STORMWATER MANAGEMENT REPORT

Somers Solar Project

Tolland County, Connecticut

JULY 25, 2023

PREPARED FOR:

US SOLAR

PREPARED BY:

Westwood

Stormwater Management Report

Somers Solar Project

Tolland County, Connecticut

Prepared For:

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Project Number: R0028111.00
Date: July 25, 2023

Westwood

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Introduction

The purpose of this report is to summarize the proposed stormwater management for the Somers Solar project ("the project"). This report was prepared to meet local and state requirements and is intended for submittal to these agencies for permitting review and approval.

The project site is proposed on approximately 18 acres and is located less than 1 mile north of the city of Ellington in Tolland County, Connecticut. The site's current use is agricultural row crops with a small amount of forested areas.

The proposed use of the site will be a solar facility consisting of 4.5 acres of solar modules and 0.7 acres of the new impervious surface including gravel access roads and associated solar infrastructure. The proposed site under the solar modules will be converted to meadow conditions within the fenced boundary around the proposed impervious surfaces. Due to the area beneath the panels being vegetated and the slopes onsite being less than 15%, the solar panels will not be considered impervious surfaces.

Minimal grading will be proposed on site and existing drainage patterns will be maintained. Stormwater management practices, including 2 detention basins, are proposed on site to meet the requirements enforced by the state of Connecticut. Other stormwater measures, including 2 swales, are proposed on site to route water through the site and towards the proposed basins.

Data Sources

TABLE 1: DATA SOURCES

Task	Format	Source	Use
Elevation	1-Meter DEM	USGS	Model Elevations
Crop Data	Shapefile	USDA 2013 Crop Data Layer	Landcover
Soils	Shapefile	USGS SSURGO Dataset	Curve Numbers
Precipitation	PDF File	NOAA Atlas 14	Design Storms
Site Boundary	KMZ	US Solar	Define Model Extents
2014 Aerial Photography	ArcGIS Map Service	USDA FSA	Reference

Existing Site Conditions

Site Location

The project area is a privately owned parcel located less than 1 mile north of the city of Ellington in Tolland County, Connecticut.

Historical Use

A review of aerial photographs shows that the site is currently used and has historically been used for agricultural row crops. There are also small, forested areas located onsite.

Topography Description

The existing topographic information used in this analysis was 1-meter elevation data obtained from USGS. The site is generally flat with slopes of less than 3%, although there are locations on the eastern portion of the site where the slopes reach roughly 6%.

Soils

Soils data was downloaded from SSURGO and can be found in Exhibit 3. The site consists primarily of Hydrologic Soil Group (HSG) A and C. Type A soils have low runoff potential and high infiltration rates. Type C soils have moderate runoff potential and low infiltration rates.

Developed Site Conditions

The use of the site will be a 3 MW solar facility. The site will consist of approximately 4.5 acres of solar modules mounted above grade on a racking system and 0.7 acres of gravel access roads and electrical equipment. The solar modules will be located above grade on a post driven racking system with meadow grass below the proposed array. Any areas of clearing and grubbing along with any ground cover disturbed during construction will also be reseeded with the meadow grass.

Minimal grading is proposed to meet the tolerances of the proposed solar array. Approximately 2 acres of the site will require tree clearing on the edges of the project site and in a portion of the central project area to prevent shading of the panels. Drainage patterns will remain the same with the addition of 2 detention basins that outlet similar to existing conditions. Detention basins are proposed to provide rate control and storage for the site. Swales are proposed to route water through the site and into the basins.

Stormwater Management Requirements

Stormwater management for the project falls under the jurisdiction of the state of Connecticut. The following requirements need to be met for the project:

Water Quantity/Runoff Analysis

Stormwater quantity control must be provided so that proposed conditions peak runoff rates must be equal to or less than existing conditions. The 2-year, 25-year, 50-year, and 100-year 24-hour stormwater events must meet these requirements. The requirements include having stormwater practices to store 1 inch of runoff for the site and to control the post-development peak discharge rates. Gravel access roads and transformer pads will be included in the effective impervious cover when calculating the water quality volume (WQV). Solar panels are not considered impervious cover since the post-construction slopes are less than 15% and proper

stabilization practices will be put in place as required by the Connecticut Department of Energy & Environmental Protection (CT DEEP).

Stormwater Management

Analysis Methodology

Existing and proposed conditions are modeled in HydroCAD software. HydroCAD is a widely accepted hydrologic and hydraulic modeling package based on TR-20 unit hydrograph equations. It models stormwater runoff discharge rates and velocities from ponds, culverts, outlet control structures, and stream reaches.

Curve Number Methodology, based on the NRCS-TR 55 method, was used in the modeling for predicting direct runoff. Curve numbers were assigned by reviewing the soil and landcover for each drainage area (Appendix B and C). As required by the CT DEEP, the Hydrologic Soil Group (HSG) was reduced onsite by one step to account for any compaction of the soil by heavy machinery during construction.

Time of concentrations were calculated for each drainage area in HydroCAD using the lag method. The lag method uses the hydraulic length (distance traveled by a drop of water from the most distant part of the subcatchment to the outlet point) and the average land slope (average slope of entire watershed). The overall curve number for the site along with the lag information is used to get the time of concentration for the site.

Atlas 14 precipitation and distribution data (Type III) for the 2-year, 25-year, 50-year, and 100-year 24-hour storm events were used as input for the analysis with rainfall depths of 3.19, 6.22, 7.07, and 8.01 inches, respectively (Appendix A).

Onsite runoff is split into 2 drainage areas based on discharge locations and existing low areas. Drainage areas are shown in Exhibits 5 and 6. The HydroCAD reports are in Appendix B and C.

Existing Drainage Patterns

The project site was modeled at two Analysis Points ("AP-1" and "AP-2"). AP-1 is in the northern portion of the site and drains to the north. AP-2 is in the southern portion of the site and drains to the southwest.

The pre-developed discharges at the Analysis Points for the 2, 25, 50, and 100-year storm events are in Table 2.

TABLE 2: PRE-DEVELOPED PEAK STORM RUNOFF

Analysis Point	2-Year Runoff (cfs)	25-Year Runoff (cfs)	50-Year Runoff (cfs)	100-Year Runoff (cfs)
AP-1	6.9	28.6	35.6	43.3
AP-2	26.8	64.7	75.8	87.7

Proposed Drainage Patterns

The proposed drainage patterns onsite will remain similar to existing conditions through the use of swales and detention basins. Minimal grading is required to accommodate the proposed solar infrastructure. Small areas of tree clearing will occur along the edges of the fence boundary and in the central portion of the project area.

Two stormwater basins are proposed onsite. Two grass swales are proposed in the project area to route the flow to the proposed basins. The basins allow for storage of the water quality volume (WQV) recommended by the CT DEEP (Appendix D).

The post-development conditions were modeled at the same Analysis Points as the existing conditions. The post-development discharges at the Analysis Points for the 2, 25, 50, and 100-year storm events are in Table 3.

TABLE 3: POST-DEVELOPED PEAK STORM RUNOFF

Analysis Point	2-Year Runoff (cfs)	25-Year Runoff (cfs)	50-Year Runoff (cfs)	100-Year Runoff (cfs)
AP-1	0.4	3.7	8.1	14.4
AP-2	1.4	4.3	7.3	12.3

Basin Calculations

Detention basins are provided at critical locations in the site to capture runoff to slow release rates and provide treatment for the site. Tables 4 and 5 summarize the proposed basins on site. Calculations can be found in Appendix C.

TABLE 4: PROPOSED BASIN SUMMARY

Basin	Bottom Elevation (ft)	Outlet Elevation (ft)	Emergency Overflow Elev. (ft)	Top Elevation (ft)
B-1	233.0	235.0	236.5	238.0
B-2	233.0	235.0	236.5	238.0

Swale Sizing

Swales are proposed to route runoff through the site to avoid flooding of proposed infrastructure and route water to proposed basins. Swales are sized to safely pass the 10-year 24-hour rainfall events. HydroCAD was used to size the proposed swales; calculations are included in Appendix C. Table 5 summarizes the proposed swale geometries and recommended lining.

TABLE 5: PROPOSED SWALE SUMMARY

Location	Bottom Width (ft)	Depth (ft)	Side Slopes	Shear Stress (lb/sf)	Lining Material
SW-1	1.00	1.5	3:1	0.8	Grass
SW-2	1.00	1.5	3:1	1.0	Grass

Construction Conditions

During construction conditions, higher runoff rates and volumes can be expected than the fully vegetated final condition. To account for this, dewatering should be anticipated as needed until vegetation has fully established on the site. This may include pumping of temporary swales and diversions. Once the site has been stabilized, sediment will need to be removed from any permanent basins on site. Using temporary seed/mulch at the onset of construction can greatly reduce the amount of erosion and rework on solar sites. As the project progresses to construction a separate stormwater pollution prevention plan will be prepared to account for these concerns in greater detail.

Conclusion

The proposed site was designed to meet the requirements of the state of Connecticut for stormwater management. The proposed site consists of proposed basins and swales in order to maintain existing drainage patterns, reduce runoff rates, and provide required treatment volumes.

References Cited

National Engineering Handbook, Part 630 Hydrology. Chapter 9 Hydrologic Soil-Cover Complexes. USDA. NRCS. 210-VI-NEH, July 2004

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Exhibits

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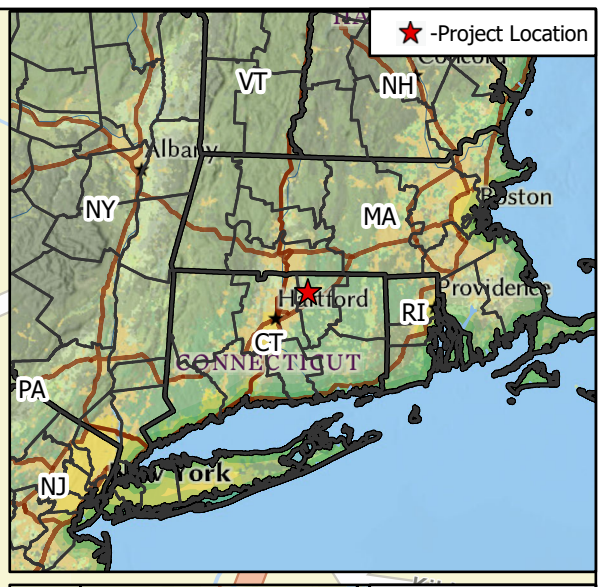

Data Source(s): Westwood (2023); Esri WMS Basemap Imagery (Accessed 2023); USGS (2023); FEMA (2023); USDA (2023)

Legend

Fence Boundary

County Boundary

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N

0 500 Feet

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Tolland County, Connecticut

Exhibit 1: Location Map

May 9, 2023

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Basemap - Base Map | 5/9/2023 9:28 AM | KLHauser

Data Source(s): Westwood (2023); Esri WMS Basemap Imagery (Accessed 2023); USGS (2023); FEMA (2023); USDA (2023)

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Legend

- Fence Boundary
- County Boundary
- HUC 12 Boundary
- FEMA Zone A*
- FEMA Zone AE*
- NHD Flowline

N

0 250 Feet

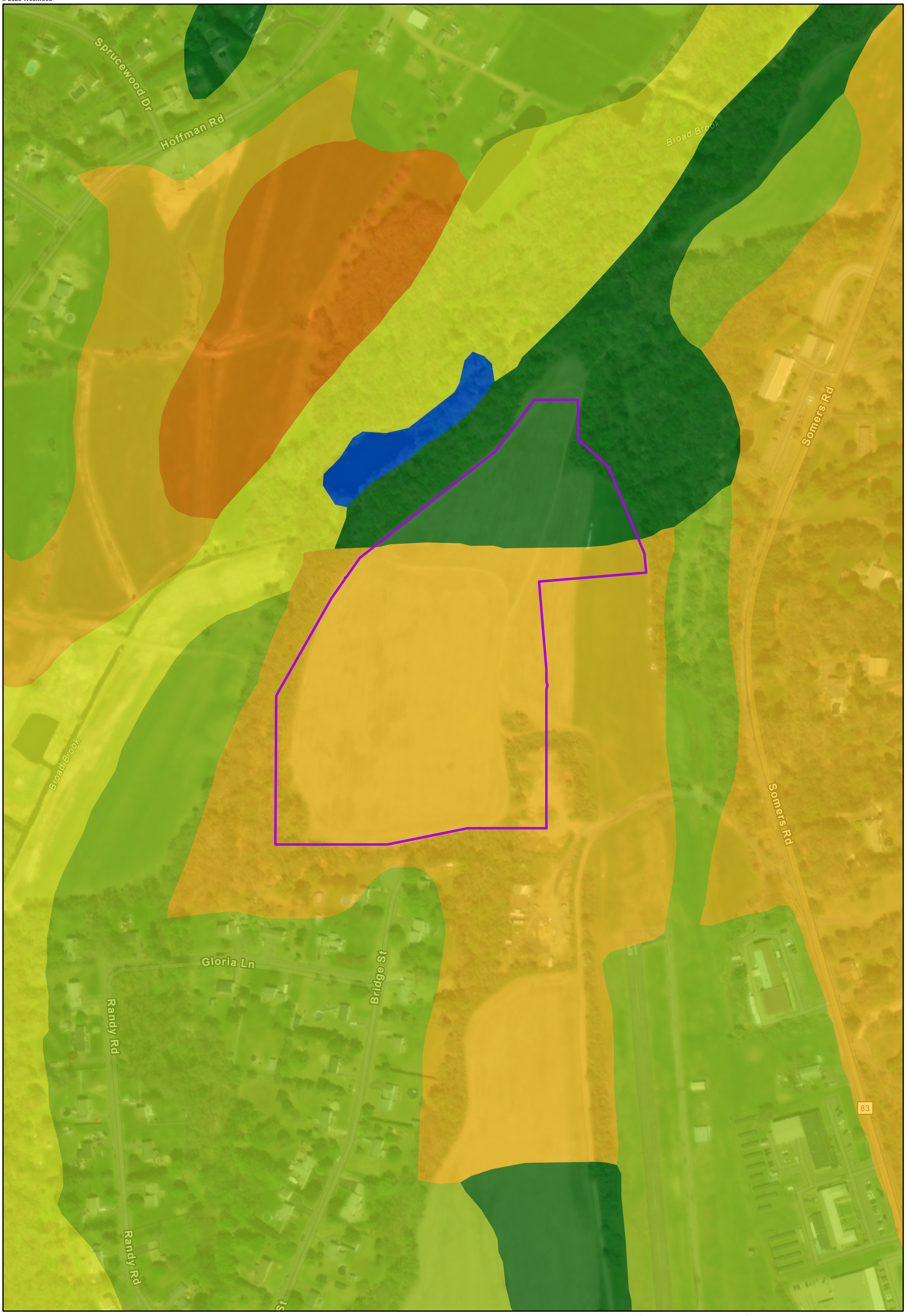
*FEMA Data electronically hand digitized

Somers Solar Project

Tolland County, Connecticut

Exhibit 2: Base Map

May 9, 2023



Data Source(s): Westwood (2023); Esri WMS Basemap Imagery (Accessed 2023); USGS (2023); FEMA (2023); USDA (2023)

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Legend

- Fence Boundary
- County Boundary
- Hydrologic Soil Group
  - A
  - A/D
  - B
  - B/D
  - C
  - C/D
  - D
  - W

N

0 250 Feet

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Tolland County, Connecticut

Exhibit 3: Soils Map

May 9, 2023

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Landcover Map - Landcover Map | 5/9/2023 9:29 AM | KLHauser

Sprucewood Dr
Hoffman Rd
Broad Brook
Somers Rd
Broad Brook
Somers Rd
Gloria Ln
Bridge St
Randy Rd
Randy Rd
83

Data Source(s): Westwood (2023); Esri WMS Basemap Imagery (Accessed 2023); USGS (2023); FEMA (2023); USDA (2023)

Legend

- Fence Boundary
- County Boundary
- Landcover
  - Barren
  - Cultivated Cropland
  - Developed
  - Fallow/Idle Cropland
  - Grassland/Pasture
  - Forest
  - Open Water
  - Shrubland
  - Wetlands

N

0 250 Feet

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Exhibit 4: Landcover Map

May 9, 2023

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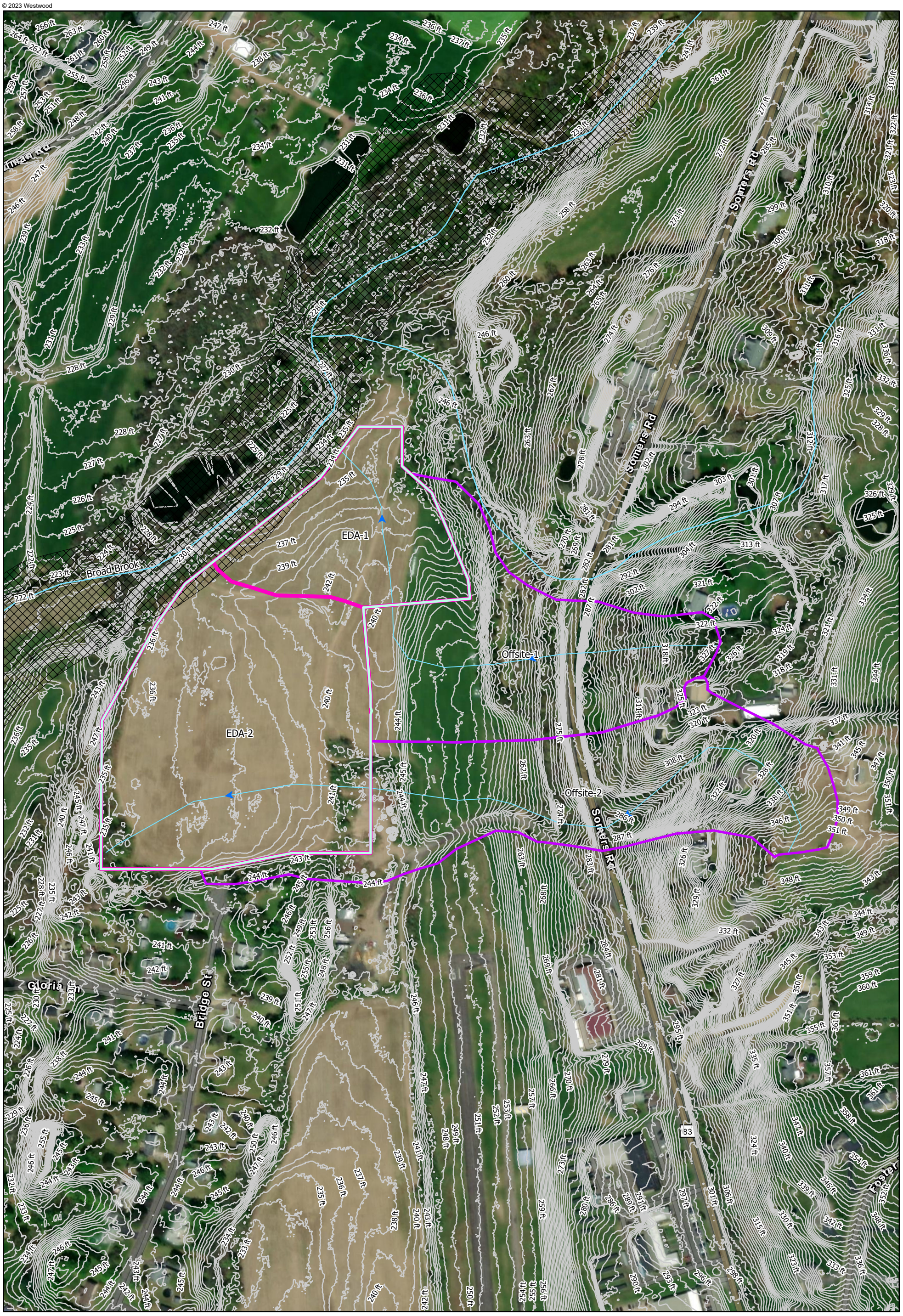
Water Depth Map - 100 Yr Water Depth Map | 5/9/2023 9:49 AM | KLHauser



Data Source(s): Westwood (2023); Esri WMS Basemap Imagery (Accessed 2023); USGS (2023); FEMA (2023); USDA (2023)

Legend

- Fence Boundary
- County Boundary
- Existing Drainage Areas
- Offsite Drainage Areas
- FEMA Zone A*
- FEMA Zone AE*
- Flow Lines
- NHD Flowline
- 1' Contours

N

0 250 Feet

*FEMA Data electronically hand digitized

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Exhibit 5: Existing Drainage Map

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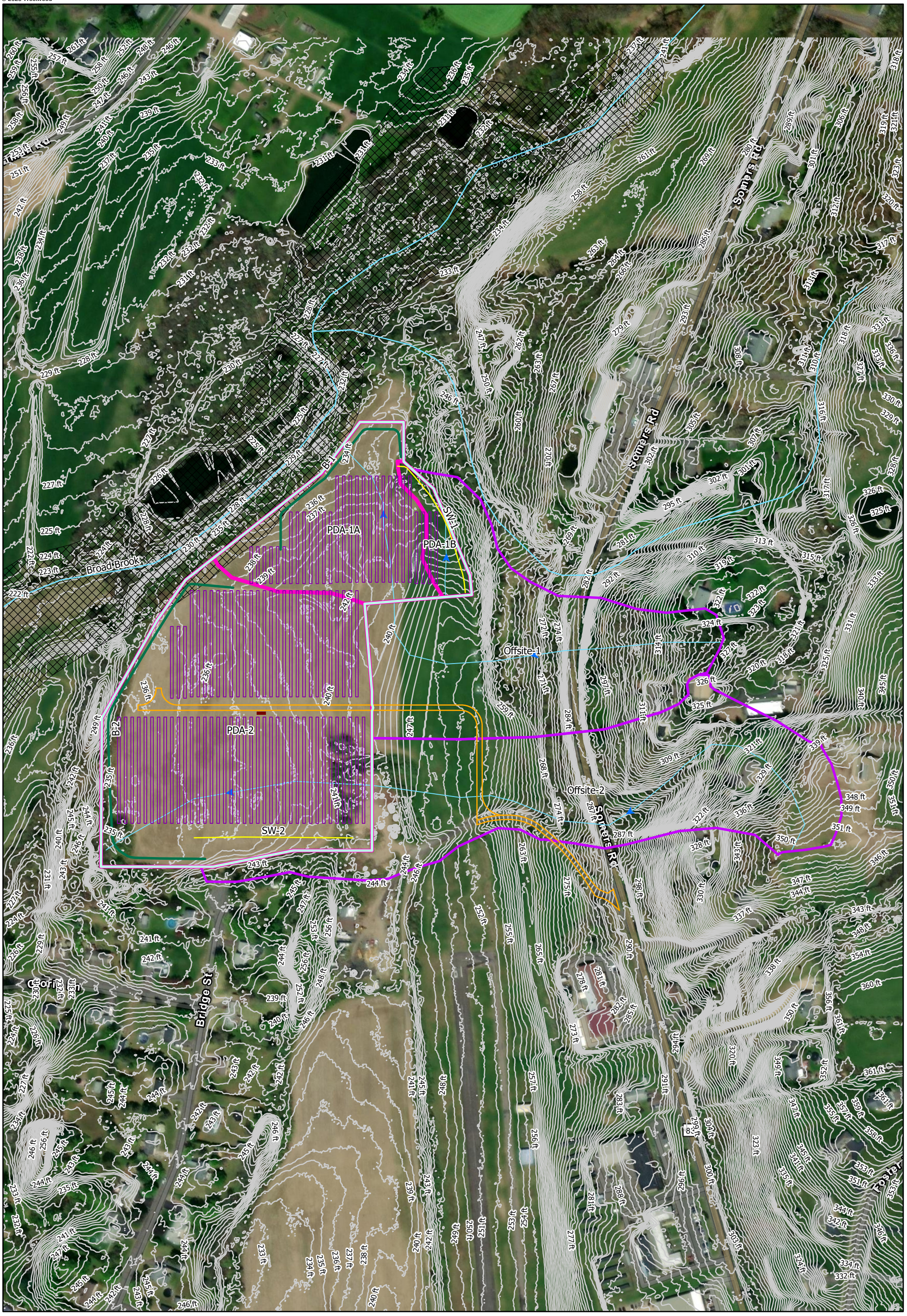

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Exhibit 6: Proposed Drainage Map

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Appendix A

Atlas 14 Rainfall Data

NOAA Atlas 14, Volume 10, Version 3
Location name: Town of Ellington, Connecticut, USA*
Latitude: 41.9303°, Longitude: -72.4576°
Elevation: 257.11 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)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.333 (0.255-0.435)	0.402 (0.307-0.526)	0.515 (0.392-0.676)	0.609 (0.462-0.804)	0.739 (0.544-1.02)	0.837 (0.605-1.18)	0.939 (0.661-1.37)	1.05 (0.705-1.58)	1.22 (0.786-1.88)	1.35 (0.853-2.13)
10-min	0.472 (0.361-0.617)	0.570 (0.435-0.746)	0.730 (0.556-0.960)	0.864 (0.654-1.14)	1.05 (0.771-1.45)	1.19 (0.857-1.67)	1.33 (0.936-1.94)	1.49 (0.999-2.23)	1.72 (1.11-2.67)	1.91 (1.21-3.02)
15-min	0.555 (0.424-0.725)	0.670 (0.512-0.877)	0.859 (0.655-1.13)	1.02 (0.770-1.34)	1.23 (0.907-1.70)	1.39 (1.01-1.97)	1.56 (1.10-2.29)	1.75 (1.18-2.62)	2.03 (1.31-3.14)	2.25 (1.42-3.55)
30-min	0.752 (0.575-0.983)	0.910 (0.695-1.19)	1.17 (0.890-1.53)	1.38 (1.05-1.83)	1.68 (1.23-2.31)	1.90 (1.37-2.68)	2.13 (1.50-3.11)	2.39 (1.60-3.57)	2.76 (1.79-4.28)	3.06 (1.94-4.84)
60-min	0.949 (0.726-1.24)	1.15 (0.878-1.50)	1.48 (1.12-1.94)	1.75 (1.32-2.31)	2.12 (1.56-2.93)	2.40 (1.74-3.39)	2.70 (1.90-3.94)	3.02 (2.03-4.52)	3.50 (2.26-5.41)	3.88 (2.46-6.13)
2-hr	1.21 (0.933-1.58)	1.46 (1.12-1.90)	1.87 (1.43-2.44)	2.20 (1.68-2.90)	2.67 (1.98-3.67)	3.01 (2.19-4.24)	3.38 (2.41-4.96)	3.82 (2.56-5.68)	4.47 (2.90-6.89)	5.03 (3.19-7.90)
3-hr	1.40 (1.08-1.81)	1.68 (1.29-2.18)	2.15 (1.65-2.80)	2.53 (1.93-3.32)	3.06 (2.28-4.21)	3.46 (2.53-4.87)	3.88 (2.78-5.70)	4.40 (2.96-6.54)	5.20 (3.38-7.99)	5.89 (3.75-9.22)
6-hr	1.76 (1.36-2.27)	2.13 (1.65-2.75)	2.74 (2.11-3.55)	3.24 (2.49-4.23)	3.94 (2.95-5.40)	4.45 (3.27-6.24)	5.01 (3.62-7.35)	5.71 (3.85-8.42)	6.81 (4.43-10.4)	7.77 (4.96-12.1)
12-hr	2.18 (1.70-2.80)	2.67 (2.08-3.44)	3.48 (2.69-4.48)	4.14 (3.19-5.37)	5.06 (3.81-6.91)	5.74 (4.25-8.02)	6.48 (4.70-9.48)	7.42 (5.02-10.9)	8.90 (5.82-13.5)	10.2 (6.53-15.8)
24-hr	2.57 (2.01-3.29)	3.19 (2.50-4.09)	4.21 (3.28-5.40)	5.06 (3.92-6.52)	6.22 (4.70-8.45)	7.07 (5.26-9.85)	8.01 (5.85-11.7)	9.21 (6.26-13.4)	11.1 (7.30-16.8)	12.8 (8.23-19.7)
2-day	2.91 (2.28-3.69)	3.64 (2.86-4.64)	4.85 (3.80-6.19)	5.85 (4.56-7.52)	7.23 (5.50-9.81)	8.24 (6.17-11.5)	9.36 (6.89-13.6)	10.8 (7.38-15.7)	13.2 (8.68-19.8)	15.3 (9.86-23.4)
3-day	3.16 (2.50-4.01)	3.97 (3.13-5.04)	5.29 (4.15-6.73)	6.38 (4.98-8.16)	7.89 (6.01-10.7)	8.98 (6.75-12.5)	10.2 (7.54-14.8)	11.8 (8.07-17.1)	14.4 (9.50-21.6)	16.8 (10.8-25.5)
4-day	3.40 (2.69-4.30)	4.26 (3.36-5.39)	5.66 (4.45-7.19)	6.82 (5.34-8.71)	8.42 (6.44-11.4)	9.59 (7.21-13.3)	10.9 (8.05-15.8)	12.6 (8.61-18.2)	15.4 (10.1-22.9)	17.8 (11.5-27.1)
7-day	4.06 (3.22-5.11)	5.02 (3.98-6.33)	6.60 (5.21-8.35)	7.91 (6.21-10.1)	9.71 (7.44-13.0)	11.0 (8.32-15.2)	12.5 (9.24-18.0)	14.4 (9.87-20.6)	17.4 (11.5-25.8)	20.1 (13.0-30.4)
10-day	4.71 (3.75-5.92)	5.74 (4.56-7.21)	7.41 (5.87-9.35)	8.81 (6.93-11.2)	10.7 (8.22-14.3)	12.1 (9.15-16.6)	13.7 (10.1-19.5)	15.6 (10.8-22.4)	18.7 (12.4-27.7)	21.5 (13.9-32.3)
20-day	6.77 (5.41-8.46)	7.87 (6.28-9.84)	9.66 (7.68-12.1)	11.1 (8.82-14.1)	13.2 (10.1-17.4)	14.7 (11.1-19.8)	16.3 (12.0-22.8)	18.2 (12.6-25.9)	21.1 (14.0-30.9)	23.4 (15.2-35.0)
30-day	8.51 (6.82-10.6)	9.63 (7.71-12.0)	11.5 (9.15-14.3)	13.0 (10.3-16.3)	15.1 (11.6-19.7)	16.7 (12.5-22.2)	18.3 (13.3-25.2)	20.1 (14.0-28.4)	22.6 (15.1-33.0)	24.6 (16.0-36.6)
45-day	10.7 (8.59-13.3)	11.8 (9.50-14.7)	13.7 (11.0-17.1)	15.3 (12.2-19.2)	17.4 (13.4-22.6)	19.1 (14.3-25.2)	20.7 (15.0-28.2)	22.4 (15.6-31.4)	24.5 (16.4-35.6)	26.1 (17.0-38.7)
60-day	12.5 (10.1-15.5)	13.7 (11.0-17.0)	15.6 (12.5-19.4)	17.2 (13.7-21.5)	19.4 (14.9-25.0)	21.2 (15.9-27.7)	22.8 (16.5-30.7)	24.4 (17.0-34.1)	26.3 (17.6-38.0)	27.6 (18.0-40.8)

[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%. Estimates at 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.

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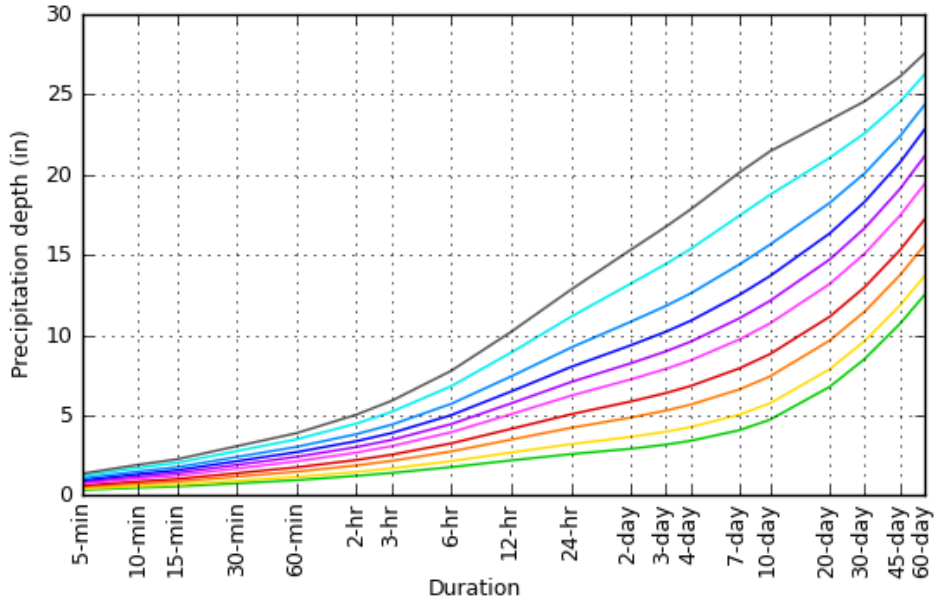
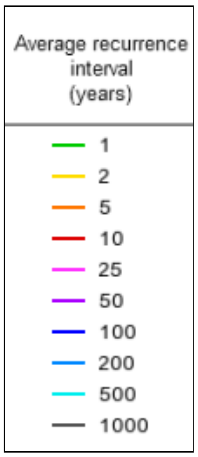
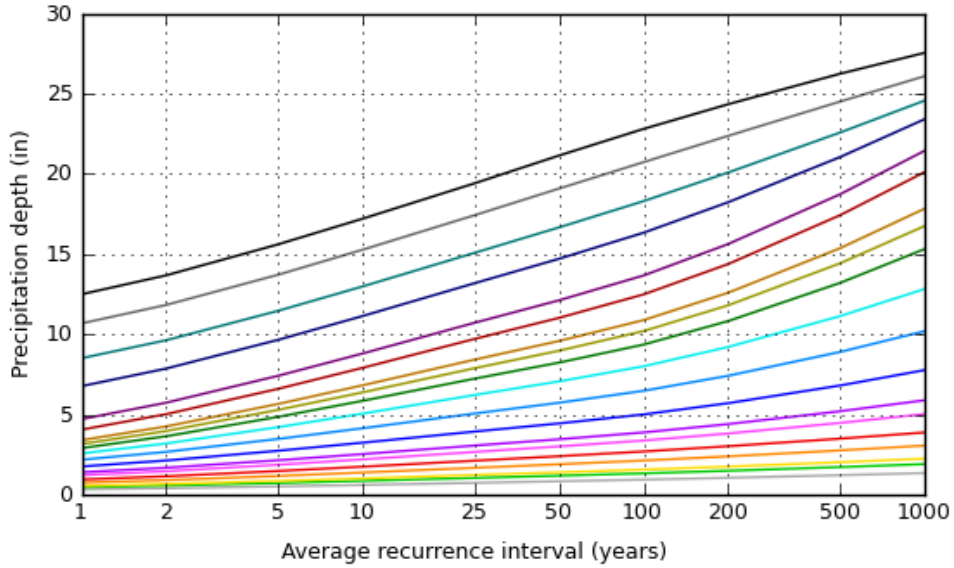
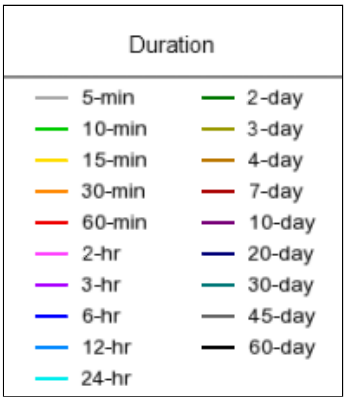
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 41.9303°, Longitude: -72.4576°









NOAA Atlas 14, Volume 10, Version 3

Created (GMT): Thu Jan 14 18:02:56 2021

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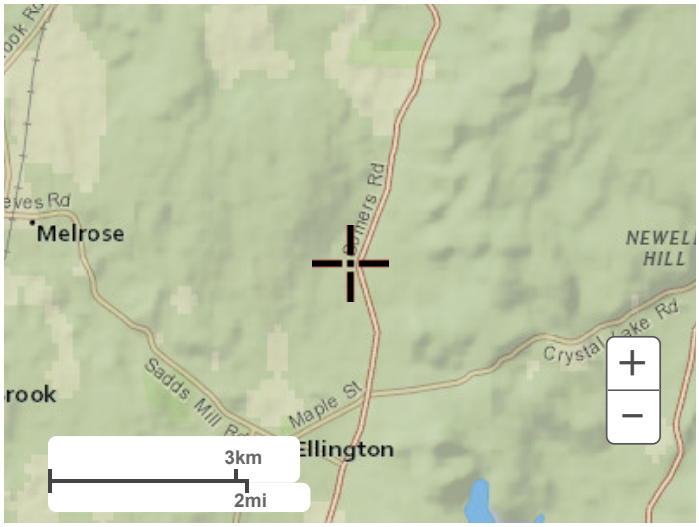
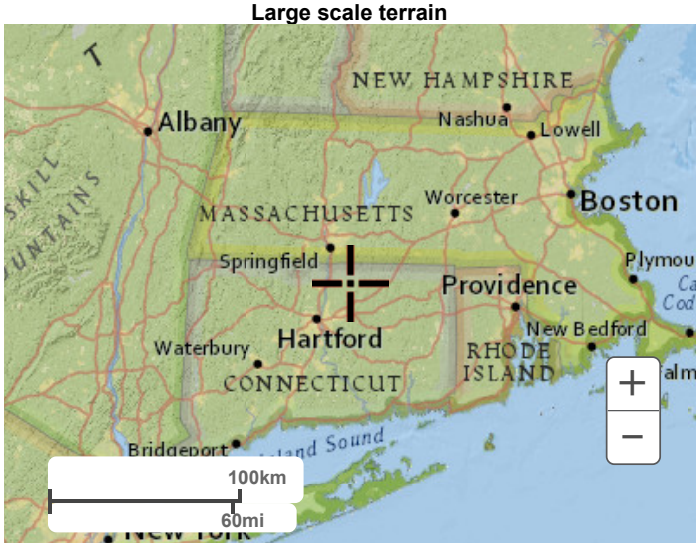
Maps & aerials

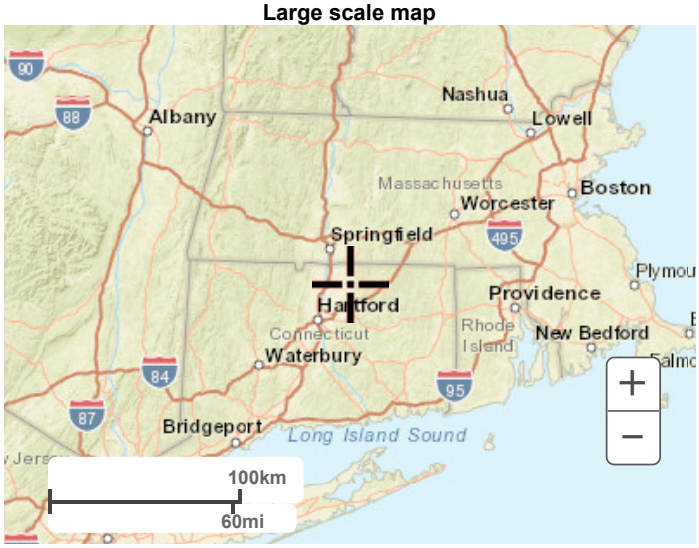
Small scale terrain



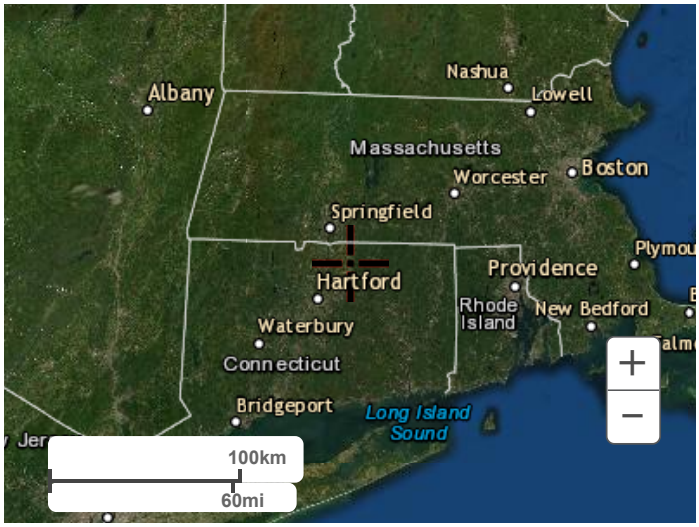
Large scale terrain



Large scale map



Large scale aerial



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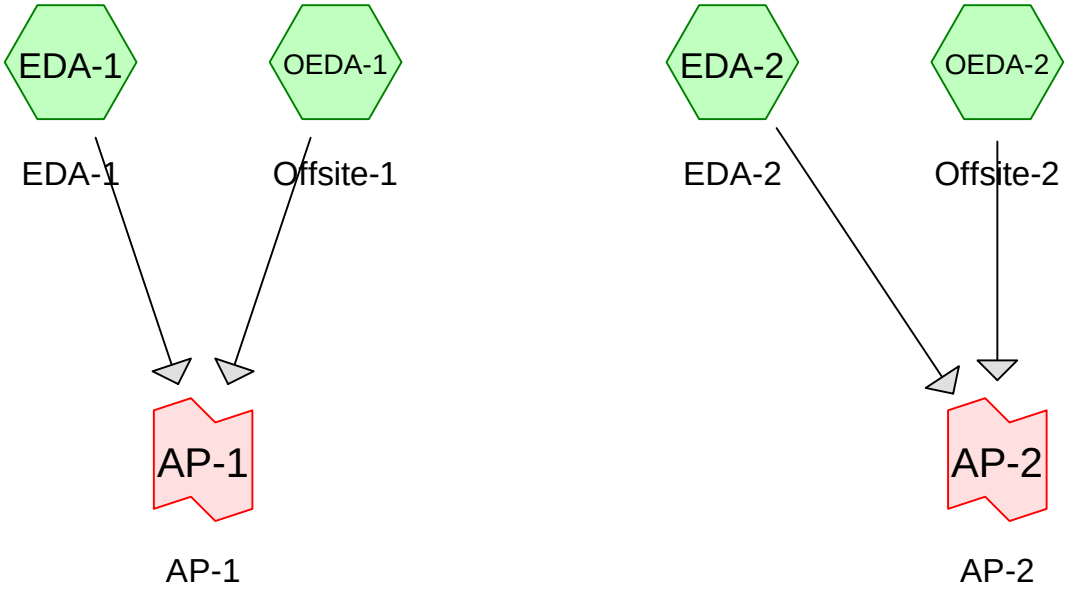
US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Appendix B

Existing HydroCAD Report



Subcat Reach Pond Link

Routing Diagram for 2023-04-21 Somers Basin Sizing
Prepared by Westwood MultiDisciplined Eng, Printed 5/9/2023

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	CT-Somers 24-hr S1	2-yr	Default	24.00	1	3.19	2
2	25-yr	CT-Somers 24-hr S1	25-yr	Default	24.00	1	6.22	2
3	50-yr	CT-Somers 24-hr S1	50-yr	Default	24.00	1	7.07	2
4	100-yr	CT-Somers 24-hr S1	100-yr	Default	24.00	1	8.01	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.800	72	Row Crop, HSG A (EDA-1)
13.700	88	Row Crop, HSG C (EDA-1, EDA-2)
0.800	30	Woods, Good, HSG A (OEDA-1)
3.300	55	Woods, Good, HSG B (OEDA-1, OEDA-2)
13.600	70	Woods, Good, HSG C (OEDA-1, OEDA-2)
35.200	**75**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
4.600	HSG A	EDA-1, OEDA-1
3.300	HSG B	OEDA-1, OEDA-2
27.300	HSG C	EDA-1, EDA-2, OEDA-1, OEDA-2
0.000	HSG D	
0.000	Other	
35.200		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
3.800	0.000	13.700	0.000	0.000	17.500	Row Crop	EDA-1, EDA-2
0.800	3.300	13.600	0.000	0.000	17.700	Woods, Good	OEDA-1, OEDA-2
4.600	**3.300**	**27.300**	**0.000**	**0.000**	**35.200**	**TOTAL AREA**	

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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 EDA-1: EDA-1 Runoff Area=5.000 ac 0.00% Impervious Runoff Depth=1.15"
Flow Length=480' Slope=0.0369 '/' Tc=10.4 min CN=76 Runoff=6.00 cfs 0.477 af

Subcatchment EDA-2: EDA-2 Runoff Area=12.500 ac 0.00% Impervious Runoff Depth=1.99"
Flow Length=830' Slope=0.0298 '/' Tc=12.0 min CN=88 Runoff=25.68 cfs 2.071 af

Subcatchment OEDA-1: Offsite-1 Runoff Area=6.400 ac 0.00% Impervious Runoff Depth=0.44"
Flow Length=880' Slope=0.1091 '/' Tc=14.7 min CN=61 Runoff=1.46 cfs 0.235 af

Subcatchment OEDA-2: Offsite-2 Runoff Area=11.300 ac 0.00% Impervious Runoff Depth=0.73"
Flow Length=2,090' Slope=0.0570 '/' Tc=33.8 min CN=68 Runoff=3.99 cfs 0.685 af

Link AP-1: AP-1 Inflow=6.93 cfs 0.712 af
Primary=6.93 cfs 0.712 af

Link AP-2: AP-2 Inflow=26.76 cfs 2.756 af
Primary=26.76 cfs 2.756 af

Total Runoff Area = 35.200 ac Runoff Volume = 3.467 af Average Runoff Depth = 1.18"
100.00% Pervious = 35.200 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EDA-1: EDA-1

Runoff = 6.00 cfs @ 12.10 hrs, Volume= 0.477 af, Depth= 1.15"
Routed to Link AP-1 : AP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 2-yr Rainfall=3.19"

	Area (ac)	CN	Description
*	3.800	72	Row Crop, HSG A
*	1.200	88	Row Crop, HSG C
	5.000	76	Weighted Average
	5.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	480	0.0369	0.77		**Lag/CN Method,**

Summary for Subcatchment EDA-2: EDA-2

Runoff = 25.68 cfs @ 12.11 hrs, Volume= 2.071 af, Depth= 1.99"
Routed to Link AP-2 : AP-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 2-yr Rainfall=3.19"

	Area (ac)	CN	Description
*	12.500	88	Row Crop, HSG C
	12.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	830	0.0298	1.15		**Lag/CN Method,**

Summary for Subcatchment OEDA-1: Offsite-1

Runoff = 1.46 cfs @ 12.21 hrs, Volume= 0.235 af, Depth= 0.44"
Routed to Link AP-1 : AP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 2-yr Rainfall=3.19"

Area (ac)	CN	Description
4.000	70	Woods, Good, HSG C
0.800	30	Woods, Good, HSG A
1.600	55	Woods, Good, HSG B
6.400	61	Weighted Average
6.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.7	880	0.1091	1.00		**Lag/CN Method,**

Summary for Subcatchment OEDA-2: Offsite-2

Runoff = 3.99 cfs @ 12.47 hrs, Volume= 0.685 af, Depth= 0.73"
Routed to Link AP-2 : AP-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 2-yr Rainfall=3.19"

Area (ac)	CN	Description
9.600	70	Woods, Good, HSG C
1.700	55	Woods, Good, HSG B
11.300	68	Weighted Average
11.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.8	2,090	0.0570	1.03		**Lag/CN Method,**

Summary for Link AP-1: AP-1

Inflow Area = 11.400 ac, 0.00% Impervious, Inflow Depth = 0.75" for 2-yr event
Inflow = 6.93 cfs @ 12.11 hrs, Volume= 0.712 af
Primary = 6.93 cfs @ 12.11 hrs, Volume= 0.712 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link AP-2: AP-2

Inflow Area = 23.800 ac, 0.00% Impervious, Inflow Depth = 1.39" for 2-yr event
Inflow = 26.76 cfs @ 12.12 hrs, Volume= 2.756 af
Primary = 26.76 cfs @ 12.12 hrs, Volume= 2.756 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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 EDA-1: EDA-1 Runoff Area=5.000 ac 0.00% Impervious Runoff Depth=3.57"
Flow Length=480' Slope=0.0369 '/' Tc=10.4 min CN=76 Runoff=18.67 cfs 1.488 af

Subcatchment EDA-2: EDA-2 Runoff Area=12.500 ac 0.00% Impervious Runoff Depth=4.84"
Flow Length=830' Slope=0.0298 '/' Tc=12.0 min CN=88 Runoff=57.50 cfs 5.040 af

Subcatchment OEDA-1: Offsite-1 Runoff Area=6.400 ac 0.00% Impervious Runoff Depth=2.15"
Flow Length=880' Slope=0.1091 '/' Tc=14.7 min CN=61 Runoff=11.38 cfs 1.149 af

Subcatchment OEDA-2: Offsite-2 Runoff Area=11.300 ac 0.00% Impervious Runoff Depth=2.79"
Flow Length=2,090' Slope=0.0570 '/' Tc=33.8 min CN=68 Runoff=17.32 cfs 2.628 af

Link AP-1: AP-1 Inflow=28.63 cfs 2.637 af
Primary=28.63 cfs 2.637 af

Link AP-2: AP-2 Inflow=64.74 cfs 7.668 af
Primary=64.74 cfs 7.668 af

Total Runoff Area = 35.200 ac Runoff Volume = 10.304 af Average Runoff Depth = 3.51"
100.00% Pervious = 35.200 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EDA-1: EDA-1

Runoff = 18.67 cfs @ 12.09 hrs, Volume= 1.488 af, Depth= 3.57"
Routed to Link AP-1 : AP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 25-yr Rainfall=6.22"

	Area (ac)	CN	Description
*	3.800	72	Row Crop, HSG A
*	1.200	88	Row Crop, HSG C
	5.000	76	Weighted Average
	5.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	480	0.0369	0.77		**Lag/CN Method,**

Summary for Subcatchment EDA-2: EDA-2

Runoff = 57.50 cfs @ 12.11 hrs, Volume= 5.040 af, Depth= 4.84"
Routed to Link AP-2 : AP-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 25-yr Rainfall=6.22"

	Area (ac)	CN	Description
*	12.500	88	Row Crop, HSG C
	12.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	830	0.0298	1.15		**Lag/CN Method,**

Summary for Subcatchment OEDA-1: Offsite-1

Runoff = 11.38 cfs @ 12.16 hrs, Volume= 1.149 af, Depth= 2.15"
Routed to Link AP-1 : AP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 25-yr Rainfall=6.22"

Area (ac)	CN	Description
4.000	70	Woods, Good, HSG C
0.800	30	Woods, Good, HSG A
1.600	55	Woods, Good, HSG B
6.400	61	Weighted Average
6.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.7	880	0.1091	1.00		**Lag/CN Method,**

Summary for Subcatchment OEDA-2: Offsite-2

Runoff = 17.32 cfs @ 12.43 hrs, Volume= 2.628 af, Depth= 2.79"
Routed to Link AP-2 : AP-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 25-yr Rainfall=6.22"

Area (ac)	CN	Description
9.600	70	Woods, Good, HSG C
1.700	55	Woods, Good, HSG B
11.300	68	Weighted Average
11.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.8	2,090	0.0570	1.03		**Lag/CN Method,**

Summary for Link AP-1: AP-1

Inflow Area = 11.400 ac, 0.00% Impervious, Inflow Depth = 2.78" for 25-yr event
Inflow = 28.63 cfs @ 12.11 hrs, Volume= 2.637 af
Primary = 28.63 cfs @ 12.11 hrs, Volume= 2.637 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link AP-2: AP-2

Inflow Area = 23.800 ac, 0.00% Impervious, Inflow Depth = 3.87" for 25-yr event
Inflow = 64.74 cfs @ 12.12 hrs, Volume= 7.668 af
Primary = 64.74 cfs @ 12.12 hrs, Volume= 7.668 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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 EDA-1: EDA-1 Runoff Area=5.000 ac 0.00% Impervious Runoff Depth=4.32"
Flow Length=480' Slope=0.0369 '/' Tc=10.4 min CN=76 Runoff=22.50 cfs 1.800 af

Subcatchment EDA-2: EDA-2 Runoff Area=12.500 ac 0.00% Impervious Runoff Depth=5.66"
Flow Length=830' Slope=0.0298 '/' Tc=12.0 min CN=88 Runoff=66.54 cfs 5.897 af

Subcatchment OEDA-1: Offsite-1 Runoff Area=6.400 ac 0.00% Impervious Runoff Depth=2.75"
Flow Length=880' Slope=0.1091 '/' Tc=14.7 min CN=61 Runoff=14.83 cfs 1.468 af

Subcatchment OEDA-2: Offsite-2 Runoff Area=11.300 ac 0.00% Impervious Runoff Depth=3.47"
Flow Length=2,090' Slope=0.0570 '/' Tc=33.8 min CN=68 Runoff=21.61 cfs 3.265 af

Link AP-1: AP-1 Inflow=35.61 cfs 3.268 af
Primary=35.61 cfs 3.268 af

Link AP-2: AP-2 Inflow=75.84 cfs 9.162 af
Primary=75.84 cfs 9.162 af

Total Runoff Area = 35.200 ac Runoff Volume = 12.430 af Average Runoff Depth = 4.24"
100.00% Pervious = 35.200 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EDA-1: EDA-1

Runoff = 22.50 cfs @ 12.09 hrs, Volume= 1.800 af, Depth= 4.32"
Routed to Link AP-1 : AP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 50-yr Rainfall=7.07"

	Area (ac)	CN	Description
*	3.800	72	Row Crop, HSG A
*	1.200	88	Row Crop, HSG C
	5.000	76	Weighted Average
	5.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	480	0.0369	0.77		**Lag/CN Method,**

Summary for Subcatchment EDA-2: EDA-2

Runoff = 66.54 cfs @ 12.11 hrs, Volume= 5.897 af, Depth= 5.66"
Routed to Link AP-2 : AP-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 50-yr Rainfall=7.07"

	Area (ac)	CN	Description
*	12.500	88	Row Crop, HSG C
	12.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	830	0.0298	1.15		**Lag/CN Method,**

Summary for Subcatchment OEDA-1: Offsite-1

Runoff = 14.83 cfs @ 12.16 hrs, Volume= 1.468 af, Depth= 2.75"
Routed to Link AP-1 : AP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 50-yr Rainfall=7.07"

Area (ac)	CN	Description
4.000	70	Woods, Good, HSG C
0.800	30	Woods, Good, HSG A
1.600	55	Woods, Good, HSG B
6.400	61	Weighted Average
6.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.7	880	0.1091	1.00		**Lag/CN Method,**

Summary for Subcatchment OEDA-2: Offsite-2

Runoff = 21.61 cfs @ 12.43 hrs, Volume= 3.265 af, Depth= 3.47"
Routed to Link AP-2 : AP-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 50-yr Rainfall=7.07"

Area (ac)	CN	Description
9.600	70	Woods, Good, HSG C
1.700	55	Woods, Good, HSG B
11.300	68	Weighted Average
11.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.8	2,090	0.0570	1.03		**Lag/CN Method,**

Summary for Link AP-1: AP-1

Inflow Area = 11.400 ac, 0.00% Impervious, Inflow Depth = 3.44" for 50-yr event
Inflow = 35.61 cfs @ 12.11 hrs, Volume= 3.268 af
Primary = 35.61 cfs @ 12.11 hrs, Volume= 3.268 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link AP-2: AP-2

Inflow Area = 23.800 ac, 0.00% Impervious, Inflow Depth = 4.62" for 50-yr event
Inflow = 75.84 cfs @ 12.12 hrs, Volume= 9.162 af
Primary = 75.84 cfs @ 12.12 hrs, Volume= 9.162 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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 EDA-1: EDA-1 Runoff Area=5.000 ac 0.00% Impervious Runoff Depth=5.17"
Flow Length=480' Slope=0.0369 '/' Tc=10.4 min CN=76 Runoff=26.62 cfs 2.153 af

Subcatchment EDA-2: EDA-2 Runoff Area=12.500 ac 0.00% Impervious Runoff Depth=6.58"
Flow Length=830' Slope=0.0298 '/' Tc=12.0 min CN=88 Runoff=76.04 cfs 6.852 af

Subcatchment OEDA-1: Offsite-1 Runoff Area=6.400 ac 0.00% Impervious Runoff Depth=3.45"
Flow Length=880' Slope=0.1091 '/' Tc=14.7 min CN=61 Runoff=18.73 cfs 1.841 af

Subcatchment OEDA-2: Offsite-2 Runoff Area=11.300 ac 0.00% Impervious Runoff Depth=4.24"
Flow Length=2,090' Slope=0.0570 '/' Tc=33.8 min CN=68 Runoff=26.37 cfs 3.996 af

Link AP-1: AP-1 Inflow=43.30 cfs 3.994 af
Primary=43.30 cfs 3.994 af

Link AP-2: AP-2 Inflow=87.70 cfs 10.848 af
Primary=87.70 cfs 10.848 af

Total Runoff Area = 35.200 ac Runoff Volume = 14.842 af Average Runoff Depth = 5.06"
100.00% Pervious = 35.200 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EDA-1: EDA-1

Runoff = 26.62 cfs @ 12.09 hrs, Volume= 2.153 af, Depth= 5.17"
Routed to Link AP-1 : AP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 100-yr Rainfall=8.01"

	Area (ac)	CN	Description
*	3.800	72	Row Crop, HSG A
*	1.200	88	Row Crop, HSG C
	5.000	76	Weighted Average
	5.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	480	0.0369	0.77		**Lag/CN Method,**

Summary for Subcatchment EDA-2: EDA-2

Runoff = 76.04 cfs @ 12.11 hrs, Volume= 6.852 af, Depth= 6.58"
Routed to Link AP-2 : AP-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 100-yr Rainfall=8.01"

	Area (ac)	CN	Description
*	12.500	88	Row Crop, HSG C
	12.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	830	0.0298	1.15		**Lag/CN Method,**

Summary for Subcatchment OEDA-1: Offsite-1

Runoff = 18.73 cfs @ 12.16 hrs, Volume= 1.841 af, Depth= 3.45"
Routed to Link AP-1 : AP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 100-yr Rainfall=8.01"

Area (ac)	CN	Description
4.000	70	Woods, Good, HSG C
0.800	30	Woods, Good, HSG A
1.600	55	Woods, Good, HSG B
6.400	61	Weighted Average
6.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.7	880	0.1091	1.00		**Lag/CN Method,**

Summary for Subcatchment OEDA-2: Offsite-2

Runoff = 26.37 cfs @ 12.43 hrs, Volume= 3.996 af, Depth= 4.24"
Routed to Link AP-2 : AP-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 100-yr Rainfall=8.01"

Area (ac)	CN	Description
9.600	70	Woods, Good, HSG C
1.700	55	Woods, Good, HSG B
11.300	68	Weighted Average
11.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.8	2,090	0.0570	1.03		**Lag/CN Method,**

Summary for Link AP-1: AP-1

Inflow Area = 11.400 ac, 0.00% Impervious, Inflow Depth = 4.20" for 100-yr event
Inflow = 43.30 cfs @ 12.11 hrs, Volume= 3.994 af
Primary = 43.30 cfs @ 12.11 hrs, Volume= 3.994 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

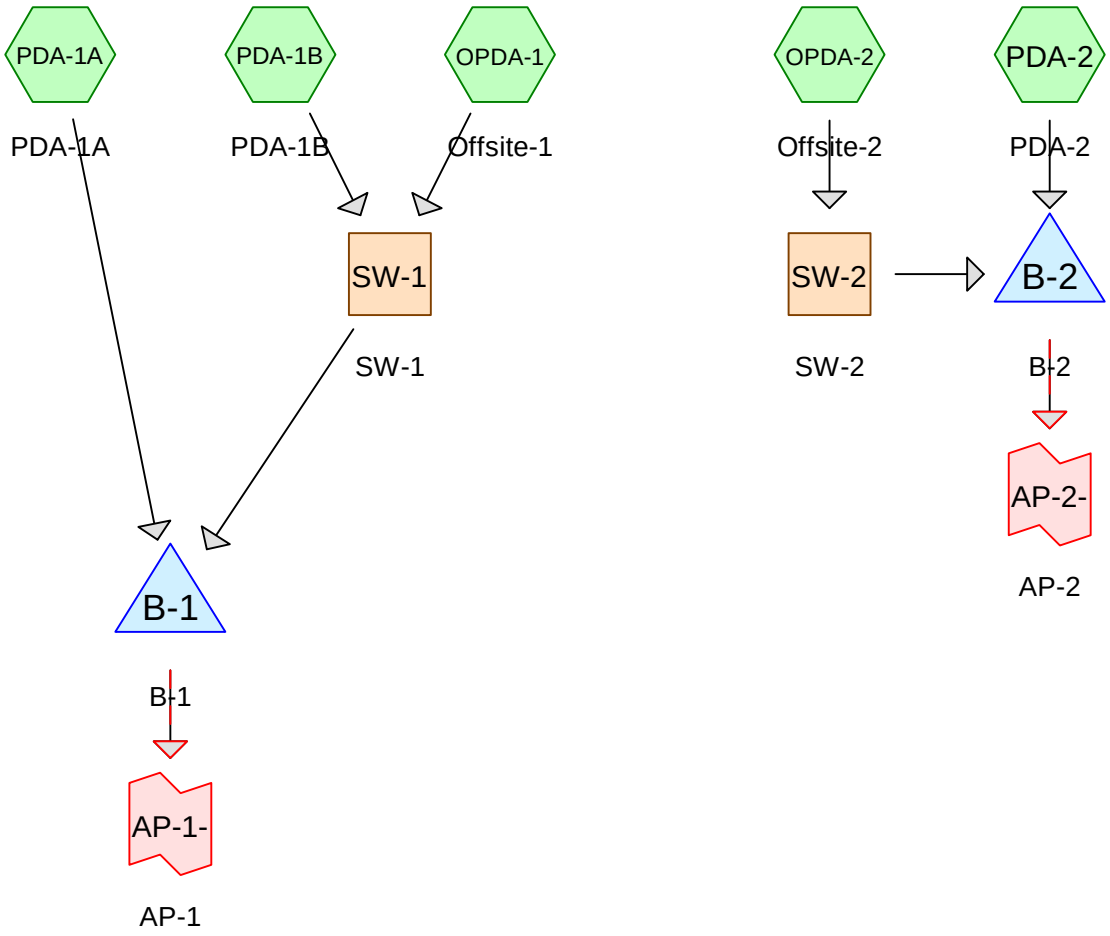
Summary for Link AP-2: AP-2

Inflow Area = 23.800 ac, 0.00% Impervious, Inflow Depth = 5.47" for 100-yr event
Inflow = 87.70 cfs @ 12.12 hrs, Volume= 10.848 af
Primary = 87.70 cfs @ 12.12 hrs, Volume= 10.848 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Appendix C

Proposed HydroCAD Report



Subcat Reach Pond Link

Routing Diagram for 2023-04-21 Somers Basin Sizing
Prepared by Westwood MultiDisciplined Eng, Printed 7/25/2023

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	CT-Somers 24-hr S1	2-yr	Default	24.00	1	3.19	2
2	25-yr	CT-Somers 24-hr S1	25-yr	Default	24.00	1	6.22	2
3	50-yr	CT-Somers 24-hr S1	50-yr	Default	24.00	1	7.07	2
4	100-yr	CT-Somers 24-hr S1	100-yr	Default	24.00	1	8.01	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.700	98	Impervious (PDA-2)
3.800	58	Meadow, HSG B (PDA-1A, PDA-1B)
13.000	78	Meadow, HSG D (PDA-1A, PDA-1B, PDA-2)
0.800	30	Woods, Good, HSG A (OPDA-1)
3.300	55	Woods, Good, HSG B (OPDA-1, OPDA-2)
13.600	70	Woods, Good, HSG C (OPDA-1, OPDA-2)
35.200	**70**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.800	HSG A	OPDA-1
7.100	HSG B	OPDA-1, OPDA-2, PDA-1A, PDA-1B
13.600	HSG C	OPDA-1, OPDA-2
13.000	HSG D	PDA-1A, PDA-1B, PDA-2
0.700	Other	PDA-2
35.200		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.700	0.700	Impervious	PDA-2
0.000	3.800	0.000	13.000	0.000	16.800	Meadow	PDA-1A, PDA-1B, PDA-2
0.800	3.300	13.600	0.000	0.000	17.700	Woods, Good	OPDA-1, OPDA-2
0.800	**7.100**	**13.600**	**13.000**	**0.700**	**35.200**	**TOTAL AREA**	

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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 OPDA-1: Offsite-1 Runoff Area=6.400 ac 0.00% Impervious Runoff Depth=0.44"
Flow Length=880' Slope=0.1091 '/' Tc=14.7 min CN=61 Runoff=1.46 cfs 0.235 af

Subcatchment OPDA-2: Offsite-2 Runoff Area=11.300 ac 0.00% Impervious Runoff Depth=0.73"
Flow Length=2,090' Slope=0.0570 '/' Tc=33.8 min CN=68 Runoff=3.99 cfs 0.685 af

Subcatchment PDA-1A: PDA-1A Runoff Area=4.400 ac 0.00% Impervious Runoff Depth=0.51"
Flow Length=480' Slope=0.0348 '/' Tc=15.2 min CN=63 Runoff=1.35 cfs 0.189 af

Subcatchment PDA-1B: PDA-1B Runoff Area=0.600 ac 0.00% Impervious Runoff Depth=0.60"
Flow Length=209' Slope=0.0517 '/' Tc=6.1 min CN=65 Runoff=0.36 cfs 0.030 af

Subcatchment PDA-2: PDA-2 Runoff Area=12.500 ac 5.60% Impervious Runoff Depth=1.33"
Flow Length=806' Slope=0.0285 '/' Tc=16.3 min CN=79 Runoff=14.23 cfs 1.385 af

Reach SW-1: SW-1 Avg. Flow Depth=0.33' Max Vel=2.41 fps Inflow=1.63 cfs 0.264 af
n=0.030 L=424.0' S=0.0186 '/' Capacity=18.07 cfs Outflow=1.58 cfs 0.264 af

Reach SW-2: SW-2 Avg. Flow Depth=0.68' Max Vel=2.87 fps Inflow=3.99 cfs 0.685 af
n=0.030 L=439.0' S=0.0153 '/' Capacity=32.92 cfs Outflow=3.96 cfs 0.685 af

Pond B-1: B-1 Peak Elev=235.43' Storage=0.708 af Inflow=2.80 cfs 0.453 af
Primary=0.44 cfs 0.432 af Secondary=0.00 cfs 0.000 af Outflow=0.44 cfs 0.432 af

Pond B-2: B-2 Peak Elev=235.65' Storage=1.603 af Inflow=15.19 cfs 2.069 af
Primary=1.37 cfs 1.786 af Secondary=0.00 cfs 0.000 af Outflow=1.37 cfs 1.786 af

Link AP-1-: AP-1 Inflow=0.44 cfs 0.432 af
Primary=0.44 cfs 0.432 af

Link AP-2-: AP-2 Inflow=1.37 cfs 1.786 af
Primary=1.37 cfs 1.786 af

Total Runoff Area = 35.200 ac Runoff Volume = 2.523 af Average Runoff Depth = 0.86"
98.01% Pervious = 34.500 ac 1.99% Impervious = 0.700 ac

Summary for Subcatchment OPDA-1: Offsite-1

Runoff = 1.46 cfs @ 12.21 hrs, Volume= 0.235 af, Depth= 0.44"
Routed to Reach SW-1 : SW-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 2-yr Rainfall=3.19"

Area (ac)	CN	Description
4.000	70	Woods, Good, HSG C
0.800	30	Woods, Good, HSG A
1.600	55	Woods, Good, HSG B
6.400	61	Weighted Average
6.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.7	880	0.1091	1.00		**Lag/CN Method,**

Summary for Subcatchment OPDA-2: Offsite-2

Runoff = 3.99 cfs @ 12.47 hrs, Volume= 0.685 af, Depth= 0.73"
Routed to Reach SW-2 : SW-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 2-yr Rainfall=3.19"

Area (ac)	CN	Description
9.600	70	Woods, Good, HSG C
1.700	55	Woods, Good, HSG B
11.300	68	Weighted Average
11.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.8	2,090	0.0570	1.03		**Lag/CN Method,**

Summary for Subcatchment PDA-1A: PDA-1A

Runoff = 1.35 cfs @ 12.21 hrs, Volume= 0.189 af, Depth= 0.51"
Routed to Pond B-1 : B-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 2-yr Rainfall=3.19"

	Area (ac)	CN	Description
*	3.400	58	Meadow, HSG B
*	1.000	78	Meadow, HSG D
	4.400	63	Weighted Average
	4.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	480	0.0348	0.53		**Lag/CN Method,**

Summary for Subcatchment PDA-1B: PDA-1B

Runoff = 0.36 cfs @ 12.05 hrs, Volume= 0.030 af, Depth= 0.60"
Routed to Reach SW-1 : SW-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 2-yr Rainfall=3.19"

	Area (ac)	CN	Description
*	0.400	58	Meadow, HSG B
*	0.200	78	Meadow, HSG D
	0.600	65	Weighted Average
	0.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	209	0.0517	0.57		**Lag/CN Method,**

Summary for Subcatchment PDA-2: PDA-2

Runoff = 14.23 cfs @ 12.18 hrs, Volume= 1.385 af, Depth= 1.33"
Routed to Pond B-2 : B-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 2-yr Rainfall=3.19"

	Area (ac)	CN	Description
*	0.700	98	Impervious
*	11.800	78	Meadow, HSG D
	12.500	79	Weighted Average
	11.800		94.40% Pervious Area
	0.700		5.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	806	0.0285	0.82		**Lag/CN Method,**

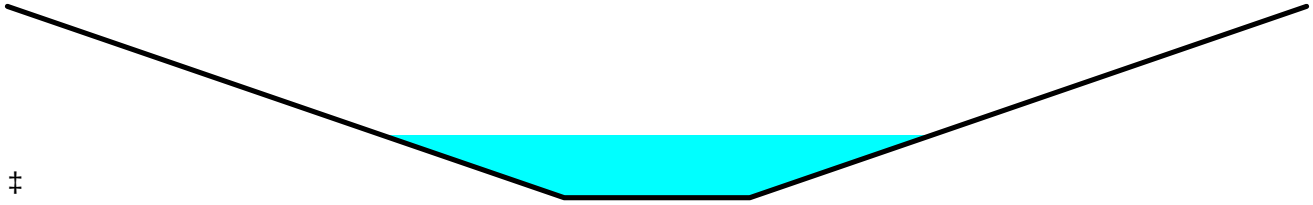
Summary for Reach SW-1: SW-1

Inflow Area = 7.000 ac, 0.00% Impervious, Inflow Depth = 0.45" for 2-yr event
Inflow = 1.63 cfs @ 12.20 hrs, Volume= 0.264 af
Outflow = 1.58 cfs @ 12.29 hrs, Volume= 0.264 af, Atten= 3%, Lag= 5.5 min
Routed to Pond B-1 : B-1

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.41 fps, Min. Travel Time= 2.9 min
Avg. Velocity = 1.20 fps, Avg. Travel Time= 5.9 min

Peak Storage= 278 cf @ 12.24 hrs
Average Depth at Peak Storage= 0.33' , Surface Width= 2.98'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 18.07 cfs

1.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 7.00'
Length= 424.0' Slope= 0.0186 '/'
Inlet Invert= 244.70', Outlet Invert= 236.80'



‡

Stage-Area-Storage for Reach SW-1: SW-1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
244.70	0.0	0
244.71	0.0	4
244.72	0.0	9
244.73	0.0	14
244.74	0.0	19
244.75	0.1	24
244.76	0.1	30
244.77	0.1	36
244.78	0.1	42
244.79	0.1	48
244.80	0.1	55
244.81	0.1	62
244.82	0.2	69
244.83	0.2	77
244.84	0.2	84
244.85	0.2	92
244.86	0.2	100
244.87	0.3	109
244.88	0.3	118
244.89	0.3	126
244.90	0.3	136
244.91	0.3	145
244.92	0.4	155
244.93	0.4	165
244.94	0.4	175
244.95	0.4	186
244.96	0.5	196
244.97	0.5	207
244.98	0.5	218
244.99	0.5	230
245.00	0.6	242
245.01	0.6	254
245.02	0.6	266
245.03	0.7	278
245.04	0.7	291
245.05	0.7	304
245.06	0.7	317
245.07	0.8	331
245.08	0.8	345
245.09	0.8	359
245.10	0.9	373
245.11	0.9	388
245.12	0.9	402
245.13	1.0	418
245.14	1.0	433
245.15	1.1	448
245.16	1.1	464
245.17	1.1	480
245.18	1.2	497
245.19	1.2	513
245.20	1.3	530
245.21	1.3	547
245.22	1.3	564
245.23	1.4	582
245.24	1.4	600
245.25	1.5	618
245.26	1.5	636
245.27	1.5	655
245.28	1.6	674
245.29	1.6	693
245.30	1.7	712
245.31	1.7	732
245.32	1.8	752
245.33	1.8	772
245.34	1.9	792
245.35	1.9	813
245.36	2.0	834
245.37	2.0	855
245.38	2.1	876
245.39	2.1	898
245.40	2.2	920
245.41	2.2	942
245.42	2.3	965
245.43	2.3	987
245.44	2.4	1,010
245.45	2.4	1,034
245.46	2.5	1,057
245.47	2.5	1,081
245.48	2.6	1,105
245.49	2.7	1,129
245.50	2.7	1,153
245.51	2.8	1,178
245.52	2.8	1,203
245.53	2.9	1,228
245.54	3.0	1,254
245.55	3.0	1,279
245.56	3.1	1,305
245.57	3.1	1,332
245.58	3.2	1,358
245.59	3.3	1,385
245.60	3.3	1,412
245.61	3.4	1,439
245.62	3.5	1,467
245.63	3.5	1,494
245.64	3.6	1,522
245.65	3.7	1,551
245.66	3.7	1,579
245.67	3.8	1,608
245.68	3.9	1,637
245.69	3.9	1,666
245.70	**4.0**	**1,696**

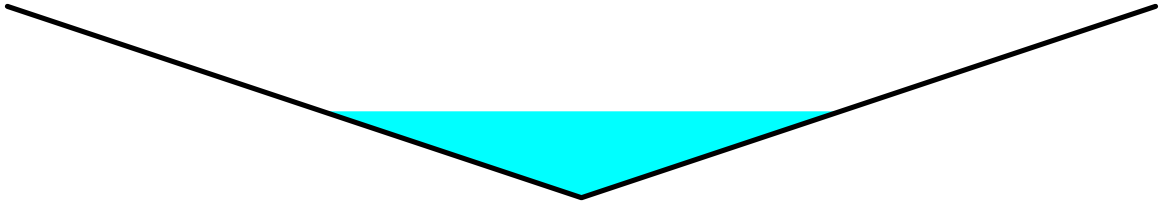
Summary for Reach SW-2: SW-2

Inflow Area = 11.300 ac, 0.00% Impervious, Inflow Depth = 0.73" for 2-yr event
Inflow = 3.99 cfs @ 12.47 hrs, Volume= 0.685 af
Outflow = 3.96 cfs @ 12.54 hrs, Volume= 0.685 af, Atten= 1%, Lag= 4.6 min
Routed to Pond B-2 : B-2

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.87 fps, Min. Travel Time= 2.5 min
Avg. Velocity = 1.46 fps, Avg. Travel Time= 5.0 min

Peak Storage= 605 cf @ 12.50 hrs
Average Depth at Peak Storage= 0.68' , Surface Width= 4.07'
Bank-Full Depth= 1.50' Flow Area= 6.8 sf, Capacity= 32.92 cfs

0.00' x 1.50' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 9.00'
Length= 439.0' Slope= 0.0153 '/'
Inlet Invert= 240.70', Outlet Invert= 234.00'



Stage-Area-Storage for Reach SW-2: SW-2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
240.70	0.0	0
240.72	0.0	1
240.74	0.0	2
240.76	0.0	5
240.78	0.0	8
240.80	0.0	13
240.82	0.0	19
240.84	0.1	26
240.86	0.1	34
240.88	0.1	43
240.90	0.1	53
240.92	0.1	64
240.94	0.2	76
240.96	0.2	89
240.98	0.2	103
241.00	0.3	119
241.02	0.3	135
241.04	0.3	152
241.06	0.4	171
241.08	0.4	190
241.10	0.5	211
241.12	0.5	232
241.14	0.6	255
241.16	0.6	279
241.18	0.7	303
241.20	0.8	329
241.22	0.8	356
241.24	0.9	384
241.26	0.9	413
241.28	1.0	443
241.30	1.1	474
241.32	1.2	506
241.34	1.2	540
241.36	1.3	574
241.38	1.4	609
241.40	1.5	645
241.42	1.6	683
241.44	1.6	721
241.46	1.7	761
241.48	1.8	801
241.50	1.9	843
241.52	2.0	886
241.54	2.1	929
241.56	2.2	974
241.58	2.3	1,020
241.60	2.4	1,067
241.62	2.5	1,115
241.64	2.7	1,164
241.66	2.8	1,214
241.68	2.9	1,265
241.70	3.0	1,317
241.72	3.1	1,370
241.74	3.2	1,425
241.76	3.4	1,480
241.78	3.5	1,536
241.80	3.6	1,594
241.82	3.8	1,652
241.84	3.9	1,712
241.86	4.0	1,772
241.88	4.2	1,834
241.90	4.3	1,896
241.92	4.5	1,960
241.94	4.6	2,025
241.96	4.8	2,091
241.98	4.9	2,158
242.00	5.1	2,226
242.02	5.2	2,295
242.04	5.4	2,365
242.06	5.5	2,436
242.08	5.7	2,508
242.10	5.9	2,581
242.12	6.0	2,656
242.14	6.2	2,731
242.16	6.4	2,807
242.18	6.6	2,885
242.20	**6.8**	**2,963**

Summary for Pond B-1: B-1

Inflow Area = 11.400 ac, 0.00% Impervious, Inflow Depth = 0.48" for 2-yr event
Inflow = 2.80 cfs @ 12.26 hrs, Volume= 0.453 af
Outflow = 0.44 cfs @ 15.06 hrs, Volume= 0.432 af, Atten= 84%, Lag= 168.3 min
Primary = 0.44 cfs @ 15.06 hrs, Volume= 0.432 af
Routed to Link AP-1- : AP-1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link AP-1- : AP-1

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 235.00' Surf.Area= 0.320 ac Storage= 0.550 af
Peak Elev= 235.43' @ 15.06 hrs Surf.Area= 0.415 ac Storage= 0.708 af (0.158 af above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= 281.3 min (1,239.1 - 957.8)

Volume	Invert	Avail.Storage	Storage Description
#1	233.00'	2.755 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
233.00	0.240	0.000	0.000
234.00	0.270	0.255	0.255
235.00	0.320	0.295	0.550
236.00	0.540	0.430	0.980
237.00	0.860	0.700	1.680
238.00	1.290	1.075	2.755

Device	Routing	Invert	Outlet Devices
#1	Primary	235.00'	**15.0" Round Culvert** L= 66.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 235.00' / 234.50' S= 0.0076 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf
#2	Secondary	236.50'	**20.0' long x 1.0' 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 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.44 cfs @ 15.06 hrs HW=235.43' (Free Discharge)
1=Culvert (Barrel Controls 0.44 cfs @ 1.73 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=235.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Stage-Area-Storage for Pond B-1: B-1

Elevation (feet)	Surface (acres)	Storage (acre-feet)
233.00	0.240	0.000
233.05	0.242	0.012
233.10	0.243	0.024
233.15	0.245	0.036
233.20	0.246	0.049
233.25	0.247	0.061
233.30	0.249	0.073
233.35	0.250	0.086
233.40	0.252	0.098
233.45	0.253	0.111
233.50	0.255	0.124
233.55	0.257	0.137
233.60	0.258	0.149
233.65	0.260	0.162
233.70	0.261	0.175
233.75	0.262	0.188
233.80	0.264	0.202
233.85	0.265	0.215
233.90	0.267	0.228
233.95	0.268	0.242
234.00	0.270	0.255
234.05	0.273	0.269
234.10	0.275	0.282
234.15	0.278	0.296
234.20	0.280	0.310
234.25	0.283	0.324
234.30	0.285	0.338
234.35	0.287	0.353
234.40	0.290	0.367
234.45	0.292	0.382
234.50	0.295	0.396
234.55	0.298	0.411
234.60	0.300	0.426
234.65	0.303	0.441
234.70	0.305	0.456
234.75	0.308	0.472
234.80	0.310	0.487
234.85	0.312	0.503
234.90	0.315	0.518
234.95	0.317	0.534
235.00	0.320	0.550
235.05	0.331	0.566
235.10	0.342	0.583
235.15	0.353	0.600
235.20	0.364	0.618
235.25	0.375	0.637
235.30	0.386	0.656
235.35	0.397	0.675
235.40	0.408	0.696
235.45	0.419	0.716
235.50	0.430	0.737
235.55	0.441	0.759
235.60	0.452	0.782
235.65	0.463	0.804
235.70	0.474	0.828
235.75	0.485	0.852
235.80	0.496	0.876
235.85	0.507	0.901
235.90	0.518	0.927
235.95	0.529	0.953
236.00	0.540	0.980
236.05	0.556	1.007
236.10	0.572	1.036
236.15	0.588	1.065
236.20	0.604	1.094
236.25	0.620	1.125
236.30	0.636	1.156
236.35	0.652	1.189
236.40	0.668	1.222
236.45	0.684	1.255
236.50	0.700	1.290
236.55	0.716	1.325
236.60	0.732	1.362
236.65	0.748	1.399
236.70	0.764	1.436
236.75	0.780	1.475
236.80	0.796	1.514
236.85	0.812	1.555
236.90	0.828	1.596
236.95	0.844	1.637
237.00	0.860	1.680
237.05	0.882	1.724
237.10	0.903	1.768
237.15	0.925	1.814
237.20	0.946	1.861
237.25	0.968	1.908
237.30	0.989	1.957
237.35	1.010	2.007
237.40	1.032	2.058
237.45	1.053	2.111
237.50	1.075	2.164
237.55	1.097	2.218
237.60	1.118	2.273
237.65	1.140	2.330
237.70	1.161	2.387
237.75	1.182	2.446
237.80	1.204	2.506
237.85	1.225	2.566
237.90	1.247	2.628
237.95	1.268	2.691
238.00	**1.290**	**2.755**

Summary for Pond B-2: B-2

Inflow Area = 23.800 ac, 2.94% Impervious, Inflow Depth = 1.04" for 2-yr event
Inflow = 15.19 cfs @ 12.19 hrs, Volume= 2.069 af
Outflow = 1.37 cfs @ 15.91 hrs, Volume= 1.786 af, Atten= 91%, Lag= 223.3 min
Primary = 1.37 cfs @ 15.91 hrs, Volume= 1.786 af
Routed to Link AP-2- : AP-2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link AP-2- : AP-2

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 235.00' Surf.Area= 0.330 ac Storage= 0.514 af
Peak Elev= 235.65' @ 15.91 hrs Surf.Area= 2.082 ac Storage= 1.603 af (1.089 af above start)

Plug-Flow detention time= 805.9 min calculated for 1.272 af (61% of inflow)
Center-of-Mass det. time= 474.5 min (1,376.0 - 901.5)

Volume	Invert	Avail.Storage	Storage Description
#1	233.00'	12.209 af	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
233.00	0.190	0.000	0.000
234.00	0.254	0.222	0.222
235.00	0.330	0.292	0.514
236.00	3.040	1.685	2.199
237.00	5.080	4.060	6.259
238.00	6.820	5.950	12.209

Device	Routing	Invert	Outlet Devices
#1	Primary	235.00'	**15.0" Round Culvert** L= 53.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 235.00' / 234.00' S= 0.0189 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf
#2	Secondary	236.50'	**20.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.37 cfs @ 15.91 hrs HW=235.65' (Free Discharge)
1=Culvert (Barrel Controls 1.37 cfs @ 3.12 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=235.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Stage-Area-Storage for Pond B-2: B-2

Elevation (feet)	Surface (acres)	Storage (acre-feet)
233.00	0.190	0.000
233.05	0.193	0.011
233.10	0.196	0.022
233.15	0.200	0.033
233.20	0.203	0.044
233.25	0.206	0.055
233.30	0.209	0.067
233.35	0.212	0.078
233.40	0.216	0.089
233.45	0.219	0.100
233.50	0.222	0.111
233.55	0.225	0.122
233.60	0.228	0.133
233.65	0.232	0.144
233.70	0.235	0.155
233.75	0.238	0.166
233.80	0.241	0.178
233.85	0.244	0.189
233.90	0.248	0.200
233.95	0.251	0.211
234.00	0.254	0.222
234.05	0.258	0.237
234.10	0.262	0.251
234.15	0.265	0.266
234.20	0.269	0.280
234.25	0.273	0.295
234.30	0.277	0.310
234.35	0.281	0.324
234.40	0.284	0.339
234.45	0.288	0.353
234.50	0.292	0.368
234.55	0.296	0.383
234.60	0.300	0.397
234.65	0.303	0.412
234.70	0.307	0.426
234.75	0.311	0.441
234.80	0.315	0.456
234.85	0.319	0.470
234.90	0.322	0.485
234.95	0.326	0.499
235.00	0.330	0.514
235.05	0.466	0.598
235.10	0.601	0.682
235.15	0.737	0.767
235.20	0.872	0.851
235.25	1.007	0.935
235.30	1.143	1.020
235.35	1.278	1.104
235.40	1.414	1.188
235.45	1.549	1.272
235.50	1.685	1.356
235.55	1.821	1.441
235.60	1.956	1.525
235.65	2.092	1.609
235.70	2.227	1.693
235.75	2.362	1.778
235.80	2.498	1.862
235.85	2.633	1.946
235.90	2.769	2.031
235.95	2.904	2.115
236.00	3.040	2.199
236.05	3.142	2.402
236.10	3.244	2.605
236.15	3.346	2.808
236.20	3.448	3.011
236.25	3.550	3.214
236.30	3.652	3.417
236.35	3.754	3.620
236.40	3.856	3.823
236.45	3.958	4.026
236.50	4.060	4.229
236.55	4.162	4.432
236.60	4.264	4.635
236.65	4.366	4.838
236.70	4.468	5.041
236.75	4.570	5.244
236.80	4.672	5.447
236.85	4.774	5.650
236.90	4.876	5.853
236.95	4.978	6.056
237.00	5.080	6.259
237.05	5.167	6.557
237.10	5.254	6.854
237.15	5.341	7.152
237.20	5.428	7.449
237.25	5.515	7.746
237.30	5.602	8.044
237.35	5.689	8.341
237.40	5.776	8.639
237.45	5.863	8.936
237.50	5.950	9.234
237.55	6.037	9.532
237.60	6.124	9.829
237.65	6.211	10.127
237.70	6.298	10.424
237.75	6.385	10.722
237.80	6.472	11.019
237.85	6.559	11.316
237.90	6.646	11.614
237.95	6.733	11.911
238.00	**6.820**	**12.209**

Summary for Link AP-1-: AP-1

Inflow Area = 11.400 ac, 0.00% Impervious, Inflow Depth > 0.46" for 2-yr event
Inflow = 0.44 cfs @ 15.06 hrs, Volume= 0.432 af
Primary = 0.44 cfs @ 15.06 hrs, Volume= 0.432 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link AP-2-: AP-2

Inflow Area = 23.800 ac, 2.94% Impervious, Inflow Depth > 0.90" for 2-yr event
Inflow = 1.37 cfs @ 15.91 hrs, Volume= 1.786 af
Primary = 1.37 cfs @ 15.91 hrs, Volume= 1.786 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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 OPDA-1: Offsite-1 Runoff Area=6.400 ac 0.00% Impervious Runoff Depth=2.15"
Flow Length=880' Slope=0.1091 '/' Tc=14.7 min CN=61 Runoff=11.38 cfs 1.149 af

Subcatchment OPDA-2: Offsite-2 Runoff Area=11.300 ac 0.00% Impervious Runoff Depth=2.79"
Flow Length=2,090' Slope=0.0570 '/' Tc=33.8 min CN=68 Runoff=17.32 cfs 2.628 af

Subcatchment PDA-1A: PDA-1A Runoff Area=4.400 ac 0.00% Impervious Runoff Depth=2.33"
Flow Length=480' Slope=0.0348 '/' Tc=15.2 min CN=63 Runoff=8.47 cfs 0.855 af

Subcatchment PDA-1B: PDA-1B Runoff Area=0.600 ac 0.00% Impervious Runoff Depth=2.51"
Flow Length=209' Slope=0.0517 '/' Tc=6.1 min CN=65 Runoff=1.91 cfs 0.126 af

Subcatchment PDA-2: PDA-2 Runoff Area=12.500 ac 5.60% Impervious Runoff Depth=3.88"
Flow Length=806' Slope=0.0285 '/' Tc=16.3 min CN=79 Runoff=40.26 cfs 4.038 af

Reach SW-1: SW-1 Avg. Flow Depth=0.84' Max Vel=4.09 fps Inflow=12.32 cfs 1.274 af
n=0.030 L=424.0' S=0.0186 '/' Capacity=18.07 cfs Outflow=12.15 cfs 1.274 af

Reach SW-2: SW-2 Avg. Flow Depth=1.18' Max Vel=4.15 fps Inflow=17.32 cfs 2.628 af
n=0.030 L=439.0' S=0.0153 '/' Capacity=32.92 cfs Outflow=17.24 cfs 2.628 af

Pond B-1: B-1 Peak Elev=236.52' Storage=1.301 af Inflow=20.39 cfs 2.129 af
Primary=3.47 cfs 2.100 af Secondary=0.19 cfs 0.006 af Outflow=3.66 cfs 2.106 af

Pond B-2: B-2 Peak Elev=236.48' Storage=4.137 af Inflow=48.05 cfs 6.666 af
Primary=4.31 cfs 6.285 af Secondary=0.00 cfs 0.000 af Outflow=4.31 cfs 6.285 af

Link AP-1-: AP-1 Inflow=3.66 cfs 2.106 af
Primary=3.66 cfs 2.106 af

Link AP-2-: AP-2 Inflow=4.31 cfs 6.285 af
Primary=4.31 cfs 6.285 af

Total Runoff Area = 35.200 ac Runoff Volume = 8.796 af Average Runoff Depth = 3.00"
98.01% Pervious = 34.500 ac 1.99% Impervious = 0.700 ac

Summary for Subcatchment OPDA-1: Offsite-1

Runoff = 11.38 cfs @ 12.16 hrs, Volume= 1.149 af, Depth= 2.15"
Routed to Reach SW-1 : SW-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 25-yr Rainfall=6.22"

Area (ac)	CN	Description
4.000	70	Woods, Good, HSG C
0.800	30	Woods, Good, HSG A
1.600	55	Woods, Good, HSG B
6.400	61	Weighted Average
6.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.7	880	0.1091	1.00		**Lag/CN Method,**

Summary for Subcatchment OPDA-2: Offsite-2

Runoff = 17.32 cfs @ 12.43 hrs, Volume= 2.628 af, Depth= 2.79"
Routed to Reach SW-2 : SW-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 25-yr Rainfall=6.22"

Area (ac)	CN	Description
9.600	70	Woods, Good, HSG C
1.700	55	Woods, Good, HSG B
11.300	68	Weighted Average
11.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.8	2,090	0.0570	1.03		**Lag/CN Method,**

Summary for Subcatchment PDA-1A: PDA-1A

Runoff = 8.47 cfs @ 12.17 hrs, Volume= 0.855 af, Depth= 2.33"
Routed to Pond B-1 : B-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 25-yr Rainfall=6.22"

	Area (ac)	CN	Description
*	3.400	58	Meadow, HSG B
*	1.000	78	Meadow, HSG D
	4.400	63	Weighted Average
	4.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	480	0.0348	0.53		**Lag/CN Method,**

Summary for Subcatchment PDA-1B: PDA-1B

Runoff = 1.91 cfs @ 12.04 hrs, Volume= 0.126 af, Depth= 2.51"
Routed to Reach SW-1 : SW-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 25-yr Rainfall=6.22"

	Area (ac)	CN	Description
*	0.400	58	Meadow, HSG B
*	0.200	78	Meadow, HSG D
	0.600	65	Weighted Average
	0.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	209	0.0517	0.57		**Lag/CN Method,**

Summary for Subcatchment PDA-2: PDA-2

Runoff = 40.26 cfs @ 12.17 hrs, Volume= 4.038 af, Depth= 3.88"
Routed to Pond B-2 : B-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 25-yr Rainfall=6.22"

	Area (ac)	CN	Description
*	0.700	98	Impervious
*	11.800	78	Meadow, HSG D
	12.500	79	Weighted Average
	11.800		94.40% Pervious Area
	0.700		5.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	806	0.0285	0.82		**Lag/CN Method,**

Summary for Reach SW-1: SW-1

Inflow Area = 7.000 ac, 0.00% Impervious, Inflow Depth = 2.18" for 25-yr event
Inflow = 12.32 cfs @ 12.15 hrs, Volume= 1.274 af
Outflow = 12.15 cfs @ 12.20 hrs, Volume= 1.274 af, Atten= 1%, Lag= 3.1 min
Routed to Pond B-1 : B-1

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.09 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 1.65 fps, Avg. Travel Time= 4.3 min

Peak Storage= 1,261 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.84' , Surface Width= 6.06'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 18.07 cfs

1.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 7.00'
Length= 424.0' Slope= 0.0186 '/'
Inlet Invert= 244.70', Outlet Invert= 236.80'

‡

Stage-Area-Storage for Reach SW-1: SW-1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
244.70	0.0	0
244.71	0.0	4
244.72	0.0	9
244.73	0.0	14
244.74	0.0	19
244.75	0.1	24
244.76	0.1	30
244.77	0.1	36
244.78	0.1	42
244.79	0.1	48
244.80	0.1	55
244.81	0.1	62
244.82	0.2	69
244.83	0.2	77
244.84	0.2	84
244.85	0.2	92
244.86	0.2	100
244.87	0.3	109
244.88	0.3	118
244.89	0.3	126
244.90	0.3	136
244.91	0.3	145
244.92	0.4	155
244.93	0.4	165
244.94	0.4	175
244.95	0.4	186
244.96	0.5	196
244.97	0.5	207
244.98	0.5	218
244.99	0.5	230
245.00	0.6	242
245.01	0.6	254
245.02	0.6	266
245.03	0.7	278
245.04	0.7	291
245.05	0.7	304
245.06	0.7	317
245.07	0.8	331
245.08	0.8	345
245.09	0.8	359
245.10	0.9	373
245.11	0.9	388
245.12	0.9	402
245.13	1.0	418
245.14	1.0	433
245.15	1.1	448
245.16	1.1	464
245.17	1.1	480
245.18	1.2	497
245.19	1.2	513
245.20	1.3	530
245.21	1.3	547
245.22	1.3	564
245.23	1.4	582
245.24	1.4	600
245.25	1.5	618
245.26	1.5	636
245.27	1.5	655
245.28	1.6	674
245.29	1.6	693
245.30	1.7	712
245.31	1.7	732
245.32	1.8	752
245.33	1.8	772
245.34	1.9	792
245.35	1.9	813
245.36	2.0	834
245.37	2.0	855
245.38	2.1	876
245.39	2.1	898
245.40	2.2	920
245.41	2.2	942
245.42	2.3	965
245.43	2.3	987
245.44	2.4	1,010
245.45	2.4	1,034
245.46	2.5	1,057
245.47	2.5	1,081
245.48	2.6	1,105
245.49	2.7	1,129
245.50	2.7	1,153
245.51	2.8	1,178
245.52	2.8	1,203
245.53	2.9	1,228
245.54	3.0	1,254
245.55	3.0	1,279
245.56	3.1	1,305
245.57	3.1	1,332
245.58	3.2	1,358
245.59	3.3	1,385
245.60	3.3	1,412
245.61	3.4	1,439
245.62	3.5	1,467
245.63	3.5	1,494
245.64	3.6	1,522
245.65	3.7	1,551
245.66	3.7	1,579
245.67	3.8	1,608
245.68	3.9	1,637
245.69	3.9	1,666
245.70	**4.0**	**1,696**

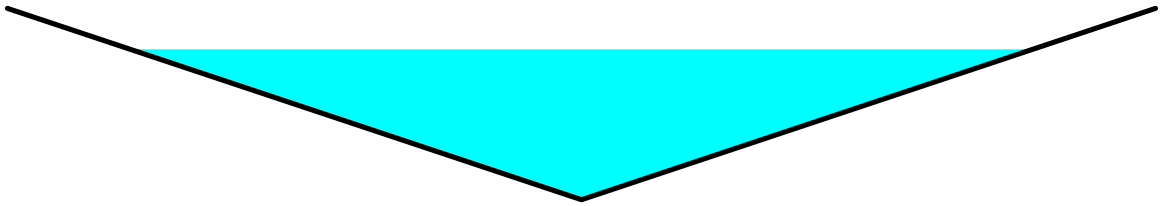
Summary for Reach SW-2: SW-2

Inflow Area = 11.300 ac, 0.00% Impervious, Inflow Depth = 2.79" for 25-yr event
Inflow = 17.32 cfs @ 12.43 hrs, Volume= 2.628 af
Outflow = 17.24 cfs @ 12.47 hrs, Volume= 2.628 af, Atten= 0%, Lag= 2.6 min
Routed to Pond B-2 : B-2

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.15 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 1.88 fps, Avg. Travel Time= 3.9 min

Peak Storage= 1,824 cf @ 12.44 hrs
Average Depth at Peak Storage= 1.18' , Surface Width= 7.06'
Bank-Full Depth= 1.50' Flow Area= 6.8 sf, Capacity= 32.92 cfs

0.00' x 1.50' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 9.00'
Length= 439.0' Slope= 0.0153 '/'
Inlet Invert= 240.70', Outlet Invert= 234.00'



Stage-Area-Storage for Reach SW-2: SW-2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
240.70	0.0	0
240.72	0.0	1
240.74	0.0	2
240.76	0.0	5
240.78	0.0	8
240.80	0.0	13
240.82	0.0	19
240.84	0.1	26
240.86	0.1	34
240.88	0.1	43
240.90	0.1	53
240.92	0.1	64
240.94	0.2	76
240.96	0.2	89
240.98	0.2	103
241.00	0.3	119
241.02	0.3	135
241.04	0.3	152
241.06	0.4	171
241.08	0.4	190
241.10	0.5	211
241.12	0.5	232
241.14	0.6	255
241.16	0.6	279
241.18	0.7	303
241.20	0.8	329
241.22	0.8	356
241.24	0.9	384
241.26	0.9	413
241.28	1.0	443
241.30	1.1	474
241.32	1.2	506
241.34	1.2	540
241.36	1.3	574
241.38	1.4	609
241.40	1.5	645
241.42	1.6	683
241.44	1.6	721
241.46	1.7	761
241.48	1.8	801
241.50	1.9	843
241.52	2.0	886
241.54	2.1	929
241.56	2.2	974
241.58	2.3	1,020
241.60	2.4	1,067
241.62	2.5	1,115
241.64	2.7	1,164
241.66	2.8	1,214
241.68	2.9	1,265
241.70	3.0	1,317
241.72	3.1	1,370
241.74	3.2	1,425
241.76	3.4	1,480
241.78	3.5	1,536
241.80	3.6	1,594
241.82	3.8	1,652
241.84	3.9	1,712
241.86	4.0	1,772
241.88	4.2	1,834
241.90	4.3	1,896
241.92	4.5	1,960
241.94	4.6	2,025
241.96	4.8	2,091
241.98	4.9	2,158
242.00	5.1	2,226
242.02	5.2	2,295
242.04	5.4	2,365
242.06	5.5	2,436
242.08	5.7	2,508
242.10	5.9	2,581
242.12	6.0	2,656
242.14	6.2	2,731
242.16	6.4	2,807
242.18	6.6	2,885
242.20	**6.8**	**2,963**

Summary for Pond B-1: B-1

Inflow Area = 11.400 ac, 0.00% Impervious, Inflow Depth = 2.24" for 25-yr event
Inflow = 20.39 cfs @ 12.19 hrs, Volume= 2.129 af
Outflow = 3.66 cfs @ 12.98 hrs, Volume= 2.106 af, Atten= 82%, Lag= 47.5 min
Primary = 3.47 cfs @ 12.98 hrs, Volume= 2.100 af
Routed to Link AP-1- : AP-1
Secondary = 0.19 cfs @ 12.98 hrs, Volume= 0.006 af
Routed to Link AP-1- : AP-1

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 235.00' Surf.Area= 0.320 ac Storage= 0.550 af
Peak Elev= 236.52' @ 12.98 hrs Surf.Area= 0.705 ac Storage= 1.301 af (0.751 af above start)

Plug-Flow detention time= 378.2 min calculated for 1.556 af (73% of inflow)
Center-of-Mass det. time= 166.6 min (1,063.8 - 897.2)

Volume	Invert	Avail.Storage	Storage Description
#1	233.00'	2.755 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
233.00	0.240	0.000	0.000
234.00	0.270	0.255	0.255
235.00	0.320	0.295	0.550
236.00	0.540	0.430	0.980
237.00	0.860	0.700	1.680
238.00	1.290	1.075	2.755

Device	Routing	Invert	Outlet Devices
#1	Primary	235.00'	**15.0" Round Culvert** L= 66.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 235.00' / 234.50' S= 0.0076 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf
#2	Secondary	236.50'	**20.0' long x 1.0' 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 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=3.48 cfs @ 12.98 hrs HW=236.52' (Free Discharge)
1=Culvert (Barrel Controls 3.48 cfs @ 2.97 fps)

Secondary OutFlow Max=0.10 cfs @ 12.98 hrs HW=236.52' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 0.10 cfs @ 0.33 fps)

Stage-Area-Storage for Pond B-1: B-1

Elevation (feet)	Surface (acres)	Storage (acre-feet)
233.00	0.240	0.000
233.05	0.242	0.012
233.10	0.243	0.024
233.15	0.245	0.036
233.20	0.246	0.049
233.25	0.247	0.061
233.30	0.249	0.073
233.35	0.250	0.086
233.40	0.252	0.098
233.45	0.253	0.111
233.50	0.255	0.124
233.55	0.257	0.137
233.60	0.258	0.149
233.65	0.260	0.162
233.70	0.261	0.175
233.75	0.262	0.188
233.80	0.264	0.202
233.85	0.265	0.215
233.90	0.267	0.228
233.95	0.268	0.242
234.00	0.270	0.255
234.05	0.273	0.269
234.10	0.275	0.282
234.15	0.278	0.296
234.20	0.280	0.310
234.25	0.283	0.324
234.30	0.285	0.338
234.35	0.287	0.353
234.40	0.290	0.367
234.45	0.292	0.382
234.50	0.295	0.396
234.55	0.298	0.411
234.60	0.300	0.426
234.65	0.303	0.441
234.70	0.305	0.456
234.75	0.308	0.472
234.80	0.310	0.487
234.85	0.312	0.503
234.90	0.315	0.518
234.95	0.317	0.534
235.00	0.320	0.550
235.05	0.331	0.566
235.10	0.342	0.583
235.15	0.353	0.600
235.20	0.364	0.618
235.25	0.375	0.637
235.30	0.386	0.656
235.35	0.397	0.675
235.40	0.408	0.696
235.45	0.419	0.716
235.50	0.430	0.737
235.55	0.441	0.759
235.60	0.452	0.782
235.65	0.463	0.804
235.70	0.474	0.828
235.75	0.485	0.852
235.80	0.496	0.876
235.85	0.507	0.901
235.90	0.518	0.927
235.95	0.529	0.953
236.00	0.540	0.980
236.05	0.556	1.007
236.10	0.572	1.036
236.15	0.588	1.065
236.20	0.604	1.094
236.25	0.620	1.125
236.30	0.636	1.156
236.35	0.652	1.189
236.40	0.668	1.222
236.45	0.684	1.255
236.50	0.700	1.290
236.55	0.716	1.325
236.60	0.732	1.362
236.65	0.748	1.399
236.70	0.764	1.436
236.75	0.780	1.475
236.80	0.796	1.514
236.85	0.812	1.555
236.90	0.828	1.596
236.95	0.844	1.637
237.00	0.860	1.680
237.05	0.882	1.724
237.10	0.903	1.768
237.15	0.925	1.814
237.20	0.946	1.861
237.25	0.968	1.908
237.30	0.989	1.957
237.35	1.010	2.007
237.40	1.032	2.058
237.45	1.053	2.111
237.50	1.075	2.164
237.55	1.097	2.218
237.60	1.118	2.273
237.65	1.140	2.330
237.70	1.161	2.387
237.75	1.182	2.446
237.80	1.204	2.506
237.85	1.225	2.566
237.90	1.247	2.628
237.95	1.268	2.691
238.00	**1.290**	**2.755**

Summary for Pond B-2: B-2

Inflow Area = 23.800 ac, 2.94% Impervious, Inflow Depth = 3.36" for 25-yr event
Inflow = 48.05 cfs @ 12.19 hrs, Volume= 6.666 af
Outflow = 4.31 cfs @ 15.24 hrs, Volume= 6.285 af, Atten= 91%, Lag= 183.1 min
Primary = 4.31 cfs @ 15.24 hrs, Volume= 6.285 af
Routed to Link AP-2- : AP-2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link AP-2- : AP-2

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 235.00' Surf.Area= 0.330 ac Storage= 0.514 af
Peak Elev= 236.48' @ 15.24 hrs Surf.Area= 4.014 ac Storage= 4.137 af (3.623 af above start)

Plug-Flow detention time= 590.9 min calculated for 5.770 af (87% of inflow)
Center-of-Mass det. time= 472.5 min (1,338.0 - 865.5)

Volume	Invert	Avail.Storage	Storage Description
#1	233.00'	12.209 af	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
233.00	0.190	0.000	0.000
234.00	0.254	0.222	0.222
235.00	0.330	0.292	0.514
236.00	3.040	1.685	2.199
237.00	5.080	4.060	6.259
238.00	6.820	5.950	12.209

Device	Routing	Invert	Outlet Devices
#1	Primary	235.00'	**15.0" Round Culvert** L= 53.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 235.00' / 234.00' S= 0.0189 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf
#2	Secondary	236.50'	**20.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=4.31 cfs @ 15.24 hrs HW=236.48' (Free Discharge)
1=Culvert (Inlet Controls 4.31 cfs @ 3.51 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=235.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Stage-Area-Storage for Pond B-2: B-2

Elevation (feet)	Surface (acres)	Storage (acre-feet)
233.00	0.190	0.000
233.05	0.193	0.011
233.10	0.196	0.022
233.15	0.200	0.033
233.20	0.203	0.044
233.25	0.206	0.055
233.30	0.209	0.067
233.35	0.212	0.078
233.40	0.216	0.089
233.45	0.219	0.100
233.50	0.222	0.111
233.55	0.225	0.122
233.60	0.228	0.133
233.65	0.232	0.144
233.70	0.235	0.155
233.75	0.238	0.166
233.80	0.241	0.178
233.85	0.244	0.189
233.90	0.248	0.200
233.95	0.251	0.211
234.00	0.254	0.222
234.05	0.258	0.237
234.10	0.262	0.251
234.15	0.265	0.266
234.20	0.269	0.280
234.25	0.273	0.295
234.30	0.277	0.310
234.35	0.281	0.324
234.40	0.284	0.339
234.45	0.288	0.353
234.50	0.292	0.368
234.55	0.296	0.383
234.60	0.300	0.397
234.65	0.303	0.412
234.70	0.307	0.426
234.75	0.311	0.441
234.80	0.315	0.456
234.85	0.319	0.470
234.90	0.322	0.485
234.95	0.326	0.499
235.00	0.330	0.514
235.05	0.466	0.598
235.10	0.601	0.682
235.15	0.737	0.767
235.20	0.872	0.851
235.25	1.007	0.935
235.30	1.143	1.020
235.35	1.278	1.104
235.40	1.414	1.188
235.45	1.549	1.272
235.50	1.685	1.356
235.55	1.821	1.441
235.60	1.956	1.525
235.65	2.092	1.609
235.70	2.227	1.693
235.75	2.362	1.778
235.80	2.498	1.862
235.85	2.633	1.946
235.90	2.769	2.031
235.95	2.904	2.115
236.00	3.040	2.199
236.05	3.142	2.402
236.10	3.244	2.605
236.15	3.346	2.808
236.20	3.448	3.011
236.25	3.550	3.214
236.30	3.652	3.417
236.35	3.754	3.620
236.40	3.856	3.823
236.45	3.958	4.026
236.50	4.060	4.229
236.55	4.162	4.432
236.60	4.264	4.635
236.65	4.366	4.838
236.70	4.468	5.041
236.75	4.570	5.244
236.80	4.672	5.447
236.85	4.774	5.650
236.90	4.876	5.853
236.95	4.978	6.056
237.00	5.080	6.259
237.05	5.167	6.557
237.10	5.254	6.854
237.15	5.341	7.152
237.20	5.428	7.449
237.25	5.515	7.746
237.30	5.602	8.044
237.35	5.689	8.341
237.40	5.776	8.639
237.45	5.863	8.936
237.50	5.950	9.234
237.55	6.037	9.532
237.60	6.124	9.829
237.65	6.211	10.127
237.70	6.298	10.424
237.75	6.385	10.722
237.80	6.472	11.019
237.85	6.559	11.316
237.90	6.646	11.614
237.95	6.733	11.911
238.00	**6.820**	**12.209**

Summary for Link AP-1-: AP-1

Inflow Area = 11.400 ac, 0.00% Impervious, Inflow Depth > 2.22" for 25-yr event
Inflow = 3.66 cfs @ 12.98 hrs, Volume= 2.106 af
Primary = 3.66 cfs @ 12.98 hrs, Volume= 2.106 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link AP-2-: AP-2

Inflow Area = 23.800 ac, 2.94% Impervious, Inflow Depth > 3.17" for 25-yr event
Inflow = 4.31 cfs @ 15.24 hrs, Volume= 6.285 af
Primary = 4.31 cfs @ 15.24 hrs, Volume= 6.285 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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 OPDA-1: Offsite-1 Runoff Area=6.400 ac 0.00% Impervious Runoff Depth=2.75"
Flow Length=880' Slope=0.1091 '/' Tc=14.7 min CN=61 Runoff=14.83 cfs 1.468 af

Subcatchment OPDA-2: Offsite-2 Runoff Area=11.300 ac 0.00% Impervious Runoff Depth=3.47"
Flow Length=2,090' Slope=0.0570 '/' Tc=33.8 min CN=68 Runoff=21.61 cfs 3.265 af

Subcatchment PDA-1A: PDA-1A Runoff Area=4.400 ac 0.00% Impervious Runoff Depth=2.95"
Flow Length=480' Slope=0.0348 '/' Tc=15.2 min CN=63 Runoff=10.88 cfs 1.083 af

Subcatchment PDA-1B: PDA-1B Runoff Area=0.600 ac 0.00% Impervious Runoff Depth=3.16"
Flow Length=209' Slope=0.0517 '/' Tc=6.1 min CN=65 Runoff=2.43 cfs 0.158 af

Subcatchment PDA-2: PDA-2 Runoff Area=12.500 ac 5.60% Impervious Runoff Depth=4.65"
Flow Length=806' Slope=0.0285 '/' Tc=16.3 min CN=79 Runoff=47.97 cfs 4.842 af

Reach SW-1: SW-1 Avg. Flow Depth=0.94' Max Vel=4.37 fps Inflow=16.02 cfs 1.626 af
n=0.030 L=424.0' S=0.0186 '/' Capacity=18.07 cfs Outflow=15.81 cfs 1.626 af

Reach SW-2: SW-2 Avg. Flow Depth=1.28' Max Vel=4.39 fps Inflow=21.61 cfs 3.265 af
n=0.030 L=439.0' S=0.0153 '/' Capacity=32.92 cfs Outflow=21.53 cfs 3.265 af

Pond B-1: B-1 Peak Elev=236.69' Storage=1.432 af Inflow=26.47 cfs 2.709 af
Primary=3.55 cfs 2.411 af Secondary=4.64 cfs 0.274 af Outflow=8.12 cfs 2.685 af

Pond B-2: B-2 Peak Elev=236.63' Storage=4.749 af Inflow=58.11 cfs 8.107 af
Primary=4.67 cfs 7.057 af Secondary=2.61 cfs 0.647 af Outflow=7.28 cfs 7.704 af

Link AP-1-: AP-1 Inflow=8.12 cfs 2.685 af
Primary=8.12 cfs 2.685 af

Link AP-2-: AP-2 Inflow=7.28 cfs 7.704 af
Primary=7.28 cfs 7.704 af

Total Runoff Area = 35.200 ac Runoff Volume = 10.816 af Average Runoff Depth = 3.69"
98.01% Pervious = 34.500 ac 1.99% Impervious = 0.700 ac

Summary for Subcatchment OPDA-1: Offsite-1

Runoff = 14.83 cfs @ 12.16 hrs, Volume= 1.468 af, Depth= 2.75"
Routed to Reach SW-1 : SW-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 50-yr Rainfall=7.07"

Area (ac)	CN	Description
4.000	70	Woods, Good, HSG C
0.800	30	Woods, Good, HSG A
1.600	55	Woods, Good, HSG B
6.400	61	Weighted Average
6.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.7	880	0.1091	1.00		**Lag/CN Method,**

Summary for Subcatchment OPDA-2: Offsite-2

Runoff = 21.61 cfs @ 12.43 hrs, Volume= 3.265 af, Depth= 3.47"
Routed to Reach SW-2 : SW-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 50-yr Rainfall=7.07"

Area (ac)	CN	Description
9.600	70	Woods, Good, HSG C
1.700	55	Woods, Good, HSG B
11.300	68	Weighted Average
11.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.8	2,090	0.0570	1.03		**Lag/CN Method,**

Summary for Subcatchment PDA-1A: PDA-1A

Runoff = 10.88 cfs @ 12.16 hrs, Volume= 1.083 af, Depth= 2.95"
Routed to Pond B-1 : B-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 50-yr Rainfall=7.07"

	Area (ac)	CN	Description
*	3.400	58	Meadow, HSG B
*	1.000	78	Meadow, HSG D
	4.400	63	Weighted Average
	4.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	480	0.0348	0.53		**Lag/CN Method,**

Summary for Subcatchment PDA-1B: PDA-1B

Runoff = 2.43 cfs @ 12.04 hrs, Volume= 0.158 af, Depth= 3.16"
Routed to Reach SW-1 : SW-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 50-yr Rainfall=7.07"

	Area (ac)	CN	Description
*	0.400	58	Meadow, HSG B
*	0.200	78	Meadow, HSG D
	0.600	65	Weighted Average
	0.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	209	0.0517	0.57		**Lag/CN Method,**

Summary for Subcatchment PDA-2: PDA-2

Runoff = 47.97 cfs @ 12.17 hrs, Volume= 4.842 af, Depth= 4.65"
Routed to Pond B-2 : B-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 50-yr Rainfall=7.07"

	Area (ac)	CN	Description
*	0.700	98	Impervious
*	11.800	78	Meadow, HSG D
	12.500	79	Weighted Average
	11.800		94.40% Pervious Area
	0.700		5.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	806	0.0285	0.82		**Lag/CN Method,**

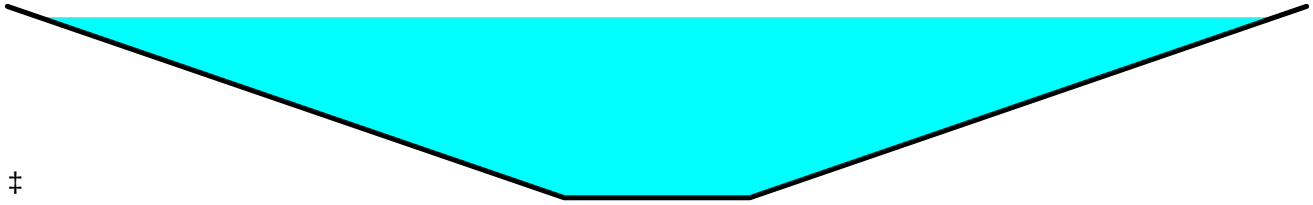
Summary for Reach SW-1: SW-1

Inflow Area = 7.000 ac, 0.00% Impervious, Inflow Depth = 2.79" for 50-yr event
Inflow = 16.02 cfs @ 12.15 hrs, Volume= 1.626 af
Outflow = 15.81 cfs @ 12.20 hrs, Volume= 1.626 af, Atten= 1%, Lag= 2.9 min
Routed to Pond B-1 : B-1

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.37 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 1.74 fps, Avg. Travel Time= 4.1 min

Peak Storage= 1,536 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.94' , Surface Width= 6.67'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 18.07 cfs

1.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 7.00'
Length= 424.0' Slope= 0.0186 '/'
Inlet Invert= 244.70', Outlet Invert= 236.80'



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Stage-Area-Storage for Reach SW-1: SW-1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
244.70	0.0	0
244.71	0.0	4
244.72	0.0	9
244.73	0.0	14
244.74	0.0	19
244.75	0.1	24
244.76	0.1	30
244.77	0.1	36
244.78	0.1	42
244.79	0.1	48
244.80	0.1	55
244.81	0.1	62
244.82	0.2	69
244.83	0.2	77
244.84	0.2	84
244.85	0.2	92
244.86	0.2	100
244.87	0.3	109
244.88	0.3	118
244.89	0.3	126
244.90	0.3	136
244.91	0.3	145
244.92	0.4	155
244.93	0.4	165
244.94	0.4	175
244.95	0.4	186
244.96	0.5	196
244.97	0.5	207
244.98	0.5	218
244.99	0.5	230
245.00	0.6	242
245.01	0.6	254
245.02	0.6	266
245.03	0.7	278
245.04	0.7	291
245.05	0.7	304
245.06	0.7	317
245.07	0.8	331
245.08	0.8	345
245.09	0.8	359
245.10	0.9	373
245.11	0.9	388
245.12	0.9	402
245.13	1.0	418
245.14	1.0	433
245.15	1.1	448
245.16	1.1	464
245.17	1.1	480
245.18	1.2	497
245.19	1.2	513
245.20	1.3	530
245.21	1.3	547
245.22	1.3	564
245.23	1.4	582
245.24	1.4	600
245.25	1.5	618
245.26	1.5	636
245.27	1.5	655
245.28	1.6	674
245.29	1.6	693
245.30	1.7	712
245.31	1.7	732
245.32	1.8	752
245.33	1.8	772
245.34	1.9	792
245.35	1.9	813
245.36	2.0	834
245.37	2.0	855
245.38	2.1	876
245.39	2.1	898
245.40	2.2	920
245.41	2.2	942
245.42	2.3	965
245.43	2.3	987
245.44	2.4	1,010
245.45	2.4	1,034
245.46	2.5	1,057
245.47	2.5	1,081
245.48	2.6	1,105
245.49	2.7	1,129
245.50	2.7	1,153
245.51	2.8	1,178
245.52	2.8	1,203
245.53	2.9	1,228
245.54	3.0	1,254
245.55	3.0	1,279
245.56	3.1	1,305
245.57	3.1	1,332
245.58	3.2	1,358
245.59	3.3	1,385
245.60	3.3	1,412
245.61	3.4	1,439
245.62	3.5	1,467
245.63	3.5	1,494
245.64	3.6	1,522
245.65	3.7	1,551
245.66	3.7	1,579
245.67	3.8	1,608
245.68	3.9	1,637
245.69	3.9	1,666
245.70	**4.0**	**1,696**

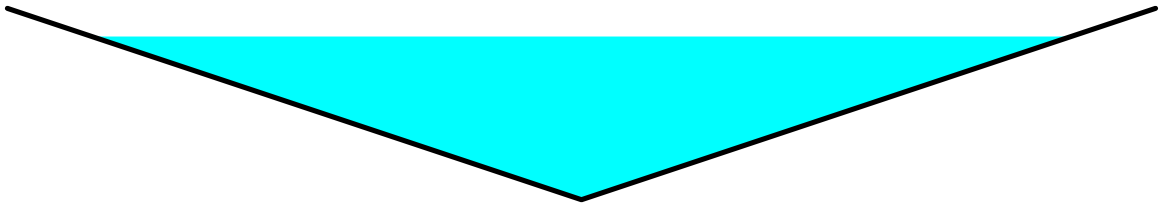
Summary for Reach SW-2: SW-2

Inflow Area = 11.300 ac, 0.00% Impervious, Inflow Depth = 3.47" for 50-yr event
Inflow = 21.61 cfs @ 12.43 hrs, Volume= 3.265 af
Outflow = 21.53 cfs @ 12.47 hrs, Volume= 3.265 af, Atten= 0%, Lag= 2.4 min
Routed to Pond B-2 : B-2

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.39 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 1.96 fps, Avg. Travel Time= 3.7 min

Peak Storage= 2,155 cf @ 12.44 hrs
Average Depth at Peak Storage= 1.28' , Surface Width= 7.68'
Bank-Full Depth= 1.50' Flow Area= 6.8 sf, Capacity= 32.92 cfs

0.00' x 1.50' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 9.00'
Length= 439.0' Slope= 0.0153 '/'
Inlet Invert= 240.70', Outlet Invert= 234.00'



Stage-Area-Storage for Reach SW-2: SW-2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
240.70	0.0	0
240.72	0.0	1
240.74	0.0	2
240.76	0.0	5
240.78	0.0	8
240.80	0.0	13
240.82	0.0	19
240.84	0.1	26
240.86	0.1	34
240.88	0.1	43
240.90	0.1	53
240.92	0.1	64
240.94	0.2	76
240.96	0.2	89
240.98	0.2	103
241.00	0.3	119
241.02	0.3	135
241.04	0.3	152
241.06	0.4	171
241.08	0.4	190
241.10	0.5	211
241.12	0.5	232
241.14	0.6	255
241.16	0.6	279
241.18	0.7	303
241.20	0.8	329
241.22	0.8	356
241.24	0.9	384
241.26	0.9	413
241.28	1.0	443
241.30	1.1	474
241.32	1.2	506
241.34	1.2	540
241.36	1.3	574
241.38	1.4	609
241.40	1.5	645
241.42	1.6	683
241.44	1.6	721
241.46	1.7	761
241.48	1.8	801
241.50	1.9	843
241.52	2.0	886
241.54	2.1	929
241.56	2.2	974
241.58	2.3	1,020
241.60	2.4	1,067
241.62	2.5	1,115
241.64	2.7	1,164
241.66	2.8	1,214
241.68	2.9	1,265
241.70	3.0	1,317
241.72	3.1	1,370
241.74	3.2	1,425
241.76	3.4	1,480
241.78	3.5	1,536
241.80	3.6	1,594
241.82	3.8	1,652
241.84	3.9	1,712
241.86	4.0	1,772
241.88	4.2	1,834
241.90	4.3	1,896
241.92	4.5	1,960
241.94	4.6	2,025
241.96	4.8	2,091
241.98	4.9	2,158
242.00	5.1	2,226
242.02	5.2	2,295
242.04	5.4	2,365
242.06	5.5	2,436
242.08	5.7	2,508
242.10	5.9	2,581
242.12	6.0	2,656
242.14	6.2	2,731
242.16	6.4	2,807
242.18	6.6	2,885
242.20	**6.8**	**2,963**

Summary for Pond B-1: B-1

Inflow Area = 11.400 ac, 0.00% Impervious, Inflow Depth = 2.85" for 50-yr event
Inflow = 26.47 cfs @ 12.18 hrs, Volume= 2.709 af
Outflow = 8.12 cfs @ 12.64 hrs, Volume= 2.685 af, Atten= 69%, Lag= 27.3 min
Primary = 3.55 cfs @ 13.19 hrs, Volume= 2.411 af
Routed to Link AP-1- : AP-1
Secondary = 4.64 cfs @ 12.64 hrs, Volume= 0.274 af
Routed to Link AP-1- : AP-1

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 235.00' Surf.Area= 0.320 ac Storage= 0.550 af
Peak Elev= 236.69' @ 12.64 hrs Surf.Area= 0.762 ac Storage= 1.432 af (0.882 af above start)

Plug-Flow detention time= 317.2 min calculated for 2.135 af (79% of inflow)
Center-of-Mass det. time= 149.6 min (1,037.8 - 888.2)

Volume	Invert	Avail.Storage	Storage Description
#1	233.00'	2.755 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
233.00	0.240	0.000	0.000
234.00	0.270	0.255	0.255
235.00	0.320	0.295	0.550
236.00	0.540	0.430	0.980
237.00	0.860	0.700	1.680
238.00	1.290	1.075	2.755

Device	Routing	Invert	Outlet Devices
#1	Primary	235.00'	**15.0" Round Culvert** L= 66.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 235.00' / 234.50' S= 0.0076 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf
#2	Secondary	236.50'	**20.0' long x 1.0' 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 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=3.55 cfs @ 13.19 hrs HW=236.60' (Free Discharge)
1=Culvert (Barrel Controls 3.55 cfs @ 2.94 fps)

Secondary OutFlow Max=4.62 cfs @ 12.64 hrs HW=236.69' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 4.62 cfs @ 1.19 fps)

Stage-Area-Storage for Pond B-1: B-1

Elevation (feet)	Surface (acres)	Storage (acre-feet)
233.00	0.240	0.000
233.05	0.242	0.012
233.10	0.243	0.024
233.15	0.245	0.036
233.20	0.246	0.049
233.25	0.247	0.061
233.30	0.249	0.073
233.35	0.250	0.086
233.40	0.252	0.098
233.45	0.253	0.111
233.50	0.255	0.124
233.55	0.257	0.137
233.60	0.258	0.149
233.65	0.260	0.162
233.70	0.261	0.175
233.75	0.262	0.188
233.80	0.264	0.202
233.85	0.265	0.215
233.90	0.267	0.228
233.95	0.268	0.242
234.00	0.270	0.255
234.05	0.273	0.269
234.10	0.275	0.282
234.15	0.278	0.296
234.20	0.280	0.310
234.25	0.283	0.324
234.30	0.285	0.338
234.35	0.287	0.353
234.40	0.290	0.367
234.45	0.292	0.382
234.50	0.295	0.396
234.55	0.298	0.411
234.60	0.300	0.426
234.65	0.303	0.441
234.70	0.305	0.456
234.75	0.308	0.472
234.80	0.310	0.487
234.85	0.312	0.503
234.90	0.315	0.518
234.95	0.317	0.534
235.00	0.320	0.550
235.05	0.331	0.566
235.10	0.342	0.583
235.15	0.353	0.600
235.20	0.364	0.618
235.25	0.375	0.637
235.30	0.386	0.656
235.35	0.397	0.675
235.40	0.408	0.696
235.45	0.419	0.716
235.50	0.430	0.737
235.55	0.441	0.759
235.60	0.452	0.782
235.65	0.463	0.804
235.70	0.474	0.828
235.75	0.485	0.852
235.80	0.496	0.876
235.85	0.507	0.901
235.90	0.518	0.927
235.95	0.529	0.953
236.00	0.540	0.980
236.05	0.556	1.007
236.10	0.572	1.036
236.15	0.588	1.065
236.20	0.604	1.094
236.25	0.620	1.125
236.30	0.636	1.156
236.35	0.652	1.189
236.40	0.668	1.222
236.45	0.684	1.255
236.50	0.700	1.290
236.55	0.716	1.325
236.60	0.732	1.362
236.65	0.748	1.399
236.70	0.764	1.436
236.75	0.780	1.475
236.80	0.796	1.514
236.85	0.812	1.555
236.90	0.828	1.596
236.95	0.844	1.637
237.00	0.860	1.680
237.05	0.882	1.724
237.10	0.903	1.768
237.15	0.925	1.814
237.20	0.946	1.861
237.25	0.968	1.908
237.30	0.989	1.957
237.35	1.010	2.007
237.40	1.032	2.058
237.45	1.053	2.111
237.50	1.075	2.164
237.55	1.097	2.218
237.60	1.118	2.273
237.65	1.140	2.330
237.70	1.161	2.387
237.75	1.182	2.446
237.80	1.204	2.506
237.85	1.225	2.566
237.90	1.247	2.628
237.95	1.268	2.691
238.00	**1.290**	**2.755**

Summary for Pond B-2: B-2

Inflow Area = 23.800 ac, 2.94% Impervious, Inflow Depth = 4.09" for 50-yr event
Inflow = 58.11 cfs @ 12.19 hrs, Volume= 8.107 af
Outflow = 7.28 cfs @ 14.03 hrs, Volume= 7.704 af, Atten= 87%, Lag= 110.2 min
Primary = 4.67 cfs @ 14.03 hrs, Volume= 7.057 af
Routed to Link AP-2- : AP-2
Secondary = 2.61 cfs @ 14.03 hrs, Volume= 0.647 af
Routed to Link AP-2- : AP-2

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 235.00' Surf.Area= 0.330 ac Storage= 0.514 af
Peak Elev= 236.63' @ 14.03 hrs Surf.Area= 4.321 ac Storage= 4.749 af (4.235 af above start)

Plug-Flow detention time= 554.0 min calculated for 7.190 af (89% of inflow)
Center-of-Mass det. time= 454.6 min (1,313.3 - 858.7)

Volume	Invert	Avail.Storage	Storage Description
#1	233.00'	12.209 af	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
233.00	0.190	0.000	0.000
234.00	0.254	0.222	0.222
235.00	0.330	0.292	0.514
236.00	3.040	1.685	2.199
237.00	5.080	4.060	6.259
238.00	6.820	5.950	12.209

Device	Routing	Invert	Outlet Devices
#1	Primary	235.00'	**15.0" Round Culvert** L= 53.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 235.00' / 234.00' S= 0.0189 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf
#2	Secondary	236.50'	**20.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=4.67 cfs @ 14.03 hrs HW=236.63' (Free Discharge)
1=Culvert (Inlet Controls 4.67 cfs @ 3.81 fps)

Secondary OutFlow Max=2.57 cfs @ 14.03 hrs HW=236.63' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 2.57 cfs @ 1.00 fps)

Stage-Area-Storage for Pond B-2: B-2

Elevation (feet)	Surface (acres)	Storage (acre-feet)
233.00	0.190	0.000
233.05	0.193	0.011
233.10	0.196	0.022
233.15	0.200	0.033
233.20	0.203	0.044
233.25	0.206	0.055
233.30	0.209	0.067
233.35	0.212	0.078
233.40	0.216	0.089
233.45	0.219	0.100
233.50	0.222	0.111
233.55	0.225	0.122
233.60	0.228	0.133
233.65	0.232	0.144
233.70	0.235	0.155
233.75	0.238	0.166
233.80	0.241	0.178
233.85	0.244	0.189
233.90	0.248	0.200
233.95	0.251	0.211
234.00	0.254	0.222
234.05	0.258	0.237
234.10	0.262	0.251
234.15	0.265	0.266
234.20	0.269	0.280
234.25	0.273	0.295
234.30	0.277	0.310
234.35	0.281	0.324
234.40	0.284	0.339
234.45	0.288	0.353
234.50	0.292	0.368
234.55	0.296	0.383
234.60	0.300	0.397
234.65	0.303	0.412
234.70	0.307	0.426
234.75	0.311	0.441
234.80	0.315	0.456
234.85	0.319	0.470
234.90	0.322	0.485
234.95	0.326	0.499
235.00	0.330	0.514
235.05	0.466	0.598
235.10	0.601	0.682
235.15	0.737	0.767
235.20	0.872	0.851
235.25	1.007	0.935
235.30	1.143	1.020
235.35	1.278	1.104
235.40	1.414	1.188
235.45	1.549	1.272
235.50	1.685	1.356
235.55	1.821	1.441
235.60	1.956	1.525
235.65	2.092	1.609
235.70	2.227	1.693
235.75	2.362	1.778
235.80	2.498	1.862
235.85	2.633	1.946
235.90	2.769	2.031
235.95	2.904	2.115
236.00	3.040	2.199
236.05	3.142	2.402
236.10	3.244	2.605
236.15	3.346	2.808
236.20	3.448	3.011
236.25	3.550	3.214
236.30	3.652	3.417
236.35	3.754	3.620
236.40	3.856	3.823
236.45	3.958	4.026
236.50	4.060	4.229
236.55	4.162	4.432
236.60	4.264	4.635
236.65	4.366	4.838
236.70	4.468	5.041
236.75	4.570	5.244
236.80	4.672	5.447
236.85	4.774	5.650
236.90	4.876	5.853
236.95	4.978	6.056
237.00	5.080	6.259
237.05	5.167	6.557
237.10	5.254	6.854
237.15	5.341	7.152
237.20	5.428	7.449
237.25	5.515	7.746
237.30	5.602	8.044
237.35	5.689	8.341
237.40	5.776	8.639
237.45	5.863	8.936
237.50	5.950	9.234
237.55	6.037	9.532
237.60	6.124	9.829
237.65	6.211	10.127
237.70	6.298	10.424
237.75	6.385	10.722
237.80	6.472	11.019
237.85	6.559	11.316
237.90	6.646	11.614
237.95	6.733	11.911
238.00	**6.820**	**12.209**

Summary for Link AP-1-: AP-1

Inflow Area = 11.400 ac, 0.00% Impervious, Inflow Depth > 2.83" for 50-yr event
Inflow = 8.12 cfs @ 12.64 hrs, Volume= 2.685 af
Primary = 8.12 cfs @ 12.64 hrs, Volume= 2.685 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link AP-2-: AP-2

Inflow Area = 23.800 ac, 2.94% Impervious, Inflow Depth > 3.88" for 50-yr event
Inflow = 7.28 cfs @ 14.03 hrs, Volume= 7.704 af
Primary = 7.28 cfs @ 14.03 hrs, Volume= 7.704 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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 OPDA-1: Offsite-1 Runoff Area=6.400 ac 0.00% Impervious Runoff Depth=3.45"
Flow Length=880' Slope=0.1091 '/' Tc=14.7 min CN=61 Runoff=18.73 cfs 1.841 af

Subcatchment OPDA-2: Offsite-2 Runoff Area=11.300 ac 0.00% Impervious Runoff Depth=4.24"
Flow Length=2,090' Slope=0.0570 '/' Tc=33.8 min CN=68 Runoff=26.37 cfs 3.996 af

Subcatchment PDA-1A: PDA-1A Runoff Area=4.400 ac 0.00% Impervious Runoff Depth=3.68"
Flow Length=480' Slope=0.0348 '/' Tc=15.2 min CN=63 Runoff=13.59 cfs 1.348 af

Subcatchment PDA-1B: PDA-1B Runoff Area=0.600 ac 0.00% Impervious Runoff Depth=3.90"
Flow Length=209' Slope=0.0517 '/' Tc=6.1 min CN=65 Runoff=3.00 cfs 0.195 af

Subcatchment PDA-2: PDA-2 Runoff Area=12.500 ac 5.60% Impervious Runoff Depth=5.52"
Flow Length=806' Slope=0.0285 '/' Tc=16.3 min CN=79 Runoff=56.23 cfs 5.747 af

Reach SW-1: SW-1 Avg. Flow Depth=1.05' Max Vel=4.63 fps Inflow=20.20 cfs 2.036 af
n=0.030 L=424.0' S=0.0186 '/' Capacity=18.07 cfs Outflow=19.96 cfs 2.036 af

Reach SW-2: SW-2 Avg. Flow Depth=1.38' Max Vel=4.61 fps Inflow=26.37 cfs 3.996 af
n=0.030 L=439.0' S=0.0153 '/' Capacity=32.92 cfs Outflow=26.29 cfs 3.996 af

Pond B-1: B-1 Peak Elev=236.84' Storage=1.544 af Inflow=33.31 cfs 3.384 af
Primary=3.73 cfs 2.714 af Secondary=10.64 cfs 0.647 af Outflow=14.37 cfs 3.360 af

Pond B-2: B-2 Peak Elev=236.76' Storage=5.287 af Inflow=69.05 cfs 9.743 af
Primary=4.76 cfs 7.508 af Secondary=7.56 cfs 1.819 af Outflow=12.32 cfs 9.327 af

Link AP-1-: AP-1 Inflow=14.37 cfs 3.360 af
Primary=14.37 cfs 3.360 af

Link AP-2-: AP-2 Inflow=12.32 cfs 9.327 af
Primary=12.32 cfs 9.327 af

Total Runoff Area = 35.200 ac Runoff Volume = 13.128 af Average Runoff Depth = 4.48"
98.01% Pervious = 34.500 ac 1.99% Impervious = 0.700 ac

Summary for Subcatchment OPDA-1: Offsite-1

Runoff = 18.73 cfs @ 12.16 hrs, Volume= 1.841 af, Depth= 3.45"
Routed to Reach SW-1 : SW-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 100-yr Rainfall=8.01"

Area (ac)	CN	Description
4.000	70	Woods, Good, HSG C
0.800	30	Woods, Good, HSG A
1.600	55	Woods, Good, HSG B
6.400	61	Weighted Average
6.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.7	880	0.1091	1.00		**Lag/CN Method,**

Summary for Subcatchment OPDA-2: Offsite-2

Runoff = 26.37 cfs @ 12.43 hrs, Volume= 3.996 af, Depth= 4.24"
Routed to Reach SW-2 : SW-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 100-yr Rainfall=8.01"

Area (ac)	CN	Description
9.600	70	Woods, Good, HSG C
1.700	55	Woods, Good, HSG B
11.300	68	Weighted Average
11.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.8	2,090	0.0570	1.03		**Lag/CN Method,**

Summary for Subcatchment PDA-1A: PDA-1A

Runoff = 13.59 cfs @ 12.16 hrs, Volume= 1.348 af, Depth= 3.68"
Routed to Pond B-1 : B-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 100-yr Rainfall=8.01"

	Area (ac)	CN	Description
*	3.400	58	Meadow, HSG B
*	1.000	78	Meadow, HSG D
	4.400	63	Weighted Average
	4.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	480	0.0348	0.53		**Lag/CN Method,**

Summary for Subcatchment PDA-1B: PDA-1B

Runoff = 3.00 cfs @ 12.04 hrs, Volume= 0.195 af, Depth= 3.90"
Routed to Reach SW-1 : SW-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 100-yr Rainfall=8.01"

	Area (ac)	CN	Description
*	0.400	58	Meadow, HSG B
*	0.200	78	Meadow, HSG D
	0.600	65	Weighted Average
	0.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	209	0.0517	0.57		**Lag/CN Method,**

Summary for Subcatchment PDA-2: PDA-2

Runoff = 56.23 cfs @ 12.17 hrs, Volume= 5.747 af, Depth= 5.52"
Routed to Pond B-2 : B-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-Somers 24-hr S1 100-yr Rainfall=8.01"

	Area (ac)	CN	Description
*	0.700	98	Impervious
*	11.800	78	Meadow, HSG D
	12.500	79	Weighted Average
	11.800		94.40% Pervious Area
	0.700		5.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	806	0.0285	0.82		**Lag/CN Method,**

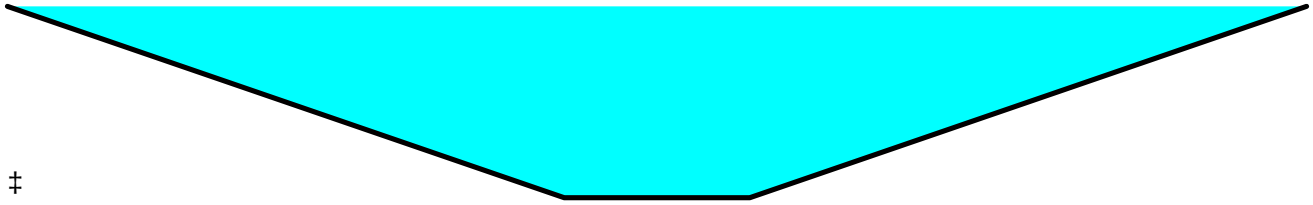
Summary for Reach SW-1: SW-1

Inflow Area = 7.000 ac, 0.00% Impervious, Inflow Depth = 3.49" for 100-yr event
Inflow = 20.20 cfs @ 12.15 hrs, Volume= 2.036 af
Outflow = 19.96 cfs @ 12.19 hrs, Volume= 2.036 af, Atten= 1%, Lag= 2.8 min
Routed to Pond B-1 : B-1

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.63 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 1.82 fps, Avg. Travel Time= 3.9 min

Peak Storage= 1,830 cf @ 12.17 hrs
Average Depth at Peak Storage= 1.05' , Surface Width= 7.27'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 18.07 cfs

1.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 7.00'
Length= 424.0' Slope= 0.0186 '/'
Inlet Invert= 244.70', Outlet Invert= 236.80'



‡

Stage-Area-Storage for Reach SW-1: SW-1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
244.70	0.0	0
244.71	0.0	4
244.72	0.0	9
244.73	0.0	14
244.74	0.0	19
244.75	0.1	24
244.76	0.1	30
244.77	0.1	36
244.78	0.1	42
244.79	0.1	48
244.80	0.1	55
244.81	0.1	62
244.82	0.2	69
244.83	0.2	77
244.84	0.2	84
244.85	0.2	92
244.86	0.2	100
244.87	0.3	109
244.88	0.3	118
244.89	0.3	126
244.90	0.3	136
244.91	0.3	145
244.92	0.4	155
244.93	0.4	165
244.94	0.4	175
244.95	0.4	186
244.96	0.5	196
244.97	0.5	207
244.98	0.5	218
244.99	0.5	230
245.00	0.6	242
245.01	0.6	254
245.02	0.6	266
245.03	0.7	278
245.04	0.7	291
245.05	0.7	304
245.06	0.7	317
245.07	0.8	331
245.08	0.8	345
245.09	0.8	359
245.10	0.9	373
245.11	0.9	388
245.12	0.9	402
245.13	1.0	418
245.14	1.0	433
245.15	1.1	448
245.16	1.1	464
245.17	1.1	480
245.18	1.2	497
245.19	1.2	513
245.20	1.3	530
245.21	1.3	547
245.22	1.3	564
245.23	1.4	582
245.24	1.4	600
245.25	1.5	618
245.26	1.5	636
245.27	1.5	655
245.28	1.6	674
245.29	1.6	693
245.30	1.7	712
245.31	1.7	732
245.32	1.8	752
245.33	1.8	772
245.34	1.9	792
245.35	1.9	813
245.36	2.0	834
245.37	2.0	855
245.38	2.1	876
245.39	2.1	898
245.40	2.2	920
245.41	2.2	942
245.42	2.3	965
245.43	2.3	987
245.44	2.4	1,010
245.45	2.4	1,034
245.46	2.5	1,057
245.47	2.5	1,081
245.48	2.6	1,105
245.49	2.7	1,129
245.50	2.7	1,153
245.51	2.8	1,178
245.52	2.8	1,203
245.53	2.9	1,228
245.54	3.0	1,254
245.55	3.0	1,279
245.56	3.1	1,305
245.57	3.1	1,332
245.58	3.2	1,358
245.59	3.3	1,385
245.60	3.3	1,412
245.61	3.4	1,439
245.62	3.5	1,467
245.63	3.5	1,494
245.64	3.6	1,522
245.65	3.7	1,551
245.66	3.7	1,579
245.67	3.8	1,608
245.68	3.9	1,637
245.69	3.9	1,666
245.70	**4.0**	**1,696**

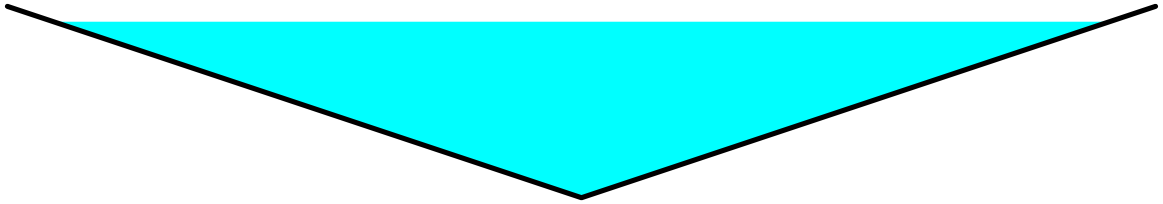
Summary for Reach SW-2: SW-2

Inflow Area = 11.300 ac, 0.00% Impervious, Inflow Depth = 4.24" for 100-yr event
Inflow = 26.37 cfs @ 12.43 hrs, Volume= 3.996 af
Outflow = 26.29 cfs @ 12.46 hrs, Volume= 3.996 af, Atten= 0%, Lag= 2.1 min
Routed to Pond B-2 : B-2

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.61 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 2.05 fps, Avg. Travel Time= 3.6 min

Peak Storage= 2,504 cf @ 12.44 hrs
Average Depth at Peak Storage= 1.38' , Surface Width= 8.27'
Bank-Full Depth= 1.50' Flow Area= 6.8 sf, Capacity= 32.92 cfs

0.00' x 1.50' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 9.00'
Length= 439.0' Slope= 0.0153 '/'
Inlet Invert= 240.70', Outlet Invert= 234.00'



Stage-Area-Storage for Reach SW-2: SW-2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
240.70	0.0	0
240.72	0.0	1
240.74	0.0	2
240.76	0.0	5
240.78	0.0	8
240.80	0.0	13
240.82	0.0	19
240.84	0.1	26
240.86	0.1	34
240.88	0.1	43
240.90	0.1	53
240.92	0.1	64
240.94	0.2	76
240.96	0.2	89
240.98	0.2	103
241.00	0.3	119
241.02	0.3	135
241.04	0.3	152
241.06	0.4	171
241.08	0.4	190
241.10	0.5	211
241.12	0.5	232
241.14	0.6	255
241.16	0.6	279
241.18	0.7	303
241.20	0.8	329
241.22	0.8	356
241.24	0.9	384
241.26	0.9	413
241.28	1.0	443
241.30	1.1	474
241.32	1.2	506
241.34	1.2	540
241.36	1.3	574
241.38	1.4	609
241.40	1.5	645
241.42	1.6	683
241.44	1.6	721
241.46	1.7	761
241.48	1.8	801
241.50	1.9	843
241.52	2.0	886
241.54	2.1	929
241.56	2.2	974
241.58	2.3	1,020
241.60	2.4	1,067
241.62	2.5	1,115
241.64	2.7	1,164
241.66	2.8	1,214
241.68	2.9	1,265
241.70	3.0	1,317
241.72	3.1	1,370
241.74	3.2	1,425
241.76	3.4	1,480
241.78	3.5	1,536
241.80	3.6	1,594
241.82	3.8	1,652
241.84	3.9	1,712
241.86	4.0	1,772
241.88	4.2	1,834
241.90	4.3	1,896
241.92	4.5	1,960
241.94	4.6	2,025
241.96	4.8	2,091
241.98	4.9	2,158
242.00	5.1	2,226
242.02	5.2	2,295
242.04	5.4	2,365
242.06	5.5	2,436
242.08	5.7	2,508
242.10	5.9	2,581
242.12	6.0	2,656
242.14	6.2	2,731
242.16	6.4	2,807
242.18	6.6	2,885
242.20	**6.8**	**2,963**

Summary for Pond B-1: B-1

Inflow Area = 11.400 ac, 0.00% Impervious, Inflow Depth = 3.56" for 100-yr event
Inflow = 33.31 cfs @ 12.18 hrs, Volume= 3.384 af
Outflow = 14.37 cfs @ 12.47 hrs, Volume= 3.360 af, Atten= 57%, Lag= 17.4 min
Primary = 3.73 cfs @ 12.47 hrs, Volume= 2.714 af
Routed to Link AP-1- : AP-1
Secondary = 10.64 cfs @ 12.47 hrs, Volume= 0.647 af
Routed to Link AP-1- : AP-1

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 235.00' Surf.Area= 0.320 ac Storage= 0.550 af
Peak Elev= 236.84' @ 12.47 hrs Surf.Area= 0.808 ac Storage= 1.544 af (0.994 af above start)

Plug-Flow detention time= 268.2 min calculated for 2.810 af (83% of inflow)
Center-of-Mass det. time= 134.0 min (1,014.2 - 880.2)

Volume	Invert	Avail.Storage	Storage Description
#1	233.00'	2.755 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
233.00	0.240	0.000	0.000
234.00	0.270	0.255	0.255
235.00	0.320	0.295	0.550
236.00	0.540	0.430	0.980
237.00	0.860	0.700	1.680
238.00	1.290	1.075	2.755

Device	Routing	Invert	Outlet Devices
#1	Primary	235.00'	**15.0" Round Culvert** L= 66.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 235.00' / 234.50' S= 0.0076 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf
#2	Secondary	236.50'	**20.0' long x 1.0' 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 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=3.73 cfs @ 12.47 hrs HW=236.84' (Free Discharge)
1=Culvert (Barrel Controls 3.73 cfs @ 3.04 fps)

Secondary OutFlow Max=10.62 cfs @ 12.47 hrs HW=236.84' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 10.62 cfs @ 1.57 fps)

Stage-Area-Storage for Pond B-1: B-1

Elevation (feet)	Surface (acres)	Storage (acre-feet)
233.00	0.240	0.000
233.05	0.242	0.012
233.10	0.243	0.024
233.15	0.245	0.036
233.20	0.246	0.049
233.25	0.247	0.061
233.30	0.249	0.073
233.35	0.250	0.086
233.40	0.252	0.098
233.45	0.253	0.111
233.50	0.255	0.124
233.55	0.257	0.137
233.60	0.258	0.149
233.65	0.260	0.162
233.70	0.261	0.175
233.75	0.262	0.188
233.80	0.264	0.202
233.85	0.265	0.215
233.90	0.267	0.228
233.95	0.268	0.242
234.00	0.270	0.255
234.05	0.273	0.269
234.10	0.275	0.282
234.15	0.278	0.296
234.20	0.280	0.310
234.25	0.283	0.324
234.30	0.285	0.338
234.35	0.287	0.353
234.40	0.290	0.367
234.45	0.292	0.382
234.50	0.295	0.396
234.55	0.298	0.411
234.60	0.300	0.426
234.65	0.303	0.441
234.70	0.305	0.456
234.75	0.308	0.472
234.80	0.310	0.487
234.85	0.312	0.503
234.90	0.315	0.518
234.95	0.317	0.534
235.00	0.320	0.550
235.05	0.331	0.566
235.10	0.342	0.583
235.15	0.353	0.600
235.20	0.364	0.618
235.25	0.375	0.637
235.30	0.386	0.656
235.35	0.397	0.675
235.40	0.408	0.696
235.45	0.419	0.716
235.50	0.430	0.737
235.55	0.441	0.759
235.60	0.452	0.782
235.65	0.463	0.804
235.70	0.474	0.828
235.75	0.485	0.852
235.80	0.496	0.876
235.85	0.507	0.901
235.90	0.518	0.927
235.95	0.529	0.953
236.00	0.540	0.980
236.05	0.556	1.007
236.10	0.572	1.036
236.15	0.588	1.065
236.20	0.604	1.094
236.25	0.620	1.125
236.30	0.636	1.156
236.35	0.652	1.189
236.40	0.668	1.222
236.45	0.684	1.255
236.50	0.700	1.290
236.55	0.716	1.325
236.60	0.732	1.362
236.65	0.748	1.399
236.70	0.764	1.436
236.75	0.780	1.475
236.80	0.796	1.514
236.85	0.812	1.555
236.90	0.828	1.596
236.95	0.844	1.637
237.00	0.860	1.680
237.05	0.882	1.724
237.10	0.903	1.768
237.15	0.925	1.814
237.20	0.946	1.861
237.25	0.968	1.908
237.30	0.989	1.957
237.35	1.010	2.007
237.40	1.032	2.058
237.45	1.053	2.111
237.50	1.075	2.164
237.55	1.097	2.218
237.60	1.118	2.273
237.65	1.140	2.330
237.70	1.161	2.387
237.75	1.182	2.446
237.80	1.204	2.506
237.85	1.225	2.566
237.90	1.247	2.628
237.95	1.268	2.691
238.00	**1.290**	**2.755**

Summary for Pond B-2: B-2

Inflow Area = 23.800 ac, 2.94% Impervious, Inflow Depth = 4.91" for 100-yr event
Inflow = 69.05 cfs @ 12.19 hrs, Volume= 9.743 af
Outflow = 12.32 cfs @ 13.40 hrs, Volume= 9.327 af, Atten= 82%, Lag= 72.7 min
Primary = 4.76 cfs @ 13.40 hrs, Volume= 7.508 af
Routed to Link AP-2- : AP-2
Secondary = 7.56 cfs @ 13.40 hrs, Volume= 1.819 af
Routed to Link AP-2- : AP-2

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 235.00' Surf.Area= 0.330 ac Storage= 0.514 af
Peak Elev= 236.76' @ 13.40 hrs Surf.Area= 4.591 ac Storage= 5.287 af (4.773 af above start)

Plug-Flow detention time= 494.6 min calculated for 8.813 af (90% of inflow)
Center-of-Mass det. time= 411.8 min (1,264.4 - 852.6)

Volume	Invert	Avail.Storage	Storage Description
#1	233.00'	12.209 af	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
233.00	0.190	0.000	0.000
234.00	0.254	0.222	0.222
235.00	0.330	0.292	0.514
236.00	3.040	1.685	2.199
237.00	5.080	4.060	6.259
238.00	6.820	5.950	12.209

Device	Routing	Invert	Outlet Devices
#1	Primary	235.00'	**15.0" Round Culvert** L= 53.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 235.00' / 234.00' S= 0.0189 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf
#2	Secondary	236.50'	**20.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=4.76 cfs @ 13.40 hrs HW=236.76' (Free Discharge)
1=Culvert (Barrel Controls 4.76 cfs @ 3.88 fps)

Secondary OutFlow Max=7.54 cfs @ 13.40 hrs HW=236.76' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 7.54 cfs @ 1.45 fps)

Stage-Area-Storage for Pond B-2: B-2

Elevation (feet)	Surface (acres)	Storage (acre-feet)
233.00	0.190	0.000
233.05	0.193	0.011
233.10	0.196	0.022
233.15	0.200	0.033
233.20	0.203	0.044
233.25	0.206	0.055
233.30	0.209	0.067
233.35	0.212	0.078
233.40	0.216	0.089
233.45	0.219	0.100
233.50	0.222	0.111
233.55	0.225	0.122
233.60	0.228	0.133
233.65	0.232	0.144
233.70	0.235	0.155
233.75	0.238	0.166
233.80	0.241	0.178
233.85	0.244	0.189
233.90	0.248	0.200
233.95	0.251	0.211
234.00	0.254	0.222
234.05	0.258	0.237
234.10	0.262	0.251
234.15	0.265	0.266
234.20	0.269	0.280
234.25	0.273	0.295
234.30	0.277	0.310
234.35	0.281	0.324
234.40	0.284	0.339
234.45	0.288	0.353
234.50	0.292	0.368
234.55	0.296	0.383
234.60	0.300	0.397
234.65	0.303	0.412
234.70	0.307	0.426
234.75	0.311	0.441
234.80	0.315	0.456
234.85	0.319	0.470
234.90	0.322	0.485
234.95	0.326	0.499
235.00	0.330	0.514
235.05	0.466	0.598
235.10	0.601	0.682
235.15	0.737	0.767
235.20	0.872	0.851
235.25	1.007	0.935
235.30	1.143	1.020
235.35	1.278	1.104
235.40	1.414	1.188
235.45	1.549	1.272
235.50	1.685	1.356
235.55	1.821	1.441
235.60	1.956	1.525
235.65	2.092	1.609
235.70	2.227	1.693
235.75	2.362	1.778
235.80	2.498	1.862
235.85	2.633	1.946
235.90	2.769	2.031
235.95	2.904	2.115
236.00	3.040	2.199
236.05	3.142	2.402
236.10	3.244	2.605
236.15	3.346	2.808
236.20	3.448	3.011
236.25	3.550	3.214
236.30	3.652	3.417
236.35	3.754	3.620
236.40	3.856	3.823
236.45	3.958	4.026
236.50	4.060	4.229
236.55	4.162	4.432
236.60	4.264	4.635
236.65	4.366	4.838
236.70	4.468	5.041
236.75	4.570	5.244
236.80	4.672	5.447
236.85	4.774	5.650
236.90	4.876	5.853
236.95	4.978	6.056
237.00	5.080	6.259
237.05	5.167	6.557
237.10	5.254	6.854
237.15	5.341	7.152
237.20	5.428	7.449
237.25	5.515	7.746
237.30	5.602	8.044
237.35	5.689	8.341
237.40	5.776	8.639
237.45	5.863	8.936
237.50	5.950	9.234
237.55	6.037	9.532
237.60	6.124	9.829
237.65	6.211	10.127
237.70	6.298	10.424
237.75	6.385	10.722
237.80	6.472	11.019
237.85	6.559	11.316
237.90	6.646	11.614
237.95	6.733	11.911
238.00	**6.820**	**12.209**

Summary for Link AP-1-: AP-1

Inflow Area = 11.400 ac, 0.00% Impervious, Inflow Depth > 3.54" for 100-yr event
Inflow = 14.37 cfs @ 12.47 hrs, Volume= 3.360 af
Primary = 14.37 cfs @ 12.47 hrs, Volume= 3.360 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link AP-2-: AP-2

Inflow Area = 23.800 ac, 2.94% Impervious, Inflow Depth > 4.70" for 100-yr event
Inflow = 12.32 cfs @ 13.40 hrs, Volume= 9.327 af
Primary = 12.32 cfs @ 13.40 hrs, Volume= 9.327 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Appendix D

Water Quality Volume Calculations

Water Quality Volume Calculations

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

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

Drainage Area	Area (ac)	Pervious (ac)	Imperv. (ac)	I (%)	R	WQV (ac-ft)	Provided Volume (ac-ft)
Overall Site	17.5	16.8	0.7	4.0	0.09	0.125	-
1	5.0	5.0	0.0	0.0	0.05	0.021	0.74
2	12.5	11.8	0.7	5.6	0.10	0.105	3.71
Overall Basins						0.125	4.45