ENVIRONMENTAL
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NOVEL ENERGY SOLUTIONS LLC

FOR

ME CHINA HASKELL 1 CSG LLC

MARCH 28, 2023

Prepared By: Matt Reid
Novel Energy Solutions LLC
2303 Wycliff Street | Suite 300 | St. Paul, MN 55114 | Phone 612.345.7188 | https://www.novelenergysolutions.com

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List of Acronyms

AST	Above Ground Storage Tank
ASTM	American Society for Testing and Materials
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practices
CWA	Clean Water Act
Dbh	Diameter at breast height
ECP	Erosion Control Plan
EMF	Electromagnetic Fields
EMI	Electromagnetic Interference
E.O.	Executive Order
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
GIS	Geographic Information System
HUD	U.S. Department of Housing and Urban Development
IPaC	Information, Planning, and Conservation
MDEP	Maine Department of Environmental Protection
MDIFW	Maine Department of Inland Fisheries and Wildlife
MDOT	Maine Department of Transportation
MESA	Maine Endangered Species Act
MHPC	Maine Historic Preservation Commission
MNAP	Maine Natural Areas Program
MTBA	Migratory Bird Treaty Act
MW	Megawatt
NES	Novel Energy Solutions
NHPA	National Historic Preservation Act
NLEB	Northern long-eared bat
NOAA	National Ocean and Atmospheric Administration
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NRI	National Rivers Inventory
NRHP	National Register of Historic Places
NRPA	Natural Resource Protection Act
NWI	National Wetlands Inventory
OSHA	Occupational Safety and Health Administration
PV	Photovoltaic
REC	Recognized Environmental Conditions
SFHA	Special Flood Hazard Area
SPCC	Spill Control and Countermeasures Plan
SSA	Sole Sources Aquifer
SWMP	Stormwater Management Plan
THPO	Tribal Historic Preservation officer
USACE	United States Army Corps. Of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service

1. Project Description

The ME China Haskell 1 CSG LLC Project is a solar array which will be located at 44.4235776, -69.4760743 in South China, Kennebec County, Maine. The Proposed Project will be situated on 10.5 acres (Proposed Project Area) of a larger, parent parcel identified as parcel number 45-005-A.

The Proposed Project will consist of the installation of a 0.975-megawatt (MW) ground-mounted photovoltaic (PV) system. The Proposed Project would include the development of a single-axis tracking ground mounted solar array facility, supporting utility infrastructure, limited gravel access drives and equipment pad areas, fencing, landscape buffers, and native ground cover establishment. The estimated duration of construction is approximately 4-6 weeks total construction time. The primary equipment and machinery that will be on-site includes forklifts for material transportation, pile drivers to install the steel pilings, and small excavators for trenching electrical equipment. When the Proposed Project has reached its operation end, the Proposed Project Area can be returned to its pre-construction state.

The Proposed Project would be accessed from Parmenter Hill Road. An interior road would be constructed inside the perimeter, and it is anticipated to be flat and will match existing grade as much as possible to minimize earth work. The Proposed Project Area will be secured by a wildlife-permeable fence with standard gates for emergency and maintenance vehicles to access.

2. Affected Environment and Environmental Consequences

The affected environment and environmental consequences of the Proposed Project are discussed in this section. In addition, mitigation measures necessary to compensate for unavoidable impacts to specific environmental resources are outlined in this section.

2.1 Land Ownership and Land Use

This section is an overview of the existing land use, areas surrounding the Proposed Project area, and the potential impacts to those resources.

2.1.1 General Land Use

Land use is defined as the way people use and develop land, including agricultural, residential, and industrial development. Many municipalities develop zoning ordinances and planning documents to control the direction of development to keep similar land uses together.

The Proposed Project area is situated in a mixed-use zone. The Proposed Project area has historically and is currently used for agricultural purposes. Specifically, as a grass/hay field. The Proposed Project area is surrounded by other mainly agricultural parcels.

The Proposed Project would change land use from mostly agricultural to a renewable energy facility.

2.1.2 Formally Classified Lands

Formally classified lands are properties that are administered by either Federal, State, or local agencies, or have been given special protection through formal legislative designation. Formally classified lands include National Parks, National Forests/Grasslands, Monuments, Historic Landmarks, Battlefields, Military Parks, Heritage Areas, Historic Sites, Historical Parks, Natural Landmarks, Wildlife Refuges, Seashores, Lake Shores, Trails, Wilderness Area, State Parks, State Fish and Wildlife Management Areas, Bureau of Land Managementadministered lands, Native American owned lands and leases, or Wild, Scenic and Recreational Rivers, all of which are managed by several Agencies.

2.1.2.1 Affected Environment

A review of the United States Geological Survey (USGS) Protected Lands Map, the Wild & Scenic Rivers map, and the National Rivers Inventory (NRI), and the Protected Areas Database of the

United States did not identify any formally classified lands in or adjacent to the Proposed Project Area – reference Appendix IV.

2.1.2.2 Environmental Consequences

The Proposed Project would not impact formally classified lands as they are absent from the Proposed Project Area and nearby surroundings.

2.1.2.3 Mitigation

No mitigation measures are proposed as there are no anticipated impacts to this resource.

2.2 Soil Survey

A custom soil resource report and hydric soil report were generated for the Proposed Project through the USDA NRCS - Web Soil Survey (WSS). The report includes the soil map for the Proposed Project Area, a list of the map units, the extent of each map unit, and cartographic symbols displayed on the map. Note, Hydric Soils have the potential to contain jurisdictional wetlands, in conjunction with other wetland parameters.

Mapped soils within the Proposed Project Area as listed in the table below. The majority of the Proposed Project Area is identified as containing non-hydric soils. Please note, Area of Interested (AOI) is approximated. WSS Reports are included in the appendix at the end of this report.

Map Unit Symbol	Map Unit Name	Hydric Soil Rating	Rating Description	Drainage Classification	Percent of AOI
HrC	Lyman-Tunbridge complex	0	Not hydric	Somewhat excessively drained	1.2
PdB	Paxton-Charlton fine sandy loams	0	Not hydric	Well drained	43.2
PdC2	Paxton-Charlton fine sandy loams	0	Not hydric	Well drained	5.8
PeB	Paxton-Charlton very stony fine sandy loams	0	Not hydric	Well drained	20.9
PeD	Paxton-Charlton very stony fine sandy loams	0	Not hydric	Well drained	0.0
WrB	Woodbridge fine sandy loam	0	Not hydric	Moderately well drained	28.6
WsB	Woodbridge very stony fine sandy loam	0	Not hydric	Moderately well drained	0.2

Table 1 – Soil Resource Report - Map Unit Legend

2.3 Farmland Classification

All solar energy generating systems proposed in the agriculture and resource protection district shall include a soil analysis to demonstrate if the Proposed Project Area contains Prime Farmland as defined by the USDA. The Maine Farmland Trust (MFT) states that where possible, avoid land identified by the NRCS as "Prime Farmland" or "Farmland of Statewide Importance," or otherwise cause productive farmland to be taken out of production, including land leased for agricultural uses. The MFT does note to 'preferentially use previously developed, disturbed, degraded, or marginally productive portions of the farm property.'

Upon review of the Proposed Project Area's Farmland Classification obtained through Transect Due Diligence report, it was determined that the Proposed Project Area contains the following types of farm class: prime farmland, not prime farmland. A map containing the Transect farmland classification data, generated through USDA NRCS database is included at the end of this report.

2.3.1 Environmental Consequences

The Proposed Project will convert approximately 10.5 acres of prime farmland and, not prime Farmland to nonagricultural use. For any portion of the solar energy development located on land classified as farmland decommissioning means the physical removal off all components of the development to a depth of at least 48 inches or to the depth of bedrock, whichever is less, and for the restoration of the farmland sufficient to support resumption of farming or agricultural activities.

2.4 Floodplains

This section describes an overview of the existing floodplain resources at the Proposed Project and the potential impacts to those resources associated with the Proposed Project.

A floodplain is any land area susceptible to being inundated by floodwaters from any source. Floodplains are essential to clean water, recharge of water supplies, reduction of flood risks and protection of property, human safety, health and welfare and fish and wildlife habitat. Proper floodplain management will reduce flood losses and ensure the protection of the natural resources and functions of floodplains.

2.4.1 Affected Environment

According to the Federal Emergency Management Agency (FEMA)'s Food Insurance Rate Maps (FIRM) Number 23011C0415D (effective 06/16/2011), the Proposed Project Area (to be disturbed/constructed) is located outside the Special Flood Hazard Area (SFHA) and 100-year and 500-year floodplain zones. The Proposed Project Area is located in Zone X, area of minimal flood hazard. The FIRM boundaries of the Proposed Project area are located in Figure V.

2.4.2 Environmental Consequences

There would be no impacts to floodplains as they are absent from the Proposed Project Area and the Proposed Project will not be located in a SFHA. Additionally, the Proposed Project will not result in any impacts that would result in any increases to the 100-year or 500-year flood elevation or present barriers to floodway passage within the vicinity of the Proposed Project area.

2.5 Protected Natural Resources and Wetlands

Wetlands are considered those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The U.S. Army Corps of Engineers (USACE) uses three characteristics when making wetland determinations: vegetation, soil, and hydrology. Unless an area has been altered or is a rare natural situation, wetland indicators of all three characteristics must be present during some portion of the growing season for an area to be considered a wetland.

2.5.1 Affected Environment

On March 16, 2023, NES has completed a desktop review of available data to identify potential protected natural resource (PNR) concerns that may impact the proposed development. Based on the desktop review no NWI mapped wetlands, hydric soils, or wetland signatures identified in the Proposed Project Area. No critical habitats or sensitive environmental areas were identified within the site based on available mapping.

The overall development potential of the Proposed Project Area is high due to the lack of possible PNR in the area of development. A field visit by qualified wetland scientists took place on May 24, 2023. The survey did not identify any wetlands, streams, or vernal pools on the site.

2.5.2 Mitigation

The Proposed Project has been designed to avoid and minimize impacts to wetland resources to the extent possible; however, the following measures will be taken to further demonstrate the Proposed Project's minimization of adverse impacts:

- A stormwater management system will be incorporated into the Proposed Project design that will provide treatment to stormwater prior to potentially entering or impacting wetland areas. Stormwater treatment measures will comply with state and municipal regulations. Wherever possible existing drainage and grading patterns will be maintained in the proposed design.
- An Erosion and Sedimentation Control Plan will be implemented before construction and will include erosion control measures that will be incorporated into the construction and restoration phases of the Proposed Project to minimize potential adverse wetland impacts.
- When disposing of excess, spoil, or other construction materials on public or private property, wetlands will not be filled in or otherwise converted.

2.6 Water Resources

Water quality and quantity changes can impact other environmental resources including but not limited to groundwater and drinking water supplies, threatened and endangered species, other fish and wildlife species and wetlands. Impacts to surface and/or ground water will be the Applicant's responsibility and permitting requirements, typically through state agencies, must be adhered to.

2.6.1 Affected Environment

The Proposed Project will be located within the Lower Kennebec River watershed (Hydrological Unit Code: 01030003). The closest named surface water body is the Branch Pond, approximately 0.6 miles Southeast of the Proposed Project Area. The USEPA's sole source aquifer (SSA) map does not depict the Proposed Project area within or near an SSA and review of Maine Geographic Information System (GIS) aquifer data layer indicated there are no aquifers mapped within the Proposed Project area, see Appendix VII.

2.6.2 Environmental Consequences

The Proposed Projects impacts to water resources will be minimal. Short-term, minor water quality impacts may occur during construction. These impacts would be associated with soil

from disturbed areas being washed by stormwater into adjacent waters during rainstorm events; however, these impacts would be temporary and would not significantly alter water quality conditions. Please refer to Section 3 for Stormwater Management practices.

There are no anticipated impacts to groundwater aquifers associated with the Proposed Project. Wastewater will not be generated, and process water will not be required for construction or operation of the Proposed Project. The Proposed Project will only add minor amounts of impervious surfaces to the Proposed Project area and vegetation will be maintained wherever possible throughout the operational life of the facility.

2.6.3 Mitigation

The Proposed Project has been designed to avoid and minimize impacts to water resources; however, the following measures will be taken to further demonstrate the Proposed Project's minimization of adverse impacts:

- In accordance with the Maine Pollution Control Agency, Erosion and Sediment Control BMPs, will be installed prior to construction and maintained until construction is completed and the Proposed Project area is stabilized.
- Necessary maintenance during the Proposed Project operations and maintenance of vegetation throughout the life of the facility.

2.7 Biological Resources

This section describes an overview of the existing biological resources at the Proposed Project area and the potential impacts to those resources associated with the Proposed Project.

Biological resources refer to the flora (plants) and fauna (invertebrates, fish, birds, amphibians, reptiles, birds, and mammals) that maybe found of have historically been found at the Proposed Project area. Biological resources can also include rivers, lakes, wetlands, upland communities, and other habitat types necessary to support local flora and fauna. Vegetation is a key habitat component and acts to stabilize soils and prevent erosion; additionally, information on vegetation can be used in evaluating potential impacts to species and habitats. Potential impacts to biological resources can be direct (project-related mortality) or indirect (displacement, degradation, or loss to habitat).

2.7.1 General Fish, Wildlife, and Vegetation

2.7.1.1 Affected Environment

The Proposed Project Area lies within Maine's Acadian Plains and Hills ecoregion, and Central Maine Embayment sub-ecoregion. The most prominent natural vegetation consists of transition hardwoods, northern hardwoods, and northern hardwoods-spruce forests. The Proposed Project areas itself is an agricultural field.

Wildlife around the Proposed Project Area includes species that adapt well to disturbance, the presence of humans, and that are typically found in rural, agricultural areas in Maine. Examples of typical mammals found in rural, Maine include white-tailed deer (Odocoileus virginianus), eastern chipmunk (Tamias striatus), gray squirrel (Sciurus carolinensis), red squirrel (Tamiasciurus hudsonicus), coyote (Canis latrans), gray fox (Urocyon cinereoargenteus), porcupine (Erethizon dorsatum), woodchuck (Marmota monax), striped skunk (Mephitis mephitis), raccoon (Procyon lotor), and meadow vole (Microtus pennsylvanicus).

2.7.1.2 Environmental Consequences

Impacts to fish, wildlife, and vegetation are expected to be negligible. This is due to minimal impervious surfaces being created and limited use of water. The proposed groundcover under the solar array will prioritize pollinator friendly, native species, and a controlled maintenance program to promote the habitat.

2.7.1.3 Mitigation

No mitigation measures are proposed as there are no anticipated impacts to these resources.

2.7.2 Listed Threatened and Endangered Species

The Endangered Species Act (ESA) is enforced by the USFWS and provides the protection and recovery of species threatened with extinction and ensures federal agencies use their authorities to further the purpose of the ESA to protect and conserve endangered and threatened species. The ESA defines a federally endangered species as any species with is in danger of extinction throughout all or a significant portion of its range. The ESA also identifies habitats critical to listed species and potential mitigation strategies within these habitats.

2.7.2.1 Affected Environment

An official species list obtained from the USFWS Information, Planning, and Conservation (IPaC) System identified three federally listed species (Table 2) in Kennebec County with potential to occur within the Proposed Project area. A copy of this report is included in Appendix VIII.

Species	Federal Status	Critical Habitat	ESA Determination
Northern Long-eared Bat	Endangered	No	May Affect
Atlantic Salmon	Endangered	There is final critical habitat for this species. Project location does not overlap the critical habitat.	May Affect
Monarch Butterfly	Candidate	No	May Affect

Table 2 – Federally Listed Species with Potential to Occur

Canada Lynx (Lynx canadensis)

The lynx is a medium-sized cat with long legs, large, well-furred paws, long tufts on the ears, and a short, black-tipped tail. The winter pelage of the lynx is dense and has a grizzled appearance with grayish-brown mixed with buff or pale brown fur on the back, and grayish white or buff-white fur on the belly, legs, and feet. Summer pelage of the lynx is more reddish to gray-brown.

Monarch Butterfly (Danaus plexippus)

Individual monarchs in temperate climates, such as eastern and western North America, undergo long-distance migration and live for an extended period of time. In the fall, in both eastern and western North America, monarchs begin migrating to their respective overwintering sites. The Proposed Project Area is mostly forested, with monarchs primarily laying eggs on milkweed this is not likely to have an adverse effect.

Northern Long-eared Bat *(Myotis septentrionalis)*

The Northern Long-eared Bat is found across much of the eastern and northern central United States. During the summer, the species roost singly or in colonies underneath bark, in cavities, or in crevices of both live and dead trees. Males and non-reproductive females may also roost in cooler places, like caves and mines. The bat spends the winter hibernating in caves and minds, called hibernacula. The species will typically use large caves or mines with large passages and entrances; constant temperatures; and high humidity with no air currents. Examination through the USFWS IPaC system revealed that the Proposed Project meets the

criteria for reliance upon the final 4(d) rule for compliance with the ESA (reference Appendix VIII).

Maine Department of Inland Fisheries and Wildlife

Endangered and threatened inland fish and wildlife species in Maine are also protected under the Maine Endangered Species Act (MESA). There are currently twenty-six inland fish and wildlife species listed as endangered and twenty-five listed as threatened, some of which are also listed under the ESA. On February 1, 2023, NES requested information on the known or suspected locations of any rare, threatened, or endangered plants or wildlife, Significant Wildlife Habitat, or other significant natural resources within the vicinity of the Proposed Project from Maine's Department of Inland Fisheries and Wildlife (MDIFW). On March 06, 2023, MDIFW concluded that there would be no known adverse impacts to Maine- listed endangered or threatened species or habitats on the Proposed Project Area or within the vicinity. A copy of all MDIFW correspondence is presented in Appendix VIII.

Maine Natural Areas Program

The MESA only applies to animals – plants are not included in the legislation; however, the Maine Natural Areas Program (MNAP) maintains an "official" list of rare and endangered plants in the state. In February 2023, NES requested information on the presence of any known or suspected locations of rare, threatened, or endangered plants, exemplary natural communities, or other significant natural resources documented within the vicinity of the Proposed Project Area from the MNAP. In a response dated February 23, 2023, MNAP concluded that there would be no known adverse impacts to rare, threatened, or endangered plants or rare or exemplary natural communities on the Proposed Project Area or within the vicinity. A copy of all MNAP correspondence is presented in Appendix VIII.

2.7.2.2 Environmental Consequences

The Proposed Project's impacts to listed species are expected to be negligible based on the lack of suitable habitat and requirements for the species. Additionally, no designated critical habitat for listed species occurs within the Proposed Project area, nor will any be affected by the Proposed Project.

2.7.2.3 Mitigation

The construction and operation of the Proposed Project will comply with the ESA, which provides for the protection of endangered and/or threatened species and critical habitat. Should any evidence of the presence of endangered and/or threatened species or their critical habitat be brought to the attention of the contractor, the contractor will immediately report this evidence to the Owner. Construction shall be temporarily halted pending the notification process and further directions issued after consultation with the USFWS.

2.7.3 Migratory Birds

The Migratory Bird Treaty Act (MBTA) is enforced by the USFWS and makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale and migratory bird for parts, nests, eggs of such bird except under the terms of a valid permit issued.

2.7.3.1 Affected Environment

The USFWS IPaC Report lists 10 migratory bird species (Table 3) that are of conservation concern and may be potentially affected by activities within the Proposed Project Area. Special attention should be made to avoid and minimize impacts to migratory birds within the Proposed Project Area.

Species	Breeding Season	Preferred Habitat
Bald Eagle	December - August	Coasts, rivers, large lakes; in migration, also mountains, open country. Typically close to water, also locally in open dry country.
Black-billed Cuckoo	May - Mid October	Wood edges, groves, thickets. Breeds mostly in deciduous thickets and shrubby places, often on the edges of woodland or around marshes.
Bobolink	Mid May - July	Hayfields, meadows. In migration, marshes. Original prime breeding areas were damp meadows and natural prairies with dense growth of grass and weeds and a few low bushes.
Canada Warbler	Mid May – Mid August	Forest undergrowth, shady thickets. Breeds in mature mixed hardwoods of extensive forests and streamside thickets.
Cape May Warbler	June - July	Spruce forest; other trees in migration. Breeds in spruce forest, either in pure stands or mixed with firs or other trees, generally in more open woods or near the forest edge.

Species	Breeding Season	Preferred Habitat
Chimney Swift	March - August	Open sky, especially over cities and towns. Forages in the sky over any kind of terrain, wherever there are flying insects.
Eastern Whip-poor-will	May - August	Leafy woodlands. Breeds in rich moist woodlands, either deciduous or mixed; seems to avoid purely coniferous forest.
Evening Grosbeak	May – Mid August	Conifer forests; in winter, box elders and other maples, also fruiting shrubs. Breeds in coniferous and mixed forests; often associated with spruce and fir in northern forest, with pines in western mountains.
Olive-sided Flycatcher	Mid May - August	Conifer forests, burns, clearings. Breeds mostly in coniferous forest of the north and the higher mountains, especially around the edges of open areas including bogs, ponds, clearings.
Wood Thrush	Mid May - August	Mainly deciduous woodlands. Breeds in the understory of woodlands, mostly deciduous but sometimes mixed, in areas with tall trees. More numerous in damp forest and near streams than in drier woods; will nest in suburban areas where there are enough large trees.

Table 3 – Migratory Birds

2.7.3.2 Environmental Consequences

The Proposed Projects impacts to migratory birds are expected to be negligible based on the lack of suitable nesting and foraging habitat. Ground mounted solar arrays pose little to no risk to migratory birds. Additionally, the solar panels proposed for use at this facility are designed to absorb the sunlight (PV panels) versus reflect the light; therefore, a reflective glare and the "lake effect" phenomenon is not a concern for this facility.

2.7.3.3 Mitigation

No mitigation measures are proposed as there are no anticipated impacts to the resource.

2.7.4 Bald and Golden Eagles

The Bald and Golden Eagle Protection Act (BGEPA) is enforced by the USFWS and makesit illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offerfor sale, purchase, or barter any bald or golden eagle or the parts, nests, eggs of such bird except under the terms of a valid permit issued. The BGEPA also prohibits any activity that could cause injury to the species, nest abandonment or a decrease in productivity.

2.7.4.1 Affected Environment

The Proposed Project primarily consists of cleared land. Suitable nesting habitat, which includes tall, large diameter trees and preferred foraging areas include large, open expanses of water, are not present within the Proposed Project Area. Additionally, the Maine USFWS Bald Eagle Nest Locations and Buffer Zones Mapping Site depicts no eaglenests or roosts located within the Proposed Project Area or within the 660' buffer zone established around each site that correspond with protection guidelines in the USFWS National Bald Eagle Management Guidelines. (reference Appendix VIII).

2.7.4.2 Environmental Consequences

The Proposed Project's impacts to Bald and Golden Eagles are not anticipated as they are absent from the Proposed Project area.

2.7.4.3 Mitigation

No mitigation measures are proposed as there are no impacts to the resource.

2.7.5 Invasive Species

E.O. 13112, *Invasive Species*, directs federal agencies to not authorize, fund or carry out actions believed to cause or promote the introduction or spread of invasive species unless the Agency determines that the benefits of such actions outweigh the potential harm caused by invasive species.

2.7.5.1 Affected Environment

The Proposed Project primarily consists of an agricultural field.

2.7.5.2 Environmental Consequences

The potential for the Proposed Project to increase invasive species is not anticipated. Vegetation must be maintained under the panel surface in order to prevent shading, which will be the responsibility of the facility owner and will be performed on an as-needed basis. Given that only minor earthwork is required for the construction of the Proposed Project and no fill material is being imported, the establishment of invasive species would be insignificant.

2.7.5.3 Mitigation

The Proposed Project will comply with the requirements of the E.O. by maintaining all possible existing ground cover and by seeding any disturbed area with a mixture of native herbaceous vegetation after construction which will discourage the establishment of non-native species and promote the restoration of native species.

2.8 Cultural Resources and Historic Properties

This section describes an overview of the existing cultural and historic resources at the Proposed Project Area and the potential impacts to those resources.

The National Historic Preservation Act (NHPA) is intended to protect and preserve historical and archeological sites within the United States; Section 106 of the NHPA requires all Federal agencies to consider the effects of the actions and the actions they fund, permit and/or license on historic properties. The NHPA defines historic properties as any prehistoric or historic district, site, building, structure, or object included in, or eligible for listing in, the National Register of Historic Places (NRHP).

The NHPA also allows the Applicant to notify, engage, involve, and work with Native American tribes as they proceed through the steps of Section 106 review. During the review process, consultation with any Native American tribe that attaches religious and cultural significance to historic properties that may be affected by the agency's undertakings is conducted and a reasonable opportunity to comment on such undertakings is granted.

2.8.1 Affected Environment

Kennebec County is home to 138 NRHP listings, one of which is located in South China. The closest NRHP listing to the Proposed Project area is the Jones, Eli and Sybil, House, located approximately 3.7 miles Southwest. Kennebec County has seven National Historic Landmarks.

Pursuant to Section 106 of the NHPA, consultation with the Maine Historic Preservation Commission (MHPC) was initiated by NES in February 2023. In a response dated February 13, 2023, the MHPC concurred that no historic properties (archaeological or architectural) would be affected by the Proposed Project. A copy of this correspondence is provided in Appendix IX.

Tribal Consultation

Upon review of the U.S. Department of Housing and Urban Development's (HUD) Tribal Directory Assessment Tool, it was determined that the 5 were listed as the federally recognized tribes with interest in the area. NES sent a letter to each Tribal Historic Preservation Office (THPO) on February 1, 2023, providing notification of intent to initiate the Section 106 consultation process.

- Passamaquoddy Tribe – No concerns, should artifacts of remains be found, construction shall cease, and tribe be contacted.
- Mi'kmaq Tribe - No concerns, should artifacts of remains be found, construction shall cease, and tribe be contacted. Requested the use of the Black Ash (Fraginus nigra) as the principal wetland species for wetland restoration activities.

A copy of all THPO correspondence is provided in Appendix IX.

2.8.2 Environmental Consequences

Under the Proposed Action, no known historic properties and/or archeological sites will be affected, as concluded with the MHPC, and responding THPOs.

2.8.3 Mitigation

Any excavation by the Contactor that uncovers an historical or archeological artifact or human remains shall be immediately reported to the Owner. Construction shall be temporarily halted pending the notification process and further directions after consultation with the Maine SHPO and appropriate Tribes.

2.9 Traffic and Transportation

This section provides an overview of the existing traffic and transportation resources at the Proposed Project area and describes the potential impacts the Proposed project could have on these resources.

Transportation impacts include increases and decreases in traffic and transportation that might be causes or exacerbated by development of the Proposed Project. Other impacts considered are the transportation of materials to or from the facility either during construction or during operation. Any possible changes in transportation patterns or intensity are also evaluated.

2.9.1 Affected Environment

The Proposed Project will be located near the intersection of Parmenter Hill Road and Western Ridge Road. Parmenter Hill Road is a two-lane city road that connects to Branch Mills road to the South. Maine's Department of Transportation (MDOT) annual average daily traffic counts for Parmenter Hill Road in 2022 is approximately 486 vehicles. The nearest railroad line is located approximately 10 miles West of the Proposed Project Area and the nearest airport is the Teconnet Airport located approximately 3.06 miles West of the Proposed Project Area.

2.9.2 Environmental Consequences

Significant impacts to transportation would not result due to the Proposed Project, given the short duration of the construction phase and the limited number of workers and equipment required for operation and maintenance. The majority of the traffic burden as a result of the Proposed Project will occur during the construction phases. During these short duration phases, it is anticipated that traffic will increase slightly to account for construction personnel and equipment. As for technical operations, monitoring of the Proposed Project and Area will be done remotely from a Regional Operational Center. It is anticipated that there will be, on average, 1-2 vehicular trips to the Proposed Project Area per month by a standard utility-truck.

2.9.3 Mitigation

Traffic controls will be implemented in accordance with state and local transportation standards.

2.10 Visual Resources

Visual resources are the visual character of a place, both manmade and natural, that give a particular landscape its character and aesthetic quality. As development in rural areas increases in scope and complexity, aesthetics or visual impacts may be a concern. Where visual impacts are identified, and avoidance of the impacted area is not feasible, efforts should be made to design, construct and operate in such a way that would minimize aesthetic impacts.

2.10.1 Affected Environment

The Proposed Project area is located in Kennebec County on approximately 10.5 acres of land North of Highway 3, within the town of South China. The Proposed Project Area is currently agricultural land surrounded by other mostly agricultural parcels.

2.10.2 Environmental Consequences

Visual impacts would occur during both the construction and operation phase of the Proposed Project. During the construction stage, machinery would be present, and the Proposed Project Area would be cleared and graded – these impacts would be considered minor since construction would be temporary. Once the facility becomes operational, visual impacts would include the addition of solar modules mounted on a steel racking system, surrounded by a security fence. Impacts to the visual quality of the Proposed Project Area and surroundings would be insignificant as the Proposed Project will be set back from the road, Visual screening, in the form of tree planting, is generally located along project entrance and around the edge of the Proposed Project to prevent visual impacts. The exact location of visual screening for this project is yet to be determined. Once completed, the Proposed Project aesthetic will match that of the surrounding area.

2.11 Human Health and Safety

This section describes public health and safety associated with the construction and operation of the Proposed Project and the potential impacts. All personnel and visitors would be required to follow the OSHA guidelines during construction and operation.

Electromagnetic Fields and Interference

Electromagnetic Fields (EMF) are associated with any electric device. Power-frequency EMFs are associated with the generation, transmission, and use of electric power. Electromagnetic Interference (EMI) is the disruption to the standard operation of an electronic device created by electromagnetic fields in its vicinity. This interference can be continuous or intermittent and can vary based on the distance and field levels that are produced by the source. Effects from high-voltage electric transmission lines and substations may include interference to radio and television reception in the immediate vicinity.

Environmental Risk Management

Environmental risk management identifies the proper procedures for environmental due diligence relating to hazardous substances, hazardous wastes, and petroleum waste products. If properly conducted, environmental risk management proactively recognizes potential hazards and legal and financial vulnerabilities associated with the major hazardous materials, federal and state laws, as well as possible hazards to the human environment.

Reflectivity, Glare or Dazzle

Reflectivity refers to light that is reflected off surfaces. The potential impacts of reflectivity are glint, glare or dazzle which can cause a brief loss of vision. According to the Federal Aviation Authority (FAA), solar energy projects introduce new visual surfaces to the airport setting, where reflectivity could result in glare that cause flash blindness episodes for pilots and air traffic controllers.

2.11.1 Affected Environment

Pending Environmental due diligence is the process of inquiring into the environmental condition of real property to determine the potential for contamination. A Phase I Environmental Site Assessment was requested by NES. The report will be performed in accordance with the procedures included in the American Society for Testing and Materials (ASTM) E1527-13, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*. Once complete, this report will be presented in Appendix X.

2.11.2 Environmental Consequences

Under the Proposed Action, significant impacts to human health and safety are not anticipated. There are no foreseeable health and safety risks from induced currents, electric shock, effects on cardiac pacemakers and nuisance factors, such as audible noise, potential interference with radio and television broadcast reception and electronic equipment.

During operation, a single-axis tracking system will be utilized which is propelled by an electric motor which is self-powered by the solar project itself. This is the only moving part of the development, otherwise the solar photovoltaic panels, inverters, electrical wires, and other components do not have any moving parts. With this design approach, there are no hazardous materials used or stored at the site.

The amount of reflectivity varies among solar technologies. The Proposed Project will reduce reflectivity by utilizing photovoltaic panels which are primarily absorptive compared to concentrated solar power technologies. Lastly, the Proposed Project does not include area lighting; therefore, the Proposed Project would not result in light exposure or result in light pollution or glare. There is one small down-lit light on the emergency contact information sign.

2.11.3 Mitigation

Waste generation will be managed in accordance with Federal, State, and local regulations. Proposed Project Area safety will be managed by strict adherence to OSHA requirements. Procedures included in an emergency response plan will include management efforts, a Hazardous Operations Manual, and Spill Control and Countermeasures (SPCC) plans designed to protect workers and the public from further exposure to hazards.

3. Stormwater Management

Upon design completion, a Stormwater Management Plan (SWMP) will be prepared to demonstrate that the proposed development will comply with the applicable Maine Department of Environmental Protection (MDEP) stormwater management requirements in Chapter 500. The report is prepared in accordance with the basic stormwater standards to show that drainageways will not be altered to have unreasonable adverse impact on wetlands, waterbodies, or adjacent downgradient properties.

In addition, an Erosion and Sediment Control Plan will be developed based on good engineering practices, generally accepted industry standards, and in accordance with the guidance provided in the "Maine Erosion and Sediment Control Best Management Practices Manual for Designers and Engineers" (MDEP, Rev. October 2016).

Once permanent stabilization is achieved, the Project will be operated by a qualified maintenance representative who will be responsible for maintenance of the entire grounds and stormwater management features.

4. Summary of Impacts

The Proposed Project would have both short-term (temporary) and long-term direct effects – these effects are expected to be minor, insignificant, and unlikely to contribute to cumulative effects.

The mitigation measures discussed in Section 5 will be implemented to avoid or minimize the Proposed Projects cumulative effects to the environment.

Resources	Impact Analysis
Formally Classified Lands	None present, no impacts
Floodplains	None present; no impacts
Wetlands	None present; no impacts
Water Resources	No adverse impacts
General Fish, Wildlife, and Endangered Species	No adverse impacts
Migratory Bird	No adverse impacts
Bald and Golden Eagles	No adverse impacts
Invasive Species	No adverse impacts
Cultural Resources and Historic Properties	No adverse impacts
Traffic and Transportation	Temporary impacts during construction; no long-term impacts
Visual Resources	No adverse impacts
Human Health and Safety	TBD – Results Pending

Table 5 – Summary of Impacts

5. Summary of Mitigation

Mitigation and monitoring actions will be performed to reduce any impacts to the environmental resources associated with the Proposed Project. These actions are as follows:

- The Applicant shall obtain and comply with all required County, State and Federal permits.
- A stormwater management system will be incorporated into the Proposed Project design that will provide treatment to stormwater prior to potentially entering or impacting wetland areas. Stormwater treatment measures will comply with state and municipal regulations. Wherever possible existing drainage and grading patterns will be maintained in the design.
- An Erosion and Sedimentation Control Plan will be implemented before construction and will include erosion control measures that will be incorporated into the construction and restoration phases of the Proposed Project to minimize potential adverse wetland impacts.
- When disposing of excess, spoil, or other construction materials on public or private property, wetlands will not be filled in or otherwise converted.
- Erosion and sedimentation controls, in accordance with the MDEP's Maine Erosion and Sediment Control BMPs, will be installed prior to construction and maintained until construction is completed and the Proposed Project Area is stabilized.
- Necessary maintenance during Proposed Project operations will continue to be maintain vegetation throughout the life of the facility.
- The contractor shall comply with the Endangered Species Act, which provides for the protection of endangered and/or threatened species and critical habitat. Should any evidence of the presence of endangered and/or threatened species or their critical habitat be brought to the attention of the contractor, the contractor will immediately report this evidence to Owner and a representative of Agency. Construction shall be temporarily halted pending the notification process and further directions issued by Agency after consultation with the USFWS.
- The Proposed Project will also comply with the final 4(d) rule for the NLEB.
- Any excavation by the Contractor that uncovers an historical or archaeological artifact or human remains shall be immediately reported to Owner and a representative of Agency. Construction shall be temporarily halted pending the notification process and further directions issued by Agency after consultation with the MHPC and appropriate Tribes.

- Dust suppression techniques (e.g., covering or spraying bare soils with water) will be used to control dust resulting from construction activities. Post-construction, disturbed soils will be seeded with native herbaceous species.
- Screening to minimize visual impacts will be implemented according to the proposed landscape and revegetation plan.
- Traffic control methods will be implemented in accordance with state and local transportation standards.
- Waste generation will be managed in accordance with Federal, State, and local regulations.
- Site safety will be managed by strict adherence to OSHA requirements. Procedures included in an emergency response plan will include management efforts, a Hazardous Operations Manual, and SPCC plans designed to protect workers and the public from further exposure to hazards.

6. List of Appendices

The below list of appendices is attached at the end of this report.

APPENDIX I: Maps
- Project Location
- Topographic
- Elevation Contours

APPENDIX II: Drawings
- Proposed Project Plan

APPENDIX III: Site Photographs

APPENDIX IV: Land Use
- Protected Lands Map
- USGS Protected Lands Map
- Wild and Scenic Rivers Map
- National Rivers Inventory
- Farmland Classification

APPENDIX V: Floodplains
- Floodplain Map
- Firm Panel

APPENDIX VI: Natural Resources and Wetlands
- Protected Natural Resource Analysis Desktop Review
- Custom Soil Report
- Hydric Soil Report
- Beginning with Habitat Map

APPENDIX VII: Water Resources
- US EPA Sole Source Aquifer Map
- Wetlands and Waterways Map

APPENDIX VIII: Biological Resources
- USFWS IPaC Report – Official Species List
- MDIFW Correspondence
- MNAP Correspondence
- Bald Eagle Map

APPENDIX IX: Cultural Resources and Historic Properties
- SHPO Consultation Correspondence
- Tribal Correspondence

APPENDIX X: Human Health and Safety
- Phase I Environmental Site Assessment Report

7. References

"Audubon Guide to North American Birds." *Audubon*, National Audubon Society, https://www.audubon.org/bird-guide.

"Beginning with Habitat." Bwh Map Viewer, Maine Department of Inland Fisheries and Wildlife, https://webapps2.cgis-solutions.com/beginningwithhabitat/mapviewer/#.

Ecoregions of New England, U.S. Geological Survey, http://www.ecologicalregions.info/data/vt/new_eng_front.pdf.

"FEMA Flood Map Service Center: Search by Address." *View/Print FIRM: View an Image of the FIRM Panel or Print a FIRMette for Your Chosen Location. NOTE: This Is a Static Map and Has Not Been Updated since the Effective Date. Please Refer to Any Amendments or Revisions (LOMC) in the Changes to This FIRM Section.*, FEMA - Department of Homeland Security, https://msc.fema.gov/portal/search?AddressQuery=47.309314%2C+-68.377162#searchresultsanchor.

"IPAC: Information for Planning and Consultation." *IPaC: Home*, U.S. Fish and Wildlife Service, https://ecos.fws.gov/ipac/.

"Maine - Bald Eagle Nest Location and Buffer Zones." *ArcGIS Web Application*, U.S. Fish and Wildlife Service, https://fws.maps.arcgis.com/apps/webappviewer/index.html?id=796b7baa18de43b49f911fe82dc4a0f1.

"National Register of Historic Places." *National Parks Service*, U.S. Department of the Interior, https://www.nps.gov/maps/full.html?mapId=7ad17cc9-b808-4ff8-a2f9-a99909164466.

"Nationwide Rivers Inventory." *National Parks Service - Nationwide Rivers Inventory*, U.S. Department of the Interior, https://www.nps.gov/maps/full.html?mapId=8adbe798-0d7e-40fb-bd48-225513d64977.

"NEPAssist." *EPA NEPAssist*, Environmental Protection Agency, https://nepassisttool.epa.gov/nepassist/nepamap.aspx.

Nrcs. "Custom Soil Survey Report." *Web Soil Survey*, United States Department of Agriculture, https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.

Protected Areas Database of the United States (PAD-US) 2.1
U.S. Geological Survey (USGS) Gap Analysis Project (GAP) (Accessed: 2021-01)

"Sole Source Aquifers Map." *ArcGIS Web Application*, Environmental Protection Agency, https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=9ebb047ba3ec41ada1877155fe31356b.

U.S. Fish and Wildlife Service; National Wetlands Inventory; National Standards and Support Team. "National Wetlands Inventory Mapper." *Wetlands Mapper*, U.S. Fish and Wildlife Service, https://www.fws.gov/wetlands/data/mapper.html.

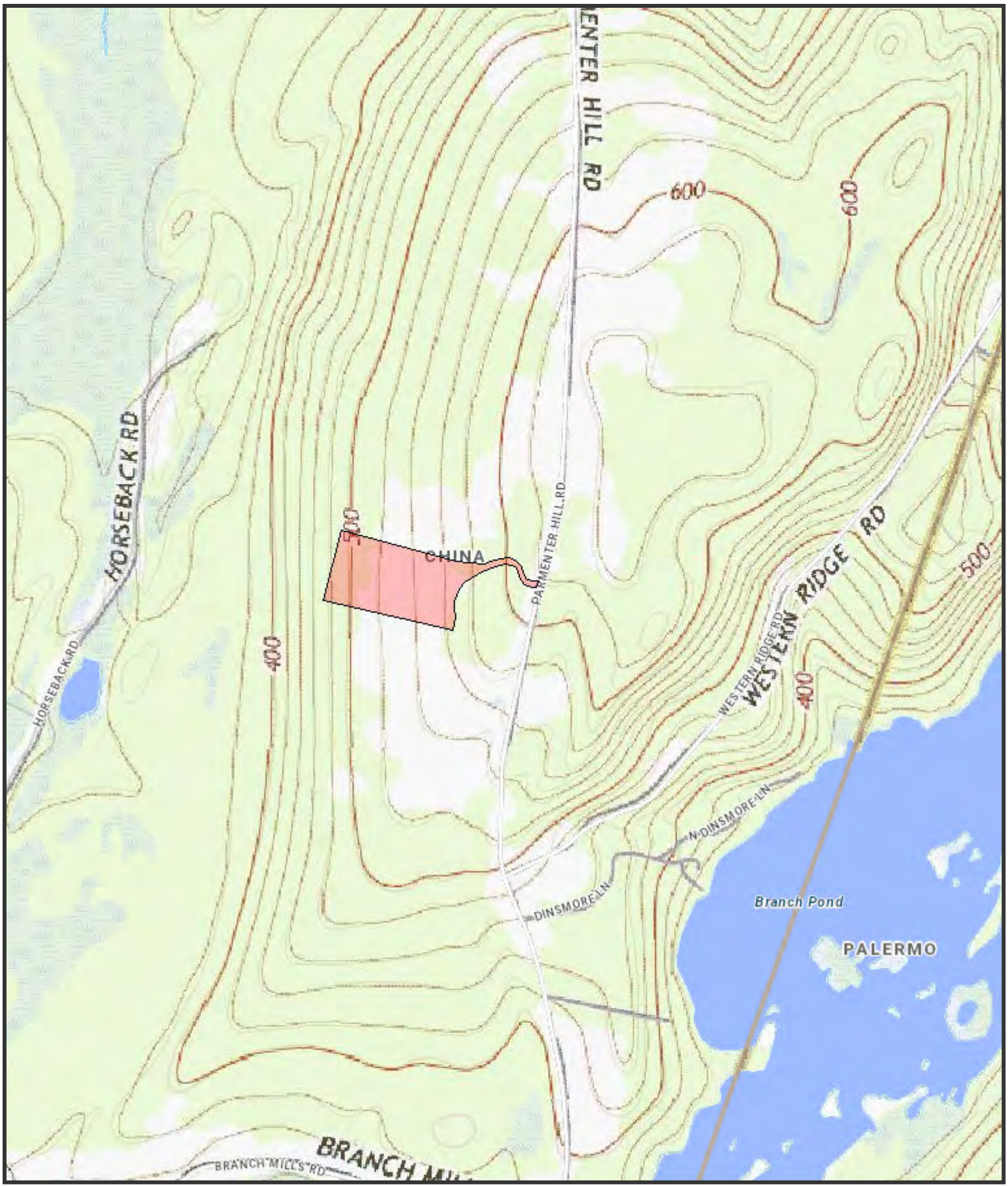
"Wild and Scenic Rivers ArcGIS Mapper." *Nps.maps.arcgis.com*, U.S. National Park Service, https://nps.maps.arcgis.com/apps/View/index.html?appid=ff42a57d0aae43c49a88daee0e353142.

"Yearly Traffic Counts." *Yearly Traffic Counts | MaineDOT*, Maine Department of Transportation, https://www.maine.gov/mdot/traffic/counts/.

APPENDIX I – MAPS

- **Topographic Map**
- **Site Location Map**

ME CHINA HASKELL 1 CSG - TOPO MAP



0.2 Miles

1 inch = 0.24 miles

Date: 2/1/2023
Time: 1:13:21 PM

Site Location Map

Novel Energy Solutions

ME China Haskell 1 CSG LLC

10.8 acres

Maine

Kennebec County

44.422967, -69.479316

transect

Legend

Buffer AOI

APPENDIX II - DRAWINGS

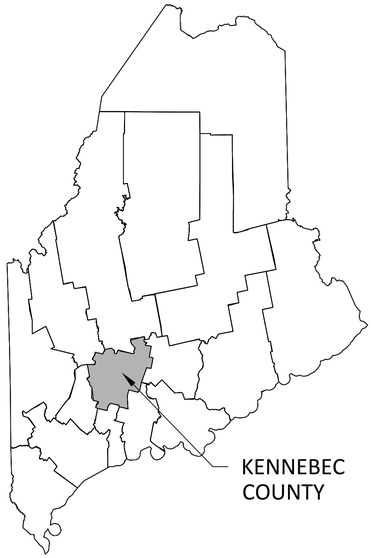
- **Proposed Site Plan**

ME CHINA HASKELL 1 CSG LLC

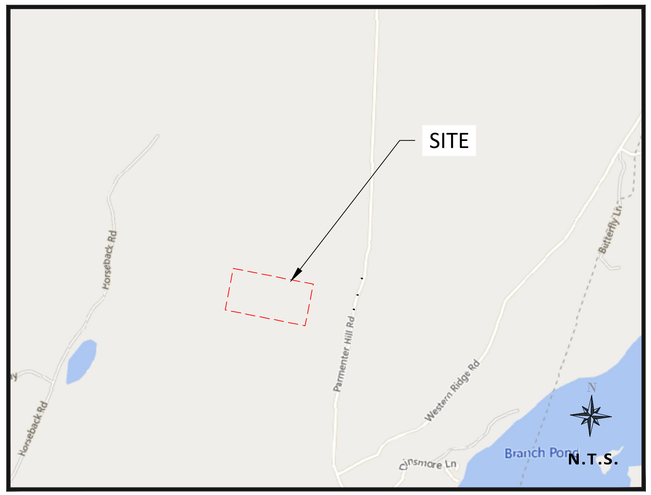
KENNEBEC COUNTY, ME

SOLAR PV PROJECT - 0.975 MW AC

CIVIL SUBMITTAL - ISSUED FOR PERMITTING (IFP)



COUNTY MAP



LOCATION MAP

SHEET INDEX

QUANTITIES

CIVIL SITE ITEMS		
GRADING AREA	TBD	ACRE
EARTHWORK CUT	TBD	CU YD
EARTHWORK FILL	TBD	CU YD
2-3" GRAVEL	30	TONS
AGGREGATE DRIVE 8" (CL V)	720	TONS
AGGREGATE (LAYDOWN YARD)	280	TONS
(OPTIONAL) POROUS GRANULAR BASE 12"	1,070	TONS
EROSION CONTROL ITEMS		
SILT FENCE	2,000	LF
ROCK CONSTRUCTION ENTRANCE	1	EACH
XX" CULVERT	0	LF
FLARED END SECTIONS	0	EACH
FENCING ITEMS		
20' GATE	1	EACH
FENCE	2,290	LF
LANDSCAPING		
ARRAY MIX - NATIVE GRASSES	52	POUNDS
POLLINATOR MIX - GRASSES	17	POUNDS

PROJECT CONTACT LIST

DEVELOPER
NOVEL ENERGY SOLUTIONS
2303 WYCLIFF ST, SUITE 300
SAINT PAUL, MN 55114
TEL (209) 918-4222
CONTACT: PAULA FITZGERALD

CIVIL ENGINEER
NOVEL ENERGY SOLUTIONS
2303 WYCLIFF ST, SUITE 300
SAINT PAUL, MN 55114
TEL (612) 322-3756
CONTACT: SCOTT GEDDES, P.E.

ELECTRICAL ENGINEER
NOVEL ENERGY SOLUTIONS
2303 WYCLIFF ST, SUITE 300
SAINT PAUL, MN 55114
TEL (612) 345-7188
CONTACT: TODD MAYNARD

SURVEYOR
NOVEL ENERGY SOLUTIONS
2303 WYCLIFF ST, SUITE 300
SAINT PAUL, MN 55114
TEL (612) 499-6202
CONTACT: TOM HEALEY, P.E.

GEOTECHNICAL
SUMMIT GEOENGINEERING SERVICES
173 PLEASANT ST
ROCKLAND, ME 04841
TEL (207) 318-7761
CONTACT:

Novel ENERGY SOLUTIONS
2303 Wycliff St, Suite 300
St Paul, MN 55114

info@novelenergy.biz
612-345-7188 telephone

Landowner
MAURICE A. HASKELL JR.

SOUTH CHINA, ME

Project
ME CHINA HASKELL 1 CSG LLC

Location
N44.422360°, W69.479179°

Certification

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed professional ENGINEER under the laws of the state of Maine.

SCOTT GEDDES, P.E.
Registration No. 16864 Date: MONTH/DAY/YEAR

If applicable, contact us for a wet signed copy of this plan which is available upon request at Novel Energy Solutions - St. Paul, MN office.

Summary

Designed: DAP Drawn: DAP
Approved: SEG Project: 22 349. 08
Phase: PERMITTING Initial Issue: 1/13/23

Revisions

No.	Date	By	Chk	Description
1	XX/XX	AAA	AAA	DESCRIPTION
-	--	--	--	--
-	--	--	--	--
-	--	--	--	--
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Sheet Title
COVERSHEET

811 DigSafe MA·ME·NH·RI·VT

Sheet No. Revision
C1.01 IFP

Project No. CHINA

GENERAL NOTES

1. THE DESIGN SHOWN IS BASED ON ENGINEER'S UNDERSTANDING OF EXISTING CONDITIONS. THE EXISTING CONDITIONS SHOWN ON THIS PLAN ARE BASED UPON ALTA AND TOPOGRAPHIC MAPPING PREPARED BY SACKET & BRAKE SURVEY, INC. PRIOR TO DESIGN. IF CONTRACTOR DOES NOT ACCEPT EXISTING TOPOGRAPHY AS SHOWN ON THE PLANS WITHOUT EXCEPTION, CONTRACTOR SHALL HAVE MADE, AT OWN EXPENSE, A TOPOGRAPHIC SURVEY BY A REGISTERED LAND SURVEYOR AND SUBMIT IT TO THE OWNER FOR REVIEW.

2. CONTRACTOR IS SPECIFICALLY CAUTIONED THAT LOCATIONS OF EXISTING UTILITIES SHOWN ON THIS PLAN HAVE BEEN DETERMINED FROM INFORMATION AVAILABLE. ENGINEER ASSUMES NO RESPONSIBILITY FOR THE UTILITY MAPPING ACCURACY. PRIOR TO START OF ANY DEMOLITION ACTIVITY, THE CONTRACTOR SHALL NOTIFY UTILITY COMPANIES 48 HOURS PRIOR TO ANY EXCAVATION FOR ON-SITE LOCATIONS OF EXISTING UTILITIES. DIGSAFE SHALL BE NOTIFIED A MINIMUM 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION. FULL UTILITY COORDINATION WITH NON-MEMBER UTILITIES AND USE OF GROUND PENETRATING RADAR TO LOCATE UTILITIES SHOULD BE PERFORMES AS NECCESSARY.

3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

4. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING VEHICULAR AND PEDESTRIAN TRAFFIC CONTROL DEVICES SUCH AS BARRICADES, WARNING SIGNS, DIRECTIONAL SIGNS, FLAGMEN AND LIGHTS TO CONTROL THE MOVEMENT OF TRAFFIC WHERE NECESSARY. TRAFFIC CONTROL DEVICES SHALL CONFORM TO APPROPRIATE MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARDS.

5. IF REQUIRED, CONTRACTOR SHALL PREPARE AND SUBMIT TO THE GOVERNING AUTHORITY A TRAFFIC AND/OR PEDESTRIAN TRAFFIC PLAN PER STATE STANDARDS TO BE APPROVED BY THE LOCAL GOVERNING AUTHORITY.

6. EXISTING TREES AND OTHER NATURAL VEGETATION WITHIN THE PROJECT AND/OR ADJACENT TO THE PROJECT ARE OF PRIME CONCERN TO THE CONTRACTOR'S OPERATIONS AND SHALL BE A RESTRICTED AREA. CONTRACTOR SHALL PROTECT TREES TO REMAIN AT ALL TIMES. EQUIPMENT SHALL NOT NEEDLESSLY BE OPERATED UNDER NEARBY TREES AND EXTREME CAUTION SHALL BE EXERCISED WHEN WORKING ADJACENT TO TREES. SHOULD ANY PORTION OF THE TREE BRANCHES REQUIRE REMOVAL TO PERMIT OPERATION OF THE CONTRACTOR'S EQUIPMENT, CONTRACTOR SHALL OBTAIN THE SERVICES OF A PROFESSIONAL TREE TRIMMING SERVICE TO TRIM THE TREES PRIOR TO THE BEGINNING OF OPERATION. SHOULD CONTRACTOR'S OPERATIONS RESULT IN THE BREAKING OF ANY LIMBS, THE BROKEN LIMBS SHOULD BE REMOVED IMMEDIATELY AND CUTS SHALL BE PROPERLY PROTECTED TO MINIMIZE ANY LASTING DAMAGE TO THE TREE. NO TREES SHALL BE REMOVED WITHOUT AUTHORIZATION BY THE ENGINEER. COSTS FOR TRIMMING SERVICES SHALL BE CONSIDERED INCIDENTAL TO THE GRADING CONSTRUCTION AND NO SPECIAL PAYMENT WILL BE MADE.

   6.a. RESTRICTED AREAS SHALL INCLUDE ALL DESIGNATED TREED AREAS OUTSIDE OF THE DESIGNATED CONSTRUCTION ZONE. ALL VEGETATION WITHIN THE RESTRICTED AREAS SHALL REMAIN.

   6.b. CONTRACTOR SHALL RESTRICT ALL GRADING AND CONSTRUCTION ACTIVITIES TO AREAS DESIGNATED ON THE PLANS. ACTIVITIES WITHIN THE CONSTRUCTION MAY BE RESTRICTED TO A NARROWER WIDTH IN THE FIELD TO SAVE ADDITIONAL TREES AS DIRECTED BY THE OWNER.

   6.c. ACTIVITIES PROHIBITED OUTSIDE OF THE CONSTRUCTION BOUNDARIES WOULD INCLUDE, BUT NOT BE LIMITED TO: SOIL AND OTHER MATERIAL STOCKPILING, EQUIPMENT OR MACHINERY STORAGE, DRIVING OF ANY VEHICLE, LEAKAGE OR SPILLAGE OF ANY "WASHOUT" OR OTHER TOXIC MATERIAL. THE COLLECTION OF OTHER DEBRIS AND SOIL STOCKPILING WILL BE IN AN AREA DETERMINED ON-SITE BY THE ENGINEER.

   6.d. ALL RESTRICTED AREAS SHALL BE FENCED OFF WITH SILT FENCE AS NOTED ON THE PLANS.

   6.e. BEFORE COMMENCING WITH ANY EXCAVATION CONTRACTOR SHALL COMPLETE ALL PREPARATORY WORK REGARDING TREE REMOVAL, ROOT PRUNING, TREE PRUNING AND STUMP REMOVAL TO THE SATISFACTION OF THE OWNER.

   6.f. PREPARATORY WORK SHALL INCLUDE THE FOLLOWING AND SHALL BE COMPLETED UNDER THE DIRECT SUPERVISION OF THE OWNER'S REPRESENTATIVE:

      6.f.a. TREE REMOVAL: CONTRACTOR SHALL FELL THE TREES. AT NO TIME SHALL TREES BE BULLDOZED OUT, BUT SHALL BE CUT DOWN AND STUMPS REMOVED SEPARATELY. PRIOR TO THE FELLING OF ALL TREES, PROPER REMOVAL OF A PORTION OR ALL OF THE CANOPY SHALL BE COMPLETED SO THAT TREES IN THE RESTRICTED AREAS SHALL NOT BE INJURED IN THE PROCESS.

      6.f.b. ROOT PRUNING: BEFORE ANY STUMPS ARE TO BE REMOVED, ALL ROOTS SHALL BE SEVERED FROM ROOTS IN THE RESTRICTED AREAS BY SAW CUTTING WITH A VERMEER DESIGNED FOR ROOT PRUNING, BY HAND, OR WITH A CHAINSAW. TREE ROOTS PROJECTING INTO THE CONSTRUCTION ZONE SHALL BE EXPOSED PRIOR TO ROOT PRUNING WITH SMALL MACHINERY, I.E..., BOBCAT.

      6.f.c. STUMP REMOVAL: AT SUCH TIME THAT ROOTS HAVE BEEN PROPERLY SEVERED, STUMPS MAY BE REMOVED. WHERE REMOVAL OF CERTAIN STUMPS COULD CAUSE DAMAGE TO EXISTING PROTECTED TREES, TREE STUMPS SHALL BE GROUND OUT. ALL STUMP REMOVAL SHALL BE UNDER THE DIRECT SUPERVISION OF THE OWNER'S REPRESENTATIVE.

      6.f.d. TREE PRUNING: PROPER PRUNING OF TREES IN THE RESTRICTED ZONE SHALL BE DIRECTED BY AND SUPERVISION AT ALL TIMES BY THE OWNER'S REPRESENTATIVE.

   6.g. AN OWNER'S REPRESENTATIVE WILL BE AVAILABLE AT ALL TIMES DURING THE PREPARATORY AND CONSTRUCTION PERIOD.

   6.h. MULCH RATHER THAN SEED OR SOD WILL BE USED AT THE BASE OF QUALITY TREES TO A PERIMETER DETERMINED BY THE OWNER'S REPRESENTATIVE. AREAS TO BE SEEDED FOR EROSION CONTROL PURPOSES WITHIN THE CONSTRUCTION ZONE ARE TO BE DETERMINED BY THE OWNER'S REPRESENTATIVE. NATURAL GROUND COVER WILL BE MAINTAINED WHEREVER POSSIBLE.

SUBSURFACE UTILITY NOTES

THE SUBSURFACE UTILITY INFORMATION SHOWN ON THESE PLANS IS A UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF ASCE/CI 38-02, TITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA." THE CONTRACTOR AND/OR SUBCONTRACTORS SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, BY CONTACTING THE UTILITY NOTIFICATION CENTER. THE CONTRACTOR AND/OR SUBCONTRACTOR AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES, WHICH MIGHT BE OCCASIONED BY HIS OR HER FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES (UNDERGROUND AND OVERHEAD).

DEMOLITION NOTES

1. DEMOLITION NOTES ARE NOT COMPREHENSIVE. CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION TO OBTAIN A CLEAR UNDERSTANDING OF THE INTENDED SCOPE OF WORK.

2. THE CONTRACTOR IS RESPONSIBLE FOR DEMOLITION, REMOVAL, AND DISPOSING IN A LOCATION APPROVED BY ALL GOVERNING AUTHORITIES AND IN ACCORDANCE WITH APPLICABLE CODES, OF ALL STRUCTURES, PADS, WALLS, FLUMES, FOUNDATIONS, PARKING, DRIVES, DRAINAGE STRUCTURES, UTILITIES, ETC., SUCH THAT THE IMPROVEMENTS SHOWN ON THE PLANS CAN BE CONSTRUCTED. ALL FACILITIES TO BE REMOVED SHALL BE UNDERCUT TO SUITABLE MATERIAL AND BROUGHT TO GRADE WITH SUITABLE COMPACTED FILL MATERIAL PER THE GEOTECHNICAL REPORT AND/OR GEOTECHNICAL ENGINEER.

3. CLEARING AND GRUBBING: CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL DEBRIS FROM THE SITE AND DISPOSING THE DEBRIS IN A LAWFUL MANNER. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR DEMOLITION AND DISPOSAL.

4. CONTRACTOR IS RESPONSIBLE FOR THE DISCONNECTION OF UTILITY SERVICES TO EXISTING BUILDINGS PRIOR TO DEMOLITION OF THE BUILDINGS.

5. CONTRACTOR SHALL COORDINATE WITH RESPECTIVE UTILITY COMPANIES PRIOR TO REMOVAL AND/OR RELOCATION OF UTILITIES. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES CONCERNING PORTIONS OF WORK WHICH MAY BE PERFORMED BY THE UTILITY COMPANIES' FORCES AND ANY FEES WHICH ARE TO BE PAID TO UTILITY COMPANIES FOR SERVICES. CONTRACTOR IS RESPONSIBLE FOR PAYING ALL FEES AND CHARGES.

6. THE MAPPING LOCATION OF ALL EXISTING SEWERS, PIPING, AND UTILITIES SHOWN ARE NOT TO BE INTERPRETED AS THE EXACT LOCATION, OR AS THE ONLY OBSTACLES THAT MAY OCCUR ON THE SITE. VERIFY EXISTING CONDITIONS AND PROCEED WITH CAUTION AROUND ANY ANTICIPATED FEATURES. GIVE NOTICE TO ALL UTILITY COMPANIES REGARDING DESTRUCTION AND REMOVAL OF ALL SERVICE LINES AND CAP ALL LINES BEFORE PROCEEDING WITH WORK. UTILITIES DETERMINED TO BE ABANDONED SHALL BE REMOVED IF UNDER THE BUILDING INCLUDING 10' BEYOND FOUNDATIONS.

7. ELECTRICAL, TELEPHONE, CABLE, WATER, FIBER OPTIC CABLE AND/OR GAS LINES NEEDING TO BE REMOVED OR RELOCATED SHALL BE COORDINATED WITH THE AFFECTED UTILITY COMPANY. ADEQUATE TIME SHALL BE PROVIDED FOR RELOCATION AND CLOSE COORDINATION WITH THE UTILITY COMPANY IS NECESSARY TO PROVIDE A SMOOTH TRANSITION IN UTILITY SERVICE. CONTRACTOR SHALL PAY CLOSE ATTENTION TO EXISTING UTILITIES WITHIN THE ROAD RIGHT OF WAY DURING CONSTRUCTION.

8. CONTRACTOR MUST PROTECT THE PUBLIC AT ALL TIMES WITH FENCING, BARRICADES, ENCLOSURES, ETC., TO THE BEST PRACTICES.

9. CONTINUOUS ACCESS SHALL BE MAINTAINED FOR THE SURROUNDING PROPERTIES AT ALL TIMES DURING DEMOLITION OF THE EXISTING FACILITIES.

10. PRIOR TO DEMOLITION OCCURRING, ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED AND APPROVED BY THE LOCAL AUTHORITY.

11. CONTRACTOR SHALL LIMIT SAW-CUT & PAVEMENT REMOVAL TO ONLY THOSE AREAS WHERE IT IS REQUIRED AS SHOWN ON THESE CONSTRUCTION PLANS BUT IF ANY DAMAGE IS INCURRED ON ANY OF THE SURROUNDING PAVEMENT, ETC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ITS REMOVAL AND REPAIR.

12. CONTRACTOR TO PROTECT EXISTING FEATURES WHICH ARE TO REMAIN. DAMAGE TO ANY EXISTING CONDITIONS TO REMAIN WILL BE REPLACED AT CONTRACTOR'S EXPENSE.

LEGEND

EXISTING FEATURES

- PROPERTY LINE
- ROAD RIGHT OF WAY
- EDGE OF EXISTING ROAD
- STORM CULVERT
- DRAIN TILE
- UNDERGROUND ELECTRIC
- OVERHEAD ELECTRICAL
- POWER POLE
- MAJOR CONTOUR
- MINOR CONTOUR
- TREE LINE
- WETLAND
- SB — SOIL BORING

PROPOSED FEATURES

- TEMPORARY AGGREGATE ROAD
- AGGREGATE ROAD BASE, PER DETAIL 1/C9.01
- AGGREGATE BASE - LAYDOWN YARD
- PERIMETER SECURITY FENCE
- TEMPORARY FENCE
- SETBACK LINE
- LEASE BOUNDARY
- CMP CULVERT
- MAJOR CONTOUR
- MINOR CONTOUR
- PROPOSED POWER POLE & LINE
- RIP RAP

EROSION CONTROL FEATURES

- SILT FENCE
- BIO LOG
- ROCK CONSTRUCTION ENTRANCE
- EROSION CONTROL BLANKET

REMOVALS

- TREE REMOVAL
- TREE REMOVAL
- FENCE POST REMOVAL
- FENCE REMOVAL
- LoD — LoD — PROP GRAD LIMITS

GRADING NOTES

1. PROPOSED CONTOURS ARE TO FINISHED SURFACE ELEVATION.

2. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION PHASES OF THIS PROJECT. CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGES TO THE ADJACENT PROPERTIES OCCURRING DURING THE CONSTRUCTION PHASES OF THIS PROJECT.

3. SAFETY NOTICE TO CONTRACTORS: IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS ON THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE DUTY OF THE ENGINEER OR THE DEVELOPER TO CONDUCT CONSTRUCTION REVIEW OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON OR NEAR THE CONSTRUCTION SITE.

4. CONTRACTOR SHALL COMPLETE DEWATERING AS REQUIRED TO COMPLETE THE SITE GRADING CONSTRUCTION.

5. PRIOR TO PLACEMENT OF THE AGGREGATE BASE, A TEST ROLL SHALL BE PERFORMED ON THE STREET AND PARKING AREA SUBGRADE. CONTRACTOR SHALL PROVIDE A LOADED TANDEM AXLE TRUCK WITH A GROSS WEIGHT OF 25 TONS. THE TEST ROLLING SHALL BE AT THE DIRECTION OF THE SOILS ENGINEER AND SHALL BE COMPLETED IN AREAS AS DIRECTED BY THE SOILS ENGINEER. CORRECTION OF THE SUBGRADE SOILS SHALL BE COMPLETED IN ACCORDANCE WITH THE REQUIREMENTS OF THE SOILS ENGINEER.

6. REPLACE ALL SUBGRADE SOIL DISTURBED DURING THE CONSTRUCTION THAT HAVE BECOME UNSUITABLE AND WILL NOT PASS A TEST ROLL. REMOVE UNSUITABLE SOIL FROM THE SITE AND IMPORT SUITABLE SOIL AT NO ADDITIONAL COST TO THE OWNER.

7. EXCAVATE TOPSOIL FROM AREAS TO BE FURTHER EXCAVATED OR REGRADED AND STOCKPILE IN AREAS DESIGNATED ON THE SITE. CONTRACTOR SHALL SALVAGE ENOUGH TOPSOIL FOR RESPREADING ON THE SITE AS SPECIFIED. EXCESS TOPSOIL SHALL BE PLACED IN EMBANKMENT AREAS, OUTSIDE OF EQUIPMENT PADS, ROADWAYS AND THE ARRAY LAYOUTS.

8. TRENCH BORROW CONSTRUCTION: IF ALLOWED BY THE OWNER, CONTRACTOR SHALL COMPLETE "TRENCH BORROW" EXCAVATION IN AREAS DIRECTED BY THE ENGINEER IN ORDER TO OBTAIN STRUCTURAL MATERIAL. TREES SHALL NOT BE REMOVED OR DAMAGED AS A RESULT OF THE EXCAVATION, UNLESS APPROVED BY THE ENGINEER. THE EXCAVATION SHALL COMMENCE A MINIMUM OF 10 FEET FROM THE LIMIT OF THE BUILDING PAD. THE EXCAVATION FROM THIS LIMIT SHALL EXTEND AT A MINIMUM SLOPE OF 1 FOOT HORIZONTAL TO 1 FOOT VERTICAL (1:1) DOWNWARD AND OUTWARD FROM THE FINISHED SURFACE GRADE ELEVATION. THE TRENCH BORROW EXCAVATION SHALL BE BACKFILLED TO THE PROPOSED FINISHED GRADE ELEVATION, AND SHALL BE COMPACTED IN ACCORDANCE WITH REQUIREMENTS OF THE QUALITY COMPACTION METHOD AS OUTLINED IN MN/DOT SPECIFICATION 2105.3F2. SNOW FENCE SHALL BE FURNISHED AND PLACED ALONG THE PERIMETER OF THE TRENCH BORROW AREA WHERE THE SLOPES EXCEED 2 FOOT HORIZONTAL TO 1 FOOT VERTICAL (2:1).

9. FINISHED GRADING SHALL BE COMPLETED, CONTRACTOR SHALL UNIFORMLY GRADE AREAS WITHIN LIMITS OF GRADING, INCLUDING ADJACENT TRANSITION AREAS. PROVIDE A SMOOTH FINISHED SURFACE WITHIN SPECIFIED TOLERANCES, WITH UNIFORM LEVELS OR SLOPES BETWEEN POINTS WHERE ELEVATIONS ARE SHOWN, OR BETWEEN SUCH POINTS AND EXISTING GRADES. AREAS THAT HAVE BEEN FINISHED GRADED SHALL BE PROTECTED FROM SUBSEQUENT CONSTRUCTION OPERATIONS, TRAFFIC AND EROSION. REPAIR ALL AREAS THAT HAVE BECOME RUTTED, ERODED OR HAS SETTLED BELOW THE CORRECT GRADE. ALL AREAS DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO EQUAL OR BETTER THAN ORIGINAL CONDITION OR TO THE REQUIREMENTS OF THE NEW WORK. CONTRACTOR MUST REGRADE/RECOMPACT ACCESS ROAD AS FINAL RESTORATION.

10. TOLERANCES
    10.a. THE EQUIPMENT PAD SUBGRADE FINISHED SURFACE ELEVATION SHALL NOT VARY BY MORE THAN 0.10 FOOT ABOVE, OR 0.10 FOOT BELOW, THE PRESCRIBED ELEVATION AT ANY POINT WHERE MEASUREMENT IS MADE.

11. CONTRACTOR SHALL USE THE PROPOSED ACCESS ROADS FOR HAULING OF MATERIALS REQUIRED TO COMPLETE THE SOLAR INSTALLATION. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE GOVERNING AUTHORITY OF EACH PUBLIC ROADWAY. FOR OFFSITE MATERIAL TRANSPORT CONTRACTOR SHALL POST WHATEVER SECURITY, AND COMPLY WITH ALL CONDITIONS WHICH ARE REQUIRED BY EACH GOVERNING AUTHORITY OF EACH ROADWAY.

12. WETLAND AREAS DESIGNATED TO BE PROTECTED SHALL BE AVOIDED. ANY WETLAND AREAS DAMAGED BY SITE OPERATIONS SHALL BE RESTORED AS REQUIRED BY THE JURISDICTIONAL AGENCY.

ZONING REQUIREMENTS

1. APPROVALS

   A. MEDEP STORMWATER PERMIT BY RULE DATED XXXXXXX XX, 2021 (#XXXXX).
   B. MEDEP NOTICE OF INTENT APPROVAL DATED XXXXXXX XX, 2021 (#XXXXX).
   C. RANDOLPH SITE PLAN APPROVAL DATED XXXXXXXXXXXX.
   D. MAINE DOT ACCESS PERMIT#XXXXXXXX DATED XXXXX XX, 2021.
   E. MEDEP SECTION 401 PERMIT FOR XXX SF OF WETLAND IMPACT. PERMIT #_____ DATED _____.
   F. ARMY CORPS OF ENGINEERS (ACOE) MAINE GENERAL PERMIT #XXXXXXXXXXX DATED XXXXXXX XX, 2021. THE ACOE ISSUED A CLARIFICATION LETTER DATED XXXX XX, 2021.

2. ZONING DISTRICTS SUMMARY

   GENERAL ZONING DISTRICT: RURAL FARM RESIDENTIAL DISTRICT (RF)
   OVERLAY ZONING DISTRICT: NONE

3. DIMENSIONAL STANDARDS

   RURAL FARM RESIDENTIAL DISTRICT

	REQUIRED	PROVIDED
FRONT YARD SETBACK	25	>100
SIDE YARD SETBACK	10	>50
REAR YARD SETBACK	15	>500
STRUCTURE HEIGHT, MAX	XX	XX

4. PROJECT SCHEDULE

   SPECIFICS OF HOW WORK IS TO BE COMPLETED SHALL ALSO BE BASED ON ENVIRONMENTAL CONSIDERATIONS ASSOCIATED WITH SEASONAL CHANGES. THE FOLLOWING DATES ARE PROVIDED TO ESTABLISH A GENERAL GUIDELINE FOR THESE SEASONS:

WINTER	NOVEMBER 1 TO MARCH 15
MUD SEASON	MARCH 20 TO APRIL 30
SPRING	MAY 1 TO JUNE 21
SUMMER	JUNE 22 TO SEPTEMBER 21
FALL	SEPTEMBER 22 TO OCTOBER 31

EARTHWORK NOTES

1. SITE CLEARING AND GRUBBING IS AS FOLLOWS:

   1.a. STANDARD CLEARING AND GRUBBING: SUBCONTRACTOR SHALL CLEAR AND GRUB ALL AREAS (EXCEPT IN WETLANDS) OF PROJECT SITE WITHIN PERIMETER FENCING, REMOVING ALL VEGETATION HIGHER THAN 3" AND OTHER DELETERIOUS MATERIALS. SUBCONTRACTOR SHALL GRADE OUT MINOR TOPOGRAPHIC UNDULATIONS, MOUNDS, AND DEPRESSIONS, AS NECESSARY, TO PRODUCE A SMOOTH, SAFE WORKING SURFACE FOR PLANT CONSTRUCTION AND OPERATIONS.

   1.b. TEMPORARY WETLAND DISTURBANCE: SUBCONTRACTOR MAY PERFORM TEMPORARY WETLAND DISTURBANCES WHICH SHALL INCLUDE CLEARING BUT NOT STUMP REMOVAL. THESE INDIRECT WETLAND DISTURBANCES MAY OCCUR WITHIN PERIMETER FENCING OR JUST OUTSIDE OF PERIMETER FENCING FOR SHADE MANAGEMENT PURPOSES.

   1.c. PERMANENT WETLAND DISTURBANCE: WHERE EXPLICITLY APPROVED AND NECESSARY, THE SUBCONTRACTOR MAY PERFORM CLEARING AND GRUBBING WITHIN WETLANDS. THIS MAY ALSO COME IN THE FORM OF GRADING WITHIN WETLANDS. GRADING OR GRUBBING WITHIN WETLANDS SHALL BE CONSIDERED A PERMANENT WETLAND IMPACT AND SHALL COUNT TOWARDS THE TOTAL DIRECT IMPACTS ALLOWED BY THE AUTHORITY HAVING JURISDICTION.

   1.d. SUBCONTRACTOR SHALL CLEAR AND GRUB, STRIP AND REMOVE TOPSOIL, VEGETATION, AND OTHER DELETERIOUS ORGANIC MATERIAL FROM PROPOSED EQUIPMENT PADS, ROADWAYS, AND AREAS TO RECEIVE FILL. STOCKPILE TOPSOIL AND IMMEDIATELY STABILIZE UNTIL RE-SPREAD FOR USE TO RE-VEGETATE DISTURBED AREAS AFTER GRADING OPERATIONS ARE COMPLETE.

2. SUBGRADE PREPARATION FOR EQUIPMENT PADS, SPREAD FOOTINGS, AND ROADWAYS IS AS FOLLOWS:

   2.a. SCARIFY TO A MINIMUM DEPTH OF 12 INCHES.
   2.b. MOISTURE CONDITION SOILS TO BETWEEN 1% BELOW AND 3% ABOVE OPTIMUM MOISTURE CONTENT.
   2.c. COMPACT TO A MINIMUM OF 95% OF STANDARD PROCTOR MAXIMUM DENSITY. EXCAVATION SHALL EXTEND 5' BEYOND EXTENTS OF IMPROVEMENTS FOR PADS OR FOOTINGS.
   2.d. PROOF ROLL WITH FULLY LOADED DUMP TRUCK OR OTHER SIMILARLY WEIGHTED PNEUMATIC TIRED EQUIPMENT.
   2.e. UNSTABLE AREAS IDENTIFIED DURING PROOF ROLL SHOULD BE EXCAVATED A MINIMUM OF 12 INCHES AND RE-STABILIZED.

3. SUBGRADE PREPARATION FOR NON-STRUCTURAL FILL AREAS SHALL CONSIST OF COMPACTION TO 90% OF STANDARD PROCTOR MAXIMUM DENSITY.

FILL PLACEMENT

1. ENGINEERED FILL - SOILS CLASSIFIED AS GW, GP, GM, GC, SW, SP, SM, SC, ML, AND CL BY THE USCS ARE ACCEPTABLE FOR USE AS STRUCTURAL FILL. MOST ON-SITE SOILS ARE EXPECTED TO BE SUITABLE FOR USE AS ENGINEERED FILL IF THEY ARE FREE OF ORGANIC SOIL AND DEBRIS.
2. SELECT GRANULAR FILL - GRANULAR, WELL GRADED MATERIAL WITH NO ORGANICS, A MAXIMUM PARTICLE SIZE OF 2 INCHES, AND LESS THAN 12 PERCENT PASSING THE U.S. NO. 200 SEIVE.
3. IN THE EVENT CLAY FILL IS ENCOUNTERED, CLAY FILL SHALL BE MOISTENED TO BETWEEN 1 PERCENT BELOW AND 3 PERCENT ABOVE OPTIMUM MOISTURE CONTENT. SAND FILL SHALL BE MOISTENED TO BETWEEN 3 PERCENT BELOW AND 3 PERCENT ABOVE OPTIMUM MOISTURE CONTENT.
4. FILL SHALL BE PLACED IN LIFTS OF LESS THAN 8 INCHES LOOSE DEPTH AND COMPACTED TO AT LEAST 90% OF STANDARD PROCTOR MAXIMUM DENSITY PER ASTM D698.
5. TRENCH BACKFILL FOR PROPOSED CULVERT OR POND OUTLET SHALL BE COMPACTED TO AT LEAST 85 PERCENT OF STANDARD PROCTOR MAXIMUM DENSITY, EXCEPT IN STRUCTURAL AREAS WHICH SHALL BE COMPACTED TO 95 PERCENT.

EARTHWORK BALANCE

THE INTENTION OF THE GRADING DESIGN IS TO BALANCE THE EARTHWORK ON SITE WITHOUT THE NEED FOR IMPORT OR EXPORT. THE CONTRACTOR SHALL FIELD ADJUST CUT AND FILL AS NECESSARY TO CREATE A BALANCED SITE WITHOUT NEGATIVELY IMPACTING DRAINAGE PATTERNS OR INCREASING MAXIMUM SLOPES.

AGGREGATES

1. AGGREGATE BASE AND COARSE AGGREGATE SHALL BE MOISTENED TO WITHIN 2 PERCENT OF OPTIMUM MOISTURE CONTENT AND COMPACTED TO A MINIMUM OF 95% OF STANDARD PROCTOR MAXIMUM DENSITY. PROOF ROLL WITH FULLY LOADED DUMP TRUCK OR OTHER SIMILARLY WEIGHTED PNEUMATIC TIRED EQUIPMENT.

   AGGREGATE GRADATION - SHALL COMPLY WITH THE GRADATION REQUIREMENTS OF TABLE 3138-3, CLASS 5, OF SECTION 3126 "AGGREGATE", OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

   RIP RAP GRADATION - SHALL COMPLY WITH THE GRADATION REQUIREMENTS OF CLASS 1 RIP RAP, SECTION 3601 OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

GEOTEXTILE FABRIC

IF SITE CONDITIONS WARRANT USE OF A GEOTEXTILE FABRIC, CONTRACTOR SHALL USE TENSAR BX1100 OR EQUAL, PER GEOTECH REPORT.

EROSION CONTROL BLANKET

EROSION CONTROL BLANKET SHALL CONFORM TO MNDOT APPROVED/QUALIFIED PRODUCTS LIST, EROSION CONTROL BLANKETS, CATEGORY 3.

TESTING REQUIREMENT NOTES

DEFINITION

1. CONTRACTOR SHALL COMPLETE THE SITE GRADING CONSTRUCTION IN ACCORDANCE WITH THE REQUIREMENTS OF THE OWNER'S SOILS ENGINEER. ALL SOIL TESTING SHALL BE COMPLETED BY THE OWNER'S SOILS ENGINEER. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED SOIL TESTS AND INSPECTIONS WITH THE SOILS ENGINEER.

2. SUBGRAGE PROOFROLLING TEST SHALL BE CONSIDERED ACCEPTABLE IF RUTTING IS NO GREATER THAN 3", AND NO "PUMPING" OF THE SOIL BEHIND THE PROOF ROLL.

3. STANDARD PROCTOR DENSITY TESTS SHALL BE IN CONFORMANCE WITH ASTM D698.

4. SOIL DENSITY IN PLACE TESTING SHALL BE IN CONFORMANCE WITH ASTM D2922.

5. MOISTURE CONTENT TEST OF IN PLACE SOIL SHALL BE IN CONFORMANCE WITH ASTM D3017.

EXECUTION

1. COMPACTED SUBGRADE IN STRUCTURAL AREAS SHALL BE TESTED AS FOLLOWS:

   1.1. ONE TEST PER 200 LF OF ROAD.

   1.2. ONE TEST PER ELECTRICAL EQUIPMENT PAD

2. FILL MATERIAL SHALL BE TESTED AT A MINIMUM ONCE PER SOIL TYPE FOR GRAIN SIZE, SOIL CLASSIFICATION, PROCTOR TESTS, AND MOISTURE CONTENT. FILL PLACEMENT SHALL BE TESTED FOR DENSITY AT A MINIMUM OF ONE TEST PER 2,500 SF PER LIFT.

3. AGGREGATE BASE DENSITY SHALL BE TESTED BY PROOF ROLLING WITH A FULLY LOADED DUMP TRUCK (MINIMUM GROSS WEIGHT OF 25 TONS) OR OTHER SIMILARLY WEIGHTED PNEUMATIC TIRED EQUIPMENT. AGGREGATE PROOFROLLING TEST SHALL BE CONSIDERED ACCEPTABLE IF RUTTING IS NO GREATER THAN 3".

   3.1. AT THE COMPLETION OF CONSTRUCTION, RE-GRADE AGGREGATE ROAD SURFACES TO DESIGNED SURFACE PROFILE, ELIMINATING RUTS CAUSED BY CONSTRUCTION TRAFFIC.

Novel ENERGY SOLUTIONS
2303 Wycliff St, Suite 300
St Paul, MN 55114
info@novelenergy.biz
612-345-7188 telephone

Landowner
MAURICE A. HASKELL JR.

SOUTH CHINA, ME

Project
ME CHINA HASKELL 1 CSG LLC

Location
N44.422360°, W69.479179°

Certification

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed professional ENGINEER under the laws of the state of Maine.

SCOTT GEDDES, P.E.
Registration No. 16864 Date: MONTH/DAY/YEAR

If applicable, contact us for a wet signed copy of this plan which is available upon request at Novel Energy Solutions - St. Paul, MN office.

Summary

Designed: DAP Drawn: DAP
Approved: SEG Project: 22 349. 08
Phase: PERMITTING Initial Issue: 1/13/23

Revisions

No.	Date	By	Chk	Description
1	XX/XX	AAA	AAA	DESCRIPTION
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Sheet Title
NOTES

Sheet No. Revision
C1.02 IFP

Project No. CHINA

Jan 24, 2023 - 10:00am - CHINA-CIVBASE.dwg

2303 Wycliff St, Suite 300
St Paul, MN 55114

info@novelenergy.biz
612-345-7188 telephone

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SOUTH CHINA, ME

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Sheet Title
EXISTING CONDITIONS

Sheet No. Revision
C2.01 IFP

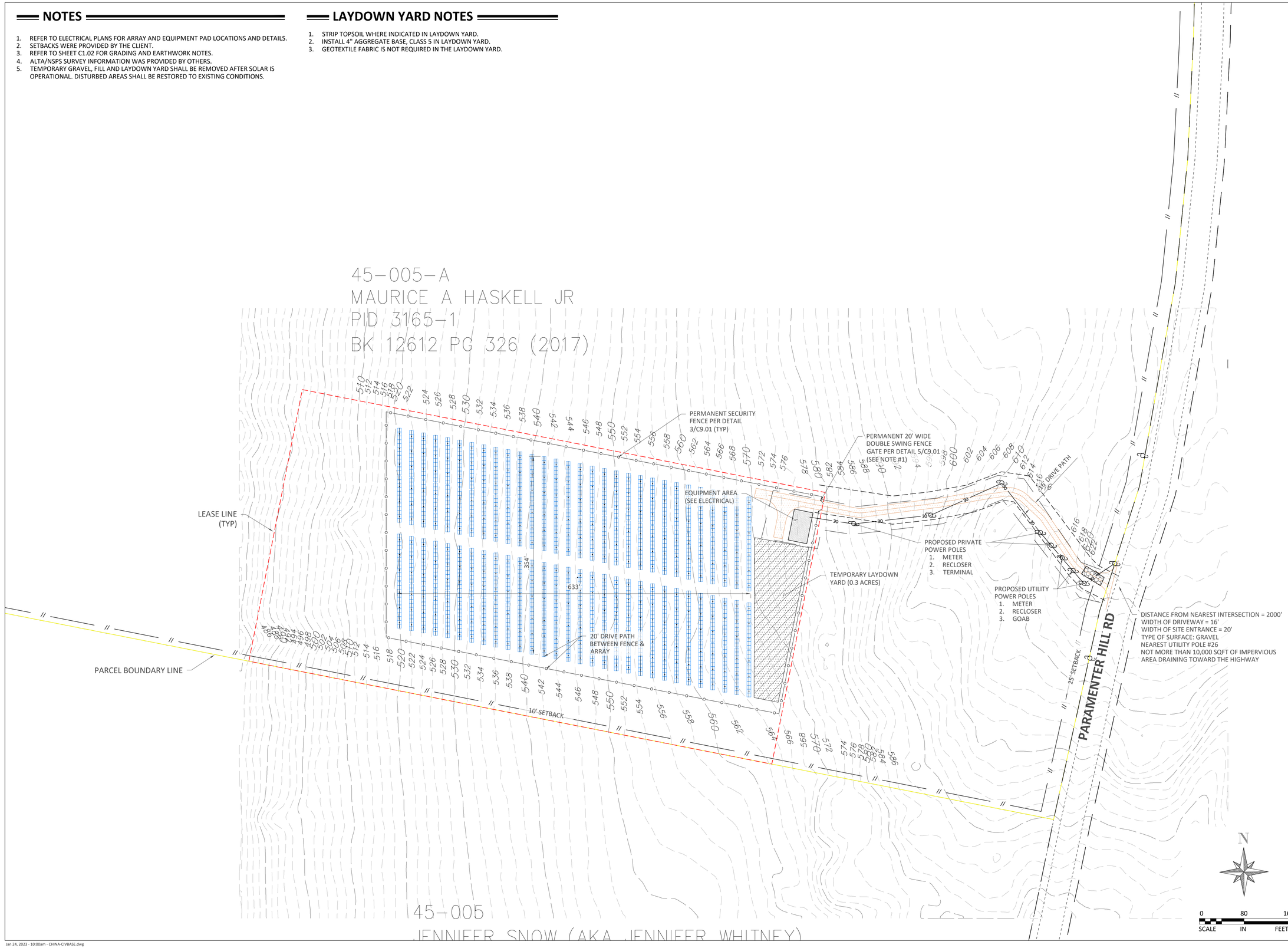
Project No. CHINA

NOTES

1. REFER TO ELECTRICAL PLANS FOR ARRAY AND EQUIPMENT PAD LOCATIONS AND DETAILS.
2. SETBACKS WERE PROVIDED BY THE CLIENT.
3. REFER TO SHEET C1.02 FOR GRADING AND EARTHWORK NOTES.
4. ALTA/NSPS SURVEY INFORMATION WAS PROVIDED BY OTHERS.
5. TEMPORARY GRAVEL, FILL AND LAYDOWN YARD SHALL BE REMOVED AFTER SOLAR IS OPERATIONAL. DISTURBED AREAS SHALL BE RESTORED TO EXISTING CONDITIONS.

LAYDOWN YARD NOTES

1. STRIP TOPSOIL WHERE INDICATED IN LAYDOWN YARD.
2. INSTALL 4" AGGREGATE BASE, CLASS 5 IN LAYDOWN YARD.
3. GEOTEXTILE FABRIC IS NOT REQUIRED IN THE LAYDOWN YARD.



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~~PRELIMINARY NOT FOR CONSTRUCTION~~

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Sheet Title
SITE PLAN

Sheet No. Revision
C3.01 IFP

Project No. CHINA

STORMWATER BASIN NOTES

1. IF CONSTRUCTION REQUIRES A BASIN TO BE CONSTRUCTED TO FINAL GRADE PRIOR TO FINAL STABILIZATION, THE CONTRACTOR SHALL EMPLOY RIGOROUS EROSION PREVENTION AND SEDIMENT CONTROLS TO KEEP SEDIMENT AND RUNOFF AWAY FROM THE BASIN.
2. IF THE SOLAR ARRAY IS LOCATED WITHIN THE BASIN AND REQUIRES CONSTRUCTION EQUIPMENT TO DRIVE WITHIN THE BASIN, THE CONTRACTOR SHALL BE REQUIRED TO CLEAN OUT ANY SEDIMENT AND RIP THE SOILS TO A MINUIMUM OF 12" DEEP TO LOOSEN THE COMPACTED SOIL AND RE-GRADE WITH EQUIPMENT SIMILAR TO A RUBBER TRACKED SKID LOADER PRIOR TO SEED AND MULCH.
3. MARK EDGE OF BASINS WITH IDENTIFYING FLAGS, STAKES, OR EQUIVALENT.

EROSION CONTROL QUANTITIES

ITEM	QUANTITY	UNIT
SILT FENCE OR BIO-ROLL	2000	LF
BIO-ROLL	800	LF
CONSTRUCTION ENTRANCE	1	EA
EROSION CONTROL BLANKET*	TBD	SY

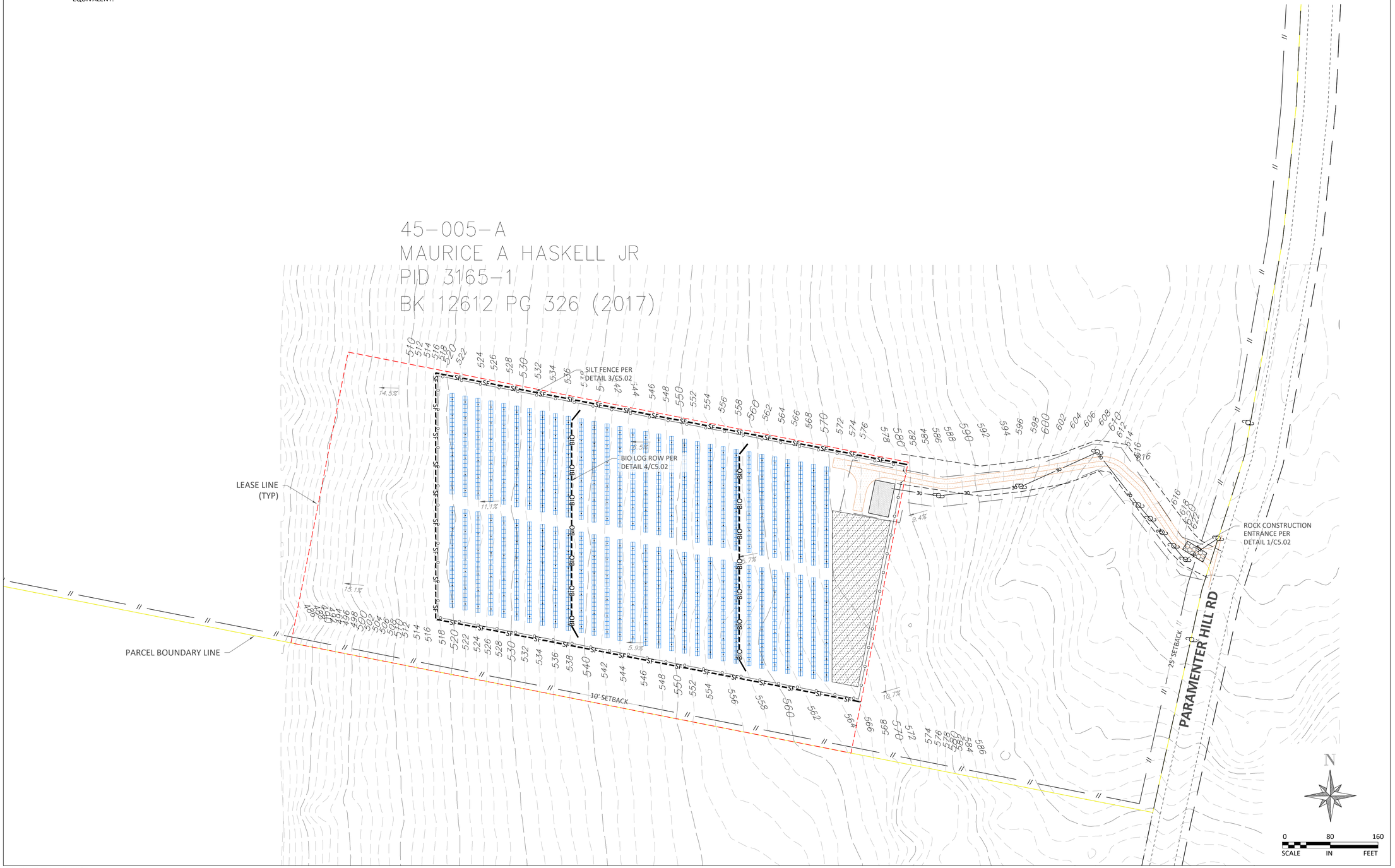
*EROSION CONTROL BLANKET CAN BE ADDED AT THE END OF CONSTRUCTION

CIVIL IMPACT QUANTITIES

ITEM	SQFT	ACRES
IMPERVIOUS AREA	15300	0.3512
DEVELOPED AREA	15300	0.3512
OCCUPIED AREA	299400	6.8733
TREE REMOVAL AREA	0	0.0000
TEMP WETLAND IMPACT AREA	0	0.0000
PERM WETLAND IMPACT AREA	0	0.0000
FENCED AREA	299400	6.8733

NOTES

1. REFER TO SHEET C5.02 FOR EROSION CONTROL NOTES AND DETAILS.
2. REFER TO SWPPP AND SHEETS L1.01 & L1.02 FOR SEED AND STABILIZATION REQUIREMENTS.
3. DUST CONTROL MUST BE PROVIDED ON GRAVEL ROAD DURING CONSTRUCTION.



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Sheet Title
EROSION CONTROL PLAN

Sheet No. Revision
C5.01 IFP

Project No. CHINA

SEQUENCE OF CONSTRUCTION

1. INSTALL STABILIZED CONSTRUCTION ENTRANCES.
2. CONSTRUCT THE SILT FENCES ON THE SITE.
3. INSTALL RIPRAP AROUND OUTLET STRUCTURES.
4. PREPARE SITE FOR CONSTRUCTION.
5. PILE DRIVING FOR SOLAR FEATURES, AND TRENCHING FOR UNDERGROUND UTILITIES WILL COMMENCE, AND CONCRETE PADS WILL BE POURED.
6. RACKING AND SOLAR MODULES WILL BE INSTALLED ON PILES.
7. COVER ACCESS ROAD WITH GRAVEL.
8. RESTABILIZE DISTURBED AREAS.
9. REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES AFTER SITE HAS BEEN STABILIZED, IF REQUIRED BY CONTRACT.

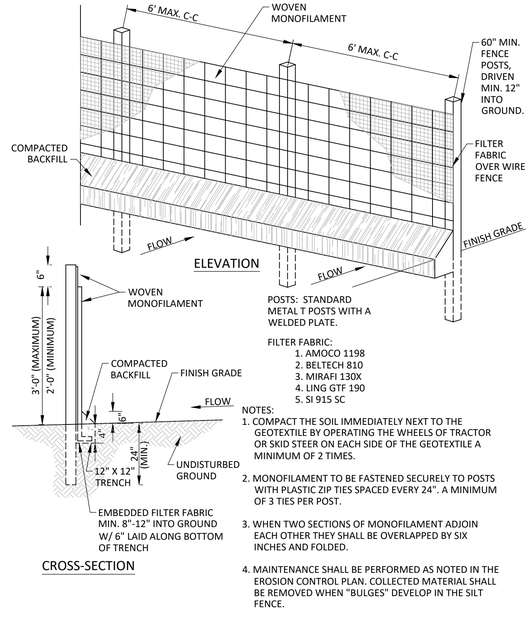
EROSION CONTROL NOTES

1. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME. WHERE A CONFLICT EXISTS BETWEEN LOCAL JURISDICTIONAL STANDARD SPECIFICATIONS AND NES STANDARD SPECIFICATIONS, THE MORE STRINGENT SPECIFICATION SHALL APPLY.
2. THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IS COMPRISED OF THIS DRAWING (EROSION & SEDIMENTATION CONTROL PLAN-ESC PLAN), THE STANDARD DETAILS, THE PLAN NARRATIVE, AND ITS APPENDICES, PLUS THE PERMIT AND ALL SUBSEQUENT REPORTS AND RELATED DOCUMENTS.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETING & SUBMITTING THE APPLICATION FOR THE GENERAL STORMWATER PERMIT FOR CONSTRUCTION ACTIVITY. ALL CONTRACTORS AND SUBCONTRACTORS INVOLVED WITH STORM WATER POLLUTION PREVENTION SHALL OBTAIN A COPY OF THE SWPPP AND THE STATE OF MAINE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM GENERAL PERMIT (NPDES PERMIT) AND BECOME FAMILIAR WITH THE CONTENTS. THE SWPPP AND ALL OTHER RELATED DOCUMENTS MUST BE KEPT AT THE SITE DURING CONSTRUCTION.
4. CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES (BMP'S) AS REQUIRED BY THE SWPPP & PERMITS. CONTRACTOR SHALL OVERSEE THE INSPECTION & MAINTENANCE OF THE BMP'S AND EROSION PREVENTION FROM BEGINNING OF CONSTRUCTION AND UNTIL CONSTRUCTION IS COMPLETED, IS APPROVED BY ALL AUTHORITIES, AND THE NOTICE OF TERMINATION (NOT) HAS BEEN FILED WITH THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION BY EITHER THE OWNER OR OPERATOR AS APPROVED ON PERMIT. ADDITIONAL BMP'S SHALL BE IMPLEMENTED AS DICTATED BY CONDITIONS AT NO ADDITIONAL COST TO OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.
5. BMP'S AND CONTROLS SHALL CONFORM TO FEDERAL, STATE, OR LOCAL REQUIREMENTS OR MANUAL OF PRACTICE, AS APPLICABLE. CONTRACTOR SHALL IMPLEMENT ADDITIONAL CONTROLS AS DIRECTED BY PERMITTING AGENCY OR OWNER.
6. CONTRACTOR SHALL MINIMIZE CLEARING TO THE MAXIMUM EXTENT PRACTICAL OR AS REQUIRED BY THE GENERAL PERMIT. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THESE PLANS SHALL BE CLEARLY DELINEATED (E.G. WITH FLAGS, STAKES, SIGNS, SILT FENCE, ETC.) ON THE DEVELOPMENT SITE BEFORE WORK BEGINS. GROUND DISTURBING ACTIVITIES MUST NOT OCCUR OUTSIDE THE LIMITS OF DISTURBANCE.
7. GENERAL CONTRACTOR SHALL DENOTE ON PLAN THE TEMPORARY PARKING AND STORAGE AREA WHICH SHALL ALSO BE USED AS THE EQUIPMENT MAINTENANCE AND CLEANING AREA, EMPLOYEE PARKING AREA, AND AREA FOR LOCATING PORTABLE FACILITIES, OFFICE TRAILERS, AND TOILET FACILITIES.
8. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC.) MUST BE LIMITED TO A DEFINED AREA OF THE SITE AND SHALL BE CONTAINED AND PROPERLY TREATED OR DISPOSED. NO ENGINE DEGREASING IS ALLOWED ON SITE.
9. ALL LIQUID AND SOLID WASTES GENERATED BY CONCRETE WASHOUT OPERATIONS MUST BE CONTAINED IN A LEAK-PROOF CONTAINMENT FACILITY OR IMPERMEABLE LINER. A COMPACTED CLAY LINER IS NOT ACCEPTABLE. THE LIQUID AND SOLID WASTES MUST NOT CONTACT THE GROUND, AND THERE MUST NOT BE RUNOFF FROM THE CONCRETE WASHOUT OPERATIONS OR AREAS. LIQUID AND SOLID WASTES MUST BE DISPOSED OF PROPERLY AND IN COMPLIANCE WITH STATE REGULATIONS. A SIGN MUST BE INSTALLED ADJACENT TO EACH WASHOUT FACILITY TO INFORM CONCRETE EQUIPMENT OPERATORS TO UTILIZE THE PROPER FACILITIES. SELF-CONTAINED CONCRETE WASHOUTS ON CONCRETE DELIVERY TRUCKS ARE ALLOWED.
10. SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BOOMS SHALL BE MAINTAINED ON SITE OR READILY AVAILABLE TO CONTAIN AND CLEAN-UP FUEL OR CHEMICAL SPILLS AND LEAKS.
11. DUST ON THE SITE SHALL BE CONTROLLED. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.
12. SOLID WASTE: COLLECTED SEDIMENT, ASPHALT & CONCRETE MILLINGS, FLOATING DEBRIS, PAPER, PLASTIC, FABRIC, CONSTRUCTION & DEMOLITION DEBRIS & OTHER WASTES MUST BE DISPOSED OF PROPERLY & MUST COMPLY WITH STATE DISPOSAL REQUIREMENTS.
13. HAZARDOUS MATERIALS: OIL, GASOLINE, PAINT & ANY HAZARDOUS SUBSTANCES MUST BE PROPERLY STORED, INCLUDING SECONDARY CONTAINMENT, TO PREVENT SPILLS, LEAKS OR OTHER DISCHARGE. RESTRICTED ACCESS TO STORAGE AREAS MUST BE PROVIDED TO PREVENT VANDALISM. STORAGE & DISPOSAL OF HAZARDOUS WASTE MUST BE IN COMPLIANCE WITH STATE REGULATIONS.
14. ALL STORM WATER POLLUTION PREVENTION MEASURES PRESENTED ON THIS PLAN, AND IN THE SWPPP, SHALL BE INITIATED AS SOON AS PRACTICABLE AND PRIOR TO SOIL DISTURBING ACTIVITIES UP-SLOPE.
15. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS STOPPED SHALL BE TEMPORARILY SEEDED, WITHIN 14 DAYS OF INACTIVITY. SEEDING MIXES, METHOD AND APPLICATION RATE SHALL CONFORM TO SPECIFICATION CONTAINED WITHIN THIS PLAN. TEMPORARY MULCH SHALL BE APPLIED. ALTERNATIVELY, HYDRAULIC SOIL STABILIZER MAY BE USED IN PLACE OF TEMPORARY MULCH.
16. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS PERMANENTLY STOPPED SHALL BE PERMANENTLY STABILIZED. THESE AREAS SHALL BE STABILIZED IN ACCORDANCE WITH THE TIME TABLE DESCRIBED ABOVE. REFER TO THE GRADING PLAN AND/OR LANDSCAPE PLAN FOR VEGETATIVE COVER.
17. CONTRACTORS OR SUBCONTRACTORS WILL BE RESPONSIBLE FOR REMOVING SEDIMENT FROM CONVEYANCES & FROM TEMPORARY SEDIMENTATION BASINS THAT ARE TO BE USED AS PERMANENT WATER QUALITY MANAGEMENT BASINS. SEDIMENT MUST BE STABILIZED TO PREVENT IT FROM BEING WASHED BACK INTO THE BASIN, CONVEYANCES, OR DRAINAGE-WAYS DISCHARGING OFF-SITE OR TO SURFACE WATERS. THE CLEAN-OUT OF PERMANENT BASINS MUST BE SUFFICIENT TO RETURN THE BASIN TO DESIGN CAPACITY.
18. ON-SITE & OFF-SITE SOIL STOCKPILE AND BORROW AREAS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION THROUGH IMPLEMENTATION OF BMP'S. STOCKPILE AND BORROW AREA LOCATIONS SHALL BE NOTED ON THE SITE MAP AND PERMITTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS.
19. TEMPORARY SOIL STOCKPILES MUST HAVE SILT FENCE OR OTHER EFFECTIVE SEDIMENT CONTROLS & CANNOT BE PLACED IN SURFACE WATERS, INCLUDING STORMWATER CONVEYANCES SUCH AS CURB & GUTTER SYSTEMS OR CONDUITS & DITCHES.
20. SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION.
21. DUE TO THE GRADE CHANGES DURING THE DEVELOPMENT OF THE PROJECT, CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION CONTROL MEASURES (SILT FENCES, CHECK DAMS, INLET PROTECTION DEVICES, ETC.) TO PREVENT EROSION.
22. ALL CONSTRUCTION SHALL BE STABILIZED AT THE END OF EACH WORKING DAY, THIS INCLUDES BACKFILLING OF TRENCHES FOR UTILITY CONSTRUCTION AND PLACEMENT OF GRAVEL OR BITUMINOUS PAVING FOR ROAD CONSTRUCTION.

MAINTENANCE NOTES

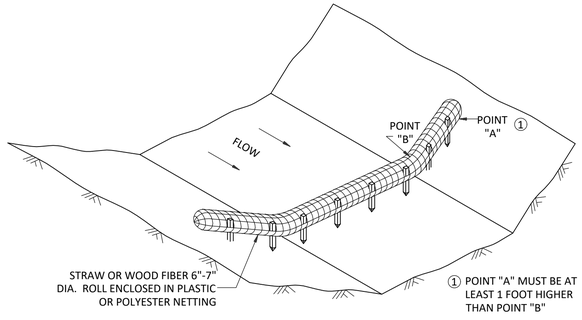
ALL MEASURES STATED ON THIS EROSION AND SEDIMENT CONTROL PLAN, AND IN THE STORM WATER POLLUTION PREVENTION PLAN SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. THE DESIGNATED CONTACT PERSON NOTED ON THIS PLAN MUST ROUTINELY INSPECT THE CONSTRUCTION ON SITE ONCE EVERY SEVEN DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CLEANED AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

1. ALL SILT FENCES MUST BE REPAIRED, REPLACED, OR SUPPLEMENTED WHEN THEY BECOME NONFUNCTIONAL OR THE SEDIMENT REACHES 1/3 OF THE HEIGHT OF THE FENCE. THESE REPAIRS MUST BE MADE WITHIN 24 HOURS OF DISCOVERY, OR AS SOON AS FIELD CONDITIONS ALLOW ACCESS.
2. TEMPORARY AND PERMANENT SEDIMENTATION BASINS MUST BE DRAINED AND THE SEDIMENT REMOVED WHEN THE DEPTH OF SEDIMENT COLLECTED IN THE BASIN REACHES 1/2 THE STORAGE VOLUME. DRAINAGE AND REMOVAL MUST BE COMPLETED WITHIN 72 HOURS OF DISCOVERY, OR AS SOON AS FIELD CONDITIONS ALLOW ACCESS (SEE PART IV.D. OF THE GENERAL PERMIT).
3. SURFACE WATERS, INCLUDING DRAINAGE DITCHES AND CONVEYANCE SYSTEMS, MUST BE INSPECTED FOR EVIDENCE OF SEDIMENT BEING DEPOSITED BY EROSION. CONTRACTOR MUST REMOVE ALL DELTAS AND SEDIMENT DEPOSITED IN SURFACE WATERS, INCLUDING DRAINAGE WAYS, CATCH BASINS, AND OTHER DRAINAGE SYSTEMS, AND RESTABILIZE THE AREAS WHERE SEDIMENT REMOVAL RESULTS IN EXPOSED SOIL. THE REMOVAL AND STABILIZATION MUST TAKE PLACE WITHIN SEVEN (7) DAYS OF DISCOVERY UNLESS PRECLUDED BY LEGAL, REGULATORY, OR PHYSICAL ACCESS CONSTRAINTS. CONTRACTOR SHALL USE ALL REASONABLE EFFORTS TO OBTAIN ACCESS. IF PRECLUDED, REMOVAL AND STABILIZATION MUST TAKE PLACE WITHIN SEVEN (7) CALENDAR DAYS OF OBTAINING ACCESS. CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL LOCAL, REGIONAL, STATE AND FEDERAL AUTHORITIES AND RECEIVING ANY APPLICABLE PERMITS, PRIOR TO CONDUCTING ANY WORK.
4. CONSTRUCTION SITE VEHICLE EXIT LOCATIONS MUST BE INSPECTED FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING ONTO PAVED SURFACES. TRACKED SEDIMENT MUST BE REMOVED FROM ALL OFF-SITE PAVED SURFACES, WITHIN 24 HOURS OF DISCOVERY, OR IF APPLICABLE, WITHIN A SHORTER TIME TO COMPLY WITH PART IV.C.6 OF THE GENERAL PERMIT.
5. CONTRACTOR IS RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF TEMPORARY AND PERMANENT WATER QUALITY MANAGEMENT BMPS, AS WELL AS ALL EROSION PREVENTION AND SEDIMENT CONTROL BMPS, FOR THE DURATION OF THE CONSTRUCTION WORK AT THE SITE. THE PERMITTEE(S) ARE RESPONSIBLE UNTIL ANOTHER PERMITTEE HAS ASSUMED CONTROL (ACCORDING TO PART II.B.5 OF THE MPCA GENERAL PERMIT) OVER ALL AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED OR THE SITE HAS UNDERGONE FINAL STABILIZATION, AND A (N.O.T.) HAS BEEN SUBMITTED TO THE MPCA.
6. IF SEDIMENT ESCAPES THE CONSTRUCTION SITE, OFF-SITE ACCUMULATIONS OF SEDIMENT MUST BE REMOVED IN A MANNER AND AT A FREQUENCY SUFFICIENT TO MINIMIZE OFF-SITE IMPACTS (E.G., FUGITIVE SEDIMENT IN STREETS COULD BE WASHED INTO STORM SEWERS BY THE NEXT RAIN AND/OR POSE A SAFETY HAZARD TO USERS OF PUBLIC STREETS).
7. ALL INFILTRATION AREAS MUST BE INSPECTED TO ENSURE THAT NO SEDIMENT FROM ONGOING CONSTRUCTION ACTIVITIES IS REACHING THE INFILTRATION AREA AND THESE AREAS ARE PROTECTED FROM COMPACTION DUE TO CONSTRUCTION EQUIPMENT DRIVING ACROSS THE INFILTRATION AREA.

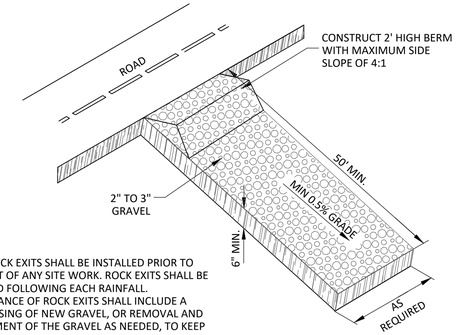


NOTES:
1. COMPACT THE SOIL IMMEDIATELY NEXT TO THE GEOTEXTILE BY OPERATING THE WHEELS OF TRACTOR OR SKID STEER ON EACH SIDE OF THE GEOTEXTILE A MINIMUM OF 2 TIMES.
2. MONOFILAMENT TO BE FASTENED SECURELY TO POSTS WITH PLASTIC ZIP TIES SPACED EVERY 24". A MINIMUM OF 3 TIES PER POST.
3. WHEN TWO SECTIONS OF MONOFILAMENT ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NOTED IN THE EROSION CONTROL PLAN. COLLECTED MATERIAL SHALL BE REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

3 MACHINE SLICED SILT FENCE
N.T.S.

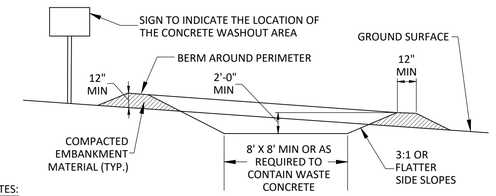


4 BIO ROLL
N.T.S.



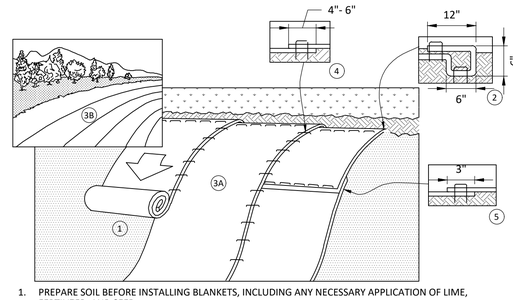
NOTE: ROCK EXITS SHALL BE INSTALLED PRIOR TO THE START OF ANY SITE WORK. ROCK EXITS SHALL BE INSPECTED FOLLOWING EACH RAINFALL. MAINTENANCE OF ROCK EXITS SHALL INCLUDE A TOP DRESSING OF NEW GRAVEL, OR REMOVAL AND REPLACEMENT OF THE GRAVEL AS NEEDED, TO KEEP THE EXITS FREE FROM COLLECTED MUD.

1 ROCK CONSTRUCTION ENTRANCE
N.T.S.



NOTES:
1. CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE.
2. CONCRETE WASHOUT AREA SHALL BE LINED WITH MINIMUM 10 MIL THICK PLASTIC LINER.
3. VEHICLE TRACKING CONTROL IS REQUIRED IF ACCESS TO CONCRETE WASHOUT AREA IS OFF PAVEMENT.
4. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE WASHOUT AREA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
5. THE CONCRETE WASHOUT AREA SHALL BE REPAIRED AND ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE.
6. AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT AN ACCEPTED WASTE SITE.
7. WHEN THE CONCRETE WASHOUT AREA IS REMOVED, THE DISTURBED AREA SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER ACCEPTED BY THE CITY.

2 CONCRETE WASHOUT AREA
N.T.S.



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS PER MANUFACTURES RECOMMENDATION.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 4"-6" OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3"OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12"APART ACROSS ENTIRE BLANKET WIDTH.
6. PLACE STAPLES/STAKES PER MANUFACTURE RECOMMENDATION FOR THE APPROPRIATE SLOPE BEING APPLIED.

NOTES:
1. IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.
2. FOLLOW EROSION CONTROL TECHNOLOGY COUNCIL SPECIFICATION FOR PRODUCT SELECTION

5 EROSION CONTROL BLANKET
N.T.S.

Novel ENERGY SOLUTIONS
2303 Wycliff St, Suite 300
St Paul, MN 55114
info@novelenergy.biz
612-345-7188 telephone

Landowner
MAURICE A. HASKELL JR.

SOUTH CHINA, ME

Project
ME CHINA HASKELL 1 CSG LLC

Location
N44.422360°, W69.479179°

Certification

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed professional ENGINEER under the laws of the state of Maine.

SCOTT GEDDES, P.E.
Registration No. 16864 Date: MONTH/DAY/YEAR

If applicable, contact us for a wet signed copy of this plan which is available upon request at Novel Energy Solutions - St. Paul, MN office.

Summary

Designed: DAP Drawn: DAP
Approved: SEG Project: 22 349. 08
Phase: PERMITTING Initial Issue: 1/13/23

Revisions

No.	Date	By	Chk	Description
1	XX/XX	AAA	AAA	DESCRIPTION
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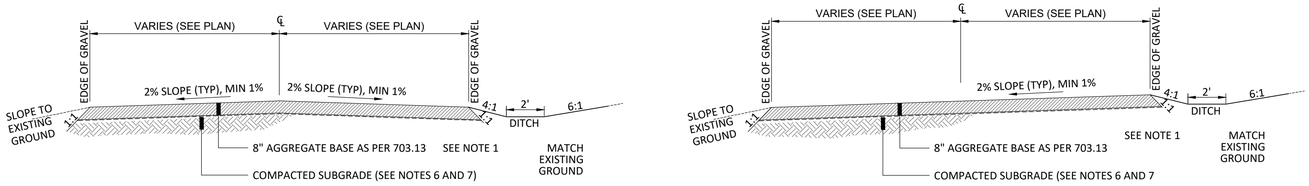
Sheet Title
EROSION CONTROL NOTES & DETAILS

Sheet No. Revision
C5.02 IFP

Project No. CHINA



ROAD WITH CROWN

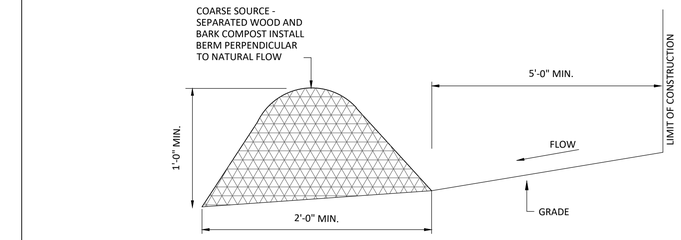
ROAD WITH SUPERELEVATION

NOTES:

1. THE CONTRACTOR SHALL COORDINATE WITH THE DEVELOPER, PRIOR TO CONSTRUCTION, TO DETERMINE IF THE ROAD WILL NEED TO BE CONSTRUCTED PER THIS DETAIL.
2. CONSTRUCT DITCH AS SHOWN ABOVE ONLY WHERE INDICATED BY CONTOURS ON THE GRADING PLAN.
3. IN THE ABSENCE OF A ROADSIDE DITCH, SLOPE FROM EDGE OF GRAVEL TO EXISTING GROUND @3:1.
4. 2% CROSS SLOPE IS TYPICAL, BUT CAN BE ADJUSTED DOWN TO MATCH EXISTING GROUND SLOPE IN ORDER TO PROMOTE CONTINUED SHEET DRAINAGE ACROSS ROAD. CROSS SLOPE SHALL NOT BE LESS THAN 1%.
5. ROAD GRADES ARE TYPICALLY INTENDED TO MATCH ADJACENT GRADE ALLOWING DRAINAGE TO SHEET ON AND OFF OF ROADS EVENLY. CARE SHOULD BE TAKEN TO FIELD ADJUST ROAD GRADES OR DITCH LOCATIONS AS NECESSARY TO PREVENT RUNOFF FROM CONCENTRATING ALONG ROAD EDGES CAUSING EROSION.
6. UNSTABLE AREAS IDENTIFIED DURING PROOF ROLL SHOULD BE EXCAVATED A MINIMUM OF 12 INCHES AND E-STABILIZED. PLACE GRANULAR BACKFILL IN MAXIMUM 12-INCH THICK LOOSE LIFTS. COMPACT TO A MINIMUM OF 95% OF STANDARD MAXIMUM DENSITY.
7. IF SITE CONDITIONS WARRANT USE OF A GEOTEXTILE FABRIC, CONTRACTOR SHALL USE TENSAR BX1100 OR EQUAL, PER GEOTECH REPORT.

1 GRAVEL ACCESS ROAD

N.T.S.



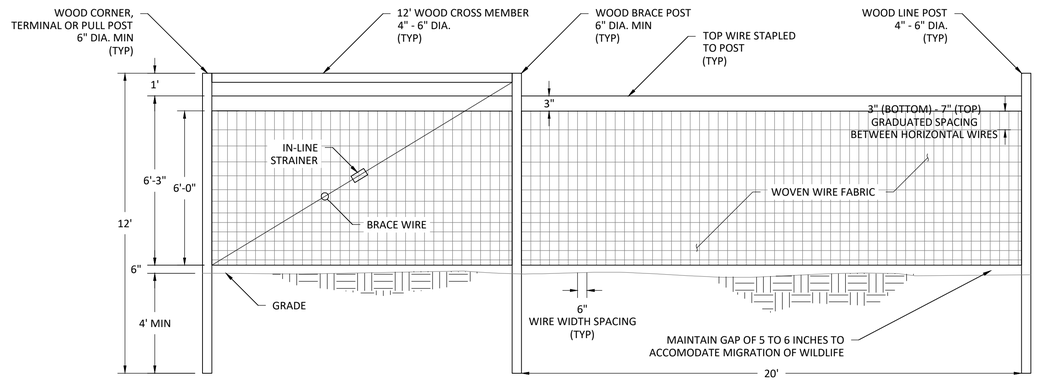
NOTES:

1. THE EROSION CONTROL MIX MUST BE WELL-GRADED WITH AN ORGANIC COMPONENT THAT IS BETWEEN 50 AND 100% OF DRY WEIGHT, AND THAT IS COMPOSED OF FIBROUS AND ELONGATED FRAGMENTS.
2. THE MINERAL PORTION OF THE MIX SHOULD BE NATURALLY INCLUDED IN THE PRODUCT WITH NO LARGER ROCKS (>4") OR LARGE AMOUNTS OF FINES (SILTS AND CLAYS).
3. IN STUMP GRINDING, THE MINERAL SOIL ORIGINATES FROM THE ROOT BALL AND SHOULD NOT BE REMOVED BEFORE GRINDING.
4. THE MIX SHOULD BE FREE OF REFUSE, MATERIAL TOXIC TO PLANT GROWTH OR UNSUITABLE MATERIAL (BARK CHIPS, GROUND CONSTRUCTION DEBRIS OR REPROCESSED WOOD PRODUCTS).

2 EROSION CONTROL MIX BERM

N.T.S.

(MAY BE USED AS AN ALTERNATE TO SILT FENCE OR PLACED UPGRADIENT OF SILT FENCE



NOTE:

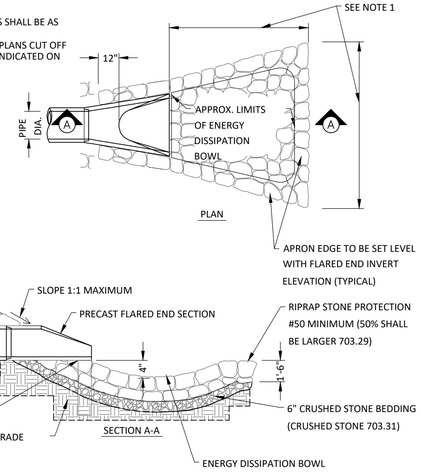
1. SEE SUPPLIER DRAWINGS FOR ADDITIONAL DETAIL.
2. WOVEN WIRE FABRIC SHALL BE GALVANIZED FIXED KNOT FENCE FABRIC WITH 3"X 6" OPENINGS AT BOTTOM.
3. ALL METALLIC PARTS SHALL BE GALVANIZED.
4. TOP WIRE SHALL REACH MIN 8' ABOVE GRADE.
5. MAXIMUM SPACING BETWEEN END POSTS SHALL BE 1,320' WITHOUT ADDITIONAL INLINE BRACES OR PER MANUFACTURER RECOMMENDATION.
6. MANUFACTURER DRAWINGS SHALL SUPERSEDE DETAIL IF CONFLICTS ARE PRESENT. ANY DEVIATIONS SHALL BE SUBMITTED TO THE OWNER FOR REVIEW.

3 WOVEN WIRE FENCE DETAIL

N.T.S.

NOTES:

1. ALL RIP RAP DIMENSIONS SHALL BE AS NOTED ON
2. GRAVEL AND DRAINAGE PLANS CUT OFF WALL TO BE POURED IF INDICATED ON THE PLANS



4 FLARED END SECTION/RIP-RAP APRON

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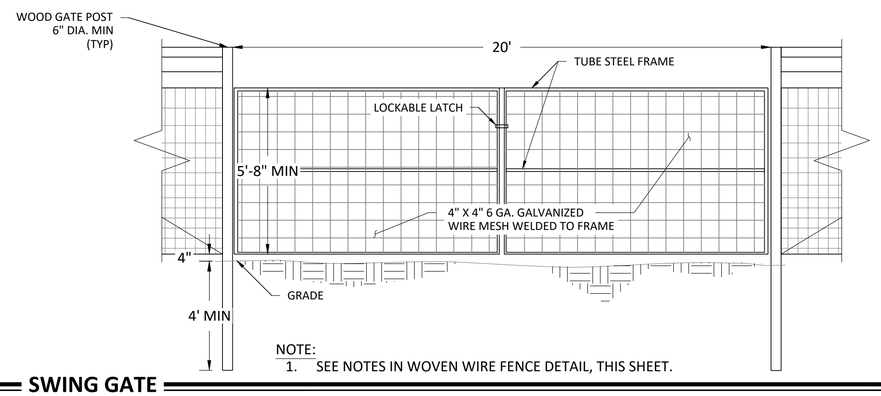
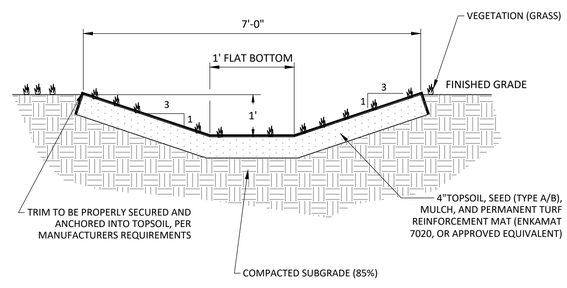


NOTE:

1. SEE NOTES IN WOVEN WIRE FENCE DETAIL, THIS SHEET.

5 SWING GATE

N.T.S.



6 GRASS-LINED SWALE

N.T.S.

Novel ENERGY SOLUTIONS
2303 Wycliff St, Suite 300
St Paul, MN 55114
info@novelenergy.biz
612-345-7188 telephone

Landowner
MAURICE A. HASKELL JR.

SOUTH CHINA, ME

Project
ME CHINA HASKELL 1 CSG LLC

Location
N44.422360°, W69.479179°

Certification

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed professional ENGINEER under the laws of the state of Maine.

SCOTT GEDDES, P.E.
Registration No. 16864 Date: MONTH/DAY/YEAR

If applicable, contact us for a wet signed copy of this plan which is available upon request at Novel Energy Solutions - St. Paul, MN office.

Summary

Designed: DAP Drawn: DAP
Approved: SEG Project: 22 349. 08
Phase: PERMITTING Initial Issue: 1/13/23

Revisions

No.	Date	By	Chk	Description
1	XX/XX	AAA	AAA	DESCRIPTION
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Sheet Title
CONSTRUCTION DETAILS

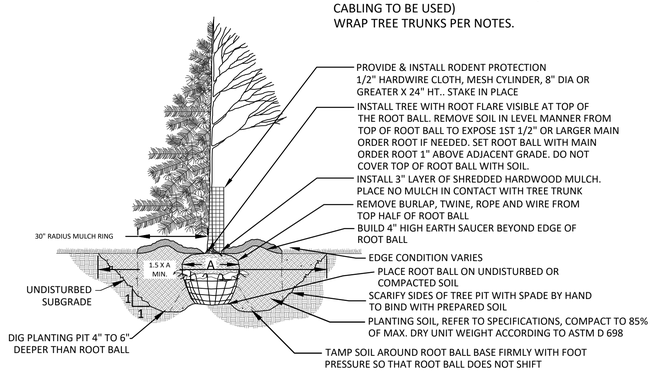
Sheet No. Revision
C9.01 IFP

Project No. CHINA

GENERAL NOTES

1. ALL SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE MAINE EROSION AND SEDIMENTATION CONTROL BEST MANAGEMENT PRACTICES (BMPS), PUBLISHED BY THE BUREAU OF LAND AND WATER QUALITY, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, LATEST EDITION.
2. THE CONTRACTOR SHALL INSPECT THE SITE AND BECOME FAMILIAR WITH THE EXISTING CONDITIONS RELATING TO THE NATURE AND SCOPE OF THE WORK.
3. THE CONTRACTOR SHALL VERIFY PLAN LAYOUT AND BRING TO THE ATTENTION OF THE ENGINEER DISCREPANCIES WHICH MAY COMPROMISE THE DESIGN OR INTENT OF THE LAYOUT.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE CODES, REGULATIONS, AND PERMITS GOVERNING THE WORK.
5. THE CONTRACTOR SHALL PROTECT EXISTING ROADS, CURBS/GUTTERS, TRAILS, TREES, LAWNS AND SITE ELEMENTS DURING CONSTRUCTION. DAMAGE TO SAME SHALL BE REPAIRED AND/OR REPLACED AT NO ADDITIONAL COST TO THE OWNER.
6. LOCATE AND VERIFY ALL UTILITIES, INCLUDING IRRIGATION LINES, WITH THE OWNER FOR PROPRIETARY UTILITIES AND DIG SAFE 48 HOURS BEFORE DIGGING. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND REPAIR OF ANY DAMAGES TO SAME. NOTIFY THE ENGINEER OF ANY CONFLICTS TO FACILITATE PLANT RELOCATION.
7. **THE LANDSCAPE CONTRACTOR SHALL COORDINATE THE PHASES OF CONSTRUCTION AND PLANTING INSTALLATION WITH OTHER CONTRACTORS WORKING ON SITE.**
8. THE CONTRACTOR SHALL REVIEW THE SITE FOR DEFICIENCIES IN SITE CONDITIONS WHICH MIGHT NEGATIVELY AFFECT PLANT ESTABLISHMENT, SURVIVAL OR WARRANTY. UNDESIRABLE SITE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO BEGINNING OF WORK.
9. THE PLAN TAKES PRECEDENCE OVER THE LANDSCAPE LEGEND IF DISCREPANCIES EXIST. QUANTITIES SHOWN IN THE PLANTING SCHEDULE ARE FOR THE CONTRACTOR'S CONVENIENCE. CONTRACTOR TO VERIFY QUANTITIES SHOWN ON THE PLAN.
10. THE SPECIFICATIONS TAKE PRECEDENCE OVER THE PLANTING NOTES AND GENERAL NOTES.
11. EXISTING TREES AND SHRUBS TO REMAIN SHALL BE PROTECTED TO THE DRIP LINE FROM ALL CONSTRUCTION TRAFFIC, STORAGE OF MATERIALS ETC. WITH 4' HT. ORANGE PLASTIC SAFETY FENCING ADEQUATELY SUPPORTED BY FENCE POSTS 6' O.C. MAXIMUM SPACING.
12. LONG-TERM STORAGE OF MATERIALS OR SUPPLIES ON-SITE WILL NOT BE ALLOWED.
13. CONTRACTOR SHALL REQUEST IN WRITING, A FINAL ACCEPTANCE INSPECTION.

NOTE:
CONTRACTOR SHALL MAINTAIN TREES IN A PLUMB POSITION THROUGHOUT THE WARRANTY PERIOD. IF STAKING IS REQUIRED BY SITE CONDITIONS, CONTRACTOR TO USE 2 OR 3 STAKE METHOD WITH 1" WEBBING AROUND TRUNK OF TREE (NO WIRE OR CABLING TO BE USED)
WRAP TREE TRUNKS PER NOTES.



1 C9.02 TREE PLANTING DETAIL

N.T.S.

PLANTING NOTES

1. NO PLANTS SHALL BE INSTALLED UNTIL FINAL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
2. A GRANULAR PRE-EMERGENT HERBICIDE SHALL BE APPLIED TO ALL PLANT BEDS AT THE MANUFACTURERS RECOMMENDED RATE PRIOR TO PLANT INSTALLATION.
3. ALL PLANTING STOCK SHALL CONFORM TO THE "AMERICAN STANDARD FOR NURSERY STOCK," ANSI-Z60, LATEST EDITION, OF THE AMERICAN ASSOCIATION OF NURSERYMEN, INC. AND SHALL CONSTITUTE MINIMUM QUALITY REQUIREMENTS FOR PLANT MATERIALS.
4. ALL PLANTS MUST BE HEALTHY, VIGOROUS MATERIAL, FREE OF PESTS AND DISEASE AND BE CONTAINER GROWN OR BALLED AND BURLAPPED AS INDICATED IN THE LANDSCAPE LEGEND.
5. PLANT MATERIALS TO BE INSTALLED PER PLANTING DETAILS.
6. ALL TREES MUST BE STRAIGHT TRUNKED AND FULL HEADED AND MEET ALL REQUIREMENTS SPECIFIED.
7. THE ENGINEER RESERVES THE RIGHT TO REJECT ANY PLANTS WHICH ARE DEEMED UNSATISFACTORY BEFORE, DURING, OR AFTER INSTALLATION.
8. NO SUBSTITUTIONS OF PLANT MATERIAL SHALL BE ACCEPTED UNLESS APPROVED IN WRITING BY THE ENGINEER.
9. ALL PLANT MATERIAL QUANTITIES, SHAPES OF BEDS AND LOCATIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETE COVERAGE OF ALL PLANTING BEDS AT SPACING SHOWN AND ADJUSTED TO CONFORM TO THE EXACT CONDITIONS OF THE SITE. THE ENGINEER SHALL APPROVE THE STAKING LOCATION OF ALL PLANT MATERIALS PRIOR TO INSTALLATION.
10. ALL PLANTING AREAS MUST BE COMPLETELY MULCHED AS SPECIFIED.
11. MULCH: SHREDDED HARDWOOD MULCH, CLEAN AND FREE OF NOXIOUS WEEDS OR OTHER DELETERIOUS MATERIAL, IN ALL MASS PLANTING BEDS AND FOR TREES, UNLESS INDICATED AS ROCK MULCH ON DRAWINGS. SUBMIT SAMPLE TO ENGINEER PRIOR TO DELIVERY ON-SITE FOR APPROVAL. DELIVER MULCH ON DAY OF INSTALLATION. USE 3" FOR SHRUB BEDS, TREE RINGS, AND 3" FOR PERENNIAL/GROUND COVER BEDS, UNLESS OTHERWISE DIRECTED.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MULCHES AND PLANTING SOIL QUANTITIES TO COMPLETE THE WORK SHOWN ON THE PLAN.
13. USE ANTI-DESICCANT (WILTPRUF OR APPROVED EQUAL) ON DECIDUOUS PLANTS MOVED IN LEAF AND FOR EVERGREENS MOVED ANYTIME. APPLY AS PER MANUFACTURER'S INSTRUCTION. ALL EVERGREENS SHALL BE SPRAYED IN THE LATE FALL FOR WINTER PROTECTION DURING WARRANTY PERIOD.
14. WRAP ALL SMOOTH-BARKED DECIDUOUS TREES PLANTED IN THE FALL PRIOR TO DECEMBER 1 AND REMOVE WRAPPING AFTER MAY 1. TREE WRAPPING MATERIAL SHALL BE WHITE TWO-WALLED PLASTIC SHEETING APPLIED FROM TRUNK FLARE TO THE FIRST BRANCH.
15. ALL DECIDUOUS, PINE, AND LARCH PLANTINGS SHALL RECEIVE RODENT PROTECTION.
16. PLANTING SOIL FOR TREES, SHRUBS AND GROUND COVERS: FERTILE FRIABLE LOAM CONTAINING A LIBERAL AMOUNT (4% MIN.) OF HUMUS AND CAPABLE OF SUSTAINING VIGOROUS PLANT GROWTH. MIXTURE SHALL BE FREE FROM HARDPACK SUBSOIL, STONES, CHEMICALS, NOXIOUS WEEDS, ETC. SOIL MIXTURE SHALL HAVE A PH BETWEEN 6.1 AND 7.5 AND 10-0-10 FERTILIZER AT THE RATE OF 3 POUNDS PER CUBIC YARD. IN PLANTING BEDS INCORPORATE THIS MIXTURE THROUGHOUT THE ENTIRE BED IN A 6" LAYER AND ROTO-TILLING IT INTO THE TOP 12" OF SOIL AT A 1:1 RATIO.ANY PLANT STOCK NOT PLANTED ON DAY OF DELIVERY SHALL BE HEELED IN AND WATERED UNTIL INSTALLATION. PLANTS NOT MAINTAINED IN THIS MANNER WILL BE REJECTED.
17. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THAT EACH EXCAVATED TREE AND SHRUB PIT WILL PERCOLATE PRIOR TO INSTALLING PLANTING MEDIUM AND PLANTS. THE CONTRACTOR SHALL FILL THE BOTTOM OF SELECTED HOLES WITH SIX INCHES OF WATER AND CONFIRM THAT THIS WATER WILL PERCOLATE WITHIN A 24-HOUR PERIOD. IF THE SOIL AT A GIVEN AREA DOES NOT DRAIN PROPERLY, A PVC DRAIN OR GRAVEL SUMP SHALL BE INSTALLED OR THE PLANTING SHALL BE RELOCATED IF DIRECTED BY THE ENGINEER.
18. ALL PLANTS SHALL BE GUARANTEED FOR TWO COMPLETE GROWING SEASONS (APRIL 1 - NOVEMBER 1), UNLESS OTHERWISE SPECIFIED. THE GUARANTEE SHALL COVER THE FULL COST OF REPLACEMENT INCLUDING LABOR AND PLANTS.
19. CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 3 DAYS PRIOR TO PLANNED DELIVERY. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 24 HOURS IN ADVANCE OF BEGINNING PLANT INSTALLATION.
20. SEASONS/TIME OF PLANTING AND SEEDING: NOTE: THE CONTRACTOR MAY ELECT TO PLANT IN OFF-SEASONS ENTIRELY AT HIS/HER RISK.
    - 20.1. DECIDUOUS /B&B: 4/1 - 6/1; 9/21 - 11/1
    - 20.2. EVERGREEN B&B: 4/1 - 5/1; 9/21 - 11/1
    - 20.3. NATIVE MIX SEEDING: 4/15 - 7/20; 9/20-10/20
21. MAINTENANCE SHALL BEGIN IMMEDIATELY AFTER EACH PORTION OF THE WORK IS IN PLACE. PLANT MATERIAL SHALL BE PROTECTED AND MAINTAINED UNTIL THE INSTALLATION OF THE PLANTS IS COMPLETE, INSPECTION HAS BEEN MADE, AND PLANTINGS ARE ACCEPTED EXCLUSIVE OF THE GUARANTEE. MAINTENANCE SHALL INCLUDE WATERING, CULTIVATING, MULCHING, REMOVAL OF DEAD MATERIALS, RE-SETTING PLANTS TO PROPER GRADE AND KEEPING PLANTS IN A PLUMB POSITION. AFTER ACCEPTANCE, THE OWNER SHALL ASSUME MAINTENANCE RESPONSIBILITIES. HOWEVER, THE CONTRACTOR SHALL CONTINUE TO BE RESPONSIBLE FOR KEEPING THE TREES PLUMB THROUGHOUT THE GUARANTEE PERIOD.

TREE GENERAL SPECIFICATIONS

1. ALL TREES SHALL HAVE SYMMETRICAL OR BALANCED BRANCHING ON ALL SIDES OF THE TREE.
2. TREES SHALL NOT BE TIPPED PRUNED.
3. TREES SHALL BE FREE OF PHYSICAL DAMAGE FROM SHIPPING AND HANDLING. DAMAGED TREES SHALL BE REJECTED.
4. SUMMER DUG TREES SHALL HAVE ROOTBALL SIZE INCREASED BY 20%

SEED AND MULCH SPECIFICATIONS

SEEDING

TYPE	LOCATION	NAME/SPECIES	SUPPLIER	SEEDING RATE
A/B	BETWEEN AND UNDER SOLAR PANELS	REBEL TALL FESCUE, CHEWINGS FESCUE OR HARD FESCUE	SEEDLAND.COM	5#/1,000 SF
		ERNMX-129: CONSERVATION SHADE MIX	ERNSTSEED.COM	
C	OUTSIDE OF ARRAY	ERNMX-179: BUTTERFLY & HUMMINGBIRD GARDEN MIX	ERNSTSEED.COM	10#/ACRE
1. BETWEEN DECEMBER 1ST AND APRIL 1ST, EACH TYPE OF SEED SHALL HAVE AN ADDITIONAL 1#/1,000 SF OF WINTER RYEGRASS OR GRAIN RYE GRASS SEED.				
2. IT SHALL BE THE SUB-CONTRACTORS RESPONSIBILITY TO ENSURE THAT THE PROJECT LIMIT OF WORK IS STABILIZED (IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS/REQUIREMENTS/PERMIT APPROVALS) DURING THE LENGTH OF THE PROJECT.				
3. ALL DISTURBED AREAS SHALL BE RESTORED WITH 4" MINIMUM TOPSOIL & SEED PER SEEDING SPECIFICATIONS LISTED IN THS TABLE.				

MULCH

CONDITION	TIMING	MULCH TYPE[2]	APPLICATION RATES[1]
TEMPORARY			
INACTIVE AREAS	IF NO ACTIVITY IN EXPOSED AREAS FOR 7 DAYS, OR PRIOR TO A STORM EVENT	STRAW MULCH OR WOOD FIBER MULCH OR EROSION CONTROL MIX	2 TONS/ACRE 1 TON/ACRE 2" THICK OVER AREA
ALL DISTURBED AREAS OF THE CONSTRUCTION WORKSPACE	APPLY MULCH TO ALL EXPOSED AREAS IF NO ACTIVITY OCCURS WITHIN 30 DAYS. APPLY MULCH AND TEMPORARY SEEDING SOONER WHEN IT CAN BE ANTICIPATED THAT ACTIVITY IS NOT GOING TO OCCUR WITHIN 30 DAYS	STRAW MULCH OR WOOD FIBER MULCH	2 TONS/ACRE 1 TON/ACRE[3]
ALL WORK AREAS EXPOSED ARE TO BE MULCHED DAILY EACH TIME SOIL IS DISTURBED[5]	NOVEMBER 1 - APRIL 15	STRAW MULCH OR WOOD FIBER MULCH	4 TONS/ACRE 2 TONS/ACRE
PERMANENT			
ON ALL EXPOSED AREAS AFTER SEEDING TO STABILIZE THE SOIL SURFACE	PERMANENT GRASS AND/OR LEGUME SEEDING COVERED BY STRAW MULCH ON ALL AREAS THAT HAVE BEEN RESTORED TO FINAL GRADE. THIS DOES NOT APPLY TO AREAS STABILIZED BY OTHER MEANS SUCH AS JUTE MATTING OR PERMANENT EROSION CONTROL MIX	CRIMPED STRAW MULCH OR PAPER MULCH OR WOOD FIBER MULCH	2 TONS/ACRE 1500 LC./ACRE[4] 1 TON/ACRE

NOTES:
1. IN ALL CASES, SUFFICIENT MULCH SHALL BE APPLIED SUCH THAT NO SOIL IS VISIBLE THROUGH THE MULCH.
2. DOUBLE RATE OF WOOD FIBER MULCH WHEN USED IN OR ADJACENT TO CRITICAL AREAS. INCREASE MULCH RATE BY HALF UNDER SOLAR ARRAY DRIP EDGE.
3. STRAW, HAY, OR HYDROMULCH (WOOD FIBER OR PAPER MULCH AS APPROPRIATE) SHALL PROVIDE MINIMUM 90 PERCENT GROUND COVERAGE.
4. PAPER MULCH IS ACCEPTABLE FOR USE DURING THE GROWING SEASON ON SLOPES >30 PERCENT AND IN AREAS WHERE VEGETATION HAS NOT ESTABLISHED WELL, ADDITIONAL HAY MULCH WILL BE ADDED AS A WINTERIZING MEASURE.
5. MULCH MAY NOT BE SPREAD ON TOP OF SNOW.

Novel ENERGY SOLUTIONS
2303 Wycliff St, Suite 300
St Paul, MN 55114
info@novelenergy.biz
612-345-7188 telephone

Landowner
MAURICE A. HASKELL JR.

SOUTH CHINA, ME

Project
ME CHINA HASKELL 1 CSG LLC

Location
N44.422360°, W69.479179°

Certification

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed professional ENGINEER under the laws of the state of Maine.

SCOTT GEDDES, P.E.
Registration No. 16864 Date: MONTH/DAY/YEAR

If applicable, contact us for a wet signed copy of this plan which is available upon request at Novel Energy Solutions - St. Paul, MN office.

Summary

Designed: DAP Drawn: DAP
Approved: SEG Project: 22 349. 08
Phase: PERMITTING Initial Issue: 1/13/23

Revisions

No.	Date	By	Chk	Description
1	XX/XX	AAA	AAA	DESCRIPTION
-	--	--	--	--
-	--	--	--	--
-	--	--	--	--
-	--	--	--	--
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-	--	--	--	--

Sheet Title
LANDSCAPING

Sheet No. Revision
C9.02 IFP

Project No. CHINA

APPENDIX III - PHOTOGRAPHS

- **Site Photographs**

PENDING

Will be updated at a later date

Prepared By: Novel Energy Solutions LLC 2303 Wycliff Street | Suite 300 | St. Paul, MN 55114 | Phone 612.345.7188 | https://www.novelenergysolutions.com

APPENDIX IV - LAND USE

- Custom Soil Report
- Protected Lands Map
- USGS Protected Lands Map
- Wild and Scenic Rivers Map
- Nationwide Rivers Inventory Map
- Farmland Classification

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Kennebec County, Maine

ME China Haskell 1 CSG

February 8, 2023

Preface

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

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

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

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

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

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

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Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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

69° 28' 58" W
69° 28' 32" W
44° 25' 28" N
44° 25' 16" N

Map Scale: 1:2,580 if printed on A landscape (11" x 8.5") sheet.

N

0 35 70 140 210 Meters

0 100 200 400 600 Feet

Map projection: Web Mercator Corner coordinates: 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 21, Aug 30, 2022

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
HrC	Lyman-Tunbridge complex, 8 to 15 percent slopes, rocky	0.1	1.2%
PdB	Paxton-Charlton fine sandy loams, 3 to 8 percent slopes	4.7	43.2%
PdC2	Paxton-Charlton fine sandy loams, 8 to 15 percent slopes, eroded	0.6	5.8%
PeB	Paxton-Charlton very stony fine sandy loams, 3 to 8 percent slopes	2.3	20.9%
PeD	Paxton-Charlton very stony fine sandy loams, 15 to 30 percent slopes	0.0	0.0%
WrB	Woodbridge fine sandy loam, 3 to 8 percent slopes	3.1	28.6%
WsB	Woodbridge very stony fine sandy loam, 3 to 8 percent slopes	0.0	0.2%
Totals for Area of Interest		**10.8**	**100.0%**

Map Unit Descriptions

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

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

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the

scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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

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

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

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

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

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

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

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

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

Kennebec County, Maine

HrC—Lyman-Tunbridge complex, 8 to 15 percent slopes, rocky

Map Unit Setting

National map unit symbol: 2x1cy
Elevation: 0 to 520 feet
Mean annual precipitation: 36 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Lyman and similar soils: 45 percent
Tunbridge and similar soils: 40 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lyman

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loam
E - 3 to 5 inches: fine sandy loam
Bhs - 5 to 7 inches: loam
Bs1 - 7 to 11 inches: loam
Bs2 - 11 to 18 inches: channery loam
R - 18 to 79 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 11 to 24 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 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: Low (about 3.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F144BY702ME - Shallow and Moderately-deep Till

Hydric soil rating: No

Description of Tunbridge

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
Oa - 3 to 5 inches: highly decomposed plant material
E - 5 to 8 inches: fine sandy loam
Bhs - 8 to 11 inches: fine sandy loam
Bs - 11 to 26 inches: fine sandy loam
BC - 26 to 28 inches: fine sandy loam
R - 28 to 79 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 21 to 41 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 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: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: F144BY702ME - Shallow and Moderately-deep Till
Hydric soil rating: No

PdB—Paxton-Charlton fine sandy loams, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9k0x
Elevation: 50 to 3,500 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 100 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Paxton and similar soils: 62 percent
Charlton and similar soils: 27 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paxton

Setting

Landform: Till plains
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy lodgment till derived from mica schist

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 31 inches: gravelly fine sandy loam
H3 - 31 to 65 inches: fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 18 to 40 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 24 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C/D
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Description of Charlton

Setting

Landform: Till plains
Landform position (three-dimensional): Dip
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy supraglacial meltout till derived from mica schist

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 30 inches: gravelly fine sandy loam
H3 - 30 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 8 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 6.00 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: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

PdC2—Paxton-Charlton fine sandy loams, 8 to 15 percent slopes, eroded

Map Unit Setting

National map unit symbol: 9k0y
Elevation: 0 to 3,500 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 100 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Paxton and similar soils: 60 percent
Charlton and similar soils: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paxton

Setting

Landform: Drumlins
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy lodgment till derived from mica schist

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 31 inches: gravelly fine sandy loam
H3 - 31 to 65 inches: fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 18 to 40 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)

Depth to water table: About 24 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C/D
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Description of Charlton

Setting

Landform: Drumlins
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy supraglacial meltout till derived from mica schist

Typical profile

H1 - 0 to 6 inches: fine sandy loam
H2 - 6 to 20 inches: gravelly fine sandy loam
H3 - 20 to 65 inches: gravelly 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 6.00 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: Moderate (about 6.2 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)
Hydric soil rating: No

PeB—Paxton-Charlton very stony fine sandy loams, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9k10
Elevation: 0 to 3,500 feet
Mean annual precipitation: 40 to 50 inches

Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 100 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Paxton and similar soils: 60 percent
Charlton and similar soils: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paxton

Setting

Landform: Till plains
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy lodgment till derived from mica schist

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 31 inches: gravelly fine sandy loam
H3 - 31 to 65 inches: fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 18 to 40 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 24 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C/D
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Description of Charlton

Setting

Landform: Till plains
Landform position (three-dimensional): Dip
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy supraglacial meltout till derived from mica schist

Typical profile

H1 - 0 to 2 inches: fine sandy loam
H2 - 2 to 24 inches: gravelly fine sandy loam
H3 - 24 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 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 6.00 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: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

PeD—Paxton-Charlton very stony fine sandy loams, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: 9k12
Elevation: 0 to 3,500 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 100 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Paxton and similar soils: 60 percent
Charlton and similar soils: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paxton

Setting

Landform: Drumlins
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy lodgment till derived from mica schist

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 31 inches: gravelly fine sandy loam
H3 - 31 to 65 inches: fine sandy loam

Properties and qualities

Slope: 15 to 30 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 18 to 40 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 24 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C/D
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Description of Charlton

Setting

Landform: Drumlins
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy supraglacial meltout till derived from mica schist

Typical profile

H1 - 0 to 2 inches: fine sandy loam
H2 - 2 to 24 inches: gravelly fine sandy loam
H3 - 24 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 15 to 30 percent
Surface area covered with cobbles, stones or boulders: 1.6 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 6.00 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: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

WrB—Woodbridge fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9k1r
Elevation: 80 to 930 feet
Mean annual precipitation: 43 to 46 inches
Mean annual air temperature: 45 degrees F
Frost-free period: 150 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Woodbridge

Setting

Landform: Till plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Coarse-loamy lodgment till derived from mica schist

Typical profile

H1 - 0 to 7 inches: fine sandy loam
H2 - 7 to 22 inches: fine sandy loam
H3 - 22 to 65 inches: fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 18 to 30 inches to densic material
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 16 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C/D
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

WsB—Woodbridge very stony fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9k1t
Elevation: 80 to 840 feet
Mean annual precipitation: 44 to 46 inches
Mean annual air temperature: 45 degrees F
Frost-free period: 150 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Woodbridge and similar soils: 87 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodbridge

Setting

Landform: Till plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Coarse-loamy lodgment till derived from mica schist

Typical profile

H1 - 0 to 7 inches: fine sandy loam
H2 - 7 to 22 inches: fine sandy loam
H3 - 22 to 65 inches: fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 18 to 30 inches to densic material
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 16 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C/D
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Hydric Rating by Map Unit

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

69° 28' 58" W
69° 28' 32" W
44° 25' 28" N
44° 25' 16" N

Map Scale: 1:2,580 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 35 70 140 210

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Lines
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Points
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

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 21, Aug 30, 2022

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.

Table—Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
HrC	Lyman-Tunbridge complex, 8 to 15 percent slopes, rocky	0	0.1	1.2%
PdB	Paxton-Charlton fine sandy loams, 3 to 8 percent slopes	0	4.7	43.2%
PdC2	Paxton-Charlton fine sandy loams, 8 to 15 percent slopes, eroded	0	0.6	5.8%
PeB	Paxton-Charlton very stony fine sandy loams, 3 to 8 percent slopes	0	2.3	20.9%
PeD	Paxton-Charlton very stony fine sandy loams, 15 to 30 percent slopes	0	0.0	0.0%
WrB	Woodbridge fine sandy loam, 3 to 8 percent slopes	0	3.1	28.6%
WsB	Woodbridge very stony fine sandy loam, 3 to 8 percent slopes	0	0.0	0.2%
Totals for Area of Interest			**10.8**	**100.0%**

Rating Options—Hydric Rating by Map Unit

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

References

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United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

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Protected Areas Map

Novel Energy Solutions

ME China Haskell 1 CSG LLC

10.8 acres

Maine

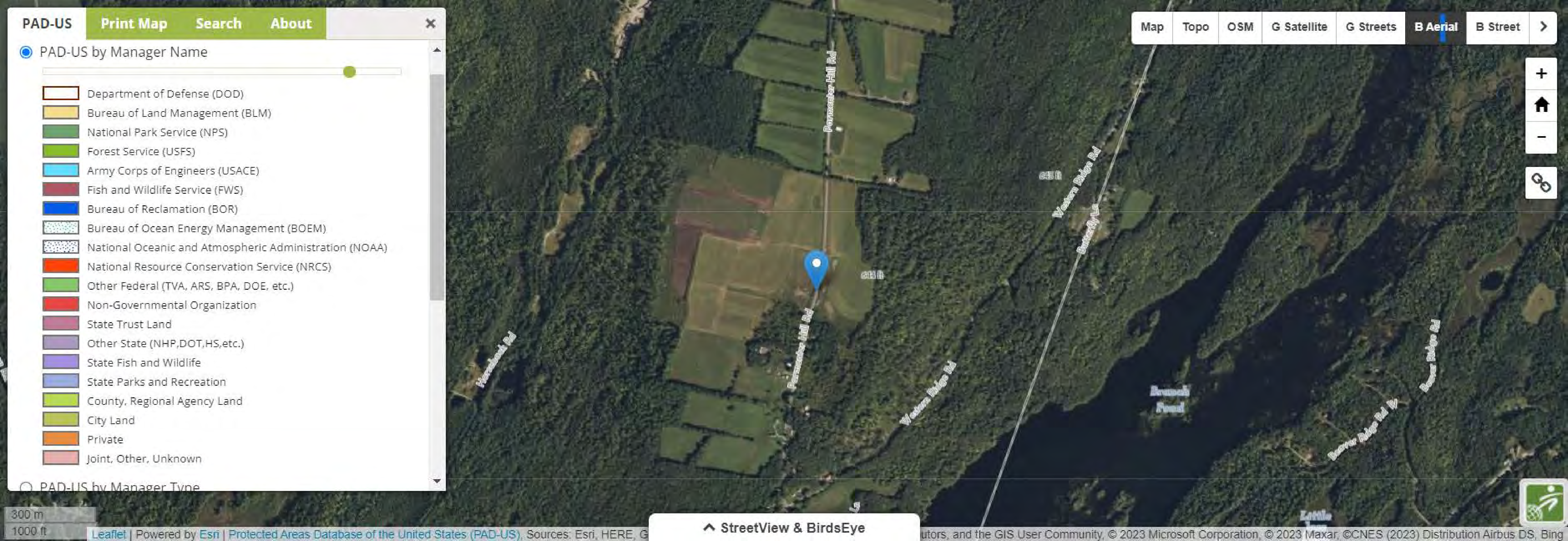
Kennebec County

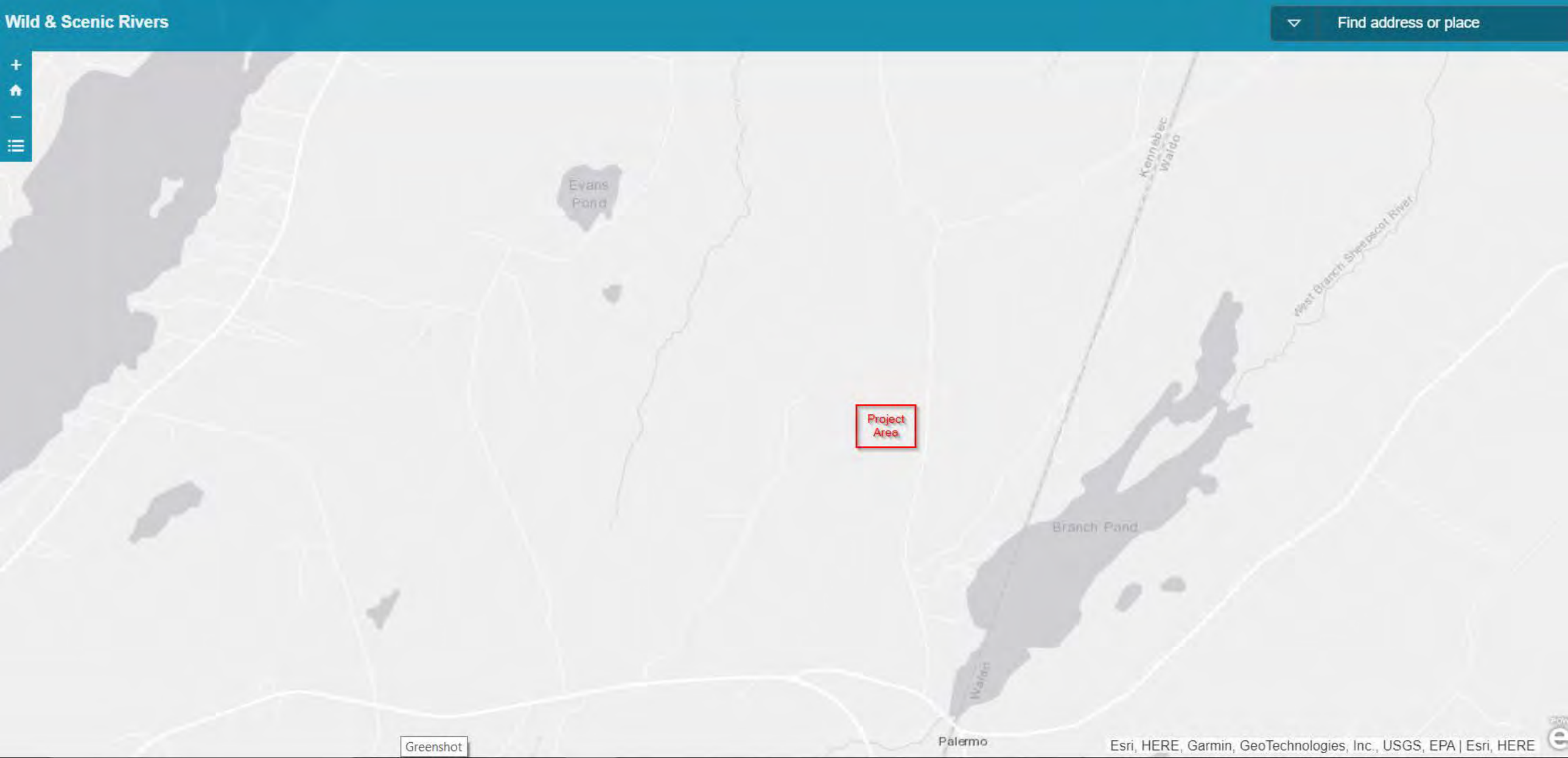
44.422967, -69.479316

transect

Legend

Buffer AOI

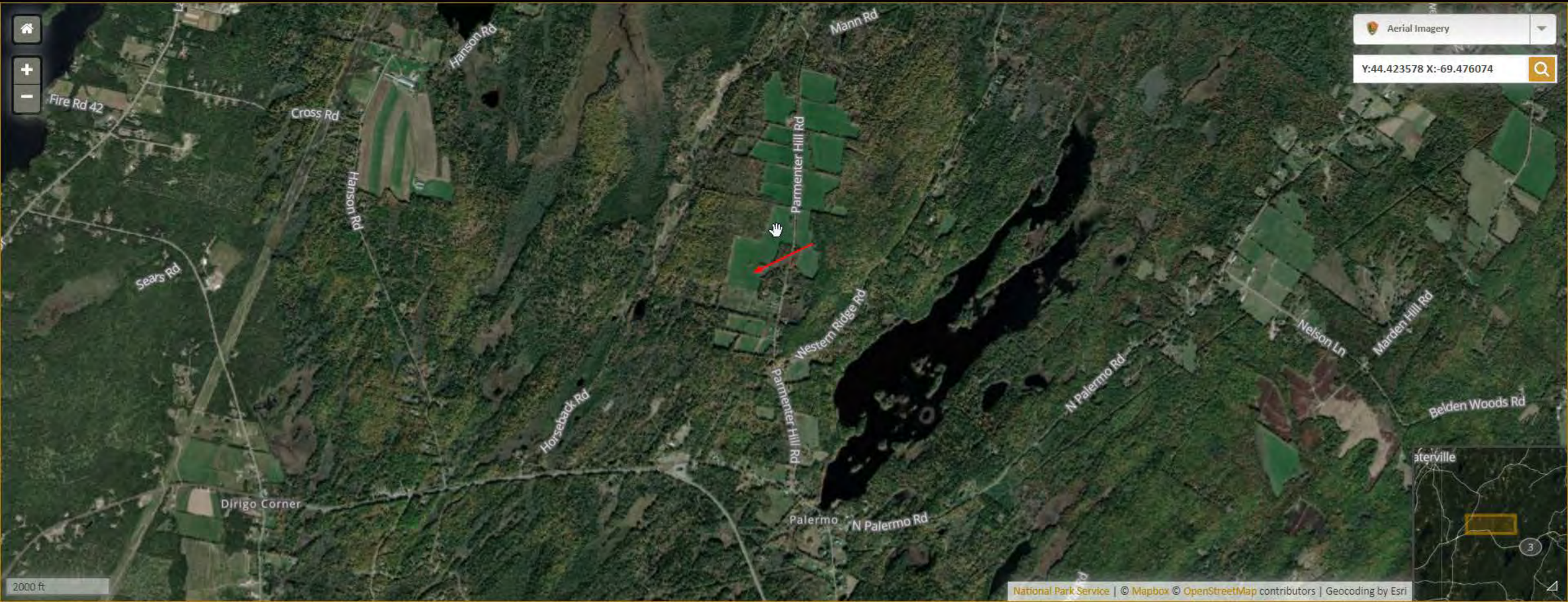

PAD-US
Print Map
Search
About
PAD-US by Manager Name
Department of Defense (DOD)
Bureau of Land Management (BLM)
National Park Service (NPS)
Forest Service (USFS)
Army Corps of Engineers (USACE)
Fish and Wildlife Service (FWS)
Bureau of Reclamation (BOR)
Bureau of Ocean Energy Management (BOEM)
National Oceanic and Atmospheric Administration (NOAA)
National Resource Conservation Service (NRCS)
Other Federal (TVA, ARS, BPA, DOE, etc.)
Non-Governmental Organization
State Trust Land
Other State (NHP,DOT,HS,etc.)
State Fish and Wildlife
State Parks and Recreation
County, Regional Agency Land
City Land
Private
Joint, Other, Unknown
PAD-US by Manager Type
Map
Topo
OSM
G Satellite
G Streets
B Aerial
B Street
300 m
1000 ft
StreetView & BirdsEye
Leaflet | Powered by Esri | Protected Areas Database of the United States (PAD-US). Sources: Esri, HERE, G
utors, and the GIS User Community, © 2023 Microsoft Corporation, © 2023 Maxar, ©CNES (2023) Distribution Airbus DS, Bing

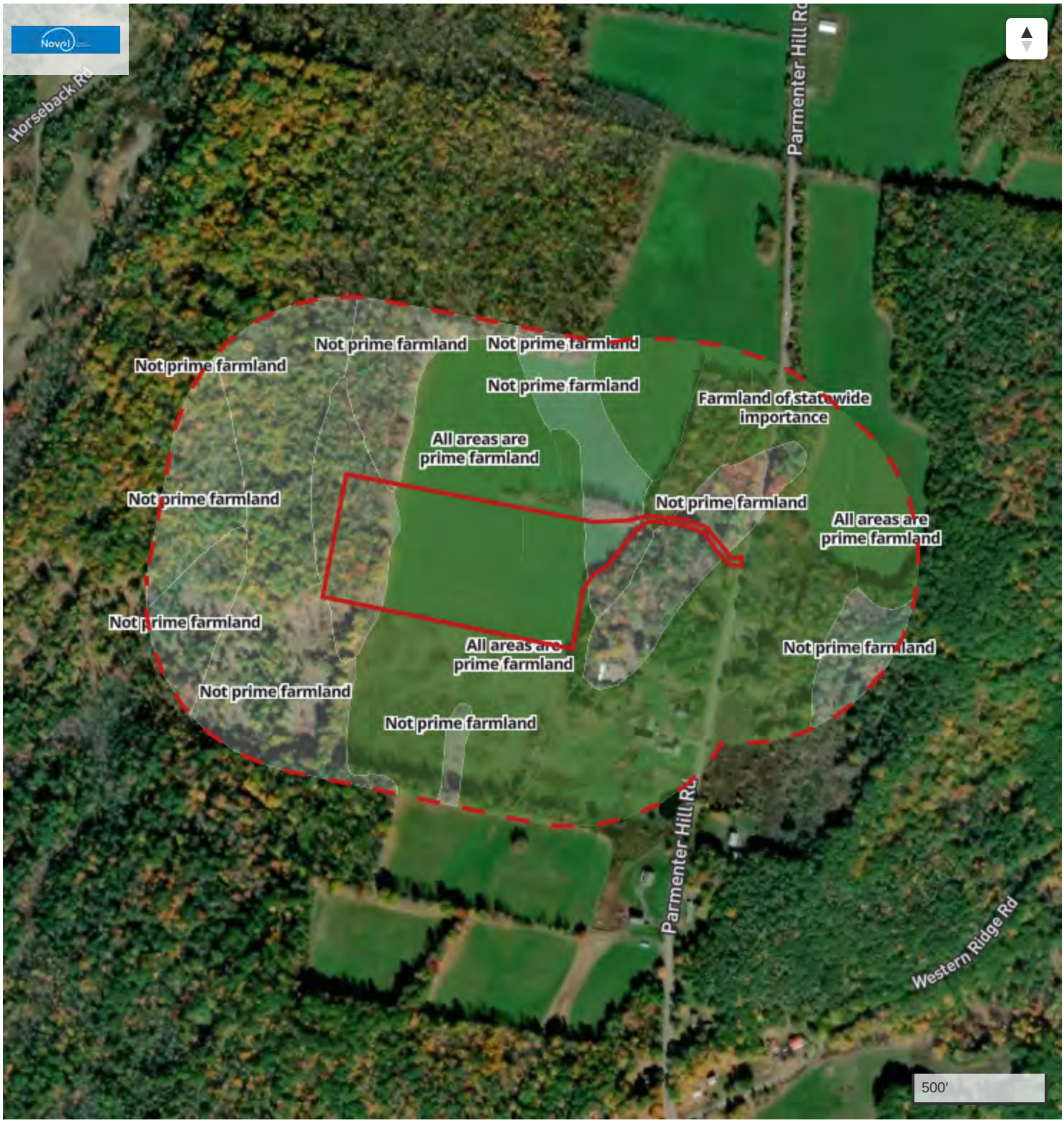

Wild & Scenic Rivers
Find address or place
Evans Pond
Kennebec
Waldo
West Branch Sheepscot River
Project Area
Branch Pond
Warren
Palermo
Greenshot
Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, EPA | Esri, HERE

Nationwide Rivers Inventory

This is a listing of more than 3,200 free-flowing river segments in the U.S. that are believed to possess one or more "outstandingly remarkable" values.

National Park Service
U.S. Department of the Interior





Farmland Classifications Map

Novel Energy Solutions

ME China Haskell 1 CSG LLC

10.8 acres

Maine

Kennebec County

44.422967, -69.479316

transect

Legend

Buffer AOI All areas are prime farmland

Farmland of statewide importance Not prime farmland

APPENDIX V - FLOODPLAINS

- **Floodplain map**
- **FIRM Panel**

Floodplains Map

Novel Energy Solutions

ME China Haskell 1 CSG LLC

10.8 acres

Maine

Kennebec County

44.422967, -69.479316

transect

Legend

Buffer AOI X;AREA OF MINIMAL FLOOD HAZARD

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) Report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS Report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study Report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study Report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 19N. The **horizontal datum** was NAD 83, GRS 1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713- 3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was derived from Main GIS. Base map files were provided in digital form by the Office of Maine GIS.Orthophoto images were produced at a scale of 1:2,400 and 1:4,800 dated spring of 2003 to spring of 2005.

The **profile baselines** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Based on updated topographic information, this map reflects more detailed and up-to-date **stream channel configurations and floodplain delineations** than those shown on the previous FIRM for this jurisdiction. As a result, the Flood Profiles and Floodway Data tables for multiple streams in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on the map. Also, the road to floodplain relationships for unrevised streams may differ from what is shown on previous maps.

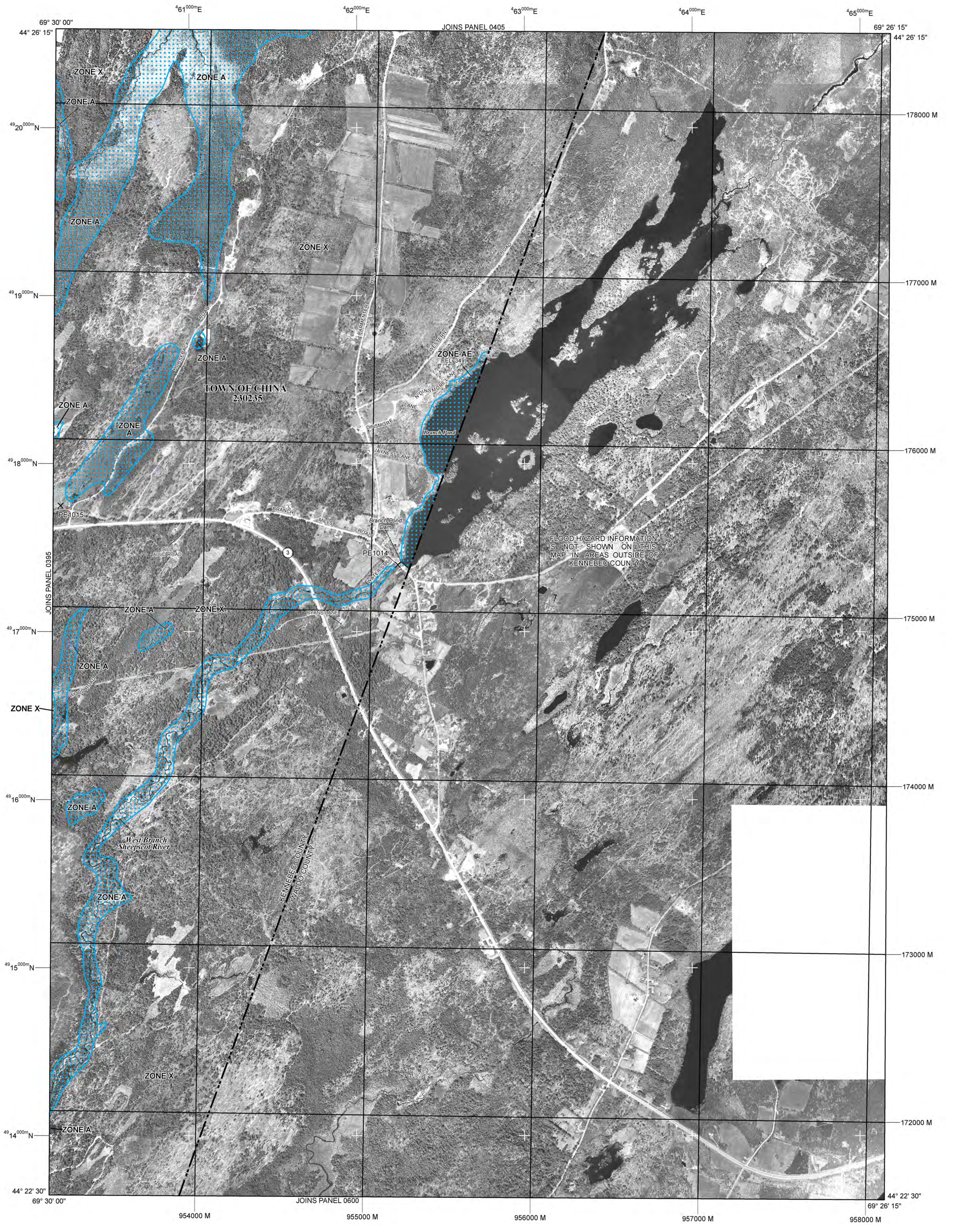
Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map,** how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.

State of Maine Floodway Note: Under the Maine Revised Statutes Annotated (M.R.S.A.) Title 38 § 439-A, 7C where the floodway is not designated on the Flood Insurance Rate Map, the floodway is considered to be the channel of a river or other water course and the adjacent land areas to a distance of one-half the width of the floodplain, as measured from the normal high water mark to the upland limit of the floodplain, unless a technical evaluation certified by a registered professional engineer is provided demonstrating the actual floodway based upon approved FEMA modeling methods.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% Annual Chance Floodplain Boundary

0.2% Annual Chance Floodplain Boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.

~~~513~~~ Base Flood Elevation line and value; elevation in feet*

(EL 987) Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

(A)——(A) Cross section line

(23)- - - -(23) Transect line

Culvert

Bridge

45° 02' 08", 93° 02' 12" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere

4989000 M 1000-meter ticks: Maine State Plane West Zone (FIPS Zone 1802), Transverse Mercator projection

4989000m N 1000-meter Universal Transverse Mercator grid values, zone 19N

DX5510 × Bench mark (see explanation in Notes to Users section of this FIRM panel)

• M1.5 River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
June 16, 2011

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'

500 0 1000 2000 FEET
300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0415D

FIRM

FLOOD INSURANCE RATE MAP

KENNEBEC COUNTY, MAINE
(ALL JURISDICTIONS)

PANEL 415 OF 775
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CHINA, TOWN OF	230235	0415	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
23011C0415D

EFFECTIVE DATE
JUNE 16, 2011

Federal Emergency Management Agency
~~~

APPENDIX VI – Wetlands and Protected Natural Resources

- **Protected Natural Resource Analysis Reports**
- **NWI Map**
- **Wetland and Waterways Map**

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING

SITE CONDITION REPORT

FOR

ME CHINA HASKELL CSG
CHINA, MAINE

Report Prepared For:
NOVEL ENERGY SOLUTIONS
2303 Wycliff Street, Suite 300 | St. Paul, Minnesota 55114

JUNE 23, 2023
JN: 13861.038

Report Prepared By:
Haley Ward, Inc.
One Merchants Plaza, Suite 701 | Bangor, Maine 04401

Corporate Office
One Merchants Plaza
Suite 701
Bangor, ME 04401
T: 207.989.4824
F: 207.989.4881

HALEYWARD.COM

INTRODUCTION

Haley Ward, Inc. (Haley Ward) has completed natural resource surveys on an approximately 11-acre parcel of land (the Site) located west of Parmenter Hill Road in China, Maine. Natural resource surveys were completed on May 24, 2023, to identify wetlands, streams, and vernal pools which are protected natural resources regulated by State and/or Federal agencies. The purpose of our work is to provide information to aid in Site planning and due diligence.

METHODOLOGY

Project Area: The Site is 11 acres of undeveloped land located west of Parmenter Hill Road in China, Maine. This area is a mix of open field and cut over woodland. Haley Ward's natural resource survey was completed on this 11-acre Site. A Site Location Map is included in Appendix A.

Wetlands and Waters of the US: Wetland delineation and characterization was completed on May 24, 2023, on the Site. Jurisdictional wetlands were delineated based on the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual and the routine determination method as outlined in the 2012 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*.

Jurisdictional "rivers, streams, or brooks" were identified using the definition provided in MRSA Title 38 §480-B (9) and guidance provided in Maine Department of Environmental Protection's (MDEP's) 2018 guidance manual *Natural Resource Protection Act (NRPA) Identification Guide for Rivers, Streams, and Brooks.*

Significant Wildlife Habitat/Vernal Pools: The Site was reviewed according to the definitions under Chapter 335 of the MDEP *Significant Wildlife Habitat Rules* and under *Section 404 of the Clean Water Act* as required by U.S. Army Corps of Engineers. A vernal pool survey was completed in accordance with Maine Department of Inland Fisheries and Wildlife (MDIFW) Guidelines on May 24, 2023. Based on MDIFW guidelines, this constitutes an in-season vernal pool survey.

Protected Species and Habitats: Haley Ward reviewed information available on State protected species and habitats through publicly available MDIFW data layers and through MDIFW's *Beginning with Habitat* data server. Haley Ward reviewed information available on Federal protected species and habitats through the U.S. Fish and Wildlife Service's Information for Planning and Consultation System (IPaC).

RESULTS AND DISCUSSION

General Project Area Overview: The Site is located west of Parmenter Hill Road in China, Maine. The Site is undeveloped field and cut over woodland. Site elevation ranges from approximately 482 to 620 feet above mean sea level, draining west to unnamed wetlands. Upland vegetation on the Site consisted of species such as red clover, wild strawberry, dandelion, foxtail species, pin cherry, raspberry, and quaking aspen.

Natural Resource Survey Results: Field surveys did not identify wetlands, streams, or vernal pools on the Site. A Natural Resource Map is included in Appendix B. Photographs of the Site are included in Appendix C.

Waterbodies: Waterbodies, streams, rivers, and/or brooks were not observed on the Site.

Wetlands: Wetlands were not observed on the Site.

Significant Wildlife Habitat – Vernal Pools: According to State databases, vernal pools are not documented on the Site or on abutting properties. The Site was surveyed by Haley Ward for vernal pools during the May 24, 2023, Site visit. Vernal pools were not identified.

Protected Species and Habitats: Based on a review of State databases, State Significant Wildlife Habitats are not located on the project Site. The nearest State Significant Wildlife Habitat is a candidate deer wintering area located approximately 500 feet west of the Site.

Review of Federal protected species and habitats in the Site area through the IPaC system determined that the project area is within the range of two federally protected species; Atlantic salmon (endangered) and Northern long-eared bat (endangered) and within the range of one candidate species (Monarch butterfly). Streams were not observed on the Site, and therefore, we do not anticipate impacts to Atlantic salmon or its critical habitat. As related to Northern long-eared bat, the Site is not within 0.25 miles of known hibernacula and known maternity roost trees are not present on the Site. Rocky features which can provide bat habitat, such as outcrops and boulder piles, were not observed on the Site. Monarch butterfly is a candidate species and listed for reference.

SUMMARY AND RECOMMENDATIONS

Natural resource surveys have been completed on the approximately 11-acre Site located west of Parmenter Hill Road in China, Maine. Haley Ward did not identify wetlands, streams, or vernal pools on the Site. The project area is within the range of two federally protected species; Atlantic salmon (endangered) and Northern long-eared bat (endangered). The nearest State Significant Wildlife Habitat is a candidate deer wintering area approximately 500 feet west of the Site.

We have reviewed the concept plans for the Site entitled ME China Haskell CSG Overall Site Plan, dated January 13, 2023. Natural resource impacts are not associated with these concept plans.

We recommend:

- Official consultation with State and Federal resource regulatory agencies regarding the presence of protected species and habitat on the Site.

REFERENCES

1. Environmental Laboratory. (2012). *"Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region V2.0."* ERDC/EL Technical Report TR-12-01, U.S. Army Engineer Research and Development Center, 3909 Halls Ferry Road, Vicksburg, MS 39180-6199.

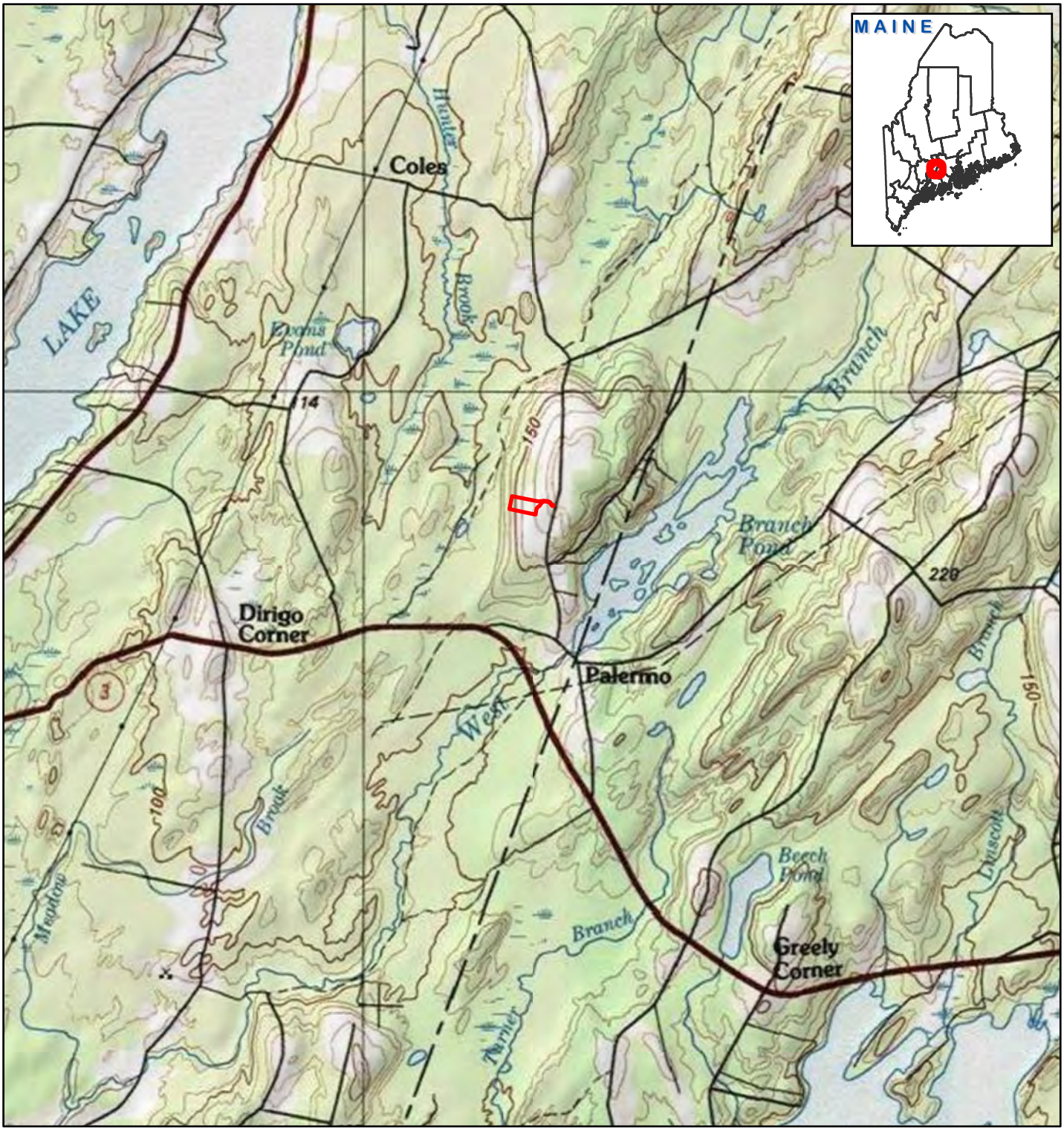
2. Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center Home Page. http://www.npwrc.usgs.gov/resource/1998/classwet/classwet.htm (Version 04DEC98).

3. Maine Association of Wetland Scientists, Vernal Pool Technical Committee. *Vernal Pool Survey Protocol*. Updated April 2014.

4. Danielson, T.J. 2018. *Natural Resource Protection Act (NRPA) Streams, Rivers, and Brooks.* Maine Department of Environmental Protection, Augusta, ME.

APPENDIX A

SITE LOCATION MAP



Legend

Natural Resource Survey Area

0 1,250 2,500 5,000

Feet

MAP NOTES:

1. MAP IS PROJECTED USING UTM ZONE19 COORDINATES, AND REFERENCES THE NORTH AMERICAN DATUM OF 1983 (NAD83).

2. NORTH ARROW IS ORIENTED TO GRID NORTH IN ALL MAP EXTENTS DEPICTED HEREIN.

3. SITE FEATURES ARE APPROXIMATE.

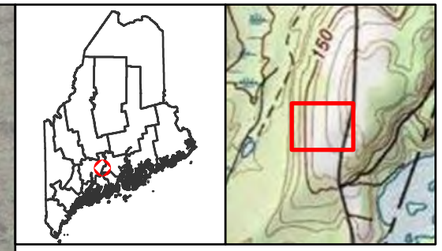
4. BASE MAP CREDITS:
Copyright:© 2013 National Geographic Society, i-cubed

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
1 Merchants Plaza, Suite 701
Bangor, ME 04401
WWW.HALEYWARD.COM 207-989-4824

CLIENT	NOVEL ENERGY SOLUTIONS
PROJECT	ME CHINA HASKELL CSG PARMENTER HILL ROAD, CHINA, MAINE
TITLE	LOCATION MAP
DATE	5/30/2023
PROJECT No.	13861.038
DRAWN BY	KOVERTURF
SCALE	1" = 5,000 '

APPENDIX B

NATURAL RESOURCE MAP



Legend

- Natural Resource Survey Area
- Upland Soil Boring

MAP NOTES:

1. MAP IS PROJECTED USING UTM ZONE19 COORDINATES, AND REFERENCES THE NORTH AMERICAN DATUM OF 1983 (NAD83).

2. NORTH ARROW IS ORIENTED TO GRID NORTH IN ALL MAP EXTENTS DEPICTED HEREIN.

3. BASE MAP CURTESY OF GOOGLE MAPS IMAGERY.

4. NATURAL RESOURCE FIELD SURVEYS WERE COMPLETED BY HALEY WARD, INC. IN MAY 2022 WITHIN THE NATURAL RESOURCE LIMIT. WETLANDS WERE IDENTIFIED IN ACCORDANCE WITH 1987 CORPS OF ENGINEERS WETLAND DELINEATION MANUAL AND THE 2012 NORTHCENTRAL AND NORTHEAST REGIONAL SUPPLEMENT (VERSION 2.0).

5. VERNAL POOL FIELD SURVEYS WERE COMPLETED IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS AND DEFINITIONS, AND THE MAWS VERNAL POOL SURVEY PROTOCOL.

6. NATURAL RESOURCE SITE FEATURES WERE LOCATED USING A SUB-METER CAPABLE TRIMBLE GEO XH (6000 SERIES). DATA WAS POST-PROCESSED ACCORDING TO MANUFACTURER'S RECOMMENDED POST-PROCESSING SETTINGS USING CORS REFERENCE STATIONS. UNDER CERTAIN CONDITIONS, THE POSITIONAL ERROR OF THE GPS DATA MAY EXCEED SUB-METER.

0 80 160 Feet

1 inch equals 150 feet

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
1 Merchants Plaza, Suite 701
Bangor, ME 04401
WWW.HALEYWARD.COM 207-989-4824

CLIENT	NOVEL ENERGY SOLUTIONS
PROJECT	CHINA HASKELL CSG PARMENTER HILL ROAD, CHINA, MAINE
TITLE	NATURAL RESOURCE MAP
DATE	5/24/2023
PROJECT No.	13861.038
DRAWN BY	KOVERTURF
SCALE	1" = 150 '

APPENDIX C

PHOTOGRAPHS

Photo No. 1	
Photo Date: 5/24/2023	
Site Location: Parmenter Hill Road China, Maine	
Description: Site access from Parmenter Hill Road.	
Photo By: KAO	

Photo No. 2	
Photo Date: 5/24/2023	
Site Location: Parmenter Hill Road China, Maine	
Description: Site upland in the field area.	
Photo By: KAO	

Photo No. 3	
Photo Date: 5/24/2023	
Site Location: Parmenter Hill Road China, Maine	
Description: Upland in the cut over area.	
Photo By: KAO	

Wetlands and Waterways Map

Novel Energy Solutions

ME China Haskell 1 CSG LLC

10.8 acres

Maine

Kennebec County

44.422967, -69.479316

transect

Legend

Buffer AOI Freshwater Pond

U.S. Fish and Wildlife Service
National Wetlands Inventory

ME China Haskell 1 CSG

February 8, 2023

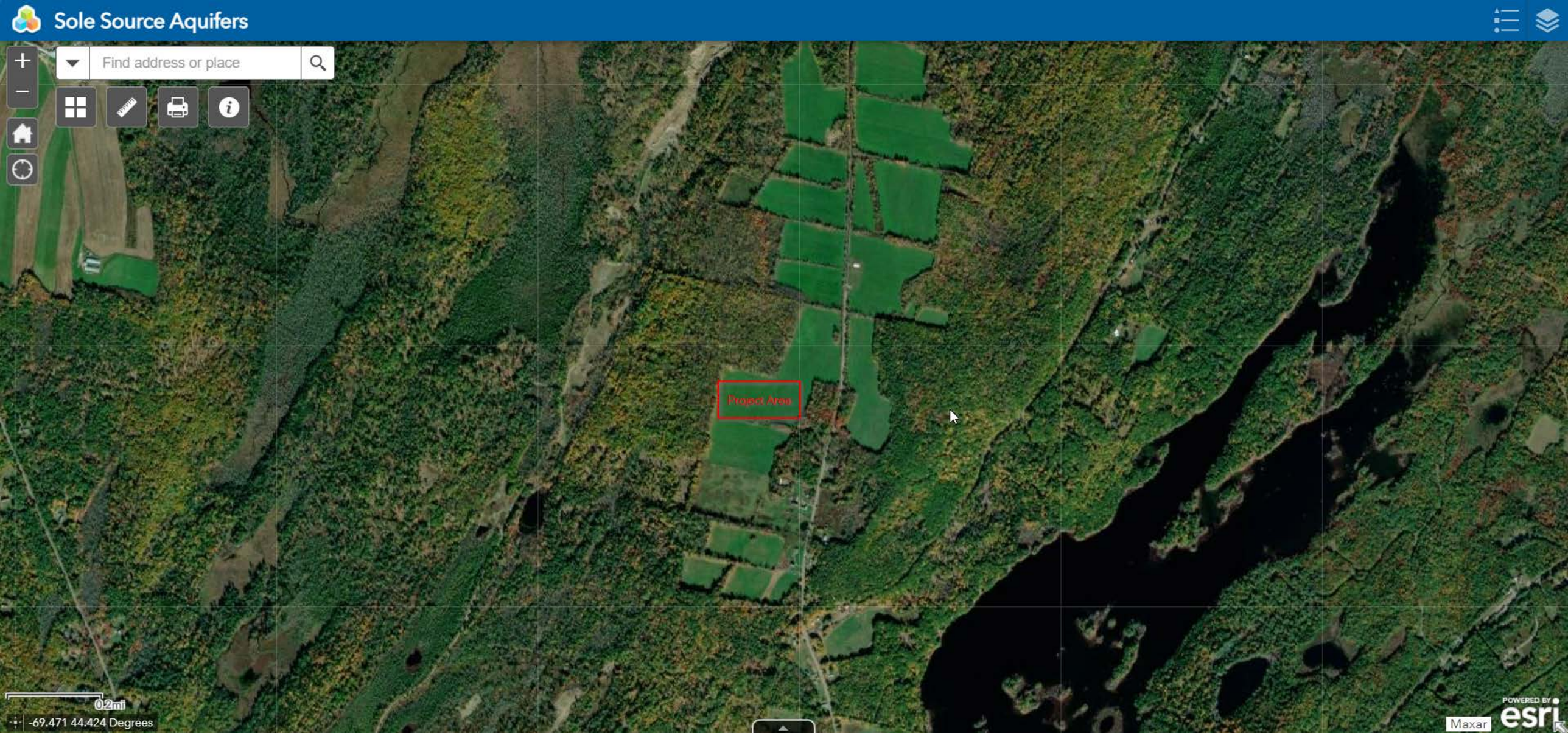
Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

APPENDIX VII - WATER RESOURCES

- **Sole Source Aquifer Map**


Sole Source Aquifers
Find address or place
Project Area
0.2mi
-69.471 44.424 Degrees
Maxar
POWERED BY esri

APPENDIX VIII - BIOLOGICAL RESOURCES

- **USFWS IPaC Report - Official Species List**
- **Correspondence with Local Agencies (MDIFW/MNAP)**
- **Bald Eagle Map**

2303 Wycliff Street, Suite 300
St. Paul, MN 55114
O: 612.345.7188
NovelEnergy.Biz

February 1, 2023

John Perry, Environmental Review Coordinator
Maine Department of Inland Fisheries and Wildlife
284 State Street, Augusta, ME 04333
Email Address: John.Perry@maine.gov

RE: Maine Department of Inland Fisheries of Wildlife Review
ME China Haskell 1 CSG
South China, Kennebec County, ME

Dear Mr. Perry,

ME China Haskell 1 CSG LLC is seeking review of the ME China Haskell 1 CSG project (Proposed Project) slated for 2023. ME China Haskell 1 CSG LLC proposes to install a 0.975 MW solar array facility at approximately 44.4235776, -69.4760743, off of Parameter Hill Road in South China. The Proposed Project will be situated on approximately 10.5 acres (Proposed Project Area) of a larger parent parcel identified as parcel number 45-005-A. In order to augment the planning process for the proposed development, we are interested in obtaining information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and inland fisheries habitat concerns within and around our project area. A project sketch and topo map showing the Proposed Project has been included to assist in your determination.

Please send your comments to the below email address. If you have any questions concerning this proposal, please contact Robin Brigham at robin.brigham@novelenergy.biz and copy environmental@novelenergy.biz.

The following reference materials have been included for your information:

- Location Maps (including USGS Topographical Map)
- Proposed Project KMZ file (attached to email)

Regards,

Novel Energy Solutions LLC

Robin Brigham
Manager of Environmental Compliance

JANET T. MILLS
GOVERNOR

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

JUDITH CAMUSO
COMMISSIONER

March 6, 2023

Robin Brigham
Novel Energy Solutions, LLC
2303 Wycliff Street, Suite 300
St. Paul, MN 55114

RE: Information Request – ME China Haskell 1 CSG Project, China

Dear Robin:

Per your request received on February 01, 2023, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and inland fisheries habitat concerns within the vicinity of the *ME China Haskell 1 CSG* project in China. Note that as project details are lacking, our comments are non-specific and should be considered preliminary.

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

Endangered, Threatened, and Special Concern Species

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

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

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

Significant Wildlife Habitat

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

Fisheries Habitat

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

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

Wildlife Permeable Fencing

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

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

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

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

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

Best regards,

Becca Settele
Wildlife Biologist

2303 Wycliff Street, Suite 300
St. Paul, MN 55114
O: 612.345.7188
NovelEnergy.Biz

February 1, 2023

Lisa St. Hilaire, Information Manager
Maine Natural Areas Program
177 State House Station, Augusta, ME 04333
Email Address: Lisa.St.Hilaire@maine.gov

RE: Maine Natural Areas Program Review Letter
ME China Haskell 1 CSG
South China, Kennebec County, ME

Dear Ms. St. Hilaire,

ME China Haskell 1 CSG LLC is seeking review of the ME China Haskell 1 CSG project (Proposed Project) slated for 2023. ME China Haskell 1 CSG LLC proposes to install a 0.975 MW solar array facility at approximately 44.4235776, -69.4760743, off of Parameter Hill Road in South China. The Proposed Project will be situated on approximately 10.5 acres (Proposed Project Area) of a larger parent parcel identified as parcel number 45-005-A.In order to augment the planning process for the proposed development, we are interested in obtaining information regarding any rare or exemplary botanical features in our project area. A project sketch and topo map showing the Proposed Project has been included to assist in your determination. If you have any questions or require further information, please do not hesitate to contact me.

Please send your comments to the below email address. If you have any questions concerning this proposal, please contact Robin Brigham at robin.brigham@novelenergy.biz and copy environmental@novelenergy.biz.

The following reference materials have been included for your information:

- Location Maps (including USGS Topographical Map)
- Proposed Project KMZ file (attached to email)

Regards,

Novel Energy Solutions LLC

Robin Brigham
Manager of Environmental Compliance

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

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

February 6, 2023

Robin Brigham
Novel Energy Solutions
2303 Wycliff Street, Suite 300
St. Paul, MN 55114

Via email: robin.brigham@novelenergy.biz

Re: Rare and exemplary botanical features in proximity to: ME China Haskell 1 CSG Solar Array, Parmenter Hill Road, China, Maine

Dear Ms. Brigham:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received February 1, 2023 for information on the presence of rare or unique botanical features documented from the vicinity of the project in China, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

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

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

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

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

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

DEPARTMENT OF Agriculture Conservation & Forestry

PHONE: (207) 287-8044
WWW.MAINE.GOV/DACF/MNAP

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

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

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

Sincerely,

Lisa St. Hilaire

Lisa St. Hilaire | Information Manager | Maine Natural Areas Program
207-287-8044 | lisa.st.hilaire@maine.gov

Rare and Exemplary Botanical Features within 4 miles of
Project: ME China Haskell 1 CSG Solar Array, Parmenter Hill Road, China, ME

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Fall Fimbry						
	SC	S2S3	G5	2003-10-05	26	Open wetland, not coastal nor rivershore (non-forested,
Shining Ladies'-tresses						
	T	S1	G4	1915-06-25	10	Non-tidal rivershore (non-forested, seasonally wet),Open

Date Exported: 2023-02-06 13:56

Conservation Status Ranks

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

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

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

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

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

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

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

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

maine DEPARTMENT OF Agriculture Conservation & Forestry
NATURAL AREAS

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 04431
Phone: (207) 469-7300 Fax: (207) 902-1588

In Reply Refer To:
Project Code: 2023-0038645
Project Name: ME China Haskell 1 CSG

March 28, 2023

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

To Whom It May Concern:

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

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

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

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

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

This species list is provided by:

Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 04431
(207) 469-7300

PROJECT SUMMARY

Project Code: 2023-0038645
Project Name: ME China Haskell 1 CSG
Project Type: Power Gen - Solar
Project Description: 0.975 MW Solar Garden approx. 10 acres est. construction 2023
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@44.4229679,-69.48019131561759,14z

Counties: Kennebec County, Maine

ENDANGERED SPECIES ACT SPECIES

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

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

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

MAMMALS

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis*	Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9045

FISHES

NAME	STATUS
Atlantic Salmon *Salmo salar*	Endangered

Population: Gulf of Maine DPS
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/2097

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate

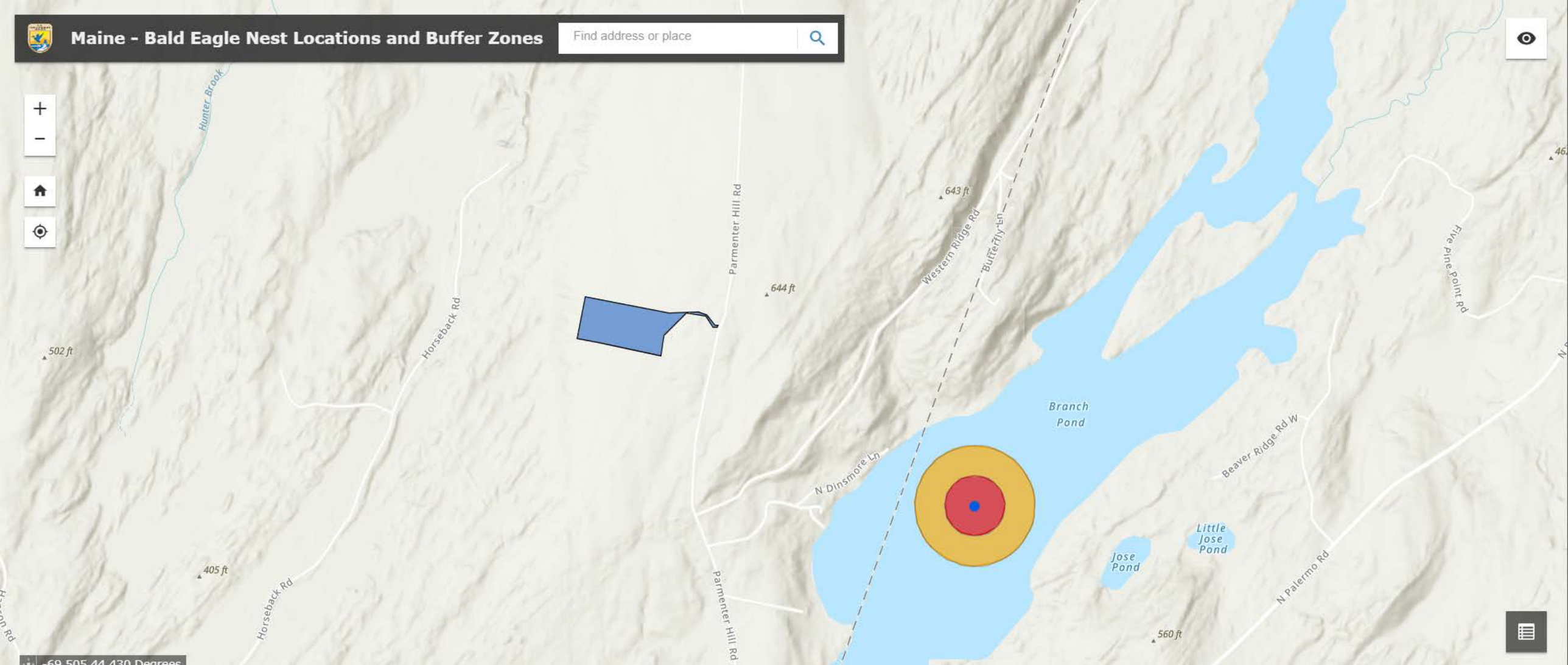
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9743

CRITICAL HABITATS

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

IPAC USER CONTACT INFORMATION

Agency:	Novel Energy Solutions
Name:	Matt Reid
Address:	2303 Wycliff Street
Address Line 2:	Suite 300
City:	St. Paul
State:	MN
Zip:	55114
Email	matt.reid@novelenergy.biz
Phone:	6513233029


Maine - Bald Eagle Nest Locations and Buffer Zones
Find address or place
Hunter Brook
Parmenter Hill Rd
644 ft
Horseback Rd
502 ft
405 ft
Horseback Rd
Parmenter Hill Rd
643 ft
Western Ridge Rd
Butterfly Ln
Five Pine Point Rd
Branch Pond
N Dinsmore Ln
Beaver Ridge Rd W
Little Jose Pond
Jose Pond
N Palermo Rd
560 ft
-69.505,44.430 Degrees

APPENDIX IX - CULTURAL RESOURCES AND HISTORIC PROPERTIES

- **MHPC Correspondence**
- **THPO Correspondence**

Matt Reid
Environmental Specialist
Novel Energy Solutions LLC
2303 Wycliff Street, STE 300
St. Paul, MN 55114

February 1, 2023

Maine Historic Preservation Commission
65 State House Station
Augusta, ME 04333

Subject: Request for Project Review
ME China Haskell 1 CSG
South China, ME

Dear Maine Historic Preservation Commission:

The ME China Haskell 1 CSG Project (Proposed Project) involves the installation of a 1.2-megawatt (MW) DC ground mounted photovoltaic (PV) solar facility off Parameter Hill Road, approximately 18.9 miles Northeast of State Street, in the Town of Augusta. The Proposed Project will be situated on approximately 10.5 acres (Proposed Project Area) of a larger, parent parcel identified as parcel number 45-005-A by the Kennebec County tax assessor. No structures exist within the Proposed Project Area. Currently and historically, the Proposed Project Area is an agricultural field.

This letter serves as a request for the Maine Historic Preservation Commission (MHPC) to review and comment on the Proposed Project's effect on historic resources. The Proposed Project will require the following permits:

- *Maine Department of Environmental Protection: Stormwater Permit by Rule*

The Proposed Project would include the development of a ground mounted solar array facility, supporting utility infrastructure, limited gravel access drives and equipment pad areas, fencing, landscape buffers, and native ground cover establishment. Visual screening, in the form of tree planting, is generally located along project entrance and around the edge of the Proposed Project to prevent visual impacts. The exact location of visual screening for this project is yet to be determined. The estimated duration of construction is approximately 9 months. The primary equipment and machinery that will be on-site includes forklifts for material transportation, pile drivers to install the steel pilings, and small excavators for trenching electrical equipment. When the Proposed Project has reached its operation end, the Proposed Project Area can be returned to its pre-construction state.

The proposed groundcover under the solar array will prioritize pollinator friendly, native species and a controlled maintenance program to promote the habitat. Unlike most forms of development, the project surface area will largely remain pervious. By maintaining a high percentage of permeability with the implementation of native groundcover, the Proposed Project will be able to increase organic matter and the quality of the soils, along with providing a pathway for surface water to infiltrate into the soil in a productive manner. As for technical operations, monitoring of the Proposed Project and Area will be done remotely from a Regional Operational Center. It is anticipated that there will be, on average, 1-2 vehicular trips to the Proposed Project Area per month by a standard utility-truck.

The purpose of the Proposed Project is to provide a source of long-term renewable energy for rural Maine residents. ME China Haskell 1 CSG can provide reliable power to customers in Kennebec County, at competitive rates. Additionally, Maine residents have expressed interest in procuring clean power from a solar farm; however, rooftop solar is cost prohibitive for most families due to the high upfront cost. The Proposed Project solves this dilemma by providing solar power from a solar farm located within Maine. The Applicant is responding to a regional need for an affordable and reliable supply of electric power at competitive rates to Maine residents.

On February 1, 2023, Novel Energy Solutions (NES) notified the following five federally recognized tribes about the Proposed Project:

- *Houlton Band of Maliseet Indians*
- *Mi'kmaq Nation*
- *Passamaquoddy Tribe of Indians (Pleasant Point and Indian Township Reservations)*
- *Penobscot Nation*

The following reference materials have been included for your review:

- *7.5 USGS topographic map with the project boundaries delineated.*
- *If applicable, photos of any buildings over fifty years of age that are on, adjacent to, or across the street from the Proposed Project area.*
- *Preliminary site plans*

Accordingly, NES is submitting this project review request cover letter and supporting documentation for review by the MHPC.

Please provide your response, within 30 days of your receipt of this project review request.

Sincerely,

Matt Reid
Environmental Specialist
Novel Energy Solutions LLC

CC
Robin Brigham – Manager of Environmental Compliance (robin.brigham@novelenergybiz)
Environmental Team (environmental@novelenergy.biz)

Matt Reid
Environmental Specialist
Novel Energy Solutions LLC
2303 Wycliff Street, STE 300
St. Paul, MN 55114

February 1, 2023

Maine Historic Preservation Commission
65 State House Station
Augusta, ME 04333

Subject: Request for Project Review
ME China Haskell 1 CSG
South China, ME

Dear Maine Historic Preservation Commission:

The ME China Haskell 1 CSG Project (Proposed Project) involves the installation of a 1.2-megawatt (MW) DC ground mounted photovoltaic (PV) solar facility off Parameter Hill Road, approximately 18.9 miles Northeast of State Street, in the Town of Augusta. The Proposed Project will be situated on approximately 10.5 acres (Proposed Project Area) of a larger, parent parcel identified as parcel number 45-005-A by the Kennebec County tax assessor. No structures exist within the Proposed Project Area. Currently and historically, the Proposed Project Area is an agricultural field.

This letter serves as a request for the Maine Historic Preservation Commission (MHPC) to review and comment on the Proposed Project's effect on historic resources. The Proposed Project will require the following permits:

- *Maine Department of Environmental Protection: Stormwater Permit by Rule*

The Proposed Project would include the development of a ground mounted solar array facility, supporting utility infrastructure, limited gravel access drives and equipment pad areas, fencing, landscape buffers, and native ground cover establishment. Visual screening, in the form of tree planting, is generally located along project entrance and around the edge of the Proposed Project to prevent visual impacts. The exact location of visual screening for this project is yet to be determined. The estimated duration of construction is approximately 9 months. The primary equipment and machinery that will be on-site includes forklifts for material transportation, pile drivers to install the steel pilings, and small excavators for trenching electrical equipment. When the Proposed Project has reached its operation end, the Proposed Project Area can be returned to its pre-construction state.

The proposed groundcover under the solar array will prioritize pollinator friendly, native species and a controlled maintenance program to promote the habitat. Unlike most forms of development, the project surface area will largely remain pervious. By maintaining a high percentage of permeability with the implementation of native groundcover, the Proposed Project will be able to increase organic matter and the quality of the soils, along with providing a pathway for surface water to infiltrate into the soil in a productive manner. As for technical operations, monitoring of the Proposed Project and Area will be done remotely from a Regional Operational Center. It is anticipated that there will be, on average, 1-2 vehicular trips to the Proposed Project Area per month by a standard utility-truck.

The purpose of the Proposed Project is to provide a source of long-term renewable energy for rural Maine residents. ME China Haskell 1 CSG can provide reliable power to customers in Kennebec County, at competitive rates. Additionally, Maine residents have expressed interest in procuring clean power from a solar farm; however, rooftop solar is cost prohibitive for most families due to the high upfront cost. The Proposed Project solves this dilemma by providing solar power from a solar farm located within Maine. The Applicant is responding to a regional need for an affordable and reliable supply of electric power at competitive rates to Maine residents.

On February 1, 2023, Novel Energy Solutions (NES) notified the following five federally recognized tribes about the Proposed Project:

- *Houlton Band of Maliseet Indians*
- *Mi'kmaq Nation*
- *Passamaquoddy Tribe of Indians (Pleasant Point and Indian Township Reservations)*
- *Penobscot Nation*

The following reference materials have been included for your review:

- *7.5 USGS topographic map with the project boundaries delineated.*
- *If applicable, photos of any buildings over fifty years of age that are on, adjacent to, or across the street from the Proposed Project area.*
- *Preliminary site plans*

Accordingly, NES is submitting this project review request cover letter and supporting documentation for review by the MHPC.

Please provide your response, within 30 days of your receipt of this project review request.

Sincerely,

Matt Reid

Matt Reid
Environmental Specialist
Novel Energy Solutions LLC

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

2/13/23
Date

MHPC # 0175-23

CC
Robin Brigham - Manager of Environmental Compliance (robin.brigham@novelenergybiz)
Environmental Team (environmental@novelenergy.biz)

Tribal Historic Preservation Office
Mi'kmaq Nation (Formerly known as the Aroostook Band of Micmac)
Kendyl Reis
Tribal Historic Preservation Officer
7 Northern Road
Presque Isle, ME 04769
Phone: (207)764-1972 ext. 161
kreis@micmac-nsn.gov

ME China Haskell 1 CSG - Kennebec
February 27th, 2023

Based on the project description, we do not have knowledge of any specific sites or cultural features that exist at the proposed project location(s).

However, this geographic area does constitute traditional areas that were historically utilized by members of the Mi'kmaq Nation and the other Wabanaki Tribes. Therefore, we respectfully request that if during the course of excavation/construction activities, human remains, artifacts, or any other evidence of Native American presence is discovered, that site activities in the vicinity of the discovery immediately cease, pending notification to us.

In addition, if this project results in wetland disturbances requiring mitigation, we are requesting that you utilize the black ash (Fraginus nigra) as the principal wetland species for wetland restoration activities. The black ash tree has special significance in the culture of the northeastern Tribes and is used extensively for weaving baskets and other Native American crafts. The black ash tree also provides valuable food and habitat for migratory waterfowl and other wildlife. Unfortunately, however, this species has been selected against by foresters and landowners who favor other tree species. As a result of this, and other environmental factors, the black ash tree is in serious decline in Maine. The Mi'kmaq Nation has completed several black ash wetland restoration projects and have a dependable source for highly-quality seedlings, and the experience and expertise to assist you with black ash wetland restoration projects.

On the subject of human remains, artifacts, or any other evidence of Native American presence is discovered. The human remains will be reburied with the appropriate respect for the remains that is required at a distinctive and respectable site. The artifacts and other evidence of Native American discovery will be documented with appropriate detail. The items will be analyzed for the precise period of the items' distinctive period and will be documented by the Tribal Historic Preservation Officer for the Mi'kmaq Nation.

If you have any questions or comments, please feel free to contact me.

Sincerely,

Kendyl Reis
Tribal Historic Preservation Officer

Tribal Historic Preservation Office
Passamaquoddy Tribe
PO Box 159 Princeton, Me. 04668
207-214-4051

February 13, 2023

Matt Reid | Environmental Specialist
Novelle

- Re: China – Haskell Solar Project

Dear Matt;
The Passamaquoddy THPO has reviewed the following applications regarding the historic properties and significant religious and cultural properties in accordance with NHPA, NEPA, AIRFA, NAGPRA, ARPA, Executive Order 13007 Indian Sacred Sites, Executive Order 13175 Consultation and Coordination with Indian Tribal Governments, and Executive Order 12898 Environmental Justice.

The Projects listed above will not have any impact on cultural and historical concerns of the Passamaquoddy Tribe. Should buried artifacts, human remains, cultural sites or ground features be unexpectedly unearthed during ground disturbing activities, all construction should immediately cease and the resources be examined by a professional archaeologist. Additionally, all appropriate authorities-including all pertinent tribal entities should be notified.

Sincerely;

Donald Soctomah
Soctomah@gmail.com
THPO
Passamaquoddy Tribe

APPENDIX X - HUMAN HEALTH AND SAFETY

- **Phase I Environmental Assessment**

PENDING

Will be updated at a later date

Prepared By: Novel Energy Solutions LLC 2303 Wycliff Street | Suite 300 | St. Paul, MN 55114 | Phone 612.345.7188 | https://www.novelenergysolutions.com