Acheron Engineering, LLC

Engineering& Environmental & Consultants

www.AcheronEngineering.com

February 14, 2024

Raymond Planning Board
Alex Sirois, Code Enforcement Officer
Town of Raymond
401 Webbs Mills Road
Raymond, Maine 04071

RE: Allen Solar, LLC - Preliminary Minor Site Plan Review Application Submittal

Dear Planning Board Members & Alex,

On behalf of Allen Solar, LLC, a subsidiary of Mainely Solar, please find attached a follow up submission for the Allen Solar project. The intent of this submission is to present modifications to the proposed layout of the project for review and approval by the board. The modifications incorporate comments from the Board, Fire & Rescue Department, the public hearing, and concerns from residents of Raymond. Below are brief descriptions of the design modifications, protection of Thomas Pond water quality, and the status of the State permitting efforts.

Design Edits:

1. Plans have been revised to incorporate comments from the Fire & Rescue Department memo. Comments not addressed include, E911 address and access easement. Allen Solar will apply for the E911 address and establish an access easement as an approval condition. Acheron will submit the fire lane AutoTurn results and suppression system hydraulic design calculation directly to the Fire & Rescue Department as requested.

2. To address the proximity of the PV panels to the abutters to the north, the number of PV panels have been reduced by 168, allowing for adjustments to the array layout. Adjustments include increasing the PV panel setback from 30 feet to 70 feet along the northern boundary and moving the fence approximately 40 feet to the south from the northern boundary. The minimum rear structure setback in the Rural Residential (RR) zone is 20 feet and this adjustment will be 3.5 times the minimum required by the land use ordinance.

3. The proposed fence has been revised from a vinyl coated chain link fence to an agricultural style fence with wooden post.

4. The stormwater model was revised to include comments from the initial review of the project. A third point of analysis (3L) was added to evaluate peak runoff rates due to the change in land cover for the solar field.

Water Quality Impacts:
Mainely Solar has received comments and requests from abutters. Some of these comments have been via the Raymond staff and some have reached out directly to Mainely Solar. After review of the

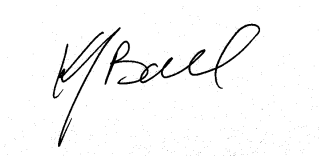
comments, the residents are concerned about the impact of the water quality of Thomas Pond. Mainely Solar and the landowners share this concern. Mainely Solar is owned and operated by the Fowlers who are residents of Casco in the Sebago Lakes region and share similar values as the residents of Raymond. The landowners operate a marina in the town of Raymond and water quality has a direct impact on the business. Evidence of this concern can be found in the stormwater management design for the project and summarized below:

1. Per the Raymond land use ordinance and the General Standards within Chapter 500 of the Maine Department of Environmental Protection (MDEP) rules, the project is required to provide treatment of stormwater from 95% of the project's impervious area and 80% of the developed area. As demonstrated in the stormwater management plan the project has been designed to provide stormwater treatment for 100% of the project's impervious area and 86% the developed area.
2. The design does not apply the linear portion of a project exemption from the general standards. This exemption allows the stormwater treatment levels to be reduced to 75% of the impervious area and 50% of the developed area associated with the access road.
3. The MDEP has listed Thomas Pond as a waterbody most at risk from new development. Large projects within the Thomas Pond Watershed must meet the phosphorus standard in Chapter 500. Although the Allen Solar project is not required to meet the phosphorus standard it does. Acheron applied the phosphorus standard to the design as presented and the phosphorus export is 1.5 times less than allowed by the standard. Please see the attached MDEP phosphorus worksheets.
4. Last, it is important to point out that the Allen Solar project will have less impact on water quality than if it were a residential development. The project will not utilize fertilizer, herbicides, or insecticides. A wastewater subsurface disposal system is not required to support the project eliminating the chance for discharge of nitrates to Thomas Pond.

Allen Solar and Acheron met with the Maine Department of Environmental Protection on Jan 8th. During the meeting the group identified some minor edits required prior to submitting the DEP stormwater permit & NRPA PBR applications. These edits have been incorporated in this submittal. Allen Solar intends to file the applications as soon as next week after performing the required public notification.

We appreciate the assistance and cooperation of the Town staff and Planning Board addressing these comments. If you have any questions or concerns, please contact me.

Respectfully Submitted,
Acheron Engineering



Kirk Ball, PE 11681

Cc: David Fowler
Lucy Fowler

Enclosure: DEP Phosphorus Worksheets

Worksheet 1 - PPB calculations

Project Name: Allen Solar

Lake Watershed: Thomas Pond

Town: Raymond

Standard Calculations

Watershed per acre phosphorus budget (Appendix C)	**PAPB**	0.023	lbs P/acre/year
Total acreage of development parcel:	**TA**	29.43	acres
NWI wetland acreage:	**WA**	1.64	acres
Steep slope acreage:	**SA**	0	acres
Project acreage: A = TA - (WA+ SA)	**A**	27.79	acres
Project Phosphorus Budget: PPB = P x A	**PPB**	0.6392	**lbs P/year**

Small Watershed Adjustment

If Project Acreage (A) is greater than the threshold acreage for the small watershed threshold (SWT, from pertinent lake and town info in the table in Appendix C), calculate an alternative PPB using the analysis below and use this value if it is less than the the Standard Calculation PPB.

Small Watershed Threshold (Appendix C):	**SWT**	56	acres
Project acreage:	**A**	27.79	acres
Allowable increase in town's share of annual phosphorus load to lake (Appendix C):	**FC**	5.23	lbs P/year
Area available for development (Appendix C):	**AAD**	644	acres
Ratio of A to AAD (R=A/AAD)	**R**	N/A	

Project Phosphorus Budget

If R < 0.5,	PPB = [(FC x R)/2] + [FC/4]	**PPB**	N/A	**lbs P/year**
If R> 0.5,	PPB = FC x R	**PPB**	N/A	**lbs P/year**

Worksheet 2
Pre-PPE and Post-PPE Calculations

Calculate phosphorus export from development for before and after treatment
Use as many sheets as needed for each development type (commercial, roads, residential lots, etc.)

Project name: Allen Solar **Development type**: Commercial Solar Sheet # 2

Land Surface Type or Lot #(s) with description	Acres or # of lots	Export Coefficient from Table 3.1 Table 3.2	Pre-treatment Algal Av. P Export (lbs P/year)	Treatment Factor for BMP(s) from Chapter 6	Post-treatment Algal Av. P Export (lbs P/year)	Description of BMPs
Gravel Access & Eq. Pad	0.5072	1.75	0.8876	0.25	0.2219	Lined Underdrained Soil Filters
Ditches & tie in slopes	0.8638	0.2	0.1728	0.25	0.0432	Lined Underdrained Soil Filters
Boat Storage	0.2273	0.5	0.1137	1	0.1137	N/A
			0	1	0	
			0	1	0	
			0	1	0	
			0	1	0	
			0	1	0	
			0	1	0	
			0	1	0	
		Total Pre-PPE (lbs P/year)	1.1740	**Total PostPPE (lbs P/year)**	0.3787	

WORKSHEET 4 - PROJECT PHOSPHORUS EXPORT SUMMARY

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

Project Name: Allen Solar

Project Phosphorus Budget - Worksheet 1	**PPB**	0.6392	lbs P/year
Total Pre-Treatment Phosphorus Export - Worksheet 2	**Pre-PPE**	1.1740	lbs P/year
Total Post-Treatment Phosphorus Export - Worksheet 2	**Post-PPE**	0.3787	lbs P/year
Total Phosphorus Mitigation Credit - Worksheet 3	**TMC**	0.00	lbs P/year
Project Phosphorus Export (Post-PPE - TMC)	**PPE**	0.3787	lbs P/year

Is the Project Phosphorus Export ≤ the Project Phosphorus Budget? (PPE≤PPB)

*If **YES**, PPE is less than or equal to PPB and the project meets its phosphorus budget. If **NO,** PPE is greater than PPB, more reduction in phosphorus export is required or the payment of a compensation fee may be an option*	YES
The amount of phosphorus that needs further treatment or compensation	lbs P/year

Has Project Phosphorus Export been sufficiently reduced? *Is (Pre-PPE - Post-PPE)/Pre-PPE greater than 0.60?*

*If **YES**, in some watersheds the compensation fee is an available option. If **NO**, more treatment must be provided. PPE must be further reduced.*	
*The post-treatment phosphorus export must be less than 40% of the pre-treatment export (Post-PPE < 0.4*Pre-PPE)*	%

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

If Project Export has been reduced by greater than 60% and less than 75%, $25,000 per pound minus $833 per 1% Percent Export	
If Project Export has been reduced by greater than 75%, $12,500 per pound minus $500 per 1% Project Export	

ALLEN SOLAR POWER, LLC

ROOSEVELT TRAIL, RAYMOND, MAINE

STORMWATER MANAGEMENT PLAN

Submitted by:

MAINELY SOLAR
143 HIGHLAND SHORES ROAD
CASCO, MAINE 04015

Prepared by:

Acheron Engineering, LLC
320 Gogan Road
Benton, Maine 04901
(207) 341-2590

DATE:

FEBRUARY, 2024 REVISED

This Stormwater Management Plan addresses each applicable criterion set forth in the of Maine, Department of Environmental Protection, Chapter 500, Stormwater management and Town of Raymond, Land Use Ordinance §350-6.11, §300-9.24.C and §300-10.4 (3)(n).

1.0 Development Description

Location: Allen Solar Power, LLC proposes to develop a 1 +/- megawatt community scale solar facility that will occupy approximately 6.8 acres and is in the Town of Raymond, Maine. The project parcels total approximately 29 acres in size. Parcels are identified by the Town as Map 4, Lots 68 and 68A. Please refer to the Appendix G for survey plan of the parcels Appendix A for the site location map.

Land Cover & General Topography: The parcel topography is consider rolling with slopes in the north, south, east, and west directions. Land cover within the parcel boundary is predominately forested, with two residential structures, located on the south end of lot 68A. A boat storage area with a crushed stone surface and paved driveway currently exists on lot 68. The project area proposed is considered undeveloped and forested. Trees within the proposed project area and parcel have recently been selectively harvested. The project area topography includes grades in the 4 to 15% range in the northwest direction.

Soils: Soils within the parcel boundaries and project area were obtained from the United States Agriculture and Natural Resource Conservation Service (NRC) web soil survey. Soil types names and description are list in the table below, boundaries are delineated on site plans attached, and a NRCS custom soils report and BMP test pit report can be found in Appendix D

Soils Map Unit Symbol	Map Unit Name	HSG
HhB	Hermon sandy loam 0-8% percent slopes, very stoney	A
HhC	Hermon sandy loam 8-15% percent slopes, very stoney	A
WsB	Woodbridge very stoney fine sandy loam, 0-8%	C

Surface Waters: Surface waters within the parcel includes; scrub-shrub, isolated forested, wetlands, and vernal pools, two of which have been classified as significant. Please see the Protected Natural Resource report prepared by Watershed Resource Consultants for specific details and classifications.

Downstream Ponds or Lakes and Flooding: The project area is within the watershed of Thomas Pond which is listed as a waterbody most at risk of development in Chapter 502. The project area is not within an identified flood zone per Flood Insurance Rate Map (FIRM), Town of Raymond, Maine, community-panel number 230205 0015 B, panel 15 of 20. The referenced FIRM map is attached as Appendix E.

Alterations to Land Cover: Proposed alterations to landcover include, clearing and grubbing the project area. Construction of a gravel access driveway to the project area that includes, grading approximately to support solar panel installation, construction of a solar equipment pad, and construction of two underdrained soil filters for stormwater treatment. The specific proposed and existing alterations since November, 2005 are presented below.

Land Alteration Table

Alteration Identifier	Description	Existing or Proposed	Impervious Area (sf)	Landscaped Area (sf)	Developed Area (sf)
A	Paved driveway to east abutter	Existing	2,556	0	2,556
B*	Boat storage - crushed stone surface	Existing	9,900	0	9,900
C	Solar field gravel access driveway	Proposed	19,368	37,627	56,995
D	Solar equipment pad	Proposed	160	0	160
E	Solar panel racking support posts	Proposed	10	0	10
		Total	31,994	37,627	69,621
* Considered impervious area for the purpose of determining jurisdictional thresholds					

Assumptions:

1. Impervious area associated with solar panel rack support post are self-buffering. The solar field will be maintained as a meadow by limiting the mowing to no more than two times per year.
2. The existing crushed stone surface of the boat storage area is considered landscaped/developed area. The crushed stone is permeable and the hydraulic soil gradient (HSG) is classified as HSG A and "somewhat excessively drained."

2.0 Basic Standard Submission

Based on the land alteration table the project the Basic Standard of Chapter 500 apply to the project. Erosion and sedimentation control plan details and notes can be found on the design plans located in Appendix G. See Appendix B for the Erosion & Sedimentation Control Inspection and Maintenance Plan.

3.0 General Standards Submission

The proposed and existing impervious area will total more than 20,000 square feet of impervious area but less than 3 acres of impervious and less than 5 acres of developed within a watershed most at risk of development. As a result, the General Standards apply to the project. The General Standards require that the project must provide stormwater treatment of no less than 95% of the impervious area and 80% of the developed area. To meet the standard two underdrained soil filters are proposed. The design of the filters is based Chapter 7.1 – Grassed Underdrained Soil Filters of the Maine Stormwater Management Design Manual, Volume I, dated March, 2016. As proposed the project will provide stormwater treatment for 100% of the proposed and existing impervious area and 86% of the existing and proposed developed area. Please refer to the Water Quality Treatment Table below and the stormwater quality calculations in Appendix C for specific details.

Water Quality Treatment Table

Area Description	Impervious Area (SF)	Developed Area (SF)	Impervious Area Treated (SF)	Developed Area Treated (SF)	BMP
Project Access Drive, STA 0+00 to 6+40	11,951	39,466	11,951	39,466	SFA
Project Access Drive, STA 6+40 to 9+80	7,417	17,529	7,417	17,529	SFB
Concrete Equipment Pad	160	160	160	160	SFB
Solar Panel Racking Support Posts	10	10	10	10	Self Buffering
Boat Storage Area	0	9,900	0	0	N/A
Residential Paved Driveway to East	2,556	2,556	2556	2556	N/A
Total	22,094	69,621	22,094	59,721	
		Percent Treated	**100%**	**86%**	

4.0 Flooding Standards Submission:

As proposed the project does not include 3 acres or more of impervious area or 20 acres or more of developed area and is not required to meet the flooding standard in Chapter 500. However, the Town of Raymond Land use Ordinance includes the requirement that a project shall be designed so that the post-development stormwater peak runoff does not exceed the pre-development stormwater peak runoff for the 2yr, 10yr and 25yr, 24-hr storm events.

The hydrology model for the proposed project was completed using HydroCad. Runoff curve numbers were determined by SCS published charts (contained within the HydroCad program) and the proposed site development soil types determined by NRCS. Time of concentration flow values were determined from site topography maps and the type of ground cover. Please refer to the attached HydroCad reports in Appendix F for additional information on specific assumptions utilized in the model.

The 24-hr storm type and rain fall values used for modeling were acquired form Appendix H of Chapter 500 for Cumberland County SE (North Windham Area) and listed in the table below.

24-hour Duration Rain Fall Amounts		
Storm Type	**Return Period**	**Storm Depth (in)**
III	2-yr	3.1
III	10-yr	4.6
III	25-yr	5.8

Modeling was performed for the areas where proposed land alterations are proposed. Results of the runoff analysis are presented in the table below.

Peak Stormwater Runoff Rate Table			
Point of Analysis	**Storm Frequency (yr)**	**Existing Conditions Runoff (cfs)**	**Proposed Conditions Runoff (cfs)**
1L	2	0.1	0.04
	10	1.91	0.90
	25	5.46	4.77
2L	2	0.00	0.00
	10	0.06	0.02
	25	0.34	0.14
3L	2	0.06	0.03
	10	1.54	1.03
	25	4.62	3.49

Model results predict that the peak storm runoff from the fully developed solar project will be the same or less than the existing condition for the 2-yr, 10-yr and 25-yr storm events. Detailed HydroCAD model reports can be found in Appendix F of this plan and details of model inputs and results can be found on the stormwater management plans in Appendix G.

5.0 Plan Summary:

Below is a summary of how the project meets the State and Local stormwater standards as designed:

Basic Standard: As submitted, construction activity associated with the project, will not impede or otherwise alter drainageways so as to have an unreasonable adverse impact on a wetland or waterbody, or an adjacent downslope parcel. Project plans includes details and specifications for erosion control measures. Including temporary stabilization, mulch, buffers, stormwater channels and winter construction. The attached, Erosion and Sedimentation Control, Inspection and Maintenance Plan, provides detail inspection, maintenance, and housekeeping procedures.

General Standards: As designed, the project provides stormwater treatment for 100% of the proposed impervious area and 86% of the developed area. BMPs designed to achieve the treatment level are two grassed underdrained soil filters (SFA & SFB).

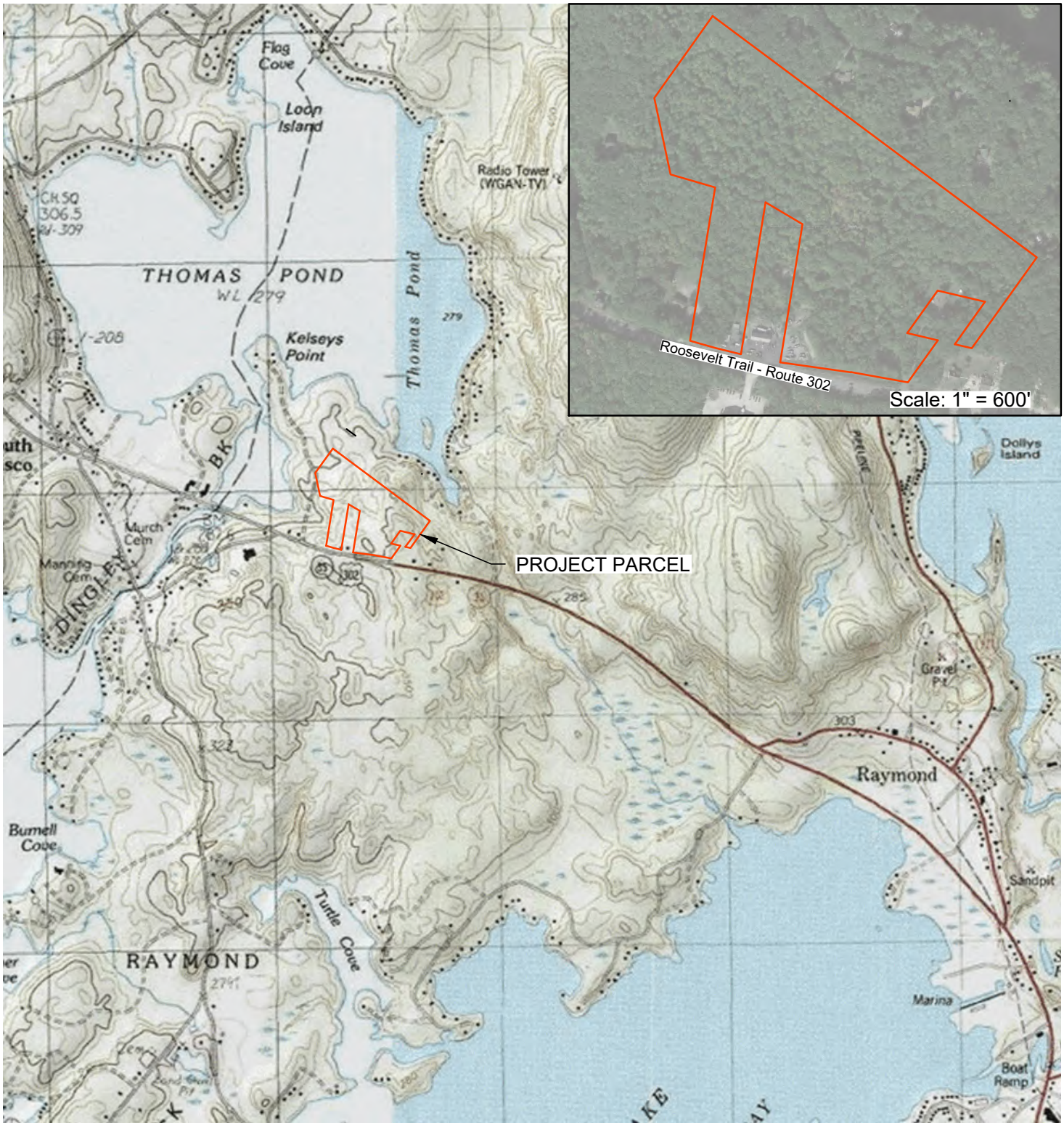
Flooding Standard: Peak stormwater runoff from the proposed project will equal or be less than the existing peak runoff rates for the 2-yr, 10-yr and the 25-yr storm events.

Prepared By:

Acheron Engineering, LLC

Kirk Ball, ME PE #11681

Appendix A
Site Location Plan & Photos



0 2000' 4000' 6000'

Scale: 1" = 2,000'

Do Not Use for Construction
For Regulatory Review Only

Site Location Map

Mainely Solar, LLC.
143 Highland Shores Road
Casco, Maine

Job No.: MS001	Scale: As Noted
Date: 8/24/2023	Sheet: 1

Facility Name:	Site Location:
Allen Solar	Raymond, Maine

Phot No.	Date:
1	`2023

Photo Description:

Solar Facility Project area.

Facility Name:	Site Location:
Allen Solar	Raymond, Maine

Phot No.	Date:
2	`2023

Photo Description:

Solar Facility Project area.

Facility Name:	Site Location:
Allen Solar	Raymond, Maine

Phot No.	Date:
3	`2023

Photo Description:

Drone Image

Facility Name:	Site Location:
Ellsworth Demo Disposal	Raymond, Maine

Phot No.	Date:
4	`2023

Photo Description:

Drone Image

Facility Name:	Site Location:
Allen Solar	Raymond, Maine

Phot No.	Date:
5	2023

Photo Description:
Existing Driveway

Facility Name:	Site Location:
Allen Solar	Raymond, Maine

Phot No.	Date:
6	`2023

Photo Description:
Existing boat storage area.

Appendix B
Erosion, Sedimentation Control Inspection & Maintenance Plan

EROSION AND SEDIMENTATION CONTROL
INSPECTION AND MAINTENANCE PLAN

ALLEN SOLAR
ROOSEVELT TRAIL, RAYMOND, MAINE

Prepared by:

Acheron Engineering, LLC
153 Main Street
Newport, Maine 04953
207- 341-2590

DATE:

FEBRUARY, 2024

1.0 Introduction

The purpose of this plan is to establish an inspection and maintenance process to employ during construction of the project and is intended to meet the requirements set forth in Chapter 500, Section 4(B) of the Stormwater Management Rules. The following section includes:

- A description of the project.
- Responsible parties for implementing the plan.
- Inspection and maintenance procedures during construction.
- Inspection and maintenance procedures after construction

This plan was prepared by or under the supervision of, Kirk Ball, P.E., Acheron Engineering, 153 Main Street Newport, Maine 04953.

2.0 Project Description

The Allen Solar project the construction of a small solar power generation facility that will occupy approximately 8.4 acres of land.

The scope of work includes but not limited to:

1. Clearing approximately 8.4 acres of forested area.
2. The construction of a 980 foot gravel access drive with hammerhead turnaround.
3. Installation of solar panels and racking system.
4. Installation of connection power lines below grade.

Erosion and Sedimentation Control BMPs include:

- Construction Entrance,
- Soil Filters used as sediment basin during construction of access drive,
- Sediment barriers (silt fence or erosion control mix berms),
- and stone check dams.

The stormwater management BMPs includes two grassed underdrained soil filters (SFA & SFB). Please Refer to design plans by Acheron Engineering for specific locations of the BMPs.

3.0 Responsible Parties

During construction General Contractor retained by Allen Solar will be responsible to ensure that the inspections are performed as described in the following sections. Following Construction, Allen Solar will be responsible for overseeing or conducting the inspections and record keeping as described in Section 5. Recertification requirement, within three months of the expiration of each five-year interval from the date of issuance of the permit, the permittee shall certify the following to the Department:

1. All areas of the project site have been inspected for areas of erosion, and appropriate steps have been taken to permanently stabilize these areas.
2. All aspects of the stormwater control system are operating as approved, have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the system, or portions of the system, as necessary.
3. The stormwater maintenance plan for the site is being implemented as approved by the Department, and the maintenance log is being maintained.

Owner Contact Information:

David Fowler
Allen Solar Power, LLC
143 Highland Shores Road
Casco, Maine
Tel. 207-461-0666

General Contractor:
TBD

4.0 Inspection and Maintenance During Construction

This plan applies to all temporary and permanent erosion control features/structures. During construction all erosion control structures that remain in place and stormwater features shall be inspected weekly, or after each rainstorm producing 1" or greater rainfall, whichever is more frequent. All inspections shall be conducted performed by an individual with knowledge of erosion and stormwater control practices and the conditions of the stormwater management permit issued by the Maine Department of Environmental Protection. All erosion and sedimentation controls structures shall be inspected and maintained for but not limited to the following:

A. Sediment Barriers
    1. Inspect weekly, before and after a storm.
    2. Verify that barriers are installed prior to any soil disturbance.
    3. Verify if silt fence is keyed properly and tight.
    4. Repair and/or replace barriers as needed.
    5. Verify barriers are removed when the site is stabilized. Silt fence should be cut at the ground surface.
    6. Water that is flowing under the silt-fence without treatment requires resetting the silt fence so the bottom of the fabric is buried into or covered with soil or stone.
    7. Sediments that have built up behind silt fence should be removed and the section of the silt fence reset (with new fabric and posts if signs of damage are evident).

8. Rips or holes in fabric require replacement of the section of silt fence with new fabric from post to post. Examine area for cause of problem and remove the threat.
9. Water that is flowing under the silt-fence without treatment requires resetting the silt fence so the bottom of the fabric is buried into or covered with soil or stone.
10. Sediments that have built up behind silt fence should be removed and the section of the silt fence reset (with new fabric and posts if signs of damage are evident).
11. Rips or holes in fabric require replacement of the section of silt fence with new fabric from post to post. Examine area for cause of problem and remove the threat.

B. Temporary Stabilization

1. Inspect disturbed areas weekly, before and after a storm.
2. Verify that areas that are idle for more than 14 days has been stabilized.
3. Verify that disturbed areas within 100 feet of a natural resource is stabilized each day.

C. Mulch

1. Inspect disturbed areas weekly, before and after a storm.
2. Verify that areas are seeded and mulched within 7 days of obtaining final grade.
3. Verify that erosion control mix is 4-6 inches thick.
4. Verify that erosion control blankets or hay mulch are anchored.

D. Stormwater Channels

1. Inspect disturbed areas weekly, before and after a storm.
2. Verify that ditches and swales are clear of obstruction, accumulated sediments or debris.
3. Verify that ditch lining/bottoms are free of erosion.

E. Buffers

1. Inspect before and after a storm.
2. Verify that areas that buffers are free of erosion and concentrated flows.
3. Verify that area downgradient of level spreaders is stable.
4. Inspect and remove any sediment accumulation within the level spreaders.

F. Winter Construction (Nov 1st to April 15th)

1. Inspect erosion control measure daily.
    i. Ensure final graded areas are mulched twice the normal rate with and anchored.
    ii. Ensure that newly constructed ditches are lined with riprap.
    iii.

G. Soil Filter Basin

1. The basin area may be excavated for underdrain installation and can be used as a sediment trap during construction. After excavation of the basin, the outlet structure and piping system may be installed if protected with a sediment barrier.

If any corrective correction actions based on inspections, shall be started by the end of the following work day and completed within seven days or prior to the next rain event. Document the corrective actions and maintain with inspection forms. Inspection forms and corrective action document shall be maintained for three years after permanent stabilization is achieved.

(See Appendix B for Inspection and Maintenance Log)

5.0 Inspection and Maintenance After Construction

After construction is finished inspections must take place once per quarter, or after each rainstorm producing at least 1 inch of rainfall, whichever is more frequent. Such inspection is necessary to ensure the buffers are functioning properly and is necessary as part of the 5-year recertification process for long-term maintenance of stormwater systems. If any buffers are not functioning, take corrective action. All inspections shall be conducted performed by an individual with knowledge of erosion and stormwater control practices and the conditions of the stormwater management permit issued by the Maine Department of Environmental Protection. All buffers shall be inspected and maintained for but not limited to the following:

A. Grassed underdrained soil filter

- Sediment Removal: Sediment and plant debris should be removed from the pretreatment structure at least annually.
- Mowing: If mowing is desired, only hand-held string trimmers or push-mowers are allowed on the filter (no tractor) and the grass bed should be mowed no more than 2 times per growing season to maintain grass heights of no less than 6 inches.
- Fertilization: Fertilization of the underdrained filter area should be avoided unless absolutely necessary to establish vegetation.
- Harvesting and Weeding: Harvesting and pruning of excessive growth should be done occasionally. Weeding to control unwanted or invasive plants may also be necessary.
- Grass cover: Maintaining a healthy cover of grass will minimize clogging with fine sediments. If ponding exceeds 48 hours, the top of the filter bed should be rototilled to reestablish the soil's filtration capacity.
- Soil Filter Replacement: The top several inches of the filter can be replaced with fresh material if water is ponding for more than 72 hours, or the basin can be rototilled, seeded and mulched.

Once the filter is mature, adding new material (a 1-inch to 2-inch cover of mature compost) can compensate for subsidence.

Complete an inspection form for each buffer. Document the corrective actions and maintain with inspection forms. Inspection forms and corrective action document shall be maintained for five years after permanent stabilization is achieved.

(See Appendix B for Inspection and Maintenance Log)

6.0 Housekeeping

A. Spill Prevention & Response

Controls must be used to prevent pollutants from construction and waste materials stored on site to enter stormwater, which includes storage practices to minimize exposure of the materials to stormwater. The site contractor or operator must develop, and implement as necessary, appropriate spill prevention, containment, and response planning measures.

NOTE: Any spill or release of toxic or hazardous substances must be reported to the Maine Department of Environmental Protection. For oil spills, call 1-800-482-0777 which is available 24 hours a day. For spills of toxic or hazardous material, call 1-800-452-4664 which is available 24 hours a day. For more information, visit the Department's website at: http://www.maine.gov/dep/spills/emergspillresp/

Clean-up assistance:

Clean Harbors Environmental: 207-772-2201

B. Groundwater protection

During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials. Any project proposing infiltration of stormwater must provide adequate pre-treatment of stormwater prior to discharge of stormwater to the infiltration area, or provide for treatment within the infiltration area, in order to prevent the accumulation of fines, reduction in infiltration rate, and consequent flooding and destabilization. During dry months all access roads should be wet down weekly or as needed.

C. Fugitive Sediment and Dust

Actions must be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control, but other water

additives may be considered as needed. A stabilized construction entrance (SCE) should be included to minimize tracking of mud and sediment. If off-site tracking occurs, public roads should be swept immediately and no less than once a week and prior to significant storm events. Operations during dry months, that experience fugitive dust problems, should wet down unpaved access roads once a week or more frequently as needed with a water additive to suppress fugitive sediment and dust.

D. Debris and Other Materials

Minimize the exposure of construction debris, building and landscaping materials, trash, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials to precipitation and stormwater runoff. These materials must be prevented from becoming a pollutant source.

E. Excavation Dewatering

Excavation de-watering is the removal of water from trenches, foundations, coffer dams, ponds, and other areas within the construction area that retain water after excavation. In most cases the collected water is heavily silted and hinders correct and safe construction practices. The collected water removed from the ponded area, either through gravity or pumping, must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved by the Department of Environmental Protection.

F. Authorized Non-stormwater Discharges

Identify and prevent contamination by non-stormwater discharges. Where allowed non-stormwater discharges exist, they must be identified and steps should be taken to ensure the implementation of appropriate pollution prevention measures for the non-stormwater component(s) of the discharge. Authorized non-stormwater discharges are:

1. Discharges from firefighting activity;
2. Fire hydrant flushings;
3. Vehicle wash water if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);
4. Dust control runoff in accordance with permit conditions;
5. Routine external building wash down, not including surface paint removal, that does not involve detergents;
6. Pavement wash water (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material had been removed) if detergents are not used;
7. Uncontaminated air conditioning or compressor condensate;

8. Uncontaminated groundwater or spring water;
9. Foundation or footer drain-water where flows are not contaminated;
10. Uncontaminated excavation dewatering;
11. Potable water sources including waterline flushings; and
12. Landscape irrigation

G. **Unauthorized Non-stormwater Discharges**

The Department of Environmental Protections' approval does not authorize a discharge that is mixed with a source of non stormwater, other than those discharges in compliance with Department regulations. Specifically, the Department's approval does not authorize discharges of the following:

1. Wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds or other construction materials;
2. Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance;
3. Soaps, solvents, or detergents used in vehicle and equipment washing; and
4. Toxic or hazardous substances from a spill or other release.

APPENDIX A

INSPECTION LOGS

EROSION AND SEDIMENT CONTROL MEASURES AND ACTIVITY	INSPECTION FREQUENCY		
	Weekly	Before and After a Storm	After Construction
SEDIMENT BARRIERS			
Sediment barriers are installed prior to soil disturbances	X	X	
Silt fences are keyed in and tight	X	X	
Barriers are repaired and replaced as necessary	X	X	
Barriers are removed when the site is stabilized - Silt fence should be cut at the ground surface			X
TEMPORARY STABILIZATION			
Areas are stabilized if idle for 14 days or more	X	X	
Daily stabilization within 100 ft of a natural resource	X	X	
MULCH			
Seed and mulch within 7 days of final grading. Ground is not visible	X	X	
Erosion control mix is 4-6 inch thick	X	X	
Erosion control blankets or hay mulch are anchored	X	X	
VEGETATION			
Vegetation provides 90% soil cover	X		X
Loam or soil amendment were provided	X		X
New seeded areas are mulched and protected from vehicle, foot traffic and runoff	X	X	X
Areas that will remain unworked for more than 1 year are vegetated with grass	X		
SLOPES AND EMBANKMENTS			
Final graded slopes and embankments are stabilized	X	X	X
Diversions are provided for areas with rill erosion	X	X	X
Areas steeper than 2:1 are riprapped	X		
Stones are angular, durable and various in size	X		
Riprap is underlain with a gravel layer or filter fabric	X		
STORMWATER CHANNELS AND CULVERTS			
Ditches and swales are permanently stabilized–channels that will be riprapped have been over-excavated	X	X	X
Ditches are clear of obstructions, accumulated sediments or debris	X	X	X
Ditch lining/bottoms are free of erosion	X	X	X
Check dams are spaced correctly to slow flow velocity	X		
Underlying filter fabric or gravel is not visible	X	X	X
Culvert aprons and plunge pools are sized for expected flows volume and velocity	X		
Stones are angular, durable and various in size	X		
Culverts are sized to avoid upgradient flooding	X	X	
Culvert protection extends to the maximum flow elevation within the ditch	X	X	X
Culvert is embedded, not hanging	X	X	X

CATCH BASIN SYSTEMS			
Catch basins are built properly	X		
Accumulated sediments and debris are removed from sump, grate and collection area		X	X
Floating debris and floating oils are removed from trap			X
ROADWAYS AND PARKING SURFACES			
The gravel pad at the construction entrance is clear from sediments	X	X	
Roads are crowned		X	X
Cross drainage (culvert) is provided	X		
False ditches (from winter sand) are graded		X	X
BUFFERS			
Buffers are free of erosion or concentrated flows		X	X
The downgradient of spreaders and turnouts is stable		X	X
Level spreaders are on the contour			X
The number of spreaders and ditch turnouts is adequate for flow distribution		X	X
Any sediment accumulation is removed from within spreader or turnouts		X	X
STORMWATER BASINS AND TRAPS			
Embankments are free of settlement, slope erosion, internal piping, and downstream swamping		X	X
All flow control structure or orifices are operational and clear of debris or sediments		X	X
Any pre-treatment structure that collects sediment or hydrocarbons is clean or maintained		X	X
Vegetated filters and infiltration basins have adequate grass growth			X
Any impoundment or forebay is free of sediment		X	X
WINTER CONSTRUCTION (November 1st-April15th)			
Final graded areas are mulched daily at twice the normal rate with hay, and anchor (not on snow)	Daily		
A double row of sediment barrier is provided for all areas within 100 ft of a sensitive resource (use erosion control mix on frozen ground)	Daily		
Newly constructed ditches are riprapped	Daily		
Slopes greater than 8% are covered with an erosion control blanket or a 4-inch layer of erosion control mix	Daily		
HOUSEKEEPING PUNCH LIST			
All disturbed areas are permanently stabilized, and plantings are established (grass seeds have germinated with 90% vegetative cover)			X
All trash, sediments, debris or any solid waste have been removed from stormwater channels, catch basins, detention structures, discharge points, etc.			X
All ESC devices have been removed: (silt fence and posts, diversions and sediment structures, etc.)			X
All deliverables (certifications, survey information, as-built plans, reports, notice of termination (NOT), etc.) in accordance with all permit requirements have been submitted to town, Maine DEP, association, owner, etc.			X

Appendix C
SFA & SFB Design Calculations

Under drained soil filter sizing calculations

SFA:

Size filter to include existing and proposed impervious and landscaped area within subcatchment.

Description	Area Impervious (sf)	Area Landscaped (sf)	Existing or Proposed
Project Access Drive, STA 0+00 to 6+40 & Ditch (west)	11,951	27,515	Proposed
Residential Paved Driveway to East	4,359		Existing
House & Garage Roof	895		Existing
Crushed Stone Boat Storage		1,197	Existing
Ditch to East		19,005	Proposed
Vegetated Boat Storage		13,837	Existing
Total	17,205	61,553	

Channel Protection Volume (cf)	3,485	
Impoundment Depth (ft)	1.45	
Filter Area Required (sf)	2,404	
Filter Area Designed (sf)	2,434	2,434 sf > 2,404 sf required meets BMP standard
Check Filter Area Sum of 5% Imperv & 2% Landscaped (sf)	2,091	2,434 sf > 2,091 sf required meets BMP standard

SFB:

Description	Area Impervious (sf)	Area Landscaped (sf)	Existing or Proposed
Project Access Drive, STA 6+40 to 9+80 & Ditch	7,417	10,112	Proposed
Equipment Pad	160		Proposed
Total	7,577	10,112	

Channel Protection Volume (cf)	968	
Impoundment Depth (ft)	1.00	
Filter Area Required (sf)	968	
Filter Area Designed (sf)	1,064	1,064 sf > 968 required meets BMP standard
Check Filter Area Sum of 5% Imperv & 2% Landscaped (sf)	581	1,064 sf > 581 required meets BMP standard

Appendix D
NRCS Custom Soils Report & Soil Test Pit Report

WATERSHED RESOURCE CONSULTANTS, LLC
NATURAL RESOURCE AND SOIL SCIENCE CONSULTING

22207
August 30, 2023

Kirk Ball, PE
Acheron Engineering, LLC

David Fowler
Mainely Solar, LLC
143 Highland Shore Road
Casco, ME 04015
via email: *kball@acheronengineering.com, dfowler@nextphaseenergyservices.com*

RE: Project # 22207: Allen Solar Project Roosevelt Trail, Raymond, Maine
Soil Assessments for Stormwater Treatment Areas

Dear Kirk and David,

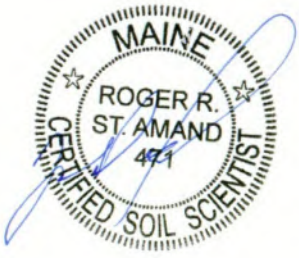
As requested, Watershed Resource Consultants, LLC (WRC) completed soil test pit explorations for a proposed solar development at 1565 Roosevelt Trail (Route 302) in Raymond, Maine (i.e., the "Site"). The purpose of the soil investigation was to assess the soils within areas proposed for stormwater treatment. A Maine Certified Soil Scientist from WRC visited the site in July of 2023 to document and classify soils in the vicinity of the proposed stormwater areas based on preliminary plans provided by your office. Four test pits were excavated with an excavator provided by Cam Hill to approximately 6 to 8 feet below the ground surface (BGS) and located by submeter GPS.

The approximately 30-acre Site shown as Tax Map 4, Lots 68 and 68A on the municipal tax maps is located at 1565 Roosevelt Trail in Raymond, Maine behind Raymond Marine. The property is wooded with a network of logging trails and was selectively harvested in the last year or two. The topography is steeply to moderately sloping with rolling hills. Vegetation onsite consisting of mature second growth hardwood and mixed wood outside of the developed area along Route 302.

The soils observed consist of moderately well drained gravelly and cobbly sandy loam to loamy sand glacial tills. The surface is stony to bouldery. A seasonal high water table observed at 26" to 30" from a perched water table due to a dense layer in the subsoil horizon. These soils would be classified as Skerry Soil Series and would be in Hydrological Soil Group (HSG) C.

Overall, the test pits observed indicated the site is dominated by suitable soils with average depths to a seasonal high-water table of 26-30". Please see the attached test pit logs and site sketch and contact us if you have any questions or require further information.

Sincerely,



Roger St. Amand, Maine Certified Soil Scientist CSS #471

Principal | Watershed Resource Consultants, LLC
rstamand@wrcmaine.com

PAGE 1 OF 1

FORM F (deep) Rev. 7/21

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
ALLEN SOLAR	MAINELY SOLAR	RAYMOND

Exploration Symbol # TP23 A ☒ Test Pit ☐ Boring ☐ Probe

3 " Organic horizon thickness Ground surface elev. _____

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

Depth below mineral soil surface (inches)

	Texture	Consistence	Color	Redox Features
0–10 A	LOAM	FRIABLE Granular	10yr 3/3	
10–18 Bw	FINE SANDY		10yr 5/6	NONE
18–26" BW2	LOAM		10yR 5/4	
26"–30 BC	SANDY LOAM	F.I.P	5y 5/3	FEW DISTINCT
30–40 cd	COBBLY COARSE SANDY LOAM	FIRM SUBANG. BLOCKY	5y 5/2	COMMON FAINT & FEW PROMINENT
40–50				
50–60	VERY COBBLY COARSE SANDY LOAM	VERY FIRM	5y 5/2	
60–70				
70–80	//	//	//	//
	REFUSAL - BOULDERS			
80–90	RESTRICTIVE @ 26"			
90–100	SATURATED @ 52"			
100–110	REFUSAL @ 72"			
110–120				
120–130				
130–140				
140–150				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification (Profile / Condition)	Slope (Percent)	Limiting Factor (Depth)		Soil Series/Phase Name:	Hydrologic Soil Group
	6	26"	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock	SKERRY FINE SANDY LOAM ☐ Hydric ☒ Non-hydric	C

Exploration Symbol # TP23 B ☒ Test Pit ☐ Boring ☐ Probe

3 " Organic horizon thickness Ground surface elev. _____

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

Depth below mineral soil surface (inches)

	Texture	Consistence	Color	Redox Features
0–10 A/E	FINE SANDY LOAM	FRIABLE GRAN.	10yR 2/2	
10–20 Bs1			7.5yR 5/4	NONE
20–30 bs2	SANDY LOAM		10yR 4/6	
30–40 BC			2.5y 5/3	FEW FAINT
40–50 cd	GRAVELLY COARSE SANDY LOAM	FIRM	5y 5/2	COMMON DISTINCT
50–60	COARSE LOAMY SAND			COMMON PROMINENT &
60–70	COARSE SANDY LOAM			COMMON FAINT
70–80				
80–90				
90–100				
100–110	NO SAT WATER TABLE OBS			
110–120	RESTRICTIVE @ 26".			
120–130	SAT @	26–32"		
130–140				
140–150				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification (Profile / Condition)	Slope (Percent)	Limiting Factor (Depth)		Soil Series/Phase Name:	Hydrologic Soil Group
	8	26"	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock	SKERRY SANDY LOAM ☐ Hydric ☒ Non-hydric	C

INVESTIGATOR INFORMATION AND SIGNATURE

Signature

Roger St.Amand
Name Printed

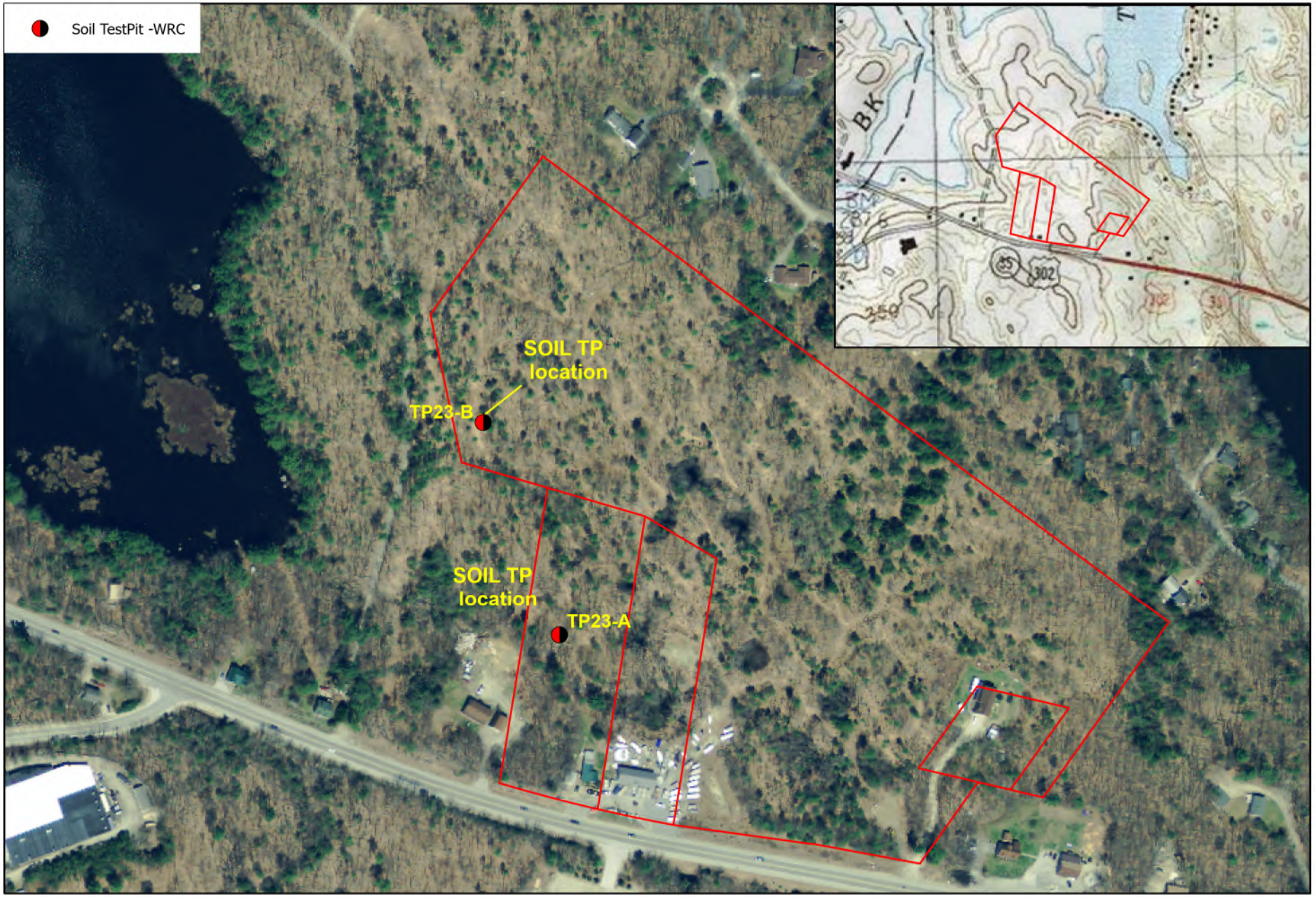
☐ Site Evaluator
☒ Soil Scientist
☐ Geologist
☐ Professional Engineer

7-31-2023
Date

SS# 471
License No.

MAINE ROGER R. ST. AMAND 471 CERTIFIED SOIL SCIENTIST

aff. 21



ALLEN SOLAR
SOIL TEST PIT MAP
RTE 302, RAYMOND, ME

WRC #2207

SITE PHOTOGRAPHS: ALLEN SOLAR, RAYMOND, ME
TAKEN 7-31-2023

Photo 1: TP23-A Existing site conditions.

Photo 2: : TP23-A Soil Test Pit.

SITE PHOTOGRAPHS: ALLEN SOLAR, RAYMOND, ME
TAKEN 7-31-2023

Photo 3: TP23-B typical site conditions.

Photo 4: Looking into test pit TP-23-B soil profile.

LOCATION SKERRY NH+MA ME NY VT

Established Series
Rev. JFH-SALP-SHG-GWS
06/2016

SKERRY SERIES

The Skerry series consists of very deep, moderately well drained soils that formed in a loamy mantle overlying dense, sandy till on drumlins and glaciated uplands. They are moderately deep to a densic contact. Saturated hydraulic conductivity is moderately high or high in the mineral solum and moderately low or moderately high in the dense substratum. Slope ranges from 0 to 25 percent. Mean annual precipitation is about 1175 mm, and mean annual temperature is about 5 degrees C.

TAXONOMIC CLASS: Coarse-loamy, isotic, frigid Aquic Haplorthods

TYPICAL PEDON: Skerry fine sandy loam, on an 11 percent slope in a stony, forested area. The soil is covered by a 3 cm layer of fresh leaf and pine needle litter. (Colors are for moist soil.)

Oa -- 0 to 5 cm; sapric material consisting of partially and well decomposed leaf and pine needle litter. (0 to 15 cm thick.)

E -- 5 to 10 cm; gray (10YR 6/1) fine sandy loam; weak fine granular structure; friable; common fine and medium roots; 10 percent gravel, cobbles, and stones; strongly acid; abrupt broken boundary. (0 to 8 cm thick.)

Bhs -- 10 to 15 cm; dark reddish brown (5YR 3/3) fine sandy loam; weak fine granular structure; friable; common fine and medium roots; 10 percent gravel, cobbles, and stones; strongly acid; abrupt broken boundary. (0 to 10 cm thick.)

Bs1 -- 15 to 51 cm; reddish brown (5YR 4/4) and dark reddish brown (5YR 3/4) gravelly fine sandy loam; moderate medium granular structure; 60 percent friable, 40 percent weakly cemented (ortstein); few fine roots; 10 percent gravel, 5 percent cobbles and stones; strongly acid; clear wavy boundary.

Bs2 -- 51 to 64 cm; yellowish brown (10YR 5/4) gravelly fine sandy loam; massive; 80 percent friable, 20 percent weakly cemented (ortstein); common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation and common fine distinct grayish brown (10YR 5/2) and common fine faint brown (10YR 5/3) areas of iron depletion; 15 percent gravel, 5 percent cobbles and stones; strongly acid; clear smooth boundary. (Combined thickness of the Bs horizons is 15 to 76 cm.)

Cd1 -- 64 to 86 cm; brown (10YR 5/3) gravelly fine sandy loam layers with lenses of light olive brown (2.5Y 5/4) sand; composite texture is gravelly loamy sand; massive and firm (fine sandy loam), and single grain and loose (sand); common fine prominent strong brown (7.5YR 5/6) and yellowish brown (10YR 5/6) masses of iron accumulation; 20 percent gravel, 5 percent cobbles and stones; sand lenses up to 5 cm thick are in a horizontal orientation alternatively with fine sandy loam layers; strongly acid; gradual smooth boundary.

Cd2 -- 86 to 165 cm; light olive brown (2.5Y 5/4) sand lenses with layers of grayish brown (2.5Y 5/2) gravelly fine sandy loam; composite texture is gravelly loamy sand; massive and firm (fine sandy loam), and single grain and loose (sand); 20 percent gravel, 5 percent cobbles and stones; sand lenses up to 5 cm thick are in a horizontal orientation alternatively with fine sandy loam layers; strongly acid.

TYPE LOCATION: Carroll County, New Hampshire; Town of Conway, 0.50 mile north of Greely Road on Potter Road, and 85 feet east of Potter Road. USGS Ossipee Lake, NH 15 minute quadrangle; Latitude 43 degrees, 56 minutes, 28 seconds N. and Longitude 71 degrees, 3 minutes, 5 seconds W., NAD 1983.

RANGE IN CHARACTERISTICS: Mineral solum thickness and depth to densic materials ranges from 51 to 96 cm. Rock fragments range from 5 to 30 percent in the solum and from 5 to 40 percent in the substratum. Unless limed, reaction ranges from extremely acid to slightly acid in the solum and very strongly acid to neutral in the substratum. Weak cementation (ortstein) ranges from 0 to 50 percent in the spodic horizon.

The O horizon is neutral or has hue of 2.5YR to 10YR, value of 2 to 4, and chroma of 0 to 4.

Some pedons have an A horizon up to 10 cm thick that has hue of 10YR to 5YR, value of 2 to 3, and chroma of 1 or 2, or an Ap horizon that has hue of 10YR, value of 3 or 4, and chroma of 2 to 4. Texture is fine sandy loam, sandy loam, or loam or their gravelly analogues.

The E horizon has hue of 5YR to 10YR, value of 4 to 7, and chroma of 1 or 2. Texture is fine sandy loam, sandy loam, or loamy sand, or their gravelly analogues.

The Bhs horizon has hue of 2.5YR to 7.5YR, value of 2 to 4, and chroma of 1 to 4. Texture is dominantly fine sandy loam, but includes sandy loam or their gravelly analogues. Combined thickness of the Bhs horizon is 0 to 15 cm.

The Bs horizon has hue of 2.5YR to 10YR, value of 2 to 6, and chroma of 3 to 8. Texture is fine sandy loam or sandy loam, or their gravelly analogues.

The BC horizon, where present, has hue of 10YR to 5Y, value of 3 to 6, and chroma of 2 to 6. Texture is fine sandy loam, sandy loam, coarse sandy loam, loamy fine sand, loamy sand, or their gravelly or cobbly analogues.

Some pedons have an E' horizon below the B horizon 2 inches thick or less. It has hue of 10YR to 5Y, value of 4 to 6, and chroma of 2 or 3. Texture range is the same as the lower part of the B, but typically it is coarser textured than the overlying horizon.

The Cd layer has hue of 10YR to 5Y, value of 4 to 7, and chroma of 2 to 6. It is loamy sand or loamy fine sand, or it comprised of loamy layers and sandy lenses with a composite texture of loamy sand, loamy fine sand, loamy coarse sand, fine sandy loam, sandy loam, coarse sandy loam, or their gravelly or cobbly analogues. The lenses range from loamy fine sand to coarse sand and are 3 to 51 mm thick. They constitute more than 20 percent of the layer. The Cd layer has weak or moderate, thin to thick plates or it is massive. Consistence is firm or very firm except in individual lenses where it is friable to loose.

Some pedons have a friable C horizon above the Cd 20 cm thick or less.

COMPETING SERIES: These are the Chesuncook, Crary, Dixfield, Dixmont, Howland, Peru, Ragmuff, Sunapee, and Worden series. Chesuncook soils have more clay in the particle-size control section. Crary and Dixmont soils have more silt and very fine sand in the solum. Dixfield, Howland, and Peru soils have less than 20 percent sand lenses in the C horizon. Ragmuff soils have bedrock within 102 cm. Sunapee soils have friable substrata. Worden soils have Bh that is more than 10 cm thick.

GEOGRAPHIC SETTING: The nearly level to moderately steep Skerry soils are on drumlins and glaciated uplands. Slope ranges from 0 to 25 percent. The soils formed in stony till of Wisconsin age derived from granitic, schistose, and gneissic rocks. Mean annual temperature ranges from -3 to 9 degrees C, and mean annual precipitation ranges from 790 to 2420 mm. The frost-free growing season ranges from 90 to 160 days.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Adirondack, Becket, Hermon, Marlow, Monadnock, Moosilauke, Peru, Pillsbury, Sabattis, Success, Tunbridge, and Waumbek soils. The well drained

Becket, somewhat poorly drained Adirondack, and very poorly drained Sabattis soils are in a drainage sequence with Skerry soils. The well drained Marlow soils, the moderately well drained Peru soils, and the somewhat poorly drained and poorly drained Pillsbury soils have densic materials with less than 20 percent sand lenses. The somewhat excessively drained Hermon and Success soils, well drained Monadnock soils, moderately well drained Waumbek soils, and somewhat poorly drained and poorly drained Moosilauke soils have friable substrata. The well drained Tunbridge soils are on bedrock controlled landforms and have bedrock within 102 cm of the mineral surface.

DRAINAGE AND SATURATED HYDRAULIC CONDUCTIVITY: Moderately well drained. Estimated saturated hydraulic conductivity is moderately high or high in the mineral solum and moderately low or moderately high in the dense substratum.

USE AND VEGETATION: Most of these soils are forested. Principle species include sugar maple, yellow birch, paper birch, eastern white pine, eastern hemlock, balsam fir, white spruce, and red spruce. Areas cleared of trees and stones are used primarily for hay and pasture.

DISTRIBUTION AND EXTENT: Maine, Massachusetts, New Hampshire, New York, and Vermont. MLRAs 142, 143, and 144B. The series is of large extent.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Amherst, Massachusetts

SERIES ESTABLISHED: Franklin County, New York, 1950s.

REMARKS: Diagnostic horizons and features recognized in this pedon are:
a. Albic horizon - the zone from 5 to 10 cm (E horizon).
b. Spodic horizon - the zone from 10 to 51 cm (Bhs and Bs1 horizons).
c. Aquic feature - redoximorphic features in the zone from 51 to 64 cm (Bs2 horizon).
d. Densic contact at 64 cm.
e. Densic materials - The zone from 64 to 165 cm. (Cd1 and Cd2 horizons).

National Cooperative Soil Survey
U.S.A.

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Cumberland County and Part of Oxford County, Maine

June 1, 2023

Preface

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

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

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

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

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

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

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Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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

Custom Soil Resource Report
Soil Map

Map Scale: 1:3,780 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 150 300 600 900

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

MAP LEGEND

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

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 19, Aug 30, 2022

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

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
HhB	Hermon sandy loam, 0 to 8 percent slopes, very stony	8.8	19.9%
HhC	Hermon sandy loam, 8 to 15 percent slopes, very stony	34.7	79.0%
WsB	Woodbridge very stony fine sandy loam, 0 to 8 percent slopes	0.5	1.1%
Totals for Area of Interest		**44.0**	**100.0%**

Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Cumberland County and Part of Oxford County, Maine

HhB—Hermon sandy loam, 0 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2w9rc
Elevation: 0 to 980 feet
Mean annual precipitation: 31 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Hermon, very stony, and similar soils: 90 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hermon, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly supraglacial meltout till derived from granite and gneiss

Typical profile

Oa - 0 to 2 inches: highly decomposed plant material
E - 2 to 3 inches: sandy loam
Bhs - 3 to 9 inches: sandy loam
Bs1 - 9 to 16 inches: very gravelly sandy loam
Bs2 - 16 to 32 inches: extremely gravelly loamy sand
C - 32 to 65 inches: very gravelly coarse sand

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

HhC—Hermon sandy loam, 8 to 15 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2w9rd
Elevation: 0 to 1,080 feet
Mean annual precipitation: 31 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Hermon, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly supraglacial meltout till derived from granite and gneiss

Typical profile

Oa - 0 to 2 inches: highly decomposed plant material
E - 2 to 3 inches: sandy loam
Bhs - 3 to 9 inches: sandy loam
Bs1 - 9 to 16 inches: very gravelly sandy loam
Bs2 - 16 to 32 inches: extremely gravelly loamy sand
C - 32 to 65 inches: very gravelly coarse sand

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A

Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

WsB—Woodbridge very stony fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: blkh
Elevation: 20 to 920 feet
Mean annual precipitation: 49 to 49 inches
Mean annual air temperature: 45 degrees F
Frost-free period: 145 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Woodbridge

Setting

Landform: Till plains
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy lodgment till derived from mica schist

Typical profile

Oa - 0 to 2 inches: highly decomposed plant material
H1 - 2 to 5 inches: fine sandy loam
H2 - 5 to 22 inches: fine sandy loam
H3 - 22 to 65 inches: fine sandy loam

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 16 to 36 inches to densic material
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.5 inches)

Interpretive groups

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

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Appendix E
FEMA Map

ntact your insurance agent, or call the National Flood Insurance
ogram at (800) 638-6620, or (800) 424-8872.

APPROXIMATE SCALE

800 0 800 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

TOWN OF
RAYMOND,
MAINE
CUMBERLAND COUNTY

PANEL 15 OF 20
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
230205 0015 B

EFFECTIVE DATE:
MAY 5, 1981

federal emergency management agency
federal insurance administration

MOUNTAIN VIEW BEACH AVENUE

ACCESS ROAD

MAPLE AVENUE

PLUMMER ROAD

RM 6

RM 7

ACCESS ROAD

BROWN HILL ROAD

THOMAS POND

ZONE A

CORPORATE LIMITS

ZONE C

ACCESS ROAD

ACCESS ROAD

ZONE C

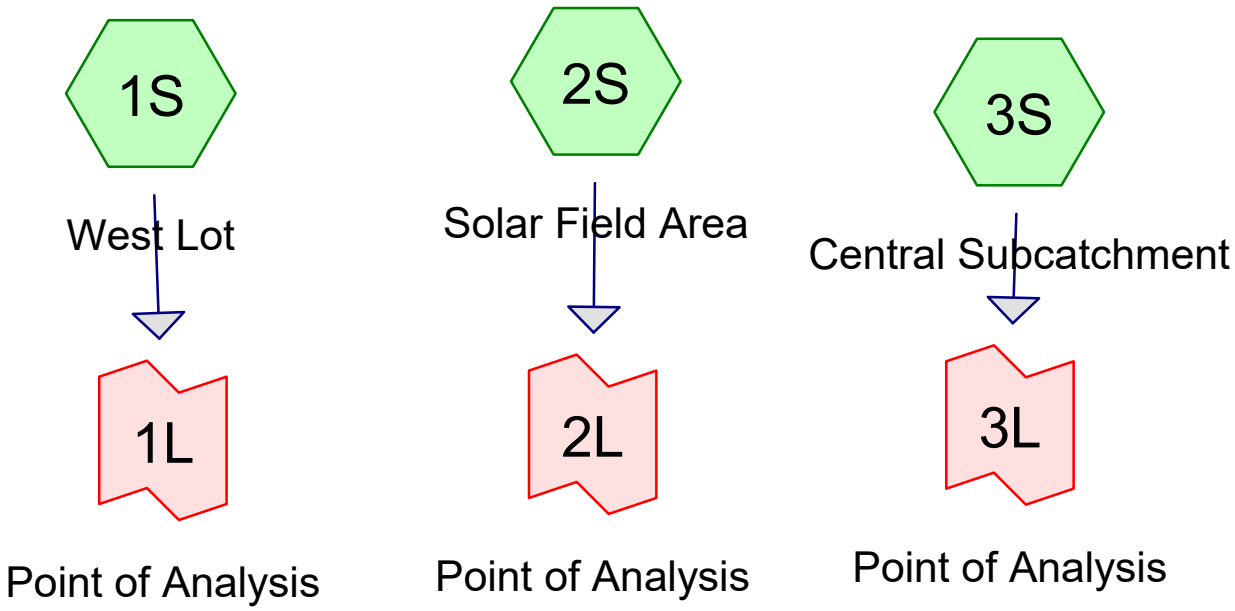
ACCESS ROAD

ZONE A

35

CORPORATE LIMITS

Appendix F
HydroCAD Model Reports



Subcat Reach Pond Link

Routing Diagram for 2024-01-30 Allen Solar Existing Conditions
Prepared by {enter your company name here}, Printed 1/31/2024

Time span=1.00-30.00 hrs, dt=0.05 hrs, 581 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: West Lot Runoff Area=428,997 sf 15.41% Impervious Runoff Depth=0.06"
Flow Length=1,454' Tc=15.2 min CN=48 Runoff=0.08 cfs 0.049 af

Subcatchment 2S: Solar Field Area Runoff Area=341,707 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=724' Tc=18.2 min CN=36 Runoff=0.00 cfs 0.000 af

Subcatchment 3S: Central Subcatchment Runoff Area=408,430 sf 15.30% Impervious Runoff Depth=0.05"
Flow Length=1,174' Tc=14.9 min CN=47 Runoff=0.06 cfs 0.036 af

Link 1L: Point of Analysis Inflow=0.08 cfs 0.049 af
Primary=0.08 cfs 0.049 af

Link 2L: Point of Analysis Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Link 3L: Point of Analysis Inflow=0.06 cfs 0.036 af
Primary=0.06 cfs 0.036 af

Total Runoff Area = 27.069 ac Runoff Volume = 0.085 af Average Runoff Depth = 0.04"
89.09% Pervious = 24.117 ac 10.91% Impervious = 2.952 ac

Summary for Subcatchment 1S: West Lot

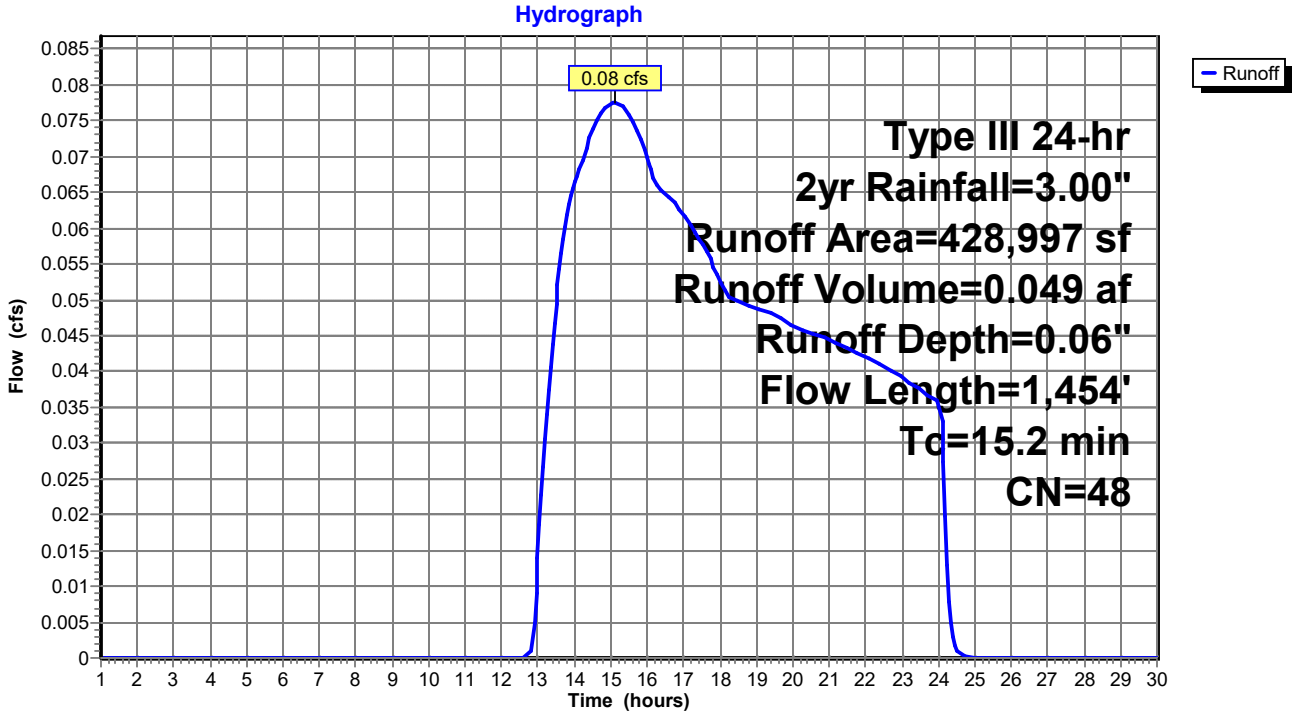
Runoff = 0.08 cfs @ 15.10 hrs, Volume= 0.049 af, Depth= 0.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2yr Rainfall=3.00"

	Area (sf)	CN	Description
*	4,359	98	Paved parking, HSG A Driveway to Abutter to East
*	59,855	98	Wetlands/Vernal Pools HSG A
*	895	98	Roofs, HSG A Garage & House
*	14,738	68	<50% Grass cover, Poor, HSG A Temp Boat Storage
*	1,700	49	50-75% Grass cover, Fair, HSG A Lawn Abutter to East
*	5,618	96	Gravel surface, HSG A Gravel Driveway Abutter West
*	1,197	96	Gravel surface, HSG A Gravel Boat Storage
	982	98	Roofs, HSG A
	339,653	36	Woods, Fair, HSG A
	428,997	48	Weighted Average
	362,906		84.59% Pervious Area
	66,091		15.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	19	0.0392	1.25		**Sheet Flow, Driveway** Smooth surfaces n= 0.011 P2= 3.00"
0.3	42	0.0833	2.02		**Shallow Concentrated Flow, Lawn** Short Grass Pasture Kv= 7.0 fps
0.6	72	0.1676	2.05		**Shallow Concentrated Flow, Wooded Area** Woodland Kv= 5.0 fps
1.1	62	0.0325	0.90		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
0.1	19	0.3106	2.79		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
4.8	488	0.0125	1.68		**Shallow Concentrated Flow, Wetland** Grassed Waterway Kv= 15.0 fps
0.7	55	0.0723	1.34		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
5.2	445	0.0090	1.42		**Shallow Concentrated Flow, Wetland** Grassed Waterway Kv= 15.0 fps
0.8	72	0.0897	1.50		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
1.0	106	0.0142	1.79		**Shallow Concentrated Flow, Wetland** Grassed Waterway Kv= 15.0 fps
0.3	74	0.1078	4.92		**Shallow Concentrated Flow, Wetland** Grassed Waterway Kv= 15.0 fps
15.2	1,454	Total			

Subcatchment 1S: West Lot



Summary for Subcatchment 2S: Solar Field Area

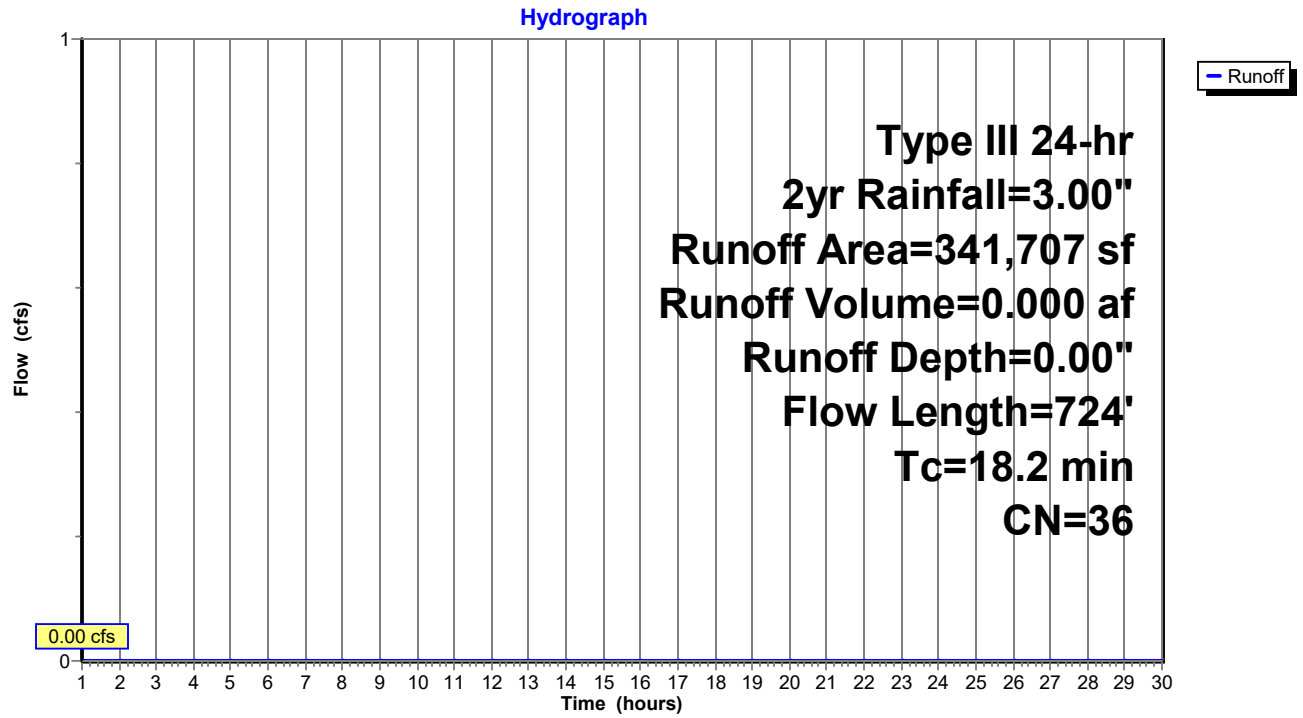
Runoff = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2yr Rainfall=3.00"

Area (sf)	CN	Description
341,707	36	Woods, Fair, HSG A
341,707		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	39	0.0638	0.10		**Sheet Flow, Wooded** Woods: Light underbrush n= 0.400 P2= 3.00"
2.0	89	0.0211	0.73		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
9.6	596	0.0428	1.03		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
18.2	724	Total			

Subcatchment 2S: Solar Field Area



Summary for Subcatchment 3S: Central Subcatchment

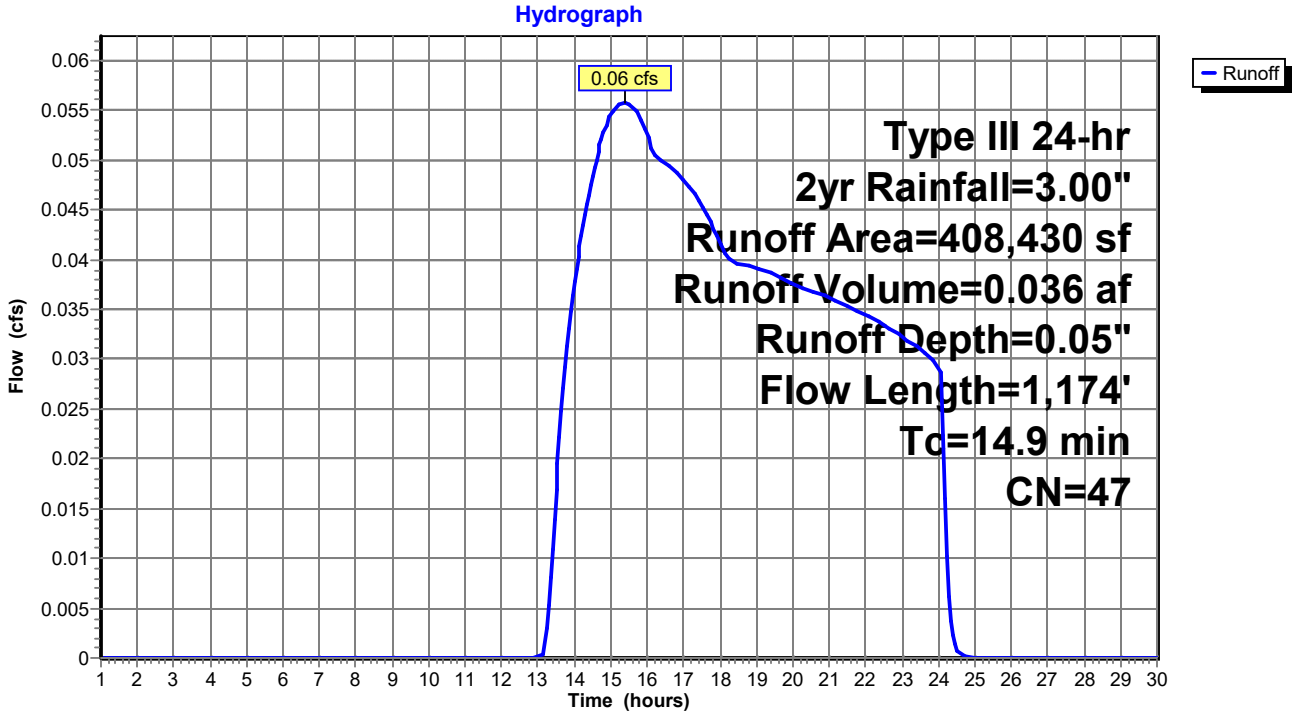
Runoff = 0.06 cfs @ 15.38 hrs, Volume= 0.036 af, Depth= 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2yr Rainfall=3.00"

	Area (sf)	CN	Description
*	1,106	98	Unconnected roofs, HSG A Allen House
*	246	98	Unconnected pavement, HSG A Walkway
*	7,754	30	Meadow, non-grazed, HSG A Lawn
*	34,256	57	Woods/grass comb., Poor, HSG A Cleared Area
*	61,151	98	Water Surface, HSG A Wetlands
*	303,917	36	Woods, Fair, HSG A
	408,430	47	Weighted Average
	345,927		84.70% Pervious Area
	62,503		15.30% Impervious Area
	1,352		2.16% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	19	0.4160	3.22		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.00"
4.8	79	0.0800	0.27		**Sheet Flow, Lawn** Grass: Short n= 0.150 P2= 3.00"
0.8	72	0.0240	1.55		**Shallow Concentrated Flow, Clreared Area** Nearly Bare & Untilled Kv= 10.0 fps
0.6	137	0.1310	3.62		**Shallow Concentrated Flow, Cleared & Wooded** Nearly Bare & Untilled Kv= 10.0 fps
2.1	184	0.0870	1.47		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
3.7	410	0.0150	1.84		**Shallow Concentrated Flow, Wetland W-JL6** Grassed Waterway Kv= 15.0 fps
0.9	98	0.1200	1.73		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
1.9	175	0.0110	1.57		**Shallow Concentrated Flow, Wetland W-JL5** Grassed Waterway Kv= 15.0 fps
14.9	1,174	Total			

Subcatchment 3S: Central Subcatchment

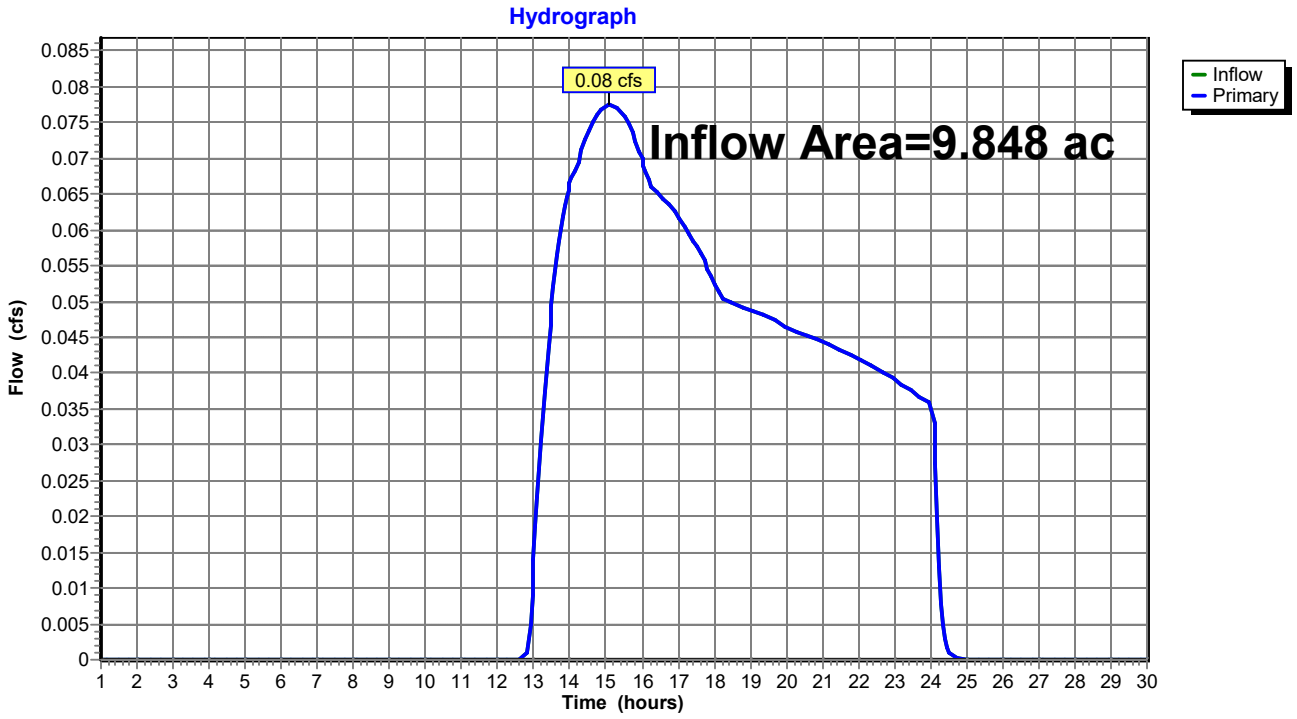


Summary for Link 1L: Point of Analysis

Inflow Area = 9.848 ac, 15.41% Impervious, Inflow Depth = 0.06" for 2yr event
Inflow = 0.08 cfs @ 15.10 hrs, Volume= 0.049 af
Primary = 0.08 cfs @ 15.10 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs

Link 1L: Point of Analysis

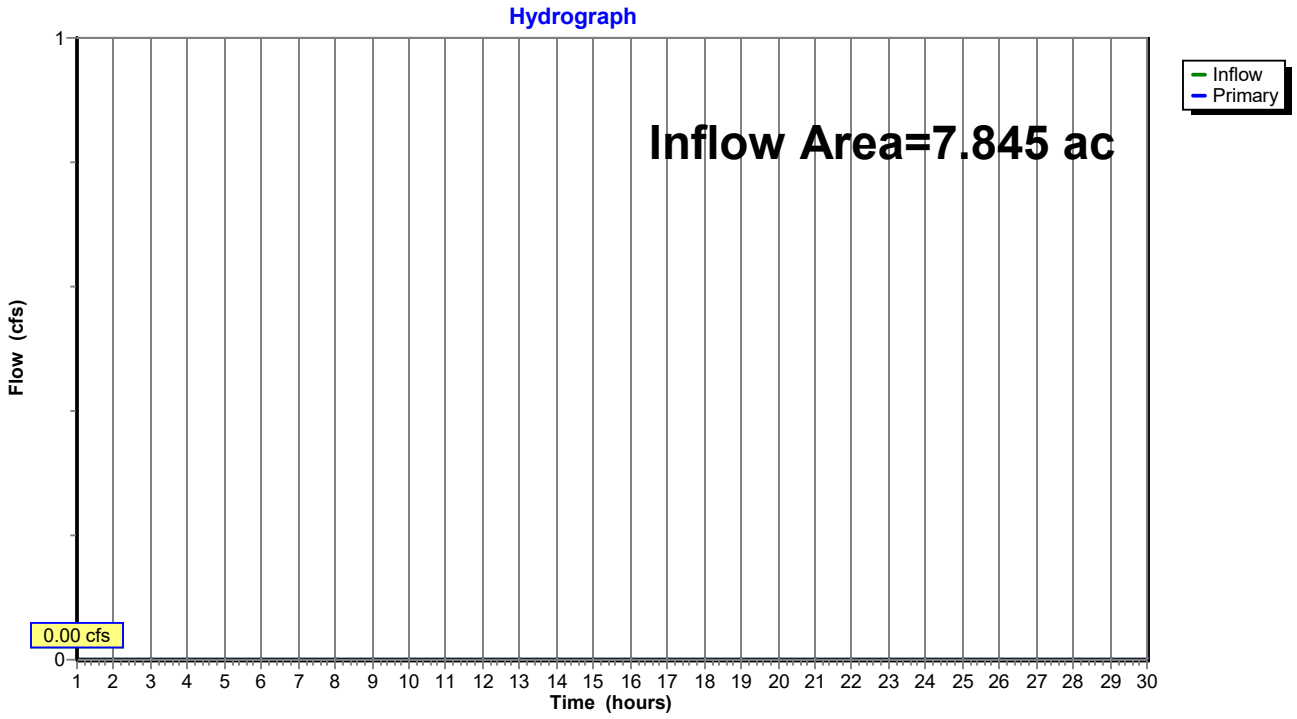


Summary for Link 2L: Point of Analysis

Inflow Area = 7.845 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2yr event
Inflow = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs

Link 2L: Point of Analysis

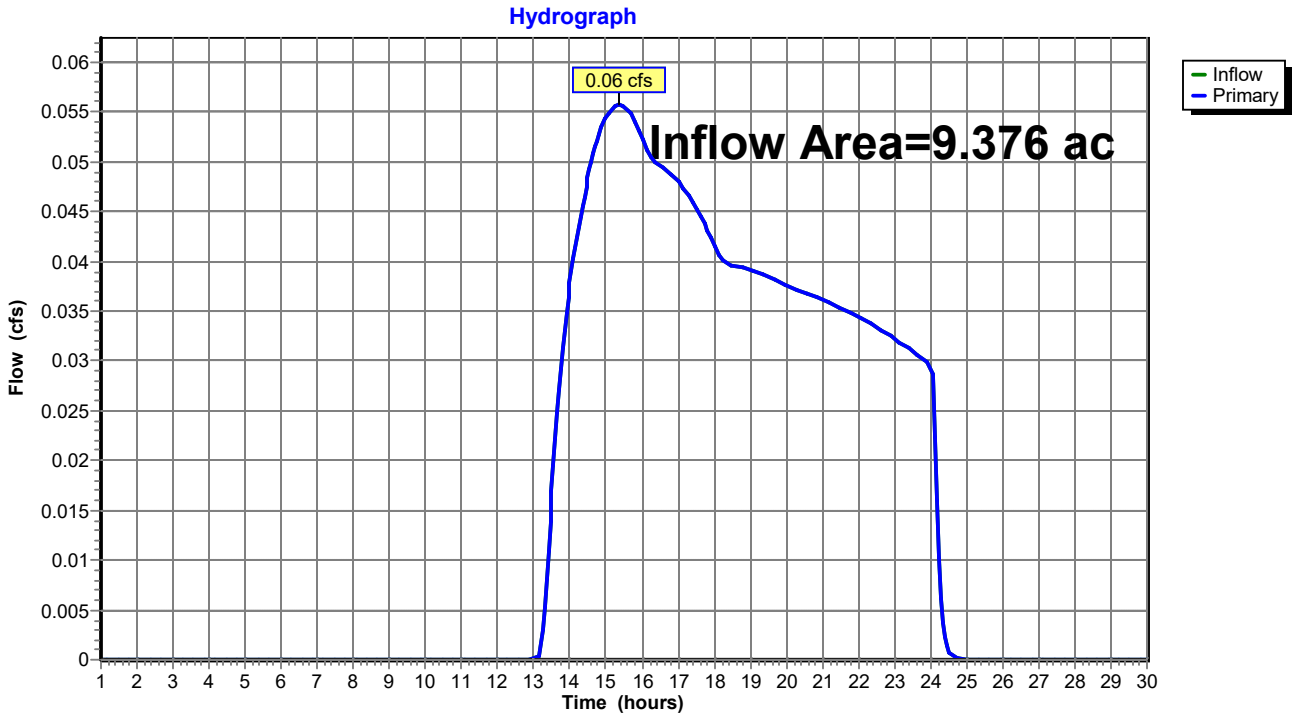


Summary for Link 3L: Point of Analysis

Inflow Area = 9.376 ac, 15.30% Impervious, Inflow Depth = 0.05" for 2yr event
Inflow = 0.06 cfs @ 15.38 hrs, Volume= 0.036 af
Primary = 0.06 cfs @ 15.38 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs

Link 3L: Point of Analysis



Time span=1.00-30.00 hrs, dt=0.05 hrs, 581 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: West Lot Runoff Area=428,997 sf 15.41% Impervious Runoff Depth=0.45"
Flow Length=1,454' Tc=15.2 min CN=48 Runoff=1.91 cfs 0.366 af

Subcatchment 2S: Solar Field Area Runoff Area=341,707 sf 0.00% Impervious Runoff Depth=0.06"
Flow Length=724' Tc=18.2 min CN=36 Runoff=0.06 cfs 0.038 af

Subcatchment 3S: Central Subcatchment Runoff Area=408,430 sf 15.30% Impervious Runoff Depth=0.40"
Flow Length=1,174' Tc=14.9 min CN=47 Runoff=1.54 cfs 0.315 af

Link 1L: Point of Analysis Inflow=1.91 cfs 0.366 af
Primary=1.91 cfs 0.366 af

Link 2L: Point of Analysis Inflow=0.06 cfs 0.038 af
Primary=0.06 cfs 0.038 af

Link 3L: Point of Analysis Inflow=1.54 cfs 0.315 af
Primary=1.54 cfs 0.315 af

Total Runoff Area = 27.069 ac Runoff Volume = 0.720 af Average Runoff Depth = 0.32"
89.09% Pervious = 24.117 ac 10.91% Impervious = 2.952 ac

Summary for Subcatchment 1S: West Lot

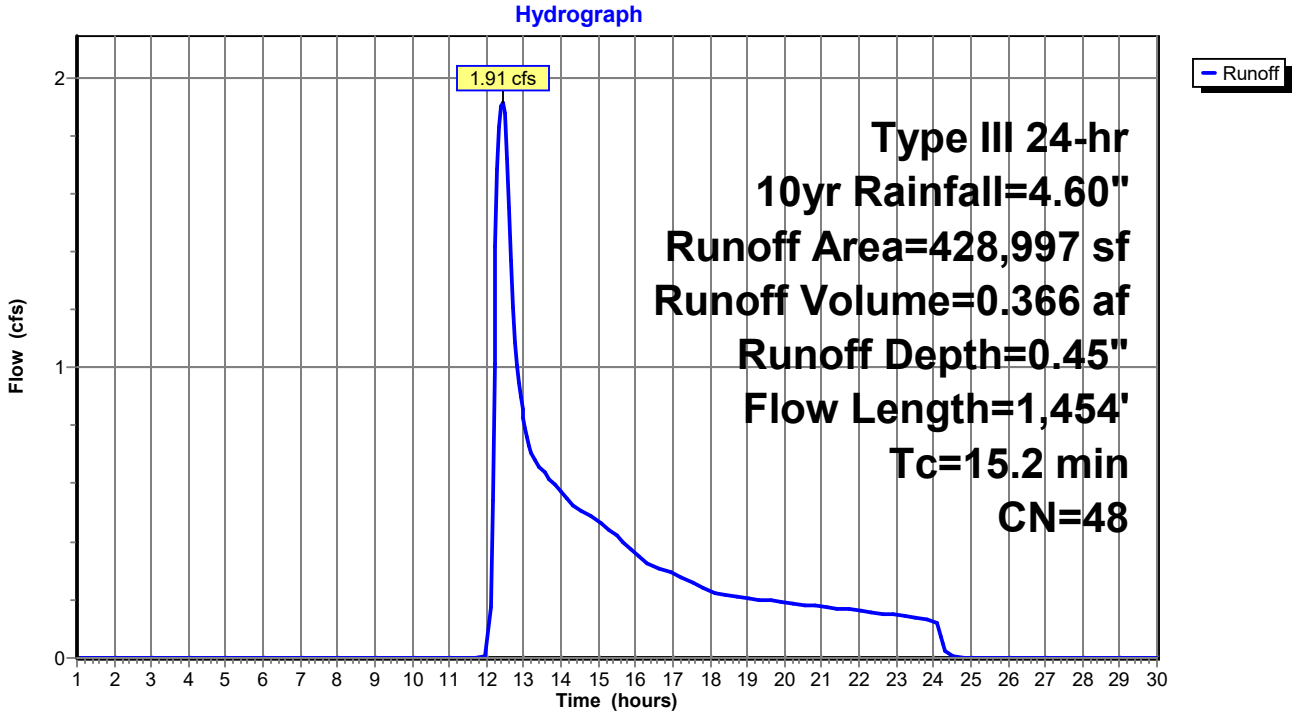
Runoff = 1.91 cfs @ 12.43 hrs, Volume= 0.366 af, Depth= 0.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10yr Rainfall=4.60"

	Area (sf)	CN	Description
*	4,359	98	Paved parking, HSG A Driveway to Abutter to East
*	59,855	98	Wetlands/Vernal Pools HSG A
*	895	98	Roofs, HSG A Garage & House
*	14,738	68	<50% Grass cover, Poor, HSG A Temp Boat Storage
*	1,700	49	50-75% Grass cover, Fair, HSG A Lawn Abutter to East
*	5,618	96	Gravel surface, HSG A Gravel Driveway Abutter West
*	1,197	96	Gravel surface, HSG A Gravel Boat Storage
	982	98	Roofs, HSG A
	339,653	36	Woods, Fair, HSG A
	428,997	48	Weighted Average
	362,906		84.59% Pervious Area
	66,091		15.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	19	0.0392	1.25		**Sheet Flow, Driveway** Smooth surfaces n= 0.011 P2= 3.00"
0.3	42	0.0833	2.02		**Shallow Concentrated Flow, Lawn** Short Grass Pasture Kv= 7.0 fps
0.6	72	0.1676	2.05		**Shallow Concentrated Flow, Wooded Area** Woodland Kv= 5.0 fps
1.1	62	0.0325	0.90		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
0.1	19	0.3106	2.79		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
4.8	488	0.0125	1.68		**Shallow Concentrated Flow, Wetland** Grassed Waterway Kv= 15.0 fps
0.7	55	0.0723	1.34		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
5.2	445	0.0090	1.42		**Shallow Concentrated Flow, Wetland** Grassed Waterway Kv= 15.0 fps
0.8	72	0.0897	1.50		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
1.0	106	0.0142	1.79		**Shallow Concentrated Flow, Wetland** Grassed Waterway Kv= 15.0 fps
0.3	74	0.1078	4.92		**Shallow Concentrated Flow, Wetland** Grassed Waterway Kv= 15.0 fps
15.2	1,454	Total			

Subcatchment 1S: West Lot



Summary for Subcatchment 2S: Solar Field Area

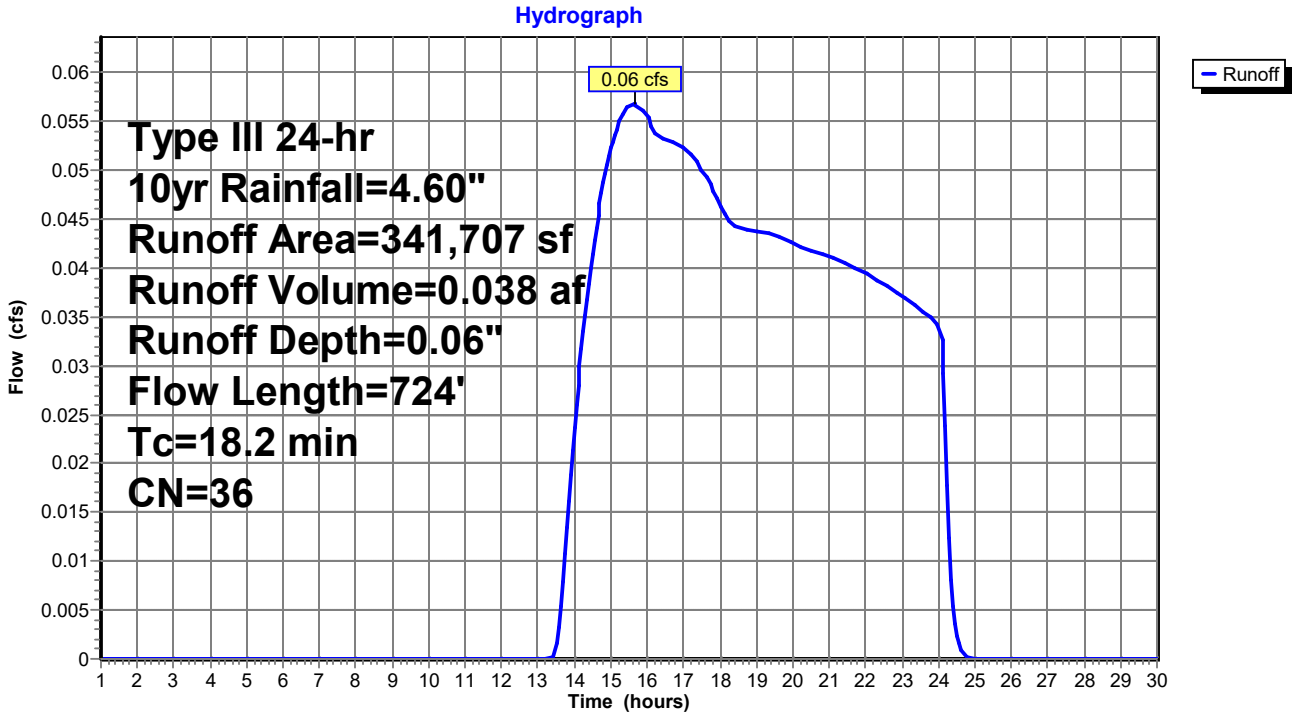
Runoff = 0.06 cfs @ 15.64 hrs, Volume= 0.038 af, Depth= 0.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10yr Rainfall=4.60"

Area (sf)	CN	Description
341,707	36	Woods, Fair, HSG A
341,707		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	39	0.0638	0.10		**Sheet Flow, Wooded** Woods: Light underbrush n= 0.400 P2= 3.00"
2.0	89	0.0211	0.73		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
9.6	596	0.0428	1.03		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
18.2	724	Total			

Subcatchment 2S: Solar Field Area



Summary for Subcatchment 3S: Central Subcatchment

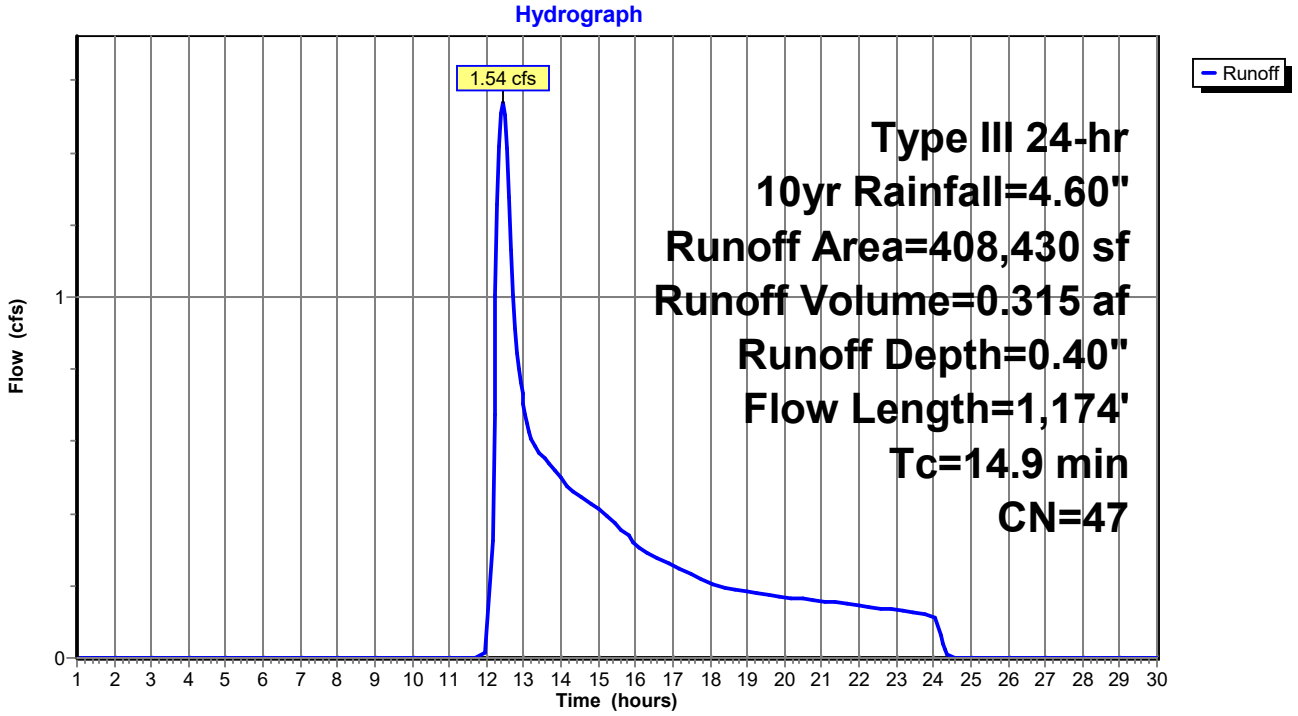
Runoff = 1.54 cfs @ 12.45 hrs, Volume= 0.315 af, Depth= 0.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10yr Rainfall=4.60"

	Area (sf)	CN	Description
*	1,106	98	Unconnected roofs, HSG A Allen House
*	246	98	Unconnected pavement, HSG A Walkway
*	7,754	30	Meadow, non-grazed, HSG A Lawn
*	34,256	57	Woods/grass comb., Poor, HSG A Cleared Area
*	61,151	98	Water Surface, HSG A Wetlands
*	303,917	36	Woods, Fair, HSG A
	408,430	47	Weighted Average
	345,927		84.70% Pervious Area
	62,503		15.30% Impervious Area
	1,352		2.16% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	19	0.4160	3.22		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.00"
4.8	79	0.0800	0.27		**Sheet Flow, Lawn** Grass: Short n= 0.150 P2= 3.00"
0.8	72	0.0240	1.55		**Shallow Concentrated Flow, Clreared Area** Nearly Bare & Untilled Kv= 10.0 fps
0.6	137	0.1310	3.62		**Shallow Concentrated Flow, Cleared & Wooded** Nearly Bare & Untilled Kv= 10.0 fps
2.1	184	0.0870	1.47		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
3.7	410	0.0150	1.84		**Shallow Concentrated Flow, Wetland W-JL6** Grassed Waterway Kv= 15.0 fps
0.9	98	0.1200	1.73		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
1.9	175	0.0110	1.57		**Shallow Concentrated Flow, Wetland W-JL5** Grassed Waterway Kv= 15.0 fps
14.9	1,174	Total			

Subcatchment 3S: Central Subcatchment

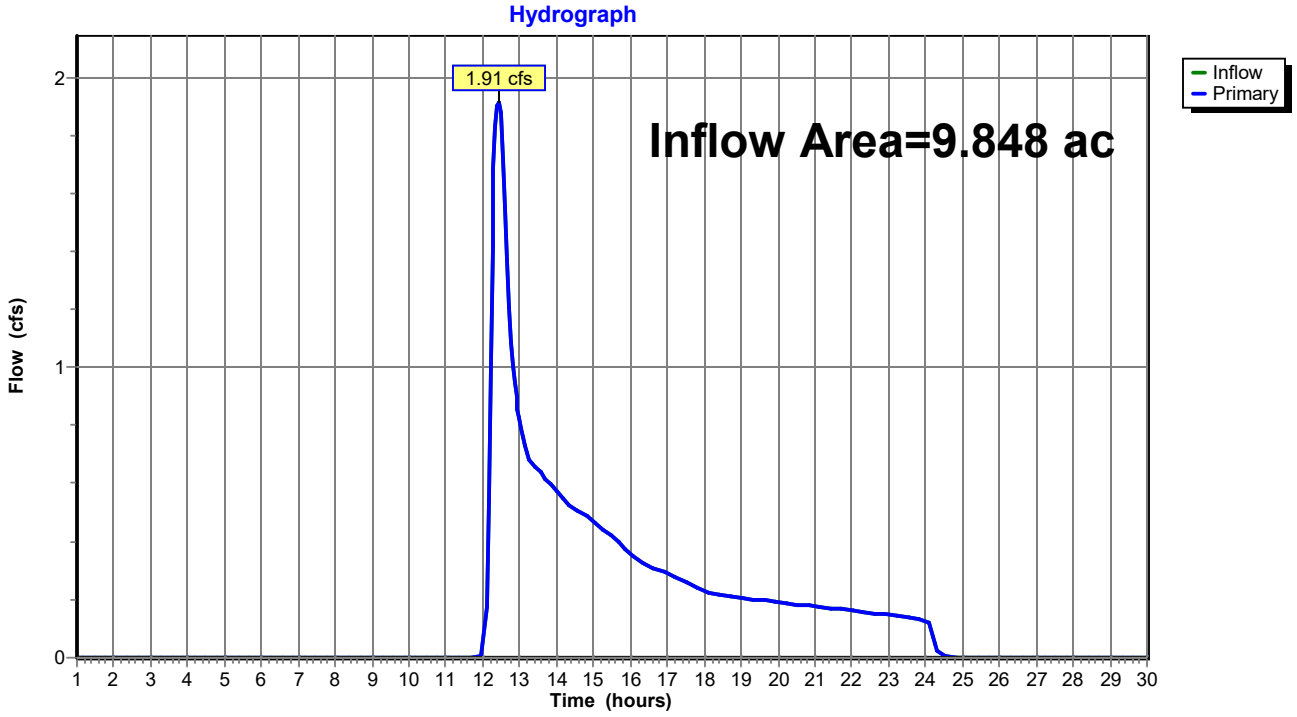


Summary for Link 1L: Point of Analysis

Inflow Area = 9.848 ac, 15.41% Impervious, Inflow Depth = 0.45" for 10yr event
Inflow = 1.91 cfs @ 12.43 hrs, Volume= 0.366 af
Primary = 1.91 cfs @ 12.43 hrs, Volume= 0.366 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs

Link 1L: Point of Analysis

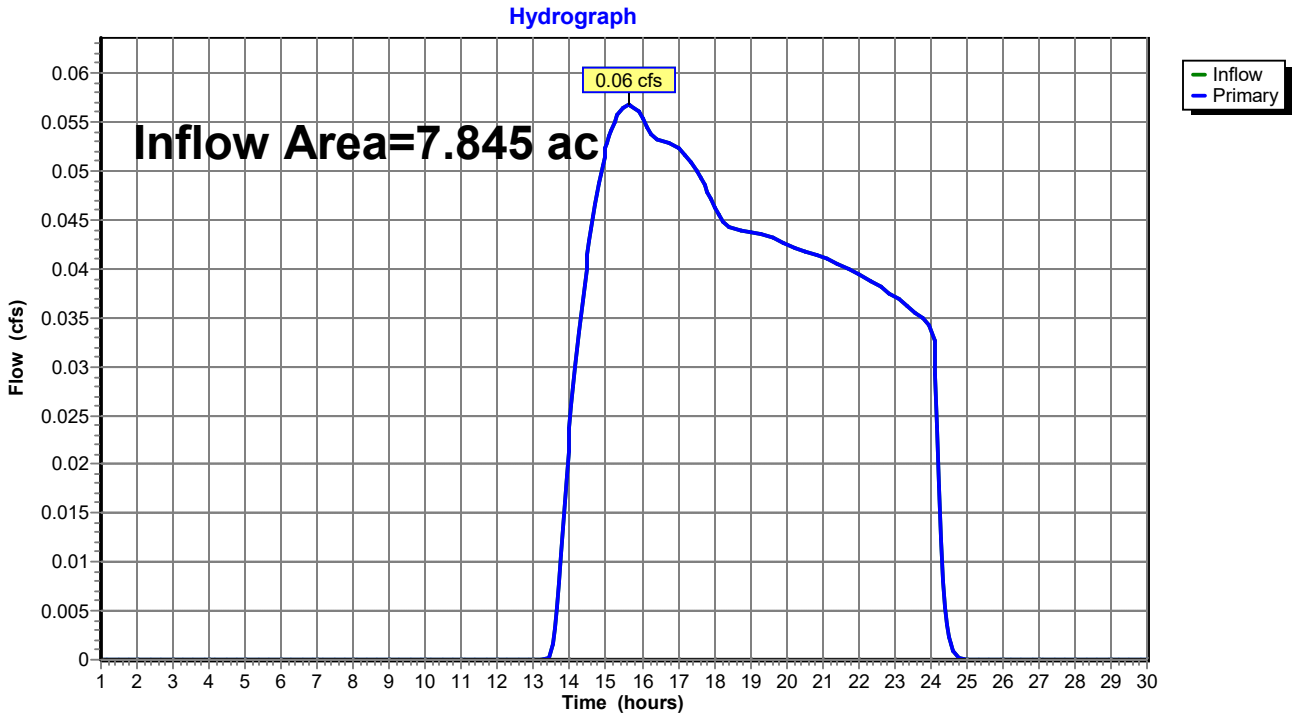


Summary for Link 2L: Point of Analysis

Inflow Area = 7.845 ac, 0.00% Impervious, Inflow Depth = 0.06" for 10yr event
Inflow = 0.06 cfs @ 15.64 hrs, Volume= 0.038 af
Primary = 0.06 cfs @ 15.64 hrs, Volume= 0.038 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs

Link 2L: Point of Analysis

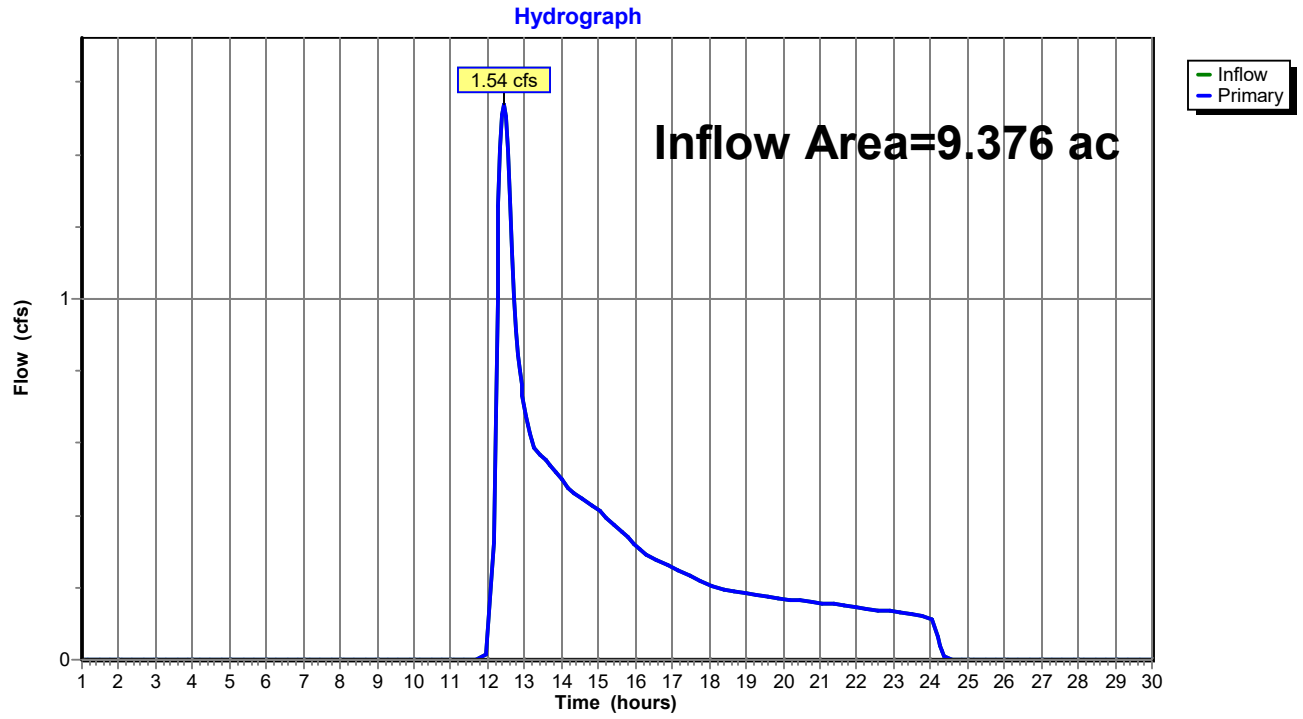


Summary for Link 3L: Point of Analysis

Inflow Area = 9.376 ac, 15.30% Impervious, Inflow Depth = 0.40" for 10yr event
Inflow = 1.54 cfs @ 12.45 hrs, Volume= 0.315 af
Primary = 1.54 cfs @ 12.45 hrs, Volume= 0.315 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs

Link 3L: Point of Analysis



Time span=1.00-30.00 hrs, dt=0.05 hrs, 581 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: West Lot Runoff Area=428,997 sf 15.41% Impervious Runoff Depth=0.91"
Flow Length=1,454' Tc=15.2 min CN=48 Runoff=5.46 cfs 0.749 af

Subcatchment 2S: Solar Field Area Runoff Area=341,707 sf 0.00% Impervious Runoff Depth=0.25"
Flow Length=724' Tc=18.2 min CN=36 Runoff=0.34 cfs 0.164 af

Subcatchment 3S: Central Subcatchment Runoff Area=408,430 sf 15.30% Impervious Runoff Depth=0.85"
Flow Length=1,174' Tc=14.9 min CN=47 Runoff=4.62 cfs 0.662 af

Link 1L: Point of Analysis Inflow=5.46 cfs 0.749 af
Primary=5.46 cfs 0.749 af

Link 2L: Point of Analysis Inflow=0.34 cfs 0.164 af
Primary=0.34 cfs 0.164 af

Link 3L: Point of Analysis Inflow=4.62 cfs 0.662 af
Primary=4.62 cfs 0.662 af

Total Runoff Area = 27.069 ac Runoff Volume = 1.576 af Average Runoff Depth = 0.70"
89.09% Pervious = 24.117 ac 10.91% Impervious = 2.952 ac

Summary for Subcatchment 1S: West Lot

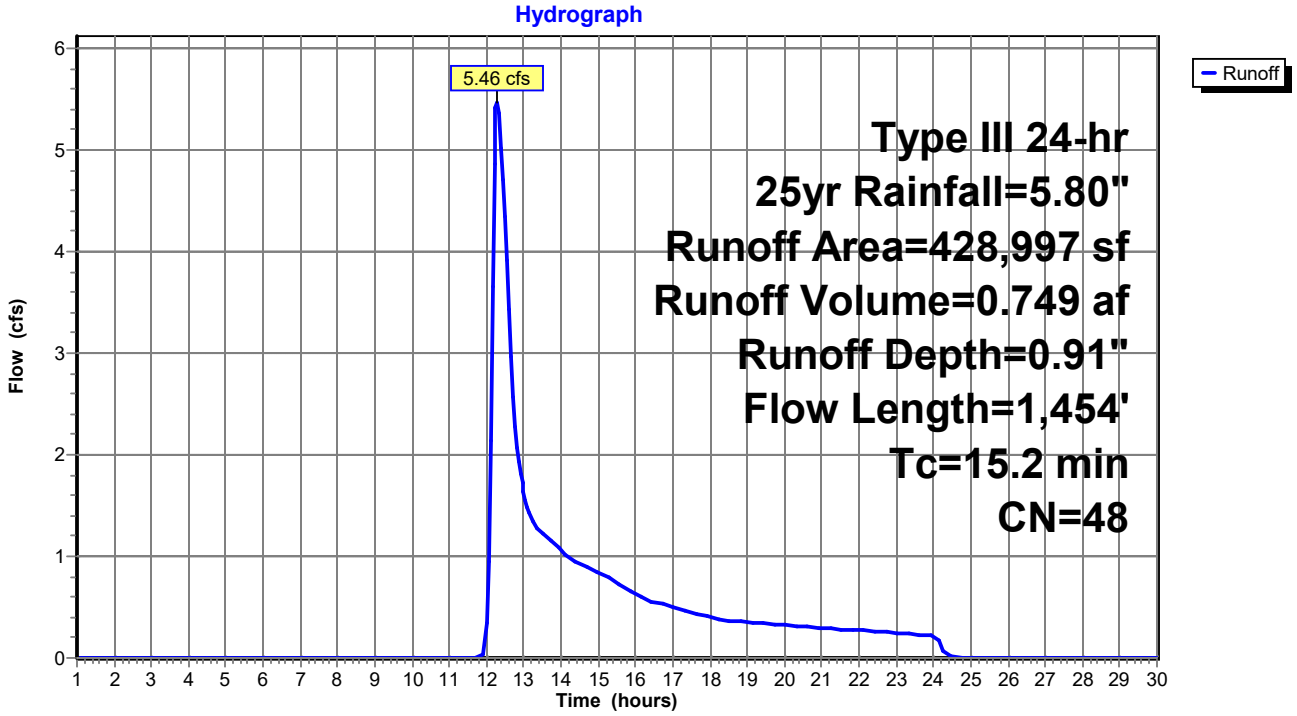
Runoff = 5.46 cfs @ 12.28 hrs, Volume= 0.749 af, Depth= 0.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25yr Rainfall=5.80"

	Area (sf)	CN	Description
*	4,359	98	Paved parking, HSG A Driveway to Abutter to East
*	59,855	98	Wetlands/Vernal Pools HSG A
*	895	98	Roofs, HSG A Garage & House
*	14,738	68	<50% Grass cover, Poor, HSG A Temp Boat Storage
*	1,700	49	50-75% Grass cover, Fair, HSG A Lawn Abutter to East
*	5,618	96	Gravel surface, HSG A Gravel Driveway Abutter West
*	1,197	96	Gravel surface, HSG A Gravel Boat Storage
	982	98	Roofs, HSG A
	339,653	36	Woods, Fair, HSG A
	428,997	48	Weighted Average
	362,906		84.59% Pervious Area
	66,091		15.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	19	0.0392	1.25		**Sheet Flow, Driveway** Smooth surfaces n= 0.011 P2= 3.00"
0.3	42	0.0833	2.02		**Shallow Concentrated Flow, Lawn** Short Grass Pasture Kv= 7.0 fps
0.6	72	0.1676	2.05		**Shallow Concentrated Flow, Wooded Area** Woodland Kv= 5.0 fps
1.1	62	0.0325	0.90		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
0.1	19	0.3106	2.79		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
4.8	488	0.0125	1.68		**Shallow Concentrated Flow, Wetland** Grassed Waterway Kv= 15.0 fps
0.7	55	0.0723	1.34		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
5.2	445	0.0090	1.42		**Shallow Concentrated Flow, Wetland** Grassed Waterway Kv= 15.0 fps
0.8	72	0.0897	1.50		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
1.0	106	0.0142	1.79		**Shallow Concentrated Flow, Wetland** Grassed Waterway Kv= 15.0 fps
0.3	74	0.1078	4.92		**Shallow Concentrated Flow, Wetland** Grassed Waterway Kv= 15.0 fps
15.2	1,454	Total			

Subcatchment 1S: West Lot



Summary for Subcatchment 2S: Solar Field Area

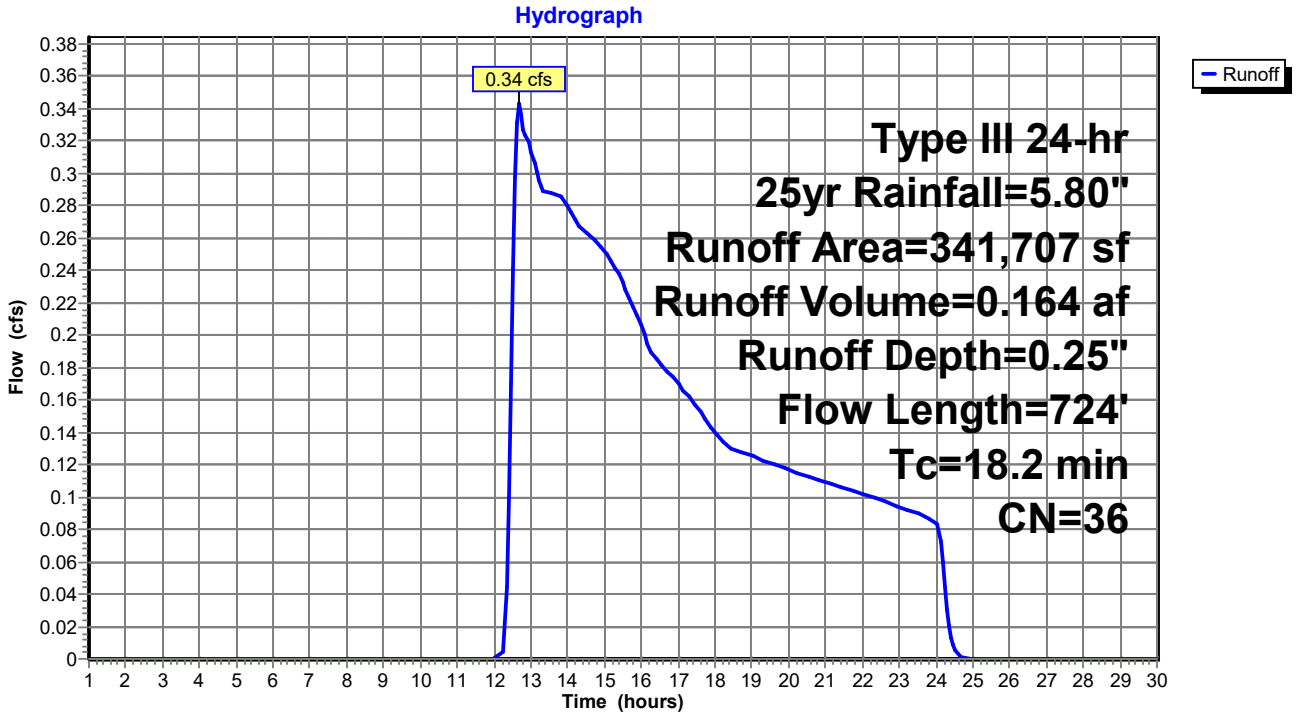
Runoff = 0.34 cfs @ 12.67 hrs, Volume= 0.164 af, Depth= 0.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25yr Rainfall=5.80"

Area (sf)	CN	Description
341,707	36	Woods, Fair, HSG A
341,707		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	39	0.0638	0.10		**Sheet Flow, Wooded** Woods: Light underbrush n= 0.400 P2= 3.00"
2.0	89	0.0211	0.73		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
9.6	596	0.0428	1.03		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
18.2	724	Total			

Subcatchment 2S: Solar Field Area



Summary for Subcatchment 3S: Central Subcatchment

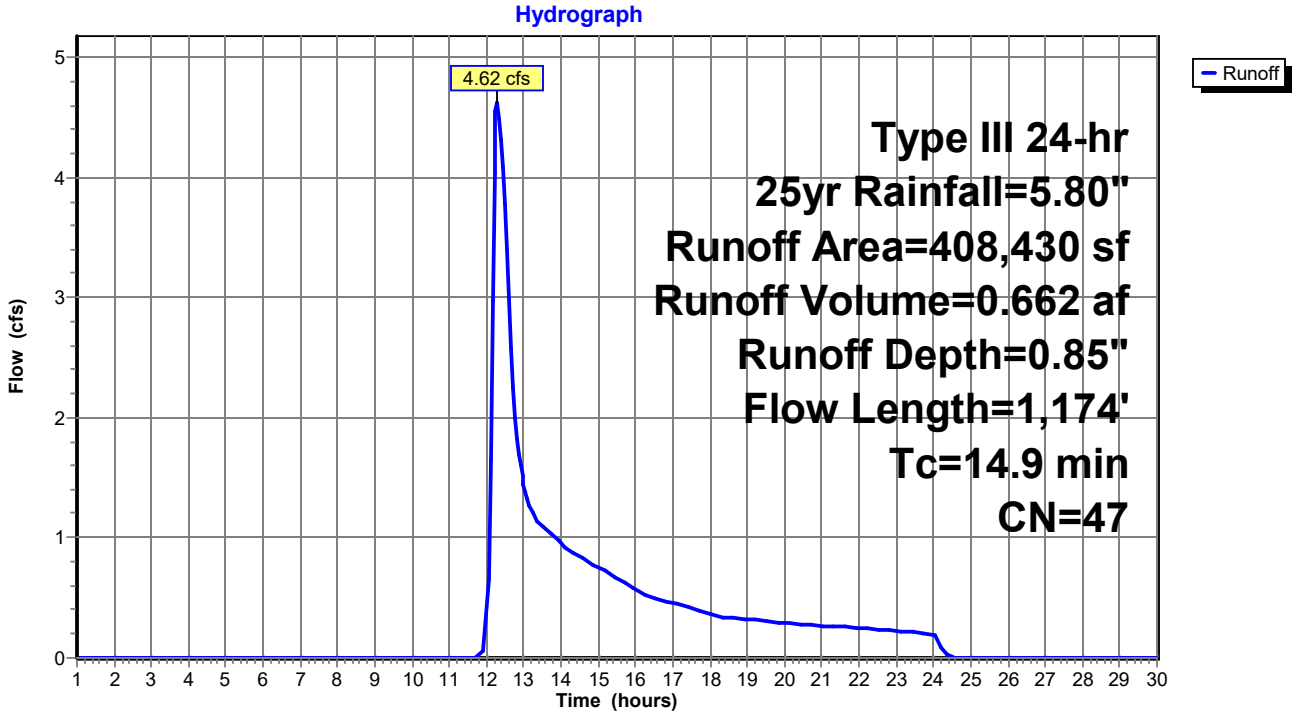
Runoff = 4.62 cfs @ 12.29 hrs, Volume= 0.662 af, Depth= 0.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25yr Rainfall=5.80"

	Area (sf)	CN	Description
*	1,106	98	Unconnected roofs, HSG A Allen House
*	246	98	Unconnected pavement, HSG A Walkway
*	7,754	30	Meadow, non-grazed, HSG A Lawn
*	34,256	57	Woods/grass comb., Poor, HSG A Cleared Area
*	61,151	98	Water Surface, HSG A Wetlands
*	303,917	36	Woods, Fair, HSG A
	408,430	47	Weighted Average
	345,927		84.70% Pervious Area
	62,503		15.30% Impervious Area
	1,352		2.16% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	19	0.4160	3.22		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.00"
4.8	79	0.0800	0.27		**Sheet Flow, Lawn** Grass: Short n= 0.150 P2= 3.00"
0.8	72	0.0240	1.55		**Shallow Concentrated Flow, Clreared Area** Nearly Bare & Untilled Kv= 10.0 fps
0.6	137	0.1310	3.62		**Shallow Concentrated Flow, Cleared & Wooded** Nearly Bare & Untilled Kv= 10.0 fps
2.1	184	0.0870	1.47		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
3.7	410	0.0150	1.84		**Shallow Concentrated Flow, Wetland W-JL6** Grassed Waterway Kv= 15.0 fps
0.9	98	0.1200	1.73		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
1.9	175	0.0110	1.57		**Shallow Concentrated Flow, Wetland W-JL5** Grassed Waterway Kv= 15.0 fps
14.9	1,174	Total			

Subcatchment 3S: Central Subcatchment

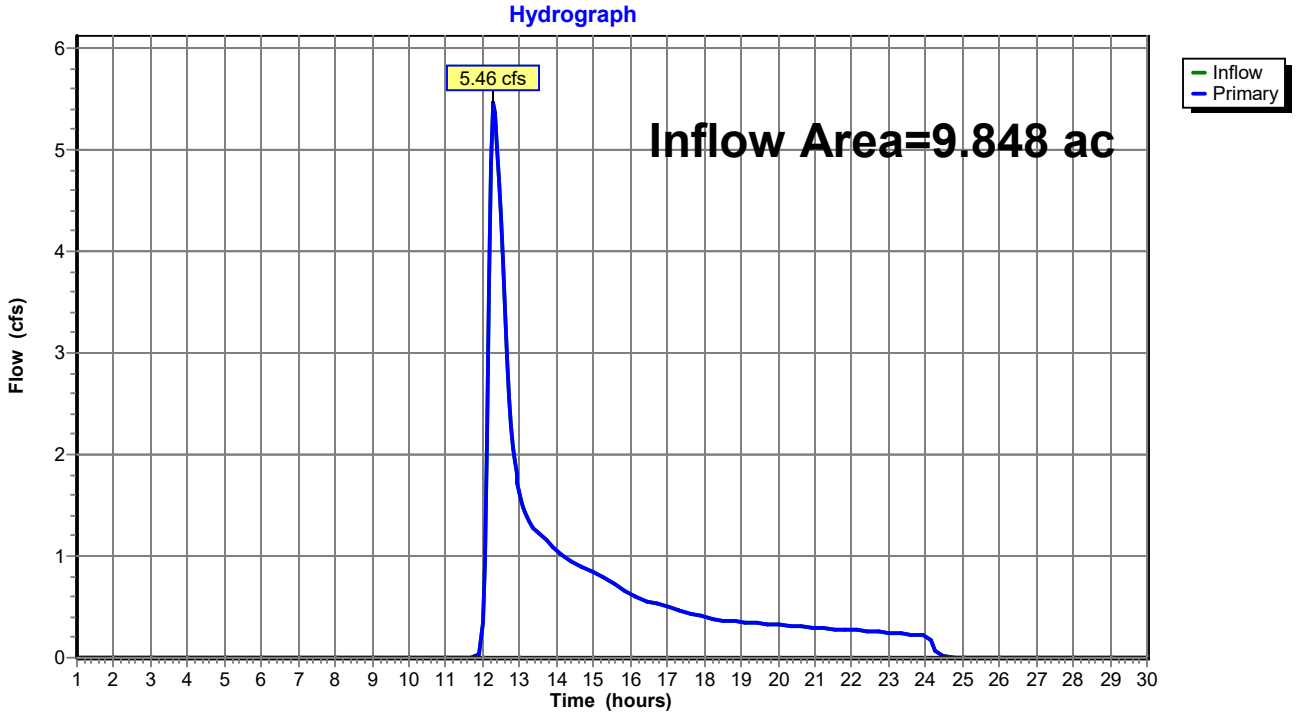


Summary for Link 1L: Point of Analysis

Inflow Area = 9.848 ac, 15.41% Impervious, Inflow Depth = 0.91" for 25yr event
Inflow = 5.46 cfs @ 12.28 hrs, Volume= 0.749 af
Primary = 5.46 cfs @ 12.28 hrs, Volume= 0.749 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs

Link 1L: Point of Analysis

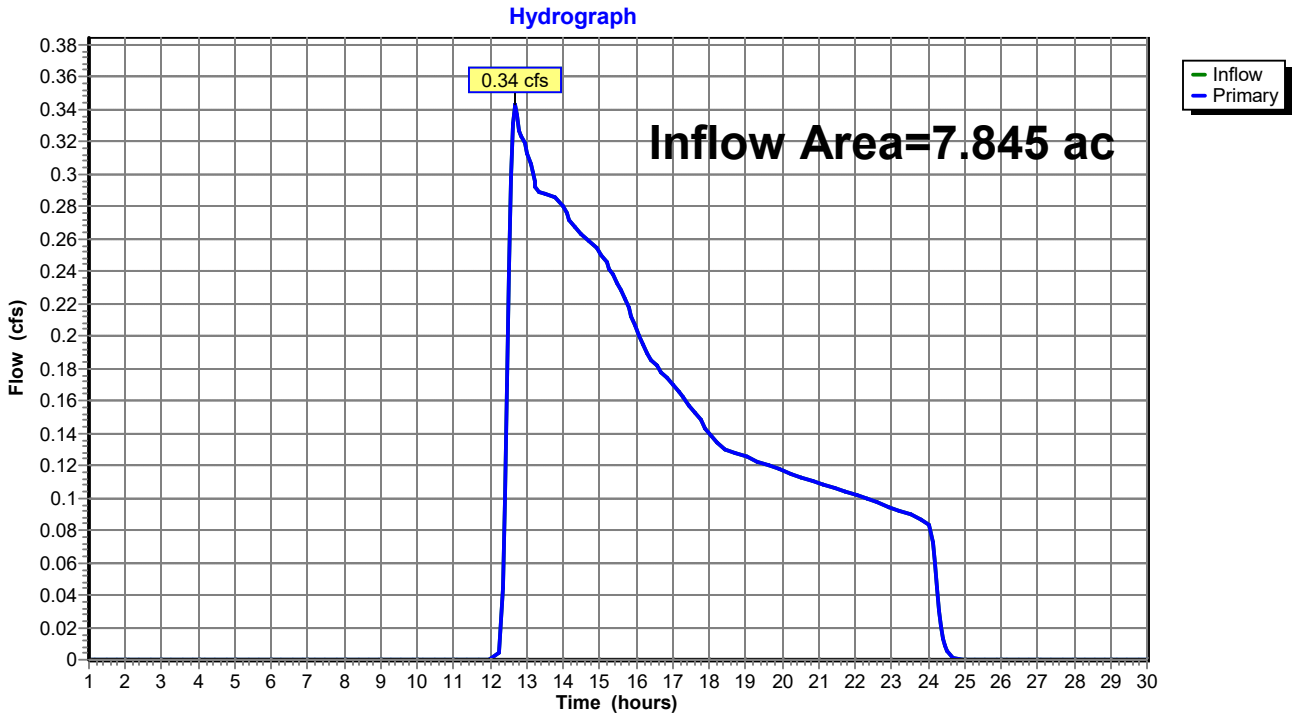


Summary for Link 2L: Point of Analysis

Inflow Area = 7.845 ac, 0.00% Impervious, Inflow Depth = 0.25" for 25yr event
Inflow = 0.34 cfs @ 12.67 hrs, Volume= 0.164 af
Primary = 0.34 cfs @ 12.67 hrs, Volume= 0.164 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs

Link 2L: Point of Analysis

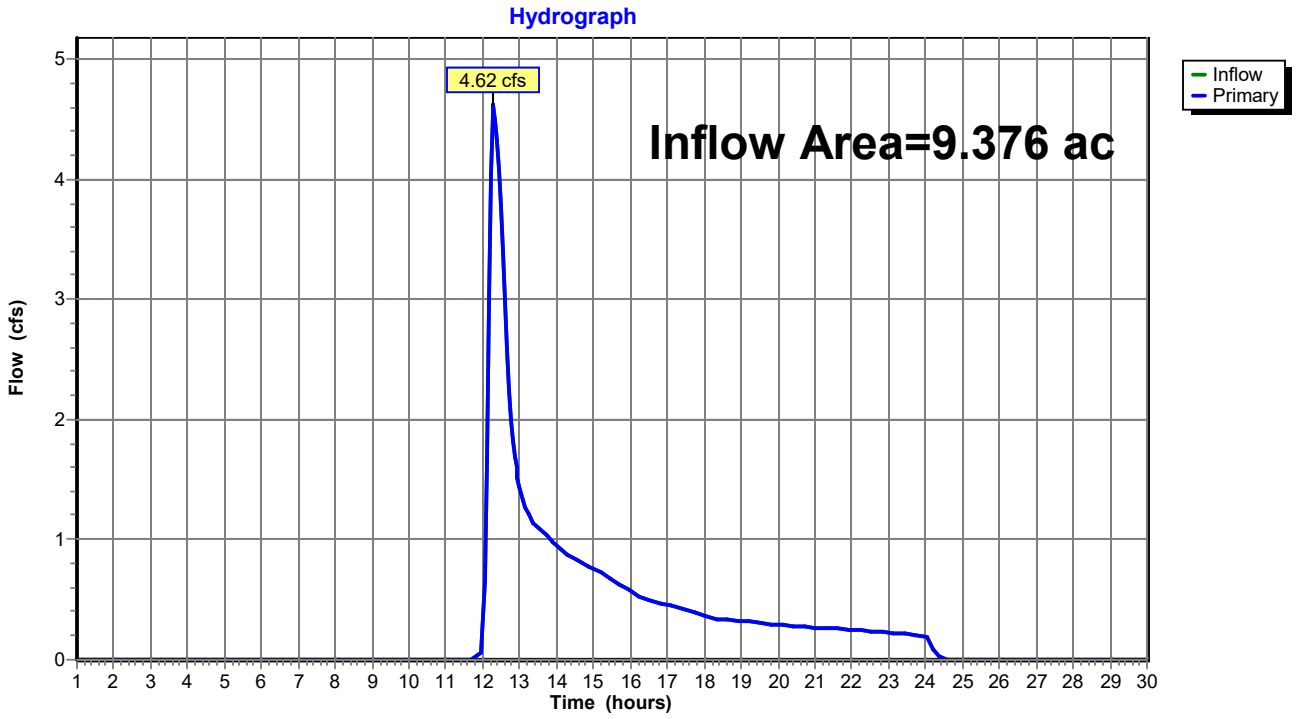


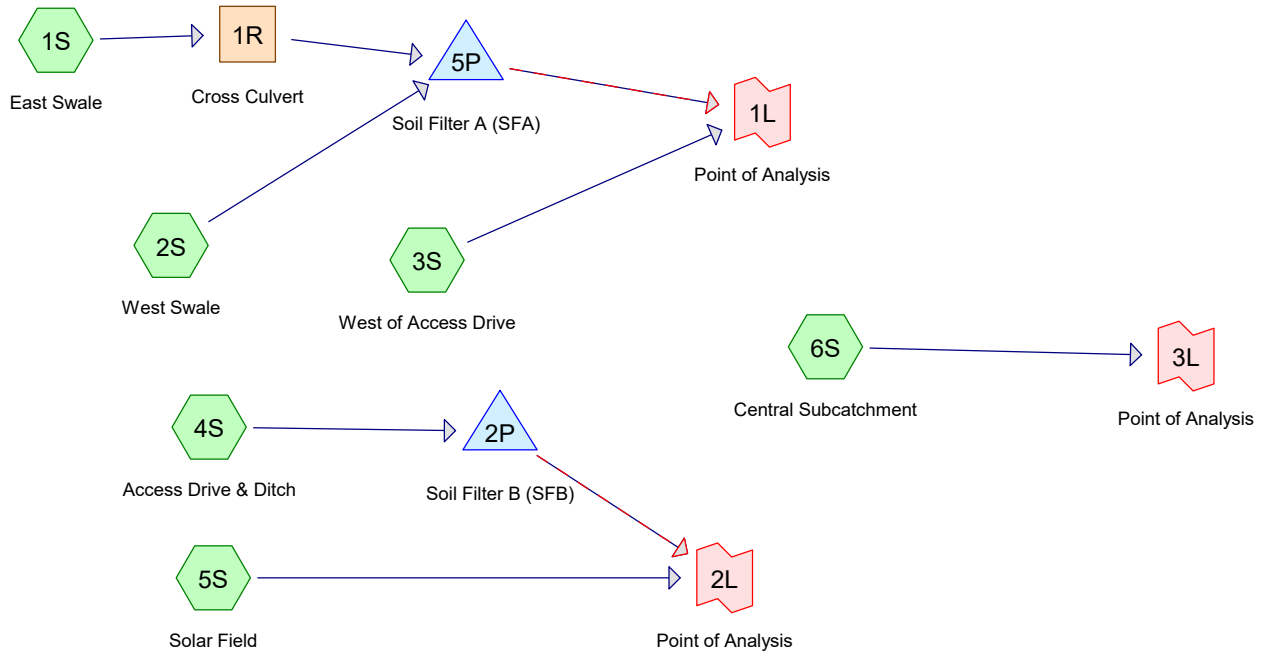
Summary for Link 3L: Point of Analysis

Inflow Area = 9.376 ac, 15.30% Impervious, Inflow Depth = 0.85" for 25yr event
Inflow = 4.62 cfs @ 12.29 hrs, Volume= 0.662 af
Primary = 4.62 cfs @ 12.29 hrs, Volume= 0.662 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-30.00 hrs, dt= 0.05 hrs

Link 3L: Point of Analysis





Subcat Reach Pond Link

Routing Diagram for 2024-01-30 Allen Solar Post Conditions FD KJB
Prepared by {enter your company name here}, Printed 1/31/2024

Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1R	328.25	327.25	36.0	0.0278	0.020	18.0	0.0	0.0

Time span=5.00-80.00 hrs, dt=0.05 hrs, 1501 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: East Swale Runoff Area=340,030 sf 18.19% Impervious Runoff Depth=0.07"
Flow Length=1,385' Tc=13.4 min CN=49 Runoff=0.08 cfs 0.048 af

Subcatchment 2S: West Swale Runoff Area=22,256 sf 0.00% Impervious Runoff Depth=0.71"
Flow Length=378' Tc=6.0 min CN=70 Runoff=0.37 cfs 0.030 af

Subcatchment 3S: West of Access Drive Runoff Area=67,856 sf 5.77% Impervious Runoff Depth=0.02"
Flow Length=307' Tc=6.0 min CN=45 Runoff=0.00 cfs 0.003 af

Subcatchment 4S: Access Drive & Ditch Runoff Area=47,481 sf 0.34% Impervious Runoff Depth=0.02"
Flow Length=372' Tc=6.0 min CN=44 Runoff=0.00 cfs 0.001 af

Subcatchment 5S: Solar Field Runoff Area=297,302 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=759' Tc=15.7 min CN=31 Runoff=0.00 cfs 0.000 af

Subcatchment 6S: Central Subcatchment Runoff Area=406,445 sf 15.38% Impervious Runoff Depth=0.02"
Flow Length=1,174' Tc=14.9 min CN=45 Runoff=0.03 cfs 0.019 af

Reach 1R: Cross Culvert Avg. Flow Depth=0.08' Max Vel=2.44 fps Inflow=0.08 cfs 0.048 af
15.0" Round Pipe n=0.020 L=35.0' S=0.0571 '/' Capacity=10.04 cfs Outflow=0.08 cfs 0.048 af

Pond 2P: Soil Filter B (SFB) Peak Elev=313.50' Storage=4 cf Inflow=0.00 cfs 0.001 af
Primary=0.00 cfs 0.001 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.001 af

Pond 5P: Soil Filter A (SFA) Peak Elev=326.18' Storage=1,812 cf Inflow=0.37 cfs 0.079 af
Primary=0.04 cfs 0.079 af Secondary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.079 af

Link 1L: Point of Analysis Inflow=0.04 cfs 0.082 af
Primary=0.04 cfs 0.082 af

Link 2L: Point of Analysis Inflow=0.00 cfs 0.001 af
Primary=0.00 cfs 0.001 af

Link 3L: Point of Analysis Inflow=0.03 cfs 0.019 af
Primary=0.03 cfs 0.019 af

Summary for Subcatchment 1S: East Swale

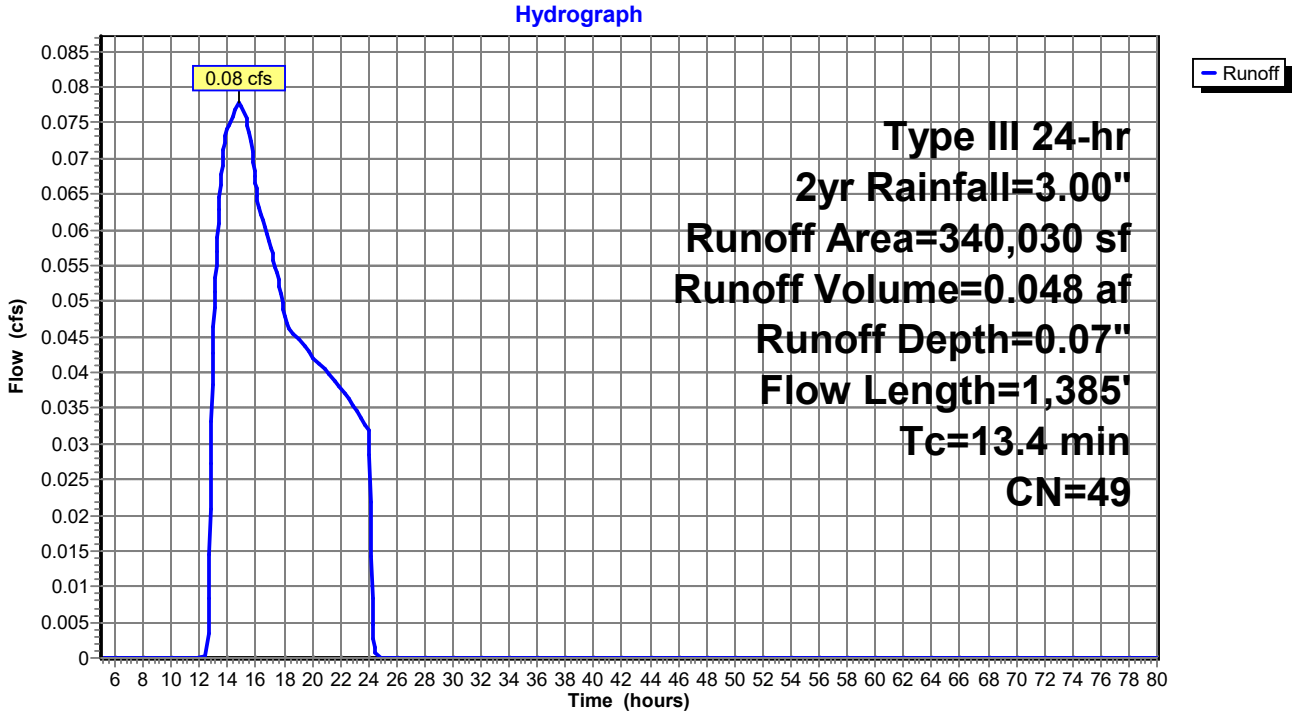
Runoff = 0.08 cfs @ 14.81 hrs, Volume= 0.048 af, Depth= 0.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 2yr Rainfall=3.00"

	Area (sf)	CN	Description
*	4,359	98	Paved parking, HSG A Driveway to Abutter to East
*	56,595	98	Wetlands/Vernal Pools HSG A
*	895	98	Roofs, HSG A Garage & House
*	1,197	96	Gravel HSG A Boat Storage
*	13,837	68	<50% Grass cover, Poor, HSG A Temp Boat Storage
*	1,700	49	50-75% Grass cover, Fair, HSG A Lawn Abutter to East
*	19,005	39	>75% Grass cover, Good, HSG B Ditch
	27,542	35	Brush, Fair, HSG A
	214,900	36	Woods, Fair, HSG A
	340,030	49	Weighted Average
	278,181		81.81% Pervious Area
	61,849		18.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	19	0.0392	1.25		**Sheet Flow, Driveway** Smooth surfaces n= 0.011 P2= 3.00"
0.3	42	0.0833	2.02		**Shallow Concentrated Flow, Lawn** Short Grass Pasture Kv= 7.0 fps
0.6	72	0.1676	2.05		**Shallow Concentrated Flow, Wooded Area** Woodland Kv= 5.0 fps
1.1	62	0.0325	0.90		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
0.1	19	0.3106	2.79		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
4.8	488	0.0125	1.68		**Shallow Concentrated Flow, Wetland** Grassed Waterway Kv= 15.0 fps
0.7	55	0.0723	1.34		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
4.9	427	0.0094	1.45		**Shallow Concentrated Flow, Wetland** Grassed Waterway Kv= 15.0 fps
0.0	9	0.5005	10.61		**Shallow Concentrated Flow, Wetland** Grassed Waterway Kv= 15.0 fps
0.6	192	0.0066	5.45	144.50	**Channel Flow, East Ditch** Area= 26.5 sf Perim= 16.8' r= 1.58' n= 0.030 Earth, grassed & winding
13.4	1,385	Total			

Subcatchment 1S: East Swale



Summary for Subcatchment 2S: West Swale

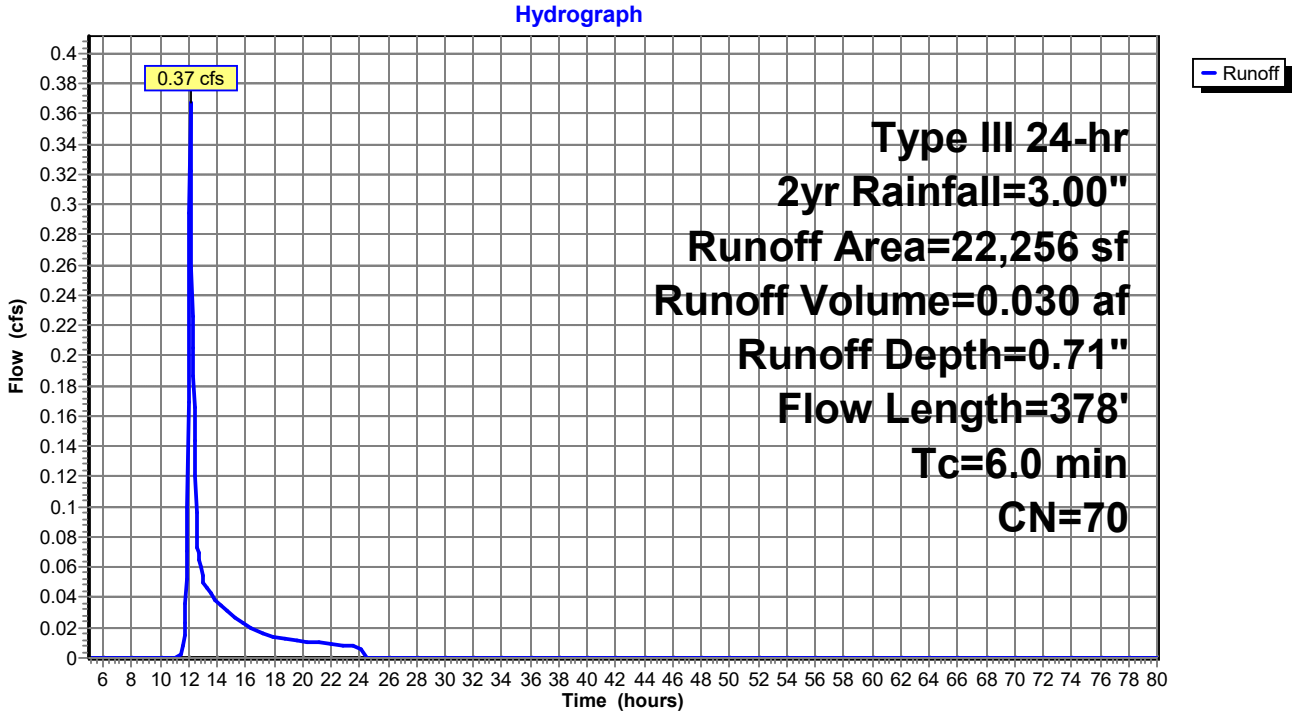
Runoff = 0.37 cfs @ 12.11 hrs, Volume= 0.030 af, Depth= 0.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 2yr Rainfall=3.00"

Area (sf)	CN	Description
11,951	96	Gravel surface, HSG A
10,305	39	>75% Grass cover, Good, HSG A
22,256	70	Weighted Average
22,256		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	26	0.0208	1.03		**Sheet Flow, Access Drive** Smooth surfaces n= 0.011 P2= 3.00"
0.1	10	0.1934	3.08		**Shallow Concentrated Flow, Ditch Side Slope** Short Grass Pasture Kv= 7.0 fps
0.1	58	0.0345	12.47	330.38	**Channel Flow, Ditch to STA 0+45** Area= 26.5 sf Perim= 16.8' r= 1.58' n= 0.030 Earth, grassed & winding
0.2	185	0.0649	17.10	453.13	**Channel Flow, Ditch to STA 2+30** Area= 26.5 sf Perim= 16.8' r= 1.58' n= 0.030 Earth, grassed & winding
0.2	99	0.0101	6.75	178.76	**Channel Flow, Ditch to STA 3+30** Area= 26.5 sf Perim= 16.8' r= 1.58' n= 0.030 Earth, grassed & winding
1.0	378	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2S: West Swale



Summary for Subcatchment 3S: West of Access Drive

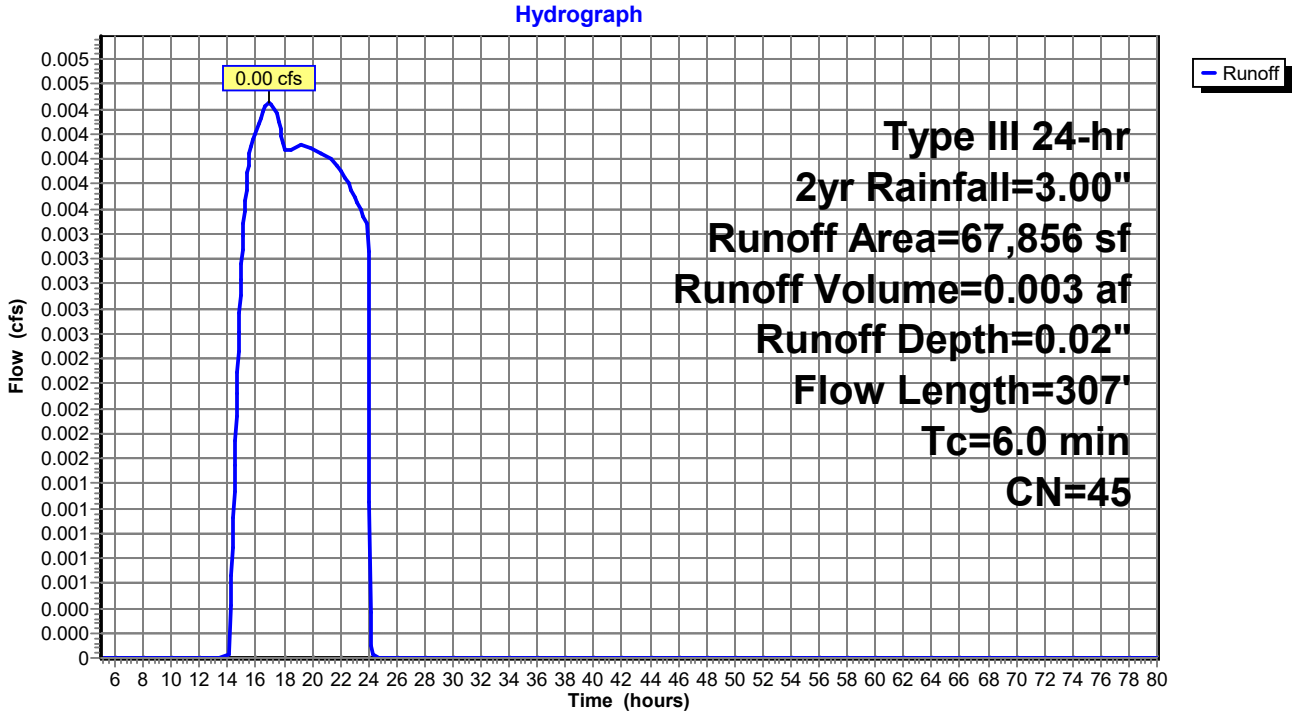
Runoff = 0.00 cfs @ 16.95 hrs, Volume= 0.003 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 2yr Rainfall=3.00"

	Area (sf)	CN	Description
*	2,935	98	HSG A, Wetland
*	5,618	96	Gravel surface, HSG A, Gravel Drive off sute West
*	982	98	Roofs, HSG A, abutter to the West
	5,089	39	>75% Grass cover, Good, HSG A
	1,800	30	Meadow, non-grazed, HSG A
	51,432	36	Woods, Fair, HSG A
	67,856	45	Weighted Average
	63,939		94.23% Pervious Area
	3,917		5.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	29	0.0696	0.21		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.00"
0.1	27	0.2222	3.30		**Shallow Concentrated Flow, West of Access** Short Grass Pasture Kv= 7.0 fps
0.1	127	0.0941	18.70	377.66	**Channel Flow, channel from tie in slopes** Area= 20.2 sf Perim= 14.8' r= 1.36' n= 0.030 Earth, grassed & winding
1.9	124	0.0464	1.08		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
4.4	307	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3S: West of Access Drive



Summary for Subcatchment 4S: Access Drive & Ditch

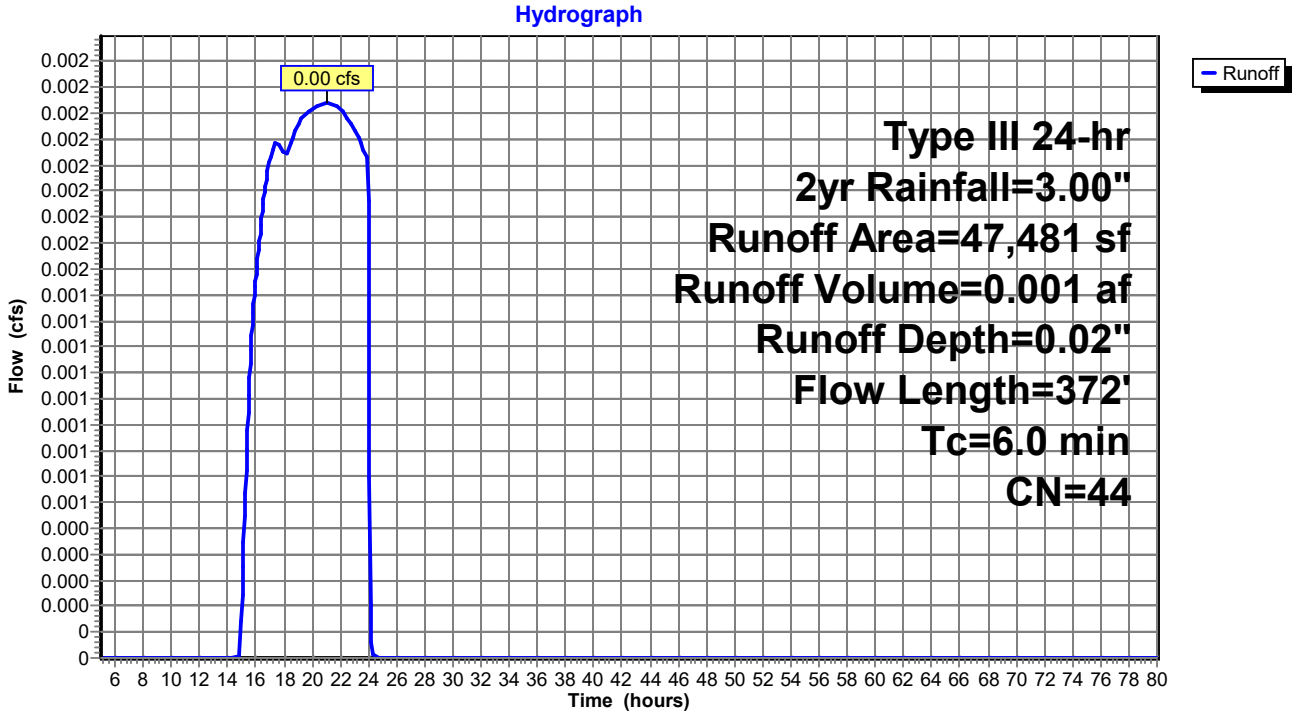
Runoff = 0.00 cfs @ 21.04 hrs, Volume= 0.001 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 2yr Rainfall=3.00"

	Area (sf)	CN	Description
	160	98	Unconnected pavement, HSG A
*	7,417	96	Gravel surface, HSG A, Access Driveway & Equipment Pad
*	14,608	36	Woods, Fair, HSG A, West Abutter
*	10,112	39	>75% Grass cover, Good, HSG A Ditch
	15,184	30	Meadow, non-grazed, HSG A
	47,481	44	Weighted Average
	47,321		99.66% Pervious Area
	160		0.34% Impervious Area
	160		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	19	0.0208	0.97		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 3.00"
0.0	9	0.1121	5.02		**Shallow Concentrated Flow, Grassed Ditch Side Slope** Grassed Waterway Kv= 15.0 fps
0.4	344	0.0479	14.69	389.29	**Channel Flow, Grassed Ditch - West STA 6+40 +/-** Area= 26.5 sf Perim= 16.8' r= 1.58' n= 0.030
0.7	372	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 4S: Access Drive & Ditch



Summary for Subcatchment 5S: Solar Field

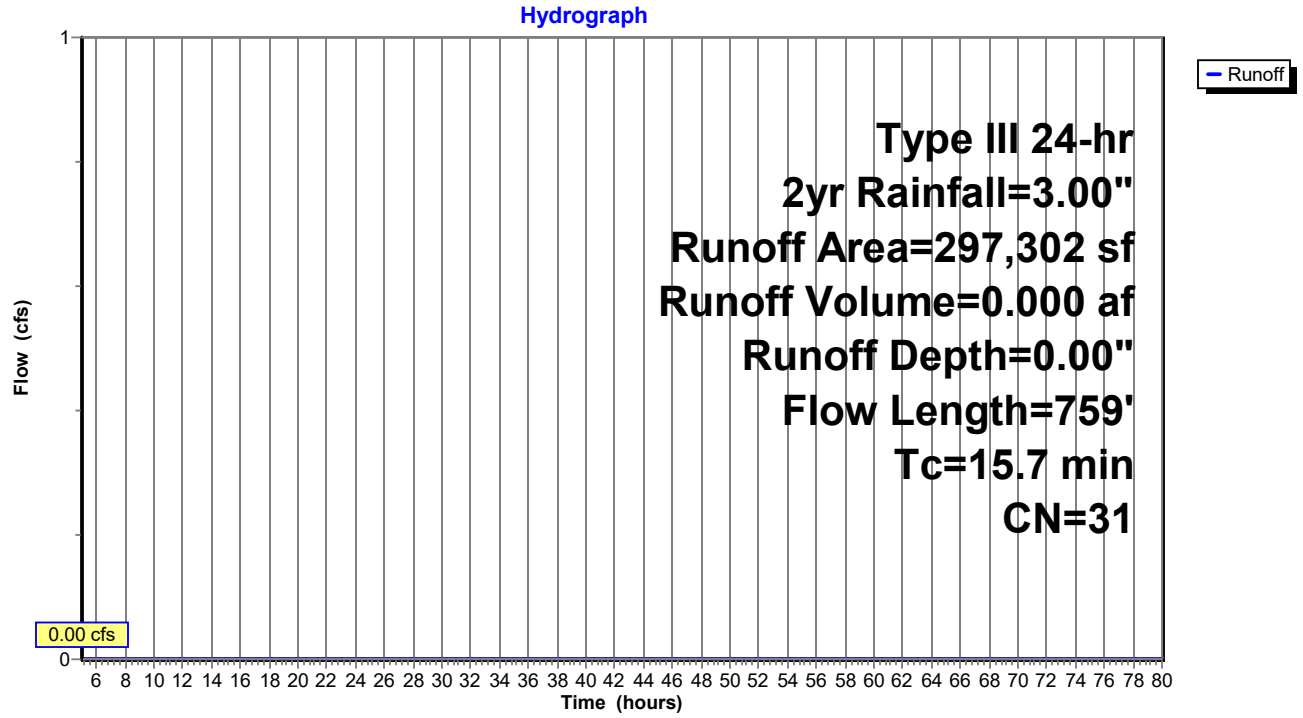
Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 2yr Rainfall=3.00"

	Area (sf)	CN	Description
*	43,118	36	Woods, Fair, HSG A, Northern Abutter
	254,184	30	Meadow, non-grazed, HSG A
	297,302	31	Weighted Average
	297,302		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	46	0.0329	2.72		**Shallow Concentrated Flow, upper ditch** Grassed Waterway Kv= 15.0 fps
0.1	141	0.0849	19.56	518.27	**Channel Flow, Ditch** Area= 26.5 sf Perim= 16.8' r= 1.58' n= 0.030 Earth, grassed & winding
9.3	98	0.0615	0.18		**Sheet Flow, Solar Field - Level Spreader** Grass: Dense n= 0.240 P2= 3.00"
6.0	474	0.0359	1.33		**Shallow Concentrated Flow, Solar Field** Short Grass Pasture Kv= 7.0 fps
15.7	759	Total			

Subcatchment 5S: Solar Field



Summary for Subcatchment 6S: Central Subcatchment

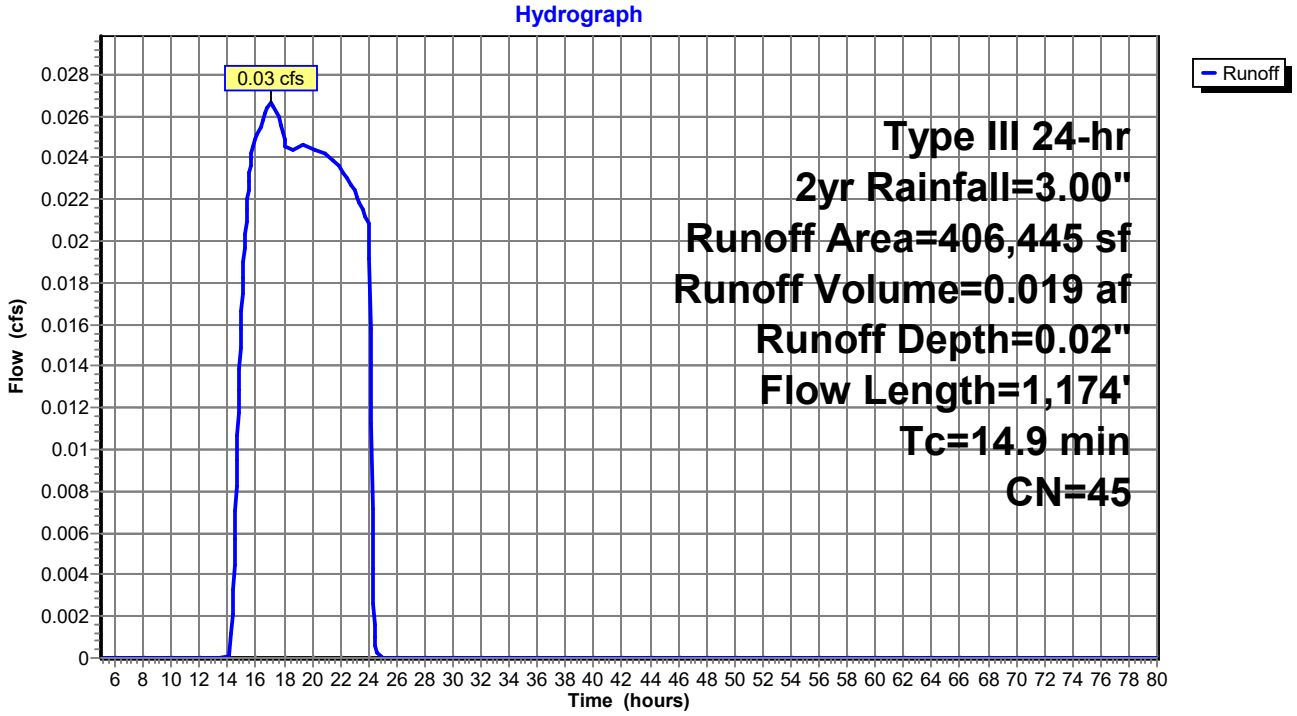
Runoff = 0.03 cfs @ 17.06 hrs, Volume= 0.019 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 2yr Rainfall=3.00"

	Area (sf)	CN	Description
*	1,106	98	Unconnected roofs, HSG A Allen House
*	246	98	Unconnected pavement, HSG A Walkway
*	7,754	30	Meadow, non-grazed, HSG A Lawn
	34,256	36	Woods, Fair, HSG A
*	61,151	98	Water Surface, HSG A Wetlands
*	254,557	36	Woods, Fair, HSG A
	47,375	30	Meadow, non-grazed, HSG A
	406,445	45	Weighted Average
	343,942		84.62% Pervious Area
	62,503		15.38% Impervious Area
	1,352		2.16% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	19	0.4160	3.22		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.00"
4.8	79	0.0800	0.27		**Sheet Flow, Lawn** Grass: Short n= 0.150 P2= 3.00"
0.8	72	0.0240	1.55		**Shallow Concentrated Flow, Clreared Area** Nearly Bare & Untilled Kv= 10.0 fps
0.6	137	0.1310	3.62		**Shallow Concentrated Flow, Cleared & Wooded** Nearly Bare & Untilled Kv= 10.0 fps
2.1	184	0.0870	1.47		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
3.7	410	0.0150	1.84		**Shallow Concentrated Flow, Wetland W-JL6** Grassed Waterway Kv= 15.0 fps
0.9	98	0.1200	1.73		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
1.9	175	0.0110	1.57		**Shallow Concentrated Flow, Wetland W-JL5** Grassed Waterway Kv= 15.0 fps
14.9	1,174	Total			

Subcatchment 6S: Central Subcatchment



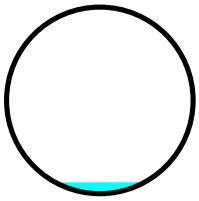
Summary for Reach 1R: Cross Culvert

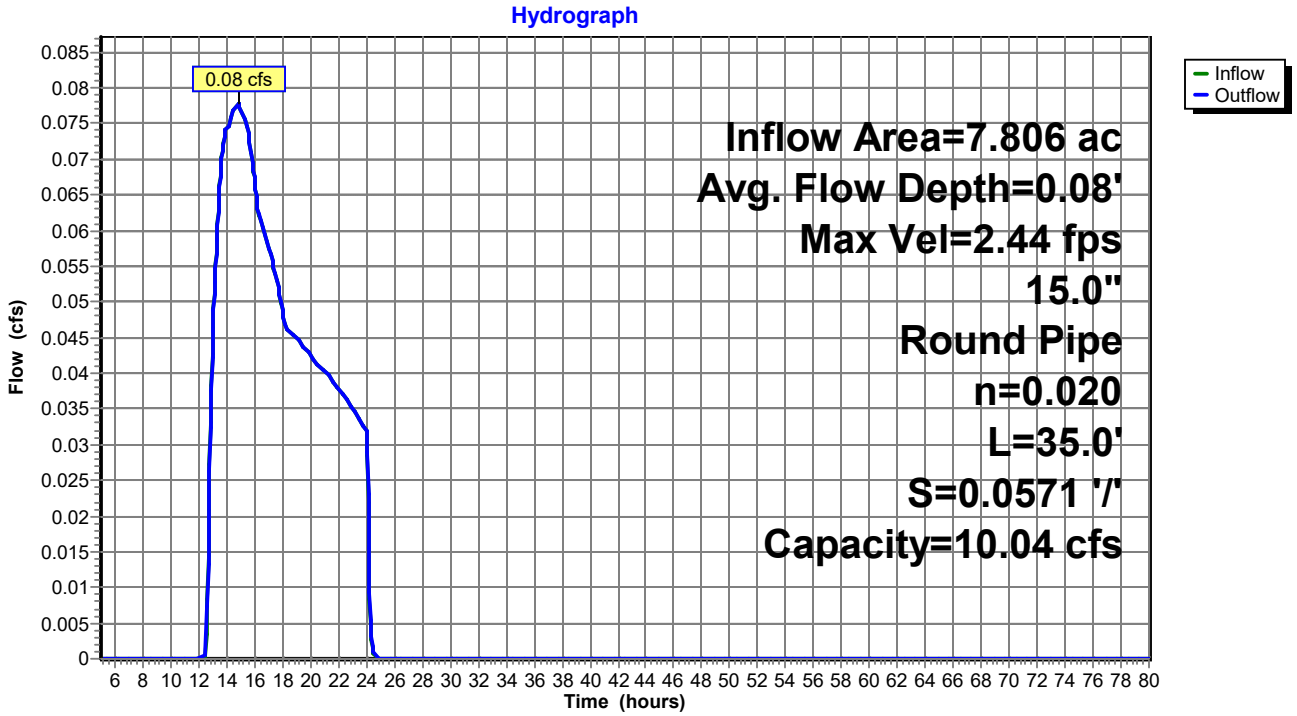
Inflow Area = 7.806 ac, 18.19% Impervious, Inflow Depth = 0.07" for 2yr event
Inflow = 0.08 cfs @ 14.81 hrs, Volume= 0.048 af
Outflow = 0.08 cfs @ 14.82 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.44 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.06 fps, Avg. Travel Time= 0.3 min

Peak Storage= 1 cf @ 14.81 hrs
Average Depth at Peak Storage= 0.08'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 10.04 cfs

15.0" Round Pipe
n= 0.020 Corrugated PE, corrugated interior
Length= 35.0' Slope= 0.0571 '/'
Inlet Invert= 328.00', Outlet Invert= 326.00'





Summary for Pond 2P: Soil Filter B (SFB)

Inflow Area = 1.090 ac, 0.34% Impervious, Inflow Depth = 0.02" for 2yr event
Inflow = 0.00 cfs @ 21.04 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 21.55 hrs, Volume= 0.001 af, Atten= 0%, Lag= 30.5 min
Primary = 0.00 cfs @ 21.55 hrs, Volume= 0.001 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 313.50' @ 21.55 hrs Surf.Area= 1,066 sf Storage= 4 cf

Plug-Flow detention time= 31.1 min calculated for 0.001 af (100% of inflow)
Center-of-Mass det. time= 31.2 min (1,224.2 - 1,193.0)

Volume	Invert	Avail.Storage	Storage Description
#1	313.50'	4,067 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

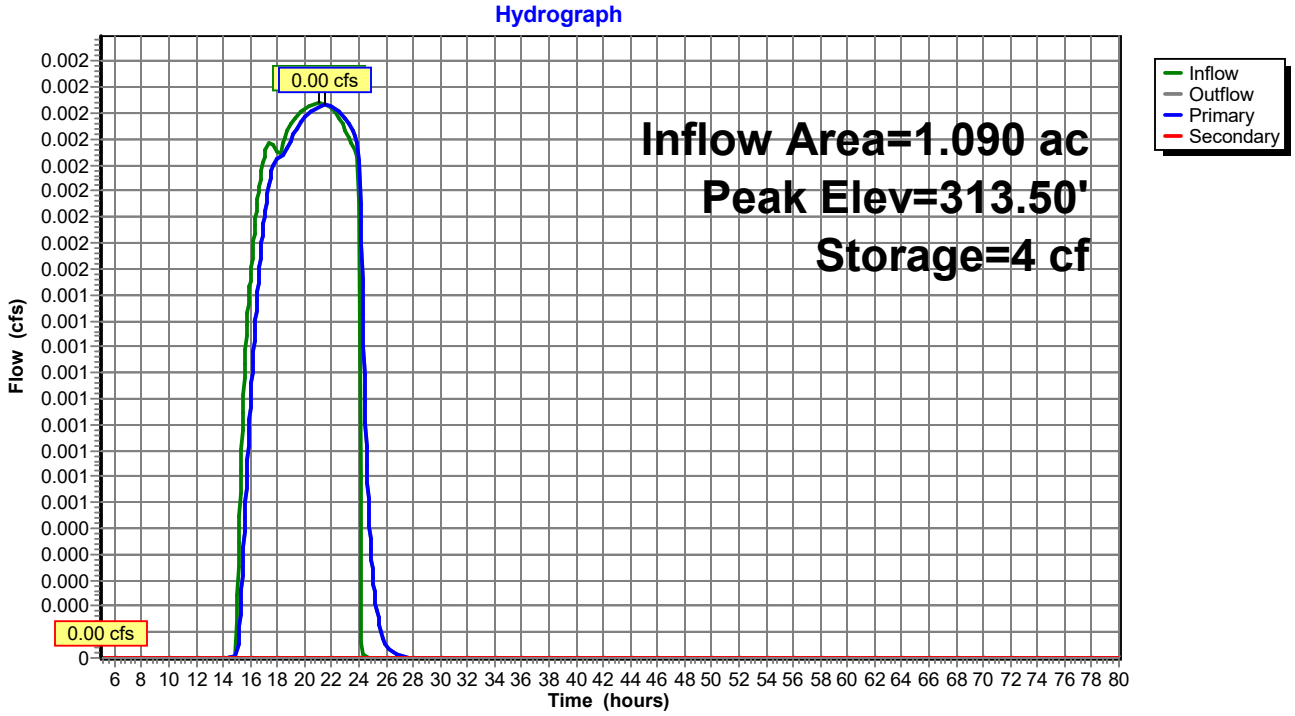
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
313.50	1,064	0	0
314.00	1,267	583	583
316.00	2,217	3,484	4,067

Device	Routing	Invert	Outlet Devices
#1	Primary	313.50'	**0.575 in/hr Exfiltration over Surface area**
#2	Secondary	314.00'	**4.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.01 cfs @ 21.55 hrs HW=313.50' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=313.50' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 2P: Soil Filter B (SFB)



Summary for Pond 5P: Soil Filter A (SFA)

Inflow Area = 8.317 ac, 17.07% Impervious, Inflow Depth = 0.11" for 2yr event
Inflow = 0.37 cfs @ 12.11 hrs, Volume= 0.079 af
Outflow = 0.04 cfs @ 24.03 hrs, Volume= 0.079 af, Atten= 90%, Lag= 715.5 min
Primary = 0.04 cfs @ 24.03 hrs, Volume= 0.079 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 326.18' @ 24.03 hrs Surf.Area= 2,862 sf Storage= 1,812 cf

Plug-Flow detention time= 511.3 min calculated for 0.079 af (100% of inflow)
Center-of-Mass det. time= 511.0 min (1,502.0 - 991.0)

Volume	Invert	Avail.Storage	Storage Description
#1	325.50'	10,260 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

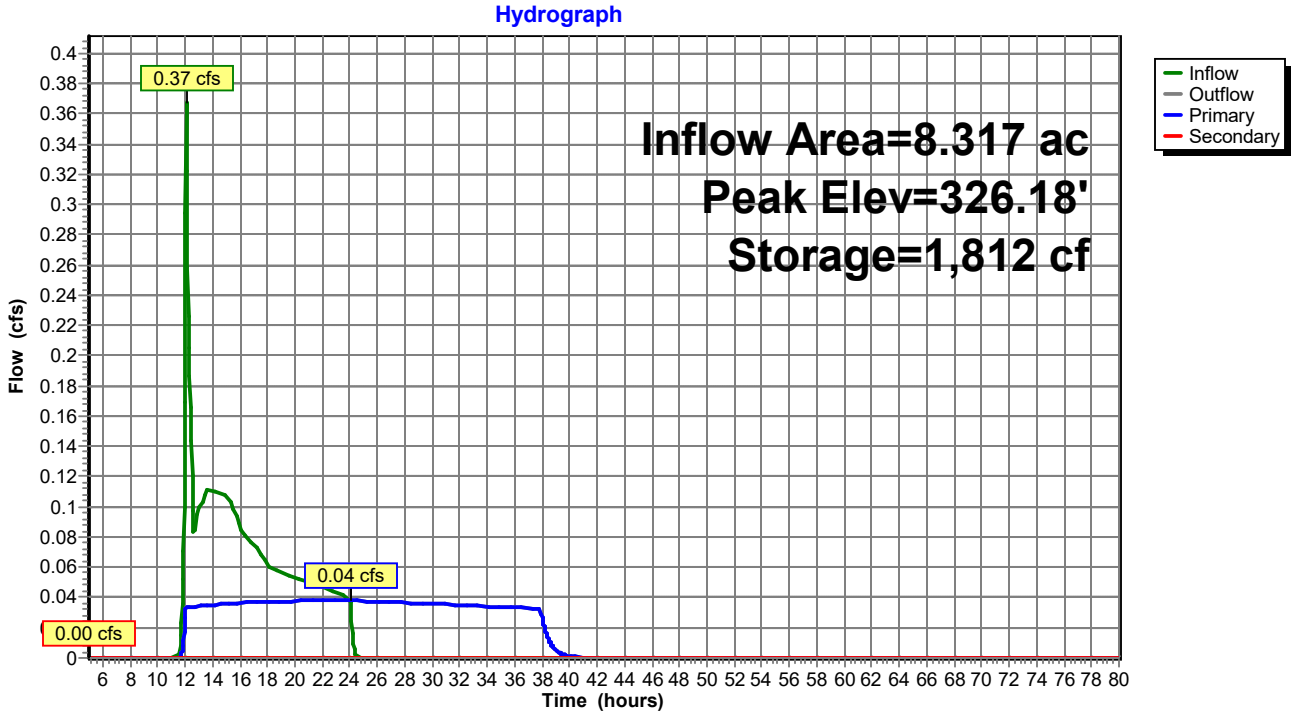
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
325.50	2,435	0	0
326.00	2,741	1,294	1,294
327.00	3,395	3,068	4,362
328.00	4,106	3,751	8,113
328.50	4,483	2,147	10,260

Device	Routing	Invert	Outlet Devices
#1	Primary	325.50'	**0.575 in/hr Exfiltration over Surface area**
#2	Secondary	326.95'	**4.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.04 cfs @ 24.03 hrs HW=326.18' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.04 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=325.50' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 5P: Soil Filter A (SFA)

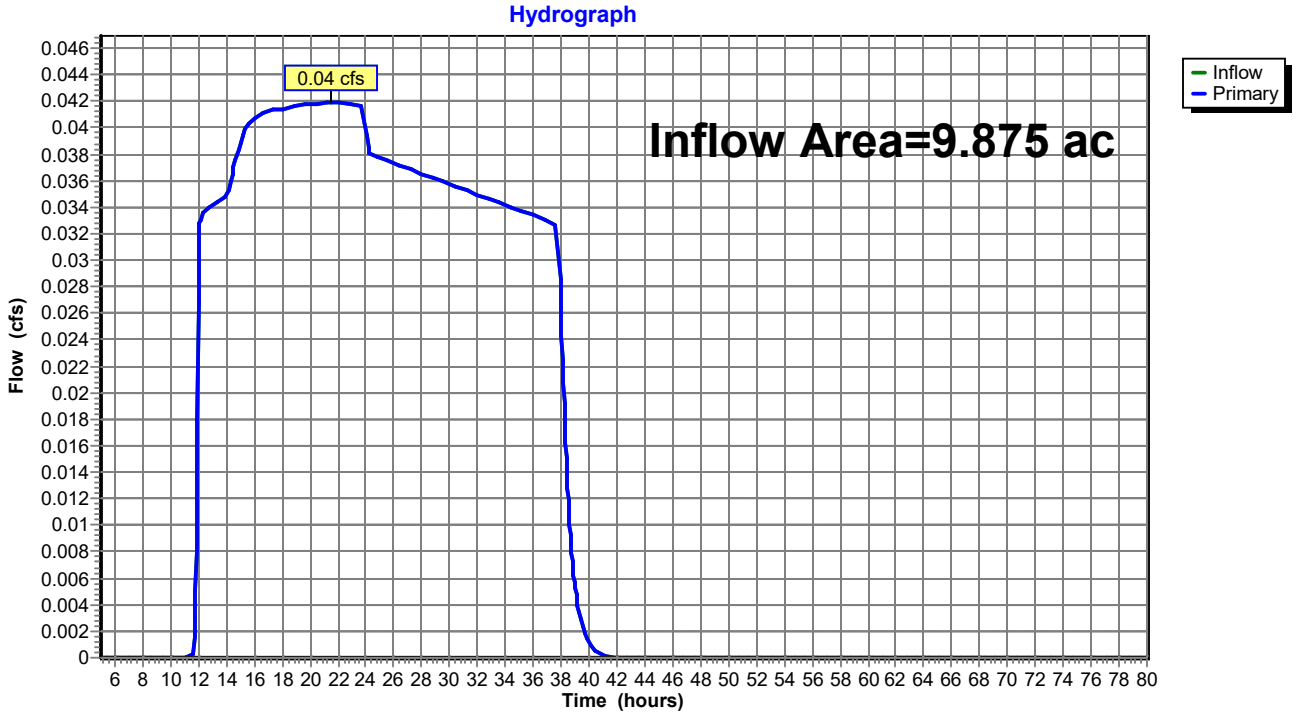


Summary for Link 1L: Point of Analysis

Inflow Area = 9.875 ac, 15.29% Impervious, Inflow Depth = 0.10" for 2yr event
Inflow = 0.04 cfs @ 21.43 hrs, Volume= 0.082 af
Primary = 0.04 cfs @ 21.43 hrs, Volume= 0.082 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs

Link 1L: Point of Analysis

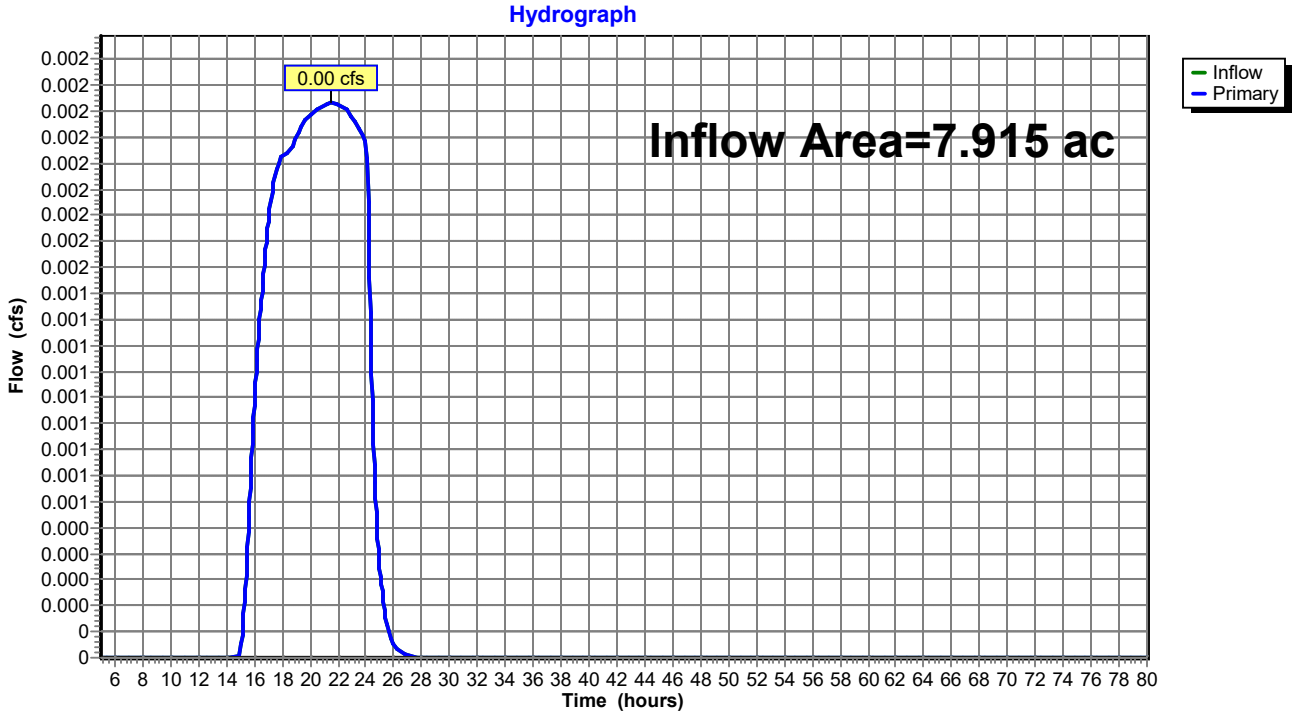


Summary for Link 2L: Point of Analysis

Inflow Area = 7.915 ac, 0.05% Impervious, Inflow Depth = 0.00" for 2yr event
Inflow = 0.00 cfs @ 21.55 hrs, Volume= 0.001 af
Primary = 0.00 cfs @ 21.55 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs

Link 2L: Point of Analysis

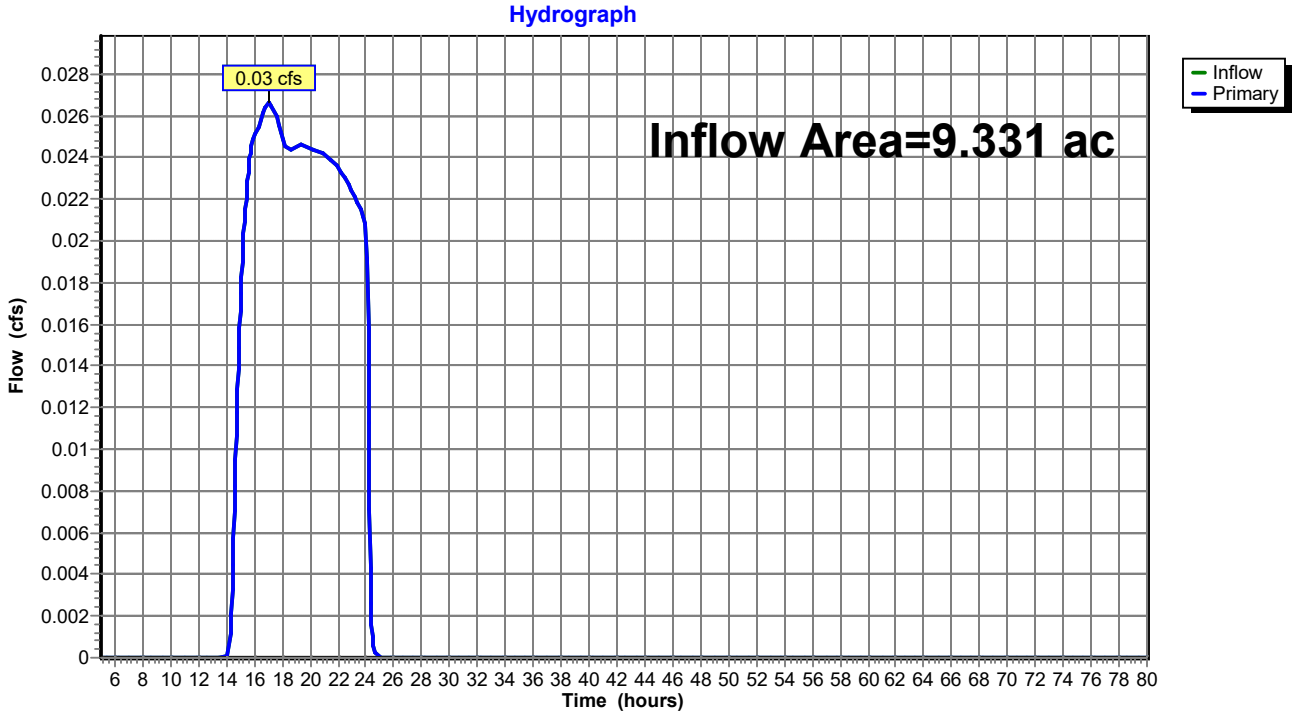


Summary for Link 3L: Point of Analysis

Inflow Area = 9.331 ac, 15.38% Impervious, Inflow Depth = 0.02" for 2yr event
Inflow = 0.03 cfs @ 17.06 hrs, Volume= 0.019 af
Primary = 0.03 cfs @ 17.06 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs

Link 3L: Point of Analysis



Time span=5.00-80.00 hrs, dt=0.05 hrs, 1501 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: East Swale Runoff Area=340,030 sf 18.19% Impervious Runoff Depth=0.49"
Flow Length=1,385' Tc=13.4 min CN=49 Runoff=1.81 cfs 0.319 af

Subcatchment 2S: West Swale Runoff Area=22,256 sf 0.00% Impervious Runoff Depth=1.74"
Flow Length=378' Tc=6.0 min CN=70 Runoff=1.00 cfs 0.074 af

Subcatchment 3S: West of Access Drive Runoff Area=67,856 sf 5.77% Impervious Runoff Depth=0.32"
Flow Length=307' Tc=6.0 min CN=45 Runoff=0.19 cfs 0.042 af

Subcatchment 4S: Access Drive & Ditch Runoff Area=47,481 sf 0.34% Impervious Runoff Depth=0.29"
Flow Length=372' Tc=6.0 min CN=44 Runoff=0.11 cfs 0.026 af

Subcatchment 5S: Solar Field Runoff Area=297,302 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=759' Tc=15.7 min CN=31 Runoff=0.00 cfs 0.001 af

Subcatchment 6S: Central Subcatchment Runoff Area=406,445 sf 15.38% Impervious Runoff Depth=0.32"
Flow Length=1,174' Tc=14.9 min CN=45 Runoff=1.03 cfs 0.251 af

Reach 1R: Cross Culvert Avg. Flow Depth=0.36' Max Vel=6.20 fps Inflow=1.81 cfs 0.319 af
15.0" Round Pipe n=0.020 L=35.0' S=0.0571 '/' Capacity=10.04 cfs Outflow=1.81 cfs 0.319 af

Pond 2P: Soil Filter B (SFB) Peak Elev=313.92' Storage=483 cf Inflow=0.11 cfs 0.026 af
Primary=0.02 cfs 0.026 af Secondary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.026 af

Pond 5P: Soil Filter A (SFA) Peak Elev=327.13' Storage=4,806 cf Inflow=2.25 cfs 0.393 af
Primary=0.05 cfs 0.146 af Secondary=0.77 cfs 0.248 af Outflow=0.82 cfs 0.393 af

Link 1L: Point of Analysis Inflow=0.90 cfs 0.435 af
Primary=0.90 cfs 0.435 af

Link 2L: Point of Analysis Inflow=0.02 cfs 0.026 af
Primary=0.02 cfs 0.026 af

Link 3L: Point of Analysis Inflow=1.03 cfs 0.251 af
Primary=1.03 cfs 0.251 af

Summary for Subcatchment 1S: East Swale

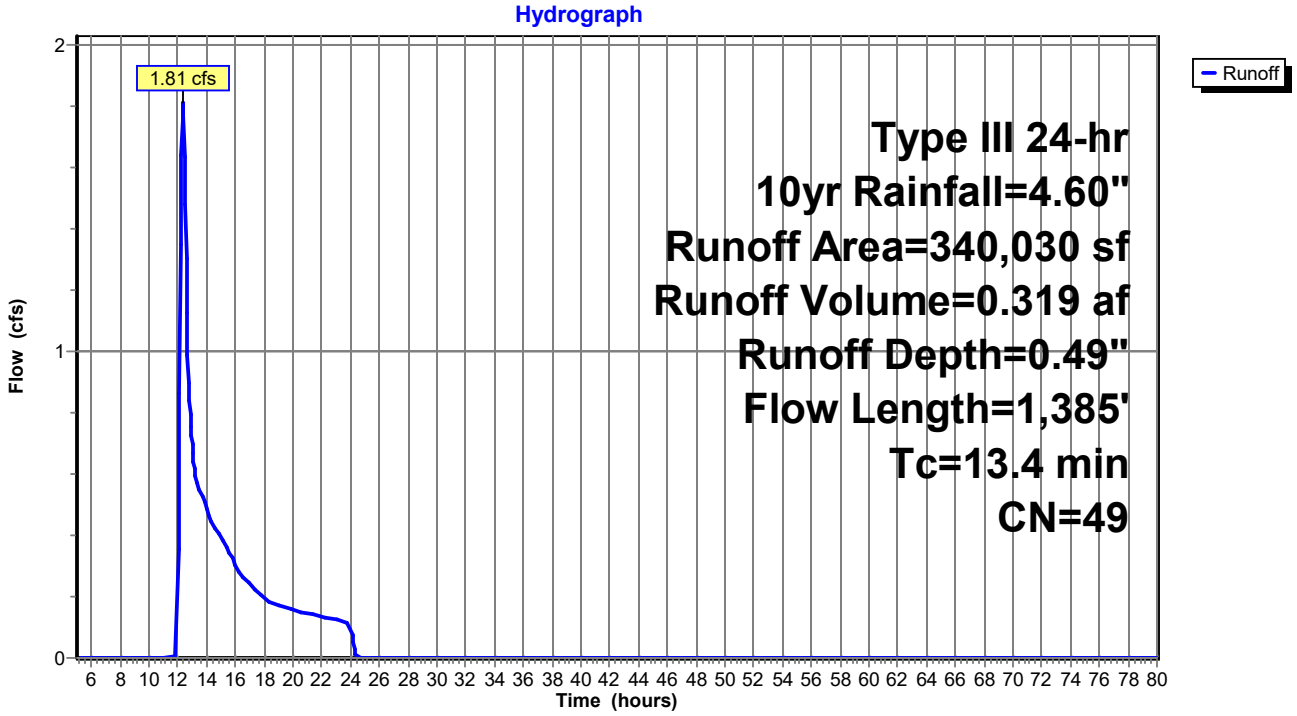
Runoff = 1.81 cfs @ 12.37 hrs, Volume= 0.319 af, Depth= 0.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 10yr Rainfall=4.60"

	Area (sf)	CN	Description
*	4,359	98	Paved parking, HSG A Driveway to Abutter to East
*	56,595	98	Wetlands/Vernal Pools HSG A
*	895	98	Roofs, HSG A Garage & House
*	1,197	96	Gravel HSG A Boat Storage
*	13,837	68	<50% Grass cover, Poor, HSG A Temp Boat Storage
*	1,700	49	50-75% Grass cover, Fair, HSG A Lawn Abutter to East
*	19,005	39	>75% Grass cover, Good, HSG B Ditch
	27,542	35	Brush, Fair, HSG A
	214,900	36	Woods, Fair, HSG A
	340,030	49	Weighted Average
	278,181		81.81% Pervious Area
	61,849		18.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	19	0.0392	1.25		**Sheet Flow, Driveway** Smooth surfaces n= 0.011 P2= 3.00"
0.3	42	0.0833	2.02		**Shallow Concentrated Flow, Lawn** Short Grass Pasture Kv= 7.0 fps
0.6	72	0.1676	2.05		**Shallow Concentrated Flow, Wooded Area** Woodland Kv= 5.0 fps
1.1	62	0.0325	0.90		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
0.1	19	0.3106	2.79		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
4.8	488	0.0125	1.68		**Shallow Concentrated Flow, Wetland** Grassed Waterway Kv= 15.0 fps
0.7	55	0.0723	1.34		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
4.9	427	0.0094	1.45		**Shallow Concentrated Flow, Wetland** Grassed Waterway Kv= 15.0 fps
0.0	9	0.5005	10.61		**Shallow Concentrated Flow, Wetland** Grassed Waterway Kv= 15.0 fps
0.6	192	0.0066	5.45	144.50	**Channel Flow, East Ditch** Area= 26.5 sf Perim= 16.8' r= 1.58' n= 0.030 Earth, grassed & winding
13.4	1,385	Total			

Subcatchment 1S: East Swale



Summary for Subcatchment 2S: West Swale

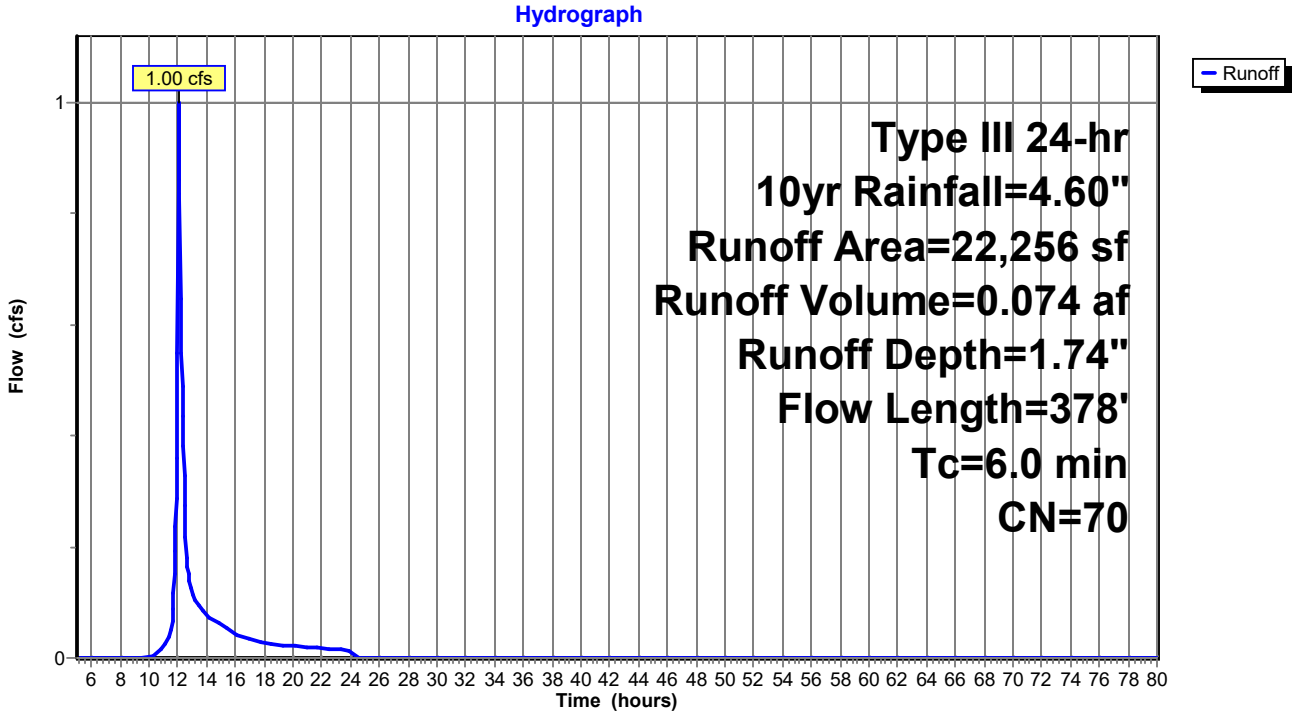
Runoff = 1.00 cfs @ 12.10 hrs, Volume= 0.074 af, Depth= 1.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 10yr Rainfall=4.60"

Area (sf)	CN	Description
11,951	96	Gravel surface, HSG A
10,305	39	>75% Grass cover, Good, HSG A
22,256	70	Weighted Average
22,256		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	26	0.0208	1.03		**Sheet Flow, Access Drive** Smooth surfaces n= 0.011 P2= 3.00"
0.1	10	0.1934	3.08		**Shallow Concentrated Flow, Ditch Side Slope** Short Grass Pasture Kv= 7.0 fps
0.1	58	0.0345	12.47	330.38	**Channel Flow, Ditch to STA 0+45** Area= 26.5 sf Perim= 16.8' r= 1.58' n= 0.030 Earth, grassed & winding
0.2	185	0.0649	17.10	453.13	**Channel Flow, Ditch to STA 2+30** Area= 26.5 sf Perim= 16.8' r= 1.58' n= 0.030 Earth, grassed & winding
0.2	99	0.0101	6.75	178.76	**Channel Flow, Ditch to STA 3+30** Area= 26.5 sf Perim= 16.8' r= 1.58' n= 0.030 Earth, grassed & winding
1.0	378	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2S: West Swale



Summary for Subcatchment 3S: West of Access Drive

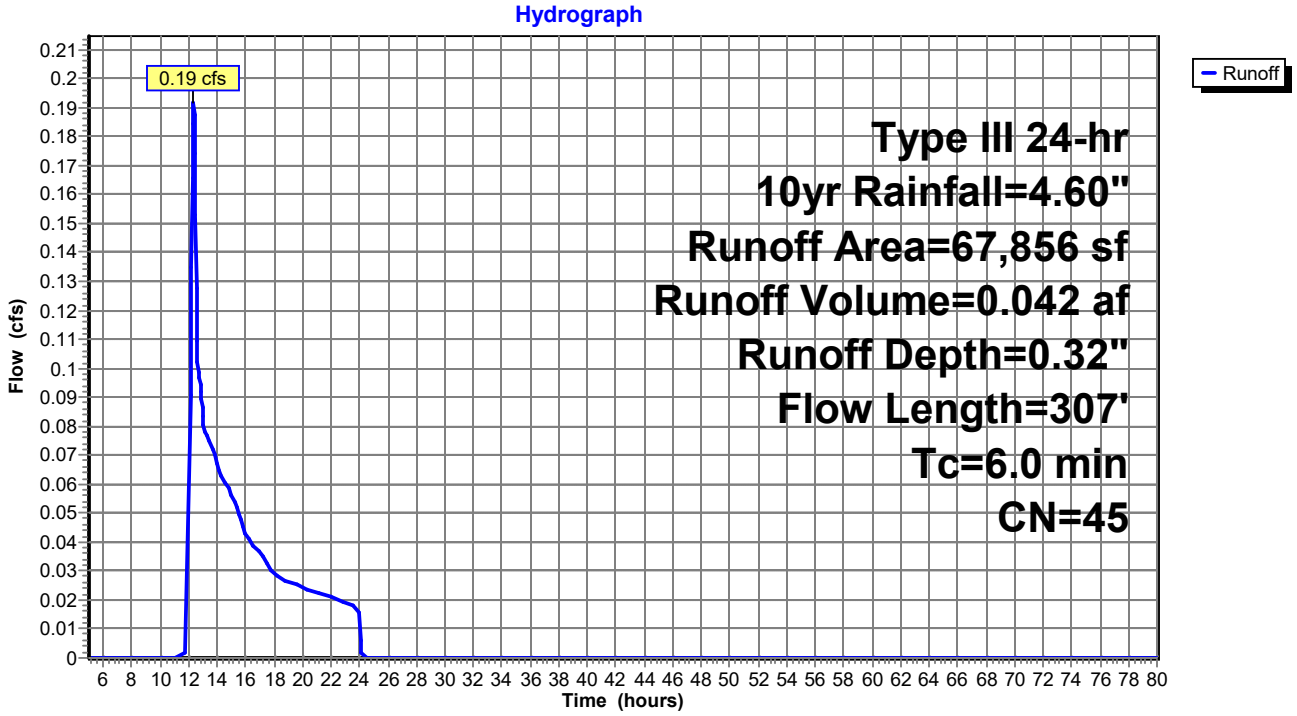
Runoff = 0.19 cfs @ 12.36 hrs, Volume= 0.042 af, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 10yr Rainfall=4.60"

	Area (sf)	CN	Description
*	2,935	98	HSG A, Wetland
*	5,618	96	Gravel surface, HSG A, Gravel Drive off sute West
*	982	98	Roofs, HSG A, abutter to the West
	5,089	39	>75% Grass cover, Good, HSG A
	1,800	30	Meadow, non-grazed, HSG A
	51,432	36	Woods, Fair, HSG A
	67,856	45	Weighted Average
	63,939		94.23% Pervious Area
	3,917		5.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	29	0.0696	0.21		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.00"
0.1	27	0.2222	3.30		**Shallow Concentrated Flow, West of Access** Short Grass Pasture Kv= 7.0 fps
0.1	127	0.0941	18.70	377.66	**Channel Flow, channel from tie in slopes** Area= 20.2 sf Perim= 14.8' r= 1.36' n= 0.030 Earth, grassed & winding
1.9	124	0.0464	1.08		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
4.4	307	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3S: West of Access Drive



Summary for Subcatchment 4S: Access Drive & Ditch

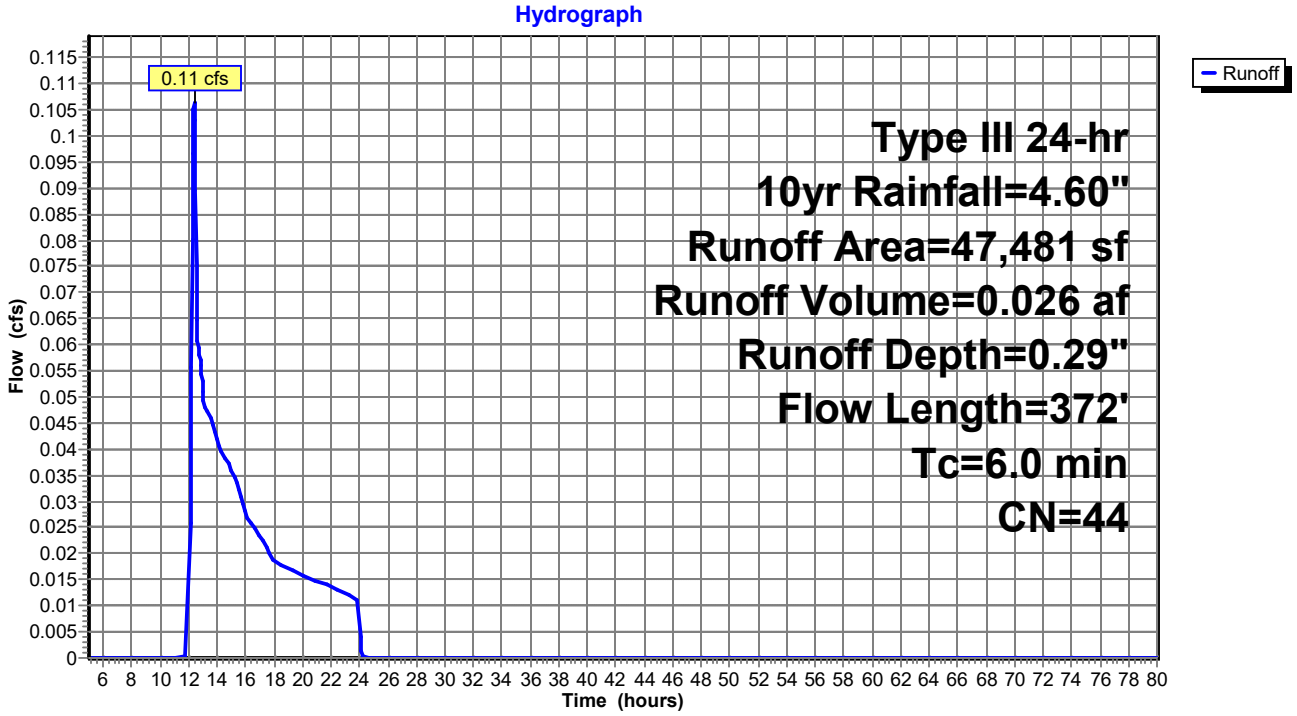
Runoff = 0.11 cfs @ 12.38 hrs, Volume= 0.026 af, Depth= 0.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 10yr Rainfall=4.60"

	Area (sf)	CN	Description
	160	98	Unconnected pavement, HSG A
*	7,417	96	Gravel surface, HSG A, Access Driveway & Equipment Pad
*	14,608	36	Woods, Fair, HSG A, West Abutter
*	10,112	39	>75% Grass cover, Good, HSG A Ditch
	15,184	30	Meadow, non-grazed, HSG A
	47,481	44	Weighted Average
	47,321		99.66% Pervious Area
	160		0.34% Impervious Area
	160		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	19	0.0208	0.97		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 3.00"
0.0	9	0.1121	5.02		**Shallow Concentrated Flow, Grassed Ditch Side Slope** Grassed Waterway Kv= 15.0 fps
0.4	344	0.0479	14.69	389.29	**Channel Flow, Grassed Ditch - West STA 6+40 +/-** Area= 26.5 sf Perim= 16.8' r= 1.58' n= 0.030
0.7	372	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 4S: Access Drive & Ditch



Summary for Subcatchment 5S: Solar Field

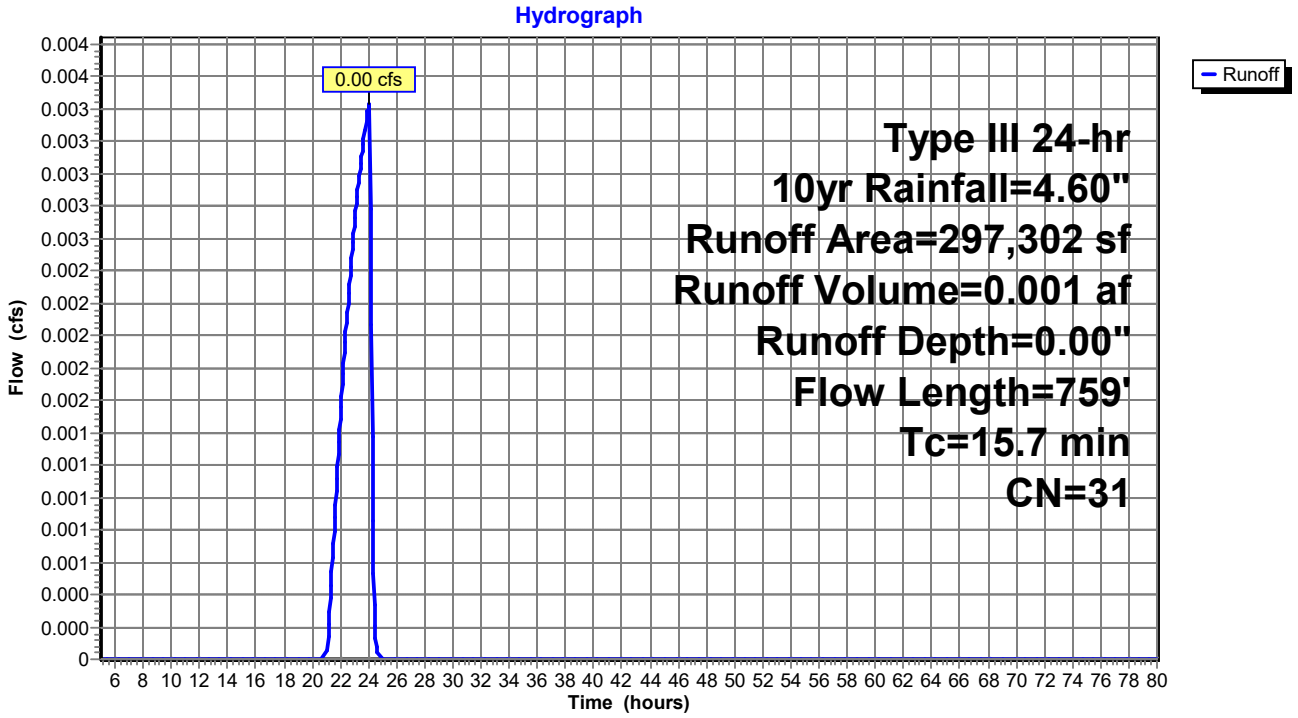
Runoff = 0.00 cfs @ 24.05 hrs, Volume= 0.001 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 10yr Rainfall=4.60"

	Area (sf)	CN	Description
*	43,118	36	Woods, Fair, HSG A, Northern Abutter
	254,184	30	Meadow, non-grazed, HSG A
	297,302	31	Weighted Average
	297,302		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	46	0.0329	2.72		**Shallow Concentrated Flow, upper ditch** Grassed Waterway Kv= 15.0 fps
0.1	141	0.0849	19.56	518.27	**Channel Flow, Ditch** Area= 26.5 sf Perim= 16.8' r= 1.58' n= 0.030 Earth, grassed & winding
9.3	98	0.0615	0.18		**Sheet Flow, Solar Field - Level Spreader** Grass: Dense n= 0.240 P2= 3.00"
6.0	474	0.0359	1.33		**Shallow Concentrated Flow, Solar Field** Short Grass Pasture Kv= 7.0 fps
15.7	759	Total			

Subcatchment 5S: Solar Field



Summary for Subcatchment 6S: Central Subcatchment

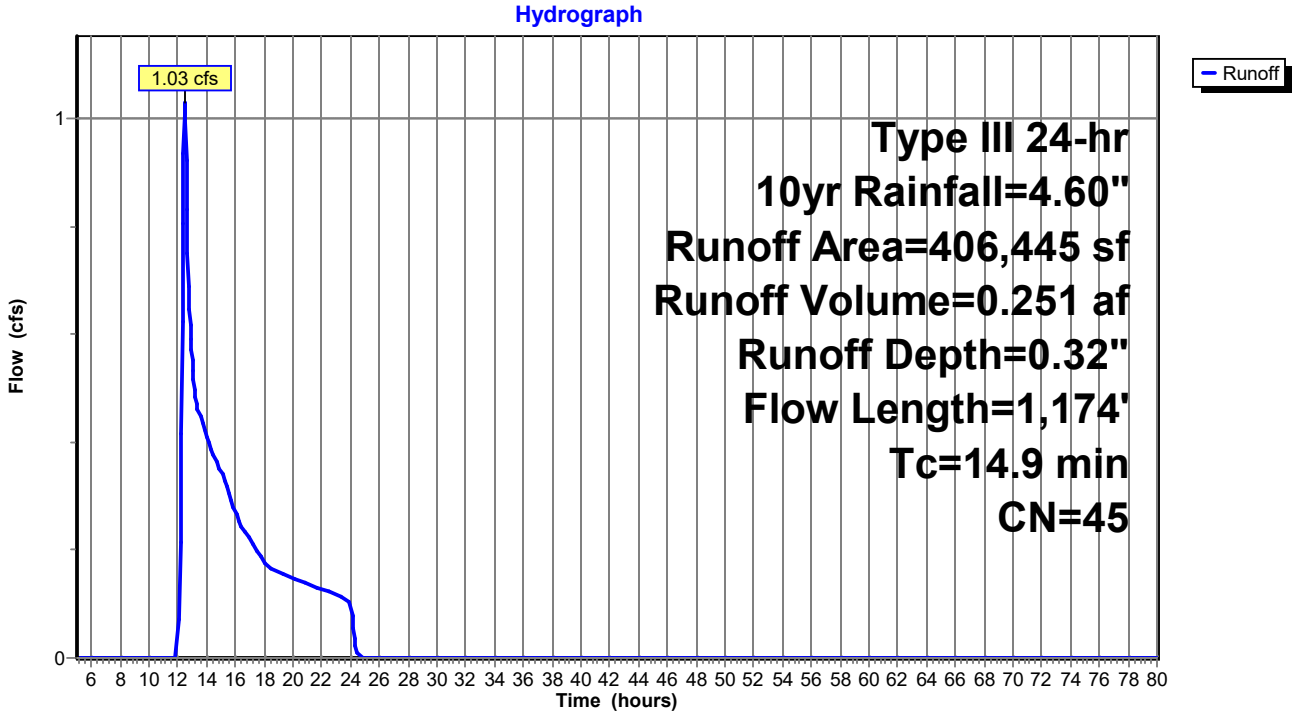
Runoff = 1.03 cfs @ 12.49 hrs, Volume= 0.251 af, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 10yr Rainfall=4.60"

	Area (sf)	CN	Description
*	1,106	98	Unconnected roofs, HSG A Allen House
*	246	98	Unconnected pavement, HSG A Walkway
*	7,754	30	Meadow, non-grazed, HSG A Lawn
	34,256	36	Woods, Fair, HSG A
*	61,151	98	Water Surface, HSG A Wetlands
*	254,557	36	Woods, Fair, HSG A
	47,375	30	Meadow, non-grazed, HSG A
	406,445	45	Weighted Average
	343,942		84.62% Pervious Area
	62,503		15.38% Impervious Area
	1,352		2.16% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	19	0.4160	3.22		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.00"
4.8	79	0.0800	0.27		**Sheet Flow, Lawn** Grass: Short n= 0.150 P2= 3.00"
0.8	72	0.0240	1.55		**Shallow Concentrated Flow, Clreared Area** Nearly Bare & Untilled Kv= 10.0 fps
0.6	137	0.1310	3.62		**Shallow Concentrated Flow, Cleared & Wooded** Nearly Bare & Untilled Kv= 10.0 fps
2.1	184	0.0870	1.47		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
3.7	410	0.0150	1.84		**Shallow Concentrated Flow, Wetland W-JL6** Grassed Waterway Kv= 15.0 fps
0.9	98	0.1200	1.73		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
1.9	175	0.0110	1.57		**Shallow Concentrated Flow, Wetland W-JL5** Grassed Waterway Kv= 15.0 fps
14.9	1,174	Total			

Subcatchment 6S: Central Subcatchment



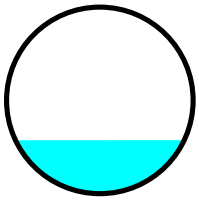
Summary for Reach 1R: Cross Culvert

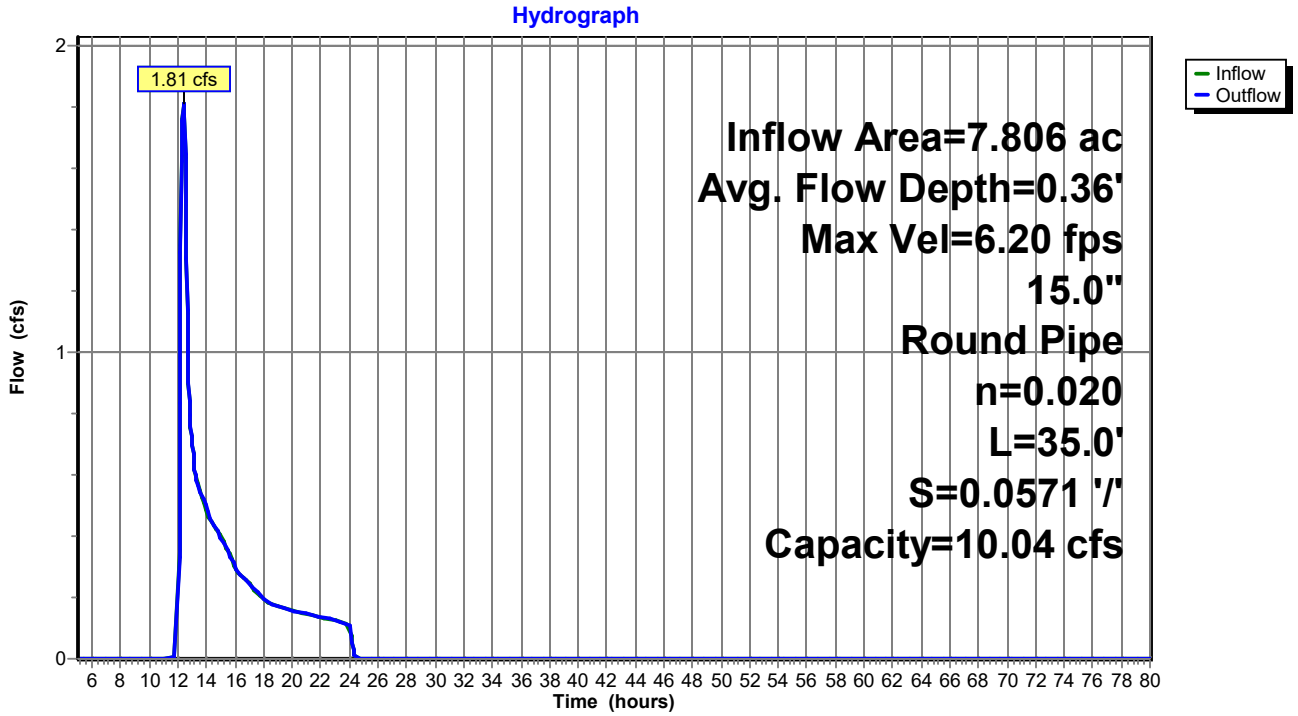
Inflow Area = 7.806 ac, 18.19% Impervious, Inflow Depth = 0.49" for 10yr event
Inflow = 1.81 cfs @ 12.37 hrs, Volume= 0.319 af
Outflow = 1.81 cfs @ 12.37 hrs, Volume= 0.319 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.20 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.38 fps, Avg. Travel Time= 0.2 min

Peak Storage= 10 cf @ 12.37 hrs
Average Depth at Peak Storage= 0.36'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 10.04 cfs

15.0" Round Pipe
n= 0.020 Corrugated PE, corrugated interior
Length= 35.0' Slope= 0.0571 '/'
Inlet Invert= 328.00', Outlet Invert= 326.00'





Summary for Pond 2P: Soil Filter B (SFB)

Inflow Area = 1.090 ac, 0.34% Impervious, Inflow Depth = 0.29" for 10yr event
Inflow = 0.11 cfs @ 12.38 hrs, Volume= 0.026 af
Outflow = 0.02 cfs @ 19.53 hrs, Volume= 0.026 af, Atten= 85%, Lag= 428.8 min
Primary = 0.02 cfs @ 19.53 hrs, Volume= 0.026 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 313.92' @ 19.53 hrs Surf.Area= 1,235 sf Storage= 483 cf

Plug-Flow detention time= 350.3 min calculated for 0.026 af (100% of inflow)
Center-of-Mass det. time= 350.5 min (1,324.1 - 973.6)

Volume	Invert	Avail.Storage	Storage Description
#1	313.50'	4,067 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

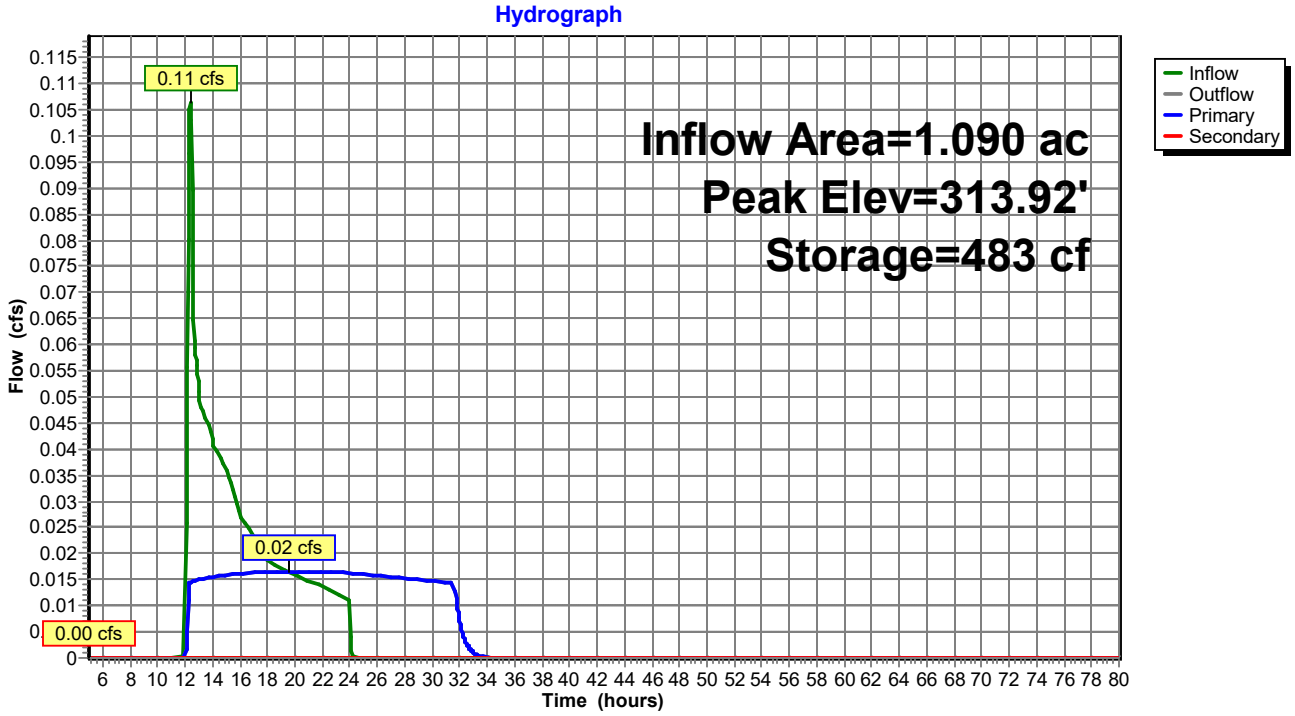
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
313.50	1,064	0	0
314.00	1,267	583	583
316.00	2,217	3,484	4,067

Device	Routing	Invert	Outlet Devices
#1	Primary	313.50'	**0.575 in/hr Exfiltration over Surface area**
#2	Secondary	314.00'	**4.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.02 cfs @ 19.53 hrs HW=313.92' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.02 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=313.50' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 2P: Soil Filter B (SFB)



Summary for Pond 5P: Soil Filter A (SFA)

Inflow Area = 8.317 ac, 17.07% Impervious, Inflow Depth = 0.57" for 10yr event
Inflow = 2.25 cfs @ 12.32 hrs, Volume= 0.393 af
Outflow = 0.82 cfs @ 13.00 hrs, Volume= 0.393 af, Atten= 64%, Lag= 40.8 min
Primary = 0.05 cfs @ 13.00 hrs, Volume= 0.146 af
Secondary = 0.77 cfs @ 13.00 hrs, Volume= 0.248 af

Routing by Stor-Ind method, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 327.13' @ 13.00 hrs Surf.Area= 3,487 sf Storage= 4,806 cf

Plug-Flow detention time= 403.1 min calculated for 0.393 af (100% of inflow)
Center-of-Mass det. time= 404.1 min (1,327.5 - 923.3)

Volume	Invert	Avail.Storage	Storage Description
#1	325.50'	10,260 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

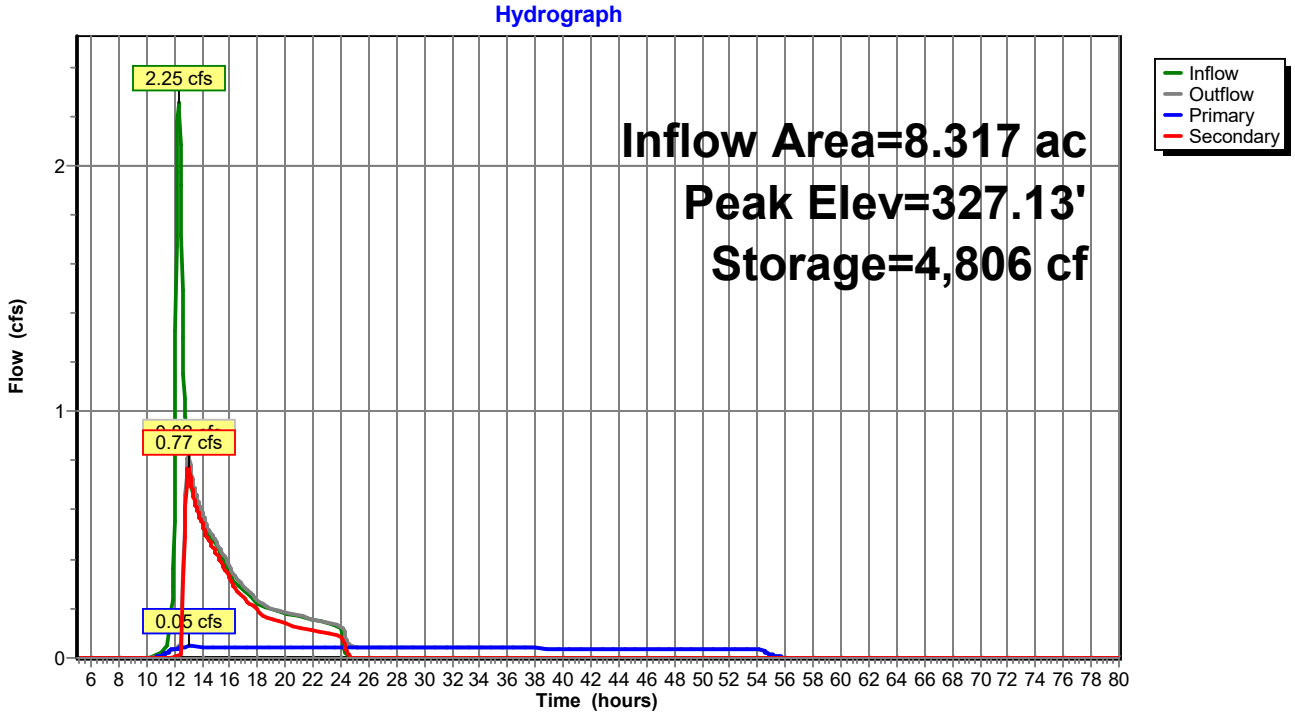
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
325.50	2,435	0	0
326.00	2,741	1,294	1,294
327.00	3,395	3,068	4,362
328.00	4,106	3,751	8,113
328.50	4,483	2,147	10,260

Device	Routing	Invert	Outlet Devices
#1	Primary	325.50'	**0.575 in/hr Exfiltration over Surface area**
#2	Secondary	326.95'	**4.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.05 cfs @ 13.00 hrs HW=327.13' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Secondary OutFlow Max=0.77 cfs @ 13.00 hrs HW=327.13' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.77 cfs @ 1.07 fps)

Pond 5P: Soil Filter A (SFA)

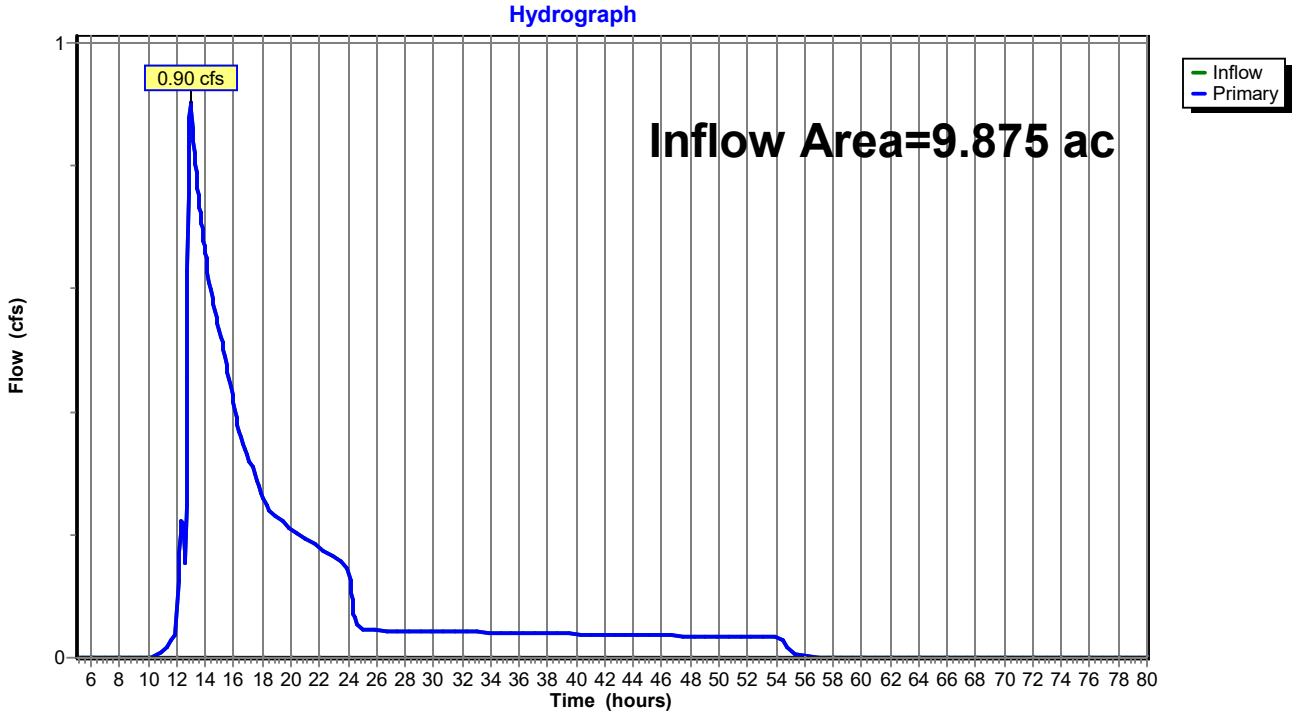


Summary for Link 1L: Point of Analysis

Inflow Area = 9.875 ac, 15.29% Impervious, Inflow Depth = 0.53" for 10yr event
Inflow = 0.90 cfs @ 12.99 hrs, Volume= 0.435 af
Primary = 0.90 cfs @ 12.99 hrs, Volume= 0.435 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs

Link 1L: Point of Analysis

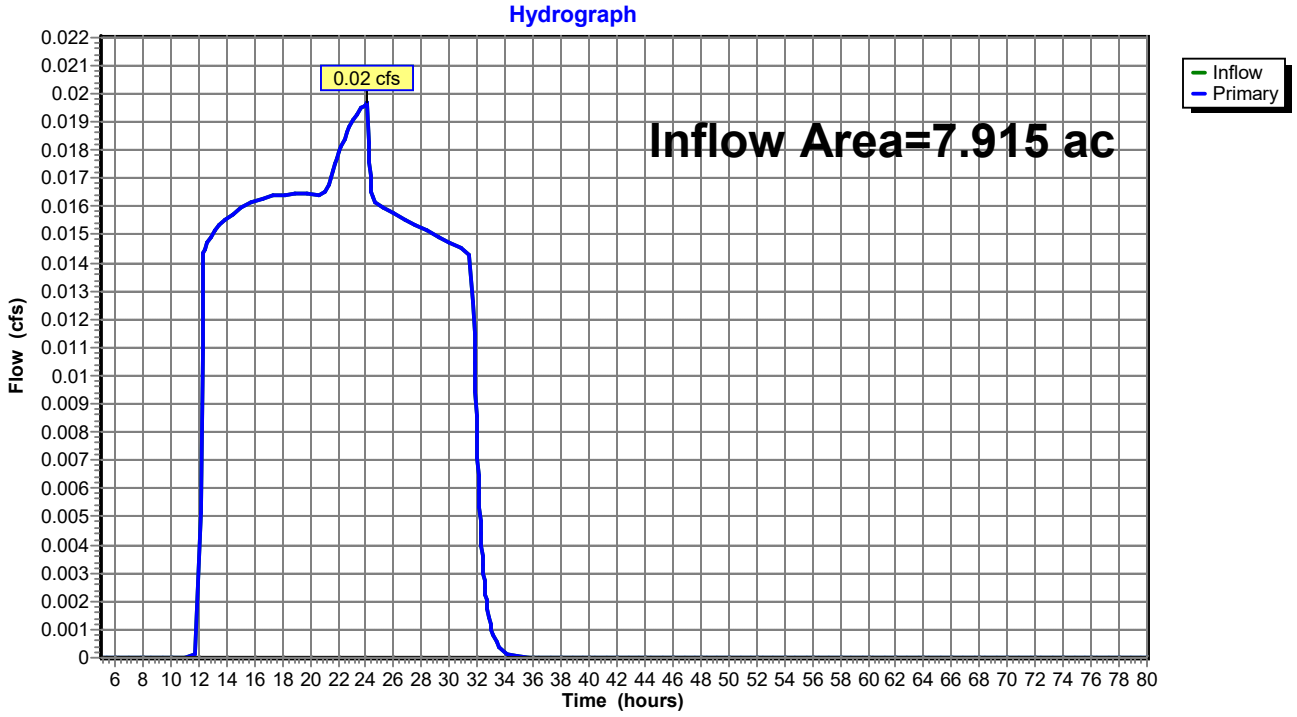


Summary for Link 2L: Point of Analysis

Inflow Area = 7.915 ac, 0.05% Impervious, Inflow Depth = 0.04" for 10yr event
Inflow = 0.02 cfs @ 24.02 hrs, Volume= 0.026 af
Primary = 0.02 cfs @ 24.02 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs

Link 2L: Point of Analysis

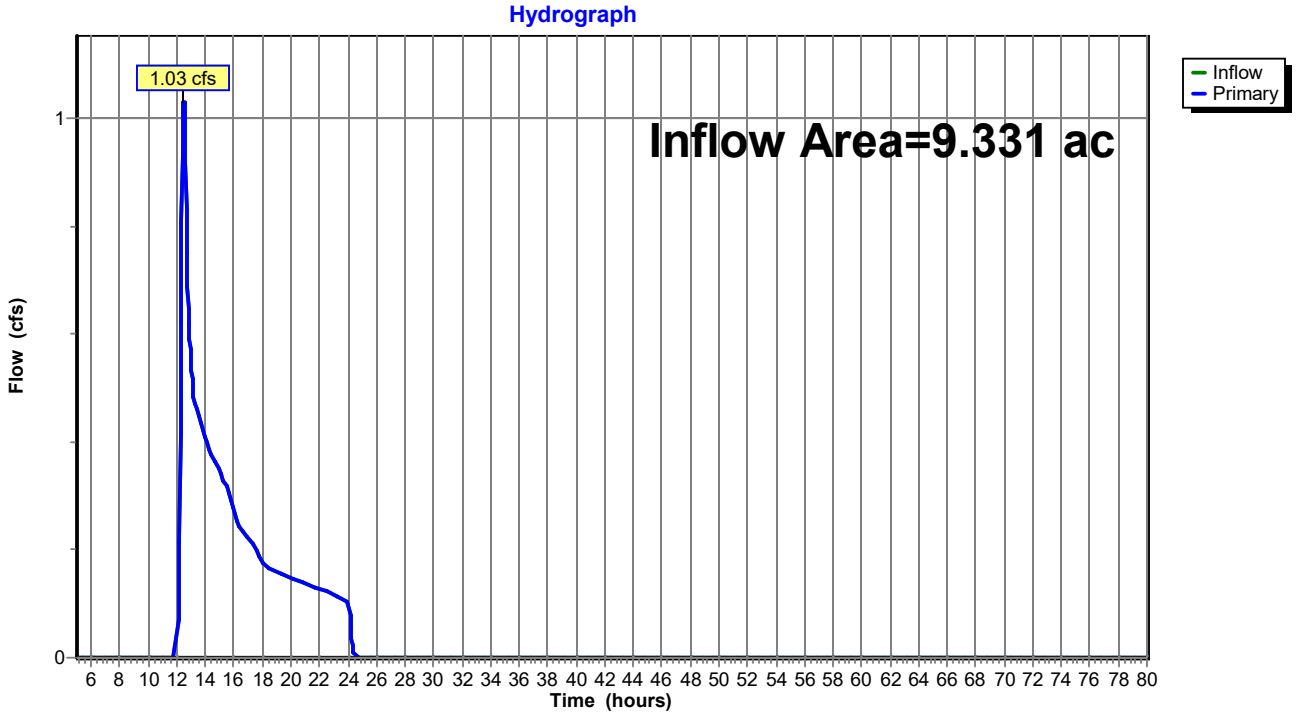


Summary for Link 3L: Point of Analysis

Inflow Area = 9.331 ac, 15.38% Impervious, Inflow Depth = 0.32" for 10yr event
Inflow = 1.03 cfs @ 12.49 hrs, Volume= 0.251 af
Primary = 1.03 cfs @ 12.49 hrs, Volume= 0.251 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs

Link 3L: Point of Analysis



Time span=5.00-80.00 hrs, dt=0.05 hrs, 1501 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: East Swale Runoff Area=340,030 sf 18.19% Impervious Runoff Depth=0.98"
Flow Length=1,385' Tc=13.4 min CN=49 Runoff=5.06 cfs 0.637 af

Subcatchment 2S: West Swale Runoff Area=22,256 sf 0.00% Impervious Runoff Depth=2.65"
Flow Length=378' Tc=6.0 min CN=70 Runoff=1.55 cfs 0.113 af

Subcatchment 3S: West of Access Drive Runoff Area=67,856 sf 5.77% Impervious Runoff Depth=0.72"
Flow Length=307' Tc=6.0 min CN=45 Runoff=0.72 cfs 0.094 af

Subcatchment 4S: Access Drive & Ditch Runoff Area=47,481 sf 0.34% Impervious Runoff Depth=0.66"
Flow Length=372' Tc=6.0 min CN=44 Runoff=0.42 cfs 0.060 af

Subcatchment 5S: Solar Field Runoff Area=297,302 sf 0.00% Impervious Runoff Depth=0.08"
Flow Length=759' Tc=15.7 min CN=31 Runoff=0.07 cfs 0.044 af

Subcatchment 6S: Central Subcatchment Runoff Area=406,445 sf 15.38% Impervious Runoff Depth=0.72"
Flow Length=1,174' Tc=14.9 min CN=45 Runoff=3.49 cfs 0.562 af

Reach 1R: Cross Culvert Avg. Flow Depth=0.63' Max Vel=8.20 fps Inflow=5.06 cfs 0.637 af
15.0" Round Pipe n=0.020 L=35.0' S=0.0571 '/' Capacity=10.04 cfs Outflow=5.06 cfs 0.637 af

Pond 2P: Soil Filter B (SFB) Peak Elev=314.05' Storage=647 cf Inflow=0.42 cfs 0.060 af
Primary=0.02 cfs 0.030 af Secondary=0.11 cfs 0.030 af Outflow=0.13 cfs 0.060 af

Pond 5P: Soil Filter A (SFA) Peak Elev=327.50' Storage=6,157 cf Inflow=5.95 cfs 0.749 af
Primary=0.05 cfs 0.149 af Secondary=4.29 cfs 0.600 af Outflow=4.34 cfs 0.749 af

Link 1L: Point of Analysis Inflow=4.77 cfs 0.843 af
Primary=4.77 cfs 0.843 af

Link 2L: Point of Analysis Inflow=0.14 cfs 0.104 af
Primary=0.14 cfs 0.104 af

Link 3L: Point of Analysis Inflow=3.49 cfs 0.562 af
Primary=3.49 cfs 0.562 af

Summary for Subcatchment 1S: East Swale

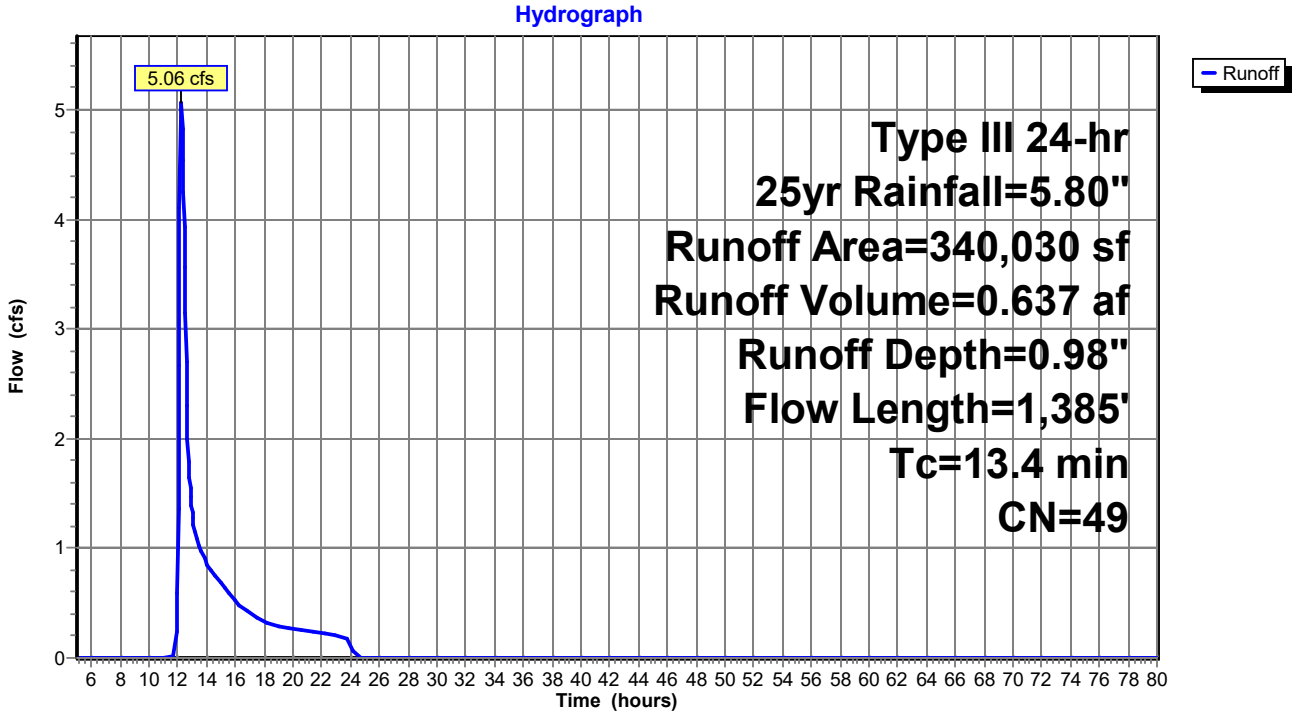
Runoff = 5.06 cfs @ 12.24 hrs, Volume= 0.637 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 25yr Rainfall=5.80"

	Area (sf)	CN	Description
*	4,359	98	Paved parking, HSG A Driveway to Abutter to East
*	56,595	98	Wetlands/Vernal Pools HSG A
*	895	98	Roofs, HSG A Garage & House
*	1,197	96	Gravel HSG A Boat Storage
*	13,837	68	<50% Grass cover, Poor, HSG A Temp Boat Storage
*	1,700	49	50-75% Grass cover, Fair, HSG A Lawn Abutter to East
*	19,005	39	>75% Grass cover, Good, HSG B Ditch
	27,542	35	Brush, Fair, HSG A
	214,900	36	Woods, Fair, HSG A
	340,030	49	Weighted Average
	278,181		81.81% Pervious Area
	61,849		18.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	19	0.0392	1.25		**Sheet Flow, Driveway** Smooth surfaces n= 0.011 P2= 3.00"
0.3	42	0.0833	2.02		**Shallow Concentrated Flow, Lawn** Short Grass Pasture Kv= 7.0 fps
0.6	72	0.1676	2.05		**Shallow Concentrated Flow, Wooded Area** Woodland Kv= 5.0 fps
1.1	62	0.0325	0.90		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
0.1	19	0.3106	2.79		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
4.8	488	0.0125	1.68		**Shallow Concentrated Flow, Wetland** Grassed Waterway Kv= 15.0 fps
0.7	55	0.0723	1.34		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
4.9	427	0.0094	1.45		**Shallow Concentrated Flow, Wetland** Grassed Waterway Kv= 15.0 fps
0.0	9	0.5005	10.61		**Shallow Concentrated Flow, Wetland** Grassed Waterway Kv= 15.0 fps
0.6	192	0.0066	5.45	144.50	**Channel Flow, East Ditch** Area= 26.5 sf Perim= 16.8' r= 1.58' n= 0.030 Earth, grassed & winding
13.4	1,385	Total			

Subcatchment 1S: East Swale



Summary for Subcatchment 2S: West Swale

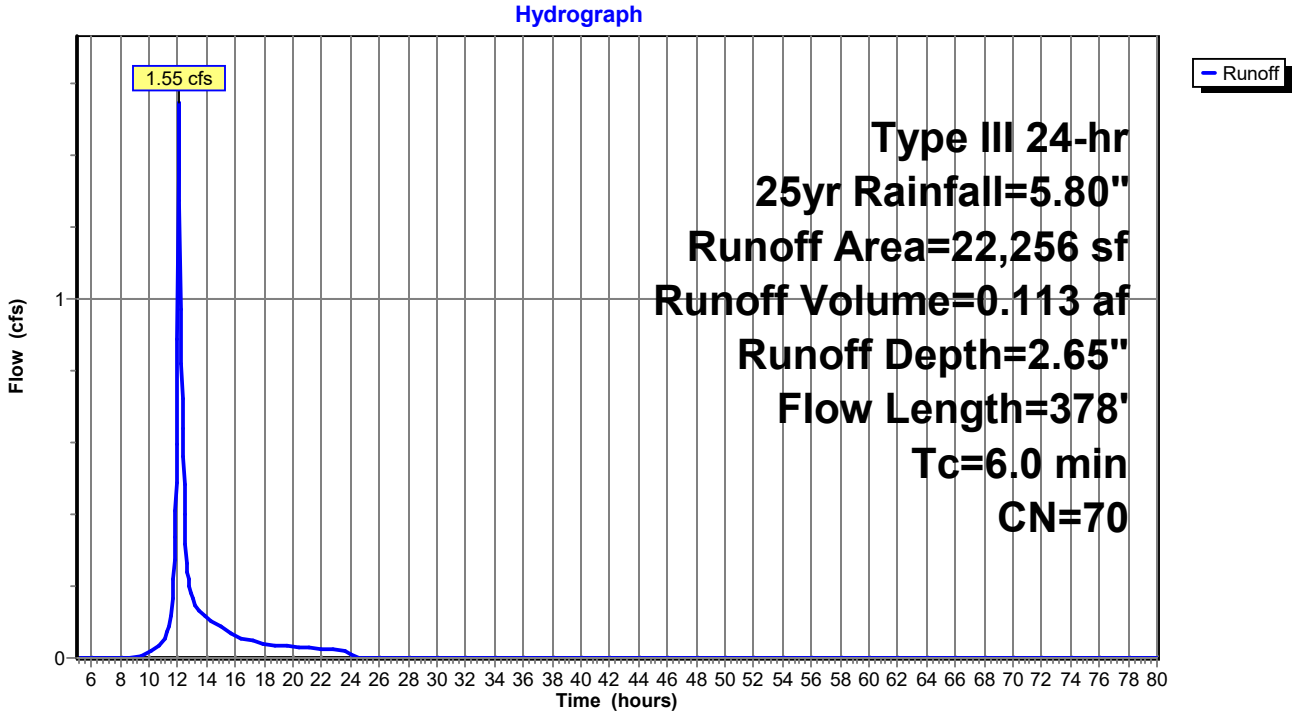
Runoff = 1.55 cfs @ 12.10 hrs, Volume= 0.113 af, Depth= 2.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 25yr Rainfall=5.80"

Area (sf)	CN	Description
11,951	96	Gravel surface, HSG A
10,305	39	>75% Grass cover, Good, HSG A
22,256	70	Weighted Average
22,256		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	26	0.0208	1.03		**Sheet Flow, Access Drive** Smooth surfaces n= 0.011 P2= 3.00"
0.1	10	0.1934	3.08		**Shallow Concentrated Flow, Ditch Side Slope** Short Grass Pasture Kv= 7.0 fps
0.1	58	0.0345	12.47	330.38	**Channel Flow, Ditch to STA 0+45** Area= 26.5 sf Perim= 16.8' r= 1.58' n= 0.030 Earth, grassed & winding
0.2	185	0.0649	17.10	453.13	**Channel Flow, Ditch to STA 2+30** Area= 26.5 sf Perim= 16.8' r= 1.58' n= 0.030 Earth, grassed & winding
0.2	99	0.0101	6.75	178.76	**Channel Flow, Ditch to STA 3+30** Area= 26.5 sf Perim= 16.8' r= 1.58' n= 0.030 Earth, grassed & winding
1.0	378	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2S: West Swale



Summary for Subcatchment 3S: West of Access Drive

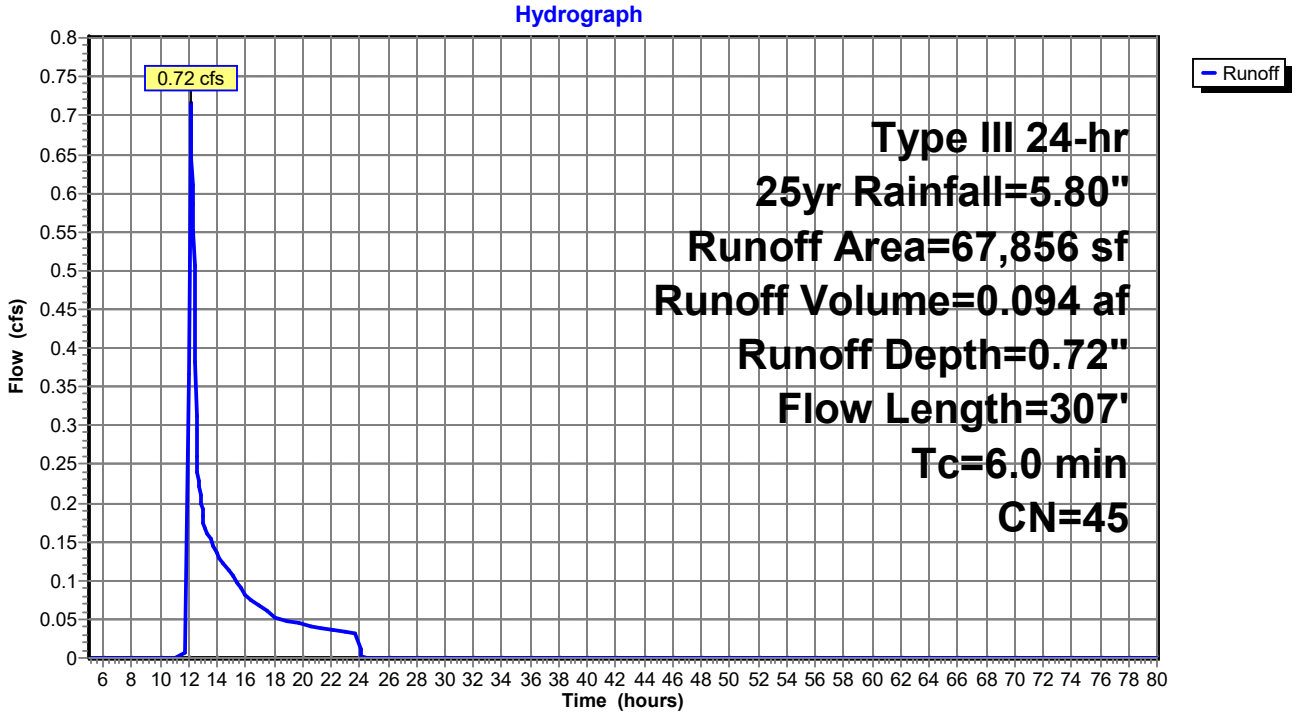
Runoff = 0.72 cfs @ 12.14 hrs, Volume= 0.094 af, Depth= 0.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 25yr Rainfall=5.80"

	Area (sf)	CN	Description
*	2,935	98	HSG A, Wetland
*	5,618	96	Gravel surface, HSG A, Gravel Drive off sute West
*	982	98	Roofs, HSG A, abutter to the West
	5,089	39	>75% Grass cover, Good, HSG A
	1,800	30	Meadow, non-grazed, HSG A
	51,432	36	Woods, Fair, HSG A
	67,856	45	Weighted Average
	63,939		94.23% Pervious Area
	3,917		5.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	29	0.0696	0.21		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.00"
0.1	27	0.2222	3.30		**Shallow Concentrated Flow, West of Access** Short Grass Pasture Kv= 7.0 fps
0.1	127	0.0941	18.70	377.66	**Channel Flow, channel from tie in slopes** Area= 20.2 sf Perim= 14.8' r= 1.36' n= 0.030 Earth, grassed & winding
1.9	124	0.0464	1.08		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
4.4	307	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3S: West of Access Drive



Summary for Subcatchment 4S: Access Drive & Ditch

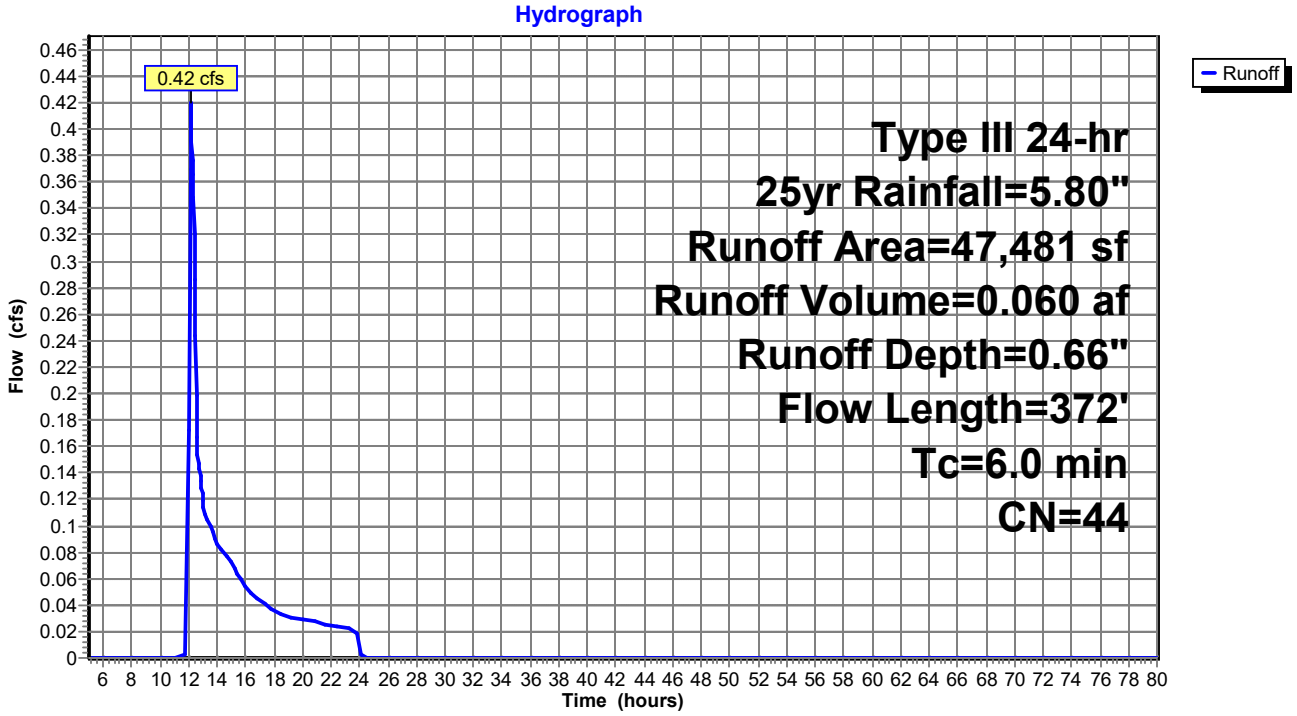
Runoff = 0.42 cfs @ 12.16 hrs, Volume= 0.060 af, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 25yr Rainfall=5.80"

	Area (sf)	CN	Description
	160	98	Unconnected pavement, HSG A
*	7,417	96	Gravel surface, HSG A, Access Driveway & Equipment Pad
*	14,608	36	Woods, Fair, HSG A, West Abutter
*	10,112	39	>75% Grass cover, Good, HSG A Ditch
	15,184	30	Meadow, non-grazed, HSG A
	47,481	44	Weighted Average
	47,321		99.66% Pervious Area
	160		0.34% Impervious Area
	160		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	19	0.0208	0.97		**Sheet Flow, Sheet** Smooth surfaces n= 0.011 P2= 3.00"
0.0	9	0.1121	5.02		**Shallow Concentrated Flow, Grassed Ditch Side Slope** Grassed Waterway Kv= 15.0 fps
0.4	344	0.0479	14.69	389.29	**Channel Flow, Grassed Ditch - West STA 6+40 +/-** Area= 26.5 sf Perim= 16.8' r= 1.58' n= 0.030
0.7	372	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 4S: Access Drive & Ditch



Summary for Subcatchment 5S: Solar Field

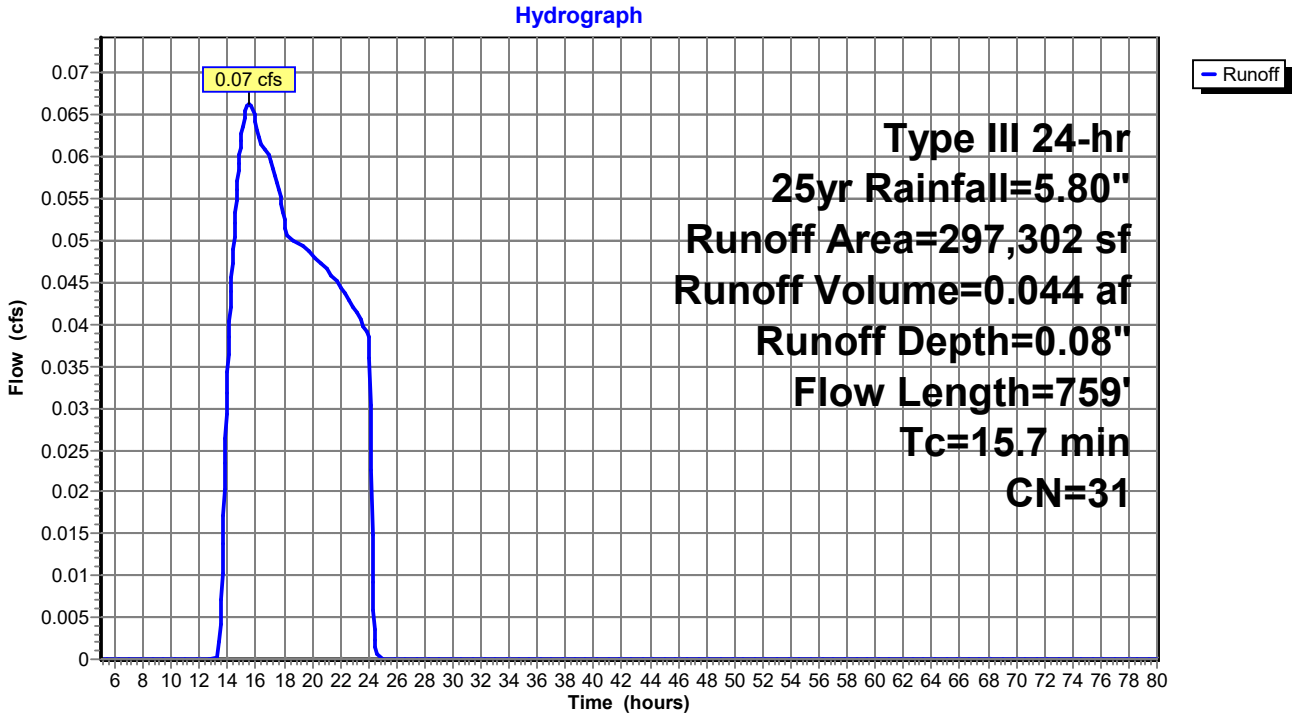
Runoff = 0.07 cfs @ 15.54 hrs, Volume= 0.044 af, Depth= 0.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 25yr Rainfall=5.80"

	Area (sf)	CN	Description
*	43,118	36	Woods, Fair, HSG A, Northern Abutter
	254,184	30	Meadow, non-grazed, HSG A
	297,302	31	Weighted Average
	297,302		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	46	0.0329	2.72		**Shallow Concentrated Flow, upper ditch** Grassed Waterway Kv= 15.0 fps
0.1	141	0.0849	19.56	518.27	**Channel Flow, Ditch** Area= 26.5 sf Perim= 16.8' r= 1.58' n= 0.030 Earth, grassed & winding
9.3	98	0.0615	0.18		**Sheet Flow, Solar Field - Level Spreader** Grass: Dense n= 0.240 P2= 3.00"
6.0	474	0.0359	1.33		**Shallow Concentrated Flow, Solar Field** Short Grass Pasture Kv= 7.0 fps
15.7	759	Total			

Subcatchment 5S: Solar Field



Summary for Subcatchment 6S: Central Subcatchment

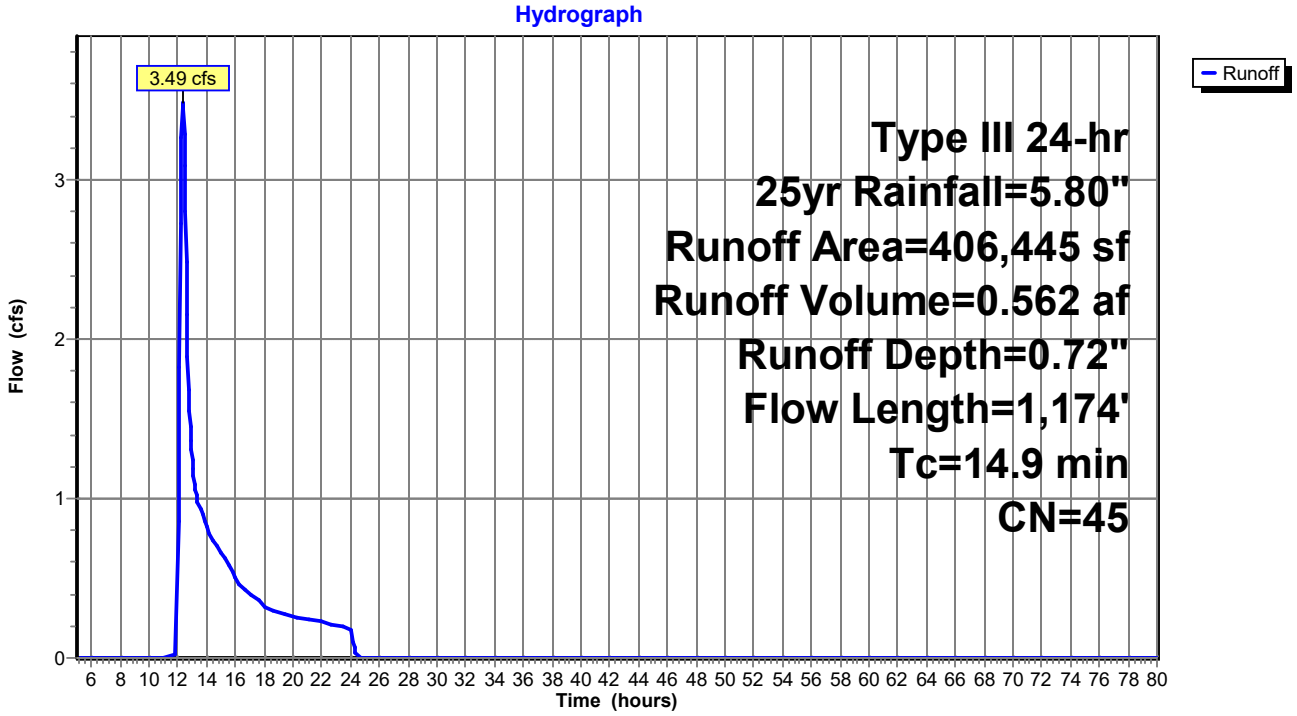
Runoff = 3.49 cfs @ 12.34 hrs, Volume= 0.562 af, Depth= 0.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 25yr Rainfall=5.80"

	Area (sf)	CN	Description
*	1,106	98	Unconnected roofs, HSG A Allen House
*	246	98	Unconnected pavement, HSG A Walkway
*	7,754	30	Meadow, non-grazed, HSG A Lawn
	34,256	36	Woods, Fair, HSG A
*	61,151	98	Water Surface, HSG A Wetlands
*	254,557	36	Woods, Fair, HSG A
	47,375	30	Meadow, non-grazed, HSG A
	406,445	45	Weighted Average
	343,942		84.62% Pervious Area
	62,503		15.38% Impervious Area
	1,352		2.16% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	19	0.4160	3.22		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.00"
4.8	79	0.0800	0.27		**Sheet Flow, Lawn** Grass: Short n= 0.150 P2= 3.00"
0.8	72	0.0240	1.55		**Shallow Concentrated Flow, Clreared Area** Nearly Bare & Untilled Kv= 10.0 fps
0.6	137	0.1310	3.62		**Shallow Concentrated Flow, Cleared & Wooded** Nearly Bare & Untilled Kv= 10.0 fps
2.1	184	0.0870	1.47		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
3.7	410	0.0150	1.84		**Shallow Concentrated Flow, Wetland W-JL6** Grassed Waterway Kv= 15.0 fps
0.9	98	0.1200	1.73		**Shallow Concentrated Flow, Wooded** Woodland Kv= 5.0 fps
1.9	175	0.0110	1.57		**Shallow Concentrated Flow, Wetland W-JL5** Grassed Waterway Kv= 15.0 fps
14.9	1,174	Total			

Subcatchment 6S: Central Subcatchment



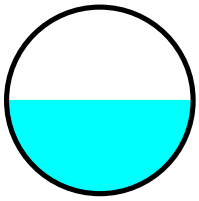
Summary for Reach 1R: Cross Culvert

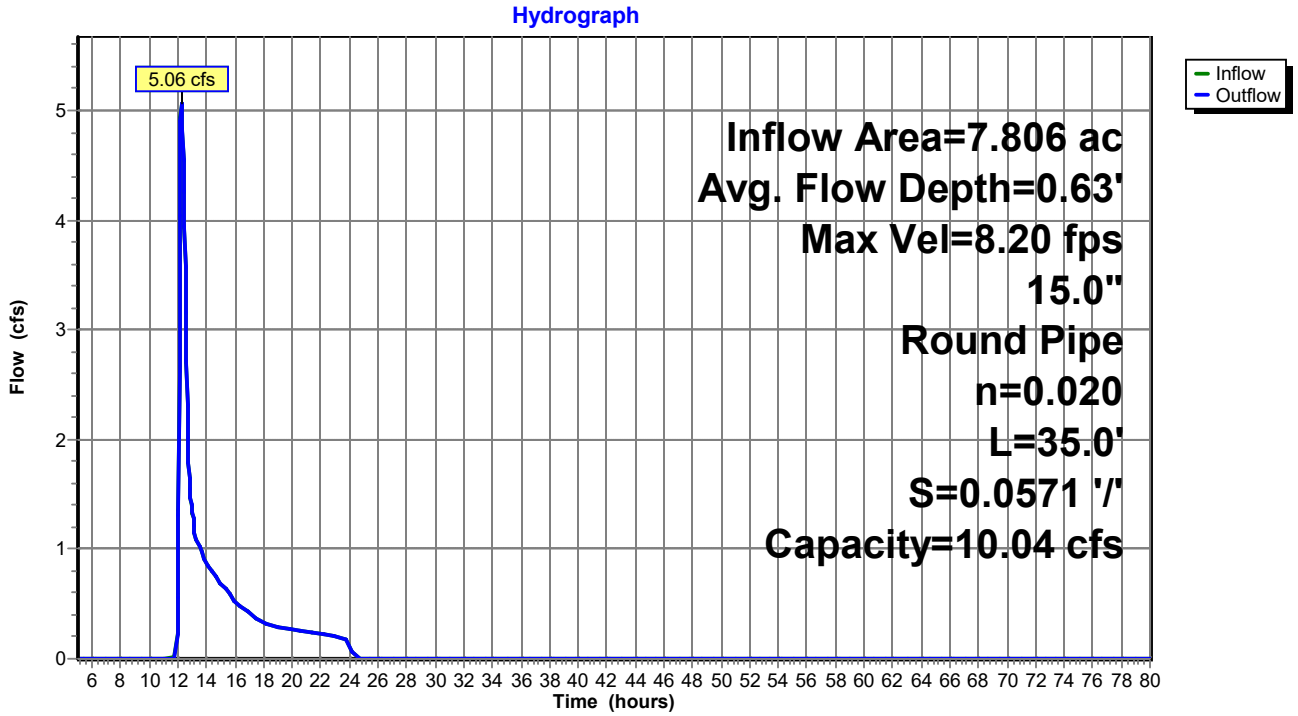
Inflow Area = 7.806 ac, 18.19% Impervious, Inflow Depth = 0.98" for 25yr event
Inflow = 5.06 cfs @ 12.24 hrs, Volume= 0.637 af
Outflow = 5.06 cfs @ 12.24 hrs, Volume= 0.637 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.20 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.01 fps, Avg. Travel Time= 0.1 min

Peak Storage= 22 cf @ 12.24 hrs
Average Depth at Peak Storage= 0.63'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 10.04 cfs

15.0" Round Pipe
n= 0.020 Corrugated PE, corrugated interior
Length= 35.0' Slope= 0.0571 '/'
Inlet Invert= 328.00', Outlet Invert= 326.00'





Summary for Pond 2P: Soil Filter B (SFB)

Inflow Area = 1.090 ac, 0.34% Impervious, Inflow Depth = 0.66" for 25yr event
Inflow = 0.42 cfs @ 12.16 hrs, Volume= 0.060 af
Outflow = 0.13 cfs @ 12.88 hrs, Volume= 0.060 af, Atten= 69%, Lag= 43.5 min
Primary = 0.02 cfs @ 12.88 hrs, Volume= 0.030 af
Secondary = 0.11 cfs @ 12.88 hrs, Volume= 0.030 af

Routing by Stor-Ind method, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 314.05' @ 12.88 hrs Surf.Area= 1,291 sf Storage= 647 cf

Plug-Flow detention time= 231.5 min calculated for 0.060 af (100% of inflow)
Center-of-Mass det. time= 231.7 min (1,159.7 - 927.9)

Volume	Invert	Avail.Storage	Storage Description
#1	313.50'	4,067 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

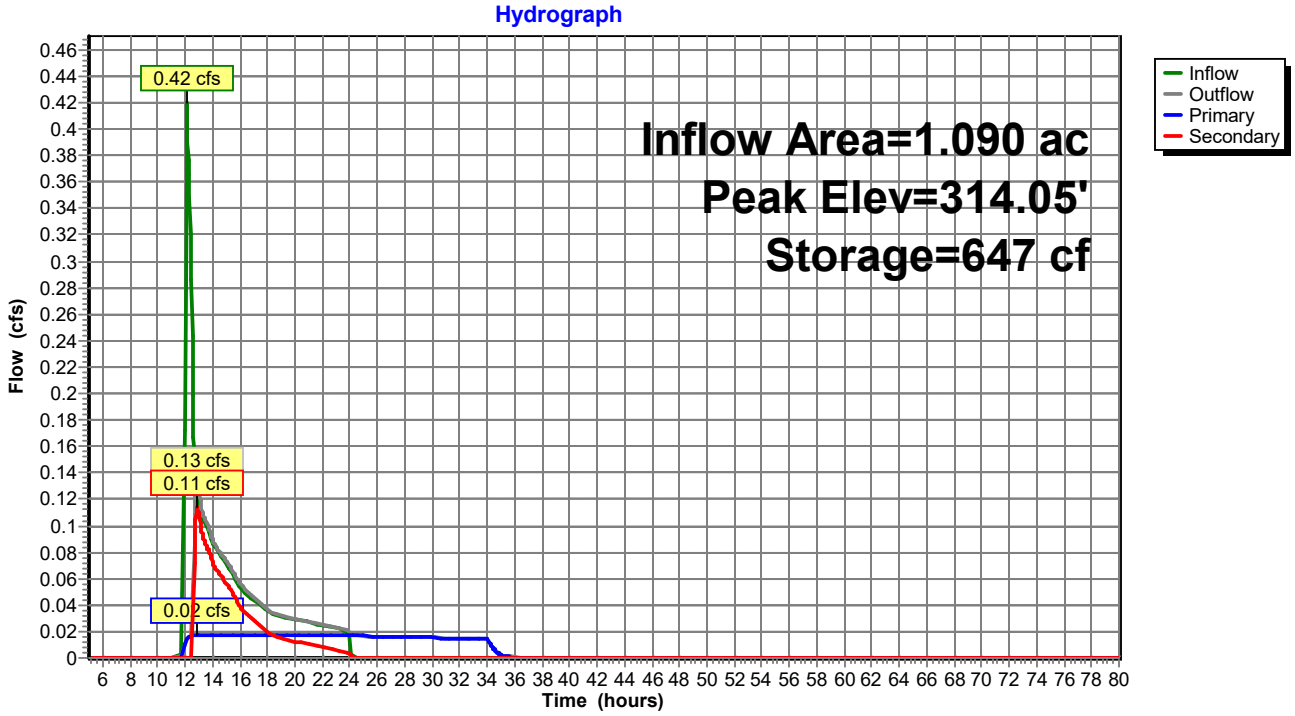
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
313.50	1,064	0	0
314.00	1,267	583	583
316.00	2,217	3,484	4,067

Device	Routing	Invert	Outlet Devices
#1	Primary	313.50'	**0.575 in/hr Exfiltration over Surface area**
#2	Secondary	314.00'	**4.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.02 cfs @ 12.88 hrs HW=314.05' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Secondary OutFlow Max=0.11 cfs @ 12.88 hrs HW=314.05' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.11 cfs @ 0.57 fps)

Pond 2P: Soil Filter B (SFB)



Summary for Pond 5P: Soil Filter A (SFA)

Inflow Area = 8.317 ac, 17.07% Impervious, Inflow Depth = 1.08" for 25yr event
Inflow = 5.95 cfs @ 12.22 hrs, Volume= 0.749 af
Outflow = 4.34 cfs @ 12.47 hrs, Volume= 0.749 af, Atten= 27%, Lag= 14.5 min
Primary = 0.05 cfs @ 12.47 hrs, Volume= 0.149 af
Secondary = 4.29 cfs @ 12.47 hrs, Volume= 0.600 af

Routing by Stor-Ind method, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 327.50' @ 12.47 hrs Surf.Area= 3,752 sf Storage= 6,157 cf

Plug-Flow detention time= 218.4 min calculated for 0.749 af (100% of inflow)
Center-of-Mass det. time= 219.5 min (1,118.2 - 898.7)

Volume	Invert	Avail.Storage	Storage Description
#1	325.50'	10,260 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

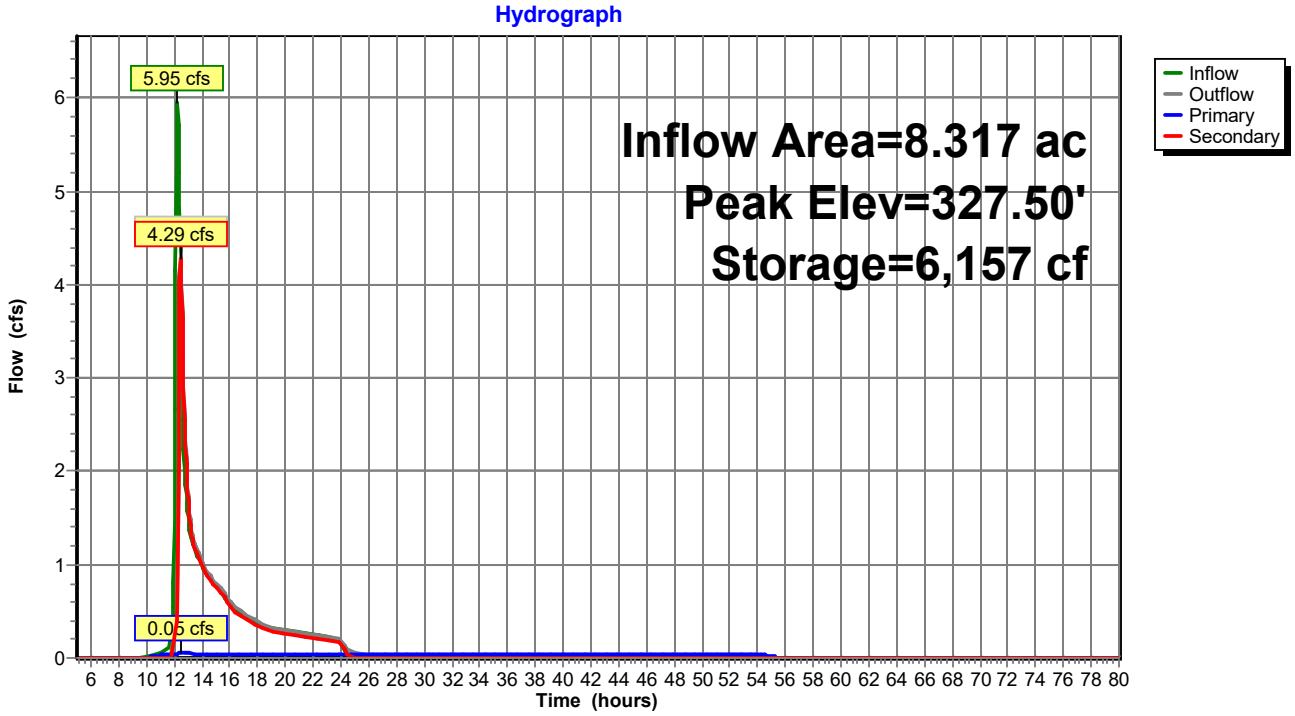
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
325.50	2,435	0	0
326.00	2,741	1,294	1,294
327.00	3,395	3,068	4,362
328.00	4,106	3,751	8,113
328.50	4,483	2,147	10,260

Device	Routing	Invert	Outlet Devices
#1	Primary	325.50'	**0.575 in/hr Exfiltration over Surface area**
#2	Secondary	326.95'	**4.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.05 cfs @ 12.47 hrs HW=327.50' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Secondary OutFlow Max=4.25 cfs @ 12.47 hrs HW=327.50' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 4.25 cfs @ 1.93 fps)

Pond 5P: Soil Filter A (SFA)

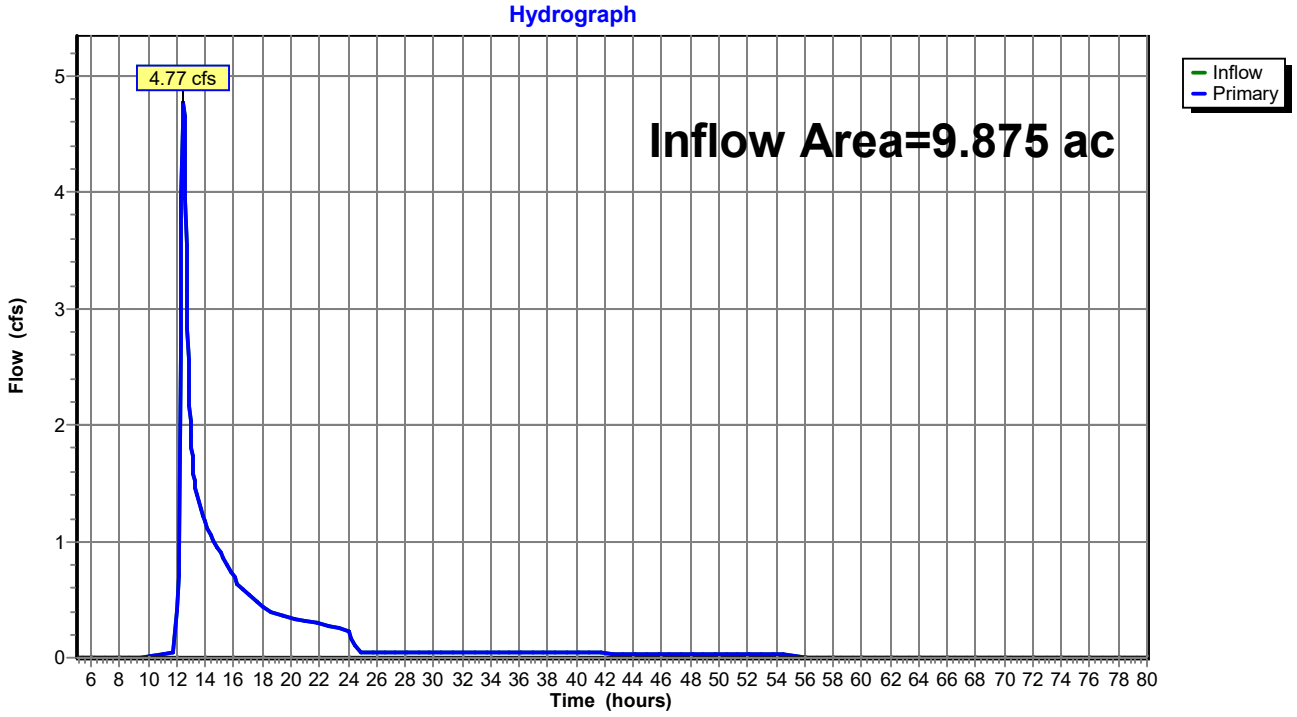


Summary for Link 1L: Point of Analysis

Inflow Area = 9.875 ac, 15.29% Impervious, Inflow Depth = 1.02" for 25yr event
Inflow = 4.77 cfs @ 12.45 hrs, Volume= 0.843 af
Primary = 4.77 cfs @ 12.45 hrs, Volume= 0.843 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs

Link 1L: Point of Analysis

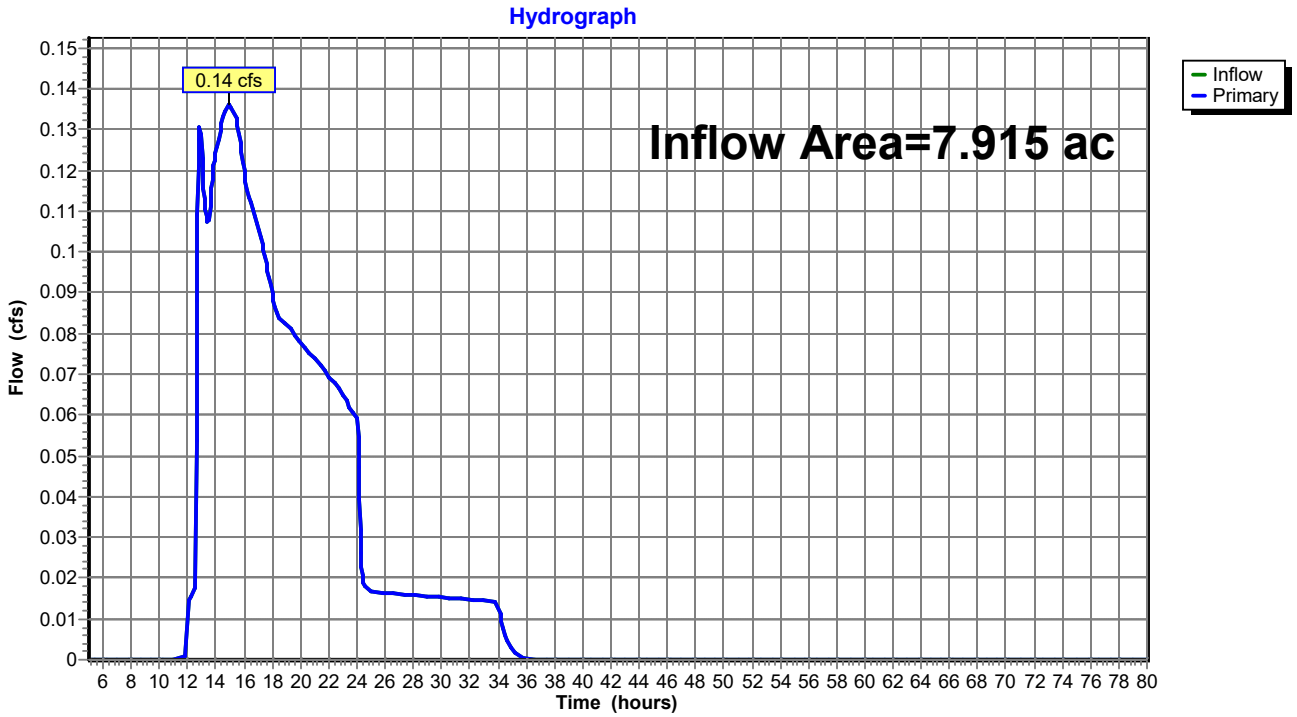


Summary for Link 2L: Point of Analysis

Inflow Area = 7.915 ac, 0.05% Impervious, Inflow Depth = 0.16" for 25yr event
Inflow = 0.14 cfs @ 14.95 hrs, Volume= 0.104 af
Primary = 0.14 cfs @ 14.95 hrs, Volume= 0.104 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs

Link 2L: Point of Analysis

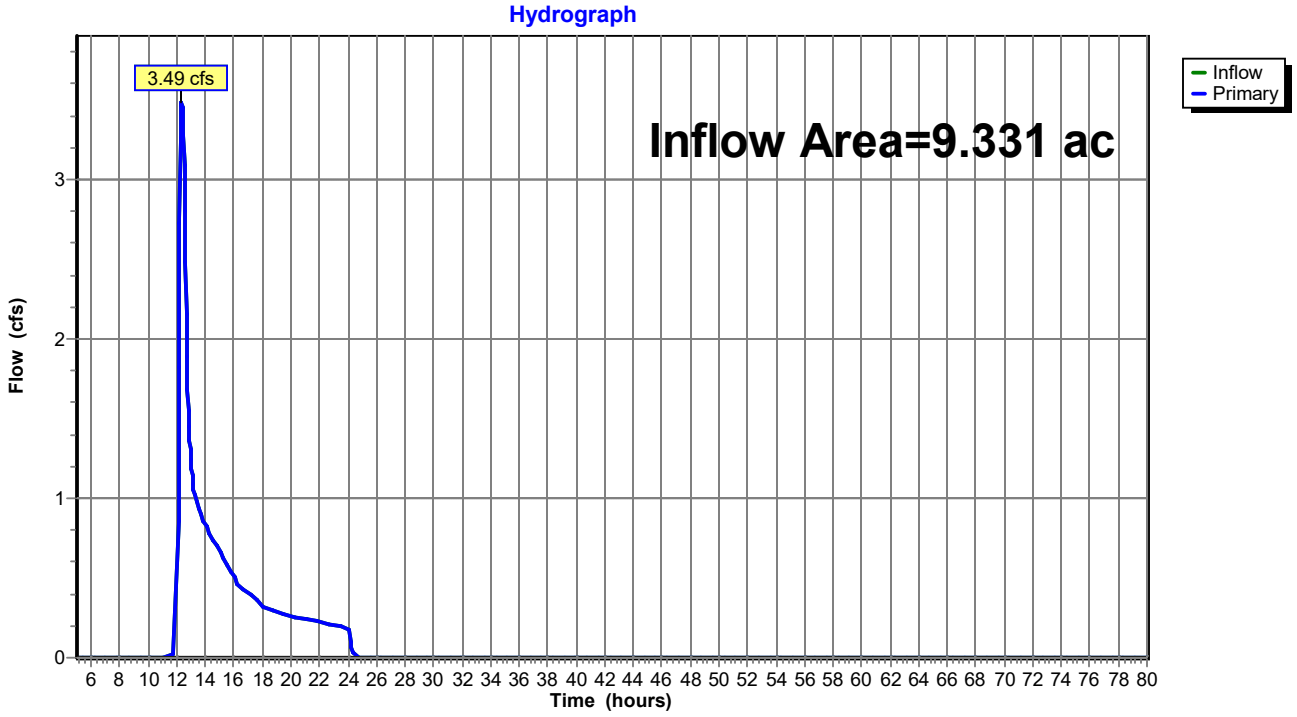


Summary for Link 3L: Point of Analysis

Inflow Area = 9.331 ac, 15.38% Impervious, Inflow Depth = 0.72" for 25yr event
Inflow = 3.49 cfs @ 12.34 hrs, Volume= 0.562 af
Primary = 3.49 cfs @ 12.34 hrs, Volume= 0.562 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-80.00 hrs, dt= 0.05 hrs

Link 3L: Point of Analysis



Appendix G
Public Notification

Not applicable to Raymond Site Plan Appliction

Appendix H
Protected Natural Resources Report

Previously Submitted to Planning Board

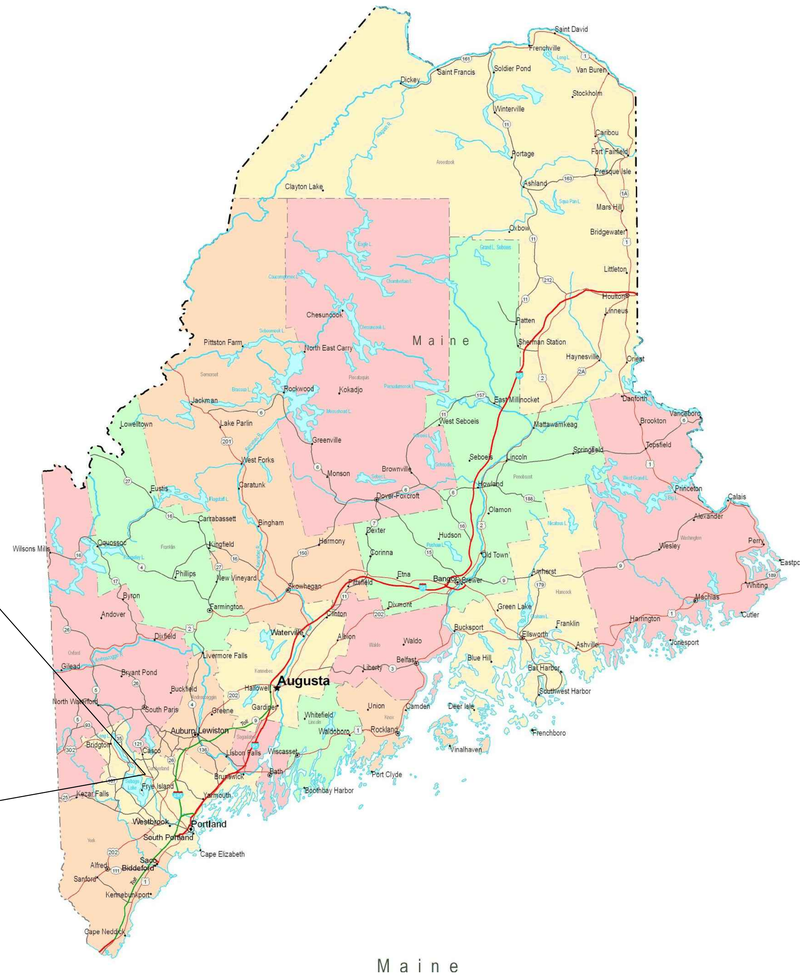
Owner:
Allen Solar Power, LLC
143 Highland Shores Road
Casco, Maine 04015
207-615-6850
207-461-0666

Engineer of Record:
Kirk Ball, PE
Acheron Engineering Services
153 Main Street
Newport, Maine 04953
207-368-5700

Surveyor:
Plisga & Day Land Surveyors
72 Main Street
Bangor, Maine 04401
207-947-0019

Code Enforcement: Raymond
Alex Sirois
401 Webbs Mill Road
Raymond, Maine 04071
207-655-4742 Ext. 161

Allen Solar Power, LLC.
Roosevelt Trail
Raymond, Maine



Maine

Acheron Engineering, LLC.

Engineering & Environmental Consultants

www.AcheronEngineering.com

153 Main St.
Newport, ME. 04953
(207)-368-5700

113 Winter East
Williamsburg, VA 23188
(207) 341-2590

FOR REGULATORY REVIEW
DO NOT USE FOR CONSTRUCTION

GENERAL NOTES:

1. ACHERON ENGINEERING HAS USED A REASONABLE STANDARD OF CARE TO TRY TO LOCATE UNDERGROUND FACILITIES IN THE VICINITY OF THIS PROJECT. LOCATIONS OF UNDERGROUND FACILITIES DEPICTED ON THESE DRAWINGS ARE APPROXIMATE. EXCAVATORS MUST COMPLY WITH ALL REQUIREMENTS OF TITLE 23 SECTION 3360, PROTECTION OF UNDERGROUND FACILITIES, BEFORE COMMENCING OPERATIONS.

2. SPILL PREVENTION: CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM CONSTRUCTION AND WASTE MATERIALS STORED ON SITE TO ENTER STORMWATER, WHICH INCLUDES; STORAGE PRACTICES TO MINIMIZE EXPOSURE OF MATERIALS TO STORMWATER. THE SITE CONTRACTOR OR OPERATOR MUST DEVELOP AND IMPLEMENT, AS NECESSARY, APPROPRIATE SPILL PREVENTION, CONTAINMENT AND RESPONSE PLANNING MEASURES.

3. ANY SPILL OR RELEASE OF TOXIC OR HAZARDOUS SUBSTANCES MUST BE REPORTED TO THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION. FOR OIL SPILLS, CALL 1-800-482-0777 WHICH IS AVAILABLE 24 HOURS A DAY. FOR SPILLS OF TOXIC OR HAZARDOUS MATERIAL, CALL 1-800-482-4664 WHICH IS AVAILABLE 24 HOURS A DAY. FOR MORE INFORMATION VISIT THE MEDEP WEBSITE AT: WWW.MAINE.GOV/DEP/SPILLS/EMERGSPILLRESP/

4. GROUNDWATER PROTECTION: DURING CONSTRUCTION, LIQUID PETROLEUM PRODUCTS AND OTHER HAZARDOUS MATERIALS WITH THE POTENTIAL TO CONTAMINATE GROUNDWATER MAY NOT BE STORED OR HANDLED IN AREAS OF THE SITE OF THE SITE DRAINING TO AN INFILTRATION AREA. AN "INFILTRATION AREA" IS ANY AREA OF THE SITE THAT BY DESIGN OR AS A RESULT OF SOILS, TOPOGRAPHY AND OTHER RELEVANT FACTORS ACCUMULATES RUNOFF THAT INFILTRATES INTO THE SOIL. DIKES, BERMS, SUMPS AND OTHER FORMS OF SECONDARY CONTAINMENT THAT PREVENT DISCHARGE TO GROUNDWATER MAY BE USED TO ISOLATE PORTIONS OF THE SITE FOR THE PURPOSES OF STORAGE AND HANDLING OF THESE MATERIALS. ANY PROJECT PROPOSING INFILTRATION OF STORMWATER MUST PROVIDE ADEQUATE PRE-TREATMENT OF STORMWATER PRIOR TO DISCHARGE OF STORMWATER TO THE INFILTRATION AREA, OR PROVIDE FOR TREATMENT WITHIN THE INFILTRATION AREA, IN ORDER TO PREVENT ACCUMULATION OF FINES, REDUCTION IN INFILTRATION RATE AND CONSEQUENT FLOODING AND DESTABILIZATION. NOTE: LACK OF APPROPRIATE POLLUTANT REMOVAL BEST MANAGEMENT PRACTICES (BMPS) MAY RESULT IN VIOLATIONS OF THE GROUNDWATER QUALITY STANDARD ESTABLISHED BY M.R.S.A. §465-C (1).

5. DEBRIS AND OTHER MATERIALS: MINIMIZE THE EXPOSURE OF CONSTRUCTION DEBRIS, BUILDING AND LANDSCAPING MATERIALS, TRASH, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, SANITARY WASTE AND OTHER MATERIAL TO PRECIPITATION AND STORMWATER RUNOFF. THESE MATERIALS MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE. NOTE: TO PREVENT THESE MATERIALS FROM BECOMING A SOURCE OF POLLUTANTS, CONSTRUCTION AND POST CONSTRUCTION ACTIVITIES RELATED TO A PROJECT MAY BE REQUIRED TO COMPLY WITH APPLICABLE PROVISIONS OF RULES RELATED TO SOLID, UNIVERSAL AND HAZARDOUS WASTES, INCLUDING BUT NOT LIMITED TO, THE MAINE SOLID WASTE MANAGEMENT RULES; MAINE HAZARDOUS WASTE RULES; MAINE OIL CONVEYANCE AND STORAGE RULES AND MAINE PESTICIDE REQUIREMENTS.

6. AUTHORIZED NON-STORMWATER DISCHARGES: IDENTIFY AND PREVENT CONTAMINATION BY NON-STORMWATER DISCHARGES. WHERE ALLOWED NON-STORMWATER DISCHARGES EXIST, THEY MUST BE IDENTIFIED AND STEPS TAKEN TO ENSURE THE IMPLEMENTATION OF APPROPRIATE POLLUTION MEASURES FOR THE NON-STORMWATER COMPONENT(S) OF THE DISCHARGE. AUTHORIZED NON-STORMWATER DISCHARGES ARE; DISCHARGES FROM FIREFIGHTING ACTIVITY, FIRE HYDRANT FLUSHING, VEHICLE WASHWATER IF DETERGENTS ARE NOT USED AND WASHING IS LIMITED TO THE EXTERIOR OF VEHICLES (ENGINE, UNDERCARRIAGE AND TRANSMISSION WASHING IS PROHIBITED), DUST CONTROL RUNOFF IN ACCORDANCE WITH PERMIT CONDITIONS, ROUTINE EXTERNAL BUILDING WASHDOWN (NOT INCLUDING PAINT REMOVAL, NO DETERGENTS), PAVEMENT WASHWATER (WHERE SPILLS/LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED, UNLESS ALL SPILLED MATERIAL HAD BEEN REMOVED, NO DETERGENTS), UNCONTAMINATED AIR CONDITIONING OR COMPRESSOR CONDENSATE, UNCONTAMINATED GROUNDWATER OR SPRING WATER, FOUNDATION OR FOOTER DRAIN-WATER WHERE FLOWS ARE NOT CONTAMINATED, UNCONTAMINATED EXCAVATION DEWATERING, POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHING AND LANDSCAPE IRRIGATION.

7. UNAUTHORIZED NON-STORMWATER DISCHARGES: THE MAINE DEP'S APPROVAL DOES NOT AUTHORIZE A DISCHARGE THAT IS MIXED WITH A SOURCE OF NON-STORMWATER, OTHER THAN THOSE MENTIONED IN GENERAL NOTE 7 SPECIFICALLY. THE MAINE DEP'S APPROVAL DOES NOT AUTHORIZE DISCHARGE OF THE FOLLOWING; WASTEWATER FROM THE WASHOUT OR CLEANOUT OF CONCRETE, STUCCO, PAINT, FORM RELEASE OIL, CURING COMPOUNDS OR OTHER CONSTRUCTION MATERIALS; FUELS, OILS, OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE; SOAPS, SOLVENTS OR DETERGENTS USED IN VEHICLE AND EQUIPMENT WASHING; AND TOXIC OR HAZARDOUS SUBSTANCES FROM A SPILL OR RELEASE.

EROSION CONTROL NOTES:

1. DURING CONSTRUCTION USE PRECAUTION TO AVOID ANY EROSION AND TO PREVENT SILTING OF OCEANS, RIVERS, STREAMS, LAKES, RESERVOIRS, IMPOUNDMENTS, AND DRAINAGE DITCHES AND SWALES.

2. CONSTRUCTION SEQUENCE
   - INSTALL TEMPORARY EROSION CONTROL MEASURES.
   - DE-STUMP AND REMOVE BOULDERS.
   - SEED ANY DISTURBED AREAS.
   - CONSTRUCT STORMWATER MANAGEMENT FACILITIES.
   - INSTALL SOLAR PANELS, SUBSTATION AND EQUIPMENT.
   - INSTALL COLLECTOR LINES, REGRADE AND REVEGITATE ROADS.
   - FINAL GRADING AND RESEEDING OF DISTURBED AREAS.
   - REMOVE EROSION CONTROL DEVICES PENDING SUFFICIENT GROWTH IN SEEDED AREAS.

3. ALL CONSTRUCTION ACTIVITIES SHOULD FOLLOW GUIDANCE AS PRESENTED IN "MAINE EROSION AND SEDIMENT CONTROL PRACTICES, FIELD GUIDE FOR CONTRACTORS" PUBLISHED BY THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION IN 2014.

4. 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 BE 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 EROSION AND SEDIMENTATION CONTROL AND MAINTENANCE.

5. LOCATE AND MARK ALL PROJECT BOUNDARIES PRIOR TO CONSTRUCTION.

6. LIMIT THE AMOUNT OF SOIL DISTURBANCE TO NO MORE THAN 2 ACRES AT ONE TIME OR NO LARGER AREA THAN CAN BE MULCHED IN ONE DAY.

7. MARK ALL SOIL DISTURBANCE LIMITS AND INSTALL SEDIMENT BARRIERS PRIOR TO DISTURBING SOILS.

8. MULCH EXPOSED SOIL AS SOON AS POSSIBLE, AND REVEGETATE AS SOON AS FINAL GRADE IS ATTAINED.

9. INSPECT AND REPAIR EROSION CONTROL AND SEDIMENT TRAPPING MEASURES WEEKLY AND AFTER EVERY STORM EVENT.

10. REMOVE TEMPORARY EROSION CONTROLS WITHIN 30 DAYS AFTER PERMANENT STABILIZATION IS ATTAINED. PERMANENT STABILIZATION CONSISTS OF AT LEAST 90% VEGETATION, PAVEMENT, GRAVEL BASE OR RIP-RAP.

11. STABILIZE DITCHES WITHIN 24 HOURS OF FINAL GRADE.

12. ALL FILL MATERIAL MUST BE FREE OF FROZEN SOIL, ROCKS OVER 6-INCHES, SOD, BRUSH, STUMPS, TREE ROOTS, WOOD OR OTHER PERISHABLE MATERIALS.

13. INSTALL SEDIMENT BARRIERS DOWN SLOPE OF SOIL STOCK PILES.

14. DO NOT SITE SOIL STOCK PILE IN AREAS OF CONCENTRATED STORMWATER FLOW OR AREAS OF POTENTIAL FLOODING.

15. THE DURATION OF EXPOSURE OF UNCOMPLETED CUT SLOPES, EMBANKMENTS, TRENCH EXCAVATIONS, AND SITE GRADED AREAS SHALL BE MINIMIZED. INITIATE SEEDING AND OTHER EROSION CONTROL MEASURES ON EACH SEGMENT AS SOON AS REASONABLY POSSIBLE.

16. SHOULD IT BECOME NECESSARY TO SUSPEND CONSTRUCTION FOR MORE THAN 7 DAYS, SHAPE AND STABILIZE ALL EXCAVATED AND GRADED AREAS. PROVIDE AND MAINTAIN TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES, SUCH AS BERMS, DIKES, SLOPE DRAINS, SILT STOPS, AND SEDIMENTATION BASINS, UNTIL PERMANENT DRAINAGE FACILITIES OR EROSION CONTROL FEATURES HAVE BEEN COMPLETED AND ARE OPERATIVE. IF DISTURBED AREAS ARE WITHIN 75 FEET OF A WETLAND OR WATERBODY, STABILIZE DISTURBANCE WITHIN 48 HOURS OR PRIOR TO ANY STORM EVENT, WHICHEVER COMES FIRST.

17. FINE MATERIAL PLACED OR EXPOSED DURING THE WORK SHALL BE HANDLED AND TREATED AS TO MINIMIZE THE POSSIBILITY OF IT REACHING ANY SURFACE WATERS. USE DIVERSION CHANNELS, DIKES, SEDIMENT TRAPS, OR ANY OTHER EFFECTIVE AND APPROVED CONTROL MEASURES.

18. PROVIDE SILT STOPS WHEREVER EROSION CONTROL MEASURES MAY NOT BE TOTALLY CAPABLE OF CONTROLLING EROSION, SUCH AS IN DRAINAGE CHANNELS AND WHERE STEEP SLOPES MAY EXIST.

19. BEFORE WATER IS ALLOWED TO FLOW IN ANY DITCH, SWALE, OR CHANNEL, INSTALL THE PERMANENT EROSION CONTROL MEASURES IN THE WATERWAY SO THAT THE WATERWAY WILL BE SAFE AGAINST EROSION.

20. TAKE SPECIAL PRECAUTIONS IN THE USE OF CONSTRUCTION EQUIPMENT TO MINIMIZE EROSION. DO NOT LEAVE WHEEL TRACKS WHERE EROSION MIGHT BEGIN.

21. MULCHING SHALL FOLLOW THE SEEDING OPERATION BY NOT MORE THAN 24 HOURS.

22. SHOULD ANY PROTECTIVE MEASURES EMPLOYED INDICATE ANY DEFICIENCIES OR EROSION TAKING PLACE, IMMEDIATELY PROVIDE ADDITIONAL MATERIALS OR EMPLOY DIFFERENT TECHNIQUES TO CORRECT THE SITUATION AND TO PREVENT SUBSEQUENT EROSION.

23. DISTURBANCE WITHIN 30 FEET OF ANY PROTECTED NATURAL RESOURCE WILL REQUIRE DOUBLING THE PERIMETER EROSION CONTROLS AND DISTURBED AREAS MUST BE STABILIZED WITHIN 7 DAYS.

24. CONTINUE EROSION CONTROL MEASURES UNTIL THE PERMANENT MEASURES HAVE BEEN SUFFICIENTLY ESTABLISHED AND ARE CAPABLE OF CONTROLLING EROSION ON THEIR OWN.

25. REMOVE ALL TEMPORARY CONTROL MEASURES WITHIN 30 DAYS AFTER PERMANENT STABILIZATION IS ATTAINED.

26. COMPLY WITH ALL FEDERAL, STATE, AND LOCAL LAWS, ORDINANCES, RULES AND REGULATIONS. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS SET FORTH IN THE BEST MANAGEMENT PRACTICES OF MAINE AS PREPARED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

27. AREAS CONTAINING EXPOSED SOILS MUST BE STABILIZED WITHIN 7 DAYS OF CESSATION OF AN ACTIVITY.

28. BEGIN PERMANENT STABILIZATION WITHIN 7 DAYS OF OBTAINING FINAL GRADE.

24. WINTERIZATION SCHEDULE
   - ALL STONE LINED DITCHES AND CHANNELS SHALL BE CONSTRUCTED AND STABILIZED BY NOVEMBER 15TH.
   - ALL STONE COVERED SLOPES SHALL BE CONSTRUCTED AND STABILIZED BY NOVEMBER 15TH.
   - ALL DISTURBED SLOPES HAVING A SLOPE LESS THAN 15% TO BE SEEDED AND MULCHED BY SEPTEMBER 15TH.
   - ALL VEGETATED SLOPE GREATER THAN 15% TO BE SEED AND MULCHED BY SEPTEMBER 1ST.
   - ALL VEGETATED DITCHES AND CHANNELS TO BE SEEDED AND MULCHED BY SEPTEMBER 1ST.

30. SITE WINTERIZATION
   - IF THE SEPTEMBER 1ST DEADLINE CANNOT BE MET FOR VEGETATED SLOPES, THEN BY OCTOBER 1ST THE SLOPE SHALL BE SEEDED WITH WINTER RYE AT THE RATE OF 3 POUNDS PER 1000 SQUARE FEET AND COVERED WITH EROSION CONTROL MATS OR ANCHORED MULCH. IF RYE FAILS TO GROW 3 INCHES BY NOVEMBER 1ST THE SLOPE SHALL BE COVERED WITH AN EROSION CONTROL MIX OR COVERED WITH STONE RIPRAP.
   - IF THE SEPTEMBER 1ST DEADLINE CANNOT BE MET FOR GRASSED LINED DITCHES, THEN A SOD OR STONE LINING SHALL BE INSTALLED.
   - IF THE SEPTEMBER 15TH DEADLINE CANNOT BE MET FOR DISTURBED AREAS WITH A SLOPE LESS THAN 15%, THEN BY NOVEMBER 15TH MULCH AREAS AT A RATE OF 150 POUNDS PER 1000 SQUARE FEET SUCH THAT NO SOIL IS VISIBLE THROUGH MULCH.

31. WINTER CONSTRUCTION
   - WINTER CONSTRUCTION IS CONSTRUCTION ACTIVITY PERFORMED BETWEEN NOVEMBER 1ST AND APRIL 15TH.
   - IF AN AREA IS NOT STABILIZED IN ACCORDANCE WITH THE ABOVE SCHEDULE OR PERMANENTLY STABILIZED THAN ADDITIONAL STABILIZATION MEASURES MUST BE EMPLOYED.
   - PERMANENT STABILIZATION CONSISTS OF AT LEAST 90% VEGETATION, PAVEMENT, GRAVEL BASE OR RIPRAP.
   - APPLY HAY MULCH AT 150 POUNDS PER 1000 SQUARE FEET SUCH THAT NO SOIL IS VISIBLE THROUGH MULCH.
   - USE MULCH AND NETTING OR AN EROSION CONTROL BLANKET OR MIX ON ALL SLOPES GRATER THAT 8 PERCENT.
   - INSTALL AN EROSION CONTROL BLANKET IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3 PERCENT.
   - WINTER EXCAVATION AND EARTH WORK SHALL NOT EXPOSE MORE THAN 1 ACRE OF THE SITE WITHOUT STABILIZATION AT ANY ONE TIME.
   - IN AN AREA WITHIN 75 FEET OF A NATURAL PROTECTED RESOURCE, DOUBLE ROW SEDIMENT BARRIERS SHALL BE INSTALLED.
   - TEMPORARY MULCH MUST BE APPLIED WITHIN 7 DAYS OF SOIL EXPOSURE OR PRIOR TO ANY STORM EVENT, BUT AFTER EVERY WORKING DAY IN AREAS WITHIN 75 FEET OF A NATURAL PROTECTED RESOURCE.
   - AREAS THAT HAVE BEEN BROUGHT TO FINAL GRADE SHALL BE MULCHED THE SAME DAY.
   - NO MULCH SHALL BE SPREAD OVER SNOW. SNOW SHALL BE REMOVED WITHIN ONE QUARTER INCH PRIOR TO MULCHING.
   - LOAM SHALL BE FREE OF FROZEN CLUMPS BEFORE BEING APPLIED.
   - INSPECT WEEKLY AND AFTER EACH STORM TO CHECK FOR EROSION AND REPAIR IMMEDIATELY.
   - IN SPRING, REMOVE ANY EXCESS MULCH, SEED AND MONITOR FOR EROSION AND PLANT GROWTH.

32. EXCAVATION DE-WATERING: EXCAVATION DE-WATERING IS THE REMOVAL OF WATER FROM TRENCHES, FOUNDATIONS, COFFERDAMS, PONDS, AND OTHER AREAS WITHIN THE CONSTRUCTION AREA THAT RETAIN WATER AFTER EXCAVATION. IN MOST CASES THE COLLECTED WATER IS HEAVILY SILTED AND HINDERS CORRECT AND SAFE CONSTRUCTION PRACTICES. THE COLLECTED WATER REMOVED FROM THE PONDED AREA, EITHER THROUGH GRAVITY OR PUMPING, MUST BE SPREAD THROUGH NATURAL WOODED BUFFERS OR REMOVED TO AREAS THAT ARE SPECIFICALLY DESIGNED TO COLLECT THE MAXIMUM AMOUNT OF SEDIMENT POSSIBLE, LIKE A COFFERDAM SEDIMENTATION BASIN OR DIRTBAG GEOTEXTILE SEDIMENT FILTER. AVOID ALLOWING THE WATER TO FLOW OVER DISTURBED AREAS OF THE SITE. EQUIVALENT MEASURES MAY BE TAKEN IF APPROVED BY THE MAINE DEP. NOTE: DEWATERING CONTROLS ARE DISCUSSED IN THE "MAINE EROSION AND SEDIMENT CONTROL BMPS, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION."

33. A DEWATERING PLAN IS NEEDED TO ADDRESS EXCAVATION DE-WATERING FOLLOWING HEAVY RAINFALL OR WHERE THE EXCAVATION MY INTERCEPT THE GROUNDWATER TABLE DURING CONSTRUCTION. PRIOR TO ANY DEWATERING ACTIVITIES SUBMIT A DEWATERING PLAN TO OWNER AND ENGINEER FOR APPROVAL.

34. FUGITIVE SEDIMENT AND DUST: ACTION MUST BE TAKEN TO ENSURE THAT ACTIVITIES DO NOT RESULT IN NOTICEABLE EROSION OF SOILS OR FUGITIVE DUST EMISSIONS DURING OR AFTER CONSTRUCTION. OIL MAY NOT USED FOR DUST CONTROL, BUT OTHER WATER ADDITIVES MAY BE CONSIDERED AS NEEDED. A STABILIZED CONSTRUCTION ENTRANCE (SCE) SHOULD BE INCLUDED TO MINIMIZE TRACKING OF MUD AND SEDIMENT. IF OFF-SITE TRACKING OCCURS, PUBLIC ROADS SHOULD BE SWEPT IMMEDIATELY AND NO LESS THAN ONCE A WEEK AND PRIOR TO SIGNIFICANT STORM EVENTS. OPERATIONS DURING DRY MONTHS, THAT EXPERIENCE FUGITIVE DUST PROBLEMS, SHOULD WET DOWN UNPAVED ACCESS ROADS ONCE PER WEEK OR MORE FREQUENTLY AS NEEDED WITH A WATER ADDITIVE TO SUPPRESS FUGITIVE SEDIMENT AND DUST.

35. IN LIEU OF SILT FENCE, EROSION CONTROL MIX CAN BE USED IF THE FOLLOWING CONDITIONS ARE MET.
   - FOLLOW GUIDELINE IN THE MAINE EROSION AND SEDIMENT CONTROL PRACTICES FIELD GUIDE, 2014.
   - THE EROSION CONTROL MIX BERM SHOULD BE MINIMUM OF 12" HIGH AND A MINIMUM OF 2' WIDE. ON STEEPER SLOPES, THE BERM WILL NEED TO BE WIDER AND HIGHER. BERMS COMPOSED OF EROSION CONTROL MIX CAN BE SHAPED WHEN NECESSARY.
   - 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. THE MINERAL PORTION OF THE MIX SHOULD BE NATURALLY INCLUDED IN THE PRODUCT WITH NO ROCKS LARGER THAN 4" OR LARGE AMOUNTS OF FINES (SILTS AND CLAYS). IN STUMP GRINDING, THE MINERAL SOIL ORIGINATES FROM THE ROOT BALL AND SHOULD NOT BE REMOVED BEFORE GRINDING. THE MIX SHOULD BE FREE OF REFUSE, MATERIAL TOXIC TO PLANT GROWTH OR UNSUITABLE MATERIAL (BARK CHIPS, GROUND CONSTRUCTION DEBRIS OR PROCESSES WOOD PRODUCTS).

36. SEEDING:
   - COMPLETE SEEDING WITHIN 7 DAYS OF FINAL GRADING.
   - BROADCAST SEED OVER ENTIRE DITCH AND SURFACE AND RAKE INTO SOIL.
   - APPLY HAY MULCH TO ALL SEEDED AREAS.
   - SUMMER SEEDING DATES ARE FROM APRIL 1 TO SEPTEMBER 15.
   - PERMANENT SEEDING SHOULD BE DONE 45 DAYS BEFORE A KILLING FROST.
   - NORTHEAST SOLAR POLLINATOR 3' MIX, BY ERNST SEEDS OR APPROVED EQUAL
   - SEEDING RATE:
     SEED AT 40 LB/ACRE WITH 30 LBS/ACRE OF A COVER CROP.
     FOR A COVER CROP USE EITHER GRAIN OATS (1 JAN TO 31 JUL) OR GRAIN RYE (1 AUG TO 31DEC).
   - MIX COMPOSITION:
     94.9% FESTUCA OVINA, (SHEEP FESCUE)
     2.5% ASCLEPIAS TUBEROSA (BUTTERFLY MILKWEED)
     2.0% CHAMAECRISTA FASCICULATA, PA ECOTYPE (PARTRIDGE PEA, PA ECOTYPE)
     0.3% OENOTHERA FRUTICOSA VAR. FRUTICOSA (SUNDROPS)
     0.3% TRADESCANTIA VIRGINIANA, SOUTHEASTERN PA/NORTHERN VA BLEND (VIRGINIA SPIDERWORT, SOUTHEASTERN PA/NORTHERN VA BLEND)
   - PROVIDE 4" OF LOAM PRIOR TO SEEDING IN AREAS THAT ARE WITHIN THE SOLAR FIELD THAT ARE TO BE GRADED, TO ESTABLISH A MEADOW CONDITION.

37. MULCHING:
   - APPLY TEMPORARY MULCH ON DISTURBED AREAS WITHIN 7 DAYS OF INITIAL DISTURBANCE OR PRIOR TO ANY STORM.
   - DO NOT APPLY EROSION CONTROL MIX OR HAY MULCH IN CONCENTRATED WATER FLOWS.
   - DO NOT USE EROSION CONTROL MIX OR HAY MULCH FOR SLOPES STEEP THAN 2:1.
   - USE HAY MULCH AS A TEMPORARY MEASURE TO PROTECT BARE SOILS OR TO COVER NEWLY SEEDED AREAS.
   - APPLY AT A RATE OF TWO SQUARE BALES (70-90 POUNDS) PER 1,000 SQUARE FEET.

38. INSPECTION TABLE:

EROSION AND SEDIMENT CONTROL MEASURES AND ACTIVITY	INSPECTION FREQUENCY		
	Weekly	Before and After a Storm	After Construction
SEDIMENT BARRIERS			
Sediment barriers are installed prior to soil disturbances	X	X	
Silt fences are keyed in and tight	X	X	
Barriers are repaired and replaced as necessary	X	X	
Barriers are removed when the site is stabilized - Silt fence should be cut at the ground surface			X
TEMPORARY STABILIZATION			
Areas are stabilized if idle for 14 days or more	X	X	
Daily stabilization within 100 ft of a natural resource	X	X	
MULCH			
Seed and mulch within 7 days of final grading. Ground is not visible	X	X	
Erosion control mix is 4-6 inch thick	X	X	
Erosion control blankets or hay mulch are anchored	X	X	
VEGETATION			
Vegetation provides 90% soil cover	X		X
Loam or soil amendment were provided	X		X
New seeded areas are mulched and protected from vehicle, foot traffic and runoff	X	X	X
Areas that will remain unworked for more than 1 year are vegetated with grass	X		
SLOPES AND EMBANKMENTS			
Final graded slopes and embankments are stabilized	X	X	X
Diversions are provided for areas with rill erosion	X	X	X
Areas steeper than 2:1 are riprapped	X		
Stones are angular, durable and various in size	X		
Riprap is underlain with a gravel layer or filter fabric	X		
STORMWATER CHANNELS AND CULVERTS			
Ditches and swales are permanently stabilized--channels that will be riprapped have been over- excavated	X	X	X
Ditches are clear of obstructions, accumulated sediments or debris	X	X	X
Ditch lining/bottoms are free of erosion	X	X	X
Check dams are spaced correctly to slow flow velocity	X		
Underlying filter fabric or gravel is not visible	X	X	X
Culvert aprons and plunge pools are sized for expected flows volume and velocity	X		
Stones are angular, durable and various in size	X		
Culverts are sized to avoid upgradient flooding	X	X	
Culvert protection extends to the maximum flow elevation within the ditch	X	X	X
Culvert is embedded, not hanging	X	X	X

ROADWAYS AND PARKING SURFACES			
The gravel pad at the construction entrance is clear from sediments	X	X	
Roads are crowned		X	X
Cross drainage (culvert) is provided	X		
False ditches (from winter sand) are graded		X	X
BUFFERS			
Buffers are free of erosion or concentrated flows		X	X
The downgradient of spreaders and turnouts is stable		X	X
Level spreaders are on the contour			X
The number of spreaders and ditch turnouts is adequate for flow distribution		X	X
Any sediment accumulation is removed from within spreader or turnouts		X	X
STORMWATER BASINS AND TRAPS			
Embankments are free of settlement, slope erosion, internal piping, and downstream swamping		X	X
All flow control structure or orifices are operational and clear of debris or sediments		X	X
Any pre-treatment structure that collects sediment or hydrocarbons is clean or maintained		X	X
Vegetated filters and infiltration basins have adequate grass growth			X
Any impoundment or forebay is free of sediment		X	X
WINTER CONSTRUCTION (November 1st-April15th)			
Final graded areas are mulched daily at twice the normal rate with hay, and anchor (not on snow)	Daily		
A double row of sediment barrier is provided for all areas within 100 ft of a sensitive resource (use erosion control mix on frozen ground)	Daily		
Newly constructed ditches are riprapped	Daily		
Slopes greater than 8% are covered with an erosion control blanket or a 4-inch layer of erosion control mix	Daily		
HOUSEKEEPING PUNCH LIST			
All disturbed areas are permanently stabilized, and plantings are established (grass seeds have germinated with 90% vegetative cover)			X
All trash, sediments, debris or any solid waste have been removed from stormwater channels, catch basins, detention structures, discharge points, etc.			X
All ESC devices have been removed: (silt fence and posts, diversions and sediment structures, etc.)			X
All deliverables (certifications, survey information, as- built plans, reports, notice of termination (NOT), etc.) in accordance with all permit requirements have been submitted to town, Maine DEP, association, owner, etc.			X

INDEX

No.	Revision Description	Drwn	Chk'd	Date
A	Project perimeter fence and tree line adjusted to minimize impact to Shore Land Zone.	BPG	KJB	8/29/23
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Allen Solar Power, LLC
Raymond, Maine
General Notes & Index

Mainely Solar, LLC.
143 Highland Shores Road
Casco, Maine

Job Number:
M5001

Drawing No:
i

Sheet 1 of 9

STATE OF MAINE
KIRK J. BALL
No. 11681
LICENSED
PROFESSIONAL ENGINEER
1/8/2023

Thomas Pond

Land n/f of
Patrick A. & Catherine M. Young
Volume 18079, Page 111
Tax Map 4 - Lot 66

Land n/f of
Jennifer A. & Steven R. Danzig
Volume 31847, Page 47
Tax Map 4 - Lot 77
Lot 4 - Plan Reference 3c

Land n/f of
Robert M. & Lauren K. Wallace
Volume 9780, Page 148
Tax Map 4 - Lot 76
Lot 5 - Plan Reference 3c

Land n/f of
Jacquelyn Dougherty
Volume 35591, Page 190
Tax Map 4 - Lot 55

Land n/f of
David G. Hall
Volume 29130, Page 204
Tax Map 4 - Lot 75
Lot 6 - Plan Reference 3c

Land n/f of
Elizabeth M. Somers
Volume 31263, Page 219
Tax Map 76 - Lot 5

Land n/f of
Gilbert P. Richard, et al
Volume 11852, Page 94
Tax Map 76 - Lot 4

Land n/f of
Richard P. & Deborah S. Cabana
Volume 26304, Page 122
Tax Map 4 - Lot 65A

Land n/f of
William A. Nehez, Jr. &
Megan A. Juhase-Nehez
Volume 34480, Page 33
Tax Map 76 - Lot 3

Land n/f of
Scott W. & Aimee L. Allen
Volume 29407, Page 79
Tax Map 4 - Lot 68

Memorandum of Solar Option and Land Lease
Allen Solar, LLC - Volume 38692, Page 239
(Tax Map 4 - Lot 68 only)

Land n/f of
Harold G. & Wendy S. Blaney
Volume 23352, Page 244
Tax Map 76 - Lot 2
Lot 5A - Plan Reference 3d

Land n/f of
Daniel & Amber R. Trzeciak
Volume 34994, Page 329
Tax Map 4 - Lot 54

Land n/f of
Patrick A. & Catherine M. Young
Volume 18079, Page 111
Tax Map 4 - Lot 67

Land n/f of
Michael R. Knights
Volume 31830, Page 236
Tax Map 4 - Lot 68C

Land n/f of
Raymond Marine and Recreation LLC
Volume 31507, Page 187
p/o Tax Map 4 - Lot 68

Land n/f of
Ryan & Breanna Young
Volume 33155, Page 36
Tax Map 4 - Lot 71

Land n/f of
Hilltop Land, LLC
Volume 27033, Page 319
Tax Map 4 - Lot 69

PULPIT ROCK ROAD

TWIN PINES ROAD

ROOSEVELT TRAIL - ROUTE 302

Total Area of Parcels
29.43 Acres

WsB
HhB
HhC
RgA

Lot 9 Range 2
Lot 8 Range 2
Range 3
Range 2
Lot 8 Range 2
Lot 7 Range 2

N 35°24'51" E 432.64'
N 12°00'51" W 336.33'
N 73°40'03" W 199.89'
N 73°42'22" W 226.91'
N 59°22'07" W 185.06'
N 09°11'40" E 662.48'
N 09°16'32" E 668.31'
N 09°11'40" E 662.44'
N 09°11'40" E 602.53'
S 53°21'28" E 1739.52'
S 35°36'12" W 480.94'
74.18'
75.06'
N 76°48'46" W
S 35°32'07" W 198.40'
24.60'
S 10°26'55" W 1.00'
N 82°08'55" W 308.68'
N 79°33'05" W 247.79'

L=199.79'
R=3769.69'
Chord N 71°57'51" W
199.77'

L=226.64'
R=3769.69'
Chord N 75°12'18" W
226.61'

L=172.44'
R=3769.69'
Chord N 78°14'16" W
172.43'

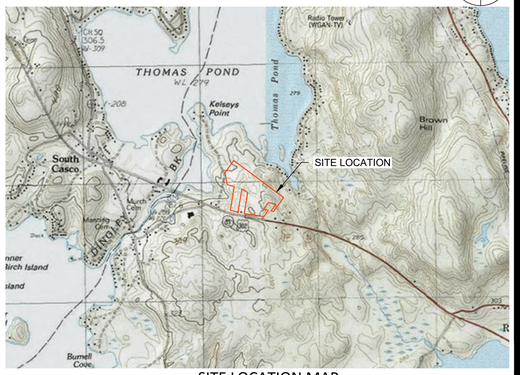
W-JL1
W-JL2
W-JL3
W-JL4
W-JL5
W-JL6
W-JL7
SVP-JL2
SVP-JL5
SVP-JL7
NSVP-JL1
NSVP-JL3
NSVP-JL4
NSVP-JL8
NSVP-JL9
NSVP-JL10
W-RST1
W-RST2
W-RST3
W-RST4
W-RST5

Paved
Crushed Stone
Paved
WELL

Raymond Marine and Recreation LLC
Volume 31507, Page 187
p/o Tax Map 4 - Lot 68

Land n/f of
Raymond Marine and Recreation LLC
Volume 31507, Page 187
p/o Tax Map 4 - Lot 68B

Land n/f of
Michael R. Knights
Volume 31830, Page 236
Tax Map 4 - Lot 68C



SITE LOCATION MAP
SCALE: 1" = 2,000'

NOTES

1. THE PROTECTED NATURAL RESOURCES FIELD DELINEATION SERVICES WERE CONDUCTED BY WATERSHED RESOURCE CONSULTANTS, LLC. PROTECTED NATURAL RESOURCES FIELD DELINEATION SERVICES WERE CONDUCTED ON MAY 2022, AND APRIL & MAY 2023. RESOURCE FEATURES WERE LOCATED BY WATERSHED RESOURCE CONSULTANTS, LLC USING A MAPPING GRADE GPS RECEIVER (SUBMETER ACCURACY AS PER MANUFACTURER).
2. 2 FT CONTOURS WERE DEVELOPED FROM MEGIS LIDAR DOWNLOADED FROM USGS NATIONAL MAP.
3. PLAN REFERENCE: "SURVEY PLAN PROPERTY OF SCOTT ALLEN" DATED MAY 8, 2023, PROVIDED BY PLISGA & DAY LAND SURVEYORS. CAD FILE: 23084 to Acheron 20230508.dwg.
4. ZONING DISTRICTS: RURAL RESIDENTIAL (RR), APPROXIMATELY 5.8 ACRES WITHIN LRR1 SHORELAND ZONE.
5. EXISTING IMPERVIOUS AREA ON LOT: 17,602 SF
6. SOILS: HhB - HERMON SANDY LOAM, 0 - 8% SLOPES, VERY STONY AND HSG A
   HhC - HERMON SANDY LOAM, 8 - 15% SLOPES, VERY STONY AND HSG A
   WsB - WOODBRIDGE VERY STONY FINE SANDY LOAM, 0 - 8% SLOPES AND HSG C

LEGEND

- PROJECT PARCEL
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- PAVEMENT
- TREELINE
- 332 - 2 FT CONTOURS
- NRCS SOILS BOUNDARY
- HhC - NRCS SOILS LABEL

0 80' 160' 240'
SCALE: 1" = 80'

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STATE OF MAINE
KIRK J. BALL
No. 11681
LICENSED PROFESSIONAL ENGINEER
8/14/2023

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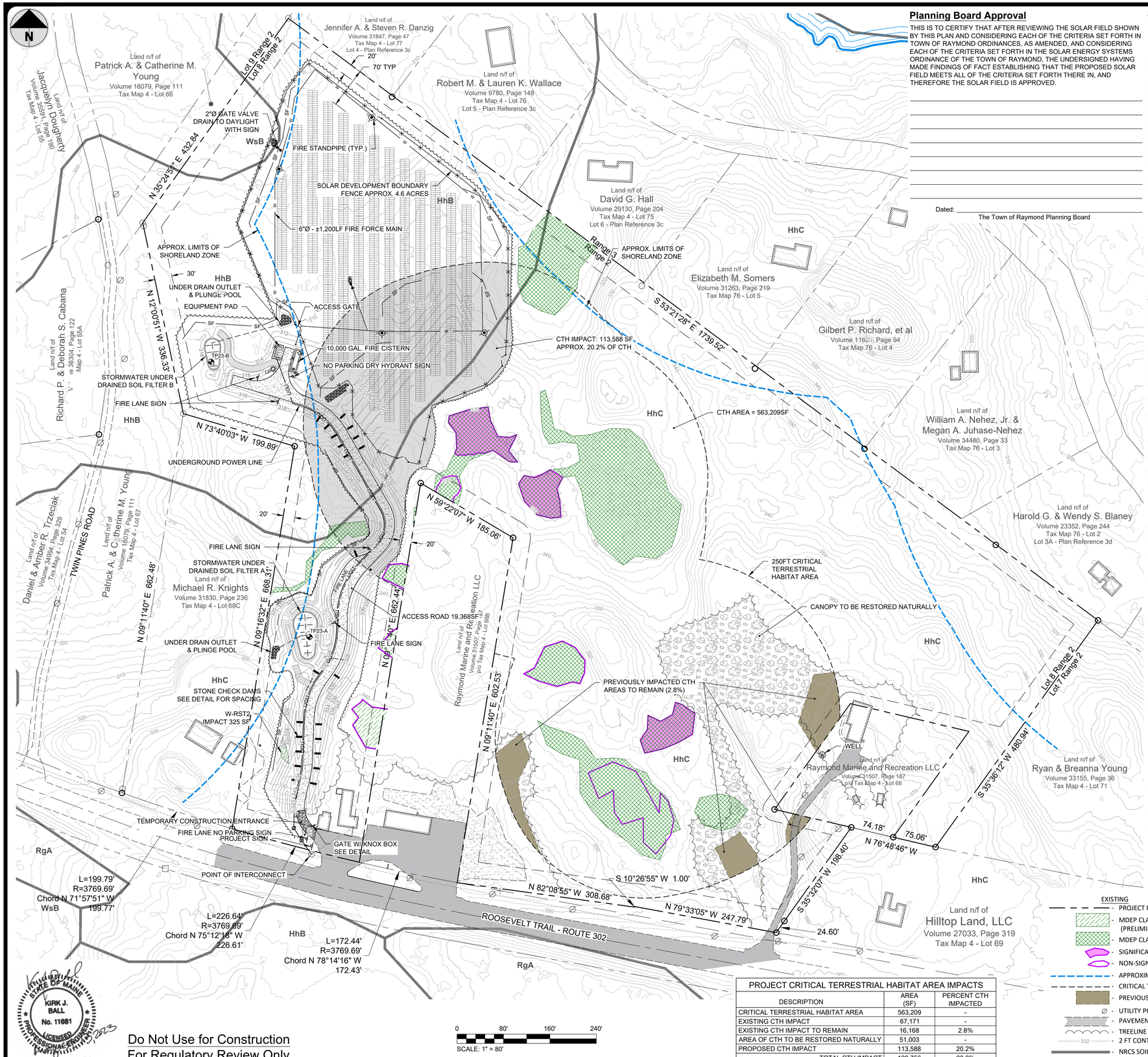
Site Plan Existing Conditions

Mainely Solar, LLC.
143 Highland Shores Road
Casco, Maine

Job Number:
M5001

Drawing No:
C-1

Sheet 2 of 8



Planning Board Approval

THIS IS TO CERTIFY THAT AFTER REVIEWING THE SOLAR FIELD SHOWN BY THIS PLAN AND CONSIDERING EACH OF THE CRITERIA SET FORTH IN TOWN OF RAYMOND ORDINANCES, AS AMENDED, AND CONSIDERING EACH OF THE CRITERIA SET FORTH IN THE SOLAR ENERGY SYSTEMS ORDINANCE OF THE TOWN OF RAYMOND, THE UNDERSIGNED HAVING MADE FINDINGS OF FACT ESTABLISHING THAT THE PROPOSED SOLAR FIELD MEETS ALL OF THE CRITERIA SET FORTH THERE IN, AND THEREFORE THE SOLAR FIELD IS APPROVED.

Dated: _____

The Town of Raymond Planning Board

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5. EXISTING IMPERVIOUS AREA ON LOT: 17,602 SF
6. PROPOSED IMPERVIOUS AREA: 19,538 SF
7. LOT COVERAGE: EXISTING = 1.3%, PROPOSED = 1.5%, TOTAL = 2.8%
8. 100-YEAR FLOODPLAIN IS NOT WITHIN 300 FEET OF THE PROJECT PARCEL.
9. ALL EXISTING STRUCTURES WITHIN THE PARCEL BOUNDARY TO REMAIN.
10. ALL BUILDINGS WITHIN 100 FEET OF PARCEL BOUNDARY LOCATED USING AERIAL IMAGERY.
11. THE CLOSEST FIRE HYDRANT IS NOT LOCATED WITHIN 200 FEET.
12. MORE THAN 78.6% OF CTH TO BE MAINTAINED AS UNFRAGMENTED FORESTED CANOPY.
13. PROPOSED WETLAND FILL: 325 SF
14. SOILS: HhB - HERMON SANDY LOAM, 0 - 8% SLOPES, VERY STONY AND HSG A
    HhC - HERMON SANDY LOAM, 8 - 15% SLOPES, VERY STONY AND HSG A
    WsB - WOODBRIDGE VERY STONY FINE SANDY LOAM, 0 - 8% SLOPES AND HSG C
15. PV TOTAL SYSTEM SUMMARY:
    - 2,570 PV MODULES TOTAL
    - 590W PV MODULES
    - 1,516 KW DC TOTAL
    - 996 KW PV AC TOTAL
    - 19-20 MODULES PER STRING (TYP.)
    - 144 STRINGS TOTAL
    - 24 STRINGS PER INVERTER
    - 6 X 166 KW INVERTERS
    - 1 X 1000 KVA TRANSFORMER
16. INSTALLATION, COMMISSIONING AND INTERCONNECTION TO THE ELECTRIC UTILITY CIRCUIT TO BE PERFORMED BY LICENSED ELECTRICIAN.
17. APPROXIMATE AREA OF LOTS WITHIN LRRI SHORELAND ZONE = 256,018 SF. CLEARING REQUIRED WITHIN LRRI REQUIRED = 60,817 SF OR 24% OF LOT AREA WITHIN LRRI.

FIRE PROTECTION:

1. ACCESS ROAD, BYPASS LANE SHALL BE CONSTRUCTED AND MAINTAINED TO SUPPORT A 75,000 GVWR FIRE APPARATUS.
2. THE ENTRANCE GATE AREA, BYPASS AND HAMMERHEAD ARE DESIGNATED FIRE LANES.
3. ALL FIRE LANES SHALL BE MARKED WITH SIGNS THAT READ; "FIRE LANE," "NO PARKING," "VEHICLES TOWED AT OWNER'S EXPENSE." SIGN LOCATIONS TO BE APPROVED BY RAYMOND FIRE DEPARTMENT.
4. THE ACCESS ROAD SHALL BE CONSTRUCTED AND MAINTAINED TO PROVIDE A MINIMUM OF 13'-6" OF UNOBSTRUCTED VERTICAL CLEARANCE.
5. MAXIMUM ANGLE OF APPROACH: 8 DEGREES.
6. MAXIMUM DEPARTURE ANGLE: 9 DEGREES.
7. MAXIMUM BREAKOVER ANGLE: 13 DEGREES.
8. MAXIMUM ROAD GRADE: 10 DEGREES.
9. ALL ENTRANCE GATES SHALL HAVE A MINIMUM OPEN CLEARANCE OF 20 FEET.
10. ALL GATES SHALL HAVE A RAYMOND FIRE & RESCUE DEPARTMENT KNOX BOX THAT INCLUDE ALL KEYS OR KEY CARDS, AND CURRENT SITE EMERGENCY CONTACT INFORMATION.
11. THE FIRE STANDPIPE SYSTEM SHOWN ON THE PLAN IS IN LIEU OF PROVIDING FIRE LANE ACCESS AROUND THE ENTIRE SITE TO MEET NFPA REQUIREMENTS.
12. THE OPERATIONAL READINESS OF THE FIRE CISTERN, COMPONENTS, AND STANDPIPE SYSTEM INCLUDING REPAIRS AND REPLACEMENT, IS THE RESPONSIBILITY OF THE OWNER OF THE SOLAR FACILITY.
13. THE FIRE CISTERN SHALL BE INSTALLED, INSPECTED, AND APPROVED BY THE RAYMOND FIRE & RESCUE DEPARTMENT PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
14. AN EASEMENT SHALL BE GRANTED TO THE TOWN OF RAYMOND FIRE & RESCUE DEPARTMENT TO ACCESS TO THE FACILITY FOR ANNUAL TESTING AND TRAINING.
15. A RAYMOND FIRE & RESCUE DEPARTMENT FIRE PERMIT FOR THE FIRE CISTERN/DRY HYDRANT SHALL BE OBTAINED BY THE APPLICANT PRIOR TO ITS INSTALLATION.
16. THE FACILITY STREET ADDRESS SHALL BE INSTALLED ON EACH BUILDING OR DWELLING UNIT ON ROOSEVELT TRAIL IN THE IMMEDIATE AREA OF THE FACILITY ENTRANCE AND ON A FACILITY SIGN(S) AT THE FACILITY ENTRANCE.
17. THE FACILITY E-911 ADDRESS SHALL BE VISIBLE FROM BOTH APPROACH DIRECTIONS ON ROOSEVELT TRAIL, AND LOCATED TO BE CLEARLY VISIBLE FROM WITHIN THE FIRE APPARATUS CAB.
18. THE STREET ADDRESS LETTERING SHALL BE NO LESS THAN 6" IN HEIGHT, SHALL BE OF A CONTRASTING COLOR TO THE SIGN BACKGROUND, AND PREFERABLY THE LETTERS SHOULD BE REFLECTIVE FOR NIGHT OR REDUCED LIGHT CONDITIONS. THE PLACEMENT OF STREET ADDRESS SIGNS SHALL BE APPROVED BY THE RAYMOND FIRE RESCUE DEPARTMENT AND E-911 COORDINATOR.
19. DURING THE CONSTRUCTION, A TEMPORARY E-911 STREET ADDRESS SIGN SHALL BE POSTED AT THE ENTRANCE AND VISIBLE FROM ROOSEVELT TRAIL.
20. THE PROJECT SHALL FOLLOW THE RELEVANT SOLAR PHOTOVOLTAIC AND FIRE SAFETY STANDARDS SUCH AS, BUT NOT LIMITED TO; NFPA 70, NFPA 70B, NFPA 70E, UL1471, NFPA 855, AND NFPA 1.
21. ALL REQUIRED RAYMOND FIRE & RESCUE FIRE PERMITS FOR EMERGENCY VEHICLE ACCESS OR FIRE PROTECTION SYSTEMS SHALL BE SUBMITTED AND APPROVED BY THE RAYMOND FIRE RESCUE DEPARTMENT PRIOR TO ISSUANCE OF BUILDING PERMITS.
22. PRIOR TO SCHEDULING ANY FIRE PERMIT INSPECTIONS, INCLUDING THE RAYMOND FIRE & RESCUE DEPARTMENT CERTIFICATE OF OCCUPANCY INSPECTION, THE APPLICANT SHALL PROVIDE PROOF TO THE THAT THE FIRE PERMIT FEE PAYMENTS HAVE BEEN RECEIVED AT THE TOWN CLERKS OFFICE. RE-INSPECTION APPOINTMENTS ARE SUBJECT TO A RE-INSPECTION FEE, PAYABLE PRIOR TO SCHEDULING ANY RE-INSPECTION. ALL INSPECTIONS WITH THE RFRD MUST BE SATISFACTORILY COMPLETED AND APPROVED PRIOR TO ISSUANCE OF THE CERTIFICATE OF OCCUPANCY FOR THE FACILITY.
23. RAYMOND BUILDING, ELECTRICAL AND FIRE PERMIT APPLICATIONS SHALL INCLUDE: A MAP OR DIAGRAM OF THE PROPOSED PV SYSTEM DESIGN THAT INCLUDES LOCATIONS OF ALL PV GROUND PANELS, AC & DC ELECTRICAL DISCONNECTS REMOTE EMERGENCY DISCONNECTS, AND ANY SYSTEM PANELS, CONDUIT, COMBINER BOXES, OR INVERTERS. THE MAP OR DIAGRAMS SHALL NOTE THE LOCATIONS OF GROUND FAULT, SURGE PROTECTION, LIGHTNING PROTECTION SYSTEMS, ARC FAULT PROTECTION OR DETECTION DEVICES, GROUND FAULT OR PV ARRAY ISOLATION SENSING DEVICES, MODULE LEVEL CONTROLS OR "SMART MODULES," AUTOMATED PERFORMANCE MONITORING INSTRUMENTATION, AND DIFFERENTIAL CURRENT SENSORS OR RESIDUAL CURRENT DETECTORS. DATA SHEETS THAT DETAIL THE EQUIPMENT LISTINGS AND CERTIFICATIONS AND CERTIFICATIONS FOR WIND AND HAIL RESISTANCE AND ANY ADDITIONAL SYSTEM INFORMATION SHOULD BE NOTED ON THE MAP OR DIAGRAM. WRITTEN PLAN FOR SITE MAINTENANCE OF VEGETATION AND DEBRIS CONTROL IN AND AROUND THE SOLAR PV ARRAYS, COMBINER BOXES, TRANSFORMERS, AND INVERTERS.
24. AN EMERGENCY RESPONSE PLAN SHALL BE SUBMITTED TO THE RAYMOND FIRE & RESCUE DEPARTMENT WHEN FILING FOR A RAYMOND FIRE PERMIT.
25. PARKING: THERE SHALL BE NO ON-STREET PARKING ON ("E-911 ASSIGNED STREET NAME-TBD") IN THE IMMEDIATE AREA AND BOTH SIDES OF THE ENTRANCE GATE, FIRE APPARATUS TURNAROUND AND BY-PASS LANE AREAS. NO UNATTENDED VEHICLES, EQUIPMENT, ETC. SHALL BE LEFT IN SUCH A MANNER AS TO IMPEDE THE PASSAGE OF TRAFFIC OR TO IMPAIR ACCESS TO THE ENTRANCE OR FIRE APPARATUS TURNAROUNDS/BY-PASS AREAS. THE FACILITY OWNER OR PROJECT DIRECTORS MAY TAKE ALL ACTIONS NECESSARY TO ENFORCE ALL PARKING AND VEHICLE USE REGULATIONS, INCLUDING BUT NOT LIMITED TO REMOVAL OF VEHICLES OR EQUIPMENT IN VIOLATION OF ANY SUCH REGULATIONS. FURTHER, ANY VEHICLE PARKED IN A FIRE LANE WILL BE TOWED AT THE OWNER'S EXPENSE WITHOUT ANY PRIOR NOTICE TO THE OWNER. THE FACILITY OWNER OR PROJECT DIRECTORS WILL ESTABLISH WRITTEN AUTHORIZATIONS WITH ONE OR MORE TOWING COMPANIES FOR THE PURPOSE OF TOWING ANY VEHICLE OR EQUIPMENT PARKED IN A MANNER WHICH VIOLATES APPLICABLE PARKING RULES OR REGULATIONS, OR OTHERWISE INTERFERES WITH EMERGENCY VEHICLE ACCESS.
26. VEGETATION WITHIN AND AROUND THE SOLAR PROJECT PERIMETER SHALL UTILIZE FIRE RESISTANT PLANTS AS LISTED IN THE MAINE DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY WEB SITE THAT ARE ACCEPTABLE FOR SOLAR FACILITIES.
27. KNOX BOXES SHALL BE LOCATED AT ALL GATES AND SHALL CONTAIN KEYS OR KEY CARDS, EMERGENCY CONTACT INFORMATION AND SITE MAP. SITE MAP SHALL BE WEATHER PROOF, SHOW LAYOUT AND FEATURES AND ALL EMERGENCY SHUT-DOWN EQUIPMENT LOCATIONS.
28. ANY DESIGN CHANGES TO THE FIRE & RESCUE DEPARTMENT ACCESS OR FIRE PROTECTION SHALL BE APPROVED BY THE RAYMOND FIRE & RESCUE DEPARTMENT.

PROJECT CRITICAL TERRESTRIAL HABITAT AREA IMPACTS

DESCRIPTION	AREA (SF)	PERCENT CTH IMPACTED
CRITICAL TERRESTRIAL HABITAT AREA	563,209	-
EXISTING CTH IMPACT	67,171	-
EXISTING CTH IMPACT TO REMAIN	16,168	2.8%
AREA OF CTH TO BE RESTORED NATURALLY	51,003	-
PROPOSED CTH IMPACT	113,588	20.2%
TOTAL CTH IMPACT	129,756	23.0%

LEGEND

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- UTILITY POLE
- PAVEMENT
- TREELINE
- 332 - 2 FT CONTOURS
- NRCS SOILS BOUNDARY
- HhC - NRCS SOILS LABEL

PROPOSED
- EQUIPMENT PAD
- UGU - UNDERGROUND UTILITY
- W - 6"Ø FIRE FORCE MAIN
- UTILITY POLE
- TREELINE
- SOLAR ARRAY
- WILDLIFE PERMEABLE FENCE
- 332 - 2 FT CONTOURS
- SF - SILT FENCE
- STONE CHECK DAM
- TP23-A - TEST PITS
- SIGNS
- LP - LIGHT POLE
- FIRE STANDPIPE

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8/14/2023

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Desg By: BG / KJB
Chkd By: KJB
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Date: 8/14/2023

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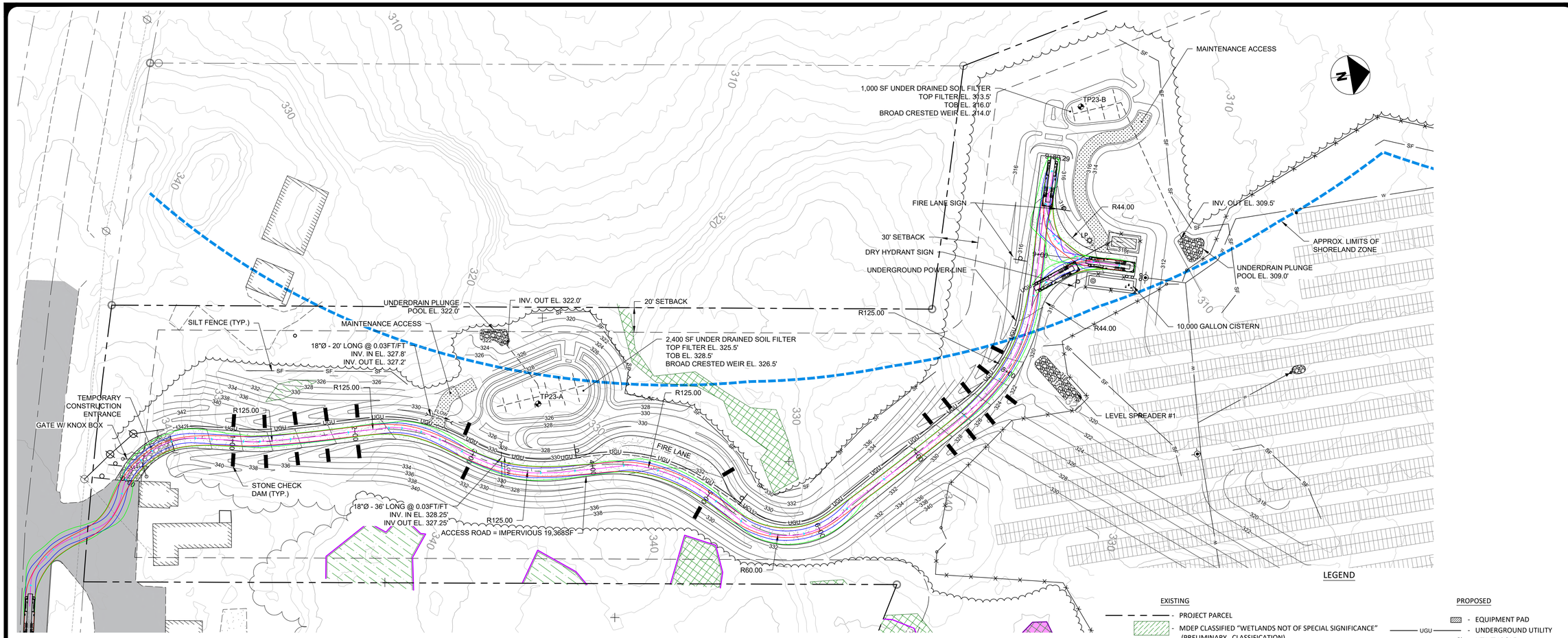
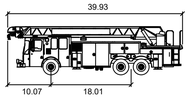
Proposed Condition Site Plan
& Erosion / Sedimentation Control Plan
Mainely Solar, LLC.
143 Highland Shores Road
Casco, Maine

Job Number: M5001

Drawing No: C-2

Sheet 3 of 9



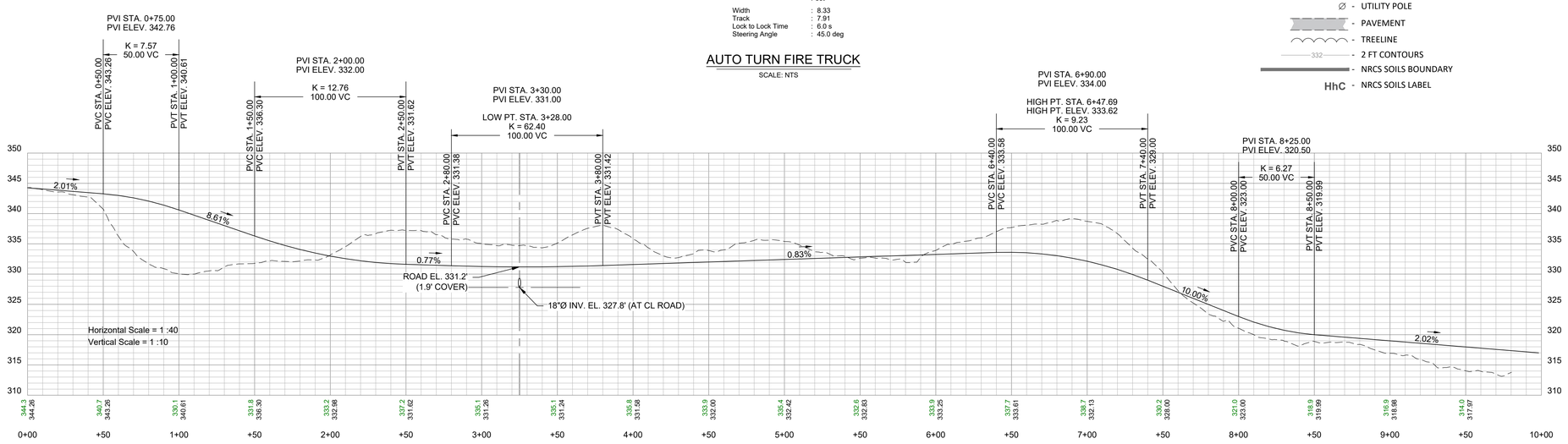


Smeal Aerial RM 100ft

	Feet
Width	8.33
Track	7.91
Lock to Lock Time	6.0 s
Steering Angle	45.0 deg

AUTO TURN FIRE TRUCK

SCALE: NTS



0 40' 80' 120'

SCALE: 1" = 40'

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Access Road Plan & Profile

Mainely Solar, LLC.
143 Highland Shores Road
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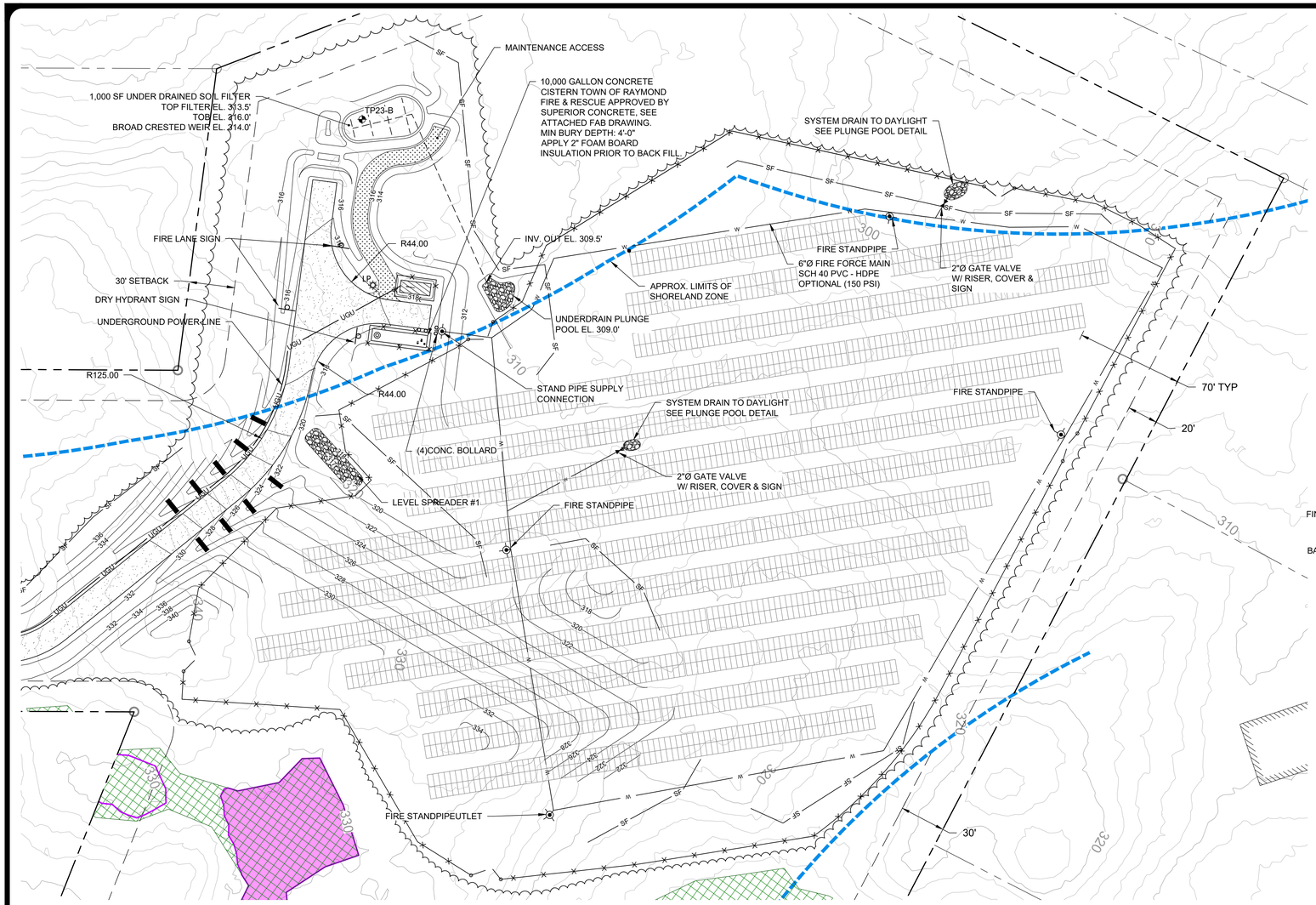
Job Number:
M5001

Drawing No:
C-3

Sheet 4 of 9



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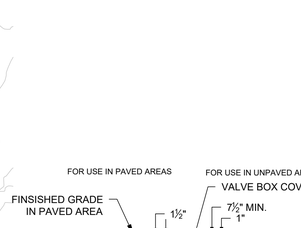
- SIGNIFICANT VERNAL POOL (SVP)
- NON-SIGNIFICANT VERNAL POOL (NSVP)
- APPROXIMATE SHORELAND ZONE BOUNDARY
- CRITICAL TERRESTRIAL HABITAT (CTH)
- PREVIOUSLY IMPACTED CTH AREA
- Ø - UTILITY POLE
- PAVEMENT
- TREELINE
- 332 - 2 FT CONTOURS
- NRCS SOILS BOUNDARY
- HhC - NRCS SOILS LABEL

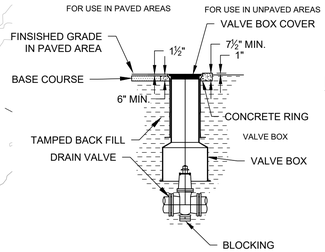
PROPOSED

- EQUIPMENT PAD
- UGU - UNDERGROUND UTILITY
- W - 6"Ø FIRE FORCE MAIN
- Ø - UTILITY POLE
- TREELINE
- SOLAR ARRAY
- WILDLIFE PERMEABLE FENCE
- 332 - 2 FT CONTOURS
- SF - SILT FENCE
- STONE CHECK DAM
- TP23-A - TEST PITS
- SIGNS
- LP - LIGHT POLE
- FIRE STANDPIPE

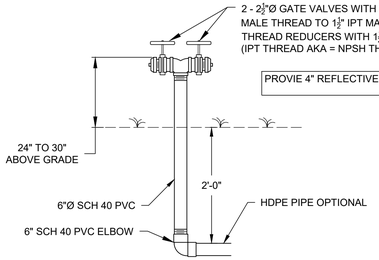
N



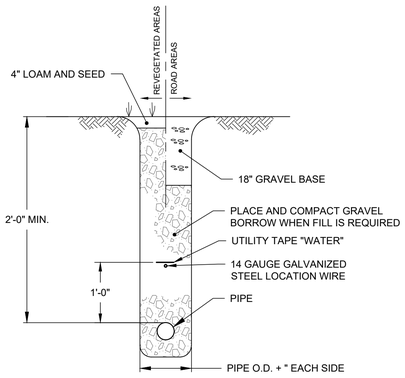
FIRE STANDPIPE SUPPLY CONNECTION DETAIL
SCALE: NTS



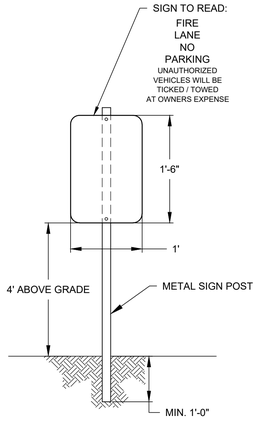
VALVE BOX DETAIL
SCALE: NTS



FIRE STANDPIPE OUTLET CONNECTION DETAIL
SCALE: NTS

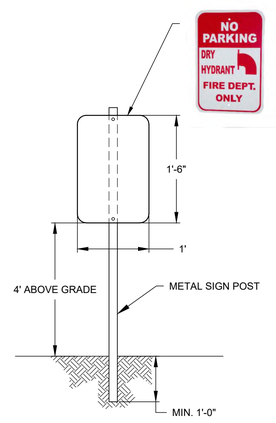


TYPICAL PIPE TRENCH DETAIL
SCALE: NTS



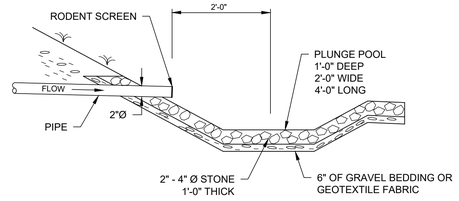
FIRE LANE SIGN DETAIL
SCALE: NTS

NOTE:
THE LOCATION OF THE SIGNS SHALL BE APPROVED BY THE RAYMOND FIRE RESCUE DEPARTMENT (RFRD).

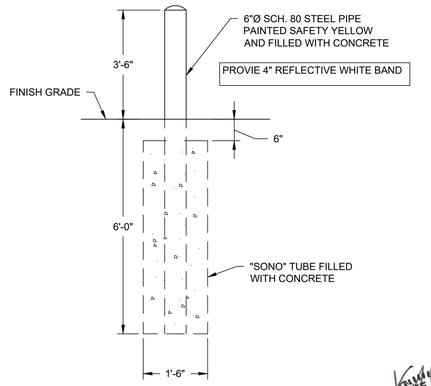


DRY HYDRANT SIGN DETAIL
SCALE: NTS

NOTE:
THE LOCATION OF THE SIGNS SHALL BE APPROVED BY THE RAYMOND FIRE RESCUE DEPARTMENT (RFRD).



PLUNGE POOL DETAIL
SCALE: NTS



BOLLARD DETAIL
SCALE: NTS

0 40' 80' 120'
SCALE: 1" = 40'

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No.	Revision Description	Drwn	Chk'd	Date
A	Project perimeter fence and tree line adjusted to minimize impact to Shore Land Zone.	BPG	KJB	8/29/23
B	Modifications to access road and solar array regarding the components for fire protection.	BPG	KJB	11/07/23
C	Modifications solar array layout, stormwater, fence type & edits to address fire dept. comments.	KJB	KJB	01/08/24

Drwn By: BG
Desg By: BG / KJB
Chkd By: KJB
Aprvd By: KJB
Date: 8/14/2023

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Fire Protection Site Plan & Details

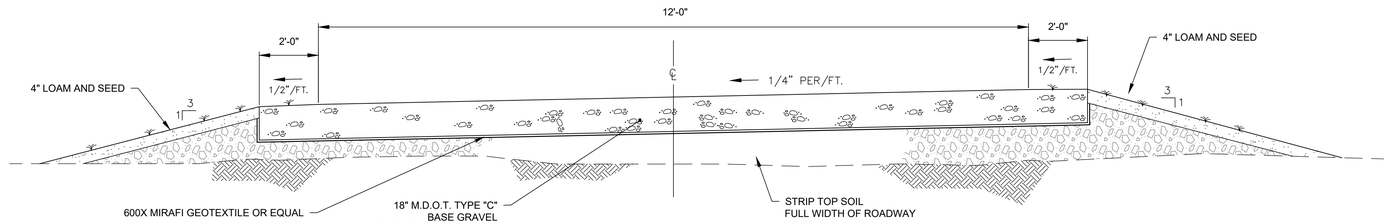
Maineely Solar, LLC.
143 Highland Shores Road
Casco, Maine

Job Number: M5001

Drawing No: C-4

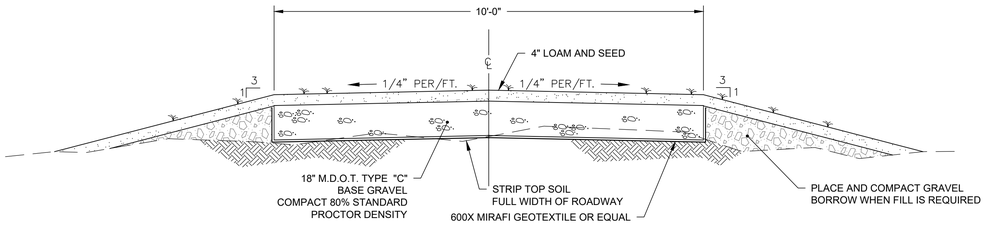
Sheet 5 of 9

KIRK J. BALL
STATE OF MAINE
No. 11681
LICENSED PROFESSIONAL ENGINEER
1/10/2024



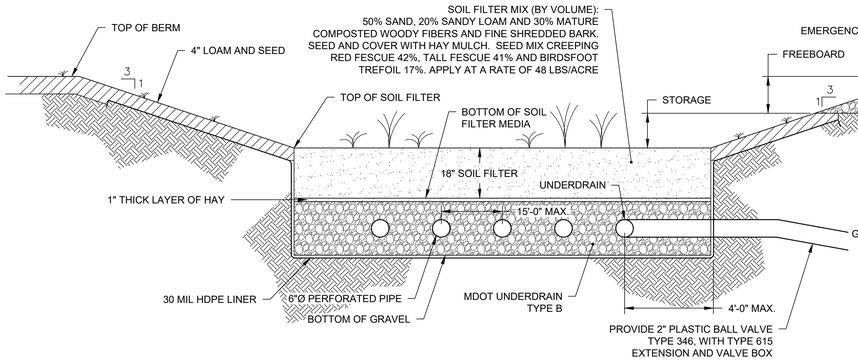
ACCESS DRIVEWAY TYPICAL DETAIL

SCALE: NTS



MAINTENANCE ACCESS TYPICAL DETAIL

SCALE: NTS



GENERAL NOTES FOR UNDERDRAIN FILTER BASINS:

1. CONSTRUCTION SEQUENCE:
   * THE SOIL FILTER MEDIA AND VEGETATION MUST NOT BE INSTALLED UNTIL THE AREA THAT DRAINS TO THE FILTER HAS BEEN PERMANENTLY STABILIZED WITH, 90% VEGETATION COVER, OR OTHER PERMANENT STABILIZATION OR UNLESS THE RUNOFF FROM THE CONTRIBUTING AREA IS DIVERTED AROUND THE FILTER INTO A TEMPORARY BASIN FOR SEDIMENT REMOVAL UNTIL STABILIZATION IS COMPLETED.
2. COMPACTION OF SOIL FILTER:
   * FILTER SOIL MEDIA AND UNDERDRAINE BEDDING MATERIAL MUST BE COMPACTED TO BETWEEN 90% AND 92% STANDARD PROCTOR, THE BED SHOULD BE INSTALLED IN AT LEAST TWO LIFTS OF 9 INCHES TO PREVENT POCKETS OF LOOSE MEDIA.
3. CONSTRUCTION OVERSIGHT:
   * AFTER THE PRELIMINARY CONSTRUCTION OF THE FILTER GRADES AND ONCE THE UNDERDRAIN PIPES ARE INSTALLED (NOT BACKFILLED).
   * AFTER THE DRAINAGE LAYER IS CONSTRUCTED AND PRIOR TO THE INSTALLATION OF THE FILTER MEDIA.
   * AFTER THE FILTER MEDIA HAS BEEN INSTALLED AND SEEDED.
   * AFTER ONE YEAR TO INSPECT VEGETATION AND MAKE CORRECTIONS.
4. TESTING AND SUBMITTALS:
   * IDENTIFY THE LOCATION AND SOURCE OF EACH COMPONENT OF THE FILTER MEDIA. ALL RESULTS OF FIELD AND LABORATORY TESTING SHALL BE SUBMITTED TO THE ENGINEER.
   * SOURCE: SAMPLES OF EACH TYPE OF MATERIAL SHOULD BE BLENDED FOR THE MIXED FILTER MEDIA AND UNDERDRAIN BEDDING MATERIAL. SAMPLES MUST BE A COMPOSITE OF THREE DIFFERENT LOCATIONS (GRABS) FROM STOCKPILE.
   * SIEVE ANALYSIS: PERFORM SIEVE ANALYSIS CONFORMING TO ASTM C136 ON EACH TYPE OF MATERIAL.
   * PERMEABILITY TESTING: PERFORM PERMEABILITY TEST OF THE SOIL FILTER MEDIA MIXTURE WITH THE MIXTURE AT A MEASURED BULK DRY DENSITY OF 90-92% BASED ON ASTM D698.
5. OUTLET:
   * ONCE VEGETATION HAS REACHED 90% COVER OVER THE SOIL FILTER, FLOOD THE BASIN TO THE DESIGNED ELEVATION WITH CLEAN WATER AND ADJUST THE VALVE SO THAT THE BASIN DRAINS BETWEEN 24 & 48 HOURS.

SAND SPECIFICATION	
SIEVE SIZE	% BY WEIGHT
3/8"	100
#4	95 - 100
#8	80 - 100
#16	50 - 85
#30	25 - 60
#60	10 - 30
#100	2 - 10
#200	0 - 5
SOURCE: MAINE DOT SPECIFICATION SECTION 703.01	

SANDY LOAM TO FINE SANDY LOAM SPECIFICATIONS	
SIEVE SIZE	% BY WEIGHT
#4	75 - 95
#10	60 - 90
#40	35 - 85
#200	20 - 70
200 (Clay size)	<2.0
SOURCE: MAINE DEP BMP CHAPTER 7.1	

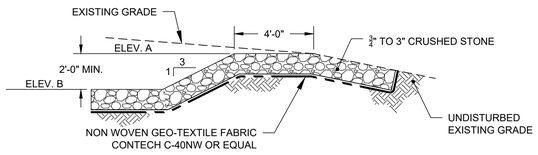
UNDERDRAIN TYPE B	
SIEVE SIZE	% BY WEIGHT
1"	90 - 100
1/2"	75 - 100
#4	50 - 100
#20	15 - 80
#50	0 - 15
#200	0 - 5
SOURCE: TABLE 7.1.1 MAINE DOT SPECIFICATIONS SECTION 703.22	

	TOP OF BERM ELEV.	TOP OF SPILLWAY ELEV / LENGTH	TOP OF SOIL FILTER ELEV.	BOTTOM OF SOIL MEDIA ELEV.	BOTTOM OF GRAVEL ELEV.	OUTLET 1 (UD) DIA. / LENGTH	OUTLET 1 (UD) ELEV. IN / OUT
SF A	328.5'	326.95' / 4 FT	325.5'	324'	322.5'	6"Ø / 52 FT	323' / 322'
SF B	316'	314' / 4 FT	313.5'	312'	310.5'	6"Ø / 120 FT	311' / 309.5'

TYPICAL UNDERDRAIN SOIL FILTER

SCALE: NTS

LEVEL LIP SPREADER ELEVATION TABLE			
LEVEL LIP SPREADER	ELEVATION A	ELEVATION B	LENGTH FT
#1	318.0'	317.0'	40



LEVEL LIP SPREADER DETAIL

NOT TO SCALE

NOTE:
INSPECTIONS BY A PROFESSIONAL ENGINEER SHALL CONSIST OF WEEKLY VISITS TO THE SITE TO INSPECT EACH LEVEL SPREADERS CONSTRUCTION, STONE BERM MATERIAL AND PLACEMENT, SETTLING BASIN FROM INITIAL GROUND DISTURBANCE TO FINAL STABILIZATION OF THE LEVEL SPREADER.

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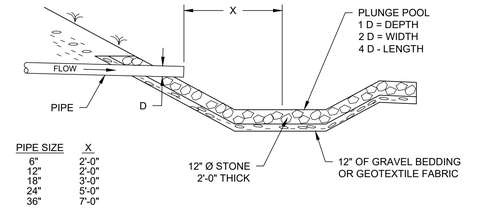
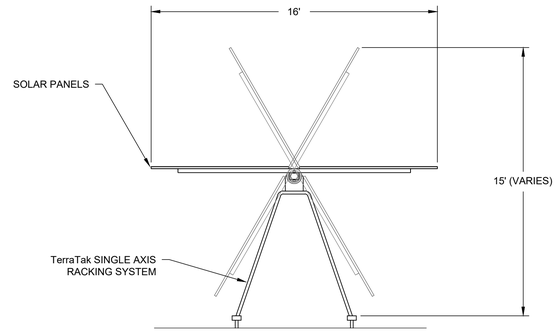


PIPE SIZE	X
6"	2'-0"
12"	2'-0"
18"	3'-0"
24"	5'-0"
36"	7'-0"

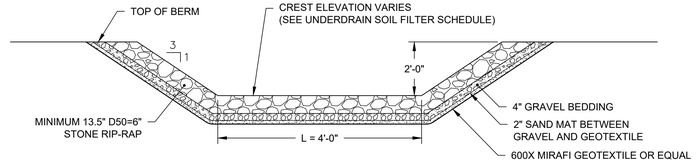
PLUNGE POOL DETAIL

SCALE: NTS

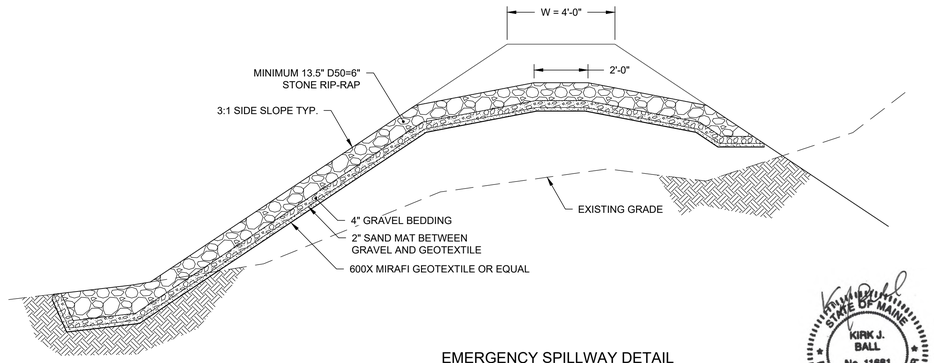


TYPICAL SOLAR PANEL & RACKING SYSTEM

SCALE: NTS



FRONT VIEW



EMERGENCY SPILLWAY DETAIL

SCALE: NTS

KIRK J. BALL
No. 11681
LICENSED
PROFESSIONAL ENGINEER
STATE OF MAINE
10/6/2023

N

No.	Revision Description	Drwn	Chk'd	Date
B	Modifications to access road and solar array regarding the components for fire protection.	KAB	KJB	9/18/23
C	Modifications solar array layout, stormwater, fence type & edits to address fire dept. comments.			

Drwn By: BG
Desg By: BG / KJB
Chkd By: KJB
Aprvd By: KJB
Date: 8/14/2023

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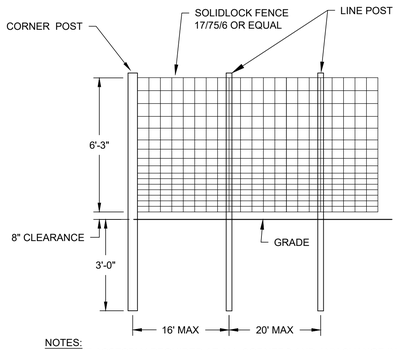
Construction Details

Mainely Solar, LLC.
143 Highland Shores Road
Casco, Maine

Job Number:
M5001

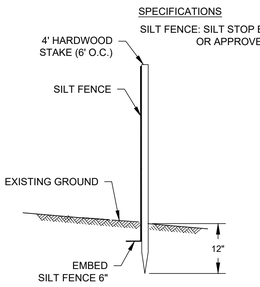
Drawing No:
D-1

Sheet 6 of 9

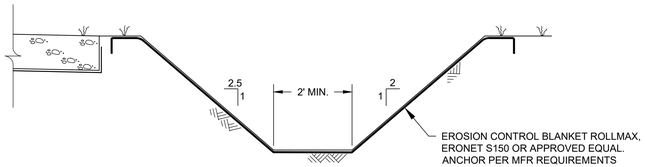


NOTES:
1. BRACE ASSESSBLY REQUIRED AT ALL CORNERS AND ANY CHANGE IN DIRECTION.
2. POSTS- WOODEN & TRATED.
3. ATTACH FENCE WITH DOUBLE BARBED GALVANIZED STAPLES.

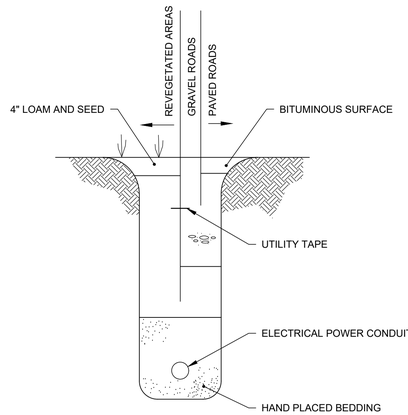
TYPICAL FENCE DETAIL
SCALE: NTS



SILT FENCE DETAIL
NOT TO SCALE



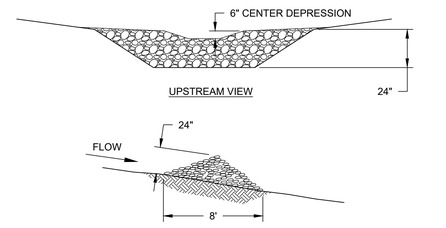
COLLECTION DITCH DETAIL
NOT TO SCALE



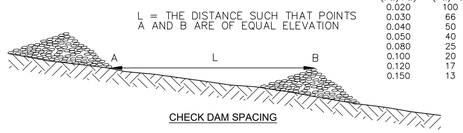
NOTES:
1. INSTALL WIRING PER MAINE ELECTRICAL CODE & CMP REQUIREMENTS.
2. CONTRACTOR TO INSTALL CABLES PER CODE AND UTILITY SPECIFICATIONS. MATERIAL TO BE SUPPLIED BY OWNER. COORDINATE INSTALLATION WITH LOCAL UTILITIES.

ELECTRIC TRENCH DETAIL
NOT TO SCALE

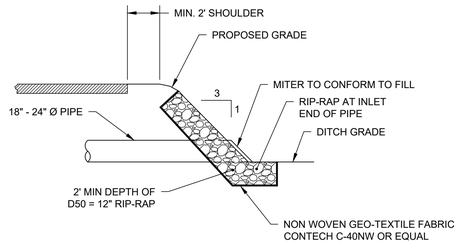
NOTE:
KEY CHECK DAM INTO BANKS AND EXTEND 18" MINIMUM TO PREVENT BYPASS.
SEE SHEET C-2



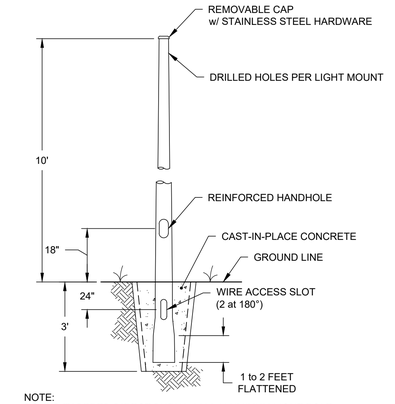
SLOPE (Ft./Ft.)	LENGTH (Ft./Ft.)
0.020	100
0.030	66
0.040	50
0.050	40
0.080	25
0.100	20
0.120	17
0.150	13



STONE CHECK DAM DETAIL
NOT TO SCALE

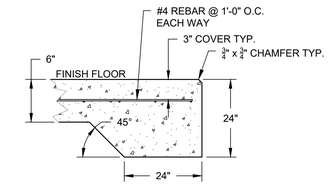


CULVERT INLET DETAIL
NOT TO SCALE



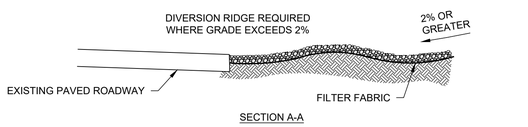
NOTE:
ROUND TAPERED DIRECT BURIAL 6063 ALUMINUM LIGHT POLE, 10 FEET ABOVE GRADE, 5 INCH DIAMETER, 0.125 INCH WALL THICKNESS OR APPROVED EQUAL.
HUBBELL OUTDOOR LIGHTING GEOPACK SERIES SIZE 1 LED LIGHT TRP1, TYPE III, ZERO UPLIGHT (UO) DARK SKY, NEIGHBOR FRIENDLY OR APPROVED EQUAL.

OUTDOOR LIGHT POLE DETAIL
SCALE: NTS

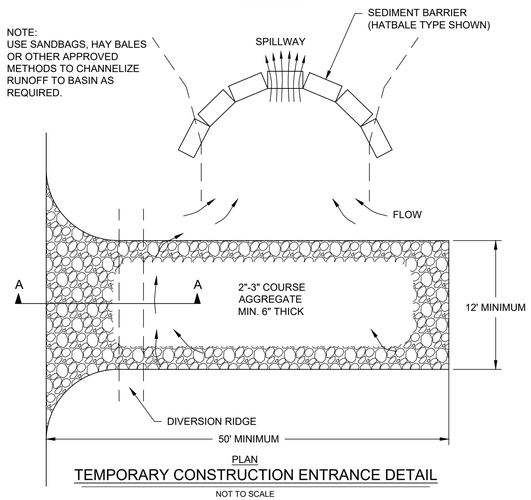


NOTES:
EQUIPMENT PAD SUB-BASE SHALL BE 6" OF ¾" CRUSHED STONE ON 1'-0" OF MDOT TYPE A GRAVEL THAT IS COMPACTED 95% STANDARD PROCTOR DENSITY.
EQUIPMENT PAD 1 FINISH FLOOR ELEVATION: 298.5'
EQUIPMENT PAD 2 FINISH FLOOR ELEVATION: 313.5'

EQUIPMENT PAD DETAIL
SCALE: NTS



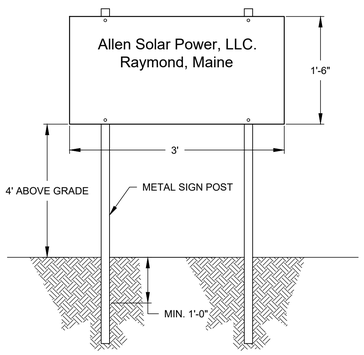
SECTION A-A



PLAN

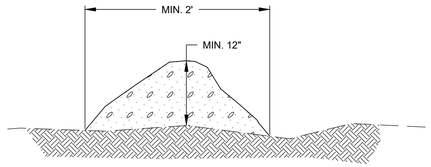
TEMPORARY CONSTRUCTION ENTRANCE DETAIL
NOT TO SCALE

NOTE:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABLIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
4. PROVIDE 6-INCH TEMPRORY SIGN WITH E911 ADDRESS. SHALE BE VISABLE FROM ROOSEVELT TRAIL.

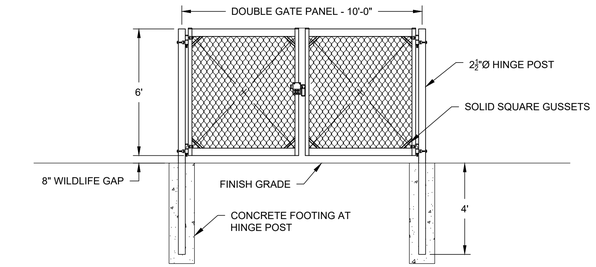


PROJECT SIGN DETAIL
SCALE: NTS

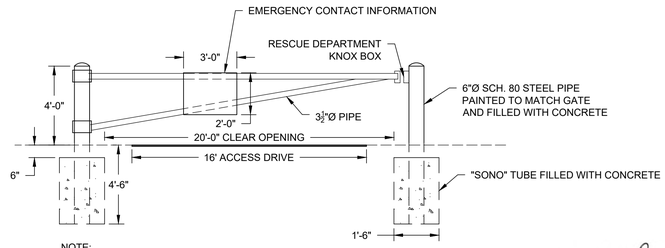
NOTE:
IN LIEU OF SILT FENCE EROSION CONTROL MIX CAN BE USED IF CONDITIONS BELOW ARE MET:
FOLLOW MAINE EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES 2016.
EROSION CONTROL MIX BERM:
THE ECM BERM SHOULD BE A MINIMUM OF 12" HIGH AND A MINIMUM OF TWO FEET WIDE. ON LONGER OR STEEPER SLOPES, THE BERM WILL NEED TO BE WIDER AND HIGHER. BERMS COMPOSED OF ECM CAN BE RESHAPED WHEN NECESSARY.
EROSION CONTROL MIX:
THE 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. 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). IN STUMP GRINDING, THE MINERAL SOIL ORIGINATES FROM THE ROOT BALL AND SHOULD NOT BE REMOVED BEFORE GRINDING. THE MIX SHOULD BE FREE OF REFUSE, MATERIAL TOXIC TO PLANT GROWTH OR UNSUITABLE MATERIAL (BARK CHIPS, GROUND CONSTRUCTION DEBRIS OR REPROCESSED WOOD PRODUCTS).



EROSION CONTROL MIX BERM DETAIL
SCALE: NTS



FENCE GATE DETAIL
SCALE: NTS



NOTE:
ALL ENTRANCE GATES SHALL HAVE A MINIMUM OPEN CLEARANCE OF 20 FEET.
ALL GATES SHALL HAVE A RAYMOND FIRE AND RESCUE DEPARTMENT KNOX BOX THAT INCLUDE ALL KEYS OR KEY CARDS, AND CURRENT SITE EMERGENCY CONTACT INFORMATION.

ENTRANCE GATE DETAIL
SCALE: NTS

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STATE OF MAINE
KIRK J. BALL
No. 11681
LICENSED PROFESSIONAL ENGINEER
1/5/2023

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A	Project perimeter fence and tree line adjusted to minimize impact to Shore Land Zone.	8/29/23	BPG	KJB
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Drwn By: BG
Desg By: BG / KJB
Chkd By: KJB
Aprvd By: KJB
Date: 8/14/2023

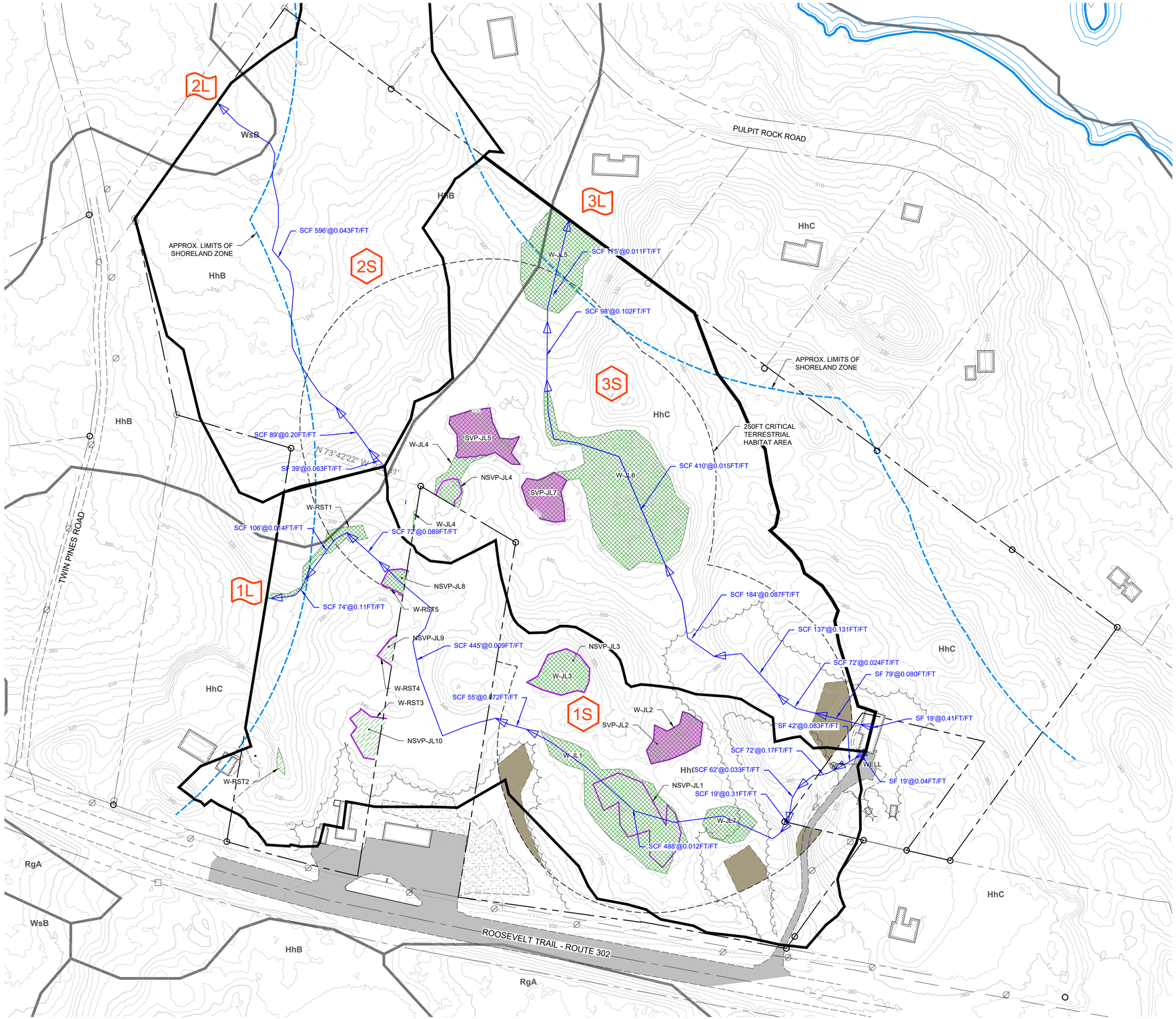
Acheron Engineering, LLC.
Engineering & Environmental Consultants
www.AcheronEngineering.com
153 Main St.
Newport, ME. 04953
(207)-368-5700
113 Winter East
Williamsburg, VA 23188
(207) 341-2590

Details
Mainely Solar, LLC.
143 Highland Shores Road
Casco, Maine

Job Number: M5001

Drawing No: D-2

Sheet 7 of 9



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N

24-HOUR DURATION RAIN FALL AMOUNTS		
STORM TYPE	RETURN PERIOD	STORM DEPTH (in.)
III	2-YR	3.1
III	10-YR	4.6
III	25-YR	5.8

PEAK STORMWATER RUN-OFF RATE TABLE			
POINT OF ANALYSIS	STORM FREQUENCY (yr)	EXISTING CONDITIONS RUNOFF (cfs)	PROPOSED CONDITIONS RUNOFF (cfs)
1L	2	0.1	0.04
	10	1.91	0.90
	25	5.46	4.77
2L	2	0.00	0.00
	10	0.06	0.02
	25	0.34	0.14
3L	2	0.06	0.03
	10	1.54	1.03
	25	4.62	3.49

NOTES

1. THE PROTECTED NATURAL RESOURCES FIELD DELINEATION SERVICES WERE CONDUCTED BY WATERSHED RESOURCE CONSULTANTS, LLC. PROTECTED NATURAL RESOURCES FIELD DELINEATION SERVICES WERE CONDUCTED ON MAY 2022, AND APRIL & MAY 2023. RESOURCE FEATURES WERE LOCATED BY WATERSHED RESOURCE CONSULTANTS, LLC USING A MAPPING GRADE GPS RECEIVER (SUBMETER ACCURACY AS PER MANUFACTURER).
2. 2 FT CONTOURS WERE DEVELOPED FROM MEGIS LIDAR DOWNLOADED FROM USGS NATIONAL MAP.
3. PLAN REFERENCE: "SURVEY PLAN PROPERTY OF SCOTT ALLEN" DATED MAY 8, 2023, PROVIDED BY PLISGA & DAY LAND SURVEYORS. CAD FILE: 23084 to Acheron 20230508.dwg.
4. ZONING DISTRICTS: RURAL RESIDENTIAL (RR), APPROXIMATELY 5.8 ACRES WITHIN LRR1 SHORELAND ZONE.
5. EXISTING IMPERVIOUS AREA ON LOT: 17,602 SF
6. SOILS: HhB - HERMON SANDY LOAM, 0 - 8% SLOPES, VERY STONY AND HSG A
   HhC - HERMON SANDY LOAM, 8 - 15% SLOPES, VERY STONY AND HSG A
   WsB - WOODBRIDGE VERY STONY FINE SANDY LOAM, 0 - 8% SLOPES AND HSG C

LEGEND

- PROJECT PARCEL
- MDEP CLASSIFIED "WETLANDS NOT OF SPECIAL SIGNIFICANCE" (PRELIMINARY CLASSIFICATION)
- MDEP CLASSIFIED "WETLANDS OF SPECIAL SIGNIFICANCE"
- SIGNIFICANT VERNAL POOL (SVP)
- NON-SIGNIFICANT VERNAL POOL (NSVP)
- APPROXIMATE SHORELAND ZONE BOUNDARY (LRR1)
- CRITICAL TERRESTRIAL HABITAT (CTH)
- PREVIOUSLY IMPACTED CTH AREA
- UTILITY POLE
- PAVEMENT
- TREELINE
- 332 - 2 FT CONTOURS
- NRCS SOILS BOUNDARY
- HhC - NRCS SOILS LABEL
- SUBCATCHMENT BOUNDARY
- 1S - SUBCATCHMENT LABEL
- FLOW PATH
- 1L - ANALYSIS LOCATION
- 1P - UNDER DRAIN SOIL FILTER

STATE OF MAINE
KIRK J. BALL
No. 11661
LICENSED PROFESSIONAL ENGINEER
01/13/2023

No.	Revision Description	Drwn	Chk'd	Date
C	Modifications solar array layout, stormwater, fence type & edits to address first dept. comments.	KJB	KJB	01/13/24

Drwn By: BG
Desg By: BG / KJB
Chkd By: KJB
Aprvd By: KJB
Date: 8/14/2023

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Pre-Construction Stormwater Plan

Mainely Solar, LLC.
143 Highland Shores Road
Casco, Maine

Job Number:
M5001

Drawing No:
SW-1

PEAK STORMWATER RUN-OFF RATE TABLE			
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1L	2	0.1	0.04
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	25	5.46	4.77
2L	2	0.00	0.00
	10	0.06	0.02
	25	0.34	0.14
3L	2	0.06	0.03
	10	1.54	1.03
	25	4.62	3.49

WATER QUALITY TREATMENT TABLE					
AREA DESCRIPTION	IMPERVIOUS AREA (sf)	DEVELOPED AREA (sf)	IMPERVIOUS AREA TREATED (sf)	DEVELOPED AREA TREATED (sf)	BMP
Project Access Drive, STA 0+00 to 6+40	11,951	39,466	11,951	39,466	SFA
Project Access Drive, STA 6+40 to 9+80	7,417	17,529	7,417	17,529	SFB
Concrete Equipment Pad	160	160	160	160	SFB
Solar Panel Racking Support Posts	10	10	10	10	Self Buffering
Boat Storage Area	0	9,900	0	0	N/A
Residential Paved Driveway to East	2,556	2,556	2,556	2,556	N/A
Total	22,094	69,621	22,094	59,721	
		Percent Treated	100%	86%	

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4. ZONING DISTRICTS: RURAL RESIDENTIAL (RR), APPROXIMATELY 5.8 ACRES WITHIN LRR1 SHORELAND ZONE.
5. LOT COVERAGE: EXISTING = 1.3%, PROPOSED = 1.4%, TOTAL = 2.7%
6. 100-YEAR FLOODPLAIN IS NOT WITHIN 300 FEET OF THE PROJECT PARCEL.
7. ALL EXISTING STRUCTURES WITHIN THE PARCEL BOUNDARY TO REMAIN.
8. ALL BUILDINGS WITHIN 100 FEET OF PARCEL BOUNDARY LOCATED USING AERIAL IMAGERY.
9. THE CLOSEST FIRE HYDRANT IS NOT LOCATED WITHIN 200 FEET.
10. MORE THAN 75% OF CTH TO BE MAINTAINED AS UNFRAGMENTED FORESTED CANOPY.
11. PROPOSED WETLAND FILL: 325 SF
12. SOILS: HhB - HERMON SANDY LOAM, 0 - 8% SLOPES, VERY STONY AND HSG A
HhC - HERMON SANDY LOAM, 8 - 15% SLOPES, VERY STONY AND HSG A
WsB - WOODBRIDGE VERY STONY FINE SANDY LOAM, 0 - 8% SLOPES AND HSG C

LEGEND

EXISTING

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- PREVIOUSLY IMPACTED CTH AREA
- UTILITY POLE
- PAVEMENT
- TREELINE
- 332 - 2 FT CONTOURS
- NRCS SOILS BOUNDARY
- HhC - NRCS SOILS LABEL

PROPOSED

- EQUIPMENT PAD
- UTILITY POLE
- TREELINE
- SOLAR ARRAY
- WILDLIFE PERMEABLE FENCE
- 332 - 2 FT CONTOURS
- SF - SILT FENCE
- STONE CHECK DAM
- TP23-A - TEST PITS
- SUBCATCHMENT BOUNDARY
- 1S - SUBCATCHMENT LABEL
- FLOW PATH
- 1L - ANALYSIS LOCATION
- 1P - UNDER DRAIN SOIL FILTER

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0 80' 160' 240'
SCALE: 1" = 80'

No.	Revision Description	Drwn	Chk'd	Date
C	Modifications solar array layout, stormwater, fence type 4 edits to address fire dept comments.	KJB	KJB	01/31/24

Drwn By: BG
Desg By: BG / KJB
Chkd By: KJB
Aprvd By: KJB
Date: 8/14/2023

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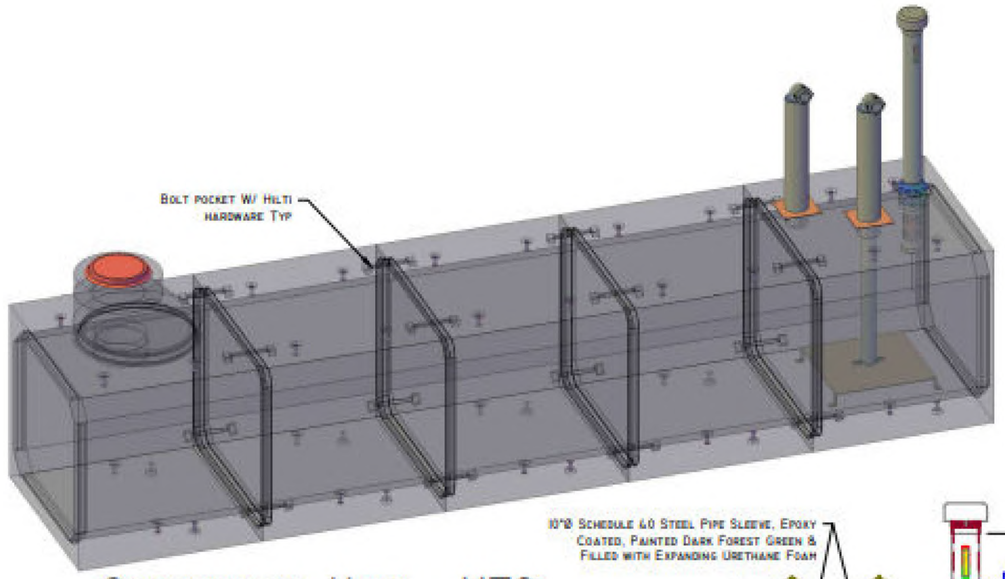
Post-Construction Stormwater Plan
Mainely Solar, LLC.
143 Highland Shores Road
Casco, Maine

Job Number: M5001

Drawing No: SW-2

Sheet 9 of 9



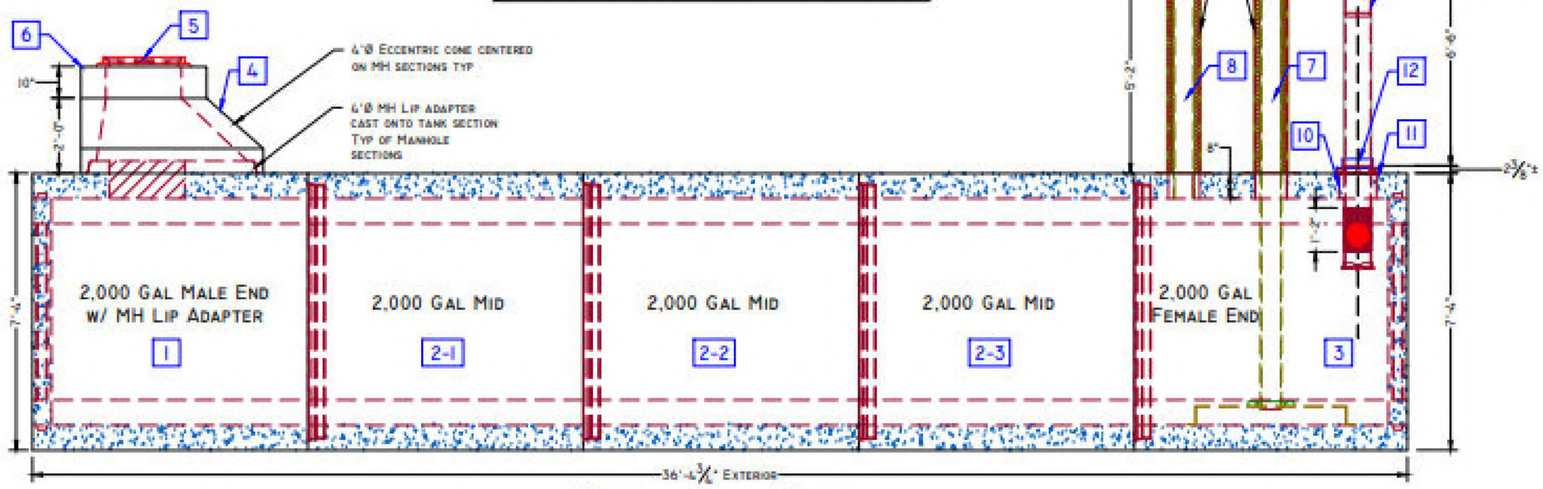
Conceptual View - NTS

SCALE: 1/4" = 1'-0" Unless Otherwise Noted

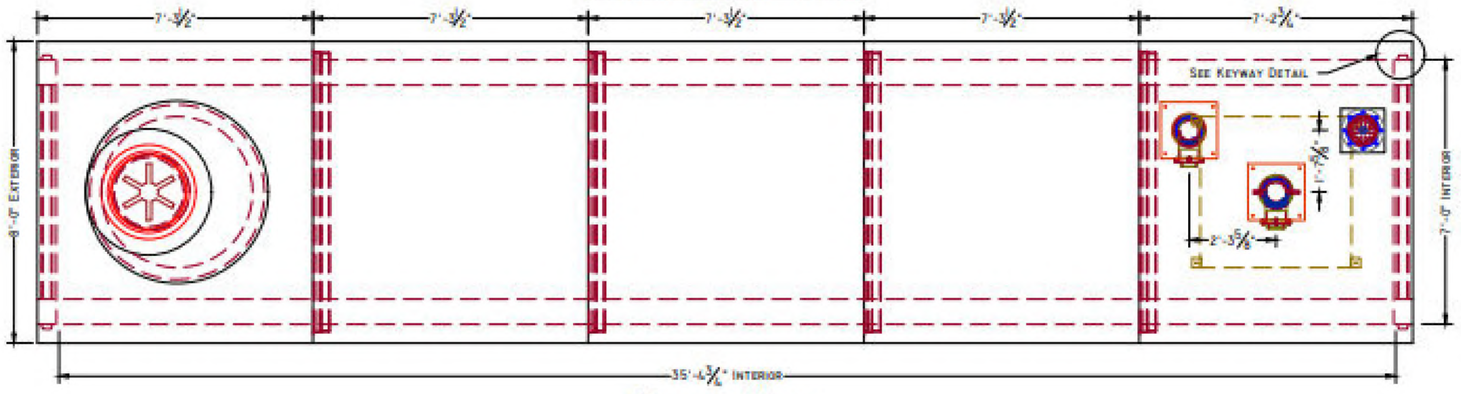
NOTE: SOME DETAILS NOT SHOWN FOR CLARITY

DESIGN NOTES:

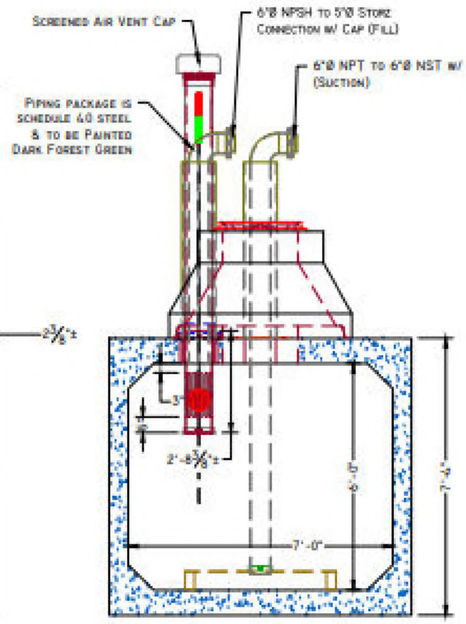
1. **Concrete**
   - 1.1. COMP. STRENGTH MIN. 5,000PSI @ 28 DAYS
   - 1.2. AIR-ENTRAINMENT: MIN. 5%-6%
2. **Structural Reinforcement:**
   - 2.1. BAR PER ASTM A615, GRADE 60
   - 2.2. DESIGNED FOR H20 WHEEL LOAD RATING
3. **Bar Clearance / Protection:**
   - 3.1. 1.5" CLR UNLESS OTHERWISE NOTED
4. **Manufacturing & Materials:**
   - 4.1. JOINTS SEALED W/ TYLOX SUPERSEAL RUBBER GASKET
   - 4.2. CAPACITY TO 6" OF TANK CEILING: 10,000 GAL
   - 4.3. AVAILABLE CAPACITY (MAXIMUM): 10,885 GAL
   - 4.4. ALL EXTERIOR PIPING TO BE PAINTED DARK FOREST GREEN



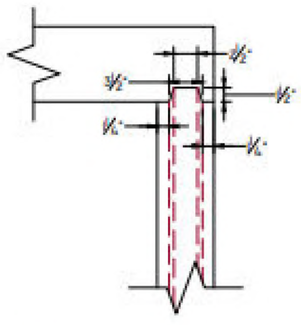
Elevation View



Plan View



End View



Keyway Detail

SCALE: 3/4" = 1'-0"

Superior Concrete, LLC
982 Minot Ave. Auburn, ME. 04210
Tel: 207-784-1388
Fax: 866-414-9083
www.americanconcrete.com

Bill Of Materials

ITEM	QTY	
1	(1)	7'x6'x7'-2 3/4" Fem. End Section w/ Wall
		Weight: 21,235 # (2,000gal)
2	(3)	7' x 6' x 7'-3 1/2" Stock Mid Section
		Weight: 19,085 # / Ea. (2,000gal)
3	(1)	7'x6'x7'-3 1/2" Male End Section w/ Wall &
		MH Lip Adapter Weight: 22,950 # (2,000gal)
4	(1)	4'-0" x 2'-0" Manhole Eccentric Cone
		w/ 24"Ø Opening Weight: 1,885 #
5	(1)	24"Ø Frame & Cover
6	(1)	10" Grade Ring w/ 24"Ø Opening
7	(1)	6"Ø NPT to 6"Ø NST w/ Cap (Suction)
8	(1)	6"Ø NPSH to 5"Ø Storz Connection w/ Cap (Fill)
9	(1)	8"Ø PVC Vent Assembly w/ Water Level Indicator
10	(1)	LS475(12) 12"Ø HOLE FOR 8"Ø PVC Vent Pipe
11	(1)	14" x 14" x ⅜" thick plate
12	(1)	Lasco 8" PVC Bolt Flange
	(40)	LPA8T434G Lifting Pin
	(16)	Bolt Pockets w/ Hilti Hardware

STRUCTURE NAME: 10,000 Gal Fire Cistern		
JOB NAME: Sebago Camp		
LOCATION: Raymond, ME		
CONTRACTOR: TBDD LLC		
DRAWN BY: JWP	DATE: 08/10/2020	PROJECT MGR: C.H.
REV.#: 0.00	DATE: 00/00/00	SHEET: 1 OF 1