Preliminary Stormwater Management Study

for

2934-2950 Atlanta Rd Mixed-Use

LOCATED IN
Land Lot No. 559, 17th District, 2nd Section
City of Smyrna
Cobb County, Georgia

Developer:
Tanalta Real Estate
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Engineer:
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DCE Job# 2022-06

Initial Issue October 10, 2022

REVISION SUMMARY

Revision	Date	Description

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Letter to Reviewers

10-10-2022

Ladies and Gentlemen:

The following is the Preliminary Stormwater Management Study for Tanalta Real Estate's Mixed-Use Development located in Land Lot 559 of the 17th District, 2nd Section of the City of Smyrna, Cobb County, Georgia. The site address is 2934-2950 Atlanta Rd and it is located at the northwest corner of the intersection of Atlanta Rd and Church St. This project will combine three lots totaling 1.05 acres and redevelop the property with a four-story mixed-use building and associated parking deck. The building will be composed of office and commercial on the ground level and multifamily residential above.

The purpose of this report is to demonstrate that mitigating measures will be designed to meet the City of Smyrna requirements for Stormwater Management for the proposed development. The analysis herein is performed using the SCS method to generate hydrographs based on a 24 hour, type II distribution storm event. The study is based on the methodology outlined in the Georgia Stormwater Management Manual.

Please let us know if you should have any questions regarding this study.

Sincerely,

Emmanuel Doulgerakis, MSCE, P.E.

Project Narrative

The purpose of this report is to show that mitigating measures for the proposed development will be designed to meet the City of Smyrna Requirements for the detention and water quality/runoff reduction. The project site is 1.05 acres and is located in Land Lot 559 of the 17th District, 2nd Section of the City of Smyrna, Cobb County, Georgia.

The existing conditions are three lots, one of which is vacant. The other two lots have two commercial buildings and associated parking lots. The property does not appear to contain any existing trees. Runoff generally flows from west to east towards Atlanta Rd. Runoff flows overland across the site where it is collected in drop inlets at two location (Study Points A and B) near the right of way. It then continues in the existing storm sewer system under Atlanta Rd. There are no existing detention facilities on site.

Study Point A is located in the existing 24" storm sewer located in the Atlanta Rd ROW along the northeastern half of the property. Study Point B is located in the existing 24" storm sewer located in the Atlanta Rd ROW along the southeastern half of the property. The flows from the two study points are then piped under Atlanta Rd where they combine before continuing east under the Publix shopping center. The combination point is also the 10% Study Point.

A small amount of off site area drains into the site from the neighboring church to the west.

Stormwater management for the site will be provided by constructing two underground detention/infiltration ponds, one for each study point. Water quality requirements for the site are intended to be met by providing runoff reduction in the form of infiltration for the first 1 inch of rainfall draining to the underground detention pond. The Georgia Stormwater Management Manual Stormwater Quality Site Development Review Tool is used for calculating the required water quality/runoff reduction volumes (reference Appendix D). The Tool is also used for calculating the Adjusted Curve Number for the drainage area resulting from implementing runoff reduction practices.

Field testing will need to be performed during final design to assess the suitability of the subsurface conditions for infiltration. If the infiltration test results are not suitable then an alternative BMP will be proposed for the site to satisfy the City's requirement for Runoff Reduction/Water Quality.

According to FIRM Panels 13067C0119H dated March 4, 2013 this site is not located within the 100 year flood plain.

Pre Development Conditions

The existing conditions are developed land with two commercial buildings, driveways and parking lots. Per the NRCS soil maps the soil types located in this area are Urban Land – Madison, UhC. The hydrological soil type for this classification is technically unrated, however in their natural state Madison soils are of hydrological Type B, therefore Type B will be used for this analysis (Reference Appendix B). For curve number determination based on land cover reference Table 3.1.5-1 of the GSWMM. Time of concentration is calculated using the TR-55 method and calculations can be found in the Hydraflow Hydrographs Report Appendix E. Small, developed areas that are very steep and/or mostly impervious surfaces are assigned the smallest time of concentration of 6 minutes. Reference Appendix H for Pre and Post Development Maps and ~~Appendix I for the 10% Basin Map~~.

Area #	Total Area (AC)	Weighted Curve Number	Time of Conc. Tc (min)	Impervious Area (AC)	Pervious Area (AC)
Curve Number		-		98	61
Area A1 On Site	0.31	94	6	0.28	0.03
Area A2 On Site	0.45	68	13.5	0.09	0.36
Area A3 Off Site	0.12	73	6	0.04	0.08
Area B1 On Site	0.29	97	6	0.28	0.01
Area B2 Off Site	0.05	76	6	0.02	0.03
Total Study Area	1.22				

Post Development Conditions

The project site will be developed with a new mixed-use building, parking lots and landscaped areas. Time of concentration is calculated using the TR-55 method and calculations can be found in the Hydraflow Hydrographs Report Appendix E. Small, developed areas that are very steep and/or mostly impervious surfaces are assigned the smallest time of concentration of 6 minutes.

Area #	Total Area (AC)	Weighted Curve Number	Time of Conc. Tc (min)	Impervious Area (AC)	Pervious Area (AC)	Adjusted CN
Curve Number	-			98	61	-
Area A1 On Site	0.52	90	6	0.41	0.11	84*
Area A3 Off Site	0.12	73	6	0.04	0.08	-
Area B1 On Site	0.53	90	6	0.41	0.12	83*
Area B2 Off Site	0.05	76	6	0.02	0.03	-
Total Study Area	1.22					

*see curve number adjustment for runoff reduction section of this report.

Curve Number Adjustment for Runoff Reduction

In accordance with the GSWMM credit can be taken in the form of a Curve Number adjustment for runoff reduction created by green infrastructure BMPs such as underground detention ponds with infiltration.

Using the SCS method, the runoff volume of the storm event (Q) may be subtracted by the runoff reduction volume (R). Using this new storm volume, an adjusted Curve Number (CNadj) can be back-calculated.

- RRv adjusted CN (assume P is equal for both adjusted and unadjusted Q)
- SCS method (unadjusted), Q=(P-0.2 x S0)^2/(P+0.8 x S0); S0 = 1000/CN -10
- SCS method (adjusted), Q-R=(P-0.2 x S1)^2/(P+0.8 x S1); S1 = 1000/CNadj -10
- R = sum of runoff reduction from all systems within the drainage area *(see pond design section)*
- P = rainfall (in)
- CN = curve number
- CNadj = adjusted curve number
- S0 = potential maximum soil moisture retention (in) based on original CN
- S1 = potential maximum soil moisture retention (in) based on CNadj

Area	Year	CN	Area (sf)	S0 (in)	P (in)	Q (cf)	R (cf)	S1 (in)	Q-R	CN adj
A1	100	90.17	22651	1.09	7.54	12031	1434	1.95	10597	**84**
B1	100	89.62	23087	1.16	7.54	12138	1436	2.02	10702	**83**

For simplicity of calculations, the 100 year storm Adjusted CN was used in the hydrograph model for all storm events. This is a conservative approach because the 100 year adjusted CN is larger than the 2 thru 50 year adjusted CN values.

Sizing Criteria for Detention Ponds

Water Quality/Runoff Reduction utilizes the equations 3.1.19 and 3.1.20 of Volume 2, Section 3.1.7.1 of the GSWMM. Runoff reduction is to be provided for the 1" storm to the maximum extent practicable. Any remaining volume is to addressed using traditional Water Quality methods for the 1.2" storm.

Stream Channel Protection utilizes the equations and methodology from GSWMM section 3.3.5 to provide extended detention for the 1-year, 24-hour storm event. Per the GSWMM Section 2.2.4.2 Stream Channel Protection is not required if the 1-year, 24-hour pond outflow to less than 2 cfs. Per section 2.2.2.2 Stream Channel Protection may be exempted if the site discharges directly into a piped stormwater drainage system and a reduction of the smaller flows will not have an impact on the stream channel integrity.

Over-bank Flood Protection was provided for by ensuring that the post development peak rate is reduced by 10% from the pre development peak rate for the 2, 10, and 25 year frequency storm events.

Extreme Flood Protection is provided for by ensuring that the post development peak rate is reduced by 10% from the pre development peak rate for the 50 and 100 year frequency storm events.

Design of Pond A

Pond A is a proposed underground detention pond which receives runoff from onsite drainage area A1 and offsite area A3. The pond will be composed of three 110 LF barrels of 30" CMP with stone backfill. Two of the barrels will be perforated pipe to allow for infiltration, while the third barrel will be solid wall with an internal baffle wall serving as a pretreatment mechanism to trap sediment and debris from inflows prior to entering the perforated section of the pipe. The lower portion of the pond will drain via infiltration to meet the water quality requirements for the project. The upper portion of the pond will drain via the outlet works described below to satisfy the detention requirements. ~~Reference Appendix J for Pond Details.~~

Pond Stage/Storage Table:

Stage (ft)	Elevation (ft)	Pond Volume (cuft)
0.00	1053.30	0
0.51	1053.81	45
1.02	1054.32	255
1.53	1054.83	543
2.04	1055.34	940
2.55	1055.85	1,424
2.70	1056.00*	1,577*
3.06	1056.36	1,935
3.57	1056.87	2,417
4.08	1057.38	2,812
4.59	1057.89	3,106
5.10	1058.40	3,375

Pond Elevation/Storage/Discharge Table			
Storm Event	Elevation (ft)	Volume (cf)	Discharge (cfs)
2 YR	1056.69	2,235	1.85
10 YR	1056.99	2,499	2.86
25 YR	1057.26	2,709	3.41
50 YR	1057.45	2,822	4.24
100 YR	1057.60	2,921	5.12

*Storage below this point is drained via infiltration (see Runoff Reduction/Water Quality Design below).
Bottom of stone elevation at Pond low point = 1053.30
Top of Stone elevation at Pond low point = 1057.30
Downstream Invert of 30" CMP = 1054.30
Slope of detention pipe = 1.0%

The outlet works consists of:
15" outlet pipe at invert elevation 1056.00 and 1.0% slope (n=0.013)

The 100-year ponding elevation is 1057.60.
The lowest point of overflow in parking lot is +/- 1058.0.

Runoff Reduction/Water Quality Design:

The pond has been sized to capture the first 1" of rainfall on Area A1 below the outlet and infiltrate it into the ground in 48 hours or less. This Runoff Reduction Volume, RRv = 1.0" x (0.05+0.009*I%) x A / 12 x 43560.

Area Description	AREA (acres)	IMPERVIOUS (acres)	I %	Required RRv (CF)
A1	0.52	0.41	78.85	1434

Infiltration Practices:

Description	Surface Area (SF)	i_soil (ft/day)	RRv Provided (cf)	Time To Infiltrate (hrs)	Req'd Forebay Volume (cf)	Provided Forebay Volume (cf)
Detention Pond	1165	1.00**	1577	32.49	149	270

i_soil is from Geotech Report ~~Appendix F~~

RRv is from pond stage/storage data Appendix E

Time to Drain = Volume/(i_soil x bottom surface area)

Time to Drain must be less than 48 hours.

Forebay Volume Required (cf) = 0.1" x Imp Area x 43560 / 12

****Infiltration testing is required to confirm that a minimum i = 1.0ft/day = 0.5 in/hr can be achieved at the site.**

Channel Protection Design Pond:

Per the GSWMM Section 2.2.4.2 Stream Channel Protection is not required if the 1-year, 24-hour pond outflow to less than 2 cfs. Per section 2.2.2.2 Stream Channel Protection may be exempted if the site discharges directly into a piped stormwater drainage system and a reduction of the smaller flows will not have an impact on the stream channel integrity.

Design of Pond B

Pond B is a proposed underground detention pond which receives runoff from onsite drainage area B1 and offsite area B2. The pond will be composed of seven 70 LF barrels of 30" CMP with stone backfill. Six of the barrels will be perforated pipe to allow for infiltration, while the seventh barrel will be solid wall with an internal baffle wall serving as a pretreatment mechanism to trap sediment and debris from inflows prior to entering the perforated section of the pipe. The lower portion of the pond will drain via infiltration to meet the water quality requirements for the project. The upper portion of the pond will drain via the outlet works described below to satisfy the detention requirements. ~~Reference Appendix J for Pond Details.~~

Pond Stage/Storage Table:

Stage (ft)	Elevation (ft)	Pond Volume (cuft)
0.00	1051.60	0
0.47	1052.07	124
0.94	1052.54	463
1.41	1053.01	831
1.88	1053.48	1,225
2.35	1053.95	1,783
2.50	1054.10*	1,986*
2.82	1054.42	2,457
3.29	1054.89	3,165
3.76	1055.36	3,850
4.23	1055.83	4,438
4.70	1056.30	4,855

Pond Elevation/Storage/Discharge Table			
Storm Event	Elevation (ft)	Volume (cf)	Discharge (cfs)
2 YR	1054.85	3,089	1.16
10 YR	1055.20	3,597	1.82
25 YR	1055.47	3,970	2.20
50 YR	1055.72	4,285	2.45
100 YR	1056.04	4,591	2.94

*Storage below this point is drained via infiltration (see Runoff Reduction/Water Quality Design below).
Bottom of stone elevation at Pond low point = 1051.60
Top of Stone elevation at Pond low point = 1055.60
Downstream Invert of 30" CMP = 1053.10
Slope of detention pipe = 1.0%

The outlet works consists of:
15" outlet pipe at invert elevation 1054.10 and 1.0% slope (n=0.013)
12" orifice at invert elevation 1054.1 (drains to 15" outlet pipe)

The 100-year ponding elevation is 1056.04.
The lowest point of overflow in parking lot is +/- 1056.49.

Runoff Reduction/Water Quality Design:

The pond has been sized to capture the first 1" of rainfall on Area A1 below the outlet and infiltrate it into the ground in 48 hours or less. This Runoff Reduction Volume, RRv = 1.0" x (0.05+0.009*I%) x A / 12 x 43560.

Area Description	AREA (acres)	IMPERVIOUS (acres)	I %	Required RRv (CF)
B1	0.53	0.41	77.36	1436

Infiltration Practices:

Description	Surface Area (SF)	i_soil (ft/day)	RRv Provided (cf)	Time To Infiltrate (hrs)	Req'd Forebay Volume (cf)	Provided Forebay Volume (cf)
Detention Pond	1739	1.0	1986	27.41	149	172

i_soil is from Geotech Report ~~Appendix F~~

RRv is from pond stage/storage data Appendix E

Time to Drain = Volume/(i_soil x bottom surface area)

Time to Drain must be less than 48 hours.

Forebay Volume Required (cf) = 0.1" x Imp Area x 43560 / 12

****Infiltration testing is required to confirm that a minimum i = 1.0ft/day = 0.5 in/hr can be achieved at the site.**

Channel Protection Design Pond:

Per the GSWMM Section 2.2.4.2 Stream Channel Protection is not required if the 1-year, 24-hour pond outflow to less than 2 cfs. Per section 2.2.2.2 Stream Channel Protection may be exempted if the site discharges directly into a piped stormwater drainage system and a reduction of the smaller flows will not have an impact on the stream channel integrity.

Summary of Peak Flows

Per the City of Smyrna Stormwater Ordinance post development flows must be reduced by 10% from the pre-development flows leaving the development site. This analysis must be performed for the 2, 10, 25, 50, and 100-year storm events. Reference Appendix E for the complete hydrograph report.

	Storm Frequency				
Study Point A	2 year	10 year	25 year	50 year	100 year
Q_{pre}	2.15	3.38	4.25	4.96	5.71
Q Reqd	**1.93**	**3.05**	**3.83**	**4.46**	**5.14**
Q post	2.56	3.79	4.61	5.27	5.96
Q post adj	2.17	3.39	4.23	4.90	5.59
$Q_{Post\ Routed}$	**1.85**	**2.86**	**3.41**	**4.24**	**5.12**
% Reduction	14%	15%	20%	14%	10%

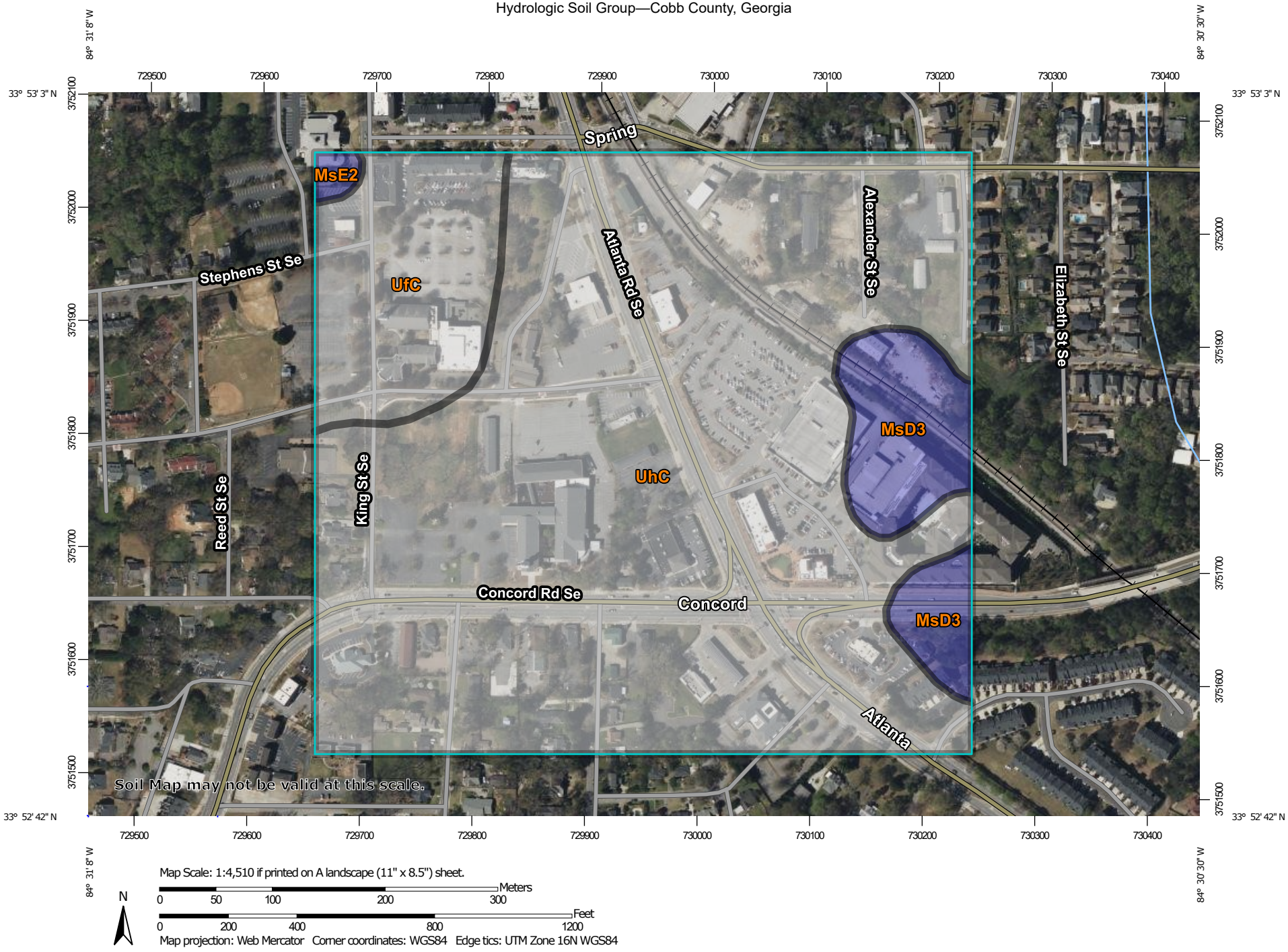
	Storm Frequency				
Study Point B	2 year	10 year	25 year	50 year	100 year
Q_{pre}	1.60	2.24	2.67	3.01	3.37
Q Reqd	**1.44**	**2.01**	**2.40**	**2.71**	**3.03**
Q_{post}	2.46	3.59	4.34	4.94	5.57
Q post adj	2.00	3.12	3.88	4.49	5.12
$Q_{Post\ Routed}$	**1.16**	**1.82**	**2.20**	**2.45**	**2.94**
% Reduction	28%	18%	17%	19%	13%

Downstream Analysis

TBD. This section will be completed during final design.

	Storm Frequency					
10% Study Point	1 year	2 year	5 year	10 year	25 year	100 year
Q_{pre}						
Q_{post}						
% Reduction						

Appendix A: Location Map


84° 31' 8" W
84° 30' 30" W
33° 53' 3" N
33° 52' 42" N
729500
729600
729700
729800
729900
730000
730100
730200
730300
730400
3752100
3752000
3751900
3751800
3751700
3751600
3751500
MsE2
UfC
UhC
MsD3
MsD3
Spring
Atlanta Rd Se
Alexander St Se
Elizabeth St Se
Stephens St Se
King St Se
Reed St Se
Concord Rd Se
Concord
Atlanta
Soil Map may not be valid at this scale.
Map Scale: 1:4,510 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 50 100 200 300
Feet
0 200 400 800 1200
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

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

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

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

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

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

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

Soil Survey Area: Cobb County, Georgia
Survey Area Data: Version 13, Sep 12, 2022

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

Date(s) aerial images were photographed: Mar 10, 2022—Apr 20, 2022

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
MsD3	Madison and Pacolet soils, 10 to 15 percent slopes, severely eroded	B	6.0	7.8%
MsE2	Madison and Pacolet soils, 15 to 25 percent slopes, eroded	B	0.4	0.5%
UfC	Urban land-Cecil complex, 2 to 10 percent slopes		8.8	11.4%
UhC	Urban land-Madison complex, 2 to 10 percent slopes		61.8	80.2%
Totals for Area of Interest			**77.0**	**100.0%**

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

NOAA Atlas 14, Volume 9, Version 2
Location name: Smyrna, Georgia, USA*
Latitude: 33.8823°, Longitude: -84.5137°
Elevation: 1056.66 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

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	**0.405** (0.322-0.505)	**0.465** (0.370-0.580)	**0.567** (0.450-0.709)	**0.656** (0.518-0.823)	**0.785** (0.602-1.01)	**0.889** (0.665-1.16)	**0.997** (0.722-1.32)	**1.11** (0.773-1.50)	**1.27** (0.849-1.74)	**1.39** (0.907-1.93)
10-min	**0.593** (0.472-0.739)	**0.681** (0.541-0.849)	**0.831** (0.659-1.04)	**0.961** (0.758-1.21)	**1.15** (0.881-1.48)	**1.30** (0.974-1.69)	**1.46** (1.06-1.93)	**1.63** (1.13-2.19)	**1.86** (1.24-2.55)	**2.04** (1.33-2.82)
15-min	**0.723** (0.576-0.901)	**0.830** (0.660-1.04)	**1.01** (0.803-1.27)	**1.17** (0.924-1.47)	**1.40** (1.07-1.81)	**1.59** (1.19-2.06)	**1.78** (1.29-2.35)	**1.98** (1.38-2.67)	**2.27** (1.52-3.11)	**2.49** (1.62-3.44)
30-min	**1.03** (0.820-1.28)	**1.18** (0.940-1.47)	**1.44** (1.14-1.80)	**1.67** (1.31-2.09)	**1.99** (1.53-2.57)	**2.26** (1.69-2.93)	**2.53** (1.83-3.35)	**2.82** (1.96-3.80)	**3.22** (2.16-4.43)	**3.54** (2.31-4.90)
60-min	**1.33** (1.06-1.66)	**1.52** (1.21-1.90)	**1.85** (1.47-2.31)	**2.14** (1.69-2.68)	**2.57** (1.97-3.31)	**2.91** (2.18-3.79)	**3.28** (2.37-4.34)	**3.66** (2.55-4.94)	**4.20** (2.81-5.77)	**4.63** (3.02-6.40)
2-hr	**1.63** (1.31-2.01)	**1.86** (1.50-2.29)	**2.26** (1.81-2.79)	**2.62** (2.09-3.24)	**3.14** (2.44-4.01)	**3.57** (2.71-4.59)	**4.02** (2.95-5.27)	**4.50** (3.18-6.01)	**5.18** (3.52-7.04)	**5.72** (3.78-7.82)
3-hr	**1.83** (1.48-2.23)	**2.07** (1.68-2.54)	**2.51** (2.03-3.08)	**2.90** (2.33-3.57)	**3.48** (2.73-4.43)	**3.96** (3.03-5.07)	**4.47** (3.31-5.82)	**5.01** (3.57-6.65)	**5.78** (3.96-7.81)	**6.39** (4.26-8.69)
6-hr	**2.25** (1.84-2.72)	**2.53** (2.07-3.06)	**3.02** (2.47-3.67)	**3.47** (2.82-4.22)	**4.14** (3.29-5.21)	**4.70** (3.65-5.95)	**5.29** (3.98-6.82)	**5.93** (4.29-7.78)	**6.83** (4.76-9.14)	**7.56** (5.12-10.2)
12-hr	**2.79** (2.32-3.33)	**3.11** (2.58-3.72)	**3.68** (3.05-4.42)	**4.19** (3.45-5.04)	**4.95** (3.98-6.15)	**5.58** (4.39-6.98)	**6.25** (4.76-7.95)	**6.97** (5.11-9.03)	**7.98** (5.64-10.5)	**8.79** (6.05-11.7)
24-hr	**3.35** (2.81-3.96)	**3.78** (3.17-4.47)	**4.51** (3.77-5.34)	**5.14** (4.28-6.11)	**6.05** (4.91-7.38)	**6.78** (5.39-8.35)	**7.54** (5.81-9.45)	**8.34** (6.19-10.6)	**9.43** (6.76-12.3)	**10.3** (7.19-13.5)
2-day	**3.86** (3.29-4.51)	**4.44** (3.77-5.19)	**5.40** (4.57-6.32)	**6.20** (5.23-7.28)	**7.33** (6.01-8.81)	**8.21** (6.59-9.96)	**9.10** (7.10-11.2)	**10.0** (7.54-12.6)	**11.3** (8.18-14.5)	**12.2** (8.66-15.9)
3-day	**4.24** (3.63-4.91)	**4.81** (4.12-5.59)	**5.80** (4.95-6.74)	**6.64** (5.64-7.75)	**7.86** (6.51-9.41)	**8.83** (7.16-10.7)	**9.84** (7.75-12.1)	**10.9** (8.28-13.7)	**12.3** (9.06-15.8)	**13.5** (9.66-17.4)
4-day	**4.56** (3.93-5.27)	**5.13** (4.42-5.93)	**6.12** (5.26-7.08)	**7.00** (5.98-8.12)	**8.28** (6.92-9.90)	**9.33** (7.63-11.3)	**10.4** (8.29-12.8)	**11.6** (8.90-14.5)	**13.3** (9.82-16.9)	**14.6** (10.5-18.7)
7-day	**5.40** (4.70-6.17)	**6.02** (5.24-6.89)	**7.13** (6.19-8.17)	**8.14** (7.02-9.35)	**9.65** (8.17-11.5)	**10.9** (9.03-13.0)	**12.3** (9.86-14.9)	**13.7** (10.6-17.0)	**15.8** (11.8-19.9)	**17.4** (12.7-22.2)
10-day	**6.12** (5.36-6.95)	**6.81** (5.97-7.74)	**8.04** (7.02-9.15)	**9.16** (7.96-10.5)	**10.8** (9.24-12.8)	**12.2** (10.2-14.5)	**13.7** (11.1-16.6)	**15.3** (12.0-18.9)	**17.6** (13.3-22.2)	**19.5** (14.4-24.6)
20-day	**8.18** (7.26-9.17)	**9.05** (8.02-10.1)	**10.6** (9.34-11.9)	**11.9** (10.5-13.4)	**13.9** (12.0-16.1)	**15.5** (13.1-18.1)	**17.2** (14.1-20.5)	**19.0** (15.1-23.1)	**21.5** (16.5-26.6)	**23.5** (17.6-29.4)
30-day	**10.0** (8.96-11.1)	**11.1** (9.88-12.3)	**12.8** (11.4-14.3)	**14.3** (12.7-16.0)	**16.5** (14.3-18.9)	**18.2** (15.4-21.0)	**19.9** (16.5-23.5)	**21.8** (17.4-26.2)	**24.3** (18.8-29.8)	**26.2** (19.9-32.5)
45-day	**12.5** (11.3-13.8)	**13.8** (12.4-15.3)	**15.9** (14.3-17.6)	**17.6** (15.8-19.6)	**20.0** (17.4-22.6)	**21.8** (18.6-24.9)	**23.5** (19.6-27.4)	**25.3** (20.4-30.1)	**27.6** (21.6-33.5)	**29.4** (22.5-36.2)
60-day	**14.8** (13.4-16.2)	**16.3** (14.8-17.9)	**18.7** (16.9-20.6)	**20.7** (18.6-22.8)	**23.2** (20.2-26.0)	**25.0** (21.5-28.4)	**26.8** (22.4-30.9)	**28.5** (23.0-33.6)	**30.6** (24.0-36.8)	**32.0** (24.7-39.2)

[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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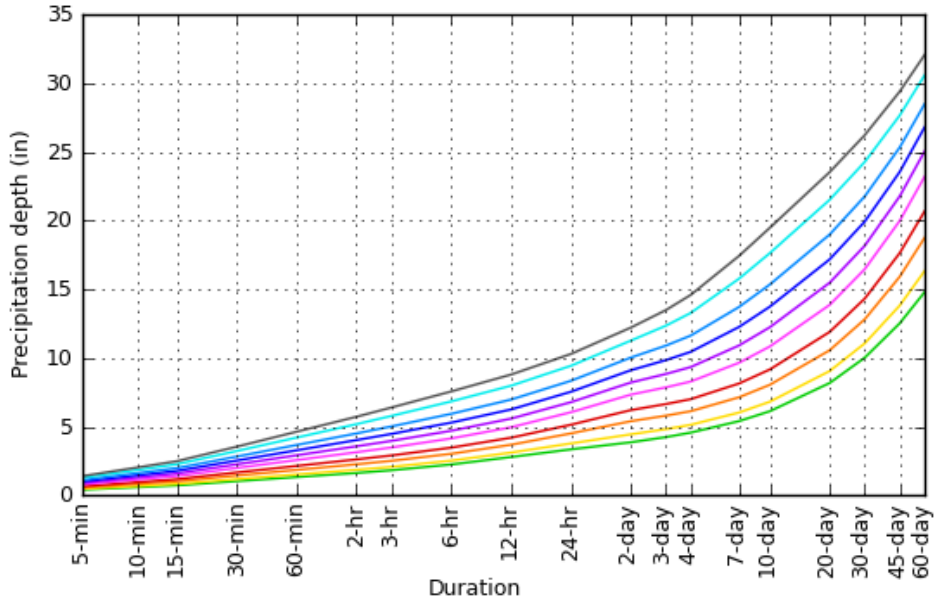
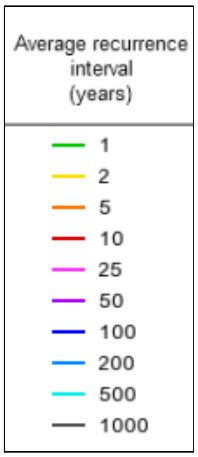
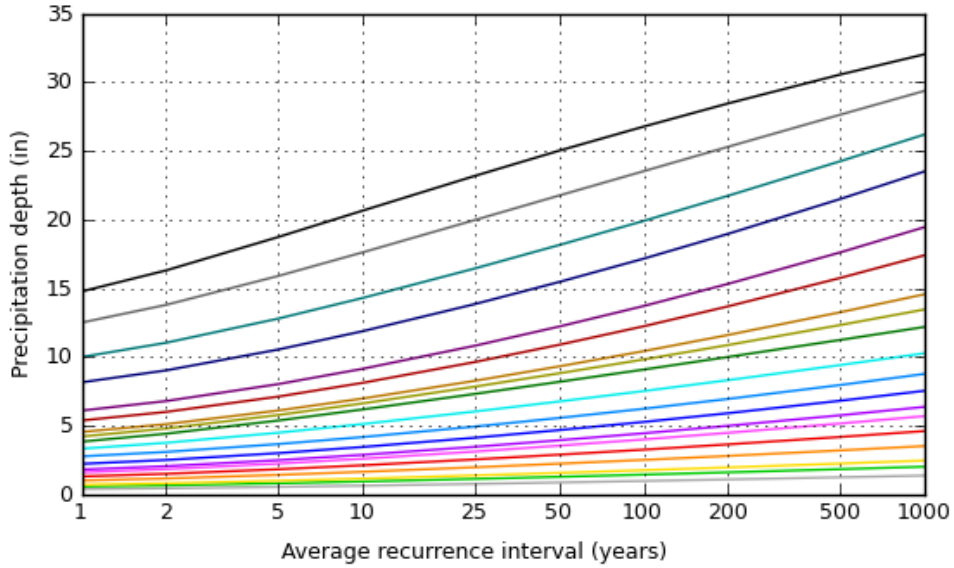
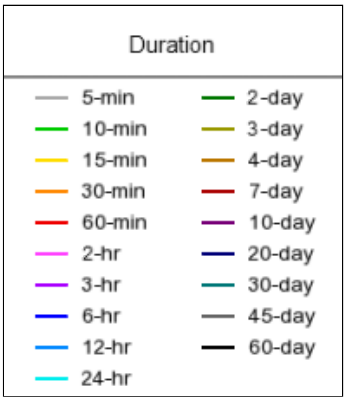
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 33.8823°, Longitude: -84.5137°









NOAA Atlas 14, Volume 9, Version 2

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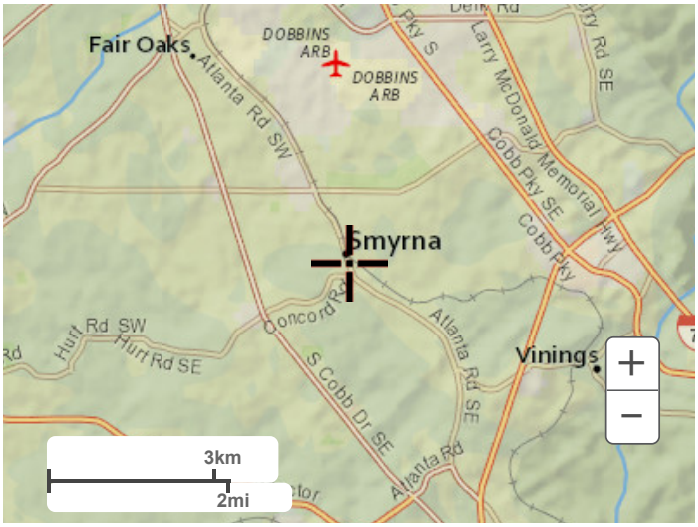
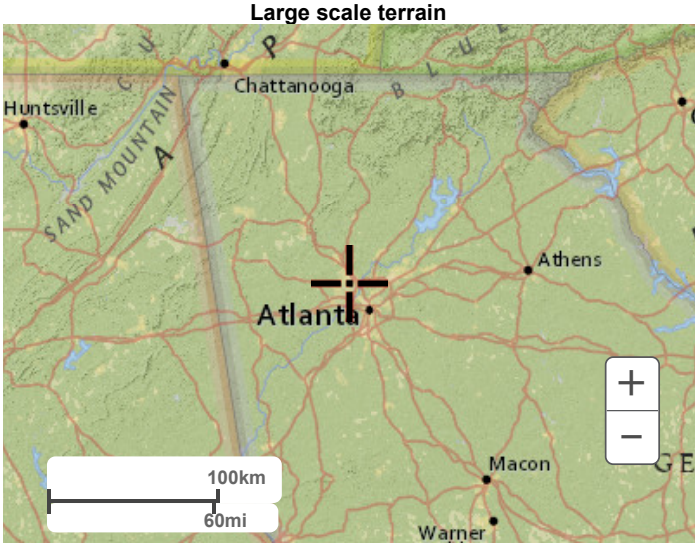
Maps & aerials

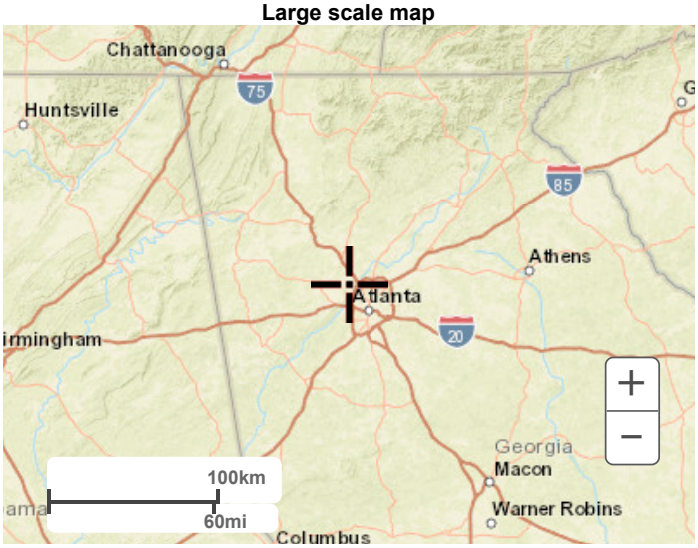
Small scale terrain



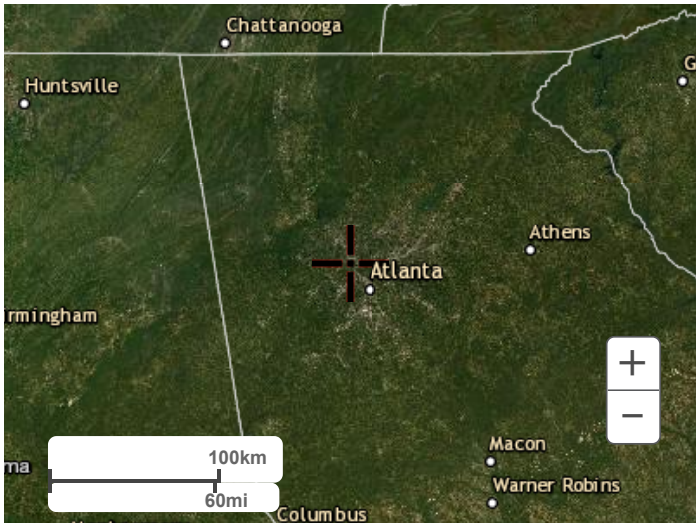
Large scale terrain



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

Georgia Stormwater Management Manual
Stormwater Quality Site Development Review Tool
Version 2.2

General Information

Name of Developer:	Tanalta	**Date Submitted:**	10/8/2022
Development Name:	2934-2950 Atlanta Rd Mixed Use	**Permit Number:**	
Site Location / Address:	2934-2950 Atlanta Rd	**Developer Contact:**	Joe Knight
	Smyrna, GA	**Phone Number:**	(678) 303-4144
		Name of Engineer(s):	Doulgerakis Consulting Engineers
Development Type:	Mixed Use	**Maintenance Responsibility:**	Owner

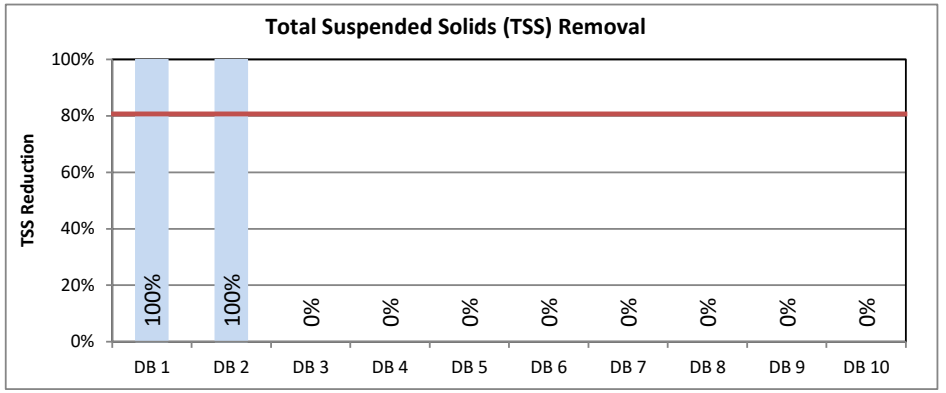
Site Summary

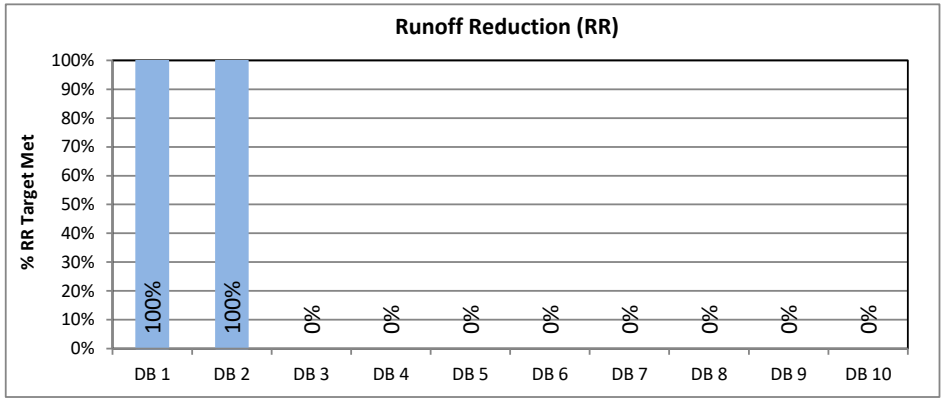
Total Pre-Development Area (ac):	**1.05**
Total Post-Development Area (ac):	**1.05**
Total Treated Area (ac):	**1.05**
Total Untreated Area (ac):	**0.00**

		I (ac)	P (ac)	CA (ac)
Area A1 and A2	**DB 1**	0.41	0.11	0.00
Area B1	**DB 2**	0.41	0.12	0.00
Drainage Basin 3	**DB 3**	0.00	0.00	0.00
Drainage Basin 4	**DB 4**	0.00	0.00	0.00
Drainage Basin 5	**DB 5**	0.00	0.00	0.00
Drainage Basin 6	**DB 6**	0.00	0.00	0.00
Drainage Basin 7	**DB 7**	0.00	0.00	0.00
Drainage Basin 8	**DB 8**	0.00	0.00	0.00
Drainage Basin 9	**DB 9**	0.00	0.00	0.00
Drainage Basin 10	**DB 10**	0.00	0.00	0.00
	TOTAL	**0.82**	**0.23**	**0.00**

I = Impervious Area, P = Pervious Area, CA = Conservation Area

Target Runoff Reduction Volume Achieved?	**Yes**
Target TSS Removal Achieved?	**Yes**
Total Target Runoff Reduction Volume (cf)	2,870
Runoff Reduction Volume Achieved (cf)	2,870
Total Target Water Quality Volume (cf)	3,443
% TSS Removal Achieved	100%





Official Use Only

Tracking #:		**Conditions of Approval:**	
Reviewed By:			
Date Approved:			

Georgia Stormwater Management Manual
Stormwater Quality Site Development Review Tool, v2.2

Development Name: 2934-2950 Atlanta Rd Mixed Use
Drainage Basin Name: Area A1 and A2

data input cells
calculation cells
constant values

Site Data

Indicate Pre-Development Land Cover and Runoff Curve Numbers in the Site's Disturbed Area

Cover Type	HSG* A (acres)	CN	HSG B (acres)	CN	HSG C (acres)	CN	HSG D (acres)	CN	Total	% Cover
Woods - Good Condition		30	0.00	55		70		77	0.00	0%
Impervious		98	0.37	98		98		98	0.37	49%
Open space - Good condition (grass cover > 75%)		39	0.39	61		74		80	0.39	51%
Select a land cover type…		0		0		0		0	0.00	0%
Select a land cover type…		0		0		0		0	0.00	0%
Local Jurisdiction Input									0.00	0%
Other									0.00	0%
Total	0.00		0.76		0.00		0.00		0.76	100%

*HSG = hydrologic soil group

Impervious (ac)	0.37
Weighted CN	79
Potential Max Soil Retention, S_{pre} (in)	2.66

Indicate Post-Development Land Cover and Runoff Curve Numbers in the Site's Disturbed Area

Cover Type	HSG A (acres)	CN	HSG B (acres)	CN	HSG C (acres)	CN	HSG D (acres)	CN	Total	% Cover
Woods - Good Condition		30		55		70		77	0.00	0%
Open space - Good condition (grass cover > 75%)		39	0.11	61		74		80	0.11	21%
Impervious		98	0.41	98		98		98	0.41	79%
Select a land cover type…		0		0		0		0	0.00	0%
Select a land cover type…		0		0		0		0	0.00	0%
Local Jurisdiction Input									0.00	0%
Other									0.00	0%
Total	0.00		0.52		0.00		0.00		0.52	100%

Impervious (ac)	0.41
Rv	0.76
Weighted CN	90
Potential Max Soil Retention, S_{post} (in)	1.09

Conservation Area Credits

Scenario 1: Natural Conservation Area **See the GSMM Volume 2, Section 2.3.3.3 for more information.*

☐ Check the box if a portion of the post-developed area is protected by a conservation easement or equivalent form of protection.

Area (ac) of development protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 1 box above is checked

Scenario 2: Site Reforestation/Revegetation **See the GSMM Volume 2, Section 4.22 for more information.*

☐ Check the box if a portion of the post-developed area employs site reforestation/revegetation and is protected by a conservation easement or equivalent form of protection.

Area (ac) of development reforested/revegetated and protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 2 box above is checked

Scenario 3: Soil Restoration **See the GSMM Volume 2, Section 4.23 for more information.*

☐ Check the box if a portion of the post-developed area employs soil restoration and is protected by a conservation easement or equivalent form of protection.

Area (ac) of development with restored soils and protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 3 box above is checked

Scenario 4: Site Reforestation/Revegetation & Soil Restoration **See the GSMM Volume 2, Section 4.22 and 4.23 for more information.*

☐ Check the box if the same portion of the post-developed area employs site reforestation/revegetation and soil restoration, and is protected by a conservation easement or equivalent form of protection.

Area (ac) with restored soils in a reforested & revegetated area and protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 4 box above is checked

Total Conservation Area Credit (acres) 0.00

Georgia Stormwater Management Manual
Stormwater Quality Site Development Review Tool, v2.2

Development Name: 2934-2950 Atlanta Rd Mixed Use
Drainage Basin Name: Area A1 and A2

data input cells
calculation cells
constant values

Water Quality Goals

Target Runoff Reduction Storm (in)	1.00
Total Site Area for Water Quality Volume (acres)	0.52
Target Runoff Reduction Volume (cf)	1,434
Target Water Quality Volume (cf)	1,721

Select BMPs for Runoff Reduction and Water Quality

		Area Draining to Each BMP			Storage Volume Provided by BMP (cf)	RR Conveyance Volume Provided by BMP (cf)	Down-stream BMP	Runoff Reduction Calculations						WQ Calculations	
		On-site Pervious Area (acres)	On-site Impervious Area (acres)	Offsite Area (acres)				RR Volume from Direct Drainage (cf)	RR Volume from Upstream Practices (cf)	Total RR Volume Received by BMP (cf)	Runoff Reduction %	RR Achieved (cf)	Remaining RR Volume (cf)	WQ_v from Direct Drainage (cf)	Effective TSS Removal %
BMP 1	Infiltration Trench	0.11	0.41		1,500		BMP 2	1,434	0	1,434	100%	1,434	0	1,721	100%
BMP 2	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 3	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 4	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 5	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 6	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 7	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 8	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 9	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 10	Select a BMP…							0	0	0	N/A	0	0	0	N/A
	TOTAL	0.11	0.41	0.00				1,434				1,434		1,721	
	UNTREATED AREA (acres)	0.00	0.00												

Target Runoff Reduction Volume (cf)	1,434
Target Achieved?	Yes!
Remaining Runoff Reduction Volume (cf)	0

Target Water Quality Volume (cf)	1,721
% TSS Removal Achieved	100%
Target Achieved?	Yes!
Remaining TSS Removal %	0%

Georgia Stormwater Management Manual
Stormwater Quality Site Development Review Tool, v2.2

Development Name: 2934-2950 Atlanta Rd Mixed Use
Drainage Basin Name: Area A1 and A2

data input cells
calculation cells
constant values

Channel and Flood Protection Calculations

	1-yr, 24-hr storm	2-yr, 24-hr storm	25-yr, 24-hr storm	100-yr, 24-hr storm
Target Rainfall Event (in)	3.35	3.78	6.05	7.54

	1-yr, 24-hr storm	2-yr, 24-hr storm	25-yr, 24-hr storm	100-yr, 24-hr storm
Pre-Development Runoff Volume (in)	1.45	1.79	3.73	5.08
Post Development Runoff Volume (in) with no BMPs	2.32	2.73	4.91	6.37
Post-Development Runoff Volume (in) with BMPs	1.56	1.97	4.15	5.61
Adjusted CN	81	81	83	84

*See Stormwater Management Standards to Determine Detention Requirements.

Comments

Georgia Stormwater Management Manual
Stormwater Quality Site Development Review Tool, v2.2

Development Name: 2934-2950 Atlanta Rd Mixed Use
Drainage Basin Name: Area B1

data input cells
calculation cells
constant values

Site Data

Indicate Pre-Development Land Cover and Runoff Curve Numbers in the Site's Disturbed Area

Cover Type	HSG* A (acres)	CN	HSG B (acres)	CN	HSG C (acres)	CN	HSG D (acres)	CN	Total	% Cover
Woods - Good Condition		30		55		70		77	0.00	0%
Impervious		98	0.28	98		98		98	0.28	97%
Open space - Good condition (grass cover > 75%)		39	0.01	61		74		80	0.01	3%
Select a land cover type…		0		0		0		0	0.00	0%
Select a land cover type…		0		0		0		0	0.00	0%
Local Jurisdiction Input									0.00	0%
Other									0.00	0%
Total	0.00		0.29		0.00		0.00		0.29	100%

*HSG = hydrologic soil group

Impervious (ac)	0.28
Weighted CN	97
Potential Max Soil Retention, S_{pre} (in)	0.34

Indicate Post-Development Land Cover and Runoff Curve Numbers in the Site's Disturbed Area

Cover Type	HSG A (acres)	CN	HSG B (acres)	CN	HSG C (acres)	CN	HSG D (acres)	CN	Total	% Cover
Open space - Good condition (grass cover > 75%)		39	0.12	61		74		80	0.12	23%
Impervious		98	0.41	98		98		98	0.41	77%
Select a land cover type…		0		0		0		0	0.00	0%
Select a land cover type…		0		0		0		0	0.00	0%
Select a land cover type…		0		0		0		0	0.00	0%
Local Jurisdiction Input									0.00	0%
Other									0.00	0%
Total	0.00		0.53		0.00		0.00		0.53	100%

Impervious (ac)	0.41
Rv	0.75
Weighted CN	90
Potential Max Soil Retention, S_{post} (in)	1.16

Conservation Area Credits

Scenario 1: Natural Conservation Area **See the GSMM Volume 2, Section 2.3.3.3 for more information.*

☐ Check the box if a portion of the post-developed area is protected by a conservation easement or equivalent form of protection.

Area (ac) of development protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 1 box above is checked

Scenario 2: Site Reforestation/Revegetation **See the GSMM Volume 2, Section 4.22 for more information.*

☐ Check the box if a portion of the post-developed area employs site reforestation/revegetation and is protected by a conservation easement or equivalent form of protection.

Area (ac) of development reforested/revegetated and protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 2 box above is checked

Scenario 3: Soil Restoration **See the GSMM Volume 2, Section 4.23 for more information.*

☐ Check the box if a portion of the post-developed area employs soil restoration and is protected by a conservation easement or equivalent form of protection.

Area (ac) of development with restored soils and protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 3 box above is checked

Scenario 4: Site Reforestation/Revegetation & Soil Restoration **See the GSMM Volume 2, Section 4.22 and 4.23 for more information.*

☐ Check the box if the same portion of the post-developed area employs site reforestation/revegetation and soil restoration, and is protected by a conservation easement or equivalent form of protection.

Area (ac) with restored soils in a reforested & revegetated area and protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 4 box above is checked

Total Conservation Area Credit (acres) 0.00

Georgia Stormwater Management Manual
Stormwater Quality Site Development Review Tool, v2.2

Development Name: 2934-2950 Atlanta Rd Mixed Use
Drainage Basin Name: Area B1

data input cells
calculation cells
constant values

Water Quality Goals

Target Runoff Reduction Storm (in): 1.00

Total Site Area for Water Quality Volume (acres): 0.53
Target Runoff Reduction Volume (cf): 1,436
Target Water Quality Volume (cf): 1,723

Select BMPs for Runoff Reduction and Water Quality

		Area Draining to Each BMP			Storage Volume Provided by BMP (cf)	RR Conveyance Volume Provided by BMP (cf)	Down-stream BMP	Runoff Reduction Calculations						WQ Calculations	
		On-site Pervious Area (acres)	On-site Impervious Area (acres)	Offsite Area (acres)				RR Volume from Direct Drainage (cf)	RR Volume from Upstream Practices (cf)	Total RR Volume Received by BMP (cf)	Runoff Reduction %	RR Achieved (cf)	Remaining RR Volume (cf)	WQ_v from Direct Drainage (cf)	Effective TSS Removal %
BMP 1	Infiltration Trench	0.12	0.41		1,500			1,436	0	1,436	100%	1,436	0	1,723	100%
BMP 2	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 3	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 4	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 5	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 6	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 7	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 8	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 9	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 10	Select a BMP…							0	0	0	N/A	0	0	0	N/A
	TOTAL	0.12	0.41	0.00				1,436				1,436		1,723	
	UNTREATED AREA (acres)	0.00	0.00												

Target Runoff Reduction Volume (cf)	1,436
Target Achieved?	Yes!
Remaining Runoff Reduction Volume (cf)	0

Target Water Quality Volume (cf)	1,723
% TSS Removal Achieved	100%
Target Achieved?	Yes!
Remaining TSS Removal %	0%

Georgia Stormwater Management Manual
Stormwater Quality Site Development Review Tool, v2.2

Development Name: 2934-2950 Atlanta Rd Mixed Use
Drainage Basin Name: Area B1

data input cells
calculation cells
constant values

Channel and Flood Protection Calculations

	1-yr, 24-hr storm	2-yr, 24-hr storm	25-yr, 24-hr storm	100-yr, 24-hr storm
Target Rainfall Event (in)	3.35	3.78	6.05	7.54

	1-yr, 24-hr storm	2-yr, 24-hr storm	25-yr, 24-hr storm	100-yr, 24-hr storm
Pre-Development Runoff Volume (in)	2.98	3.40	5.66	7.15
Post Development Runoff Volume (in) with no BMPs	2.27	2.68	4.85	6.31
Post-Development Runoff Volume (in) with BMPs	1.53	1.93	4.11	5.56
Adjusted CN	80	81	83	83

*See Stormwater Management Standards to Determine Detention Requirements.

Comments

Hydrograph Return Period Recap

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	-------	1.496	-------	-------	2.091	2.486	2.801	3.128	A1 PRE
2	SCS Runoff	------	-------	0.568	-------	-------	1.100	1.498	1.831	2.187	A2 PRE
3	SCS Runoff	------	-------	0.280	-------	-------	0.484	0.632	0.755	0.884	A3 PRE
4	SCS Runoff	------	-------	1.469	-------	-------	2.014	2.378	2.669	2.972	B1 PRE
5	SCS Runoff	------	-------	0.133	-------	-------	0.223	0.287	0.339	0.393	B2 PRE
7	SCS Runoff	------	-------	2.284	-------	-------	3.302	3.977	4.516	5.075	A1 POST
8	SCS Runoff	------	-------	1.896	-------	-------	2.910	3.593	4.141	4.711	A1 ADJ RR
9	SCS Runoff	------	-------	2.328	-------	-------	3.365	4.054	4.603	5.173	B1 POST
10	SCS Runoff	------	-------	1.864	-------	-------	2.893	3.589	4.148	4.729	B1 ADJ RR
12	Combine	1, 2, 3,	-------	2.149	-------	-------	3.384	4.251	4.961	5.711	SP A PRE
13	Combine	3, 7,	-------	2.558	-------	-------	3.785	4.610	5.271	5.959	SP A POST
14	Combine	3, 8,	-------	2.170	-------	-------	3.393	4.226	4.896	5.594	SP A POST ADJ
15	Reservoir	14	-------	1.852	-------	-------	2.863	3.411	4.242	5.119	Pond A
18	Combine	4, 5,	-------	1.601	-------	-------	2.237	2.665	3.008	3.365	SP B PRE
19	Combine	5, 9,	-------	2.460	-------	-------	3.588	4.341	4.942	5.566	SP B POST
20	Combine	5, 10,	-------	1.997	-------	-------	3.117	3.876	4.487	5.122	SP B POST ADJ
21	Reservoir	20	-------	1.157	-------	-------	1.824	2.201	2.451	2.944	POND B

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	1.496	2	716	3,280	------	------	------	A1 PRE
2	SCS Runoff	0.568	2	724	1,701	------	------	------	A2 PRE
3	SCS Runoff	0.280	2	718	560	------	------	------	A3 PRE
4	SCS Runoff	1.469	2	716	3,388	------	------	------	B1 PRE
5	SCS Runoff	0.133	2	718	267	------	------	------	B2 PRE
7	SCS Runoff	2.284	2	716	4,798	------	------	------	A1 POST
8	SCS Runoff	1.896	2	716	3,855	------	------	------	A1 ADJ RR
9	SCS Runoff	2.328	2	716	4,890	------	------	------	B1 POST
10	SCS Runoff	1.864	2	716	3,781	------	------	------	B1 ADJ RR
12	Combine	2.149	2	718	5,541	1, 2, 3,	------	------	SP A PRE
13	Combine	2.558	2	716	5,358	3, 7,	------	------	SP A POST
14	Combine	2.170	2	716	4,415	3, 8,	------	------	SP A POST ADJ
15	Reservoir	1.852	2	720	4,361	14	1056.69	2,235	Pond A
18	Combine	1.601	2	716	3,655	4, 5,	------	------	SP B PRE
19	Combine	2.460	2	716	5,157	5, 9,	------	------	SP B POST
20	Combine	1.997	2	716	4,049	5, 10,	------	------	SP B POST ADJ
21	Reservoir	1.157	2	722	4,034	20	1054.85	3,089	POND B

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	2.091	2	716	4,691	------	------	------	A1 PRE
2	SCS Runoff	1.100	2	722	3,153	------	------	------	A2 PRE
3	SCS Runoff	0.484	2	718	976	------	------	------	A3 PRE
4	SCS Runoff	2.014	2	716	4,724	------	------	------	B1 PRE
5	SCS Runoff	0.223	2	716	451	------	------	------	B2 PRE
7	SCS Runoff	3.302	2	716	7,099	------	------	------	A1 POST
8	SCS Runoff	2.910	2	716	6,014	------	------	------	A1 ADJ RR
9	SCS Runoff	3.365	2	716	7,235	------	------	------	B1 POST
10	SCS Runoff	2.893	2	716	5,954	------	------	------	B1 ADJ RR
12	Combine	3.384	2	718	8,820	1, 2, 3,	------	------	SP A PRE
13	Combine	3.785	2	716	8,075	3, 7,	------	------	SP A POST
14	Combine	3.393	2	716	6,991	3, 8,	------	------	SP A POST ADJ
15	Reservoir	2.863	2	720	6,936	14	1056.99	2,499	Pond A
18	Combine	2.237	2	716	5,175	4, 5,	------	------	SP B PRE
19	Combine	3.588	2	716	7,686	5, 9,	------	------	SP B POST
20	Combine	3.117	2	716	6,405	5, 10,	------	------	SP B POST ADJ
21	Reservoir	1.824	2	722	6,390	20	1055.20	3,597	POND B

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	2.486	2	716	5,640	------	------	------	A1 PRE
2	SCS Runoff	1.498	2	722	4,235	------	------	------	A2 PRE
3	SCS Runoff	0.632	2	716	1,278	------	------	------	A3 PRE
4	SCS Runoff	2.378	2	716	5,619	------	------	------	B1 PRE
5	SCS Runoff	0.287	2	716	582	------	------	------	B2 PRE
7	SCS Runoff	3.977	2	716	8,662	------	------	------	A1 POST
8	SCS Runoff	3.593	2	716	7,509	------	------	------	A1 ADJ RR
9	SCS Runoff	4.054	2	716	8,828	------	------	------	B1 POST
10	SCS Runoff	3.589	2	716	7,463	------	------	------	B1 ADJ RR
12	Combine	4.251	2	718	11,154	1, 2, 3,	------	------	SP A PRE
13	Combine	4.610	2	716	9,940	3, 7,	------	------	SP A POST
14	Combine	4.226	2	716	8,787	3, 8,	------	------	SP A POST ADJ
15	Reservoir	3.411	2	720	8,733	14	1057.26	2,709	Pond A
18	Combine	2.665	2	716	6,202	4, 5,	------	------	SP B PRE
19	Combine	4.341	2	716	9,411	5, 9,	------	------	SP B POST
20	Combine	3.876	2	716	8,046	5, 10,	------	------	SP B POST ADJ
21	Reservoir	2.201	2	722	8,031	20	1055.47	3,970	POND B

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	2.801	2	716	6,404	------	------	------	A1 PRE
2	SCS Runoff	1.831	2	722	5,149	------	------	------	A2 PRE
3	SCS Runoff	0.755	2	716	1,530	------	------	------	A3 PRE
4	SCS Runoff	2.669	2	716	6,338	------	------	------	B1 PRE
5	SCS Runoff	0.339	2	716	691	------	------	------	B2 PRE
7	SCS Runoff	4.516	2	716	9,923	------	------	------	A1 POST
8	SCS Runoff	4.141	2	716	8,726	------	------	------	A1 ADJ RR
9	SCS Runoff	4.603	2	716	10,114	------	------	------	B1 POST
10	SCS Runoff	4.148	2	716	8,694	------	------	------	B1 ADJ RR
12	Combine	4.961	2	718	13,083	1, 2, 3,	------	------	SP A PRE
13	Combine	5.271	2	716	11,453	3, 7,	------	------	SP A POST
14	Combine	4.896	2	716	10,256	3, 8,	------	------	SP A POST ADJ
15	Reservoir	4.242	2	720	10,202	14	1057.45	2,822	Pond A
18	Combine	3.008	2	716	7,030	4, 5,	------	------	SP B PRE
19	Combine	4.942	2	716	10,805	5, 9,	------	------	SP B POST
20	Combine	4.487	2	716	9,386	5, 10,	------	------	SP B POST ADJ
21	Reservoir	2.451	2	722	9,371	20	1055.72	4,285	POND B

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	3.128	2	716	7,200	------	------	------	A1 PRE
2	SCS Runoff	2.187	2	722	6,135	------	------	------	A2 PRE
3	SCS Runoff	0.884	2	716	1,799	------	------	------	A3 PRE
4	SCS Runoff	2.972	2	716	7,087	------	------	------	B1 PRE
5	SCS Runoff	0.393	2	716	807	------	------	------	B2 PRE
7	SCS Runoff	5.075	2	716	11,243	------	------	------	A1 POST
8	SCS Runoff	4.711	2	716	10,006	------	------	------	A1 ADJ RR
9	SCS Runoff	5.173	2	716	11,459	------	------	------	B1 POST
10	SCS Runoff	4.729	2	716	9,991	------	------	------	B1 ADJ RR
12	Combine	5.711	2	718	15,133	1, 2, 3,	------	------	SP A PRE
13	Combine	5.959	2	716	13,041	3, 7,	------	------	SP A POST
14	Combine	5.594	2	716	11,805	3, 8,	------	------	SP A POST ADJ
15	Reservoir	5.119	2	718	11,751	14	1057.60	2,921	Pond A
18	Combine	3.365	2	716	7,894	4, 5,	------	------	SP B PRE
19	Combine	5.566	2	716	12,266	5, 9,	------	------	SP B POST
20	Combine	5.122	2	716	10,798	5, 10,	------	------	SP B POST ADJ
21	Reservoir	2.944	2	722	10,783	20	1056.04	4,591	POND B

Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	--------
2	29.6471	7.7000	0.6926	--------
3	0.0000	0.0000	0.0000	--------
5	29.2182	5.1000	0.6305	--------
10	40.3921	6.3000	0.6731	--------
25	49.1053	6.9000	0.6815	--------
50	66.1182	8.6000	0.7237	--------
100	62.1387	7.5000	0.6898	--------

File name: atlanta.IDF

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	5.10	4.05	3.41	2.97	2.65	2.40	2.20	2.04	1.90	1.79	1.69	1.60
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	6.80	5.28	4.41	3.83	3.42	3.10	2.85	2.65	2.48	2.33	2.21	2.10
10	7.90	6.17	5.15	4.47	3.98	3.60	3.30	3.06	2.85	2.68	2.53	2.40
25	9.08	7.15	5.99	5.21	4.64	4.20	3.85	3.57	3.33	3.13	2.95	2.80
50	10.00	7.97	6.71	5.84	5.20	4.70	4.30	3.98	3.71	3.47	3.27	3.10
100	10.88	8.63	7.25	6.32	5.63	5.10	4.68	4.33	4.04	3.80	3.59	3.40

Tc = time in minutes. Values may exceed 60.

Precip. file name: C:\2022-06 Tanalta Smyrna\stormwater management\SMYRNA.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	3.35	3.78	0.00	4.51	5.14	6.05	6.78	7.54
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

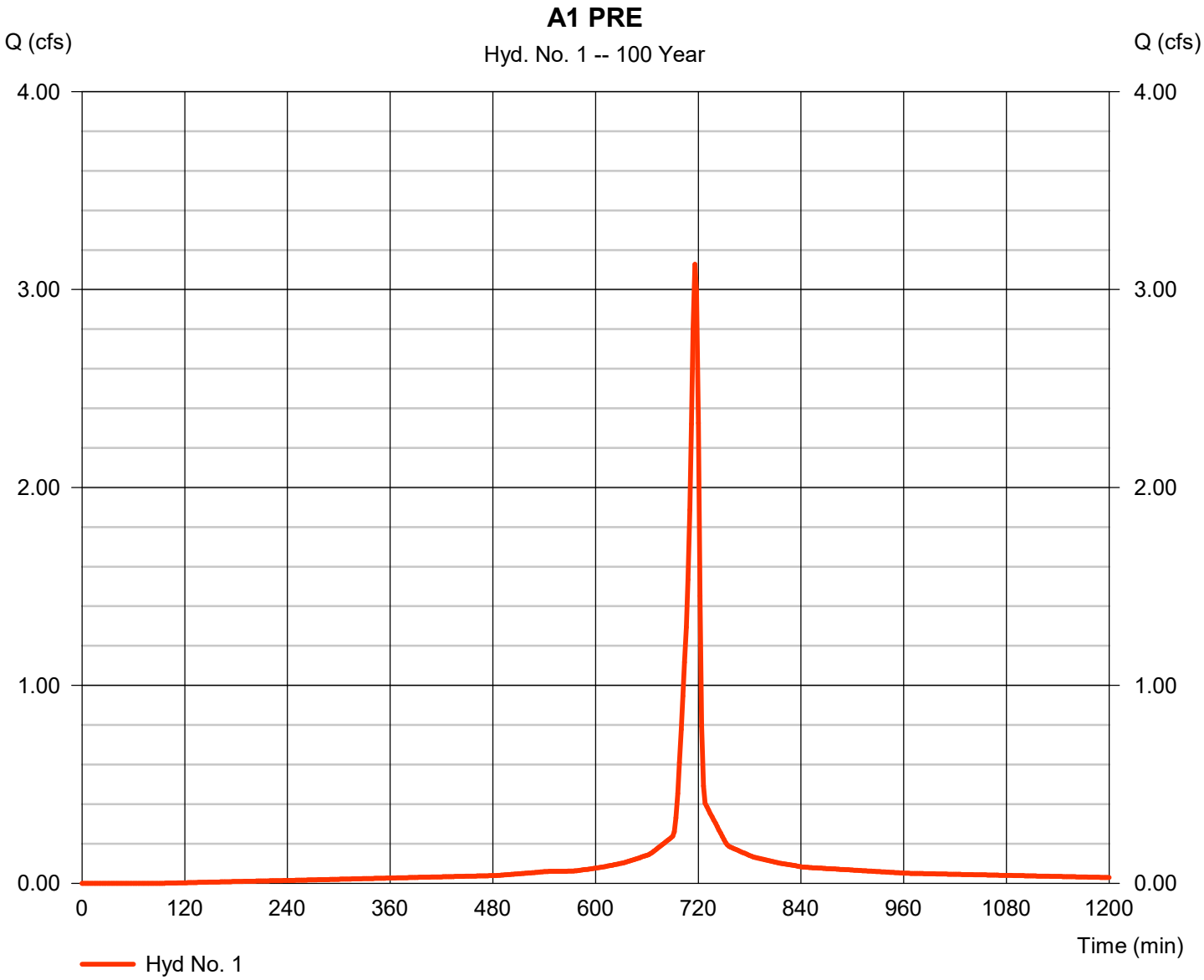
Hydrograph Report

Hyd. No. 1

A1 PRE

Hydrograph type	= SCS Runoff	Peak discharge	= 3.128 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 7,200 cuft
Drainage area	= 0.310 ac	Curve number	= 94*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 7.54 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.030 x 61) + (0.280 x 98)] / 0.310



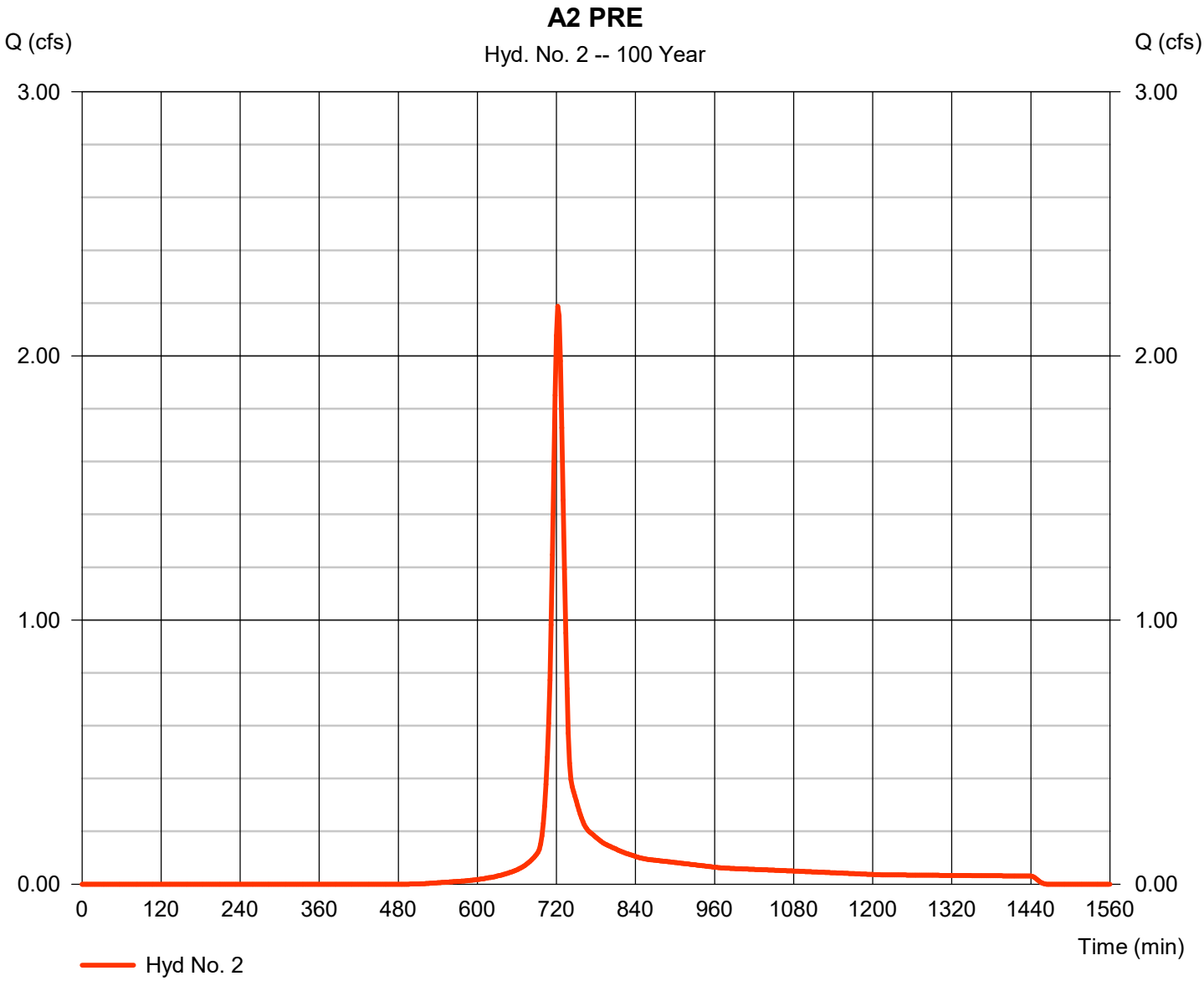
Hydrograph Report

Hyd. No. 2

A2 PRE

Hydrograph type	= SCS Runoff	Peak discharge	= 2.187 cfs
Storm frequency	= 100 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 6,135 cuft
Drainage area	= 0.450 ac	Curve number	= 68*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 13.50 min
Total precip.	= 7.54 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.360 x 61) + (0.090 x 98)] / 0.450



TR55 Tc Worksheet

Hyd. No. 2

A2 PRE

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.240		0.011		0.011		
Flow length (ft)	= 100.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.97		0.00		0.00		
Land slope (%)	= 2.00		0.00		0.00		
Travel Time (min)	**= 12.81**	**+**	**0.00**	**+**	**0.00**	**=**	**12.81**
Shallow Concentrated Flow							
Flow length (ft)	= 95.00		0.00		0.00		
Watercourse slope (%)	= 2.00		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	=2.28		0.00		0.00		
Travel Time (min)	**= 0.69**	**+**	**0.00**	**+**	**0.00**	**=**	**0.69**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 13.50 min

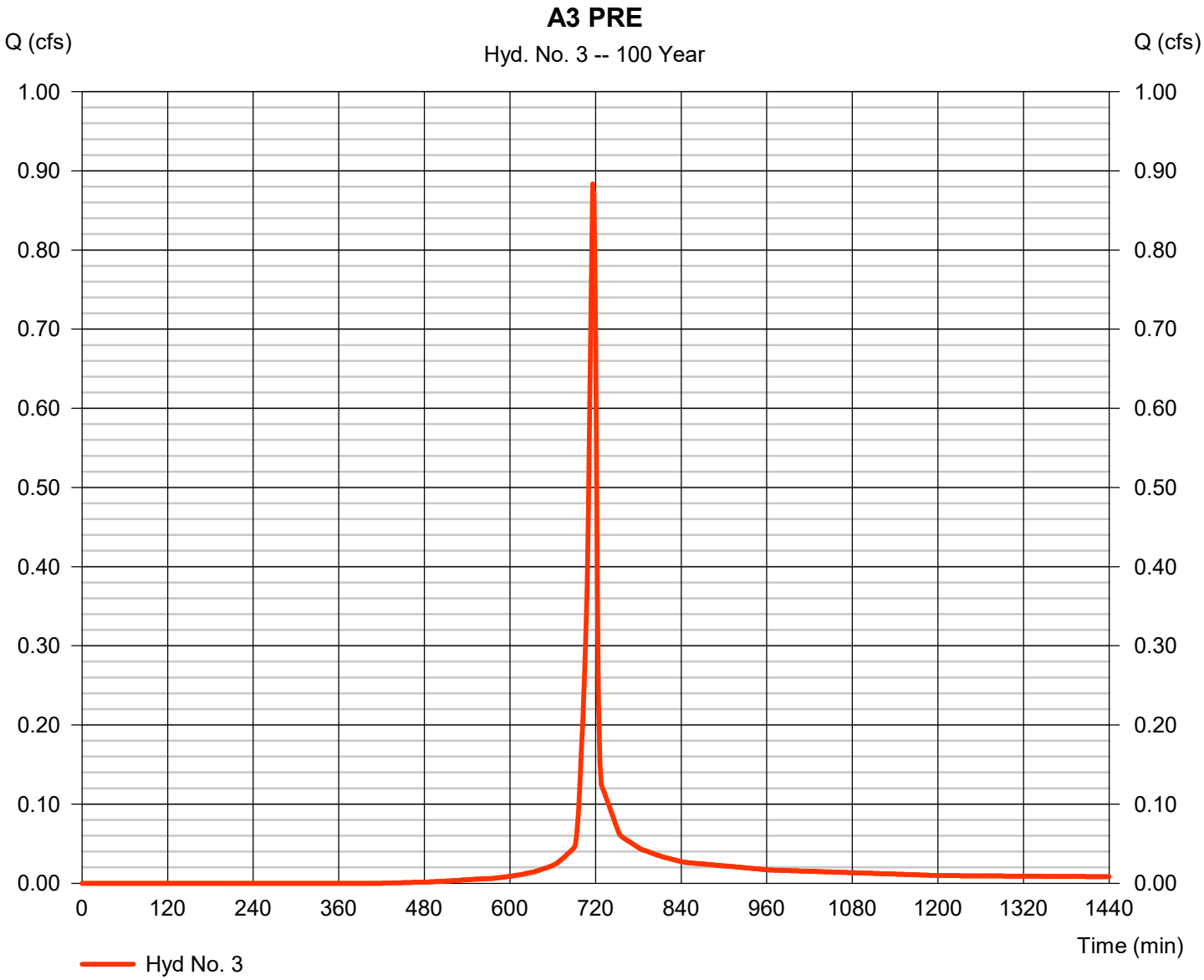
Hydrograph Report

Hyd. No. 3

A3 PRE

Hydrograph type	= SCS Runoff	Peak discharge	= 0.884 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 1,799 cuft
Drainage area	= 0.120 ac	Curve number	= 73*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 7.54 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.080 x 61) + (0.040 x 98)] / 0.120



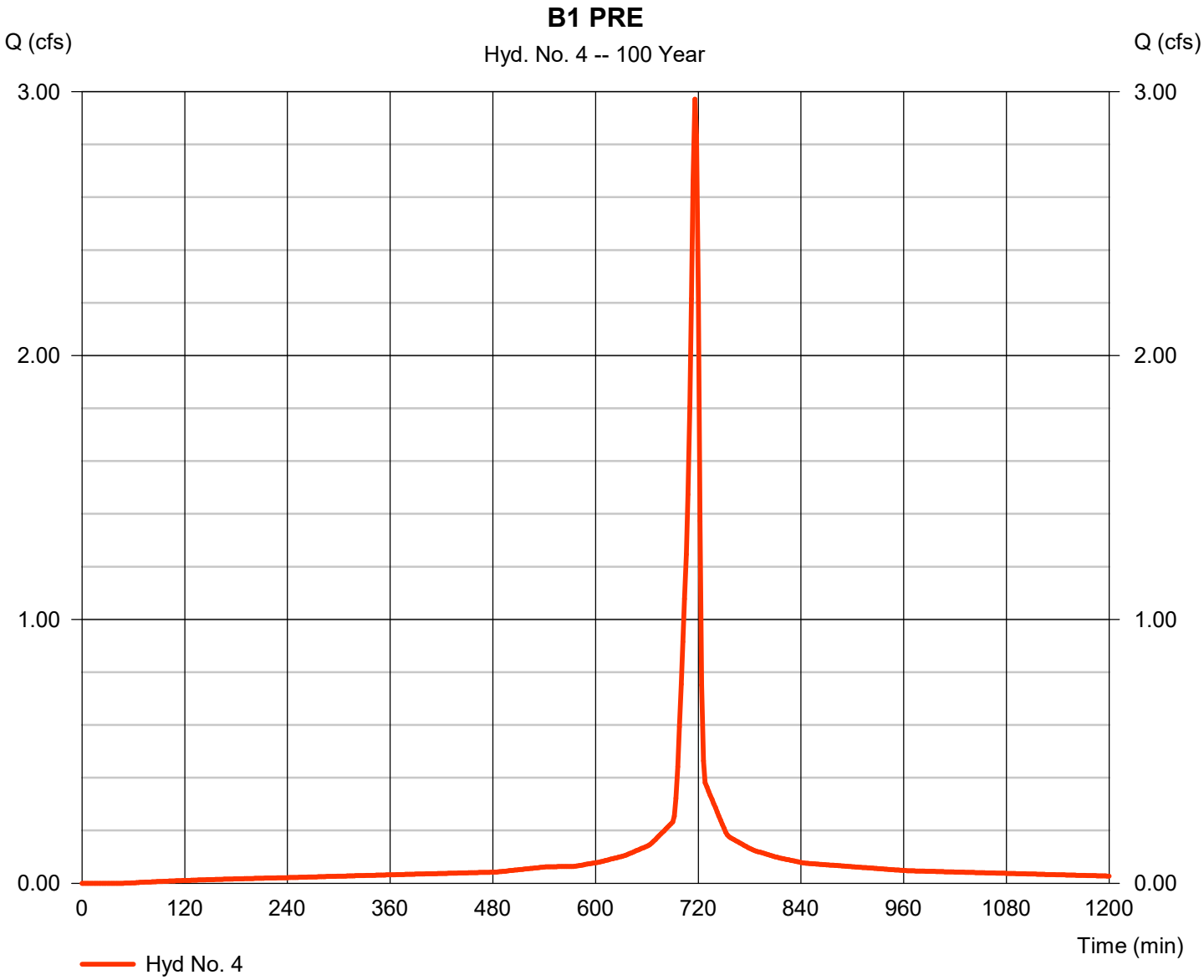
Hydrograph Report

Hyd. No. 4

B1 PRE

Hydrograph type	= SCS Runoff	Peak discharge	= 2.972 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 7,087 cuft
Drainage area	= 0.290 ac	Curve number	= 97*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 7.54 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.010 x 61) + (0.280 x 98)] / 0.290



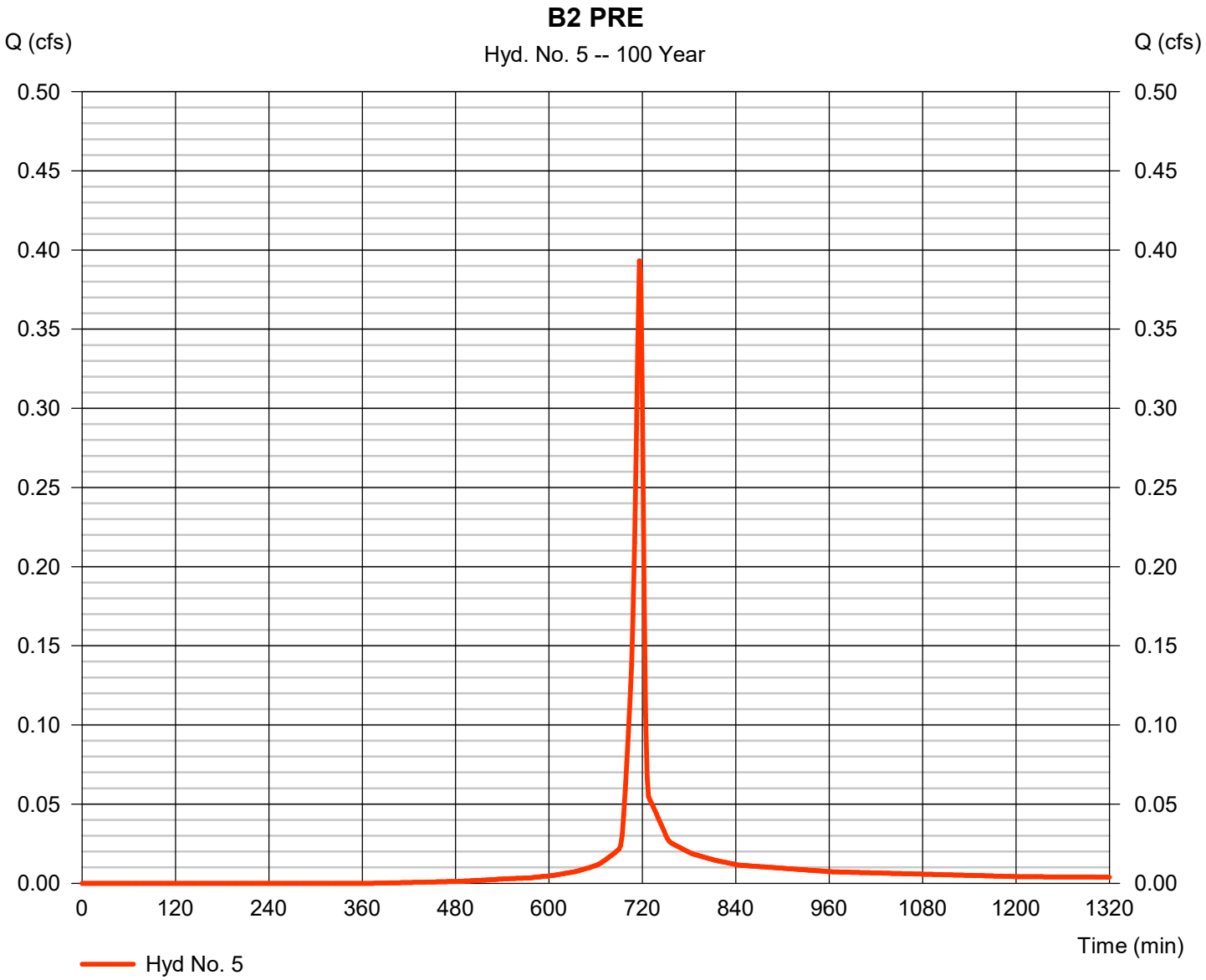
Hydrograph Report

Hyd. No. 5

B2 PRE

Hydrograph type	= SCS Runoff	Peak discharge	= 0.393 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 807 cuft
Drainage area	= 0.050 ac	Curve number	= 76*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 7.54 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.030 x 61) + (0.020 x 98)] / 0.050



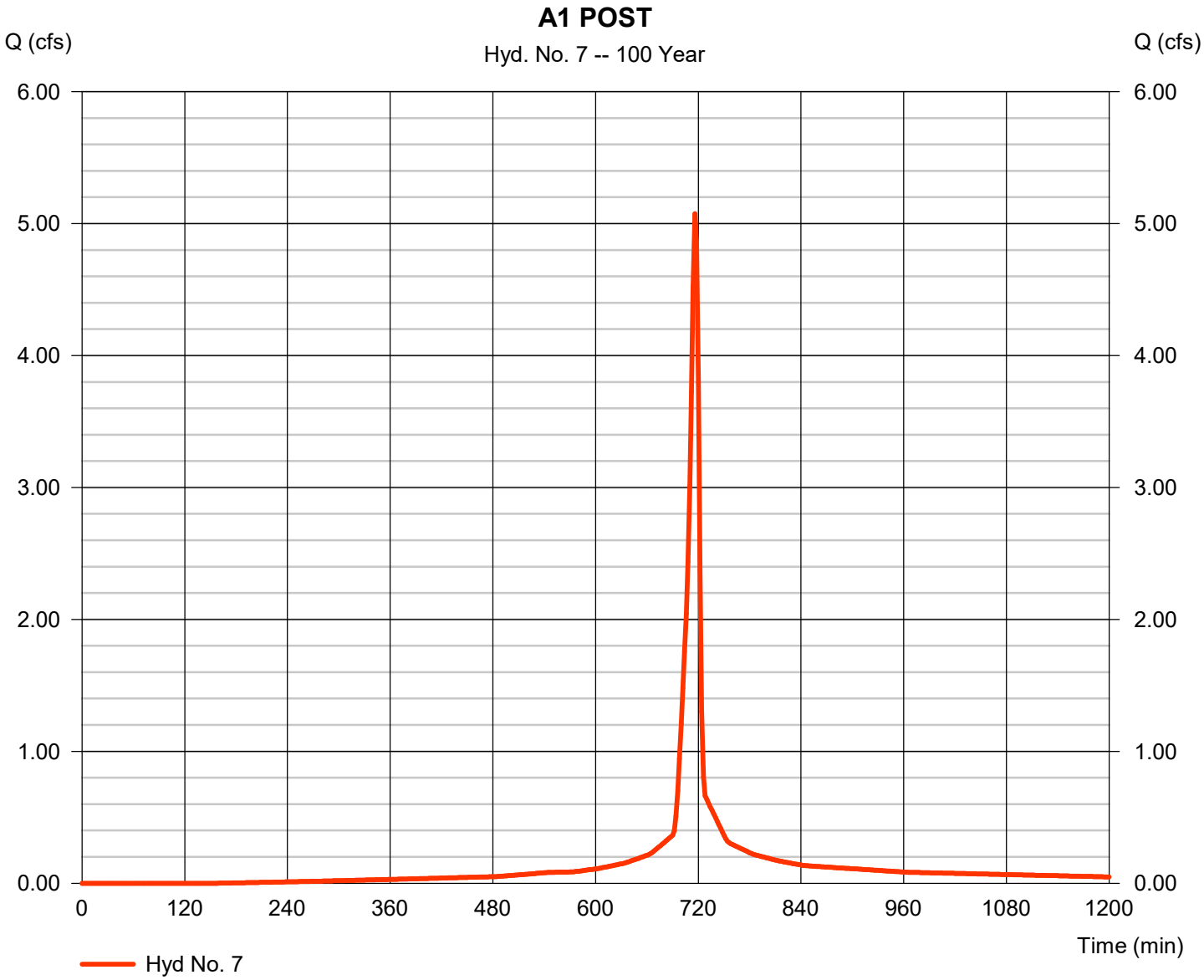
Hydrograph Report

Hyd. No. 7

A1 POST

Hydrograph type	= SCS Runoff	Peak discharge	= 5.075 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 11,243 cuft
Drainage area	= 0.520 ac	Curve number	= 90*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 7.54 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.110 x 61) + (0.410 x 98)] / 0.520

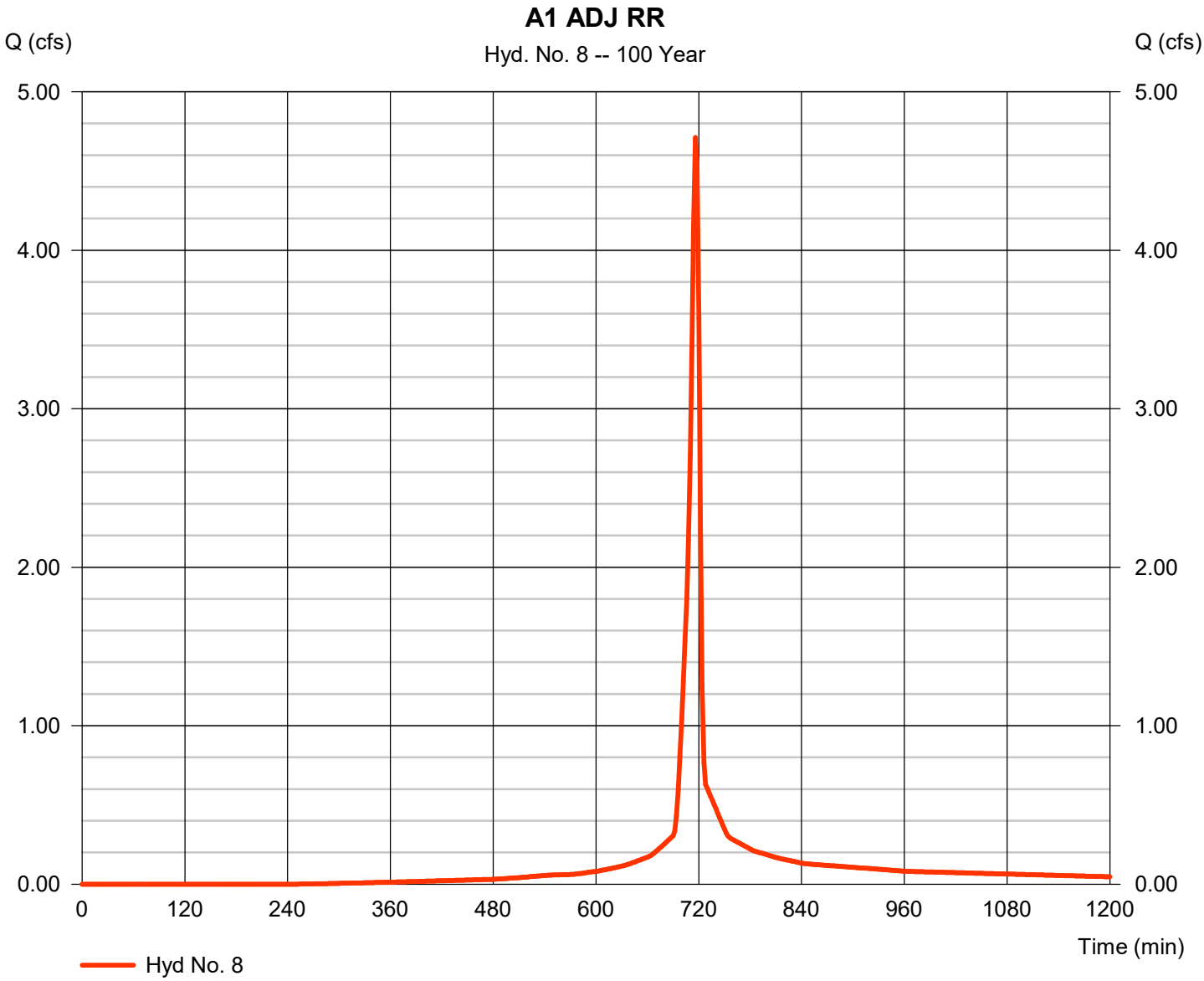


Hydrograph Report

Hyd. No. 8

A1 ADJ RR

Hydrograph type	= SCS Runoff	Peak discharge	= 4.711 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 10,006 cuft
Drainage area	= 0.520 ac	Curve number	= 84
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 7.54 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



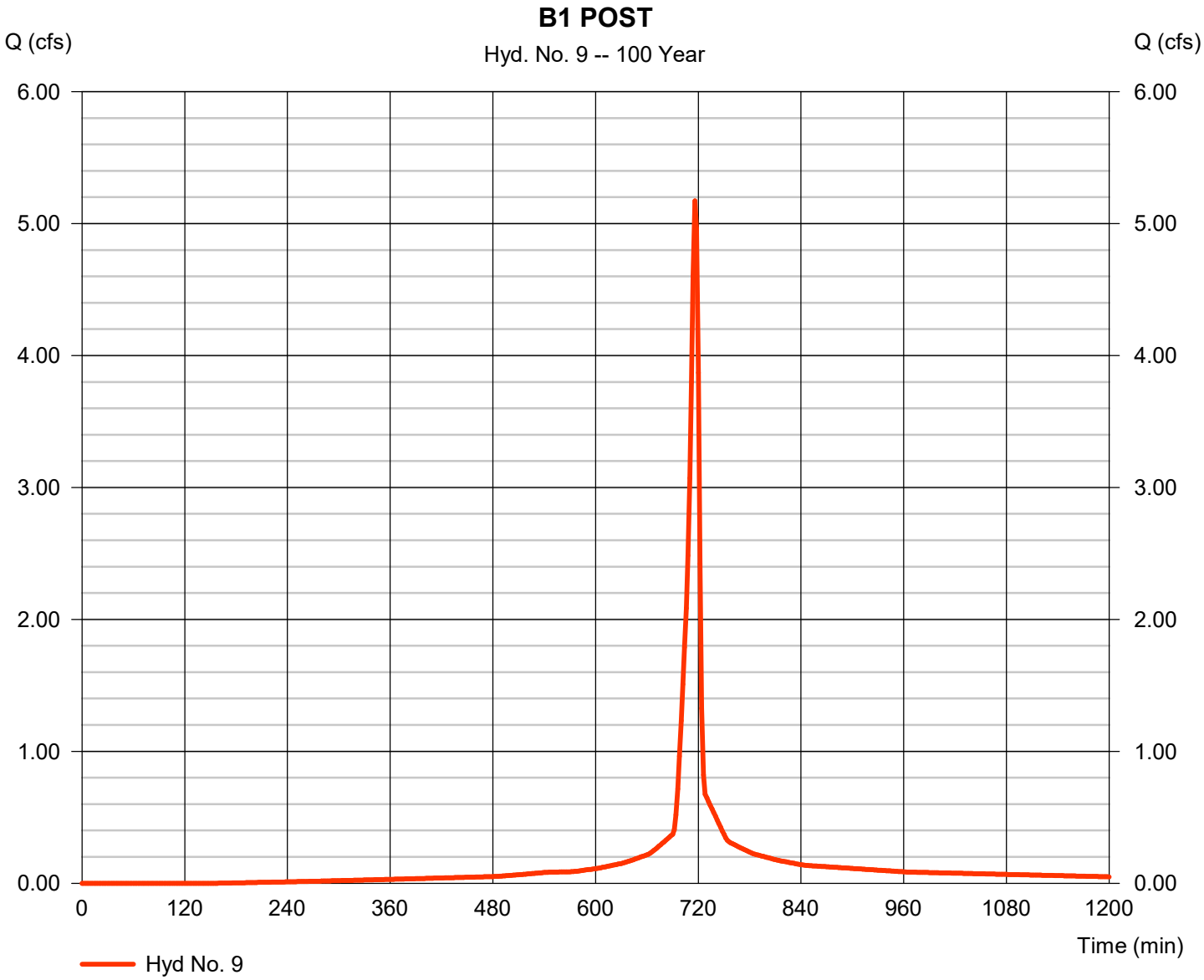
Hydrograph Report

Hyd. No. 9

B1 POST

Hydrograph type	= SCS Runoff	Peak discharge	= 5.173 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 11,459 cuft
Drainage area	= 0.530 ac	Curve number	= 90*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 7.54 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.120 x 61) + (0.410 x 98)] / 0.530

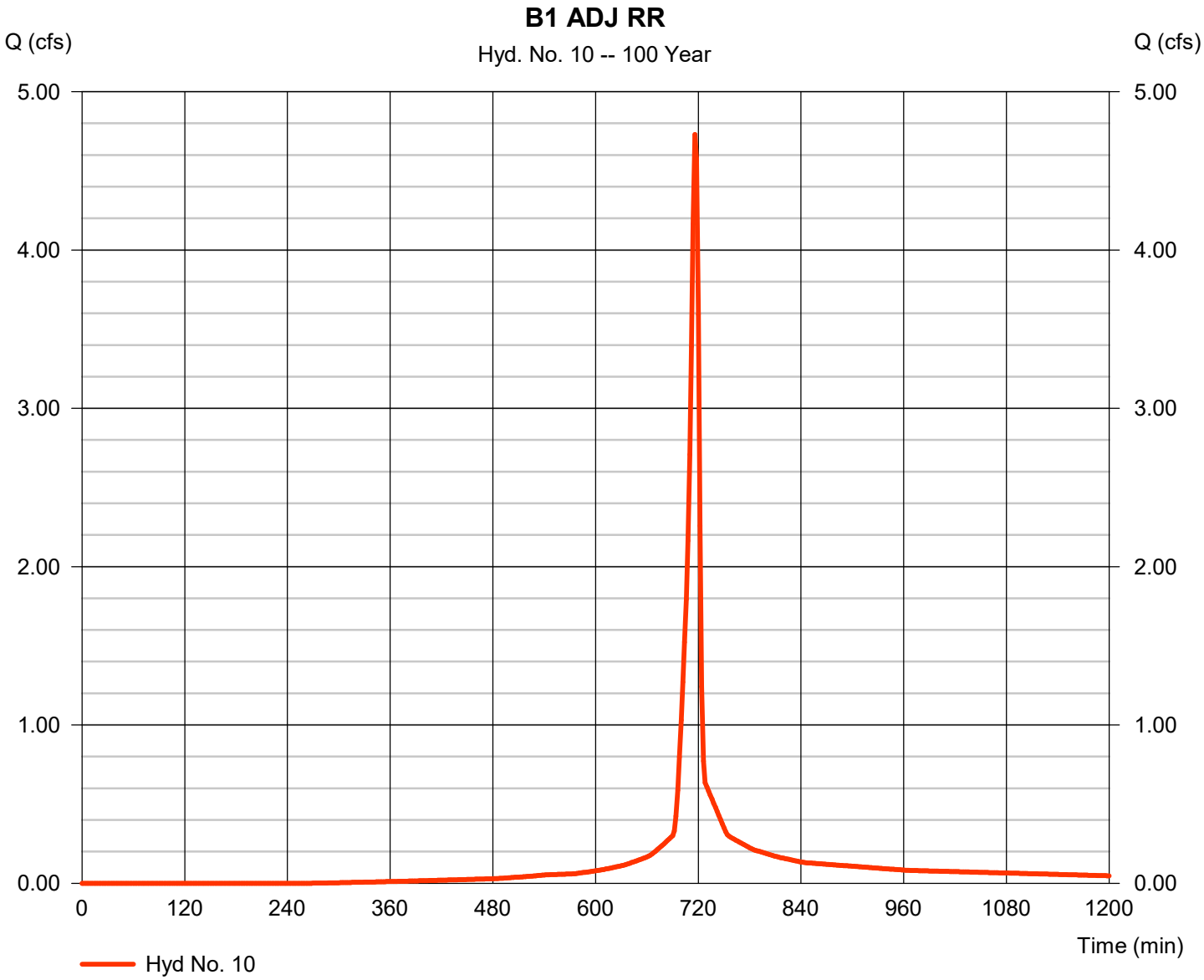


Hydrograph Report

Hyd. No. 10

B1 ADJ RR

Hydrograph type	= SCS Runoff	Peak discharge	= 4.729 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 9,991 cuft
Drainage area	= 0.530 ac	Curve number	= 83
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 7.54 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

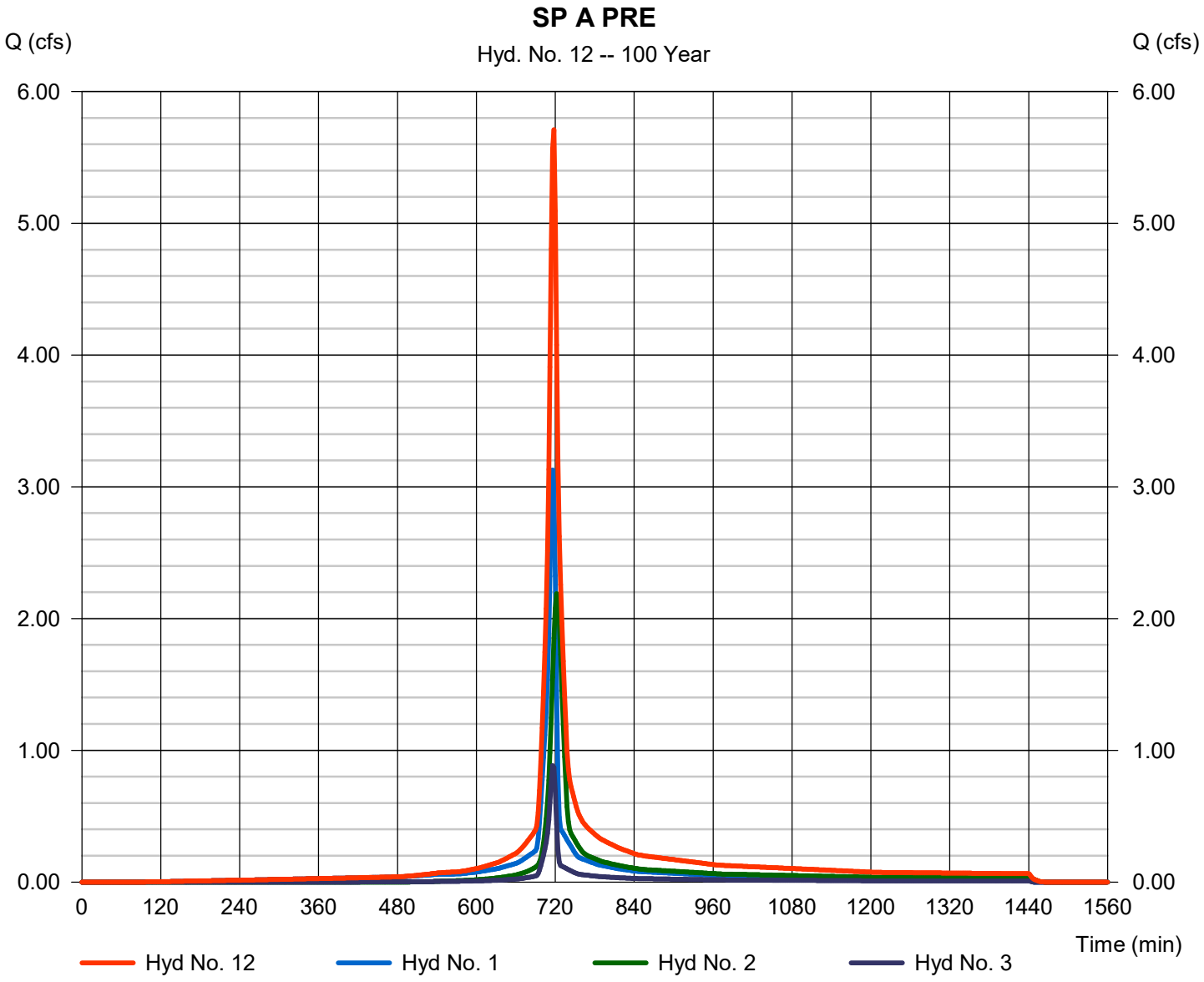


Hydrograph Report

Hyd. No. 12

SP A PRE

Hydrograph type	=	Combine	Peak discharge	=	5.711 cfs
Storm frequency	=	100 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	15,133 cuft
Inflow hyds.	=	1, 2, 3	Contrib. drain. area	=	0.880 ac

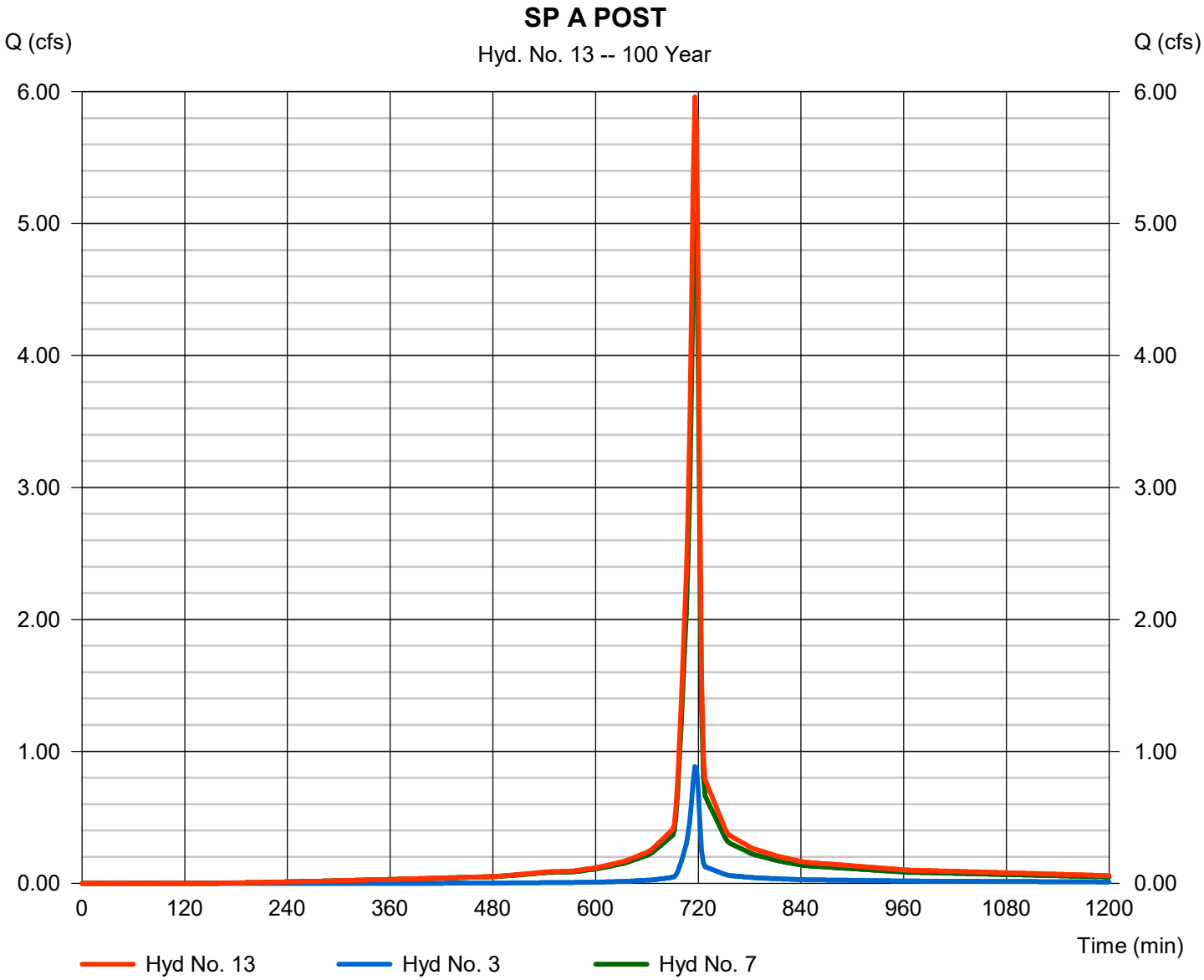


Hydrograph Report

Hyd. No. 13

SP A POST

Hydrograph type	=	Combine	Peak discharge	=	5.959 cfs
Storm frequency	=	100 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	13,041 cuft
Inflow hyds.	=	3, 7	Contrib. drain. area	=	0.640 ac

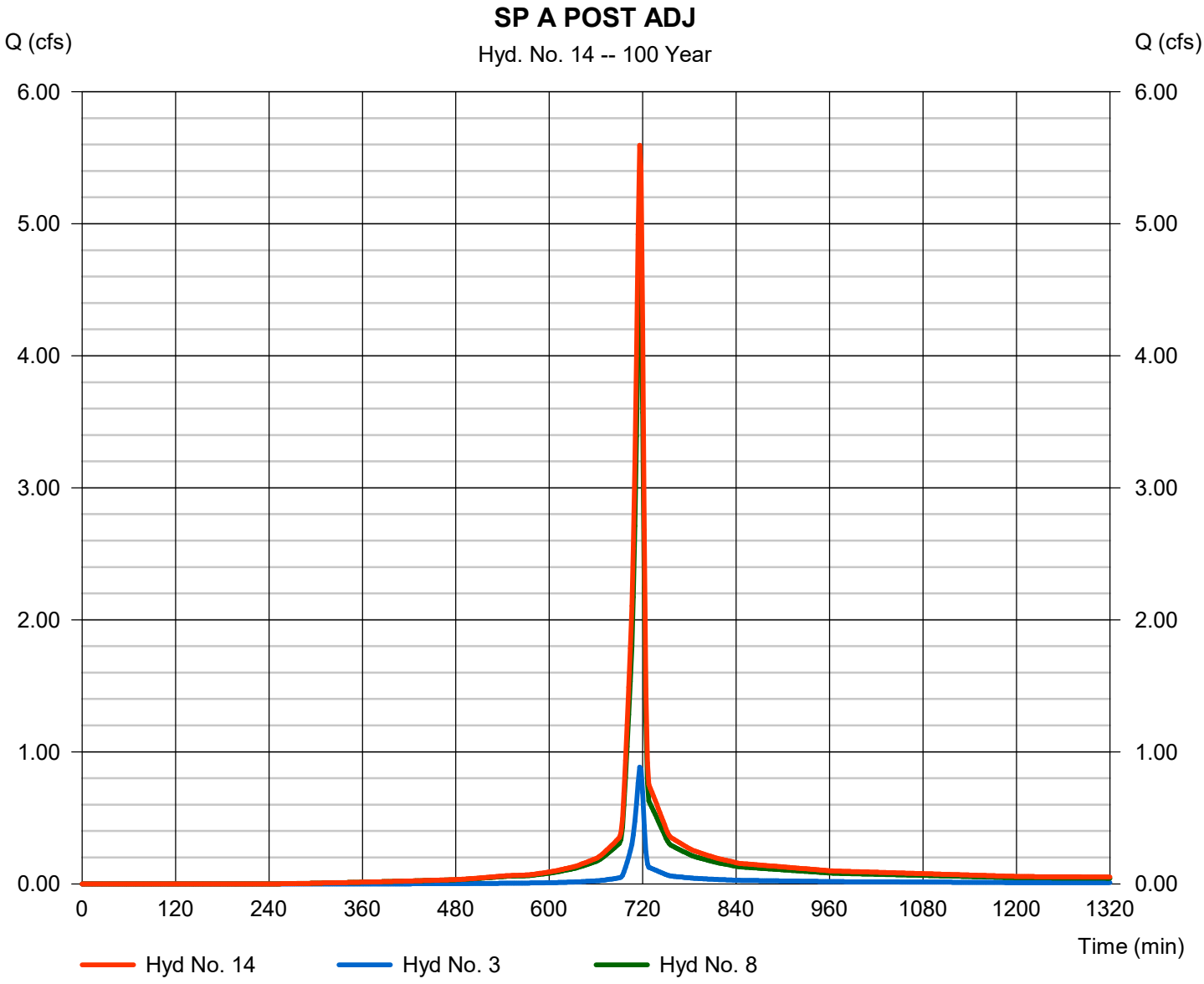


Hydrograph Report

Hyd. No. 14

SP A POST ADJ

Hydrograph type	=	Combine	Peak discharge	=	5.594 cfs
Storm frequency	=	100 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	11,805 cuft
Inflow hyds.	=	3, 8	Contrib. drain. area	=	0.640 ac



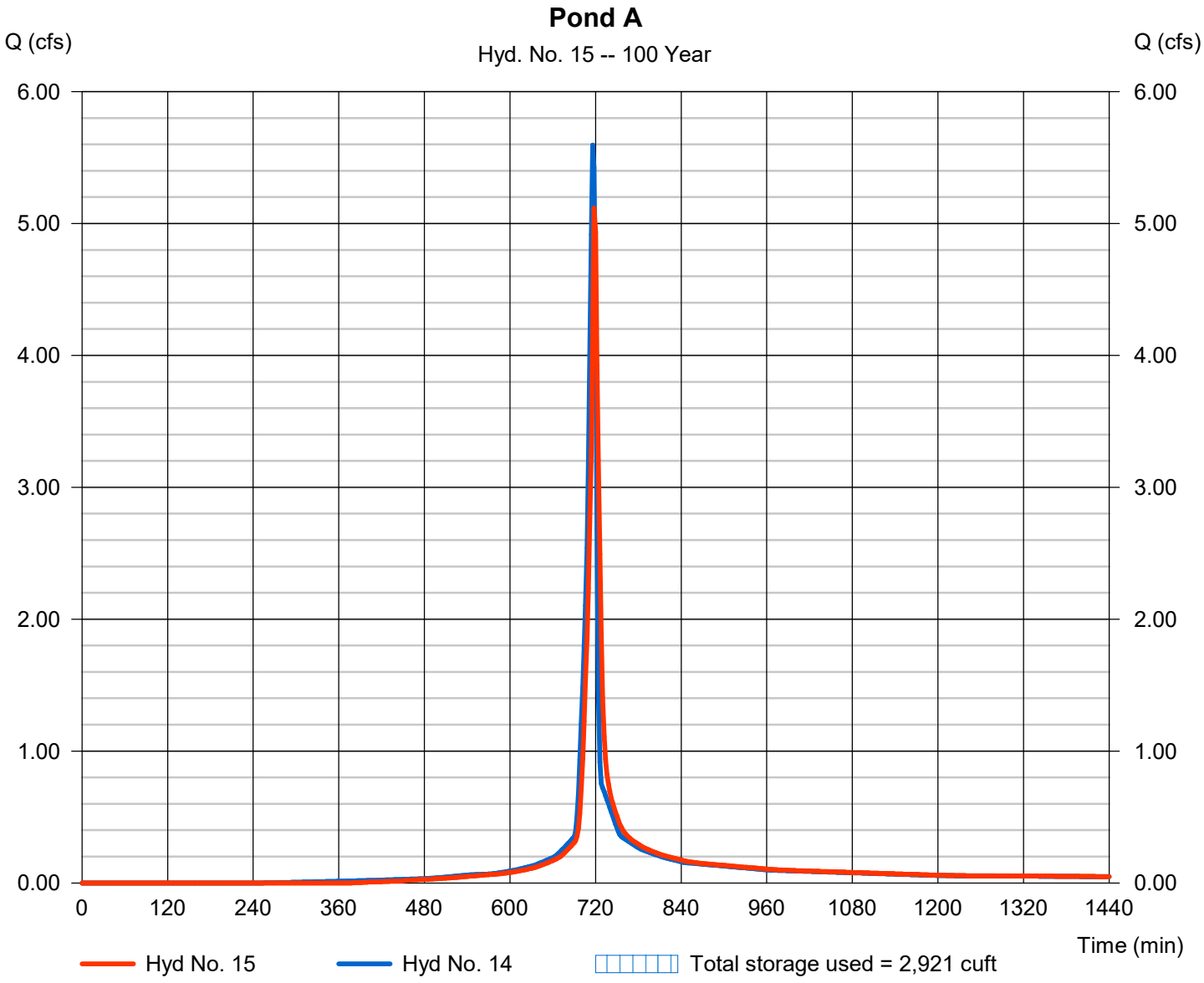
Hydrograph Report

Hyd. No. 15

Pond A

Hydrograph type	=	Reservoir	Peak discharge	=	5.119 cfs
Storm frequency	=	100 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	11,751 cuft
Inflow hyd. No.	=	14 - SP A POST ADJ	Max. Elevation	=	1057.60 ft
Reservoir name	=	Pond A	Max. Storage	=	2,921 cuft

Storage Indication method used. Wet pond routing start elevation = 1055.95 ft.



Pond Report

Pond No. 1 - Pond A

Pond Data

UG Chambers -Invert elev. = 1054.30 ft, Rise x Span = 2.50 x 2.50 ft, Barrel Len = 110.00 ft, No. Barrels = 3, Slope = 1.00%, Headers = No
Encasement -Invert elev. = 1053.30 ft, Width = 4.00 ft, Height = 4.00 ft, Voids = 40.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	1053.30	n/a	0	0
0.51	1053.81	n/a	45	45
1.02	1054.32	n/a	211	255
1.53	1054.83	n/a	287	543
2.04	1055.34	n/a	398	940
2.55	1055.85	n/a	483	1,424
3.06	1056.36	n/a	511	1,935
3.57	1056.87	n/a	482	2,417
4.08	1057.38	n/a	395	2,812
4.59	1057.89	n/a	294	3,106
5.10	1058.40	n/a	269	3,375

Culvert / Orifice Structures

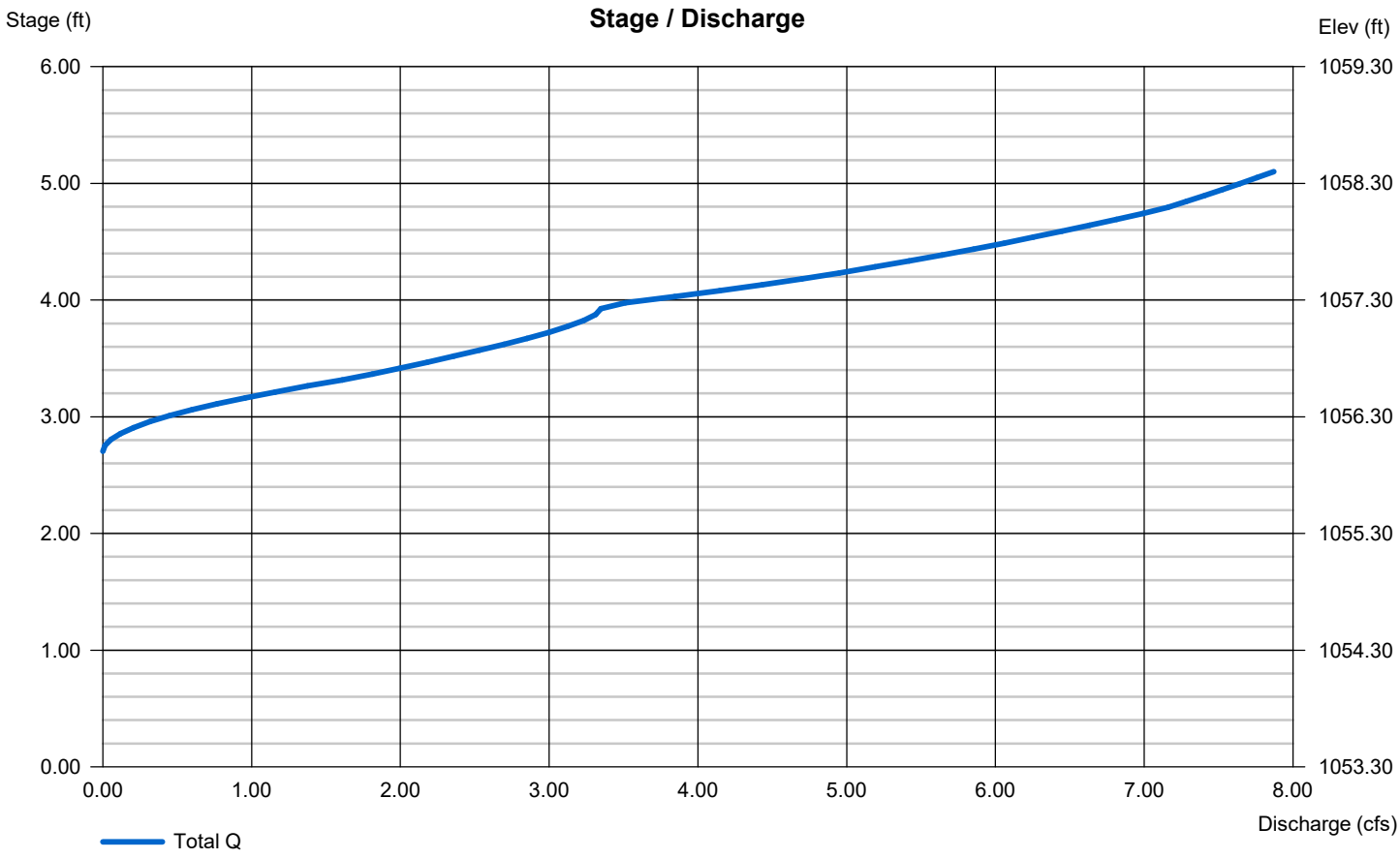
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	0.00	0.00	0.00
Span (in)	= 15.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 1056.00	0.00	0.00	0.00
Length (ft)	= 23.00	0.00	0.00	0.00
Slope (%)	= 1.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.00	0.00	0.00	0.00
Crest El. (ft)	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Contour)
TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

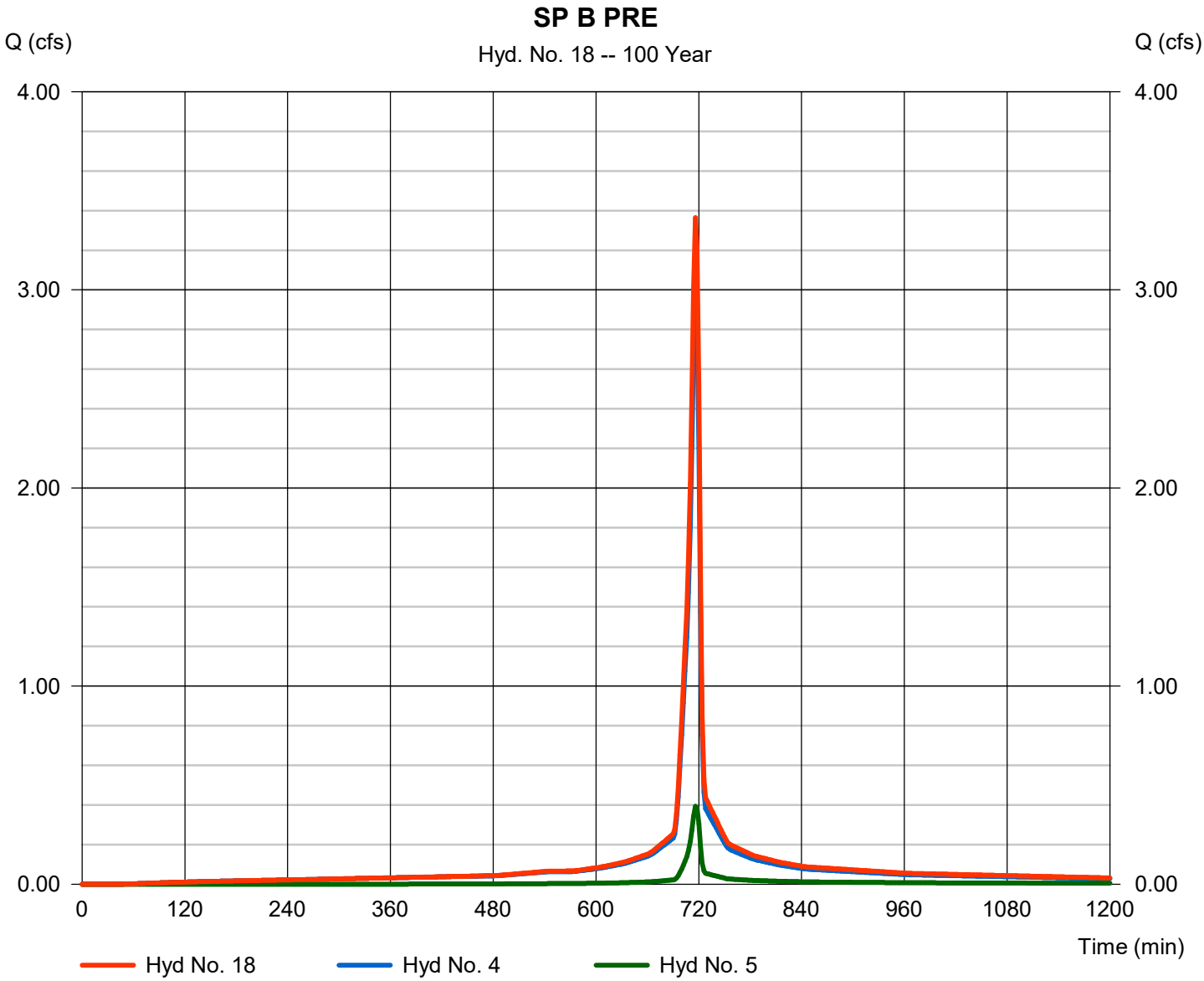


Hydrograph Report

Hyd. No. 18

SP B PRE

Hydrograph type	= Combine	Peak discharge	= 3.365 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 7,894 cuft
Inflow hyds.	= 4, 5	Contrib. drain. area	= 0.340 ac

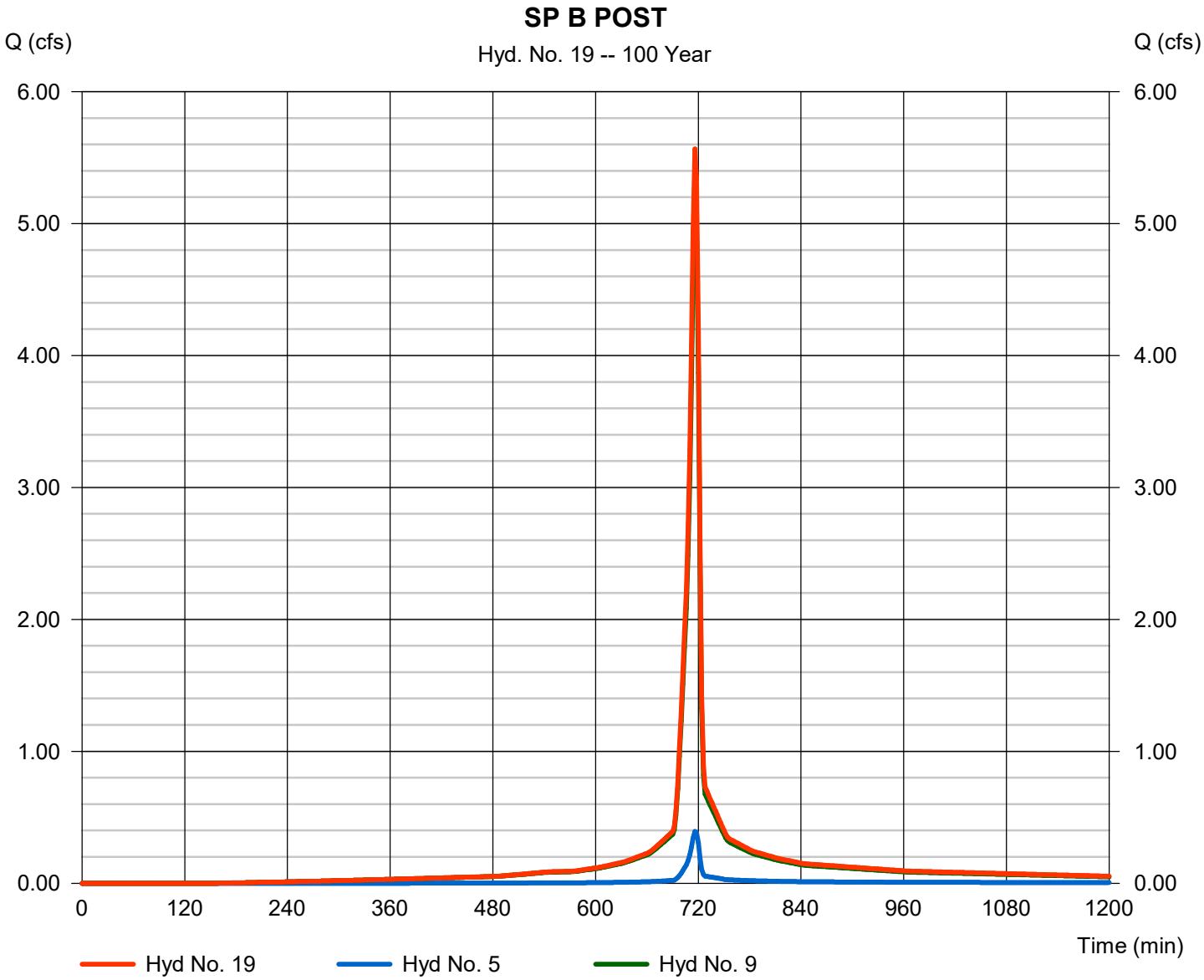


Hydrograph Report

Hyd. No. 19

SP B POST

Hydrograph type	=	Combine	Peak discharge	=	5.566 cfs
Storm frequency	=	100 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	12,266 cuft
Inflow hyds.	=	5, 9	Contrib. drain. area	=	0.580 ac

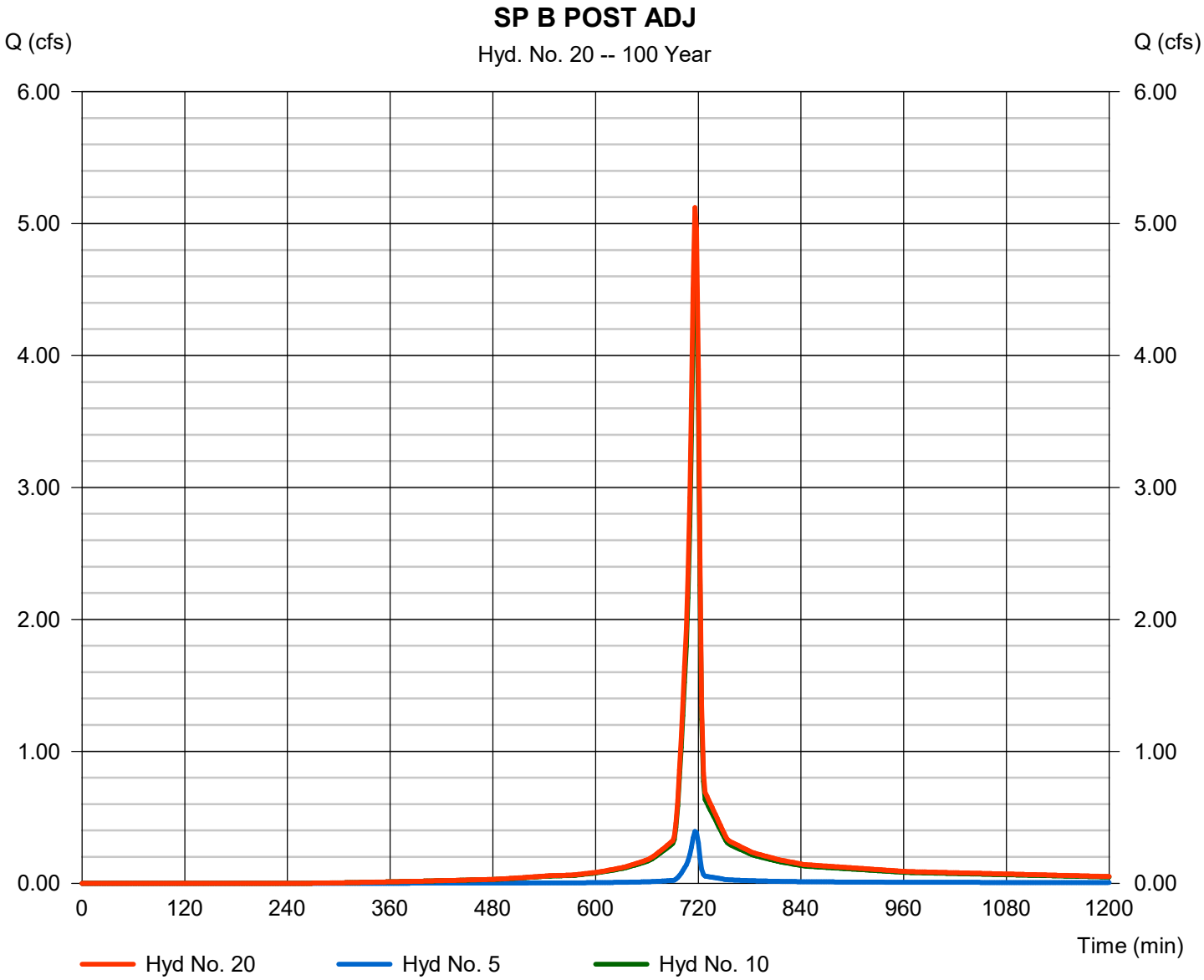


Hydrograph Report

Hyd. No. 20

SP B POST ADJ

Hydrograph type	=	Combine	Peak discharge	=	5.122 cfs
Storm frequency	=	100 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	10,798 cuft
Inflow hyds.	=	5, 10	Contrib. drain. area	=	0.580 ac



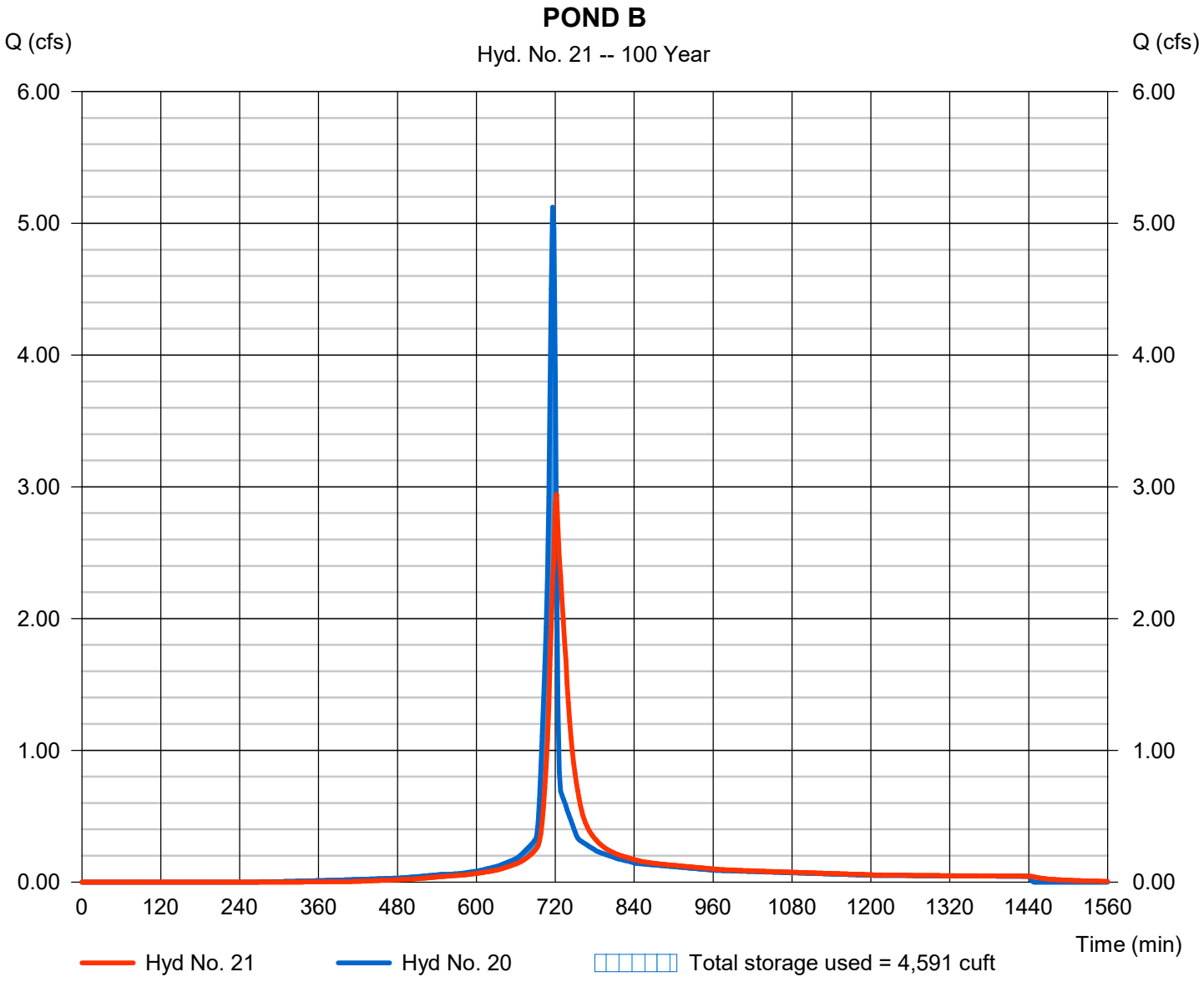
Hydrograph Report

Hyd. No. 21

POND B

Hydrograph type	=	Reservoir	Peak discharge	=	2.944 cfs
Storm frequency	=	100 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	10,783 cuft
Inflow hyd. No.	=	20 - SP B POST ADJ	Max. Elevation	=	1056.04 ft
Reservoir name	=	Pond B	Max. Storage	=	4,591 cuft

Storage Indication method used. Wet pond routing start elevation = 1054.09 ft.



Pond Report

Pond No. 2 - Pond B

Pond Data

UG Chambers -Invert elev. = 1053.10 ft, Rise x Span = 2.50 x 2.50 ft, Barrel Len = 70.00 ft, No. Barrels = 7, Slope = 1.00%, Headers = No
Encasement -Invert elev. = 1051.60 ft, Width = 4.00 ft, Height = 4.00 ft, Voids = 40.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	1051.60	n/a	0	0
0.47	1052.07	n/a	124	124
0.94	1052.54	n/a	338	463
1.41	1053.01	n/a	369	831
1.88	1053.48	n/a	394	1,225
2.35	1053.95	n/a	559	1,783
2.82	1054.42	n/a	674	2,457
3.29	1054.89	n/a	707	3,165
3.76	1055.36	n/a	685	3,850
4.23	1055.83	n/a	588	4,438
4.70	1056.30	n/a	417	4,855

Culvert / Orifice Structures

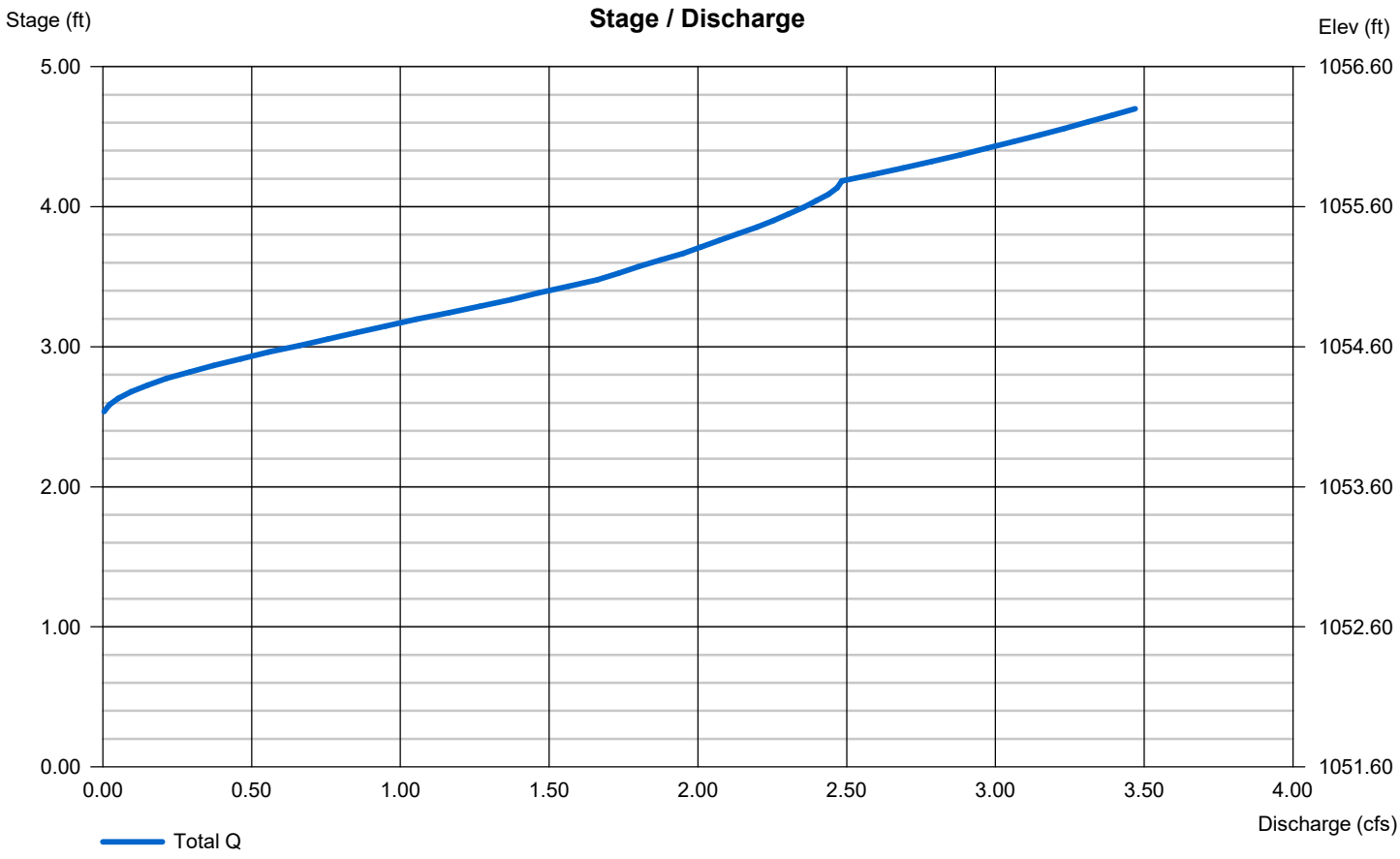
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	12.00	0.00	0.00
Span (in)	= 15.00	12.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 1054.10	1054.10	0.00	0.00
Length (ft)	= 11.00	0.00	0.00	0.00
Slope (%)	= 1.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

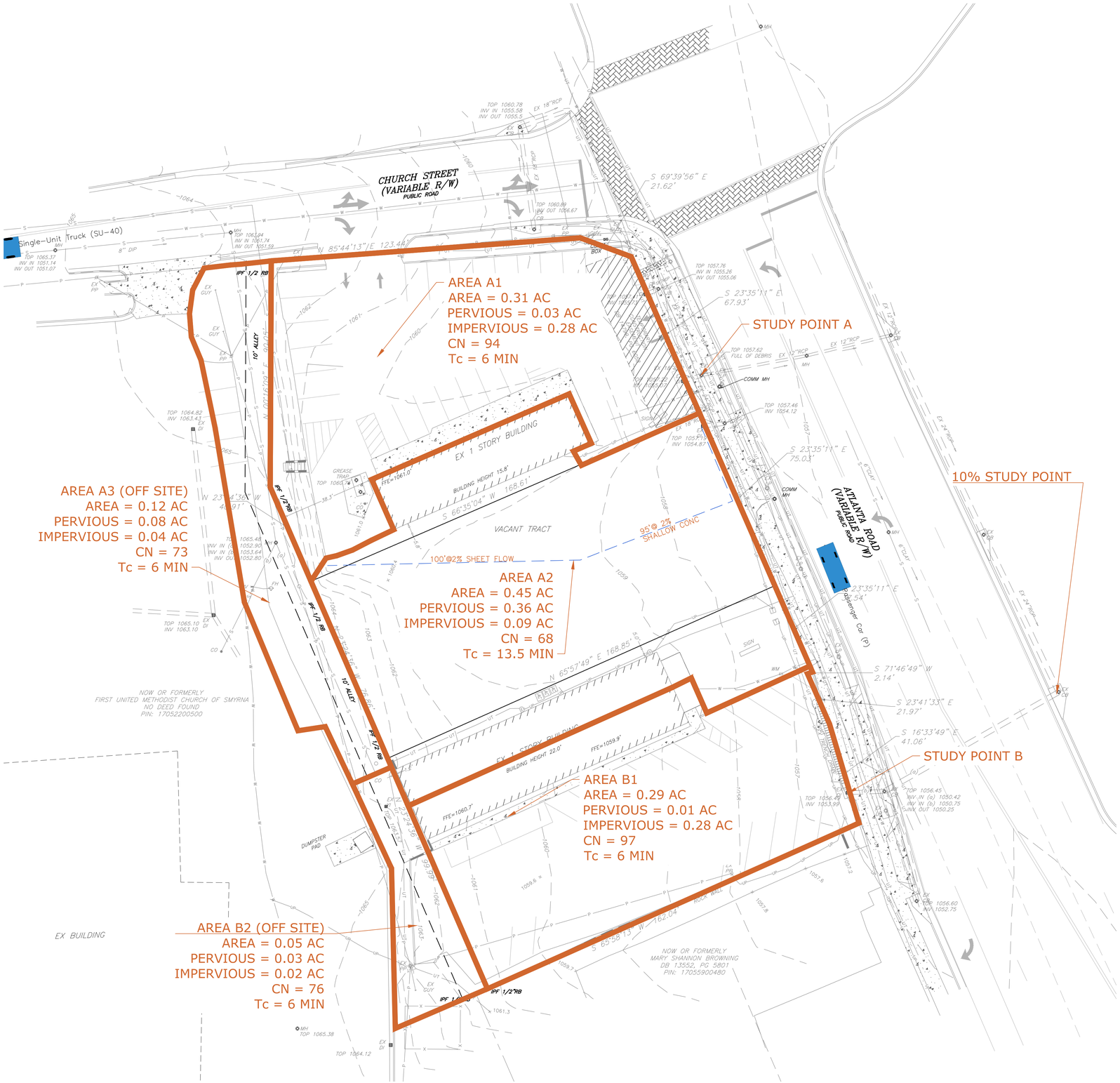
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.00	0.00	0.00	0.00
Crest El. (ft)	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Contour)
TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).





NOTES:
1. THE SOIL TYPE FOR THIS AREA IS URBAN LAND - MADISON, UhC.

0 20' 40' 60'
GRAPHIC SCALE : 1" = 20'

N W E S

2934 -2950 Atlanta Rd. Mixed Use Pre Development Map

Cobb county and city of Smyrna, Georgia

DEVELOPER:
TANALTA REAL ESTATE
1425 ELLSWORTH INDUSTRIAL BLVD., SUITE 30, ATLANTA, GEORGIA 30318, PHONE: 678-632-4074

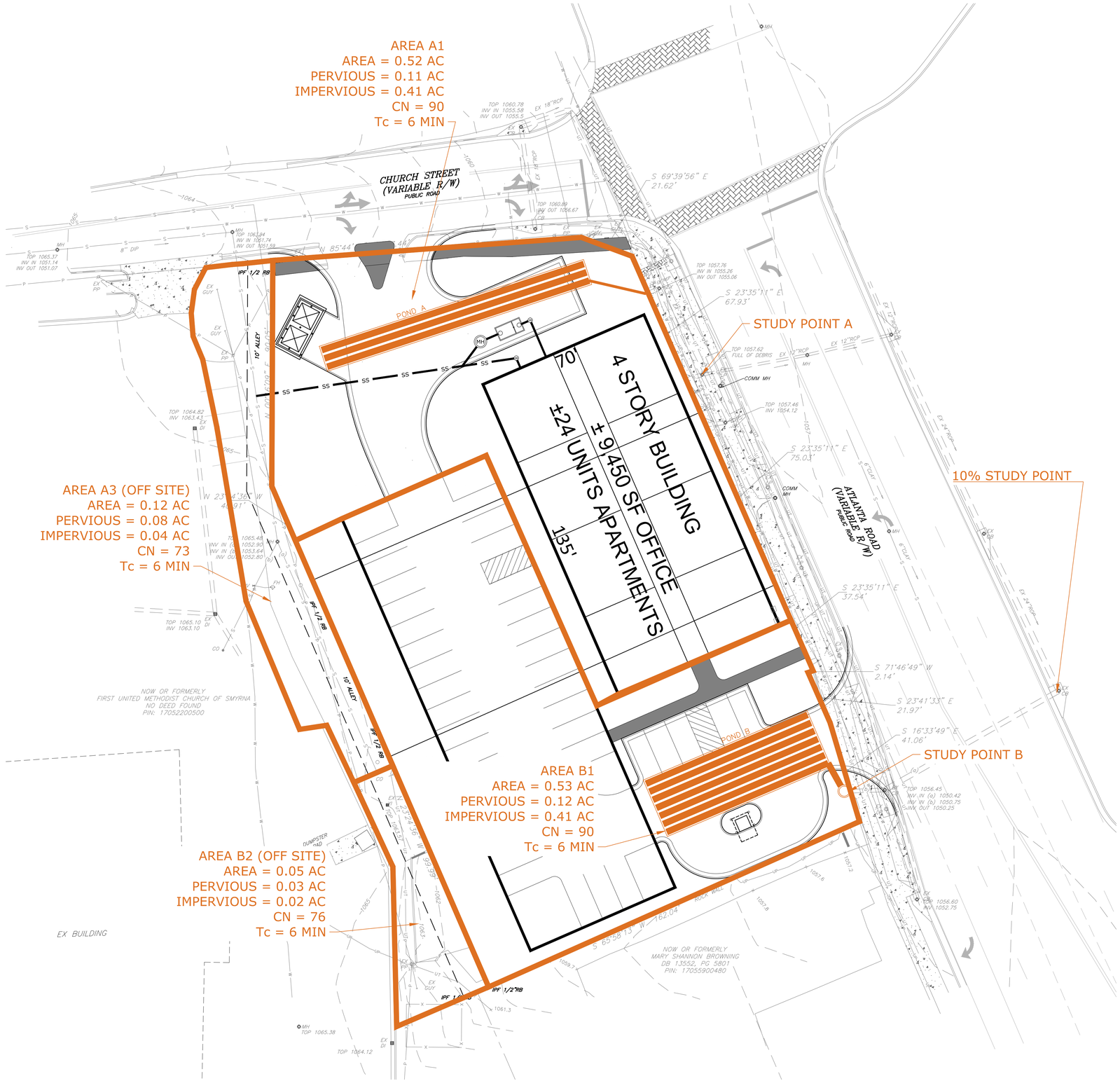
DOULGERAKIS CONSULTING ENGINEERS, INC.
planning * civil engineering * sanitary engineering
400 Abbey Court, Alpharetta, Georgia 30004, phone: 770-753-9800

NO.	DATE	REVISION

SCALE: 1" = 20'
DATE: 10-9-22
JOB. NO. 2022-06
SHEET. 1

NOT FOR CONSTRUCTION

SCALES NOTED ARE ONLY VALID WHEN DRAWING IS PLOTTED AT THE ORIGINAL SIZE: 24" x 36"



NOTES:
1. THE SOIL TYPE FOR THIS AREA IS URBAN LAND - MADISON, UhC.

0 20' 40' 60'
GRAPHIC SCALE : 1" = 20'

N W E S

2934 -2950 Atlanta Rd. Mixed Use Post Development Map

Cobb county and city of Smyrna, Georgia

DEVELOPER:
TANALTA REAL ESTATE

DOULGERAKIS CONSULTING ENGINEERS, INC.
planning * civil engineering * sanitary engineering
400 Abbey Court, Alpharetta, Georgia 30004, phone: 770-753-9800
1425 ELLSWORTH INDUSTRIAL BLVD., SUITE 30, ATLANTA, GEORGIA 30318, PHONE: 678-632-4074

NO.	DATE	REVISION

SCALE: 1" = 20'
DATE: 10-9-22
JOB. NO. 2022-06
SHEET. 2

NOT FOR CONSTRUCTION

SCALES NOTED ARE ONLY VALID WHEN DRAWING IS PLOTTED AT THE ORIGINAL SIZE: 24" x 36"