Matinicus Plantation Electric Company
and
BMP Energy LLC

LUPC Permit Application Exhibits

Project: Power Generation Facility
Location: Matinicus Plantation, Knox County

Date: 2nd January 2024

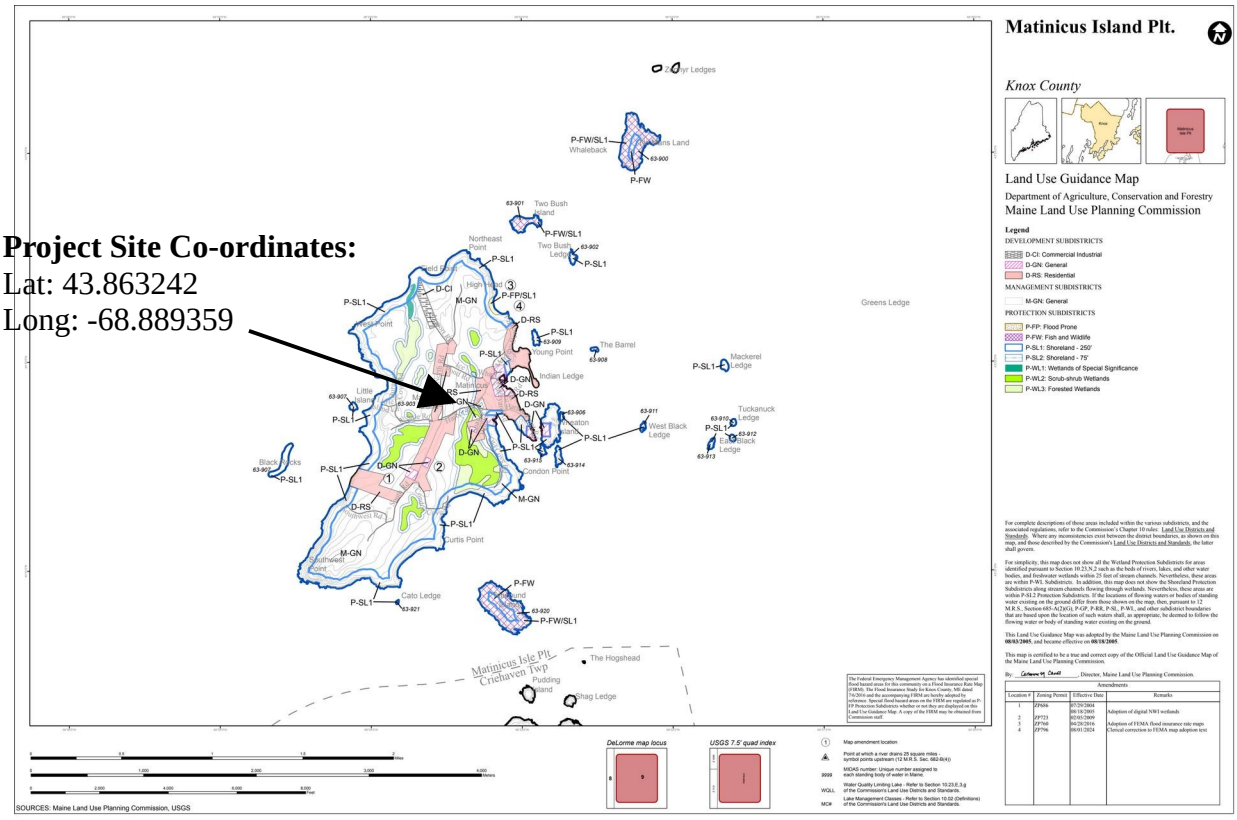
Prepared by: Philip Davies, owner BMP Energy LLC
Approved by: Laurie Webber, Ellen Bunker, and Clayton Philbrook, MPEC Directors

Philip Davies

Digitally signed by Philip Davies
cn=Philip Davies, o= BMP Energy LLC, l= Matinicus, st= Maine, c= US, email= phil.davies@protonmail.com
Date: 2025.01.14 17:23:31 EST
Reason: author

Exhibit 1: Directions and Location Map

Project Site Co-ordinates:
Lat: 43.863242
Long: -68.889359



30' 0 30' 60' 90' 120'

SCALE: 1" = 30'

N

GENERAL NOTES:

1. TREES MAY GROW DURING THE LIFE OF THE SYSTEM AND IMPACT THE PRODUCTION.
2. ANY AND ALL LAYOUT CHANGES, INCLUDING BUT NOT LIMITED TO SHIFTING OF THE ARRAY, ARE SUBJECT TO APPROVAL BY THE DESIGN TEAM.
3. ARRAY LAYOUT DIMENSIONS SHALL BE CONSIDERED APPROXIMATE AND MAY VARY SLIGHTLY DUE TO MODULE INSTALLATION TOLERANCES AND VARYING TOPOGRAPHY.
4. PER NEC 110.31 MINIMUM DISTANCE FROM FENCE TO ANY RACKING OR LIVE PART SHALL BE 10 FEET.

PV SYSTEM SUMMARY
(288) BIFACIAL PV MODULES
550 WATT NOMINAL
158.40 kW DC TOTAL NAMEPLATE CAPACITY
(4) SMA SUNNY TRIPOWER X 30-US
30 KW INVERTERS
120 KW AC TOTAL NAMEPLATE CAPACITY

LEGEND:

- WETLAND CLEARING (1571 ft² TOTAL)
- RACKING
- ROAD (15 FT.)
- UTILITY POLE
- UGE — UNDERGROUND
- OHE — OVERHEAD
- FENCE
- PROPERTY LINE
- WETLANDS
- 25' WETLANDS SETBACK
- EQUIPMENT CONTAINER
- EQUIPMENT TRANSFORMER

PRELIMINARY
NOT FOR CONSTRUCTION

REV:	DESCRIPTION:	DATE:	DRWN:	CHKD:	APRVD:
.	.	.	.	.	.
.	.	.	.	.	.
D	ADD (3) TABLES; CHANGE TO 550W MODULES	01/10/25	JAC	STE	STE
C	ADJUST LAYOUT, ADD STREAM AND SETBACK	11/26/24	STE	STE	STE
B	ADDED TOPOLOGY, WETLANDS AND REVISED SITE PLAN	10/29/24	JAC	STE	STE
A	IFR - ISSUED FOR REVIEW	09/13/24	JAC	STE	STE

SEAL:

RLC ENGINEERING
267 Whitten Road
Hallowell, ME 04347
Phone 207-621-1077
Fax 207-621-1177
www.rlc-eng.com

MATINICUS

120 KW GENERATION FACILITY

MATINICUS PLANTATION, ME P.O.255

SCALE: 1" = 30' **SIZE:** ARCH D

GENERAL SITE PLAN

DATE: 01/10/25
DRAWN BY: JAC
ENGN'D BY: STE
PROJECT #: 22794-01
DRAWING #: 7010

1/8/2025 1:44 PM - SPENCERE - T:\ACTIVE PROJECTS\22794 - MATINICUS ISLE PLANTATION MICROGRID SUPPORT\05 - MATINICUS ISLE\01-DESIGN\03-DRAFTING\02-WORKING DRAWINGS\ELECTRICAL\22794-01-7010 GENERAL SITE PLAN.DWG

Exhibit 2: Project Description

Background

Matinicus Plantation is a small working island 22 miles off the coast of Maine. The community, which the USDA classifies as distressed, has seen a steady decline in its population. One of the primary drivers behind the decline is the failing infrastructure, and high electricity prices.

Matinicus Plantation Electric Company (MPEC), a municipal utility, is responsible for power generation and delivery. Power on Matinicus is currently provided by 43 year old diesel generators combined with switchgear that is over 50 years old. There is no interconnection to the mainland.

Experts from multiple companies (RLC Engineering, Phasor Engineering Services) have advised MPEC that the power plant needs replacing. Last summer the island experienced multiple brownouts and power failures. Numerous residents/businesses lost expensive electrical equipment due to power quality issues.

The existing power plant is located on the edge of the coastal flood zone. Recent storms have raised serious concerns among both island residents and state agencies that the existing location is not going to be viable as oceans rise and storms strengthen.

MPEC's initial plan was to replace the diesel generators and switchgear with new diesel generators. This would have resulted in the power plant utilizing over 55,000 gallons of diesel fuel per year compared to the current usage of 32,000 gallons per year. That would mean a substantial increase in the cost of electricity for the community, particularly for the winter residents.

BMP Energy LLC proposed developing a solar field and energy storage system that could integrate with MPEC's diesel generators to provide stable reliable electricity at the lowest rates possible for island residents.

Proposal

We (MPEC and BMP Energy) propose constructing a new power generation facility at 0 Harbor Rd. The location is well away from the ocean, zoned appropriately, and has sufficient space for a solar field with a south facing orientation. Three phase power lines are located close by which is critical for power distribution.

There are no other available properties that satisfy these criteria.

MPEC is ordering two 150kwh Perkins diesel generators (One Tier 4, one Tier 3). The generators will be housed in 12ft x 5ft Aluminum enclosures with critical sound proofing insulation and extended mufflers to further attenuate generator noise. The generators will have double walled UL 142 compliant 300 gallon diesel fuel tanks underneath them inside the enclosure. Each engine will have a Webasto block heater and fuel tank heaters to ensure the engines are able to run at any time in any weather.

The generator company, Powerhouse Diesel Generators, specializes in custom engineered container solutions. As well as the highest grade soundproofing, all venting and fire mitigation systems will be pre-installed by Powerhouse Diesel.

BMP Energy LLC will construct a solar field with a 120 kw AC total nameplate capacity, coupled with a 311 kwh energy storage system. The energy storage system and all the related switchgear will be installed in a 20ft shipping container. This container will be fully insulated with multiple heating and air conditioning units, coupled with state-of-the-art fire suppression systems from FireTrace or a similar vendor.

MPEC's generator enclosures will be located alongside the energy storage container to facilitate the interconnections between all three units.

Connecting the generators to the energy storage system means that the generators run intermittently rather than 24/7. When the energy storage system hits a critical threshold the generators will automatically provide power to the island while re-charging the storage system. Once the storage system is fully charged, the generators will automatically switch off. Coupled with the solar field, this approach greatly reduces fuel usage and wear and tear on MPEC's critical generator equipment.

Simulations conducted by CICUSA show that this approach will result in MPEC using approximately 7,000 - 9,000 gallons of diesel per year, a significant financial and environmental saving for the island community. The generators are estimated to run for approximately 1,100 hours per year.

If the energy storage system goes offline, the system is designed so that MPEC's generators will automatically switch on to power the island. The generators can run indefinitely. MPEC has specified auto-load sensing load banks to ensure that, regardless of demand, the generators will run at optimal levels to avoid wet stacking. This is a serious concern with Tier 4 diesel generators.

Engineering Plans

RLC Engineering was recruited in July to assess the plan, recommend improvements and develop detailed blueprints that can be used to construct the solar field and energy storage system and consult with Powerhouse Diesel to ensure the electrical components meet NEC codes.

RLC Engineering has refined the equipment specifications and developed a detailed plan that incorporates MPEC's diesel generators, with BMP Energy's solar field, and energy storage system. The latest one line diagram is included in this application.

RLC Engineering can provide a letter detailing their professional opinion on the feasiblity of the project from an engineering perspective if required. RLC Engineering are currently drawing up construction blueprints for the project.

Structures

The structures that will be located at 0 Harbor Rd are:

1. 158 kw DC (120 kw AC) nameplate solar field which takes up approximately 1/2 acre.
2. Two 12ft x 5ft Diesel Generator Enclosures.
3. A 20ft shipping container with energy storage system and all switchgear necessary for a power generation facility

A gravel road and turn-around area will have to be installed, but no major excavation is planned. The solar panels will use ballast racking so that ground disturbances are kept to a minimum.

Project Schedule

Project delivery date: 20th May 2025

The existing power plant will likely be unable to handle the summer demand which picks up towards the end of May. As a result the new power generation facility should be in place by May 20th 2025 if possible.

Site Preparation

The property at 0 Harbor Rd is in poor condition. It suffered, and continues to suffer from, extensive blowdowns during winter storms. The land owners are planning to make the location safe during the winter months, so that in Spring, BMP Energy and MPEC can make improvements where necessary.

Fortunately the land does not require significant excavation and the intention of BMP Energy and MPEC is to minimize excavation and soil disturbance. For example, rather than digging trenches for cabling, all cabling in the solar field will be enclosed in rigid conduits and covered in 6 inches of gravel.

Electrical Equipment Construction

Working on Matinicus is expensive and requires near perfect planning. If you forget something, you have to have it flown out on a plane, wait a few weeks for a ferry, or charter a barge.

The generator enclosures, energy storage system, and all switchgear will be constructed and tested on the mainland between Feb 2025 and May 2025. All electrical equipment will be installed and tested by licensed master electricians following RLC Engineering's construction specifications.

Once everything has been tested, the equipment will be brought to Matinicus and installed on site.

Exhibit 3: Deed, Lease, Sales Contract or Easement

The property 0 Harbor Rd is owned by Philip Davies and Chuan Liao. Philip Davies owns BMP Energy LLC so the lessors are aware of the project and grant permission for the project to proceed.

Signed copies of the lease agreements are provided below:

Receipt # 151523 KNOX SS: RECEIVED
ERECORDED
VOL 6184 PG 270
12/13/2024 08:50:44 AM
2 Pages
Instr # 2024-9611
ATTEST:Madelene F. Cole, Knox Co Registry of Deeds

WARRANTY DEED

JANAN MILLER, whose address is 378 Seal Harbor Road, Spruce Head, Maine 04859, for consideration paid, grants to **PHILIP DAVIES and CHUAN LIAO**, whose address is 111 South Road, Matinicus Island, Maine 04851, as joint tenants, with **WARRANTY COVENANTS**, a certain lot or parcel of land, together with the buildings thereon, situated Matinicus Isle Plantation, County of Knox, State of Maine, being more particularly bounded and described as follows:

Beginning at a 3/4" rebar set at the southeasterly corner of the lot herein conveyed and the southwesterly corner of land now or formerly of Kenneth L. Webber as recorded at the Knox County Registry of Deeds in Book 814, Page 282;

Thence North 09 degrees 00 minutes 30 seconds West along land of said Webber three hundred (300) feet to a 3/4" rebar;

Thence continuing along land of Webber North 76 degrees 19 minutes 35 seconds West fifty (50) feet to a 3/4" rebar;

Thence continuing along land of Webber North 12 degrees 03 minutes 08 seconds West two hundred fifty-five and sixty-eight hundredths (255.68) feet to a stonewall in the southerly line now or formerly of Wayne Philbrook as described in a deed recorded at the Knox County Registry of Deeds in Book 594, Page 197;

Thence South 71 degrees 48 minutes 03 seconds West along stonewall three hundred forty (340) feet to a point for a corner;

Thence South 17 degrees 01 minutes 07 seconds East along land of Ellen Bunker described in deed recorded in Book 5791, Page 105 in the Knox County Registry of Deeds and land of Ives five hundred sixty (560) feet, more or less, to the northerly side of a road;

Thence North 74 degrees 39 minutes 43 seconds East along said road two hundred twenty-nine and twenty-four hundredths (229.24) feet along said road to a point;

Thence North 72 degrees 56 minutes 54 seconds East one hundred five and thirty-nine hundredths (105.39) feet to the place of beginning.

Reference is made to a Plan entitled "Survey for Vance Bunker, Matinicus Island, County of Knox, State of Maine" dated April 23, 2003, prepared by J.H. Mathieson Surveying.

Being the premises described in deed of E. Vance Bunker to Janan Miller dated September 26, 2019, recorded in Book 5791, Page 109 in the Knox County Registry of Deeds.

Witness my hand and seal this 11th day of December, 2024.

Janan K. Miller
Janan Miller

State of Maine
County of Lincoln

December 11, 2024

Personally appeared the above-named Janan Miller, and acknowledged the foregoing instrument to be her free act and deed.

Before me,

~~Notary Public~~/Attorney at Law

Nathaniel D. Hussey
Attorney at Law
Maine Bar #7074

Lease Agreement for 0 Harbor Rd, Matinicus, Maine, 04851

Lessors: Philip Davies and Chuan Liao

Lessee: BMP Energy LLC

Lease Term:

- Start Date: 03/01/2025
- End Date: 02/29/2028
- Extendable in 3 year increments, subject to upward only open market rent review.
- Written notice that lessee wishes to extend the lease must be provided 6 months prior to the end date of the lease period.

Rent:

- Payment: $350 per month.
- Payments due on 1st of each month.
- Payment method: ACH Bank Transfer.

Security deposit: No deposit required.

Premises:

- BMP Energy will be able to locate their solar farm and energy storage facility on the property in pre-agreed locations according to the specifications provided by RLC Engineering.
- BMP Energy will have 24/7 access to the site.

Maintenance: BMP Energy is responsible for maintaining all land within 20ft of the solar field and energy storage facility.

Insurance: The lessors bear no responsibility for BMP Energy's equipment. BMP Energy must have property and casualty insurance. Proof of insurance must be provided to the lessors annually.

Alterations: BMP Energy cannot make any modifications to the property without the written permission of the lessors. Modifications might include, but are not limited to, the cutting of trees that might shade the solar field.

Improvements: The Lessors will provide BMP Energy with an access road onto the site. The site has suffered and is still suffering from extensive blowdowns. The Lessors will ensure the site is safe to access by 03/01/2025. If conditions permit, BMP Energy may begin site preparation prior to the start of the lease date. BMP Energy will be responsible for all site work related to the construction of the solar field and pads required for the energy storage facility. All site work must follow the site plan developed by RLC Engineering in conjunction with the LUPC, the USDA, and Flycatcher.

Termination:

- The lessor can terminate the lease if the lessee violates any of the conditions above and fails to remedy the problem within 30 days of receipt of written notice of the violation.

- Either party can terminate the lease with 3 months written notice if there is a force majeure event. Force majeure events are hurricanes, wind storms, floods, and fires that render the property unusable.

Lessors Signature: Chuanliao

Print: Chuan Liao

Date: 12/22/2024

Lessee Signature: Phil Davies

Print: PHILIP DAVIES (OWNER BMP ENERGY)

Date: 12/23/2024

Phil Davies

PHILIP DAVIES

12/22/2024

Ground Lease Agreement
0 Harbor Rd, Matinicus, Maine, 04851

Lessors: Philip Davies and Chuan Liao
Lessee: Matinicus Plantation Electric Company (MPEC)

Lease Term:

Start Date: 04/01/2025
End Date: 03/31/2035

Rent: Payment: $250 per month, subject to annual increases not to exceed the rate of inflation as measured by the consumer price index for all urban consumers: All items in US City Average.
Payments due on 1st of each month
Payment method: ACH Bank Transfer

Security deposit: N/A

Leased premises consist of a portion of premises conveyed by deed of Janan Miller to Philip Davies and Chuan Liao dated December 11, 2024, recorded in Book 6184, Page 270 in the Knox County Registry of Deeds, said portion consisting of approximately 0.25 acres, and being identified in Exhibit A attached hereto.

The parties agree that MPEC will use the leased premises to site power generation and transmission equipment and infrastructure, including, but not limited to diesel generators, 4160 Transformer and two additional risers (Utility poles), and such related structures and equipment as are necessary for that purpose on the property in locations depicted in Exhibit A, or in such other locations as may be agreed to in writing by the parties, which writing shall be incorporated herein by reference.

The parties further agree that MPEC, its contractors, employees and licensees shall have unrestricted access to the leased premises for all lawful activities related to its operations in providing electric power service to Matinicus Isle Plantation.

All improvements to the leased premises for purposes of constructing, installing, operating and maintaining the power generation and distribution systems shall be at MPEC's expense.

Alterations: Other than the foregoing, MPEC cannot make any modifications to the Premises without the written permission of the lessors, which permission shall not be unreasonably withheld.

Maintenance: MPEC is responsible for making any improvements to the leased premises necessary for installation, operation and maintenance of the power generation and distribution systems. MPEC is responsible for ongoing basic property maintenance such as mowing, brush clearing and snow removal associated with its operations, including adding gravel when necessary.

Insurance: Lessors and MPEC shall each maintain appropriate insurance for their respective interests in the Premises and property located on the Premises. Lessors shall be named as an additional insured in such policies. MPEC shall deliver appropriate evidence to Lessors as proof that adequate insurance is in force issued by companies reasonably satisfactory to Lessors.

MPEC agrees to indemnify and hold Lessors harmless from any loss or damage, expenses, including litigation costs and counsel fees incurred as a result of MPEC's use of the premises.

Fixtures: The parties agree that MPEC shall remain the sole owner of any and all property, equipment, infrastructure, improvements and fixtures installed or furnished on the leased premises regardless whether such property becomes permanently attached to the land, and that Lessors will acquire no interest in such equipment, infrastructure, improvements or fixtures.

Termination: Lessors may terminate the lease if the MPEC materially violates any of the conditions above and fails to remedy the problem within 90 days of receipt of written notice of the violation.
Either party may terminate the lease with 3 months written notice if there is a force majeure event. Force majeure events are hurricanes, wind storms, floods, and fires, legal or enforcement actions by any government entity resulting in the permanent cessation of the activities and operations of MPEC, bankruptcy or dissolution of MPEC or any subsequent entity, de-incorporation of Matinicus Isle Plantation or other events that render the property entirely unusable for its intended purpose.

Right of First Refusal: In the event Lessors wish to sell part of all the land of which the leased premises are a portion, Lessors shall give first refusal to MPEC to purchase such land or portion thereof at fair market value as determined by agreement of the

parties, or in the event the parties cannot reach agreement, by resort to a qualified appraiser. The parties agree any such purchase price or measure of fair market value shall not include any value attributable to improvements made by MPEC. MPEC shall have sixty (60) days in which to furnish notice of intent to exercise this right of first refusal and enter into a purchase agreement with Lessors.

Property Taxes: Lessors shall be responsible for property taxes on the unimproved value of the land, and MPEC shall be responsible for property taxes, if any, attributable to improvements, equipment and infrastructure.

This Lease shall be construed in accordance with the laws of the State of Maine.

Amendment: The parties acknowledge and agree that this Ground Lease may be amended from time to time to meet operational or other needs of the parties, and agree to bargain in good faith in entering into any such amendment.

Lessors:

Date: 6th Jan 2025 — Phil Davies
Philip Davies

Date: 6th Jan 2025 — Chuan Liao
Chuan Liao

Lessee:

Date: Jan 6th 2025 — Ellen Barker

Date: — Laurie Welter

Date: 1-7-25 — Clayton T Phillips

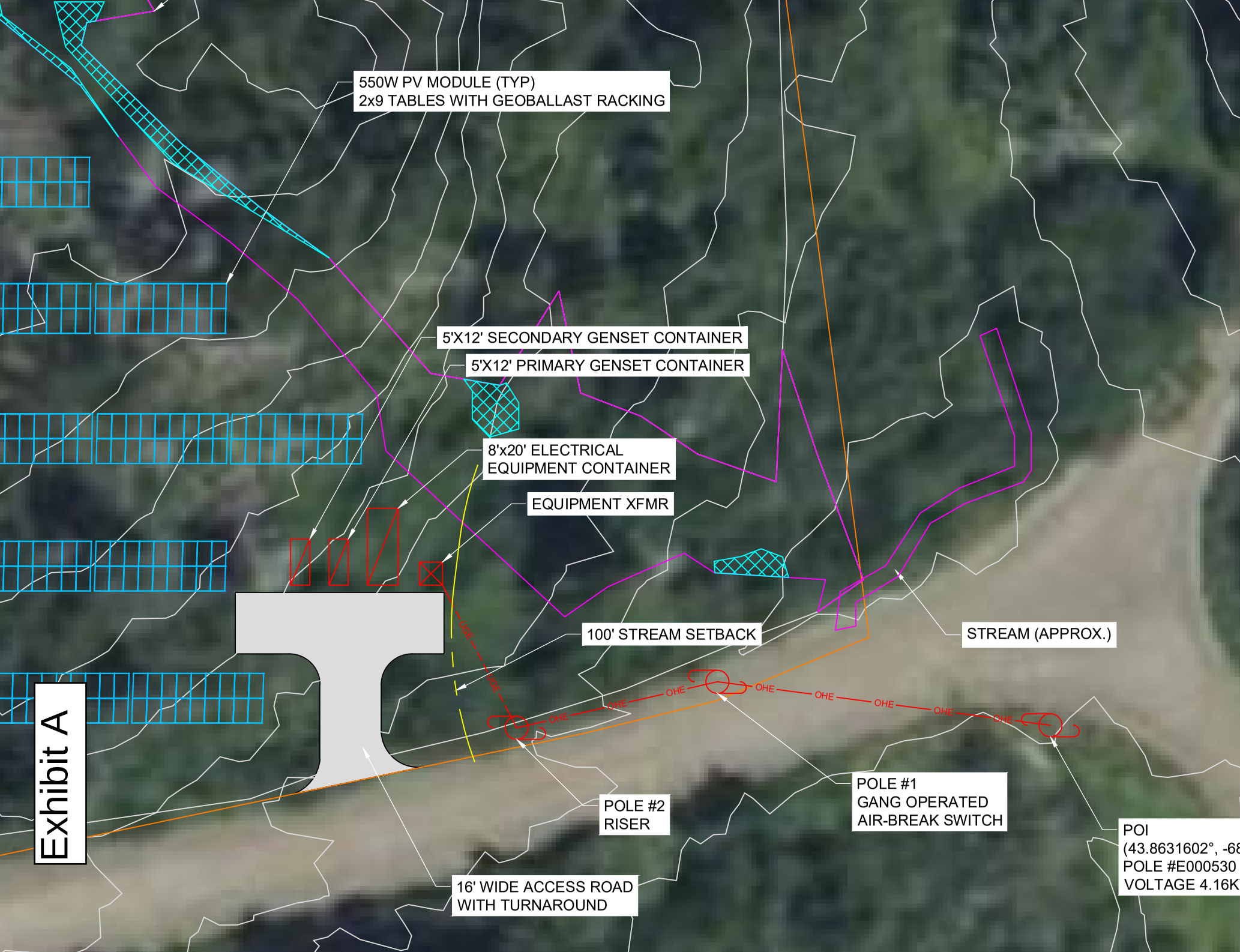

550W PV MODULE (TYP)
2x9 TABLES WITH GEOBALLAST RACKING
5'X12' SECONDARY GENSET CONTAINER
5'X12' PRIMARY GENSET CONTAINER
8'x20' ELECTRICAL
EQUIPMENT CONTAINER
EQUIPMENT XFMR
100' STREAM SETBACK
STREAM (APPROX.)
OHE
POLE #2
RISER
POLE #1
GANG OPERATED
AIR-BREAK SWITCH
POI
(43.8631602°, -68
POLE #E000530
VOLTAGE 4.16K
16' WIDE ACCESS ROAD
WITH TURNAROUND
Exhibit A

Exhibit 5: Financial Capacity

Thanks to the Island Institute, much of the planning and engineering costs have already been covered by grants. Items covered by grants:

1. RLC Engineering, Electrical Engineering: $36,000 - $45,000. Payment upon completion.
2. Flycatcher, Soil Sample Study: $9,000 – Paid.

Estimated Costs for BMP Energy LLC:

Solar Farm:	
Shipping to Matinicus	$25,000.00
Panels (REC 630 or equivalent)	$45,000.00
Ballast Racking (APA Geoballast)	$70,000.00
Inverters (4 SMA Tripower X 30)	$21,000.00
1 – to - 1 Transformer	$10,000.00
Balance of System	$25,000.00
Land Preparation	$30,000.00
Installation – NewDayEnergy	$60,000.00
Total:	**$286,000.00**

Energy Storage	
Hybrid Supercapacitors	$200,000.00
Oztek Inverters (3)	$49,000.00
Switchgear and Relays (Estimated by RLC, but going out for quote soon)	$40,000.00
Insulated Container	$30,000.00
Uninsulated Container with parts and supplies	$7,500.00
Estimated Labor (NewDayEnergy)	$40,000.00
8 HR UPS	$10,000.00
Balance of System	$50,000.00
Microgrid Controller	$34,000.00
Heating and Cooling Heatpump	$6,000.00
Weather Station	$1,500.00
Shipping to Matinicus	$25,000.00
Total:	**$493,000.00**

Estimated Costs for Matinicus Plantation Electric Company:

DIESEL GENERATOR PROJECT	
Tier 4 Diesel Genset	$66,430.00
Tier 3 Diesel Genset	$39,384.00
Generator Enclosures + loadbank	$52,612.00
Transportation	$25,000.00
Crane Rental	$10,000.00
Commissioning	$15,000.00
Pad Preparation	$15,000.00
ASCO Switch and Load Bank Install	$4,000.00
Electrical Connections including power to genset enclosures	$20,000.00
Total	**$247,426.00**

GRID UPGRADE PROJECT	Price
4160 Transformer NEMA 3R	$40,000.00
Transformer Pad Install	$15,000.00
Grounding for Transformer	$7,500.00
GOAB – Gang Operated Air Brake Switches	$30,000.00
SEL 751 Relay	$4,000.00
Cts and Pts (current and voltage measuring devices)	$4,000.00
SEL 751 Install	$2,500.00
Meter	$3,000.00
Total	**$106,000.00**

The Lessors have agreed to clear all the blowdowns, make the property safe, and install a small gravel access road to provide access to the property.

The project has been designed to minimize soil disturbance and concerns about erosion and drainage. After the solar field has been installed, the area will be seeded with perennial white clover to address any erosion concerns.

MPEC will be responsible for day-to-day site maintenance. Costs of site maintenance are minimal and largely restricted to cleaning solar panels if they are dusty.

Decomissioning Costs: The power generation facility is expected to last for at least 20 years. Unless new technologies are developed, the facility will continue to run indefinitely. Solar panels will be replaced as necessary. The same for the energy storage system and diesel generators. The facility is designed to be modular which makes replacement of components relatively easy. Plug and Play.

Proof of Funding

The owner of BMP Energy LLC has submitted private bank account information to the LUPC to demonstrate sufficient funds for the energy storage system and solar field. The documents submitted were the same documents used by USDA to ascertain that BMP Energy had sufficient funding for the entire project without a grant.

MPEC's funding will be provided by Matinicus Plantation. At a special town meeting, the town unanimously voted to approve a bond issuance of up to $1,300,000. That could cover the costs of the entire project should BMP Energy be unsuccessful in their grant application at the USDA. That document is provided below.

MPEC -via Matinicus Plantation - has applied for a line of credit with Camden National Bank in anticipation of a bond issuance in late May.

Matinicus Isle Plantation

P.O. Box 198 Matinicus, ME 04851
Tel: (207)366-3970 Fax: (207)366-3410
matinicustownoffice@gmail.com
www.matinicusplantation.com

12/07/2024

Town Meeting Voting Results

The purpose of this report is to present the results of the voting that took place during the town meeting on the 7th day of December 2024, This meeting was convened to approve or disapprove on what sum the town will vote to borrow for the upgrade of the power company in a single Article, The Article was written as:

Article : To see what sum the town will vote to borrow for the upgrade of the power company. (Assessors recommend up to $1,300,000.00). Application and financing options will be with Camden National Bank and/or Maine Municipal Bond Bank.

Fuel Tanks - $150,000.00 (to include a gasoline tank)

Diesel Generators - $200,000.00

Battery Storage- $500,000.00

Solar field- $300,000.00

Balance (for unexpected events) $150,000.00

The voting results are documented below:

21 to approve of the article

0 votes to disapprove of the article

The results showing the town had the voters approval to borrow the sums listed up to the listed amounts in the article above.

Clayton Philbrook, Laurie Webber, Ellen Bunker
Assessors, Board of Directors
Eva Murray – Town Clerk

Clayton Philbrook, First Assessor

Laurie Webber, Second Assessor

Ellen Bunker, Third Assessor

Eva Murray, Town Clerk

Clayton Philbrook, Laurie Webber, Ellen Bunker
Assessors, Board of Directors
Eva Murray – Town Clerk

Exhibit 6: Technical Capacity

The formal design of the proposed power generation facility has been developed by RLC Engineering. The design will be certified as meeting the National Electric Code. We will be hiring an independent expert to review the installation to ensure that nothing has been overlooked.

A provisional single line diagram has been provided at the end of this exhibit.

Project Leader: Philip Davies – owner BMP Energy LLC

I will be responsible for the success of the project. I have a PhD in Finance from the Ohio State Univerity and taught at the University of Iowa, and Rutgers State University before working for Jacobs Levy Equity Management - a quantitative investment firm. My focus throughout has been working on complex problems and the application of simulation methods to understand risk and return.

Much of this power project has been (and will be) about complex simulations and financial analysis. That is my area of expertise.

In the recent past I have been the road commissioner on Matinicus, responsible for improving the roads and drainage. I have undertaken significant road re-building projects on Matinicus, including re-grading, culvert installations, and ditching. As a result, I am familiar with erosion control methods.

Just as importantly, I am familiar with the unique challenges of getting materials and equipment to Matinicus, and what will and will not work.

System Planning: CICUSA

CICUSA was founded in 2003 to provide wireless development services. By 2019, the CICUSA team had developed 5,000 wireless sites and more than 32,000 microwave links across North America. CICUSA began developing renewable infrastructure for the wireless industry in 2015, adding solar systems to CICUSA's portfolio of services.

CICUSA is a leader in the design and installation of energy storage projects for backup power, solar, peak shaving and energy arbitrage. Customers include AT&T, the US Army, and electric utilities. CICUSA specializes in providing robust designs and products for sites in harsh remote environments.

Electrical Engineers and Site Designers: RLC Engineering

RLC Engineering's team of experts are central to the project's success. They have designed the site layout, and specified/verified all the equipment, components and wiring necessary for the project to be successful. The resumes of the team of people at RLC Engineering who are working on this project have been provided at the end of this exhibit.

General Contractor: Ted Fountain - New Day Energy

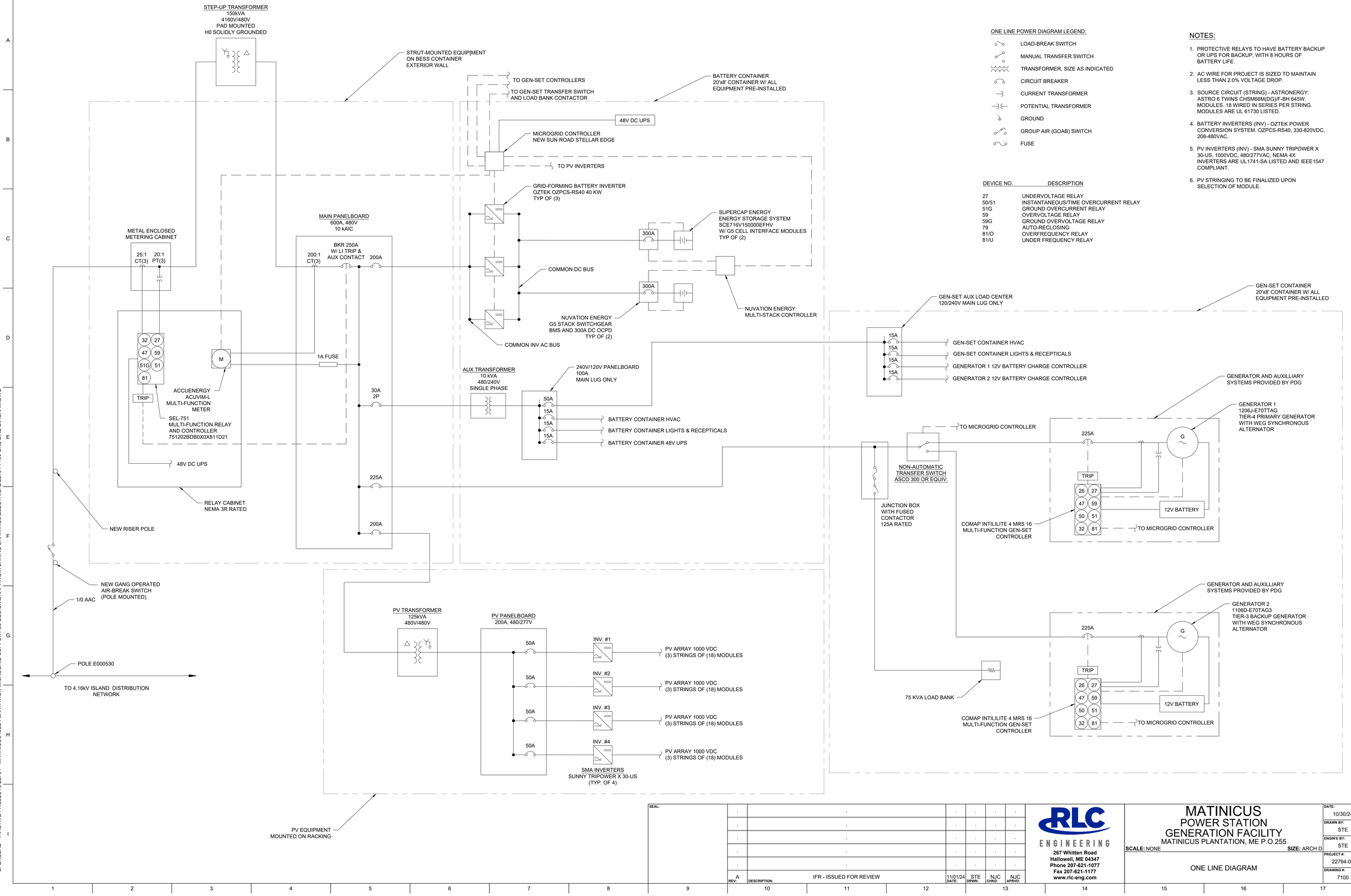
Mr Fountain has 15 years of experience as a general contractor and has worked on over 50 solar site installations, both residential and commercial, using ground mounted racks, dual axis trackers, and rooftop racking. Mr Fountain is an expert on logistics for construction projects and specializes in projects in challenging locations.

Lead Electrician: Moss Electric LLC, ME License #MS600019450

Moss Electric LLC was established in 2007 by Nathan and Stacey Moss. Mr Moss has over twenty years experience as an electrician and has worked as both a service electrician and maintenance electrician throughout New Hampshire and Maine. Moss Electric have installed 50+ solar fields with energy storage systems at the residential and commercial level.

Product Support and Project Advisor: Marty Synder - Founder of CICUSA, and CEO of Supercapacitor Energy LLC.

Mr. Snyder is a founder, President and CEO of Supercapacitor Energy LLC. Mr. Snyder led teams that provided consulting and program management to wireless operators such as AT&T, ALLTEL, Triton PCS, and Omnipoint. Mr. Snyder founded Communication Infrastructure Corporation (CIC), with a focus on developing wireless backhaul networks for operators such as AT&T, Verizon, Sprint, T-Mobile, as well as government and private enterprises. CIC became one of the leading Microwave Integration Firms in the world. Mr. Snyder has provided consulting to the London Stock Exchange, the Chicago Mercantile Exchange and has been involved in the development of more than 40,000 wireless sites.



ONE LINE POWER DIAGRAM LEGEND:

- LOAD-BREAK SWITCH
- MANUAL TRANSFER SWITCH
- TRANSFORMER, SIZE AS INDICATED
- CIRCUIT BREAKER
- CURRENT TRANSFORMER
- POTENTIAL TRANSFORMER
- GROUND
- GROUP AIR (GOAB) SWITCH
- FUSE

DEVICE NO.	DESCRIPTION
27	UNDERVOLTAGE RELAY
50/51	INSTANTANEOUS/TIME OVERCURRENT RELAY
51G	GROUND OVERCURRENT RELAY
59	OVERVOLTAGE RELAY
59G	GROUND OVERVOLTAGE RELAY
79	AUTO-RECLOSING
81/O	OVERFREQUENCY RELAY
81/U	UNDER FREQUENCY RELAY

NOTES:

1. PROTECTIVE RELAYS TO HAVE BATTERY BACKUP OR UPS FOR BACKUP, WITH 8 HOURS OF BATTERY LIFE.
2. AC WIRE FOR PROJECT IS SIZED TO MAINTAIN LESS THAN 2.0% VOLTAGE DROP.
3. SOURCE CIRCUIT (STRING) - ASTRONERGY: ASTRO 6 TWINS CHSM66M(DG)/F-BH 645W. MODULES. 18 WIRED IN SERIES PER STRING. MODULES ARE UL 61730 LISTED.
4. BATTERY INVERTERS (INV) - OZTEK POWER CONVERSION SYSTEM. OZPCS-RS40, 330-820VDC, 208-480VAC.
5. PV INVERTERS (INV) - SMA SUNNY TRIPOWER X 30-US, 1000VDC, 480/277VAC, NEMA 4X INVERTERS ARE UL1741-SA LISTED AND IEEE1547 COMPLIANT.
6. PV STRINGING TO BE FINALIZED UPON SELECTION OF MODULE.

SEAL:

REV:	DESCRIPTION:	DATE:	DRWN:	CHKD:	APRVD:
A	IFR - ISSUED FOR REVIEW	11/01/24	STE	NJC	NJC

RLC ENGINEERING
267 Whitten Road
Hallowell, ME 04347
Phone 207-621-1077
Fax 207-621-1177
www.rlc-eng.com

MATINICUS
POWER STATION
GENERATION FACILITY
MATINICUS PLANTATION, ME P.O.255

SCALE: NONE **SIZE:** ARCH D

ONE LINE DIAGRAM

DATE: 10/30/24
DRAWN BY: STE
ENGN'D BY: STE
PROJECT #: 22794-01
DRAWING #: 7100

Exhibit 7: Notice of Filing

The LUPC requires the notification of owners or lessors within 1,000 ft of the proposed power facility. To be as transparent as possible, we have opted to notify ALL residents of Matinicus Plantation based on the 2023 tax commitment book that is available here.

Marc Ratner – the county commissioner responsible for Matinicus Plantation has also been notified.

This is to notify you that: *Matinicus Plantation Electric Company*, PO Box 238, Matinicus, ME 04851 and *BMP Energy LLC*, PO Box 255, Matinicus, ME 04851, have filed an application with the Maine Land Use Planning Commission, pursuant to provisions of 12 M.R.S. Section 685-B and the Commission's rule Chapter 10, Land Use Districts and Standards, to build a new power generation facility to replace the existing failing power plant.

The new facility will combine solar power with diesel generators and an energy storage system. The new facility will utilize less than 3/4 acre and is located on Matinicus Plantation, Knox County.

To ensure all island residents are able to review the application it will be posted on the Matinicus Plantation website on or after Wednesday 22nd January 2025.

The application will be filed for public inspection at the Maine Land Use Planning Commission office circled below *(circle the appropriate office)* on Tuesday 21st January 2025.

AUGUSTA OFFICE 18 Elkins Lane - Harlow Bldg 22 State House Station Augusta, ME 04333-0022 Tel. (207) 287-2631 TTY (888) 577-6690 FAX (207) 287-7439	**NORTHERN REGION** *Serving most of Aroostook County and northern Penobscot County* 45 Radar Road Ashland, ME 04732-3600 Tel. (207) 435-7970 Tel. (207) 435-7969 FAX (207) 435-7184
DOWNEAST REGION *Serving Hancock, Knox, Lincoln, and Sagadahoc Counties, and portions of Washington, Kennebec, Penobscot and Piscataquis counties; and the coastal islands in the LUPC service area* 106 Hogan Rd, Suite 8 Bangor, ME 04401 Tel. (207) 215-4685 Tel. (207) 592-4448 FAX (207) 941-4222	**EASTERN REGION** *Serving southern Penobscot County, southern Aroostook County, and portions of Piscataquis County* 191 Main Street East Millinocket, ME 04430 Tel. (207) 485-8354 Tel. (207) 399-2176 FAX (207) 746-2243
MOOSEHEAD REGION *Serving Somerset County and most of Piscataquis County* 43 Lakeview Street P.O. Box 1107 Greenville, ME 04441 Tel. (207) 349-0941 Tel. (207) 731-4398	**WESTERN REGION** *Serving Franklin County and Oxford County* 932 US Route 2 East Wilton, ME 04294 Tel. (207) 670-7492 FR Tel. (207) 670-7493 OX

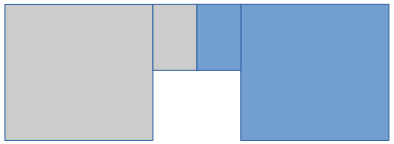
Written comments and requests for a public hearing should be sent to the Maine Land Use Planning Commission at the address circled above and **must be submitted in a timely manner**. The Commission prefers that all written comments and requests for a public hearing be submitted within 20 days of the date an application is accepted for processing. Requests for a public hearing must clearly state the reason(s) a public hearing is warranted on this project.

For questions about submitting written comments, requesting a public hearing, or for any additional information, contact Commission staff at the office circled above.

The Land Use Planning Commission's legal authority is established by 12 M.R.S. Section 683-A.

Exhibit 8: Land Division History

Use this table to present the ownership and land division history of your parcel. Be sure to start the history 20 years ago and include drawings. *See further instructions and an example in Land Division History (Exhibit 8).*

Drawing (does not have to be to scale)	**Transaction Details, Including Names of Seller/Grantor and Buyer/Grantee**	**Date of Transaction**	**Book & Page Numbers**	**Lot Size *(in acres)***
	Shaded Blue area: Vance Bunker to Janan Miller	09/26/2019	5791-109	4.5
	Janan Miller to Philip Davies and Chuan Liao	12/12/2024	6184-270	4.5

Thomas B. Federle
Principal
tfederle@archipelagona.com

1 Dana Street, 4th Floor
Portland, Maine 04101
(207) 558-0102

December 3, 2024

To: **Maine Land Use Planning Commission, Audie Arbo & Rachel Hauber**
From: **Archipelago Law**
Date: **December 3, 2024**
RE: **Land Transaction History/E. Vance Bunker, Matinicus Island**

I. SUMMARY

Archipelago has been engaged to analyze the land transaction history of properties previously held by E. Vance Bunker on Matinicus Island. Our focus is on a certain lot that could be conveyed and used for energy generation serving the Town (the "Subject Lot"). In particular, our inquiry is for the purpose of determining whether the Subject Lot is part of an unpermitted subdivision, or would be upon conveyance.

The principal challenge in this inquiry arises from the source deed from Harold Bunker into E. Vance Bunker in 1968. That 1968 deed uses the same property description of the land that was used in an 1880 deed that, common to the era, used calls to monuments such as "to the old well." The property described was said to be about 40 acres and stretched from the west shore of Matinicus (near Little Island) across the island nearing Matinicus Harbor. When Harold Bunker conveyed to E. Vance Bunker in 1968, he used that same poorly defined 40 acre +/- description and cited to 12 out-conveyances prior to 1968 beginning in 1899. Each of these out-convenances were poorly defined with calls to monuments such as "to stake and stone." The result is that E. Vance Bunker received approximately 30 acres (rather than the original 40), and the 30 acres received were no longer one single contiguous parcel. Because the original description and the description of the out-parcels were all vague, it is difficult to map the 30 acres that E. Vance Bunker actually received.

A 2003 survey plan for Vance Bunker is helpful in piecing the land together as it existed then. From that plan, and from confirmation of certain deeds, we have concluded that the Subject Parcel is part of an isolated parcel or tract of land for purposes of subdivision review. That parcel is bounded on the South by Harbor Road, on the West by South Road and land of others, on the North by land of others, and on the East by land of others. By "land of others," we mean land that is outside of the land acquired by E. Vance Bunker in 1968.

As a result, for purposes of analyzing the status of the Subject Lot, the inquiry gets narrow. It is possible that other land of E. Vance Bunker has been divided in a manner that should have triggered subdivision review, but analyzing those parcels are not relevant to a

determination of the status of the Subject Lot and thus, is beyond the scope of this analysis and summary.

In order to determine whether the Subject Lot has been divided in a manner that triggers subdivision review, it is helpful to review at the outset certain provisions of 12 M.R.S. §§ 681 *et seq.* and the LUPC's Chapter 10 Regulations.

II. APPLICABLE STATUTES AND RULES

12 M.R.S. § 682(2-A)

- **Subdivision.** A subdivision means the division of an existing parcel of land into 3 or more parcels or lots within any 5-year period whether the division is accomplished by platting of the land for immediate or future sale, by sale of the land or by leasing. The term subdivision also includes the construction of 3 or more dwellings within a 5-year period.

12 M.R.S. § 682-B(1)

- **Gifts to Relatives.** A division of land accomplished by gift to a spouse, parent, grandparent, child, grandchild or sibling of the donor of the lot does not create a subdivision lot if the donor has owned the lot for a continuous period of 5 years immediately preceding the division and the lot is not further divided or transferred within 5 years from the date of division.

01.672 C.M.R. § 10.25(Q)(1)(g)(4)

- A division of land accomplished by a bona fide gift, without consideration paid or received, that otherwise complies with the requirements of 12 M.R.S. § 682-B(1) is an exempt lot for subdivision purposes.

01.672 C.M.R. § 10.25(Q)(1)(g)(3)

Existing Parcels. An "existing parcel" shall include the contiguous area owned by one person or group of persons in common ownership. Note that Title 30-A and Title 12 differ in that Title 30-A expressly defines a parcel or tract of land as it relates to a private or public road bisecting the land. Title 12 has no definition of a tract or parcel. Chapter 10 has a definition, but it is silent on roads. *See* 01.672 C.M.R. § 10.25(Q)(1)(f). We do not believe that this is problematic in the present case in that land on the other side of relevant roads (Harbor Road and South Road) is land of others anyway. It does strike us as good practice is the LUPC considers roads bisecting land as creating individual parcels on each side of the road consistent with Title 30-A.

III. SUBJECT LOT'S LAND TRANSACTION HISTORY

The deeds and plans identified in the following table are referenced in the analysis that follows.

Deeds and Transaction History						
Grantor(s)	**Grantee(s)**	**Book**	**Page**	**Date**	**Notes**	**Map/Lot**
Subject Conveyance						
Harold Bunker	E. Vance Bunker Judith Bunker	479	271	1968	Created multiple parcels including the Subject Lot. See section of 2003 Survey Plan for Vance Bunker by Mathieson Surveying marked as Exhibit A.	Not Found[1]
E. Vance Bunker	Bruce W. Ives Nancy E. Ives	2518	347	2000	First division/More than 5 years ago. See plan in red.	Not Found
E. Vance Bunker	Ellen Bunker	5791	105	2019	Exempt. See plan in yellow.	Not Found
E. Vance Bunker	Janan Miller	5791	109	2019	Exempt. See plan in blue	Not Found
Survey Plans						
Recorded Plan for Vance Bunker				2003	Attached as Ex. A	

*** Note** – All deeds and plans appear in the Knox County Registry of Deeds ("KCRD").

IV. THE SUBJECT LOT

The Subject Lot is the approximately four-acre lot outlined in blue in Exhibit A. It was part of a parcel that Vance Bunker acquired in the 1968 deed. In 2000, a lot was conveyed to Bruce and Nancy Ives (2518/347). This was a first division of the parcel. Had a second division been made within five years, a subdivision would have been created. However, E. Vance Bunker's next conveyance from this parcel did not occur until 2019 and was an exempt

[1] Archipelago has requested tax maps and will supplement this memorandum upon receipt.

conveyance to his daughter Ellen Bunker (5791/105). Immediately thereafter, E. Vance Bunker conveyed the Subject Lot to his daughter Janan Miller (5791/109).[2]

If Janan Miller now sells the Subject Lot to a third party in a non-exempt transfer, this will not create a subdivision of the parcel.

South of these lots Is Harbor Road and land of others. West is South Road and land of others. North and East is land of others.

V. CONCLUSION

E. Vance Bunker acquired multiple parcels in his 1968 deed, The Subject Lot is part of an isolated parcel shown in Exhibit A. The land transaction history demonstrates that the Subject Lot is not part of an unpermitted subdivision. Similarly, the sale of the Subject Lot will not create a subdivision.

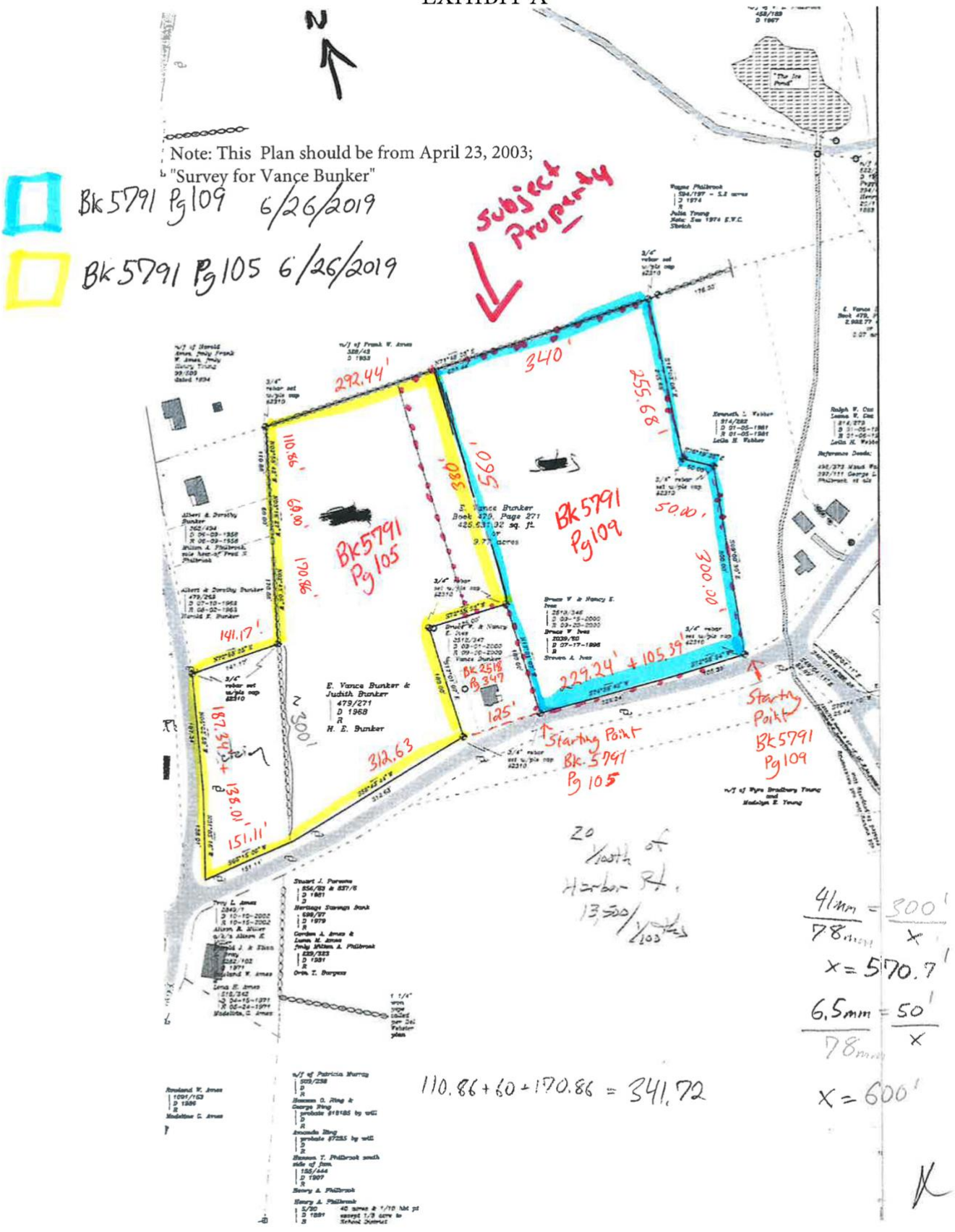
We would be happy to discuss any of this further with you.

Sincerely,

Thomas B. Federle, Esq.

[2] Both deeds to his daughters are dated in 2019 but were recorded in 2021. This raises a question of which date is controlling when an exempt deed needs to be held for 5 years before being re-conveyed. That issue does not need to be resolved here as no 2 divisions occurred, or will occur, in a 5-year period.

EXHIBIT A


N
Note: This Plan should be from April 23, 2003;
"Survey for Vance Bunker"
Bk 5791 Pg 109 6/26/2019
Bk 5791 Pg 105 6/26/2019
Subject Property
292.44'
340'
255.68'
110.86'
60.00'
190.86'
330'
560'
Bk 5791 Pg 105
Bk 5791 Pg 109
50.00'
300.30'
141.17'
187.34'
135.01'
151.11'
312.63'
229.24'
105.39'
125'
Bk 2518 Pg 347
E. Vance Bunker & Judith Bunker
479/271
D 1968
R
H. E. Bunker
Starting Point
Bk 5791 Pg 105
Starting Point
Bk 5791 Pg 109
20' width of Harbor Rd.
110.86 + 60 + 170.86 = 341.72
41mm = 300'
78mm = x
x = 570.7'
6.5mm = 50'
78mm = x
x = 600'

Receipt # 151523 KNOX SS: RECEIVED
ERECORDED
VOL 6184 PG 270
12/13/2024 08:50:44 AM
2 Pages
Instr # 2024-9611
ATTEST:Madelene F. Cole, Knox Co Registry of Deeds

WARRANTY DEED

JANAN MILLER, whose address is 378 Seal Harbor Road, Spruce Head, Maine 04859, for consideration paid, grants to **PHILIP DAVIES and CHUAN LIAO**, whose address is 111 South Road, Matinicus Island, Maine 04851, as joint tenants, with **WARRANTY COVENANTS**, a certain lot or parcel of land, together with the buildings thereon, situated Matinicus Isle Plantation, County of Knox, State of Maine, being more particularly bounded and described as follows:

Beginning at a 3/4" rebar set at the southeasterly corner of the lot herein conveyed and the southwesterly corner of land now or formerly of Kenneth L. Webber as recorded at the Knox County Registry of Deeds in Book 814, Page 282;

Thence North 09 degrees 00 minutes 30 seconds West along land of said Webber three hundred (300) feet to a 3/4" rebar;

Thence continuing along land of Webber North 76 degrees 19 minutes 35 seconds West fifty (50) feet to a 3/4" rebar;

Thence continuing along land of Webber North 12 degrees 03 minutes 08 seconds West two hundred fifty-five and sixty-eight hundredths (255.68) feet to a stonewall in the southerly line now or formerly of Wayne Philbrook as described in a deed recorded at the Knox County Registry of Deeds in Book 594, Page 197;

Thence South 71 degrees 48 minutes 03 seconds West along stonewall three hundred forty (340) feet to a point for a corner;

Thence South 17 degrees 01 minutes 07 seconds East along land of Ellen Bunker described in deed recorded in Book 5791, Page 105 in the Knox County Registry of Deeds and land of Ives five hundred sixty (560) feet, more or less, to the northerly side of a road;

Thence North 74 degrees 39 minutes 43 seconds East along said road two hundred twenty-nine and twenty-four hundredths (229.24) feet along said road to a point;

Thence North 72 degrees 56 minutes 54 seconds East one hundred five and thirty-nine hundredths (105.39) feet to the place of beginning.

Reference is made to a Plan entitled "Survey for Vance Bunker, Matinicus Island, County of Knox, State of Maine" dated April 23, 2003, prepared by J.H. Mathieson Surveying.

Being the premises described in deed of E. Vance Bunker to Janan Miller dated September 26, 2019, recorded in Book 5791, Page 109 in the Knox County Registry of Deeds.

Witness my hand and seal this 11th day of December, 2024.

Janan K. Miller
Janan Miller

State of Maine
County of Lincoln

December 11, 2024

Personally appeared the above-named Janan Miller, and acknowledged the foregoing instrument to be her free act and deed.

Before me,

~~Notary Public~~/Attorney at Law

Nathaniel D. Hussey
Attorney at Law
Maine Bar #7074

Exhibit 9: Structures, Features, and Uses

Site Uses:
The site is currently unused. There are no structures on the property. The proposal is to use less than 1 acre of the 4.5 acre property as a power generation facility for Matinicus Island.

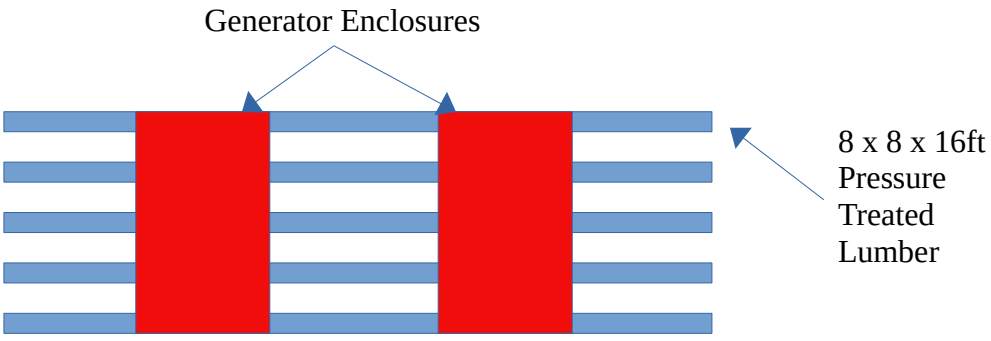
Site Conditions:

- There is a stream on the east boundary of the property.
- There are wetlands on the property. These were identified and mapped by Flycatcher as part of their soil sample analysis. Please see their reports for further details.
- The majority of the property is level with a slight slope down to the south end. The grade is approximately 1%-2%.
- Towards the east side, the property drops off towards the stream. In places the grade is approximately 5-10%.
- The existing vegetation is predominantly woodland with a few raspberry clumps. The site has suffered from extensive blowdowns in the recent winter storms. The site should be accessed with extreme caution as the trees are not stable at present.
- In the past, 40-50 years ago, the area was utilized for growing produce. The gardens were neglected and woodland took over.
- Flycatcher did not identify any special natural areas.
- The current and former owners are not aware of any unique cultural or historical significance to the land.

Structure Foundations:

The equipment containers will all be secured in a similar manner. We will create a 5-8 inch deep layer of clean 3-5 inch sized rock. Road underlay will be used under the rock. 8 x 8 Pressure Treated Lumber specified for ground use will be utilized to raise the containers off the ground.

The picture below demonstrates the layout for the generator enclosures. On well drained rock, the treated wood should last in excess of 20 years. Powerhouse Diesel have confirmed that they are happy with this approach. The spaces between the 8 x 8s can be filled with more clean 3-5 inch rock.



The energy storage container only needs support at each corner, but we will supplement that with additional 8 x 8s around the center of the container.

Structures Table Applicant/Project Name: MPEC and BMP Energy LLC – Matinicus Power Generation Facility

Refer to Structures, Features, Uses (Exhibit 9) for instructions. Name structures consistent with the labeling used on the Site Plans (Exhibit 10).

Structure Type and Use (specify if temporary)	Year Built or Duration (if temporary)	Proposed alterations (check all that apply)									Exterior Dimensions (LxWxH) in ft Indicate Current (C) & Proposed (P)	Type of Foundation	Number of:		Distance (in feet) of structure from nearest:					
		Change in Use	New Construction	Expand or Add On	Reconstruct or Replace	Permanent foundation	Relocate or Remove	Enclose deck or porch	Change Dimensions or Setbacks	Other			Bedrooms	Plumbing or water fixtures	Road	Property line	Lake or pond	River or stream	Wetland	Ocean/Coastal Wetland
Existing Structures																				
No existing structures		☐	☐	☐	☐	☐	☐	☐	☐	☐										
Proposed Structures																				
Generator Enclosure 1	2025	☐	■	☐	☐	☐	☐	☐	☐	☐	12 x 5 x 8 (P)	8 x 8 PT	0	0	65	65	NA	130	20	875
Generator Enclosure 2	2025	☐	■	☐	☐	☐	☐	☐	☐	☐	12 x 5 x 8 (P)	8 x 8 PT	0	0	65	65	NA	125	15	875
Energy Storage System	2025	☐	■	☐	☐	☐	☐	☐	☐	☐	20 x 8 x 8.5 (P)	8 x 8 PT	0	0	55	80	NA	115	10	875
Equipment Transformer	2025	☐	■	☐	☐	☐	☐	☐	☐	☐	6 x 6 x 4 (P)	Concrete Pad	0	0	75	75	NA	104	10	875

Infrastructure Table: Applicant/Project Name: MPEC and BMP Energy LLC – Matinicus Power Generation Facility

Refer to Structures, Features, Uses (Exhibit 9) for instructions. Name infrastructure consistent with the labeling used on the Site Plans (Exhibit 10).

Infrastructure Type and Use (specify if temporary)	Proposed alterations (check all that apply)							Dimensions (LxW) in ft	Year Built or Duration (if temporary)	Average Slope (%)	Max. Sustain. Slope (%)	Distance (in feet) of infrastructure from nearest:					
	Change in Use	New Construction	Change Dimensions	Reconstruct or Replace	Relocate	Change Setbacks	Other					Road	Property line	Lake or pond	River or stream	Wetland	Ocean/Coastal Wetland
Existing Infrastructure																	
No changes	☐	☐	☐	☐	☐	☐	☐										
Proposed Infrastructure																	
Gravel Access road	☐	■	☐	☐	☐	☐	☐	40 x 16	2025	0	0	10	10	NA	130	44	730
Gravel Turnaround	☐	■	☐	☐	☐	☐	☐	54 x 16	2025	0	0	50	60	NA	105	17	780
Riser Utility Pole	☐	■	☐	☐	☐	☐	☐	1.2 x 1.2 x 35	2025	0	0	30	30	NA	104	30	725
Gang Op AB Utility Pole	☐	■	☐	☐	☐	☐	☐	1.2 x 1.2 x 35	2025	0	0	27	27	NA	50	30	720
Solar Field	☐	■	☐	☐	☐	☐	☐	150 x 125	2025	0.5	2	35	35	NA	157	4	850

We sought advice from Tim Carr at the LUPC regarding the setbacks from the wetland areas for this project. It was determined that there was no need for any setbacks as the wetlands are of no special significance. While we could have had zero setbacks we opted for a minimum of 10ft from all structures. We also consulted with the USDA environmental team. They agreed that the wetlands were of no special significance.

Exhibit 10: Site Plans

The property owners, Philip Davies and Chuan Liao, are currently making the property safe to access. The tree blowdowns have been extensive and our project cannot be started until the property is safe to work on. That initial work is not part of the solar field construction.

The site plans for the power generation facility are provided below along with the single line diagram.

Water Pollution: There are several potential sources of water pollution

During construction:

- When grading the solar field area we anticipate some areas of soil disturbance. The land, on average, has a gentle slope (1-2%) down to the drainage ditch by the side of the road. Grading work will be conducted in the Spring and we will seed perennial white clover over any disturbed soil to prevent erosion.

- Any excess topsoil or mulch will be hauled off site and utilized in garden beds. We will not leave large piles of topsoil on site which would have the potential to create water pollution.

- Whenever machinery is utilized, there is a risk of fuel and oil spills. We will keep a 10ft x 10ft piece of EPDM on hand so that if there is a spill we can dig out the soil and put it on the EPDM to avoid any possibility of water pollution.

During regular operations:

- There is the possibility of a diesel fuel spill. The diesel generators will have to be refueled weekly. That is a supervised process so spills are unlikely during refueling. The generator fuel tanks are UL 142 compliant, double walled tanks, with 110% containment. Absorbent pads for small spills of diesel will be stored on site.
- **Dust**: Dust can be a concern around solar fields. At present we are unsure as to the extent of the dust problem. If we find dust to be a significant problem then we would utilize environmentally friendly dust control products such as DirtGlue by GES to treat any gravel areas.

Wildlife Passage: Typically solar fields are surrounded by 7ft fences to meet national electrical codes. We have found a mesh screen-based alternative that can be fitted to the solar panels themselves that will enable us to meet National Electrical Codes while avoiding the need for fencing. That minimizes concerns about wildlife passage. Moreover, the solar field does not extend across the entire width or depth of the property. There is plenty of woodland for safe wildlife passage.

30' 0 30' 60' 90' 120'

SCALE: 1" = 30'

N

GENERAL NOTES:

1. TREES MAY GROW DURING THE LIFE OF THE SYSTEM AND IMPACT THE PRODUCTION.
2. ANY AND ALL LAYOUT CHANGES, INCLUDING BUT NOT LIMITED TO SHIFTING OF THE ARRAY, ARE SUBJECT TO APPROVAL BY THE DESIGN TEAM.
3. ARRAY LAYOUT DIMENSIONS SHALL BE CONSIDERED APPROXIMATE AND MAY VARY SLIGHTLY DUE TO MODULE INSTALLATION TOLERANCES AND VARYING TOPOGRAPHY.
4. PER NEC 110.31 MINIMUM DISTANCE FROM FENCE TO ANY RACKING OR LIVE PART SHALL BE 10 FEET.

PV SYSTEM SUMMARY
(288) BIFACIAL PV MODULES
550 WATT NOMINAL
158.40 kW DC TOTAL NAMEPLATE CAPACITY
(4) SMA SUNNY TRIPOWER X 30-US
30 KW INVERTERS
120 KW AC TOTAL NAMEPLATE CAPACITY

LEGEND:

- WETLAND CLEARING (1571 ft² TOTAL)
- RACKING
- ROAD (15 FT.)
- UTILITY POLE
- UGE — UNDERGROUND
- OHE — OVERHEAD
- FENCE
- PROPERTY LINE
- WETLANDS
- 25' WETLANDS SETBACK
- EQUIPMENT CONTAINER
- EQUIPMENT TRANSFORMER

PRELIMINARY
NOT FOR CONSTRUCTION

REV:	DESCRIPTION:	DATE:	DRWN:	CHKD:	APRVD:
.	.	.	.	.	.
.	.	.	.	.	.
D	ADD (3) TABLES; CHANGE TO 550W MODULES	01/10/25	JAC	STE	STE
C	ADJUST LAYOUT, ADD STREAM AND SETBACK	11/26/24	STE	STE	STE
B	ADDED TOPOLOGY, WETLANDS AND REVISED SITE PLAN	10/29/24	JAC	STE	STE
A	IFR - ISSUED FOR REVIEW	09/13/24	JAC	STE	STE

SEAL:

RLC ENGINEERING
267 Whitten Road
Hallowell, ME 04347
Phone 207-621-1077
Fax 207-621-1177
www.rlc-eng.com

MATINICUS

120 KW GENERATION FACILITY

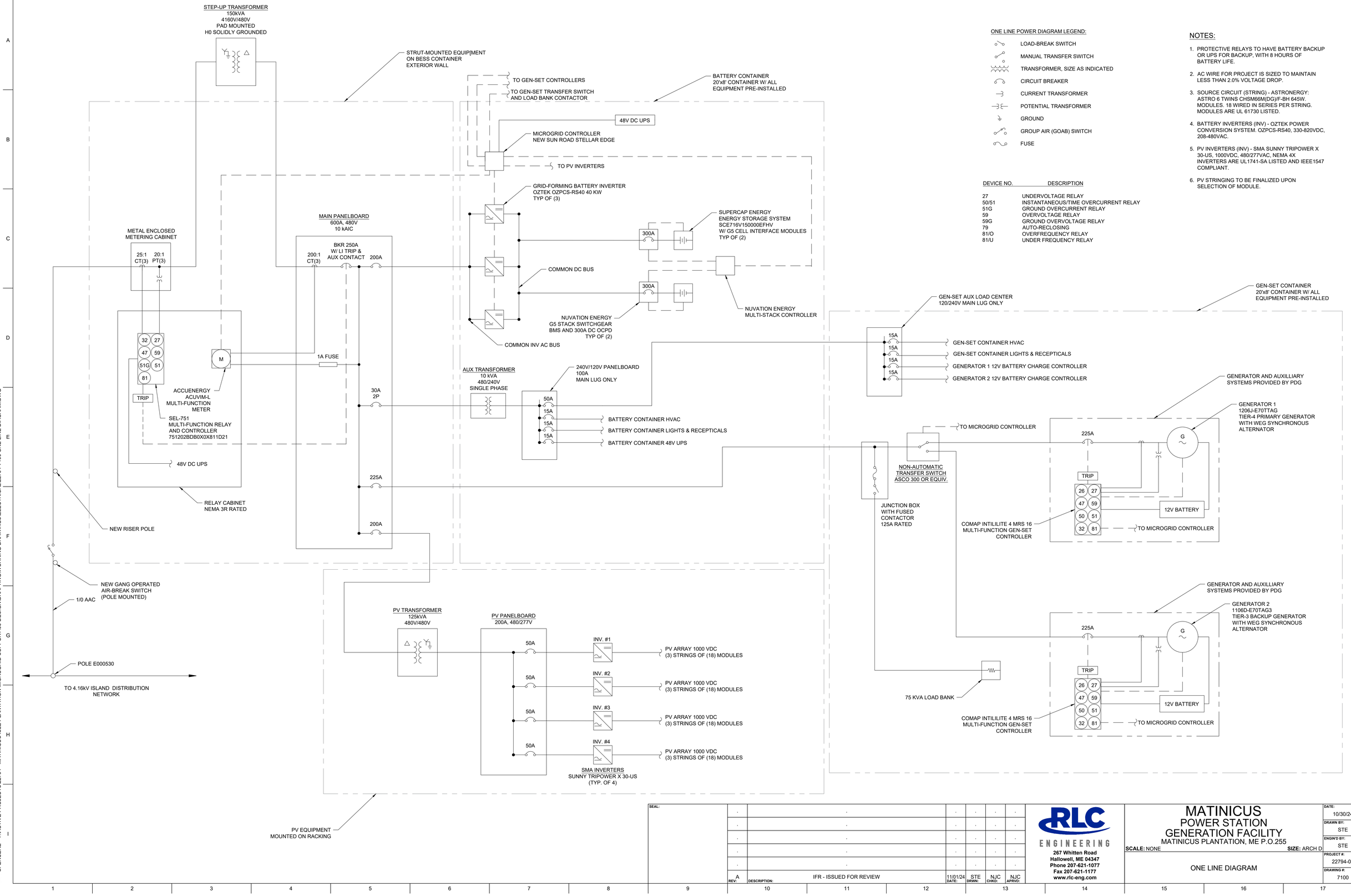
MATINICUS PLANTATION, ME P.O.255

SCALE: 1" = 30' **SIZE:** ARCH D

GENERAL SITE PLAN

DATE: 01/10/25
DRAWN BY: JAC
ENGN'D BY: STE
PROJECT #: 22794-01
DRAWING #: 7010

1/8/2025 1:44 PM - SPENCERE - T:\ACTIVE PROJECTS\22794 - MATINICUS ISLE PLANTATION MICROGRID SUPPORT\05 - MATINICUS ISLE\01-DESIGN\03-DRAFTING\02-WORKING DRAWINGS\ELECTRICAL\22794-01-7010 GENERAL SITE PLAN.DWG



ONE LINE POWER DIAGRAM LEGEND:

- LOAD-BREAK SWITCH
- MANUAL TRANSFER SWITCH
- TRANSFORMER, SIZE AS INDICATED
- CIRCUIT BREAKER
- CURRENT TRANSFORMER
- POTENTIAL TRANSFORMER
- GROUND
- GROUP AIR (GOAB) SWITCH
- FUSE

DEVICE NO.	DESCRIPTION
27	UNDERVOLTAGE RELAY
50/51	INSTANTANEOUS/TIME OVERCURRENT RELAY
51G	GROUND OVERCURRENT RELAY
59	OVERVOLTAGE RELAY
59G	GROUND OVERVOLTAGE RELAY
79	AUTO-RECLOSING
81/O	OVERFREQUENCY RELAY
81/U	UNDER FREQUENCY RELAY

NOTES:

1. PROTECTIVE RELAYS TO HAVE BATTERY BACKUP OR UPS FOR BACKUP, WITH 8 HOURS OF BATTERY LIFE.
2. AC WIRE FOR PROJECT IS SIZED TO MAINTAIN LESS THAN 2.0% VOLTAGE DROP.
3. SOURCE CIRCUIT (STRING) - ASTRONERGY: ASTRO 6 TWINS CHSM66M(DG)/F-BH 645W. MODULES. 18 WIRED IN SERIES PER STRING. MODULES ARE UL 61730 LISTED.
4. BATTERY INVERTERS (INV) - OZTEK POWER CONVERSION SYSTEM. OZPCS-RS40, 330-820VDC, 208-480VAC.
5. PV INVERTERS (INV) - SMA SUNNY TRIPOWER X 30-US, 1000VDC, 480/277VAC, NEMA 4X INVERTERS ARE UL1741-SA LISTED AND IEEE1547 COMPLIANT.
6. PV STRINGING TO BE FINALIZED UPON SELECTION OF MODULE.

SEAL:

REV:	DESCRIPTION:	DATE:	DRWN:	CHKD:	APRVD:
A	IFR - ISSUED FOR REVIEW	11/01/24	STE	NJC	NJC

RLC ENGINEERING
267 Whitten Road
Hallowell, ME 04347
Phone 207-621-1077
Fax 207-621-1177
www.rlc-eng.com

MATINICUS
POWER STATION
GENERATION FACILITY
MATINICUS PLANTATION, ME P.O.255

SCALE: NONE **SIZE:** ARCH D

ONE LINE DIAGRAM

DATE: 10/30/24
DRAWN BY: STE
ENGN'D BY: STE
PROJECT #: 22794-01
DRAWING #: 7100

Exhibit 11: Site Photographs

View of Property from Road

Solar Field Area

Generator Enclosure and Energy Storage Container

Stream on east property boundary

Exhibit 12: Fire, Police and Ambulance Protection

I met with the Island Fire Chief, Jeff Messer, and walked him through the proposal. Jeff had several helpful comments regarding specialized environmentally friendly fire extinguishers for use on solar panels.

On the next page I have attached an email from the Fire Chief confirming he is aware of the project and has no concerns about the project proceeding.

We do not have a police presence or ambulance presence on Matinicus.

Matinicus Plantation Electric Company Proposal

From Jeffrey Messer <jeff.messer@messerbuilt.com>

To phil.davies@protonmail.com

Date Friday, December 13th, 2024 at 3:17 PM

> Phil,
> Thank you for recently reviewing the proposed plans of the new Matinicus Electric Plant with me. As the fire chief for Matinicus, this plan will not adversely affect our ability to fight any fire on the island. Nor will the plan increase any fire danger on the island. It is my recommendation that we move forward with this plan.
>
> If you or others have any further questions for me, please feel free to contact me via email or my cell 207-939-4185.
>
> Best Regards,
> Jeff Messer
> Matinicus Fire Chief

MESSER TRUCK AND VAN

Jeffrey Messer
President/Owner

Email: jeff.messer@messerbuilt.com
Office: 207.854.9751
Direct: 207.887.7002

2024 Best Places to Work in ME

messerbuilt.com

Messer will be closed December 25th and January 1st for the holiday.

112.59 KB 6 embedded images

Exhibit 13: Solid Waste Disposal

Construction Wastes: The project will generate very little waste on Matinicus. The two generator enclosures, and the energy storage container are being fabricated and outfitted by firms that are located outside the state of Maine.

The largest “waste” product will be the trees that are cut down and stumps.

- If the trees are rotten they will be mulched down and the mulch hauled off for use in garden beds.
- If trees are not rotten they will be cut into 3 ft sections and stacked to dry. They will be used as firewood.
- Stumps will be removed from the property and permits obtained to burn the stumps when the weather conditions are suitable.

If any topsoil has to be removed from the site, it will be utilized in garden beds.

Components for the solar field will be shipped on wooden crates. The crates will be used as firewood. All packaging will be removed from Matinicus by the general contractor – New Day Energy – upon completion of the project and disposed of near their facility in New Hampshire.

Solid Waste from Routine Operation: Solid wastes are not anticipated from routine operation of the power plant.

Exhibit 14: Electricity and Telephone Service

Electricity Service: During construction we will utilize portable generators when necessary. Most equipment is battery-based and will be charged off-site. After construction, the facility will be the power plant for the island providing electricity for all residents.

Telephone Service: At this time there are no plans for telephone service inside the equipment containers. We do intend to have internet. Service may be provided by either Starlink or TDS, or both for redundancy. The closest TDS phone line is 100ft from the site. As we are installing utility poles it would be easy to run a line for TDS.

Exhibit 15: Water Supply

- There are no wells on the property.
- We are not planning on drilling a well as water is not necessary for any of the electrical or mechanical equipment.

Exhibit 16: Wastewater Disposal

There will be no wastewater generated by the power generation facility.

Exhibit 17: Vehicle Access, Circulation, and Parking

1. Vehicles during construction

Initially there will be four vehicles on the construction site, a compact tracked loader, a rubber tracked excavator and two small dump trucks (3-4 yard bodies). The dump trucks will be used to haul roots and mulch off site. The compact tracked loader and excavator will remain on site until the site has been prepared.

The equipment containers will be brought on flatbed trucks (<35ft long) and unloaded with a mobile crane. The utility poles will be installed using the compact tracked loader. MPEC's bucket truck will be required to run the cables.

2. Vehicles during operation

The power generation facility will be inspected daily by an MPEC employee. They may be on foot, bike, or in a pickup truck.

The diesel generators will be refueled using a DOT approved UL 142 500 gallon mobile tank. This trailer will be towed by a pickup truck. Re-fueling is anticipated to be once a week.

The only other times vehicles will access the site will be for routine maintenance (quarterly) or emergencies.

3. Road Access and Safety

There is one entranceway to the site which will be 20ft wide, tapering to 16ft. It runs at right angles to the road. There will be clear visibility in all directions as access is over an existing drainage culvert.

4. Safe Movement of Vehicles

The turnaround area is 16ft wide and 50ft long. The driveway will intersect in the middle of the turnaround. That will allow plenty of space for the initial installation of equipment containers and enable the refueling truck and trailer to turn without issue.

The turnaround has been designed to ensure that the fire trucks on Matinicus will be able to turn around without difficulty. There would be sufficient space for 2 fire trucks at the same time in the event of an emergency.

5. Parking

The site is intended primarily to operate remotely. We do not anticipate any motor vehicles parking on site beyond an MPEC employee pulling in to conduct a daily check. They will park at either end of the turnaround. The daily checks will take less than 30 minutes.

6. Permits

Matinicus Plantation does not require any permits for gravel roadways or property entrances.

Exhibit 18: Exterior Lighting

At this time there are no plans for any exterior lighting on site.

Exhibit 19: Noise

The standards stipulate that at the property boundaries the sound pressure level should not exceed 55 db(A) between 7am and 7pm and 45 db(A) between 7pm and 7am.

MPEC has specified that the generator enclosures should be critically soundproofed. In addition, the mufflers will be extended to further attenuate noise. The noise from the generator enclosures will be a function of how hard a generator is working.

MPEC is specifying 150kw generators. Running at 100%, the noise levels 15ft from the generator enclosures are expected to be approximately 60 db(A).

The optimal operating level for Tier 4 diesel generators is 70% of capacity. 70% is the level the generators will be programmed to operate at unless demand levels exceed 105kw. Operating at 70% of capacity, the noise levels 15ft from the generator enclosure should be approximately 50-55 db(A).

For reference, during the 3 years I have been helping out with the power company on Matinicus, the peak demand has been 95kw and only for a handful of seconds. The 15 minute maximum demand is approximately 75kw, so we do not expect the generators to operate above 70% of their capacity.

The closest property edge is the road. The road will be approximately 75ft away from the genset exhaust. Using a basic distance attenuation calculator the sound pressure level at the road should be 41.02 db(A). The distance to any housing is in excess of 200ft. The sound pressure level should be less than 32.5 db(A).

Although we meet the standards required by the LUPC, we are sensitive to the issue of noise pollution. We intend to plant additional non-invasive bushes such as flowering raspberries and witch hazel along the borders of the property to help to absorb the noise.

The system simulations conducted by CICUSA show that the generators are expected to operate for approximately 3 hours per day. Unfortunately we are unable to control the timing of the generator operation as that is a function of weather conditions and demand for electricity on the island.

Exhibit 20: Harmonious Fit and Natural Character

- The solar field and equipment enclosures will be visible from the road, especially while bushes we plant along the property edge are young and growing.

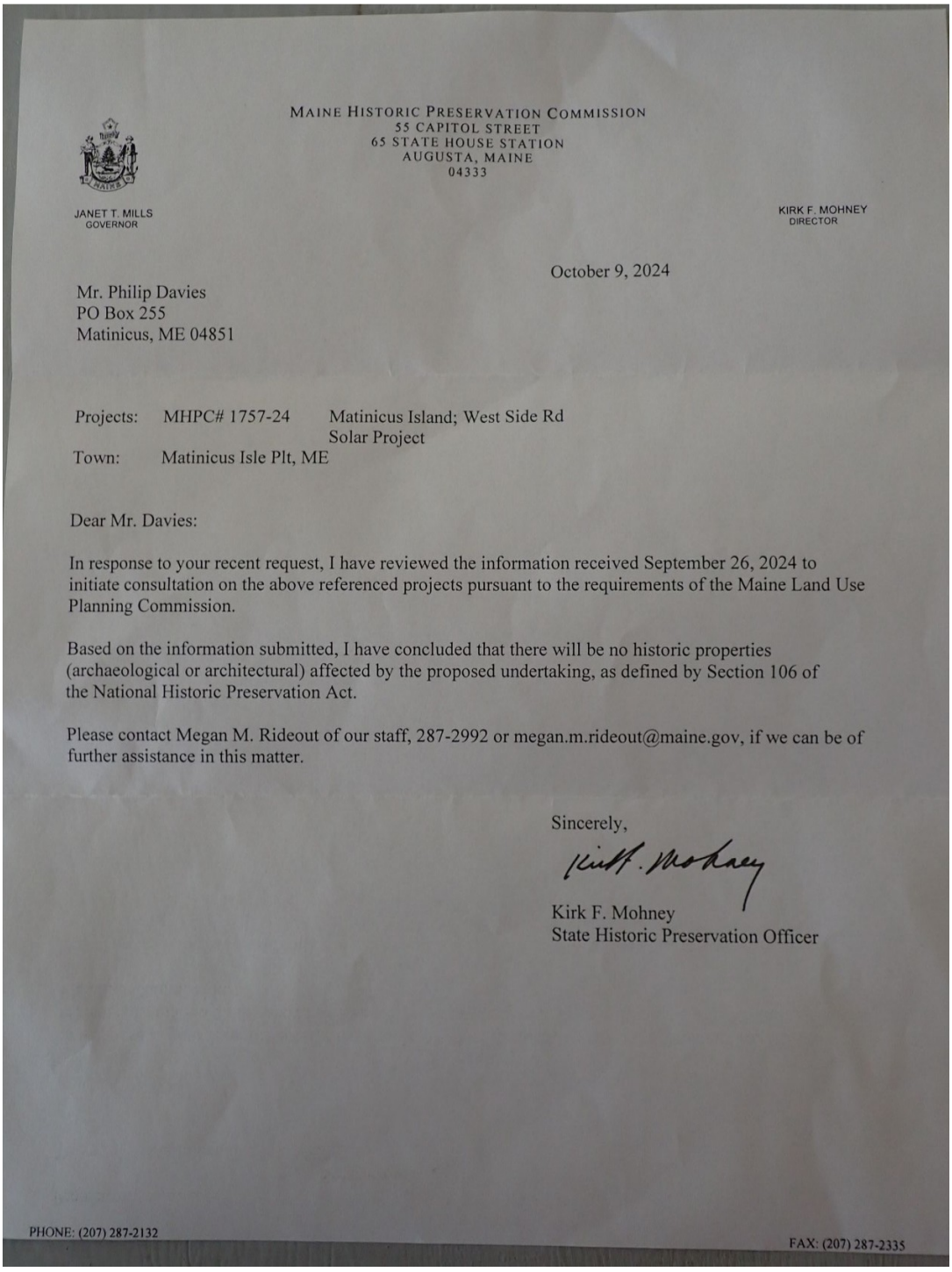
- The site will only be visible from the road. There are no trails or public property nearby.

- In keeping with the rest of the island, we will be using gravel for roadways and 3-5 inch rocks for equipment pads where-ever possible.

- The equipment containers will be painted in earth tone colors so that they do not stand out.

Exhibit 21: Archaeological and Historical Resources

Please refer to the letter from the State Historic Preservation Officer below:



MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

JANET T. MILLS
GOVERNOR

KIRK F. MOHNEY
DIRECTOR

October 9, 2024

Mr. Philip Davies
PO Box 255
Matinicus, ME 04851

Projects: MHPC# 1757-24 Matinicus Island; West Side Rd Solar Project
Town: Matinicus Isle Plt, ME

Dear Mr. Davies:

In response to your recent request, I have reviewed the information received September 26, 2024 to initiate consultation on the above referenced projects pursuant to the requirements of the Maine Land Use Planning Commission.

Based on the information submitted, I have concluded that there will be no historic properties (archaeological or architectural) affected by the proposed undertaking, as defined by Section 106 of the National Historic Preservation Act.

Please contact Megan M. Rideout of our staff, 287-2992 or megan.m.rideout@maine.gov, if we can be of further assistance in this matter.

Sincerely,

Kirk F. Mohney
State Historic Preservation Officer

PHONE: (207) 287-2132

FAX: (207) 287-2335

Exhibit 22: Rare or Special Plant Communities and Wildlife Habitat

In late September I contacted the Maine Natural Areas Program and the Maine Department of Inland Fisheries and Wildlife with regards to the project.

The responses from both departments are provided below:

MEMORANDUM Maine Natural Areas Program

Department of Agriculture, Conservation and Forestry

State House Station #177, Augusta, Maine 04333

Date: September 26, 2024

To: Phil Davies

CC: Tim Carr, LUPC

From: Lisa St. Hilaire, MNAP Information Manager

Re: Rare and exemplary botanical features, LUPC Application for Solar Development Project and Battery Storage, West Side Road, Matinicus Isle Plt, Maine.

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files for rare or unique botanical features in the vicinity of the proposed site in response to your request received September 26, 2024 for our agency’s comments on the project.

According to our current information, there are no rare botanical features that will be disturbed within the project site.

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. 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. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

The Maine Natural Areas Program is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We welcome the contribution of any information collected if a site survey is performed.

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

JANET T. MILLS
GOVERNOR

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

JUDITH CAMUSO
COMMISSIONER

December 23, 2024

Phil Davies
PO Box 255
Matinicus, ME 04851

RE: Information Request - West Side Road, Solar, Matinicus Island Project ID 8097-9882

Dear Phil:

Per your request received on September 26, 2024, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information sources for known locations of Endangered, Threatened, and Special Concern (Rare) species; designated Essential and Significant Wildlife Habitats; inland fisheries and aquatic habitats; and other protected natural resource concerns within the vicinity of the ***West Side Road, Solar, Matinicus Island*** project, pursuant to MDIFW's authority. MDIFW understands the Project proposes to construct a 125-kW solar array, battery storage, generator facility, and associated infrastructure. For the purposes of this review, tree clearing is presumed.

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

ENDANGERED, THREATENED, AND SPECIAL CONCERN SPECIES

Bat Species

Of the eight species of bats that occur in Maine, four species are afforded protection under Maines Endangered Species Act (MESA, 12 M.R.S 12801 et. seq.): little brown bat (State Endangered), northern long-eared bat (State Endangered), eastern small-footed bat (State Threatened), and tri-colored bat (State Threatened). The four remaining bat species are designated as Species of Special Concern: big brown bat, red bat, hoary bat, and silver-haired 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 spring/fall migration, the summer breeding season, and/or for overwintering. However, our Department does not anticipate significant impacts to any of the bat species as a result of this project.

SIGNIFICANT WILDLIFE HABITAT

Significant Vernal Pools

At this time MDIFW Significant Wildlife Habitat (SWH) maps indicate no known presence of Significant Vernal Pools (SVPs) in the project search area. However, a comprehensive statewide inventory for Significant Vernal Pools has not been completed. SVPs are not included on MDIFW maps until project areas have been surveyed using approved methods and the survey results confirmed. Therefore, their absence from resource maps is not necessarily indicative of an

absence on the ground. 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 Department 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.

AQUATIC RESOURCES

Fish Habitat

We recommend that 100-foot undisturbed vegetated buffers be maintained along streams. Buffers should be measured from the edge of stream or associated fringe and floodplain wetlands. Maintaining and enhancing buffers along streams 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 conditions required by many fish 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 full fish 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 and undersized crossings may inhibit these functions. 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 not only providing habitat connectivity for fish but also for 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 from construction activities can travel significant distances as well as transport other pollutants resulting in direct impacts to fisheries and aquatic habitat. In addition, we recommend that any necessary instream work occur between July 15 and October 1.

WILDLIFE PERMEABLE FENCING

MDIFW recommends the use of wildlife-permeable fencing to address the need for site safety and security, while allowing for access and use of the project area by small animals. Options for wildlife-permeable fencing include solid lock game fencing designed with increasing sized openings, installed so that larger openings (7x12 inches) are located at the bottom and smaller openings are at the top. Alternatively, other fencing may be used if elevated to provide at least 7 inches of clearance along the entire perimeter to allow for movement of small wildlife throughout the facility. We recommend inspection and maintenance of fence lines annually to ensure that the prescribed openings remain free of debris and fully functional.

Based on reports of deer becoming trapped inside solar facilities, we recommend that the applicant/owner establish procedures for regular monitoring and the timely release of any trapped wildlife. MDIFW recommends the installation of gates at regular intervals along fenced enclosures to provide nearby exits through which trapped wildlife can be released with minor encouragement, and/or designs that provide for self-release such as one-way gates or, for fences lower than 7 feet in height, earthen ramps on the interior side that allow trapped wildlife to jump out on their own.

Finally, please note that MDIFWs wildlife fencing recommendations continue to evolve with new information and can vary depending upon site- or project-specific considerations (e.g., size and location of project, proximity to protected resource, potential for habitat fragmentation, displacement, and barriers to wildlife movement, etc.).

VEGETATION MANAGEMENT

MDIFW generally recommends that cleared areas associated with solar facilities, such as for shade management, stormwater management structures, and vegetated areas within arrays, should be revegetated using seed mixes and/or plantings of pollinator-friendly species native to the area.

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 and regulatory agencies including the Maine Natural Areas Program and the Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance. For information on federally listed species, contact the U.S. Fish and Wildlife Service's Maine Field Office (207-469-7300, mainefieldoffice@fws.gov).

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,

Andrew J. Wood
Environmental Review Coordinator

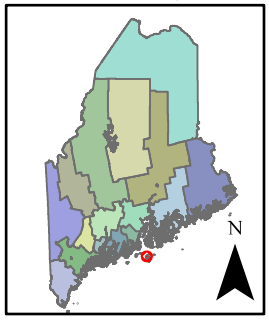
Maine Department of Inland Fisheries and Wildlife
Project Area Review of Fish and Wildlife Observations and Priority Habitats

West Side Road, Solar, Matinicus Island

Project ID 8097_9882

County Boundary
Township Boundary
Project Footprint (Polygon)
Search Area
Tidal Waterfowl/Wading Bird

Date: 10/3/2024
Projection:
UTM Zone 19N, NAD83



Legend only lists resources visible in the map; see response letter for all resources that were evaluated.

Exhibit 23: Soil Suitability and Mapping

We contracted with Flycatcher to complete an on-site soil survey by a Maine licensed soil scientist. Their reports are provided below. Flycatcher was able to provide a KML file with wetland delineations. Based on this information we re-designed the location of the solar field and equipment containers to ensure that we do not impact any areas classified as wetlands.

We will be using APA Geoballast racking (stamped and approved for the State of Maine) for the solar field. Ballast-based racking sits on top of the ground as opposed to more traditional approaches that utilize earth anchors that have to be drilled 5-6ft into soil or ledge.

The reports from Flycatcher are included below:

CLASS A HIGH INTENSITY SOIL SURVEY REPORT: PROPOSED MATINICUS ISLAND SOLAR PROJECT

Harbor Road

Matinicus Island Plantation, Knox County, Maine

Prepared by:
Flycatcher LLC
106 Lafayette Street, Suite 2A
Yarmouth, ME 04096
http://www.flycatcherllc.com

November 21, 2024

Contents

Appendices

1.0 SIGN-OFF SHEET

This soil narrative report entitled "*Class A High Intensity Soil Survey Report: Proposed Matinicus Island Solar Project*", accompanying soil profile descriptions and soil survey maps, dated November 21, 2024, were completed in accordance with the standards adopted by the Maine Association of Professional Soil Scientists, February 1995, as amended, and was prepared by Rodney Kelshaw LSS #552 of Flycatcher LLC.

2.0 INTRODUCTION AND PURPOSE

Matinicus Isle Plantation is a small island in Knox County, approximately 22-miles out to sea southeast of Rockland, Maine (Figures 1 and 2). The Matinicus Plantation Electric Company (MPEC) generates the island's power from diesel generators. To help reduce the reliance on diesel, MPEC plans to construct and operate a solar power generation facility and battery backup system to supplement the diesel generators (Project). We understand the solar array will be constructed utilizing a ballast anchor system on the existing ground, with only minor grading to facilitate stability.

MPEC requested that Flycatcher, LLC (Flycatcher) conduct a high intensity soil survey (HISS) to assist with the planning of the Project (Survey Area). A Maine Licensed Soil Scientist (R. Kelshaw, LSS #552) completed the soil survey in the fall of 2024. The wetlands within the Survey Area were delineated concurrent with the soil survey. This report provides a description of the methods and findings of the soil survey, and a discussion of potential limitations for project design based on soil type.

The purpose of this soil survey is to provide project planners with site-specific soil information that describes the ability or limitation of the soil to support the proposed use and to aid in project design. This report may also be used as part of a regulatory permit application process. A soil survey is tailored to the specific project; as such, the report may not be suitable for other project types because soil properties that are suitable for one proposed project may be limiting for different project type.

3.0 SURVEY AREA DESCRIPTION

3.1 General Survey Area Description & Land Use

3.1.1 General Description

As depicted on Figures 1 and 2, the Survey Area is on Matinicus Island, on the north side of Harbor Road. The Survey Area encompasses approximately 5-acres of forest, consisting primarily of mixed-wood forested uplands, with some drainages and wetlands.

3.1.2 Topography/Drainage

The Survey Area is centered around a small knoll that slopes downward to the west, south and east. The highest elevation is at approximately 42-feet near the northwest Survey Area boundary and the lowest elevation is at 20-feet near the southeast Survey Area boundary along Harbor Road. The central and northern portions of the Survey Area are shallow to bedrock so surface water drains in swales that occur along the west and east Survey Area boundaries and within a swale that extends southeasterly across the central area.

3.1.3 Vegetation

The Survey Area is entirely forested. Vegetation observed was red spruce (*Picea rubens*), balsam fir *(Abies balsamea)*, black spruce (*Picea mariana*), eastern white pine (*Pinus strobus*), red maple *(Acer rubrum),* paper birch (*Betula papyrifera*), sarsaparilla vine (*Smilax pumila*) and various ferns and forb species. Large blow downs were observed throughout the site.

4.0 METHODS

4.1 Standards

A Class A soil survey was conducted for the approximately 5-acre Survey Area. The soil survey methodology and deliverables are designed to meet the typical requirements of The Land Use Planning Commission (LUPC) Land Use Districts and Standards Chapter 10[1], Section 25(G), Soil Suitability. Because this is a small Project site a Class A HISS was performed. This report and associated maps were completed in accordance with the standards adopted by the Maine Association of Professional Soil Scientists (MAPSS) "*Guidelines for Maine Certified Soil Scientists for Soils Identification and Mapping*" (revised 2009)[2] and follows the standards detailed in the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) "*Soil Survey Manual.*"[3] Soils are described using the standard soil terminology developed by the USDA NRCS and the MAPSS Key to Soil Drainage Classes, as well as a list of regional indicators for identification of hydric soils, *Field Indicators for Identifying Hydric Soils in New England, Version 4.*[4]

4.2 Desktop Review

This soil survey was developed through a compilation of on-site soil investigation observations supported by publicly available data, including the USDA NRCS soil survey for Knox County.[5] Prior to the on-site fieldwork, Flycatcher reviewed available data sources, including:

- Proposed project layout plan provided as a .kmz by MPEC;
- United States Geological Survey (USGS) topographic map;
- NRCS medium-intensity soil survey map; and
- Recent and historic aerial photography.

The NRCS medium intensity soil survey for Knox County depicts the Survey Area as:

- Brayton fine sandy loam, 0-8% slopes (BsB)
- Lyman-Brayton variant-Rock outcrop complex, 0-8% slopes (LmB)
- Lyman-Rock Outcrop-Tunbridge complex, 8-15% slopes (LrC)

4.3 Soil Survey Area Boundary Establishment and Field Methods

The Survey Area boundary, depicted on the soil survey map (Figure 2), was provided to Flycatcher by MPEC. The wetland delineation was performed by Flycatcher. The wetland data was used to aid in determination of hydric soil boundaries. The soil survey fieldwork was performed on October 15, 2024. The weather conditions were typical for the season, with no snow cover or ground frost.

4.4 Data Collection

Site orientation and data collection was accomplished using the ESRI Field Maps application. Field Maps provides online ArcGIS map integration that allows the field user to view various base layer maps (e.g.,

[1] Maine Land Use Planning Commission, Maine Department of Agriculture, Conservation and Forestry; Land Use Districts and Standards for Areas Served by the Maine Land Use Planning Commission; Chapter 10 of the Commission's Rules and Standards; Revised August 11, 2023.
[2] Maine Association of Professional Soil Scientists. 2009. *Guidelines for Maine Certified Soil Scientists for Soils Identification and Mapping*.
[3] Soil Science Division Staff. 2017. *Soil Survey Manual, ed*. C. Ditzler, K.Scheffe, and H.C. Monger, USDA Handbook 18. Government Printing Office, Washington, D.C.
[4] New England Hydric Soils Technical Committee. 2019 Version 4, Field Indicators for Identifying Hydric Soils in New England. New England Interstate Water Pollution Control Commission, Lowell, MA.
[5] Source: NRCS Web Soil Survey URL: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx; reviewed 2024.

USGS topographic maps, aerial photographs, etc.) while tracking their location and collecting data. Geolocation of field data was accomplished using a mapping-grade GPS antenna (i.e., Juniper Systems Geode).

Hand dug test pits, hand auger borings, and ditch cuts along roads were used to observe soil morphology and characteristics. Investigations extended to a depth of refusal or to the length of the hand auger or hand probe. Other factors used to determine soil boundaries included changes in vegetation, slope, aspect, observed bedrock outcrops, drainage swales, and other human influences. Test pit and hand auger boring locations were selected to collect representative soil data which could be used to determine the soil series or phase and the soil map unit boundary.

4.5 Soil Map Requirements

Class A (High Intensity) standards were developed to provide information for proposed projects with intensive uses where hydric soil boundaries or the location of suitable areas for moderate to heavy soil disturbance require site specific soil information. These standards are the basis of this soil survey and are detailed in Appendix D: MAPSS Class A Soil Survey Standards.

4.6 Soil Map Units

The soil survey map units conform with National Cooperative Soil Survey standards. Soil profiles are observed and then classified at the series level according to the current Keys to Soil Taxonomy. Soil map units depicted on the soil survey map and described in this report are phases of soil series.

A soil survey map unit consists of a portion of the landscape composed of the identified soil and associated landscape properties, such as similar topography, aspect, stoniness, vegetation, depth to seasonal groundwater table, or depth to bedrock. The area enclosed by a map unit boundary has a minimum of 75% of the soil(s) that provide the name of that map unit or similar soil (i.e., soils that differ so little from the named soil(s) in the map unit that there are no important differences in interpretations). No inclusion is greater in size than the named soil(s). The total amount of dissimilar soils (soils that differ sufficiently from the named soil(s) to affect major interpretations) do not exceed 25% of the map unit.

Soil map unit boundaries are depicted on the accompanying soil survey map (Appendix A, Figure 2). Each map unit is composed of the named soil and smaller areas of other soil series or phases (inclusions). Most inclusions have properties or patterns that are similar to those of the dominant soil in the map unit and generally do not affect use and management.

5.0 FINDINGS

Appendix A contains the USGS Survey Area Location Map (Figure 1) and Class A High Intensity Soil Survey Map (Figure 2). Appendix B includes test pit data on the Soil Conditions Summary Table (Form E) and the test pit detailed information on the Soil Profile Classification/Information Form (Form F). Appendix C provides the Soil Map Unit Descriptions. Appendix D includes the MAPSS Class A Soil Survey standards. Appendix E provides a Glossary of terms.

5.1 Soil Survey Map Units

The Survey Area is composed of seven map units. The Map Unit Descriptions in Appendix C describe the soil origin, textures, drainage classes, depth to bedrock, where they are located with the Survey Area, and typical physical and chemical factors which may affect the proposed Project. Some key factors to consider during planning are:

- Areas mapped as Brayton and Lyman/Abram Complex, poorly drained are wetlands and impacts to these areas should be avoided.
- Areas mapped as Abram, Lyman, and Tunbridge are very shallow to moderately deep to bedrock so aspects of the Project that require excavation may be limited. However, since project plans call for using ballast support structures for the panels the bedrock can provide a stable setting.
- Areas mapped as Colonel have a moderately deep firm horizon which creates a seasonal high water table that is near the soil surface. This may affect construction due to the chances of rutting when soil is moist, which also increases the potential for erosion. Once developed, this soil may create issues such as increased frost action, limitations for road building, and difficulties with properly treating stormwater or wastewater.

6.0 CONCLUSIONS AND SURVEY LIMITATIONS

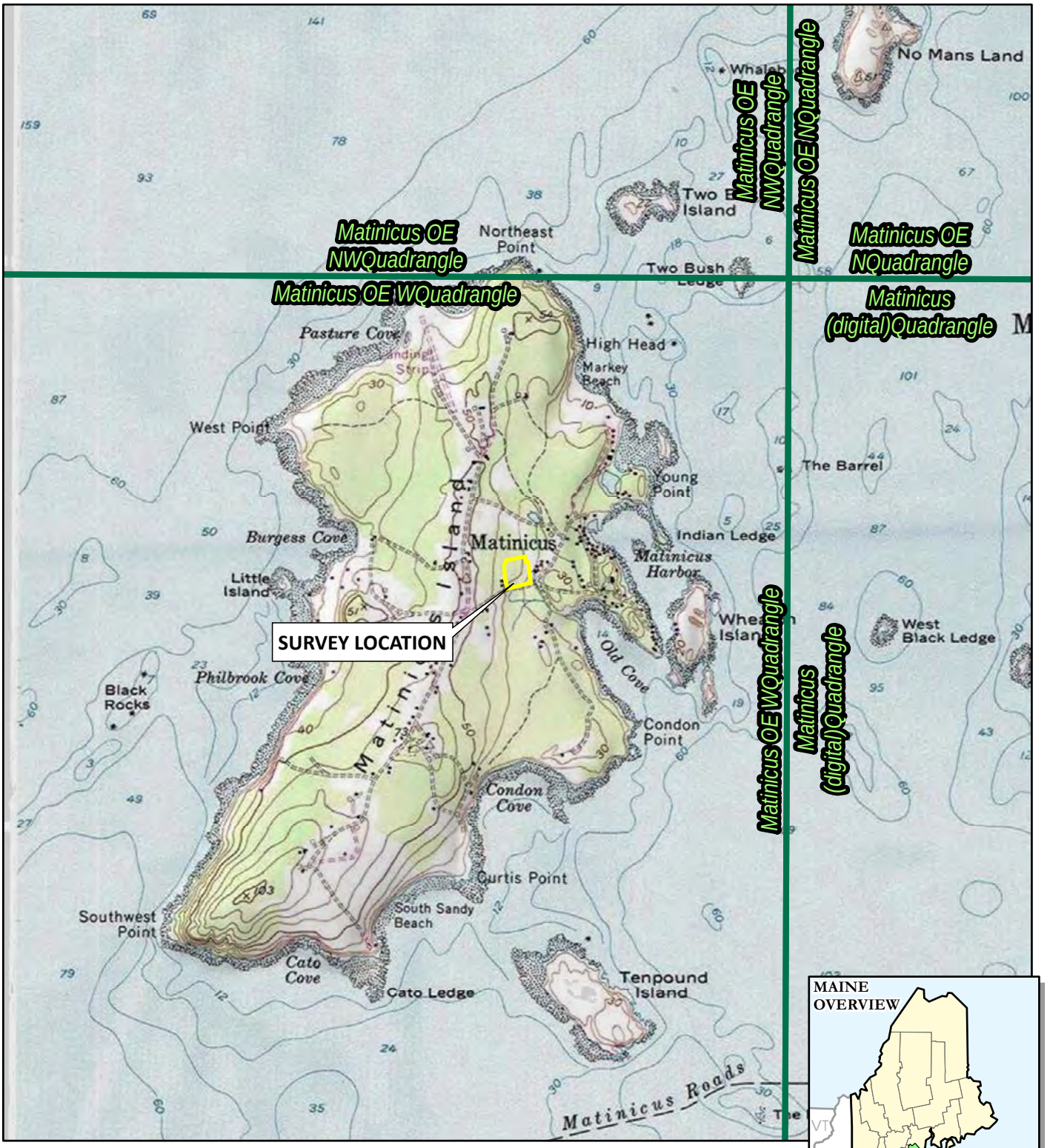
Results of this soil survey indicate that in some areas this site could require engineered designs to address the limiting factors for the proposed development. However, with proper planning, engineering, and construction techniques, the soil is adequate for the proposed project, particularly because the solar array is currently planned to be supported on ballast and not posts. The most limiting factors at this site are soil shallow to bedrock, wetland surrounding the proposed array areas, and upland areas with a somewhat poorly drained soil. Development in or disturbance of the wetlands should be avoided and minimized, if possible, because they are protected natural resources and impacts typically require additional local, state, and federal oversight and permitting.

This investigation was conducted in accordance with the Class A High Intensity Soil Survey standards and guidelines established by MAPSS. The conclusions and recommendations presented in this soil report are based on data obtained from on-site investigation and supplemental USDA NRCS soil maps and information. This soil report and associated soil figures were prepared for exclusive use by Project planners for specific application of this proposed Project.

APPENDIX A: FIGURES

Figure 1. USGS Survey Area Location Map

Figure 2. Class A High Intensity Soil Survey Map



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES.

1 " = 2,000 '
1:24,000

0 2,000 4,000 FEET

Flycatcher
LAND + SCIENCE + PEOPLE

PROJECT:

MATINICUS PLANTATION ELECTRIC
PROPOSED SOLAR ARRAY SITE
MATINICUS ISLE, KNOX COUNTY, MAINE

LEGEND:

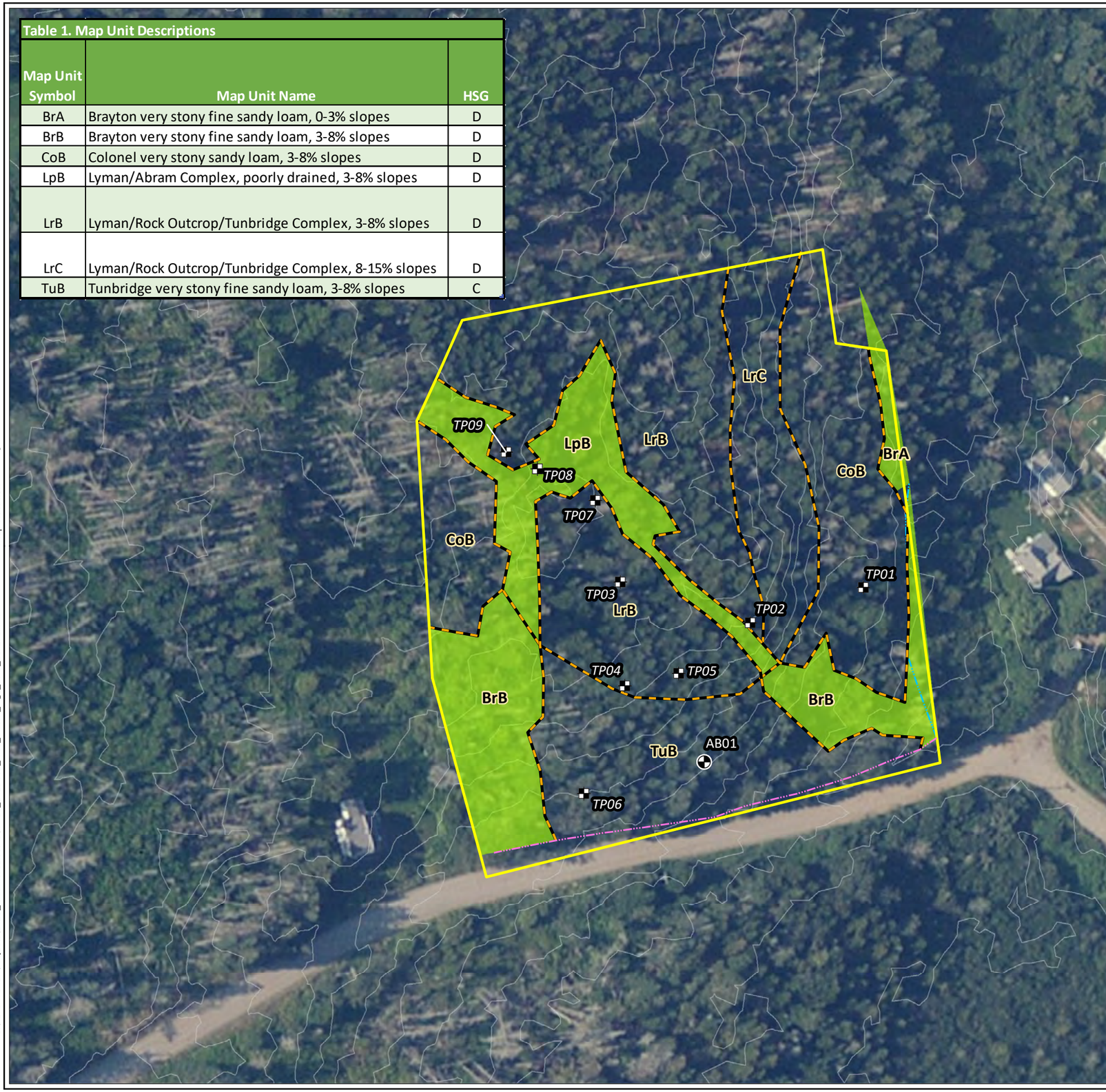
SURVEY AREA
USGS 7.5-MINUTE QUADRANGLE BOUNDARY

DRAWN BY:	D. KENWORTHY
CHECKED BY:	R. KELSHAW
MONTH:	NOVEMBER
YEAR:	2024
PROJ. NO.:	24ZD-001
CLIENT:	MPEC

FIGURE 1 - USGS LOCATION MAP

C:\FLYCATCHER\Projects\24ZD_MatinicusElectric\MPEC_24ZD001_HISS_ClassA_Fig1_USGS_8x11P.mxd -- Saved By: DREWKENWORTHY on 11/20/2024, 19:34:33 PM

Table 1. Map Unit Descriptions		
Map Unit Symbol	Map Unit Name	HSG
BrA	Brayton very stony fine sandy loam, 0-3% slopes	D
BrB	Brayton very stony fine sandy loam, 3-8% slopes	D
CoB	Colonel very stony sandy loam, 3-8% slopes	D
LpB	Lyman/Abram Complex, poorly drained, 3-8% slopes	D
LrB	Lyman/Rock Outcrop/Tunbridge Complex, 3-8% slopes	D
LrC	Lyman/Rock Outcrop/Tunbridge Complex, 8-15% slopes	D
TuB	Tunbridge very stony fine sandy loam, 3-8% slopes	C



LEGEND

- CLASS A SOIL SURVEY AREA
- AUGER BORING
- SOIL TEST PIT
- DELINEATED STREAM
- DELINEATED WETLANDS
- UPLAND DRAINAGE
- 2-FOOT CONTOUR LINE
- SOIL MAP UNIT BOUNDARY

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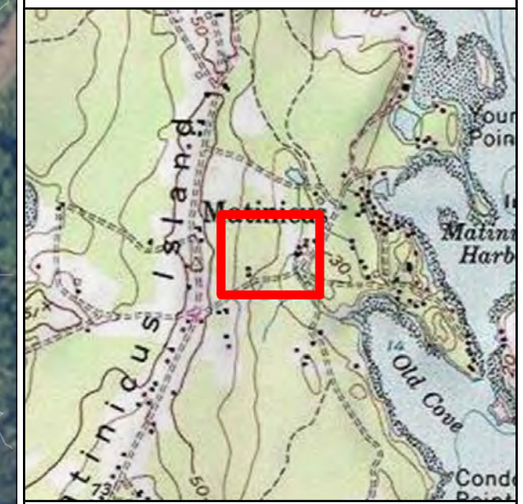
RODNEY D. KELSHAW
SS552
STATE OF MAINE



NOTES:

1 BASEMAP IMAGERY FROM ESRI/NAIP, "WORLD IMAGERY" SERVICE LAYER.
2 WETLANDS AND STREAMS WERE DELINEATED BY FLYCATCHER IN OCTOBER 2024.
3 SOIL EXPLORATIONS PERFORMED BY A FLYCATCHER LSS IN OCTOBER 2024.
4 THIS SOIL MAP WAS PREPARED IN ACCORDANCE WITH THE CLASS A HISS STANDARDS ADOPTED BY THE MAINE ASSOCIATION OF PROFESSIONAL SOIL SCIENTISTS.

N

0 75 150
Feet
1 " = 75 '
1:900

PROJECT:
MATINICUS PLANTATION ELECTRIC
PROPOSED SOLAR ARRAY SITE
MATINICUS ISLE, KNOX COUNTY, MAINE

TITLE:
CLASS A HIGH INTENSITY SOIL SURVEY MAP

DRAWN BY:	D. KENWORTHY	PROJ NO.:	24ZD-001
CHECKED BY:	R. KELSHAW		**FIGURE 2**
MONTH:	NOVEMBER		
YEAR:	2024		

Flycatcher LAND + SCIENCE + PEOPLE

FILE NO.: MPEC_24ZD001_HISS_ClassA_Fig2_Soils_11x17L.mxd

Plot Date: 11/21/2024, 16:51:47 PM by DREWKENWORTHY -- LAYOUT: ANSI B(11"x17")
Path: C:\FLYCATCHER\Projects\24ZD_MatinicusElectric\MPEC_24ZD001_HISS_ClassA_Fig2_Soils_11x17L.mxd
Coordinate System: NAD 1983 StatePlane Maine East FIPS 1801 Feet (Foot US)
Map Rotation: 0

APPENDIX B: FORMS

Form E: Soil Conditions Summary Table

Form(s) F: Soil Profile / Classification Information (Test Pit Logs)

FORM E Rev. 7/21

SOIL CONDITIONS SUMMARY TABLE

SUMMARY LOG OF SUBSURFACE EXPLORATIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Matinicus Plantation Solar Project	Matinicus Plantation Electric Co.	Matinicus Plantation

Lot No.	Exploration Symbol *(TP 1, B 2, etc.)*	✘ if at SSWD Field	Description of subsurface materials by: ● Soil profile/condition *(if by S.E.)*, ● Soil series name *(if by S.S.)*, or by ● Geologic unit *(if by C.G.)*	Depths to *(inches)*: Redoximorphic Features	Bedrock	Hydraulically Restrictive Layer	Limit of Exploration	Ground Surface Slope (%)	Ground Surface Elevation
	TP01	☐	Colonel vstsl	14	N.O.	14	48	0-3	25
	TP02	☐	Abram vstfsl	N.O.	0/3	N.O.	3	3-8	34
	TP03	☐	Abram	N.O.	0	N.O.	0	3-0	37
	TP04	☐	Lyman vstfsl	N.O.	15	N.O.	15	0-3	35
	TP05	☐	Lyman vstfsl, swpdr	12*	17	N.O.	17	3-8	33
	TP06	☐	Tunbridge vstfsl	N.O.	24	16	24	0-3	30
	TP07	☐	Abram	N.O.	0	N.O.	0	3-8	38
	TP08	☐	Bucksport shallow	0*	9	N.O.	9	3-8	37
	TP09	☐	Abram	N.O.	0	N.O.	0	3-0	38
	TP10	☐	Hermon fsl	N.O.	N.O.	15	26	3-8	
		☐							
		☐							
		☐							
	AB01	☐	Tunbridge vstfsl	N.O.	24	16	24	3-8	28
	AB02	☐	Colonel stfsl	10	N.O.	10	14	0-3	
		☐							
		☐							
		☐							
		☐							
		☐							
		☐							
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		☐							
		☐							
		☐							
		☐							
		☐							
		☐							
		☐							
		☐							
		☐	Depths do not include organic						
		☐	N.O. = Not Observed						
		☐	* = Free Water/Saturation						

LICENSED SOIL SCIENTIST
RODNEY D. KELSHAW
SS552
STATE OF MAINE

INVESTIGATOR INFORMATION AND SIGNATURE

Signature

Rodney Kelshaw
Name Printed

☐ Site Evaluator
☒ Soil Scientist
☐ Geologist
☐ Professional Engineer

2024-10-15
Date

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FORM F (SS1) Rev. 7/21

SOIL PROFILE / CLASSIFICATION INFORMATION

SOIL SCIENTIST DESCRIPTION OF SOIL CONDITIONS AT PROJECT SITES

Project Name: Matinicus | Applicant Name: MPEC | Project Location (municipality): Matinicus Island

Exploration Symbol # TP01

☒ Test Pit ☐ Boring ☐ Probe

3 " Organic horizon thickness — Ground surface elev. 25

48 " Depth: ☒ of exploration, or ☐ to refusal

Depth below mineral soil horizon (inches)

Horizon	Color	Texture	Structure	Consistence	Redox
Ap	very dusky red	vst vfsl	sbk	vfr	none observed
Bw	reddish brown	vst sl		fr/fri	2½ gray/yellowish brown
					5% 5yr 5/6
B/C	dark yellowish brown	gr fsl	ma	fi	5% light olive gray
		Lot	40"		

Soil Details

Soil Series/Phase Name: Colonel vstsl

Limiting Factor: 14 " Depth — ☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Drainage Class: ☐ ED ☐ SED ☐ WD ☐ MWD ☒ SPD ☐ PD ☐ VPD

Slope: 0-3 Percent

Hydric Soil: ☒ No ☐ Yes

Hydrologic: D Soil Group

Exploration Symbol # TP02

☒ Test Pit ☐ Boring ☐ Probe

3 " Organic horizon thickness — Ground surface elev. 34

3 " Depth: ☐ of exploration, or ☒ to refusal

Depth below mineral soil horizon (inches)

Horizon	Color	Texture	Structure	Consistence	Redox
E	pinkish gray	vst fsl	gr	fr	N.O.
	Bedrock @ 3"				

Soil Details

Soil Series/Phase Name: Abram vstfsl

Limiting Factor: 3 " Depth — ☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Drainage Class: ☐ ED ☐ SED ☐ WD ☐ MWD ☐ SPD ☐ PD ☐ VPD

Slope: 3-8 Percent

Hydric Soil: ☒ No ☐ Yes

Hydrologic: D Soil Group

Exploration Symbol # TP03

☒ Test Pit ☐ Boring ☐ Probe

4 " Organic horizon thickness — Ground surface elev. 37

0 " Depth: ☐ of exploration, or ☒ to refusal

Depth below mineral soil horizon (inches)

Horizon	Color	Texture	Structure	Consistence	Redox
	Bedrock @ surface				

Soil Details

Soil Series/Phase Name: Abram

Limiting Factor: 0 " Depth — ☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Drainage Class: ☒ ED ☐ SED ☐ WD ☐ MWD ☐ SPD ☐ PD ☐ VPD

Slope: 3-8 Percent

Hydric Soil: ☒ No ☐ Yes

Hydrologic: D Soil Group

Exploration Symbol # TP04

☒ Test Pit ☐ Boring ☐ Probe

4 " Organic horizon thickness — Ground surface elev. 35

15 " Depth: ☐ of exploration, or ☒ to refusal

Depth below mineral soil horizon (inches)

Horizon	Color	Texture	Structure	Consistence	Redox
					none observed
Ap	dark reddish brown	vst fsl	sbk	vfr	
	Bedrock @ 15"				

Soil Details

Soil Series/Phase Name: Lyman vstfsl

Limiting Factor: 15 " Depth — ☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Drainage Class: ☒ ED ☐ SED ☐ WD ☐ MWD ☐ SPD ☐ PD ☐ VPD

Slope: 0-3 Percent

Hydric Soil: ☒ No ☐ Yes

Hydrologic: D Soil Group

LICENSED SOIL SCIENTIST RODNEY D. KELSHAW SS552 STATE OF MAINE

SOIL SCIENTIST INFORMATION AND SIGNATURE

Signature

Rodney Kelshaw
Name Printed

2024-10-31
Date

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FORM F (SS1) Rev. 7/21

SOIL PROFILE / CLASSIFICATION INFORMATION

SOIL SCIENTIST DESCRIPTION OF SOIL CONDITIONS AT PROJECT SITES

Project Name: Matinicus | Applicant Name: MPEC | Project Location (municipality): Matinicus Island

Exploration Symbol # TP05 ☑ Test Pit ☐ Boring ☐ Probe

6 " Organic horizon thickness Ground surface elev. 33

17 " Depth: ☐ of exploration, or ☑ to refusal

Depth below mineral soil horizon (inches)

Horizon	Color	Texture	Structure	Consistence	Redox
Bw1	dark brown	vfsl	SBK	VFR	NONE
Bw2	dark reddish brown				OBSERVED
B/C	dark yellowish brown	gr sl		FR/FIP	
	Bedrock at 17"				

Soil Details

Soil Series/Phase Name: LYMAN vstfsl, swpdr

Limiting Factor: 14 " Depth — ☑ Groundwater ☐ Restrictive Layer ☐ Bedrock

Drainage Class: ☐ ED ☐ SED ☐ WD ☐ MWD ☑ SPD ☐ PD ☐ VPD

Slope: 3-8 Percent

Hydric Soil: ☑ No ☐ Yes

Hydrologic Soil Group: D

Exploration Symbol # TP06 ☑ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 30

24 " Depth: ☐ of exploration, or ☑ to refusal

Depth below mineral soil horizon (inches)

Horizon	Color	Texture	Structure	Consistence	Redox
Ap	Black	vfsl	SBK		
Bw1	brown				NONE
B/C	dark brown	vgrSL	MAPL	FI	OBSERVED
C	olv br	grSL			
	Bedrock @ 24"				

Soil Details

Soil Series/Phase Name: TUNBRIDGE vstfsl

Limiting Factor: 24 " Depth — ☐ Groundwater ☐ Restrictive Layer ☑ Bedrock

Drainage Class: ☐ ED ☐ SED ☒ WD ☐ MWD ☐ SPD ☐ PD ☐ VPD

Slope: 0-3 Percent

Hydric Soil: ☒ No ☐ Yes

Hydrologic Soil Group: D

Exploration Symbol # TP07 ☑ Test Pit ☐ Boring ☐ Probe

8 " Organic horizon thickness Ground surface elev. 38

0 " Depth: ☐ of exploration, or ☑ to refusal

Depth below mineral soil horizon (inches)

Horizon	Color	Texture	Structure	Consistence	Redox
	Bedrock @ Surface				

Soil Details

Soil Series/Phase Name: ABRAM

Limiting Factor: 0 " Depth — ☐ Groundwater ☐ Restrictive Layer ☑ Bedrock

Drainage Class: ☒ ED ☐ SED ☐ WD ☐ MWD ☐ SPD ☐ PD ☐ VPD

Slope: 3-8 Percent

Hydric Soil: ☑ No ☐ Yes

Hydrologic Soil Group: D

Exploration Symbol # TP08 ☑ Test Pit ☐ Boring ☐ Probe

12 " Organic horizon thickness Ground surface elev. 37

9 " Depth: ☐ of exploration, or ☑ to refusal

Depth below mineral soil horizon (inches)

Horizon	Color	Texture	Structure	Consistence	Redox
A1	V dk gray	VFSL	SBK	VFR	SATURATED
A2	V dk Brown				
Bg	dark gray	SL			
	Bedrock @ 9"				

Soil Details

Soil Series/Phase Name: BUCKSPORT, shallow

Limiting Factor: 9 " Depth — ☐ Groundwater ☐ Restrictive Layer ☑ Bedrock

Drainage Class: ☐ ED ☐ SED ☐ WD ☐ MWD ☐ SPD ☒ PD ☐ VPD

Slope: 0-3 Percent

Hydric Soil: ☐ No ☑ Yes

Hydrologic Soil Group: D

LICENSED SOIL SCIENTIST RODNEY D. KELSHAW SS552 STATE OF MAINE

SOIL SCIENTIST INFORMATION AND SIGNATURE

Signature

Rodney Kelshaw

Name Printed

2024-10-31

Date

552

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FORM F (SS1) Rev. 7/21

SOIL PROFILE / CLASSIFICATION INFORMATION

SOIL SCIENTIST DESCRIPTION OF SOIL CONDITIONS AT PROJECT SITES

Project Name: Matinicus | Applicant Name: MPEC | Project Location (municipality): Matinicus Island

Exploration Symbol # TP09 — ☒ Test Pit ☐ Boring ☐ Probe

10 " Organic horizon thickness Ground surface elev. 30

0 " Depth: ☐ of exploration, or ☒ to refusal

Horizon	Color	Texture	Structure	Consistence	Redox
		Bedrock @ Surface			

Soil Series/Phase Name: ABRAM

Limiting Factor: 0 " Depth — ☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Drainage Class: ☒ ED ☐ SED ☐ WD ☐ MWD ☐ SPD ☐ PD ☐ VPD

Slope: 3-8 Percent

Hydric Soil: ☒ No ☐ Yes

Hydrologic: D Soil Group

Exploration Symbol # TP10 — ☒ Test Pit ☐ Boring ☐ Probe

" Organic horizon thickness Ground surface elev.

26 " Depth: ☒ of exploration, or ☐ to refusal

Horizon	Color	Texture	Structure	Consistence	Redox
A	reddish black	FSL	SBK	VFR	
E	reddish gray		MAT PL	FR TO FIP	
Bs	brown		SBK	FR	NONE
B/C	light olive brown	grLS	MAT PL	FI	OBSERVED
C	olive brown	grLS			
	Dense till @ 26"				

Soil Series/Phase Name: Hermon fsl

Limiting Factor: 26 " Depth — ☐ Groundwater ☒ Restrictive Layer ☐ Bedrock

Drainage Class: ☐ ED ☐ SED ☐ WD ☐ MWD ☐ SPD ☐ PD ☐ VPD

Slope: 3-8 Percent

Hydric Soil: ☒ No ☐ Yes

Hydrologic: A Soil Group

Exploration Symbol # _____ — ☐ Test Pit ☐ Boring ☐ Probe

" Organic horizon thickness Ground surface elev.

" Depth: ☐ of exploration, or ☐ to refusal

Horizon	Color	Texture	Structure	Consistence	Redox

Soil Series/Phase Name:

Limiting Factor: " Depth — ☐ Groundwater ☐ Restrictive Layer ☐ Bedrock

Drainage Class: ☐ ED ☐ SED ☐ WD ☐ MWD ☐ SPD ☐ PD ☐ VPD

Slope: Percent

Hydric Soil: ☐ No ☐ Yes

Hydrologic: Soil Group

Exploration Symbol # _____ — ☐ Test Pit ☐ Boring ☐ Probe

" Organic horizon thickness Ground surface elev.

" Depth: ☐ of exploration, or ☐ to refusal

Horizon	Color	Texture	Structure	Consistence	Redox

Soil Series/Phase Name:

Limiting Factor: " Depth — ☐ Groundwater ☐ Restrictive Layer ☐ Bedrock

Drainage Class: ☐ ED ☐ SED ☐ WD ☐ MWD ☐ SPD ☐ PD ☐ VPD

Slope: Percent

Hydric Soil: ☐ No ☐ Yes

Hydrologic: Soil Group

LICENSED SOIL SCIENTIST RODNEY D. KELSHAW SS552 STATE OF MAINE

SOIL SCIENTIST INFORMATION AND SIGNATURE

Signature

RODNEY KELSHAW
Name Printed

2024-10-31
Date

552
SS License No.

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APPENDIX C

Map Unit Descriptions

Table 1. Map Unit Descriptions											
Map Unit Symbol	Map Unit Name	HSG	Drainage Class	Bedrock	Concrete Corrosion	Steel Corrosion	Frost Action	Soil Rutting Hazard (ME)	Erosion Hazard (Road/Trail)	Fencing, Post Depth 36-inches or Less	Solar Arrays, Ballast Anchor Systems
BrA	Brayton very stony fine sandy loam, 0-3% slopes	D	Poorly	Very Deep	High	High	High	Severe	Moderate	Very Limited	Very Limited
BrB	Brayton very stony fine sandy loam, 3-8% slopes	D	Poorly	Very Deep	High	High	High	Severe	Moderate	Very Limited	Very Limited
CoB	Colonel very stony sandy loam, 3-8% slopes	D	Somewhat Poorly	Very Deep	High	High	Moderate	Severe	Moderate	Very Limited	Very Limited
LpB	Lyman/Abram Complex, poorly drained, 3-8% slopes	D	Poorly	Shallow	High	High	High	Severe	Slight	Very Limited	Very Limited
LrB	Lyman/Rock Outcrop/Tunbridge Complex, 3-8% slopes	D	Somewhat Excessively & Well	Shallow & Moderately Deep	High	High	Moderate	Moderate	Moderate	Very Limited	Somewhat Limited
LrC	Lyman/Rock Outcrop/Tunbridge Complex, 8-15% slopes	D	Somewhat Excessively & Well	Shallow & Moderately Deep	High	High	Moderate	Moderate	Moderate	Very Limited	Somewhat Limited
TuB	Tunbridge very stony fine sandy loam, 3-8% slopes	C	Well	Moderately Deep	High	High	Moderate	Moderate	Moderate	Very Limited	Somewhat Limited

Map Unit: **Brayton very stony sandy loam**
Classification: Loamy, mixed, active, nonacid, frigid, shallow Aeric Endoaquepts
Map Unit Symbol: BrB, BrC

SETTING
Parent Material: Lodgement till
Landform: Ground moraines
Position in Landscape: Depressions and on toeslopes
Slope Gradient Range: **(A)** 0-3%, **(B)** 3-8%

COMPOSITION AND SOIL CHARACTERISTICS
Depth to Water Table: 0 to 7"

Typical Profile Description:
Surface Layers:
0 – 5" Black, muck; very stony
5 – 9" Gray, very stony sandy loam, sbk, FR
Redox Con. dark yellowish brown 5%
9 – 14" Olive gray, very stony sandy loam, sbk, FR
Redox Con. dark yellowish brown 5%
Subsurface Layers:
14 – 24" Light olive brown, very stony sandy loam, pl, FI
Redox Con. dark yellowish brown 5%
24 – 26" Light olive brown, stony sandy loam, m, FI
Redox Con. strong brown 30%
Substratum:
26" Lodgment till, m, VFI

Hydrologic Soil Group (HSG):	**See Table 1**
Drainage Class:	**See Table 1**
Depth to Bedrock:	**See Table 1**
Concrete Corrosion:	**See Table 1**
Steel Corrosion:	**See Table 1**
Potential for Frost Action:	**See Table 1**
Soil Rutting Hazard (ME):	**See Table 1**
Erosion Hazard (Road/Trail):	**See Table 1**
Fencing, Post Depth 36-inches or Less:	**See Table 1**
Solar Arrays, Ballast Anchor Systems:	**See Table 1**

INCLUSIONS (within mapping unit)
Similar: Colonel
Dissimilar: Lyman

USE AND MANAGEMENT
This map unit is mapped in wetland areas along the western and eastern Survey Area boundaries. Major use and management concerns are that Brayton soils are hydric, and are mapped as wetlands, so impacts to these areas would require regulatory oversight. Brayton soils are very deep to bedrock yet shallow to dense till which typically creates a seasonal high-water table at or close to the mineral soil surface, so activities impacted by a high-water table, such as roads, could require additional engineering. These soils can be compacted if exposed to heavy equipment. The preferred method of planning project components around these soils is avoidance. Accepted construction techniques such as matting or bridging to minimize soil disturbance and compaction are recommended if project alterations are planned in these areas. Erosion and sediment controls should be installed prior to beginning construction activities to avoid erosion and sedimentation of wetlands and other adjacent resources.

Map Unit: **Colonel very stony sandy loam**
Classification: Loamy, isotic, frigid, shallow Aquic Haplorthods
Map Unit Symbol: CoB

SETTING
Parent Material: Lodgement till
Landform: Ground moraines
Position in Landscape: Foot slope and base slope
Slope Gradient Range: **(B)** 3-8%

COMPOSITION AND SOIL CHARACTERISTICS
Depth to Water Table: 7 to 16”

Typical Profile Description:
Surface Layers:
0 – 3” Black, muck; stony
3 – 9” Gray, stony sandy loam, sbk, VFR
9 – 14” Olive gray, stony sandy loam, sbk, FR
Subsurface Layers:
14 – 24” Light olive brown, sandy loam, pl, FR
Redox Con. dark yellowish brown 5%
24 – 26” Light olive brown, sandy loam, m, FI
Redox. Con. strong brown 10%
Substratum:
26” Lodgment till, m, VFI

Hydrologic Soil Group (HSG):	**See Table 1**
Drainage Class:	**See Table 1**
Depth to Bedrock:	**See Table 1**
Concrete Corrosion:	**See Table 1**
Steel Corrosion:	**See Table 1**
Potential for Frost Action:	**See Table 1**
Soil Rutting Hazard (ME):	**See Table 1**
Erosion Hazard (Road/Trail):	**See Table 1**
Fencing, Post Depth 36-inches or Less:	**See Table 1**
Solar Arrays, Ballast Anchor Systems:	**See Table 1**

INCLUSIONS (within mapping unit)
Similar: Peru
Dissimilar: Lyman

USE AND MANAGEMENT
This map unit occurs in uplands along wetland boundaries along the western and eastern Survey Area boundaries. Major use and management concerns are that Colonel soils are very deep to bedrock yet shallow to dense till which typically creates a seasonal high-water table at or close to the mineral soil surface, so activities impacted by a high-water table, such as road construction, could require additional engineering. These soils can be compacted if exposed to heavy equipment when wet so equipment limitations may be severe. Accepted construction techniques such as matting to minimize soil disturbance and compaction are recommended in these areas. Erosion and sediment controls should be installed prior to beginning construction activities to avoid erosion and sedimentation of adjacent resources.

Map Unit: **Lyman/Abram Complex, poorly drained**
Classification: Lyman: Loamy, isotic, frigid Lithic Haplorthods
Abram: Loamy, isotic, frigid Lithic Haplorthods
Map Unit Symbol: LpB

SETTING
Parent Material: Loamy supraglacial till
Landform: Glaciated uplands
Position in Landscape: Ridge summits and shoulders
Slope Gradient Range: **(B)** 3-8%

COMPOSITION AND SOIL CHARACTERISTICS
Depth to Water Table: 0 to 7"

Typical Profile Description:

0 – 6"	Peat
6 – 12"	Dark red, sandy loam, sbk, VFR Redox Dep. olive gray 20%, saturated
12 – 20"	Grayish brown, fine sandy loam, sbk, VFR Stripped matrix
20"	Bedrock

Hydrologic Soil Group (HSG):	**See Table 1**
Drainage Class:	**See Table 1**
Depth to Bedrock:	**See Table 1**
Concrete Corrosion:	**See Table 1**
Steel Corrosion:	**See Table 1**
Potential for Frost Action:	**See Table 1**
Soil Rutting Hazard (ME):	**See Table 1**
Erosion Hazard (Road/Trail):	**See Table 1**
Fencing, Post Depth 36-inches or Less:	**See Table 1**
Solar Arrays, Ballast Anchor Systems:	**See Table 1**

INCLUSIONS (within mapping unit)
Similar: Tunbridge poorly drained
Dissimilar: Tunbridge/Lyman Complex

USE AND MANAGEMENT
This map unit occurs in a swale within the northwest and northcentral portion of the Survey Area. Major use and management concerns are that these poorly drained soils are hydric and are mapped as wetlands, and as such, impacts to these areas would require regulatory oversight. The preferred method of planning project components around these soils is avoidance. Accepted construction techniques such as matting or bridging to minimize soil disturbance and compaction are recommended if project alterations are planned in these areas. An additional very limiting factor associated with this map unit is the shallow depth to bedrock, which affects construction of roads, and implementation of stormwater infiltration best management practices.

Map Unit: **Lyman/Rock Outcrop/Tunbridge Complex**
Classification: Lyman: Loamy, isotic, frigid Lithic Haplorthods
Tunbridge: Coarse-loamy, isotic, frigid Typic Haplorthods
Map Unit Symbol: LrB, LrC

SETTING
Parent Material: Loamy supraglacial till
Landform: Glaciated uplands
Position in Landscape: Ridge summits and shoulders
Slope Gradient Range: **(B)** 3-8%, **(C)** 8-15%,

COMPOSITION AND SOIL CHARACTERISTICS
Depth to Water Table: Lyman: 10 to 20" to bedrock with no water table
Tunbridge: 20 to <40" to bedrock with no water table

Typical Profile Description:
Lyman:
0 – 2" Peat
2 – 4" Very dusky red, fine sandy loam, sbk, VFR
4 – 7" Grayish brown, fine sandy loam, sbk, VFR
7 – 13" Dark reddish brown, fine sandy loam, sbk, VFR
13 – 17" Dark brown, fine sandy loam, sbk, VFR
17" Bedrock
Tunbridge:
0 – 3" Peat
3 – 5" Very dusky red, fine sandy loam, sbk, VFR
5 – 7" Grayish brown, fine sandy loam, sbk, VFR
7 – 13" Dark reddish brown, fine sandy loam, sbk, VFR
13 – 23" Dark brown, fine sandy loam, sbk, VFR
23 – 32" Dark yellowish brown, fine sandy loam, sbk, VFR
32" Bedrock

Hydrologic Soil Group (HSG):	**See Table 1**
Drainage Class:	**See Table 1**
Depth to Bedrock:	**See Table 1**
Concrete Corrosion:	**See Table 1**
Steel Corrosion:	**See Table 1**
Potential for Frost Action:	**See Table 1**
Soil Rutting Hazard (ME):	**See Table 1**
Erosion Hazard (Road/Trail):	**See Table 1**
Fencing, Post Depth 36-inches or Less:	**See Table 1**
Solar Arrays, Ballast Anchor Systems:	**See Table 1**

INCLUSIONS (within mapping unit)
Similar: Abram
Dissimilar: Lyman poorly drained

USE AND MANAGEMENT
This map unit is mapped across the north and central portions of the Survey Area in higher elevations on the ridge top. The most limiting factor associated with this map unit is the shallow depth to bedrock, which affects construction of roads and implementation of stormwater infiltration best management practices. Since the proposed project is currently designed with panels being supported on ballast the typical limitations of bedrock have less of an effect on project planning and construction.

Map Unit: **Tunbridge very stony fine sandy loam**
Classification: Coarse-loamy, isotic, frigid Typic Haplorthods
Map Unit Symbol: TuB

SETTING
Parent Material: Loamy supraglacial till
Landform: Glaciated uplands
Position in Landscape: Ridge summits and shoulders
Slope Gradient Range: **(B)** 3-8%

COMPOSITION AND SOIL CHARACTERISTICS
Depth to Water Table: 20 to <40" to bedrock with no water table

Typical Profile Description:

0 – 3" Peat
3 – 5" Very dusky red, fine sandy loam, sbk, VFR
5 – 7" Grayish brown, fine sandy loam, sbk, VFR
7 – 13" Dark reddish brown, fine sandy loam, sbk, VFR
13 – 23" Dark brown, fine sandy loam, sbk, VFR
23 – 32" Dark yellowish brown, fine sandy loam, sbk, VFR
32" Bedrock

Hydrologic Soil Group (HSG):	**See Table 1**
Drainage Class:	**See Table 1**
Depth to Bedrock:	**See Table 1**
Concrete Corrosion:	**See Table 1**
Steel Corrosion:	**See Table 1**
Potential for Frost Action:	**See Table 1**
Soil Rutting Hazard (ME):	**See Table 1**
Erosion Hazard (Road/Trail):	**See Table 1**
Fencing, Post Depth 36-inches or Less:	**See Table 1**
Solar Arrays, Ballast Anchor Systems:	**See Table 1**

INCLUSIONS (within mapping unit)
Similar: Lyman
Dissimilar: Colonel

USE AND MANAGEMENT
This map unit occurs in the south central portion of the Survey Area where it transitions from shallow soils on the ridgeline to deeper soils along the Survey Area western and eastern boundaries. The transition from exposed bedrock outcrops to moderately deep soil is rapid with the dominant depth to bedrock being moderately deep. The most limiting factor associated with this map unit is the shallow depth to bedrock, which affects construction of roads and implementation of stormwater infiltration best management practices. Since the proposed project is currently designed with panels being supported on ballast the typical limitations of bedrock have less of an effect on project planning and construction.

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms. The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Drainage Class

"Drainage class (natural)" refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized-excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the "Soil Survey Manual."

Excessively drained: Water is removed very rapidly. Internal free water occurrence commonly is very rare or very deep. The soils are commonly coarse textured and have very high saturated hydraulic conductivity or are very shallow.

Somewhat excessively drained: Water is removed from the soil rapidly. Internal free water occurrence commonly is very rare or very deep. The soils are commonly coarse textured and have high saturated hydraulic conductivity or are very shallow.

Well drained: Water is removed from the soil readily but not rapidly. Internal free water occurrence commonly is deep or very deep; annual duration is not specified. Water is available to plants throughout most of the growing season in humid regions. Wetness does not inhibit root growth for significant periods during most growing seasons. The soils are mainly free of, or are deep or very deep to, redoximorphic features related to wetness.

Moderately well drained: Water is removed from the soil somewhat slowly during some periods of the year. Internal free water occurrence is commonly moderately deep and transitory through permanent. The soils are wet for only a short time within the rooting depth during the growing season but long enough

that most mesophytic crops are affected. They commonly have a moderately low or lower saturated hydraulic conductivity in a layer within the upper 1 meter, periodically receive high rainfall, or both.

Somewhat poorly drained: Water is removed slowly so that the soil is wet at a shallow depth for significant periods during the growing season. Internal free water occurrence is commonly shallow to moderately deep and transitory to permanent. Wetness markedly restricts the growth of mesophytic crops, unless artificial drainage is provided. The soils commonly have one or more of the following characteristics: low or very low saturated hydraulic conductivity, a high water table, additional water from seepage, or nearly continuous rainfall.

Poorly drained: Water is removed so slowly that the soil is wet at shallow depths periodically during the growing season or remains wet for long periods. Internal free water occurrence is shallow or very shallow and common or persistent. Free water is commonly at or near the surface long enough during the growing season that most mesophytic crops cannot be grown, unless the soil is artificially drained. The soil, however, is not continuously wet directly below plow depth. Free water at shallow depth is common. The water table is commonly the result of low or very low saturated hydraulic conductivity, nearly continuous rainfall, or a combination of these.

Very poorly drained: Water is removed from the soil so slowly that free water remains at or very near the surface during much of the growing season. Internal free water occurrence is very shallow and persistent or permanent. Unless the soil is artificially drained, most mesophytic crops cannot be grown. The soils are commonly level or depressed and frequently ponded. In areas where rainfall is high or nearly continuous, slope gradients may be greater.

Subaqueous: Free water is above the soil surface. Internal free water occurrence is permanent, and there is a positive water potential at the soil surface for more than 21 hours of each day. The soils have a peraquic soil moisture regime.

Depth to Bedrock

Very shallow (<10 inches of mineral soil above bedrock)

Shallow (10 to <20 inches of mineral soil above bedrock)

Moderately deep (20 to < 40 inches of mineral soil above bedrock

Deep (40 to < 60 inches of mineral soil above bedrock

All others are very deep (> 60 inches of mineral soil above bedrock)

Corrosion of Concrete

"Risk of corrosion" pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens concrete. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the concrete in installations that are entirely within one kind of soil or within one soil layer. The risk of corrosion is expressed as "low," "moderate," or "high."

Corrosion of Steel

"Risk of corrosion" pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel in

installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel in installations that are entirely within one kind of soil or within one soil layer.

Potential for Frost Action

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, saturated hydraulic conductivity (Ksat), content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Soil Rutting Hazard (ME)

Ratings for this interpretation indicate the hazard of surface rut formation through the operation of forestland equipment. Soil displacement and puddling (soil deformation and compaction) may occur simultaneously with rutting. Ratings are based on depth to a water table, rock fragments on or below the surface, the Unified classification of the soil, depth to a restrictive layer, and slope. Ratings are both verbal and numerical. The hazard is described as "slight," "moderate," or "severe." A rating of "slight" indicates that the soil is subject to little or no rutting. "Moderate" indicates that rutting is likely. "Severe" indicates that ruts form readily.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified aspect of forestland management (1.00) and the point at which the soil feature is not a limitation (0.00).

Erosion Hazard (Road, Trail)

The ratings in this interpretation indicate the hazard of soil loss from unsurfaced roads and trails. The ratings are based on soil erosion factor K, slope, and content of rock fragments. The ratings are both verbal and numerical. The hazard is described as "slight," "moderate," or "severe." A rating of "slight" indicates that little or no erosion is likely; "moderate" indicates that some erosion is likely, that the roads or trails may require occasional maintenance, and that simple erosion-control measures are needed; and "severe" indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified aspect of forestland management (1.00) and the point at which the soil feature is not a limitation (0.00).

Fencing, Post Depth 36 Inches or Less

Fencing is the construction and maintenance of barriers for the management of animals and people. Metal or wooden posts are used when the fences are built. This interpretation is applicable where the posts are set to a depth of 24 inches or less in the soil and strands of wire are suspended between the posts. Ratings are based on the ease of setting posts in the soil, the ease of maintaining the wire tension, and the estimated replacement and maintenance costs. Excavations for wooden posts are made by power augers or are hand dug. Metal posts are driven into the soil.

Depth to bedrock or a cemented pan and the content of large and small stones influence the excavation of postholes and the driving of posts. Flooding and the depth to a seasonal high water table may restrict the season of construction. Flooding also increases maintenance and replacement costs. High water tables increase maintenance costs and require deeper post settings. In areas of soils that have a high shrink-swell potential, deep post settings or rock jacks are needed to maintain vertical post alignment. In areas of sandy soils, aligning the posts and maintaining the desired wire tension commonly are difficult because of low soil strength. Soil blowing causes maintenance problems. Frost action results in frost heaving of the posts. Steep slopes restrict the use of power augers and the delivery of supplies. On steep slopes, surface creep during wet periods increases maintenance costs. Soil reaction and salinity affect the type of post selected and increase maintenance costs.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Ground-based Solar Arrays, Ballast Anchor Systems

Ground-based solar arrays are sets of photovoltaic panels that are not situated on a building or pole. These installations consist of a racking system that holds the panel in the desired orientation and the foundation structures that hold the racking system to the ground. Two basic methods are used to hold the systems to the ground, based on site conditions and cost. One method employs driven piles, screw augers, or concrete piers that penetrate into the soil to provide a stable foundation. The ease of installation and general site suitability of soil-penetrating anchoring systems depends on soil characteristics such as rock fragment content, soil depth, soil strength, soil corrosivity, shrink-swell tendencies, and drainage. The other basic anchoring system utilizes precast ballasted footings or ballasted trays on the soil surface to make the arrays too heavy to move. The site considerations that impact both basic systems are slope, slope aspect, wind speed, land surface shape, flooding, and ponding. Other factors that will contribute to the function of a solar power array include daily hours of sunlight and shading from hills, trees, or buildings.

Ballast anchor systems can be used in some places where soil-penetrating systems cannot, such as in shallow or stony soil. Also, since they do not penetrate the soil, ballast systems can be used where the soil is contaminated and disturbance is to be avoided. The soil in the area must have sufficient strength to be able to support the vehicles that haul the ballast and the machinery to install it. Soils can be a non-member, partial member or complete members of the set of soils that are limited for "Ground-based Solar Panel Arrays". If a soil's property within 150 cm (60 inches) of the soil surface has a membership indices greater than zero, then that soil property is limiting and the soil restrictive feature is identified. The overall interpretive rating assigned is the maximum membership indices of each soil interpretive property that comprise the "Ground-based Solar Panel Arrays" interpretive rule. Minor restrictive soil features are identified but not considered as part of the overall rating process. These restrictive features could be important factors where the major restrictive features are overcome through design application.

Soils are placed into interpretive rating classes per their rating indices. These are not limited (rating index = 0), somewhat limited (rating index greater than 0 and less than 1.0), or very limited (rating index = 1.0). Numerical ratings indicate the degree of limitation. The ratings are shown in decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil has the least similarity to a good site (1.0) and the point at which the soil feature is very much like known good sites (0).

APPENDIX D

MAPSS Class A Soil Survey Standards

Class A (High Intensity) Soil Survey Standards

1. Map units will not contain dissimilar limiting individual inclusions larger than one-eighth acre. Dissimilar limiting inclusions may total more than one-eighth acre per map unit delineation, in the aggregate, if not continuous.

2. Scale of 1-inch equals 100 feet or larger (e.g. 1" = 50').

3. Ground control— base line and test pits for which detailed data is recorded are accurately located under the direction of a registered land surveyor or qualified professional engineer.

4. Base map with 2-foot contour lines with ground survey, or aerial survey with ground control.

APPENDIX E

Glossary of Terms

Complex: Two or more dissimilar major components that occur in a regularly repeating pattern or in an unpredictable pattern.

Limiting Dissimilar Soil: Generally, map unit delineations contain soils other than those identified in the map unit name. These minor soil components reduce the purity of the soil map unit. Minor components that most detract from purity because they are the most dissimilar to the mapped name and are the most limiting for use.

Soil Drainage Class:

- Excessively Drained: Soil depth is less than 25 cm (10 inches) to bedrock; or has a sandy or sandy-skeletal particle-size class with a loamy cap less than 25 cm (10 inches) thick.
- Somewhat Excessively Drained: Soil depth is 25 to 50 cm (10 to 20 inches) to bedrock with a loamy or loamy-skeletal particle-size class; or soil depth is 50 cm (20 inches) or greater to bedrock with a sandy or sandy-skeletal particle-size class with a loamy cap 25 cm (10 inches) thick or greater.
- Well Drained: Soil depth is at least 50 cm (20 inches) to bedrock and has a texture of loamy very fine sand or finer and redoximorphic features, if present, are 100 cm (40 inches) or more below the mineral soil surface.
- Moderately Well Drained: Has redoximorphic features at a depth of 40 cm (16 inches) to less than 100 cm (40 inches) below the mineral soil surface.
- Somewhat Poorly Drained: Is not VERY POORLY or POORLY DRAINED and has redoximorphic features at a depth of less than 40 cm (16 inches) below the mineral soil surface.
- Poorly Drained: Has dominant textures in the upper 50 cm (20 inches) (below the A-horizon if present) of loamy fine sand or coarser and has redoximorphic features within 18 cm (7 inches) of the mineral soil surface; or has dominant textures in the upper 50 cm (20 inches) (below the A-horizon if present) of loamy fine sand or coarser and has a Bh- or Bhs-horizon with value/chroma of 3/3 or less that begins within 18 cm (7 inches) of the mineral soil surface and is directly underlain by a horizon that has redoximorphic features; or has an A-horizon that is 18 cm (7 inches) thick or greater with value/chroma of 3/2 or less and a textures in all sub-horizons within 50 cm (20 inches) of the mineral soil surface of loamy fine sand or coarser and has redoximorphic features directly below the A-horizon; or has a depleted or gleyed matrix within 50 cm (20 inches) of the mineral soil surface and redox depletions with value of 4 or more and chroma of 2 or less in ped interiors that are less than 18 cm (7 inches) below the mineral soil surface; or has an A-horizon that is 18 cm (7 inches) thick or greater with value/chroma of 3/2 or less and has a depleted or gleyed matrix within 50 cm (20 inches) of the mineral soils surface and has redox depletions with value of 4 or more and chroma of 2 or less in ped interiors or a depleted or gleyed matrix directly beneath the A-horizon.

Soil Map Unit: Designed to efficiently deliver soil information to meet user needs for management and land use decisions. They can appear on maps as individual areas (i.e., polygon), points, or lines. They are a collection of areas defined and named the same in terms of their major soil components, miscellaneous areas, or both.

Soil Phase: These terms are added to a map unit component name to covey important information about a map unit and differentiate it from other map units on the map unit legend.

Soil Series: Represents a three-dimensional soil body having a unique combination of properties that distinguish it from neighboring series.

WETLAND DELINEATION REPORT: PROPOSED MATINICUS ISLAND SOLAR PROJECT

Matinicus Island Planation, Knox County, Maine

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Appendices

1.0 Introduction

Matinicus Isle Plantation is a small island in Knox County, approximately 22-miles out to sea southeast of Rockland, Maine (Figures 1 and 2). The Matinicus Plantation Electric Company (MPEC) generates the island's power from diesel generators. To help reduce the reliance on diesel, MPEC plans to construct and operate a solar power generation facility and battery backup system to supplement the diesel generators (Project). We understand the solar array will be constructed utilizing a ballast anchor system on the existing ground, with only minor grading to facilitate stability.

MPEC requested that Flycatcher, LLC (Flycatcher) conduct an environmental field survey on two sites off Harbor Road and Markey's Beach Road (Survey Area). The extent of the Survey Area is depicted on Figure 1 - USGS Location Map and Figure 2 Natural Resource Map. The purpose of the field survey was to identify and map wetlands, watercourses, and waterbodies, and perform a potential vernal pool survey to support Project planning and permitting.

This report provides a description of the methods used to identify and delineate resources within the proposed Project area, and the findings of the surveys. Definitions and methodologies used follow those prescribed by the US Army Corps of Engineers (USACE), the Maine Land Use Planning Commission (LUPC) and Maine Department of Environmental Protection (MDEP), the three lead agencies that oversee natural resources protection and permitting in Maine.

2.0 Survey Area

General Description: As depicted on Figure 1, The Survey Area consists of two sites; one approximately 5-acre site located on the northern side of Harbor Road and one approximately 0.7-acre site located on the southern side of Markey's Beach Road. The 0.7-acre site is located northeast of the 5-acre site. The Survey Area is primarily a red spruce (*Picea rubens*) and balsam fir *(Abies balsamea)* forest that gradually slopes downward to the south and southeast.

Vegetation: The Survey Area is entirely forested. Large blow downs were observed throughout the 5-acre site. Vegetation observed within the Survey Area in addition to the previously mentioned red spruce and balsam fir are black spruce (*Picea mariana*), eastern white pine (*Pinus strobus*), red maple *(Acer rubrum),* paper birch (*Betula papyrifera*), sarsaparilla vine (*Smilax pumila*) and various ferns and forb species.

3.0 Methods

3.1 Desktop Review

Prior to visiting the site, Flycatcher reviewed existing data sources including:

- Project maps provided by Matinicus Plantation Electric Company,
- United States Geological Survey (USGS) topographic map,
- Natural Resources Conservation Service (NRCS) medium-intensity soil survey map,
- LUPC Zoning and Parcel Viewer (online),
- National Wetland Inventory (NWI) map,
- National Hydrography Dataset (NHD) map, and
- Recent and historic aerial photography (via Google Earth).

3.2 Agency Outreach

At the time this report Flycatcher is unaware of outreach to the Maine Department of Inland Fisheries and Wildlife (MDIFW) and the Maine Natural Areas Program (MNAP) for information on known or potential

state-listed rare, threatened, and endangered (RTE) or special concern species, or habitats within or proximal to the Survey Area. Flycatcher did not perform agency outreach.

3.3 GPS Location

Features (e.g., wetland boundaries or test pits) located during the on-site investigations were geolocated using a mapping grade global positioning system (GPS) unit (Juniper Systems' Geode GPS Antenna and ESRI's ArcGIS Collector software). The data were collected using real-time correction and standards specified by the manufacturer to achieve sub-meter accuracy.

3.4 Wetland Delineation

Wetlands are defined by the federal government as: "*Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas*."[1] The MDEP also uses this definition.

The LUPC definition of Freshwater Wetland is "*Freshwater swamps, marshes, bogs and similar areas that are inundated or saturated by surface or groundwater at a frequency and for a duration sufficient to support, and which under normal circumstances do support, a prevalence of wetland vegetation typically adapted for life in saturated soils and not below the normal high water mark of a body of standing water, coastal wetland, or flowing water*."[2]

Wetland delineations were conducted in accordance with the USACE Wetland Delineation Manual[3] and the Northcentral and Northeast Regional Supplement (Version 2.0).[4] The manual and supplement provide a repeatable methodology to identify and map wetland areas and are the accepted wetland delineation methodology of the LUPC and the USACE.

The USACE, as part of an interagency effort with the U.S. Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service (USFWS) and the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS), developed the 2016 National Wetland Plant List (NWPL). The NWPL is used to determine whether the hydrophytic vegetation parameter is met when conducting wetland determinations under the Clean Water Act. Plants names and hydrophytic determinations were based on the 2022 update to the NWPL[5].

Hydric soil determinations were based on the *Field Indicators for Identifying Hydric Soils in New England, Version 4*[6]; the *Field Indicators of Hydric Soils in the United States, Version 9*[7], and the Maine Association of Professional Soil Scientist (MAPSS) Key for the Identification of Soil Drainage Class, Revised 2013.

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[1] Code of Federal Regulations. 2021. Definition of Waters of the United States. 33 CFR 328.3(c)(16).

[2] Maine Land Use Planning Commission Chapter 2 of the Commission's Rules: Definitions. 2022. 01-672 CHAPTER 2

[3] Environmental Laboratory. 1987. "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.

[4] U.S. Army Corps of Engineers. 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, C. V. Noble, and J. F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

[5] U.S. Army Corps of Engineers 2018. National Wetland Plant List, version 3.4 http://wetland-plants.usace.army.mil/U.S. Army Corps of Engineers Engineer Research and Development Center Cold Regions Research and Engineering Laboratory, Hanover, NH

[6] New England Hydric Soils Technical Committee. 2018 Version 4, *Field Indicators for Identifying Hydric Soils in New England.* New England Interstate Water Pollution Control Commission, Lowell, MA.

[7] United States Department of Agriculture, Natural Resources Conservation Service. 2024. *Field Indicators of Hydric Soils in the United States,* Version 9.

3.5 Watercourse Identification

The LUPC definition of Flowing Water is: *a channel that has defined banks created by the action of surface water and has two or more of the following characteristics:*

a) *It is depicted as a solid or broken blue line on the most recent edition of the U.S. Geological Survey 7.5-minute series topographic map or, if that is not available, a 15-minute series topographic map.*
b) *It contains or is known to contain flowing water continuously for a period of at least six months of the year in most years.*
c) *The channel bed is primarily composed of mineral material such as sand and gravel, parent material or bedrock that has been deposited or scoured by water.*
d) *The channel contains aquatic animals such as fish, aquatic insects or mollusks in the water or, if no surface water is present, within the stream bed.*
e) *The channel contains aquatic vegetation and is essentially devoid of upland vegetation. Such waters are commonly referred to as rivers, streams, and brooks. Flowing water does not mean a ditch or other drainage way constructed, or constructed and maintained, solely for the purpose of draining storm water or a grassy swale.*

The term is further distinguished as follows:

Major Flowing Water: *A flowing water downstream from the point where such water drains 50 square miles or more.*

Minor Flowing Water: *A flowing water upstream from the point where such water drains less than 50 square miles.*

Watercourse identification was also consistent with the methods outlined in the MDEP *NRPA Identification Guide for Rivers, Streams, and Brooks*[8].

3.6 Waterbody Delineation

The LUPC definition of Major Water Bodies is**, "***bodies of standing water greater than 10 acres in size and major flowing waters*".

The boundary of a waterbody is identified by an "Ordinary High-Water Mark", as defined by the USACE as "*that line on the shore established by the fluctuations of water and indicated by physical characteristics such as:*

A. a clear, natural line impressed on the bank;
B. shelving;
C. changes in the character of soil;
D. destruction of terrestrial vegetation;
E. the presence of litter and debris; or
F. other appropriate means that consider the characteristics of the surrounding areas".

3.7 Vernal Pool Survey

The definitions provided in Chapter 335 of the NRPA[9] and the USACE Maine General Permit[10] were used to identify vernal pools,. Vernal pools are temporarily/seasonally flooded wetlands that provide the primary breeding habitat for vernal pool indicator species, and a host of secondary faunal species. Wood frogs (*Lithobates sylvaticus*) spotted salamanders (*Ambystoma maculatum*), blue spotted salamanders (*Ambystoma laterale*), and fairy shrimp (*Eubranchipus spp.*) are vernal pool indicator species that depend

[8] Danielson, T. J. 2018. Natural resources Protection Act (NRPA) Streams, Rivers, and Brooks. Maine Department of Environmental Protection, Augusta, ME.
[9] MEDEP. *Significant Wildlife Habitat.* Chapter 335, Section 9.
[10] USACE (2020). *Department of the Army General Permits for the State of Maine*. Section IV. 20.

on vernal pools to complete their life cycle. Productivity of breeding vernal pool species is the primary metric used by regulatory authorities to assess vernal pool quality; thus, vernal pools must be assessed during the breeding season (generally mid-April to late-May). Since the on-site mapping was conducted outside the vernal pool breeding season, the procedure for performing non-breeding season potential vernal pool (PVP) surveys was performed in general accordance with the Maine Association of Wetland Scientists (MAWS) Vernal Pool Technical Committee Vernal Pool Survey Protocol (April 2014)[12]. Using this method, the wetland scientist relies on topography, best professional judgement, evidence of inundation (e.g., water-stained leaves, sparsely vegetated concave surfaces, moss trim lines, etc.) and signs of certain invertebrates, such as caddisfly larvae cases (Order Trichoptera), shells of freshwater clams (Family Sphaeriidae or Pisidiidae) or shed exoskeletons of dragonfly or damselfly larvae.

4.0 Findings

4.1 Desktop Review

The USGS NHD data set depicts no watercourses within the Survey Area. One freshwater emergent wetland is mapped by the NWI within the eastern portion of the 5-acre site.

The NRCS medium intensity soil survey maps depict soil map units at a broad scale. The maps are a useful tool to identify potential areas of hydric soils which are commonly associated with wetlands. Review of the NRCS map depicts three map units within the 5-acre site, Brayton fine sandy loam, 0 to 8% slopes (BsB), Lyman-Brayton-Rock Outcrop Variant Complex, 0 to 8% slopes, (LmB), and Lyman-Rock Outcrop-Tunbridge Complex, 8 to 15% slopes (LrC). Review of the NRCS map depicts one map unit within the 0.7-acre site, Tunbridge-Lyman Rocky Complex, 3 to 8% slopes (TrB).

Based on LUPC map review it appears the entire Survey Area is mapped as General Management (M-GN).

4.2 Wetland Delineation

The Survey Area was investigated by a wetland scientist and when a location appeared to have the requisite three factors that constitute a wetland (i.e., predominance of hydrophytic vegetation, indicators of hydrology, and the presence of hydric soils) an investigation was undertaken. When wetlands were identified, the boundaries of the wetlands were marked with glo-pink flagging and numbered in sequential order. Each flag was geo-located as described in Section 3.3.

The wetland delineation was conducted on October 15, 2024. As depicted on Figure 2, one wetland was delineated within the Survey Area (W-NIA-1). Representative photographs are included in Appendix B and wetland descriptions including the hydrology indicators, dominant vegetation, and hydric soil indicators, are included in Table 1.

4.3 Watercourses

One watercourse was identified within the Survey Area (S-NIA-1). S-NIA-1 is an intermittent watercourse with deep cut banks, a mineral bottom consisting of sand and cobble, and is approximately 5 feet in width. The watercourse is located along the eastern boundary of the 5-acre site within a portion of W-NIA-1. The watercourse flows south to a drainage ditch along Harbor Road. It meets the LUPC definition of Minor Flowing Water.

4.4 Waterbodies

No waterbodies were identified within the Survey Area.

4.5 Vernal Pools

No PVPs were identified during the October 2024 fall fieldwork within the Survey Area.

5.0 Recommendations

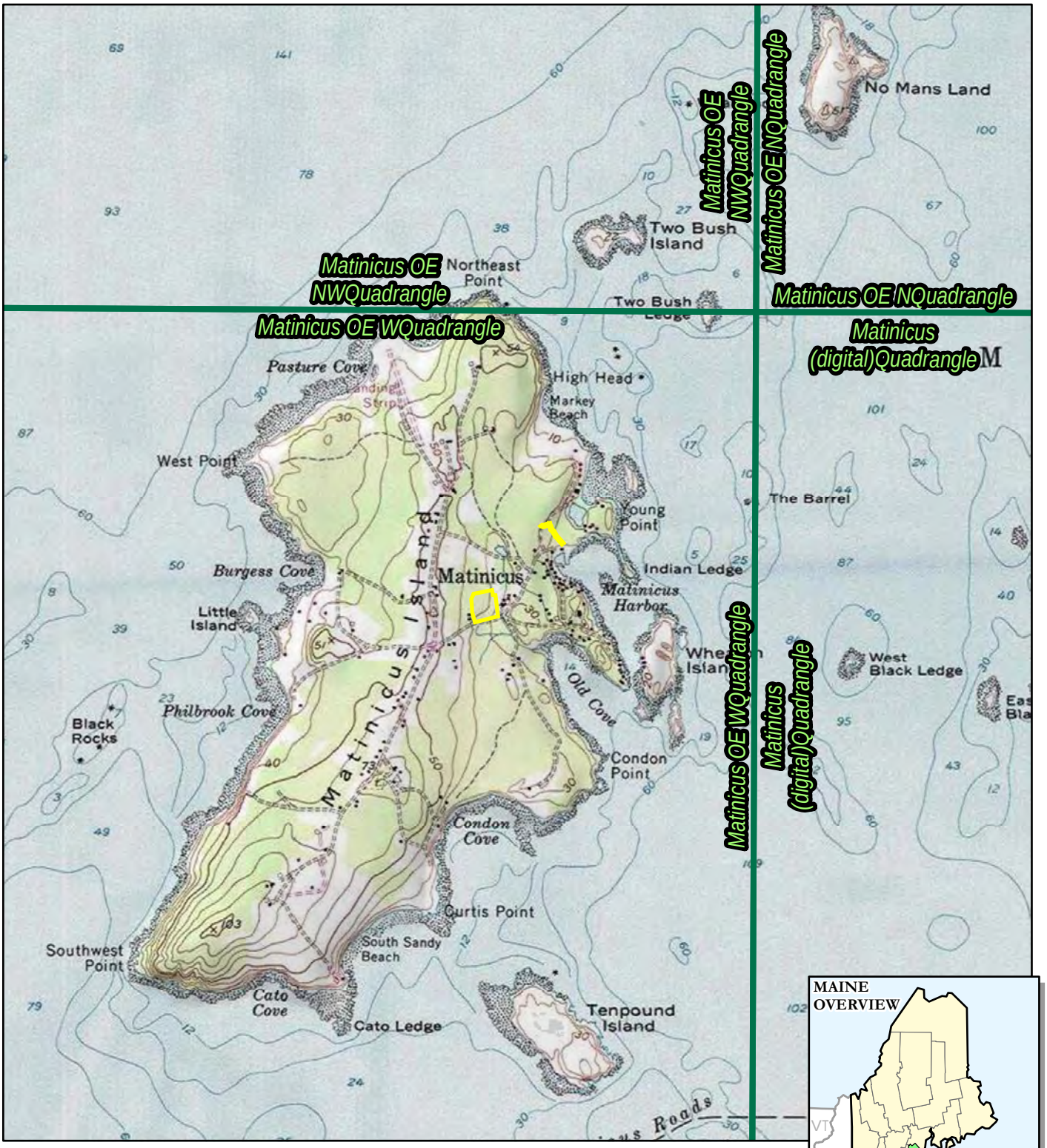
Flycatcher performed natural resource investigations and mapping within the Survey Area. Wetlands and watercourses are protected natural resources, and as such alterations of these features, and in some cases alterations of adjacent upland, require oversight and potential permitting by local, state and/or federal agencies. Alteration of natural resources should be avoided, and where avoidance is not practicable alterations should be minimized to reach the least environmentally damaging practicable alternative (LEDPA). The alteration in terms of overall area and natural resource functions/values should be considered when making this determination; the smallest area may not always be the LEDPA if it alters wetland with higher functionality. If natural resources are altered it is possible the Project permitting may include compensation, which could be in the form of an in-lieu-fee payment or a creation, enhancement, or a preservation project to create and protect natural resources. As the Project progresses Flycatcher biologists are available to discuss plans and help identify ways to minimize natural resource alteration. The LUPC has a thorough zoning and permitting process that includes protection of natural resources. In addition to consulting with state and federal agencies, we recommend consultation with the LUPC in these early stages of the Project planning process.

Table 1. Wetland Delineation Summary

Resource ID	Cowardin Classification[1]	Hydrology Indicators	Dominant Vegetation	Hydric Soil Indicators	Description & Notes
W-NIA-1	PFO	A1. Surface Water, A2. High Water Table, A3. Saturation, B9. Water -stained Leaves, B10. Drainage Patterns, D1. Stunted Plants, D2. Geomorphic Position D4. Microtopographic Relief	Balsam fir (*Abies balsamea*), black spruce (*Picea mariana*), eastern hemlock (*Tsuga canadensis*), eastern arborvitae (*Thuja occidentalis*), speckled alder *(Alnus incana*), spotted touch-me-not (*Impatiens capensis*), cinnamon fern (*Osmundastrum cinnamomeum*), sensitive fern (*Onoclea sensibilis*), evergreen woodfern (*Dryopteris intermedia*), wrinkle-leaf goldenrod (*Solidago rugosa*), three-seed sedge (*Carex trisperma*)	F3b. Depleted Matrix	Forested wetland complex with large blowdowns located in the western and northwestern portion of Survey Area. Drains southeast into wetland complex adjoining S-NIA-1.

1. Wetland classifications per USFWS' Cowardin et al. (1979) (https://www.fws.gov/wetlands/Documents/Classification-of-Wetlands-and-Deepwater-Habitats-of-the-United-States.pdf).

Appendix A Figures



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES.

1 " = 2,000 '
1:24,000

0 2,000 4,000 FEET

Flycatcher
LAND + SCIENCE + PEOPLE

PROJECT:

MATINICUS PLANTATION ELECTRIC
PROPOSED SOLAR ARRAY SITE
MATINICUS ISLE, KNOX COUNTY, MAINE

LEGEND:

SURVEY AREA
USGS 7.5-MINUTE QUADRANGLE BOUNDARY

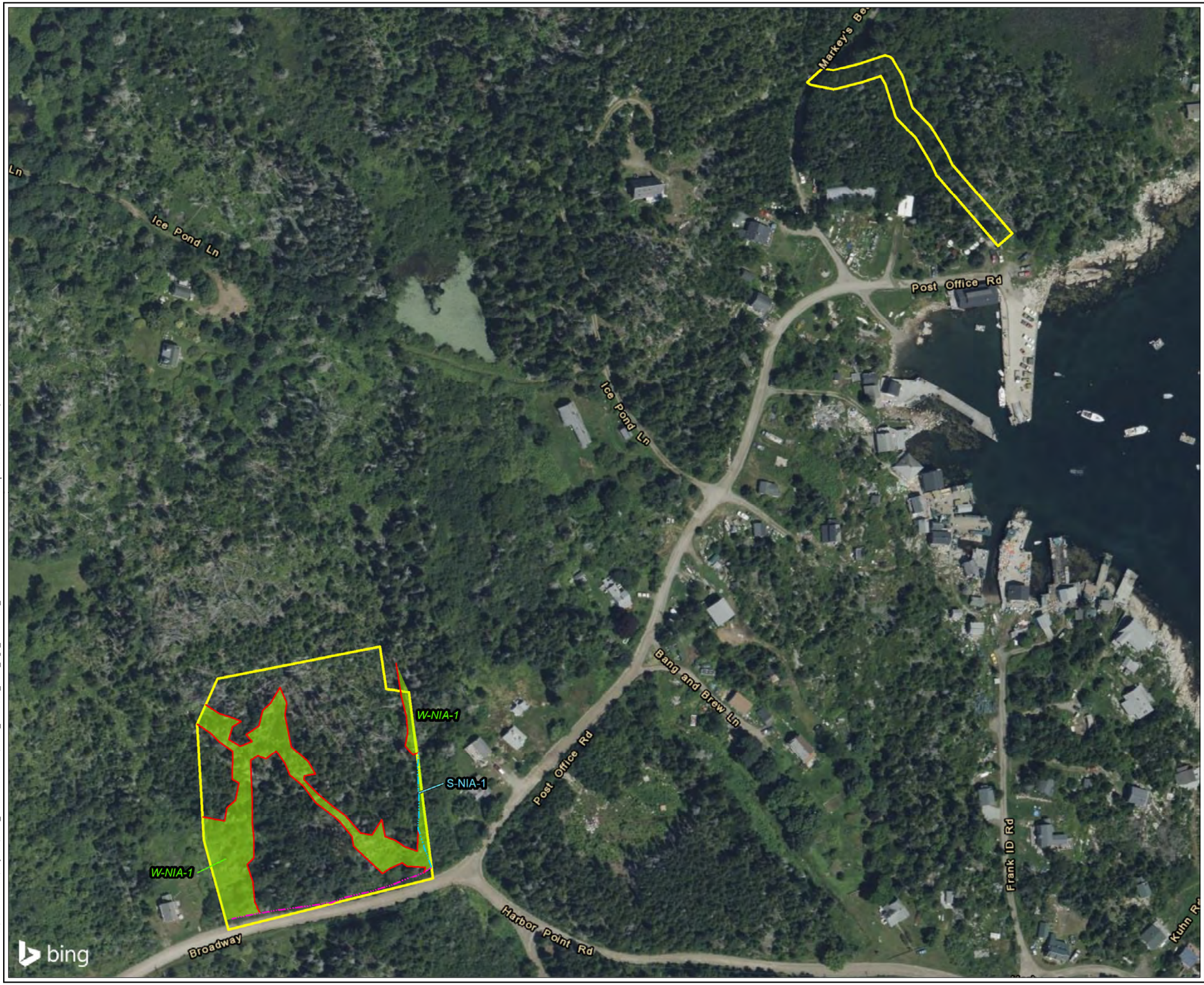
DRAWN BY:	D. KENWORTHY
CHECKED BY:	R. KELSHAW
MONTH:	NOVEMBER
YEAR:	2024
PROJ. NO.:	24ZD-001
CLIENT:	MPEC

FIGURE 1 - USGS LOCATION MAP

C:\FLYCATCHER\Projects\24ZD_MatinicusElectric\MPEC_24ZD001_Delin_Fig1_USGS_8x11.mxd -- Saved By: DREWKENWORTHY on 11/21/2024, 17:07:15 PM

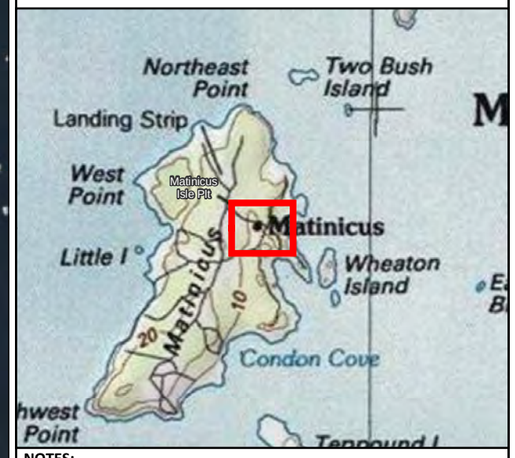
Plot Date: 11/21/2024, 16:57:35 PM by DREWKENWORTHY -- LAYOUT: ANSI B(11"x17")
Path: C:\FLYCATCHER\Projects\24ZD_MatinicusElectric\MEPC_24ZD001_Delin_Fig2_Resources_11x17L.mxd

Coordinate System: NAD 1983 StatePlane Maine East FIPS 1801 Feet (Foot US)
Map Rotation: 0



LEGEND

- SURVEY AREA
- DELINEATED INTERMITTENT STREAM
- UPLAND DRAINAGE
- DELINEATED WETLAND BOUNDARY
- DELINEATED WETLAND



NOTES:

1 BASEMAP IMAGERY FROM BING.
2 RESOURCE DELINEATIONS WERE CONDUCTED BY FLYCATCHER IN OCTOBER 2024.
3 NO RESOURCES WERE IDENTIFED AT THE PROPOSED DIESEL STORAGE TANKS AND ACCESS SITE TO THE NORTHEAST,

N

0 150 300
Feet
1 " = 150 '
1:1,800

PROJECT:

MATINICUS PLANTATION ELECTRIC CO
PROPOSED SOLAR ARRAY SITE
MATINICUS ISLE, KNOX COUNTY, MAINE

TITLE:

DELINEATED NATURAL RESOURCE MAP

DRAWN BY:	D. KENWORTHY	PROJ NO.:	24ZD-001
CHECKED BY:	R. KELSHAW		
MONTH:	OCTOBER		**FIGURE 2**
YEAR:	2024		

Flycatcher
LAND + SCIENCE + PEOPLE

FILE NO.: MEPC_24ZD001_Delin_Fig2_Resources_11x17L.mxd

Appendix B Representative Photographs

Wetland W-NIA-1.

Wetland W-NIA-1.

Watercourse S-NIA-1.

Exhibit 24: Water and Air Quality

Water Quality:

As noted in Exhibit 10, there are several potential sources of water pollution:

During construction:

- When grading the solar field area we anticipate some areas of soil disturbance. The land, on average, has a gentle slope (1-2%) down to the drainage ditch by the side of the road. Grading work will be conducted in the Spring and we will seed perennial white clover over any disturbed soil to prevent erosion.

- Any excess topsoil or mulch will be hauled off site and utilized in garden beds. We will not leave large piles of topsoil on site which would have the potential to create water pollution.

- Whenever machinery is utilized, there is a risk of fuel and oil spills. We will keep a 10ft x 10ft piece of EPDM on hand so that if there is a spill we can dig out the soil and put it on the EPDM to avoid any possibility of water pollution.

During regular operations:

- There is the possibility of a diesel fuel spill. The diesel generators will have to be refueled weekly. That is a supervised process so spills are unlikely during refueling. The generator fuel tanks are UL 142 compliant, double walled tanks, with 110% containment. Absorbent pads for small spills of diesel will be stored on site.
- Dust can be a concern around solar fields. At present we are unsure as to the extent of the dust problem. If we find dust to be a significant problem then we would utilize environmentally friendly dust control products such as DirtGlue by GES to treat any gravel areas. This type of product bonds the gravel and gravel fines together and does not run-off.

Air Quality:

There will be no fires to burn stumps on the construction site.

The power generation facility will utilize a Tier 4 Diesel Generator. Tier 4 engines are designed to meet the stringent pollution standards imposed by the EPA. The emergency backup generator will be a Tier 3 Diesel Generator. These are permitted to run for up to 500 hours per year. The Tier 3 Diesel - which has slightly higher emissions – will be exercised for 2-4 hours per week and will only be the primary generator if there is a problem with the Tier 4 generator or if the Tier 4 generator is down for service.

Exhibit 25: Erosion, Sedimentation, and Drainage Control Measures

The total area of potential soil disturbance is less than one acre. The climate on Matinicus is significantly different from mainland Maine. While we get plenty of frosts, the ground is rarely frozen for more than a couple of days at a time.

- BMP Energy expects to start work on the solar field grading in February, March or April depending upon the weather and ground conditions. Stump removal work has to be conducted when the ground is not frozen solid or saturated.

- Grading the locations where the ballast racking will be installed will not be conducted until March or April depending upon ground and weather conditions.

- All topsoil that is unused will be hauled off site for use in garden beds. No large piles of topsoil will be present on the property.

- The 3-5 inch rock pads on which the 8 x 8 pressure treated lumber will sit as the base for the equipment containers, along with the gravel for the road and turnaround cannot be installed until late March or April. All gravel and rock comes from the mainland via barge. Barges are not able to get to Matinicus during the stormy winter months.

- The road construction will utilize “rock sandwiches” – road fabric, a layer of clean 3-5 inch rock, road fabric, and then 3-5 inches of gravel. This ensures drainage in all weather without the need for significant ditching. The water passes “under” the road.

- There will be minimal trenching in the solar field. All cables will be in rigid conduit and covered with 6 inches of gravel, thereby minimizing soil disturbances.

- The site utilized for this project is relatively flat with gradients less than 1%-2%. There are no steep slopes with significant potential for erosion in rain storms.

- Once the solar field has had all the tree stumps removed, the site preparation project should take approximately 4-5 days. We will conduct the work during good weather.

- The solar field area and any other areas with disturbed soils will be seeded with perennial white clover as soon as the area is prepared. Experience suggests that within 3-4 weeks the clover will be binding the soil together well.

- The project area is small and the site construction so minimally invasive that we do not anticipate needing any permanent erosion and sedimentation control measures beyond the seeding of clover.

- The driveway/road and turnaround will be re-graded twice a year to ensure adequate drainage. The culvert that is in place in the road-side ditch will be inspected periodically for blockages or damage.

Exhibit 26: Wildlife Passage

There is woodland all around the solar field site. Access to the wetland areas and stream is not impacted by the proposed project.

There will be no fencing so there are no concerns about animals getting trapped inside fenced areas.

Exhibit 27: Site Access

If you are able to get to Matinicus (boat or plane) then there are no issues with site access.

Exhibit 28: Roadway Construction and Upgrades

Site Entrance Road: 50 ft x 16 ft. Road Fabric, then a layer of 3-5 inch diameter clean rock, then road fabric, then 3-5 inches of 1 inch minus gravel. Average grade is 1-2% with a maximum of 2%.

Turnaround: 50 ft x 16 ft. Road Fabric, then a layer of 3-5 inch diameter clean rocks, then road fabric, then 3-5 inches of 1 inch minus gravel. Average grade is 0% with a maximum of 1%.

The gravel roadways will be crowned with a 2-3 inch difference in height between the center and edge.

There are no wells or septic systems on the property to be concerned about.