



Planning Board

Tuesday, February 13, 2024 at 6:30 pm

Town of China, Maine Planning Board Meeting - 6:30 p.m.

Agenda for Tuesday, February 13, 2024

Join Zoom meeting

Join Zoom Meeting [https://us02web.zoom.us/j/83035360063?](https://us02web.zoom.us/j/83035360063?pwd=RIM5RVlnTGFuajdwVDh0OGFWdUdVUT09)
[pwd=RIM5RVlnTGFuajdwVDh0OGFWdUdVUT09](https://us02web.zoom.us/j/83035360063?pwd=RIM5RVlnTGFuajdwVDh0OGFWdUdVUT09)

Meeting ID: 830 3536 0063 Passcode: 205919

Dial by your location

• +1 646 931 3860 US

1. Call to Order
2. Pledge of Allegiance
3. Roll Call
 - a. District 1 - Michael Brown
 - b. District 2 - Toni Wall - Co-Chair
 - c. District 3 - Elaine Mather
 - d. District 4 - Vacant
 - e. At-Large - Vacant
 - f. Alternate At-Large - Natale Tripodi
4. Approval of Minutes for January 23, 2024
5. Unfinished business

- a. 15 Mian Street

White- Conditional Use Application

Attachments:

- **White - CU Application** (White_-_CU_application__revised_.pdf)

- b. Chapter 2/Chapter 11 LUO

Proposed changes

6. New business

- a. Pit Road Solar

Perennial Sand Pit Solar - Conditional Use Application

Attachments:

- **Perennial Sand Pit Solar- CU Responses** (Perennial_Sand_Pit_Solar_-_CU_Responses.pdf)
- **Perennial Sand Pit Solar- Exhibit A** (Perennial_Sand_Pit_Solar_-_Exhibit_A.pdf)

- **Perennial Sand Pit Solar- PB App** (Perennial_Sand_Pit_Solar_-_PB_App.pdf)

7. **Code Enforcement Officer report**
8. **Public comment**
9. **Planning Board members comments and communications**
10. **Next meeting - February 27, 2024**
11. **Adjourn**

| Agenda published on 02/08/2024 at 11:21 AM

1/30/2024

Town of China
Conditional Use Permit Application

Conditional Use Permits: The Planning Board shall approve a Conditional Use Application if all of the following criteria are met inclusive of conditions:

1. The proposed use will meet the definition or specific requirements set forth in this Ordinance or will be in compliance with applicable State or Federal laws.

Findings and statement of reasons: The proposed use is permitted in accordance with the China Land Development Code, Chapter 2, Land Use Ordinance, Section 4, USES, Item# 15, regarding the Multi Unit Dwelling for the purposes of Apartments. The property is located in a RURAL District at the location of 15-17 MAIN ST in China, Maine. China Tax Map 62, Lot 60 identifies the property. The proposal is permitted with a conditional use permit from the Planning Board.

Response: MEETS ALL REQUIREMENTS EXCEPT LOT SIZE

2. The proposed use will not create fire safety hazards by providing adequate access to the site, or to the buildings on the site, for emergency vehicles.

Response: PARKING FOR RESIDENTS WILL BE LOCATED ALONG THE SOUTHERN & WESTERLY SIDE OF THE BUILDING ALLOWING SPACE FOR EMERGENCY SERVICES TO OPERATE SAFELY

3. The proposed exterior lighting will not create hazards to motorists traveling on adjacent public streets, and is adequate for the safety of occupants or users of the site, or will not damage the value and diminish the usability of adjacent properties.

Response: EXTERIOR LIGHTING FOR THE PARKING AREAS AND ENTRANCES WILL BE EITHER DOWNWARD FACING AND OR MOTION SENSED TO PREVENT DISTRACTION OF MOTORIST

4. The provisions for buffers and on-site landscaping will provide adequate protection to neighboring properties from detrimental features of the development.

Response: NO ADDITIONAL BUFFERING IS PLANNED AT THIS TIME

5. The proposed use will not have a significant detrimental effect on the use and peaceful enjoyment of abutting property as a result of noise, vibrations, fumes, odor, dust, glare or other cause.

Response: BEING A RESIDENTIAL FACILITY IT WILL PRODUCE MINIMAL NOISE, FUMES, ODOR, DUST OR OTHER CONTAMINANT DETRIMENTAL TO ADJUTERS

6. The provisions for vehicular loading and unloading and parking, and for vehicular and pedestrian circulation on the site and onto adjacent public streets will not create hazards to safety.

Response: THERE WILL BE PARKING AREAS NEAR THE BUILDING TO MINIMIZE ANY POTENTIAL HAZARDS TO SAFETY

7. The proposed use will not have a significant detrimental effect on the value of adjacent properties or could be avoided by reasonable modification of the plan.

Response: SILVER LAKE GRANGE HAS EXISTED SINCE 1908 AND ANY ENHANCEMENTS OR REPAIRS WILL NOT BE DETRIMENTAL TO ADJACENT PROPERTY'S

8. The design of the site will not result in significant flood hazards or flood damage or is in conformance with applicable flood hazard protection requirements.

Response: THE LOT IS NOT LOCATED IN A FLOOD ZONE

9. Adequate provision has been made for disposal of wastewater, or solid waste, or for the prevention of ground or surface water contamination.

Response: AN ADEQUATE SUBSURFACE WASTE WATER DISPOSAL DESIGN IS CORRECTLY BEING DEVELOPED BY A LICENSED SITE EVALUATOR.

10. Adequate provision has been made to control erosion or sedimentation.

Response: I HAVE OWNED THE BUILDING SINCE 1989 AND HAVE NOT SEEN ANY SIGNS OF EROSION OR SEDIMENTATION ON SITE

11. Adequate provision has been made to handle storm water runoff or other drainage problems on the site.

Response: HAVE NOT SEEN ANY SIGNS OF WATER RUN OFF OR DRAINAGE PROBLEMS (ALONG MAIN STADITCH & CATCH BASIN INSTALLED BY STATE)

12. The proposed water supply will meet the demands of the proposed use or for fire protection purposes.

Response: SEE LETTER PROVIDED BY:
CABLE TOOL WELL CO.

13. Adequate provision has been made for the transportation, storage, and disposal of hazardous substances and materials as defined by State law.

Response: BEING RESIDENTIAL IN NATURE, THERE WILL BE NO HAZARDOUS SUBSTANCE OR MATERIALS TRANSPORTED OR STORED ON SITE

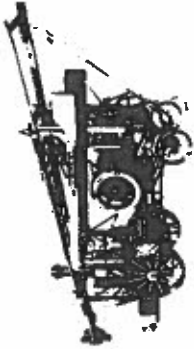
14. The proposed use will not have an adverse impact on significant scenic vistas or on significant wildlife habitat or could be avoided by reasonable modification of the plan.

Response: THERE WILL BE NO IMPACT ON SIGNIFICANT SCENIC OR WILDLIFE HABITATS

15. When located in the Resource Protection District, Stream Protection District, Shoreland District, the proposed use will meet the standards in Section 5 of this Ordinance.

Response:

THIS PROPERTY IS IN THE RURAL DISTRICT



CABLE TOOL WELL CO.

872-9030

RD #3 BOX 1750
TAYLOR AVENUE
WINSLOW, ME. 04901

9-16-91 OLD STYLE DRILLING

Carol White Chino Main St.

DESCRIPTION

Apartment House in Chino
6 Unit - Can get surface
supply water to operator

A Service Charge of 1 1/2% per month is added to balances over 30 days.

SECTION 3

CONDITIONAL USE STANDARDS

1. The proposed use will meet the definition or specific requirements set forth in this Ordinance or will be in compliance with applicable State or Federal laws.

The proposed project will meet the definition or specific requirements set forth in this Ordinance. Additionally, all applicable State and Federal approvals will be obtained prior to construction of the proposed project. Three permit applications, including a Natural Resources Protection Act (NRPA) Permit by Rule (PBR), a Stormwater Management Law (SW) Permit by Rule (PBR), and a Decommissioning Application, have been submitted to the Maine Department of Environmental Protection for review and approval. A copy of the Decommissioning application has been provided in Attachment 3.3.

2. The proposed use will not create fire safety hazards by providing adequate access to the site, or to the buildings on the site, for emergency vehicles.

The proposed project will include the construction of a 20-foot-wide access driveway leading to the entrance of the array. No hazards will be created by the construction of the access road. The access drive has been designed to accommodate and support utility trucks and emergency vehicles and provides the required turn-around space. The project will include a 16-foot-wide road to access the perimeter of the solar array.

Perennial Renewables worked with the South China Volunteer Fire Department Chief, Richard Morse, to understand any additional safety requirements needed for the project. Chief Morse suggested four different outdoor model Knox Locks, and sent Perennial a promotional sheet for Knox, identifying the outdoor models that would suffice.

The project will include the installation of a 20-foot-wide vehicle access gate located at the front of the array and will be equipped with one of the Knox models, with a key provided to Chief Morse and his Department. See Attachment 3.1 for correspondence with the Fire Chief. Attachment 3.2 references the model of Knox to be used on the site.

3. The proposed exterior lighting will not create hazards to motorists traveling on adjacent public streets and is adequate for the safety of occupants or users of the site or will not damage the value and diminish the usability of adjacent properties.

The proposed project is cited to be located in the existing gravel pit on Pit Road. The current access drive serves three single-family residential homes and the owner of the gravel pit. The access drive is sufficiently constructed and does not require any improvements to serve the proposed project with the exception of utility poles. The proposed project will not adversely impact or diminish the usability of adjacent properties. There is no lighting proposed as part of the site development.

4. The provisions for buffers and on-site landscaping will provide adequate protection to neighboring properties from detrimental features of the development.

The proposed project is sited within a portion of the existing gravel pit. The gravel pit is approximately 1,200 linear feet setback from Route 32. The project site contains an existing approximately 800 linear foot forested buffer that will act as a screen and will protect neighboring properties from the proposed project.

5. The proposed use will not have a significant detrimental effect on the use and peaceful enjoyment of abutting property as a result of noise, vibrations, fumes, odor, dust, glare or other cause.

The proposed project will not create vibrations, fumes, odors, dust, glare or any other detrimental effect on the use and peaceful enjoyment of abutting property.

6. The provisions for vehicular loading and unloading and parking, and for vehicular and pedestrian circulation on the site and onto adjacent public streets will not create hazards to safety.

The project will contain sufficient access to support facility operators and maintenance staff. The project site is considered private property and will not include pedestrian access.

7. The proposed use will not have a significant detrimental effect on the value of adjacent properties or could be avoided by reasonable modification of the plan.

The proposed project will not impact the value of adjacent properties.

8. The design of the site will not result in significant flood hazards or flood damage or is in conformance with applicable flood hazard protection requirements.

The project site is located in an Area of Minimal Flood Hazard or Zone X according to the FEMA Firm Panel 23011C0390D, dated June 16, 2011. The development of the project site will not result in any flood hazard or damage. See Attachment 2.3 in Section 2.

9. Adequate provision has been made for disposal of wastewater, or solid waste, or for the prevention of ground or surface water contamination.

The proposed project does not require a subsurface wastewater disposal system as there will not be an outbuilding for employees. All solid waste associated with the proposed project will be generated during the construction of the solar array as there will be no operational waste. The project site will not require any tree clearing to accommodate the proposed project. There will be minor clearing of small brush and overgrown meadow along the western edge of the site. Solid waste would be created from the decommissioning of the solar array after the life of the project. All solid waste will be disposed of in accordance with local, state, and federal regulations. A decommissioning permit application has been submitted to the Maine Department of Environmental Protection. Additionally, a Phase 1 Environmental Site Assessment (ESA) was conducted by BBG Assessments, LLC in December of 2023 to support planning and permitting of the proposed project. A copy of the Executive Summary from the Phase 1 is provided in Attachment 3.4. A full copy of the Phase 1 ESA can be provided to the Planning Board upon request.

10. Adequate provision has been made to control erosion or sedimentation.

The proposed project has been designed to include stormwater best management practices to control erosion and sedimentation during the construction and operation of the solar facility - See Section 9 of application.

11. Adequate provision has been made to handle stormwater runoff or other drainage problems on the site.

The proposed project has been designed to meet the Phosphorus Control Ordinance – See Section 9 of application.

12. The proposed water supply will meet the demands of the proposed use or for fire protection purposes.

The proposed project does not require water capacity as there will not be an outbuilding for employees. The project site will have a perimeter fence and a gated entrance. The applicant has been in conversation with Richard Morse, head of the fire department in China. Based on those conversations, the applicant is planning to install a Knox padlock to allow access to the fire department in case of a fire. The applicant is willing to offer training to the local Fire Department, if desired.

13. Adequate provision has been made for the transportation, storage, and disposal of hazardous substances and materials as defined by State law.

The proposed solar array will not include the transportation, storage, or disposal of any hazardous substances or materials.

14. The proposed use will not have an adverse impact on significant scenic vistas or on significant wildlife habitat or could be avoided by reasonable modification of the plan.

The project site does not contain any significant wildlife habitat. The proposed project will not have an adverse impact on significant scenic vistas, as the solar array will be located within the existing gravel pit. See Section 5 for details about wildlife habitats on and near the project site.

15. When located in the Resource Protection District, Stream Protection District, Shoreland District, the proposed use will meet the standards in Section 5 of this Ordinance.

The project site is not located in the Resource Protection District, Stream Protection District, or Shoreland District and therefore is not required to meet the standards in Section 5 of this Ordinance.

Attachments

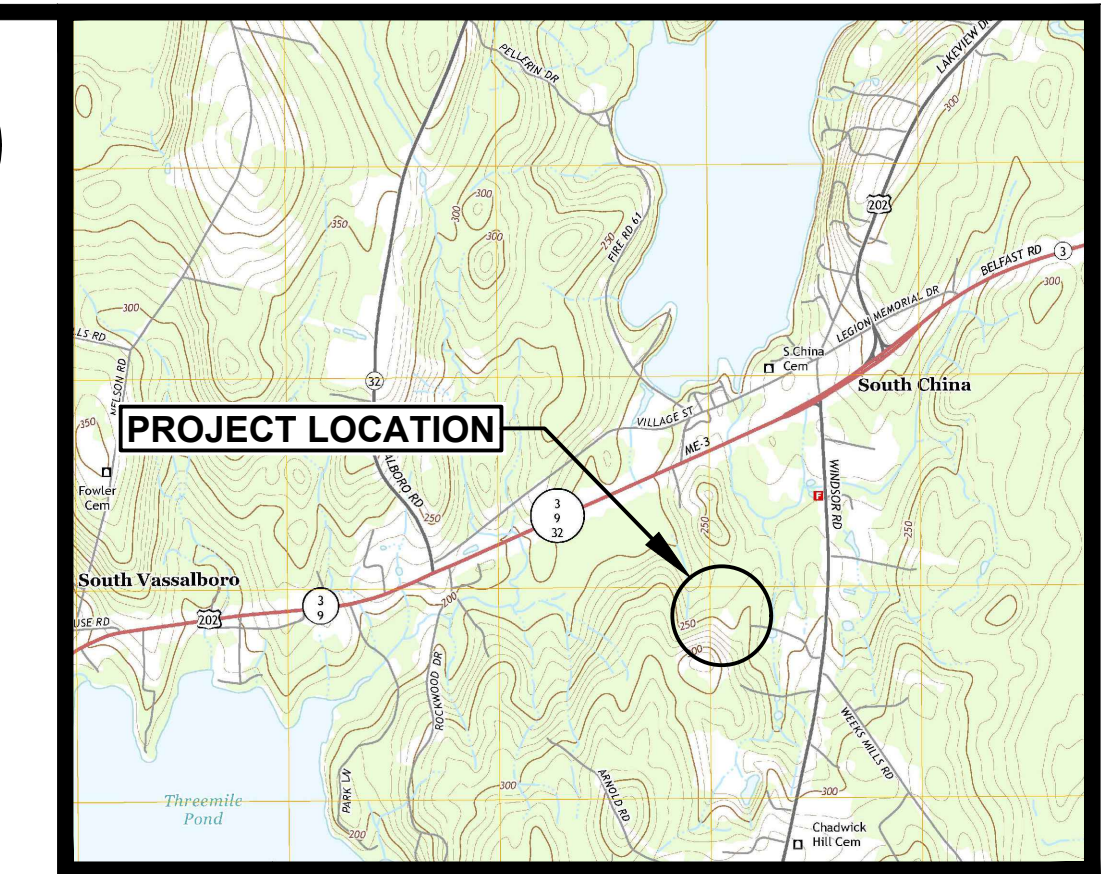
Attachment 3.1 – Communication with Fire Chief

Attachment 3.2 – Knox Lock Details

Attachment 3.3 – Decommissioning Application

Attachment 3.4 – Phase 1 Environmental Site Assessment Summary

SAND PIT SOLAR CHINA, MAINE JANUARY 2024



LOCATION MAP
NOT TO SCALE



PLAN INDEX

PAGE:	DESCRIPTION:	SHEET:
1 OF 1	COVER SHEET	COVER
1 OF 4	EXISTING CONDITIONS PLAN	C-100
2 OF 4	OVERALL SITE PLAN	C-101
3 OF 4	DETAILED SITE PLAN	C-102
4 OF 4	EROSION CONTROL NOTES & SITE/CIVIL DETAILS	C-300

CLIENT:

PERENNIAL SAND PIT SOLAR, LLC
126 WATER STREET SUITE 3
HALLOWELL, MAINE 04347

CIVIL ENGINEERING & PERMITTING:

 **Atlantic Resource Consultants**
Engineering Strategies and Solutions
541 US ROUTE ONE, SUITE 21
FREEPORT, MAINE 04032

TOWN OF CHINA PLANNING BOARD APPROVAL

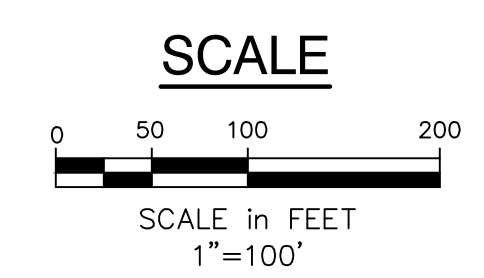
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**ISSUED FOR PERMITTING - NOT
FOR CONSTRUCTION**

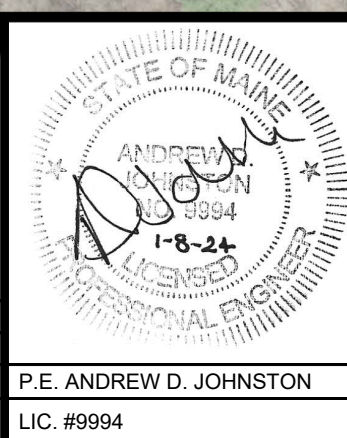


NOTE:
 1. PARCEL LINE FOR SITE DRAWN FROM BOUNDARY SURVEY PLAN DATED JULY 7TH, 2013 BY MORIN LAND SURVEYING FROM AUGUSTA, MAINE . APPROXIMATE LOCATION OF ABUTTING PROPERTY LINES TAKEN FROM MAINE GIS DATA CATALOG - PARCELS LAYER
 2. AERIAL PHOTOGRAPHY FROM GEOLIBRARY AGGREGATE IMAGE SERVICE EXISTING CONDITIONS TOPOGRAPHIC DATA FROM MEGIS LIDAR DATA AND MAY NOT REFLECT CURRENT CONDITIONS AT SOME LOCATIONS (MATERIAL PILES, ETC). PROPOSED GRADING MAY BE AMENDED TO REFLECT SITE CONDITIONS, WHILE MAINTAINING OVERALL INTENT.

**ISSUED FOR PERMITTING -
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REV	DATE	DESCRIPTION	REVISIONS



**SAND PIT SOLAR
 CHINA, MAINE**

**EXISTING CONDITIONS
 PLAN**

PERENNIAL SAND PIT SOLAR, LLC
 126 WATER STREET SUITE 3
 HALLOWELL, MAINE 04347

Atlantic Resource Consultants
 541 US Route One
 Freeport, ME 04032
 Tel: 207.869.9050

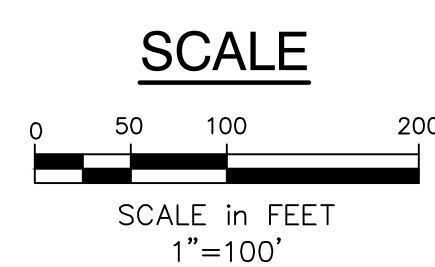
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SHEET: C-100	



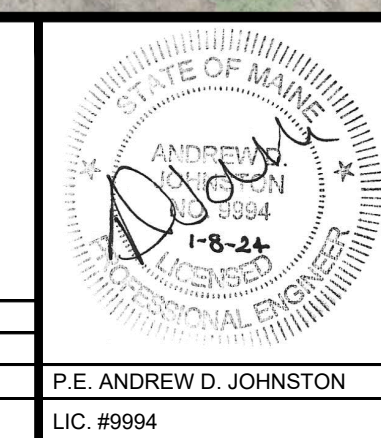
NOTES:

1. PARCEL LINE FOR SITE DRAWN FROM BOUNDARY SURVEY PLAN DATED JULY 7TH, 2013 BY MORIN LAND SURVEYING FROM AUGUSTA, MAINE . APPROXIMATE LOCATION OF ABUTTING PROPERTY LINES TAKEN FROM MAINE GIS DATA CATALOG - PARCELS LAYER
2. AERIAL PHOTOGRAPHY FROM GEOLIBRARY AGGREGATE IMAGE SERVICE EXISTING CONDITIONS TOPOGRAPHIC DATA FROM MEGIS LIDAR DATA AND MAY NOT REFLECT CURRENT CONDITIONS AT SOME LOCATIONS (MATERIAL PILES, ETC). PROPOSED GRADING MAY BE AMENDED TO REFLECT SITE CONDITIONS, WHILE MAINTAINING OVERALL INTENT.

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REV	DATE	DESCRIPTION	REVISIONS



**SAND PIT SOLAR
CHINA, MAINE**

OVERALL SITE PLAN

PERENNIAL SAND PIT SOLAR, LLC
126 WATER STREET SUITE 3
HALLOWELL, MAINE 04347

Atlantic Resource Consultants
541 US Route One
Freeport, ME 04032
Tel: 207.869.9050

DRAWN: VF	DATE: 1/8/2024
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FILE NAME:	
SHEET: C-101	



STREAM
75' STREAM SETBACK (TYPICAL)

EDGE OF WETLAND

16' WIDE CLEAR ACCESS WAY

2.5:1 SLOPE

25' STREAM SETBACK (TYPICAL)

EROSION CONTROL - SILT FENCE

LIMITS F DETAILED LIDAR TOPOGRAPHY

LIMIT OF DISTURBANCE

75' WETLAND SETBACK (TYPICAL)

GRAVEL ENTRY

20' WIDE CHAIN LINK FENCE GATE - SEE DETAIL

TRANSFORMER PAD

GRASS AREA

CHAIN LINK FENCE - SEE DETAIL

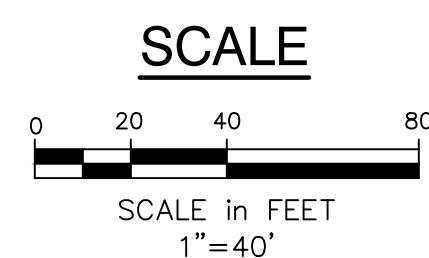
SOLAR PANELS

20' WIDE CHAIN LINK FENCE GATE - SEE DETAIL

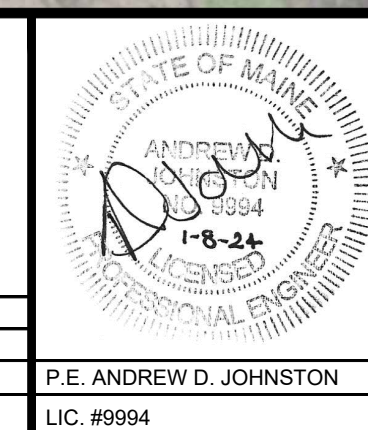
PARCEL SUMMARY	
Tax Map - Lot	17 - 011
Parcel Size (Lease Area)	42.2+/- acres
District	Rural
Watershed Area	East Basin
Solar Panel Area	1.7+/- acres
Solar Panel Coverage of Parcel	4%

- NOTE:
1. PARCEL LINE FOR SITE DRAWN FROM BOUNDARY SURVEY PLAN DATED JULY 7TH, 2013 BY MORIN LAND SURVEYING FROM AUGUSTA, MAINE . APPROXIMATE LOCATION OF ABUTTING PROPERTY LINES TAKEN FROM MAINE GIS DATA CATALOG - PARCELS LAYER
 2. AERIAL PHOTOGRAPHY FROM GEOLIBRARY AGGREGATE IMAGE SERVICE EXISTING CONDITIONS TOPOGRAPHIC DATA FROM MEGIS LIDAR DATA AND MAY NOT REFLECT CURRENT CONDITIONS AT SOME LOCATIONS (MATERIAL PILES, ETC). PROPOSED GRADING MAY BE AMENDED TO REFLECT SITE CONDITIONS, WHILE MAINTAINING OVERALL INTENT.

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION



REV	DATE	DESCRIPTION



PROJECT: SAND PIT SOLAR CHINA, MAINE
 PLAN: DETAILED SITE PLAN
 CLIENT: PERENNIAL SAND PIT SOLAR, LLC
 126 WATER STREET SUITE 3
 HALLOWELL, MAINE 04347

Atlantic Resource Consultants
 541 US Route One
 Freeport, ME 04032
 Tel: 207.869.9050

DRAWN: VF	DATE: 1/8/2024
DESIGNED: AJ	SCALE: 1"=40'
CHECKED: AJ	JOB NO. 23-047
FILE NAME:	
SHEET: C-102	

EROSION AND SEDIMENTATION CONTROL NOTES:

TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES INCLUDE THE USE OF GEOTEXTILE SEPARATION FABRIC ON SUBGRADE, STABILIZED CONSTRUCTION ENTRANCES, SILTATION FENCE, EROSION CONTROL MIX, STONE CHECK DAMS, HAY BALE BARRIERS, CATCH BASIN INLET BARRIERS, CATCH BASIN SEDIMENT COLLECTION BAGS, EROSION CONTROL BLANKET, AND TEMPORARY SEEDING AND MULCHING AS REQUIRED. PERMANENT DEVICES INCLUDE THE USE OF RIP RAP AT EXPOSED STORM DRAIN AND CULVERT INLETS AND OUTLETS, RIP RAPPED SLOPES, AND PERMANENT VEGETATION.

GENERAL

- A. IT IS ANTICIPATED THAT CONSTRUCTION MAY BEGIN AS SOON AS POSSIBLE FOLLOWING RECEIPT OF NECESSARY PERMITS.
- ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MAINE EROSION AND SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES PUBLISHED BY THE CUMBERLAND COUNTY SOIL AND WATER CONSERVATION DISTRICT AND THE DEPARTMENT OF ENVIRONMENTAL PROTECTION, 2003, OR AS CURRENTLY REVISED OR U.S. ENVIRONMENTAL PROTECTION AGENCY PUBLICATION 832/R-92-005 (SEPTEMBER, 1992) STORM WATER MANAGEMENT FOR CONSTRUCTION, CHAPTER 3, WHICHEVER IS MORE STRINGENT.
 - ANY ADDITIONAL EROSION AND SEDIMENTATION CONTROL DEEMED NECESSARY BY THE OWNER'S REPRESENTATIVE, DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP) PERSONNEL AND/OR MUNICIPAL OFFICIALS SHALL BE INSTALLED BY THE CONTRACTOR.
 - THE CONTRACTOR IS RESPONSIBLE FOR ALL FINES RESULTING FROM EROSION OR SEDIMENTATION FROM THE SITE TO SURROUNDING PROPERTIES, WATER BODIES, OR WETLANDS AS A RESULT OF THIS PROJECT.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR/ REPLACEMENT/ MAINTENANCE OF ALL EROSION CONTROL MEASURES UNTIL ALL DISTURBED AREAS ARE STABILIZED TO THE SATISFACTION OF THE ABOVE PERSONNEL. DESCRIPTIONS OF ACCEPTABLE PERMANENT STABILIZATION FOR VARIOUS COVER TYPES FOLLOWS
- 5.:
- FOR SEEDDED AREAS, PERMANENT STABILIZATION MEANS A 90% COVER OF THE DISTURBED AREA WITH MATURE, HEALTHY PLANTS WITH NO EVIDENCE OF WASHING OR RILLING OF THE TOPSOIL.
 - FOR SODDED AREAS, PERMANENT STABILIZATION MEANS THE COMPLETE BINDING OF THE SOD ROOTS INTO THE UNDERLYING SOIL WITH NO SLUMPING OF THE SOD OR DIE-OFF.
 - FOR MULCHED AREAS, PERMANENT MULCHING MEANS TOTAL COVERAGE OF THE EXPOSED AREA WITH AN APPROVED MULCH MATERIAL. EROSION CONTROL MIX MAY BE USED AS MULCH FOR PERMANENT STABILIZATION ACCORDING TO THE APPROVED APPLICATION RATES AND LIMITATIONS.
 - FOR AREAS STABILIZED WITH RIP RAP, PERMANENT STABILIZATION MEANS THAT SLOPES STABILIZED WITH RIP RAP HAVE AN APPROPRIATE BACKING OF A WELL-GRADED GRAVEL OR APPROVED GEOTEXTILE TO PREVENT SOIL MOVEMENT FROM BEHIND THE RIP RAP. STONE MUST BE SIZED APPROPRIATELY.
 - PAVED AREAS: FOR PAVED AREAS, PERMANENT STABILIZATION MEANS THE PLACEMENT OF THE COMPACTED GRAVEL SUBBASE IS COMPLETED.
 - FOR OPEN CHANNELS, PERMANENT STABILIZATION MEANS THE CHANNEL IS STABILIZED WITH MATURE VEGETATION AT LEAST THREE INCHES IN HEIGHT, WITH WELL-GRADED RIP RAP, OR WITH ANOTHER NON-EROSIVE LINING CAPABLE OF WITHSTANDING THE ANTICIPATED FLOW VELOCITIES AND FLOW DEPTHS WITHOUT RELIANCE ON CHECK DAMS TO SLOW FLOW. THERE MUST BE NO EVIDENCE OF SLUMPING OF THE LINING, UNDERCUTTING OF THE BANKS, OR DOWN CUTTING OF THE CHANNEL.

B. EROSION AND SEDIMENTATION CONTROL MEASURES

- PRIOR TO THE BEGINNING OF CONSTRUCTION, THE STABILIZED CONSTRUCTION ENTRANCE AND TEMPORARY SILT FENCE SHALL BE INSTALLED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE. IT IS THE INTENT THAT SILT FENCE BE INSTALLED DOWN GRADIENT OF ALL DISTURBED AREAS OF THE SITE. SILT FENCE SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS WILL BE MADE IMMEDIATELY. SEDIMENT DEPOSITS SHALL BE PERIODICALLY REMOVED FROM THE UPSTREAM SIDE OF THE SILT BARRIERS. THIS SEDIMENT WILL BE SPREAD AND STABILIZED IN AREAS OF THE SITE NOT SUBJECT TO EROSION. SILT FENCE SHALL BE REPLACED AS NECESSARY TO PROVIDE PROPER FILTERING ACTION. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THEM, THEY WILL BE REPLACED WITH A TEMPORARY CRUSHED STONE CHECK DAM.
- ALL CATCH BASINS AND FIELD INLETS, NEW OR EXISTING, THAT MAY RECEIVE RUNOFF FROM DISTURBED AREAS MUST BE PROTECTED DURING CONSTRUCTION.
- REMOVAL OF SOD, TREES, BUSHES AND OTHER VEGETATION AND SOIL DISTURBANCE WILL BE KEPT TO A MINIMUM WHILE ALLOWING PROPER SITE DEVELOPMENT.
- GRUBBINGS AND ANY UNUSABLE TOPSOIL SHALL BE STRIPPED AND REMOVED FROM THE PROJECT SITE AND DISPOSED OF IN AN APPROVED MANNER.
- ANY SUITABLE TOPSOIL WILL BE STRIPPED AND STOCKPILED FOR REUSE IN FINAL GRADING. TOPSOIL WILL BE STOCKPILED IN A MANNER SUCH THAT NATURAL DRAINAGE IS NOT OBSTRUCTED AND NO OFF-SITE SEDIMENT DAMAGE WILL RESULT. IF A STOCKPILE IS NECESSARY, THE SIDE SLOPES OF THE TOPSOIL STOCKPILE WILL NOT EXCEED 2:1. TOPSOIL STOCKPILES WILL BE TEMPORARILY SEEDDED WITH AROOSTOOK RYE, ANNUAL OR PERENNIAL RYE GRASS WITHIN 7 DAYS OF FORMATION, OR TEMPORARILY MULCHED IF SEEDING CANNOT BE DONE WITHIN THE RECOMMENDED SEEDING DATES.
- TEMPORARY DIVERSION BERMS AND DRAINAGE SWALES SHALL BE CONSTRUCTED AS NECESSARY.
- TEMPORARY STABILIZATION SHALL BE CONDUCTED WITHIN 7 DAYS OF INITIAL DISTURBANCE OF SOILS, PRIOR TO ANY RAIN EVENT, AND PRIOR TO ANY WORK SHUT DOWN LASTING MORE THAN ONE DAY. TEMPORARY STABILIZATION INCLUDES SEED, MULCH, OR OTHER NON-ERODABLE COVER.
- TEMPORARY SEEDING SPECIFICATIONS: WHERE SEEDBED HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF 2 INCHES BEFORE APPLYING FERTILIZER, LIME, AND SEED. APPLY LIMESTONE AT A RATE OF 3 TONS PER ACRE (138 LB. PER 1,000 SQUARE FEET) AND 10-10-10 (N-P205-K20) FERTILIZER AT A RATE OF 600 LBS PER ACRE (13.8 LB. PER 1,000 SQUARE FEET). UNIFORMLY APPLY SEED AT THE RECOMMENDED SEEDING RATES AND DATES, APPLY HAY OR STRAW MULCH AT A RATE OF 2 TONS PER ACRE, AND ANCHOR AS NECESSARY.

RECOMMENDED TEMPORARY SEEDING DATES AND APPLICATION RATES ARE AS FOLLOWS:

- AROOSTOOK RYE:**
 RECOMMENDED SEEDING DATES: 8/15 - 10/1
 APPLICATION RATE: 112 LBS/ACRE
- ANNUAL RYE GRASS:**
 RECOMMENDED SEEDING DATES: 4/1 - 7/1
 APPLICATION RATE: 40 LBS/ACRE
- PERENNIAL RYE GRASS:**
 RECOMMENDED SEEDING DATES: 8/15 - 9/15
 APPLICATION RATE: 40 LBS/ACRE

- PERMANENT SEEDING SPECIFICATION. IF A LANDSCAPE PLAN HAS BEEN PREPARED FOR THE PROJECT, SOIL PREPARATION AND SEED SPECIFICATIONS OF THAT PLAN SHALL SUPERSEDE THESE GENERAL PERMANENT SEEDING REQUIREMENTS. IT IS RECOMMENDED THAT PERMANENT SEEDING BE COMPLETED BETWEEN APRIL 1 AND JUNE 15 OF EACH YEAR. LATE SEASON SEEDING MAY BE DONE BETWEEN AUGUST 15 AND SEPTEMBER 15. AREAS NOT SEEDDED OR WHICH DO NOT OBTAIN A SATISFACTORY GROWTH BY OCTOBER 1 SHALL BE SEEDDED WITH AROOSTOOK RYE OR MULCHED AT RATES PREVIOUSLY SPECIFIED. SEE WINTER CONDITIONS NOTES FOR SEEDING STABILIZATION AFTER NOVEMBER 1.
 - APPLY TOPSOIL TO A MINIMUM DEPTH OF 4 INCHES. MIX TOPSOIL WITH THE SUBSOIL TO A MINIMUM DEPTH OF 6 INCHES.
 - APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TESTS. IN LIEU OF SOIL TESTS, APPLY GROUND LIMESTONE AT A RATE OF 3 TONS PER ACRE (138 LB. PER 1,000 SQUARE FEET) AND GRANULAR, COMMERCIAL-GRADE, 10-10-10 (N-P205-K20) FERTILIZER AT A RATE OF 800 LBS PER ACRE (18.4 LBS PER 1,000 SQUARE FEET).
 - UNIFORMLY APPLY SEED MIXTURE AT THE RECOMMENDED SEEDING RATES AND DATES, APPLY HAY OR STRAW MULCH AT A RATE OF 2 TONS PER ACRES, AND ANCHOR AS NECESSARY.

B. THE SEED MIXTURE FOR LAWN AND FILTRATION BASIN AREAS SHALL CONSIST OF SEEDS PROPORTIONED BY WEIGHT AS FOLLOWS:

- 30% CREEPING RED FESCUE
- 50% KENTUCKY BLUEGRASS
- 20% ITALIAN/PERENNIAL RYE GRASS

NOTE: SEED MIXTURE SHALL CONSIST OF AT LEAST TWO VARIETIES OF EACH TYPE OF GRASS. WHEN USED IN A FILTER BASIN, STORMWATER SHALL NOT BE DIRECTED TO THE BASIN UNTIL THE GRASS IS ESTABLISHED.

NOTE:

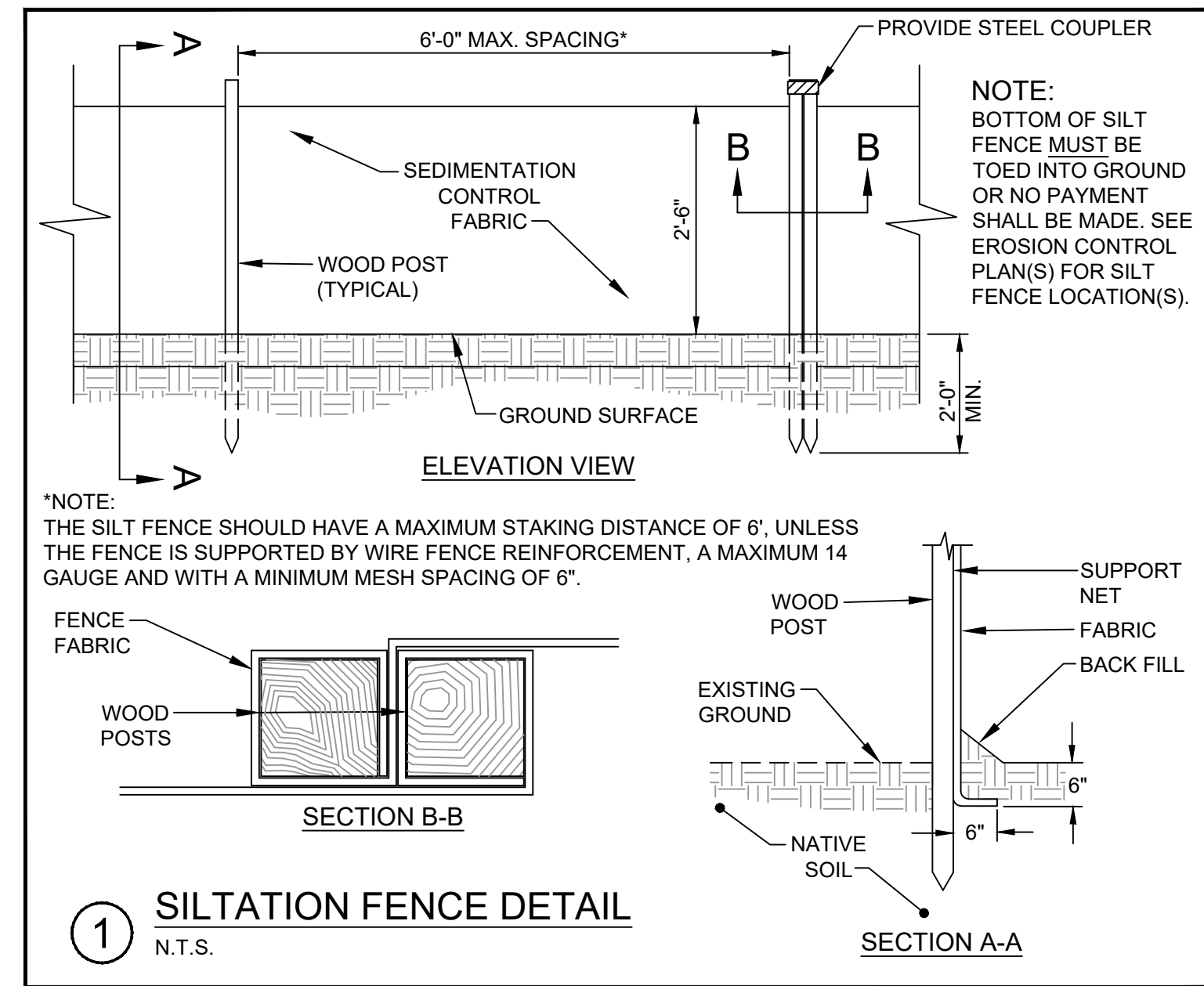
- MULCH ALL AREAS SEEDDED SO THAT SOIL IS NOT VISIBLE THROUGH THE MULCH REGARDLESS OF THE APPLICATION RATE.
- DITCH LININGS, STONE CHECK DAMS, AND RIP RAP INLET AND OUTLET PROTECTION SHALL BE INSTALLED WITHIN 48 HOURS OF COMPLETING THE GRADING OF THAT SECTION OF DITCH OR INSTALLATION OF CULVERT.
- RIP RAP REQUIRED AT CULVERTS AND STORM DRAIN INLETS AND OUTLETS SHALL CONSIST OF FIELD STONE OR ROUGH UNHEWN QUARRY STONE OF APPROXIMATELY RECTANGULAR SHAPE.
- EROSION CONTROL BLANKET SHALL BE INSTALLED ON ALL PERMANENT SLOPES STEEPER THAN 15%, IN THE BASE OF DITCHES NOT OTHERWISE PROTECTED, AND ANY DISTURBED AREAS WITHIN 100 FEET OF A PROTECTED NATURAL RESOURCE (E.G. WETLANDS AND WATER BODIES). EROSION CONTROL BLANKET SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- TEMPORARY CONTROL MEASURES, SUCH AS SILT FENCE, SHALL BE REMOVED WITHIN 30 DAYS AFTER PERMANENT STABILIZATION IS ATTAINED.

C. WINTER CONDITIONS

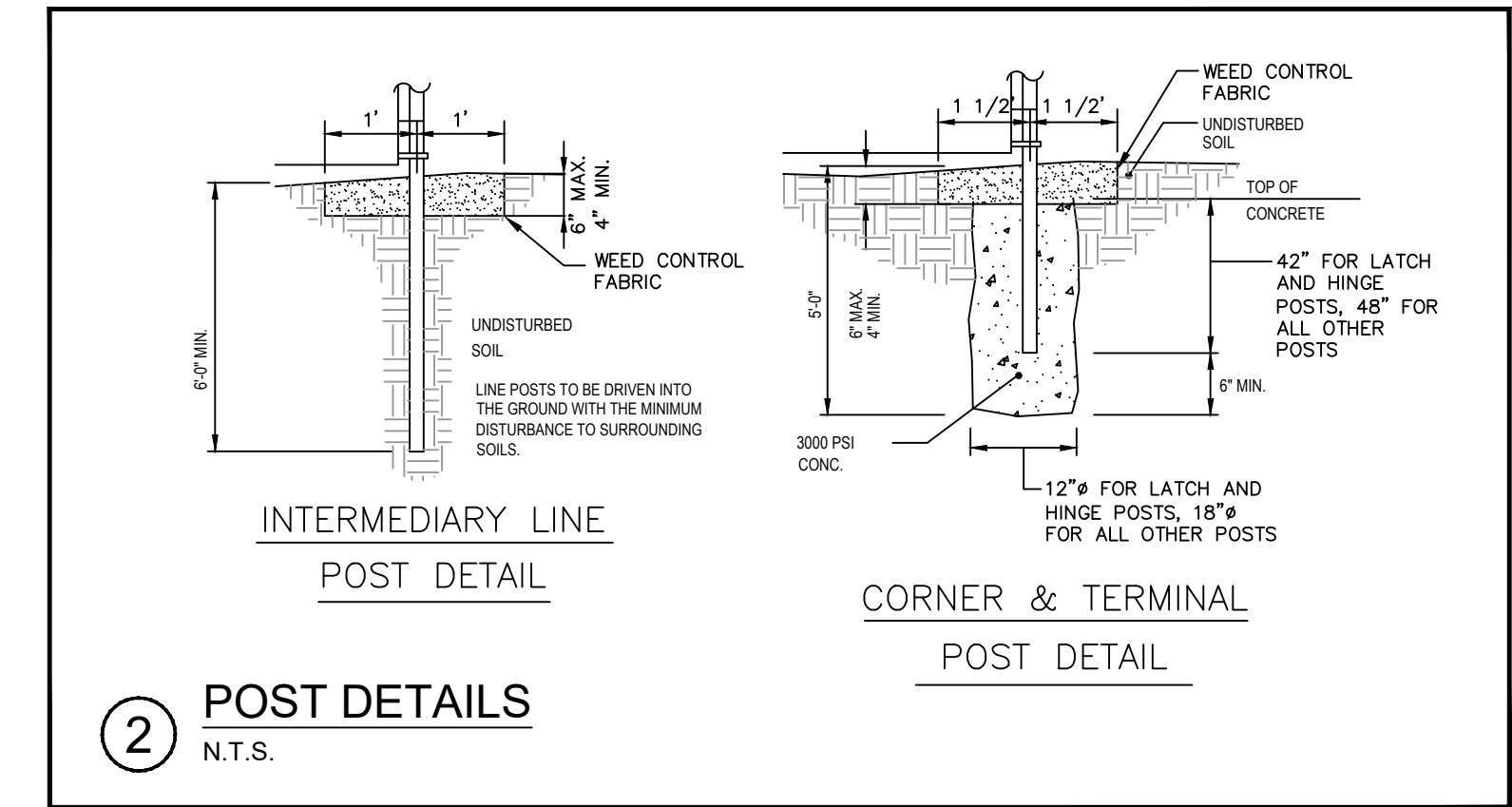
- "WINTER CONSTRUCTION" IS CONSTRUCTION ACTIVITY PERFORMED DURING THE PERIOD FROM NOVEMBER 1ST THROUGH APRIL 15TH. IF AREAS WITHIN THE CONSTRUCTION ACTIVITY ARE NOT STABILIZED WITH TEMPORARY OR PERMANENT MEASURES OUTLINED ABOVE BY NOVEMBER 15TH, THEN THE SITE MUST BE PROTECTED WITH ADDITIONAL STABILIZATION MEASURES THAT ARE SPECIFIC TO WINTER CONDITIONS. NO MORE THAN ONE ACRE OF THE SITE MAY BE WITHOUT STABILIZATION AT ONE TIME.
- SILT FENCE: IN LIEU OF PROVIDING THE 4" X 4" TRENCH, FOR FROZEN GROUND, STONY SOIL, THE PRESENCE OF LARGE ROOTS, OR OTHER PROHIBITIVE CONDITIONS, THE BOTTOM 8" TO 12" OF THE FABRIC MAY BE LAID ON EXISTING GRADE AND BACK FILLED WITH STONE ANCHORING MATERIAL, AS SHOWN ON THE DRAWINGS.
- HAY MULCH SHALL BE APPLIED AT TWICE THE STANDARD TEMPORARY STABILIZATION RATE. AT THE END OF EACH CONSTRUCTION DAY, AREAS THAT HAVE BEEN BROUGHT TO FINAL GRADE MUST BE STABILIZED. MULCH MAY NOT BE SPREAD ON TOP OF SNOW.
- AFTER NOVEMBER 1ST OR THE FIRST KILLING FROST FOR THE REGION AND BEFORE SNOW FALL, ALL EXPOSED AND DISTURBED AREAS NOT TO UNDERGO FURTHER DISTURBANCE ARE TO HAVE DORMANT SEEDING. THE DORMANT SEEDING METHOD: PREPARE THE SEEDBED, LIME AND FERTILIZE, APPLY THE SELECTED PERMANENT SEED MIXTURE AT DOUBLE THE REGULAR SEEDING RATE, AND MULCH AND ANCHOR. DORMANT SEEDINGS NEED TO BE ANCHORED EXTREMELY WELL ON SLOPES, DITCH BASES AND AREAS OF CONCENTRATED FLOWS. DORMANT SEEDING REQUIRES INSPECTION AND RESEEDING AS NEEDED IN THE SPRING. ALL AREAS WHERE COVER IS INADEQUATE MUST BE IMMEDIATELY RESEEDED AND MULCHED AS SOON AS POSSIBLE.
- ALL VEGETATED DITCH LINES THAT HAVE NOT BEEN STABILIZED BY NOVEMBER 1ST, OR WILL BE WORKED DURING THE WINTER CONSTRUCTION PERIOD, MUST BE STABILIZED WITH AN APPROPRIATE STONE LINING BACKED BY AN APPROPRIATE GRAVEL BED OR GEOTEXTILE UNLESS SPECIFICALLY RELEASED FROM THIS STANDARD BY THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION.
- MULCH NETTING MUST BE USED TO ANCHOR MULCH ON ALL SLOPES GREATER THAN 8% UNLESS EROSION CONTROL BLANKETS OR EROSION CONTROL MIX IS BEING USED ON THESE SLOPES.

D. HOUSEKEEPING

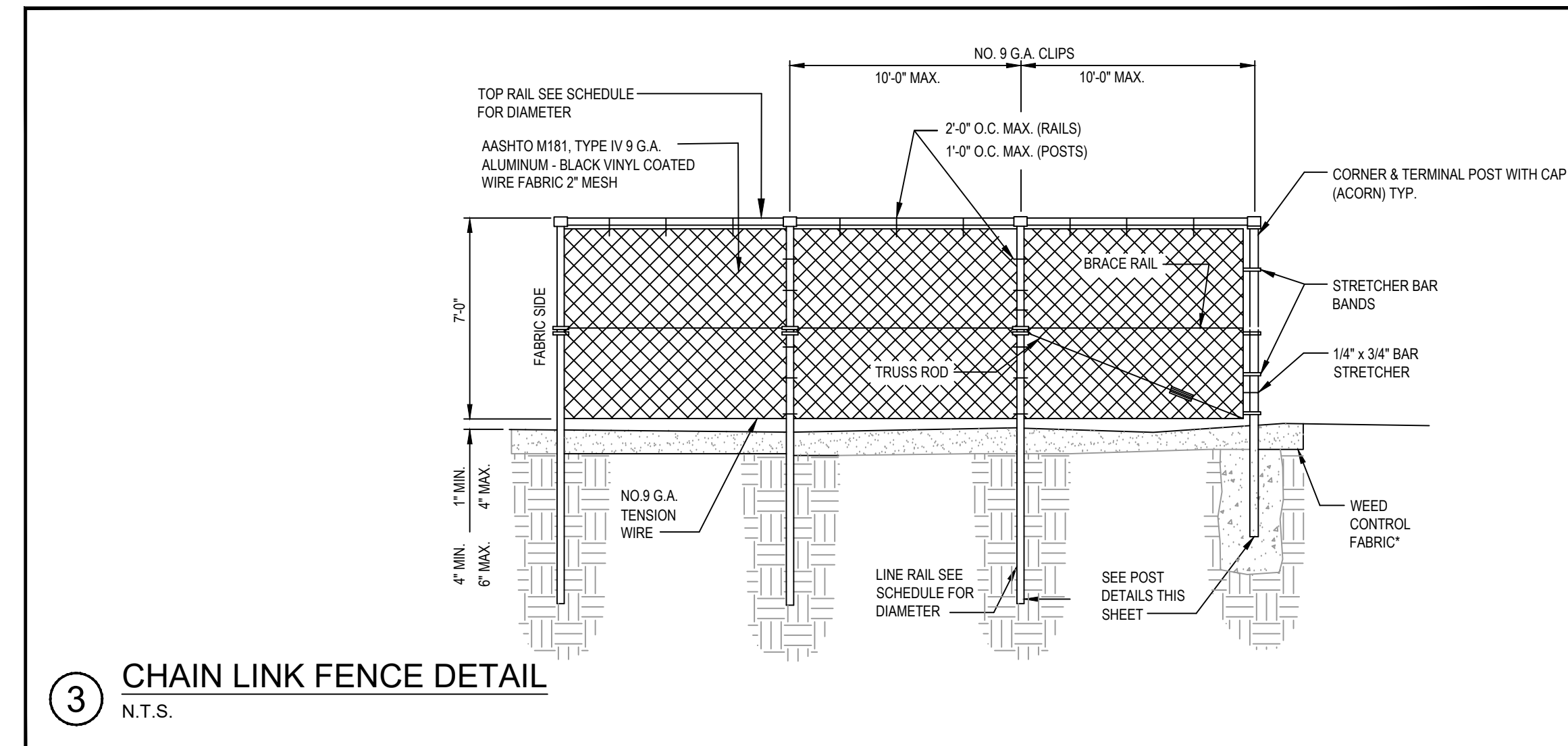
- SPILL PREVENTION. CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM CONSTRUCTION AND WASTE MATERIALS STORED ON-SITE, INCLUDING STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORM WATER, AND APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING AND IMPLEMENTATION.
- GROUNDWATER PROTECTION. DURING CONSTRUCTION, LIQUID PETROLEUM PRODUCTS AND OTHER HAZARDOUS MATERIALS WITH THE POTENTIAL TO CONTAMINATE GROUNDWATER MAY NOT BE STORED OR HANDLED IN AREAS OF THE SITE DRAINING TO AN INFILTRATION AREA. AN "INFILTRATION AREA" IS ANY AREA OF THE SITE THAT BY DESIGN OR AS A RESULT OF SOILS, TOPOGRAPHY AND OTHER RELEVANT FACTORS, ACCUMULATES RUNOFF THAT INFILTRATES INTO THE SOIL. DIKES, BERMS, SUMPS, AND OTHER FORMS OF SECONDARY CONTAINMENT THAT PREVENT DISCHARGE TO GROUNDWATER MAY BE USED TO ISOLATE PORTIONS OF THE SITE FOR THE PURPOSES OF STORAGE AND HANDLING OF THESE MATERIALS.
- FUGITIVE SEDIMENT AND DUST. ACTIONS MUST BE TAKEN TO ENSURE THAT ACTIVITIES DO NOT RESULT IN NOTICEABLE EROSION OF SOILS OR FUGITIVE DUST EMISSIONS DURING OR AFTER CONSTRUCTION. OIL MAY NOT BE USED FOR DUST CONTROL.
- DEBRIS AND OTHER MATERIAL. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORM WATER, MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.
- TRENCH OR FOUNDATION DE-WATERING. THE COLLECTED WATER REMOVED FROM THE PONDED AREA, EITHER THROUGH GRAVITY OR PUMPING, MUST BE SPREAD THROUGH NATURAL WOODED BUFFERS OR REMOVED AREAS THAT ARE SPECIFICALLY DESIGNATED TO COLLECT THE MAXIMUM AMOUNT OF SEDIMENT POSSIBLE, LIKE A COFFER DAM SEDIMENTATION BASIN. AVOID ALLOWING THE WATER TO FLOW OVER DISTURBED AREAS OF THE SITE.



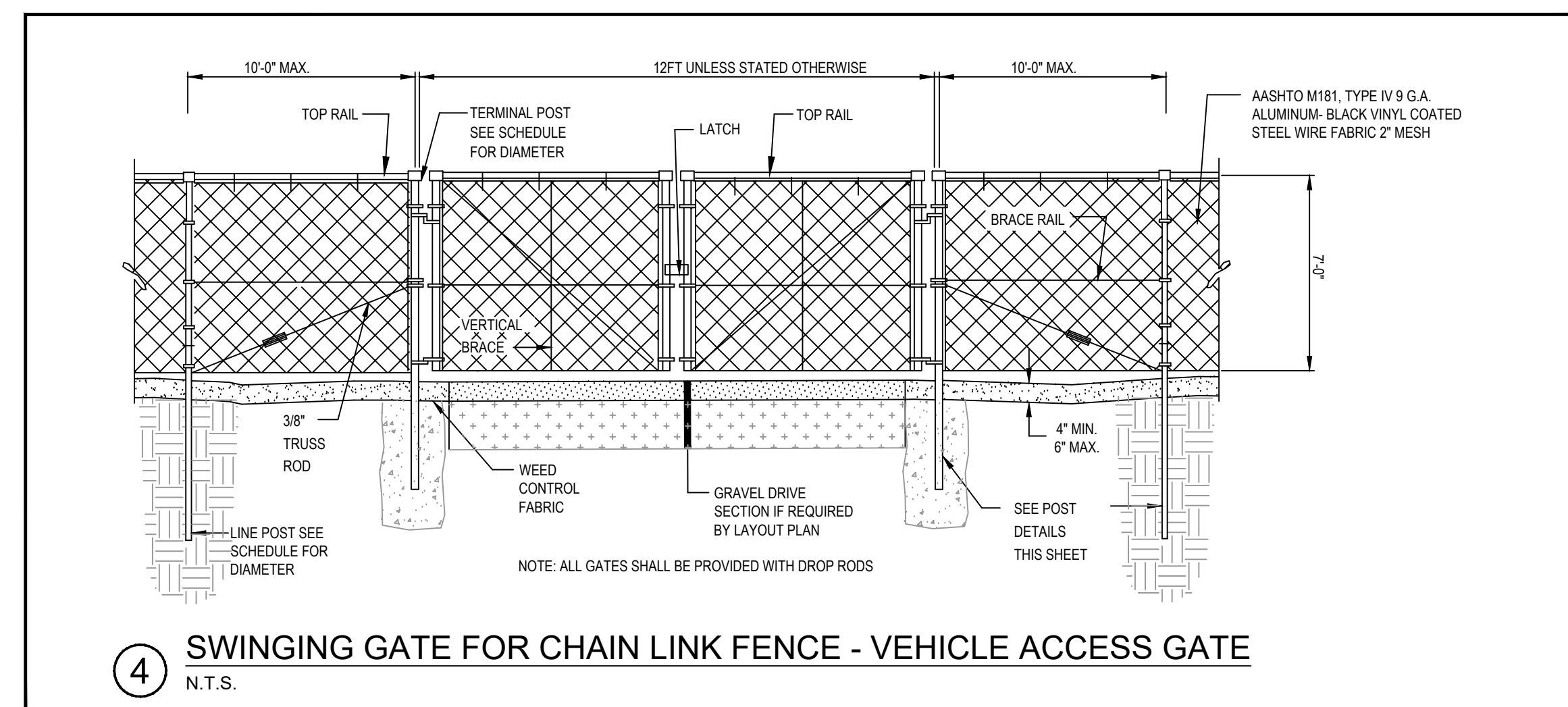
1 SILTATION FENCE DETAIL
N.T.S.



2 POST DETAILS
N.T.S.

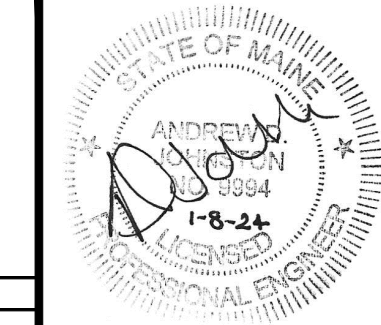


3 CHAIN LINK FENCE DETAIL
N.T.S.



4 SWINGING GATE FOR CHAIN LINK FENCE - VEHICLE ACCESS GATE
N.T.S.

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION

		<p>SAND PIT SOLAR CHINA, MAINE</p> <p>EROSION CONTROL NOTES & SITE/CIVIL DETAILS</p>	<p>Atlantic Resource Consultants</p> <p>541 US Route One Freeport, ME 04032 Tel: 207.869.9050</p>
REV	DATE	DESCRIPTION	<p>PERENNIAL SAND PIT SOLAR, LLC 126 WATER STREET SUITE 3 HALLOWELL, MAINE 04347</p>
<p>DESIGNED: AJ</p> <p>CHECKED: AJ</p> <p>FILE NAME:</p>			<p>DATE: 1/08/2024</p> <p>SCALE:</p> <p>JOB NO. 23-047</p>
<p>REVISIONS</p>			<p>SHEET: C-300</p>

TOWN OF CHINA SITE PLAN REVIEW

SOLAR ENERGY FACILITY

PREPARED FOR



PERENNIAL SAND PIT SOLAR LLC
126 WATER STREET, SUITE 3
HALLOWELL, ME 04347

PREPARED BY

ATLANTIC RESOURCE CONSULTANTS
541 US ROUTE ONE, SUITE 21
FREEPORT, MAINE 04032
207.869.9050

FEBRUARY 2024



February 5, 2024

China Planning Board
571 Lakeview Drive
China, Maine 04358

RE: Site Plan/Conditional Use Application – Perennial Sand Pit Solar LLC – Pit Road, China

Dear Planning Board,

Atlantic Resource Consultants, LLC (ARC), on behalf of Perennial Sand Pit Solar, LLC, is pleased to submit Site Plan Review and Conditional Use applications for the construction of a 0.975 MW AC solar array development. The project site is located off Pit Road in a portion of a gravel pit and is further identified as Lot 11 on Tax Map 17 within the rural district. The site is positioned within the East Basin of China Lake and therefore, the phosphorus control ordinance is applicable to the project.

The proposed project involves the installation of 3,442 solar modules and a transformer pad surrounded by a fence. There will be only 4% structural lot coverage which is below the threshold of 20% in the rural district. New private three phase overhead electric will be run down Pit Road to the transformer pad. The project does not require water or sewer services. Applications will also be submitted to the Maine Department of Environmental Protection for their review.

We look forward to discussing this application with the Town of China Planning Board at your next meeting.

Regards,



Atlantic Resource Consultants
Andrew Johnston, PE, LEED AP
Principal

TABLE OF CONTENTS

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SECTION 6 – UTILITIES

SECTION 7 – LANDSCAPING PLAN

SECTION 8 – SOLID WASTE

SECTION 9 – HISTORIC SITES

SECTION 10 – STORMWATER MANAGEMENT PLAN

SECTION 11 – PLAN SET

SECTION I

APPLICATION FORMS

REQUEST TO MEET WITH THE CHINA PLANNING BOARD

NAME: Atlantic Resource Consultants, LLC
on behalf of Perennial Sand Pit Solar LLC PHONE: 207-869-9050

ADDRESS: 541 US Route One, Suite 21

CITY/TOWN: Freeport, ME ZIP: 04032

I, Atlantic Resource Consultants, LLC / Perennial Sand Pit Solar LLC, am requesting to be placed on a forthcoming meeting agenda with the China Planning Board to review my intentions for the following:

Site Plan Application and Conditional Use Application for a proposed solar array project

located on Pit Road off the west side of Route 32. Project will be located within a portion

of an existing gravel pit. Permit applications to the Maine DEP have also been submitted.

Please notify me of the time that I may be scheduled for review with the local Planning Board.

Thank you,



Signature of Applicant

1/17/2024

Date

Town Of China
Application for a Permit from the Planning Board

Applicant Perennial Sand Pit Solar LLC Phone (Home) _____
 Mailing Address 126 Water Street, Suite 3 (Work) (207) 446-0635
Hallowell, ME 04347 (Cell) _____

Property Owner Comprehensive Land Technologies, Inc. Phone (Home) _____
 Mailing Address PO Box 146 (Work) _____
China, ME 04358 (Cell) _____

Property Address Pit Road Map 17 Lot 11
 Book 11446 Page 112

X If applicant is not the property owner, provide a copy of a lease agreement, purchase and sale agreement subject to Planning Board approval or other document demonstrating that you have title to the property.

Acreage of Lot 42.2 acres

Existing use of property Gravel/sand pit

Property is zoned as: _____ Resource Protection _____ Stream Protection _____ Shoreland X Rural

Proposed Use(s) – Check all that apply

- Subdivision
- Multi Family Residence
- New Commercial Structure or Addition
- Change of Use
- Dock (_____ Temporary, _____ Permanent)
- Timber Harvest – Check all that apply
 - Resource Protection, _____ Shoreland, _____ Stream Protection Exceeds 40%
- Filling or other earth moving **less than** 100 cubic yards
- Filling or other earth moving **greater than** 100 cubic yards
- Other _____

1. Site Plan – Provide a site plan with the following information. A GIS based map will often be a good starting point to provide the information in a scaled format. A hand drawn map may also be acceptable.

- Plot of lot and abutting properties drawn to scale
- North arrow and scale of map
- Location of existing and proposed septic system and well
- Location of footprint of existing and proposed building(s) and/or addition(s)
- Location of water bodies, wetlands, and other natural features such as wooded areas
- Designation of areas that will be cleared
- Location of public roads that will provide access to the site
- Location of parking areas, pedestrian access ways, and points of ingress and egress from public streets to the lot
- Location of existing and proposed vegetative and non-vegetative buffers and proposed

landscape plantings

Location of phosphorus buffer or other phosphorus treatment system, if applicable

Location of existing and proposed outdoor lighting and signs

Location of shoreland and flood zones, if applicable

2. Provide a narrative explaining the project including proposed use(s). Include hours and days that the proposed business will be open.

The applicant, Perennial Sand Pit Solar LLC (Perennial), is proposing the construction of a solar array development. Perennial has been given approval by Central Maine Power to interconnect the solar project into the electric grid in China. The applicant is proposing to construct a 975 kW AC ground-mounted solar array with associated access and utility lines. The proposed project will create a photovoltaic system located in the existing gravel pit, consisting of 3,442 solar modules, a transformer pad, utility poles, a 16-foot-wide road surrounding the array and associated grading to minimize any shading on the solar array. The project area will be accessed from Pit Road, an existing gravel road on the west side of Windsor Road/Rt 32. New private three phase overhead electric will be run down Pit Road and ultimately to an equipment pad. The project will not have daily business hours as it has no employees or customers that need to visit it. Maintenance staff are expected to visit the site quarterly.

3. Provide a copy of the existing septic system HHE-200 form, if available. This can be obtained from the CEO / LPI.

Design flow of septic system N/A

4. Provide a copy of the proposed septic system evaluation by a licensed site evaluator if this is deemed necessary by the Town’s LPI.

Proposed design flow of septic system N/A

Signoff of LPI The existing septic system is / is not adequate and does / does not need review by a licensed site evaluator.

_____ LPI Town of China

5. Indicate which permits are required in addition to the Planning Board Conditional Use Permit. The CEO can provided assistance with this.

- _____ Town subdivision
- _____ Town Floodplain Management
- _____ Town Building
- _____ Town Septic
- _____ Town internal plumbing
- _____ Town CEO
- DEP NRPA

- DEP Stormwater
- DEP Site Location of Development
- DOT Driveway Entrance
- DOT Traffic Movement Permit
- Fire Marshall's Office
- Dept of Human Services
- U S Army Corp of Engineers
- Other _____


6. a. Provide a copy of the State DOT driveway entrance permit if a new driveway is proposed on a state road or if the DOT determines that a driveway entrance permit is necessary for a change of use.
 - b. Provide a copy of the DOT traffic movement permit if it is required.
7. Provide an evaluation of the phosphorus control methodology to be used on the lot if the phosphorus control ordinance is applicable for the proposal. The CEO will verify whether or not this is applicable to your proposal. **Attached to application**
Signoff of CEO - The proposed use does / does not require phosphorus controls to be implemented.

CEO Town of China

8. Provide a sketch of the proposed building(s) or addition(s) including height, width, footprint, and floor plan. **No buildings proposed**
9. Verify that lot coverage, lot area, property line and water setbacks requirements, and structure height requirements will be met if additions or new structures are proposed (see section 5(A) and 5(B) of Land Use Ordinance for specific requirements).

Dimensional Requirements	Required	Actual/Proposed
Lot Coverage		4%
Lot Area		42.2 acres
Property Line Setbacks Road	25 ft	
Side	10 ft	No new buildings
Rear	15 ft	
Water or Wetland Setback		
Water Frontage		
Structure Height	Not greater than 35 ft	

The information provided is accurate to the best of my knowledge.

Signed _____  **Andrew Johnston on behalf of applicant**
Signature of applicant

Date 1/17/2024

Town of China
Conditional Use Permit Application

Conditional Use Permits: The Planning Board shall approve a Conditional Use Application if all of the following criteria are met inclusive of conditions:

- 1. The proposed use will meet the definition or specific requirements set forth in this Ordinance or will be in compliance with applicable State or Federal laws.**

Findings and statement of reasons: The proposed use is permitted in accordance with *the China Land Development Code, Chapter 2, Land Use Ordinance, Section 4, USES, Item# _____*, regarding the _____ for the purposes of _____. The property is located in a _____ District at the location of _____ in China, Maine. China Tax Map _____, Lot _____ identifies the property. The proposal is permitted with a conditional use permit from the Planning Board.

Response:

See Section 3 of application

- 2. The proposed use will not create fire safety hazards by providing adequate access to the site, or to the buildings on the site, for emergency vehicles.**

Response:

- 3. The proposed exterior lighting will not create hazards to motorists traveling on adjacent public streets, and is adequate for the safety of occupants or users of the site, or will not damage the value and diminish the usability of adjacent properties.**

Response:

- 4. The provisions for buffers and on-site landscaping will provide adequate protection to neighboring properties from detrimental features of the development.**

Response:

- 5. The proposed use will not have a significant detrimental effect on the use and peaceful enjoyment of abutting property as a result of noise, vibrations, fumes, odor, dust, glare or other cause.**

Response:

- 6. The provisions for vehicular loading and unloading and parking, and for vehicular and pedestrian circulation on the site and onto adjacent public streets will not create hazards to safety.**

Response:

- 7. The proposed use will not have a significant detrimental effect on the value of adjacent properties or could be avoided by reasonable modification of the plan.**

Response:

- 8. The design of the site will not result in significant flood hazards or flood damage or is in conformance with applicable flood hazard protection requirements.**

Response:

- 9. Adequate provision has been made for disposal of wastewater, or solid waste, or for the prevention of ground or surface water contamination.**

Response:

10. Adequate provision has been made to control erosion or sedimentation.

Response:

11. Adequate provision has been made to handle storm water runoff or other drainage problems on the site.

Response:

12. The proposed water supply will meet the demands of the proposed use or for fire protection purposes.

Response:

13. Adequate provision has been made for the transportation, storage, and disposal of hazardous substances and materials as defined by State law.

Response:

14. The proposed use will not have an adverse impact on significant scenic vistas or on significant wildlife habitat or could be avoided by reasonable modification of the plan.

Response:

15. When located in the Resource Protection District, Stream Protection District, Shoreland District, the proposed use will meet the standards in Section 5 of this Ordinance.

Response:



10/18/2023

Perennial Renewables LLC
71 Third Ave
Burlington, MA 01803

**RE: Perennial Sand Pit Solar LLC
China, Maine
Atlantic Resource Consultants Agent Authorization Letter**

To Whom It May Concern,

Perennial Renewables has retained Atlantic Resource Consultants, LLC to undertake regulatory permitting for the referenced project. Atlantic Resource Consultants, LLC is hereby authorized to act as agent on our behalf for matters related to these permits.

Sincerely,

Ryan Coughlin
ryan@perennialrenew.com
508 517 5105



MAINE

Department of the Secretary of State
Bureau of Corporations, Elections and Commissions

Corporate Name Search

Information Summary

[Subscriber activity report](#)

This record contains information from the CEC database and is accurate as of: Mon Nov 20 2023 12:56:40. Please print or save for your records.

Legal Name	Charter Number	Filing Type	Status
PERENNIAL SAND PIT SOLAR LLC	20252195DC	LIMITED LIABILITY COMPANY (DOMESTIC)	GOOD STANDING

Filing Date	Expiration Date	Jurisdiction
09/29/2023	N/A	MAINE

Other Names (A=Assumed ; F=Former)

NONE

Clerk/Registered Agent

NICK LACASSE
126 WATER ST APT 3
HALLOWELL, ME 04347

[New Search](#)

Click on a link to obtain additional information.

List of Filings [View list of filings](#)

Obtain additional information:

Certificate of Existence (more info)	Short Form without amendments	Long Form with amendments
	(\$30.00)	(\$30.00)

You will need Adobe Acrobat version 3.0 or higher in order to view PDF files. If you encounter problems, visit the [troubleshooting page](#).



If you encounter technical difficulties while using these services, please contact the [Webmaster](#). If you are unable to find the information you need through the resources provided on this web site, please contact the Division of Corporations, UCC & Commissions Reporting and Information

SECTION 2

PROJECT DESCRIPTION

Overview

Atlantic Resource Consultants, LLC (ARC) has been retained by the applicant, Perennial Sand Pit Solar LLC (Perennial), for the construction of a proposed solar array development. Perennial has been given approval by Central Maine Power to interconnect the solar project into the electric grid in China (see first page of redacted Central Maine Power System Impact Study and Interconnection Agreement in Attachment 2.1. A full copy of the report can be made available at the request of the Planning Board). The proposed project will take place within the lease area which consists of 42.2 +/- acres located off Pit Road in the Town of China, Maine. The project area is further identified as Lot 11 on Tax Map 17 based on the Town of China's online assessor's database.

The applicant is proposing to construct a 975 kW AC ground-mounted solar array with overhead utility lines. The proposed project will create a ground-mounted array, consisting of 3,442 solar modules, a transformer pad, utility poles, and a 16-foot-wide road surrounding the array. The solar array will be surrounded by a 7 ft. high safety fence per electrical code with a 20-foot-wide vehicle access gate equipped with a Knox Padlock as recommended by Town of China Fire Chief. The fence will also be wildlife friendly. The vehicle gate and Knox padlock will be located at the front of the array near Pit Road and will be accessible for emergency responders. Filling and associated grading and cutting will be required to minimize any shading on the solar array. The project area will be located in an existing gravel pit which can be accessed from Pit Road, an existing gravel road on the west side of Windsor Road. New private three phase overhead electric will be run down Pit Road and ultimately to the equipment pad. The project will occupy approximately 8.3 acres of the lease area.

No part of the project is located in the shoreland, resource protection or stream protection districts. The project will take place in the Rural District. The project has been designed with less than 20% lot coverage of structure as required for the Rural District. Row spacing between solar panels does not count towards structure and lot coverage. At this time, the project proposes 4% lot coverage. Additionally, a Phosphorous Export summary has been prepared as part of the stormwater management plan that can be viewed in Section 9.

There will be two utility poles placed on the north side of Pit Road that will be located adjacent to a stream segment and associated freshwater wetland areas. Although the project does not directly impact wetlands or streams, the proposed work will require approval under Maine DEP's Natural Resources Protection Act (NRPA) Permit by Rule. The project proposes 2.43 acres of developed area, of which 3,489 square feet is impervious area; therefore, review under the Stormwater Management Law Permit by Rule is required.

Because the proposed solar site occupies greater than 3 acres, a decommissioning plan is required to be submitted to MDEP prior to the start of construction. Applicable applications have been submitted to MDEP for review.

Existing Conditions

The majority of the project site is comprised of an existing active gravel pit. Drone photographs of the existing gravel pit condition have been provided in Attachment 2.5. The undeveloped portion of the site is characterized by forested upland. A selective timber harvest was conducted over the undeveloped portion of the site as seen in aerial imagery and evidenced by field observations. Vegetative buffers will be maintained to the greatest extent possible. The proposed project will not include any clearing or tree removal. At a minimum some pruning along the access road from Rt. 32 may occur to accommodate the new utility poles.

A wetland delineation at the site was conducted by ARC in August of 2023. Freshwater wetlands were delineated in accordance with the 1987 U.S. Army Corps of Engineers *Wetland Delineation Manual* and the *Northeast Regional Supplement*. Streams and freshwater wetlands were identified in the study area. All natural resource boundaries and locations are depicted on the attached plan set.

Predominant surface soil types in this area of the site are identified by the Natural Resource Conservation Service (NRCS) Web Soil Survey as Lyman-Tunbridge complex and Hinckley gravelly sandy loam. Surface drainage under Pit Road flows from south to north through a 30" metal pipe. Drainage within the forested area west of the pit flows from east to west and southwest across the property. The project site is located within the China Lake watershed. China Lake is considered a Lake Most at Risk of New Development, per the Maine Department of Environmental Protection (MDEP). The project takes place in the East Basin watershed district as shown on China's land use map dated June 1, 1996.

Construction Schedule

Construction will begin once all applicable permits and approvals have been received. We anticipate that the start of construction will be in the spring of 2024.

Attachments

Attachment 2.1 – Redacted Central Maine Power System Impact Study and Interconnection Agreement

Attachment 2.2 – USGS Topographic Map

Attachment 2.3 – Tax Map

Attachment 2.4 – FEMA Map

Attachment 2.5 – Drone Photographs

ATTACHMENT 2.1

CENTRAL MAINE POWER SYSTEM IMPACT STUDY AND INTERCONNECTION AGREEMENT

PRJ 745
Perennial Renewables, LLC
(China)

Final Report

Distribution Interconnection Impact Study
-- POI: Pole #14, Pit Road (Windsor Rd), China, ME--



July 6th, 2023

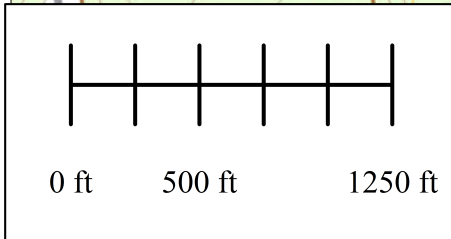
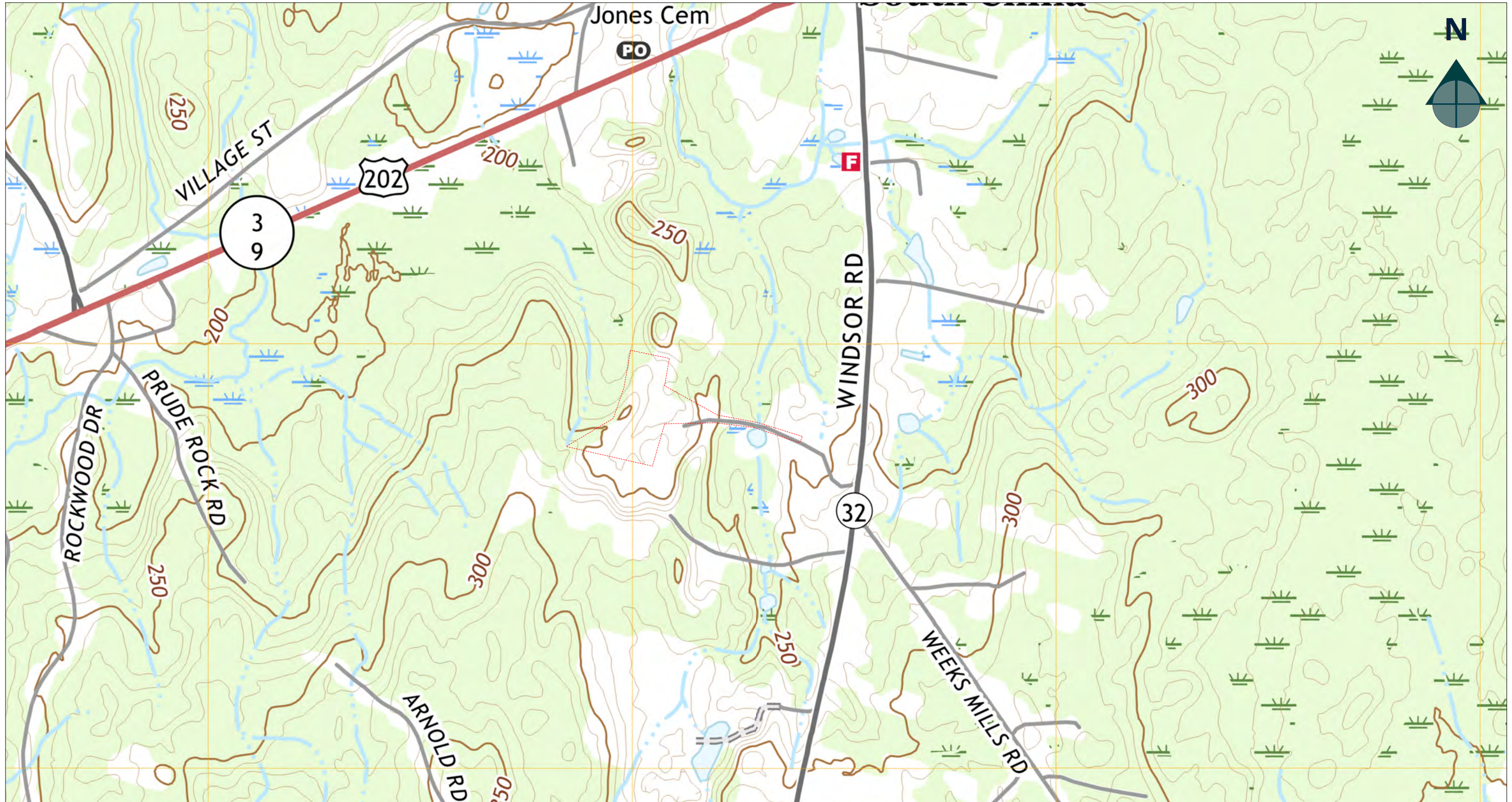
Prepared by:
Gregg Paulson, P.E
Haowei Lu, Ph. D.


Distribution Planning Department
Central Maine Power Company

Applicant Note: The remainder of this report was redacted to save paper, however the entire document can be provided to the Planning Board at their request.

ATTACHMENT 2.2

USGS TOPOGRAPHIC MAP



Legend
 Project Area

Created By: Lucien Langlois
 Date Created: 11/20/2023
 Projection: UTM 19N (NAD83)
 Project # 23-047

This map represents a composite of ME Office of GIS layers, aerial photography, and Atlantic Resource Consultants, LLC submeter accuracy of wetland boundaries, stream, and vernal pool locations via Trimble Geo 7x GPS unit.

USGS MAP

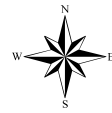
PERRENIAL RENEWABLES
 CHINA, ME



Atlantic Resource Consultants
 541 US Route One
 Freeport, ME 04032
 Tel: 207.869.9050

ATTACHMENT 2.3

TAX MAP



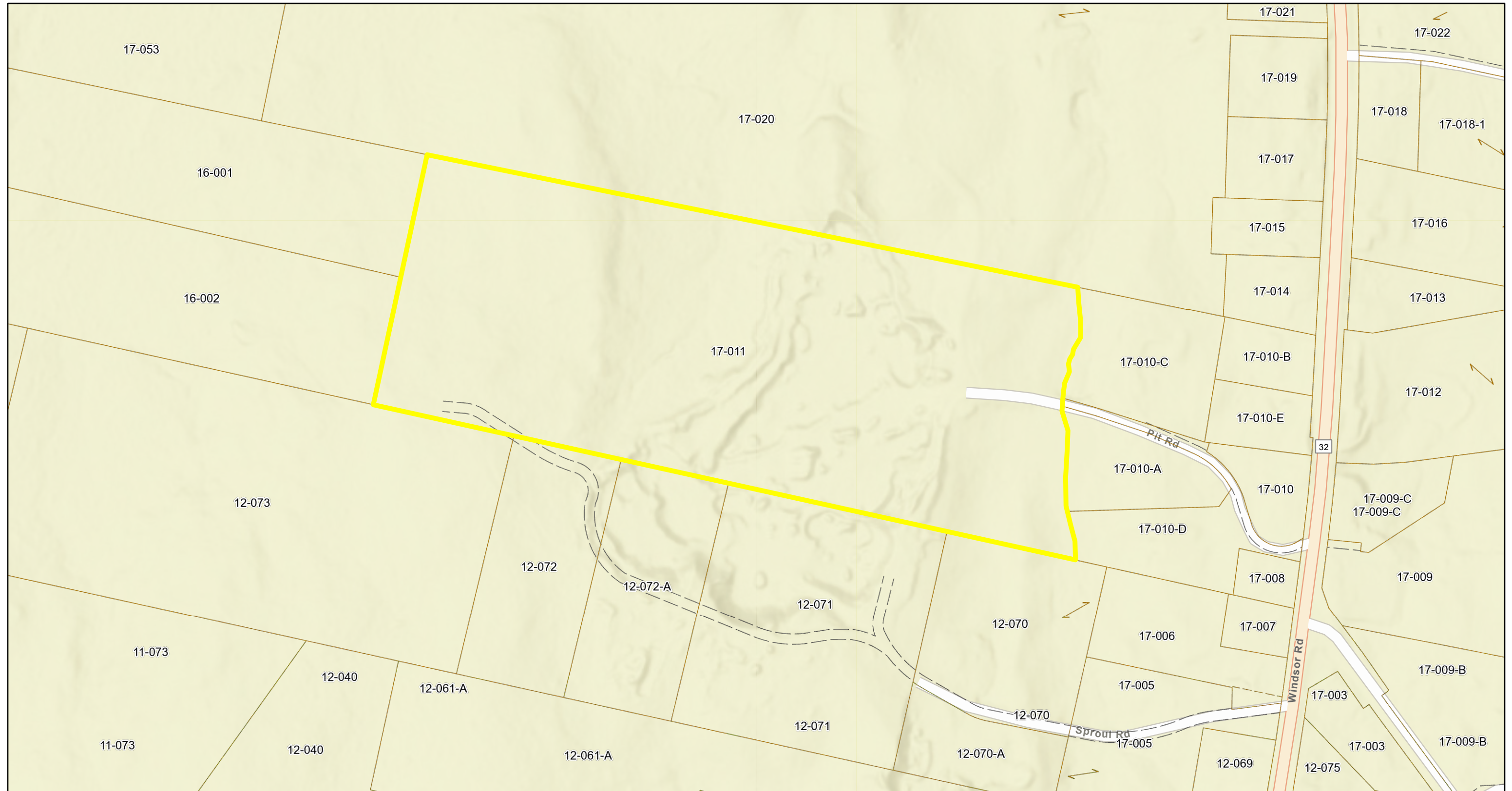
September 12, 2023

Town of China, ME

1 inch = 300 Feet



www.cai-tech.com



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

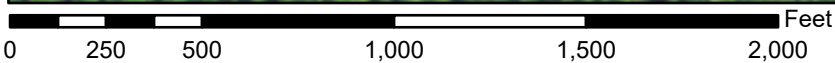
ATTACHMENT 2.4

FEMA MAP

National Flood Hazard Layer FIRMMette



69°34'58"W 44°23'19"N



1:6,000

69°34'21"W 44°22'53"N

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i>
		With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i>
		Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>
		Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>
		Area with Flood Risk due to Levee <i>Zone D</i>
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i>
		Effective LOMRs
		Area of Undetermined Flood Hazard <i>Zone D</i>
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance
		17.5 Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped
		The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.



This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **1/16/2024 at 2:40 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

ATTACHMENT 2.5

DRONE PHOTOGRAPHS

Drone Photographs

China, Maine



Photo 1– Drone photograph showing existing conditions within gravel pit. Access drive located at the top right-hand corner of the photo.



Photo 2 – Drone photograph showing existing conditions within gravel pit. Project proposed to be located within gravel pit.

SECTION 3

CONDITIONAL USE STANDARDS

1. The proposed use will meet the definition or specific requirements set forth in this Ordinance or will be in compliance with applicable State or Federal laws.

The proposed project will meet the definition or specific requirements set forth in this Ordinance. Additionally, all applicable State and Federal approvals will be obtained prior to construction of the proposed project. Three permit applications, including a Natural Resources Protection Act (NRPA) Permit by Rule (PBR), a Stormwater Management Law (SW) Permit by Rule (PBR), and a Decommissioning Application, have been submitted to the Maine Department of Environmental Protection for review and approval. A copy of the Decommissioning application has been provided in Attachment 3.3.

2. The proposed use will not create fire safety hazards by providing adequate access to the site, or to the buildings on the site, for emergency vehicles.

The proposed project will include the construction of a 20-foot-wide access driveway leading to the entrance of the array. No hazards will be created by the construction of the access road. The access drive has been designed to accommodate and support utility trucks and emergency vehicles and provides the required turn-around space. The project will include a 16-foot-wide road to access the perimeter of the solar array.

Perennial Renewables worked with the South China Volunteer Fire Department Chief, Richard Morse, to understand any additional safety requirements needed for the project. Chief Morse suggested four different outdoor model Knox Locks, and sent Perennial a promotional sheet for Knox, identifying the outdoor models that would suffice.

The project will include the installation of a 20-foot-wide vehicle access gate located at the front of the array and will be equipped with one of the Knox models, with a key provided to Chief Morse and his Department. See Attachment 3.1 for correspondence with the Fire Chief. Attachment 3.2 references the model of Knox to be used on the site.

3. The proposed exterior lighting will not create hazards to motorists traveling on adjacent public streets and is adequate for the safety of occupants or users of the site or will not damage the value and diminish the usability of adjacent properties.

The proposed project is cited to be located in the existing gravel pit on Pit Road. The current access drive serves three single-family residential homes and the owner of the gravel pit. The access drive is sufficiently constructed and does not require any improvements to serve the proposed project with the exception of utility poles. The proposed project will not adversely impact or diminish the usability of adjacent properties. There is no lighting proposed as part of the site development.

4. The provisions for buffers and on-site landscaping will provide adequate protection to neighboring properties from detrimental features of the development.

The proposed project is sited within a portion of the existing gravel pit. The gravel pit is approximately 1,200 linear feet setback from Route 32. The project site contains an existing approximately 800 linear foot forested buffer that will act as a screen and will protect neighboring properties from the proposed project.

5. The proposed use will not have a significant detrimental effect on the use and peaceful enjoyment of abutting property as a result of noise, vibrations, fumes, odor, dust, glare or other cause.

The proposed project will not create vibrations, fumes, odors, dust, glare or any other detrimental effect on the use and peaceful enjoyment of abutting property.

6. The provisions for vehicular loading and unloading and parking, and for vehicular and pedestrian circulation on the site and onto adjacent public streets will not create hazards to safety.

The project will contain sufficient access to support facility operators and maintenance staff. The project site is considered private property and will not include pedestrian access.

7. The proposed use will not have a significant detrimental effect on the value of adjacent properties or could be avoided by reasonable modification of the plan.

The proposed project will not impact the value of adjacent properties.

8. The design of the site will not result in significant flood hazards or flood damage or is in conformance with applicable flood hazard protection requirements.

The project site is located in an Area of Minimal Flood Hazard or Zone X according to the FEMA Firm Panel 23011C0390D, dated June 16, 2011. The development of the project site will not result in any flood hazard or damage. See Attachment 2.3 in Section 2.

9. Adequate provision has been made for disposal of wastewater, or solid waste, or for the prevention of ground or surface water contamination.

The proposed project does not require a subsurface wastewater disposal system as there will not be an outbuilding for employees. All solid waste associated with the proposed project will be generated during the construction of the solar array as there will be no operational waste. The project site will not require any tree clearing to accommodate the proposed project. There will be minor clearing of small brush and overgrown meadow along the western edge of the site. Solid waste would be created from the decommissioning of the solar array after the life of the project. All solid waste will be disposed of in accordance with local, state, and federal regulations. A decommissioning permit application has been submitted to the Maine Department of Environmental Protection. Additionally, a Phase 1 Environmental Site Assessment (ESA) was conducted by BBG Assessments, LLC in December of 2023 to support planning and permitting of the proposed project. A copy of the Executive Summary from the Phase 1 is provided in Attachment 3.4. A full copy of the Phase 1 ESA can be provided to the Planning Board upon request.

10. Adequate provision has been made to control erosion or sedimentation.

The proposed project has been designed to include stormwater best management practices to control erosion and sedimentation during the construction and operation of the solar facility - See Section 9 of application.

11. Adequate provision has been made to handle stormwater runoff or other drainage problems on the site.

The proposed project has been designed to meet the Phosphorus Control Ordinance – See Section 9 of application.

12. The proposed water supply will meet the demands of the proposed use or for fire protection purposes.

The proposed project does not require water capacity as there will not be an outbuilding for employees. The project site will have a perimeter fence and a gated entrance. The applicant has been in conversation with Richard Morse, head of the fire department in China. Based on those conversations, the applicant is planning to install a Knox padlock to allow access to the fire department in case of a fire. The applicant is willing to offer training to the local Fire Department, if desired.

13. Adequate provision has been made for the transportation, storage, and disposal of hazardous substances and materials as defined by State law.

The proposed solar array will not include the transportation, storage, or disposal of any hazardous substances or materials.

14. The proposed use will not have an adverse impact on significant scenic vistas or on significant wildlife habitat or could be avoided by reasonable modification of the plan.

The project site does not contain any significant wildlife habitat. The proposed project will not have an adverse impact on significant scenic vistas, as the solar array will be located within the existing gravel pit. See Section 5 for details about wildlife habitats on and near the project site.

15. When located in the Resource Protection District, Stream Protection District, Shoreland District, the proposed use will meet the standards in Section 5 of this Ordinance.

The project site is not located in the Resource Protection District, Stream Protection District, or Shoreland District and therefore is not required to meet the standards in Section 5 of this Ordinance.

Attachments

Attachment 3.1 – Communication with Fire Chief

Attachment 3.2 – Knox Lock Details

Attachment 3.3 – Decommissioning Application

Attachment 3.4 – Phase 1 Environmental Site Assessment Summary

ATTACHMENT 3.1

COMMUNICATION WITH FIRE CHIEF

From: [Ryan Coughlin - Perennial Renewables](#)
To: [Richard Morse](#)
Subject: Re: China Solar Array

You can mail it to:

Nick Lacasse
126 Water St Apt 3
Hallowell, ME 04347

Thanks,
Ryan

From: Richard Morse <morserichard54@gmail.com>
Sent: Monday, November 20, 2023 12:29 PM
To: Ryan Coughlin - Perennial Renewables <ryan@perennialrenew.com>
Subject: RE: China Solar Array

Ryan

I need a mailing address as the form is hard copy.

Sincerely,

Chief Richard Morse
South China VFD
morserichard54@gmail.com
207-242-9674
207-445-2948

From: Ryan Coughlin - Perennial Renewables <ryan@perennialrenew.com>
Sent: Thursday, November 16, 2023 4:02 PM
To: morserichard54@gmail.com
Cc: Nick Lacasse - Perennial Renewables <nick@perennialrenew.com>
Subject: China Solar Array

Hi Richard,

It was nice to meet you just now. Please send along the Knox lock specifications when you have the chance.

Let me know if there is anything else you would like from us as we work through permitting this project.

Thanks,
Ryan

ATTACHMENT 3.2




KNOX LOCK DETAILS

PERIMETER ACCESS

KNOX GATE & KEY SWITCH™

Shipping Weight: 1 lb







Provides emergency access to electric gates in residential communities, parking garages and industrial areas. Also, serves as an electric override switch to open motorized and roll-up doors.

Type (includes stainless steel dust cover)	Model #	Price
 Double Key Switch on Mounting Plate	3503	\$278
 Key Switch on Mounting Plate	3502	\$172
 Key Switch	3501	\$140

KNOX PADLOCK™


Shipping Weight: 2 lb

Rapid access, along with increased security into gated and fenced properties/ areas, construction sites and storage lots with shackles that are thicker than most padlocks, and built to resist pull attacks.

Type	Model #	Price
 Exterior Use, Shrouded - All Weather Conditions 1-1/8" H shackle clearance, 7/16" diameter stainless steel shackle	3784	\$166
 Exterior Use - All Weather Conditions 3-7/8" H shackle clearance, 7/16" diameter stainless steel shackle	3781	\$146
 Exterior Use - All Weather Conditions 2-3/8" H shackle clearance, 7/16" diameter stainless steel shackle	3782	\$140
 Exterior Use - All Weather Conditions 1-1/4" H shackle clearance, 7/16" diameter stainless steel shackle	3783	\$138
 Interior Use - Light Duty 2-3/8" H shackle clearance, 5/16" diameter stainless steel shackle	3771	\$106
 Interior Use - Light Duty 1-1/8" H shackle clearance, 5/16" diameter stainless steel shackle	3774	\$106

KNOXBOX® 3200 FOR GATES

With mechanical lock and multi-use switch for gate operation Shipping Weight: 10 lb

Mount Type	Type	Color	Model #	Price
 Surface	KnoxLock™, 3200 with mechanical lock and multi-use switch for gate operation	Black	3261-MUG	\$529

*Available in additional colors or configurations by ordering the desired 3200 model and a 3291 multi-use switch

FIRE HYDRANT PROTECTION

KNOX STORZ LOCK® KITS, ADAPTERS, AND STANDPIPE LOCKS

Locked hydrants prevent water theft, damage, vandalism, and debris.

Shipping weights:
Steamer Kits: 16 lb
Steamer Adapters 8 lb
Standpipe Lock: 8 lb




Type	Size	Face Type	Model #	Price
Hydrant Steamer Kit	5" Storz to 4.5" NH	Metal Face	5049	\$1,035
Hydrant Steamer Kit	4" Storz to 4" NH	Metal Face	5024	\$845
Hydrant Steamer Adapter	5" Storz to 4.5" NH	Metal Face	5089	\$417
Hydrant Steamer Adapter	4" Storz to 4" NH	Metal Face	5064	\$252
 STANDPIPE LOCK	2.5" NH Female Locking Cap	Stainless steel exterior with solid brass threads	varies	\$573

FDC PROTECTION

KNOX FDC LOCK™

Shipping Weight: 1.5": 2 lb / 2.5": 4 lb

Safeguard the integrity of fire sprinkler systems by protecting FDCs from damage, debris, theft and vandalism with locking caps.

Type	Model #	Price
 2.5" Male Locking Cap with Swivel-Guard™ Enhanced Protection, stainless steel	varies	\$392
 2.5" Male Locking Cap, stainless steel	varies	\$299
 1.5" NH Male Locking Cap, stainless steel	varies	\$258

KNOX STANDPIPE LOCK™

Shipping Weight: 8 lb



Protect the discharge side of wet and dry standpipes and wall hydrants with the Knox heavy-duty Standpipe Lock.

Type	Model #	Price
 2.5" NH Female Locking Cap, stainless steel exterior with solid brass threads	varies	\$573

KNOX STORZ LOCK™

Shipping Weight: 4": 6 lb / 5": 9 lb

Storz locks protect large diameter FDCs to ensure reliable water connections and prevent hydrant water loss or theft.

Type	Model #	Price
 5" Locking Cap - Dark, Hard Anodized Aluminum	5002	\$598
 4" Locking Cap - Dark, Hard Anodized Aluminum	5001	\$570

KNOX STORZ LOCK® KITS

Kit includes Storz Lock Cap and Adapter.

Shipping Weight: 16 lb

Adapter Type	Adapter Size	Face Type	Model #	Price
 Knox Storz Lock + 30° Elbow	5" Storz x 6" NPT Female Rigid	Gasket	5046	\$1,260
		Metal Face	5047	\$1,260
	5" Storz x 4" NPT Female Rigid	Gasket	5042	\$1,152
		Metal Face	5043	\$1,152
	4" Storz x 4" NPT Female Rigid	Gasket	5022	\$1,047
		Metal Face	5023	\$1,047
 Knox Storz Lock + Straight	5" Storz x 6" NPT Female Rigid	Gasket	5044	\$1,136
		Metal Face	5045	\$1,136
	5" Storz x 4" NPT Female Rigid	Gasket	5040	\$1,024
		Metal Face	5041	\$1,024
	4" Storz x 4" NPT Female Rigid	Gasket	5020	\$845
		Metal Face	5021	\$845

KNOX STORZ LOCK® ADAPTERS ONLY

Increases safety to firefighters when working with large connections. Shipping Weight: 8 lb

Adapter Type	Adapter Size	Face Type	Model #	Price
 30° Elbow	5" Storz x 6" NPT Female Rigid	Gasket	5086	\$640
		Metal Face	5087	\$640
	5" Storz x 4" NPT Female Rigid	Gasket	5082	\$533
		Metal Face	5083	\$533
	4" Storz x 4" NPT Female Rigid	Gasket	5062	\$456
		Metal Face	5063	\$456
 Straight	5" Storz x 6" NPT Female Rigid	Gasket	5084	\$516
		Metal Face	5085	\$516
	5" Storz x 4" NPT Female Rigid	Gasket	5080	\$405
		Metal Face	5081	\$405
	4" Storz x 4" NPT Female Rigid	Gasket	5060	\$252
		Metal Face	5061	\$252

ATTACHMENT 3.3

DECOMMISSIONING APPLICATION

PERENNIAL SAND PIT SOLAR LLC CHINA, MAINE

DEPARTMENT OF ENVIRONMENTAL PROTECTION SOLAR DECOMMISSIONING APPLICATION

January 2024

Prepared for:

Perennial Sand Pit Solar, LLC
126 Water Street, Suite 3
Hallowell, ME 04347

Prepared by:

Atlantic Resource Consultants
541 US Route One, Suite 21
Freeport, Maine 04032



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SECTION 7 – EROSION CONTROL PLAN

SECTION 8 – SITE PLAN

SECTION 9 – PUBLIC NOTICE

SECTION I

APPLICATION FORM

DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOLAR DECOMMISSIONING APPLICATION FORM

APPLICANT INFORMATION (Owner)		AGENT INFORMATION (If Applying on Behalf of Owner)	
Name:		Name:	
Mailing Address:		Mailing Address:	
Mailing Address:		Mailing Address:	
Town/State/Zip:		Town/State/Zip:	
Daytime Phone #:	Ext:	Daytime Phone #:	Ext:
Email Address:		Email Address:	
PROJECT INFORMATION			
Project previously permitted by DEP (if yes, see row below) <input type="checkbox"/> Yes <input type="checkbox"/> No	Project requires other DEP permits not yet issued (e.g., Site Law, NRPA, Stormwater) <input type="checkbox"/> Yes <input type="checkbox"/> No	Farmland: Is any portion of project on farmland? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Type of existing permit and permit number, if previously permitted. (For permit with L-number, include first group of numbers after the letter L): License Number: L- _____ <input type="checkbox"/> Site Law <input type="checkbox"/> NRPA <input type="checkbox"/> Stormwater PBR Number: _____ <input type="checkbox"/> PBR (NRPA / Stormwater)			
Project Town:	Acres Occupied by Project:	Tax Map and Lot Number:	
Brief Project Description:			
Project Location & Brief Directions to Site:			

NOTE: Municipal permits also may be required. Contact your local code enforcement office for information. Federal permits may be required for stream crossings and for projects involving wetland fill. Contact the Army Corps of Engineers at the Maine Project Office for information.

THIS APPLICATION CANNOT BE ACCEPTED FOR PROCESSING WITHOUT THE NECESSARY ATTACHMENTS & FEE

- Attach a decommissioning plan** consistent with the requirements of 35-A M.R.S. § 3494 in the [Solar Decommissioning Law](#). If any portion of the solar energy development is or will be on land qualifying as "farmland" (see definition in 35-A M.R.S. § 3491(3) of the Solar Decommissioning Law) within 5 years preceding the start of construction, the decommissioning plan must provide for restoration of that farmland upon decommissioning sufficient to support resumption of farming or agricultural activities.
- Attach financial assurance** (e.g., performance bond, surety bond, irrevocable letter of credit) for the total cost of decommissioning or a statement that the applicant will submit financial assurance to the Department for review and approval prior to the start of construction.
- Attach a location map** that clearly identifies the site (U.S.G.S. topo map, Maine Atlas & Gazetteer, or similar).
- Attach proof of legal name** if applicant is a corporation, LLC, or other legal entity. A copy of the Secretary of State's registration information (available at <http://icrs.informe.org/nei-sos-icrs/ICRS?MainPage=x>) is sufficient. Individuals and municipalities are not required to provide any proof of identity.
- Attach a copy of the public notice** of the permit application, pursuant to the DEP's Chapter 2 rules.

FEE: Pay the application fee by credit card at the [Payment Portal](#). The solar decommissioning fee is set in the Department's fee schedule, available at: <https://www.maine.gov/dep/feeschedule.pdf>.

- Attach payment confirmation** from the Payment Portal when filing this application form.

Signature & Certification:	
<ul style="list-style-type: none"> • I authorize staff of the Department of Environmental Protection to access the project site for the purpose of determining compliance with the statute. • By signing this Application Form, I represent that I am authorized to act on behalf of the applicant with respect to this application, that the information presented in this application is true and accurate to best of my knowledge, and that the applicant has sufficient title, right, or interest in the property where the solar energy development is or will be located. 	
Signature of Agent or Applicant (may be typed): <i>Kayla Gray</i>	Date:

Instructions on how to file applications electronically: <https://www.maine.gov/dep/land/permits/individual/index.html>.

Email this completed form with attachments, following the instructions above, to DEP at: DEP.LandApplication@maine.gov

State of Maine DEP Payment Receipt

Contact Infor Kayla Gray - 541 US Route 1, Suite 21, Freeport, ME, 04032
 (207) 869-9050
 kayla@arc-maine.com

Product	Reference Number	Customer Number	Payment Amount	Comments
Natural Resources Protection Act	N/A		\$307.00	Part of a larger project including a SW PBR and
Solar	New Application		\$574.00	Part of a larger project including a NRPA PBR and
Stormwater Management Law	New Application		\$84.00	Part of a larger project including a NRPA PBR and Solar

Receipt ID: 2693
Transaction Date: 1/16/2024 9:06:20 AM

Transaction Summary	
Payment	\$965.00
Service F	\$2.00
Total	\$967.00

Thank you for your successful transaction.

If you have questions or concerns, please call (207) 287-7688

or Email: Payments.DEP@maine.gov

[Print](#)

SECTION 2

AGENT AUTHORIZATION LETTER



10/18/2023

Perennial Renewables LLC
71 Third Ave
Burlington, MA 01803

**RE: Perennial Sand Pit Solar LLC
China, Maine
Atlantic Resource Consultants Agent Authorization Letter**

To Whom It May Concern,

Perennial Renewables has retained Atlantic Resource Consultants, LLC to undertake regulatory permitting for the referenced project. Atlantic Resource Consultants, LLC is hereby authorized to act as agent on our behalf for matters related to these permits.

Sincerely,

Ryan Coughlin
ryan@perennialrenew.com
508 517 5105

SECTION 3

DECOMMISSIONING PLAN

The applicant is requesting approval for a solar decommissioning permit for a proposed 3,442 panel solar array with a perimeter fence, transformer pad, and access road occupying approximately 8.3 acres of a 42.2-acre lease area in China, Maine. Because the proposed solar site occupies greater than 3 acres, a decommissioning plan is required to be submitted to the Maine Department of Environmental Protection prior to the start of construction.

Construction of the solar array (the “Project”) requires approval under the Natural Resource Protection Act (NRPA) Permit by Rule (PBR) and Stormwater Management Law Permit by Rule (SWPBR). Applicable applications have been submitted to MDEP for review.

The project is **not** located on land classified as “farmland” under Title 36, section 1102, subsection 4. The majority of the project site is comprised of an existing active gravel pit. The undeveloped portion of the site is characterized by forested upland.

Decommissioning of the solar array will involve the physical removal of all components related to the solar energy development. Restoration will include the removal of all solar panels and associated anchoring systems and foundations to a depth of at least 24 inches to the depth of bedrock, whichever is less. Additionally, all structures, buildings, roads, fences, cables, and electrical components will be removed from the site. The site will be regraded to preconstruction conditions and all disturbed areas will be revegetated. Erosion and sedimentation controls will be followed according to the Maine Erosion & Sediment Control BMPs Manual. A written Erosion and Sedimentation Control Plan detail sheets for installation and maintenance have been provided within Section 7 of this application.

Attachment 3.1 - Decommissioning Plan

ATTACHMENT 3.1

DECOMMISSIONING PLAN



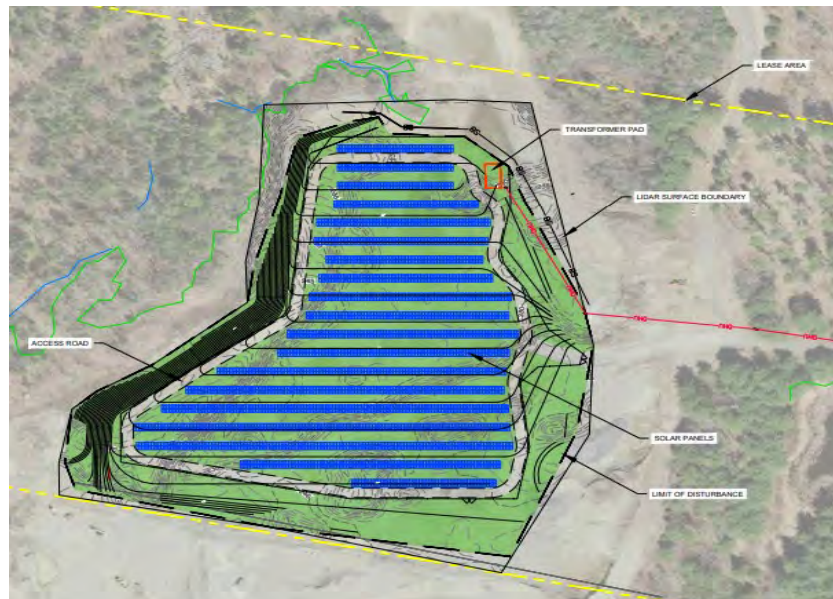
Perennial Sand Pit Solar LLC
Decommissioning Plan
January 2024

As defined by the *Act to Ensure Decommissioning of Solar Energy Developments* (35-A M.R.S §§ 3491 through 3496), the decommissioning of the Perennial Sand Pit Solar LLC, a 975kW AC ground mounted solar system (“the Project”) will occur at the end of the useful life of the project. That is, at the termination of the lease agreement, at the end of the project operation, or when the facility ceases to generate electricity for a continuous period of twelve months in the absence of an explicit approval by the State of Maine to delay project decommissioning due to a showing that the project will become operational again; whichever is earlier.

Project Details:

- Total Acreage: 8.32 occupied acres of an existing lot that is approximately 42 acres.
- Project Lease: Initial term is 20-years with three (3) five-year (5) extensions.
- Anticipated Useful Life of Equipment: The industry average solar panel life span is 25 to 35 years, while warranties for Tier 1 panels typically last 25 years. Panels (and other components) may be replaced or upgraded during the operation period of the project with adherence to local and state permit requirements.

Site Plan:



71 Third Ave
Burlington, MA 01803

126 Water Street #3
Hallowell, ME 04347

Decommissioning Activities

Decommissioning activities will include removal of all solar project equipment and improvements from the project site in accordance with State Law (35-A M.R.S §§ 3491 through 3496).

All refuse and recycled materials will be disposed of at an off-site waste facility conforming to state and federal regulations by licensed waste haulers.

In addition:

- A Professional Engineer will, prior to decommissioning, create and stamp a final decommissioning report.
- All sediment and erosion control measures employed during the decommissioning work will be consistent with prior approvals, DEP erosion Best Management Practices (BMPs) and further regulatory requirements in effect at the time of decommissioning.
- Other/additional decommissioning activities: installation of erosion controls, uninstall and disconnect solar panels, wiring, inverters, combiner boxes and medium voltage equipment, removal of concrete transformer pad, removal of racking foundations, removal of fencing and gates.
- All grades will be restored to pre-decommissioning conditions and the project area will be reseeded as necessary.

71 Third Ave
Burlington, MA 01803

126 Water Street #3
Hallowell, ME 04347

Decommissioning Cost Estimates

The total cost of decommissioning the Project is estimated to be \$48,631 (Table 1).

The cost was estimated using information published by the New York State Energy Research and Development Authority (NYSERDA) and adjusted for Maine labor wages and site-specific factors.

Table 1. Cost Estimates

TASK	COST*
Remove Solar Modules	\$1,370
Remove Racking Wiring	\$1,370
Dismantle Racks	\$6,890
Remove Electrical Equipment	\$1,030
Remove Concrete Pads	\$710
Remove Racks	\$4,350
Remove Cables	\$3,080
Remove Racking Ground Mount Support System	\$6,570
Remove Fence	\$2,350
Grading	\$1,900
Temporary Erosion Control	\$2,580
Seed Disturbed Areas with Native Seed Mix Seeding (15-20 lb per acre)	\$210
Truck to Recycling Center	\$1,260
Solar Module Disposal (\$1.90 Per Module)	\$8,961
Engineering / Consulting	\$3,000
Contractor Mobilization	\$1,500
Contractor Demobilization	\$1,500
Total	\$48,631
* NYSERDA decommissioning solar panel systems method adjusted for regional labor costs and storage facility.	
** Adjustments to conform to Maine 35-a M.R.S. 3491, module disposal fee based on state of Maine 2019 average tipping fee of \$76/ton, 50 lbs per module and 3,442 solar modules (assuming modules are not recycled) plus 25 tons of miscellaneous refuse that cannot be recycled.	
*** Temporary Erosion control cost is integrated into the NYSERDA method. A separate line item has been created for clarity.	

Financial Assurance and Restoration Funding

The total estimated decommissioning cost will be fully funded by Perennial Sand Pit Solar LLC before construction commences. These funds may be in the form of a performance bond, surety bond, irrevocable letter of credit, or other acceptable form of financial assurance (Financial Assurance).

Perennial Sand Pit Solar LLC, or its successor, will update the decommissioning cost estimate fifteen years after approval of the decommissioning plan, and no less frequently than every five years thereafter. Financial assurance updates must be submitted to the permitting entity by December 31 of the required year.

The Financial Assurance will remain in place until the decommissioning work has been completed.

State of Maine Decommissioning Bond Requirements: If a bond is required, the Project shall comply with the following State of Maine bond requirements.

1. The Obligee should be, "State of Maine, Department of Environmental Protection." A municipality may be the Obligee, provided the bond amount is sufficient to cover decommissioning in accordance with the Department-approved plan and the municipally approved decommissioning plan covered by the bond is consistent with the Department-approved decommissioning plan. However, where a municipality has its own decommissioning requirement and the developer desires to secure only a single bond, it is preferable for both the municipality and State of Maine, Department of Environmental Protection to be co-Obligees.
2. The amount listed on the financial assurance should match the amount in the cost estimate.
3. The bond should reference the Solar Energy Decommissioning Law (35-A M.R.S. §§ 3491-3496), the Department order approving the decommissioning plan (including the licensing number, if possible), and the approved decommissioning plan.
4. The bond should acknowledge the Obligor's obligation to decommission the solar energy development and restore the site upon discontinuance of service consistent with the approved decommissioning plan.
5. The bond should provide that the Obligee can make a claim on the bond upon learning 1) that the facility has been abandoned or 2) that the Obligor has violated its obligation to decommission the solar energy development pursuant to the Order. If the bond specifies the number of days from a triggering event that the Department has to make a claim on the bond, that number of days should be at least 60 and, with respect to a violation of the decommissioning obligation (#2 above), this time period should not begin until the Obligor has failed to take corrective action in response to a corresponding notice of violation issued by the Obligee.
6. Bonds may be renewed annually.

71 Third Ave
Burlington, MA 01803

126 Water Street #3
Hallowell, ME 04347

SECTION 4

FINANCIAL ASSURANCE

The applicant will submit financial assurance to the Department prior to the start of construction. The applicant or its successors, and assigns, will submit an acceptable form of financial assurance (e.g. performance bond, surety bond, irrevocable letter of credit) to the Department prior to the start of construction for review and approval.

Attachment 4.1 - Financial Assurance Statement

ATTACHMENT 4.1

FINANCIAL ASSURANCE STATEMENT



January 12, 2024

Statement Preceding Financial Assurance Submittal
Submitted as Attachment to Solar Decommissioning Application Form

Perennial Sand Pit Solar LLC
126 Water Street
Hallowell, ME 04347

Maine Department of Environmental Protection,

My name is Nick Lacasse, I am a Partner at Perennial Renewables (Perennial), which is located in Hallowell, Maine. Perennial is the 100% equity owner of Perennial Sand Pit Solar LLC.

Perennial Sand Pit Solar LLC is an approximately 8.32-acre solar site (975kW) located in China, Maine. Atlantic Resource Consultants has developed the attached decommissioning plan to be consistent with 35-A M.R.S Section 3494.

This project is expected to begin construction in the Spring of 2024.

In accordance with 35-A M.R.S Section 3494, Perennial Sand Pit Solar LLC, I Nick Lacasse, a duly authorized representative of Perennial Sand Pit Solar LLC, assure that Perennial Sand Pit Solar LLC, its successors, and assigns, will submit an acceptable form of financial assurance (e.g. performance bond, surety bond, irrevocable letter of credit) to the Department prior to the start of construction for review and approval.

Please feel free to have a representative from the Department reach out to me directly with any questions. My contact information is listed below.

Nick Lacasse
Partner
C: 207-446-0635
nick@perennialrenew.com

Perennial Renewables LLC

SECTION 5

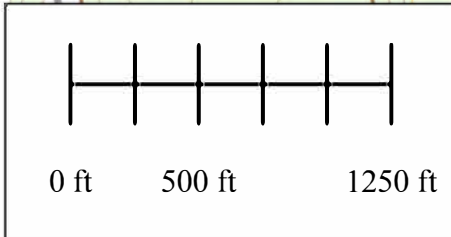
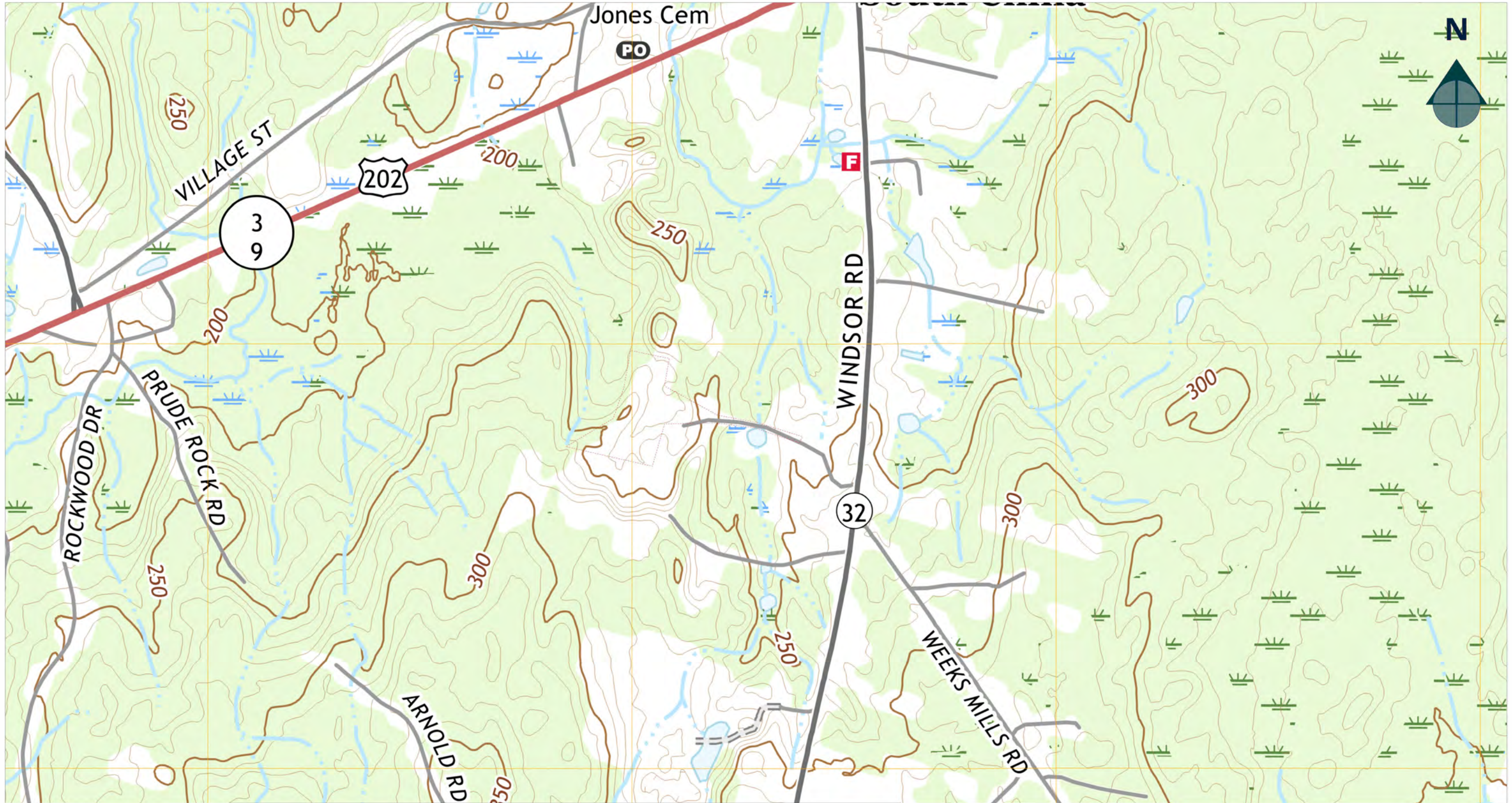
LOCATION MAPS

An excerpt of the USGS Topographic Map with the project site delineated is attached following this page. A copy of the tax map from the Town of China has also been included in this submission.

Attachment 5.1 - Maps

ATTACHMENT 5.I

MAPS



Legend
 Project Area

Created By: Lucien Langlois
 Date Created: 11/20/2023
 Projection: UTM 19N (NAD83)
 Project # 23-047

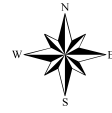
This map represents a composite of ME Office of GIS layers, aerial photography, and Atlantic Resource Consultants, LLC submeter accuracy of wetland boundaries, stream, and vernal pool locations via Trimble Geo 7x GPS unit.

USGS MAP

PERRENIAL RENEWABLES
 CHINA, ME



Atlantic Resource Consultants
 541 US Route One
 Freeport, ME 04032
 Tel: 207.869.9050



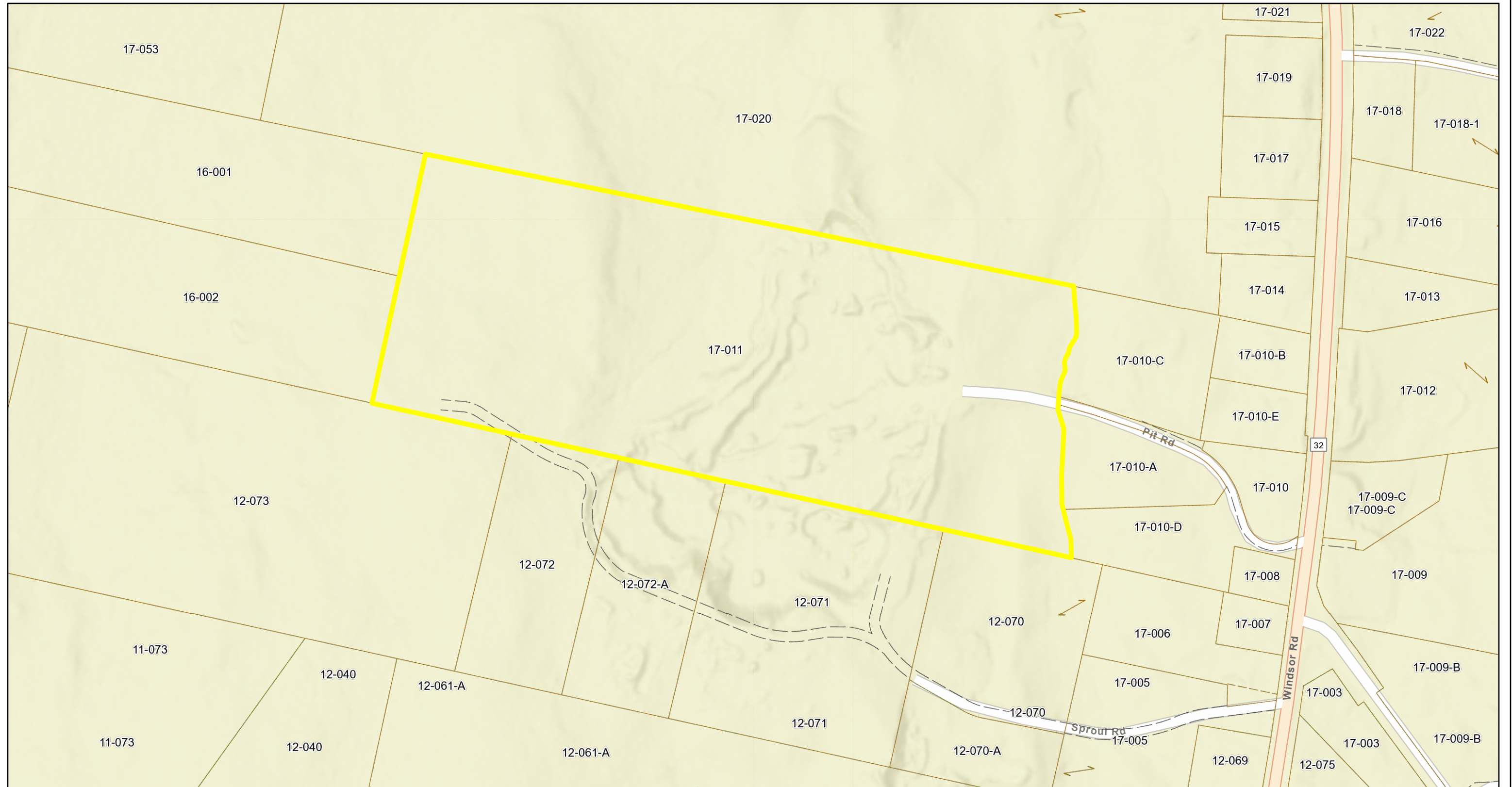
Town of China, ME



September 12, 2023

1 inch = 300 Feet

www.cai-tech.com



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

SECTION 6

CERTIFICATE OF GOOD STANDING

A copy of the Secretary of State's registration information for the applicant is provided following this page.

Attachment 6.1 - Certificate of Good Standing

ATTACHMENT 6.1

CERTIFICATE OF GOOD STANDING



MAINE

Department of the Secretary of State
Bureau of Corporations, Elections and Commissions

Corporate Name Search

Information Summary

[Subscriber activity report](#)

This record contains information from the CEC database and is accurate as of: Mon Nov 20 2023 12:56:40. Please print or save for your records.

Legal Name	Charter Number	Filing Type	Status
PERENNIAL SAND PIT SOLAR LLC	20252195DC	LIMITED LIABILITY COMPANY (DOMESTIC)	GOOD STANDING

Filing Date	Expiration Date	Jurisdiction
09/29/2023	N/A	MAINE

Other Names (A=Assumed ; F=Former)

NONE

Clerk/Registered Agent

NICK LACASSE
126 WATER ST APT 3
HALLOWELL, ME 04347

[New Search](#)

Click on a link to obtain additional information.

List of Filings

[View list of filings](#)

Obtain additional information:

Certificate of Existence [\(more info\)](#)

[Short Form without amendments \(\\$30.00\)](#) [Long Form with amendments \(\\$30.00\)](#)

You will need Adobe Acrobat version 3.0 or higher in order to view PDF files. If you encounter problems, visit the [troubleshooting page](#).



If you encounter technical difficulties while using these services, please contact the [Webmaster](#). If you are unable to find the information you need through the resources provided on this web site, please contact the Division of Corporations, UCC & Commissions Reporting and Information

SECTION 7

EROSION CONTROL PLAN

Decommissioning of the solar array will involve the physical removal of all components related to the solar energy development. Restoration would include the removal of all solar panels and associated anchoring systems and foundations to a depth of at least 24 inches or to the depth of bedrock, whichever is less. Additionally, all structures, buildings, roads, fences, cables, and electrical components would be removed from the site.

The site will be regraded to preconstruction conditions. Once a disturbed area has been brought to final grade, it will be permanently stabilized within seven days by planting of vegetation, seeding, or sod. The contractor is required to use native seed mixes in the restoration areas. Any disturbed area will be regularly inspected until the site is fully stabilized with 90% grass cover. Permanent stabilization techniques will mimic Stormwater Management Chapter 500, Appendix A (6), which describes permanent stabilization as “a 90% cover of the disturbed area with mature, healthy plants with no evidence of washing or rilling of the topsoil”. Prior to the start of ground disturbance, temporary erosion and sedimentation control will be installed on the site. Installation and maintenance of temporary erosion and sedimentation control measures will be in accordance with the Maine Erosion & Sediment Control BMPs Manual. Attached plan sheet C-300 will be for use during decommissioning of the project.

If the landowner would like to retain specific components, the landowner or developer may submit an application to the Department for the continued beneficial use at the time of decommissioning.

Attachment 7.1 - Sheet C-300 Erosion Control Notes & Details

ATTACHMENT 7.1

EROSION CONTROL NOTES & DETAILS

EROSION AND SEDIMENTATION CONTROL NOTES:

TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES INCLUDE THE USE OF GEOTEXTILE SEPARATION FABRIC ON SUBGRADE, STABILIZED CONSTRUCTION ENTRANCES, SILTATION FENCE, EROSION CONTROL MIX, STONE CHECK DAMS, HAY BALE BARRIERS, CATCH BASIN INLET BARRIERS, CATCH BASIN SEDIMENT COLLECTION BAGS, EROSION CONTROL BLANKET, AND TEMPORARY SEEDING AND MULCHING AS REQUIRED. PERMANENT DEVICES INCLUDE THE USE OF RIP RAP AT EXPOSED STORM DRAIN AND CULVERT INLETS AND OUTLETS, RIP RAPPED SLOPES, AND PERMANENT VEGETATION.

GENERAL

- A. IT IS ANTICIPATED THAT CONSTRUCTION MAY BEGIN AS SOON AS POSSIBLE FOLLOWING RECEIPT OF NECESSARY PERMITS.
- 1. ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MAINE EROSION AND SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES PUBLISHED BY THE CUMBERLAND COUNTY SOIL AND WATER CONSERVATION DISTRICT AND THE DEPARTMENT OF ENVIRONMENTAL PROTECTION, 2003, OR AS CURRENTLY REVISED OR U.S. ENVIRONMENTAL PROTECTION AGENCY PUBLICATION 832/R-92-005 (SEPTEMBER, 1992) STORM WATER MANAGEMENT FOR CONSTRUCTION, CHAPTER 3, WHICHEVER IS MORE STRINGENT.
- 2. ANY ADDITIONAL EROSION AND SEDIMENTATION CONTROL DEEMED NECESSARY BY THE OWNER'S REPRESENTATIVE, DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP) PERSONNEL AND/OR MUNICIPAL OFFICIALS SHALL BE INSTALLED BY THE CONTRACTOR.
- 3. THE CONTRACTOR IS RESPONSIBLE FOR ALL FINES RESULTING FROM EROSION OR SEDIMENTATION FROM THE SITE TO SURROUNDING PROPERTIES, WATER BODIES, OR WETLANDS AS A RESULT OF THIS PROJECT.
- 4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR/ REPLACEMENT/ MAINTENANCE OF ALL EROSION CONTROL MEASURES UNTIL ALL DISTURBED AREAS ARE STABILIZED TO THE SATISFACTION OF THE ABOVE PERSONNEL. DESCRIPTIONS OF ACCEPTABLE PERMANENT STABILIZATION FOR VARIOUS COVER TYPES FOLLOWS
- 5. :
 - A. FOR SEEDED AREAS, PERMANENT STABILIZATION MEANS A 90% COVER OF THE DISTURBED AREA WITH MATURE, HEALTHY PLANTS WITH NO EVIDENCE OF WASHING OR RILLING OF THE TOPSOIL.
 - B. FOR SODDED AREAS, PERMANENT STABILIZATION MEANS THE COMPLETE BINDING OF THE SOD ROOTS INTO THE UNDERLYING SOIL WITH NO SLUMPING OF THE SOD OR DIE-OFF.
 - C. FOR MULCHED AREAS, PERMANENT MULCHING MEANS TOTAL COVERAGE OF THE EXPOSED AREA WITH AN APPROVED MULCH MATERIAL. EROSION CONTROL MIX MAY BE USED AS MULCH FOR PERMANENT STABILIZATION ACCORDING TO THE APPROVED APPLICATION RATES AND LIMITATIONS.
 - D. FOR AREAS STABILIZED WITH RIP RAP, PERMANENT STABILIZATION MEANS THAT SLOPES STABILIZED WITH RIP RAP HAVE AN APPROPRIATE BACKING OF A WELL-GRADED GRAVEL OR APPROVED GEOTEXTILE TO PREVENT SOIL MOVEMENT FROM BEHIND THE RIP RAP. STONE MUST BE SIZED APPROPRIATELY.
 - E. PAVED AREAS: FOR PAVED AREAS, PERMANENT STABILIZATION MEANS THE PLACEMENT OF THE COMPACTED GRAVEL SUBBASE IS COMPLETED.
 - F. FOR OPEN CHANNELS, PERMANENT STABILIZATION MEANS THE CHANNEL IS STABILIZED WITH MATURE VEGETATION AT LEAST THREE INCHES IN HEIGHT, WITH WELL-GRADED RIP RAP, OR WITH ANOTHER NON-EROSIVE LINING CAPABLE OF WITHSTANDING THE ANTICIPATED FLOW VELOCITIES AND FLOW DEPTHS WITHOUT RELIANCE ON CHECK DAMS TO SLOW FLOW. THERE MUST BE NO EVIDENCE OF SLUMPING OF THE LINING, UNDERCUTTING OF THE BANKS, OR DOWN CUTTING OF THE CHANNEL.

B. EROSION AND SEDIMENTATION CONTROL MEASURES

- 1. PRIOR TO THE BEGINNING OF CONSTRUCTION, THE STABILIZED CONSTRUCTION ENTRANCE AND TEMPORARY SILT FENCE SHALL BE INSTALLED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE. IT IS THE INTENT THAT SILT FENCE BE INSTALLED DOWN GRADIENT OF ALL DISTURBED AREAS OF THE SITE. SILT FENCE SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS WILL BE MADE IMMEDIATELY. SEDIMENT DEPOSITS SHALL BE PERIODICALLY REMOVED FROM THE UPSTREAM SIDE OF THE SILT BARRIERS. THIS SEDIMENT WILL BE SPREAD AND STABILIZED IN AREAS OF THE SITE NOT SUBJECT TO EROSION. SILT FENCE SHALL BE REPLACED AS NECESSARY TO PROVIDE PROPER FILTERING ACTION. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THEM, THEY WILL BE REPLACED WITH A TEMPORARY CRUSHED STONE CHECK DAM.
- 2. ALL CATCH BASINS AND FIELD INLETS, NEW OR EXISTING, THAT MAY RECEIVE RUNOFF FROM DISTURBED AREAS MUST BE PROTECTED DURING CONSTRUCTION.
- 3. REMOVAL OF SOD, TREES, BUSHES AND OTHER VEGETATION AND SOIL DISTURBANCE WILL BE KEPT TO A MINIMUM WHILE ALLOWING PROPER SITE DEVELOPMENT.
- 4. GRUBBINGS AND ANY UNUSABLE TOPSOIL SHALL BE STRIPPED AND REMOVED FROM THE PROJECT SITE AND DISPOSED OF IN AN APPROVED MANNER.
- 5. ANY SUITABLE TOPSOIL WILL BE STRIPPED AND STOCKPILED FOR REUSE IN FINAL GRADING. TOPSOIL WILL BE STOCKPILED IN A MANNER SUCH THAT NATURAL DRAINAGE IS NOT OBSTRUCTED AND NO OFF-SITE SEDIMENT DAMAGE WILL RESULT. IF A STOCKPILE IS NECESSARY, THE SIDE SLOPES OF THE TOPSOIL STOCKPILE WILL NOT EXCEED 2:1. TOPSOIL STOCKPILES WILL BE TEMPORARILY SEEDED WITH AROOSTOOK RYE, ANNUAL OR PERENNIAL RYE GRASS WITHIN 7 DAYS OF FORMATION, OR TEMPORARILY MULCHED IF SEEDING CANNOT BE DONE WITHIN THE RECOMMENDED SEEDING DATES.
- 6. TEMPORARY DIVERSION BERMS AND DRAINAGE SWALES SHALL BE CONSTRUCTED AS NECESSARY.
- 7. TEMPORARY STABILIZATION SHALL BE CONDUCTED WITHIN 7 DAYS OF INITIAL DISTURBANCE OF SOILS, PRIOR TO ANY RAIN EVENT, AND PRIOR TO ANY WORK SHUT DOWN LASTING MORE THAN ONE DAY. TEMPORARY STABILIZATION INCLUDES SEED, MULCH, OR OTHER NON-ERODABLE COVER.
- 8. TEMPORARY SEEDING SPECIFICATIONS: WHERE SEEDBED HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF 2 INCHES BEFORE APPLYING FERTILIZER, LIME, AND SEED. APPLY LIMESTONE AT A RATE OF 3 TONS PER ACRE (138 LB. PER 1,000 SQUARE FEET) AND 10-10-10 (N-P205-K20) FERTILIZER AT A RATE OF 600 LBS PER ACRE (13.8 LB. PER 1,000 SQUARE FEET). UNIFORMLY APPLY SEED AT THE RECOMMENDED SEEDING RATES AND DATES, APPLY HAY OR STRAW MULCH AT A RATE OF 2 TONS PER ACRE, AND ANCHOR AS NECESSARY.

RECOMMENDED TEMPORARY SEEDING DATES AND APPLICATION RATES ARE AS FOLLOWS:

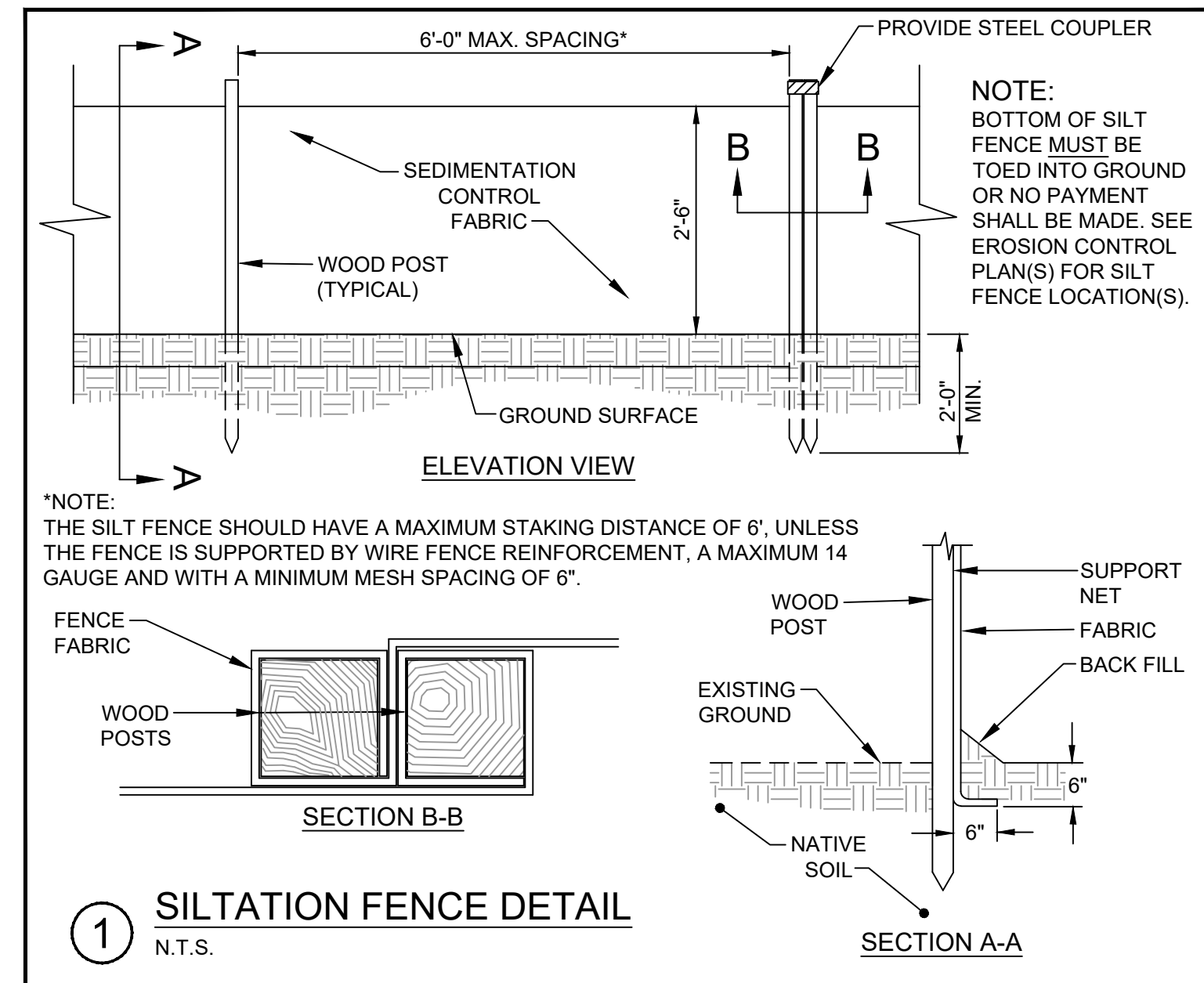
- AROOSTOOK RYE:
 - RECOMMENDED SEEDING DATES: 8/15 - 10/1
 - APPLICATION RATE: 112 LBS/ACRE
- ANNUAL RYE GRASS:
 - RECOMMENDED SEEDING DATES: 4/1 - 7/1
 - APPLICATION RATE: 40 LBS/ACRE
- PERENNIAL RYE GRASS:
 - RECOMMENDED SEEDING DATES: 8/15 - 9/15
 - APPLICATION RATE: 40 LBS/ACRE

- 9. PERMANENT SEEDING SPECIFICATION. IF A LANDSCAPE PLAN HAS BEEN PREPARED FOR THE PROJECT, SOIL PREPARATION AND SEED SPECIFICATIONS OF THAT PLAN SHALL SUPERSEDE THESE GENERAL PERMANENT SEEDING REQUIREMENTS. IT IS RECOMMENDED THAT PERMANENT SEEDING BE COMPLETED BETWEEN APRIL 1 AND JUNE 15 OF EACH YEAR. LATE SEASON SEEDING MAY BE DONE BETWEEN AUGUST 15 AND SEPTEMBER 15. AREAS NOT SEEDED OR WHICH DO NOT OBTAIN A SATISFACTORY GROWTH BY OCTOBER 15 SHALL BE SEEDED WITH AROOSTOOK RYE OR MULCHED AT RATES PREVIOUSLY SPECIFIED. SEE WINTER CONDITIONS NOTES FOR SEEDING STABILIZATION AFTER NOVEMBER 1.
 - A.A. APPLY TOPSOIL TO A MINIMUM DEPTH OF 4 INCHES. MIX TOPSOIL WITH THE SUBSOIL TO A MINIMUM DEPTH OF 6 INCHES.
 - A.B. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TESTS. IN LIEU OF SOIL TESTS, APPLY GROUND LIMESTONE AT A RATE OF 3 TONS PER ACRE (138 LB. PER 1,000 SQUARE FEET) AND GRANULAR, COMMERCIAL-GRADE, 10-10-10 (N-P205-K20) FERTILIZER AT A RATE OF 800 LBS PER ACRE (18.4 LBS PER 1,000 SQUARE FEET).
 - A.C. UNIFORMLY APPLY SEED MIXTURE AT THE RECOMMENDED SEEDING RATES AND DATES, APPLY HAY OR STRAW MULCH AT A RATE OF 2 TONS PER ACRES, AND ANCHOR AS NECESSARY.

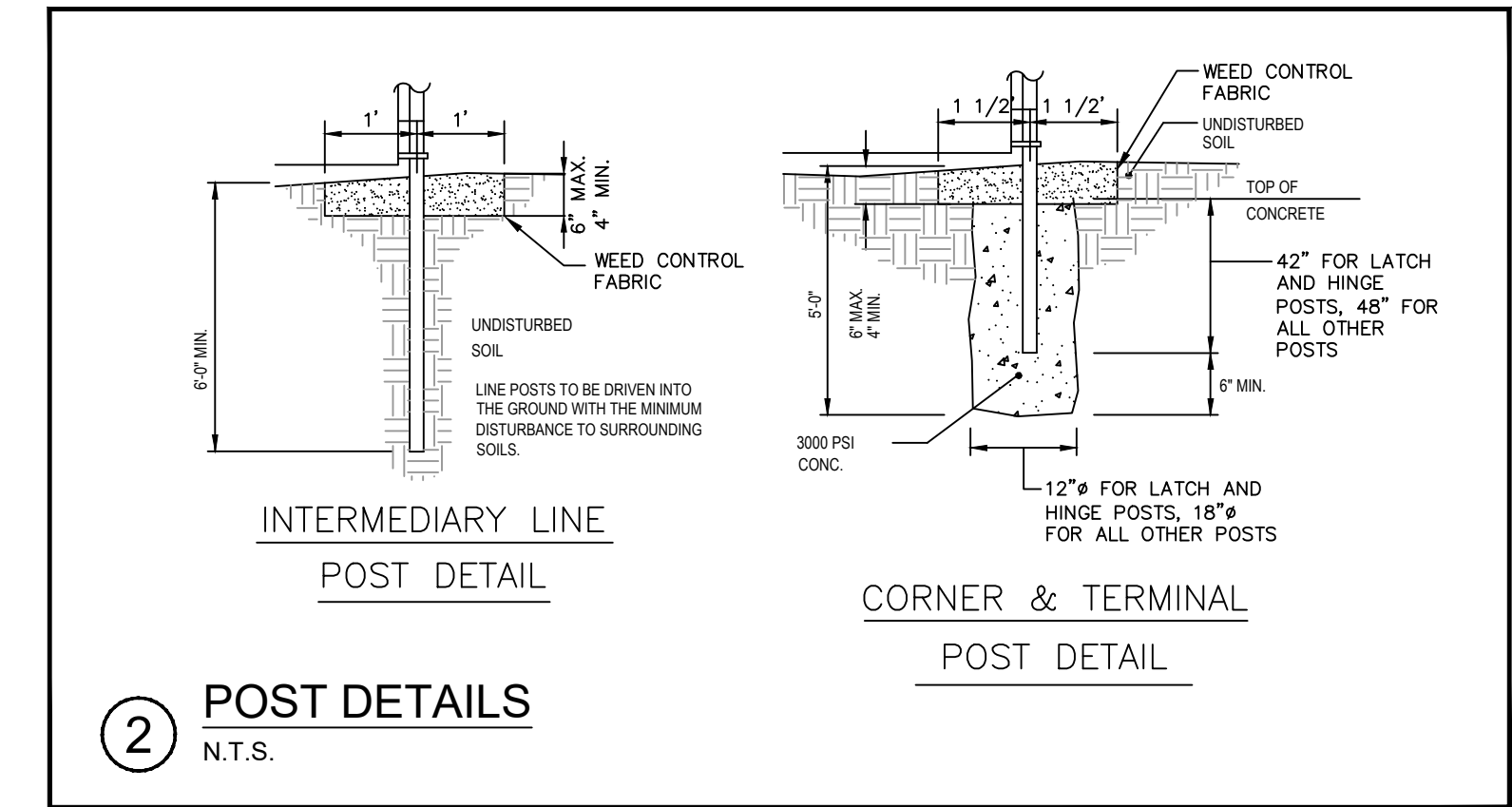
- B. THE SEED MIXTURE FOR LAWN AND FILTRATION BASIN AREAS SHALL CONSIST OF SEEDS PROPORTIONED BY WEIGHT AS FOLLOWS:
 - 30% CREEPING RED FESCUE
 - 50% KENTUCKY BLUEGRASS
 - 20% ITALIAN/PERENNIAL RYE GRASS
 NOTE: SEED MIXTURE SHALL CONSIST OF AT LEAST TWO VARIETIES OF EACH TYPE OF GRASS. WHEN USED IN A FILTER BASIN, STORMWATER SHALL NOT BE DIRECTED TO THE BASIN UNTIL THE GRASS IS ESTABLISHED.
 - NOTE: 1. MULCH ALL AREAS SEEDED SO THAT SOIL IS NOT VISIBLE THROUGH THE MULCH REGARDLESS OF THE APPLICATION RATE.
 - 2. DITCH LININGS, STONE CHECK DAMS, AND RIP RAP INLET AND OUTLET PROTECTION SHALL BE INSTALLED WITHIN 48 HOURS OF COMPLETING THE GRADING OF THAT SECTION OF DITCH OR INSTALLATION OF CULVERT.
 - 3. RIP RAP REQUIRED AT CULVERTS AND STORM DRAIN INLETS AND OUTLETS SHALL CONSIST OF FIELD STONE OR ROUGH UNHEWN QUARRY STONE OF APPROXIMATELY RECTANGULAR SHAPE.
 - 4. EROSION CONTROL BLANKET SHALL BE INSTALLED ON ALL PERMANENT SLOPES STEEPER THAN 15%, IN THE BASE OF DITCHES NOT OTHERWISE PROTECTED, AND ANY DISTURBED AREAS WITHIN 100 FEET OF A PROTECTED NATURAL RESOURCE (E.G. WETLANDS AND WATER BODIES). EROSION CONTROL BLANKET SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 - 5. TEMPORARY CONTROL MEASURES, SUCH AS SILT FENCE, SHALL BE REMOVED WITHIN 30 DAYS AFTER PERMANENT STABILIZATION IS ATTAINED.

- C. WINTER CONDITIONS
 - 1. "WINTER CONSTRUCTION" IS CONSTRUCTION ACTIVITY PERFORMED DURING THE PERIOD FROM NOVEMBER 1ST THROUGH APRIL 15TH. IF AREAS WITHIN THE CONSTRUCTION ACTIVITY ARE NOT STABILIZED WITH TEMPORARY OR PERMANENT MEASURES OUTLINED ABOVE BY NOVEMBER 15TH, THEN THE SITE MUST BE PROTECTED WITH ADDITIONAL STABILIZATION MEASURES THAT ARE SPECIFIC TO WINTER CONDITIONS. NO MORE THAN ONE ACRE OF THE SITE MAY BE WITHOUT STABILIZATION AT ONE TIME.
 - 2. SILT FENCE: IN LIEU OF PROVIDING THE 4" X 4" TRENCH, FOR FROZEN GROUND, STONY SOIL, THE PRESENCE OF LARGE ROOTS, OR OTHER PROHIBITIVE CONDITIONS, THE BOTTOM 8" TO 12" OF THE FABRIC MAY BE LAID ON EXISTING GRADE AND BACK FILLED WITH STONE ANCHORING MATERIAL, AS SHOWN ON THE DRAWINGS.
 - 3. HAY MULCH SHALL BE APPLIED AT TWICE THE STANDARD TEMPORARY STABILIZATION RATE. AT THE END OF EACH CONSTRUCTION DAY, AREAS THAT HAVE BEEN BROUGHT TO FINAL GRADE MUST BE STABILIZED. MULCH MAY NOT BE SPREAD ON TOP OF SNOW.
 - 4. AFTER NOVEMBER 1ST OR THE FIRST KILLING FROST FOR THE REGION AND BEFORE SNOW FALL, ALL EXPOSED AND DISTURBED AREAS NOT TO UNDERGO FURTHER DISTURBANCE ARE TO HAVE DORMANT SEEDING. THE DORMANT SEEDING METHOD: PREPARE THE SEEDBED, LIME AND FERTILIZE, APPLY THE SELECTED PERMANENT SEED MIXTURE AT DOUBLE THE REGULAR SEEDING RATE, AND MULCH AND ANCHOR. DORMANT SEEDINGS NEED TO BE ANCHORED EXTREMELY WELL ON SLOPES, DITCH BASES AND AREAS OF CONCENTRATED FLOWS. DORMANT SEEDING REQUIRES INSPECTION AND RESEEDING AS NEEDED IN THE SPRING. ALL AREAS WHERE COVER IS INADEQUATE MUST BE IMMEDIATELY RESEEDED AND MULCHED AS SOON AS POSSIBLE.
 - 5. ALL VEGETATED DITCH LINES THAT HAVE NOT BEEN STABILIZED BY NOVEMBER 1ST, OR WILL BE WORKED DURING THE WINTER CONSTRUCTION PERIOD, MUST BE STABILIZED WITH AN APPROPRIATE STONE LINING BACKED BY AN APPROPRIATE GRAVEL BED OR GEOTEXTILE UNLESS SPECIFICALLY RELEASED FROM THIS STANDARD BY THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION.
 - 6. MULCH NETTING MUST BE USED TO ANCHOR MULCH ON ALL SLOPES GREATER THAN 8% UNLESS EROSION CONTROL BLANKETS OR EROSION CONTROL MIX IS BEING USED ON THESE SLOPES.

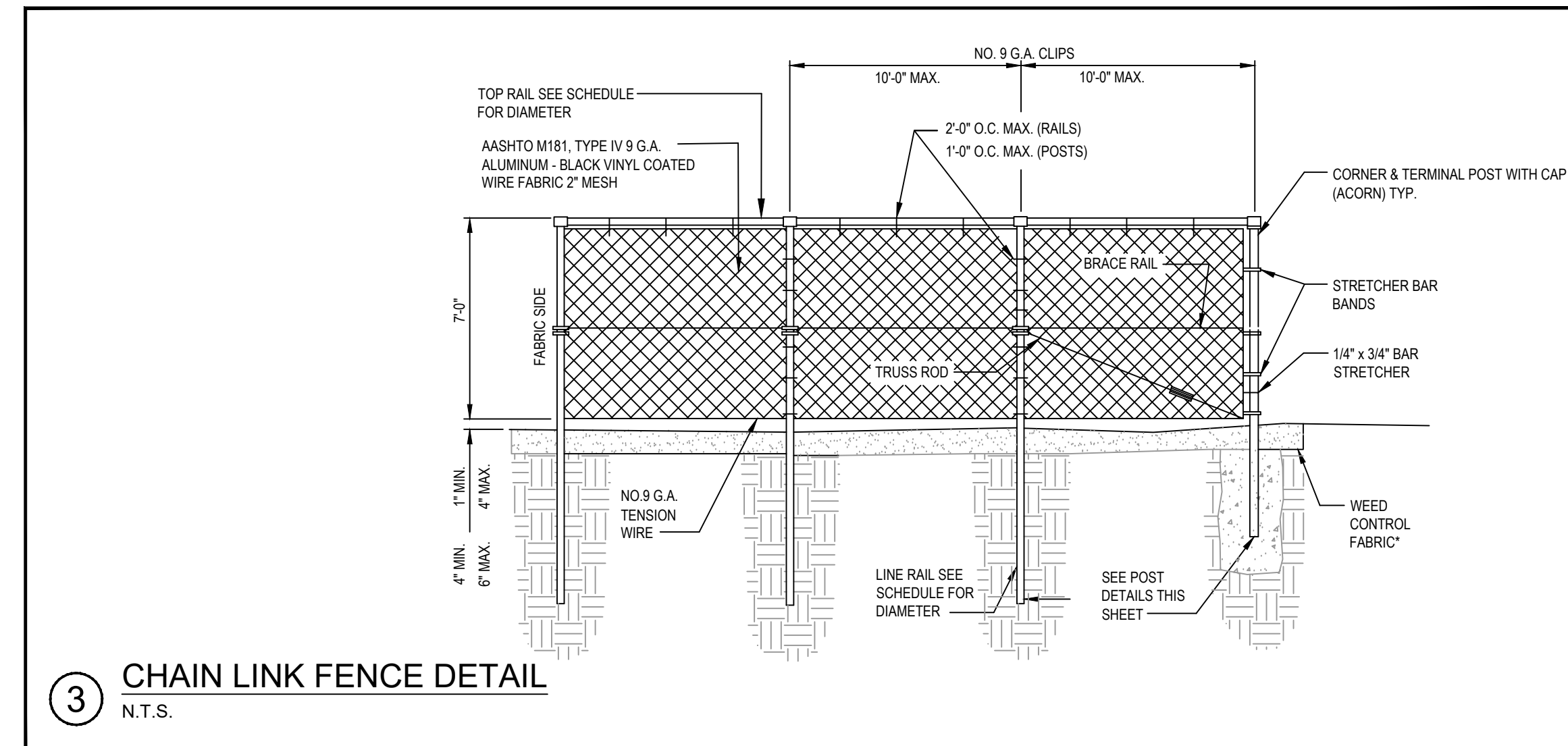
- D. HOUSEKEEPING
 - 1. SPILL PREVENTION. CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM CONSTRUCTION AND WASTE MATERIALS STORED ON-SITE, INCLUDING STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORM WATER, AND APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING AND IMPLEMENTATION.
 - 2. GROUNDWATER PROTECTION. DURING CONSTRUCTION, LIQUID PETROLEUM PRODUCTS AND OTHER HAZARDOUS MATERIALS WITH THE POTENTIAL TO CONTAMINATE GROUNDWATER MAY NOT BE STORED OR HANDLED IN AREAS OF THE SITE DRAINING TO AN INFILTRATION AREA. AN "INFILTRATION AREA" IS ANY AREA OF THE SITE THAT BY DESIGN OR AS A RESULT OF SOILS, TOPOGRAPHY AND OTHER RELEVANT FACTORS, ACCUMULATES RUNOFF THAT INFILTRATES INTO THE SOIL. DIKES, BERMS, SUMPS, AND OTHER FORMS OF SECONDARY CONTAINMENT THAT PREVENT DISCHARGE TO GROUNDWATER MAY BE USED TO ISOLATE PORTIONS OF THE SITE FOR THE PURPOSES OF STORAGE AND HANDLING OF THESE MATERIALS.
 - 3. FUGITIVE SEDIMENT AND DUST. ACTIONS MUST BE TAKEN TO ENSURE THAT ACTIVITIES DO NOT RESULT IN NOTICEABLE EROSION OF SOILS OR FUGITIVE DUST EMISSIONS DURING OR AFTER CONSTRUCTION. OIL MAY NOT BE USED FOR DUST CONTROL.
 - 4. DEBRIS AND OTHER MATERIAL. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORM WATER, MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.
 - 5. TRENCH OR FOUNDATION DE-WATERING. THE COLLECTED WATER REMOVED FROM THE PONDED AREA, EITHER THROUGH GRAVITY OR PUMPING, MUST BE SPREAD THROUGH NATURAL WOODED BUFFERS OR REMOVED AREAS THAT ARE SPECIFICALLY DESIGNATED TO COLLECT THE MAXIMUM AMOUNT OF SEDIMENT POSSIBLE, LIKE A COFFER DAM SEDIMENTATION BASIN. AVOID ALLOWING THE WATER TO FLOW OVER DISTURBED AREAS OF THE SITE.



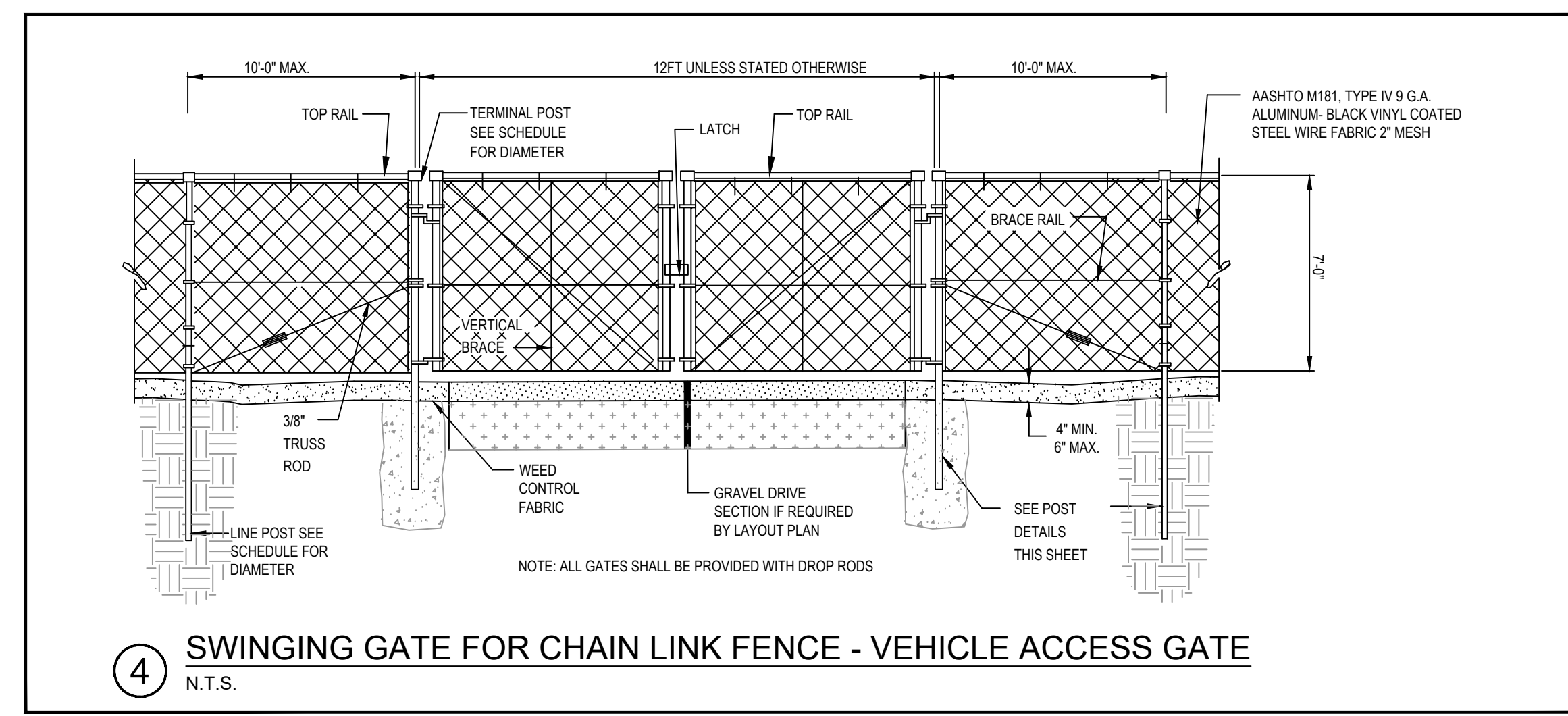
1 SILTATION FENCE DETAIL
N.T.S.



2 POST DETAILS
N.T.S.



3 CHAIN LINK FENCE DETAIL
N.T.S.



4 SWINGING GATE FOR CHAIN LINK FENCE - VEHICLE ACCESS GATE
N.T.S.

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION

		<p>SAND PIT SOLAR CHINA, MAINE</p> <p>EROSION CONTROL NOTES & SITE/CIVIL DETAILS</p>	<p>Atlantic Resource Consultants 541 US Route One Freeport, ME 04032 Tel: 207.869.9050</p>
REV	DATE	DESCRIPTION	FILE NAME:
REVISIONS			SHEET: C-300
P.E. ANDREW D. JOHNSTON LIC. #9994		PERENNIAL SAND PIT SOLAR, LLC 126 WATER STREET SUITE 3 HALLOWELL, MAINE 04347	DRAWN: VF DESIGNED: AJ CHECKED: AJ JOB NO. 23-047
			DATE: 1/08/2024 SCALE: JOB NO. 23-047

SECTION 8

SITE PLAN

An overall plan depicting the proposed solar array project has been provided for reference.

Attachment 8.1 - Sheet C-101 Overall Site Plan

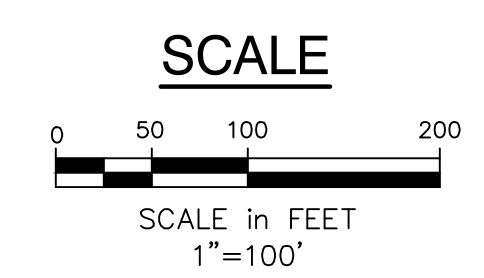
ATTACHMENT 8.1

OVERALL SITE PLAN

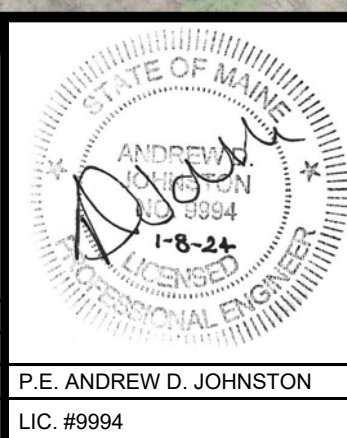


NOTES:
 1. PARCEL LINE FOR SITE DRAWN FROM BOUNDARY SURVEY PLAN DATED JULY 7TH, 2013 BY MORIN LAND SURVEYING FROM AUGUSTA, MAINE . APPROXIMATE LOCATION OF ABUTTING PROPERTY LINES TAKEN FROM MAINE GIS DATA CATALOG - PARCELS LAYER
 2. AERIAL PHOTOGRAPHY FROM GEOLIBRARY AGGREGATE IMAGE SERVICE EXISTING CONDITIONS TOPOGRAPHIC DATA FROM MEGIS LIDAR DATA AND MAY NOT REFLECT CURRENT CONDITIONS AT SOME LOCATIONS (MATERIAL PILES, ETC). PROPOSED GRADING MAY BE AMENDED TO REFLECT SITE CONDITIONS, WHILE MAINTAINING OVERALL INTENT.

**ISSUED FOR PERMITTING -
 NOT FOR CONSTRUCTION**



REV	DATE	DESCRIPTION	REVISIONS



**SAND PIT SOLAR
 CHINA, MAINE**

OVERALL SITE PLAN

PERENNIAL SAND PIT SOLAR, LLC
 126 WATER STREET SUITE 3
 HALLOWELL, MAINE 04347

Atlantic Resource Consultants
 541 US Route One
 Freeport, ME 04032
 Tel: 207.869.9050

DRAWN: VF	DATE: 1/08/2024
DESIGNED: AJ	SCALE: 1"=100'
CHECKED: AJ	JOB NO. 23-047
FILE NAME:	
SHEET: C-101	

SECTION 9

PUBLIC NOTICE

The list of names and addresses of the owners of abutting property to the project site are provided in the following attachment. Copies of the notices sent to abutters and the published advertisement are attached.

Attachment 9.1 - List of Abutters & Map

Attachment 9.2 - Copies of Certified Mail Notices

Attachment 9.3 - Copy of Published Advertisement

ATTACHMENT 9.1

LIST OF ABUTTERS & MAP



100 feet Abutters List Report

China, ME
January 16, 2024

Subject Property:

Parcel Number: 17-011
CAMA Number: 17-011-650-1
Property Address: Pit Road (650-1)

Mailing Address: Comprehensive Land Technologies, Inc
PO Box 146
China, ME 04358

Abutters:

Parcel Number: 12-070
CAMA Number: 12-070-493-1
Property Address: 47 Sproul Road (493-1)

Mailing Address: Thompson, Calvin
21 Blaisdell Road
North Monmouth, ME 04265

Parcel Number: 12-071
CAMA Number: 12-071-494-1
Property Address: Sproul Road (494-1)

Mailing Address: Vassalboro, Town Of
PO Box 129
North Vassalboro, ME 04962

Parcel Number: 12-072
CAMA Number: 12-072-495-1
Property Address: Sproul Road (495-1)

Mailing Address: Page, Gordon P
PO Box 414
China, ME 04358

Parcel Number: 12-072-A
CAMA Number: 12-072-A-1797-1
Property Address: Sproul Road (1797-1)

Mailing Address: Vannah, Erlon
PO Box 590
China, ME 04358

Parcel Number: 12-073
CAMA Number: 12-073-496-1
Property Address: Sproul Road (496-1)

Mailing Address: Orr, David
PO Box 126
China, ME 04358

Parcel Number: 16-001
CAMA Number: 16-001-603-1
Property Address: 241 Route 3 (603-1)

Mailing Address: RBE, LLC
PO Box 366
China, ME 04358

Parcel Number: 16-002
CAMA Number: 16-002-604-1
Property Address: Sproul Road - Off (604-1)

Mailing Address: Orr, James E
748 West River Road
Augusta, ME 04330

Parcel Number: 17-008
CAMA Number: 17-008-647-1
Property Address: 165 Windsor Road (647-1)

Mailing Address: ZIMMERMAN, JEFFREY
PO BOX 245
CHINA, ME 04358

Parcel Number: 17-009
CAMA Number: 17-009-648-1
Property Address: 164 Windsor Road (648-1)

Mailing Address: Dowe, Madeline B
PO Box 43
China, ME 04358

Parcel Number: 17-009-C
CAMA Number: 17-009-C-3223-1
Property Address: 156 Windsor Road (3223-1)

Mailing Address: Wahlefield, William
156 Windsor Road
China, ME 04358



www.cai-tech.com

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



100 feet Abutters List Report

China, ME
January 16, 2024

Parcel Number: 17-009-C
CAMA Number: 17-009-C-3223-2
Property Address: 158 Windsor Road (3223-2)

Mailing Address: Wahlefield, William
156 Windsor Road
China, ME 04358

Parcel Number: 17-010
CAMA Number: 17-010-649-1
Property Address: 151 Windsor Road (649-1)

Mailing Address: Harrigan, Beverly A

Parcel Number: 17-010-A
CAMA Number: 17-010-A-3087-1
Property Address: 26 Pit Road (3087-1)

Mailing Address: Crosby, Amanda Jane
PO BOX 471
China, ME 04358

Parcel Number: 17-010-C
CAMA Number: 17-010-C-3267-1
Property Address: 29 Pit Road (3267-1)

Mailing Address: Bragg, Carol L
PO Box 487
China, ME 04358

Parcel Number: 17-010-D
CAMA Number: 17-010-D-3404-1
Property Address: 8 Pit Road (3404-1)

Mailing Address: Goodine, Sheldon L
PO Box 57
China, ME 04358

Parcel Number: 17-010-E
CAMA Number: 17-010-E-2941-1
Property Address: 143 Windsor Road (2941-1)

Mailing Address: Soto-Languet, Tabitha J
143 Windsor Road
China, ME 04358

Parcel Number: 17-020
CAMA Number: 17-020-659-1
Property Address: Windsor Road (659-1)

Mailing Address: Comprehensive Land Technologies, Inc
PO Box 146
China, ME 04358



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Abutter Map

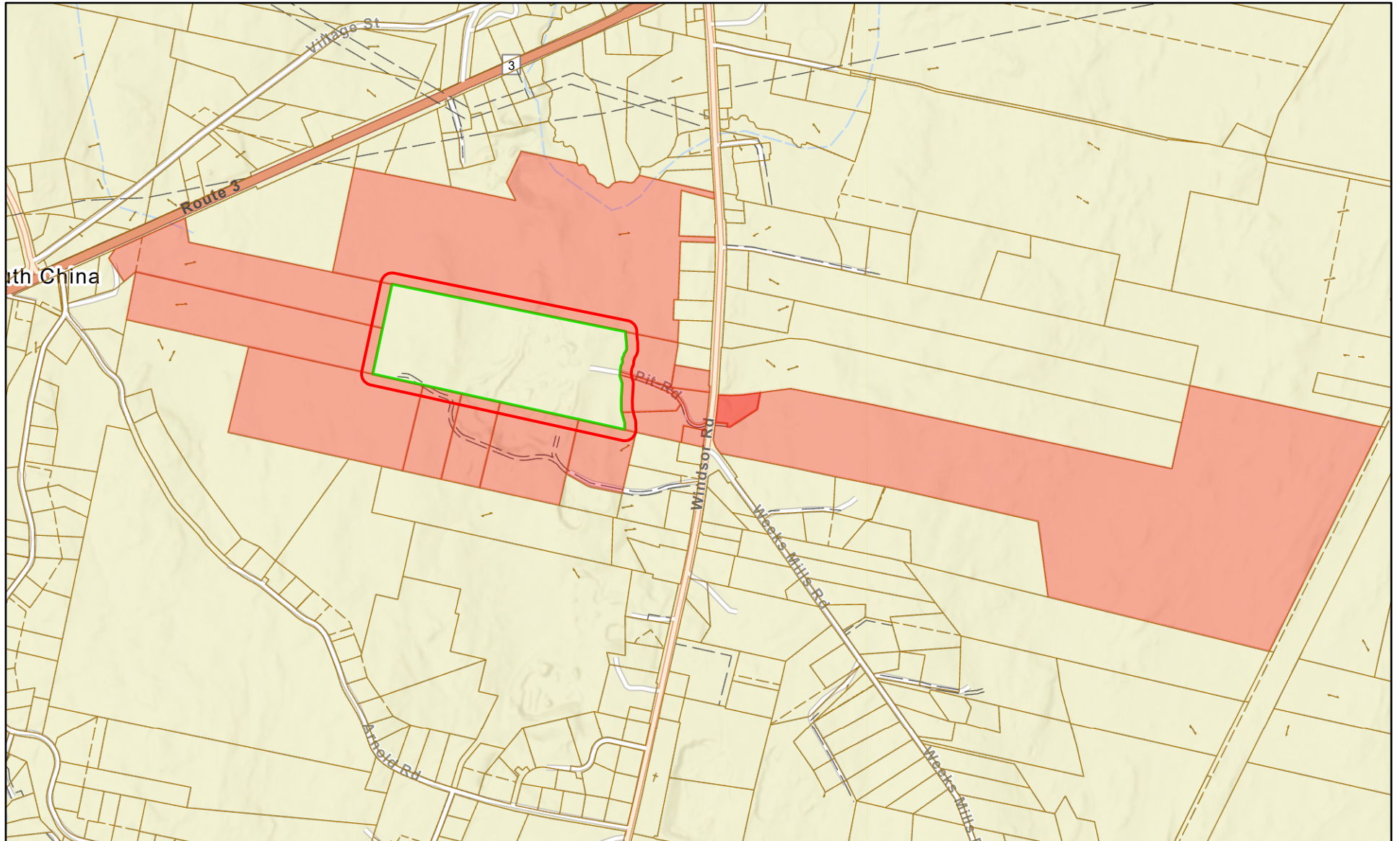
Town of China, ME

1 inch = 1238 Feet



January 16, 2024

www.cai-tech.com



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ATTACHMENT 9.2

COPIES OF CERTIFIED MAIL NOTICES

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SOUTH FREEPORT MAINE
JAN 16 2013

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AMANDA JANE CROSBY
 P.O. BOX 471
 CHINA, ME 04358 04078

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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MADELINE B DOWE
 P.O. BOX 43
 CHINA, ME 04358 04078

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SHELDON L. GOODINE 04078
 P.O. BOX 57
 CHINA, ME 04358

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SOUTH FREEPORT MAINE
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BEVERLY A. HARRIGAN
 151 WINDSOR ROAD
 CHINA, ME 04358 04078

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DAVID ORR
 P.O. BOX 126
 CHINA, ME 04358

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JAMES E. ORR
 748 WEST RIVER ROAD
 AUGUSTA, ME 04330

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GORDON P. PAGE
P.O. BOX 414
CHINA, ME 04358

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RBE, LLC
P.O. BOX 366
CHINA, ME 04353

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TABITHA J. SOTO-LANGUET
143 WINDSOR ROAD
CHINA, ME 04358

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7022 0410 0001 4174 5482

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CALVIN THOMPSON
21 BLAISDELL ROAD
NORTH MONMOUTH, ME 04265

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7022 0410 0001 4174 5512

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WILLIAM WAHLEFIELD
156 WINDSOR ROAD
CHINA, ME 04358

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ERLON VANNAH
P.O. BOX 590
CHINA, ME 04358

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SOUTH FREEPORT, MAINE
 JAN 16 2023

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TOWN OF CHINA
 571 LAKEVIEW DRIVE
 CHINA, ME 04358

7022 0410 0001 4174 5536

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SOUTH FREEPORT, MAINE
 JAN 16 2023

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COMPREHENSIVE LAND
 TECHNOLOGIES, INC.
 P.O. BOX 146
 CHINA, ME 04358

7022 0410 0001 4174 5598

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JEFFREY ZIMMERMAN
 P.O. BOX 245
 CHINA, ME 04358

7022 0410 0001 4174 5529

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TOWN OF VASSALBORO
 P.O. BOX 129
 NORTH VASSALBORO, ME 04962

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Adult Signature Restricted Delivery

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 JAN 16 2023

Postmark Here

CAROL L. BRAGG
 P.O. BOX 487
 CHINA, ME 04358

7022 0410 0001 4174 5604

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

ATTACHMENT 9.3

COPY OF PUBLISHED ADVERTISEMENT

PUBLIC NOTICE

NOTICE OF INTENT TO FILE

Please take notice that Perennial Sand Pit Solar LLC (the “Applicant”), with principal offices at 126 Water Street, Suite 3, Hallowell, Maine 04347, intends to file a Solar Decommissioning Permit Application with the Maine Department of Environmental Protection pursuant to the provisions of 38 M.R.S.A. § § 3491 through 3496 on or about January 17, 2024, for a proposed solar array project. The site is located at the end of Pit Road in the Town of China, Maine.

The proposed project will include the construction of a 3,442-panel solar array with a perimeter fence, transformer pad, associated utilities, and access road.

A request for a public hearing or a request that the Board of Environmental Protection assume jurisdiction over this application must be received by the Department, in writing, no later than 20 days after the application is found by the Department to be complete and is accepted for processing. A public hearing may or may not be held at the discretion of the Commissioner or Board of Environmental Protection. Public comment on the application will be accepted throughout the processing of the application.

The application will be filed for public inspection at the Department of Environmental Protection's office in **Augusta, Maine** during normal working hours. A copy of the application may also be seen at the municipal offices in **China, Maine** after the filing date.

Written public comments may be sent to the Department of Environmental Protection, Bureau of Land Resources, 17 State House Station, Augusta, Maine 04333-0017.

Kayla Gray

From: Kayla Gray
Sent: Tuesday, January 16, 2024 1:14 PM
To: rrobbins@mainetoday.com
Subject: Public Notice - Perennial Renewables
Attachments: W. Gardiner Notice of Intent to File 1.16.2024.pdf; China Notice of Intent to File 1.16.2024.pdf

Good afternoon,

Attached are two Public Notices that Atlantic Resource Consultants, LLC would like to run in the Kennebec Journal at the earliest convenience. Please let me know when the notices can be run and what the charges will be for each notice. Thanks in advance!

Best,
Kayla

Kayla Gray
Environmental Specialist
Atlantic Resource Consultants, LLC
541 US Route One, Suite 21
Freeport, Maine 04032
(207) 869-9050 (office)
(207) 520-8305 (cell)
www.arc-maine.com



**PUBLIC NOTICE
NOTICE OF INTENT
TO FILE**

Please take notice that Perennial Sand Pit Solar LLC (the "Applicant"), with principal offices at 126 Water Street, Suite 3, Hallowell, Maine, 04347, intends to file a Solar Decommissioning Permit Application with the Maine Department of Environmental Protection pursuant to the provisions of 38 M.R.S.A. § § 3491 through 3496 on or about January 17, 2024, for a proposed solar array project. The site is located at the end of Pit Road in the Town of China, Maine.

The proposed project will include the construction of a 3,442-panel solar array with a perimeter fence, transformer pad, associated utilities, and access road.

A request for a public hearing or a request that the Board of Environmental Protection assume jurisdiction over this application must be received by the Department in writing, no later than 20 days after the application is found by the Department to be complete and is accepted for processing. A public hearing may or may not be held at the discretion of the Commissioner or Board of Environmental Protection. Public comment on the application will be accepted throughout the processing of the application.

The application will be filed for public inspection at the Department of Environmental Protection's office in **Augusta, Maine** during normal working hours. A copy of the application may also be seen at the municipal offices in **China, Maine** after the filing date.

Written public comments may be sent to the Department of Environmental Protection, Bureau of Land Resources, 17 State House Station, Augusta, Maine 04333-

ATTACHMENT 3.4

PHASE I ENVIRONMENTAL SITE ASSESSMENT



The insight you need. The independence you trust.

Pit Road

Pit Road
China, ME 04358

BBG Project: 0523108429

Prepared For

Perennial Renewables LLC
71 Third Avenue
Burlington, MA 01803-4471

Report Date

December 1, 2023

Interviews: November 10, 2023

Government Records Review: November 10, 2023

Visual Inspection: November 10, 2023

Prepared By

BBG Assessments, LLC
Locations Nationwide

BBG Main Contact

Blaine S. Bauman, E.P. | bbauman@bbgres.com | 603.674.4959

December 1, 2023

Ryan Coughlin
Perennial Renewables LLC
71 Third Avenue
Burlington, MA 01803-4471

Re: Phase I Environmental Site Assessment of
Pit Road
Pit Road
China, ME 04358
BBG Project: 0523108429

Dear Mr. Coughlin:

BBG Assessments, LLC (BBG) has completed a Phase I Environmental Site Assessment (ESA) of the above referenced property in accordance with the ASTM International (ASTM) E1527-21 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* and generally accepted industry standards.

This report was prepared solely for the use of Perennial Renewables LLC (hereinafter referred to as "Client" or "User") and any party specifically referenced in Section 2.6 of this report. No other party shall have the right to rely on this report or the findings herein, without the prior written consent of BBG.

Please contact me at bbauman@bbgres.com or 603.674.4959 should you have any questions or require additional information. Thank you for the opportunity to be of service.

Sincerely,



Blaine S. Bauman, E.P.
Senior Managing Director, E.P.
BBG Assessments, LLC

PROJECT SUMMARY TABLE

BBG has prepared this Phase I ESA of the property located at Pit Road, China, ME (Subject Property) at the request of Perennial Renewables LLC. The purpose of the ESA is to identify Recognized Environmental Conditions (RECs), Controlled Recognized Environmental Conditions (CRECs) and Historical Recognized Environmental Conditions (HRECs) and de minimis conditions as defined by ASTM E1527-21.

Report Section	NFA	REC	CREC	HREC	de minimis	BER	Comment
6.2 Environmental Records Summary				✓			No Further Action
7.13 Historical Use Summary	✓						
8.3 Visual Observations Summary	✓						
9.1 Asbestos Containing Materials (ACM)	✓						
9.2 Radon	✓						
9.3 Lead-Based Paint (LBP)	✓						
9.4 Drinking Water	✓						
9.5 Microbial Growth	✓						
9.6 Flood Zone and Wetlands						✓	

NFA - No Further Action

BER - Business Environmental Risk

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Appendix F Personnel Qualifications

1.0 EXECUTIVE SUMMARY

1.1 Subject Property Description

The Subject Property consists of an irregular-shaped parcel of land totaling 42.0 acres. The eastern portion of the Subject Property consists of a gravel pit and the western portion of the Subject Property consists of wooded land.

A Subject Property Location Map, Property Layout Map and photographs of the Subject Property are appended to this report.

1.2 Findings, Opinions and Conclusions

BBG has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527 of Pit Road, China, ME, the Subject Property. Any exceptions to, or deletions from, this practice are described in Section 11 of this report.

This assessment has revealed no evidence of RECs/CRECs in connection with the Subject Property.

This assessment has revealed no evidence of de minimis conditions.

This assessment has revealed no evidence of HRECs in connection with the Subject Property except for the following:

- The Subject Property, listed as Vannah Gravel Pit/South China Pit and Mill and addressed as 'End of Sproul Road'/Kennebec County, was identified on the Spills and Mineral Resource Data System (MRDS) databases. It is listed on the Spills database for an incident that was reported on September 14, 2021. The incident was a release of diesel and hydraulic oil caused by an excavator fire. Sand and gravel was impacted. Sorbents were used. Approximately 11.88 tons of contaminated soil was excavated. Zero wells were at risk or impacted by the release. It has a status of 'Final Report'. It is listed on the MRDS database for the storage of sand and gravel. Based on the current regulatory status and the remediation activities conducted, the 2021 spill is considered a historical recognized environmental condition (HREC) and no further action is recommended.

No significant data gaps were identified that would affect the ability of the environmental professional to identify RECs at the Subject Property.

This assessment has revealed no evidence of BERs associated with the standard ASTM scope considerations.

This assessment has revealed no evidence of BERs relating to ASTM non-scope considerations, except for the following:

- Portions of the Subject Property were identified as wetlands on the United States Fish & Wildlife Service National Wetlands Inventory website. The portions of the Subject Property identified as wetlands are not currently developed. BBG considers the possible presence of wetlands a BER.

1.3 Recommendations

No further investigation or actions are recommended with respect to identifying RECs, based on the information available to BBG as of the date of this report. However, all applicable Federal, State, and local regulations regarding wetlands should be followed prior to development activities.

SECTION 4

TITLE, RIGHT, OR INTEREST

The applicant, Perennial Renewables LLC has executed a Lease Option Agreement with the current landowner, Comprehensive Land Technologies, Inc., dated August 13, 2022. The applicant has extended the Lease Option until August 12, 2024. The proposed project will be undertaken on Lot 011 on Tax Map 17 in the Town of China, Maine. The lease area is comprised of approximately 42.2 +/- acres of land on Pit Road. A copy of the Lease Option Agreement is included in Attachment 4.1. A copy of the Lease Option Extension is included in Attachment 4.2.

Comprehensive Land Technologies, Inc. has a Right-of-Way along (ROW) Pit Road. All poles will be placed on land owned by Comprehensive Land Technologies, Inc or within Comprehensive Land Technologies, Inc.'s ROW along Pit Road.

Attachments

Attachment 4.1 – Copy of Lease Option Agreement

Attachment 4.2 – Copy of Lease Option Extension

ATTACHMENT 4.1

COPY OF LEASE OPTION AGREEMENT

Perennial Renewables LLC

OPTION AGREEMENT

THIS OPTION AGREEMENT ("Option") is entered into as of the last date set forth below ("Effective Date") by Comprehensive Land Technologies, Inc, located at P.O. Box 146, South China, ME 04358 hereinafter referred to as the "Owner," and Perennial Renewables LLC located at 71 3rd Ave, Burlington, MA 01803 hereinafter referred to as "Developer." Owner and Developer are at times collectively referred to hereinafter as the "Parties" or individually as a "Party."

WITNESSETH:

WHEREAS, Owner is the owner of certain real estate located on Windsor Road 659-1, South China, ME 04358, referred to on China, Maine Tax Map 17 Lot 020 and Tax Map 17 Lot 011, and being further described in Book 11446, Page 112 in the Kennebec County Registry of Deeds, comprising a total of approximately 7.5 acres of land and improvements (the "Property," as shown in Exhibit A); and

WHEREAS, Developer is investigating the development a portion of the Property comprised of approximately 7.5 acres of land and improvements (the "Project Site") for electricity generation and storage and facilities and uses related to the foregoing (the "Project"). Approximate location of solar array pictured in Exhibit A;

WHEREAS, Developer desires to obtain from the Owner an option to lease the Project Site, the location and size as generally depicted on Exhibit B; and

WHEREAS, the Parties wish to reduce the terms and conditions of their agreement to writing.

NOW THEREFORE, in consideration of the promises set forth herein and other good and valuable consideration and the mutual benefits accruing to each Party, the receipt and value of which is hereby acknowledged, the Parties hereby covenant and agree as follows:

1. In consideration of the sum of [REDACTED] (the "First Option Payment") paid by Developer to Owner upon the Effective Date of this Option, Owner hereby grants to Developer for a three hundred sixty-five (365) day period ("First Option Period"), in connection with the Project and subject to the terms and conditions contained herein, the exclusive right to explore the development of all or a portion of the Project Site for the Project and to lease all or a portion of the Project Site for the purpose of installing, maintaining, operating, repairing, replacing and improving a solar energy electric generating facility, which may include, without limitation, solar panels, utility wires, poles, cables, conduits and pipes, energy storage equipment, mounting equipment, foundations, and any other reasonably necessary or convenient equipment or infrastructure (the "Facility") subject to terms and conditions of the Land Lease Agreement (defined in Paragraph 8 below), the terms and conditions of which shall include, but shall not be limited to, the matters set forth in Paragraph 9 below.

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2. Prior to the expiration of the First Option Period Developer may extend the Option for an additional three hundred sixty-five (365) days (the "Second Option Period") upon written notice to Owner and payment by Developer of an additional, nonrefundable payment of [REDACTED] ("Second Option Payment"). Prior to the expiration of the Second Option Period Developer may extend the Option for an additional three hundred sixty-five (365) days (the "Third Option Period") upon written notice to Owner and payment by Developer of an additional, nonrefundable deposit of [REDACTED] ("Third Option Payment"). Together, the First Option Payment, Second Option Payment, and Third Option Payment are referred to herein as "Payments." Together, the First Option Period, Second Option Period, and Third Option Period are called "Option Periods." Developer shall have the right to terminate the Option, as to all or any part of the Project Site, at any time and for any reason, with immediate effect during the Second and Third Option Periods.
3. The Option may be further extended beyond the Option Periods by mutual agreement of the Parties in writing. Should Developer fail to exercise the Option or any extension thereof during the Option Periods, except for terms of this Option that expressly survive, all rights granted to Developer hereunder shall be deemed completely surrendered, this Option terminated, and no additional money shall be payable by either Party to the other.
4. If the Project Site is burdened by any restrictive covenants or easements in the name of a third party, Owner, at Developer's request and sole expense, will undertake reasonable steps for the release of the Project Site from the restrictive covenants or easements.
5. During the Option Period(s) and subject to the terms of this Option, Developer, and its employees, contractors, subcontractors, representatives and agents (collectively, the "Representatives"), each have the right to perform all commercially reasonable due diligence with respect to developing the Project at the Project Site, including without limitation the following: make all necessary governmental and utility company filings, survey, identify and flag wetlands, undertake geotechnical, engineering, environmental and other studies and investigations, and design the Facility ("Due Diligence"). Developer agrees to keep Owner reasonably informed of all material events and activities associated with Developer's efforts, including the efforts necessary to secure all permits, negotiate agreements with third parties to purchase the electrical output or related energy products or credits of the Facility, to secure an interconnection agreement, survey, design, undertake subsurface geotechnical and environmental testing, achieve financing and otherwise to advance the approvals necessary to proceed with the development, all at no cost to Owner. Owner shall provide Developer or its Representatives with information about the Project Site upon reasonable request and in all other ways reasonably cooperate with respect to Developer's Due Diligence activities at no cost to Owner, including the provision of access to the Project Site to Developer and its Representatives with twenty-four (24) hour advance notice. Developer agrees not to submit any applications or plans to any authority having jurisdiction over land-use and/or the issuance of permits without first obtaining the written approval by Owner, which approval Owner agrees not to unreasonably withhold, condition, or delay. The final size and configuration of that portion of the Project Site sought to be leased by Developer for the Project, including access and utility easements (the "Premises," which for avoidance of doubt may consist of

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the Project Site or any portion thereof), shall be approved in writing in advance by Owner, which approval will not be unreasonably withheld, conditioned, or delayed.

6. If Developer does not exercise its Option as herein provided, it will use commercially reasonable efforts, and will obtain approval from owner, to timely return all disturbed areas of the Project Site to its former condition. This provision shall survive expiration or termination of this Option.

7. All notices required or permitted to be given under this Option shall be given in writing to the addresses above, by certified mail, return receipt requested or by overnight mail via a qualified commercial courier. Notice is effective on the date posted.

8. The Parties acknowledge that this Option grants Developer an irrevocable and exclusive option to lease, in Developer's discretion, any portion of the Project Site with location pictured in Exhibit A. In the event Developer exercises its option to lease the Premises, Owner acknowledges and agrees that Owner will be required to enter into an agreement to lease the Premises ("Land Lease Agreement") that is mutually agreeable to both Parties. The terms and conditions of the Land Lease Agreement shall include, but shall not be limited to, the matters set forth in Paragraph 9 below. Notwithstanding any condition to the contrary that may be contained in this Option, no clause shall be interpreted or deemed to be interpreted so as to render the option to lease granted under this Option conditional in the event that Developer is not in breach of the Option. For the avoidance of doubt, this Option shall be deemed for all intents and purposes to be unconditional and irrevocable and the Parties will negotiate and proceed in good faith to enter into a mutually agreeable Land Lease Agreement no later than six (6) months from Owner's receipt of Developer's notification of its decision to exercise its options rights, failing which each Party will have the right to pursue equitable remedies to enforce its rights hereunder, including, without limitation, specific performance.

9. The Land Lease Agreement shall contain mutually satisfactory terms and conditions which shall include, but not be limited to, the following:

- a. The initial term shall be for twenty (20) years ("Initial Term") commencing on the date of Commercial Operation, as defined below. Prior to the end of the Initial Term, Developer and Owner, upon mutual written agreement, may elect to extend the Initial Term for up to four (4) five (5) year extensions (each such extension referred to as a "Renewal Term"). Developer shall provide Owner written notice of its desire to exercise its rights to a Renewal Term prior to the expiration of the then-existing term of the Land Lease Agreement and, upon such exercise, the Land Lease Agreement will be automatically extended for such Renewal Term on the same terms and conditions as existed on the date of the expiration of the then current term.
- b. Commencing on the date that is the earlier of Commercial Operation or one (1) year from the start of the Construction Phase, the rent is payable to Owner in advance, in four (4) equal installments at the beginning of each calendar quarter.

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- The rent is payable at the annualized rate of [REDACTED] per acre, for 7.5 acres of leased property, totaling [REDACTED]. Rent will escalate annually at 2%.
- c. The Parties agree to negotiate in good faith and, assuming an agreement is reached, execute a Commencement Agreement to memorialize the commencement dates of the Construction Phase and Commercial Operation.
 - d. The Parties recognize that one (1) megawatt of installed capacity will require approximately five to eight acres of useable land on the Project Site. The Parties recognize they have a common interest in maximizing the amount of solar power generating capacity installed on the Project Site and Developer will collaborate with Owner over the period of this Option to make an informed estimate of the potential commercially viable installed capacity on the Project Site, provided that Developer has the final approval of any such determination. The Project Site is expected to accommodate 1 megawatt (AC) which would result in annualized payments of [REDACTED]. The final size of the Project shall be subject to certain criteria, including the available capacity on the local feeder, local and state land-use regulations, engineering considerations related to the site and Project design, state regulations pertaining to the sizing, registration, and compensation of renewable energy projects, and the availability of financing at acceptable terms, and in all instances Developer will make every effort to maximize the amount of installed capacity on the Project Site.
 - e. Any payment due under the Land Lease Agreement shall be timely if it is made on the due date, with thirty (30) days' grace. In the event any payment is not made within the thirty (30) day grace period, Owner must provide notice of an unreceived payment. Developer must make the payment in full within ten (10) days of receipt of such notice from Owner.
 - f. Developer shall have the responsibility to pay any personal property tax, assessments, or charges owed on the Premises which result from the installation, maintenance, and operation of the Facility. Owner shall remain responsible for paying any underlying real estate tax for the Project Site based on its value as of the effective date of the Land Lease Agreement.
 - g. Developer shall post a decommissioning surety with the appropriate party as part of the regular permitting process.
 - h. Owner will obtain subordination, non-disturbance and attornment agreements as reasonably requested by Developer.
 - i. Developer shall give Owner first right of refusal to perform the civil work required to construct the array.
10. Developer shall require all of its contractors to maintain commercial general liability insurance and statutory workers' compensation insurance. All construction, alterations and other work performed by Developer and its Representatives at the Project Site are to

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be performed in a workmanlike manner and done so that no liens for the benefit of contractors, materials providers or trades providing labor or materials to the Project are filed against the Project Site.

11. The monetary terms of this Option will be held in strict confidence by the Owner and Developer and will not be shared with any third parties including other developers, investors, or brokers unless written authorization is received from the other Party.
12. This Option shall be binding upon the Parties hereto and the respective heirs, successors and permitted assigns of each. Without limiting the foregoing, this Option may be assigned with notice, but without approval or consent of Owner, to Developer's affiliates, subsidiaries, and to qualified development and investment partners.
13. Owner has the right to assign its rights and obligations outlined within the Option to another Party, provided that the terms outlined within the Option are upheld by the newly assigned Owner. Terms of the assignment of rights must be mutually agreed upon by Developer and the Owner upon signing the Lease.
14. Owner owns fee simple title to the Property and has good, merchantable and insurable title to the Property, free and clear of all liens, encumbrances, claims, options, leases, rights of first refusals, or judgements, except in so far as any of the latter items have been submitted and assented to by Developer.
15. Owner has provided Developer with any and all information pertaining to any outstanding or discharged mortgages on the Property. Owner hereby agrees that it will not cause any liens or other encumbrances to be imposed on the Property without the prior written consent of Developer.
16. During the Option Period(s) Owner shall promptly notify Developer of any and all notices from the Town of China or municipal treasurer delivered to the Owner pursuant to 36 M.R.S. § 941, 942, or 943 of unpaid tax assessments against the Property. A copy of said notice shall be provided to Developer. Owner shall promptly notify Developer if Owner receives notice of, or becomes aware of, any and all tax lien certificates claimed against the Property or any portion thereof and recorded in the China Registry of Deeds pursuant to 36 M.R.S. § 942. A copy of said tax lien certificate shall be provided to Developer. Owner shall promptly notify Developer of any and all Notice of Impending Automatic Foreclosure received from the Town of China or municipal treasurer pursuant to 36 M.R.S. § 943. A copy of said Notice of Impending Automatic Foreclosure shall be provided to Developer.
17. The person executing this Option on behalf of the Owner has the full power and authority to bind Owner to the obligations of Owner set forth herein. The entry into and performance of Owner's obligations under this Option will not violate or result in a breach of any contract, agreement or any law, administrative regulation, or court decree by which Owner or the Property is bound. If Owner is not a natural person, Owner is duly formed and validly existing entity and is qualified to do business in and in good standing under the laws of the State of Maine.

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18. Notwithstanding anything appearing to the contrary in this Option, no direct or indirect partner, member or shareholder of either Party (or any manager, director, officer, principal, trustee, employee or agent of any such direct or indirect partner, member or shareholder), disclosed or undisclosed, shall be personally liable for any debts, liabilities or obligations of the Party, or for any claims against the Party, arising out of or resulting from this Option. Any such debts, obligations, liabilities or claims shall be satisfied solely out of the assets of the obligated Party. In no event shall any personal judgment be sought or obtained against any partner, member, manager, shareholder, director, officer, principal, employee, agent, or owner of either Party, direct or indirect, disclosed or undisclosed.
19. Developer shall share to a fair and reasonable extent in access road maintenance commencing at the time Developer gives its construction contractor a "notice to proceed" with construction. The Parties shall define the sharing of road maintenance in the Land Lease Agreement, with the understanding that use of the access road will be shared by both Parties. Developer will undergo all maintenance operations, including but not limited to, plowing and drainage operations that directly impact access to the Project Site. Any operations required on access roads beyond the Project Site will be addressed by the Owner.
20. Owner has full rights to the Property to conduct business operations during the Option Period(s), with the understanding that the operations of Owner will be conducted in a manner that will not negatively impact Developer's ability to construct the Facility on the Project Site or to otherwise develop the Project.
21. During the Option Period(s), Developer will not undergo any operations that will be detrimental to the business operations on the Property, unless mutually agreed upon by Developer and the Owner in writing.
22. Maine law governs this Option and the Parties agree to submit to jurisdiction of the State and Federal Courts of Maine; the entire Option is contained in this writing and any amendment to this Option must be made in writing and signed by both Parties.
23. This Option touches and concerns the Project Site, constitutes a covenant running with the land and is binding on Owner and Owner's heirs, successors and assigns and any subsequent owner of all or any portion of the Project Site. Owner will require that any grantee of all or any portion of the Project Site will assume Owner's obligations under this Option with respect to such property and will agree, in a writing reasonably acceptable to Developer, to be bound by all of the terms and conditions of this Option.
24. Contemporaneous with the execution of this Option, Owner will execute and deliver to Developer a Memorandum of Option in form and substance reasonably acceptable to Developer that is in form suitable for recording in the China County Registry of Deeds.

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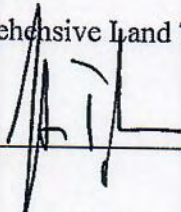
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IN WITNESS WHEREOF, the Parties have executed this Option Agreement as of the date first above written.

OWNER

Comprehensive Land Technologies, Inc.

By:  8-12-2022

Name: Jason Tyler

Title: Owner

Developer:

Perennial Renewables LLC

By:  8/13/2022

Name: Nick Lacasse

Title: Principal

Exhibit A

Approximated location of lease property; totaling 7.5 acres.

Three-Phase run shown in orange is approximate, final location of poles is subject to Owner and Developer satisfaction.



China, Maine Tax Map 17 Lot 020 and Tax Map 17 Lot 011:



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ATTACHMENT 4.2

COPY OF LEASE OPTION EXTENSION



7/20/2023

To: Comprehensive Land Technologies
P.O. Box 146
South China, ME 04358

Re: Extension of Lease Option Period

Comprehensive Land Technologies:

Pursuant to our Lease Option Agreement, upon request by the Developer, Owner shall grant an extension of the First Option Period. The Second Option Period will remain in effect until August 12, 2024. Enclosed please find the extension payment of [REDACTED]. We are very excited to continue the development of this solar project.

Thank you,

Perennial Renewables LLC

By: Ryan Coughlin



SECTION 5

SOILS AND NATURAL RESOURCES

Soils

A Class D Medium Intensity Soil Survey Map from the Natural Resources Conservation Service (NRCS) Web Soil Survey is included as Attached 5.1 in this section. The mapped soils at the site are primarily Lyman-Tunbridge complex and Hinckley gravelly sandy loam along the interior of the existing gravel pit and the undeveloped forested area on the western portion of the site. Soils within the open water/emergent wetland are characterized as Scarboro mucky peat. Soil explorations during the delineation confirmed the presence of primarily sandy loams. The proposed development will take place in areas of Lyman-Tunbridge complex and Hinckley gravelly sandy loam, which exhibit good drainage qualities, with low seasonal high-water tables and high infiltration rates. Additionally, a geotechnical investigation was undertaken at the project site by Summit Geotechnical Engineers in December of 2023 to obtain information regarding subsurface conditions at the project site. Five exploratory borings were conducted, and their results found the site to be extremely conducive to drilling or driving solar foundation ground screws or piles. A copy of the report is included in Attachment 5.2.

Gravel mining and extractions activities have historically taken place on the site as far back as 1956 (as seen on aerial imagery). Native soils are gravelly and sandy which present suitable conditions for mining. The project site takes place over a sand/gravel aquifer draining north to China Lake. Due to the historic and current use of this site, most of the vegetation is absent. Small amounts of meadow and brush have established along the slopes and perimeter of the pit. The proposed project seeks to restore existing unvegetated areas to a vegetated meadow condition within one calendar year of being disturbed and will not be mowed more than twice per year. Additionally, the proposed roadway around the solar array will be maintained as grass.

Wetlands - Streams

A wetland delineation was conducted on the project site by Atlantic Resource Consultants, LLC in August of 2023. Freshwater wetlands were delineated in accordance with the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual and the Northeast Regional Supplement. Wetlands are defined as areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The methodology designed by the U.S. Army Corps of Engineers to identify wetlands uses three environmental parameters: hydrology, hydric soil, and hydrophytic vegetation.

A wetland delineation report that includes detailed information about the protected natural resources present the project is provided in Attachment 5.3. Freshwater wetlands and streams were observed and mapped by ARC wetland scientists. ARC mapped the eastern side of the westernmost wetland to ensure that the wetland boundary would not be impacted by the proposed project. The proposed project does not impact any wetland or stream resources.

Plants - Wildlife

The Beginning with Habitat map was reviewed by ARC – see Attachment 5.4 in this section. This map was created by the Maine Department of Inland Fisheries and Wildlife (MDIFW). MDIFW has collected, connected, and consolidated the wealth of habitat information produced by separate federal, state, and local agencies as well as non-governmental organizations. The federal U.S. Fish and Wildlife Service (FWS) database was also accessed. Data for rare plant occurrences and exemplary natural communities are provided by the Maine Natural Areas Program (MNAP). Data for rare wildlife occurrences, significant wildlife habitats, aquatic habitats and riparian buffers are provided by MDIFW. The map shows that there are no wildlife or plant habitats known to exist within the project location. ARC wetland scientists believe this is typical due to the historical use of the site being a gravel pit. During the wetland delineation, ARC wetland scientists did not observe significant wildlife habitat such as vernal pool habitat. The FWS database indicated that the project site is within the habitat range for Atlantic Salmon. The FWS has designated the project site as being a final critical habitat for the species. A project not proposing to impact on-site streams would not constitute a consultation with FWS. It is not anticipated that Atlantic Salm would be able to reach the project site due to existing barriers to fish passage. The only information on the site shown on the Beginning with Habitat map includes 75-foot riparian buffers to streams. MDIFW recommends that riparian buffers be preserved to steams in order to protect fisheries. The ARC design team gave riparian buffers the highest priority when designing the solar project. Vegetated 75-foot setbacks per Maine DEP’s Natural Resources Protection Act are being maintained for the construction of the solar array. The only proposed work taking place within the stream setback includes the installation of utility poles positioned within the existing right-of-way footprint of Pit Road. Utility pole installation will result in minor soil disturbance. However, since there will be soil disturbance in the setback, a Natural Resources Protection Act Permit by Rule was submitted to the Maine DEP.

ARC wetland scientists have experience permitting and designing many developments in Maine including taking measures recommended by State and Federal agencies to minimize and avoid wildlife impacts from solar arrays. Besides riparian buffers, there are two main concerns from MDIFW that ARC is knowledgeable of: Bats and Wildlife Permeable Fencing.

Of the eight species of bats that occur in Maine, the three *Myotis* species are afforded special protection under Maine’s Endangered Species Act: little brown bat (State Endangered), northern long-eared bat (State Endangered), and eastern small-footed bat (State Threatened). The five remaining bat species are designated as Species of Special Concern: big brown bat, red bat, hoary bat, silver-haired bat, and tri-

colored bat. The project site does not contain winter hibernacula such as caves and large rocky features. Additionally, there will be no clearing of large trees or hollow trees potentially being used by bats. Therefore, winter and summer habitat for bat species will not be impacted by the construction or operation of the project. The design of the array was positioned to be located within the existing developed and unvegetated portion of the site to eliminate any tree clearing activities and minimize overall land disturbances.

MDIFW recommends the use of wildlife-permeable fencing to address the need for site safety and security for solar arrays, while allowing for access and use of the project area by small animals. The proposed fence will incorporate a bottom gap not to exceed 4 inches tall as a compromise between safety and accommodating migration for small wildlife. It is not anticipated that small animals will be migrating through the project area, but the grassed interior of the site will create an improved migration surface for wildlife as it is currently unvegetated. Deer becoming trapped inside solar facilities has been reported. The applicant is proposing a 7-foot-tall safety fence surrounding the project site per electric code. Given that the current and historical use of the site is gravel pit, these are not favorable conditions for deer. It is not anticipated that deer will breach the perimeter fence. However, routine inspection and maintenance of fence lines will ensure timely releases.

Attachments

Attachment 5.1 – Soil Survey Map

Attachment 5.2 – Geotechnical Report conducted by Summit Geoengineering Services

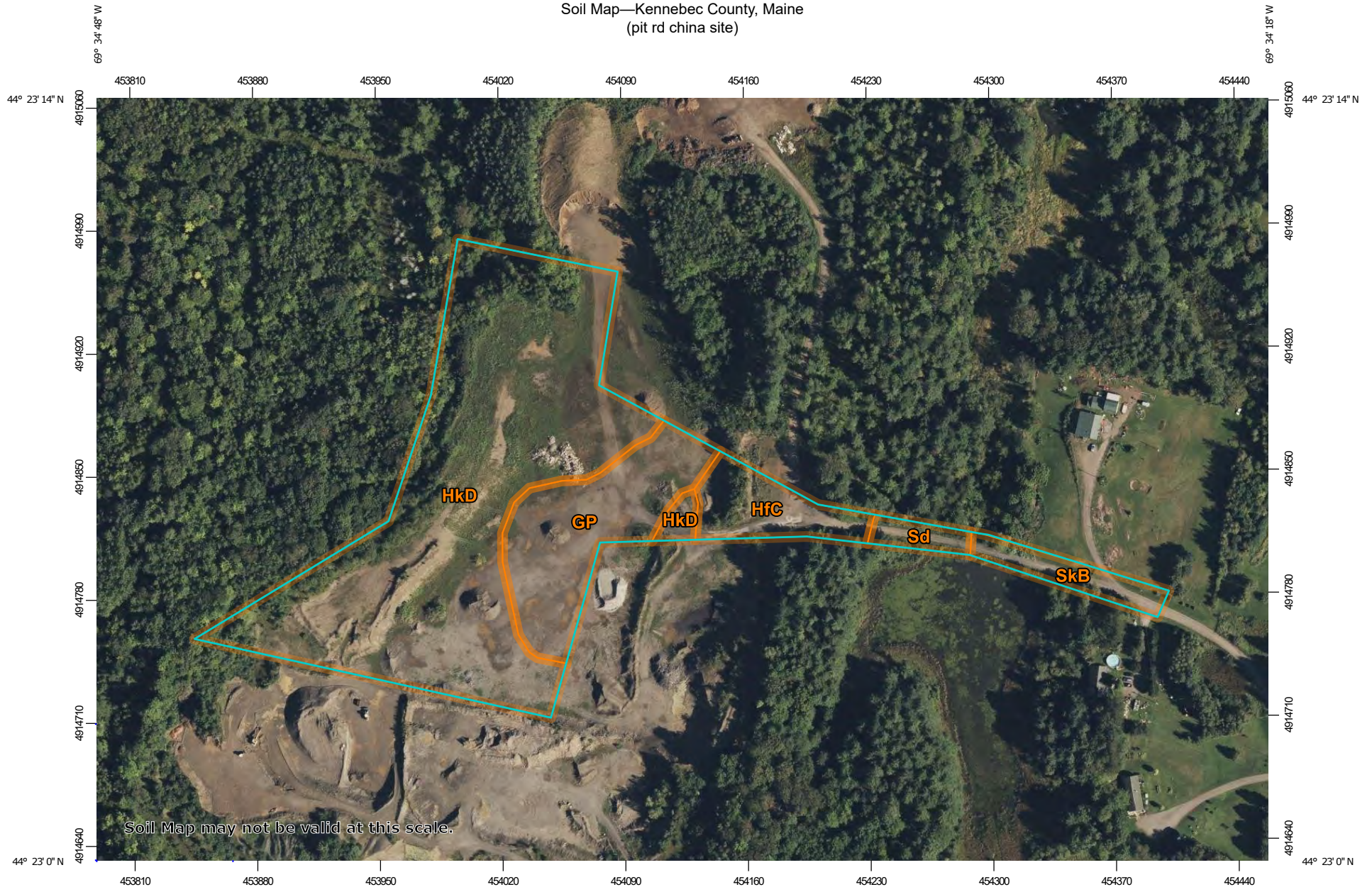
Attachment 5.3 – Wetland Delineation Report

Attachment 5.4 – Beginning with Habitat Map

ATTACHMENT 5.1

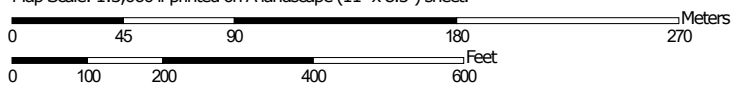
SOIL SURVEY MAP

Soil Map—Kennebec County, Maine
(pit rd china site)



Soil Map may not be valid at this scale.

Map Scale: 1:3,060 if printed on A landscape (11" x 8.5") sheet.




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


MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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

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

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

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Kennebec County, Maine

Survey Area Data: Version 22, Sep 5, 2023

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

Date(s) aerial images were photographed: Jul 11, 2021—Oct 29, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
GP	Gravel pits	1.8	17.5%
HfC	Hartland very fine sandy loam, 8 to 15 percent slopes	0.7	7.2%
HkD	Hinckley gravelly sandy loam, 15 to 30 percent slopes	7.1	69.0%
Sd	Scarboro mucky peat	0.2	2.1%
SkB	Scio very fine sandy loam, 3 to 8 percent slopes	0.4	4.2%
Totals for Area of Interest		10.3	100.0%

Map Unit Description

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

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

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

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

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

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

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

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

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

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

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

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description

Kennebec County, Maine

GP—Gravel pits

Map Unit Composition

Gravel pits: 85 percent

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

Description of Gravel Pits

Typical profile

H1 - 0 to 6 inches: extremely gravelly sand

H2 - 6 to 60 inches: extremely gravelly sand

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Ecological site: F144BY601ME - Dry Sand

Hydric soil rating: No

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

Map Unit Setting

National map unit symbol: 9k04

Elevation: 0 to 410 feet

Mean annual precipitation: 43 to 46 inches

Mean annual air temperature: 45 degrees F

Frost-free period: 155 to 165 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Hartland and similar soils: 87 percent

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

Description of Hartland

Setting

Landform: Coastal plains

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Coarse-silty glaciolacustrine deposits

Typical profile

H1 - 0 to 7 inches: very fine sandy loam

H2 - 7 to 15 inches: very fine sandy loam

H3 - 15 to 28 inches: silt loam

H4 - 28 to 65 inches: very fine sandy loam

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high to high (0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 11.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods), F144BY508ME - Silty Slope
Hydric soil rating: No

HkD—Hinckley gravelly sandy loam, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: 9k08
Elevation: 10 to 2,000 feet
Mean annual precipitation: 30 to 48 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Hinckley

Setting

Landform: Eskers
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy-skeletal glaciofluvial deposits derived from granite and gneiss

Typical profile

H1 - 0 to 2 inches: gravelly sandy loam
H2 - 2 to 10 inches: gravelly sandy loam
H3 - 10 to 30 inches: gravelly loamy sand
H4 - 30 to 65 inches: stratified very gravelly coarse sand

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Available water supply, 0 to 60 inches: Very low (about 2.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: A

Ecological site: F144BY601ME - Dry Sand

Hydric soil rating: No

Sd—Scarboro mucky peat

Map Unit Setting

National map unit symbol: 9k1c

Elevation: 10 to 2,800 feet

Mean annual precipitation: 34 to 48 inches

Mean annual air temperature: 37 to 46 degrees F

Frost-free period: 80 to 160 days

Farmland classification: Not prime farmland

Map Unit Composition

Scarboro and similar soils: 90 percent

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

Description of Scarboro

Setting

Landform: Outwash plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Talf

Down-slope shape: Concave

Across-slope shape: Concave

Parent material: Sandy glaciofluvial deposits derived from granite and gneiss

Typical profile

Oe - 0 to 4 inches: mucky peat

A - 4 to 14 inches: mucky sand

Cg1 - 14 to 28 inches: fine sand

Cg2 - 28 to 65 inches: sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 6.00 in/hr)

Depth to water table: About 0 inches

Frequency of flooding: None

Frequency of ponding: Frequent

Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: A/D

Ecological site: F144BY303ME - Acidic Swamp

Hydric soil rating: Yes

SkB—Scio very fine sandy loam, 3 to 8 percent slopes**Map Unit Setting**

National map unit symbol: 9k1d

Elevation: 0 to 390 feet

Mean annual precipitation: 43 to 46 inches

Mean annual air temperature: 45 degrees F

Frost-free period: 155 to 160 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Scio and similar soils: 89 percent

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

Description of Scio**Setting**

Landform: Outwash plains

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Talf

Down-slope shape: Concave

Across-slope shape: Concave

Parent material: Very fine sand glaciolacustrine deposits

Typical profile

H1 - 0 to 10 inches: very fine sandy loam

H2 - 10 to 22 inches: silt loam

H3 - 22 to 65 inches: very fine sandy loam

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high to high (0.60 to 2.00 in/hr)

Depth to water table: About 18 to 30 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C

Ecological site: F144BY501ME - Loamy Slope (Northern
Hardwoods), F144BY508ME - Silty Slope
Hydric soil rating: No

Data Source Information

Soil Survey Area: Kennebec County, Maine
Survey Area Data: Version 22, Sep 5, 2023

ATTACHMENT 5.2

GEOTECHNICAL REPORT

The key to success starts with a solid foundation.
ENGINEERING | EXPLORATION | EXPERIENCE

Geotechnical Report

*Solar Array
Pit Road, China, Maine*



Mailing: PO Box 515, Gardiner, ME 04345
Office: 210 Maine Avenue, Farmingdale, ME 04344
www.summitgeoeng.com

Client

Perennial Renewables & Energy Consulting
71 3rd Avenue
Burlington, Massachusetts 01803

Project #: 23313
Date: 1/15/2024

January 15, 2024
Summit #23313

Nick Lacasse
Perennial Renewables & Energy Consulting
71 3rd Avenue
Burlington, Massachusetts

Reference: Geotechnical Exploration and Consulting
Ground Mounted Solar Array – Pit Road, China, Maine

Dear Mr. Lacasse;

Summit Geoengineering Services, Inc. (SGS) has completed a geotechnical investigation for a planned solar array off Pit Road in China, Maine. The solar array will consist of ground mounted structures spaced within an approximate 7-acre site. The scope of services included performing test borings at the site and preparing this report summarizing the findings and geotechnical recommendations for the design of the solar array foundations.

The subsurface soils consist of sand and gravel esker sediment. Refusal on probable bedrock was encountered at depths ranging from 20 to 42 feet below ground surface (BGS). Groundwater was encountered at depths ranging from 1.9 to 3.4 feet BGS. Details of the explorations are provided in the boring logs in Appendix B.

This report provides discussion of the geotechnical findings and design recommendations for the solar array foundations. This geotechnical evaluation is based on the anticipated structures and results of the subsurface investigation. SGS appreciates the opportunity to serve you during this phase of your project.

Sincerely yours,
Summit Geoengineering Services



Jason Barnes, E.I.
Geotechnical Engineer



Erika Stewart, P.E.
Senior Geotechnical Engineer

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Exploration Location Plan, Geologic Map Appendix A

Boring Logs, Resistivity Report Appendix B

Laboratory Tests Appendix C

1.0 Project & Site Description

Summit Geoengineering Services (SGS) was asked by Perennial Renewables & Energy Consulting to conduct a geotechnical investigation for a planned ground mounted solar array located in China, Maine. The site is located at the west end of Pit Road in a former gravel and sand pit. Survey data was not available at the time of this report. Based on visual observations, topography within the proposed solar array is relatively flat, sloping drastically upwards at the edges of the gravel pit. The solar array will encompass an approximate area of 7 acres and is anticipated to contour the ground surface. Little to no site cut and fill is anticipated. Foundations to support the solar array are anticipated as either driven steel piles or helical piles.

2.0 Site Investigation

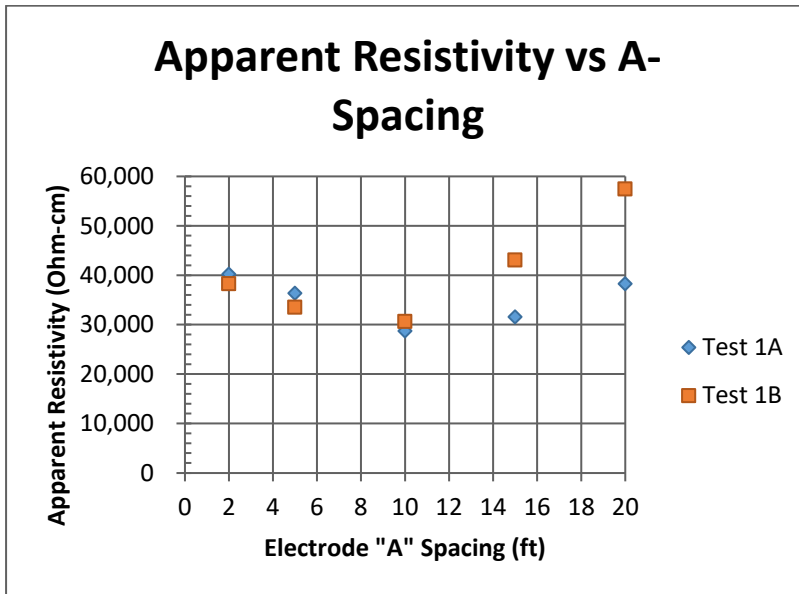
2.1 Subsurface Explorations

SGS observed the subsurface conditions with the drilling of 5 test borings on December 5, 2023. Test borings were performed using an AMS 9580 VTR rubber track drill rig. Test borings were advanced using a combination of 2¼-inch hollow stem augers and 3-inch casing. Sampling was conducted with standard penetration tests (SPT-N) using a split spoon sampler and direct push soil liners. Soils were visually classified by an SGS field engineer using the Unified Soil Classification System (USCS). Borings B-5 and B-3 were probed to a depth of refusal on probable bedrock, encountered at 20 feet and 42 feet BGS, respectively. Probing was performed using solid stem augers at B-5 and spear tip rod with SPT-N hammer at B-3. The other borings were terminated at a depth range of 7 to 10 feet due to running sands, after multiple attempts were made to continue sampling.

Explorations were pre-marked by SGS prior to drilling for notification of Dig Safe, and approximately located using a handheld GPS. An Exploration Location Plan is included in Appendix A.

2.2 Wenner Resistivity Testing

Field resistivity testing was performed at the site on November 17, 2023 in the vicinity of the transformer pad located at the northern portion of the site near test boring B-1 using the Wenner Four Probe method in accordance with ASTM G57. Probe spacing ranged from 2 to 20 feet with tests conducted at 5-foot intervals. Resistivity tests were performed in south-north (Test 1A) and east-west alignments (Test 1B). A Resistivity Report of the test results is in Appendix B. Graphic results of the resistivity testing are shown below:



Resistivity Testing near Transformer Pad (Test 1A S-N)

2.3 Laboratory Testing

SGS conducted laboratory testing on liner samples collected from borings B-1 and B-4. Reports of the individual tests are in Appendix C. Results are summarized below:

Boring	Depth	Gradation Analysis				Notes
		Gravel	Sand	Fines	MC	
B-1	0' – 3'	43%	41%	16%	8.3%	Esker
B-4	0' – 3.5'	39%	42%	19%	9.6%	Esker

Thermal conductivity testing was performed using a Thermtest TLS-100 meter. The samples were tested at saturated, in-situ, and air-dry moisture conditions. Results are summarized below:

Thermal Conductivity						
Boring	Saturated		In-Situ		Air-Dry	
	MC (%)	Conductivity (K) (BTU/hr-ft-°F)	MC (%)	Conductivity (K) (BTU/hr-ft-°F)	MC (%)	Conductivity (K) (BTU/hr-ft-°F)
B-1	11.9	1.311	8.3	0.133	1.4	0.090
B-4	9.5	0.803	9.0	0.597	1.9	0.092

Soil pH and redox potential were performed using an Oakton pH 6+ meter. Samples from the liner borings were also sent to Maine Environmental Lab for soil pH and ion chromatography for Chloride and Sulfate content. Results are summarized below:

Test Pit	Depth	pH/Redox Meter			Ion Chromatography		
		pH	Temp	Redox	pH	Chloride	Sulfate
B-1	0' – 3'	7.33	21.4° C	-13 mV	7.44	ND	41 ppm
B-4	0' – 3.5'	7.24	17.9° C	-10 mV	8.04	27 ppm	54 ppm

ND = Not Detectable

3.0 Subsurface Conditions

The subsurface conditions consist of *esker* sediment overlying *probable bedrock*. A summary of the soil layers is provided below. Details of the soil conditions are provided on the boring logs in Appendix B.

3.1 Soil Layers

Esker sediment observed in the borings consists of sandy gravel to gravelly sand with some to little silt. Based on results obtained from grain size analyses performed on the esker, the soil contains 16 to 19 percent silt and classifies as SM and GM in accordance with the Unified Soil Classification System (USCS). Visually classification also includes SP-SM and GP-GM. The esker is considered compact and moist to saturated with depth.

3.2 Bedrock

Refusal on **probable bedrock** was encountered within test borings B-3 and B-5 at depths of 42 feet and 20 feet, respectively. Mapping by the Maine Geological Survey indicates bedrock at the site consists Mayflower Hill Formation, which is comprised of dark gray, thick bedded metasandstone to very fine grained quartzo-feldspathic schist.

3.3 Groundwater

Groundwater was encountered at depths ranging from 1.9 to 3.4 feet BGS. The former gravel pit was likely abandoned due to the presence of shallow groundwater across the site. Groundwater may fluctuate with wet periods such as snowmelt or rainfall. The site is mapped within a significant sand and gravel aquifer. Water yields in the aquifer vary from 10 gallons per minute 50 gallons per minute.

4.0 Geotechnical Recommendations

4.1 Foundation Options

SGS anticipates the proposed solar array may be supported by driven steel piles or helical piles. Helical piles can provide increased uplift and bearing capacity for shorter lengths as compared to driven piles. Piles can be designed using the soil parameters presented in Section 4.2. Suitability for piles should be evaluated based upon foundation loads and depth required. SGS anticipates occasional cobbles may be encountered during pile installation.

4.2 Driven Piles

The subsurface conditions consist of sand and gravel. SGS recommends the following design parameters be used for driven pile foundation design:

PARAMETER	FOUNDATION BACKFILL	ESKER SAND & GRAVEL
Total Natural (moist) Unit Weight (γ_t)	130 pcf	125 pcf
Saturated (buoyant) Unit Weight (γ_s)	68 pcf	63 pcf
Effective Friction Angle (ϕ')	34 ⁰	34 ⁰
Soil Modulus Parameter (k)	--	60 pci
Ultimate Unit Skin Friction (q_s)	0.5 ksf	1.0 ksf
Ultimate Unit Tip Resistance (q_p)	--	35 ksf

The following factors of safety should be applied to ultimate compressive load resistance, uplift, and lateral load resistance to obtain allowable design parameters:

- Compressive load resistance, FS = 3.0
- Uplift load resistance, FS = 2.0
- Lateral load resistance, FS = 2.0

SGS recommends that load testing be considered for solar array pile foundations to verify capacity. Load tests should be performed by the installation contractor and reviewed by the geotechnical engineer.

4.3 Helical Piles

Helical piles may be used to support the solar arrays. It is estimated helical piles will be installed below frost depth and terminated at a depth range of 5 to 10 feet below ground surface. Helical piles should be designed in accordance to the manufacturer specifications and torque set to meet the design load requirements.

Installation equipment for helical piles should be properly sized for installation within medium dense sand and gravel. Helical piles should not be torqued during installation beyond their allowable stress limits.

4.4 Frost Protection

Pile foundations for the solar array will be installed in native esker sand and gravel. The U.S. Army Corps of Engineers assigns gravelly soils with a fines content of 10 to 20 percent, and sands with a fines content of 6 to 15 percent to frost group F2. Sands with over 15 percent fines are assigned to frost group F3. Both categories may apply at this site. Frost group F2 is considered slightly frost susceptible and F3 is considered moderately frost susceptible, which

may frost heave through seasonal freeze-thaw cycles. The adfreeze pressure for steel piles in sand and gravel is estimated at 20 psi.

Foundations should be constructed at a minimum depth of 4.5 feet below finished grade for design frost depth and 3 feet for mean frost depth. The design freezing index is based upon the coldest year out of 10 years at the 90th percentile and the mean freezing index is the average with a 50 percent exceedance. This frost depth is based on a design air-freezing index of 1,300-degree days and a mean air-freezing index of 1,000-degree days for South China based on data from NOAA. Using the Climatic Maps from Cornell University as a cross reference, the maximum frost depth under snow-free bare soil is 5 feet at a 10-year return period. Maximum depths under bare soil and under sod are approximately 2 feet and 1.5 feet at a 10-year return period, respectively. In determining the foundation design depth, the need to resist lateral, compressive, and uplift loads should also be considered.

To reduce adfreeze pressure upon steel piles, esker sediment within the frost depth can be removed and replaced with compacted gravel as follows:

FOUNDATION BACKFILL	
Sieve Size	Percent Passing
½ Inch	35 to 75
¼ Inch	25 to 60
No. 40	0 to 25
No. 200	0 to 6

Reference: MDOT Specification 703.06, Type B (2020)

4.5 Equipment Pads

SGS recommends exterior concrete slabs exposed to frost be constructed upon a minimum 24-inch layer of Foundation Backfill. Foundation Backfill should be placed in maximum of 12-inch lifts and be compacted to 95 percent of its maximum dry density in accordance with ASTM D1557. The coefficient of subgrade reaction, k (per 12-inch plate) applies to the design of reinforced concrete foundations over soil. The slabs can be designed using a coefficient of subgrade reaction 150 tons/ft³.

Where above groundwater, granular subgrade should be proof-rolled prior to placement of Foundation Backfill. Proof rolling should consist of a minimum of five passes in a north-south direction and then five passes in an east-west direction using a small vibratory roller or large plate compactor. Proof-rolling is not recommended for subgrade located below groundwater due to potential for subgrade softening.

4.6 Seismic Design

Based on data collected in boring explorations, the subgrade profile at the site is categorized as Site Class D in accordance with ASCE 7-10. Soils encountered at the site are not considered susceptible to widespread liquefaction during earthquake. The following seismic site coefficients should be used:

SUBGRADE SITE SEISMIC DESIGN COEFFICIENTS – ASCE 7-10	
Seismic Coefficient	Site Class D
Peak Ground Acceleration (PGA)	0.115
Site Modified Peak Ground Acceleration (PGA_M)	0.180
Short period spectral response (S_s)	0.220
1 second spectral response (S_1)	0.077
Maximum short period spectral response (S_{MS})	0.352
Maximum 1 second spectral response (S_{M1})	0.186
Design short period spectral response (S_{DS})	0.235
Design 1 second spectral response (S_{D1})	0.124

4.7 Corrosion Potential

Corrosion potential was evaluated based on the following:

- Field resistivity tests were performed in native soil subgrade ranging from 28,725 to 57,450 ohm-cm, with an average of 35,045 ohm-cm for Test 1A and 40,598 ohm-cm for Test 1B. Resistivity values at the site are considered essentially non-corrosive.
- Soil pH levels within the native soil subgrade range from 7.24 to 8.04, which is considered neutral to slightly basic, but is within the range of 4 to 8.5 considered as having little to no corrosion potential.
- Sulfate content of the native subgrade ranged from 41 to 54 ppm in the samples tested, which is considered a negligible amount.
- Chloride content of the native subgrade ranged from non-detectable to 27 ppm in the samples tested, which is considered a negligible amount.

The estimated corrosion potential based on the American Water Works Association (AWWA) Point System is 7. Based on laboratory and field screening, it is estimated that the potential for corrosion of steel is considered low for native soils at the site. If desired, options to reduce corrosion potential may include hot-dipped galvanization or epoxy coating. Corrosion potential for buried concrete is considered low.

5.0 Earthwork Considerations

SGS recommends that load testing be considered for solar array pile foundations to verify capacity. Load tests should be performed by the installation contractor and reviewed by the geotechnical engineer. If used, SGS recommends that helical piles be installed and torqued to the manufacturer's recommendations for load requirements.

Groundwater was observed at 1.9 to 3.4 feet BGS and is expected to be present in shallow foundation excavations. If excavation is required, SGS anticipates shallow sumps and conventional submersible pumps may not be sufficient to control groundwater and infiltrating water during construction. Alternative dewatering methods may consist of the use of well points or other engineered controls to prevent the infiltration of groundwater. Diversion and control of water should be performed to prevent water flow from adjacent wet areas or from rain or snowmelt from entering the excavations.

Utility trenching and general excavations below 4 feet should be sloped no greater than 1.5H to 1V (OSHA Type C) for granular soils and/or below groundwater. This slope is based on the current OSHA Excavation Guidelines.

It is recommended the geotechnical engineer be retained to conduct subgrade inspections to confirm that soil conditions and construction methods are consistent with this report. It is recommended that a qualified testing agency inspect soil materials gradation and compaction during construction for conformance to the project specifications. Soil materials testing reports should be made available to the geotechnical engineer for review.

6.0 Closure

The recommendations provided in this report are based on professional judgment and generally accepted principles of geotechnical engineering and project information provided by others. No other warranty is expressed or implied. Our evaluations and recommendations are based on discrete and widely spaced data points. Some changes in subsurface conditions from those presented in this report are anticipated to occur. Should these conditions differ materially from those described in this report, SGS should be notified so that the provided recommendations may be re-evaluated.

It is recommended that this report be made available to contractors for informational purposes and be incorporated in the construction Contract Documents. SGS should be retained to review final construction documents relevant to the recommendations in this report.

SGS appreciates the opportunity to serve you during this phase of your project. If there are any questions or additional information is required, please do not hesitate to call.

APPENDIX A
EXPLORATION LOCATION PLAN
GEOLOGIC MAP

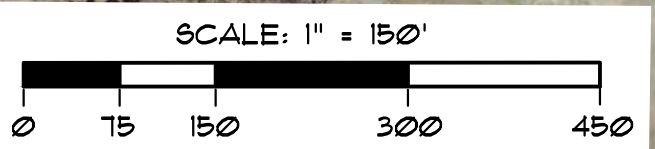
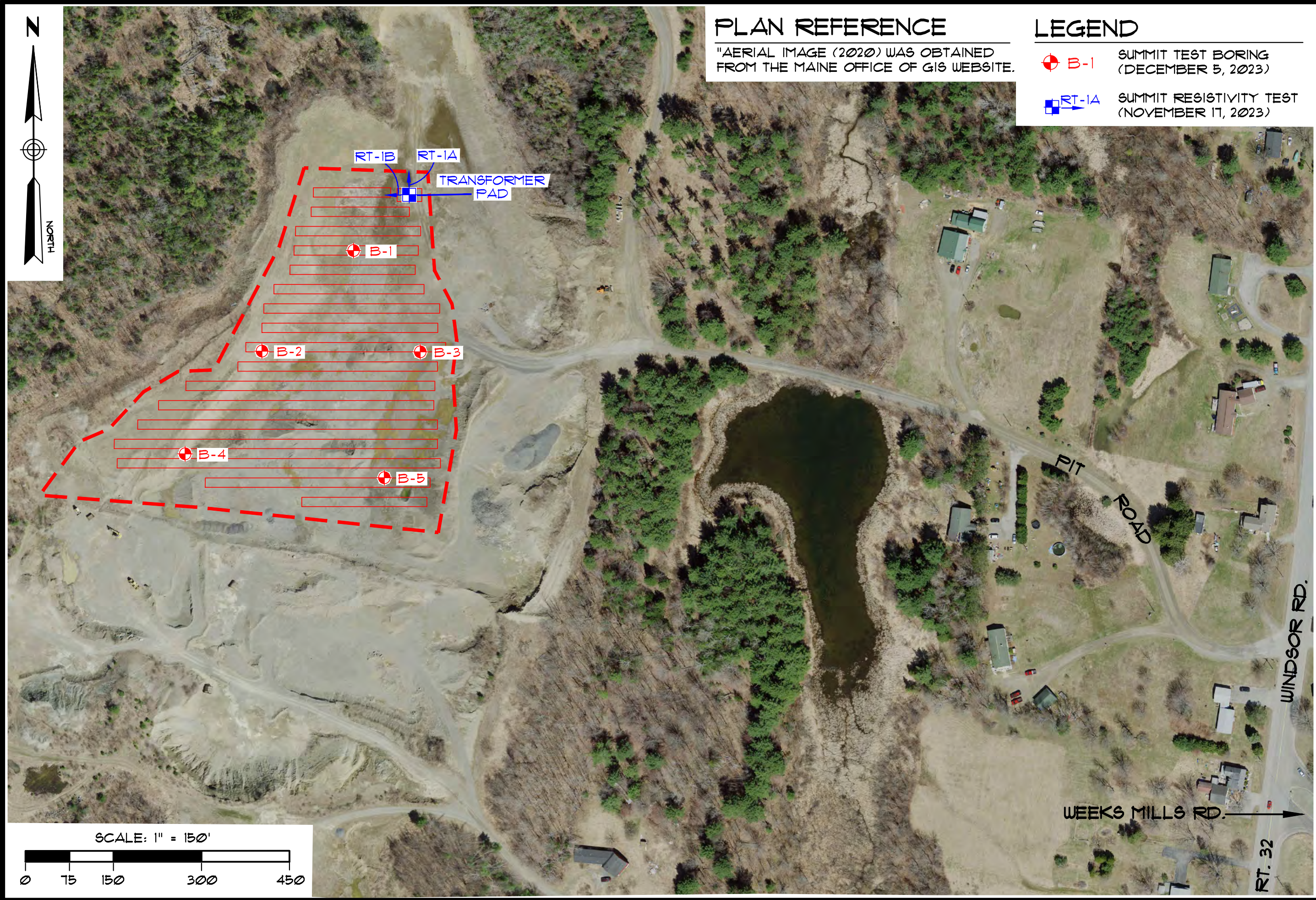


PLAN REFERENCE

"AERIAL IMAGE (2020) WAS OBTAINED FROM THE MAINE OFFICE OF GIS WEBSITE.

LEGEND

- B-1 SUMMIT TEST BORING (DECEMBER 5, 2023)
- RT-1A SUMMIT RESISTIVITY TEST (NOVEMBER 17, 2023)

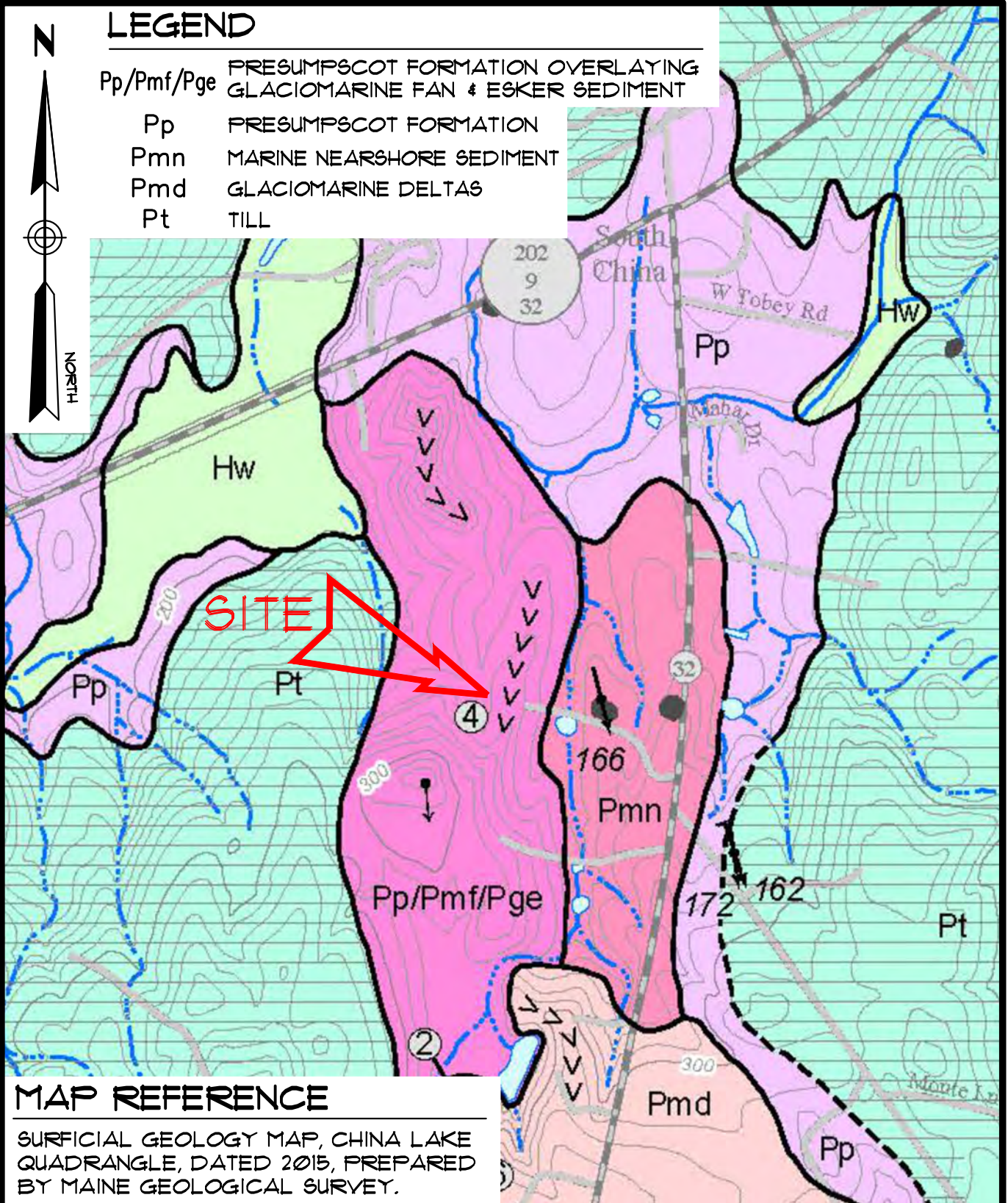


PROJECT: SOLAR SITE PIT ROAD - CHINA, MAINE		CLIENT: PERENNIAL RENEWABLES & ENERGY CONSULTING	
TITLE: EXPLORATION LOCATION PLAN		DRAWN BY: KRF APPR BY: JNB	
SCALE: 1" = 150'		DATE: JANUARY 11, 2024	
OFFICE: 210 MAINE AVENUE FAIRINGDALE, MAINE TEL: (207) 446-3360		MAIL: P.O. BOX 515 GARDINER, ME 04345	
PROJ.#: 23313		FIGURE: 1	



LEGEND

- Pp/Pmf/Pge PRESUMPCOT FORMATION OVERLAYING GLACIOMARINE FAN & ESKER SEDIMENT
- Pp PRESUMPCOT FORMATION
- Pmn MARINE NEARSHORE SEDIMENT
- Pmd GLACIOMARINE DELTAS
- Pt TILL



MAP REFERENCE

SURFICIAL GEOLOGY MAP, CHINA LAKE QUADRANGLE, DATED 2015, PREPARED BY MAINE GEOLOGICAL SURVEY.

SURFICIAL GEOLOGY MAP SOLAR SITE

PIT ROAD - CHINA, MAINE
PREPARED FOR
PERENNIAL

OFFICE: 210 MAINE AVENUE
FARMINGDALE, MAINE
TEL.: (207) 446-3360

MAIL: P.O. BOX 515
GARDINER, ME 04345



GEOENGINEERING SERVICES
www.summitgeoeng.com

DATE: 1-12-2024	DRAWN BY: KRF	CHECKED BY: JNB
JOB: 23313	SCALE: 1" = 1000'	FILE: 23313 MAPS

APPENDIX B
BORING LOGS
FIELD RESISTIVITY REPORT

EXPLORATION COVER SHEET

The exploration logs are prepared by the geotechnical engineer from both field and laboratory data. Soil descriptions are based upon the Unified Soil Classification System (USCS) per ASTM D2487 and/or ASTM D2488 as applicable. Supplemental descriptive terms for estimated particle percentage, color, density, moisture condition, and bedrock may also be included to further describe conditions.

Drilling and Sampling Symbols:

S = Split Spoon Sample	Hyd = Hydraulic Advancement of Drilling Rods
UT = Thin Wall Shelby Tube	Push = Direct Push of Drilling Rods
SSA = Solid Stem Auger	WOH = Weight of Hammer
HSA = Hollow Stem Auger	WOR = Weight of Rod
RW = Rotary Wash	PI = Plasticity Index
SV = Lab Shear Vane (Torvane)	LL = Liquid Limit
PP = Pocket Penetrometer	MC = Natural Moisture Content
C = Rock Core Sample	USCS = Unified Soil Classification System
FV = Field Vane Shear Test	Su = Undrained Shear Strength
SP = Concrete Punch Sample	Su(r) = Remolded Shear Strength

Water Level Measurements:

Water levels indicated on the boring logs are the levels measured in the boring at the times indicated. In pervious soils, the indicated elevations are considered reliable groundwater levels. In impervious soils, the accurate determination of groundwater elevations may not be possible, even after several days of observations. Groundwater monitoring wells may be required to record accurate depths and fluctuation.

Gradation Description and Terminology:

Boulders:	Over 12 inches	Trace:	Less than 5%
Cobbles:	12 inches to 3 inches	Little:	5% to 15%
Gravel:	3 inches to No.4 sieve	Some:	15% to 30%
Sand:	No.4 to No. 200 sieve	Silty, Sandy, etc.:	Greater than 30%
Silt:	No. 200 sieve to 0.005 mm		
Clay:	less than 0.005 mm		

Density of Granular Soils and Consistency of Cohesive Soils:

CONSISTENCY OF COHESIVE SOILS		DENSITY OF GRANULAR SOILS	
SPT N-value blows/ft	Consistency	SPT N-value blows/ft	Relative Density
0 to 2	Very Soft	0 to 4	Very Loose
2 to 4	Soft	5 to 10	Loose
5 to 8	Firm	11 to 30	Compact
9 to 15	Stiff	31 to 50	Dense
16 to 30	Very Stiff	>50	Very Dense
>30	Hard		



SOIL BORING LOG

Boring #: **B-1**
 Project #: 23313
 Sheet: 1 of 1
 Chkd by: ELS

Project: Solar Array
 Location: Pit Road
 City, State: China, Maine

Drilling Co: Summit Geoen지니어ing Services
 Driller: S. Floyd
 Summit Staff: J. Barnes, E.I.

Boring Elevation: Unknown
 Reference: No survey data available
 Date started: 12/5/2023 Date Completed: 12/5/2023

DRILLING METHOD		SAMPLER		ESTIMATED GROUND WATER DEPTH			
Vehicle:	ATV	Length:	24" SS / 60"Liner	Date	Depth	Elevation	Reference
Model:	9580 AMS	Diameter:	2"OD / 2.75"OD	12/5/2023	2.3 ft	N/A	Measured in open hole
Method:	2 1/4" HSA, 3" Casing	Hammer:	140 lb / Push				
Hammer Style:	Auto	Method:	ASTM D1586				

Depth (ft.)	SAMPLER				Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	No.	Pen/Rec (in)	Depth (ft)	blows/6"				
1	S-1	24/13	0 - 2	1		Olive brown Sandy GRAVEL, some Silt, compact, moist to wet, GM Cobble at 2', advance augers to 5'. Running Sands @ 4', offset boring and advaced with liners Olive brown Sandy GRAVEL, some Silt, compact, moist to wet, GM Brown Sandy GRAVEL, some Silt, compact, wet to saturated, GM	Water @ 2.3' GRAVEL = 43% SAND = 41% FINES = 16% MC = 8.3%	ESKER SEDIMENT
2				2				
3				12				
4				25				
5	L-1	60/36	0 - 5	PUSH				
6								
7								
8								
9								
10	L-2	60/24	5 - 10	PUSH				
11					End of Exploration at 10', No Refusal		10'	
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								

Granular Soils		Cohesive Soils		% Composition ASTM D2487	NOTES:	Soil Moisture Condition
Blows/ft.	Density	Blows/ft.	Consistency			
0-4	V. Loose	<2	V. soft	< 5% Trace 5-15% Little 15-30% Some > 30% With	PP = Pocket Penetrometer, MC = Moisture Content LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength Shallow = 0 to 35 degrees Dipping = 35 to 55 degrees Steep = 55 to 90 degrees Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200	Dry: S = 0% Humid: S = 1 to 25% Damp: S = 26 to 50% Moist: S = 51 to 75% Wet: S = 76 to 99% Saturated: S = 100%
5-10	Loose	2-4	Soft			
11-30	Compact	5-8	Firm			
31-50	Dense	9-15	Stiff			
>50	V. Dense	16-30	V. Stiff			
		>30	Hard			



SOIL BORING LOG

Boring #: **B-2**
 Project #: 23313
 Sheet: 1 of 1
 Chkd by: ELS

Project: Solar Array
 Location: Pit Road
 City, State: China, Maine

Drilling Co: Summit Geoenengineering Services
 Driller: S. Floyd
 Summit Staff: J. Barnes, E.I.

Boring Elevation: Unknown
 Reference: No survey data available
 Date started: 12/5/2023 Date Completed: 12/5/2023

DRILLING METHOD		SAMPLER		ESTIMATED GROUND WATER DEPTH			
Vehicle:	ATV	Length:	24" SS	Date	Depth	Elevation	Reference
Model:	9580 AMS	Diameter:	2"OD/1.5"ID	12/5/2023	1.7 ft	N/A	Measured in open hole
Method:	2-1/4" HSA	Hammer:	140 lb				
Hammer Style:	Auto	Method:	ASTM D1586				

Depth (ft.)	SAMPLER				Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	No.	Pen/Rec (in)	Depth (ft)	blows/6"				
1	S-1	24/12	0 - 2	2		Brown Gravelly SAND, some Silt, compact, damp to moist, SM	Water at 1.7'	ESKER SEDIMENT
				3				
				7				
2				16		Brown medium to coarse SAND, some Gravel, little Silt, compact, moist to wet, SP-SM to SM		
				8				
				7				
3	S-2	24/10	2 - 4	8				
				8				
				7				
4				6				
5								
6	S-3	24/5	5 - 7	4		Brown SAND, some Gravel, little Silt, compact, wet, SP-SM to SM		
				7				
				6				
7				7				
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								

Granular Soils	Cohesive Soils		% Composition	NOTES: PP = Pocket Penetrometer, MC = Moisture Content LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test <u>Bedrock Joints</u> Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength Shallow = 0 to 35 degrees Dipping = 35 to 55 degrees Steep = 55 to 90 degrees Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200	Soil Moisture Condition Dry: S = 0% Humid: S = 1 to 25% Damp: S = 26 to 50% Moist: S = 51 to 75% Wet: S = 76 to 99% Saturated: S = 100%
Blows/ft. Density	Blows/ft.	Consistency	ASTM D2487		
0-4 V. Loose	<2	V. soft			
5-10 Loose	2-4	Soft	< 5% Trace		
11-30 Compact	5-8	Firm	5-15% Little		
31-50 Dense	9-15	Stiff	15-30% Some		
>50 V. Dense	16-30	V. Stiff	> 30% With		
	>30	Hard			



SOIL BORING LOG

Boring #: **B-3**
 Project #: 23313
 Sheet: 1 of 2
 Chkd by: ELS

Project: Solar Array
 Location: Pit Road
 City, State: China, Maine

Drilling Co: Summit Geoenengineering Services
 Driller: S. Floyd
 Summit Staff: J. Barnes, E.I.

Boring Elevation: Unknown
 Reference: No survey data available
 Date started: 12/5/2023 Date Completed: 12/5/2023

DRILLING METHOD		SAMPLER		ESTIMATED GROUND WATER DEPTH			
Vehicle:	ATV	Length:	24" SS	Date	Depth	Elevation	Reference
Model:	9580 AMS	Diameter:	2"OD/1.5"ID	12/5/2023	2.5 feet	N/A	Measured in open hole
Method:	2-1/4" HSA	Hammer:	140 lb				
Hammer Style:	Auto	Method:	ASTM D1586				

Depth (ft.)	SAMPLER				Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	No.	Pen/Rec (in)	Depth (ft)	blows/6"				
1	S-1	24/15	0 - 2	6		Olive brown to brown SAND, some Silt and Gravel, dense, damp to moist, SM	Water at 2.5'	ESKER SEDIMENT
				21				
				18				
2				12		Brown to olive brown coarse SAND, some Gravel, little Silt, compact, wet, SP-SM to SM	Water at 2.5'	ESKER SEDIMENT
	S-2	24/7	2 - 4	5				
				7				
3				5		Brown Sandy GRAVEL, little Silt, compact, saturated, GP-GM to GM	Water at 2.5'	ESKER SEDIMENT
				5				
				3				
4				2		Offset rod probe, blows per foot (Inner rods with spear tip, SPT-N hammer)	Water at 2.5'	ESKER SEDIMENT
				9				
				16				
5				16			Water at 2.5'	ESKER SEDIMENT
	S-3	24/6	5 - 7	3				
				8				
6				3			Water at 2.5'	ESKER SEDIMENT
				2				
				9				
7				16			Water at 2.5'	ESKER SEDIMENT
				2				
				16				
8				25			Water at 2.5'	ESKER SEDIMENT
				20				
				25				
9				27			Water at 2.5'	ESKER SEDIMENT
				18				
				20				
10				29			Water at 2.5'	ESKER SEDIMENT
				26				
				25				
11				28			Water at 2.5'	ESKER SEDIMENT
				27				
				22				
12				19			Water at 2.5'	ESKER SEDIMENT
				19				
				19				

Granular Soils		Cohesive Soils		% Composition ASTM D2487	NOTES:	Soil Moisture Condition
Blows/ft.	Density	Blows/ft.	Consistency			
0-4	V. Loose	<2	V. soft	< 5% Trace	PP = Pocket Penetrometer, MC = Moisture Content LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test <u>Bedrock Joints</u> Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength Shallow = 0 to 35 degrees Dipping = 35 to 55 degrees Steep = 55 to 90 degrees	Dry: S = 0% Humid: S = 1 to 25% Damp: S = 26 to 50% Moist: S = 51 to 75% Wet: S = 76 to 99% Saturated: S = 100%
5-10	Loose	2-4	Soft	5-15% Little	Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200	
11-30	Compact	5-8	Firm	15-30% Some		
31-50	Dense	9-15	Stiff	> 30% With		
>50	V. Dense	16-30	V. Stiff			
		>30	Hard			



SOIL BORING LOG

Boring #: **B-3**
 Project #: 23313
 Sheet: 2 of 2
 Chkd by: ELS

Project: Solar Array
 Location: Pit Road
 City, State: China, Maine

Drilling Co: Summit Geoenengineering Services
 Driller: S. Floyd
 Summit Staff: J. Barnes, E.I.

Boring Elevation: Unknown
 Reference: No survey data available
 Date started: 12/5/2023 Date Completed: 12/5/2023

DRILLING METHOD		SAMPLER		ESTIMATED GROUND WATER DEPTH			
Vehicle:	ATV	Length:	24" SS	Date	Depth	Elevation	Reference
Model:	9580 AMS	Diameter:	2"OD/1.5"ID	12/5/2023	2.5 feet	N/A	Measured in open hole
Method:	2-1/4" HSA	Hammer:	140 lb				
Hammer Style:	Auto	Method:	ASTM D1586				

Depth (ft.)					Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	No.	Pen/Rec (in)	Depth (ft)	blows/6"				
23				19		Offset rod probe, blows per foot (inner rods with spear tip, SPT-N auto hammer)		ESKER SEDIMENT
24				18				
25				24				
26				26				
27				37				
28				23				
29				17				
30				14				
31				11				
32				16				
33				14				
34				14				
35				13				
36				13				
37				14				
38				13				
39				23				
40				30				
41				38				
42				45				
43				50/0"				
44								

Granular Soils		Cohesive Soils		% Composition ASTM D2487	NOTES:	Soil Moisture Condition
Blows/ft.	Density	Blows/ft.	Consistency			
0-4	V. Loose	<2	V. soft	< 5% Trace 5-15% Little 15-30% Some > 30% With	PP = Pocket Penetrometer, MC = Moisture Content LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test <u>Bedrock Joints</u> Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength Shallow = 0 to 35 degrees Dipping = 35 to 55 degrees Steep = 55 to 90 degrees Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200	Dry: S = 0% Humid: S = 1 to 25% Damp: S = 26 to 50% Moist: S = 51 to 75% Wet: S = 76 to 99% Saturated: S = 100%
5-10	Loose	2-4	Soft			
11-30	Compact	5-8	Firm			
31-50	Dense	9-15	Stiff			
>50	V. Dense	16-30	V. Stiff			
		>30	Hard			



SOIL BORING LOG

Boring #: **B-4**
 Project #: 23313
 Sheet: 1 of 1
 Chkd by: ELS

Drilling Co: Summit Geoeengineering Services
 Driller: S. Floyd
 Summit Staff: J. Barnes, E.I.
 Boring Elevation: Unknown
 Reference: No survey data available
 Date started: 12/5/2023 Date Completed: 12/5/2023

DRILLING METHOD		SAMPLER		ESTIMATED GROUND WATER DEPTH			
Vehicle:	ATV	Length:	24" SS / 60" Liner	Date	Depth	Elevation	Reference
Model:	9580 AMS	Diameter:	2"OD / 2.75"OD	12/5/2023	3.4 ft	N/A	Measured in open hole
Method:	2 1/4" HSA, 3" Casing	Hammer:	140 lb / Push				
Hammer Style:	Auto	Method:	ASTM D1586				

Depth (ft.)	SAMPLER				Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	No.	Pen/Rec (in)	Depth (ft)	blows/6"				
1	S-1	24/11	0 - 2	1		Brown Gravelly SAND, some Silt, loose to compact, humid to damp, SM (Cobble near ground surface)	GRAVEL = 39% SAND = 42% FINES = 19% MC = 9.0%	ESKER SEDIMENT
	(L-1)	(60/42)	(0 - 5)	2				
2				12		Brown Gravelly SAND, some Silt, mottled, compact damp to moist, SM	Water at 3.4'	
				25				
3	S-2	24/5	2 - 4	7				
				13				
4				10				
				9				
5						Brown Gravelly SAND, little Silt, compact, wet to saturated, SP-SM to SM		
	S-3	24/10	5 - 7	6				
6	(L-2)	(60/0)	(5 - 10)	5		Running Sands at 7.5', offset and advanced soil liners to 10'		
				5				
7				6		No recovery in soil liner from 5' - 10'		
				PUSH				
8								
9								
10						End of Exploration at 10', No Refusal		10'
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								

Granular Soils		Cohesive Soils		% Composition ASTM D2487	NOTES: PP = Pocket Penetrometer, MC = Moisture Content LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test <u>Bedrock Joints</u> Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength Shallow = 0 to 35 degrees Dipping = 35 to 55 degrees Steep = 55 to 90 degrees Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200	Soil Moisture Condition Dry: S = 0% Humid: S = 1 to 25% Damp: S = 26 to 50% Moist: S = 51 to 75% Wet: S = 76 to 99% Saturated: S = 100%
Blows/ft.	Density	Blows/ft.	Consistency			
0-4	V. Loose	<2	V. soft	< 5% Trace 5-15% Little 15-30% Some > 30% With		
5-10	Loose	2-4	Soft			
11-30	Compact	5-8	Firm			
31-50	Dense	9-15	Stiff			
>50	V. Dense	16-30	V. Stiff			
		>30	Hard			



SOIL BORING LOG

Boring #: **B-5**
 Project #: 23313
 Sheet: 1 of 1
 Chkd by: ELS

Project: Solar Array
 Location: Pit Road
 City, State: China, Maine

Drilling Co: Summit Geoenengineering Services
 Driller: S. Floyd
 Summit Staff: J. Barnes, E.I.

Boring Elevation: Unknown
 Reference: No survey data available
 Date started: 12/5/2023 Date Completed: 12/5/2023

DRILLING METHOD		SAMPLER		ESTIMATED GROUND WATER DEPTH			
Vehicle:	ATV	Length:	24" SS	Date	Depth	Elevation	Reference
Model:	9580 AMS	Diameter:	2"OD/1.5"ID	12/5/2023	1.9 ft	N/A	Measured in 5 ft of augers
Method:	2-1/4" HSA	Hammer:	140 lb				
Hammer Style:	Auto	Method:	ASTM D1586				

Depth (ft.)	SAMPLER				Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	No.	Pen/Rec (in)	Depth (ft)	blows/6"				
1	S-1	24/18	0 - 2	7		Brown Gravelly SAND, little Silt, dense, moist, SM Brown Sandy GRAVEL, some Silt, compact, wet, GM Brown Gravelly SAND, some to little Silt, compact, wet, SM Running Sands at 7', unable to sample Advanced solid stem auger to refusal ↓ Consistent auger resistance through medium-dense strata Cobble at 15.5' End of Exploration at 20', SSA refusal on probable bedrock	Water 1.9'	ESKER SEDIMENT
2				20				
3				25				
4				10				
5	S-2	24/10	2 - 4	7				
6				7				
7				6				
8				8				
9								
10	S-3	24/8	5 - 7	3				
11				3				
12				8				
13				10				
14								
15								
16								
17								
18								
19								
20								
21								
22								

Granular Soils		Cohesive Soils		% Composition ASTM D2487	NOTES: PP = Pocket Penetrometer, MC = Moisture Content LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test <u>Bedrock Joints</u> Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength Shallow = 0 to 35 degrees Dipping = 35 to 55 degrees Steep = 55 to 90 degrees Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200	Soil Moisture Condition Dry: S = 0% Humid: S = 1 to 25% Damp: S = 26 to 50% Moist: S = 51 to 75% Wet: S = 76 to 99% Saturated: S = 100%
Blows/ft.	Density	Blows/ft.	Consistency			
0-4	V. Loose	<2	V. soft			
5-10	Loose	2-4	Soft	< 5% Trace		
11-30	Compact	5-8	Firm	5-15% Little		
31-50	Dense	9-15	Stiff	15-30% Some		
>50	V. Dense	16-30	V. Stiff	> 30% With		
		>30	Hard			



WENNER 4 PIN RESISTIVITY FIELD REPORT

Date: 11/17/2023
Project: Perennial Solar Array - China
Project #: 23313
Summit Personnel: Jason Barnes, E.I. (ME)
Site Location: Pit Road, China, Maine

Field Summary: Performed Wenner 4-Pin resistivity tests at the northern portion of the site at the location of the transformer pad near test boring B-1. Test #1A was performed south to north and Test #1B was performed east to west. Resistivity testing was performed using a Miller 400A. Resistivity testing was performed using the Wenner Four Probe method in accordance with ASTM G57. Probe spacing ranged from 2 to 20 feet at an A-spacing of 5-ft per reading. Resistivity results for the pin spacing are presented in the following table. Resistivity values were calculated using the following equations:

$$\text{Resistivity (p) in ohm-cm} = 2 \cdot \pi \cdot a \cdot R \quad (a = \text{electrode spacing in cm, } R = \text{resistance in ohms})$$

$$\text{Resistivity (p) in ohm-cm} = 191.5 \cdot a \cdot R \quad (a = \text{electrode spacing in ft, } R = \text{resistance in ohms})$$

Test Results:

A-Spacing	Factor		Test 1A (Ohm-cm)	Test 1B (Ohm-cm)
	S-N	E-W		
2	105	100	40,215	38,300
5	38	35	36,385	33,513
10	15	16	28,725	30,640
15	11	15	31,598	43,088
20	10	15	38,300	57,450
	AVERAGE:		35,045	40,598

Remarks: Tests were performed in a gravel pit with no soil frost. Probes were driven with a light hammer through moist soil.

APPENDIX C
LABORATORY TEST RESULTS



GRAIN SIZE ANALYSIS - ASTM D6913

PROJECT NAME: Perennial Solar
 PROJECT LOCATION: Pit Road, China, Maine
 CLIENT: Perennial Renewables & Energy Consulting
 TECHNICIAN: Jason Barnes, E.I.
 SOIL DESCRIPTION: Sandy GRAVEL, some Silt, GM

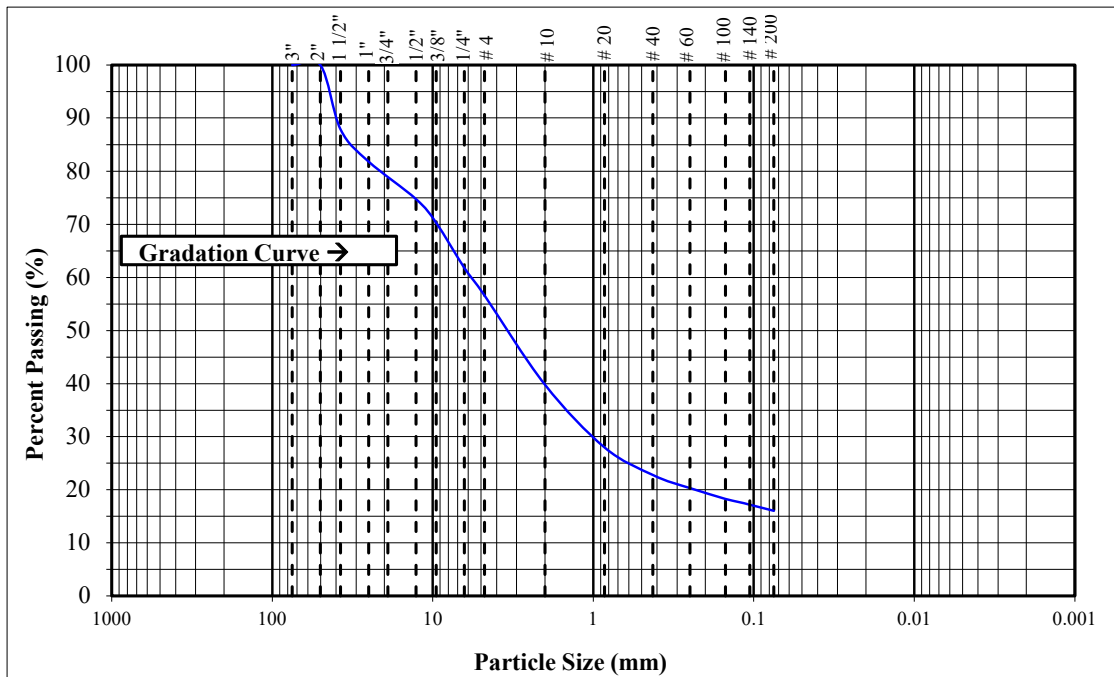
PROJECT #: 23313
 EXPLORATION #: B-1
 SAMPLE #: L-1
 SAMPLE DEPTH: 0' - 3'
 TEST DATE: 12/21/2023

TEST PROCEDURE

Sample Source: Soil Liner	Sieve Stack: Composite	Specimen Procedure: Air Dry
Test Method: Method A	Separating Sieve(s): 3/8 Inch	Dispersion Type: (NaPO ₃) ₆ Solution

DATA

<u>STANDARD SIEVE</u> DESIGNATION (mm)	<u>ALTERNATIVE SIEVE</u> DESIGNATION (in)	<u>PERCENT</u> PASSING (%)
75	(3 in)	100
50	(2 in)	100
37.5	(1-1/2 in)	88
25.0	(1 in)	82
19.0	(3/4 in)	82
12.7	(1/2 in)	75
9.5	(3/8 in)	70
6.35	(1/4 in)	62
4.75	(No. 4)	57
2.00	(No. 10)	40
0.850	(No. 20)	28
0.425	(No. 40)	23
0.250	(No. 60)	20
0.150	(No. 100)	18
0.106	(No. 140)	17
0.075	(No. 200)	16



REMARKS: Moisture Content = 8.3%

Reviewed By: ELS



THERMAL CONDUCTIVITY TESTING - ASTM D5334

PROJECT NAME: Solar Array
 PROJECT LOCATION: Pit Road, China, Maine
 COLLECTION DATE: 12/5/2023
 TEST DATE: 12/8/2023

PROJECT #: 23313
 CLIENT: Perennial Renewables
 TECHNICIAN: Jason Barnes, E.I.
 CHECKED BY: ELS

Sample & Testing Information

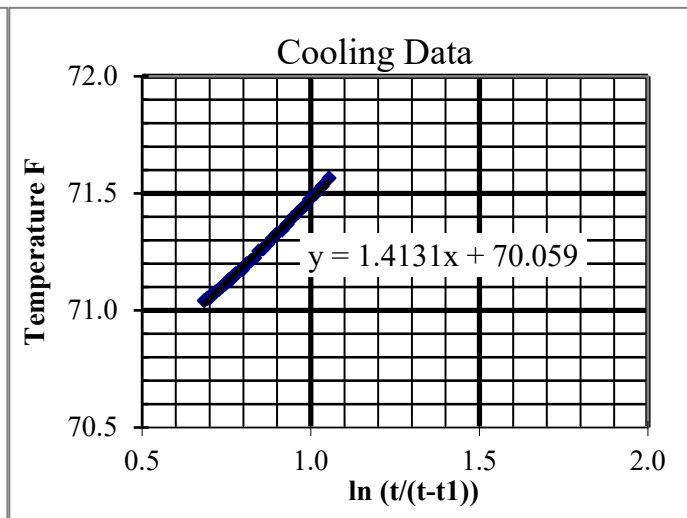
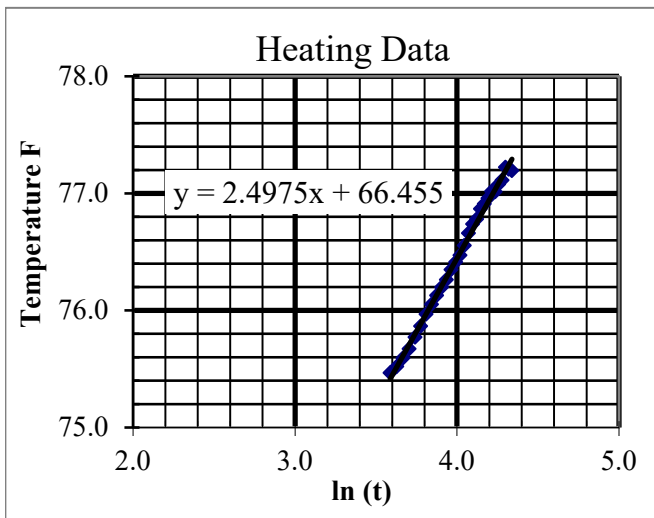
Exploration Number: B-1	Testing Instrument: Thermtest TLS-100
Sample Number: L-1	Thermal Needle ID: 40081.COF
Sample Depth: 0' - 3'	Needle Diameter: 2.54 mm
Sample Type: Remolded	Needle Length: 100 mm
Total Test Time: 180 seconds	Needle Insertion: Pushed
Sample Height: 4.6 in	Sample Mass: 843.1 g
Sample Diameter: 2.6 in	Sample Volume: 24.42 in ³
Sample State: Natural	Initial Test Temperature: 70.86 °F

Sample Description & Classification

Brown Sandy GRAVEL, some Silt, compact, wet, GM

Test Results

Thermal Conductivity (K): 0.133 BTU/hr-ft-°F	Moisture Content: 8.3 %
Thermal Resistivity (R): 7.53 BTU/hr-ft-°F	Dry Density: 121.4 pcf



REMARKS:



THERMAL CONDUCTIVITY TESTING - ASTM D5334

PROJECT NAME: Solar Array
 PROJECT LOCATION: Pit Road, China, Maine
 COLLECTION DATE: 12/5/2023
 TEST DATE: 12/13/2023

PROJECT #: 23313
 CLIENT: Perennial Renewables
 TECHNICIAN: Jason Barnes, E.I.
 CHECKED BY: ELS

Sample & Testing Information

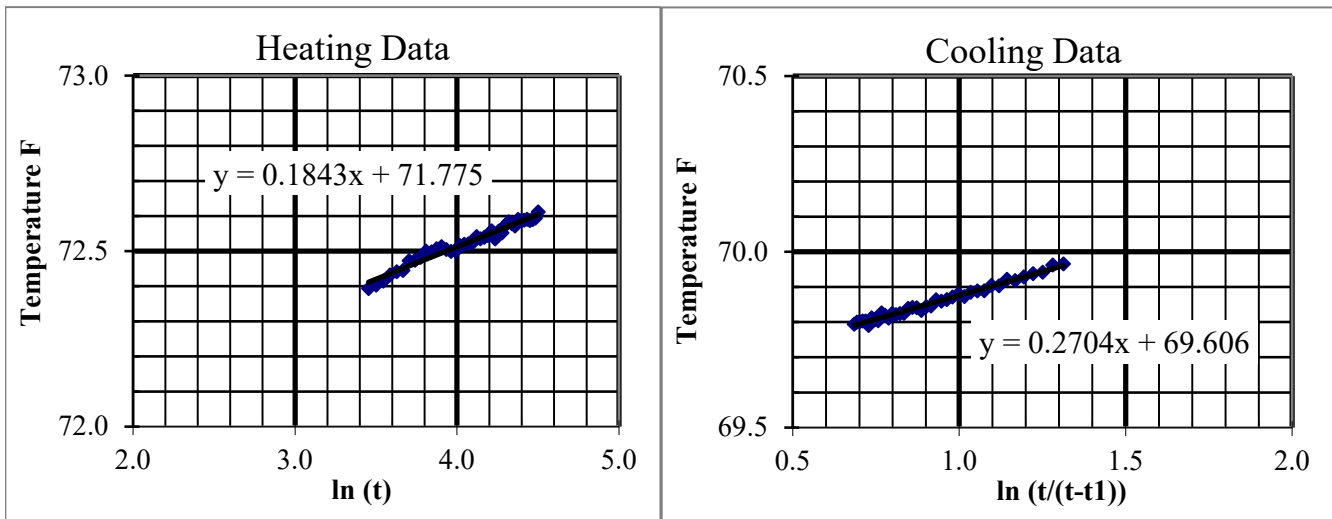
Exploration Number: B-1	Testing Instrument: Thermtest TLS-100
Sample Number: L-1	Thermal Needle ID: 40081.COF
Sample Depth: 0' - 3'	Needle Diameter: 2.54 mm
Sample Type: Remolded	Needle Length: 100 mm
Total Test Time: 180 seconds	Needle Insertion: Pushed
Sample Height: 4.7 in	Sample Mass: 890.6 g
Sample Diameter: 2.6 in	Sample Volume: 24.95 in ³
Sample State: Saturated	Initial Test Temperature: 70.29 °F

Sample Description & Classification

Brown Sandy GRAVEL, some Silt, compact, wet, GM

Test Results

Thermal Conductivity (K): 1.311 BTU/hr-ft-°F	Moisture Content: 11.9 %
Thermal Resistivity (R): 0.763 BTU/hr-ft-°F	Dry Density: 121.5 pcf



REMARKS:



THERMAL CONDUCTIVITY TESTING - ASTM D5334

PROJECT NAME: Solar Array
 PROJECT LOCATION: Pit Road, China, Maine
 COLLECTION DATE: 12/5/2023
 TEST DATE: 12/10/2023

PROJECT #: 23313
 CLIENT: Perennial Renewables
 TECHNICIAN: Jason Barnes, E.I.
 CHECKED BY: ELS

Sample & Testing Information

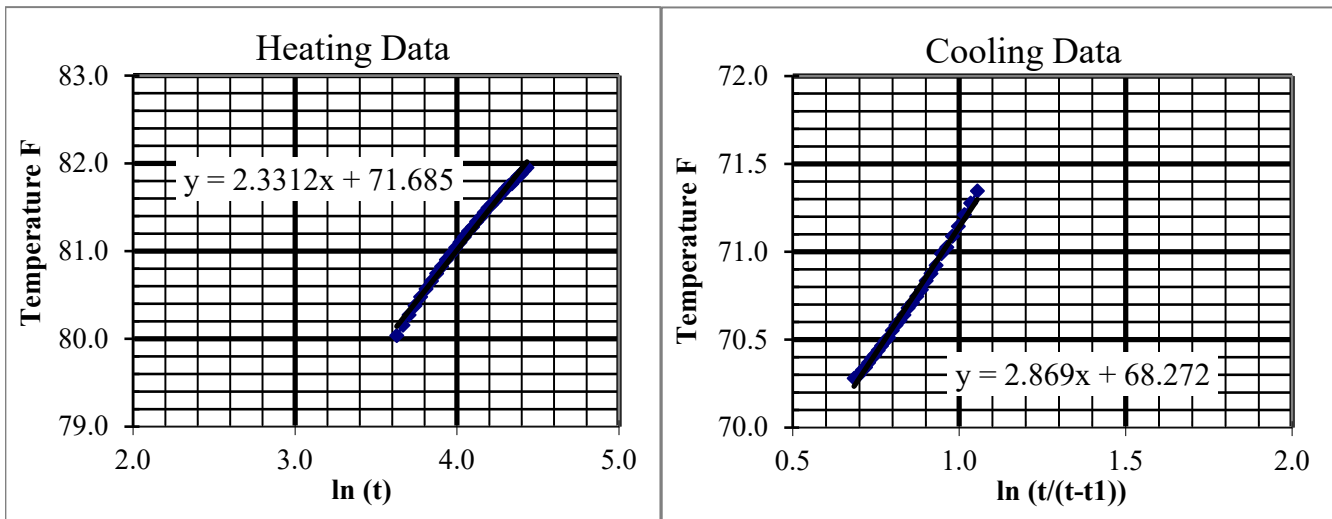
Exploration Number: B-1	Testing Instrument: Thermtest TLS-100
Sample Number: L-1	Thermal Needle ID: 40081.COF
Sample Depth: 0' - 3'	Needle Diameter: 2.54 mm
Sample Type: Remolded	Needle Length: 100 mm
Total Test Time: 180 seconds	Needle Insertion: Pushed
Sample Height: 4.5 in	Sample Mass: 760.7 g
Sample Diameter: 2.6 in	Sample Volume: 23.89 in ³
Sample State: Air Dry	Initial Test Temperature: 70.14 °F

Sample Description & Classification

Brown Sandy GRAVEL, some Silt, compact, wet, GM

Test Results

Thermal Conductivity (K): 0.09 BTU/hr-ft-°F	Moisture Content: 1.4 %
Thermal Resistivity (R): 11.09 BTU/hr-ft-°F	Dry Density: 119.6 pcf



REMARKS:



GRAIN SIZE ANALYSIS - ASTM D6913

PROJECT NAME: Perennial Solar
 PROJECT LOCATION: Pit Road, China, Maine
 CLIENT: Perennial Renewables & Energy Consulting
 TECHNICIAN: Jason Barnes, E.I.
 SOIL DESCRIPTION: Gravelly SAND, some Silt, SM

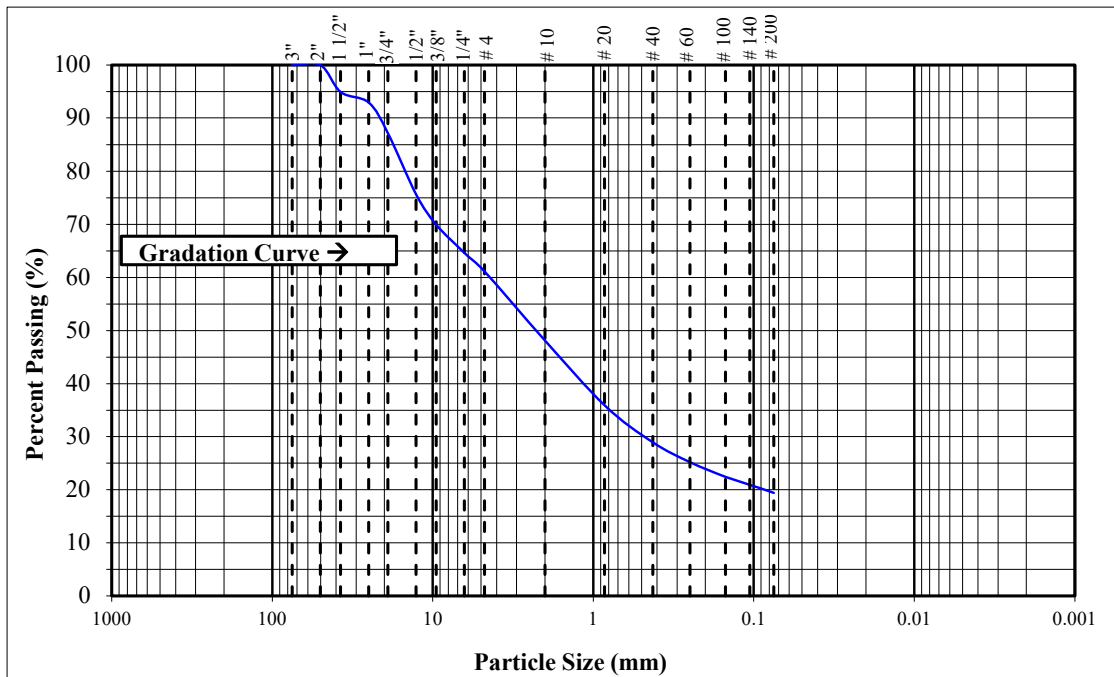
PROJECT #: 23313
 EXPLORATION #: B-4
 SAMPLE #: L-1
 SAMPLE DEPTH: 0' - 3.5'
 TEST DATE: 12/21/2023

TEST PROCEDURE

Sample Source: Liner	Sieve Stack: Composite	Specimen Procedure: Air Dry
Test Method: Method A	Separating Sieve(s): 3/8 Inch	Dispersion Type: (NaPO ₃) ₆ Solution

DATA

<u>STANDARD SIEVE</u> DESIGNATION (mm)	<u>ALTERNATIVE SIEVE</u> DESIGNATION (in)	<u>PERCENT</u> PASSING (%)
75	(3 in)	100
50	(2 in)	100
37.5	(1-1/2 in)	95
25.0	(1 in)	93
19.0	(3/4 in)	87
12.7	(1/2 in)	76
9.5	(3/8 in)	70
6.35	(1/4 in)	65
4.75	(No. 4)	61
2.00	(No. 10)	48
0.850	(No. 20)	36
0.425	(No. 40)	29
0.250	(No. 60)	25
0.150	(No. 100)	22
0.106	(No. 140)	21
0.075	(No. 200)	19



REMARKS: Moisture Content = 9.0%

Reviewed By: ELS



THERMAL CONDUCTIVITY TESTING - ASTM D5334

PROJECT NAME: Solar Array
 PROJECT LOCATION: Pit Road, China, Maine
 COLLECTION DATE: 12/5/2023
 TEST DATE: 12/10/2023

PROJECT #: 23313
 CLIENT: Perennial Renewables
 TECHNICIAN: Jason Barnes, E.I.
 CHECKED BY: ELS

Sample & Testing Information

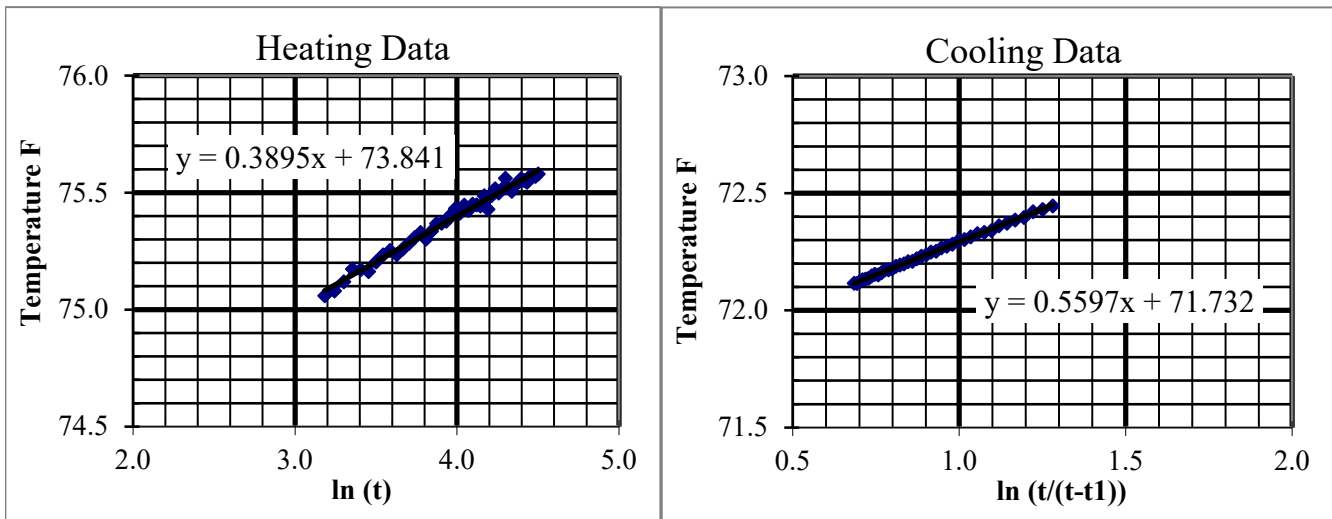
Exploration Number: B-4	Testing Instrument: Thermtest TLS-100
Sample Number: L-1	Thermal Needle ID: 40081.COF
Sample Depth: 0' - 3.5'	Needle Diameter: 2.54 mm
Sample Type: Remolded	Needle Length: 100 mm
Total Test Time: 180 seconds	Needle Insertion: Pushed
Sample Height: 4.4 in	Sample Mass: 730.9 g
Sample Diameter: 2.6 in	Sample Volume: 23.36 in ³
Sample State: Natural	Initial Test Temperature: 72.20 °F

Sample Description & Classification

Brown Gravelly SAND, some Silt, compact, moist, SM

Test Results

Thermal Conductivity (K): 0.597 BTU/hr-ft-°F	Moisture Content: 9.0 %
Thermal Resistivity (R): 1.675 BTU/hr-ft-°F	Dry Density: 109.3 pcf



REMARKS:



THERMAL CONDUCTIVITY TESTING - ASTM D5334

PROJECT NAME: Solar Array
 PROJECT LOCATION: Pit Road, China, Maine
 COLLECTION DATE: 12/5/2023
 TEST DATE: 12/13/2023

PROJECT #: 23313
 CLIENT: Perennial Solar
 TECHNICIAN: Jason Barnes, E.I.
 CHECKED BY: ELS

Sample & Testing Information

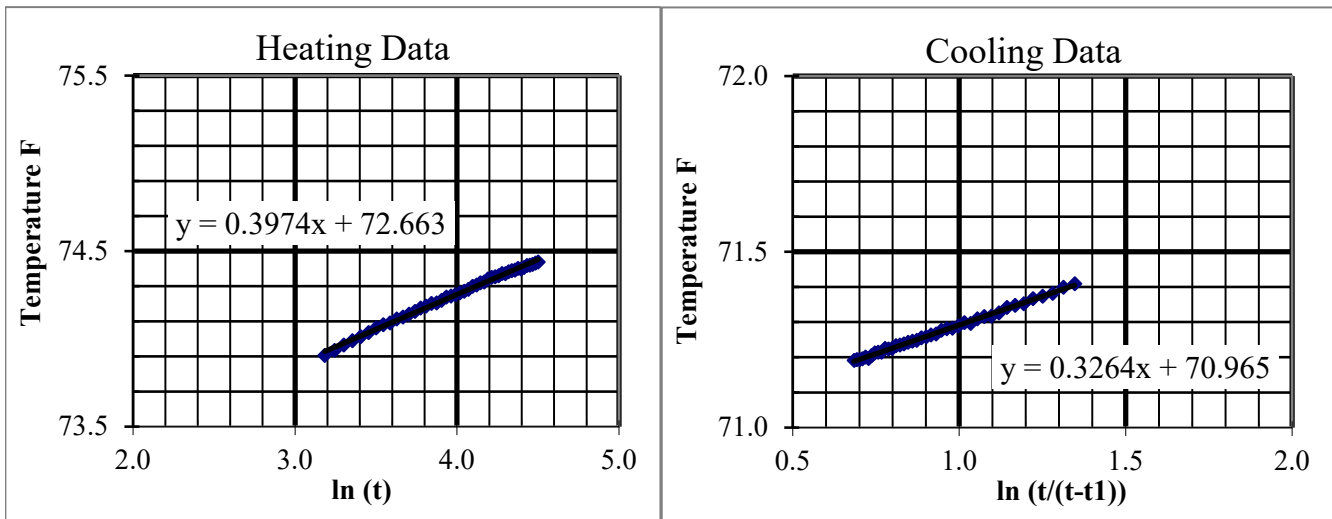
Exploration Number: B-4	Testing Instrument: Thermtest TLS-100
Sample Number: L-1	Thermal Needle ID: 40081.COF
Sample Depth: 0' - 3.5'	Needle Diameter: 2.54 mm
Sample Type: Remolded	Needle Length: 100 mm
Total Test Time: 180 seconds	Needle Insertion: Pushed
Sample Height: 4.9 in	Sample Mass: 889.6 g
Sample Diameter: 2.6 in	Sample Volume: 26.02 in ³
Sample State: Saturated	Initial Test Temperature: 71.60 °F

Sample Description & Classification

Brown Gravelly SAND, some Silt, compact, moist, SM

Test Results

Thermal Conductivity (K): 0.803 BTU/hr-ft-°F	Moisture Content: 9.5 %
Thermal Resistivity (R): 1.245 BTU/hr-ft-°F	Dry Density: 118.9 pcf



REMARKS:



THERMAL CONDUCTIVITY TESTING - ASTM D5334

PROJECT NAME: Solar Array
 PROJECT LOCATION: Pit Road, China, Maine
 COLLECTION DATE: 12/5/2023
 TEST DATE: 12/10/2023

PROJECT #: 23313
 CLIENT: Perennial Solar
 TECHNICIAN: Jason Barnes, E.I.
 CHECKED BY: ELS

Sample & Testing Information

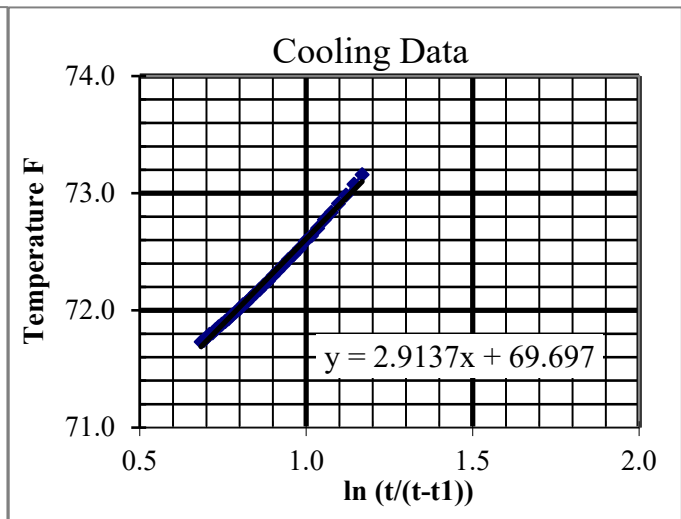
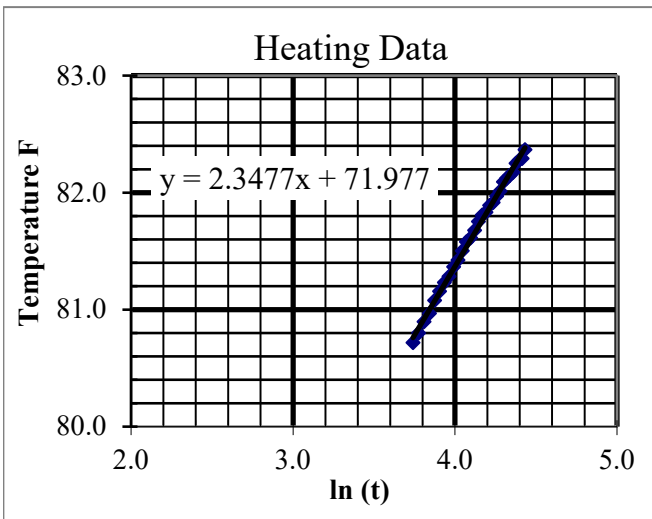
Exploration Number: B-4	Testing Instrument: Thermtest TLS-100
Sample Number: L-1	Thermal Needle ID: 40081.COF
Sample Depth: 0' - 3.5'	Needle Diameter: 2.54 mm
Sample Type: Remolded	Needle Length: 100 mm
Total Test Time: 180 seconds	Needle Insertion: Pushed
Sample Height: 4.7 in	Sample Mass: 722.6 g
Sample Diameter: 2.6 in	Sample Volume: 24.95 in ³
Sample State: Air Dry	Initial Test Temperature: 70.92 °F

Sample Description & Classification

Brown Gravelly SAND, some Silt, compact, moist, SM

Test Results

Thermal Conductivity (K): 0.092 BTU/hr-ft-°F	Moisture Content: 1.9 %
Thermal Resistivity (R): 10.85 BTU/hr-ft-°F	Dry Density: 108.3 pcf



REMARKS:

Maine Environmental Laboratory**Report of Analyses**

One Main Street, Yarmouth, ME 04096

Tel.: 207-846-6569

FAX: 207-846-9066

Email: melab@mel-lab.com

Jason Barnes
 Summit Geoengineering Services
 210 Maine Ave.
 Farmingdale, ME 04344

December 14, 2023

Report ID: 16542-231214-1137
 Batch ID: SME 16542
 Date received: 12/08/23
 Project ID: Perennial Solar

Sample ID: #23313 B-1
 Sample date: 12/05/23 10:00
 Sample matrix: SL
 Laboratory ID: 231208J001

Parameter	Results	Units	Date	Time	LOD	LOQ	Method	Tech
			Analyzed	Analyzed				
Total Solids	87.36	%	12/13/23	9:05		0.01	SM2540G	AD
Chloride	ND	mg/kg	12/13/23	9:28	23	57	SW9056A	AD
pH @ 25°C	7.44	STU	12/12/23	13:00		0.01	SW9045D	JRV
Sulfate	41 J	mg/kg	12/13/23	9:28	40	110	SW9056A	AD

Notes:

Maine Environmental Laboratory**Report of Analyses**

One Main Street, Yarmouth, ME 04096

Tel.: 207-846-6569

FAX: 207-846-9066

Email: melab@mel-lab.com

Jason Barnes
 Summit Geoengineering Services
 210 Maine Ave.
 Farmingdale, ME 04344

December 14, 2023

Report ID: 16542-231214-1137
 Batch ID: SME 16542
 Date received: 12/08/23
 Project ID: Perennial Solar

Sample ID: #23313 B-4
 Sample date: 12/05/23 13:00
 Sample matrix: SL
 Laboratory ID: 231208J002

Parameter	Results	Units	Date	Time	LOD	LOQ	Method	Tech
			Analyzed	Analyzed				
Total Solids	92.31	%	12/13/23	9:05		0.01	SM2540G	AD
Chloride	27 J	mg/kg	12/13/23	9:28	22	54	SW9056A	AD
pH @ 25°C	8.04	STU	12/12/23	13:00		0.01	SW9045D	JRV
Sulfate	54 J	mg/kg	12/13/23	9:28	38	110	SW9056A	AD

Notes:

ATTACHMENT 5.3

WETLAND DELINEATION REPORT

PERENNIAL RENEWABLES CHINA, MAINE

Wetland Delineation Report

August 2023

Prepared by:
Atlantic Resource Consultants
541 US Route One, Suite 21
Freeport, Maine 04032

Lucien Langlois, LSE #437
Wetland Scientist/Licensed Site Evaluator



Kayla Gray
Wetland Scientist



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Site Conditions Report

1. Overview
2. Site History & Description
3. Natural Resources within Project Area
4. Regulatory Summary

Appendix A: Natural Resource Map

Appendix B: Site Photographs

WETLAND DELINEATION REPORT

Overview

The following report was prepared by Atlantic Resource Consultants, LLC (ARC). A wetland delineation at the site was conducted in August of 2023 by ARC. Natural resource locations and boundaries are depicted on the resource map provided in Appendix A.

Freshwater wetlands were delineated in accordance with the 1987 U.S. Army Corps of Engineers *Wetland Delineation Manual* and the *Northeast Regional Supplement*. Wetlands are defined as 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. The methodology designed by the U.S. Army Corps of Engineers to identify wetlands uses three environmental parameters: hydrology, soil, and vegetation. Examples of wetlands include but are not limited to wet meadows, emergent marshes, scrub-shrub wetlands, forested wetlands, peatlands, and vernal pools.

Jurisdictional river, stream, or brook features were evaluated as outlined in the Natural Resource Protection Act (NRPA) 38 M.R.S. § 480-B (9) and expanded in the NRPA Identification Guide for Rivers, Streams, and Brooks.

Vernal pool habitat identifications were performed in accordance with the NRPA, 38 M.R.S § 480-B (10) regulations that are also outlined in Chapter 335, Significant Wildlife Habitat. Available Geographical Information System data from state and federal agencies were reviewed regarding rare plants and rare, threatened, and endangered animal species.

Site History & Description

The study limits for mapping the natural resources discussed in this report were confined to a specific area within a parcel identified by the Town of China's assessor database as Lot 11 on Tax Map 17. The property is located at the end of Pit Road, to the west of Windsor Road. The majority of the site is comprised of an existing active gravel pit. The undeveloped portion of the site is characterized by an upland eastern white pine (*Pinus strobus*) community but also contains wetlands including an open water/emergent freshwater wetland and a forested freshwater wetland; both containing a jurisdictional stream channel. A selective timber harvest was conducted over the undeveloped portion of the site as seen in aerial imagery and evidenced by field observations.

Surficial geology mapping for the site has been obtained through the Maine Geological Survey. The China Lake Quadrangle Map dated 2015, indicates the presence of predominantly Presumpscot formation overlying glaciomarine fan and esker sediment with a small area of marine nearshore sediment. Marine nearshore sediment involves the deposit of sand and gravel as marine processes

reworked older glacial deposits during regression of the sea. The primary geology of the site consists of Presumpscot formation overlying glaciomarine fan and esker sediment, which involves a discontinuous ridge of coarse esker sand and gravel that is generally buried by submarine fan sediment containing well stratified sand and gravel. Although not significant, the project area is located over a significant sand and gravel aquifer.

General surficial soil mapping for the site has been obtained through the Natural Resource Conservation Service (NRCS) Web Soil Survey. This indicates the presence of predominantly Lyman-Tunbridge complex and Hinckley gravelly sandy loam present along the interior of the existing gravel pit and the undeveloped forested area on the western portion of the site. Soils within the open water/emergent wetland are characterized as Scarboro mucky peat. Soil explorations during the delineation confirmed the presence of primarily sandy loams. Drainage under Pit Road flows from south to north through a 30" CMP. Drainage within the forested area west of the pit flows from east to west and southwest across the property. The project site is located within the China Lake watershed. China Lake is considered a Lake Most at Risk of New Development, per the Maine Department of Environmental Protection (MDEP).

Natural Resources within Project Area

Freshwater Wetlands

U.S. Fish & Wildlife Service (FWS) National Wetland Inventory (NWI) maps were reviewed for the project and compared to the on-site wetland delineation. NWI maps which are based on the Cowardin Classification system, map wetlands to the north and south of Pit Road as PUBHh or a palustrine, unconsolidated bottom, permanently flooded pond that has been impounded or dammed. NWI maps these wetlands as having inclusions of PEM1Eh or palustrine persistent emergent wetland with a seasonally flooded or saturated water regime that has been impounded or diked, and PSS1/EM1Eb or palustrine, scrub-shrub, broad-leaved deciduous, persistent emergent, with a seasonally flooded and saturated water regime that is likely due to the presence of beavers. Field observations did find this classification to be an accurate description of the open water/emergent wetland. However, the NWI map does not capture the majority of wetland areas mapped by ARC.

ARC found that the wetlands to the northwest are predominantly forested with small areas of scrub-shrub and emergent vegetation in flatter topographical areas. Forested wetlands at the site can be classified as PFO1/4E or palustrine, forested, broad-leaved deciduous/needle-leaved evergreen wetlands with a seasonally flooded/saturated water regime. Wetlands are labeled as Wetlands 1-3 on the attached natural resource plan.

Forested wetlands on the project site are dominated by tree species such as green ash (*Fraxinus pennsylvanica*), balsam fir (*Abies balsamea*) yellow birch (*Betula alleghaniensis*), eastern hemlock (*Tsuga canadensis*), and gray birch (*Betula populifolia*). Other tree species present on the edge of

forested wetlands include witch hazel (*Hamamelis virginiana*), paper birch (*Betula papyrifera*), eastern white pine (*Pinus strobus*), and American beech (*Fagus grandifolia*).

Herbaceous vegetation within forested wetlands consists of sensitive fern (*Onoclea sensibilis*), cinnamon fern (*Osmundastrum cinnamomeum*), jewelweed (*Impatiens capensis*), carex sedges (*Carex spp.*), white meadowsweet (*Spiraea alba*), woodland horsetail (*Equisetum sylvaticum*), and three-leaf goldthread (*Coptis trifolia*). The shrub layer within the forested wetland consisted of speckled alder (*Alnus incana*) and red osier dogwood (*Cornus alba*).

The emergent/open water wetland on the project site contains American white waterlilies (*Nymphaea odorata*) and Broad-Leaf Cat Tail (*Typha latifolia*). The edge of the wetland contains herbaceous vegetation such as water smartweed (*Persicaria amphibia*), jewelweed (*Impatiens capensis*), white meadowsweet (*Spiraea alba*), and sensitive fern (*Onoclea sensibilis*), and dominant shrubs such as speckled alder (*Alnus incana*) and silky dogwood (*Cornus amomum*). The upland forested area surrounding the wetland consists of gray birch (*Betula populifolia*) and eastern white pine (*Pinus strobus*). Beaver activity was noted within the emergent/open water wetland.

The emergent/open water wetland had clear evidence of hydrologic indicators given the presence of surface water. Soils within the fringe of the wetland were examined to determine the hydric soil indicator. The hydric soil indicator was determined to be the presence of a hydrogen sulfide odor starting within 12 inches of the soil surface.

The forested freshwater wetland contained sediment deposits and water-stained leaves as hydrologic indicators. Soils were examined along the edge of the wetland to determine the hydric soil indicator. The hydric soil indicator was determined to be the presence of a sandy redox.

Streams

Stream channels were studied extensively in the field, and the following characteristics were documented: hydrology, morphology, substrate, vegetation, stability, aquatic organism assemblage, and connectivity. Two stream channels were identified within the project boundary. Streams are labeled as Stream 1-2 on the attached natural resource plan.

The first stream originates off the property to the south and flows through the open water wetland before it flows through a 30" CMP under Pit Road and continues to the north. The existing culvert is undersized and has caused a scour pool at the downstream end of the culvert before the channel narrows. The NWI map describes the stream as R4SBC or an intermittent stream with a seasonally flooded water regime, which is correct based on field observations by ARC.

The second stream channel is contained within the forested freshwater wetland to the northwest portion of the site. The NWI map describes the stream as R4SBC or an intermittent stream with a seasonally flooded water regime. ARC identified four stream segments within the drainage that are considered portions of a jurisdictional stream. The segments consist of a channel between defined banks, a mineralized substrate, and the presence of aquatic insects. The areas that were not included as segments did not contain a channel between defined banks, but rather were areas where the topography leveled out and contained herbaceous vegetation. These areas were not considered to be part of the jurisdictional stream.

Vernal Pools

The study limits were reviewed for potential vernal pool habitat. No potential vernal pool habitat was identified. The site generally slopes to the west and does not provide for seasonal depressions in wetlands.

Rare Plants and Rare, Threatened, and Endangered Animal Species

Data provided by state and federal natural resource agencies was accessed to identify known occurrences of Rare, Threatened, Endangered, or Essential species and/or habitats mapped on the project site. The state agencies that supply data include the Maine Department of Inland Fisheries and Wildlife (MDIFW) and Maine Natural Areas Program (MNAP) with the Maine Department of Agriculture Conservation & Forestry. Beginning with Habitat maps were also reviewed for any Rare, Threatened, or Endangered Animals. There are no significant wildlife habitats, rare plants, or rare, threatened, or endangered animal species on the project site.

The federal U.S. Fish & Wildlife Service (FWS) database was also accessed, which indicated that the habitat range of the Threatened Northern Long-Eared Bat is potentially within the project area. Potential bat presence may have an effect on the construction sequence and schedule, namely tree removal being conducted in summer months. The FWS database also indicated that the project site is within the habitat range for Atlantic Salmon. The FWS has designated the project site as being a final critical habitat for the species. A project not proposing to impact on-site streams would not constitute a consultation with FWS. Additionally, ARC wetland scientists do not anticipate that Atlantic Salmon would be able to reach the limits of project site due to existing natural barriers to fish passage such as intermittent flows, topography, and disconnected channels through wetlands.

Regulatory Summary

Some freshwater wetlands may be considered to be *Wetlands of Special Significance* (WOSS) per MDEP's Chapter 310 of the Natural Resources Protection Act (NRPA). Certain characteristics, proximity to other natural resources, and containment of specific habitat can designate wetlands as

WOSS. The project site contains WOSS due to the following:

- Any freshwater wetland area located within 25 feet of the normal high-water line of a 'river, stream, or brook' as defined in the NRPA will be considered WOSS.
- Any freshwater wetland that contains under normal circumstances at least 20,000 square feet of aquatic vegetation, emergent marsh vegetation, or open water will be considered WOSS.

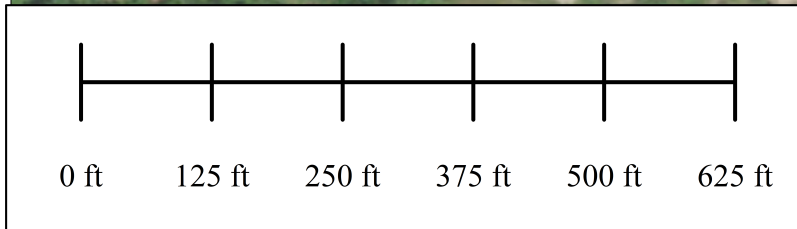
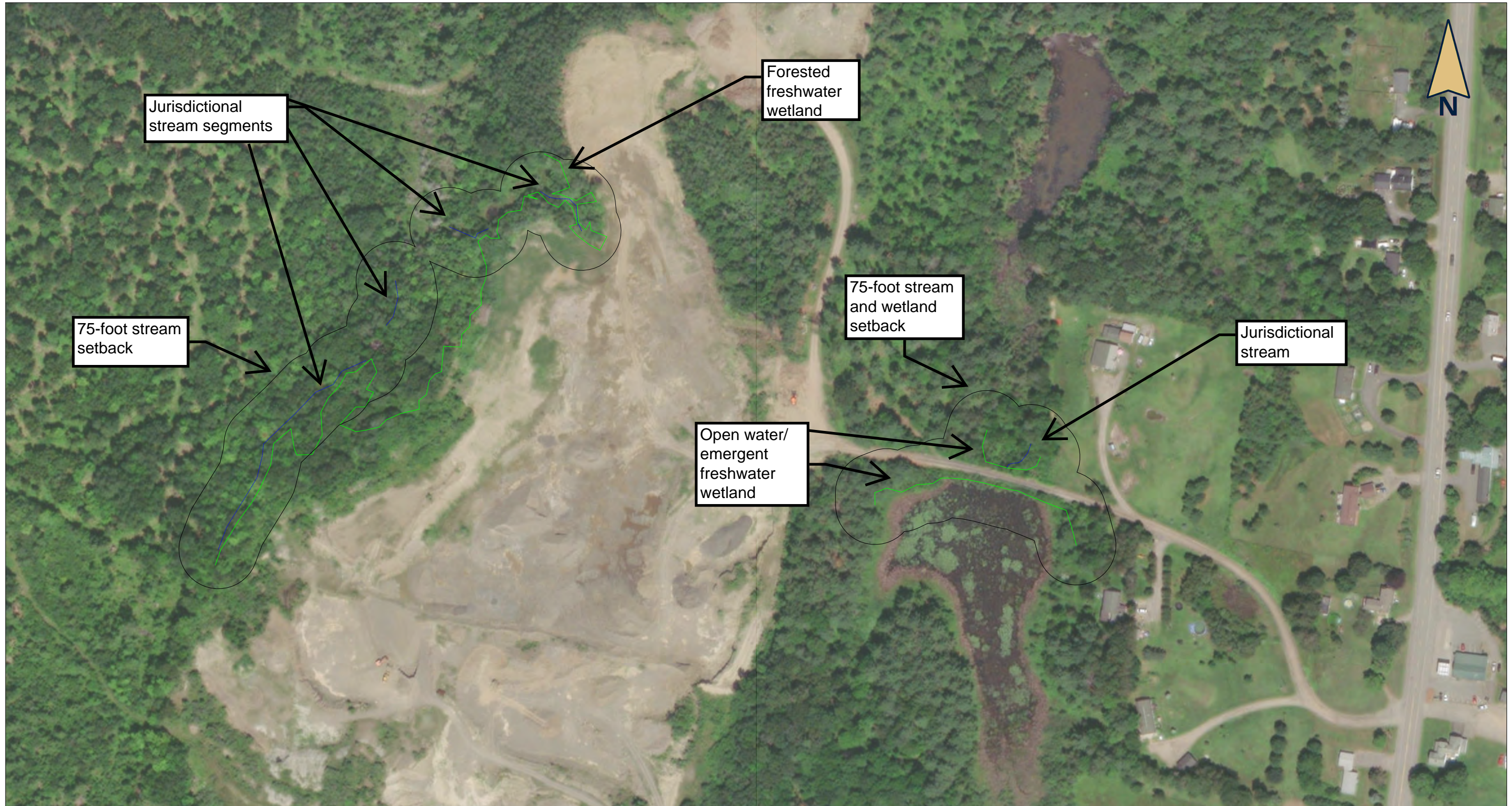
For the purposes of NRPA administered by MDEP, all streams contain 75-feet of adjacent jurisdiction. Wetland impacts are reviewed by MDEP based on the type of wetland, type of activity, and size of impact. Impacts that are less than 4,300 square feet to non-WOSS wetlands may be exempt from permitting under the NRPA.




Authorization for the discharge of fill material to waters of the U.S., including streams and freshwater wetlands, is required by the Army Corps of Engineers.

APPENDIX A

RESOURCE MAP

A map depicting natural resource boundaries and locations is provided on the following page.



Legend	
	NRPA 75 ft
	ARC Wetlands
	Jurisdictional Stream

Created By: Kayla Gray
 Date Created: 8/2/2023
 Projection: UTM 19N (NAD83)
 Project # 23-047

Perennial Renewables
 Pit Road
 China, ME 04358



Atlantic Resource Consultants
 541 US Route One
 Freeport, ME 04032
 Tel: 207.869.9050

APPENDIX B
SITE PHOTOGRAPHS

Photos depicting the project site were taken by ARC on August 2, 2023, during wetland delineation efforts.

Wetland Delineation Report

Site Photographs

Date: August 2, 2023

Location: China, ME



Photo 1 –

Date: 8/2/2023

View of the open water/emergent freshwater wetland looking to the west.

Photographer: Kayla Gray



Photo 2 –

Date: 8/2/2023

Zoomed in view of the open water/emergent freshwater wetland looking southwest.

Photographer: Lucien Langlois



Photo 3 –

Date: 8/2/2023

View of jurisdictional stream outlet to the north of Pit Road.

Photographer: Lucien Langlois



Photo 4 –

Date: 8/2/2023

View of jurisdictional stream flowing to the north away from Pit Road.

Photographer: Lucien Langlois



Photo 5 –

Date: 8/2/2023

View of existing access drive (Pit Road) with open water/emergent freshwater wetland on the right side of the road and the jurisdictional stream on the left side of the road. View looking east standing on Pit Road.

Photographer: Lucien Langlois













ATTACHMENT 5.4

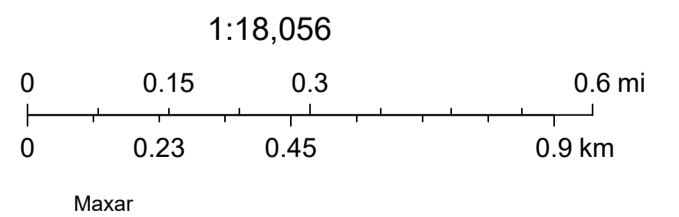
BEGINNING WITH HABITAT MAP

Beginning With Habitat



January 12, 2024

- | | |
|--|---|
|  Shellfish Beds |  Tidal Waterfowl / Wading Bird Habitat |
|  Stream Buffer (75 feet) |  Inland Waterfowl / Wading Bird Habitat |
|  Great Ponds, Rivers and Coastal Buffer (250 feet) |  Significant Vernal Pools |
|  Atlantic Salmon Habitat |  Deer Wintering Areas |
|  Shorebird Habitat |  Essential Wildlife Habitats |
|  Seabird Nesting Island |  Endangered, Threatened, and Special Concern Species |



SECTION 6

UTILITIES

The proposed project consists of the development of a solar facility located within an existing gravel pit. New, private three phase overhead electric will be installed down Pit Road and terminate at a transformer pad. The proposed project will not include an outbuilding for employees; therefore, the project does not require water supply or wastewater treatment.

The project will include a perimeter fence and a gated entrance. The applicant has been in conversation with Richard Morse, head of the Fire Department in the Town of China. Based on these conversations, the applicant is planning to install a Knox padlock to allow access to the fire department in case of a fire. The solar array will be built to electrical code to follow fire safety and protections. Additionally, the applicant is willing to offer training to the local Fire Department so that they are familiar with the details of the project site and its associated access.

SECTION 7

LANDSCAPING PLAN

The proposed project does not include the installation of any landscaping. The proposed project is cited within a portion of an existing gravel pit that is located approximately 1,200 linear feet back from Route 32. The project site contains an existing approximately 800 linear foot forested buffer that will act as a screen and will protect the three residential properties on Pit Road from any adverse visual impacts. The project is considered private property and will not include pedestrian access; therefore, the applicant is requesting a waiver of any requirement for a formal landscaping plan.

The proposed project seeks to restore existing unvegetated areas to a vegetated meadow condition within one calendar year of being disturbed and will not be mowed more than twice per year. Additionally, the proposed roadway around the solar array will be maintained as grass.

SECTION 8

SOLID WASTE

All solid waste associated with the proposed project will be generated during the construction of the solar array. The main type of waste produced during construction is packaging (plastic and cardboard) and any damaged components/wiring (small amounts of metal). General municipal solid waste will be generated during construction of the array from laborers. The proposed project will not generate solid waste throughout the duration of the project. The project site will not require any tree clearing to accommodate the proposed project. Additionally, the proposed solar array will not include the transportation, storage, or disposal of hazardous substances or materials.

SECTION 9

HISTORIC SITES

The Maine Historic Preservation Commission (MHPC) was contacted regarding any potential historic sites in the vicinity of the proposed project. MHPC's response for project review indicated that there are no historic or archeological sites near the project site. MHPC stated that the proposed project will have no adverse effect upon historic properties (architectural or archaeological), as defined by Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA). A copy of the correspondence with MHPC is provided in Attachment 9.1.

Attachments

Attachment 9.1 – Correspondence with MHPC

ATTACHMENT 9.1

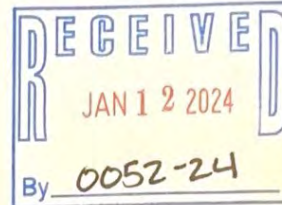
CORRESPONDENCE WITH THE MAINE HISTORIC PRESERVATION COMMISSION



Atlantic Resource Consultants
Engineering Strategies and Solutions

541 US Route One, Suite 21
Freeport, Maine 04032
Tel: 207.869.9050
info@arc-maine.com

January 12, 2024



Mr. Kirk Mohney
Maine Historic Preservation Commission
55 Capitol Street
65 State House Station
Augusta, Maine 04333

RE: Perennial Sand Pit Solar LLC, China, Maine

Dear Mr. Mohney,

On behalf of our client, Perennial Sand Pit Solar LLC, we are contacting you regarding the referenced project. The proposed project includes the construction of a proposed solar array development that will take place on a 42.2 +/- acre lease area located off Pit Road in the Town of China, Maine. The project includes the development of a 975 kW AC ground-mounted solar array with 3,442 solar modules, a transformer pad, utility poles, and a 16-foot-wide access road surrounding the array. The array will be surrounded by a 7-foot-high safety fence with a 20-foot-wide vehicle access gate equipped with a knock padlock located at the front of the array near Pit Road.

We have enclosed a site location map and sketch plan showing the nature and extents of the proposed work. As currently shown, the project does not propose impacts to on-site freshwater wetlands. The project will maintain at least 25 feet from on-site jurisdictional streams.

We would be most grateful if you could provide us with your official response communication for our permitting efforts so that we may include them in various state and local applications.

If you have any questions regarding this letter, please do not hesitate to contact us.

Regards,

Kayla Gray

Environmental Specialist
Atlantic Resource Consultants

Cc: File 23-047/Correspondence

ATTACHMENTS:

- Summary
- Location Map
- Preliminary Site Plan

Based on the information submitted, I have concluded that there will be no historic properties affected by the proposed undertaking, as defined by Section 106 of the National Historic Preservation Act. Consequently, pursuant to 36 CFR 800.4(d)(1), no further Section 106 consultation is required unless additional resources are discovered during project implementation pursuant to 36 CFR 800.13.

Kirk F. Mohney
Kirk F. Mohney,
State Historic Preservation Officer
Maine Historic Preservation Commission

1/29/24
Date

SECTION 10

STORMWATER MANAGEMENT PLAN

The solar development will result in 2.43 acres of developed area, of which approximately 0.08 acres is new impervious area. The project will occupy approximately 8.32 acres of the 42.2 +/- acre lease area. Most of the stormwater runoff from the development's impervious area will be directed to the northern area of the site where it will naturally infiltrate into existing soils.

The project has been designed in accordance with the MDEP's Stormwater Law (Chapter 500). Since the project is in the watershed of China Lake (East Basin), the project is required to meet the phosphorus standard. Since the project proposes redevelopment of a previously developed area, phosphorus calculations have been performed for the pre-development and post-development conditions at the site to determine the proposed net increase in phosphorus from the project. These are presented in the spreadsheets included as Attachment 9.1 in this section. The calculations demonstrate that the project will result in an overall net decrease in phosphorus exported from the site and hence meets the phosphorus standard, as required under Chapter 500. Establishment of vegetation will collect and slow stormwater runoff so that the water can be utilized and taken in by plants. Vegetation will trap soil, absorb, and filter pollutants. This process minimizes a project's impacts by controlling the movement of stormwater runoff and limiting the output of pollutants such as nutrients from entering natural resources.

A comprehensive Soil Erosion and Sediment Control (SESC) narrative has been prepared that includes Best Management Practices (BMPs) associated with the proposed construction activities. The location of SESC BMPs is shown on the accompanying plans. These are further described on the details and notes sheets in the accompanying plan set.

The narrative outlines the required construction measures and techniques that will reduce potential degradation of the water quality at downstream locations. Temporary erosion control measures will be incorporated during construction, and long-term surface stabilization practices have been designed as part of the site development, thus minimizing the potential for erosion and sediment transport. These measures include the constructed BMPs for filtration of runoff from smaller storm events, riprap, permanent seeding and other vegetative stabilization measures.

Introduction

Atlantic Resource Consultants (ARC) has been retained for the design and permitting of a new solar array in China. The project proposes the construction of 3,442 solar panels, along with the associated access, utilities, transformer pad, and perimeter fence. The majority of the site where development is proposed

is within the existing active gravel pit. The site contains varied slopes due to the existing gravel pit condition (8 to 30%). Predominant surface soil types have been identified by the Natural Resource Conservation Service (NRCS) Web Soil Survey as Lyman-Tunbridge complex and Hinckley gravelly sandy loam. The project site is located within the China Lake watershed. China Lake is considered a Lake Most at Risk of New Development, per MDEP. The project takes place in the East Basin watershed district as shown on China's land use map dated June 1, 1996. Drainage within the forested area west of the pit flows from east to west and southwest across the property.

Existing Erosion Problems

No significant erosion problems have been identified at the project site.

Critical Areas

The location of the proposed project is mapped within the China Lake watershed, which is considered a Lake Most at Risk of New Development, per the MDEP. There are freshwater wetland resources and a jurisdictional stream identified at the site.

Purpose

The primary goals of the Erosion and Sediment Control Plan for the project are to minimize exposure of soil materials during construction, to prevent soil erosion and sediment transport to downstream areas, receiving waters, and natural resources. Measures will also be taken to ensure sediment is not tracked onto adjacent streets and that stockpiles of imported construction materials are protected from potential contamination.

The primary emphasis of the Erosion and Sedimentation Control Plan to be implemented for this project is as follows:

- Construction Schedule – Major earth moving activities at the site will ideally be scheduled for the summer and will be started when a suitable weather window has been identified. This will minimize the potential for exposure of bare soil to inclement weather.
- Temporary Measures – Planning the project to have erosion resistant measures in place with measures to prevent erosion from occurring. The plan includes measures to intercept and convey runoff to temporary sediment control devices as the construction of the project occurs.
- Stabilization of drainage paths to avoid rill and gully erosion.
- The use of on-site measures to capture sediment (trenched hay bales/silt fence, ECM berm, etc.)

Erosion/Sedimentation Control Devices

As part of the site development, the Contractor will be obligated to implement the following erosion and sediment control devices. These devices shall be installed as indicated on the plans or as described within

this report. For further reference on these devices, see the *Maine Erosion and Sediment Control Best Management Practices (BMPs) Manual for Designers and Engineers, Maine DEP, October 2016*.

1. Silt fence shall be installed down slope of any disturbed areas to trap runoff borne sediments. The silt fence shall be installed per the detail provided in the plan set and inspected immediately after each rainfall, and at least weekly in the absence of significant rainfall. The Contractor shall make repairs immediately if there are any signs of erosion or sedimentation below the fence line. If such erosion is observed, the Contractor shall take proactive action to identify the cause of the erosion and take action to avoid its reoccurrence. Proper placement of stakes and keying the bottom of the fabric into the ground is critical to the fence's effectiveness. If there are signs of undercutting at the center or the edges or impounding of large volumes of water behind the fence, the barrier shall be replaced with a stone check dam and measures taken to avoid the concentration of flows not intended to be directed to the silt fence.
2. Twin rows of sediment barriers (two ECM berms or silt fence/ECM combination preferred) shall be installed at the foot of steep slopes, during winter construction and anywhere will work is taking place within 50 feet of a natural resources (streams, wetlands, etc.).
3. Sediment barriers shall be installed along the downgradient side of construction work areas, with locations being adjusted along with the construction phasing areas.
4. Temporary sediment sumps will provide sedimentation control for stormwater runoff from disturbed areas during construction until stabilization has been achieved.
5. A construction entrance will be constructed at all access points onto the site to prevent tracking of soil onto adjacent local roads and streets.
6. Dirtbags™ will be required to be on site and available for construction dewatering if necessary. The Contractor will be required to provide four Dirtbags™ with one prepared for operation prior to commencing any trenching operations.
7. Silt logs/socks/waddles are an option for stone check dams and may be substituted provided the devices are well anchored.

Temporary Erosion/Sedimentation Control Measures

The following are planned as temporary erosion/sedimentation control measures during construction:

The primary and most effective soil erosion and sediment control measure is proactive work scheduling to minimize exposure of erodible soils. The Contractor will make every effort to promptly stabilize disturbed areas on the site, after removal of existing vegetation, by placing imported granular material over disturbed areas. This will limit exposure of native soils and fill materials and provide a stable surface with minimal erosion potential.

1. It is anticipated that work on the site will begin in the late winter to spring of 2024. Scheduling of the field work will be critical to minimizing potential soil erosion impacts. The Contractor will be

responsible for selecting an appropriate weather window in which to commence the work to minimize erosion and sediment transport risk.

2. Crushed stone-stabilized construction entrances will be placed at any construction access points from adjacent streets. The locations of the construction entrances shown on the drawings should be considered illustrative and will need to be adjusted as appropriate and located at any area where there is the potential for tracking of mud and debris onto existing roads or streets. Stone stabilized construction entrances will require the stone to be removed and replaced, as it becomes covered or filled with mud and material tracked by vehicles exiting the site.
3. Sediment barriers shall be installed along the downgradient side of the proposed work areas. The barriers will remain in place and will be properly maintained until the site is acceptably stabilized. Silt fence needs to be checked to ensure the bottom is properly keyed in and inspected after significant rains.
4. If using silt fence, fencing with a maximum stake spacing of 6 feet should be used, unless the fence is supported by wire fence reinforcement of minimum 14 gauge and with a maximum mesh spacing of 6 inches, in which case stakes may be spaced a maximum of 10 feet apart. The bottom of the fence should be properly anchored a minimum of 6" per the plan detail and backfilled. Any silt fence identified by the owner or reviewing agencies as not being properly installed during construction shall be immediately repaired in accordance with the installation details.
5. Dirtbags™ shall be installed in accordance with the details in the plan set. The Dirtbags'™ function on the project is to receive any water pumped from excavations during construction. A Dirtbag™ shall be installed and prepared for operation prior to any trenching on site. When Dirtbags™ are observed to be at 50% capacity, they shall be cleaned or replaced. Stone under the Dirtbag™ shall be removed and replaced concurrently with the replacement of the Dirtbag™.
6. Stone check dams, silt logs, or hay bale barriers will be installed at any evident concentrated flow discharge points during construction and earthwork operations.
7. All slopes steeper than 4:1 shall receive erosion control blankets.
8. Areas of visible erosion and the temporary sediment sumps shall be stabilized with crushed stone. The size of the stone shall be determined by the contractor's designated representative in consultation with the Owner.

Special Measures for Summer Construction

The summer period is generally optimum for construction in Maine, but it is also the period when intense short duration storms are most common, making denuded areas very susceptible to erosion, when dust control needs to be the most stringent, and when the potential to establish vegetation is often restricted by moisture deficit. During these periods, the Contractor must:

1. Implement a program to apply dust control measures on a daily basis except those days where precipitation is sufficient to suppress dust formation. This program shall extend to and include adjacent streets.
2. Spray any mulches with water after anchoring to dampen the soil and encourage early growth. Spraying may be required several times. Temporary seed may be required until the late summer seeding season.
3. Cover stockpiles of fine-grained materials, or excavated soils, which are susceptible to erosion, in order to protect from the intense, short-duration storms which are more prevalent in the summer months.
4. Take additional steps needed, including watering, or covering excavated materials to control fugitive dust emissions in order to minimize reductions in visibility and the airborne disbursement of fine-grained soils. This is particularly important given the potential presence of soil contaminants, and the proximity of the adjacent streets and properties.
5. These measures may also be required in the spring and fall during the drier periods of these seasons.

Special Measures for Winter Construction

"Winter construction" is construction activity performed during the period from November 1 through April 15. If disturbed areas are not stabilized with permanent measures by November 1 or new soil disturbance occurs after November 1, but before April 15, then these areas must be protected and runoff from them must be controlled by additional measures and restrictions. During this period, the Contractor must:

1. Implement a program to apply dust control measures on a daily basis except those days where precipitation is sufficient to suppress dust formation. This program shall extend to and include adjacent streets.
2. Site Stabilization. For winter stabilization, hay mulch is applied at twice the standard temporary stabilization rate. At the end of each construction day, areas that have been brought to final grade must be stabilized. Mulch may not be spread on top of snow.
3. Sediment Barriers. All areas within 75 feet of a protected natural resource must be protected with a double row of sediment barriers.
4. Ditch. All vegetated ditch lines that have not been stabilized by November 1, or will be worked during the winter construction period, must be stabilized with an appropriate stone lining backed by an appropriate gravel bed or geotextile unless specifically released from this standard by the Department.
5. Slopes. Mulch netting must be used to anchor mulch on all slopes greater than 8% unless erosion control blankets or erosion control mix is being used on these slopes.

Permanent Erosion Control Measures

The following permanent erosion control measures have been designed as part of the Erosion/Sedimentation Control Plan:

1. The drainage conveyance systems have been designed to intercept and convey the 25-year storm.
2. All areas disturbed during construction, but not subject to other restoration (paving, riprap, etc.), will be loamed, limed, fertilized, mulched, and seeded. Fabric netting, anchored with staples, shall be placed over the mulch in areas where the finish grade slope is greater than 10 percent. Native topsoil shall be stockpiled and temporarily stabilized with seed and mulch and reused for final restoration when it is of sufficient quality.
3. Catch basins shall be provided with sediment sumps for all outlet pipes that are 12" in diameter or greater or where winter sand use is contemplated. A sediment collection bag shall be installed in all basins.

Attachments

Attachment 10.1 – Phosphorus Worksheets

ATTACHMENT 10.1

PHOSPHORUS WORKSHEETS

Worksheet 1 - PPB calculations			
Project Name: China Pit Road - Solar Array			
Lake Watershed: China Lake - East Basin			
Town: China			
Standard Calculations			
Watershed per acre phosphorus budget (Appendix C)	PAPB	0.034	lbs P/acre/year
Total acreage of development parcel:	TA	8.32	acres
NWI wetland acreage:	WA	0	acres
Steep slope acreage:	SA	1.34	acres
Project acreage: $A = TA - (WA + SA)$	A	6.98	acres
Project Phosphorus Budget: $PPB = P \times A$	PPB	0.23732	lbs P/year
Small Watershed Adjustment			
If Project Acreage (A) is greater than the threshold acreage for the small watershed threshold (SWT, from pertinent lake and town info in the table in Appendix C), calculate an alternative PPB using the analysis below and use this value if it is less than the the Standard Calculation PPB.			
Small Watershed Threshold (Appendix C):	SWT	523	acres
Project acreage:	A	6.97	acres
Allowable increase in town's share of annual phosphorus load to lake (Appendix C):	FC	71.36	lbs P/year
Area available for development (Appendix C):	AAD	8369.9	acres
Ratio of A to AAD ($R=A/AAD$)	R	N/A	
Project Phosphorus Budget			
If $R < 0.5$, $PPB = [(FC \times R)/2] + [FC/4]$	PPB	N/A	lbs P/year
If $R > 0.5$, $PPB = FC \times R$	PPB	N/A	lbs P/year

Appendix D: Worksheet 3 - Mitigation credit

Project name: _____ Development type: _____ Sheet # _____

Mitigation credit when a pre-existing source is being eliminated

Mitigation Source Area Land Use	Acres	Export Coefficient (lbs P/acre/year)	Modifier	Pre-treatment Historical P Export (lbs P/year)	Treatment Factor for Historical BMP(s) (1.0 if no BMPs)	Historical P Export (lbs P/year)		Mitigation Credit (lbs P/year)	Comments
Gravel	8.314	0.5	0.5	2.0785	1	2.0785		2.0785	
			0.5	0	1	0		0	
			0.5	0	1	0		0	
Total source elimination mitigation credit (SEC)								2.0785	lbs P/year

Mitigation credit when a pre-existing source is treated by a new BMP

Mitigation Source Area Land Use	Acres	Export Coefficient (lbs P/acre/year)	Modifier	Pre-treatment Historical P Export (lbs P/year)	Treatment Factor for Historical BMP(s) (1.0 if no BMPs)	Historical P Export (lbs P/year)	Treatment Factor for New BMP(s) Chapter 6	Mitigation Credit (lbs P/year)	Comments
			0.5	0	1	0	1 -	0	
			0.5	0	1	0	1 -	0	
			0.5	0	1	0	1 -	0	
Total source treatment mitigation credit (STC)								0	lbs P/year

TOTAL MITIGATION CREDIT (SEC + STC)								2.0785	lbs P/year
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WORKSHEET 4 - PROJECT PHOSPHORUS EXPORT SUMMARY

Summarizing the project's algal available phosphorus export (PPE)

Project Name: Pit Road China Solar Array

Project Phosphorus Budget - Worksheet 1	PPB	0.237	lbs P/year
Total Pre-Treatment Phosphorus Export - Worksheet 2	Pre-PPE	0.365	lbs P/year
Total Post-Treatment Phosphorus Export - Worksheet 2	Post-PPE	0.365	lbs P/year
Total Phosphorus Mitigation Credit - Worksheet 3	TMC	2.079	lbs P/year
Project Phosphorus Export (Post-PPE - TMC)	PPE	-1.71	lbs P/year

Is the Project Phosphorus Export \leq the Project Phosphorus Budget? (PPE \leq PPB)

*If YES, PPE is less than or equal to PPB and the project meets its phosphorus budget.
If NO, PPE is greater than PPB, more reduction in phosphorus export is required or the payment of a compensation fee may be an option*

YES

The amount of phosphorus that needs further treatment or compensation

lbs P/year

Has Project Phosphorus Export been sufficiently reduced?

Is (Pre-PPE - Post-PPE)/Pre-PPE greater than 0.60?

*If YES, in some watersheds the compensation fee is an available option.
If NO, more treatment must be provided. PPE must be further reduced.*

*The post-treatment phosphorus export must be less than 40% of the pre-treatment export (Post-PPE < 0.4*Pre-PPE)*

%

If the project is located in a watershed that is eligible for a compensation fee (or is a residential subdivision with buffers), a compensation fee may be appropriate as follows:

If Project Export has been reduced by greater than 60% and less than 75%, \$25,000 per pound minus \$833 per 1% Percent Export

If Project Export has been reduced by greater than 75%, \$12,500 per pound minus \$500 per 1% Project Export

SECTION II

PLANS

The proposed project is shown on the plan set included in this section.