MLG | MICHAUD
RENEWABLE ENERGY LAW IS OUR BUSINESS LAWGROUP

PAUL R. MICHAUD
Managing Attorney / Principal
101 Centerpoint Drive, Suite 230
Middletown, CT 06457
Direct Telephone: (860) 338-3728
Email: pmichaud@michaud.law
Web: www.michaudlaw.com

May 12, 2022

FILED BY ELECTRONIC MAIL AND HAND DELIVERY

Melanie Bachman, Esq.
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **PETITION NO. 1487 –** TRITEC Americas, LLC petition for a declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the proposed construction, maintenance and operation of a 1.97-megawatt AC solar photovoltaic electric generating facility located at 254 Putnam Road, Pomfret, Connecticut, and associated electrical interconnection.

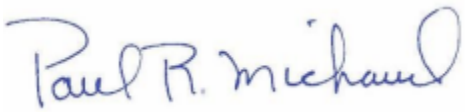
Dear Attorney Bachman:

On behalf of TRITEC Americas, LLC ("Petitioner"), please accept the enclosed responses to the interrogatories provided by the Connecticut Siting Council ("Council") on April 21, 2022.

Consistent with Council requirements, Petitioner submits one electronic version, an original, and fifteen hard copies of all necessary documents.

Please feel free to contact me if you have any questions.

Very truly yours,



Paul R. Michaud
Dylan J. Gillis

Their Attorney

Petition No. 1487
TRITEC Americas, LLC
Pomfret, Connecticut

Interrogatories – Set 2

47. Interrogatory response 21 and the revised Decommissioning Plan states there will be 18 new utility poles instead of 12 as initially shown on the site plans. Revise the site plans to clearly show the location of all 18 utility poles.

Response:

The site plan has been revised to show 18 utility poles. Please see attached, "Exhibit A: Site Plan."

48. How many utility poles does Eversource require? What is the purpose of each pole owned by Eversource? If equipment is installed on each pole, can this equipment be consolidated onto fewer poles? Explain.

Response:

The project consists of 8 separate systems, and Eversource requires each system has its own separate overhead interconnection service. The Property Owner has reviewed and accepted the plan.

We believe Eversource will require ten poles; confirmation from Eversource is pending whether the equipment can be consolidated onto fewer poles. We will file a supplemental response immediately after we receive an answer.

Pole-1 (1) Utility disconnect switch, Pole mounted gang operated, utility lockable, 24/7 accessible, ground-able, visible break, shared by PV systems 1-8
P-2 (1) Utility recloser, pole-mounted, shared by PV systems 1-8
P-3 to P-10 (8) Bidirectional utility revenue meters for PV systems 1-8

49. How many utility poles does TRITEC require? What is the purpose of each pole? If equipment is installed on each pole, can this equipment be consolidated onto fewer poles? Explain.

Response:

TRITEC will require eight (8) additional poles.

P-11 to P-18 (8) OH circuit collection poles and customer disconnect switches for PV systems 1-8 as required to interconnect with the utility.

Due to utility safety concerns, the equipment cannot be consolidated on fewer poles.

50. What is the additional cost to install a pad-mounted interconnection? Would TRITEC be willing to install a pad-mounted interconnection to reduce the number of utility poles?

Response:

It is our understanding that Eversource does not allow pad-mounted interconnections. Confirmation from Eversource is pending; we will file a supplemental response immediately after we receive an answer.

The additional cost to install a pad-mounted interconnection would be approximately $450,000 and would eliminate the eight overhead circuit collection poles (P-11 to P-18). The Eversource meters would still be mounted on poles, and ten poles would remain (P-1 to P-10).

The additional cost was not considered at the bid and may prove cost-prohibitive.

51. The number of proposed panels in the Petition narrative and on the attached site plans do not match. Clarify.

Response:

Total Number of Panels: 4970 each – Trina TSM-DEG19C.20-540W

52. What is the estimated annual capacity factor of the proposed Project? (How much energy is actually produced compared with its maximum output rating?)

Response:

The estimated annual capacity factor is 23.8%. The capacity factor is this high due to the use of single-axis trackers.

53. Petition Appendix G – Phase 1A Cultural Reconnaissance Survey p. 1, states two stormwater basins would be constructed; however, the site plans do not show any stormwater basins. Clarify.

Response:

There are no stormwater basins proposed for this Facility.

54. Does construction of the project require temporary sediment traps given that the amount of disturbance is 14.2 acres? If yes, revise the site plans to show locations. If no, explain why they are not necessary.

Response:

The project does not require any temporary sediment traps. As referenced in response to Council Interrogatory 29, the perimeter silt fence will be equipped with "wings" (See "Exhibit B: Sedimentation & Erosion Control Details"). These limit the tributary array area from draining towards each section to 1-acre or less. The drainage swales designed with rock-check dams also mitigate potential sediment transport. DEEP has approved the proposed strategy on similar projects where there is no proposed tree clearing or mass grading.

55. Petition Appendix G – Environmental Assessment p. 29 states the Stormwater Management Report was submitted under a separate cover. Provide a bulk paper copy and an electronic copy of the report.

Response:

Please see attached, "Exhibit C: Stormwater Management Report."

56. Based on the TCLP Certificate for the Talesun modules provided in Interrogatory response 45, it appears these panels exceed the regulatory thresholds for lead and would be considered hazardous waste upon disposal. Would TRITEC be willing to substitute these panels for panels that are deemed non-hazardous waste under current regulatory criteria?

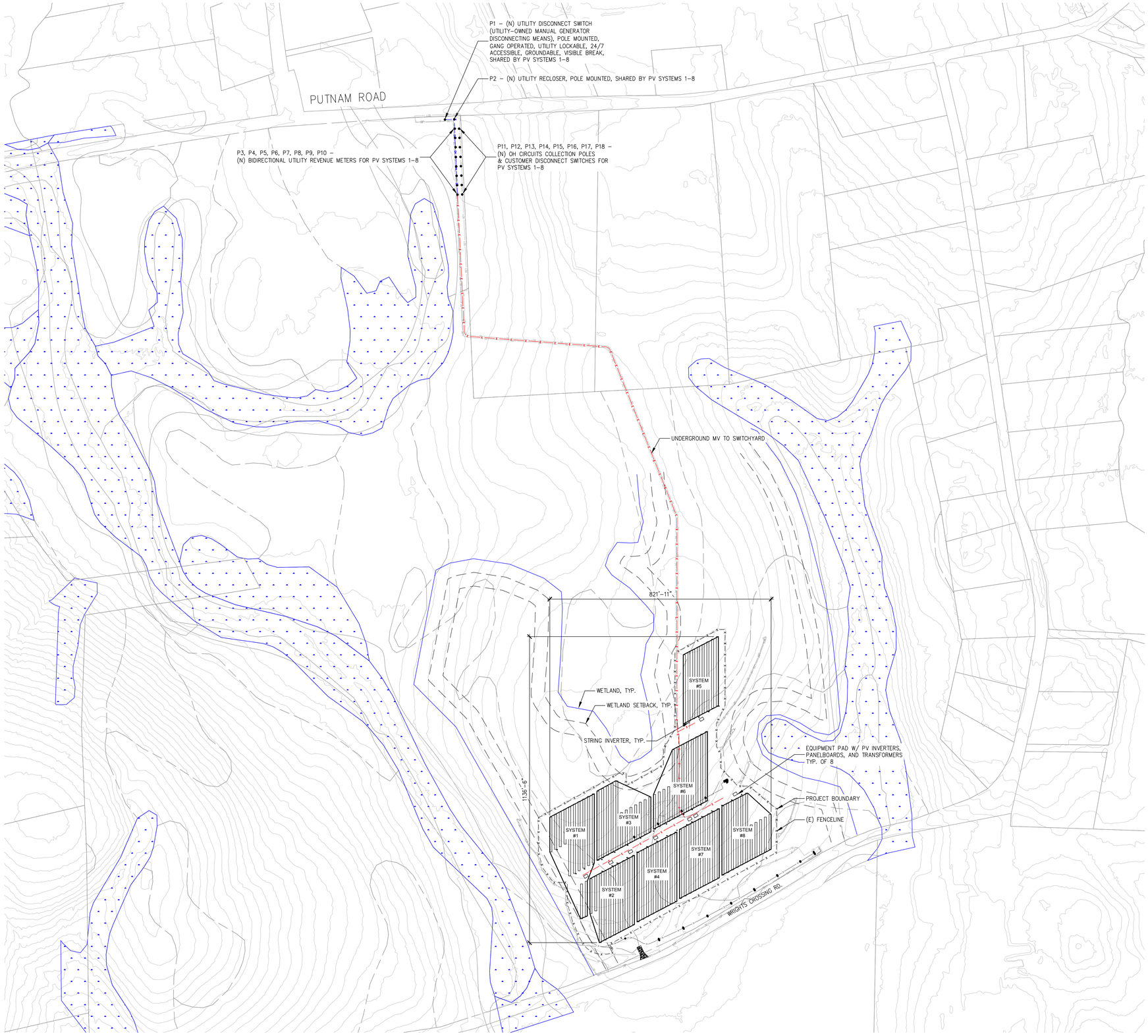
Response:

Due to limited product availability, the modules have been replaced with Trina TSM-DEG19C.20-540W. Please see attached, "Exhibit D: Trina TSM-DEG19C.20-540W TCLP Report."

Based on the module revision, the system size is as follows:

System Size DC = 2,683.80kWDC
Eight (8) systems at 249.2kWAC/System
System Size AC = 1.99MWAC system.

Exhibit A: Site Plan



PHOTOVOLTAIC ARRAY SITE PLAN

N

0 50' 100' 150' 300'

1" = 150'-0"

SITE SUMMARY	
PROJECT LOCATION	254 PUTNAM ROAD POMFRET CENTER, CT 06259
DESIGN TEMPERATURE (MIN.)	-19°C (ASHRAE EXTREME MIN)
DESIGN TEMPERATURE (MAX)	32°C (ASHRAE 2% AVG HIGH) 34°C (ASHRAE 0.4% HIGH)
PROJECT ELEVATION (MAX)	410'
STRING SIZE	35
MODULE TYPE	TSM-DEG19C.20-540
MODULE WATTAGE	540W
ARRAY TYPE	SOLAR FLEXRACK TDP2.0 (59) x 70 MODULE ROW (24) x 35 MODULE ROW
GROUND COVER RATIO	44.7% (17'-6")
ARRAY TILT	0°
RANGE OF MOTION	±55°
ARRAY AZIMUTH	180°

SYSTEM #1 SUMMARY	
MODULE QTY.	630
INVERTER	SOLECTRIA XGI 1500-125/150 (2)
SYSTEM SIZE (AC)	249.2 kWAC
SYSTEM SIZE (DC)	340.2 kWDC

SYSTEM #2 SUMMARY	
MODULE QTY.	630
INVERTER	SOLECTRIA XGI 1500-125/150 (2)
SYSTEM SIZE (AC)	249.2 kWAC
SYSTEM SIZE (DC)	340.2 kWDC

SYSTEM #3 SUMMARY	
MODULE QTY.	595
INVERTER	SOLECTRIA XGI 1500-125/150 (2)
SYSTEM SIZE (AC)	249.2 kWAC
SYSTEM SIZE (DC)	321.3 kWDC

SYSTEM #4 SUMMARY	
MODULE QTY.	630
INVERTER	SOLECTRIA XGI 1500-125/150 (2)
SYSTEM SIZE (AC)	249.2 kWAC
SYSTEM SIZE (DC)	340.2 kWDC

SYSTEM #5 SUMMARY	
MODULE QTY.	560
INVERTER	SOLECTRIA XGI 1500-125/150 (2)
SYSTEM SIZE (AC)	249.2 kWAC
SYSTEM SIZE (DC)	302.4 kWDC

SYSTEM #6 SUMMARY	
MODULE QTY.	700
INVERTER	SOLECTRIA XGI 1500-125/150 (2)
SYSTEM SIZE (AC)	249.2 kWAC
SYSTEM SIZE (DC)	378.0 kWDC

SYSTEM #7 SUMMARY	
MODULE QTY.	630
INVERTER	SOLECTRIA XGI 1500-125/150 (2)
SYSTEM SIZE (AC)	249.2 kWAC
SYSTEM SIZE (DC)	340.2 kWDC

SYSTEM #8 SUMMARY	
MODULE QTY.	595
INVERTER	SOLECTRIA XGI 1500-125/150 (2)
SYSTEM SIZE (AC)	249.2 kWAC
SYSTEM SIZE (DC)	321.3 kWDC

PRELIMINARY

TRITEC AMERICAS

CONSULTANT

BLYMYER ENGINEERS
1101 MARINA VILLAGE PARKWAY # 100
ALAMEDA, CA 94501 510.521.3773

STAMP/SEAL

REV #	DESCRIPTION	DATE
AA	FOR CLIENT REVIEW	06/08/2021
–	UTILITY IA	03/14/2022
AB	LAYOUT UPDATE	05/02/2022

PROJECT TITLE:

AMARAL SOLAR
PV ARRAYS
(8) 246 KWAC PV SYSTEMS
254 PUTNAM RD,
POMFRET CENTER, CT

SHEET TITLE:

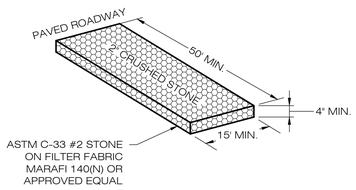
PHOTOVOLTAIC ARRAY
SITE PLAN

JOB NO.: 2210XX	PROJECT MGR: SG
DRAWN: OBOJ	SCALE: 1" = 150'

SHEET NUMBER

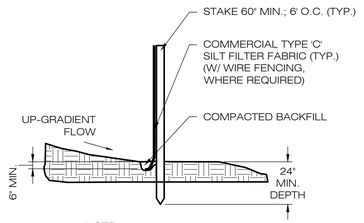
G-100

Exhibit B: Sedimentation & Erosion Control Details



CONSTRUCTION ENTRANCE DETAIL

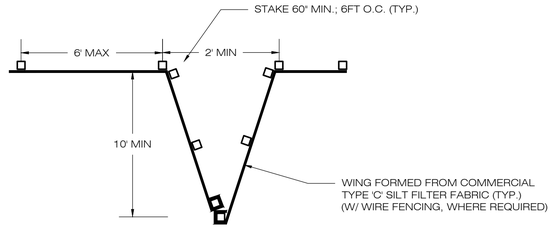
1 / EC-2 **SCALE : N.T.S.**



NOTE:
SILT FENCE SHALL BE LAPPED ONLY WHEN NECESSARY PER THE MANUFACTURER RECOMMENDATIONS.

SILT FENCE DETAIL

2 / EC-2 **SCALE : N.T.S.**

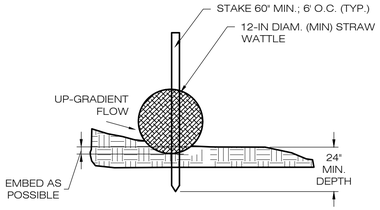


NOTES:
1. WRAP SILT FENCE AT ENDS.

2. NO JOINING FENCE SECTIONS SHALL BE INSTALLED WITHIN 30 FEET OF WING.

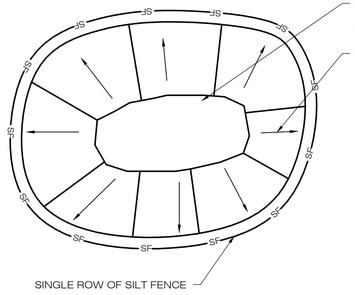
SILT FENCE WING DETAIL

3 / EC-2 **SCALE : N.T.S.**



STRAW WATTLE DETAIL

4 / EC-2 **SCALE : N.T.S.**



NOTES:
1. ALL EXISTING EXCAVATED MATERIAL THAT IS NOT TO BE REUSED IN THE WORK IS TO BE IMMEDIATELY REMOVED FROM THE SITE AND PROPERLY DISPOSED OF.

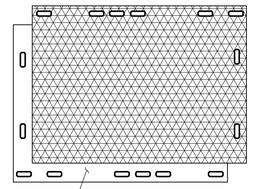
2. SOIL/AGGREGATE STOCKPILE SITES TO BE WHERE SHOWN ON THE DRAWINGS.

3. RESTORE STOCKPILE SITES TO PRE-EXISTING PROJECT CONDITION AND RESEED AS REQUIRED.

4. STOCKPILE HEIGHTS MUST NOT EXCEED 35'. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.

MATERIALS STOCKPILE DETAIL

5 / EC-2 **SCALE : N.T.S.**



NOTES:

1. DURA-BASE COMPOSITE MAT SYSTEM (OR EQUAL). SEE SPECIFICATIONS AND INSTALLATION INSTRUCTIONS FROM MANUFACTURER.
2. OVERALL DIMENSIONS: 8'X14'X4"
3. SURFACE DIMENSIONS: 7'X13'

TEMPORARY CONSTRUCTION MATTING

6 / EC-2 **SCALE : N.T.S.**

TRITEC AMERICAS
888 PROSPECT STREET
LA JOLLA, CA 92037
OFFICE: (619) 363-3080

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHAUL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CSC PERMIT SET

NO	DATE	REVISION
0	12/09/21	SITING COUNCIL SUBMISSION
1	04/09/22	COUNCIL INTERROGATORIES
2	05/11/22	PANEL LAYOUT, UTIL. POLES
3		
4		
5		
6		

NOT FOR CONSTRUCTION

DESIGN PROFESSIONAL OF RECORD

PROF: KEVIN A. MCCAFFERY, PE
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHAUL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: ANTONIO & MARY AMARAL

ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

AMARAL SOLAR

SITE ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

APT FILING NUMBER: CT657100

DRAWN BY: KAM

DATE: 12/09/21 CHECKED BY: BG

SHEET TITLE:
SEDIMENTATION & EROSION CONTROL DETAILS

SHEET NUMBER:
EC-2

STATE OF CONNECTICUT · KEVIN A. MCCAFFERY · 25077 · LICENSED PROFESSIONAL ENGINEER

Exhibit C: Stormwater Management Report

STORMWATER MANAGEMENT REPORT

PROPOSED

AMARAL

SOLAR PROJECT

254 PUTNAM ROAD
POMFRET CENTER, CONNECTICUT
WINDHAM COUNTY

Prepared for:

TRITEC Americas
888 Prospect Street
La Jolla, CA 92037

Prepared by:

All-Points Technology Corporation, P.C.
567 Vauxhall Street Extension, Suite 311
Waterford, CT 06385

November 2021

Table of Contents

Tables

Appendices

Introduction

At the request of TRITEC Americas, All-Points Technology Corporation, P.C. ("APT") has prepared the following analysis of and design to address stormwater impacts resulting from the development of a proposed 2.70 MW direct current ("DC") (1.97 MW alternating current ("AC")) solar electric generating facility herein referred to as Amaral Solar (the "Project") located at 254 Putnam Road, Pomfret Center, Connecticut (the "Site").

The purpose of this report is to provide a description and analysis of the potential stormwater drainage impacts associated with the Project, as well as a description of the design to mitigate such potential stormwater drainage impacts. The design is intended to be in full compliance with the State and Town regulations while taking prevailing site conditions and practical factors into account.

Existing Site Conditions

The Site is a privately owned, 215.6-acre parcel south of Route 44/Putnam Road and north of Wrights Crossing Road. The Site is mostly undeveloped active agricultural land; the southeastern extent of the Site is wooded. Bark Meadow Brook flows generally north to south in the western portion of the Site. A residence and multiple farm buildings are located on the northern portion of the Site along Putnam Road; a residence is also located off of Wrights Crossing Road in the southwestern portion of the Site. The Site is zoned Rural Residential.

The Site's existing topography varies, ranging from approximately 338 feet above mean sea level ("AMSL") to 504 feet AMSL. In general, elevations decrease from the western Site boundary to Bark Meadow Brook, and rise again to the east. Grades within the Project Area supporting the Facility slope gently from north to south/southeast, with ground elevations ranging from approximately 405 feet AMSL in the northwest to approximately 355 feet AMSL in the southeast.

Developed Site Conditions

The Project will be constructed in an existing agricultural field with established ground cover, no tree clearing is proposed for installation of the array or access. Access to the Project area will be provided from Wrights Crossing Road south of the project area. The Project includes the installation of (2,592) 400W solar panel modules, (3,060) 545W solar panel modules, and associated fencing, access road, utilities, and stormwater management features, within approximately 14.2± acres of the Site.

The proposed solar panels will be installed on a post driven ground mounted racking system, with minimal changes to the existing grades. As a result, the post-development site conditions will mimic the pre-developed site conditions. Areas of existing ground cover that is disturbed during construction will be reseeded with a low growth seed mix. To address water quality requirements two grass lined swales are proposed along the upper and lower sections of access road with rock check dams.

Stormwater Management

Analysis Methodology

The hydrologic analysis was performed using the HydroCAD stormwater modeling system computer program developed by HydroCAD Software Solutions, LLC.

Hydrographs for each watershed were developed using the SCS Synthetic Unit Hydrograph Method with a Type III rainfall distribution. Hydrographs were developed for the NOAA Atlas 14, Volume 10, Version 3 Precipitation 2-, 25-, 50-, and 100-year storm event with rainfall depths of 3.4, 6.2, 7.0, and 7.9 inches respectively.

The existing and proposed drainage areas used in the calculations are illustrated on the Existing and Proposed Drainage Area Plans (EDA-1 & PDA-1). These maps and the corresponding HydroCAD output are attached.

The Water Quality Volume ("WQV") for the site will be calculated assuming that the roadways, gravel surfaces, and transformer pads are effective impervious cover. The panels are not considered impervious cover for purposes of the WQV calculations.

The Project area soils identified by the United States Department of Agriculture (USDA) Natural Resources Conservation Service consist primarily of a HSG rating of "D", and limited portions with a HSG rating of "B" and "C". The specific Map Unit Symbol soils include 23, 45, and 84.

Specific details for each soil Map Unit Symbol are provided in Appendix A with their extent shown on the Drainage Area Plans.

Existing Drainage Patterns

The Project area generally drains from north to south then divides with outflows leaving at the southwest and southeast portions of the property. The Site is modeled at two (2) Analysis Points ("AP-1" & "AP-2"). AP-1 discharges to an existing wetland to the southwest of the site. AP-2 discharges to an existing wetland to the southeast of the site. Peak discharges have been computed at the points of study for the 2-, 25-, 50-, and 100-year storm events.

The pre-developed peak discharges at each analysis point are tabulated in Table 1.

Table 1

Analysis Point	**Pre-developed Peak Storm Runoff (Q), cubic feet per second (cfs)**			
	2-year	**25-year**	**50-year**	**100-year**
AP-1	10.2	28.1	33.5	39.6
AP-2	28.3	74.2	87.9	103.4

Proposed Drainage Patterns

The Project will maintain existing hydrological conditions to the extent practicable, as only limited grading is required for the installation of the access drive, equipment pads and water quality swales. Upon completion of construction, the Site will be stabilized using a mix of native flowering grasses and plants selected specifically for solar installations (Ernst Solar Farm Seed Mix), which will create a meadow condition.

Appendix I requires that the hydrologic soil group be reduced by a half-drop in those areas subject to heavy machinery traffic (i.e., the solar field and access), which typically results in a higher curve number. However, the Project's change from the existing condition of Hayfield ground cover to proposed meadow ground cover results in an equal value for the site, even accounting for the half-drop in hydrologic soil group (for 52,720 sq-ft of HSG C soils within the array footprint).

To appropriately manage Site drainage and provide requisite water quality treatment volumes, two (2) swales are proposed along the access road to capture and treat the runoff from the access drive and tributary project area. Based on the site area and portion of proposed impervious cover the project requires approximately 3,555 cu-ft of water quality treatment volume. The calculations provided in Appendix E show that the volume retained behind the rock check dams and dead storage areas in the swales is approximately 5,008 cu-ft, which is greater than the required volume and therefore in compliance with this requirement.

The post-development conditions were modeled using the same two Analysis Points. Peak discharges have been computed at the points of study for the 2-year, 25-year, 50-year, and 100-year storm events and tabulated in Table 2 below.

Table 2

Analysis Point	**Post-developed Peak Storm Runoff (Q), cubic feet per second (cfs)**			
	2-year	**25-year**	**50-year**	**100-year**
AP-1	7.9	22.2	26.6	31.5
AP-2	26.4	70.6	84.2	99.2

The reduction in runoff achieved by the post-development discharges in comparison with the pre-development discharges are tabulated in Table 3.

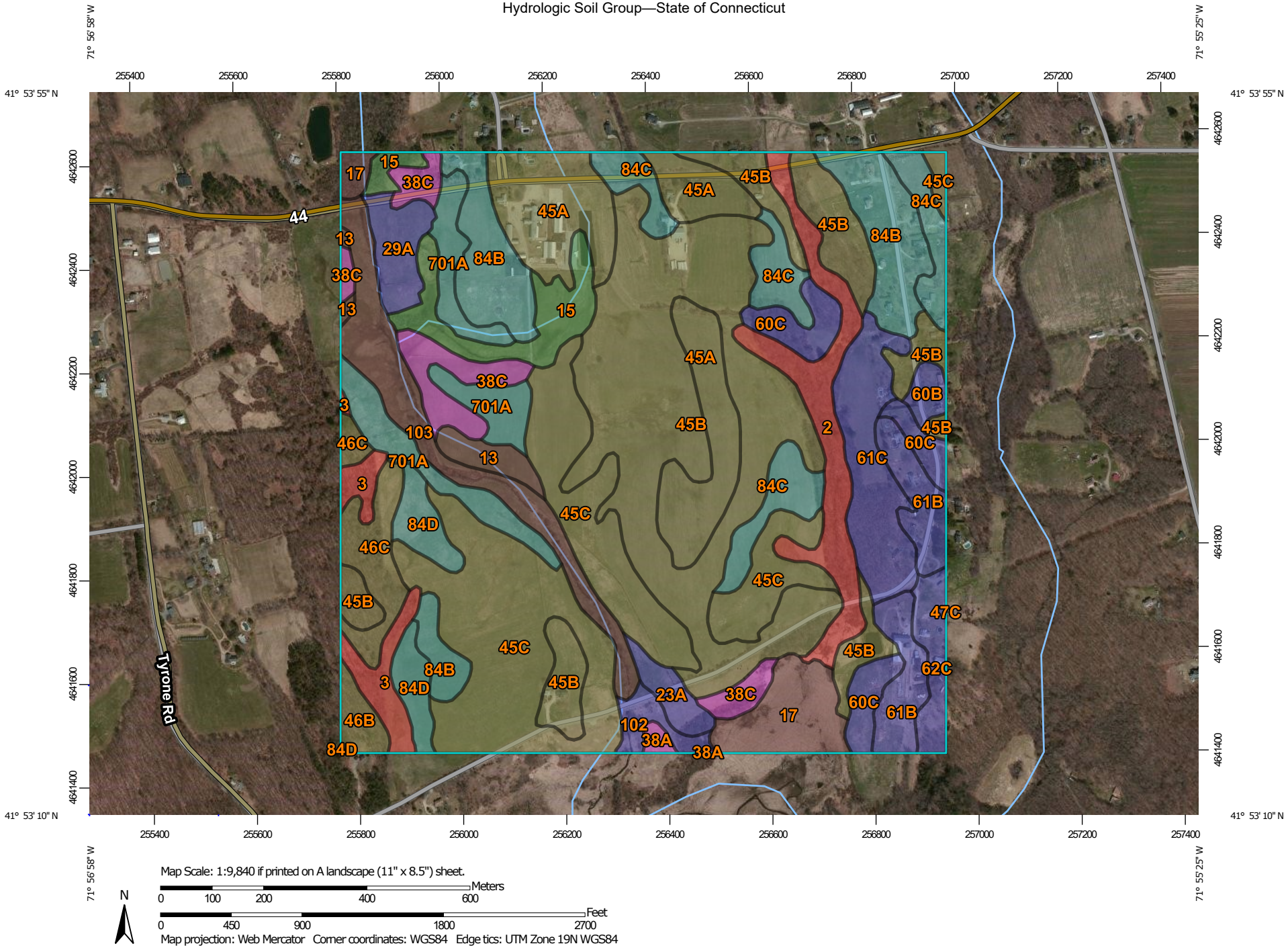
Table 3

Analysis Point	**Peak Storm Runoff (Q) Comparison Pre- and Post-, Percent (%) Change**			
	2-year	**25-year**	**50-year**	**100-year**
AP-1	-23%	-21%	-21%	-20%
AP-2	-7%	-5%	-4%	-4%

Conclusion

The stormwater management for the proposed Project has been designed such that the post-development peak discharges to the waters of the State of Connecticut for the 2-, 25-, 50-, and 100- year storm events are less than the pre-development peak discharges. As a result, the proposed solar array is not predicted to result in any adverse conditions to the surrounding areas and properties.

APPENDIX A: NRCS SOIL SURVEY


71° 56' 58" W
71° 55' 25" W
41° 53' 55" N
41° 53' 10" N
255400
255600
255800
256000
256200
256400
256600
256800
257000
257200
257400
4642600
4642400
4642200
4642000
4641800
4641600
4641400
44
Tyrone Rd
17
15
38C
84C
45A
45B
45C
84C
45A
45B
84B
13
29A
701A
84B
38C
84C
13
15
60C
45A
45B
38C
60B
701A
3
45B
2
45B
103
60C
46C
701A
13
61C
3
84C
61B
45C
84D
46C
45C
45B
47C
45C
45B
62C
3
84B
84D
45B
23A
38C
60C
61B
46B
17
102
38A
84D
38A
Map Scale: 1:9,840 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0
100
200
400
600
Feet
0
450
900
1800
2700
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 Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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: State of Connecticut
Survey Area Data: Version 20, Jun 9, 2020

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

Date(s) aerial images were photographed: Apr 8, 2011—Apr 9, 2011

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
2	Ridgebury fine sandy loam, 0 to 3 percent slopes	D	14.1	4.2%
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	D	6.0	1.8%
13	Walpole sandy loam, 0 to 3 percent slopes	B/D	3.2	1.0%
15	Scarboro muck, 0 to 3 percent slopes	A/D	9.9	2.9%
17	Timakwa and Natchaug soils, 0 to 2 percent slopes	B/D	9.5	2.8%
23A	Sudbury sandy loam, 0 to 5 percent slopes	B	2.9	0.9%
29A	Agawam fine sandy loam, 0 to 3 percent slopes	B	5.1	1.5%
38A	Hinckley loamy sand, 0 to 3 percent slopes	A	0.7	0.2%
38C	Hinckley loamy sand, 3 to 15 percent slopes	A	9.7	2.9%
45A	Woodbridge fine sandy loam, 0 to 3 percent slopes	C/D	27.3	8.1%
45B	Woodbridge fine sandy loam, 3 to 8 percent slopes	C/D	74.3	22.0%
45C	Woodbridge fine sandy loam, 8 to 15 percent slopes	C/D	53.0	15.7%
46B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	C/D	2.5	0.8%
46C	Woodbridge fine sandy loam, 8 to 15 percent slopes, very stony	C/D	7.7	2.3%
47C	Woodbridge fine sandy loam, 3 to 15 percent slopes, extremely stony	C/D	0.0	0.0%
60B	Canton and Charlton fine sandy loams, 3 to 8 percent slopes	B	1.8	0.5%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
60C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes	B	8.6	2.5%
61B	Canton and Charlton fine sandy loams, 0 to 8 percent slopes, very stony	B	10.4	3.1%
61C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes, very stony	B	12.6	3.7%
62C	Canton and Charlton fine sandy loams, 3 to 15 percent slopes, extremely stony	B	4.5	1.3%
84B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes	C	21.1	6.2%
84C	Paxton and Montauk fine sandy loams, 8 to 15 percent slopes	C	15.1	4.5%
84D	Paxton and Montauk fine sandy loams, 15 to 25 percent slopes	C	6.6	1.9%
102	Pootatuck fine sandy loam	B	2.6	0.8%
103	Rippowam fine sandy loam	B/D	14.6	4.3%
701A	Ninigret fine sandy loam, 0 to 3 percent slopes	C	14.4	4.3%
Totals for Area of Interest			**338.3**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

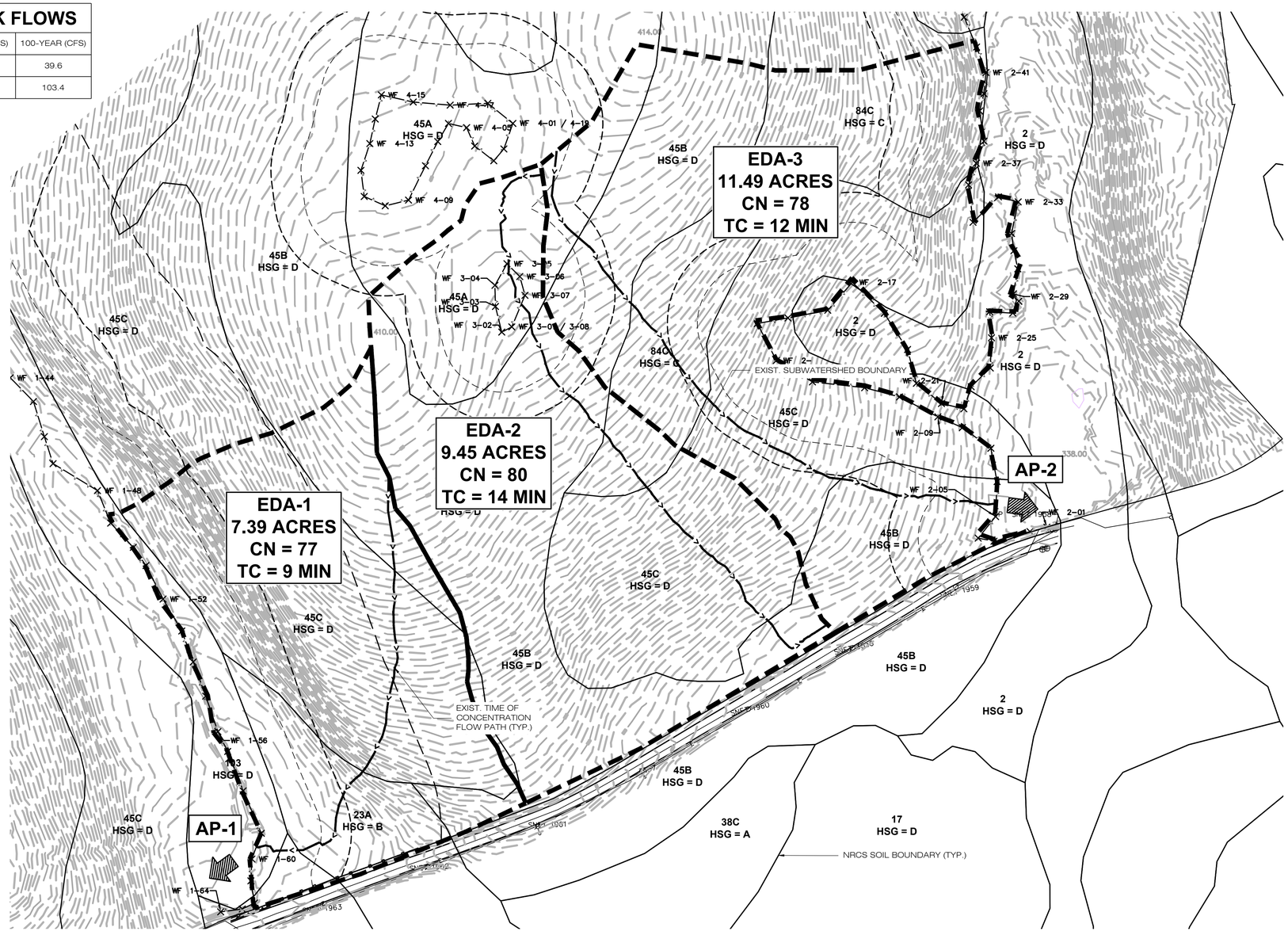
APPENDIX B: EXISTING DRAINAGE AREA MAP (EDA-1) & HYDROLOGIC COMPUTATION (HYDROCAD)

EXISTING DRAINAGE AREAS

	TOTAL AREA (ACRES)	COMPOSITE CN	TC (MINS.)
EDA-1	7.39	77	9
EDA-2	9.45	80	14
EDA-3	11.49	78	12

EXISTING CONDITIONS PEAK FLOWS

ANALYSIS POINT	2-YEAR (CFS)	25-YEAR (CFS)	50-YEAR (CFS)	100-YEAR (CFS)
AP-1	10.2	28.1	33.5	39.6
AP-2	28.3	74.2	87.9	103.4



1 EDA-1 **EXISTING DRAINAGE AREA MAP**

SCALE : 1" = 100'-0"

100 0 50 100 200

(IN FEET) 1 inch = 100 ft.

TRITEC AMERICAS
888 PROSPECT STREET
LA JOLLA, CA 92037
OFFICE: (619) 363-3080

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHAUL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

PERMIT SET

NO	DATE	REVISION
0	11/05/21	IFP
1		
2		
3		
4		
5		
6		

DESIGN PROFESSIONAL OF RECORD

PROF: KEVIN A. MCCAFFERY, PE
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHAUL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: ANTONIO & MARY AMARAL

ADDRESS: 254 POMFRET ROAD POMFRET CENTER, CT 06259

AMARAL SOLAR

SITE ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

APT FILING NUMBER: CT657100

DRAWN BY: MT

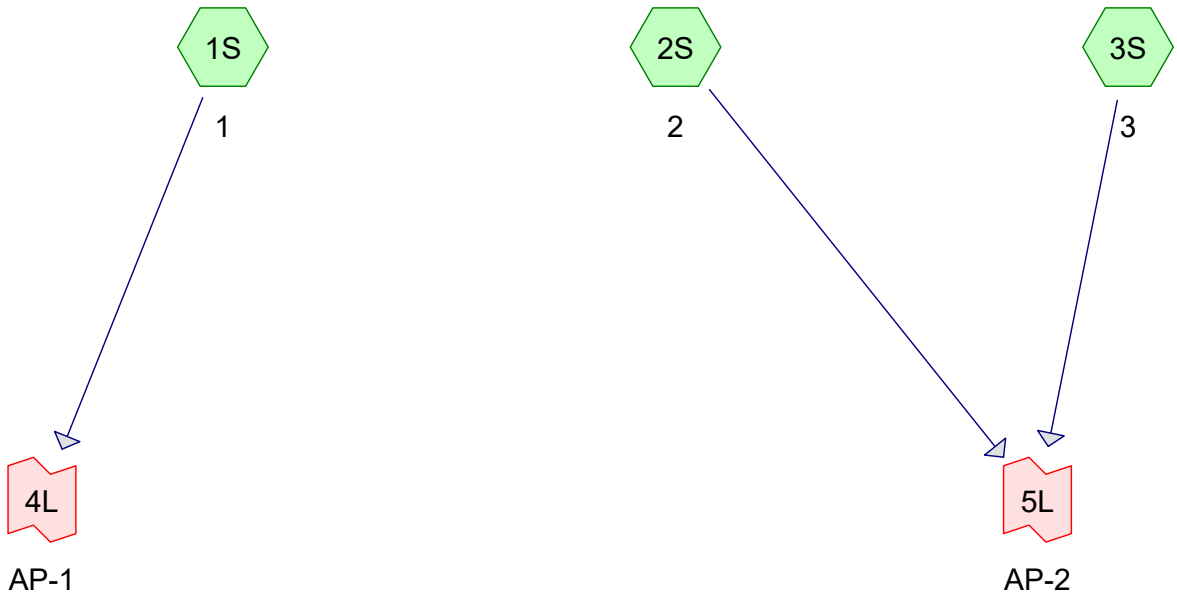
DATE: 11/05/21 CHECKED BY: KAM

SHEET TITLE:

EXISTING DRAINAGE AREA MAP

SHEET NUMBER:

EDA-1



Subcat Reach Pond Link

Routing Diagram for CT657100-AMARAL-EX
Prepared by All Points Technology Corp., Printed 11/4/2021

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
52,629	61	Pasture/grassland/range, Good, HSG B (1S)
142,065	74	Pasture/grassland/range, Good, HSG C (2S, 3S)
1,010,198	80	Pasture/grassland/range, Good, HSG D (1S, 2S, 3S)
11,538	70	Woods, Good, HSG C (3S)
17,675	77	Woods, Good, HSG D (3S)
1,234,105	**78**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
52,629	HSG B	1S
153,603	HSG C	2S, 3S
1,027,873	HSG D	1S, 2S, 3S
0	Other	
1,234,105		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover
0	52,629	142,065	1,010,198	0	1,204,892	Pasture/grassland /range, Good
0	0	11,538	17,675	0	29,213	Woods, Good
0	**52,629**	**153,603**	**1,027,873**	**0**	**1,234,105**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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: 1 Runoff Area=322,100 sf 0.00% Impervious Runoff Depth=1.36"
Flow Length=780' Slope=0.0800 '/' Tc=8.9 min CN=77 Runoff=10.22 cfs 36,415 cf

Subcatchment 2S: 2 Runoff Area=411,671 sf 0.00% Impervious Runoff Depth=1.56"
Flow Length=1,110' Slope=0.0550 '/' Tc=14.0 min CN=80 Runoff=13.20 cfs 53,428 cf

Subcatchment 3S: 3 Runoff Area=500,334 sf 0.00% Impervious Runoff Depth=1.42"
Flow Length=1,035' Slope=0.0670 '/' Tc=12.1 min CN=78 Runoff=15.30 cfs 59,281 cf

Link 4L: AP-1 Inflow=10.22 cfs 36,415 cf
Primary=10.22 cfs 36,415 cf

Link 5L: AP-2 Inflow=28.27 cfs 112,710 cf
Primary=28.27 cfs 112,710 cf

Total Runoff Area = 1,234,105 sf Runoff Volume = 149,125 cf Average Runoff Depth = 1.45"
100.00% Pervious = 1,234,105 sf 0.00% Impervious = 0 sf

Summary for Subcatchment 1S: 1

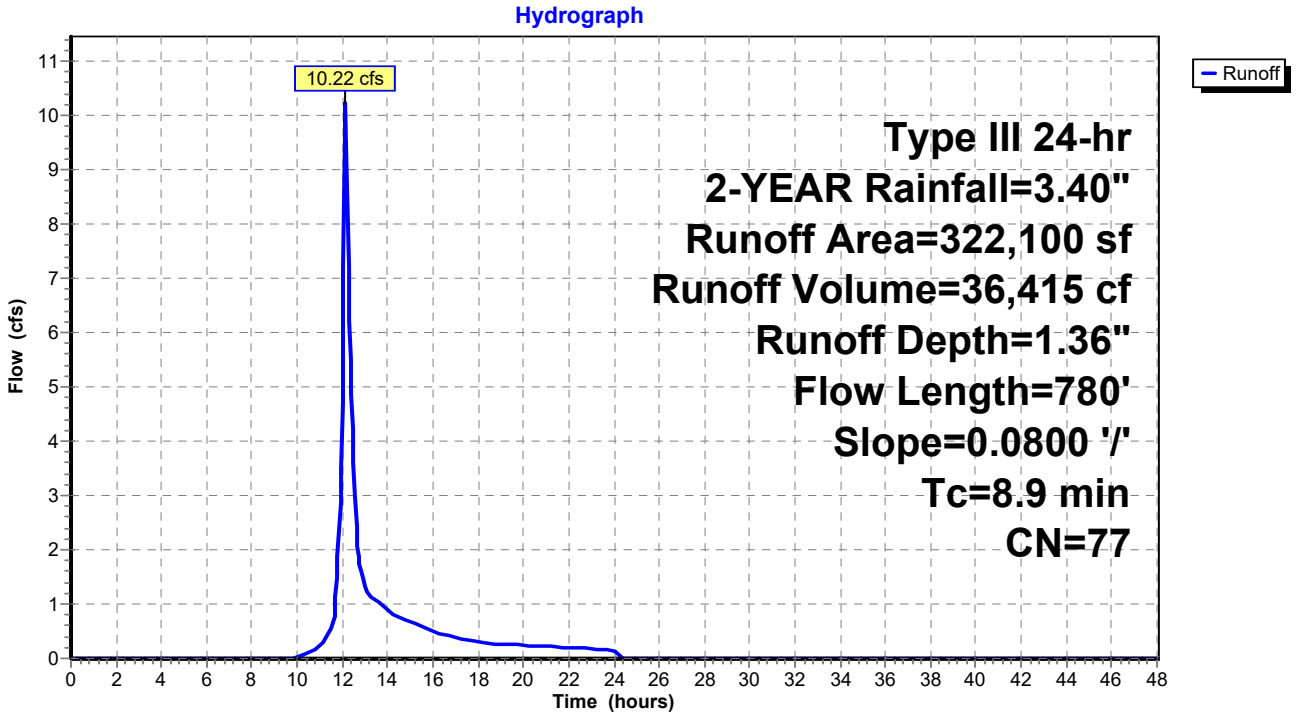
Runoff = 10.22 cfs @ 12.14 hrs, Volume= 36,415 cf, Depth= 1.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.40"

Area (sf)	CN	Description
269,471	80	Pasture/grassland/range, Good, HSG D
52,629	61	Pasture/grassland/range, Good, HSG B
322,100	77	Weighted Average
322,100		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	50	0.0800	0.30		**Sheet Flow,** Range n= 0.130 P2= 3.40"
6.1	730	0.0800	1.98		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.9	780	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2S: 2

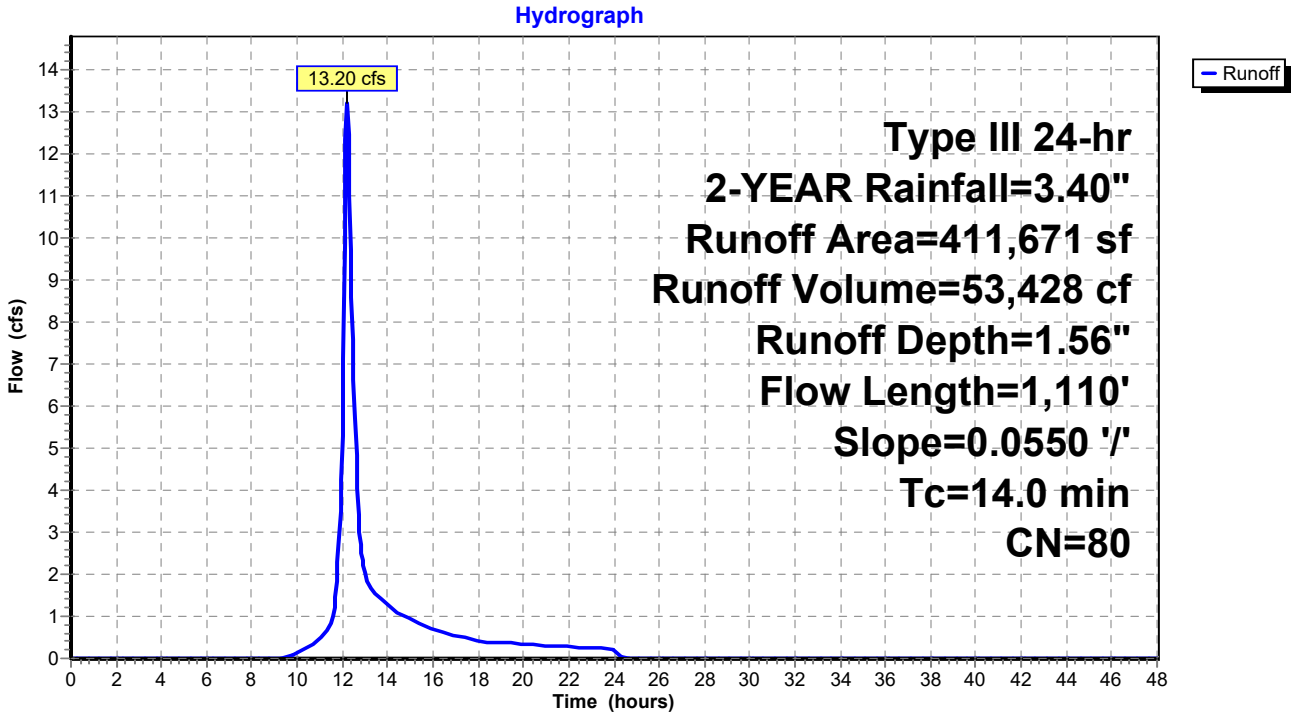
Runoff = 13.20 cfs @ 12.20 hrs, Volume= 53,428 cf, Depth= 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.40"

Area (sf)	CN	Description
394,902	80	Pasture/grassland/range, Good, HSG D
16,769	74	Pasture/grassland/range, Good, HSG C
411,671	80	Weighted Average
411,671		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.0550	0.26		**Sheet Flow,** Range n= 0.130 P2= 3.40"
10.8	1,060	0.0550	1.64		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.0	1,110	Total			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 3

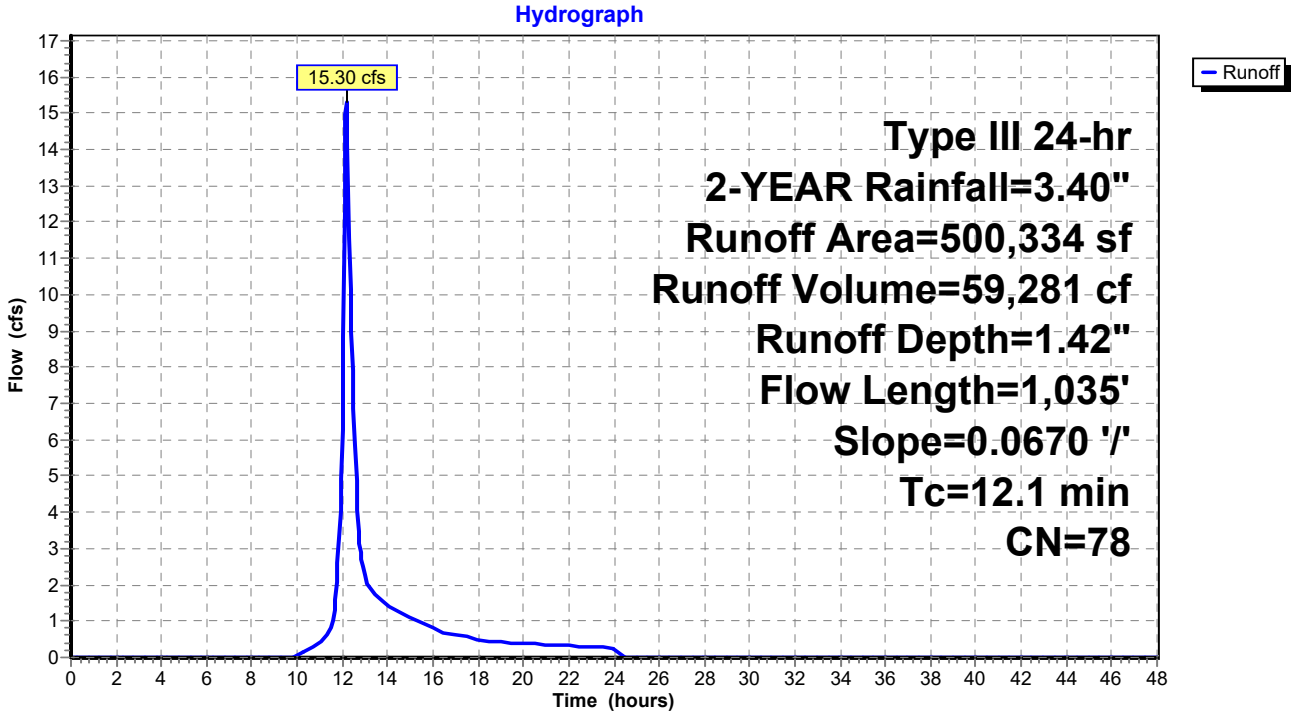
Runoff = 15.30 cfs @ 12.17 hrs, Volume= 59,281 cf, Depth= 1.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.40"

Area (sf)	CN	Description
345,825	80	Pasture/grassland/range, Good, HSG D
125,296	74	Pasture/grassland/range, Good, HSG C
17,675	77	Woods, Good, HSG D
11,538	70	Woods, Good, HSG C
500,334	78	Weighted Average
500,334		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	50	0.0670	0.28		**Sheet Flow,** Range n= 0.130 P2= 3.40"
9.1	985	0.0670	1.81		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.1	1,035	Total			

Subcatchment 3S: 3

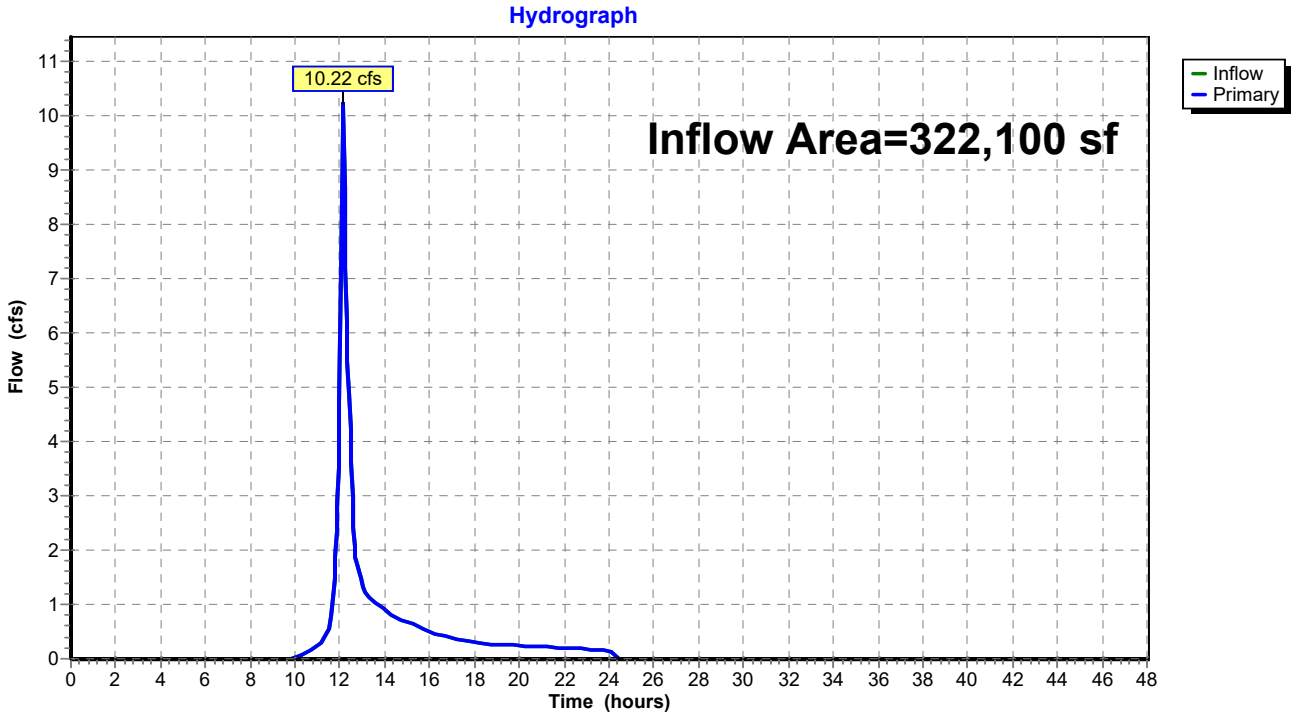


Summary for Link 4L: AP-1

Inflow Area = 322,100 sf, 0.00% Impervious, Inflow Depth = 1.36" for 2-YEAR event
Inflow = 10.22 cfs @ 12.14 hrs, Volume= 36,415 cf
Primary = 10.22 cfs @ 12.14 hrs, Volume= 36,415 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 4L: AP-1

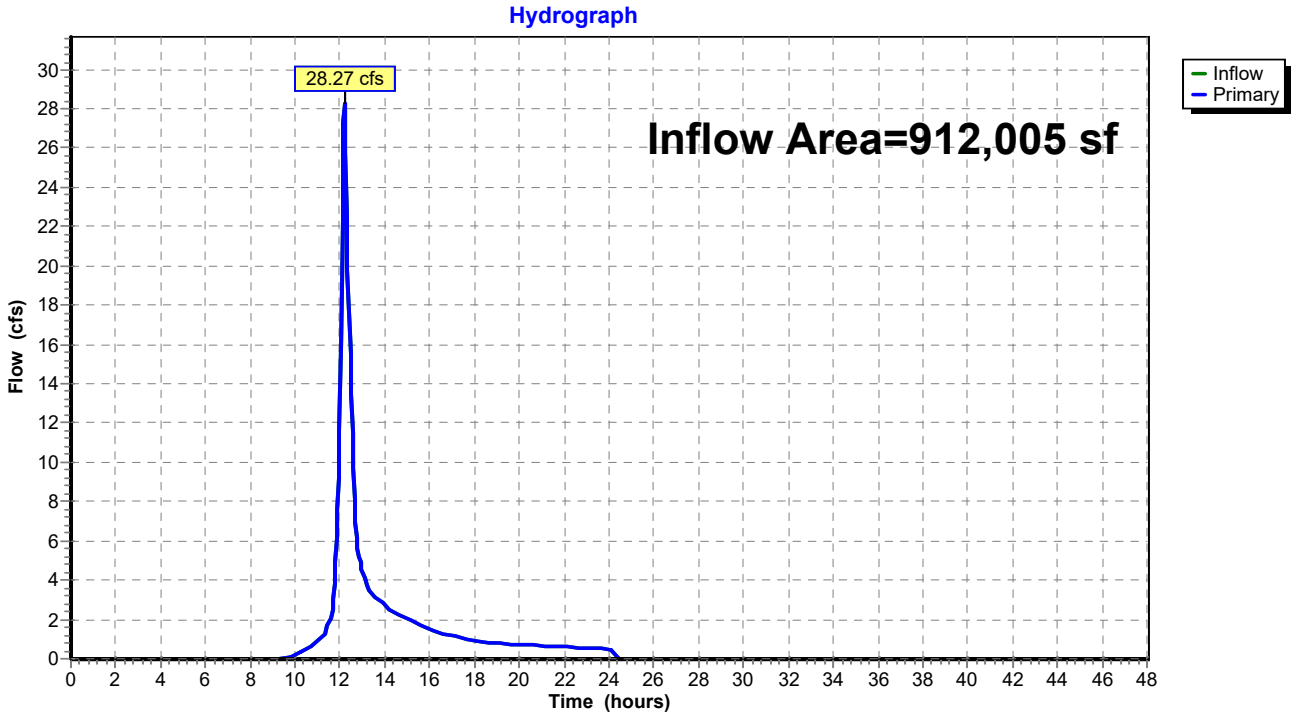


Summary for Link 5L: AP-2

Inflow Area = 912,005 sf, 0.00% Impervious, Inflow Depth = 1.48" for 2-YEAR event
Inflow = 28.27 cfs @ 12.19 hrs, Volume= 112,710 cf
Primary = 28.27 cfs @ 12.19 hrs, Volume= 112,710 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 5L: AP-2



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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: 1 Runoff Area=322,100 sf 0.00% Impervious Runoff Depth=3.65"
Flow Length=780' Slope=0.0800 '/' Tc=8.9 min CN=77 Runoff=28.08 cfs 98,088 cf

Subcatchment 2S: 2 Runoff Area=411,671 sf 0.00% Impervious Runoff Depth=3.96"
Flow Length=1,110' Slope=0.0550 '/' Tc=14.0 min CN=80 Runoff=33.76 cfs 135,927 cf

Subcatchment 3S: 3 Runoff Area=500,334 sf 0.00% Impervious Runoff Depth=3.76"
Flow Length=1,035' Slope=0.0670 '/' Tc=12.1 min CN=78 Runoff=41.15 cfs 156,610 cf

Link 4L: AP-1 Inflow=28.08 cfs 98,088 cf
Primary=28.08 cfs 98,088 cf

Link 5L: AP-2 Inflow=74.23 cfs 292,537 cf
Primary=74.23 cfs 292,537 cf

Total Runoff Area = 1,234,105 sf Runoff Volume = 390,624 cf Average Runoff Depth = 3.80"
100.00% Pervious = 1,234,105 sf 0.00% Impervious = 0 sf

Summary for Subcatchment 1S: 1

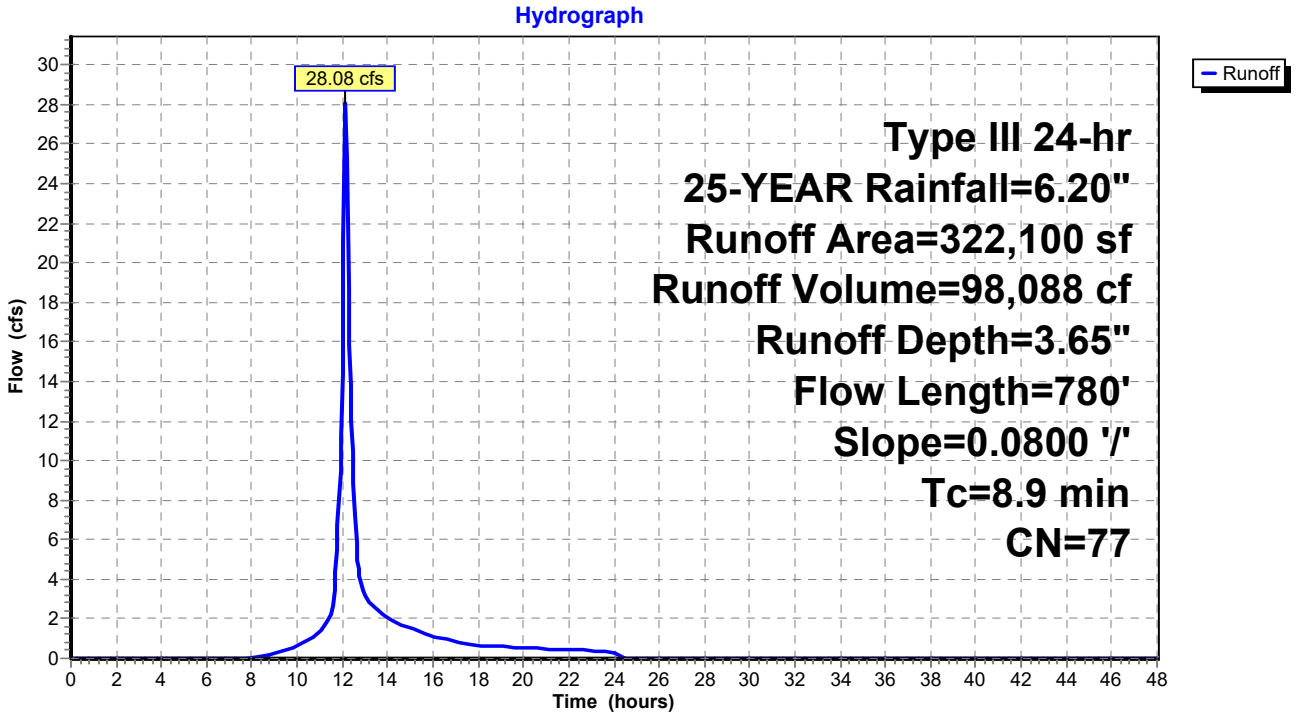
Runoff = 28.08 cfs @ 12.13 hrs, Volume= 98,088 cf, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=6.20"

Area (sf)	CN	Description
269,471	80	Pasture/grassland/range, Good, HSG D
52,629	61	Pasture/grassland/range, Good, HSG B
322,100	77	Weighted Average
322,100		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	50	0.0800	0.30		**Sheet Flow,** Range n= 0.130 P2= 3.40"
6.1	730	0.0800	1.98		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.9	780	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2S: 2

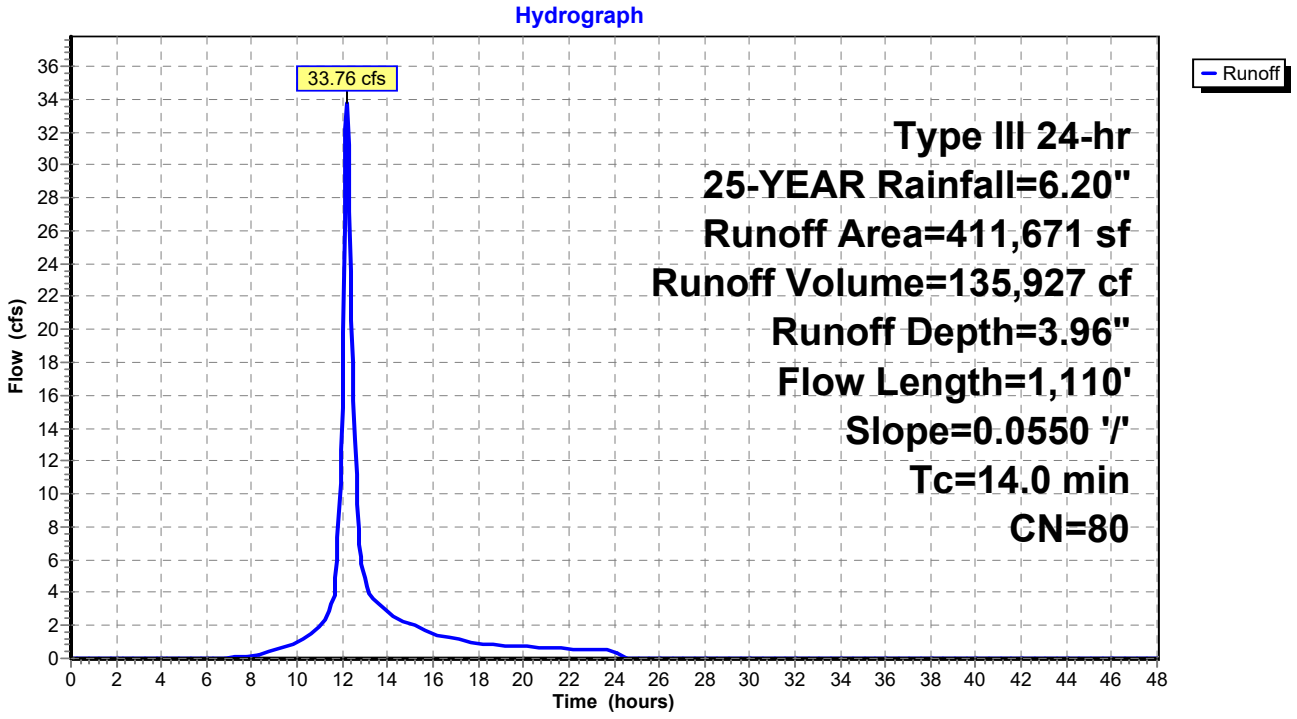
Runoff = 33.76 cfs @ 12.19 hrs, Volume= 135,927 cf, Depth= 3.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=6.20"

Area (sf)	CN	Description
394,902	80	Pasture/grassland/range, Good, HSG D
16,769	74	Pasture/grassland/range, Good, HSG C
411,671	80	Weighted Average
411,671		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.0550	0.26		**Sheet Flow,** Range n= 0.130 P2= 3.40"
10.8	1,060	0.0550	1.64		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.0	1,110	Total			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 3

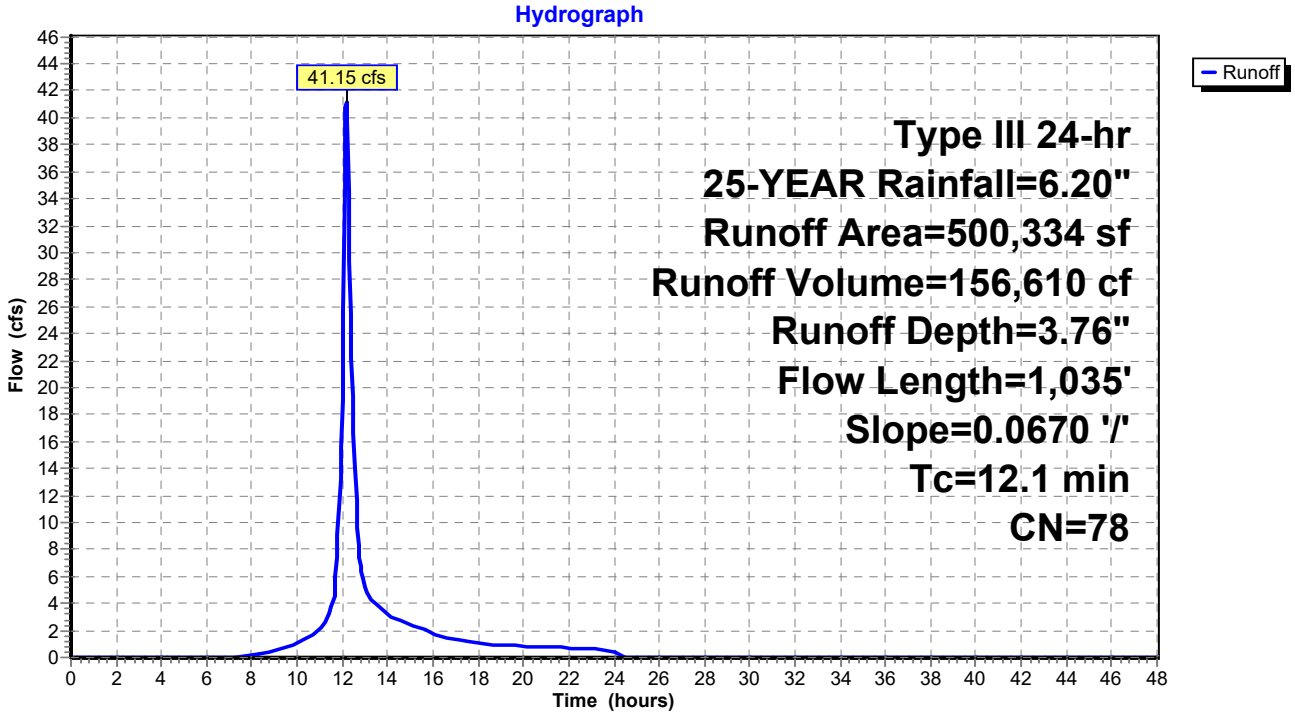
Runoff = 41.15 cfs @ 12.17 hrs, Volume= 156,610 cf, Depth= 3.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=6.20"

Area (sf)	CN	Description
345,825	80	Pasture/grassland/range, Good, HSG D
125,296	74	Pasture/grassland/range, Good, HSG C
17,675	77	Woods, Good, HSG D
11,538	70	Woods, Good, HSG C
500,334	78	Weighted Average
500,334		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	50	0.0670	0.28		**Sheet Flow,** Range n= 0.130 P2= 3.40"
9.1	985	0.0670	1.81		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.1	1,035	Total			

Subcatchment 3S: 3

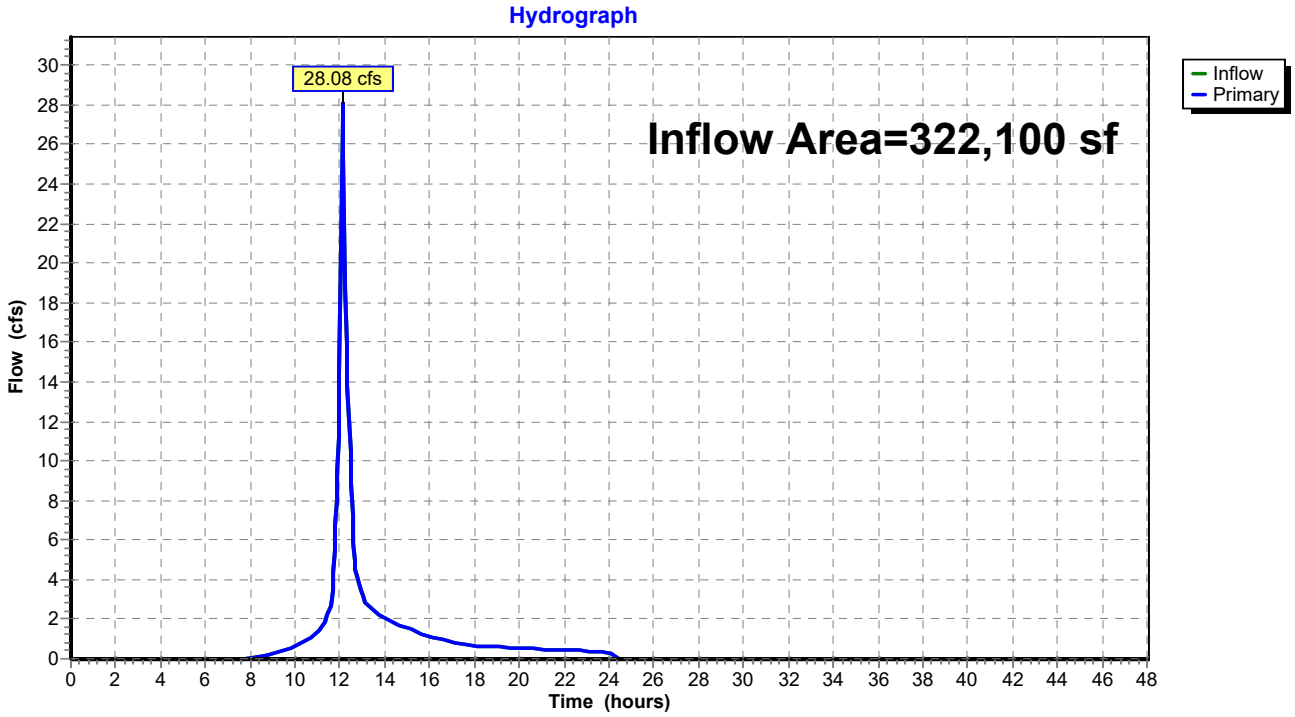


Summary for Link 4L: AP-1

Inflow Area = 322,100 sf, 0.00% Impervious, Inflow Depth = 3.65" for 25-YEAR event
Inflow = 28.08 cfs @ 12.13 hrs, Volume= 98,088 cf
Primary = 28.08 cfs @ 12.13 hrs, Volume= 98,088 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 4L: AP-1

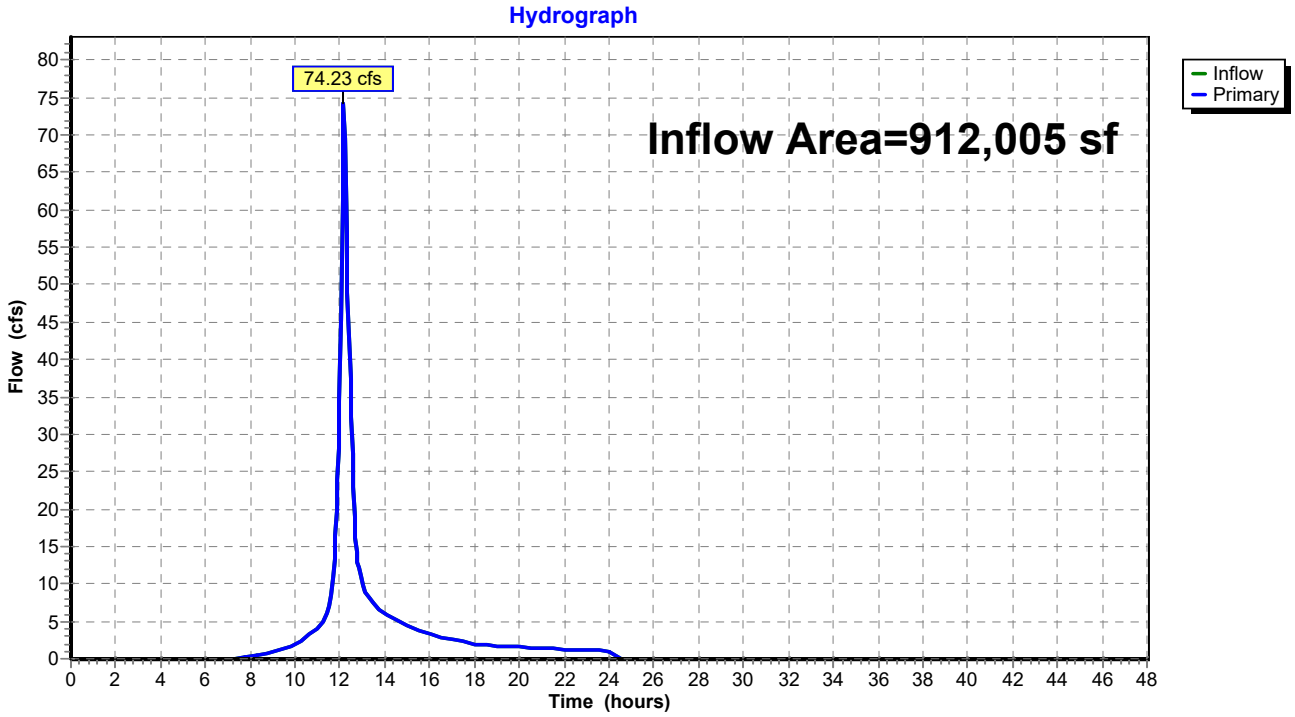


Summary for Link 5L: AP-2

Inflow Area = 912,005 sf, 0.00% Impervious, Inflow Depth = 3.85" for 25-YEAR event
Inflow = 74.23 cfs @ 12.18 hrs, Volume= 292,537 cf
Primary = 74.23 cfs @ 12.18 hrs, Volume= 292,537 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 5L: AP-2



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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: 1 Runoff Area=322,100 sf 0.00% Impervious Runoff Depth=4.37"
Flow Length=780' Slope=0.0800 '/' Tc=8.9 min CN=77 Runoff=33.46 cfs 117,186 cf

Subcatchment 2S: 2 Runoff Area=411,671 sf 0.00% Impervious Runoff Depth=4.69"
Flow Length=1,110' Slope=0.0550 '/' Tc=14.0 min CN=80 Runoff=39.84 cfs 161,047 cf

Subcatchment 3S: 3 Runoff Area=500,334 sf 0.00% Impervious Runoff Depth=4.47"
Flow Length=1,035' Slope=0.0670 '/' Tc=12.1 min CN=78 Runoff=48.89 cfs 186,575 cf

Link 4L: AP-1 Inflow=33.46 cfs 117,186 cf
Primary=33.46 cfs 117,186 cf

Link 5L: AP-2 Inflow=87.92 cfs 347,623 cf
Primary=87.92 cfs 347,623 cf

Total Runoff Area = 1,234,105 sf Runoff Volume = 464,808 cf Average Runoff Depth = 4.52"
100.00% Pervious = 1,234,105 sf 0.00% Impervious = 0 sf

Summary for Subcatchment 1S: 1

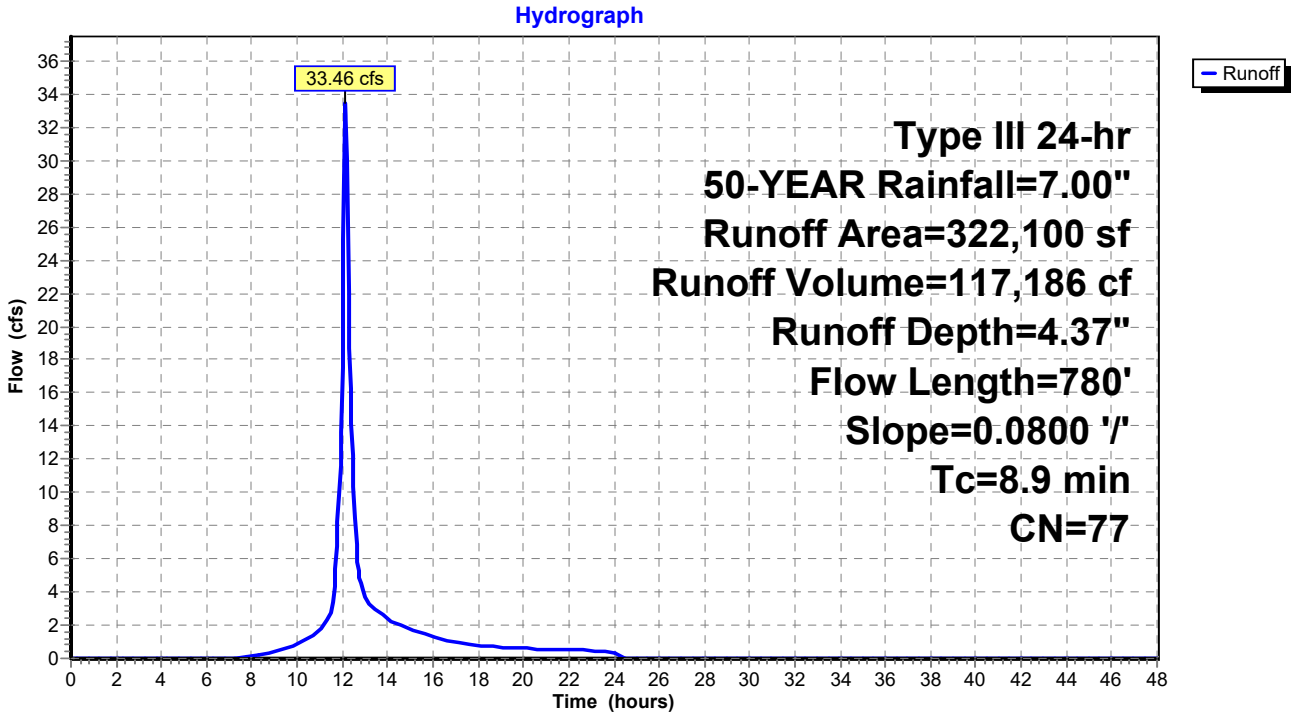
Runoff = 33.46 cfs @ 12.13 hrs, Volume= 117,186 cf, Depth= 4.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YEAR Rainfall=7.00"

Area (sf)	CN	Description
269,471	80	Pasture/grassland/range, Good, HSG D
52,629	61	Pasture/grassland/range, Good, HSG B
322,100	77	Weighted Average
322,100		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	50	0.0800	0.30		**Sheet Flow,** Range n= 0.130 P2= 3.40"
6.1	730	0.0800	1.98		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.9	780	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2S: 2

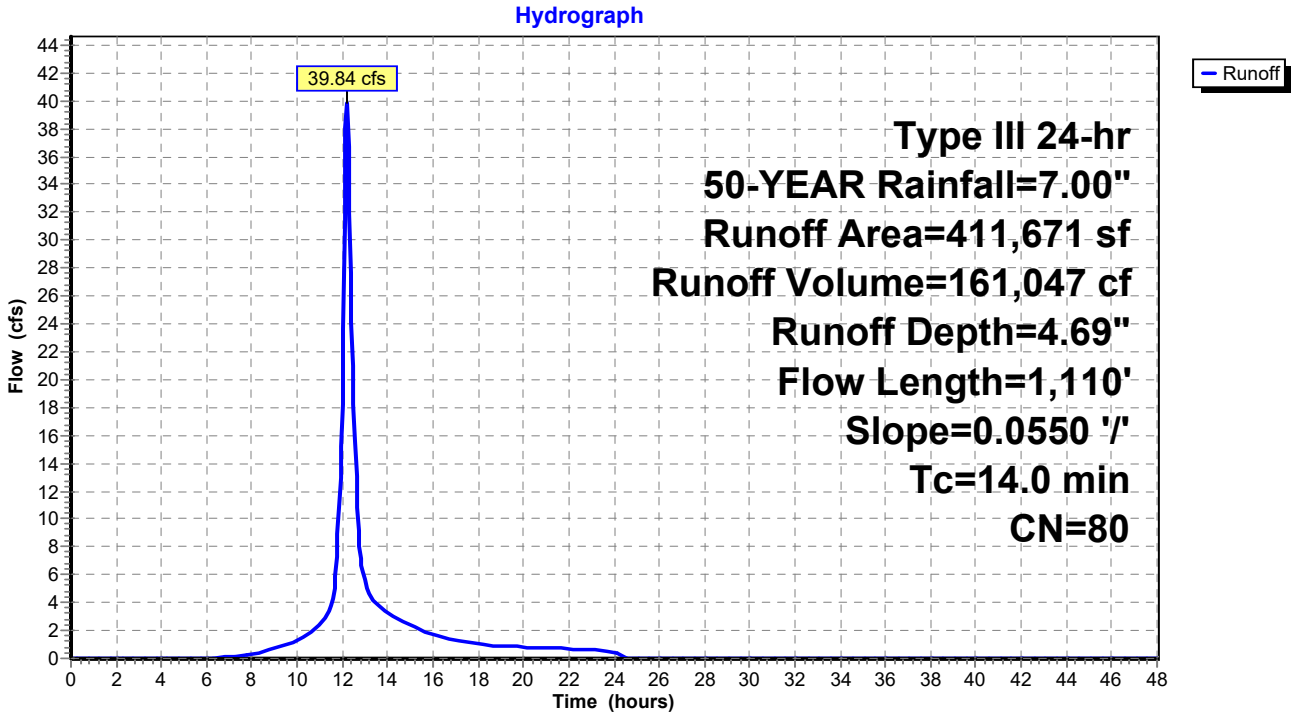
Runoff = 39.84 cfs @ 12.19 hrs, Volume= 161,047 cf, Depth= 4.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YEAR Rainfall=7.00"

Area (sf)	CN	Description
394,902	80	Pasture/grassland/range, Good, HSG D
16,769	74	Pasture/grassland/range, Good, HSG C
411,671	80	Weighted Average
411,671		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.0550	0.26		**Sheet Flow,** Range n= 0.130 P2= 3.40"
10.8	1,060	0.0550	1.64		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.0	1,110	Total			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 3

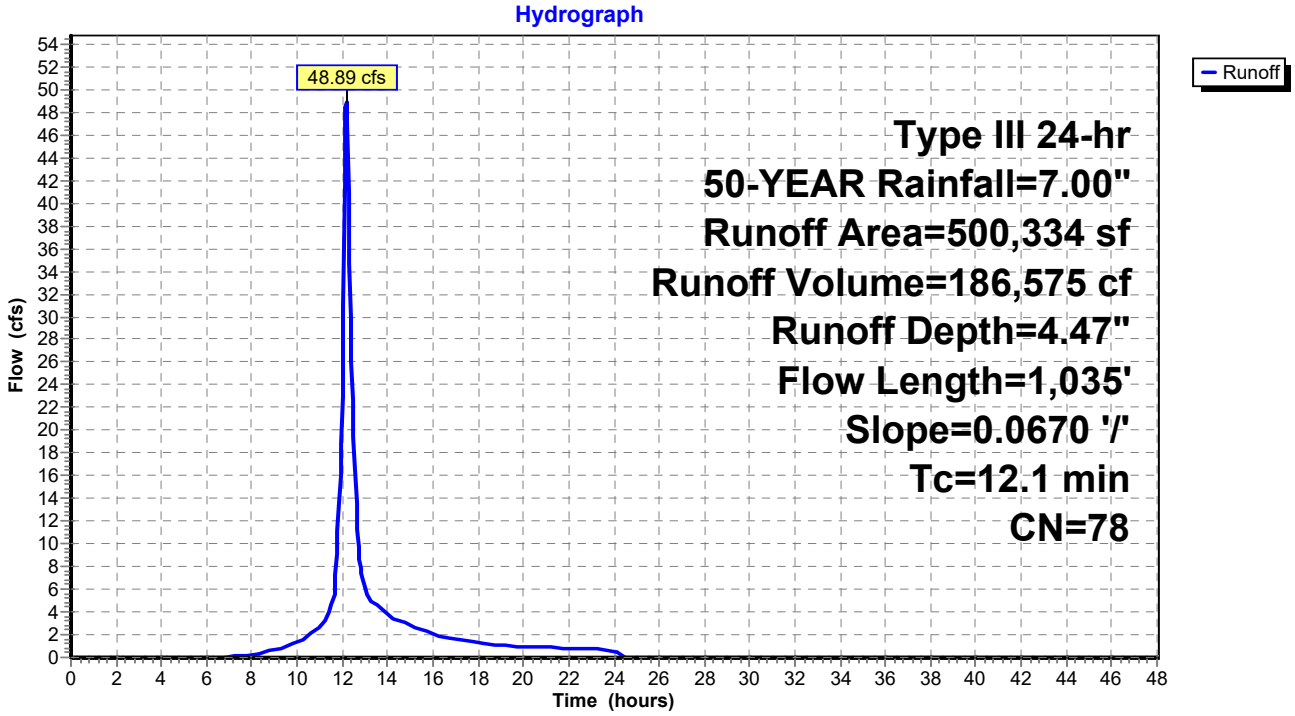
Runoff = 48.89 cfs @ 12.17 hrs, Volume= 186,575 cf, Depth= 4.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YEAR Rainfall=7.00"

Area (sf)	CN	Description
345,825	80	Pasture/grassland/range, Good, HSG D
125,296	74	Pasture/grassland/range, Good, HSG C
17,675	77	Woods, Good, HSG D
11,538	70	Woods, Good, HSG C
500,334	78	Weighted Average
500,334		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	50	0.0670	0.28		**Sheet Flow,** Range n= 0.130 P2= 3.40"
9.1	985	0.0670	1.81		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.1	1,035	Total			

Subcatchment 3S: 3

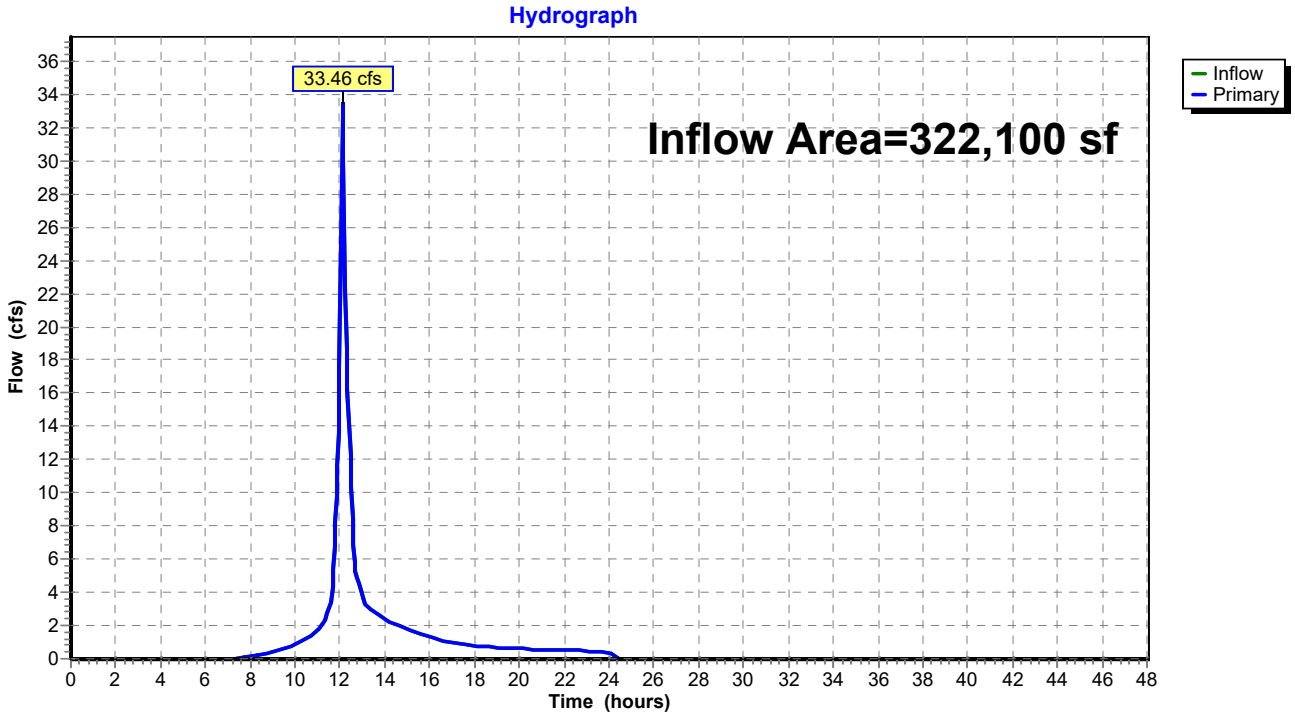


Summary for Link 4L: AP-1

Inflow Area = 322,100 sf, 0.00% Impervious, Inflow Depth = 4.37" for 50-YEAR event
Inflow = 33.46 cfs @ 12.13 hrs, Volume= 117,186 cf
Primary = 33.46 cfs @ 12.13 hrs, Volume= 117,186 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 4L: AP-1

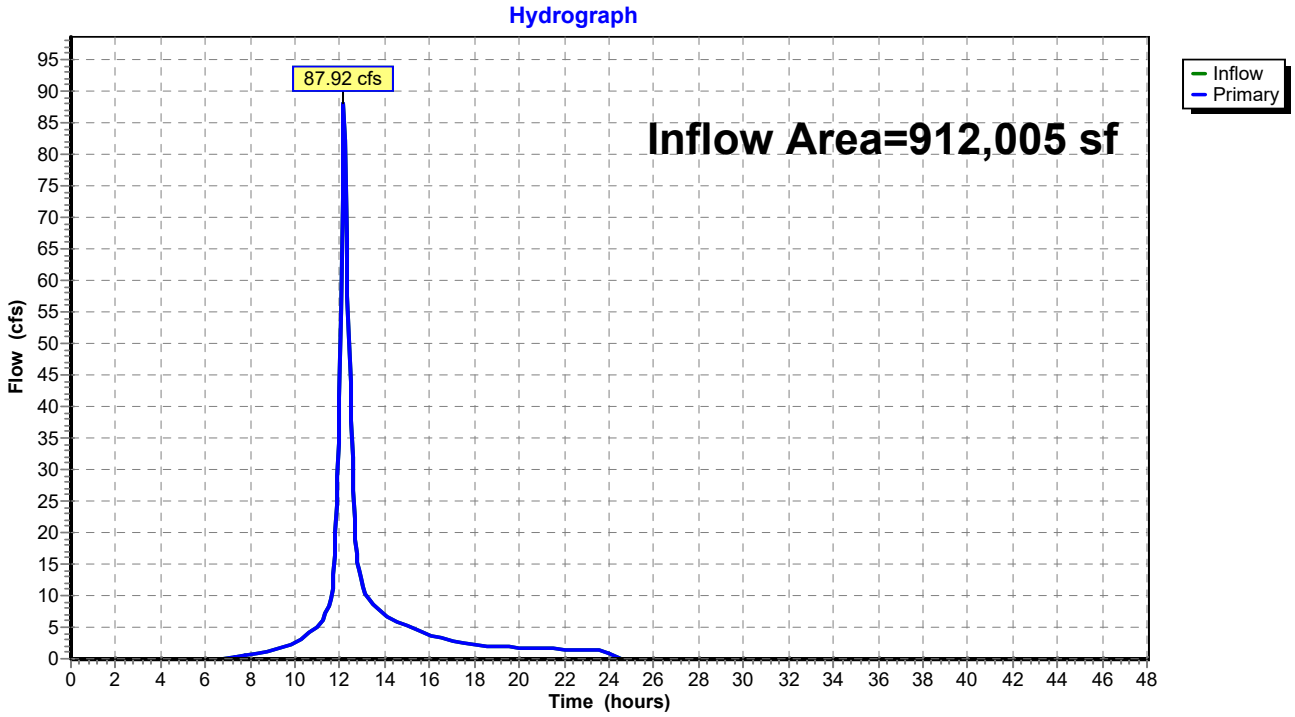


Summary for Link 5L: AP-2

Inflow Area = 912,005 sf, 0.00% Impervious, Inflow Depth = 4.57" for 50-YEAR event
Inflow = 87.92 cfs @ 12.18 hrs, Volume= 347,623 cf
Primary = 87.92 cfs @ 12.18 hrs, Volume= 347,623 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 5L: AP-2



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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: 1 Runoff Area=322,100 sf 0.00% Impervious Runoff Depth=5.18"
Flow Length=780' Slope=0.0800 '/' Tc=8.9 min CN=77 Runoff=39.57 cfs 139,112 cf

Subcatchment 2S: 2 Runoff Area=411,671 sf 0.00% Impervious Runoff Depth=5.53"
Flow Length=1,110' Slope=0.0550 '/' Tc=14.0 min CN=80 Runoff=46.70 cfs 189,757 cf

Subcatchment 3S: 3 Runoff Area=500,334 sf 0.00% Impervious Runoff Depth=5.30"
Flow Length=1,035' Slope=0.0670 '/' Tc=12.1 min CN=78 Runoff=57.67 cfs 220,925 cf

Link 4L: AP-1 Inflow=39.57 cfs 139,112 cf
Primary=39.57 cfs 139,112 cf

Link 5L: AP-2 Inflow=103.41 cfs 410,682 cf
Primary=103.41 cfs 410,682 cf

Total Runoff Area = 1,234,105 sf Runoff Volume = 549,794 cf Average Runoff Depth = 5.35"
100.00% Pervious = 1,234,105 sf 0.00% Impervious = 0 sf

Summary for Subcatchment 1S: 1

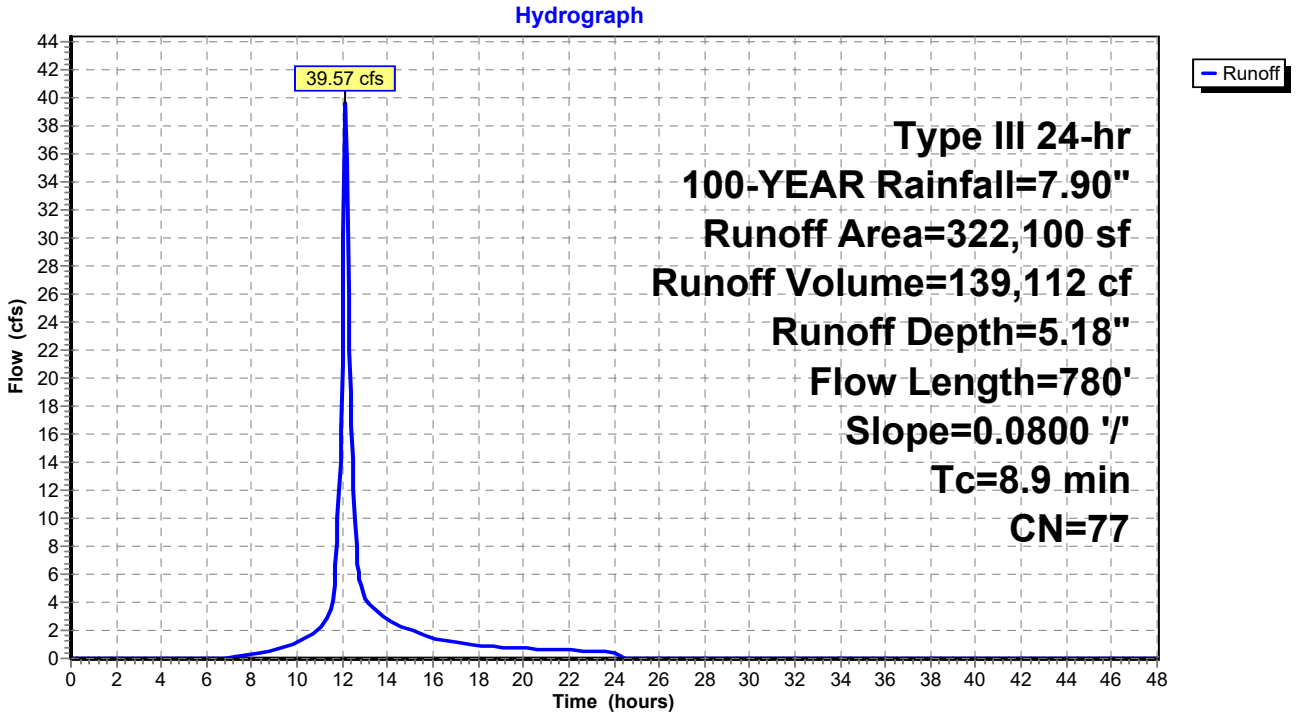
Runoff = 39.57 cfs @ 12.13 hrs, Volume= 139,112 cf, Depth= 5.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR Rainfall=7.90"

Area (sf)	CN	Description
269,471	80	Pasture/grassland/range, Good, HSG D
52,629	61	Pasture/grassland/range, Good, HSG B
322,100	77	Weighted Average
322,100		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	50	0.0800	0.30		**Sheet Flow,** Range n= 0.130 P2= 3.40"
6.1	730	0.0800	1.98		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.9	780	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2S: 2

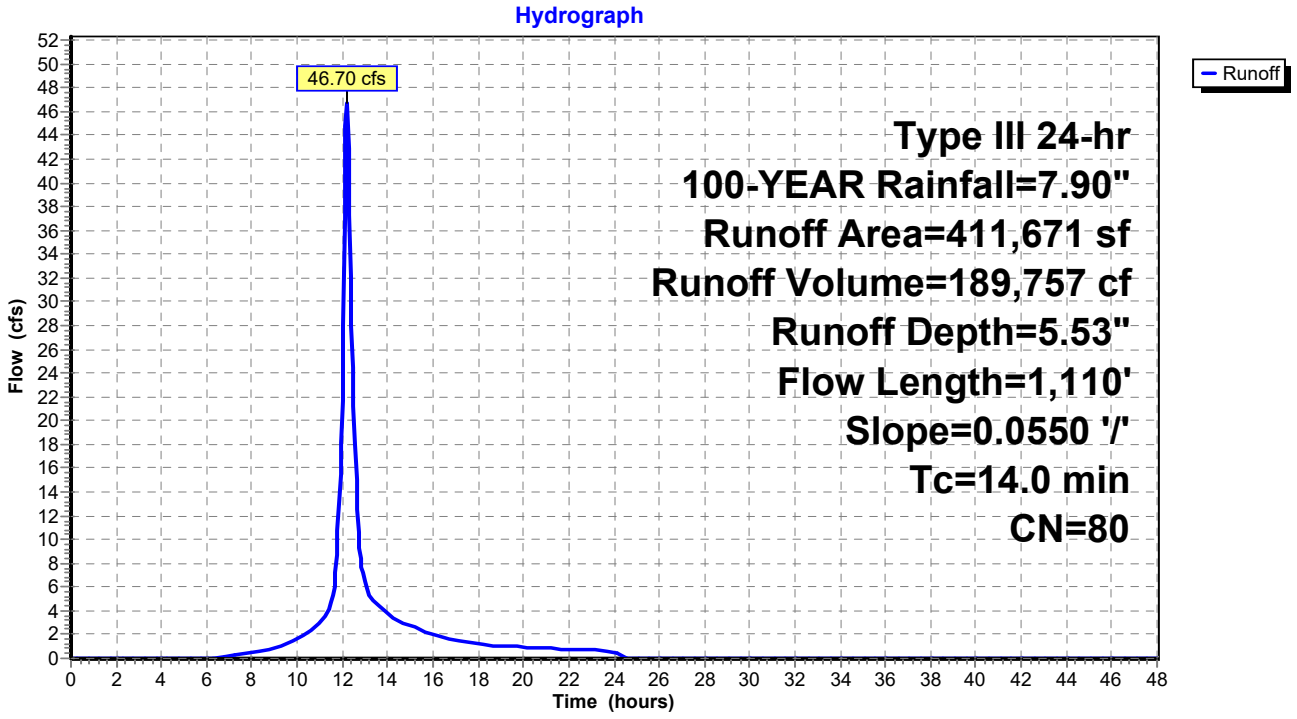
Runoff = 46.70 cfs @ 12.19 hrs, Volume= 189,757 cf, Depth= 5.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR Rainfall=7.90"

Area (sf)	CN	Description
394,902	80	Pasture/grassland/range, Good, HSG D
16,769	74	Pasture/grassland/range, Good, HSG C
411,671	80	Weighted Average
411,671		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.0550	0.26		**Sheet Flow,** Range n= 0.130 P2= 3.40"
10.8	1,060	0.0550	1.64		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.0	1,110	Total			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 3

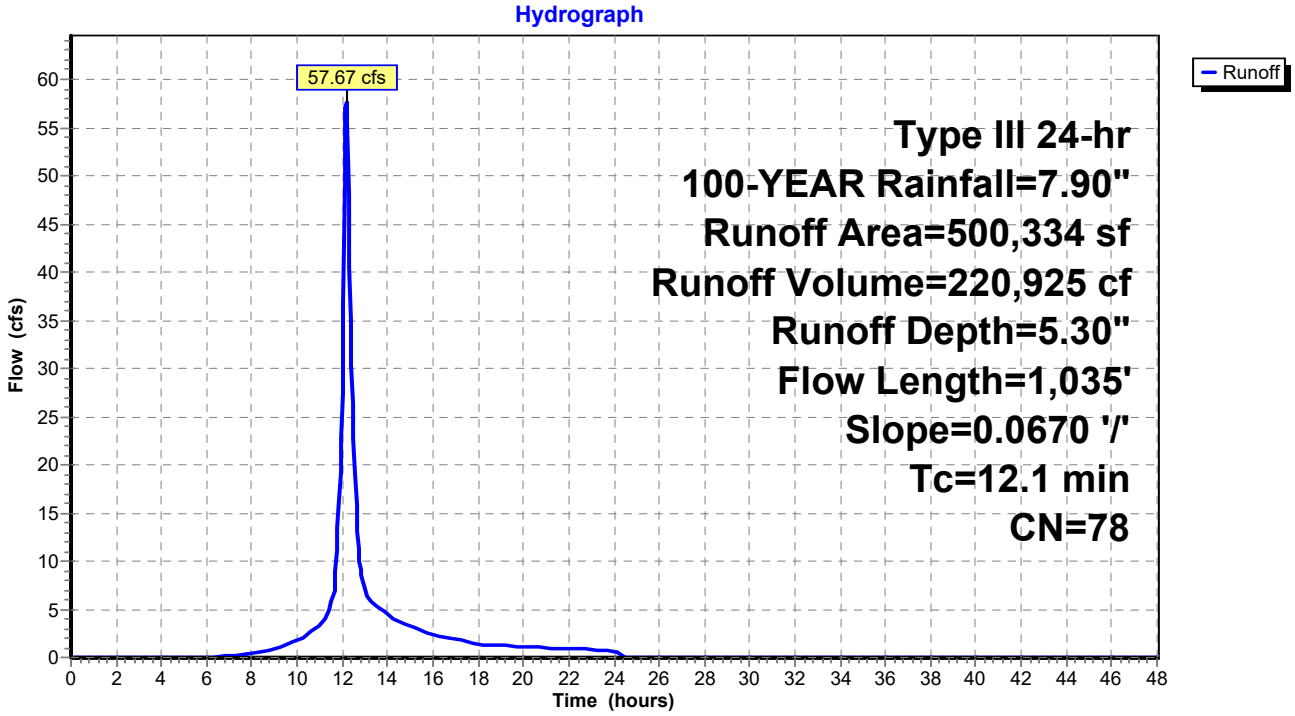
Runoff = 57.67 cfs @ 12.17 hrs, Volume= 220,925 cf, Depth= 5.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR Rainfall=7.90"

Area (sf)	CN	Description
345,825	80	Pasture/grassland/range, Good, HSG D
125,296	74	Pasture/grassland/range, Good, HSG C
17,675	77	Woods, Good, HSG D
11,538	70	Woods, Good, HSG C
500,334	78	Weighted Average
500,334		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	50	0.0670	0.28		**Sheet Flow,** Range n= 0.130 P2= 3.40"
9.1	985	0.0670	1.81		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.1	1,035	Total			

Subcatchment 3S: 3

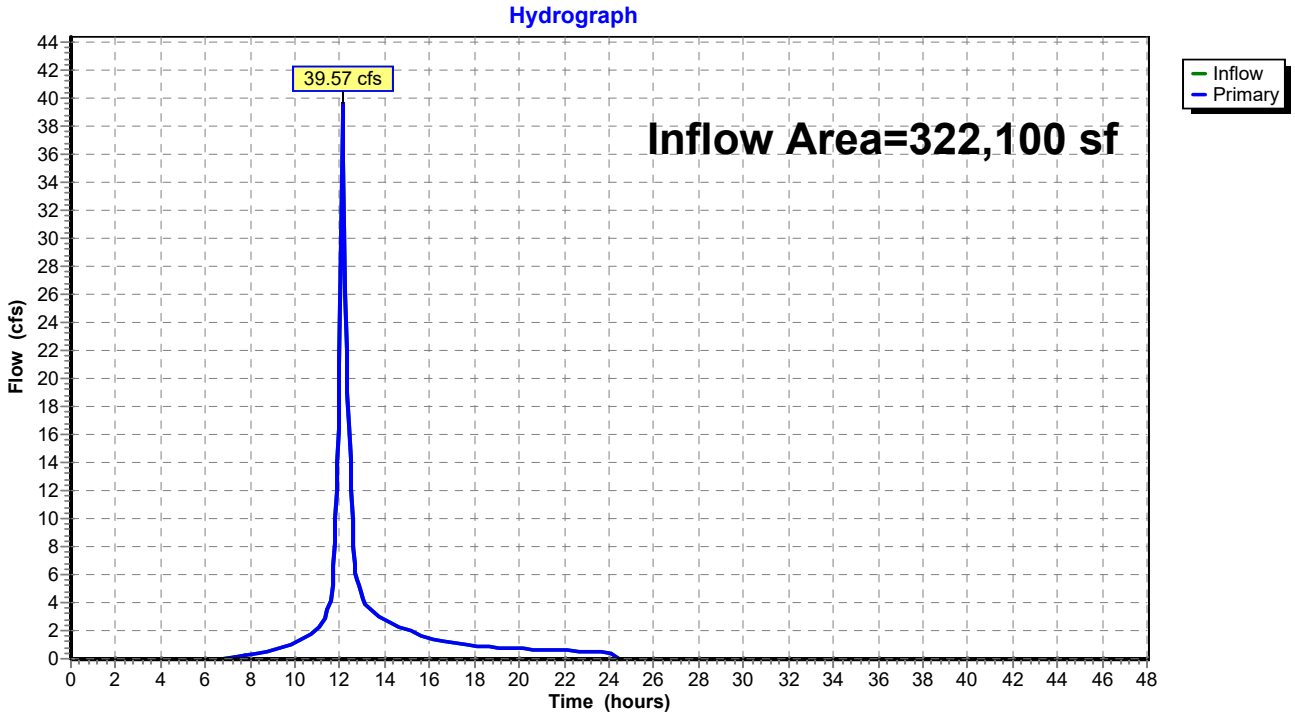


Summary for Link 4L: AP-1

Inflow Area = 322,100 sf, 0.00% Impervious, Inflow Depth = 5.18" for 100-YEAR event
Inflow = 39.57 cfs @ 12.13 hrs, Volume= 139,112 cf
Primary = 39.57 cfs @ 12.13 hrs, Volume= 139,112 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 4L: AP-1

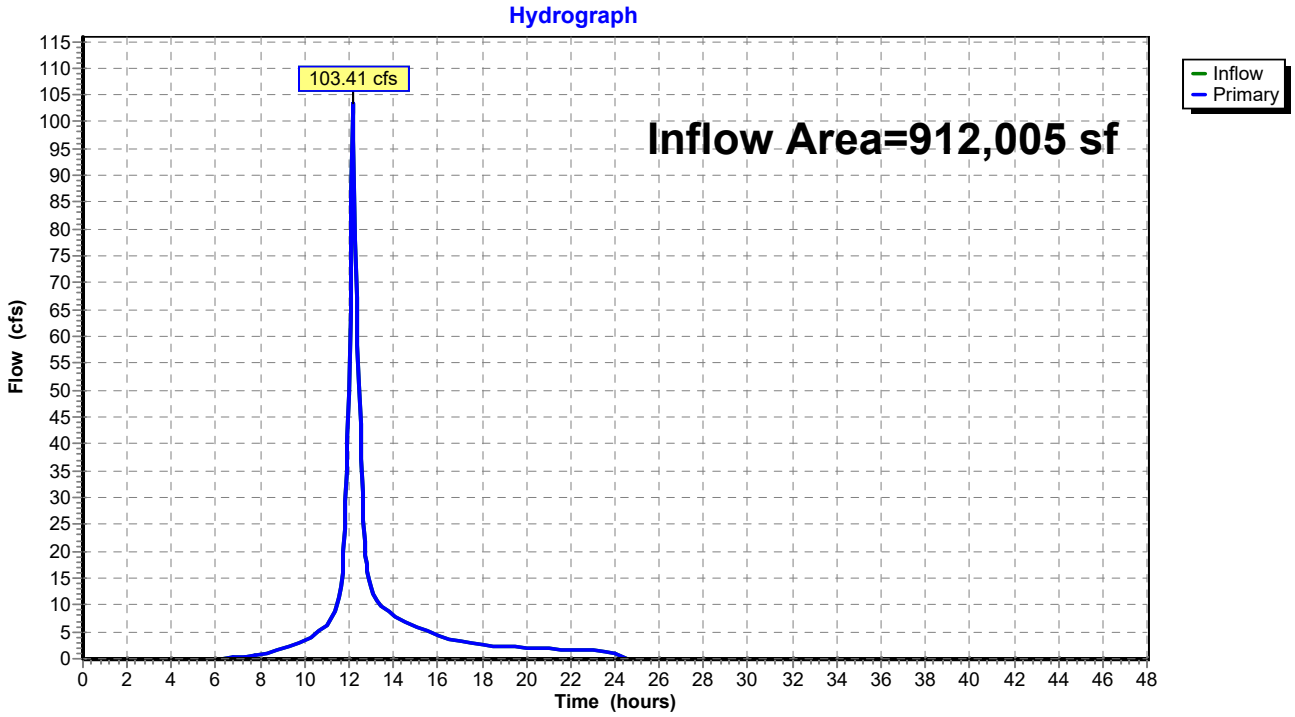


Summary for Link 5L: AP-2

Inflow Area = 912,005 sf, 0.00% Impervious, Inflow Depth = 5.40" for 100-YEAR event
Inflow = 103.41 cfs @ 12.18 hrs, Volume= 410,682 cf
Primary = 103.41 cfs @ 12.18 hrs, Volume= 410,682 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 5L: AP-2



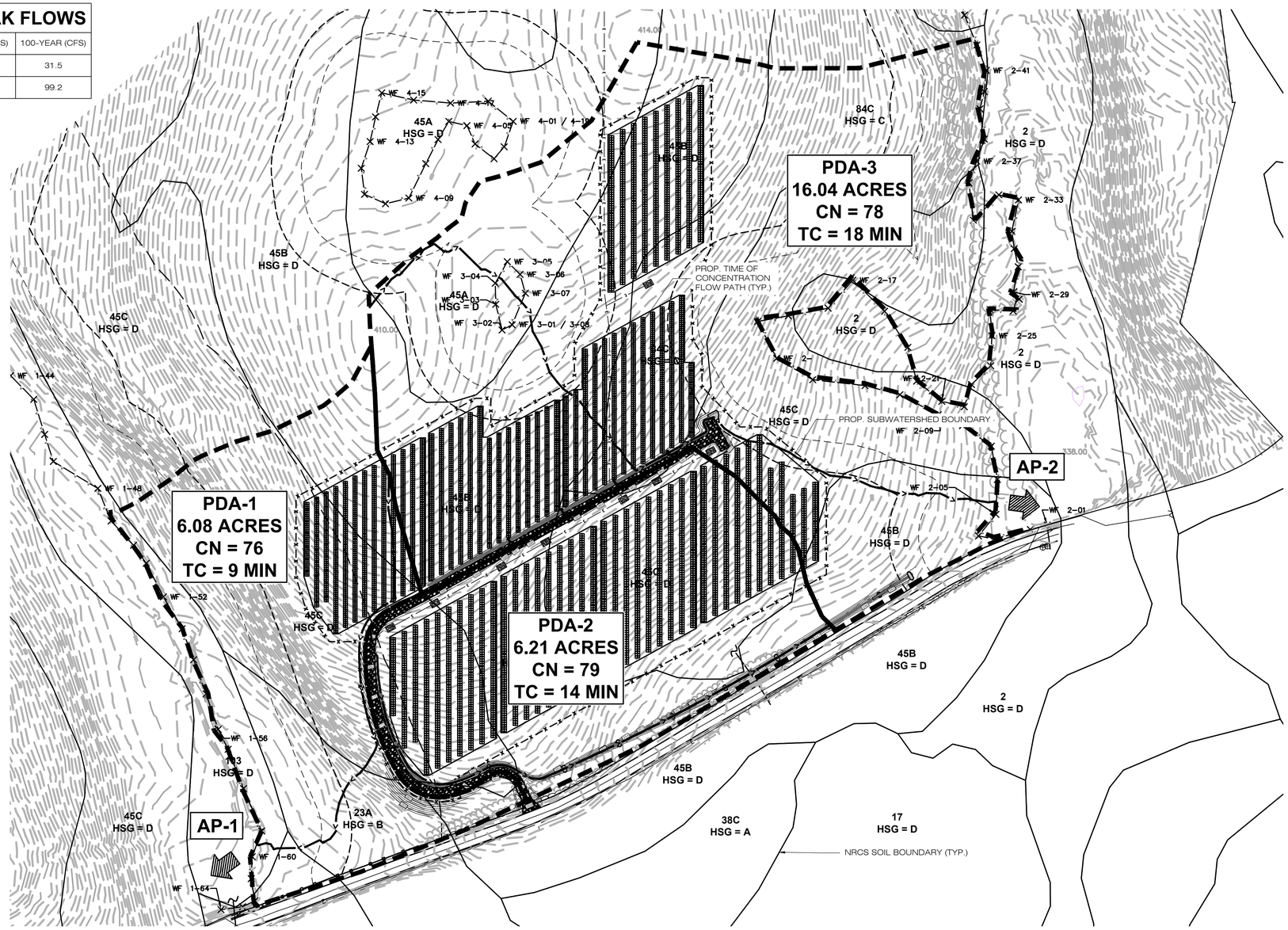
APPENDIX C: PROPOSED DRAINAGE AREA MAP (PDA-1) & HYDROLOGIC COMPUTATION (HYDROCAD)

PROPOSED DRAINAGE AREAS

	TOTAL AREA (ACRES)	COMPOSITE CN	TC (MINS.)
PDA-1	6.08	76	9
PDA-2	6.21	79	14
PDA-3	16.04	78	18

PROPOSED CONDITIONS PEAK FLOWS

ANALYSIS POINT	2-YEAR (CFS)	25-YEAR (CFS)	50-YEAR (CFS)	100-YEAR (CFS)
AP-1	7.9	22.2	26.6	31.5
AP-2	26.4	70.6	84.2	99.2



1 PDA-1 **PROPOSED DRAINAGE AREA MAP**

SCALE : 1" = 100'-0"

100 0 50 100 200

(IN FEET) 1 inch = 100 ft.

TRITEC AMERICAS
888 PROSPECT STREET
LA JOLLA, CA 92037
OFFICE: (619) 363-3080

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHAUL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

PERMIT SET

NO	DATE	REVISION
0	11/05/21	IFP
1		
2		
3		
4		
5		
6		

DESIGN PROFESSIONAL OF RECORD

PROF: KEVIN A. MCCAFFERY, PE
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHAUL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: ANTONIO & MARY AMARAL

ADDRESS: 254 POMFRET ROAD POMFRET CENTER, CT 06259

AMARAL SOLAR

SITE ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

APT FILING NUMBER: CT657100

DRAWN BY: MT

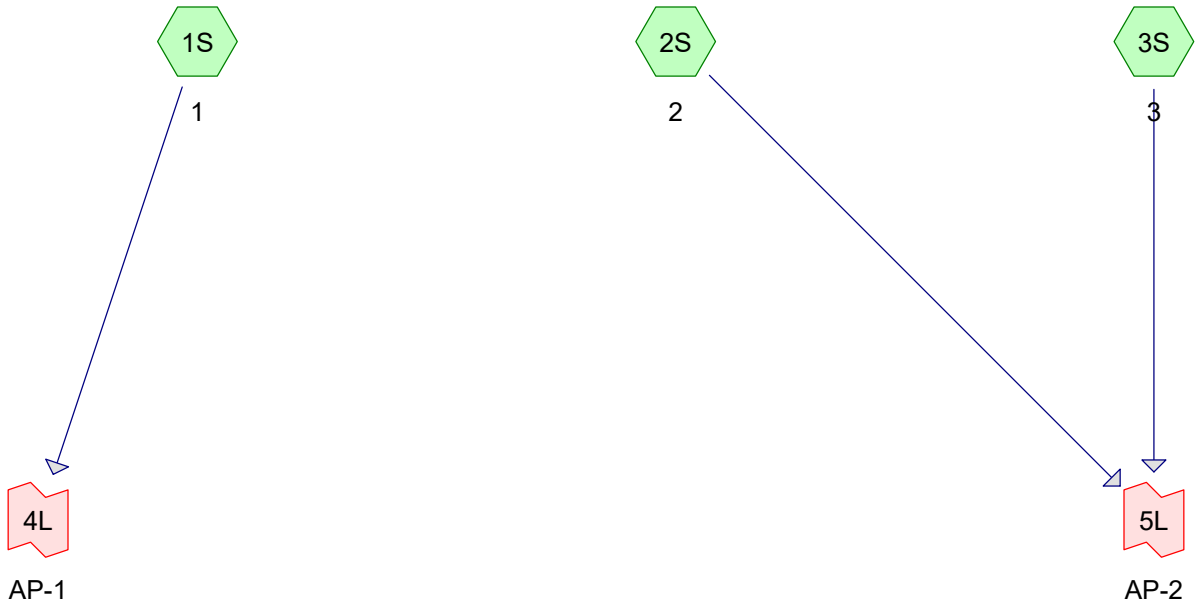
DATE: 11/05/21 CHECKED BY: KAM

SHEET TITLE:

PROPOSED DRAINAGE AREA MAP

SHEET NUMBER:

PDA-1



Subcat Reach Pond Link

Routing Diagram for CT657100-AMARAL-PR
Prepared by All Points Technology Corp., Printed 11/4/2021

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
19,278	96	Gravel surface, HSG D (1S, 2S, 3S)
53,296	75	Meadow, non-grazed, HSG C/D (2S, 3S)
411,022	78	Meadow, non-grazed, HSG D (1S, 2S, 3S)
52,629	61	Pasture/grassland/range, Good, HSG B (1S)
86,604	74	Pasture/grassland/range, Good, HSG C (3S)
580,863	80	Pasture/grassland/range, Good, HSG D (1S, 2S, 3S)
1,200	98	Unconnected pavement, HSG D (2S, 3S)
11,538	70	Woods, Good, HSG C (3S)
17,675	77	Woods, Good, HSG D (3S)
1,234,105	**78**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
52,629	HSG B	1S
151,438	HSG C	2S, 3S
1,030,038	HSG D	1S, 2S, 3S
0	Other	
1,234,105		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover
0	0	0	19,278	0	19,278	Gravel surface
0	0	53,296	411,022	0	464,318	Meadow, non-grazed
0	52,629	86,604	580,863	0	720,096	Pasture/grassland /range, Good
0	0	0	1,200	0	1,200	Unconnected pavement
0	0	11,538	17,675	0	29,213	Woods, Good
0	**52,629**	**151,438**	**1,030,038**	**0**	**1,234,105**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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: 1 Runoff Area=264,701 sf 0.00% Impervious Runoff Depth=1.29"
Flow Length=805' Slope=0.0770 '/' Tc=9.3 min CN=76 Runoff=7.88 cfs 28,527 cf

Subcatchment 2S: 2 Runoff Area=270,517 sf 0.33% Impervious Runoff Depth=1.49"
Flow Length=945' Slope=0.0400 '/' Tc=14.4 min CN=79 Runoff=8.18 cfs 33,560 cf

Subcatchment 3S: 3 Runoff Area=698,887 sf 0.04% Impervious Runoff Depth=1.42"
Flow Length=1,385' Slope=0.0500 '/' Tc=17.6 min CN=78 Runoff=18.57 cfs 82,807 cf

Link 4L: AP-1 Inflow=7.88 cfs 28,527 cf
Primary=7.88 cfs 28,527 cf

Link 5L: AP-2 Inflow=26.42 cfs 116,367 cf
Primary=26.42 cfs 116,367 cf

Total Runoff Area = 1,234,105 sf Runoff Volume = 144,894 cf Average Runoff Depth = 1.41"
99.90% Pervious = 1,232,905 sf 0.10% Impervious = 1,200 sf

Summary for Subcatchment 1S: 1

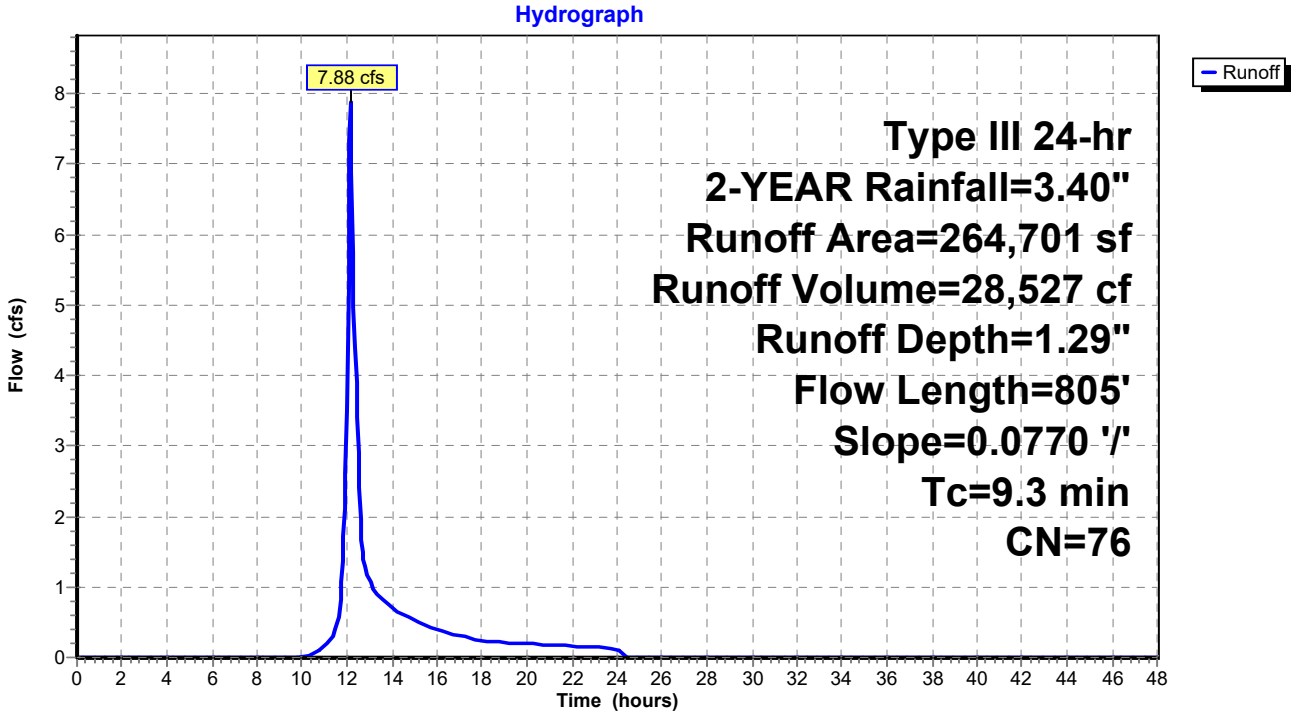
Runoff = 7.88 cfs @ 12.14 hrs, Volume= 28,527 cf, Depth= 1.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.40"

Area (sf)	CN	Description
163,180	80	Pasture/grassland/range, Good, HSG D
48,017	78	Meadow, non-grazed, HSG D
875	96	Gravel surface, HSG D
52,629	61	Pasture/grassland/range, Good, HSG B
264,701	76	Weighted Average
264,701		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	50	0.0770	0.29		**Sheet Flow,** Range n= 0.130 P2= 3.40"
6.5	755	0.0770	1.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.3	805	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2S: 2

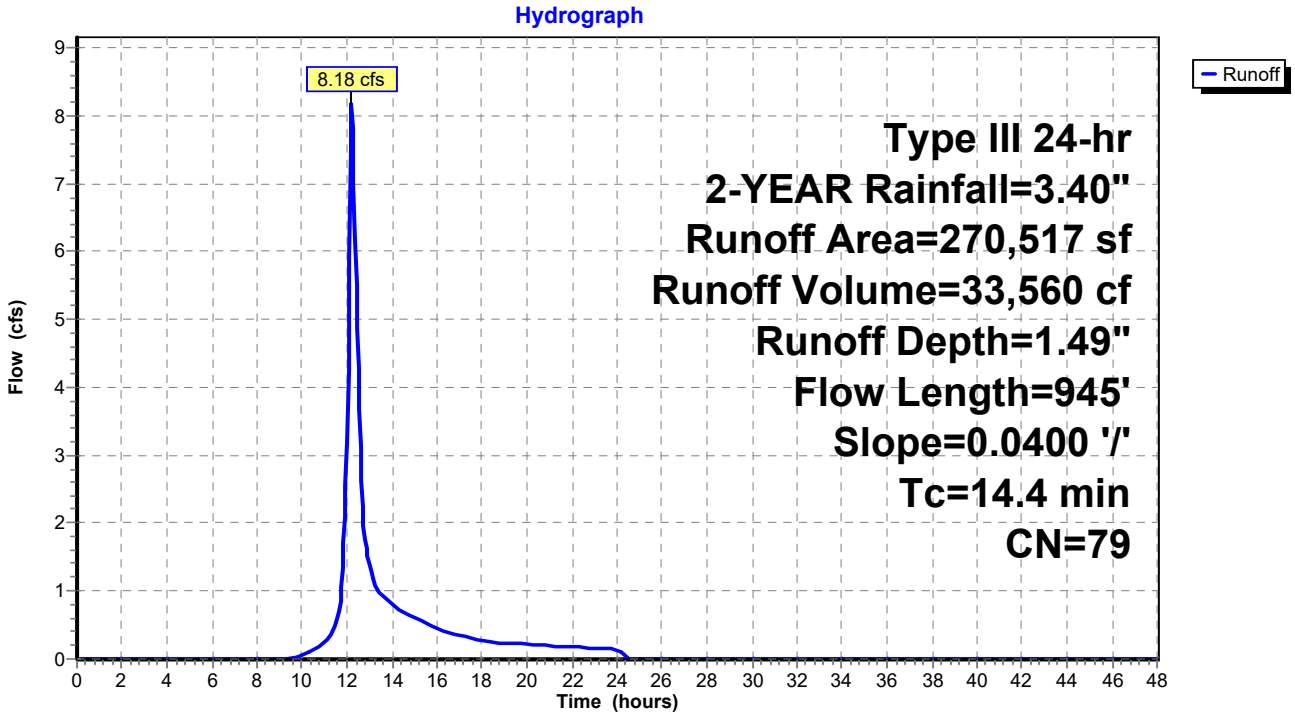
Runoff = 8.18 cfs @ 12.21 hrs, Volume= 33,560 cf, Depth= 1.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.40"

	Area (sf)	CN	Description
	900	98	Unconnected pavement, HSG D
	200,066	78	Meadow, non-grazed, HSG D
*	576	75	Meadow, non-grazed, HSG C/D
	56,141	80	Pasture/grassland/range, Good, HSG D
	12,834	96	Gravel surface, HSG D
	270,517	79	Weighted Average
	269,617		99.67% Pervious Area
	900		0.33% Impervious Area
	900		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.0400	0.23		**Sheet Flow,** Range n= 0.130 P2= 3.40"
10.7	895	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.4	945	Total			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 3

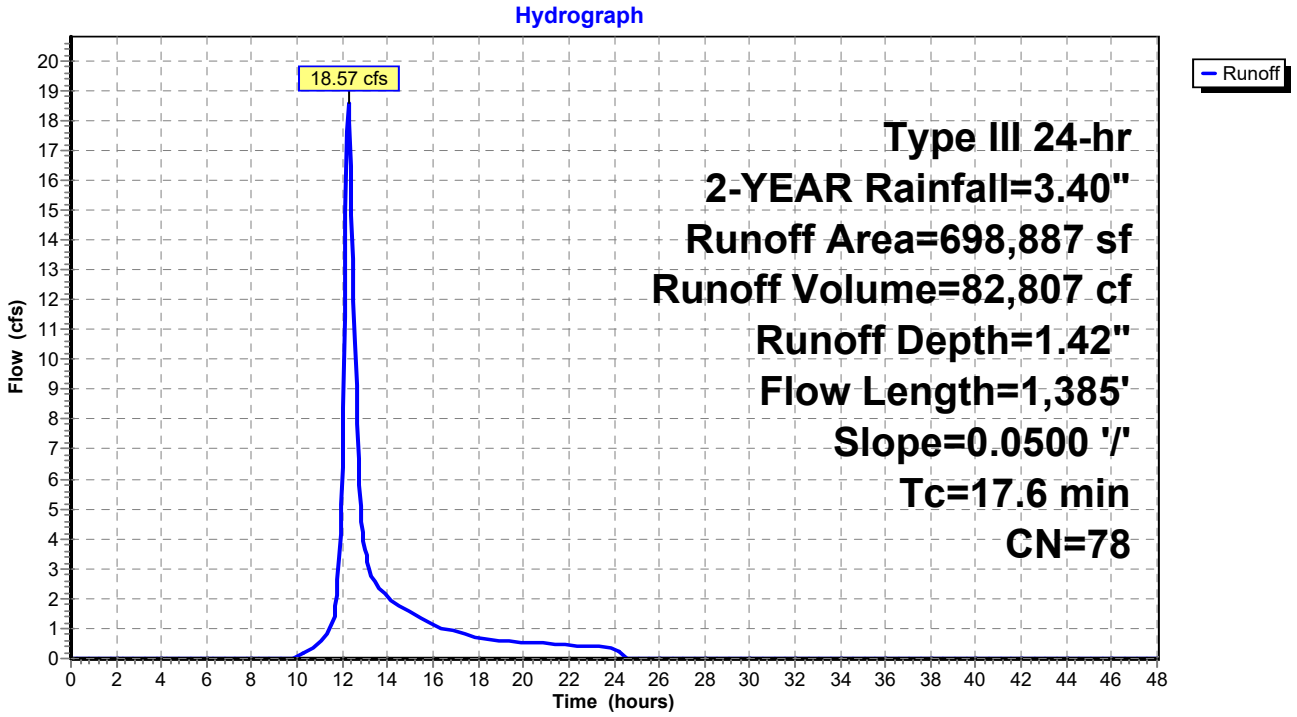
Runoff = 18.57 cfs @ 12.25 hrs, Volume= 82,807 cf, Depth= 1.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.40"

	Area (sf)	CN	Description
	17,675	77	Woods, Good, HSG D
	11,538	70	Woods, Good, HSG C
	162,939	78	Meadow, non-grazed, HSG D
*	52,720	75	Meadow, non-grazed, HSG C/D
	300	98	Unconnected pavement, HSG D
	5,569	96	Gravel surface, HSG D
	361,542	80	Pasture/grassland/range, Good, HSG D
	86,604	74	Pasture/grassland/range, Good, HSG C
	698,887	78	Weighted Average
	698,587		99.96% Pervious Area
	300		0.04% Impervious Area
	300		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	50	0.0500	0.25		**Sheet Flow,** Range n= 0.130 P2= 3.40"
14.2	1,335	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
17.6	1,385	Total			

Subcatchment 3S: 3

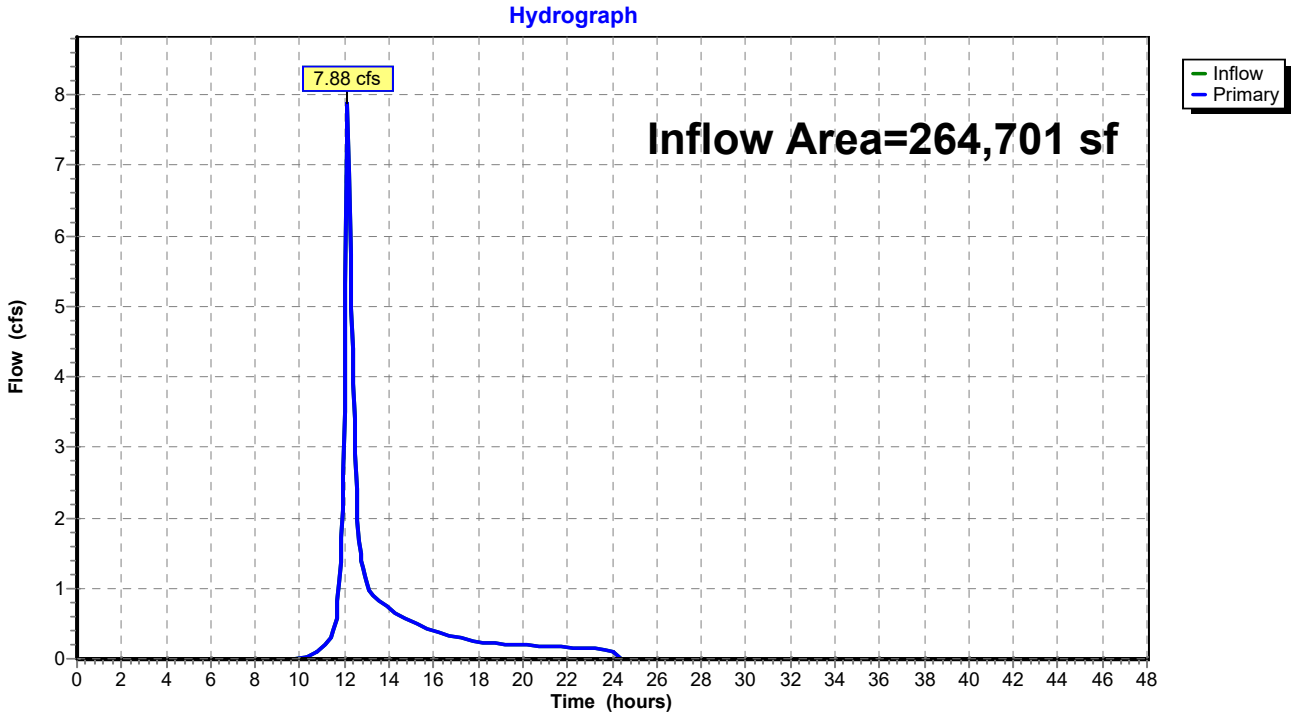


Summary for Link 4L: AP-1

Inflow Area = 264,701 sf, 0.00% Impervious, Inflow Depth = 1.29" for 2-YEAR event
Inflow = 7.88 cfs @ 12.14 hrs, Volume= 28,527 cf
Primary = 7.88 cfs @ 12.14 hrs, Volume= 28,527 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 4L: AP-1

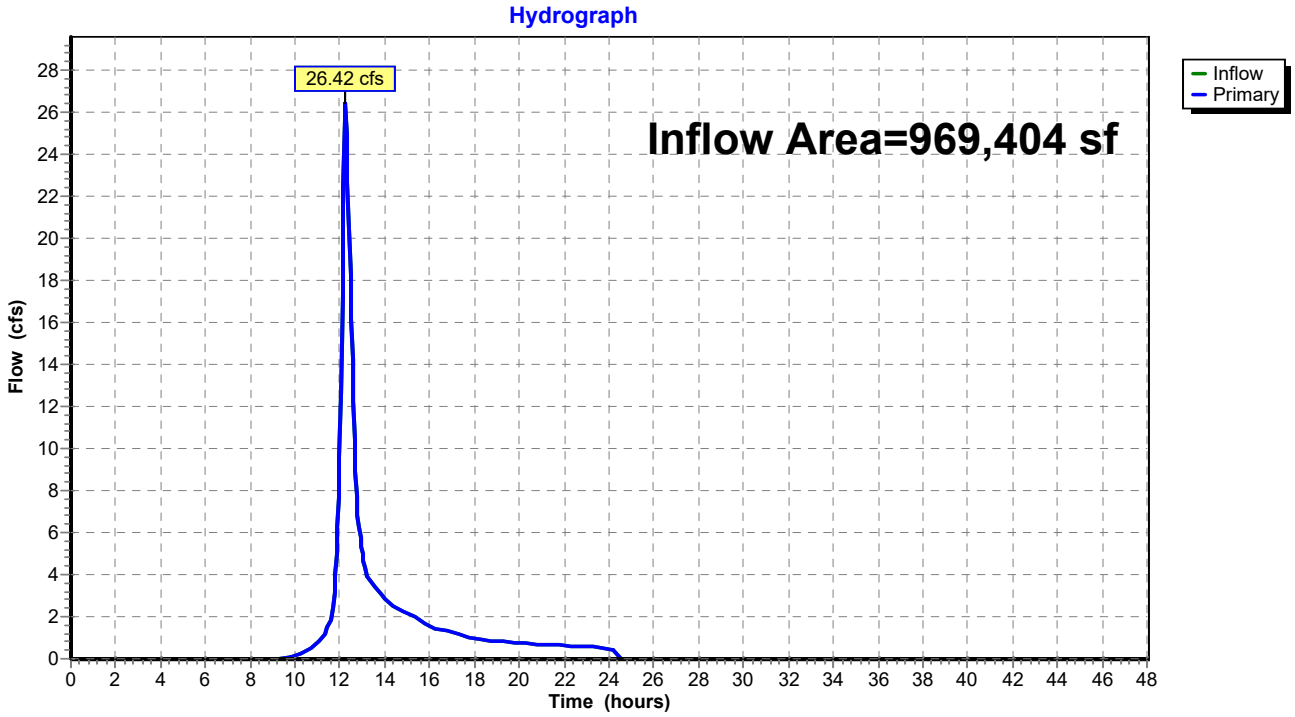


Summary for Link 5L: AP-2

Inflow Area = 969,404 sf, 0.12% Impervious, Inflow Depth = 1.44" for 2-YEAR event
Inflow = 26.42 cfs @ 12.24 hrs, Volume= 116,367 cf
Primary = 26.42 cfs @ 12.24 hrs, Volume= 116,367 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 5L: AP-2



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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: 1 Runoff Area=264,701 sf 0.00% Impervious Runoff Depth=3.55"
Flow Length=805' Slope=0.0770 '/' Tc=9.3 min CN=76 Runoff=22.23 cfs 78,380 cf

Subcatchment 2S: 2 Runoff Area=270,517 sf 0.33% Impervious Runoff Depth=3.86"
Flow Length=945' Slope=0.0400 '/' Tc=14.4 min CN=79 Runoff=21.44 cfs 86,988 cf

Subcatchment 3S: 3 Runoff Area=698,887 sf 0.04% Impervious Runoff Depth=3.76"
Flow Length=1,385' Slope=0.0500 '/' Tc=17.6 min CN=78 Runoff=49.94 cfs 218,759 cf

Link 4L: AP-1 Inflow=22.23 cfs 78,380 cf
Primary=22.23 cfs 78,380 cf

Link 5L: AP-2 Inflow=70.60 cfs 305,747 cf
Primary=70.60 cfs 305,747 cf

Total Runoff Area = 1,234,105 sf Runoff Volume = 384,128 cf Average Runoff Depth = 3.74"
99.90% Pervious = 1,232,905 sf 0.10% Impervious = 1,200 sf

Summary for Subcatchment 1S: 1

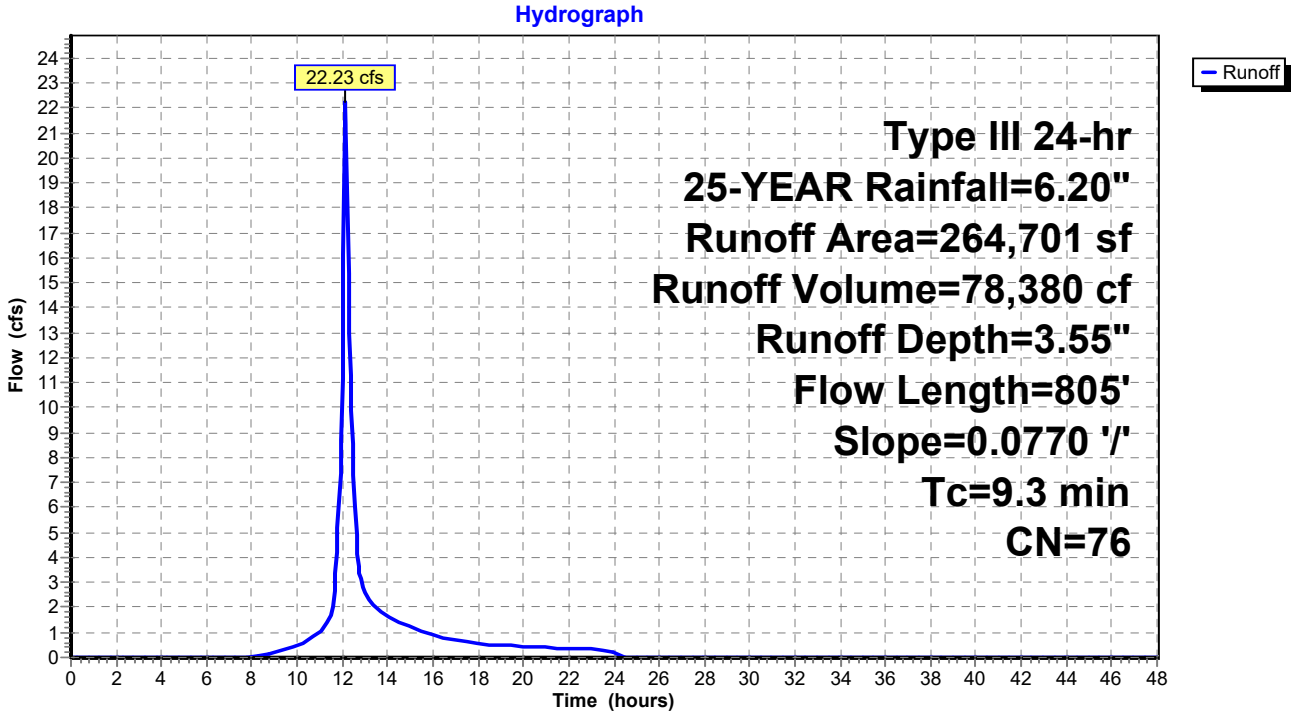
Runoff = 22.23 cfs @ 12.13 hrs, Volume= 78,380 cf, Depth= 3.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=6.20"

Area (sf)	CN	Description
163,180	80	Pasture/grassland/range, Good, HSG D
48,017	78	Meadow, non-grazed, HSG D
875	96	Gravel surface, HSG D
52,629	61	Pasture/grassland/range, Good, HSG B
264,701	76	Weighted Average
264,701		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	50	0.0770	0.29		**Sheet Flow,** Range n= 0.130 P2= 3.40"
6.5	755	0.0770	1.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.3	805	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2S: 2

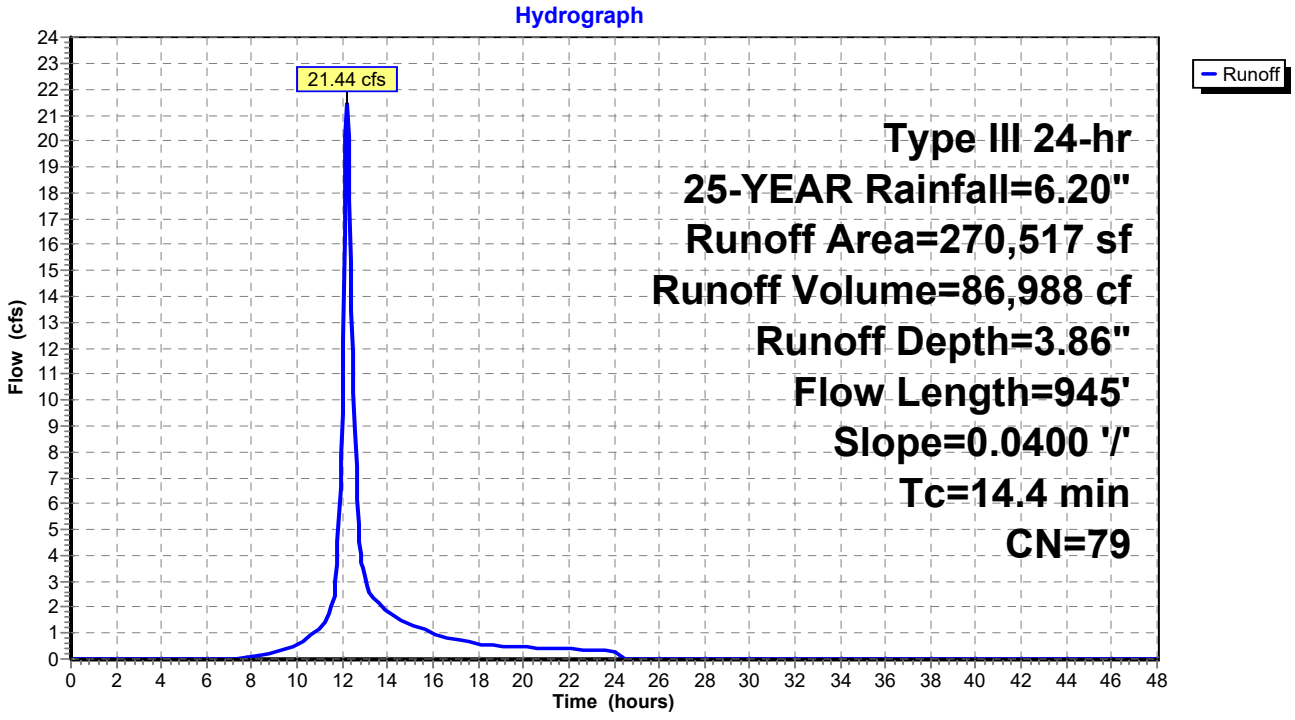
Runoff = 21.44 cfs @ 12.20 hrs, Volume= 86,988 cf, Depth= 3.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=6.20"

	Area (sf)	CN	Description
	900	98	Unconnected pavement, HSG D
	200,066	78	Meadow, non-grazed, HSG D
*	576	75	Meadow, non-grazed, HSG C/D
	56,141	80	Pasture/grassland/range, Good, HSG D
	12,834	96	Gravel surface, HSG D
	270,517	79	Weighted Average
	269,617		99.67% Pervious Area
	900		0.33% Impervious Area
	900		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.0400	0.23		**Sheet Flow,** Range n= 0.130 P2= 3.40"
10.7	895	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.4	945	Total			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 3

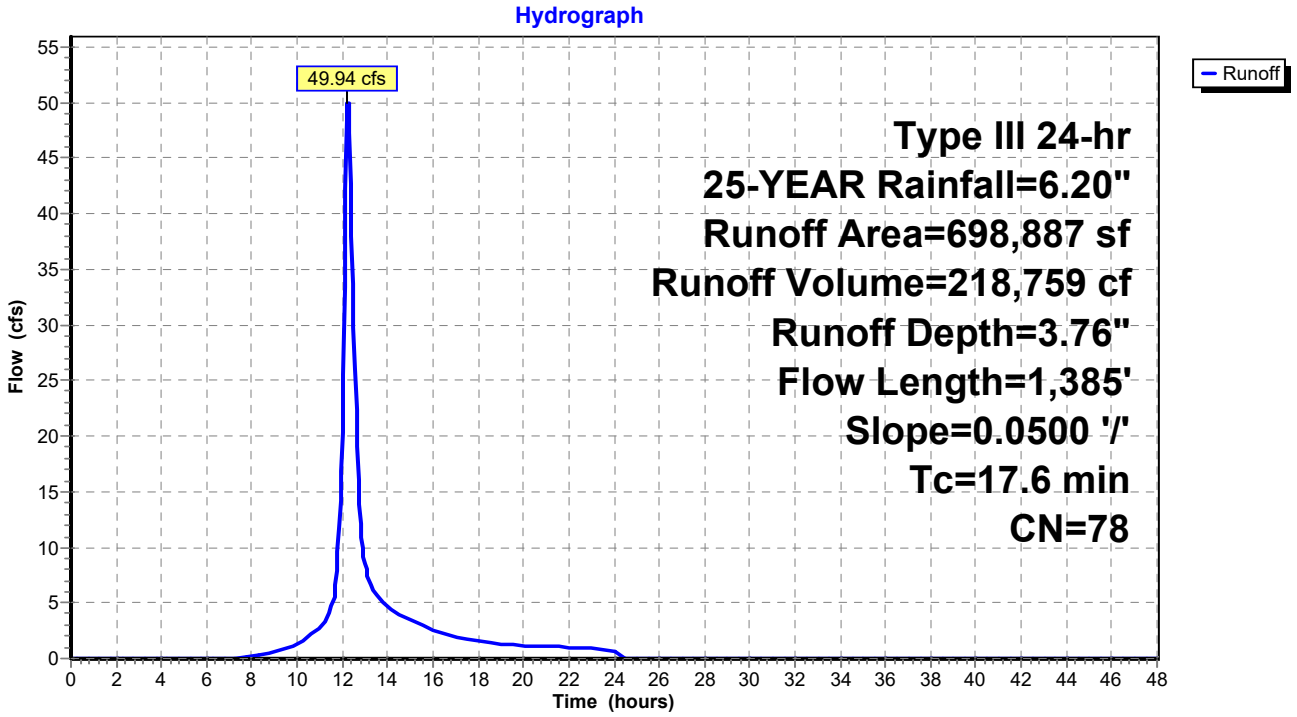
Runoff = 49.94 cfs @ 12.24 hrs, Volume= 218,759 cf, Depth= 3.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=6.20"

	Area (sf)	CN	Description
	17,675	77	Woods, Good, HSG D
	11,538	70	Woods, Good, HSG C
	162,939	78	Meadow, non-grazed, HSG D
*	52,720	75	Meadow, non-grazed, HSG C/D
	300	98	Unconnected pavement, HSG D
	5,569	96	Gravel surface, HSG D
	361,542	80	Pasture/grassland/range, Good, HSG D
	86,604	74	Pasture/grassland/range, Good, HSG C
	698,887	78	Weighted Average
	698,587		99.96% Pervious Area
	300		0.04% Impervious Area
	300		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	50	0.0500	0.25		**Sheet Flow,** Range n= 0.130 P2= 3.40"
14.2	1,335	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
17.6	1,385	Total			

Subcatchment 3S: 3

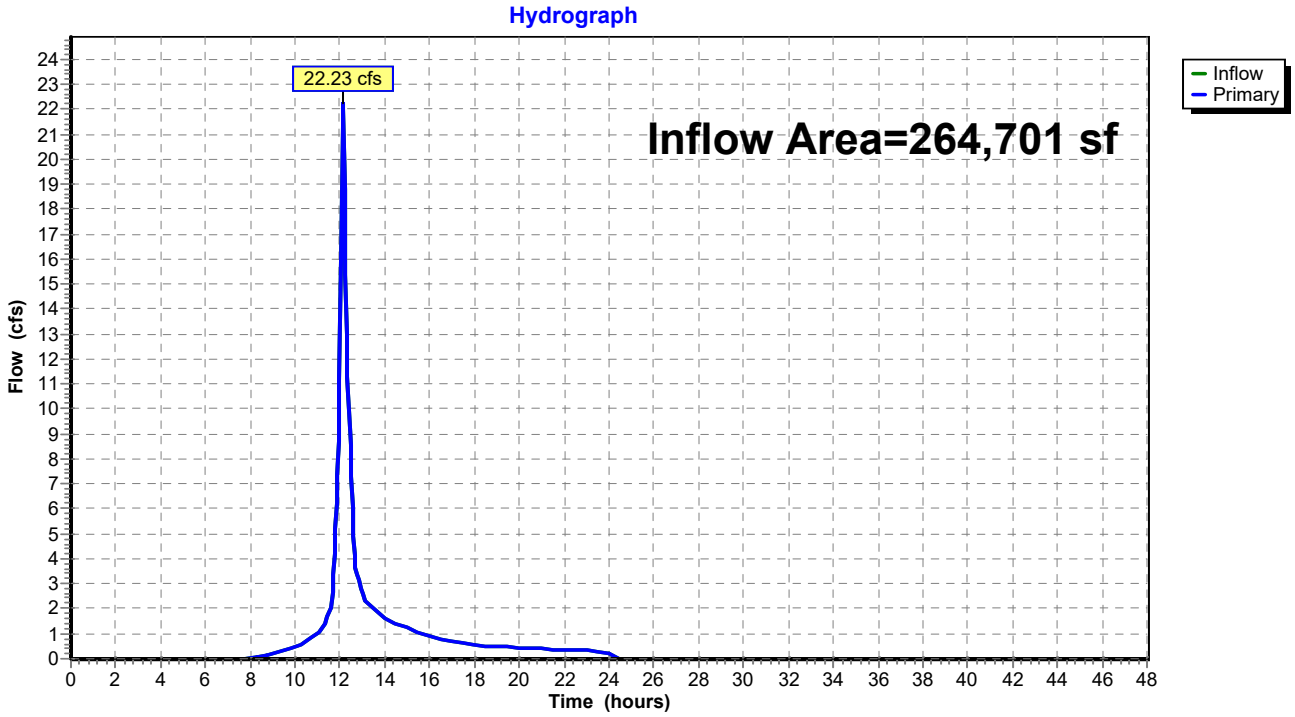


Summary for Link 4L: AP-1

Inflow Area = 264,701 sf, 0.00% Impervious, Inflow Depth = 3.55" for 25-YEAR event
Inflow = 22.23 cfs @ 12.13 hrs, Volume= 78,380 cf
Primary = 22.23 cfs @ 12.13 hrs, Volume= 78,380 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 4L: AP-1

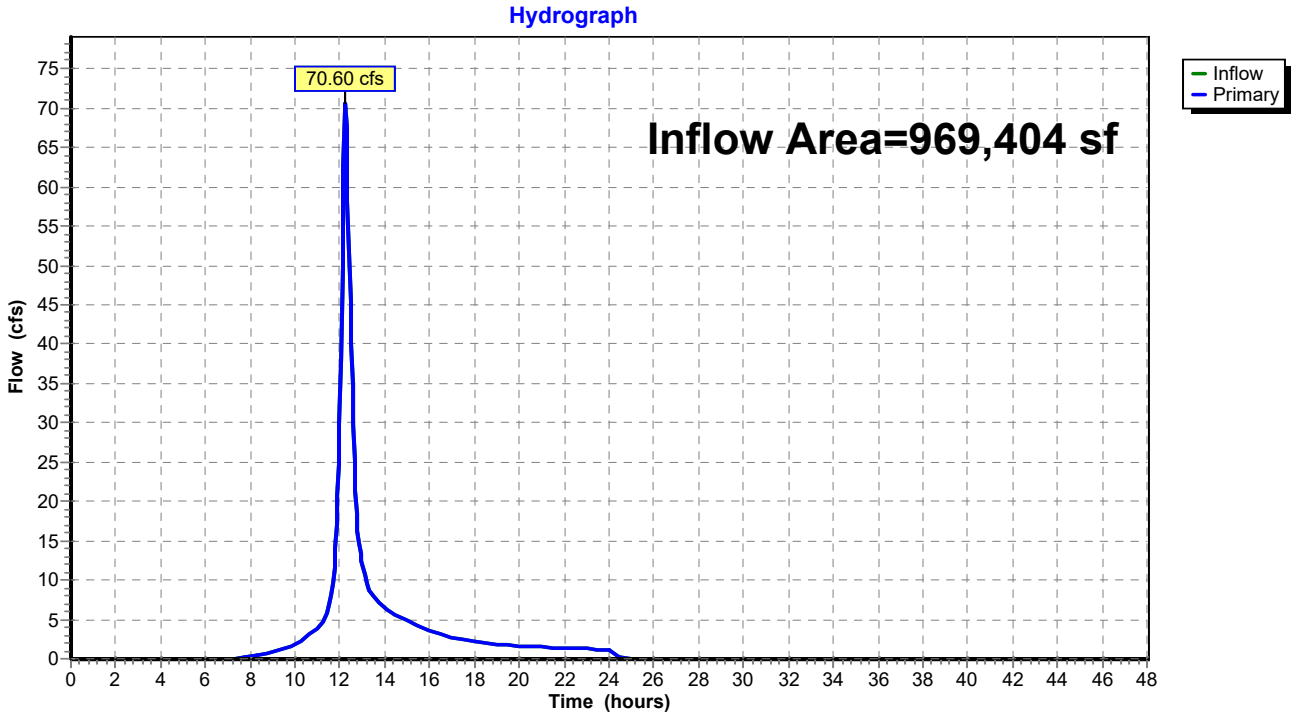


Summary for Link 5L: AP-2

Inflow Area = 969,404 sf, 0.12% Impervious, Inflow Depth = 3.78" for 25-YEAR event
Inflow = 70.60 cfs @ 12.23 hrs, Volume= 305,747 cf
Primary = 70.60 cfs @ 12.23 hrs, Volume= 305,747 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 5L: AP-2



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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: 1 Runoff Area=264,701 sf 0.00% Impervious Runoff Depth=4.26"
Flow Length=805' Slope=0.0770 '/' Tc=9.3 min CN=76 Runoff=26.59 cfs 93,910 cf

Subcatchment 2S: 2 Runoff Area=270,517 sf 0.33% Impervious Runoff Depth=4.58"
Flow Length=945' Slope=0.0400 '/' Tc=14.4 min CN=79 Runoff=25.39 cfs 103,346 cf

Subcatchment 3S: 3 Runoff Area=698,887 sf 0.04% Impervious Runoff Depth=4.47"
Flow Length=1,385' Slope=0.0500 '/' Tc=17.6 min CN=78 Runoff=59.35 cfs 260,616 cf

Link 4L: AP-1 Inflow=26.59 cfs 93,910 cf
Primary=26.59 cfs 93,910 cf

Link 5L: AP-2 Inflow=84.16 cfs 363,962 cf
Primary=84.16 cfs 363,962 cf

Total Runoff Area = 1,234,105 sf Runoff Volume = 457,872 cf Average Runoff Depth = 4.45"
99.90% Pervious = 1,232,905 sf 0.10% Impervious = 1,200 sf

Summary for Subcatchment 1S: 1

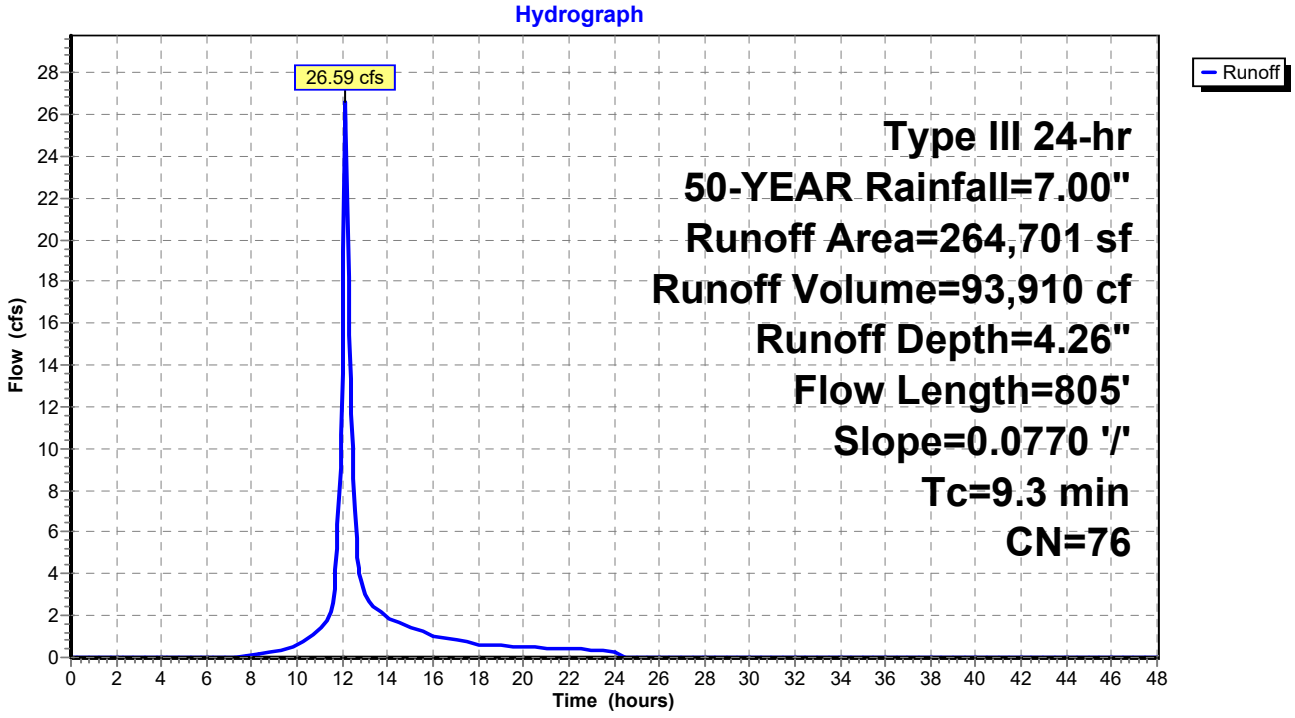
Runoff = 26.59 cfs @ 12.13 hrs, Volume= 93,910 cf, Depth= 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YEAR Rainfall=7.00"

Area (sf)	CN	Description
163,180	80	Pasture/grassland/range, Good, HSG D
48,017	78	Meadow, non-grazed, HSG D
875	96	Gravel surface, HSG D
52,629	61	Pasture/grassland/range, Good, HSG B
264,701	76	Weighted Average
264,701		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	50	0.0770	0.29		**Sheet Flow,** Range n= 0.130 P2= 3.40"
6.5	755	0.0770	1.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.3	805	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2S: 2

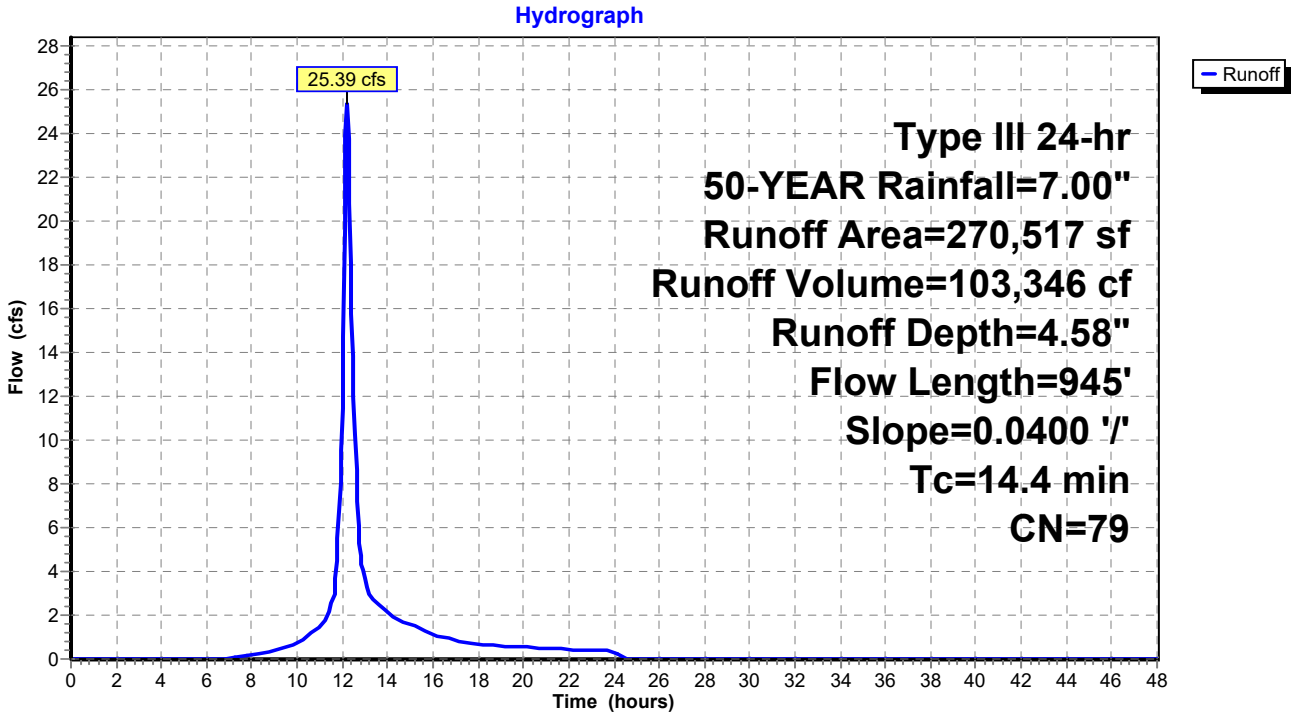
Runoff = 25.39 cfs @ 12.20 hrs, Volume= 103,346 cf, Depth= 4.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YEAR Rainfall=7.00"

	Area (sf)	CN	Description
	900	98	Unconnected pavement, HSG D
	200,066	78	Meadow, non-grazed, HSG D
*	576	75	Meadow, non-grazed, HSG C/D
	56,141	80	Pasture/grassland/range, Good, HSG D
	12,834	96	Gravel surface, HSG D
	270,517	79	Weighted Average
	269,617		99.67% Pervious Area
	900		0.33% Impervious Area
	900		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.0400	0.23		**Sheet Flow,** Range n= 0.130 P2= 3.40"
10.7	895	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.4	945	Total			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 3

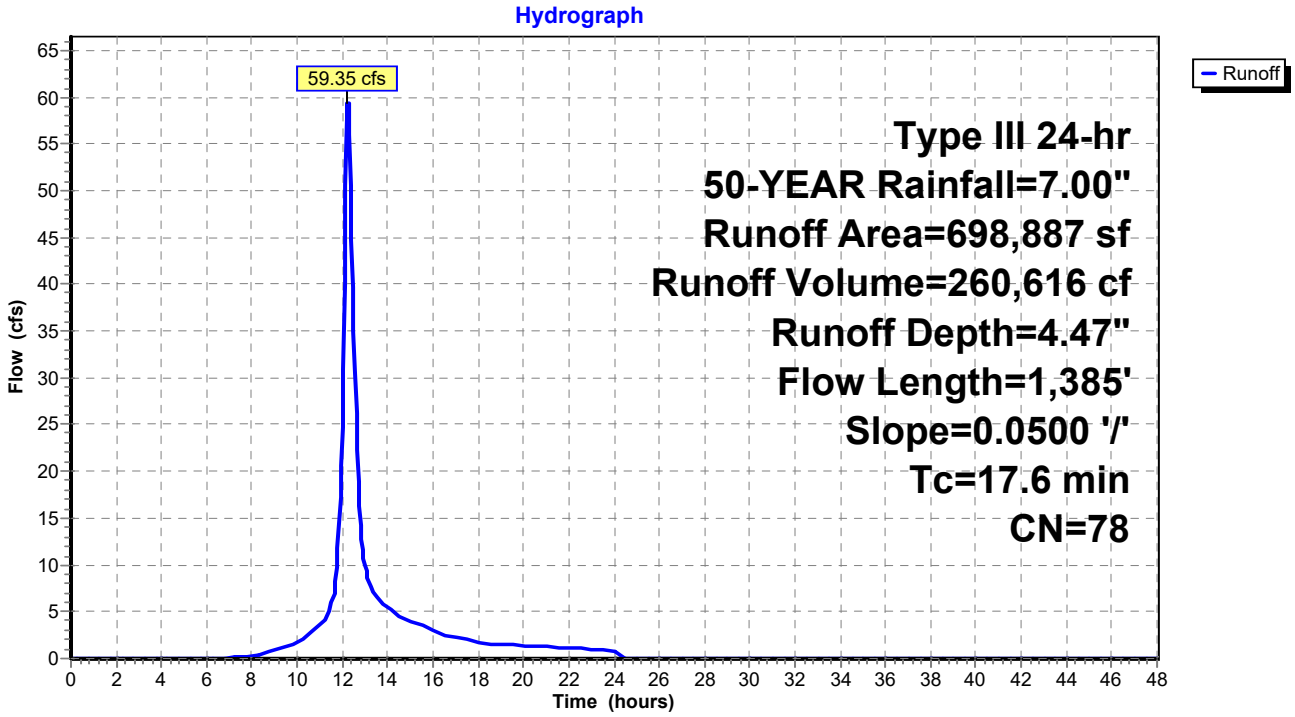
Runoff = 59.35 cfs @ 12.24 hrs, Volume= 260,616 cf, Depth= 4.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YEAR Rainfall=7.00"

	Area (sf)	CN	Description
	17,675	77	Woods, Good, HSG D
	11,538	70	Woods, Good, HSG C
	162,939	78	Meadow, non-grazed, HSG D
*	52,720	75	Meadow, non-grazed, HSG C/D
	300	98	Unconnected pavement, HSG D
	5,569	96	Gravel surface, HSG D
	361,542	80	Pasture/grassland/range, Good, HSG D
	86,604	74	Pasture/grassland/range, Good, HSG C
	698,887	78	Weighted Average
	698,587		99.96% Pervious Area
	300		0.04% Impervious Area
	300		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	50	0.0500	0.25		**Sheet Flow,** Range n= 0.130 P2= 3.40"
14.2	1,335	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
17.6	1,385	Total			

Subcatchment 3S: 3

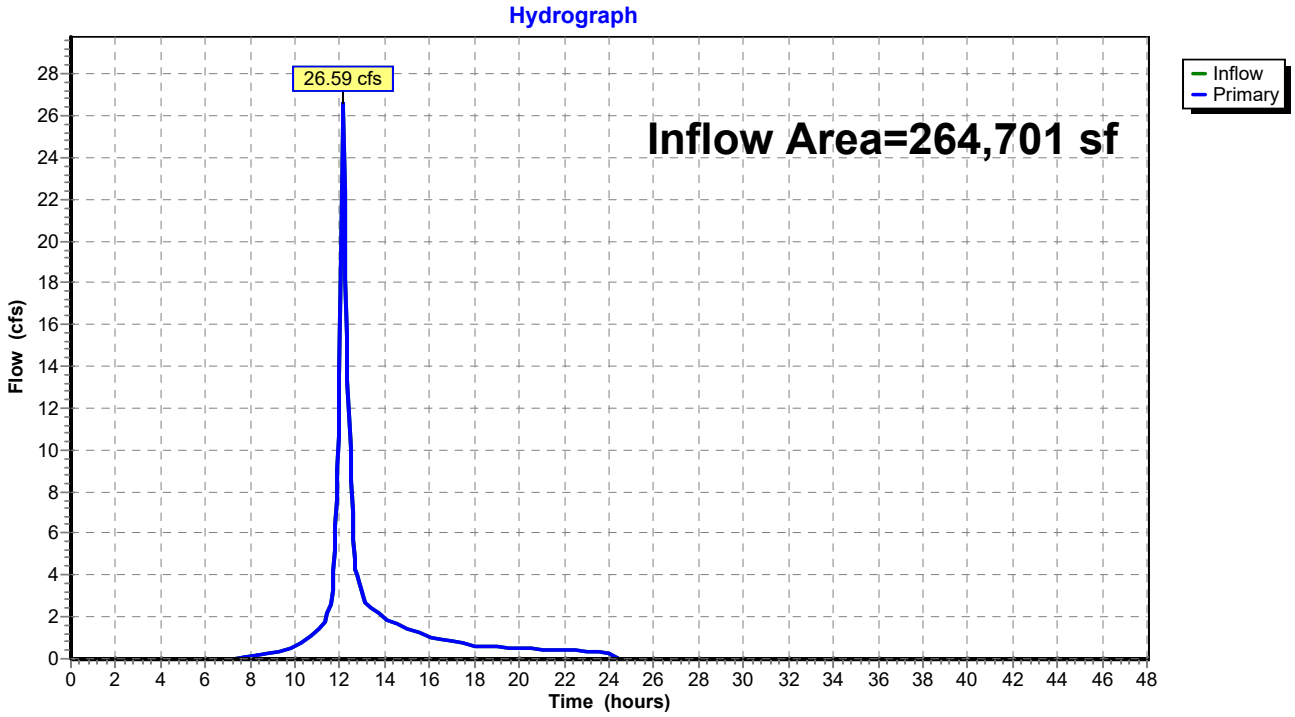


Summary for Link 4L: AP-1

Inflow Area = 264,701 sf, 0.00% Impervious, Inflow Depth = 4.26" for 50-YEAR event
Inflow = 26.59 cfs @ 12.13 hrs, Volume= 93,910 cf
Primary = 26.59 cfs @ 12.13 hrs, Volume= 93,910 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 4L: AP-1

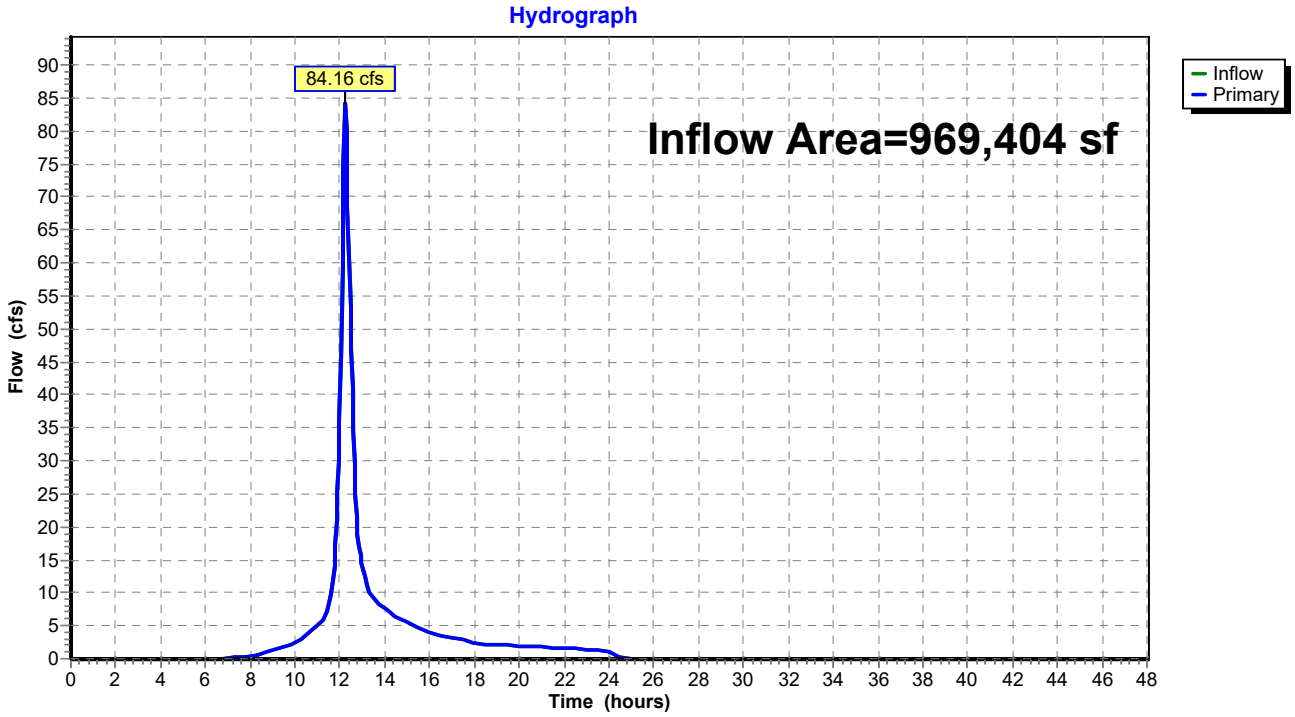


Summary for Link 5L: AP-2

Inflow Area = 969,404 sf, 0.12% Impervious, Inflow Depth = 4.51" for 50-YEAR event
Inflow = 84.16 cfs @ 12.22 hrs, Volume= 363,962 cf
Primary = 84.16 cfs @ 12.22 hrs, Volume= 363,962 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 5L: AP-2



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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: 1 Runoff Area=264,701 sf 0.00% Impervious Runoff Depth=5.07"
Flow Length=805' Slope=0.0770 '/' Tc=9.3 min CN=76 Runoff=31.54 cfs 111,770 cf

Subcatchment 2S: 2 Runoff Area=270,517 sf 0.33% Impervious Runoff Depth=5.41"
Flow Length=945' Slope=0.0400 '/' Tc=14.4 min CN=79 Runoff=29.85 cfs 122,068 cf

Subcatchment 3S: 3 Runoff Area=698,887 sf 0.04% Impervious Runoff Depth=5.30"
Flow Length=1,385' Slope=0.0500 '/' Tc=17.6 min CN=78 Runoff=70.01 cfs 308,597 cf

Link 4L: AP-1 Inflow=31.54 cfs 111,770 cf
Primary=31.54 cfs 111,770 cf

Link 5L: AP-2 Inflow=99.21 cfs 430,665 cf
Primary=99.21 cfs 430,665 cf

Total Runoff Area = 1,234,105 sf Runoff Volume = 542,435 cf Average Runoff Depth = 5.27"
99.90% Pervious = 1,232,905 sf 0.10% Impervious = 1,200 sf

Summary for Subcatchment 1S: 1

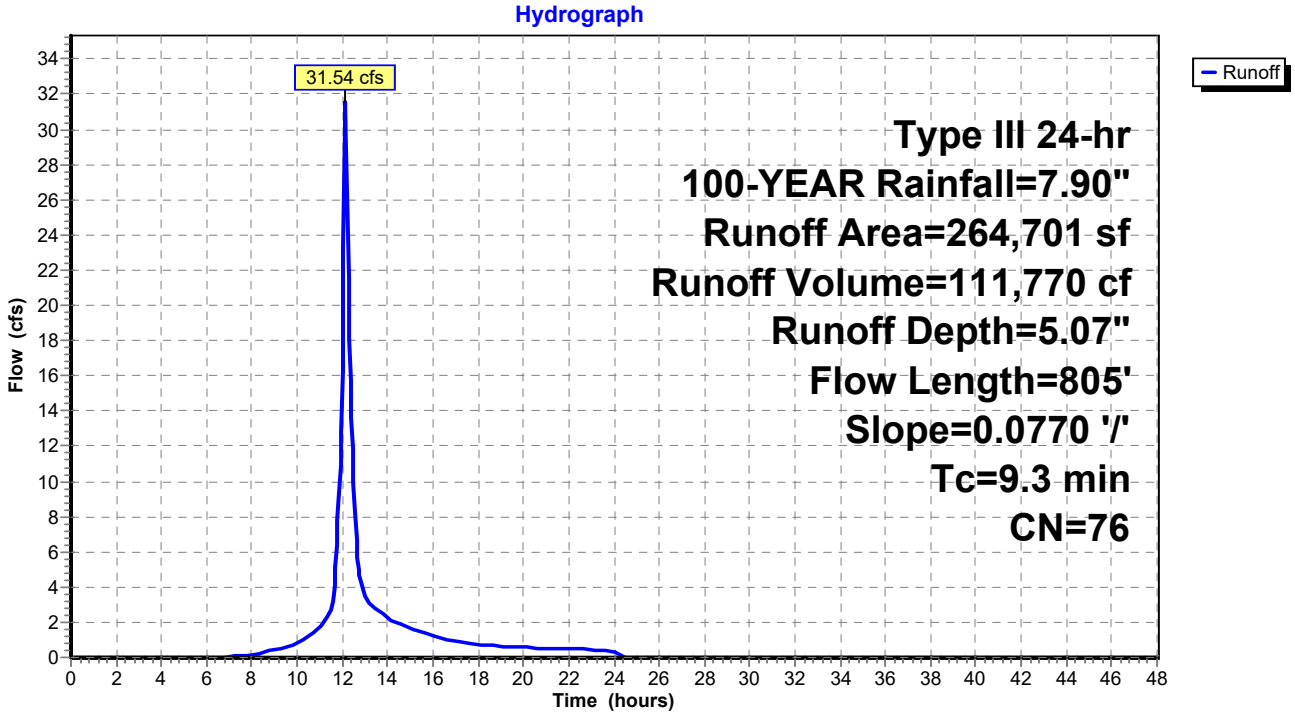
Runoff = 31.54 cfs @ 12.13 hrs, Volume= 111,770 cf, Depth= 5.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR Rainfall=7.90"

Area (sf)	CN	Description
163,180	80	Pasture/grassland/range, Good, HSG D
48,017	78	Meadow, non-grazed, HSG D
875	96	Gravel surface, HSG D
52,629	61	Pasture/grassland/range, Good, HSG B
264,701	76	Weighted Average
264,701		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	50	0.0770	0.29		**Sheet Flow,** Range n= 0.130 P2= 3.40"
6.5	755	0.0770	1.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.3	805	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2S: 2

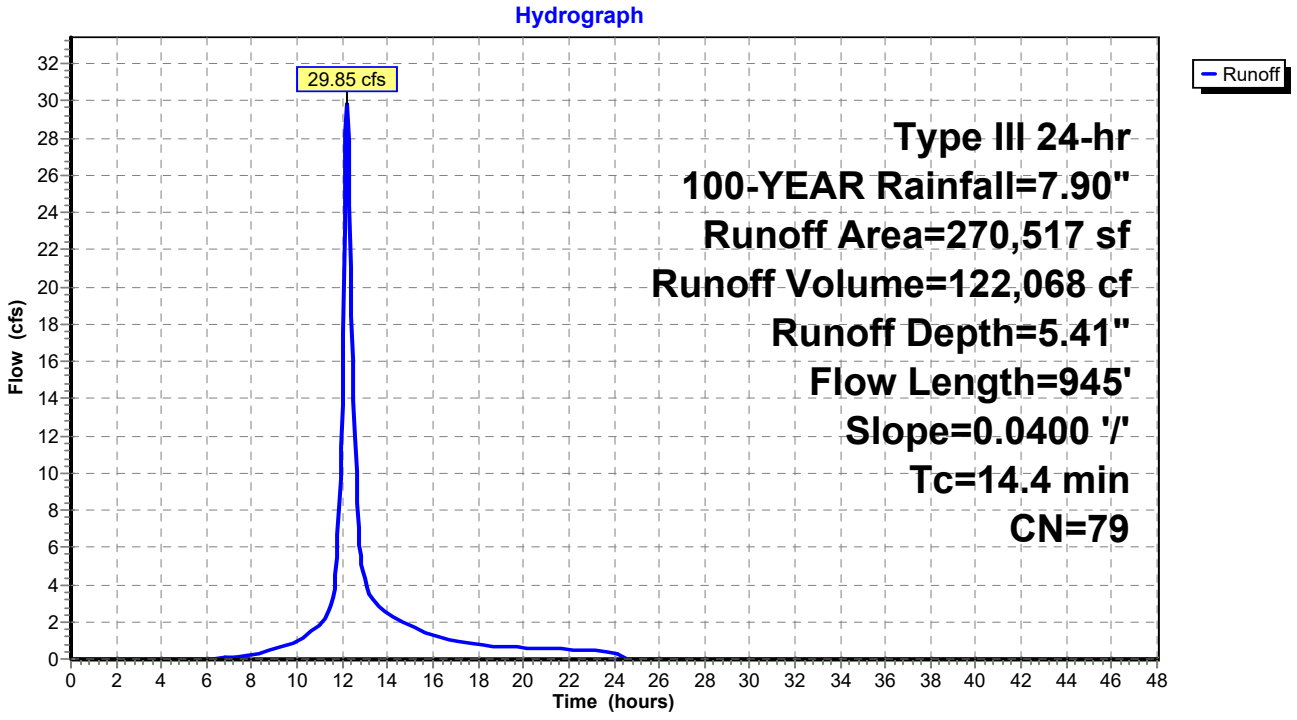
Runoff = 29.85 cfs @ 12.20 hrs, Volume= 122,068 cf, Depth= 5.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR Rainfall=7.90"

	Area (sf)	CN	Description
	900	98	Unconnected pavement, HSG D
	200,066	78	Meadow, non-grazed, HSG D
*	576	75	Meadow, non-grazed, HSG C/D
	56,141	80	Pasture/grassland/range, Good, HSG D
	12,834	96	Gravel surface, HSG D
	270,517	79	Weighted Average
	269,617		99.67% Pervious Area
	900		0.33% Impervious Area
	900		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.0400	0.23		**Sheet Flow,** Range n= 0.130 P2= 3.40"
10.7	895	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.4	945	Total			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 3

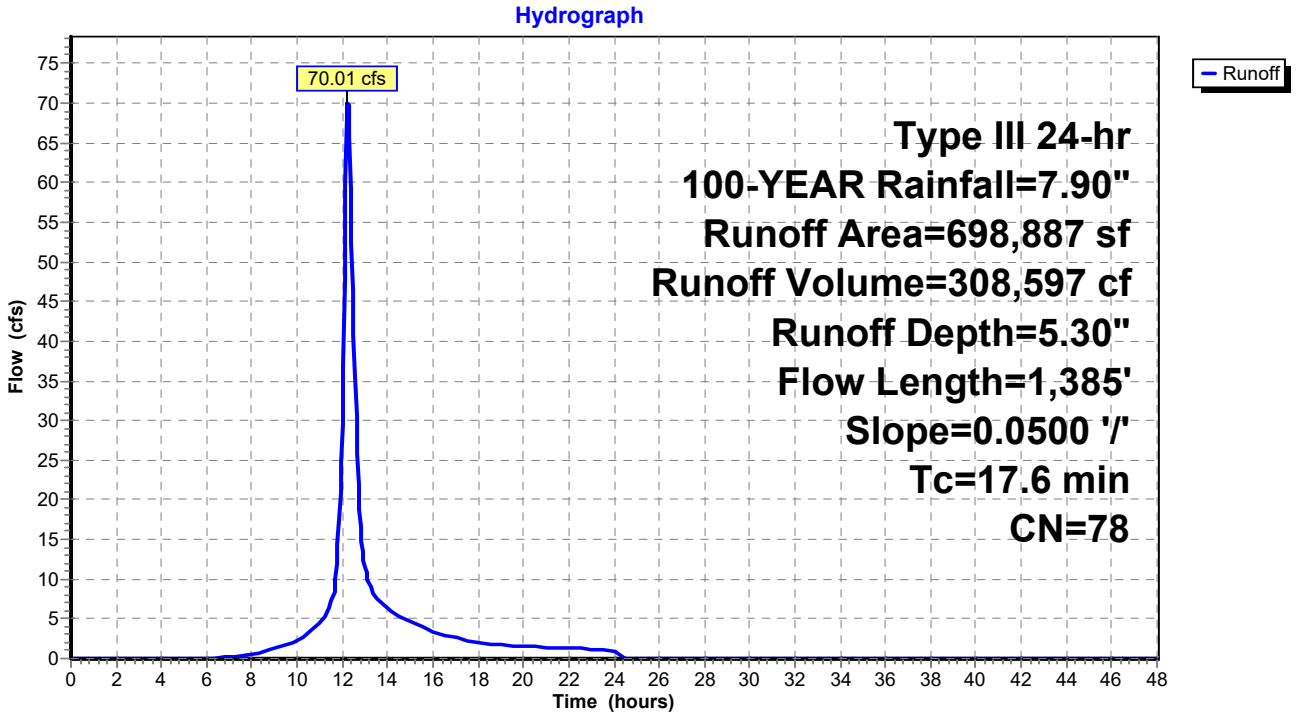
Runoff = 70.01 cfs @ 12.24 hrs, Volume= 308,597 cf, Depth= 5.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR Rainfall=7.90"

	Area (sf)	CN	Description
	17,675	77	Woods, Good, HSG D
	11,538	70	Woods, Good, HSG C
	162,939	78	Meadow, non-grazed, HSG D
*	52,720	75	Meadow, non-grazed, HSG C/D
	300	98	Unconnected pavement, HSG D
	5,569	96	Gravel surface, HSG D
	361,542	80	Pasture/grassland/range, Good, HSG D
	86,604	74	Pasture/grassland/range, Good, HSG C
	698,887	78	Weighted Average
	698,587		99.96% Pervious Area
	300		0.04% Impervious Area
	300		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	50	0.0500	0.25		**Sheet Flow,** Range n= 0.130 P2= 3.40"
14.2	1,335	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
17.6	1,385	Total			

Subcatchment 3S: 3

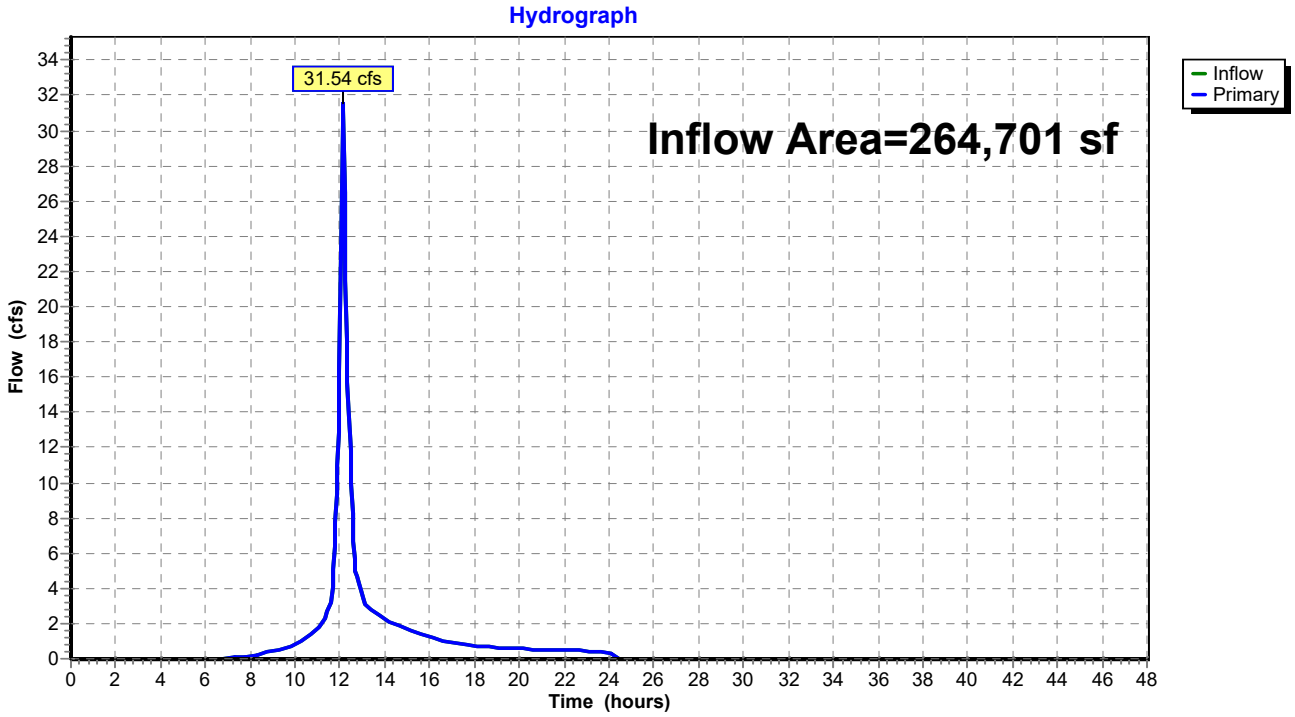


Summary for Link 4L: AP-1

Inflow Area = 264,701 sf, 0.00% Impervious, Inflow Depth = 5.07" for 100-YEAR event
Inflow = 31.54 cfs @ 12.13 hrs, Volume= 111,770 cf
Primary = 31.54 cfs @ 12.13 hrs, Volume= 111,770 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 4L: AP-1

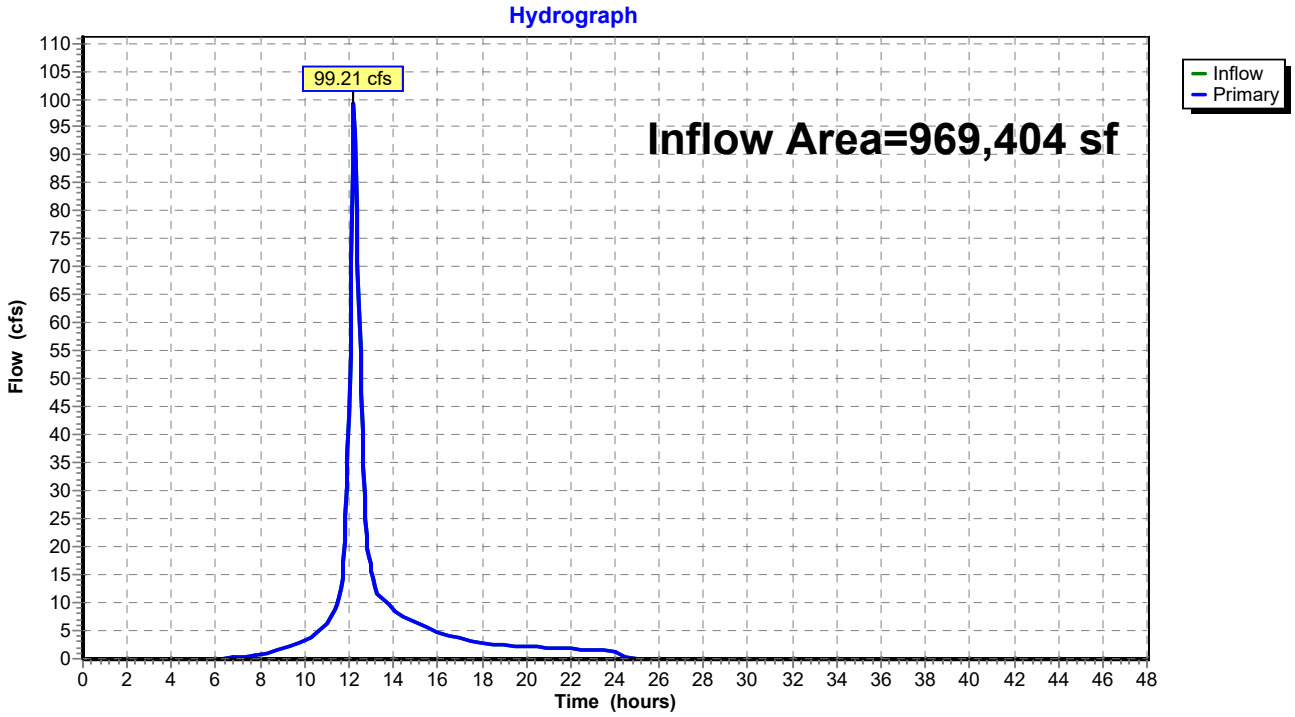


Summary for Link 5L: AP-2

Inflow Area = 969,404 sf, 0.12% Impervious, Inflow Depth = 5.33" for 100-YEAR event
Inflow = 99.21 cfs @ 12.22 hrs, Volume= 430,665 cf
Primary = 99.21 cfs @ 12.22 hrs, Volume= 430,665 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 5L: AP-2



APPENDIX D: NOAA ATLAS 14 PRECIPITATION FREQUENCY TABLE

NOAA Atlas 14, Volume 10, Version 3
Location name: Town of Pomfret, Connecticut, USA*
Latitude: 41.8907°, Longitude: -71.9358°
Elevation: 410.42 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.332 (0.258-0.424)	0.395 (0.307-0.504)	0.498 (0.385-0.638)	0.582 (0.449-0.750)	0.699 (0.521-0.937)	0.788 (0.575-1.08)	0.879 (0.622-1.24)	0.978 (0.659-1.42)	1.12 (0.724-1.67)	1.23 (0.777-1
10-min	0.470 (0.366-0.601)	0.559 (0.435-0.715)	0.704 (0.546-0.903)	0.824 (0.636-1.06)	0.990 (0.738-1.33)	1.12 (0.815-1.53)	1.25 (0.882-1.76)	1.39 (0.935-2.01)	1.58 (1.03-2.37)	1.74 (1.10-2
15-min	0.553 (0.431-0.707)	0.658 (0.512-0.841)	0.829 (0.643-1.06)	0.970 (0.748-1.25)	1.17 (0.869-1.56)	1.31 (0.958-1.80)	1.47 (1.04-2.07)	1.63 (1.10-2.36)	1.86 (1.21-2.79)	2.05 (1.30-3
30-min	0.775 (0.604-0.990)	0.921 (0.716-1.18)	1.16 (0.899-1.49)	1.36 (1.05-1.75)	1.63 (1.22-2.19)	1.84 (1.34-2.51)	2.05 (1.45-2.90)	2.28 (1.54-3.30)	2.60 (1.69-3.90)	2.86 (1.81-4
60-min	0.997 (0.777-1.27)	1.18 (0.921-1.51)	1.49 (1.16-1.91)	1.74 (1.35-2.25)	2.09 (1.56-2.81)	2.36 (1.72-3.23)	2.63 (1.86-3.72)	2.93 (1.97-4.24)	3.34 (2.17-5.00)	3.67 (2.33-5
2-hr	1.27 (0.999-1.62)	1.51 (1.18-1.92)	1.89 (1.47-2.41)	2.20 (1.71-2.83)	2.64 (1.99-3.53)	2.96 (2.19-4.05)	3.31 (2.38-4.70)	3.72 (2.51-5.36)	4.34 (2.82-6.46)	4.87 (3.09-7
3-hr	1.47 (1.16-1.86)	1.74 (1.36-2.20)	2.17 (1.70-2.76)	2.54 (1.97-3.24)	3.03 (2.29-4.06)	3.40 (2.52-4.65)	3.80 (2.75-5.41)	4.30 (2.91-6.17)	5.06 (3.29-7.50)	5.71 (3.63-8
6-hr	1.87 (1.48-2.36)	2.22 (1.75-2.80)	2.79 (2.19-3.52)	3.26 (2.55-4.14)	3.91 (2.97-5.20)	4.39 (3.27-5.97)	4.91 (3.57-6.96)	5.56 (3.78-7.94)	6.58 (4.30-9.70)	7.47 (4.76-1
12-hr	2.36 (1.87-2.95)	2.82 (2.24-3.53)	3.57 (2.82-4.48)	4.19 (3.30-5.29)	5.05 (3.85-6.67)	5.68 (4.25-7.67)	6.37 (4.64-8.95)	7.21 (4.92-10.2)	8.49 (5.56-12.4)	9.59 (6.13-1
24-hr	2.81 (2.25-3.49)	3.39 (2.71-4.22)	4.34 (3.45-5.41)	5.13 (4.05-6.43)	6.21 (4.76-8.14)	7.01 (5.27-9.40)	7.88 (5.76-11.0)	8.91 (6.10-12.6)	10.5 (6.89-15.2)	11.8 (7.57-1
2-day	3.16 (2.54-3.91)	3.85 (3.09-4.76)	4.98 (3.98-6.17)	5.91 (4.70-7.37)	7.20 (5.54-9.39)	8.15 (6.15-10.9)	9.18 (6.74-12.7)	10.4 (7.16-14.6)	12.3 (8.11-17.8)	13.9 (8.94-2
3-day	3.43 (2.76-4.22)	4.17 (3.36-5.14)	5.40 (4.33-6.67)	6.42 (5.12-7.97)	7.82 (6.04-10.2)	8.85 (6.70-11.8)	9.97 (7.35-13.8)	11.3 (7.80-15.8)	13.4 (8.85-19.3)	15.2 (9.77-2
4-day	3.66 (2.96-4.50)	4.46 (3.60-5.48)	5.76 (4.64-7.10)	6.84 (5.47-8.48)	8.33 (6.45-10.8)	9.43 (7.16-12.5)	10.6 (7.84-14.6)	12.1 (8.32-16.8)	14.3 (9.44-20.5)	16.2 (10.4-2
7-day	4.33 (3.52-5.29)	5.23 (4.24-6.40)	6.70 (5.42-8.22)	7.92 (6.36-9.76)	9.59 (7.46-12.4)	10.8 (8.26-14.3)	12.2 (9.03-16.7)	13.8 (9.55-19.1)	16.3 (10.8-23.3)	18.5 (11.9-2
10-day	5.02 (4.09-6.11)	5.97 (4.86-7.28)	7.54 (6.11-9.21)	8.83 (7.12-10.9)	10.6 (8.27-13.6)	11.9 (9.11-15.7)	13.4 (9.91-18.2)	15.1 (10.5-20.8)	17.6 (11.7-25.1)	19.8 (12.9-2
20-day	7.20 (5.90-8.71)	8.22 (6.73-9.96)	9.89 (8.07-12.0)	11.3 (9.14-13.8)	13.2 (10.3-16.7)	14.6 (11.2-18.9)	16.1 (11.9-21.5)	17.8 (12.4-24.3)	20.1 (13.4-28.3)	21.9 (14.2-3
30-day	9.04 (7.43-10.9)	10.1 (8.28-12.2)	11.8 (9.65-14.3)	13.2 (10.7-16.1)	15.2 (11.9-19.1)	16.7 (12.7-21.3)	18.2 (13.3-23.9)	19.7 (13.8-26.8)	21.7 (14.5-30.4)	23.1 (15.1-3
45-day	11.3 (9.34-13.6)	12.4 (10.2-14.9)	14.2 (11.6-17.1)	15.6 (12.7-18.9)	17.6 (13.8-22.0)	19.2 (14.6-24.3)	20.7 (15.1-26.9)	22.1 (15.5-29.8)	23.7 (16.0-33.1)	24.8 (16.2-3
60-day	13.2 (10.9-15.8)	14.3 (11.8-17.2)	16.1 (13.3-19.4)	17.6 (14.4-21.3)	19.6 (15.4-24.4)	21.3 (16.3-26.9)	22.8 (16.7-29.4)	24.1 (17.0-32.4)	25.6 (17.2-35.6)	26.5 (17.3-3

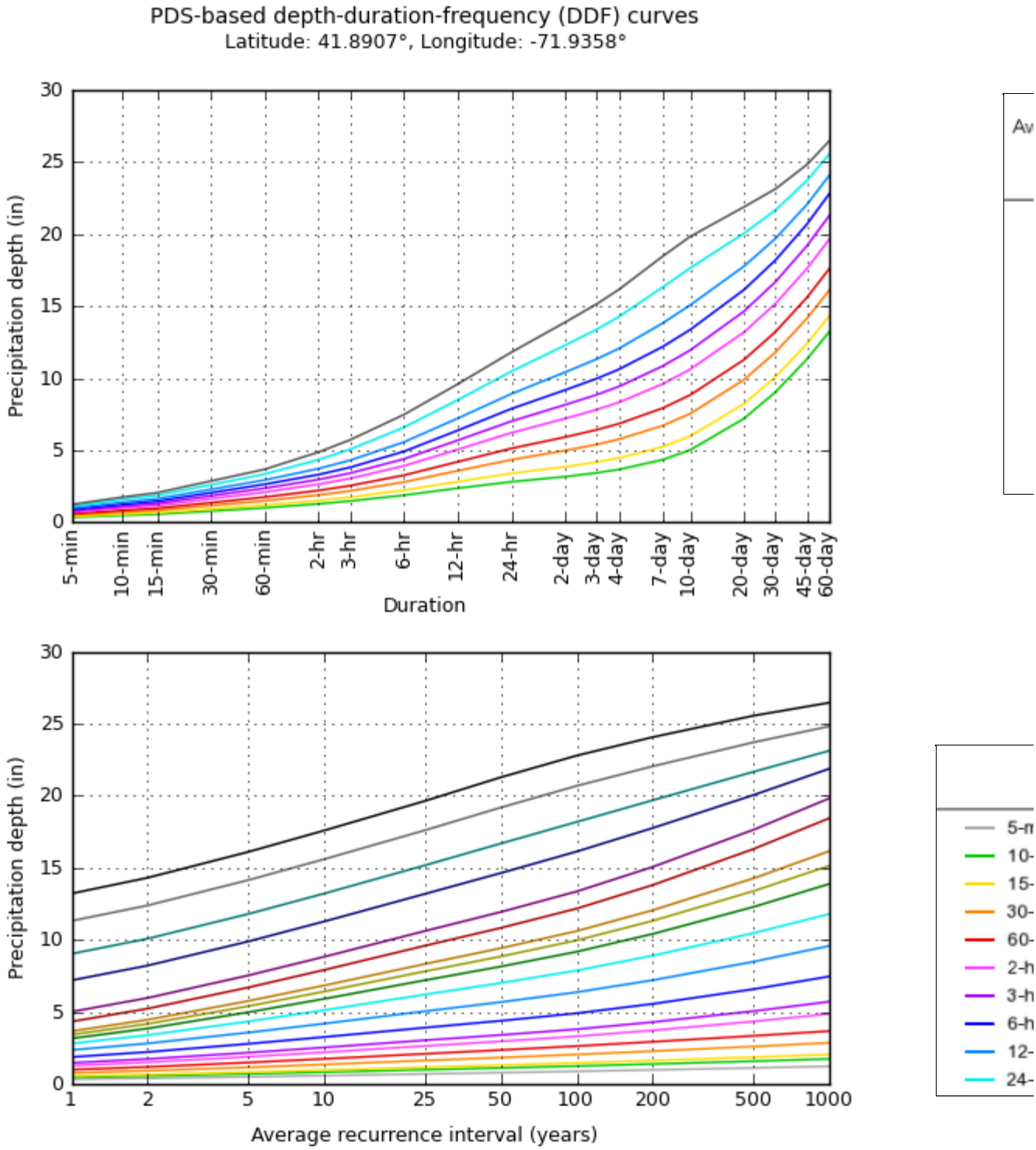
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimate upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical



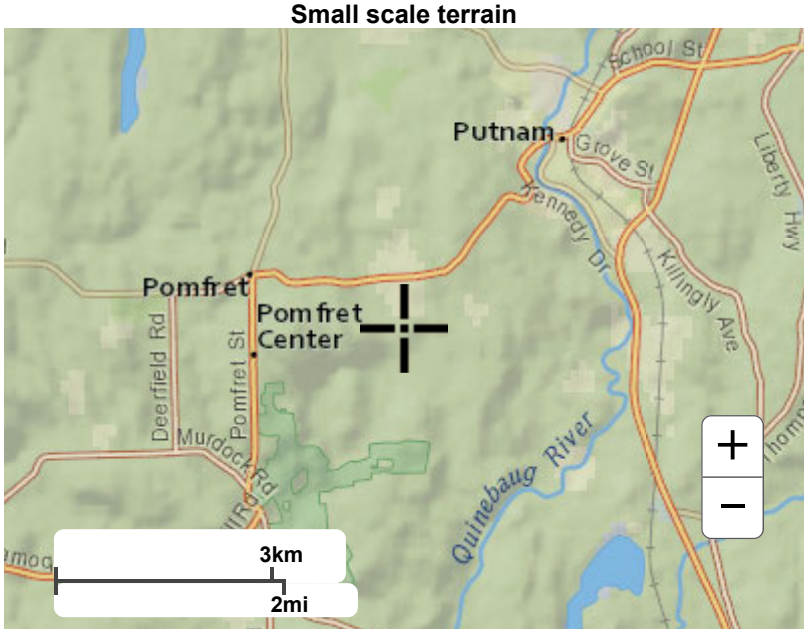
NOAA Atlas 14, Volume 10, Version 3

Created (GMT): Thu Apr 22 12:53:01 2021

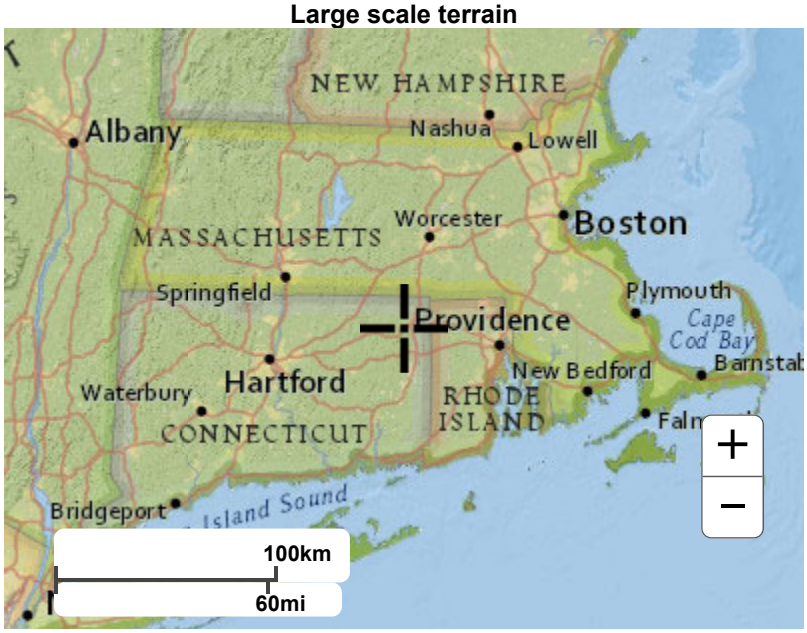
Back to Top

Maps & aerials

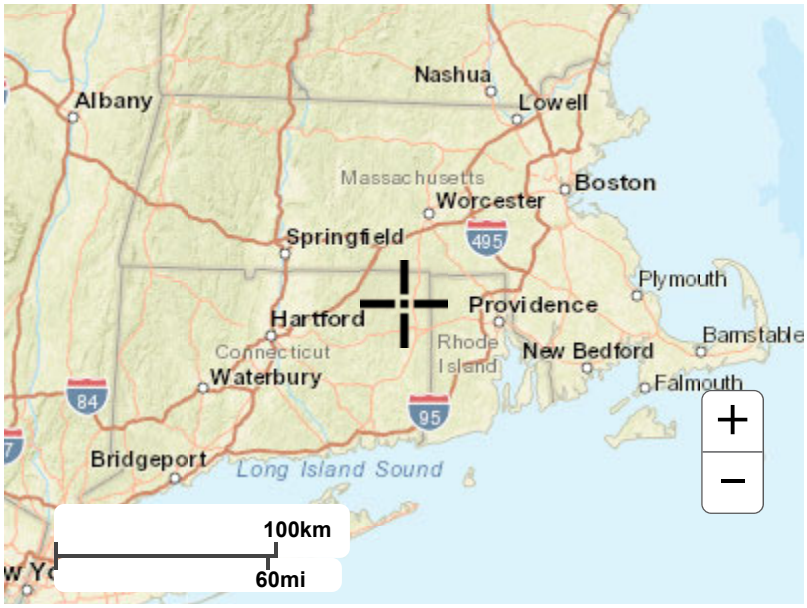
Small scale terrain



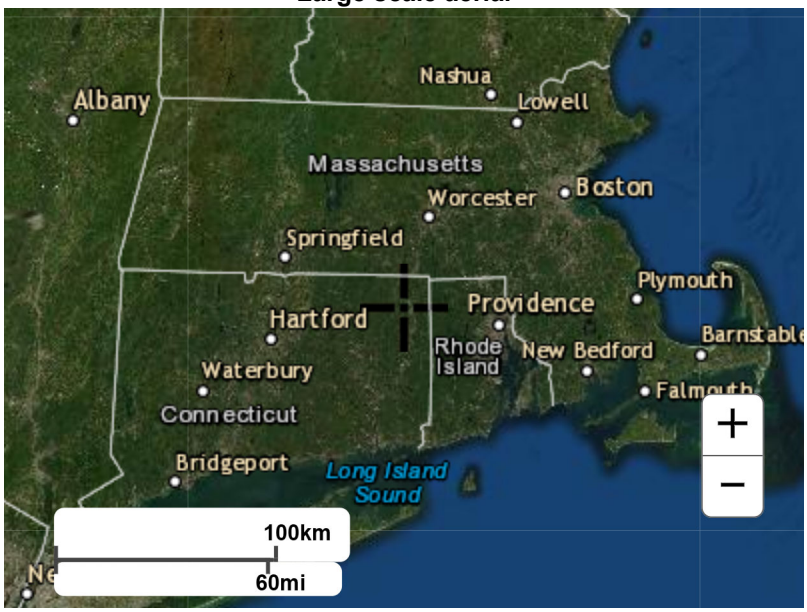
Large scale terrain



Large scale map



Large scale aerial



Back to Top

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

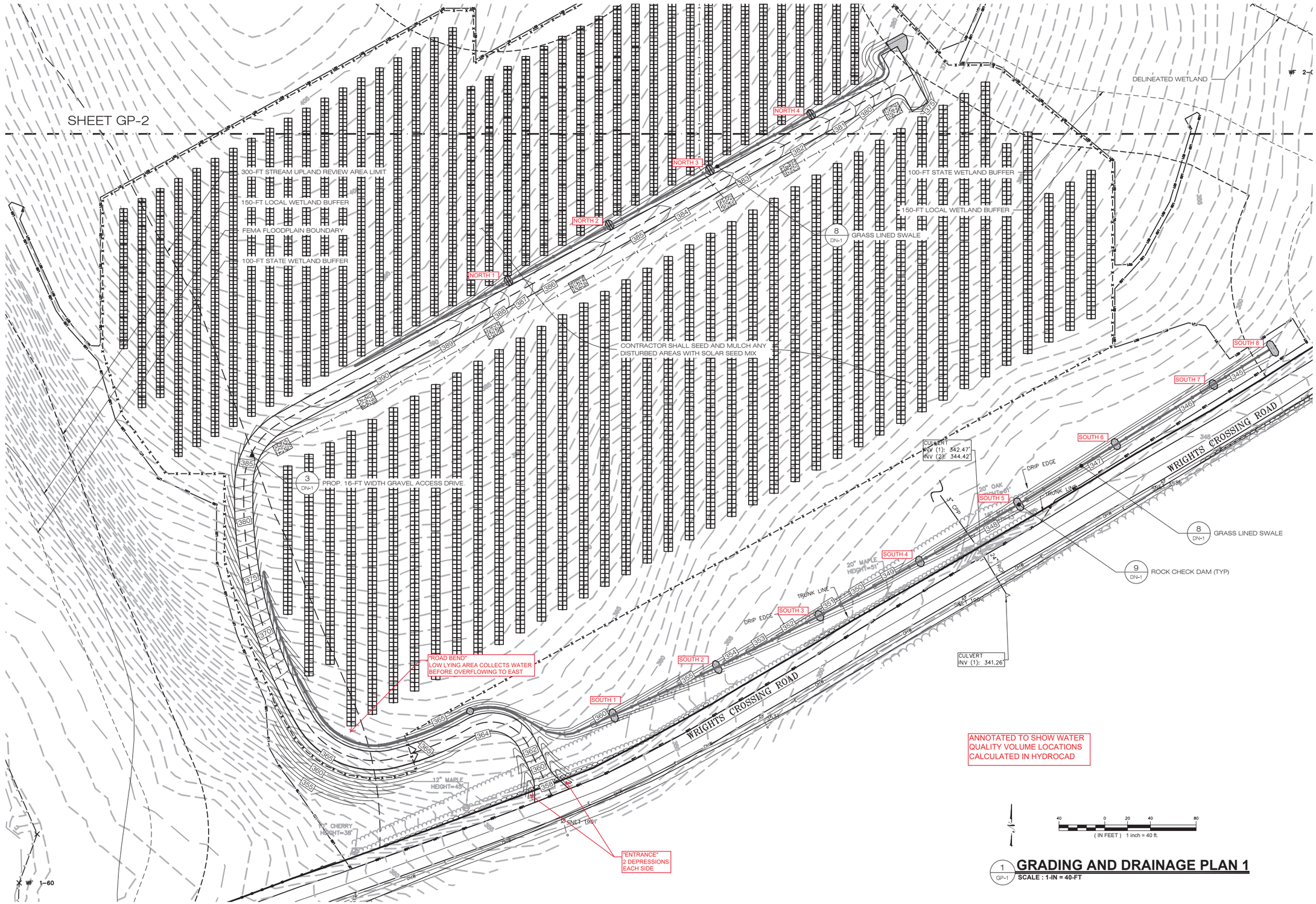
APPENDIX E: WATER QUALITY CALCULATIONS

WATER QUALITY VOLUME CALCULATIONS
FOR
AMARAL SOLAR
WRIGHTS CROSSING ROAD, POMFRET CENTER, CT

$$WQV = \frac{(1")(R)(A)}{12}$$

where: WQV = water quality volume (ac-ft)
R = volumetric runoff coefficient
= 0.05+0.009(I)
I = percent impervious cover
A = site area in acres

Subwatershed	Project Area (ac)	Pervious (ac)	Imperv. (ac)	I	R	WQV (ac-ft)	Total V Req. (cu-ft)	V Provided (cu-ft)
1	1.12	1.10	0.02	2%	0.07	0.006	269	130
2	4.92	4.61	0.32	6%	0.11	0.044	1,923	3,299
3	5.08	4.94	0.13	3%	0.07	0.031	1,362	1,579
Overall Project	**11.12**	**10.65**	**0.47**	**4%**	**0.09**	**0.082**	**3,555**	**5,008**



ANNOTATED TO SHOW WATER QUALITY VOLUME LOCATIONS CALCULATED IN HYDROCAD

40 0 20 40 80
(IN FEET) 1 inch = 40 ft.

1 GP-1 GRADING AND DRAINAGE PLAN 1

SCALE : 1-IN = 40-FT

TRITEC AMERICAS
888 PROSPECT STREET
LA JOLLA, CA 92037
OFFICE: (619) 363-3080

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHAUL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CSC PERMIT SET

NO	DATE	REVISION
0	07/09/21	PERMIT SUBMISSION DRAFT
1		
2		
3		
4		
5		
6		

NOT FOR CONSTRUCTION

DESIGN PROFESSIONAL OF RECORD

PROF: KEVIN A. MCCAFFERY, PE
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHAUL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: ANTONIO & MARY AMARAL
ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

AMARAL SOLAR

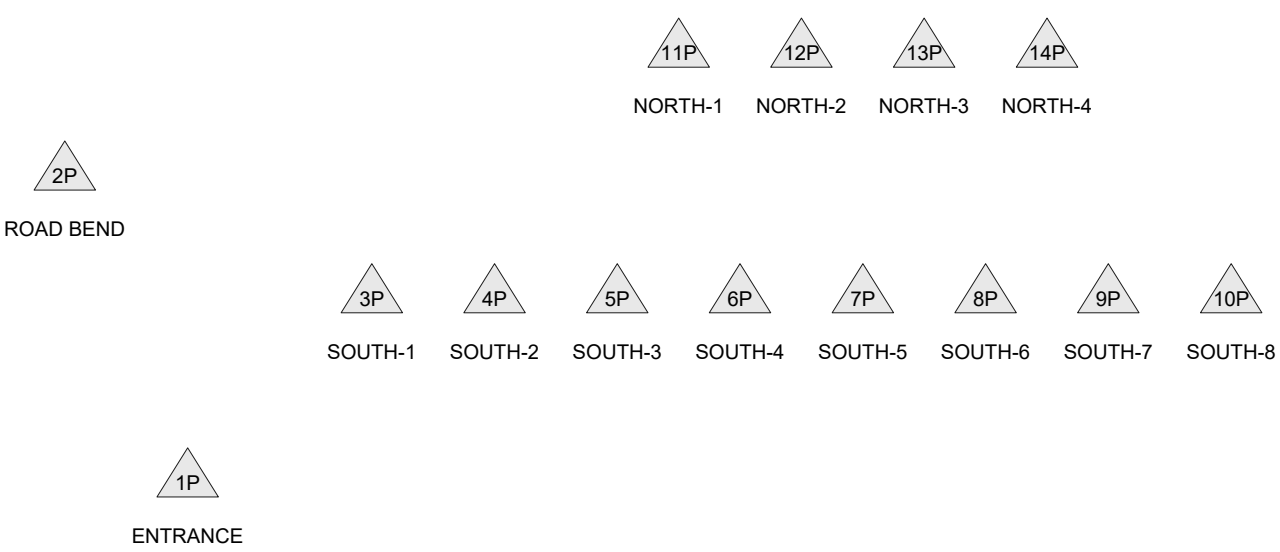
SITE ADDRESS: 254 PUTNAM ROAD POMFRET CENTER, CT 06259

APT FILING NUMBER: CT657100

DRAWN BY: KAM
DATE: 07/09/21
CHECKED BY: BG

SHEET TITLE:
GRADING AND DRAINAGE PLAN (1 OF 3)

SHEET NUMBER:
GP-1



Subcat Reach Pond Link

Routing Diagram for CT657100-AMARAL-PR-WQ
Prepared by All Points Technology Corp., Printed 11/5/2021

Stage-Area-Storage for Pond 1P: ENTRANCE

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
357.00	53	0
358.00	**206**	**130**

Stage-Area-Storage for Pond 2P: ROAD BEND

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
363.00	579	0
364.00	**1,609**	**1,094**

Stage-Area-Storage for Pond 3P: SOUTH-1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
359.00	101	0
360.00	**345**	**223**

Stage-Area-Storage for Pond 4P: SOUTH-2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
354.00	66	0
355.00	**262**	**164**

Stage-Area-Storage for Pond 5P: SOUTH-3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
350.00	33	0
351.00	**265**	**149**

Stage-Area-Storage for Pond 6P: SOUTH-4

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
348.00	178	0
349.00	**573**	**376**

Stage-Area-Storage for Pond 7P: SOUTH-5

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
347.00	445	0
348.00	**895**	**670**

Stage-Area-Storage for Pond 8P: SOUTH-6

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
346.00	419	0
347.00	**826**	**623**

Stage-Area-Storage for Pond 9P: SOUTH-7

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
345.00	41	0
346.00	**693**	**367**

Stage-Area-Storage for Pond 10P: SOUTH-8

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
345.00	400	0
346.00	**679**	**540**

Stage-Area-Storage for Pond 11P: NORTH-1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
387.00	34	0
388.00	**180**	**107**

Stage-Area-Storage for Pond 12P: NORTH-2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
385.00	67	0
386.00	**583**	**325**

Stage-Area-Storage for Pond 13P: NORTH-3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
383.00	29	0
384.00	**294**	**162**

Stage-Area-Storage for Pond 14P: NORTH-4

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
381.00	8	0
382.00	**147**	**78**

Exhibit D: Trina TSM-DEG19C.20-540W TCLP Report

Test Report

REPORT No.:	SHE21-01442/1	DATE RECEIVED:	2021/02/24
ATTENTION:	Ya XIAO	ANALYSIS DATE :	2021/02/24~2021/03/10
CUSTOMER:	Trina Solar Co., Ltd.	DATE REPORTED:	2021/03/10
	No.2 TianHe Road, Trina PV Industrial Park, New District, Changzhou City, Jiangsu Province 213031	SAMPLE (S):	Solid waste (1)
REFERENCE:	-		

REMARKS

1.The results apply to the sample(s) as received

2.The report is translated from SHE21-01442.

Edited by: _____
Min ZHOU

Reviewed by: _____
Jun MENG

Approved by: _____
Honglou WANG

Statement

1. The test report is invalid without the official seal of the laboratory.

2. This test report cannot be reproduced in any way, except in full content, without prior approval in writing by the laboratory.

3. The test report is invalid without the signature of the compiler, the checker and the approver

4. The test report is invalid if altered.

5. The test report has been drafted in Chinese and translated into English (if applicable) for convenience only. In the event of discrepancy, the Chinese version shall prevail.

6. Should you have any queries or objection to the test report, please contact us within 10 days after receiving the report.

Legend

NA The sample was not analysed for this analyte

↑ Detection limit raised

↓ Detection limit lowered

ND Not Detected

3rd Building, No.889 Yishan Road, Xuhui District, Shanghai, China 200233 t (86-21) 61072828 f (86-21) 61152164 www.sgsgroup.com.cn
中国·上海·徐汇区宜山路889号3号楼 邮编: 200233 t (86-21) 61072828 f (86-21) 61152164 e sgs.china@sgs.com

INORGANIC & ORGANIC ANALYSIS

Report No.: SHE21-01442/1

Customer Reference: -

Lab ID	Limit	SHE21-01442.001
Customer ID		TSM-530DEG19C.20
Order No		SHES2102003321TX
Serial No		A08210100400137
Date Received		2021/02/24

TCLP ITEM	METHOD	MDL	UNIT	Limit	Solid waste
Arsenic (As)	USEPA 200.8-1994	0.050	mg/L	≤5	<0.050
Barium (Ba)	USEPA 200.8-1994	0.010	mg/L	≤100	**0.195**
Cadmium (Cd)	USEPA 200.8-1994	0.001	mg/L	≤1	<0.001
Chromium (Cr)	USEPA 200.8-1994	0.010	mg/L	≤5	<0.010
Lead (Pb)	USEPA 200.8-1994	0.010	mg/L	≤5	<0.010
Selenium (Se)	USEPA 200.8-1994	0.050	mg/L	≤1	<0.050
Silver (Ag)	USEPA 200.8-1994	0.010	mg/L	≤5	<0.010
Mercury (Hg)	USEPA 7473-2007	0.005	mg/L	≤0.2	<0.005
2,4-D	USEPA 8151A-1996	0.0005	mg/L	≤10	<0.0005
2,4,5-TP (Silvex, Fenopop)	USEPA 8151A-1996	0.0005	mg/L	≤1	<0.0005
Benzene	USEPA 8260D-2018	0.0005	mg/L	≤0.5	<0.0005
Carbon tetrachloride	USEPA 8260D-2018	0.0005	mg/L	≤0.5	<0.0005
Chlorobenzene	USEPA 8260D-2018	0.0005	mg/L	≤100	<0.0005
Chloroform	USEPA 8260D-2018	0.0005	mg/L	≤6	<0.0005
1,4-Dichlorobenzene	USEPA 8260D-2018	0.0005	mg/L	≤7.5	<0.0005
1,2-Dichloroethane	USEPA 8260D-2018	0.0005	mg/L	≤0.5	<0.0005
1,1-Dichloroethene	USEPA 8260D-2018	0.0005	mg/L	≤0.7	<0.0005
2-butanone(MEK)	USEPA 8260D-2018	0.020	mg/L	≤200	<0.020
Tetrachloroethene	USEPA 8260D-2018	0.0005	mg/L	≤0.7	<0.0005
Trichloroethene	USEPA 8260D-2018	0.0005	mg/L	≤0.5	<0.0005
Vinyl chloride	USEPA 8260D-2018	0.0005	mg/L	≤0.2	<0.0005
2,4-Dinitrotoluene	USEPA 8270E-2018	0.0005	mg/L	≤0.13	<0.0005
Hexachlorobenzene	USEPA 8270E-2018	0.0005	mg/L	≤0.13	<0.0005
Hexachlorobutadiene	USEPA 8270E-2018	0.0005	mg/L	≤0.5	<0.0005

3rd Building, No.889 Yishan Road, Xuhui District, Shanghai, China 200233 t (86-21) 61072828 f (86-21) 61152164 www.sgsgroup.com.cn
中国·上海·徐汇区宜山路889号3号楼 邮编: 200233 t (86-21) 61072828 f (86-21) 61152164 e sgs.china@sgs.com

INORGANIC & ORGANIC ANALYSIS

Report No.: SHE21-01442/1

Customer Reference: -

			Lab ID	Limit	SHE21-01442.001
			Customer ID		TSM-530DEG19C.20
			Order No		SHES2102003321TX
			Serial No		A08210100400137
			Date Received		2021/02/24
TCLP ITEM	METHOD	MDL	UNIT		**Solid waste**
Hexachloroethane	USEPA 8270E-2018	0.0005	mg/L	≤3	<0.0005
Nitrobenzene	USEPA 8270E-2018	0.0005	mg/L	≤2	<0.0005
Pentachlorophenol	USEPA 8270E-2018	0.0025	mg/L	≤100	<0.0025
Pyridine	USEPA 8270E-2018	0.002	mg/L	≤5.0	<0.002
2,4,5-Trichlorophenol	USEPA 8270E-2018	0.0005	mg/L	≤400	<0.0005
2,4,6-Trichlorophenol	USEPA 8270E-2018	0.0005	mg/L	≤2	<0.0005
Methylphenol	USEPA 8270E-2018	0.001	mg/L	≤200	<0.001
2-Methylphenol	USEPA 8270E-2018	0.0005	mg/L	≤200	<0.0005
3&4-Methylphenol	USEPA 8270E-2018	0.0005	mg/L	≤200	<0.0005
Endrin	USEPA 8270E-2018	0.0005	mg/L	≤0.02	<0.0005
γ-BHC	USEPA 8270E-2018	0.0005	mg/L	≤0.4	<0.0005
Toxaphene	USEPA 8270E-2018	0.050	mg/L	≤0.5	<0.050
Methoxychlor	USEPA 8270E-2018	0.0005	mg/L	≤10	<0.0005
Heptachlor	USEPA 8270E-2018	0.0005	mg/L	≤0.008	<0.0005
Chlordane(Total)	USEPA 8270E-2018	0.001	mg/L	≤0.03	<0.001

Remark:

1.Preparative method:USEPA1311-1992(Toxicity Characteristic Leaching Procedure)

2.The Limits comes from CFR(code of federal regulations) title 40 part 261.24.

3rd Building, No.889 Yishan Road, Xuhui District, Shanghai, China 200233 t (86-21) 61072828 f (86-21) 61152164 www.sgsgroup.com.cn
中国·上海·徐汇区宜山路889号3号楼 邮编: 200233 t (86-21) 61072828 f (86-21) 61152164 e sgs.china@sgs.com

Method List

USEPA 200.8-1994 Metals ICP-MS
USEPA 7473-2007 Metals-Hg
USEPA 8151A-1996 Acid Herbicides in Water by GC-MS
USEPA 8260D-2018 VOCs
USEPA 8270E-2018 SVOCs

Equipment Information

Method:USEPA 200.8-1994

Equipment Name	Model	Equipment Number	Serial Number
ICP-MS	Agilent 7900	CHEM-998	JP16311502

Method:USEPA 7473-2007

Equipment Name	Model	Equipment Number	Serial Number
Hg analyzer	Milestone DMA-80	CHEM-958	16041979

Method:USEPA 8151A-1996

Equipment Name	Model	Equipment Number	Serial Number
GC-MS	Agilent 7890A/5975C	CHEM-ENV085	CN12371032/US12362A17

Method:USEPA 8260D-2018

Equipment Name	Model	Equipment Number	Serial Number
PT-GC-MS	AQUATek100&Agilent7890B/5975A	CHEM-937	US15240014/CN15423234/US1541L452

Method:USEPA 8270E-2018

Equipment Name	Model	Equipment Number	Serial Number
GC-MS	Agilent 7890B/5977B	CHEM-1175	CN18293008/US1824R018

Method:USEPA 8270E-2018

Equipment Name	Model	Equipment Number	Serial Number
GC-MS	Agilent 7890B/5977B	CHEM-1175	CN18293008/US1824R018

APPENDIX 1

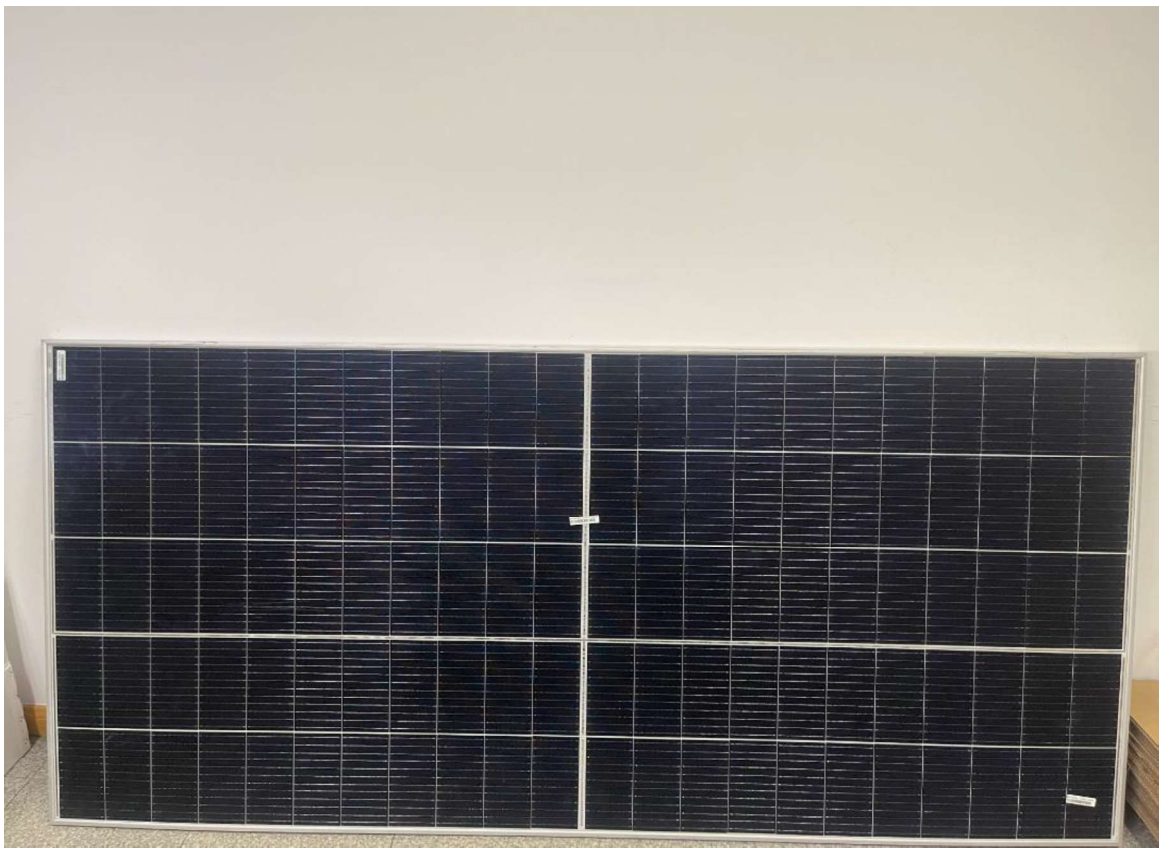
Report No.:SHE21-01442/1

Customer Reference: -

APPENDIX 2

Report No.:SHE21-01442/1

Customer Reference: -



3rd Building, No.889 Yishan Road, Xuhui District, Shanghai, China 200233 t (86-21) 61072828 f (86-21) 61152164 www.sgsgroup.com.cn
中国·上海·徐汇区宜山路889号3号楼 邮编: 200233 t (86-21) 61072828 f (86-21) 61152164 e sgs.china@sgs.com

APPENDIX 3

Report No.:SHE21-01442/1

Customer Reference: -

End of report