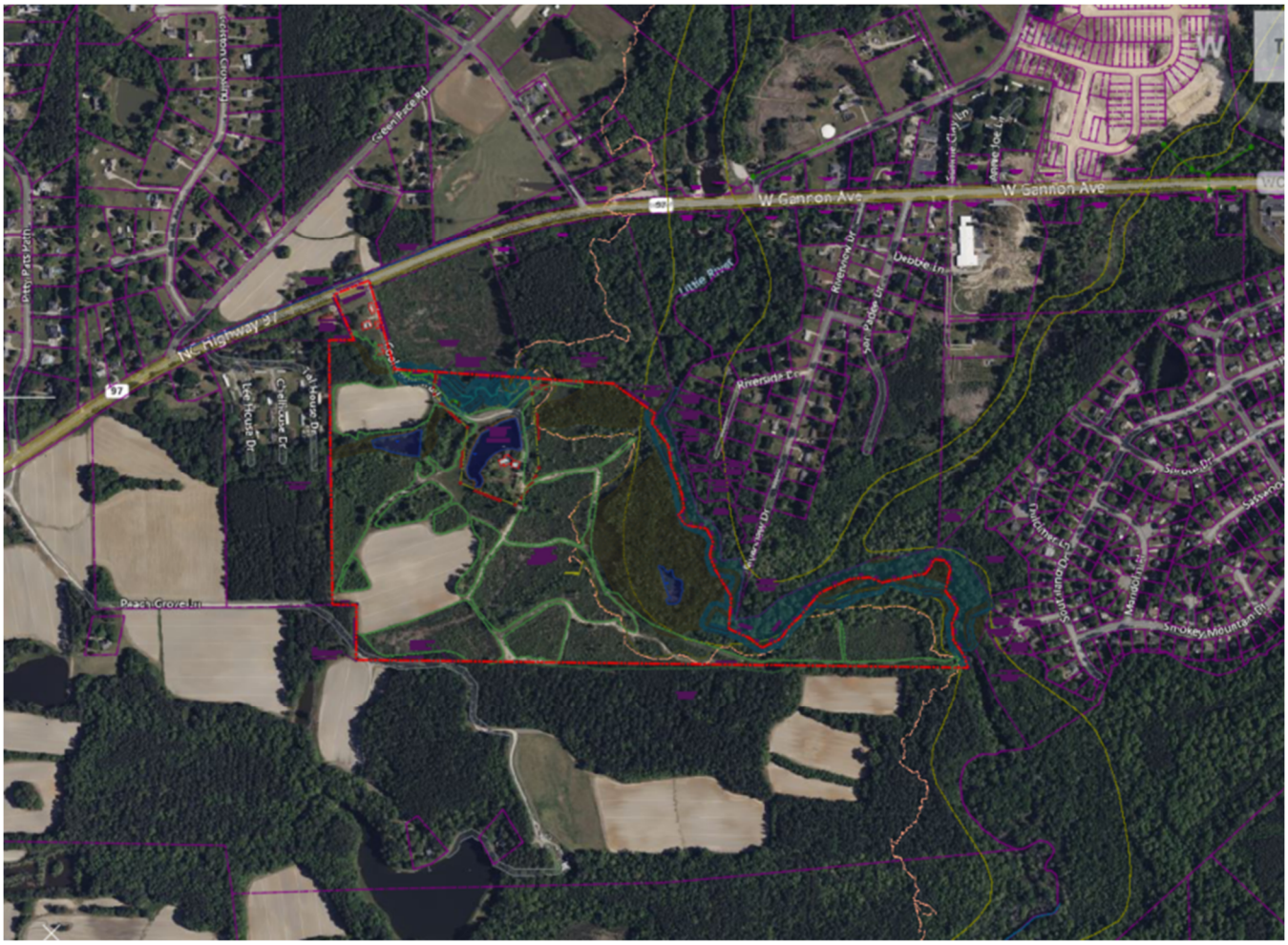
FAISON TRACT
STORMWATER IMPACT ANALYSIS
W. GANNON AVENUE
ZEBULON
WAKE COUNTY, NORTH CAROLINA

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.



AUGUST 6, 2025

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Project Summary

Introduction

Faison Tract is a proposed 100.41 acre community, bound by Tal House Dr on the west, W Gannon Ave on the North, and Peach Grove Ln on the south. The development proposes 197 single family residential lots and is zoned R-2 (Residential Suburban).

Streams, wetlands, and stream buffers are located throughout the site, generally within the east side of the property, sloping from north to south, and are delineated on the plans. FEMA floodplains exist through the east side of the property along Little River. The site is not located within any water supply watershed protections.

One localized discharge point exist at the southeast boundary of the site and serves as the Point of Interest (POI) for the development for the purposes of studying the pre- to post-development impacts of the project on runoff peak flows. POI 1 is located along the southeast portion of the property where Little River discharges southward towards Mack Todd Road. Drainage Area Maps are included in the appendices.

Little River (Stream Index 27-57-(8.5), WS-V; NSW) runs along the east boundary of the property from north to south and is located within the Neuse River Basin. See the USDA NRCS Web Soil Survey report located in the appendices.

Stormwater Quality

Wet ponds are proposed on-site to comply with the requirements of the Town of Zebulon Stormwater Management Program Ordinance (“Stormwater Ordinance”) and NCDEQ. Wet ponds will provide 85% average annual Total Suspended Solids (TSS) removal, serving as a primary treatment device. Additionally, the wet ponds will provide treatment for the first 1” of runoff on-site and release (dewater) the 1” volume over a period of 2-5 days. Proposed wet ponds have been designed in accordance with the NCDEQ Stormwater Design Manual Minimum Design Criteria (MDC).

Stormwater Quantity

Wet ponds are proposed on-site to comply with the requirements of the Town of Zebulon Stormwater Management Program Ordinance (“Stormwater Ordinance”) and NCDEQ. The wet ponds will provide peak flow attenuation to reduce the post-development peak flows at each POI to below or equal to the pre-development peak flows for the 1-year, 24-hour storm event. The 100-year, 24-hour storm event was also analyzed for safe passage through the SCMs with appropriate freeboard.

TR-55 / SCS Method and Hydraflow Hydrographs Extension for Autodesk Civil 3D were used to model the peak flow analysis and pond routings for the project and results are provided in the appendices.

Storm Drainage Capacity Design

Storm Drainage Pipe Networks have been designed to convey the 10-year storm event keeping the Hydraulic Grade Line (HGL) within the crown of pipe.

Inlets and Catch Basins within the public right of way (ROW) have been designed to provide gutter spread less than 8’ measured from face of curb during a 4”/hr storm intensity event.

Rational Method and Hydraflow Storm Sewers Extension for Autodesk Civil 3D were used to model HGL and gutter spread calculations for each storm drainage network and results are provided in the appendices. A minimum Time of Concentration (Tc) of 5 minutes was assumed.

Culvert Design

Culverts have been designed to convey the 25-year storm event keeping the Headwater/Diameter (Hw/D) ratio below the NCDOT standard of 1.20. The 100-year storm event has also been analyzed to prevent overtopping the road, with a minimum freeboard of 1 foot from shoulder elevation.

TR-55 and Hydraflow Express Extension for Autodesk Civil 3D were used to model culvert capacity and results are provided in the appendices. Tc was calculated using TR-55 methodology.

Rainfall Data

Zebulon, NC (NOAA Atlas 14 Precipitation Freq. Data Server)

NOAA Atlas 14, Volume 2, Version 3
Location name: Zebulon, North Carolina, USA*
Latitude: 35.823°, Longitude: -78.3416°
Elevation: 239.95 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

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** (0.370-0.445)	**0.469** (0.429-0.513)	**0.532** (0.487-0.582)	**0.602** (0.549-0.658)	**0.671** (0.610-0.732)	**0.728** (0.659-0.795)	**0.779** (0.700-0.850)	**0.825** (0.738-0.902)	**0.878** (0.779-0.960)	**0.927** (0.815-1.02)
10-min	**0.647** (0.591-0.710)	**0.750** (0.686-0.820)	**0.852** (0.780-0.932)	**0.962** (0.879-1.05)	**1.07** (0.972-1.17)	**1.16** (1.05-1.27)	**1.24** (1.11-1.35)	**1.31** (1.17-1.43)	**1.39** (1.23-1.52)	**1.46** (1.28-1.60)
15-min	**0.809** (0.738-0.888)	**0.942** (0.863-1.03)	**1.08** (0.987-1.18)	**1.22** (1.11-1.33)	**1.36** (1.23-1.48)	**1.47** (1.33-1.60)	**1.57** (1.41-1.71)	**1.65** (1.48-1.80)	**1.75** (1.55-1.91)	**1.83** (1.61-2.01)
30-min	**1.11** (1.01-1.22)	**1.30** (1.19-1.42)	**1.53** (1.40-1.68)	**1.76** (1.61-1.93)	**2.01** (1.82-2.19)	**2.21** (2.00-2.41)	**2.40** (2.15-2.61)	**2.57** (2.30-2.81)	**2.78** (2.47-3.04)	**2.97** (2.61-3.25)
60-min	**1.38** (1.26-1.52)	**1.63** (1.50-1.79)	**1.96** (1.80-2.15)	**2.30** (2.10-2.51)	**2.67** (2.43-2.92)	**3.00** (2.71-3.27)	**3.30** (2.97-3.60)	**3.60** (3.22-3.94)	**3.99** (3.54-4.36)	**4.33** (3.81-4.75)
2-hr	**1.62** (1.47-1.79)	**1.92** (1.75-2.11)	**2.33** (2.12-2.57)	**2.77** (2.51-3.04)	**3.28** (2.95-3.59)	**3.74** (3.35-4.09)	**4.18** (3.72-4.58)	**4.65** (4.11-5.09)	**5.26** (4.61-5.76)	**5.83** (5.06-6.39)
3-hr	**1.71** (1.55-1.90)	**2.03** (1.85-2.25)	**2.48** (2.26-2.75)	**2.97** (2.69-3.27)	**3.54** (3.19-3.90)	**4.08** (3.65-4.49)	**4.61** (4.09-5.07)	**5.18** (4.56-5.69)	**5.95** (5.18-6.53)	**6.67** (5.74-7.34)
6-hr	**2.05** (1.87-2.27)	**2.44** (2.23-2.69)	**2.98** (2.71-3.28)	**3.56** (3.23-3.91)	**4.27** (3.86-4.68)	**4.94** (4.43-5.41)	**5.61** (4.98-6.13)	**6.32** (5.56-6.90)	**7.30** (6.35-7.97)	**8.23** (7.06-9.01)
12-hr	**2.42** (2.21-2.67)	**2.87** (2.63-3.15)	**3.52** (3.22-3.87)	**4.23** (3.85-4.65)	**5.12** (4.63-5.60)	**5.96** (5.34-6.49)	**6.80** (6.04-7.41)	**7.73** (6.78-8.41)	**9.02** (7.79-9.81)	**10.2** (8.71-11.2)
24-hr	**2.86** (2.65-3.09)	**3.46** (3.21-3.75)	**4.39** (4.07-4.75)	**5.14** (4.75-5.55)	**6.19** (5.70-6.69)	**7.05** (6.46-7.62)	**7.96** (7.26-8.61)	**8.93** (8.09-9.66)	**10.3** (9.26-11.2)	**11.4** (10.2-12.5)
2-day	**3.31** (3.07-3.57)	**3.99** (3.71-4.31)	**5.02** (4.66-5.42)	**5.85** (5.42-6.31)	**7.01** (6.46-7.56)	**7.95** (7.30-8.58)	**8.95** (8.17-9.67)	**10.0** (9.08-10.8)	**11.5** (10.3-12.5)	**12.7** (11.3-13.9)
3-day	**3.51** (3.27-3.78)	**4.23** (3.94-4.55)	**5.29** (4.92-5.69)	**6.14** (5.70-6.60)	**7.33** (6.78-7.88)	**8.30** (7.64-8.93)	**9.32** (8.53-10.0)	**10.4** (9.46-11.2)	**11.9** (10.7-12.9)	**13.1** (11.8-14.3)
4-day	**3.72** (3.47-3.99)	**4.47** (4.17-4.79)	**5.56** (5.18-5.96)	**6.44** (5.99-6.89)	**7.66** (7.09-8.20)	**8.65** (7.98-9.28)	**9.69** (8.90-10.4)	**10.8** (9.84-11.6)	**12.3** (11.2-13.3)	**13.6** (12.2-14.7)
7-day	**4.32** (4.03-4.62)	**5.16** (4.83-5.53)	**6.35** (5.93-6.80)	**7.30** (6.81-7.81)	**8.62** (8.01-9.23)	**9.69** (8.96-10.4)	**10.8** (9.94-11.6)	**11.9** (11.0-12.8)	**13.6** (12.3-14.6)	**14.8** (13.4-16.0)
10-day	**4.93** (4.62-5.26)	**5.87** (5.50-6.26)	**7.12** (6.67-7.59)	**8.11** (7.58-8.63)	**9.45** (8.81-10.1)	**10.5** (9.78-11.2)	**11.6** (10.8-12.4)	**12.8** (11.8-13.7)	**14.3** (13.1-15.4)	**15.6** (14.2-16.8)
20-day	**6.61** (6.21-7.03)	**7.82** (7.36-8.33)	**9.33** (8.76-9.93)	**10.5** (9.87-11.2)	**12.2** (11.4-12.9)	**13.4** (12.5-14.3)	**14.8** (13.7-15.7)	**16.1** (14.9-17.2)	**17.9** (16.5-19.2)	**19.4** (17.8-20.8)
30-day	**8.21** (7.74-8.71)	**9.68** (9.13-10.3)	**11.4** (10.7-12.0)	**12.7** (11.9-13.4)	**14.4** (13.5-15.3)	**15.7** (14.7-16.7)	**17.1** (15.9-18.2)	**18.4** (17.2-19.7)	**20.3** (18.8-21.6)	**21.7** (20.0-23.2)
45-day	**10.4** (9.91-11.0)	**12.3** (11.6-12.9)	**14.1** (13.4-14.9)	**15.6** (14.8-16.5)	**17.5** (16.6-18.5)	**19.0** (17.9-20.1)	**20.5** (19.2-21.6)	**21.9** (20.5-23.2)	**23.8** (22.2-25.3)	**25.3** (23.5-26.9)
60-day	**12.5** (11.9-13.2)	**14.7** (13.9-15.4)	**16.7** (15.9-17.6)	**18.3** (17.4-19.3)	**20.4** (19.3-21.5)	**22.0** (20.8-23.2)	**23.5** (22.2-24.8)	**25.0** (23.5-26.5)	**27.0** (25.3-28.6)	**28.5** (26.6-30.2)

[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

NOAA Atlas 14, Volume 2, Version 3
Location name: Zebulon, North Carolina, USA*
Latitude: 35.823°, Longitude: -78.3416°
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PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**4.86** (4.44-5.34)	**5.63** (5.15-6.16)	**6.38** (5.84-6.98)	**7.22** (6.59-7.90)	**8.05** (7.32-8.78)	**8.74** (7.91-9.54)	**9.35** (8.40-10.2)	**9.90** (8.86-10.8)	**10.5** (9.35-11.5)	**11.1** (9.78-12.2)
10-min	**3.88** (3.55-4.26)	**4.50** (4.12-4.92)	**5.11** (4.68-5.59)	**5.77** (5.27-6.31)	**6.41** (5.83-7.00)	**6.95** (6.29-7.60)	**7.43** (6.68-8.10)	**7.85** (7.02-8.57)	**8.33** (7.39-9.11)	**8.76** (7.70-9.60)
15-min	**3.24** (2.95-3.55)	**3.77** (3.45-4.12)	**4.31** (3.95-4.72)	**4.87** (4.44-5.32)	**5.42** (4.93-5.92)	**5.87** (5.31-6.41)	**6.26** (5.63-6.82)	**6.60** (5.90-7.21)	**6.99** (6.20-7.64)	**7.33** (6.44-8.03)
30-min	**2.22** (2.02-2.43)	**2.60** (2.38-2.85)	**3.06** (2.80-3.35)	**3.53** (3.22-3.86)	**4.01** (3.65-4.38)	**4.42** (4.00-4.83)	**4.79** (4.31-5.23)	**5.14** (4.60-5.61)	**5.56** (4.93-6.08)	**5.93** (5.22-6.50)
60-min	**1.38** (1.26-1.52)	**1.63** (1.50-1.79)	**1.96** (1.80-2.15)	**2.30** (2.10-2.51)	**2.67** (2.43-2.92)	**3.00** (2.71-3.27)	**3.30** (2.97-3.60)	**3.60** (3.22-3.94)	**3.99** (3.54-4.36)	**4.33** (3.81-4.75)
2-hr	**0.808** (0.733-0.895)	**0.958** (0.874-1.05)	**1.17** (1.06-1.28)	**1.38** (1.25-1.52)	**1.64** (1.47-1.80)	**1.87** (1.67-2.05)	**2.09** (1.86-2.29)	**2.32** (2.06-2.54)	**2.63** (2.31-2.88)	**2.91** (2.53-3.20)
3-hr	**0.570** (0.517-0.634)	**0.677** (0.617-0.748)	**0.827** (0.751-0.914)	**0.987** (0.894-1.09)	**1.18** (1.06-1.30)	**1.36** (1.22-1.49)	**1.54** (1.36-1.69)	**1.73** (1.52-1.89)	**1.98** (1.73-2.17)	**2.22** (1.91-2.44)
6-hr	**0.343** (0.312-0.379)	**0.407** (0.372-0.449)	**0.497** (0.453-0.548)	**0.594** (0.540-0.653)	**0.713** (0.644-0.782)	**0.824** (0.739-0.903)	**0.936** (0.832-1.02)	**1.06** (0.929-1.15)	**1.22** (1.06-1.33)	**1.37** (1.18-1.50)
12-hr	**0.201** (0.183-0.221)	**0.238** (0.218-0.262)	**0.292** (0.267-0.321)	**0.351** (0.320-0.386)	**0.425** (0.384-0.465)	**0.494** (0.443-0.539)	**0.565** (0.501-0.615)	**0.642** (0.563-0.698)	**0.748** (0.646-0.814)	**0.850** (0.723-0.926)
24-hr	**0.119** (0.111-0.129)	**0.144** (0.134-0.156)	**0.183** (0.169-0.198)	**0.214** (0.198-0.231)	**0.258** (0.237-0.279)	**0.294** (0.269-0.317)	**0.332** (0.302-0.359)	**0.372** (0.337-0.403)	**0.430** (0.386-0.466)	**0.477** (0.425-0.519)
2-day	**0.069** (0.064-0.074)	**0.083** (0.077-0.090)	**0.105** (0.097-0.113)	**0.122** (0.113-0.131)	**0.146** (0.135-0.158)	**0.166** (0.152-0.179)	**0.186** (0.170-0.201)	**0.208** (0.189-0.226)	**0.240** (0.215-0.260)	**0.265** (0.236-0.289)
3-day	**0.049** (0.045-0.052)	**0.059** (0.055-0.063)	**0.073** (0.068-0.079)	**0.085** (0.079-0.092)	**0.102** (0.094-0.109)	**0.115** (0.106-0.124)	**0.129** (0.119-0.139)	**0.144** (0.131-0.156)	**0.165** (0.149-0.179)	**0.182** (0.163-0.198)
4-day	**0.039** (0.036-0.042)	**0.047** (0.043-0.050)	**0.058** (0.054-0.062)	**0.067** (0.062-0.072)	**0.080** (0.074-0.085)	**0.090** (0.083-0.097)	**0.101** (0.093-0.108)	**0.112** (0.103-0.121)	**0.128** (0.116-0.138)	**0.141** (0.127-0.153)
7-day	**0.026** (0.024-0.027)	**0.031** (0.029-0.033)	**0.038** (0.035-0.040)	**0.043** (0.041-0.046)	**0.051** (0.048-0.055)	**0.058** (0.053-0.062)	**0.064** (0.059-0.069)	**0.071** (0.065-0.076)	**0.081** (0.073-0.087)	**0.088** (0.080-0.095)
10-day	**0.021** (0.019-0.022)	**0.024** (0.023-0.026)	**0.030** (0.028-0.032)	**0.034** (0.032-0.036)	**0.039** (0.037-0.042)	**0.044** (0.041-0.047)	**0.048** (0.045-0.052)	**0.053** (0.049-0.057)	**0.060** (0.055-0.064)	**0.065** (0.059-0.070)
20-day	**0.014** (0.013-0.015)	**0.016** (0.015-0.017)	**0.019** (0.018-0.021)	**0.022** (0.021-0.023)	**0.025** (0.024-0.027)	**0.028** (0.026-0.030)	**0.031** (0.029-0.033)	**0.034** (0.031-0.036)	**0.037** (0.034-0.040)	**0.040** (0.037-0.043)
30-day	**0.011** (0.011-0.012)	**0.013** (0.013-0.014)	**0.016** (0.015-0.017)	**0.018** (0.017-0.019)	**0.020** (0.019-0.021)	**0.022** (0.020-0.023)	**0.024** (0.022-0.025)	**0.026** (0.024-0.027)	**0.028** (0.026-0.030)	**0.030** (0.028-0.032)
45-day	**0.010** (0.009-0.010)	**0.011** (0.011-0.012)	**0.013** (0.012-0.014)	**0.014** (0.014-0.015)	**0.016** (0.015-0.017)	**0.018** (0.017-0.019)	**0.019** (0.018-0.020)	**0.020** (0.019-0.021)	**0.022** (0.021-0.023)	**0.023** (0.022-0.025)
60-day	**0.009** (0.008-0.009)	**0.010** (0.010-0.011)	**0.012** (0.011-0.012)	**0.013** (0.012-0.013)	**0.014** (0.013-0.015)	**0.015** (0.014-0.016)	**0.016** (0.015-0.017)	**0.017** (0.016-0.018)	**0.019** (0.018-0.020)	**0.020** (0.018-0.021)

[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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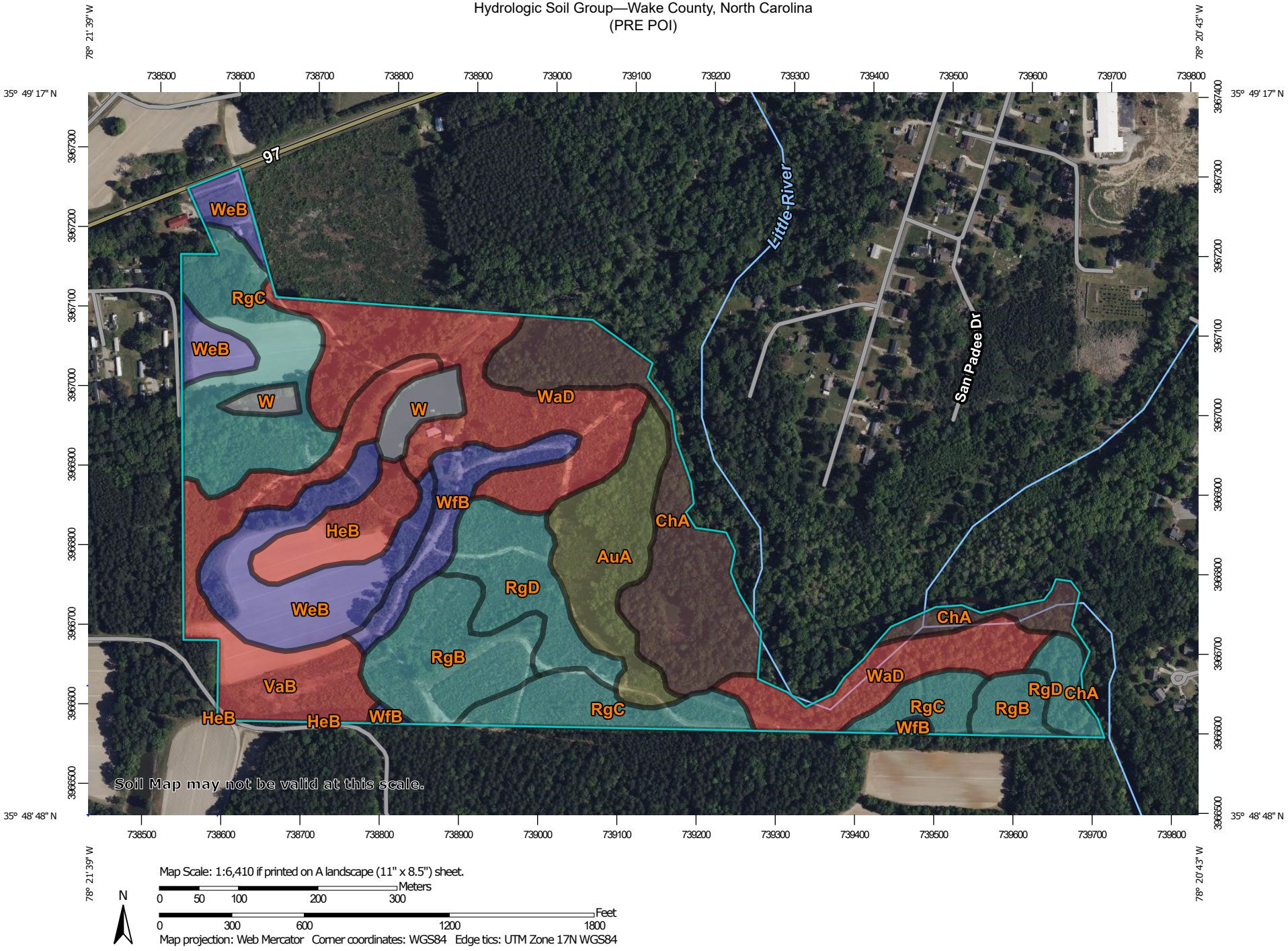
PF graphical

Soil Information

USDA NRCS Web Soil Survey - Hydrologic Soil Group Report

Hydrologic Soil Group—Wake County, North Carolina
(PRE POI)



Map Scale: 1:6,410 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N 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 1:24,000.

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

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

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

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

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

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

Soil Survey Area: Wake County, North Carolina
Survey Area Data: Version 26, Sep 9, 2024

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

Date(s) aerial images were photographed: Apr 24, 2022—May 9, 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
AuA	Augusta fine sandy loam, 0 to 2 percent slopes, rarely flooded	C/D	7.3	7.2%
ChA	Chewacla and Wehadkee soils, 0 to 2 percent slopes, frequently flooded	B/D	13.3	13.2%
HeB	Helena sandy loam, 2 to 6 percent slopes	D	3.6	3.6%
RgB	Rawlings-Rion complex, 2 to 6 percent slopes	C	8.5	8.5%
RgC	Rawlings-Rion complex, 6 to 10 percent slopes	C	15.3	15.3%
RgD	Rawlings-Rion complex, 10 to 15 percent slopes	C	7.3	7.3%
VaB	Vance sandy loam, 2 to 6 percent slopes	D	9.4	9.4%
W	Water		2.3	2.3%
WaD	Wake-Rolesville complex, 10 to 15 percent slopes, very rocky	D	18.3	18.2%
WeB	Wedowee sandy loam, 2 to 6 percent slopes	B	10.9	10.8%
WfB	Wedowee-Saw complex, 2 to 6 percent slopes	B	4.2	4.1%
Totals for Area of Interest			**100.4**	**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

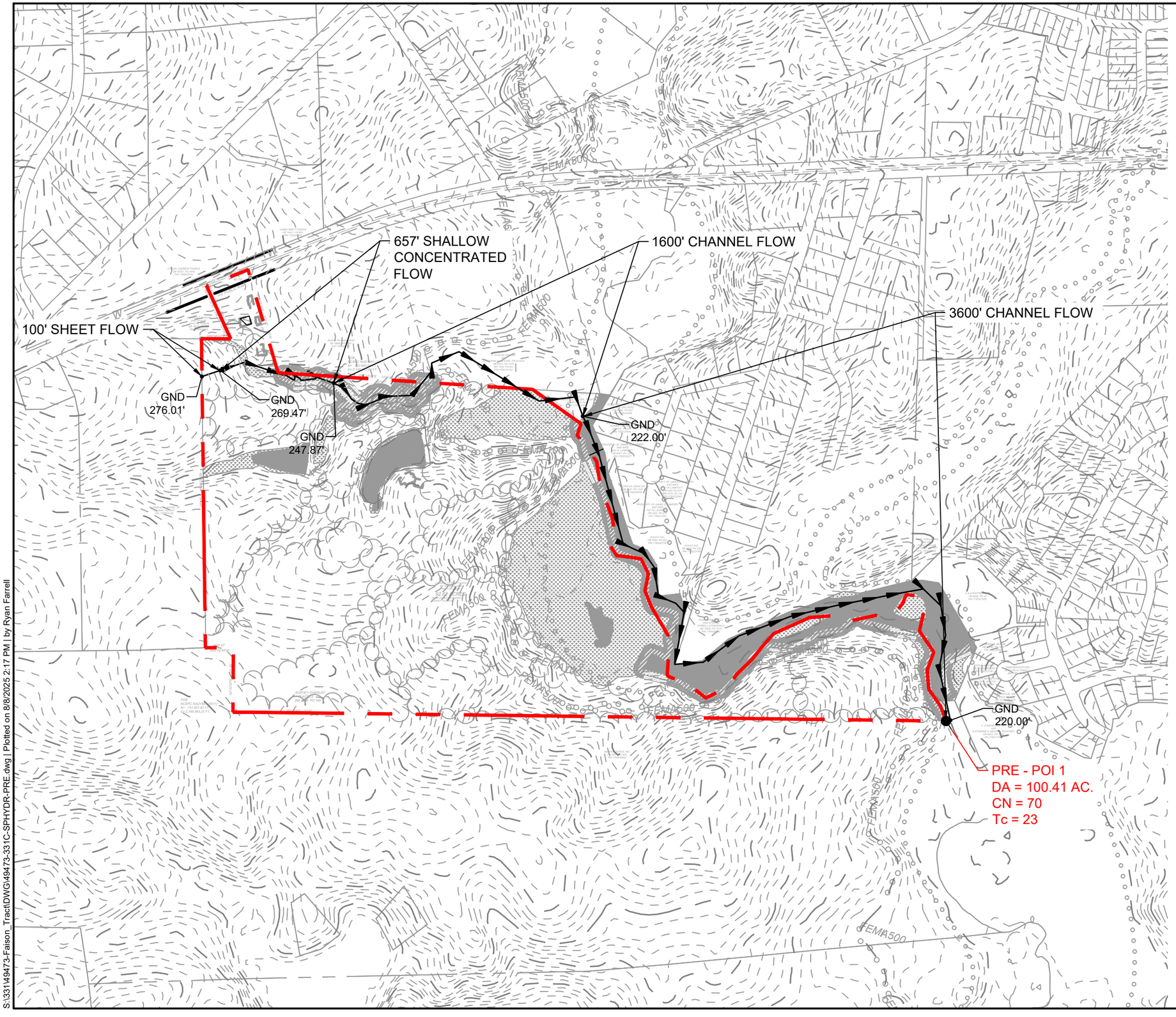
Tie-break Rule: Higher

Drainage Area Maps

Pre-Development Conditions

Post-Development Conditions

Post-Development Culverts



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TIMMONS GROUP

REVISION DESCRIPTION

DATE

REVIEW SET - NOT RELEASED FOR CONSTRUCTION

DATE *08/08/2025*

DRAWN BY *331*

DESIGNED BY *331*

CHECKED BY *TJC*

SCALE *1" = 500'*

FAISON TRACT

ZEBULON, WAKE COUNTY, NORTH CAROLINA

PRE-DEVELOPMENT DRAINAGE AREAS

JOB NO. *49473*

SHEET NO.

S:\331\49473-Faison_Tract\DWG\49473-331C-SPHYDR-PRE.dwg | Plotted on 8/8/2025 2:17 PM | by Ryan Farrell

POST - POI 1 (SCM 1)
DA = 100.41 AC.
CN = 87
Tc = 10 MIN

POST - POI 1 (SCM 2)
DA = 16.20 AC.
CN = 85
Tc = 10 MIN

POST - POI 1 (SCM 3)
DA = 23.29 AC.
CN = 85
Tc = 10 MIN

POST - POI 1
DA = 100.41 AC.
CN = 73
Tc = 11 MIN

NC HWY 97
W. GANNON AVENUE

PROPOSED JASPER PLACE SUBDIVISION

FEMA500

NAD 83

SCALE 1"=500'

0 500' 1000'

S:\331\49473-Faison_Tract\DWG\49473-331C-SPHYDR-POST.dwg | Plotted on 8/8/2025 2:17 PM | by Ryan Farrell

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TIMMONS GROUP

REVISION DESCRIPTION

DATE

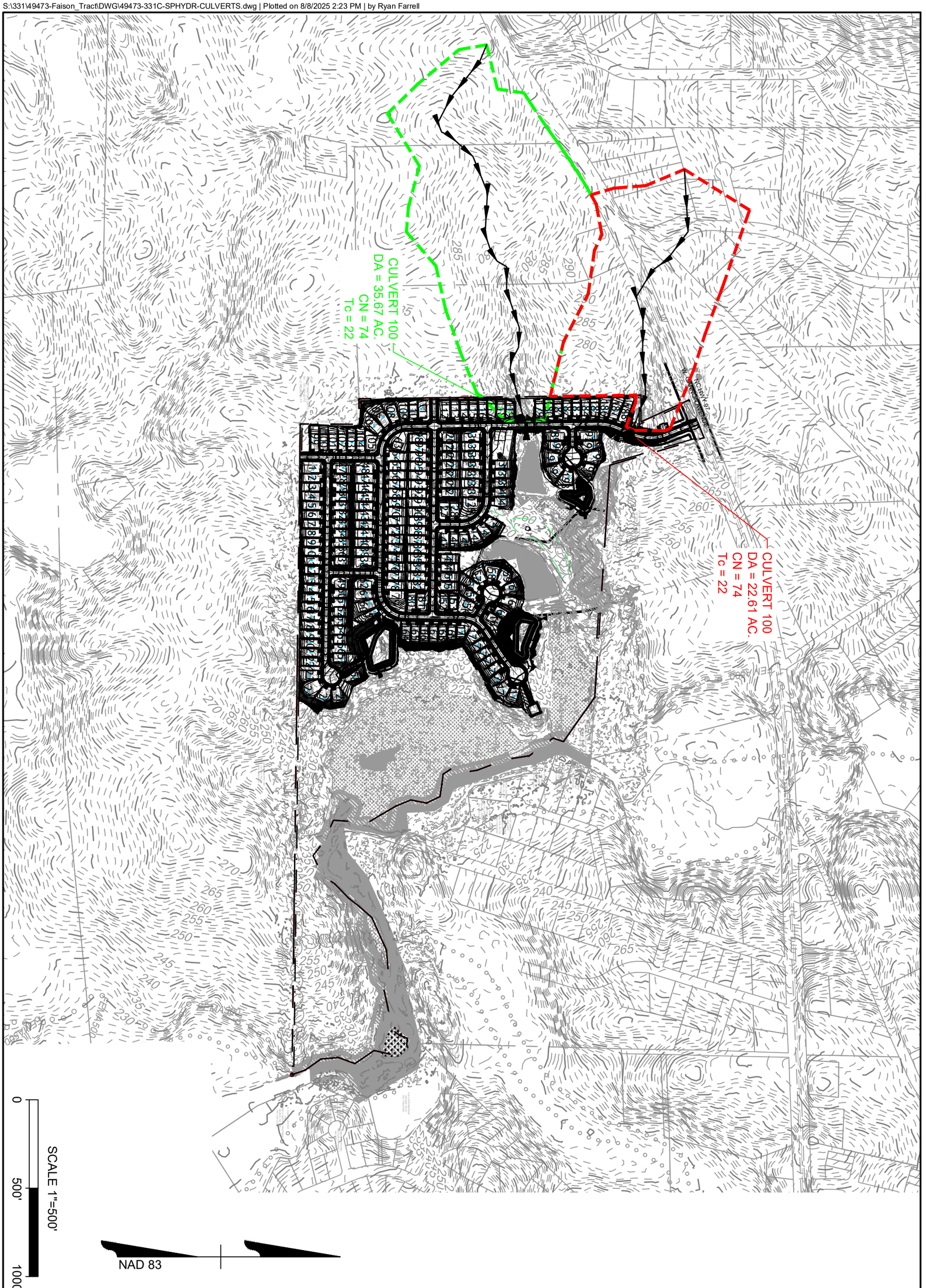
REVIEW SET - NOT RELEASED FOR CONSTRUCTION

DATE: 08/08/2025
DRAWN BY: 331
DESIGNED BY: 331
CHECKED BY: TJC
SCALE: 1" = 500'

FAISON TRACT
ZEBULON, WAKE COUNTY, NORTH CAROLINA
PRE-DEVELOPMENT DRAINAGE AREAS

JOB NO. 49473
SHEET NO.

S:\331\49473-Faison_Tract\DWG\49473-331C-SPHYDR-CULVERTS.dwg | Plotted on 8/8/2025 2:23 PM | by Ryan Farrell



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FAISON TRACT

ZEBULON, WAKE COUNTY, NORTH CAROLINA

PRE-DEVELOPMENT DRAINAGE AREAS

SHEET NO.	JOB NO.	SCALE	CHECKED BY	DESIGNED BY	DRAWN BY	DATE
	49473	1" = 500'	TJC	331	331	08/08/2025

DATE	REVISION DESCRIPTION

REVIEW SET - NOT RELEASED FOR CONSTRUCTION

Storm Drainage 10-Year HGL Reports

Pipes

Line No.	Junct Type	Inlet ID	DnStm Ln No	Drng Area (ac)	Tc (min)	i Sys (in/hr)	Runoff Coeff (C)	Incr Q (cfs)	Total Runoff (cfs)	Capac Full (cfs)	Line Length (ft)	Line Size (in)	n-val Pipe	Line Slope (%)	Invert Up (ft)	Invert Dn (ft)	Gnd/Rim El Up (ft)	Gnd/Rim El Dn (ft)	HGL Up (ft)	HGL Dn (ft)	
1	Comb.	CB 102	Outfall	0.69	15.2	4.99	0.65	3.24	15.12	58.01	106.954	30	0.013	2.00	248.95	246.81	262.02	249.60	253.94	253.79	
2	Comb.	CB 103	1	0.14	14.7	5.06	0.65	0.66	13.05	30.42	86.459	30	0.013	0.55	255.42	254.94	264.20	262.02	256.63	256.09	
3	Comb.	CB 104	2	0.19	14.5	5.09	0.65	0.89	12.66	18.75	58.682	24	0.013	0.69	256.32	255.92	265.52	264.20	257.60	257.12	
4	Comb.	CB 105	3	0.02	14.2	5.14	0.65	0.09	11.62	16.77	91.084	24	0.013	0.55	256.82	256.32	268.49	265.52	258.05 j	257.60	
5	Comb.	CB 115	4	0.09	13.9	5.18	0.65	0.42	4.95	7.79	52.822	18	0.013	0.55	261.38	261.09	269.70	268.49	262.25	261.96	
6	Comb.	CB 116	5	0.05	12.7	5.39	0.65	0.24	2.94	7.79	153.838	18	0.013	0.55	264.73	263.88	272.07	269.70	265.38	264.52	
7	Comb.	CB 117	6	0.06	11.9	5.52	0.65	0.28	2.83	7.79	85.533	18	0.013	0.55	265.20	264.73	273.21	272.07	265.84 j	265.38	
8	Comb.	CB 118	7	0.04	9.8	5.94	0.65	0.19	1.28	7.79	107.807	18	0.013	0.55	268.68	268.09	274.74	273.21	269.11	268.50	
9	Comb.	CB 119	8	0.04	8.2	6.30	0.65	0.19	1.19	7.79	69.960	18	0.013	0.55	269.07	268.68	275.69	274.74	269.48 j	269.11	
10	Comb.	CB 120	9	0.13	6.4	6.81	0.65	0.61	1.11	7.79	74.203	18	0.013	0.55	269.48	269.07	276.71	275.69	269.87 j	269.48	
11	Comb.	CB 121	10	0.12	5.0	7.23	0.65	0.56	0.56	7.79	26.000	18	0.013	0.55	269.63	269.48	276.70	276.71	269.90	269.87	
12	Comb.	CB 125	7	0.12	11.4	5.61	0.65	0.56	1.46	7.79	31.608	18	0.013	0.55	265.37	265.20	273.47	273.21	265.82	265.84	
13	Dp-Grate	DI 126	12	0.01	11.1	5.68	0.65	0.05	1.03	7.79	15.508	18	0.013	0.55	265.46	265.37	273.36	273.47	265.84 j	265.82	
14	Dp-Grate	DI 127	13	0.14	7.8	6.41	0.65	0.66	1.13	7.79	138.639	18	0.013	0.55	266.22	265.46	269.26	273.36	266.62	265.84	
15	Dp-Grate	DI 128	14	0.13	5.0	7.23	0.65	0.61	0.61	7.79	57.868	18	0.013	0.55	266.54	266.22	270.60	269.26	266.83	266.62	
16	Comb.	CB 106	4	0.03	10.9	5.71	0.65	0.14	7.39	16.77	44.816	24	0.013	0.55	257.07	256.82	268.42	268.49	259.16	259.11	
17	Comb.	CB 107	16	0.10	9.8	5.95	0.65	0.47	6.69	16.82	161.000	24	0.013	0.55	257.96	257.07	266.18	268.42	259.39	259.28	
18	Comb.	CB 108	17	0.32	9.6	5.99	0.65	1.50	3.85	7.79	26.000	18	0.013	0.55	258.94	258.80	266.18	266.18	259.69 j	259.57	
19	Dp-Grate	DI 109	18	0.01	9.3	6.05	0.65	0.05	2.63	7.79	25.747	18	0.013	0.55	261.59	261.45	265.40	266.18	262.20	262.05	
20	Dp-Grate	DI 110	19	0.16	8.3	6.30	0.65	0.75	2.70	8.14	106.419	18	0.013	0.60	262.23	261.59	265.26	265.40	262.85	262.20	
21	Dp-Grate	DI 111	20	0.16	6.9	6.65	0.65	0.75	2.16	13.58	104.022	18	0.013	1.67	263.97	262.23	267.52	265.26	264.52 j	262.85	
22	Dp-Grate	DI 112	21	0.34	5.0	7.23	0.65	1.60	1.60	11.92	104.022	18	0.013	1.29	265.31	263.97	269.08	267.52	265.78 j	264.52	
23	Comb.	CB 124	5	0.54	5.0	7.23	0.65	2.54	2.54	7.79	33.326	18	0.013	0.55	261.56	261.38	270.00	269.70	262.17	262.52	

Project File: STRM 100.stm | Number of lines: 29 | Date: 8/8/2025

NOTES: Intensity = 69.36 / (Inlet time + 12.10) ^ 0.80 -- Return period = 10 Yrs. ; ** Critical depth

Pipes

Line No.	Junct Type	Inlet ID	DnStm Ln No	Drng Area (ac)	Tc (min)	i Sys (in/hr)	Runoff Coeff (C)	Incr Q (cfs)	Total Runoff (cfs)	Capac Full (cfs)	Line Length (ft)	Line Size (in)	n-val Pipe	Line Slope (%)	Invert Up (ft)	Invert Dn (ft)	Gnd/Rim El Up (ft)	Gnd/Rim El Dn (ft)	HGL Up (ft)	HGL Dn (ft)	
24	Comb.	CB 114	16	0.23	5.0	7.23	0.65	1.08	1.08	7.98	26.000	18	0.013	0.58	261.26	261.11	268.42	268.42	261.65	261.48	
25	Comb.	CB 122	17	0.15	5.3	7.12	0.65	0.71	2.96	7.77	39.669	18	0.013	0.55	258.68	258.46	265.99	266.18	259.33	259.57	
26	Comb.	CB 123	25	0.49	5.0	7.23	0.65	2.30	2.30	7.79	26.000	18	0.013	0.55	258.82	258.68	265.99	265.99	259.39 j	259.33	
27	Comb.	CB 113	3	0.16	5.0	7.23	0.65	0.75	0.75	12.20	27.431	18	0.013	1.35	258.46	258.09	265.36	265.52	258.78	258.34	
28	Dp-Grate	DI 131	Outfall	0.14	7.4	6.51	0.65	0.66	1.99	14.88	56.740	18	0.013	2.01	250.63	249.49	260.39	251.20	253.81	253.79	
29	Dp-Grate	DI 132	28	0.33	5.0	7.23	0.65	1.55	1.55	7.79	127.774	18	0.013	0.55	256.08	255.38	262.28	260.39	256.55	255.83	

Project File: STRM 100.stm | Number of lines: 29 | Date: 8/8/2025

NOTES: Intensity = 69.36 / (Inlet time + 12.10) ^ 0.80 -- Return period = 10 Yrs. ; ** Critical depth

Pipes

Line No.	Junct Type	Inlet ID	DnStm Ln No	Drng Area (ac)	Tc (min)	i Sys (in/hr)	Runoff Coeff (C)	Incr Q (cfs)	Total Runoff (cfs)	Capac Full (cfs)	Line Length (ft)	Line Size (in)	n-val Pipe	Line Slope (%)	Invert Up (ft)	Invert Dn (ft)	Gnd/Rim El Up (ft)	Gnd/Rim El Dn (ft)	HGL Up (ft)	HGL Dn (ft)
1	Dp-Grate	DI 201	Outfall	0.18	23.5	4.03	0.65	0.85	33.17	142.28	85.742	42	0.013	2.00	238.71	237.00	252.69	240.88	241.80	241.74
2	Comb.	CB 202	1	0.29	23.1	4.07	0.65	1.36	31.55	49.46	135.450	36	0.013	0.55	241.40	240.65	254.50	252.69	243.22	242.40
3	Comb.	CB 203	2	0.11	23.0	4.08	0.65	0.52	30.89	49.46	49.547	36	0.013	0.55	241.67	241.40	253.14	254.50	243.47 j	243.22
4	Comb.	CB 204	3	0.12	22.8	4.10	0.65	0.56	30.75	49.46	72.814	36	0.013	0.55	242.07	241.67	250.96	253.14	243.87 j	243.47
5	Comb.	CB 205	4	0.66	22.7	4.11	0.65	3.10	30.49	49.46	26.000	36	0.013	0.55	242.22	242.07	250.96	250.96	244.00	243.87
6	Comb.	CB 206	5	0.09	22.3	4.14	0.65	0.42	28.94	87.08	99.974	36	0.013	1.70	243.92	242.22	252.88	250.96	245.66 j	244.00
7	Comb.	CB 207	6	0.03	20.6	4.32	0.65	0.14	24.04	49.42	111.010	36	0.013	0.55	244.53	243.92	254.24	252.88	246.11 j	245.66
8	Comb.	CB 208	7	0.20	20.5	4.33	0.65	0.94	24.04	49.46	32.834	36	0.013	0.55	244.71	244.53	253.08	254.24	246.29	246.11
9	Comb.	CB 209	8	0.34	20.0	4.38	0.65	1.60	22.94	44.16	173.379	30	0.013	1.16	248.72	246.71	257.26	253.08	250.35	247.99
10	Comb.	CB 210	9	0.01	19.1	4.48	0.65	0.05	20.75	47.20	276.328	30	0.013	1.32	252.38	248.72	263.11	257.26	253.93 j	250.35
11	Comb.	CB 211	10	0.02	19.0	4.49	0.65	0.09	19.91	30.46	35.722	30	0.013	0.55	252.58	252.38	263.35	263.11	254.09	253.93
12	Comb.	CB 212	11	0.07	18.9	4.50	0.65	0.33	19.89	30.42	26.000	30	0.013	0.55	252.72	252.58	263.35	263.35	254.23	254.09
13	Comb.	CB 213	12	0.41	18.6	4.54	0.65	1.93	6.60	14.85	89.896	18	0.013	2.00	258.65	256.85	266.14	263.35	259.64	257.55
14	Comb.	CB 214	13	0.38	17.5	4.67	0.65	1.79	4.19	15.22	216.022	18	0.013	2.10	263.19	258.65	270.72	266.14	263.97 j	259.64
15	Comb.	CB 215	14	0.03	15.1	5.00	0.65	0.14	1.82	14.46	192.396	18	0.013	1.90	266.84	263.19	274.79	270.72	267.35 j	263.97
16	Comb.	CB 216	15	0.02	14.6	5.08	0.65	0.09	1.75	7.79	41.616	18	0.013	0.55	267.07	266.84	276.08	274.79	267.57 j	267.35
17	Comb.	CB 217	16	0.02	14.2	5.13	0.65	0.09	1.70	7.79	26.000	18	0.013	0.55	267.21	267.07	276.08	276.08	267.70	267.57
18	Comb.	CB 218	17	0.09	13.7	5.21	0.65	0.42	1.66	7.79	33.033	18	0.013	0.55	267.39	267.21	275.05	276.08	267.88 j	267.70
19	Comb.	CB 219	18	0.01	11.5	5.59	0.65	0.05	1.16	7.79	107.000	18	0.013	0.55	267.98	267.39	276.48	275.05	268.38 j	267.88
20	Dp-Grate	DI 220	19	0.09	11.0	5.69	0.65	0.42	1.15	7.79	25.119	18	0.013	0.55	268.12	267.98	275.27	276.48	268.52 j	268.38
21	Dp-Grate	DI 221	20	0.22	5.0	7.23	0.65	1.03	1.03	7.76	210.383	18	0.013	0.55	269.27	268.12	272.07	275.27	269.65 j	268.52
22	Comb.	CB 251	18	0.08	5.0	7.23	0.65	0.38	0.38	7.98	26.000	18	0.013	0.58	267.45	267.30	275.05	275.05	267.68	267.88
23	Comb.	CB 236	12	0.10	10.1	5.88	0.65	0.47	17.15	34.15	114.562	30	0.013	0.69	253.51	252.72	261.80	263.35	254.91 j	254.23

Project File: New.stm | Number of lines: 62 | Date: 8/8/2025

NOTES: Intensity = 69.36 / (Inlet time + 12.10) ^ 0.80 -- Return period = 10 Yrs. ; ** Critical depth

Pipes

Line No.	Junct Type	Inlet ID	DnStm Ln No	Drng Area (ac)	Tc (min)	i Sys (in/hr)	Runoff Coeff (C)	Incr Q (cfs)	Total Runoff (cfs)	Capac Full (cfs)	Line Length (ft)	Line Size (in)	n-val Pipe	Line Slope (%)	Invert Up (ft)	Invert Dn (ft)	Gnd/Rim El Up (ft)	Gnd/Rim El Dn (ft)	HGL Up (ft)	HGL Dn (ft)
24	Comb.	CB 237	23	0.10	9.7	5.96	0.65	0.47	8.52	29.75	65.127	24	0.013	1.73	255.14	254.01	262.55	261.80	256.18	254.91
25	Comb.	CB 238	24	0.14	9.3	6.06	0.65	0.66	8.27	29.75	74.724	24	0.013	1.73	256.43	255.14	263.74	262.55	257.46 j	256.18
26	Comb.	CB 239	25	0.34	8.7	6.18	0.65	1.60	7.87	23.98	82.444	24	0.013	1.12	257.36	256.43	265.05	263.74	258.36 j	257.46
27	Comb.	CB 240	26	0.44	7.8	6.41	0.65	2.07	4.63	11.01	157.341	18	0.013	1.10	259.59	257.86	267.31	265.05	260.42	258.54
28	Comb.	CB 241	27	0.07	5.9	6.96	0.65	0.33	3.03	13.39	203.954	18	0.013	1.62	262.94	259.62	270.25	267.31	263.60 j	260.42
29	Comb.	CB 242	28	0.15	5.4	7.11	0.65	0.71	2.77	7.79	46.380	18	0.013	0.55	265.31	265.05	272.64	270.25	265.94	265.67
30	Comb.	CB 243	29	0.45	5.0	7.23	0.65	2.12	2.12	7.73	26.366	18	0.013	0.54	265.45	265.31	272.78	272.64	266.00 j	265.94
31	Comb.	CB 250	14	0.44	5.0	7.23	0.65	2.07	2.07	7.71	26.000	18	0.013	0.54	263.33	263.19	270.72	270.72	263.87	263.97
32	Comb.	CB 249	13	0.45	5.0	7.23	0.65	2.12	2.12	7.71	26.000	18	0.013	0.54	258.79	258.65	266.14	266.14	259.34	259.64
33	Dp-Grate	DI 244	23	0.41	8.8	6.15	0.65	1.93	5.92	7.79	15.621	18	0.013	0.55	255.55	255.46	262.24	261.80	256.53	256.44
34	Dp-Grate	DI 245	33	0.61	8.2	6.30	0.65	2.87	4.38	17.85	96.392	18	0.013	2.89	258.34	255.55	261.85	262.24	259.14 j	256.71
35	Dp-Grate	DI 246	34	0.46	5.0	7.23	0.65	2.16	2.16	17.86	238.306	18	0.013	2.89	265.23	258.34	268.30	261.85	265.78 j	259.14
36	Dp-Grate	DI 225	6	0.04	22.3	4.15	0.65	0.19	4.99	7.94	17.486	18	0.013	0.57	245.55	245.45	253.39	252.88	246.41 j	246.31
37	Dp-Grate	DI 226	36	0.88	21.8	4.19	0.65	4.14	4.93	7.81	104.948	18	0.013	0.55	246.13	245.55	251.14	253.39	246.98	246.59
38	Dp-Grate	DI 227	37	0.28	20.9	4.28	0.65	1.32	2.59	20.06	118.569	18	0.013	3.65	250.46	246.13	256.06	251.14	251.07 j	246.98
39	Dp-Grate	DI 228	38	0.39	19.6	4.43	0.65	1.83	1.87	12.16	127.142	18	0.013	1.34	252.16	250.46	255.66	256.06	252.68 j	251.07
40	Dp-Grate	DI 229	39	0.06	13.9	5.18	0.65	0.28	0.88	12.17	222.619	18	0.013	1.34	255.15	252.16	259.91	255.66	255.50 j	252.68
41	Dp-Grate	DI 230	40	0.08	8.7	6.18	0.65	0.38	0.80	14.67	160.891	18	0.013	1.95	258.29	255.15	262.66	259.91	258.62 j	255.50
42	Dp-Grate	DI 231	41	0.12	5.0	7.23	0.65	0.56	0.56	7.84	71.733	18	0.013	0.56	258.69	258.29	262.00	262.66	258.97	258.62
43	Comb.	CB 248	26	0.51	5.0	7.23	0.65	2.40	2.40	7.77	26.141	18	0.013	0.55	258.00	257.86	265.09	265.05	258.59	258.43
44	Comb.	CB 235	10	0.30	5.0	7.23	0.65	1.41	1.41	7.71	26.002	18	0.013	0.54	255.70	255.56	263.11	263.11	256.14	255.99
45	Comb.	CB 247	23	0.71	5.0	7.23	0.65	3.34	3.34	7.73	25.828	18	0.013	0.54	254.49	254.35	261.81	261.80	255.19	255.04
46	Comb.	CB 234	9	0.58	5.0	7.23	0.65	2.73	2.73	7.98	26.000	18	0.013	0.58	249.87	249.72	257.26	257.26	250.50 j	250.35

Project File: New.stm | Number of lines: 62 | Date: 8/8/2025

NOTES: Intensity = 69.36 / (Inlet time + 12.10) ^ 0.80 -- Return period = 10 Yrs. ; ** Critical depth

Pipes

Line No.	Junct Type	Inlet ID	DnStm Ln No	Drng Area (ac)	Tc (min)	i Sys (in/hr)	Runoff Coeff (C)	Incr Q (cfs)	Total Runoff (cfs)	Capac Full (cfs)	Line Length (ft)	Line Size (in)	n-val Pipe	Line Slope (%)	Invert Up (ft)	Invert Dn (ft)	Gnd/Rim El Up (ft)	Gnd/Rim El Dn (ft)	HGL Up (ft)	HGL Dn (ft)	
47	Comb.	CB 233	8	0.29	5.0	7.23	0.65	1.36	1.36	7.78	25.500	18	0.013	0.55	246.35	246.21	253.58	253.08	246.79	246.64	
48	Comb.	CB 232	6	0.24	5.0	7.23	0.65	1.13	1.13	7.64	28.327	18	0.013	0.53	245.65	245.50	253.06	252.88	246.05	245.89	
49	Dp-Grate	DI 222	1	0.17	9.0	6.12	0.65	0.80	2.19	7.79	102.509	18	0.013	0.55	243.11	242.55	248.98	252.69	243.67	243.09	
50	Dp-Grate	DI 223	49	0.01	7.0	6.61	0.65	0.05	1.63	7.79	114.670	18	0.013	0.55	243.74	243.11	250.19	248.98	244.22 j	243.67	
51	Dp-Grate	DI 224	50	0.37	5.0	7.23	0.65	1.74	1.74	7.81	120.977	18	0.013	0.55	244.41	243.74	247.43	250.19	244.91	244.22	
52	Comb.	CB 261	Outfall	0.09	11.6	5.58	0.65	0.42	9.44	94.32	93.139	36	0.013	2.00	237.86	236.00	246.88	239.33	241.76	241.74	
53	Comb.	CB 262	52	0.29	11.3	5.63	0.65	1.36	7.10	30.42	26.001	30	0.013	0.55	239.28	239.14	246.88	246.88	241.81	241.80	
54	Comb.	CB 263	53	0.16	10.3	5.83	0.65	0.75	6.26	30.41	85.534	30	0.013	0.55	239.75	239.28	245.84	246.88	241.87	241.85	
55	Dp-Grate	DI 264	54	0.03	10.1	5.87	0.65	0.14	4.01	16.77	16.969	24	0.013	0.55	240.34	240.25	246.62	245.84	241.04	241.91	
56	Dp-Grate	DI 265	55	0.20	9.0	6.11	0.65	0.94	4.05	16.77	90.954	24	0.013	0.55	240.85	240.34	245.03	246.62	241.55	241.04	
57	Dp-Grate	DI 266	56	0.20	7.4	6.52	0.65	0.94	3.47	16.77	115.159	24	0.013	0.55	241.48	240.85	245.05	245.03	242.13 j	241.55	
58	Dp-Grate	DI 267	57	0.18	6.3	6.82	0.65	0.85	2.75	9.79	106.049	18	0.013	0.87	242.90	241.98	246.32	245.05	243.53	242.52	
59	Dp-Grate	DI 268	58	0.44	5.0	7.23	0.65	2.07	2.07	7.79	91.114	18	0.013	0.55	243.40	242.90	246.41	246.32	243.94 j	243.53	
60	Comb.	CB 269	52	0.19	5.4	7.09	0.65	0.89	2.63	8.80	147.933	18	0.013	0.70	241.82	240.78	249.19	246.88	242.43 j	241.80	
61	Comb.	CB 270	60	0.38	5.0	7.23	0.65	1.79	1.79	7.98	26.000	18	0.013	0.58	241.97	241.82	249.19	249.19	242.47	242.43	
62	Comb.	CB 271	54	0.44	5.0	7.23	0.65	2.07	2.07	7.79	81.117	18	0.013	0.55	241.20	240.75	244.89	245.84	241.74	241.91	

Project File: New.stm | Number of lines: 62 | Date: 8/8/2025

NOTES: Intensity = 69.36 / (Inlet time + 12.10) ^ 0.80 -- Return period = 10 Yrs. ; ** Critical depth

Pipes

Line No.	Junct Type	Inlet ID	DnStm Ln No	Drng Area (ac)	Tc (min)	i Sys (in/hr)	Runoff Coeff (C)	Incr Q (cfs)	Total Runoff (cfs)	Capac Full (cfs)	Line Length (ft)	Line Size (in)	n-val Pipe	Line Slope (%)	Invert Up (ft)	Invert Dn (ft)	Gnd/Rim El Up (ft)	Gnd/Rim El Dn (ft)	HGL Up (ft)	HGL Dn (ft)
1	Comb.	CB 301	Outfall	0.31	14.0	5.17	0.65	1.46	46.68	95.24	106.909	36	0.013	2.04	234.18	232.00	251.87	235.33	239.46	238.94
2	Comb.	CB 302	1	0.20	13.9	5.18	0.65	0.94	45.70	48.92	26.003	30	0.013	1.42	243.61	243.24	251.87	251.87	245.85	245.16
3	Comb.	CB 303	2	0.23	13.7	5.22	0.65	1.08	34.59	43.05	108.925	30	0.013	1.10	245.90	244.70	254.07	251.87	247.90	246.40
4	Comb.	CB 304	3	0.21	13.4	5.26	0.65	0.99	32.93	77.41	115.912	30	0.013	3.56	250.03	245.90	258.58	254.07	251.98 j	247.90
5	Comb.	CB 305	4	0.44	13.1	5.31	0.65	2.07	24.34	78.38	99.387	30	0.013	3.65	253.66	250.03	262.20	258.58	255.34 j	251.98
6	Comb.	CB 306	5	0.41	12.4	5.44	0.65	1.93	21.78	58.34	214.977	30	0.013	2.02	258.43	254.08	266.97	262.20	260.02	255.34
7	Comb.	CB 307	6	0.26	11.8	5.54	0.65	1.22	18.24	22.30	207.738	24	0.013	0.97	261.20	259.18	269.25	266.97	262.74	260.56
8	Comb.	CB 308	7	0.23	11.5	5.60	0.65	1.08	17.51	23.57	134.395	24	0.013	1.09	262.66	261.20	270.73	269.25	264.17 j	262.74
9	Comb.	CB 329	8	0.04	11.3	5.63	0.65	0.19	7.32	17.18	26.000	24	0.013	0.58	262.81	262.66	270.73	270.73	263.77	264.17
10	Comb.	CB 330	9	0.29	11.1	5.68	0.65	1.36	7.23	16.56	35.448	24	0.013	0.54	263.00	262.81	270.78	270.73	263.95	263.77
11	Comb.	CB 331	10	0.03	9.8	5.94	0.65	0.14	4.33	16.23	220.532	18	0.013	2.39	269.39	264.12	276.88	270.78	270.19	264.65
12	Comb.	CB 332	11	0.23	9.5	6.01	0.65	1.08	3.20	10.68	36.761	18	0.013	1.03	269.90	269.52	276.92	276.88	270.58	270.19
13	Comb.	CB 333	12	0.26	9.2	6.07	0.65	1.22	2.33	8.32	25.500	18	0.013	0.63	270.06	269.90	277.42	276.92	270.64 j	270.58
14	Comb.	CB 334	13	0.08	8.6	6.22	0.65	0.38	1.33	8.17	31.368	18	0.013	0.61	270.25	270.06	279.04	277.42	270.68 j	270.64
15	Comb.	CB 335	14	0.03	6.0	6.92	0.65	0.14	1.12	8.08	103.084	18	0.013	0.59	270.86	270.25	279.00	279.04	271.26 j	270.68
16	Dp-Grate	DI 336	15	0.22	5.0	7.23	0.65	1.03	1.03	5.37	34.444	18	0.013	0.26	270.95	270.86	275.96	279.00	271.40	271.31
17	Comb.	CB 338	11	0.27	5.0	7.23	0.65	1.27	1.27	8.24	26.000	18	0.013	0.62	269.55	269.39	276.88	276.88	269.97	270.19
18	Comb.	CB 309	8	0.14	8.8	6.16	0.65	0.66	10.33	26.54	129.229	24	0.013	1.38	264.84	263.06	272.14	270.73	265.99	264.17
19	Comb.	CB 339	18	0.26	8.7	6.20	0.65	1.22	7.90	17.16	26.067	24	0.013	0.58	264.99	264.84	272.26	272.14	265.99 j	265.99
20	Dp-Grate	DI 340	19	0.03	8.6	6.22	0.65	0.14	6.88	16.43	15.170	24	0.013	0.53	265.07	264.99	272.63	272.26	266.00	265.99
21	Dp-Grate	DI 341	20	0.42	7.7	6.43	0.65	1.97	6.98	16.74	120.555	24	0.013	0.55	265.73	265.07	271.23	272.63	266.67	266.00
22	Dp-Grate	DI 342	21	0.32	5.0	7.23	0.65	1.50	1.50	15.01	138.946	18	0.013	2.04	269.65	266.81	275.34	271.23	270.11	267.13
23	Dp-Grate	DI 343	21	0.93	5.0	7.23	0.65	4.37	4.37	7.78	98.489	18	0.013	0.55	267.05	266.51	269.77	271.23	267.86	267.31

Project File: STRM 300.stm | Number of lines: 62 | Date: 8/8/2025

NOTES: Intensity = 69.36 / (Inlet time + 12.10) ^ 0.80 -- Return period = 10 Yrs. ; ** Critical depth

Pipes

Line No.	Junct Type	Inlet ID	DnStm Ln No	Drng Area (ac)	Tc (min)	i Sys (in/hr)	Runoff Coeff (C)	Incr Q (cfs)	Total Runoff (cfs)	Capac Full (cfs)	Line Length (ft)	Line Size (in)	n-val Pipe	Line Slope (%)	Invert Up (ft)	Invert Dn (ft)	Gnd/Rim El Up (ft)	Gnd/Rim El Dn (ft)	HGL Up (ft)	HGL Dn (ft)
24	Comb.	CB 310	18	0.11	5.4	7.09	0.65	0.52	2.21	7.79	114.406	18	0.013	0.55	266.14	265.51	273.64	272.14	266.70	266.06
25	Comb.	CB 311	24	0.37	5.0	7.23	0.65	1.74	1.74	7.98	26.004	18	0.013	0.58	266.29	266.14	273.65	273.64	266.79 j	266.70
26	Comb.	CB 337	10	0.55	5.0	7.23	0.65	2.59	2.59	16.60	26.000	24	0.013	0.54	263.14	263.00	270.78	270.78	263.70	263.95
27	Comb.	CB 312	2	0.22	9.7	5.97	0.65	1.03	12.33	20.72	32.182	24	0.013	0.84	244.38	244.11	252.06	251.87	245.64	245.85
28	Dp-Grate	DI 313	27	0.63	9.1	6.10	0.65	2.96	10.71	17.53	124.894	24	0.013	0.60	246.65	245.90	252.37	252.06	247.82	247.03
29	Dp-Grate	DI 314	28	0.57	8.5	6.24	0.65	2.68	8.39	17.33	168.520	18	0.013	2.72	253.09	248.50	258.03	252.37	254.21	249.24
30	Dp-Grate	DI 315	29	0.44	7.6	6.47	0.65	2.07	6.31	16.05	208.000	18	0.013	2.34	257.95	253.09	262.65	258.03	258.92 j	254.21
31	Dp-Grate	DI 316	30	0.45	6.6	6.74	0.65	2.12	4.64	15.50	156.000	18	0.013	2.18	261.45	258.05	266.12	262.65	262.28 j	258.92
32	Dp-Grate	DI 317	31	0.61	5.0	7.23	0.65	2.87	2.87	12.50	156.000	18	0.013	1.42	263.66	261.45	268.59	266.12	264.30 j	262.28
33	Comb.	CB 319	4	0.03	9.7	5.96	0.65	0.14	9.18	16.60	26.000	24	0.013	0.54	251.05	250.91	258.58	258.58	252.13	251.98
34	Comb.	CB 320	33	0.07	9.6	5.98	0.65	0.33	9.10	13.77	38.993	18	0.013	1.72	252.22	251.55	259.76	258.58	253.39	252.44
35	Comb.	CB 321	34	0.13	9.2	6.07	0.65	0.61	8.24	12.30	113.722	18	0.013	1.37	255.98	254.42	263.55	259.76	257.09	255.32
36	Comb.	CB 322	35	0.17	9.1	6.09	0.65	0.80	7.76	8.24	26.000	18	0.013	0.62	256.14	255.98	263.55	263.55	257.30	257.14
37	Dp-Grate	DI 323	36	0.65	9.0	6.12	0.65	3.06	7.12	8.42	34.200	18	0.013	0.64	256.88	256.66	262.03	263.55	257.94	257.72
38	Dp-Grate	DI 324	37	0.68	7.8	6.40	0.65	3.20	4.74	14.25	200.800	18	0.013	1.84	260.80	257.10	265.62	262.03	261.64 j	258.16
39	Dp-Grate	DI 325	38	0.46	5.0	7.23	0.65	2.16	2.16	12.98	208.000	18	0.013	1.53	263.98	260.80	268.78	265.62	264.53 j	261.64
40	Comb.	CB 328	6	0.68	5.0	7.23	0.65	3.20	3.20	7.98	26.000	18	0.013	0.58	259.58	259.43	266.97	266.97	260.26	260.09
41	Comb.	CB 327	5	0.45	5.0	7.23	0.65	2.12	2.12	9.21	26.000	18	0.013	0.77	254.86	254.66	262.20	262.20	255.41 j	255.34
42	Comb.	CB 326	34	0.18	5.0	7.23	0.65	0.85	0.85	8.74	26.000	18	0.013	0.69	252.40	252.22	259.76	259.76	252.74	253.39
43	Comb.	CB 303A	3	0.34	5.0	7.23	0.65	1.60	1.60	7.71	26.000	18	0.013	0.54	246.93	246.79	254.08	254.07	247.40	247.90
44	Comb.	CB 318	27	0.26	5.0	7.23	0.65	1.22	1.22	7.98	25.978	18	0.013	0.58	245.58	245.43	252.06	252.06	245.99	245.83
45	Dp-Grate	DI 351	Outfall	0.17	12.3	5.44	0.65	0.80	20.87	57.92	70.695	30	0.013	1.99	233.39	231.98	242.65	234.77	239.12	238.94
46	Comb.	CB 352	45	0.29	12.0	5.51	0.65	1.36	20.50	44.45	140.566	24	0.013	3.86	244.20	238.77	249.87	242.65	245.82	239.72

Project File: STRM 300.stm | Number of lines: 62 | Date: 8/8/2025

NOTES: Intensity = 69.36 / (Inlet time + 12.10) ^ 0.80 -- Return period = 10 Yrs. ; ** Critical depth

Pipes

Line No.	Junct Type	Inlet ID	DnStm Ln No	Drng Area (ac)	Tc (min)	i Sys (in/hr)	Runoff Coeff (C)	Incr Q (cfs)	Total Runoff (cfs)	Capac Full (cfs)	Line Length (ft)	Line Size (in)	n-val Pipe	Line Slope (%)	Invert Up (ft)	Invert Dn (ft)	Gnd/Rim El Up (ft)	Gnd/Rim El Dn (ft)	HGL Up (ft)	HGL Dn (ft)
47	Comb.	CB 353	46	0.18	11.7	5.56	0.65	0.85	18.27	29.11	100.199	24	0.013	1.66	245.83	244.17	254.26	249.87	247.37 j	245.82
48	Comb.	CB 354	47	0.32	9.8	5.94	0.65	1.50	8.58	18.74	94.231	18	0.013	3.18	249.33	246.33	256.88	254.26	250.46	247.37
49	Comb.	CB 355	48	0.25	9.0	6.12	0.65	1.18	7.55	17.42	208.283	18	0.013	2.75	255.06	249.33	262.67	256.88	256.12 j	250.46
50	Comb.	CB 356	49	0.32	7.8	6.42	0.65	1.50	5.30	17.73	240.217	18	0.013	2.85	261.91	255.06	269.35	262.67	262.80 j	256.12
51	Comb.	CB 357	50	0.30	5.5	7.06	0.65	1.41	2.80	16.18	215.689	18	0.013	2.37	267.78	262.66	275.34	269.35	268.41	263.08
52	Comb.	CB 368	51	0.31	5.0	7.23	0.65	1.46	1.46	9.66	26.002	18	0.013	0.85	268.00	267.78	275.34	275.34	268.45 j	268.41
53	Comb.	CB 359	47	0.54	11.5	5.60	0.65	2.54	9.69	16.90	50.149	24	0.013	0.56	246.11	245.83	253.48	254.26	247.22	247.37
54	Dp-Grate	DI 360	53	0.01	11.4	5.61	0.65	0.05	7.74	7.65	15.078	18	0.013	0.53	246.69	246.61	253.81	253.48	247.93	247.86
55	Dp-Grate	DI 361	54	0.45	10.7	5.76	0.65	2.12	7.90	17.19	115.958	24	0.013	0.58	246.86	246.19	251.06	253.81	247.86	248.12
56	Dp-Grate	DI 362	55	0.31	9.7	5.96	0.65	1.46	6.43	12.66	218.009	18	0.013	1.45	250.53	247.36	257.70	251.06	251.51	248.12
57	Dp-Grate	DI 363	56	0.52	8.9	6.14	0.65	2.44	5.38	21.42	156.010	18	0.013	4.16	257.02	250.53	262.03	257.70	257.91 j	251.51
58	Dp-Grate	DI 364	57	0.31	6.9	6.66	0.65	1.46	3.59	18.01	260.164	18	0.013	2.94	264.69	257.04	269.38	262.03	265.41 j	257.91
59	Dp-Grate	DI 365	58	0.52	5.0	7.23	0.65	2.44	2.44	14.85	156.476	18	0.013	2.00	267.82	264.69	272.46	269.38	268.41 j	265.41
60	Comb.	CB 367	50	0.34	5.0	7.23	0.65	1.60	1.60	7.71	26.000	18	0.013	0.54	262.05	261.91	269.35	269.35	262.52	262.80
61	Comb.	CB 366	49	0.38	5.0	7.23	0.65	1.79	1.79	11.28	26.000	18	0.013	1.15	255.36	255.06	262.67	262.67	255.86	256.12
62	Comb.	CB 352A	46	0.38	5.0	7.23	0.65	1.79	1.79	9.30	42.081	18	0.013	0.78	245.03	244.70	250.60	249.87	245.53	245.82

Project File: STRM 300.stm | Number of lines: 62 | Date: 8/8/2025

NOTES: Intensity = 69.36 / (Inlet time + 12.10) ^ 0.80 -- Return period = 10 Yrs. ; ** Critical depth

Storm Drainage 4”/Hour Gutter Spread Reports

Spread

Line No.	Inlet ID	Junct Type	Byp Ln No	Drng Area (ac)	Inlet Time (min)	i Inlet (in/hr)	Runoff Coeff (C)	Incr Q (cfs)	Q Carry (cfs)	Q Capt (cfs)	Q Byp (cfs)	Gutter Slope (ft/ft)	Gutter Spread (ft)
1	CB 102	Comb.	Offsite	0.69	5.0	4.00	0.65	1.79	0.00	1.79	0.00	0.136	1.28
2	CB 103	Comb.	Offsite	0.14	5.0	4.00	0.65	0.36	0.00	0.36	0.01	0.021	3.02
3	CB 104	Comb.	Offsite	0.19	5.0	4.00	0.65	0.49	0.00	0.48	0.01	0.036	3.09
4	CB 105	Comb.	Offsite	0.02	5.0	4.00	0.65	0.05	0.00	0.05	0.00	0.033	1.11
5	CB 115	Comb.	Offsite	0.09	5.0	4.00	0.65	0.23	0.00	0.23	0.00	0.019	2.33
6	CB 116	Comb.	Offsite	0.05	5.0	4.00	0.65	0.13	0.00	0.13	0.00	0.014	1.83
7	CB 117	Comb.	Offsite	0.06	5.0	4.00	0.65	0.16	0.00	0.16	0.00	0.015	1.94
8	CB 118	Comb.	Offsite	0.04	5.0	4.00	0.65	0.10	0.00	0.10	0.00	0.015	1.66
9	CB 119	Comb.	Offsite	0.04	5.0	4.00	0.65	0.10	0.00	0.10	0.00	0.013	1.71
10	CB 120	Comb.	Offsite	0.13	5.0	4.00	0.65	0.34	0.00	0.33	0.01	0.014	3.27
11	CB 121	Comb.	Offsite	0.12	5.0	4.00	0.65	0.31	0.00	0.31	0.01	0.014	3.11
12	CB 125	Comb.	Offsite	0.12	5.0	4.00	0.65	0.31	0.00	0.31	0.01	0.015	3.05
13	DI 126	Dp-Grate	Offsite	0.01	5.0	4.00	0.65	0.03	0.00	0.02	0.01	0.113	3.07
14	DI 127	Dp-Grate	Offsite	0.14	5.0	4.00	0.65	0.36	0.00	0.22	0.14	0.017	3.61
15	DI 128	Dp-Grate	Offsite	0.13	5.0	4.00	0.65	0.34	0.00	0.21	0.12	0.037	3.47
16	CB 106	Comb.	Offsite	0.03	5.0	4.00	0.65	0.08	0.00	0.08	0.00	0.014	1.51
17	CB 107	Comb.	Offsite	0.10	5.0	4.00	0.65	0.26	0.00	0.26	0.00	0.010	3.09
18	CB 108	Comb.	Offsite	0.32	5.0	4.00	0.65	0.83	0.00	0.77	0.07	0.027	4.13
19	DI 109	Dp-Grate	Offsite	0.01	5.0	4.00	0.65	0.03	0.00	0.02	0.01	0.166	3.07
20	DI 110	Dp-Grate	Offsite	0.16	5.0	4.00	0.65	0.42	0.00	0.25	0.17	0.016	3.67
21	DI 111	Dp-Grate	Offsite	0.16	5.0	4.00	0.65	0.42	0.00	0.25	0.17	0.019	3.67
22	DI 112	Dp-Grate	Offsite	0.34	5.0	4.00	0.65	0.88	0.00	0.50	0.38	0.008	4.27
23	CB 124	Comb.	Offsite	0.54	5.0	4.00	0.65	1.40	0.00	1.24	0.17	0.083	4.36

Project File: STRM 100.stm | Number of lines: 29 | Date: 8/8/2025

NOTES: Intensity = 4.04 / (Inlet time + 5.50) ^ 0.00 -- Return period = 3 Yrs. ; ** Critical depth

Spread

Line No.	Inlet ID	Junct Type	Byp Ln No	Drng Area (ac)	Inlet Time (min)	i Inlet (in/hr)	Runoff Coeff (C)	Incr Q (cfs)	Q Carry (cfs)	Q Capt (cfs)	Q Byp (cfs)	Gutter Slope (ft/ft)	Gutter Spread (ft)
24	CB 114	Comb.	Offsite	0.23	5.0	4.00	0.65	0.60	0.00	0.54	0.06	0.014	4.44
25	CB 122	Comb.	Sag	0.15	5.0	4.00	0.65	0.39	0.00	0.39	0.00	Sag	1.50
26	CB 123	Comb.	Sag	0.49	5.0	4.00	0.65	1.27	0.00	1.27	0.00	Sag	4.07
27	CB 113	Comb.	Offsite	0.16	5.0	4.00	0.65	0.42	0.00	0.41	0.00	0.036	2.78
28	DI 131	Dp-Grate	Sag	0.14	5.0	4.00	0.65	0.36	0.00	0.36	0.00	Sag	3.38
29	DI 132	Dp-Grate	Offsite	0.33	5.0	4.00	0.65	0.86	0.00	0.78	0.08	0.015	2.81

Project File: STRM 100.stm | Number of lines: 29 | Date: 8/8/2025

NOTES: Intensity = 4.04 / (Inlet time + 5.50) ^ 0.00 -- Return period = 3 Yrs. ; ** Critical depth

Spread

Line No.	Inlet ID	Junct Type	Byp Ln No	Drng Area (ac)	Inlet Time (min)	i Inlet (in/hr)	Runoff Coeff (C)	Incr Q (cfs)	Q Carry (cfs)	Q Capt (cfs)	Q Byp (cfs)	Gutter Slope (ft/ft)	Gutter Spread (ft)	
1	DI 201	Dp-Grate	Offsite	0.18	5.0	4.00	0.65	0.47	0.00	0.24	0.22	0.139	8.10	
2	CB 202	Comb.	Offsite	0.29	5.0	4.00	0.65	0.75	0.00	0.67	0.09	0.021	4.50	
3	CB 203	Comb.	Offsite	0.11	5.0	4.00	0.65	0.29	0.00	0.29	0.00	0.030	2.29	
4	CB 204	Comb.	Offsite	0.12	5.0	4.00	0.65	0.31	0.00	0.31	0.00	0.026	2.56	
5	CB 205	Comb.	Offsite	0.66	5.0	4.00	0.65	1.72	0.00	1.42	0.30	0.069	5.03	
6	CB 206	Comb.	Offsite	0.09	5.0	4.00	0.65	0.23	0.00	0.23	0.00	0.015	2.53	
7	CB 207	Comb.	Offsite	0.03	5.0	4.00	0.65	0.08	0.00	0.08	0.00	0.004	1.91	
8	CB 208	Comb.	Offsite	0.20	5.0	4.00	0.65	0.52	0.00	0.46	0.06	0.001	7.58	
9	CB 209	Comb.	Offsite	0.34	5.0	4.00	0.65	0.88	0.00	0.82	0.06	0.059	3.74	
10	CB 210	Comb.	Offsite	0.01	5.0	4.00	0.65	0.03	0.00	0.03	0.00	0.044	0.81	
11	CB 211	Comb.	Offsite	0.02	5.0	4.00	0.65	0.05	0.00	0.05	0.00	0.031	1.12	
12	CB 212	Comb.	Offsite	0.07	5.0	4.00	0.65	0.18	0.00	0.18	0.00	0.023	1.90	
13	CB 213	Comb.	Offsite	0.41	5.0	4.00	0.65	1.07	0.00	0.88	0.19	0.021	5.32	
14	CB 214	Comb.	Offsite	0.38	5.0	4.00	0.65	0.99	0.00	0.83	0.16	0.021	5.13	
15	CB 215	Comb.	Offsite	0.03	5.0	4.00	0.65	0.08	0.00	0.08	0.00	0.021	1.40	
16	CB 216	Comb.	Offsite	0.02	5.0	4.00	0.65	0.05	0.00	0.05	0.00	0.006	1.52	
17	CB 217	Comb.	Offsite	0.02	5.0	4.00	0.65	0.05	0.00	0.05	0.00	0.006	1.52	
18	CB 218	Comb.	Offsite	0.09	5.0	4.00	0.65	0.23	0.00	0.23	0.00	0.007	3.23	
19	CB 219	Comb.	Offsite	0.01	5.0	4.00	0.65	0.03	0.00	0.03	0.00	0.013	1.02	
20	DI 220	Dp-Grate	Sag	0.09	5.0	4.00	0.65	0.23	0.00	0.23	0.00	Sag	3.26	
21	DI 221	Dp-Grate	Offsite	0.22	5.0	4.00	0.65	0.57	0.00	0.40	0.17	0.032	3.67	
22	CB 251	Comb.	Offsite	0.08	5.0	4.00	0.65	0.21	0.00	0.20	0.01	0.002	4.26	
23	CB 236	Comb.	Offsite	0.10	5.0	4.00	0.65	0.26	0.00	0.24	0.02	0.002	4.76	

Project File: STRM 200.stm | Number of lines: 62 | Date: 8/8/2025

NOTES: Intensity = 4.04 / (Inlet time + 5.50) ^ 0.00 -- Return period = 3 Yrs. ; ** Critical depth

Spread

Line No.	Inlet ID	Junct Type	Byp Ln No	Drng Area (ac)	Inlet Time (min)	i Inlet (in/hr)	Runoff Coeff (C)	Incr Q (cfs)	Q Carry (cfs)	Q Capt (cfs)	Q Byp (cfs)	Gutter Slope (ft/ft)	Gutter Spread (ft)	
24	CB 237	Comb.	Offsite	0.10	5.0	4.00	0.65	0.26	0.00	0.26	0.00	0.013	2.85	
25	CB 238	Comb.	Offsite	0.14	5.0	4.00	0.65	0.36	0.00	0.35	0.01	0.016	3.28	
26	CB 239	Comb.	Offsite	0.34	5.0	4.00	0.65	0.88	0.00	0.74	0.15	0.014	5.36	
27	CB 240	Comb.	Offsite	0.44	5.0	4.00	0.65	1.14	0.00	0.90	0.24	0.014	6.02	
28	CB 241	Comb.	Offsite	0.07	5.0	4.00	0.65	0.18	0.00	0.18	0.00	0.014	2.17	
29	CB 242	Comb.	Offsite	0.15	5.0	4.00	0.65	0.39	0.00	0.39	0.00	0.073	2.07	
30	CB 243	Comb.	Offsite	0.45	5.0	4.00	0.65	1.17	0.00	0.98	0.19	0.033	5.00	
31	CB 250	Comb.	Offsite	0.44	5.0	4.00	0.65	1.14	0.00	0.93	0.22	0.021	5.49	
32	CB 249	Comb.	Offsite	0.45	5.0	4.00	0.65	1.17	0.00	0.94	0.23	0.020	5.61	
33	DI 244	Dp-Grate	Sag	0.41	5.0	4.00	0.65	1.07	0.00	1.07	0.00	Sag	3.72	
34	DI 245	Dp-Grate	Sag	0.61	5.0	4.00	0.65	1.59	0.00	1.59	0.00	Sag	3.94	
35	DI 246	Dp-Grate	Offsite	0.46	5.0	4.00	0.65	1.20	0.00	0.79	0.41	0.015	4.27	
36	DI 225	Dp-Grate	Sag	0.04	5.0	4.00	0.65	0.10	0.00	0.10	0.00	Sag	3.15	
37	DI 226	Dp-Grate	Sag	0.88	5.0	4.00	0.65	2.29	0.00	2.29	0.00	Sag	4.20	
38	DI 227	Dp-Grate	Offsite	0.28	5.0	4.00	0.65	0.73	0.00	0.49	0.24	0.040	3.74	
39	DI 228	Dp-Grate	Sag	0.39	5.0	4.00	0.65	1.01	0.00	1.01	0.00	Sag	3.70	
40	DI 229	Dp-Grate	Sag	0.06	5.0	4.00	0.65	0.16	0.00	0.16	0.00	Sag	3.20	
41	DI 230	Dp-Grate	Sag	0.08	5.0	4.00	0.65	0.21	0.00	0.21	0.00	Sag	3.24	
42	DI 231	Dp-Grate	Sag	0.12	5.0	4.00	0.65	0.31	0.00	0.31	0.00	Sag	3.32	
43	CB 248	Comb.	Offsite	0.51	5.0	4.00	0.65	1.33	0.00	1.01	0.31	0.015	6.33	
44	CB 235	Comb.	Offsite	0.30	5.0	4.00	0.65	0.78	0.00	0.69	0.09	0.022	4.53	
45	CB 247	Comb.	Sag	0.71	5.0	4.00	0.65	1.85	0.00	1.85	0.00	Sag	5.62	
46	CB 234	Comb.	Offsite	0.58	5.0	4.00	0.65	1.51	0.00	1.15	0.36	0.021	6.22	

Project File: STRM 200.stm | Number of lines: 62 | Date: 8/8/2025

NOTES: Intensity = 4.04 / (Inlet time + 5.50) ^ 0.00 -- Return period = 3 Yrs. ; ** Critical depth

Spread

Line No.	Inlet ID	Junct Type	Byp Ln No	Drng Area (ac)	Inlet Time (min)	i Inlet (in/hr)	Runoff Coeff (C)	Incr Q (cfs)	Q Carry (cfs)	Q Capt (cfs)	Q Byp (cfs)	Gutter Slope (ft/ft)	Gutter Spread (ft)	
47	CB 233	Comb.	Sag	0.25	5.0	4.00	0.65	0.65	0.00	0.65	0.00	Sag	1.98	
48	CB 232	Comb.	Offsite	0.24	5.0	4.00	0.65	0.62	0.00	0.56	0.07	0.014	4.53	
49	DI 222	Dp-Grate	Sag	0.17	5.0	4.00	0.65	0.44	0.00	0.44	0.00	Sag	3.40	
50	DI 223	Dp-Grate	Offsite	0.01	5.0	4.00	0.65	0.03	0.00	0.03	0.00	0.004	3.21	
51	DI 224	Dp-Grate	Sag	0.37	5.0	4.00	0.65	0.96	0.00	0.96	0.00	Sag	3.67	
52	CB 261	Comb.	Offsite	0.09	5.0	4.00	0.65	0.23	0.00	0.23	0.00	0.015	2.53	
53	CB 262	Comb.	Offsite	0.29	5.0	4.00	0.65	0.75	0.00	0.66	0.10	0.017	4.74	
54	CB 263	Comb.	Offsite	0.16	5.0	4.00	0.65	0.42	0.00	0.38	0.03	0.007	4.40	
55	DI 264	Dp-Grate	Offsite	0.03	5.0	4.00	0.65	0.08	0.00	0.07	0.01	0.076	3.21	
56	DI 265	Dp-Grate	Offsite	0.20	5.0	4.00	0.65	0.52	0.00	0.36	0.16	0.038	3.61	
57	DI 266	Dp-Grate	Sag	0.20	5.0	4.00	0.65	0.52	0.00	0.52	0.00	Sag	3.45	
58	DI 267	Dp-Grate	Offsite	0.18	5.0	4.00	0.65	0.47	0.00	0.35	0.12	0.012	3.81	
59	DI 268	Dp-Grate	Offsite	0.44	5.0	4.00	0.65	1.14	0.00	0.73	0.41	0.041	3.94	
60	CB 269	Comb.	Offsite	0.19	5.0	4.00	0.65	0.49	0.00	0.46	0.03	0.016	3.89	
61	CB 270	Comb.	Offsite	0.38	5.0	4.00	0.65	0.99	0.00	0.81	0.18	0.016	5.47	
62	CB 271	Comb.	Sag	0.44	5.0	4.00	0.65	1.14	0.00	1.14	0.00	Sag	2.92	

Project File: STRM 200.stm | Number of lines: 62 | Date: 8/8/2025

NOTES: Intensity = 4.04 / (Inlet time + 5.50) ^ 0.00 -- Return period = 3 Yrs. ; ** Critical depth

Spread

Line No.	Inlet ID	Junct Type	Byp Ln No	Drng Area (ac)	Inlet Time (min)	i Inlet (in/hr)	Runoff Coeff (C)	Incr Q (cfs)	Q Carry (cfs)	Q Capt (cfs)	Q Byp (cfs)	Gutter Slope (ft/ft)	Gutter Spread (ft)	
1	CB 301	Comb.	Sag	0.31	5.0	4.00	0.65	0.81	0.00	0.81	0.00	Sag	4.73	
2	CB 302	Comb.	Sag	0.20	5.0	4.00	0.65	0.52	0.00	0.52	0.00	Sag	3.52	
3	CB 303	Comb.	Offsite	0.23	5.0	4.00	0.65	0.60	0.00	0.58	0.02	0.036	3.46	
4	CB 304	Comb.	Offsite	0.21	5.0	4.00	0.65	0.55	0.00	0.53	0.02	0.036	3.28	
5	CB 305	Comb.	Offsite	0.44	5.0	4.00	0.65	1.14	0.00	0.97	0.17	0.035	4.87	
6	CB 306	Comb.	Offsite	0.41	5.0	4.00	0.65	1.07	0.00	0.91	0.15	0.011	6.16	
7	CB 307	Comb.	Offsite	0.26	5.0	4.00	0.65	0.68	0.00	0.63	0.04	0.011	5.00	
8	CB 308	Comb.	Offsite	0.23	5.0	4.00	0.65	0.60	0.00	0.57	0.03	0.011	4.71	
9	CB 329	Comb.	Offsite	0.04	5.0	4.00	0.65	0.10	0.00	0.10	0.00	0.011	1.76	
10	CB 330	Comb.	Offsite	0.29	5.0	4.00	0.65	0.75	0.00	0.71	0.04	0.027	4.23	
11	CB 331	Comb.	Offsite	0.03	5.0	4.00	0.65	0.08	0.00	0.08	0.00	0.027	1.34	
12	CB 332	Comb.	Offsite	0.23	5.0	4.00	0.65	0.60	0.00	0.57	0.03	0.009	4.94	
13	CB 333	Comb.	Offsite	0.26	5.0	4.00	0.65	0.68	0.00	0.63	0.05	0.009	5.24	
14	CB 334	Comb.	Offsite	0.08	5.0	4.00	0.65	0.21	0.00	0.21	0.00	0.018	2.18	
15	CB 335	Comb.	Offsite	0.03	5.0	4.00	0.65	0.08	0.00	0.08	0.00	0.013	1.54	
16	DI 336	Dp-Grate	Sag	0.22	5.0	4.00	0.65	0.57	0.00	0.57	0.00	Sag	3.51	
17	CB 338	Comb.	Offsite	0.27	5.0	4.00	0.65	0.70	0.00	0.67	0.03	0.028	4.04	
18	CB 309	Comb.	Offsite	0.14	5.0	4.00	0.65	0.36	0.00	0.36	0.00	0.011	3.65	
19	CB 339	Comb.	Offsite	0.26	5.0	4.00	0.65	0.68	0.00	0.63	0.04	0.011	5.00	
20	DI 340	Dp-Grate	Sag	0.03	5.0	4.00	0.65	0.08	0.00	0.08	0.00	Sag	3.13	
21	DI 341	Dp-Grate	Sag	0.42	5.0	4.00	0.65	1.09	0.00	1.09	0.00	Sag	3.78	
22	DI 342	Dp-Grate	Offsite	0.32	5.0	4.00	0.65	0.83	0.00	0.48	0.35	0.021	3.94	
23	DI 343	Dp-Grate	Sag	0.93	5.0	4.00	0.65	2.42	0.00	2.42	0.00	Sag	4.33	

Project File: STRM 300.stm | Number of lines: 62 | Date: 8/8/2025

NOTES: Intensity = 4.04 / (Inlet time + 5.50) ^ 0.00 -- Return period = 3 Yrs. ; ** Critical depth

Spread

Line No.	Inlet ID	Junct Type	Byp Ln No	Drng Area (ac)	Inlet Time (min)	i Inlet (in/hr)	Runoff Coeff (C)	Incr Q (cfs)	Q Carry (cfs)	Q Capt (cfs)	Q Byp (cfs)	Gutter Slope (ft/ft)	Gutter Spread (ft)
24	CB 310	Comb.	Offsite	0.11	5.0	4.00	0.65	0.29	0.00	0.29	0.00	0.010	3.27
25	CB 311	Comb.	Offsite	0.37	5.0	4.00	0.65	0.96	0.00	0.84	0.12	0.010	6.01
26	CB 337	Comb.	Offsite	0.55	5.0	4.00	0.65	1.43	0.00	1.16	0.27	0.024	5.90
27	CB 312	Comb.	Offsite	0.22	5.0	4.00	0.65	0.57	0.00	0.54	0.03	0.007	5.14
28	DI 313	Dp-Grate	Sag	0.63	5.0	4.00	0.65	1.64	0.00	1.64	0.00	Sag	4.02
29	DI 314	Dp-Grate	Offsite	0.57	5.0	4.00	0.65	1.48	0.00	0.80	0.68	0.015	4.47
30	DI 315	Dp-Grate	Offsite	0.44	5.0	4.00	0.65	1.14	0.00	0.63	0.51	0.014	4.27
31	DI 316	Dp-Grate	Offsite	0.45	5.0	4.00	0.65	1.17	0.00	0.68	0.49	0.027	4.07
32	DI 317	Dp-Grate	Offsite	0.61	5.0	4.00	0.65	1.59	0.00	0.87	0.71	0.020	4.41
33	CB 319	Comb.	Offsite	0.03	5.0	4.00	0.65	0.08	0.00	0.08	0.00	0.037	1.26
34	CB 320	Comb.	Offsite	0.07	5.0	4.00	0.65	0.18	0.00	0.18	0.00	0.034	1.76
35	CB 321	Comb.	Offsite	0.13	5.0	4.00	0.65	0.34	0.00	0.32	0.02	0.037	3.48
36	CB 322	Comb.	Offsite	0.17	5.0	4.00	0.65	0.44	0.00	0.40	0.04	0.034	3.91
37	DI 323	Dp-Grate	Sag	0.65	5.0	4.00	0.65	1.69	0.00	1.69	0.00	Sag	4.05
38	DI 324	Dp-Grate	Offsite	0.68	5.0	4.00	0.65	1.77	0.00	0.95	0.82	0.017	4.54
39	DI 325	Dp-Grate	Offsite	0.46	5.0	4.00	0.65	1.20	0.00	0.66	0.54	0.014	4.34
40	CB 328	Comb.	Offsite	0.68	5.0	4.00	0.65	1.77	0.00	1.32	0.45	0.011	7.66
41	CB 327	Comb.	Offsite	0.45	5.0	4.00	0.65	1.17	0.00	0.99	0.18	0.036	4.89
42	CB 326	Comb.	Offsite	0.18	5.0	4.00	0.65	0.47	0.00	0.46	0.00	0.034	3.04
43	CB 303A	Comb.	Offsite	0.34	5.0	4.00	0.65	0.88	0.00	0.80	0.08	0.031	4.42
44	CB 318	Comb.	Offsite	0.26	5.0	4.00	0.65	0.68	0.00	0.63	0.04	0.011	5.00
45	DI 351	Dp-Grate	Offsite	0.17	5.0	4.00	0.65	0.44	0.00	0.26	0.18	0.017	3.74
46	CB 352	Comb.	Sag	0.29	5.0	4.00	0.65	0.75	0.00	0.75	0.00	Sag	4.52

Project File: STRM 300.stm | Number of lines: 62 | Date: 8/8/2025

NOTES: Intensity = 4.04 / (Inlet time + 5.50) ^ 0.00 -- Return period = 3 Yrs. ; ** Critical depth

Spread

Line No.	Inlet ID	Junct Type	Byp Ln No	Drng Area (ac)	Inlet Time (min)	i Inlet (in/hr)	Runoff Coeff (C)	Incr Q (cfs)	Q Carry (cfs)	Q Capt (cfs)	Q Byp (cfs)	Gutter Slope (ft/ft)	Gutter Spread (ft)	
47	CB 353	Comb.	Offsite	0.18	5.0	4.00	0.65	0.47	0.00	0.46	0.00	0.034	3.04	
48	CB 354	Comb.	Offsite	0.32	5.0	4.00	0.65	0.83	0.00	0.77	0.06	0.026	4.49	
49	CB 355	Comb.	Offsite	0.25	5.0	4.00	0.65	0.65	0.00	0.63	0.02	0.027	3.91	
50	CB 356	Comb.	Offsite	0.32	5.0	4.00	0.65	0.83	0.00	0.77	0.06	0.027	4.44	
51	CB 357	Comb.	Offsite	0.30	5.0	4.00	0.65	0.78	0.00	0.73	0.05	0.027	4.30	
52	CB 368	Comb.	Offsite	0.31	5.0	4.00	0.65	0.81	0.00	0.75	0.05	0.027	4.37	
53	CB 359	Comb.	Offsite	0.54	5.0	4.00	0.65	1.40	0.00	1.15	0.25	0.017	6.32	
54	DI 360	Dp-Grate	Offsite	0.01	5.0	4.00	0.65	0.03	0.00	0.02	0.01	0.015	3.14	
55	DI 361	Dp-Grate	Offsite	0.45	5.0	4.00	0.65	1.17	0.00	0.65	0.52	0.014	4.27	
56	DI 362	Dp-Grate	Offsite	0.31	5.0	4.00	0.65	0.81	0.00	0.51	0.30	0.058	3.67	
57	DI 363	Dp-Grate	Offsite	0.52	5.0	4.00	0.65	1.35	0.00	0.72	0.63	0.010	4.54	
58	DI 364	Dp-Grate	Offsite	0.31	5.0	4.00	0.65	0.81	0.00	0.46	0.35	0.006	4.34	
59	DI 365	Dp-Grate	Offsite	0.52	5.0	4.00	0.65	1.35	0.00	0.74	0.61	0.015	4.34	
60	CB 367	Comb.	Offsite	0.34	5.0	4.00	0.65	0.88	0.00	0.81	0.07	0.027	4.58	
61	CB 366	Comb.	Offsite	0.38	5.0	4.00	0.65	0.99	0.00	0.88	0.11	0.027	4.83	
62	CB 352A	Comb.	Offsite	0.38	5.0	4.00	0.65	0.99	0.00	0.88	0.11	0.018	5.32	

Project File: STRM 300.stm | Number of lines: 62 | Date: 8/8/2025

NOTES: Intensity = 4.04 / (Inlet time + 5.50) ^ 0.00 -- Return period = 3 Yrs. ; ** Critical depth

Tc and CN Calculations

Curve Number Calculations

Time of Concentration Calculations

Project:
Faison Tract
Project Number:
49473

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

Calculated By:
MJP
Date:
08/08/25

Weighted CN Coefficient Worksheet (Pre-Development)

Pre POI 1					
Weighted CN Value					
HSG	Category	Land Use	CN_i	A_i	$CN_i \times A_i$
A	Pervious	Managed Open Space	39		0.00
		Woods	30		0.00
B	Pervious	Managed Open Space	61	9.90	603.90
		Woods	55	17.78	977.90
C	Pervious	Managed Open Space	74	7.25	536.50
		Woods	70	31.18	2182.60
D	Pervious	Managed Open Space	80	7.84	627.20
		Woods	77	23.34	1797.18
Open Water		Ponds, Lakes, Rivers, Etc.	100	2.40	240.00
Impervious		Road, Roof, Sidewalk, Etc.	98	0.72	70.51
				100.41	7035.79
				CN Value	70

Project:
Faison Tract
Project Number:
49473

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

Calculated By:
MJP
Date:
08/08/25

Weighted CN Coefficient Worksheet (Post-Development)

POST POI 1 (BYPASS)					
Weighted CN Value					
HSG	Category	Land Use	CN_i	A_i	$CN_i \times A_i$
A	Pervious	Managed Open Space	39		0.00
		Woods	30		0.00
B	Pervious	Managed Open Space	61	4.07	248.27
		Woods	55	10.60	583.00
C	Pervious	Managed Open Space	74	5.57	412.18
		Woods	70	15.20	1064.00
D	Pervious	Managed Open Space	80	4.52	361.60
		Woods	77	11.89	915.53
Open Water		Ponds, Lakes, Rivers, Etc.	100	2.30	230.00
Impervious		Road, Roof, Sidewalk, Etc.	98	0.66	64.68
				54.81	3879.26
				CN Value	71

POST POI 1 (SCM 1)					
Weighted CN Value					
HSG	Category	Land Use	CN_i	A_i	$CN_i \times A_i$
A	Pervious	Managed Open Space	39		0.00
		Woods	30		0.00
B	Pervious	Managed Open Space	61	0.73	44.53
		Woods	55		0.00
C	Pervious	Managed Open Space	74	1.69	125.06
		Woods	70		0.00
D	Pervious	Managed Open Space	80	0.10	8.00
		Woods	77		0.00
Open Water		Ponds, Lakes, Rivers, Etc.	100	0.76	76.00
Impervious		Road, Roof, Sidewalk, Etc.	98	2.83	277.34
				6.11	530.93
				CN Value	87

POST POI 1 (SCM 2)					
Weighted CN Value					
HSG	Category	Land Use	CN_i	A_i	$CN_i \times A_i$
A	Pervious	Managed Open Space	39		0.00
		Woods	30		0.00
B	Pervious	Managed Open Space	61	2.83	172.63
		Woods	55		0.00
C	Pervious	Managed Open Space	74	1.18	87.32
		Woods	70		0.00
D	Pervious	Managed Open Space	80	4.38	350.32
		Woods	77		0.00
Open Water		Ponds, Lakes, Rivers, Etc.	100	0.73	73.00
Impervious		Road, Roof, Sidewalk, Etc.	98	7.08	693.84
				16.20	1377.11
				CN Value	85

POST POI 1 (SCM 3)					
Weighted CN Value					
HSG	Category	Land Use	CN_i	A_i	$CN_i \times A_i$
A	Pervious	Managed Open Space	39		0.00
		Woods	30		0.00
B	Pervious	Managed Open Space	61	3.25	198.25
		Woods	55		0.00
C	Pervious	Managed Open Space	74	5.69	420.69
		Woods	70		0.00
D	Pervious	Managed Open Space	80	2.93	234.40
		Woods	77		0.00
Open Water		Ponds, Lakes, Rivers, Etc.	100	0.72	72.00
Impervious		Road, Roof, Sidewalk, Etc.	98	10.70	1048.60
				23.29	1973.94
				CN Value	85

Project:
Faison Tract
Project Number:
49473

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

Calculated By:
MJP
Date:
08/08/25

Time of Concentration Worksheet (TR-55 Method)

POI 1 Pre				
	Sheet Flow	Shallow Concentrated	Channel Flow 1	Channel Flow 2
Length (ft)	100	657	1600	3600
Slope (ft/ft)	0.06	0.036	0.02	0.01
Surface Cover	Grass	Unpaved	Grass	Grass
n-value	0.24	-	0.035	0.035
Flow Area (ft^2)	-	-	10.0	140.0
Wetted Perimeter (ft)	-	-	2.0	75.0
Hydraulic Radius (ft)	-	-	5.00	1.87
Average Velocity (ft/s)	-	3.06	17.60	6.45
T_t (hr)	0.14	0.06	0.03	0.15
Tc (min)	23			

POI 1 Post Bypass				
	Sheet Flow	Shallow Concentrated	Channel Flow	Channel Flow
Length (ft)	100	644	1600	3600
Slope (ft/ft)	0.06	0.029	0.02	0.01
Surface Cover	Grass	Unpaved	Grass	Grass
n-value	0.15	-	0.035	0.035
Flow Area (ft^2)	-	-	10.0	140.0
Wetted Perimeter (ft)	-	-	2.0	75.0
Hydraulic Radius (ft)	-	-	5.00	1.87
Average Velocity (ft/s)	-	2.75	17.60	6.45
T_t (hr)	0.10	0.07	0.03	0.15
Tc (min)	21			

*TC VALUES USED IN HYDROFLOW/HYDROGRAPHS PULLED DIRECTLY FROM WAKE COUNTY DESIGN TOOL

Wet Pond Design Calculations

SCM 1

SCM 2

SCM 3

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

Project: Faison
Calculated By: Ryan Farrell

Project No.: 49473
Date: 8/8/2025

Wet Pond Design Calculations

SCM 1

Pollutant / Nutrient Removal

Total Suspended Solids (TSS)	85%
Nitrogen	30%
Phosphorus	40%

Basin Characteristics

Post-Development Drainage Area

Area to Pond

Description	Acres
Impervious Lots	1.54
Impervious R/W	1.23
Managed Pervious	3.29
Impervious Other	0.05
Total to Pond (AC)	6.12
Pond Basin C	0.63

Estimated Impervious

Lots

Description	Qty (# of Lots)	Imp / Lot (SF)	Total Imp Area
Single Family Lot A	21	3200	1.54
Single Family Lot B	0	0	0.00
Single Family Lot C	0	0	0.00
Townhome Lot A	0	0	0.00
Townhome Lot B	0	0	0.00
Townhome Lot C	0	0	0.00
Subtotal	**21**	**-**	**1.54**

Streets and SW

Description	Length (LF)	Imp (SF) / LF	Total Imp Area
50' ROW	1490	36	1.23
	0	0	0.00
	0	0	0.00
	0	0	0.00
			0.00
			0.00
Subtotal			**1.23**

Other

Amenity Parking Lot	0	0	0.00
Mail Kiosk Area	0	2372.92	0.05

Grand Total Impervious Area (AC): 2.83

Surface Area to Drainage Area Ratio for Permanent Pool Sizing

Drainage Area to SCM

Impervious Area	Acres
Offsite Impervious Area	0.00
Onsite Impervious Area	2.83
Total Impervious Area	2.83
Total Drainage Area To SCM	6.12
Percent Impervious Area	46%

Required Surface Area of Permanent Pool

Average Depth (ft) =	4.5
SA/DA Ratio =	1.31
Required SA (ft2) =	3,493
SA as Shown (ft2) =	5,224

SA/DA Ratio from latest NCDENR BMP Manual

SA / DA Pond Volumes and Areas (Below Permanent / Normal Pool)

Elevation (ft)	Main Area (sf)	Forebay Area (sf)	Depth (ft)	Main Inc. Vol (cf)	Forebay Inc. Vol (cf)	Total Vol (cf)
240.0				Bottom of Sediment Storage		
241.0	799		0.0	Top of Sediment Storage		
242.0	1,063	1	1.0	931	1	932
243.0	1,371	17	2.0	1,217	9	2,158
244.0	1,736	81	3.0	1,554	49	3,760
245.0	2,163	194	4.0	1,950	138	5,847
246.0	2,653	355	5.0	2,408	275	8,530
247.0	3,206	560	6.0	2,930	458	11,917
248.0	3,823	804	7.0	3,515	682	16,113
249.0	4,501	1,079	8.0	4,162	942	21,217
250.0	5,224	1,385	9.0	4,863	1,232	27,311
Total			9.0	23,528	3,784	27,311
Verify the Forebay Volume Is Approximately (15% - 20%) of the Permanent Pool Volume.						**16%**

Water Quality and Quantity Volumes (Above Permanent / Normal Pool)

Elevation (ft)	Main Area (sf)	Forebay Area (sf)	Depth (ft)	Inc Total Vol (cf)	Accum' Total Vol (cf)	
250.0	5,224	1,385	0.00	Permanent Pool Elevation		Notes
251.0	9,295	-	1.00	7,260	7,260	
251.7	10,331	-	1.70	6,869	14,129	WQE / TPE
252.0	10,775	-	2.00	3,166	17,295	
253.0	12,312	-	3.00	11,544	28,839	
254.0	13,908	-	4.00	13,110	41,949	
255.0	15,556	-	5.00	14,732	56,681	
256.0	17,257	-	6.00	16,407	73,088	
257.0	0	-			#VALUE!	
258.0	0	-			#VALUE!	

Verify the Average Depth of Pool (D_{avg}) - Equation 3.

d_{avg} = [$V_{perm\ pool}$ - [0.5 x Depth $_{max\ over\ shelf}$ x Perimeter $_{perm\ pool}$ x Width $_{submerged\ part\ of\ shelf}$] / $A_{bottom\ of\ shelf}$

V_{perm} =	23,528	C.F. (Main Pond)
$A_{bottom\ shelf}$ =	5,224	S.F. (Main Pond)
Depth of Water $_{over\ shelf}$ =	0.00	FT
Perimeter $_{perm\ pool}$ =	392	L.F. (Main Pond)
Width $_{submerged\ part\ of\ shelf}$ =	0.0	FT
D_{avg} =	4.50	FT
Depth for SA/DA =	**4.50**	**FT (Round D_{av} down to nearest 0.5 ft)**

1.0" Water Quality Runoff Volume Calculation

Using the runoff volume calculations in the "Simple Method" as described by Schueler (1987)

Where: Rv = Runoff Coefficient, in/in

I = Percent Impervious	I=	46.2%
Rv = 0.05 + 0.009(I)	Rv =	0.466

1.0 inch runoff volume (Required)

Runoff volume, S=(Design rainfall) (Rv) (Drainage Area)

Design Rainfall =	1.0	inch
Drainage Area =	6.12	acres
Storage Required =	**10,352**	**cu. ft.**

Volume Storage For 1.0" Runoff Above Permanent Pool (Provided)

Depth	PPE SA (SF)	Top Temp Pool SA (SF)	Volume (CF)	Elevation
1.00	5,224	9,295	10,352	251.00

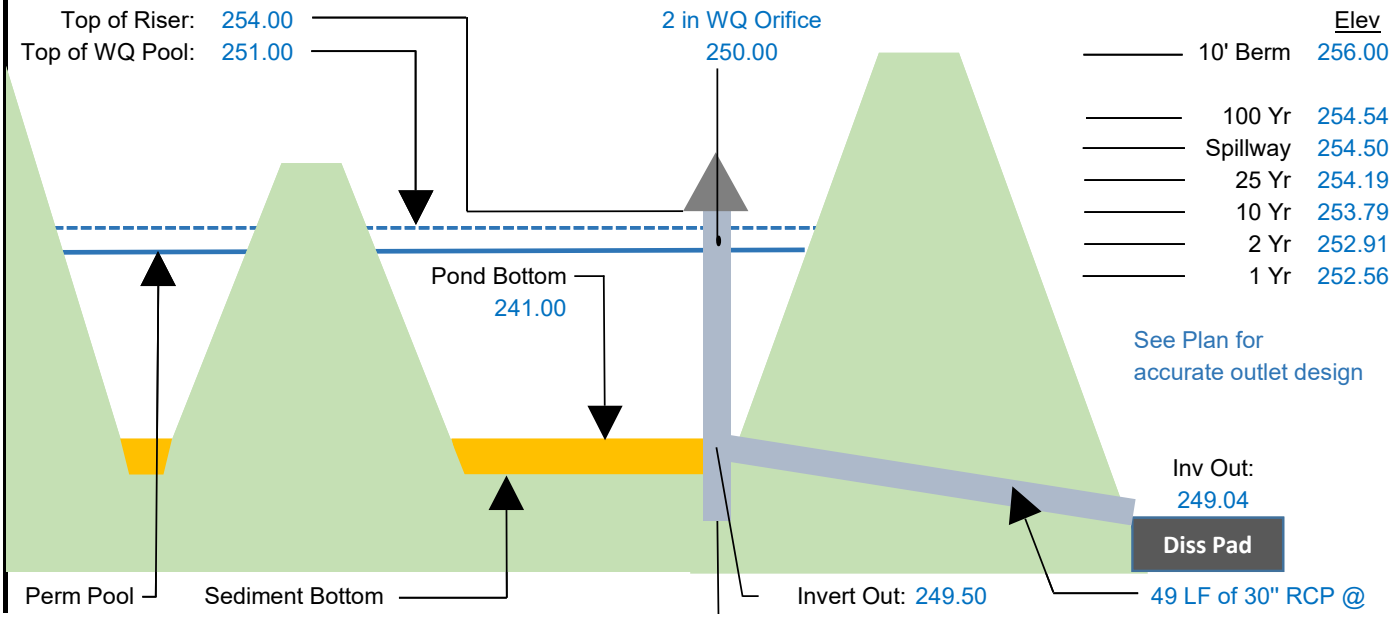
Size Water Quality Orifice for (2-5) Day Drawdown for 1" Runoff Volume

$Q_{1"} = CdA(2gh)^{1/2}$	(Orifice Equation; Cd=0.60; h = Ho/3)
2.00	Orifice Diameter (inches)
0.92	Ho (Driving Head to Centroid of Orifice) (ft)
0.31	Ho / 3 (Per orifice equation recommendation in NCDEQ SWM Design Manual, Part B)
0.06	Q1.0" Drawdown Rate (cfs)
10,352	Water Quality Volume (V_{WQ})
V_{WQ}/(Q1" x 86,400)	Drawdown Time (days)
2.1	**Drawdown Time (days) (2 - 5 days)**

Pond / Riser Data & Elevations

Pond Type	Wet Pond			
TSS Removal	85%			
Top of Pond / Berm	256.00 ft			
Secondary Spillway Width	30.00 ft			
Bottom of Secondary Spillway	254.50 ft			
Top of Riser	254.00 ft	(at least 1' Above TPE)		
Riser Type / Size	5x5 ft			
Top of Water Quality / Temp Pool Elev	251.00 ft	(1" Runoff)		
Top of Veg. Shelf	251.00 ft			
Permanent Pool Elevation (Normal Pool)	250.00 ft			
Water Quality Orifice Elevation & Size	250.00 ft		2.00	in
Secondary Orifice Elevation & Size (Rise & Span)	251.70 ft		6.00 inch	18.00 inch
			^ Rise	^ Span
Weir Elevation, Width, & Number of Sides	253.50 ft		48.00 inch	1
Bottom of Veg. Shelf	250.00 ft		^ Width	^ # of Sides
Top of Sediment Storage / Pond Bottom	241.00 ft			
Bottom of Sediment Storage	240.00 ft	(Min 1 ft)		
Invert Out of Riser	249.50 ft			
Outlet Pipe Size	30.00 in	Diameter RCP		
Outlet Pipe Length & Slope	49.00 ft		0.94	%
Downstream Outlet Elevation	249.04 ft			
1 Yr Water Surface Elev / Peak Flow (CFS)	252.56 ft		8.24	CFS
2 Yr Water Surface Elev Peak Flow (CFS)	252.91 ft		12.31	CFS
10 Yr Water Surface Elev Peak Flow (CFS)	253.79 ft		18.37	CFS
25 Yr Water Surface Elev Peak Flow (CFS)	254.19 ft		25.24	CFS
100 Yr Water Surface Elev Peak Flow (CFS)	254.54 ft		40.92	CFS

Pond Detail



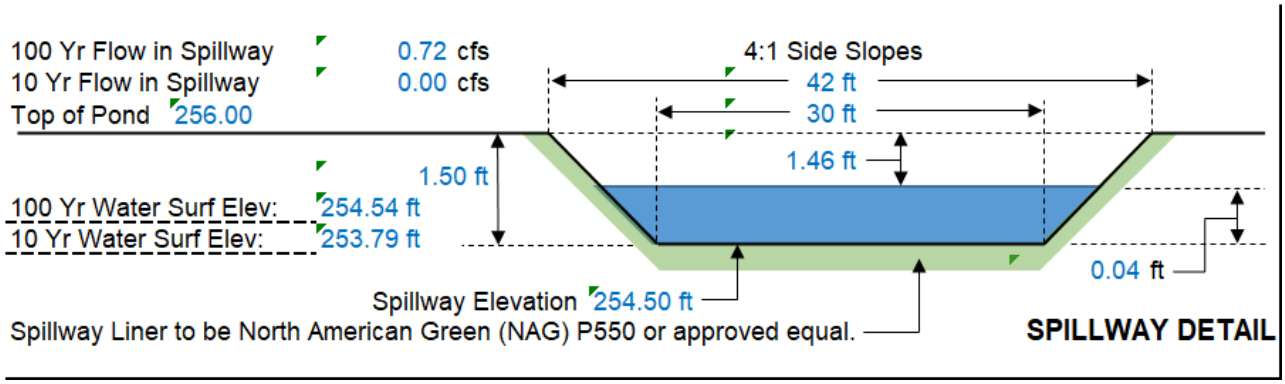
250.00	240.00		Base: 241.00	0.94%

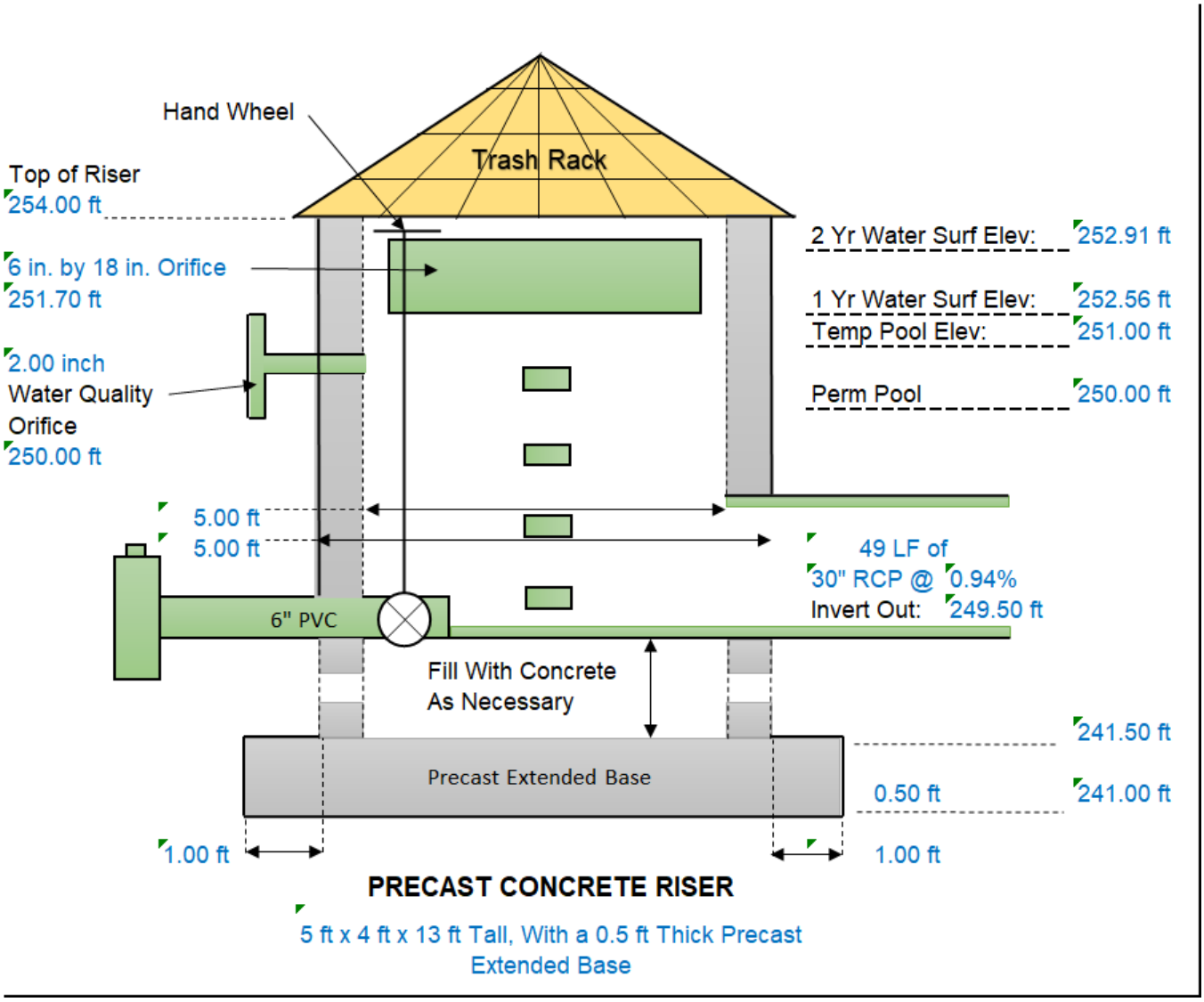
Anti-Buoyancy Calculations for the Riser Structure

Riser Dimensions		Weight of Structure		Displaced Volume	
Outside Width	6.00 ft	Walls =	19,500 LBS	V = LxWx(HT) = C.F.	
Inside Width	5.00 ft	Base =	4,200 LBS		
Outside Length	5.00 ft	FILL =	24,000 lbs	Displaced Water =	
Inside Length	4.00 ft			C.F. * 62.4 PCF = LBS	
Height	13.00 ft	Outlet Pipe =	368 LBS		
Base Thick' (ft)	0.50 ft	WQ Orifice =	2 LBS	Add 15% Factor of Safety	
Wall Thick' (ft)	0.50 ft				
Ext Base (ft)	1.00 ft	Weir #1 =	56.25 LBS	V =	390 C.F.
Areas removed from Riser		Weir #2 =	0 LBS	Disp. Water =	24,336 LBS
Outlet Pipe	4.91 ft	Weir #3 =	0 LBS	15% F.S. =	3,650 LBS
WQ Orifice	0.02 ft	Weir #4 =	0 LBS		
Orifice #1	0.75 ft	Other #1 =	0 LBS	Safety Factor	1.69
Orifice #2	0.00 ft				
Orifice #3	0.00 ft	**Weight =**	**47,274 LBS**	**Weight =**	**27,986 LBS**
Orifice #4	0.00 ft	**Precast Concrete Riser Structure to be 5 ft x 4 ft x 13 ft Tall, With a 0.5 ft Thick Precast Extended Base**			
Other	0.00 ft				

Planting Summary Requirements

Dam / Berm				Non-Clumping Turf Grass		
6' Shelf Length	340	Area of Shelf =	2040 SF	(50 Plants per 200 SF of Area)		
Quantity	Type	Root	Common Name	Scientific Name	Planting Size	Notes
170	Herbaceous	Container	Quill Sedge	Cerex Tenera	4" Pot	24"-36" OC
170	Herbaceous	Container	Virginia Sweetspire	Itea Virginica	4" Pot	24"-36" OC
170	Herbaceous	Container	Joe Pye Weed	Eupat' Fistulosus	4" Pot	24"-36" OC




Hand Wheel
Trash Rack
Top of Riser
254.00 ft
6 in. by 18 in. Orifice
251.70 ft
2.00 inch
Water Quality
Orifice
250.00 ft
2 Yr Water Surf Elev:
252.91 ft
1 Yr Water Surf Elev:
252.56 ft
Temp Pool Elev:
251.00 ft
Perm Pool
250.00 ft
5.00 ft
5.00 ft
49 LF of
30" RCP @
0.94%
Invert Out:
249.50 ft
6" PVC
Fill With Concrete
As Necessary
241.50 ft
Precast Extended Base
0.50 ft
241.00 ft
1.00 ft
1.00 ft
PRECAST CONCRETE RISER
5 ft x 4 ft x 13 ft Tall, With a 0.5 ft Thick Precast
Extended Base

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

Project: Faison
Calculated By: Ryan Farrell

Project No.: 49473
Date: 8/8/2025

Wet Pond Design Calculations

SCM 2

Pollutant / Nutrient Removal

Total Suspended Solids (TSS)	85%
Nitrogen	30%
Phosphorus	40%

Basin Characteristics

Post-Development Drainage Area

Area to Pond

Description	Acres
Impervious Lots	4.48
Impervious R/W	2.60
Managed Pervious	9.13
Impervious Other	0.00
Total to Pond (AC)	16.20
Pond Basin C	0.61

Estimated Impervious

Lots

Description	Qty (# of Lots)	Imp / Lot (SF)	Total Imp Area
Single Family Lot A	61	3200	4.48
Single Family Lot B	0	0	0.00
Single Family Lot C	0	0	0.00
Townhome Lot A	0	0	0.00
Townhome Lot B	0	0	0.00
Townhome Lot C	0	0	0.00
Subtotal	**61**	**-**	**4.48**

Streets and SW

Description	Length (LF)	Imp (SF) / LF	Total Imp Area
50' ROW	3140	36	2.60
	0	0	0.00
	0	0	0.00
	0	0	0.00
			0.00
			0.00
Subtotal			**2.60**

Other

Amenity Parking Lot	0	0	0.00
Mail Kiosk Area	0	0	0.00
Grand Total Impervious Area (AC):			**7.08**

Surface Area to Drainage Area Ratio for Permanent Pool Sizing

Drainage Area to SCM

Impervious Area	Acres
Offsite Impervious Area	0.00
Onsite Impervious Area	7.08
Total Impervious Area	7.08
Total Drainage Area To SCM	16.20
Percent Impervious Area	44%

Required Surface Area of Permanent Pool

Average Depth (ft) =	5.0
SA/DA Ratio =	1.18
Required SA (ft2) =	8,328
SA as Shown (ft2) =	12,278

SA/DA Ratio from latest NCDENR BMP Manual

SA / DA Pond Volumes and Areas (Below Permanent / Normal Pool)

Elevation (ft)	Main Area (sf)	Forebay Area (sf)	Depth (ft)	Main Inc. Vol (cf)	Forebay Inc. Vol (cf)	Total Vol (cf)
229.0				Bottom of Sediment Storage		
230.0	5,664		0.0	Top of Sediment Storage		
231.0	6,516	611	1.0	6,090	305	6,396
232.0	7,408	910	2.0	6,962	760	14,118
233.0	8,331	1,267	3.0	7,869	1,088	23,076
234.0	9,280	1,684	4.0	8,805	1,475	33,357
235.0	10,254	2,159	5.0	9,767	1,921	45,045
236.0	11,254	2,692	6.0	10,754	2,425	58,224
237.0	12,278	3,285	7.0	11,766	2,988	72,978
238.0	0	0				
239.0	0	0				
Total			7.0	62,014	10,965	72,978
Verify the Forebay Volume Is Approximately (15% - 20%) of the Permanent Pool Volume.						**18%**

Water Quality and Quantity Volumes (Above Permanent / Normal Pool)

Elevation (ft)	Main Area (sf)	Forebay Area (sf)	Depth (ft)	Inc Total Vol (cf)	Accum' Total Vol (cf)	
237.0	12,278	3,285	0.00	Permanent Pool Elevation		Notes
238.0	19,324	-	1.00	15,801	15,801	
239.0	21,106	-	2.00	20,215	36,016	WQE / TPE
239.0	21,106	-	2.00	0	36,016	
240.0	22,944	-	3.00	22,025	58,041	
241.0	24,838	-	4.00	23,891	81,932	
242.0	26,790	-	5.00	25,814	107,746	
243.0	28,797	-	6.00	27,793	135,539	
244.0	30,861	-	7.00	29,829	165,368	
245.0	0	-			#VALUE!	

Verify the Average Depth of Pool (D_{avg}) - Equation 3.

$d_{avg} = [V_{perm\ pool} - [0.5 \times Depth_{max\ over\ shelf} \times Perimeter_{perm\ pool} \times Width_{submerged\ part\ of\ shelf}] / A_{bottom\ of\ shelf}$

V_{perm} =	62,014	C.F. (Main Pond)
$A_{bottom\ shelf}$ =	12,278	S.F. (Main Pond)
Depth of Water $_{over\ shelf}$ =	0.00	FT
Perimeter $_{perm\ pool}$ =	587	L.F. (Main Pond)
Width $_{submerged\ part\ of\ shelf}$ =	0.0	FT
D_{avg} =	5.05	FT
Depth for SA/DA =	**5.00**	**FT (Round D_{av} down to nearest 0.5 ft)**

1.0" Water Quality Runoff Volume Calculation

Using the runoff volume calculations in the "Simple Method" as described by Schueler (1987)

Where: Rv = Runoff Coefficient, in/in

I = Percent Impervious	I=	43.7%
Rv = 0.05 + 0.009(I)	Rv =	0.443

1.0 inch runoff volume (Required)

Runoff volume, S=(Design rainfall) (Rv) (Drainage Area)

Design Rainfall =	1.0	inch
Drainage Area =	16.20	acres
Storage Required =	**26,059**	**cu. ft.**

Volume Storage For 1.0" Runoff Above Permanent Pool (Provided)

Depth	PPE SA (SF)	Top Temp Pool SA (SF)	Volume (CF)	Elevation
1.00	12,278	19,324	26,059	238.00

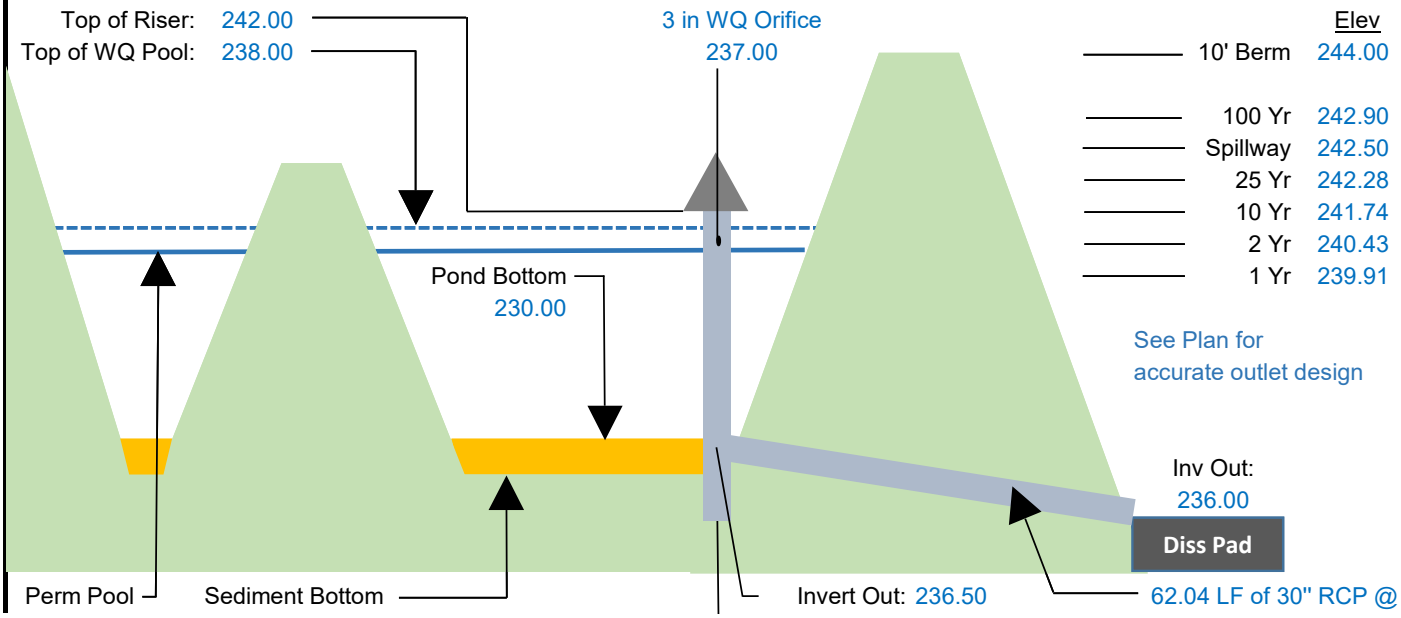
Size Water Quality Orifice for (2-5) Day Drawdown for 1" Runoff Volume

$Q_{1"} = CdA(2gh)^{1/2}$	(Orifice Equation; Cd=0.60; h = Ho/3)
3.00	Orifice Diameter (inches)
0.88	Ho (Driving Head to Centroid of Orifice) (ft)
0.29	Ho / 3 (Per orifice equation recommendation in NCDEQ SWM Design Manual, Part B)
0.13	Q1.0" Drawdown Rate (cfs)
26,059	Water Quality Volume (V_{WQ})
V_{WQ}/(Q1" x 86,400)	Drawdown Time (days)
2.4	**Drawdown Time (days) (2 - 5 days)**

Pond / Riser Data & Elevations

Pond Type	Wet Pond			
TSS Removal	85%			
Top of Pond / Berm	244.00 ft			
Secondary Spillway Width	40.00 ft			
Bottom of Secondary Spillway	242.50 ft			
Top of Riser	242.00 ft	(at least 1' Above TPE)		
Riser Type / Size	5x5 ft			
Top of Water Quality / Temp Pool Elev	238.00 ft	(1" Runoff)		
Top of Veg. Shelf	238.00 ft			
Permanent Pool Elevation (Normal Pool)	237.00 ft			
Water Quality Orifice Elevation & Size	237.00 ft			3.00 in
Secondary Orifice Elevation & Size (Rise & Span)	239.00 ft	(DOUBLE)	12.00 inch	30.00 inch
			^ Rise	^ Span
Weir Elevation, Width, & Number of Sides	241.00 ft		48.00 inch	2
Bottom of Veg. Shelf	237.00 ft		^ Width	^ # of Sides
Top of Sediment Storage / Pond Bottom	230.00 ft			
Bottom of Sediment Storage	229.00 ft	(Min 1 ft)		
Invert Out of Riser	236.50 ft			
Outlet Pipe Size	30.00 in	Diameter RCP		
Outlet Pipe Length & Slope	62.04 ft			0.81 %
Downstream Outlet Elevation	236.00 ft			
1 Yr Water Surface Elev / Peak Flow (CFS)	239.91 ft			15.05 CFS
2 Yr Water Surface Elev Peak Flow (CFS)	240.43 ft			23.50 CFS
10 Yr Water Surface Elev Peak Flow (CFS)	241.74 ft			46.28 CFS
25 Yr Water Surface Elev Peak Flow (CFS)	242.28 ft			64.08 CFS
100 Yr Water Surface Elev Peak Flow (CFS)	242.90 ft			100.23 CFS

Pond Detail



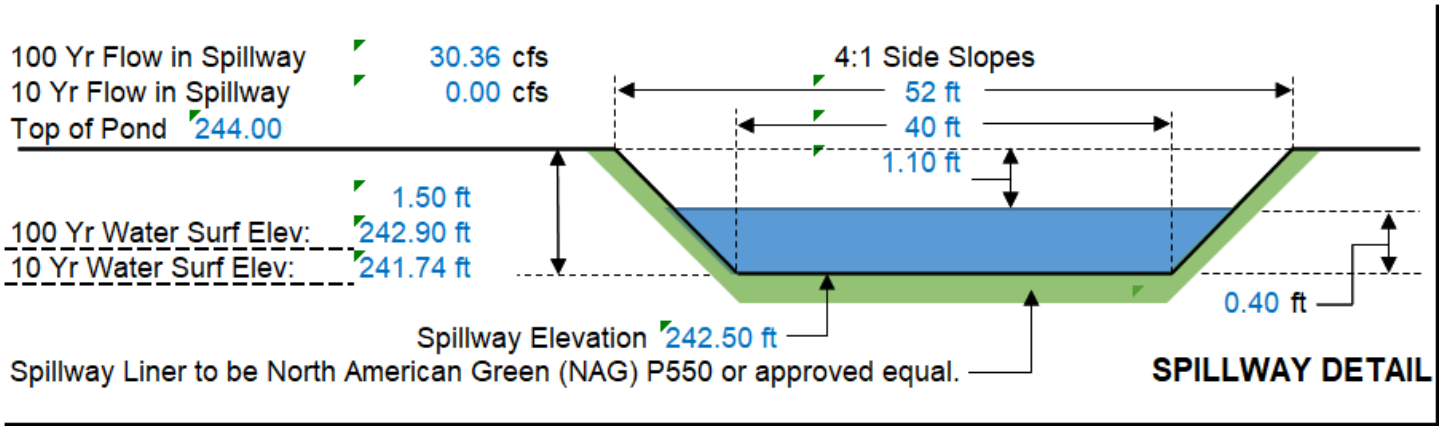
237.00	229.00		Base:	229.00	0.81%

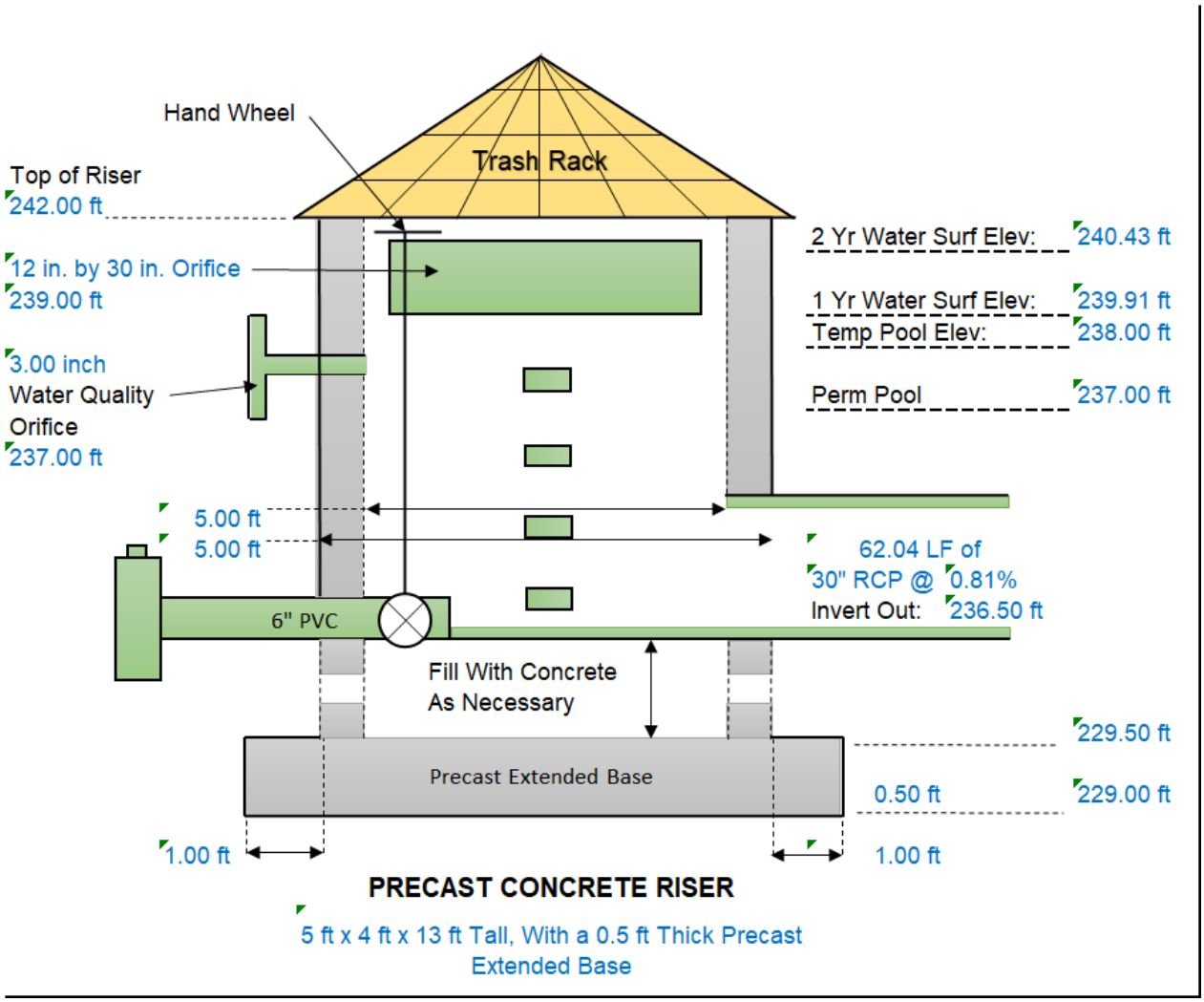
Anti-Buoyancy Calculations for the Riser Structure

Riser Dimensions		Weight of Structure		Displaced Volume	
Outside Width	6.00 ft	Walls =	19,500 LBS	V = LxWx(HT) = C.F.	
Inside Width	5.00 ft	Base =	4,200 LBS		
Outside Length	5.00 ft	FILL =	21,000 lbs	Displaced Water =	
Inside Length	4.00 ft			C.F. * 62.4 PCF = LBS	
Height	13.00 ft	Outlet Pipe =	368 LBS		
Base Thick' (ft)	0.50 ft	WQ Orifice =	4 LBS	Add 15% Factor of Safety	
Wall Thick' (ft)	0.50 ft				
Ext Base (ft)	1.00 ft	Weir #1 =	187.5 LBS	V =	390 C.F.
Areas removed from Riser		Weir #2 =	187.5 LBS	Disp. Water =	24,336 LBS
Outlet Pipe	4.91 ft	Weir #3 =	300 LBS	15% F.S. =	3,650 LBS
WQ Orifice	0.05 ft	Weir #4 =	300 LBS		
Orifice #1	2.50 ft	Other #1 =	0 LBS	Safety Factor	1.55
Orifice #2	2.50 ft				
Orifice #3	4.00 ft	**Weight =**	**43,353 LBS**	**Weight =**	**27,986 LBS**
Orifice #4	4.00 ft	**Precast Concrete Riser Structure to be 5 ft x 4 ft x 13 ft Tall, With a 0.5 ft Thick Precast Extended Base**			
Other	0.00 ft				

Planting Summary Requirements

Dam / Berm				Non-Clumping Turf Grass		
6' Shelf Length	253	Area of Shelf =	1518 SF	(50 Plants per 200 SF of Area)		
Quantity	Type	Root	Common Name	Scientific Name	Planting Size	Notes
127	Herbaceous	Container	Quill Sedge	Cerex Tenera	4" Pot	24"-36" OC
127	Herbaceous	Container	Virginia Sweetspire	Itea Virginica	4" Pot	24"-36" OC
127	Herbaceous	Container	Joe Pye Weed	Eupat' Fistulosus	4" Pot	24"-36" OC





PRECAST CONCRETE RISER

5 ft x 4 ft x 13 ft Tall, With a 0.5 ft Thick Precast Extended Base

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

Project: Faison
Calculated By: Ryan Farrell

Project No.: 49473
Date: 8/8/2025

Wet Pond Design Calculations

SCM 3

Pollutant / Nutrient Removal

Total Suspended Solids (TSS)	85%
Nitrogen	30%
Phosphorus	40%

Basin Characteristics

Post-Development Drainage Area

Area to Pond

Description	Acres
Impervious Lots	7.71
Impervious R/W	2.98
Managed Pervious	12.59
Impervious Other	0.00
Total to Pond (AC)	23.29
Pond Basin C	0.63

Estimated Impervious

Lots

Description	Qty (# of Lots)	Imp / Lot (SF)	Total Imp Area
Single Family Lot A	105	3200	7.71
Single Family Lot B	0	0	0.00
Single Family Lot C	0	0	0.00
Townhome Lot A	0	0	0.00
Townhome Lot B	0	0	0.00
Townhome Lot C	0	0	0.00
Subtotal	**105**	**-**	**7.71**

Streets and SW

Description	Length (LF)	Imp (SF) / LF	Total Imp Area
50' ROW	3611	36	2.98
	0	0	0.00
	0	0	0.00
	0	0	0.00
			0.00
			0.00
Subtotal			**2.98**

Other

Amenity Parking Lot	0	0	0.00
Mail Kiosk Area	0	0	0.00

Grand Total Impervious Area (AC): 10.70

Surface Area to Drainage Area Ratio for Permanent Pool Sizing

Drainage Area to SCM

Impervious Area	Acres
Offsite Impervious Area	0.00
Onsite Impervious Area	10.70
Total Impervious Area	10.70
Total Drainage Area To SCM	23.29
Percent Impervious Area	46%

Required Surface Area of Permanent Pool

Average Depth (ft) =	4.0
SA/DA Ratio =	1.40
Required SA (ft2) =	14,203
SA as Shown (ft2) =	19,307

SA/DA Ratio from latest NCDENR BMP Manual

SA / DA Pond Volumes and Areas (Below Permanent / Normal Pool)

Elevation (ft)	Main Area (sf)	Forebay Area (sf)	Depth (ft)	Main Inc. Vol (cf)	Forebay Inc. Vol (cf)	Total Vol (cf)
228.0				Bottom of Sediment Storage		
229.0	13,881		0.0	Top of Sediment Storage		
230.0	14,911	2,308	1.0	14,396	1,154	15,550
231.0	15,971	2,907	2.0	15,441	2,608	33,599
232.0	17,057	3,581	3.0	16,514	3,244	53,356
233.0	18,169	4,329	4.0	17,613	3,955	74,924
234.0	19,307	5,127	5.0	18,738	4,728	98,390
235.0	0	0				
236.0	0	0				
237.0	0	0				
238.0	0	0				
Total			5.0	82,702	15,688	98,390
Verify the Forebay Volume Is Approximately (15% - 20%) of the Permanent Pool Volume.						**19%**

Water Quality and Quantity Volumes (Above Permanent / Normal Pool)

Elevation (ft)	Main Area (sf)	Forebay Area (sf)	Depth (ft)	Inc Total Vol (cf)	Accum' Total Vol (cf)	
234.0	19,307	5,127	0.00	Permanent Pool Elevation		Notes
235.0	28,708	-	1.00	24,007	24,007	
236.0	30,727	-	2.00	29,717	53,725	
236.4	31,545	-	2.39	12,275	66,000	WQE / TPE
237.0	32,802	-	3.00	19,489	85,489	
238.0	34,934	-	4.00	33,868	119,357	
239.0	37,122	-	5.00	36,028	155,385	
240.0	39,368	-	6.00	38,245	193,630	
241.0	41669	-	7.00	40,518	234,149	
242.0	0	-				

Verify the Average Depth of Pool (D_{avg}) - Equation 3.

d_{avg} = [$V_{perm\ pool}$ - [0.5 x Depth $_{max\ over\ shelf}$ x Perimeter $_{perm\ pool}$ x Width $_{submerged\ part\ of\ shelf}$] / $A_{bottom\ of\ shelf}$

V_{perm} =	82,702	C.F. (Main Pond)
$A_{bottom\ shelf}$ =	19,307	S.F. (Main Pond)
Depth of Water $_{over\ shelf}$ =	0.00	FT
Perimeter $_{perm\ pool}$ =	633	L.F. (Main Pond)
Width $_{submerged\ part\ of\ shelf}$ =	0.0	FT
D_{avg} =	4.28	FT
Depth for SA/DA =	**4.00**	**FT (Round D_{av} down to nearest 0.5 ft)**

1.0" Water Quality Runoff Volume Calculation

Using the runoff volume calculations in the "Simple Method" as described by Schueler (1987)

Where: Rv = Runoff Coefficient, in/in

I = Percent Impervious	I=	45.9%
Rv = 0.05 + 0.009(I)	Rv =	0.463

1.0 inch runoff volume (Required)

Runoff volume, S=(Design rainfall) (Rv) (Drainage Area)

Design Rainfall =	1.0	inch
Drainage Area =	23.29	acres
Storage Required =	**39,177**	**cu. ft.**

Volume Storage For 1.0" Runoff Above Permanent Pool (Provided)

Depth	PPE SA (SF)	Top Temp Pool SA (SF)	Volume (CF)	Elevation
1.00	19,307	28,708	39,177	235.00

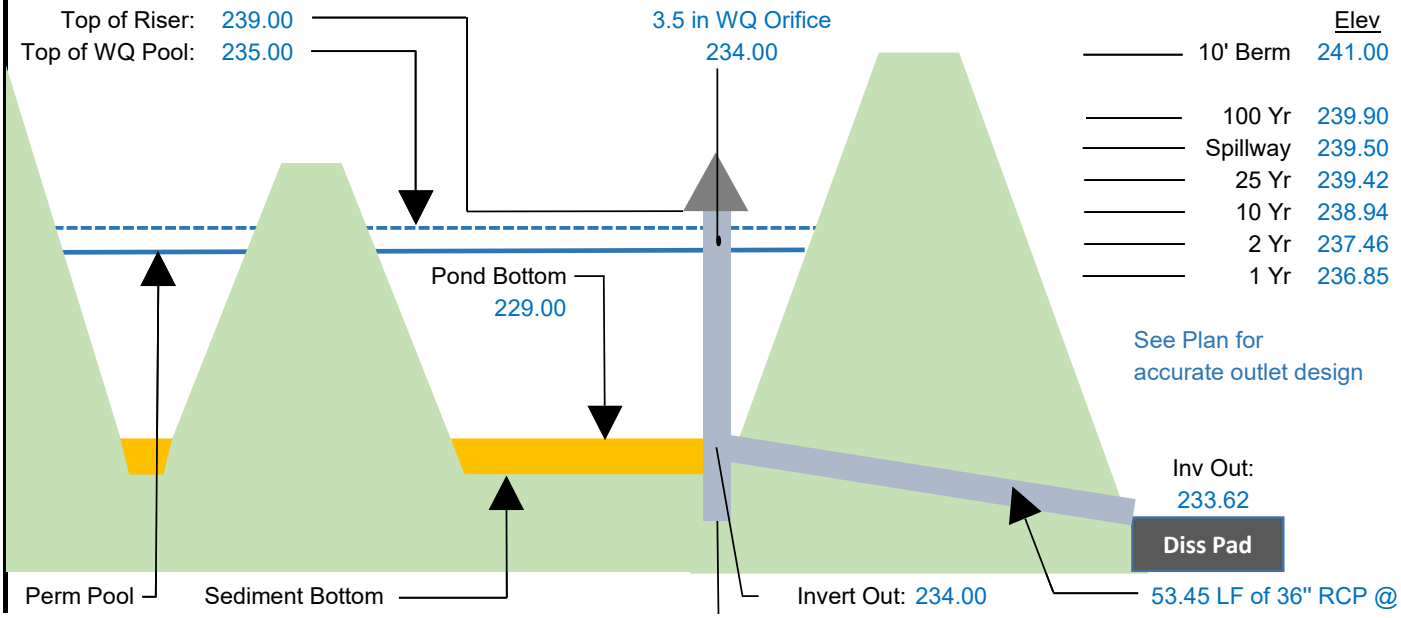
Size Water Quality Orifice for (2-5) Day Drawdown for 1" Runoff Volume

$Q_{1"} = CdA(2gh)^{1/2}$	(Orifice Equation; Cd=0.60; h = Ho/3)
3.50	Orifice Diameter (inches)
0.85	Ho (Driving Head to Centroid of Orifice) (ft)
0.28	Ho / 3 (Per orifice equation recommendation in NCDEQ SWM Design Manual, Part B)
0.17	Q1.0" Drawdown Rate (cfs)
39,177	Water Quality Volume (V_{WQ})
$V_{WQ}/(Q1" \times 86{,}400)$	Drawdown Time (days)
2.6	**Drawdown Time (days) (2 - 5 days)**

Pond / Riser Data & Elevations

Pond Type	Wet Pond			
TSS Removal	85%			
Top of Pond / Berm	241.00 ft			
Secondary Spillway Width	30.00 ft			
Bottom of Secondary Spillway	239.50 ft			
Top of Riser	239.00 ft	(at least 1' Above TPE)		
Riser Type / Size	5x5 ft	(DOUBLE)		
Top of Water Quality / Temp Pool Elev	235.00 ft	(1" Runoff)		
Top of Veg. Shelf	235.00 ft			
Permanent Pool Elevation (Normal Pool)	234.00 ft			
Water Quality Orifice Elevation & Size	234.00 ft		3.50	in
Secondary Orifice Elevation & Size (Rise & Span)	236.00 ft	(DOUBLE)	12.00 inch	30.00 inch
			^ Rise	^ Span
Weir Elevation, Width, & Number of Sides	238.00 ft		32.00 inch	3
Bottom of Veg. Shelf	234.00 ft		^ Width	^ # of Sides
Top of Sediment Storage / Pond Bottom	229.00 ft			
Bottom of Sediment Storage	228.00 ft	(Min 1 ft)		
Invert Out of Riser	234.00 ft			
Outlet Pipe Size	36.00 in	Diameter RCP		
Outlet Pipe Length & Slope	53.45 ft		0.71	%
Downstream Outlet Elevation	233.62 ft			
1 Yr Water Surface Elev / Peak Flow (CFS)	236.85 ft		13.91	CFS
2 Yr Water Surface Elev Peak Flow (CFS)	237.46 ft		24.02	CFS
10 Yr Water Surface Elev Peak Flow (CFS)	238.94 ft		57.28	CFS
25 Yr Water Surface Elev Peak Flow (CFS)	239.42 ft		100.37	CFS
100 Yr Water Surface Elev Peak Flow (CFS)	239.90 ft		160.29	CFS

Pond Detail



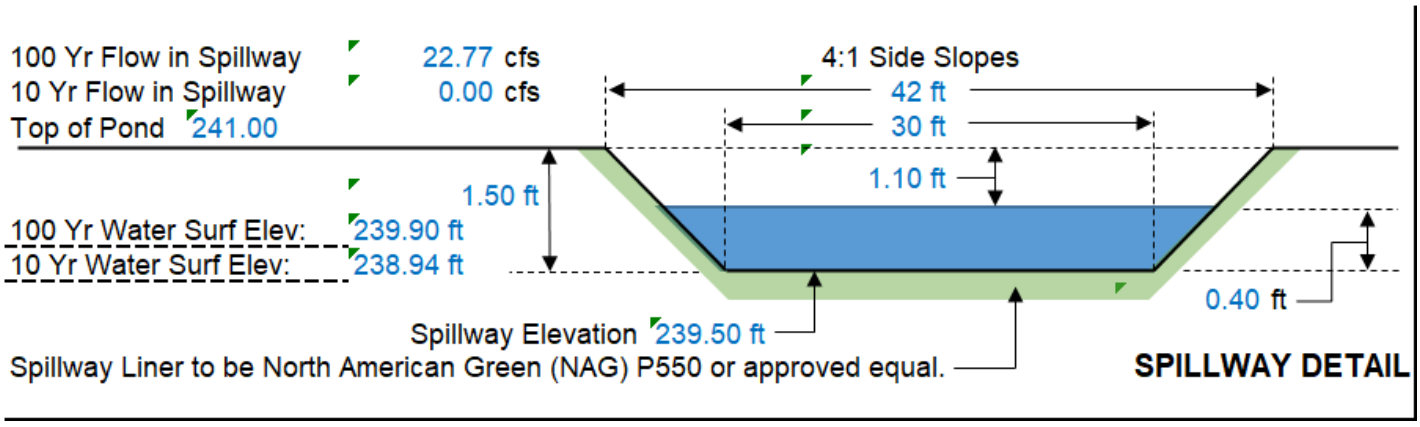
234.00	228.00		Base: 228.00	0.71%

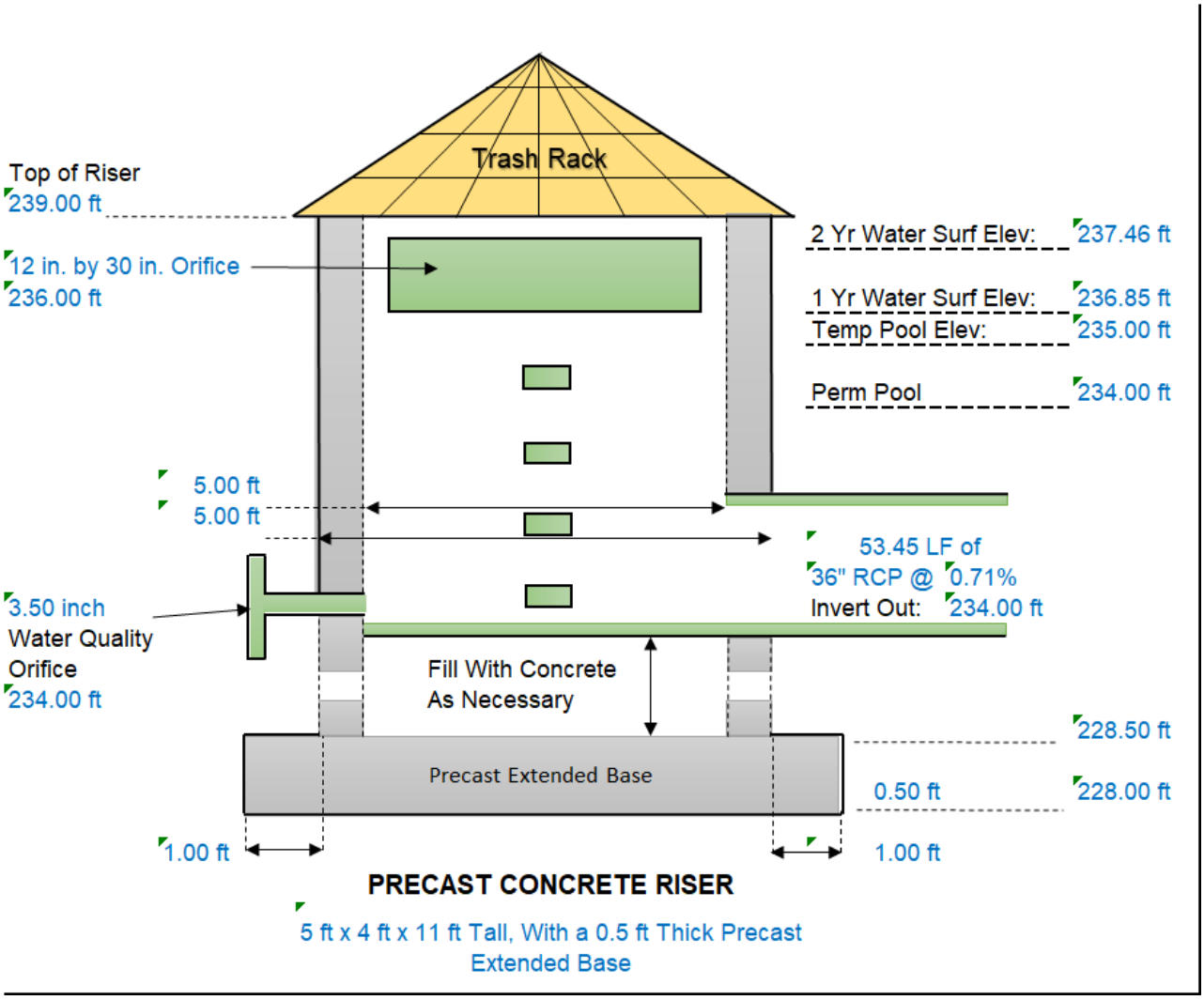
Anti-Buoyancy Calculations for the Riser Structure

Riser Dimensions		Weight of Structure		Displaced Volume	
Outside Width	6.00 ft	Walls =	16,500 LBS	V = LxWx(HT) = C.F.	
Inside Width	5.00 ft	Base =	4,200 LBS		
Outside Length	5.00 ft	FILL =	16,500 lbs	Displaced Water =	
Inside Length	4.00 ft			C.F. * 62.4 PCF = LBS	
Height	11.00 ft	Outlet Pipe =	530 LBS		
Base Thick' (ft)	0.50 ft	WQ Orifice =	5 LBS	Add 15% Factor of Safety	
Wall Thick' (ft)	0.50 ft				
Ext Base (ft)	1.00 ft	Weir #1 =	187.5 LBS	V =	330 C.F.
Areas removed from Riser		Weir #2 =	187.5 LBS	Disp. Water =	20,592 LBS
Outlet Pipe	7.07 ft	Weir #3 =	300 LBS	15% F.S. =	3,089 LBS
WQ Orifice	0.07 ft	Weir #4 =	300 LBS		
Orifice #1	2.50 ft	Other #1 =	0 LBS	Safety Factor	1.51
Orifice #2	2.50 ft				
Orifice #3	4.00 ft	**Weight =**	**35,690 LBS**	**Weight =**	**23,681 LBS**
Orifice #4	4.00 ft	**Precast Concrete Riser Structure to be 5 ft x 4 ft x 11 ft Tall, With a 0.5 ft Thick Precast Extended Base**			
Other	0.00 ft				

Planting Summary Requirements

Dam / Berm				Non-Clumping Turf Grass		
6' Shelf Length	597	Area of Shelf =	3582 SF	(50 Plants per 200 SF of Area)		
Quantity	Type	Root	Common Name	Scientific Name	Planting Size	Notes
299	Herbaceous	Container	Quill Sedge	Cerex Tenera	4" Pot	24"-36" OC
299	Herbaceous	Container	Virginia Sweetspire	Itea Virginica	4" Pot	24"-36" OC
299	Herbaceous	Container	Joe Pye Weed	Eupat' Fistulosus	4" Pot	24"-36" OC

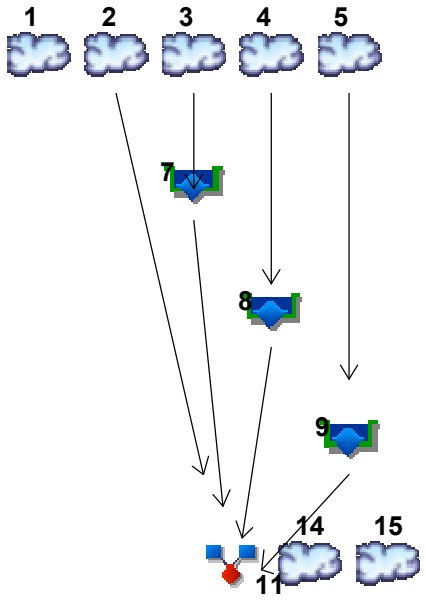



Trash Rack
Top of Riser
239.00 ft
12 in. by 30 in. Orifice
236.00 ft
2 Yr Water Surf Elev: 237.46 ft
1 Yr Water Surf Elev: 236.85 ft
Temp Pool Elev: 235.00 ft
Perm Pool 234.00 ft
5.00 ft
5.00 ft
53.45 LF of
36" RCP @ 0.71%
Invert Out: 234.00 ft
3.50 inch
Water Quality
Orifice
234.00 ft
Fill With Concrete
As Necessary
228.50 ft
Precast Extended Base
0.50 ft
228.00 ft
1.00 ft
1.00 ft
PRECAST CONCRETE RISER
5 ft x 4 ft x 11 ft Tall, With a 0.5 ft Thick Precast
Extended Base

Peak Flow Analysis

Hydraflow Hydrographs Extension for Autodesk Civil 3D

Watershed Model Schematic



Legend

Hyd.	Origin	Description
1	SCS Runoff	PRE POI 1
2	SCS Runoff	POST POI 1 (BYPASS)
3	SCS Runoff	POST POI 1 (SCM 1)
4	SCS Runoff	POST PO1 (SCM 2)
5	SCS Runoff	POST POI 1 (SCM 3)
7	Reservoir	POST SCM1 - ROUTED
8	Reservoir	POST SCM2 - ROUTED
9	Reservoir	POST SCM3 - ROUTED
11	Combine	POST POI 1 - TOTAL
14	SCS Runoff	CULVERT 100
15	SCS Runoff	CULVERT 200

Hydraflow Table of Contents

Faison.gpw

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Friday, 08 / 8 / 2025

Hydrograph Return Period Recap

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	------	48.15	81.22	-------	-------	190.70	266.03	-------	402.02	PRE POI 1
2	SCS Runoff	------	28.87	47.52	-------	-------	108.56	150.33	-------	225.32	POST POI 1 (BYPASS)
3	SCS Runoff	------	14.26	18.84	-------	-------	31.86	39.92	-------	53.50	POST POI 1 (SCM 1)
4	SCS Runoff	------	34.41	46.30	-------	-------	80.59	102.01	-------	138.16	POST PO1 (SCM 2)
5	SCS Runoff	------	49.47	66.57	-------	-------	115.86	146.65	-------	198.62	POST POI 1 (SCM 3)
7	Reservoir	3	1.624	3.060	-------	-------	5.989	21.48	-------	45.81	POST SCM1 - ROUTED
8	Reservoir	4	4.051	13.03	-------	-------	32.64	50.84	-------	85.87	POST SCM2 - ROUTED
9	Reservoir	5	2.703	9.079	-------	-------	41.16	75.73	-------	151.28	POST SCM3 - ROUTED
11	Combine	2, 7, 8, 9,	33.19	70.75	-------	-------	187.67	298.05	-------	488.07	POST POI 1 - TOTAL
14	SCS Runoff	------	28.25	43.52	-------	-------	92.14	124.97	-------	182.57	CULVERT 100
15	SCS Runoff	------	13.22	22.89	-------	-------	55.28	78.22	-------	119.47	CULVERT 200

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

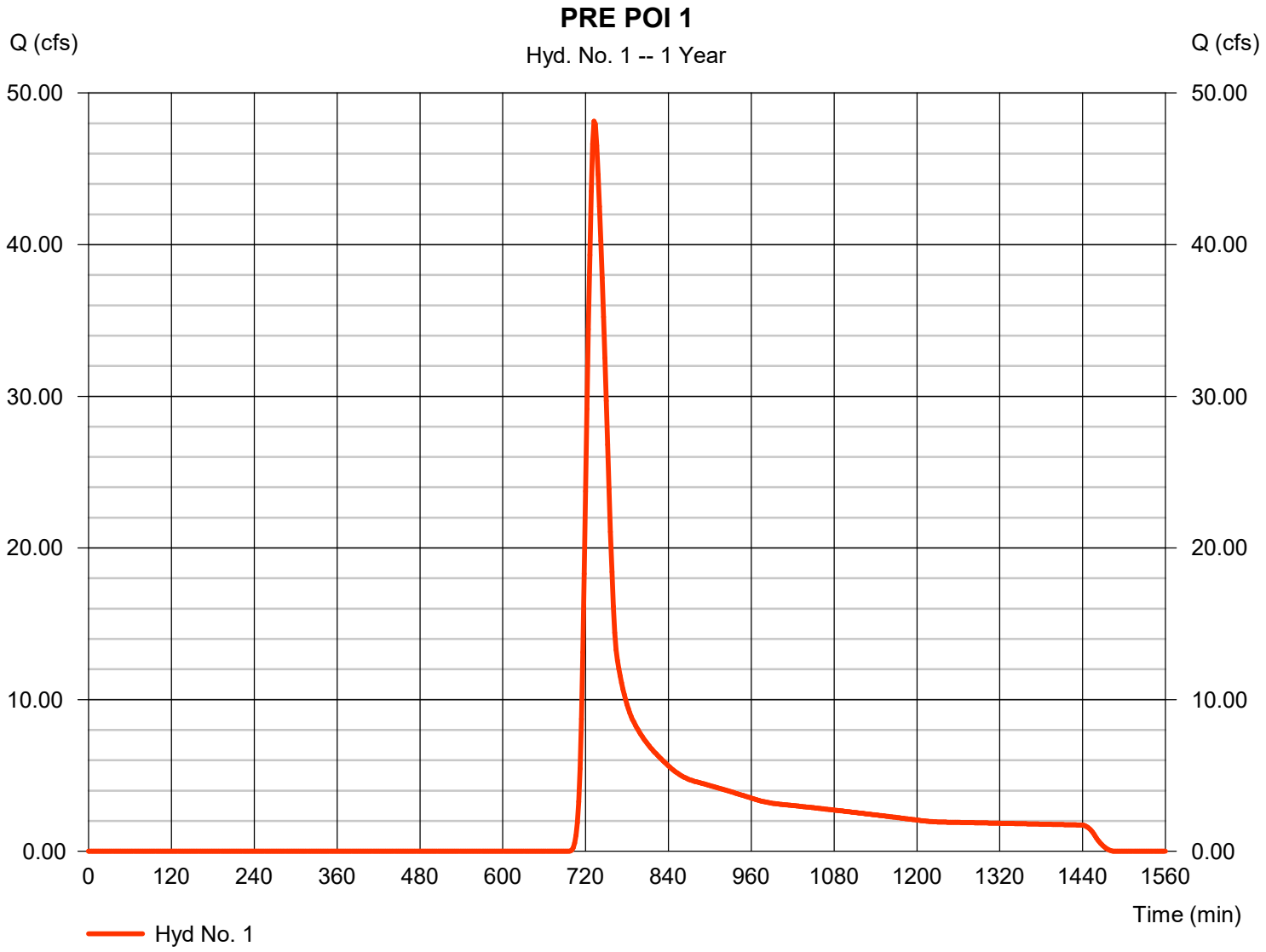
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	48.15	2	732	232,473	------	------	------	PRE POI 1
2	SCS Runoff	28.87	2	732	135,533	------	------	------	POST POI 1 (BYPASS)
3	SCS Runoff	14.26	2	720	36,995	------	------	------	POST POI 1 (SCM 1)
4	SCS Runoff	34.41	2	720	89,229	------	------	------	POST PO1 (SCM 2)
5	SCS Runoff	49.47	2	720	128,281	------	------	------	POST POI 1 (SCM 3)
7	Reservoir	1.624	2	752	36,782	3	252.14	19,499	POST SCM1 - ROUTED
8	Reservoir	4.051	2	752	88,032	4	239.36	46,005	POST SCM2 - ROUTED
9	Reservoir	2.703	2	812	124,588	5	236.65	77,606	POST SCM3 - ROUTED
11	Combine	33.19	2	734	384,936	2, 7, 8, 9,	------	------	POST POI 1 - TOTAL
14	SCS Runoff	28.25	2	728	106,251	------	------	------	CULVERT 100
15	SCS Runoff	13.22	2	724	44,469	------	------	------	CULVERT 200

Hydrograph Report

Hyd. No. 1

PRE POI 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	48.15 cfs
Storm frequency	=	1 yrs	Time to peak	=	732 min
Time interval	=	2 min	Hyd. volume	=	232,473 cuft
Drainage area	=	100.400 ac	Curve number	=	70
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	27.00 min
Total precip.	=	2.86 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

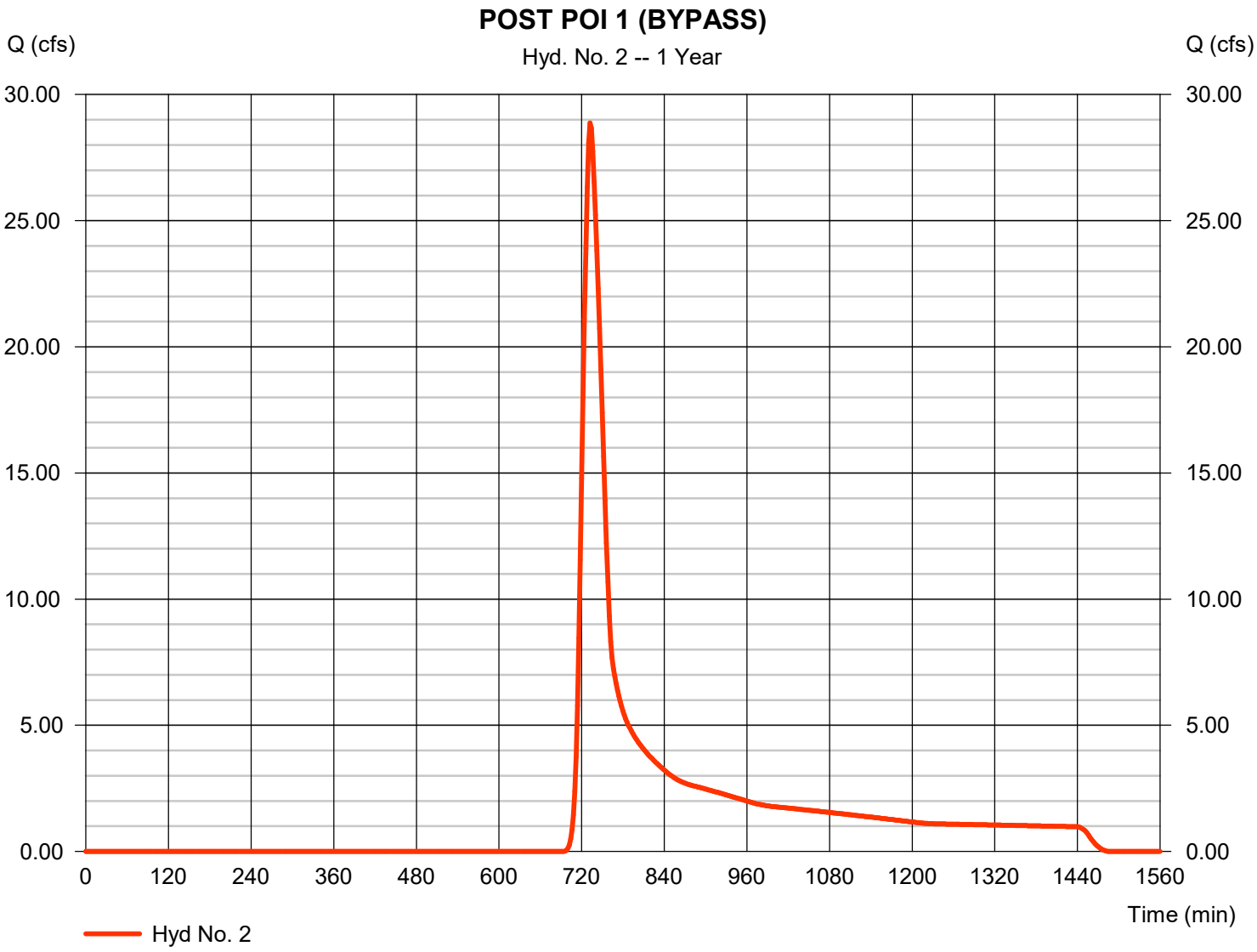


Hydrograph Report

Hyd. No. 2

POST POI 1 (BYPASS)

Hydrograph type	=	SCS Runoff	Peak discharge	=	28.87 cfs
Storm frequency	=	1 yrs	Time to peak	=	732 min
Time interval	=	2 min	Hyd. volume	=	135,533 cuft
Drainage area	=	54.810 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	27.00 min
Total precip.	=	2.86 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

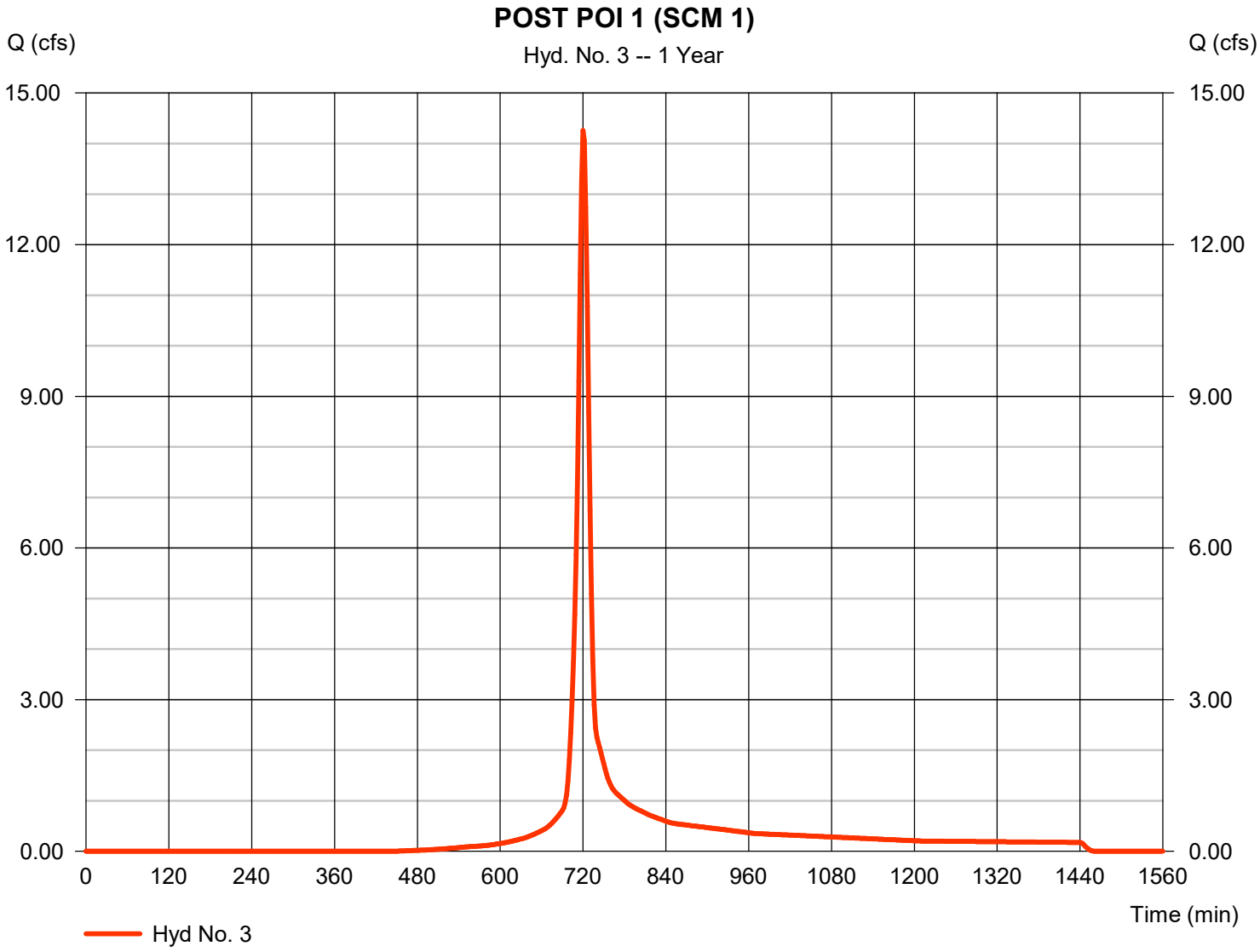


Hydrograph Report

Hyd. No. 3

POST POI 1 (SCM 1)

Hydrograph type	= SCS Runoff	Peak discharge	= 14.26 cfs
Storm frequency	= 1 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 36,995 cuft
Drainage area	= 6.110 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 2.86 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

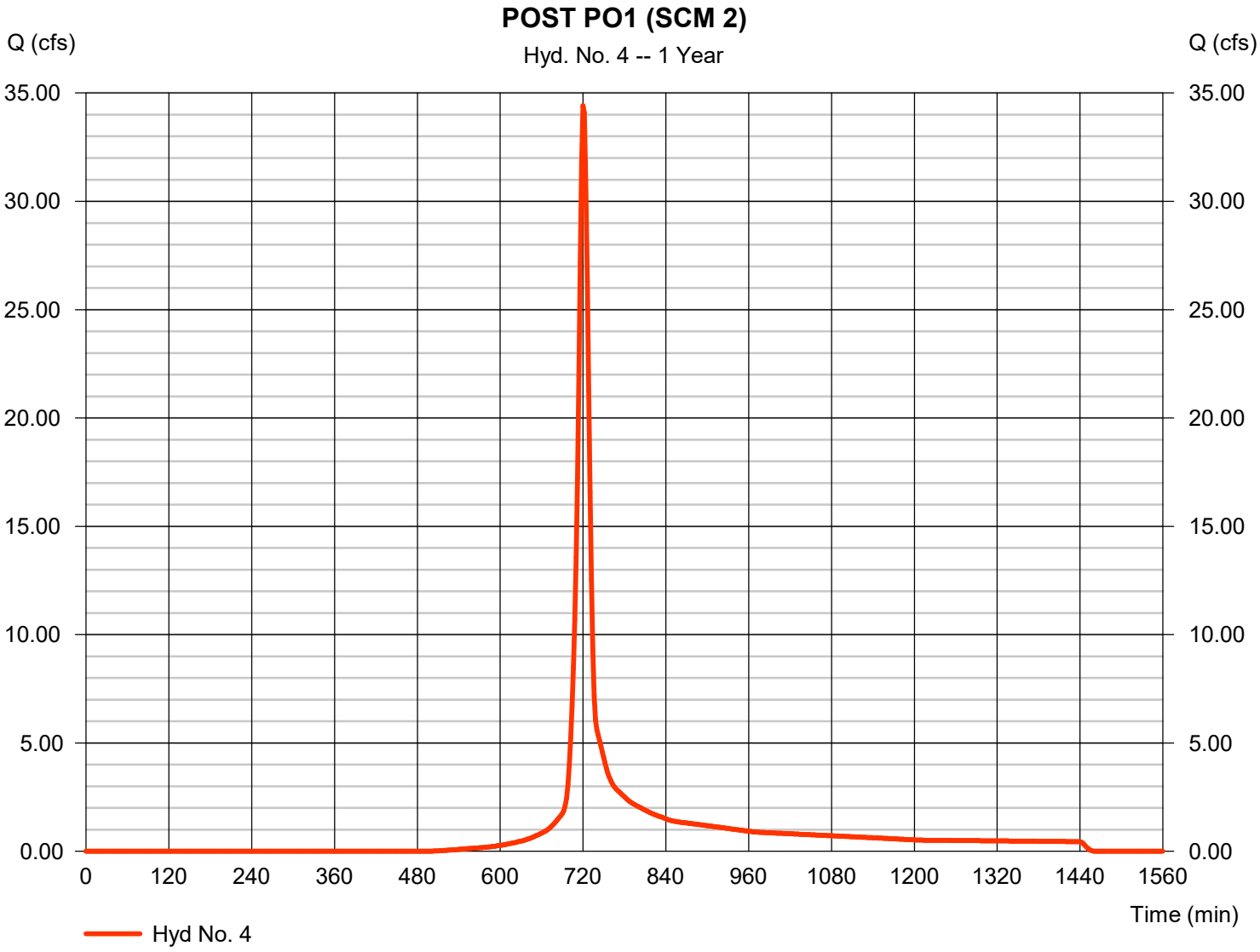


Hydrograph Report

Hyd. No. 4

POST PO1 (SCM 2)

Hydrograph type	=	SCS Runoff	Peak discharge	=	34.41 cfs
Storm frequency	=	1 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	89,229 cuft
Drainage area	=	16.200 ac	Curve number	=	85
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	2.86 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

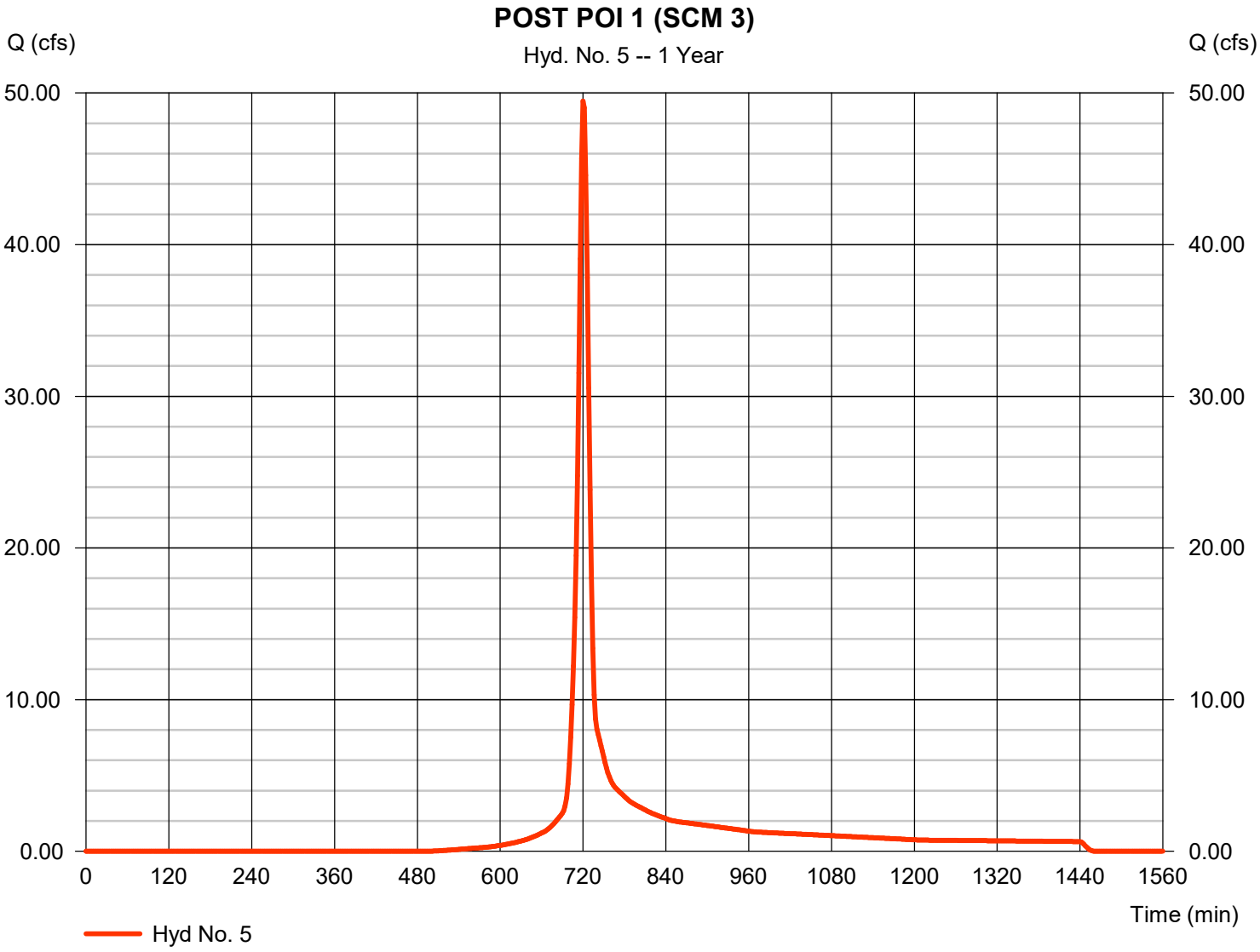


Hydrograph Report

Hyd. No. 5

POST POI 1 (SCM 3)

Hydrograph type	=	SCS Runoff	Peak discharge	=	49.47 cfs
Storm frequency	=	1 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	128,281 cuft
Drainage area	=	23.290 ac	Curve number	=	85
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	2.86 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



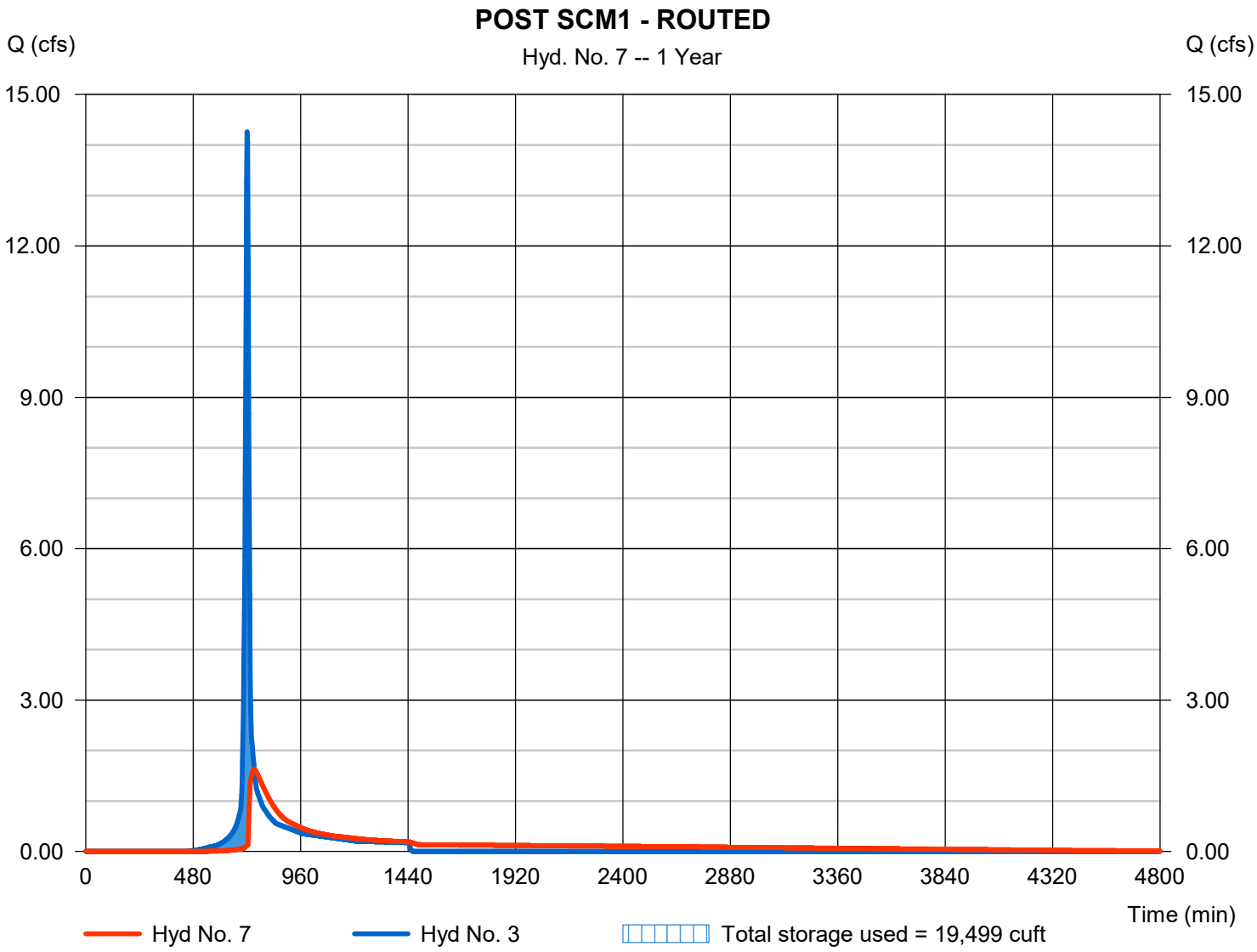
Hydrograph Report

Hyd. No. 7

POST SCM1 - ROUTED

Hydrograph type	=	Reservoir	Peak discharge	=	1.624 cfs
Storm frequency	=	1 yrs	Time to peak	=	752 min
Time interval	=	2 min	Hyd. volume	=	36,782 cuft
Inflow hyd. No.	=	3 - POST POI 1 (SCM 1)	Max. Elevation	=	252.14 ft
Reservoir name	=	SCM1	Max. Storage	=	19,499 cuft

Storage Indication method used.



Pond No. 1 - SCM1

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 250.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	250.00	6,609	0	0
1.00	251.00	9,295	7,913	7,913
2.00	252.00	10,775	10,025	17,938
3.00	253.00	12,312	11,534	29,472
4.00	254.00	13,908	13,101	42,572
5.00	255.00	15,556	14,723	57,295
6.00	256.00	17,257	16,398	73,693

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 30.00	2.00	6.00	0.00
Span (in)	= 30.00	2.00	18.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 249.50	250.00	251.70	0.00
Length (ft)	= 49.00	0.00	0.00	0.00
Slope (%)	= 0.94	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	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 20.00	Inactive	30.00	0.00
Crest El. (ft)	= 254.00	253.50	254.50	0.00
Weir Coeff.	= 3.33	3.33	2.60	3.33
Weir Type	= 1	Rect	Broad	---
Multi-Stage	= Yes	Yes	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
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).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	250.00	0.00	0.00	0.00	---	0.00	0.00	0.00	---	---	---	0.000
0.10	791	250.10	1.76 ic	0.01 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.015
0.20	1,583	250.20	1.76 ic	0.04 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.036
0.30	2,374	250.30	1.76 ic	0.05 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.049
0.40	3,165	250.40	1.76 ic	0.06 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.059
0.50	3,957	250.50	1.76 ic	0.07 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.068
0.60	4,748	250.60	1.76 ic	0.08 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.075
0.70	5,539	250.70	1.76 ic	0.08 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.082
0.80	6,331	250.80	1.76 ic	0.09 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.089
0.90	7,122	250.90	1.76 ic	0.09 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.095
1.00	7,913	251.00	1.76 ic	0.10 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.101
1.10	8,916	251.10	1.76 ic	0.11 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.106
1.20	9,918	251.20	1.76 ic	0.11 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.111
1.30	10,921	251.30	1.76 ic	0.12 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.116
1.40	11,923	251.40	1.76 ic	0.12 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.121
1.50	12,926	251.50	1.76 ic	0.13 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.125
1.60	13,928	251.60	1.76 ic	0.13 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.129
1.70	14,931	251.70	1.76 ic	0.13 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.134
1.80	15,933	251.80	1.76 ic	0.14 ic	0.16 ic	---	0.00	0.00	0.00	---	---	---	0.299
1.90	16,936	251.90	1.76 ic	0.14 ic	0.46 ic	---	0.00	0.00	0.00	---	---	---	0.599
2.00	17,938	252.00	1.76 ic	0.15 ic	0.84 ic	---	0.00	0.00	0.00	---	---	---	0.985
2.10	19,091	252.10	1.76 ic	0.15 ic	1.29 ic	---	0.00	0.00	0.00	---	---	---	1.441
2.20	20,245	252.20	1.97 ic	0.15 ic	1.81 ic	---	0.00	0.00	0.00	---	---	---	1.958
2.30	21,398	252.30	2.33 ic	0.16 ic	2.14 ic	---	0.00	0.00	0.00	---	---	---	2.293
2.40	22,552	252.40	2.59 ic	0.16 ic	2.42 ic	---	0.00	0.00	0.00	---	---	---	2.581
2.50	23,705	252.50	2.87 ic	0.16 ic	2.68 ic	---	0.00	0.00	0.00	---	---	---	2.839
2.60	24,858	252.60	3.17 ic	0.16 ic	2.91 ic	---	0.00	0.00	0.00	---	---	---	3.075
2.70	26,012	252.70	3.32 ic	0.17 ic	3.13 ic	---	0.00	0.00	0.00	---	---	---	3.293
2.80	27,165	252.80	3.50 ic	0.17 ic	3.33 ic	---	0.00	0.00	0.00	---	---	---	3.498
2.90	28,318	252.90	3.81 ic	0.17 ic	3.52 ic	---	0.00	0.00	0.00	---	---	---	3.691
3.00	29,472	253.00	3.98 ic	0.17 ic	3.70 ic	---	0.00	0.00	0.00	---	---	---	3.874
3.10	30,782	253.10	4.16 ic	0.18 ic	3.87 ic	---	0.00	0.00	0.00	---	---	---	4.049
3.20	32,092	253.20	4.34 ic	0.18 ic	4.04 ic	---	0.00	0.00	0.00	---	---	---	4.216
3.30	33,402	253.30	4.38 ic	0.18 ic	4.20 ic	---	0.00	0.00	0.00	---	---	---	4.377
3.40	34,712	253.40	4.53 ic	0.18 ic	4.35 ic	---	0.00	0.00	0.00	---	---	---	4.532
3.50	36,022	253.50	4.71 ic	0.19 ic	4.50 ic	---	0.00	0.00	0.00	---	---	---	4.683

Continues on next page...

SCM1

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.60	37,332	253.60	4.90 ic	0.19 ic	4.64 ic	---	0.00	0.00	0.00	---	---	---	4.828
3.70	38,642	253.70	5.10 ic	0.19 ic	4.78 ic	---	0.00	0.00	0.00	---	---	---	4.969
3.80	39,952	253.80	5.11 ic	0.19 ic	4.91 ic	---	0.00	0.00	0.00	---	---	---	5.106
3.90	41,262	253.90	5.30 ic	0.20 ic	5.04 ic	---	0.00	0.00	0.00	---	---	---	5.239
4.00	42,572	254.00	5.50 ic	0.20 ic	5.17 ic	---	0.00	0.00	0.00	---	---	---	5.369
4.10	44,045	254.10	7.76 ic	0.20 ic	5.30 ic	---	2.11	0.00	0.00	---	---	---	7.598
4.20	45,517	254.20	11.62 oc	0.19 ic	5.42 ic	---	5.96	0.00	0.00	---	---	---	11.56
4.30	46,989	254.30	16.75 oc	0.18 ic	5.54 ic	---	10.94	0.00	0.00	---	---	---	16.66
4.40	48,462	254.40	22.40 oc	0.16 ic	5.39 ic	---	16.85	0.00	0.00	---	---	---	22.40
4.50	49,934	254.50	28.70 oc	0.15 ic	5.01 ic	---	23.55	0.00	0.00	---	---	---	28.70
4.60	51,406	254.60	35.47 oc	0.13 ic	4.39 ic	---	30.95	0.00	2.47	---	---	---	37.94
4.70	52,878	254.70	42.24 ic	0.09 ic	3.14 ic	---	39.00	0.00	6.98	---	---	---	49.21
4.80	54,351	254.80	44.74 ic	0.07 ic	2.46 ic	---	42.21 s	0.00	12.82	---	---	---	57.56
4.90	55,823	254.90	46.12 ic	0.06 ic	2.11 ic	---	43.94 s	0.00	19.74	---	---	---	65.86
5.00	57,295	255.00	47.19 ic	0.05 ic	1.85 ic	---	45.28 s	0.00	27.58	---	---	---	74.76
5.10	58,935	255.10	48.10 ic	0.05 ic	1.65 ic	---	46.40 s	0.00	36.25	---	---	---	84.34
5.20	60,575	255.20	48.90 ic	0.04 ic	1.48 ic	---	47.37 s	0.00	45.68	---	---	---	94.58
5.30	62,215	255.30	49.64 ic	0.04 ic	1.35 ic	---	48.25 s	0.00	55.81	---	---	---	105.44
5.40	63,854	255.40	50.32 ic	0.04 ic	1.23 ic	---	49.04 s	0.00	66.60	---	---	---	116.90
5.50	65,494	255.50	50.97 ic	0.03 ic	1.13 ic	---	49.80 s	0.00	78.00	---	---	---	128.96
5.60	67,134	255.60	51.59 ic	0.03 ic	1.05 ic	---	50.49 s	0.00	89.99	---	---	---	141.56
5.70	68,774	255.70	52.19 ic	0.03 ic	0.98 ic	---	51.18 s	0.00	102.53	---	---	---	154.72
5.80	70,413	255.80	52.77 ic	0.03 ic	0.91 ic	---	51.81 s	0.00	115.61	---	---	---	168.36
5.90	72,053	255.90	53.34 ic	0.02 ic	0.86 ic	---	52.44 s	0.00	129.22	---	---	---	182.54
6.00	73,693	256.00	53.89 ic	0.02 ic	0.81 ic	---	53.06 s	0.00	143.30	---	---	---	197.18

...End

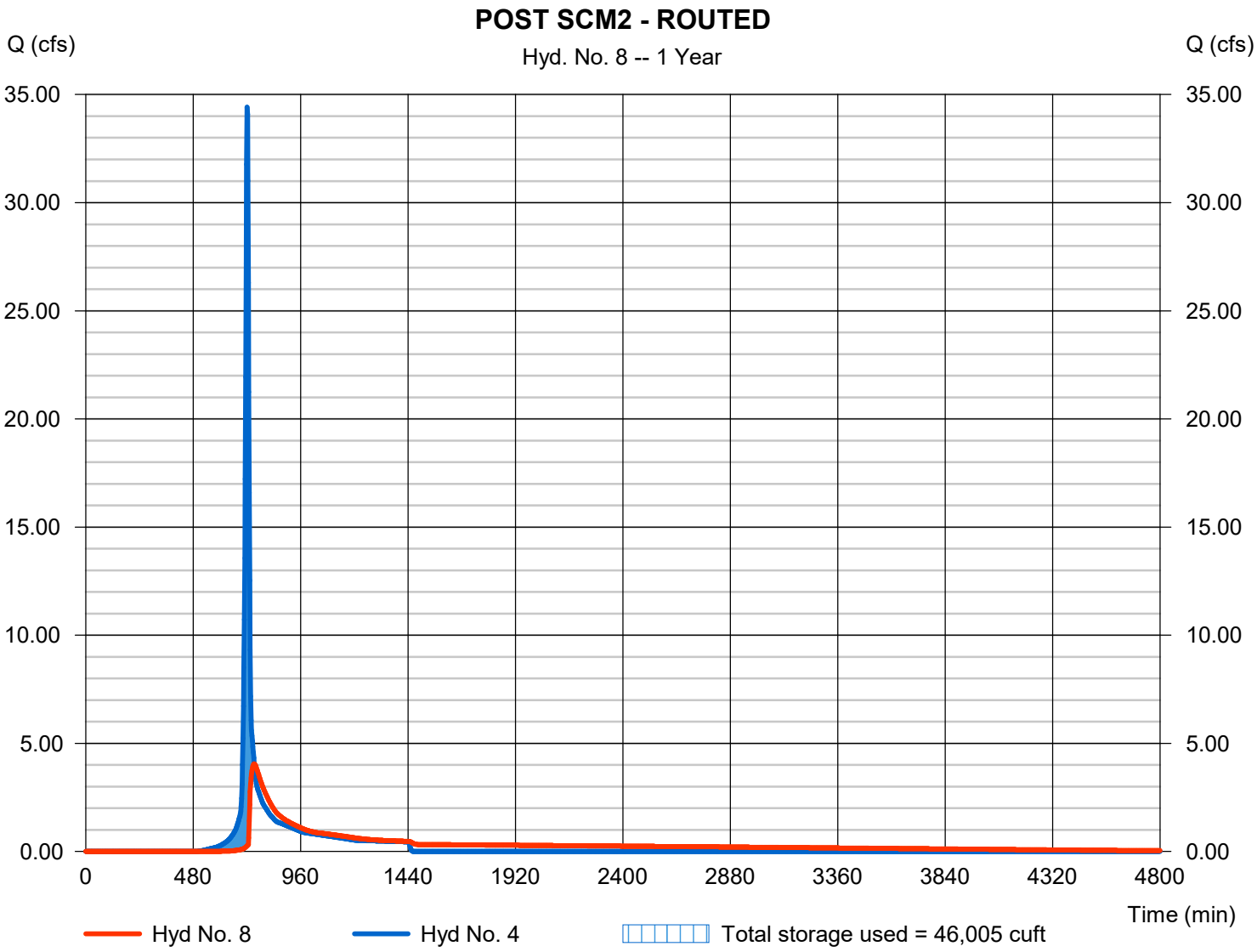
Hydrograph Report

Hyd. No. 8

POST SCM2 - ROUTED

Hydrograph type	=	Reservoir	Peak discharge	=	4.051 cfs
Storm frequency	=	1 yrs	Time to peak	=	752 min
Time interval	=	2 min	Hyd. volume	=	88,032 cuft
Inflow hyd. No.	=	4 - POST PO1 (SCM 2)	Max. Elevation	=	239.36 ft
Reservoir name	=	SCM2	Max. Storage	=	46,005 cuft

Storage Indication method used.



Pond No. 2 - SCM2

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 237.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	237.00	16,451	0	0
1.00	238.00	19,324	17,866	17,866
2.00	239.00	21,106	20,206	38,073
3.00	240.00	22,944	22,016	60,089
4.00	241.00	24,838	23,882	83,971
5.00	242.00	26,790	25,805	109,777
6.00	243.00	28,797	27,785	137,561
7.00	244.00	30,861	29,820	167,382

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 36.00	3.00	12.00	0.00
Span (in)	= 36.00	3.00	30.00	0.00
No. Barrels	= 1	1	2	0
Invert El. (ft)	= 236.50	237.00	239.00	0.00
Length (ft)	= 62.00	0.00	0.00	0.00
Slope (%)	= 0.81	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	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 20.00	8.00	40.00	0.00
Crest El. (ft)	= 242.00	241.00	242.50	0.00
Weir Coeff.	= 3.33	3.33	2.60	3.33
Weir Type	= 1	Rect	Broad	---
Multi-Stage	= Yes	Yes	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

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).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	237.00	0.00	0.00	0.00	---	0.00	0.00	0.00	---	---	---	0.000
0.10	1,787	237.10	1.91 ic	0.02 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.020
0.20	3,573	237.20	1.91 ic	0.06 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.064
0.30	5,360	237.30	1.91 ic	0.10 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.099
0.40	7,147	237.40	1.91 ic	0.12 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.124
0.50	8,933	237.50	1.91 ic	0.14 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.145
0.60	10,720	237.60	1.91 ic	0.16 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.163
0.70	12,506	237.70	1.91 ic	0.18 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.179
0.80	14,293	237.80	1.91 ic	0.19 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.194
0.90	16,080	237.90	1.91 ic	0.21 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.208
1.00	17,866	238.00	1.91 ic	0.22 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.221
1.10	19,887	238.10	1.91 ic	0.23 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.233
1.20	21,908	238.20	1.91 ic	0.25 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.245
1.30	23,928	238.30	1.91 ic	0.26 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.256
1.40	25,949	238.40	1.91 ic	0.27 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.267
1.50	27,969	238.50	1.91 ic	0.28 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.277
1.60	29,990	238.60	1.91 ic	0.29 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.287
1.70	32,011	238.70	1.91 ic	0.30 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.297
1.80	34,031	238.80	1.91 ic	0.31 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.306
1.90	36,052	238.90	1.91 ic	0.31 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.315
2.00	38,073	239.00	1.91 ic	0.32 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.324
2.10	40,274	239.10	1.91 ic	0.33 ic	0.54 ic	---	0.00	0.00	0.00	---	---	---	0.870
2.20	42,476	239.20	1.91 ic	0.34 ic	1.52 ic	---	0.00	0.00	0.00	---	---	---	1.863
2.30	44,678	239.30	3.14 ic	0.35 ic	2.80 ic	---	0.00	0.00	0.00	---	---	---	3.144
2.40	46,879	239.40	4.76 ic	0.34 ic	4.31 ic	---	0.00	0.00	0.00	---	---	---	4.649
2.50	49,081	239.50	6.55 ic	0.34 ic	6.02 ic	---	0.00	0.00	0.00	---	---	---	6.357
2.60	51,283	239.60	8.36 ic	0.34 ic	7.91 ic	---	0.00	0.00	0.00	---	---	---	8.248
2.70	53,484	239.70	10.39 ic	0.33 ic	9.97 ic	---	0.00	0.00	0.00	---	---	---	10.30
2.80	55,686	239.80	12.63 ic	0.33 ic	12.18 ic	---	0.00	0.00	0.00	---	---	---	12.51
2.90	57,887	239.90	15.03 oc	0.32 ic	14.54 ic	---	0.00	0.00	0.00	---	---	---	14.86
3.00	60,089	240.00	17.49 oc	0.32 ic	17.02 ic	---	0.00	0.00	0.00	---	---	---	17.34
3.10	62,477	240.10	18.97 oc	0.31 ic	18.65 ic	---	0.00	0.00	0.00	---	---	---	18.96
3.20	64,866	240.20	20.68 oc	0.31 ic	20.14 ic	---	0.00	0.00	0.00	---	---	---	20.45
3.30	67,254	240.30	22.01 oc	0.31 ic	21.53 ic	---	0.00	0.00	0.00	---	---	---	21.84
3.40	69,642	240.40	23.25 oc	0.31 ic	22.84 ic	---	0.00	0.00	0.00	---	---	---	23.15

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SCM2

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.50	72,030	240.50	24.39 oc	0.31 ic	24.07 ic	---	0.00	0.00	0.00	---	---	---	24.38
3.60	74,419	240.60	25.59 oc	0.31 ic	25.25 ic	---	0.00	0.00	0.00	---	---	---	25.56
3.70	76,807	240.70	26.76 oc	0.31 ic	26.37 ic	---	0.00	0.00	0.00	---	---	---	26.68
3.80	79,195	240.80	27.79 oc	0.30 ic	27.45 ic	---	0.00	0.00	0.00	---	---	---	27.75
3.90	81,583	240.90	28.82 oc	0.30 ic	28.49 ic	---	0.00	0.00	0.00	---	---	---	28.78
4.00	83,971	241.00	29.53 oc	0.29 ic	29.24 ic	---	0.00	0.00	0.00	---	---	---	29.52
4.10	86,552	241.10	30.87 oc	0.29 ic	29.74 ic	---	0.00	0.84	0.00	---	---	---	30.87
4.20	89,133	241.20	32.70 oc	0.29 ic	30.03 ic	---	0.00	2.38	0.00	---	---	---	32.70
4.30	91,713	241.30	34.83 oc	0.30 ic	30.15 ic	---	0.00	4.38	0.00	---	---	---	34.83
4.40	94,294	241.40	37.17 oc	0.30 ic	30.13 ic	---	0.00	6.74	0.00	---	---	---	37.17
4.50	96,874	241.50	39.68 oc	0.29 ic	29.97 ic	---	0.00	9.42	0.00	---	---	---	39.68
4.60	99,455	241.60	42.34 oc	0.29 ic	29.66 ic	---	0.00	12.38	0.00	---	---	---	42.34
4.70	102,035	241.70	45.10 oc	0.29 ic	29.21 ic	---	0.00	15.60	0.00	---	---	---	45.10
4.80	104,616	241.80	47.95 oc	0.28 ic	28.61 ic	---	0.00	19.06	0.00	---	---	---	47.95
4.90	107,196	241.90	50.87 oc	0.27 ic	27.84 ic	---	0.00	22.75	0.00	---	---	---	50.87
5.00	109,777	242.00	53.82 oc	0.26 ic	26.92 ic	---	0.00	26.64	0.00	---	---	---	53.82
5.10	112,555	242.10	57.95 oc	0.24 ic	24.92 ic	---	2.11	30.68 s	0.00	---	---	---	57.95
5.20	115,334	242.20	61.92 oc	0.22 ic	22.63 ic	---	5.96	33.11 s	0.00	---	---	---	61.92
5.30	118,112	242.30	64.77 ic	0.19 ic	19.81 ic	---	10.94	33.82 s	0.00	---	---	---	64.77
5.40	120,891	242.40	67.24 ic	0.17 ic	16.95 ic	---	16.85	33.28 s	0.00	---	---	---	67.24
5.50	123,669	242.50	69.21 ic	0.14 ic	14.52 ic	---	22.20 s	32.34 s	0.00	---	---	---	69.21
5.60	126,448	242.60	70.68 ic	0.13 ic	12.88 ic	---	25.77 s	31.90 s	3.29	---	---	---	73.97
5.70	129,226	242.70	71.94 ic	0.11 ic	11.56 ic	---	28.71 s	31.56 s	9.30	---	---	---	81.24
5.80	132,005	242.80	73.07 ic	0.10 ic	10.48 ic	---	31.21 s	31.27 s	17.09	---	---	---	90.16
5.90	134,783	242.90	74.11 ic	0.09 ic	9.56 ic	---	33.40 s	31.03 s	26.32	---	---	---	100.42
6.00	137,561	243.00	75.07 ic	0.09 ic	8.79 ic	---	35.35 s	30.83 s	36.77	---	---	---	111.82
6.10	140,543	243.10	75.99 ic	0.08 ic	8.12 ic	---	37.10 s	30.67 s	48.34	---	---	---	124.31
6.20	143,525	243.20	76.87 ic	0.07 ic	7.54 ic	---	38.69 s	30.54 s	60.91	---	---	---	137.75
6.30	146,507	243.30	77.71 ic	0.07 ic	7.03 ic	---	40.17 s	30.44 s	74.42	---	---	---	152.12
6.40	149,489	243.40	78.53 ic	0.06 ic	6.58 ic	---	41.52 s	30.36 s	88.80	---	---	---	167.32
6.50	152,471	243.50	79.33 ic	0.06 ic	6.18 ic	---	42.77 s	30.29 s	104.00	---	---	---	183.31
6.60	155,453	243.60	80.11 ic	0.06 ic	5.83 ic	---	43.94 s	30.24 s	119.98	---	---	---	200.05
6.70	158,435	243.70	80.87 ic	0.05 ic	5.51 ic	---	45.05 s	30.22 s	136.71	---	---	---	217.54
6.80	161,417	243.80	81.62 ic	0.05 ic	5.22 ic	---	46.10 s	30.21 s	154.15	---	---	---	235.73
6.90	164,399	243.90	82.36 ic	0.05 ic	4.96 ic	---	47.12 s	30.22 s	172.29	---	---	---	254.65
7.00	167,382	244.00	83.09 ic	0.05 ic	4.73 ic	---	48.04 s	30.22 s	191.06	---	---	---	274.09

...End

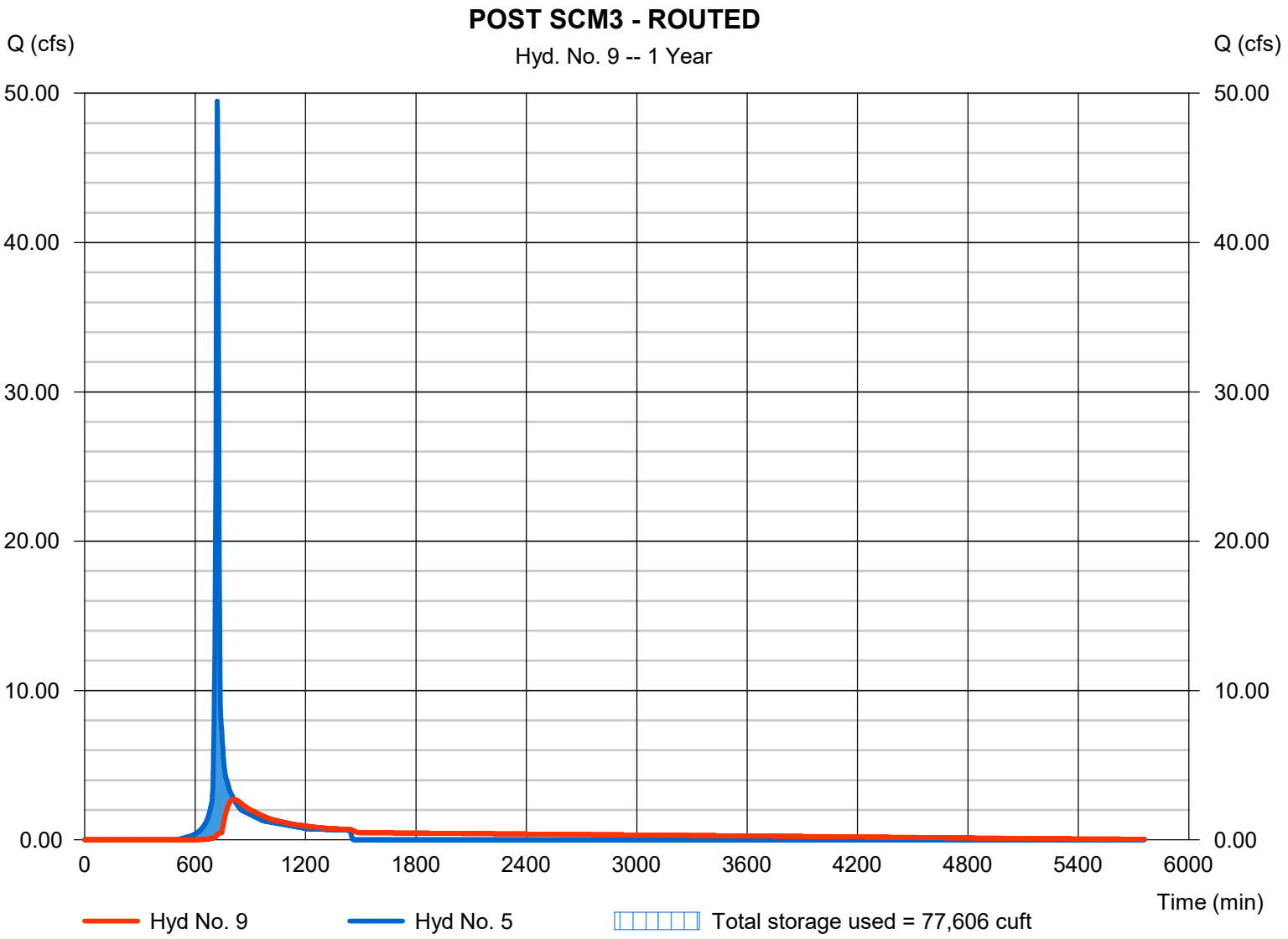
Hydrograph Report

Hyd. No. 9

POST SCM3 - ROUTED

Hydrograph type	=	Reservoir	Peak discharge	=	2.703 cfs
Storm frequency	=	1 yrs	Time to peak	=	812 min
Time interval	=	2 min	Hyd. volume	=	124,588 cuft
Inflow hyd. No.	=	5 - POST POI 1 (SCM 3)	Max. Elevation	=	236.65 ft
Reservoir name	=	SCM3	Max. Storage	=	77,606 cuft

Storage Indication method used.



Pond No. 3 - SCM3

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 234.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	234.00	25,535	0	0
1.00	235.00	28,708	27,103	27,103
2.00	236.00	30,727	29,709	56,812
3.00	237.00	32,802	31,756	88,568
4.00	238.00	34,934	33,859	122,427
5.00	239.00	37,122	36,019	158,446
6.00	240.00	39,368	38,236	196,681
7.00	241.00	41,669	40,509	237,190

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 36.00	3.50	12.00	0.00
Span (in)	= 36.00	3.50	30.00	0.00
No. Barrels	= 2	1	2	0
Invert El. (ft)	= 234.00	234.00	236.40	0.00
Length (ft)	= 53.45	0.00	0.00	0.00
Slope (%)	= 0.71	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	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 30.00	8.00	30.00	0.00
Crest El. (ft)	= 239.00	238.00	239.50	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	Rect	Broad	---
Multi-Stage	= Yes	Yes	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

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).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	234.00	0.00	0.00	0.00	---	0.00	0.00	0.00	---	---	---	0.000
0.10	2,710	234.10	0.03 ic	0.02 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.022
0.20	5,421	234.20	0.08 ic	0.08 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.075
0.30	8,131	234.30	0.14 ic	0.13 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.126
0.40	10,841	234.40	0.17 ic	0.16 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.162
0.50	13,552	234.50	0.19 ic	0.19 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.191
0.60	16,262	234.60	0.23 ic	0.22 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.217
0.70	18,972	234.70	0.26 ic	0.24 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.239
0.80	21,683	234.80	0.26 ic	0.26 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.260
0.90	24,393	234.90	0.30 ic	0.28 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.279
1.00	27,103	235.00	0.30 ic	0.30 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.297
1.10	30,074	235.10	0.31 ic	0.31 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.314
1.20	33,045	235.20	0.35 ic	0.33 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.330
1.30	36,016	235.30	0.35 ic	0.35 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.346
1.40	38,987	235.40	0.36 ic	0.36 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.360
1.50	41,958	235.50	0.40 ic	0.37 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.373
1.60	44,928	235.60	0.40 ic	0.39 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.387
1.70	47,899	235.70	0.40 ic	0.40 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.400
1.80	50,870	235.80	0.41 ic	0.41 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.412
1.90	53,841	235.90	0.45 ic	0.42 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.424
2.00	56,812	236.00	0.45 ic	0.44 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.436
2.10	59,988	236.10	0.45 ic	0.45 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.448
2.20	63,163	236.20	0.46 ic	0.46 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.459
2.30	66,339	236.30	0.47 ic	0.47 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.469
2.40	69,514	236.40	0.52 ic	0.48 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.480
2.50	72,690	236.50	1.02 ic	0.48 ic	0.54 ic	---	0.00	0.00	0.00	---	---	---	1.020
2.60	75,865	236.60	2.08 ic	0.48 ic	1.52 ic	---	0.00	0.00	0.00	---	---	---	2.004
2.70	79,041	236.70	3.29 ic	0.48 ic	2.80 ic	---	0.00	0.00	0.00	---	---	---	3.279
2.80	82,217	236.80	4.90 ic	0.48 ic	4.31 ic	---	0.00	0.00	0.00	---	---	---	4.788
2.90	85,392	236.90	6.59 ic	0.48 ic	6.02 ic	---	0.00	0.00	0.00	---	---	---	6.502
3.00	88,568	237.00	8.61 ic	0.48 ic	7.91 ic	---	0.00	0.00	0.00	---	---	---	8.394
3.10	91,954	237.10	10.47 ic	0.48 ic	9.97 ic	---	0.00	0.00	0.00	---	---	---	10.45
3.20	95,339	237.20	12.66 ic	0.48 ic	12.18 ic	---	0.00	0.00	0.00	---	---	---	12.66
3.30	98,725	237.30	15.46 oc	0.48 ic	14.54 ic	---	0.00	0.00	0.00	---	---	---	15.02
3.40	102,111	237.40	17.98 oc	0.48 ic	17.02 ic	---	0.00	0.00	0.00	---	---	---	17.51

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SCM3

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.50	105,497	237.50	19.54 oc	0.49 ic	18.65 ic	---	0.00	0.00	0.00	---	---	---	19.13
3.60	108,883	237.60	21.13 oc	0.49 ic	20.14 ic	---	0.00	0.00	0.00	---	---	---	20.63
3.70	112,269	237.70	22.21 oc	0.49 ic	21.53 ic	---	0.00	0.00	0.00	---	---	---	22.03
3.80	115,655	237.80	23.83 oc	0.50 ic	22.84 ic	---	0.00	0.00	0.00	---	---	---	23.34
3.90	119,041	237.90	24.91 oc	0.50 ic	24.08 ic	---	0.00	0.00	0.00	---	---	---	24.58
4.00	122,427	238.00	26.00 oc	0.51 ic	25.25 ic	---	0.00	0.00	0.00	---	---	---	25.76
4.10	126,029	238.10	28.17 oc	0.51 ic	26.37 ic	---	0.00	0.84	0.00	---	---	---	27.72
4.20	129,630	238.20	30.85 oc	0.51 ic	27.45 ic	---	0.00	2.38	0.00	---	---	---	30.34
4.30	133,232	238.30	33.46 oc	0.51 ic	28.49 ic	---	0.00	4.38	0.00	---	---	---	33.37
4.40	136,834	238.40	36.93 oc	0.50 ic	29.49 ic	---	0.00	6.74	0.00	---	---	---	36.72
4.50	140,436	238.50	40.54 oc	0.49 ic	30.45 ic	---	0.00	9.42	0.00	---	---	---	40.36
4.60	144,038	238.60	44.40 oc	0.48 ic	31.39 ic	---	0.00	12.38	0.00	---	---	---	44.25
4.70	147,640	238.70	48.55 oc	0.46 ic	32.30 ic	---	0.00	15.60	0.00	---	---	---	48.37
4.80	151,242	238.80	51.69 oc	0.43 ic	32.19 ic	---	0.00	19.06	0.00	---	---	---	51.69
4.90	154,844	238.90	55.71 oc	0.43 ic	32.52 ic	---	0.00	22.75	0.00	---	---	---	55.71
5.00	158,446	239.00	59.87 oc	0.44 ic	32.79 ic	---	0.00	26.64	0.00	---	---	---	59.87
5.10	162,269	239.10	66.86 oc	0.43 ic	32.52 ic	---	3.16	30.73	0.00	---	---	---	66.85
5.20	166,093	239.20	76.06 oc	0.42 ic	31.69 ic	---	8.94	35.02	0.00	---	---	---	76.06
5.30	169,916	239.30	86.59 oc	0.40 ic	30.28 ic	---	16.42	39.49	0.00	---	---	---	86.58
5.40	173,740	239.40	97.96 oc	0.38 ic	28.22 ic	---	25.27	44.09 s	0.00	---	---	---	97.96
5.50	177,563	239.50	108.41 oc	0.35 ic	25.91 ic	---	35.32	46.82 s	0.00	---	---	---	108.40
5.60	181,387	239.60	118.00 oc	0.31 ic	23.35 ic	---	46.43	47.90 s	3.16	---	---	---	121.16
5.70	185,210	239.70	126.76 oc	0.27 ic	20.52 ic	---	58.51	47.45 s	8.94	---	---	---	135.69
5.80	189,034	239.80	131.58 ic	0.24 ic	18.06 ic	---	66.79 s	46.49 s	16.42	---	---	---	147.99
5.90	192,858	239.90	135.12 ic	0.22 ic	16.31 ic	---	72.56 s	46.03 s	25.28	---	---	---	160.40
6.00	196,681	240.00	138.11 ic	0.20 ic	14.88 ic	---	77.34 s	45.68 s	35.32	---	---	---	173.43
6.10	200,732	240.10	140.76 ic	0.18 ic	13.68 ic	---	81.49 s	45.39 s	46.43	---	---	---	187.17
6.20	204,783	240.20	143.15 ic	0.17 ic	12.66 ic	---	85.16 s	45.15 s	58.51	---	---	---	201.64
6.30	208,834	240.30	145.36 ic	0.16 ic	11.77 ic	---	88.48 s	44.95 s	71.48	---	---	---	216.84
6.40	212,885	240.40	147.42 ic	0.15 ic	10.99 ic	---	91.50 s	44.79 s	85.30	---	---	---	232.72
6.50	216,936	240.50	149.38 ic	0.14 ic	10.30 ic	---	94.27 s	44.66 s	99.90	---	---	---	249.27
6.60	220,987	240.60	151.25 ic	0.13 ic	9.69 ic	---	96.85 s	44.55 s	115.25	---	---	---	266.47
6.70	225,038	240.70	153.04 ic	0.12 ic	9.14 ic	---	99.26 s	44.48 s	131.32	---	---	---	284.33
6.80	229,088	240.80	154.77 ic	0.12 ic	8.65 ic	---	101.55 s	44.43 s	148.08	---	---	---	302.82
6.90	233,139	240.90	156.45 ic	0.11 ic	8.21 ic	---	103.69 s	44.40 s	165.50	---	---	---	321.90
7.00	237,190	241.00	158.08 ic	0.10 ic	7.81 ic	---	105.75 s	44.39 s	183.53	---	---	---	341.58

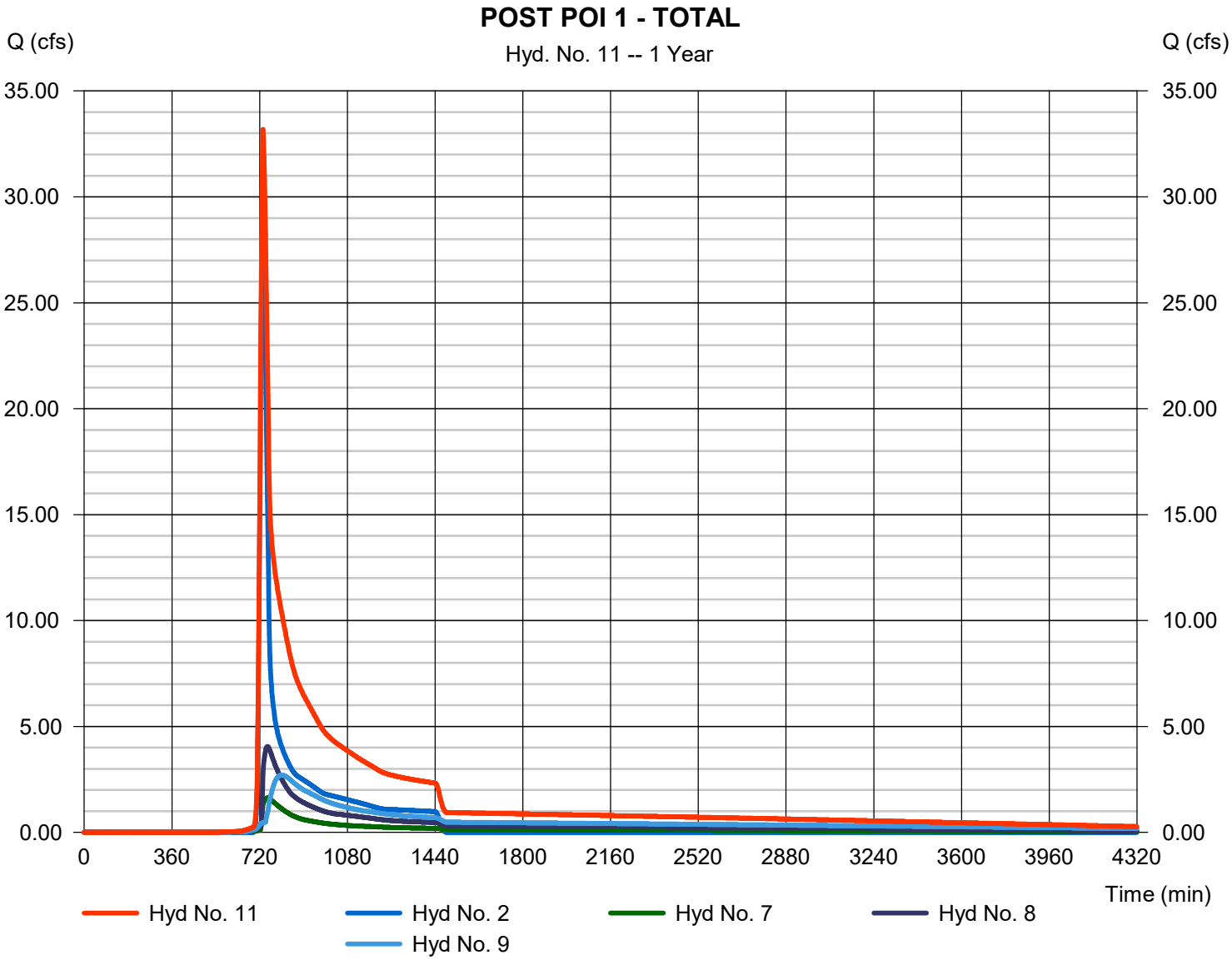
...End

Hydrograph Report

Hyd. No. 11

POST POI 1 - TOTAL

Hydrograph type	= Combine	Peak discharge	= 33.19 cfs
Storm frequency	= 1 yrs	Time to peak	= 734 min
Time interval	= 2 min	Hyd. volume	= 384,936 cuft
Inflow hyds.	= 2, 7, 8, 9	Contrib. drain. area	= 54.810 ac

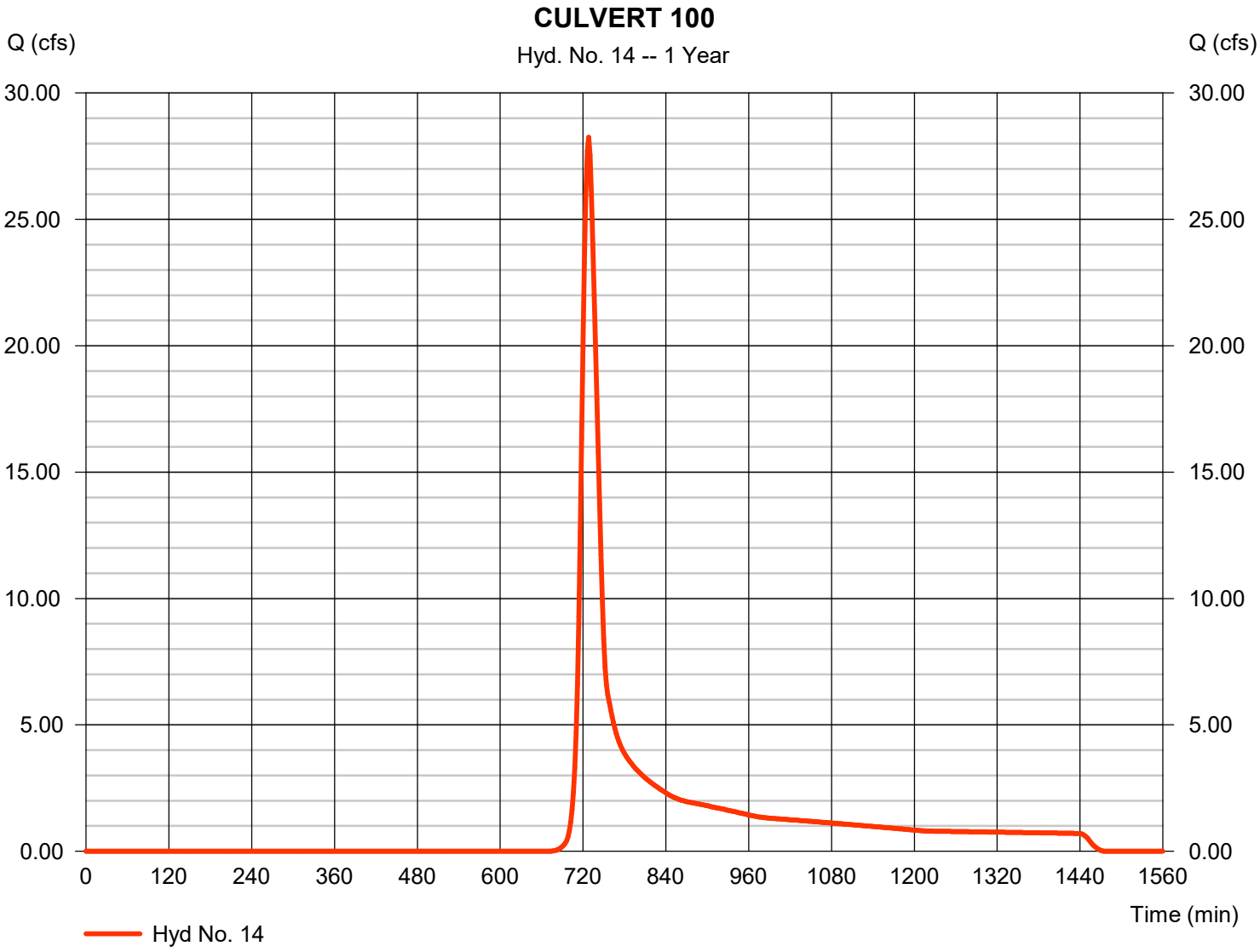


Hydrograph Report

Hyd. No. 14

CULVERT 100

Hydrograph type	=	SCS Runoff	Peak discharge	=	28.25 cfs
Storm frequency	=	1 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	106,251 cuft
Drainage area	=	35.040 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	22.00 min
Total precip.	=	2.86 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

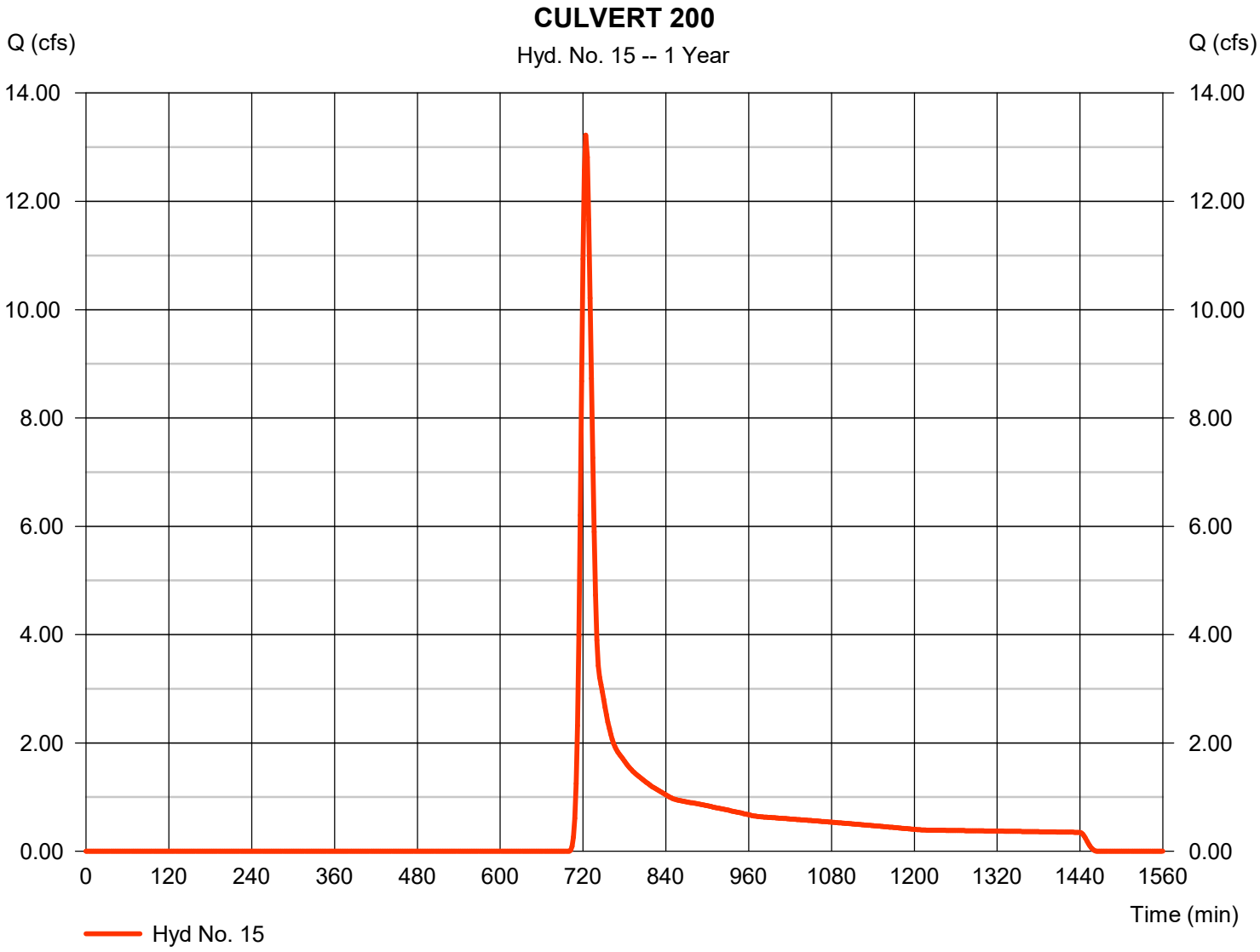


Hydrograph Report

Hyd. No. 15

CULVERT 200

Hydrograph type	=	SCS Runoff	Peak discharge	=	13.22 cfs
Storm frequency	=	1 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	44,469 cuft
Drainage area	=	22.610 ac	Curve number	=	68
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	14.00 min
Total precip.	=	2.86 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

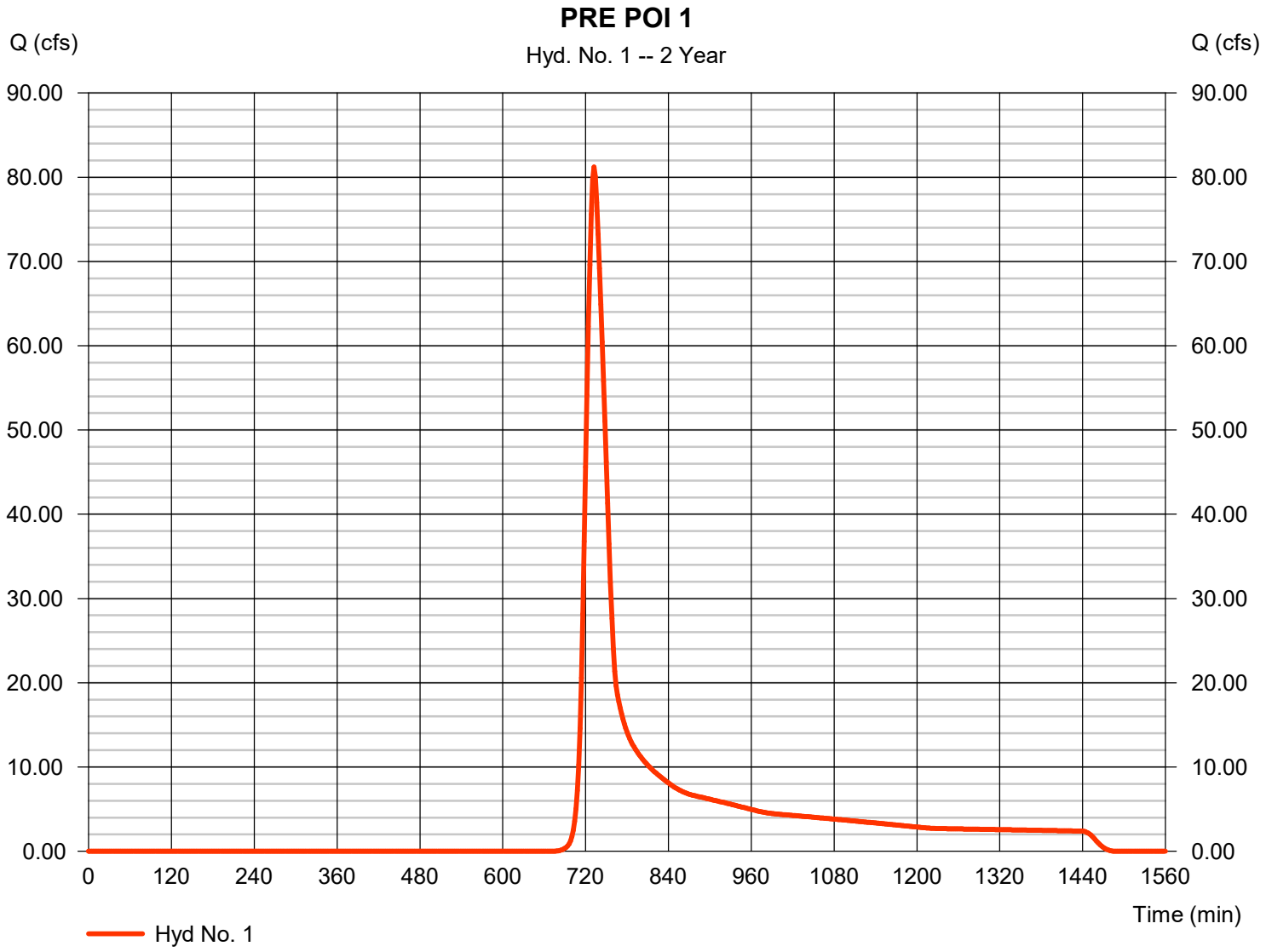
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	81.22	2	732	358,436	------	------	------	PRE POI 1
2	SCS Runoff	47.52	2	732	206,600	------	------	------	POST POI 1 (BYPASS)
3	SCS Runoff	18.84	2	720	49,096	------	------	------	POST POI 1 (SCM 1)
4	SCS Runoff	46.30	2	720	120,171	------	------	------	POST PO1 (SCM 2)
5	SCS Runoff	66.57	2	720	172,764	------	------	------	POST POI 1 (SCM 3)
7	Reservoir	3.060	2	738	48,877	3	252.59	24,784	POST SCM1 - ROUTED
8	Reservoir	13.03	2	734	118,960	4	239.82	56,168	POST SCM2 - ROUTED
9	Reservoir	9.079	2	746	169,015	5	237.03	89,694	POST SCM3 - ROUTED
11	Combine	70.75	2	734	543,453	2, 7, 8, 9,	------	------	POST POI 1 - TOTAL
14	SCS Runoff	43.52	2	728	156,964	------	------	------	CULVERT 100
15	SCS Runoff	22.89	2	724	70,273	------	------	------	CULVERT 200

Hydrograph Report

Hyd. No. 1

PRE POI 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	81.22 cfs
Storm frequency	=	2 yrs	Time to peak	=	732 min
Time interval	=	2 min	Hyd. volume	=	358,436 cuft
Drainage area	=	100.400 ac	Curve number	=	70
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	27.00 min
Total precip.	=	3.46 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

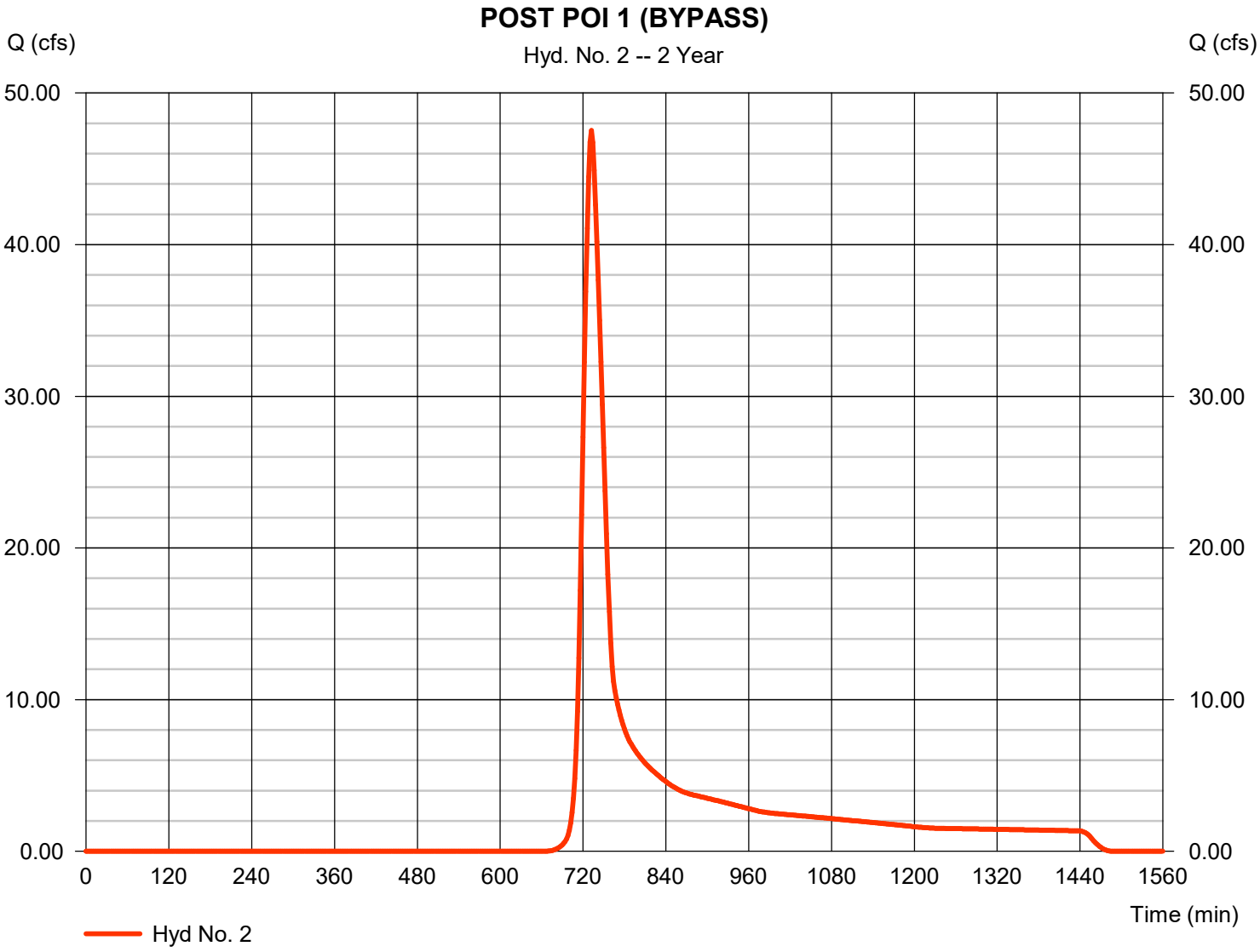


Hydrograph Report

Hyd. No. 2

POST POI 1 (BYPASS)

Hydrograph type	=	SCS Runoff	Peak discharge	=	47.52 cfs
Storm frequency	=	2 yrs	Time to peak	=	732 min
Time interval	=	2 min	Hyd. volume	=	206,600 cuft
Drainage area	=	54.810 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	27.00 min
Total precip.	=	3.46 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

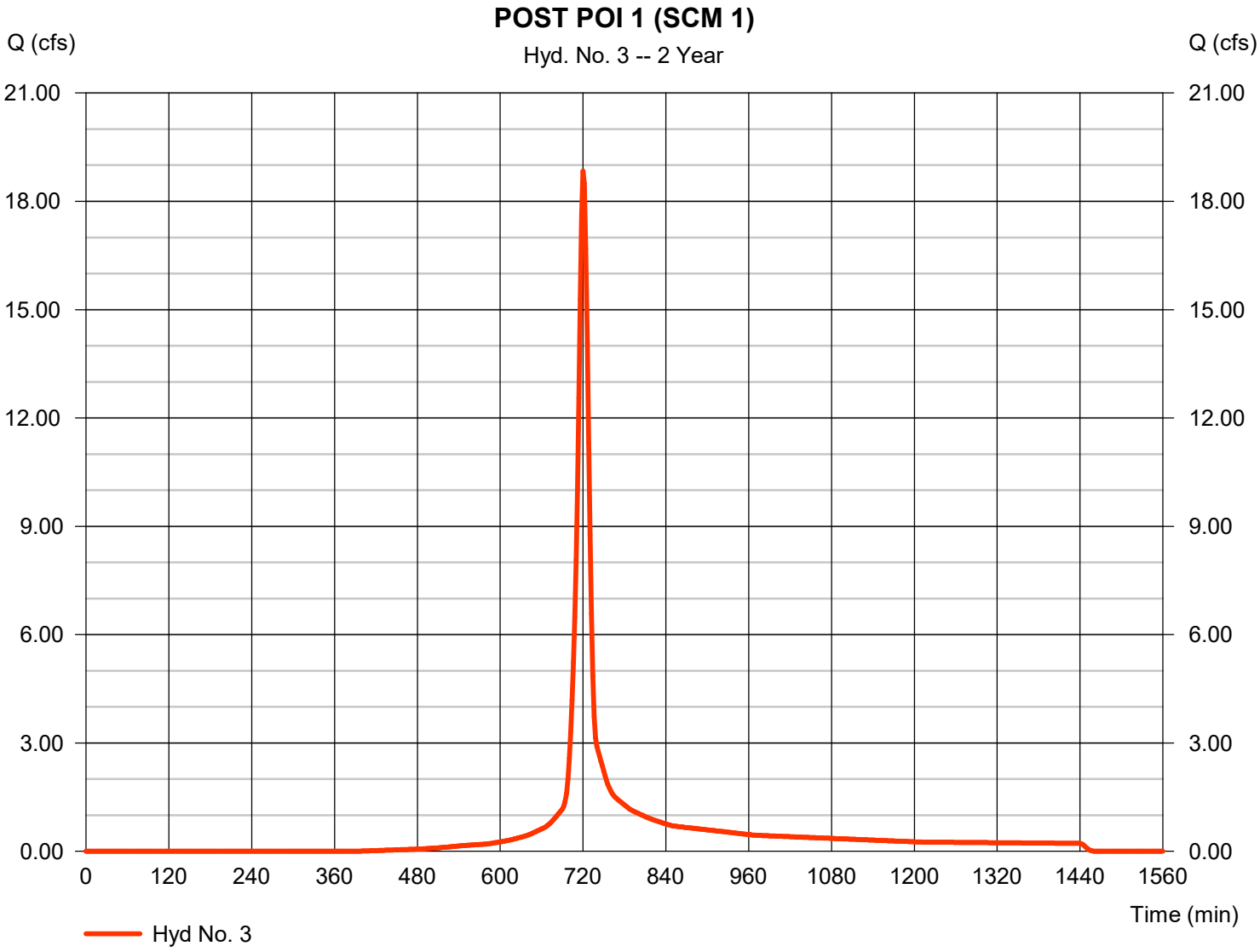


Hydrograph Report

Hyd. No. 3

POST POI 1 (SCM 1)

Hydrograph type	= SCS Runoff	Peak discharge	= 18.84 cfs
Storm frequency	= 2 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 49,096 cuft
Drainage area	= 6.110 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 3.46 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

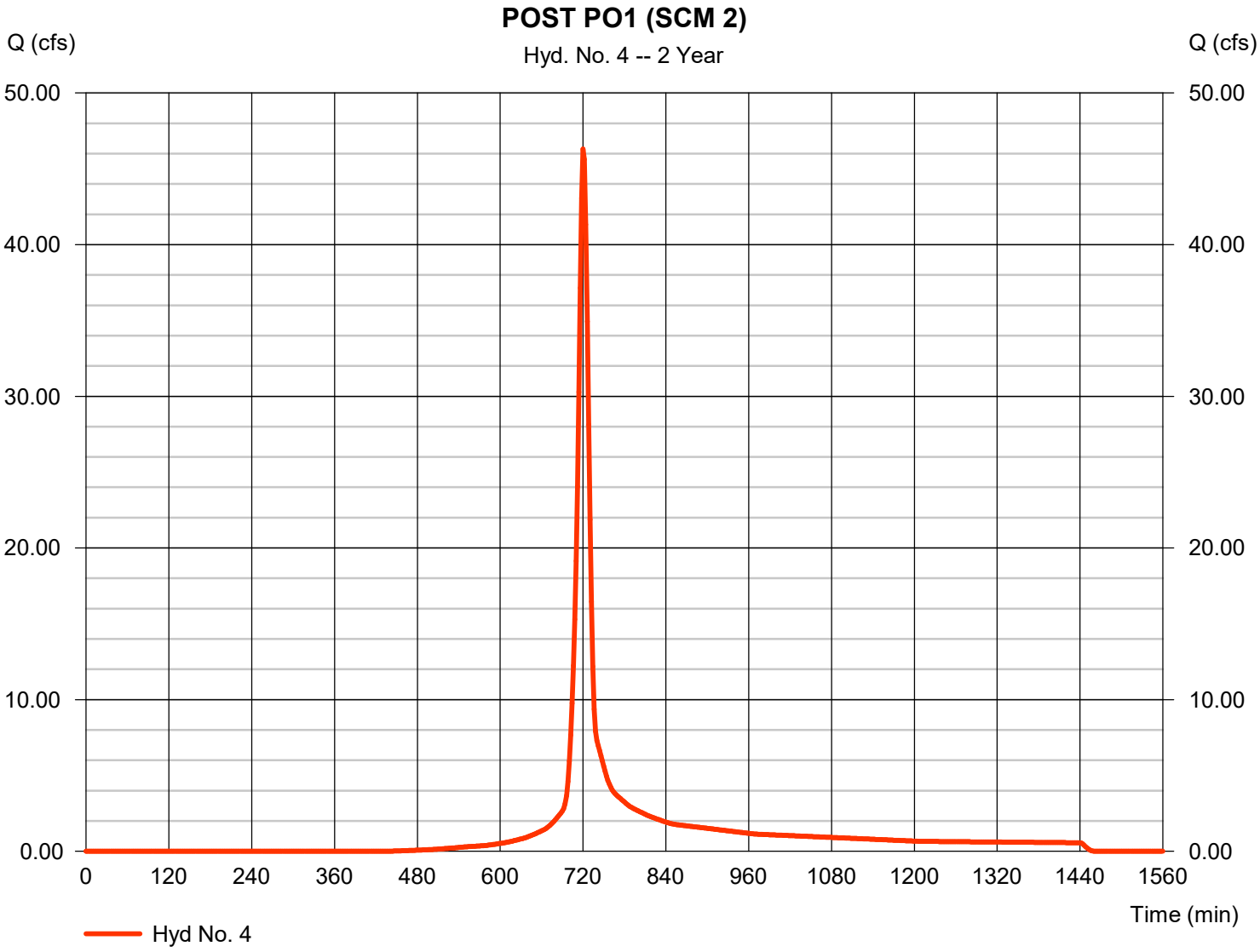


Hydrograph Report

Hyd. No. 4

POST PO1 (SCM 2)

Hydrograph type	=	SCS Runoff	Peak discharge	=	46.30 cfs
Storm frequency	=	2 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	120,171 cuft
Drainage area	=	16.200 ac	Curve number	=	85
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	3.46 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

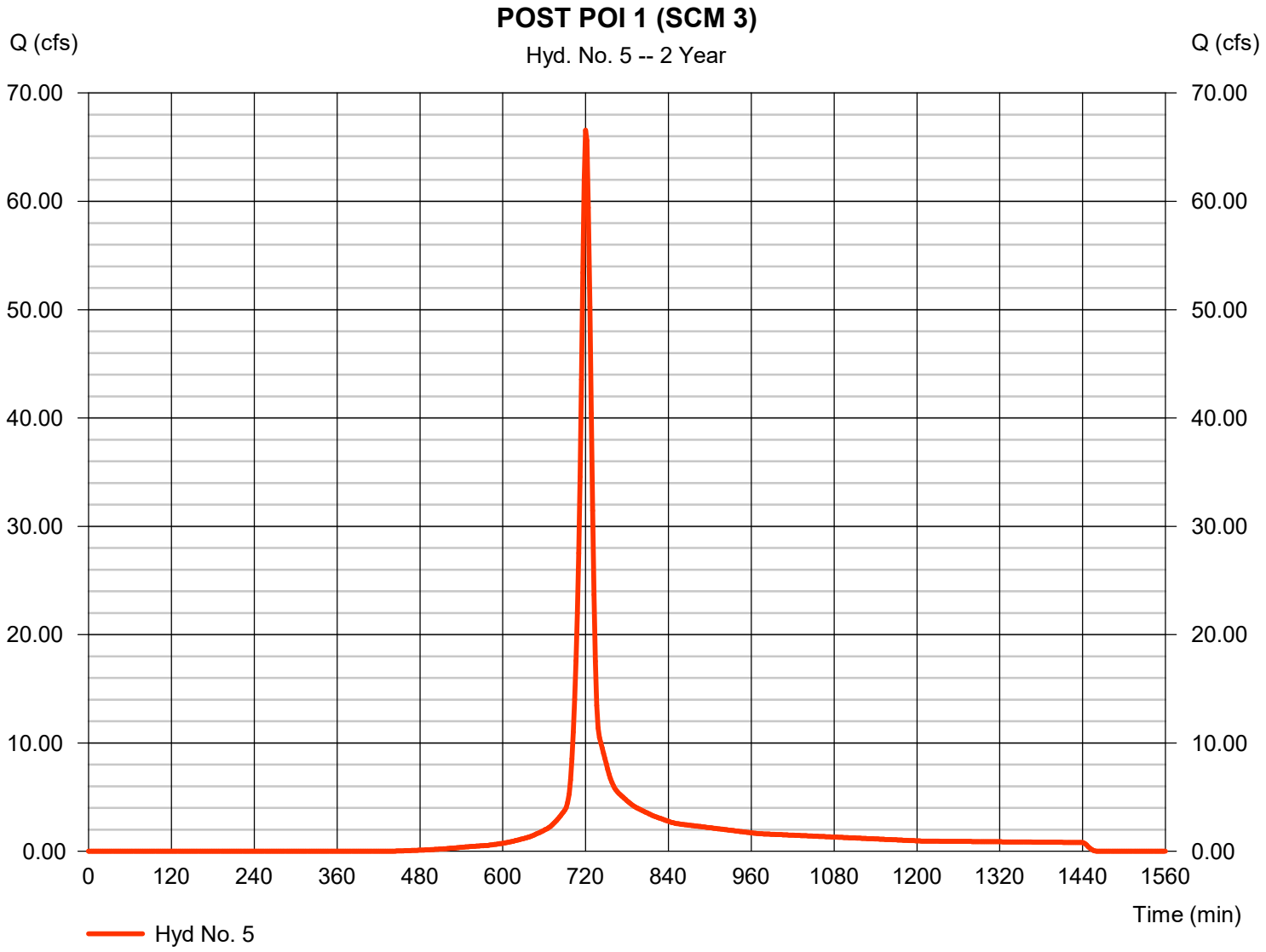


Hydrograph Report

Hyd. No. 5

POST POI 1 (SCM 3)

Hydrograph type	=	SCS Runoff	Peak discharge	=	66.57 cfs
Storm frequency	=	2 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	172,764 cuft
Drainage area	=	23.290 ac	Curve number	=	85
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	3.46 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



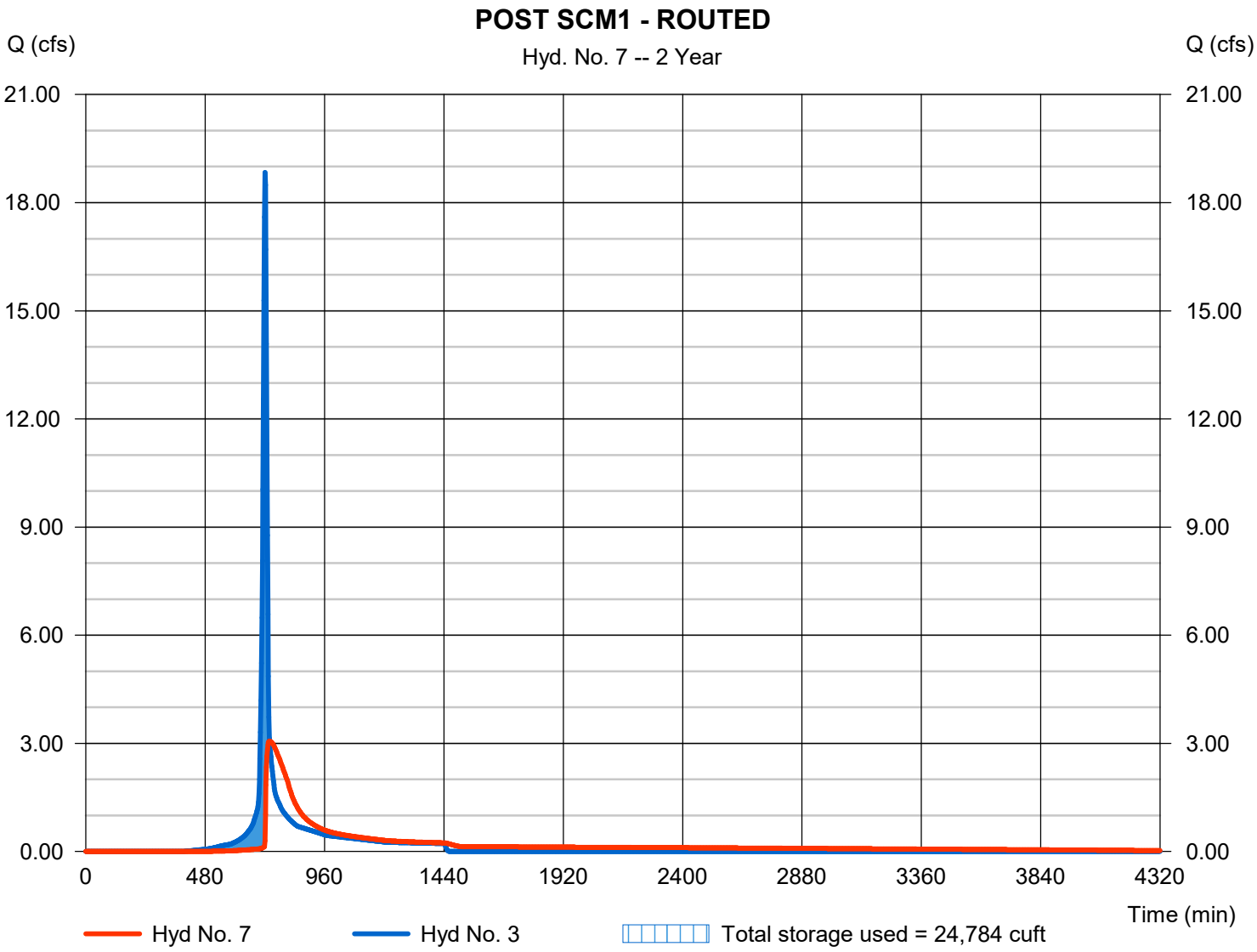
Hydrograph Report

Hyd. No. 7

POST SCM1 - ROUTED

Hydrograph type	=	Reservoir	Peak discharge	=	3.060 cfs
Storm frequency	=	2 yrs	Time to peak	=	738 min
Time interval	=	2 min	Hyd. volume	=	48,877 cuft
Inflow hyd. No.	=	3 - POST POI 1 (SCM 1)	Max. Elevation	=	252.59 ft
Reservoir name	=	SCM1	Max. Storage	=	24,784 cuft

Storage Indication method used.



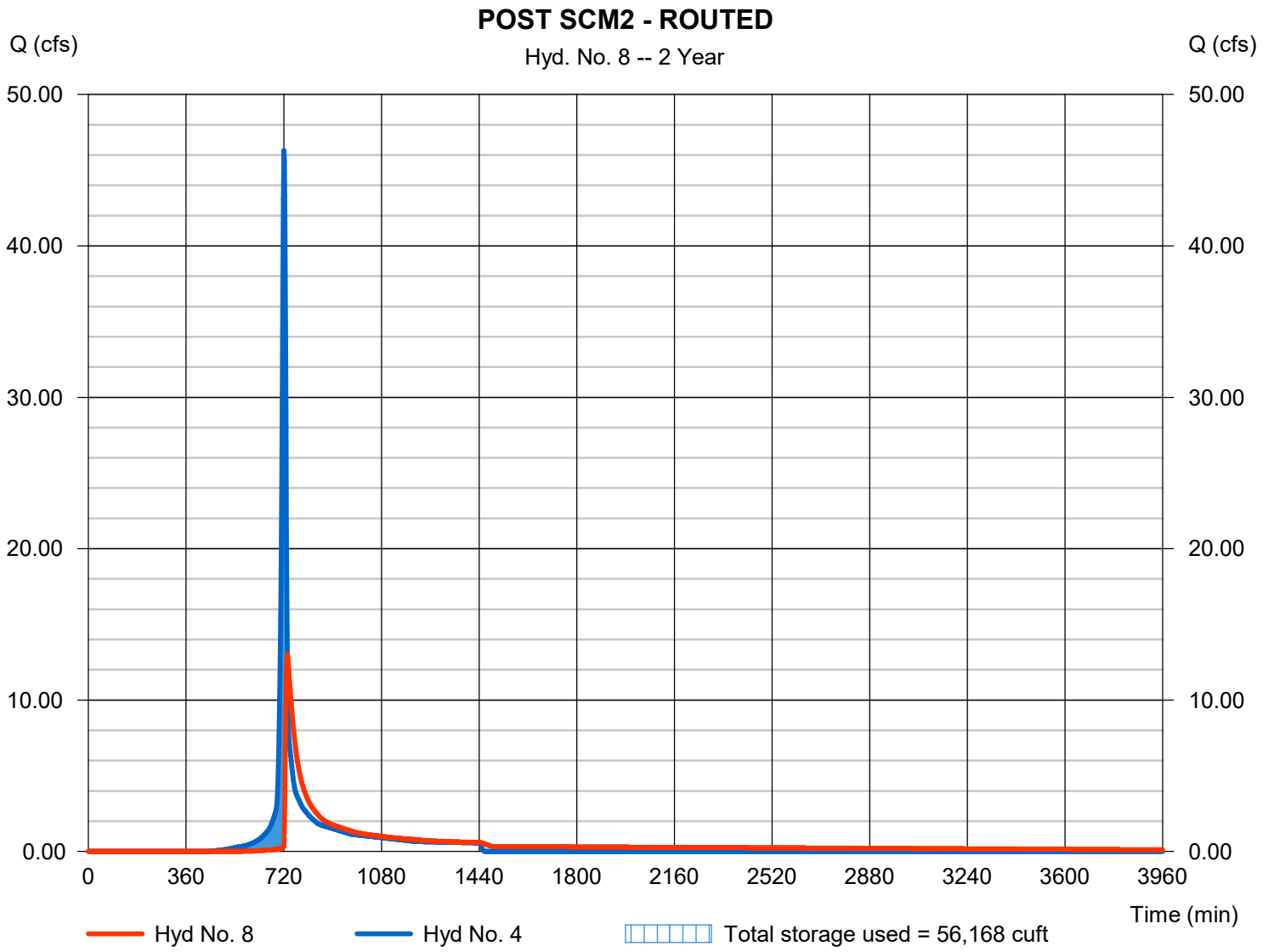
Hydrograph Report

Hyd. No. 8

POST SCM2 - ROUTED

Hydrograph type	=	Reservoir	Peak discharge	=	13.03 cfs
Storm frequency	=	2 yrs	Time to peak	=	734 min
Time interval	=	2 min	Hyd. volume	=	118,960 cuft
Inflow hyd. No.	=	4 - POST PO1 (SCM 2)	Max. Elevation	=	239.82 ft
Reservoir name	=	SCM2	Max. Storage	=	56,168 cuft

Storage Indication method used.



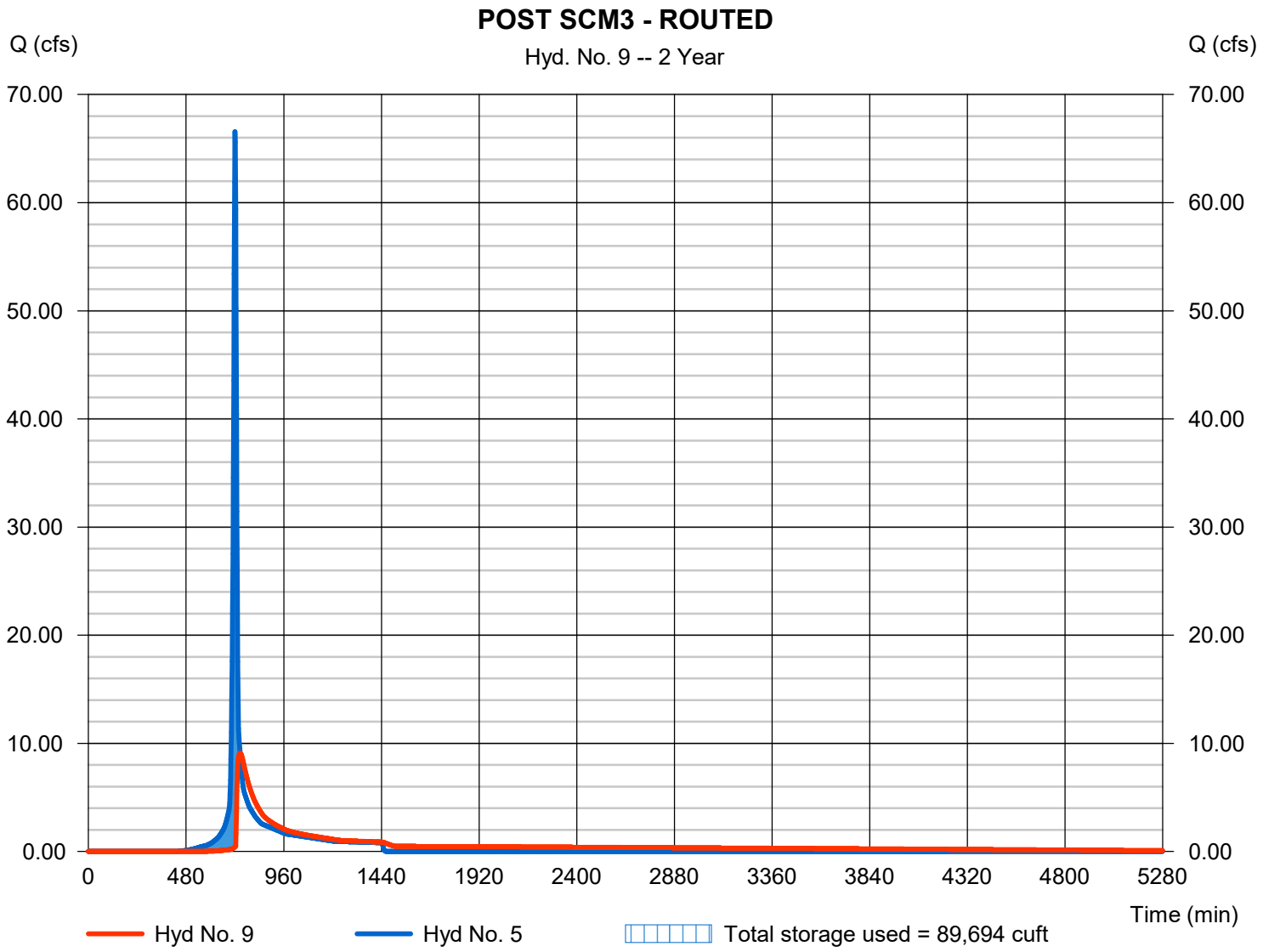
Hydrograph Report

Hyd. No. 9

POST SCM3 - ROUTED

Hydrograph type	=	Reservoir	Peak discharge	=	9.079 cfs
Storm frequency	=	2 yrs	Time to peak	=	746 min
Time interval	=	2 min	Hyd. volume	=	169,015 cuft
Inflow hyd. No.	=	5 - POST POI 1 (SCM 3)	Max. Elevation	=	237.03 ft
Reservoir name	=	SCM3	Max. Storage	=	89,694 cuft

Storage Indication method used.

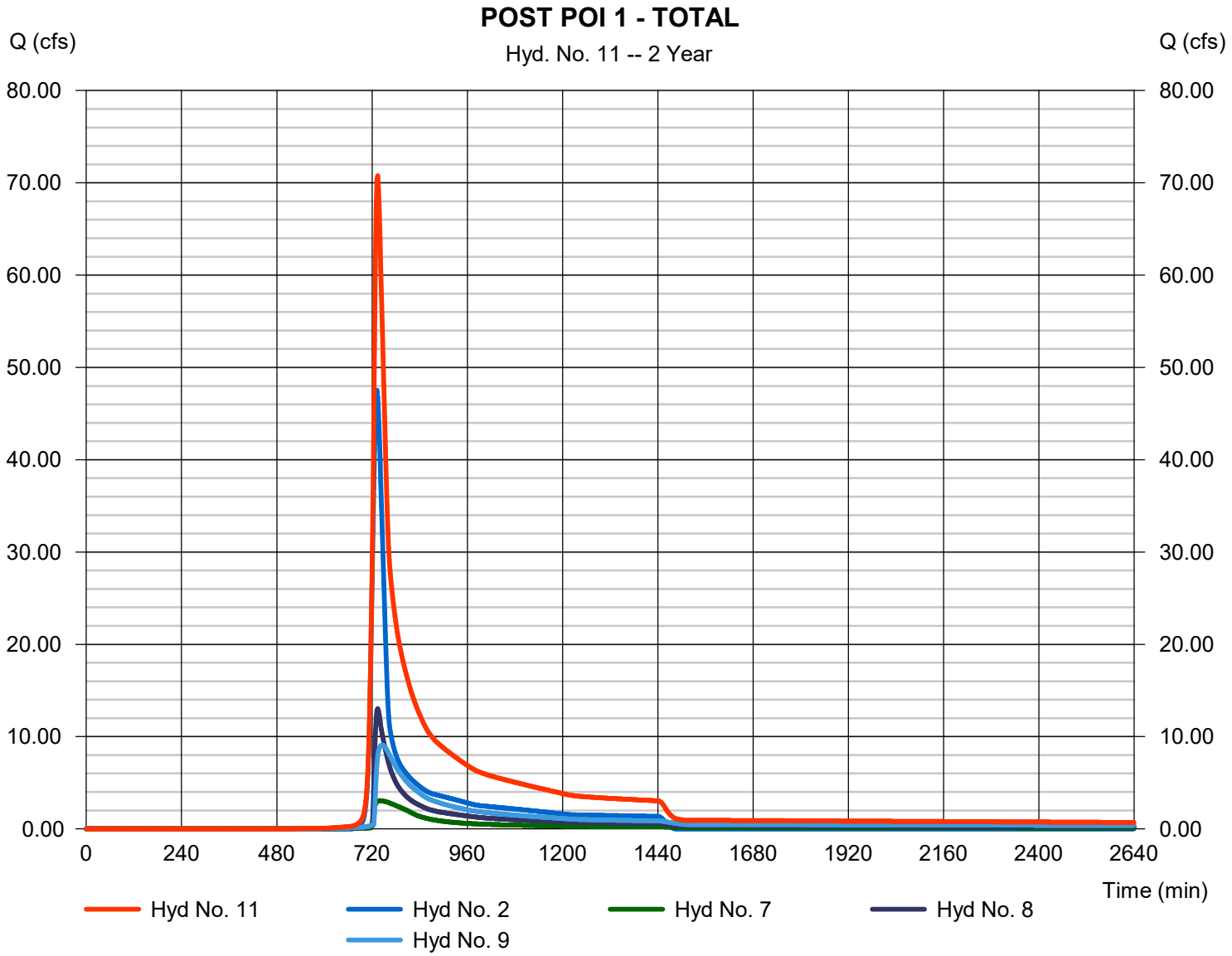


Hydrograph Report

Hyd. No. 11

POST POI 1 - TOTAL

Hydrograph type	= Combine	Peak discharge	= 70.75 cfs
Storm frequency	= 2 yrs	Time to peak	= 734 min
Time interval	= 2 min	Hyd. volume	= 543,453 cuft
Inflow hyds.	= 2, 7, 8, 9	Contrib. drain. area	= 54.810 ac

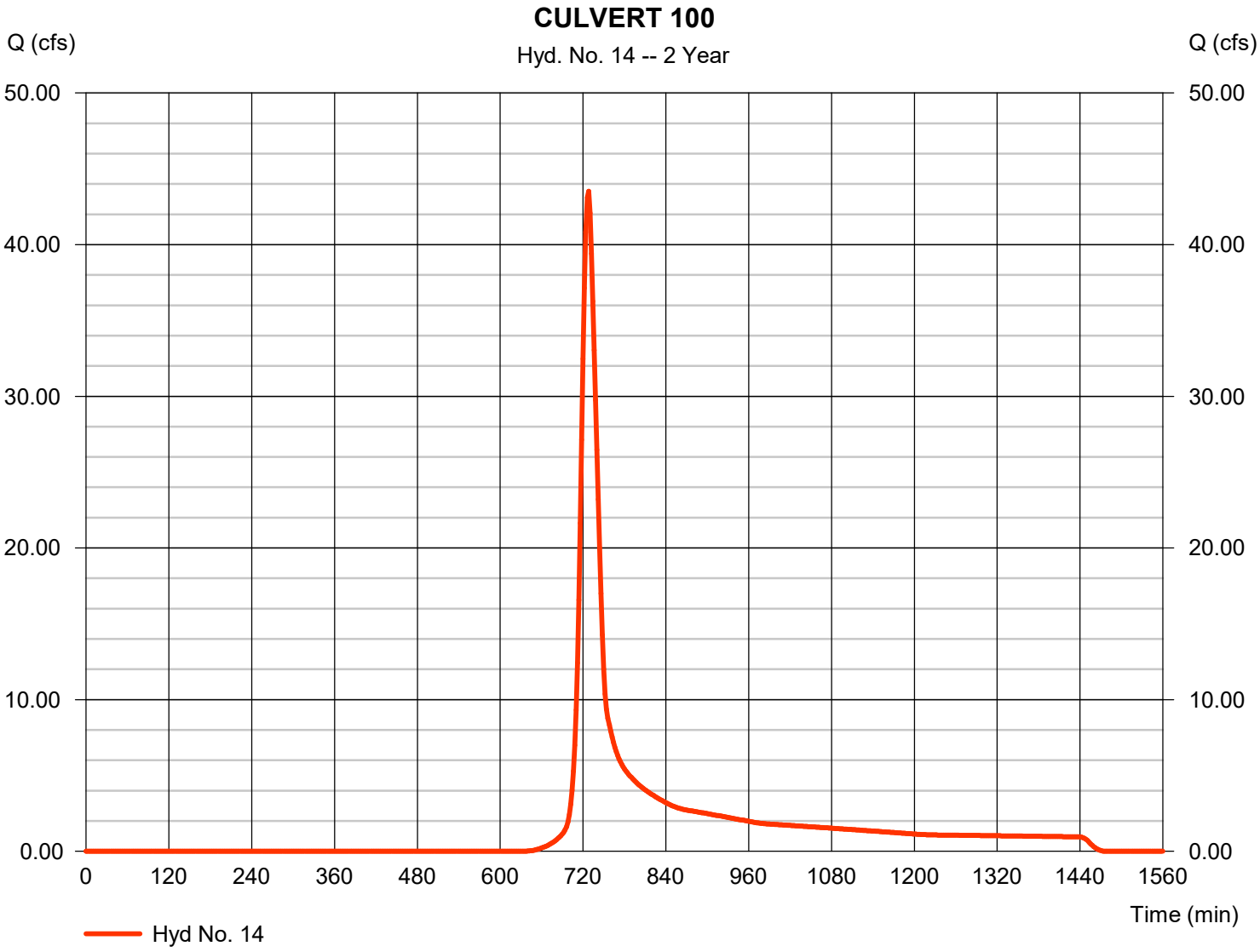


Hydrograph Report

Hyd. No. 14

CULVERT 100

Hydrograph type	=	SCS Runoff	Peak discharge	=	43.52 cfs
Storm frequency	=	2 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	156,964 cuft
Drainage area	=	35.040 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	22.00 min
Total precip.	=	3.46 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

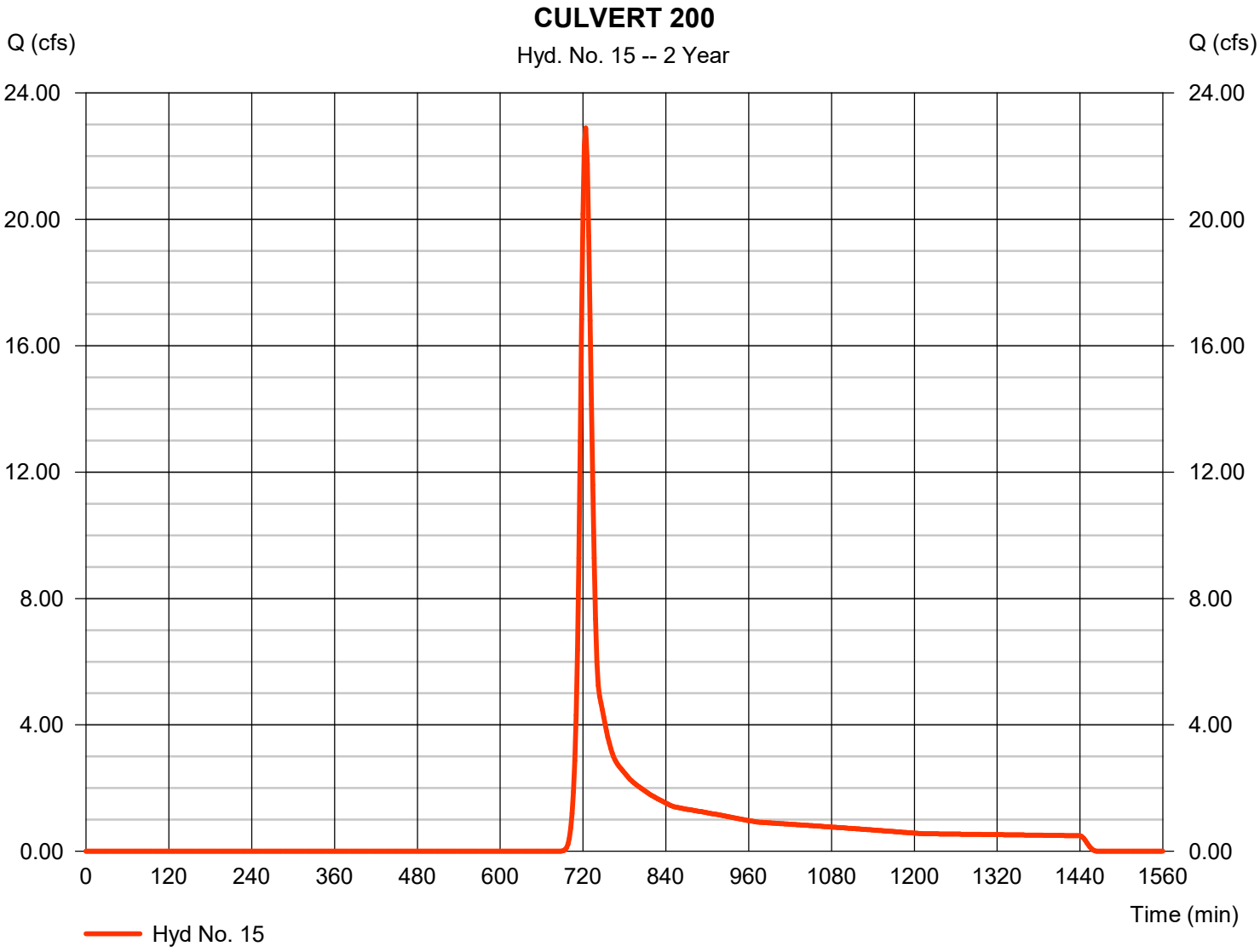


Hydrograph Report

Hyd. No. 15

CULVERT 200

Hydrograph type	=	SCS Runoff	Peak discharge	=	22.89 cfs
Storm frequency	=	2 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	70,273 cuft
Drainage area	=	22.610 ac	Curve number	=	68
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	14.00 min
Total precip.	=	3.46 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

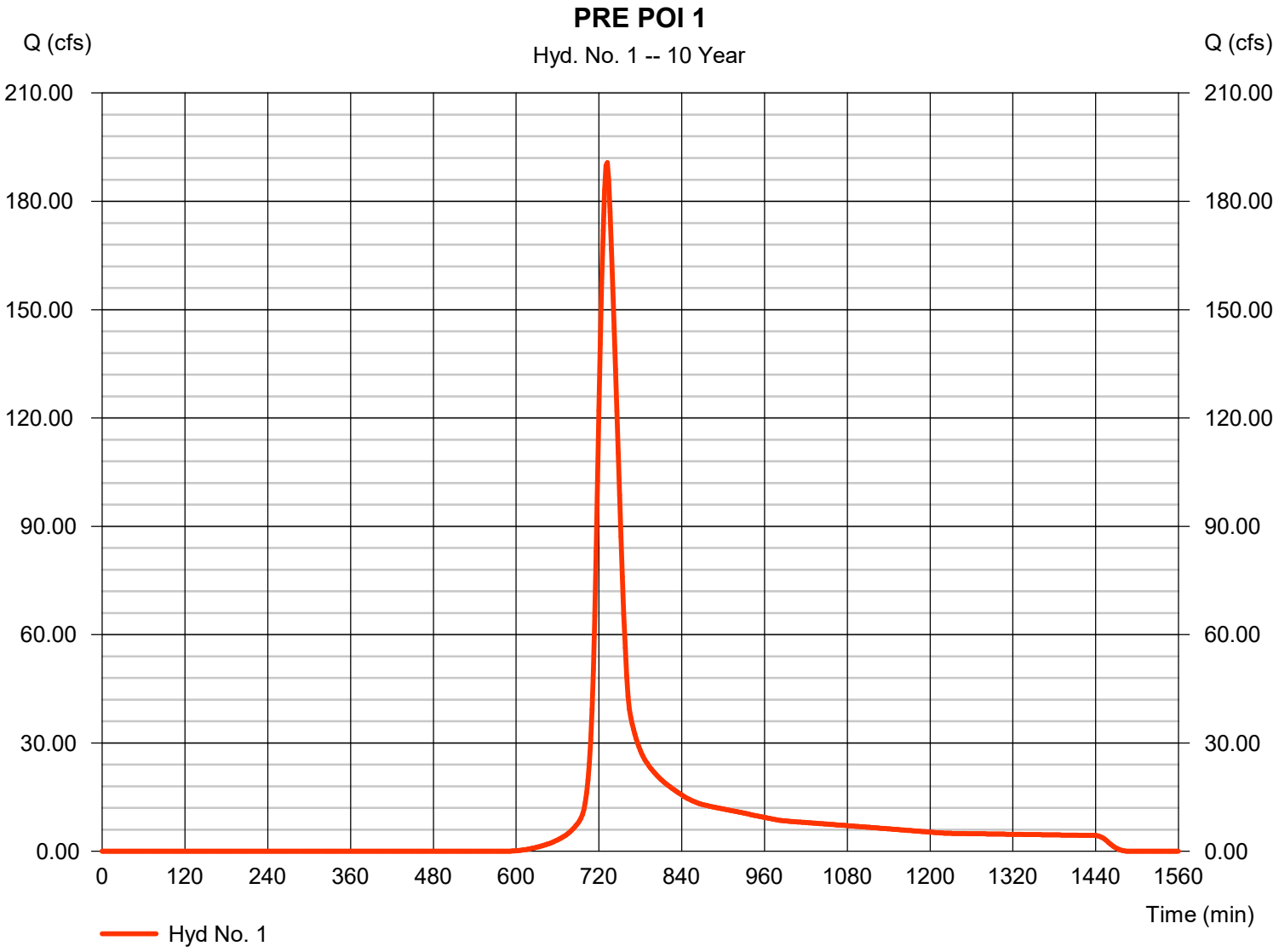
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	190.70	2	732	780,187	------	------	------	PRE POI 1
2	SCS Runoff	108.56	2	732	442,267	------	------	------	POST POI 1 (BYPASS)
3	SCS Runoff	31.86	2	720	84,612	------	------	------	POST POI 1 (SCM 1)
4	SCS Runoff	80.59	2	720	212,112	------	------	------	POST PO1 (SCM 2)
5	SCS Runoff	115.86	2	720	304,944	------	------	------	POST POI 1 (SCM 3)
7	Reservoir	5.989	2	736	84,385	3	254.03	42,982	POST SCM1 - ROUTED
8	Reservoir	32.64	2	730	210,878	4	241.20	89,046	POST SCM2 - ROUTED
9	Reservoir	41.16	2	732	301,116	5	238.52	141,170	POST SCM3 - ROUTED
11	Combine	187.67	2	732	1,038,647	2, 7, 8, 9,	------	------	POST POI 1 - TOTAL
14	SCS Runoff	92.14	2	726	320,615	------	------	------	CULVERT 100
15	SCS Runoff	55.28	2	722	158,433	------	------	------	CULVERT 200

Hydrograph Report

Hyd. No. 1

PRE POI 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	190.70 cfs
Storm frequency	=	10 yrs	Time to peak	=	732 min
Time interval	=	2 min	Hyd. volume	=	780,187 cuft
Drainage area	=	100.400 ac	Curve number	=	70
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	27.00 min
Total precip.	=	5.14 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

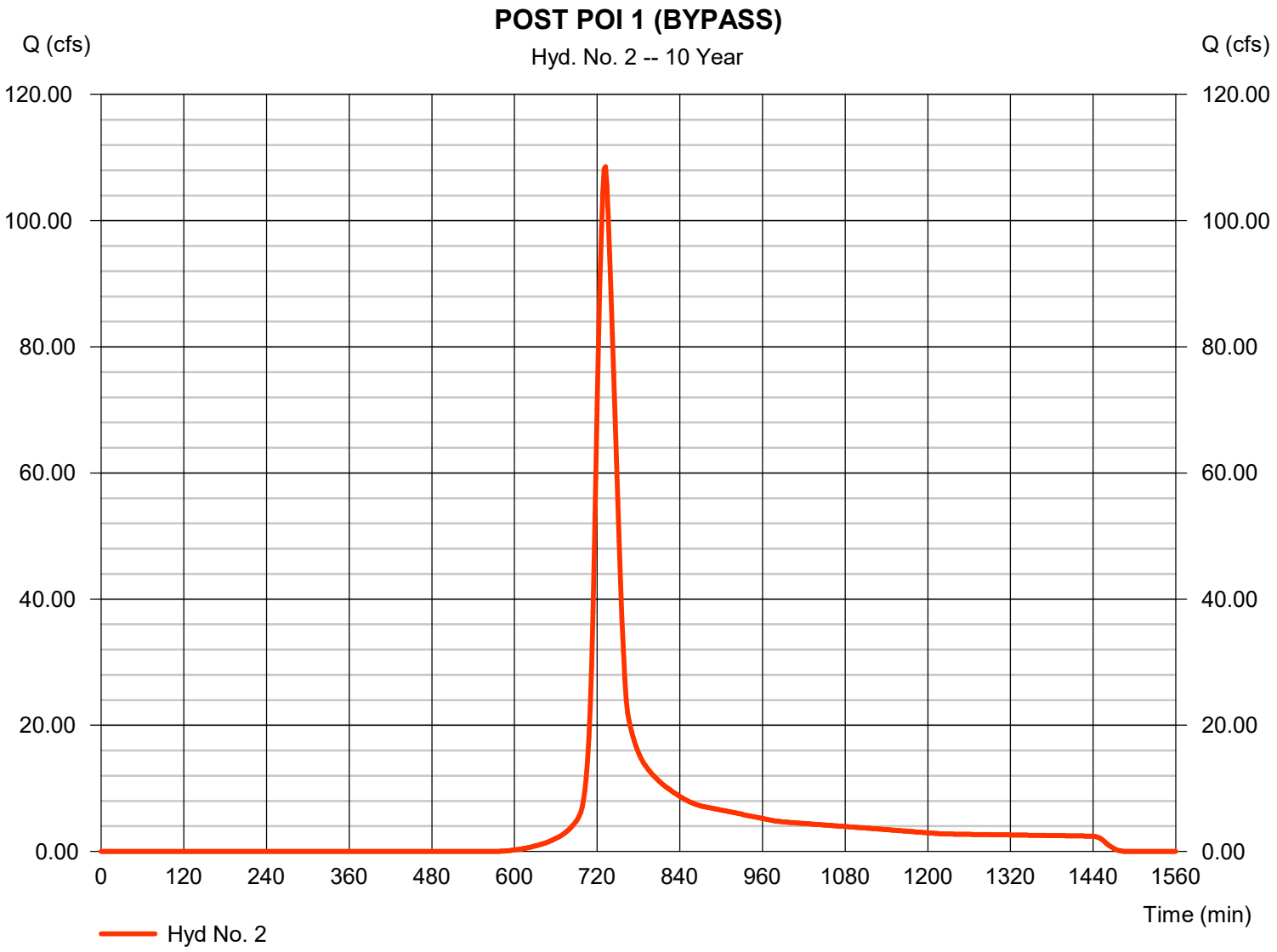


Hydrograph Report

Hyd. No. 2

POST POI 1 (BYPASS)

Hydrograph type	=	SCS Runoff	Peak discharge	=	108.56 cfs
Storm frequency	=	10 yrs	Time to peak	=	732 min
Time interval	=	2 min	Hyd. volume	=	442,267 cuft
Drainage area	=	54.810 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	27.00 min
Total precip.	=	5.14 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

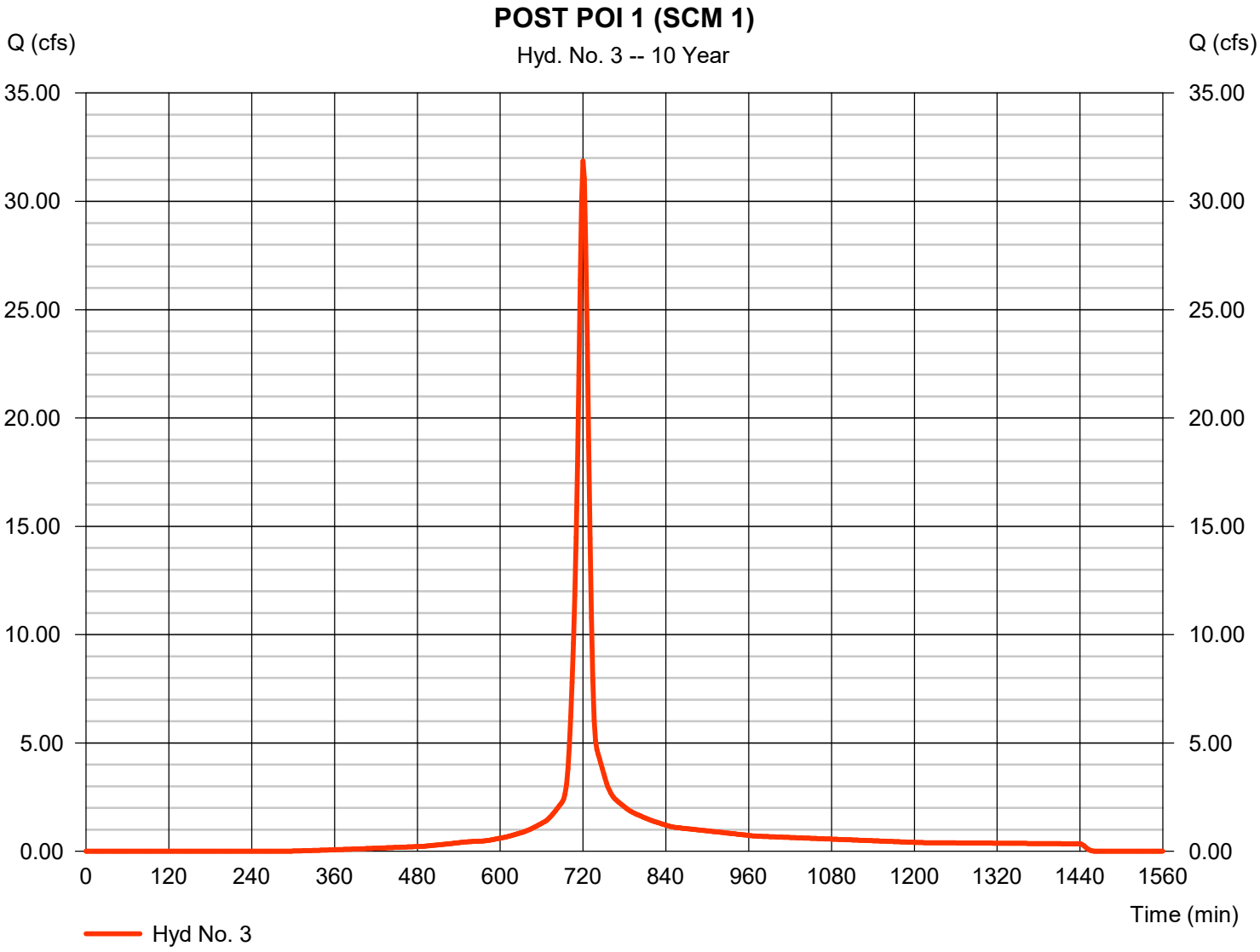


Hydrograph Report

Hyd. No. 3

POST POI 1 (SCM 1)

Hydrograph type	= SCS Runoff	Peak discharge	= 31.86 cfs
Storm frequency	= 10 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 84,612 cuft
Drainage area	= 6.110 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 5.14 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

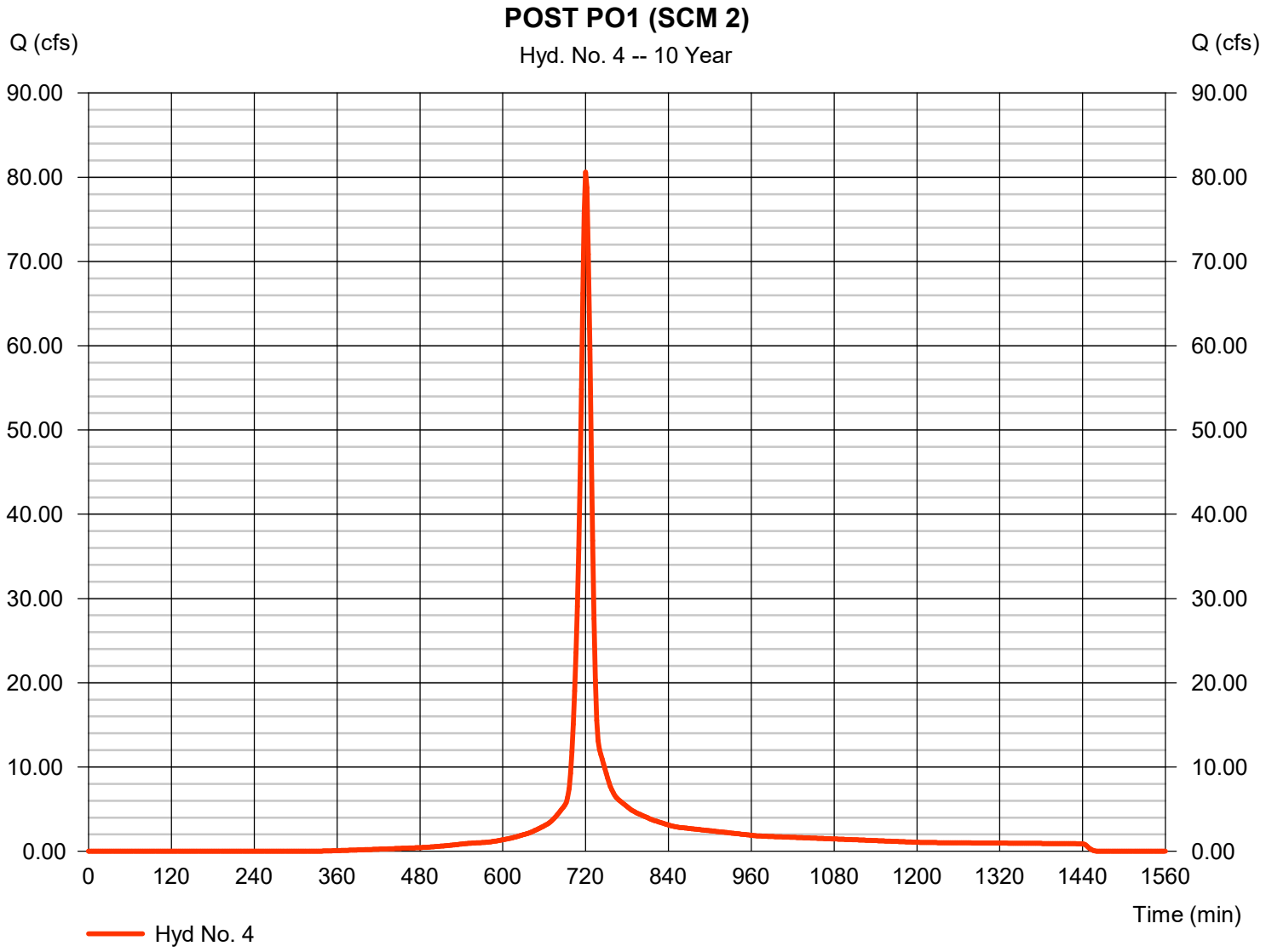


Hydrograph Report

Hyd. No. 4

POST PO1 (SCM 2)

Hydrograph type	=	SCS Runoff	Peak discharge	=	80.59 cfs
Storm frequency	=	10 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	212,112 cuft
Drainage area	=	16.200 ac	Curve number	=	85
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	5.14 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

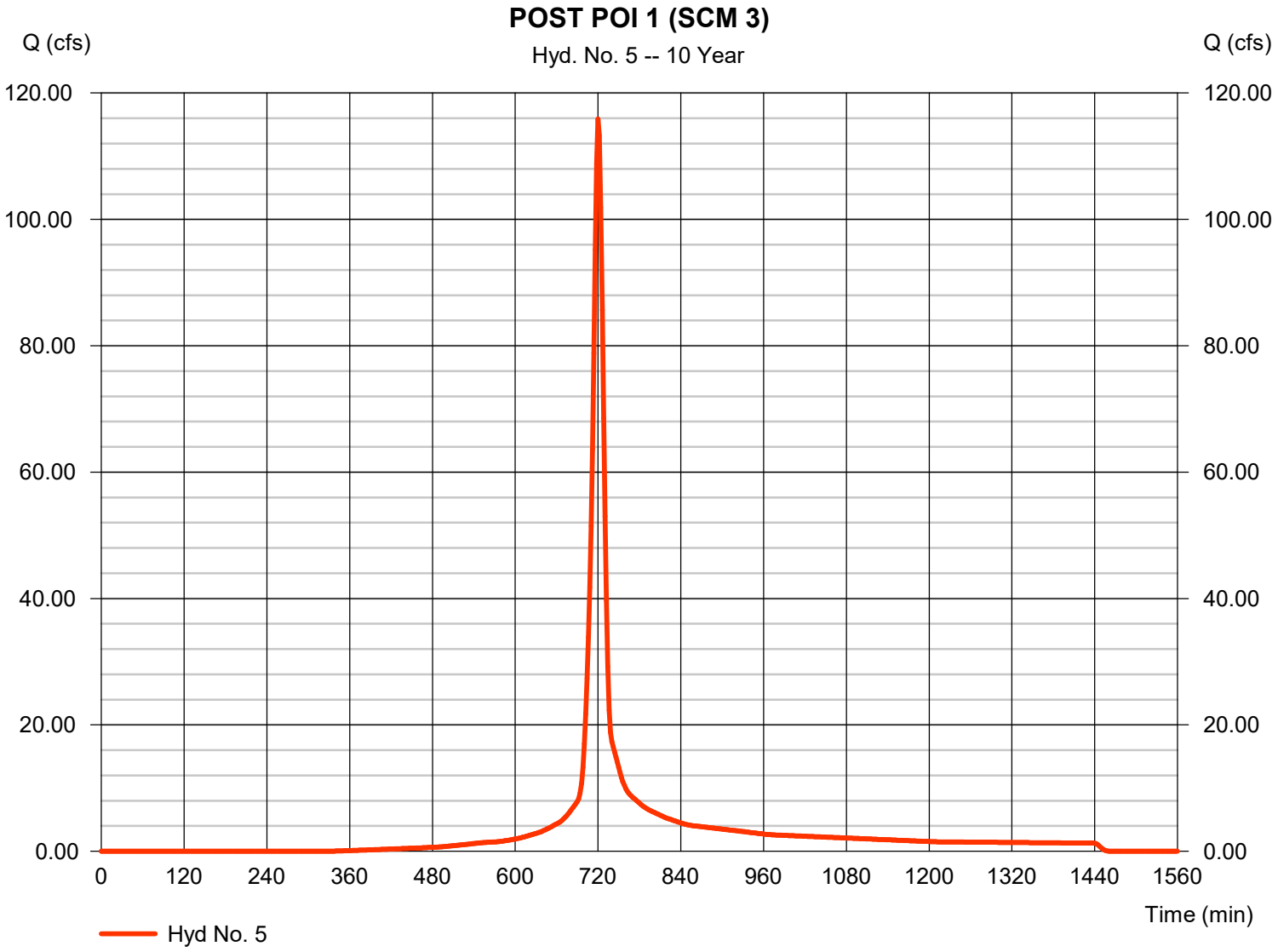


Hydrograph Report

Hyd. No. 5

POST POI 1 (SCM 3)

Hydrograph type	=	SCS Runoff	Peak discharge	=	115.86 cfs
Storm frequency	=	10 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	304,944 cuft
Drainage area	=	23.290 ac	Curve number	=	85
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	5.14 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



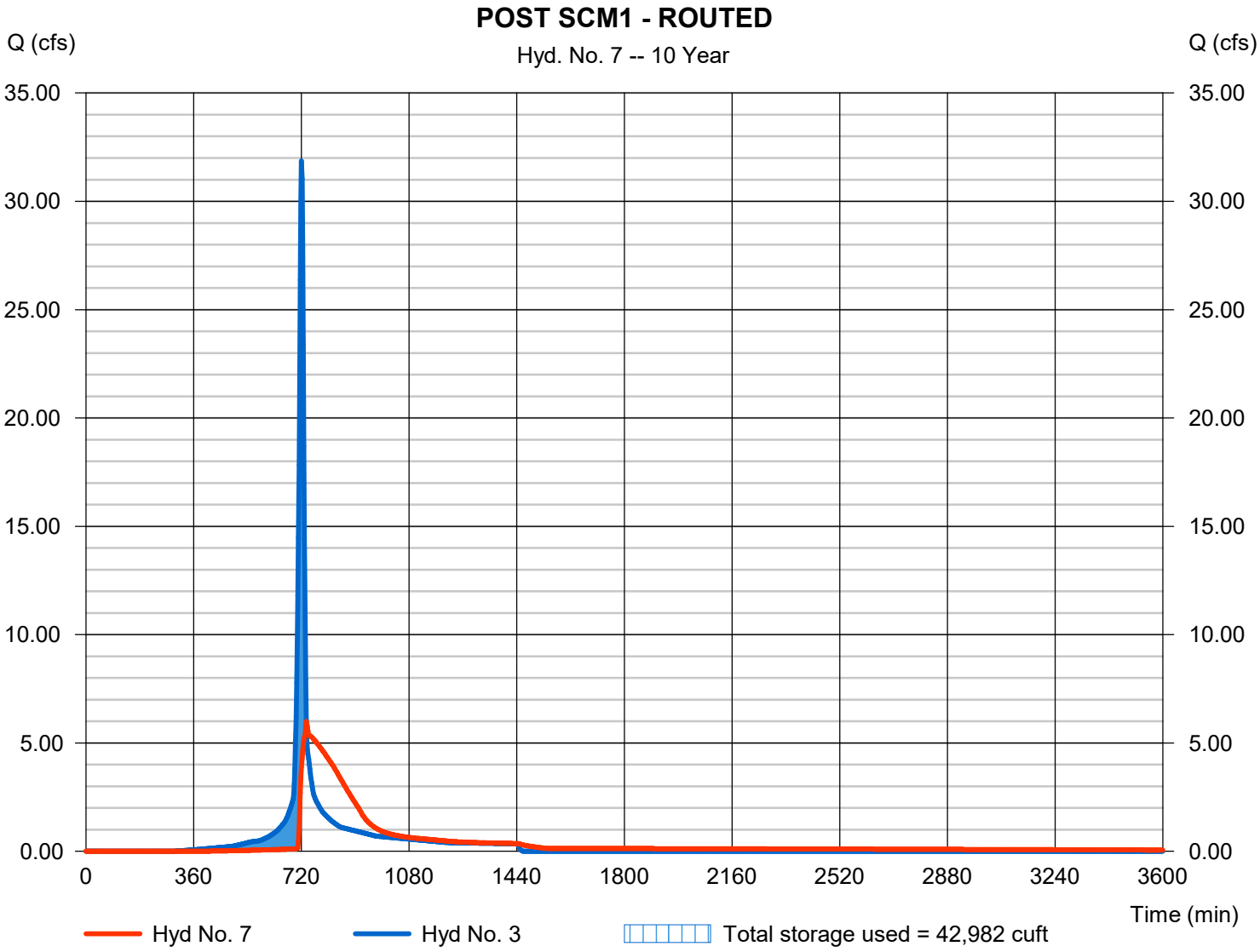
Hydrograph Report

Hyd. No. 7

POST SCM1 - ROUTED

Hydrograph type	=	Reservoir	Peak discharge	=	5.989 cfs
Storm frequency	=	10 yrs	Time to peak	=	736 min
Time interval	=	2 min	Hyd. volume	=	84,385 cuft
Inflow hyd. No.	=	3 - POST POI 1 (SCM 1)	Max. Elevation	=	254.03 ft
Reservoir name	=	SCM1	Max. Storage	=	42,982 cuft

Storage Indication method used.



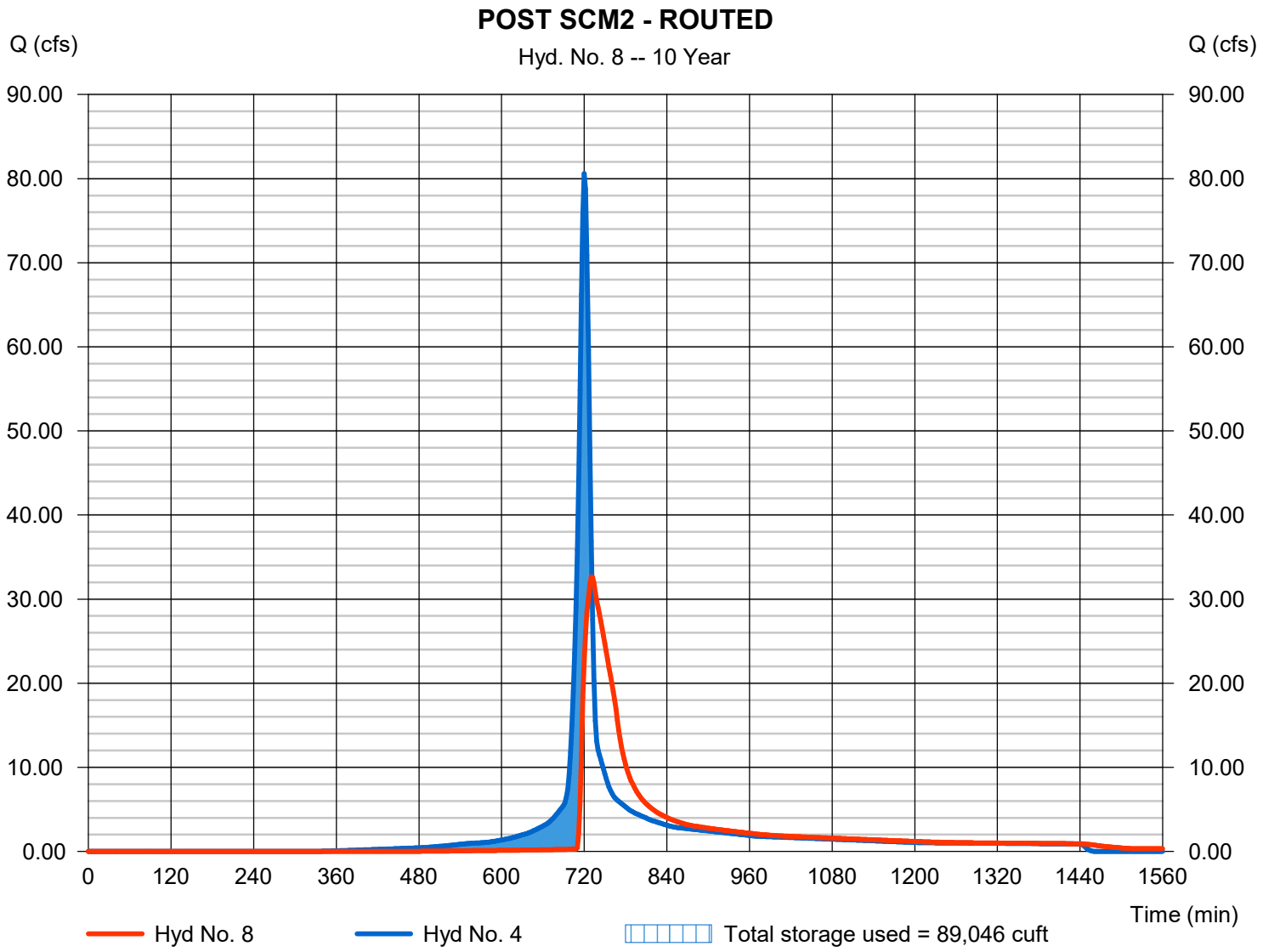
Hydrograph Report

Hyd. No. 8

POST SCM2 - ROUTED

Hydrograph type	=	Reservoir	Peak discharge	=	32.64 cfs
Storm frequency	=	10 yrs	Time to peak	=	730 min
Time interval	=	2 min	Hyd. volume	=	210,878 cuft
Inflow hyd. No.	=	4 - POST PO1 (SCM 2)	Max. Elevation	=	241.20 ft
Reservoir name	=	SCM2	Max. Storage	=	89,046 cuft

Storage Indication method used.



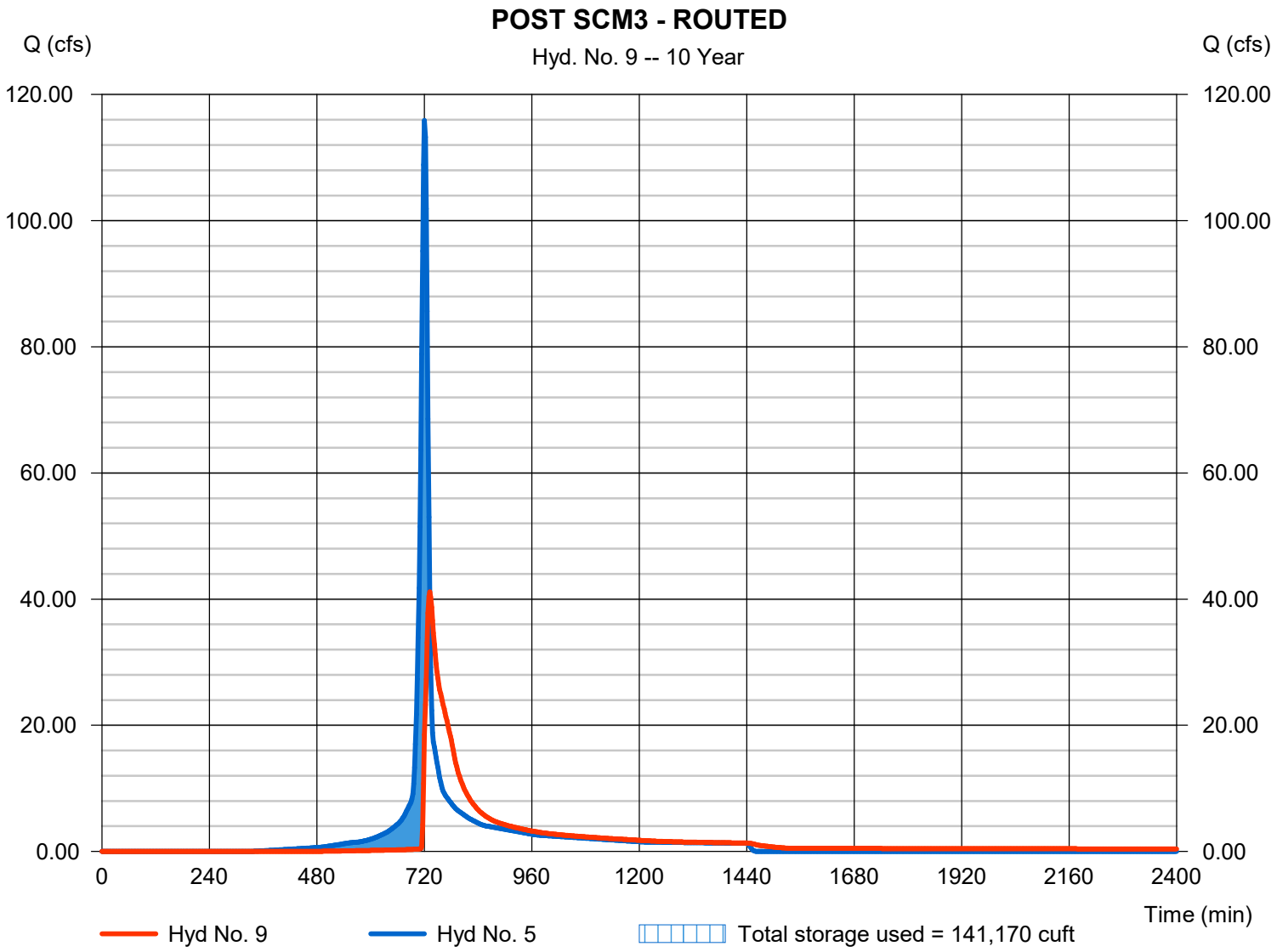
Hydrograph Report

Hyd. No. 9

POST SCM3 - ROUTED

Hydrograph type	=	Reservoir	Peak discharge	=	41.16 cfs
Storm frequency	=	10 yrs	Time to peak	=	732 min
Time interval	=	2 min	Hyd. volume	=	301,116 cuft
Inflow hyd. No.	=	5 - POST POI 1 (SCM 3)	Max. Elevation	=	238.52 ft
Reservoir name	=	SCM3	Max. Storage	=	141,170 cuft

Storage Indication method used.

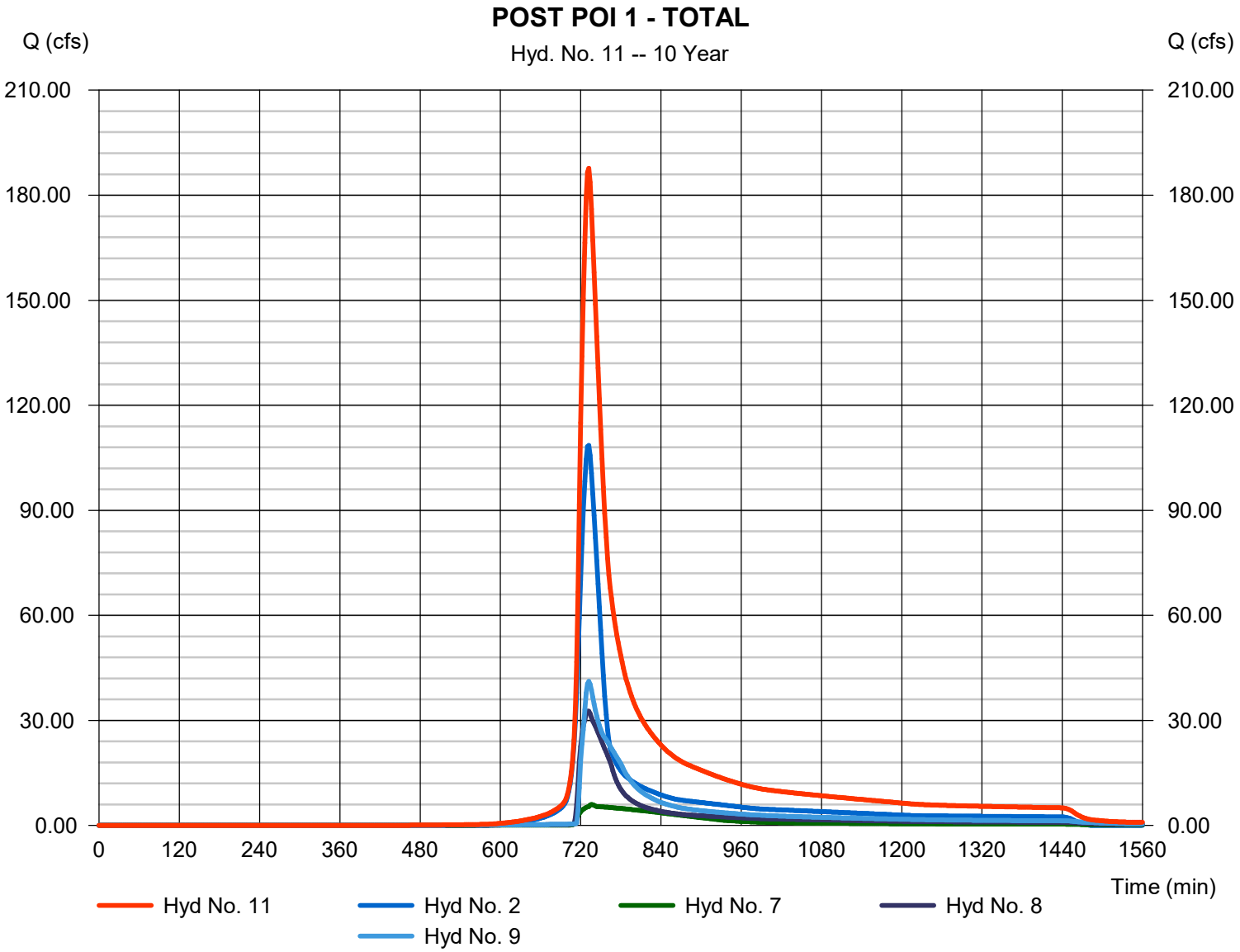


Hydrograph Report

Hyd. No. 11

POST POI 1 - TOTAL

Hydrograph type	= Combine	Peak discharge	= 187.67 cfs
Storm frequency	= 10 yrs	Time to peak	= 732 min
Time interval	= 2 min	Hyd. volume	= 1,038,647 cuft
Inflow hyds.	= 2, 7, 8, 9	Contrib. drain. area	= 54.810 ac

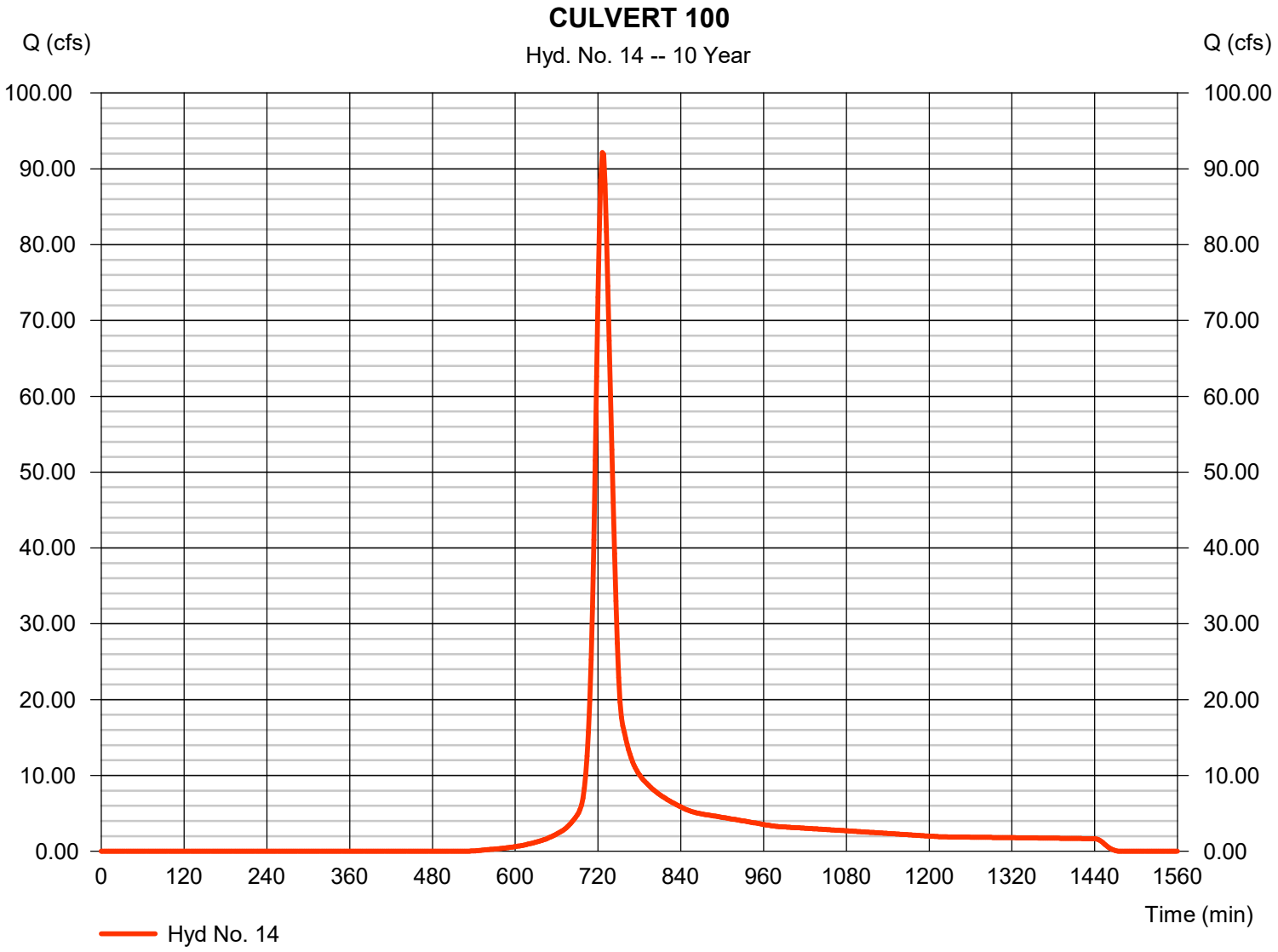


Hydrograph Report

Hyd. No. 14

CULVERT 100

Hydrograph type	=	SCS Runoff	Peak discharge	=	92.14 cfs
Storm frequency	=	10 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	320,615 cuft
Drainage area	=	35.040 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	22.00 min
Total precip.	=	5.14 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

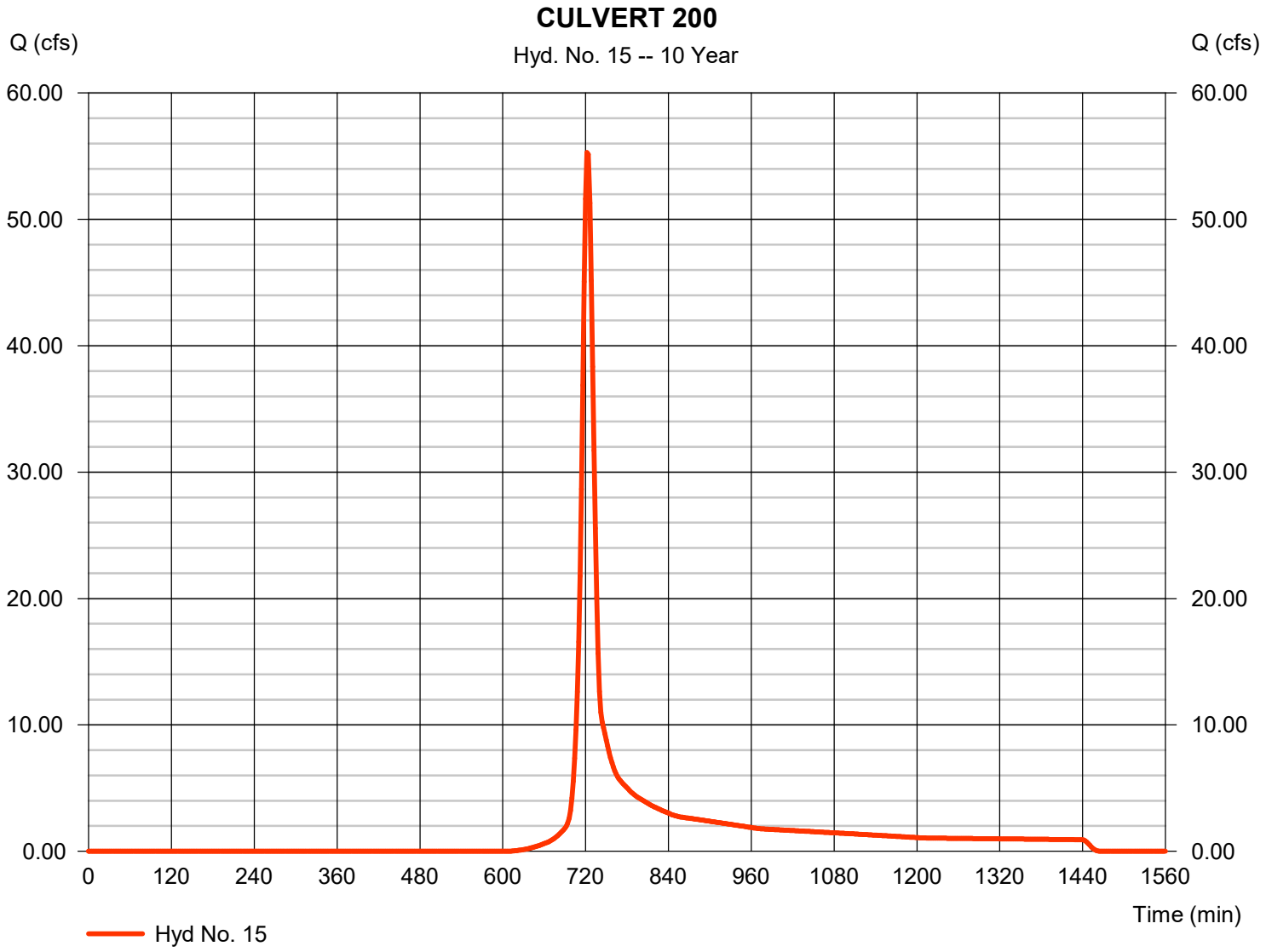


Hydrograph Report

Hyd. No. 15

CULVERT 200

Hydrograph type	=	SCS Runoff	Peak discharge	=	55.28 cfs
Storm frequency	=	10 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	158,433 cuft
Drainage area	=	22.610 ac	Curve number	=	68
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	14.00 min
Total precip.	=	5.14 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

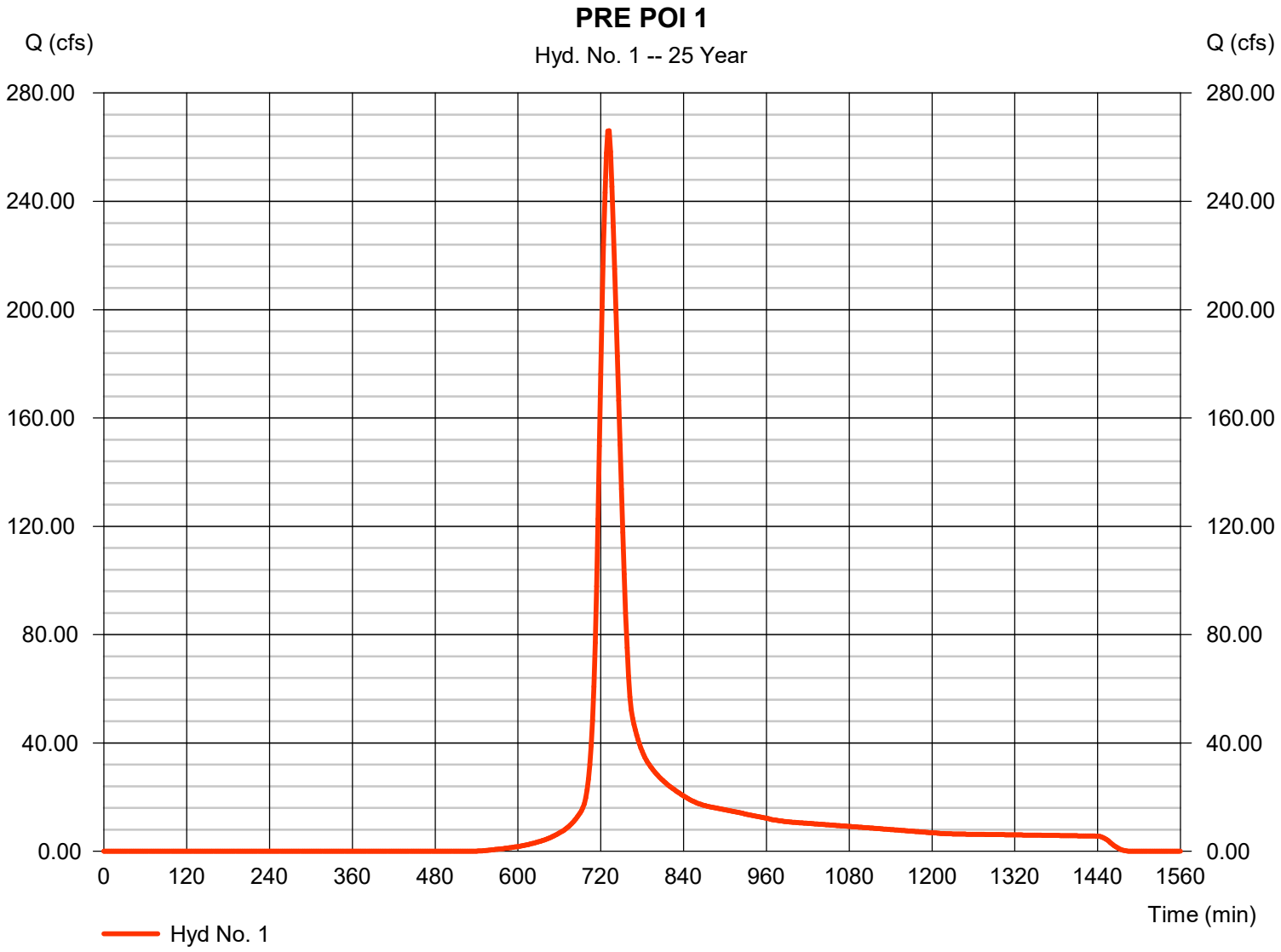
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	266.03	2	732	1,074,660	------	------	------	PRE POI 1
2	SCS Runoff	150.33	2	730	605,727	------	------	------	POST POI 1 (BYPASS)
3	SCS Runoff	39.92	2	720	107,263	------	------	------	POST POI 1 (SCM 1)
4	SCS Runoff	102.01	2	720	271,233	------	------	------	POST PO1 (SCM 2)
5	SCS Runoff	146.65	2	720	389,939	------	------	------	POST POI 1 (SCM 3)
7	Reservoir	21.48	2	728	107,033	3	254.38	48,227	POST SCM1 - ROUTED
8	Reservoir	50.84	2	730	269,992	4	241.90	107,177	POST SCM2 - ROUTED
9	Reservoir	75.73	2	730	386,082	5	239.20	165,954	POST SCM3 - ROUTED
11	Combine	298.05	2	730	1,368,833	2, 7, 8, 9,	------	------	POST POI 1 - TOTAL
14	SCS Runoff	124.97	2	726	432,008	------	------	------	CULVERT 100
15	SCS Runoff	78.22	2	722	220,845	------	------	------	CULVERT 200

Hydrograph Report

Hyd. No. 1

PRE POI 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	266.03 cfs
Storm frequency	=	25 yrs	Time to peak	=	732 min
Time interval	=	2 min	Hyd. volume	=	1,074,660 cuft
Drainage area	=	100.400 ac	Curve number	=	70
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	27.00 min
Total precip.	=	6.18 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

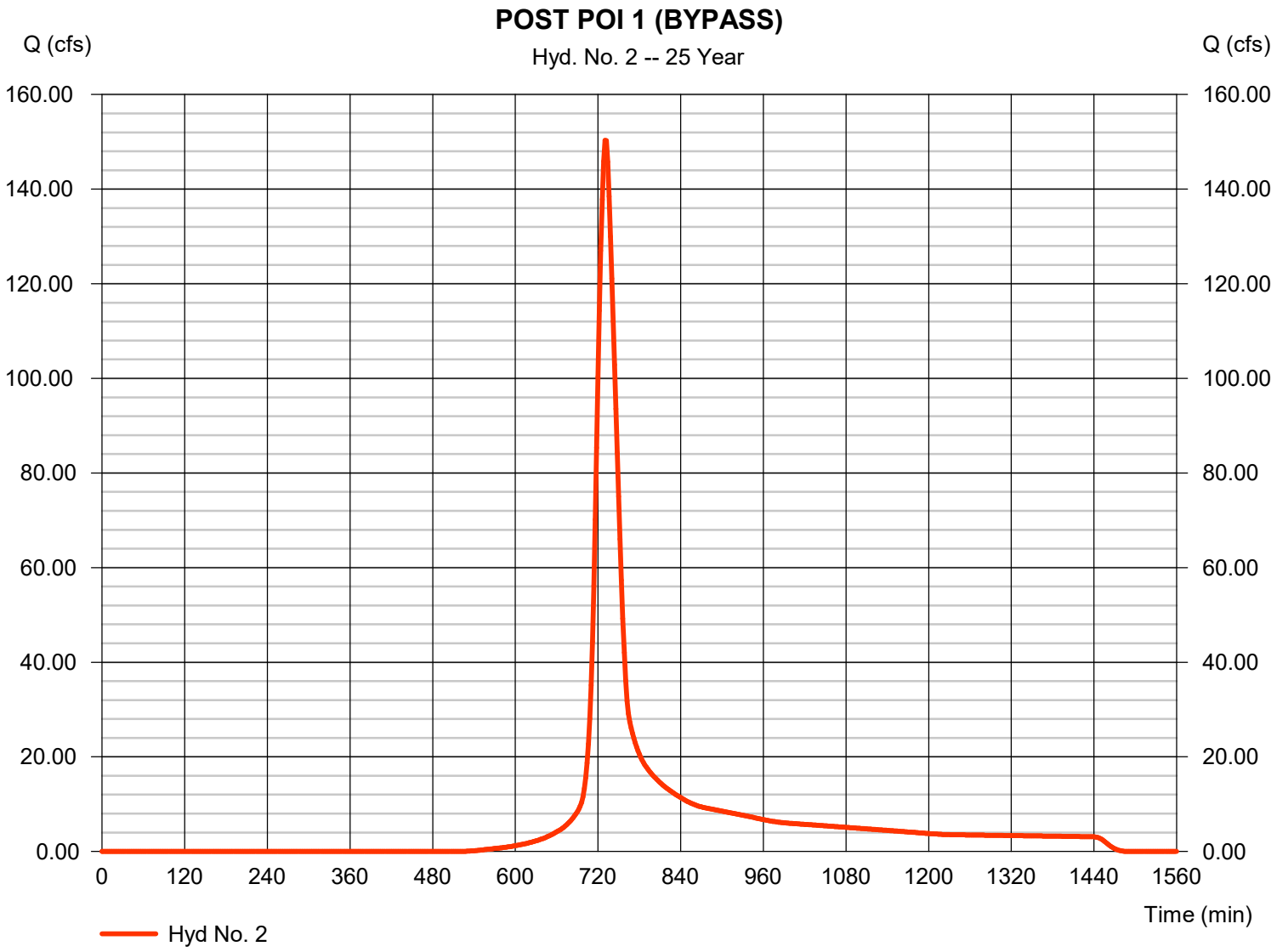


Hydrograph Report

Hyd. No. 2

POST POI 1 (BYPASS)

Hydrograph type	=	SCS Runoff	Peak discharge	=	150.33 cfs
Storm frequency	=	25 yrs	Time to peak	=	730 min
Time interval	=	2 min	Hyd. volume	=	605,727 cuft
Drainage area	=	54.810 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	27.00 min
Total precip.	=	6.18 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

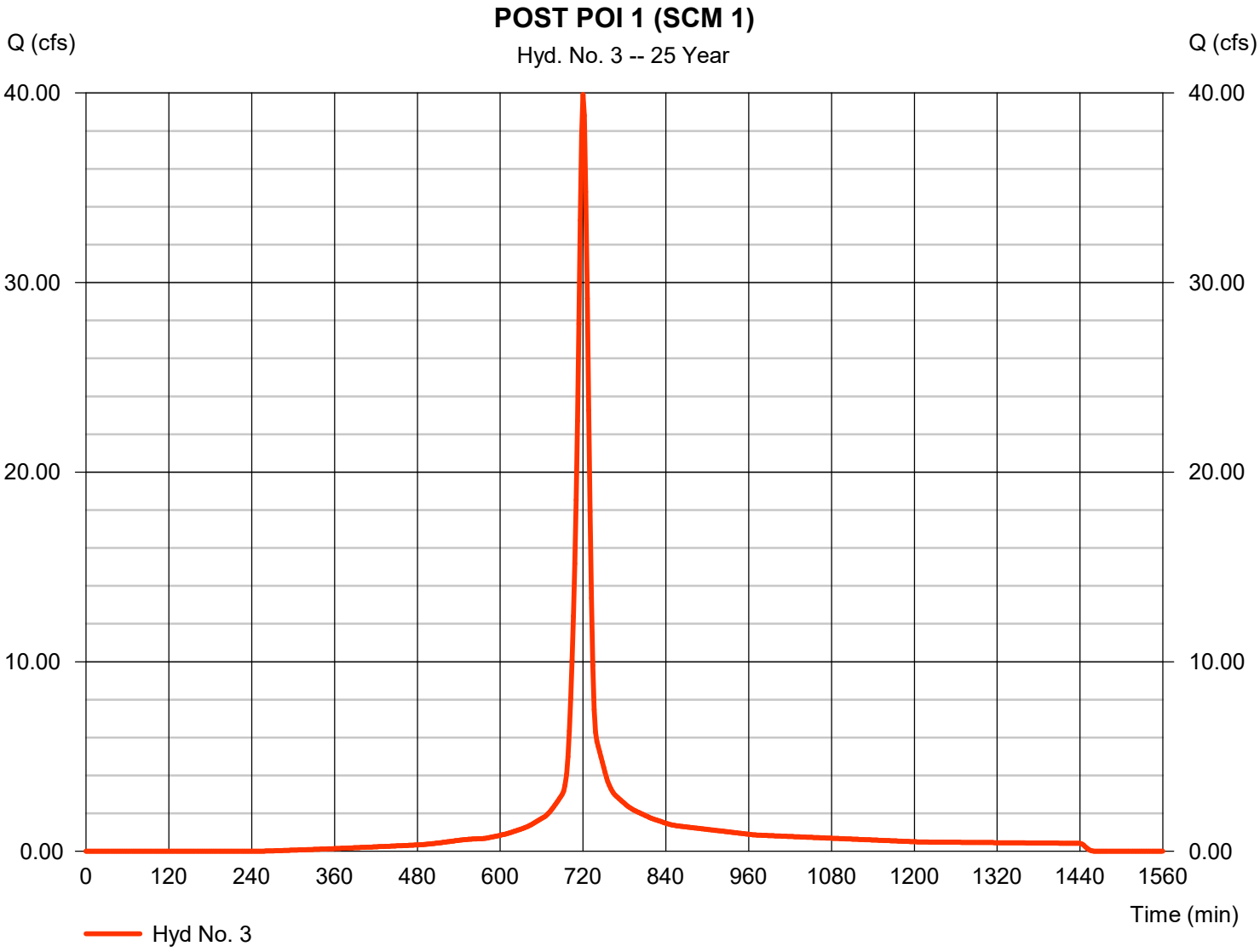


Hydrograph Report

Hyd. No. 3

POST POI 1 (SCM 1)

Hydrograph type	= SCS Runoff	Peak discharge	= 39.92 cfs
Storm frequency	= 25 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 107,263 cuft
Drainage area	= 6.110 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 6.18 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

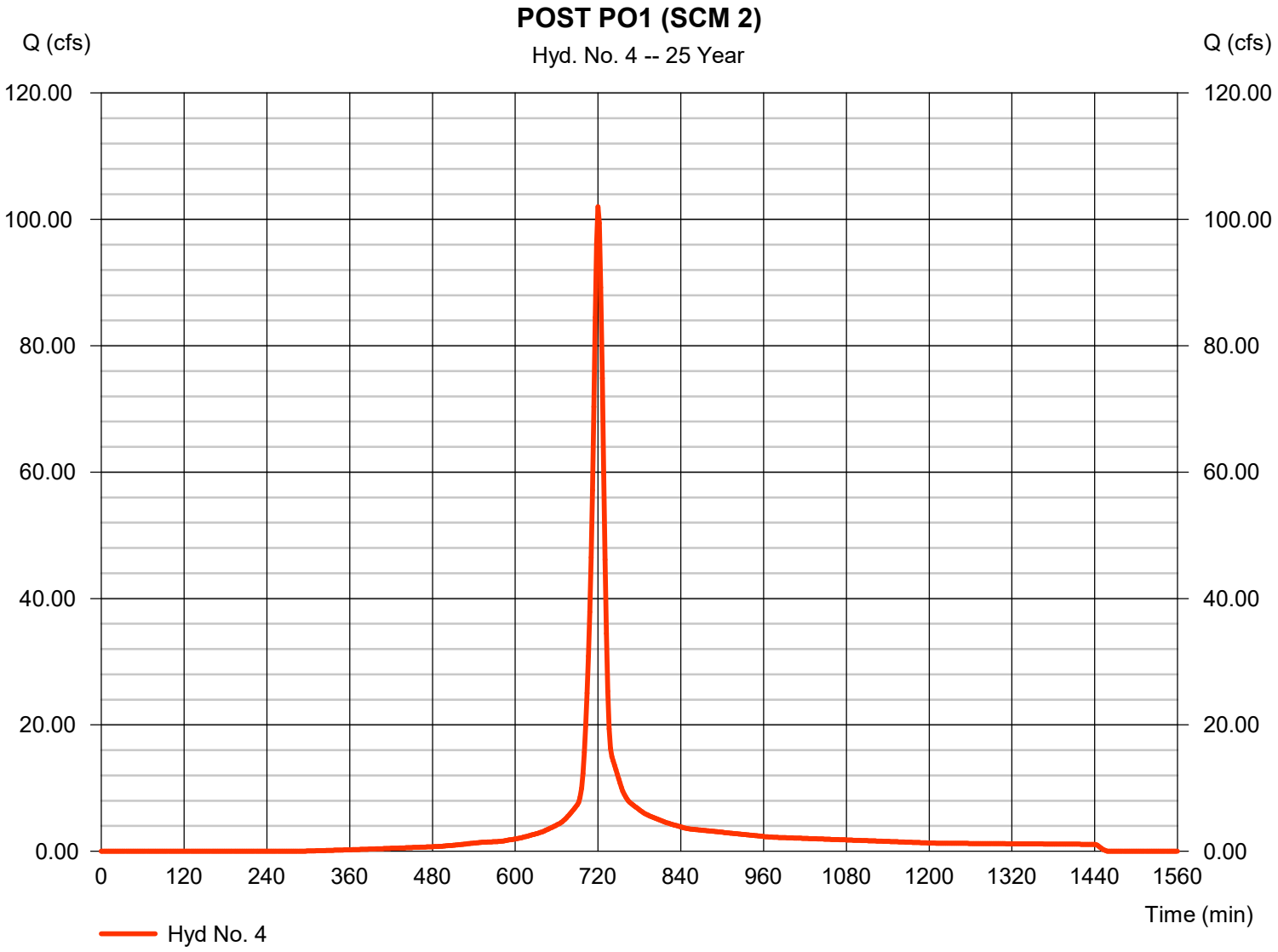


Hydrograph Report

Hyd. No. 4

POST PO1 (SCM 2)

Hydrograph type	=	SCS Runoff	Peak discharge	=	102.01 cfs
Storm frequency	=	25 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	271,233 cuft
Drainage area	=	16.200 ac	Curve number	=	85
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	6.18 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

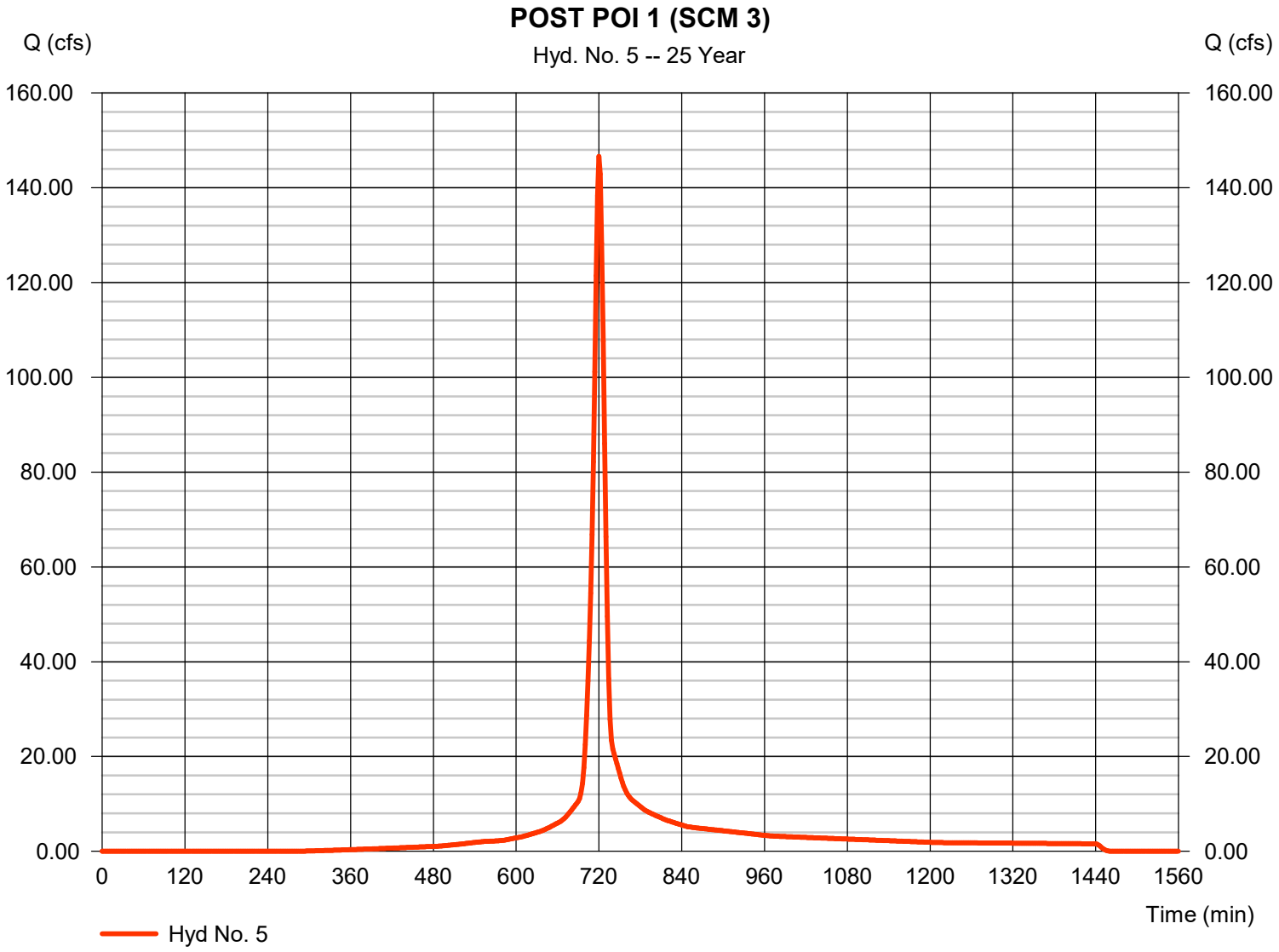


Hydrograph Report

Hyd. No. 5

POST POI 1 (SCM 3)

Hydrograph type	=	SCS Runoff	Peak discharge	=	146.65 cfs
Storm frequency	=	25 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	389,939 cuft
Drainage area	=	23.290 ac	Curve number	=	85
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	6.18 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



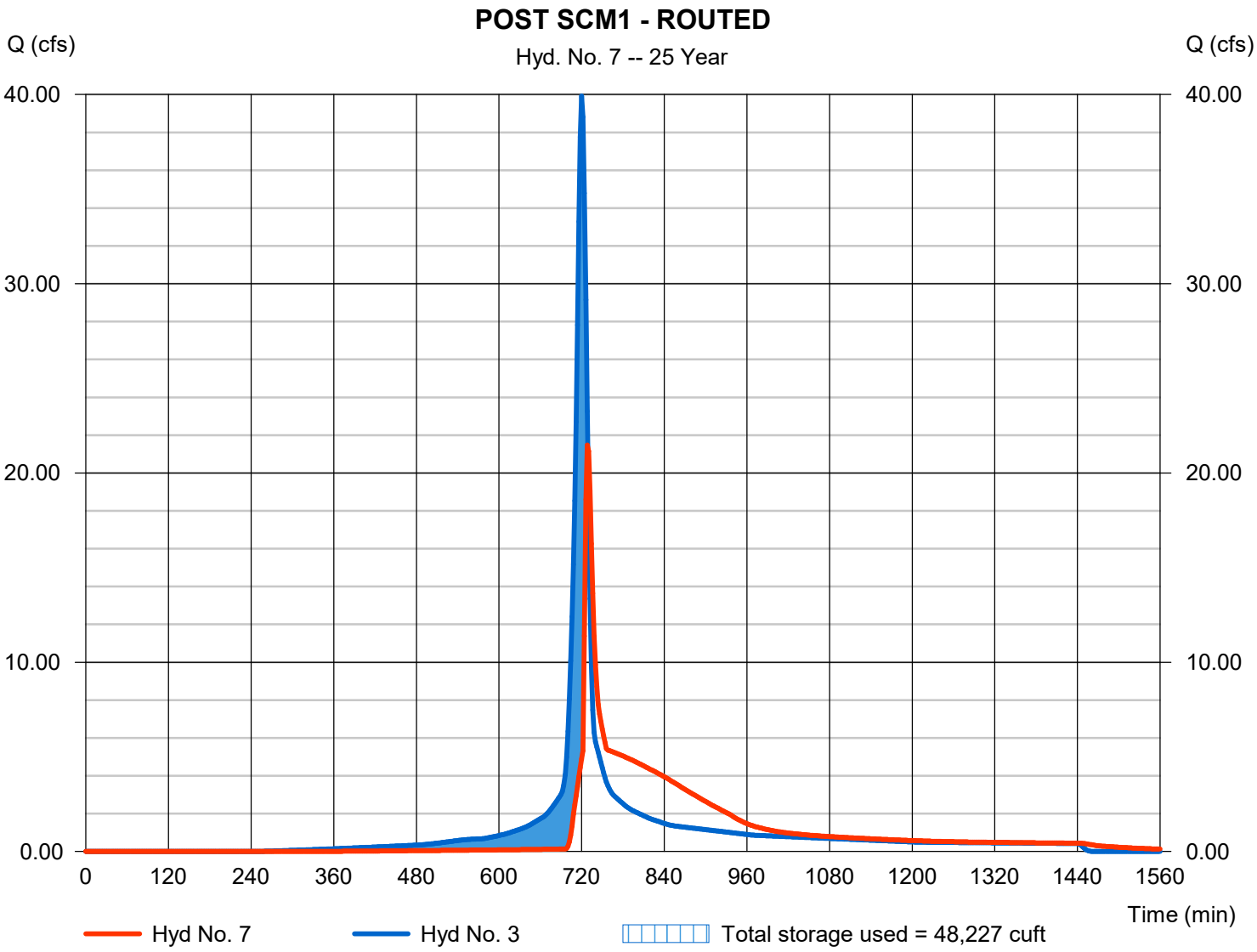
Hydrograph Report

Hyd. No. 7

POST SCM1 - ROUTED

Hydrograph type	=	Reservoir	Peak discharge	=	21.48 cfs
Storm frequency	=	25 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	107,033 cuft
Inflow hyd. No.	=	3 - POST POI 1 (SCM 1)	Max. Elevation	=	254.38 ft
Reservoir name	=	SCM1	Max. Storage	=	48,227 cuft

Storage Indication method used.



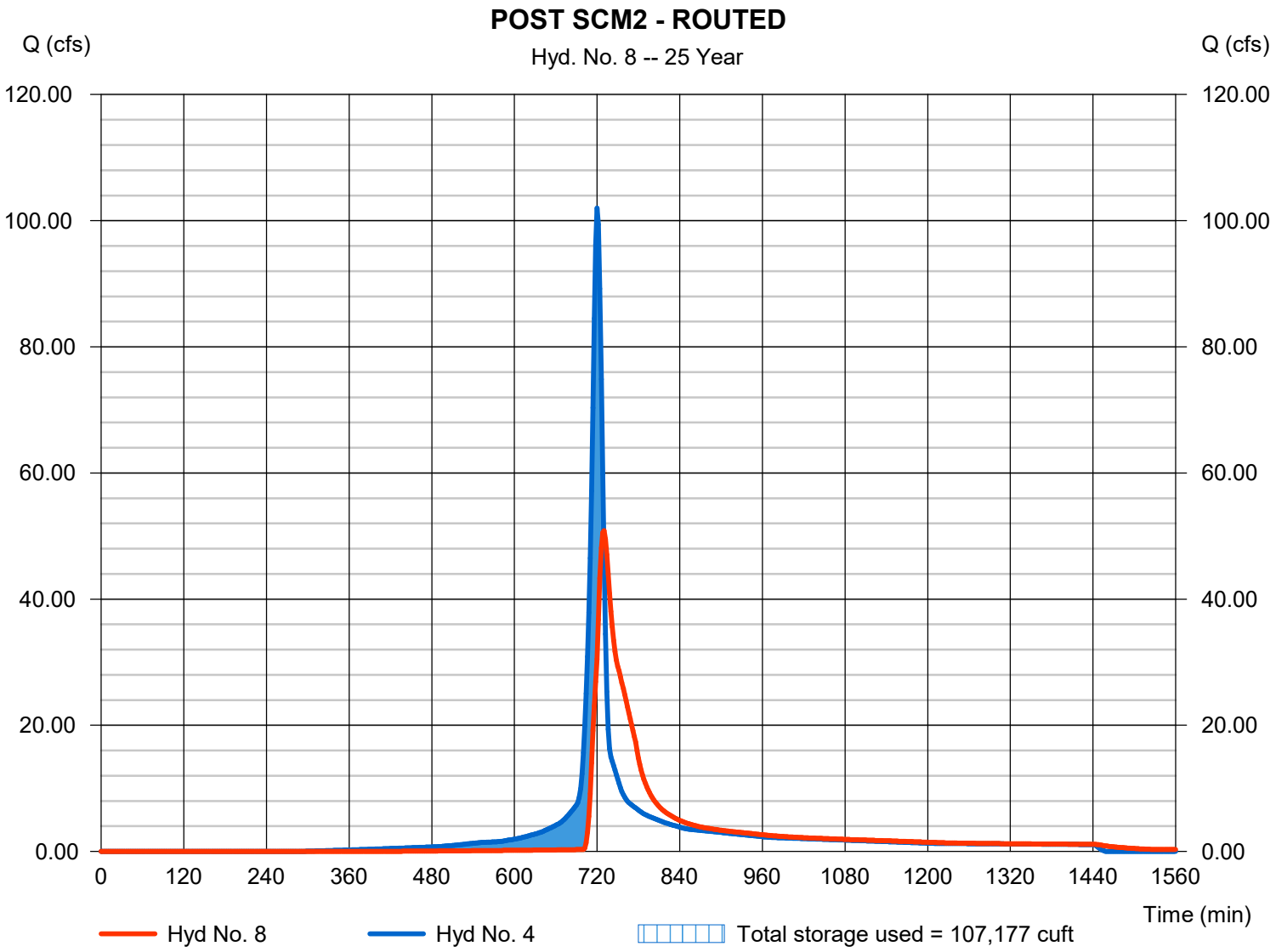
Hydrograph Report

Hyd. No. 8

POST SCM2 - ROUTED

Hydrograph type	=	Reservoir	Peak discharge	=	50.84 cfs
Storm frequency	=	25 yrs	Time to peak	=	730 min
Time interval	=	2 min	Hyd. volume	=	269,992 cuft
Inflow hyd. No.	=	4 - POST PO1 (SCM 2)	Max. Elevation	=	241.90 ft
Reservoir name	=	SCM2	Max. Storage	=	107,177 cuft

Storage Indication method used.



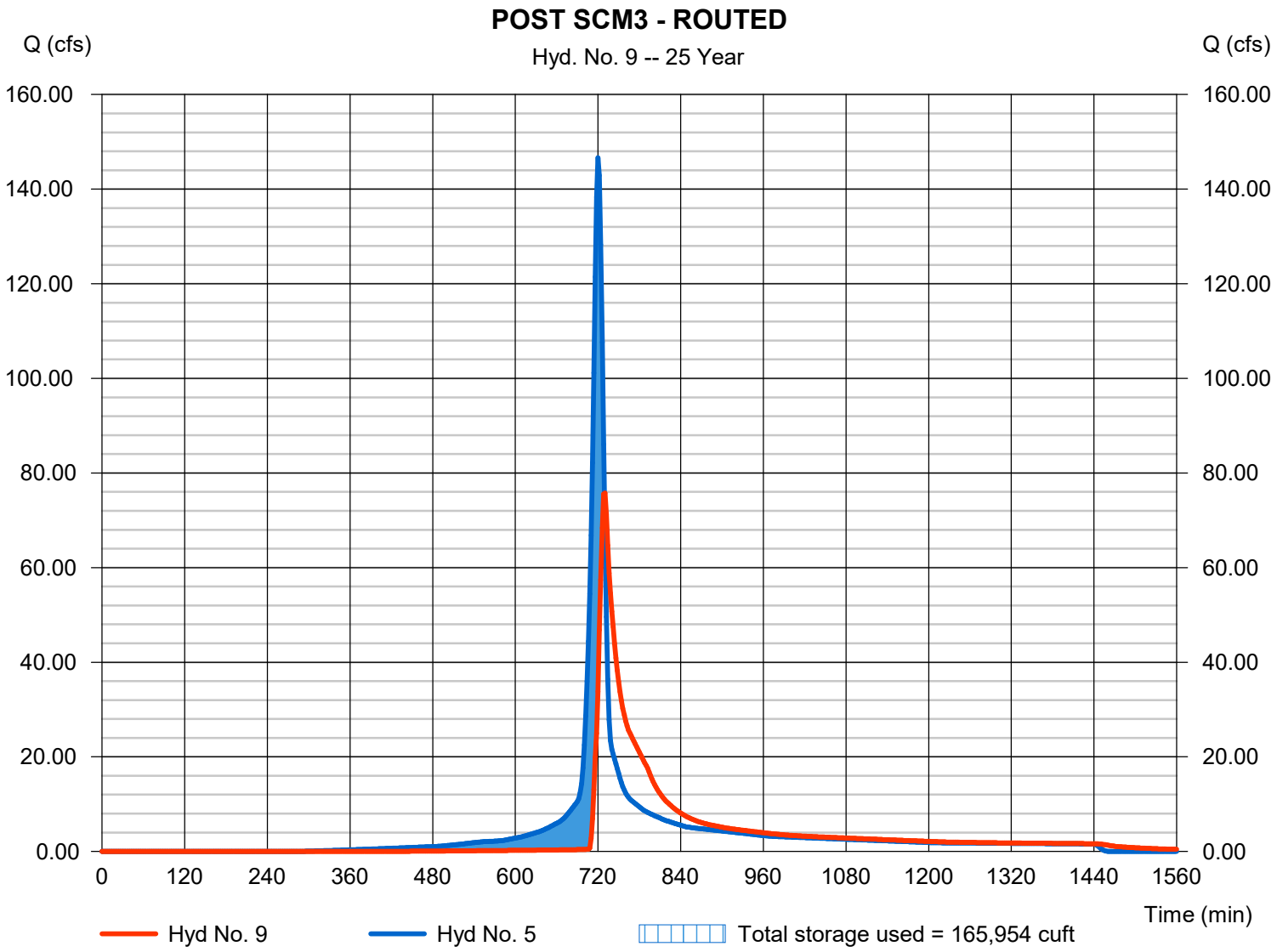
Hydrograph Report

Hyd. No. 9

POST SCM3 - ROUTED

Hydrograph type	=	Reservoir	Peak discharge	=	75.73 cfs
Storm frequency	=	25 yrs	Time to peak	=	730 min
Time interval	=	2 min	Hyd. volume	=	386,082 cuft
Inflow hyd. No.	=	5 - POST POI 1 (SCM 3)	Max. Elevation	=	239.20 ft
Reservoir name	=	SCM3	Max. Storage	=	165,954 cuft

Storage Indication method used.

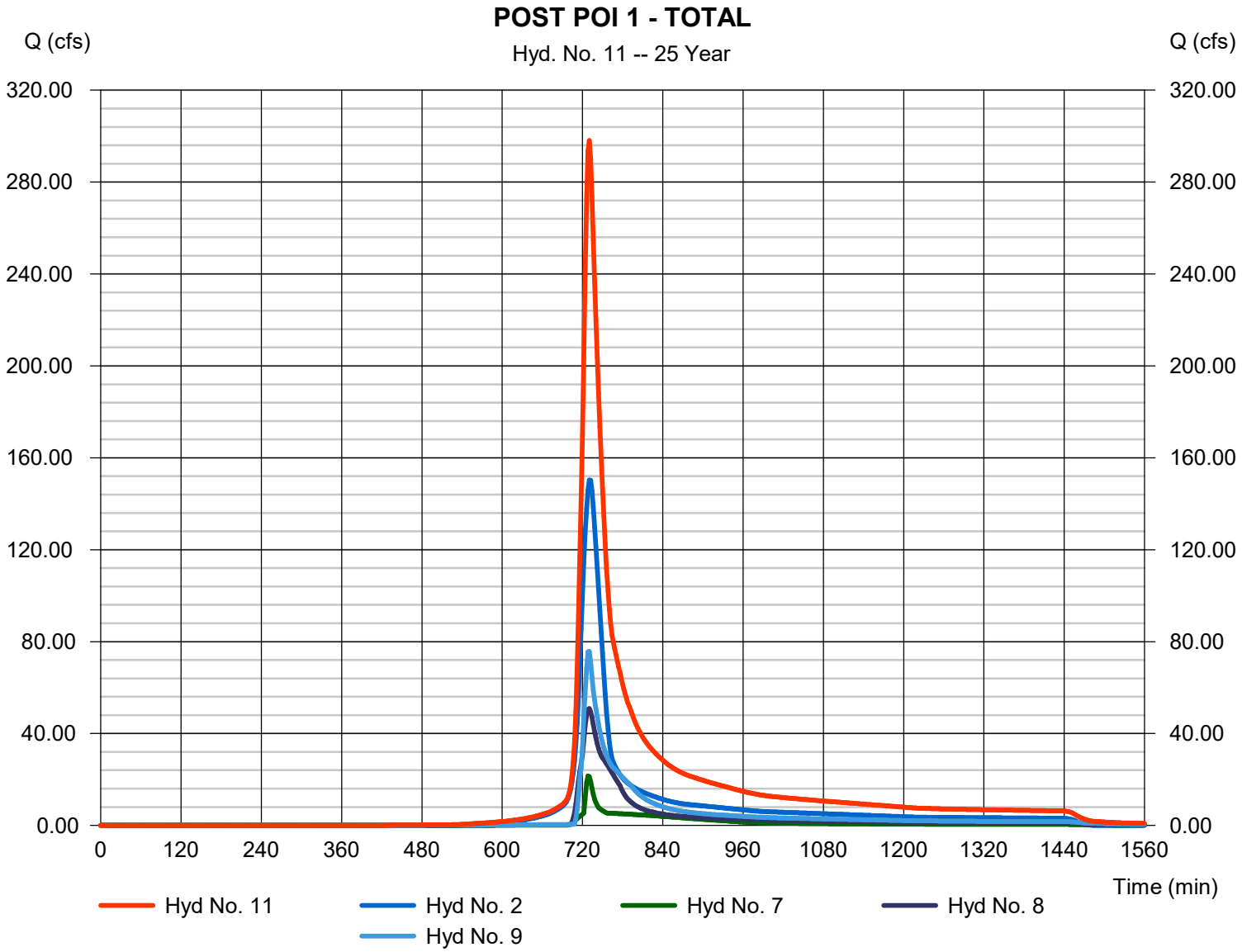


Hydrograph Report

Hyd. No. 11

POST POI 1 - TOTAL

Hydrograph type	=	Combine	Peak discharge	=	298.05 cfs
Storm frequency	=	25 yrs	Time to peak	=	730 min
Time interval	=	2 min	Hyd. volume	=	1,368,833 cuft
Inflow hyds.	=	2, 7, 8, 9	Contrib. drain. area	=	54.810 ac

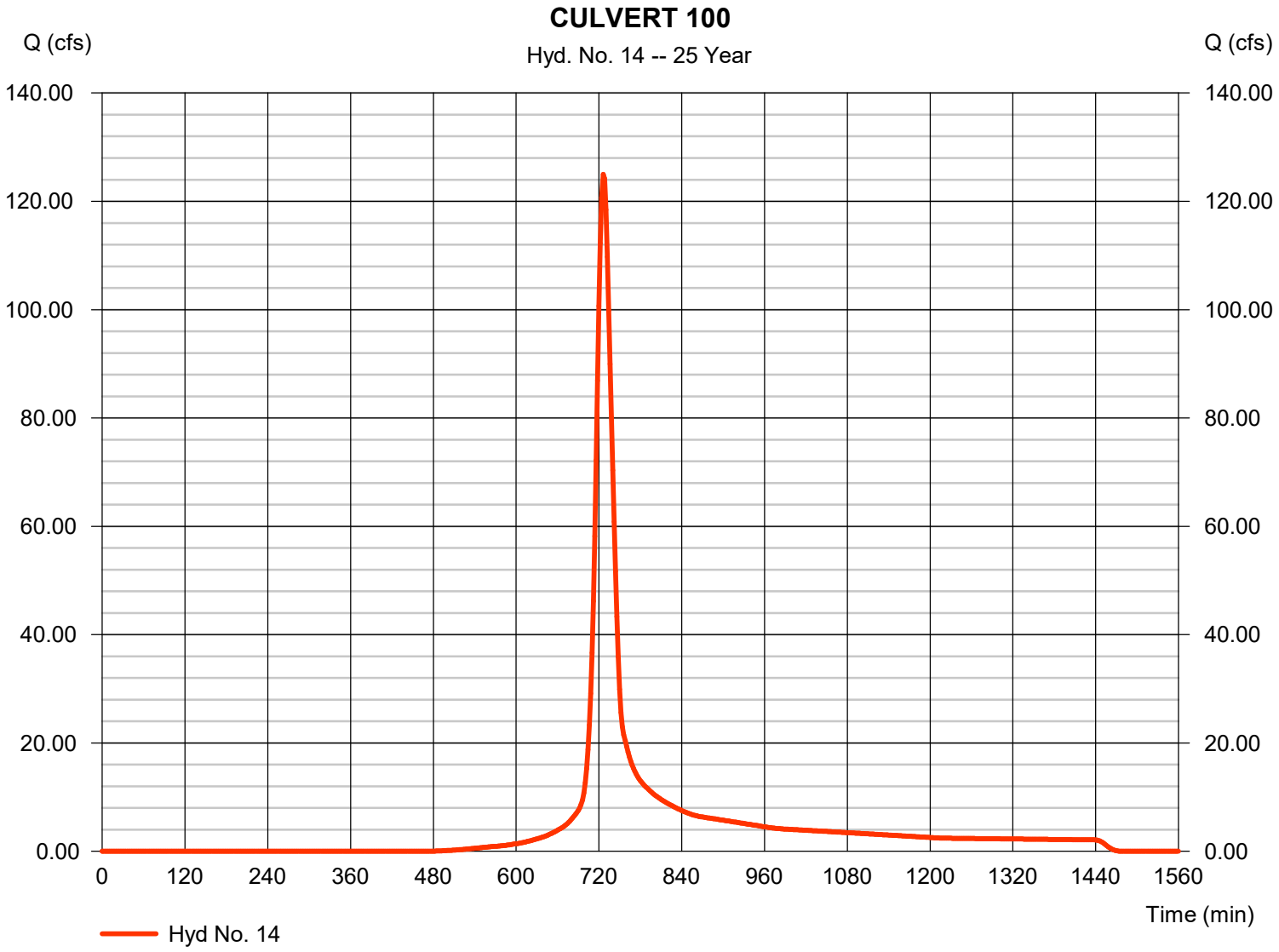


Hydrograph Report

Hyd. No. 14

CULVERT 100

Hydrograph type	=	SCS Runoff	Peak discharge	=	124.97 cfs
Storm frequency	=	25 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	432,008 cuft
Drainage area	=	35.040 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	22.00 min
Total precip.	=	6.18 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

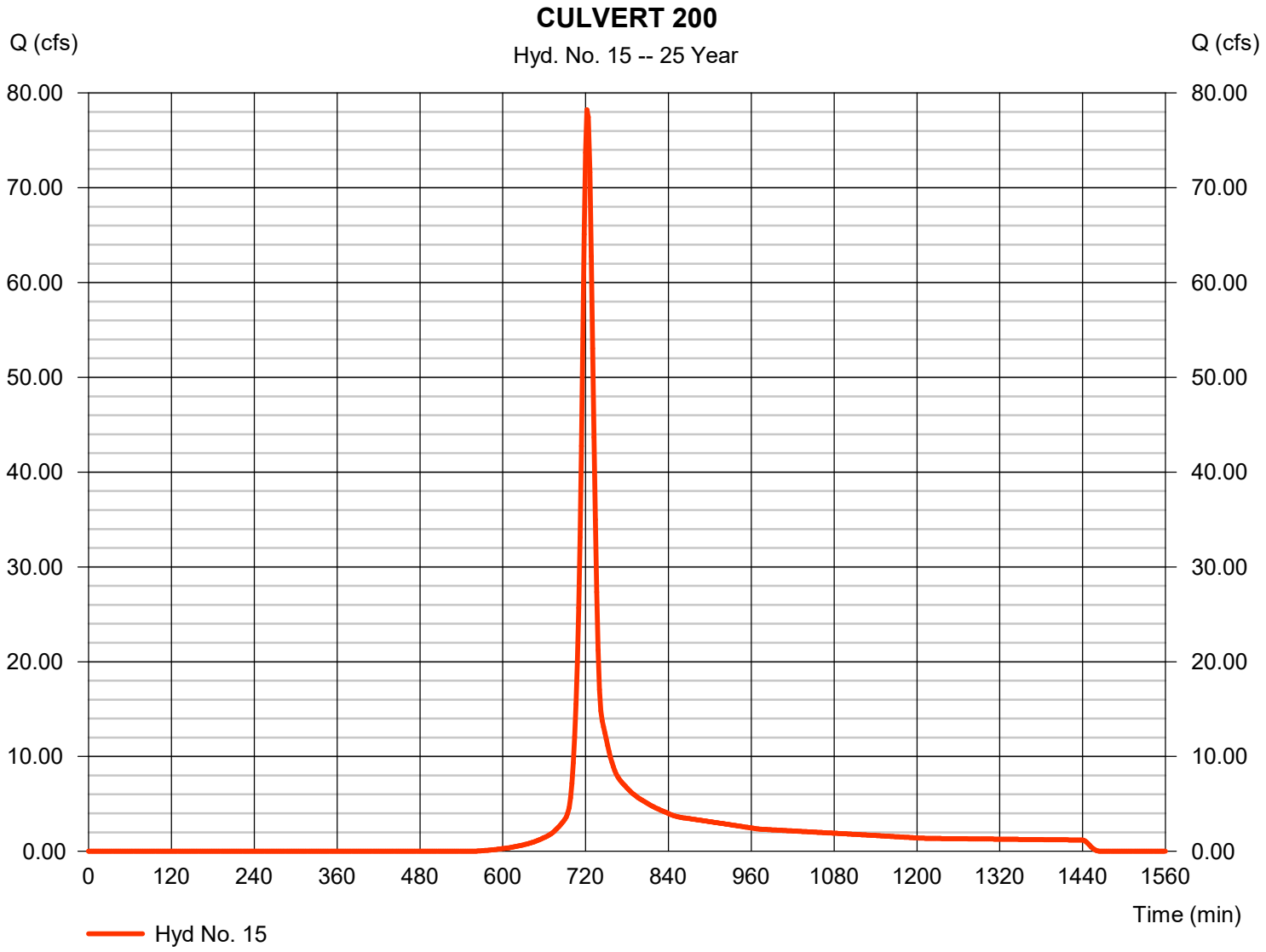


Hydrograph Report

Hyd. No. 15

CULVERT 200

Hydrograph type	=	SCS Runoff	Peak discharge	=	78.22 cfs
Storm frequency	=	25 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	220,845 cuft
Drainage area	=	22.610 ac	Curve number	=	68
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	14.00 min
Total precip.	=	6.18 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

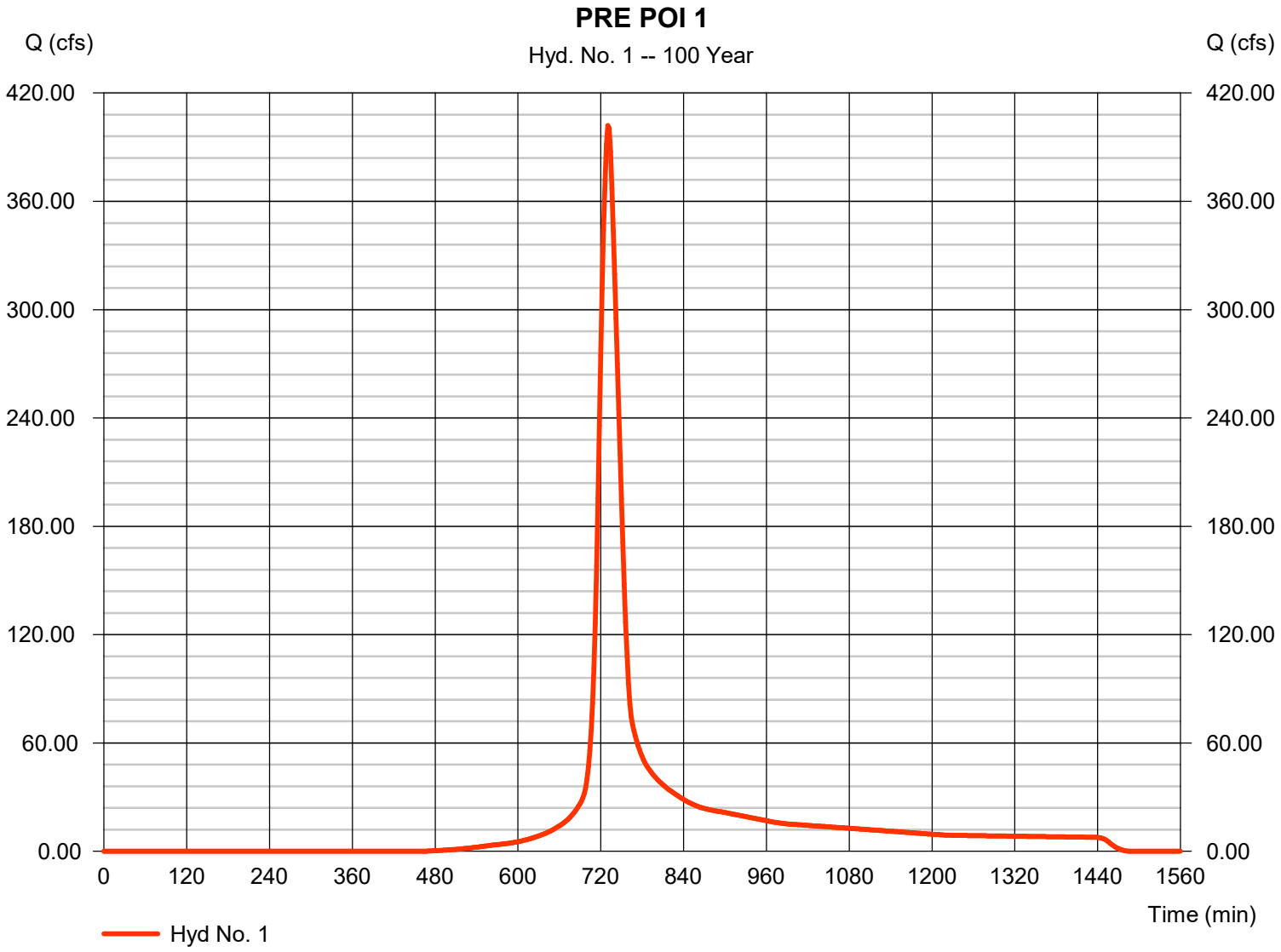
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	402.02	2	730	1,608,241	------	------	------	PRE POI 1
2	SCS Runoff	225.32	2	730	900,723	------	------	------	POST POI 1 (BYPASS)
3	SCS Runoff	53.50	2	720	146,185	------	------	------	POST POI 1 (SCM 1)
4	SCS Runoff	138.16	2	720	373,283	------	------	------	POST PO1 (SCM 2)
5	SCS Runoff	198.62	2	720	536,653	------	------	------	POST POI 1 (SCM 3)
7	Reservoir	45.81	2	724	145,951	3	254.67	52,434	POST SCM1 - ROUTED
8	Reservoir	85.87	2	728	372,035	4	242.75	130,669	POST SCM2 - ROUTED
9	Reservoir	151.28	2	726	532,760	5	239.83	190,049	POST SCM3 - ROUTED
11	Combine	488.07	2	728	1,951,471	2, 7, 8, 9,	------	------	POST POI 1 - TOTAL
14	SCS Runoff	182.57	2	726	630,767	------	------	------	CULVERT 100
15	SCS Runoff	119.47	2	722	334,889	------	------	------	CULVERT 200

Hydrograph Report

Hyd. No. 1

PRE POI 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	402.02 cfs
Storm frequency	=	100 yrs	Time to peak	=	730 min
Time interval	=	2 min	Hyd. volume	=	1,608,241 cuft
Drainage area	=	100.400 ac	Curve number	=	70
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	27.00 min
Total precip.	=	7.94 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

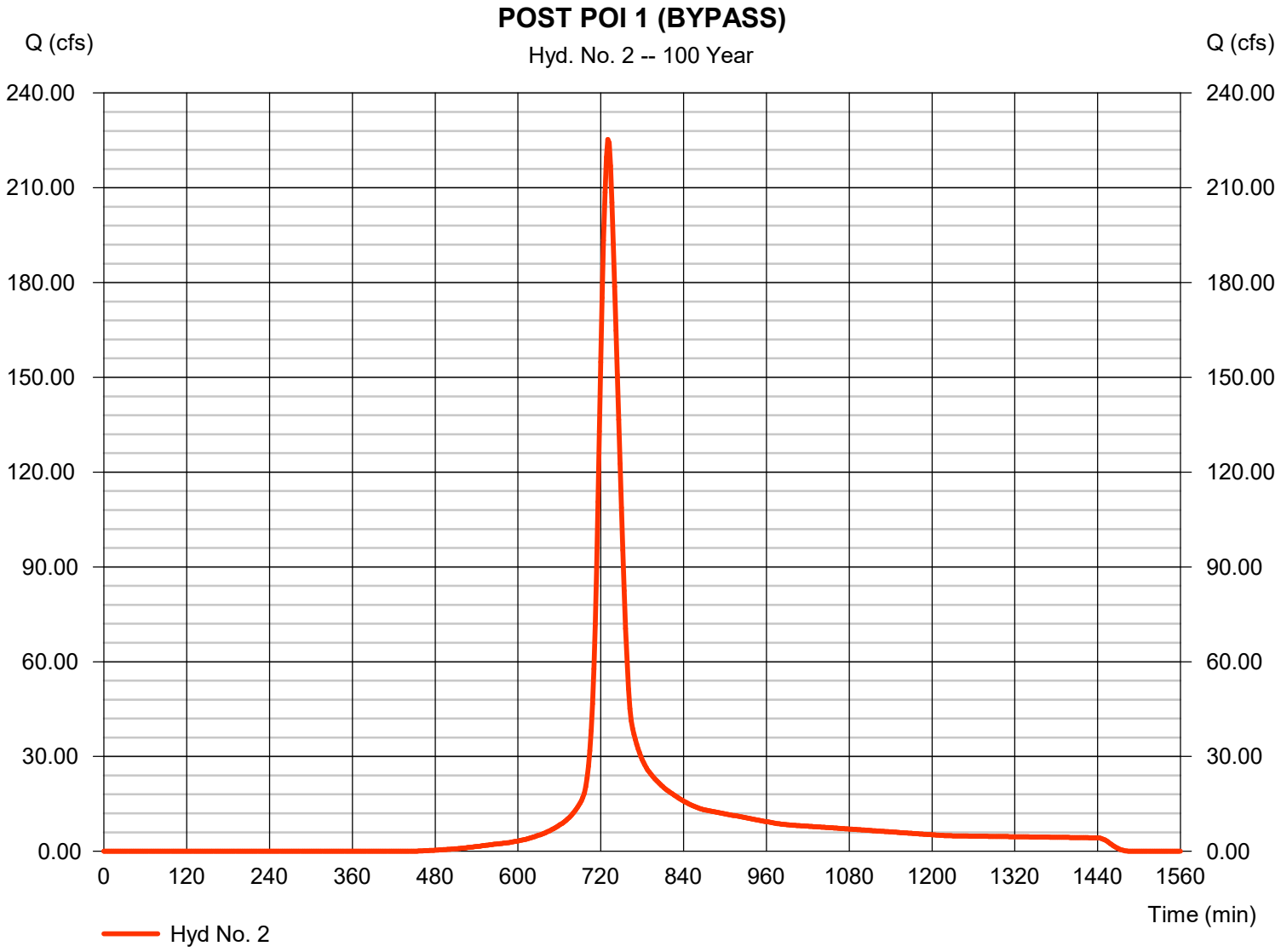


Hydrograph Report

Hyd. No. 2

POST POI 1 (BYPASS)

Hydrograph type	=	SCS Runoff	Peak discharge	=	225.32 cfs
Storm frequency	=	100 yrs	Time to peak	=	730 min
Time interval	=	2 min	Hyd. volume	=	900,723 cuft
Drainage area	=	54.810 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	27.00 min
Total precip.	=	7.94 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

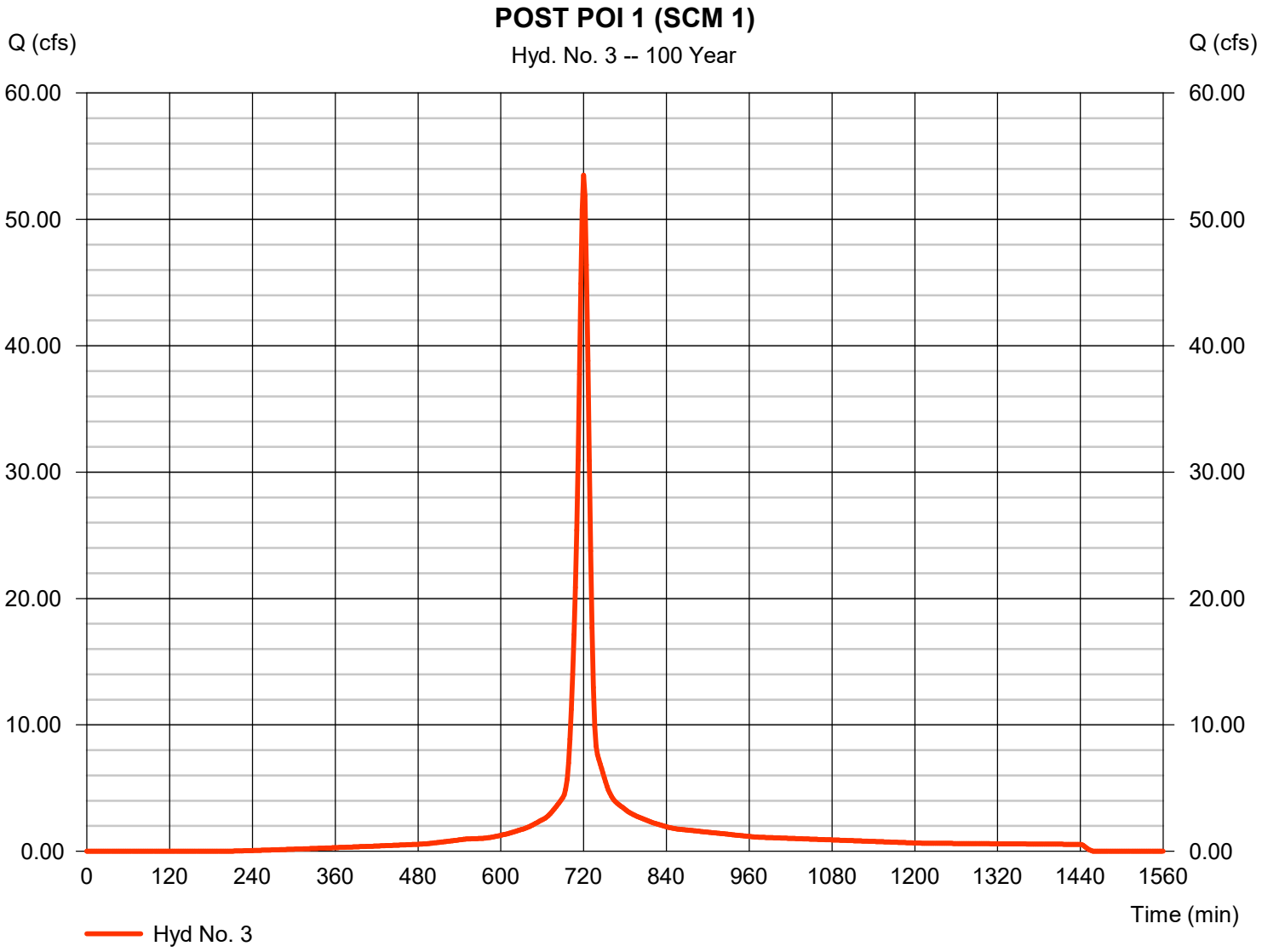


Hydrograph Report

Hyd. No. 3

POST POI 1 (SCM 1)

Hydrograph type	=	SCS Runoff	Peak discharge	=	53.50 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	146,185 cuft
Drainage area	=	6.110 ac	Curve number	=	87
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	7.94 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

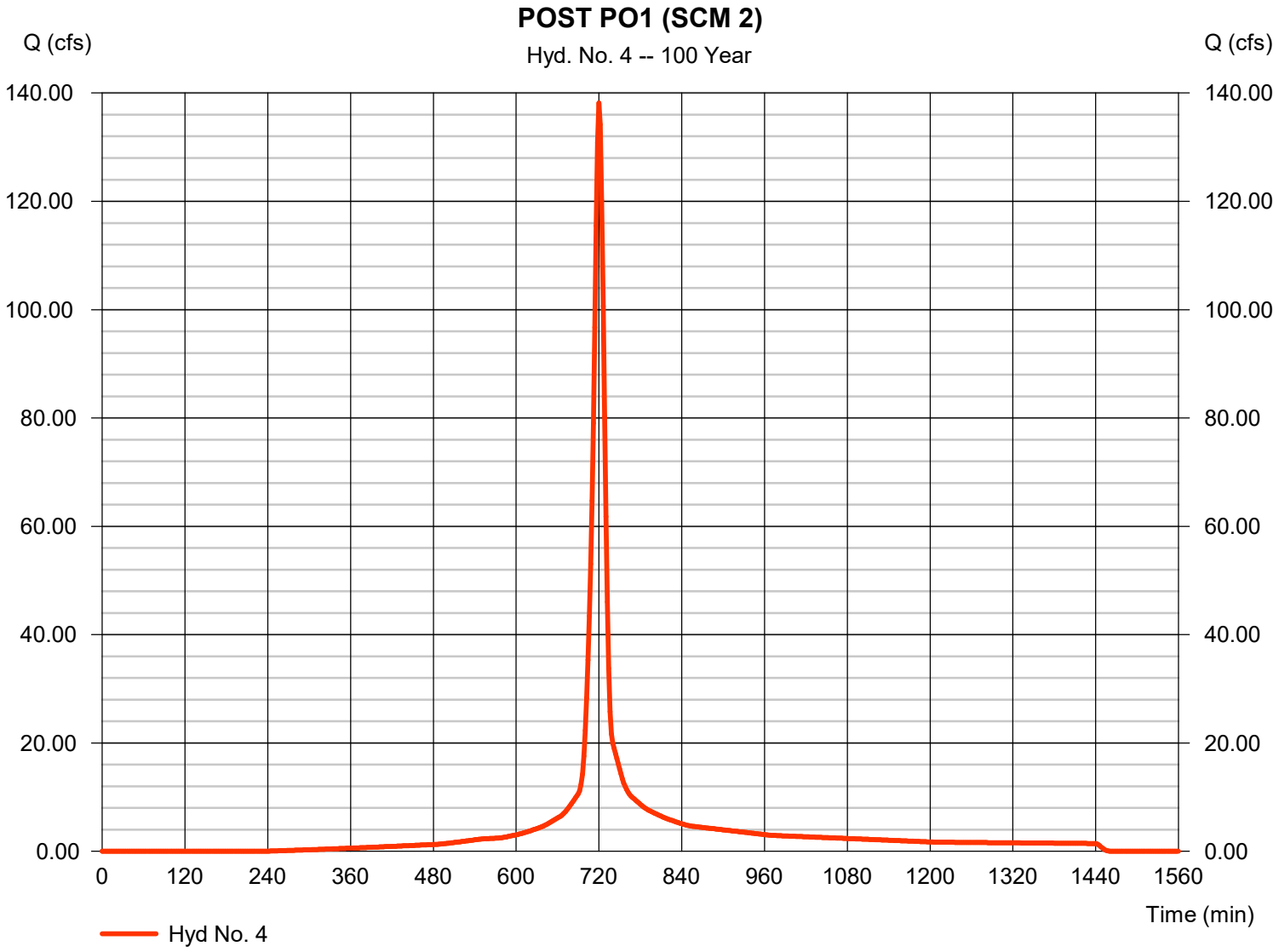


Hydrograph Report

Hyd. No. 4

POST PO1 (SCM 2)

Hydrograph type	=	SCS Runoff	Peak discharge	=	138.16 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	373,283 cuft
Drainage area	=	16.200 ac	Curve number	=	85
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	7.94 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

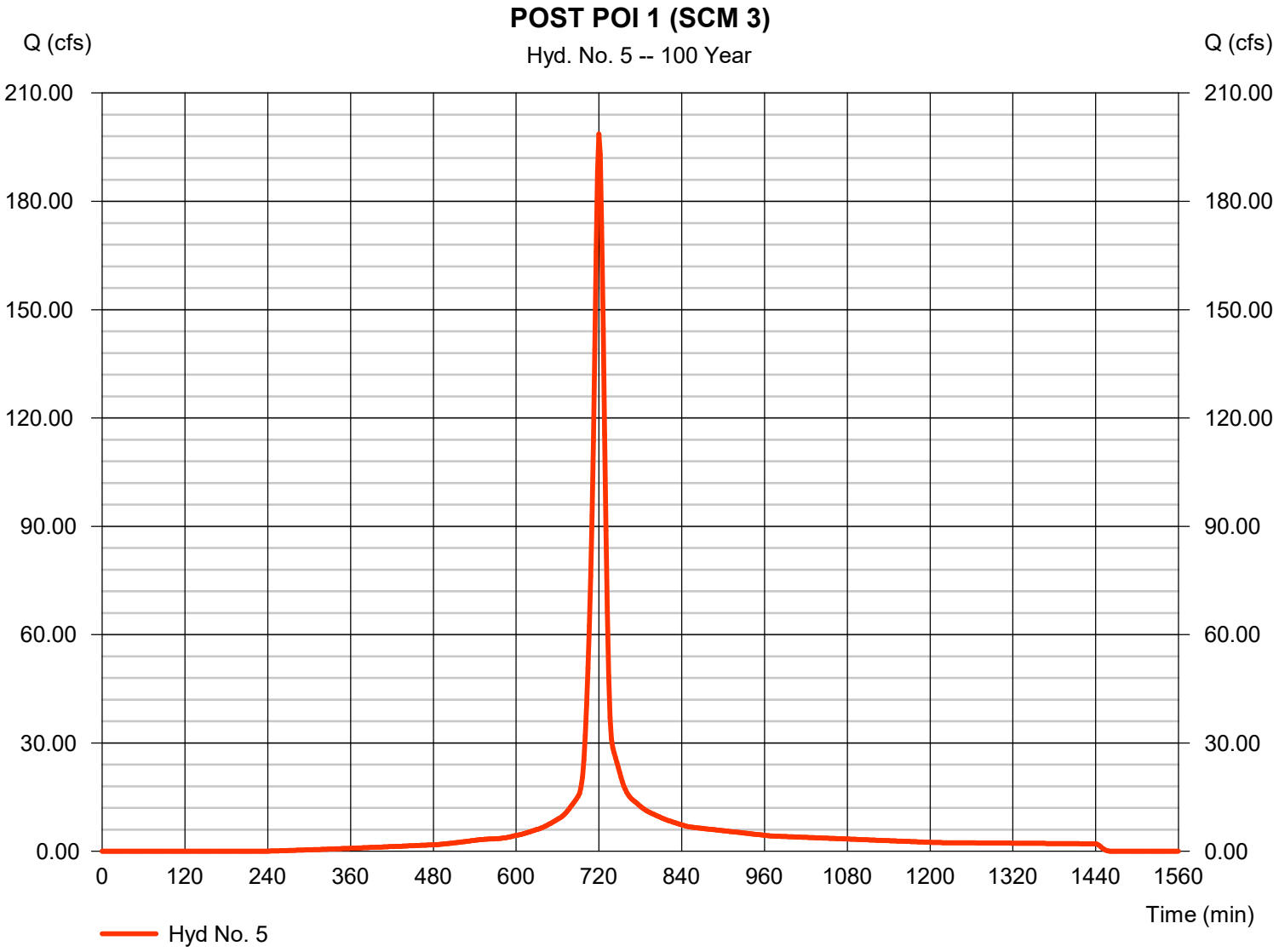


Hydrograph Report

Hyd. No. 5

POST POI 1 (SCM 3)

Hydrograph type	=	SCS Runoff	Peak discharge	=	198.62 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	536,653 cuft
Drainage area	=	23.290 ac	Curve number	=	85
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	7.94 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



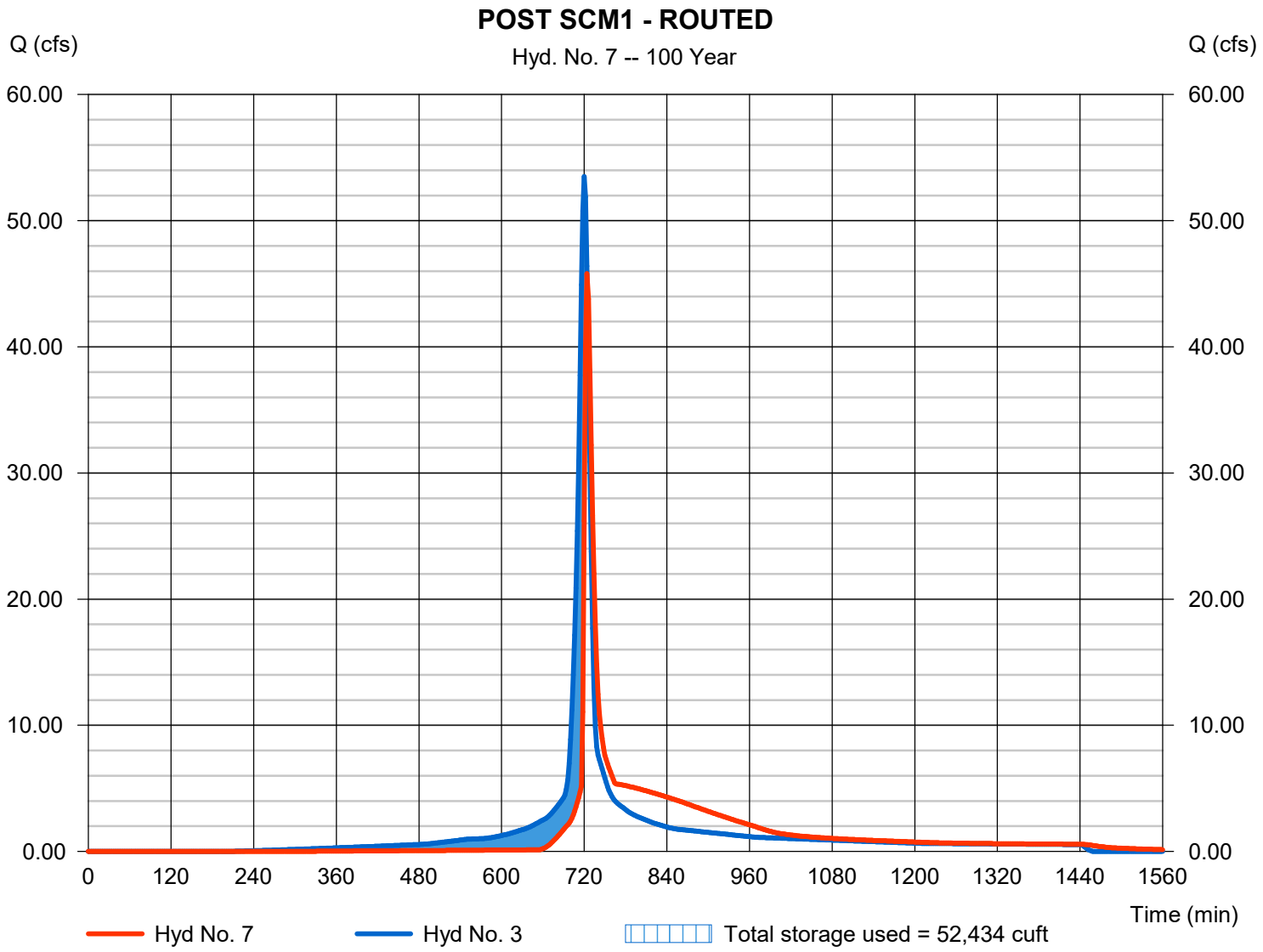
Hydrograph Report

Hyd. No. 7

POST SCM1 - ROUTED

Hydrograph type	=	Reservoir	Peak discharge	=	45.81 cfs
Storm frequency	=	100 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	145,951 cuft
Inflow hyd. No.	=	3 - POST POI 1 (SCM 1)	Max. Elevation	=	254.67 ft
Reservoir name	=	SCM1	Max. Storage	=	52,434 cuft

Storage Indication method used.



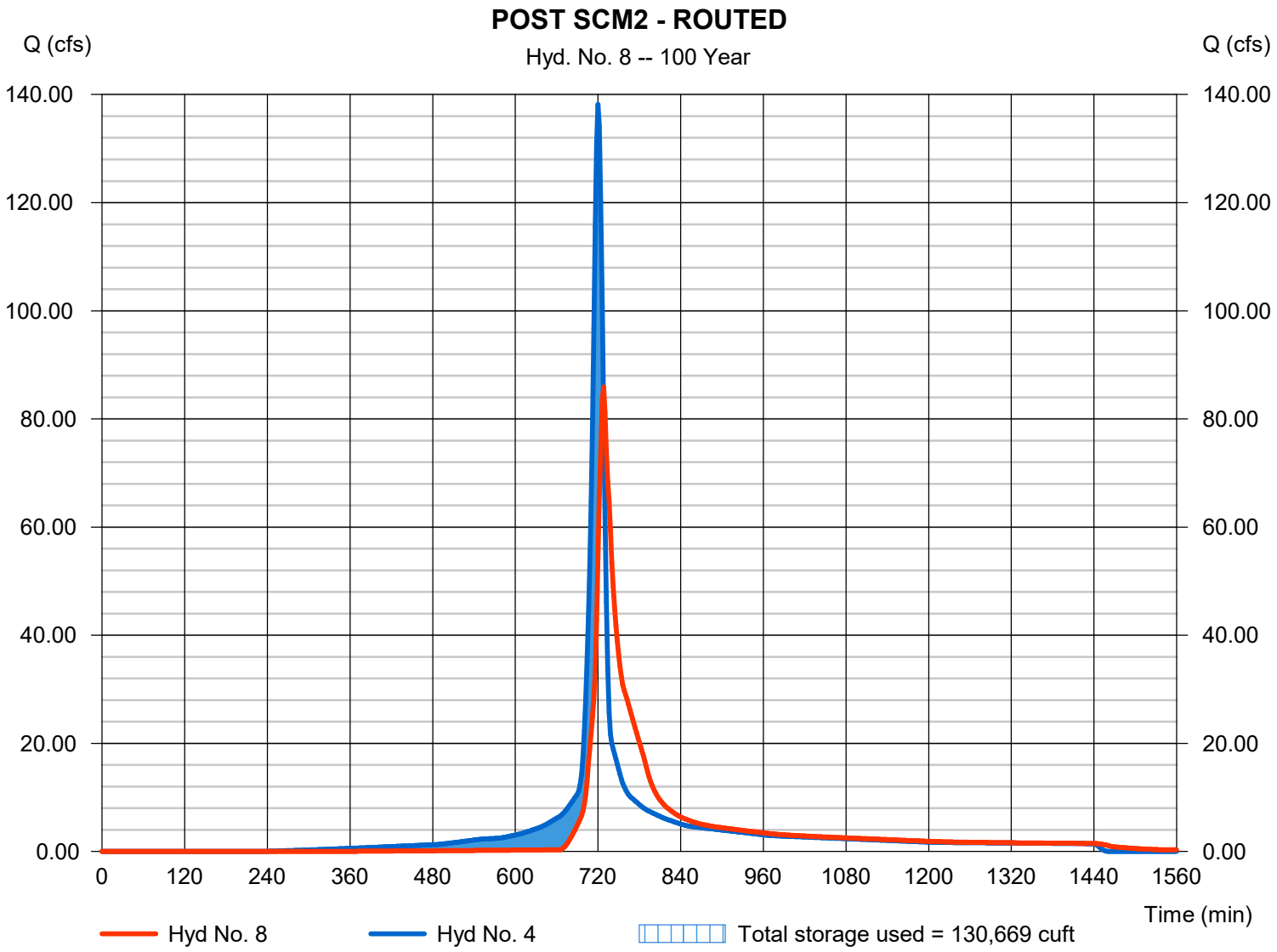
Hydrograph Report

Hyd. No. 8

POST SCM2 - ROUTED

Hydrograph type	=	Reservoir	Peak discharge	=	85.87 cfs
Storm frequency	=	100 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	372,035 cuft
Inflow hyd. No.	=	4 - POST PO1 (SCM 2)	Max. Elevation	=	242.75 ft
Reservoir name	=	SCM2	Max. Storage	=	130,669 cuft

Storage Indication method used.



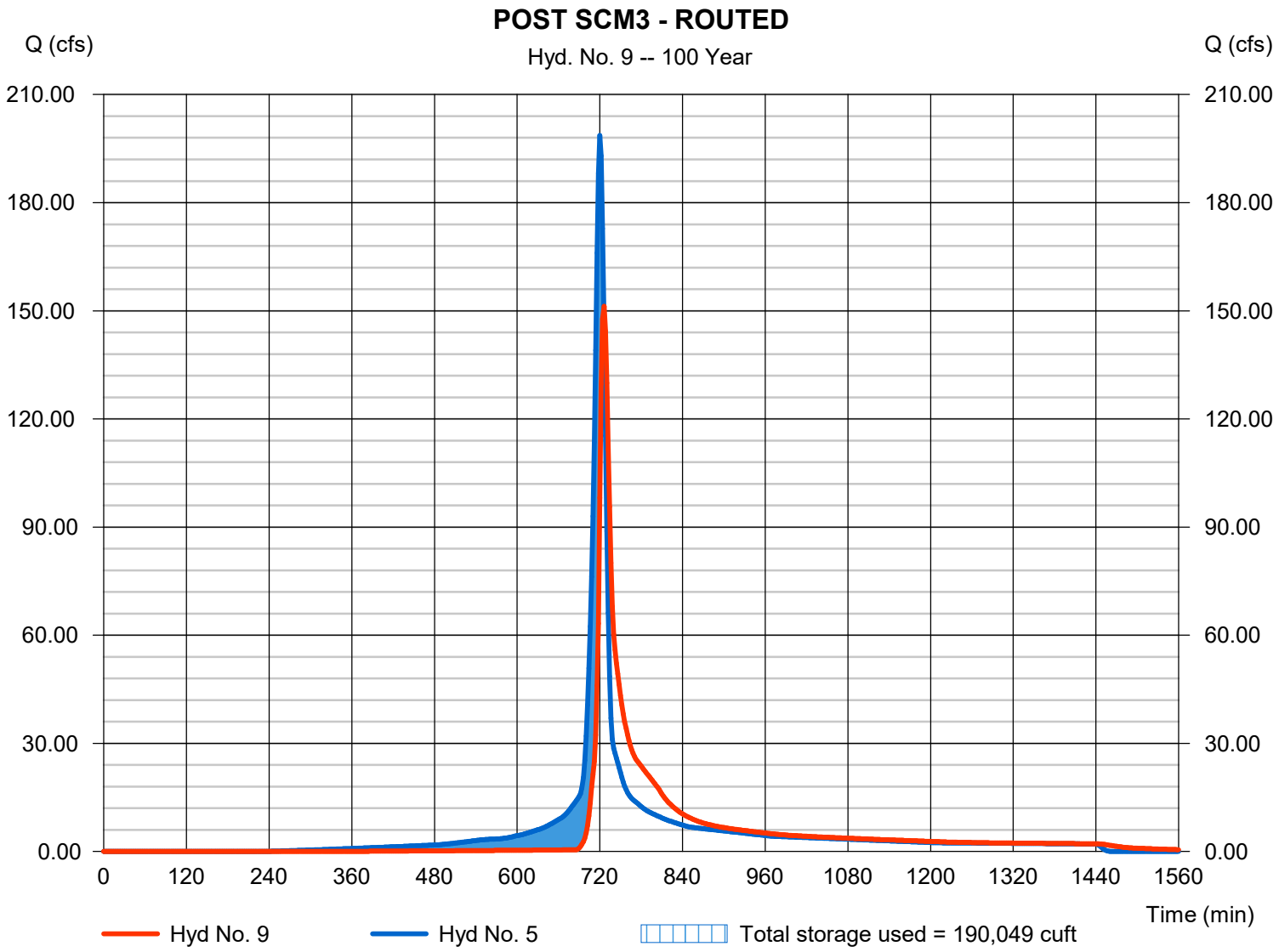
Hydrograph Report

Hyd. No. 9

POST SCM3 - ROUTED

Hydrograph type	=	Reservoir	Peak discharge	=	151.28 cfs
Storm frequency	=	100 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	532,760 cuft
Inflow hyd. No.	=	5 - POST POI 1 (SCM 3)	Max. Elevation	=	239.83 ft
Reservoir name	=	SCM3	Max. Storage	=	190,049 cuft

Storage Indication method used.

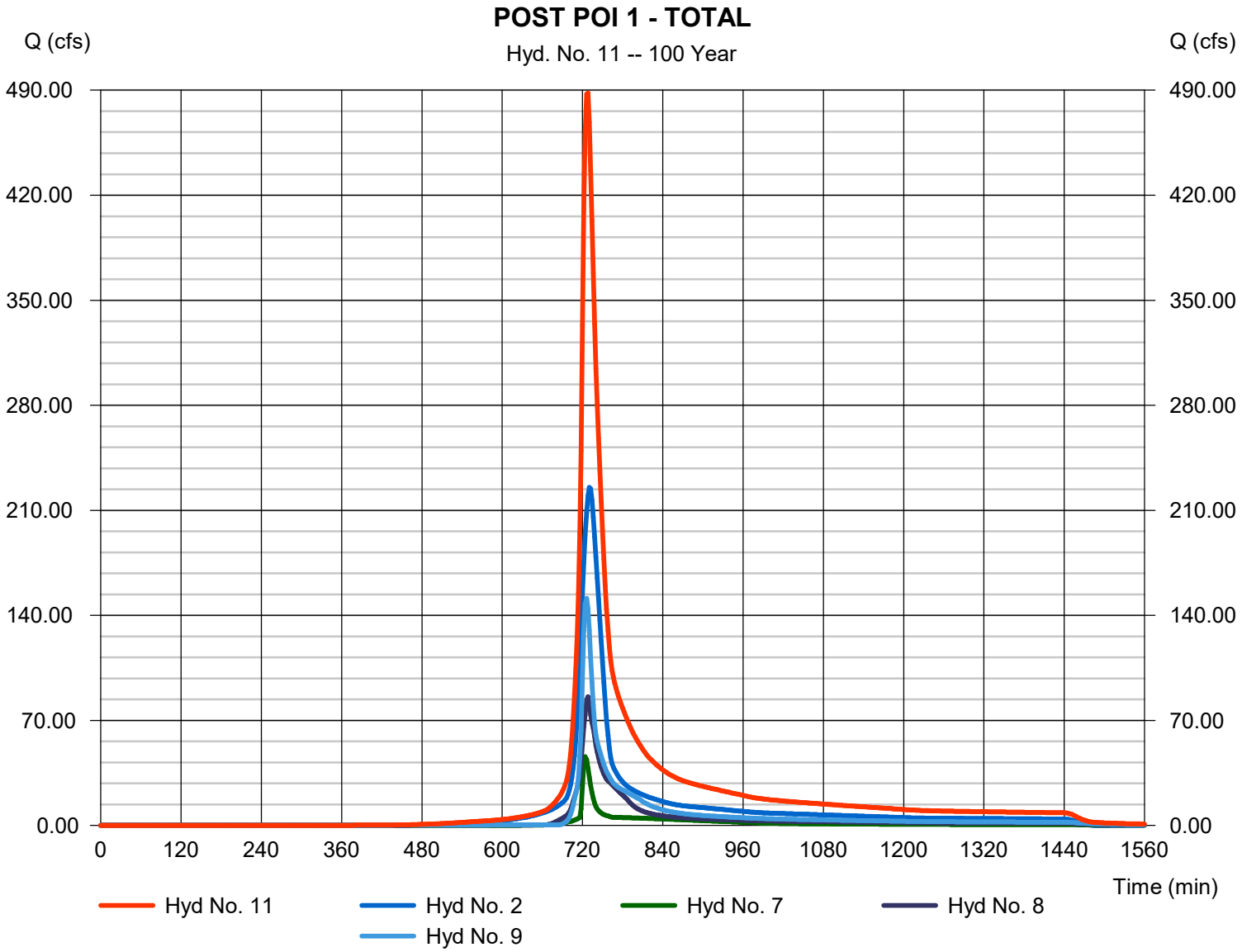


Hydrograph Report

Hyd. No. 11

POST POI 1 - TOTAL

Hydrograph type	= Combine	Peak discharge	= 488.07 cfs
Storm frequency	= 100 yrs	Time to peak	= 728 min
Time interval	= 2 min	Hyd. volume	= 1,951,471 cuft
Inflow hyds.	= 2, 7, 8, 9	Contrib. drain. area	= 54.810 ac

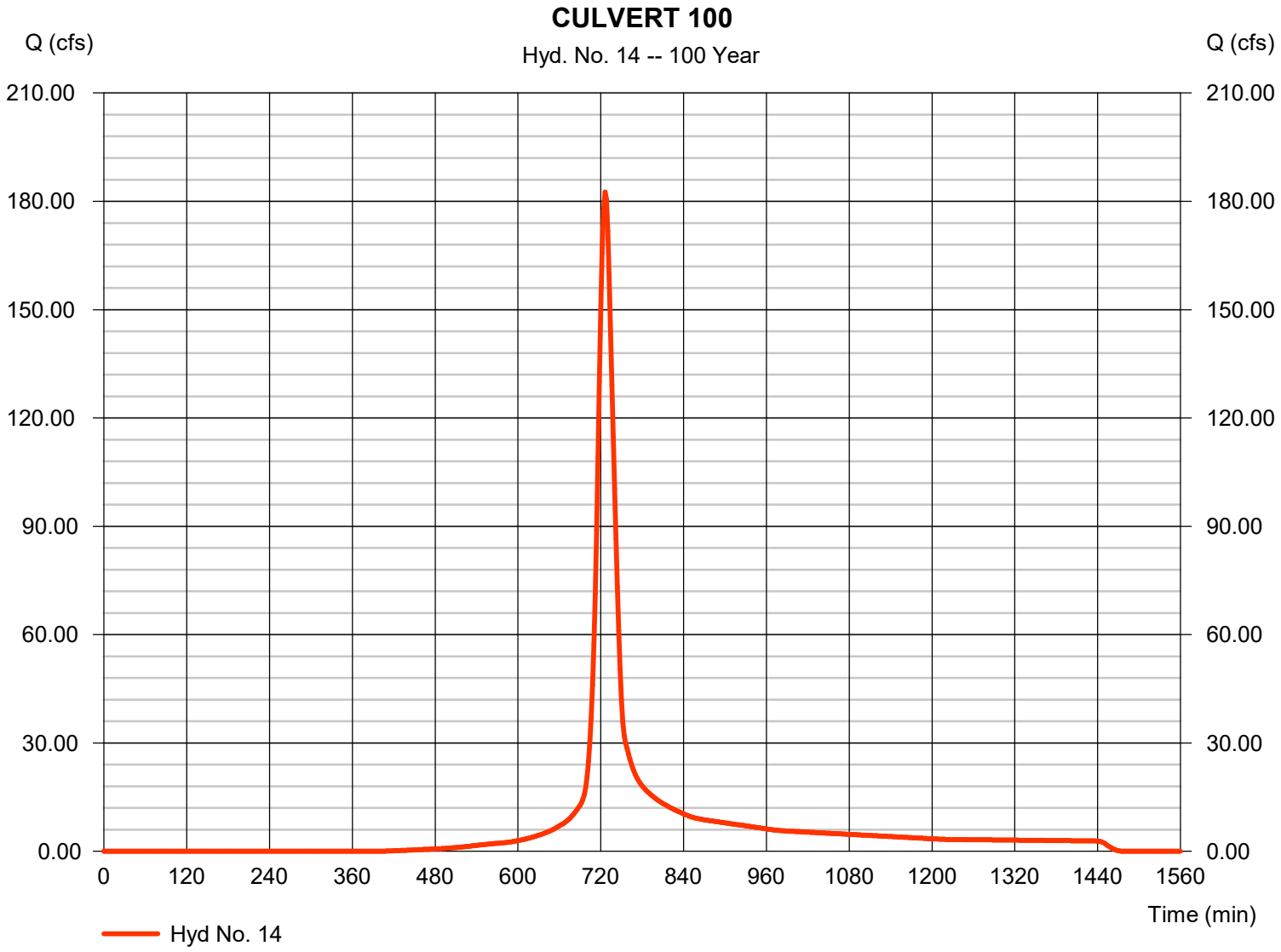


Hydrograph Report

Hyd. No. 14

CULVERT 100

Hydrograph type	=	SCS Runoff	Peak discharge	=	182.57 cfs
Storm frequency	=	100 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	630,767 cuft
Drainage area	=	35.040 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	22.00 min
Total precip.	=	7.94 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

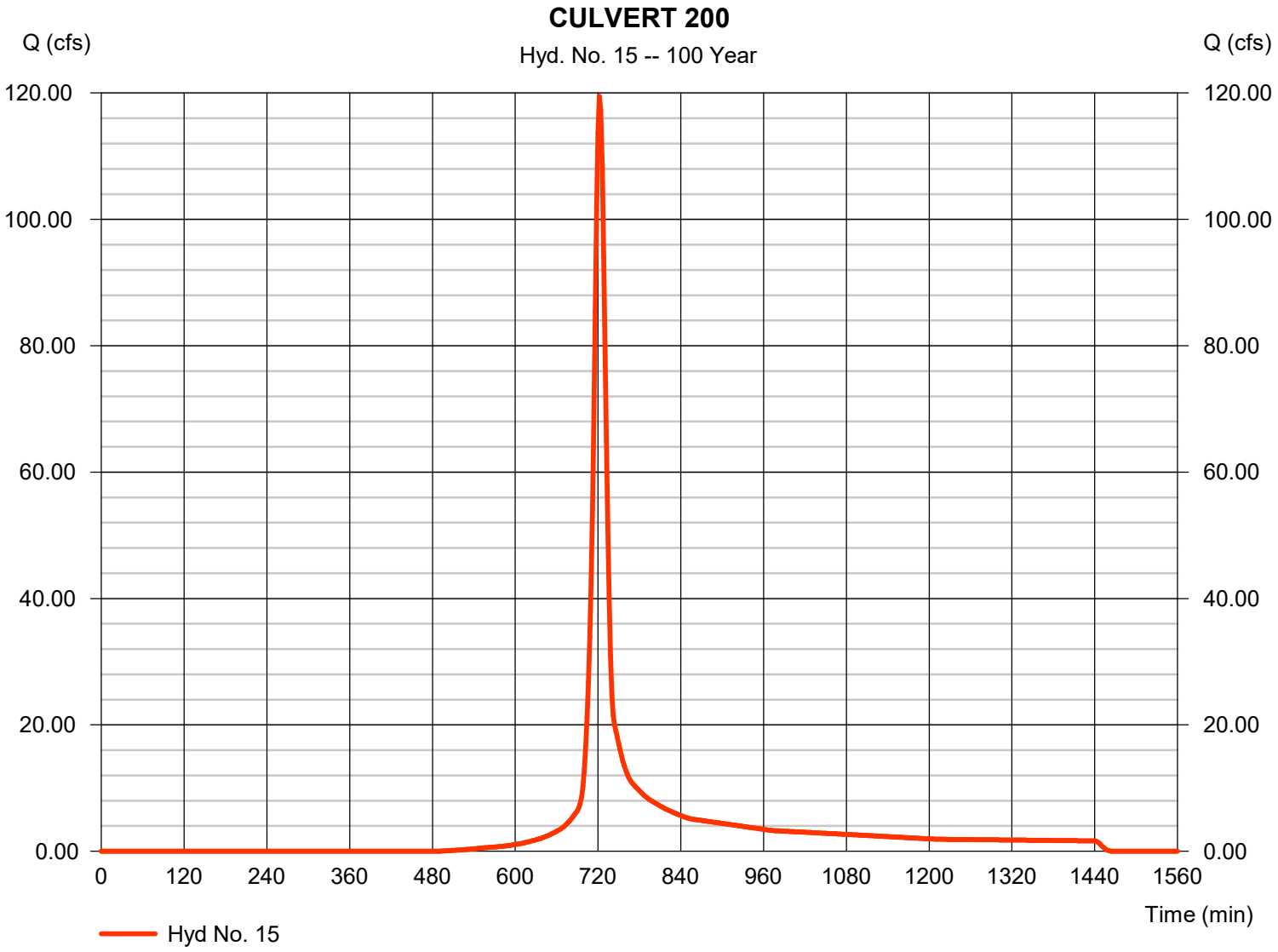


Hydrograph Report

Hyd. No. 15

CULVERT 200

Hydrograph type	=	SCS Runoff	Peak discharge	=	119.47 cfs
Storm frequency	=	100 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	334,889 cuft
Drainage area	=	22.610 ac	Curve number	=	68
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	14.00 min
Total precip.	=	7.94 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	64.0555	12.8000	0.8950	--------
2	68.6781	12.6000	0.8716	--------
3	4.0388	5.5000	0.0041	--------
5	69.6789	12.6000	0.8322	--------
10	69.3606	12.1000	0.7963	--------
25	62.8254	11.1000	0.7398	--------
50	56.4878	9.9000	0.6912	--------
100	52.7444	9.1000	0.6543	--------

File name: FAISON.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	4.87	3.90	3.27	2.82	2.48	2.22	2.01	1.84	1.70	1.58	1.47	1.38
2	5.64	4.54	3.81	3.30	2.91	2.61	2.37	2.17	2.01	1.87	1.75	1.64
3	4.00	3.99	3.99	3.99	3.98	3.98	3.98	3.98	3.97	3.97	3.97	3.97
5	6.41	5.20	4.41	3.84	3.41	3.07	2.80	2.58	2.39	2.23	2.09	1.97
10	7.23	5.90	5.01	4.38	3.90	3.53	3.23	2.98	2.77	2.59	2.44	2.30
25	8.04	6.58	5.62	4.94	4.42	4.02	3.69	3.42	3.19	3.00	2.83	2.68
50	8.73	7.15	6.12	5.40	4.85	4.42	4.07	3.79	3.55	3.34	3.16	3.00
100	9.34	7.65	6.57	5.81	5.24	4.79	4.43	4.13	3.87	3.66	3.47	3.30

Tc = time in minutes. Values may exceed 60.

Precip. file name: S:\331\47734-Midtown_Village_Sanford\Calc\Stm\1st CD SIA\Midtown Village Precip.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	2.86	3.46	0.00	0.00	5.14	6.18	0.00	7.94
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

Culvert Design

Hydraflow Express Extension for Autodesk Civil 3D

Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Friday, Aug 8 2025

Culvert 100 - 25 Year

Invert Elev Dn (ft)	=	100.00
Pipe Length (ft)	=	60.00
Slope (%)	=	2.00
Invert Elev Up (ft)	=	101.20
Rise (in)	=	48.0
Shape	=	Box
Span (in)	=	60.0
No. Barrels	=	1
n-Value	=	0.012
Culvert Type	=	Flared Wingwalls
Culvert Entrance	=	30D to 75D wingwall flares
Coeff. K,M,c,Y,k	=	0.026, 1, 0.0347, 0.81, 0.4

Embankment

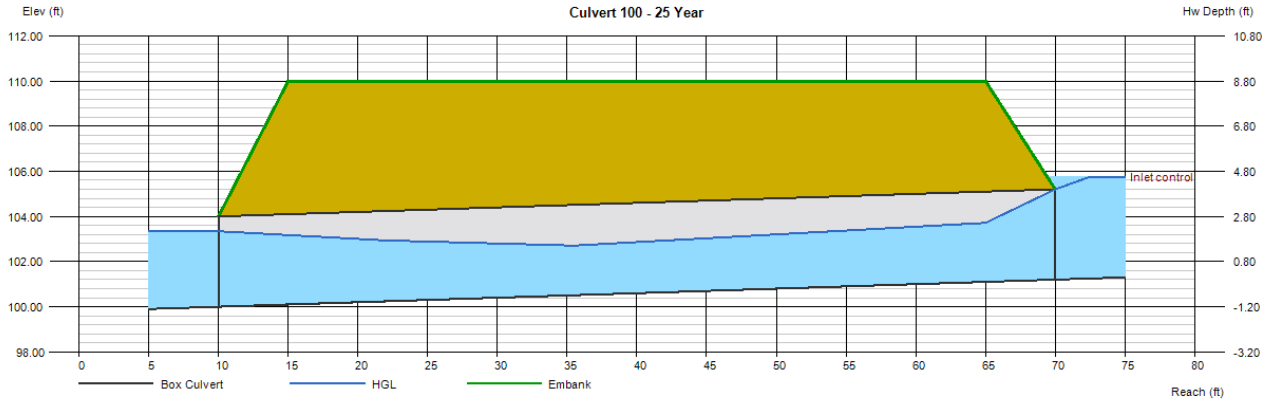
Top Elevation (ft)	=	110.00
Top Width (ft)	=	50.00
Crest Width (ft)	=	50.00

Calculations

Qmin (cfs)	=	124.97
Qmax (cfs)	=	124.97
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	124.97
Qpipe (cfs)	=	124.97
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	7.48
Veloc Up (ft/s)	=	9.31
HGL Dn (ft)	=	103.34
HGL Up (ft)	=	103.89
Hw Elev (ft)	=	105.75
Hw/D (ft)	=	1.14
Flow Regime	=	Inlet Control



Culvert Report

Culvert 100 - 100 Year

Invert Elev Dn (ft)	=	100.00
Pipe Length (ft)	=	60.00
Slope (%)	=	2.00
Invert Elev Up (ft)	=	101.20
Rise (in)	=	48.0
Shape	=	Box
Span (in)	=	60.0
No. Barrels	=	1
n-Value	=	0.012
Culvert Type	=	Flared Wingwalls
Culvert Entrance	=	30D to 75D wingwall flares
Coeff. K,M,c,Y,k	=	0.026, 1, 0.0347, 0.81, 0.4

Embankment

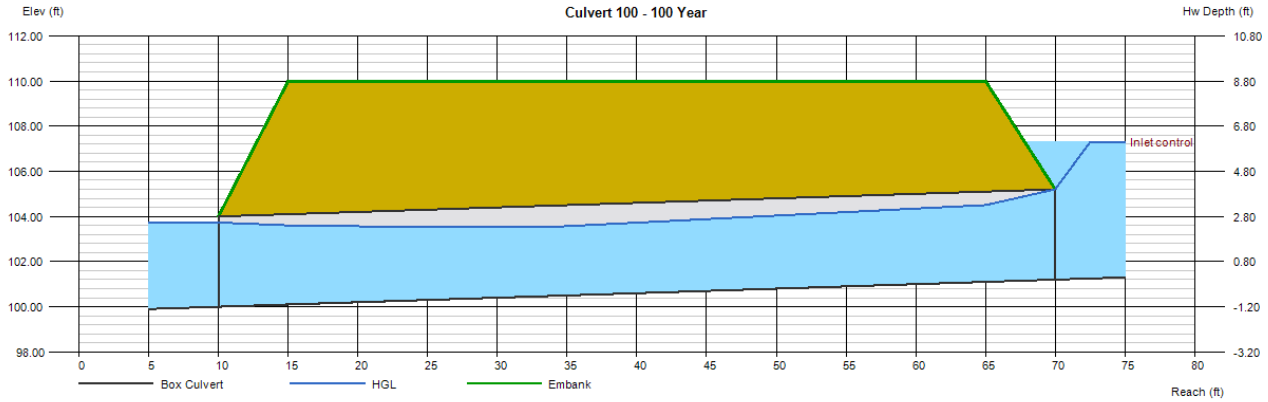
Top Elevation (ft)	=	110.00
Top Width (ft)	=	50.00
Crest Width (ft)	=	50.00

Calculations

Qmin (cfs)	=	182.57
Qmax (cfs)	=	182.57
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	182.57
Qpipe (cfs)	=	182.57
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	9.79
Veloc Up (ft/s)	=	10.56
HGL Dn (ft)	=	103.73
HGL Up (ft)	=	104.66
Hw Elev (ft)	=	107.29
Hw/D (ft)	=	1.52
Flow Regime	=	Inlet Control



Culvert Report

Culvert 200 - 25 Year

Invert Elev Dn (ft)	=	257.00
Pipe Length (ft)	=	90.00
Slope (%)	=	1.86
Invert Elev Up (ft)	=	258.67
Rise (in)	=	48.0
Shape	=	Circular
Span (in)	=	48.0
No. Barrels	=	1
n-Value	=	0.012
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment

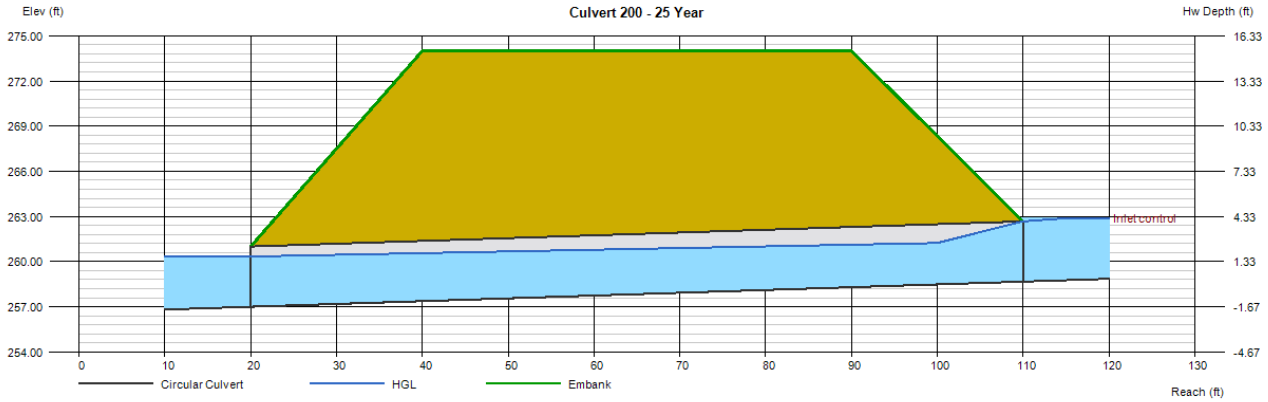
Top Elevation (ft)	=	274.00
Top Width (ft)	=	50.00
Crest Width (ft)	=	100.00

Calculations

Qmin (cfs)	=	78.22
Qmax (cfs)	=	78.22
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	78.22
Qpipe (cfs)	=	78.22
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	6.98
Veloc Up (ft/s)	=	8.76
HGL Dn (ft)	=	260.34
HGL Up (ft)	=	261.35
Hw Elev (ft)	=	262.88
Hw/D (ft)	=	1.05
Flow Regime	=	Inlet Control



Culvert Report

Culvert 200 - 100 Year

Invert Elev Dn (ft)	=	257.00
Pipe Length (ft)	=	90.00
Slope (%)	=	1.86
Invert Elev Up (ft)	=	258.67
Rise (in)	=	48.0
Shape	=	Circular
Span (in)	=	48.0
No. Barrels	=	1
n-Value	=	0.012
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment

Top Elevation (ft)	=	274.00
Top Width (ft)	=	50.00
Crest Width (ft)	=	100.00

Calculations

Qmin (cfs)	=	119.47
Qmax (cfs)	=	119.47
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	119.47
Qpipe (cfs)	=	119.47
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	9.94
Veloc Up (ft/s)	=	10.81
HGL Dn (ft)	=	260.64
HGL Up (ft)	=	261.96
Hw Elev (ft)	=	264.91
Hw/D (ft)	=	1.56
Flow Regime	=	Inlet Control