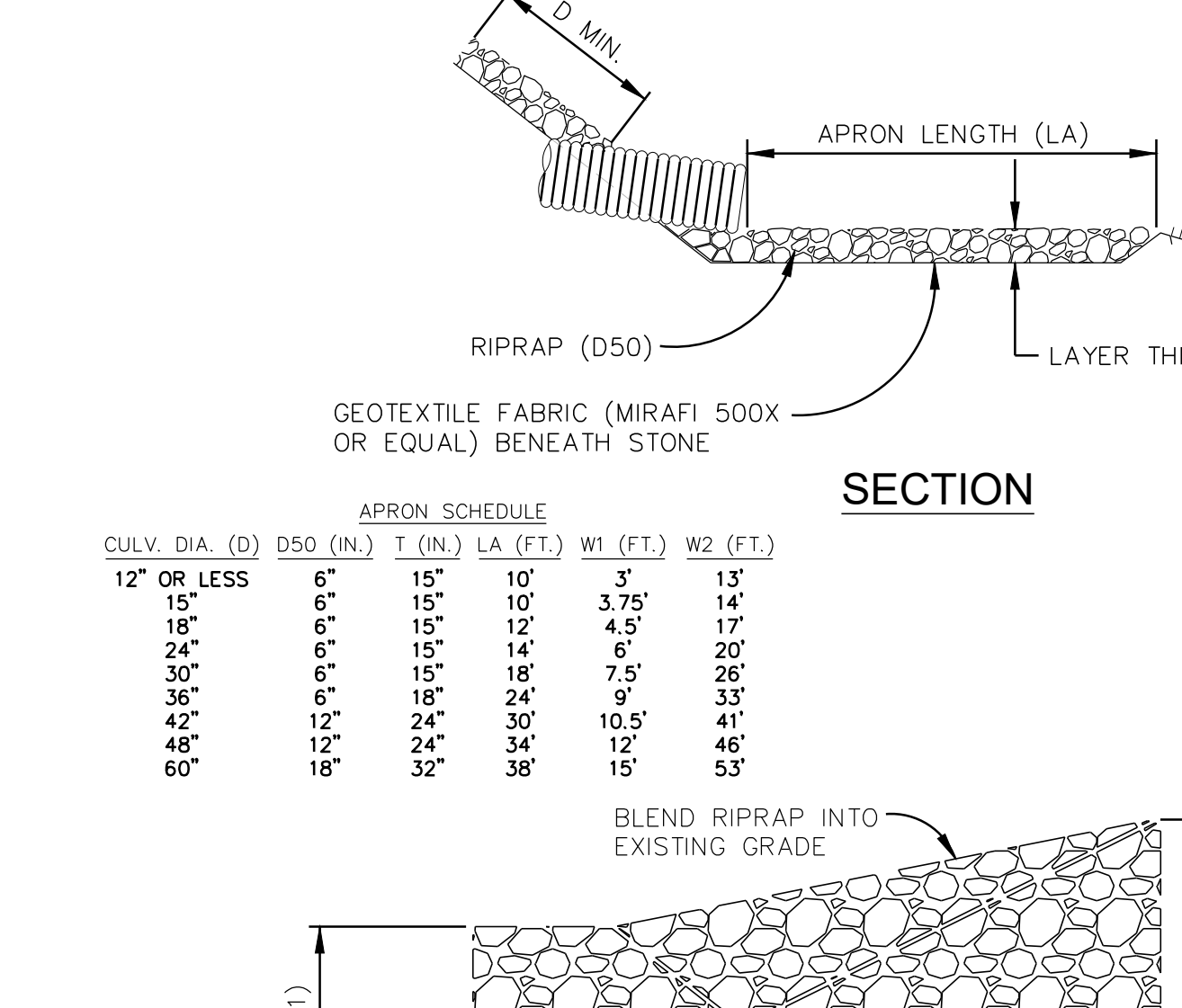
APRON SCHEDULE

CULV. DIA. (D)	D50 (IN.)	T (IN.)	LA (FT.)	W1 (FT.)	W2 (FT.)
12" OR LESS	6"	15"	10'	3'	13'
	6"	15"	10'	3.75'	14'
	6"	15"	12'	4.5'	17'
	6"	15"	14'	6'	20'
	6"	15"	18'	7.5'	25'
	6"	15"	24'	9'	33'
	6"	18"	24'	30'	41'
	6"	18"	24'	34'	46'
	12"	32"	34'	15'	53'

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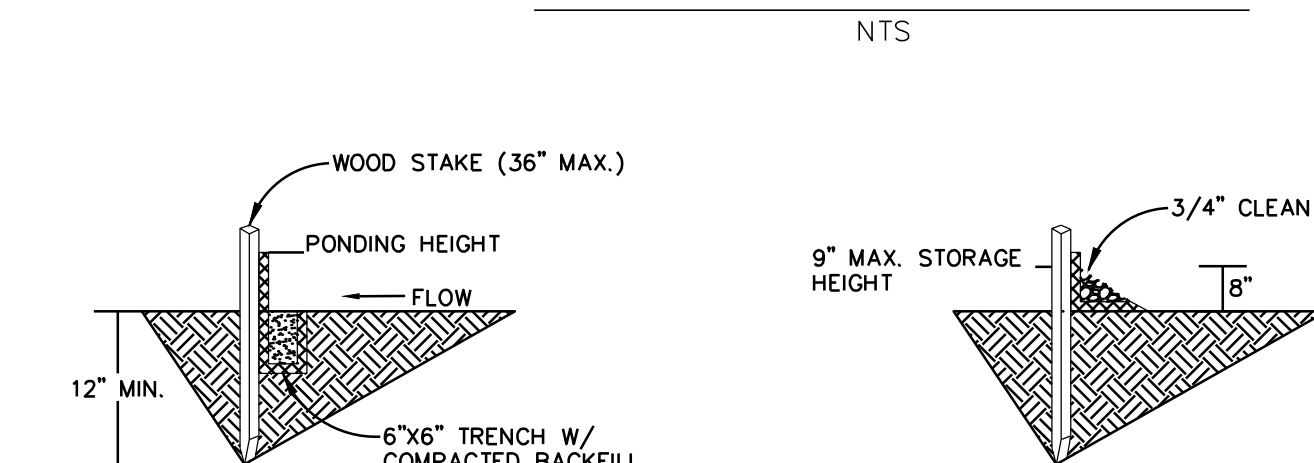


APRON LENGTH (LA)
RIPRAP (D50)
LAYER THICKNESS (T)
GEOTEXTILE FABRIC (MIRAFI 500X OR EQUAL) BENEATH STONE
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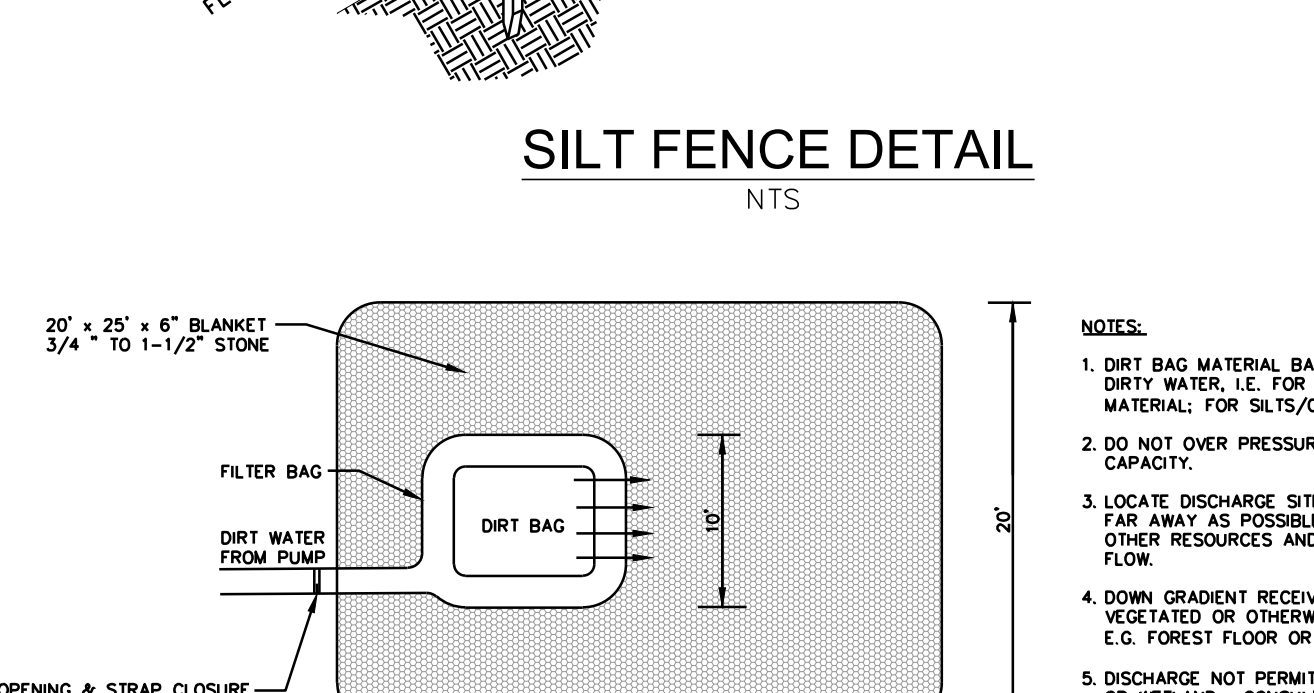


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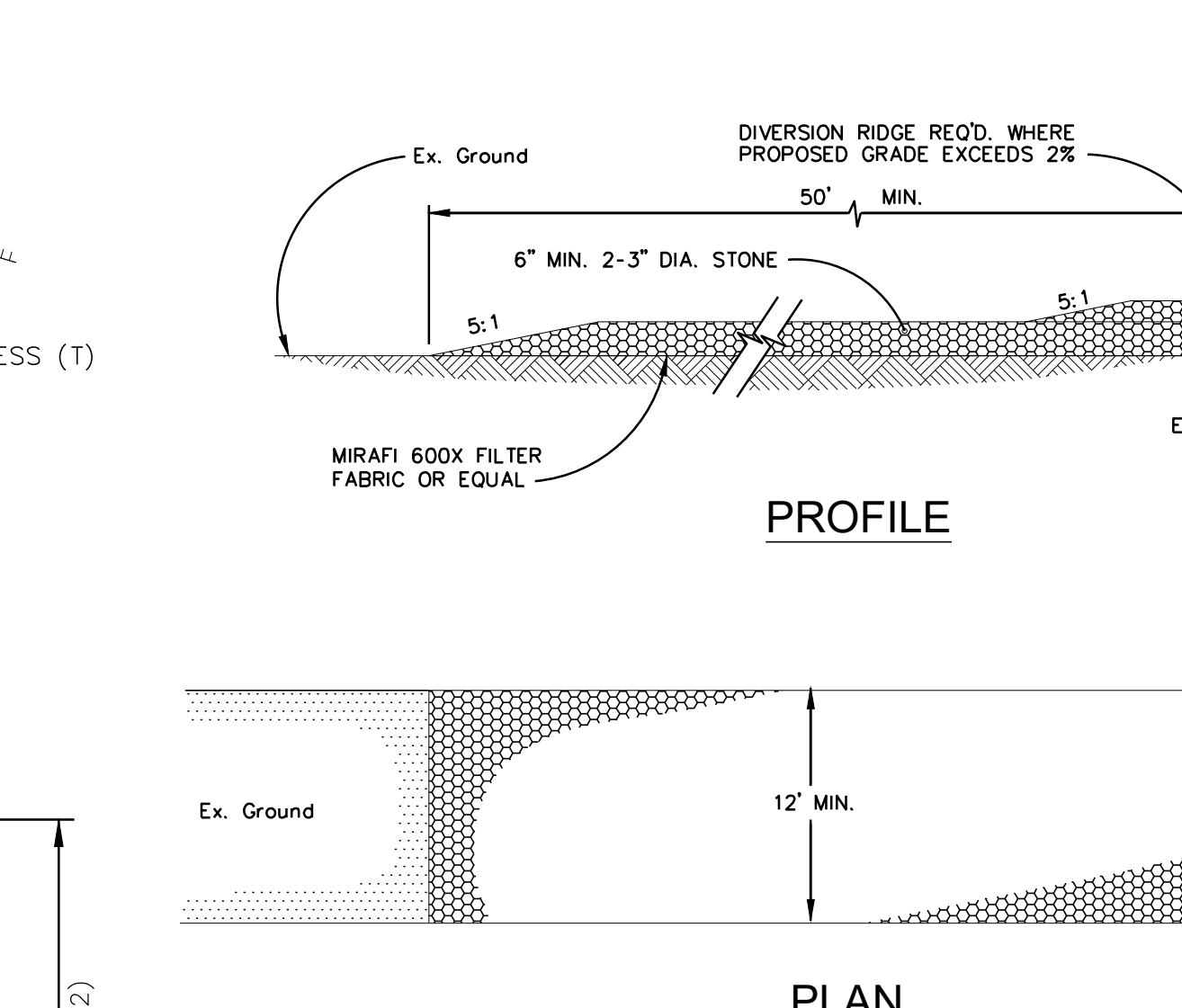


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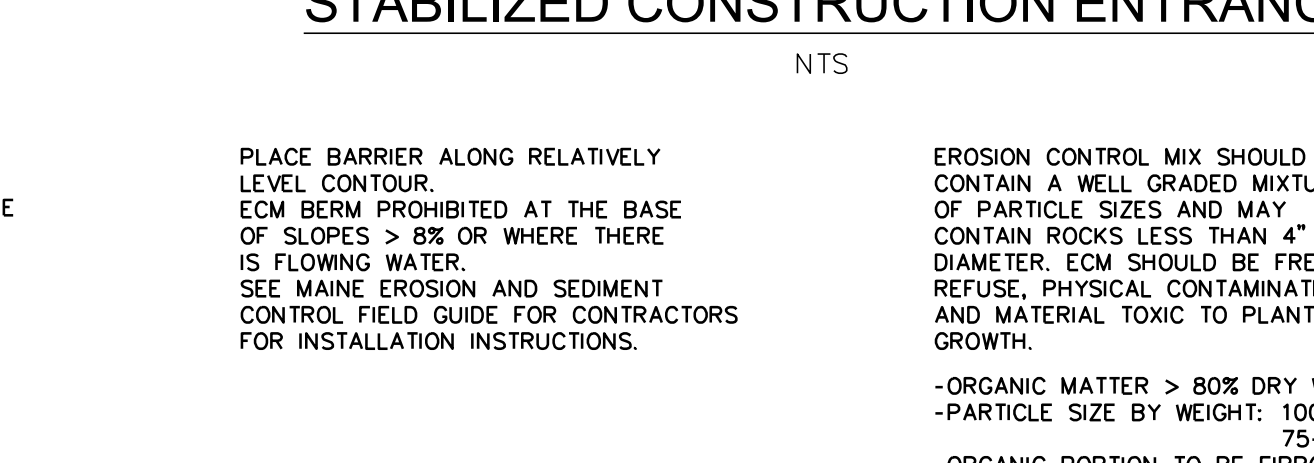


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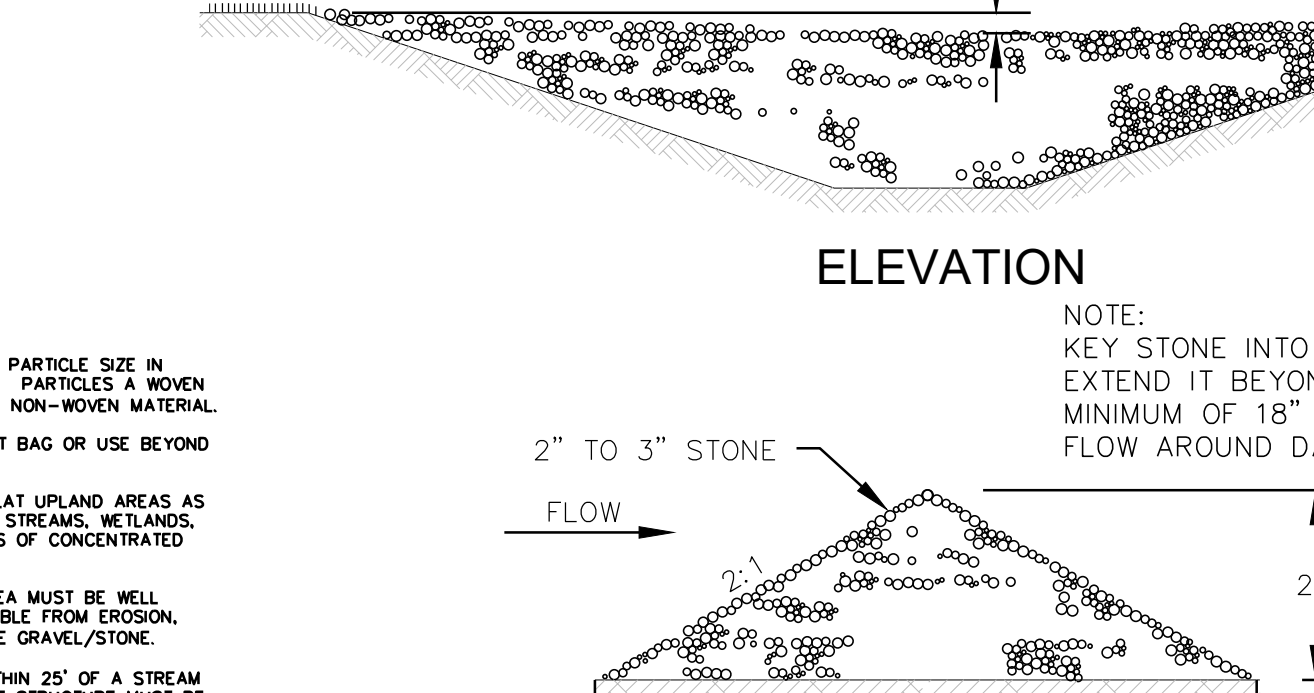


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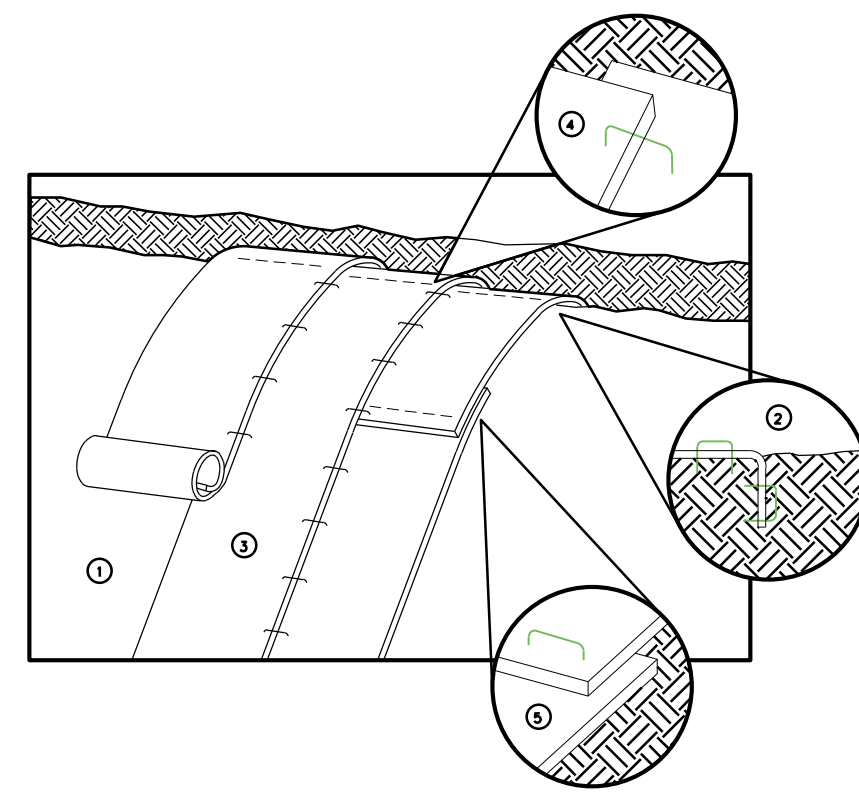


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	6"				

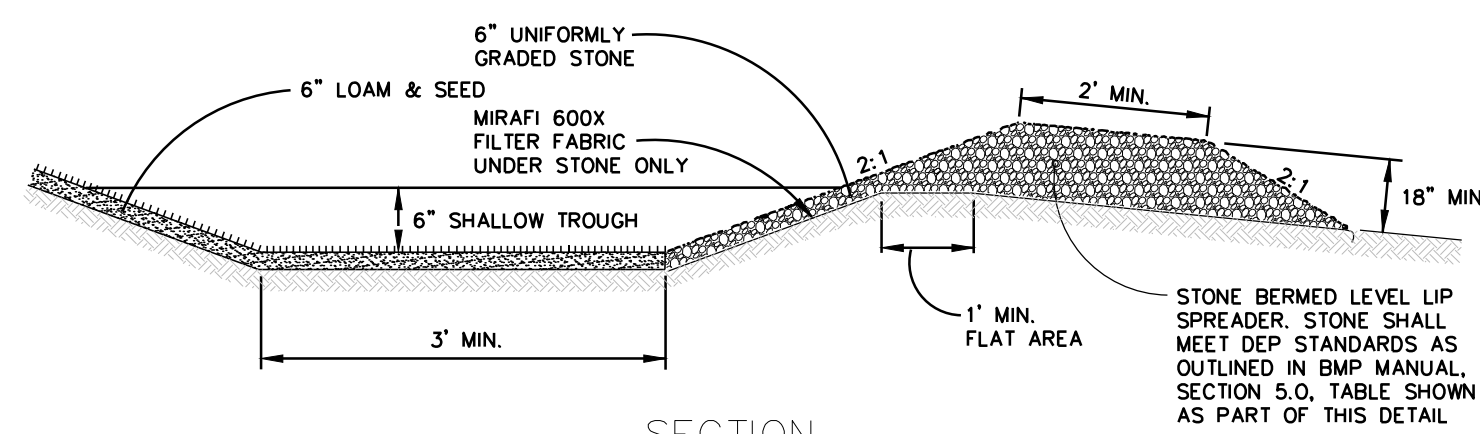


1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING LIME, FERTILIZER & SEED.
2. BEGIN AT TOP OF SLOPE BY ANCHORING BLANKET IN 6" X 6" TRENCH, BACKFILL & COMPACT TRENCH AFTER STAPLING.
3. ROLL BLANKETS DOWN OR HORIZONTALLY ACROSS SLOPE.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROX. 2" OVERLAP.
5. WHEN BLANKETS MUST BE SPICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROX. 4" OVERLAP, STAPLE THROUGH OVERLAPPED AREA, APPROX. 12" APART.
6. EROSION CONTROL BLANKETS SHALL BE USED ON SLOPES STEEPER THAN 3:1 BUT LIMITED TO A MAX. OF 2:1.

SLOPE STABILIZATION:
EROSION CONTROL BLANKET SHALL BE IN ACCORDANCE WITH M.D.O.T. STANDARD SPECIFICATIONS, SECTION 613, EROSION CONTROL, BLANKETS

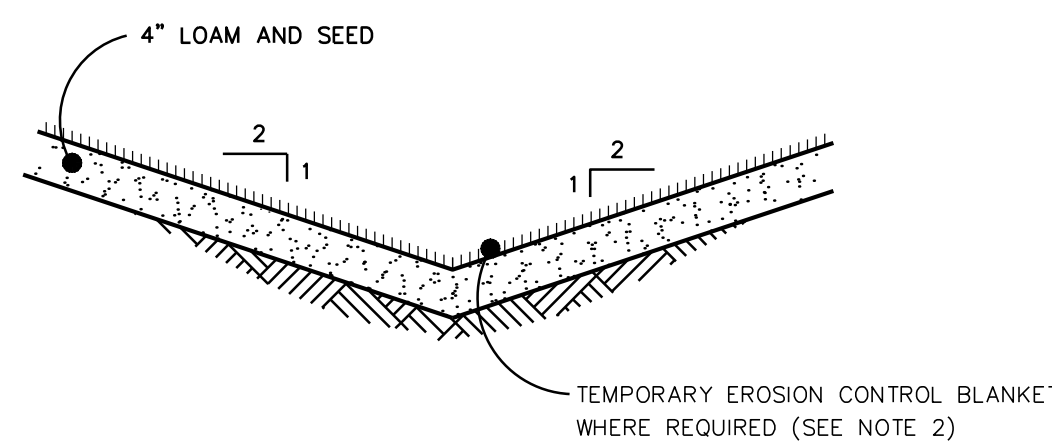
SLOPE STABILIZATION DETAIL
N.T.S.

SIEVE DESIGNATION		BERM STONE SIZE	
METRIC	US CUSTOMARY	SIEVE DESIGNATION	% BY WEIGHT PASSING SQUARE MESH SIEVES
300 MM	12"	100	
150 MM	6"	84-100	
75 MM	3"	68-83	
25.4 MM	1"	42-55	
4.75 MM	NO. 4	8-12	



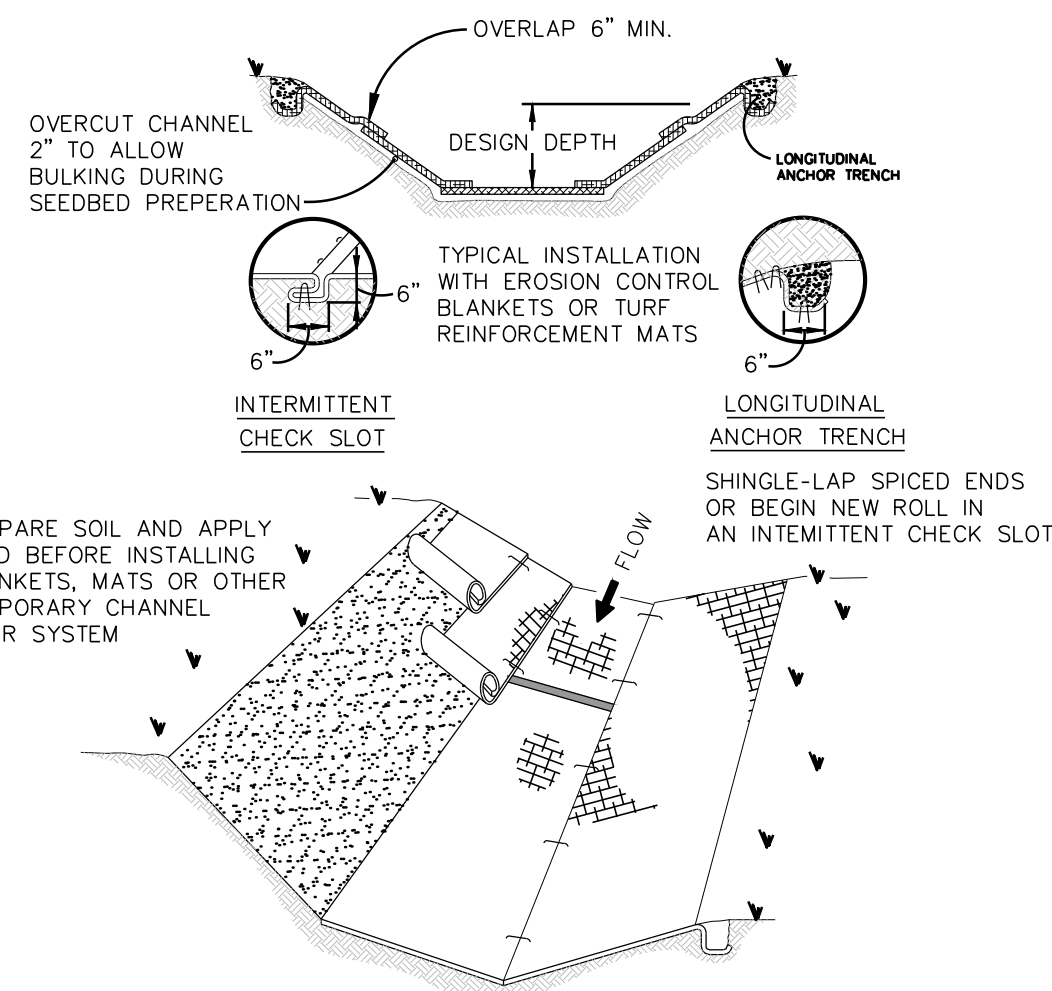
- CONSTRUCTION SPECIFICATIONS:**
1. SPREADERS SHALL BE INSTALLED WITH A LEVEL INSTRUMENT. CONSTRUCT LEVEL LIP TO BE GRADE TO ENSURE UNIFORM SHEET FLOW. SPREADER SHALL BE CONSTRUCTED ON UNDISTURBED SOIL, NOT FILL.
 2. SELECTED GEOTEXTILE FABRIC BASED ON UNDISTURBED SOILS (SANDS, SILTS, CLAYS, ETC.)
 3. PLACE UNIFORMLY GRADED STONE (SEE TABLE).
 4. THE INLET DITCH SHALL NOT EXCEED A 1% GRADE FOR AT LEAST 20 FEET BEFORE ENTERING THE SPREADER.
 5. STORM RUN-OFF CONVERTED TO SHEET FLOW ACROSS OUTLET APRON SHALL FLOW ONTO STABILIZED AREAS. AREAS RUNOFF SHALL NOT BE RECONSTRUCTED IMMEDIATELY BELOW THE POINT OF DISCHARGE.
 6. CONSTRUCTION OF LEVEL LIP SPREADER SHALL BE FROM UPHILL SIDE ONLY. LEVEL LIP AND AREA BELOW SPREADER SHALL BE AT EXISTING GRADES AND UNDISTURBED BY EQUIPMENT EXCEPT AS NOTED ON PLAN.
 7. CONSTRUCT SPREADER WITH LIP AT EXISTING ELEVATION AS SPECIFIED.
 8. DOWN GRADIENT AND RECEIVING AREA MUST BE NATURALLY WELL VEGETATED.
 9. INSPECTION OF THE STONE BERMED LEVEL LIP SPREADERS SHALL CONSIST OF WEEKLY VISITS TO THE SITE BY A PROFESSIONAL ENGINEER TO INSPECT EACH LEVEL SPREADER CONSTRUCTION AND STONE BERM MAINTENANCE AND PLACEMENT FROM INITIAL GROUND DISTURBANCE TO FINAL STABILIZATION OF THE STONE BERM LEVEL SPREADER. WITHIN 30 DAYS OF COMPLETION OF THE LEVEL SPREADER, THE APPLICANT MUST SUBMIT A SET OF INSPECTION REPORTS DETAILING THE ITEMS INSPECTED, PHOTOS TAKEN, AND THE DATES OF EACH INSPECTION TO THE MAINE DEP BUREAU OF LAND RESOURCES FOR REVIEW.

LEVEL SPREADER DETAIL
N.T.S.



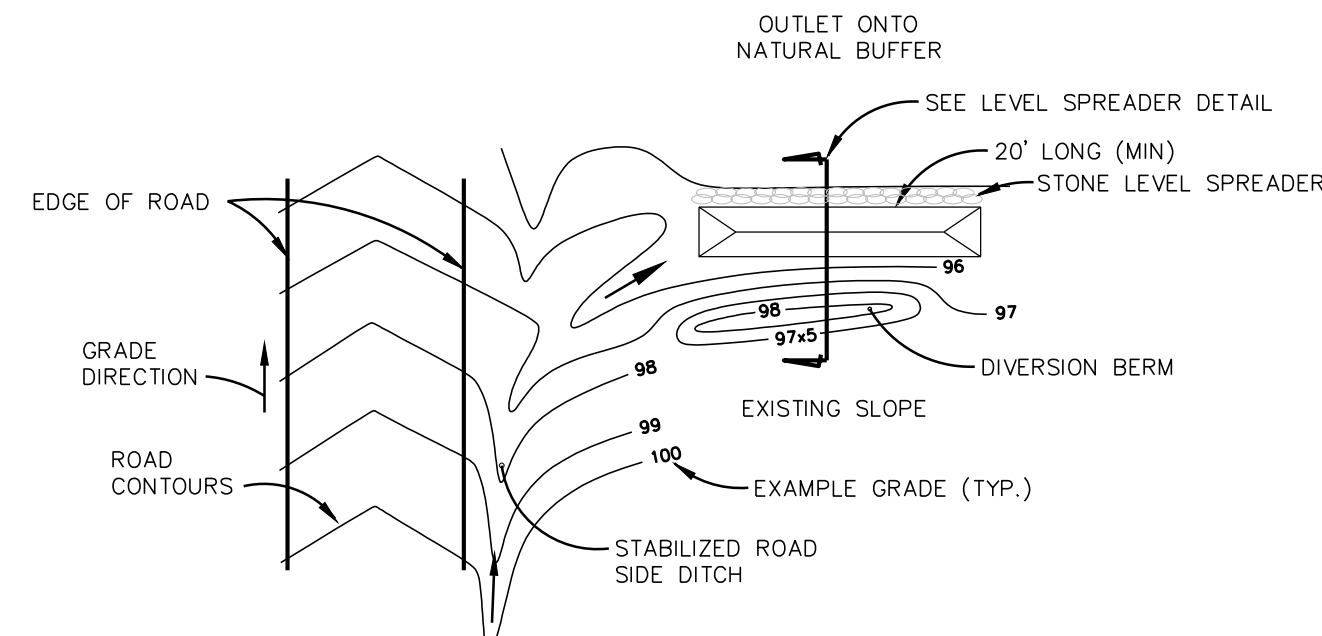
- NOTES:**
1. VEGETATED SWALES SHALL NOT EXCEED AN 8% RUNNING GRADE.
 2. FOR RUNNING GRADES GREATER THAN 5% A TEMPORARY STRIP OF EROSION CONTROL BLANKET SHALL BE PROVIDED UNTIL VEGETATION IS ESTABLISHED. SEE REINFORCED GRASS LINED CHANNEL DETAIL FOR ADDITIONAL INFORMATION.
 3. MOW SWALES NO LATER THAN 30 DAYS PRIOR TO THE FIRST KILLING FROST TO A MINIMUM HEIGHT OF 4"

VEGETATED DITCH DETAIL
NTS

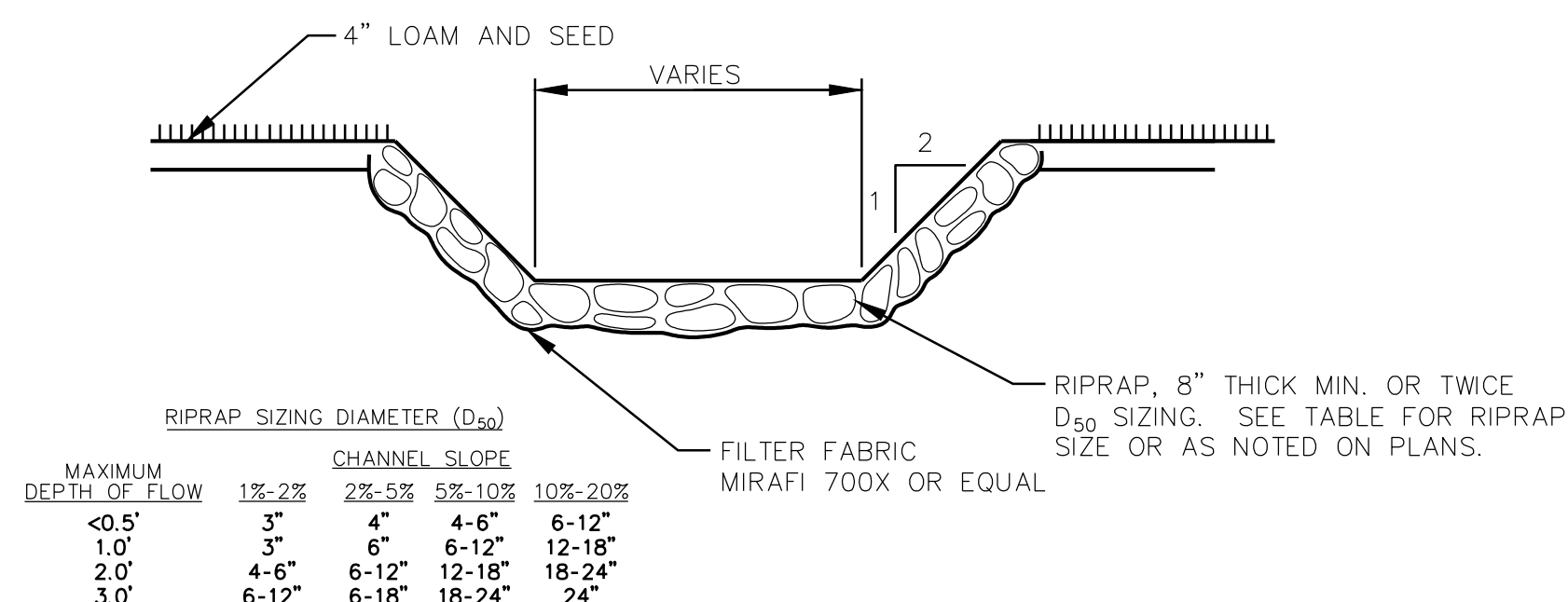


1. DESIGN VELOCITIES EXCEEDING 2 FT/SEC. REQUIRE TEMPORARY BLANKETS, MATS OR SIMILAR LINERS TO PROTECT SEED AND SOIL UNTIL VEGETATION BECOMES ESTABLISHED.
2. GRASS-LINED CHANNELS WITH DESIGN VELOCITIES EXCEEDING 5 FT/SEC SHOULD INCLUDE TURF REINFORCEMENT MATS.
3. STAKE OR STAPLE BLANKETS AND MATS PER MANUFACTURERS SPECIFICATIONS.
4. EROSION CONTROL BLANKETS SHALL MEET MAINE D.O.T. SPEC 717.061.

REINFORCED GRASS LINED CHANNEL
NTS



DITCH TURNOUT DETAIL
NTS

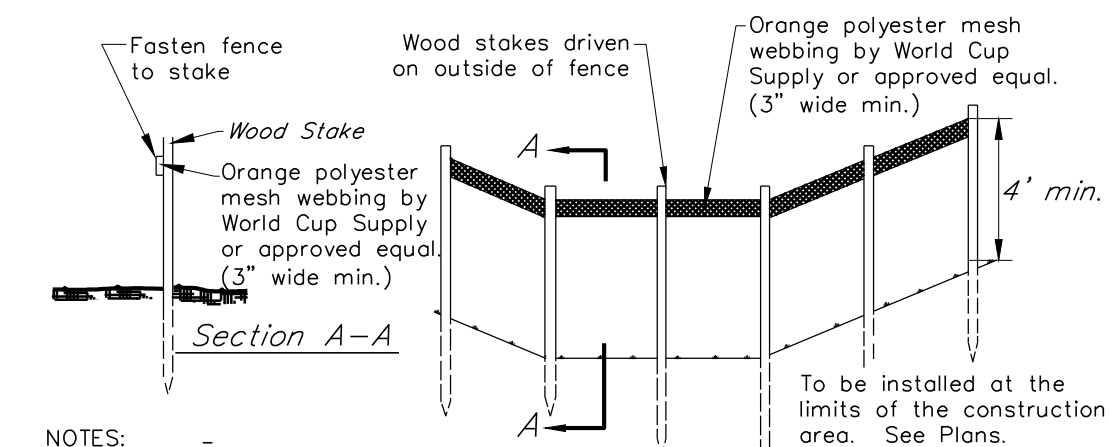


MAXIMUM DEPTH OF FLOW	CHANNEL SLOPE			
	1%-2%	2%-5%	5%-10%	10%-20%
<0.5'	3"	4"	4-6"	6-12"
1.0'	3"	6"	6-12"	12-18"
2.0'	4-6"	6-12"	12-18"	18-24"
3.0'	6-12"	6-18"	18-24"	24"

STONE LINED DITCH
NTS

NOTES:

1. Acceptable EC Measure details are provided below.
2. At a minimum, EC measures meet ME DEP Standards and Specifications or previously approved interchangeable practices.
3. Limits of disturbance (or "construction demarcation") shall be installed prior to any earth disturbing activities.
4. Barrier Tape/Rope: for use where proposed disturbance borders non-wooded, vegetated areas more than 100 ft from the nearest water resource (stream, brook, lake, pond, wetland, etc.). Barrier tape is high visibility fiber-glass tape, minimum 3" in width commonly used in ski areas for demarcating closed areas. Barrier tape and rope should be attached to stakes, at a minimum height of 4 ft from the ground.



NOTES:

1. Minimum 1 to 2 rows of mesh barrier tape to be installed along construction perimeter.
2. Each row of barrier tape to be 3" wide minimum.
3. Barrier tape to be orange.
4. Secure barrier tape to stakes or existing tree trunks with bottom row at 4' distance from ground surface (minimum).
5. Maintain and replace as needed. Remove at completion of project.
6. In event the Contractor determines barrier tape is not sufficient, replace with orange construction fence or snow fence.

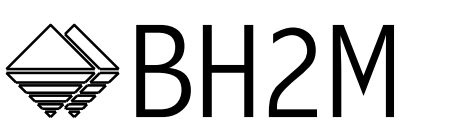
TYPICAL CONSTRUCTION LIMIT BARRIER
NTS

WATER LINE SOLAR

North Yarmouth, Maine



164 Main Street, Suite 201
Colchester, Vermont 05446
P: (802) 878-0375
www.krebsandlansing.com



Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors

380B Main Street
Gorham, Maine 04038
Tel. (207) 839-2771
www.bh2m.com

**ISSUED FOR PERMITTING
NOT FOR CONSTRUCTION**

SOURCE DATA LEGEND

MAPPING SOURCE DATA USED FOR PLAN COMPILATION

Civil Engineering:

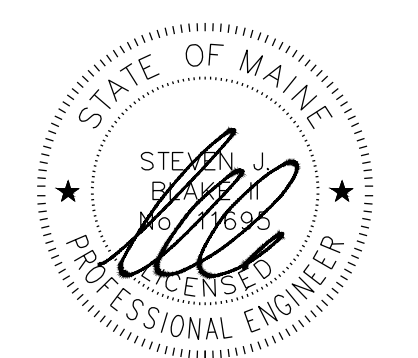
Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

Environmental:

Biodiversity Research Institute, Inc.
30 Danforth Street, Suite 213
Portland, Maine 04101

Stormwater:

BH2M Inc.
380B Main Street
Gorham, ME 04038



REV. NO.	REVISIONS/COMMENTS	DATE

DRAWING TITLE:

**WATER LINE SOLAR
EROSION AND SEDIMENTATION
CONTROL DETAILS**

DATE of Issue: 3/9/2022

Drawn by: CRM Checked by: SJB

Project No.: 21388 Scale: N/A

Drawing No.: Rev No.:

C-5.1

Attachment D
Erosion and Sedimentation Control Inspection and Maintenance Plan

**EROSION AND SEDIMENTATION CONTROL
INSPECTION AND MAINTENANCE PLAN**

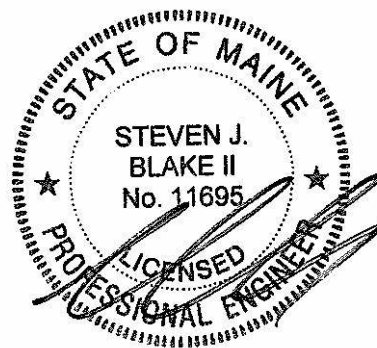
**WATER LINE SOLAR PROJECT
238 Sweetser Road
North Yarmouth, Maine**

**For
Water Line Solar, LLC**

A subsidiary of



Prepared by:



Date:
March 2022

TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	PROJECT DESCRIPTION.....	1
1.2	LIST OF PERMITS	2
1.3	REFERENCES	2
1.4	RESPONSIBLE PARTIES.....	3
1.5	INSPECTION AND MAINTENANCE – DURING CONSTRUCTION.....	4
1.6	INSPECTION AND MAINTENANCE – POST-CONSTRUCTION	6
1.7	HOUSEKEEPING	6

LIST OF APPENDICES

APPENDIX A	Plans
APPENDIX B	Construction Inspection Forms
APPENDIX C	Post-Construction Inspection Forms
APPENDIX D	Inspection Frequency Checklist and Long-Term Inspection & Maintenance Plan

1.0 INTRODUCTION

The intent of this plan is to establish inspection and maintenance procedures to be implemented for erosion and sediment control best management practices (BMP's) during construction, as well as for post-construction stormwater BMP's, for the proposed Water Line Solar Project, located in North Yarmouth, Maine. This plan has been prepared in conformance with the requirements set forth in 06-096 Chapter 500 – Stormwater Management and the Maine Construction General Permit.

1.1 PROJECT DESCRIPTION

Water Line Solar, LLC, a subsidiary of Branch Renewable Energy, is proposing to construct the Project, a single axis tracker solar array off of Sweetser Road in North Yarmouth, Maine. The Project is proposed to occupy 14.42 acres on a portion of the parcel known as Tax Map 5 Lot 2. The project is required to obtain a Stormwater Permit By Rule to be compliant with Chapter 500 Rules. The generation capacity of the Project is designed to be 1.99 megawatts (MW) and electricity generated at the site will be interconnected to the existing distributed generation 3-phase power line along Sweetser Road.

The scope of work includes but is not limited to:

- Tree clearing (13.37 acres +/-)
- Stump and boulder removal
- Construction of a 16' wide gravel access road
- Construction of a temporary staging area
- Installation of solar panels and associated support equipment and structures
- Installation of buried and overhead collector lines
- Restoration of disturbed areas

Construction of the project will be planned to occur incrementally in blocks of no more than 5-acres. Sequencing of construction will be structured so that the 5-acre blocks will be stabilized prior to commencing construction of subsequent 5-acre blocks.

1.2 LIST OF PERMITS

The following is a list of Municipal, State, and Federal permits that have been granted for the Project:

Municipal

Town of North Yarmouth Site Plan Permit

State of Maine

Stormwater Management Law – Permit by Rule

Federal

None

1.3 REFERENCES

This plan has been developed in accordance with the following references:

- Stormwater Management Law 38 M.R.S. §420-C and §420-D
<http://legislature.maine.gov/statutes/38/title38sec420-C.html>
<http://legislature.maine.gov/statutes/38/title38sec420-D.html>
- 06-096 Chapter 500 – Stormwater Management
<http://www.maine.gov/sos/cec/rules/06/096/096c500.docx>
- General Permit – Construction Activity
Maine Pollutant Discharge Elimination System (MPDES)
<https://www.maine.gov/dep/land/stormwater/construction.html>
- Maine Erosion and Sediment Control Best Management Practices (BMPs)
Manual for Designers and Engineers
https://www.maine.gov/dep/land/erosion/escbmeps/esc_bmp_engineers.pdf
- Maine Erosion and Sediment Control Practices Field Guide for Contractors
https://www.maine.gov/dep/land/erosion/escbmeps/esc_bmp_field.pdf
- MaineDOT Best Management Practices for Erosion and Sedimentation Control
<https://www.maine.gov/mot/env/documents/bmp/BMP2008full.pdf>

1.4 RESPONSIBLE PARTIES

Preparer/Design Engineer:	BH2M 380B Main Street Gorham, ME 04038 (207) 839-2771
Owner:	Water Line Solar, LLC _____ _____ _____
General Contractor:	_____ _____ _____ _____
Third Party Inspector:	_____ _____ _____ _____
Post Construction Stormwater Inspector:	_____ _____ _____ _____

During construction the General Contractor will be responsible for implementing the erosion and sediment control BMP's as well as routine inspections and maintenance of the BMP's. The Owner will retain a third-party inspector to perform weekly inspections of the erosion and sediment control BMP's during construction.

Post-construction stormwater BMP inspections, maintenance, reporting, and required recertifications will be the responsibility of the Owner or their representatives

1.5 INSPECTION AND MAINTENANCE – DURING CONSTRUCTION

Anyone who conducts or directs an activity that involves exposing, filling or displacing soil or other earthen materials should take appropriate measures to prevent erosion and the loss of sediment beyond the project site or into a sensitive resource. Erosion and sediment control measures should be in place before the activity begins and should remain functional until the site is permanently stabilized. All measures should remain effective until all areas are permanently stabilized. Any disturbed area should be regularly inspected until the site is fully stabilized with either 90% grass cover or a permanent impervious surface such as pavement. A person who has the knowledge of erosion and sediment control measures and of stormwater management practices should inspect the site at a minimum once a week, and before and after a storm event. Any failing measure should be repaired or modified to adequately stabilize the site prior to the next storm event or no later than 7 calendar days. The inspection frequency table found in Appendix F shall be used as a guide for inspecting each specific BMP. The inspection form found in Appendix B shall be used to record the inspection, its outcome, and the required maintenance.

Refer to the Plans found in Appendix A for additional erosion and sediment control details and narratives

General Inspection, Maintenance, and Documentation Requirements

1. Inspection and corrective action: Inspect disturbed and impervious areas, erosion control measures, and material storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. Inspect these areas at least once a week as well as before and within 24 hours after a storm event, and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections.
2. Maintenance: If BMP's need to be repaired, the repair work should be initiated upon discovery of the problem but no later than the end of the next workday. If additional BMPs or significant repair of BMPs are necessary, implementation must be completed within 7 calendar days and prior to any storm event. All measures must be maintained in effective operating condition until areas are permanently stabilized.
3. Documentation: Maintain a binder with construction inspection forms summarizing the inspections and any corrective action taken. The forms must include the name and qualifications of the person making the inspections, the date of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, materials storage areas, and vehicle access points to the parcel. Refer to Appendix B for the construction inspection form. Major observations must include BMP's that need maintenance, BMP's that failed to operate as designed or proved

inadequate for a particular location, and locations where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the inspection form what corrective action taken and when it was taken. The Owner shall retain a copy of the inspection forms for a period of at least five years from the completion of permanent stabilization.

Site-Specific BMP's

Refer to Appendix D for inspection and maintenance requirements and frequencies of site-specific BMP's. Refer to the Plans found in Appendix A for narratives and details of the site-specific BMP's. The following is a list of the site-specific BMP's that may be required for the project:

- Sedimentation Barriers (Silt Fence or Erosions Control Mix Berm)
- Stabilized Construction Entrance
- Staging Area
- Construction Limit Barrier Fence
- Slope Stabilization
- Concrete Washout Structure
- Stone Check Dam
- Water Bar
- Level Spreader/Ditch Turnout
- Pumped Discharge Sediment Control Device "Dirt Bag"
- Temporary Sediment Trap
- Pipe Outlet Protection
- Temporary Grass/Stone Lined Swale

Winter Constriction

Winter construction is construction activity performed during the period from November 1 through April 15. If disturbed areas are not stabilized with permanent measures by November 1 or new soil disturbance occurs after November 1, but before April 15, then these areas must be protected and runoff from them must be controlled by additional measures and restrictions.

1. Site Stabilization: For winter stabilization, hay mulch is applied at twice the standard temporary stabilization rate. At the end of each construction day, areas that have been brought to final grade must be stabilized. Mulch may not be spread on top of snow.
2. Sediment Barriers: All areas within 75 feet of a protected natural resource must be protected with a double row of sediment barriers.
3. Ditches: All vegetated ditch lines that have not been stabilized by November 1, or will be worked during the winter construction period, must be stabilized with an appropriate stone lining backed by an appropriate gravel bed or geotextile unless specifically released from this standard by Maine DEP.

-
4. Slopes: Mulch netting must be used to anchor mulch on all slopes greater than 8% unless erosion control blankets or erosion control mix is being used on these slopes.

Refer to the Plans contained in Appendix A for additional winter construction erosion and sediment control requirements.

1.6 INSPECTION AND MAINTENANCE – POST-CONSTRUCTION

The long-term operation and maintenance of a stormwater management system is as critical to its performance as its design and construction. Proper operation and maintenance practices ensure that stormwater BMP's continue to improve water quality by removing pollutants effectively over the long-term and decreasing the risk of re-suspending sediment. Without proper maintenance, BMPs are likely to fail and will no longer provide treatment of stormwater. The following includes a summary of the inspection, maintenance, and documentation requirements for post-construction stormwater BMP's.

Refer to the Plans contained in Appendix A for details and locations of site-specific post-construction BMP's.

General Inspection, Maintenance, and Documentation Requirements

1. Inspection and maintenance: All measures must be maintained in effective operating condition. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections. The following areas, facilities, and measures must be inspected and identified deficiencies must be corrected. Areas, facilities, and measures other than those listed below may also require inspection on a specific site.
 - a. Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after significant rainfall events (0.5 inches in 24-hour period) to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.
 - b. Inspect ditches, swales and other open stormwater channels in the spring, in late fall, and after significant rainfall events (0.5 inches in 24-hour period) to remove any obstructions to flow, remove accumulated sediments and debris, to control vegetated growth that could obstruct flow, and to repair any erosion of the ditch lining. Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones

have dislodged. The channel must receive adequate routine maintenance to maintain capacity and prevent or correct any erosion of the channel's bottom or side slopes.

- c. Inspect culverts in the spring, late fall, and after significant rainfall events (0.5 inches in 24-hour period) to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, outlet, and within the conduit. Repair any erosion damage at the culvert's inlet and outlet.
- d. Inspect resource and treatment buffers once a year for evidence of erosion, concentrating flow, and encroachment by development. If flows are concentrating within a buffer, site grading, level spreaders, or ditch turn-outs must be used to ensure a more even distribution of flow into a buffer. Check down slope of all level spreaders and turn-outs for erosion. If erosion is present, adjust or modify the level spreader's or turn-out's lip to ensure a better distribution of flow into a buffer. Clean-out any accumulation of sediment within the level spreader bays or turn-out pools.

2. Regular maintenance

- a. Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring. Accumulations on pavement may be removed by pavement sweeping. Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader. Grading of gravel roads, or grading of the gravel shoulders of gravel or paved roads, must be routinely performed to ensure that stormwater drains immediately off the road surface to adjacent buffer areas or stable ditches, and is not impeded by accumulations of graded material on the road shoulder or by excavation of false ditches in the shoulder. If water bars or open-top culverts are used to divert runoff from road surfaces, clean-out any sediments within or at the outlet of these structures to restore their function.
 - b. Manage each buffer's vegetation consistently with the requirements in any deed restrictions for the buffer. Wooded buffers must remain fully wooded and have no disturbance to the duff layer. Vegetation in non-wooded meadow buffers may not be mowed more than two times per year, and may not be cut shorter than six inches.
3. Documentation: Maintain a binder of inspection forms summarizing inspection, maintenance, and any corrective actions taken. The inspection forms must include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. Refer to Appendix C for inspection forms. If a maintenance task requires the clean-out of any sediments or debris, indicate where the sediment and debris was disposed of after removal. The log must

be made accessible to Department staff and a copy provided to the Department upon request. The Owner shall retain a copy of the logs for a period of at least five years from the completion of permanent stabilization.

1.7 **HOUSEKEEPING**

The following performance standards shall apply:

1. Spill prevention. Controls must be used to prevent pollutants from construction and waste materials stored on site to enter stormwater, which includes storage practices to minimize exposure of the materials to stormwater. The site contractor or operator must develop, and implement as necessary, appropriate spill prevention, containment, and response planning measures.

NOTE: Any spill or release of toxic or hazardous substances must be reported to the Department. For oil spills, call 1-800-482-0777 which is available 24 hours a day. For spills of toxic or hazardous material, call 1-800-452-4664 which is available 24 hours a day. For more information, visit the Department's website at: <http://www.maine.gov/dep/spills/emergspillresp/>

2. Groundwater protection. During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials. Any project proposing infiltration of stormwater must provide adequate pre-treatment of stormwater prior to discharge of stormwater to the infiltration area, or provide for treatment within the infiltration area, in order to prevent the accumulation of fines, reduction in infiltration rate, and consequent flooding and destabilization.

See 06-096 Chapter 500 - Appendix D for license by rule standards for infiltration of stormwater.

NOTE: Lack of appropriate pollutant removal best management practices (BMPs) may result in violations of the groundwater quality standard established by 38 M.R.S.A. §465-C(1).

3. Fugitive sediment and dust. Actions must be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control, but other water additives may be considered as needed. A stabilized construction entrance (SCE)

should be included to minimize tracking of mud and sediment. If off-site tracking occurs, public roads should be swept immediately and no less than once a week and prior to significant storm events. Operations during dry months, that experience fugitive dust problems, should wet down unpaved access roads once a week or more frequently as needed with a water additive to suppress fugitive sediment and dust.

NOTE: Dewatering a stream without a permit from the Department may violate state water quality standards and the *Natural Resources Protection Act*.

4. Debris and other materials. Minimize the exposure of construction debris, building and landscaping materials, trash, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials to precipitation and stormwater runoff. These materials must be prevented from becoming a pollutant source.

NOTE: To prevent these materials from becoming a source of pollutants, construction and post- construction activities related to a project may be required to comply with applicable provision of rules related to solid, universal, and hazardous waste, including, but not limited to, the Maine solid waste and hazardous waste management rules; Maine hazardous waste management rules; Maine oil conveyance and storage rules; and Maine pesticide requirements.

5. Excavation de-watering. Excavation de-watering is the removal of water from trenches, foundations, coffer dams, ponds, and other areas within the construction area that retain water after excavation. In most cases the collected water is heavily silted and hinders correct and safe construction practices. The collected water removed from the ponded area, either through gravity or pumping, must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved by the Department.

NOTE: Dewatering controls are discussed in the “Maine Erosion and Sediment Control BMPs, Maine Department of Environmental Protection.”

6. Authorized Non-stormwater discharges. Identify and prevent contamination by non-stormwater discharges. Where allowed non-stormwater discharges exist, they must be identified and steps should be taken to ensure the implementation of appropriate pollution prevention measures for the non-stormwater component(s) of the discharge. Authorized non-stormwater discharges are:

- a. Discharges from firefighting activity;

-
- b. Fire hydrant flushings;
 - c. Vehicle washwater if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);
 - d. Vehicle washwater if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);
 - e. Dust control runoff in accordance with permit conditions and Appendix (C)(3);
 - f. Routine external building washdown, not including surface paint removal, that does not involve detergents;
 - g. Pavement washwater (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material had been removed) if detergents are not used;
 - h. Uncontaminated air conditioning or compressor condensate;
 - i. Uncontaminated groundwater or spring water;
 - j. Foundation or footer drain-water where flows are not contaminated;
 - k. Uncontaminated excavation dewatering (see requirements in Appendix C(5));
 - l. Potable water sources including waterline flushings; and
 - m. Landscape irrigation.
7. Unauthorized non-stormwater discharges. The Department's approval under this Chapter does not authorize a discharge that is mixed with a source of non-stormwater, other than those discharges in compliance with 06-096 Chapter 500 - Appendix C (6). Specifically, the Department's approval does not authorize discharges of the following:
- a. Wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds or other construction materials;
 - b. Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance;
 - c. Soaps, solvents, or detergents used in vehicle and equipment washing; and
 - d. Toxic or hazardous substances from a spill or other release.
8. Additional requirements. Additional requirements may be applied on a site-specific basis.

Appendix A
Plans

Appendix B
Construction Inspection Forms

CONSTRUCTION INSPECTION FORM FOR EROSION AND SEDIMENT CONTROL					
General Information:					
Site Name:	Date:	Inspected by:			
Owner:					
Retained 3PI:	Last Rain Date:	Amount:			
Reason for Inspection:	Weekly	Winter	Final	Rain Event	Complaint
Description of disturbed area:					
Photos:					
	YES/NO/NA	COMMENTS			
1. Is an Erosion and Sediment Control Plan available?					
ESC plan on-site and followed					
Other:					
2. Are all erosion control practices installed properly, maintained and functioning?					
Disturbed areas stable					
Concentrated flow inlet/outlet protection					
All areas at final grade					
Disturbed dormant areas stabilized					
Access roads and parking					
Hillsides and stockpiles					
Other:					
3. Are all sedimentation control practices installed properly, maintained and functioning?					
Construction entrance					
Sedimentation basins/traps/diversions					
Perimeter controls					
Check dams					
Other:					
4. Is maintenance of ESC measures, construction activities and housekeeping kept-up?					
Sedimentation/erosion in ditches					
Tracked Sediment or dust at exits					
Hazardous material storage and spill control practices					
Waste management (concrete, hazardous material, etc.)					
Other:					
5. Violation, Corrective Actions, Recommendations					
Sediment discharged from site?					
Corrective action required?					
Site compliant with all permits?					
Notice of violation or stop work order issued?					
Comments/Corrective Actions (complete corrective actions before the next rain event and within 7 day)					

**Water Line Solar Project
Post-Construction Inspection Form (Buffers/Level Spreaders)**

Project name:	Date:	Inspected by:
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Owner name:

Last rain date:	Amount:
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Reason for inspection:	Rain Event	Monthly	Annually	Maint. Performed	Other (Specify)
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General description of BMP condition:

Photos: (Attach)

Inspection Details	Comments	Maintenance Required
Erosion or concentrated flows evident?		
Downgradient of level spreaders stable?		
Level spreaders built along contour?		
Evidence of accumulated sediment in level spreader trough?		
Number of level spreaders adequate for flow distribution?		
Buffer monumentation visible?		
Evidence of buffer vegetation removal or frequent mowing?		
Temporary or permanent structures within the buffer?		
Evidence of motorized vehicles operating in buffer?		
Trash, debris, or waste within buffer area?		

Additional Comments:

**Water Line Solar Project
Post-Construction Inspection Form (Roadway and Parking Areas)**

Project name:	Date:	Inspected by:
---------------	-------	---------------

Owner name:

Last rain date:	Amount:
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Reason for inspection:	Rain Event	Monthly	Annually	Maint. Performed	Other (Specify)
------------------------	------------	---------	----------	------------------	-----------------

General description of BMP condition/recent maintenance performed:

Photos: (Attach)

Inspection Details	Comments	Maintenance Required
Winter sand accumulation apparent?		
Pavement Sweeping required?		
Gravel shoulders graded appropriately?		
Gravel road grading required?		
Low spots causing puddling?		

Additional Comments:

**Water Line Solar Project
Post-Construction Inspection Form (Storm Drain System including catch basins and culverts)**

Project name:	Date:	Inspected by:
---------------	-------	---------------

Owner name:

Last rain date:	Amount:
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Reason for inspection:	Rain Event	Monthly	Annually	Maint. Performed	Other (Specify)
------------------------	------------	---------	----------	------------------	-----------------

General description of BMP condition/recent maintenance performed:

Photos: (Attach)

Inspection Details	Comments	Maintenance Required
Accumulated debris or sediment at inlet, outlet, or within culvert/storm drain?		
Flow obstructions present?		
Erosion apparent at culvert inlet/outlet?		
Accumulated debris around catch basin grate?		
Accumulated debris in catch basin sump?		
Floating debris or oils found in catch basins?		

Additional Comments:

**Water Line Solar Project
Post-Construction Inspection Form (Vegetated Area)**

Project name:	Date:	Inspected by:
---------------	-------	---------------

Owner name:

Last rain date:	Amount:
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Reason for inspection:	Rain Event	Monthly	Annually	Maint. Performed	Other (Specify)
------------------------	------------	---------	----------	------------------	-----------------

General description of BMP condition/recent maintenance performed:

Photos: (Attach)

Inspection Details	Comments	Maintenance Required
All slopes and embankments well vegetated? Signs of sparse growth?		
Rill erosion apparent in vegetated areas?		
Downs slope of level spreaders/ditch turnouts stable?		
Mowing of vegetated areas appropriate?		

Additional Comments:

Appendix D
Inspection Frequency Checklist

EROSION AND SEDIMENT CONTROL MEASURES AND ACTIVITY	INSPECTION FREQUENCY		
	Weekly	Before and After a Storm	After Construction
SEDIMENT BARRIERS			
Sediment barriers are installed prior to soil disturbances	X	X	
Silt fences are keyed in and tight	X	X	
Barriers are repaired and replaced as necessary	X	X	
Barriers are removed when the site is stabilized - Silt fence should be cut at the ground surface			X
TEMPORARY STABILIZATION			
Areas are stabilized if idle for 14 days or more	X	X	
Daily stabilization within 100 ft of a natural resource	X	X	
MULCH			
Seed and mulch within 7 days of final grading. Ground is not visible	X	X	
Erosion control mix is 4-6 inch thick	X	X	
Erosion control blankets or hay mulch are anchored	X	X	
VEGETATION			
Vegetation provides 90% soil cover	X		X
Loam or soil amendment were provided	X		X
New seeded areas are mulched and protected from vehicle, foot traffic and runoff	X	X	X
Areas that will remain unworked for more than 1 year are vegetated with grass	X		
SLOPES AND EMBANKMENTS			
Final graded slopes and embankments are stabilized	X	X	X
Diversions are provided for areas with rill erosion	X	X	X
Areas steeper than 2:1 are riprapped	X		
Stones are angular, durable and various in size	X		
Riprap is underlain with a gravel layer or filter fabric	X		
STORMWATER CHANNELS AND CULVERTS			
Ditches and swales are permanently stabilized—channels that will be riprapped have been over-excavated	X	X	X
Ditches are clear of obstructions, accumulated sediments or debris	X	X	X
Ditch lining/bottoms are free of erosion	X	X	X
Check dams are spaced correctly to slow flow velocity	X		
Underlying filter fabric or gravel is not visible	X	X	X
Culvert aprons and plunge pools are sized for expected flows volume and velocity	X		
Stones are angular, durable and various in size	X		
Culverts are sized to avoid upgradient flooding	X	X	
Culvert protection extends to the maximum flow elevation within the ditch	X	X	X
Culvert is embedded, not hanging	X	X	X

CATCH BASIN SYSTEMS			
Catch basins are built properly	X		
Accumulated sediments and debris are removed from sump, grate and collection area		X	X
Floating debris and floating oils are removed from trap			X
ROADWAYS AND PARKING SURFACES			
The gravel pad at the construction entrance is clear from sediments	X	X	
Roads are crowned		X	X
Cross drainage (culvert) is provided	X		
False ditches (from winter sand) are graded		X	X
BUFFERS			
Buffers are free of erosion or concentrated flows		X	X
The downgradient of spreaders and turnouts is stable		X	X
Level spreaders are on the contour			X
The number of spreaders and ditch turnouts is adequate for flow distribution		X	X
Any sediment accumulation is removed from within spreader or turnouts		X	X
STORMWATER BASINS AND TRAPS			
Embankments are free of settlement, slope erosion, internal piping, and downstream swamping		X	X
All flow control structure or orifices are operational and clear of debris or sediments		X	X
Any pre-treatment structure that collects sediment or hydrocarbons is clean or maintained		X	X
Vegetated filters and infiltration basins have adequate grass growth			X
Any impoundment or forebay is free of sediment		X	X
WINTER CONSTRUCTION (November 1st-April 15th)			
Final graded areas are mulched daily at twice the normal rate with hay, and anchor (not on snow)	Daily		
A double row of sediment barrier is provided for all areas within 100 ft of a sensitive resource (use erosion control mix on frozen ground)	Daily		
Newly constructed ditches are riprapped	Daily		
Slopes greater than 8% are covered with an erosion control blanket or a 4-inch layer of erosion control mix	Daily		
HOUSEKEEPING PUNCH LIST			
All disturbed areas are permanently stabilized, and plantings are established (grass seeds have germinated with 90% vegetative cover)			X
All trash, sediments, debris or any solid waste have been removed from stormwater channels, catch basins, detention structures, discharge points, etc.			X
All ESC devices have been removed: (silt fence and posts, diversions and sediment structures, etc.)			X
All deliverables (certifications, survey information, as-built plans, reports, notice of termination (NOT), etc.) in accordance with all permit requirements have been submitted to town, Maine DEP, association, owner, etc.			X

INSPECTION AND MAINTENANCE PLAN FOR STORMWATER MANAGEMENT STRUCTURES (BMPS)

	INSPECTION SCHEDULE	CORRECTIVE ACTIONS
VEGETATED AREAS	Annually early spring and after heavy rains	Inspect all slopes and embankments and replant areas of bare soil or with sparse growth
		Armor rill erosion areas with riprap or divert the runoff to a stable area
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Mow vegetation as specified for the area
DITCHES, SWALES AND OPEN STORMWATER CHANNELS	Annually spring and late fall and after heavy rains	Remove obstructions, sediments or debris from ditches, swales and other open channels
		Repair any erosion of the ditch lining
		Mow vegetated ditches
		Remove woody vegetation growing through riprap
		Repair any slumping side slopes
		Repair riprap where underlying filter fabric or gravel is showing or if stones have dislodge
CULVERTS	Spring and late fall and after heavy rains	Remove accumulated sediments and debris at the inlet, outlet, or within the conduit
		Remove any obstruction to flow
		Repair any erosion damage at the culvert's inlet and outlet
CATCH BASINS	Annually in the spring	Remove sediments and debris from the bottom of the basin and inlet grates
		Remove floating debris and oils (using oil absorptive pads) from any trap
ROADWAYS AND PARKING AREAS	Annually in the spring or as needed	Clear and remove accumulated winter sand in parking lots and along roadways
		Sweep pavement to remove sediment
		Grade road shoulders and remove accumulated winter sand
		Grade gravel roads and gravel shoulders
		Clean out the sediment within water bars or open-top culverts
		Ensure that stormwater runoff is not impeded by false ditches of sediment in the shoulder
RESOURCE AND TREATMENT BUFFERS	Annually in the spring	Inspect buffers for evidence of erosion, concentrated flow, or encroachment by development
		Manage the buffer's vegetation with the requirements in any deed restrictions
		Repair any sign of erosion within a buffer
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Install more level spreaders, or ditch turn-outs if needed for a better distribution of flow
		Clean out any accumulation of sediment within the spreader bays or turnout pools
		Mow non-wooded buffers no shorter than six inches and less than three times per year
WETPONDS AND DETENTION BASINS	Annually in fall and after heavy rains	Inspect the embankments for settlement, slope erosion, piping, and slumping
		Mow the embankment to control woody vegetation
		Inspect the outlet structure for broken seals, obstructed orifices, and plugged trash racks
		Remove and dispose of sediments and debris within the control structure
		Repair any damage to trash racks or debris guards
		Replace any dislodged stone in riprap spillways
FILTRATION AND INFILTRATION BASINS	Annually in the spring and late fall	Remove and dispose of accumulated sediments within the impoundment and forebay
		Clean the basin of debris, sediment and hydrocarbons
		Provide for the removal and disposal of accumulated sediments within the basin
		Renew the basin media if it fails to drain within 72 hours after a one inch rainfall event
		Till, seed and mulch the basin if vegetation is sparse
Repair riprap where underlying filter fabric or gravel is showing or where stones have dislodged		
PROPRIETARY DEVICES	As specified by manufacturer	Contract with a third-party for inspection and maintenance
		Follow the manufacturer's plan for cleaning of devices
OTHER PRACTICES	As specified for devices	Contact the department for appropriate inspection and maintenance requirements for other drainage control and runoff treatment measures.

Attachment E
Site Photos

Water Line Solar Project Site Photos



Photo 1. Upland Forest



Photo 2. Upland Forest



Photo 3. Upland Forest



Photo 4. Upland Forest

Attachment F
Certificate of Good Standing

State of Maine



Department of the Secretary of State

I, the Secretary of State of Maine, certify that according to the provisions of the Constitution and Laws of the State of Maine, the Department of the Secretary of State is the legal custodian of the Great Seal of the State of Maine which is hereunto affixed and of the reports of formation, amendment and cancellation of articles of organization of limited liability companies and annual reports filed by the same.

I further certify that WATER LINE SOLAR, LLC is a duly formed limited liability company under the laws of the State of Maine and that the date of formation is March 02, 2022.

I further certify that said limited liability company has filed annual reports due to this Department, and that no action is now pending by or on behalf of the State of Maine to forfeit the articles of organization and that according to the records in the Department of the Secretary of State, said limited liability company is a legally existing limited liability company in good standing under the laws of the State of Maine at the present time.

In testimony whereof, I have caused the Great Seal of the State of Maine to be hereunto affixed. Given under my hand at Augusta, Maine, this fourth day of March 2022.

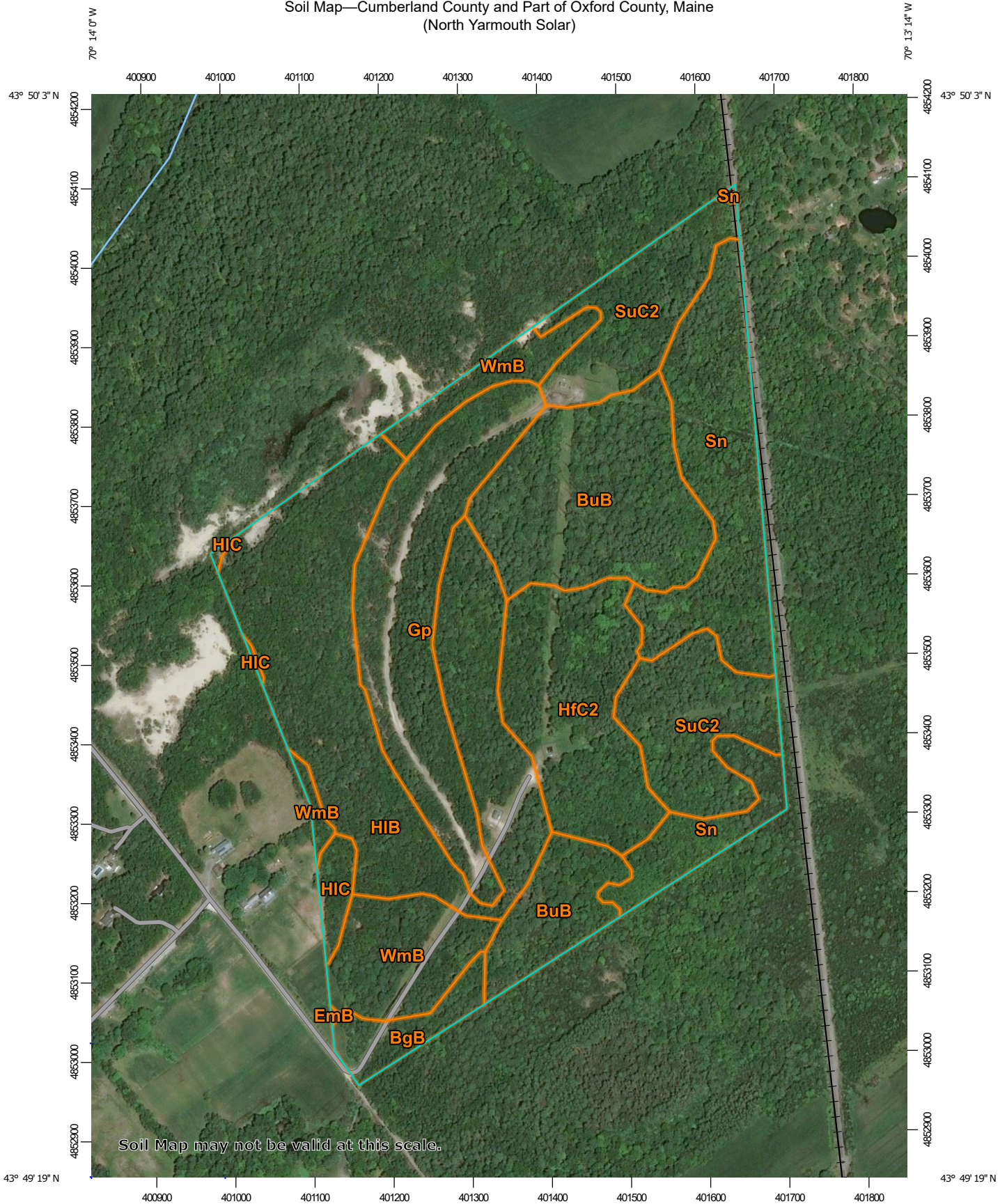


Shenna Bellows

Shenna Bellows
Secretary of State

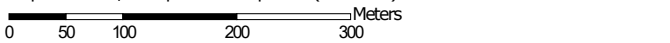
Attachment G
Soils Report

Soil Map—Cumberland County and Part of Oxford County, Maine
(North Yarmouth Solar)



Soil Map may not be valid at this scale.

Map Scale: 1:6,640 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

Soil Map—Cumberland County and Part of Oxford County, Maine
(North Yarmouth Solar)

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)




















Soils







 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features






-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 18, Aug 31, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 7, 2019—Jul 2, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BgB	Nicholville very fine sandy loam, 0 to 8 percent slopes	2.7	2.3%
BuB	Lamoine silt loam, 3 to 8 percent slopes	19.4	16.3%
EmB	Elmwood fine sandy loam, 0 to 8 percent slopes	0.0	0.0%
Gp	Gravel pits	15.1	12.6%
HfC2	Hartland very fine sandy loam, 8 to 15 percent slopes, eroded	12.2	10.2%
HIB	Hinckley loamy sand, 3 to 8 percent slopes	27.2	22.8%
HIC	Hinckley loamy sand, 8 to 15 percent slopes	1.5	1.2%
Sn	Scantic silt loam, 0 to 3 percent slopes	16.8	14.0%
SuC2	Suffield silt loam, 8 to 15 percent slopes, eroded	15.0	12.6%
WmB	Windsor loamy sand, 0 to 8 percent slopes	9.5	7.9%
Totals for Area of Interest		119.4	100.0%

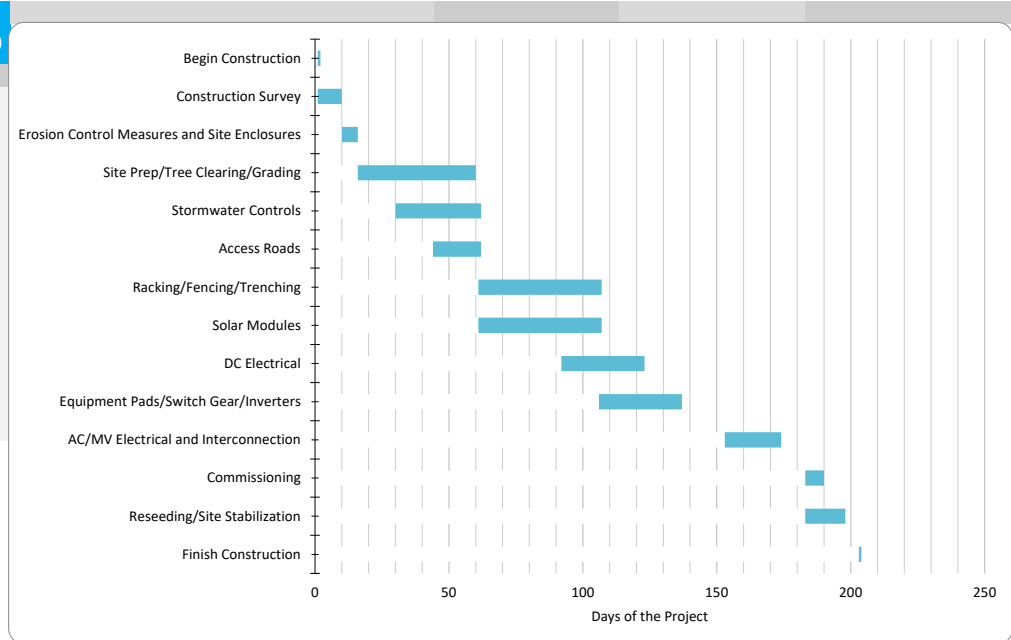
Attachment H
Construction Schedule

Solar Project Construction Schedule

Water Line Solar Project

Water Line Solar, LLC

TASK NAME	START DATE	END DATE	START ON DAY*	DURATION* (WORK DAYS)
Solar Project Construction Schedule				
Begin Construction	1/9/2023	1/9/2023	1	1
Construction Survey	1/10/2023	1/18/2023	1	9
Erosion Control Measures and Site Enclosures				
Enclosures	1/19/2023	1/24/2023	10	6
Site Prep/Tree Clearing/Grading	1/25/2023	3/9/2023	16	44
Stormwater Controls	2/8/2023	3/11/2023	30	32
Access Roads	2/22/2023	3/11/2023	44	18
Racking/Fencing/Trenching	3/11/2023	4/25/2023	61	46
Solar Modules	3/11/2023	4/25/2023	61	46
DC Electrical	4/11/2023	5/11/2023	92	31
Equipment Pads/Switch Gear/Inverters	4/25/2023	5/25/2023	106	31
AC/MV Electrical and Interconnection	6/11/2023	7/1/2023	153	21
Commissioning	7/11/2023	7/17/2023	183	7
Reseeding/Site Stabilization	7/11/2023	7/25/2023	183	15
Finish Construction	7/31/2023	7/31/2023	203	1



ATTACHMENT 17

Tier II NRPA Application



**Maine Department of
Environmental Protection**

**NATURAL RESOURCE
PROTECTION ACT
TIER II APPLICATION**

APPLICANT:

Water Line Solar, LLC

Water Line Solar, LLC
8 Quarry Ridge
North Yarmouth, ME 04097

APPLICATION FOR A NATURAL RESOURCES PROTECTION ACT PERMIT

→ PLEASE TYPE OR PRINT IN **BLACK INK ONLY**

1. Name of Applicant: Water Line Solar, LLC		5. Name of Agent: Biodiversity Research Institute	
2. Applicant's Mailing Address: 8 Quarry Ridge, North Yarmouth, ME 04097		6. Agent's Mailing Address: 30 Danforth St, Suite 213, Portland, ME 04101	
3. Applicant's Daytime Phone #: (207) 653-9864		7. Agent's Daytime Phone #: 414-758-7319	
4. Applicant's Email Address (Required from either applicant or agent): cbyers@branchrenewables.com		8. Agent's Email Address: merrill.read@brienvironmental.org	
9. Location of Activity: (Nearest Road, Street, Rt.#) 238 Sweetser Road		10. Town: North Yarmouth	11. County: Cumberland
12. Type of Resource: (Check all that apply)	<input type="checkbox"/> River, stream or brook <input type="checkbox"/> Great Pond <input type="checkbox"/> Coastal Wetland <input checked="" type="checkbox"/> Freshwater Wetland <input type="checkbox"/> Wetland Special Significance <input type="checkbox"/> Significant Wildlife Habitat <input type="checkbox"/> Fragile Mountain		13. Name of Resource: Unnamed
			14. Amount of Impact: (Sq.Ft.) 22,445 s.f.
15. Type of Wetland: (Check all that apply)	<input checked="" type="checkbox"/> Forested <input checked="" type="checkbox"/> Scrub Shrub <input type="checkbox"/> Emergent <input type="checkbox"/> Wet Meadow <input type="checkbox"/> Peatland <input type="checkbox"/> Open Water <input type="checkbox"/> Other _____	FOR FRESHWATER WETLANDS	
		<i>Tier 1</i> <input type="checkbox"/> 0 - 4,999 sq ft. <input type="checkbox"/> 5,000-9,999 sq ft <input type="checkbox"/> 10,000-14,999 sq ft	<i>Tier 2</i> <input checked="" type="checkbox"/> 15,000 – 43,560 sq. ft.
16. Brief Activity Description: Clearing of wetland trees and shrubs for the purpose of constructing solar panels over top to develop a utility-scale solar energy generation facility.			
17. Size of Lot or Parcel & UTM Locations:		<input type="checkbox"/> _____ square feet, or <input checked="" type="checkbox"/> 100 acres UTM Northing: 4853502 UTM Easting: 401352	
18. Title, Right or Interest: <input type="checkbox"/> own <input checked="" type="checkbox"/> lease <input type="checkbox"/> purchase option <input type="checkbox"/> written agreement			
19. Deed Reference Numbers: Book#: See Supplement Page: See Supplement		20. Map and Lot Numbers: Map #: 5 Lot #: 2	
21. DEP Staff Previously Contacted: n/a		22. Part of a larger project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No After-the-Fact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
23. Resubmission of Application?: <input type="checkbox"/> Yes → <input checked="" type="checkbox"/> No If yes, previous application #: n/a Previous project manager: n/a			
24. Written Notice of Violation?: <input type="checkbox"/> Yes → <input checked="" type="checkbox"/> No If yes, name of DEP enforcement staff involved: n/a		25. Previous Wetland Alteration: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
26. Detailed Directions to the Project Site: Driving N on Rt 1, take the exit for Rt 115 / Main St in Yarmouth. Drive W for 3.3 miles on Rt. 115. Turn right onto Baston Rd. Continue to the end and turn right onto Sweetser Rd. Project access road will be on the left (E) side of road after 0.15 miles.			
TIER 1		TIER 2/3 AND INDIVIDUAL PERMITS	
<input type="checkbox"/> Title, right or interest documentation <input type="checkbox"/> Topographic Map <input type="checkbox"/> Narrative Project Description <input type="checkbox"/> Plan or Drawing (8 1/2" x 11") <input type="checkbox"/> Photos of Area <input type="checkbox"/> Statement of Avoidance & Minimization <input type="checkbox"/> Statement/Copy of cover letter to MHPC		<input checked="" type="checkbox"/> Title, right or interest documentation <input checked="" type="checkbox"/> Topographic Map <input checked="" type="checkbox"/> Copy of Public Notice/Public Information Meeting Documentation <input checked="" type="checkbox"/> Wetlands Delineation Report (Attachment 1) that contains the information listed under Site Conditions <input checked="" type="checkbox"/> Alternatives Analysis (Attachment 2) including description of how wetland impacts were Avoided/Minimized <input checked="" type="checkbox"/> Erosion Control/Construction Plan <input checked="" type="checkbox"/> Functional Assessment (Attachment 3), if required <input type="checkbox"/> Compensation Plan (Attachment 4), if required <input type="checkbox"/> Appendix A and others, if required <input checked="" type="checkbox"/> Statement/Copy of cover letter to MHPC <input type="checkbox"/> Description of Previously Mined Peatland, if required	
28. FEES Amount Enclosed: \$209.38			
CERTIFICATIONS AND SIGNATURES LOCATED ON PAGE 2			

IMPORTANT: IF THE SIGNATURE BELOW IS NOT THE APPLICANT'S SIGNATURE, ATTACH LETTER OF AGENT AUTHORIZATION SIGNED BY THE APPLICANT.

By signing below the applicant (or authorized agent), certifies that he or she has read and understood the following :

DEP SIGNATORY REQUIREMENT

PRIVACY ACT STATEMENT

Authority: 33 USC 401, Section 10; 1413, Section 404. Principal Purpose: These laws require permits authorizing activities in or affecting navigable waters of the United States, the discharge of dredged or fill material into waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters. Disclosure: Disclosure of requested information is voluntary. If information is not provided, however, the permit application cannot be processed nor a permit be issued.

CORPS SIGNATORY REQUIREMENT

USC Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry shall be fined not more than \$10,000 or imprisoned not more than five years or both. I authorize the Corps to enter the property that is subject to this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein.

DEP SIGNATORY REQUIREMENT

"I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Further, I hereby authorize the DEP to send me an electronically signed decision on the license I am applying for with this application by emailing the decision to the address located on the front page of this application (see #4 for the applicant and #8 for the agent)."



SIGNATURE OF AGENT/APPLICANT

Date: 03/10/22

NOTE: Any changes in activity plans must be submitted to the DEP and the Corps in writing and must be approved by both agencies prior to implementation. Failure to do so may result in enforcement action and/or the removal of the unapproved changes to the activity.

Supplement to NRPA Tier 2 Application Form

19. Deed Reference Numbers:

The deed for the Project parcel (Tax Map 5, Lot 2 in North Yarmouth) is described in the following book and page numbers at the Cumberland County Registry of Deeds:

Book #	Page #
1848	338
1862	52
1895	228
1223	453
1224	95



AGENT AUTHORIZATION FORM

February 23, 2022

To Whom It May Concern,

This letter serves as acknowledgement of authorization for Biodiversity Research Institute to act as an agent on behalf of Branch Renewable Energy, LLC regarding the submission and subsequent follow up of any municipal, state, or federal permits for the North Yarmouth Solar Project ("Water Line Solar, LLC") in Maine.

Any questions or clarifications regarding the representation can be directed to Chris Byers, Principal at Branch Renewable Energy (cbyers@branchrenewables.com).

Sincerely,

A handwritten signature in black ink, appearing to be "Chris Byers", with a stylized flourish at the end.

Chris Byers, Principal
Branch Renewable Energy, LLC
8 Quarry Ridge
North Yarmouth, ME 04097
207-653-9864
cbyers@branchrenewables.com

State of Maine



Department of the Secretary of State

I, the Secretary of State of Maine, certify that according to the provisions of the Constitution and Laws of the State of Maine, the Department of the Secretary of State is the legal custodian of the Great Seal of the State of Maine which is hereunto affixed and of the reports of formation, amendment and cancellation of articles of organization of limited liability companies and annual reports filed by the same.

I further certify that WATER LINE SOLAR, LLC is a duly formed limited liability company under the laws of the State of Maine and that the date of formation is March 02, 2022.

I further certify that said limited liability company has filed annual reports due to this Department, and that no action is now pending by or on behalf of the State of Maine to forfeit the articles of organization and that according to the records in the Department of the Secretary of State, said limited liability company is a legally existing limited liability company in good standing under the laws of the State of Maine at the present time.

In testimony whereof, I have caused the Great Seal of the State of Maine to be hereunto affixed. Given under my hand at Augusta, Maine, this fourth day of March 2022.



Shenna Bellows

Shenna Bellows
Secretary of State

Water Line Solar Project | MDEP NRPA Application

Contents

Attachment 1. Project Description

Attachment 2. Title, Right, or Interest

Attachment 3. Site Plan

Attachment 4. Project Maps

Attachment 5. Public Notice

Attachment 6. Natural Resource Report

Attachment 7. Alternatives Analysis

Attachment 8. Erosion and Sediment Control Plan

Attachment 9. Functions and Values

Attachment 10. Compensation

Attachment 11. Maine Historic Preservation Commission Correspondence

Attachment 12. Professional Certification

Attachment 1

Project Description

ATTACHMENT 1: PROJECT DESCRIPTION

Project Summary

Water Line Solar, LLC, an entity wholly owned by Branch Renewable Energy (Branch), is proposing to develop the Water Line Solar Project (Project), a ground-mounted solar energy generation facility. The Project's limit of disturbance (LOD)—including all clearing, infrastructure, and equipment—will occupy a total of 14.4 acres in North Yarmouth. The Project will provide approximately 1.99 megawatts of renewable power to the electrical grid by interconnecting with existing roadside three-phase power lines. This power will contribute to Maine's long-term renewable energy production goals.

The Project parcel was chosen due to its previously disturbed nature; its out-of-sight location; the presence of existing infrastructure, such as power lines and access roads; and the willingness of the landowner. The Project is anticipated to produce clean renewable electricity for up to 40 years, requiring no fuel and producing no emissions during that time.

Based on the amount and nature of proposed wetland alteration, the Project will require a Tier II Natural Resources Protection Act (NRPA) permit. In addition to the Tier II NRPA permit application, the Project is also submitting applications for a Maine Department of Environmental Protection (MDEP) Stormwater Permit by Rule (PBR) and a MDEP Solar Decommissioning permit.

Once construction is complete, the Project will operate autonomously with 24/7/365 remote monitoring. Occasional site visits from Project personnel will be necessary for routine maintenance (e.g., mowing) and periodic inspections of equipment and stormwater management controls. Such visits are not expected to occur more often than once per month. For safety reasons, the Project will not be accessible to the public.

Existing Conditions

The Project parcel is currently largely forested, but has previously been significantly disturbed. The depression in which the Project LOD is proposed to be located is the result of previous grading and gravel pit activity. The surrounding area includes agriculture and low-density residential development, as well as a railroad and an out-of-use gravel pit.

The parcel includes development related to the Yarmouth Water District. In addition to water quality testing wells noted on the Site Plans in Attachment 3, the parcel contains three producing wells with accompanying structures: the Stevens and Reinsborough Wells, south of the main Project area; and the Estabrook Well, north of the Project area. The Stevens and Reinsborough Wells connect to a water line that runs north from the southern tip of the parcel, and then east off Site. The Estabrook Well connects to a separate water line that runs east off Site.

WATER LINE SOLAR PROJECT

The producing wells are accessed via a private dirt road off of Sweetser Road. They are powered by three-phase overhead power lines, which also run from Sweetser Road. To reach the northerly Estabrook Well, the dirt road and power lines diverge, with the power lines cutting through an area of forest and scrub-shrub wetlands.

Proposed Use and Impacts

Solar projects are low-impact in nature, and the proposed Project will minimize impacts by using the existing access road and power lines. Racking posts will be driven or screwed directly into the ground, without the need for cement foundations or cemented post holes. The proposed solar panels will have a maximum height of 13 feet, and will be installed to allow for meadow vegetation to grow under and between panels. Power lines will run underground throughout the Project, until the point where they need to be elevated to interconnect with existing three-phase power lines.

The proposed LOD—including access roads, equipment platforms, solar panels, and undeveloped areas—is 14.4 acres. The Project will result in 13.4 acres of clearing between the existing access road and power lines. The only impervious surfaces will be the gravel access road, an equipment platform, the power poles, the fence posts, and the racking posts. The total impervious area will be 3,720 square feet. The area around the solar panels will be re-vegetated with a native conservation/wildlife seed mix. This creates meadow conditions that act as a buffer for stormwater. The Project will not be mowed more than twice per year, as required by MDEP.

The proposed Project will create approximately 20 square feet of direct impact from installing racking and fence posts within wetlands; 6,100 square feet of wetland shading, where wetlands are spanned by solar panels; and 16,335 feet of wetland clearing and conversion. No areas of traditional fill (permanent or temporary) are proposed.

Attachment 2

Title, Right, or Interest

OPTION AGREEMENT

THIS OPTION AGREEMENT FOR SOLAR ENERGY SITE LEASE ("Option Agreement") is made and entered into as of 11/11/21 ("Effective Date"), by and between Yarmouth Water District ("Landowner"), a Quasi Municipal Organization with a mailing address of 181 Sligo Road, Yarmouth, Maine 04096, and Branch Renewable Energy, a LLC with a mailing address of 8 Quarry Ridge, North Yarmouth, ME 04097 ("Developer" and, together with Landowner, each, a "Party" and together, the "Parties").

WHEREAS, Landowner is the owner of property in the Town/City of North Yarmouth, County of Cumberland, State of Maine, with a physical address of 238 Sweetser Road, North Yarmouth, ME 04097, and generally depicted on the Town of North Yarmouth Tax Map 5 as Lot 2 (the "Larger Property"); and

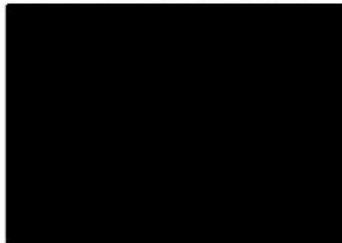
WHEREAS, Developer desires to enter into an exclusive option to lease an approximately 20 acre area or less (the "Option Property") of the Larger Property, as more particularly described in the Memorandum of Option attached hereto as Exhibit B.

NOW, THEREFORE, in consideration of the mutual promises and covenants contained in this Option Agreement, the adequacy and sufficiency of which are hereby acknowledged, Developer and Landowner agree as follows:

1. **Grant of Option**. Landowner hereby grants Developer an exclusive option (the "Option") to enter into a lease of the Option Property (the "Lease") and obtain through such Lease any corresponding easements for access and transmission lines extending from Sweetser Road to the Option Property. Developer and Landowner shall negotiate exclusively in good faith regarding the terms and provisions of the Lease for the Option Property, which Lease shall include the general terms described on the term sheet attached hereto as Exhibit A and incorporated by reference herein (the "Term Sheet"), and shall also contain such other reasonable terms and provisions as the parties may agree. Landowner and Developer recognize that successful negotiation of the Lease will also entail substantial definition and refinement of the concepts expressed in the Term Sheet and final mutual agreement on all of the terms and conditions set forth herein.

2. **Term**. The Option term (the "Option Term") will be for a period of twenty-four (24) months commencing with the execution of this Option Agreement. Developer may terminate this Option Agreement at any time, in its sole discretion, by delivering written notice to Landowner, in which case Landowner shall retain any option payments paid by Developer but shall not be entitled to receive any additional payments.

3. **Option Term Payment**. As consideration for the Option, Developer shall pay to Landowner consideration as follows, with the first payment payable within thirty (30) days of the date of this Option Agreement, and any future installments payable within thirty (30) days of the applicable monthly anniversary of the date of this Option Agreement.



4. Option Property. Landowner and Developer acknowledge that the general depiction of the Option Property attached to this Option Agreement on the Effective Date may be legally insufficient. Landowner and Developer confirm to one another that, notwithstanding any insufficiency, the Parties desire to enter this Option Agreement. Therefore, Landowner and Developer agree that (i) they are experienced in transactions of the nature provided for in this Option Agreement, (ii) they are thoroughly familiar with the location of the Option Property, and (iii) each Party waives any and all claims or defenses of an insufficient legal description in a cause of action for specific performance under this Option Agreement. Upon determination of the specific size and location of the Option Property, a detailed description of such location shall become the final description of the leased property for the Lease, and the Parties will amend Exhibit B to reflect that final Option Property description.

5. Due Diligence. During the Option Term, Landowner grants Developer an easement onto the Larger Property and Developer shall be permitted to conduct complete and thorough due diligence activities incident to the transactions contemplated by the Term Sheet. In connection therewith, Landowner shall make available to Developer any and all documents, reports, studies, contracts or other tangible or electronic items as may exist with respect to the Larger Property, its history and/or use, all as may be reasonably requested from time to time by Developer. Without limiting the generality of the foregoing, within five (5) business days after this Option Agreement is signed, Landowner shall provide complete copies of any title insurance policy or report pertaining to the Larger Property, and of any survey plan of the Larger Property, in Landowner's control. Developer and its representatives shall be permitted to visit the Larger Property site on any number of occasions during the Option Term upon reasonable advance notice to Landowner, and to conduct any reasonable studies, including geotechnical investigations, that Developer determines are necessary for the evaluation of the Option Property. The parties understand and acknowledge that the consummation of the transactions contemplated by the Term Sheet is subject to the results of such due diligence process. All information, studies, reports and business documents relating to the Larger Property obtained by Developer, either by examination of its agents or representatives, or observation, or disclosed to it by Landowner, shall remain confidential.

6. Use of Option Property by Landowner. Upon the execution of this Option Agreement until the later of (i) the termination or expiration of the Option Term, or (ii) the execution of the Lease, Landowner shall maintain the Larger Property in good condition and in a manner consistent with Landowner's past practices. Landowner agrees to keep the Larger Property free from materialmen's, mechanics' and construction liens. Landowner will not, without the prior written consent of Developer, convey any right, title and interest in the Larger Property to any third party or change the ownership, operation or control, of the Larger Property. Owner will not subject the Larger Property to any additional liens, encumbrances, covenants, conditions, easements, rights-of-way, or similar matters after the Effective Date of this Agreement. Landowner will not enter into any contracts, leases, or other agreements, allowing anyone other than Landowner to occupy or use the Option Property, nor any other contract, or agreement, or consent, to permit any lien or encumbrance (whether written or oral) that will be an obligation affecting the Option Property without Developer's prior written consent. Other than agreements that Developer has agreed to assume in writing, Landowner shall terminate, at its sole expense, all contracts, or other agreements affecting the Option Property prior to execution of the Lease. During the Option Term and any extension thereof, Landowner shall pay all taxes, fees, and other charges assessed against, or related to, the Option Property.

7. Exercise of Option. Developer may exercise the Option at any time, and as to all, or any part of, the Option Property, by delivering written notice to the Landowner. If the Developer exercises the Option as to a part of the Option Property, such exercise notice shall reasonably describe that part of the portion of the Option Property being leased. The Parties shall enter into the Lease, as negotiated and agreed upon by the Parties, within fifteen (15) calendar days from the date such notice is delivered.

8. **Confidentiality.** Except as expressly authorized in advance in writing, the Parties shall keep confidential the terms of this Option Agreement and information and materials concerning the proposed transaction that are provided by Developer and/or Landowner and designated as confidential ("Confidential Information"). The Parties agree to use commercially reasonable efforts (equivalent to the efforts each Party applies to maintaining the confidentiality of its own confidential information) to maintain as confidential all Confidential Information, except that a Party may disclose such information (a) to persons employed or engaged by such Party who are informed of the confidentiality obligation hereunder and agree to be bound thereby; (b) to an advisor, agent, or representative of such Party or whether directly or indirectly a lender or potential lender to, or purchaser or potential purchaser of ownership interests or assets of, one of the Parties provided such parties are informed of the confidentiality obligation hereunder and agree to be bound thereby; (c) as reasonably believed by such Party to be compelled by any court decree, subpoena or legal or administrative order or process; (d) to any government agency from who Developer and/or Landowner may require information from, or from whom Developer and/or Landowner requires a necessary permit, approval or other entitlement in order to develop, construct, operate or maintain any proposed improvements under the Lease; (e) as is required by applicable laws; or (f) that ceases to be confidential through no fault of such Party or any of its employees or agents.

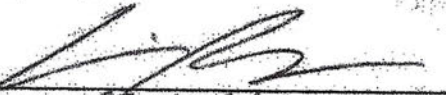
9. **Exclusive Negotiation in Good Faith.** During the Option Term, the Parties agree to exclusively negotiate in good faith to develop mutually acceptable terms and documentation for the transactions described above and to comply with the due diligence and other provisions set forth in the Term Sheet prior to execution of a Lease; provided, however, that until the Lease is executed by both Parties, Developer may at any time and for any or no reason terminate its negotiations with Landowner by a written notice, without penalty.

10. **Memorandum.** Landowner agrees to execute the Memorandum of Option attached hereto as Exhibit B which Developer may record at any time in the Cumberland County Registry of Deeds.

11. **Counterparts.** This Option Agreement may be executed in counterparts, each of which shall be deemed an original regardless of the date of its execution and delivery. Signatures on Portable Document Format delivered by electronic mail will be treated as original signature; however, each party agrees to promptly forward original executed documents to the other party.

12. **Governing Law.** This Option Agreement shall be governed by the laws of the State of Maine.

LANDOWNER:

By: 
Name: ERIC GAGNON
Title: SUPERINTENDENT

DEVELOPER:


By: 
Name: Chris Byers, Branch Renewable
Energy
Title: Principal

EXHIBIT A
TERM SHEET

Parties:	Yarmouth Water District, a Quasi Municipal Organization with an address of 181 Sligo Road, Yarmouth, ME 04096 (“Landowner” or “Lessor”) and Branch Renewable Energy, a limited liability company, or its affiliate or nominee to be designated prior to execution of the Lease (“Developer” or “Lessee”).								
Option Property:	See Exhibit A to the Memorandum of Option to Lease attached to this Option Agreement as Exhibit B.								
Transaction purpose:	Lessee has been granted an exclusive Option for a Lease to develop, construct and operate a solar energy facility (the “Project”). The Lease would include an initial development period, followed by an operating term, both of which could be extended under certain conditions. The Lease would include the grant of access and transmission easements across the remaining portions of the Larger Property to the Option Property.								
Lease term:	Initial development period will be one (1) year commencing on the execution date, plus an option to extend the development period for two (2) additional one (1) year terms (collectively, the “Development Term”). Once the Project is constructed, the operating period shall be twenty (20) years from the commercial operation date (the “Operating Term”).								
Option to renew lease:	Lessee shall have an option to extend the Operating Term for two (2) additional terms of five (5) years each and upon such extensions the Operating Term lease rent shall be reset to the market rate at the time of such extension.								
Development Term lease rent:	<p>Initial Development Term of Lease:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Year</u></th> <th style="text-align: left;"><u>Lease rent payment</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">██████████</td> </tr> </tbody> </table> <p>Development Term Extension Periods:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Years</u></th> <th style="text-align: left;"><u>Lease rent payment</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">2-3</td> <td style="text-align: center;">██████████</td> </tr> </tbody> </table>	<u>Year</u>	<u>Lease rent payment</u>	1	██████████	<u>Years</u>	<u>Lease rent payment</u>	2-3	██████████
<u>Year</u>	<u>Lease rent payment</u>								
1	██████████								
<u>Years</u>	<u>Lease rent payment</u>								
2-3	██████████								
Operating Term lease rent:	In the event the Project is constructed and commences operation on the Option Property, the Operating Term Lease rent will increase to ██████████ of the portion of the Option Property on which panels are situated per year. The Operating Term Lease rent ██████████								
Other payments:	Upon execution of the Lease, Lessee will be responsible for all real property taxes applicable to Lessee’s improvements constructed on the Option Property.								
Decommissioning:	During the Development Term of the Lease and prior to the development of a municipal site plan review application, a								

	decommissioning plan and cost estimate shall be written and included in the municipal site plan review application. A form of surety acceptable to the municipality shall be submitted equal to the projected cost estimates of the decommissioning plan prior to the issuance of a building permit.
Termination of Lease:	During the Development Term of the Lease, Lessee shall have the right to terminate the Lease as to all or any part of the Option Property at any time upon at least thirty (30) days advance written notice to Lessor. In the event of any such termination by Lessee, Lessor shall retain any and all lease rent payments previously made by Lessee, and Lessee shall waive any right to the return of said lease rent payments.
Access:	During the term of the Lease, and any extension thereof, Lessee shall have access to the Option Property for any legitimate purpose for which the Option Property may be utilized pursuant to State of Maine and Town of North Yarmouth rules, regulations, ordinances, statutes and laws.
Title:	At the time that the parties execute the Lease, the Option Property shall be free and clear of any and all liens (other than customary permitted liens), charges or encumbrances.
Lease instrument:	The transaction contemplated herein is subject to the good faith negotiation and execution of a Lease instrument, a draft of which to be provided by Developer upon its satisfaction of initial due diligence and inspections. The Lease instrument will contain all of the relevant terms of this Term Sheet together with general terms and conditions as are typically included in similar agreements for transactions of the nature herein described. The parties shall use their best efforts to negotiate and agree upon a Lease within the Option Term. Prior to execution of the Lease, the Yarmouth Water District will require final approval of the terms and conditions within the Lease from the Maine Public Utilities Commission.
Brokerage commission:	The parties agree that neither utilized the services of a broker and that no brokerage commissions shall be paid.
Expenses:	Whether or not the transaction(s) contemplated by this Term Sheet are consummated, each party will pay its own costs and expenses incurred in connection with the negotiation, execution and closing of the transaction(s) contemplated herein.
Assignment:	Lessee may assign its interest in the Lease, and Lessee may, at any time, without the consent of Lessor grant to any entity or person providing financing for the Project (a "Lender"), one or more collateral assignments, liens, and/or security interests in all or any part of its interests in the Lease. Lessor agrees to execute such estoppel certificates, consents to assignment or non-disturbance agreements as the Lender may reasonably request.

Counterparts and delivery by electronic mail:	The Lease may be executed in counterparts, each of which shall be deemed an original regardless of the date of its execution and delivery. Signatures on Portable Document Format delivered by electronic mail will be treated as original signature; however, each party agrees to promptly forward original executed documents to the other party.
Memorandum	The parties shall execute a memorandum of Lease which Lessee may record in the appropriate jurisdiction.
Governing law:	The Lease and all related agreements shall be governed by the laws of the State of Maine.
Confidentiality:	The parties agree that the provisions of this Term Sheet, including any facts relating to the negotiation thereof or the transactions contemplated herein, shall remain confidential and that prior to the closing, if any, of the Lease of the Option Property, no press or other publicity release or communication to the general public regarding the same will be issued without the other party's prior written consent. Following the closing, if any, of the Lease of the Option Property, either party may disclose that a transaction was consummated, but shall not disclose the terms of such transaction.

EXHIBIT B

(See Memorandum of Option to Lease attached hereto.)

RECORDING REQUESTED BY
AND WHEN RECORDED RETURN TO:

County of _____
Town of _____ Tax Parcel ID No(s): Map ___ Lot ___

MEMORANDUM OF OPTION TO LEASE

By this Memorandum of Option to Lease (this "Memorandum"), _____ ("Owner") evidences that she has entered into an Exclusive Option to Lease Agreement dated _____, 2021 (the "Agreement") with _____, a _____ limited liability company ("Optionee") granting the Optionee an exclusive option to lease and obtain access and transmission easements over certain real property situated in the Town of _____, County of _____, State of Maine, more particularly described on Exhibit A attached hereto and made a part hereof (the "Property"), on the terms and conditions set forth in the Agreement.

The term of the option commenced on _____, 2021 and shall expire, unless earlier terminated, on 12:01 on _____, 202_ (the "Expiration Date"). Unless this Memorandum has been terminated prior to the Expiration Date by the recordation of a Release of Option in the Official Records of the County of _____, State of Maine, signed by Optionee and specifically referencing this Memorandum, this Memorandum shall automatically cease to impart constructive notice of the Agreement from and after the Expiration Date.

The parties have executed and recorded this instrument for the purpose of imparting notice to all third parties of the Agreement.

This Memorandum and the Agreement shall bind and inure to the benefit of the parties and their respective heirs, successors and assigns.

This Memorandum and the Agreement are governed by Maine law.

This Memorandum may be executed in counterparts, all of which together shall constitute one instrument.

The addresses of Owner and Optionee for purposes of notice are:

Optionee:

Attention: _____

Owner:

IN WITNESS WHEREOF, Owner and Optionee have executed this Memorandum as of the dates of the notary acknowledgements below.

OWNER:

By: _____
Name:
Title:

STATE OF _____
COUNTY OF _____, 202__

Then personally appeared the above-named _____, _____ of _____, as aforesaid, and acknowledged the foregoing instrument to be her/his free act and deed in his capacity and the free act and deed of said limited partnership.

Notary Public/Attorney-at-Law
Print Name: _____
Commission Expires: _____

OPTIONEE:

By: _____

Name:

Title:

STATE OF _____
COUNTY OF _____

_____, 202_

Then personally appeared the above-named _____, _____ of _____, as aforesaid, and acknowledged the foregoing instrument to be her/his free act and deed in his capacity and the free act and deed of said limited partnership.

Notary Public/Attorney-at-Law

Print Name: _____

Commission Expires: _____

EXHIBIT A

All that real property situated in the Town of North Yarmouth, Maine, Cumberland County, State of Maine, described as follows:

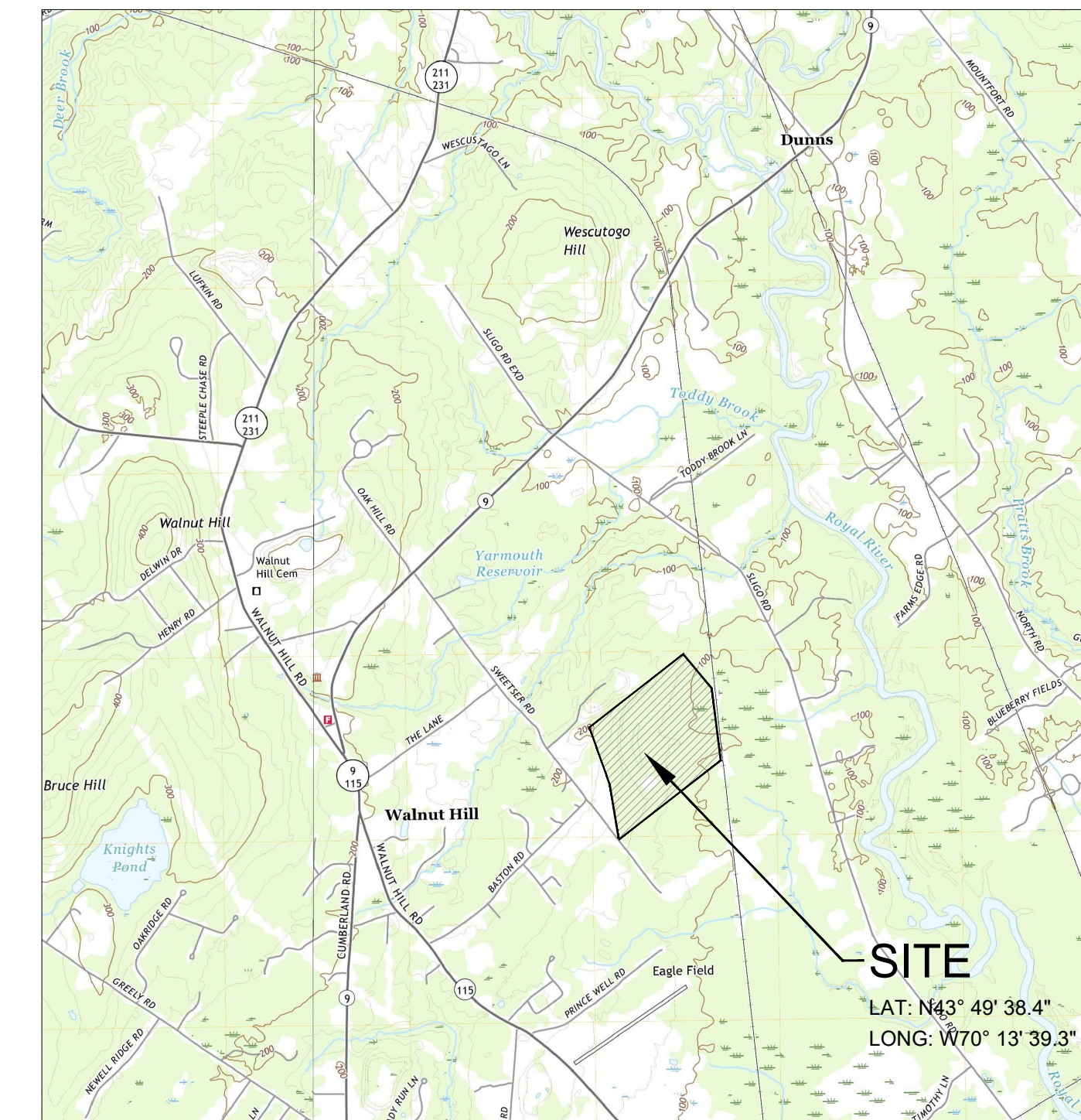
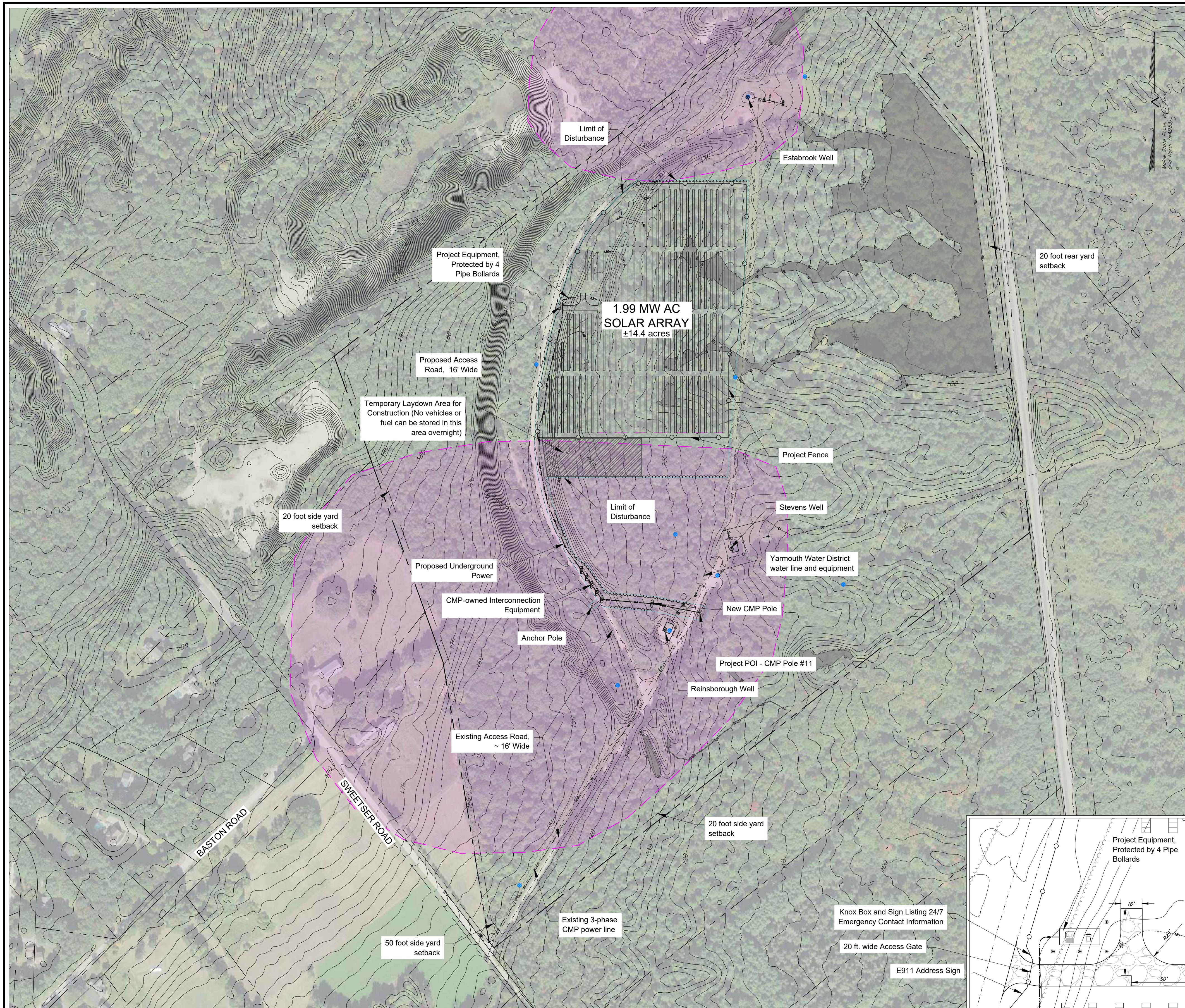
An approximately 20 acre portion or less (the "Option Property") of property in the Town/City of North Yarmouth, County of Cumberland, State of Maine, with a physical address of 238 Sweetser Rd, North Yarmouth, ME 04097, and generally depicted on the Town of North Yarmouth Tax Map 5 as Lot 2 (the "Larger Property")

The Option Property is further illustrated below as the area within the bold lines and marked "Option Property."



Attachment 3

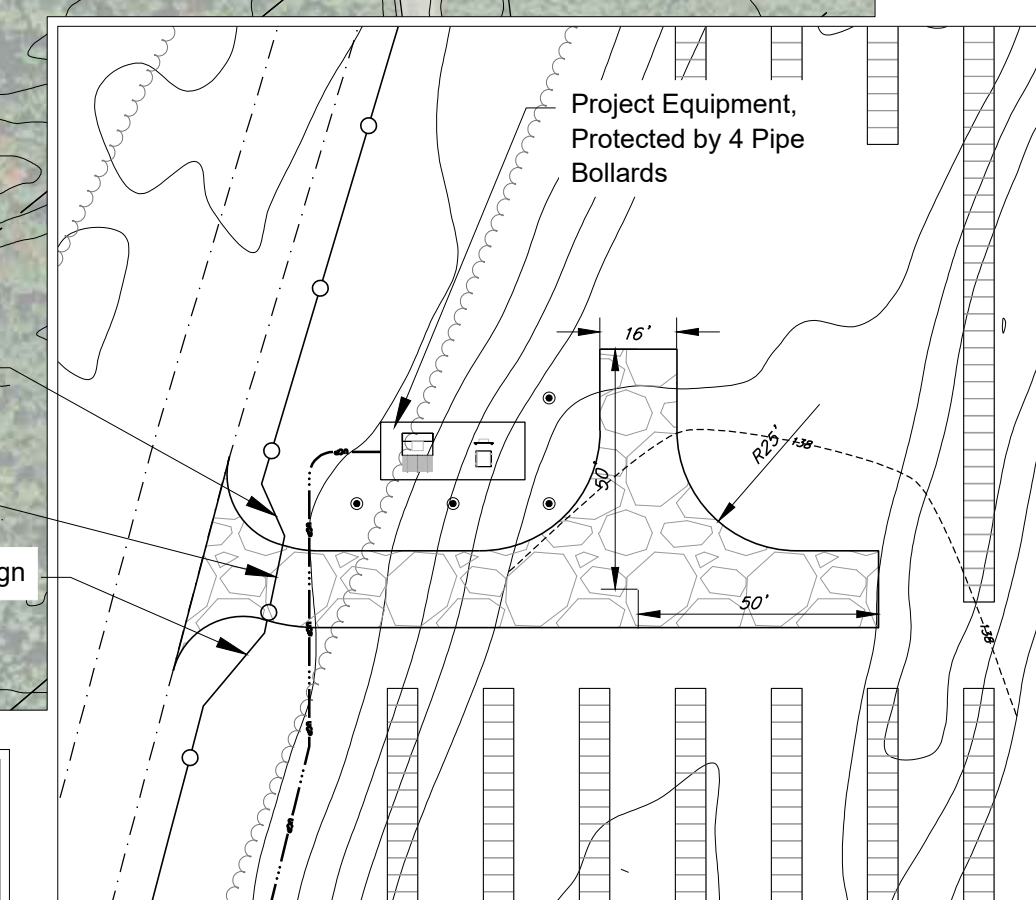
Site Plan



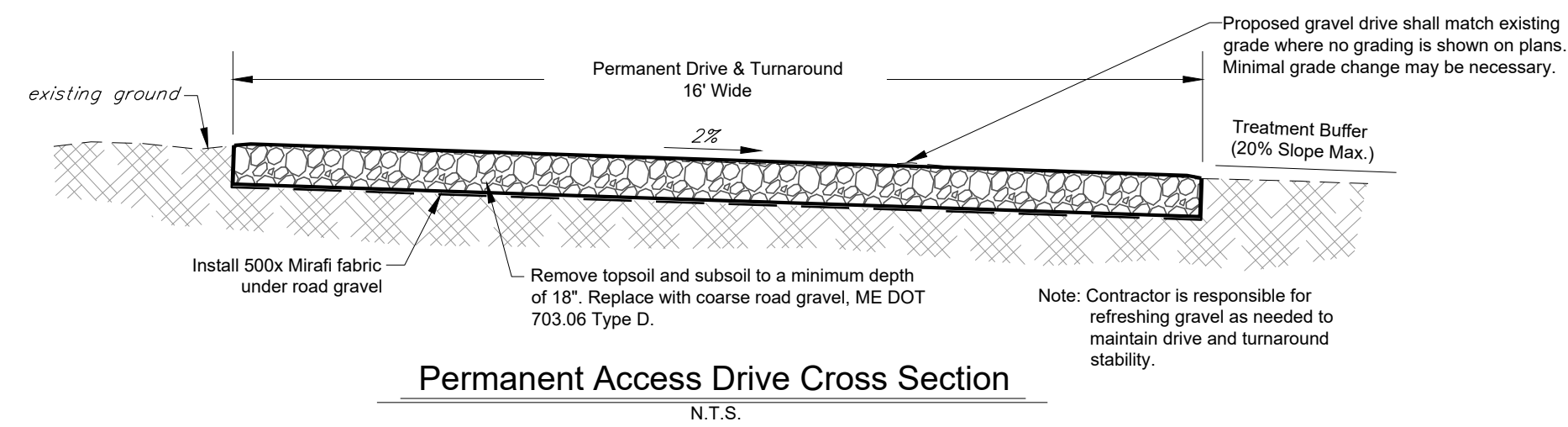
LOCATION MAP
SCALE: 1" = 1/2 Mile

LEGEND

- EXISTING POWER POLE / PROPOSED POLE
- APPROXIMATE PROPERTY LINES
- APPROXIMATE PROJECT PARCEL
- PROPERTY LINE SETBACK
- EXISTING GRADE CONTOUR LINES (10 FOOT INTERVALS)
- PROPOSED GRADE CONTOUR LINES (10 FOOT INTERVALS)
- EXISTING TREELINE
- PROPOSED PROJECT FENCE
- PROPOSED TREELINE
- EXISTING OVERHEAD POWER
- PROPOSED OVERHEAD POWER
- PROPOSED UNDERGROUND POWER
- PROPOSED PROJECT EQUIPMENT
- PROPOSED TRACKER UNIT SOLAR PANEL RACKING
- DELINEATED STREAM
- ENVIRONMENTAL RESOURCE BUFFER
- DELINEATED WETLAND
- PROPOSED 16' GRAVEL ACCESS DRIVE
- EXISTING GRAVEL ACCESS DRIVE
- LIMIT OF DISTURBANCE
- EXISTING FENCE
- EXISTING YARMOUTH WATER DISTRICT TEST WELL
- EXISTING YARMOUTH WATER DISTRICT WELL
- EXISTING YARMOUTH WATER DISTRICT WATER VALVE
- EXISTING YARMOUTH WATER DISTRICT HYDRANT
- EXISTING YARMOUTH WATER DISTRICT WATER LINE
- 200-DAY WELL PROTECTION AREA ZONE 1



Turnaround Detail
1 INCH = 40 FEET



Permanent Access Drive Cross Section
N.T.S.

APPROVED: TOWN OF NORTH YARMOUTH,
NORTH YARMOUTH PLANNING BOARD

DATE _____

NOTES:

1. ASPECTS OF PLAN ARE APPROXIMATE AND DERIVED FROM AERIAL PHOTOGRAPHY.
2. THE HORIZONTAL COORDINATE SYSTEM IS BASED ON NAD83 MAINE STATE PLANES, EAST ZONE (US SURVEY FEET). ELEVATIONS ARE BASED ON THE NAVD88 (US SURVEY FEET).
3. EXISTING GROUND CONTOUR ELEVATIONS ARE BASED ON LIDAR DATA DOWNLOADED FROM NOAA DATAVIEWER IN OCTOBER, 2021.
4. UTILITIES ARE NOT WARRANTED TO BE COMPLETE OR ACCURATE. CONTRACTOR SHALL CONTACT DIG SAFE BEFORE BEGINNING ANY EXCAVATION.
5. THIS IS IN NO WAY A BOUNDARY SURVEY. PROPERTY LINES SHOWN ARE FROM TOWN TAX MAPS PURCHASED.
6. THIS IS PRELIMINARY DESIGN PLAN. FINAL DESIGN WILL BE MODIFIED TO MATCH EQUIPMENT PURCHASED.
7. ENVIRONMENTAL SITE REVIEW DATA IS BASED ON DATA FROM BRI ENVIRONMENTAL.

Water Line Solar, LLC.

North Yarmouth, Maine



238 Sweetser Road, North Yarmouth, Maine 04097



164 Main Street, Suite 201 Colchester, Vermont 05446 P: (802) 878-0375 www.krebsandlansing.com

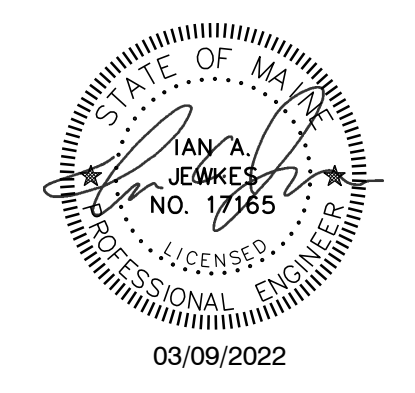
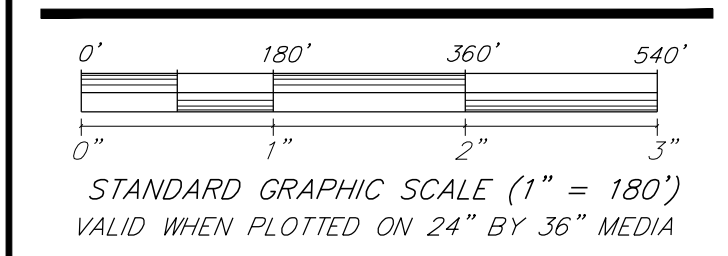
CIVIL DESIGN SET FOR PERMIT REVIEW

MAPPING SOURCE DATA USED FOR PLAN COMPILATION

Civil Engineering:
Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

Environmental:
BRI Environmental
30 Danforth Street, Suite 213
Portland, ME 04101

Record Holder:
Yarmouth Water District
181 Sligo Road
Yarmouth, ME 04096
207-846-5821

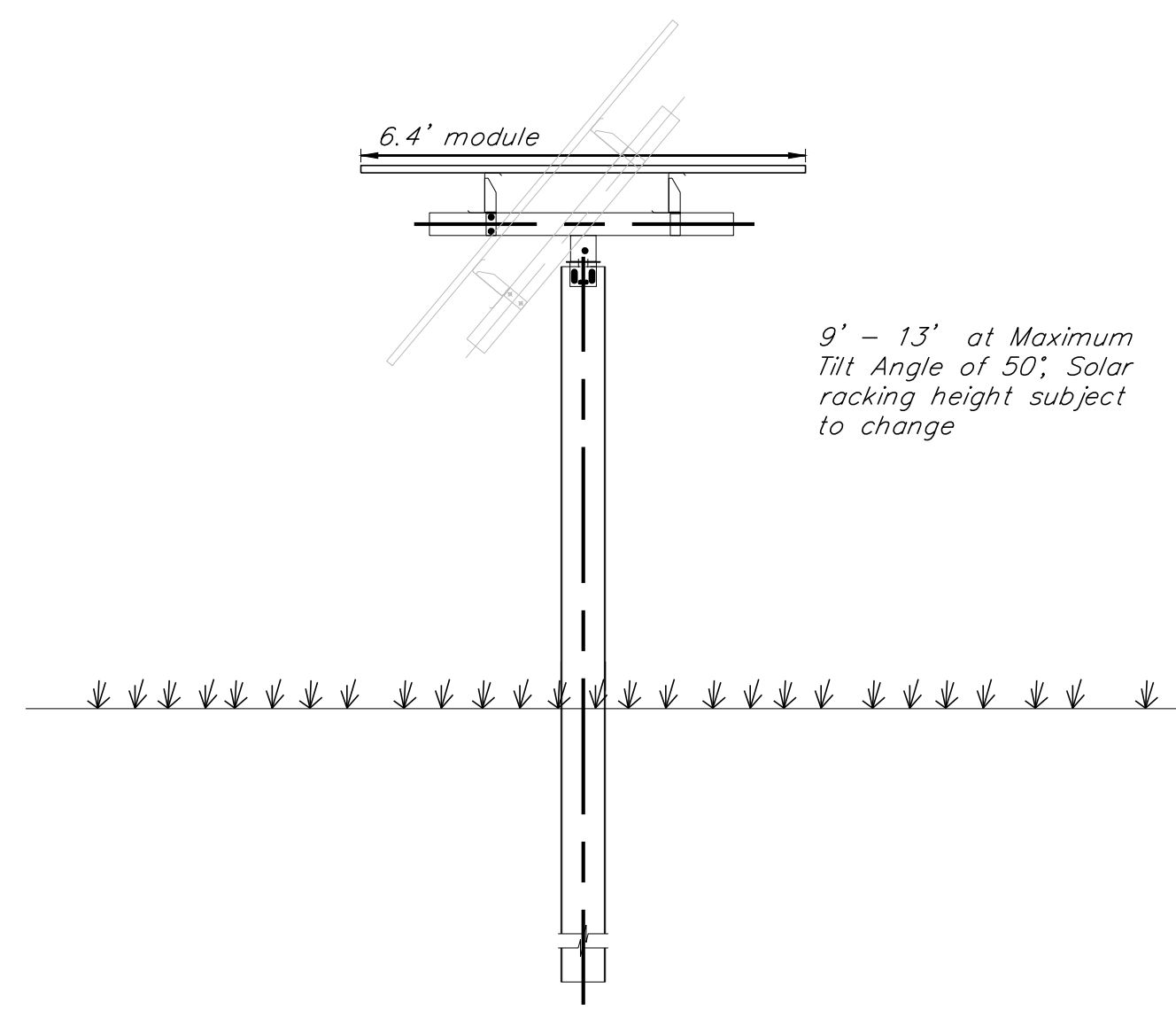


REV. NO.	REVISIONS/COMMENTS	DATE

NORTH YARMOUTH SOLAR SINGLE AXIS TRACKER SITE PLAN

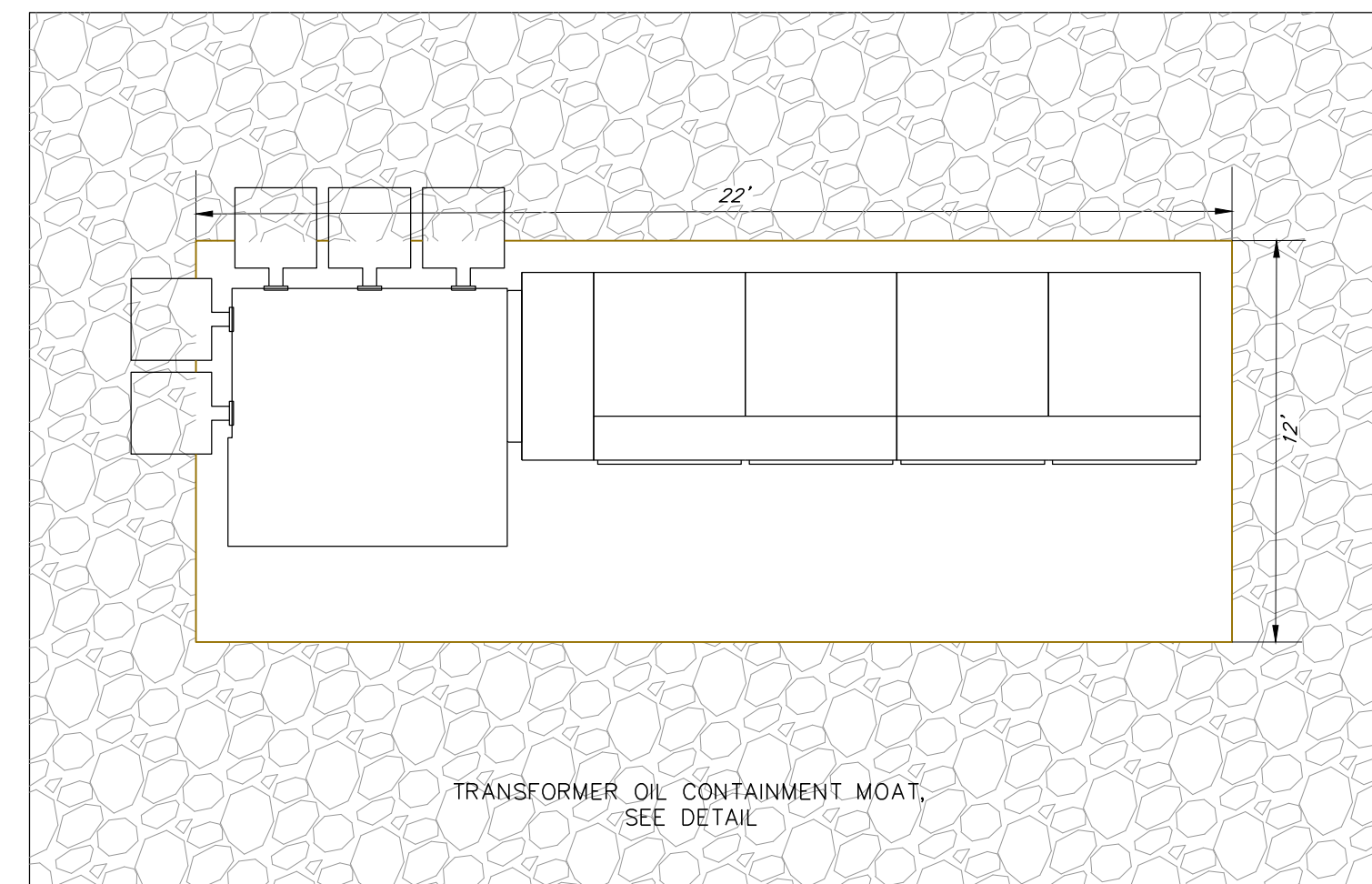
DATE of Issue: 03/09/2022
Drawn by: EJM Checked by: IAJ
Project No.: 21388 Scale: 1" = 180'
Drawing No.: _____ Rev No.: _____

C-1.0



Solar Module & Racking Profile

N.T.S.



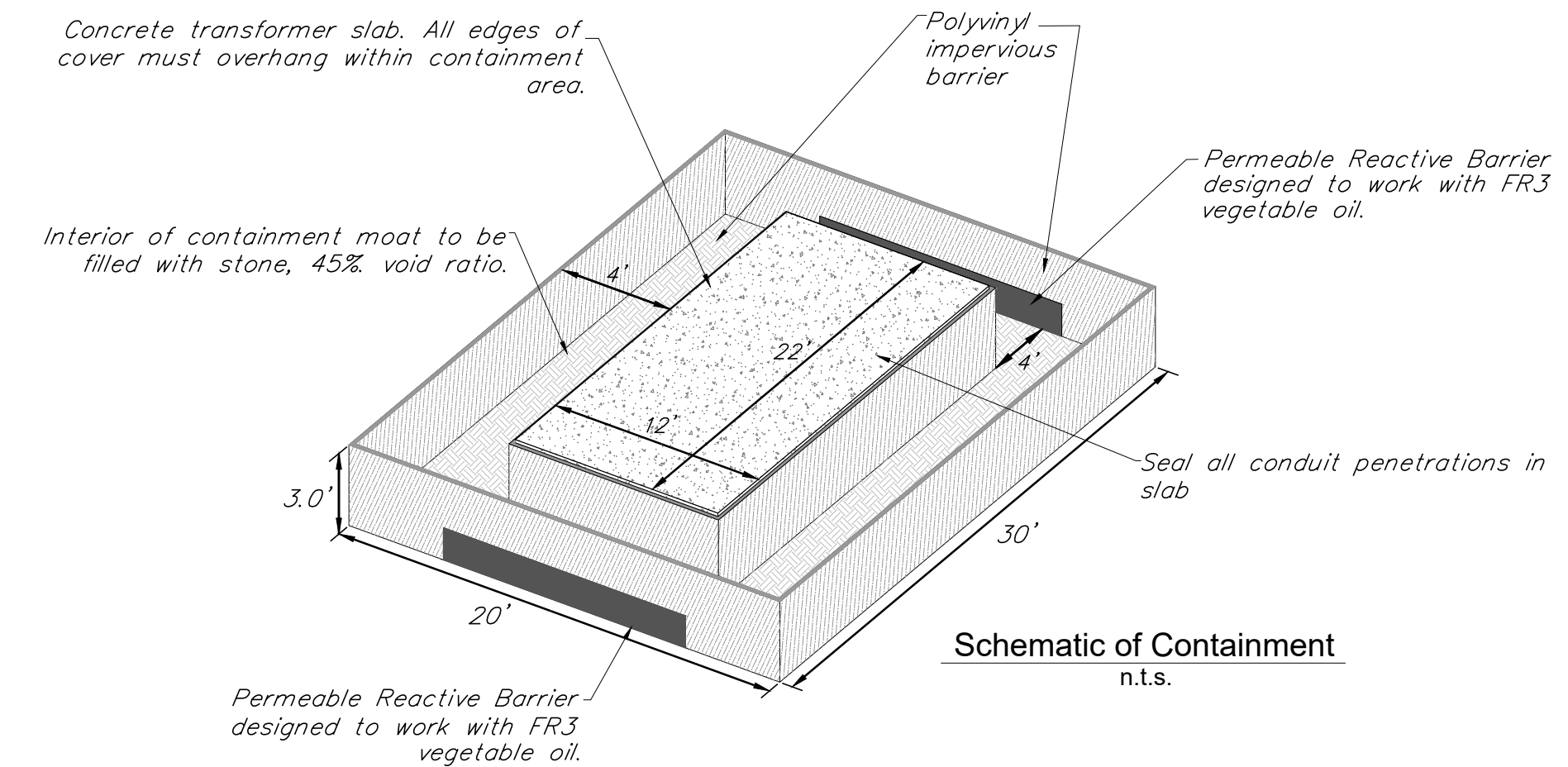
Schematic of Transformer and Grounding Transformer Pad With Secondary Oil Containment

CONTRACTOR TO PROVIDE TWO PRE-CAST CONCRETE SLABS, NOTE: POURED IN PLACE SLABS ARE ACCEPTABLE AS AN ALTERNATIVE

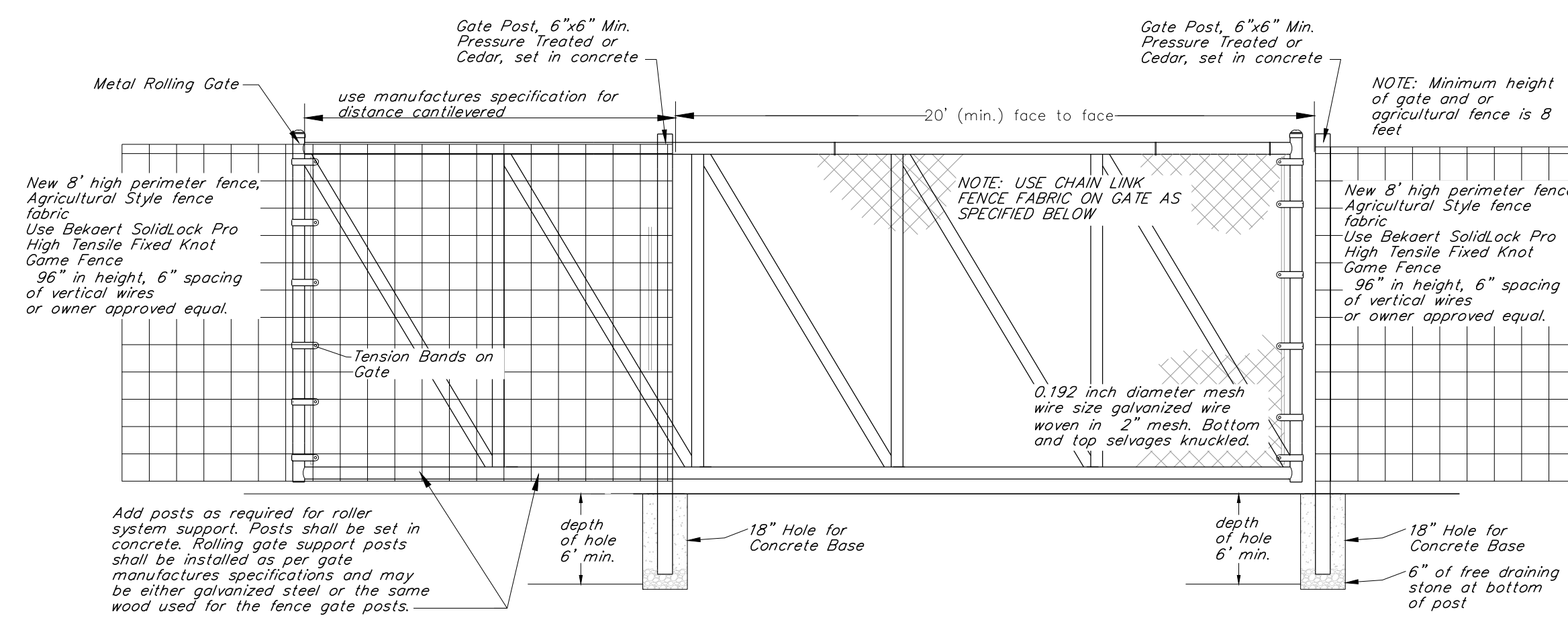
VOLUME CALCULATIONS:

Required Capacity:
 125% of the 550 Gallons of Transformer Oil = 687.5 gal. = 92.0 c.f.
 Required minimum freeboard (24-hour Duration, 25 Year Storm) = 5.8" or 0.48'
 Containment Area & Pad = 20' x 30' = 600.0 s.f.
 Volume of freeboard required = 600.0 s.f. x 0.48 ft. = 288.0 c.f.
 Total Capacity Required = 92.0 c.f. + 288.0 c.f. = 380.0 c.f.
Capacity Provided in Secondary Oil Containment System:
 Area of containment = (20'x30') - (12'x22') = 336.0 s.f.
 Volume of Containment = 336.0 s.f. x 3.0' of depth = 1,008.0 c.f.
 When filled with stone with 45% void ratio = 1,008.0 c.f. * 0.45 = 453.4 c.f.
 Total Capacity Provided = 453.4 c.f. > 380.0 c.f. required

NOTE: SEE SECONDARY OIL CONTAINMENT DETAIL AND SPCC PLAN. TRANSFORMER OIL IS PROPOSED TO BE FR3 VEGETABLE OIL.

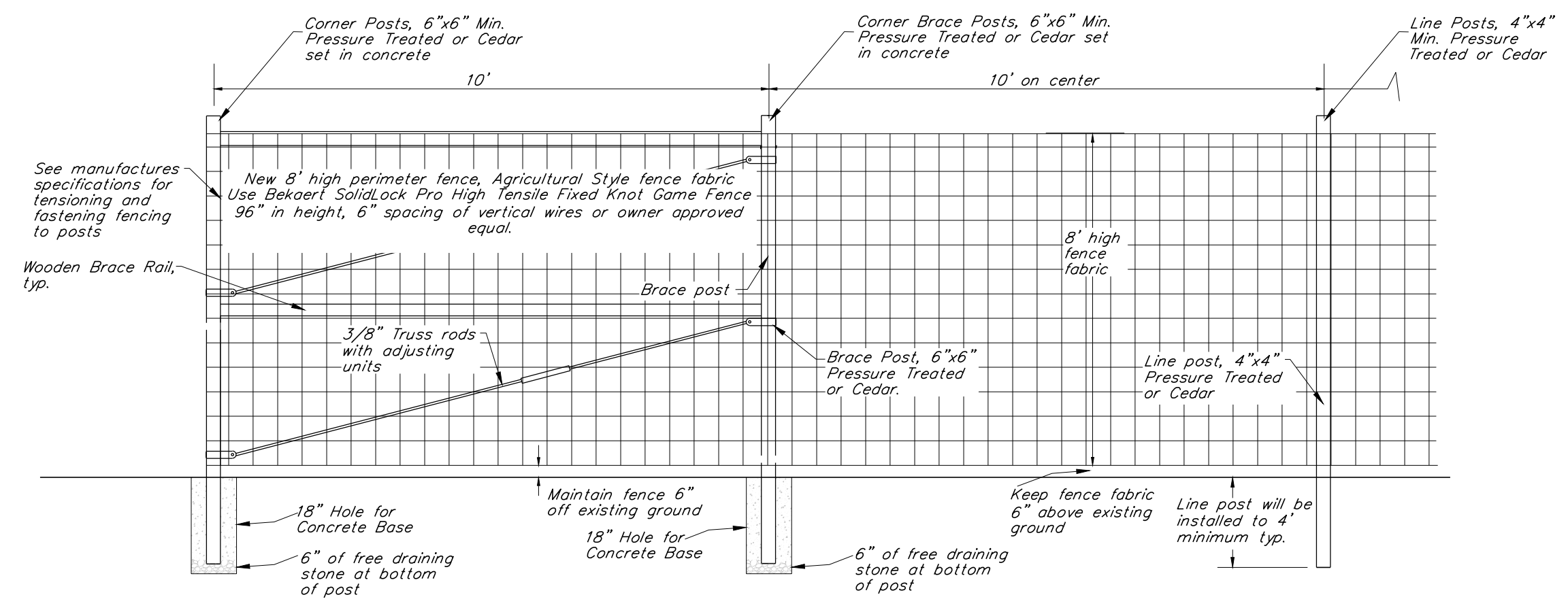


Schematic of Containment n.t.s.



Permanent Rolling Gate

N.T.S.

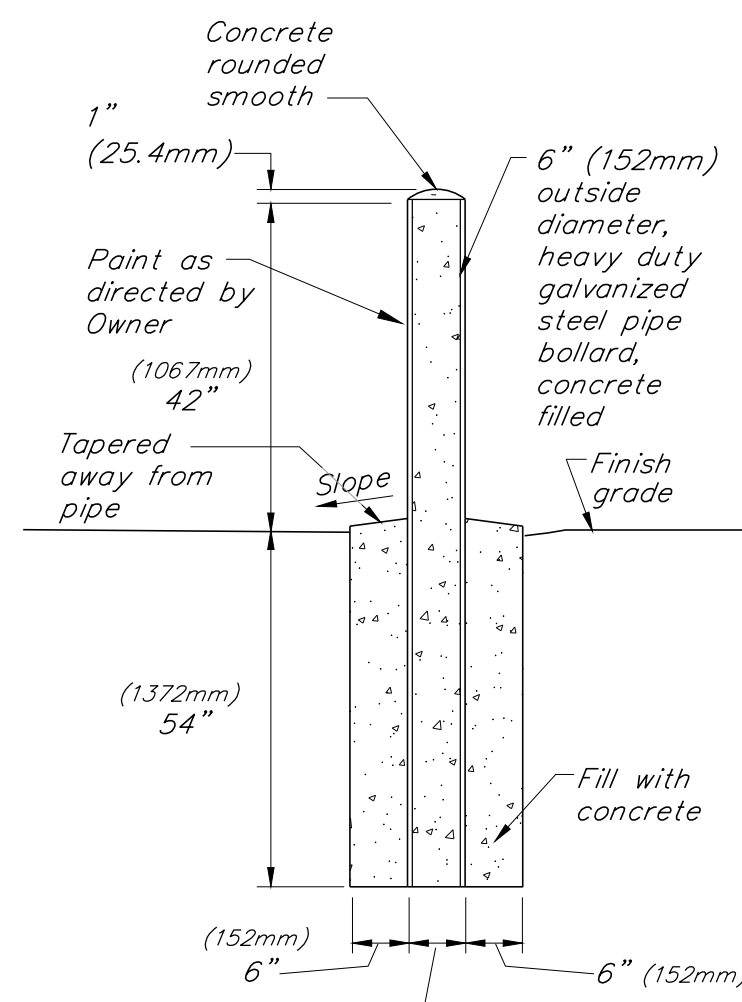


Typical Agricultural Fence

N.T.S.

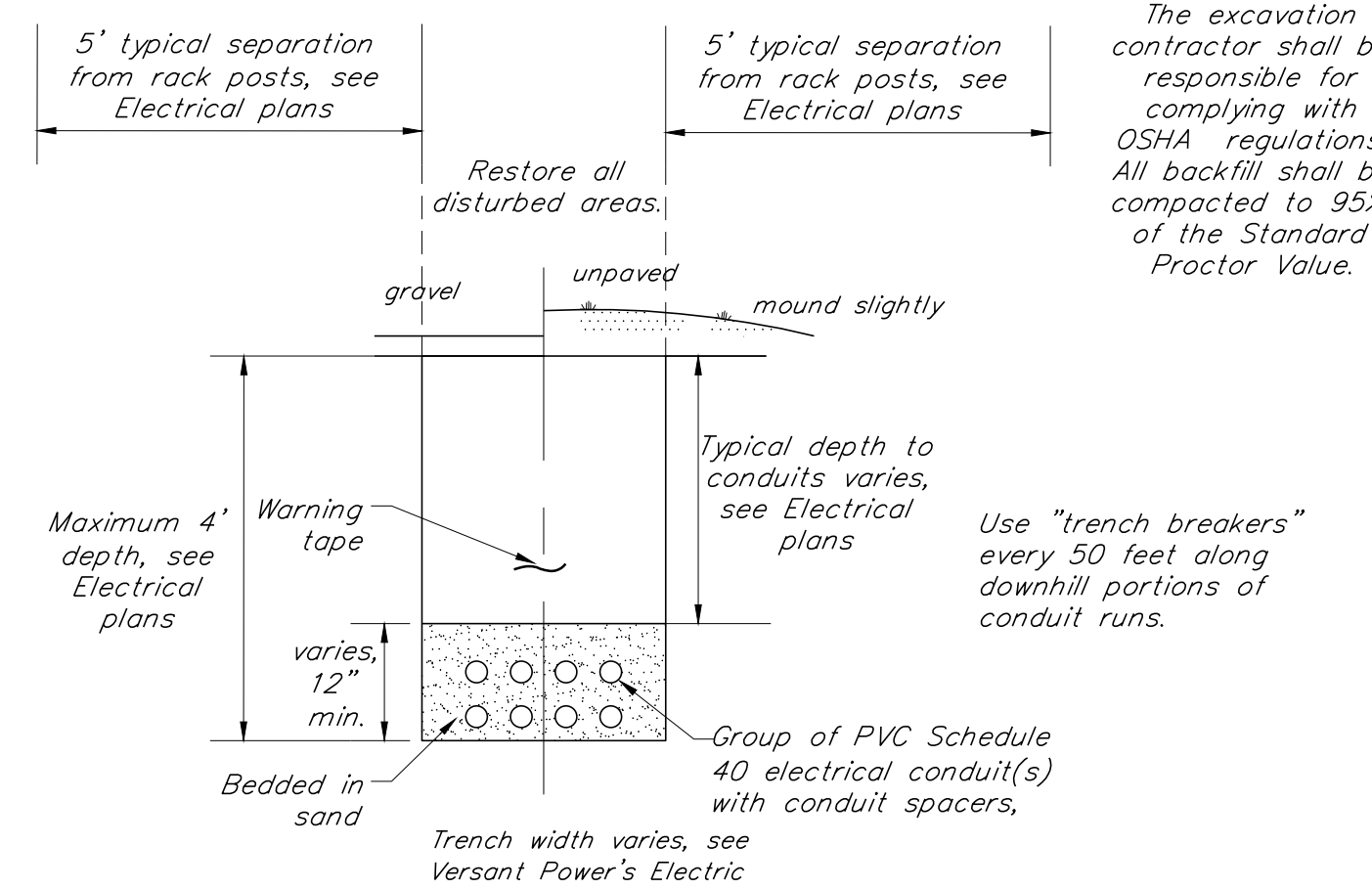
Construction Notes

- The methods and materials of construction shall be in conformance with all permits and approvals issued for the project. In case of conflict, the more stringent specification shall apply as directed by Engineer. All work shall be done in a workmanlike manner and completed in the time specified by Owner.
- The Contractor shall be responsible for all work and materials shown and required to make the job complete. These drawings do not show every fitting or appurtenance. Materials shall be as specified on the drawings. Manufacturer's product specifications shall be submitted for all materials to the Engineer for approval prior to installation.
- The location and size of existing underground utilities is not warranted to be exact or complete. The Contractor shall field locate all utilities and shall contact the affected utility company, the Engineer and the Town prior to making any hook ups. The Contractor shall be solely responsible for all existing utilities and their uninterrupted services. All off-site backfill, sheeting and shoring, dewatering, clearing and grubbing, erosion control, dust control, traffic control, grading, and all incidents shall be included as part of the required work.
- The Contractor shall verify all temporary bench marks before use.
- The workmen and public shall be protected by the Contractor from any and all hazards connected with the construction work. Open trenches, materials, or equipment within the working limits are to be guarded by the use of adequate barricades or flagmen. All barricades left in position overnight are to be properly lighted. Kerosene pots are not acceptable. When work narrows the usable pavement, flagmen shall be employed to aid the flow of traffic so that there will be no undue delays. The Contractor shall be held responsible for the safety of all workmen and the general public and all damages to property occurring from or upon the work occasioned by negligence or otherwise growing out of a failure on the part of the Contractor to protect persons or property from hazards of open trenches, materials, or equipment at any time of the day or night within the working area. All work shall be in conformance to OSHA regulations, Title 19, Parts 1926.651 and 1926.652.
- The Contractor shall verify all utility intersections and contact Engineer and Owner with conflicts.
- The Contractor shall call, Dig Safe or other approved equal underground utility identifier prior to any excavation.
- The Contractor shall coordinate with final electrical, structural and landscaping plans.



Pipe Bollard Detail

N.T.S.



Typical Conduit Trench

N.T.S.

Conduit Trenching Notes:

- The methods and materials of construction shall conform to the latest standards of Versant Power's Handbook of Requirements and the State of Maine. All work shall be in conformance with all permits and approvals issued for the project. In case of conflict, the more stringent specification shall apply as directed by the Owners Representative.
- The excavation contractor shall dig the conduit trenching and assist the Electrician in placing the conduit. The conduits shall be placed with conduit spacers when more than two conduits are placed in a trench. All conduit and spacers shall be provided by the Electrical Contractor.
- The excavation contractor shall allow sufficient time for the conduit to be inspected prior to backfilling. If any conduit is backfilled without inspection it will be the excavation contractor's responsibility to uncover the conduit for inspection and backfill the trench without charge.
- The workers and public shall be protected by the excavation contractor from any and all hazards connected with the construction work. Open trenches, materials, or equipment within the working limits are to be guarded by the use of adequate barricades or flaggers. All barricades left in position overnight are to be properly lighted. When work narrows the usable pavement, flaggers shall be employed to aid the flow of traffic so that there will be no undue delays. All work shall be in conformance to OSHA regulations, Title 19, Parts 1926.651 and 1926.652.
- The excavation contractor is responsible for compacting all trench backfill to 95% of the Standard Proctor Value.
- The excavation contractor is responsible for all conduit excavation and backfill necessary to complete the project.

Water Line Solar, LLC.

North Yarmouth, Maine



238 Sweetser Road, North Yarmouth, Maine 04097



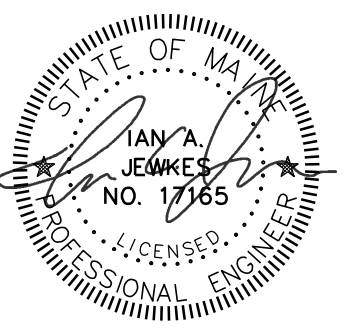
164 Main Street, Suite 201 Colchester, Vermont 05446 P: (802) 878-0375 www.krebsandlansing.com

CIVIL DESIGN SET FOR PERMIT REVIEW

MAPPING SOURCE DATA USED FOR PLAN COMPILATION

Civil Engineering:
 Krebs and Lansing Consulting Engineers, Inc.
 164 Main Street, Suite 201
 Colchester, Vermont 05446
 Environmental:
 BRI Environmental
 30 Danforth Street, Suite 213
 Portland, ME 04101
 Record Holder:
 Yarmouth Water District
 181 Sligo Road
 Yarmouth, ME 04096
 207-846-5821

0' 180' 360' 540'
 0" 1" 2" 3"
 STANDARD GRAPHIC SCALE (1" = 180')
 VALID WHEN PLOTTED ON 24" BY 36" MEDIA



03/09/2022

REVISIONS/COMMENTS	DATE

DRAWING TITLE:

NORTH YARMOUTH SOLAR STANDARD DETAILS

DATE of Issue: 03/09/2022

Drawn by: EJM Checked by: IAJ

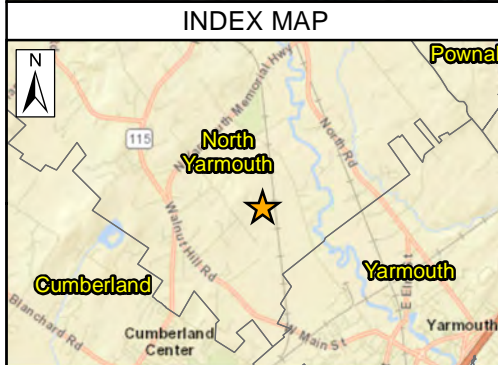
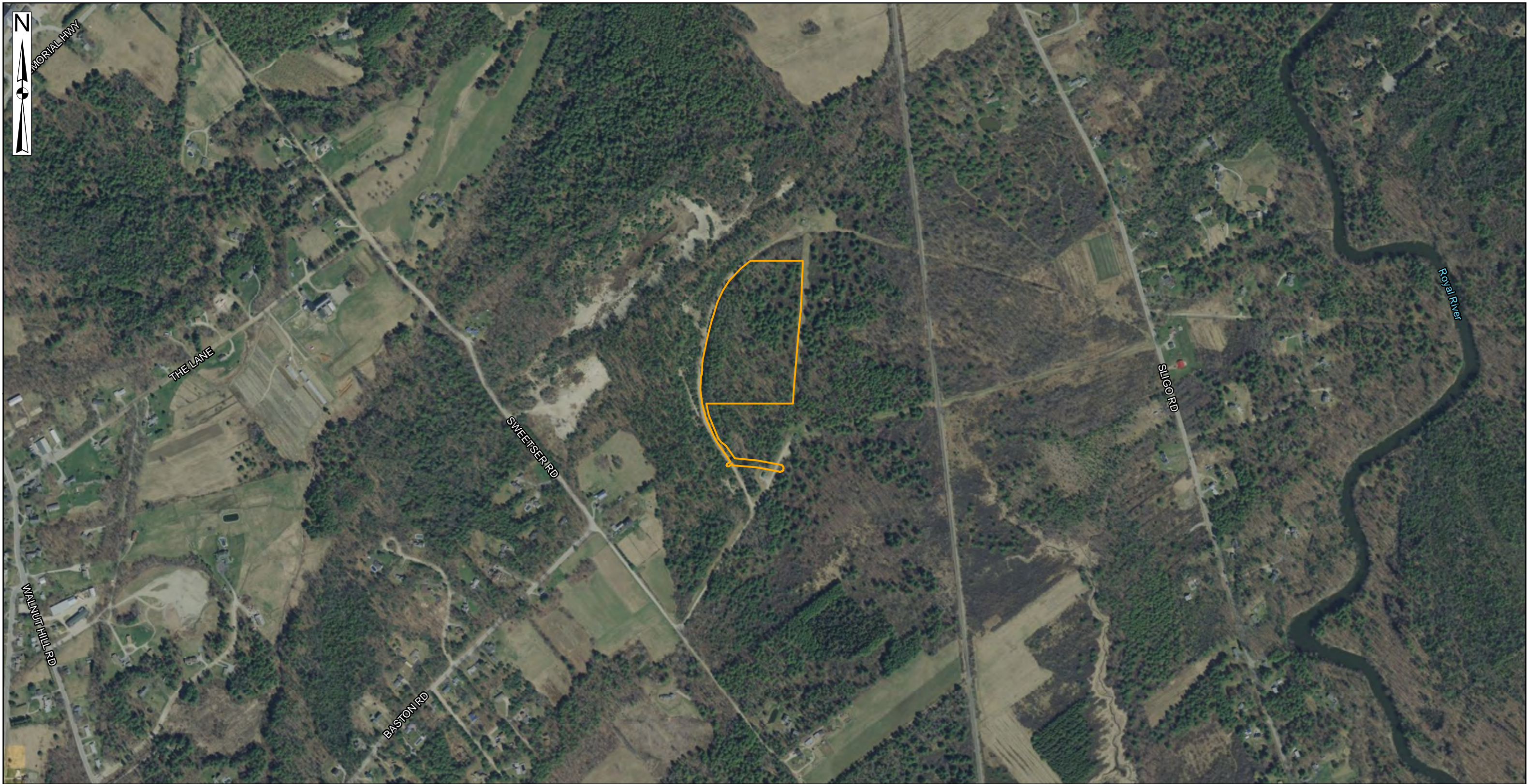
Project No.: 21388 Scale: NTS

Drawing No.: Rev No.:

C-3.0

Attachment 4

Project Maps



LEGEND

— Project Limit of Disturbance

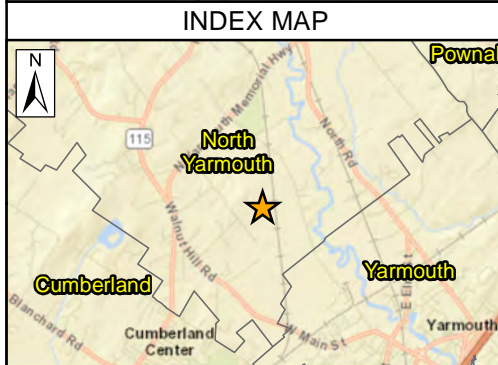
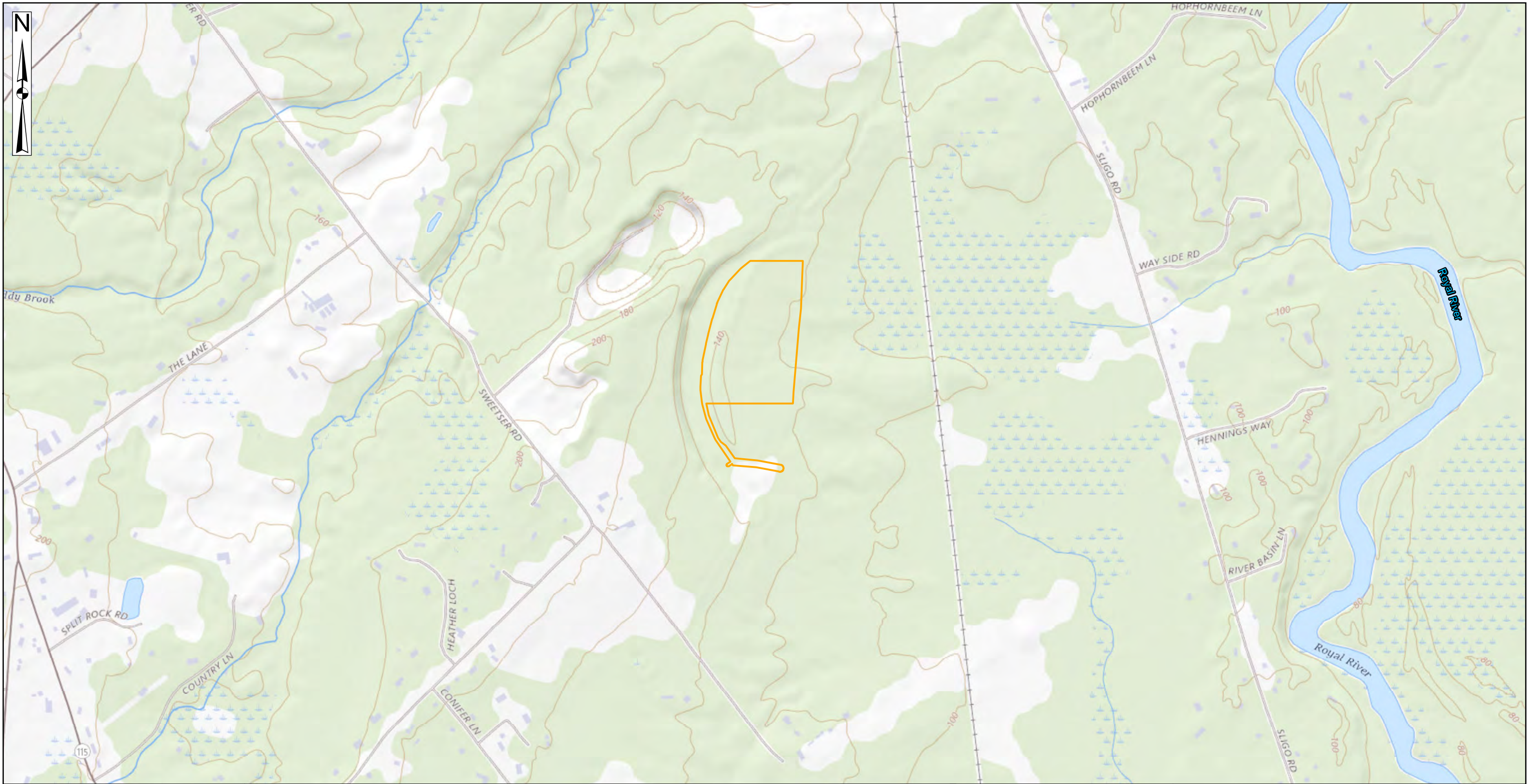
SCALE:

0 650 1,300 Feet

1 inch = 650 feet

PROJECT LOCATION MAP - AERIAL
WATER LINE SOLAR, LLC:
NORTH YARMOUTH, MAINE

MARCH 10, 2022



LEGEND

— Project Limit of Disturbance

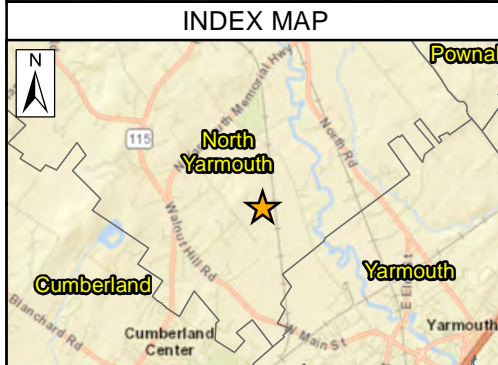
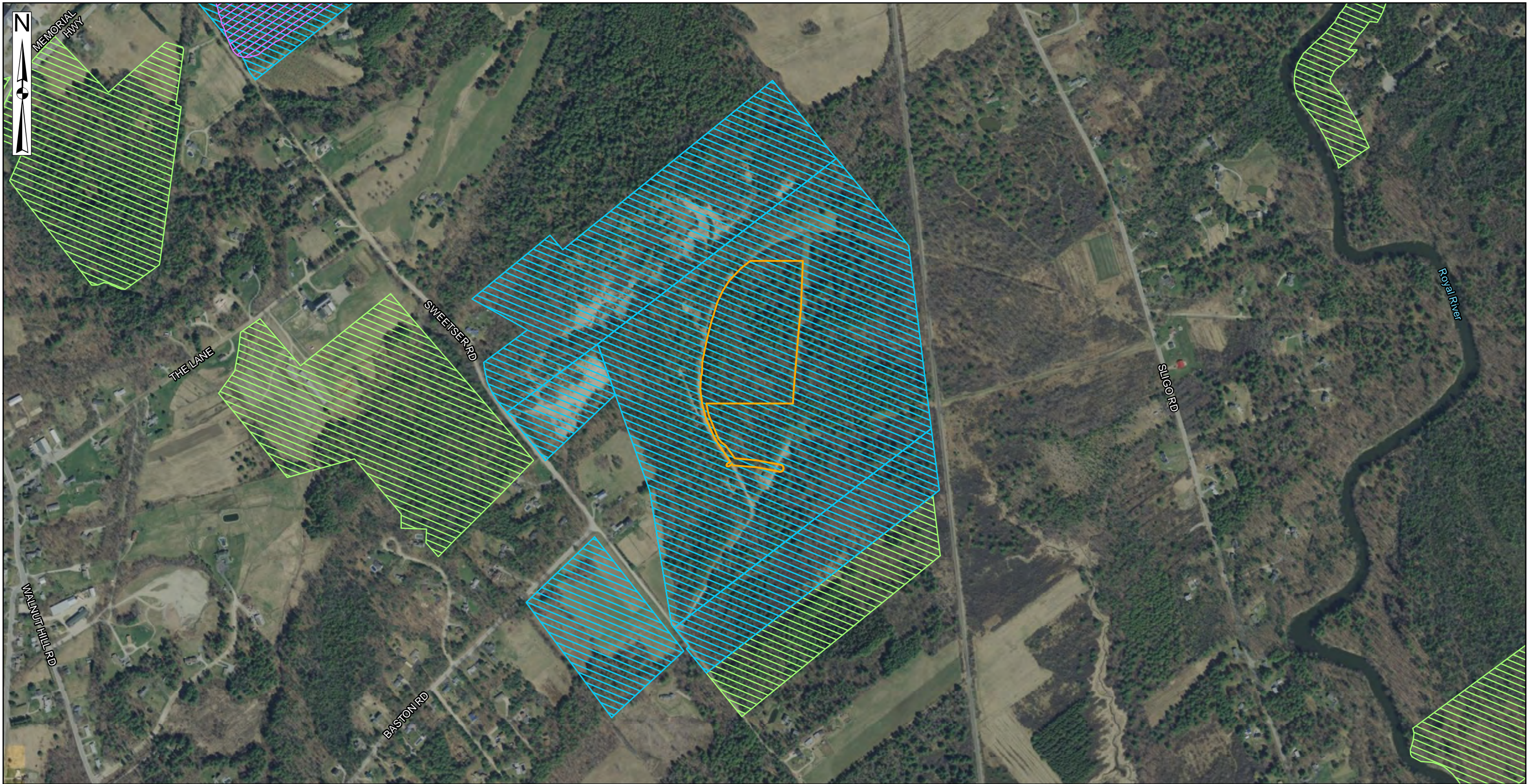
SCALE:

0 650 1,300 Feet

1 inch = 650 feet

PROJECT LOCATION MAP - USGS TOPOGRAPHIC
WATER LINE SOLAR, LLC:
NORTH YARMOUTH, MAINE

MARCH 8, 2022



LEGEND

- Deer Wintering Area
- Water Supply Conservation Land
- Other Conservation Land
- Project Limit of Disturbance

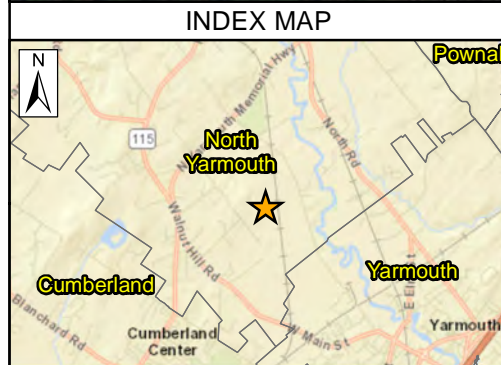
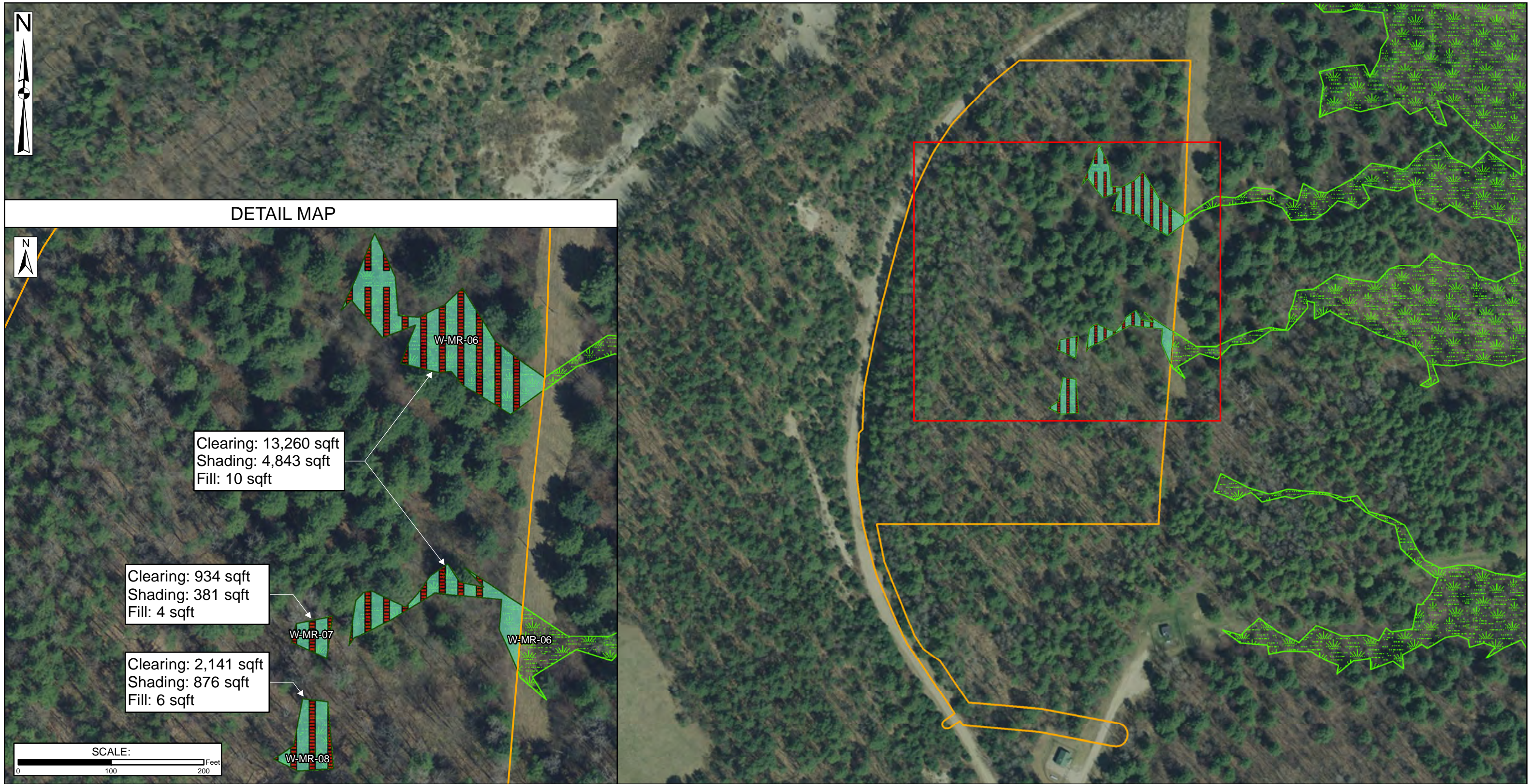
BIODIVERSITY RESEARCH INSTITUTE
innovative wildlife science

SCALE:

0 650 1,300 Feet
1 inch = 650 feet

SIGNIFICANT WILDLIFE HABITAT MAP
WATER LINE SOLAR, LLC:
NORTH YARMOUTH, MAINE

MARCH 10, 2022



LEGEND

- Wetland
- Proposed Limit of Disturbance
- Proposed Wetland Clearing: Total 16,335 sqft
- Proposed Wetland Shading: Total 6,100 sqft

NOTE - Not represented - Proposed Wetland Racking/Fence Post Fill: Total 20 sqft

bri
BIODIVERSITY RESEARCH INSTITUTE
innovative wildlife science

SCALE: 0 200 400 Feet
1 inch = 200 feet

BRANCH
RENEWABLE ENERGY

WETLAND IMPACT MAP
WATER LINE SOLAR, LLC:
NORTH YARMOUTH, MAINE

MARCH 10, 2022

Attachment 5

Public Notice



1 foot Abutters List Report

North Yarmouth, ME

March 11, 2022

Subject Property:

Parcel Number: 005-002
CAMA Number: 005-002
Property Address: 238 SWEETSER RD

Mailing Address: YARMOUTH WATER DISTRICT
P. O. BOX 419
YARMOUTH, ME 04096-0419

Abutters:

Parcel Number: 001-092
CAMA Number: 001-092
Property Address: 0 SWEETSER RD

Mailing Address: BASTON, RICHARD M. AND CLARK M.
282 SWEETSER RD
NORTH YARMOUTH, ME 04097

Parcel Number: 002-018
CAMA Number: 002-018
Property Address: 0 SLIGO RD

Mailing Address: MILLIKEN, PETER G.
754 SLIGO ROAD
NORTH YARMOUTH, ME 04097

Parcel Number: 004-223
CAMA Number: 004-223
Property Address: 129 BASTON RD

Mailing Address: YARMOUTH WATER DISTRICT
PO BOX 419
YARMOUTH, ME 04096

Parcel Number: 005-001
CAMA Number: 005-001
Property Address: 0 SWEETSER RD

Mailing Address: YARMOUTH WATER DISTRICT
P. O. BOX 419
YARMOUTH, ME 04096-0419

Parcel Number: 005-003
CAMA Number: 005-003
Property Address: 208 SWEETSER RD

Mailing Address: WILLIAMS, JOHN W.
208 SWEETSER RD
NORTH YARMOUTH, ME 04097

Parcel Number: 005-004
CAMA Number: 005-004
Property Address: 200 SWEETSER RD

Mailing Address: BAKUTIS, ALAN T.
200 SWEETSER RD
NORTH YARMOUTH, ME 04097

Parcel Number: 005-005
CAMA Number: 005-005
Property Address: 0 GRAVEL PIT OFF SWEETSER
RD

Mailing Address: CUMBERLAND, TOWN OF
290 TUTTLE RD
CUMBERLAND, ME 04021

Parcel Number: 005-006
CAMA Number: 005-006
Property Address: SWEETSER RD

Mailing Address: YARMOUTH WATER DISTRICT
P. O. BOX 419
YARMOUTH, ME 04096-0419

Parcel Number: 005-019
CAMA Number: 005-019
Property Address: 774 SLIGO RD

Mailing Address: GAMBIT, LLC
754 SLIGO RD
NORTH YARMOUTH, ME 04097



www.cai-tech.com

Data shown on this report is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this report.

3/11/2022

Page 1 of 1



PUBLIC NOTICE: NOTICE OF INTENT TO FILE

To Whom It May Concern:

Please take notice that Water Line Solar, LLC (Address: 8 Quarry Ridge, North Yarmouth, ME, 04097; phone number: 207-653-9864), is intending to file a Natural Resources Protection Act permit application with the Maine Department of Environmental Protection, pursuant to the provisions of 38 M.R.S. §§ 480-A through 480-BB, on or about March 14, 2021.

This application is for the **Water Line Solar Project**, an approximately 1.99-megawatt solar energy development located off of Sweetser Road in North Yarmouth, Maine.

A request for a public hearing or a request that the Board of Environmental Protection assume jurisdiction over this application must be received by the Department in writing, no later than 20 days after the application is found by the Department to be complete and is accepted for processing. A public hearing may or may not be held at the discretion of the Commissioner or Board of Environmental Protection. Public comment on the application will be accepted throughout the processing of the application.

The application will be filed for public inspection at the Department of Environmental Protection's office in Portland during normal working hours. A copy of the application may also be seen at the municipal offices in North Yarmouth, Maine.

Written public comments may be sent to the regional Department office in Portland, where the application is filed for public inspection, at the address below:

MDEP, Southern Maine Regional Office, 312 Canco Road, Portland, Maine 04103

Respectfully Submitted,

A handwritten signature in black ink that reads "Merrill Read". The signature is written in a cursive, flowing style.

Merrill Read
Project Manager
BRI Environmental
414-758-7319

7021 0350 0000 6585 0859

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

Yarmouth, ME 04096

Certified Mail Fee	\$3.75	0104
\$	\$0.00	18
Extra Services & Fees (check box, add fee as appropriate)		
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00	
<input type="checkbox"/> Return Receipt (electronic)	\$0.00	
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00	
<input type="checkbox"/> Adult Signature Required	\$0.00	
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00	
Postage	\$0.58	
\$	\$4.33	03/09/2022
Total Postage and Fees	\$4.33	

Sent To YARMOUTH WATER DISTRICT
Street and PO Box No. PO BOX 419
City, State, ZIP+4® YARMOUTH, ME 04096-0419
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7021 0350 0000 6585 0880

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

Yarmouth, ME 04096

Certified Mail Fee	\$3.75	0104
\$	\$0.00	18
Extra Services & Fees (check box, add fee as appropriate)		
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00	
<input type="checkbox"/> Return Receipt (electronic)	\$0.00	
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00	
<input type="checkbox"/> Adult Signature Required	\$0.00	
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00	
Postage	\$0.58	
\$	\$4.33	03/09/2022
Total Postage and Fees	\$4.33	

Sent To YARMOUTH WATER DISTRICT
Street and PO Box No. PO BOX 419
City, State, ZIP+4® YARMOUTH, ME 04096
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7021 0350 0000 6585 0866

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

Cumberland Center, ME 04021

Certified Mail Fee	\$3.75	0104
\$	\$0.00	18
Extra Services & Fees (check box, add fee as appropriate)		
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00	
<input type="checkbox"/> Return Receipt (electronic)	\$0.00	
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00	
<input type="checkbox"/> Adult Signature Required	\$0.00	
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00	
Postage	\$0.58	
\$	\$4.33	03/09/2022
Total Postage and Fees	\$4.33	

Sent To CUMBERLAND, TOWN OF
Street and PO Box No. 290 JUPITER RD
City, State, ZIP+4® CUMBERLAND, ME 04021
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7020 0090 0001 2019 3619

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

North Yarmouth, ME 04097

Certified Mail Fee	\$3.75	0104
\$	\$0.00	18
Extra Services & Fees (check box, add fee as appropriate)		
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00	
<input type="checkbox"/> Return Receipt (electronic)	\$0.00	
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00	
<input type="checkbox"/> Adult Signature Required	\$0.00	
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00	
Postage	\$0.58	
\$	\$4.33	03/09/2022
Total Postage and Fees	\$4.33	

Sent To MILLIKEN, PETER G.
Street and PO Box No. 754 SLIGO ROAD
City, State, ZIP+4® NORTH YARMOUTH, ME 04097
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7021 0350 0000 6585 0873

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
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North Yarmouth, ME 04097

Certified Mail Fee	\$3.75	0104
\$	\$0.00	18
Extra Services & Fees (check box, add fee as appropriate)		
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00	
<input type="checkbox"/> Return Receipt (electronic)	\$0.00	
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00	
<input type="checkbox"/> Adult Signature Required	\$0.00	
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00	
Postage	\$0.58	
\$	\$4.33	03/09/2022
Total Postage and Fees	\$4.33	

Sent To WILLIAMS, JOHN W.
Street and PO Box No. 208 SWEETSER RD
City, State, ZIP+4® NORTH YARMOUTH, ME 04097
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7021 0350 0000 6585 0842

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<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00	
Postage	\$0.58	
\$	\$4.33	03/09/2022
Total Postage and Fees	\$4.33	

Sent To Debbie Allen Grover, Town Clerk
Street and PO Box No. North Yarmouth Town Office
City, State, ZIP+4® 10 Village Square Road
North Yarmouth, ME 04097
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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North Yarmouth, ME 04097

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\$	\$0.00
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<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00

Postage	\$0.58
\$	\$0.00
Total Postage and Fees	\$4.33
\$	\$0.00

03/09/2022

Sent To: BAKUTIS, ALAN T.
200 SWEETSER RD
Street and Apt. No., or P.O. Box No.
NORTH YARMOUTH, ME 04097
City, State, ZIP+4®

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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North Yarmouth, ME 04097

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\$	\$0.00
Extra Services & Fees (check box, add fee as appropriate)	
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00

Postage	\$0.58
\$	\$0.00
Total Postage and Fees	\$4.33
\$	\$0.00

03/09/2022

Sent To: GAMBIT, LLC
754 SLIGO RD
Street and Apt. No., or P.O. Box No.
NORTH YARMOUTH, ME 04097
City, State, ZIP+4®

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
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For delivery information, visit our website at www.usps.com®.
Yarmouth, ME 04096

Certified Mail Fee	\$3.75
\$	\$0.00
Extra Services & Fees (check box, add fee as appropriate)	
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00

Postage	\$0.58
\$	\$0.00
Total Postage and Fees	\$4.33
\$	\$0.00

03/09/2022

Sent To: YARMOUTH WATER DISTRICT
P.O. BOX 419
Street and Apt. No., or P.O. Box No.
YARMOUTH, ME 04096-0419
City, State, ZIP+4®

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
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For delivery information, visit our website at www.usps.com®.
North Yarmouth, ME 04097

Certified Mail Fee	\$3.75
\$	\$0.00
Extra Services & Fees (check box, add fee as appropriate)	
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00

Postage	\$0.58
\$	\$0.00
Total Postage and Fees	\$4.33
\$	\$0.00

03/09/2022

Sent To: BASTON, RICHARD M. AND CLARK M.
282 SWEETSER RD
Street and Apt. No., or P.O. Box No.
NORTH YARMOUTH, ME 04097
City, State, ZIP+4®

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

PUBLIC NOTICES

Public Notices

Public Notices are a permanent and independent record of government and court actions. These include state and local government meetings, rule making, available contracts, zoning changes, and many more, as required by law. In addition, parties to some court proceedings, such as foreclosures, probate, and estate actions are required to publish notices to ensure notification of affected parties, as well as the general public. These notices also alert business owners, large and small, to potential government contractual jobs, helping to ensure economic activity across a level playing field. Public notices have existed to ensure transparency in all levels of government since the founding of the United States.

State and local notices are published in Maine newspapers and are also recorded at mainenotices.com, where anyone can browse or search notices, and sign up to receive email alerts when relevant notices appear.

Public Notice

City of Biddeford COUNCIL MEETING TUESDAY, MARCH 15, 2022 @ 6:00 P.M. COUNCIL CHAMBERS & VIA ZOOM

1. Roll Call
2. Pledge of Allegiance
3. Adjustment(s) to Agenda
4. **Presentations: School Department FY23 Budget**
5. Public Addressing the Council... (3 minute limit per speaker for up to 15 minutes)
6. Consideration of Minutes: March 1, 2022
7. **Second Reading: 2022.13) Amendment/Land Use Regulations/Art XV-Historical Preservation Ordinance/Section 5 and Section 14**
8. **Orders of the Day: 2022.17)**

9. **Authorization / Biddeford School Revolving Renovation Fund Financing / Bonds for Health, Safety and Compliance Repairs at School Facilities for June 14, 2022 Municipal Referendum Election**
10. **2022.18) Approval/Use of Grant & Matching Funds for Purchase of Breathing Apparatus Equipment for Fire Department/Bergeron Protective Clothing**
11. **2022.19) Approval/Fire Consultant**
12. **2022.20) Approval/Extended Paving Contract with Shaw Brothers for City's Paving Program**
13. **2022.21) Approval/Easement Deed for Mobile Food Court - Freddy LLC at 64 Alfred Street**
14. **2022.22) Letter of Support for Regional Dredge Purchase**
15. **9. Appointments:**
16. Public Addressing the Council... (5 minute limit per speaker; 30 minute total time limit)
17. **City Manager Report**
18. **12. Other Business**
19. **13. Council President Addressing the Council**
20. **14. Mayor Addressing the Council**
21. **15. Executive Session:**
22. **1. MRSA 405(6)(C)... Property Development Issue**
23. **16. Adjourn**

Public Notice

City of Portland Maine DEPARTMENT OF PARKS & RECREATION Legal Notice
Furnish and Install Wood Post & Rail Fence at Various City Community Garden Locations Bid #22053
Sealed bids to Furnish and Install Wood Post & Rail Fence, with wire, at various City Community Garden Locations will be received by the Purchasing Office, Room 103, City Hall, 389 Congress Street, Portland, Maine 04101, until 3:00 p.m., Tuesday, April 5, 2022 at which time they will be opened and read. Bids shall be submitted electronically to bidsubmit@portlandmaine.gov with the name of the Bidder, Project Name and Bid number in the subject line. Bids can also be submitted via USPS, UPS or FedEx to Purchasing Office, Room 103, City Hall, 389 Congress Street, Portland, Maine 04101. In-person submission is not currently allowed due to City Hall being closed to the public. Copies of the above documents are available by contacting the Purchasing Office

either by e-mail jrl@portlandmaine.gov or phone (207) 874-8654. Each prospective bidder will be required to obtain from the City each copy of the proposal form and each set of plans.

Public Notice

LEGAL NOTICE NOTICE OF PUBLIC HEARING
<https://meet.goto.com/127780485>

The Portland Housing Authority has drafted its 2022 Annual Agency Plan and Capital Fund Program for the period beginning July 1, 2022. The public review and comment period for the Annual Plan begins on February 28, 2022 and will end on April 11, 2022 with a public hearing at 5:30 PM at the Portland Housing Authority, 14 Baxter Blvd, Portland, Maine, and via Go-To-Meeting (see above). During this period, due to Covid-19, the draft Plan and Capital Program are available for review on our website and by request at our front desk. You may also COMMENT or REQUEST A COPY (in English or other languages) from our web site, www.porthouse.org, or by calling (207) 773-4753. Draft is also available at the Division of Housing and Neighborhood Services, in Portland City Hall, 389 Congress St, Rm 312. The major components of the draft annual plan and capital fund program include:

- Public Housing Program, revisions to administrative policies
 - Voucher Programs, revisions to Administrative Policies
 - Rental Assistance Demonstration (RAD) and Section 18 program planning
 - Capital Fund Program, expenditure of \$2.2 million for capital improvements
- The Authority's hours of operation are M-F, 9am-4pm (closed noon to 1pm), for calls, FMI contact Cheryl Sessions, Executive Director, 773-4753 x 8223, csessions@porthouse.org.

Public Notice

NOTICE OF INTENT TO FILE
Please take notice that Water Line Solar, LLC (Address: 8 Quarry Ridge, North Yarmouth, ME, 04097; phone number: 207-653-9864), is intending to file a Natural Resources Protection Act permit application with the Maine Department of Environmental Protection, pursuant to the provisions of 38 M.R.S. §§ 480-A through 480-BB, on or about March 14, 2021. This application is for the **Water Line Solar Project**, an approximately 1.99-megawatt solar energy development located off of Sweetser Road in North Yarmouth, Maine. A request for a public hearing or a request that the Board of Environmental Protection assume jurisdiction over this application must be received by the Department in writing, no later than 20 days after the application is found by the Department to be complete and is accepted for processing. A public hearing may or may not be held at the discretion of the Commissioner or Board of Environmental Protection. Public comment on the application will be accepted throughout the processing of the application. The application will be filed for public inspection at the Department of Environmental Protection's office in Portland during normal working hours. A copy of the application may also be seen at the municipal offices in North Yarmouth, Maine. Written public comments may be sent to the regional Department office in Portland, where the application is filed for public inspection, at the address below:

MDEP, Southern Maine Regional Office, 312 Canco Road, Portland, Maine 04103

Public Notice

Notice of Public Hearing Town of Buxton Planning Board
The Town of Buxton Planning Board will hold a public hearing at the Buxton Municipal Building at 185 Portland Road, on Monday, March 14, 2022 at 7:00 p.m., to hear the following proposal: Development, LLC is requesting re-approval of a 14-lot Mobile Home Park to be located at 476 Parker Farm Road, which is located near the intersection of Chicopee Road and Parker Farm Road. The signed subdivision plan was not recorded within 90 days of the Board's signature, as required by Article 13 of the Buxton Zoning Ordinance. No changes are proposed. Residential District, approx. 15.25-acre parcel. Tax Map 1 Lot 135. The development will be reviewed under Article 10, Article 11 and Article 13. Keith Emery, Chairperson

Public Notice

NOTICE OF PUBLIC SALE

Notice is hereby given that in accordance with the Judgment of Foreclosure and Sale entered March 13, 2020 in the action entitled *Deutsche Bank National Trust Company, as Trustee for GSA Home Equity Trust 2006-13, Assel-Backed Certificates, Series 2006-13v, Cassandra Jackson, Personal Representative of the Estate of John Ernest Beaudoin*, by the Biddeford District Court, Docket No. RE-2018-57, wherein the Court adjudged the foreclosure of a mortgage granted by John Ernest Beaudoin to Mortgage Electronic Registration Systems, Inc., as nominee for Opteum Financial Services, LLC dated April 14, 2006 and recorded in the York County Registry of Deeds in Book 14815, Page 801, the period of redemption having expired, a public sale of the property described in the mortgage will be conducted on **April 21, 2022 at 10:00 AM** **At Holiday Inn by the Bay, 88 Spring Street, Portland, Maine**
The property is located at 78 Union Street, Saco, Maine, as described in said mortgage. The sale will be by public auction. All bidders for the property will be required to make a deposit of \$5,000.00 in certified or bank check at the time of the public sale made payable to Bendett & McHugh, P.C., which deposit is non-refundable as to the highest bidder. The balance of the purchase price shall be paid within sixty (60) days of the public sale. In the event a representative of the mortgagee is not present at the time and place stated in this notice, no sale shall be deemed to have occurred and all rights to reschedule a subsequent sale are reserved. **If the sale is set aside for any reason, the Purchaser at the sale shall be entitled only to a return of the deposit paid. The Purchaser shall have no further recourse against the Mortgagor, the Mortgagee, or the Mortgagee's attorney.** This property will be sold as is. Additional terms will be announced at the public sale. Deutsche Bank National Trust Company, as Trustee for GSA Home Equity Trust 2006-13, Assel-Backed Certificates, Series 2006-13 by its attorneys, BENDETT & MCHUGH, PC, 30 Danforth Street, Ste. 104 Portland, ME 04101 207-221-0016

Public Notice

LEGAL ADVERTISEMENT PORTLAND PLANNING BOARD
The Planning Board will hold a remote meeting on Tuesday, March 22, 2022, 4:30 p.m. This meeting will take place remotely using Zoom pursuant to the Remote Meeting Policy adopted by the Planning Board and as authorized under 1 M.R.S. 403-B because of the existence of an emergency or urgent issue that requires the committee to meet by remote methods. Allow your computer to install the free Zoom app to get the best meeting experience. If you are not able to attend live, a recording will be available following the meeting. For public comment, you will need to use the "raise your hand" feature. To raise your hand via the telephone, please hit *9. You will be unmuted by the host when it is time for public comment. For more information on how to access the meeting remotely and how to give public comment, please go to <http://www.portlandmaine.gov/remotepud> Public comments will be taken for each item on the agenda during the estimated allotted time and written comments should be submitted to planningboard@portlandmaine.gov or hp@portlandmaine.gov. Please note that the placement of each item on the agenda is subject to change. Please check the Agenda & Minutes Center prior to the meeting for the item start time.
WORKSHOP - 4:30 PM.
i. **Zoning Map and Text Amendment: 716 Stevens Avenue; University of New England Applicant.** (estimated time 4:30 - 6:00 p.m.) The Planning Board will hold a remote workshop to discuss the creation of an Institutional Development Plan (IDP) and Institutional Overlay Zone (IOZ) for the University of New England's Portland campus. A total of 36 properties are located within the proposed IOZ area, which is currently zoned R-3 and R-5 Residential as well as I-H High Impact Industrial.
ii. **Major Site Plan: 57 Douglass Street; Douglass Commons, LLC, Applicant.** (estimated time 6:00 - 7:00 p.m.) The Planning Board will hold a remote workshop on a proposal for a 120-unit affordable residential development under Planned Residential Unit Development (PRUD) standards with 112,900 square feet of floor area, along with associated improvements, at 57 (43-91) Douglass Street. The subject property is 3.34 acres in size and is zoned R-5a Residential.
PUBLIC HEARING - 7:00 P.M.
i. **Major Site Plan: 94 Portland Street; 94 Portland Street LLC, Applicant.** (estimated time 7:00 p.m.) The Planning Board will hold a remote public hearing to consider an application for the conversion of lodging rooms within the existing building at 94 Portland Street into four apartment units totaling 3,163 square foot of floor area. The subject property is 4,675 square feet in size and is zoned B-2b Community Business.
MAGGIE STANLEY, CHAIR - PORTLAND PLANNING BOARD

Public Notice

NOTICE OF PUBLIC SALE

Notice is hereby given that in accordance with the Judgment of Foreclosure and Sale entered September 30, 2019 and further affected by an Order dated February 17, 2022 extending the period to commence publication of the notice of sale by an additional 90 days therefrom in the action entitled *Wells Fargo Bank, N.A., v. Keegan J. Moon*, by the Lewiston District Court, Docket No. LEWDC-RE-18-158, wherein the Court adjudged the foreclosure of a mortgage granted by Keegan J. Moon to Mortgage Electronic Registration Systems, Inc., as nominee for Homeowners Assistance Corporation, its successors and assigns dated February 16, 2005 and recorded in the Androscoggin County Registry of Deeds in Book 6239, Page 155, the period of redemption having expired, a public sale of the property described in the mortgage will be conducted on **Thursday, April 7, 2022, commencing at 11:30 AM**, at the Law Office of Korde & Associates, P.C., 707 Sable Oaks Dr., Suite 250, South Portland, Maine 04106 on the front steps of the building in front of the flag pole. The property is located at 218 Summer Street, Auburn, Maine. The sale will be by public auction. All bidders for the property will be required to make a deposit of \$5,000.00 by certified or bank check at the time of the public sale made payable to Korde & Associates, P.C., which deposit is non-refundable as to the highest bidder. The balance of the purchase price shall be paid within forty-five (45) days of the public sale. In the event a representative of the mortgagee is not present at the time and place stated in this notice, no sale shall be deemed to have occurred and all rights to reschedule a subsequent sale are reserved. Additional terms will be announced at the

Public Notice

OGUNQUIT PLANNING BOARD PUBLIC HEARING MARCH 14, 2022 at 6:00 p.m.
The Ogunquit Planning Board will hold a Public Hearing, at the above date and time, regarding the Planning Board Application noted below:
GUS251, LLC - 251 Main Street - Map 7 Block 8 - DBD. Site Plan Review for Change of Use from Bank to Type 3 Restaurant in a post 1930 structure. This Hearing will be held in the Dunaway Center Main Auditorium. Participants may attend in person, or participate remotely via zoom. Contact the Ogunquit Land Use Office, Tel. 207 646-9326, for ZOOM registration instruction.

Public Notice

OGUNQUIT PLANNING BOARD PUBLIC HEARING MARCH 14, 2022 at 6:00 p.m.
The Ogunquit Planning Board will hold a Public Hearing, at the above date and time, regarding the Planning Board Application noted below:
GUS251, LLC - 251 Main Street - Map 7 Block 8 - DBD. Site Plan Review for Change of Use from Bank to Type 3 Restaurant in a post 1930 structure. This Hearing will be held in the Dunaway Center Main Auditorium. Participants may attend in person, or participate remotely via zoom. Contact the Ogunquit Land Use Office for ZOOM instructions.

Public Notice

public sale. Korde & Associates, P.C., 707 Sable Oaks Dr., Suite 250, South Portland, Maine 04106, (207) 775-6223. Updates may be found at: <http://www.logs.com/me-sales-report.html>.

Public Notice

Please take notice that the Maine Turnpike Authority (MTA), with its principal office at 2360 Congress Street, Portland, ME, 04102 (207-482-8275), is proposing improvements at Interstate-I-95 (Turnpike) new Exit 35 and existing Exit 36 located in Saco, Maine (Project). Pursuant to Section 307 of the federal Coastal Zone Management Act, on March 3, 2022, MTA provided certification to the Maine Coastal Program (MCP) that the Project as proposed for permitting by the United States Army Corps of Engineers is and will be conducted in a manner consistent with the enforceable policies of Maine's Coastal Zone Management Program. The Project is designed to address regional transportation needs associated with the westerly connections to the Turnpike in the vicinity of the former Exit 5 and existing Exit 36 by improving access to the Turnpike from Route 112, separation of local and thru traffic, and safety. The proposed project involves providing northbound and southbound Turnpike access from Route 112 via a new Exit 35 and a new collector-distributor roadway between Exit 36 and Route 112 on the Turnpike southbound. Access onto the Turnpike from Route 112 will also include new northbound and southbound toll plazas and a new park and ride. Construction of the project will require temporary and permanent impacts within freshwater wetlands and Goosefare Brook. For activities of this kind subject to federal license or permit

Public Notice

approval, the State determines consistency with the MCP's enforceable policies through decision on pertinent state permits and licenses required under the MCP's core laws, which include the Natural Resources Protection Act (NRPA) and state water quality laws. On November 19, 2021, MTA filed an application with the Department of Environmental Protection (DEP) for an NRPA Tier 3 permit and Water Quality Certification. MTA has submitted its consistency certification based on NRPA standards. Comments may be submitted, by e-mail only, to Alison Sirois (DEP) at Alison.Sirois@maine.gov by April 18, 2022.

Public Notice

TOWN OF WINDHAM, MAINE PLANNING BOARD NOTICE OF PUBLIC HEARINGS
Town Hall - 8 School Road - Council Chambers * Via Zoom - See Note
Monday, March 14, 2022 - 6:30 pm
21-19 Chamberlain Estates First Amended Subdivision Tax Map: 18A, Lot: 48-D03 - Chamberlain Drive. Major subdivision preliminary plan review. 21-17 The Heights at Colley Wright Brook Subdivision (formerly Cooper Ridge Road Subdivision) Tax Map: 10, Lot: 23 - Cooper Ridge. Major subdivision preliminary plan review. 22-01 Roosevelt Trail Solar Tax Map: 21, Lot: 3 - Roosevelt Trail. Site plan review for a commercial scale solar facility. *Note - Meetings via Zoom only when necessary to ensure a quorum of the Board. For more information go to <https://windhamweb.legistar.com/Calendar.aspx> or contact (207) 894-5960 ex. 2.

Public Notice

The Wells Planning Board will hold a Public Hearing regarding the following proposal(s) during the Planning Board meeting on Monday, March 21, 2022, which begins at 7:00 P.M. and will be held at the Wells Town Hall.
I. KENNBUNK SAVINGS BANK - Kennebunk Savings Bank, owner; ReVision Energy, applicant. Site Plan Application to remove

Public Notice

Public Notice of Federal Consistency Determination

Please take notice that the Maine Turnpike Authority (MTA), with its principal office at 2360 Congress Street, Portland, ME, 04102 (207-482-8275), is proposing improvements at Interstate-I-95 (Turnpike) new Exit 35 and existing Exit 36 located in Saco, Maine (Project). Pursuant to Section 307 of the federal Coastal Zone Management Act, on March 3, 2022, MTA provided certification to the Maine Coastal Program (MCP) that the Project as proposed for permitting by the United States Army Corps of Engineers is and will be conducted in a manner consistent with the enforceable policies of Maine's Coastal Zone Management Program. The Project is designed to address regional transportation needs associated with the westerly connections to the Turnpike in the vicinity of the former Exit 5 and existing Exit 36 by improving access to the Turnpike from Route 112, separation of local and thru traffic, and safety. The proposed project involves providing northbound and southbound Turnpike access from Route 112 via a new Exit 35 and a new collector-distributor roadway between Exit 36 and Route 112 on the Turnpike southbound. Access onto the Turnpike from Route 112 will also include new northbound and southbound toll plazas and a new park and ride. Construction of the project will require temporary and permanent impacts within freshwater wetlands and Goosefare Brook. For activities of this kind subject to federal license or permit

Public Notice

LEGAL NOTICE
NOTICE OF FINDING OF NO SIGNIFICANT IMPACT AND NOTICE OF INTENT TO REQUEST RELEASE OF FUNDS
March 11, 2022
City Of Portland, Maine, 389 Congress Street Room 313, Portland, Maine 04101; (207)874-8711
These notices shall satisfy two separate but related procedural requirements for activities to be undertaken by the City of Portland. REQUEST FOR RELEASE OF FUNDS: On or about March 27, 2022 the City of Portland, as lead entity for the Cumberland County HOME Consortium, will submit a request to the HUD Region 1, Boston, MA for the release of:
Project: Harrison Ridge Senior Housing - \$155,000 HOME funds under Title II of the Cranston Gonzalez Affordable Housing Act of 1996, as amended; To undertake a project described as Harrison Ridge Senior Housing for the purpose of providing construction of new rental housing development at 15 Harrison Road, Bridgton, Maine. 48 new rental units will be made available to seniors age 55 and older and qualified income at 60% AMI or less. The Property is located in the Town of Bridgton and owned by Developers Collaboration Predevelopment LLC of Maine. Estimated \$155,000 HOME funds, total project cost of \$8,046,152.00.
FINDING OF NO SIGNIFICANT IMPACT: The City of Portland has determined that the projects will have no significant impact on the human environment. Therefore, an Environmental Impact Statement under the National Environmental Policy Act of 1969 (NEPA) is not required. Additional project information is contained in the Environmental Review Record (ERR) on file at City of Portland, 389 Congress St. Rm 313, Portland, Maine 04101 and may be examined or copied weekdays 8 A.M to 4 P.M.; please contact Ronda Jones at (207) 874-8698, to schedule an appointment.
PUBLIC COMMENTS: Any individual, group, or agency may submit written comments on the ERR to the City of Portland, Division of Housing and Community Development Department 389 Congress St. Room 313, Portland, Maine 04101. All comments received by March 26, 2022 will be considered by the City of Portland prior to authorizing submission of a request for release of funds. Comments should specify which Notice they are addressing.
ENVIRONMENTAL CERTIFICATION: The City of Portland certifies to HUD Region 1 Boston that Danielle P. West in her official capacity as Interim City Manager consents to accept the jurisdiction of the Federal Courts if an action is brought to enforce responsibilities in relation to the environmental review process and that these responsibilities have been satisfied. HUDS's approval of the certification satisfies its responsibilities under NEPA and related laws and authorities and allows the City of Portland to use HOME Program funds.
OBJECTIONS TO RELEASE OF FUNDS: HUD Region 1, Boston will accept objections to its release of fund and the City of Portland certification for a period of fifteen days following the anticipated submission date or its actual receipt of the request (whichever is later) only if they are on one of the following bases: (a) the certification was not executed by the Certifying Officer of the City of Portland (b) the City of Portland has omitted a step or failed to make a decision or finding required by HUD regulations at 24 CFR part 58; (c) the grant recipient or other participants in the development process have committed funds, incurred costs or undertaken activities not authorized by 24 CFR Part 58 before approval of a release of funds by HUD Region 1, Boston; or (d) another Federal agency acting pursuant to 40 CFR Part 1504 has submitted a written finding that the project is unsatisfactory from the standpoint of environmental quality. Objections must be prepared and submitted in accordance with the required procedures (24 CFR Part 58, Sec. 58.76) and shall be addressed to U. S. Department of Housing and Urban Development, 10 Causeway Street, Boston, MA. 02222-1092. Potential objectors should contact HUD field Office (tel. 617-994-8200; fax 617-565-5442) to verify the actual last day of the objection period.
Danielle P. West, Interim City Manager, 389 Congress Street, Portland, ME. 04101
Date of Notice: March 11, 2022

Public Notice

The Board of Selectmen of the Town of Wells will hold a public hearing at the Wells Town Hall, 208 Sanford Road in Wells on Tuesday March 15, 2022 at 6:00 pm on the following application(s):
Campfire Restaurant Group LLC, dba: Merriland Farm Café, 557 Coles Hill Rd Full Time Malt, & Wine (R) Ezzo Enterprises Inc. dba: Haven by The Sea, 59 Church Street Full Time Malt, Wine, Spirits & Special Entertainment (R) Attest: Brenda Layman, Town Clerk, Wells

Public Notice

LEGAL NOTICE
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March 11, 2022
City Of Portland, Maine, 389 Congress Street Room 313, Portland, Maine 04101; (207)874-8711
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Project: Harrison Ridge Senior Housing - \$155,000 HOME funds under Title II of the Cranston Gonzalez Affordable Housing Act of 1996, as amended; To undertake a project described as Harrison Ridge Senior Housing for the purpose of providing construction of new rental housing development at 15 Harrison Road, Bridgton, Maine. 48 new rental units will be made available to seniors age 55 and older and qualified income at 60% AMI or less. The Property is located in the Town of Bridgton and owned by Developers Collaboration Predevelopment LLC of Maine. Estimated \$155,000 HOME funds, total project cost of \$8,046,152.00.
FINDING OF NO SIGNIFICANT IMPACT: The City of Portland has determined that the projects will have no significant impact on the human environment. Therefore, an Environmental Impact Statement under the National Environmental Policy Act of 1969 (NEPA) is not required. Additional project information is contained in the Environmental Review Record (ERR) on file at City of Portland, 389 Congress St. Rm 313, Portland, Maine 04101 and may be examined or copied weekdays 8 A.M to 4 P.M.; please contact Ronda Jones at (207) 874-8698, to schedule an appointment.
PUBLIC COMMENTS: Any individual, group, or agency may submit written comments on the ERR to the City of Portland, Division of Housing and Community Development Department 389 Congress St. Room 313, Portland, Maine 04101. All comments received by March 26, 2022 will be considered by the City of Portland prior to authorizing submission of a request for release of funds. Comments should specify which Notice they are addressing.
ENVIRONMENTAL CERTIFICATION: The City of Portland certifies to HUD Region 1 Boston that Danielle P. West in her official capacity as Interim City Manager consents to accept the jurisdiction of the Federal Courts if an action is brought to enforce responsibilities in relation to the environmental review process and that these responsibilities have been satisfied. HUDS's approval of the certification satisfies its responsibilities under NEPA and related laws and authorities and allows the City of Portland to use HOME Program funds.
OBJECTIONS TO RELEASE OF FUNDS: HUD Region 1, Boston will accept objections to its release of fund and the City of Portland certification for a period of fifteen days following the anticipated submission date or its actual receipt of the request (whichever is later) only if they are on one of the following bases: (a) the certification was not executed by the Certifying Officer of the City of Portland (b) the City of Portland has omitted a step or failed to make a decision or finding required by HUD regulations at 24 CFR part 58; (c) the grant recipient or other participants in the development process have committed funds, incurred costs or undertaken activities not authorized by 24 CFR Part 58 before approval of a release of funds by HUD Region 1, Boston; or (d) another Federal agency acting pursuant to 40 CFR Part 1504 has submitted a written finding that the project is unsatisfactory from the standpoint of environmental quality. Objections must be prepared and submitted in accordance with the required procedures (24 CFR Part 58, Sec. 58.76) and shall be addressed to U. S. Department of Housing and Urban Development, 10 Causeway Street, Boston, MA. 02222-1092. Potential objectors should contact HUD field Office (tel. 617-994-8200; fax 617-565-5442) to verify the actual last day of the objection period.
Danielle P. West, Interim City Manager, 389 Congress Street, Portland, ME. 04101
Date of Notice: March 11, 2022

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Attachment 6

Natural Resource Report

Natural Resources Report

North Yarmouth Solar Project



Prepared by BRI Environmental

February 2022



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Exhibits

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Exhibit B: Natural Resources Map

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Exhibit D: NRCS Soils Map

Exhibit E: USACE Wetland Determination Forms

Exhibit F: Agency Correspondence

1.0 Introduction

Biodiversity Research Institute (BRI) was retained by Branch Renewable Energy (Branch Renewable) to complete regulated natural resource delineations on an approximately 100-acre survey area located off of Sweetser Road in North Yarmouth, Maine (Site). The survey area is located on one parcel and Site visits were conducted on December 9, December 10, and December 13, 2021. The survey area is shown in **Exhibit A**.

2.0 Geographic Setting

The Site is characterized by forested uplands and several forested and scrub-shrub wetlands. A review of aerial photos shows that logging activity has been common in recent decades. The southwestern site boundary abuts an active agricultural field as well as sparse residential development along Sweetser Road. Several inactive gravel pits abut the property to the northwest and a railroad abuts the eastern boundary. The nearest waterbody is the Royal River, located approximately 0.5 miles to the east.

The Site falls within the US Environmental Protection Agency's (EPA) Eco-region of the Gulf of Maine Coastal Lowland within the Northeastern Coastal Zone. The EPA's description of the region is as follows:

The Gulf of Maine Coastal Lowland ecoregion is a 10- to 20-mile wide coastal strip, stretching from Casco Bay in Maine to Plymouth Bay in Massachusetts. It is mostly an arcuate embayment type of coast, a different form from coastal ecoregions Midcoast and Downeast Coast to the northeast. Extensive glacial sand, silt, and clay deposits blanket this region, with a coastal pattern typified by plutonic capes and intervening sand beaches that front the region's largest salt marshes. The ecoregion has relatively low relief, and elevations are mostly from sea level to 250 feet. Mt. Agamenticus, west of Ogunquit, Maine, is the atypical high spot at 691 feet. Bedrock geology consists mostly of metasedimentary rocks, intruded by several Paleozoic and Mesozoic plutonic bodies. Soils have a mesic temperature regime in most of the region, although frigid soils occur in the Maine portion. The vegetation mosaic includes white oak and red oak forests, some isolated chestnut oak woodlands, extensive post-settlement white pine, pitch pine in sandy areas, pitch pine bogs, some Atlantic white cedar swamps, red maple swamps, and Spartina saltmarsh. The vegetation contains some southern hardwood species (e.g., shagbark hickory, flowering dogwood, and chestnut oak) that reach the northern limit of their range within this ecoregion. There are also some subarctic maritime species that reach their southern limit in Ecoregion Gulf of Maine Coastal Lowland, such as crowberry, golden heather, and oysterleaf. The region's forests and farm are being rapidly converted to residential developments and bedroom communities of larger nearby cities.¹

¹ Ecoregions of New England http://ecologicalregions.info/data/vt/new_eng_front.pdf

3.0 Methods

Prior to the initial Site visit, BRI conducted a desktop review of publicly available data, which included the National Wetlands Inventory (NWI)², Natural Resources Conservation Service (NRCS) Soil Survey³, Beginning with Habitat data (BWH)⁴, topographic maps, and aerial photos. A vernal pool survey and natural resources survey were completed to formally map resources on Site using the methodologies described below. These methods represent the current standard of practice for the delineation of regulated natural resources.

3.1 Wetland Delineation

Wetlands on the Site were delineated according to the survey techniques described in the *1987 US Army Corps of Engineers Wetland Delineation Manual*⁵ and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, v2.0*⁶. In areas where evidence of hydrology or hydrophytic plants were observed, samples of the soil profile were taken to further investigate evidence of saturated conditions within the upper part of the soil profile. Survey flags were hung along the wetland-upland boundaries. The flags were labeled with a unique alpha-numeric code and sequence denoting the resource type, delineator initials, wetland identification number, and flag number (e.g., W-MR-01-1, W-MR-01-02 etc.).

3.2 Stream Identification

The survey area was reviewed for conditions that meet the definition of river, stream, or brook. Features mapped meet the definition described in Article 5-A of the Natural Resource Protection Act (NRPA)⁷. Where streams less than 6 feet in bank width were identified, survey flags were hung along the centerline of the stream. For streams with bank width equal to or greater than 6 feet, both banks (i.e., the ordinary high-water mark) of the stream were flagged. Flags were labeled with a unique alpha-numeric code and sequence denoting the resource type, delineator initials, stream identification number, and flag number (e.g., S-MR-01-1, S-MR-01-2 etc.).

3.3 Vernal Pool Survey

During the natural resources survey, potentially significant vernal pool surveys were completed based on methodologies described in detail in the *April 2014 Maine Association of Wetland Scientists Vernal Pool Technical Committee Vernal Pool Survey Protocol*⁸. Chapter 335 of the Maine Department of Environmental Protection (MDEP) NRPA includes the following definition of a vernal pool:

² U.S. Fish and Wildlife Service National Wetland Inventory Mapper <https://www.fws.gov/wetlands/data/mapper.html>

³ U.S. NRCS Web Soil Survey <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

⁴ Maine Beginning with Habitat Online Mapper <https://webapps2.cgis-solutions.com/beginningwithhabitat/>

⁵ US Army Corps of Engineers Wetland Delineation Manual (1987)
<https://www.nae.usace.army.mil/Portals/74/docs/regulatory/JurisdictionalLimits/wlman87.pdf>

⁶ US Army Corps of Engineers *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, v2.0*
<https://www.nae.usace.army.mil/Portals/74/docs/regulatory/JurisdictionalLimits/RegionalSupplement2012.pdf>

⁷ Natural Resource Protection Act, Maine Statute Title 38, Chapter 3, subchapter 1, Article 5-A, §480-B
<http://www.mainelegislature.org/legis/statutes/38/title38sec480-B.html>

⁸ Maine Association of Wetland Scientist 2014 Vernal Pool Survey Protocol <http://mainewetlands.org/vptc>

*“A vernal pool, also referred to as a seasonal forest pool, is a natural, temporary to semi-permanent body of water occurring in a shallow depression that typically fills during the spring or fall and may dry during the summer. Vernal pools have no permanent inlet or outlet and no viable populations of predatory fish. A vernal pool may provide the primary breeding habitat for wood frogs (*Rana* [*Lithobates*] *sylvatica*), spotted salamanders (*Ambystoma maculatum*), blue-spotted salamanders (*Ambystoma laterale*), and fairy shrimp (*Eubranchipus* sp.), as well as valuable habitat for other plants and wildlife including several rare, threatened, and endangered species. A vernal pool intentionally created for the purposes of compensatory mitigation is included in this definition.”*

The field surveys completed by BRI were completed outside of the recommended period for vernal pool egg mass surveys (mid-April through late May) and therefore features that exhibited the characteristics of a vernal pool were flagged at the approximate center point and located with a GPS device and identified as a potential vernal pool.

3.4 Function and Values

BRI preliminarily evaluated wetland functions and values using the U.S. Army Corps of Engineers (USACE) Highway Methodology⁹. Functions and values are assessed based on a descriptive approach and characteristics observed within the field as well as a review of pertinent desktop and publicly available information. Functions and values are assigned either a Principal or Secondary function based on the assessment of the wetland to provide functions and values at high levels.

4.0 Results

Field surveys were completed on December 9, December 10, and December 13, 2021. Weather at the time of the survey ranged from cloudy to overcast with a dusting of snow on the ground. Temperatures ranged from 25° to 15° F. **Exhibit B** includes the natural resources mapped on Site and **Exhibit C** includes photographs of mapped natural resources. The NRCS soil survey is included as **Exhibit D**.

4.1 Upland Habitats

Upland habitats on the Site are dominated by forestland that is characteristic of the Gulf of Maine Coastal Lowland region. Overstory vegetation was not dense as recent tree harvesting activities has taken place, but uplands were dominated by white pine (*Pinus strobus*), red oak (*Quercus rubra*), red maple (*Acer rubrum*), American beech (*Fagus grandifolia*), eastern hemlock (*Tsuga canadensis*), and green ash (*Fraxinus pennsylvanica*). Shrub vegetation was scarce in portions of the Site and it consisted of primarily overstory species, paper birch (*Betula papyrifera*), and marrow’s honeysuckle (*Lonicera morrowii*). Herbaceous vegetation includes Oriental bittersweet (*Celastrus orbiculatus*), Christmas fern (*Polystichum acrostichoides*), and wood fern (*Dryopteris*

⁹ USACE Highway Method

<https://www.nae.usace.army.mil/Portals/74/docs/regulatory/Forms/HighwaySupplement6Apr2015.pdf>

spp.). Overall the landscape was dominated by areas of sloped hillside topography with a steep hill, likely caused by the gravel operation, northwest of the access road.

Soils on the Site are varied, with six soil types comprising approximately 88 percent of the Site. Three soils are most common onsite: Hinckley loamy sand, Lamoine silt loam, and Gravel pits. Hinckley loamy sand is a very deep, excessively drained soil formed in glaciofluvial materials on outwash terraces, plains, deltas, kames, kame terraces, and eskers. Lamoine silt loam is a somewhat poorly drained soil formed in glaciolacustrine or glaciomarine deposits on coastal lowlands and river valleys. Several gravel pits are found on site, these soils are excessively drained as they are mostly sand and gravel deposits. Representative upland soils on Site are characterized generally by 0-10" of 10 YR 4/3 silt loam and 10-20" of 2.5Y 5/2 silt loam. Photo 1 and 2 shows representative views of upland habitats on the Site.



Photo 1. Representative view of the upland forest on Site.



Photo 2. Representative view of regenerating upland forest on Site.

4.2 Wetland Habitats

Nine wetlands were delineated on the Site, totaling approximately 10 acres of the survey area. Wetland W-MR-06 is the largest wetland on Site and is predominantly scrub-shrub with forested portions. Forested wetlands on site have an overstory that consists of red maple, black ash, eastern hemlock, and yellow birch (*Betula alleghaniensis*). Scrub shrub dominated wetlands include overstory species as well as speckled alder (*Alnus incana*), winterberry (*Ilex verticillata*), highbush blueberry (*Vaccinium corymbosum*), Japanese barberry (*Berberis thunbergii*), and Marrow's honeysuckle. Herbaceous vegetation includes cinnamon fern (*Osmunda cinnamomea*), sensitive fern (*Onoclea sensibilis*), lamp rush (*Juncus effusus*), fringed willow herb (*Epilobium ciliatum*), fringed sedge (*Carex crinita*) and wrinkled golden rod (*Solidago rugosa*).

The hydric soil indicator within these wetlands is typically a depleted matrix. Representative soils on Site are characterized generally by 0-4" of 10YR 4/3 silt loam, 4-16" of Gley 1 4/10Y with redoximorphic features of 10YR 4/2 concentrations within the matrix, and 16+ Gley 1 4/5GY with redoximorphic features of 10YR 4/4 at 15% concentrations within the matrix. Photo 3 and 4 show representative views of wetland habitats identified on the Site. USACE Wetland Determination Forms are provided in **Exhibit E**. Table 1 includes a summary of information of each mapped wetland on Site.



Photo 3. Representative view of a forested and scrub/shrub wetland on Site (W-MR-06).



Photo 4. Representative view of a forested wetland on Site (W-MR-04).

Table 1. North Yarmouth Wetland Summary Table

Wetland ID	Wetland Type ¹⁰	Wetland of Special Significance	Acreage
W-MR-01	PSS/PFO	No	0.08
W-MR-02	PSS	No	0.03
W-MR-03	PSS	No	0.03
W-MR-04	PFO	No	0.17
W-MR-05	PSS	No	2.1
W-MR-06	PSS	No	7.87
W-MR-07	PSS	No	0.03
W-MR-08	PSS/PFO	No	0.07
W-MR-09	PSS/PFO	No	0.16
Total			10.54

4.3 Streams and Aquatic Habitats

No streams and other aquatic habitats were identified on Site.

4.4 Vernal pools

Although field surveys were completed outside of the amphibian breeding season, no depressional areas were identified that would support vernal pool breeding amphibians. As a result, no potential vernal pools were identified on Site.

4.5 Wildlife

The survey area includes both upland and wetland habitats, which are likely to be utilized by a wide variety of birds and wildlife. Based on the proximity of residential development, most wildlife present are likely habitat generalists which are accustomed to disturbance. Species such as white-tailed deer (*Odocoileus virginianus*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), red squirrel (*Sciurus vulgaris*), porcupine (*Erethizon dorsatum*), and red fox (*Vulpes vulpes*) are likely all present within the Site.

It is also possible that bat species may be present during the breeding and pupping season at the Site. This is based on the habitat on and adjacent to the Site, which includes large-diameter trees for roosting and breeding. Herptiles onsite likely include common species such as the common garter snake (*Thamnophis sirtalis*), which are likely in forested areas and edge habitats.

A wide variety of bird species are likely present, examples include Chickadee (*Poecile atricapillus*), European Starling (*Sturnus vulgaris*), White throated Sparrow (*Zonotrichia albicollis*), Bobolink (*Dolichonyx oryzivorus*), Downy Woodpecker (*Picoides pubescens*), and Partridge (*Bonasa umbellus*).

¹⁰ PFO-Palustrine Forested Wetland, PSS-Palustrine Scrub-Shrub Wetland, PEM-Palustrine Emergent Wetland, PUB-Palustrine Unconsolidated Bottom Wetland

5.0 Functions and Values

BRI preliminarily evaluated wetland functions and values using the USACE Highway Methodology. Functions and values are assessed based on characteristics observed within the field as well as a review of pertinent desktop and publicly available information. All the wetlands on the Site are adjacent to areas of development, and as such, principal functions for wetlands on the Site are related to water quality improvements. Important functions provided by all wetlands on the Site include sediment and toxicant retention and nutrient removal and retention. All wetlands provide wildlife habitat, as evidenced by wildlife signs (i.e., tracks and scat) as well as observations of wildlife. Wetland services (i.e., visual quality, education, or aesthetics) on Site are limited as the wetlands occur on privately owned property, and therefore public access is limited.

6.0 Agency Consultation

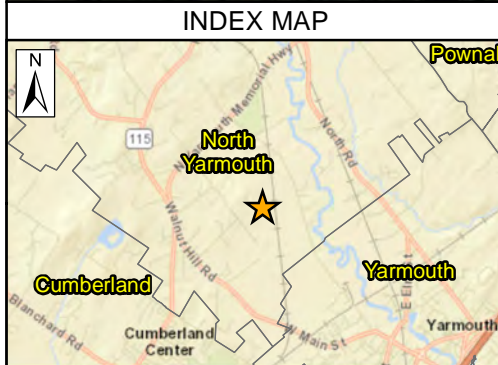
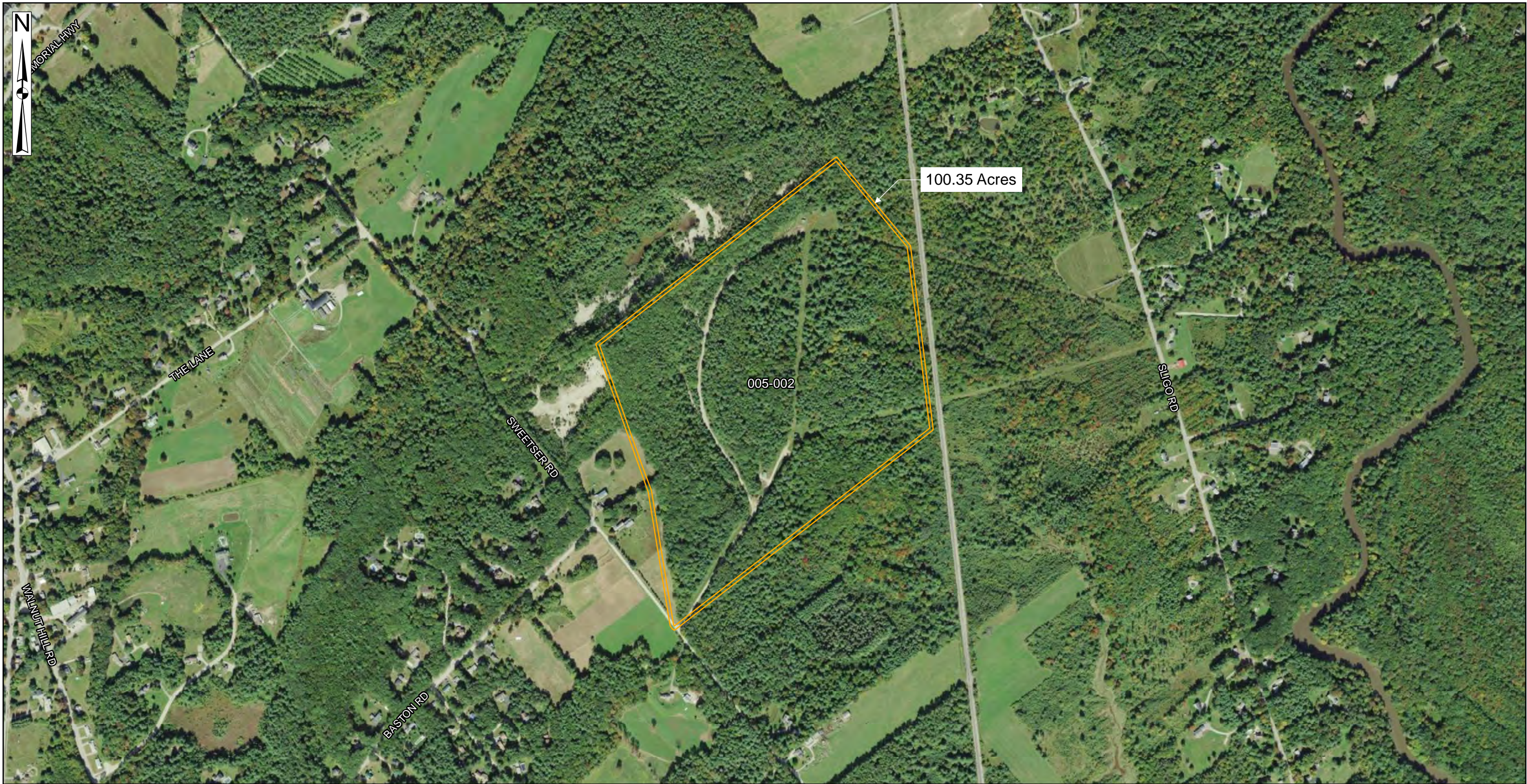
Inquiry letters were sent to the Maine Department of Inland Fisheries and Wildlife (MDIFW) and the Maine Natural Areas Program (MNAP) on December 15, 2021 to identify any rare, threatened, or endangered species within the Site.

MNAP responded on December 15, 2021 and stated there are no rare botanical features documented specifically within the Project Site. MDIFW responded on January 20, 2022 and stated that they have not mapped any essential habitats that would be directly affected by the project. However, based on historical evidence, the MDIFW believes that several of the bat species occur within the project area during the fall/spring migration, the summer breeding season and/or for overwintering. These responses are located in **Exhibit F**.

7.0 Discussion

The eastern portion of the parcel is dominated by hillslope wetlands with the largest wetland, W-MR-06, comprising approximately 8 acres. Of the nine wetlands identified on Site, none of them are partially or entirely considered Wetlands of Special Significance (WOSS). No potential vernal pools or streams were identified on Site. The uplands in the south, central and western portions of the Site are mostly located along moderate sloped hillsides, but there is a steep slope located in the western portion of the Site between the access road the gravels pits off Site.

Exhibit A:
Location Map



LEGEND

— Approximate Parcel Boundary

SCALE:

0 650 1,300 Feet

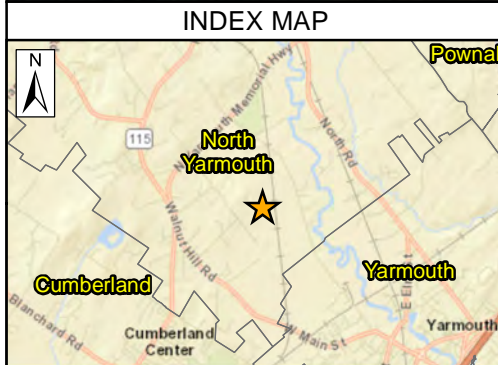
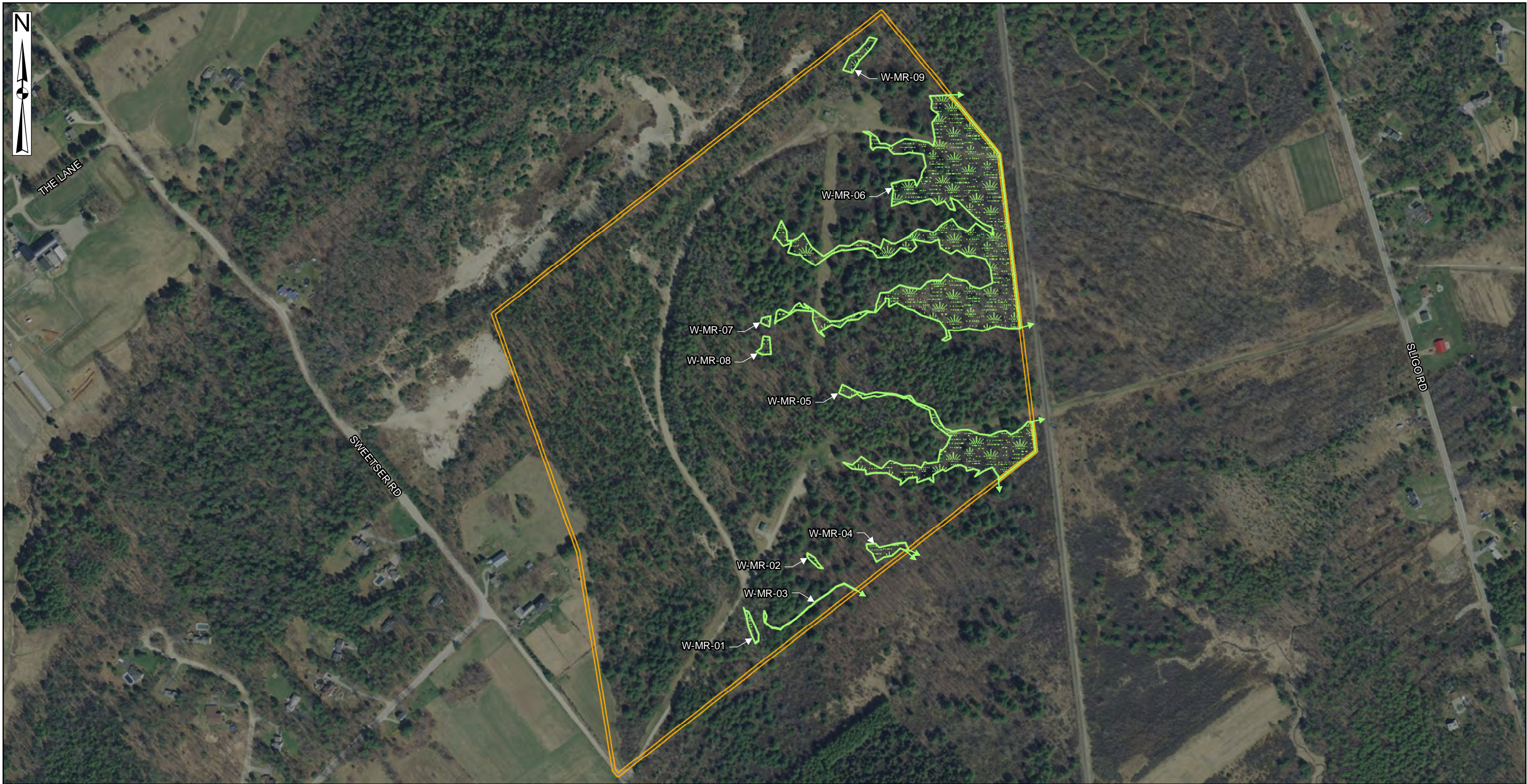
1 inch = 650 feet

PROJECT LOCATION MAP - AERIAL
NORTH YARMOUTH COMMUNITY SOLAR:
NORTH YARMOUTH, MAINE



DECEMBER 13, 2021

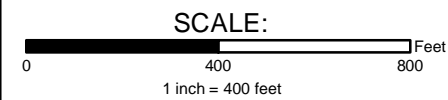
Exhibit B:

Natural Resources Map



LEGEND

-  Wetland
-  Project Survey Boundary



**NATURAL RESOURCES MAP
NORTH YARMOUTH COMMUNITY SOLAR:
NORTH YARMOUTH, MAINE**

FEBRUARY 8, 2022

Exhibit C:

Natural Resources Photographs



Photo 1. View of Wetland W-MR-01



Photo 2. View of Wetland W-MR-02



Photo 3. View of Wetland W-MR-03



Photo 4. View of Wetland W-MR-04



Photo 5. View of Wetland W-MR-05



Photo 6. View of Wetland W-MR-06



Photo 7. View of Wetland W-MR-07



Photo 8. View of Wetland W-MR-08



Photo 9. View of Wetland W-MR-09



Photo 12. View of representative Uplands



Photo 13. View of representative Uplands



Photo 14. View representative Uplands

Exhibit D:
NRCS Soil Report



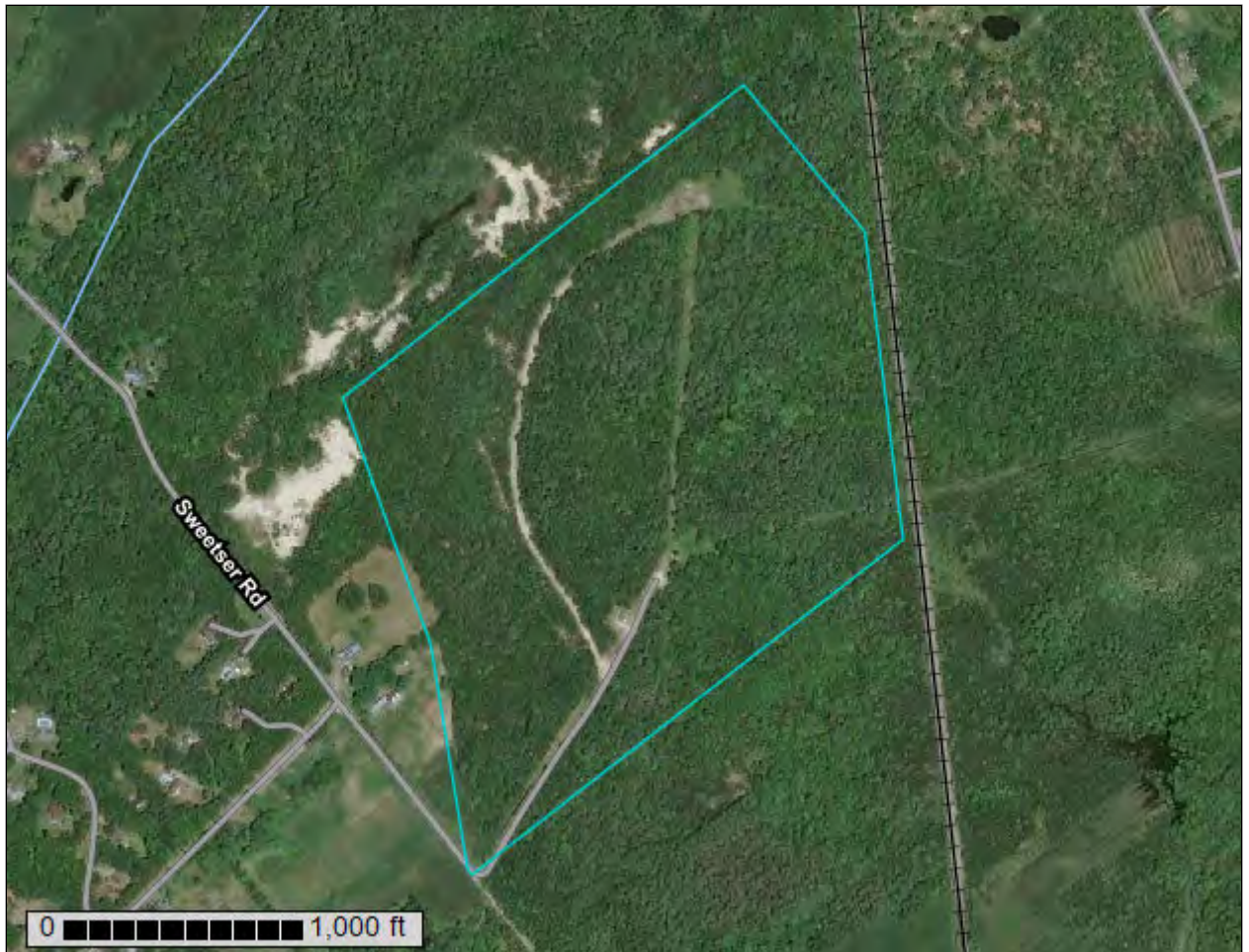
United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Cumberland County and Part of Oxford County, Maine



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

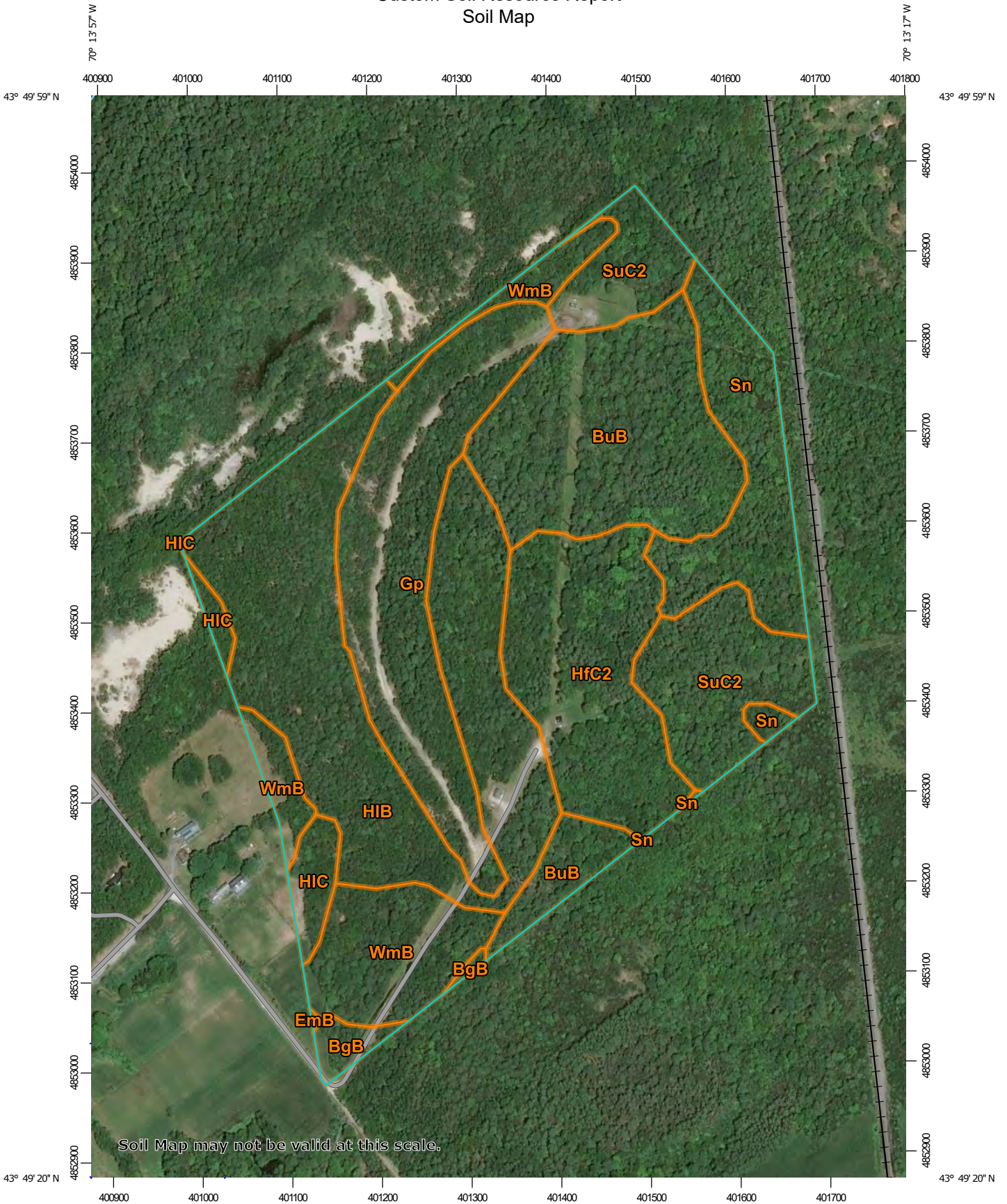
Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Soil Map may not be valid at this scale.

Map Scale: 1:5,860 if printed on A portrait (8.5" x 11") sheet.

0 50 100 200 300 Meters

0 250 500 1000 1500 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)




















Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features


Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
 Survey Area Data: Version 18, Aug 31, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 7, 2019—Jul 2, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BgB	Nicholville very fine sandy loam, 0 to 8 percent slopes	1.1	1.1%
BuB	Lamoine silt loam, 3 to 8 percent slopes	16.8	16.7%
EmB	Elmwood fine sandy loam, 0 to 8 percent slopes	0.0	0.0%
Gp	Gravel pits	15.1	15.0%
HfC2	Hartland very fine sandy loam, 8 to 15 percent slopes, eroded	12.2	12.1%
HIB	Hinckley loamy sand, 3 to 8 percent slopes	25.3	25.2%
HIC	Hinckley loamy sand, 8 to 15 percent slopes	2.0	2.0%
Sn	Scantic silt loam, 0 to 3 percent slopes	8.5	8.4%
SuC2	Suffield silt loam, 8 to 15 percent slopes, eroded	10.3	10.3%
WmB	Windsor loamy sand, 0 to 8 percent slopes	9.0	9.0%
Totals for Area of Interest		100.4	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties

and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

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Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Cumberland County and Part of Oxford County, Maine

BgB—Nicholville very fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2yjg5

Elevation: 20 to 2,300 feet

Mean annual precipitation: 34 to 50 inches

Mean annual air temperature: 37 to 45 degrees F

Frost-free period: 90 to 160 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Nicholville and similar soils: 85 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nicholville

Setting

Landform: Lakebeds (relict)

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Coarse-silty glaciomarine deposits

Typical profile

Ap - 0 to 7 inches: very fine sandy loam

Bs - 7 to 19 inches: very fine sandy loam

BC - 19 to 30 inches: very fine sandy loam

C - 30 to 65 inches: loamy very fine sand

Properties and qualities

Slope: 0 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)

Depth to water table: About 18 to 30 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C

Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)

Hydric soil rating: No

BuB—Lamoine silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2t0kc

Elevation: 10 to 490 feet

Mean annual precipitation: 33 to 60 inches

Mean annual air temperature: 36 to 52 degrees F

Frost-free period: 90 to 160 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Lamoine and similar soils: 85 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lamoine

Setting

Landform: Marine terraces, river valleys

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Fine glaciomarine deposits

Typical profile

Ap - 0 to 7 inches: silt loam

Bw - 7 to 13 inches: silt loam

Bg - 13 to 24 inches: silty clay loam

Cg - 24 to 65 inches: silty clay

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)

Depth to water table: About 6 to 17 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: C/D

Ecological site: F144BY401ME - Clay Flat

Hydric soil rating: No

EmB—Elmwood fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: blh8
Elevation: 10 to 900 feet
Mean annual precipitation: 38 to 55 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 130 to 195 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Elmwood and similar soils: 88 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elmwood

Setting

Landform: Stream terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy glaciolacustrine deposits

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 25 inches: sandy loam
H3 - 25 to 65 inches: silty clay loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B
Ecological site: F144BY402ME - Clay Hills
Hydric soil rating: No

Gp—Gravel pits

Map Unit Composition

Gravel pits: 92 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gravel Pits

Typical profile

H1 - 0 to 6 inches: extremely gravelly sand

H2 - 6 to 60 inches: extremely gravelly sand

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Hydric soil rating: No

HfC2—Hartland very fine sandy loam, 8 to 15 percent slopes, eroded

Map Unit Setting

National map unit symbol: blhc

Elevation: 0 to 310 feet

Mean annual precipitation: 48 to 49 inches

Mean annual air temperature: 45 to 46 degrees F

Frost-free period: 150 to 160 days

Farmland classification: Not prime farmland

Map Unit Composition

Hartland and similar soils: 85 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hartland

Setting

Landform: Lakebeds

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Coarse-silty glaciolacustrine deposits

Typical profile

H1 - 0 to 9 inches: very fine sandy loam

H2 - 9 to 29 inches: silt loam

H3 - 29 to 65 inches: silt loam

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: More than 80 inches

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Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 11.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: B

Ecological site: F144BY508ME - Silty Slope

Hydric soil rating: No

HIB—Hinckley loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2svm8

Elevation: 0 to 1,430 feet

Mean annual precipitation: 36 to 53 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Hinckley and similar soils: 85 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Outwash plains, eskers, moraines, kame terraces, kames, outwash terraces, outwash deltas

Landform position (two-dimensional): Summit, shoulder, backslope, footslope

Landform position (three-dimensional): Nose slope, side slope, base slope, crest, riser, tread

Down-slope shape: Concave, convex, linear

Across-slope shape: Convex, linear, concave

Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material

A - 1 to 8 inches: loamy sand

Bw1 - 8 to 11 inches: gravelly loamy sand

Bw2 - 11 to 16 inches: gravelly loamy sand

BC - 16 to 19 inches: very gravelly loamy sand

C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 3 to 8 percent

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Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

HIC—Hinckley loamy sand, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2svm9
Elevation: 0 to 1,480 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Hinckley and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Kame terraces, outwash plains, kames, eskers, moraines, outwash terraces, outwash deltas
Landform position (two-dimensional): Shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, riser
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand
Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Custom Soil Resource Report

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Sn—Scantic silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2slv3
Elevation: 10 to 900 feet
Mean annual precipitation: 33 to 60 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Scantic and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Scantic

Setting

Landform: Marine terraces, river valleys
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glaciomarine deposits

Typical profile

Ap - 0 to 9 inches: silt loam
Bg1 - 9 to 16 inches: silty clay loam
Bg2 - 16 to 29 inches: silty clay
Cg - 29 to 65 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches

Custom Soil Resource Report

Drainage class: Poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: About 0 to 12 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4w

Hydrologic Soil Group: D

Ecological site: F144BY304ME - Wet Clay Flat

Hydric soil rating: Yes

SuC2—Suffield silt loam, 8 to 15 percent slopes, eroded

Map Unit Setting

National map unit symbol: blk1

Elevation: 10 to 900 feet

Mean annual precipitation: 34 to 48 inches

Mean annual air temperature: 43 to 46 degrees F

Frost-free period: 90 to 160 days

Farmland classification: Not prime farmland

Map Unit Composition

Suffield and similar soils: 85 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Suffield

Setting

Landform: Coastal plains

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Riser

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Fine glaciolacustrine deposits

Typical profile

H1 - 0 to 6 inches: silt loam

H2 - 6 to 23 inches: silt loam

H3 - 23 to 33 inches: silty clay

H4 - 33 to 65 inches: silty clay

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)

Depth to water table: About 18 to 30 inches

Custom Soil Resource Report

Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: F144BY402ME - Clay Hills
Hydric soil rating: No

WmB—Windsor loamy sand, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w2x2
Elevation: 0 to 1,410 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Windsor and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Windsor

Setting

Landform: Outwash terraces, deltas, outwash plains, dunes
Landform position (three-dimensional): Tread, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Loose sandy glaciofluvial deposits derived from granite and/or loose sandy glaciofluvial deposits derived from schist and/or loose sandy glaciofluvial deposits derived from gneiss

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loamy sand
Bw - 3 to 25 inches: loamy sand
C - 25 to 65 inches: sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

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Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: A

Ecological site: F144BY601ME - Dry Sand

Hydric soil rating: No

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Custom Soil Resource Report

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Exhibit E:

USACE Wetland Determination Forms

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: North Yarmouth Solar Project City/County: North Yarmouth Sampling Date: 12/13/2021
 Applicant/Owner: Branch Renewable Energy State: ME Sampling Point: PLOT-W-MR-06-UP
 Investigator(s): Merrill Read Section, Township, Range: North Yarmouth
 Landform (hillside, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 6
 Subregion (LRR or MLRA): LRR R Lat: 43.829251 N Long: 70.224661W Datum: Maine State Plane West
 Soil Map Unit Name: Lamoine silt loam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Remarks: (Explain alternative procedures here or in a separate report.)			

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 No Hydrology

VEGETATION – Use scientific names of plants.

Sampling Point: .OT-W-MR-06-L

	Absolute % Cover	Dominant Species?	Indicator Status																	
Tree Stratum (Plot size: <u>30</u>)																				
1. <u><i>Pinus strobus</i></u>	<u>40</u>	<u>Yes</u>	<u>FACU</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)																
2. <u><i>Acer rubrum</i></u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>																	
3. <u><i>Fraxinus pennsylvanica</i></u>	<u>15</u>	<u>No</u>	<u>FACW</u>																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	<u>85</u> =Total Cover			Prevalence Index worksheet: <table style="width:100%; border:none;"> <tr> <td style="text-align:right;">Total % Cover of:</td> <td style="text-align:right;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>15</u></td> <td>x 2 = <u>30</u></td> </tr> <tr> <td>FAC species <u>85</u></td> <td>x 3 = <u>255</u></td> </tr> <tr> <td>FACU species <u>40</u></td> <td>x 4 = <u>160</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>140</u></td> <td>(A) <u>445</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>3.18</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>15</u>	x 2 = <u>30</u>	FAC species <u>85</u>	x 3 = <u>255</u>	FACU species <u>40</u>	x 4 = <u>160</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>140</u>	(A) <u>445</u> (B)	Prevalence Index = B/A = <u>3.18</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>15</u>	x 2 = <u>30</u>																			
FAC species <u>85</u>	x 3 = <u>255</u>																			
FACU species <u>40</u>	x 4 = <u>160</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>140</u>	(A) <u>445</u> (B)																			
Prevalence Index = B/A = <u>3.18</u>																				
Sapling/Shrub Stratum (Plot size: <u>15</u>)																				
1. <u><i>Acer rubrum</i></u>	<u>55</u>	<u>Yes</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is $\leq 3.0^1$ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	<u>55</u> =Total Cover			¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes <u> </u> No <u> X </u>																
Herb Stratum (Plot size: <u>5</u>)																				
1. <u><i>Dryopteris</i></u>	<u>5</u>	<u>Yes</u>																		
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
	<u>5</u> =Total Cover																			
Woody Vine Stratum (Plot size: _____)																				
1. _____																				
2. _____																				
3. _____																				
4. _____																				
	_____ =Total Cover																			

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: OT-W-MR-06-L

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 4/3							Silt Loam
10-20	2.5Y 5/2							Silt Loam

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- High Chroma Sands (S11) (LRR K, L)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR K, L)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: North Yarmouth Solar Project City/County: North Yarmouth Sampling Date: 12/13/2021
 Applicant/Owner: Branch Renewable Energy State: ME Sampling Point: PLOT-W-MR-06-WET
 Investigator(s): Merrill Read Section, Township, Range: North Yarmouth
 Landform (hillside, terrace, etc.): Basin Local relief (concave, convex, none): Concave Slope (%): 2
 Subregion (LRR or MLRA): LRR R Lat: 43.828961 Long: 70.224584 Datum: Maine State Plane West
 Soil Map Unit Name: Lamoine silt loam NWI classification: PSS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, optional Wetland Site ID: <u>W-MR-06</u>
Remarks: (Explain alternative procedures here or in a separate report.) 	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>4</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

 Basin Wetland

VEGETATION – Use scientific names of plants.

Sampling Point: OT-W-MR-06-W

	Absolute % Cover	Dominant Species?	Indicator Status																	
Tree Stratum (Plot size: <u>30</u>)																				
1. <u><i>Acer rubrum</i></u>	<u>5</u>	Yes	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B) Prevalence Index worksheet: <table style="width:100%; border:none;"> <tr> <td style="width:50%; text-align:center;">Total % Cover of:</td> <td style="width:50%; text-align:center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>173</u></td> <td>x 2 = <u>346</u></td> </tr> <tr> <td>FAC species <u>10</u></td> <td>x 3 = <u>30</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>183</u></td> <td>(A) <u>376</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>2.05</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>173</u>	x 2 = <u>346</u>	FAC species <u>10</u>	x 3 = <u>30</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>183</u>	(A) <u>376</u> (B)	Prevalence Index = B/A = <u>2.05</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>173</u>	x 2 = <u>346</u>																			
FAC species <u>10</u>	x 3 = <u>30</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>183</u>	(A) <u>376</u> (B)																			
Prevalence Index = B/A = <u>2.05</u>																				
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
<u>5</u> =Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>15</u>)																				
1. <u><i>Ilex verticillata</i></u>	<u>10</u>	No	FACW	Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u><i>Alnus incana</i></u>	<u>70</u>	Yes	FACW																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
<u>80</u> =Total Cover																				
Herb Stratum (Plot size: <u>5</u>)																				
1. <u><i>Solidago rugosa</i></u>	<u>5</u>	No	FAC	Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes <u>X</u> No _____																
2. <u><i>Onoclea sensibilis</i></u>	<u>90</u>	Yes	FACW																	
3. <u><i>Epilobium ciliatum</i></u>	<u>3</u>	No	FACW																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
<u>98</u> =Total Cover																				
Woody Vine Stratum (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ =Total Cover																				

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: OT-W-MR-06-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 4/3							Silt
4-16	Gley 1 4/10Y		10YR 4/2	5				Silt
16+	Gley 1 4/5GY		10YR 4/4	15				Silt

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> High Chroma Sands (S11) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Marl (F10) (LRR K, L)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Dark Surface (S7)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):			
Type: _____			
Depth (inches): _____		Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No _____

Remarks:
 This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

Exhibit F:

Agency Correspondence



STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY

177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

December 15, 2021

Steve Knapp
BRI
30 Danforth Street, Suite 213
Portland, ME 04101

Via email: steve.knapp@brienvironmental.org

Re: Rare and exemplary botanical features in proximity to: #1342, Solar Project, Sweetser Road, North Yarmouth, Maine

Dear Mr. Knapp:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received December 15, 2021 for information on the presence of rare or unique botanical features documented from the vicinity of the project in North Yarmouth, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM
BLOSSOM LANE, DEERING BUILDING



PHONE: (207) 287-804490
WWW.MAINE.GOV/DACF/MNAP

Letter to BRI
Comments RE: Solar, North Yarmouth
December 15, 2021
Page 2 of 2

The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

The Maine Natural Areas Program has instituted a fee structure of \$75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for \$150.00 for two hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

A handwritten signature in cursive script, appearing to read "Kristen Puryear".

Kristen Puryear | Ecologist | Maine Natural Areas Program
207-287-8043 | kristen.puryear@maine.gov

Rare and Exemplary Botanical Features within 4 miles of Project: #1342, Solar Project, Sweetser Road, North Yarmouth, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Adder's Tongue Fern						
	SC	S1	G5	1905-08-10	7	Non-tidal rivershore (non-forested, seasonally wet),Open wetland, not coastal nor rivershore (non-forested, wetland),Old field/roadside (non-forested, wetland or upland)
American Chestnut						
	SC	S4	G3	2001-02-13	2	Hardwood to mixed forest (forest, upland)
Hollow Joe-pye Weed						
	SC	S2	G5?	2015-10-15	26	Open wetland, not coastal nor rivershore (non-forested, wetland),Old field/roadside (non-forested, wetland or upland)
Oak - Hickory Forest						
	<null>	S1	G4G5	2014-08-21	5	Hardwood to mixed forest (forest, upland)
Rattlesnake Hawkweed						
	E	S1	G5T4Q	1909-07	1	Dry barrens (partly forested, upland)
Salt-hay Saltmarsh						
	<null>	S3	G5	2009	24	Tidal wetland (non-forested, wetland)
	<null>	S3	G5	2015-08-19	62	Tidal wetland (non-forested, wetland)
Spotted Wintergreen						
	T	S2	G5	2009-07-26	30	Conifer forest (forest, upland),Hardwood to mixed forest (forest, upland)
Upper Floodplain Hardwood Forest						
	<null>	S3	GNR	2017-05-17	18	Forested wetland
Water-plantain Spearwort						
	PE	SH	G4	1903-07-29	2	Open water (non-forested, wetland)
Wild Leek						
	SC	S3	G5	2017-05-17	28	Hardwood to mixed forest (forest, upland),Forested wetland

Conservation Status Ranks

State and Global Ranks: This ranking system facilitates a quick assessment of a species' or habitat type's rarity and is the primary tool used to develop conservation, protection, and restoration priorities for individual species and natural habitat types. Each species or habitat is assigned both a state (S) and global (G) rank on a scale of 1 to 5. Factors such as range extent, the number of occurrences, intensity of threats, etc., contribute to the assignment of state and global ranks. The definitions for state and global ranks are comparable but applied at different geographic scales; something that is state imperiled may be globally secure.

The information supporting these ranks is developed and maintained by the Maine Natural Areas Program (state ranks) and NatureServe (global ranks).

Rank	Definition
S1 G1	Critically Imperiled – At very high risk of extinction or elimination due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors.
S2 G2	Imperiled – At high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
S3 G3	Vulnerable – At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
S4 G4	Apparently Secure – At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
S5 G5	Secure – At very low risk of extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.
SX GX	Presumed Extinct – Not located despite intensive searches and virtually no likelihood of rediscovery.
SH GH	Possibly Extinct – Known from only historical occurrences but still some hope of rediscovery.
S#S# G#G#	Range Rank – A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem.
SU GU	Unrankable – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
GNR SNR	Unranked – Global or subnational conservation status not yet assessed.
SNA GNA	Not Applicable – A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities (e.g., non-native species or ecosystems).
Qualifier	Definition
S#? G#?	Inexact Numeric Rank – Denotes inexact numeric rank.
Q	Questionable taxonomy that may reduce conservation priority – Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable. The “Q” modifier is only used at a global level.
T#	Intraspecific Taxon (trinomial) – The status of intraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank.

State Status: Endangered and Threatened are legal status designations authorized by statute. Please refer to MRSA Title 12, §544 and §544-B.

Status	Definition
E	Endangered – Any native plant species in danger of extinction throughout all or a significant portion of its range within the State or Federally listed as Endangered.
T	Threatened – Any native plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range in the State or Federally listed as Threatened.
SC	Special Concern – A native plant species that is rare in the State, but not rare enough to be considered Threatened or Endangered.
PE	Potentially Extirpated – A native plant species that has not been documented in the State in over 20 years, or loss of the last known occurrence.

Element Occurrence (EO) Ranks: Quality assessments that designate viability of a population or integrity of habitat. These ranks are based on size, condition, and landscape context. Range ranks (e.g., AB, BC) and uncertainty ranks (e.g., B?) are allowed. The Maine Natural Areas Program tracks all occurrences of rare plants and natural communities/ecosystems (S1-S3) as well as exemplary common natural community types (S4-S5 with EO ranks A/B).

Rank	Definition
A	Excellent – Excellent estimated viability/ecological integrity.
B	Good – Good estimated viability/ecological integrity.
C	Fair – Fair estimated viability/ecological integrity.
D	Poor – Poor estimated viability/ecological integrity.
E	Extant – Verified extant, but viability/ecological integrity not assessed.
H	Historical – Lack of field information within past 20 years verifying continued existence of the occurrence, but not enough to document extirpation.
X	Extirpated – Documented loss of population/destruction of habitat.
U	Unrankable – Occurrence unable to be ranked due to lack of sufficient information (e.g., possible mistaken identification).
NR	Not Ranked – An occurrence rank has not been assigned.

Visit the Maine Natural Areas Program website for more information
<http://www.maine.gov/dacf/mnap>





STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
353 WATER STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041



January 20, 2022

Steve Knapp
Biodiversity Research Institute
276 Canco Road
Portland, ME 04103

RE: Information Request – Sweetser Road Solar Project, North Yarmouth

Dear Steve:

Per your request received on December 15, 2021, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and inland fisheries habitat concerns within the vicinity of the *Sweetser Road Solar* project in North Yarmouth. Note that as project details are lacking, our comments are non-specific and should be considered preliminary.

Our Department has not mapped any Essential Habitats that would be directly affected by your project.

Endangered, Threatened, and Special Concern Species

Bats - Of the eight species of bats that occur in Maine, the three *Myotis* species are afforded special protection under Maine's Endangered Species Act (MESA, 12 M.R.S §12801 et. seq.): little brown bat (State Endangered), northern long-eared bat (State Endangered), and eastern small-footed bat (State Threatened). The five remaining bat species are designated as Species of Special Concern: big brown bat, red bat, hoary bat, silver-haired bat, and tri-colored bat. While a comprehensive statewide inventory for bats has not been completed, based on historical evidence, it is likely that several of these species occur within the project area during the fall/spring migration, the summer breeding season, and/or for overwintering. If the proposed project has a Federal nexus, either via funding or permitting, or if the project is not consistent with the USFWS "4(d) Rule", we recommend that you contact the U.S. Fish and Wildlife Service--Maine Fish and Wildlife Complex (Wende Mahaney, Wende_Mahaney@fws.gov, 207-902-1569) for further guidance on their perspective, as the northern long-eared bat is also listed as a Threatened Species under the Federal Endangered Species Act. The USFWS "4(d) Rule" provides guidance for protection of bat winter hibernacula and maternity roost trees for northern long-eared bats (see <https://www.fws.gov/midwest/endangered/mammals/nleb/4drule.html>). MDIFW Endangered Species Rules for bats (Chapter 8.06; see link at <http://www.maine.gov/sos/cec/rules/09/137/137c008.docx>) provide equivalent seasonal protection of maternity roost trees for any of the three state-listed bats, seasonally prohibits entry into subsurface winter hibernacula, and has additional protections for tree removal within ¼ mile of subsurface winter hibernacula. At present, no maternity roost trees have been designated for protection.

In addition to traditional hibernacula like caves and old mines, recent findings indicate that *Myotis* and big brown bats may also overwinter in exposed rocky features. To date, Maine talus and rocky outcrop studies have focused on relatively exposed slopes with minimal canopy cover, although ongoing research has shown that bats use rocky areas under the forest canopy. Occupied talus slopes in Maine have

consisted of variable rock sizes, ranging in size from softball-sized to car-sized boulders. Rock piles, rock ledges, and small vertical cracks in rocks (>1/2-inch-wide) create crevices that allow bats to access deeper cavities that provide protection for predators and suitable temperature and humidity conditions. Some species of bat, like the eastern small-footed bat, use rocky features year-round. A desktop GIS analysis does not indicate the presence of these features in your project area; however, not all talus and rocky features have been mapped statewide. Therefore, we advise that all areas of talus and rocky features of approximately 1,000 square feet or greater in size be documented on and within 250 feet of your project area, including smaller areas of rock piles and tailings (i.e., quarry spoils). See attached photographs for representative features—these photographs are not all-inclusive and should be used for guidance purposes only. Detailed photographs and coordinates should be submitted to MDIFW for review, and acoustic monitoring may be recommended to document occupancy. Alternatively, these features should be appropriately buffered commensurate with the size and layout of the project. If these features are not present in the project area, our Agency does not anticipate significant impacts to any of the bat species as a result of this project based on currently best available science.

Significant Wildlife Habitat

Significant Vernal Pools - At this time MDIFW Significant Wildlife Habitat (SWH) maps indicate no known presence of SWHs subject to protection under the Natural Resources Protection Act (NRPA) within the project area, which include Waterfowl and Wading Bird Habitats, Seabird Nesting Islands, Shorebird Areas, and Significant Vernal Pools. However, a comprehensive statewide inventory for Significant Vernal Pools has not been completed. Therefore, we recommend that surveys for vernal pools be conducted within the project boundary by qualified wetland scientists prior to final project design to determine whether there are Significant Vernal Pools present in the area. These surveys should extend up to 250 feet beyond the anticipated project footprint because of potential performance standard requirements for off-site Significant Vernal Pools, assuming such pools are located on land owned or controlled by the applicant. Once surveys are completed, survey forms should be submitted to our Agency for review well before the submission of any necessary permits. Our Department will need to review and verify any vernal pool data prior to final determination of significance.

Fisheries Habitat

We generally recommend maintaining 100-foot undisturbed vegetated buffers from the upland edge of all intermittent and perennial streams and any contiguous wetlands. Maintaining and enhancing buffers along these resources is critical to the protection of water temperatures, water quality, natural inputs of coarse woody debris, and various forms of aquatic life necessary to support fish and other aquatic species. Riparian buffers also provide critical habitat and important travel corridors for a variety of wildlife species. Stream crossings should be avoided, but if a stream crossing is necessary, or an existing crossing needs to be modified, it should be designed to provide for full aquatic passage. Small streams, including intermittent streams, can provide crucial rearing habitat, cold water for thermal refugia, and abundant food for juvenile salmonids on a seasonal basis. Undersized crossings may inhibit these functions and become a frequent maintenance problem that causes reoccurring damage to the resource. Generally, MDIFW recommends that all new, modified, and replacement stream crossings be sized to span at least 1.2 times the bankfull width of the stream. In addition, we generally recommend that stream crossings be open bottomed (i.e. natural bottom), although embedded structures which are backfilled with representative streambed material have been shown to be effective in providing habitat connectivity for fish and other aquatic organisms. Construction Best Management Practices should be closely followed to avoid erosion, sedimentation, alteration of stream flow, and other impacts as eroding soils can travel

significant distances as well as transport other pollutants resulting in direct impacts to fish, other aquatic life, and their habitats. In addition, we recommend that any necessary instream work occur between July 15 and October 1.

Wildlife Permeable Fencing

To enhance the use of the project area by smaller animals, and in consideration of the need for site safety and security, we recommend the use of wildlife-permeable fencing. Options for wildlife-permeable fencing includes the use of larger mesh fencing, similar to typical highway right-of-way fencing, with large (12-in. x 12-in.) holes along the bottom of the fence, spaced evenly along the entire perimeter of the fence line every 20-25 feet. Alternatively, the fence can be installed so that there is at least 12 inches of clearance along the entire perimeter bottom.

This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance we recommend additional consultation with the municipality, and other state resource agencies including the Maine Natural Areas Program, Maine Department of Marine Resources, and Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance.

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,



Becca Settele
Wildlife Biologist

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402000

4854000

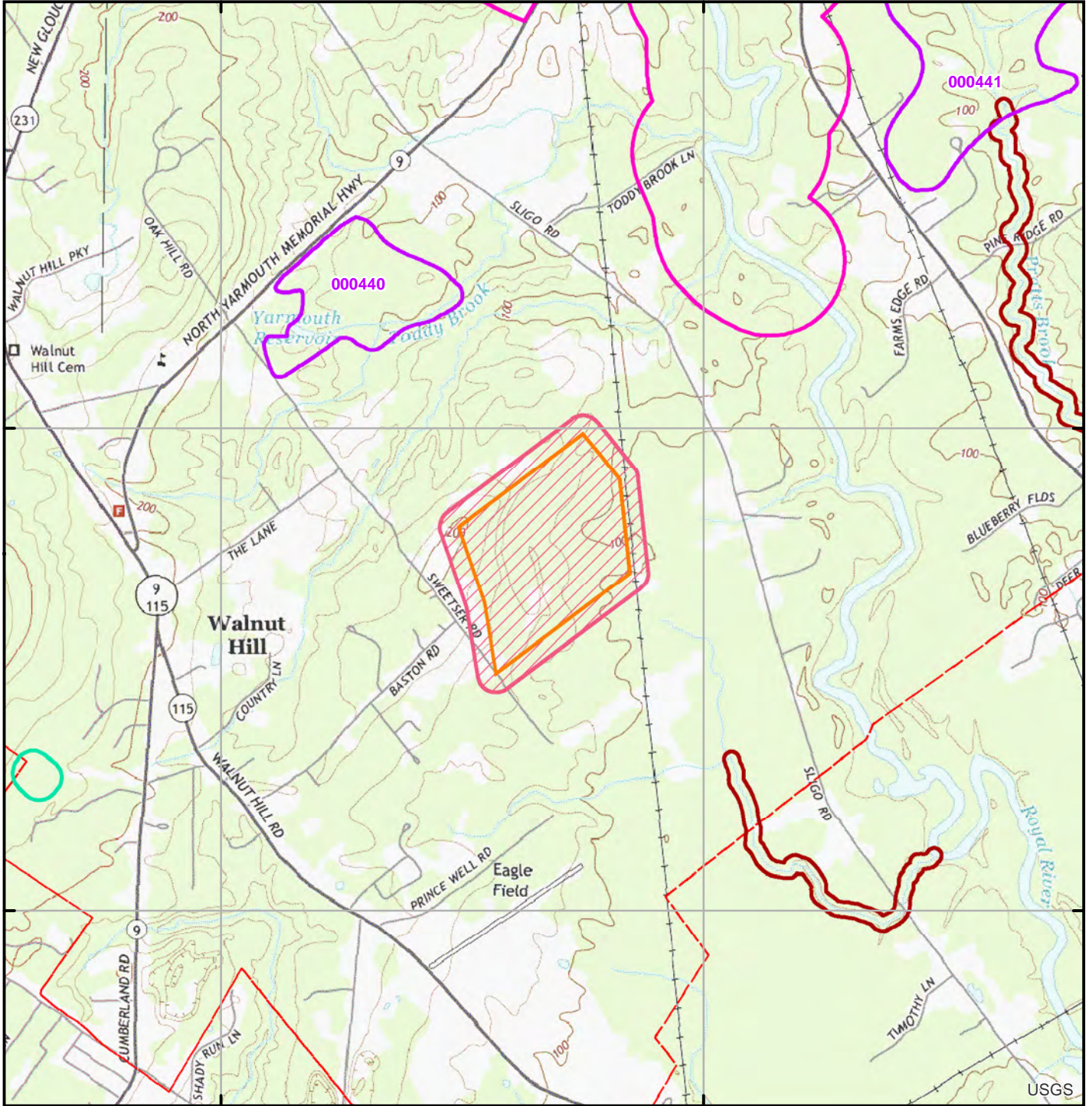
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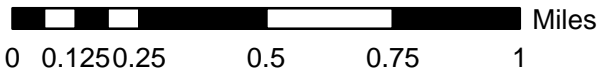


Environmental Review of Fish and Wildlife Observations and Priority Habitats

Project Name: Sweetser Road Solar, North Yarmouth
(Version 1)



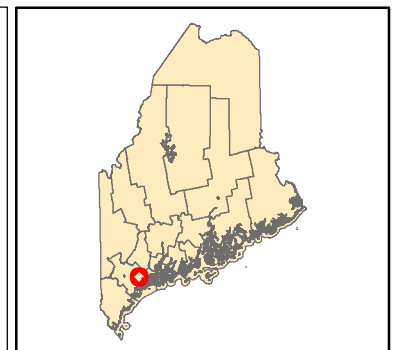
Maine Department of
Inland Fisheries and Wildlife



Projection: UTM, NAD83, Zone 19N

Date: 12/16/2021

- | | | |
|-----------------------------------|---------------------------------------------------------|------------------------------|
| ProjectSearchAreas - All Versions | Deer Winter Area | Roseate Tern |
| Maine Cliff and Talus Areas | LUPC p-fw | Piping Plover and Least Tern |
| Cooperative DWAs | Seabird Nesting Islands | Aquatic ETSc - 2.5 mi review |
| Shorebird Areas | Inland Waterfowl and Wading Bird | Rare Mussels - 5 mi review |
| 2008 Iwwh - Shoreland Zoning | 2008 Iwwh - Shoreland Zoning | Maine Heritage Fish Waters |
| Tidal Waterfowl and Wading Bird | Significant Vernal Pools | Arctic Charr Habitat |
| Environmental Review Polygons | Special Concern occupied habitats - 100ft buffer | Wild Lake Trout Habitats |
| | Redfin Pickerel and Swamp Darter Habitats - buffer100ft | |



Attachment 7

Alternatives Analysis

ATTACHMENT 7: ALTERNATIVES ANALYSIS

The Project limit of disturbance (LOD) will be located entirely within Tax Map 5, Lot 2 in North Yarmouth, Maine (Site). This Site was chosen due to its previously disturbed nature, as well as the proximity to transmission infrastructure and the willingness of the landowner. A formal wetland and waterbody delineation was performed on the Project parcel, and has informed the Project layout. No streams are present on the Site. Nine wetlands were identified, none of which are wetlands of special significance (WOSS).

Alternative 1

Initially, the proposed Project included development within the eastern portion of the Site. This alternative was rejected for two reasons: 1) developing an array in this area would require the removal of larger and more mature trees than in the Preferred Alternative; and 2) the eastern portion of the parcel includes more expansive wetlands, so installing solar panels in this area would have resulted in more extensive wetland impact.

Alternative 2

The Project team investigated the possibility of extending the proposed solar array south into the space between the overhead power lines and the access road. However, the Yarmouth Water District maintains producing wells nearby, and in this alternative the Project would overlap with the Zone 1 Well Protection Area around these wells. At the request of the Yarmouth Water District, the Project team agreed to keep all equipment out of this area, including solar panels.

Preferred Alternative

The preferred alternative (and the alternative ultimately proposed by the Project) avoids the eastern wetlands and the southern Zone 1 Well Protection Area, consequently reducing the space in which solar panels can be installed. To keep the Project viable, the limited wetland impacts proposed in this alternative by the Project are necessary.

These impacts include 22,455 square feet of total wetland impact: 20 square feet resulting from posts driven into wetlands; 6,100 square feet of shading resulting from panels over wetlands; and 16,335 square feet of conversion, where forested and scrub-shrub wetlands will be converted to wet meadow wetlands. Aside from racking posts and fence posts, no permanent wetland fill is proposed.

The Project has been designed to minimize wetland impacts to the greatest extent practicable, although some impacts are unavoidable. Tree clearing will take place outside of the months of June and July, limiting impacts to wildlife. During construction and operation, Best Management Practices for erosion and sedimentation control will prevent unauthorized releases into wetland habitats. Native vegetation within the wetlands will be preserved as much as practicable, and disturbed areas will be stabilized and re-vegetated with a native wildlife/conservation seed mix.

Attachment 8

Erosion and Sediment Control Plan

**EROSION AND SEDIMENTATION CONTROL
INSPECTION AND MAINTENANCE PLAN**

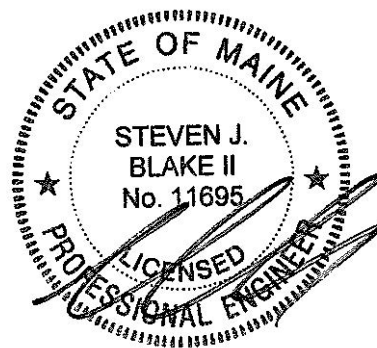
**WATER LINE SOLAR PROJECT
238 Sweetser Road
North Yarmouth, Maine**

**For
Water Line Solar, LLC**

A subsidiary of



Prepared by:



Date:
March 2022

TABLE OF CONTENTS

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1.3	REFERENCES	2
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LIST OF APPENDICES

APPENDIX A	Plans
APPENDIX B	Construction Inspection Forms
APPENDIX C	Post-Construction Inspection Forms
APPENDIX D	Inspection Frequency Checklist and Long-Term Inspection & Maintenance Plan

1.0 INTRODUCTION

The intent of this plan is to establish inspection and maintenance procedures to be implemented for erosion and sediment control best management practices (BMP's) during construction, as well as for post-construction stormwater BMP's, for the proposed Water Line Solar Project, located in North Yarmouth, Maine. This plan has been prepared in conformance with the requirements set forth in 06-096 Chapter 500 – Stormwater Management and the Maine Construction General Permit.

1.1 PROJECT DESCRIPTION

Water Line Solar, LLC, a subsidiary of Branch Renewable Energy, is proposing to construct the Project, a single axis tracker solar array off of Sweetser Road in North Yarmouth, Maine. The Project is proposed to occupy 14.42 acres on a portion of the parcel known as Tax Map 5 Lot 2. The project is required to obtain a Stormwater Permit By Rule to be compliant with Chapter 500 Rules. The generation capacity of the Project is designed to be 1.99 megawatts (MW) and electricity generated at the site will be interconnected to the existing distributed generation 3-phase power line along Sweetser Road.

The scope of work includes but is not limited to:

- Tree clearing (13.37 acres +/-)
- Stump and boulder removal
- Construction of a 16' wide gravel access road
- Construction of a temporary staging area
- Installation of solar panels and associated support equipment and structures
- Installation of buried and overhead collector lines
- Restoration of disturbed areas

Construction of the project will be planned to occur incrementally in blocks of no more than 5-acres. Sequencing of construction will be structured so that the 5-acre blocks will be stabilized prior to commencing construction of subsequent 5-acre blocks.

1.2 LIST OF PERMITS

The following is a list of Municipal, State, and Federal permits that have been granted for the Project:

Municipal

Town of North Yarmouth Site Plan Permit

State of Maine

Stormwater Management Law – Permit by Rule

Federal

None

1.3 REFERENCES

This plan has been developed in accordance with the following references:

- Stormwater Management Law 38 M.R.S. §420-C and §420-D
<http://legislature.maine.gov/statutes/38/title38sec420-C.html>
<http://legislature.maine.gov/statutes/38/title38sec420-D.html>
- 06-096 Chapter 500 – Stormwater Management
<http://www.maine.gov/sos/cec/rules/06/096/096c500.docx>
- General Permit – Construction Activity
Maine Pollutant Discharge Elimination System (MPDES)
<https://www.maine.gov/dep/land/stormwater/construction.html>
- Maine Erosion and Sediment Control Best Management Practices (BMPs)
Manual for Designers and Engineers
https://www.maine.gov/dep/land/erosion/escbmeps/esc_bmp_engineers.pdf
- Maine Erosion and Sediment Control Practices Field Guide for Contractors
https://www.maine.gov/dep/land/erosion/escbmeps/esc_bmp_field.pdf
- MaineDOT Best Management Practices for Erosion and Sedimentation Control
<https://www.maine.gov/mot/env/documents/bmp/BMP2008full.pdf>

1.4 RESPONSIBLE PARTIES

Preparer/Design Engineer: BH2M
380B Main Street
Gorham, ME 04038
(207) 839-2771

Owner: Water Line Solar, LLC

General Contractor: _____

Third Party Inspector: _____

Post Construction Stormwater Inspector: _____

During construction the General Contractor will be responsible for implementing the erosion and sediment control BMP's as well as routine inspections and maintenance of the BMP's. The Owner will retain a third-party inspector to perform weekly inspections of the erosion and sediment control BMP's during construction.

Post-construction stormwater BMP inspections, maintenance, reporting, and required recertifications will be the responsibility of the Owner or their representatives

1.5 INSPECTION AND MAINTENANCE – DURING CONSTRUCTION

Anyone who conducts or directs an activity that involves exposing, filling or displacing soil or other earthen materials should take appropriate measures to prevent erosion and the loss of sediment beyond the project site or into a sensitive resource. Erosion and sediment control measures should be in place before the activity begins and should remain functional until the site is permanently stabilized. All measures should remain effective until all areas are permanently stabilized. Any disturbed area should be regularly inspected until the site is fully stabilized with either 90% grass cover or a permanent impervious surface such as pavement. A person who has the knowledge of erosion and sediment control measures and of stormwater management practices should inspect the site at a minimum once a week, and before and after a storm event. Any failing measure should be repaired or modified to adequately stabilize the site prior to the next storm event or no later than 7 calendar days. The inspection frequency table found in Appendix F shall be used as a guide for inspecting each specific BMP. The inspection form found in Appendix B shall be used to record the inspection, its outcome, and the required maintenance.

Refer to the Plans found in Appendix A for additional erosion and sediment control details and narratives

General Inspection, Maintenance, and Documentation Requirements

1. Inspection and corrective action: Inspect disturbed and impervious areas, erosion control measures, and material storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. Inspect these areas at least once a week as well as before and within 24 hours after a storm event, and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections.
2. Maintenance: If BMP's need to be repaired, the repair work should be initiated upon discovery of the problem but no later than the end of the next workday. If additional BMPs or significant repair of BMPs are necessary, implementation must be completed within 7 calendar days and prior to any storm event. All measures must be maintained in effective operating condition until areas are permanently stabilized.
3. Documentation: Maintain a binder with construction inspection forms summarizing the inspections and any corrective action taken. The forms must include the name and qualifications of the person making the inspections, the date of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, materials storage areas, and vehicle access points to the parcel. Refer to Appendix B for the construction inspection form. Major observations must include BMP's that need maintenance, BMP's that failed to operate as designed or proved

inadequate for a particular location, and locations where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the inspection form what corrective action taken and when it was taken. The Owner shall retain a copy of the inspection forms for a period of at least five years from the completion of permanent stabilization.

Site-Specific BMP's

Refer to Appendix D for inspection and maintenance requirements and frequencies of site-specific BMP's. Refer to the Plans found in Appendix A for narratives and details of the site-specific BMP's. The following is a list of the site-specific BMP's that may be required for the project:

- Sedimentation Barriers (Silt Fence or Erosions Control Mix Berm)
- Stabilized Construction Entrance
- Staging Area
- Construction Limit Barrier Fence
- Slope Stabilization
- Concrete Washout Structure
- Stone Check Dam
- Water Bar
- Level Spreader/Ditch Turnout
- Pumped Discharge Sediment Control Device "Dirt Bag"
- Temporary Sediment Trap
- Pipe Outlet Protection
- Temporary Grass/Stone Lined Swale

Winter Constriction

Winter construction is construction activity performed during the period from November 1 through April 15. If disturbed areas are not stabilized with permanent measures by November 1 or new soil disturbance occurs after November 1, but before April 15, then these areas must be protected and runoff from them must be controlled by additional measures and restrictions.

1. Site Stabilization: For winter stabilization, hay mulch is applied at twice the standard temporary stabilization rate. At the end of each construction day, areas that have been brought to final grade must be stabilized. Mulch may not be spread on top of snow.
2. Sediment Barriers: All areas within 75 feet of a protected natural resource must be protected with a double row of sediment barriers.
3. Ditches: All vegetated ditch lines that have not been stabilized by November 1, or will be worked during the winter construction period, must be stabilized with an appropriate stone lining backed by an appropriate gravel bed or geotextile unless specifically released from this standard by Maine DEP.

-
4. Slopes: Mulch netting must be used to anchor mulch on all slopes greater than 8% unless erosion control blankets or erosion control mix is being used on these slopes.

Refer to the Plans contained in Appendix A for additional winter construction erosion and sediment control requirements.

1.6 INSPECTION AND MAINTENANCE – POST-CONSTRUCTION

The long-term operation and maintenance of a stormwater management system is as critical to its performance as its design and construction. Proper operation and maintenance practices ensure that stormwater BMP's continue to improve water quality by removing pollutants effectively over the long-term and decreasing the risk of re-suspending sediment. Without proper maintenance, BMPs are likely to fail and will no longer provide treatment of stormwater. The following includes a summary of the inspection, maintenance, and documentation requirements for post-construction stormwater BMP's.

Refer to the Plans contained in Appendix A for details and locations of site-specific post-construction BMP's.

General Inspection, Maintenance, and Documentation Requirements

1. Inspection and maintenance: All measures must be maintained in effective operating condition. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections. The following areas, facilities, and measures must be inspected and identified deficiencies must be corrected. Areas, facilities, and measures other than those listed below may also require inspection on a specific site.
 - a. Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after significant rainfall events (0.5 inches in 24-hour period) to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.
 - b. Inspect ditches, swales and other open stormwater channels in the spring, in late fall, and after significant rainfall events (0.5 inches in 24-hour period) to remove any obstructions to flow, remove accumulated sediments and debris, to control vegetated growth that could obstruct flow, and to repair any erosion of the ditch lining. Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones

have dislodged. The channel must receive adequate routine maintenance to maintain capacity and prevent or correct any erosion of the channel's bottom or side slopes.

- c. Inspect culverts in the spring, late fall, and after significant rainfall events (0.5 inches in 24-hour period) to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, outlet, and within the conduit. Repair any erosion damage at the culvert's inlet and outlet.
- d. Inspect resource and treatment buffers once a year for evidence of erosion, concentrating flow, and encroachment by development. If flows are concentrating within a buffer, site grading, level spreaders, or ditch turn-outs must be used to ensure a more even distribution of flow into a buffer. Check down slope of all level spreaders and turn-outs for erosion. If erosion is present, adjust or modify the level spreader's or turn-out's lip to ensure a better distribution of flow into a buffer. Clean-out any accumulation of sediment within the level spreader bays or turn-out pools.

2. Regular maintenance

- a. Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring. Accumulations on pavement may be removed by pavement sweeping. Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader. Grading of gravel roads, or grading of the gravel shoulders of gravel or paved roads, must be routinely performed to ensure that stormwater drains immediately off the road surface to adjacent buffer areas or stable ditches, and is not impeded by accumulations of graded material on the road shoulder or by excavation of false ditches in the shoulder. If water bars or open-top culverts are used to divert runoff from road surfaces, clean-out any sediments within or at the outlet of these structures to restore their function.
 - b. Manage each buffer's vegetation consistently with the requirements in any deed restrictions for the buffer. Wooded buffers must remain fully wooded and have no disturbance to the duff layer. Vegetation in non-wooded meadow buffers may not be mowed more than two times per year, and may not be cut shorter than six inches.
3. Documentation: Maintain a binder of inspection forms summarizing inspection, maintenance, and any corrective actions taken. The inspection forms must include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. Refer to Appendix C for inspection forms. If a maintenance task requires the clean-out of any sediments or debris, indicate where the sediment and debris was disposed of after removal. The log must

be made accessible to Department staff and a copy provided to the Department upon request. The Owner shall retain a copy of the logs for a period of at least five years from the completion of permanent stabilization.

1.7 **HOUSEKEEPING**

The following performance standards shall apply:

1. Spill prevention. Controls must be used to prevent pollutants from construction and waste materials stored on site to enter stormwater, which includes storage practices to minimize exposure of the materials to stormwater. The site contractor or operator must develop, and implement as necessary, appropriate spill prevention, containment, and response planning measures.

NOTE: Any spill or release of toxic or hazardous substances must be reported to the Department. For oil spills, call 1-800-482-0777 which is available 24 hours a day. For spills of toxic or hazardous material, call 1-800-452-4664 which is available 24 hours a day. For more information, visit the Department's website at: <http://www.maine.gov/dep/spills/emergspillresp/>

2. Groundwater protection. During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials. Any project proposing infiltration of stormwater must provide adequate pre-treatment of stormwater prior to discharge of stormwater to the infiltration area, or provide for treatment within the infiltration area, in order to prevent the accumulation of fines, reduction in infiltration rate, and consequent flooding and destabilization.

See 06-096 Chapter 500 - Appendix D for license by rule standards for infiltration of stormwater.

NOTE: Lack of appropriate pollutant removal best management practices (BMPs) may result in violations of the groundwater quality standard established by 38 M.R.S.A. §465-C(1).

3. Fugitive sediment and dust. Actions must be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control, but other water additives may be considered as needed. A stabilized construction entrance (SCE)

should be included to minimize tracking of mud and sediment. If off-site tracking occurs, public roads should be swept immediately and no less than once a week and prior to significant storm events. Operations during dry months, that experience fugitive dust problems, should wet down unpaved access roads once a week or more frequently as needed with a water additive to suppress fugitive sediment and dust.

NOTE: Dewatering a stream without a permit from the Department may violate state water quality standards and the *Natural Resources Protection Act*.

4. Debris and other materials. Minimize the exposure of construction debris, building and landscaping materials, trash, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials to precipitation and stormwater runoff. These materials must be prevented from becoming a pollutant source.

NOTE: To prevent these materials from becoming a source of pollutants, construction and post- construction activities related to a project may be required to comply with applicable provision of rules related to solid, universal, and hazardous waste, including, but not limited to, the Maine solid waste and hazardous waste management rules; Maine hazardous waste management rules; Maine oil conveyance and storage rules; and Maine pesticide requirements.

5. Excavation de-watering. Excavation de-watering is the removal of water from trenches, foundations, coffer dams, ponds, and other areas within the construction area that retain water after excavation. In most cases the collected water is heavily silted and hinders correct and safe construction practices. The collected water removed from the ponded area, either through gravity or pumping, must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved by the Department.

NOTE: Dewatering controls are discussed in the “Maine Erosion and Sediment Control BMPs, Maine Department of Environmental Protection.”

6. Authorized Non-stormwater discharges. Identify and prevent contamination by non-stormwater discharges. Where allowed non-stormwater discharges exist, they must be identified and steps should be taken to ensure the implementation of appropriate pollution prevention measures for the non-stormwater component(s) of the discharge. Authorized non-stormwater discharges are:

- a. Discharges from firefighting activity;

-
- b. Fire hydrant flushings;
 - c. Vehicle washwater if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);
 - d. Vehicle washwater if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);
 - e. Dust control runoff in accordance with permit conditions and Appendix (C)(3);
 - f. Routine external building washdown, not including surface paint removal, that does not involve detergents;
 - g. Pavement washwater (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material had been removed) if detergents are not used;
 - h. Uncontaminated air conditioning or compressor condensate;
 - i. Uncontaminated groundwater or spring water;
 - j. Foundation or footer drain-water where flows are not contaminated;
 - k. Uncontaminated excavation dewatering (see requirements in Appendix C(5));
 - l. Potable water sources including waterline flushings; and
 - m. Landscape irrigation.
7. Unauthorized non-stormwater discharges. The Department's approval under this Chapter does not authorize a discharge that is mixed with a source of non-stormwater, other than those discharges in compliance with 06-096 Chapter 500 - Appendix C (6). Specifically, the Department's approval does not authorize discharges of the following:
- a. Wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds or other construction materials;
 - b. Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance;
 - c. Soaps, solvents, or detergents used in vehicle and equipment washing; and
 - d. Toxic or hazardous substances from a spill or other release.
8. Additional requirements. Additional requirements may be applied on a site-specific basis.

Appendix A
Plans

Appendix B
Construction Inspection Forms

CONSTRUCTION INSPECTION FORM FOR EROSION AND SEDIMENT CONTROL					
General Information:					
Site Name:	Date:	Inspected by:			
Owner:					
Retained 3PI:	Last Rain Date:	Amount:			
Reason for Inspection:	Weekly	Winter	Final	Rain Event	Complaint
Description of disturbed area:					
Photos:					
	YES/NO/NA	COMMENTS			
1. Is an Erosion and Sediment Control Plan available?					
ESC plan on-site and followed					
Other:					
2. Are all erosion control practices installed properly, maintained and functioning?					
Disturbed areas stable					
Concentrated flow inlet/outlet protection					
All areas at final grade					
Disturbed dormant areas stabilized					
Access roads and parking					
Hillsides and stockpiles					
Other:					
3. Are all sedimentation control practices installed properly, maintained and functioning?					
Construction entrance					
Sedimentation basins/traps/diversions					
Perimeter controls					
Check dams					
Other:					
4. Is maintenance of ESC measures, construction activities and housekeeping kept-up?					
Sedimentation/erosion in ditches					
Tracked Sediment or dust at exits					
Hazardous material storage and spill control practices					
Waste management (concrete, hazardous material, etc.)					
Other:					
5. Violation, Corrective Actions, Recommendations					
Sediment discharged from site?					
Corrective action required?					
Site compliant with all permits?					
Notice of violation or stop work order issued?					
Comments/Corrective Actions (complete corrective actions before the next rain event and within 7 day)					

**Water Line Solar Project
Post-Construction Inspection Form (Buffers/Level Spreaders)**

Project name:	Date:	Inspected by:
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Owner name:

Last rain date:	Amount:
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Reason for inspection:	Rain Event	Monthly	Annually	Maint. Performed	Other (Specify)
------------------------	------------	---------	----------	------------------	-----------------

General description of BMP condition:

Photos: (Attach)

Inspection Details	Comments	Maintenance Required
Erosion or concentrated flows evident?		
Downgradient of level spreaders stable?		
Level spreaders built along contour?		
Evidence of accumulated sediment in level spreader trough?		
Number of level spreaders adequate for flow distribution?		
Buffer monumentation visible?		
Evidence of buffer vegetation removal or frequent mowing?		
Temporary or permanent structures within the buffer?		
Evidence of motorized vehicles operating in buffer?		
Trash, debris, or waste within buffer area?		

Additional Comments:

**Water Line Solar Project
Post-Construction Inspection Form (Roadway and Parking Areas)**

Project name:	Date:	Inspected by:
---------------	-------	---------------

Owner name:

Last rain date:	Amount:
-----------------	---------

Reason for inspection:	Rain Event	Monthly	Annually	Maint. Performed	Other (Specify)
------------------------	------------	---------	----------	------------------	-----------------

General description of BMP condition/recent maintenance performed:

Photos: (Attach)

Inspection Details	Comments	Maintenance Required
Winter sand accumulation apparent?		
Pavement Sweeping required?		
Gravel shoulders graded appropriately?		
Gravel road grading required?		
Low spots causing puddling?		

Additional Comments:

**Water Line Solar Project
Post-Construction Inspection Form (Storm Drain System including catch basins and culverts)**

Project name:	Date:	Inspected by:
---------------	-------	---------------

Owner name:

Last rain date:	Amount:
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Reason for inspection:	Rain Event	Monthly	Annually	Maint. Performed	Other (Specify)
------------------------	------------	---------	----------	------------------	-----------------

General description of BMP condition/recent maintenance performed:

Photos: (Attach)

Inspection Details	Comments	Maintenance Required
Accumulated debris or sediment at inlet, outlet, or within culvert/storm drain?		
Flow obstructions present?		
Erosion apparent at culvert inlet/outlet?		
Accumulated debris around catch basin grate?		
Accumulated debris in catch basin sump?		
Floating debris or oils found in catch basins?		

Additional Comments:

**Water Line Solar Project
Post-Construction Inspection Form (Vegetated Area)**

Project name:	Date:	Inspected by:
---------------	-------	---------------

Owner name:

Last rain date:	Amount:
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Reason for inspection:	Rain Event	Monthly	Annually	Maint. Performed	Other (Specify)
------------------------	------------	---------	----------	------------------	-----------------

General description of BMP condition/recent maintenance performed:

Photos: (Attach)

Inspection Details	Comments	Maintenance Required
All slopes and embankments well vegetated? Signs of sparse growth?		
Rill erosion apparent in vegetated areas?		
Downs slope of level spreaders/ditch turnouts stable?		
Mowing of vegetated areas appropriate?		

Additional Comments:

Appendix D
Inspection Frequency Checklist

EROSION AND SEDIMENT CONTROL MEASURES AND ACTIVITY	INSPECTION FREQUENCY		
	Weekly	Before and After a Storm	After Construction
SEDIMENT BARRIERS			
Sediment barriers are installed prior to soil disturbances	X	X	
Silt fences are keyed in and tight	X	X	
Barriers are repaired and replaced as necessary	X	X	
Barriers are removed when the site is stabilized - Silt fence should be cut at the ground surface			X
TEMPORARY STABILIZATION			
Areas are stabilized if idle for 14 days or more	X	X	
Daily stabilization within 100 ft of a natural resource	X	X	
MULCH			
Seed and mulch within 7 days of final grading. Ground is not visible	X	X	
Erosion control mix is 4-6 inch thick	X	X	
Erosion control blankets or hay mulch are anchored	X	X	
VEGETATION			
Vegetation provides 90% soil cover	X		X
Loam or soil amendment were provided	X		X
New seeded areas are mulched and protected from vehicle, foot traffic and runoff	X	X	X
Areas that will remain unworked for more than 1 year are vegetated with grass	X		
SLOPES AND EMBANKMENTS			
Final graded slopes and embankments are stabilized	X	X	X
Diversions are provided for areas with rill erosion	X	X	X
Areas steeper than 2:1 are riprapped	X		
Stones are angular, durable and various in size	X		
Riprap is underlain with a gravel layer or filter fabric	X		
STORMWATER CHANNELS AND CULVERTS			
Ditches and swales are permanently stabilized—channels that will be riprapped have been over-excavated	X	X	X
Ditches are clear of obstructions, accumulated sediments or debris	X	X	X
Ditch lining/bottoms are free of erosion	X	X	X
Check dams are spaced correctly to slow flow velocity	X		
Underlying filter fabric or gravel is not visible	X	X	X
Culvert aprons and plunge pools are sized for expected flows volume and velocity	X		
Stones are angular, durable and various in size	X		
Culverts are sized to avoid upgradient flooding	X	X	
Culvert protection extends to the maximum flow elevation within the ditch	X	X	X
Culvert is embedded, not hanging	X	X	X

CATCH BASIN SYSTEMS			
Catch basins are built properly	X		
Accumulated sediments and debris are removed from sump, grate and collection area		X	X
Floating debris and floating oils are removed from trap			X
ROADWAYS AND PARKING SURFACES			
The gravel pad at the construction entrance is clear from sediments	X	X	
Roads are crowned		X	X
Cross drainage (culvert) is provided	X		
False ditches (from winter sand) are graded		X	X
BUFFERS			
Buffers are free of erosion or concentrated flows		X	X
The downgradient of spreaders and turnouts is stable		X	X
Level spreaders are on the contour			X
The number of spreaders and ditch turnouts is adequate for flow distribution		X	X
Any sediment accumulation is removed from within spreader or turnouts		X	X
STORMWATER BASINS AND TRAPS			
Embankments are free of settlement, slope erosion, internal piping, and downstream swamping		X	X
All flow control structure or orifices are operational and clear of debris or sediments		X	X
Any pre-treatment structure that collects sediment or hydrocarbons is clean or maintained		X	X
Vegetated filters and infiltration basins have adequate grass growth			X
Any impoundment or forebay is free of sediment		X	X
WINTER CONSTRUCTION (November 1st-April 15th)			
Final graded areas are mulched daily at twice the normal rate with hay, and anchor (not on snow)	Daily		
A double row of sediment barrier is provided for all areas within 100 ft of a sensitive resource (use erosion control mix on frozen ground)	Daily		
Newly constructed ditches are rippapped	Daily		
Slopes greater than 8% are covered with an erosion control blanket or a 4-inch layer of erosion control mix	Daily		
HOUSEKEEPING PUNCH LIST			
All disturbed areas are permanently stabilized, and plantings are established (grass seeds have germinated with 90% vegetative cover)			X
All trash, sediments, debris or any solid waste have been removed from stormwater channels, catch basins, detention structures, discharge points, etc.			X
All ESC devices have been removed: (silt fence and posts, diversions and sediment structures, etc.)			X
All deliverables (certifications, survey information, as-built plans, reports, notice of termination (NOT), etc.) in accordance with all permit requirements have been submitted to town, Maine DEP, association, owner, etc.			X

INSPECTION AND MAINTENANCE PLAN FOR STORMWATER MANAGEMENT STRUCTURES (BMPS)

	INSPECTION SCHEDULE	CORRECTIVE ACTIONS
VEGETATED AREAS	Annually early spring and after heavy rains	Inspect all slopes and embankments and replant areas of bare soil or with sparse growth
		Armor rill erosion areas with riprap or divert the runoff to a stable area
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Mow vegetation as specified for the area
DITCHES, SWALES AND OPEN STORMWATER CHANNELS	Annually spring and late fall and after heavy rains	Remove obstructions, sediments or debris from ditches, swales and other open channels
		Repair any erosion of the ditch lining
		Mow vegetated ditches
		Remove woody vegetation growing through riprap
		Repair any slumping side slopes
		Repair riprap where underlying filter fabric or gravel is showing or if stones have dislodge
CULVERTS	Spring and late fall and after heavy rains	Remove accumulated sediments and debris at the inlet, outlet, or within the conduit
		Remove any obstruction to flow
		Repair any erosion damage at the culvert's inlet and outlet
CATCH BASINS	Annually in the spring	Remove sediments and debris from the bottom of the basin and inlet grates
		Remove floating debris and oils (using oil absorptive pads) from any trap
ROADWAYS AND PARKING AREAS	Annually in the spring or as needed	Clear and remove accumulated winter sand in parking lots and along roadways
		Sweep pavement to remove sediment
		Grade road shoulders and remove accumulated winter sand
		Grade gravel roads and gravel shoulders
		Clean out the sediment within water bars or open-top culverts
		Ensure that stormwater runoff is not impeded by false ditches of sediment in the shoulder
RESOURCE AND TREATMENT BUFFERS	Annually in the spring	Inspect buffers for evidence of erosion, concentrated flow, or encroachment by development
		Manage the buffer's vegetation with the requirements in any deed restrictions
		Repair any sign of erosion within a buffer
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Install more level spreaders, or ditch turn-outs if needed for a better distribution of flow
		Clean out any accumulation of sediment within the spreader bays or turnout pools
		Mow non-wooded buffers no shorter than six inches and less than three times per year
WETPONDS AND DETENTION BASINS	Annually in fall and after heavy rains	Inspect the embankments for settlement, slope erosion, piping, and slumping
		Mow the embankment to control woody vegetation
		Inspect the outlet structure for broken seals, obstructed orifices, and plugged trash racks
		Remove and dispose of sediments and debris within the control structure
		Repair any damage to trash racks or debris guards
		Replace any dislodged stone in riprap spillways
FILTRATION AND INFILTRATION BASINS	Annually in the spring and late fall	Clean the basin of debris, sediment and hydrocarbons
		Provide for the removal and disposal of accumulated sediments within the basin
		Renew the basin media if it fails to drain within 72 hours after a one inch rainfall event
		Till, seed and mulch the basin if vegetation is sparse
		Repair riprap where underlying filter fabric or gravel is showing or where stones have dislodged
PROPRIETARY DEVICES	As specified by manufacturer	Contract with a third-party for inspection and maintenance
		Follow the manufacturer's plan for cleaning of devices
OTHER PRACTICES	As specified for devices	Contact the department for appropriate inspection and maintenance requirements for other drainage control and runoff treatment measures.

Attachment 9

Functions and Values

ATTACHMENT 9: FUNCTIONS AND VALUES

BRI evaluated wetland functions and values for the Water Line Solar Project (Project) using the United States Army Corps of Engineers Highway Methodology.¹ Functions and values were assessed through field observations and a review of pertinent desktop and publicly available data. Detailed function and value evaluation forms are included in Appendix 9-A.

Wetlands W-MR-06, W-MR-07, and W-MR-08, which overlap with the Project’s limit of disturbance (LOD), all provide similar functions and values, which are listed in Table 1. Due to the presence of nearby residential development, power line right-of-ways, and a railroad, these wetlands provide minor improvements to sediment and toxicant retention and nutrient removal, which improve water quality. All wetlands provide wildlife habitat, as evidenced by direct wildlife observations and indirect signs of wildlife (e.g., tracks and scat). Wetland services (e.g., visual quality, education, aesthetics) are limited, as the wetlands occur on private property, where public access is limited.

It should be noted that, while these wetlands provide localized wildlife habitat, they are nearly entirely surrounded by development and, therefore, are not connected to larger uninterrupted habitat blocks. The proposed LOD and associated wetlands, in particular, are encircled by existing access roads and overhead power lines.

Table 1. Pre-Construction Functions and Values Identified²

Wetland ID	Groundwater Recharge/Discharge	Flood flow Alteration	Fish and Shellfish Habitat	Sediment/Toxicant Retention	Nutrient Removal	Production Export	Sediment and Shoreline Stabilization	Wildlife Habitat	Recreation	Educational/Scientific Value	Visual Quality and Aesthetics	Endangered Species Habitat
W-MR-06				p	p			P				
W-MR-07				p	p			P				
W-MR-08				p	p			P				

¹ U.S. Army Corps of Engineers Highway Methodology Workbook: <https://www.nae.usace.army.mil/Portals/74/docs/regulatory/Forms/HighwaySupplement6Apr2015.pdf>

² P = Principal Function/Value; p = Function/Value present, but not at the principal level

WATER LINE SOLAR PROJECT

The proposed Project results primarily in indirect wetland impacts. These impacts include clearing and conversion of 16,335 square feet of wetlands, and shading of approximately 6,100 square feet of wetlands. In addition, there will be minor direct impacts from installing racking and fence posts within wetlands. These direct impacts total approximately 20 square feet.

While the conversion of wetlands may shift wildlife usage away from species that prefer wooded habitats, the wildlife function of these wetlands will not be lost. This is because the proposed Project is designed to impact only the already-fragmented tips of elongate fingers of wetlands, and not the interior of the larger wetland complex. In addition, water quality benefits from the wetlands will not be lost, as herbaceous wetlands continue to filter sediments and toxins, even after woody vegetation has been cleared.

Table 2 includes a summary of anticipated functions and values provided by impacted wetlands following Project construction. As shown, the functions and values currently provided by wetlands with the proposed Project LOD are anticipated to remain largely unchanged.

Table 2. Post-Construction Functions and Values Identified³

Wetland ID	Groundwater Recharge/Discharge	Flood flow Alteration	Fish and Shellfish Habitat	Sediment/Toxicant Retention	Nutrient Removal	Production Export	Sediment and Shoreline Stabilization	Wildlife Habitat	Recreation	Educational/Scientific Value	Visual Quality and Aesthetics	Endangered Species Habitat
W-MR-06				p	p			P				
W-MR-07				p	p			P				
W-MR-08				p	p			P				

³ P = Principal Function/Value; p = Function/Value present, but not at the principal level

**APPENDIX 9-A: FUNCTIONS AND VALUES DATA
FORMS**

Wetland Function-Value Evaluation Form

Total area of wetland 7.9 acres Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested Distance to nearest roadway or other development 300 Feet

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Lower

How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-MR-06













Latitude 43°49'45.78"N Longitude 70°13'33.94"W

Prepared by: BRI Date 3/1/2022

Wetland Impact:
Type Clearing Area _____

Evaluation based on:
Office YES Field YES

Corps manual wetland delineation completed? Y YES N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
 Groundwater Recharge/Discharge	N	1,2		
 Floodflow Alteration	N	5,9		
 Fish and Shellfish Habitat	N			
 Sediment/Toxicant Retention	Y	1,6		
 Nutrient Removal	Y	3,5,7,8		
 Production Export	N			
 Sediment/Shoreline Stabilization	N			
 Wildlife Habitat	Y	6,7,8,11	X	See resource report for wildlife
 Recreation	N	N/A Private Land		
 Educational/Scientific Value	N	N/A Private Land		
 Uniqueness/Heritage	N	N/A Private Land		
 Visual Quality/Aesthetics	N	N/A Private Land		
ES Endangered Species Habitat	N	None		
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.03 acres Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested Distance to nearest roadway or other development 350 Feet

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Lower

How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-MR-07













Latitude 43°49'43.10"N Longitude 70°13'37.25"W

Prepared by: BRI Date 3/1/2022

Wetland Impact:
Type Clearing/Spanning Area _____

Evaluation based on:
Office YES Field YES

Corps manual wetland delineation completed? Y YES N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
 Groundwater Recharge/Discharge	N	1,2		
 Floodflow Alteration	N	5,9		
 Fish and Shellfish Habitat	N			
 Sediment/Toxicant Retention	Y	1,6		
 Nutrient Removal	Y	3,5,7,8		
 Production Export	N			
 Sediment/Shoreline Stabilization	N			
 Wildlife Habitat	Y	6,7,8,11	X	See resource report for wildlife
 Recreation	N	N/A Private Land		
 Educational/Scientific Value	N	N/A Private Land		
 Uniqueness/Heritage	N	N/A Private Land		
 Visual Quality/Aesthetics	N	N/A Private Land		
ES Endangered Species Habitat	N	None		
Other				













Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.07 acres Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No
 Adjacent land use Forested Distance to nearest roadway or other development 350 Feet
 Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes
 Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Lower
 How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-MR-08
 Latitude 43°49'42.09"N Longitude 70°13'37.25"W
 Prepared by: BRI Date 3/1/2022
 Wetland Impact:
 Type Clearing/Spanning Area _____
 Evaluation based on:
 Office YES Field YES
 Corps manual wetland delineation completed? Y YES N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
 Groundwater Recharge/Discharge	N	1,2		
 Floodflow Alteration	N	5,9		
 Fish and Shellfish Habitat	N			
 Sediment/Toxicant Retention	Y	1,6		
 Nutrient Removal	Y	3,5,7,8		
 Production Export	N			
 Sediment/Shoreline Stabilization	N			
 Wildlife Habitat	Y	6,7,8,11	X	See resource report for wildlife
 Recreation	N	N/A Private Land		
 Educational/Scientific Value	N	N/A Private Land		
 Uniqueness/Heritage	N	N/A Private Land		
 Visual Quality/Aesthetics	N	N/A Private Land		
ES Endangered Species Habitat	N	None		
Other				

Notes:

* Refer to backup list of numbered considerations.

Attachment 10

Compensation

ATTACHMENT 10: COMPENSATION

Mitigating adverse environmental impacts is an integral part of Maine's Natural Resources Protection Act (NRPA, 38 MRS § 480 A–BB). In general, mitigation is a sequential process of avoiding adverse impacts, minimizing impacts that cannot be practicably avoided, and then compensating for those impacts that cannot be further minimized.

The Water Line Solar Project proposal includes a limit of disturbance (LOD) of approximately 14.4 acres. Within the LOD, the Project proposes total wetland impacts of approximately 22,455 square feet (0.5 acres), including 20 square feet of wetlands directly impacted by fill in the form of racking and fence posts; 6,100 square feet of wetland that will be shaded by the solar arrays; and 16,335 square feet of vegetation clearing and wetland conversion, from predominantly scrub-shrub wetland to wet meadow wetland.

Impacts of this magnitude do not typically trigger the need for compensation. Given that overall wetland functions and values will remain largely intact during construction and operation of the Project (see Attachment 9), we believe that compensation is not required. However, should MDEP determine that compensation is required, the applicant would work with MDEP to ensure that impacts are appropriately compensated for, in accordance with the Natural Resources Protection Act.

Should it be required, the applicant would propose to compensate for wetland impacts through the Maine In-Lieu Fee (ILF) Program. The applicant anticipates that any such payment into the ILF Program would be made a condition of the permit, and would be paid prior to the start of construction.

Attachment 11

Historic Preservation Correspondence

ATTACHMENT 11: MHPC CORRESPONDENCE

In February of 2022, an inquiry was sent to the Maine Historic Preservation Commission (MHPC) regarding the documented or potential presence of historic resources within the Project area. At this time a response letter has not been received. A copy of the inquiry is included in this attachment. A copy of the MHPC response can be provided to the MDEP once it is received.



February 18, 2022

Kirk F. Mohney
Director and State Historic Preservation Officer
55 Capitol Street
65 State House Station
Augusta, Maine 04333-0065

RE: North Yarmouth Community Solar, Maine Project Site Review

Dear Kirk,

Biodiversity Research Institute (BRI) is completing a Natural Resources Protection Act (NRPA) permit for an approximately 14.2 acre project located on Sweetser Road in North Yarmouth, Maine. The project is proposed on land that has been previously selectively harvested. Permits will be required for wetland impacts related to installing solar arrays over the wetlands.

As part of the permit preparation, BRI is requesting any information regarding documented or potential presence of historic resources from the Maine Historic Preservation Commission. Construction of the project is expected to require the installation of pilings/fence posts for the purposes of developing a distributed solar generation facility.

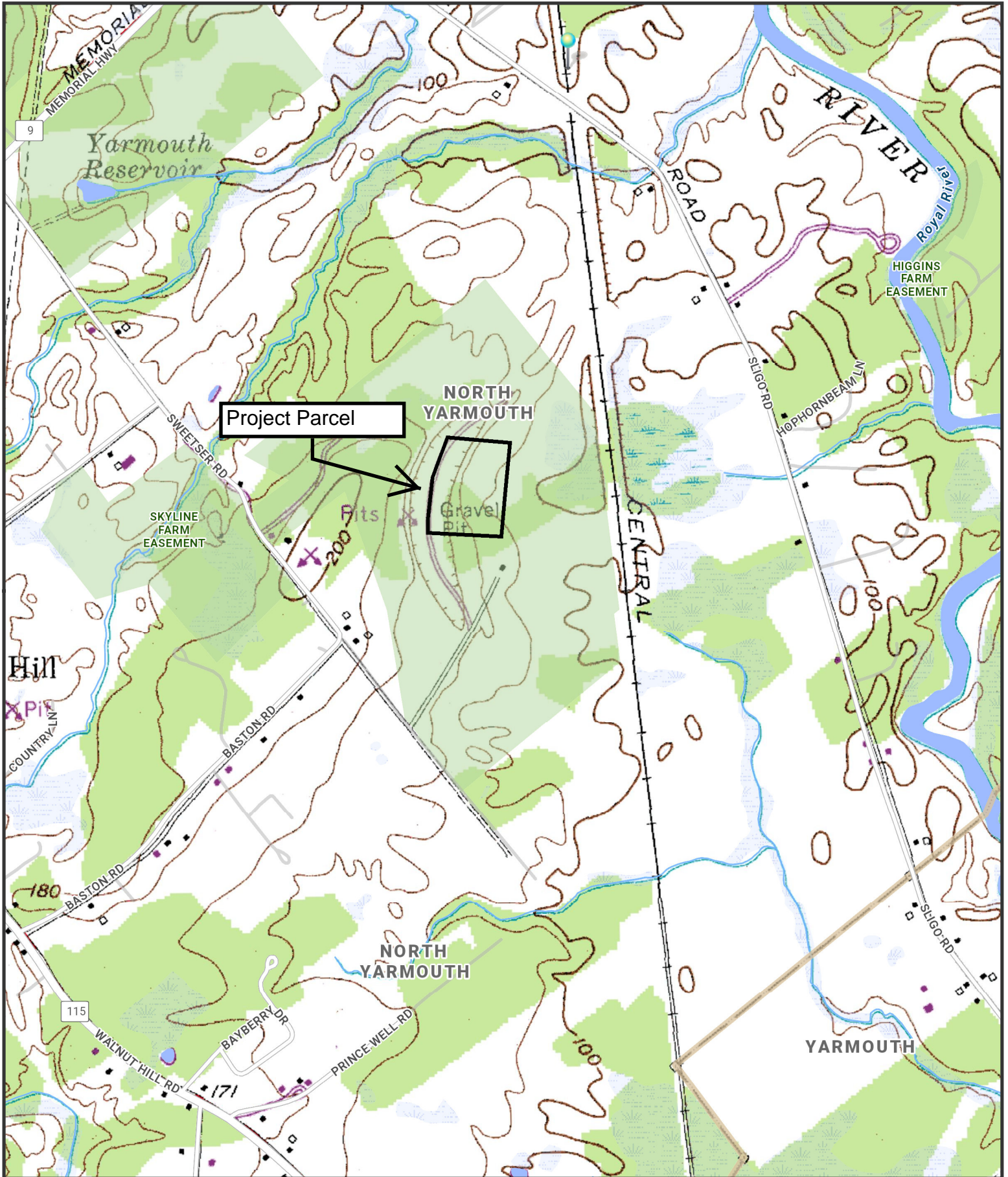
We have included a map showing the project boundary to aid in your review. If you have any questions please contact me at merrill.read@brienvironmental.org or call 414-758-7319.

Respectfully submitted,

A handwritten signature in black ink that reads "Merrill Read". The signature is written in a cursive, flowing style.

Merrill Read
Project Manager
BRI Environmental

NORTH YARMOUTH COMMUNITY SOLAR



The Maine Department of Transportation provides this publication for information only. Reliance upon this information is at user risk. It is subject to revision and may be incomplete depending upon changing conditions. The Department assumes no liability if injuries or damages result from this information. This map is not intended to support emergency dispatch.

0.25 Miles
1 inch = 0.28 miles

Date: 2/17/2022
Time: 2:28:13 PM

Attachment 12

Professional Certification

ATTACHMENT 12: PROFESSIONAL CERTIFICATION

I, Steve Knapp PWS (No. 2231), certify that the wetlands described within this permit application are described accurately and that no Wetlands of Special Significance (WOSS), as defined by NRPA Chapter 310, will be impacted as a result of the proposed development.



Steve Knapp, PWS
Biodiversity Research Institute



ATTACHMENT 18

Decommissioning Application

DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOLAR DECOMMISSIONING APPLICATION FORM

APPLICANT INFORMATION (Owner)		AGENT INFORMATION (If Applying on Behalf of Owner)	
Name:	Water Line Solar, LLC	Name:	Biodiversity Research Institute
Mailing Address:	8 Quarry Ridge	Mailing Address:	30 Danforth Street, Suite 213
Mailing Address:		Mailing Address:	
Town/State/Zip:	North Yarmouth, ME 04097	Town/State/Zip:	Portland, ME 04101
Daytime Phone #:	Ext:	Daytime Phone #:	Ext:
Email Address:	cbyers@branchrenewables.com	Email Address:	alex.urquhart@brienvironmental.org
PROJECT INFORMATION			
Project previously permitted by DEP (if yes, see row below) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Project requires other DEP permits not yet issued (e.g., Site Law, NRPA, Stormwater) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
		Farmland: Is any portion of project on farmland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Type of existing permit and permit number, if previously permitted. (For permit with L-number, include first group of numbers after the letter L):			
License Number: L- _____		<input type="checkbox"/> Site Law <input type="checkbox"/> NRPA <input type="checkbox"/> Stormwater	
PBR Number: _____		<input type="checkbox"/> PBR (NRPA / Stormwater)	
Project Town:	Acres Occupied by Project:	Tax Map and Lot Number:	
North Yarmouth	14.4	Tax Map 5, Lot 2	
Brief Project Description: The Water Line Solar Project will be a 1.99-megawatt (alternating current) ground-mounted, single-axis tracker solar photovoltaic array. Construction is expected to begin in January, 2023. The anticipated project lifetime is 20-30 years.			
Project Location & Brief Directions to Site: [43.8290, -70.2279]: Driving N on Rt 1, take the exit for Rt 115 / Main St in Yarmouth. Drive W for 3.3 miles on Rt. 115. Turn right onto Baston Rd. Continue to the end and turn right onto Sweetser Rd. Project access road will be on the left (E) side of road after 0.15 miles.			

NOTE: Municipal permits also may be required. Contact your local code enforcement office for information. Federal permits may be required for stream crossings and for projects involving wetland fill. Contact the Army Corps of Engineers at the Maine Project Office for information.

THIS APPLICATION CANNOT BE ACCEPTED FOR PROCESSING WITHOUT THE NECESSARY ATTACHMENTS & FEE


- Attach** a decommissioning plan consistent with the requirements of 35-A M.R.S. § 3494 in the [Solar Decommissioning Law](#). If any portion of the solar energy development is or will be on land qualifying as "farmland" (see definition in 35-A M.R.S. § 3491(3) of the Solar Decommissioning Law) within 5 years preceding the start of construction, the decommissioning plan must provide for restoration of that farmland upon decommissioning sufficient to support resumption of farming or agricultural activities.
- Attach financial assurance** (e.g., performance bond, surety bond, irrevocable letter of credit) for the total cost of decommissioning or a statement that the applicant will submit financial assurance to the Department for review and approval prior to the start of construction.
- Attach a location map** that clearly identifies the site (U.S.G.S. topo map, Maine Atlas & Gazetteer, or similar).
- Attach proof of legal name** if applicant is a corporation, LLC, or other legal entity. A copy of the Secretary of State's registration information (available at <http://icrs.informe.org/nei-sos-icrs/ICRS?MainPage=x>) is sufficient. Individuals and municipalities are not required to provide any proof of identity.

FEE: Pay by credit card at the [Payment Portal](#). Effective October 1, 2021, the decommissioning [application fee](#) is \$500. The fee will be incorporated in the Department's fee schedule by November 1, 2021. <https://www.maine.gov/dep/feeschedule.pdf>

- Attach payment confirmation** from the Payment Portal when filing this application form.

Signature & Certification:

- I authorize staff of the Department of Environmental Protection to access the project site for the purpose of determining compliance with the statute.
- By signing this Application Form, I represent that I am authorized to act on behalf of the applicant with respect to this application, that the information presented in this application is true and accurate to best of my knowledge, and that the applicant has sufficient title, right, or interest in the property where the solar energy development is or will be located.

Signature of Agent or Applicant (may be typed): 

Date: 3/14/2022

Instructions on how to file applications electronically: <https://www.maine.gov/dep/land/permits/individual/index.html>.

Email this completed form with attachments, following the instructions above, to DEP at: DEP.LandApplication@maine.gov



AGENT AUTHORIZATION FORM

February 23, 2022

To Whom It May Concern,

This letter serves as acknowledgement of authorization for Biodiversity Research Institute to act as an agent on behalf of Branch Renewable Energy, LLC regarding the submission and subsequent follow up of any municipal, state, or federal permits for the North Yarmouth Solar Project ("Water Line Solar, LLC") in Maine.

Any questions or clarifications regarding the representation can be directed to Chris Byers, Principal at Branch Renewable Energy (cbyers@branchrenewables.com).

Sincerely,

A handwritten signature in black ink, appearing to be "Chris Byers", with a long horizontal stroke at the end.

Chris Byers, Principal
Branch Renewable Energy, LLC
8 Quarry Ridge
North Yarmouth, ME 04097
207-653-9864
cbyers@branchrenewables.com

Attachment 1

Decommissioning Plan

Decommissioning Plan

Decommissioning Overview

The Water Line Solar Project (Project) will be decommissioned within six months of the expiration or termination of the land lease agreement, or the end of its operational life (including ceasing to generate electricity for 12 continuous months). Water Line Solar, LLC or its successor will be responsible for decommissioning activities, including removing the solar facility, disposing of waste, restoring the Project site, and periodically updating the Decommissioning Plan and form of surety. Decommissioning will be fully funded prior to construction (see costs in Attachment 2). Waste will be transported by licensed transporters and recycled or disposed of in accordance with local, state, and federal regulations. General decommissioning activities include:

- Physical removal of all Project components, including solar panels, racking structures, foundations, electrical equipment, interconnection equipment, utility poles, fencing, and access roads, to the extent that they are not otherwise in productive use and permitted to remain in place by the Maine Department of Environmental Protection (MDEP).
- Disposal of all solid waste from the site and from decommissioning activities, in accordance with applicable local, state, and federal waste disposal regulations.
- Restoration of the site, including grading, stabilization, seeding, and revegetation, as necessary to minimize erosion and runoff.

Decommissioning Process

Decommissioning tasks are listed in Table 1. A final, detailed decommissioning plan will be prepared by a qualified engineer prior to commencing decommissioning activities.

Table 1: Decommissioning Tasks

Task	Task Description
1	Mobilization to the site
2	Install erosion and sedimentation control measures
3	Remove rack wiring
4	Remove solar panels
5	Dismantle racks
6	Remove electrical equipment
7	Break up and remove concrete pads
8	Remove racks
9	Remove racking foundations and power poles
10	Remove fence
11	Grading
12	Seed disturbed area
13	Truck items to recycling center
14	Demobilization from the site

Water Line Solar Project

Equipment Removal and Site Restoration

Solar panels and electrical equipment such as transformers, inverters, and switchgear will be detached and transported to an appropriate facility for recycling or reuse. Wiring, racking, equipment pads, and other aboveground components will be removed using tools and small machinery. No part of the Project is proposed to be located in land that has been actively managed as farmland, as defined in 36 MRS § 1102(4), within five years preceding the start of construction. Belowground components such as racking posts and power poles will therefore be removed to a depth of at least two feet or to bedrock (whichever is less), with remaining material abandoned in place. All removed components will be transported by state-licensed transporters to an appropriate recycling or disposal facility.

Minimal ground disturbance is anticipated from decommissioning activities, and the site will be restored to a natural state that minimizes erosion and runoff and is suitable for other uses. The area to be restored will include the access road, unless otherwise in productive use and permitted to remain in place by MDEP. Restoration will include grading, mulching, and revegetating. Disturbed areas will be re-seeded with 15–20 pounds per acre of native conservation/wildlife seed mix. Seed and mulch will be applied to disturbed soil within seven days of final grading, and reapplied as necessary until the site is permanently stabilized (95% vegetated).

Erosion and Sedimentation Control

The final decommissioning plan, prepared by a qualified engineer prior to the commencement of decommissioning activities, will ensure that erosion and sedimentation control inspection and maintenance standards are met, as specified in 06-096 CMR 500 (Stormwater Management). Erosion and sedimentation control measures will be in place prior to the start of ground disturbance associated with decommissioning, and will be maintained until the site is stabilized. Grading and construction activity will not impede or otherwise alter drainageways so as to have an unreasonable adverse impact on any wetland, waterbody, or adjacent downslope parcel. If activity is required within wetland areas, work will be conducted under frozen winter conditions, or timber matting will be used for equipment access.

Decommissioning activities will be conducted in accordance with 06-096 CMR 500 (Stormwater Management); with the Maine General Permit – Construction Activity: Maine Pollutant Discharge Elimination System; and with 38 MRS § 420-C and § 420-D (Erosion and Sedimentation Control, and Stormwater Management). During decommissioning, the Project will employ best management practices from the “Maine Erosion and Sediment Control Best Management Practices Manual for Designers and Engineers” and the “Maine Erosion and Sediment Control Practices Field Guide for Contractors.” The Project will reference the most up-to-date version or appropriate replacement of these guides at the time that decommissioning commences.

Attachment 2

Financial Assurance

Financial Assurance

Decommissioning Cost Estimate

A task-by-task cost estimate for Project decommissioning is provided in Table 2, based on estimates from industry professionals and the New York State Energy Research and Development Authority (NYSERDA).¹ The Total Estimated Cost includes all anticipated costs and excludes any potential salvage value.

Table 2: Decommissioning Cost Estimate by Task

Task	Task Description	Estimated Cost
1	Mobilization to the site	\$ 5,000
2	Install erosion and sedimentation control measures	\$ 5,760
3	Remove rack wiring	\$ 2,438
4	Remove solar panels	\$ 2,438
5	Dismantle racks	\$ 12,288
6	Remove electrical equipment	\$ 1,841
7	Break up and remove concrete pads	\$ 1,493
8	Remove racks	\$ 7,761
9	Remove racking foundations and power poles	\$ 20,248
10	Remove fence	\$ 4,925
11	Grading	\$ 3,980
12	Seed disturbed area	\$ 249
13	Truck items to recycling center	\$ 2,239
14	Demobilization from the site	\$ 5,000
Total Estimated Cost		\$ 75,660

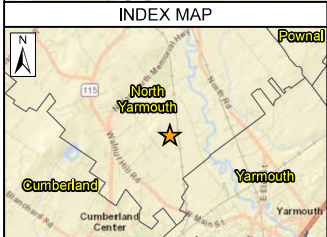
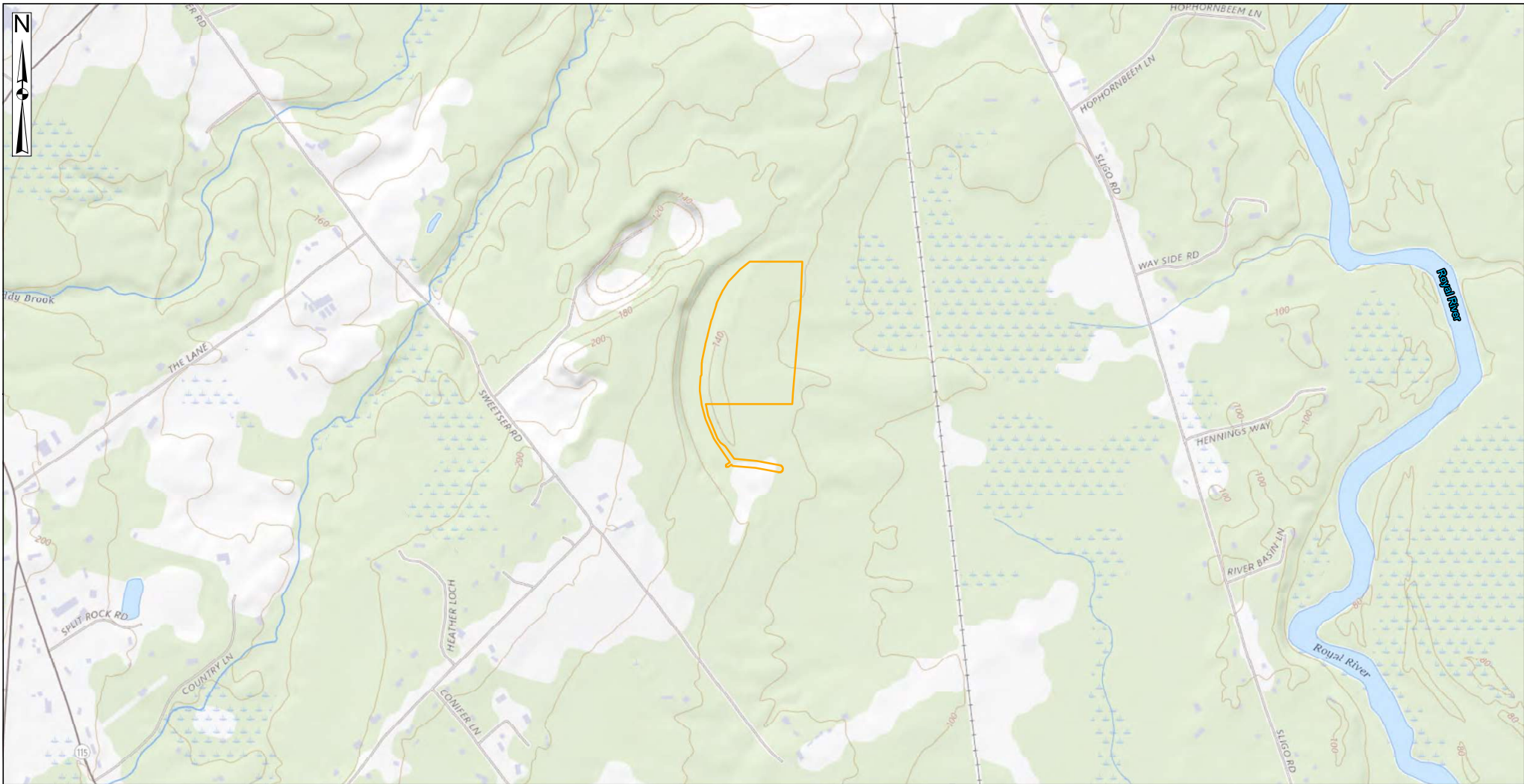
Statement of Financial Assurance

Water Line Solar, LLC will fully fund decommissioning of the Project at an estimated cost of \$75,660. As required by MDEP, the Project will provide financial assurance documents demonstrating fully funded decommissioning costs prior to the start of construction. Financial assurance will be demonstrated through a performance bond, surety bond, irrevocable letter of credit, or other form acceptable to MDEP. Fifteen years after the date of the original department order approving this Decommissioning Plan and Financial Assurance, and every five years thereafter, Water Line Solar, LLC or its successor will review the Decommissioning Plan and the cost of decommissioning, and will update the financial assurance. Each update to the financial assurance will be submitted to MDEP for review and approval.

¹ New York State Energy Research and Development Authority. (2021). [New York Solar Guidebook for Local Governments](#).

Attachment 3

Location Map



LEGEND

— Project Limit of Disturbance

SCALE:

0 650 1,300 Feet

1 inch = 650 feet

PROJECT LOCATION MAP - USGS TOPOGRAPHIC
WATER LINE SOLAR, LLC:
NORTH YARMOUTH, MAINE

MARCH 8, 2022

Attachment 4

Proof of Legal Name

State of Maine



Department of the Secretary of State

I, the Secretary of State of Maine, certify that according to the provisions of the Constitution and Laws of the State of Maine, the Department of the Secretary of State is the legal custodian of the Great Seal of the State of Maine which is hereunto affixed and of the reports of formation, amendment and cancellation of articles of organization of limited liability companies and annual reports filed by the same.

I further certify that WATER LINE SOLAR, LLC is a duly formed limited liability company under the laws of the State of Maine and that the date of formation is March 02, 2022.

I further certify that said limited liability company has filed annual reports due to this Department, and that no action is now pending by or on behalf of the State of Maine to forfeit the articles of organization and that according to the records in the Department of the Secretary of State, said limited liability company is a legally existing limited liability company in good standing under the laws of the State of Maine at the present time.

In testimony whereof, I have caused the Great Seal of the State of Maine to be hereunto affixed. Given under my hand at Augusta, Maine, this fourth day of March 2022.



A handwritten signature in cursive script that reads "Shenna Bellows".

Shenna Bellows
Secretary of State