Matinicus Plantation

LUPC Permit Application Exhibits

Project: Diesel Fuel Tank Replacement

Location: Matinicus Plantation, Knox County

Date: 1st February 2025

Prepared by: Philip Davies, BMP Energy LLC
Approved by: Laurie Webber, Ellen Bunker, and Clayton Philbrook, Matinicus Plantation Assesors

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: 2025.02.06 14:06:40 EST
Reason: author

Exhibit 1: Directions and Location Map

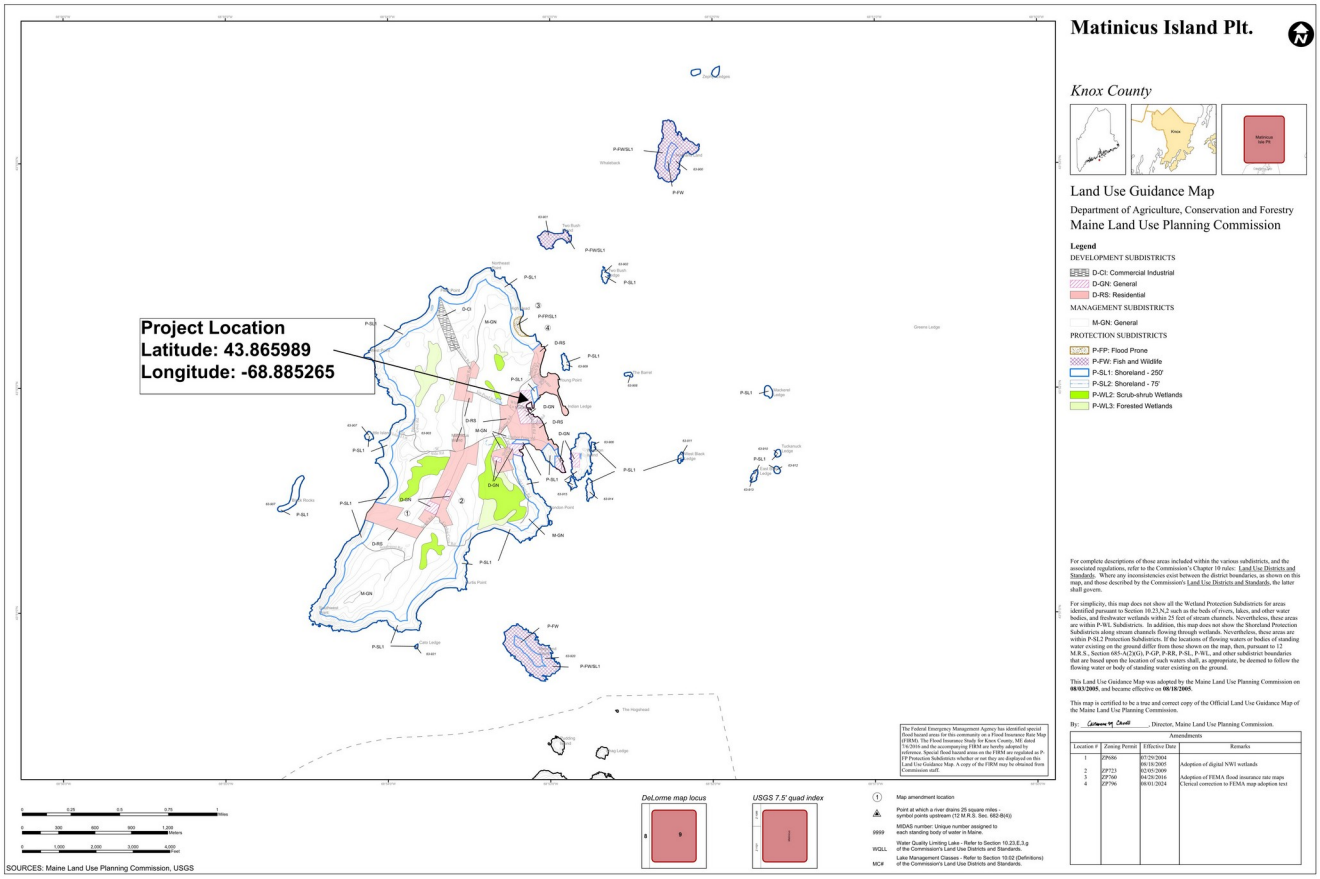


Exhibit 2: Project Description

Background

Matinicus is an unbridged island 22 miles off the coast of Maine. Power on Matinicus is supplied by diesel generators. While the Plantation expects to reduce its dependence on diesel with a new power plant, they still expect to consume 8,000 – 12,000 gallons per year.

The Plantation is out of compliance with regards to the fuel pipelines and the existing diesel storage tanks. The existing tanks need to be replaced as soon as possible to bring the Plantation back into regulatory compliance and minimize the possibility of a fuel spill.

Proposal

The Plantation proposes to replace its existing diesel storage tanks. The Plantation has hired Precision Tanks Inc to design the new installation and collaborate with all the relevant state agencies to ensure compliance. Precision Tank will be responsible for the safe removal of the existing pipelines and the cleaning of all the existing fuel tanks to make them safe. Precision Tank will also develop a new spill prevention plan for the Plantation.

The existing tank farm location is not suitable for a new tank, but there is a small area close to the existing tank farm that is suitable for an 8000 gallon UL 142 double walled diesel storage tank and a parking/turnaround area for a fuel trailer. The tank will be 20ft x 8ft and sit on concrete pads. There will be a DOT approved trailer on site that will be used to haul diesel to the power company and residents.

The land in question was used as a source of granite to build the wharf and other buildings, but that was over 80 years ago. There is an old quarry trail into the area which the plantation is repairing. The fuel tank site location has been overgrown with Spruce trees. There are no properties on the proposed site, nor have there ever been.

The proposed area has been improved recently – Last year's storms did considerable damage to the aging Spruce trees. The Spruce trees were liable to fall on the existing tank farm and power plant. The Spruce trees have been removed to ensure the safety of the Plantation's existing tanks and diesel pipelines.

Engineering Plans

Precision Tank Inc was recruited in September to develop a plan in collaboration with the relevant Maine State agencies. Precision Tank, in collaboration with CUSA Consulting have developed a formal engineering diagram based on input from the Fire Marshal's office and the Department of Environmental Protection.

The diagrams are included in this application. Please note that in the site diagram a reference is made to "a proposed modular power plant". This is incorrect and should be ignored. It has no impact on the diagram for the fuel tank replacement project.

Structures

The only structure will be a 20ft x 8ft UL 142 Diesel Storage Tank. A small parking area/turn-around area will have to be constructed (62ft x 32ft), but no major excavation is planned.

Project Schedule

Project delivery date: 20th May 2025

The Plantation expects the new fuel tank to be in place by Mid-May to ensure diesel can be supplied to the new power plant when it comes online.

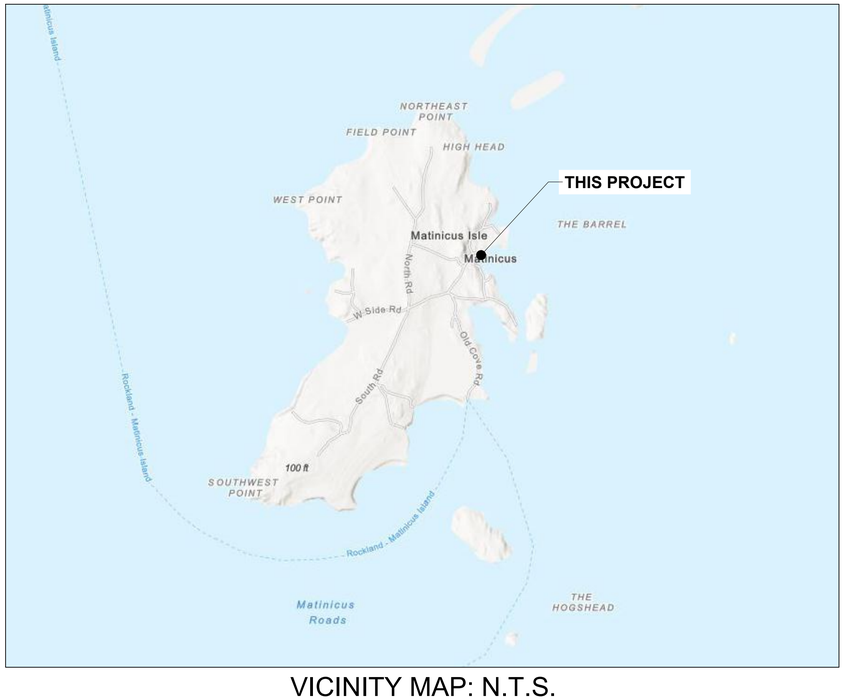
Site Preparation

The Plantation owns the land in question – it is overseen by the Maine Coast Heritage Trust. The land does not require significant excavation. There are tree stumps to remove and crushed stone to be added to create a firm level base for the precast concrete pads and the fuel tank.

MATINICUS ISLAND POWER PLANT, FST REPLACEMENT
MATINICUS, MAINE

PREPARED FOR:
PRECISION TANKS, INC.,
MATINICUS ISLAND PLANTATION ELECTRIC UTILITY

DESIGN DRAWINGS
ISSUED FOR REVIEW, 1/30/2025



VICINITY MAP: N.T.S.

IN COLLABORATION WITH:

REVIEWING AGENCIES:

REFERENCE DRAWINGS	DRAWING NO.	REV	DATE	STATUS	BY	CHKD	APPD

STATE OF MAINE — ANDREW GRAY — 2012 — LICENSED PROFESSIONAL ENGINEER — DRAFT FOR REVIEW

DESIGNED BY:	DS X.X.X
DRAWN BY:	DR X.X.X
CHECKED BY:	CH X.X.X
APPROVED BY:	AP X.X.X
DATE:	1/30/2025

DESIGNER:
CUSA CONSULTING LLC
6 MERRILL INDUSTRIAL DR, UNIT 6, HAMPTON, NH 03842
T. (603) 926-5895, WWW.CUSACONSULTING.COM

CLIENT:

PROJECT:
MATINICUS ISLAND PLANTATION
POWER PLANT FUEL STORAGE TANK
DESIGN DRAWINGS, FOR REVIEW

SHEET TITLE:
COVER SHEET

SCALE:	SEE ABOVE
PROJECT NO.:	PTI-24-5
DRAWING NO.:	G-001
SHEET:	01 OF 06
REV:	00

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DRAFTING LEGEND:

EXISTING (TO REMAIN)	EXISTING (TO BE DEMOLISHED)	NEW OR TEMPORARY	
			GENERAL LINEWORK CONVENTION
	N/A	*N/A*	PROPERTY LINE
	N/A	*N/A*	ROADWAY OR RUNWAY CENTERLINE
ILS	*N/A*	*N/A*	INSTRUMENT LANDING SYSTEM CRITICAL AREA
ROFA	*N/A*	*N/A*	RUNWAY OBJECT-FREE AREA
RSA	*N/A*	*N/A*	RUNWAY SAFETY AREA
TOFA	*N/A*	*N/A*	TAXIWAY OBJECT-FREE AREA
TSA	*N/A*	*N/A*	TAXIWAY SAFETY AREA
GAS	*N/A*	*N/A*	GAS MAIN OR SERVICE LINE
W	*N/A*	*N/A*	WATER MAIN OR SERVICE LINE
UGE	UGE	*N/A*	UNDERGROUND ELECTRIC FEED, TYPE UNKNOWN
UTIL	UTIL	*N/A*	UNDERGROUND UTILITY, TYPE UNKNOWN
CBL	CBL	CBL	ABOVE GROUND CABLE
CDT	CDT	CDT	ABOVE GROUND ELECTRICAL CONDUIT
AGF	AGF	AGF	ABOVE GROUND FUEL LINE
DCT	DCT	DCT	BURIED CONDUIT OR DUCT BANK
BUS	BUS	BUS	BUS DUCT
X	X	X	CHAIN LINK FENCE
DEB	DEB	DEB	DIRECT EARTH BURIED CABLE
EES	EES	EES	EARTH ELECTRODE SYSTEM
OHE	OHE	OHE	OVERHEAD ELECTRIC LINE
UGF	UGF	UGF	UNDERGROUND FUEL LINE
N/A	*N/A*	BORE	DIRECTIONAL BORE

GENERAL OBJECT CONVENTION

BUILDING

CONCRETE

GRAVEL

SAND

ASPHALT PAVEMENT

EARTH

GRASS

SWAMP *N/A* *N/A*

OR

EQUIPMENT ITEM DESIGNATION

CABLE OR PIPE DESIGNATION

SUB-COMPONENT DESIGNATION

DETAIL CALLOUT

VIEW NUMBER / *SHEET NUMBER* OR *VIEW NUMBER* / *SHEET NUMBER*

SECTION CALLOUT

VIEW NUMBER / *SHEET NUMBER* OR *VIEW NUMBER* / *SHEET NUMBER*

SHEET DESIGNATION/NUMBERING KEY:

PER THE NATIONAL CAD STANDARD 1.3.3, THE FOLLOWING KEY IS PROVIDED FOR THE NUMBERING OF THESE PLANS:

- XXX-D-XXX-X___ DISCIPLINE DESIGNATOR
  - G - GENERAL
  - D - DEMOLITION
  - C - CIVIL
  - E - ELECTRICAL
  - M - MECHANICAL
  - V - SURVEY
- XXX-D-XXX-X0__ GENERAL NOTES, LEGENDS, REQUIREMENTS, SPECIFICATIONS
- XXX-D-XXX-X1__ PLAN VIEWS
- XXX-D-XXX-X2__ ELEVATION OR PROFILE VIEWS
- XXX-D-XXX-X3__ SECTION VIEWS
- XXX-D-XXX-X5__ DETAILS
  - •• THE TEN'S VALUE IS USED FOR CATEGORIES OF DETAILS. IF MORE THAN 10 SHEETS ARE REQUIRED FOR A CERTAIN CATEGORY OF DETAILS, THE NUMBERING WILL CONTINUE UNTIL COMPLETE. THE NEXT CATEGORY OF DETAILS WILL START AT THE NEXT NUMERICAL VALUE XXX-D-XXX-5X0
- XXX-D-XXX-X6__ SCHEDULES AND DIAGRAMS

INDEX OF SHEETS

REFERENCE DRAWINGS	DRAWING NO.	REV	DATE	STATUS	BY	CHKD	APPD

STATE OF MAINE — ANDREW GRAY — 12622 — LICENSED PROFESSIONAL ENGINEER — DRAFT FOR REVIEW

DESIGNED BY: DS X.X.X
DRAWN BY: DR X.X.X
CHECKED BY: CH X.X.X
APPROVED BY: AP X.X.X
DATE: 1/30/2025

DESIGNER: CUSA CONSULTING LLC
6 MERRILL INDUSTRIAL DR. UNIT 6, HAMPTON, NH 03842
T. (603) 926-5895, WWW.CUSACONSULTING.COM

CLIENT:

PROJECT: MATINICUS ISLAND PLANTATION
POWER PLANT FUEL STORAGE TANK
DESIGN DRAWINGS, FOR REVIEW

SHEET TITLE: INDEX OF SHEETS, LEGEND AND ABBREVIATIONS

SCALE: SEE ABOVE
PROJECT NO.: PTI-24-5
DRAWING NO.: G-002
SHEET: 02 OF 06
REV: 00

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PLAN VIEW
1" = 20'

NOTES:

- THE 8,000 GALLON UL-242 FST WILL BE USED AS THE BULK FUEL SUPPLY FOR THE MODULAR POWER PLANT. THE MODULAR POWER PLANT HAS INTERNAL STORAGE TANKS THAT THE GENERATORS DRAW FROM. THE INTERNAL TANKS HAVE OUTSIDE FILL BOXES THAT ARE FACTORY PROVIDED.
- THE FUELING TRAILER WILL ROUTINELY TRANSFER FUEL, 500 GALLONS AT A TIME, FROM THE BULK FUEL STORAGE TANK TO THE MODULAR POWER PLANT, USING AN INTRINSICALLY SAFE PUMP.
- FOR FUELING OF THE BULK FUEL STORAGE TANK, 2" FUEL HOSE WILL BE CONNECTED TO THE TANK AND RUN DOWN TO THE DOCK. THE FUELING BARGE PUMPS WILL BE USED TO TRANSFER FUEL. THE FUELING TRAILER WILL HAVE A CUSTOM MADE CONTAINMENT BOX PERMANENTLY SECURED TO IT, WHICH WILL PROVIDE TRANSFER CONTAINMENT ON THE LOW END OF THE FUEL HOSE DURING FUELING OPERATIONS.

REFERENCE DRAWINGS	DRAWING NO.	REV	DATE	STATUS	BY	CHKD	APPD

STATE OF MAINE — ANDREW D. GRAY — 5252 — LICENSED PROFESSIONAL ENGINEER — DRAFT FOR REVIEW

DESIGNED BY:	DS X.X.X
DRAWN BY:	DR X.X.X
CHECKED BY:	CH X.X.X
APPROVED BY:	AP X.X.X
DATE:	1/30/2025

DESIGNER:
CUSA CONSULTING LLC
6 MERRILL INDUSTRIAL DR, UNIT 6, HAMPTON, NH 03842
T. (603) 926-5895, WWW.CUSACONSULTING.COM

CLIENT:

PROJECT:
MATINICUS ISLAND PLANTATION
POWER PLANT FUEL STORAGE TANK
DESIGN DRAWINGS, FOR REVIEW

SHEET TITLE:
SITE DEMOLITION AND INSTALLATION PLAN

SCALE:	SEE ABOVE
PROJECT NO.:	PTI-24-5
DRAWING NO.:	C1.00
SHEET:	3 OF 06
REV:	00

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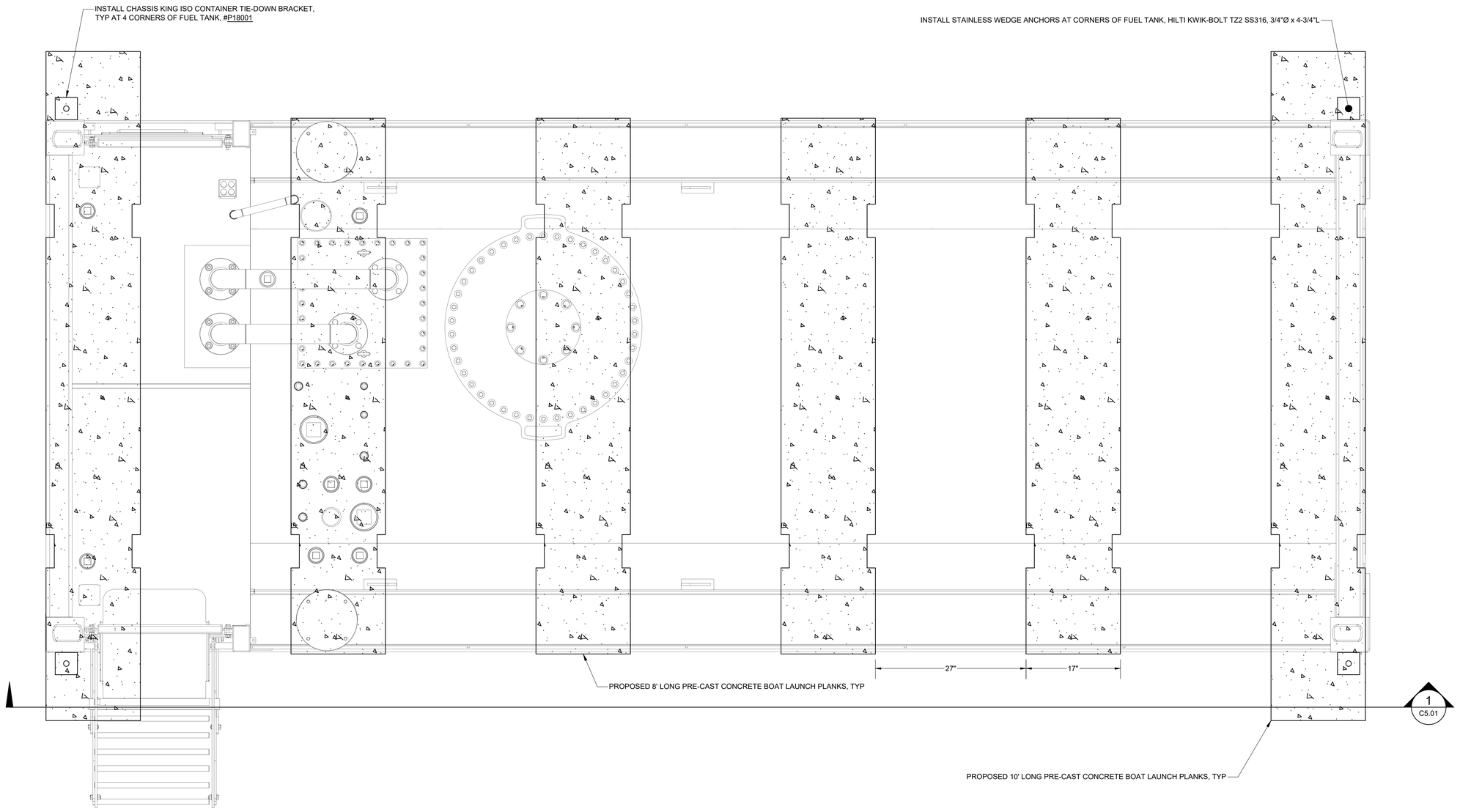

1 C5.00 **FOUNDATION PLAN**
N.T.S.

REFERENCE DRAWINGS	DRAWING NO.	REV	DATE	STATUS	BY	CHKD	APPD

STATE OF MAINE — ANDREW J. GRAY — 12822 — LICENSED PROFESSIONAL ENGINEER — DRAFT FOR REVIEW

DESIGNED BY:	DS X.X.X
DRAWN BY:	DR X.X.X
CHECKED BY:	CH X.X.X
APPROVED BY:	AP X.X.X
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CUSA CONSULTING LLC
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CLIENT:

PROJECT: MATINICUS ISLAND PLANTATION
POWER PLANT FUEL STORAGE TANK
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SHEET TITLE: FOUNDATION PLAN

SCALE: SEE ABOVE
PROJECT NO.: PTI-24-5
DRAWING NO.: C5.00
SHEET: 04 OF 06
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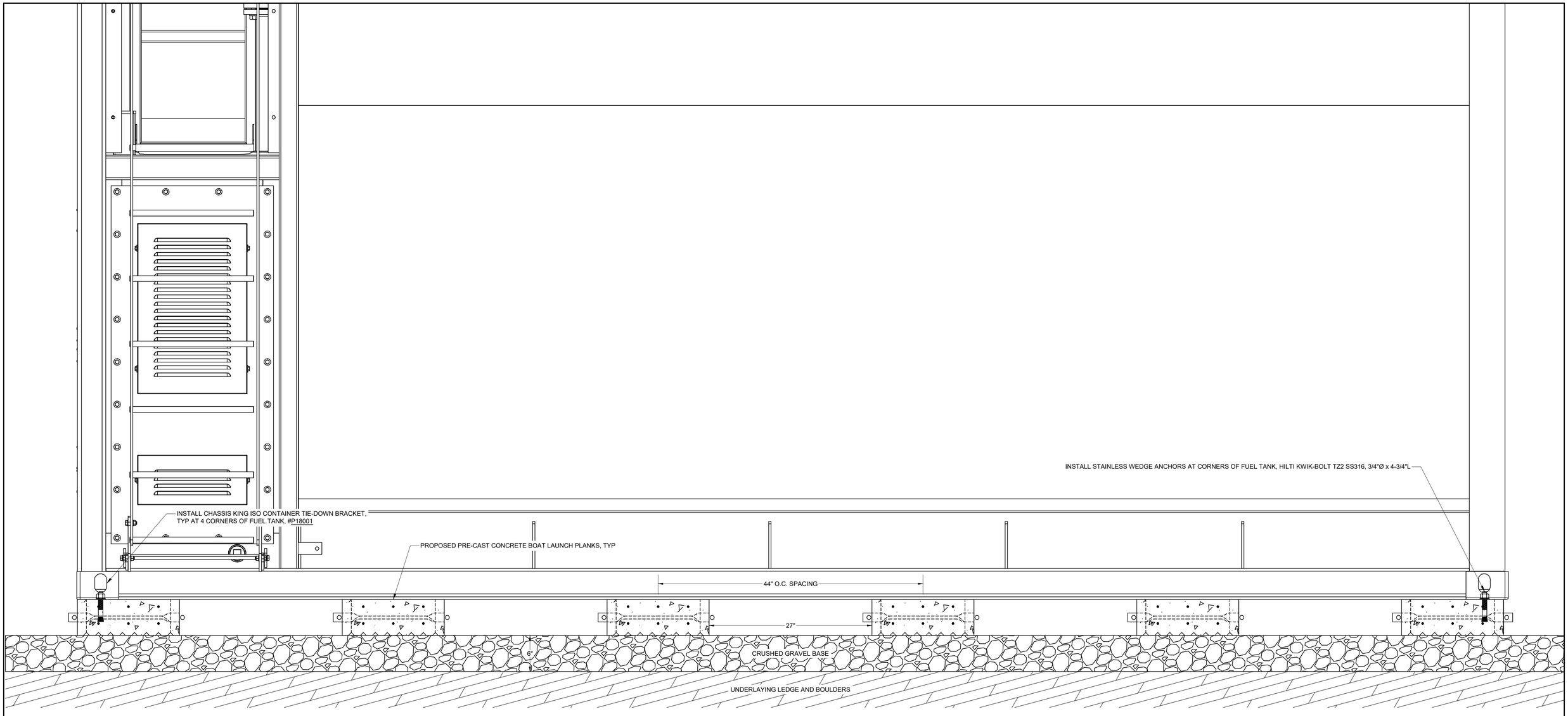

1 C5.01 FOUNDATION SECTION
N.T.S.

REFERENCE DRAWINGS	DRAWING NO.	REV	DATE	STATUS	BY	CHKD	APPD

STATE OF MAINE — ANDREW GRAY — 12822 — LICENSED PROFESSIONAL ENGINEER — DRAFT FOR REVIEW

DESIGNED BY:	DS X.X.X
DRAWN BY:	DR X.X.X
CHECKED BY:	CH X.X.X
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SHEET TITLE:
FOUNDATION SECTION

SCALE: SEE ABOVE
PROJECT NO.: PTI-24-5
DRAWING NO.: C5.01
SHEET: 05 OF 06
REV: 00

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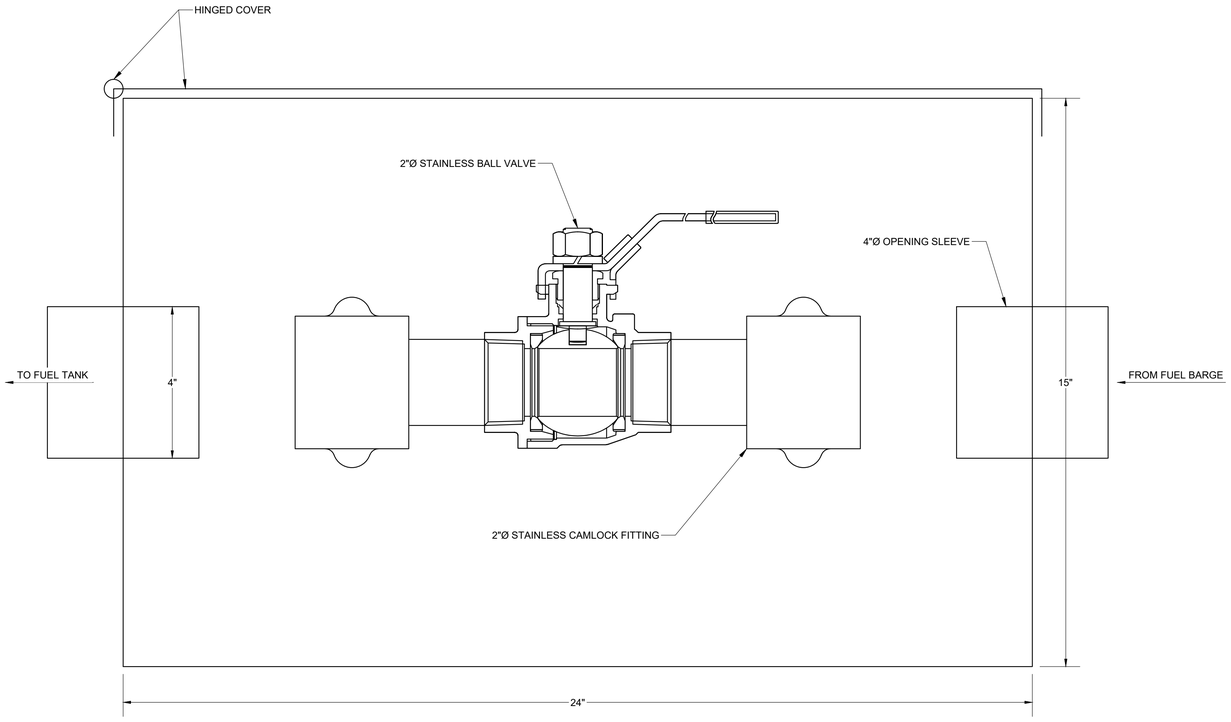
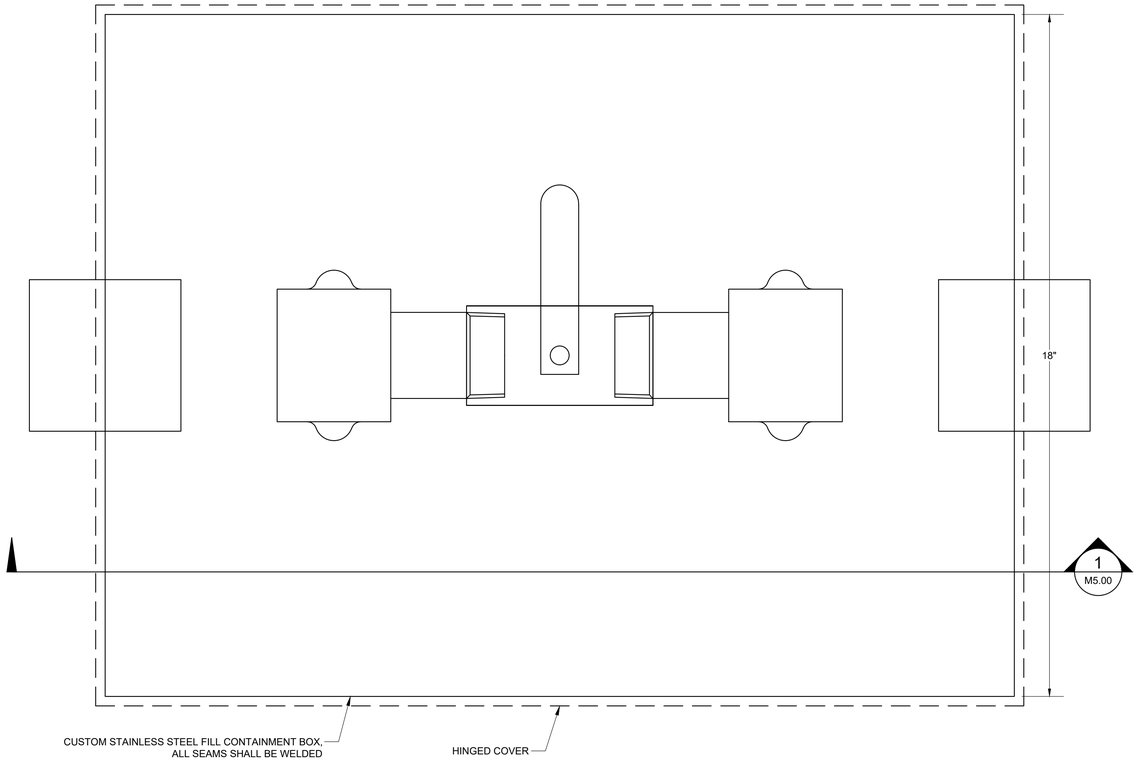


1 M5.00 TRAILER MOUNTED FILL BOX SECTION
N.T.S.



2 M5.00 TRAILER MOUNTED FILL BOX PLAN
N.T.S.

NOTE:

STAINLESS CONTAINMENT BOX SHALL BE SECURED TO FUEL TRAILER AND USED AS A TEMPORARY CONTAINMENT BOX DURING FUELING OPERATIONS FROM THE BARGE TO THE MAIN POWER PLANT FUEL TANK ON THE POWER PLANT PROPERTY.

REFERENCE DRAWINGS	DRAWING NO.	REV	DATE	STATUS	BY	CHKD	APPD

STATE OF MAINE ANDREW GRAY 12822 LICENSED PROFESSIONAL ENGINEER
DRAFT FOR REVIEW

DESIGNED BY:	DS X.X.X
DRAWN BY:	DR X.X.X
CHECKED BY:	CH X.X.X
APPROVED BY:	AP X.X.X
DATE:	1/30/2025

DESIGNER:
CUSA CONSULTING LLC
6 MERRILL INDUSTRIAL DR, UNIT 6, HAMPTON, NH 03842
T. (603) 926-5895, WWW.CUSACONSULTING.COM

CLIENT:

PROJECT:
MATINICUS ISLAND PLANTATION
POWER PLANT FUEL STORAGE TANK
DESIGN DRAWINGS, FOR REVIEW

SHEET TITLE:
TRAILER-MOUNTED FILL BOX DETAILS

SCALE:	SEE ABOVE
PROJECT NO.:	PTI-24-5
DRAWING NO.:	M5.00
SHEET:	06 OF 06
REV:	00

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630 US GALLONS

MULTICUBE

U.S. Only Product

NON-HAZMAT DIESEL FUEL TRAILER

The MultiCube is a diesel fuel trailer that does not require Hazmat placarding, and in most cases CDL, thanks to its multi-tank design. The six independently isolated fuel tanks are housed within an outer tank that provides double-walled containment. The MultiCube offers convenience and security for your fueling needs.

BENEFITS

NON-HAZMAT
Transport diesel safely without the need for hazmat placarding.

110% CONTAINED
(6) 105 US gallon fuel tanks housed within an outer tank, providing double-walled containment.

MOBILE
13-foot trailer allows for maneuverability and easy refueling in hard-to-reach locations.

TURNKEY
Pre-configured, pre-installed accessory packages designed for your applications.

SECURE
Lockable design ensures your diesel and equipment are safe and secure.

GUARANTEED
8-year tank warranty. 1-year trailer warranty. We've got you covered.

WESTERN GLOBAL

T: +1 866 814 2470 **W:** western-global.com

SPECIFICATIONS

Includes tank & trailer.

	MCT0630
CAPACITY (TOTAL UNIT)	630 US Gallons
WEIGHT (EMPTY)	4,600 lbs
WEIGHT (FULL)	9,394 lbs
DIMENSIONS (L x W x H)	156 x 101 x 68 in
TRAILER GVWR (GROSS VEHICLE WEIGHT RATING)	9,995 lbs

APPLICATION USES

- Mobile refueling
- Highway diesel transport
- Fleet refueling
- Limited-access worksites

ACCESSORY PACKAGES

MODEL NO.	MCT0630-1	MCT0630-2	MCT0630-3	MCT0630-4	MCT0630-5
6 FUEL TANKS (105 USG PER TANK)	✓	✓	✓	✓	✓
DUAL-AXLE TRAILER	✓	✓	✓	✓	✓
12V DC, 25GPM PUMP	✓	✓			
5.5 HP ENGINE DRIVEN PUMP (FLOW RATE VARIES 25-40 GPM BY PACKAGE)			✓	✓	✓
INLINE DIGITAL METER (ON FUEL PUMP)	✓	✓	✓	✓	
CUSTODY TRANSFER METER					✓
FILTER KIT	✓	✓	✓	✓	✓
25' FUEL HOSE REEL	✓	✓			
50' FUEL HOSE REEL			✓	✓	✓
DEF KIT (50 USG TANK, PUMP, INLINE METER, 25' HOSE REEL)		✓		✓	

T: +1 866 814 2470 **W:** western-global.com

MultiCube - MCT0630-3
MCT0630-3

CORE

Handle / SKU	MCT0630-3
Product Name	MultiCube - MCT0630-3

SPECIFICATIONS

Capacity (safe fill)	630 gal
Individual Tank Capacity	105 gal
Dimension Length	156 in
Dimension Width	101 in
Dimension Height	68 in
Weight Empty	4150 lb
Weight Full	8749 lb
Tank Warranty	8 years

TRAILER SPECIFICATIONS

Trailer Manufacturer	Karavan
Trailer Warranty	1 year
Trailer Hitch	Comes standard with 2- 5/16 Ball Hitch (Pintle Hitch Available part# PH-1000-UCA)
Trailer Jack	The MCT comes standard with a drop leg jack The trailer is pre-wired for electric jack option
Trailer GVWR	9995 lbs
Offloading Information	We recommend a 12-foot fork truck that has 12-foot forks to offload from a flatbed truck - there are no lifting points via crane. The forklift will come from the side and lift underneath the trailer similar to our other trailers. We recommend chaining the forklift to the MCT for safety.

Western Global, 1707 Northwood Drive, Troy, MI 48084, USA
+1 866 814 2470 | info.us@western-global.com | western-global.com

MultiCube - MCT0630-3
MCT0630-3

Trailer Material	Carbon Steel
Axle	Dual Axle
Axle Size	6,000 lbs

FUEL PUMP KIT SPECIFICATIONS

Pump Manufacturer	HONDA
Pump Part Number	SA-MC-EP40-KIT
Power Type	Engine Driven Electric Start included
Engine Output	5.5 HP
Max Flow Rate (GPM)	40 GPM
Inline Meter	Fill-rite Inline Digital Turbine Meter
Dispensing Nozzle	GPI Auto Diesel Nozzle 1" curved spout
Filter	30 Micron Particulate Filter, 1 1/2" filter thread
Swivel	1" Multi-Plane Swivel
Hose Diameter	1"
Hose Length	50' spring retractable hose reel
Battery Included	Yes Directly connected to Engine Driven Pump for electric start
Required by user to operate	Gasoline Engine Oil Should not be operated without lines primed with fuel.

Exhibit 3: Deed, Lease, Sales Contract or Easement

The property is owned by Matinicus Plantation. Please refer to deed book 5374 pg 179.

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. Precision Tank Inc – Engineering Study and Plan
2. Flycatcher, Soil Sample Study.

Expected Costs for Matinicus Plantation:

Capital Investment	Price
Land Clearing and Site Preparation	20,000.00
8000 Gallon WG TransTank Pro	46,500.00
630 Gallon DOT Trailer and Tank – No Hazmat or CDL required	31,500.00
Tank Cleaning	30,000.00
Tank Removal	10,000.00
Pipeline Removal	10,000.00
Installation via Crane	25,000.00
Fuel Cleaning and Transfer and Labor	20,000.00
Total	193,000.00

Proof of Funding

At a special town meeting, the town unanimously voted to approve a bond issuance of up to $1,300,000. That will cover the costs of the entire project. That document is provided below.

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

Precision Tank Inc are in charge of developing plans in conjunction with CUSA Consulting (Engineers) and implementing the tank installation. On Matinicus, Philip Davies will be the project manager who will ensure that all equipment can get to Matinicus on time. Philip Davies will be in charge of all shipping and transportation logistics.

The Plantation is responsible for the training and hiring of people to operate and maintain the fuel tank.

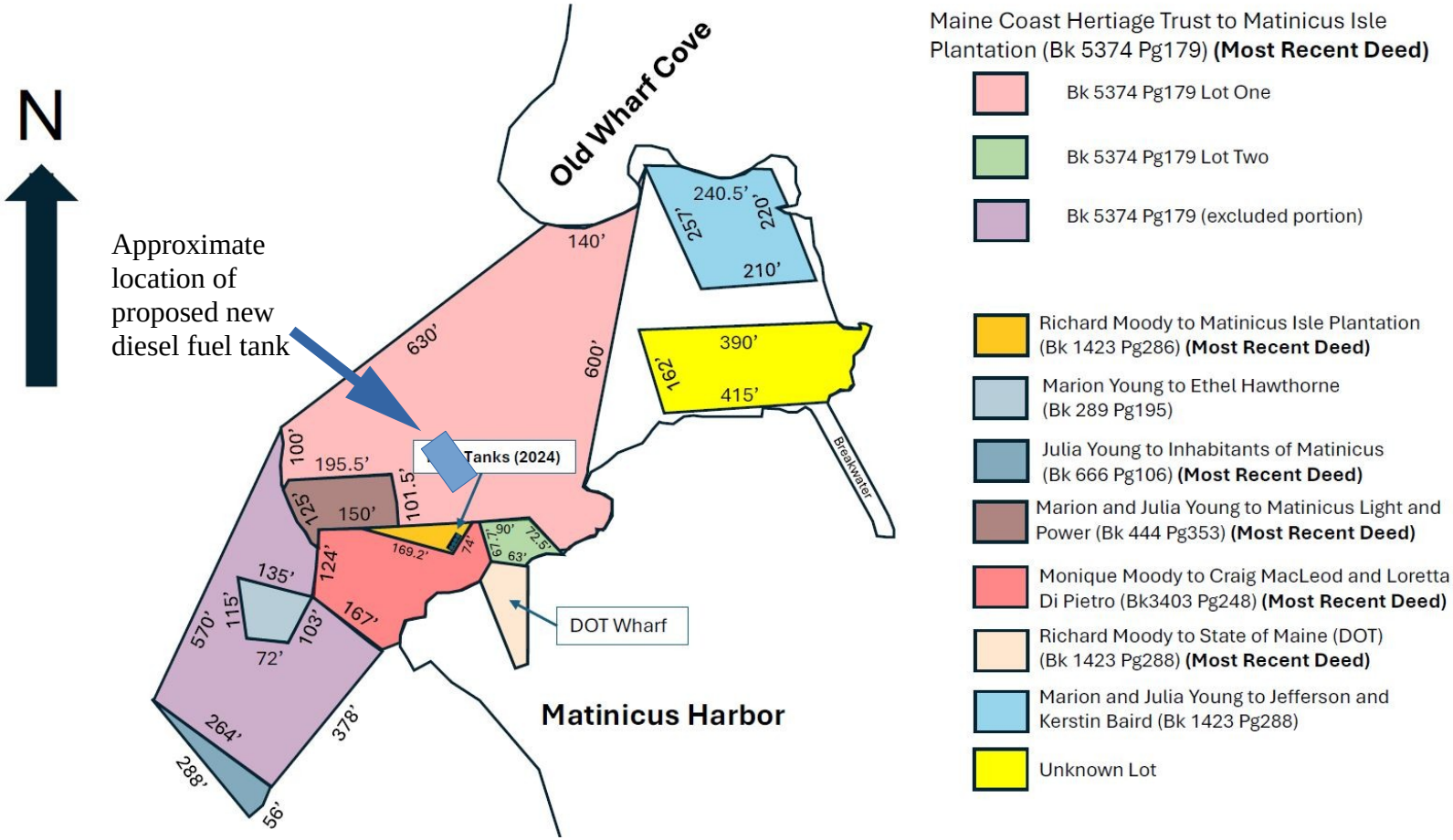
Exhibit 7: Notice of Filing

The LUPC requires the notification of owners or lessors within 1,000 ft of the proposed site. To be as transparent as possible, the Planation has 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.

Exhibit 8: Land Division History

The land division history for the plot in question is complicated. Brian Way of the LUPC investigated this history during the summer of 2024. Brian's analysis is provided below. In addition we have a survey that also provides the same information.



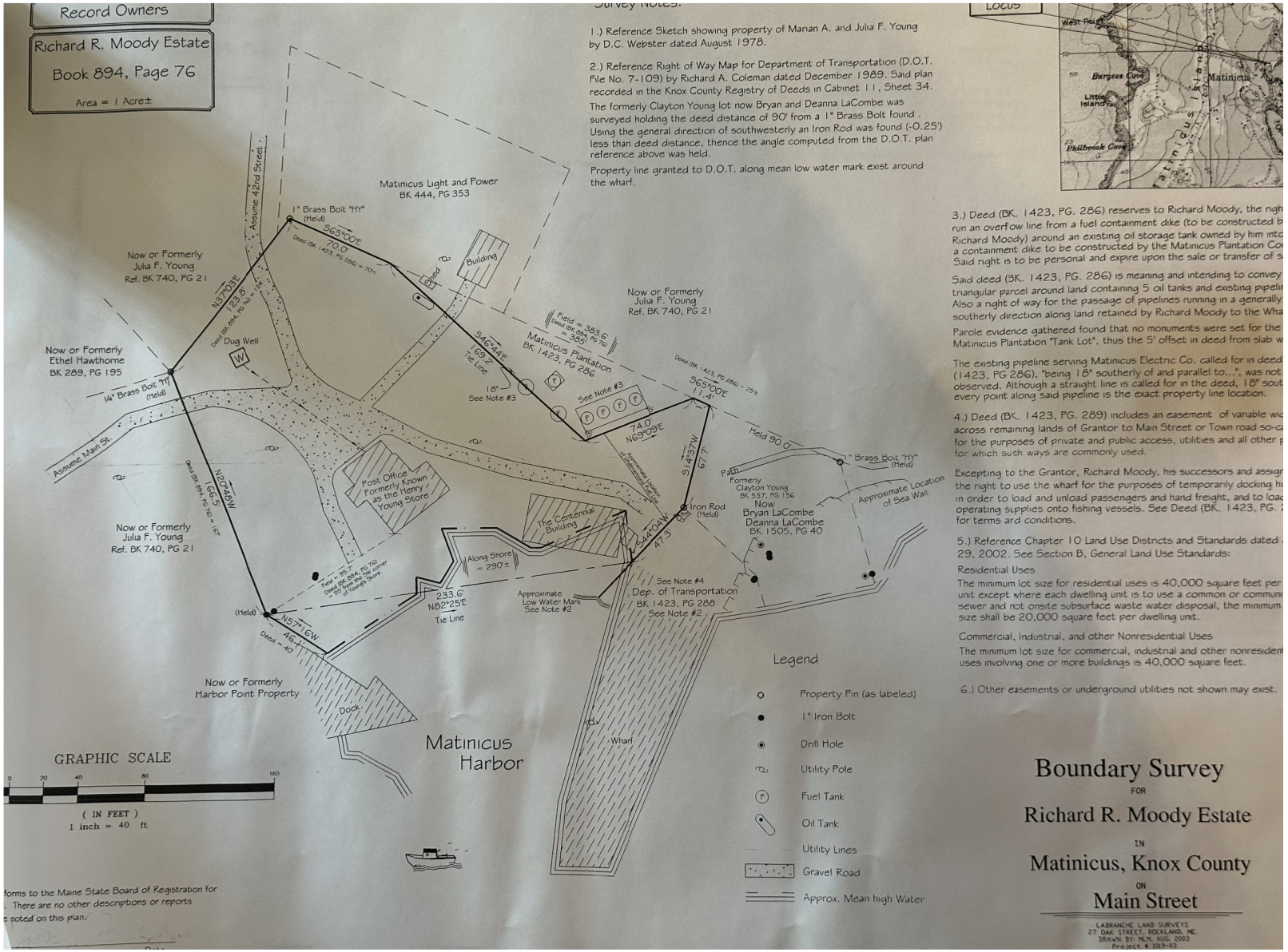

Record Owners
Richard R. Moody Estate
Book 894, Page 76
Area = 1 Acre±
Survey Notes:
1.) Reference Sketch showing property of Marian A. and Julia F. Young by D.C. Webster dated August 1978.
2.) Reference Right of Way Map for Department of Transportation (D.O.T. File No. 7-109) by Richard A. Coleman dated December 1989. Said plan recorded in the Knox County Registry of Deeds in Cabinet 11, Sheet 34.
The formerly Clayton Young lot now Bryan and Deanna LaCombe was surveyed holding the deed distance of 90' from a 1" Brass Bolt found. Using the general direction of southwesterly an Iron Rod was found (-0.25') less than deed distance, thence the angle computed from the D.O.T. plan reference above was held.
Property line granted to D.O.T. along mean low water mark exist around the wharf.
Matinicus Light and Power BK 444, PG 353
1" Brass Bolt "HY" (Held)
S65°00'E 70.0'
Deed (BK. 1423, PG 286) = 70'±
Assume 42nd Street
Now or Formerly Julia F. Young Ref. BK 740, PG 21
N37°03'E 123.9'
Deed (BK. 894, PG 76) = 124'±
Dug Well
Now or Formerly Ethel Hawthorne BK 289, PG 195
1/4" Brass Bolt "HY" (Held)
Assume Main St.
N20°48'W 160.5'
Deed (BK. 894, PG 76) = 162'±
Now or Formerly Julia F. Young Ref. BK 740, PG 21
Post Office Formerly Known as the Henry Young Store
Field
Building
Matinicus Plantation BK. 1423, PG 286
S46°44'E 169.2' Tie Line
18" See Note #3
Field = 383.6' Deed (BK. 894, PG 76) = 385'±
Now or Formerly Julia F. Young Ref. BK 740, PG 21
See Note #3
S65°00'E 11.4'
Deeds (BK. 1423, PG 286) = 25'±
74.0' N69°09'E
S14°37'W 67.7'
Held 90.0'
1" Brass Bolt "HY" (Held)
Path
Formerly Clayton Young BK 537, PG 156
Now Bryan LaCombe Deanna LaCombe BK 1505, PG 40
Approximate Location of Sea Wall
Iron Rod (Held)
S44°04'W 47.3'
The Centennial Building
Approximate Edge of Asphalt Path
Along Shore = 290'±
Approximate Low Water Mark See Note #2
See Note #4 Dep. of Transportation BK 1423, PG 288 See Note #2
N82°25'E 233.6' Tie Line
(Held)
N57°16'W 46.1'
Deed = 46'
Now or Formerly Harbor Point Property
Dock
Wharf
Matinicus Harbor
Legend
Property Pin (as labeled)
1" Iron Bolt
Drill Hole
Utility Pole
Fuel Tank
Oil Tank
Utility Lines
Gravel Road
Approx. Mean high Water
GRAPHIC SCALE
0 20 40 80 160
(IN FEET)
1 inch = 40 ft.
forms to the Maine State Board of Registration for
. There are no other descriptions or reports
e noted on this plan.
Date
LOCUS
West Point
Burgess Cove
Matinicus
Little Island
Philbrook Cove
3.) Deed (BK. 1423, PG. 286) reserves to Richard Moody, the right
run an overfow line from a fuel containment dike (to be constructed b
Richard Moody) around an existing oil storage tank owned by him into
a containment dike to be constructed by the Matinicus Plantation Co
Said right is to be personal and expire upon the sale or transfer of s
Said deed (BK. 1423, PG. 286) is meaning and intending to convey
triangular parcel around land containing 5 oil tanks and existing pipeli
Also a right of way for the passage of pipelines running in a generally
southerly direction along land retained by Richard Moody to the Wha
Parole evidence gathered found that no monuments were set for the
Matinicus Plantation "Tank Lot", thus the 5' offset in deed from slab w
The existing pipeline serving Matinicus Electric Co. called for in deed
(1423, PG 286), "being 18" southerly of and parallel to...", was not
observed. Although a straight line is called for in the deed, 18" sout
every point along said pipeline is the exact property line location.
4.) Deed (BK. 1423, PG. 289) includes an easement of variable wi
across remaining lands of Grantor to Main Street or Town road so-c
for the purposes of private and public access, utilities and all other p
for which such ways are commonly used.
Excepting to the Grantor, Richard Moody, his successors and assig
the right to use the wharf for the purposes of temporarily docking h
in order to load and unload passengers and hand freight, and to loa
operating supplies onto fishing vessels. See Deed (BK. 1423, PG.
for terms ard conditions.
5.) Reference Chapter 10 Land Use Districts and Standards dated
29, 2002. See Section B, General Land Use Standards:
Residential Uses
The minimum lot size for residential uses is 40,000 square feet per
unit except where each dwelling unit is to use a common or commun
sewer and not onsite subsurface waste water disposal, the minimum
size shall be 20,000 square feet per dwelling unit.
Commercial, Industrial, and other Nonresidential Uses
The minimum lot size for commercial, industrial and other nonresident
uses involving one or more buildings is 40,000 square feet.
6.) Other easements or underground utilities not shown may exist.
Boundary Survey
FOR
Richard R. Moody Estate
IN
Matinicus, Knox County
ON
Main Street
LABRANCHE LAND SURVEYS
27 OAK STREET, ROCKLAND, ME.
DRAWN BY: MLH, AUG. 2003
Project # 1019-83

Exhibit 9: Structures, Features, and Uses

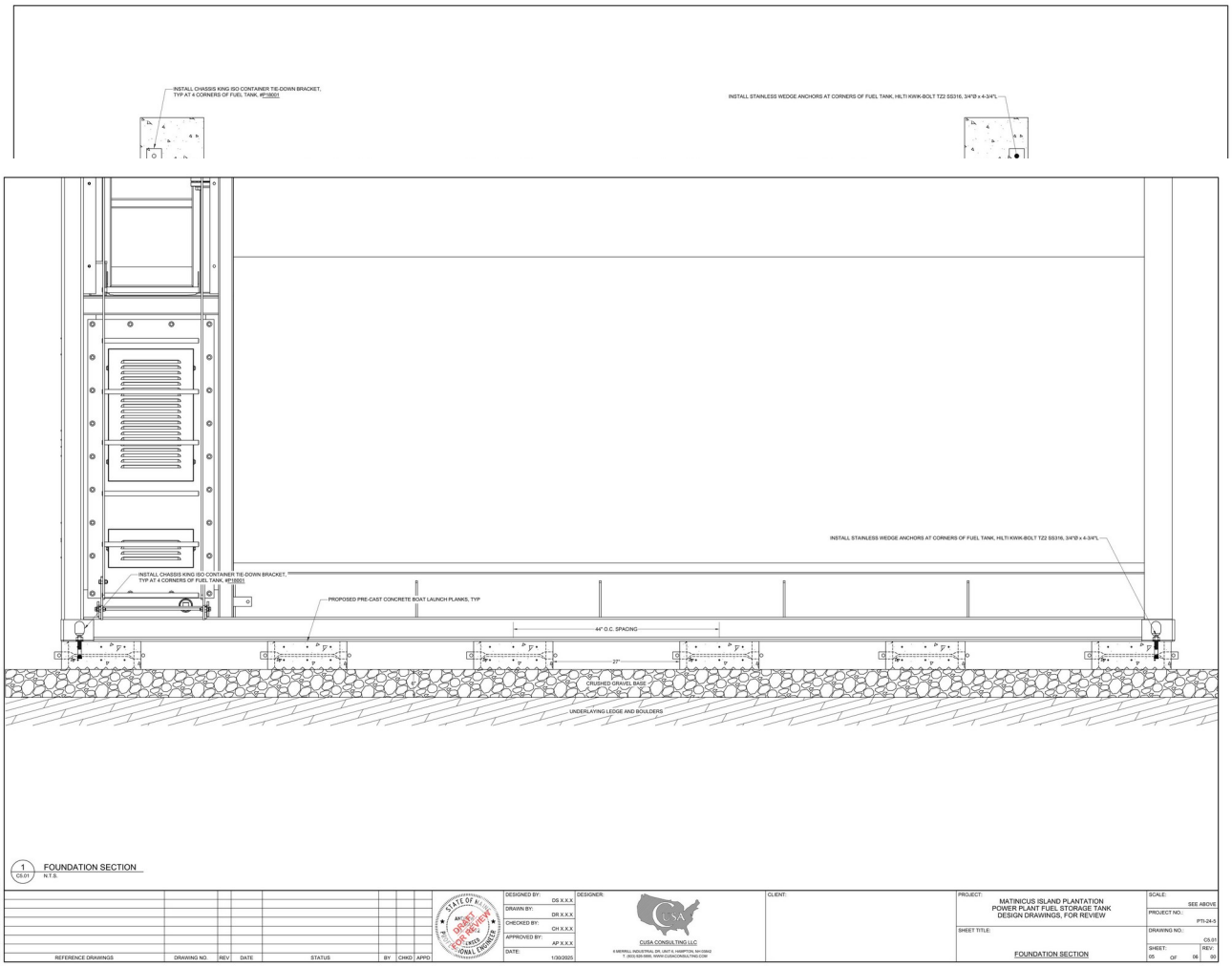
Site Uses:
The site is currently unused. There are no structures on the property. The proposal is to use 500 sqft for the diesel storage tank and approximately 2000 sqft as a gravel parking area where the diesel fuel trailer will be located.

Site Conditions:

- The site was quarried many years ago. As a result the granite ledge is very close to the surface which will help provide a firm base for the fuel tank.
- Flycatcher conducted a part of their soil sample analysis in the area under consideration. Please see their reports for further details. There was no indication of a wetland area.
- The area where the fuel tank and parking area are proposed is level.
- The existing vegetation is tree stumps and a few raspberry clumps. The site suffered from extensive blowdowns in the winter storms last year which have since been cleaned up to ensure the power plant, fuel tanks, and pipeline cannot be impacted by falling trees.
- Flycatcher did not identify any special natural areas.
- The plantation is unaware of any unique cultural or historical significance to the land.

Structure Foundations:

We will create a 5-8 inch deep layer of clean 1.5-2.5 inch crushed stone. The crushed stone will be compacted. The fuel tank will be installed as per the diagrams below:



Structures Table Applicant/Project Name: Matinicus Plantation – Diesel Fuel Tank Replacement

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																				
Diesel Storage Tank	2025	☐	■	☐	☐	☐	☐	☐	☐	☐	20 x 8 x 11 (P)	Concrete Pads	0	0	100	35	NA	NA	258	153

Infrastructure Table: Applicant/Project Name: Matinicus Plantation – Diesel Fuel Tank Replacement

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. Sust. 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 Turnaround/Parking	☐	☐	☐	☐	☐	☐	☐	62 x 32	2025	0	0	103	38	NA	NA	250	175

Exhibit 10: Site Plans

Matinicus Plantation owns the property.

Engineered Site plans for the fuel tank replacement project are provided in Exhibit 2. Please note that in the site diagram a reference is made to “a proposed modular power plant”. This is incorrect and should be ignored. It has no impact on the diagram for the fuel tank replacement project.

Water Pollution: There are several potential sources of water pollution

During site preparation:

- Any excess topsoil or mulch will be hauled off site and utilized in garden beds. The Plantation 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 Removal of Existing Tanks and Pipelines

- During the cleaning and emptying of the pipelines and fuel tanks there is the potential for a diesel spill. To mitigate that risk the Plantation has hired Precision Tank Inc to handle all aspects of that operation. Precision Tank Inc are an experienced tank installation and removal company working throughout the north east.

During regular operations:

- Precision Tank will be developing a formal Spill Prevention Plan for the Plantation and keeping it updated as required.
- There is the possibility of a diesel fuel spill. The tank is UL 142 compliant, double walled with 110% containment with overflow prevention. The connections to the tank are made inside a water tight enclosure so that spills cannot result in water pollution. Absorbent pads for small spills of diesel will be stored on site.
- There is an additional connection required between the Plantation’s fuel lines and the Fuel Barge fuel lines. A diagram of the container in which the connection will be made can be found in the engineered diagrams below
- The diesel fuel tank enclosure will be locked to prevent unauthorized access and potential spills.

Wildlife Passage: There is no fencing around the fuel storage tank.

Exhibit 11: Site Photographs

View of Property from Harbor. Note a significant elevation rise. Location is protected from ocean via a granite ledge that is almost as high as the containment wall around the existing tanks.

Fuel Tank Location close to the large brush pile:

Parking Area:

View of Fuel Tank Location from other side of site.

Exhibit 12: Fire, Police and Ambulance Protection

I met with the Island Fire Chief, Jeff Messer, and walked him through the proposal.

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.

Re: Matinicus Plantation Diesel Tank Proposal

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

To phil.davies@protonmail.com

Date Monday, February 3rd, 2025 at 10:07 AM

Phil,
Thank you for recently reviewing the proposed plans of the new Matinicus fuel storage facility and trailers 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

2024 Best Places to Work in ME

Jeffrey Messer
President/Owner

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

messerbuilt.com

Exhibit 13: Solid Waste Disposal

Construction Wastes: The project will generate little solid waste on Matinicus. Once the existing tanks and pipelines have been decommissioned and cleaned, they may be repurposed for other projects on Matinicus, or they may be cut into small pieces and hauled off the island as scrap metal.

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.

Solid Waste from Routine Operation: Solid wastes are not anticipated from routine operation of the the diesel storage tank.

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. The fuel pump utilized to pump fuel into the DOT approved fuel trailer could require electricity depending upon how it is specified. If so, there is power close by that can be easily accessed.

Telephone Service: At this time there are no plans for telephone service.

Exhibit 15: Water Supply

- There are no wells on the property.
- The plantation is not planning to drill a well.

Exhibit 16: Wastewater Disposal

There will be no wastewater generated by the diesel storage 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 fuel storage tank will be transported and installed by Cote Crane. Representatives are flying out to Matinicus later this week to assess what equipment they will require. It is anticipated that the fuel tank can be unloaded from a flatbed truck (<35ft long) with a mobile crane.

2. Vehicles during operation

The diesel storage facility will only be accessed by the people authorized to refuel the mobile DOT approved fuel tank. The mobile tank will be towed by a pickup truck.

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 parking/turnaround area is 32ft wide and 62ft long. That will allow plenty of space for the initial installation of the fuel tank and enable the refueling truck and trailer to turn without issue.

5. Parking

We do not anticipate any motor vehicles parking on site.

6. Permits

Matinicus Plantation does not require any permits for gravel parking/turnaround areas.

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.

The only noise will be the sound of fuel pumps running once or twice a week for 10-20 minutes.

Exhibit 20: Harmonious Fit and Natural Character

- Diesel Fuel Storage Tanks do not have a harmonious fit or any natural character by design.

Exhibit 21: Archaeological and Historical Resources

There are no buildings of historical interest close to the proposed site.

Exhibit 22: Rare or Special Plant Communities and Wildlife Habitat

On Jan 21st 2025 I contacted the Maine Natural Areas Program and the Maine Department of Inland Fisheries and Wildlife with regards to the project. I provided an overview of the proposed project and a kml file. Both programs responded. The responses are provided below:

MEMORANDUM Maine Natural Areas Program

Department of Agriculture, Conservation and Forestry

State House Station #177, Augusta, Maine 04333

Date: February 4, 2025

To: Phil Davies, Matinicus Isle Plt

From: Lisa St. Hilaire, MNAP Information Manager

Re: Rare and exemplary botanical features, Diesel Fuel Storage Tank Project and Associated Parking Area, Harbor 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 January 21, 2025 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.

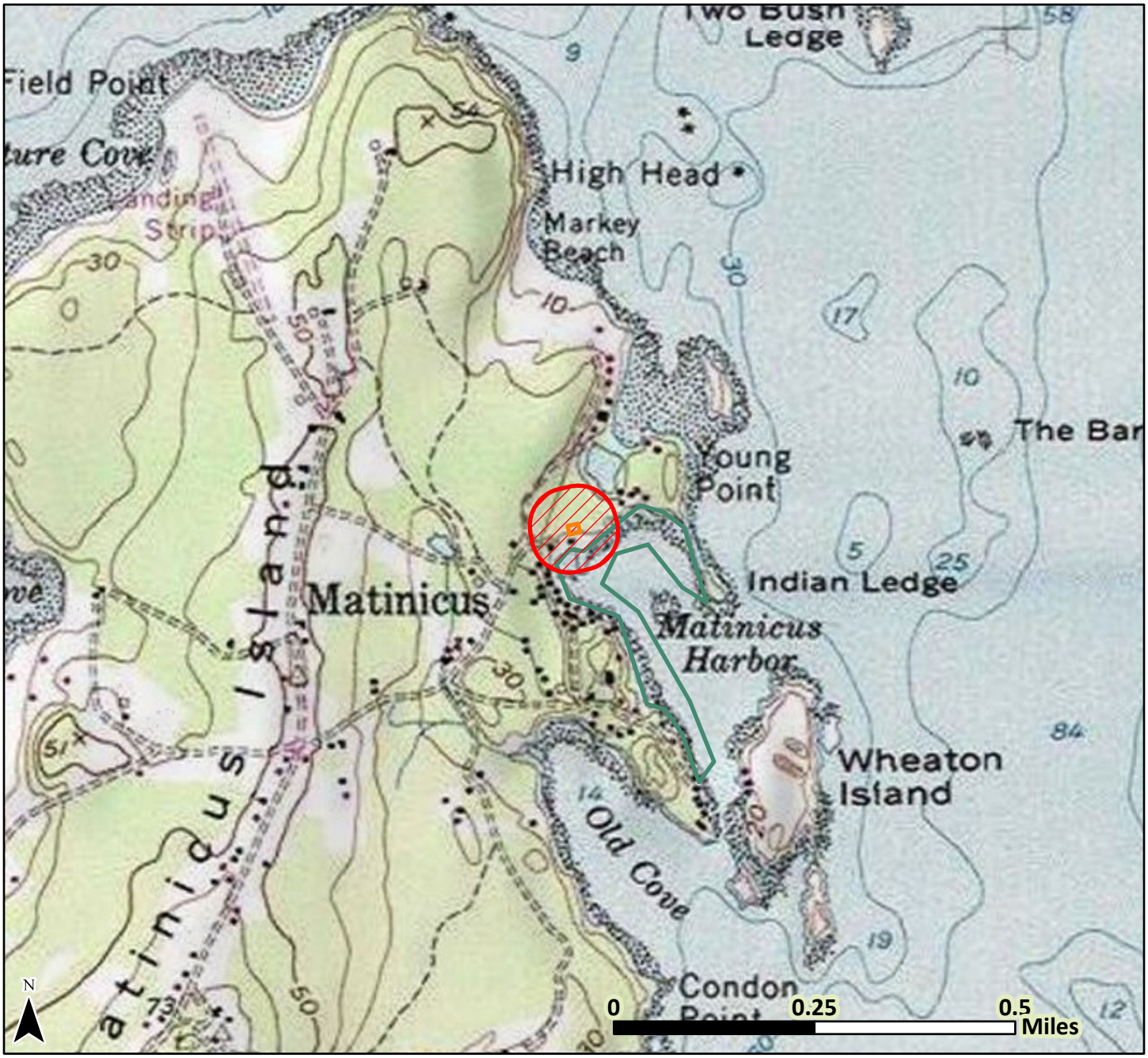
The Maine Natural Areas Program is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We welcome the contribution of any information collected if a site survey is performed.

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.

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

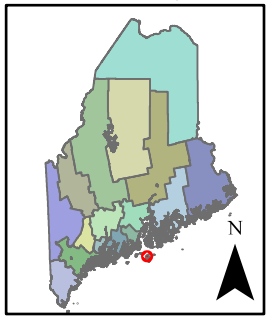
Harbor Road, Development, Matinicus Island

Project ID 8858, Version ID 10235



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

Date: 1/23/2025
Projection:
UTM Zone 19N, NAD83



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

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

February 5, 2025

Phil Davies
P.O. Box 255
Matinicus, ME 04851

RE: Information Request - Harbor Road, Development, Matinicus Island Project ID 8858

Dear Phil:

Per your request received on January 21, 2025, 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 ***Harbor Road, Development, Matinicus Island*** project, pursuant to MDIFW's authority. Per the information provided, the project involves replacement of existing diesel storage tanks in a small, recently improved area.

Our information indicates no known locations of State-listed Endangered, Threatened, or Special Concern species within the project area that would be affected by your project. Additionally, our Department has not mapped any Essential or Significant Wildlife Habitats or inland fisheries habitats that would be directly affected by your project.

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, Maine Department of Marine Resources and 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,

Ciara Wentworth
Natural Resource Biologist

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. The report covers two distinct locations. First, was the site for the proposed new power plant on Matinicus. Second was the fuel storage tank site. Two samples were dug and analyzed in the proposed area. There was no evidence that the proposed location is a wetland.

The full reports from Flycatcher are included below:

WETLAND DELINEATION REPORT: PROPOSED MATINICUS ISLAND SOLAR PROJECT

Matinicus Island Planation, Knox County, Maine

Prepared for:
Matinicus Plantation Electric Company
17 South Road,
Matinicus, Maine 04851
https://matinicusplantation.com/electric-company/

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

November 2024

Contents

Tables

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

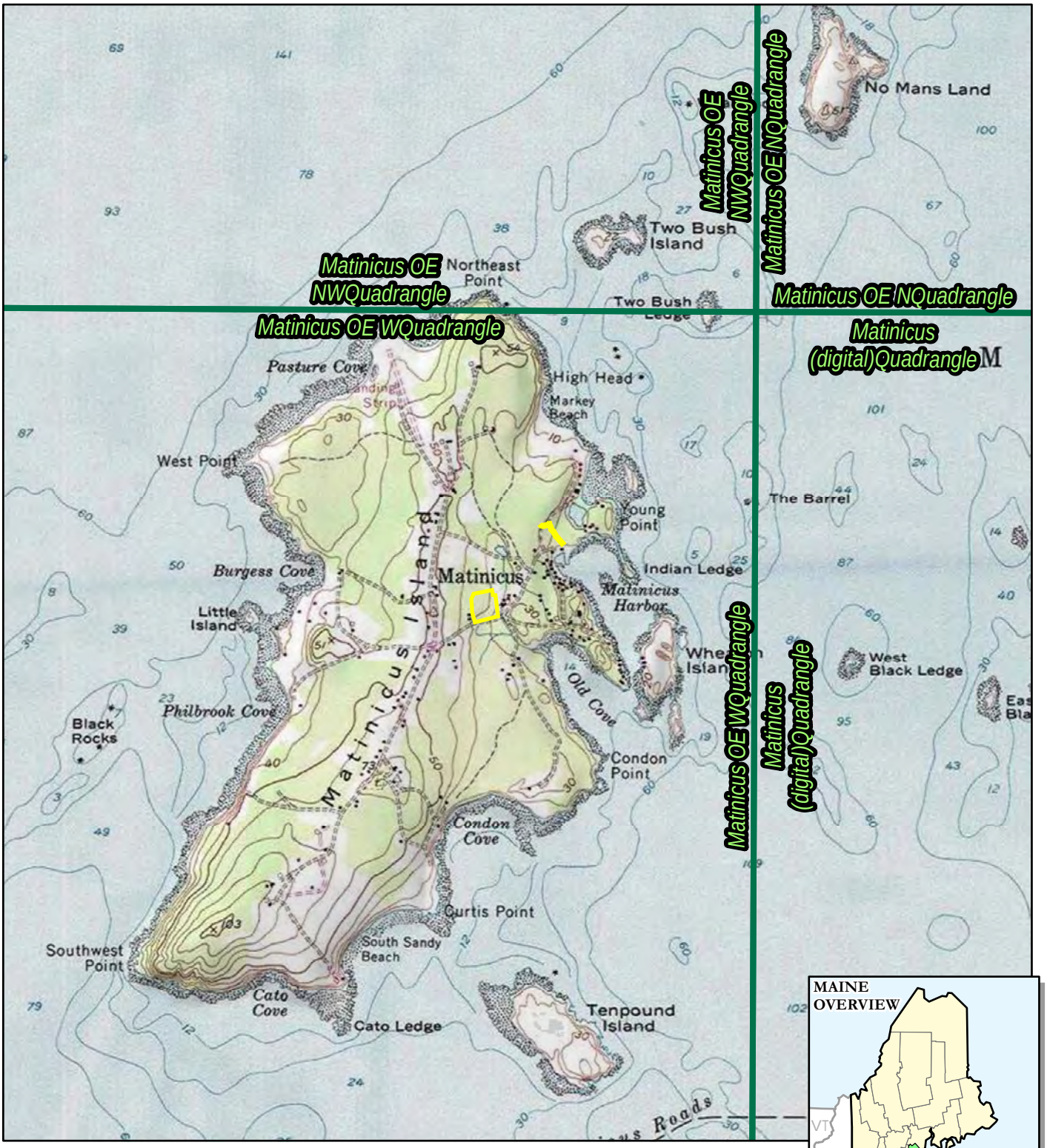
Flycatcher performed natural resource investigations and mapping within the Survey Area. Wetlands and watercourses are protected natural resources, and as such alterations of these features, and in some cases alterations of adjacent upland, require oversight and potential permitting by local, state and/or 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

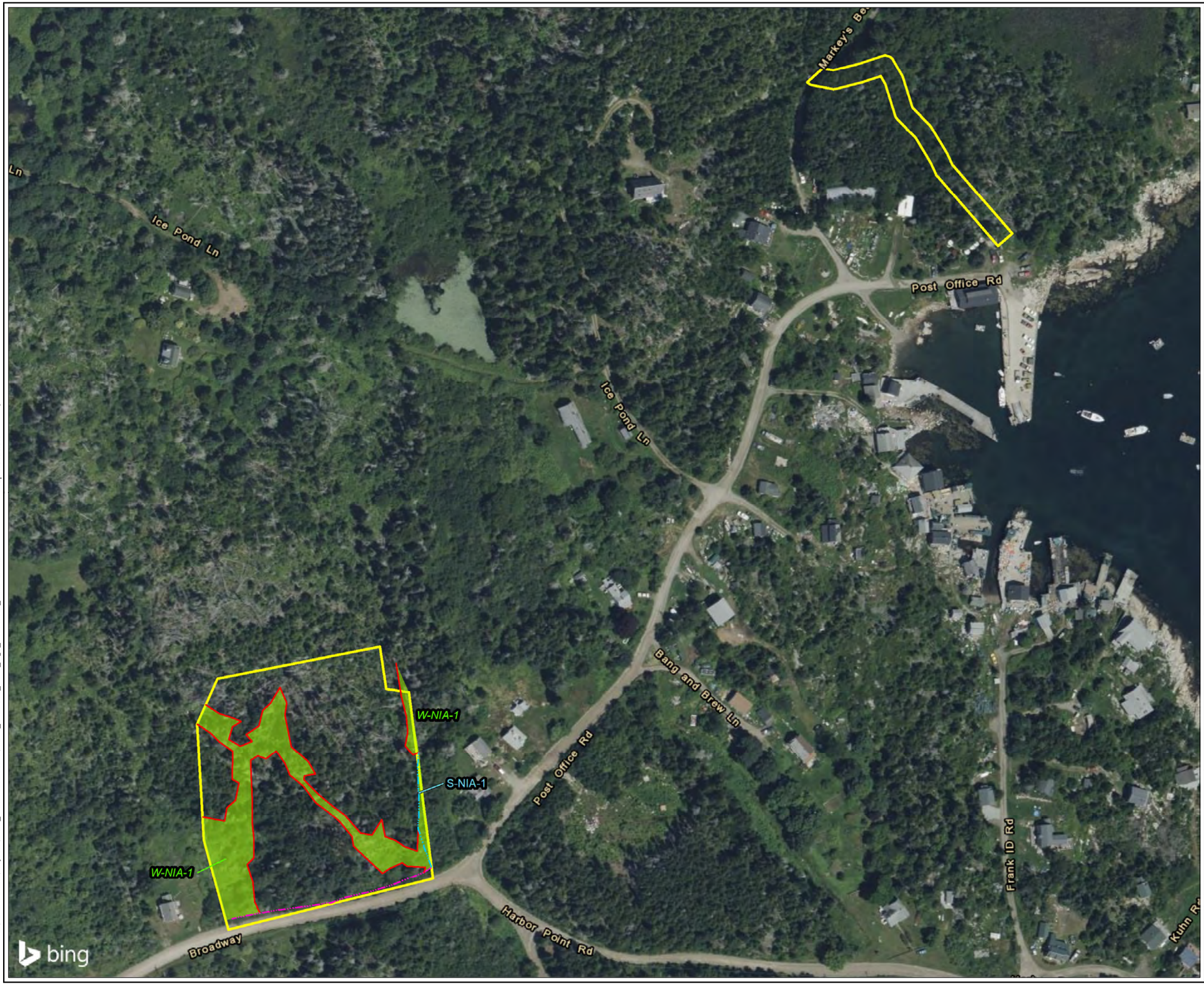
DRAWN BY:	D. KENWORTHY
CHECKED BY:	R. KELSHAW
MONTH:	NOVEMBER
YEAR:	2024
PROJ. NO.:	24ZD-001
CLIENT:	MPEC

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

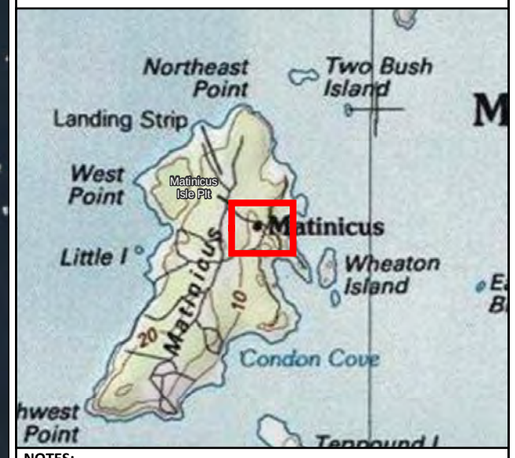
Plot Date: 11/21/2024, 16:57:35 PM by DREWKENWORTHY -- LAYOUT: ANSI B(11"x17")
Path: C:\FLYCATCHER\Projects\24ZD_MatinicusElectric\MEPC_24ZD001_Delin_Fig2_Resources_11x17L.mxd

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		

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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.

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

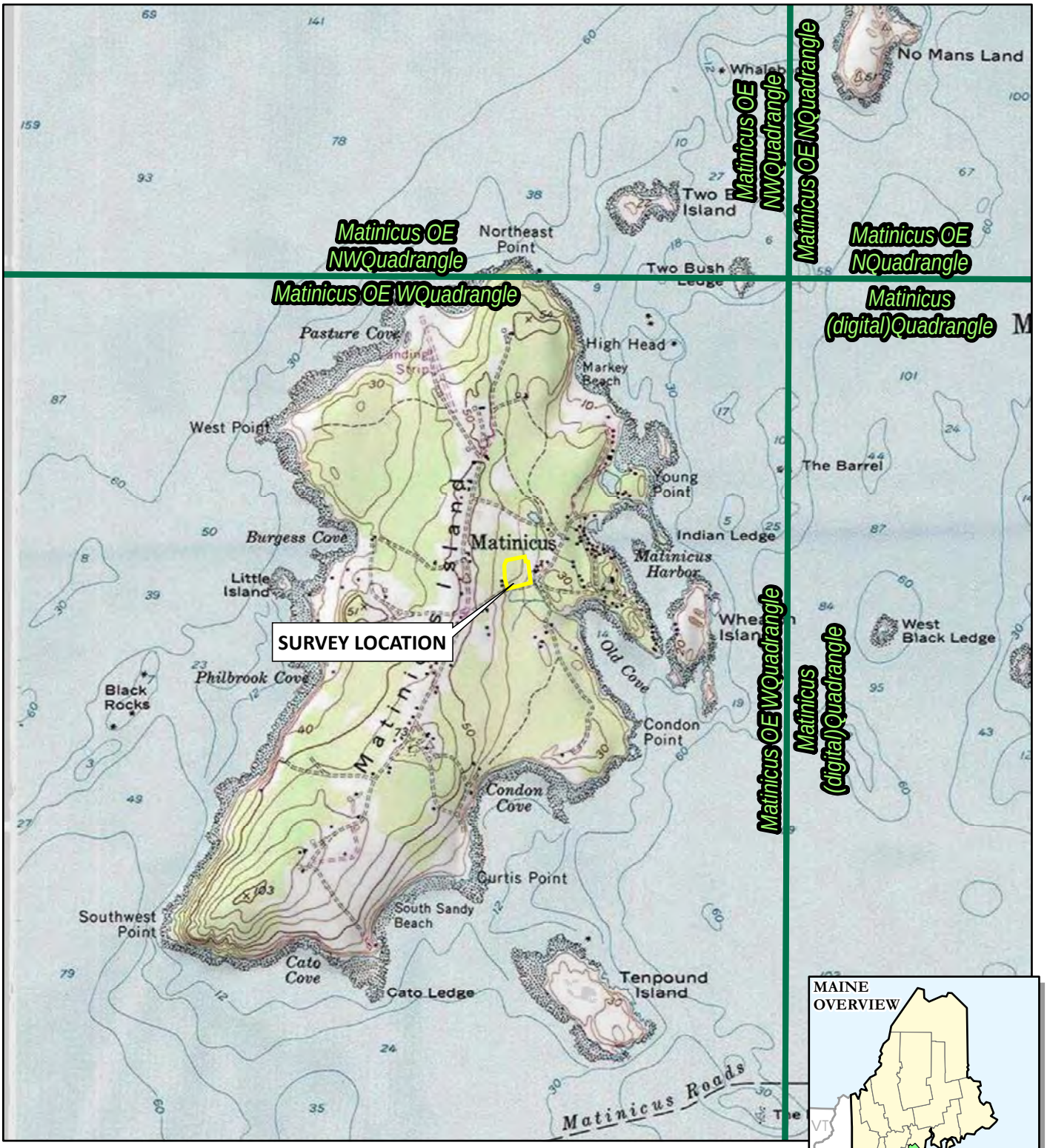
Results of this soil survey indicate that in some areas this site could require engineered designs to address the limiting factors for the proposed development. However, with proper planning, engineering, and construction techniques, the soil is adequate for the proposed project, particularly because 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:

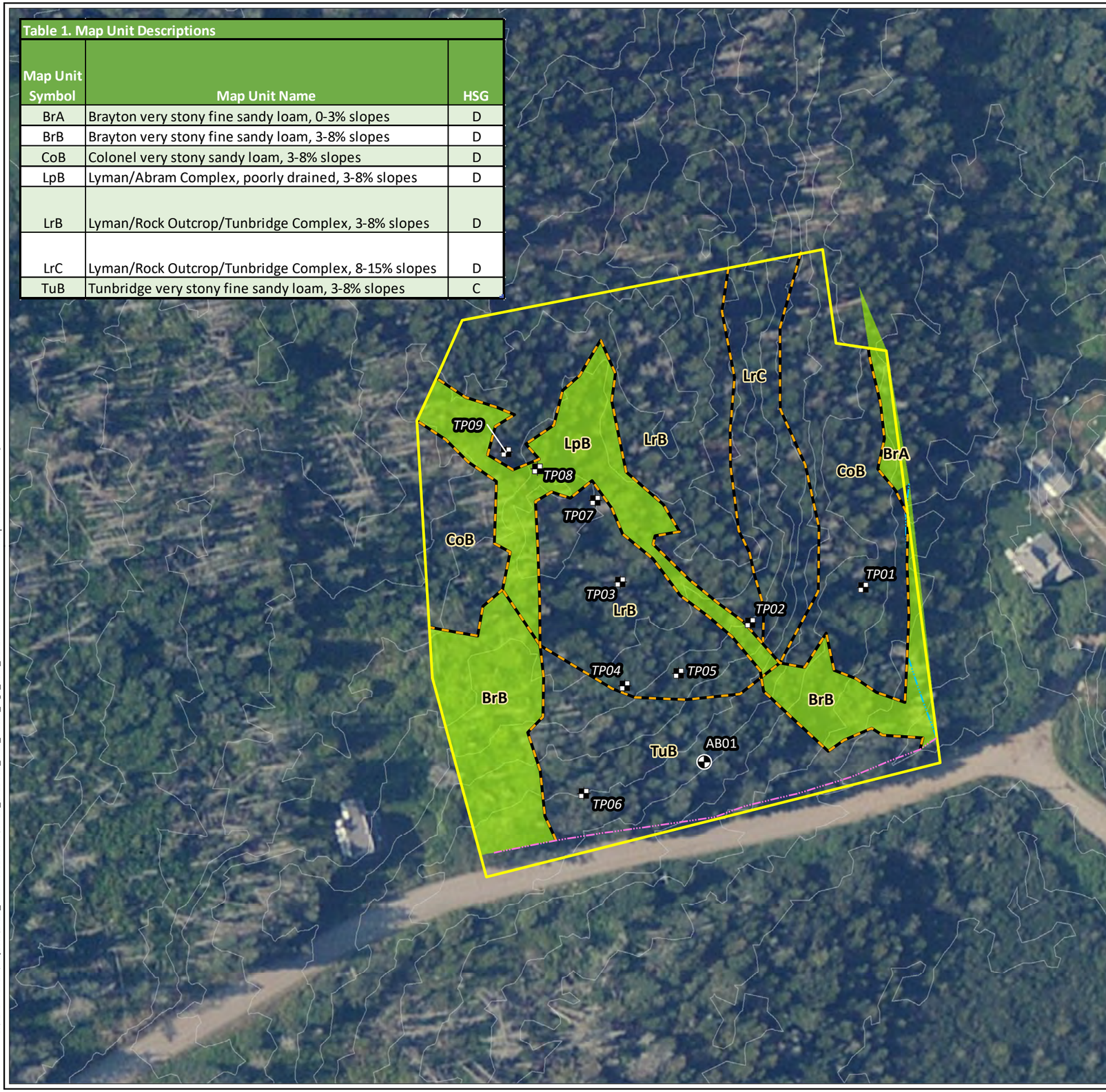
SURVEY AREA
USGS 7.5-MINUTE QUADRANGLE BOUNDARY

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

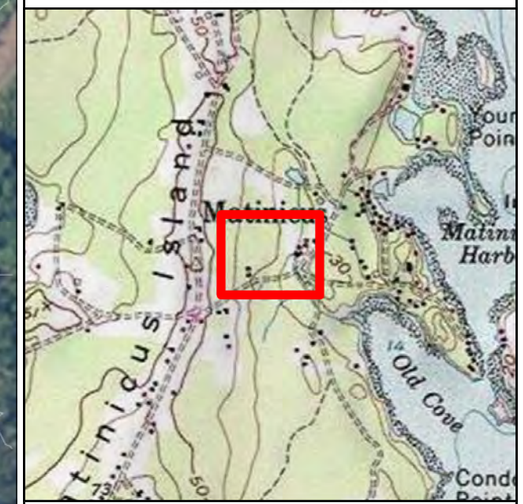
Table 1. Map Unit Descriptions		
Map Unit Symbol	Map Unit Name	HSG
BrA	Brayton very stony fine sandy loam, 0-3% slopes	D
BrB	Brayton very stony fine sandy loam, 3-8% slopes	D
CoB	Colonel very stony sandy loam, 3-8% slopes	D
LpB	Lyman/Abram Complex, poorly drained, 3-8% slopes	D
LrB	Lyman/Rock Outcrop/Tunbridge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

LICENSED SOIL SCIENTIST
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

552
License No.

affix professional seal

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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SS License No.

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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

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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

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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.

Exhibit 24: Water and Air Quality

Water Quality:

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

During site preparation:

- Any excess topsoil or mulch will be hauled off site and utilized in garden beds. The Plantation 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 Removal of Existing Tanks and Pipelines

- During the cleaning and emptying of the pipelines and fuel tanks there is the potential for a diesel spill. To mitigate that risk the Plantation has hired Precision Tank Inc to handle all aspects of that operation. Precision Tank Inc are an experienced tank installation and removal company working throughout the north east.

During regular operations:

- Precision Tank will be developing a formal Spill Prevention Plan for the Plantation and keeping it updated as required.
- There is the possibility of a diesel fuel spill. The tank is UL 142 compliant, double walled with 110% containment with overflow prevention. The connections to the tank are made inside a water tight enclosure so that spills cannot result in water pollution. Absorbent pads for small spills of diesel will be stored on site.
- There is an additional connection required between the Plantation's fuel lines and the Fuel Barge fuel lines. A diagram of the container in which the connection will be made can be found in the engineered diagrams in Exhibit 2.
- The diesel fuel tank enclosure will be locked to prevent unauthorized access and potential spills.

Air Quality:

There are no sources of air pollution.

Exhibit 25: Erosion, Sedimentation, and Drainage Control Measures

The total area of potential soil disturbance is 2500 sqft. 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.

- Stump removal work has to be conducted when the ground is not frozen solid or saturated.
- Grading and installing gravel can only proceed after a permit has been issued. The hope is that gravel and ballast installation will take place in April or the start of May depending upon ground and weather conditions. The plantation plans to utilize rock sandwiches – road fabric, then 3-5 inch clean rock, then road fabric and 3-5 inches of 1 inch minus gravel on top.
- 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 site utilized for this project is flat with gradients less than 0.5%. There are no steep slopes with significant potential for erosion in rain storms.
- The project area is small and the site construction so minimally invasive that the Plantation does not anticipate needing any permanent erosion and sedimentation control measures beyond the seeding of clover where appropriate.
- The parking area/turnaround will be re-graded twice a year to ensure adequate drainage.

Exhibit 26: Wildlife Passage

There is woodland all around the 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

Parking/Turnaround: 62 ft x 32 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 0.5%.

The parking area will be graded to ensure no pooling of water.

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