HALEY WARD

APPLICATION FOR MAJOR SITE PLAN REVIEW

TO THE TOWN OF YARMOUTH

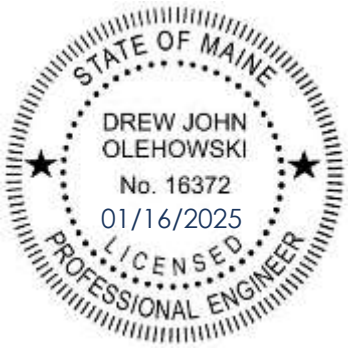
FOR SMITH STREET COMMERCIAL SOLAR ENERGY SYSTEM

Map 5, Lot 15 Yarmouth, Maine

APPLICANT:

YARMOUTH SOLAR 1, LLC

55 Technology Drive, Suite 102 | Lowell, MA 01851



JANUARY 2025
JN: 12869.060

APPLICATION PREPARED BY:

Haley Ward, Inc.

One Merchants Plaza, Suite 701 | Bangor, ME 04401

HALEY WARD

January 16, 2025

Ms. Erin Zwirko
Town of Yarmouth
200 Main Street
Yarmouth, Maine 04096

Re: Smith Street Solar Farm | Major Site Plan Application

Dear Erin:

On behalf of Yarmouth Solar 1, LLC, Haley Ward, Inc. (Haley Ward) is pleased to submit a Major Site Plan Application for a proposed large-scale commercial solar energy system located at 0 Lafayette Street for Staff and Planning Board review.

A pre-application meeting was held on March 18, 2024. During the meeting, the Town indicated that the development would be subject to Major Site Plan Review.

We make this submission with the intent of being placed on the next available Planning Board Public Hearing agenda, at which time the Board might consider finding an approval action for the project.

The proposed development is located on a 47.59-acre parcel identified on the Yarmouth Tax Map as Map 5, Lot 15. The proposed solar farm will generate 0.999 megawatts of power and will consist of approximately eight acres of developed area. Along with the proposed solar energy system, the development will include an access road, security fence, and stormwater management features.

The Exhibits listed below and presented throughout this application are intended to demonstrate that the proposed development will maintain compliance with the Town's performance standards for Major Site Developments.

EXHIBIT	SECTION
1	Location Map
2	Construction Schedule
3	Evidence of Corporate Status
4	Title, Right, or Interest
5	Current Owner's Deed
6	Easements
7	HOA
8	Financial Capacity
9	Consultants

120 MAIN STREET, SUITE 132, SACO, ME 04072 207.283.9151 | HALEYWARD.COM

EXHIBIT	SECTION
10	Solid Waste
11	Water
12	Traffic
13	Drainage and Topography Description
14	Stormwater Management Plan
15	Erosion and Sedimentation Control Plan
16	High Intensity Soil Report and Site Conditions
17	State and Federal Approvals
18	Site Plan and Performance Standards Compliance
19	Town Cessions
20	Waivers
21	Nuisances
22	Operation and Maintenance Plan
23	Technical Data Sheets
24	Site Plans

Eighteen copies of this submission have been included for your use. We look forward to working with Town staff and the Planning Board. If you have any questions regarding the information being submitted, please contact our office.

Sincerely,
Haley Ward, Inc.

Drew Olehowski, PE
Project Manager

DJO/jok
Enc.

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APPLICATION

Application Form
Agent Authorization

TOWN OF YARMOUTH

Department of Planning and Development
200 Main Street Yarmouth, Maine 04096
(207)846-2401 WWW.YARMOUTH.ME.US Fax: (207)846-2438

SITE PLAN APPLICATION FORM

☐ **Minor** ☑ **Major**

Date: 12/17/2024 **Zoning District** MDR **Map** 5 **Lot** 15 **Ext**_____

Site Location 0 LAFAYETTE STREET
Property Owner ROMAN CATHOLIC BISHOP
Mailing Address 510 OCEAN AVENUE PORTLAND, ME 04103-4936
E-mail Address COMMENTS@PORTLANDDIOCESE.ORG
Phone 207-773-6471 Fax_____

Name of Project SMITH STREET SOLAR
Existing Use CEMETARY AND UNDEVELOPED/WOODED
Proposed Use LARGE-SCALE COMMERCIAL SOLAR ENERGY SYSTEM

Amendment to a previously approved site plan? Yes ____ No X
Special exception use? Yes ____ No X

Fee: $100.00/1000 sq. ft.; up to $3000.00

The Department of Planning and Development shall send notices to all property owners at a minimum of 500 feet including a description of the proposal. Letters will be at a cost of $5/letter to the applicant.

The Town will correspond with only one contact person/agent for this project. Please provide the requested information regarding the contact person/agent.

Contact person/agent DREW OLEHOWSKI, PE
Mailing Address HALEY WARD, INC., 120 MAIN STREET, #132, SACO, ME 04072
E-mail Address DOLEHOWSKI@HALEYWARD.COM
Phone 207-989-4824 Fax_____

I certify that, to the best of my knowledge, all information provided in this application form and accompanying materials is true and accurate.

_____
Signature of Owner
(If signed by Owner's agent, provide written documentation of authority to act on behalf of applicant.)

"I authorize appropriate staff within the Yarmouth Planning Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to collect facts pertaining to my application."

DREW OLEHOWSKI
_____
Print or type name and title of signer

1. PROJECT DESCRIPTION

A. In a separate document please describe the overall project objectives and proposed uses of property, including quantity and type of residential units (if any).

B. Project details

1. Name and approval date of subdivision this site is in (if applicable)
   SMITH STREET SOLAR. PROJECT SITE IS NOT WITHIN A SUBDIVISION.
   Subdivision lot numbers (if applicable) N/A
2. Assessor's Map number(s) 5 Lot number(s) 15
3. Existing zone(s) of the site
   MEDIUM DENSITY RESIDENTIAL, LOW DENSITY RESIDENTIAL, SHORELAND OVERLAY
   Shoreland Overlay District X Yes ____ No
   Affordable Housing District ____ Yes X No
   Mobile Home Park Overlay ____ Yes X No
4. a. Total land area of site (all contiguous land in same ownership)
   47.59 ACRES
   b. Total floor area of each proposed building in square feet
   N/A
   c. Footprint of each proposed building in square feet
   N/A
   d. Height of proposed building(s) N/A feet_____ stories
   e. Total number of proposed parking spaces 0
   f. Number of proposed handicap parking spaces 0

C. Existing conditions

1. Existing land use UNDEVELOPED
2. Total floor area of each existing building in square feet
   N/A
3. Footprint of each existing building in square feet
   N/A

D. Attach as Exhibit #1 a map such as the Maine Atlas and Gazetteer map (clean photocopies are acceptable). Indicate the location of your project on map.

E. Construction sequence

1. Estimated time of start of project SUMMER 2025
   Estimated time of completion of project FALL 2026
2. Is this to be a phased project? Yes___ No X
3. Attach as Exhibit #2 a construction schedule outlining the anticipated sequence of construction (beginning and completion) for the major aspects of the proposed project, including roads, erosion control and drainage measures, structures, sewer and water lines, other utilities, paving, landscaping.

2. RIGHT, TITLE, OR INTEREST

A. Name and mailing address of record owner of the site
   ROMAN CATHOLIC BISHOP OF PORTLAND
   510 OCEAN AVENUE
   PORTLAND, ME 04103-4936
   Phone 207-773-6471 Fax _____

B. Attach as Exhibit #3 evidence of corporate or partnership status, if applicant is not an individual.

C. Attach as Exhibit #4 evidence of applicant's right, title, or interest in the site. A complete copy of the document must be provided; financial information may be deleted.
D. Attach as Exhibit #5 a copy of the current owner's existing deed for the site.
E. Attach as Exhibit #6 summary lists of all existing and all proposed easements or other burdens for this property. More detailed information may be required, depending on the particular circumstances of the site.
F. If a condominium, homeowners, or property owners association will be established, attach as Exhibit #7 the articles of incorporation, the Declaration of Covenants and Responsibilities, and the proposed by-laws of the organization.

3. FINANCIAL CAPACITY

A. Estimated cost of the project (including land purchase and development costs)
$5,842,000

B. Attach as Exhibit #8 evidence of your financial capacity to complete the proposed development. Submit one or more of the following (please check as appropriate):

_____ 1. A written statement from the applicant's bank or a certified public accountant who recently has audited the applicant's finances stating that the applicant has cash reserves in the amount of the estimated cost of the project and can devote those reserves to the project.

_____ 2. When the applicant will personally finance the development, provide copies of bank statements or other evidence, which will indicate availability of funds, and evidence that the applicant can devote these funds to the project.

_____ 3. The most recent corporate annual report showing availability of sufficient funds to finance the development, together with a statement from the applicant that the funds are available and will be used for the proposed project.

_____ 4. A letter from a financial institution, governmental agency, or other funding agency, which indicates a timely commitment to provide a specified amount of funds and the uses for which the funds may be utilized.

_____ 5. In cases where outside funding is required, but there can be no commitment of money until regulatory approvals are received, a formal letter of "intent to fund upon approval" from a funding institution indicating the amount of funds it is prepared to provide, their specified uses and the conditions on which funds will be made available.

4. TECHNICAL ABILITY

A. List all projects undertaken by the applicant within the last five years, beginning with the most recent project:
THE APPLICANT HAS COMPLETED NUMEROUS SOLAR PROJECTS THROUGHOUT MAINE. NOTEABLE, THE SURRY ROAD, ROOSEVELT TRAIL, AND KATAHDIN AVENUE SOLAR FARMS. ADDTIONALLY, THE APPLICANT HAS OBTAINED THE SERVICES OF HALEY WARD, INC., A 300+ EMPLOYEE CIVIL ENGINEERING FIRM WITH 40+ YEARS OF EXPERIENCE WORKING ON PROJECTS THROUGHOUT THE STATE.

B. Have done no prior projects _____

C. Attach as Exhibit #9 a list of all consultants retained for this proposed project, such as engineers, architects, landscape architects, environmental consultants; and those firms or personnel who will be responsible for constructing, operating and maintaining the project.

5. SOLID WASTE

Attach as Exhibit #10 an explanation of the proposed method of collection, removal, and disposal for anticipated solid waste from this project.

6. WATER

Attach as Exhibit #11 written confirmation from the Yarmouth Water District that it can supply the proposed development and that the proposed plan has been approved by the District. If the

applicant proposes a private supply, provide evidence that a sufficient and healthful water supply is available for the proposed development.

7. TRAFFIC

Attach as Exhibit #12 a written evaluation and demonstration of the adequacy and availability of adjacent streets to serve the proposed project. If you must submit a full traffic study to DEP, provide two (2) copies with this application. (see Ch. 702 H.2.)

8. SANITARY SEWERS AND STORM DRAINS

A. Estimated sewage gallons per day for the completed project
NONE
Please note that the Town Manager must approve new sanitary sewer connections that are considered sewer extensions.

B. Will this project generate industrial or non-sanitary waste that will enter the public sewer or drains? No X Yes ___
If yes, please describe proposed types and amounts:
_____
_____

C. If a subsurface wastewater disposal system is proposed, provide evidence that it conforms to the requirements of the State Plumbing Code.

9. SURFACE DRAINAGE AND-RUNOFF, STORMWATER MANAGEMENT

A. Attach as Exhibit #13 a description of any problems of drainage or topography, or a representation that, in the opinion of the applicant, there are none.

B. Attach as Exhibit #14 a complete stormwater management plan, including drainage calculations for pre- and post-development for 2 yr. and 25 yr. storm events, a drainage plan, and an assessment of any pollutants in the stormwater runoff, that meets the requirements of Chapter 702, Review Criteria re Stormwater Management.

10. EROSION AND SEDIMENTATION CONTROL

A. Attach as Exhibit #15 a written description of erosion and sedimentation control measures to be used during and after construction of the proposed project.

B. Show on a plan the proposed location, type, and detail of erosion control devices, unless this information is included on a site plan drawing.

11. SOILS

A. Attach as Exhibit #16 a high intensity soils classification report, including description of soils and interpretation of engineering properties. Include geotechnical report, if applicable.

B. Show on a plan the existing soil conditions on the site, unless this information is included on a site plan drawing. Include wetlands delineation and report, if applicable.

12. SITE PLAN ORDINANCE REQUIREMENTS

A. Attach as Exhibit #17 list of approvals needed from other agencies, such as the General Board of Appeals, Army Corps of Engineers, and Maine Department of Environmental Protection.

B. Attach as Exhibit #18 a written statement that explains how the project complies with the site plan review criteria and with specific performance standards required in the zoning district, if applicable. If applicable, please note how the proposal specifically complies with the separate components of the Route One Corridor Design Guidelines.

C. Attach as Exhibit #19 a summary list and a written offer of cession to the Town of all proposed streets, utilities and open space proposed for dedication.

D. Attach as Exhibit #20 all requests for waivers including an explanation of the undue hardship or special design requirements, which are the basis for the requests.

E. Attach as Exhibit #21 a written explanation of all potential nuisances associated with this project and how they will be mitigated, or a representation that, in the opinion of the

applicant, there are none.

13. SITE PLAN DRAWINGS, MAPS

A. Site plan drawings
   a. paper no larger than 24" x 36", with all drawings in a set the same size
   b. bound and folded no larger than 9" x 12", with project name shown on front face of folded plan
   c. number and date drawings, with space for revision dates
   d. scale of the drawings shall be between 1"=20' and 1"=50'
   e. show the entire parcel in single ownership, plus off-site easements

B. Title block shall include:
   a. identification of plan as "Site Plan"; "Amended" if applicable
   b. name and address of project
   c. name(s) and address(es) of site owner and of applicant
   d. name and address of plan designer(s)

C. Location map shall include:
   a. abutting property within one thousand feet of project boundaries
   b. outline of proposed project
   c. zoning district(s) of abutting properties
   d. at least one street intersection

D. North arrow and scale.

E. General plan notes shall include:
   a. zoning district and list of applicable dimensional regulations comparing the required and proposed
   b. proposed number of units
   c. required and proposed number of parking spaces
   d. total square footage of existing and proposed buildings
   e. square footage of proposed building footprint
   f. all requested waivers
   g. indication if proposed structure is to be sprinklered
   h. total square footage for each use, if applicable

F. Name, location, width of existing and proposed streets.

G. A Boundary Survey, Category 1, Condition 2, showing site boundaries.

H. Setbacks as required by zoning ordinance; zone line if site is transected by a zone line or if zone line is within 30 feet of the boundaries of the site.

I. Existing and proposed contours at 2' intervals. Show l' contours and/or spot elevations if sufficient detail cannot be shown with 2' contours.

J. Buildings, structures, and signs
   a. location, dimensions, shape, facade elevations, entrances, materials, colors of exterior of proposed buildings, structures, and signs. (see Ch. 701, II, C, E, F)
   b. description of all finish surface materials
   c. location, dimensions, shape of existing buildings
   d. building's setbacks from property line, if different from required yard setbacks

K. Names of abutting property owners and locations of buildings and curb cuts on abutting properties.

L. Locations and dimensions of parking areas, loading and unloading facilities, driveways, fire lanes, access points. Give typical parking space dimensions. (see Ch. 701, II H; Ch. 702, J.1, 2, 3)

M. Location of all existing and proposed easements and rights-of-way, including identification of who has or will receive the easement.

N. Location, dimensions, materials of existing and proposed pedestrian access ways.
O. Location and size of existing and proposed utilities, both on-site and in adjoining public ways. Location of nearest existing hydrant. Include installation details for proposed utilities.
P. Construction drawings showing plans, profiles, cross-sections, and details of appurtenances for sanitary sewer and storm drainage systems.
Q. Location, height, wattage, bulb type of exterior and building-mounted lighting. Photometric plan consistent with requirements of site plan and zoning ordinances. (See Ch. 701, II X; Ch. 702, J. 4)
R. Location and description of existing natural features, such as wetlands, watercourses, marshes, rock outcroppings, stands of trees. Natural features to be preserved must be identified on plan.
S. Existing and proposed landscaping, fencing, screening. Include fence dimensions, location, material, and a table showing number of plants of each species, common and botanical names. Include planting and preservation details, if applicable. Indicate proposed snow storage area, if applicable. (see Ch. 701, II Y, and Ch. 702 J. 5)
T. Grades, street profiles, typical cross-section, and specifications of proposed streets and sidewalks. These must meet the standards of Ch. 601, Article IV.
U. A description of any right-of-way, street, sidewalk, open space, or other area the applicant proposes to designate as public.
V. Name, registration number, seal, and signature of all registered professionals (engineer, land surveyor, architect, landscape architect, etc.) who prepared the plan.
W. First floor finished floor elevation(s) for all proposed buildings.
X. If project is within the RP district, extent of floodway and floodway fringe.
Y. If project is within Shoreland Overlay District, show required setbacks.

Please be advised to keep in touch with the Director of Planning and Development throughout the process, 846-2401; fax 846-2403. Your responsiveness will help the process to run smoothly.

CONDITIONS OF APPROVAL

The property shown on this plan may be developed and used only as depicted on this approved plan. All elements and features of the plan and all representations made by the applicant concerning the development and use of the property which appear in the record of the Planning Board proceedings are conditions of approval. No change from the conditions of approval is permitted unless an amended plan is first submitted to and approved by the Planning Board.

Surface Water and Groundwater: No owner of a lot, his agents, or successors in interest shall alter the natural course of surface water on any lot in a way which would alter the natural flow of such water across any other parcel, unless such alteration is approved by the owners of all parcels affected. No owner of a lot, his agents, or successors in interest shall use blasting chemicals that generate perhlorates.

EXHIBIT F

January 26, 2024

To Whom It May Concern,

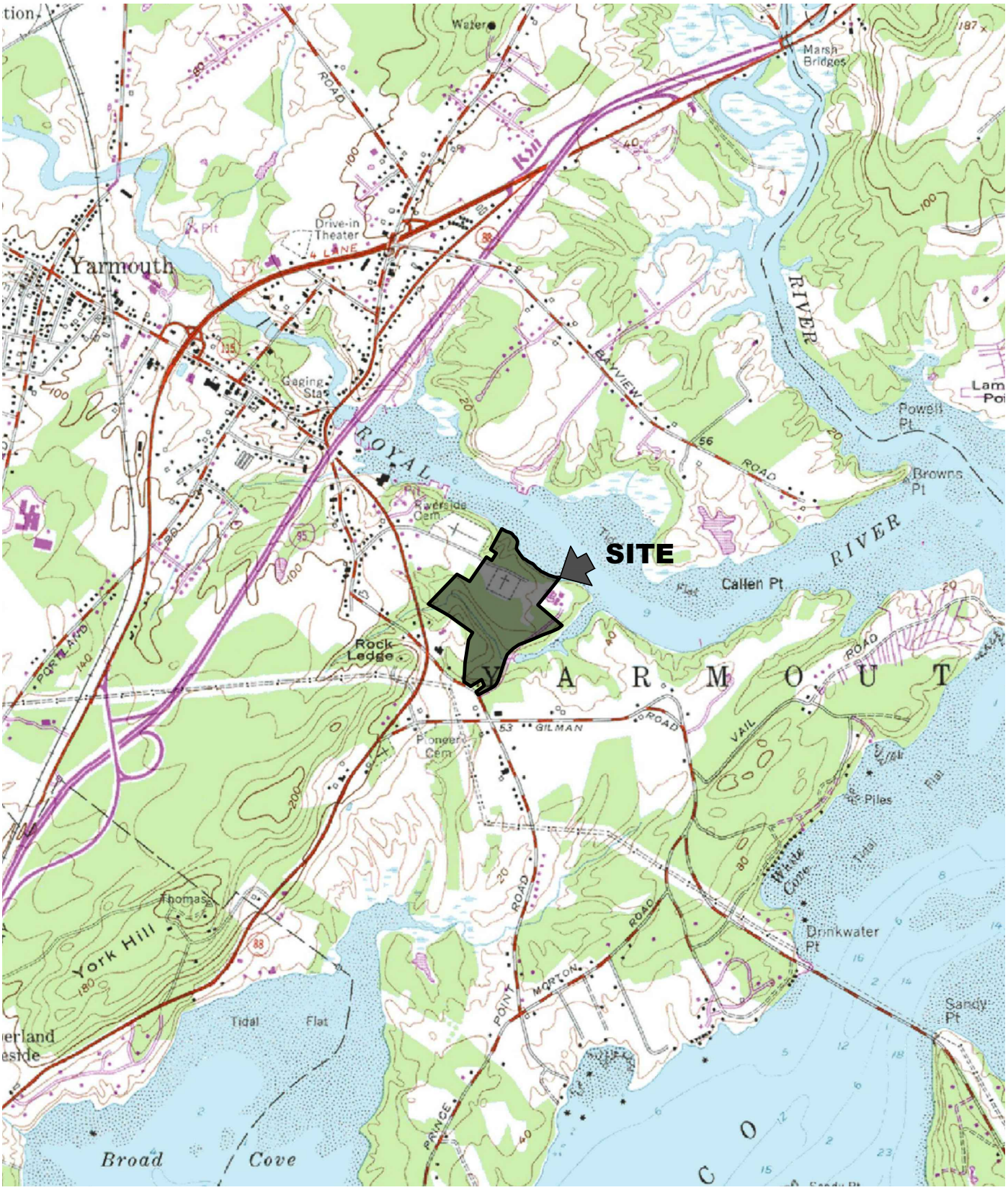
New Leaf Energy, Inc. and its employees and affiliates are hereby authorized to act as our agent for submission of applications and related plans and documents, and to appear before boards and other officials, with respect to obtaining approvals for solar installations to be constructed on my property located at 0 Lafayette Street, Yarmouth, ME 04096.

Sincerely,

Roman Catholic Bishop of Portland

EXHIBIT 1

LOCATION MAP



SOURCE:
U.S.G.S. TOPOGRAPHIC QUADRANGLE
YARMOUTH
@ 1:24,000

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING

NEW LEAF ENERGY
SMITH STREET, YARMOUTH, AMINE
LOCATION MAP

2024.03.25
12869.060

EXHIBIT 2

CONSTRUCTION SCHEDULE

CONSTRUCTION SCHEDULE

The proposed development is expected to adhere to the following construction schedule:

CONSTRUCTION SCHEDULE	
ACTIVITY	**DATE**
Site Clearing	Summer 2025
Installation of Erosion Controls	Summer / Fall 2025
Primary Site Improvements (access road, solar panels, equipment, etc.)	Fall 2025 / Fall 2026
Site Stabilization and Removal of Erosion Controls	Fall 2026

EXHIBIT 3

EVIDENCE OF CORPORATE STATUS

File No. 20231693FC Pages 4
Fee Paid $ 250
DCN 2231362220020 QUAL
-----FILED----------
05/15/2023

FOREIGN
LIMITED LIABILITY COMPANY

STATE OF MAINE

STATEMENT OF FOREIGN QUALIFICATION TO CONDUCT ACTIVITIES

Julie L Flynn
Deputy Secretary of State

A True Copy When Attested By Signature
Julie L Flynn
Deputy Secretary of State

Yarmouth Solar 1, LLC
(Name of Limited Liability Company in Jurisdiction of Organization)

Pursuant to 31 MRSA §1622, the undersigned limited liability company executes and delivers the following Statement of Foreign Qualification:

FIRST: If the name of the limited liability company in the jurisdiction of organization does not contain one of the words or abbreviations required by 31 MRSA § 1508.1 ("limited liability company" or "limited company" or the abbreviation "L.L.C.," "LLC," "L.C." or "LC" or, in the case of a low-profit limited liability company, "L3C" or "l3c"), the proposed name to be used in this State in compliance with this requirement is: * (If not applicable, so indicate.)

SECOND: If the name of the limited liability company in the jurisdiction of organization is unavailable pursuant to 31 MRSA §1508, the **fictitious** name under which it seeks authority to conduct activities in the State of Maine is: (If not applicable, so indicate.)

☐ Form MLLC-5 accompanies this application. (See 31 MRSA § 1624.1)

THIRD: Date of formation: 05/09/2023 Jurisdiction where formed: Delaware

Address of the principal office, wherever located:

55 Technology Drive, Suite 102, Lowell, MA 01851
(physical location - street (not P.O. Box), city, state and zip code)

(mailing address if different from above)

FOURTH: The foreign limited liability company is a foreign limited liability company as defined in 31 MRSA §1502.11.

FIFTH: The nature of the business or purpose(s) to be conducted or promoted in the State of Maine is:

Renewable Energy Development

SIXTH: The Registered Agent is a: (select **either** a Commercial or Noncommercial Registered Agent)

☑ Commercial Registered Agent CRA Public Number: P10021

Capitol Corporate Services, Inc.
(name of commercial registered agent)

☐ Noncommercial Registered Agent

(name of noncommercial registered agent)

(physical location, not P.O. Box – street, city, state and zip code)

(mailing address if different from above)

SEVENTH: Pursuant to 5 MRSA §105.2, the registered agent listed above has consented to serve as the registered agent for this limited liability company.

EIGHTH: The name and business, residence and mailing address of each manager (if any):

NAME	ADDRESS
1115 Solar Development, LLC	55 Technology Drive, Suite 102, Lowell, MA 01851

☐ Names and addresses of additional managers are attached as Exhibit ____, and made a part hereof.

NINTH: The date on which the foreign limited liability company commenced or expects to commence conducting activities in the State of Maine is upon filing.

TENTH: Check only if applicable

☐ This is a professional limited liability company qualified pursuant to 13 MRSA Chapter 22-A to provide the following professional services (see 13 MRSA, chapter 22-A for information on what constitutes professional services):

(type of professional services)

ELEVENTH: **(Check if applicable)**

☐ The foreign limited liability company is governed by an agreement that establishes or provides for the establishment of designated series having separate rights, powers or duties with respect to specified property or obligations of the foreign limited liability company or profits and losses associated with specified property or obligations. Additional information required pursuant to MRSA 31 §1622.2.J are attached hereto as Exhibit _____, and made a part hereof.

TWELFTH: This statement of qualification is accompanied by a certificate of existence or such other document that the Secretary of State determines to be suitable for purposes of proving the valid existence of the foreign limited liability company under the law of the State or other jurisdiction listed in item Third. The certificate or other document must not have been issued more than 90 days before the delivery of this statement to the office of the Secretary of State.

Dated 05/04/2023

(Authorized Signature**)

Dan Berwick, CEO of the Manager

(Type or print name and capacity)

*The limited liability company name as used in the State of Maine must contain one of the following: "limited liability company" or "limited company" or the abbreviation "L.L.C.," "LLC," "L.C." or "LC" or, in the case of a low-profit limited liability company, "L3C" or "l3c" – see 31 MRSA 1508). If the limited liability company's name in its jurisdiction of organization complies with 31 MRSA § 1508 with the addition of these words, then no fictitious name filing is required pursuant to 31 MRSA §§ 1622.2.A and 1624.1.

Statement **MUST be signed by at least one **authorized person** (31 MRSA §1676.1B).

The execution of this statement constitutes an oath or affirmation under the penalties of false swearing under 17-A MRSA §453.

Please remit your payment made payable to the Maine Secretary of State.

Submit completed form to:

Secretary of State
Division of Corporations, UCC and Commissions
101 State House Station
Augusta, ME 04333-0101
Telephone Inquiries: **(207) 624-7752** Email Inquiries: CEC.Corporations@Maine.gov

Delaware

The First State

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY "YARMOUTH SOLAR 1, LLC" IS DULY FORMED UNDER THE LAWS OF THE STATE OF DELAWARE AND IS IN GOOD STANDING AND HAS A LEGAL EXISTENCE SO FAR AS THE RECORDS OF THIS OFFICE SHOW, AS OF THE TWELFTH DAY OF MAY, A.D. 2023.

AND I DO HEREBY FURTHER CERTIFY THAT THE SAID "YARMOUTH SOLAR 1, LLC" WAS FORMED ON THE NINTH DAY OF MAY, A.D. 2023.

AND I DO HEREBY FURTHER CERTIFY THAT THE ANNUAL TAXES HAVE BEEN ASSESSED TO DATE.

7449260 8300

SR# 20232002368

Authentication: 203335582

Date: 05-12-23

You may verify this certificate online at corp.delaware.gov/authver.shtml

EXHIBIT 4

TITLE, RIGHT, OR INTEREST

COVER SHEET

OPTION AND LEASE AGREEMENT

Effective Date	January 26, 2024	
Lease Commencement Date	[*To be completed on the date the option is exercised*]	
Lessor	Roman Catholic Bishop of Portland	
Lessee	Yarmouth Solar 1, LLC	
Property Address	0 Lafayette Street, Yarmouth, ME 04096	
Option Payment	[redacted]	
First Additional Option Payment		
Second Additional Option Payment		
Rent		
Lease Term	The term commencing on the date of delivery of the Exercise Notice and ending on the Expiration Date, subject to Lessee's option to extend the Lease Term for up to four (4) additional and successive periods of five (5) years each.	
Expiration Date	The date that is twenty (20) years from the Commercial Operation Date, as may be extended pursuant to this Agreement.	
Addresses for Notices	Lessee: Yarmouth Solar 1, LLC c/o New Leaf Energy, Inc. 55 Technology Drive, Suite 102 Lowell, MA 01851 Attn: EVP Project Finance With a copy to: New Leaf Energy, Inc. 55 Technology Drive, Suite 102 Lowell, MA 01851 Attn: General Counsel With a copy to: legalnotices@newleafenergy.com	Lessor: Roman Catholic Bishop of Portland, corporation sole 510 Ocean Avenue Portland, ME 04103 With a copy to: Rebecca Brochu, Esq. Robinson, Kriger & McCallum 12 Portland Pier Portland, Maine 04101

OPTION AND LEASE AGREEMENT

This Option and Lease Agreement (this "***Agreement***") is dated as of the Effective Date and is entered into by and between Lessor and Lessee (each a "***Party***" and together, the "***Parties***").

RECITALS

A. Lessor owns the real property, together with any rights, benefits and easements appurtenant to such real property more particularly described in the attached **Exhibit A** (the "***Property***").

B. Lessee desires to obtain, the exclusive right to occupy a portion of the Property (the "***Land***") and, if applicable, the Easements (the Easements together with the Land are collectively referred to as the "***Premises***") more particularly described in the attached **Exhibit B**, and to enjoy all the rights necessary for Lessee to occupy, develop, design, engineer, access, construct, monitor, install, own, maintain, and operate one or more solar photovoltaic electric power generating and/or storage Systems (as defined in Exhibit C attached hereto) as well as ancillary buildings, structures, fixtures, or enclosures necessary or desirable in connection therewith to be located upon, under, on and within the Premises, or any portion thereof and all rights necessary or desirable for Lessee to sell the energy generated by or stored within such System and any and all other credits, solar renewable energy credits, and any other environmental financial attributes created as a result of such energy generation and/or storage.

NOW, THEREFORE, in consideration of the foregoing and the mutual covenants and agreements herein contained, the receipt and sufficiency of which are acknowledged, Lessee and Lessor hereby agree to and intend to be bound by the foregoing recitals and as follows:

1. **Definitions**. Capitalized terms used but not otherwise defined in this Agreement have the meanings assigned to them on the Cover Sheet or in the attached **Exhibit C**.

2. **Access to Property**. Commencing on the Effective Date and throughout the Option Term, Lessee and its employees, agents, contractors and current or potential lenders or investors, shall have the non-exclusive right and easement to enter upon the Property to perform all effort and labor necessary to carry out tests, inspections, surveys and investigations that Lessee deems necessary or advisable to assess the feasibility of the Property for the construction and operation of the System ("***Tests***"). During the Lease Term, Lessee shall have exclusive access to the Land and non-exclusive access to the Easements to design, engineer, construct, install, inspect, test, operate, upgrade, repair and maintain the System. Lessor shall not interfere with the Tests during the Option Term and during the Lease Term, Lessor shall not enter on the Land or interfere with the installation of the System, move, adjust, alter, tamper with, or otherwise handle any Lessee equipment or any component of the System.

3. **Option to Lease the Premises.**

(a) Grant of Option. Lessor hereby grants to Lessee the exclusive option to lease all or a portion of the Land and acquire the Easements on the terms and conditions set forth in this Agreement (the "***Option***").

(b) Time and Manner of Exercise of the Option. The Option shall be for an initial term of three hundred sixty-five (365) days after the Effective Date (as it may be extended, the "***Option Term***"). The Option Term may be extended by Lessee for up to two (2) additional three hundred sixty-five (365) day periods upon notice to Lessor prior to the end of the then-current Option Term.

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(d) Lessor Cooperation. During the Option Term and throughout the Lease Term, Lessor shall fully cooperate with (i) the performance of Tests, at Lessee's expense, (ii) the obtaining by Lessee, at Lessee's expense, of all licenses, and Permits or authorizations required for Lessee's use of the Premises from all applicable government and/or regulatory entities, including any approvals required to obtain a tax abatement for the Premises, as may be applicable, and any subdivision of the Property to be sought by Lessee in connection with the construction, operation and maintenance of the Systems, (collectively, "***Governmental Approvals***"), (iii) the securing by Lessee at Lessee's expense of all other leases, agreements, licenses, and Permits or authorizations that relate to either the Property or Premises, and (iv) the securing by Lessee of any amendments to this Agreement that are reasonably necessary to accommodate the System, or to facilitate an assignment pursuant to Section 21. Lessor agrees and acknowledges that any amendment to the Agreement pursuant to this Section 3(d) that does not materially increase any obligation or materially decrease any right of Lessor hereunder, shall not result in adjustment of the Rent unless otherwise required under this Agreement. Lessor authorizes Lessee and its Affiliates to act as Lessor's agent for submission of applications and related plans, documents and recordings, and to appear before boards and other officials, with respect to obtaining approvals for solar installations to be constructed on the Premises, and shall execute an authorization letter to that effect ("***Authorization Letter***"), in substantially the form in the attached **Exhibit F**. Lessor agrees to use reasonable efforts in assisting Lessee to acquire necessary utility service at the Premises. In the event that a utility company requires an easement in connection with Lessee's use of the Premises during the Option Term or Lease Term, Lessor shall grant such necessary easement to the utility company, provided that such easement is in a commercially reasonable and recordable form.

(e) Use of the Property. During the Option Term, Lessor may continue to use the Property in the ordinary course, *provided, however*, Lessor shall not commit waste on the Property or otherwise materially change the Property, nor will Lessor agree to grant or permit any easement, lease, license, right of access or other possessory right in the Premises to any third party without the prior written consent of Lessee.

(f) Maintenance of Integrity of Property for Current Cemetery Use. Lessee acknowledges Lessor's current use of Property is for use as a Catholic cemetery. Lessee will be accessing and installing Systems on Land and Premises of Property that do not currently contain burial plots and grave markers. During any use by Lessee as set forth in this Agreement, Lessee agrees to leave a vegetative barrier such as trees and tall shrubs to block sight of Lessee's Systems and use of the same from the current burial plots and grave markers. The purpose of this is to ensure Lessee's System installations are not in plain sight of visitors to the burial plots and grave markers to ensure continued peaceful enjoyment of the cemetery.

(g) Maintenance of Integrity of Land and Premises for Future Cemetery Use. Lessee will be installing Systems onto Property which Lessor intends to use as a burial ground at the end of Lessee's use. Lessee shall not commit any action or modification to the Land and Premises which would cause Property to become unfit for use as a cemetery in the future or which during construction or maintenance or decommissioning materially disturbs cemetery operations by Lessor or its guests or invitees.

4. **Exercise of Option; Lease; Easements; and Related Rights.**

(a) Exercise of Option. In order to exercise the Option, Lessee must deliver to Lessor a notice of exercise (the "***Exercise Notice***") prior to the expiration of the Option Term. The date of the Exercise Notice shall be the commencement of the Lease Term (the "***Lease Commencement Date***").

(b) Lease. Subject to receipt of the Exercise Notice, Lessor hereby leases and grants to Lessee, for the Lease Term, the exclusive rights to the Land together with all right, title and interest of Lessor in and to all easements, rights, privileges and appurtenances to the same belonging or in any way appertaining thereto, to occupy, develop, design, engineer, construct, access, monitor, install, own, operate, maintain, repair, replace, improve and remove the System for the generation, storage and distribution of electrical power.

(c) Easement. Subject to receipt of the Exercise Notice, and if noted on Exhibit B, Lessor hereby grants to Lessee a non-exclusive, appurtenant easement on, under, over, across and through the Property in the locations more particularly described on the attached Exhibit B, for the Lease Term, to occupy, develop, design, engineer, construct, access, monitor, install, own, operate, maintain, repair, replace, improve and remove at all times on a 24-hours-a-day, 7-days-a-week basis (i) a road ("***Access Easement***") and (ii) utility and communication infrastructure, including without limitation poles, supporting towers, guys and anchors, fibers, cables and other conductors and conduits, and pads, transformers, switches, vaults and cabinets, and related equipment to connect the System to the local electric distribution system, together with the right of access to the utility infrastructure over the Property, for any purpose reasonably connected with the System (the "***Utility Easement***"). Lessor hereby also grants to Lessee and the applicable utility company, at all times on a 24-hours-a-day, 7-days-a-week basis, for the Lease Term, an easement for ingress, egress and related rights over the Property and/or any surrounding or nearby property owned or leased by Lessor, passage through which is necessary or convenient to install, operate or gain access to the System or the Premises (the "***easement***" and together with the Access Easement and the Utility Easement, the "***Easements***"). If Lessee determines in its reasonable discretion that any additional easements across the Property are necessary, useful or appropriate for the construction and/or operation of the System, Lessor shall fully cooperate in granting or agreeing to such easements by amendment to this Agreement or by separate agreement and recordation of same.

(d) Construction Laydown Area. Subject to receipt of the Exercise Notice, Lessor hereby further grants to Lessee, and Lessee hereby accepts from Lessor, a non-exclusive license to use an area of the Property in a location mutually agreed upon by the Parties (the "***Construction License***"), which area shall be referred to herein as the "***Construction License Area***", for use as a laydown and construction staging area and for temporary storage. Such Construction License shall commence at such time as Lessee commences construction of the System and shall terminate on the Commercial Operation Date. Lessee shall have access to the Construction License Area 24 hours per day, 7 days per week. Lessee agrees to work in good faith with Lessor to minimize any interference with the operations of Lessor or any other lessees on the Property. Upon or prior to the Commercial Operation Date, Lessee, at Lessee's sole cost and expense, shall surrender the Construction License Area to Lessor in the same condition as the date Lessee first occupied the Construction License Area, ordinary wear and tear excepted.

(e) Utilities. At Lessee's request and expense, Lessor shall provide or cooperate with the provision of electric current and water to the perimeter of the Premises; *provided, however*, separate meters for such utilities shall be installed at Lessee's expense and Lessee shall be responsible for all utility expenses. Lessor grants Lessee the right to install, use, modify, and remove water lines, sewer lines, storm water lines, overhead, and/or underground power lines, fuel lines, telephone and communication lines, pipelines, conveyors, and drainage ditches and/or canal systems within the Premises as are reasonably required for operation of the System, and use or modify the existing lines, ditches, and canal systems as may be reasonably required subject to ensuring all storm water run-off does not interfere with Lessor's current or future use of Property as set forth in paragraph 3 (g) and (f) herein and subject to Lessor's prior consent, which shall not be unreasonably delayed, conditioned, or withheld and given within ten (10) days of notification or otherwise deemed approved.

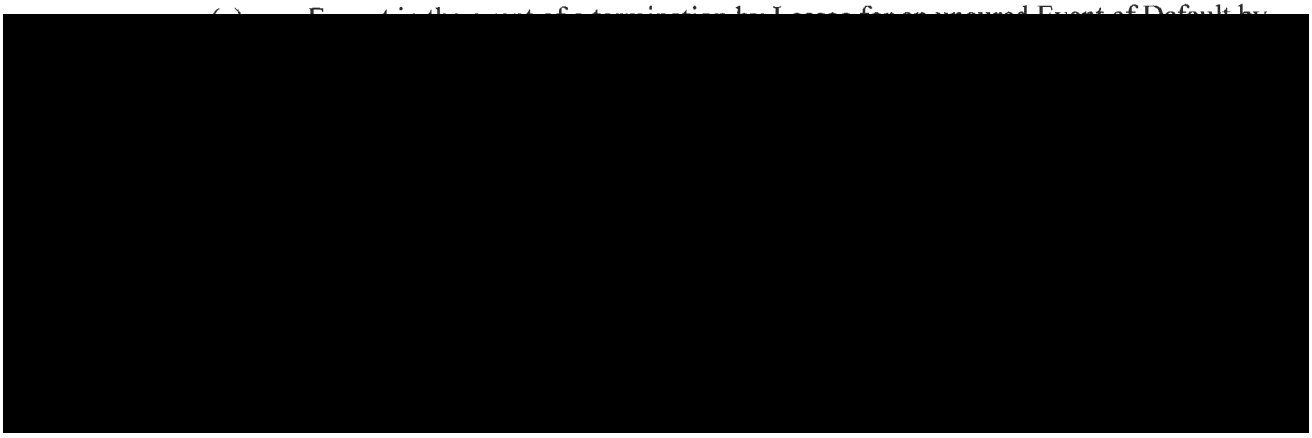
(f) The Parties recognize that the descriptions of the Premises are based on preliminary site discovery information, and that these descriptions shall be modified via amendment prior to construction. As such, Lessor hereby agrees to execute any amendment to this Agreement proposed by

Lessee which modifies the Premises, including reducing the size of the Premises and/or splitting the Premises into two or more to accommodate two or more systems and entering into multiple leases, provided that such amendment is reasonably necessary to accommodate (i) the System as designed, or (ii) the System as modified by Lessee to comply with the requirements of any Governmental Authority or the Local Electric Utility, including, but not limited to, entering into an amendment in the form attached hereto as **Exhibit G**. For the avoidance of doubt, under no circumstances shall Lessor be entitled to any increase in Rent or other additional compensation under this Agreement as a result of an amendment to the description of the Premises, except that an amendment to Exhibit B that increases the acreage shall by virtue of that amendment be considered under Section 5 (b) below to be the "final acreage as calculated in the legal description of the Land attached thereto as Exhibit B" and thus taken into account in Rent by virtue of that Section 5 (b).

6. **Term and Termination; Removal.**

(a) The Lease Term shall commence on the Lease Commencement Date and terminate on the Expiration Date, as it may be extended, unless otherwise terminated pursuant to this Agreement.

(b) Lessee shall have the right, in its sole discretion, to terminate this Agreement at any time prior to the Commercial Operation Date.



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(d) Prior to commencement of the Lease Term, Lessee shall provide to Lessor a decommissioning and removal bond in the amount sufficient to perform its obligation of System Removal which amount shall be confirmed by an engineer licensed in the state of Maine; provided, however, if the county in which the Property is located or other governmental agency shall require a decommissioning bond in connection with the System (a "***Governmental Decommissioning Bond Obligation***"), then satisfaction by Lessee of such Governmental Decommissioning Bond Obligation shall be deemed to satisfy Lessee's obligation to provide a decommissioning and removal bond and no additional bond shall be required hereunder. The amount of the decommissioning and removal bond shall be reviewed every five years starting on the fifth anniversary of the Commercial Operation Date to ensure that the bond amount is sufficient.

7.Extension Option. Lessee shall have the option to extend the Lease Term ("***Extension Option***") for up to four (4) additional and successive periods of five (5) years each beginning on the day following the Expiration Date of the then-current Lease Term (each an "***Extension Term***"), by giving notice (the "***Extension Exercise Notice***") to Lessor not less than ninety (90) days prior to the then-current Expiration Date, and without the requirement of any further action on the part of either Lessor or Lessee.

8.**System Construction and Maintenance**. Throughout the Lease Term and through the Removal Date, Lessee shall have the right to perform (or cause to be performed) all tasks necessary or appropriate, as reasonably determined by Lessee, to carry out the activities set forth in this Agreement, including, without limiting the generality of the foregoing, with the exception of adhering to the conditions of paragraphs 3 (f) and (g) herein, the right (i) to design, construct, install, and operate the System, (ii) to maintain, clean, repair, replace, add to, remove or modify the System or any part thereof as determined to be necessary by Lessee in its sole discretion and in accordance with the Permits and Applicable Laws, (iii) to use any and all appropriate means of restricting access to the System and Premises, including without limitation, the construction of a fence, and (iv) to permanently grub and grade the Premises and to permanently remove and/or clear any trees, vegetation, structures, rocks, watercourses (to the extent permissible and subject to the conditions of paragraphs 3 (f) and (g) herein) or other encumbrances existing on the Premises determined to be necessary by Lessee in its sole discretion and in accordance with the Permits and Applicable Laws. Lessee shall ensure all water and drainage systems do not allow for runoff to Lessor's surrounding property used as a cemetery so that the surrounding property may continue to be used undisturbed as a cemetery. In addition, Lessee shall ensure all work complies with Maine DEP requirements. Lessee shall further ensure Lessor is informed of, and given a chance to review and comment upon all storm water plans and Lessor shall have 10 Business Days to review and comment on Lessee's proposed stormwater plans.Except as may otherwise be specifically agreed upon by the Parties or as expressly set forth herein, Lessee shall be responsible for all costs of design, permitting, construction, installation, operation, and maintenance of the System, and System Removal.

9.Permits; Lessor Cooperation. Prior to commencement of construction of the System by Lessee, Lessee shall obtain the necessary Permits. In the event Lessee, in its sole discretion, shall determine that the Premises should be subdivided to accommodate the construction, operation and/or maintenance of the Systems or to comply with Permits and Applicable Laws, Lessor shall fully cooperate with Lessee to facilitate and cause any application for subdivision of the Premises to be approved, provided that Lessee shall pay all costs and expenses related thereto.

10. **Statutory and Regulatory Compliance**. Lessee, the Lessee Parties, Lessor and the Lessor Parties shall each comply with all applicable provisions of all Applicable Laws of the locality in which the Property is located.

11. **Lessee's Ownership of Systems and Output.** The Systems are personal property, whether or not the same is deemed real or personal property under Applicable Law, and shall not attach to or be deemed a part of, or a fixture to, the Premises or Property. Lessee or its designees shall be the legal and beneficial owners of the applicable Systems at all times and Lessor shall have no right, title or interest in any of the Systems or any component thereof, notwithstanding that any such Systems may be physically mounted or adhered to the Premises or Property. Lessor covenants that it will use commercially reasonable efforts to place all parties having an interest in or lien upon the Property or the Premises on notice of the ownership of the System and the legal status or classification of the System as personal property. If there is any mortgage or fixture filing against the Property or Premises which could reasonably be construed as attaching to the Systems as a fixture of the Property or Premises, Lessor shall provide a disclaimer or release from such lien holder in form and substance reasonably satisfactory to Lessee and any Financing Party. Lessor, as the fee owner of the Property, consents to the filing by Lessee, on behalf of Lessor or its designees, as applicable, of a disclaimer of the Systems as a fixture of the Property or Premises in the office where real estate records are customarily filed in the jurisdiction of the Property. Further, Lessor acknowledges and agrees that Lessee or its designees, as applicable, are the exclusive owners of all electricity and all utility credits, including renewable energy credits, environmental credits, and tax credits, generated by and/or stored within the System and owners of all Environmental Attributes and Incentives attributable to the System. In the absence of an additional agreement to the contrary, all electricity generated by and/or stored within the Systems will be connected to the distribution grid and sold by Lessee to third parties and will not be available to Lessor or any other occupant at the Property. Without the express consent of Lessee, Lessor shall not make or publish any public statement or notice regarding any Environmental Attributes and Incentives relating to the System or the electricity generated by and/or stored within the System. The Parties acknowledge and agree that the System shall not be considered an electric public utility, an investor owned utility, a municipal utility, or a merchant power plant otherwise known as an exempt wholesale generator.

12. **Representation and Warranties of the Parties as to Authorization and Enforceability**. Each Party represents and warrants that the execution and delivery by such Party of, and the performance of its obligations under, this Agreement have been duly authorized by all necessary action, do not and will not require any further consent or approval of any other Person, and do not contravene any provision of, or constitute a default under any indenture, mortgage, lease, easement, encumbrance, right, restriction, or other material agreement binding on such Party or any valid order of any court, or regulatory agency or other body having authority to which such Party is subject. Each Party represents and warrants the Agreement constitutes a legal and valid obligation of such Party, enforceable against it in accordance with its terms, except as may be limited by a Bankruptcy Event, reorganization, insolvency, bank moratorium or laws relating to or affecting creditors' rights generally and general principles of equity where such enforceability is considered in a proceeding in equity or at law.

13. **Representations, Warranties and Covenants of the Lessor**

(a) No Conflict. Lessor represents and warrants that the execution, delivery and performance by it of this Agreement does not (i) violate its organizational documents or any Applicable Law, or (ii) require any approval or consent of any other Person, except for such approvals or consents that have been obtained on or before the date hereof or the absence of which could not, individually or in the aggregate, reasonably be expected to have a material adverse effect on its ability to execute, deliver or perform this Agreement. Each Person signing this Agreement on behalf of Lessor is authorized to do so.

(b) Lessor's Title to Premises. Lessor represents, warrants and covenants that Lessor has (i) a lawful fee simple interest in title to the Property, including the Premises, subject to any mortgages,

leases, easements, covenants, restrictions, and rights of record that may exist, and (ii) that Lessee shall have quiet and peaceful possession of the Premises free from any claim of any entity or Person of superior title thereto without hindrance to or interference with or molestation of Lessee's quiet enjoyment thereof, throughout the Lease Term. Lessor, at its sole cost and expense, shall comply with all restrictive covenants or other title exceptions affecting the Premises to the extent that the same are applicable to the Premises or to the extent that the same would, if not complied with or performed, impair or prevent the continued use, occupancy and operation of the Premises for the purposes set forth in this Agreement and Lessor agrees to take all action necessary to eliminate such interference. In the event Lessor fails to comply with this provision, Lessee may (x) terminate this Agreement, (y) take all necessary steps to bring Lessor into compliance with any restrictive covenants or title exceptions which, if not complied with, would impair or prevent Lessee from exercising its rights under this Agreement, and Lessor shall be responsible for all costs incurred by Lessee for such actions, and/or (z) pursue any other remedies available under this Agreement, at law, and/or at equity. Notwithstanding anything herein to the contrary, Lessor has no information related to the identification of: (a) any abandoned or discontinued town ways, public easements or private roads located on or abutting the Property; or (b) the party or parties responsible for the maintenance of any abandoned or discontinued town way, public easement or private road located on or abutting the Property, including any responsible road association. Lessor acknowledges that the foregoing representations and warranties are made to Lessee in accordance with 33 M.R.S.A. §193, that Lessee is relying on such representations and warranties, and that such representations and warranties shall survive the expiration or earlier termination of this Agreement.

(c) Defects. Lessee has the right to obtain a title report or commitment for a leasehold title policy from a title insurance company of its choice. Lessor shall fully cooperate with Lessee at no cost to Lessor to enable Lessee to obtain a standard policy of title insurance insuring the property interests granted hereunder (including such endorsements as Lessee shall reasonably request). Lessor agrees that Lessor will execute and deliver to Lessee any documents reasonably required by the title insurance company within five (5) Business Days after presentation of said documents by Lessee; *provided, however*, in no event will such documents materially increase any obligation or materially decrease any right of Lessor hereunder.

(d) Transfers. Lessor shall not assign its interest in the Premises separate from its ownership interest and shall not lease the Premises to any other Person. Upon the sale of the Property, Lessor shall assign all of its rights and obligations hereunder to any purchaser of the Property, and so long as such purchaser assumes the obligation to perform all obligations under this Agreement in writing, Lessor shall be released from liability hereunder accruing from and after the effective date of such purchase and assignment. Lessor shall not mortgage, alienate or otherwise encumber the Premises without first obtaining a NDA pursuant to Section 13(f) below. Lessor shall provide notice to Lessee at least thirty (30) days prior to any sale, mortgage or encumbrance of the Property. Lessor agrees that this Agreement and the lease and the Easements granted hereunder shall run with the Property and/or the Premises and survive any transfer of all or any portion of the Property and/or the Premises. In furtherance of the foregoing, Lessor shall cause any purchaser, lessee, assignee, mortgagee, pledge, secured party or party to whom a lien on the Premises or Property has been granted to execute and deliver to Lessee a commercially reasonable document pursuant to which such party acknowledges and consents to the Lessee's rights in the Premises as set forth herein including, without limitation, an acknowledgement by the transferee that it has no interest in the Systems, or any work related to such Systems, and shall not gain any interest in the Systems by virtue of the Lessor's transfer.

(e) No Interference With and Protection of System. Lessor will not conduct activities on, in or about the Property or Premises that have a reasonable likelihood of causing damage, impairment or otherwise adversely affecting the System or operation thereof. The System shall be operated, maintained and repaired by Lessee at its sole cost and expense; provided, that any repair or maintenance costs incurred

by Lessee as a result of Lessor's negligence, misconduct or breach of its obligations hereunder shall be promptly reimbursed to Lessee by Lessor.

(f) Non-Disturbance Agreements. Lessor shall, at its sole effort and expense, obtain a non-disturbance agreement ("***NDA***") in favor of Lessee from any third party who now has or may in the future obtain an interest in the Property or Premises, including, without limitation, any lenders to Lessor, in a form acceptable to Lessee, which NDA shall: (i) acknowledge and consent to Lessee's rights to the Premises and the Systems under this Agreement; (ii) acknowledge that the third party has no interest in the Systems and shall not gain any interest in the Systems by virtue of the Parties' performance or breach of this Agreement; (iii) acknowledge that the third party's interest in the Premises (if any) is subject to Lessee's interest under this Agreement; (iv) waives any lien the third party may have in and to the Systems; and (v) agrees not to disturb Lessee's possession of the Premises.

(g) Insolation. Lessor acknowledges and agrees that access to sunlight ("***Insolation***") is essential to the value to Lessee of the leasehold interest granted hereunder and is a material inducement to Lessee in entering into this Agreement. Accordingly, Lessor shall not permit any interference on the Property (exclusive of the Premises) or any neighboring property under Lessor's control which interferes with Insolation on and at the Premises. Without limiting the foregoing, Lessor shall not construct or permit to be constructed on the Property or any adjoining property under Lessor's control any structure on or adjacent to the Premises or on any adjacent property owned by any Affiliate of Lessor that could adversely affect Insolation levels on the Premises, shall not permit the growth of foliage on the Property (exclusive of the Premises) or any neighboring property under Lessor's control that could adversely affect Insolation levels on the Premises, or directly emit or permit the emission of suspended particulate matter, smoke, fog or steam or other air-borne impediments to Insolation on the Premises. If Lessor becomes aware of any potential development or other activity on adjacent or nearby properties that could diminish the Insolation to the Premises, Lessor shall promptly advise Lessee of such information and reasonably cooperate with Lessee in taking measures to preserve average levels of Insolation at the Premises as they existed as of the Lease Commencement Date. Such measures may include, but not be limited to, obtaining a solar insolation easement at Lessee's sole expense. In the event any such obstruction occurs and is not promptly removed following notice of such obstruction, Lessee shall have the right to remove such obstruction on the Property or any neighboring property under Lessor's control, at Lessor's cost, or terminate this Agreement without penalty or further liability, upon notice to Lessor. Notwithstanding any other provision of this Agreement, the Parties agree that (i) Lessee would be irreparably harmed by a breach of the provisions of this Section 13(g), (ii) an award of damages might be inadequate to remedy such a breach, and (iii) Lessee shall be entitled to equitable relief, including specific performance, to compel compliance with the provisions of this Section 13(g). Lessor further represents and warrants that, to the best of its knowledge, there are no developments pending or in progress on adjacent or nearby properties that could diminish the Insolation to the Premises.

(h) Hazardous Substances. Lessor represents and warrants that there are no Hazardous Substances present on, in or under the Property or Premises in violation of any Applicable Law.

(i) Condition of Premises. Except as otherwise expressly set forth herein Lessee accepts the Premises "as is" without benefit of any improvements or modifications to be made by Lessor. Lessor represents and warrants to Lessee that, to the best of its knowledge, there are no site conditions at the Property or Premises which would: (i) materially increase the cost of installing the System at the planned locations on the Premises or would materially increase the cost of maintaining the System at the Premises over the cost that would be typical or customary for solar photovoltaic systems substantially similar to the System; or (ii) adversely affect the ability of the System, as designed, to produce electricity once installed, absent conditions beyond Lessor's reasonable control.

(j) Notice of Damage or Emergency. Lessor shall immediately notify Lessee if Lessor becomes aware, through discovery or receipt of notice: (i) of any damage to or loss of the use of the System;

(ii) of any event or circumstance that poses an imminent risk to human health, the environment, the System or the Premises; or (iii) of any interruption or material alteration of the energy supply to or from the Premises or the System.

(k) Liens and Tenants. Except as may be disclosed in the real property records of the County, Lessor represents there are no encumbrances, leases, mortgages, deeds of trust, deeds to secure debt, or similar liens or security interests encumbering all or any portion of the Property and/or the Premises that could interfere with Lessee's operations on the Premises, including mechanic's liens. Lessor shall not directly or indirectly cause, create, incur, assume or suffer to exist any mortgage, pledge, lien (including mechanics', labor or materialman's lien), charge, security interest, encumbrance or claim on or with respect to the Systems, the Premises, or any interest therein. Lessor shall provide Lessee with notice if it receives notice of any such claims. Lessor further agrees to discharge or bond, at its sole expense, any such encumbrance or interest that attaches to the Systems and to indemnify, defend and hold harmless Lessee from any costs, losses, expenses or liabilities arising from the same, including, without limitation, Lessee's attorneys' fees and court costs. Lessor waives any and all lien rights it may have, statutory or otherwise, concerning the System or any portion thereof.

(l) Mineral Rights. Lessor represents and warrants there are no existing mineral, oil and gas, water, or natural resource rights that could interfere with Lessee's rights hereunder. During the Lease Term, Lessor may not use, or grant the use of the Premises for the purpose of exploring for, extracting, producing or mining such oil, gas, minerals, or other natural resources, including selling or leasing such interests to a third party, from the surface to a depth of 500 feet below the surface. Lessor may explore for, extract or produce oil, gas, minerals, and other natural resources from the Property in a manner which does not interfere with Lessee's use of the Premises or affect the System and utilizes a method, such as "directional drilling" which does not require the use of the Premises to a depth of five hundred (500) feet below the surface.

(m) Litigation. No litigation is pending, and, to the best of Lessor's knowledge, no actions, claims or other legal or administrative proceedings are pending, threatened or anticipated with respect to, or which could affect, the Premises or Lessor's right or authority to enter into this Agreement. If Lessor learns that any such litigation, action, claim or proceeding is threatened or has been instituted, Lessor will promptly deliver notice thereof to Lessee.

(n) Representations Regarding Security Interest in System. Lessor has been advised that part of the collateral securing the financial arrangements for the System may be the granting of a first priority perfected personal property security interest under the Uniform Commercial Code (the "***Security Interest***") in this leasehold and the Easements or any portion thereof or in the Systems to one or more Financing Parties and Lessor hereby consents to the granting of such Security Interest. In connection therewith, Lessor represents and warrants as follows: (i) the granting of the Security Interest will not violate any term or condition of any covenant, restriction, lien, financing agreement, or security agreement affecting the Property or Premises; (ii) there is no existing lease, mortgage, security interest, easement, claim, use, or restriction or other interest in or lien upon the Property or Premises that could attach to the Systems as an interest adverse to or senior to Lessee's Financing Parties' Security Interest therein; (iii) there exists no event or condition which constitutes a default, or would, with the giving of notice or lapse of time, constitute a default under the Agreement, and (iv) there is no existing mineral, oil and gas, water, or natural resource right that could attach to the Systems as an interest adverse to or senior to Lessee's Financing Parties' Security Interest therein.

14. **Hazardous Substances**. Neither Party shall introduce or use any Hazardous Substances on, in or under the Premises or Property in violation of any Applicable Law. If a Party becomes aware of any Hazardous Substances on, in, or under the Premises or Property, it shall promptly notify the other Party of the type and location of such Hazardous Substances in writing. Each Party agrees to indemnify, defend and hold harmless the other Party and its Affiliates and their employees and agents from and

against any and all administrative and judicial actions and rulings, claims, causes of action, demands and liability, including, but not limited to, damages, costs, expenses, assessments, penalties, fines, losses, judgments, and reasonable attorney fees that any Party may suffer or incur due to the existence of any Hazardous Substances on the Property or the migration of any Hazardous Substance to other properties or the release of any Hazardous Substance into the environment ("***Environmental Claims***"), that relate to or arise from such Party's activities on the Property or Premises, except to the extent directly attributable to the negligent acts or omissions or willful misconduct of the other Party. Lessor shall further indemnify, defend and hold harmless Lessee and its Affiliates and their employees and agents from and against any and all Environmental Claims due to the presence of any Hazardous Substances in, on or under the Premises as of the Effective Date. The indemnifications in this Section 14 specifically include, without limitation, costs incurred in connection with any investigation of site conditions or any cleanup, remedial, removal or restoration work required by any Governmental Authority. Lessor shall be responsible for, and shall promptly conduct any investigation and remediation as required by any Applicable Law, all spills or other releases of any Hazardous Substances to the extent not caused by Lessee, that have occurred or which may occur on the Property. This Section 14 shall survive the termination or expiration of this Agreement.

15. **Insurance.**

(a) Generally. Lessor and Lessee shall each maintain the insurance coverages set forth in **Exhibit D** in full force and effect throughout the Option Term, Lease Term and through the Removal Date through insurance policies, reasonably acceptable to the other Party. Each Party, upon request, but not more than twice in any twelve (12) month period, shall furnish current certificates evidencing that the coverage required is being maintained.

(b) Waiver of Subrogation. Each Party hereby waives any right of recovery against the other for injury or loss to personal property due to hazards covered by insurance obtained with respect to the Property or Premises, including the improvements and installations thereon.

[redacted]

[redacted]

17. **Liability and Indemnity**.

(a) Each Party as indemnitor shall indemnify, defend, and hold harmless the other Party and its Affiliates and their employees and agents against and from any and all loss, liability, damage, claim, cost, charge, demand, or expense (including reasonable attorneys' fees) asserted by third parties for injury or death to Persons (including employees of either Party) and/or physical damage to property arising out of or in connection with the negligent acts or omissions or willful misconduct of the indemnitor or a material breach of any obligation, representation or warranty of the indemnitor under this Agreement, except to the extent caused by the negligent acts or omissions or willful misconduct of the indemnified party.

(b) Lessee shall not be responsible to Lessor or any third party, for any claims, costs or damages, including fines or penalties, attributable to any violations of Applicable Laws existing prior to the Effective Date, or by any party other than the Lessee Parties.

(c) This Section 17 shall survive the termination or expiration of this Agreement.

18. **Casualty/System Loss**.

(a) In the event the Premises or access thereto shall be so damaged or destroyed by fire or other casualty so as to make the use of the Premises impractical, as determined by Lessee in its sole and absolute discretion, then Lessee may elect to terminate this Agreement by providing notice to Lessor of such termination within ninety (90) days of Lessee's knowledge of the damage or destruction, which termination will be effective as of a date of such damage or destruction. If Lessee does not elect to terminate

this Agreement within ninety (90) days of such a casualty, then the Rent shall be abated until such time as Lessee's use of the Premises is restored. If Lessee does not elect to terminate this Agreement pursuant to the previous sentences, Lessor shall exercise commercially reasonable efforts to repair the damage to the Premises and return the Premises to its condition prior to such damage or destruction; *provided, however*, that, except as otherwise provided in this Agreement, Lessor shall in no event be required to repair, replace or restore any property of Lessee comprising part of the Systems, which replacement or restoration shall be Lessee's responsibility.

(b) In the event of any harm to the System that, in the reasonable judgment of Lessee, results in total damage, destruction or loss of the System ("***System Loss***"), Lessee shall, within twenty (20) Business Days following the occurrence of such System Loss, notify Lessor whether Lessee is willing, notwithstanding such System Loss, to repair or replace the System and to continue this Agreement. In the event that Lessee notifies Lessor that Lessee is not willing to repair or replace the System, Lessee may terminate this Agreement effective upon the date of such System Loss, and Lessee shall be entitled to all proceeds of its insurance policies with respect to the System Loss and Lessor shall promptly return to Lessee the portion of the pre-paid Rent covering the days remaining between the date of such System Loss and the next anniversary of the Commercial Operation Date.

(c) In the event of termination under this Section 18, Lessee shall remove the Systems in accordance with Section 6(c).

19. **No Consequential Damages.** Notwithstanding any other provision in this Agreement, neither Lessee nor Lessor shall be liable to the other for any consequential, punitive, or indirect damages, including without limitation, loss of use of their property, loss of profits, cost of capital or increased operating costs, arising out of this Agreement whether by reason of contract, indemnity, strict liability, negligence or breach of warranty.

20. **Condemnation.** In the event the Premises or Property are transferred to a condemning authority pursuant to a taking of all or a portion of the Property sufficient in Lessee's determination to render the Premises unsuitable for Lessee's use or to negatively impact the access to the Premises, Lessee shall have the right to terminate this Agreement immediately upon notice to Lessor. Sale to a purchaser with the power of eminent domain in the face of the exercise of the power shall be treated as a taking by condemnation under this Agreement. In the event of an award related to eminent domain or condemnation of all or part of the Premises, each Party shall be entitled to take from such award that portion as allowed by law for its respective property interest appropriated as well as any damages suffered thereby.

21. **Assignment by Lessee and Financing Party Protections**.

(a) Lessee shall not assign or sublease any of its rights, duties or obligations under this Agreement without the prior consent of Lessor, which consent shall not be unreasonably withheld, conditioned or delayed. Notwithstanding the foregoing, Lessee may, without consent from Lessor, assign any of its rights, duties or obligations under this Agreement: (i) to a Financing Party pursuant to Section 21(c), (ii) to one or more of its Affiliates, (iii) to one or more third parties in connection with a collateral assignment of rights, mortgage, pledge or otherwise, (iv) to any Person or entity succeeding to all or substantially all of the stock or assets of Lessee, or (v) to a successor entity in a merger or acquisition transaction. Lessor agrees to execute any consent, novation or other documentation that Lessee may request in connection with any assignment permitted by this Section 21, including without limitation entering into a consent and assignment agreement with Lessee's Financing Party.

(b) Notwithstanding anything herein to the contrary, Lessee may collaterally assign this Agreement and the System to a Financing Party without the need for consent from Lessor. Upon receipt of notice of the name and address of a Financing Party, Lessor agrees to deliver any notices of default to the Financing Party simultaneously with the delivery of such notices of default to Lessee. The Financing Party will have the right in its sole discretion, but not the obligation, (i) to enforce its lien and acquire title

to all or any portion of the System by any lawful means, (ii) to take possession of and operate all or any portion of the System and to perform all obligations to be performed by Lessee under this Agreement, or to cause a receiver to be appointed to do so, (iii) to cure any defaults or breaches by Lessee within the time periods provided hereunder for Lessee plus an additional sixty (60) days in the case of an Event of Default under Section 22, and in order to succeed to the rights and obligations of Lessee under this Agreement shall not be required to cure any defaults by Lessee under Section 22 that by their nature are not capable of being cured by the Financing Party. Any such notices shall be sent to the Financing Party at the address specified in writing to Lessor by Lessee or any Financing Party. Failure by Lessor to give the Financing Party such notice shall not diminish the Financing Party's rights against Lessee, but shall preserve all rights of the Financing Party to cure any default and to remove any property of Lessee located on the Premises.

(c) If Lessor has been notified of the existence of a Financing Party, Lessor will not agree to any amendment, modification or voluntary termination of this Agreement without the prior written consent of the Financing Party. Lessor agrees that, upon foreclosure (or assignment in lieu of foreclosure) of its mortgage or security interest in the System, the Financing Party may succeed to the rights and obligations of Lessee under this Agreement and thereafter, without Lessor's consent, to assign or transfer all or any portion of the System to a third party. The Financing Party will be responsible for performance of Lessee's obligations after it succeeds to Lessee's interests under this Agreement, but shall have no further liability hereunder after it assigns such interests to a third party.

(d) If this Agreement is rejected or disaffirmed by Lessee pursuant to bankruptcy law or other law affecting creditor's rights and within ninety (90) days after such event any Financing Party shall have arranged to the reasonable satisfaction of Lessor for performance of Lessee's obligations under this Agreement, then Lessor shall execute and deliver to such Financing Party or to a designee of such Financing Party a new agreement which (i) shall be for a term equal to the remainder of the Lease Term before giving effect to such rejection or termination; and (ii) shall contain the same covenants, agreements, terms, provisions and limitations as this Agreement.

(e) An assignment by either Party in accordance with this Section 21 shall, provided that assignee assumes the assignor's obligations under this Agreement, relieve the assignor of its obligations hereunder, except with respect to undisputed payments due by the assignor as of the effective date of the assignment, which obligations shall be performed by assignor or assignee as a condition precedent to such assignment.

(f) The provisions of this Section 21 shall survive the termination, rejection or disaffirmation of this Agreement and shall continue in full force and effect thereafter to the same extent as if this Section 21 were a separate and independent contract made by Lessor, Lessee and each Financing Party. Lessee's Financing Parties shall be express third party beneficiaries of this Section 21.

22. **Defaults and Remedies.**

(a) Events of Default. The occurrence of any of the following (each an "***Event of Default***") shall place the Party responsible for the Event of Default (the "***Defaulting Party***") in default of this Agreement, and the other Party (the "***Non-Defaulting Party***") shall be entitled to the remedies provided in Section 22(b): (i) a Party's failure to pay any amount required to be paid hereunder and such failure shall continue for thirty (30) days after written notice of such failure has been received by the Defaulting Party, (ii) a Party's failure to perform any covenant or obligations hereunder, other than payment of monetary sums, or commitment of a material breach of this Agreement and the failure to cure such default within sixty (60) days after written notice specifying such failure has been received by the Defaulting Party, or (iii) if the nature or extent of the obligation or obligations is such that more than sixty (60) days are required to complete the cure, a Party's failure to use diligence and good faith to commence and continue exercising commercially reasonable diligence to cure the Event of Default after such sixty (60) day period, and (iv) a Party becomes subject to a Bankruptcy Event. Further, if the Parties have a good faith dispute as to whether a payment is due hereunder, the alleged defaulting Party may deposit the amount in controversy in escrow

with any reputable third party escrow, or may interplead the same, which amount shall remain undistributed and shall not accrue interest or penalties, and no Event of Default shall be deemed to have occurred, until final decision by a court of competent jurisdiction or upon agreement by the Parties. No such deposit shall constitute a waiver of the Defaulting Party's right to institute legal action for recovery of such amounts.

(b) Remedies. Except as qualified by Section 21(c), upon the occurrence of, and during the continuance of an Event of Default, the Non-Defaulting Party shall: (i) have the right to terminate this Agreement by giving written notice of termination to the Defaulting Party; and (ii) have all rights and remedies that may be available to the Non-Defaulting Party at law or in equity.

23. **Notices**. All notices under this Agreement shall be made in writing to the Addresses for Notices specified on the Cover Sheet. Notices shall be delivered by hand delivery, regular overnight delivery service, registered or certified mail return receipt requested, or email. Email notices shall require confirmation of receipt. Notices shall be deemed to have been received when delivered as shown on the records or manifest of such courier, delivery service or the U.S. Postal Service. Rejection or refusal to accept delivery of any notice shall be deemed to be the equivalent of receipt of any notice given hereunder. A Party may change its address by providing written notice of the same in accordance with the provisions of this Section 23. Failure to comply strictly with the terms of this provision shall not be held against the Party claiming to have given notice so long as such Party substantially complied with this provision and can demonstrate that the notice in question was received.

24. **Waiver**. The waiver by either Party of any breach of any term, condition, or provision herein contained shall not be deemed to be a waiver of any subsequent breach of such term, condition, or provision, or any other term, condition, or provision contained herein.

25. **Remedies Cumulative**. No remedy herein conferred upon or reserved to Lessee or Lessor shall exclude any other remedy herein or by law or in equity or by statute provided, but each shall be cumulative and in addition to every other remedy given hereunder or now or hereafter existing at law or in equity or by statute.

26. **Headings**. The headings in this Agreement are solely for convenience and ease of reference and shall have no effect in interpreting the meaning of any provision of this Agreement.

27. **Invalid Term.** If any provision of this Agreement is declared or determined by any court of competent jurisdiction to be illegal, invalid or unenforceable, the legality, validity or enforceability of the remaining parts, terms and provisions shall not be affected thereby, and said illegal, unenforceable or invalid part, term or provision will be deemed not to be a part of this Agreement; *provided, however*, that the Parties shall work together in good faith to modify this Agreement as necessary to retain the intent of any such severed clause.

28. **Choice of Law**. This Agreement shall be construed in accordance with the laws of the State of Maine, without regard to its conflict of law principles.

29. **Dispute Resolution.** In the event that there is any controversy, claim or dispute between the Parties hereto arising out of or related to this Agreement, or the breach hereof, the Parties agree to engage in good faith negotiations to resolve such dispute. If the Parties are unable to resolve such dispute through such negotiations, either Party may, within a reasonable time after the dispute has arisen, pursue all available legal and/or equitable remedies.

30. **Attorney's Fees**. In the event there is a lawsuit, action, arbitration, or other proceeding between Lessee and Lessor, which arises from or concerns this Agreement, whether that lawsuit, action, arbitration, or other proceeding involves causes of action in contract or in tort, at law or in equity, the substantially prevailing party shall be entitled to recover all costs and expenses, including its actual attorneys' and expert or consultants' fees and court costs, in such lawsuit, action, arbitration, or other proceeding.

31. **Waiver of Jury Trial**. TO THE EXTENT PERMITTED BY LAW, EACH PARTY HEREBY KNOWINGLY, VOLUNTARILY, INTENTIONALLY, AND IRREVOCABLY WAIVES ITS RESPECTIVE RIGHTS TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION IN ANY COURT IN ANY JURISDICTION BASED UPON OR ARISING OUT OF OR RELATING TO THIS AGREEMENT AND ANY OTHER AGREEMENT CONTEMPLATED TO BE EXECUTED IN CONJUNCTION HEREWITH, OR ANY COURSE OF CONDUCT, COURSE OF DEALING, STATEMENTS (WHETHER VERBAL OR WRITTEN) OR ACTIONS OF ANY PARTY HERETO. EACH OF THE PARTIES TO THIS AGREEMENT WAIVES ANY RIGHT TO CONSOLIDATE ANY ACTION IN WHICH A JURY TRIAL HAS BEEN WAIVED WITH ANY OTHER ACTION IN WHICH A JURY TRIAL CANNOT OR HAS NOT BEEN WAIVED.

32. **Binding Effect**. This Agreement and its rights, privileges, duties and obligations shall bind and inure to the benefit of and be binding upon each of the Parties hereto, together with their respective heirs, personal representatives, successors and permitted assigns.

33. **Counterparts**. This Agreement may be executed in any number of counterparts, which shall together constitute one and the same agreement. Each Party agrees that signatures transmitted by facsimile or electronically shall be legal and binding and have the same full force and effect as if an original of this Agreement and had been delivered and hereby waive any defenses to the enforcement of the terms of this Agreement based on the foregoing forms of signature.

34. **Entire Agreement**. This Agreement, including the Cover Sheet and all exhibits, represents the full and complete agreement between the Parties hereto with respect to the subject matter contained herein and therein and supersedes all prior written or oral negotiations, representations, communications and agreements between said parties with respect to said subject matter. This Agreement may be amended only in writing signed by both Lessee and Lessor or their respective successors in interest. Lessor and Lessee each acknowledge that in executing this Agreement that Party has not relied on any verbal or written understanding, promise, or representation which does not appear in this document.

35. **Further Assurances**. Upon the receipt of a request from the other Party or a Financing Party, each Party shall execute such commercially reasonable additional documents, instruments and assurances and take such additional actions as are reasonably necessary to carry out the terms and intent hereof, including at the requesting Party's expense, entering into any consents, assignments, affidavits, estoppels and other documents as may be reasonably required by such Party's lender to create, perfect or preserve its collateral interest in such Party's property or such party's rights and obligations under this Agreement. Any estoppel shall be executed within ten (10) days of a request therefor. Neither Party shall unreasonably withhold, condition or delay its compliance with any reasonable request made pursuant to this Section 35.

36. **Force Majeure**. Except as otherwise specifically provided in this Agreement, neither Party shall be considered in breach of this Agreement or liable for any delay or failure to comply with this Agreement, if and to the extent that such delay or failure is attributable to the occurrence of a Force Majeure Event; provided that the Party claiming relief under this Section 36 shall immediately (i) notify the other Party in writing of the existence of the Force Majeure Event, (ii) exercise all reasonable efforts necessary to minimize delay caused by such Force Majeure Event, (iii) notify the other Party in writing of the cessation or termination of said Force Majeure Event and (iv) resume performance of its obligations hereunder as soon as practicable thereafter. If a Force Majeure Event shall have occurred that has prevented either Party from performing any of its material obligations hereunder and that has continued for a continuous period of one hundred twenty (120) days, then either Party shall have the right, but not the obligation, to terminate the Agreement upon ninety (90) days' prior notice to the other Party without penalty or further liability. If at the end of such ninety (90) day period such Force Majeure Event shall still continue and the material obligation has not been able to be resumed to the reasonable satisfaction of the affected Party, the Agreement shall terminate. Upon such termination due to a Force Majeure Event, neither Party shall have

any liability to the other (other than any such liabilities that have accrued prior to such termination or those which expressly survive the termination or expiration of the Agreement pursuant to the terms hereof). If, at the end of such ninety (90) day period such Force Majeure Event is no longer continuing, the Agreement shall remain in full force and effect, and the Party's termination notice shall be deemed to have been withdrawn. Rent shall abate for any period during which Lessee is not able to operate the System in the manner contemplated herein.

37. **Confidentiality**. Lessor will maintain in strict confidence, for the sole benefit of Lessee, the existence and the terms of this Agreement and the transactions contemplated herein, including but not limited to any business plans, financial information, technical information regarding the design, operation, maintenance of the System; *provided, however*, Lessor may disclose this Agreement and the transactions contemplated herein to Lessor's affiliates, subsidiaries, attorneys, consultants or other agents or professional advisors, or as required by law.

38. **Memorandum of Option and Lease**. Lessor agrees to cooperate with Lessee in executing any documents necessary to protect Lessee's rights in or use of the Premises. A Memorandum of Option and Lease in substantially the form attached hereto as **Exhibit E** shall be recorded in the Registry of Deeds where real estate records are customarily filed in the jurisdiction of the Premises.

39. **Brokers**. In the event any broker or other party claims a commission, the Party responsible for the contact with that claimant shall indemnify, defend and hold the other Party harmless from that claim, and including, without limitation, the payment of any attorneys' fees and costs incurred.

40. **Interpretation.** This Agreement shall not be construed against the Person or entity preparing it, but shall be construed as if all of the Parties jointly prepared this Agreement without any uncertainty or ambiguity being interpreted against any one of them.

41. **No Partnership.** This Agreement is not intended and shall not be construed to create any partnership or joint venture or any other relationship other than one of 'lessor' and 'lessee' and 'grantor' and 'grantee', and neither Party shall be deemed the agent of the other Party nor have the authority to act as agent for the other Party, other than as provided in Section 3(d).

42. **Public Officials.** Lessor acknowledges that its receipt of monetary and other good and valuable consideration hereunder may represent a conflict of interest if Lessor is a government employee or otherwise serves on a governmental entity with decision-making authority (a "***Public Official***") as to any rights Lessee may seek, or as to any obligations that may be imposed upon Lessee in order to develop and/or operate the Systems ("***Development Rights***"), and Lessor hereby agrees to (1) recuse him/herself from all such decisions related to Lessee's Development Rights unless such recusal is prohibited by law or is not reasonably practicable considering the obligations of such Public Official's position and (2) recuse him/herself from all such decisions related to Lessee's Development Rights if such recusal is required by law. If Lessor is not required pursuant to (1) or (2) above to recuse him/herself from a decision related to Lessee's Development Rights, Lessor will, in advance of any vote or other official action on the Development Rights, disclose the existence of this Agreement (but not the financial terms therein) at an open meeting of the relevant governmental entity Lessor serves on as a Public Official. Additionally, if Lessor is a Public Official and any of Lessor's spouse, child or other dependent has a financial interest in the Systems, Lessor shall disclose such relationship (but not the financial terms thereof) at an open meeting of the relevant governmental entity Lessor serves on as a Public Official, prior to participation in any decision related to Lessee's Development Rights.

43. **Time is of the Essence**. Time is of the essence with respect to all provisions within this Agreement.

44. **Subdivision**. Notwithstanding anything in this Agreement to the contrary, in the event that this Agreement and/or the rights and easements contemplated hereunder shall create a subdivision of the Property as defined under 30-A M.R.S. § 4401, then Lessor shall be deemed to have approved such

subdivision by his/her/its execution hereof, provided that Lessee shall be responsible for all cost and expense of obtaining all other approvals (including, without limitation, municipal approvals) for such subdivision.

45. **Setback Waiver**. To the extent that any applicable law, ordinance, regulation or permit establishes, or has established, minimum setbacks from the exterior boundaries of the Property, from any structures on the Property (occupied or otherwise), or from any other point of measurement for improvements constructed on the property of which the Premises is a part, Lessor hereby waives any and all such setbacks and setback requirements (the "***Setback Waiver***"). The Setback Waiver is for the benefit of Lessee, the owner(s) of any adjacent properties, and their respective successors and assigns, and shall run with the land. Further, if requested by Lessee, Lessor shall execute and deliver to Lessee one or more separate setback waivers and/or easements in a form provided by Lessee, which Lessee may then record at its expense. This waiver shall survive the termination of this Agreement for so long as improvements exist on real property adjacent to the Premises.

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK – SIGNATURE PAGE FOLLOWS

IN WITNESS WHEREOF, the Parties have executed this Agreement on the Effective Date.

LESSOR:

ROMAN CATHOLIC BISHOP OF PORTLAND,
a corporation sole

By: _____

Name: Robert P. Deeley

Title: Bishop

LESSEE:

YARMOUTH SOLAR 1, LLC
a Delaware limited liability company

BY: 1115 SOLAR DEVELOPMENT, LLC
its sole member and manager

By: _____

Name: Jared Connell

Title: VP of Dev. New Eng.

EXHIBIT A

DESCRIPTION OF PROPERTY

For Lessor's title to the Property, reference is herein made to the deed recorded at the Cumberland County Registry of Deeds at Book 941, Page 366.

EXHIBIT B

DESCRIPTION OF PREMISES

The Premises consists of approximately 12 acres located at the Property as described and/or depicted below.

Lessor agrees that the Description of the Premises will be replaced with actual metes and bounds upon completion of System design and site survey, said survey to be prepared at the sole expense of Lessee.

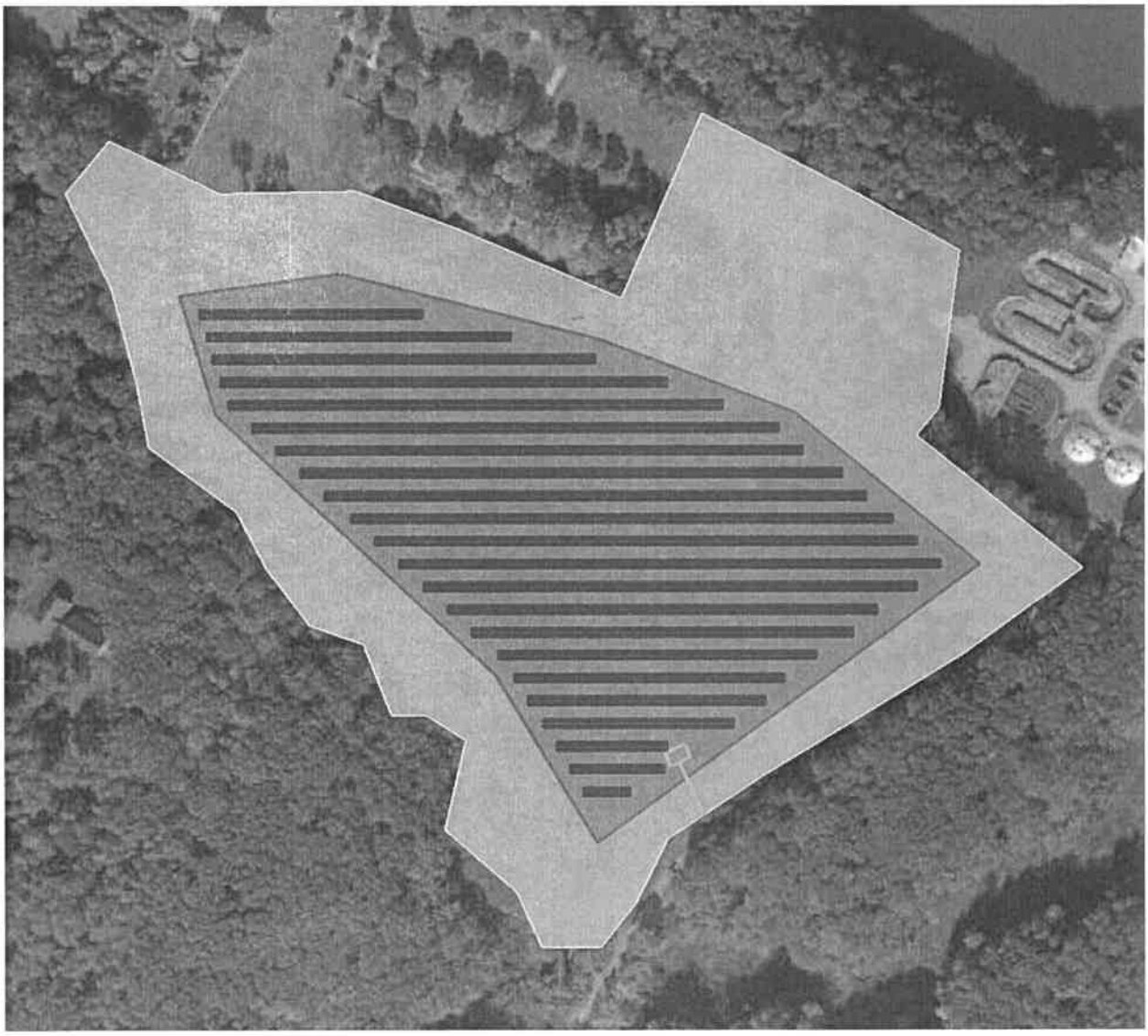


EXHIBIT C

DEFINITIONS

"***Abandonment Notice***" has the meaning set forth in Section 6(c) of this Agreement.

"***Access Easement***" has the meaning set forth in Section 4(c).

"***Affiliate***" means, as to any Person, any other Person that, directly or indirectly, is in control of, is controlled by or is under common control with such Person or is a director, officer or member of such Person or of an Affiliate of such Person.

"***Agreement***" has the meaning set forth on page 1 herein.

"***Applicable Law***" means, with respect to any Person, any constitutional provision, law, statute, rule, regulation, ordinance, treaty, order, decree, judgment, decision, certificate, holding, injunction, registration, license, franchise, permit, authorization, guideline, Governmental Approval, Environmental Law, consent or requirement of any Governmental Authority having jurisdiction over such Person or its property, enforceable at law or in equity, including the interpretation and administration thereof by such Governmental Authority.

"***Authorization Letter***" has the meaning set forth in Section 3(d) of this Agreement.

"***Bankruptcy Event***" means with respect to a Party, that either: such Party has (A) applied for or consented to the appointment of, or the taking of possession by, a receiver, custodian, trustee or liquidator of itself or of all or a substantial part of its property; (B) admitted in writing its inability to pay its debts as such debts become due; (C) made a general assignment for the benefit of its creditors; (D) commenced a voluntary case under any bankruptcy law; (E) filed a petition seeking to take advantage of any other law relating to bankruptcy, insolvency, reorganization, winding up, or composition or readjustment of debts; or (F) taken any corporate or other action for the purpose of effecting any of the foregoing; or a proceeding or case has been commenced without the application or consent of such Party in any court of competent jurisdiction seeking (i) its liquidation, reorganization, dissolution or winding-up or the composition or readjustment of debts or, (ii) the appointment of a trustee, receiver, custodian, liquidator or the like of such Party under any bankruptcy law, and such proceeding or case has continued undefended, or any order, judgment or decree approving or ordering any of the foregoing shall be entered and continue unstayed and in effect for a period of one hundred eighty (180) days.

"***Business Day***" means any day other than Saturday, Sunday or any other day on which banking institutions in the state where the Property is located are required or authorized by Applicable Law to be closed for business.

"***Commercial Operation Date***" means the date on which the System(s) commences selling electricity to a third party purchaser on a commercial basis (excluding the sale of test energy).

"***Construction License***" has the meaning set forth in Section 4(d) of this Agreement.

"***Construction License Area***" has the meaning set forth in Section 4(d) of this Agreement.

"***Defaulting Party***" has the meaning set forth in Section 22(a) of this Agreement.

"***Development Rights***" has the meaning set forth in Section 42 of this Agreement.

"***Dispute***" has the meaning set forth in Section 29 of this Agreement.

"***Easements***" has the meaning set forth in Section 4(c) of this Agreement.

"***Environmental Attributes and Incentives***" means any emissions, air quality or other environmental attribute, aspect, characteristic, claim, credit, benefit, reduction, offset or allowance, howsoever entitled or designated, directly or indirectly resulting from, attributable to or associated with the generation of energy by a solar renewable energy facility and/or through the storage of electricity, whether existing as of the Effective Date or thereafter, and whether as a result of any present or future local, state or federal laws or regulations or local, state, national or international voluntary program.

"***Environmental Claims***" has the meaning set forth in Section 14 of this Agreement. "***Environmental Law***" means and includes, without limitation, any present or future federal, state or local law, whether under common law, statute, rule, regulation or otherwise, requirements under Permits or other authorizations issued with respect thereto, and other orders, decrees, judgments, directive or other requirements of any Governmental Authority relating to or imposing liability or standards of conduct, disclosure or notification with regard to the protection of human health, the environment, ecological conditions, Hazardous Substances or any activity involving Hazardous Substances.

"***Event of Default***" has the meaning set forth in Section 22(a) of this Agreement.

"***Exercise Notice***" has the meaning set forth in Section 4(a) of this Agreement.

"***Expiration Date***" has the meaning set forth on the Cover Sheet, as such date may be extended in accordance with the Agreement.

"***Extension Exercise Notice***" has the meaning set forth in Section 7 of this Agreement.

"***Extension Option***" has the meaning set forth in Section 7 of this Agreement.

"***Extension Term***" has the meaning set forth in Section 7 of this Agreement.

"***Financing Party***" means, as applicable (i) any Person (or its agent) from whom Lessee (or an Affiliate of Lessee) leases the System or (ii) any Person (or its agent) who has made or will make a loan to or otherwise provide capital to Lessee (or an Affiliate of Lessee) with respect to the System. Lessee shall provide written notice to Lessor of, and the contact information for, any Financing Party prior to a party being deemed a Financing Party hereunder.

"***Force Majeure Event***" means, when used in connection with the performance of a Party's obligations under this Agreement, any events or circumstances beyond the affected Party's reasonable control that arise after the Effective Date, to the extent not caused by the acts or omissions of (and are otherwise unavoidable, or beyond the reasonable control of, and could not have been prevented or overcome by the reasonable efforts and diligence of) such Party and which materially and adversely affects such Party's performance of its obligations under this Agreement. Force Majeure Event includes but is not limited to the following: (i) war, riot, acts of a public enemy or other civil disturbance; (ii) acts of God, including but not limited to, earthquakes, tornados, typhoons, lightning, blizzards, hurricanes and landslides of the type which would, under normal circumstances and typical insurance policies, constitute an event of insurable loss; (iii) acts of, or unreasonably excessive failures to act by, any Governmental Authority including changes in Applicable Law after the Effective Date (other than acts of Governmental Authorities in response to a Party's failure to comply with existing Applicable Laws as required in connection with performance under this Agreement); and (iv) strikes, walkouts, lockouts or similar industrial or labor actions or disputes not caused by, specific to employees of, or the result of an unfair labor practice or other unlawful activity by the asserting Party.

"***Governmental Approvals***" has the meaning set forth in Section 3(d) of this Agreement.

"***Governmental Authority***" means any federal, state, regional, county, town, city or municipal government, whether domestic or foreign, or any department, agency, bureau or other administrative, regulatory or judicial body of any such government.

"***Hazardous Substances***" means and includes, without limitation any substance, chemical, material or waste: (i) the presence of which causes a nuisance or trespass of any kind under any applicable Environmental Law; (ii) which is regulated by any Governmental Authority; (iii) is likely to create liability under any Environmental Law because of its toxic, flammable, corrosive, reactive, carcinogenic, mutagenic, infectious, radioactive, or other hazardous property or because of its effect on the environment, natural resources or human health and safety, including but not limited to, flammables and explosives, gasoline, petroleum and petroleum products, asbestos containing materials, polychlorinated biphenyls, lead and lead-based paint, radon, radioactive materials, microbial matter, biological toxins, mycotoxins, mold or mold spores or any hazardous or toxic material, substance or waste which is defined by those or similar terms or is regulated as such by any Governmental Authority; or (iv) which is designated, classified, or regulated as being a hazardous or toxic substance, material, pollutant, waste (or a similar such designation) under any federal, state or local law, regulation or ordinance, including under any Environmental Law.

"***Insolation***" has the meaning set forth in Section 13(g) of this Agreement.

"***Land***" has the meaning set forth in Recital B.

"***Lease Commencement Date***" has the meaning set forth in Section 4(a) of this Agreement.

"***Lease Term***" has the meaning set forth on the Cover Sheet of this Agreement.

"***Lessee Real Property Taxes***" has the meaning set forth in Section 16 of this Agreement.

"***Lessee Parties***" means, individually or collectively, Lessee, its Affiliates and any of their authorized representatives, agents, employees, managers, contractors, architects, and engineers, and each of their respective officers, directors, partners, members, managers, agents, employees, representatives, and invitees.

"***Lessee Taxes***" has the meaning set forth in Section 16 of this Agreement.

"***Lessor Parties***" means, individually or collectively, Lessor, its Affiliates, and any of their authorized representatives, agents, employees, managers, and each of their respective officers, directors, partners, members, managers, agents, employees, and representatives.

"***Local Electric Utility***" means the local electric distribution owner and operator providing electric distribution services to Lessee and also providing electric distribution and interconnection services to Lessee for Lessee's System.

"***Non-Defaulting Party***" has the meaning set forth in Section 22(a) of this Agreement.

"***NDA***" has the meaning set forth in Section 13(f) of this Agreement.

"***Operation Term***" has the meaning set forth in Section 5(b) of this Agreement.

"***Option***" has the meaning set forth in Section 3(a) of this Agreement.

"***Option Term***" has the meaning set forth in Section 3(b) of this Agreement.

"***Party" or "Parties"*** has the meaning set forth on page 1 of this Agreement.

"***Permits***" means all applications, approvals, authorizations, consents, filings, licenses, orders, permits or similar requirements imposed by any Governmental Authority which are required in order to develop, construct, operate, maintain, improve, refurbish and retire the System or to schedule and deliver the electric energy produced by the System to the Local Electric Utility, including an authorization to construct or a conditional use permit.

"***Person***" means any individual, corporation, partnership, limited liability company, joint venture, estate, trust, unincorporated association, any other person or entity, and any federal, state, county or municipal

government or any bureau, department or agency thereof and any fiduciary acting in such capacity on behalf of any of the foregoing.

"***Personal Property Taxes***" has the meaning set forth in Section 16 of the Agreement.

"***Premises***" has the meaning set forth in Recital B of this Agreement.

"***Property***" has the meaning set forth in Recital A of this Agreement.

"***Public Official***" has the meaning set forth in Section 42 of this Agreement.

"***Removal Date***" has the meaning set forth in Section 6(c) of this Agreement.

"***Rent***" has the meaning set forth on the Cover Sheet of this Agreement.

"***Roll Back Taxes***" has the meaning set forth in Section 16(b) of this Agreement.

"***Sales Tax***" has the meaning set forth in Section 16(b) of this Agreement.

"***Security Interest***" has the meaning set forth in Section 13(n) of this Agreement.

"***System(s)***" means the solar photovoltaic and/or storage system or systems installed and operating at the Premises, together with all electrical production, transmission, storage, and distribution facilities and related equipment, hardware and materials, including without limitation, panels, overhead and underground transmission, distribution or collector lines, circuit breakers, meters, conduit, footings, cabling, wires, overhead and underground control, communications and radio relay systems, energy storage facilities (including batteries), interconnection facilities and/or switching facilities, transformers and current inverters, control boxes and computer monitoring equipment systems, structures, batteries, features and improvements necessary to produce, transmit and store electric energy at such facility (excluding power to the Property).

"***System Loss***" has the meaning set forth in Section 18(b) of this Agreement.

"***System Removal***" has the meaning set forth in Section 6(c) of this Agreement.

"***Taxes and Assessments***" has the meaning set forth in Section 16 of this Agreement.

"***Tests***" has the meaning set forth in Section 2 of this Agreement.

"***Utility Easement***" has the meaning set forth in Section 4(c) of this Agreement.

EXHIBIT D

EXHIBIT E

MEMORANDUM OF OPTION AND LEASE

[See attached]

Recording Requested by and after recording return to:

Yarmouth Solar 1, LLC
c/o New Leaf Energy, Inc.
55 Technology Drive, Suite 102
Lowell, MA 01851
Attn: Legal Department

MEMORANDUM OF OPTION AND LEASE

In accordance with the provisions of 33 M.R.S.A. Section 201, notice is hereby given of the Option and Lease Agreement dated January 26, 2024 (the "***Agreement***").

LESSOR:	Roman Catholic Bishop of Portland
LESSEE:	Yarmouth Solar 1, LLC, a Delaware limited liability company.
DESCRIPTION OF PREMISES:	The Premises consists of approximately 12 acres located at the Property owned by Lessor and commonly known as 0 Lafayette Street, Yarmouth, 04096. The Premises is more particularly described in Exhibit A attached hereto. For Lessor's title to the Property, reference is herein made to a deed recorded at the Cumberland County Registry of Deeds at Book 941, Page 366.
OPTION COMMENCEMENT DATE:	January 26, 2024
LEASE COMMENCEMENT DATE:	The date Lessee exercises the Option.
TERM OF OPTION:	Three Hundred Sixty-Five (365) days with the option to extend for an additional two (2) periods of Three Hundred Sixty-Five (365) days.
TERM OF LEASE:	Twenty (20) years from the Commercial Operation Date with an additional one hundred eighty (180) days to remove the System and restore the Premises.

RIGHTS OF EXTENSION: Lessee has the option to extend the term of the Lease for four (4) additional and successive five-year terms, as provided in the Lease.

OPTION TERM EASEMENTS: The non-exclusive right and easement to enter upon the Property to perform all effort and labor necessary to carry out tests, inspections, surveys and investigations that Lessee deems necessary or advisable to assess the feasibility of the Property for the construction and operation of the System.

LEASE TERM EASEMENTS: The Lease Term Easements are more particularly described in Exhibit A attached hereto. The term of the Lease Term Easements are co-extensive with the term of the Lease.

NO FIXTURE: The System, as defined in the Lease, installed and operated by Lessee at the Premises shall not be deemed a fixture. The System is Lessee's personal property and Lessor has no right, title or interest in the System. Further, Lessor has waived all right of levy for rent, all claims and demands against the System and all rights it may have to place a lien on the System.

RESTRICTION ON TRANSFER: This Agreement burdens the Property and any transfer of the Property requires an assignment and assumption of this Agreement together with the transfer of the Property.

[*SIGNATURE PAGE FOLLOWS*]

IN WITNESS WHEREOF, the parties have duly executed this Memorandum of Option and Lease as of the date first above written.

LESSOR:

ROMAN CATHOLIC BISHOP OF PORTLAND,
corporation sole

By: _____

Name: Robert P. Deeley

Title: B.O.L.

STATE OF MAINE)
) ss.
COUNTY OF Cumberland)

On this 26 day of January, 2024 before me, the undersigned notary public, personally appeared Robert P. Deeley (*name of document signer*), proved to me through satisfactory evidence of identification, which were known aquaintance (*source of identification*) to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he/she signed it voluntarily for its stated purpose.

Notary Public
Print Name
My commission expires

CHRISTINE T. PITTEROFF
Notary Public - Maine
My Commission Expires
April 17, 2026

EXHIBIT A

PREMISES LEGAL DESCRIPTION

EXHIBIT F

January 26, 2024

To Whom It May Concern,

New Leaf Energy, Inc. and its employees and affiliates are hereby authorized to act as our agent for submission of applications and related plans and documents, and to appear before boards and other officials, with respect to obtaining approvals for solar installations to be constructed on my property located at 0 Lafayette Street, Yarmouth, ME 04096.

Sincerely,

Roman Catholic Bishop of Portland

EXHIBIT G

FORM OF AMENDMENT TO DESCRIBE THE PREMISES

FIRST AMENDMENT TO OPTION AND LEASE AGREEMENT

THIS FIRST AMENDMENT TO OPTION AND LEASE AGREEMENT ("***Amendment***") is made and entered into as of _____, 202_ (the "***Effective Date***"), between _____, ("***Lessor***") and _____, a Delaware limited liability company (the "***Lessee***").

WHEREAS, Lessor and Lessee entered into that certain Option and Lease Agreement, dated _____, 202_ with respect to the property commonly known as _____, (collectively, the "***Lease***").

WHEREAS, the legal descriptions for the Premises shown on Exhibit B were based on preliminary site discovery information and were contemplated to be replaced with actual metes and bounds upon completion of System design and site survey.

WHEREAS, Lessee has completed its System design and site survey and the parties now seek to replace the legal descriptions attached to Exhibit B with the legal descriptions for the current design.

WHEREAS, the parties desire to amend the Lease on the terms and conditions contained herein.

NOW, THEREFORE, for good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the parties hereby agree, as follows:

1. **Recitals.** The foregoing recitals are incorporated herein as if set forth at length. Capitalized terms not otherwise defined herein shall have the meanings given to such terms in the Lease. All references herein to the Lease shall include the Lease as modified by this Amendment.

2. **Premises Exhibit**. Exhibit B of the Lease is hereby deleted in its entirety and replaced with **Schedule 1** attached hereto.

3. **Ratification; Full Force and Effect**. Except as amended by this Amendment, the Lease is hereby ratified, confirmed and approved in all respects.

4. **Provisions Binding**. All rights and liabilities given to or imposed upon either of the parties to this Amendment shall extend to and are binding upon the parties hereto and their respective successors and assigns.

5. **Entire Agreement**. This Amendment (a) together with the Lease contains the entire agreement between the parties with respect to the subject matter hereof and supersedes all prior agreements and understandings, whether oral or written, between the parties, (b) may not be modified or amended except by written agreement signed by the parties, (c) will be governed by the laws of the Commonwealth of Massachusetts, without regard to principles of conflicts of laws and (d) may be executed by facsimile signature and in one or more counterparts, each of which will be deemed an original, and all of which when taken together will constitute one and the same instrument.

[Signatures on the Following Page]

IN WITNESS WHEREOF, the parties hereto have executed this Amendment as of the date first above written.

LESSOR:

ROMAN CATHOLIC BISHOP OF PORTLAND,
corporation sole

By: _____

Name: _____

Title: _____

LESSEE:

YARMOUTH SOLAR 1, LLC,
a Delaware limited liability company

By: **1115 Solar Development, LLC**
its sole member and manager

By: _____

Name: _____

Title: _____

SCHEDULE 1

EXHIBIT B

DESCRIPTION OF PREMISES

EXHIBIT 5

CURRENT OWNER'S DEED

366

Know all Men by these Presents, That

I, Michael J. McCormick, of Bath, in the County of Sagadahoc, and State of Maine,

in consideration of one and divers other dollars, paid by the Roman Catholic Bishop of Portland, a corporation sole created by and existing under the laws of the State of Maine, the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Roman Catholic Bishop of Portland, its successors and assigns forever, a certain lot or parcel of land situated in Yarmouth, in the County of Cumberland and State of Maine, bounded and described as follows, viz: Bounded Northeasterly by high-water mark in Royal's River; Southeasterly and Southerly by the channel of Whitcomb's Creek, formerly called Atwell's Creek, and land now owned by Fred Adams and Samuel P. Drinkwater, formerly John Webster and heirs of Stephen Moulton; west by the road to Princes Point, formerly land of Annie Cutter and Zadock Whitcomb, and Northwesterly by land of Dennis Winslow, of the heirs of James Wilson and Riverside Cemetery, formerly the land of Jonathan Mitchell, until it comes to high-water mark in said Royal's River. Excepting and reserving the lot sold to the Inhabitants of the town of Yarmouth for a school-house, and also the one-half acre deeded to Alice G. Drinkwater, dated July 24, 1905. Meaning and intending to convey the same premisee conveyed to me by Warranty Deed of Charles T. C. Whitcomb, dated September 18, 1912, and recorded in the Cumberland County Registry of Deeds, Book 902, Page 16.

U.S.I.R. $1.50 J.J.K. 2/5/15.

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Roman Catholic Bishop of Portland, its successors ~~heirs~~ and assigns, to its ~~their~~ use and behoof forever. And I do covenant with the said Roman Catholic Bishop of Portland, its successors ~~heirs~~ and assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances;

that I have good right to sell and convey the same to the said Roman Catholic Bishop of Portland to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Roman Catholic Bishop of Portland, its successors heirs and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I the said Michael J. McCormick and Mary A. McCormick, wife of the said Michael J. McCormick, joining in this deed as Grantor, and relinquishing and conveying her rights by descent and all her other rights in the above described premises, have hereunto set our hands and seals this fifth day of February in the year of our Lord one thousand nine hundred and fifteen.

Signed, Sealed and Delivered in presence of

John J. Keegan,

Michael J. McCormick, Seal

Mary A. McCormick, Seal

State of Maine, ~~Cumberland~~ Sagadahoc, ss. February 5, 1915. ~~191~~ . Personally appeared the above named Michael J. McCormick, and acknowledged the above instrument to be his free act and deed.

Before me, John J. Keegan, *Justice of the Peace.*

Received Feb. 12, 1915. ~~191~~ , at 12 o'clock 5 m. P. M., and recorded according to the original.

EXHIBIT 6

EASEMENTS

EASEMENTS

There are no covenants or easements proposed for this development; therefore, this section is not applicable.

EXHIBIT 7

HOA

OWNER'S ASSOCIATION

There is no Homeowners Association or Declaration of Covenants associated with this development; therefore, this section is not applicable.

EXHIBIT 8

FINANCIAL CAPACITY

New Leaf Financial Capacity

At the start of each project, our project finance team develops an investment plan that includes a project economics model to ensure that the value proposition is suitable for a long-term owner of the project. Working closely with the development team, the finance team analyzes the project's capability to provide key services and generate market revenues that match our partners' goals, helping ensure a long-term fit.

During the development period, New Leaf Energy will continue to self-fund development and permitting work, using internally-generated cash flow to cover the costs associated with obtaining site control, permitting, interconnection studies, and general development work. New Leaf Energy, with support from its owner, ECP, will acquire any necessary short-term revolving credit facilities occasionally required to further optimize project development funding.

On or before construction notice to proceed (NTP), New Leaf Energy will transfer the project company to a new ownership entity, generally an Independent Power Producer (IPP). New Leaf Energy conducts an intensive onboarding process to vet and evaluate the financial viability of its IPP partners. New Leaf Energy will typically sell to a partner with whom New Leaf Energy has a trusted working relationship. The IPP will take ownership of the project, supplying the debt and cash equity required to fund the equipment procurement and construction of the project.

Once the IPP ownership transfer occurs, the IPP will utilize their balance sheet or establish a construction line of credit to manage the construction process. New Leaf Energy will typically receive milestone payments for continued development and the EPC will receive milestone payments associated with performed work. Equipment procurement will be managed by the IPP in conjunction with the EPC process.

During the construction period, the project will be financed with debt and cash equity which will be procured by the long-term owner of the asset. This IPP or Sponsor that will have extensive experience owning and operating renewable generation and energy storage assets.

During the Operations period, the project will be financed with debt, tax equity and cash equity, which will be procured by the IPP or Sponsor that takes control of the asset at Notice to Proceed ("NTP").

New Leaf Energy's third-party model has numerous advantages over an integrated financing model. A developer with a single "go-to" financing partner puts its projects at risk if that investor becomes insolvent, backs out of a particular market, or determines that a project or group of projects falls outside its target investment profile.

EXHIBIT 9

CONSULTANTS

CONSULTANTS

The following consultants have been involved with the Smith Street solar development:

CIVIL ENGINEER
Haley Ward, Inc.
ATTN: Drew Olehowski, PE
120 Main Street, #132
Saco, ME 04072
207-989-4824

SURVEY
Haley Ward, Inc.
ATTN: Jerry Hamlin, PLS
One Merchants Plaza, Suite 701
Bangor, ME 04401
207-989-4824

ENVIRONMENTAL
Haley Ward, Inc.
ATTN: Dennis Kingman, CHMM
One Merchants Plaza, Suite 701
Bangor, ME 04401
207-989-4824

SOIL SCIENTIST
GZA GeoEnvironmental
ATTN: James Logan, LLS
249 Vanderbilt Avenue
Norwood, MA 02062
1-844-342-5492

EXHIBIT 10

SOLID WASTE

SOLID WASTE

SITE CLEARING AND GRUBBING:
The project development is to be located on a currently wooded section of the subject parcel. Approximately eight acres of clearing is proposed. Stumps produced by tree clearing and grubbing will be ground and used on site for erosion control berms. It is assumed that 300 cubic yards of clearing waste are generated per acre; therefore, approximately 2,400 cubic yards of waste from clearing and grubbing are expected.

CONSTRUCTION AND DEMOLITION DEBRIS:
Construction debris will consist mainly of the cardboard packaging that the solar panels will arrive at the site in. This development is estimated to produce approximately 170 tons of construction debris. Individual dumpsters for different materials (i.e., wood, cardboard, recyclables) will be utilized on the site.

MUNICIPAL SOLID WASTE:
After construction, this will be an unmanned facility that will not generate waste.

SPECIAL AND HAZARDOUS WASTE:
No special or hazardous waste is anticipated during or after construction.

EXHIBIT 11

WATER

WATER SUPPLY

The proposed development is a solar field and does not require a water supply; therefore, this section is not applicable.

EXHIBIT 12

TRAFFIC

TRAFFIC

Post construction, this will be an unmanned operation that will be visited quarterly for maintenance activities; therefore, the proposed development will not negatively impact surrounding roads or traffic.

EXHIBIT 13

DRAINAGE AND TOPOGRAPHY DESCRIPTION

DRAINAGE AND TOPOGRAPHY DESCRIPTION

The site is currently undeveloped and includes significant tree and grass cover. Evidence of logging operations can be seen on site. The majority of the site is relatively flat with steep slopes surrounding the development to the south. Elevations on site range from 10' to 58' with majority of the grade change occurring on the southwest and southeastern side of the proposed development. The site drains into wetlands on the southeastern side and into Whitcomb Creek on the southwestern side of the parcel. Stormwater on site eventually drains into the Royal River. As can be seen in Exhibit 16, the site includes moderately well drained, Hydrologic Soil Group Type C soils.

The site conditions mentioned above do not indicate the presence of any drainage issues. Post-development stormwater features have been designed to ensure that no drainage problems arise after construction. Please refer to the Stormwater Management Plan in Exhibit 14 for a description of the proposed drainage provisions.

EXHIBIT 14

STORMWATER MANAGEMENT PLAN

HydroCAD Calculations

STORMWATER MANAGEMENT

Introduction

The intent of this Stormwater Management Plan is to comply with the requirements of the Maine Department of Environmental Protection's (MDEP) Chapter 500 regulations and The Town of Yarmouth's Land Use Ordinance. This project involves the development of a 17.2-acre commercial solar energy system (ground-mounted solar array) located off Whitcombs Way in Yarmouth, Maine.

Existing Conditions

The project property is identified as Map 5 Lot 15 on the Town's GIS database. The parcel is approximately 48 acres in size, with the northern end of the property occupied by approximately 5 acres of an operational cemetery. The southern end of the property is unoccupied and wooded. The development area has been previously logged which has left sections of meadow through the primary wooded site.

A High Intensity Soils Survey was prepared for this site by GZA GeoEnvironmental on October of 2024 and has been included with this application. Soils identified in the development area are hydrologic soils type C which are generally poorly- to moderately-well drained.

Maine Department of Environmental Protection – Chapter 500 Standards.

The proposed solar array will occupy approximately 7.38 acres and will create 0.32 acres of new impervious area. The meadow area beneath the panels will be maintained as a meadow buffer to MDEP standards; therefore, only the impervious area created by this development is considered "developed" area. Because this project is proposing to create less than 1 acre of new impervious area and 5 acres of developed area, MDEP Stormwater (Chapter 500) and Site Law permits are not required. Due to the fact that the project will disturb more than 1 acre, a stormwater permit by rule will be filed with the MDEP.

Town of Yarmouth Stormwater Standards

Per the Town of Yarmouth Site Plan Application guidelines, the project must comply with the Stormwater Management Review Criteria of Chapter 702 of the Town's Land Use ordinance. Per this Chapter, the development must "provide for adequate storm water management facilities so that the post development runoff rate will be no greater than the predevelopment rate or that there is no adverse downstream impact. Proposed storm water detention facilities shall provide for the control of 2 year and 25-year storm frequency rates. The design, construction and maintenance of private facilities are in conformance with Chapter 330 Post Construction Stormwater Management." Please see below for a demonstration of how these standards have been met.

STORMWATER MANAGEMENT QUANTITY NARRATIVE

To demonstrate that development will conform to the standards of Chapter 330 and 702 of the Town's Land Use Ordinance, HydroCAD calculations were performed to compare pre-development and post-development conditions. Curve numbers and peak runoff flows were calculated using HydroCAD.

The pre-development site is undeveloped woodland, with some existing logging trails. Soils on the site per the USDA web soil survey and a high intensity soils survey, are classified as hydrologic group C. The western half of the site drains to the west and discharges directly to Whitcombs Creek. The eastern half of the site drains to the east to wetlands along Whitcombs road, which ultimately drains to Whitcombs Creek.

The post-development site was broken into three sub-watersheds, encompassing the same footprint as pre-development. Summation Points were chosen in similar areas between pre-development and post-development to compare peak flow runoff for the 2-year, 10-year, and 25-year storm events. Summation Point 1 represents Whitcombs's creek, and Summation Points 2 and 3 represent the northeastern and southeastern property lines, respectively. Stormwater from Summation Points 2 and 3 eventually drain into on site wetland and ultimately drain to Whitcomb Creek.

Based on results of the HydroCAD, it is expected that stormwater runoff from the site will be similar or lessened in post-development conditions as in pre-development conditions. Overall, it is expected that runoff from the site will be similar to post-development conditions and a similar stormwater runoff will be realized. A comparison of each of the watershed areas in both Pre- and Post-Development is organized in the table below.

Table 2: Peak Flow Comparison

		2 Year (cfs)	10 Year (cfs)	25 Year (cfs)	25 Year Net Change (cfs)	25 Year % Change
Summation Point 1	Pre	3.62	8.98	13.91	**-1.01**	**7.26%**
	Post	3.35	8.32	12.90		
Summation Point 2	Pre	1.84	4.37	6.70	**-1.08**	**16.12%**
	Post	1.51	3.66	5.62		
Summation Point 3	Pre	1.77	4.41	6.84	**-0.17**	**2.49%**
	Post	1.87	4.40	6.67		

As can be seen in the table above, all summation points will see similar or decreased post development flow rates. This exceeds the standards required by the Town.

Stormwater on site has been managed through the use of a roadside ditch and three level-spreaders. Watershed 1 includes a 25' level spreader within a naturally existing swale to slow stormwater flow across the site. Similarly, Watershed 2 includes a 10' level spreader within a swale. Watershed 3 includes the majority of the proposed access road. The access road's runoff is collected in a roadside ditch which directs stormwater into a 10' level spreader. Per MDEP's Chapter 500 rules, level spreaders must be designed to have a foot of length for each 0.25 cubic feet per second (cfs) of peak flow from the 10-year, 24-hour design storm. HydroCAD was utilized to determine the quantity of stormwater directed at each level spreader. The level spreaders were then sized accordingly. Please see the following table for a tabulation of the required and provided level spread length.

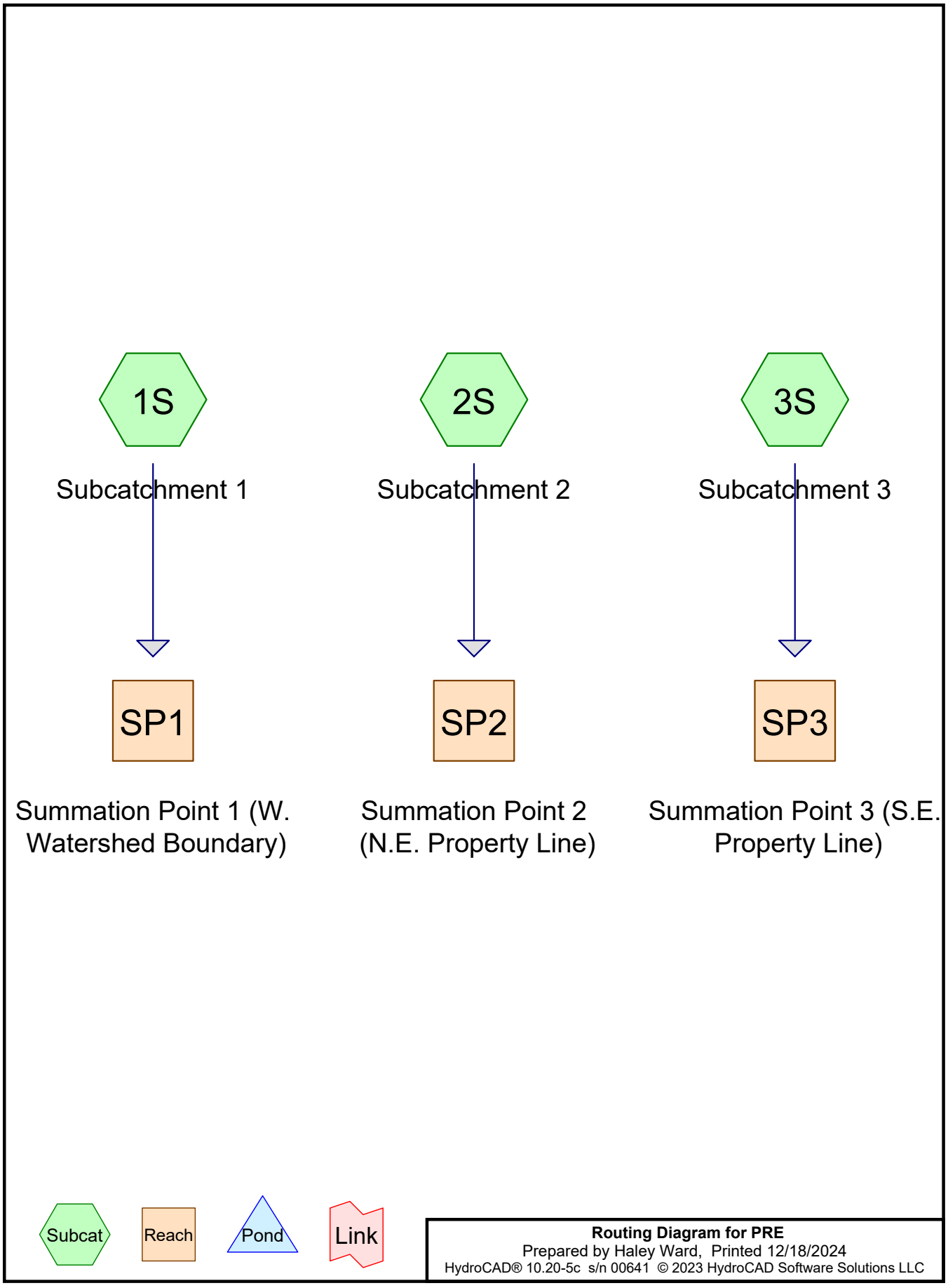
Table 1: Level Spreader Length

Level Spreader	10 Year (cfs)	Length (ft)	
		Required	Proposed
Watershed 1	5.28	21.12	25
Watershed 2	1.77	7.08	10
Watershed 3	1.15	4.60	10

As can be seen in the table above both of the proposed level spreaders exceed the MDEP requirement.

HydroCAD was also utilized to size the culvert under the access road. The proposed culvert has been sized to pass flows from the 10 year-24 hours storm. The design storm leads to a peak flow of 4.80 cfs, at that rate the 18" diameter culvert would flow at approximately 73% capacity.

Please refer to the attached HydroCAD report for design calculations regarding the proposed level spreaders and culverts.



Routing Diagram for PRE
Prepared by Haley Ward, Printed 12/18/2024

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2 yr	Type III 24-hr		Default	24.00	1	3.10	2
2	10 yr	Type III 24-hr		Default	24.00	1	4.60	2
3	25 yr	Type III 24-hr		Default	24.00	1	5.80	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.885	71	Meadow, non-grazed, HSG C (1S, 2S, 3S)
0.280	98	Unconnected pavement, HSG C (1S, 2S, 3S)
14.551	70	Woods, Good, HSG C (1S, 2S, 3S)
17.716	**71**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
17.716	HSG C	1S, 2S, 3S
0.000	HSG D	
0.000	Other	
17.716		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	2.885	0.000	0.000	2.885	Meadow, non-grazed	1S, 2S, 3S
0.000	0.000	0.280	0.000	0.000	0.280	Unconnected pavement	1S, 2S, 3S
0.000	0.000	14.551	0.000	0.000	14.551	Woods, Good	1S, 2S, 3S
0.000	**0.000**	**17.716**	**0.000**	**0.000**	**17.716**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Subcatchment 1 Runoff Area=373,761 sf 0.36% Impervious Runoff Depth>0.68"
Flow Length=550' Tc=34.8 min CN=70 Runoff=3.62 cfs 0.489 af

Subcatchment 2S: Subcatchment 2 Runoff Area=195,882 sf 2.48% Impervious Runoff Depth>0.73"
Flow Length=910' Tc=44.2 min CN=71 Runoff=1.81 cfs 0.272 af

Subcatchment 3S: Subcatchment 3 Runoff Area=202,082 sf 2.97% Impervious Runoff Depth>0.68"
Flow Length=770' Tc=42.1 min UI Adjusted CN=70 Runoff=1.77 cfs 0.263 af

Reach SP1: Summation Point 1 (W. Watershed Boundary) Inflow=3.62 cfs 0.489 af
Outflow=3.62 cfs 0.489 af

Reach SP2: Summation Point 2 (N.E. Property Line) Inflow=1.81 cfs 0.272 af
Outflow=1.81 cfs 0.272 af

Reach SP3: Summation Point 3 (S.E. Property Line) Inflow=1.77 cfs 0.263 af
Outflow=1.77 cfs 0.263 af

Total Runoff Area = 17.716 ac Runoff Volume = 1.024 af Average Runoff Depth = 0.69"
98.42% Pervious = 17.436 ac 1.58% Impervious = 0.280 ac

Summary for Subcatchment 1S: Subcatchment 1

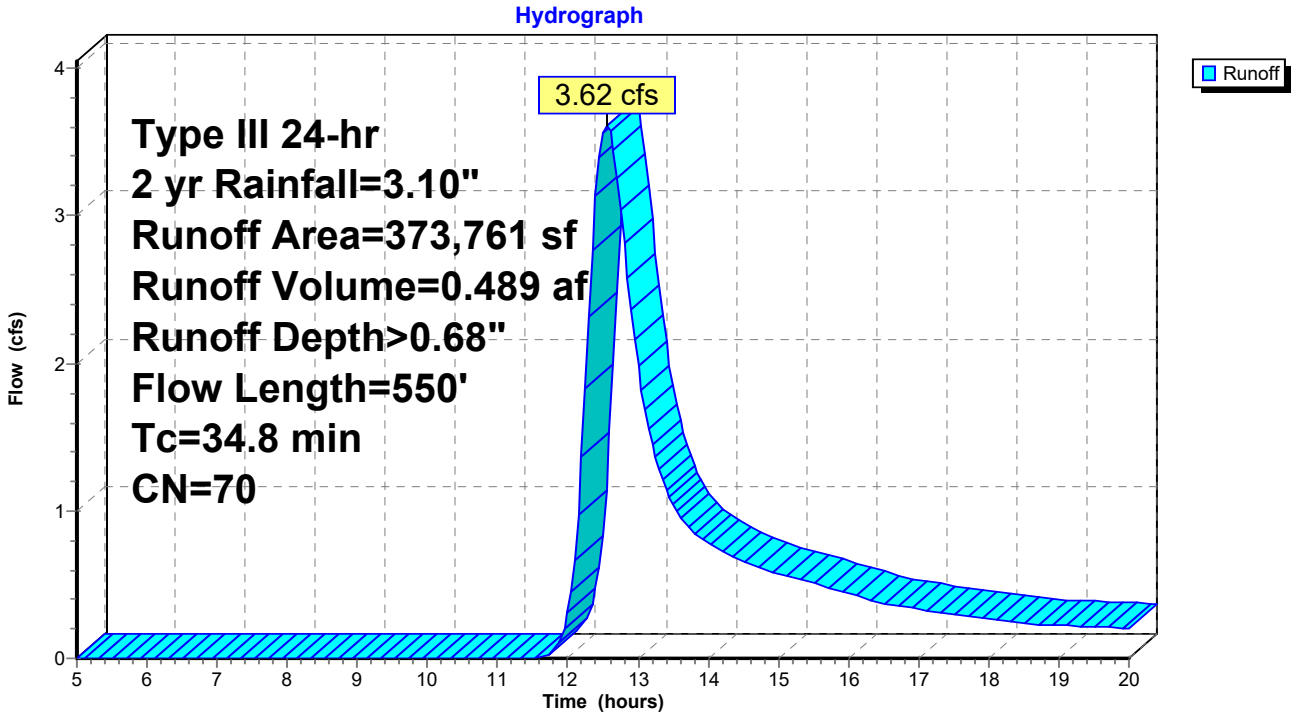
Runoff = 3.62 cfs @ 12.55 hrs, Volume= 0.489 af, Depth> 0.68"
Routed to Reach SP1 : Summation Point 1 (W. Watershed Boundary)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 yr Rainfall=3.10"

Area (sf)	CN	Description
1,347	98	Unconnected pavement, HSG C
82,084	71	Meadow, non-grazed, HSG C
290,330	70	Woods, Good, HSG C
373,761	70	Weighted Average
372,414		99.64% Pervious Area
1,347		0.36% Impervious Area
1,347		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
2.7	80	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.0	170	0.0050	0.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.3	95	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	75	0.2100	2.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	80	0.2500	2.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
34.8	550	Total			

Subcatchment 1S: Subcatchment 1



Summary for Subcatchment 2S: Subcatchment 2

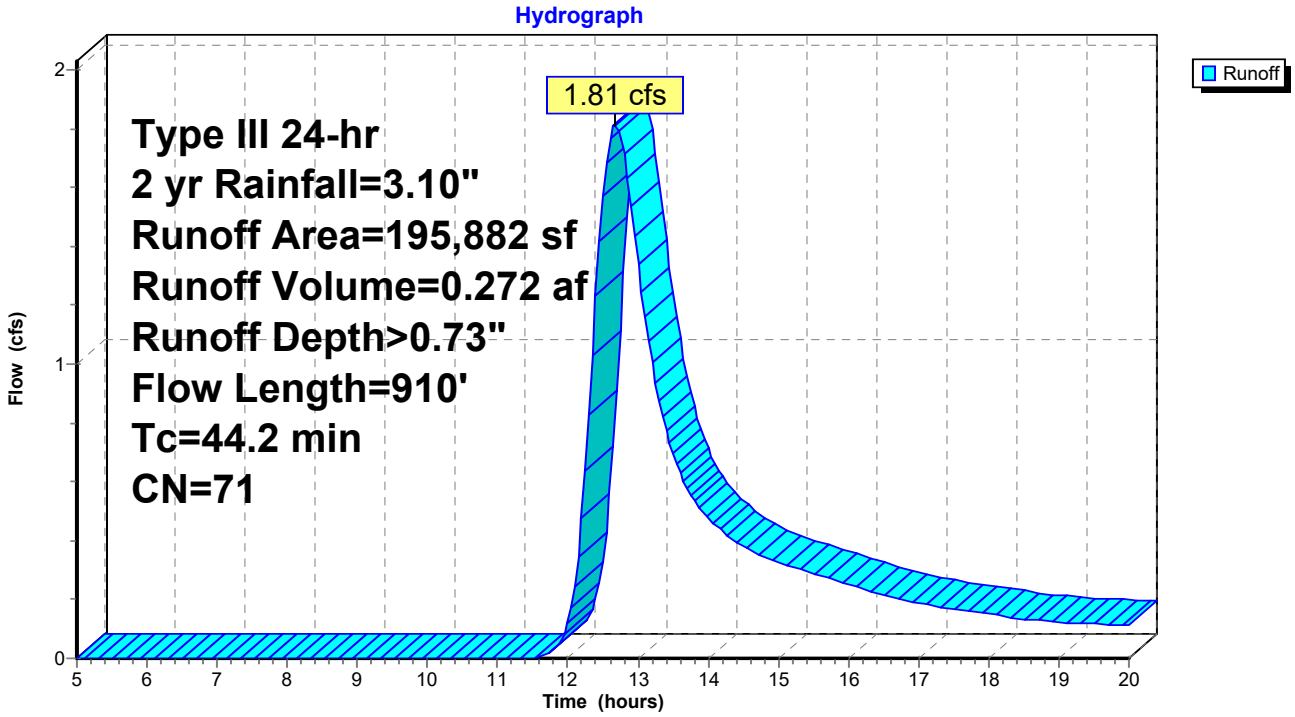
Runoff = 1.81 cfs @ 12.68 hrs, Volume= 0.272 af, Depth> 0.73"
Routed to Reach SP2 : Summation Point 2 (N.E. Property Line)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 yr Rainfall=3.10"

Area (sf)	CN	Description
4,853	98	Unconnected pavement, HSG C
35,537	71	Meadow, non-grazed, HSG C
155,492	70	Woods, Good, HSG C
195,882	71	Weighted Average
191,029		97.52% Pervious Area
4,853		2.48% Impervious Area
4,853		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
8.8	260	0.0050	0.49		**Shallow Concentrated Flow, Conservatively Assumed Meadow** Short Grass Pasture Kv= 7.0 fps
1.7	80	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	100	0.1700	2.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.8	170	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.3	250	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
44.2	910	Total			

Subcatchment 2S: Subcatchment 2



Summary for Subcatchment 3S: Subcatchment 3

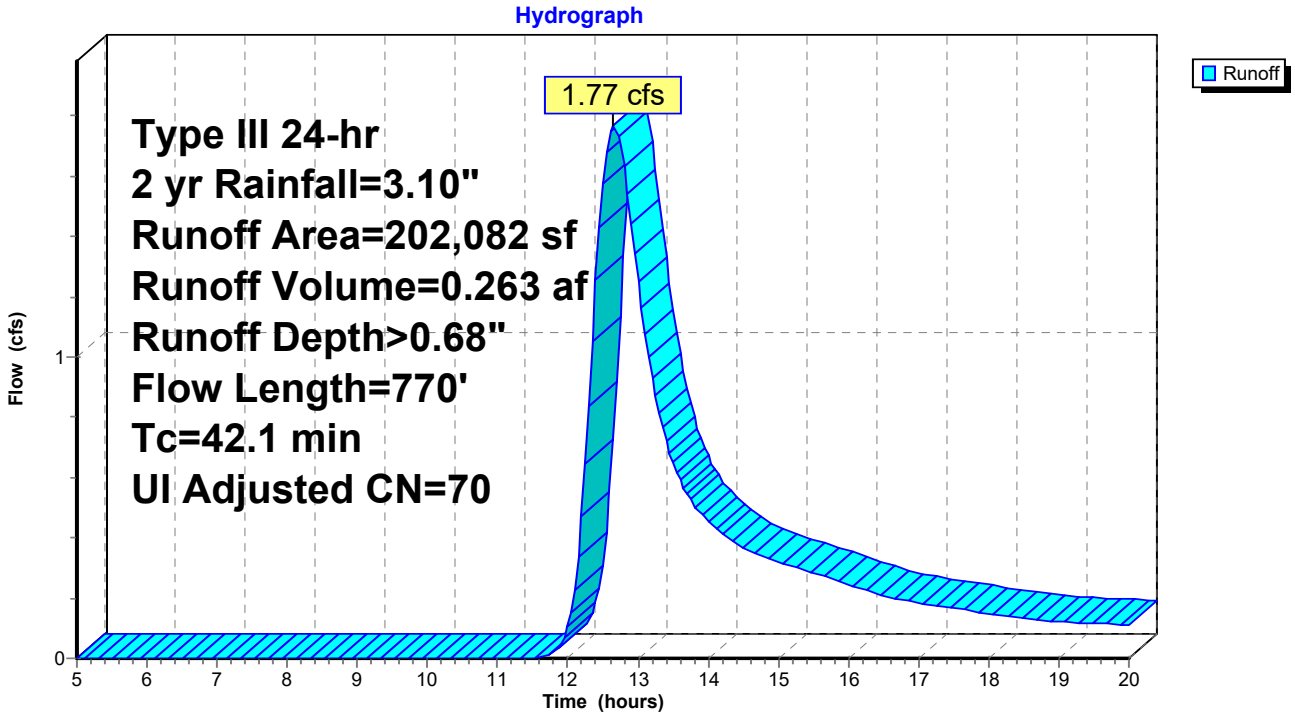
Runoff = 1.77 cfs @ 12.66 hrs, Volume= 0.263 af, Depth> 0.68"
Routed to Reach SP3 : Summation Point 3 (S.E. Property Line)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 yr Rainfall=3.10"

Area (sf)	CN	Adj	Description
5,998	98		Unconnected pavement, HSG C
8,071	71		Meadow, non-grazed, HSG C
188,013	70		Woods, Good, HSG C
202,082	71	70	Weighted Average, UI Adjusted
196,084			97.03% Pervious Area
5,998			2.97% Impervious Area
5,998			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
2.4	70	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.4	50	0.0050	0.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	20	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.0	190	0.0050	0.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.3	120	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.3	140	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.2	130	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
42.1	770	Total			

Subcatchment 3S: Subcatchment 3



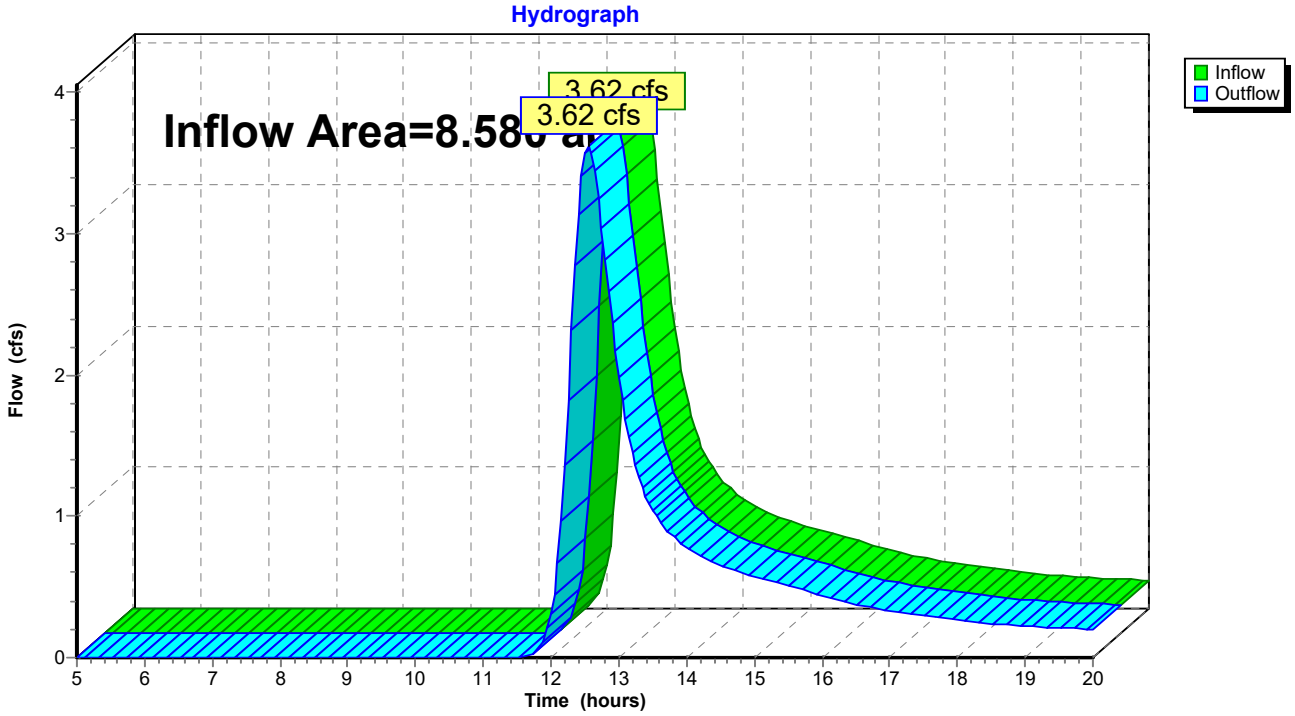
Summary for Reach SP1: Summation Point 1 (W. Watershed Boundary)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.580 ac, 0.36% Impervious, Inflow Depth > 0.68" for 2 yr event
Inflow = 3.62 cfs @ 12.55 hrs, Volume= 0.489 af
Outflow = 3.62 cfs @ 12.55 hrs, Volume= 0.489 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP1: Summation Point 1 (W. Watershed Boundary)



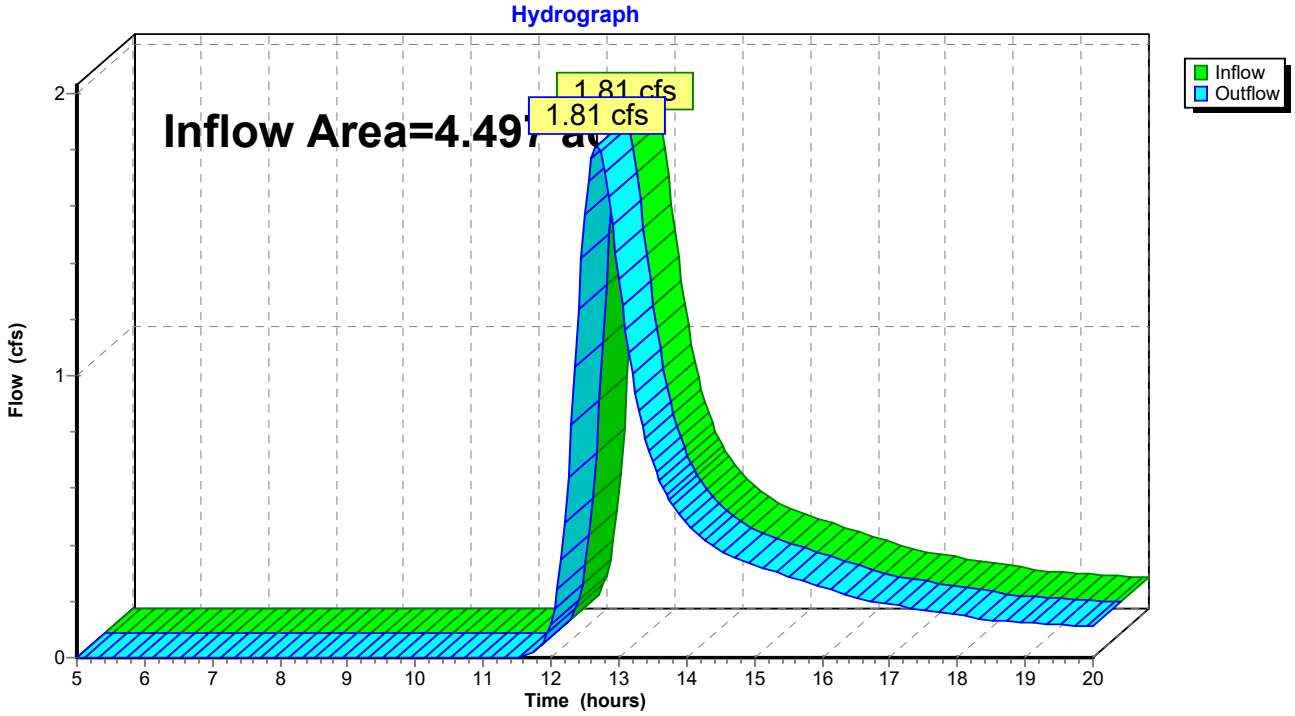
Summary for Reach SP2: Summation Point 2 (N.E. Property Line)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.497 ac, 2.48% Impervious, Inflow Depth > 0.73" for 2 yr event
Inflow = 1.81 cfs @ 12.68 hrs, Volume= 0.272 af
Outflow = 1.81 cfs @ 12.68 hrs, Volume= 0.272 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP2: Summation Point 2 (N.E. Property Line)



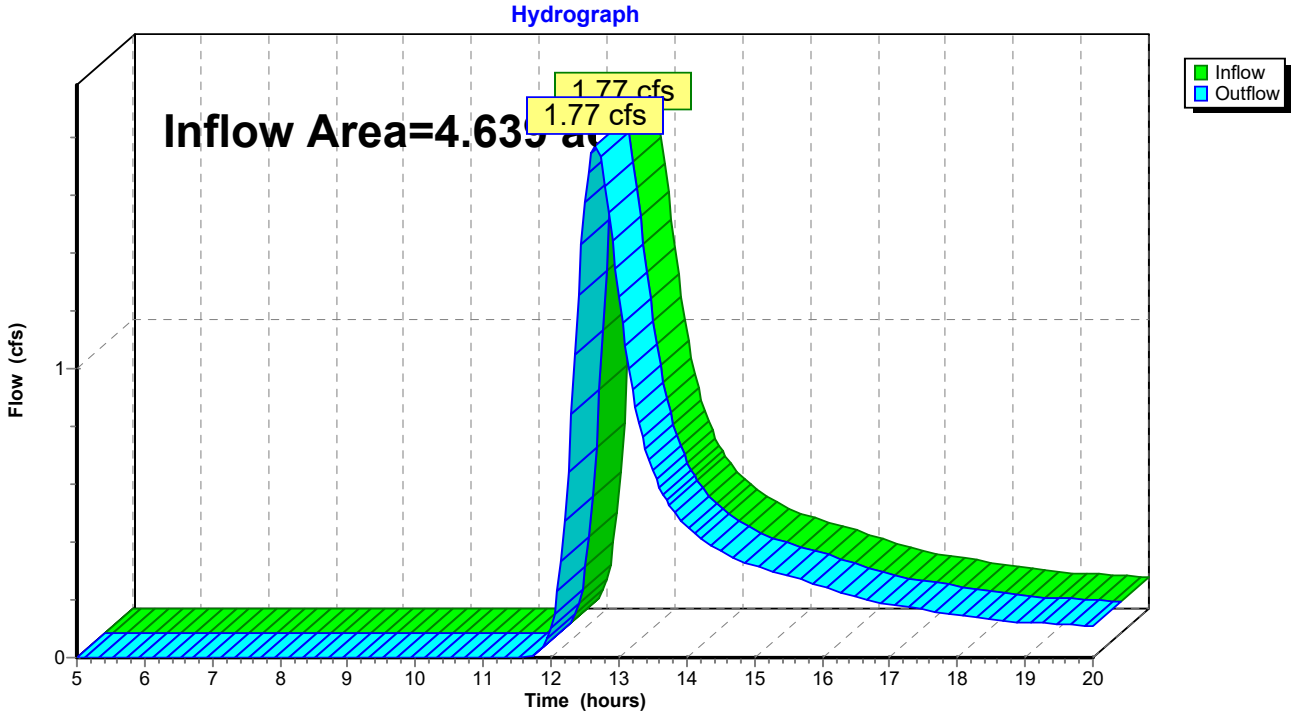
Summary for Reach SP3: Summation Point 3 (S.E. Property Line)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.639 ac, 2.97% Impervious, Inflow Depth > 0.68" for 2 yr event
Inflow = 1.77 cfs @ 12.66 hrs, Volume= 0.263 af
Outflow = 1.77 cfs @ 12.66 hrs, Volume= 0.263 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP3: Summation Point 3 (S.E. Property Line)



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Subcatchment 1 Runoff Area=373,761 sf 0.36% Impervious Runoff Depth>1.58"
Flow Length=550' Tc=34.8 min CN=70 Runoff=8.98 cfs 1.132 af

Subcatchment 2S: Subcatchment 2 Runoff Area=195,882 sf 2.48% Impervious Runoff Depth>1.65"
Flow Length=910' Tc=44.2 min CN=71 Runoff=4.37 cfs 0.617 af

Subcatchment 3S: Subcatchment 3 Runoff Area=202,082 sf 2.97% Impervious Runoff Depth>1.58"
Flow Length=770' Tc=42.1 min UI Adjusted CN=70 Runoff=4.41 cfs 0.610 af

Reach SP1: Summation Point 1 (W. Watershed Boundary) Inflow=8.98 cfs 1.132 af
Outflow=8.98 cfs 1.132 af

Reach SP2: Summation Point 2 (N.E. Property Line) Inflow=4.37 cfs 0.617 af
Outflow=4.37 cfs 0.617 af

Reach SP3: Summation Point 3 (S.E. Property Line) Inflow=4.41 cfs 0.610 af
Outflow=4.41 cfs 0.610 af

Total Runoff Area = 17.716 ac Runoff Volume = 2.359 af Average Runoff Depth = 1.60"
98.42% Pervious = 17.436 ac 1.58% Impervious = 0.280 ac

Summary for Subcatchment 1S: Subcatchment 1

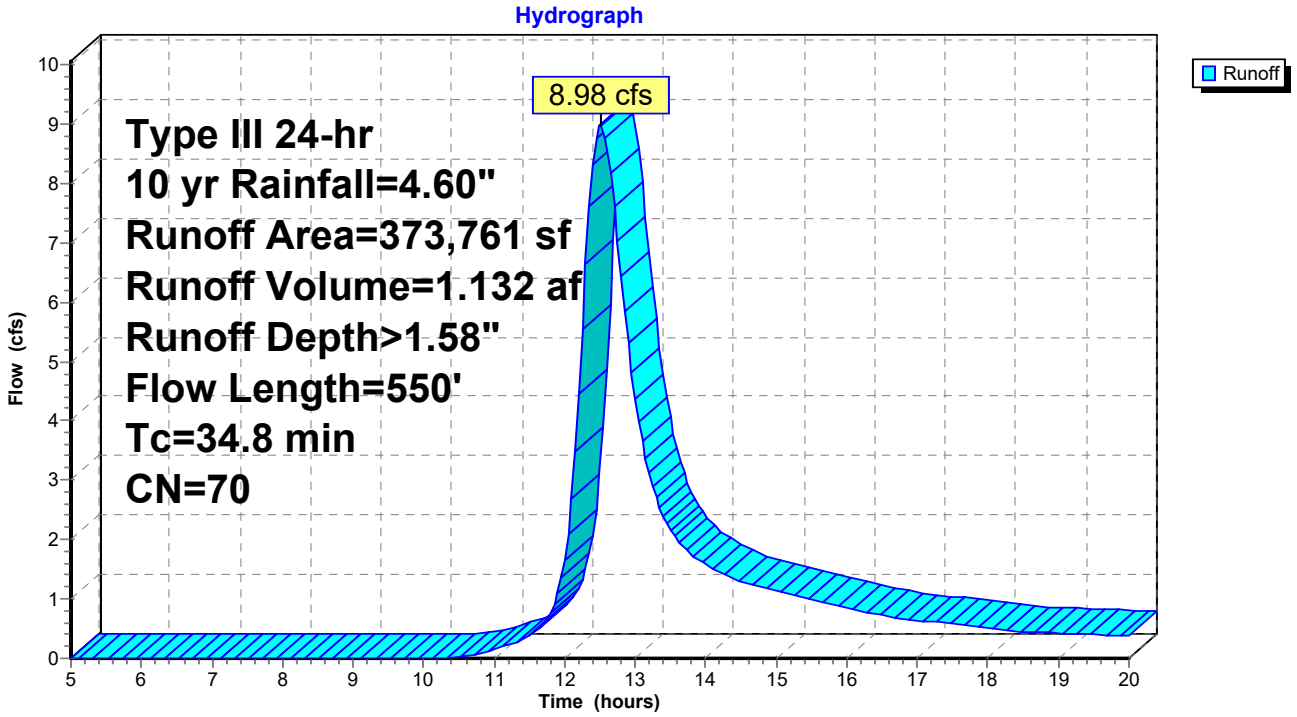
Runoff = 8.98 cfs @ 12.51 hrs, Volume= 1.132 af, Depth> 1.58"
Routed to Reach SP1 : Summation Point 1 (W. Watershed Boundary)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=4.60"

Area (sf)	CN	Description
1,347	98	Unconnected pavement, HSG C
82,084	71	Meadow, non-grazed, HSG C
290,330	70	Woods, Good, HSG C
373,761	70	Weighted Average
372,414		99.64% Pervious Area
1,347		0.36% Impervious Area
1,347		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
2.7	80	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.0	170	0.0050	0.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.3	95	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	75	0.2100	2.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	80	0.2500	2.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
34.8	550	Total			

Subcatchment 1S: Subcatchment 1



Summary for Subcatchment 2S: Subcatchment 2

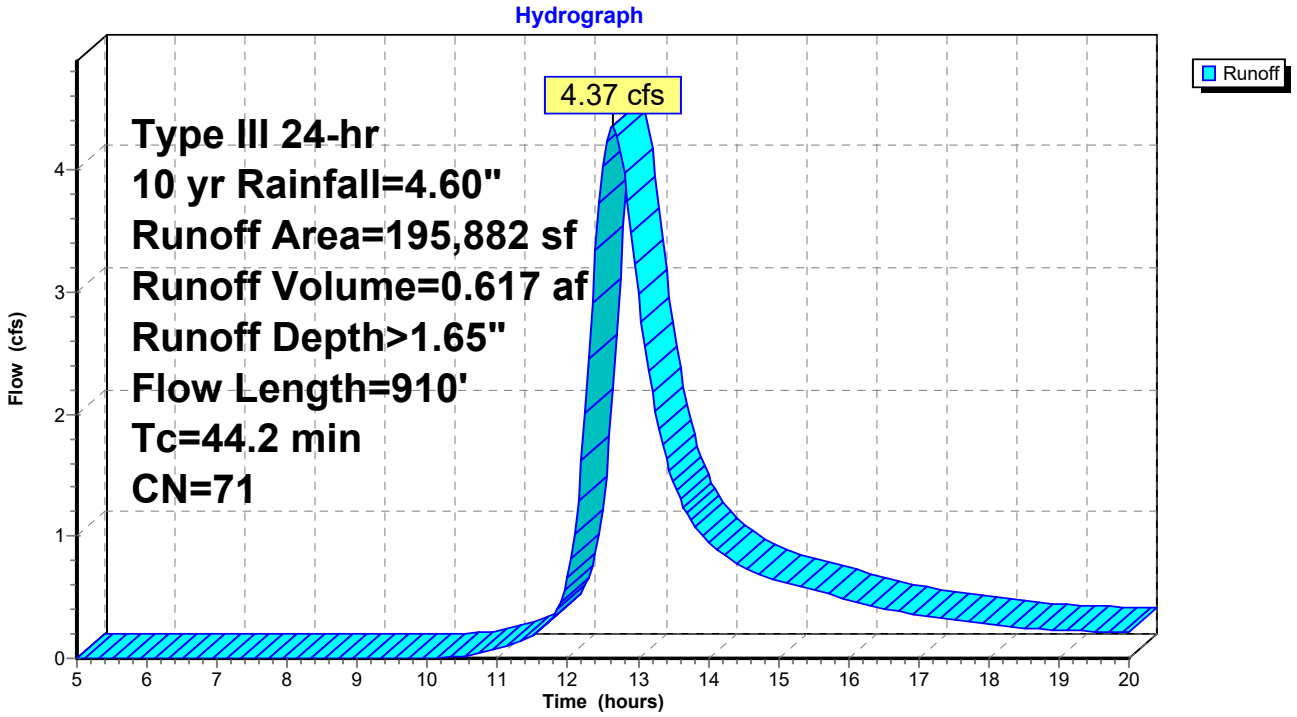
Runoff = 4.37 cfs @ 12.64 hrs, Volume= 0.617 af, Depth> 1.65"
Routed to Reach SP2 : Summation Point 2 (N.E. Property Line)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=4.60"

Area (sf)	CN	Description
4,853	98	Unconnected pavement, HSG C
35,537	71	Meadow, non-grazed, HSG C
155,492	70	Woods, Good, HSG C
195,882	71	Weighted Average
191,029		97.52% Pervious Area
4,853		2.48% Impervious Area
4,853		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
8.8	260	0.0050	0.49		**Shallow Concentrated Flow, Conservatively Assumed Meadow** Short Grass Pasture Kv= 7.0 fps
1.7	80	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	100	0.1700	2.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.8	170	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.3	250	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
44.2	910	Total			

Subcatchment 2S: Subcatchment 2



Summary for Subcatchment 3S: Subcatchment 3

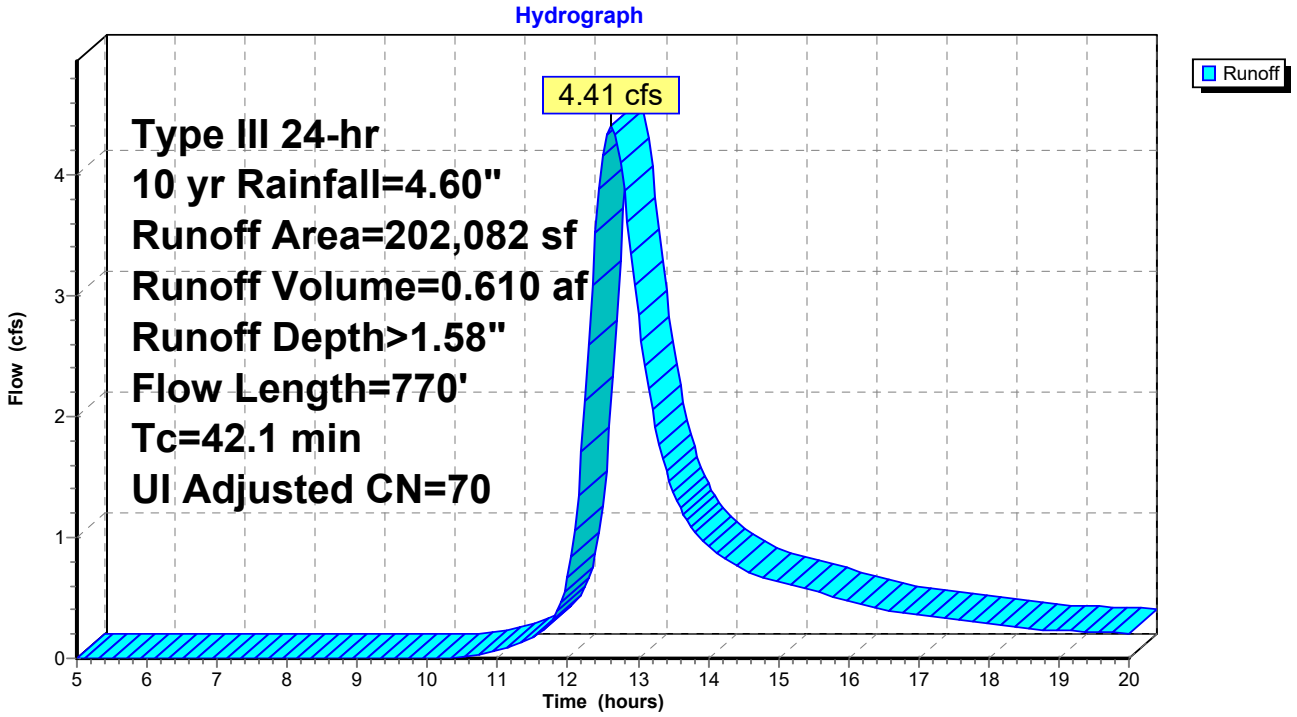
Runoff = 4.41 cfs @ 12.61 hrs, Volume= 0.610 af, Depth> 1.58"
Routed to Reach SP3 : Summation Point 3 (S.E. Property Line)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=4.60"

Area (sf)	CN	Adj	Description
5,998	98		Unconnected pavement, HSG C
8,071	71		Meadow, non-grazed, HSG C
188,013	70		Woods, Good, HSG C
202,082	71	70	Weighted Average, UI Adjusted
196,084			97.03% Pervious Area
5,998			2.97% Impervious Area
5,998			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
2.4	70	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.4	50	0.0050	0.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	20	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.0	190	0.0050	0.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.3	120	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.3	140	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.2	130	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
42.1	770	Total			

Subcatchment 3S: Subcatchment 3



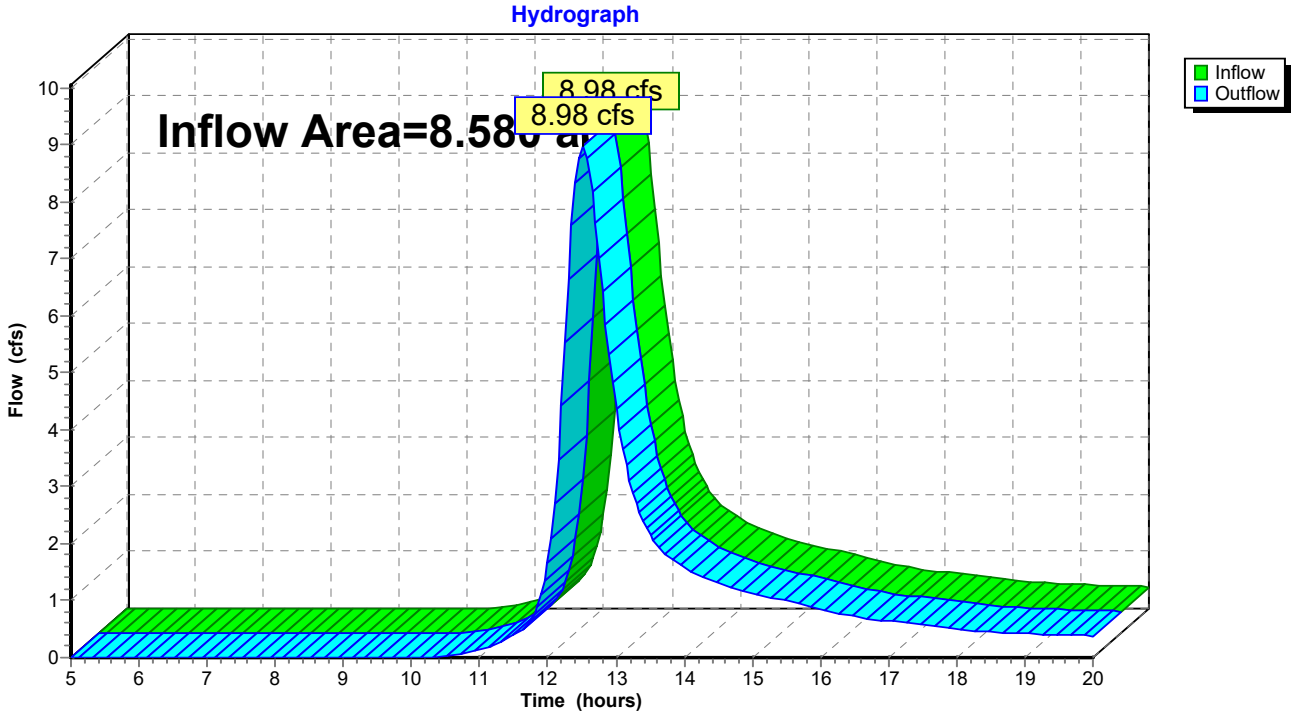
Summary for Reach SP1: Summation Point 1 (W. Watershed Boundary)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.580 ac, 0.36% Impervious, Inflow Depth > 1.58" for 10 yr event
Inflow = 8.98 cfs @ 12.51 hrs, Volume= 1.132 af
Outflow = 8.98 cfs @ 12.51 hrs, Volume= 1.132 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP1: Summation Point 1 (W. Watershed Boundary)



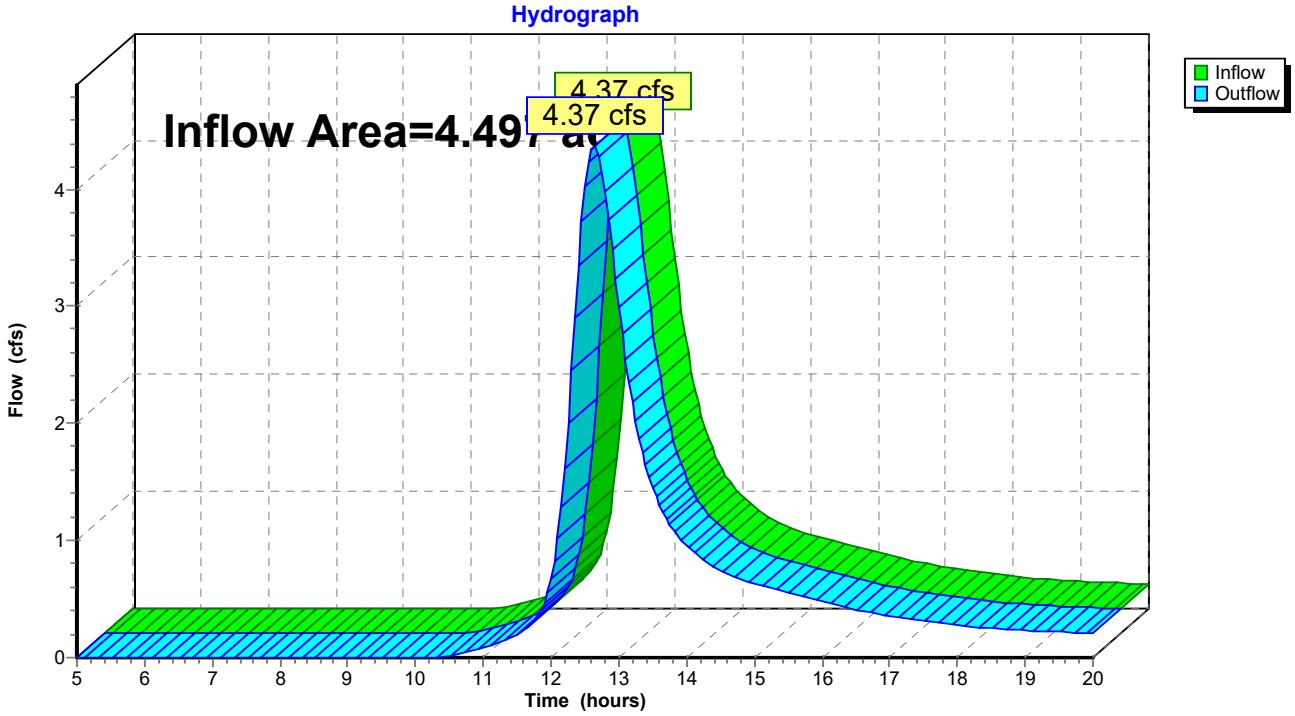
Summary for Reach SP2: Summation Point 2 (N.E. Property Line)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.497 ac, 2.48% Impervious, Inflow Depth > 1.65" for 10 yr event
Inflow = 4.37 cfs @ 12.64 hrs, Volume= 0.617 af
Outflow = 4.37 cfs @ 12.64 hrs, Volume= 0.617 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP2: Summation Point 2 (N.E. Property Line)



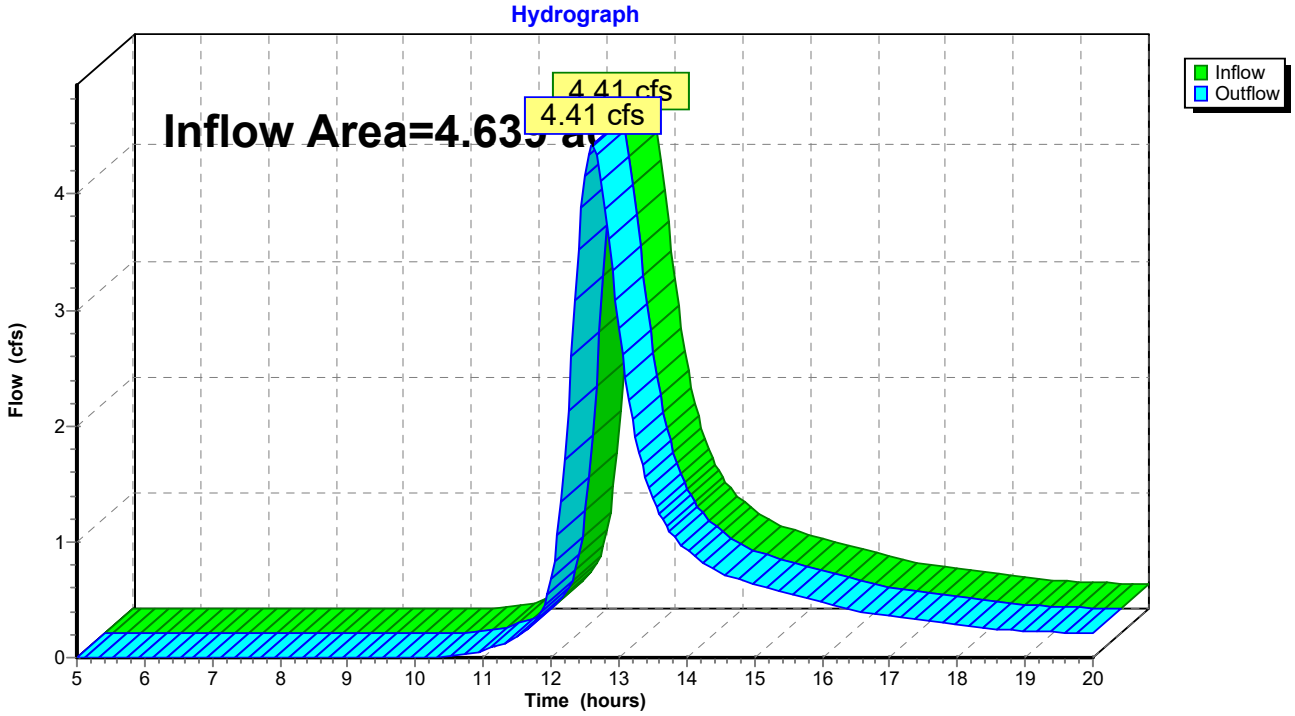
Summary for Reach SP3: Summation Point 3 (S.E. Property Line)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.639 ac, 2.97% Impervious, Inflow Depth > 1.58" for 10 yr event
Inflow = 4.41 cfs @ 12.61 hrs, Volume= 0.610 af
Outflow = 4.41 cfs @ 12.61 hrs, Volume= 0.610 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP3: Summation Point 3 (S.E. Property Line)



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Subcatchment 1 Runoff Area=373,761 sf 0.36% Impervious Runoff Depth>2.42"
Flow Length=550' Tc=34.8 min CN=70 Runoff=13.91 cfs 1.732 af

Subcatchment 2S: Subcatchment 2 Runoff Area=195,882 sf 2.48% Impervious Runoff Depth>2.50"
Flow Length=910' Tc=44.2 min CN=71 Runoff=6.70 cfs 0.937 af

Subcatchment 3S: Subcatchment 3 Runoff Area=202,082 sf 2.97% Impervious Runoff Depth>2.42"
Flow Length=770' Tc=42.1 min UI Adjusted CN=70 Runoff=6.84 cfs 0.934 af

Reach SP1: Summation Point 1 (W. Watershed Boundary) Inflow=13.91 cfs 1.732 af
Outflow=13.91 cfs 1.732 af

Reach SP2: Summation Point 2 (N.E. Property Line) Inflow=6.70 cfs 0.937 af
Outflow=6.70 cfs 0.937 af

Reach SP3: Summation Point 3 (S.E. Property Line) Inflow=6.84 cfs 0.934 af
Outflow=6.84 cfs 0.934 af

Total Runoff Area = 17.716 ac Runoff Volume = 3.603 af Average Runoff Depth = 2.44"
98.42% Pervious = 17.436 ac 1.58% Impervious = 0.280 ac

Summary for Subcatchment 1S: Subcatchment 1

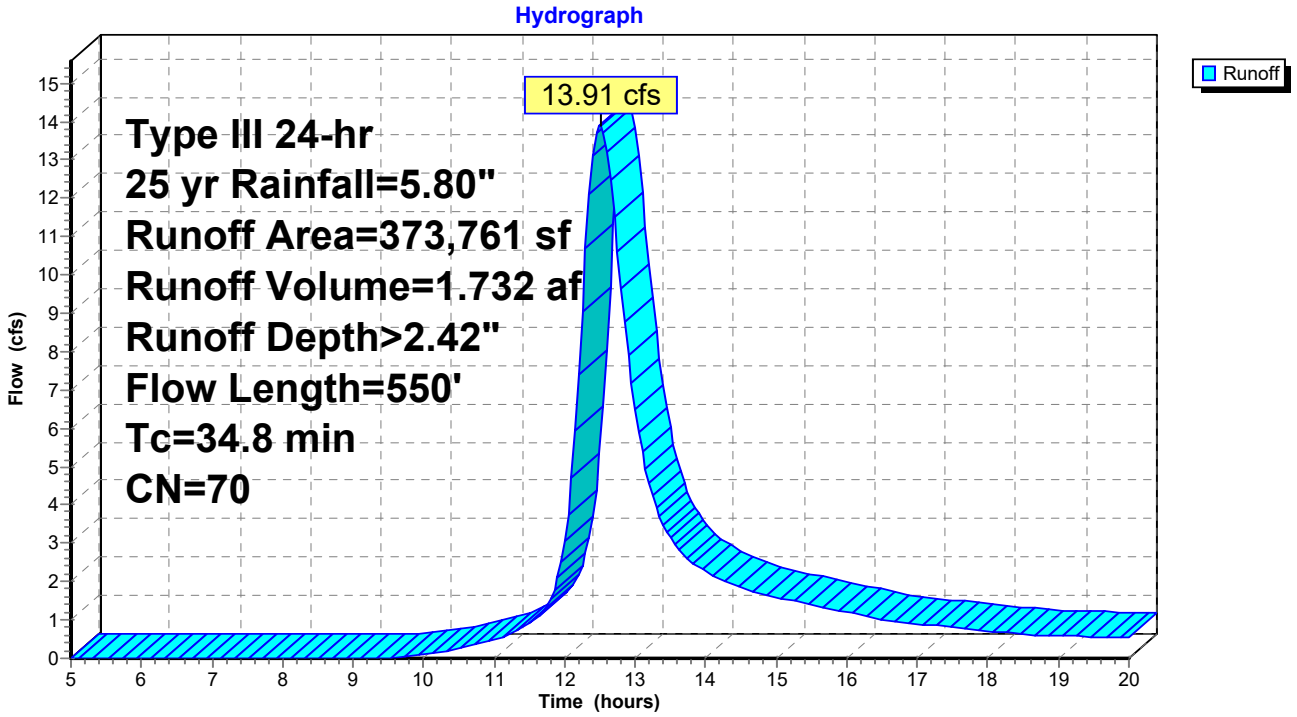
Runoff = 13.91 cfs @ 12.50 hrs, Volume= 1.732 af, Depth> 2.42"
Routed to Reach SP1 : Summation Point 1 (W. Watershed Boundary)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 yr Rainfall=5.80"

Area (sf)	CN	Description
1,347	98	Unconnected pavement, HSG C
82,084	71	Meadow, non-grazed, HSG C
290,330	70	Woods, Good, HSG C
373,761	70	Weighted Average
372,414		99.64% Pervious Area
1,347		0.36% Impervious Area
1,347		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
2.7	80	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.0	170	0.0050	0.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.3	95	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	75	0.2100	2.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	80	0.2500	2.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
34.8	550	Total			

Subcatchment 1S: Subcatchment 1



Summary for Subcatchment 2S: Subcatchment 2

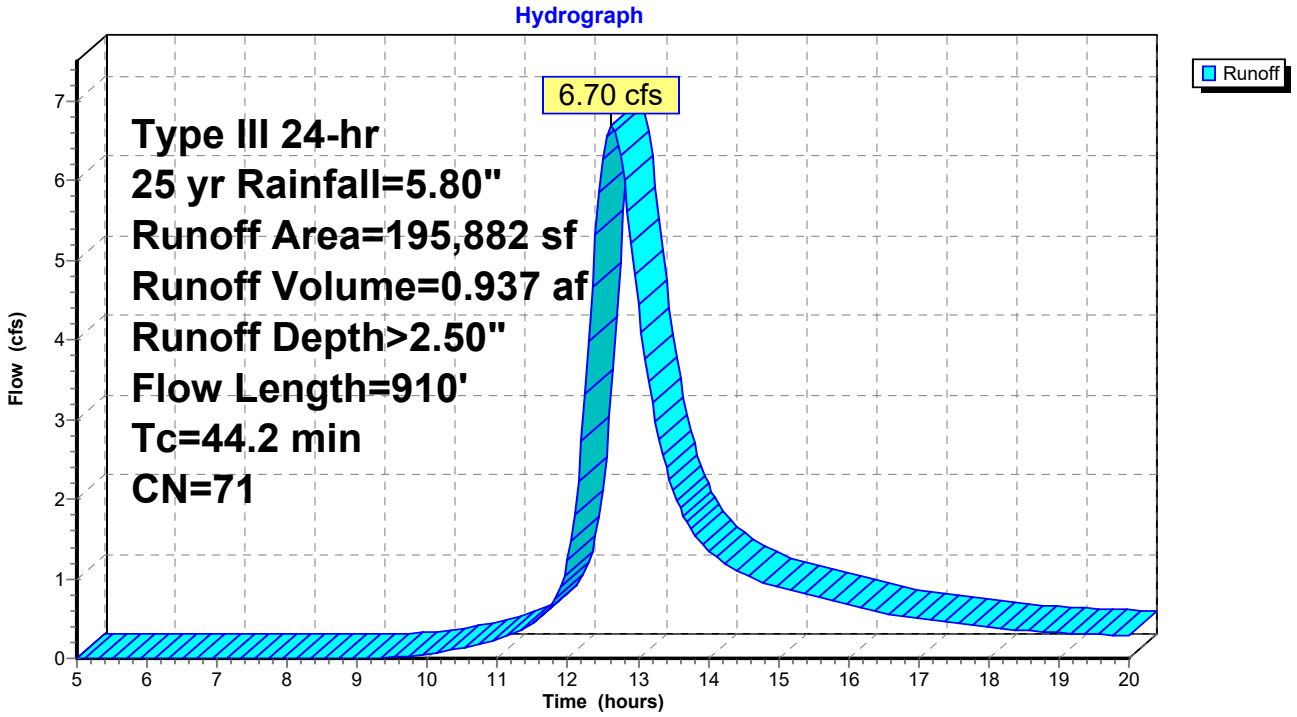
Runoff = 6.70 cfs @ 12.62 hrs, Volume= 0.937 af, Depth> 2.50"
Routed to Reach SP2 : Summation Point 2 (N.E. Property Line)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 yr Rainfall=5.80"

Area (sf)	CN	Description
4,853	98	Unconnected pavement, HSG C
35,537	71	Meadow, non-grazed, HSG C
155,492	70	Woods, Good, HSG C
195,882	71	Weighted Average
191,029		97.52% Pervious Area
4,853		2.48% Impervious Area
4,853		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
8.8	260	0.0050	0.49		**Shallow Concentrated Flow, Conservatively Assumed Meadow** Short Grass Pasture Kv= 7.0 fps
1.7	80	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	100	0.1700	2.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.8	170	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.3	250	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
44.2	910	Total			

Subcatchment 2S: Subcatchment 2



Summary for Subcatchment 3S: Subcatchment 3

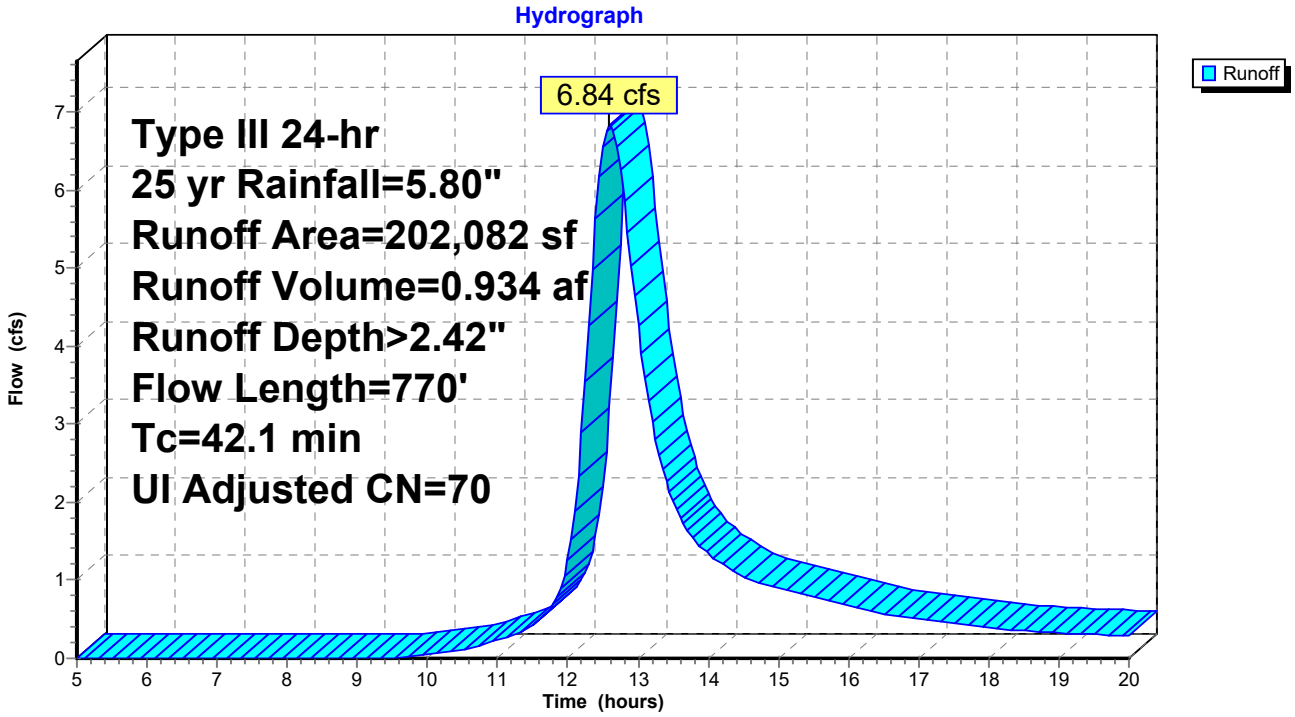
Runoff = 6.84 cfs @ 12.60 hrs, Volume= 0.934 af, Depth> 2.42"
Routed to Reach SP3 : Summation Point 3 (S.E. Property Line)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 yr Rainfall=5.80"

Area (sf)	CN	Adj	Description
5,998	98		Unconnected pavement, HSG C
8,071	71		Meadow, non-grazed, HSG C
188,013	70		Woods, Good, HSG C
202,082	71	70	Weighted Average, UI Adjusted
196,084			97.03% Pervious Area
5,998			2.97% Impervious Area
5,998			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
2.4	70	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.4	50	0.0050	0.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	20	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.0	190	0.0050	0.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.3	120	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.3	140	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.2	130	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
42.1	770	Total			

Subcatchment 3S: Subcatchment 3



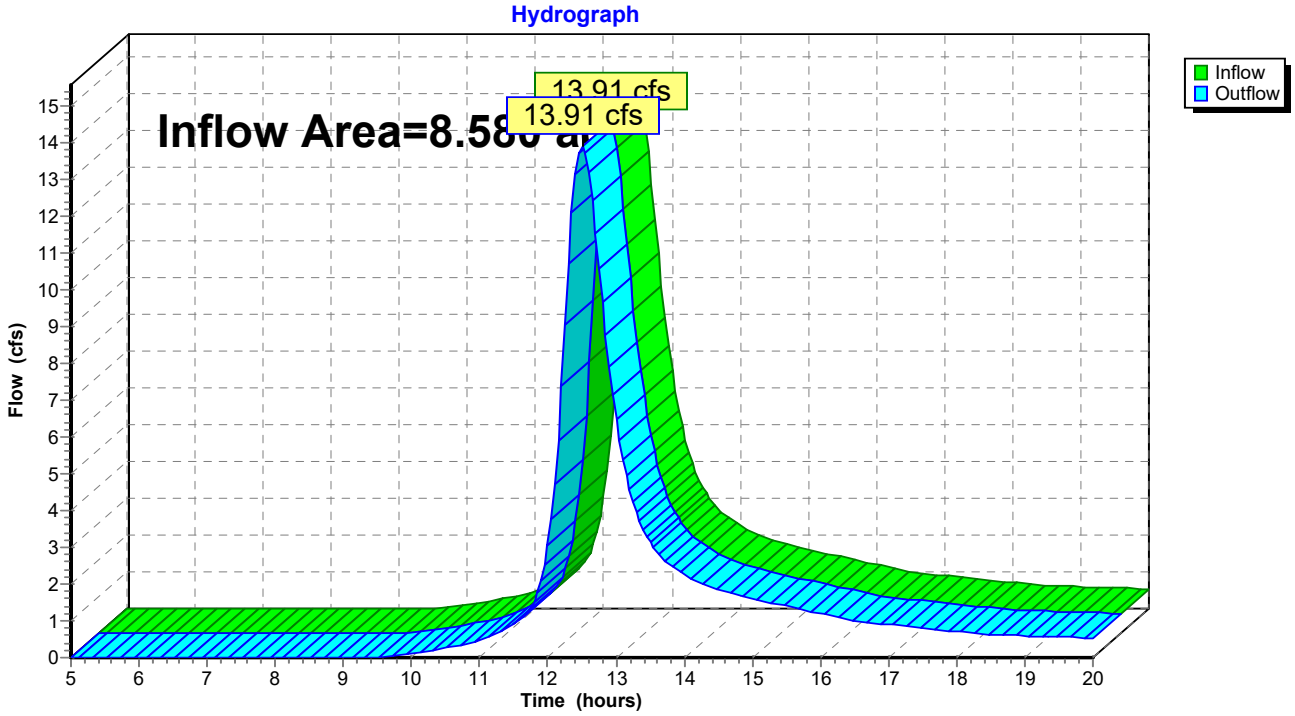
Summary for Reach SP1: Summation Point 1 (W. Watershed Boundary)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.580 ac, 0.36% Impervious, Inflow Depth > 2.42" for 25 yr event
Inflow = 13.91 cfs @ 12.50 hrs, Volume= 1.732 af
Outflow = 13.91 cfs @ 12.50 hrs, Volume= 1.732 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP1: Summation Point 1 (W. Watershed Boundary)



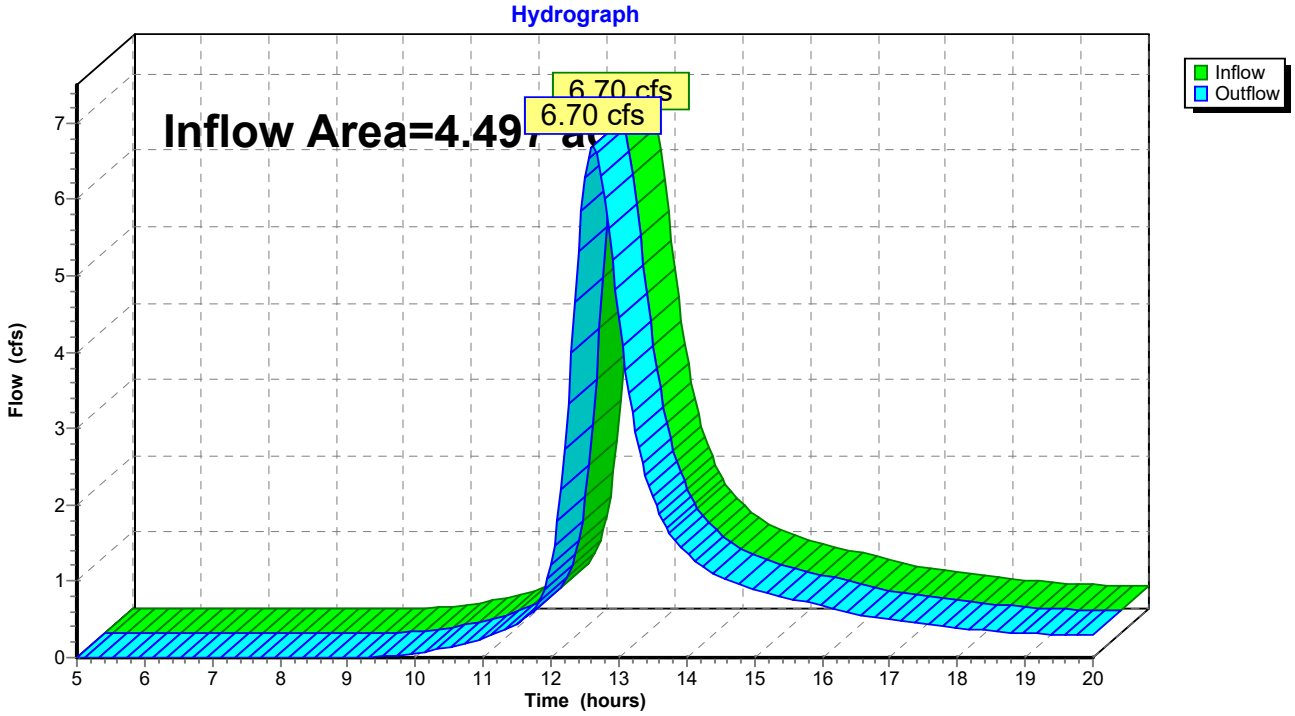
Summary for Reach SP2: Summation Point 2 (N.E. Property Line)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.497 ac, 2.48% Impervious, Inflow Depth > 2.50" for 25 yr event
Inflow = 6.70 cfs @ 12.62 hrs, Volume= 0.937 af
Outflow = 6.70 cfs @ 12.62 hrs, Volume= 0.937 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP2: Summation Point 2 (N.E. Property Line)



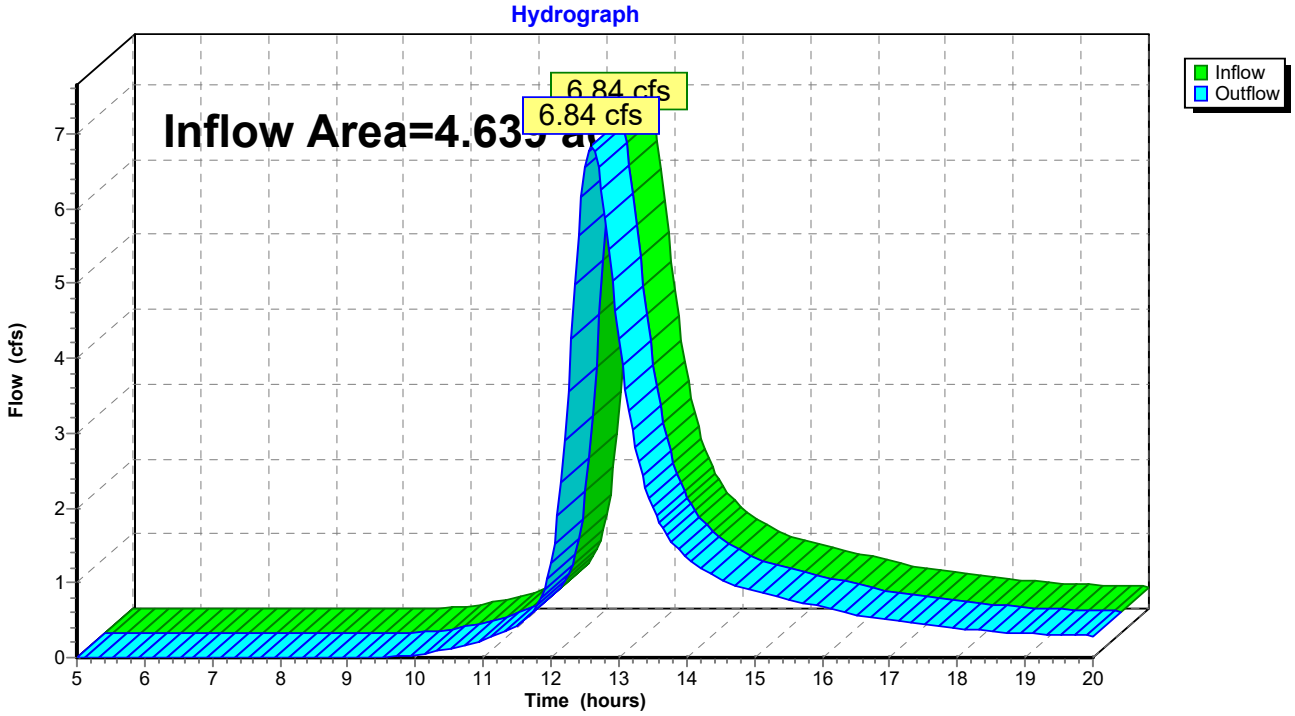
Summary for Reach SP3: Summation Point 3 (S.E. Property Line)

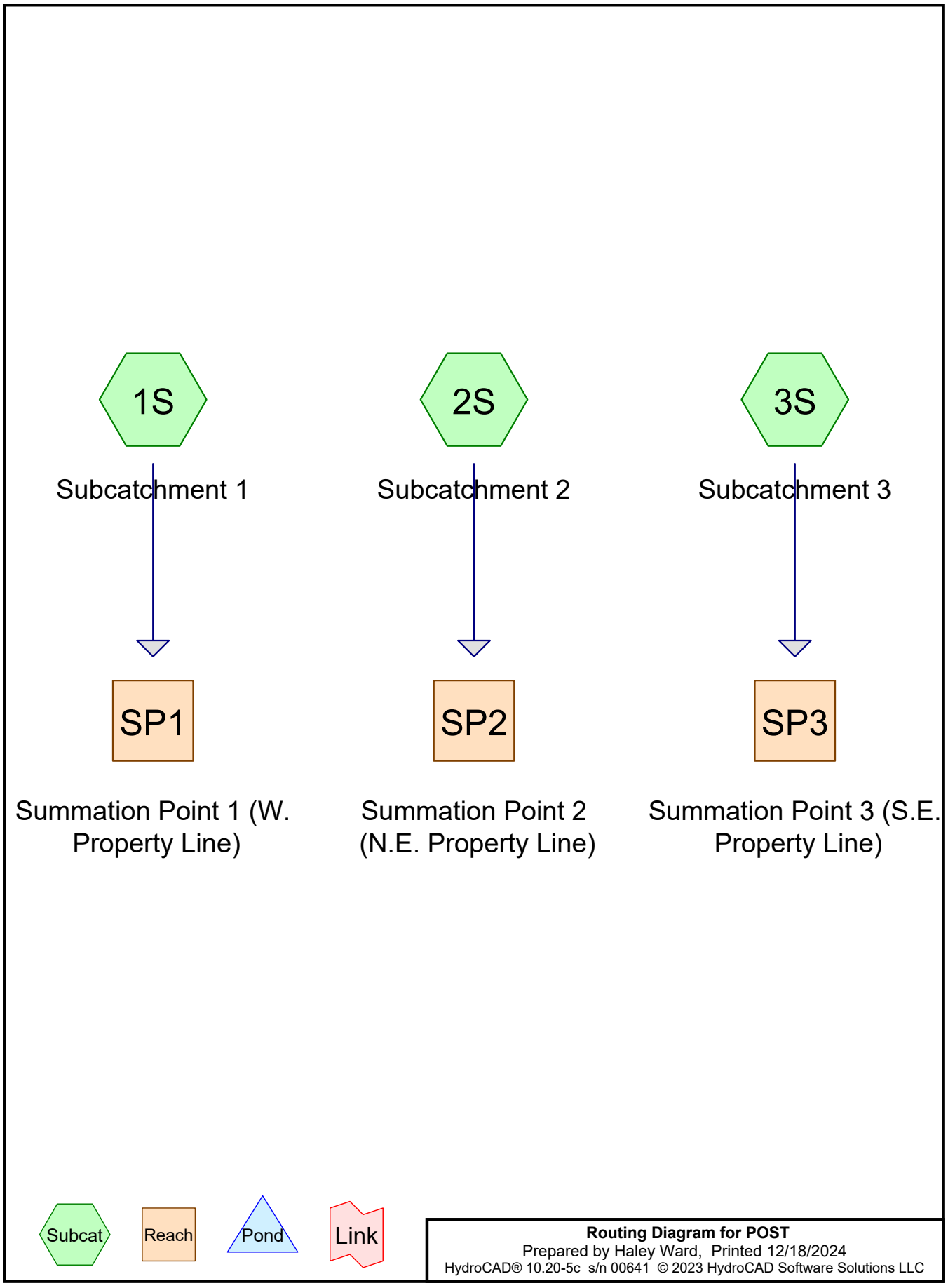
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.639 ac, 2.97% Impervious, Inflow Depth > 2.42" for 25 yr event
Inflow = 6.84 cfs @ 12.60 hrs, Volume= 0.934 af
Outflow = 6.84 cfs @ 12.60 hrs, Volume= 0.934 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP3: Summation Point 3 (S.E. Property Line)





Routing Diagram for POST
Prepared by Haley Ward, Printed 12/18/2024

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2 yr	Type III 24-hr		Default	24.00	1	3.10	2
2	10 yr	Type III 24-hr		Default	24.00	1	4.60	2
3	25 yr	Type III 24-hr		Default	24.00	1	5.80	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
9.418	71	Meadow, non-grazed, HSG C (1S, 2S, 3S)
0.597	98	Unconnected pavement, HSG C (1S, 2S, 3S)
7.702	70	Woods, Good, HSG C (1S, 2S, 3S)
17.716	**71**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
17.716	HSG C	1S, 2S, 3S
0.000	HSG D	
0.000	Other	
17.716		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	9.418	0.000	0.000	9.418	Meadow, non-grazed	1S, 2S, 3S
0.000	0.000	0.597	0.000	0.000	0.597	Unconnected pavement	1S, 2S, 3S
0.000	0.000	7.702	0.000	0.000	7.702	Woods, Good	1S, 2S, 3S
0.000	**0.000**	**17.716**	**0.000**	**0.000**	**17.716**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Subcatchment 1 Runoff Area=373,761 sf 0.64% Impervious Runoff Depth>0.68"
Flow Length=550' Tc=40.5 min UI Adjusted CN=70 Runoff=3.35 cfs 0.488 af

Subcatchment 2S: Subcatchment 2 Runoff Area=195,882 sf 2.48% Impervious Runoff Depth>0.72"
Flow Length=910' Tc=60.0 min CN=71 Runoff=1.51 cfs 0.270 af

Subcatchment 3S: Subcatchment 3 Runoff Area=202,082 sf 9.28% Impervious Runoff Depth>0.77"
Flow Length=770' Tc=50.3 min UI Adjusted CN=72 Runoff=1.87 cfs 0.298 af

Reach SP1: Summation Point 1 (W. Property Line) Inflow=3.35 cfs 0.488 af
Outflow=3.35 cfs 0.488 af

Reach SP2: Summation Point 2 (N.E. Property Line) Inflow=1.51 cfs 0.270 af
Outflow=1.51 cfs 0.270 af

Reach SP3: Summation Point 3 (S.E. Property Line) Inflow=1.87 cfs 0.298 af
Outflow=1.87 cfs 0.298 af

Total Runoff Area = 17.716 ac Runoff Volume = 1.055 af Average Runoff Depth = 0.71"
96.63% Pervious = 17.120 ac 3.37% Impervious = 0.597 ac

Summary for Subcatchment 1S: Subcatchment 1

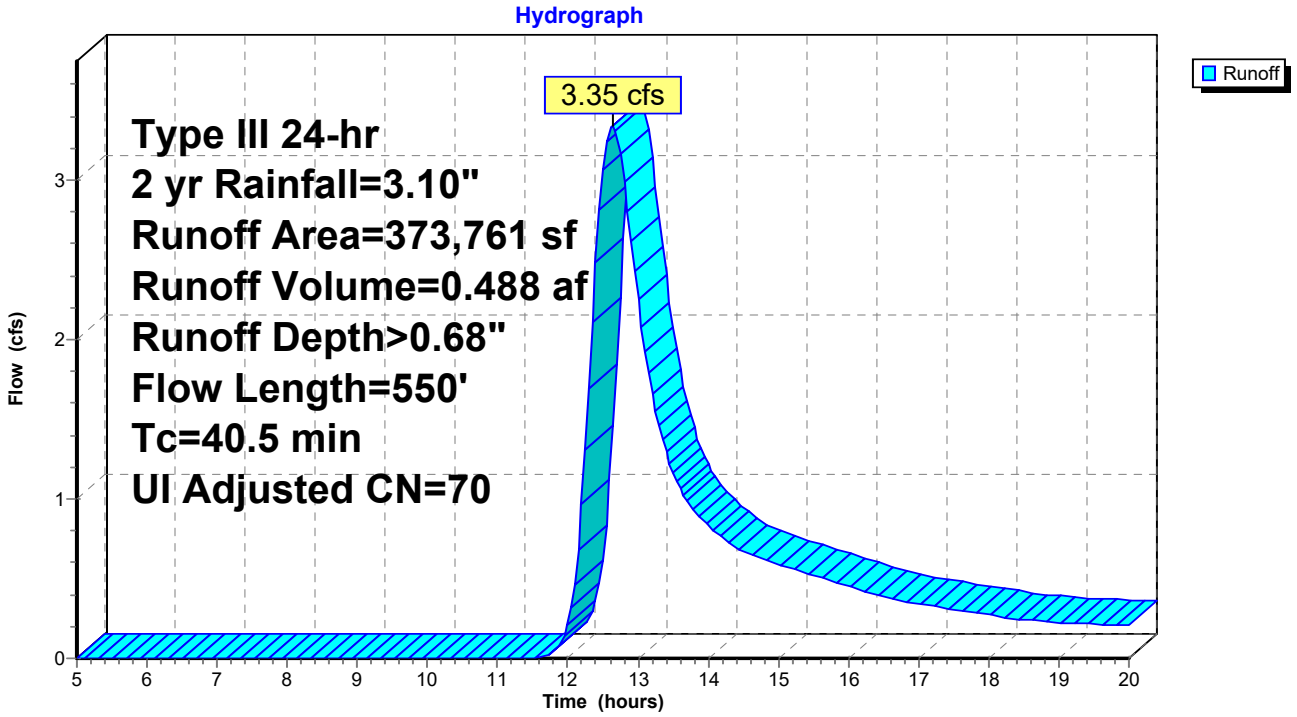
Runoff = 3.35 cfs @ 12.64 hrs, Volume= 0.488 af, Depth> 0.68"
Routed to Reach SP1 : Summation Point 1 (W. Property Line)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 yr Rainfall=3.10"

Area (sf)	CN	Adj	Description
2,382	98		Unconnected pavement, HSG C
151,785	71		Meadow, non-grazed, HSG C
219,594	70		Woods, Good, HSG C
373,761	71	70	Weighted Average, UI Adjusted
371,379			99.36% Pervious Area
2,382			0.64% Impervious Area
2,382			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
8.4	250	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	60	0.0700	1.85		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.3	35	0.0400	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
5.9	65	0.2200	0.18		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
0.6	90	0.2400	2.45		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
40.5	550	Total			

Subcatchment 1S: Subcatchment 1



Summary for Subcatchment 2S: Subcatchment 2

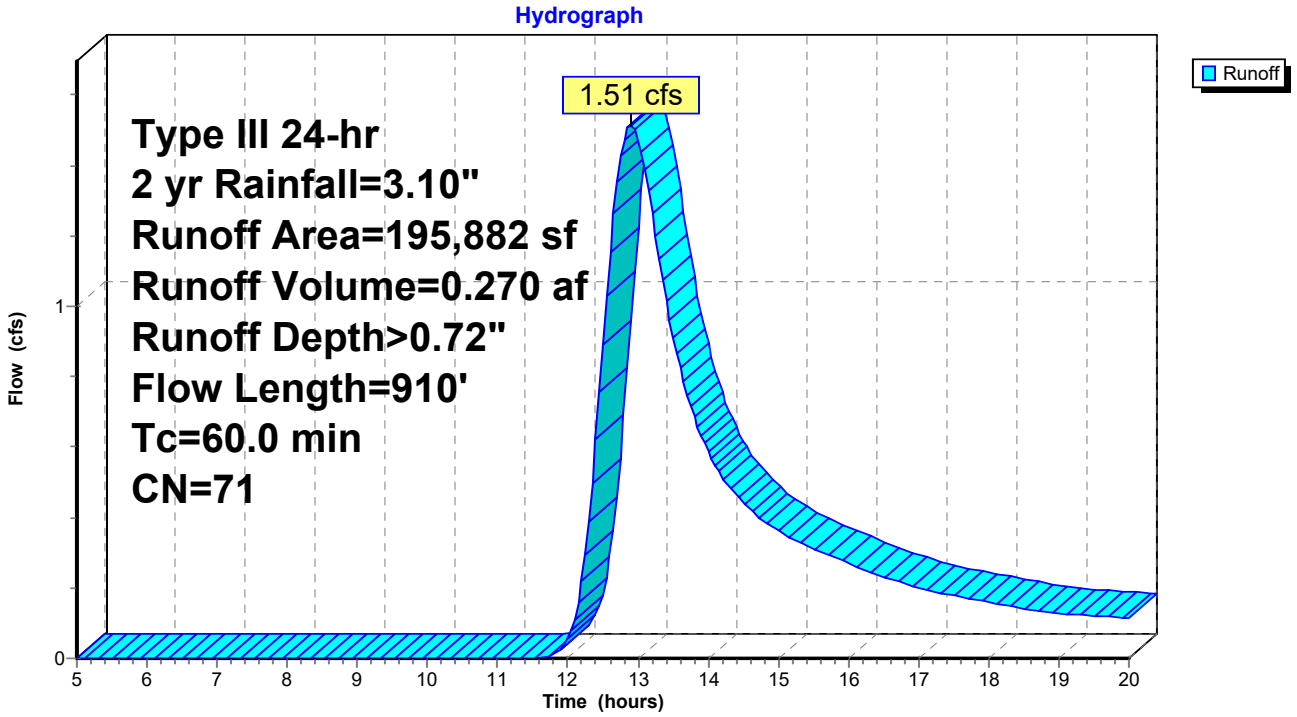
Runoff = 1.51 cfs @ 12.90 hrs, Volume= 0.270 af, Depth> 0.72"
Routed to Reach SP2 : Summation Point 2 (N.E. Property Line)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 yr Rainfall=3.10"

Area (sf)	CN	Description
4,853	98	Unconnected pavement, HSG C
106,486	71	Meadow, non-grazed, HSG C
84,543	70	Woods, Good, HSG C
195,882	71	Weighted Average
191,029		97.52% Pervious Area
4,853		2.48% Impervious Area
4,853		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
8.8	260	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	80	0.0250	1.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	100	0.1700	2.89		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	70	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
18.6	100	0.0300	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
8.3	250	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
60.0	910	Total			

Subcatchment 2S: Subcatchment 2



Summary for Subcatchment 3S: Subcatchment 3

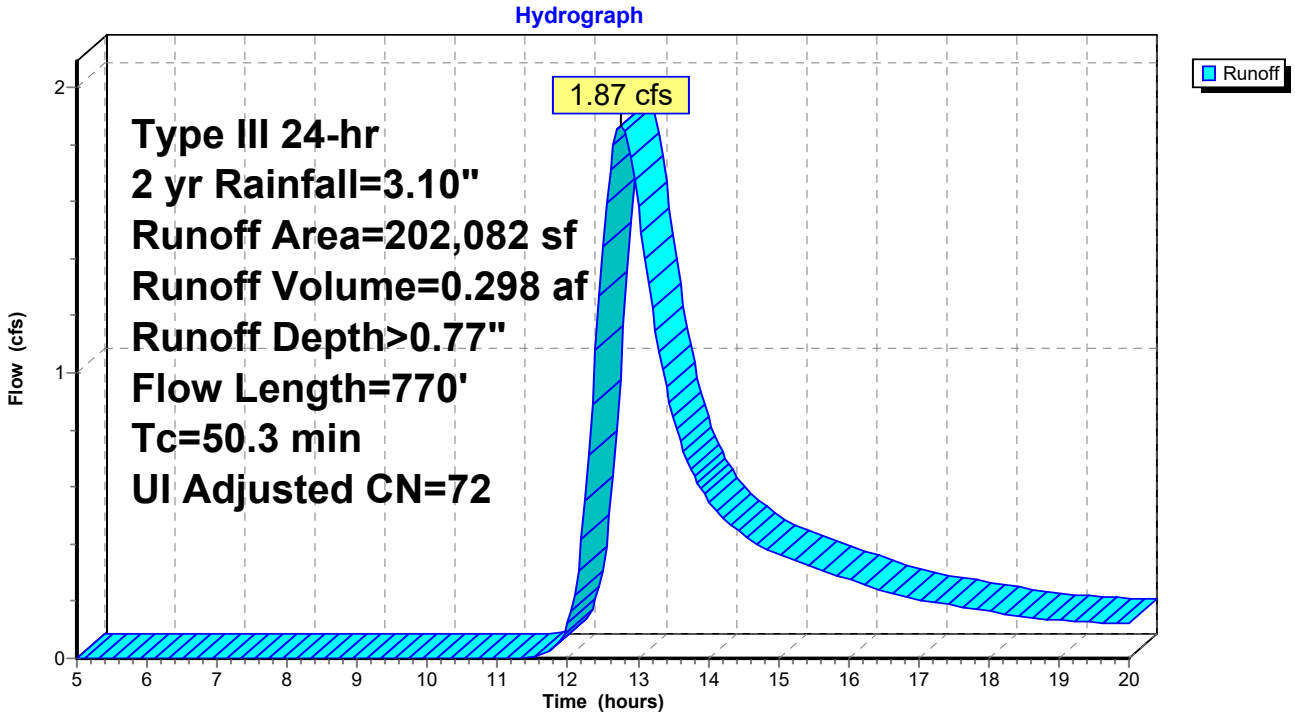
Runoff = 1.87 cfs @ 12.76 hrs, Volume= 0.298 af, Depth> 0.77"
Routed to Reach SP3 : Summation Point 3 (S.E. Property Line)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 yr Rainfall=3.10"

Area (sf)	CN	Adj	Description
151,980	71		Meadow, non-grazed, HSG C
31,342	70		Woods, Good, HSG C
18,760	98		Unconnected pavement, HSG C
202,082	73	72	Weighted Average, UI Adjusted
183,322			90.72% Pervious Area
18,760			9.28% Impervious Area
18,760			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
11.1	330	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	50	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.2	110	0.0700	12.12	48.46	**Channel Flow, ROADSIDE DITCH** Area= 4.0 sf Perim= 4.5' r= 0.89' n= 0.030 Short grass
0.1	110	0.0800	12.95	51.81	**Channel Flow, ROADSIDE DITCH** Area= 4.0 sf Perim= 4.5' r= 0.89' n= 0.030 Stream, clean & straight
16.8	120	0.0200	0.12		**Sheet Flow, DITCH TURNOUT INTO LEVELSPREADER** Grass: Dense n= 0.240 P2= 3.10"
50.3	770	Total			

Subcatchment 3S: Subcatchment 3



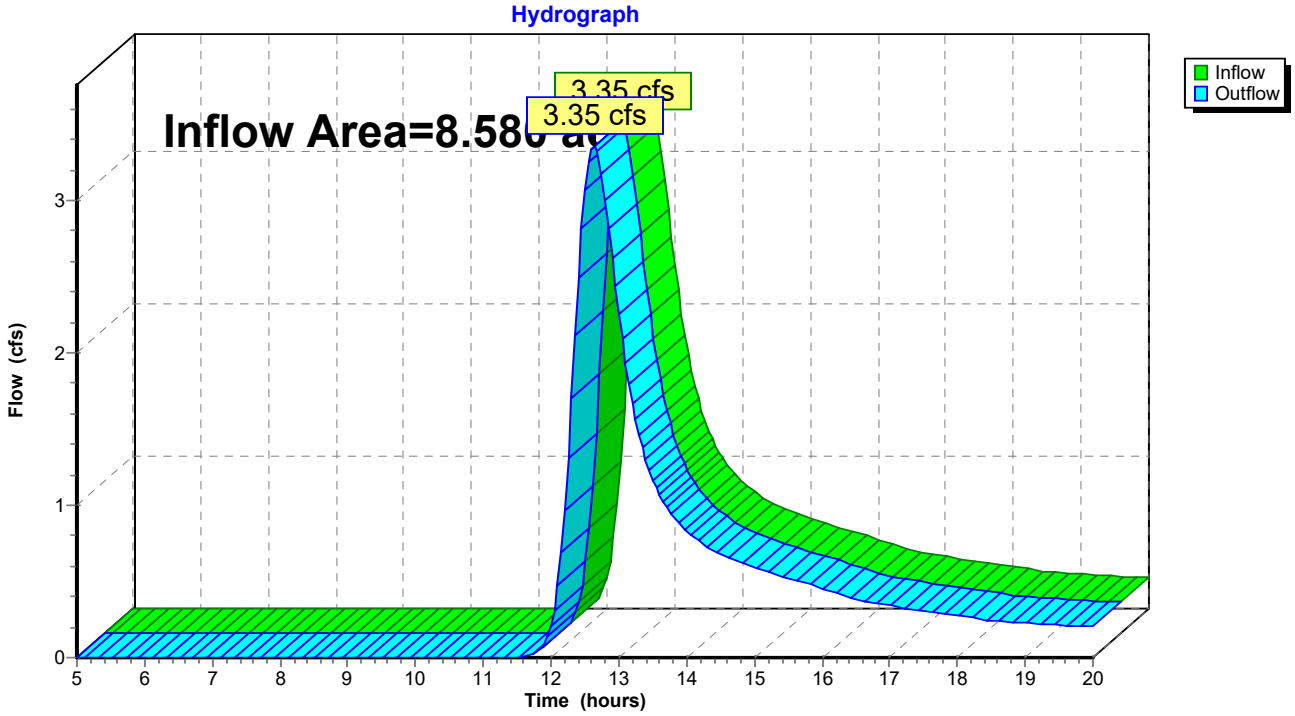
Summary for Reach SP1: Summation Point 1 (W. Property Line)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.580 ac, 0.64% Impervious, Inflow Depth > 0.68" for 2 yr event
Inflow = 3.35 cfs @ 12.64 hrs, Volume= 0.488 af
Outflow = 3.35 cfs @ 12.64 hrs, Volume= 0.488 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP1: Summation Point 1 (W. Property Line)



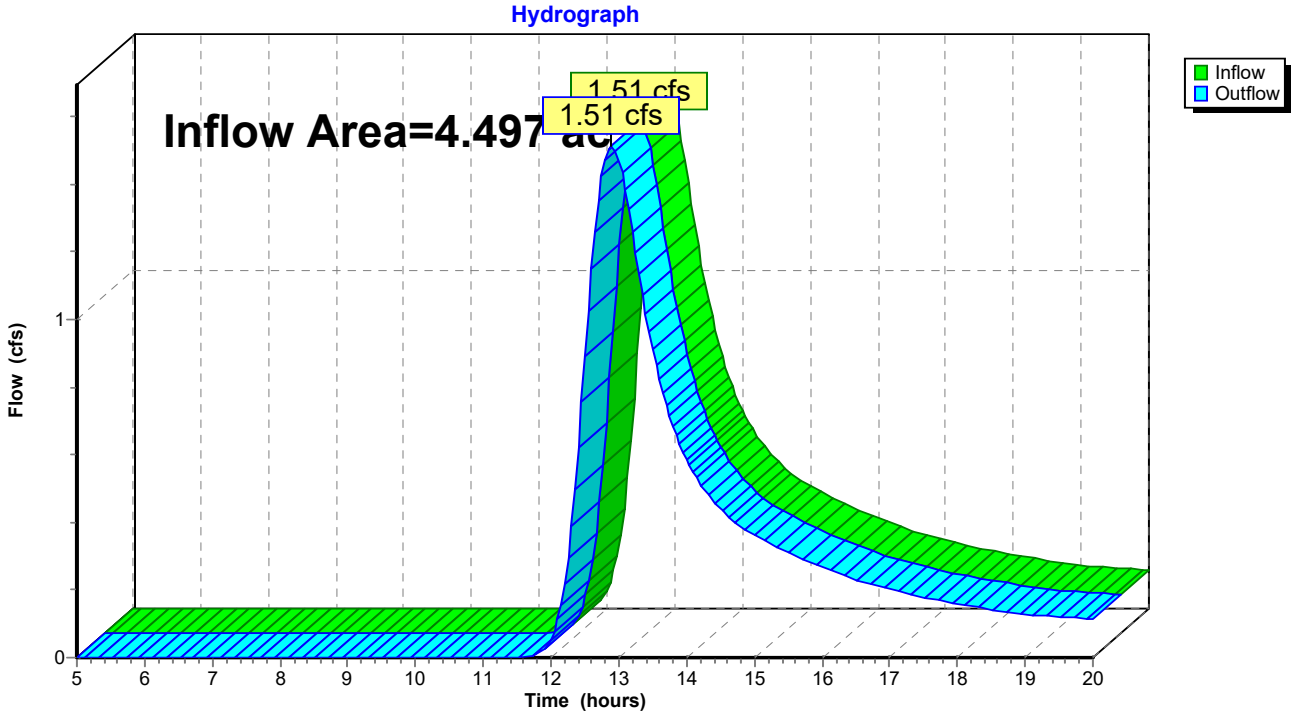
Summary for Reach SP2: Summation Point 2 (N.E. Property Line)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.497 ac, 2.48% Impervious, Inflow Depth > 0.72" for 2 yr event
Inflow = 1.51 cfs @ 12.90 hrs, Volume= 0.270 af
Outflow = 1.51 cfs @ 12.90 hrs, Volume= 0.270 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP2: Summation Point 2 (N.E. Property Line)



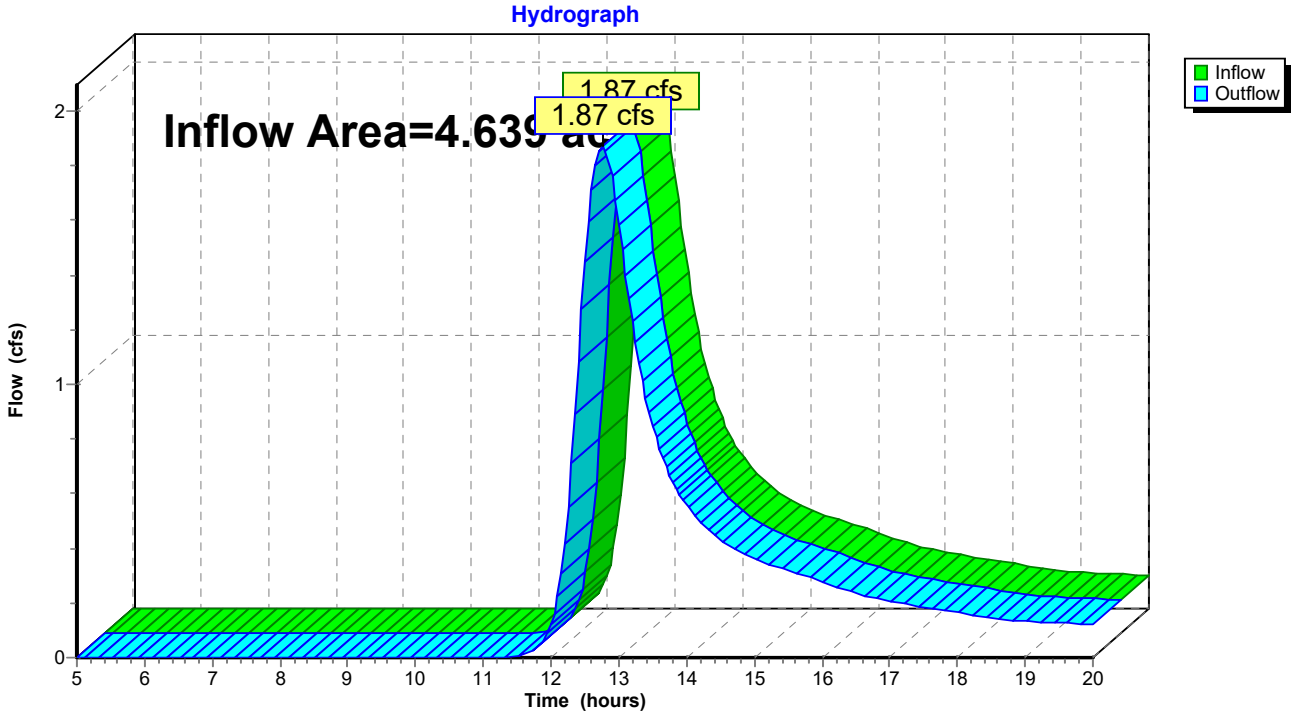
Summary for Reach SP3: Summation Point 3 (S.E. Property Line)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.639 ac, 9.28% Impervious, Inflow Depth > 0.77" for 2 yr event
Inflow = 1.87 cfs @ 12.76 hrs, Volume= 0.298 af
Outflow = 1.87 cfs @ 12.76 hrs, Volume= 0.298 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP3: Summation Point 3 (S.E. Property Line)



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Subcatchment 1 Runoff Area=373,761 sf 0.64% Impervious Runoff Depth>1.58"
Flow Length=550' Tc=40.5 min UI Adjusted CN=70 Runoff=8.32 cfs 1.129 af

Subcatchment 2S: Subcatchment 2 Runoff Area=195,882 sf 2.48% Impervious Runoff Depth>1.63"
Flow Length=910' Tc=60.0 min CN=71 Runoff=3.66 cfs 0.613 af

Subcatchment 3S: Subcatchment 3 Runoff Area=202,082 sf 9.28% Impervious Runoff Depth>1.71"
Flow Length=770' Tc=50.3 min UI Adjusted CN=72 Runoff=4.40 cfs 0.663 af

Reach SP1: Summation Point 1 (W. Property Line) Inflow=8.32 cfs 1.129 af
Outflow=8.32 cfs 1.129 af

Reach SP2: Summation Point 2 (N.E. Property Line) Inflow=3.66 cfs 0.613 af
Outflow=3.66 cfs 0.613 af

Reach SP3: Summation Point 3 (S.E. Property Line) Inflow=4.40 cfs 0.663 af
Outflow=4.40 cfs 0.663 af

Total Runoff Area = 17.716 ac Runoff Volume = 2.404 af Average Runoff Depth = 1.63"
96.63% Pervious = 17.120 ac 3.37% Impervious = 0.597 ac

Summary for Subcatchment 1S: Subcatchment 1

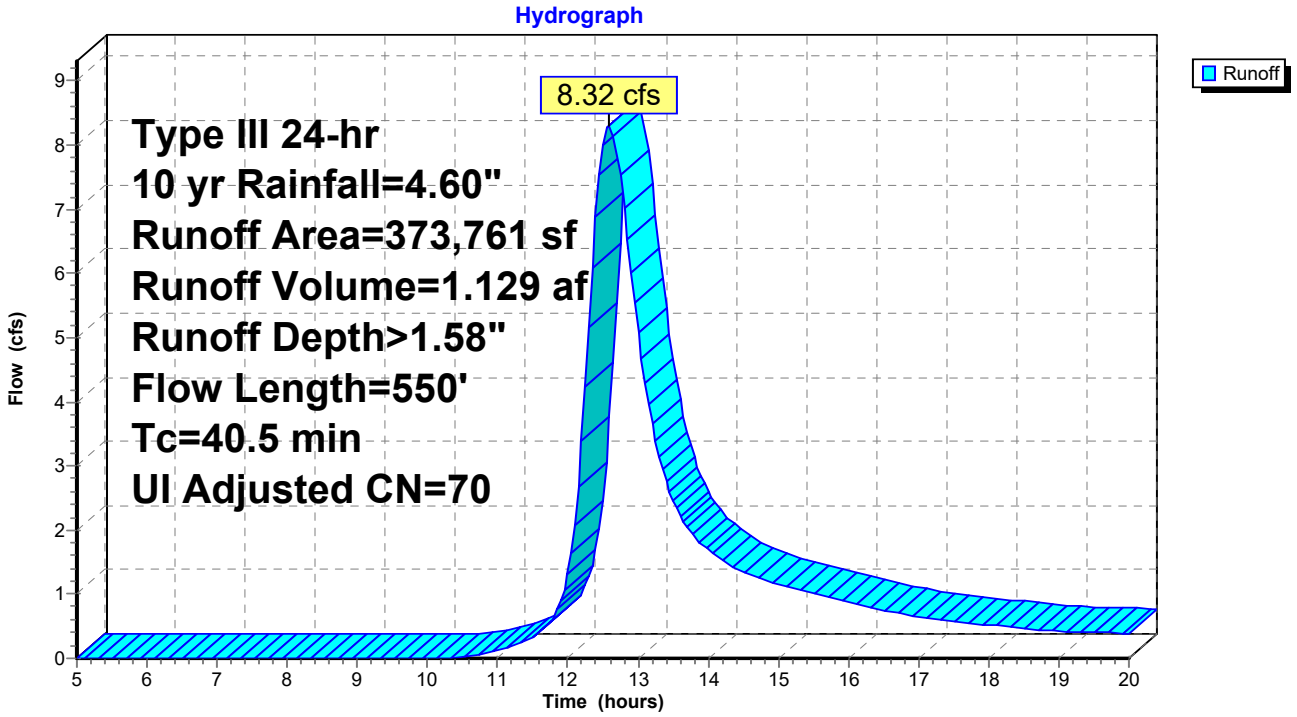
Runoff = 8.32 cfs @ 12.59 hrs, Volume= 1.129 af, Depth> 1.58"
Routed to Reach SP1 : Summation Point 1 (W. Property Line)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=4.60"

Area (sf)	CN	Adj	Description
2,382	98		Unconnected pavement, HSG C
151,785	71		Meadow, non-grazed, HSG C
219,594	70		Woods, Good, HSG C
373,761	71	70	Weighted Average, UI Adjusted
371,379			99.36% Pervious Area
2,382			0.64% Impervious Area
2,382			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
8.4	250	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	60	0.0700	1.85		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.3	35	0.0400	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
5.9	65	0.2200	0.18		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
0.6	90	0.2400	2.45		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
40.5	550	Total			

Subcatchment 1S: Subcatchment 1



Summary for Subcatchment 2S: Subcatchment 2

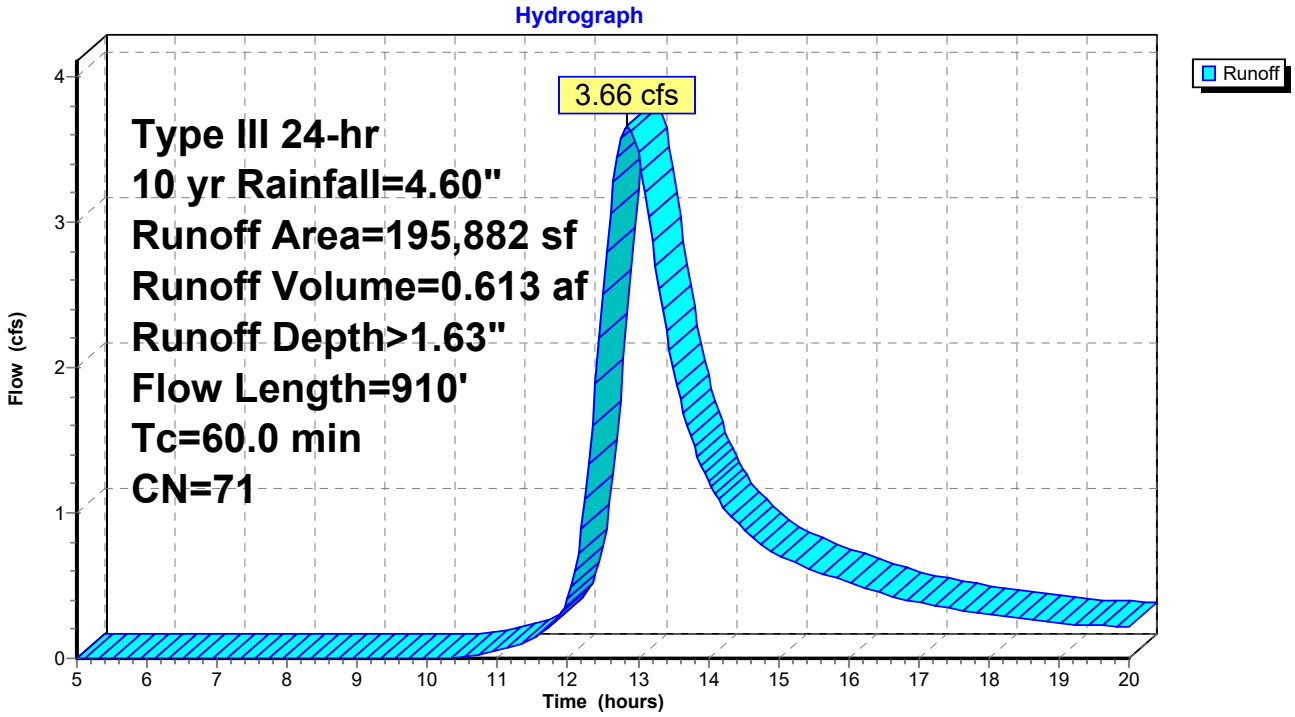
Runoff = 3.66 cfs @ 12.85 hrs, Volume= 0.613 af, Depth> 1.63"
Routed to Reach SP2 : Summation Point 2 (N.E. Property Line)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=4.60"

Area (sf)	CN	Description
4,853	98	Unconnected pavement, HSG C
106,486	71	Meadow, non-grazed, HSG C
84,543	70	Woods, Good, HSG C
195,882	71	Weighted Average
191,029		97.52% Pervious Area
4,853		2.48% Impervious Area
4,853		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
8.8	260	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	80	0.0250	1.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	100	0.1700	2.89		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	70	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
18.6	100	0.0300	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
8.3	250	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
60.0	910	Total			

Subcatchment 2S: Subcatchment 2



Summary for Subcatchment 3S: Subcatchment 3

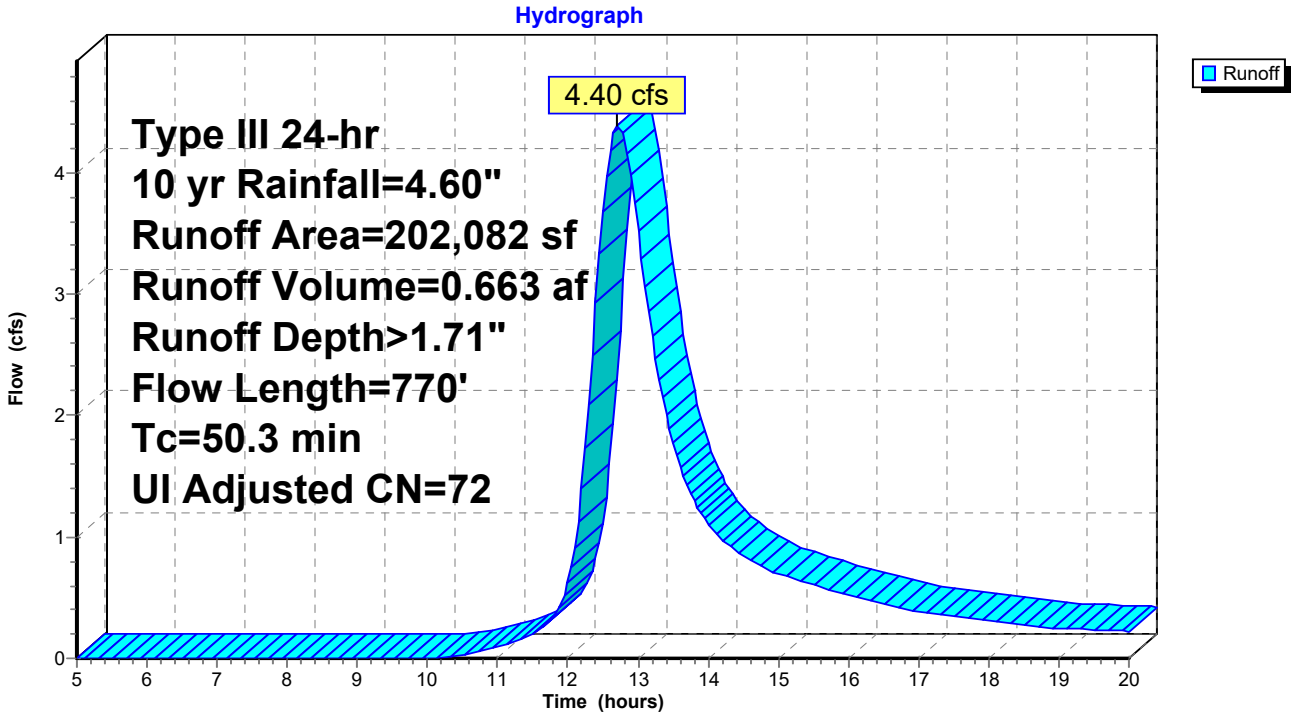
Runoff = 4.40 cfs @ 12.71 hrs, Volume= 0.663 af, Depth> 1.71"
Routed to Reach SP3 : Summation Point 3 (S.E. Property Line)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=4.60"

Area (sf)	CN	Adj	Description
151,980	71		Meadow, non-grazed, HSG C
31,342	70		Woods, Good, HSG C
18,760	98		Unconnected pavement, HSG C
202,082	73	72	Weighted Average, UI Adjusted
183,322			90.72% Pervious Area
18,760			9.28% Impervious Area
18,760			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
11.1	330	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	50	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.2	110	0.0700	12.12	48.46	**Channel Flow, ROADSIDE DITCH** Area= 4.0 sf Perim= 4.5' r= 0.89' n= 0.030 Short grass
0.1	110	0.0800	12.95	51.81	**Channel Flow, ROADSIDE DITCH** Area= 4.0 sf Perim= 4.5' r= 0.89' n= 0.030 Stream, clean & straight
16.8	120	0.0200	0.12		**Sheet Flow, DITCH TURNOUT INTO LEVELSPREADER** Grass: Dense n= 0.240 P2= 3.10"
50.3	770	Total			

Subcatchment 3S: Subcatchment 3



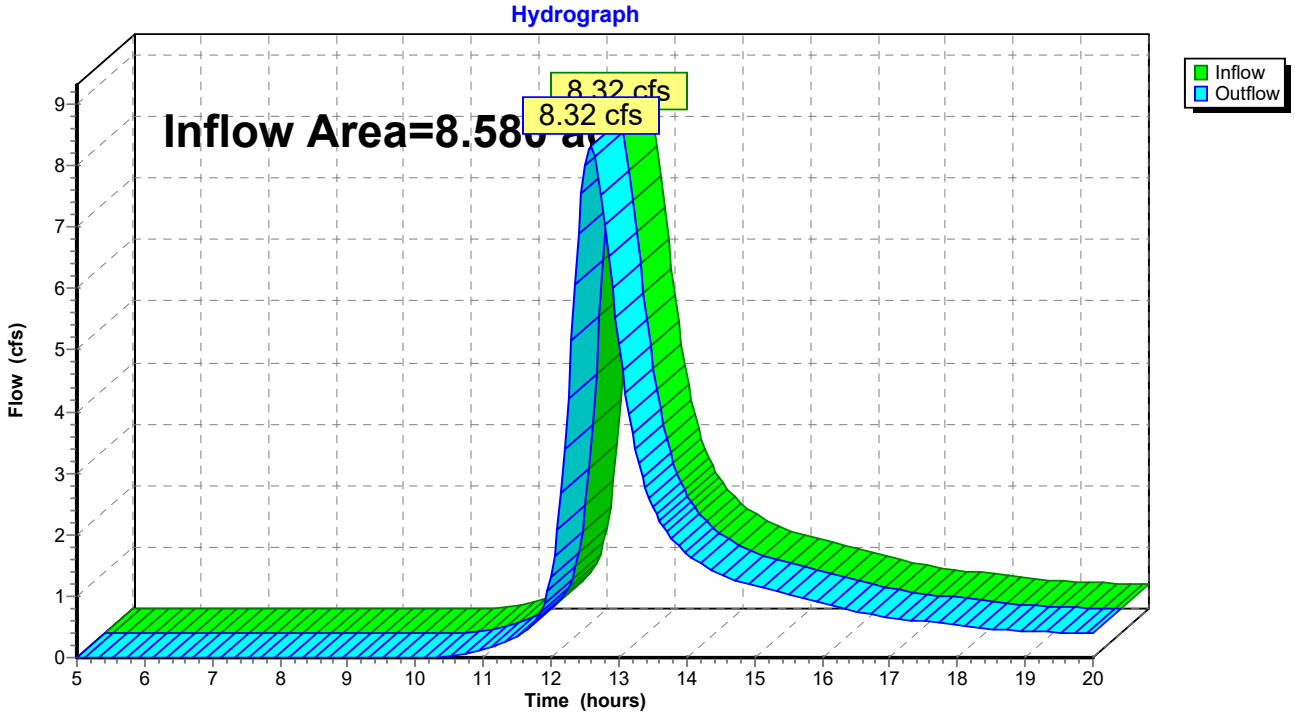
Summary for Reach SP1: Summation Point 1 (W. Property Line)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.580 ac, 0.64% Impervious, Inflow Depth > 1.58" for 10 yr event
Inflow = 8.32 cfs @ 12.59 hrs, Volume= 1.129 af
Outflow = 8.32 cfs @ 12.59 hrs, Volume= 1.129 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP1: Summation Point 1 (W. Property Line)



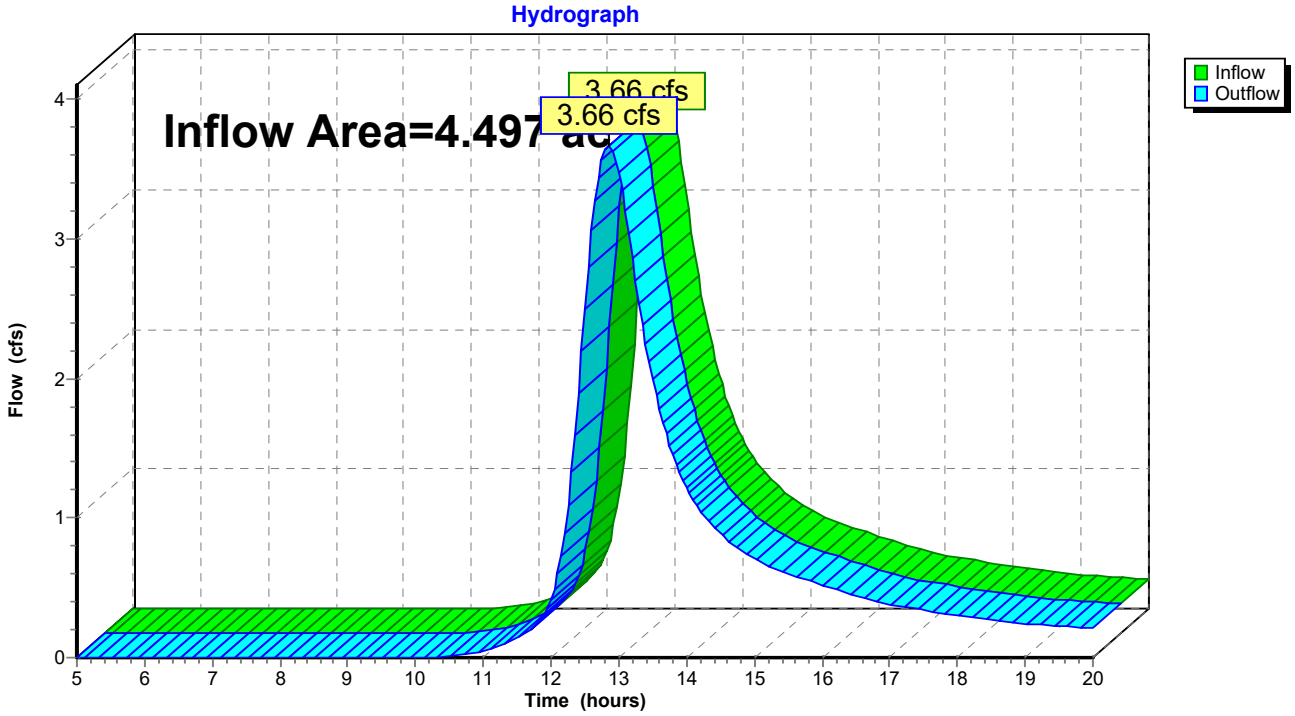
Summary for Reach SP2: Summation Point 2 (N.E. Property Line)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.497 ac, 2.48% Impervious, Inflow Depth > 1.63" for 10 yr event
Inflow = 3.66 cfs @ 12.85 hrs, Volume= 0.613 af
Outflow = 3.66 cfs @ 12.85 hrs, Volume= 0.613 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP2: Summation Point 2 (N.E. Property Line)



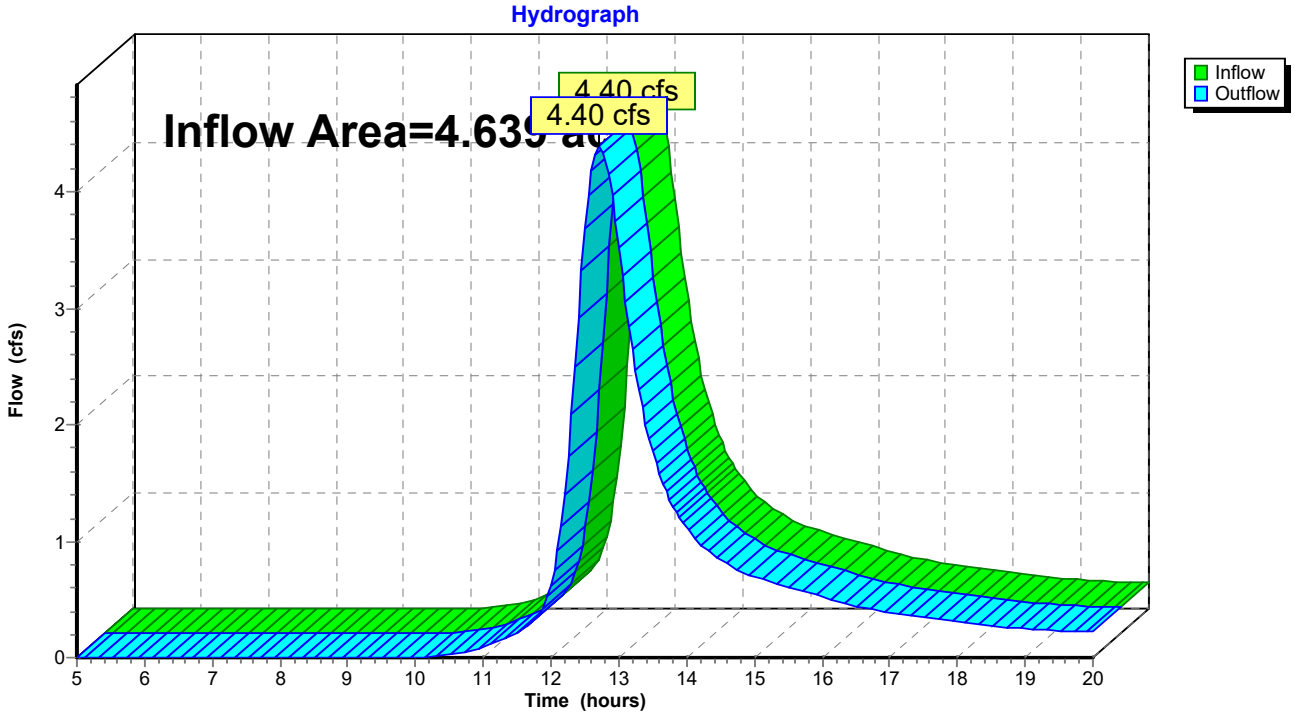
Summary for Reach SP3: Summation Point 3 (S.E. Property Line)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.639 ac, 9.28% Impervious, Inflow Depth > 1.71" for 10 yr event
Inflow = 4.40 cfs @ 12.71 hrs, Volume= 0.663 af
Outflow = 4.40 cfs @ 12.71 hrs, Volume= 0.663 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP3: Summation Point 3 (S.E. Property Line)



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Subcatchment 1 Runoff Area=373,761 sf 0.64% Impervious Runoff Depth>2.42"
Flow Length=550' Tc=40.5 min UI Adjusted CN=70 Runoff=12.90 cfs 1.728 af

Subcatchment 2S: Subcatchment 2 Runoff Area=195,882 sf 2.48% Impervious Runoff Depth>2.48"
Flow Length=910' Tc=60.0 min CN=71 Runoff=5.62 cfs 0.931 af

Subcatchment 3S: Subcatchment 3 Runoff Area=202,082 sf 9.28% Impervious Runoff Depth>2.58"
Flow Length=770' Tc=50.3 min UI Adjusted CN=72 Runoff=6.67 cfs 0.998 af

Reach SP1: Summation Point 1 (W. Property Line) Inflow=12.90 cfs 1.728 af
Outflow=12.90 cfs 1.728 af

Reach SP2: Summation Point 2 (N.E. Property Line) Inflow=5.62 cfs 0.931 af
Outflow=5.62 cfs 0.931 af

Reach SP3: Summation Point 3 (S.E. Property Line) Inflow=6.67 cfs 0.998 af
Outflow=6.67 cfs 0.998 af

Total Runoff Area = 17.716 ac Runoff Volume = 3.657 af Average Runoff Depth = 2.48"
96.63% Pervious = 17.120 ac 3.37% Impervious = 0.597 ac

Summary for Subcatchment 1S: Subcatchment 1

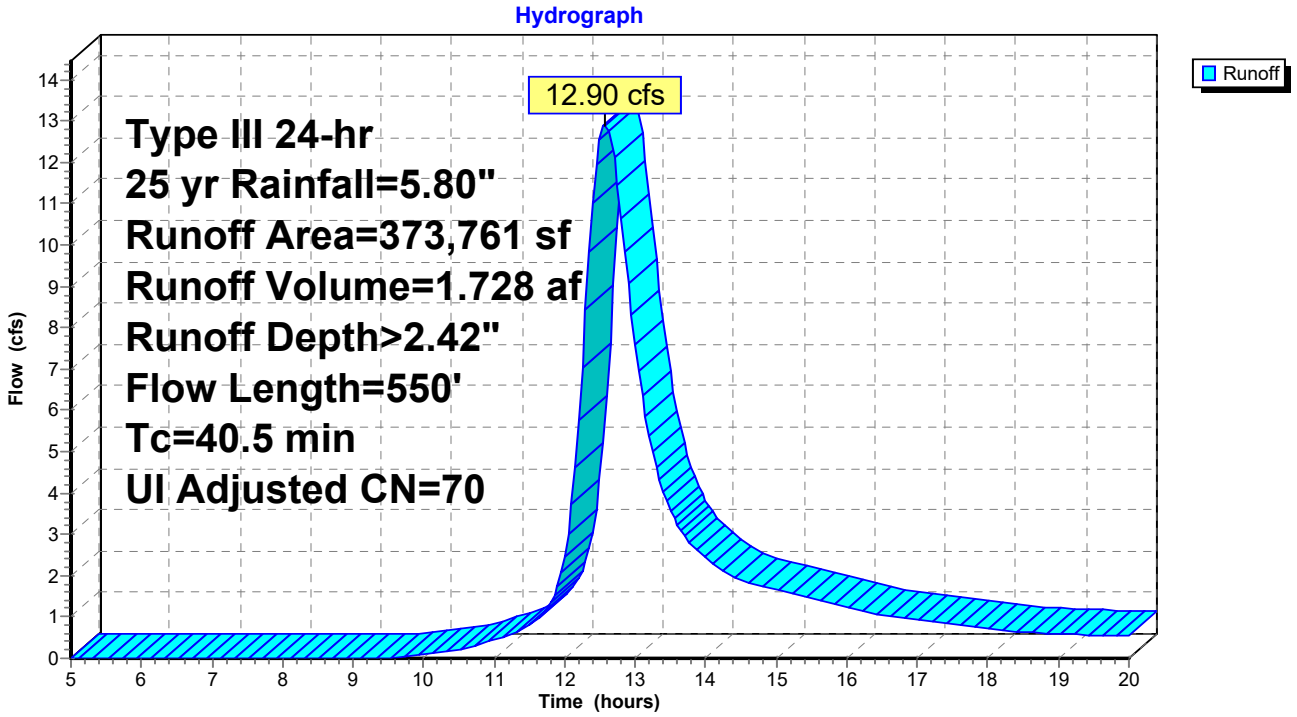
Runoff = 12.90 cfs @ 12.57 hrs, Volume= 1.728 af, Depth> 2.42"
Routed to Reach SP1 : Summation Point 1 (W. Property Line)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 yr Rainfall=5.80"

Area (sf)	CN	Adj	Description
2,382	98		Unconnected pavement, HSG C
151,785	71		Meadow, non-grazed, HSG C
219,594	70		Woods, Good, HSG C
373,761	71	70	Weighted Average, UI Adjusted
371,379			99.36% Pervious Area
2,382			0.64% Impervious Area
2,382			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
8.4	250	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	60	0.0700	1.85		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.3	35	0.0400	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
5.9	65	0.2200	0.18		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
0.6	90	0.2400	2.45		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
40.5	550	Total			

Subcatchment 1S: Subcatchment 1



Summary for Subcatchment 2S: Subcatchment 2

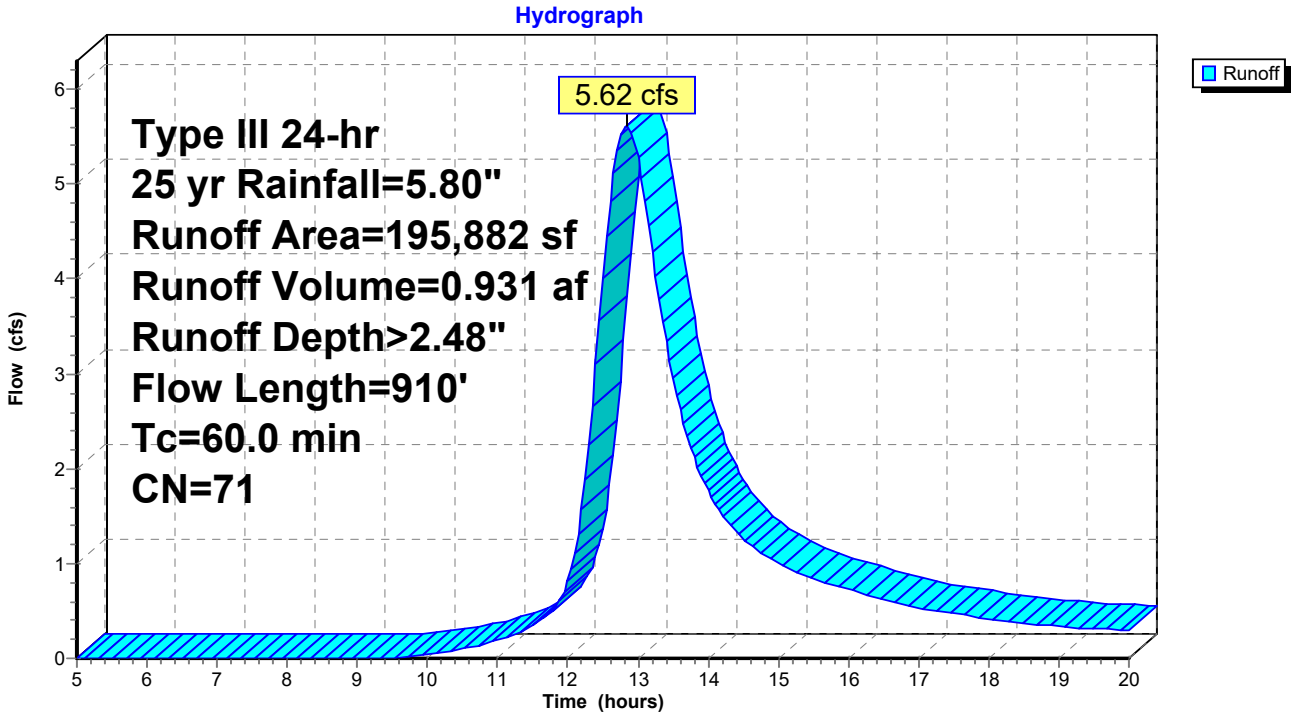
Runoff = 5.62 cfs @ 12.84 hrs, Volume= 0.931 af, Depth> 2.48"
Routed to Reach SP2 : Summation Point 2 (N.E. Property Line)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 yr Rainfall=5.80"

Area (sf)	CN	Description
4,853	98	Unconnected pavement, HSG C
106,486	71	Meadow, non-grazed, HSG C
84,543	70	Woods, Good, HSG C
195,882	71	Weighted Average
191,029		97.52% Pervious Area
4,853		2.48% Impervious Area
4,853		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
8.8	260	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	80	0.0250	1.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	100	0.1700	2.89		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	70	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
18.6	100	0.0300	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
8.3	250	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
60.0	910	Total			

Subcatchment 2S: Subcatchment 2



Summary for Subcatchment 3S: Subcatchment 3

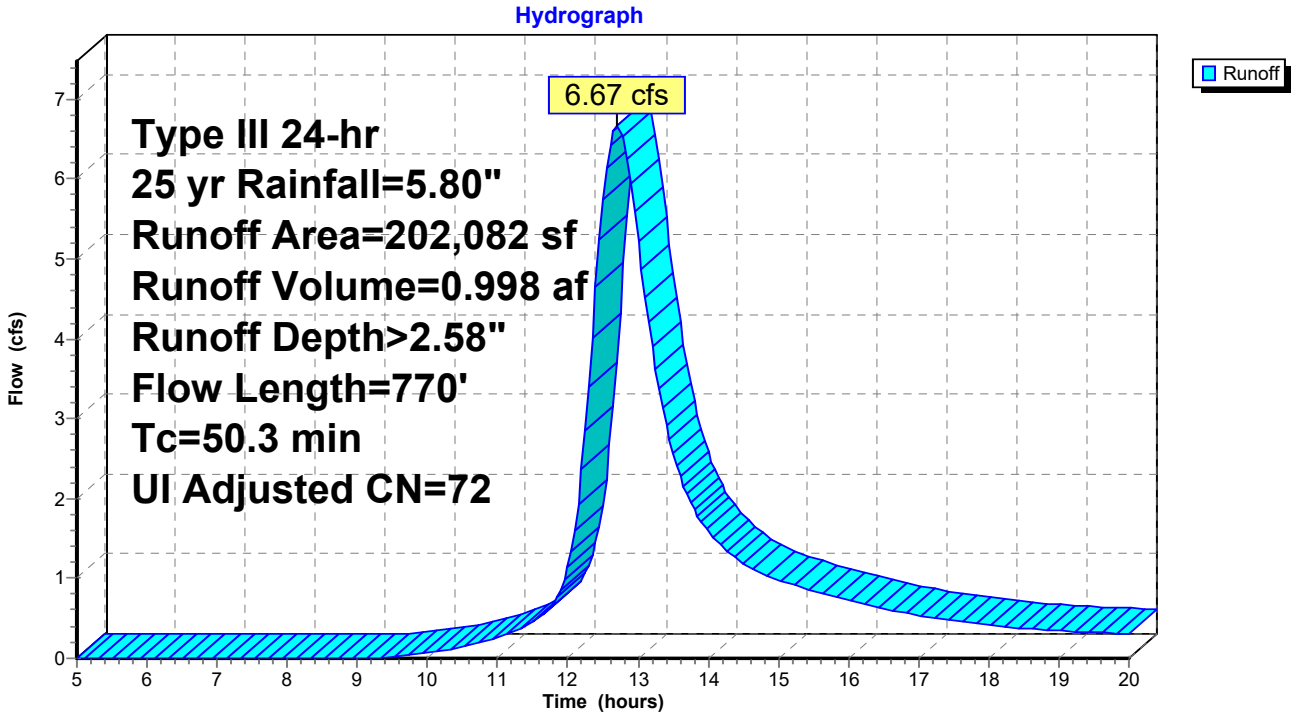
Runoff = 6.67 cfs @ 12.70 hrs, Volume= 0.998 af, Depth> 2.58"
Routed to Reach SP3 : Summation Point 3 (S.E. Property Line)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 yr Rainfall=5.80"

Area (sf)	CN	Adj	Description
151,980	71		Meadow, non-grazed, HSG C
31,342	70		Woods, Good, HSG C
18,760	98		Unconnected pavement, HSG C
202,082	73	72	Weighted Average, UI Adjusted
183,322			90.72% Pervious Area
18,760			9.28% Impervious Area
18,760			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
11.1	330	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	50	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.2	110	0.0700	12.12	48.46	**Channel Flow, ROADSIDE DITCH** Area= 4.0 sf Perim= 4.5' r= 0.89' n= 0.030 Short grass
0.1	110	0.0800	12.95	51.81	**Channel Flow, ROADSIDE DITCH** Area= 4.0 sf Perim= 4.5' r= 0.89' n= 0.030 Stream, clean & straight
16.8	120	0.0200	0.12		**Sheet Flow, DITCH TURNOUT INTO LEVELSPREADER** Grass: Dense n= 0.240 P2= 3.10"
50.3	770	Total			

Subcatchment 3S: Subcatchment 3



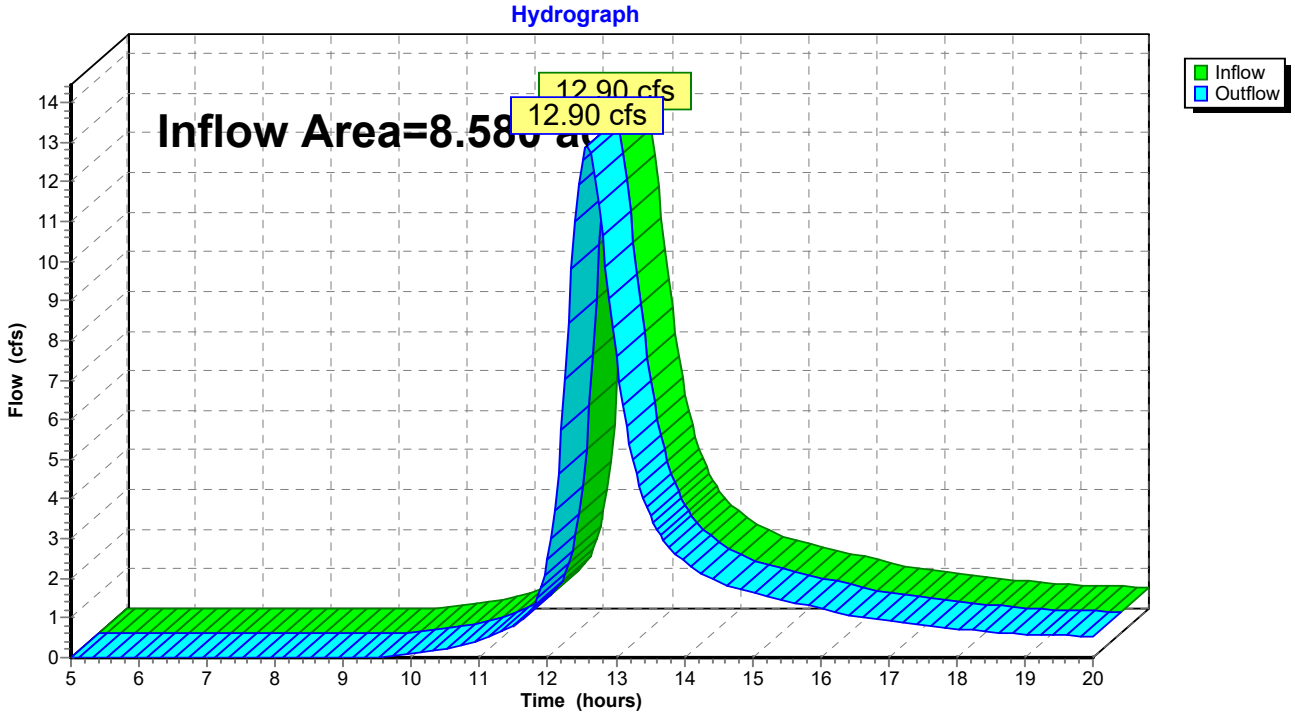
Summary for Reach SP1: Summation Point 1 (W. Property Line)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.580 ac, 0.64% Impervious, Inflow Depth > 2.42" for 25 yr event
Inflow = 12.90 cfs @ 12.57 hrs, Volume= 1.728 af
Outflow = 12.90 cfs @ 12.57 hrs, Volume= 1.728 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP1: Summation Point 1 (W. Property Line)



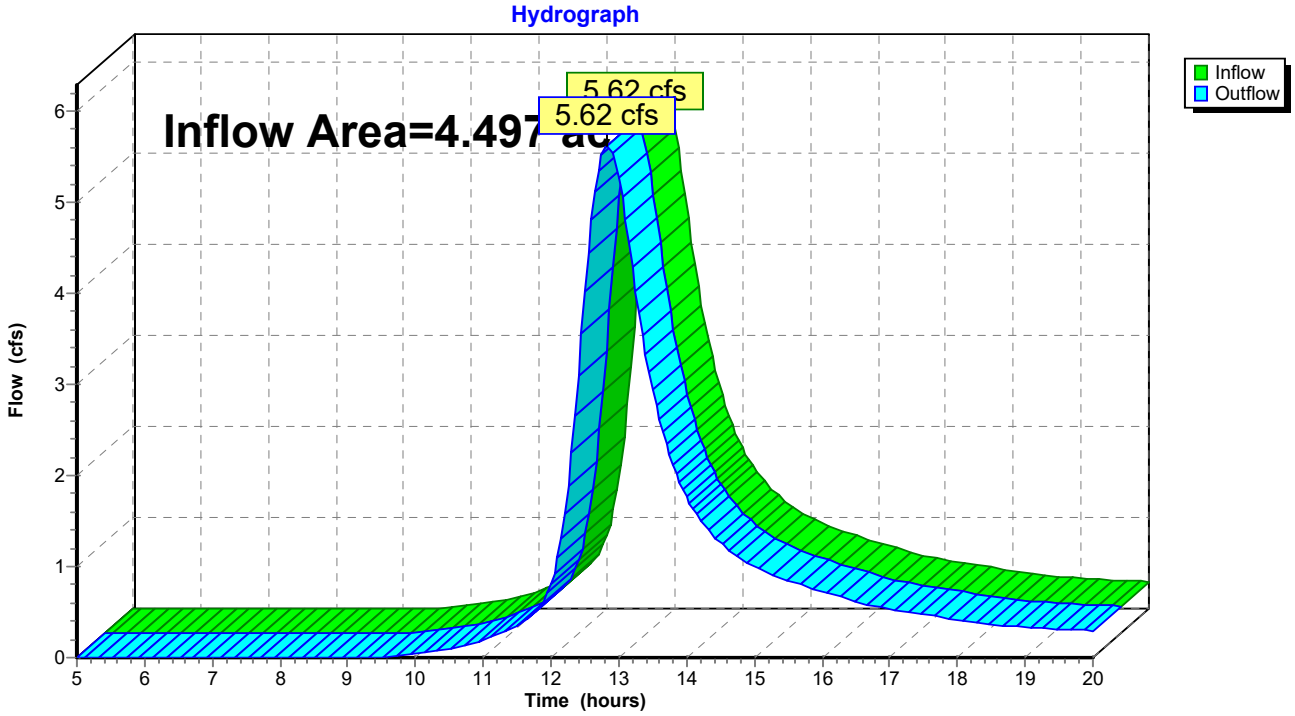
Summary for Reach SP2: Summation Point 2 (N.E. Property Line)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.497 ac, 2.48% Impervious, Inflow Depth > 2.48" for 25 yr event
Inflow = 5.62 cfs @ 12.84 hrs, Volume= 0.931 af
Outflow = 5.62 cfs @ 12.84 hrs, Volume= 0.931 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP2: Summation Point 2 (N.E. Property Line)



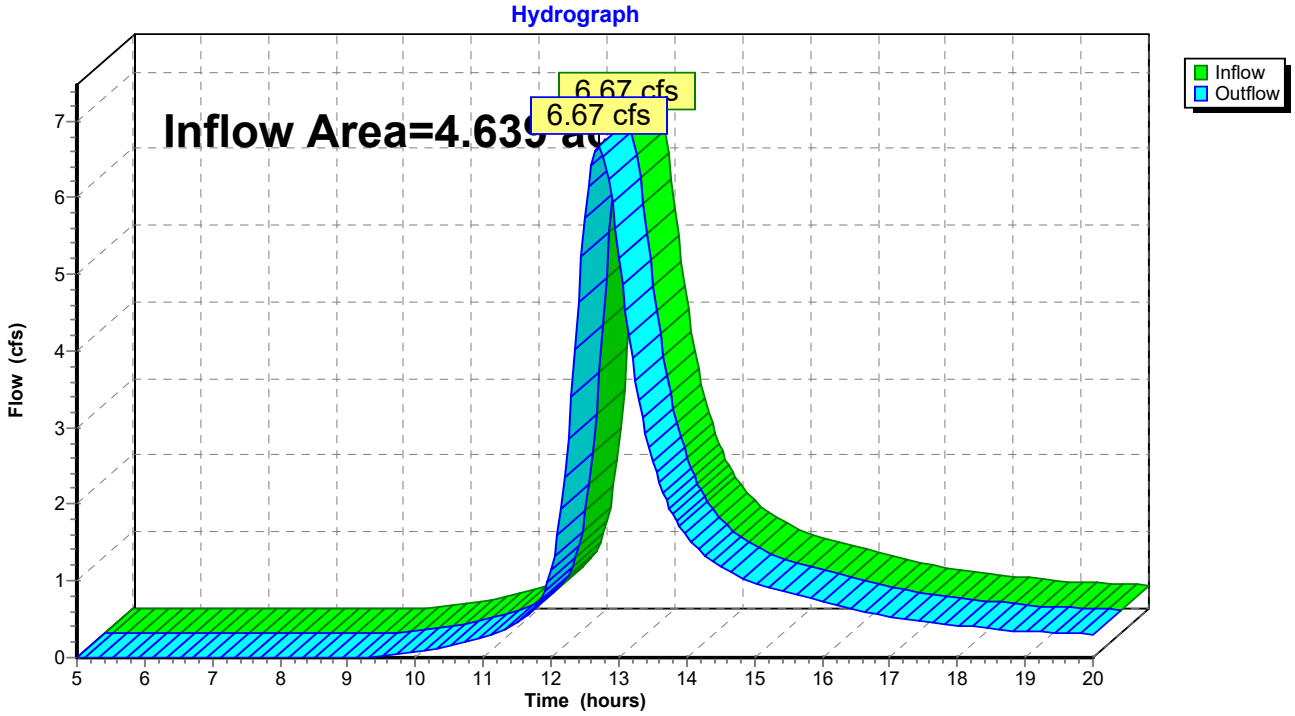
Summary for Reach SP3: Summation Point 3 (S.E. Property Line)

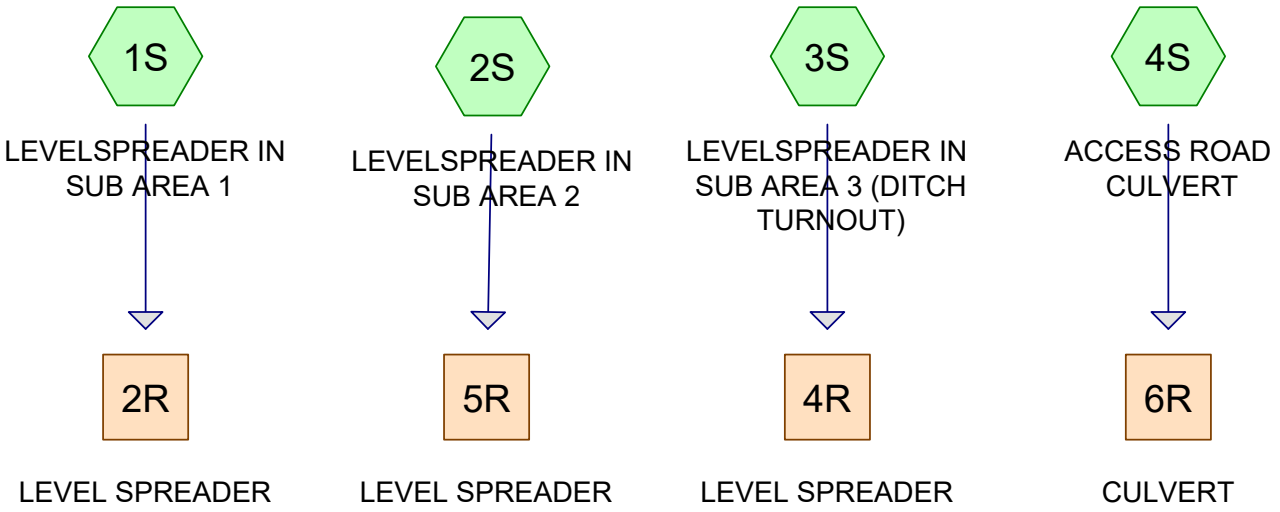
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.639 ac, 9.28% Impervious, Inflow Depth > 2.58" for 25 yr event
Inflow = 6.67 cfs @ 12.70 hrs, Volume= 0.998 af
Outflow = 6.67 cfs @ 12.70 hrs, Volume= 0.998 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP3: Summation Point 3 (S.E. Property Line)





Subcat Reach Pond Link

Routing Diagram for Level Spreader and Culvert Sizing
Prepared by Haley Ward, Printed 12/18/2024

Project Notes

Rainfall events imported from "PRE.hcp"

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	10 yr	Type III 24-hr		Default	24.00	1	4.60	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.642	98	IMP (1S)
0.463	98	Impervious (3S, 4S)
3.342	71	Meadow, non-grazed, HSG C (2S, 3S, 4S)
1.457	73	Woods, Fair, HSG C (1S, 2S, 4S)
6.903	**80**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
4.799	HSG C	1S, 2S, 3S, 4S
0.000	HSG D	
2.104	Other	1S, 3S, 4S
6.903		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	1.642	1.642	IMP	1S
0.000	0.000	0.000	0.000	0.463	0.463	Impervious	3S, 4S
0.000	0.000	3.342	0.000	0.000	3.342	Meadow, non-grazed	2S, 3S, 4S
0.000	0.000	1.457	0.000	0.000	1.457	Woods, Fair	1S, 2S, 4S
0.000	**0.000**	**4.799**	**0.000**	**2.104**	**6.903**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	6R	25.00	24.50	80.0	0.0063	0.020	0.0	18.0	0.0	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: LEVELSPREADERIN Runoff Area=100,922 sf 70.87% Impervious Runoff Depth>3.38"
Flow Length=365' Tc=30.9 min CN=91 Runoff=5.28 cfs 0.652 af

Subcatchment 2S: LEVELSPREADERIN Runoff Area=68,693 sf 0.00% Impervious Runoff Depth>1.65"
Flow Length=560' Tc=33.1 min CN=71 Runoff=1.77 cfs 0.217 af

Subcatchment 3S: LEVELSPREADERIN Runoff Area=11,619 sf 68.16% Impervious Runoff Depth>3.20"
Flow Length=270' Tc=1.0 min CN=89 Runoff=1.15 cfs 0.071 af

Subcatchment 4S: ACCESS ROAD Runoff Area=119,475 sf 10.24% Impervious Runoff Depth>1.89"
Flow Length=510' Tc=15.5 min CN=74 Runoff=4.85 cfs 0.431 af

Reach 2R: LEVEL SPREADER Inflow=5.28 cfs 0.652 af
Outflow=5.28 cfs 0.652 af

Reach 4R: LEVEL SPREADER Inflow=1.15 cfs 0.071 af
Outflow=1.15 cfs 0.071 af

Reach 5R: LEVEL SPREADER Inflow=1.77 cfs 0.217 af
Outflow=1.77 cfs 0.217 af

Reach 6R: CULVERT Avg. Flow Depth=1.11' Max Vel=3.45 fps Inflow=4.85 cfs 0.431 af
18.0" Round Pipe n=0.020 L=80.0' S=0.0063 '/' Capacity=5.40 cfs Outflow=4.80 cfs 0.431 af

Total Runoff Area = 6.903 ac Runoff Volume = 1.372 af Average Runoff Depth = 2.38"
69.52% Pervious = 4.799 ac 30.48% Impervious = 2.104 ac

Summary for Subcatchment 1S: LEVELSPREADER IN SUB AREA 1

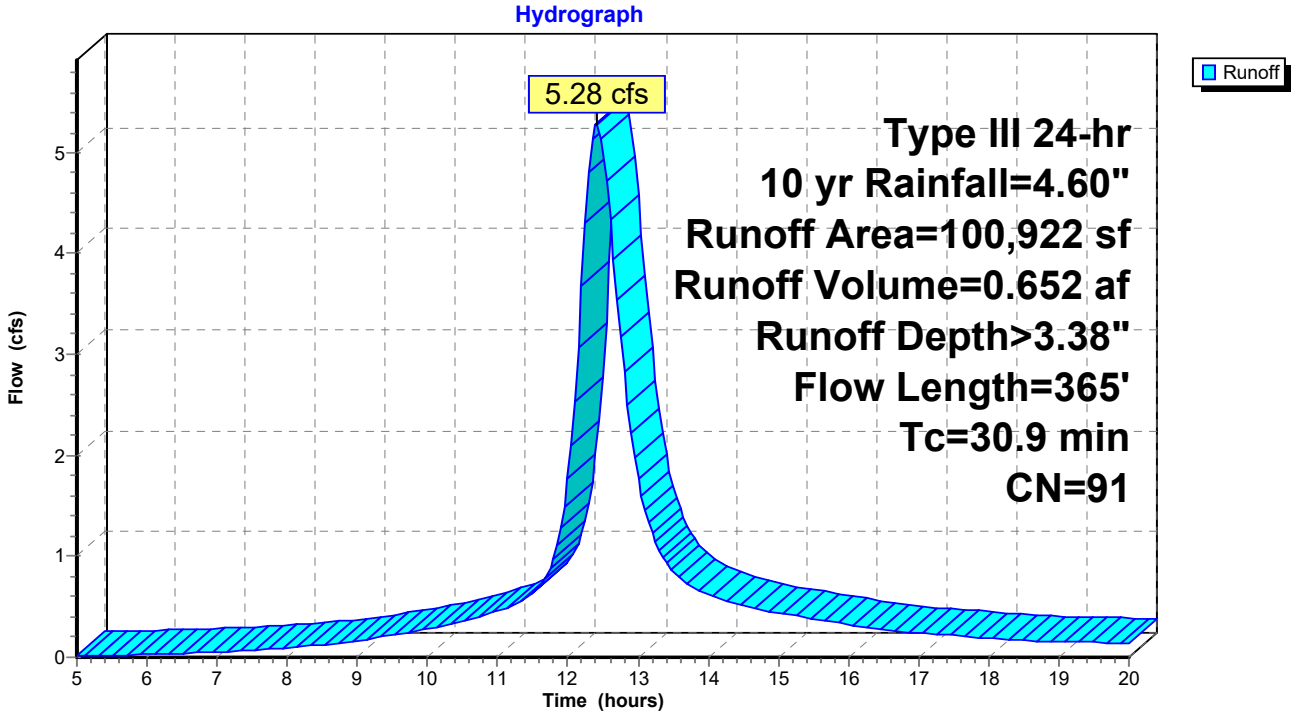
Runoff = 5.28 cfs @ 12.41 hrs, Volume= 0.652 af, Depth> 3.38"
Routed to Reach 2R : LEVEL SPREADER

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=4.60"

	Area (sf)	CN	Description
	29,403	73	Woods, Fair, HSG C
*	71,519	98	IMP
	100,922	91	Weighted Average
	29,403		29.13% Pervious Area
	71,519		70.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
8.6	255	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	60	0.0700	1.85		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
30.9	365	Total			

Subcatchment 1S: LEVELSPREADER IN SUB AREA 1



Summary for Subcatchment 2S: LEVELSPREADER IN SUB AREA 2

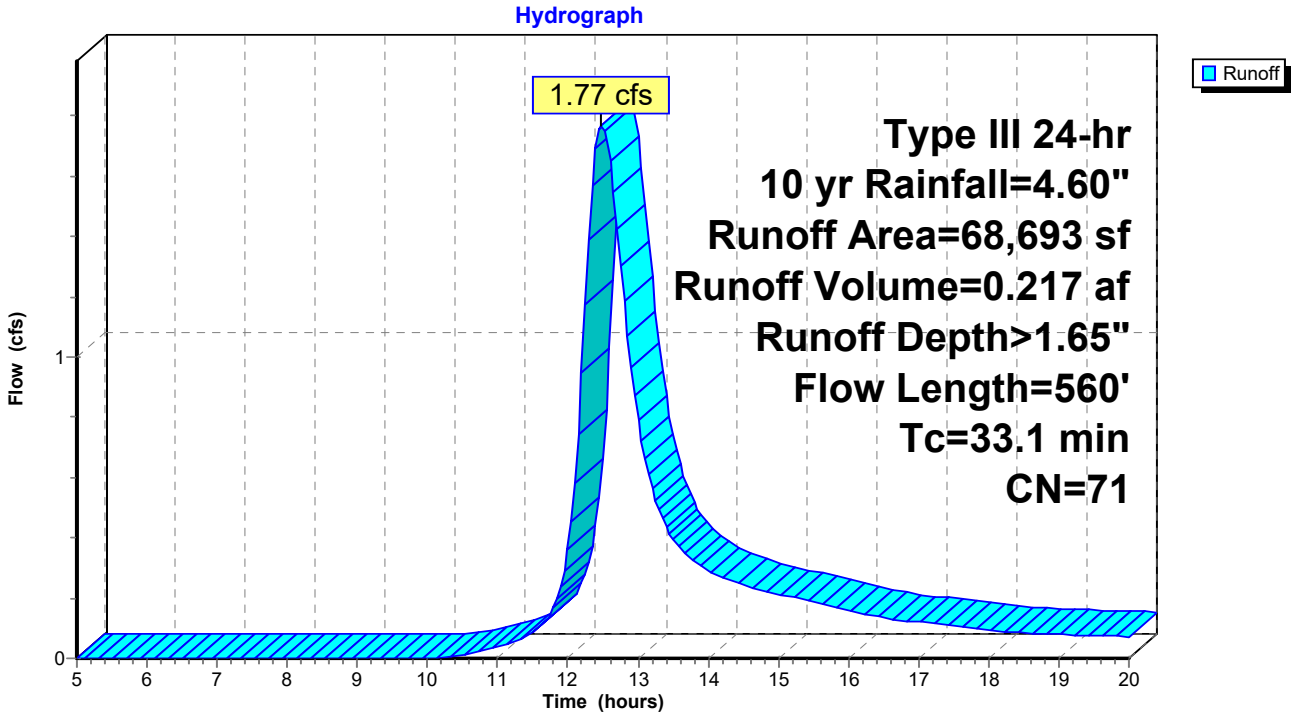
Runoff = 1.77 cfs @ 12.49 hrs, Volume= 0.217 af, Depth> 1.65"
Routed to Reach 5R : LEVEL SPREADER

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=4.60"

Area (sf)	CN	Description
10,699	73	Woods, Fair, HSG C
57,994	71	Meadow, non-grazed, HSG C
68,693	71	Weighted Average
68,693		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
8.8	260	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	80	0.0250	1.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	100	0.1700	2.89		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	70	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
33.1	560	Total			

Subcatchment 2S: LEVELSPREADER IN SUB AREA 2



Summary for Subcatchment 3S: LEVELSPREADER IN SUB AREA 3 (DITCH TURNOUT)

[49] Hint: Tc<2dt may require smaller dt

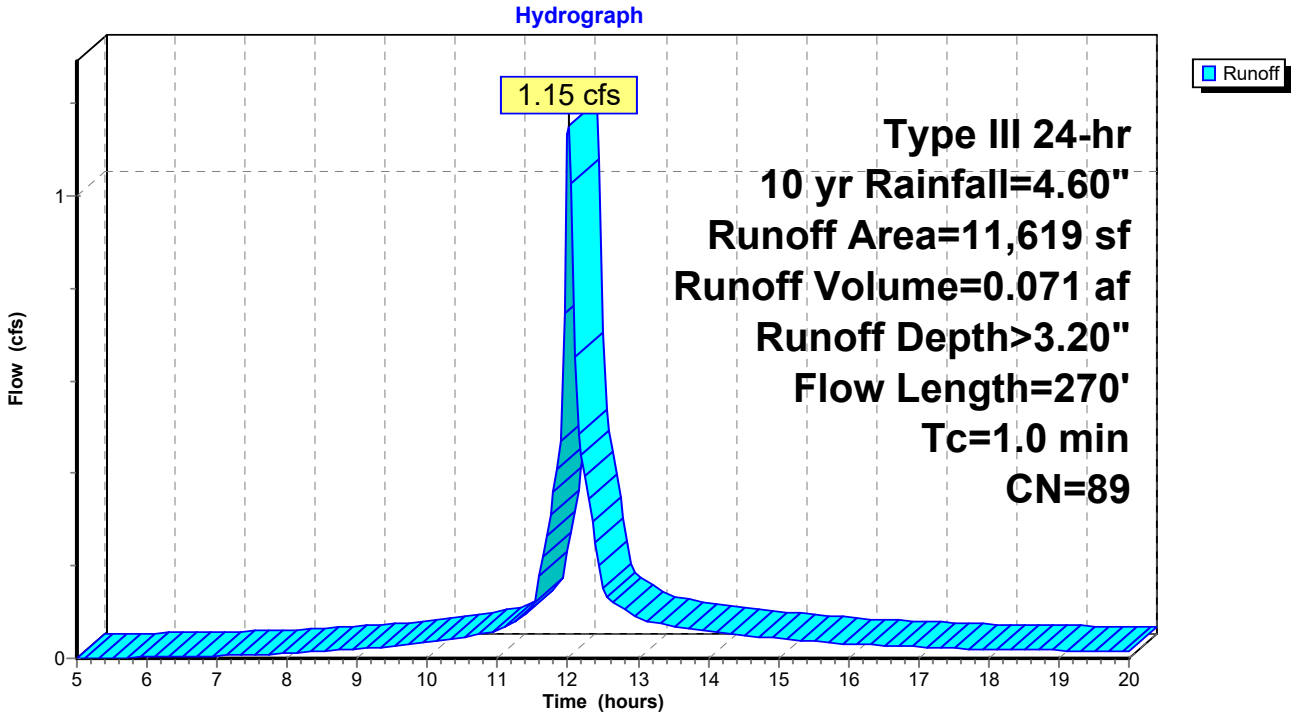
Runoff = 1.15 cfs @ 12.01 hrs, Volume= 0.071 af, Depth> 3.20"
Routed to Reach 4R : LEVEL SPREADER

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=4.60"

	Area (sf)	CN	Description
*	7,920	98	Impervious
	3,699	71	Meadow, non-grazed, HSG C
	11,619	89	Weighted Average
	3,699		31.84% Pervious Area
	7,920		68.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.18		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
0.2	110	0.0700	12.12	48.46	**Channel Flow,** Area= 4.0 sf Perim= 4.5' r= 0.89' n= 0.030 Short grass
0.1	110	0.0800	12.95	51.81	**Channel Flow,** Area= 4.0 sf Perim= 4.5' r= 0.89' n= 0.030 Short grass
1.0	270	Total			

Subcatchment 3S: LEVELSPREADER IN SUB AREA 3 (DITCH TURNOUT)



Summary for Subcatchment 4S: ACCESS ROAD CULVERT

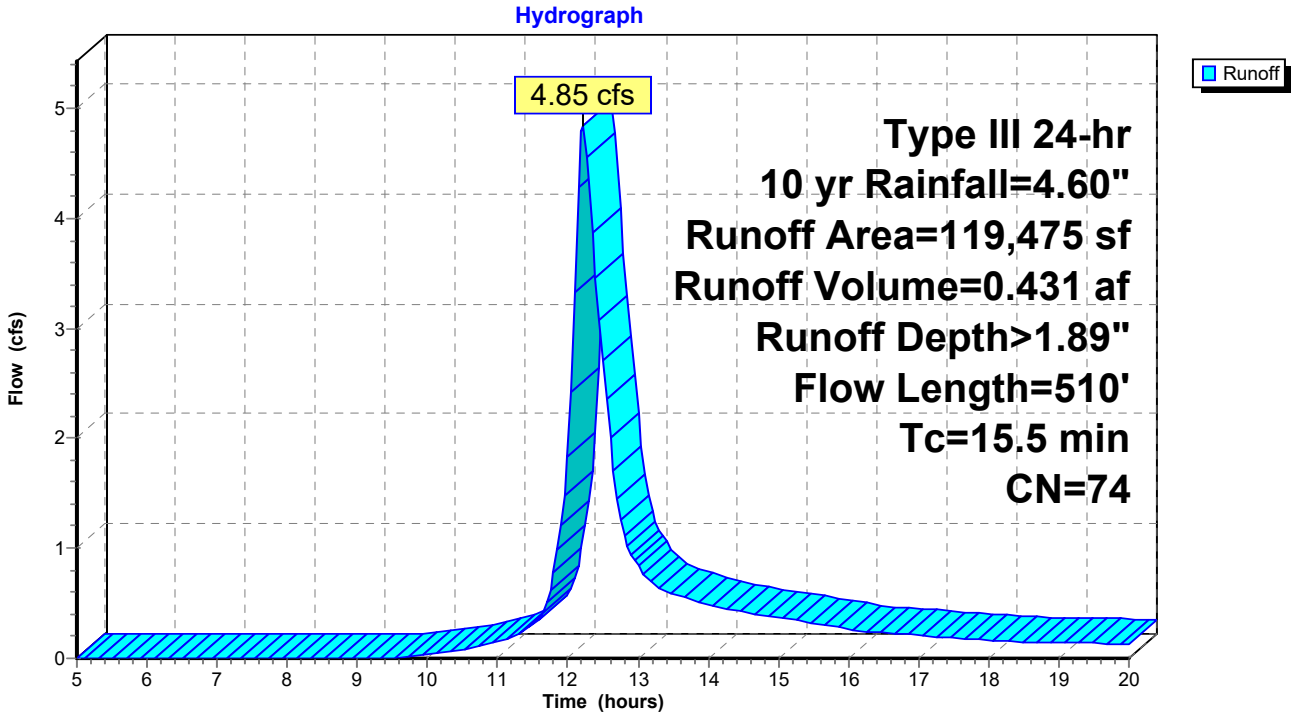
Runoff = 4.85 cfs @ 12.22 hrs, Volume= 0.431 af, Depth> 1.89"
Routed to Reach 6R : CULVERT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=4.60"

	Area (sf)	CN	Description
*	12,229	98	Impervious
	83,875	71	Meadow, non-grazed, HSG C
	23,371	73	Woods, Fair, HSG C
	119,475	74	Weighted Average
	107,246		89.76% Pervious Area
	12,229		10.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	80	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	50	0.0200	1.18		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
0.2	110	0.0700	12.12	48.46	**Channel Flow,** Area= 4.0 sf Perim= 4.5' r= 0.89' n= 0.030 Short grass
0.1	110	0.0800	12.95	51.81	**Channel Flow,** Area= 4.0 sf Perim= 4.5' r= 0.89' n= 0.030 Short grass
11.5	120	0.0200	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.3	40	0.1250	2.47		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
15.5	510	Total			

Subcatchment 4S: ACCESS ROAD CULVERT



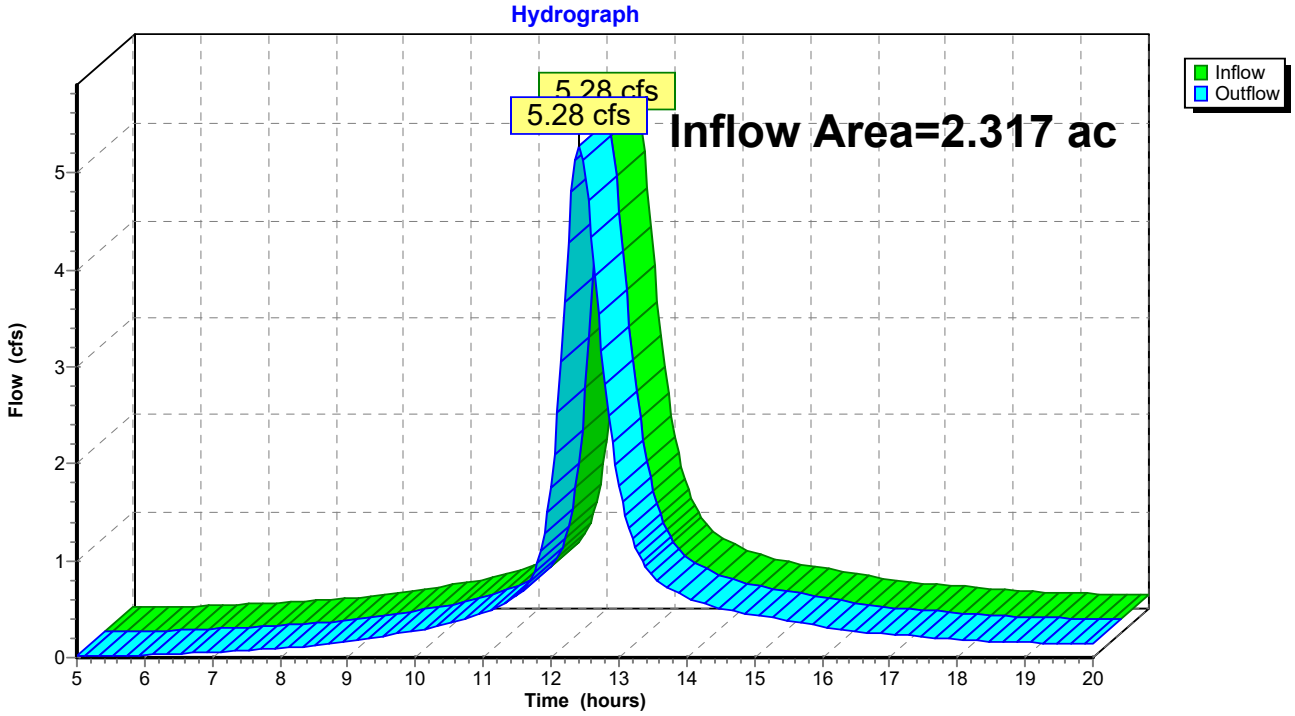
Summary for Reach 2R: LEVEL SPREADER

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.317 ac, 70.87% Impervious, Inflow Depth > 3.38" for 10 yr event
Inflow = 5.28 cfs @ 12.41 hrs, Volume= 0.652 af
Outflow = 5.28 cfs @ 12.41 hrs, Volume= 0.652 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 2R: LEVEL SPREADER



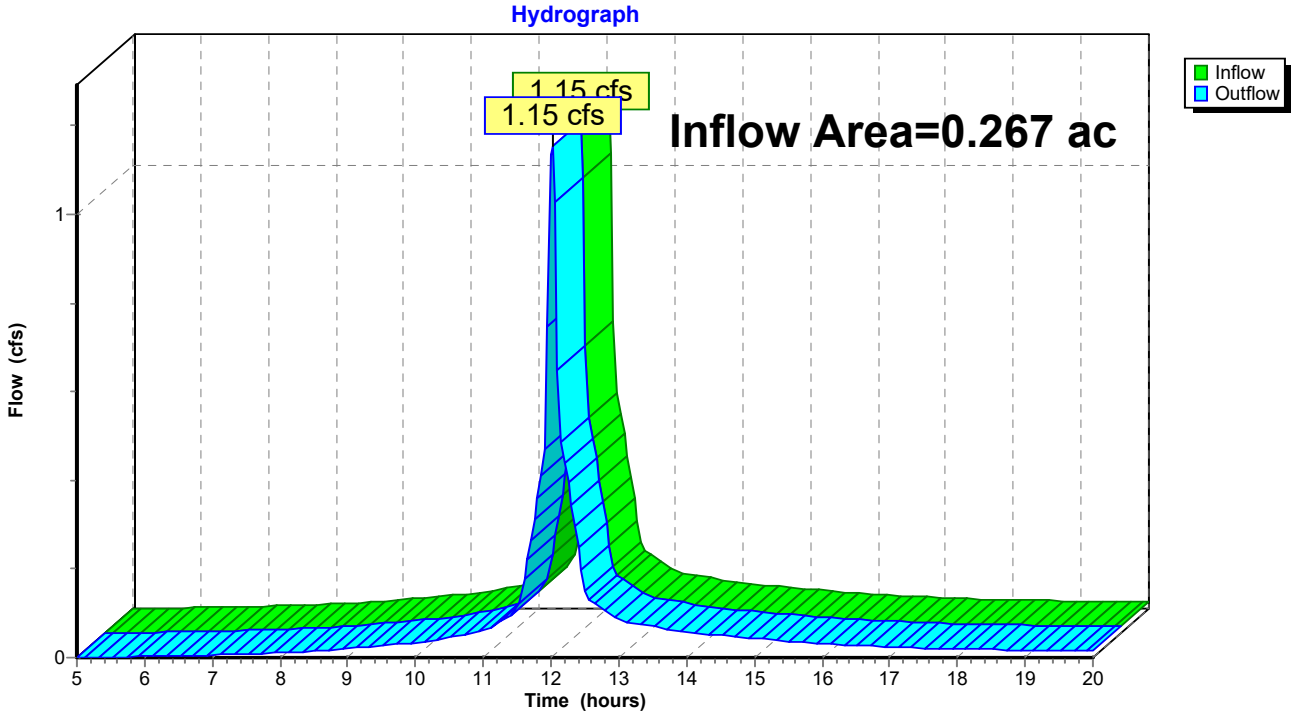
Summary for Reach 4R: LEVEL SPREADER

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.267 ac, 68.16% Impervious, Inflow Depth > 3.20" for 10 yr event
Inflow = 1.15 cfs @ 12.01 hrs, Volume= 0.071 af
Outflow = 1.15 cfs @ 12.01 hrs, Volume= 0.071 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 4R: LEVEL SPREADER



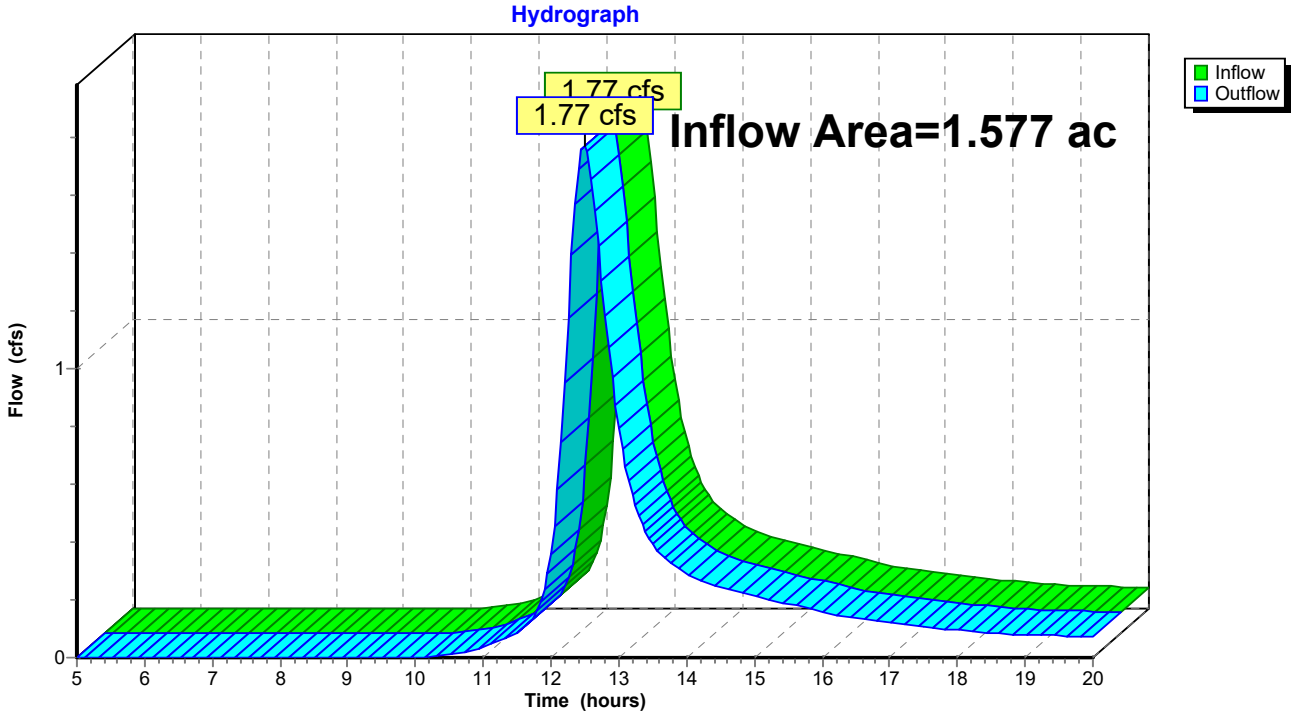
Summary for Reach 5R: LEVEL SPREADER

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.577 ac, 0.00% Impervious, Inflow Depth > 1.65" for 10 yr event
Inflow = 1.77 cfs @ 12.49 hrs, Volume= 0.217 af
Outflow = 1.77 cfs @ 12.49 hrs, Volume= 0.217 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 5R: LEVEL SPREADER



Summary for Reach 6R: CULVERT

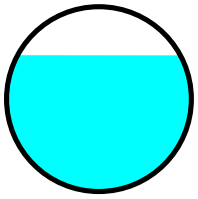
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 2.743 ac, 10.24% Impervious, Inflow Depth > 1.89" for 10 yr event
Inflow = 4.85 cfs @ 12.22 hrs, Volume= 0.431 af
Outflow = 4.80 cfs @ 12.24 hrs, Volume= 0.431 af, Atten= 1%, Lag= 0.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.45 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.62 fps, Avg. Travel Time= 0.8 min

Peak Storage= 112 cf @ 12.23 hrs
Average Depth at Peak Storage= 1.11' , Surface Width= 1.32'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 5.40 cfs

18.0" Round Pipe
n= 0.020 Corrugated PE, corrugated interior
Length= 80.0' Slope= 0.0063 '/'
Inlet Invert= 25.00', Outlet Invert= 24.50'



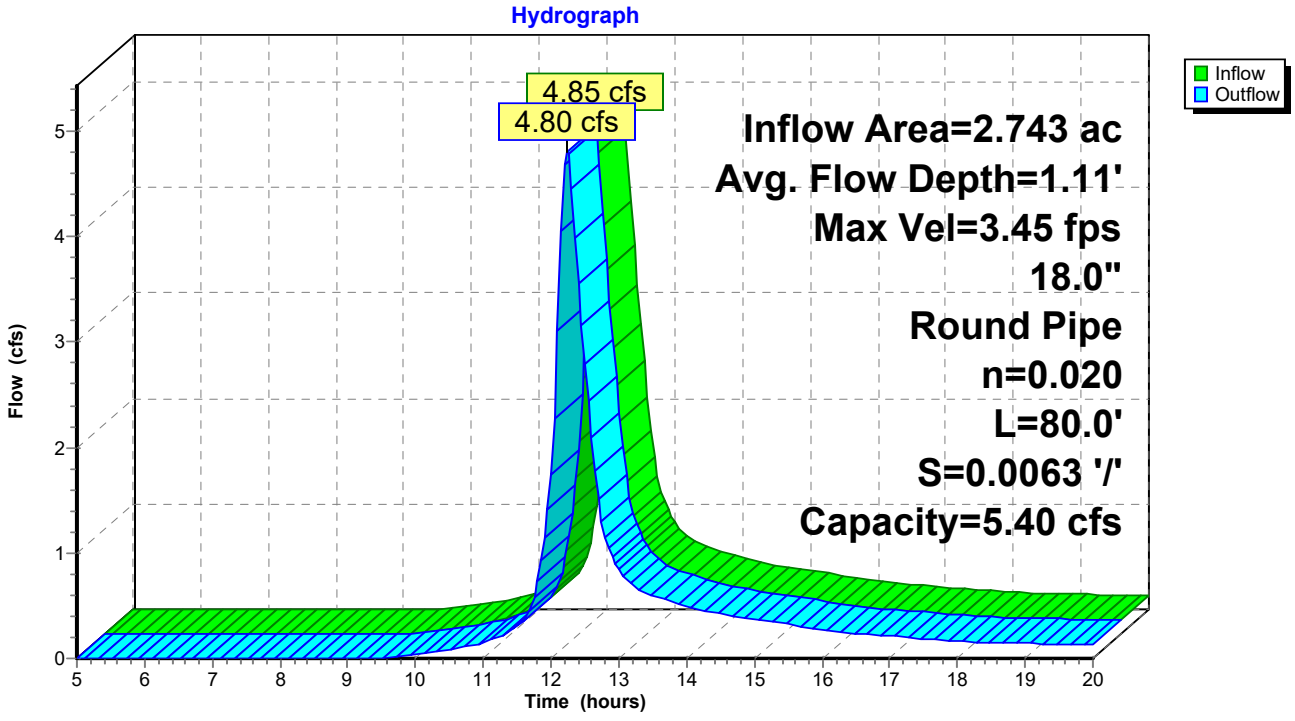


EXHIBIT 15

EROSION AND SEDIMENTATION CONTROL PLAN

EROSION CONTROL

A. Narrative. The proposed construction will require the implementation of temporary and permanent erosion control measures. These measures will be implemented in accordance with the Maine Erosion and Sediment Control Best Management Practices (BMPs) Manual, prior to removal of any on-site vegetation or disturbance of any on-site soil. The general erosion and sediment control specifications and details, as provided within this section, are intended to describe measures to be used by contractors working on the site to maintain compliance with the standards established in the BMPs. These standards include information on temporary and permanent erosion control measures, rates of seeding and applied mulch, slope and soil stabilization, effect of construction schedule, and other details.

   The proposed location and use of erosion control measures on-site are shown on the proposed site plan of this application. There are no known existing erosion control concerns with the site. Implementation of proper erosion control measures will be required by site conditions to confine sediment and debris within the limit of soil disturbance. Proper use and maintenance of erosion control measures will provide protection against off-site transport of sediment and discharge of sediment to undisturbed areas of the development.

B. Completion Date. Summer 2025.

C. Site Features. For site features please refer to the enclosed plan.

D. Temporary and Permanent Erosion Control Measures. For temporary and permanent erosion control measures please refer to the enclosed plan.

E. Limits of Disturbed Areas. Areas of disturbance will be limited to the proposed work shown on the enclosed plan. Disturbances will not take place within the wetland, or the 25-foot stream set back. Disturbed land cover around the development will be allowed to revegetate following construction.

F. Design Drawings and Specifications. For design drawings please refer to the enclosed plan. The following specifications will be utilized by the site contractor during construction of the project.

EROSION CONTROL PLAN SPECIFICATIONS

A. General

1. All work and measures will be as per the Maine Erosion and Sediment Control BMPs manual.

2. The following specifications will be employed.

B. Prior to Construction

1. Prior to beginning of construction, erosion and sedimentation controls shall be in place.

C. During Construction

1. Exposed soil surfaces will be treated immediately if they are to remain ungraded more than 30 days, or if they are at final grades.

2. Drainage ways, either designed or incidental, will have filter barriers installed.

3. All work and materials necessary to minimize sediment loss from the site will be provided.

4. All erosion control measures will be inspected and repaired after every rainfall greater than ½-inch and at least daily during rain events lasting longer than 24 hours.

D. Post Construction

1. Erosion control measures will be maintained until permanent soil stabilization has been achieved with a growth of vegetation greater than 90%.

SOIL PROTECTION AND EROSION CONTROL

PART 1 - GENERAL

1.01 Description of Work

A. Provide and maintain devices to control erosion, siltation, sedimentation, and dust that occur during construction operations. Undertake every reasonable precaution and do whatever is necessary to avoid erosion of soil and to prevent silting of wetland areas and drainage ditches.

B. Provide measures to control dust caused whether on or off the project site.

C. Deficiencies in erosion control measures indicated by failures or erosion will be corrected as soon as reasonably possible by providing additional measures or different techniques to correct the situation and prevent subsequent erosion.

D. Exposure of soils on embankments, excavations, and graded areas will be kept as short as possible. Initiate seeding and other erosion control practices as soon as reasonably possible.

1.02 Quality Assurance

A. Conform to all requirements of applicable Federal, State and local permits and conform to the recommendations of the Maine Erosion and Sediment Control BMPs (see Part B below) whether the measures are specifically noted herein, or not.

B. Standards: Maine Erosion and Sediment Control BMPs Manual, hereinafter called Erosion Control Handbook.

PART 2 - PRODUCTS

2.01 Materials: Use the following materials to implement and construct erosion control measures.

A. Hay Bale: Rectangular shaped bales of hay or straw weighting at least 40 pounds per bale; free from noxious weed seeds and rough or woody materials.

B. Mulch: Type and use as specified by the Erosion Control Handbook

1. Long fibered hay or straw in dry condition and which are relatively free of weeds and foreign matter detrimental to plant life.

2. Mulch netting: Plastic or nylon mesh netting with approximate openings of ¼-inch to 1-inch.

C. Permanent Seeding: Cut and fill slopes and disturbed areas will be stabilized with a meadow seed mix.

PART 3 - EXECUTION

3.01 Construction

A. Hay Bales:

1. Install as directed by Erosion Control Handbook, and stake with required stakes.

B. Mulch:

1. Undertake after each area has been properly prepared.

2. When seed for erosion control is sown prior to placing the mulch, place mulch on the seeded areas within 48 hours after seeding.

3. Blowing chopped mulch will be permitted.

4. Hay mulch should cover the ground enough to shade it, but the mulch should not be so thick that a person standing cannot see the ground through the mulch.

5. Remove matted mulch or bunches.

C. Temporary Erosion Control Matting (where necessary):

1. Surface Preparation:
   a. Conform to grades for slopes and ditches shown of the drawings.
   b. Finish to a smooth and even condition with all debris, roots, stones, and lumps raked out and removed.
   c. Loosen soil surface to permit bedding of the matting.
   d. Unless otherwise directed, apply seed prior to placement.

2. Installation:
   a. Place strips lengthwise in the direction of the flow of water.
   b. Where strips are laid parallel or meet as in a tee, overlap at least four inches.
   c. Overlap ends at least six inches in a shingle fashion.
   d. The up-slope end of each strip of the matting will be turned down and buried to a depth of not less than six inches with the soil firmly tamped against it.

e. Build check slots at right angles to the direction of the flow of water. Space so that one check slot or one end occurs within each 50 feet of slope length. Construct by placing a tight fold of the matting at least six inches vertically into the ground and tamp the same as up-slope ends.
f. Bury edges of matting around the edges of the catch basins and other structures.
g. Where determined by the Engineers, additional seed will be spread over matting, particularly at those locations disturbed by building the slots. Matting will then be pressed onto the ground with a light lawn roller or by other satisfactory means.
h. Drive staples vertically into the ground flush with the surface.
i. On slopes flatter than 4:1, space staples not more than three feet and one row, alternately spaced, down the center.
j. On grades 4:1 or steeper, place in the same three rows, but spaced two feet apart.
k. On all overlapping or butting edges, double the number of staples, with the spacing halved; all ends of the matting and all required check slots will likewise have staples spaced every foot.

D. Permanent Seeding:

1. Seed with appropriate seeds and application rates as noted in Section 2.01C.

2. Mulch areas where seeding has been applied. Do not mulch seeded areas where matting will be immediately installed.

E. Topsoil Storage:

1. Topsoil which is stockpiled on the site for use in loam applications will be placed out of natural drainages, in piles that have side slopes of 2:1 to 1.5:1.

2. A trench (depth as required) will be constructed around the base of the pile to prevent eroding soil from washing into drainages.

F. Dust Control: Utilize the application of sprinkled water to reduce the emission of airborne soil particulates from the Project site.

G. Temporary Berms: Construct temporary barriers along the toe of embankments using side drains, as necessary.

H. Temporary Basins: Construct temporary sedimentation basins adequate to avoid siltation of surface water bodies.

I. Other Temporary Measures:

1. Type and use will be as specified in the Erosion Control Handbook.

J. Winter Stabilization Notes

1. At this time, it is not expected that significant soil disturbance will occur during winter months or periods of heavy icing. If construction is performed during these times, the following construction practices will be followed.
   a. All disturbed areas not stabilized with stone or other measures will have approved erosion control matting installed and be dormant seeded.
   b. No frozen soil material or material containing significant snow or ice will be used for fill material.
   c. All material stockpiles will have silt fence and/or hay bales installed downgradient of piles.
   d. Follow general erosion control notes described previously wherever possible and as conditions permit.

3.02 Maintenance

A. Inspect erosion control practices immediately after each rainfall greater than ½-inch and at least daily during rainfall lasting longer than 24 hours or snowmelt for damage. Provide maintenance and make appropriate repairs or replacement.

B. Remove silt from around hay bales when it has reached one foot above grade or prior to expected heavy runoff or siltation.

C. Repair matting if any staples become loosened or raised, or if any matting becomes loose, torn, or undermined, make satisfactory repairs immediately.

3.03 Removal of Temporary Erosion Control

A. Remove temporary materials and devices when permanent soil stabilization has been substantially achieved. For vegetated areas, substantially complete means 95% vegetated cover has been established.

B. Level and grade to the extent required to present a sightly appearance and to prevent any obstruction of the flow of water or any other interference with the operation of or access to the permanent works.

C. Remove unsuitable materials from site and dispose of in a lawful manner.

INSPECTION AND MAINTENANCE

The following Maintenance Plan will be employed for this facility. Yarmouth Solar 1, LLC will be responsible for all maintenance. Erosion control measures for this site were designed by:

Drew Olehowski, P.E.
Haley Ward, Inc.
120 Main Street, Suite 132
Saco, ME 04072
(207) 989-4824
dolehowski@haleyward.com

A Pre- and Post-Construction Maintenance Plan for the stormwater management system and erosion control measures are included in this section.

MAINTENANCE PLAN

The MDEP's Stormwater Management for Maine: Best Management Practices (2006), and the MDEP's Chapter 500: Stormwater Management were used as guidelines in the development of this Maintenance Plan. General maintenance requirements are listed below.

A. DURING CONSTRUCTION

The general contractor will be responsible for the inspection and maintenance of all stormwater management system components during construction.

Inspection: Inspection of disturbed and impervious areas, erosion control measures, materials' storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site will be performed at least once a week as well as before and after a storm event, and prior to completing permanent stabilization measures. Inspections shall be conducted by a person with knowledge of erosion and stormwater control, including the standards and conditions in the permit.

Maintenance: All erosion control measures will be kept in effective operating condition until areas are permanently stabilized. If BMPs need to be maintained or modified, additional BMPs are necessary, or other corrective action is needed, implementation will be completed within 7 calendar days and prior to any rainfall event.

Documentation: A log shall be kept summarizing the inspections and any corrective action taken. A copy of the log is provided at the end of this section, and is titled, Construction Inspection Log.

B. POST-CONSTRUCTION

The Owner or their assigns will be responsible for the inspection and maintenance of all stormwater management system components.

Inspection and Corrective Action

1. Vegetated Areas: Inspections and maintenance of vegetated areas will be performed early in the growing season or after significant rainfall to identify any erosion problems. Areas where erosion is evident will be covered with an appropriate lining, or erosive flows will be diverted to an area able to handle the flows. Any bare areas or areas with sparse growth will be replanted.

2. Level Spreaders: Inspections and maintenance of level spreaders will be performed annually and following major storm events. The level spreader pool should be inspected for sand accumulation and debris that may reduce its capacity. Sediment build-up within the swale should be removed when it has

accumulated to approximately 25% of channel capacity. Remove debris such as leaf litter, branches and tree growth from the spreader. When sheet flow from the spreader begins to channelize into the buffer reconstruction of the level spreader may be necessary.

3. *Inspection* shall be performed by an individual with experience and/or training on the maintenance and functions of these devices.

HOUSEKEEPING

1. Spill Prevention - During construction, controls will be used to prevent pollutants from being discharged from materials on site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation.

2. Groundwater Protection - During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater will not be stored or handled in areas of the site draining to an infiltration area. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials.

3. Fugitive Sediment and Dust - Actions will be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil will not be used for dust control. Water will be used for dust control during construction.

   Operations during wet months that cause mud to be tracked off the site onto public roads will provide sweeping of the road areas at least once per week and prior to significant storm events.

4. Debris and Other Materials - Litter, construction debris, and chemicals exposed to stormwater will be prevented from becoming a pollutant source. The nature of this development will not cause problems related to debris and other materials.

5. Trench or Foundation De-Watering - If de-watering is necessary, the collected water will be removed from the ponded area and spread through natural wooded buffers or discharged into a construction sedimentation basin. The water will not be allowed to flow over disturbed areas to the site.

INSPECTION AND MAINTENANCE PLAN FOR STORMWATER MANAGEMENT STRUCTURES (BMPS)		
	INSPECTION SCHEDULE	**CORRECTIVE ACTIONS**
VEGETATED AREAS	Annually early spring and after heavy rains	Inspect all slopes and embankments and replant areas of bare soil or with sparse growth
		Armor rill erosion areas with riprap or divert the runoff to a stable area
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Mow vegetation as specified for the area
DITCHES, SWALES AND OPEN STORMWATER CHANNELS	Annually spring and late fall and after heavy rains	Remove obstructions, sediments or debris from ditches, swales and other open channels
		Repair any erosion of the ditch lining
		Mow vegetated ditches
		Remove woody vegetation growing through riprap
		Repair any slumping side slopes
		Repair riprap where underlying filter fabric or gravel is showing or if stones have dislodged
CULVERTS	Spring and late fall and after heavy rains	Remove accumulated sediments and debris at the inlet, outlet, or within the conduit
		Remove any obstruction to flow
		Repair any erosion damage at the culvert's inlet and outlet
CATCHBASINS	Annually in the spring	Remove sediments and debris from the bottom of the basin and inlet grates
		Remove floating debris and oils (using oil absorptive pads) from any trap
ROADWAYS AND PARKING AREAS	Annually in the spring or as needed	Clear and remove accumulated winter sand in parking lots and along roadways
		Sweep pavement to remove sediment
		Grade road shoulders and remove accumulated winter sand
		Grade gravel roads and gravel shoulders
		Clean-out the sediment within water bars or open-top culverts
		Ensure that stormwater runoff is not impeded by false ditches of sediment in the shoulder
RESOURCE AND TREATEMENT BUFFERS	Annually in the spring	Inspect buffers for evidence of erosion, concentrated flow, or encroachment by development
		Manage the buffer's vegetation with the requirements in any deed restrictions
		Repair any sign of erosion within a buffer
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Install more level spreaders, or ditch turn-outs if needed for a better distribution of flow
		Clean-out any accumulation of sediment within the spreader bays or turnout pools
		Mow non-wooded buffers no shorter than six inches and less than three times per year
WETPONDS AND DETENTION BASINS	Annually in fall and after heavy rains	Inspect the embankments for settlement, slope erosion, piping, and slumping
		Mow the embankment to control woody vegetation
		Inspect the outlet structure for broken seals, obstructed orifices, and plugged trash racks
		Remove and dispose of sediments and debris within the control structure
		Repair any damage to trash racks or debris guards
		Replace any dislodged stone in riprap spillways
		Remove and dispose of accumulated sediments within the impoundment and forebay
FILTRATION AND INFILTRATION BASINS	Annually in the spring and late fall	Clean the basin of debris, sediment and hydrocarbons
		Provide for the removal and disposal of accumulated sediments within the basin
		Renew the basin media if it fails to drain within 72 hours after a one inch rainfall event
		Till, seed and mulch the basin if vegetation is sparse
		Repair riprap where underlying filter fabric or gravel is showing or where stones have dislodged
PROPRIETARY DEVICES	As specified by manufacturer	Contract with a third-party for inspection and maintenance
		Follow the manufacturer's plan for cleaning of devices
OTHER PRACTICES	As specified for devices	Contact the department for appropriate inspection and maintenance requirements for other drainage control and runoff treatment measures.

EXHIBIT 16

HIGH INTENSITY SOIL REPORT AND SITE CONDITIONS

SOIL AND SITE CONDITIONS REPORT

A high-intensity soil survey and site condition assessment were performed on the project site. The high-intensity soil classification report, which discusses methodologies and delineates soil types, was prepared by GZA GeoEnvironmental in October of 2024. The site conditions report, which discusses methodologies and delineates wetlands, was prepared by Haley Ward, Inc., in August of 2023. Both reports have been attached.

LONGVIEW PARTNERS, LLC

ENVIRONMENTAL PERMITTING SPECIALISTS

Soil Narrative Report

Prepared for

GZA GeoEnvironmental

off Whitcomb Way

Yarmouth, Maine

October 2024

Soil test pits observed October 10, 2024

Map scaled 1" = 40', base map provided by GZA GeoEnvironmental

Mapping meets Maine Association of Professional Soil Scientists Class B High-Intensity mapping standards with minimum mapping units of 1/8 acre

NICHOLVILLE
(Aquic Haplorthods)

SETTING

Parent Material: Lacustrine material having a high content of silt and fine sand.

Landform: Commonly found on lake plains and upland till plains that have a mantle of water-deposited silt or very fine sand.

Position in Landscape: Intermediate and upper portions of landscape feature.

Slope Gradient Ranges: **(B)** 3-8% **(C)** 8-20% **(D)** 20%+

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Moderately well drained, with a perched water table 1.5 to 2.0 feet below the soil surface from November through May.

Typical Profile Description:

Surface layer: Very dark grayish brown silt loam, 0-10"
Subsurface layer: Dark yellowish brown silt loam, 10-13"
Subsoil layer: Yellowish brown and grayish brown very fine sandy loam, 13-18"
Substratum: Grayish brown loamy very fine sand, 18-70"

Hydrologic Group: Group C

Surface Run Off: Medium

Permeability: Moderate throughout the profile.

Depth to Bedrock: Very deep, greater than 60".

Hazard to Flooding: None

INCLUSIONS
(Within Mapping Unit)

Similar: Croghan, Elmwood

Dissimilar: Nicholville (S.W.P.), Buxton

USE AND MANAGEMENT

Stormwater design: Nicholville is a moderately well drained soil, exhibiting a seasonal high groundwater table 1.5-2.0 feet beneath the soil surface in the spring and during periods of high precipitation. Nicholville soils exhibit permeabilities of 0.6-2.0 inches/hour, through the profile.

NICHOLVILLE (S.W.P.)

SETTING

Parent Material: Lacustrine material having a high content of silt and fine sand.

Landform: Commonly found on lake plains and upland till plains that have a mantle of water-deposited silt or very fine sand.

Position in Landscape: Intermediate portion of landscape feature.

Slope Gradient Ranges: **(B)** 3-8%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Nicholville (S.W.P.) is somewhat poorly drained, with a perched water table 0.5 to 1.5 feet below the soil surface from November through May and during periods of heavy precipitation.

Typical Profile Description:

Surface layer: Very dark grayish brown silt loam, 0-10"
Subsurface layer: Dark yellowish brown silt loam, 10-13"
Subsoil layer: Yellowish brown and grayish brown very fine sandy loam, 13-18"
Substratum: Grayish brown loamy very fine sand, 18-70"

Hydrologic Group: Group C

Surface Run Off: Medium

Permeability: Moderate throughout profiles.

Depth to Bedrock: Very deep, greater than 60".

Hazard to Flooding: None

INCLUSIONS
(Within Mapping Unit)

Similar: Nicholville, Naumburg (S.W.P.), Lamoine

Dissimilar: Roundabout, Scantic

USE AND MANAGEMENT

Development with stormwater: Nicholville (SWP) is a somewhat poorly drained soil exhibiting a seasonal high groundwater table 1.0 to 1.5 feet beneath the soil surface in the spring and during periods of heavy precipitation. Nicholville (SWP) soils exhibit permeabilities of 0.6-2.0 inches/hr throughout the profile.

SOIL TEST PIT PROFILE DESCRIPTIONS

LONGVIEW PARTNERS, LLC
6 SECOND STREET BUXTON, MAINE

Town, City, Plantation: **YARMOUTH**

Street, Road, Subdivision: **off WHITCOMBS WAY**

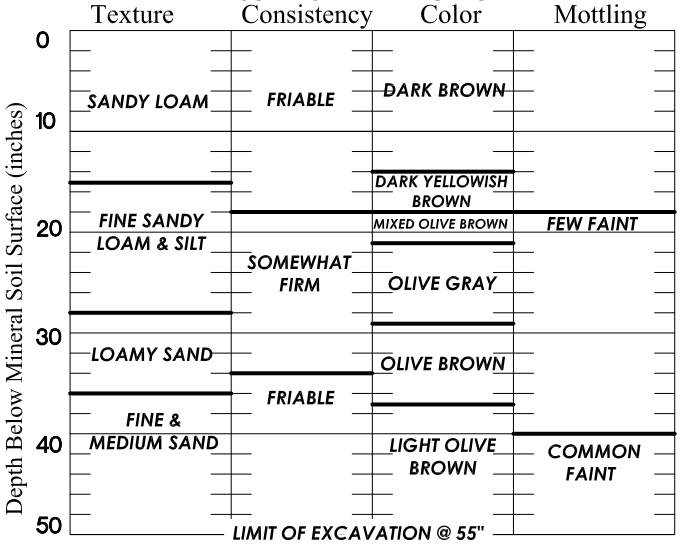
Owner's Name: **GZA GEOENVIRONMENTAL**

SOIL DESCRIPTION AND CLASSIFICATION (PER STATE OF MAINE SUBSURFACE WASTEWATER DISPOSAL RULES)

Observation Hole **TP 1** ■ Test Pit □ Boring

_____ " Depth of Organic Horizon Above Mineral Soil

SOIL TEST PIT BY BACKHOE

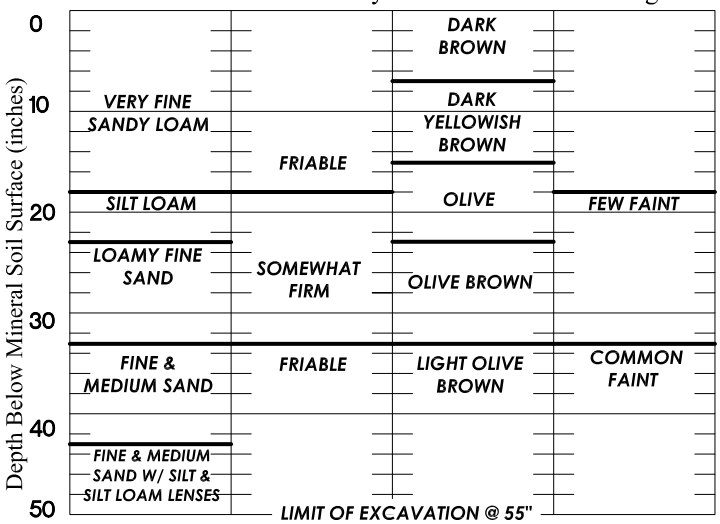


Soil Classification	Slope	Limiting Factor	
NICHOLVILLE (VARIANT)	____ %	18 "	[X] Ground Water
Profile Condition			[ ] Restrictive Layer
			[ ] Bedrock
			[ ] Pit Depth

Observation Hole **TP 2** ■ Test Pit □ Boring

_____ " Depth of Organic Horizon Above Mineral Soil

SOIL TEST PIT BY BACKHOE



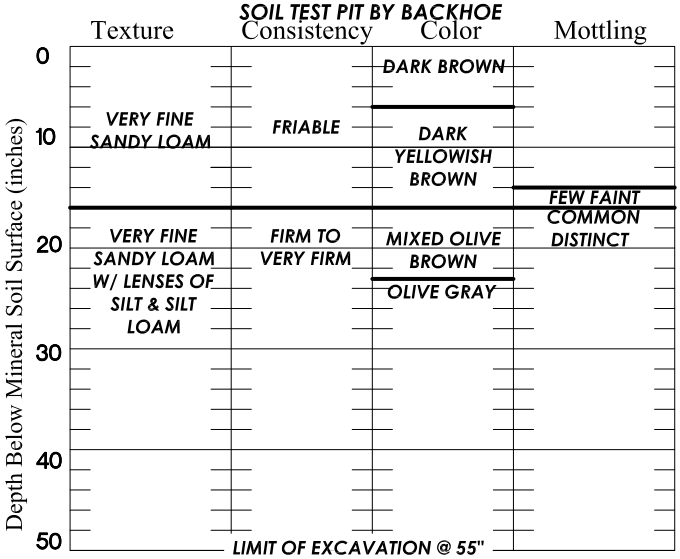
Soil Classification	Slope	Limiting Factor	
NICHOLVILLE (VARIANT)	____ %	18 "	[X] Ground Water
Profile Condition			[ ] Restrictive Layer
			[ ] Bedrock
			[ ] Pit Depth

SOIL DESCRIPTION AND CLASSIFICATION (PER STATE OF MAINE SUBSURFACE WASTEWATER DISPOSAL RULES)

Observation Hole **TP 3** ■ Test Pit □ Boring

_____ " Depth of Organic Horizon Above Mineral Soil

SOIL TEST PIT BY BACKHOE

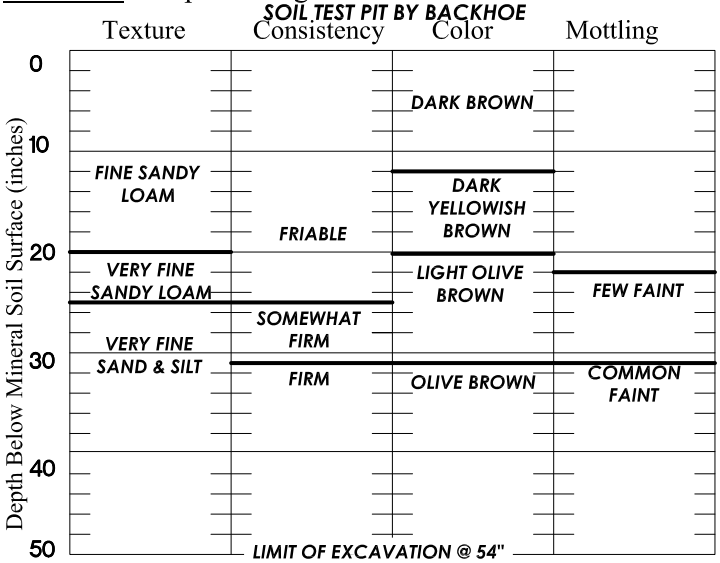


Soil Classification	Slope	Limiting Factor	
NICHOLVILLE (SWP)	____ %	14 "	[X] Ground Water
Profile Condition			[ ] Restrictive Layer
			[ ] Bedrock
			[ ] Pit Depth

Observation Hole **TP 4** ■ Test Pit □ Boring

_____ " Depth of Organic Horizon Above Mineral Soil

SOIL TEST PIT BY BACKHOE



Soil Classification	Slope	Limiting Factor	
NICHOLVILLE (VARIANT)	____ %	22 "	[X] Ground Water
Profile Condition			[ ] Restrictive Layer
			[ ] Bedrock
			[ ] Pit Depth

James Logan — SIGNATURE

237/213 — LSE/LSS #

10/14/24 — DATE

NICHOLVILLE C

TP 4

NICHOLVILLE D

NICHOLVILLE B

TP 1

TP 2

NICHOLVILLE C

NICHOLVILLE (SWP) B

NICHOLVILLE C

TP 3

NICHOLVILLE (SWP) B

WHITCOMBS WAY

NICHOLVILLE (SWP) D

SOILS MAP LEGEND:

- TP — ***SOIL TEST PIT*** *(LOCATED BY LONGVIEW PARTNERS, LLC SUBMETER GPS)*
- ***SOIL BOUNDARY LINE***
- ***LIMITS OF SOIL SURVEY***

SLOPE DESIGNATION

A	0 – 3%
B	3 – 8%
C	8 – 20%
D	20%+

NOTES: SEE ACCOMPANYING SOIL NARRATIVE REPORT, DATED OCTOBER 2024 SOIL TEST PITS EXCAVATED BY BACKHOE

THE ACCOMPANYING SOILS SURVEY WAS DONE IN ACCORDANCE WITH THE STANDARDS ADOPTED BY THE MAINE ASSOCIATION OF PROFESSIONAL SOIL SCIENTISTS, FEBRUARY 1995, AS AMENDED.

STATE OF MAINE
JAMES LOGAN #213
CERTIFIED SOIL SCIENTIST

GRAPHIC SCALE

40 0 20 40 80

(IN FEET)
1 inch = 40 ft.

CLASS B HIGH-INTENSITY SOIL SURVEY
PREPARED FOR
GZA
WHITCOMBS WAY
(MAP 5, P/O LOT 15)
YARMOUTH, MAINE

LONGVIEW PARTNERS, LLC
ENVIRONMENTAL PERMITTING SPECIALISTS

DRAFT:	SCALE:	QA/QC:	PLAN DATE:
BO	1" = 40'	JL	10/14/24

HALEY WARD

ENGINEERING | ENVIRONMENTAL | SURVEYING

SITE CONDITION REPORT

FOR

SMITH STREET YARMOUTH
YARMOUTH, MAINE

Report Prepared For:
NEW LEAF ENERGY
55 Technology Drive Suite #102, Lowell, MA 01851

AUGUST 2, 2023
JN: 12869.060

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 20-acre parcel of land located at the end of Smith Street in Yarmouth, Maine. Natural resource surveys were completed on April 18 and May 9, 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 20 acres of undeveloped woodland located at the end of Smith Street and adjacent to Riverside Cemetery in Yarmouth, Maine. Haley Ward's natural resource survey was completed on this 20-acre portion of land, herein referred to as "the Site." A Site Location Map is included in **Appendix A.**

Wetlands and Waters of the US: Wetland delineation and characterization was completed on May 9, 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 April 18, 2023. Based on MDIFW Guidelines, this is 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 at the end of Smith Street in Yarmouth, Maine. The Site is undeveloped woodland adjacent to Riverside Cemetery. Site elevation ranges from approximately 12 to 60 feet above mean sea level, draining south and west

toward an unnamed stream. Upland vegetation on the Site consists of species such as eastern white pine, balsam fir, and low-bush blueberry.

Natural Resource Survey Results: Field surveys identified two wetlands on the Site. One stream was observed off 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. One stream was observed adjacent to the southwestern Site boundary.

Wetlands: Two wetlands were observed on the Site. These wetlands are palustrine forested/scrub-shrub (PFO/PSS) wetlands dominated by balsam fir, red maple, and sensitive fern. Soil in these wetlands consists of silty loam, depleted below the surface with redox concentrations, meeting the *F3-Depleted Matrix wetland soil indicator*. Hydrology in this wetland consists of surface water (A1) and saturation (A3).

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 April 18, 2023, Site visit. Vernal pools were not identified.

State of Maine Wetland Classification: The State classifies wetlands as "Wetlands of Special Significance" (WOSS) based on MDEP Rule Chapter 310, Section 4A of *Wetlands and Waterbodies;* or wetlands that do not meet the criteria (not WOSS). Based on our observations of the Site, wetlands located on Site are not WOSS.

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 an exemplary natural community: a salt-hay saltmarsh and a tidal wading bird and waterfowl habitat, located 0.05 miles south 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; roseate tern (endangered) and Northern long-eared bat (endangered), and within the range of one candidate species (Monarch butterfly). Roseate terns nest on islands and hummocks in salt marshes. While salt marsh habitat is located just south of the Site, this habitat is not found on Site. Therefore, impacts to roseate terns are not expected. 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 protected species, listed for reference.

SUMMARY AND RECOMMENDATIONS

Natural resource surveys have been completed on the approximately 20-acre Site located at the end of Smith Street in Yarmouth, Maine. Haley Ward identified two

wetlands on the Site. One stream is located adjacent to the southwestern Site boundary. The project area is within the range of two federally protected species; roseate tern (endangered) and Northern long-eared bat (endangered). The nearest State Significant Wildlife Habitat is exemplary natural communities: a salt-hay saltmarsh and a tidal wading bird and waterfowl habitat, located 0.05 miles south of 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.

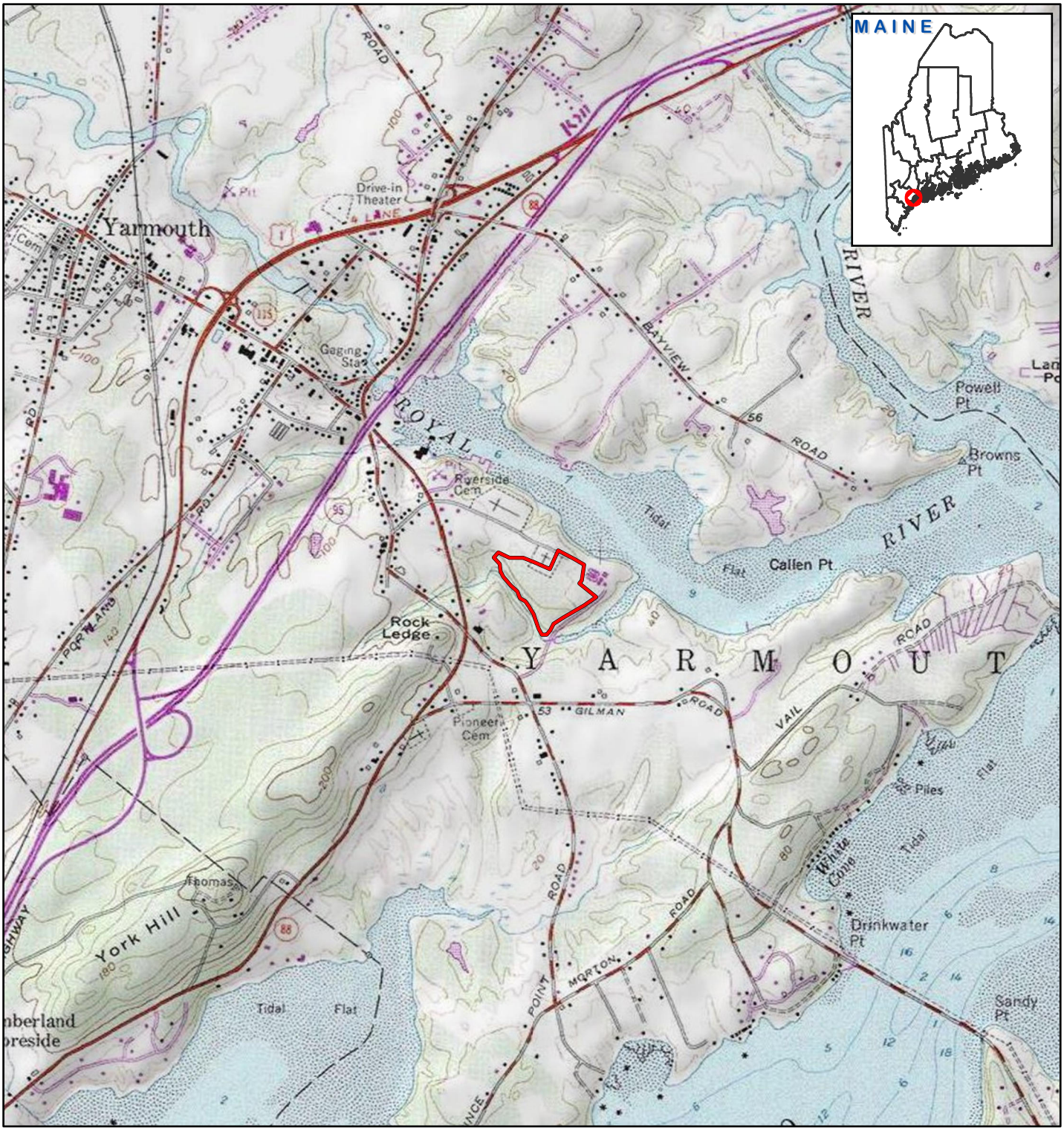
2. Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center Home Page. http://www.npwrc.usgs.gov/resource/1998/classwet/classwet.htm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

0 500 1,000 2,000 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.

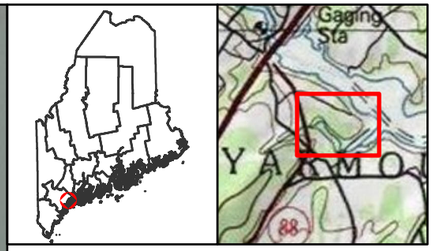
4. BASE MAP CREDITS:

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

CLIENT	NEW LEAF ENERGY
PROJECT	SMITH STREET YARMOUTH SMITH STREET, YARMOUTH, MAINE
TITLE	LOCATION MAP
DATE	6/8/2023
PROJECT No.	12869.060
DRAWN BY	KOVERTURF
SCALE	1" = 2,000 '

APPENDIX B

NATURAL RESOURCE MAP
WILDLIFE HABITAT MAP



Legend

- Survey Area
- Delineated Wetland Boundary
- Delineated Wetland Area
- USGS Stream
- 75ft Stream Buffer

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 APRIL AND MAY 2023 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.

0 120 240
Feet
1 inch equals 200 feet

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1 Merchants Plaza, Suite 701
Bangor, ME 04401
WWW.HALEYWARD.COM 207-989-4824

CLIENT	NEW LEAF ENERGY
PROJECT	SMITH STREET YARMOUTH
TITLE	NATURAL RESOURCE MAP
DATE	5/15/2023
PROJECT No.	12869.060
DRAWN BY	KOVERTURF
SCALE	1" = 200 '

APPENDIX C

PHOTOGRAPHS

Photo No. 1 **Photo Date:** 5/9/2023 **Site Location:** Smith Street, Yarmouth, Maine **Description:** Wetland 1, a palustrine forested/scrub-shrub wetland located on the southern edge of the Site **Photo By:** KAO	

Photo No. 2 **Photo Date:** 5/9/2023 **Site Location:** Smith Street, Yarmouth, Maine **Description:** An example of upland located on the Site **Photo By:** KAO	

Photo No. 3	
Photo Date: 5/9/2023	
Site Location: Smith Street, Yarmouth, Maine	
Description: Open field located at northern edge of the Site	
Photo By: KAO	

EXHIBIT 17

STATE AND FEDERAL APPROVALS

STATE AND FEDERAL APPROVALS

In addition to Yarmouth's Site Plan Permit, the following permits and state agency reviews are required for this development.

PERMITS:

1. Maine Department of Environmental Protection – Stormwater Permit by Rule

AGENCY REVIEW:

Consultation from the following agencies has been requested to ensure the development will not cause significant adverse impacts to natural resources or significant wildlife, marine habitats, and natural fisheries.

1. Maine Department of Inland Fisheries and Wildlife
2. Maine Natural Areas Program
3. Maine Historic Preservation Commission

Copies of the permits and agency reviews mentioned will be forwarded to the Town upon receipt.

JANET T. MILLS
GOVERNOR

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

JUDITH CAMUSO
COMMISSIONER

December 12, 2023

Greg Rosshirt
New Leaf Energy
55 Technology Drive, Suite 102
Lowell, MA 01851

RE: Information Request – Lafayette Street, Solar, Yarmouth Project (ERID 7193)

Dear Greg:

Per your request received on October 02, 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 *Lafayette Street, Solar, Yarmouth* project. Please note as project details are lacking, our comments should be considered preliminary.

Our Department has not mapped any Essential Habitats that would be directly affected by your project. Essential Habitats are areas formally designated as essential to the conservation of a State Endangered or Threatened species and are protected pursuant to the Maine Endangered Species Act (MESA, 12 M.R.S, §12804.2). Currently, Essential Habitats are only designated for three State Endangered coastal breeding bird species.

Endangered, Threatened, and Special Concern Species

Bats - Of the eight species of bats that occur in Maine, four species are afforded 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), eastern small-footed bat (State Threatened), and tri-colored bat (State Threatened). The four remaining bat species are designated as Species of Special Concern: big brown bat, red bat, hoary bat, and silver-haired bat. While a comprehensive statewide inventory for bats has not been completed, based on historical evidence, it is likely that several of these species occur within the project area during the fall/spring migration, the summer breeding season, and/or for overwintering. The Maine Endangered Species Act prohibits activities that may cause "Take" (kill or cause death), "harassment" (create injury or significantly disrupt normal behavior patterns), and other adverse actions to State Endangered and Threatened species. MDIFW Endangered Species Rules for bats (Chapter 8.06; see http://www.maine.gov/sos/cec/rules/09/137/137c008.docx) provide seasonal protection of maternity roost trees for 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.

If the proposed project has a Federal nexus, either via funding or permitting, we recommend that you contact the U.S. Fish and Wildlife Service--Maine Fish and Wildlife Complex (207-469-7300) for further guidance on their perspective, as several bat species are listed or proposed for listing under the Federal Endangered Species Act.

Talus Slopes - 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, between rocks, cracks, and crevices in talus slopes, rocky outcrops, and cliff faces. 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 also occupy rocky areas under forest canopy. Occupied talus slopes in Maine have consisted of variable rock sizes, ranging in size from softball 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, coordinates, and characteristics of these areas should be submitted to MDIFW for review, and additional investigations and monitoring may be recommended to further determine suitability and document occupancy. Alternatively, these features should be appropriately buffered commensurate with the size and layout of the project. If these habitat features are not present in the project area, MDIFW does not anticipate significant impacts to bat species as a result of this project based on current best available science.

Tidal Waterfowl Wading Bird Habitat (TWWH) – This project area includes TWWH, a Significant Wildlife Habitat under Maine's Natural Resources Protection Act. TWWHs provide important breeding, feeding, migration, staging, and wintering habitat for diverse waterfowl and wading bird species. Birds utilize emergent wetlands, intertidal mudflats, eelgrass beds, and mussel beds to forage for aquatic invertebrates, a primary food source. Maintaining natural tidal flow is essential to maintaining healthy intertidal areas and food sources to support waterfowl and wading bird species. MDIFW recommends that projects near TWWHs provide as much undisturbed buffer as possible to protect this habitat. In the event that activities are permitted in the immediate vicinity, MDIFW recommends that no clearing or construction occur from May 1 through July 15, a sensitive period for wading bird breeding, nesting, and brood rearing, or from December 15 through March 15, a critical period for coastal waterfowl.

Significant Wildlife Habitat

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

Aquatic Resources

Fisheries Habitat - We recommend that 100-foot undisturbed vegetated buffers be maintained along streams. Buffers should be measured from the edge of stream or associated fringe and floodplain wetlands. Maintaining and enhancing buffers along streams that support coldwater fisheries is critical to the protection of water temperatures, water quality, natural inputs of coarse woody debris, and various forms of aquatic life necessary to support conditions required by many fish species. Stream crossings should be avoided, but if a stream crossing is necessary, or an existing crossing needs to be modified, it should be designed to provide full fish passage. Small streams, including intermittent streams, can provide crucial rearing habitat, cold water for thermal refugia, and abundant food for juvenile salmonids on a seasonal basis and undersized crossings may inhibit these functions. Generally, MDIFW recommends that all new, modified, and replacement stream crossings be sized to span at least 1.2 times the bankfull width of the stream. In addition, we generally recommend that stream crossings be open bottomed (i.e., natural bottom), although embedded structures which are backfilled with representative streambed material have been shown to be effective in not only providing habitat connectivity for fish but also for other aquatic organisms. Construction Best Management Practices should be closely followed to avoid erosion, sedimentation, alteration of stream flow, and other impacts as eroding soils from construction activities can travel significant distances as well as transport other pollutants resulting in direct impacts to fisheries and aquatic habitat. In addition, we recommend that any necessary instream work occur between July 15 and October 1.

Wildlife Permeable Fencing

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

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

Finally, please note that 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.).

Vegetation Management

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

measures, including natural revegetation and ground cover, may be proposed when State listed Rare, Threatened, or Endangered (RTE) species that require other specific habitat conditions are present or presumed in the vicinity.

Specific to the following resources, MDIFW recommends that mechanized vegetation management (e.g., mowing, brush hogging) only occur between October 15 and March 31 for facilities where State listed RTE reptile species are present or presumed, and only between September 15 and March 31 where State Endangered New England cottontails are present or presumed. In these situations, vegetation management during the other times of the year should be limited to the use of handheld equipment only. As a last resort, if vegetation management with handheld equipment is determined to not be feasible, mechanized management (e.g., mowing, brush hogging) may occur only if mower decks are raised to a minimum height of 10 inches off the ground to reduce impacts to at-risk species.

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.

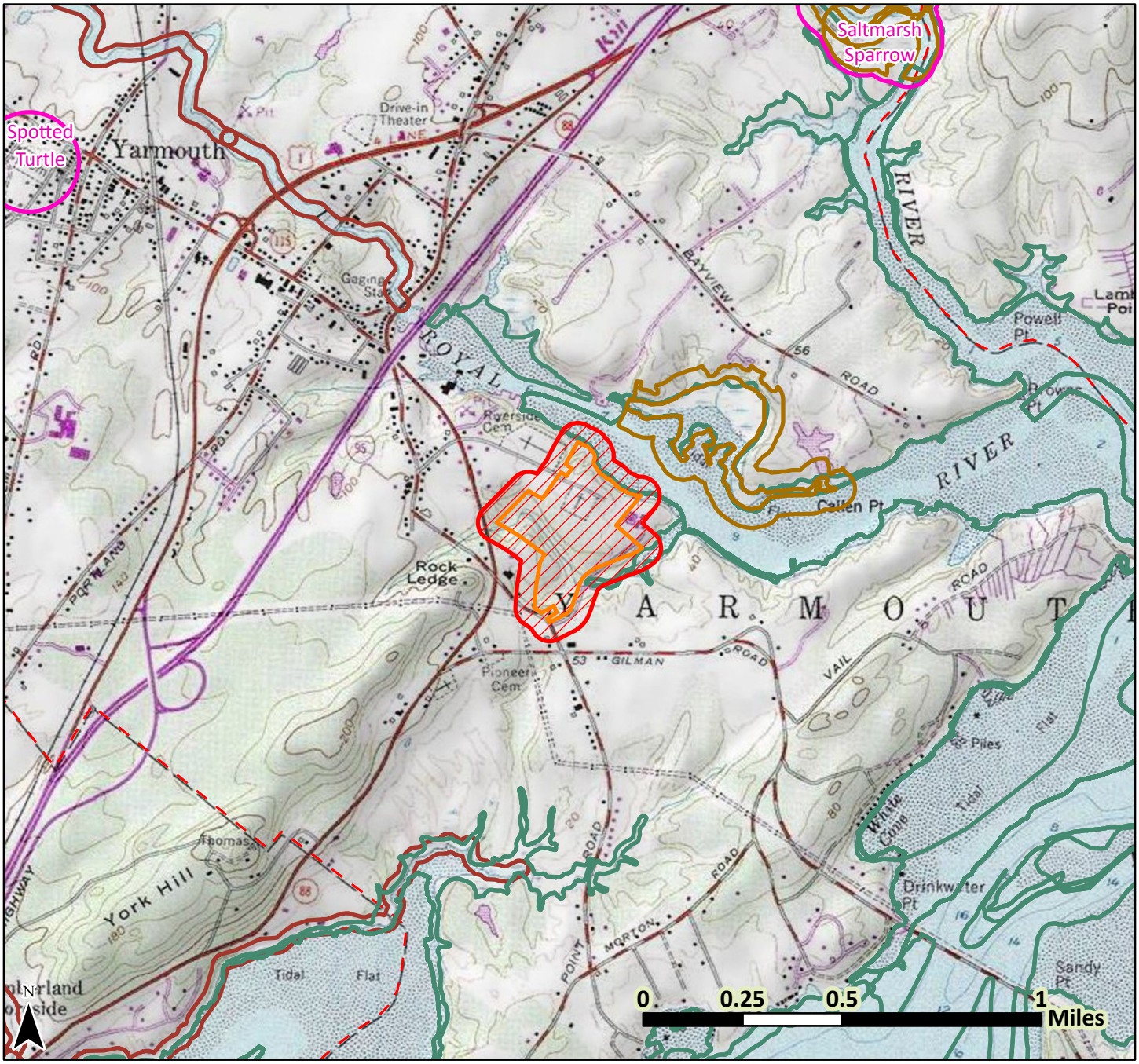
Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,

Ciara Wentworth
Resource Biologist

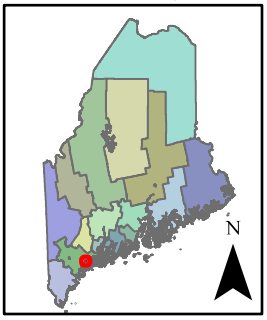
Maine Department of Inland Fisheries and Wildlife
Environmental Review of Fish and Wildlife Observations and Priority Habitats

Lafayette Street, Solar, Yarmouth



- County Boundary
- Township Boundary
- Project Footprint
- Search Area
- E, T, & SC Species
- Shorebird Area
- Special Concern Fish
- Tidal Waterfowl/Wading Bird

Date: 10/27/2023
Projection:
UTM Zone 19N, NAD83



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

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

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

October 24, 2023

Greg Rosshirt
New Leaf Energy
55 Technology Drive, Suite 102
Lowell, MA 01851

Via email: grosshirt@newleafenergy.com

Re: Rare and exemplary botanical features in proximity to: Solar Farm, Lafayette Street / Treatment Plant Road, Yarmouth, Maine

Dear Greg Rosshirt:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received October 2, 2023 for information on the presence of rare or unique botanical features documented from the vicinity of the project in Yarmouth, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

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

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

According to the information currently in our Biological and Conservation Data System files, the project site abuts a Salt-hay Saltmarsh at the Royal River Salt Marsh to the southeast. Like all coastal wetlands, the Salt-hay Saltmarsh here is a Wetland of Special Significance. This occurrence is primarily across the river from the site, but there is a small portion immediately abutting it. MNAP recommends that an undisturbed and vegetated buffer of at least 250-feet is maintained around the Salt-hay Saltmarsh and the Royal River, that undisturbed and vegetated buffers of at least 75-feet are maintained around any streams on the site, and that Best Management Practices for erosion control are followed for any clearing at this site.

Feature	State Status	State Rank	Global Rank	Occurrence Rank	Site
Salt-hay Saltmarsh *Spartina saltmarsh*	--	S3	G5	C Fair	Royal River Salt Marsh

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

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

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.

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.

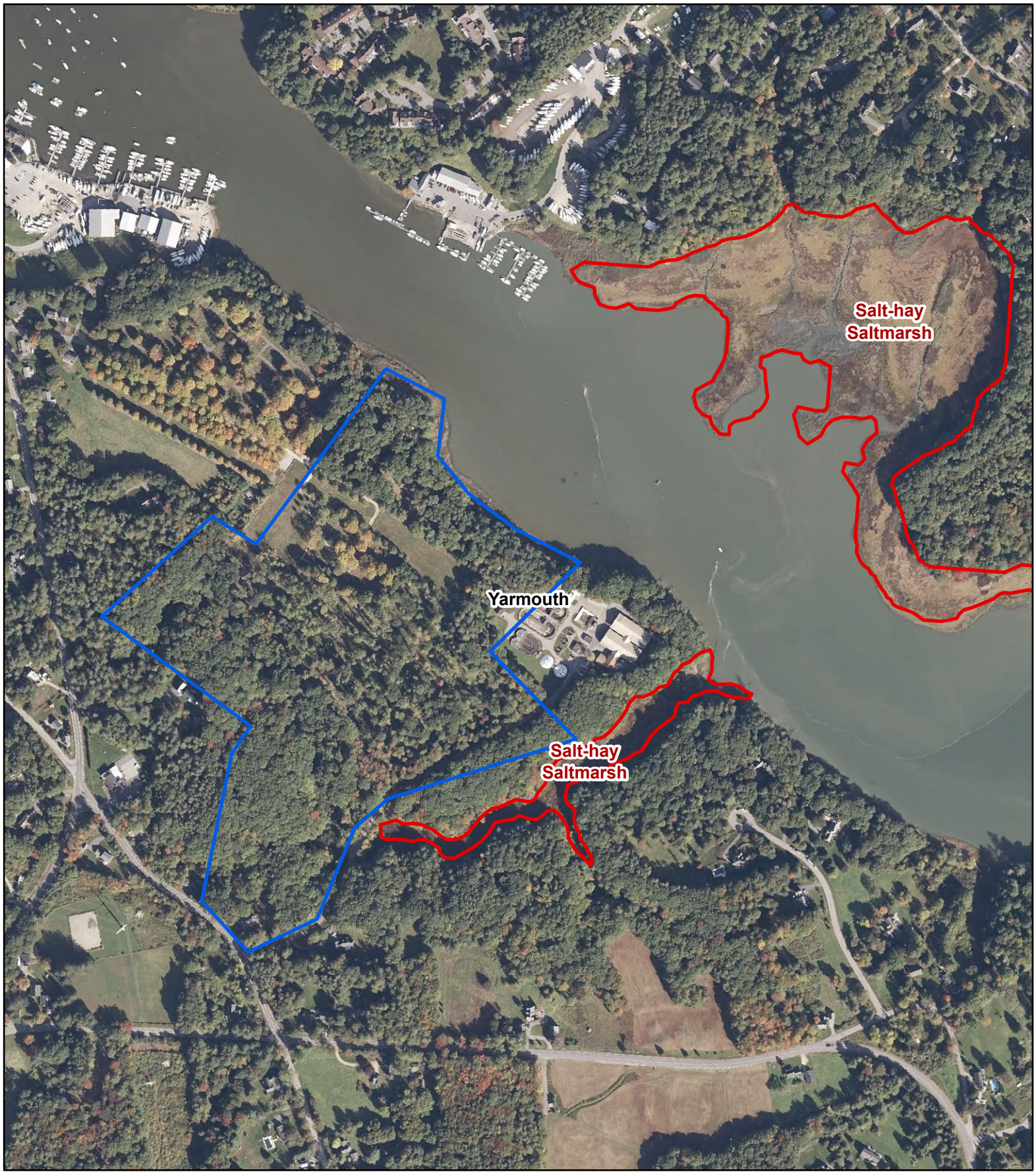
The Maine Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $150.00 for two hours of our services.

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



New Leaf Energy Solar Farm, Lafayette Street, Yarmouth

Approximate Project Area

Rare/Exemplary Natural Community

N

0 0.05 0.1 0.2 Miles

Maine Natural Areas Program, October 2023
NAIP 2021 Imagery

Salt-hay Saltmarsh

Spartina Saltmarsh

State Rank S3

Community Description

These tidal marshes consist of expanses of saltmeadow cordgrass, smooth cordgrass, and/or black-grass. Shrubs are virtually absent, and the herbaceous cover is usually >85%. Much of the marsh is high marsh, where saltmeadow cordgrass forms meadows, and where black-grass may be dominant at slightly higher elevations. In the low marsh, along creeks or at elevations just below mean high water, smooth cordgrass is abundant. Salt pannes with abundant seashore saltgrass may dot the high marsh; goosetongue may also be locally common. Sea lavender and seaside goldenrod are often found at the upper tidal fringe. The dominant species typically form bands corresponding to tidal inundation zones.

Soil and Site Characteristics

Spartina saltmarshes are typically associated with beach-dune systems (back barrier marshes) or the outer reaches of estuaries (finger marshes). They are extensive along both sides of the tidal river or stream. The extensive high marsh zone is only flooded by above average tides. Salt marsh peat is typically several meters thick. Most are large (>10 acres), but they occasionally occur as smaller pockets along estuaries and coves.

Saltmarsh False-foxglove

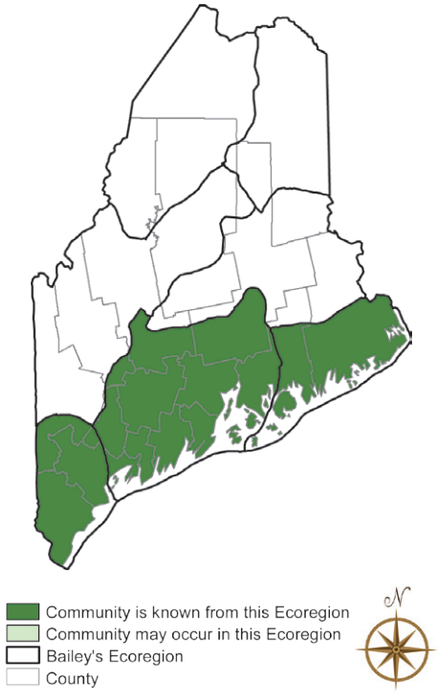
Diagnostics

These types are coastal back dune marshes, or near the outer reaches of estuaries, with saltmeadow cordgrass, smooth cordgrass, and black-grass totaling >35% cover, often in bands. The high marsh is well developed.

Similar Types

Mixed Graminoid-Forb Saltmarshes may also have cordgrasses and/or black-grass abundant, but will also have a mix of other co-dominant species, which tend to occur in patches rather than tidal zones; they are typically smaller, often less than 5 acres, and tend to occur farther upstream in estuaries or in smaller, more protected pockets. Brackish Tidal Marshes, which also occur farther upstream in estuaries, lack saltmarsh cordgrasses.

Location Map



Spartina Saltmarsh – Kinney Shores

Conservation, Wildlife, and Management Considerations

Few of the larger saltmarshes in Maine are pristine, with some having been filled and nearly all ditched at one time or another. With wetland protection in recent decades many of those that remain are reverting to a more natural hydrologic regime. Many of the remaining high quality Spartina Saltmarshes are on public land or private conservation land. Maintenance of appropriate wetland buffers can help reduce degradation that could result from adjacent land uses.

Saltmarshes are important nesting habitat for Nelson's sharp-tailed sparrow, seaside sparrow, and the rare saltmarsh sharp-tailed sparrow. These wetlands also provide foraging habitat for a large number of wadingbirds and shorebirds, including rare species such as the laughing gull, black-crowned night-heron, and least tern. The big bluet, a rare damselfly, inhabits saltmarsh ponds with emergent vegetation in southern Maine.

Distribution

Coastal Maine, mostly southwest of Merrymeeting Bay (Eastern Broadleaf Forest Province); sporadic and less well developed downeast. Extends southward along the Atlantic coast.

Landscape Pattern: Large Patch

Characteristic Plants

These plants are frequently found in this community type. Those with an asterisk are often diagnostic of this community.

Herb

Alkali bulrush
Black-grass*
Common arrow-grass*
Goosetongue*
Purple-stemmed aster
Saltmeadow cordgrass*
Sea milkwort*
Seashore saltgrass*
Seaside goldenrod*
Smooth cordgrass*
Wire rush*

Associated Rare Plants

Dwarf glasswort
Lilaeopsis
Saltmarsh bulrush
Saltmarsh false-foxglove
Slender blue flag

Associated Rare Animals

Big bluet
Black-crowned night-heron
Laughing gull
Least tern
Saltmarsh sharp-tailed sparrow
Short-eared owl

Examples on Conservation Lands You Can Visit

- Bass Harbor Marsh, Acadia National Park – Hancock Co.
- Morse Mountain Preserve – Sagadahoc Co.
- Rachel Carson National Wildlife Refuge – York Co.
- Reid State Park– Sagadahoc Co.
- Scarborough Marsh Wildlife Management Area – Cumberland Co.

Rare and Exemplary Botanical Features within 4 miles of
Project: New Leaf Energy Solar Farm, Lafayette Street / Treatment Plant Road, Yarmouth, ME

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Adder's Tongue Fern						
	E	S1	G5	1905-08-10	7	Non-tidal rivershore (non-forested, seasonally wet),Open
American Chestnut						
	SC	S4	G3	2001-02-13	2	Hardwood to mixed forest (forest, upland)
Engelmann's Spikerush						
	PE	SH	G4G5	1916-08-31	2	Open wetland, not coastal nor rivershore (non-forested,
Fern-leaved False Foxglove						
	SC	S3	G5	1902-09-02	13	Dry barrens (partly forested, upland),Hardwood to mixed
Great Blue Lobelia						
	PE	SX	G5	1905-09	3	Forested wetland,Non-tidal rivershore (non-forested,
Horned Pondweed						
	SC	S2	G5	1913-09-13	9	Tidal wetland (non-forested, wetland)
Marsh Milkwort						
	PE	SH	G5T4	1903-08-18	1	Dry barrens (partly forested, upland),Open wetland, not
Mountain Honeysuckle						
	E	S2	G5	2009-07-16	12	Dry barrens (partly forested, upland),Hardwood to mixed
Mountain-laurel						
	SC	S2	G5	1985-08-01	13	Conifer forest (forest, upland),Hardwood to mixed forest
Rattlesnake Hawkweed						
	E	S1	G5T4Q	1909-07	1	Dry barrens (partly forested, upland)
Salt-hay Saltmarsh						
		S3	G5	2009	24	
		S3	G5	2011-09-09	42	
		S3	G5	2015-08-19	62	

Slender Knotweed						
	PE	SH	G5	1902-09-07	1	Dry barrens (partly forested, upland)
Variable Sedge						
	E	S1	G3	2012-08-09	1	Dry barrens (partly forested, upland),Hardwood to mixed
Water-plantain Spearwort						
	PE	SH	G4	1903-07-29	2	Open water (non-forested, wetland)
Wild Leek						
	SC	S3	G5	2017-05-17	28	Hardwood to mixed forest (forest, upland),Forested

Date Exported: 2023-10-04 11:02

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

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

JANET T. MILLS
GOVERNOR

KIRK F. MOHNEY
DIRECTOR

July 31, 2024

Mr. Morris Yann
New Leaf Energy
55 Technology Drive
Suite 102
Lowell, MA 01851

Project: MHPC #1495-23 Lafayette Street Solar Project

Town: Yarmouth, ME

Dear Mr. Yann:

In response to your recent request, I have reviewed the information received July 15, 2024 to continue consultation on the above referenced project in accordance with the requirements of Maine Department of Environmental Protection.

Our archaeology staff has reviewed the Phase I End-of Fieldwork Report by NE ARC dated June 26, 2024. Our staff finds the avoidance strategies for the archaeological site acceptable as written in the report.

We look forward to continuing consultation with you. If you have any questions regarding the consultation process, please contact Megan M. Rideout of this office at megan.m.rideout@maine.gov.

Sincerely,

Kirk F. Mohney

Kirk F. Mohney
State Historic Preservation Officer

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

JANET T. MILLS
GOVERNOR

KIRK F. MOHNEY
DIRECTOR

March 18, 2024

Mr. Morris Yann
New Leaf Energy
55 Technology Drive
Suite 102
Lowell, MA 01851

Project: MHPC #1495-23 Lafayette Street Solar Project

Town: Yarmouth, ME

Dear Mr. Yann:

In response to your recent request, I have reviewed the information received February 23, 2024 to continue consultation on the above referenced project in accordance with the requirements of Maine Department of Environmental Protection.

Our staff historic archaeologist, Dr. Leith Smith, conducted a field check for the proposed project and found what he believes to be the cellar and barn site of the 1729 Mitchell Garrison in the northeast portion of the parcel. Quite a bit is known about the house (historic photos exist) and its occupants. Another possible shallow cellar may be on the north side of the parcel overlooking the river. Two more potential cellars are located directly in the north portion of the solar installation area, which is south of the cemetery. Given the amount of historic archaeological sites that were identified during the field check, a historic archaeological survey is required to further identify and assess the features for significance.

A list of qualified historic archaeologists can be found on our website:
https://www.maine.gov/mhpc/programs/survey/approved-consultants/historic

If you have any questions regarding archaeology, please contact Dr. Leith Smith of this office at Leith.Smith@maine.gov.

No additional information is required for above-ground resources or prehistoric archaeological resources.

We look forward to continuing consultation with you. If you have any questions regarding the consultation process, please contact Megan M. Rideout of this office at megan.m.rideout@maine.gov.

Sincerely,

Kirk F. Mohney
State Historic Preservation Officer

PHONE: (207) 287-2132 FAX: (207) 287-2335

Northeast Archaeology Research Center, Inc.

Mr. Greg Rosshirt
New Leaf Energy
55 Technology Drive
Suite 102
Lowell, MA 01851

June 26, 2024

RE: Yarmouth Lafayette Street Solar Project, MHPC #1495-23: Archaeological Phase I Survey End-of-Field Letter

Dear Greg,

We write to inform you of the completion of the archaeological phase I survey of the proposed Yarmouth Lafayette Street Solar Project, Yarmouth, Cumberland County, Maine, MHPC #1495-23 (Figures 1 and 2). The phase I survey was undertaken by the Northeast Archaeology Research Center (NE ARC) from June 10-13, 2024 as part of the Maine Department of Environmental Protection Site Location of Development Law (Site Law).

The proposed Project is located at 0 Lafayette Street, Yarmouth, and includes a 990 kW AC facility. Note that the phase I survey occurred within an area of approximately 9.7 acres within a larger ~43-acre parcel; project plans have since been updated to reduce the size of the project area to 7.5 acres (Figures 3 and 4). The area of potential effect (APE) of the overall Project includes the proposed solar array as well as a gravel access road, vehicle access gate, equipment area, and poles located to the southeast. Chain link fencing is proposed around the perimeter of the solar array, along with perimeter trenching for the placement of conduit. The wider parcel also includes the Holy Cross Cemetery, located north of the proposed solar array.

In their review of the project the Maine Historic Preservation Commission (MHPC) indicated that the landscape on which the proposed solar array is located fits the MHPC predictive model for likely presence of prehistoric archaeological sites given the presence of well-drained soil and proximity to water, as well as proximity to known archaeological sites. The MHPC thus determined that Phase I prehistoric archaeological survey would be necessary, but recommended an initial field inspection (walkover assessment) be conducted to identify any previously disturbed ground that could be avoided by an archaeological survey (see MHPC review letter dated 10/16/2023). A walkover inspection was conducted by NE ARC on 4/16/24 and determined that the area is minimally disturbed and thus retains archaeological sensitivity.

The area is also considered sensitive for post-contact archaeological resources given proximity to the former 1729 Mitchell Garrison, which was located on the same broad landform overlooking what is now the water treatment plant approximately 100 m northeast of the proposed solar array. The remnants of the garrison including a cellar hole appear on Lidar maps of the area; also apparent on Lidar imagery are two potential cellar holes (depressions) located at the southern edge of the cemetery (Figure 5). The project area is thus also considered sensitive for post-contact archaeological sites related to the 18th century garrison and general Euroamerican occupation in the area.

As detailed below, phase I survey included the excavation of 75 0.5 m x 0.5 m test pits (Figure 6, see Figure 5). One test pit at the far northwestern extent of the project area produced a single precontact Native American artifact, leading to the designation of a newly recorded Native American archaeological site, 14.177 ME. Fourteen post-contact historic Euroamerican artifacts were also recovered, likely related to the Mitchell (later Whitcomb) homestead: all of them either nondiagnostic or 18th through 19th century in date (e.g., brick, nails, plain ceramic fragments). This material was spread through six test pits across the project area with some in proximity to the depressions at the southern edge of the cemetery, and is a light scatter of fragmentary items most likely representing a field or yard scatter (e.g., household trash incorporated into compost and spread on fields). It has not been determined if the two depressions are definitively cellar holes – they may represent outbuildings of the former Mitchell/Whitcomb homestead.

Updated project plans indicate that the fenceline surrounding the solar array will be located at least 45 m from the area of newly documented precontact site 14.177 ME, and at least 20 m south of the potential cellar holes (see Figure 6). It is thus recommended that these areas be avoided during project construction, in which case no further archaeological work is recommended.

Project Description

The area of the proposed solar array and adjacent existing Holy Cross Cemetery are located on a fairly high, flat, and level landform located on the south side of the Royal River and elevated approximately 52 to 56 ft above mean sea level. The overall parcel is bounded to the north by the Royal River, to the northwest by the Riverside Cemetery (which abuts the Holy Cross Cemetery), to the west by wooded areas and then Lafayette Street, to the south by Princes Point Road and to the east by Whitcomb Way (Treatment Plant Road) and then a wooded area sloping down to Whitcombs Creek. To the northeast of the parcel is the Yarmouth Wastewater Treatment Plant whose property line abuts the proposed project parcel but will have a 10-ft setback between the edge of the fenced in solar array and the property line. Within the wider parcel, the proposed solar array is bounded to the north by the Holy Cross Cemetery, to the west-southwest by Whitcombs Creek, to the southeast-east by wetlands and then Whitcomb Way, and to the

northeast by the Water Treatment Plant. Whitcombs Creek forms a deeply incised drainage at the southwestern edge of the proposed solar array before turning northeast and entering the Royal River about 280 m east of the proposed Project. The Royal River passes within 180 m north of the proposed solar array. The project landform consists of well-drained loamy sands and represents an outwash plain/delta/terrace, representing the point at which a glacial river entered the sea.

Archaeological Phase I Survey

Archaeological survey began with a brief walkover of the project to determine the best locations for placement of testing transects, as well as to attempt to identify the potential cellar holes (depressions) visible on Lidar maps of the area. One depression was identified within the original project area, and the other lies outside of the boundaries of the original project area (Figure 7). The depression within the project area is generally rectangular, measuring approximately 5 x 6 m (16 x 20 ft, internal dimensions) and about 1 m (3 ft) in depth with a slightly raised earthern berm around the margin (Figures 8 and 9). No stone or brick structural elements or any surficial artifacts were noted. The second depression is similar and is located just over 10 m (33 ft) northwest of the first, with both just within the treeline at the southern edge of the cemetery.

The phase I subsurface survey included the hand excavation of 75 0.5 m x 0.5 m test pits placed at 10.0 m intervals along a total of 18 linear sampling transects, T1-T18 (Figures 10-13; see Figures 5 and 6). The transects were positioned in the areas deemed to be most sensitive for the identification of archaeological sites within the project APE, which included at the margins of the landform overlooking Whitcombs Creek, along the northern portion of the landform adjacent to the cemetery in general proximity to the depressions/ potential cellar holes, and to sample the central portions of the broader landform.

Excavations reached depths ranging from 35 to 86 cm, with an average depth of approximately 55 cm. Soils are comprised of sandy loams becoming generally coarser with depth, with profiles including an overlying, dark brown ‘Ap’ plowzone or mixed/landscaped layer ranging from 10 to 35 cm in thickness, generally overlying a strong brown or yellowish brown developed 'B' horizon layer measuring 4 to 26 cm in thickness, which in turn overlies a light olive brown undeveloped 'C' horizon within which excavations were terminated (Figure 14). Test pits in the northern and eastern portions of the Project area and generally in closest proximity to the cemetery evidenced the shallowest soil profiles consisting of an ‘Ap’ plowzone or landscaped layer directly overlying the undeveloped ‘C’ horizon, suggesting the possibility ether of more intensive historic activity in this area – possibly including cultivation – but more likely representing some degree of levelling/grading of the landform, particularly in close proximity to the

cemetery. The test pit profiles corroborate the NRCS soils classification for the area: soils are mapped as Windsor loamy sand, 0-8% slopes through most of the project area, with a smaller amount of Nicholville very fine sandy loam, 0-8% slopes occurring in the far western portion. Windsor soils are derived from loose-sandy glaciofluvial deposits while Nicholville soils come from coarse-silty glaciomarine deposits (USDA 2024).

Six test pits produced post-contact (historic Euroamerican) cultural material, while one produced a single precontact Native American artifact. The area of the precontact artifact has been designated as a Native American archaeological site, 14.177 ME. This cultural material and the newly recorded site are described briefly below.

Historic Euroamerican Cultural Material

Fourteen historic artifacts were recovered, including six brick fragments, five pieces of ceramic, two metal items, and a tiny (>1 cm) piece of aqua window glass. The metal items are corroded nails with square heads, i.e., either wrought or cut nails. The ceramics include one piece of redware and four pieces of whitebodied earthenware: most are plain with no decoration while a >1cm fragment has ca. mid-1800s polychrome hand-painted decoration. The remainder of these items have the potential to date to the 18th through the 19th century but they have no specific or particularly informative diagnostic features. A number of these items – two brick fragments, one nail, and three pieces of ceramic, including the decorated piece – came from test pits located along the northern edge of the project area in proximity to the depression, while the remainder were spread across the project area with no other particular concentrations. In addition, a mid-20th century dump of brown glass beer bottles was also identified in the south-central portion of the project area; this is not considered a significant archaeological deposit.

As noted above, the project area is considered sensitive for post-contact archaeological resources potentially associated with the nearby 18th century Mitchell Garrison. However, no artifacts of definitive 18th century date were recovered. The artifacts from close to the depression are likely related to the potential building(s) that once stood there, while the others are likely reflective of general agricultural practices, which includes the spreading of manure/compost formed from general household/farmyard trash. Given the absence of any structural materials such as stone or brick within the depressions – other than the few very fragmentary pieces of brick recovered from the test pits (the largest piece measuring about 4 inches in maximum dimension and the remainder about 1 inch) – it has not been definitively determined that these do in fact represent cellar holes.

The former 1729 Mitchell Garrison was located about 100 m northeast of the proposed solar array at the northeastern extent of the wider cemetery landform, on the town's lot #91 (Maine Genealogy

2024). A structure marked “L. Whit(e)comb” appears on both the 1857 and 1871 maps in the general area of the project (Figures 15 and 16) (Beers 1871, Chace Jr. 1857), and also (unlabeled) on the 1892 USGS map, at that point more clearly in the area of the garrison (Figure 17). While the garrison’s first owner was Jacob Mitchell (ca. 1672-1744), and later his son David Mitchell (the Mitchell family lived there from around 1729 to 1799), the building later became the home of the Whitcombs. Historic records indicate that the building was demolished ca. 1900, with the farmland purchased in 1916 to be replaced by the cemetery (Mitchell 2024; Rowe 1937).

Newly Recorded Native American Site 14.177 ME

A single test pit (T8 P1) yielded a precontact Native American artifact and this area was thus designated as a precontact site, 14.177 ME. The site is located in the northwestern extent of the project area at UTM coordinates 19T 405770E 4849315N and an elevation of approximately 54 ft above mean sea level, at the edge of the slope down to Whitcomb’s Creek (Figure 18).

The artifact is a large quartz flake, which was recovered from approximately 18 cm below ground surface within a thin developed ‘B’ soil horizon. The flake is fairly thick at about 1 cm in thickness and measures 4 cm in maximum dimension; this implies an early to middle stage of lithic reduction or stone tool manufacturing, such as the breaking down of a larger piece of quartz into a scraping tool or rough biface. No other indication of precontact site presence such as cultural features or charcoal were noted. Quartz is fairly ubiquitous in the region and certainly locally available. Quartz artifacts are a hallmark of Native American sites in the local area of southwestern Maine and southern/coastal New Hampshire, and both this material and the site location are typical of sites in the region. The artifact is not temporally diagnostic, however, and so the age of the site is not currently known. As only a single artifact was recovered, the extent of the site is also unknown; however no precontact artifacts were recovered from transect T7, placed about 20 further southeast along the edge of the landform, suggesting that site deposits do not extent substantially in a southeasterly direction.

Conclusions and Recommendations

NE ARC has completed the archaeological phase I survey of the proposed Yarmouth Lafayette Street Solar Project, MHPC #1495-23. As a result of this work, a precontact Native American site was newly designated: 14.177 ME, represented by a single quartz flake. Two depressions were also located that may represent cellar holes of outbuildings of the 18th/19th century Mitchell/Whitcomb homestead that was once located in the area; these have not been assigned a historic site number as it has not been definitively determined that they do in fact represent cellar holes. A light scatter of fourteen fragmentary historic

period artifacts (brick pieces, nails, ceramic sherds, window glass) were recovered from excavations across the project area and likely represent a general field scatter related to the historic homestead; these historic artifacts are not considered a significant archaeological deposit.

Updated project plans indicate that the fenceline surrounding the solar array will be located at least 45 m from the area of newly documented precontact site 14.177 ME, and at least 20 m south of the potential cellar holes. It is thus recommended that these areas be avoided during project construction, in which case no further archaeological work is recommended.

The full technical report will be prepared in the upcoming months. Please let us know if you have any questions and thank you for the opportunity to conduct this study.

Sincerely,

Gemma-Jayne Hudgell, Ph.D.
Director, NE ARC, Inc.

References

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1871 *Atlas of Cumberland County, Maine.* F.W. Beers, New York.

Chace Jr., J.
1857 *Map of Cumberland County, Maine.* J. Chace Jr., Portland & Philadelphia.

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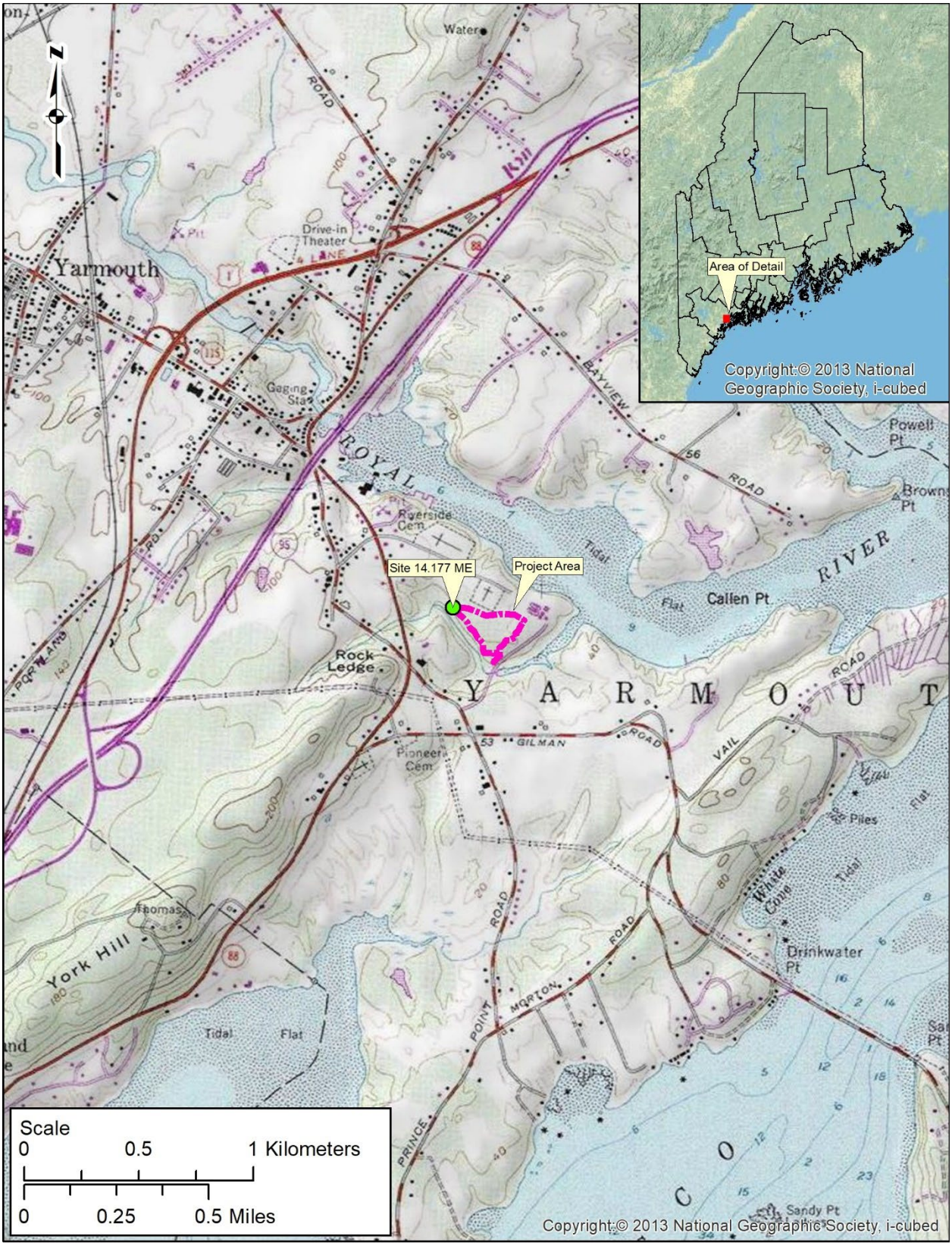


Figure 1. Topographic map showing the location of the Yarmouth Lafayette Street Solar Project, MHPC #1495-23, Yarmouth, Cumberland County, Maine. Note the location of newly recorded precontact site 14.177 ME.

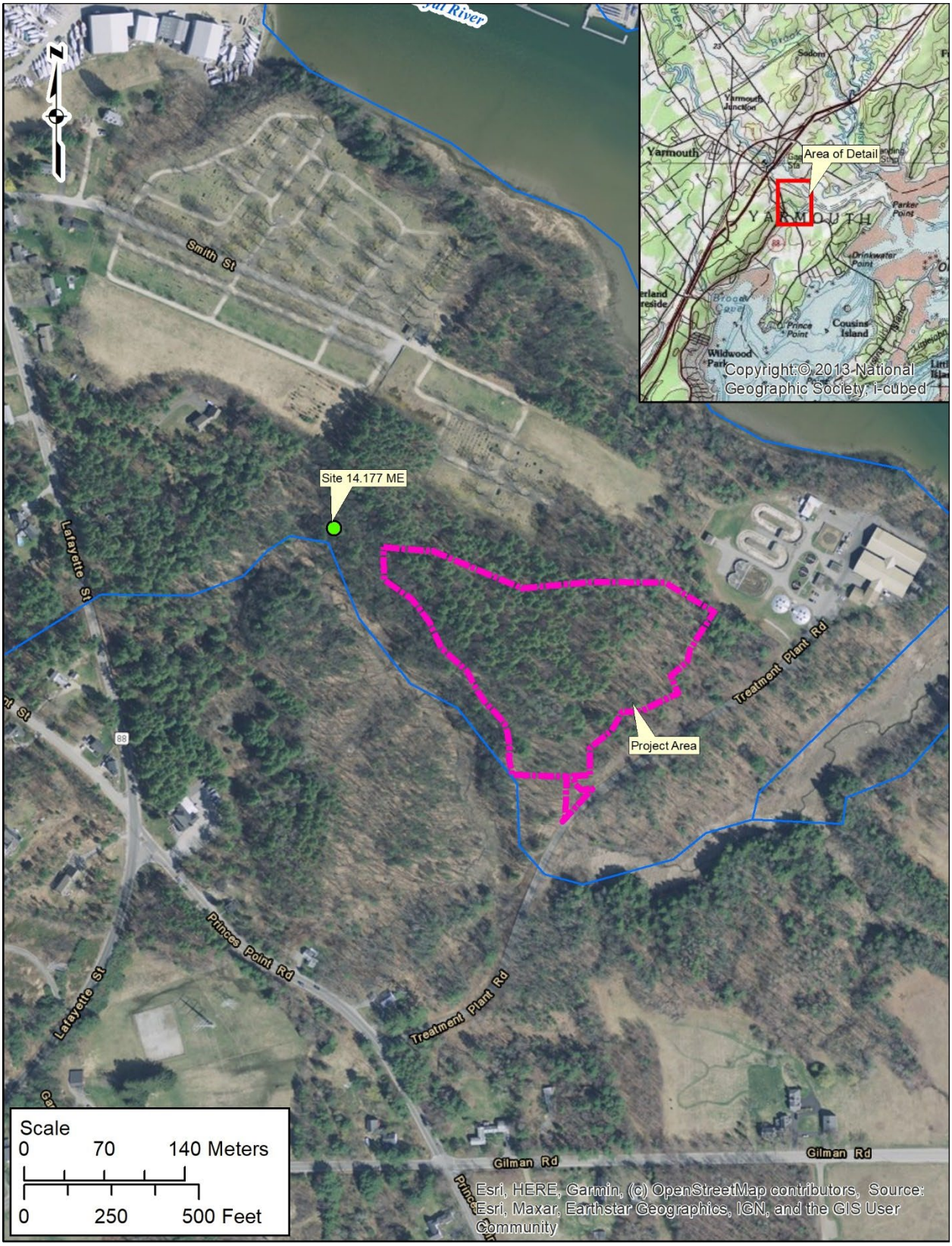


Figure 2. Aerial photograph showing the location of the Yarmouth Lafayette Street Solar Project, MHPC #1495-23, Yarmouth, Cumberland County, Maine. Note the location of newly recorded precontact site 14.177 ME.

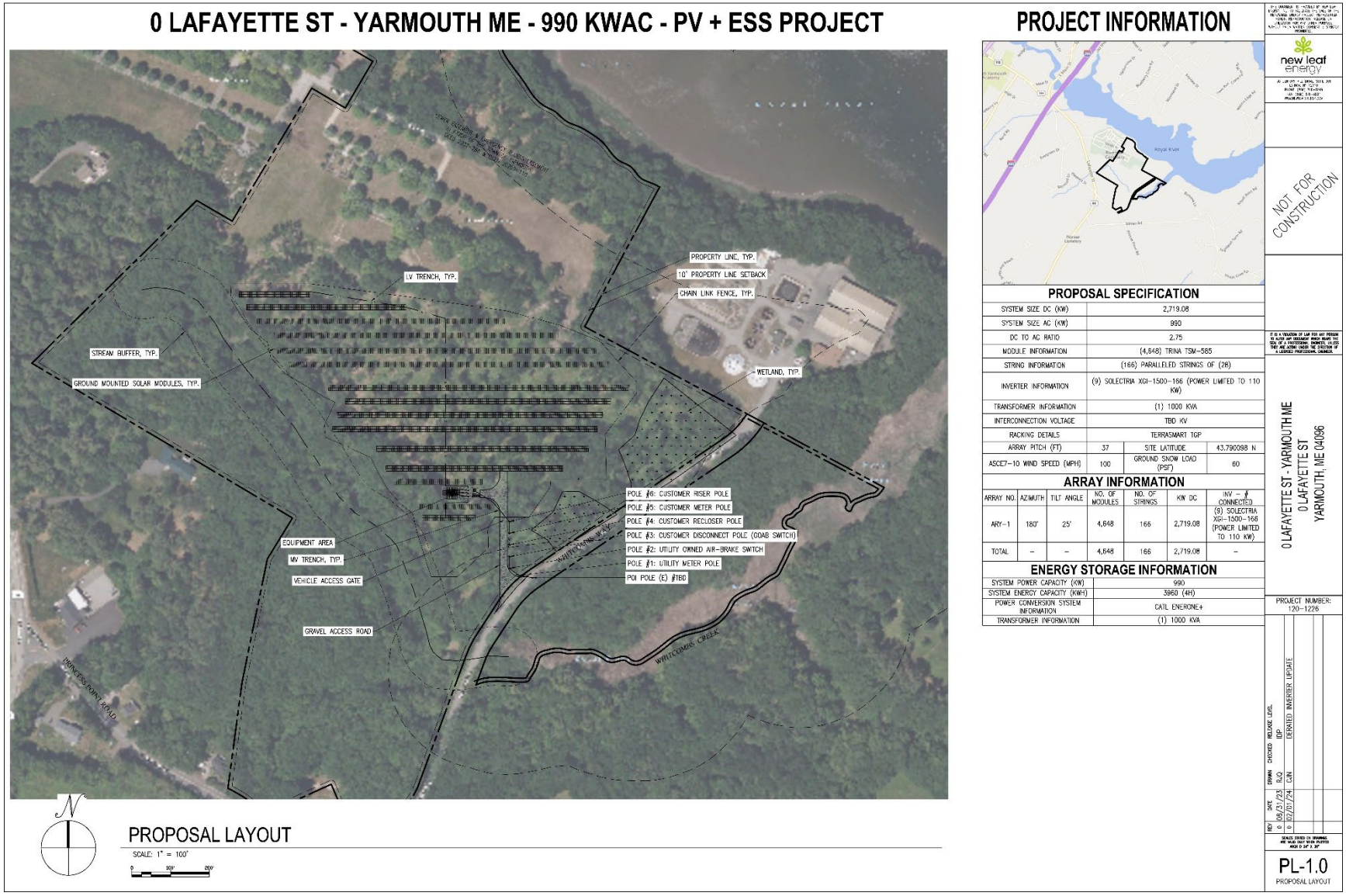


Figure 3. Original project plans for the Yarmouth Lafayette Street Solar Project, MHPC #1495-23, Yarmouth, Cumberland County, Maine.

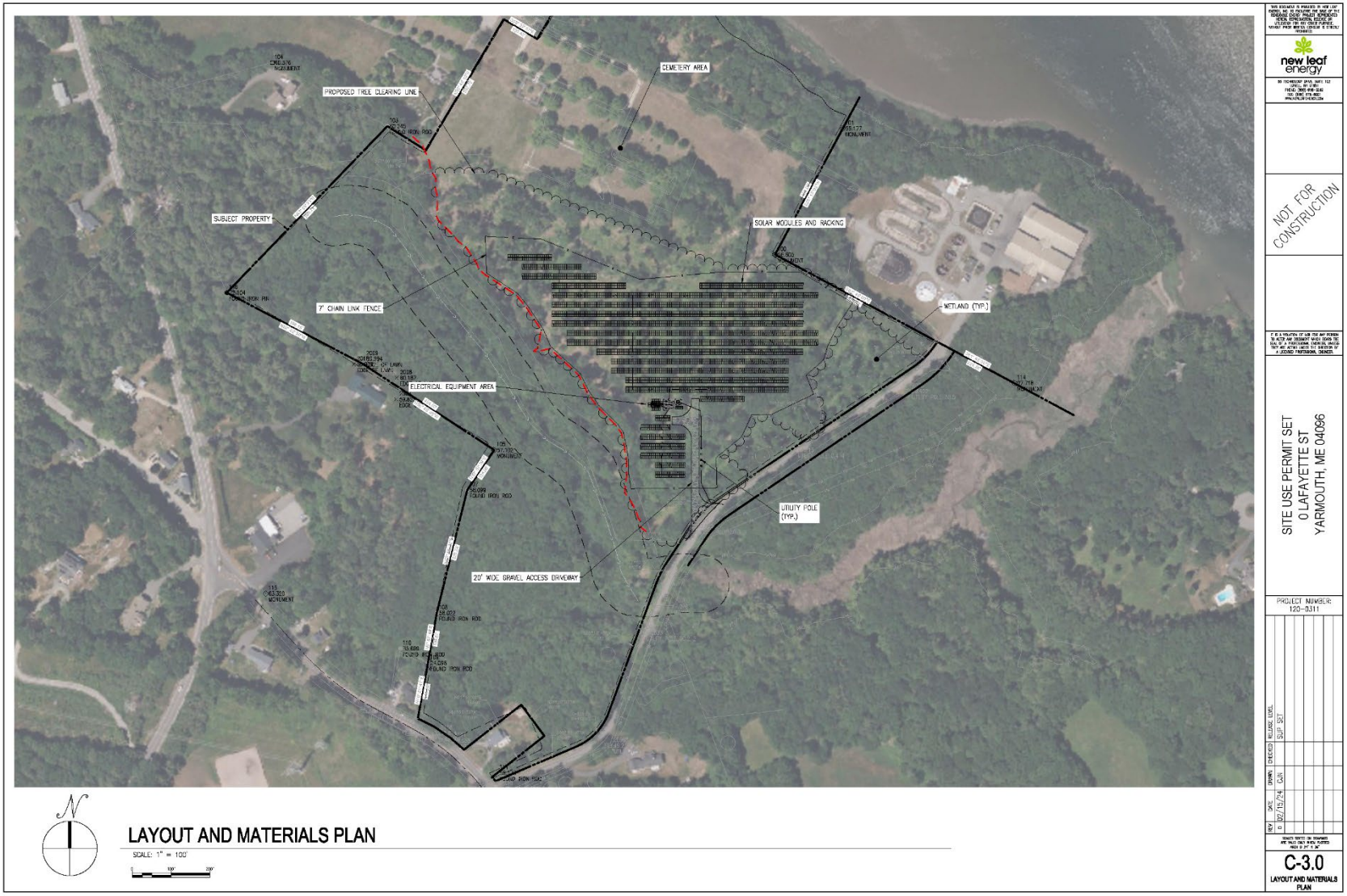


Figure 4. Updated project plans for the Yarmouth Lafayette Street Solar Project, MHPC #1495-23, Yarmouth, Cumberland County, Maine.

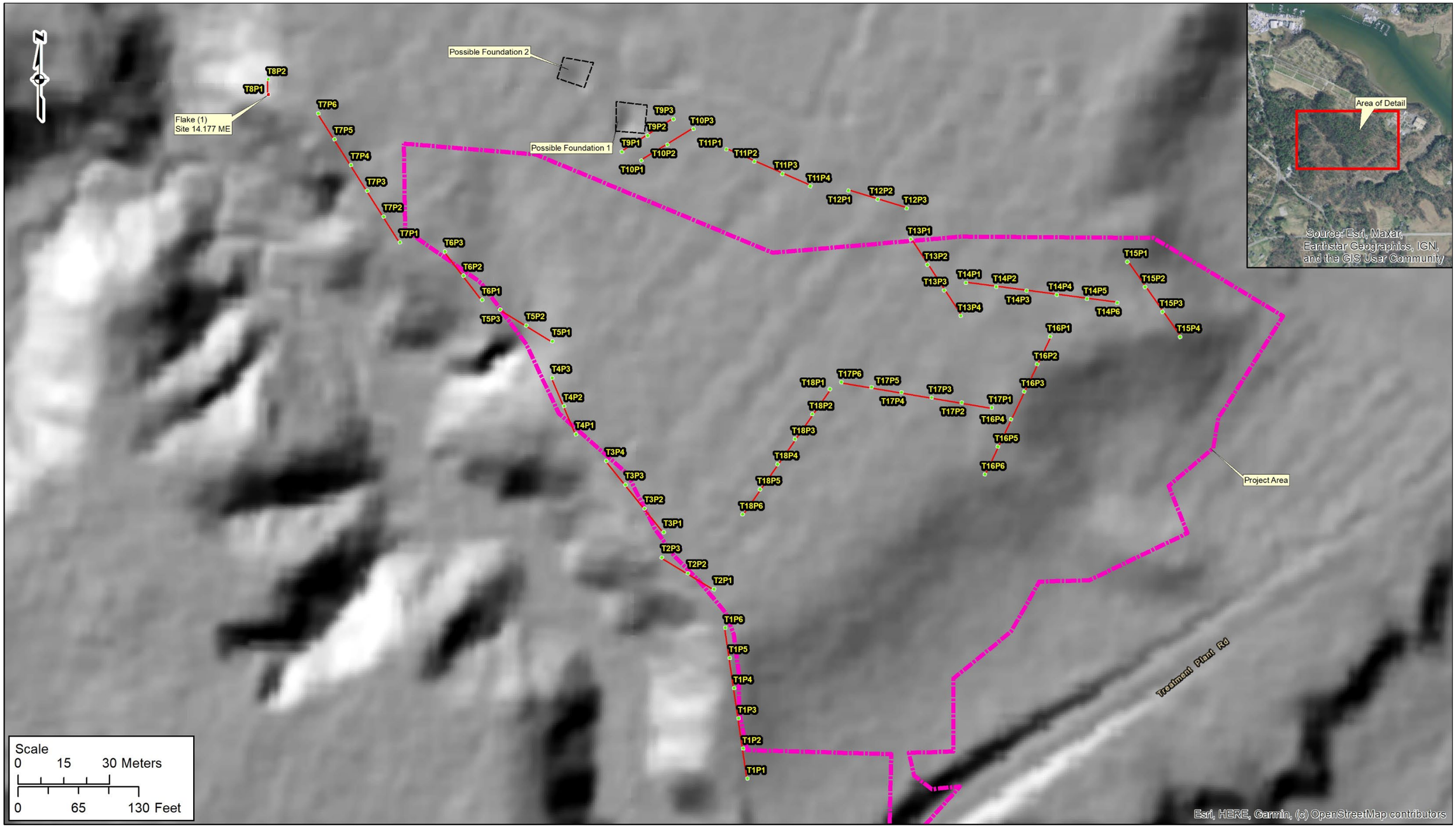


Figure 5. Lidar map of the Yarmouth Lafayette Street Solar Project, MHPC #1495-23, Yarmouth, Cumberland County, Maine, showing archaeological phase I survey transects and test pits. Note the location of newly recorded precontact site 14.177 ME and the two depressions (potential cellar holes) at the southern edge of the cemetery.

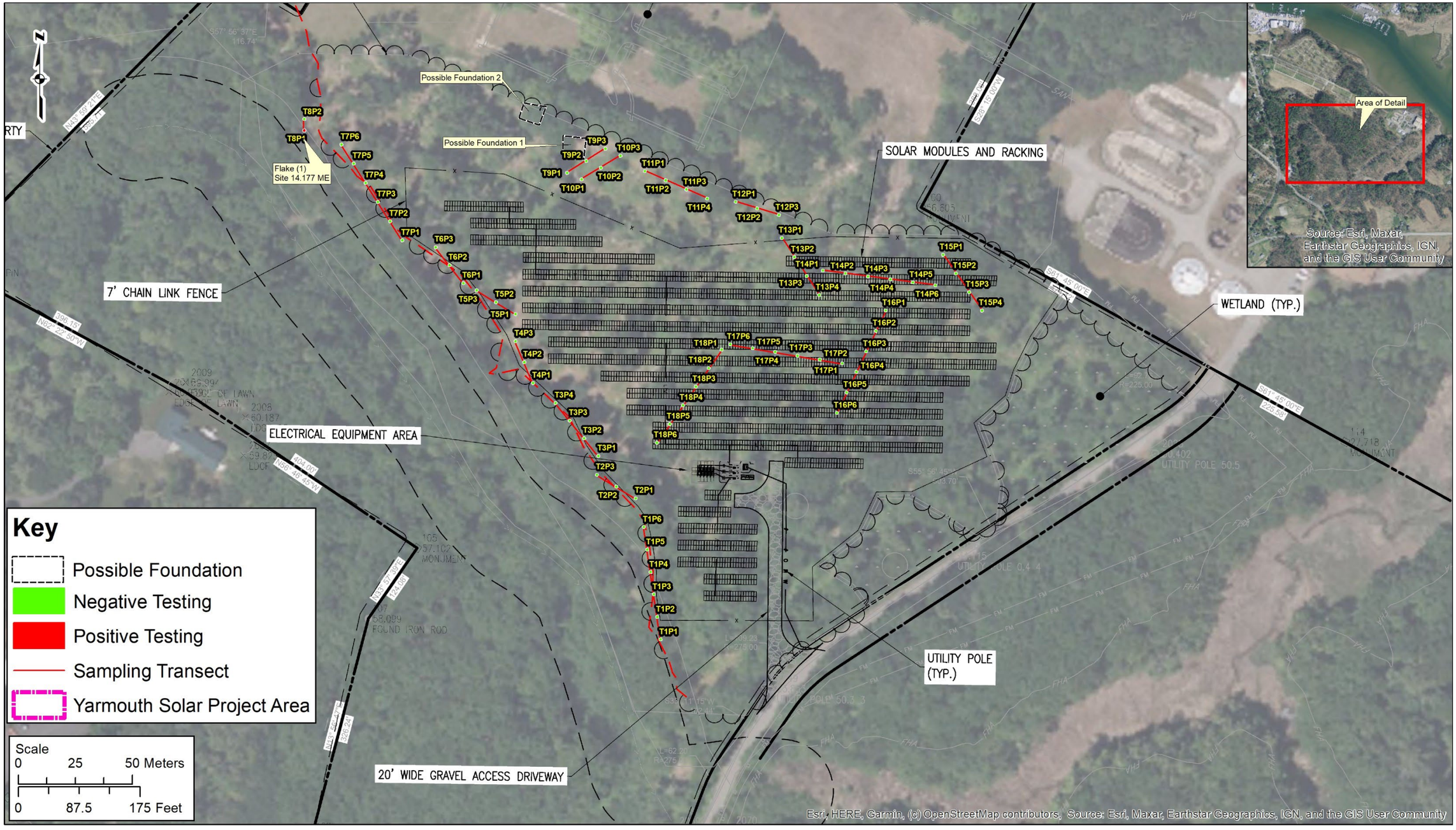


Figure 6. Updated project plans for the Yarmouth Lafayette Street Solar Project, MHPC #1495-23, Yarmouth, Cumberland County, Maine, showing archaeological phase I survey transects and test pits. Note the location of newly recorded precontact site 14.177 ME and the two depressions (potential cellar holes) at the southern edge of the cemetery.

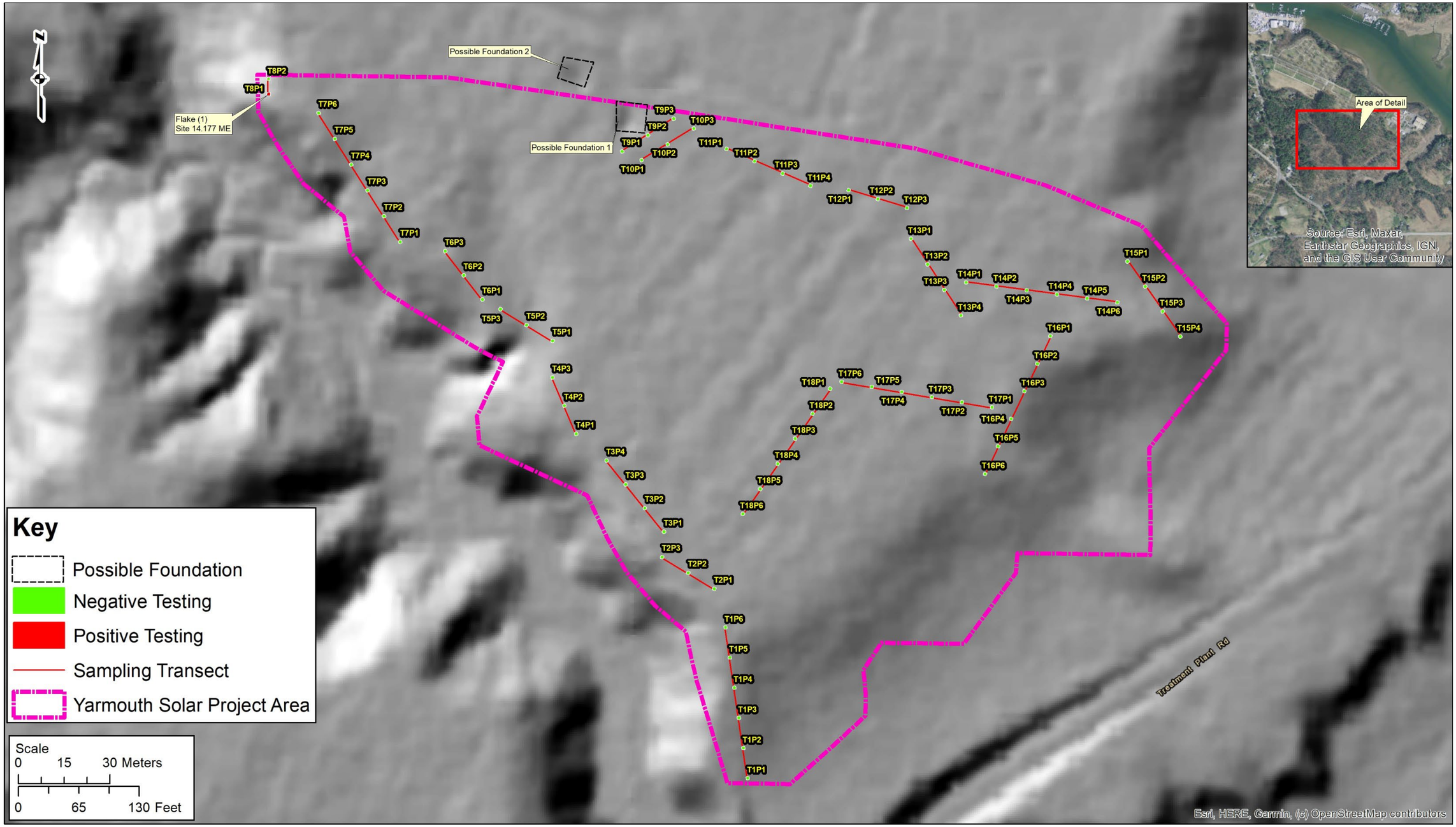


Figure 7. Lidar map of the original extent of the Yarmouth Lafayette Street Solar Project, MHPC #1495-23, Yarmouth, Cumberland County, Maine, showing archaeological phase I survey transects and test pits. Note the location of newly recorded precontact site 14.177 ME and the two depressions (potential cellar holes) at the southern edge of the cemetery.

Figure 8. View south of depression/potential cellar hole within bounds of original project extent of the Yarmouth Lafayette Street Solar Project, MHPC #1495-23, Yarmouth, Cumberland County, Maine. Crew members are standing at the rough corners of the depression.

Figure 9. View northeast of depression/potential cellar hole within bounds of original project extent of the Yarmouth Lafayette Street Solar Project, MHPC #1495-23, Yarmouth, Cumberland County, Maine. Crew members are standing at the rough corners of the depression. Note cemetery in the background.

Figure 10. View northwest of crew members excavating along archaeological phase I survey sampling transect T3 within the Yarmouth Lafayette Street Solar Project, MHPC #1495-23, Yarmouth, Cumberland County, Maine. Note sloping edge of the landform to the left of the photograph.

Figure 11. View southeast of crew members excavating along archaeological phase I survey sampling transect T5 within the Yarmouth Lafayette Street Solar Project, MHPC #1495-23, Yarmouth, Cumberland County, Maine. Note sloping edge of the landform down to Whitcombs Creek to the right of the photograph.

Figure 12. View west of crew members excavating along archaeological phase I survey sampling transect T9 within the Yarmouth Lafayette Street Solar Project, MHPC #1495-23, Yarmouth, Cumberland County, Maine. The cemetery is just beyond the treeline at the right of the photograph and the depression is located in the center of the photograph, obscured by vegetation.

Figure 13. View north of crew members excavating along archaeological phase I survey sampling transect T18 within the Yarmouth Lafayette Street Solar Project, MHPC #1495-23, Yarmouth, Cumberland County, Maine.

Figure 14. Select test pit profiles showing typical soil stratigraphy encountered within the Yarmouth Lafayette Street Solar Project, MHPC #1495-23, Yarmouth, Cumberland County, Maine.

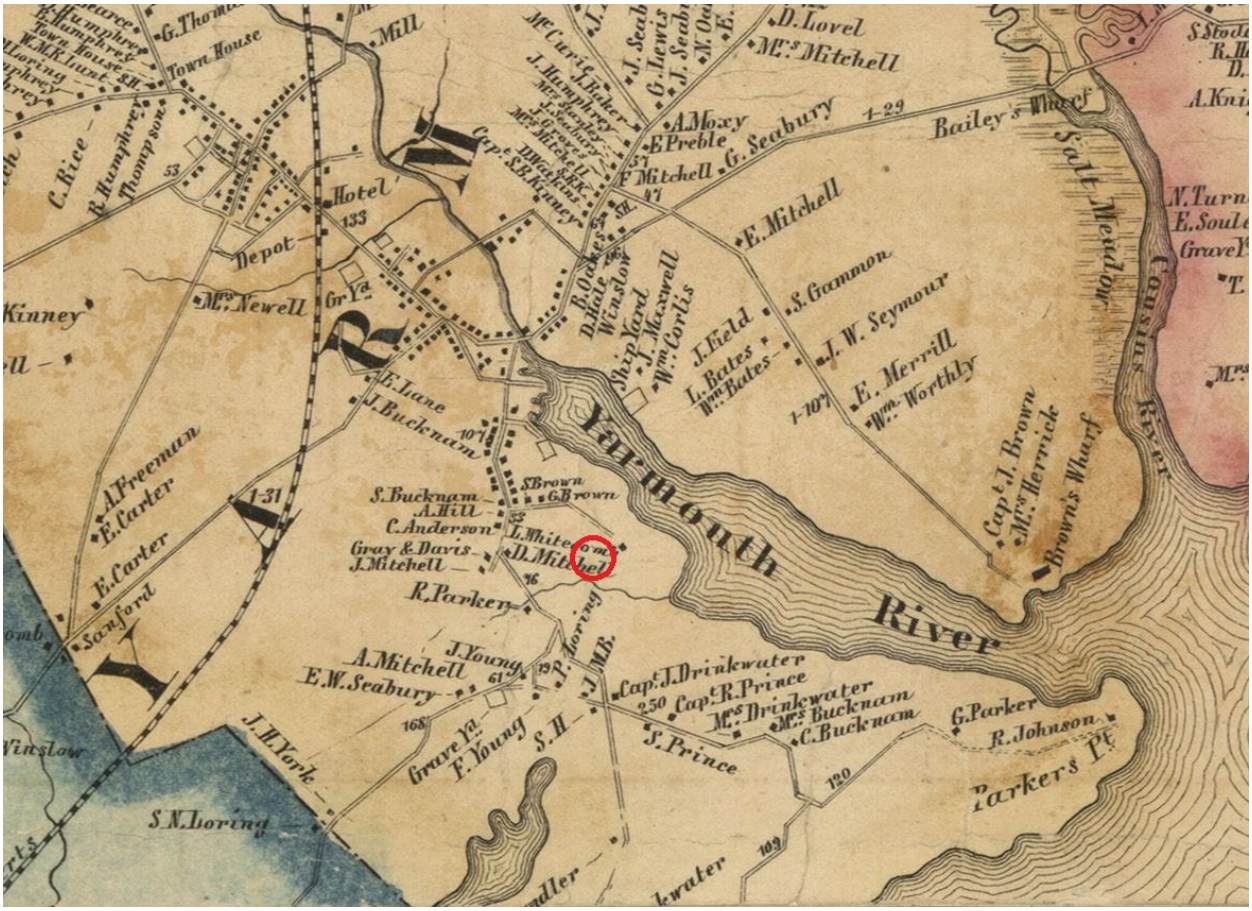


Figure 15. Excerpt from 1857 map of Yarmouth showing the general location of the Yarmouth Lafayette Street Solar Project, MHPC #1495-23, Yarmouth, Cumberland County, Maine.

Figure 16. Excerpt from 1871 map of Yarmouth showing the general location of the Yarmouth Lafayette Street Solar Project, MHPC #1495-23, Yarmouth, Cumberland County, Maine.

Figure 17. Excerpt from 1892 map of Yarmouth showing the general location of the Yarmouth Lafayette Street Solar Project, MHPC #1495-23, Yarmouth, Cumberland County, Maine.

Figure 18. View northeast of crew members excavating along archaeological phase I survey sampling transect T8 at newly identified precontact site 14.177 ME within the Yarmouth Lafayette Street Solar Project, MHPC #1495-23, Yarmouth, Cumberland County, Maine.

EXHIBIT 18

SITE PLAN AND PERFORMANCE STANDARDS COMPLIANCE

REVIEW CRITERIA AND ZONE PERFORMANCE STANDARDS

SITE PLAN REVIEW CRITERIA:

The proposed solar farm has been designed in accordance with the Site Plan Review Criteria. The following criterion has been addressed in previous exhibits:

- Traffic, Parking and Vehicle Circulations – Exhibit 12
- Water – Exhibit 11
- Stormwater Management – Exhibit 14
- Erosion and Sedimentation Control – Exhibit 15
- Title, Right and Interest – Exhibit 4
- Financial Capacity – Exhibit 8

The remainder of this section will discuss the review criteria not previously addressed.

Sanitary Sewage:
The proposed development is a solar field and will therefore not generate wastewater The development will not have an impact on the municipal sewerage treatment facility.

Fire Safety:
The solar farm has been designed with a 20' access road to provide emergency vehicles with access to the site in the event of an emergency. The proposed access gate will include a Knox-Box to ensure the fire department can assess the site, as necessary.

Buffers:
The site will only be cleared as necessary to facilitate the proposed development. The proposed security fence is set 5 feet off of the northeastern property line for approximately 165 feet. The section of the development will only maintain a 5-foot vegetated buffer. Otherwise, the entirety of the development will maintain at least a 20-foot vegetated buffer. Please refer to the Proposed Site Plan included later in this application which shows the proposed limits of clearing.

Natural Areas:
Please refer to Exhibit 17 for MNAP correspondence. No rare or natural features were identified in the project area.

Lighting:
The solar farm will not include any exterior lighting; therefore, this section is not applicable.

Buildings:
The proposed development does not include any buildings; therefore, this section is not applicable.

Existing Landscaping:
As mentioned, the proposed solar farm will be cleared, as necessary. No existing vegetation will remain within the limits of clearing shown on the Proposed Site Plan.

Infrastructure:
The proposed access roadway and utilities have been designed to be consistent with off-premises infrastructure. The proposed access roadway has been set at 2% for the first 25 feet to provide a smooth transition onto Whitcomb's Way. The proposed electrical utilities will tie into the Overhead Electric that runs down Whitcomb's Way.

Advertising Features:
The solar farm will not include any advertising features; therefore, this section is not applicable.

Scenic Vistas and Areas:
The proposed development is not located around any scenic vistas as identified in Figure 8.1 of the Yarmouth Comprehensive Plan. Moreover, the development will not result in the loss of scenic vistas or connection to scenic areas.

Utilities:
Single phase, 240-volt overhead power runs along Whitcomb Way. The proposed solar field will tie to the existing power line. Proposed electrical utilities need to be overhead in order to tie into the existing power line which runs down Whitcomb Way. No other utilities are included as part of the proposed development.

Technical Standards:
The proposed site has been designed in accordance with the Town of Yarmouth's Technical Standards, as applicable.

Route One Corridor Design Guidelines:
The proposed development is not located with the Route One Corridor; therefore, this section is not applicable.

ZONE PERFORMANCE STANDARDS:

The site includes the following zones: Medium Density Residential (MDR), Shoreland Overlay Resources Protection, and the Low-Density Residential Districts. While numerous districts exist on site, the proposed development only takes place within the MDR District; therefore, the standards of that district have been applied to the development.

Solar farms are not a permitted use within the MDR District; therefore, we are requesting that the planning board approve the solar farm as a Conditional Use.

The following table compares the dimensional requirements for "other uses" in the MDR District to the proposed site dimensions:

TABLE 1 | DIMENSIONAL REQUIREMENTS

DIMENSION	REQUIRED	PROPOSED
Area	1 ac.	43.52 ac.
Lot Width	130 ft.	1593 ft.
Front Yard	15 ft.	100 ft.
Side Yard	10 ft.	30 ft.
Rear Yard	15 ft.	348 ft.

As can be seen in **Table 1** above, the proposed development conforms to the performance standards of the MDR District.

EXHIBIT 19

TOWN CESSIONS

TOWN CESSIONS

The proposed development does not involve any cessions to the Town of proposed utilities, streets, or open space; therefore, this section is not applicable.

EXHIBIT 20

WAIVERS

WAIVER REQUESTS

There are no waivers requested for the proposed development.

EXHIBIT 21

NUISANCES

NUISANCES

The proposed development will not generate significant nuisances. Potential nuisances generated by large scale solar developments include noise from the inverters and glare from the panels. Please refer to the following for a discussion on potential nuisances.

GLARE

In order to minimize any potential impacts of glare, tree clearing will only take place as necessary to minimize shading of the panels. Surrounding vegetation will remain and will provide the surrounding area protection from any potential glare. Moreover, we do not expect the solar farm to produce any significant glare that will impact the surrounding area.

Please see **Exhibit 23** for technical specifications on the proposed solar panels.

NOISE

Type, Source, and Location of Noise: Noise from this site will be produced by the inverters, which are located approximately 220' from the nearest property line. The technical data sheet for SolectriaXGI1500-166 Series utility scale inverters confirm that noise generated from these devices is 73 decibels (dBa) at 1 meter (3.28 feet) away. Per the Town of Yarmouth's Zoning Ordinance, Chapter 701, Article V, Section A.6, noise for general industrial developments may not exceed a 75 dBa average for any consecutive 8-hour period. At the nearest property line, the sound levels will be approximately 36.5 dBa as calculated by the inverse squares law (see below).

Uses, Zoning, and Plans: The development is located in the Medium Density Residential District (MDR). The MDR District does not have specific noise limits specified in the Town's Zoning Ordinance; therefore, the noise standards for general industrial developments from Chapter 701, Article V, Section A.6 were compared to the estimated noise generated by the proposed development.

Protected Locations: Sensitive surrounding uses include a cemetery and residential dwellings. The proposed inverters will be located approximately 430' from the cemetery and approximately 550' from the nearest dwelling. At those locations, noise levels should be significantly lower than the limits set by the Town, as demonstrated below.

Demonstration: The loudest expected daily noise levels to be produced from the project will be from the inverters. At the nearest property line, these values can be expected to be below the 75 dBa limit using the following equations:

Measured noise level at inverters: 73 decibels
Inverse Square Law: dL= 20 log (R2 / R1)
where

dL = difference in sound pressure level (dB)
R1 = distance from source to location 1 (Adjacent to inverter) (ft, m) = 3.28 ft
R2 = distance from source to location 2 (Nearest Property Line) (ft, m) = 220 ft
dL = 20 log (220/3.28) = 36.5 decibels

At the property line which is 220' from the inverter's, the measured 73 decibel sound level will be reduced by approximately 36.5 decibels to **36.5 decibels**.

Please see **Exhibit 23** for technical specifications on noise-producing equipment.

EXHIBIT 22

OPERATION AND MAINTENANCE PLAN

Operations & Maintenance Plan

0 Lafayette
Solar Generating & Storage System

Applicant:

Yarmouth Solar 1, LLC
For Activities At:
0 Lafayette Street
Yarmouth, ME 04096

Prepared by:

New Leaf Energy
55 Technology Drive, Suite 102
Lowell, MA 01851

Dated: December 11, 2024

1.0 Services

During the Term, Contractor shall perform the following services on each System:

Description of Work	Frequency of Inspection
On-Call System Service Technician	Per request
Full System Electrical Inspection & Maintenance	One time per year
Module Washing	Optional (maximum once per year)
Vegetation Management	Minimum of once per year
Gravel Access Road	Minimum of once per year

The Energy Storage electrical system will be maintained per the manufacture specific operations and maintenance plan.

2.0 Scope of Work

On-call Service Technician:

In response to an automated DAS (Data Acquisition System) alarm or alert or request by the system owner, a technician will be required to visit the site within three (3) business days. This call is most often for an under-performing system or outage.

The contractor's responsibilities in the operation and maintenance of the solar photovoltaic system is entirely up to the system owner (yet to be determined) and are included in an agreement with the O & M provider. The O & M of the electrical equipment, racking and modules is included in this contract.

System Electrical Inspection & Maintenance:

a. Electrical Maintenance

The technician will:

i. Perform a visual inspection of PV modules and array wiring, strain relief, mounting system, trackers, inverters, switchgear, transformers, combiner boxes, wireways and conduit, data acquisition system, weather sensors and outdoor lighting.
ii. Check pyranometers and reference cells.
iii. Record operational data from inverters and meters.
iv. IR Thermography may be used as part of the visual inspection process.

b. Inspect External and/or Internal DC Disconnects and Combiner Boxes During the inspection, the technician will:
    i. Ensure that Imp testing is performed on all DC strings, and values are logged on the owner provided form.
    ii. Spot check torque values and tighten loose electrical connections.
c. Inverter and Transformer The technician will:
    i. Clean out all electrical enclosures
    ii. Clean inverter air filters
    iii. Perform Preventive Maintenance per manufacturer protocol as required to maintain inverter manufacturer's warranty.
d. AC Disconnects
    i. The technician will check for proper operation.
e. DAS
    i. Verify with the Owner O&M representative before leaving the site that the DAS system is functioning properly.
f. Fencing, Gates, Civil
    i. Annual visit will include a visual inspection of any fences, gates, equipment pads, etc. Facility improvements installed by the contractor such as gravel access roads, etc. shall be inspected on a periodic basis.
g. Service Report
    i. A report must be filed with the owner noting results of the annual inspection.

Module Washing

At a maximum, modules will be washed once per year. Only clean water will be used. No chemical additives or cleaners will be used. Additional washings may be requested based upon system performance objectives and site-specific environmental conditions.

Gravel Access Roads

Roads should be stable enough that very little sediment is released during weather events. Preventative maintenance is required to avoid erosion to the roadway or roadbed. Inspections of the roadway will check for rill erosion in the road or along the shoulders, and areas of poor drainage resulting from subgrade settlement or poor compaction. These conditions shall be noted and supported with photographs and locations as part of the annual report.

Maintenance:

Inspect roadways a minimum of once per year. Maintenance is required when:

- Erosion of the roadway or shoulders is identified

- Clean out roadside ditches when they become clogged with sediments or debris, to prevent ponding, bank overflows, and road washouts

Fill in areas of erosion or settlement with clean washed stone. If erosion is along the shoulder, ensure the shoulder is properly revegetated.

Roadways shall be cleared of snow after snowfall events that would prevent operation and maintenance or emergency services accessing the facility.

Equipment Maintenance:

The battery system will require at least one annual preventative maintenance cycle that can span 1-2 weeks, as well as maintenance on a 3, 5, and 15-year cycle. Depending on the cycle, system maintenance will include inspecting and repairing all structures and enclosures, testing equipment performance, inspecting safety equipment, maintaining cooling and ventilation systems, and upgrading or maintaining the battery management system. Depending on the long-term owner's structure, this work will either be carried out in-house by local maintenance teams or will be contracted out to a qualified third-party O&M company. In addition, all major components will be covered by warranties. The component vendors will be responsible for replacing, in coordination with the facility's O&M team, failed parts that fall within the warranty terms.

Remote Monitoring: The facility will be remotely monitored 24/7 by a dedicated operations team. In the event of equipment failure or other operational concern, the operations team will alert the local O&M team to provide a rapid response and will contact the supplier to activate a warranty claim as relevant. Depending on the long-term owner's structure, this work will either be carried out in-house by local operations teams or will be contracted out to a qualified third-party O&M company

3.0 Vegetation Management Plan

Inside the Array

The inside of the array will be planted with native seed mixes. A combination of pollinator friendly and/or grazing mixes may be used to meet Adjustable Block Program requirements. Vegetation maintenance of the area within the fence shall be performed to avoid vegetation growing up between the solar modules and shading the array.

Year 1 Maintenance:

Complete site mowing to control annual/biennial weed canopy and prevent production of viable seed.

- 2-3 mowings are typical depending on soils, weather patterns and planting dates.
- Target mowing height of 4-6 inches
- Reporting to designated contact following each site visit including a recap of activities, site conditions and recommendations for future management

Year 2 Maintenance:

Complete site mowing to control annual/biennial weed canopy and prevent production of viable seed.

- 2 mowings likely in late spring or early summer plus 1 Integrated Vegetation Management (see below) visit.
- Target mowing height of 4-6 inches
- Integrated Vegetation Management to include spot mowing, targeted herbicide application, weed whacking, etc.
- Reporting to designated contact following each site visit including recap of activities, site conditions and recommendations for future management

Year 3 Maintenance:

Integrated Vegetation Management:

- Typically 3 site visits depending on growth and weed populations
- Spot mowing and targeted herbicide applications
- Agriovoltaics would begin near the end of this growing season with implementation of sheep grazing. See additional details below.
- Reporting to designated contact following each site visit including recap of activities, site conditions and recommendations for future management

Year 4+ Maintenance:

Integrated Vegetation Management:

- Typically two annual site visits depending on vegetation status
- Includes spot mowing and targeted herbicide applications
- Includes a complete mowing every 3 years to mulch up biomass and recycle nutrients.

- Reporting to designated contact following each visit including a recap of activities, site conditions and recommendations for future management.

Fertilizer and Pesticide Restrictions

Fertilizer and pesticides use is prohibited within the solar array. They are prohibited outside the fence, however, in the event that these items are deemed necessary, a professional landscape architect will be consulted, and recommendations presented to the county.

Monitoring

Consistent monitoring of the project is essential to evaluate vegetative establishment, weed presence and potential erosion concerns, especially during year one grow in. Monitoring helps to determine which and the timing of the management technique to be implemented.

EXHIBIT 23

TECHNICAL DATA SHEETS

Vertex N

BIFACIAL DUAL GLASS MONOCRYSTALLINE MODULE

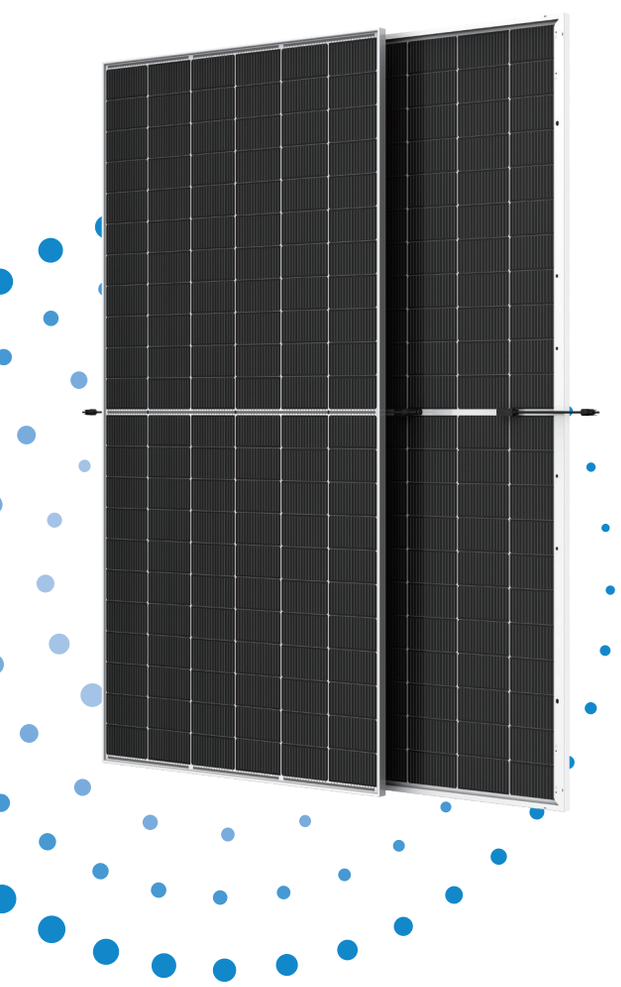
PRODUCT: TSM-NEG19RC.20

PRODUCT RANGE: 570-600W

600W
MAXIMUM POWER OUTPUT

0~+5W
POSITIVE POWER TOLERANCE

22.2%
MAXIMUM EFFICIENCY



High customer value

- Lower LCOE , reduced BOS cost, better ROI
- Lowest guaranteed first year and annual degradation
- Optimized compatibility with existing mainstream system components

High power up to 600W

- Up to 22.2% module efficiency
- High density interconnection provides improved power density
- MBB technology improves lighttrapping effect and currentcollection, while lowering series resistance

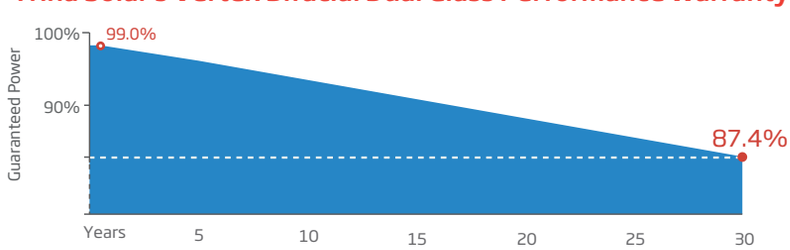
High reliability

- Minimized micro-cracks with innovative non-destructive cutting technology minimizes micro-cracking
- Ensured PID resistance through improved cell process and module material control
- Resistant to harsh environments
- Mechanical performance up to +5400/-2400 Pa

High energy yield

- Excellent IAM and low irradiation performance, validated by 3rd party certifications
- The unique design provides optimized energy production under inter-row shading conditions
- Lower temperature coefficient (-0.30%) and operating temperature
- Up to 30% additional power gain from back side

Trina Solar's Vertex Bifacial Dual Glass Performance Warranty



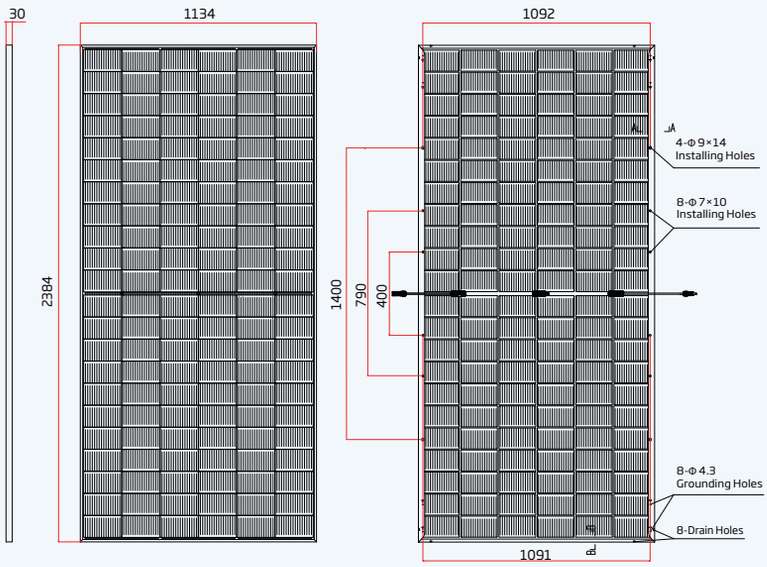
Comprehensive Products and System Certificates

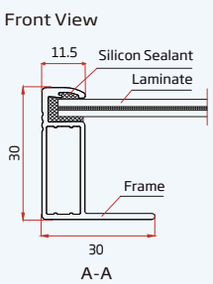
IEC61215/IEC61730/IEC61701/IEC62716/UL61730
ISO 9001: Quality Management System
ISO 14001: Environmental Management System
ISO14064: Greenhouse Gases Emissions Verification
ISO45001: Occupational Health and Safety Management System

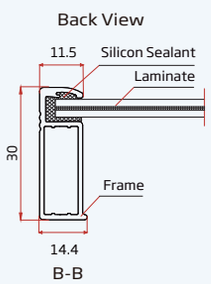
Trinasolar

Vertex N BIFACIAL DUAL GLASS MONOCRYSTALLINE MODULE

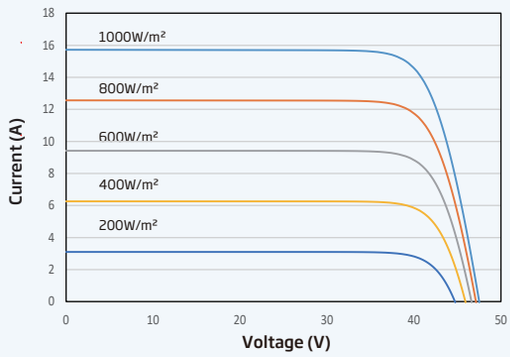
DIMENSIONS OF PV MODULE (mm)



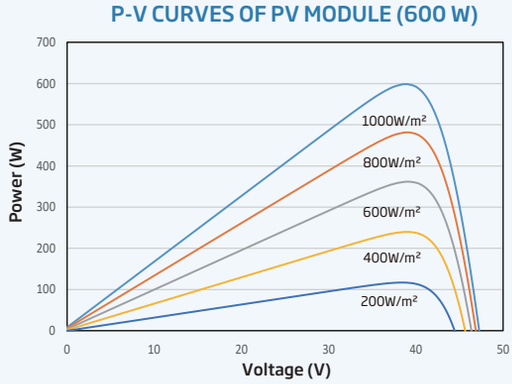




I-V CURVES OF PV MODULE (600W)



P-V CURVES OF PV MODULE (600 W)



ELECTRICAL DATA (STC)

Peak Power Watts-PMAX (Wp)*	570	575	580	585	590	595	600
Power Tolerance-PMAX (W)	0 ~ +5						
Maximum Power Voltage-VMPP (V)	38.6	38.9	39.2	39.5	39.7	40.0	40.3
Maximum Power Current-IMPP (A)	14.75	14.78	14.79	14.82	14.86	14.89	14.91
Open Circuit Voltage-VOC (V)	46.6	46.9	47.2	47.5	47.8	48.1	48.4
Short Circuit Current-ISC (A)	15.61	15.63	15.65	15.68	15.72	15.76	15.80
Module Efficiency η m (%)	21.1	21.3	21.5	21.6	21.8	22.0	22.2

STC: Irrdiance 1000W/m2, Cell Temperature 25°C, Air Mass AM1.5.

Electrical characteristics with different power bin (reference to 10% Irradiance ratio)

Total Equivalent power -PMAX (Wp)	616	621	626	632	637	643	648
Maximum Power Voltage-VMPP (V)	38.6	38.9	39.2	39.5	39.7	40.0	40.3
Maximum Power Current-IMPP (A)	15.93	15.96	15.97	16.01	16.05	16.08	16.10
Open Circuit Voltage-VOC (V)	46.6	46.9	47.2	47.5	47.8	48.1	48.4
Short Circuit Current-ISC (A)	16.86	16.88	16.90	16.93	16.98	17.02	17.06
Irradiance ratio (rear/front)	10%						

Power Bifaciality:80±5%.

ELECTRICAL DATA (NOCT)

Maximum Power-PMAX (Wp)	434	438	442	446	450	454	458
Maximum Power Voltage-VMPP (V)	36.3	36.5	36.8	37.1	37.3	37.6	37.8
Maximum Power Current-IMPP (A)	11.97	11.99	12.00	12.02	12.05	12.08	12.12
Open Circuit Voltage-VOC (V)	44.2	44.5	44.7	45.0	45.3	45.6	45.9
Short Circuit Current-ISC (A)	12.58	12.59	12.61	12.64	12.67	12.70	12.73

NOCT: Irradiance at 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s.

MECHANICAL DATA

Solar Cells	Monocrystalline 210Rmm N-type
No. of cells	132 cells
Module Dimensions	2384×1134×30 mm (93.86×44.65×1.18 in)
Weight	33.7 kg (74.3 lb)
Front Glass	2.0 mm (0.08 in), High Transmission, AR Coated Heat Strengthened Glass
Encapsulant Material	POE/EVA
Back Glass	2.0 mm (0.08 in), Heat Strengthened Glass (White Grid Glass)
Frame	30 mm(1.18 in) Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0 mm² (0.006 in²) Portrait: 350/280 mm (13.78/11.02 in) Landscape: 1400/1400 mm (55.1/55.1 in) *
Connector	MC4 EVO2 / TS4 PLUS / TS4**

*Length can be customized
**Customer to choose connector type

TEMPERATURE RATINGS

NOCT (Nominal Operating Cell Temperature)	43°C (±2°C)
Temperature Coefficient of PMAX	- 0.30%/°C
Temperature Coefficient of VOC	- 0.24%/°C
Temperature Coefficient of ISC	0.04%/°C

MAXIMUM RATINGS

Operational Temperature	-40~+85°C
Maximum System Voltage	1500V DC (IEC)
	1500V DC (UL)
Max Series Fuse Rating	30A*

*This is for customers engineering to decide

WARRANTY

12 Year Product Workmanship Warranty
30 Year Power Warranty
1% First year degradation
0.40% Annual Power Attenuation

(Please refer to product warranty for details)

PACKAGING CONFIGURATION

Modules per box: 36 pieces
Modules per 40' container: 504 pieces
Pallets per 40' container: 14

CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.

Version number: TSM_NA_EN_2023_A

www.trinasolar.com

GLIDE Agile

Our adjustable and durable frame features less hardware, integrated electrical bonding, and included wire management resulting in reduced labor hours. Installation times are shortened by up to 36% through simplified connections, agile parts, and seasoned field teams. Foundation consultation from an unbiased partner, based on your unique project site. No matter the terrain or weather, we'll provide the right solution. Our versatile design enables numerous configurations allowing us to meet your unique needs and bring solar to more fields.

Portrait up to 3 high x 12 wide

Landscape up to 4 high x 6 wide
Bifacial compatible

Benefits

- Less hardware for faster installation and reduced labor hours
- Simplified hardware featuring 2-piece bolt stacks and only two types of hardware
- Adapts to steep slopes
- Foundations for any terrain
- Included wire management
- Lighter, stiffer components for less freight costs
- Versatile with numerous configurations
- Durable, tolerating up to 170 MPH winds and 100 PSF ground snow loads
- Landscape orientation is bifacial compatible to maximize potential backside power yield

Specifications

Module orientation	Portrait or Landscape
Module mounting	Bottom mount / Integrated electrical bonding
Tilt angle	5°- 35°
Wire management	Incorporated in structure – NEC compliant
Configuration	Portrait: up to 3 high x 12 wide / Landscape: up to 4 high x 6 wide
Slopes	East or West facing, up to 30% / North or South facing, up to 36%
Load capacities	Project specific: up to 170 MPH wind speed and 100 PSF ground snow load
Foundations	Ground screws / Driven piles
Warranty	20 year limited warranty
Certifications	UL2703, edition 1; CPP wind tunnel tested

SOLECTRIA® XGI 1500-166 SERIES

PREMIUM 3-PHASE TRANSFORMERLESS UTILITY-SCALE INVERTERS

FEATURES

- Made in the USA with global components
- Buy American Act (BAA) compliant
- Four models:
  - 125kW/125kVA,
  - 125kW/150kVA,
  - 150kW/166kVA,
  - 166kW/166kVA
- Additional models available certified to UL1699b, Photovoltaic DC Arc-Fault Circuit Protection
- 99.0% peak efficiency
- Flexible solution for distributed and centralized system architecture
- Advanced grid-support functionality Rule 21/UL1741SB
- Robust, dependable, & built to last
- Lowest O&M and installation costs
- Access all inverters on site via WiFi from one location
- Remote diagnostics and firmware upgrades
- SunSpec Modbus Certified
- Tested compatible with the TESLA PowerPack Microgrid System app for system visibility

OPTIONS

- String combiners for distributed and centralized systems
- Web-based monitoring
- Extended warranty

Yaskawa Solectria Solar's XGI 1500 utility-scale string inverters are designed for high reliability and built of the highest quality components that were selected, tested and proven to last beyond their warranty.

XGI 1500 inverters provide advanced grid-support functionality and meet the latest IEEE 1547 and UL1741SB standards for safety. They are the most powerful 1500 VDC string inverters in the PV market and have been engineered for both distributed and centralized system architecture.

Designed and engineered in Lawrence, MA, XGI inverters are assembled and tested at Yaskawa America's facilities in Buffalo Grove, IL. They are Made in the USA with global components and are compliant with the Buy American Act.

YASKAWA
SOLECTRIA SOLAR

Yaskawa Solectria Solar 1-978-683-9700 | Email: sales@solectria.com | solectria.com
Document No. FL.XGI1500.01 | 04/26/2023 |

SPECIFICATIONS

SOLECTRIA XGI 1500 Model		XGI 1500-125/125-UL XGI 1500-125/125-UL-A	XGI 1500-125/150-UL XGI 1500-125/150-UL-A	XGI 1500-150/166-UL XGI 1500-150/166-UL-A	XGI 1500-166/166-UL XGI 1500-166/166-UL-A
DC Input	Absolute Max Input Voltage	1500 VDC	1500 VDC	1500 VDC	1500 VDC
	Max Power Input Voltage Range (MPPT)	860-1250 VDC	860-1250 VDC	860-1250 VDC	860-1250 VDC
	Operating Voltage Range (MPPT)	860-1450 VDC	860-1450 VDC	860-1450 VDC	860-1450 VDC
	Number of MPP Trackers	1 MPPT	1 MPPT	1 MPPT	1 MPPT
	Max Operating Input Current	148.3 A	148.3 A	178.0 A	197.7 A
	Max Operating PV Power	128 kW	128 kW	153 kW	170 kW
	Max DC/AC Ratio | Max Rated PV Power	2.6 | 332 kW	2.6 | 332 kW	2.2 | 332 kW	2.0 | 332 kW
	Max Rated PV Short-Circuit Current (∑Isc x 1.25)	500 A	500 A	500 A	500 A
AC Output	Nominal Output Voltage	600 VAC, 3-Ph	600 VAC, 3-Ph	600 VAC, 3-Ph	600 VAC, 3-Ph
	AC Voltage Range	-12% to +10%	-12% to +10%	-12% to +10%	-12% to +10%
	Continuous Real Output Power	125 kW	125 kW	150 kW	166 kW
	Continuous Apparent Output Power	125 kVA	150 kVA	166 kVA	166 kVA
	Max Output Current	120 A	144 A	160 A	160 A
	Nominal Output Frequency	60 Hz	60 Hz	60 Hz	60 Hz
	Power Factor (Unity default)	+/- 0.80 Adjustable	+/- 0.80 Adjustable	+/- 0.80 Adjustable	+/- 0.80 Adjustable
	Total Harmonic Distortion (THD) @ Rated Load	<3%	<3%	<3%	<3%
	Grid Connection Type	3-Ph + N/GND	3-Ph + N/GND	3-Ph + N/GND	3-Ph + N/GND
	Fault Current Contribution (1 cycle RMS)	144 A	173 A	192 A	192 A
Efficiency	Peak Efficiency	98.9%	98.9%	99.0%	99.0%
	CEC Average Efficiency	98.5%	98.5%	98.5%	98.5%
	Tare Loss	2.75 W	2.75 W	2.75 W	2.75 W
Temperature	Ambient Temp Range	-40°F to 140°F (-40C to 60C)		-40°F to 140°F (-40C to 60C)	
	De-Rating Temperature	122°F (50C)		113°F (45C)	
	Storage Temperature Range	-40°F to 167°F (-40C to 75C)		-40°F to 167°F (-40C to 75C)	
	Relative Humidity (non-condensing)	0 - 95%		0 - 95%	
	Operating Altitude	Full Power up to 9,840 ft (3.0 km); De-Rate to 70% of Full Power at 13,123 ft (4.0 km)			
Communications	Advanced Graphical User Interface	WiFi			
	Communication Interface	Ethernet			
	Third-Party Monitoring Protocol	SunSpec Modbus TCP/IP			
	Web-Based Monitoring	Optional			
	Firmware Updates	Remote and Local			
Testing & Certifications	Safety Listings & Certifications	UL1741SB, IEEE 1547, UL 1998 (All models) UL 1699b Photovoltaic Arc-Fault Circuit Protection Certified (-A models)			
	Advanced Grid Support Functionality	Rule 21, UL 1741SB			
	Testing Agency	ETL			
	FCC Compliance	FCC Part 15 (Subpart B, Class A)			
Warranty	Standard and Options	5 Years Standard; Option for 10 Years			
Enclosure	Acoustic Noise Rating	73 dBA @ 1 m ; 67dBA @ 3 m			
	DC Disconnect	Integrated 2-Pole 250 A DC Disconnect			
	Mounting Angle	Vertical only			
	Dimensions	Height: 29.5 in. (750 mm) | Width: 39.4 in. (1000 mm) | Depth: 15.1 in. (380 mm)			
	Weight	270 lbs (122 kg)			
	Enclosure Rating and Finish	Type 4X, Polyester Powder-Coated Aluminum			

IT'S PERSONAL

YASKAWA SOLECTRIA SOLAR

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Document No. FL.XGI1500.01 | 04/26/2023 |

EXHIBIT 24

SITE PLAN

Civil Notes

ALTA/NSPS Land Title Survey Plan

Existing Conditions Plan

Tree Clearing Plan

Site Plan

Grading and Erosion Control Plan

Civil Details

Civil Details

Pre-Development Hydrology Plan

Post-Development Hydrology Plan

GENERAL CIVIL NOTES

APPROVALS

1. SITE PLAN REVIEW (TOWN OF YARMOUTH)
2. STORMWATER PERMIT BY RULE (MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION)

GENERAL NOTES

1. AS CONTAINED HEREIN, "CONTRACTOR" IS ASSUMED TO BE THE EPC PROVIDER HIRED BY THE SYSTEM OWNER. "SUBCONTRACTOR" IS THE EPC PROVIDER'S INSTALLATION SUBCONTRACTORS (INCLUDING SITE WORK SUBCONTRACTOR) AND CIVIL ENGINEER OF RECORD (CEOR) IS THE EPC PROVIDER'S DESIGNATED CIVIL ENGINEER.
2. EXISTING CONDITIONS SURVEY INFORMATION WAS PREPARED BY HALEY WARD PERFORMED ON MARCH 7, 2024. HORIZONTAL DATUM IS REFERENCED TO THE MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD83. VERTICAL DATUM IS REFERENCED TO NAVD88.
3. THERE IS NO GUARANTEE THAT ALL THE EXISTING UTILITIES, WHETHER FUNCTIONAL OR ABANDONED WITHIN THE PROJECT LIMITS ARE ON THIS DRAWING. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UNDERGROUND UTILITIES BEFORE STARTING WORK AND SHALL BE RESPONSIBLE FOR ALL DAMAGE RESULTING FROM THIS WORK. A DIG SAFE TICKET NUMBER INDICATING ALL EXISTING UTILITIES HAVE BEEN LOCATED AND MARKED SHALL BE OBTAINED PRIOR TO COMMENCING WORK. CONTACT "DIG SAFE SYSTEM, INC." AT 1-888-344-7233 AND PROVIDE 72 HOURS NOTICE TO RECEIVE A TICKET NUMBER.
4. THE LOCATION, SIZE, DEPTH, AND SPECIFICATIONS FOR CONSTRUCTION OF PRIVATE UTILITY SERVICES SHALL BE INSTALLED ACCORDING TO THE REQUIREMENTS PROVIDED BY, AND APPROVED BY, THE RESPECTIVE ELECTRIC UTILITY COMPANY. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE UTILITY CONNECTIONS WITH THE RESPECTIVE COMPANIES PRIOR TO ANY UTILITY CONSTRUCTION.
5. TOWN APPROVALS SHALL BE KEPT ON SITE AT ALL TIMES.
6. PRIOR TO CONSTRUCTING THE SITE ENTRANCES ONTO U.S. ROUTE 1, THE CONTRACTOR SHALL OBTAIN A HIGHWAY/DRIVEWAY PERMIT FROM THE APPLICABLE AHJ.
7. SUBCONTRACTOR(S) SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL CONSTRUCTION DOCUMENTS, SPECIFICATIONS, AND SITE CONDITIONS PRIOR TO BIDDING AND PRIOR TO CONSTRUCTION.
8. ANY DISCREPANCIES BETWEEN DRAWINGS, SPECIFICATIONS, AND SITE CONDITIONS SHALL BE REPORTED IMMEDIATELY TO THE CONTRACTOR/CEOR FOR CLARIFICATION AND RESOLUTION PRIOR TO BIDDING OR CONSTRUCTION.
9. AREAS USED AS FOR PARKING DURING CONSTRUCTION SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS INCLUDING, BUT NOT LIMITED TO, REGRADING, LOAMING AND SEEDING. IN NO CASE SHALL PARKING AREAS, LAYDOWN AREAS, CONSTRUCTION TRAILERS, AND PORTABLE TOILETS BE LOCATED WITHIN A WETLAND RESOURCE AREA AND/OR ANY BUFFER ZONES.

SITE PREPARATION NOTES

1. AREAS DESIGNATED FOR TREE CLEARING SHALL BE CLEARED ONLY. NO GRUBBING OR STRIPPING OF TOPSOIL IS NECESSARY, UNLESS SPECIFICALLY SHOWN OTHERWISE AND APPROVAL HAS BEEN GIVEN BY THE CONTRACTOR.
2. TREE CLEARING AND STUMP REMOVAL SHALL BE IN ACCORDANCE WITH APPROVED LOCAL, STATE, AND FEDERAL PERMITS. TREES TO BE REMOVED SHALL BE MARKED BY THE CONTRACTOR'S PROJECT MANAGER OR SITE SUPERINTENDENT PRIOR TO COMMENCEMENT OF WORK ON-SITE.
3. SEASONAL TREE CLEARING RESTRICTIONS MAY BE REQUIRED FOR ENDANGERED SPECIES PROTECTION. THE CONTRACTOR SHALL REFER TO THE TREE CLEARING PLAN FOR ANY RESTRICTIONS.
4. THE SUBCONTRACTOR(S) IS/ARE RESPONSIBLE FOR ANY DAMAGE TO EXISTING SITE CONDITIONS TO REMAIN THAT ARE DUE TO SUBCONTRACTOR(S) OPERATIONS.
5. ITEMS TO BE REMOVED THAT ARE NOT STOCKPILED FOR LATER REUSE ON THE PROJECT OR DELIVERED TO THE OWNER SHALL BE LEGALLY DISPOSED OF OFF SITE BY THE SUBCONTRACTOR(S).
6. THE SUBCONTRACTOR(S) SHALL BE RESPONSIBLE FOR COORDINATING THEIR EFFORTS WITH ALL TRADES.
7. THE SUBCONTRACTOR(S) SHALL COORDINATE ALL ADJUSTMENT OR ABANDONMENT OF UTILITIES WITH THE RESPECTIVE UTILITY COMPANY.
8. TEMPORARY CONSTRUCTION HAUL ROADS SHALL BE USED DURING CONSTRUCTION IF DEEMED NECESSARY BY THE CONTRACTOR. THE USE OF SEPARATION FABRICS SHALL BE USED TO FACILITATE FUTURE REMOVAL AND RECOVERY OF GRANULAR MATERIALS. HAUL ROADS SHALL BE MAINTAINED DURING CONSTRUCTION WITH APPROPRIATE EROSION CONTROL AND STORMWATER REDUCTION MEASURES. ONCE REMOVED, THE SUB-BASE AREA SHOULD BE DECOMPACTED WITH A YORK RAKE, LOAM REPLACED, AND RESEEDED.
9. THE SITE ACCESS ROADS ARE DESIGNED TO MEET STATE FIRE CODE FOR FIRE TRUCK ACCESS. MEANS AND METHODS FOR ACCOMMODATING LARGER CONSTRUCTION DELIVERY VEHICLES MUST BE DETERMINED BY THE CONTRACTOR.
10. THE PROPOSED ROAD DESIGN SHOWN IN THESE PLANS SHALL BE CONSIDERED THE FINAL DESIGN CONDITION. ADDITIONAL MEANS AND METHODS OF CONSTRUCTION DEEMED NECESSARY BY THE OWNER OR CONTRACTOR SHALL BE DESIGNED BY OTHERS AND INCLUDED IN THE INITIAL EPC BID PRICE (INCLUDING, BUT NOT LIMITED TO: TEMPORARY HAUL ROADS, WIDENED OR LENGTHENED ROADS AND TURN OUT AREAS FOR LARGER CONSTRUCTION AND DELIVERY VEHICLES, TEMPORARY PARKING AND LAYDOWN AREAS, MODIFIED GRADING TO SUPPORT CONSTRUCTION AND DELIVERY VEHICLES, ETC.).

EROSION AND SEDIMENT CONTROL MEASURES

1. 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. A MAINE CONSTRUCTION GENERAL PERMIT SHALL BE IN PLACE PRIOR TO COMMENCING ANY EARTH DISTURBANCE.
3. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR DISTURBANCE AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME.
4. SEDIMENT BARRIERS SHALL BE INSPECTED AND APPROVED BY THE TOWN OF BUCKSPORT OR THEIR REPRESENTATIVE AND THE CONTRACTOR/CEOR BEFORE CONSTRUCTION BEGINS.
5. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE STABILIZED BY A SUITABLE GROWTH OF GRASS. ONCE A SUITABLE GROWTH OF GRASS HAS BEEN OBTAINED, TEMPORARY EROSION CONTROL ITEMS SHALL BE REMOVED PER CONTRACTOR/COER DIRECTION. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THEY ARE REMOVED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED, SEEDED, AND MULCHED IMMEDIATELY.
6. DISTURBED AREAS SHALL BE BLANKETED OR SEEDED AND MULCHED AS SOON AS PRACTICAL AFTER CONSTRUCTION ACTIVITIES IN THAT AREA HAVE CONCLUDED. ERODIBLE/BARE AREAS SHALL BE BLANKETED OR SEEDED AND MULCHED WITHIN 7 DAYS WITH TEMPORARY EROSION CONTROL SEEDING.
7. STABILIZE SLOPES GREATER THAN 3:1 (HORIZONTAL: VERTICAL) WITH SEED, EROSION CONTROL MIX, SECURED GEOTEXTILE FABRIC, SPRAYED COMPOST BLANKET, OR RIP-RAP AS REQUIRED TO PREVENT EROSION DURING CONSTRUCTION.
8. DISTURBED AREAS THAT DO NOT RECEIVE FINAL SURFACE TREATMENT AS INDICATED ON THE PLANS SHALL BE SEEDED WITH 2.5 LBS. RED FESCUE AND 0.5 LBS. RYE GRASS PER 1,000 SQUARE FEET AND MULCHED AT A RATE OF 90 LBS. PER 1,000 SQUARE FEET OR APPROVED EQUAL OF SEED AND MULCH.
9. IF FINAL SEEDING OF DISTURBED AREAS IS NOT COMPETED BY SEPTEMBER 15TH OF THE YEAR OF CONSTRUCTION OR SHOULD CONSTRUCTION TAKE PLACE DURING THE WINTER (NOVEMBER 1ST THROUGH APRIL 15TH) ADDITIONAL STABILIZATION MEASURES SHALL BE INSTALLED BY NOVEMBER 1ST AS OUTLINED IN THE MAINE EROSION AND SEDIMENT CONTROL BMPS, LATEST EDITION.
10. TEMPORARY VEGETATION SHOULD BE APPLIED BY OCTOBER 1ST WITH WINTER RYE AT THE RATE OF 3 POUNDS PER 1,000 SQUARE FEET AND MULCH WITH ANCHORED HAY AT 75 POUNDS PER 1,000 SQUARE FEET OR WITH EROSION CONTROL BLANKETS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES AND HAVE 75% COVERAGE BY NOVEMBER 1ST THE AREA SHOULD BE STABILIZED FOR OVERWINTER PROTECTION.
11. INSTALL SILT FENCES ALONG CONTOUR DIVIDING FLAT AND STEEP SLOPES, AREAS WITH DIFFERENT DISTURBANCE SCHEDULES, AROUND TEMPORARY STOCKPILES OR IN OTHER UNSPECIFIED POSSIBLE CIRCUMSTANCES. THE INTENT OF SUCH INTERIOR SILT FENCES IS TO LIMIT SEDIMENT TRANSPORT WITHIN THE SITE TOWARD THE PROTECTED CATCH BASIN INLETS TO MINIMIZE SEDIMENT REMOVAL AND EXTEND LIFE OF SUCH DEVICES.
12. SILT FENCE SHALL BE INSPECTED, REPLACED AND/OR REPAIRED IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT OR LOSS OF SERVICEABILITY DUE TO SEDIMENT ACCUMULATION. AT A MINIMUM, ALL EROSION CONTROL DEVICES SHALL BE OBSERVED WEEKLY.
13. SEDIMENT COLLECTED DURING CONSTRUCTION BY THE VARIOUS EROSION CONTROL SYSTEMS SHALL BE DISPOSED OF ON THE SITE ON A REGULAR BASIS. SEDIMENT SHALL BE REMOVED FROM EROSION CONTROL SYSTEMS WHEN THE HEIGHT OF THE SEDIMENT EXCEEDS ONE-HALF OF THE HEIGHT OF THE SEDIMENT CONTROL MEASURE.
14. THE COST OF REPAIRING EROSION CONTROL MEASURES OR REMOVING SEDIMENT FROM EROSION CONTROL SYSTEMS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR THE APPLICABLE EROSION CONTROL ITEM.
15. PIPE OUTLETS (IF ANY) SHALL BE STABILIZED WITH STONE. REFER TO DETAILS.
16. WATER PUMPED OR OTHERWISE DISCHARGED FROM THE SITE DURING CONSTRUCTION DEWATERING SHALL BE FILTERED.
17. WHEN TEMPORARY DRAINAGE IS ESTABLISHED, EROSION AND SEDIMENTATION CONTROL MEASURES MAY BE REQUIRED BY CONTRACTOR/CEOR.
18. GRAVEL ROADS, ACCESS DRIVES, PARKING AREAS OF SUFFICIENT WIDTH AND LENGTH, AND VEHICLE WASHDOWN FACILITIES SHALL BE PROVIDED TO PREVENT SOIL FROM BEING TRACKED ONTO PUBLIC OR PRIVATE ROADWAYS. ANY SOIL REACHING A PUBLIC OR PRIVATE ROADWAY SHALL BE REMOVED BEFORE THE END OF EACH WORKDAY.
19. NECESSARY MEASURES SHALL BE TAKEN TO CONTAIN ANY FUEL OR POLLUTION RUNOFF. NO RE-FUELING SHALL OCCUR WITHIN 100 FEET OF ANY WETLAND RESOURCE AREA AND 200 FEET FROM RIVERFRONT. LEAKING EQUIPMENT OR SUPPLIES SHALL BE IMMEDIATELY REPAIRED OR REMOVED FROM SITE.
20. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT DUST FROM FORMING.
21. THE CONTRACTOR'S SITE SUPERINTENDENT IS RESPONSIBLE FOR DAILY INSPECTIONS, MAINTENANCE, AND DIRECTING REPAIR ACTIVITIES. THE CONTRACTOR SHALL INSPECT EROSION CONTROL MEASURES TWICE EVERY SEVEN (7) CALENDAR DAYS (IF GREATER THAN 5 ACRES IS TO BE DISTURBED AT ANY ONE TIME) OR ONCE EVERY SEVEN (7) CALENDAR DAYS AND BEFORE AND AFTER STORM EVENTS. DAMAGED AND INEFFECTIVE EROSION CONTROL MEASURES SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS.
22. DAMAGED OR DETERIORATED EROSION AND SEDIMENT CONTROL ITEMS SHALL BE REPAIRED IMMEDIATELY AFTER IDENTIFICATION OR AS DIRECTED BY THE CONTRACTOR/COER.
23. AFTER THE REMOVAL OF TEMPORARY EROSION CONTROL MEASURES, THE SUBCONTRACTOR(S) SHALL GRADE AND SEED AREA OF TEMPORARY EROSION CONTROL MEASURE.
24. CLEAN OUT PROJECT DRAINAGE FEATURES AND STRUCTURES (I.E. CULVERTS, BASINS, SWALES, ETC.) AFTER COMPLETION OF CONSTRUCTION.
25. MINIMUM EROSION CONTROL MEASURES SHALL BE IMPLEMENTED AND THE CONTRACTOR SHALL MAINTAIN ALL COMPONENTS OF THE EROSION CONTROL PLAN UNTIL THE SITE IS FULLY STABILIZED. HOWEVER, BASED ON SITE AND WEATHER CONDITIONS DURING CONSTRUCTION, ADDITIONAL EROSION CONTROL MEASURES MAY NEED TO BE IMPLEMENTED. ALL AREAS OF INSTABILITY AND EROSION MUST BE REPAIRED IMMEDIATELY DURING CONSTRUCTION AND NEED TO BE MAINTAINED UNTIL THE SITE IS FULLY STABILIZED OR VEGETATION IS ESTABLISH. A CONSTRUCTION LOG SHALL BE MAINTAINED FOR THE EROSION AND SEDIMENTATION CONTROL INSPECTIONS AND MAINTENANCE.
26. 26. CONTRACTOR SHALL BE RESPONSIBLE FOR FOLLOWING PROCEDURES FOUND IN THE "MAINE EROSION AND SEDIMENT CONTROL PRACTICES FIELD GUIDE FOR CONTRACTORS" (PUBLISHED MARCH 2015). THE PUBLICATION CAN BE FOUND AT: HTTP://WWW.MAINE.GOV/DEP/LAND/EROSION/ESCBMPS/INDEX.HTML

LAYOUT AND MATERIAL NOTES

1. THE CONTRACTOR SHALL HAVE PERIMETER FENCE, ELECTRICAL TRENCHES, AND RACKING STAKED OUT BY A LICENSED LAND SURVEYOR PRIOR TO ANY INSTALLATION OF RACKING OR TRENCHES.
2. EXCESS TRENCH MATERIAL SHALL BE PLACED ON THE SIDES OF THE TRENCH AND PLACED AT OR NEAR THE SAME LOCATION AS WHERE EXCAVATED. TOPSOIL REMOVED SHALL BE PLACED ON TOP AND LIGHTLY COMPACTED.
3. SUBCONTRACTOR SHALL INSTALL CONDUITS FOR ALL ELECTRIC CONDUIT CROSSINGS PRIOR TO INSTALLATION OF THE GEOGRID MATERIAL. THE GEOGRID SHALL NOT BE HORIZONTALLY CUT ONCE INSTALLED.

GRADING NOTES

1. WHERE PROPOSED GRADES MEET EXISTING GRADES, SUBCONTRACTOR(S) SHALL BLEND GRADES TO PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING AND NEW WORK. PONDING AT TRANSITION AREAS WILL NOT BE ALLOWED.
2. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM ALL BUILDING FOUNDATIONS, STRUCTURES, PUBLIC ROADWAYS, AND ELECTRICAL EQUIPMENT AREAS.

PLANTING NOTES

1. THE LANDSCAPE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE ALL PLANTINGS SHOWN ON THE DRAWINGS.
2. MATERIALS SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.
3. PLANTS SHALL BEAR THE SAME RELATIONSHIP TO FINISH GRADE AS TO ORIGINAL GRADES BEFORE DIGGING.
4. PLANTS TO BE BALLED IN BURLAP OR CONTAINERIZED.
5. PLANT SIZE AND QUANTITY SHALL NOT CHANGE WITHOUT APPROVAL OF CONTRACTOR/CEOR.

ABBREVIATIONS

BIT	BITUMINOUS
BMP	BEST MANAGEMENT PRACTICE
BVW	BORDERING VEGETATED WETLANDS
CB	CONCRETE BOUND
CONC	CONCRETE
CMP	CORRUGATED METAL PIPE
CPP	CORRUGATED PLASTIC PIPE
DH	DRILL HOLE
DIP	DUCTILE IRON PIPE
DMH	DRAIN MANHOLE
ECB	EROSION CONTROL BARRIER
FES	FLARED END SECTION
FH	FIRE HYDRANT
FND	FOUND
GG	GAS GATE
HDPE	HIGH-DENSITY POLYETHYLENE
HW	HEADWALL
ILSF	ISOLATED LANDS SUBJECT TO FLOODING
IP	IRON PIPE
ISW	ISOLATED WETLANDS (FEDERAL JURISDICTION)
LA	LANDSCAPED AREA
LOW	LIMIT OF WORK
N/F	NOW OR FORMERLY
NTS	NOT TO SCALE
OCS	OUTLET CONTROL STRUCTURE
OHW	OVERHEAD WIRE
RCP	REINFORCED CONCRETE PIPE
RET	RETAINING
ROW	RIGHT-OF-WAY
SB	STONE BOUND
TEL	TELEPHONE CABLE
TYP	TYPICAL
UP	UTILITY POLE
WG	WATER GATE

REV 1.1

LEGEND

- ROAD (GRAVEL)
- FENCE LINE
- PROPERTY LINE
- FLOW DIRECTION
- BANK LINE/FLAG
- WETLAND LINE/FLAG
- (E) MAJOR CONTOUR
- (E) MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- WETLAND BUFFER ZONE
- RIVERFRONT AREA
- 100-YEAR FLOOD HAZARD AREA
- TREELINE
- SILT FENCE
- SILT SOCK
- STORM PIPE
- ELECTRICAL TRENCH
- OVERHEAD ELECTRIC
- SEWER LINE
- WATER LINE
- GAS MAIN
- 23-23A ASSESSORS MAP-LOT
- SIGN
- UTILITY POLE (WITH GUY ANCHOR)
- HYDRANT
- WATER VALVE
- INDIVIDUAL TREE
- FOUND REBAR PROPERTY MARKERS

NOTE: ITALIC FONTS INDICATE EXISTING CONDITIONS. STANDARD FONTS INDICATE PROPOSED CONDITIONS.

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ENGINEERING | ENVIRONMENTAL | SURVEYING
120 MAIN STREET, SUITE 132
SACO, MAINE 04072
PH: (207) 283-9151
WWW.HALEYWARD.COM

NOT FOR CONSTRUCTION

STATE OF MAINE
DREW JOHN OLEHOWSKI
No. 16372
01/15/2025
LICENSED PROFESSIONAL ENGINEER

SITE USE PERMIT SET
0 LAFAYETTE ST
YARMOUTH, ME 04096

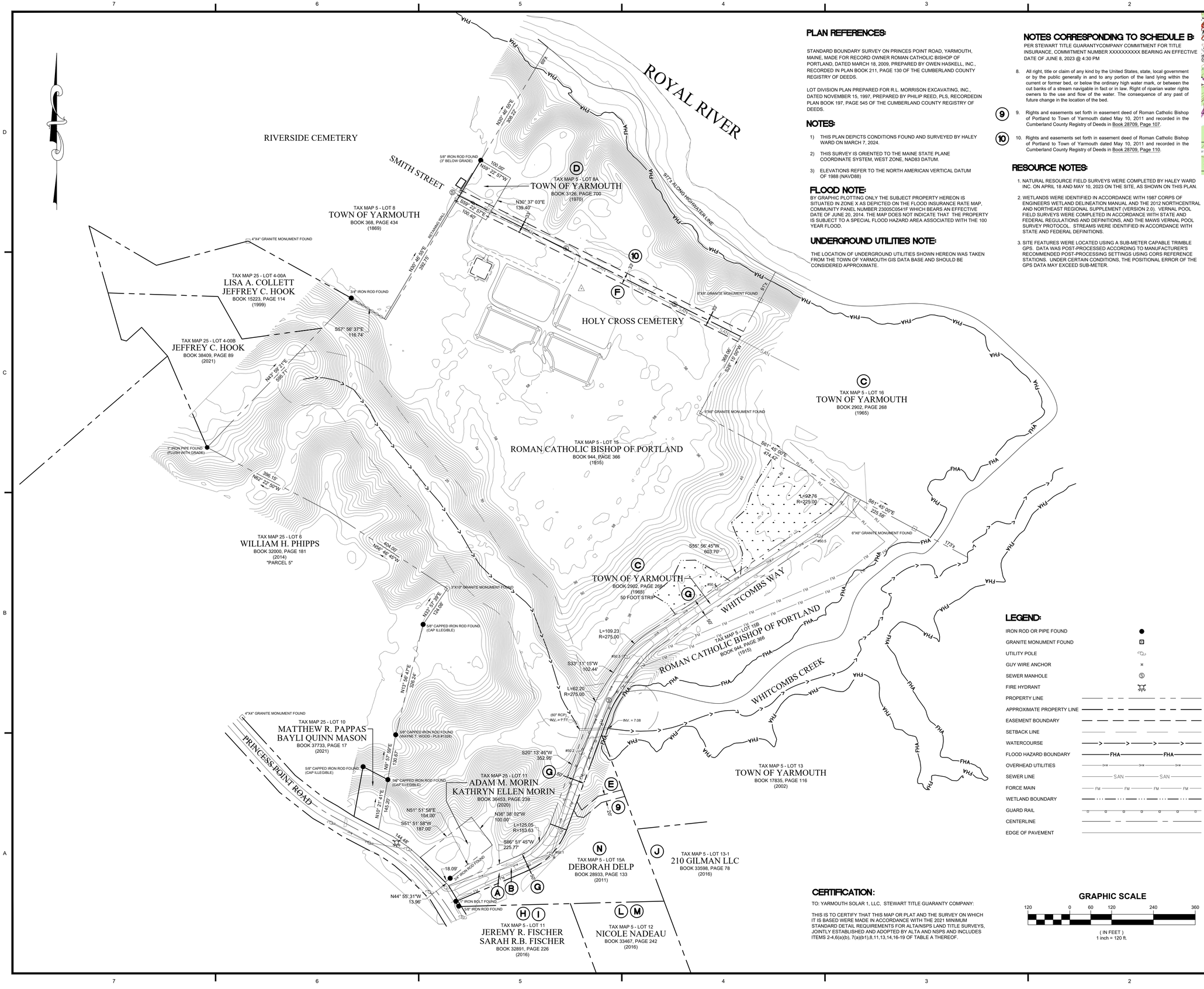
PROJECT NUMBER: 120-1226

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
0	01/15/25	PJM	DJO	SUP SET

SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

C-0.0

CIVIL NOTES



PLAN REFERENCES:

STANDARD BOUNDARY SURVEY ON PRINCES POINT ROAD, YARMOUTH, MAINE, MADE FOR RECORD OWNER ROMAN CATHOLIC BISHOP OF PORTLAND, DATED MARCH 19, 2009, PREPARED BY OWEN HASKELL, INC., RECORDED IN PLAN BOOK 211, PAGE 130 OF THE CUMBERLAND COUNTY REGISTRY OF DEEDS.

LOT DIVISION PLAN PREPARED FOR R.L. MORRISON EXCAVATING, INC., DATED NOVEMBER 15, 1997, PREPARED BY PHILIP REED, PLS, RECORDEDIN PLAN BOOK 197, PAGE 545 OF THE CUMBERLAND COUNTY REGISTRY OF DEEDS.

NOTES:

1) THIS PLAN DEPICTS CONDITIONS FOUND AND SURVEYED BY HALEY WARD ON MARCH 7, 2024.

2) THIS SURVEY IS ORIENTED TO THE MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD83 DATUM.

3) ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

FLOOD NOTE:

BY GRAPHIC PLOTTING ONLY THE SUBJECT PROPERTY HEREON IS SITUATED IN ZONE X AS DEPICTED ON THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NUMBER 2300SC0541F WHICH BEARS AN EFFECTIVE DATE OF JUNE 20, 2014. THE MAP DOES NOT INDICATE THAT THE PROPERTY IS SUBJECT TO A SPECIAL FLOOD HAZARD AREA ASSOCIATED WITH THE 100 YEAR FLOOD.

UNDERGROUND UTILITIES NOTE:

THE LOCATION OF UNDERGROUND UTILITIES SHOWN HEREON WAS TAKEN FROM THE TOWN OF YARMOUTH GIS DATA BASE AND SHOULD BE CONSIDERED APPROXIMATE.

NOTES CORRESPONDING TO SCHEDULE B:

PER STEWART TITLE GUARANTYCOMPANY COMMITMENT FOR TITLE INSURANCE, COMMITMENT NUMBER XXXXXXXXXX BEARING AN EFFECTIVE DATE OF JUNE 8, 2023 @ 4:30 PM

8. All right, title or claim of any kind by the United States, state, local government or by the public generally in and to any portion of the land lying within the current or former bed, or below the ordinary high water mark, or between the cut banks of a stream navigable in fact or in law. Right of riparian water rights owners to the use and flow of the water. The consequence of any past of future change in the location of the bed.

9. Rights and easements set forth in easement deed of Roman Catholic Bishop of Portland to Town of Yarmouth dated May 10, 2011 and recorded in the Cumberland County Registry of Deeds in Book 28709, Page 107.

10. Rights and easements set forth in easement deed of Roman Catholic Bishop of Portland to Town of Yarmouth dated May 10, 2011 and recorded in the Cumberland County Registry of Deeds in Book 28709, Page 110.

RESOURCE NOTES:

1. NATURAL RESOURCE FIELD SURVEYS WERE COMPLETED BY HALEY WARD INC. ON APRIL 18 AND MAY 10, 2023 ON THE SITE, AS SHOWN ON THIS PLAN.

2. WETLANDS WERE IDENTIFIED IN ACCORDANCE WITH 1987 CORPS OF ENGINEERS WETLAND DELINEATION MANUAL AND THE 2012 NORTHCENTRAL AND NORTHEAST REGIONAL SUPPLEMENT (VERSION 2.0). VERNAL POOL FIELD SURVEYS WERE COMPLETED IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS AND DEFINITIONS, AND THE MAWS VERNAL POOL SURVEY PROTOCOL. STREAMS WERE IDENTIFIED IN ACCORDANCE WITH STATE AND FEDERAL DEFINITIONS.

3. SITE FEATURES WERE LOCATED USING A SUB-METER CAPABLE TRIMBLE GPS. 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.

LEGAL DESCRIPTION:

A certain lot or parcel of land situated in Yarmouth, in the County of Cumberland and State of Maine, bounded and described as follows: Bounded northeasterly by high water mark in Royal's River; southeasterly and southerly by the channel of Whitcomb's Creek formerly called Atwell's Creek, and land now or formerly of Fred Adams and Samuel P. Drinkwater, formerly John Webster and heirs of Stephen Moulton; west by the road to Princes Point, formerly land of Arnie Cutter and Zadock Whitcomb, and northwesterly by land of Dennis Winslow, of the heirs of James Wilson and Riverside Cemetery, formerly the land of Jonathan Mitchell, until it comes to high-water mark in said Royal's River. Excepting the lot sold to the Inhabitants of the Town of Yarmouth for a school-house, and also the one-half acre deeded to Alice G. Drinkwater, dated July 24, 1905.

(A) Together with the premises described in Warranty Deed from Town the of Yarmouth to Roman Catholic Bishop of Portland dated August 29, 1967 and recorded in the Cumberland County Registry of Deeds in Book 3014, Page 303.

(B) Excepting the premises conveyed to the Inhabitants of the Town of Yarmouth by deed of Roman Catholic Bishop of Portland dated August 29, 1967 and recorded in the Cumberland County Registry of Deeds in Book 3014, Page 305.

(C) Excepting the premises conveyed to the Inhabitants of the Town of Yarmouth by deed of Roman Catholic Bishop of Portland dated June 18, 1965 and recorded in the Cumberland County Registry of Deeds in Book 2902, Page 268.

(D) Excepting the premises conveyed to Town of Yarmouth by deed of Roman Catholic Bishop of Portland dated May 8, 1970 and recorded in the Cumberland County Registry of Deeds in Book 3126, Page 700.

(E) Excepting the premises conveyed to Town of Yarmouth by deed of Roman Catholic Bishop of Portland dated May 1, 2011 and recorded in the Cumberland County Registry of Deeds in Book 28709, Page 107.

(F) Excepting the premises conveyed to Town of Yarmouth by deed of Roman Catholic Bishop of Portland dated May 1, 2011 and recorded in the Cumberland County Registry of Deeds in Book 28709, Page 110.

(G) Together with an easement from Town of Yarmouth to Roman Catholic Bishop of Portland dated May 5, 2011 and recorded in the Cumberland County Registry of Deeds in Book 28709, Page 113.

(H) Excepting the premises conveyed to Kent C. Pierce and Kristen F. Pierce by Confirmatory Deed for boundary line clarification from Roman Catholic Bishop of Portland dated August 29, 2011 and recorded in the Cumberland County Registry of Deeds in Book 28933, Page 118.

(I) Together with the premises conveyed to Roman Catholic Bishop of Portland by Confirmatory Deed for boundary line clarification from Kent C. Pierce and Kristen F. Pierce dated August 29, 2011 and recorded in the Cumberland County Registry of Deeds in Book 28933, Page 121

(J) Excepting the premises conveyed to Nelson S. Mead, Jr. and Elizabeth L. Mead by Confirmatory Deed for boundary line clarification from Roman Catholic Bishop of Portland dated August 29, 2011 and recorded in the Cumberland County Registry of Deeds in Book 28933, Page 123.

(K) Together with the premises conveyed to Roman Catholic Bishop of Portland by Confirmatory Deed for boundary line clarification from Nelson S. Mead, Jr. and Elizabeth L. Mead dated August 29, 2011 and recorded in the Cumberland County Registry of Deeds in Book 28933, Page 126

(L) Excepting the premises conveyed to Diana V. Heard by Confirmatory Deed for boundary line clarification from Roman Catholic Bishop of Portland dated August 29, 2011 and recorded in the Cumberland County Registry of Deeds in Book 28933, Page 128.

(M) Together with the premises conveyed to Roman Catholic Bishop of Portland by Confirmatory Deed for boundary line clarification from Diana V. Heard dated September 1, 2011 and recorded in the Cumberland County Registry of Deeds in Book 28933, Page 131.

(N) Excepting the premises conveyed to Deborah Delp by deed of Roman Catholic Bishop of Portland dated August 29, 2011 and recorded in the Cumberland County Registry of Deeds in Book 28933, Page 133.

LEGEND:

- IRON ROD OR PIPE FOUND
- GRANITE MONUMENT FOUND
- UTILITY POLE
- GUY WIRE ANCHOR
- SEWER MANHOLE
- FIRE HYDRANT
- PROPERTY LINE
- APPROXIMATE PROPERTY LINE
- EASEMENT BOUNDARY
- SETBACK LINE
- WATERCOURSE
- FLOOD HAZARD BOUNDARY
- OVERHEAD UTILITIES
- SEWER LINE
- FORCE MAIN
- WETLAND BOUNDARY
- GUARD RAIL
- CENTERLINE
- EDGE OF PAVEMENT

CERTIFICATION:

TO: YARMOUTH SOLAR 1, LLC, STEWART TITLE GUARANTY COMPANY:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS AND INCLUDES ITEMS 2-4,6(a)(b), 7(a)(b1),8,11,13,14,16-19 OF TABLE A THEREOF.

GRAPHIC SCALE

120 0 60 120 240 360

(IN FEET)
1 inch = 120 ft.

REV.	DATE	DESCRIPTION	BY	CHK

DRAWING ISSUE STATUS

PRELIMINARY

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
WWW.HALEYWARD.COM
One Merchants Plaza, Suite 701
Bangor, Maine 04401
207.989.4824

PROJECT

YARMOUTH SOLAR 1, LLC
SMITH STREET, YARMOUTH, CUMBERLAND COUNTY, MAINE

TITLE

ALTA/NSPS LAND TITLE SURVEY PLAN

STATE OF MAINE
JERRY W. HARRIS, JR. 2206
PROFESSIONAL LAND SURVEYOR

DATE	SCALE
2024.03.25	1" = 120'

DRAWN BY	DESIGNED BY	CHECKED BY
JH	---	---

PROJECT No. 12869.065

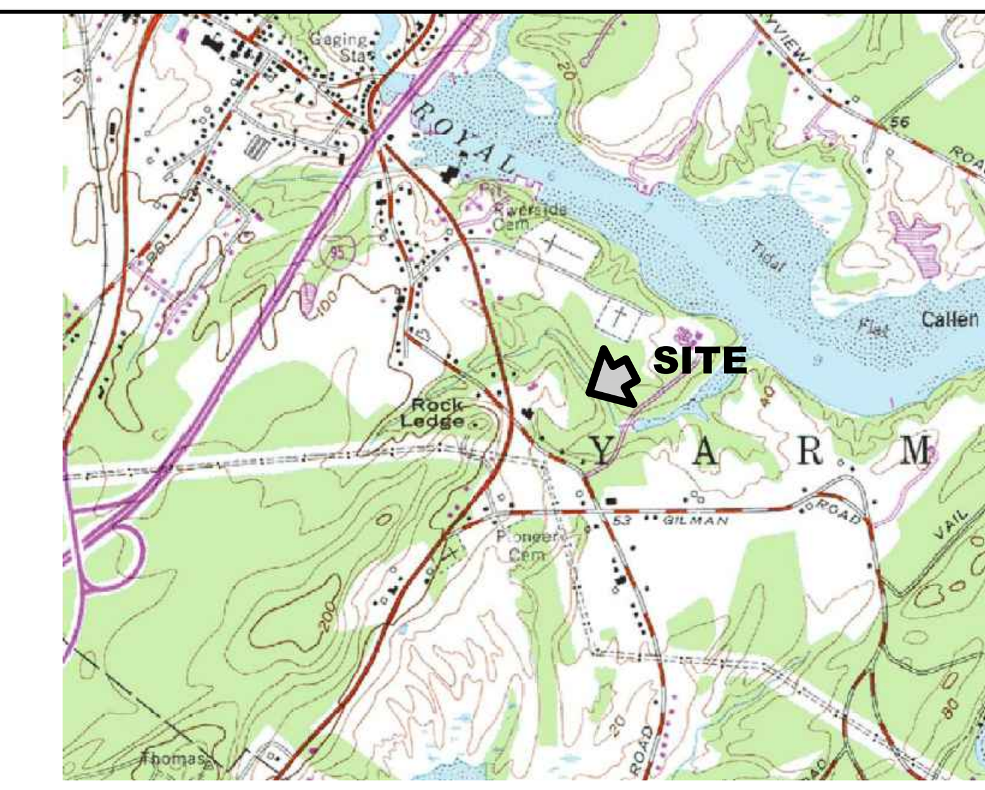
DRAWING No. | REV.

FILE LOCATION: P:\PROJECTS\M\12869\NEW_LEAF_ENERGY\005-SMITH STREET YARMOUTH\AUTOCAD_FILES\SURVEY\12869.005 ALTA.DWG, 2024. 12:04, 12:23 PM

EXISTING CONDITIONS PLAN

SCALE: 1" = 50'

0 50' 100'



LOCATION MAP: USGS QUADRANGLE: YARMOUTH
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©MAPTECH®, INC. 978-933-3000 WWW.MAPTECH.COM/TOPO
SCALE: 1"=2000'

LEGEND:

- IRON ROD OR PIPE FOUND
- CONCRETE MONUMENT FOUND
- UTILITY POLE
- GUY WIRE ANCHOR
- SEWER MANHOLE
- CATCH BASIN
- WATER VALVE
- FIRE HYDRANT
- PROPERTY LINE
- EASEMENT LINE
- SETBACK LINE
- WATER COURSE
- WETLAND BOUNDARY (WET)
- EDGE OF PAVEMENT
- EDGE OF GRAVEL
- OVERHEAD UTILITIES (OHW)
- CHAIN LINK FENCE
- FUEL PIPELINE (G)
- RAILROAD TRACK
- TREELINE

PLAN REFERENCES:

STANDARD BOUNDARY SURVEY ON PRINCES POINT ROAD, YARMOUTH, MAINE, MADE FOR RECORD OWNER ROMAN CATHOLIC BISHOP OF PORTLAND, DATED MARCH 18, 2009, PREPARED BY OWEN HASKELL, INC., RECORDED IN PLAN BOOK 211, PAGE 130 OF THE CUMBERLAND COUNTY REGISTRY OF DEEDS.

LOT DIVISION PLAN PREPARED FOR R.L. MORRISON EXCAVATING, INC., DATED NOVEMBER 15, 1997, PREPARED BY PHILIP REED, PLS, RECORDEDIN PLAN BOOK 197, PAGE 545 OF THE CUMBERLAND COUNTY REGISTRY OF DEEDS.

NOTES:

1) THIS PLAN DEPICTS CONDITIONS FOUND AND SURVEYED BY HALEY WARD ON MARCH 7, 2024.

2) THIS SURVEY IS ORIENTED TO THE MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD83 DATUM.

3) ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

FLOOD NOTE:

BY GRAPHIC PLOTTING ONLY THE SUBJECT PROPERTY HEREON IS SITUATED IN ZONE X AS DEPICTED ON THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NUMBER 23005C0541F WHICH BEARS AN EFFECTIVE DATE OF JUNE 20, 2014. THE MAP DOES NOT INDICATE THAT THE PROPERTY IS SUBJECT TO A SPECIAL FLOOD HAZARD AREA ASSOCIATED WITH THE 100 YEAR FLOOD.

UNDERGROUND UTILITIES NOTE:

THE LOCATION OF UNDERGROUND UTILITIES SHOWN HEREON WAS TAKEN FROM THE TOWN OF YARMOUTH GIS DATA BASE AND SHOULD BE CONSIDERED APPROXIMATE.

RESOURCE NOTES:

1. NATURAL RESOURCE FIELD SURVEYS WERE COMPLETED BY HALEY WARD INC. ON APRIL 18 AND MAY 10, 2023 ON THE SITE, AS SHOWN ON THIS PLAN.
2. WETLANDS WERE IDENTIFIED IN ACCORDANCE WITH 1987 CORPS OF ENGINEERS WETLAND DELINEATION MANUAL AND THE 2012 NORTHCENTRAL AND NORTHEAST REGIONAL SUPPLEMENT (VERSION 2.0). VERNAL POOL FIELD SURVEYS WERE COMPLETED IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS AND DEFINITIONS, AND THE MAWS VERNAL POOL SURVEY PROTOCOL. STREAMS WERE IDENTIFIED IN ACCORDANCE WITH STATE AND FEDERAL DEFINITIONS.
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new leaf energy
55 TECHNOLOGY DRIVE, SUITE 102
LOWELL, MA 01851
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FAX: (888) 678-8991
WWW.NEWLEAFENERGY.COM

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ENGINEERING | ENVIRONMENTAL | SURVEYING
120 MAIN STREET, SUITE 132
SACO, MAINE 04072
PH: (207) 283-9151
WWW.HALEYWARD.COM

NOT FOR CONSTRUCTION

STATE OF MAINE
DREW JOHN OLEHOWSKI
No. 16372
01/15/2025
LICENSED
PROFESSIONAL ENGINEER

SITE USE PERMIT SET
0 LAFAYETTE ST
YARMOUTH, ME 04096

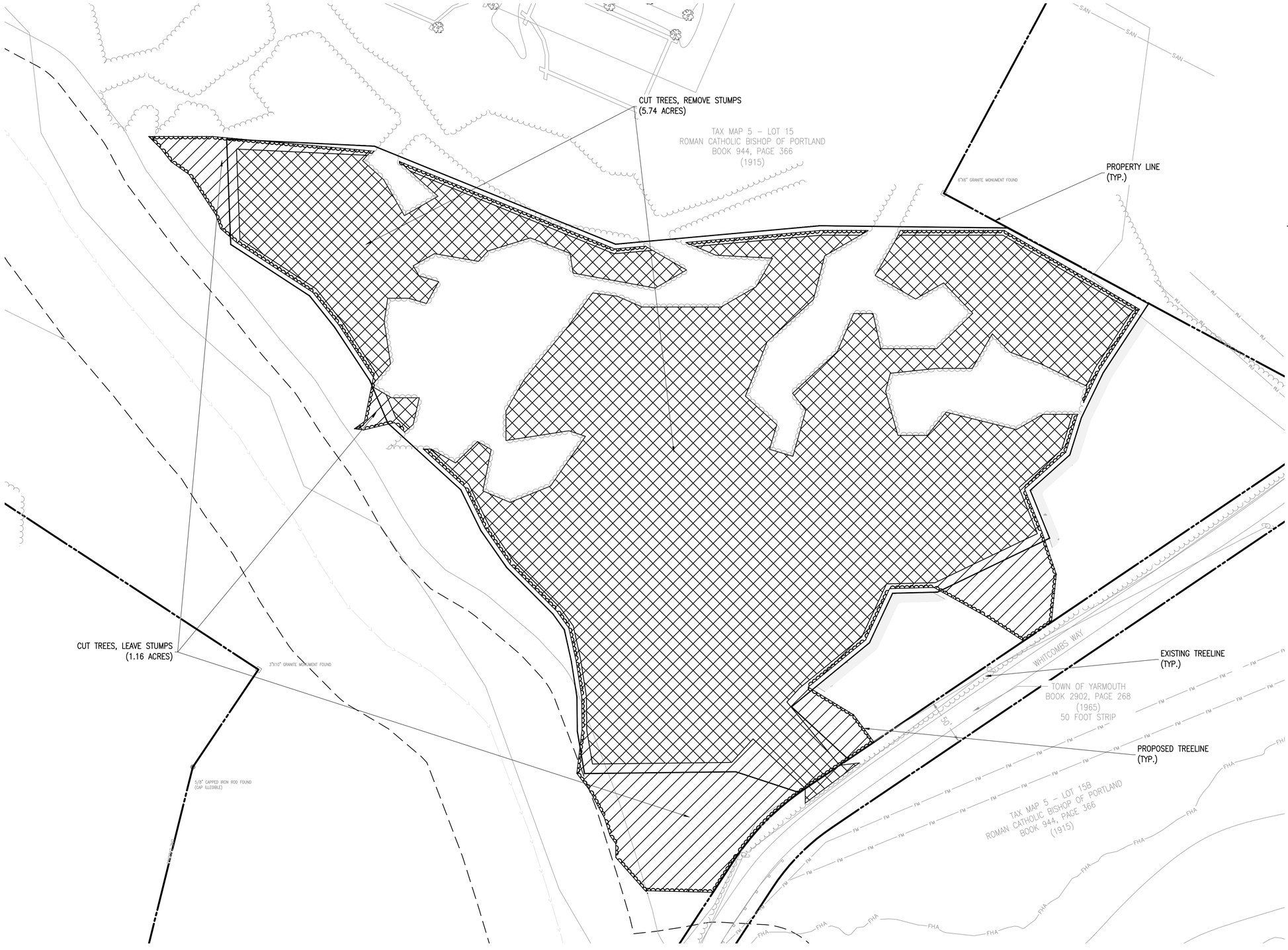
PROJECT NUMBER: 120-1226

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
0	01/15/25	PJM	DJO	SUP SET

SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

C-1.0

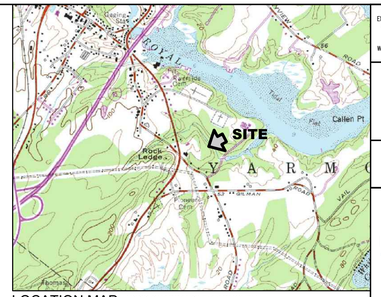
EXISTING CONDITIONS PLAN



TREE CLEARING PLAN

SCALE: 1" = 50'

0 50' 100'



LOCATION MAP: USGS QUADRANGLE: YARMOUTH
SCALE: 1"=2000'
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LEGEND

- ROAD (GRAVEL)
- FENCE LINE
- PROPERTY LINE
- FLOW DIRECTION
- WETLAND LINE/FLAG
- (E) MAJOR CONTOUR
- (E) MINOR CONTOUR
- 100 PROPOSED MAJOR CONTOUR
- 99 PROPOSED MINOR CONTOUR
- TREELINE
- SF SILT FENCE
- STM STORM PIPE
- MV MV ELECTRICAL TRENCH – MED. VOLTAGE
- LV LV ELECTRICAL TRENCH – LOW. VOLTAGE
- OHW OHW OVERHEAD ELECTRIC
- 23-23A ASSESSORS MAP–LOT
- SIGN
- UTILITY POLE (WITH GUY ANCHOR)
- FOUND REBAR PROPERTY MARKERS
- TREE CUTTING, STUMPS REMAIN
- TREE CLEARING, STUMPS REMOVED

NOTE: ITALIC FONTS INDICATE EXISTING CONDITIONS. STANDARD FONTS INDICATE PROPOSED CONDITIONS.

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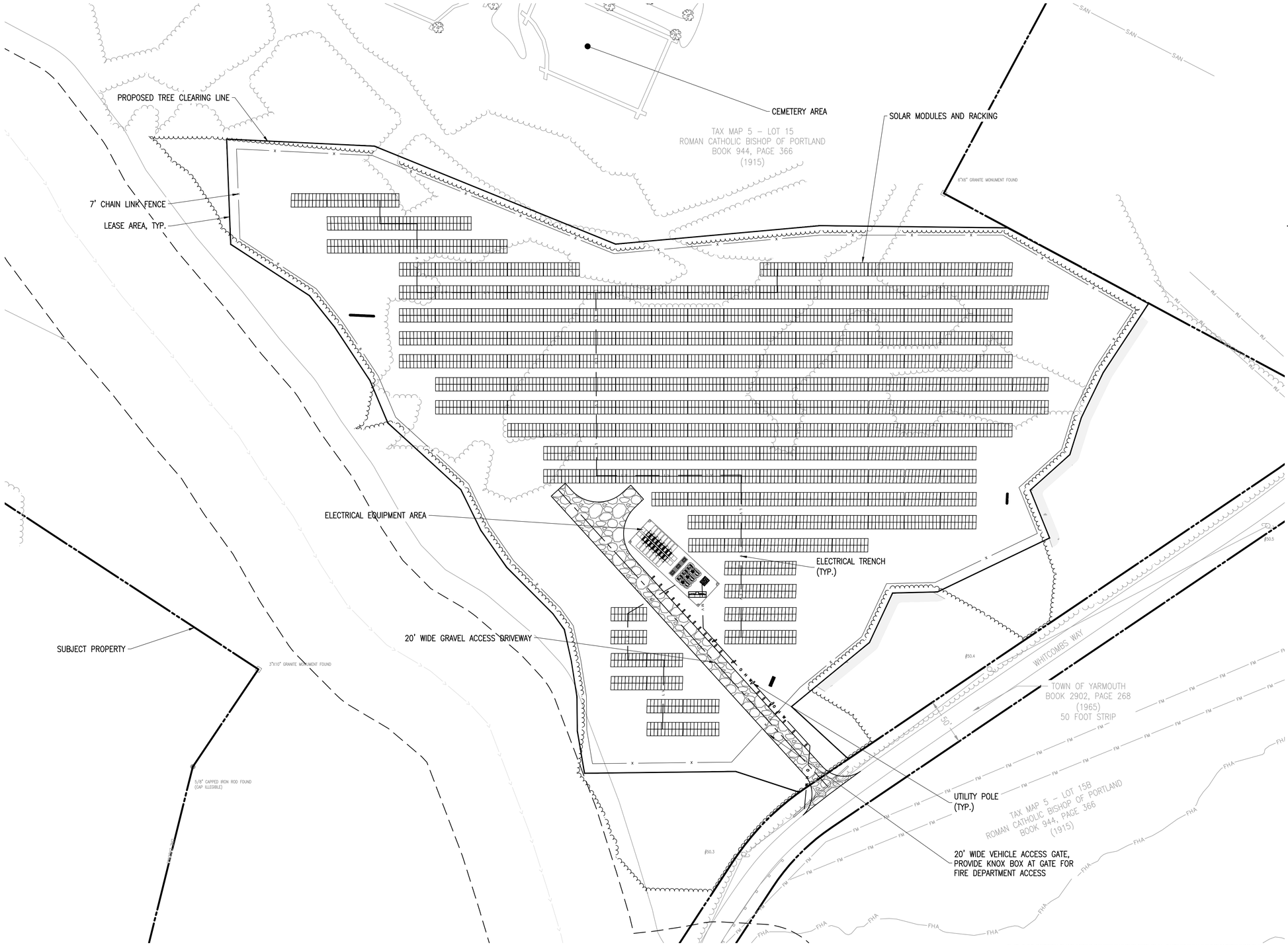
C-2.0

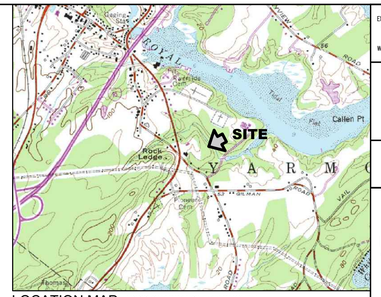
TREE CLEARING PLAN



SITE PLAN

SCALE: 1" = 50'

0 50' 100'



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- WETLAND LINE/FLAG
- (E) MAJOR CONTOUR
- (E) MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- TREELINE
- SILT FENCE
- STORM PIPE
- ELECTRICAL TRENCH – MED. VOLTAGE
- ELECTRICAL TRENCH – LOW. VOLTAGE
- OVERHEAD ELECTRIC
- 23–23A ASSESSORS MAP–LOT
- SIGN
- UTILITY POLE (WITH GUY ANCHOR)
- FOUND REBAR — PROPERTY MARKERS

NOTE: ITALIC FONTS INDICATE EXISTING CONDITIONS. STANDARD FONTS INDICATE PROPOSED CONDITIONS.

PARCEL INFORMATION		
MAP / LOT:	MAP 5, LOT 15	
LOT AREA (ACRES):	43.52	
ZONE OR DISTRICT:	MEDIUM DESITY RESIDENTIAL MDR	
EXISTING USE:	CEMETARY / VACANT	
FLOOD ZONE:	ZONE X	
WATER:	N/A	
SEWER:	N/A	
RECORD OWNER:	ROMAN CATHOLIC BISHOP OF PORTLAND	
SITE DEVELOPMENT DATA		
	SF	AC
EXISTING IMPERVIOUS	27,139	0.62
NEW PAVEMENT	13,192	0.30
NEW SOLAR RACKING FOOTINGS	20	0.00
NEW IMPERVIOUS:	13,212	0.30
TOTAL IMPERVIOUS:	40,351	0.93
DESIGN STANDARDS		
	REQ'D	PROVIDED
MINIMUM LOT WIDTH (FT)	130	1593 +/-
MINIMUM SETBACK, FRONT YARD (FT)	15	100
MINIMUM SETBACK, SIDE YARD (FT)	10	30
MINIMUM SETBACK, REAR YARD (FT)	15	348
MAXIMUM LOT COVERAGE (%)	N/A	0.02
PROJECT INFORMATION		
APPLICANT:	NEW LEAF ENERGY	
	ATTN: ANNIE CORNELL, PE.	
	55 TECHNOLOGY DRIVE	
	SUITE 102	
	LOWELL, MASSACHUSETTS 01851	
ENGINEER:	HALEY WARD	
	ATTN: DREW OLEHOWSKI, PE.	
	120 MAIN STREET	
	SUITE 132	
	SACO, MAINE 04072	

THIS IS TO CERTIFY THAT AFTER REVIEWING THE SITE PLAN SUBMISSION INFORMATION FOR THE PROJECT SHOWN ON THIS PLAN AND CONSIDERING EACH OF THE CRITERIA SET FORTH IN THE LAND USE CODE OF THE TOWN OF YARMOUTH, MAINE AND IN ACCORDANCE WITH THE CONDITIONAL USE APPLICATION REQUIREMENTS, THE UNDERSIGNED HAVE MADE FINDINGS OF FACT ESTABLISHING THAT THIS PLAN ALONG WITH ITS ADDITIONAL SUBMISSION INFORMATION HAS MET ALL THE CRITERIA SET FORTH AND THEREFORE THE SITE PLAN IS APPROVED.

APPROVED BY THE TOWN OF YARMOUTH PLANNING BOARD ON: _____

PLANNING BOARD SIGNED ON: _____

new leaf energy
55 TECHNOLOGY DRIVE, SUITE 102
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NOT FOR CONSTRUCTION

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DREW JOHN OLEHOWSKI
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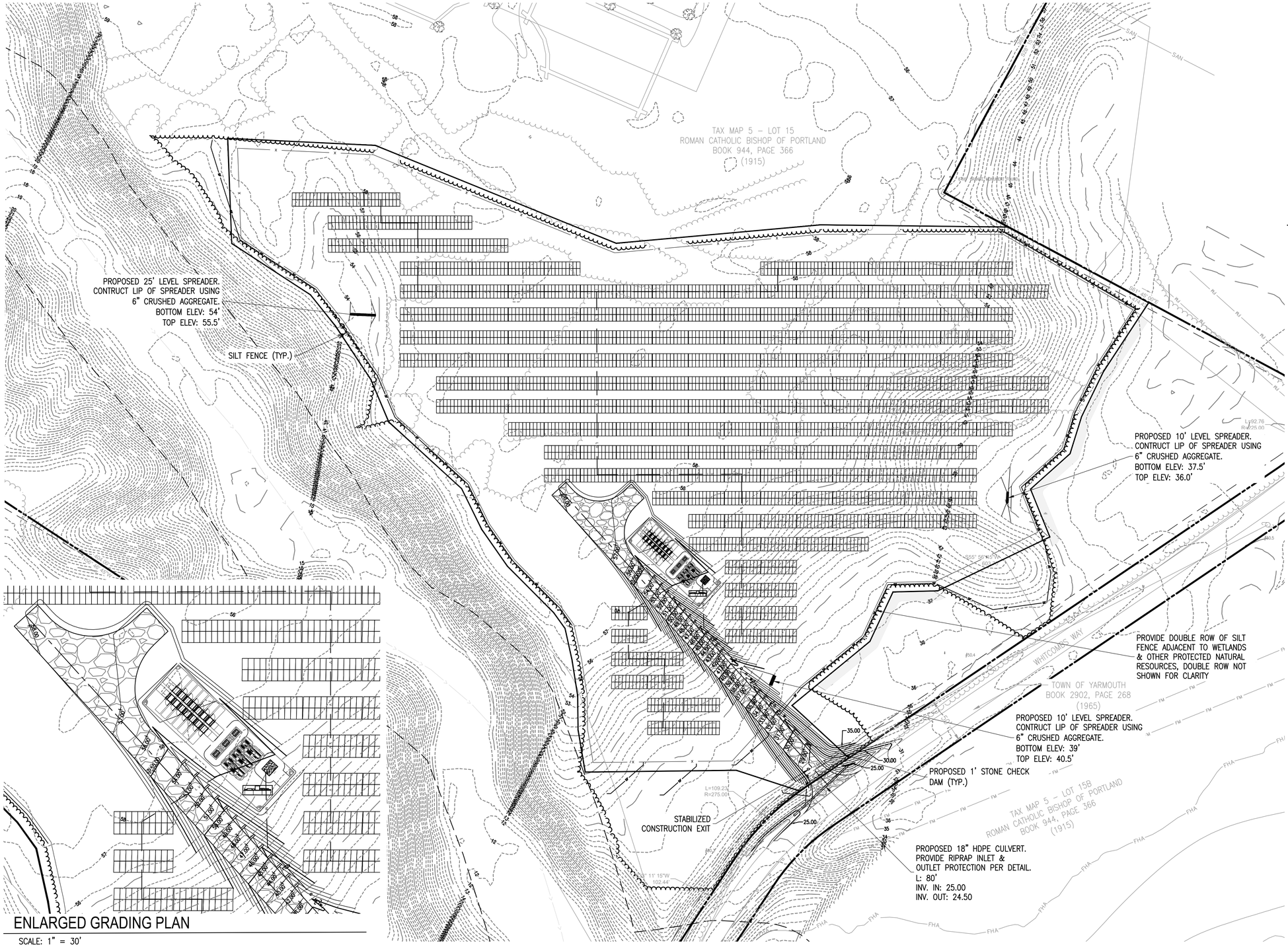
SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

C-3.0

SITE PLAN



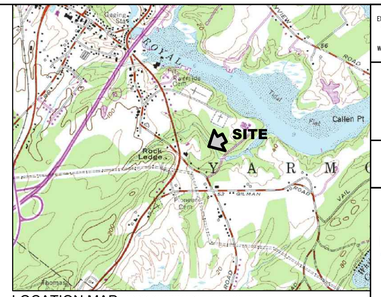
ENLARGED GRADING PLAN

SCALE: 1" = 30'

GRADING AND EROSION CONTROL PLAN

SCALE: 1" = 50'

0 50' 100'



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SCALE: 1"=2000'
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LEGEND

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- PROPERTY LINE
- FLOW DIRECTION
- WETLAND LINE/FLAG
- (E) MAJOR CONTOUR
- (E) MINOR CONTOUR
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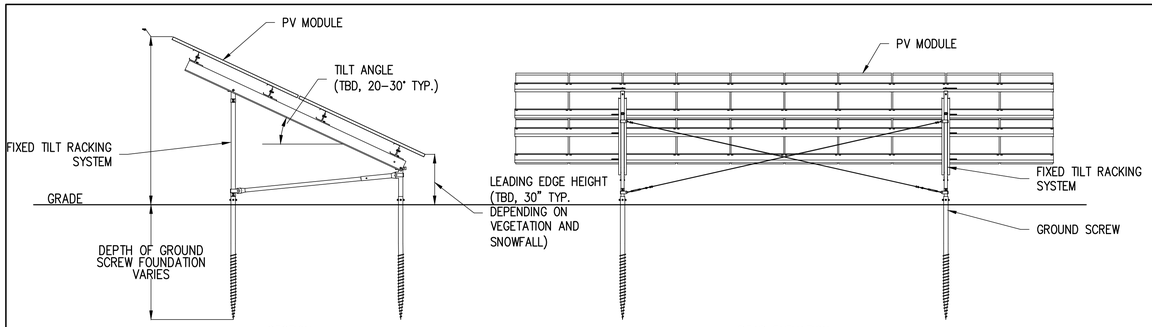
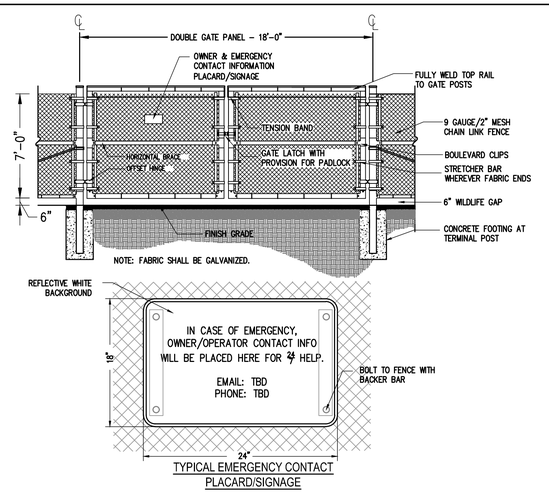
C-4.0
GRADING AND EROSION CONTROL PLAN



NOTES:
1. THE RACKING CONFIGURATION AND GROUND SCREW FOUNDATIONS SHOWN HERE ARE TYPICAL FOR A GROUND MOUNTED PV SYSTEM IN THIS REGION. THE SPECIFIC CONFIGURATION AND FOUNDATION DESIGN WILL BE DETERMINED BY OTHERS AS PART OF THE CONSTRUCTION SET OF DRAWINGS BASED ON THE SPECIFIED EQUIPMENT, RESULTS OF THE GEOTECHNICAL STUDY AND OTHER FACTORS. THE 2X10 TABLE SHOWN IN THIS DETAIL IS FOR GENERAL REFERENCE ONLY.
2. THE LEADING EDGE HEIGHT AND OVERALL SYSTEM HEIGHT ARE NOMINAL, ARE MEASURED FROM GRADE, VARY WITH CHANGES IN LOCAL TOPOGRAPHY, AND SHALL BE DETERMINED AS PART OF THE CONSTRUCTION SET OF DRAWINGS BASED ON FINAL MODULE AND RACKING SPECIFICATIONS.
3. THE MAXIMUM ALLOWABLE OVERALL SYSTEM HEIGHT SHALL BE GOVERNED BY CITY/TOWN BYLAWS AND/OR ZONING CODES.

7 TYPICAL RACK SECTION & REAR ELEVATION

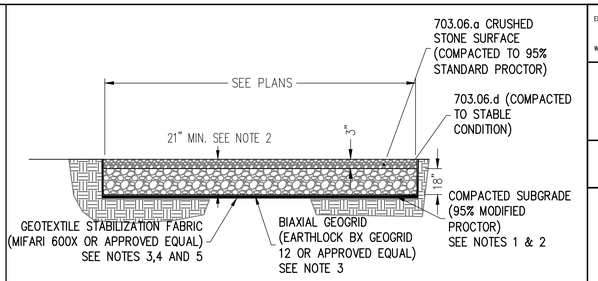
SCALE: NTS



4 VEHICLE GATE/PLACARD - WILDLIFE GAP

SCALE: NTS

XD_CIVIL_FENCE_VEHICLE GATE_7' 10-23-2018

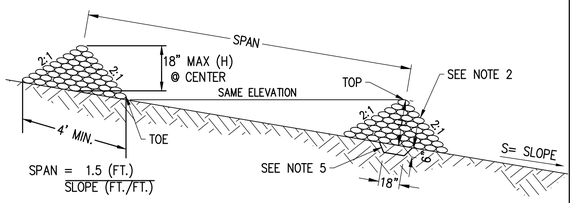


NOTES:
1. SUBCONTRACTOR SHALL EXCAVATE TO SUITABLE MATERIAL FOR SUBGRADE.
2. SUBCONTRACTOR SHALL COMPACT SUBGRADE TO PROVIDE SUITABLE SURFACE TO PLACE ROAD. REFER TO GEOTECHNICAL REPORT FOR SUBGRADE PREPARATION CRITERIA.
3. SUBCONTRACTOR SHALL FOLLOW MANUFACTURER INSTALLATION PROCEDURES.
4. WHERE OVERLAPPING OF GEOTEXTILE FABRIC IS REQUIRED, SUBCONTRACTOR SHALL OVERLAP A MINIMUM OF 24".
5. SUBCONTRACTOR SHALL REMOVE TEMPORARY CONSTRUCTION ACCESS ROADS, AND RESTORE TO PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE CEOR AND THE GOVERNING AGENCIES.
6. SUBCONTRACTOR SHALL INSTALL CONDUITS FOR ALL ELECTRICAL CONDUIT CROSSINGS PRIOR TO INSTALLATION OF THE GEOGRID MATERIAL. THE GEOGRID SHALL NOT BE HORIZONTALLY CUT ONCE INSTALLED.

1 GRAVEL ACCESS ROAD

SCALE: NTS

XD_CIVIL_GRAVEL_ROAD_IL 04-30-2019

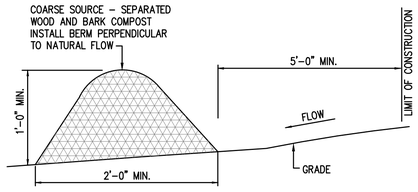


NOTES:
1. MAXIMUM DRAINAGE AREA £ 2 ACRES
2. STONE DITCH PROTECTION - 703.29
3. H=18" MAX @ CENTER
4. STONE SHALL BE PLACED ON A FILTER FABRIC FOUNDATION
5. INSTALL 6" DEEP CUT-OFF TRENCH BELOW
6. EXTEND THE STONE A MINIMUM OF 1.5' BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM

10 STONE CHECK DAM

SCALE: N.T.S.

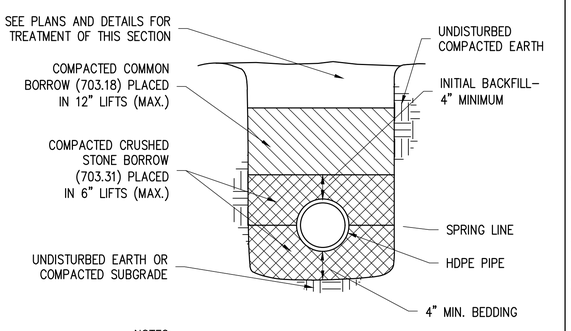
XD_CIVIL_CHECK DAM 01-18-2021



NOTE:
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).

8 EROSION CONTROL MIX BERM

(MAY BE USED AS AN ALTERNATE TO SILT FENCE OR PLACED UPGRADIENT OF SILT FENCE) SCALE: NTS

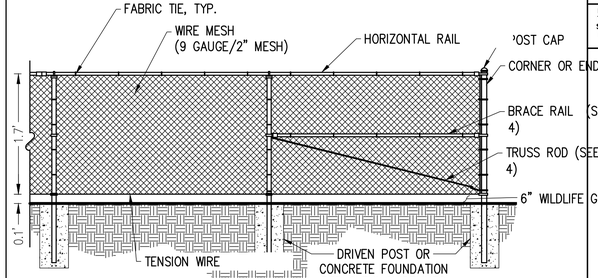


NOTES:
1. TRENCH EXCAVATION WIDTH TO ALLOW FOR FREE TRAVEL OF COMPACTION EQUIPMENT.
2. ALL COMPACTION TO A MINIMUM 95 PERCENT DRY DENSITY DETERMINED BY ASTM D1557 SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

5 HDPE DRAIN PIPE BEDDING

SCALE: NTS

XD_CIVIL_D_HDPE DRAIN PIPE BEDDING 06-28-2016

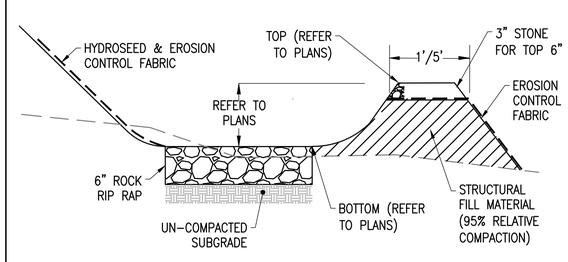


NOTES:
1. THE FENCE SHALL MEET OR EXCEED THE CHAIN LINK FENCE MANUFACTURER INSTITUTE (CLFMI) GUIDELINES AND RELATED FEDERAL SPECIFICATIONS FOR SECURITY CHAIN LINK FENCE MATERIALS AND INSTALLATION.
2. FENCE MATERIAL AND COMPONENTS SHALL BE GALVANIZED, UNLESS OTHERWISE NOTED.
3. THIS DETAIL NOT APPLICABLE FOR PRIVACY FENCE OR FENCE WITH SLATS.
4. ADJUSTABLE TRUSS ROD AND BRACE RAIL AT CORNER OR END POSTS ONLY, IF REQUIRED BY CLFMI GUIDELINES.

2 CHAIN LINK FENCE WITH WILDLIFE GAP

SCALE: NTS

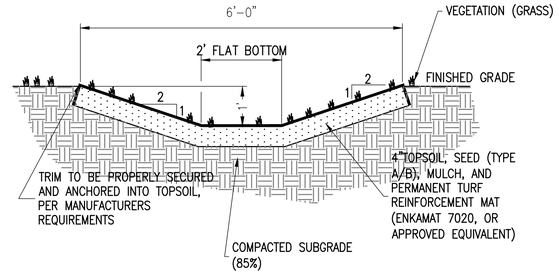
XD_CIVIL_FENCE_7'_CHAIN_LINK_WILDLIFE_GAP 07-02-2020



11 LEVEL SPREADER

SCALE: NTS

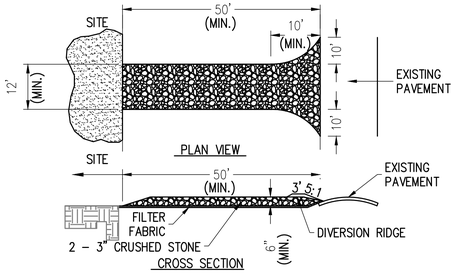
XD_CIVIL_DRAINAGE_LEVEL SPREADER 2016-03-16



9 GRASS-LINED SWALE

SCALE: NTS

XD_CIVIL_DRAINAGE_GRASS-LINED_SWALE_ME 02-16-2021



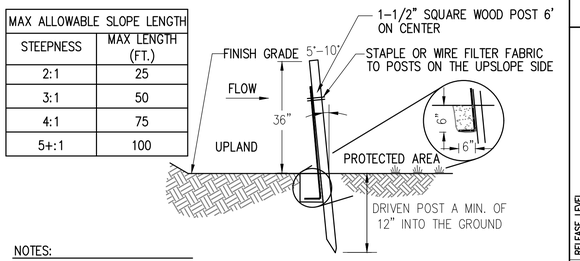
NOTE:
1. ENTRANCE/EXIT PAD SHOULD HAVE A LENGTH OF 50 FEET OF MORE AND A 12-FOOT MINIMUM WIDTH (OR AS APPROPRIATE TO CONTAIN THE WHEELBASE OF CONSTRUCTION VEHICLES PLUS 3FEET ON EITHER SIDE)
2. APPROPRIATE RECLAIMED CONCRETE MATERIAL MAY BE USED IN PLACE OF CRUSHED STONE.
3. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY. BERM SHALL BE PERMITTED. PERIODIC INSPECTION AND MAINTENANCE SHALL BE PROVIDED AS NEEDED.

6 STABILIZED CONSTRUCTION EXIT

SCALE: NTS

XD_CIVIL_STABILIZED CONSTRUCTION EXIT_ME 02-16-2021

MAX ALLOWABLE SLOPE LENGTH	
STEEPNESS	MAX LENGTH (FT.)
2:1	25
3:1	50
4:1	75
5+:1	100



NOTES:
1. MAX DRAINAGE AREA FOR OVERLAND FLOW SHALL NOT EXCEED 1/4 ACRE-FOOT PER 100 FEET OF FENCE.
2. FILTER FABRIC TO BE FASTENED SECURELY TO FENCE POST WITH WIRE TIES OR STAPLES. POST SHALL BE STEEL EITHER "T" OR "U" SHAPED OR HARDWOOD.
3. FILTER CLOTH SHALL BE FASTENED SECURELY WITH TIES SPACED EVERY 24" AT TOP AND MID-SECTION.
4. WIRE MESH AND FABRIC IS OPTIONAL.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 6 INCHES AND FOLDED. FILTER CLOTH SHALL BE FILTER X, MIRAFI 100X, STABILENKA T140N, OR APPROVED EQUAL.
6. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.
7. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SEDIMENT FENCE.

3 SILT FENCE

SCALE: NTS

XD_CIVIL_EROSION_SILT FENCE_P 2014-10-17

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NOT FOR CONSTRUCTION

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No. 16372
01/15/2025
LICENSED PROFESSIONAL ENGINEER

SITE USE PERMIT SET
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YARMOUTH, ME 04096

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
0	01/15/25	PJM	DJO	SUP SET

SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

PROJECT NUMBER: 120-1226

C-5.0

CIVIL DETAILS

EROSION CONTROL 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. SILT FENCE WILL BE INSPECTED, REPLACED AND/OR REPAIRED IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT OR LOSS OF SERVICEABILITY DUE TO SEDIMENT ACCUMULATION. AT A MINIMUM, ALL EROSION CONTROL DEVICES WILL BE OBSERVED WEEKLY.

3. DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT WILL BE RETURNED TO CONSTRUCTION SITE.

4. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE STABILIZED BY A SUITABLE GROWTH OF GRASS. ONCE A SUITABLE GROWTH OF GRASS HAS BEEN OBTAINED, ALL TEMPORARY EROSION CONTROL ITEMS SHALL BE REMOVED BY THE CONTRACTOR. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THEY ARE REMOVED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED, SEEDED, AND MULCHED IMMEDIATELY.

5. ALL DISTURBED AREAS WILL BE SEEDED WITH 2.5 LBS. RED FESCUE AND 0.5 LBS. RYE GRASS PER 1,000 SQUARE FEET AND MULCHED AT A RATE OF 90 LBS. PER 1,000 SQUARE FEET OR EQUIVALENT APPLICATION OF SEED AND MULCH.

6. A SUITABLE BINDER SUCH AS CURASOL OR TERRTACK WILL BE USED ON THE HAY MULCH FOR WIND CONTROL.

7. IF FINAL SEEDING OF DISTURBED AREAS IS NOT COMPLETED BY SEPTEMBER 15th OF THE YEAR OF CONSTRUCTION, THEN ON THAT DATE THESE AREAS WILL BE GRADED AND SEEDED WITH WINTER RYE AT THE RATE OF 112 POUNDS PER ACRE OR 3 POUNDS PER 1000 SQUARE FEET. THE RYE SEEDING WILL BE PRECEDED BY AN APPLICATION OF 3 TONS OF LIME AND 800 LBS. OF 10–20–20 FERTILIZER OR ITS EQUIVALENT. MULCH WILL BE APPLIED AT A RATE OF 90 POUNDS PER 1000 SQUARE FEET.

8. IF THE RYE SEEDING CANNOT BE COMPLETED BY OCTOBER 1st OR IF THE RYE DOES NOT MAKE ADEQUATE GROWTH BY DECEMBER 1st, THEN ON THOSE DATES, HAY MULCH WILL BE APPLIED AT 150 POUNDS PER 1000 SQUARE FEET.

9. INTERIOR SILT FENCES ALONG CONTOUR DIVIDING FLAT AND STEEP SLOPES, AREAS WITH DIFFERENT DISTURBANCE SCHEDULES, AROUND TEMPORARY STOCKPILES OR IN OTHER UNSPECIFIED POSSIBLE CIRCUMSTANCES SHOULD BE CONSIDERED BY THE CONTRACTOR. THE INTENT OF SUCH INTERIOR SILT FENCES IS TO LIMIT SEDIMENT TRANSPORT WITHIN THE SITE TOWARD THE PROTECTED CATCH BASIN INLETS TO MINIMIZE SEDIMENT REMOVAL REQUIRED BY THE EROSION CONTROL NOTE 9 PROTECTIONS AND EXTEND LIFE OF SUCH DEVICES.

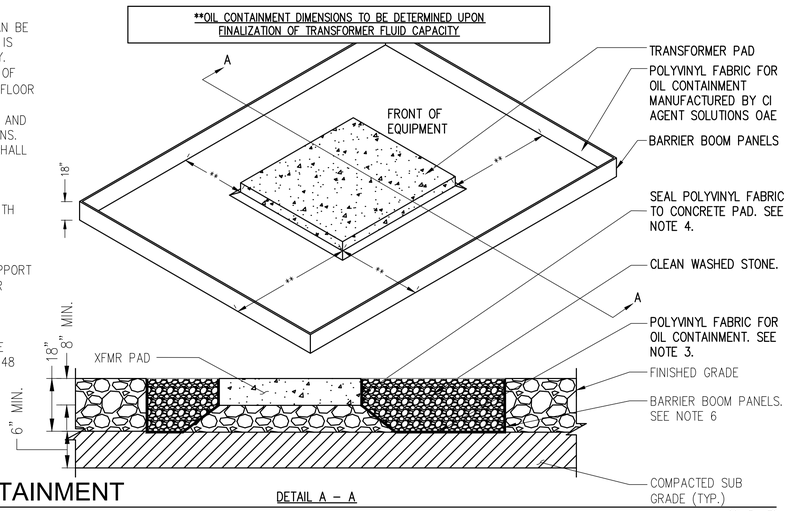
10. MEADOW BUFFERS WILL BE MOWED NO SHORTER THAN SIX INCHES, NO MORE THAN TWICE PER YEAR.

11. PERMANENT SEED MIXTURE: 83% CREEPING RED FESCUE, 17% RYE GRASS.

12. MINIMUM EROSION CONTROL MEASURES WILL NEED TO BE IMPLEMENTED AND THE CONTRACTOR WILL BE RESPONSIBLE TO MAINTAIN ALL COMPONENTS OF THE EROSION CONTROL PLAN UNTIL THE SITE IS FULLY STABILIZED. HOWEVER, BASED ON SITE AND WEATHER CONDITIONS DURING CONSTRUCTION, ADDITIONAL EROSION CONTROL MEASURES MAY NEED TO BE IMPLEMENTED. ALL AREAS OF INSTABILITY AND EROSION MUST BE REPAIRED IMMEDIATELY DURING CONSTRUCTION AND NEED TO BE MAINTAINED UNTIL THE SITE IS FULLY STABILIZED OR VEGETATION IS ESTABLISHED. A CONSTRUCTION LOG MUST BE MAINTAINED FOR THE EROSION AND SEDIMENTATION CONTROL INSPECTIONS AND MAINTENANCE

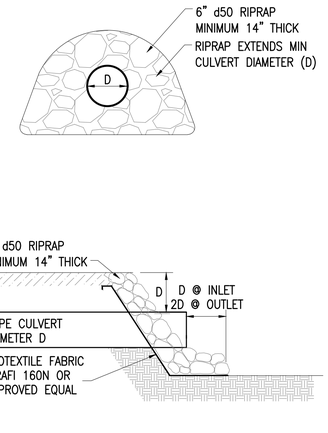
CONTRACTOR WILL BE RESPONSIBLE FOR FOLLOWING PROCEDURES FOUND IN THE "MAINE EROSION AND SEDIMENT CONTROL PRACTICES FIELD GUIDE FOR CONTRACTORS" (PUBLISHED MARCH 2015). THE PUBLICATION CAN BE FOUND AT: HTTP://WWW.MAINE.GOV/DEP/LAND/EROSION/ESCBMPS/INDEX.HTML

NOTES:
1. PRIOR TO INSTALLATION, SUBCONTRACTOR SHALL CONTACT CONTAINMENT DISTRIBUTOR, SO THAT A REPRESENTATIVE CAN BE ON SITE DURING CONSTRUCTION. DOCUMENTING INSTALLATION IS REQUIRED TO VALIDATE OIL CONTAINMENT PROTECTION POLICY.
2. EXCAVATION AREA TO BE MINIMUM OF 1' LARGER THAN SIZE OF CONTAINMENT UNIT AND MINIMUM OF 6" DEEPER THAN THE FLOOR OF THE CONTAINMENT UNIT.
3. CONTRACTOR SHALL SEAM POLYVINYL FABRIC WITH ADHESIVE AND INSTALL IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
4. AFTER ALL FLOOR SEAMING IS COMPLETE, SUBCONTRACTOR SHALL SEAL POLYVINYL LINER TO CONCRETE PAD USING BENTONITE GRANULAR CLAY IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
5. SUBCONTRACTOR SHALL SEAL ALL CONDUIT PENETRATIONS WITH FIELD CONSTRUCTED POLYVINYL BOOTS AND BRIMS PER MANUFACTURERS SPECIFICATIONS. A SINGLE BOOT SHALL BE PLACED AROUND GROUPS OF CONDUIT.
6. SUBCONTRACTOR SHALL PROVIDE 2" WOODEN STAKES TO SUPPORT THE CONTAINMENT WALLS. INSTALLATION OF OUTSIDE BARRIER BOOM USING STAKES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
7. PRIOR TO BACKFILLING THE FABRIC THE CONTRACTOR SHALL NOTIFY THE NEW LEAF ENERGY CIVIL ENGINEER AND PROVIDE SUBMITTAL FOR BACKFILL MATERIAL. PROVIDE A MINIMUM OF 48 HOURS NOTICE.



4 TRANSFORMER OIL CONTAINMENT
LARGE

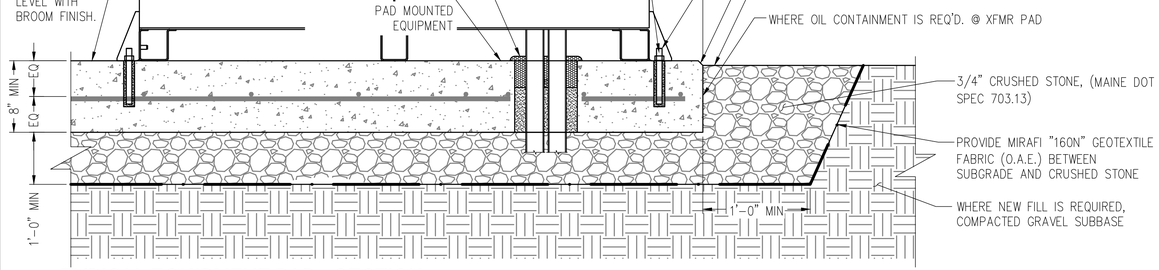
SCALE: NTS
XD_ELEC_TRANSFORMER OIL CONTAINMENT SINGLE LARGE 2020-7-1



1 CULVERT INLET/OUTLET PROTECTION DETAIL

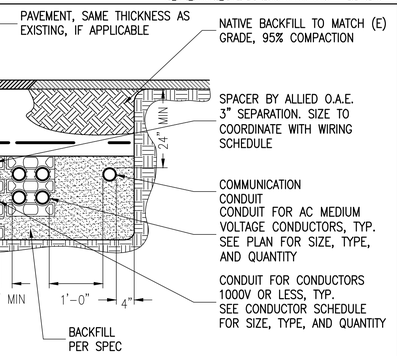
SCALE: NTS
XD_CIVIL_DRAINAGE_FLARED END SECTION RIP-RAP APRON 2021-02-16

NOTES:
1. REMOVE TOP SOIL AND ORGANIC MATERIAL FULL DEPTH WITHIN PAD BEARING AREA.
2. GRAVEL SUB-GRADE SHALL BE WELL GRADED GRAVEL SUITABLE FOR BEARING AND SHALL BE COMPACTED WITH A HEAVY VIBRATORY COMPACTOR (INSTALLED IN 8" MAX. LIFTS FOR ANY NEW GRAVEL FILL).



5 TYPICAL EQUIPMENT PAD - SECTION

Scale: NTS
XD_STRUC_EQUIPMENT PAD-SECTION_NY 2021-10-01



NOTES:
1. MAINTAIN A MINIMUM DISTANCE OF 1' BETWEEN CONDUIT WITH COMMUNICATION WIRING AND ANY CONDUIT WITH ELECTRIC POWER CONDUCTORS. POWER AND DATA CONDUITS MAY CROSS AND THE 1' MIN. MAY BE REDUCED FOR TRENCH SECTIONS LESS THAN 10' OR NEAR EQUIPMENT STUB-UPS.
2. BACKFILL IN ACCORDANCE WITH ELECTRICAL SPECIFICATION SECTION 312000.

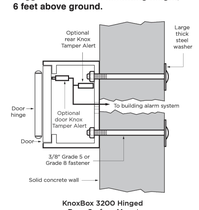
2 TYPICAL TRENCH

SCALE: NTS
XD_CIVIL_TYPICAL TRENCH 2021-02-24

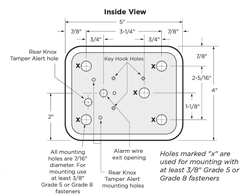
GENERAL MOUNTING INSTRUCTIONS

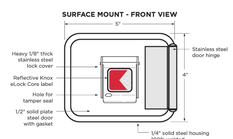
Suggested minimum mounting height, 6 feet above ground.

ATTENTION: KnoxBox is a very strong device that MUST be mounted properly to ensure maximum security and resist physical attack.



KnoxBox 3200 Hinged Door Surface Mount





3 KNOX BOX DETAILS

new leaf energy
55 TECHNOLOGY DRIVE, SUITE 102
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NOT FOR CONSTRUCTION

STATE OF MAINE
DREW JOHN OLEHOWSKI
No. 16372
01/15/2025
LICENSED PROFESSIONAL ENGINEER

SITE USE PERMIT SET
0 LAFAYETTE ST
YARMOUTH, ME 04096

PROJECT NUMBER: 120–1226

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
0	01/15/25	PJM	DJO	SUP SET

SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

C-5.1
CIVIL DETAILS

LEGEND

▬ ▬ ▬	WATERSHED BOUNDARY LINE
①	WATERSHED DESIGNATION
——→——→——	TIME OF CONCENTRATION FLOW PATH
50' SF	FLOW PATH DESCRIPTION
SF	SHEET FLOW
SC	SHALLOW CONCENTRATED FLOW
CF	CHANNEL FLOW
PF	PIPE FLOW

PRE DEVELOPMENT HYDROLOGY PLAN

SCALE: 1" = 60'

0 60' 120'

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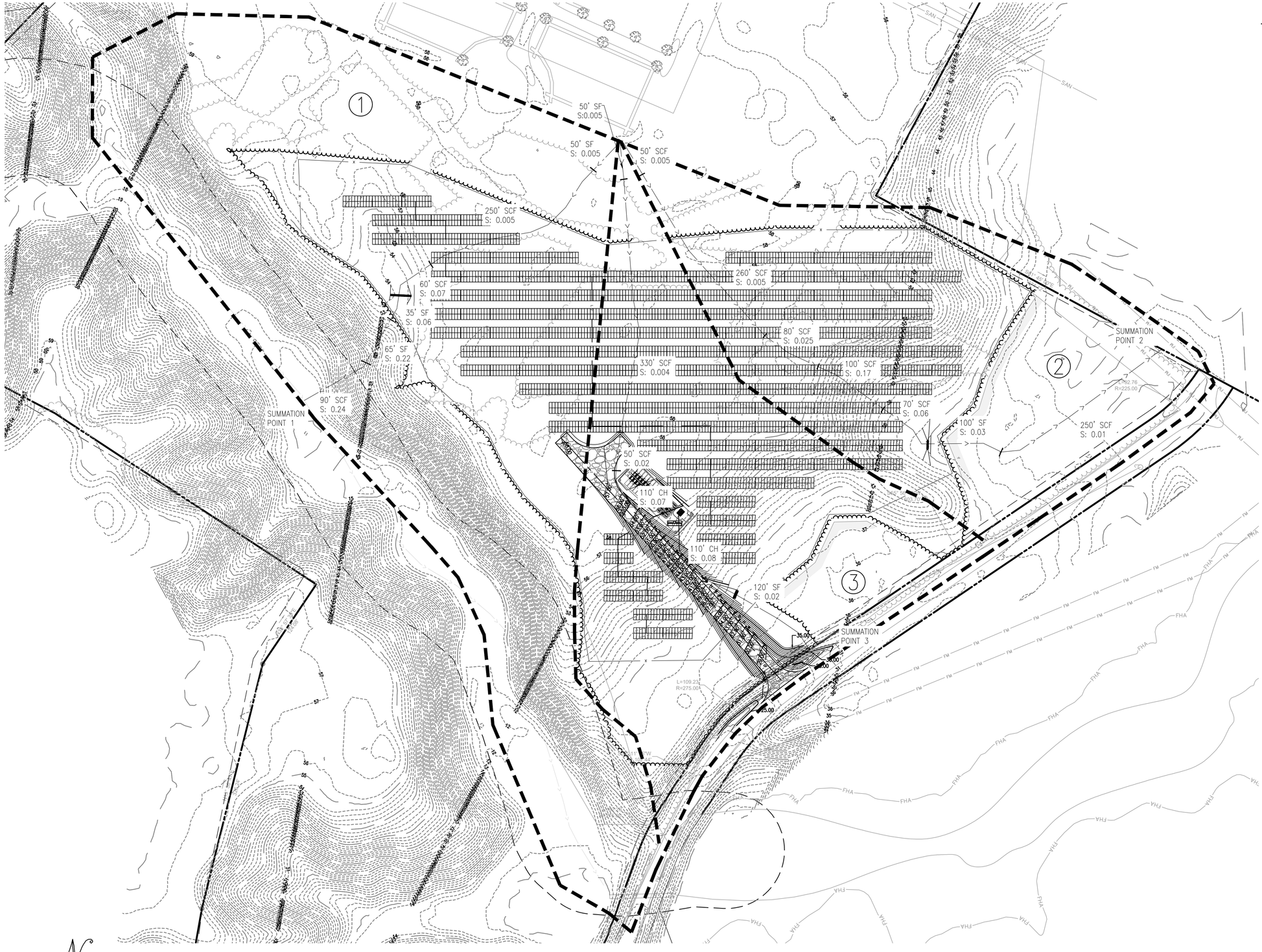
C-7.0
PRE DEVELOPMENT HYDROLOGY PLAN



LEGEND

▬ ▬ ▬	WATERSHED BOUNDARY LINE
①	WATERSHED DESIGNATION
——→——→——	TIME OF CONCENTRATION FLOW PATH
50' SF	FLOW PATH DESCRIPTION
SF	SHEET FLOW
SC	SHALLOW CONCENTRATED FLOW
CF	CHANNEL FLOW
PF	PIPE FLOW

POST DEVELOPMENT HYDROLOGY PLAN

SCALE: 1" = 60'

0 60' 120'

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C-7.1
POST DEVELOPMENT HYDROLOGY PLAN