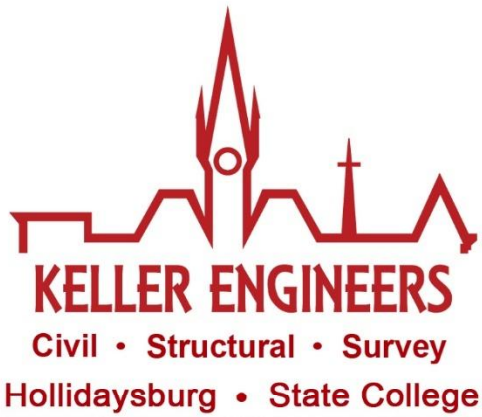




POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

**HUNTINGDON RUTTER'S
STORE #93**

IN

SMITHFIELD TOWNSHIP

HUNTINGDON COUNTY, PENNSYLVANIA

**PROJECT NUMBER 3746-5
NPDES MAJOR MODIFICATION REVISION
APRIL 17, 2026**



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INTRODUCTION

PCSM DESIGN METHODOLOGY

102.8(f)(4)

Runoff Flows

- SCS Runoff Curve Number Methodology for the volume calculations and SCS methodology for rate calculations.
- Drainage area and subarea acreages taken from predevelopment and post development drainage maps (attached).
- Rainfall intensities taken from NOAA data as specified by Pennsylvania Department of Environmental Protection.
- Runoff factors taken from PADOT DMII, Chapter 10. $C=0.90$ for impervious cover and $C=0.30$ for grass cover.
- Curve Number (CN) values are based on the hydrologic soil group and ground cover as referenced in TR-55.

Stormwater Detention Basin Design

- Level Pool Reservoir Routing Methodology.
- Basin sizing based on the Smithfield Township Subdivision and Land Development Ordinance.
- Refer to predevelopment and post development drainage area maps for areas.
- Note that peak runoff flow rates were used in determining the basin's maximum allowable outlet rate, however, the basin routing was performed using an iterative process to determine the storm duration which produces the maximum required storage volume and the peak discharge rate.

Subsurface Infiltration Bed Design

- Level Pool Reservoir Routing Methodology.
- Basin sizing based on post-development runoff rate for the 1, 2, 10, 25, 50, and 100-year storm events at a minimum. The infiltration areas are subsurface facilities with standard inlets for the outlet structures. These facilities store water within a volume provided by the Contech Terre Arch system that is a series of underground concrete arches. The stored water is infiltrated back into the soil.

RUNOFF CALCULATIONS



NOAA Atlas 14, Volume 2, Version 3
Location name: Huntingdon, Pennsylvania, USA*
Latitude: 40.4897°, Longitude: -78.0367°
Elevation: 680.07 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 & aerals](#)

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	0.312 (0.279-0.351)	0.373 (0.333-0.418)	0.455 (0.405-0.509)	0.519 (0.461-0.580)	0.604 (0.533-0.674)	0.670 (0.589-0.745)	0.737 (0.644-0.819)	0.807 (0.701-0.895)	0.904 (0.777-1.00)	0.978 (0.833-1.08)
10-min	0.485 (0.433-0.545)	0.582 (0.519-0.652)	0.707 (0.629-0.792)	0.801 (0.712-0.895)	0.924 (0.815-1.03)	1.02 (0.893-1.13)	1.11 (0.970-1.23)	1.21 (1.05-1.34)	1.33 (1.14-1.47)	1.42 (1.21-1.58)
15-min	0.594 (0.530-0.668)	0.711 (0.635-0.798)	0.868 (0.772-0.972)	0.985 (0.876-1.10)	1.14 (1.01-1.27)	1.26 (1.11-1.40)	1.38 (1.21-1.53)	1.50 (1.30-1.66)	1.66 (1.43-1.84)	1.78 (1.52-1.97)
30-min	0.786 (0.702-0.884)	0.952 (0.850-1.07)	1.19 (1.06-1.33)	1.37 (1.22-1.53)	1.61 (1.42-1.80)	1.80 (1.58-2.00)	1.99 (1.74-2.21)	2.19 (1.90-2.43)	2.46 (2.11-2.72)	2.67 (2.27-2.95)
60-min	0.960 (0.857-1.08)	1.17 (1.04-1.31)	1.49 (1.33-1.67)	1.74 (1.55-1.95)	2.09 (1.85-2.33)	2.37 (2.08-2.63)	2.66 (2.33-2.96)	2.97 (2.58-3.29)	3.40 (2.92-3.76)	3.75 (3.19-4.14)
2-hr	1.10 (0.968-1.25)	1.33 (1.17-1.52)	1.70 (1.49-1.94)	1.99 (1.75-2.27)	2.41 (2.10-2.73)	2.75 (2.38-3.11)	3.12 (2.68-3.51)	3.51 (2.99-3.94)	4.07 (3.43-4.57)	4.53 (3.78-5.08)
3-hr	1.19 (1.05-1.36)	1.43 (1.27-1.64)	1.81 (1.60-2.07)	2.12 (1.87-2.41)	2.56 (2.24-2.90)	2.92 (2.55-3.30)	3.32 (2.87-3.73)	3.74 (3.21-4.20)	4.35 (3.68-4.87)	4.85 (4.07-5.42)
6-hr	1.48 (1.33-1.67)	1.78 (1.60-2.01)	2.22 (1.99-2.51)	2.59 (2.31-2.91)	3.11 (2.76-3.49)	3.55 (3.12-3.96)	4.01 (3.50-4.47)	4.51 (3.91-5.02)	5.24 (4.48-5.81)	5.83 (4.94-6.46)
12-hr	1.84 (1.65-2.08)	2.21 (1.98-2.49)	2.74 (2.45-3.09)	3.20 (2.84-3.58)	3.85 (3.40-4.31)	4.40 (3.85-4.91)	5.00 (4.34-5.56)	5.65 (4.86-6.26)	6.60 (5.60-7.30)	7.40 (6.20-8.18)
24-hr	2.21 (2.04-2.42)	2.66 (2.45-2.91)	3.31 (3.04-3.62)	3.84 (3.52-4.20)	4.62 (4.22-5.03)	5.27 (4.78-5.73)	5.96 (5.38-6.48)	6.71 (6.01-7.29)	7.80 (6.90-8.47)	8.71 (7.63-9.45)
2-day	2.55 (2.36-2.78)	3.06 (2.84-3.33)	3.80 (3.51-4.13)	4.42 (4.08-4.80)	5.32 (4.88-5.76)	6.07 (5.53-6.56)	6.89 (6.23-7.43)	7.77 (6.96-8.38)	9.04 (8.00-9.77)	10.1 (8.84-10.9)
3-day	2.72 (2.53-2.95)	3.26 (3.03-3.53)	4.04 (3.75-4.37)	4.69 (4.34-5.06)	5.62 (5.18-6.06)	6.40 (5.86-6.89)	7.24 (6.58-7.79)	8.14 (7.34-8.76)	9.44 (8.40-10.2)	10.5 (9.26-11.3)
4-day	2.89 (2.70-3.12)	3.46 (3.23-3.74)	4.28 (3.99-4.61)	4.95 (4.60-5.33)	5.92 (5.48-6.36)	6.73 (6.19-7.22)	7.59 (6.93-8.14)	8.51 (7.71-9.14)	9.83 (8.81-10.6)	10.9 (9.68-11.8)
7-day	3.37 (3.15-3.61)	4.03 (3.77-4.32)	4.92 (4.60-5.26)	5.63 (5.25-6.01)	6.61 (6.15-7.06)	7.41 (6.85-7.91)	8.23 (7.58-8.79)	9.08 (8.31-9.72)	10.3 (9.31-11.0)	11.2 (10.1-12.0)
10-day	3.90 (3.65-4.17)	4.63 (4.34-4.96)	5.57 (5.21-5.95)	6.32 (5.90-6.74)	7.35 (6.85-7.84)	8.17 (7.58-8.72)	9.02 (8.32-9.63)	9.88 (9.07-10.6)	11.1 (10.1-11.9)	12.0 (10.8-12.9)
20-day	5.34 (5.05-5.66)	6.30 (5.96-6.67)	7.36 (6.96-7.80)	8.18 (7.73-8.65)	9.24 (8.72-9.78)	10.1 (9.46-10.6)	10.8 (10.2-11.5)	11.6 (10.9-12.3)	12.6 (11.7-13.4)	13.3 (12.4-14.2)
30-day	6.66 (6.32-7.01)	7.80 (7.41-8.22)	8.97 (8.51-9.44)	9.86 (9.35-10.4)	11.0 (10.4-11.6)	11.8 (11.2-12.5)	12.6 (11.9-13.3)	13.4 (12.6-14.2)	14.4 (13.5-15.2)	15.1 (14.1-16.0)
45-day	8.41 (8.00-8.86)	9.85 (9.36-10.4)	11.2 (10.6-11.8)	12.2 (11.5-12.8)	13.3 (12.7-14.0)	14.2 (13.5-14.9)	15.0 (14.2-15.8)	15.7 (14.8-16.5)	16.5 (15.6-17.5)	17.1 (16.1-18.1)
60-day	10.1 (9.64-10.6)	11.8 (11.3-12.4)	13.2 (12.6-13.9)	14.3 (13.6-14.9)	15.5 (14.8-16.2)	16.4 (15.6-17.2)	17.2 (16.3-18.0)	17.9 (17.0-18.7)	18.7 (17.7-19.6)	19.2 (18.2-20.2)

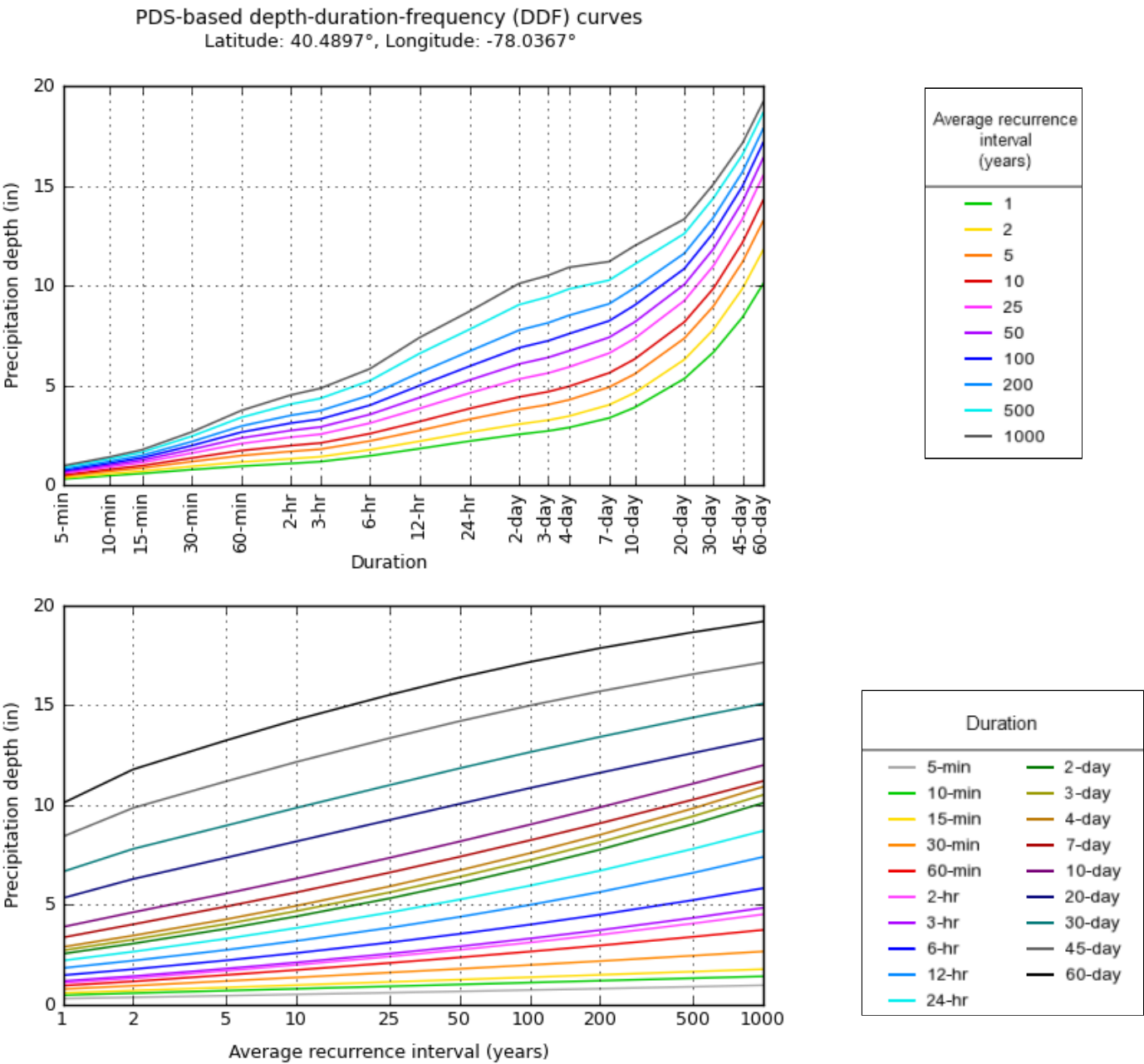
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

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



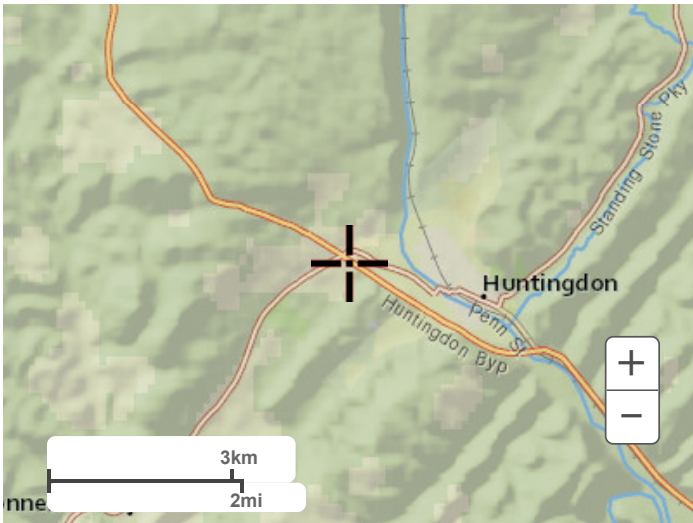
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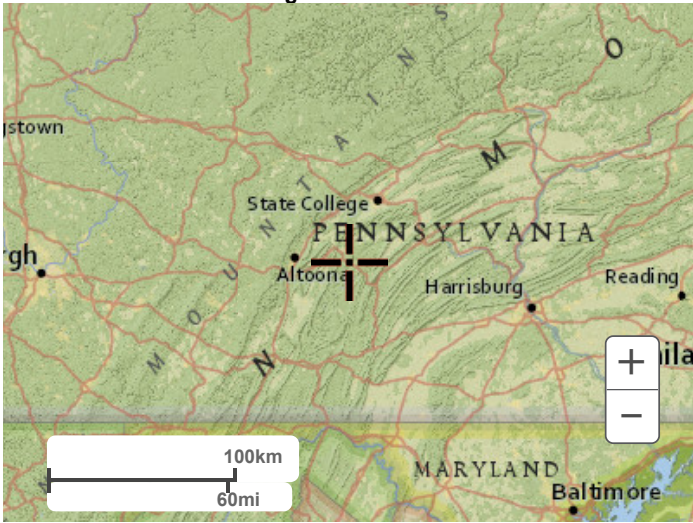
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Maps & aerials

Small scale terrain



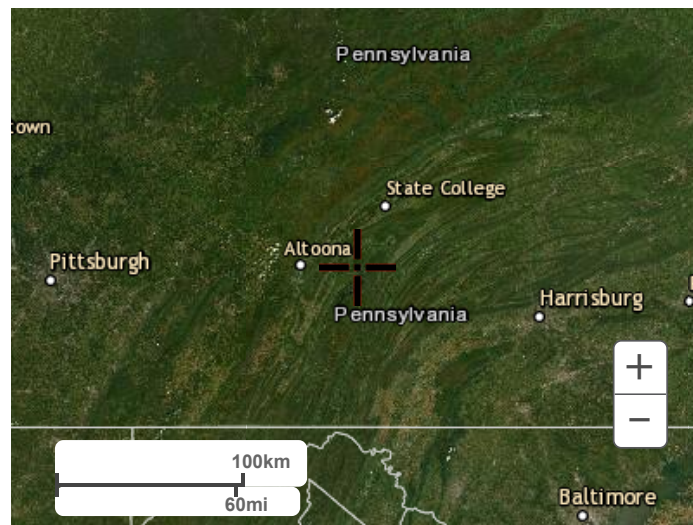
Large scale terrain



Large scale map



Large scale aerial



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NOAA Atlas 14, Volume 2, Version 3
Location name: Huntingdon, Pennsylvania, USA*
Latitude: 40.4897°, Longitude: -78.0367°
Elevation: 680.07 ft**
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POINT PRECIPITATION FREQUENCY ESTIMATES

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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	3.74 (3.35-4.21)	4.48 (4.00-5.02)	5.46 (4.86-6.11)	6.23 (5.53-6.96)	7.25 (6.40-8.09)	8.04 (7.07-8.94)	8.84 (7.73-9.83)	9.68 (8.41-10.7)	10.8 (9.32-12.0)	11.7 (10.00-13.0)
10-min	2.91 (2.60-3.27)	3.49 (3.11-3.91)	4.24 (3.77-4.75)	4.81 (4.27-5.37)	5.54 (4.89-6.18)	6.10 (5.36-6.78)	6.66 (5.82-7.40)	7.23 (6.28-8.02)	7.97 (6.85-8.83)	8.54 (7.28-9.45)
15-min	2.38 (2.12-2.67)	2.84 (2.54-3.19)	3.47 (3.09-3.89)	3.94 (3.50-4.40)	4.57 (4.03-5.09)	5.03 (4.42-5.60)	5.52 (4.82-6.13)	6.00 (5.20-6.65)	6.64 (5.70-7.35)	7.12 (6.06-7.87)
30-min	1.57 (1.40-1.77)	1.90 (1.70-2.14)	2.38 (2.12-2.66)	2.74 (2.43-3.06)	3.22 (2.84-3.59)	3.60 (3.16-4.00)	3.98 (3.48-4.42)	4.37 (3.80-4.85)	4.92 (4.22-5.44)	5.34 (4.55-5.90)
60-min	0.960 (0.857-1.08)	1.17 (1.04-1.31)	1.49 (1.33-1.67)	1.74 (1.55-1.95)	2.09 (1.85-2.33)	2.37 (2.08-2.63)	2.66 (2.33-2.96)	2.97 (2.58-3.29)	3.40 (2.92-3.76)	3.75 (3.19-4.14)
2-hr	0.549 (0.484-0.627)	0.666 (0.587-0.759)	0.850 (0.746-0.968)	0.996 (0.874-1.13)	1.21 (1.05-1.37)	1.38 (1.19-1.56)	1.56 (1.34-1.76)	1.75 (1.50-1.97)	2.03 (1.72-2.28)	2.26 (1.89-2.54)
3-hr	0.395 (0.350-0.451)	0.477 (0.424-0.546)	0.602 (0.534-0.688)	0.705 (0.623-0.804)	0.851 (0.747-0.966)	0.972 (0.847-1.10)	1.10 (0.955-1.24)	1.24 (1.07-1.40)	1.45 (1.23-1.62)	1.62 (1.36-1.81)
6-hr	0.247 (0.222-0.279)	0.297 (0.267-0.336)	0.371 (0.332-0.419)	0.432 (0.385-0.486)	0.520 (0.460-0.582)	0.593 (0.521-0.661)	0.670 (0.585-0.746)	0.753 (0.653-0.838)	0.875 (0.749-0.969)	0.974 (0.825-1.08)
12-hr	0.153 (0.137-0.172)	0.183 (0.164-0.207)	0.228 (0.203-0.256)	0.265 (0.236-0.297)	0.320 (0.282-0.358)	0.365 (0.320-0.407)	0.415 (0.360-0.461)	0.469 (0.403-0.520)	0.548 (0.465-0.606)	0.614 (0.515-0.679)
24-hr	0.092 (0.085-0.101)	0.111 (0.102-0.121)	0.138 (0.127-0.151)	0.160 (0.147-0.175)	0.192 (0.176-0.210)	0.219 (0.199-0.239)	0.248 (0.224-0.270)	0.280 (0.250-0.304)	0.325 (0.288-0.353)	0.363 (0.318-0.394)
2-day	0.053 (0.049-0.058)	0.064 (0.059-0.069)	0.079 (0.073-0.086)	0.092 (0.085-0.100)	0.111 (0.102-0.120)	0.127 (0.115-0.137)	0.143 (0.130-0.155)	0.162 (0.145-0.175)	0.188 (0.167-0.203)	0.210 (0.184-0.228)
3-day	0.038 (0.035-0.041)	0.045 (0.042-0.049)	0.056 (0.052-0.061)	0.065 (0.060-0.070)	0.078 (0.072-0.084)	0.089 (0.081-0.096)	0.101 (0.091-0.108)	0.113 (0.102-0.122)	0.131 (0.117-0.141)	0.146 (0.129-0.158)
4-day	0.030 (0.028-0.032)	0.036 (0.034-0.039)	0.045 (0.042-0.048)	0.052 (0.048-0.056)	0.062 (0.057-0.066)	0.070 (0.064-0.075)	0.079 (0.072-0.085)	0.089 (0.080-0.095)	0.102 (0.092-0.110)	0.114 (0.101-0.123)
7-day	0.020 (0.019-0.022)	0.024 (0.022-0.026)	0.029 (0.027-0.031)	0.033 (0.031-0.036)	0.039 (0.037-0.042)	0.044 (0.041-0.047)	0.049 (0.045-0.052)	0.054 (0.049-0.058)	0.061 (0.055-0.065)	0.067 (0.060-0.072)
10-day	0.016 (0.015-0.017)	0.019 (0.018-0.021)	0.023 (0.022-0.025)	0.026 (0.025-0.028)	0.031 (0.029-0.033)	0.034 (0.032-0.036)	0.038 (0.035-0.040)	0.041 (0.038-0.044)	0.046 (0.042-0.049)	0.050 (0.045-0.054)
20-day	0.011 (0.011-0.012)	0.013 (0.012-0.014)	0.015 (0.014-0.016)	0.017 (0.016-0.018)	0.019 (0.018-0.020)	0.021 (0.020-0.022)	0.023 (0.021-0.024)	0.024 (0.023-0.026)	0.026 (0.024-0.028)	0.028 (0.026-0.030)
30-day	0.009 (0.009-0.010)	0.011 (0.010-0.011)	0.012 (0.012-0.013)	0.014 (0.013-0.014)	0.015 (0.014-0.016)	0.016 (0.016-0.017)	0.018 (0.017-0.018)	0.019 (0.018-0.020)	0.020 (0.019-0.021)	0.021 (0.020-0.022)
45-day	0.008 (0.007-0.008)	0.009 (0.009-0.010)	0.010 (0.010-0.011)	0.011 (0.011-0.012)	0.012 (0.012-0.013)	0.013 (0.012-0.014)	0.014 (0.013-0.015)	0.015 (0.014-0.015)	0.015 (0.014-0.016)	0.016 (0.015-0.017)
60-day	0.007 (0.007-0.007)	0.008 (0.008-0.009)	0.009 (0.009-0.010)	0.010 (0.009-0.010)	0.011 (0.010-0.011)	0.011 (0.011-0.012)	0.012 (0.011-0.012)	0.012 (0.012-0.013)	0.013 (0.012-0.014)	0.013 (0.013-0.014)

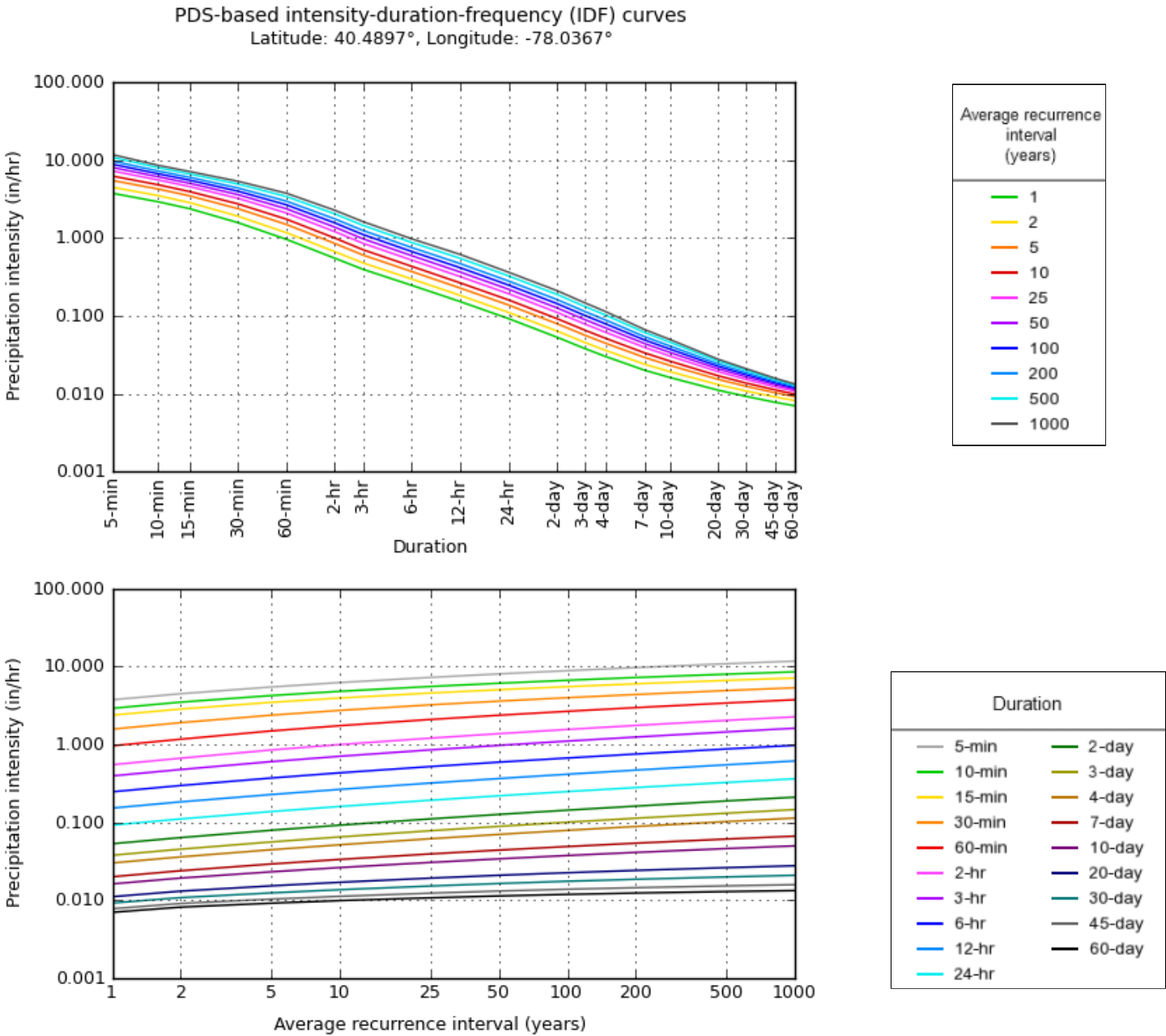
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

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



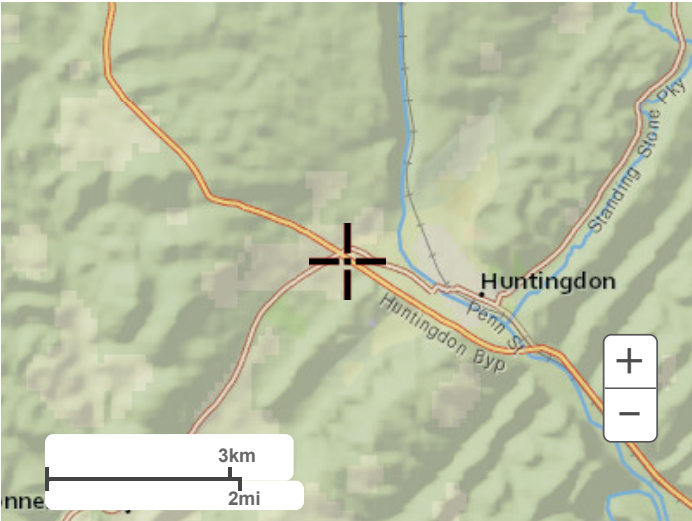
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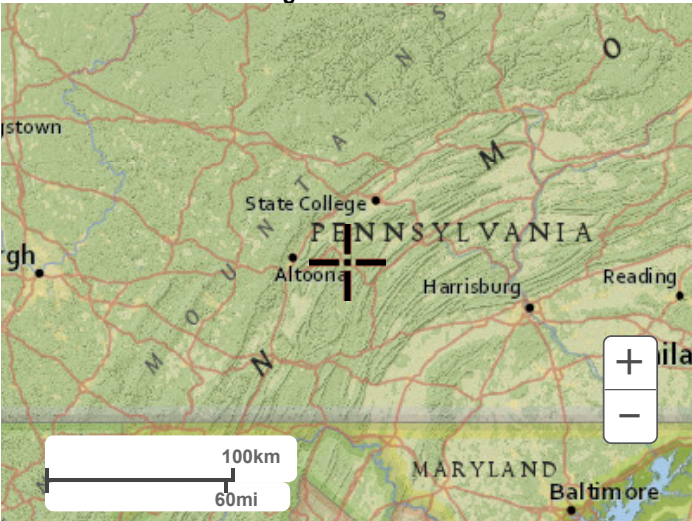
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Maps & aerials

Small scale terrain



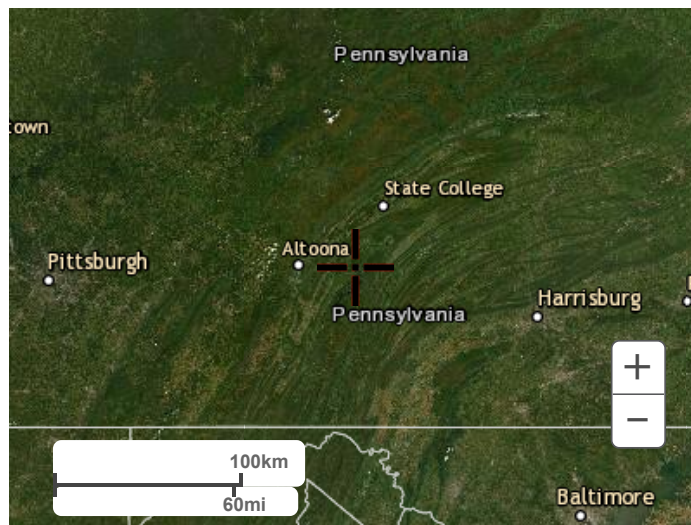
Large scale terrain



Large scale map



Large scale aerial



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[National Water Center](#)
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Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

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TR55 Tc Worksheet

Hyd. No. 1

PRE DA A

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.400	0.011	0.011	
Flow length (ft)	= 150.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.66	0.00	0.00	
Land slope (%)	= 6.30	0.00	0.00	
Travel Time (min)	= 20.59	+ 0.00	+ 0.00	= 20.59
Shallow Concentrated Flow				
Flow length (ft)	= 327.00	0.00	0.00	
Watercourse slope (%)	= 8.90	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=4.81	0.00	0.00	
Travel Time (min)	= 1.13	+ 0.00	+ 0.00	= 1.13
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	=0.00	0.00	0.00	
Flow length (ft)	({0})0.0	0.0	0.0	
Travel Time (min)	= 0.00	+ 0.00	+ 0.00	= 0.00
Total Travel Time, Tc				21.70 min

TR55 Tc Worksheet

Hyd. No. 2

PRE DA B

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.400	0.011	0.011	
Flow length (ft)	= 150.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.66	0.00	0.00	
Land slope (%)	= 7.30	0.00	0.00	
Travel Time (min)	= 19.41	+ 0.00	+ 0.00	= 19.41
Shallow Concentrated Flow				
Flow length (ft)	= 304.00	0.00	0.00	
Watercourse slope (%)	= 8.60	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=4.73	0.00	0.00	
Travel Time (min)	= 1.07	+ 0.00	+ 0.00	= 1.07
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	=0.00	0.00	0.00	
Flow length (ft)	(0)0.0	0.0	0.0	
Travel Time (min)	= 0.00	+ 0.00	+ 0.00	= 0.00
Total Travel Time, Tc				20.50 min

Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	48.2471	10.8000	0.9053	-----
2	50.0308	10.1000	0.8681	-----
3	0.0000	0.0000	0.0000	-----
5	55.3240	10.0000	0.8384	-----
10	50.8295	8.8000	0.7856	-----
25	49.8424	7.9000	0.7419	-----
50	45.6469	6.7000	0.6944	-----
100	42.4465	5.6000	0.6515	-----

File name: Fermanagh Twp PA.IDF

$$\text{Intensity} = B / (T_c + D)^E$$

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	3.97	3.09	2.54	2.17	1.89	1.68	1.51	1.38	1.27	1.17	1.09	1.02
2	4.74	3.70	3.05	2.60	2.28	2.03	1.83	1.67	1.54	1.43	1.33	1.25
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	5.71	4.49	3.72	3.19	2.81	2.51	2.27	2.08	1.92	1.79	1.67	1.57
10	6.47	5.07	4.21	3.63	3.20	2.87	2.61	2.40	2.22	2.07	1.94	1.83
25	7.47	5.86	4.88	4.22	3.73	3.36	3.06	2.82	2.62	2.45	2.31	2.18
50	8.27	6.46	5.39	4.66	4.14	3.74	3.42	3.16	2.95	2.76	2.61	2.47
100	9.12	7.09	5.91	5.13	4.57	4.14	3.80	3.52	3.29	3.10	2.93	2.78

Tc = time in minutes. Values may exceed 60.

Precip. file name: S:\Hydraflow Rainfall Files\Huntingdon County PA.pcp

[illegible]

Project # 3746-5

RUNOFF FACTOR CALCULATIONS

Runoff Factors

C= 0.90 Impervious = Paved Areas + Buildings
C= 0.30 Grass

PRE DA A

4.66 Acres
Impervious 0.00 Acres
Grass 4.66 Acres
C= 0.30

PRE DA B

2.73 Acres
Impervious 0.00 Acres
Grass 2.73 Acres
C= 0.30

POST DA A

2.74 Acres
Impervious 1.99 Acres
Grass 0.75 Acres
C= 0.74

OSU DA A

0.89 Acres
Impervious 0.00 Acres
Grass 0.89 Acres
C= 0.30

POST DA B1

2.37 Acres
Impervious 1.79 Acres
Grass 0.58 Acres
C= 0.75

OSU DA B

0.47 Acres
Impervious 0.00 Acres
Grass 0.47 Acres
C= 0.30

POST DA B2

0.92 Acres
Impervious 0.38 Acres
Grass 0.54 Acres
C= 0.55

PRE COMBINED

7.39 Acres
Impervious 0.00 Acres
Grass 7.39 Acres
C= 0.30

POST COMBINED

7.39 Acres
Impervious 4.16 Acres
Grass 3.23 Acres
C= 0.64

Project # 3746-5

RUNOFF FACTOR CALCULATIONS

Runoff Factors

C= 0.90 Impervious = Paved Areas + Buildings
C= 0.30 Grass

INLET A1 DA

0.15 Acres

Impervious	0.08	Acres
Grass	0.07	Acres
C=	0.62	

INLET A7 DA

0.11 Acres

Impervious	0.10	Acres
Grass	0.01	Acres
C=	0.85	

INLETA 2 DA

0.29 Acres

Impervious	0.21	Acres
Grass	0.08	Acres
C=	0.73	

INLET A8 DA

0.14 Acres

Impervious	0.13	Acres
Grass	0.01	Acres
C=	0.86	

INLET A3 DA

0.35 Acres

Impervious	0.23	Acres
Grass	0.12	Acres
C=	0.69	

INLET A9 DA

0.10 Acres

Impervious	0.09	Acres
Grass	0.01	Acres
C=	0.84	

INLET A4 DA

0.19 Acres

Impervious	0.14	Acres
Grass	0.05	Acres
C=	0.74	

INLET B2 DA

0.98 Acres

Impervious	0.71	Acres
Grass	0.27	Acres
C=	0.73	

INLET A5 DA

0.37 Acres

Impervious	0.24	Acres
Grass	0.13	Acres
C=	0.69	

INLET B3 DA

0.20 Acres

Impervious	0.20	Acres
Grass	0.00	Acres
C=	0.90	

INLET A6 DA

0.22 Acres

Impervious	0.16	Acres
Grass	0.06	Acres
C=	0.74	

INLET B4 DA*0.51 Acres*

Impervious	0.50	Acres
Grass	0.01	Acres
C=		0.89

INLET B9 DA*0.10 Acres*

Impervious	0.08	Acres
Grass	0.02	Acres
C=		0.78

INLET B5 DA*0.04 Acres*

Impervious	0.04	Acres
Grass	0.00	Acres
C=		0.90

INLET B10 DA*0.19 Acres*

Impervious	0.19	Acres
Grass	0.00	Acres
C=		0.90

INLET B6 DA*0.18 Acres*

Impervious	0.18	Acres
Grass	0.00	Acres
C=		0.90

BLDG DA*0.33 Acres*

Impervious	0.33	Acres
Grass	0.00	Acres
C=		0.90

INLET B7 DA*0.10 Acres*

Impervious	0.10	Acres
Grass	0.00	Acres
C=		0.90

GAS CANOPY DA*0.11 Acres*

Impervious	0.11	Acres
Grass	0.00	Acres
C=		0.90

INLET B8 DA*0.27 Acres*

Impervious	0.12	Acres
Grass	0.15	Acres
C=		0.57

DIESEL CANOPY DA*0.05 Acres*

Impervious	0.05	Acres
Grass	0.00	Acres
C=		0.90

PRE-DEVELOPMENT HYDROGRAPHS

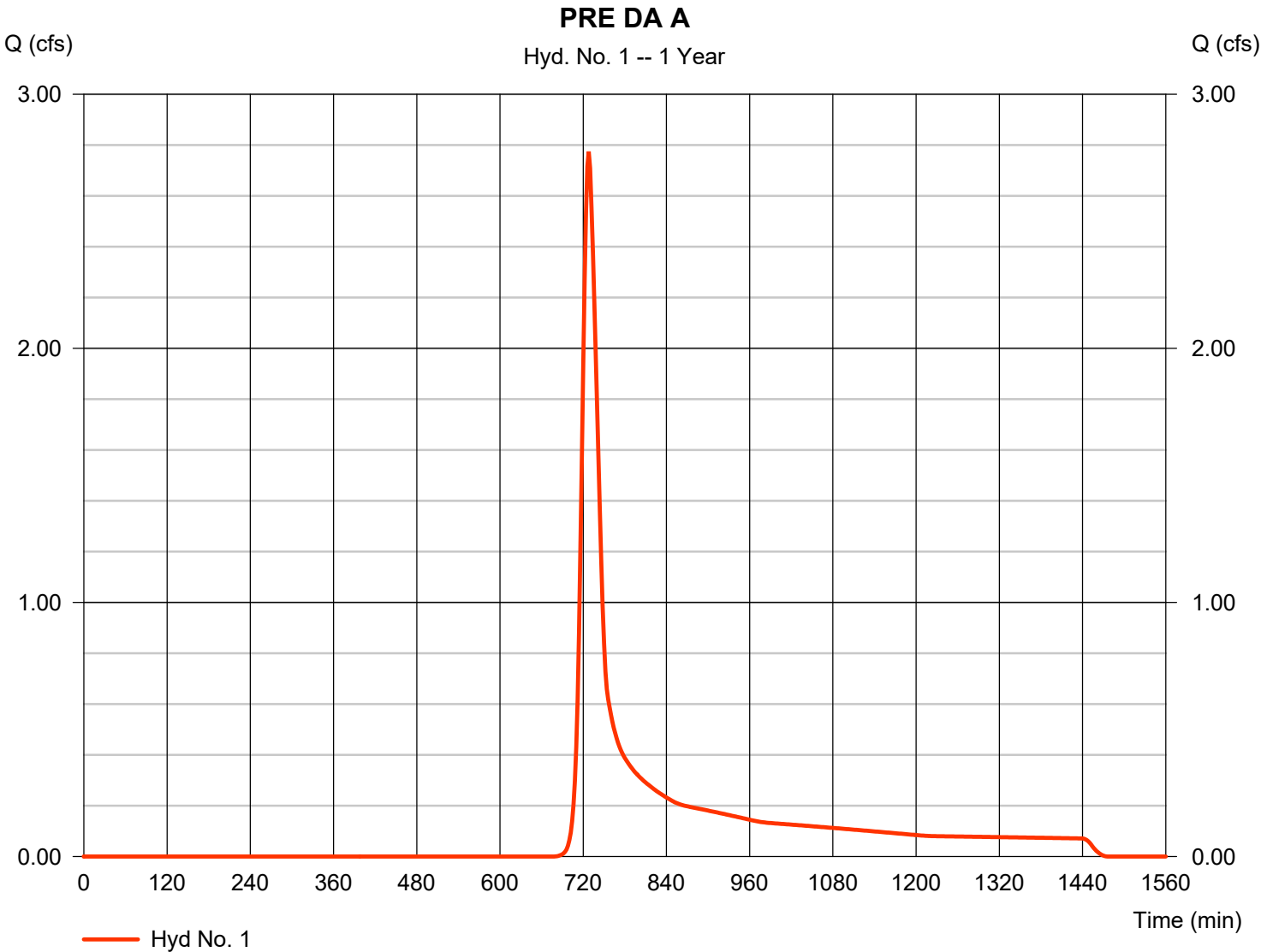
Hydrograph Report

Hyd. No. 1

PRE DA A

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.775 cfs
Storm frequency	=	1 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	10,547 cuft
Drainage area	=	4.660 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	21.70 min
Total precip.	=	2.22 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(4.660 x 78)] / 4.660



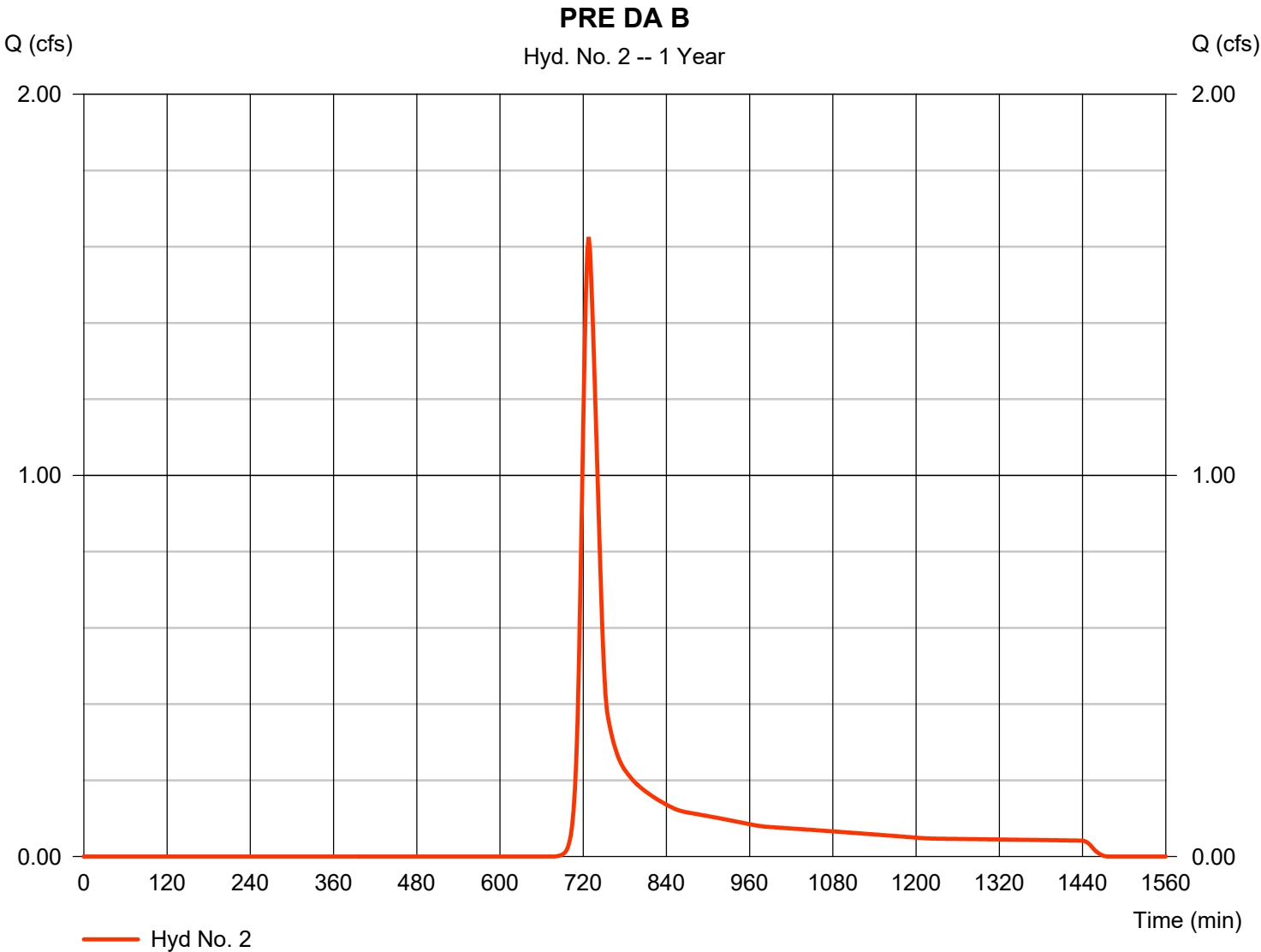
Hydrograph Report

Hyd. No. 2

PRE DA B

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.626 cfs
Storm frequency	=	1 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	6,179 cuft
Drainage area	=	2.730 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	20.50 min
Total precip.	=	2.22 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.730 x 78)] / 2.730



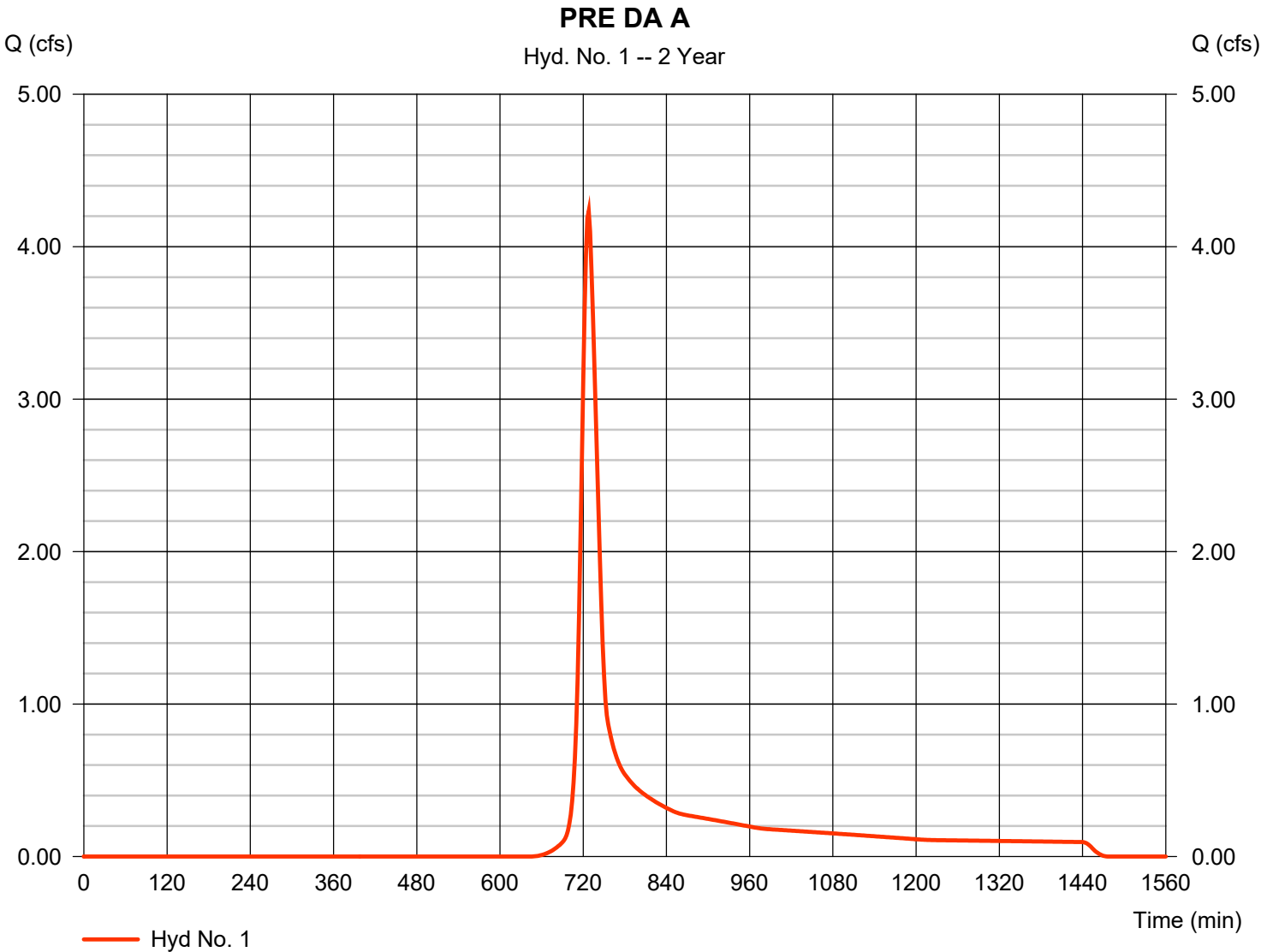
Hydrograph Report

Hyd. No. 1

PRE DA A

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.234 cfs
Storm frequency	=	2 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	15,384 cuft
Drainage area	=	4.660 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	21.70 min
Total precip.	=	2.66 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(4.660 x 78)] / 4.660



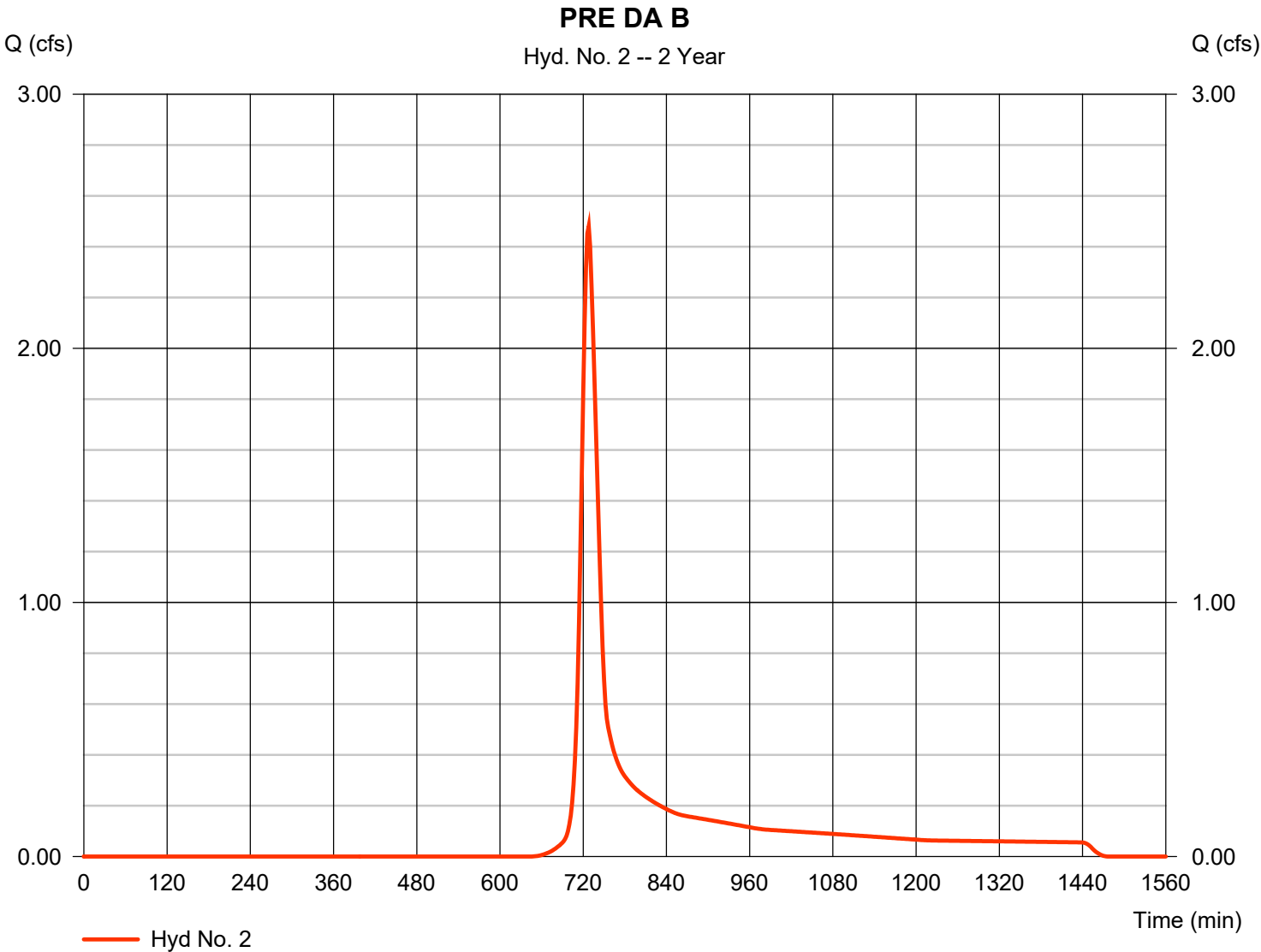
Hydrograph Report

Hyd. No. 2

PRE DA B

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.480 cfs
Storm frequency	=	2 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	9,013 cuft
Drainage area	=	2.730 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	20.50 min
Total precip.	=	2.66 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.730 x 78)] / 2.730



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v12

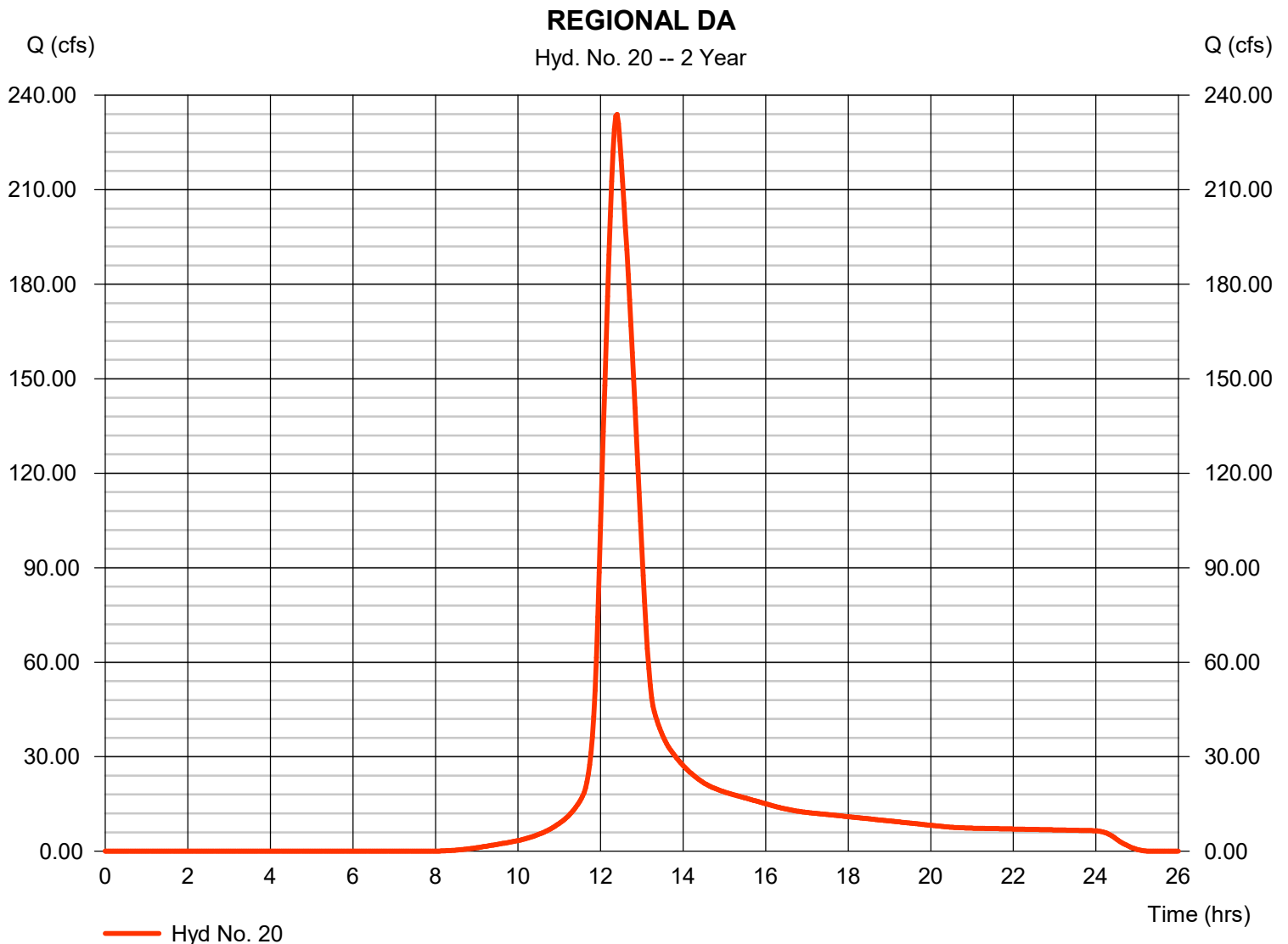
Wednesday, 01 / 4 / 2023

Hyd. No. 20

REGIONAL DA

Hydrograph type	= SCS Runoff	Peak discharge	= 233.96 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.40 hrs
Time interval	= 2 min	Hyd. volume	= 1,328,019 cuft
Drainage area	= 253.000 ac	Curve number	= 87*
Basin Slope	= 7.0 %	Hydraulic length	= 7670 ft
Tc method	= LAG	Time of conc. (Tc)	= 48.45 min
Total precip.	= 2.66 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(127.000 x 80) + (126.000 x 95)] / 253.000



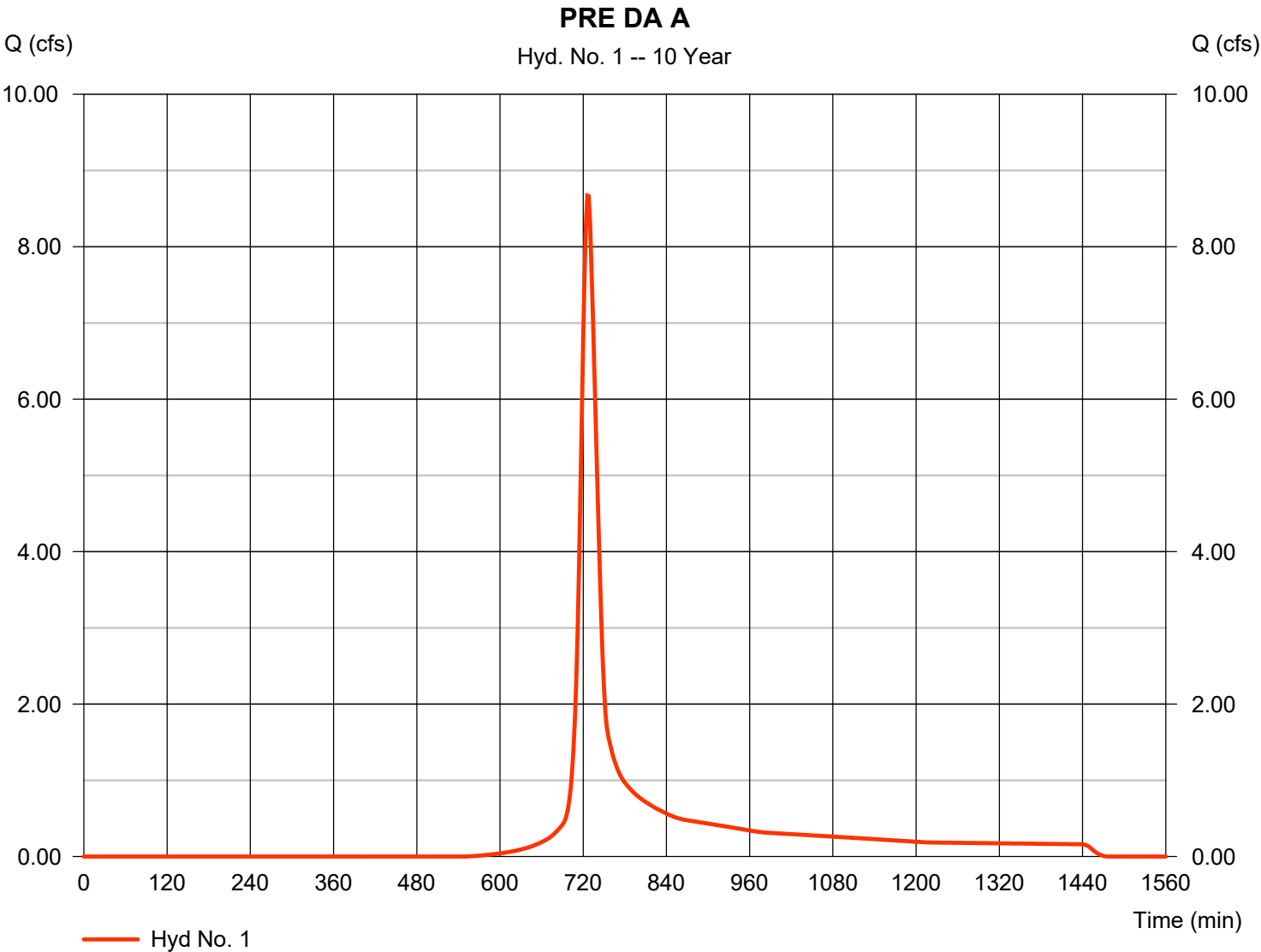
Hydrograph Report

Hyd. No. 1

PRE DA A

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.671 cfs
Storm frequency	=	10 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	30,309 cuft
Drainage area	=	4.660 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	21.70 min
Total precip.	=	3.84 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(4.660 x 78)] / 4.660



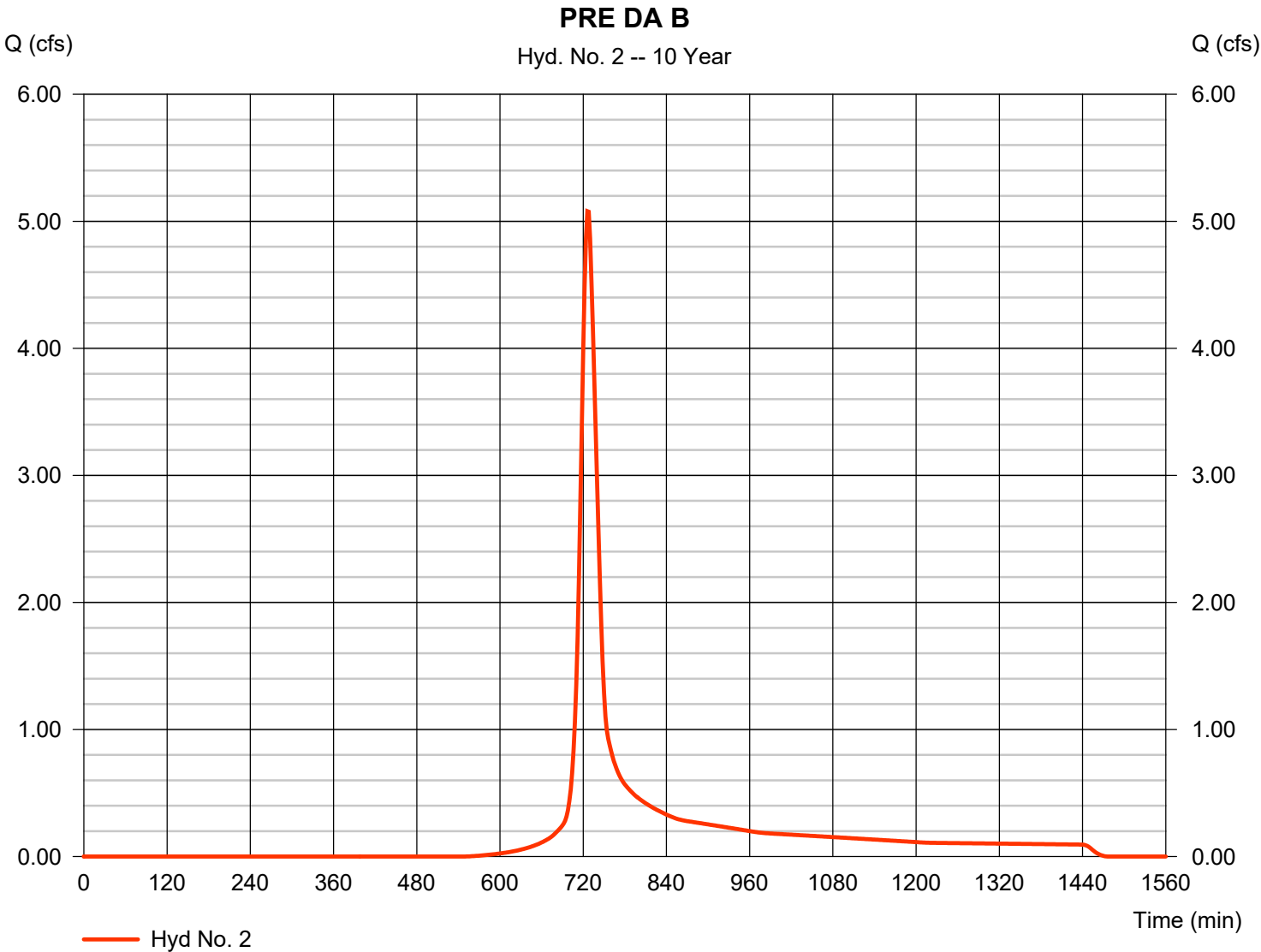
Hydrograph Report

Hyd. No. 2

PRE DA B

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.080 cfs
Storm frequency	=	10 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	17,756 cuft
Drainage area	=	2.730 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	20.50 min
Total precip.	=	3.84 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.730 x 78)] / 2.730



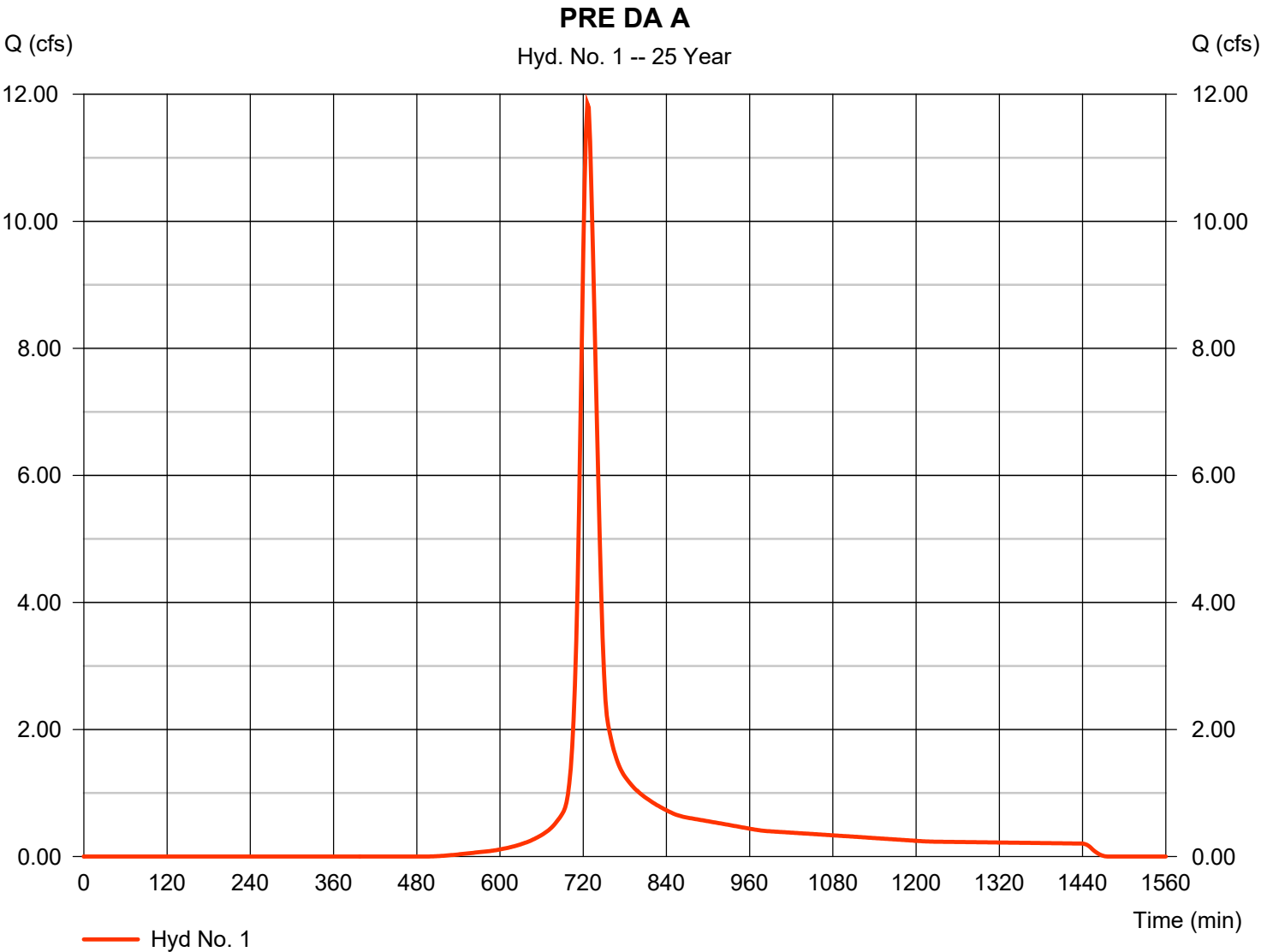
Hydrograph Report

Hyd. No. 1

PRE DA A

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.85 cfs
Storm frequency	=	25 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	41,047 cuft
Drainage area	=	4.660 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	21.70 min
Total precip.	=	4.61 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(4.660 x 78)] / 4.660



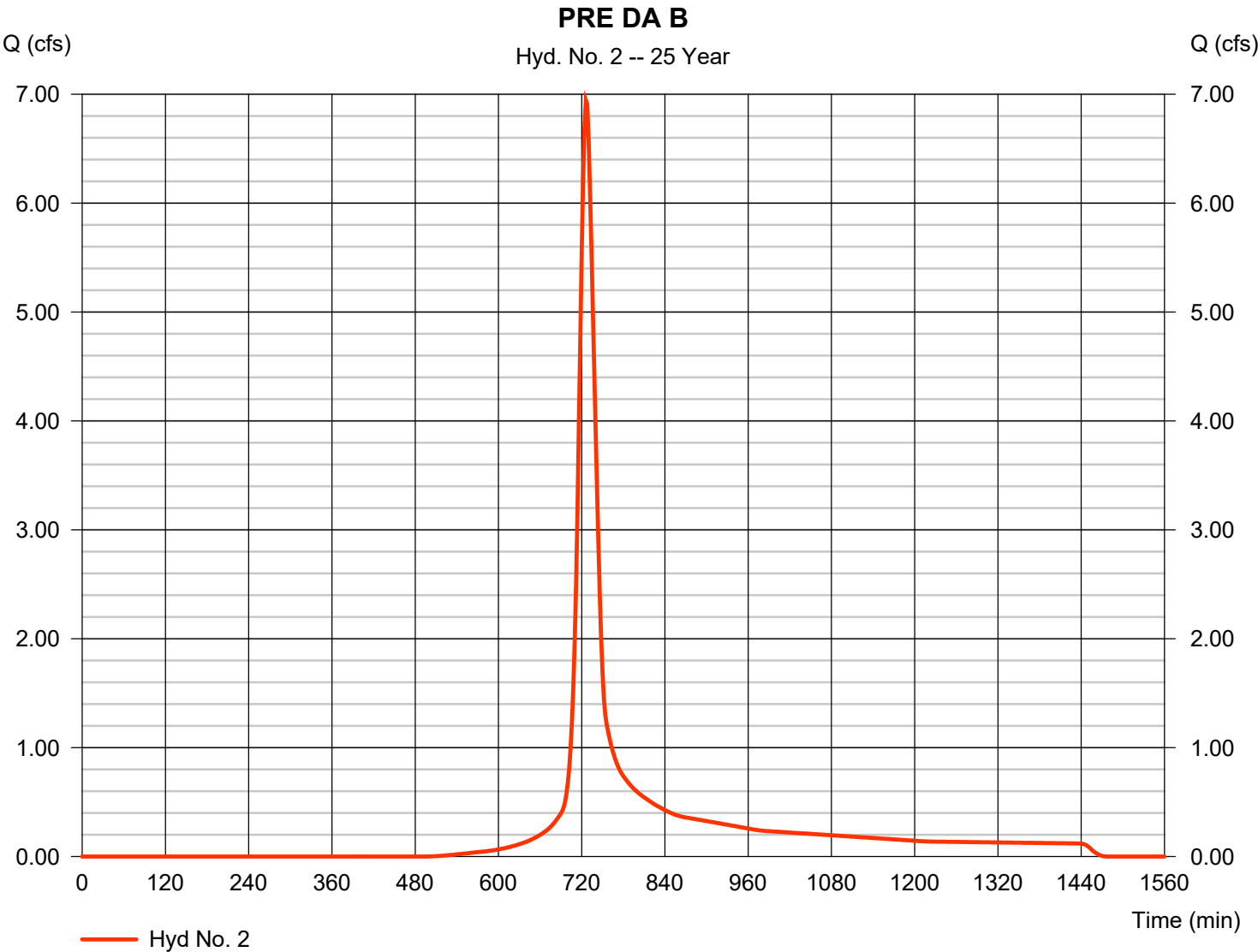
Hydrograph Report

Hyd. No. 2

PRE DA B

Hydrograph type	= SCS Runoff	Peak discharge	= 6.943 cfs
Storm frequency	= 25 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 24,047 cuft
Drainage area	= 2.730 ac	Curve number	= 78*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 20.50 min
Total precip.	= 4.61 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(2.730 x 78)] / 2.730



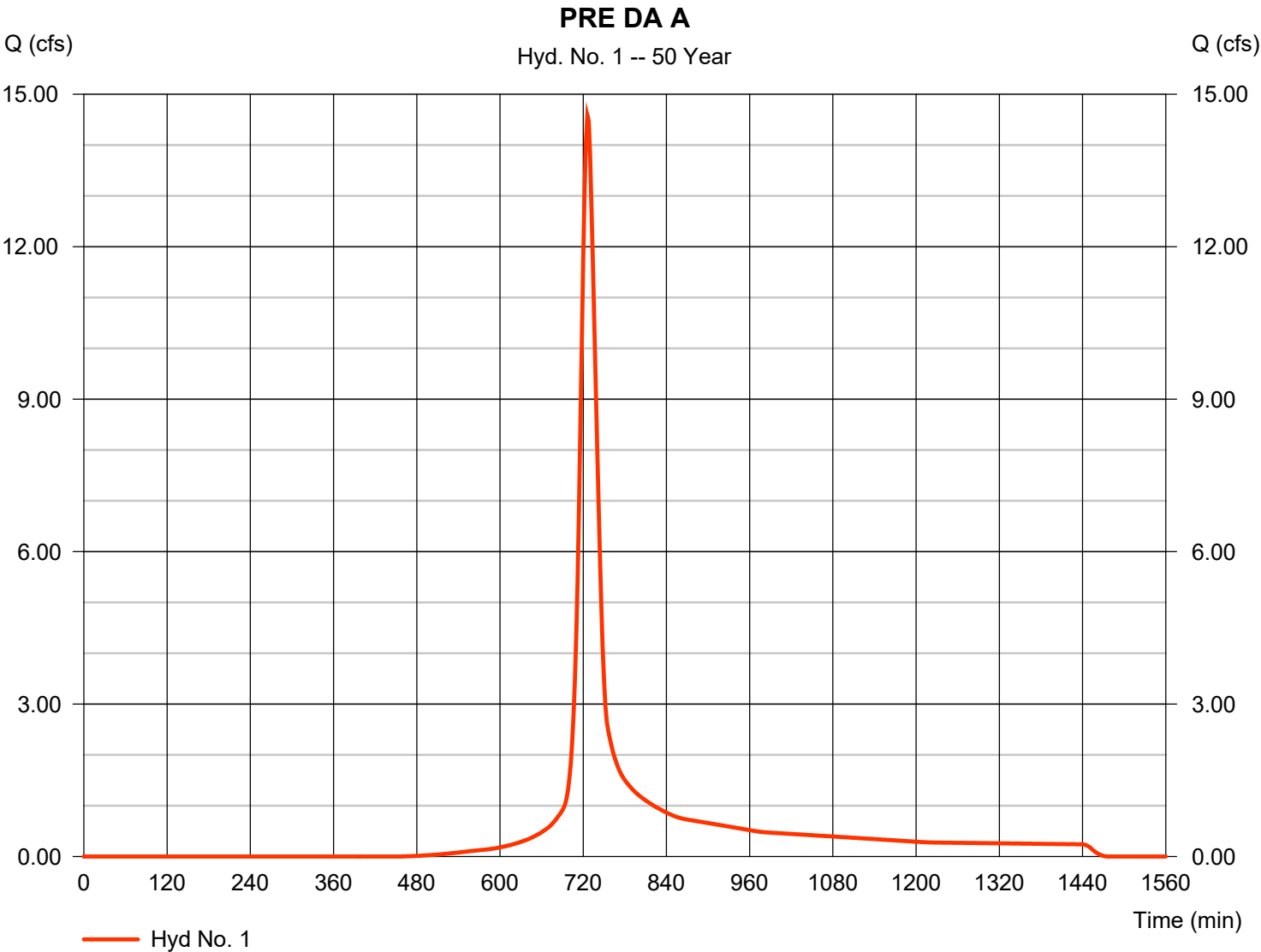
Hydrograph Report

Hyd. No. 1

PRE DA A

Hydrograph type	=	SCS Runoff	Peak discharge	=	14.58 cfs
Storm frequency	=	50 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	50,365 cuft
Drainage area	=	4.660 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	21.70 min
Total precip.	=	5.25 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(4.660 x 78)] / 4.660



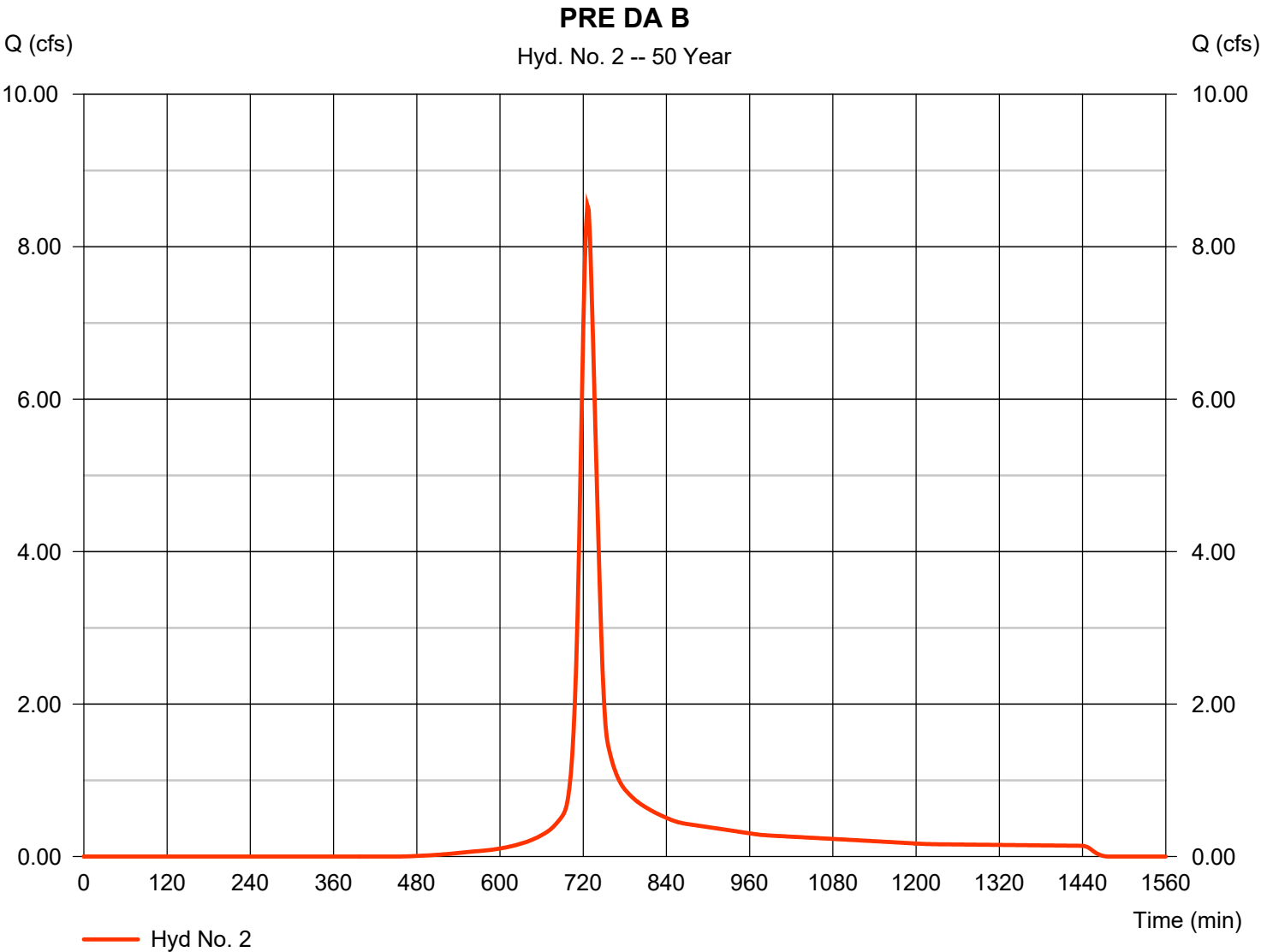
Hydrograph Report

Hyd. No. 2

PRE DA B

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.543 cfs
Storm frequency	=	50 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	29,506 cuft
Drainage area	=	2.730 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	20.50 min
Total precip.	=	5.25 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.730 x 78)] / 2.730



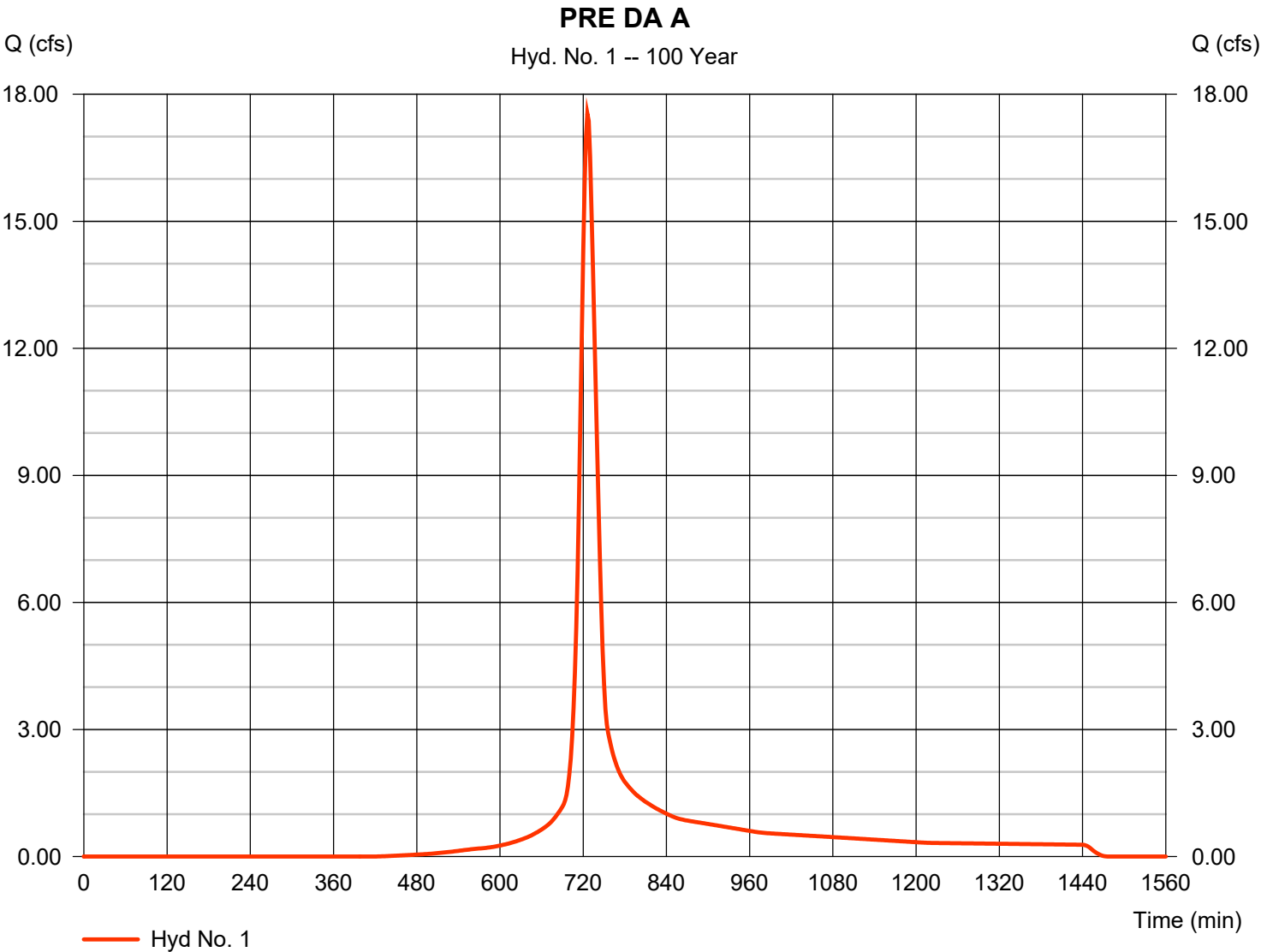
Hydrograph Report

Hyd. No. 1

PRE DA A

Hydrograph type	=	SCS Runoff	Peak discharge	=	17.54 cfs
Storm frequency	=	100 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	60,558 cuft
Drainage area	=	4.660 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	21.70 min
Total precip.	=	5.93 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(4.660 x 78)] / 4.660



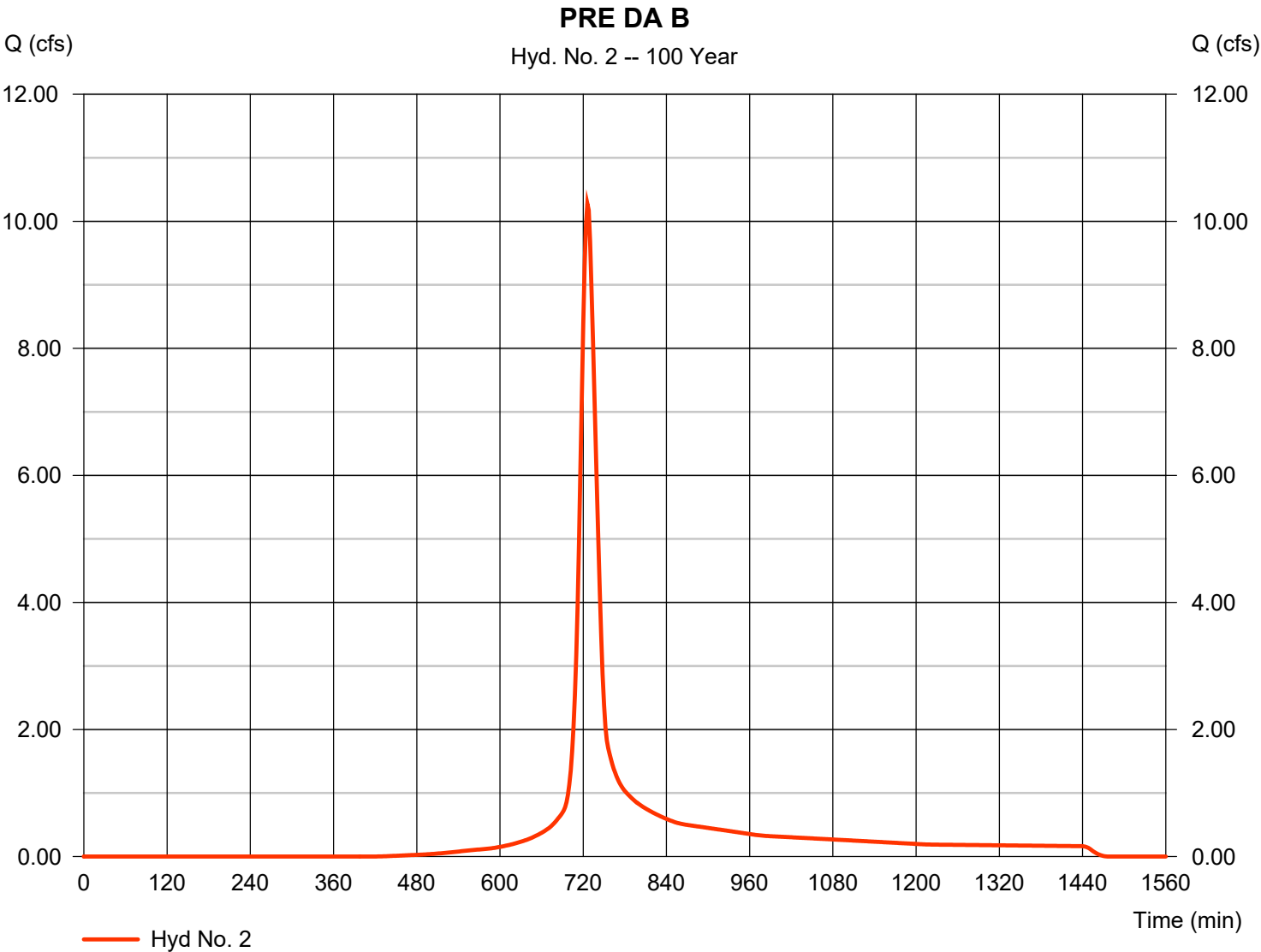
Hydrograph Report

Hyd. No. 2

PRE DA B

Hydrograph type	=	SCS Runoff	Peak discharge	=	10.28 cfs
Storm frequency	=	100 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	35,477 cuft
Drainage area	=	2.730 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	20.50 min
Total precip.	=	5.93 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.730 x 78)] / 2.730



POST-DEVELOPMENT HYDROGRAPHS

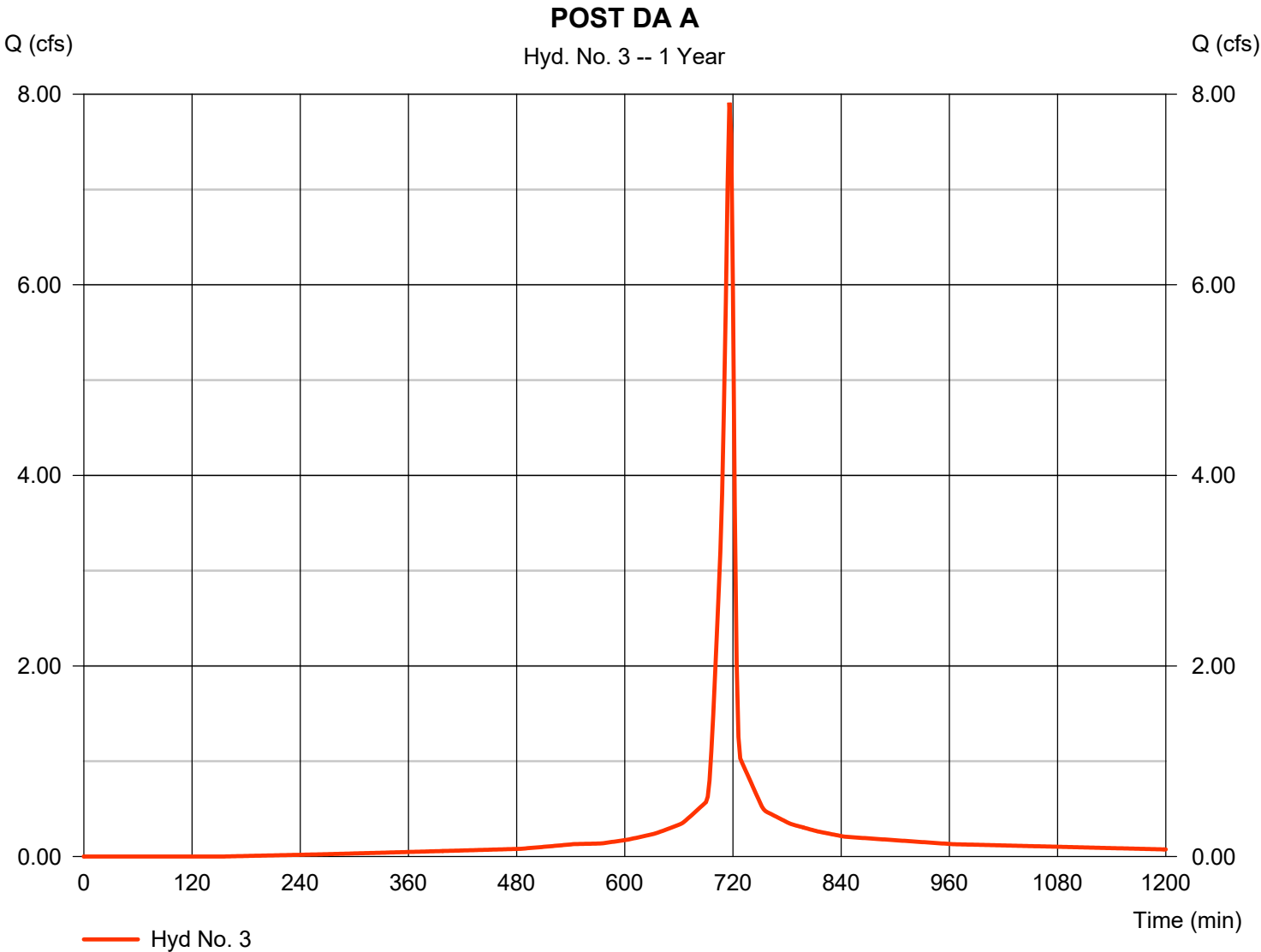
Hydrograph Report

Hyd. No. 3

POST DA A

Hydrograph type	= SCS Runoff	Peak discharge	= 7.912 cfs
Storm frequency	= 1 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 17,601 cuft
Drainage area	= 2.740 ac	Curve number	= 97*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 2.22 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.750 x 80) + (1.990 x 98)] / 2.740



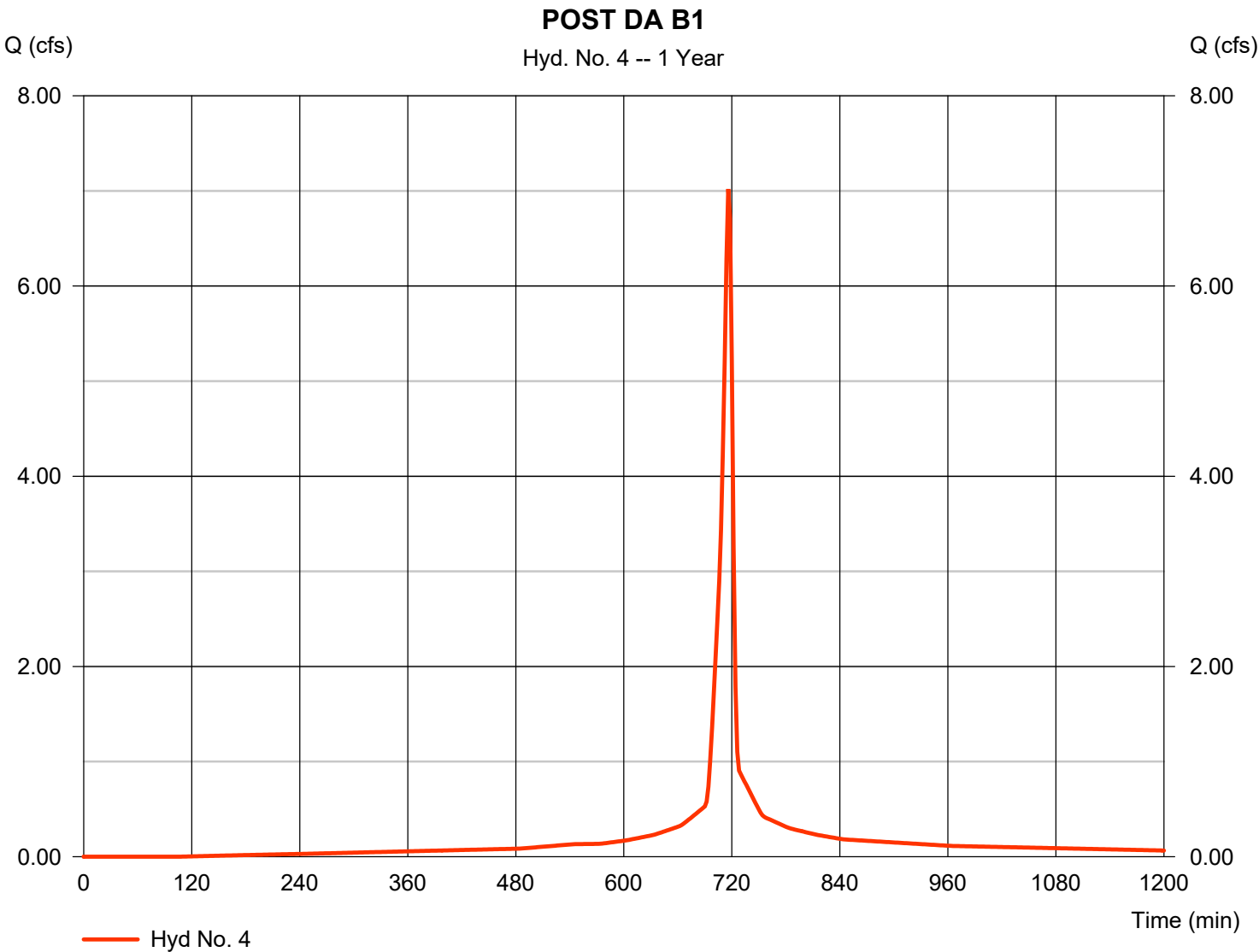
Hydrograph Report

Hyd. No. 4

POST DA B1

Hydrograph type	= SCS Runoff	Peak discharge	= 7.019 cfs
Storm frequency	= 1 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 16,071 cuft
Drainage area	= 2.370 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 2.22 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.580 x 80) + (1.790 x 98)] / 2.370



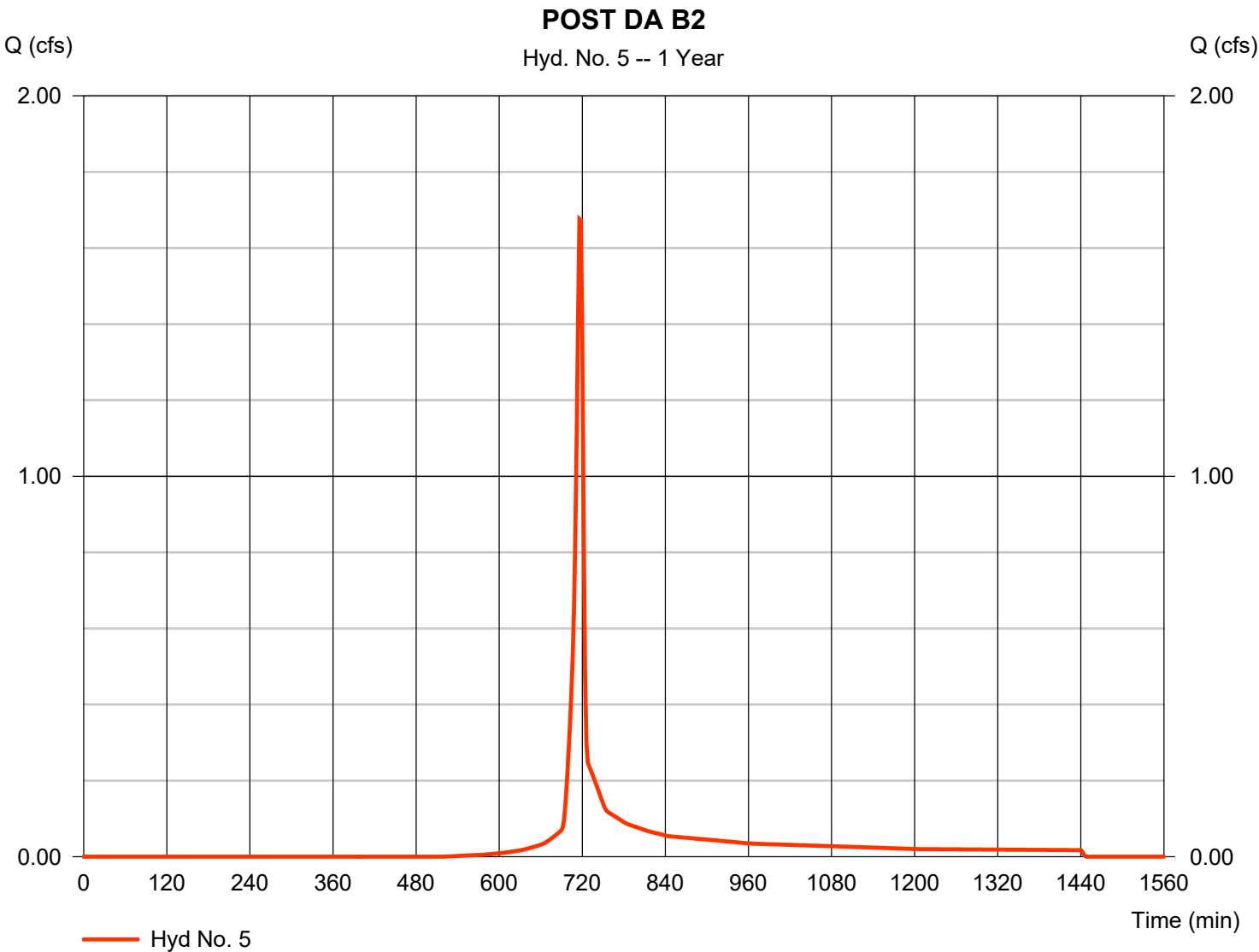
Hydrograph Report

Hyd. No. 5

POST DA B2

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.676 cfs
Storm frequency	=	1 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	3,383 cuft
Drainage area	=	0.920 ac	Curve number	=	87*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	2.22 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.540 x 80) + (0.380 x 98)] / 0.920



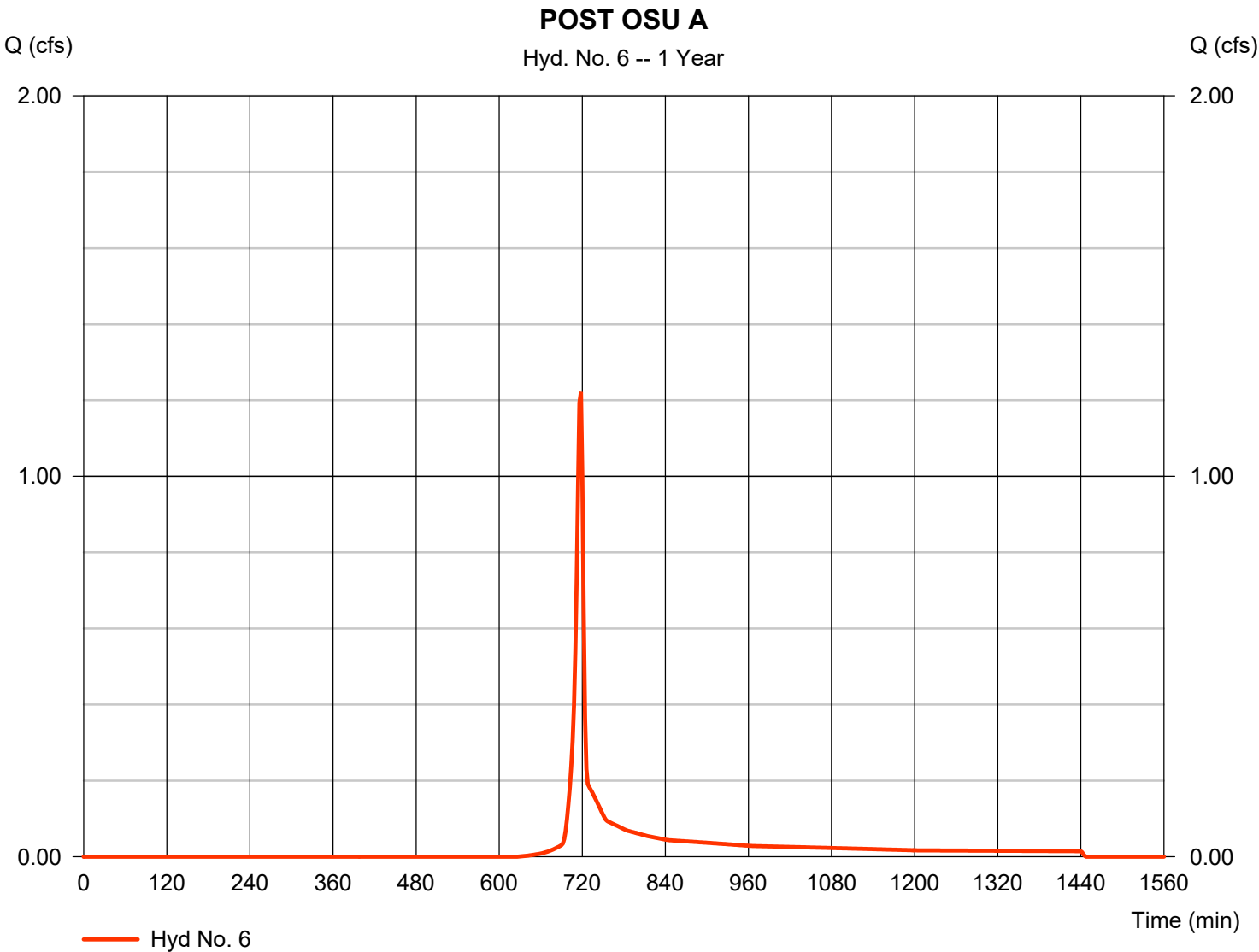
Hydrograph Report

Hyd. No. 6

POST OSU A

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.222 cfs
Storm frequency	=	1 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	2,443 cuft
Drainage area	=	0.900 ac	Curve number	=	82*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	2.22 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.820 x 80) + (0.080 x 98)] / 0.900



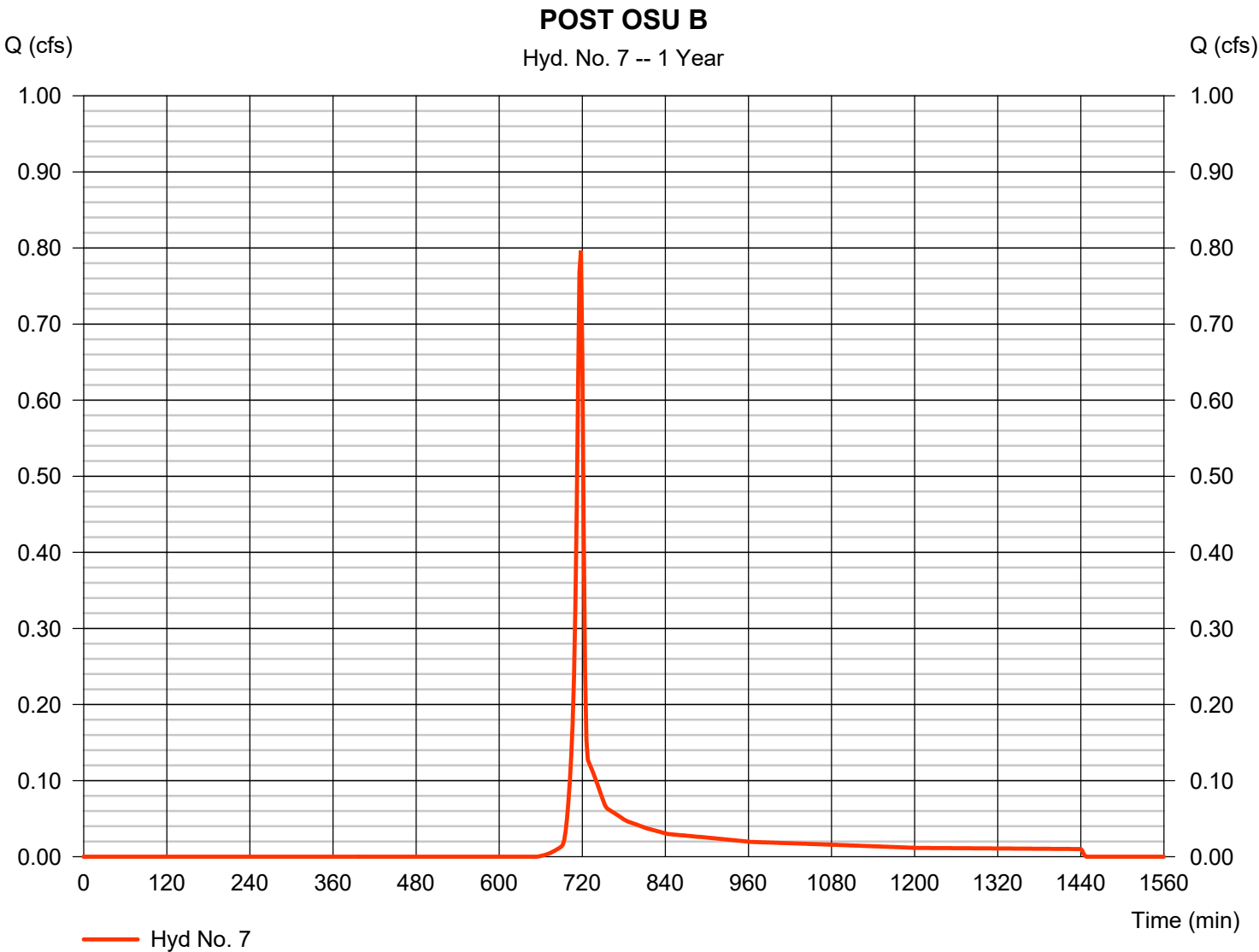
Hydrograph Report

Hyd. No. 7

POST OSU B

Hydrograph type	= SCS Runoff	Peak discharge	= 0.797 cfs
Storm frequency	= 1 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 1,598 cuft
Drainage area	= 0.670 ac	Curve number	= 80*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 2.22 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.670 x 80)] / 0.670

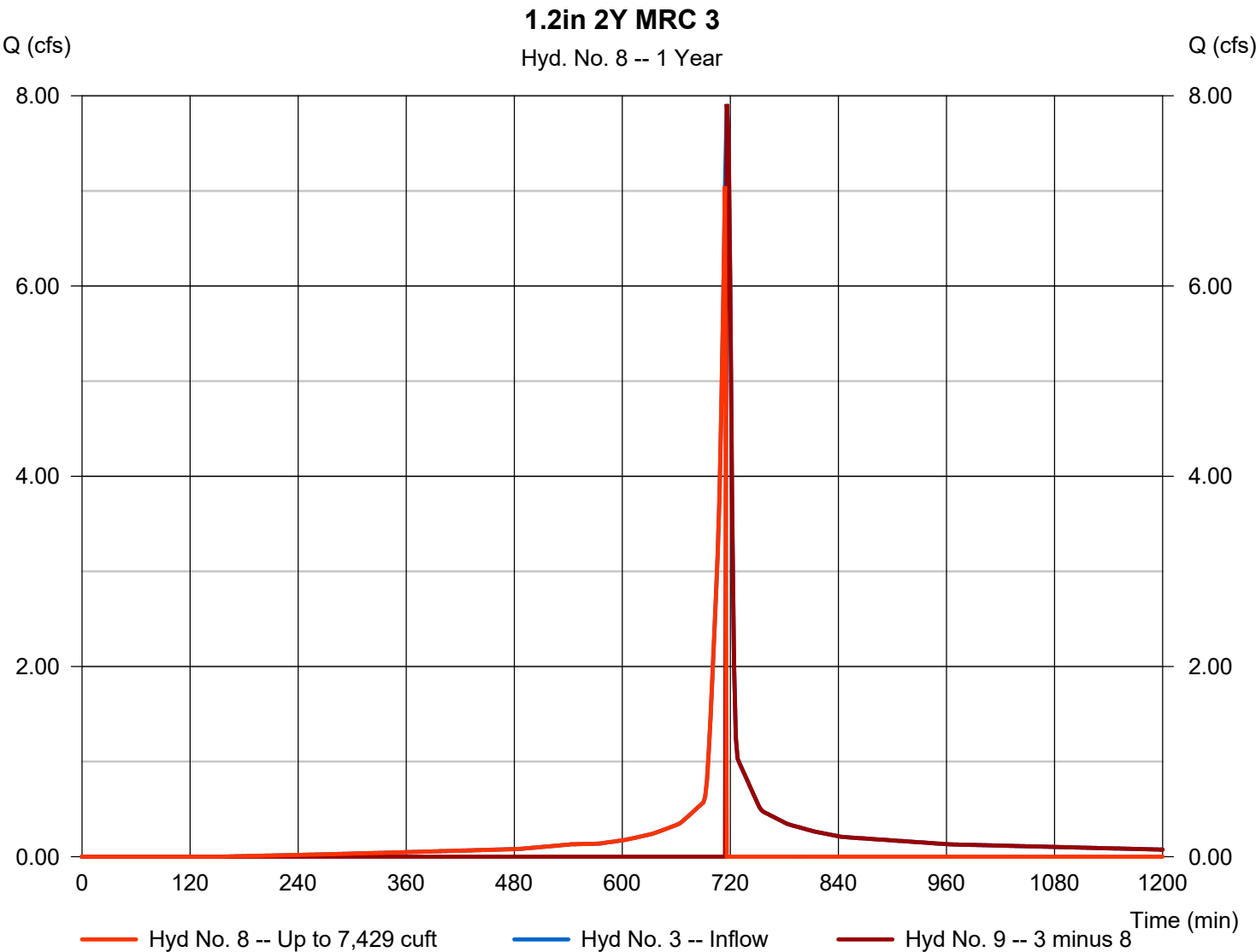


Hydrograph Report

Hyd. No. 8

1.2in 2Y MRC 3

Hydrograph type	=	Diversion1	Peak discharge	=	7.050 cfs
Storm frequency	=	1 yrs	Time to peak	=	714 min
Time interval	=	2 min	Hyd. volume	=	7,590 cuft
Inflow hydrograph	=	3 - POST DA A	2nd diverted hyd.	=	9
Diversion method	=	First Flush Volume	Volume Up To	=	7,429 cuft

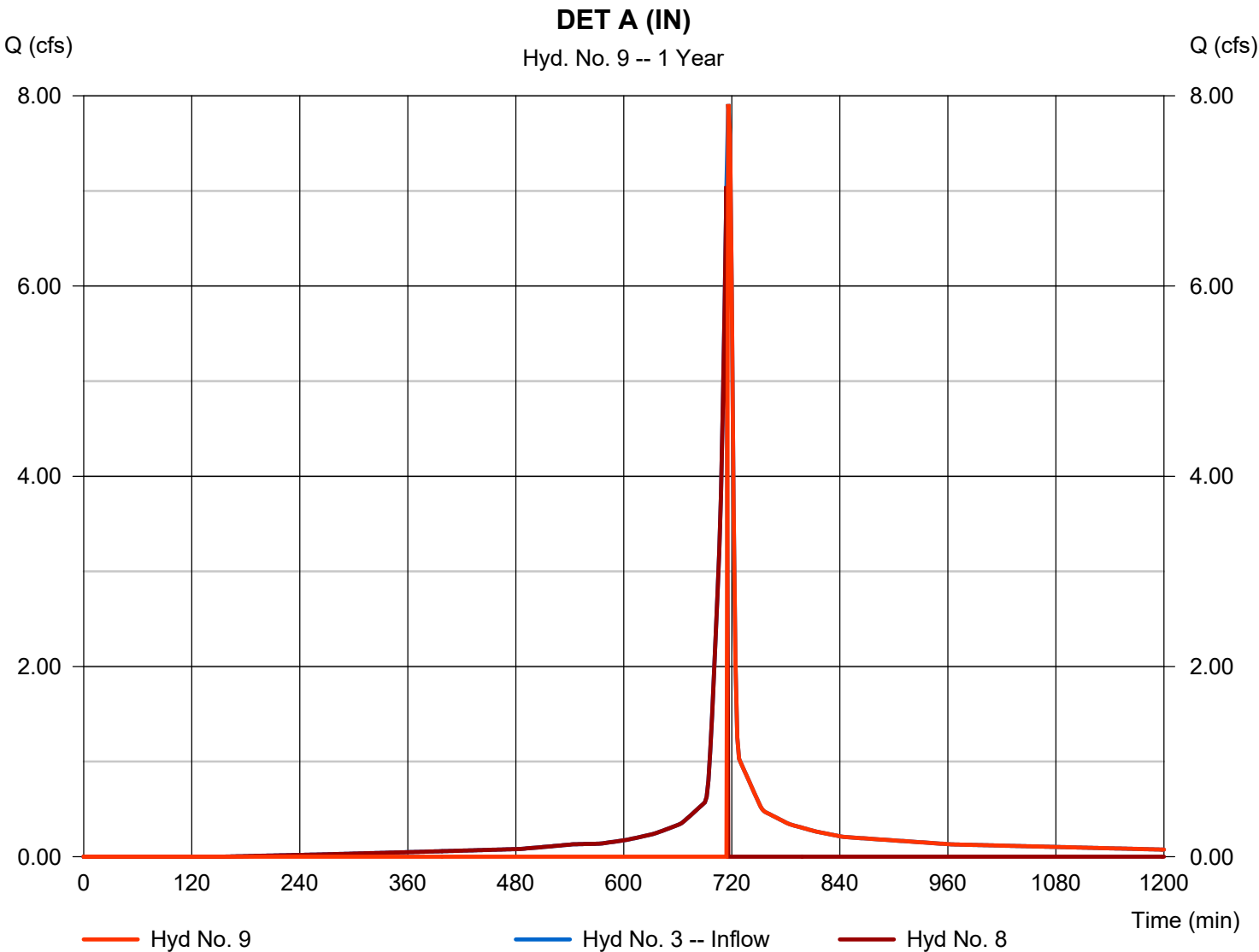


Hydrograph Report

Hyd. No. 9

DET A (IN)

Hydrograph type	= Diversion2	Peak discharge	= 7.912 cfs
Storm frequency	= 1 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 10,012 cuft
Inflow hydrograph	= 3 - POST DA A	2nd diverted hyd.	= 8
Diversion method	= First Flush Volume	Volume Up To	= 7,429 cuft

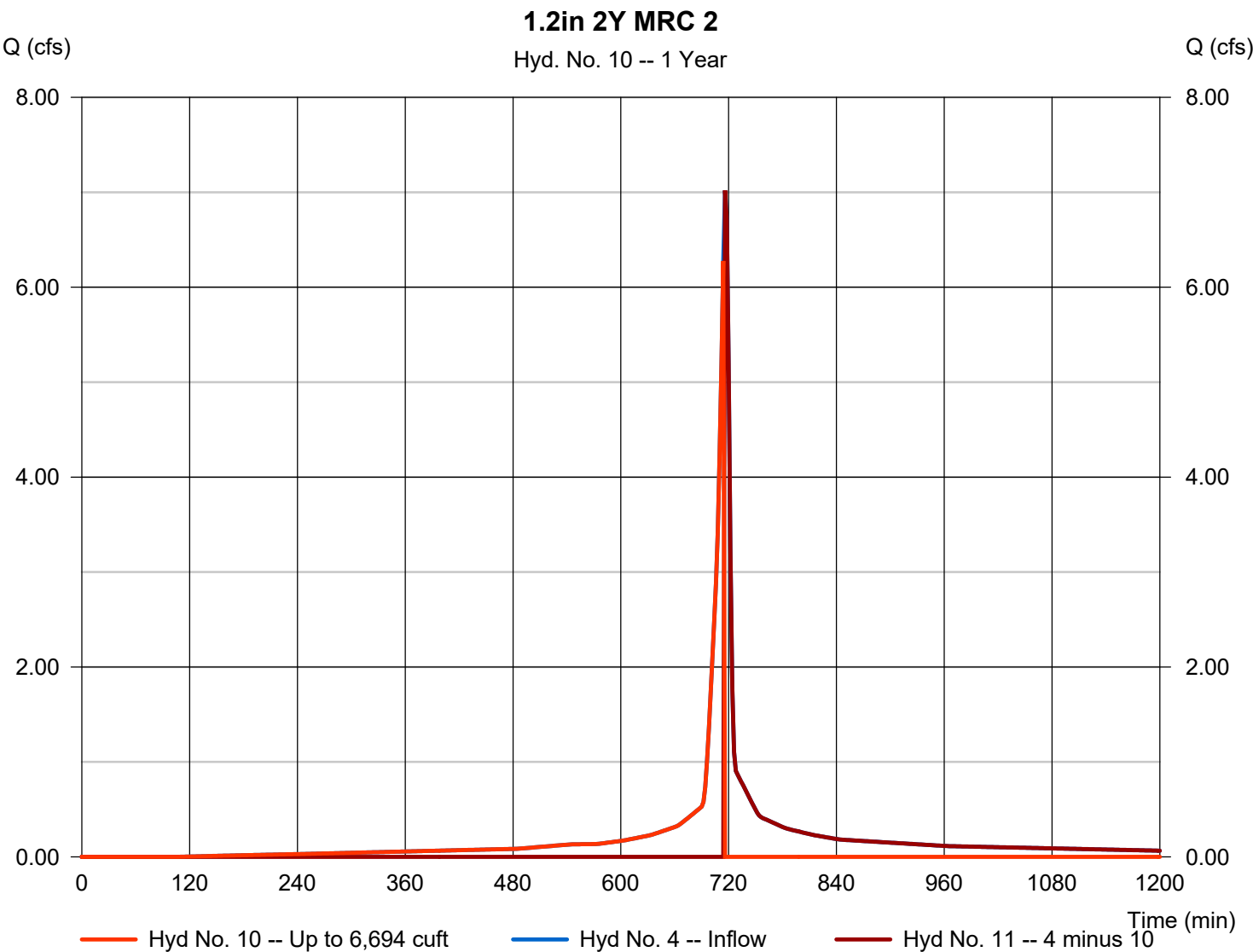


Hydrograph Report

Hyd. No. 10

1.2in 2Y MRC 2

Hydrograph type	= Diversion1	Peak discharge	= 6.277 cfs
Storm frequency	= 1 yrs	Time to peak	= 714 min
Time interval	= 2 min	Hyd. volume	= 7,278 cuft
Inflow hydrograph	= 4 - POST DA B1	2nd diverted hyd.	= 11
Diversion method	= First Flush Volume	Volume Up To	= 6,694 cuft

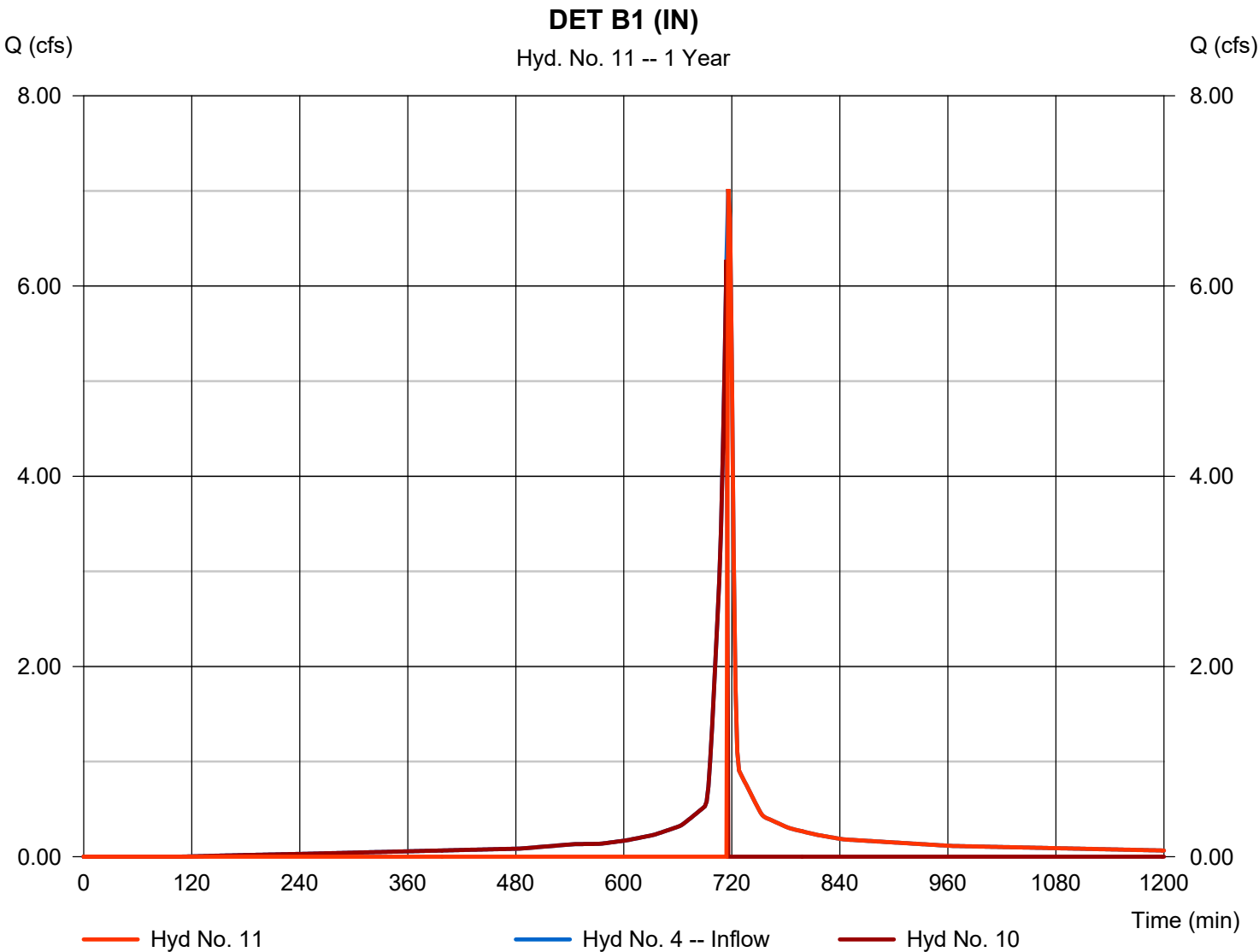


Hydrograph Report

Hyd. No. 11

DET B1 (IN)

Hydrograph type	= Diversion2	Peak discharge	= 7.019 cfs
Storm frequency	= 1 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 8,793 cuft
Inflow hydrograph	= 4 - POST DA B1	2nd diverted hyd.	= 10
Diversion method	= First Flush Volume	Volume Up To	= 6,694 cuft

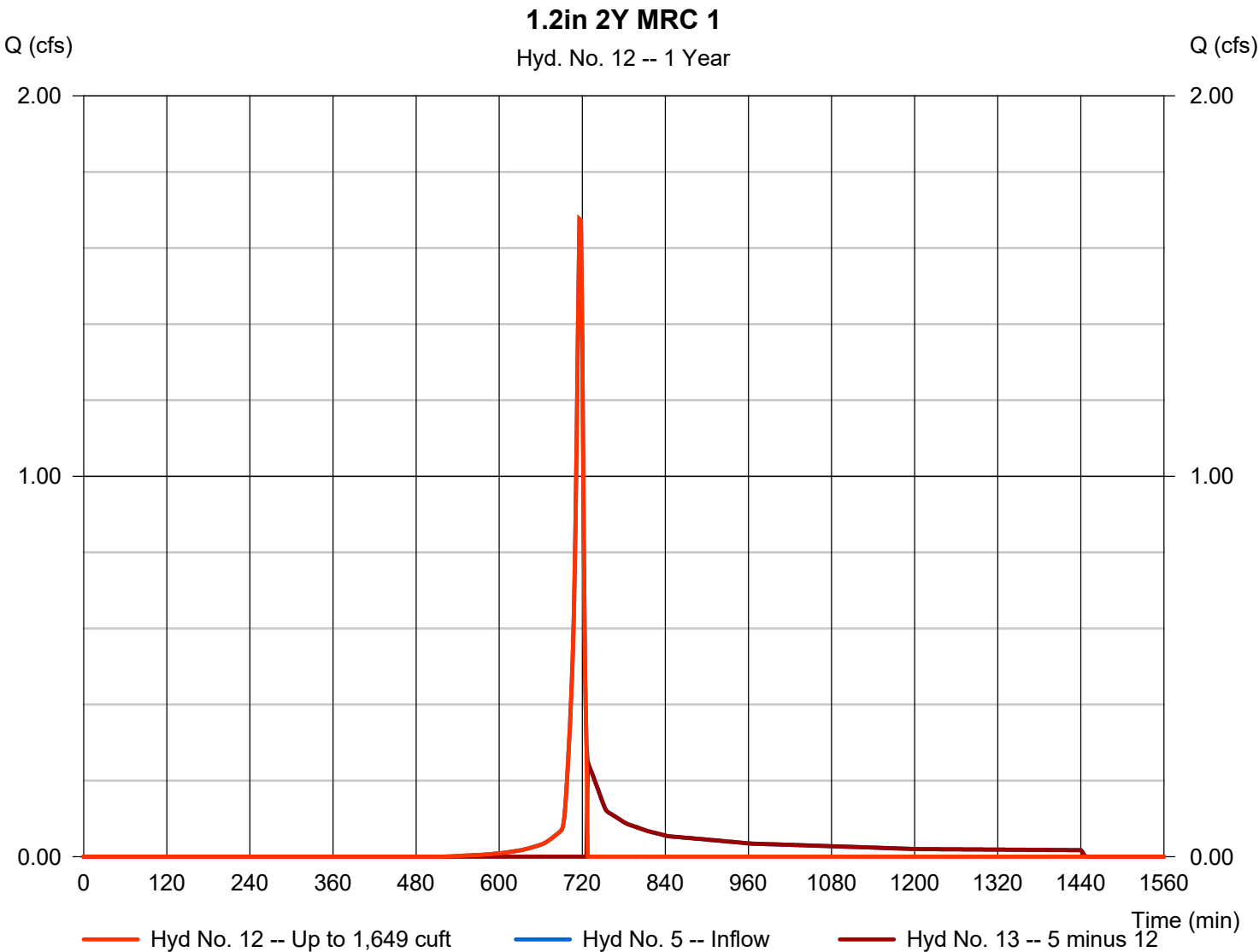


Hydrograph Report

Hyd. No. 12

1.2in 2Y MRC 1

Hydrograph type	=	Diversion1	Peak discharge	=	1.676 cfs
Storm frequency	=	1 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	1,666 cuft
Inflow hydrograph	=	5 - POST DA B2	2nd diverted hyd.	=	13
Diversion method	=	First Flush Volume	Volume Up To	=	1,649 cuft

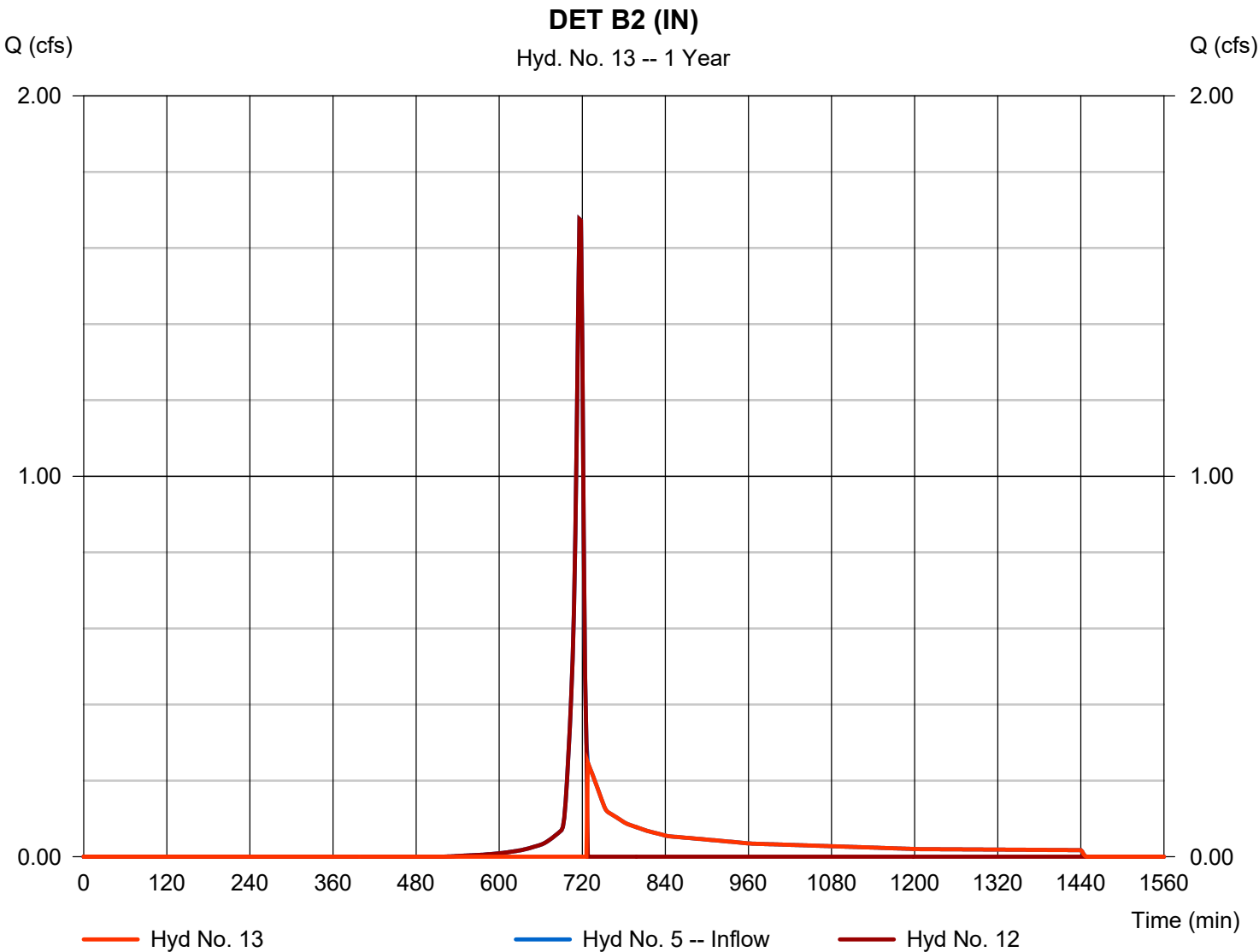


Hydrograph Report

Hyd. No. 13

DET B2 (IN)

Hydrograph type	= Diversion2	Peak discharge	= 0.248 cfs
Storm frequency	= 1 yrs	Time to peak	= 728 min
Time interval	= 2 min	Hyd. volume	= 1,717 cuft
Inflow hydrograph	= 5 - POST DA B2	2nd diverted hyd.	= 12
Diversion method	= First Flush Volume	Volume Up To	= 1,649 cuft

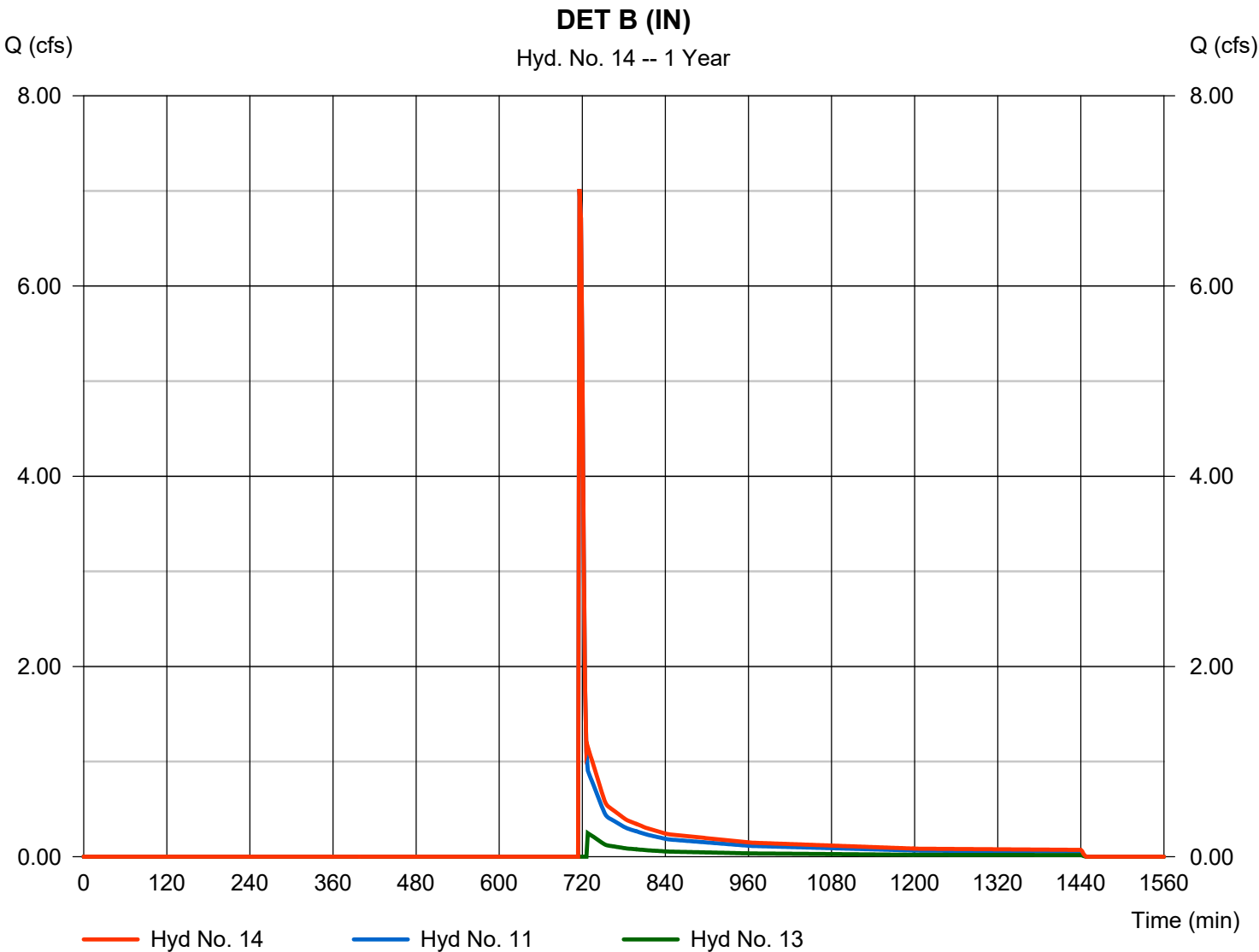


Hydrograph Report

Hyd. No. 14

DET B (IN)

Hydrograph type	= Combine	Peak discharge	= 7.019 cfs
Storm frequency	= 1 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 10,510 cuft
Inflow hyds.	= 11, 13	Contrib. drain. area	= 0.000 ac

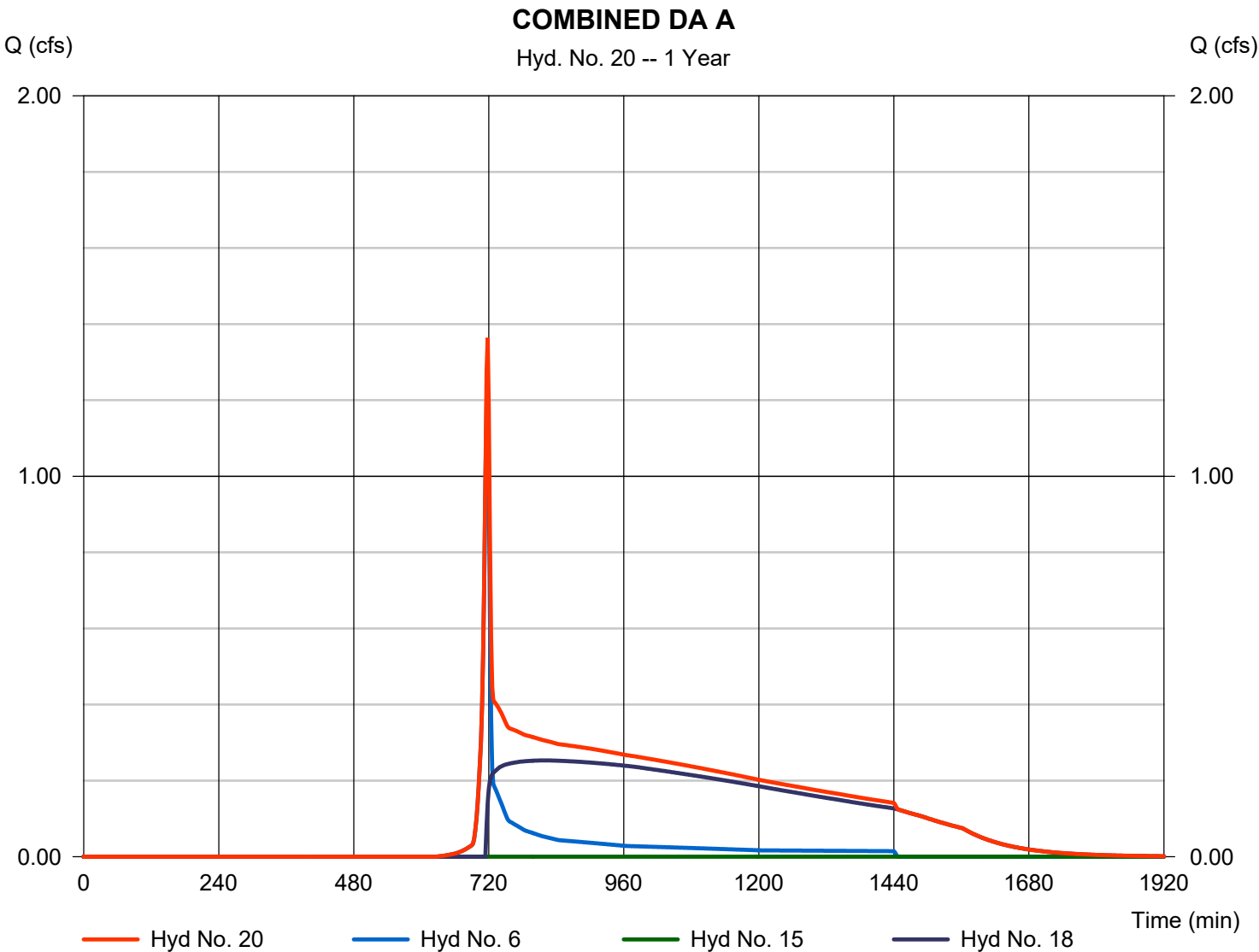


Hydrograph Report

Hyd. No. 20

COMBINED DA A

Hydrograph type	= Combine	Peak discharge	= 1.363 cfs
Storm frequency	= 1 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 12,450 cuft
Inflow hyds.	= 6, 15, 18	Contrib. drain. area	= 0.900 ac

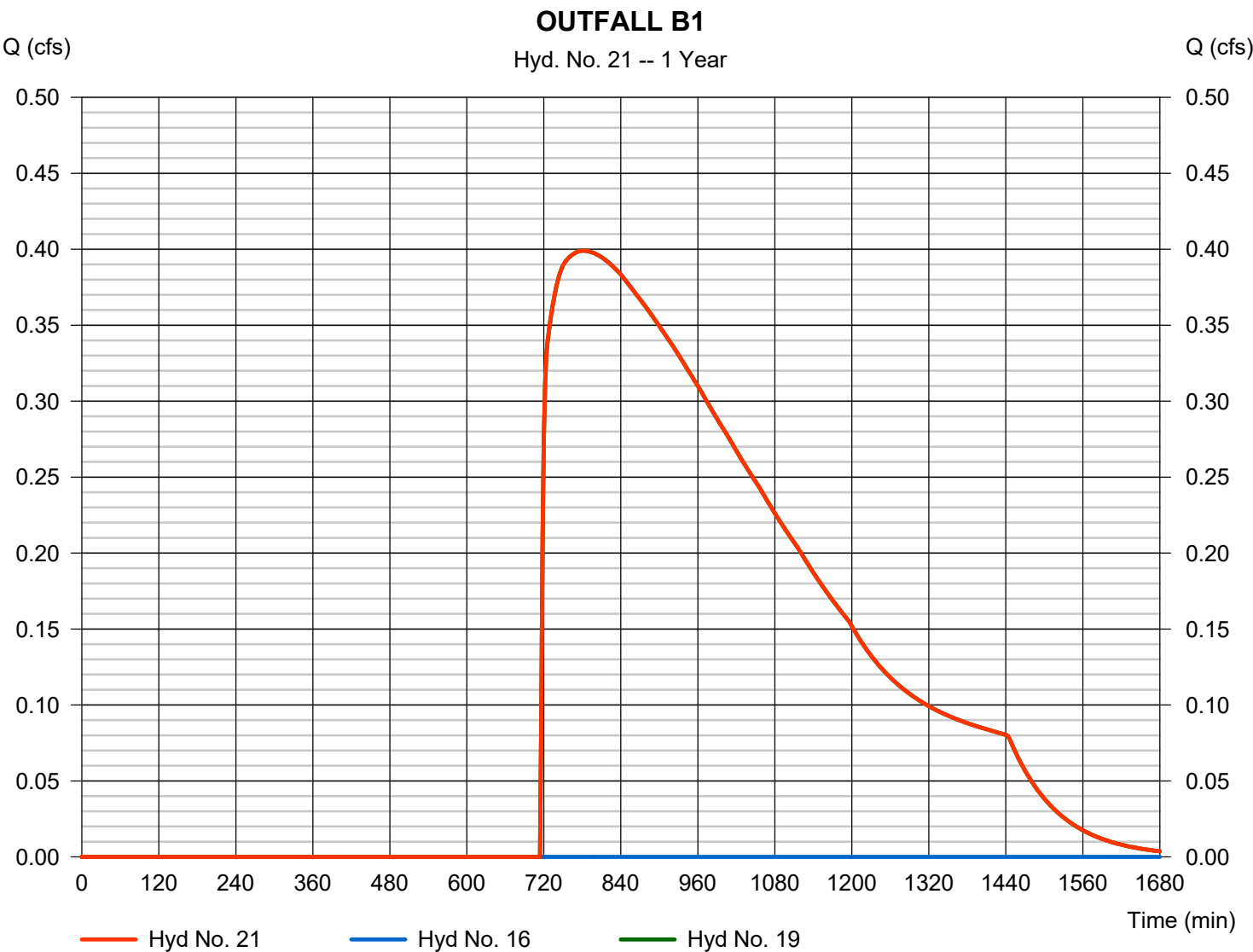


Hydrograph Report

Hyd. No. 21

OUTFALL B1

Hydrograph type	= Combine	Peak discharge	= 0.399 cfs
Storm frequency	= 1 yrs	Time to peak	= 782 min
Time interval	= 2 min	Hyd. volume	= 10,505 cuft
Inflow hyds.	= 16, 19	Contrib. drain. area	= 0.000 ac

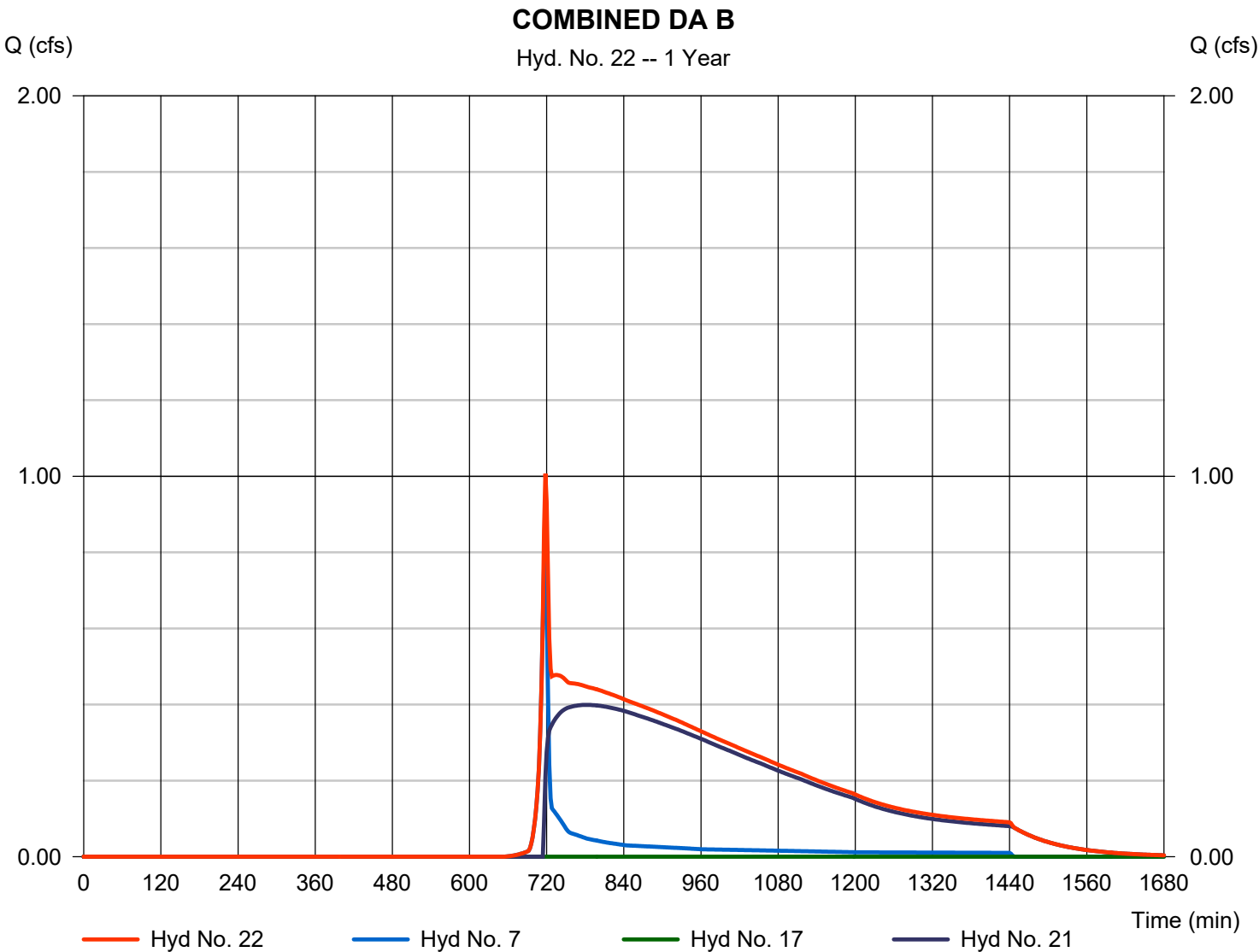


Hydrograph Report

Hyd. No. 22

COMBINED DA B

Hydrograph type	= Combine	Peak discharge	= 1.007 cfs
Storm frequency	= 1 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 12,104 cuft
Inflow hyds.	= 7, 17, 21	Contrib. drain. area	= 0.670 ac



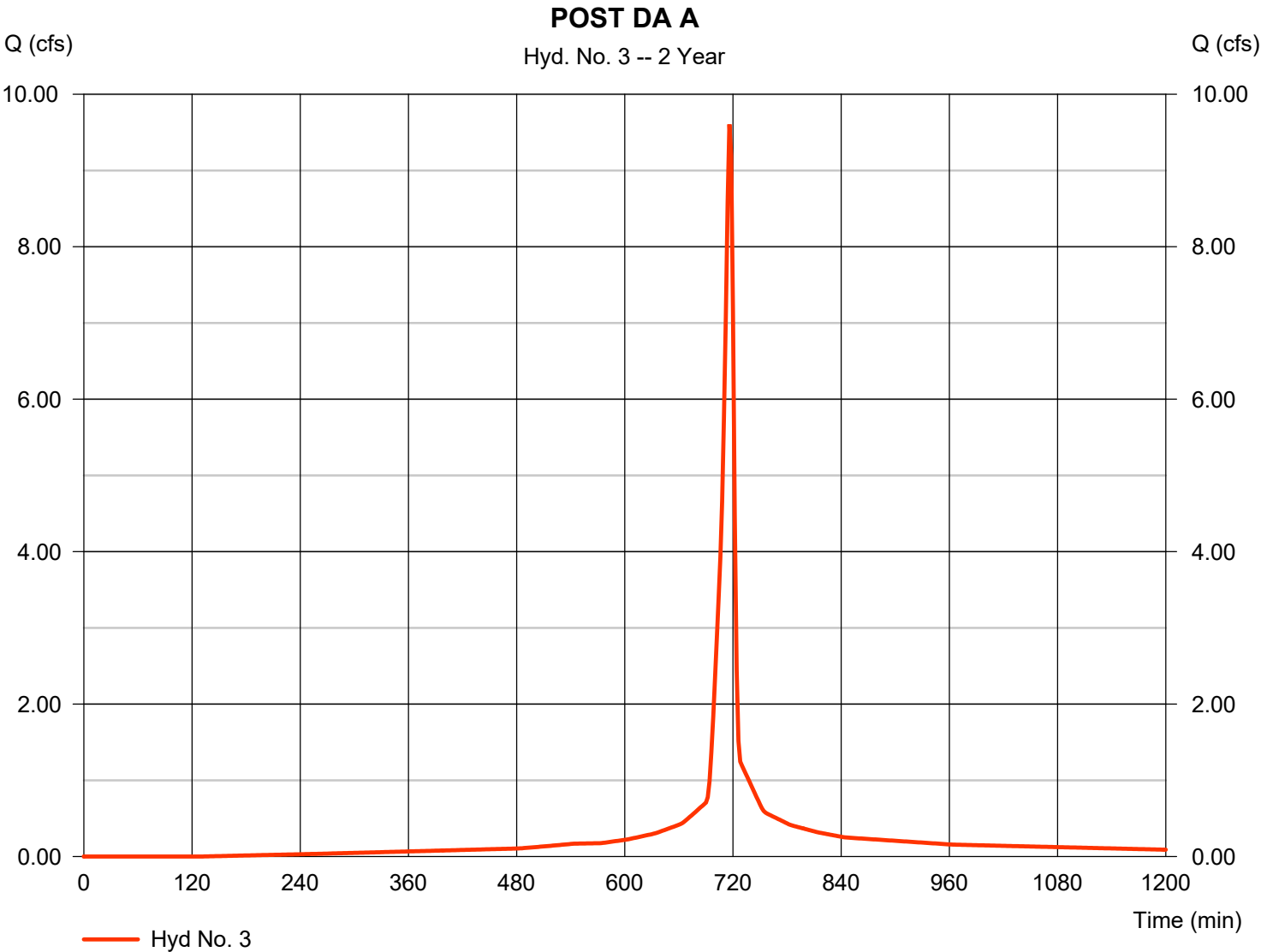
Hydrograph Report

Hyd. No. 3

POST DA A

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.605 cfs
Storm frequency	=	2 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	21,649 cuft
Drainage area	=	2.740 ac	Curve number	=	97*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	2.66 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.750 x 80) + (1.990 x 98)] / 2.740



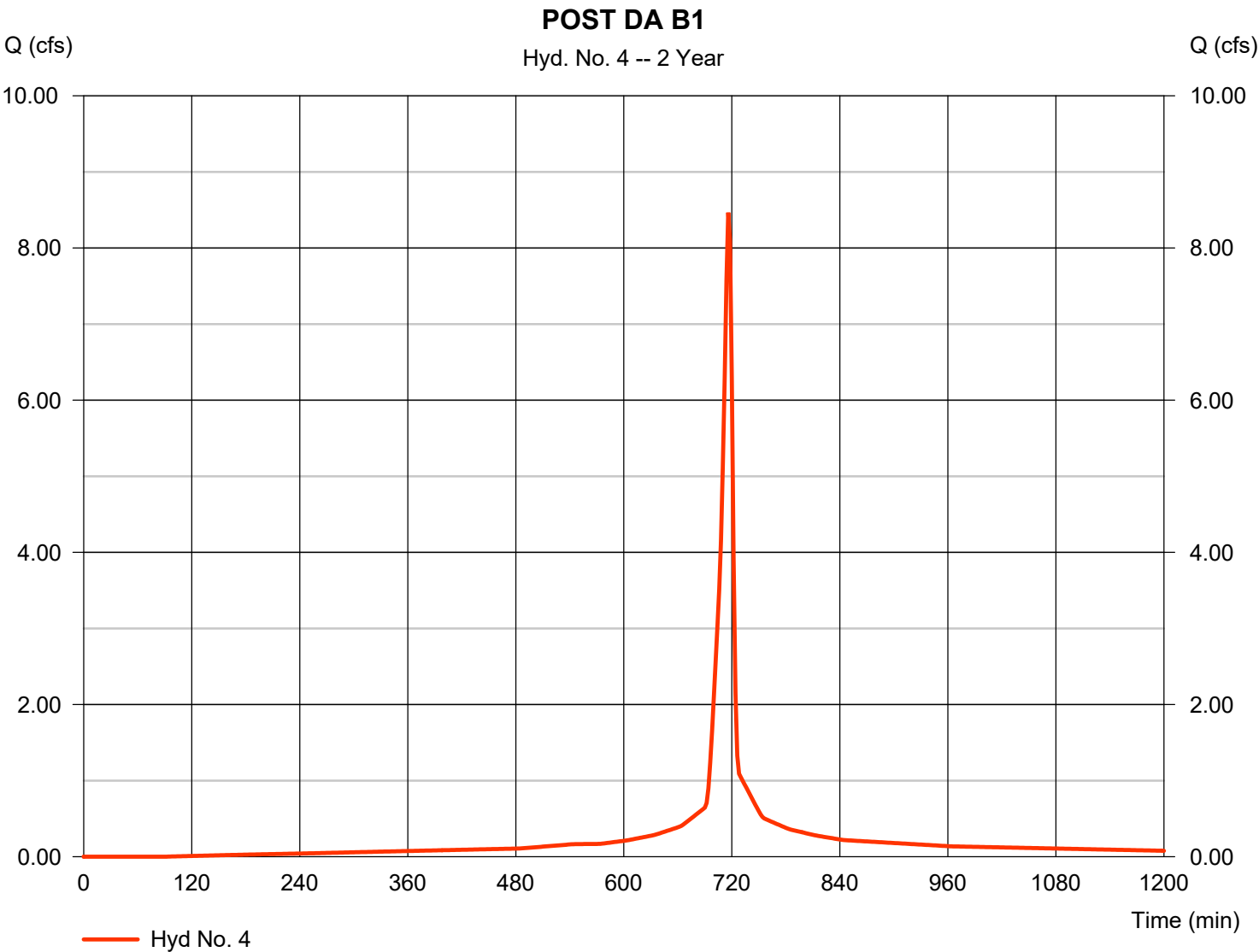
Hydrograph Report

Hyd. No. 4

POST DA B1

Hydrograph type	= SCS Runoff	Peak discharge	= 8.466 cfs
Storm frequency	= 2 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 19,598 cuft
Drainage area	= 2.370 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 2.66 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.580 x 80) + (1.790 x 98)] / 2.370



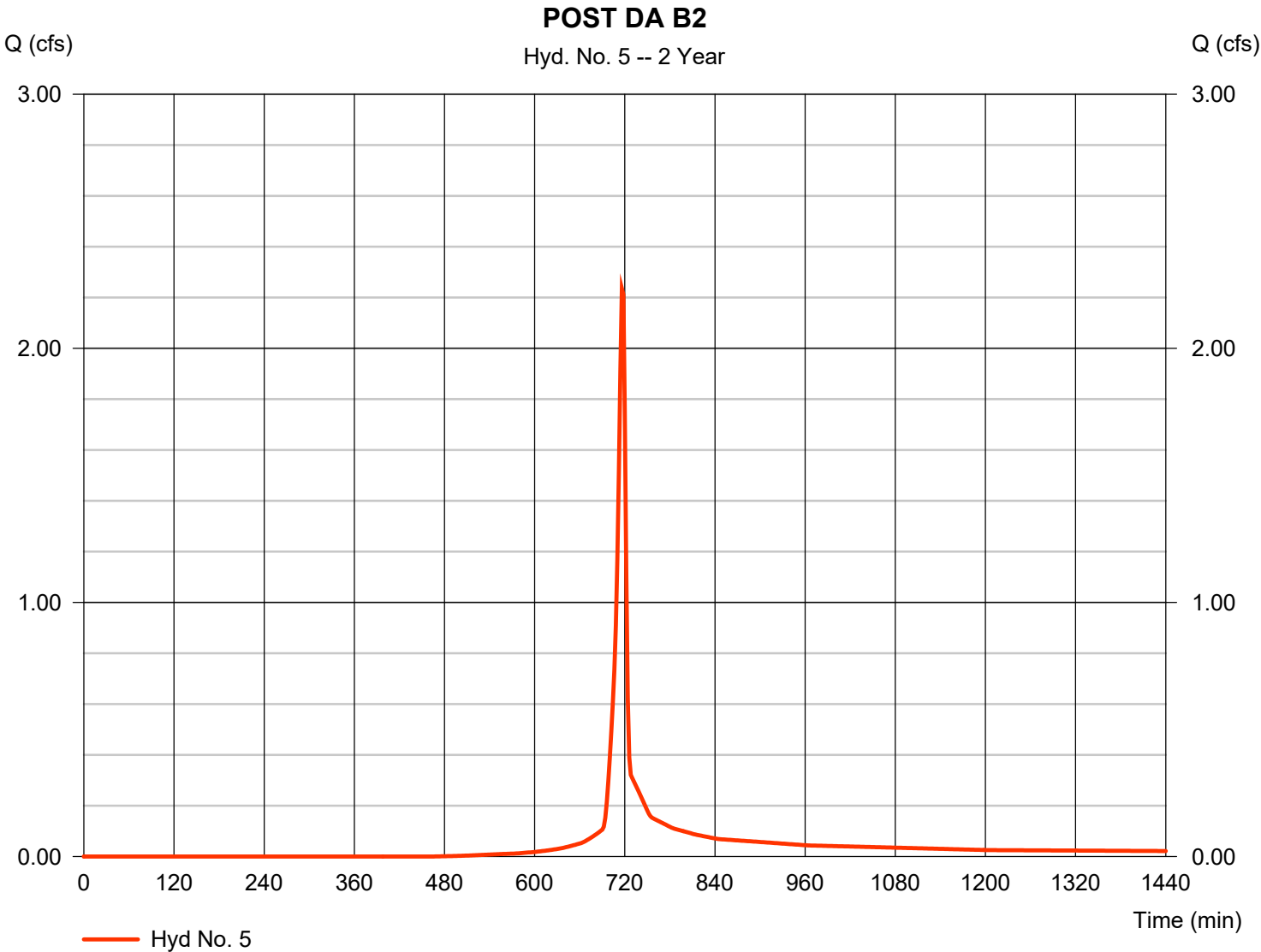
Hydrograph Report

Hyd. No. 5

POST DA B2

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.235 cfs
Storm frequency	=	2 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	4,527 cuft
Drainage area	=	0.920 ac	Curve number	=	87*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	2.66 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.540 x 80) + (0.380 x 98)] / 0.920



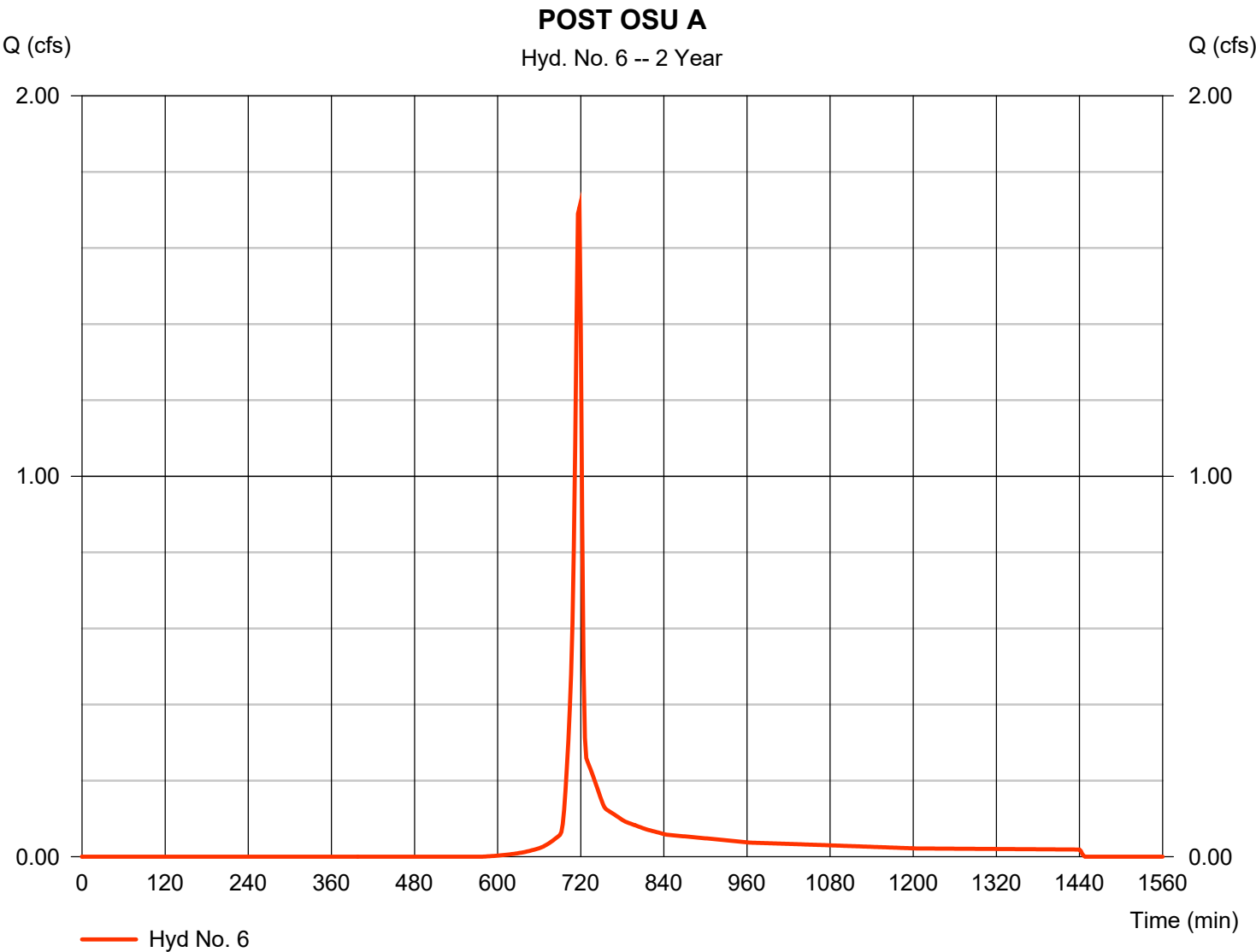
Hydrograph Report

Hyd. No. 6

POST OSU A

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.706 cfs
Storm frequency	=	2 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	3,421 cuft
Drainage area	=	0.900 ac	Curve number	=	82*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	2.66 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.820 x 80) + (0.080 x 98)] / 0.900



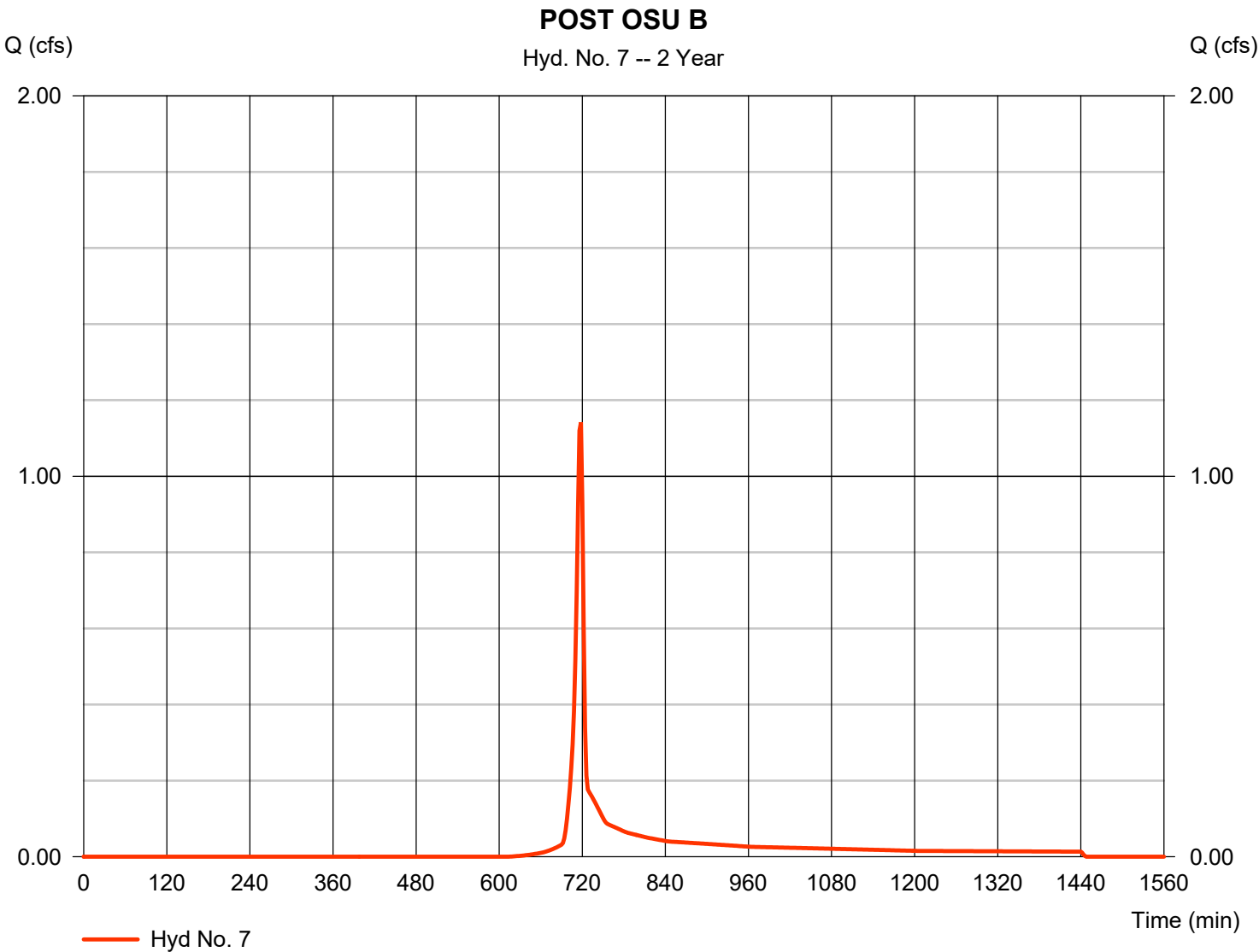
Hydrograph Report

Hyd. No. 7

POST OSU B

Hydrograph type	= SCS Runoff	Peak discharge	= 1.142 cfs
Storm frequency	= 2 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 2,283 cuft
Drainage area	= 0.670 ac	Curve number	= 80*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 2.66 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.670 x 80)] / 0.670

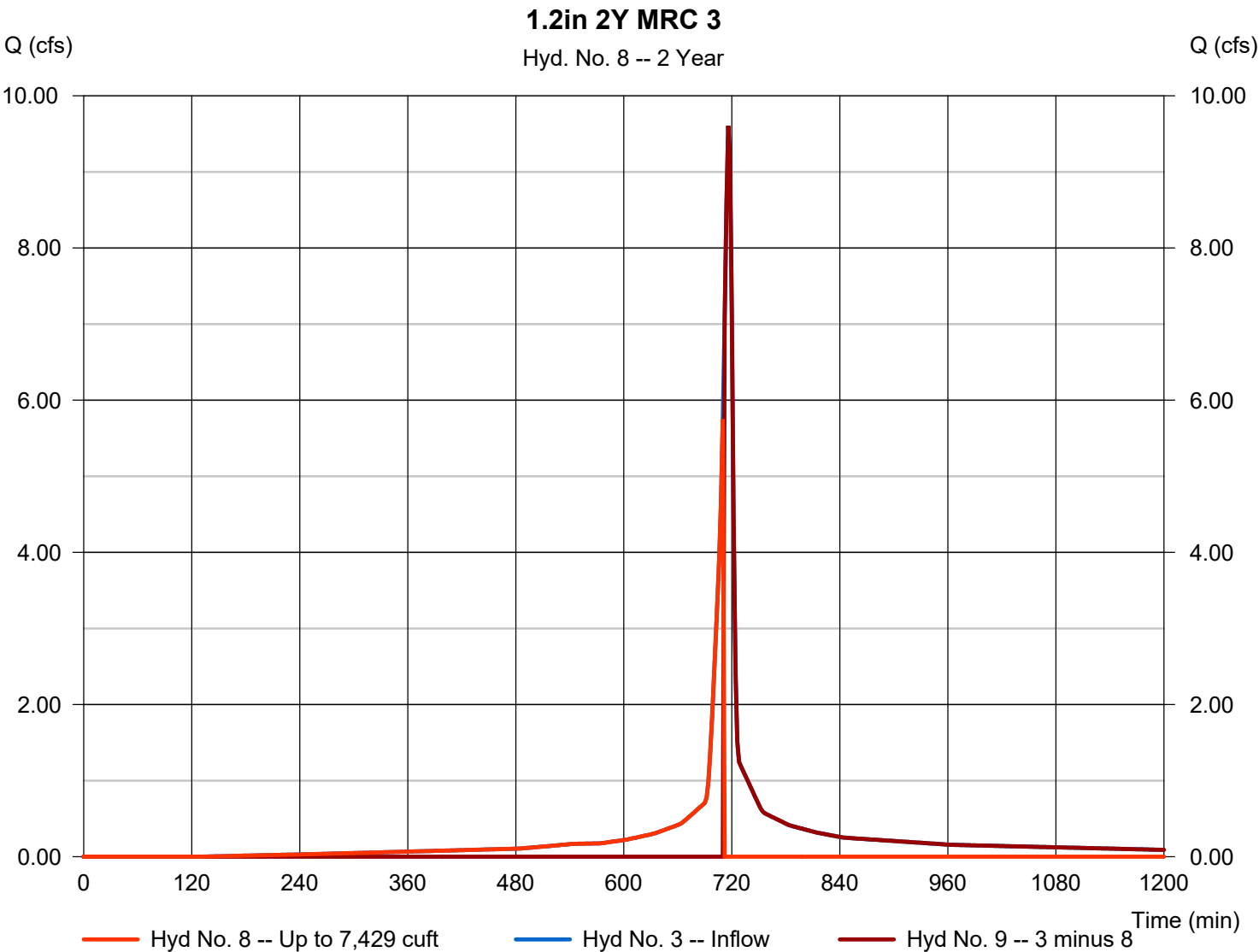


Hydrograph Report

Hyd. No. 8

1.2in 2Y MRC 3

Hydrograph type	=	Diversion1	Peak discharge	=	5.749 cfs
Storm frequency	=	2 yrs	Time to peak	=	710 min
Time interval	=	2 min	Hyd. volume	=	7,678 cuft
Inflow hydrograph	=	3 - POST DA A	2nd diverted hyd.	=	9
Diversion method	=	First Flush Volume	Volume Up To	=	7,429 cuft

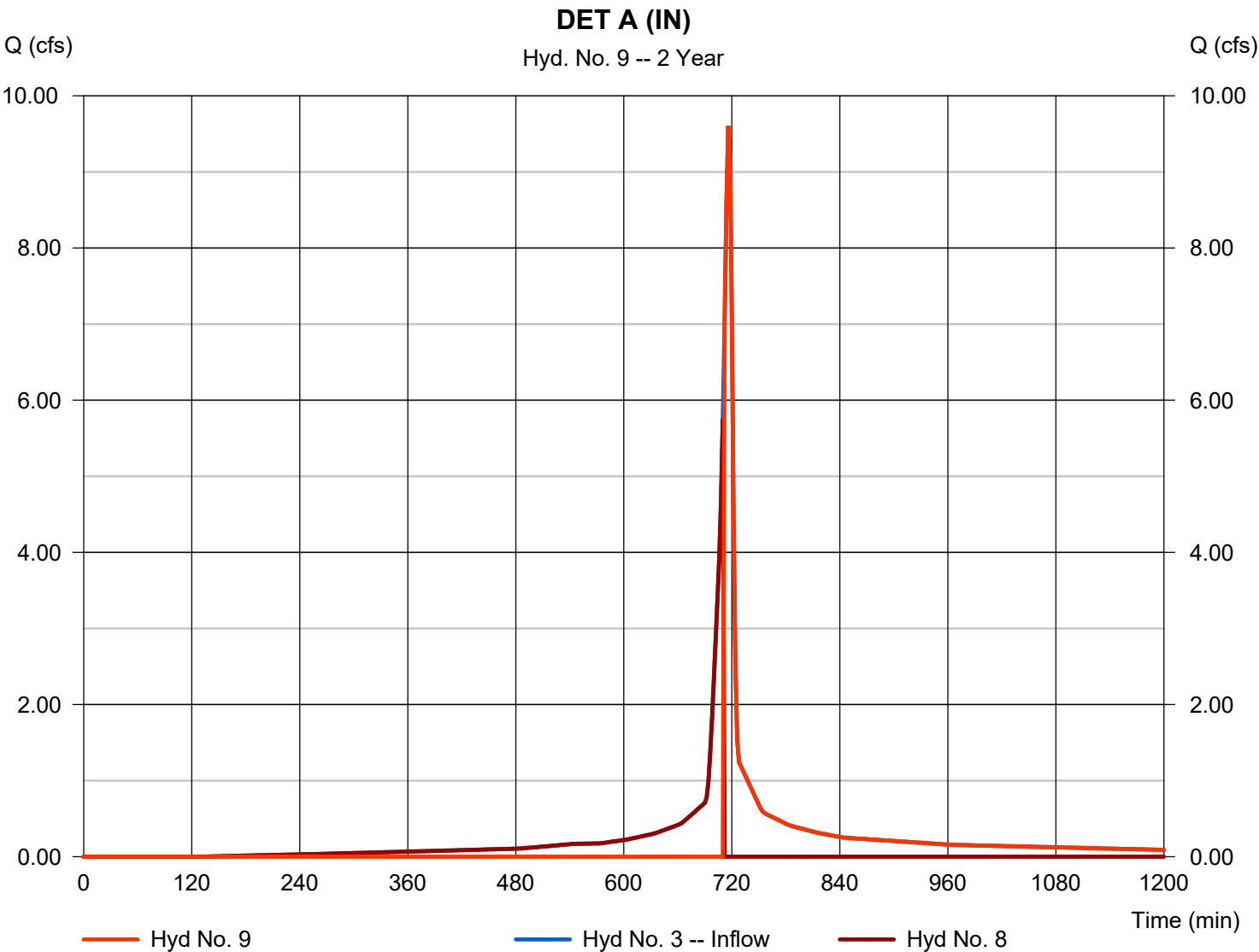


Hydrograph Report

Hyd. No. 9

DET A (IN)

Hydrograph type	=	Diversion2	Peak discharge	=	9.605 cfs
Storm frequency	=	2 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	13,972 cuft
Inflow hydrograph	=	3 - POST DA A	2nd diverted hyd.	=	8
Diversion method	=	First Flush Volume	Volume Up To	=	7,429 cuft

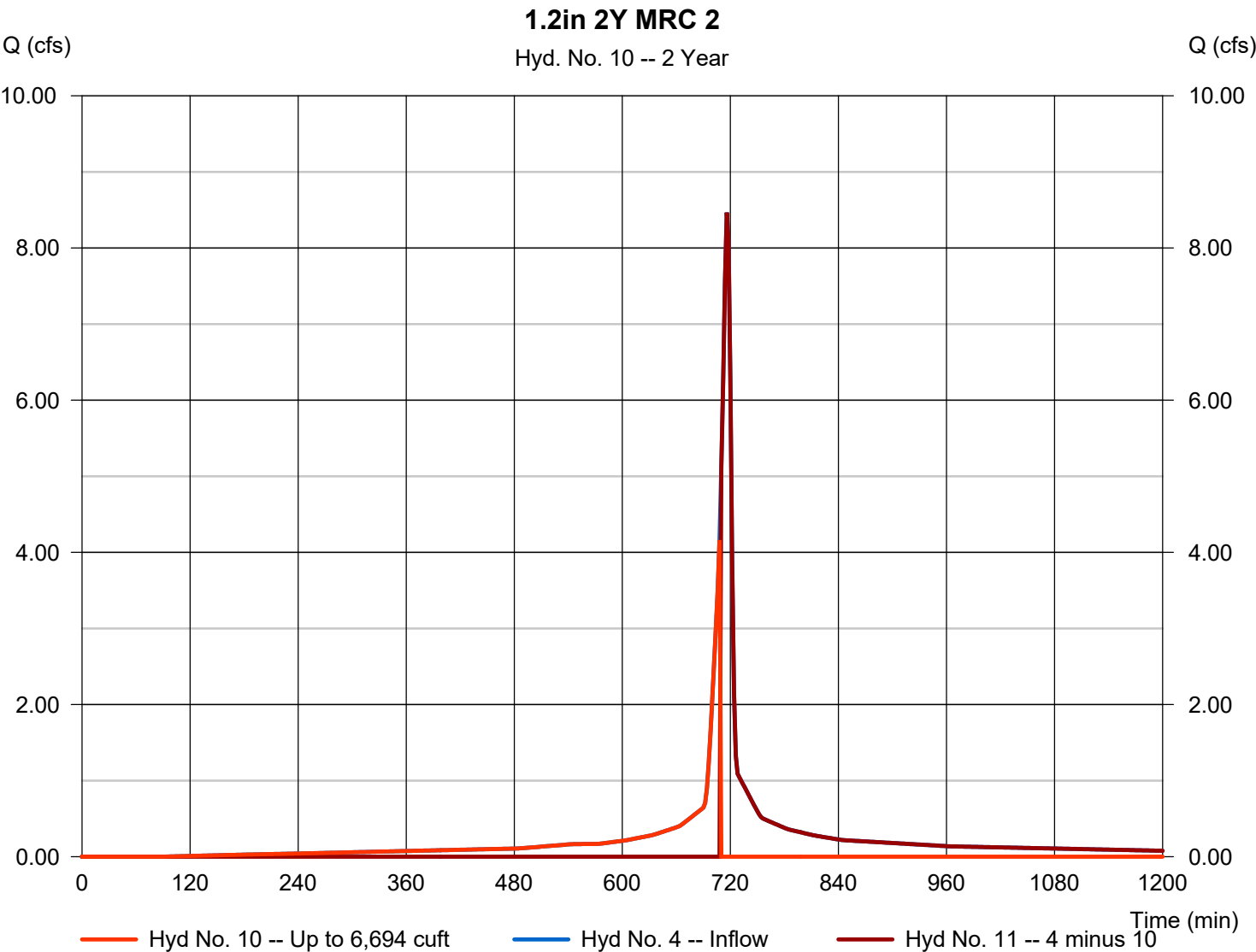


Hydrograph Report

Hyd. No. 10

1.2in 2Y MRC 2

Hydrograph type	= Diversion1	Peak discharge	= 4.161 cfs
Storm frequency	= 2 yrs	Time to peak	= 708 min
Time interval	= 2 min	Hyd. volume	= 6,743 cuft
Inflow hydrograph	= 4 - POST DA B1	2nd diverted hyd.	= 11
Diversion method	= First Flush Volume	Volume Up To	= 6,694 cuft

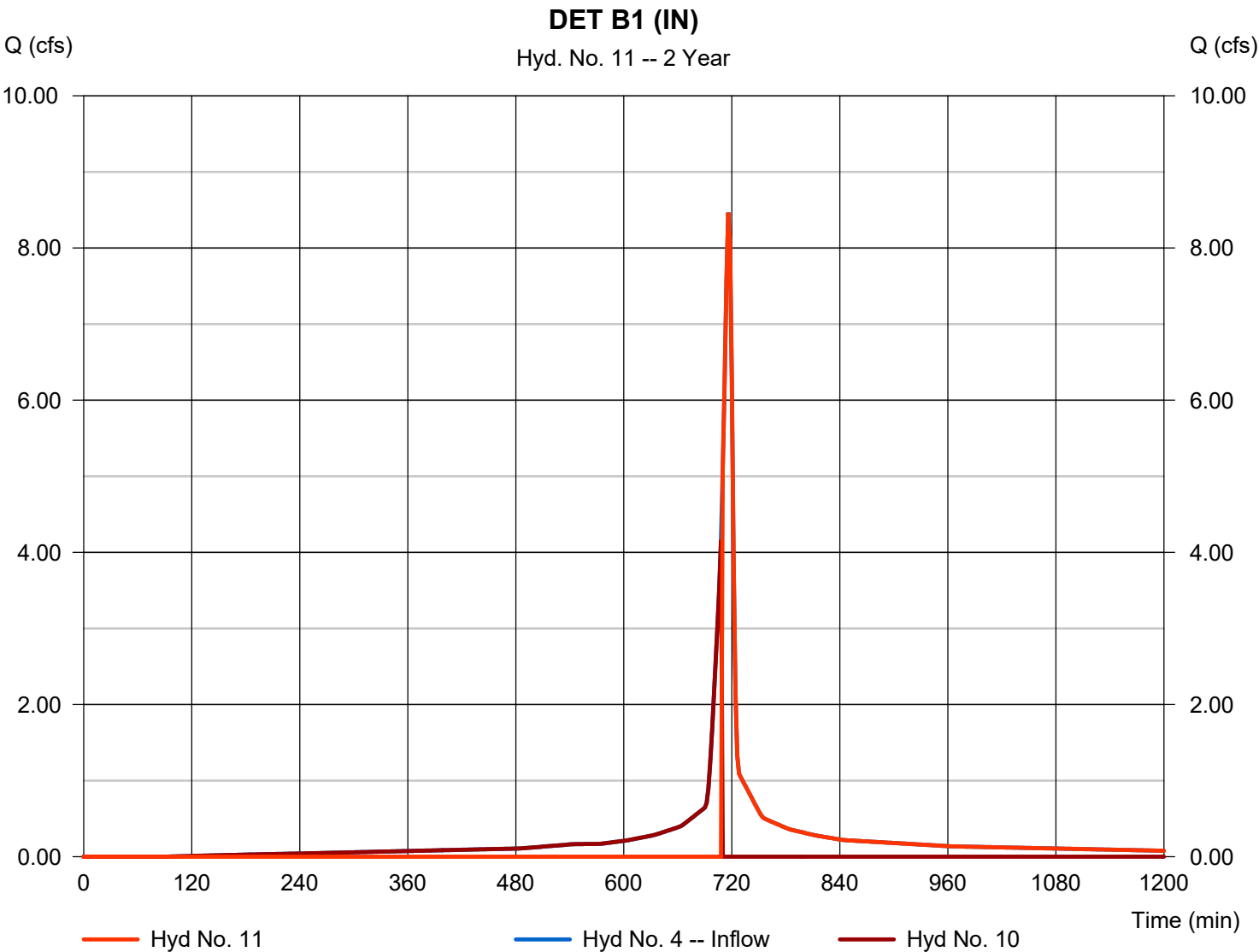


Hydrograph Report

Hyd. No. 11

DET B1 (IN)

Hydrograph type	= Diversion2	Peak discharge	= 8.466 cfs
Storm frequency	= 2 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 12,855 cuft
Inflow hydrograph	= 4 - POST DA B1	2nd diverted hyd.	= 10
Diversion method	= First Flush Volume	Volume Up To	= 6,694 cuft

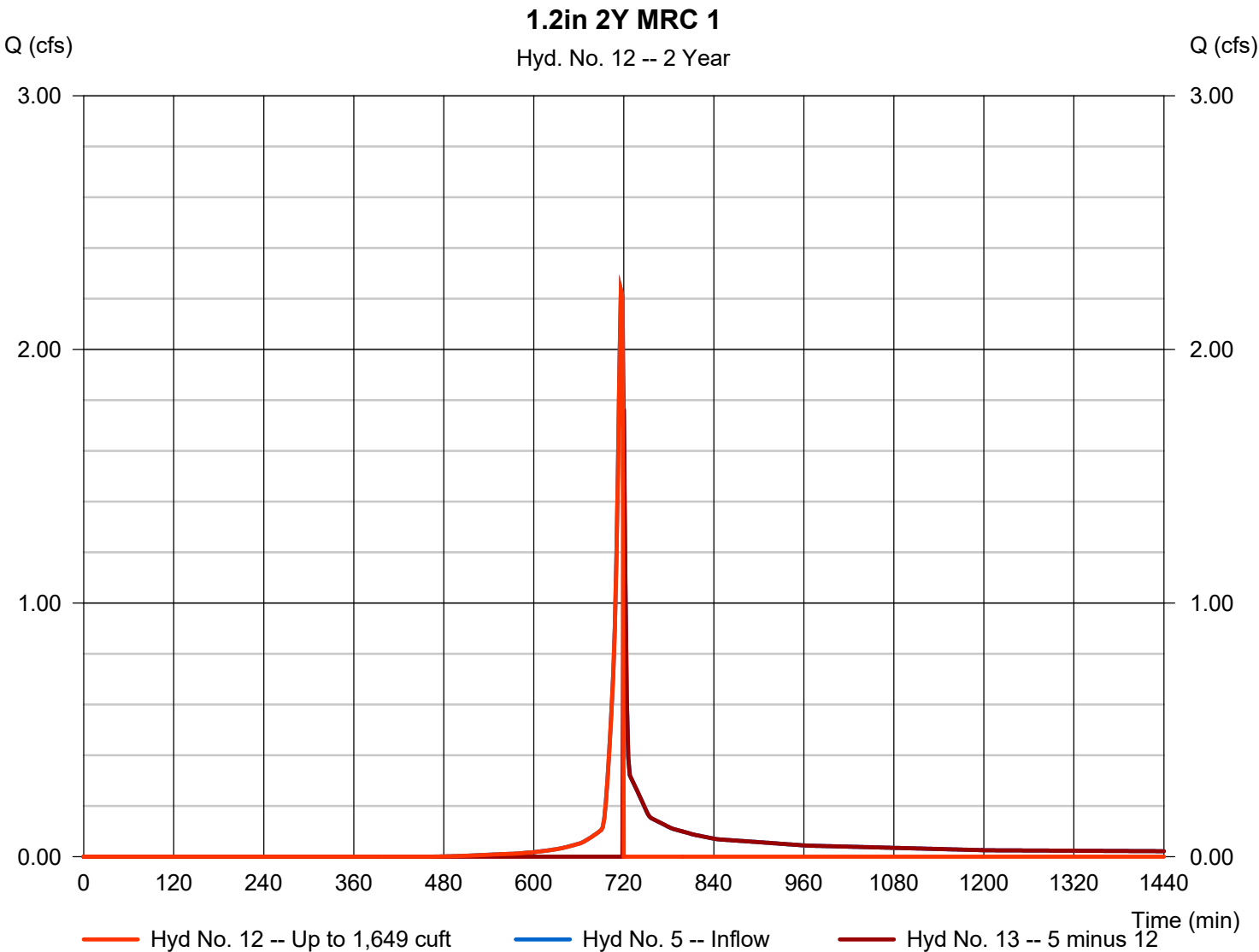


Hydrograph Report

Hyd. No. 12

1.2in 2Y MRC 1

Hydrograph type	=	Diversion1	Peak discharge	=	2.235 cfs
Storm frequency	=	2 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	1,868 cuft
Inflow hydrograph	=	5 - POST DA B2	2nd diverted hyd.	=	13
Diversion method	=	First Flush Volume	Volume Up To	=	1,649 cuft

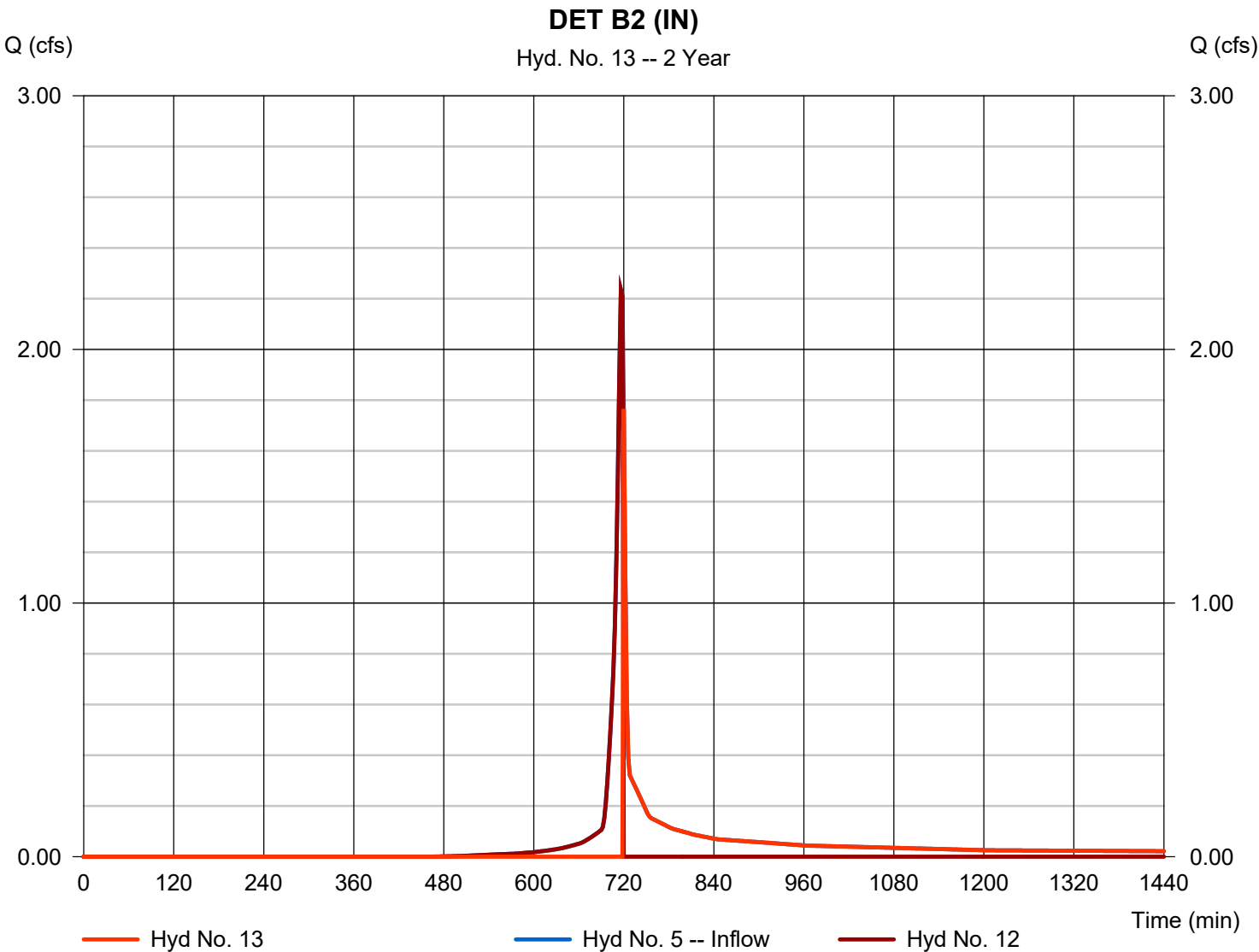


Hydrograph Report

Hyd. No. 13

DET B2 (IN)

Hydrograph type	=	Diversion2	Peak discharge	=	1.765 cfs
Storm frequency	=	2 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	2,659 cuft
Inflow hydrograph	=	5 - POST DA B2	2nd diverted hyd.	=	12
Diversion method	=	First Flush Volume	Volume Up To	=	1,649 cuft

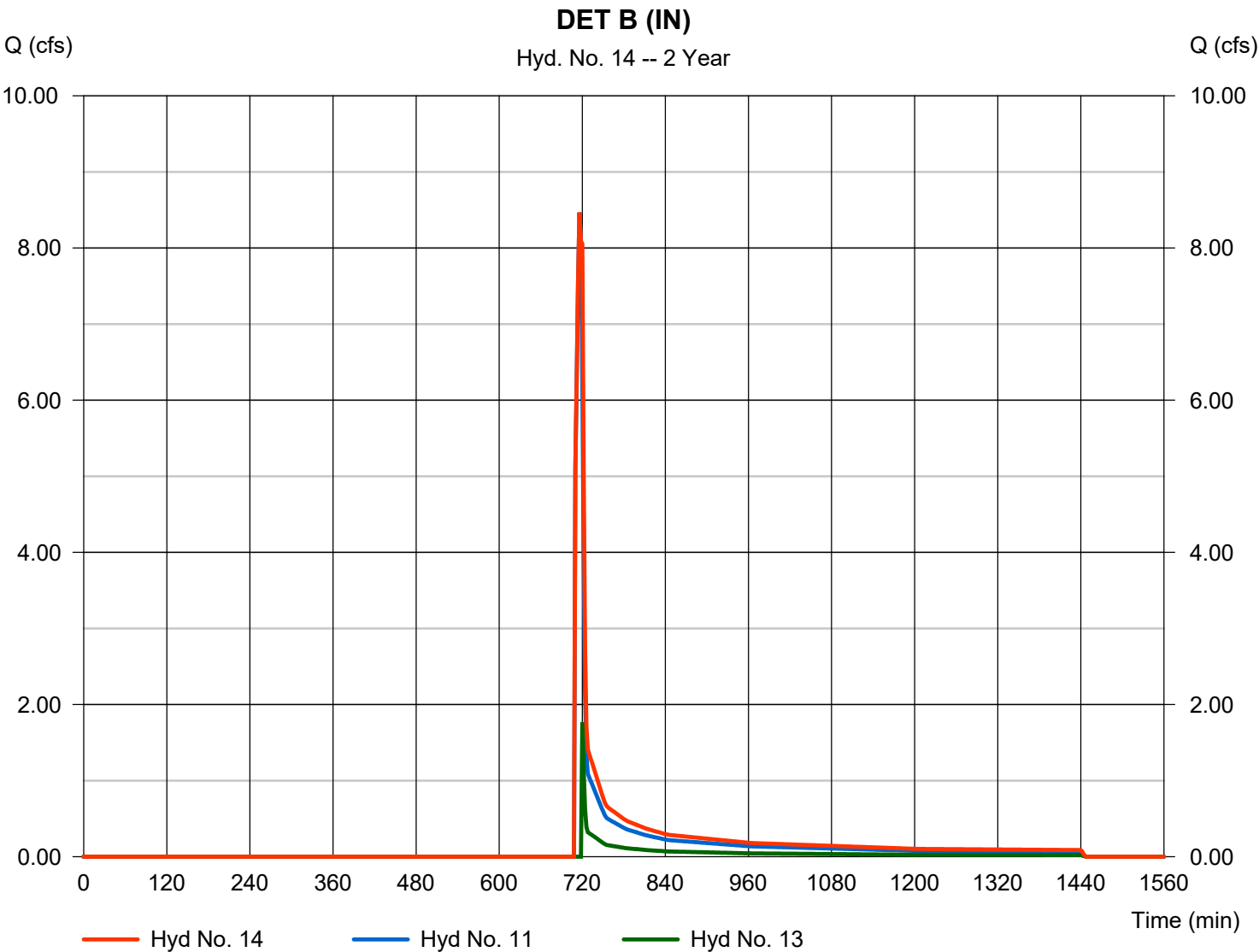


Hydrograph Report

Hyd. No. 14

DET B (IN)

Hydrograph type	= Combine	Peak discharge	= 8.466 cfs
Storm frequency	= 2 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 15,513 cuft
Inflow hyds.	= 11, 13	Contrib. drain. area	= 0.000 ac

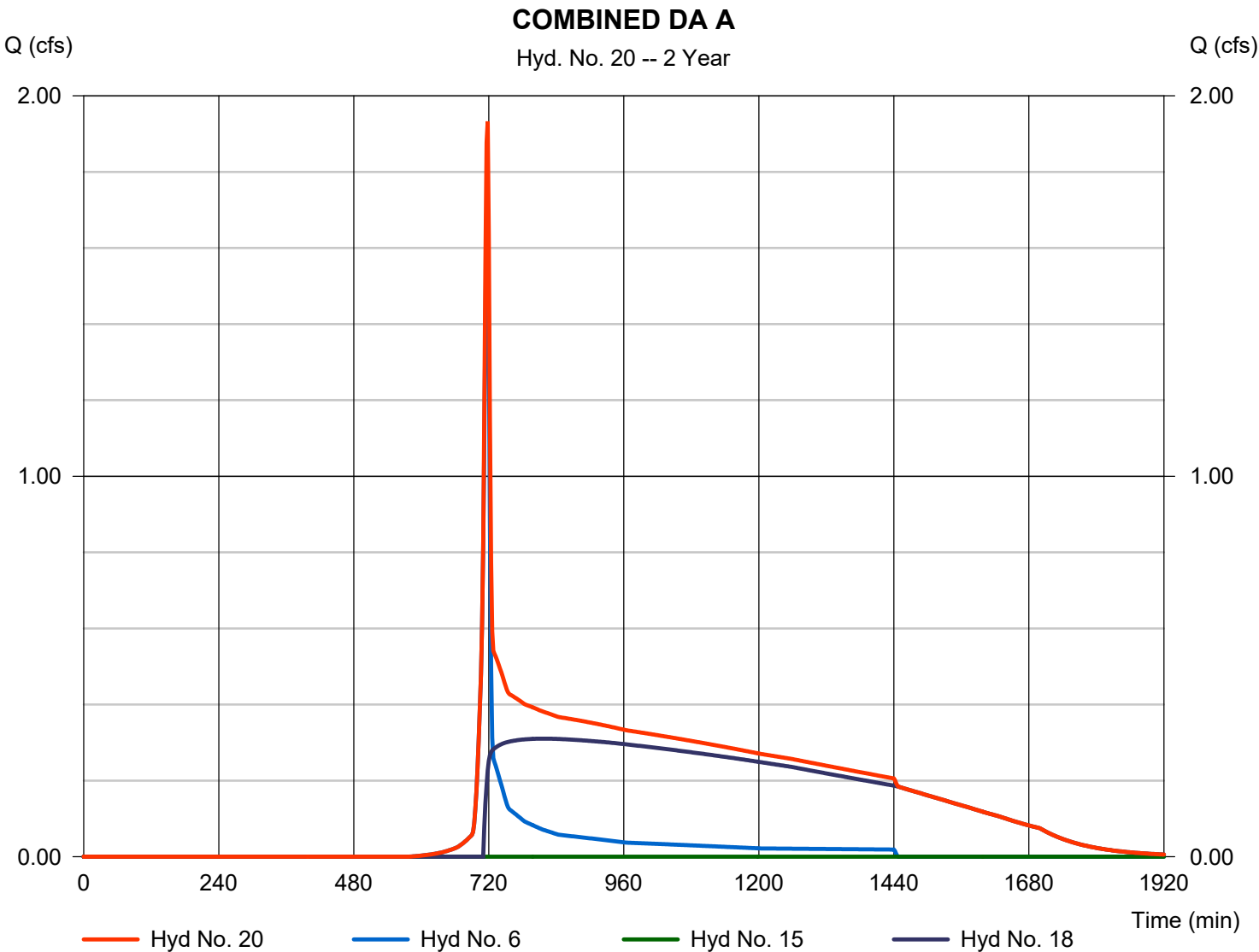


Hydrograph Report

Hyd. No. 20

COMBINED DA A

Hydrograph type	= Combine	Peak discharge	= 1.933 cfs
Storm frequency	= 2 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 17,388 cuft
Inflow hyds.	= 6, 15, 18	Contrib. drain. area	= 0.900 ac

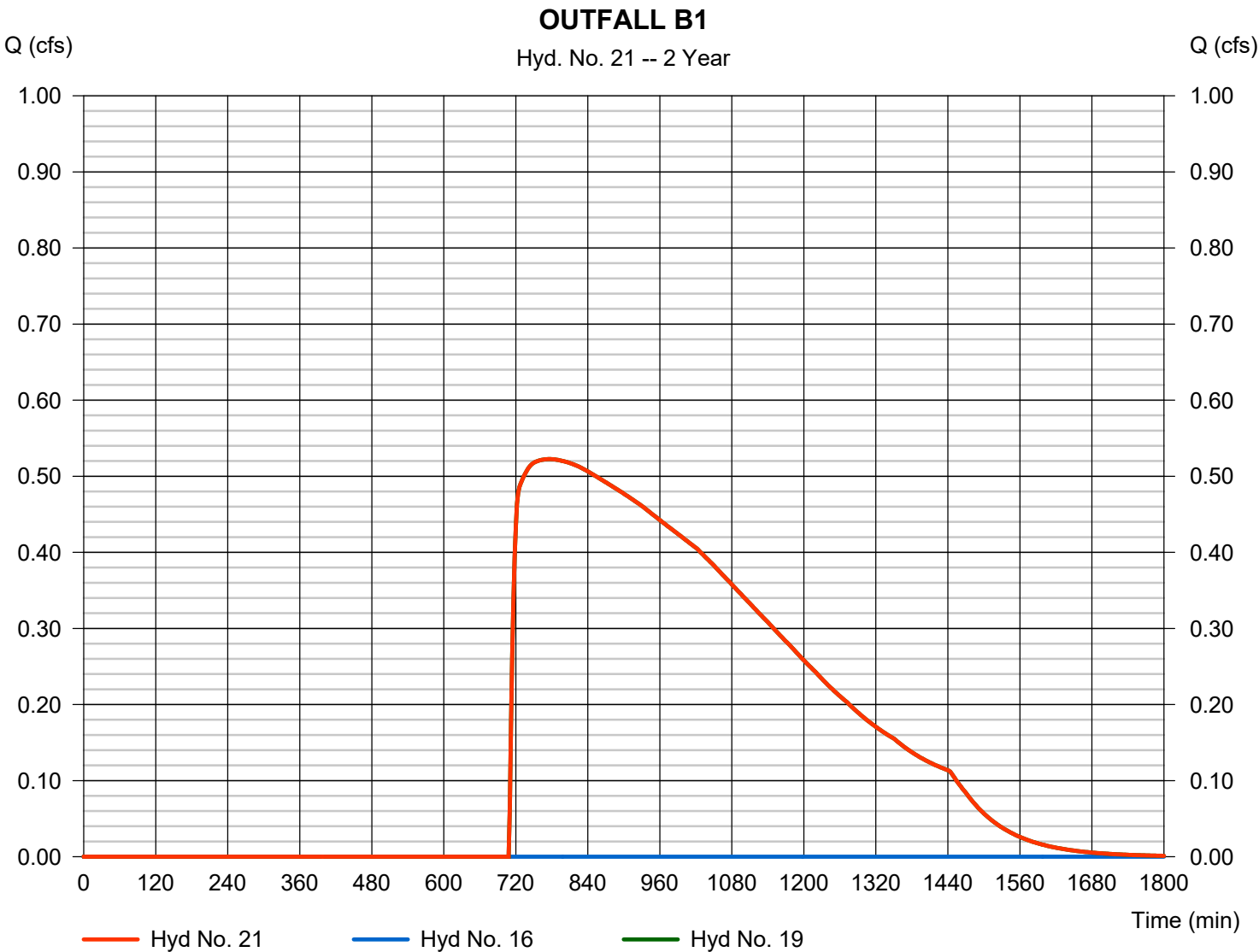


Hydrograph Report

Hyd. No. 21

OUTFALL B1

Hydrograph type	= Combine	Peak discharge	= 0.523 cfs
Storm frequency	= 2 yrs	Time to peak	= 776 min
Time interval	= 2 min	Hyd. volume	= 15,509 cuft
Inflow hyds.	= 16, 19	Contrib. drain. area	= 0.000 ac

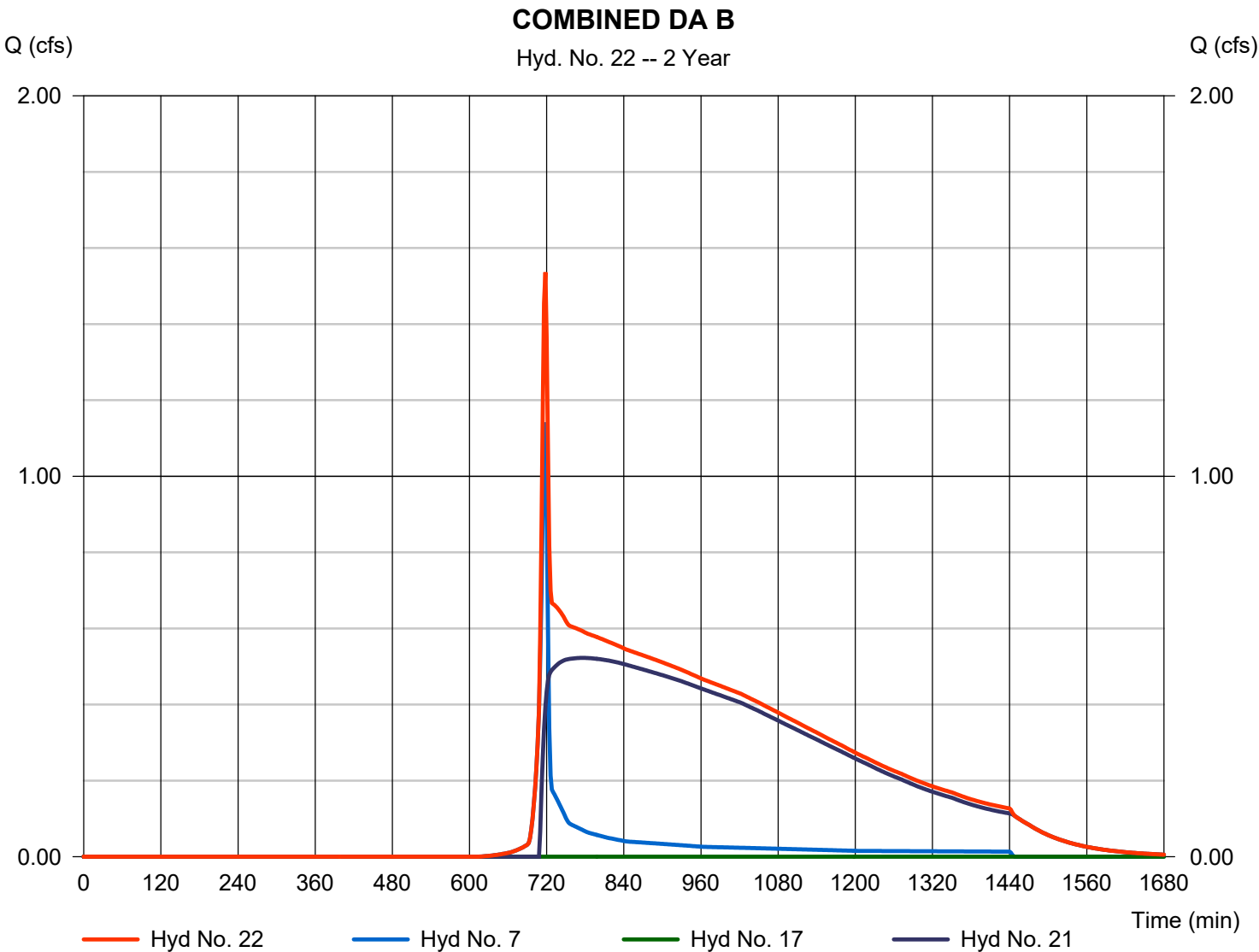


Hydrograph Report

Hyd. No. 22

COMBINED DA B

Hydrograph type	= Combine	Peak discharge	= 1.536 cfs
Storm frequency	= 2 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 17,792 cuft
Inflow hyds.	= 7, 17, 21	Contrib. drain. area	= 0.670 ac



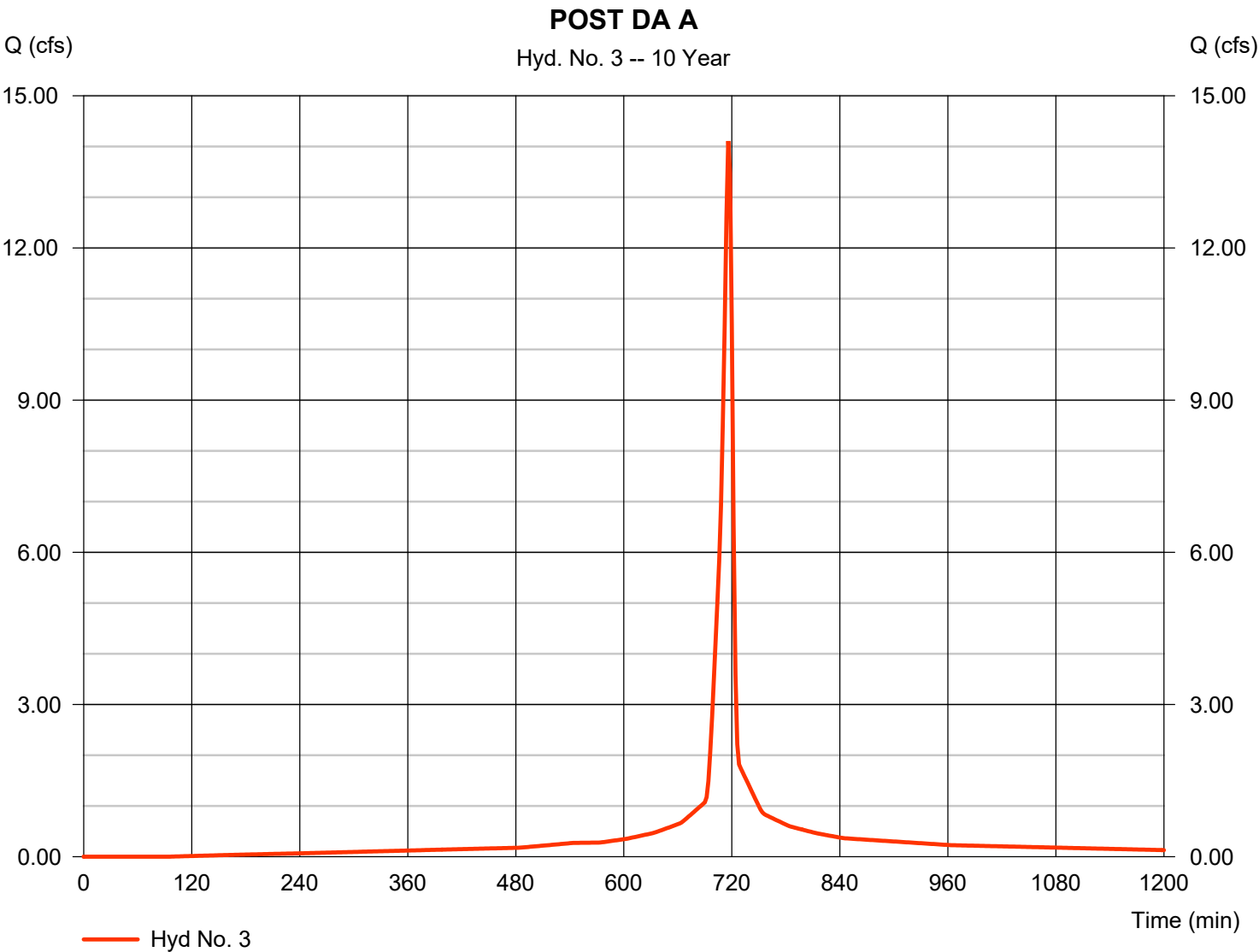
Hydrograph Report

Hyd. No. 3

POST DA A

Hydrograph type	=	SCS Runoff	Peak discharge	=	14.11 cfs
Storm frequency	=	10 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	32,564 cuft
Drainage area	=	2.740 ac	Curve number	=	97*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.84 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.750 x 80) + (1.990 x 98)] / 2.740



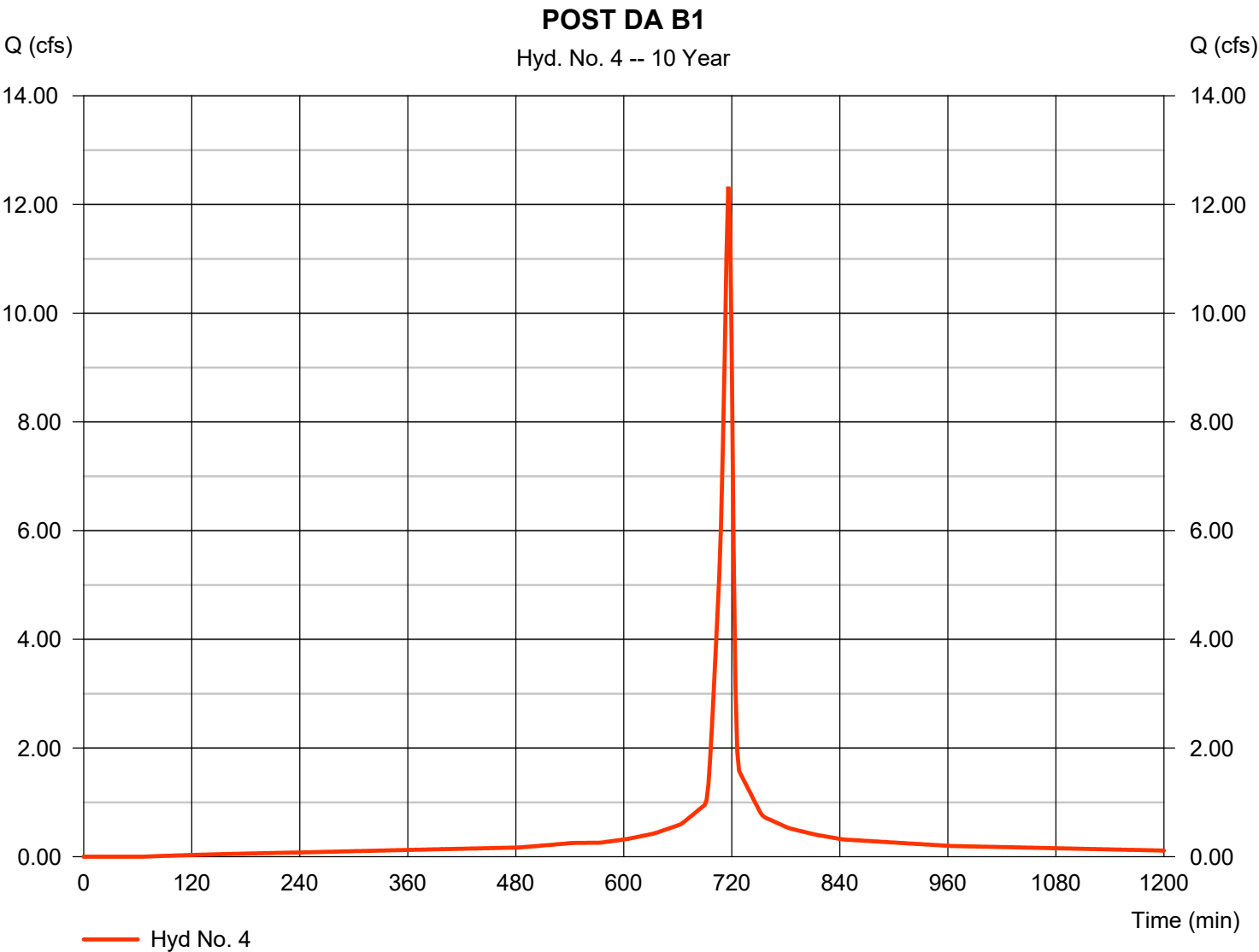
Hydrograph Report

Hyd. No. 4

POST DA B1

Hydrograph type	= SCS Runoff	Peak discharge	= 12.33 cfs
Storm frequency	= 10 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 29,080 cuft
Drainage area	= 2.370 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.84 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.580 x 80) + (1.790 x 98)] / 2.370



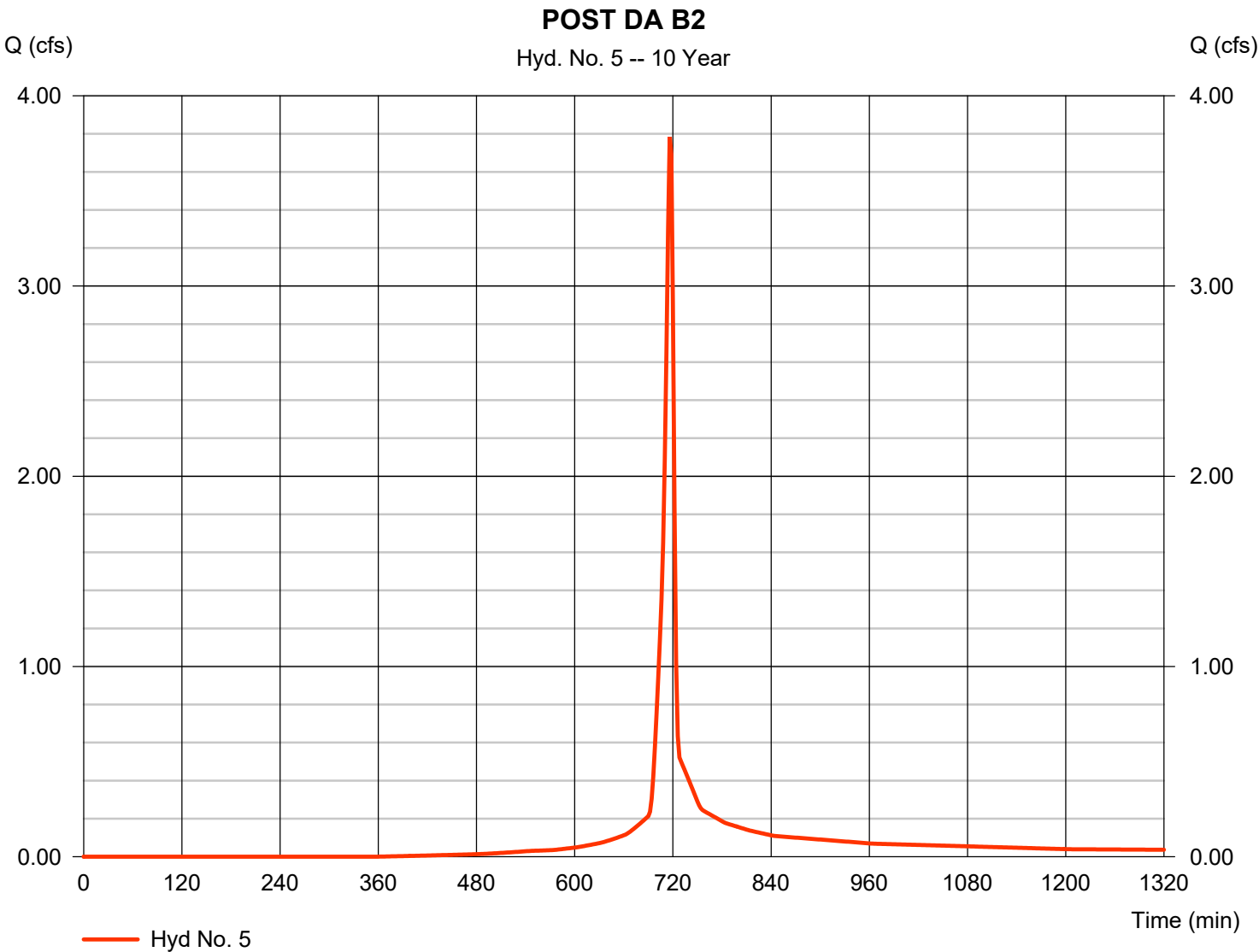
Hydrograph Report

Hyd. No. 5

POST DA B2

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.784 cfs
Storm frequency	=	10 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	7,797 cuft
Drainage area	=	0.920 ac	Curve number	=	87*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.84 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.540 x 80) + (0.380 x 98)] / 0.920



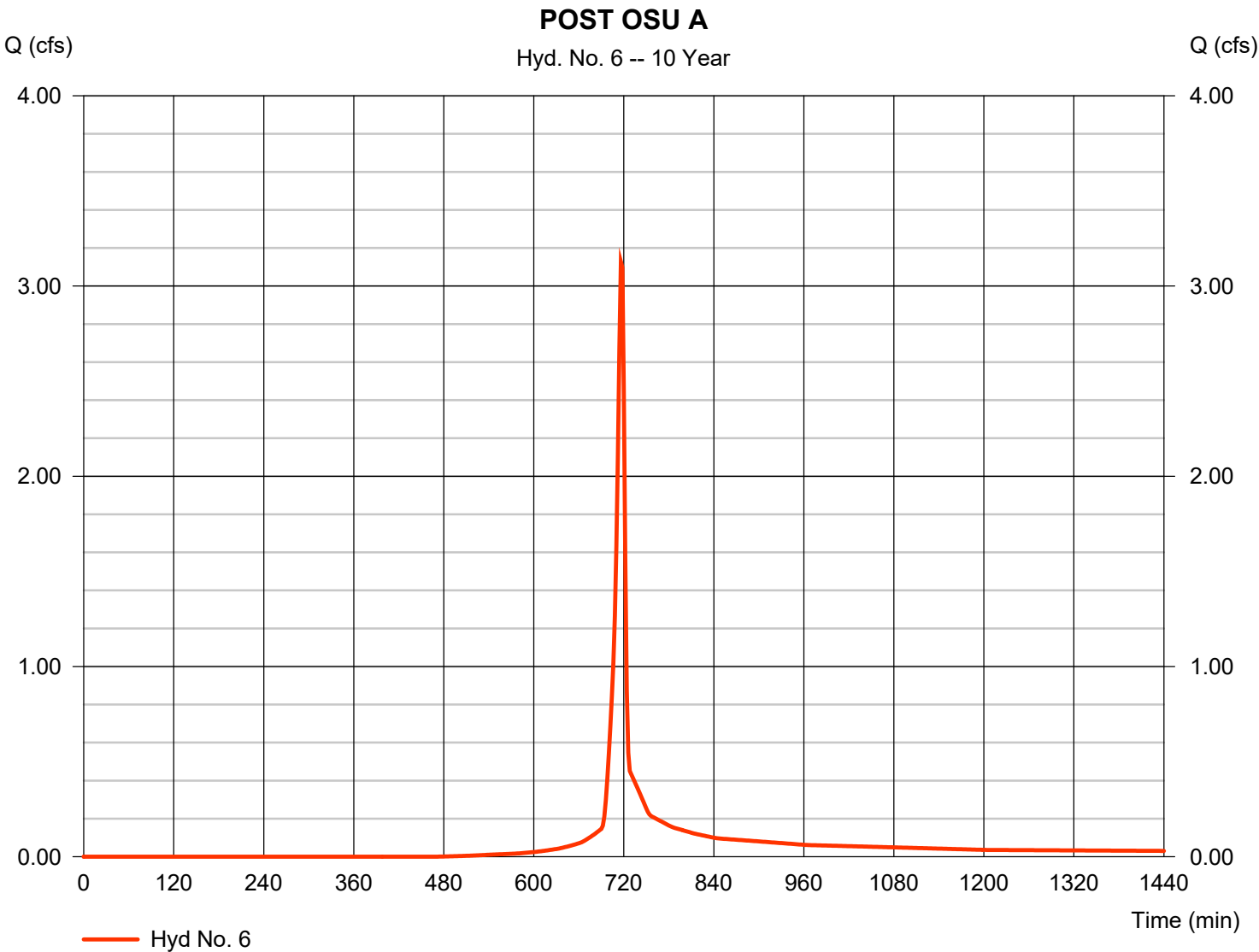
Hydrograph Report

Hyd. No. 6

POST OSU A

Hydrograph type	= SCS Runoff	Peak discharge	= 3.127 cfs
Storm frequency	= 10 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 6,331 cuft
Drainage area	= 0.900 ac	Curve number	= 82*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.84 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.820 x 80) + (0.080 x 98)] / 0.900



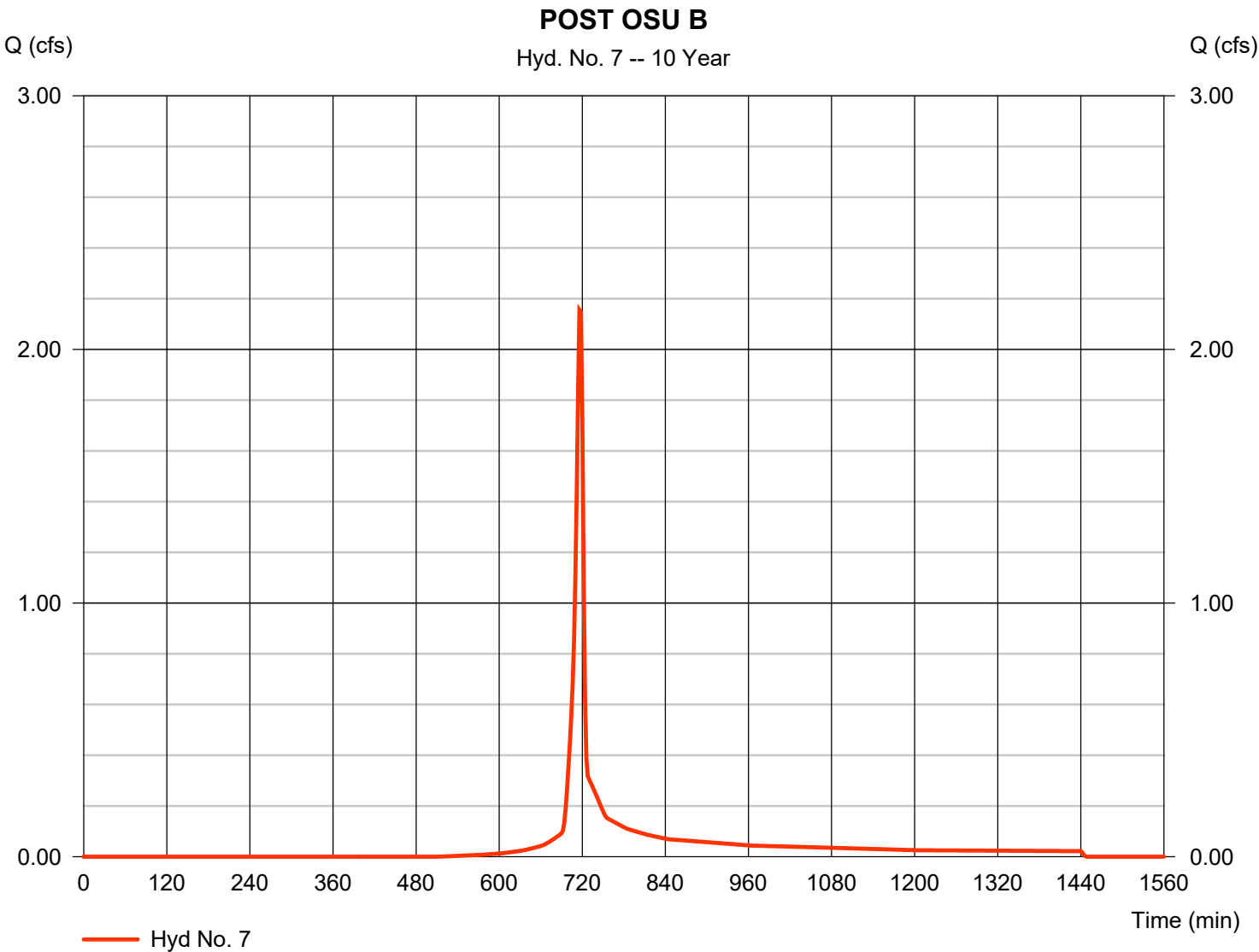
Hydrograph Report

Hyd. No. 7

POST OSU B

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.157 cfs
Storm frequency	=	10 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	4,355 cuft
Drainage area	=	0.670 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.84 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.670 x 80)] / 0.670

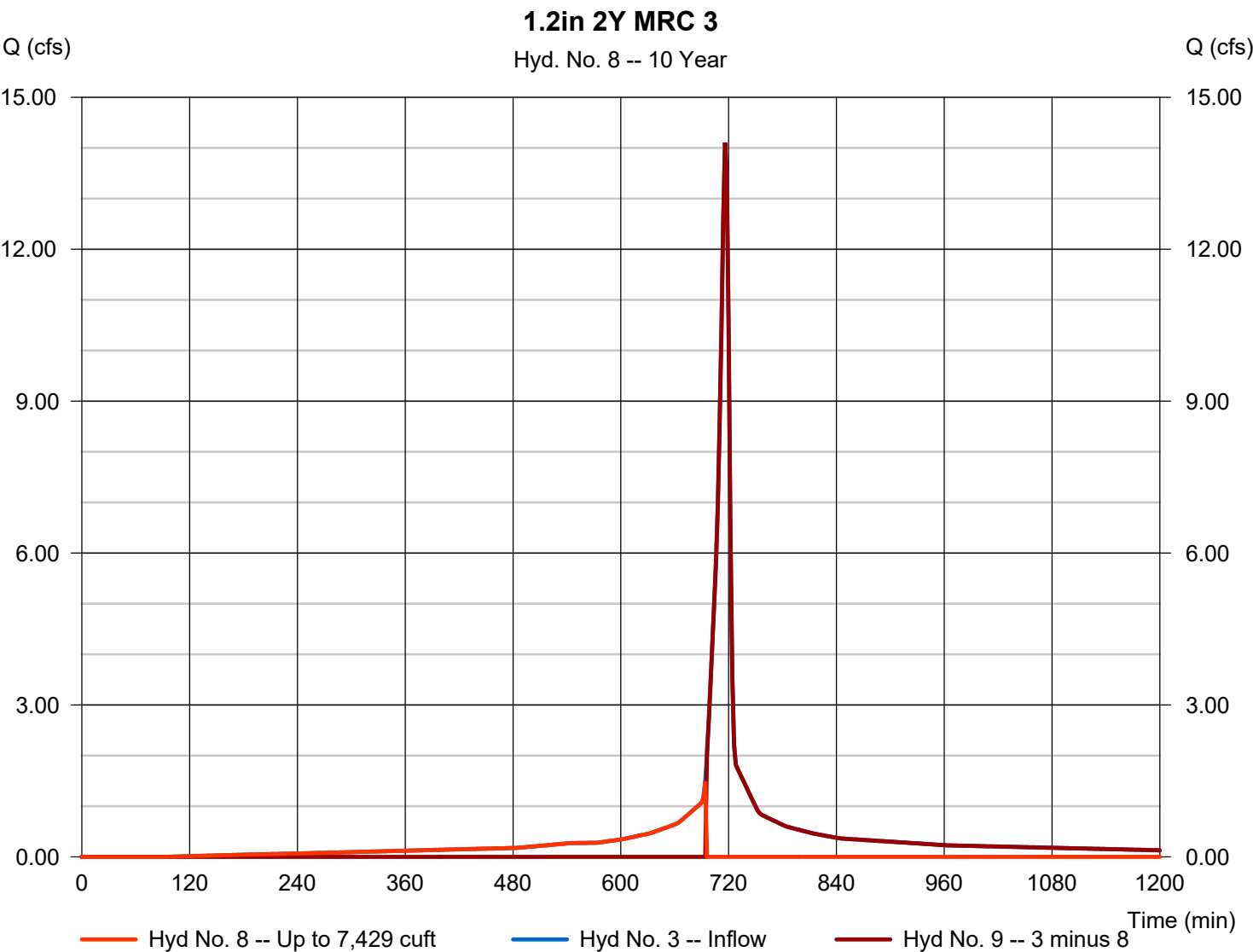


Hydrograph Report

Hyd. No. 8

1.2in 2Y MRC 3

Hydrograph type	=	Diversion1	Peak discharge	=	1.493 cfs
Storm frequency	=	10 yrs	Time to peak	=	694 min
Time interval	=	2 min	Hyd. volume	=	7,486 cuft
Inflow hydrograph	=	3 - POST DA A	2nd diverted hyd.	=	9
Diversion method	=	First Flush Volume	Volume Up To	=	7,429 cuft

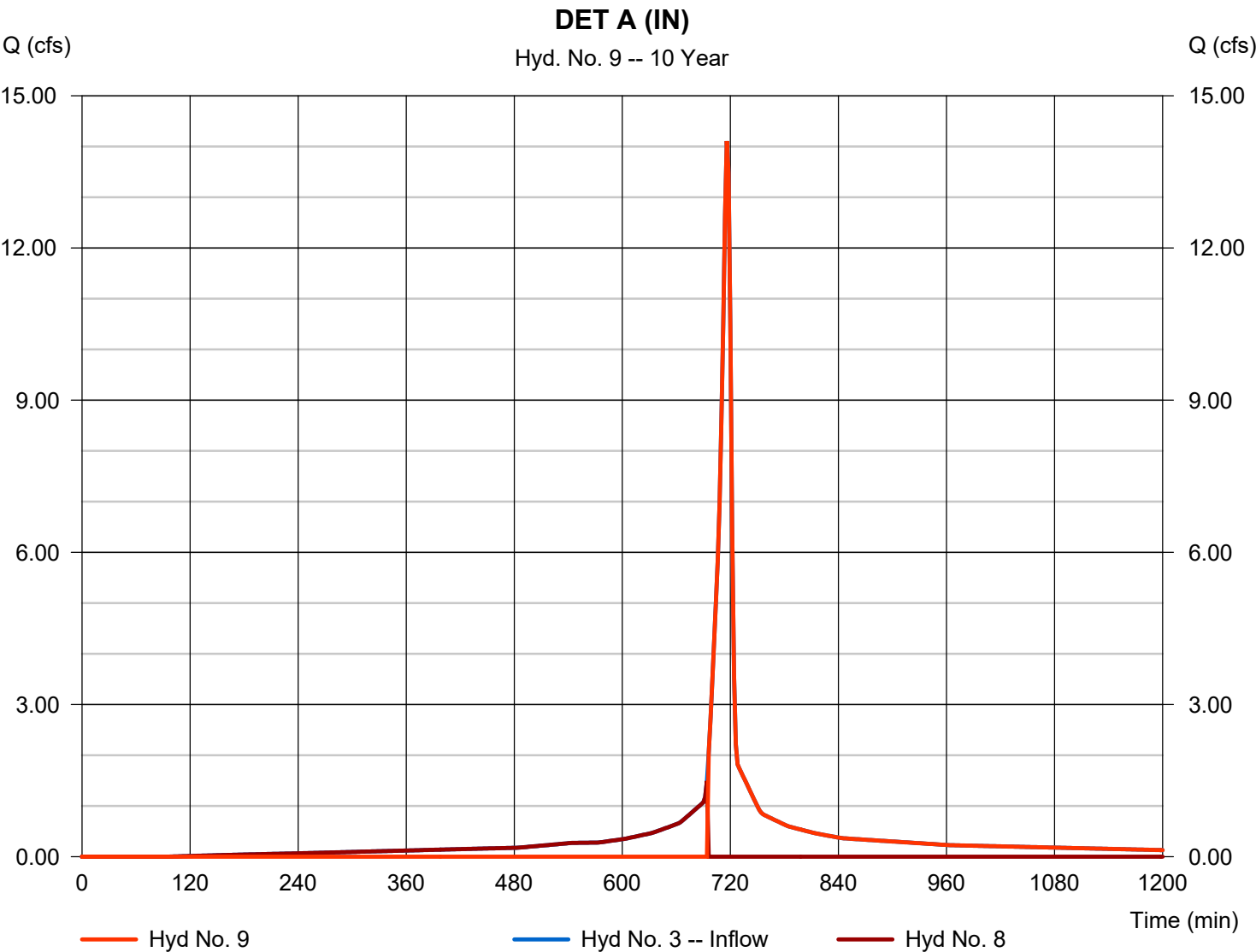


Hydrograph Report

Hyd. No. 9

DET A (IN)

Hydrograph type	=	Diversion2	Peak discharge	=	14.11 cfs
Storm frequency	=	10 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	25,078 cuft
Inflow hydrograph	=	3 - POST DA A	2nd diverted hyd.	=	8
Diversion method	=	First Flush Volume	Volume Up To	=	7,429 cuft

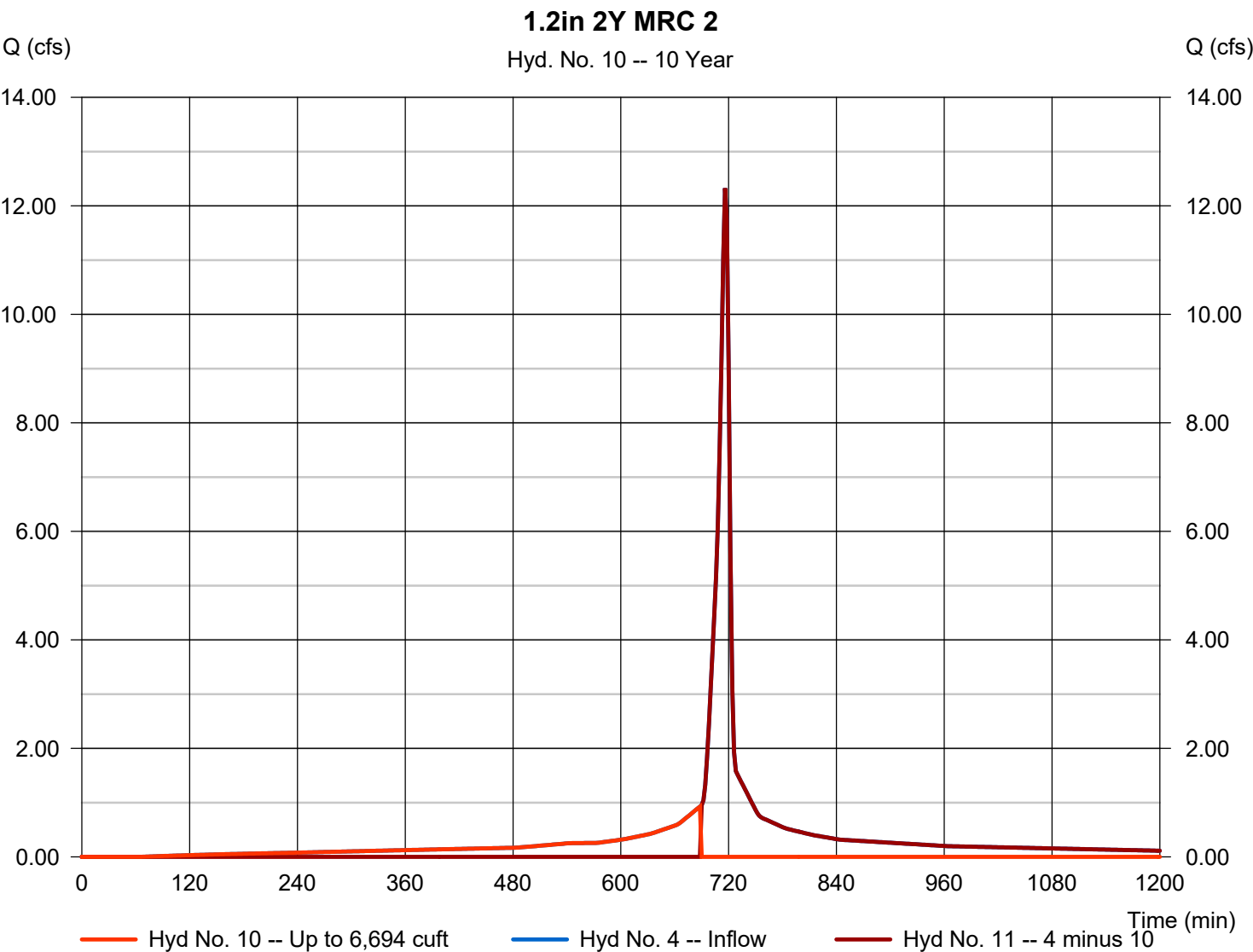


Hydrograph Report

Hyd. No. 10

1.2in 2Y MRC 2

Hydrograph type	= Diversion1	Peak discharge	= 0.927 cfs
Storm frequency	= 10 yrs	Time to peak	= 688 min
Time interval	= 2 min	Hyd. volume	= 6,787 cuft
Inflow hydrograph	= 4 - POST DA B1	2nd diverted hyd.	= 11
Diversion method	= First Flush Volume	Volume Up To	= 6,694 cuft

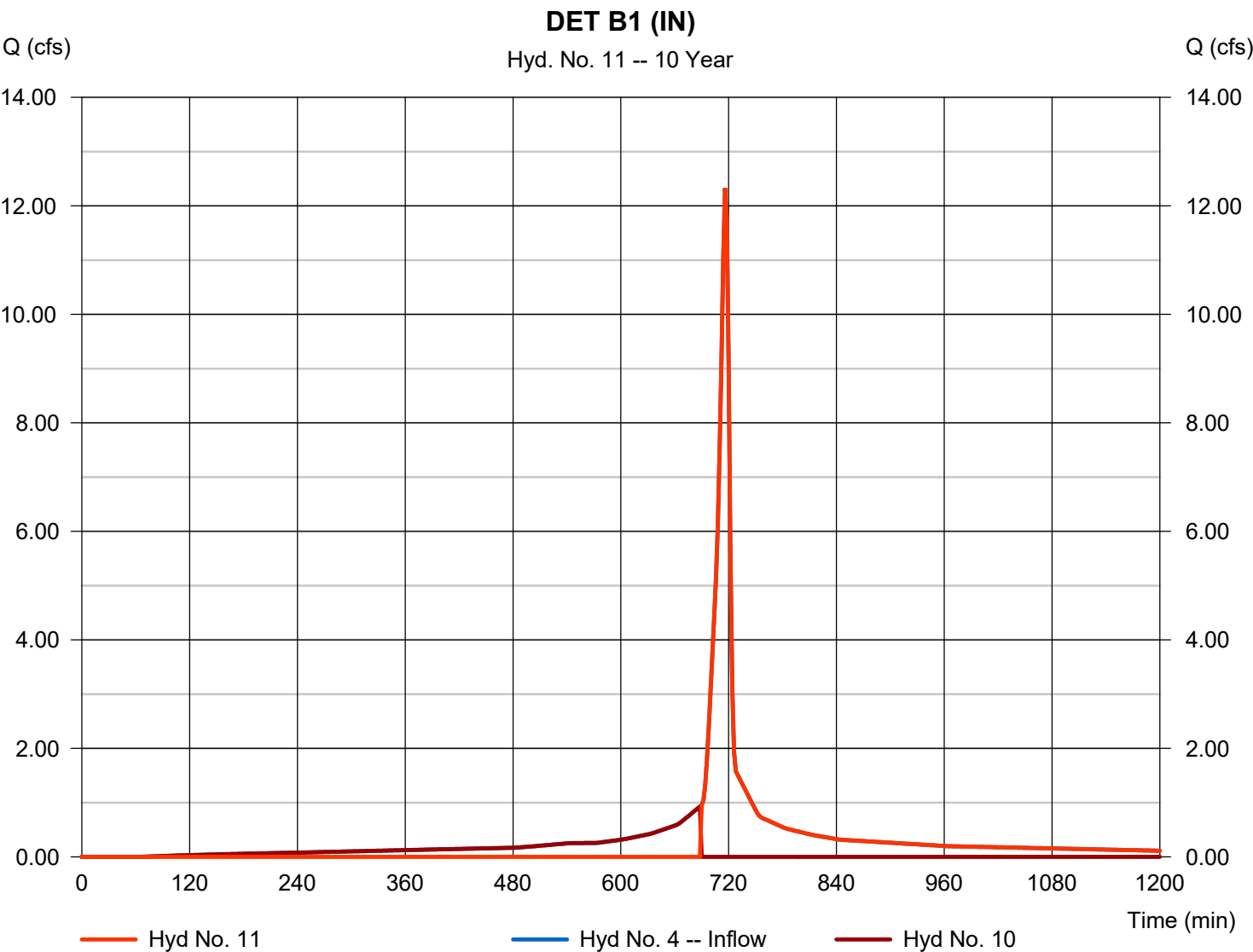


Hydrograph Report

Hyd. No. 11

DET B1 (IN)

Hydrograph type	=	Diversion2	Peak discharge	=	12.33 cfs
Storm frequency	=	10 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	22,292 cuft
Inflow hydrograph	=	4 - POST DA B1	2nd diverted hyd.	=	10
Diversion method	=	First Flush Volume	Volume Up To	=	6,694 cuft

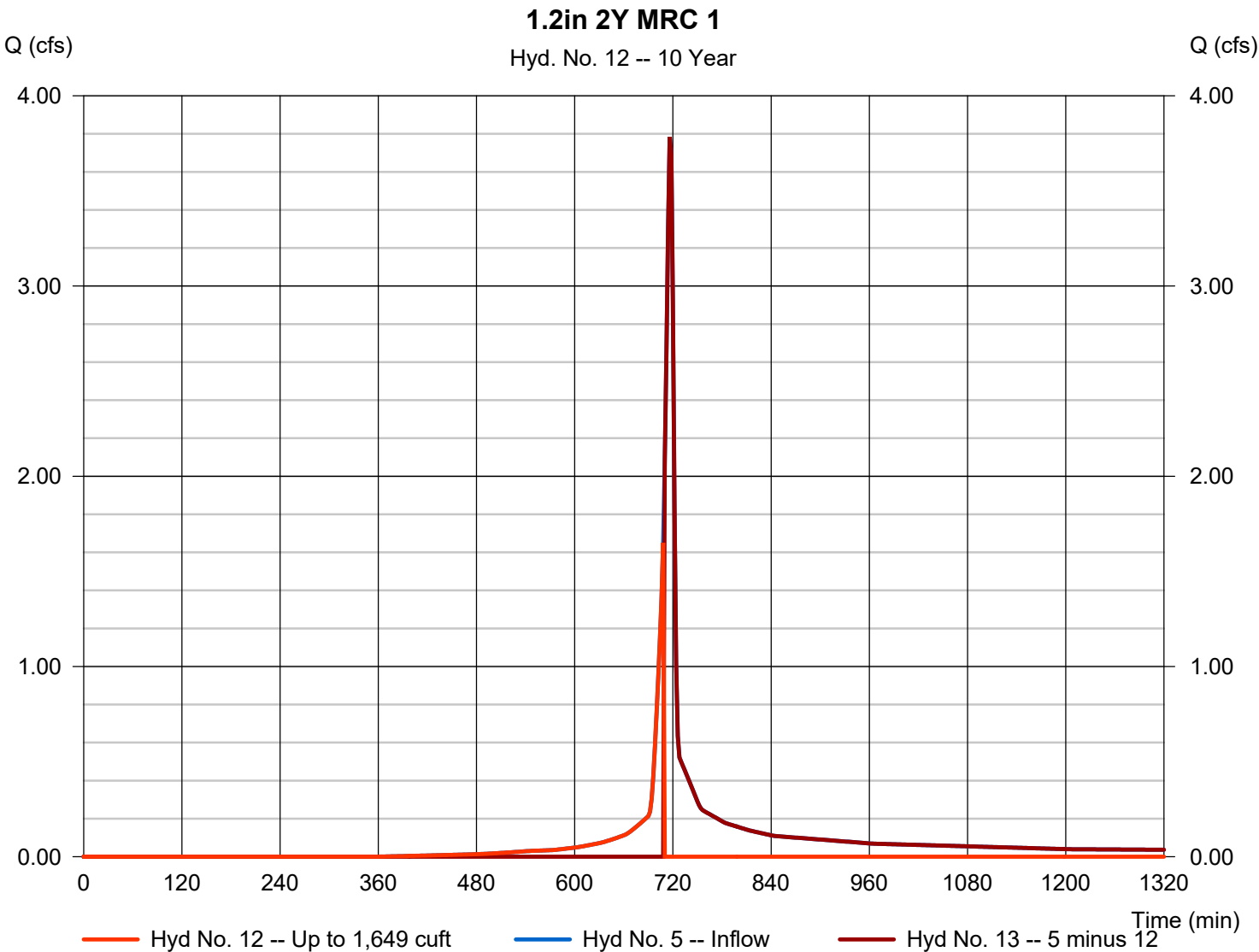


Hydrograph Report

Hyd. No. 12

1.2in 2Y MRC 1

Hydrograph type	=	Diversion1	Peak discharge	=	1.651 cfs
Storm frequency	=	10 yrs	Time to peak	=	708 min
Time interval	=	2 min	Hyd. volume	=	1,702 cuft
Inflow hydrograph	=	5 - POST DA B2	2nd diverted hyd.	=	13
Diversion method	=	First Flush Volume	Volume Up To	=	1,649 cuft

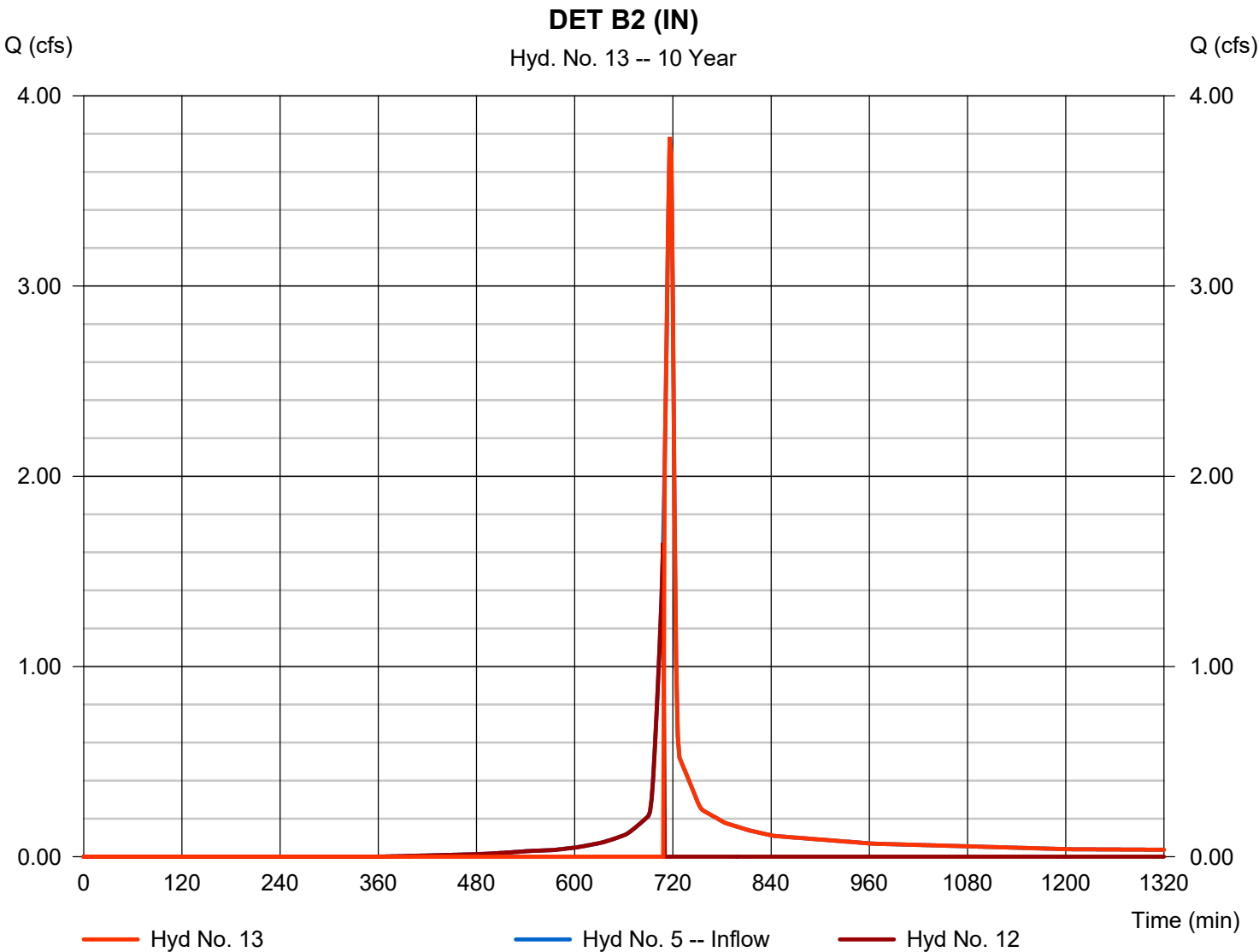


Hydrograph Report

Hyd. No. 13

DET B2 (IN)

Hydrograph type	= Diversion2	Peak discharge	= 3.784 cfs
Storm frequency	= 10 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 6,095 cuft
Inflow hydrograph	= 5 - POST DA B2	2nd diverted hyd.	= 12
Diversion method	= First Flush Volume	Volume Up To	= 1,649 cuft

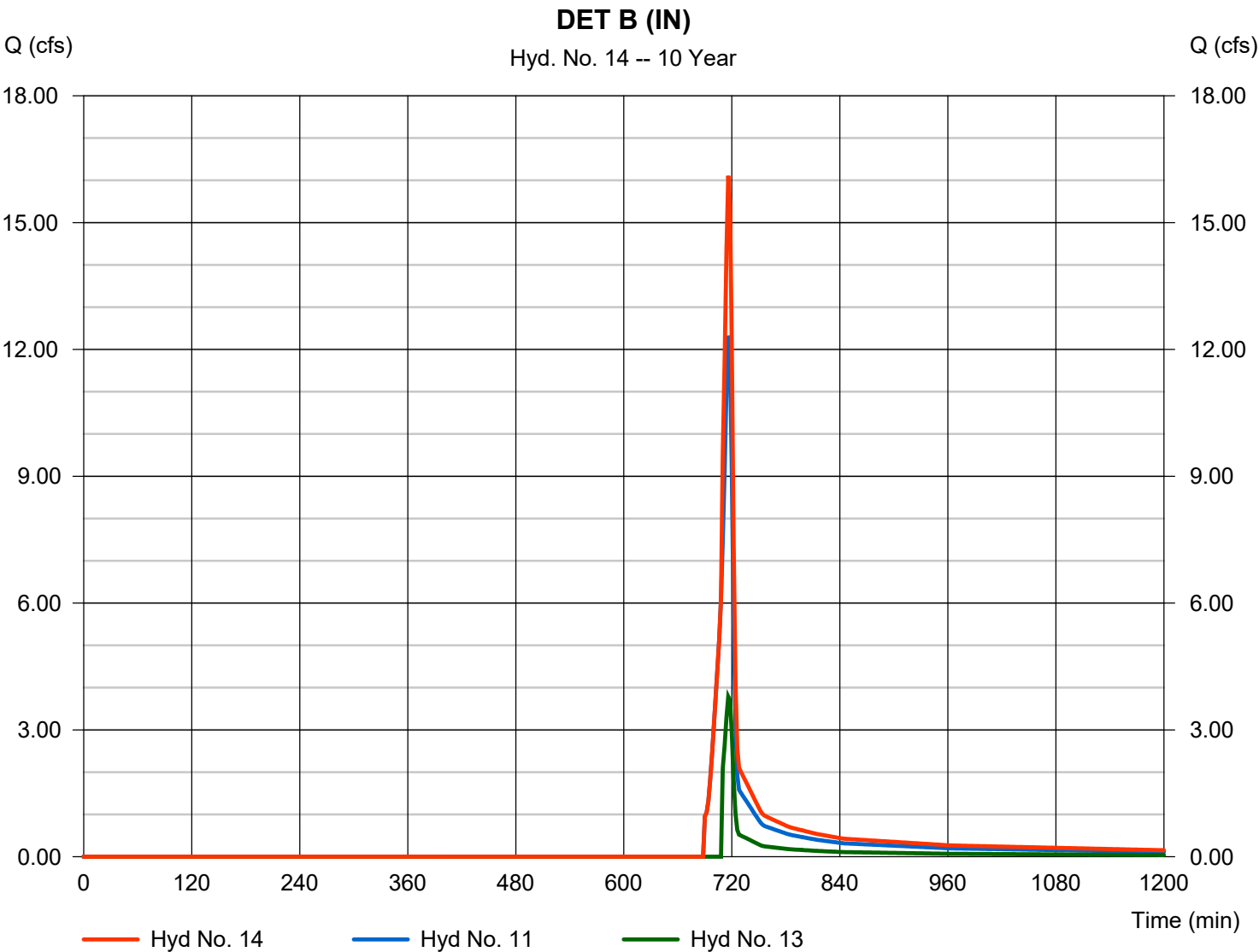


Hydrograph Report

Hyd. No. 14

DET B (IN)

Hydrograph type	= Combine	Peak discharge	= 16.11 cfs
Storm frequency	= 10 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 28,387 cuft
Inflow hyds.	= 11, 13	Contrib. drain. area	= 0.000 ac

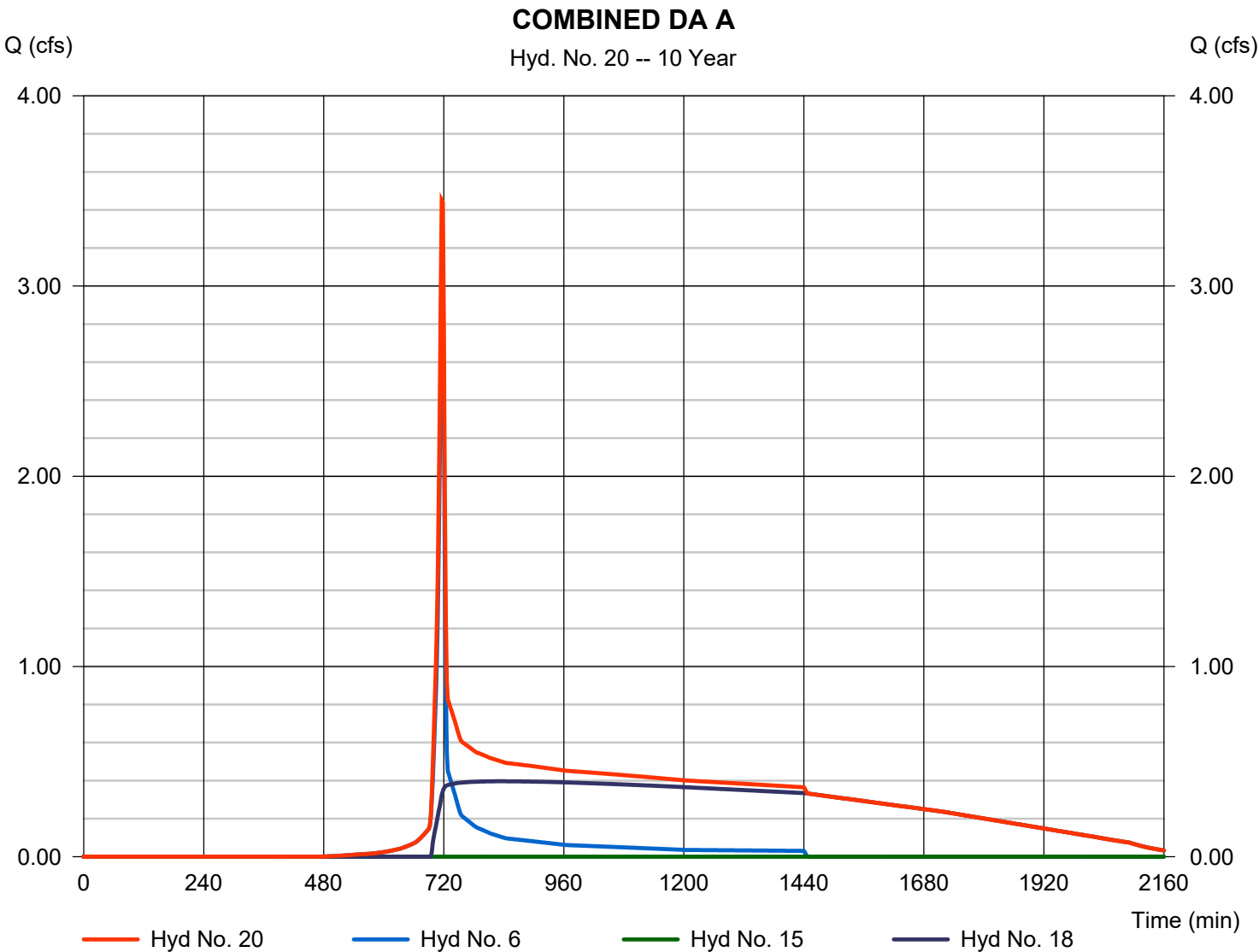


Hydrograph Report

Hyd. No. 20

COMBINED DA A

Hydrograph type	= Combine	Peak discharge	= 3.452 cfs
Storm frequency	= 10 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 31,404 cuft
Inflow hyds.	= 6, 15, 18	Contrib. drain. area	= 0.900 ac

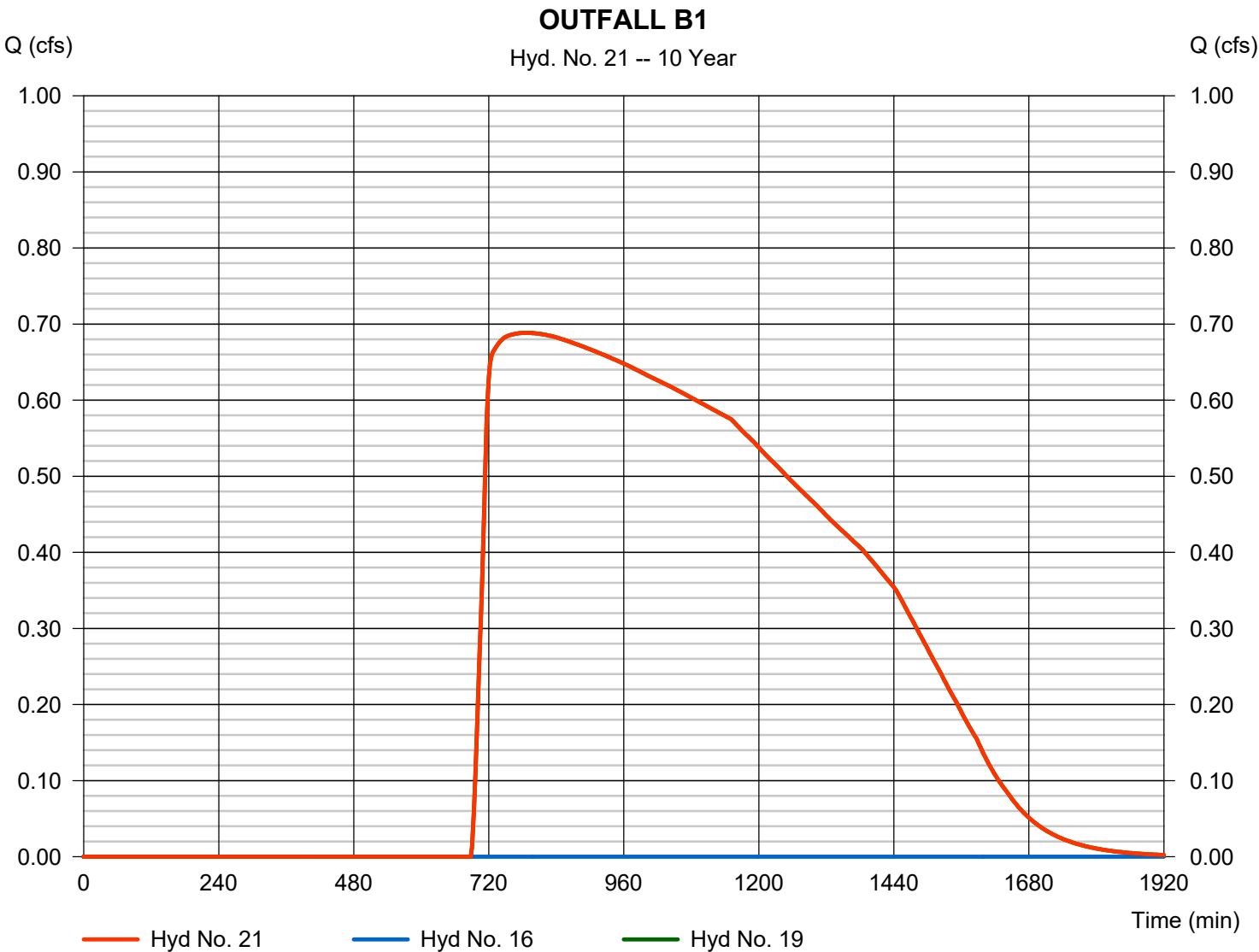


Hydrograph Report

Hyd. No. 21

OUTFALL B1

Hydrograph type	= Combine	Peak discharge	= 0.688 cfs
Storm frequency	= 10 yrs	Time to peak	= 786 min
Time interval	= 2 min	Hyd. volume	= 28,383 cuft
Inflow hyds.	= 16, 19	Contrib. drain. area	= 0.000 ac

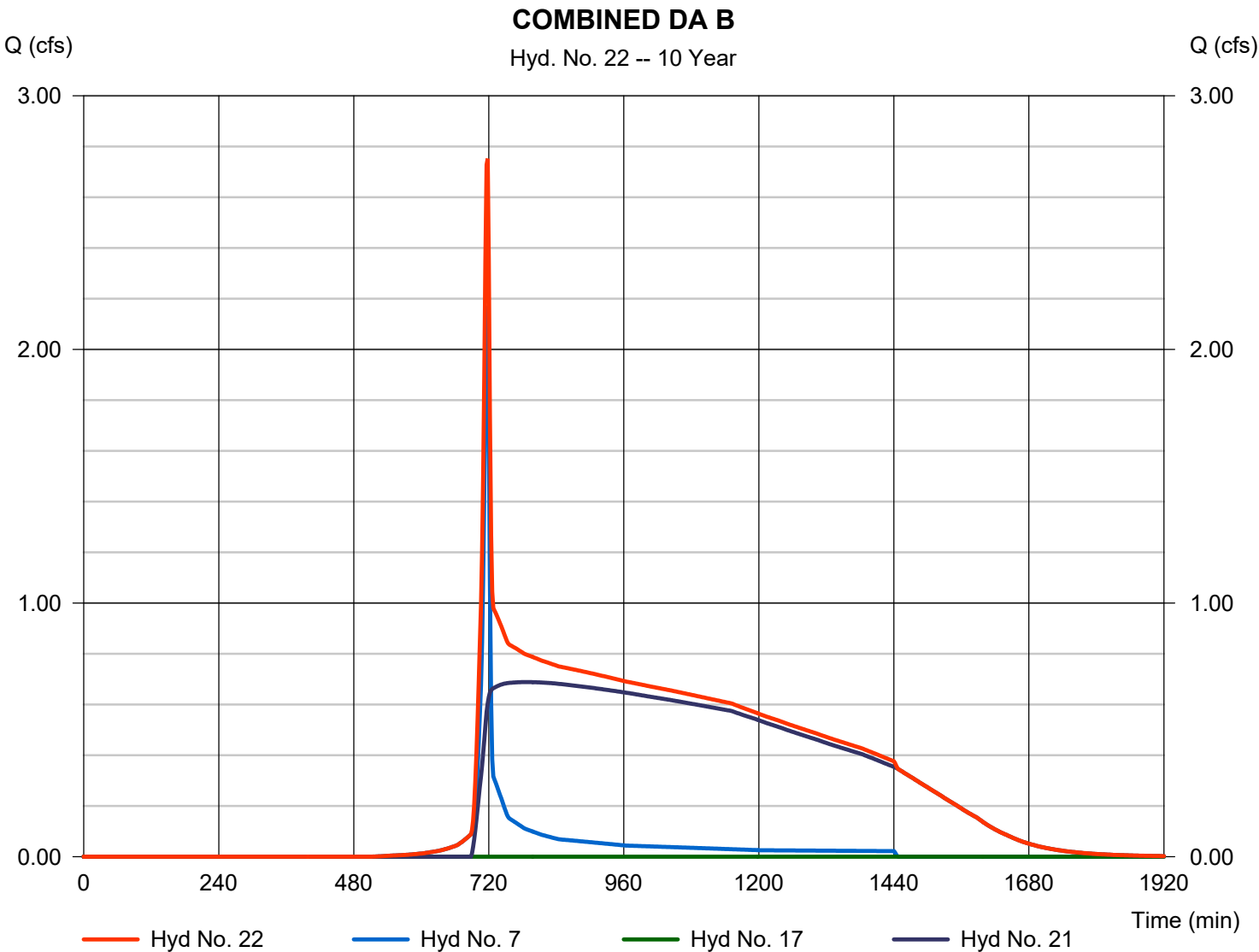


Hydrograph Report

Hyd. No. 22

COMBINED DA B

Hydrograph type	= Combine	Peak discharge	= 2.752 cfs
Storm frequency	= 10 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 32,738 cuft
Inflow hyds.	= 7, 17, 21	Contrib. drain. area	= 0.670 ac



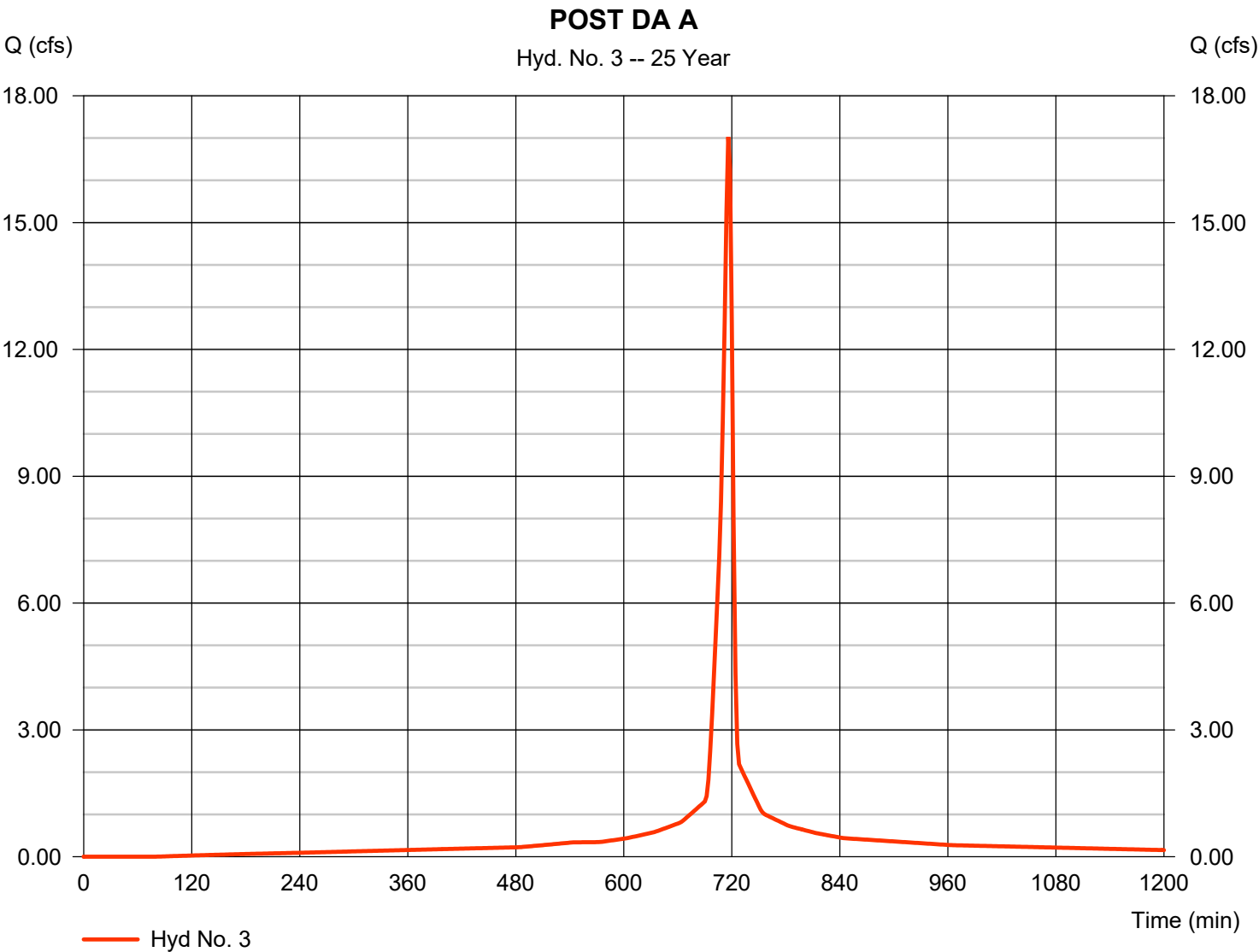
Hydrograph Report

Hyd. No. 3

POST DA A

Hydrograph type	=	SCS Runoff	Peak discharge	=	17.03 cfs
Storm frequency	=	25 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	39,709 cuft
Drainage area	=	2.740 ac	Curve number	=	97*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.61 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.750 x 80) + (1.990 x 98)] / 2.740



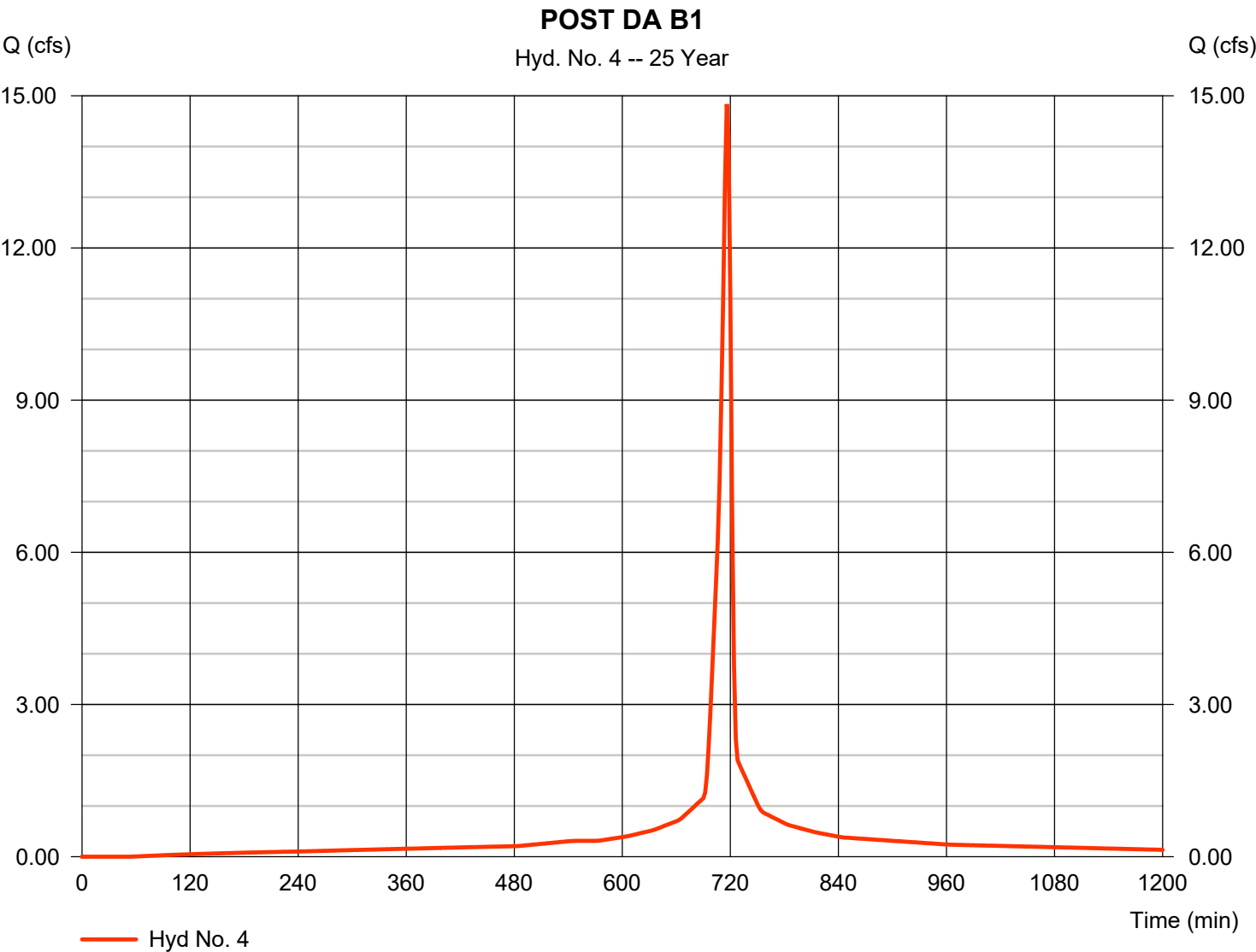
Hydrograph Report

Hyd. No. 4

POST DA B1

Hydrograph type	= SCS Runoff	Peak discharge	= 14.84 cfs
Storm frequency	= 25 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 35,277 cuft
Drainage area	= 2.370 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.61 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.580 x 80) + (1.790 x 98)] / 2.370



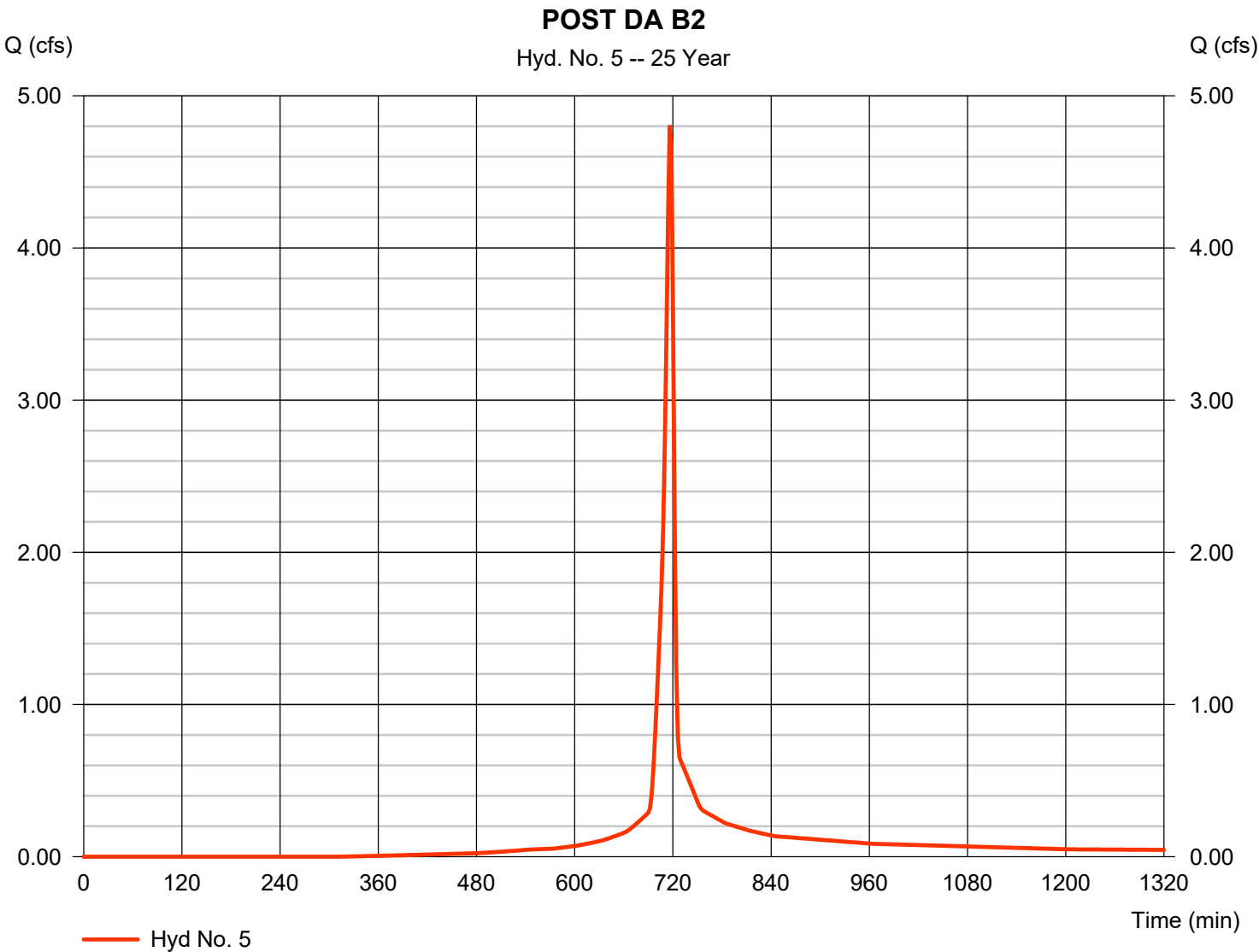
Hydrograph Report

Hyd. No. 5

POST DA B2

Hydrograph type	= SCS Runoff	Peak discharge	= 4.806 cfs
Storm frequency	= 25 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 10,024 cuft
Drainage area	= 0.920 ac	Curve number	= 87*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.61 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.540 x 80) + (0.380 x 98)] / 0.920



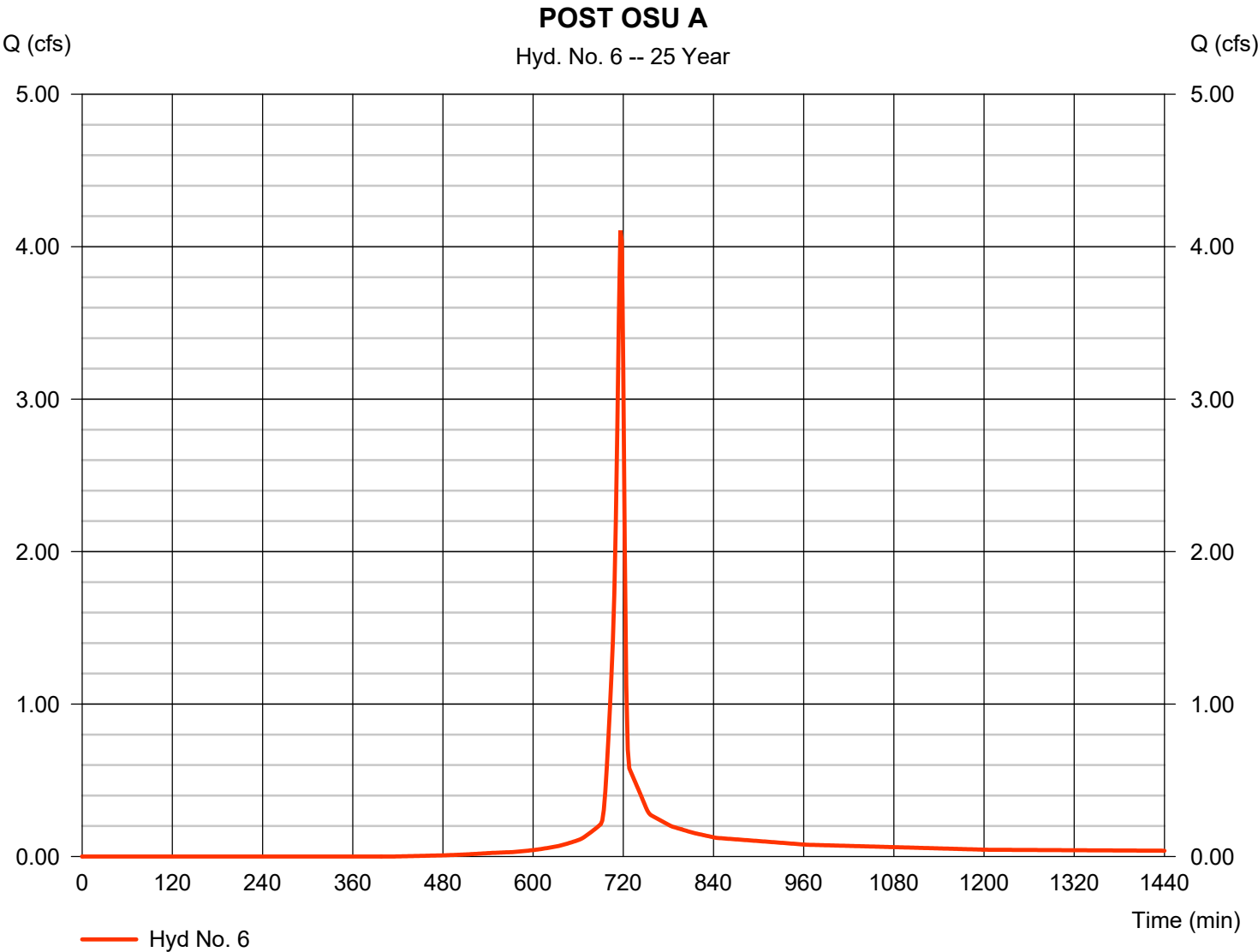
Hydrograph Report

Hyd. No. 6

POST OSU A

Hydrograph type	= SCS Runoff	Peak discharge	= 4.106 cfs
Storm frequency	= 25 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 8,370 cuft
Drainage area	= 0.900 ac	Curve number	= 82*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.61 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.820 x 80) + (0.080 x 98)] / 0.900



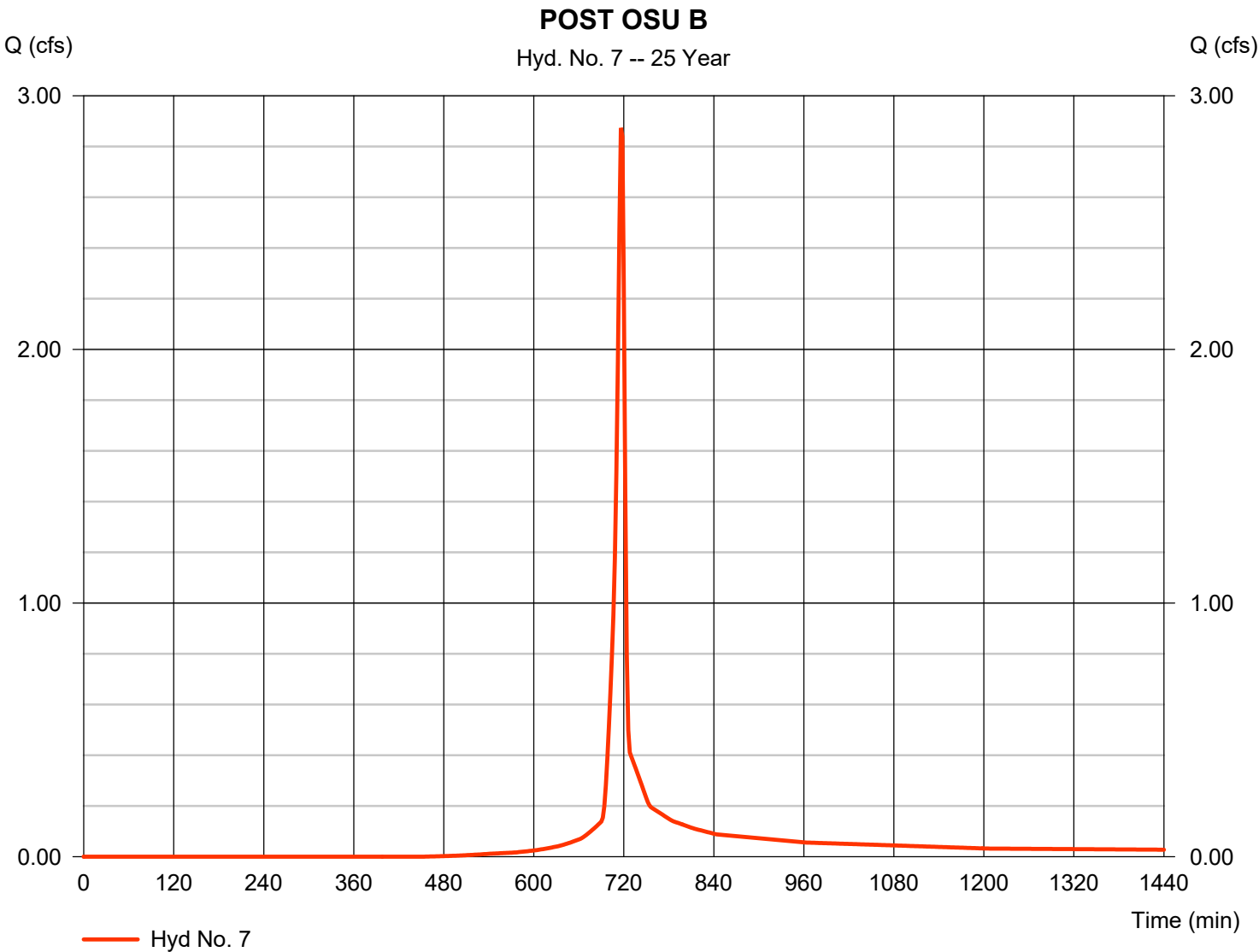
Hydrograph Report

Hyd. No. 7

POST OSU B

Hydrograph type	= SCS Runoff	Peak discharge	= 2.873 cfs
Storm frequency	= 25 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 5,827 cuft
Drainage area	= 0.670 ac	Curve number	= 80*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.61 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.670 x 80)] / 0.670

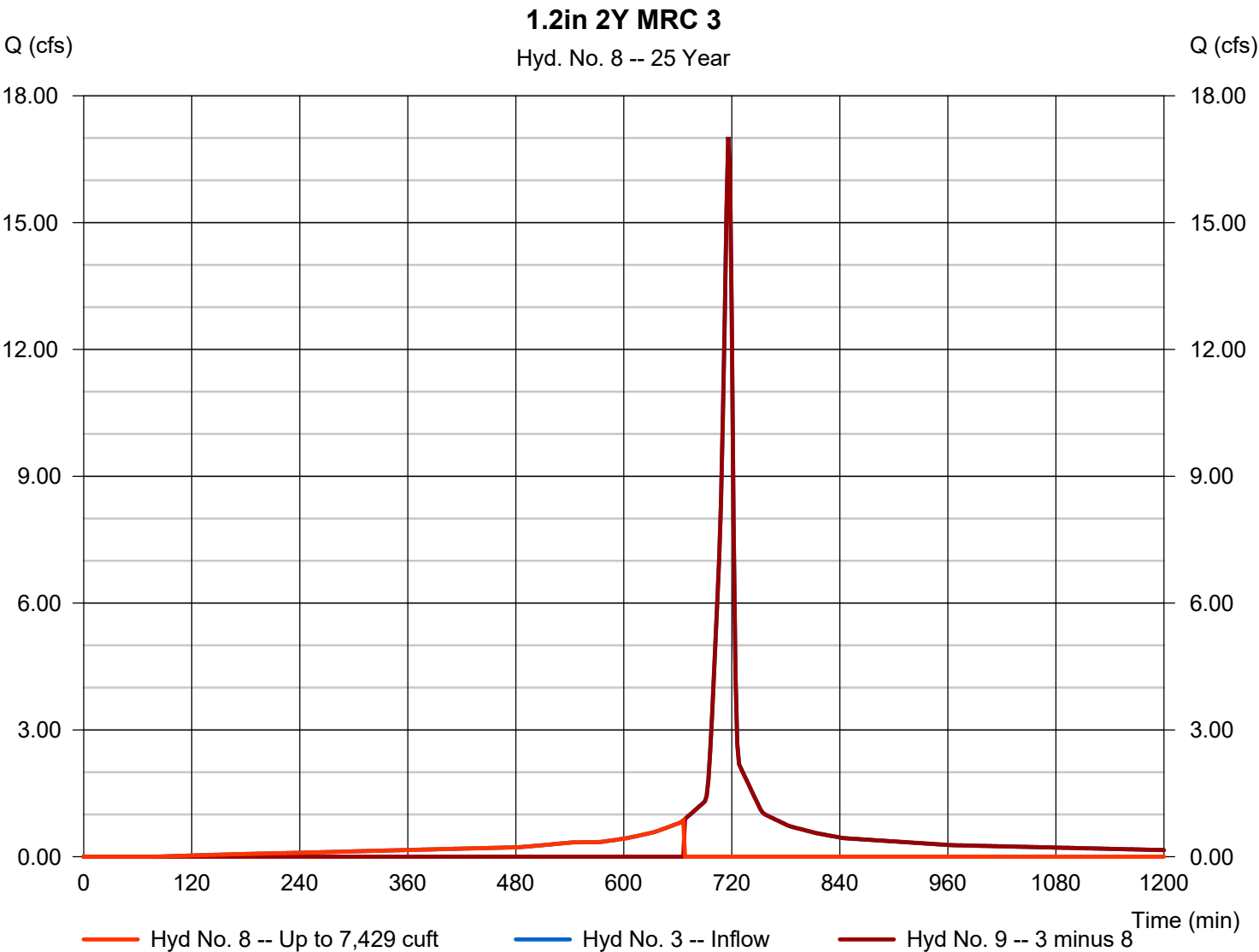


Hydrograph Report

Hyd. No. 8

1.2in 2Y MRC 3

Hydrograph type	=	Diversion1	Peak discharge	=	0.858 cfs
Storm frequency	=	25 yrs	Time to peak	=	666 min
Time interval	=	2 min	Hyd. volume	=	7,482 cuft
Inflow hydrograph	=	3 - POST DA A	2nd diverted hyd.	=	9
Diversion method	=	First Flush Volume	Volume Up To	=	7,429 cuft

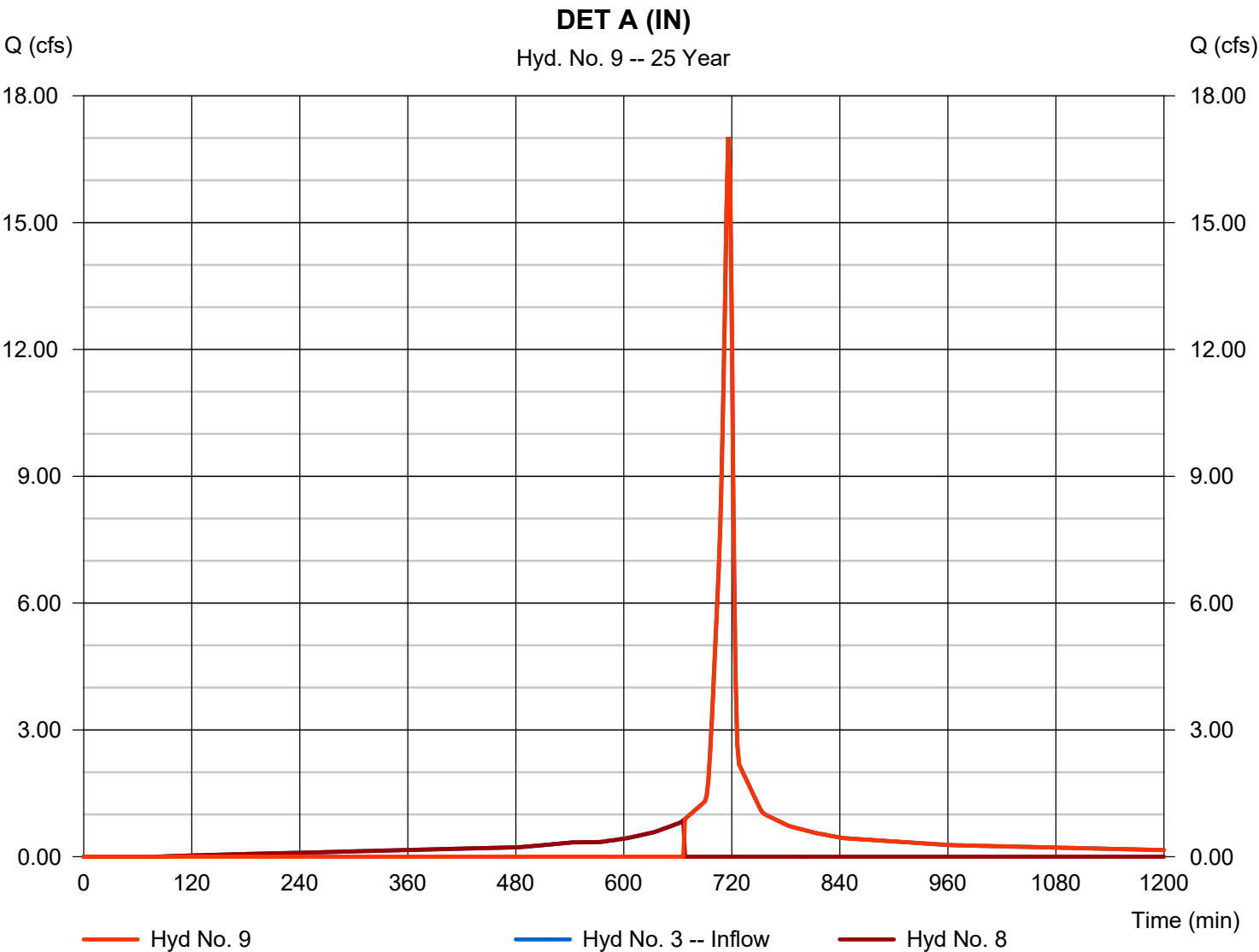


Hydrograph Report

Hyd. No. 9

DET A (IN)

Hydrograph type	=	Diversion2	Peak discharge	=	17.03 cfs
Storm frequency	=	25 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	32,227 cuft
Inflow hydrograph	=	3 - POST DA A	2nd diverted hyd.	=	8
Diversion method	=	First Flush Volume	Volume Up To	=	7,429 cuft

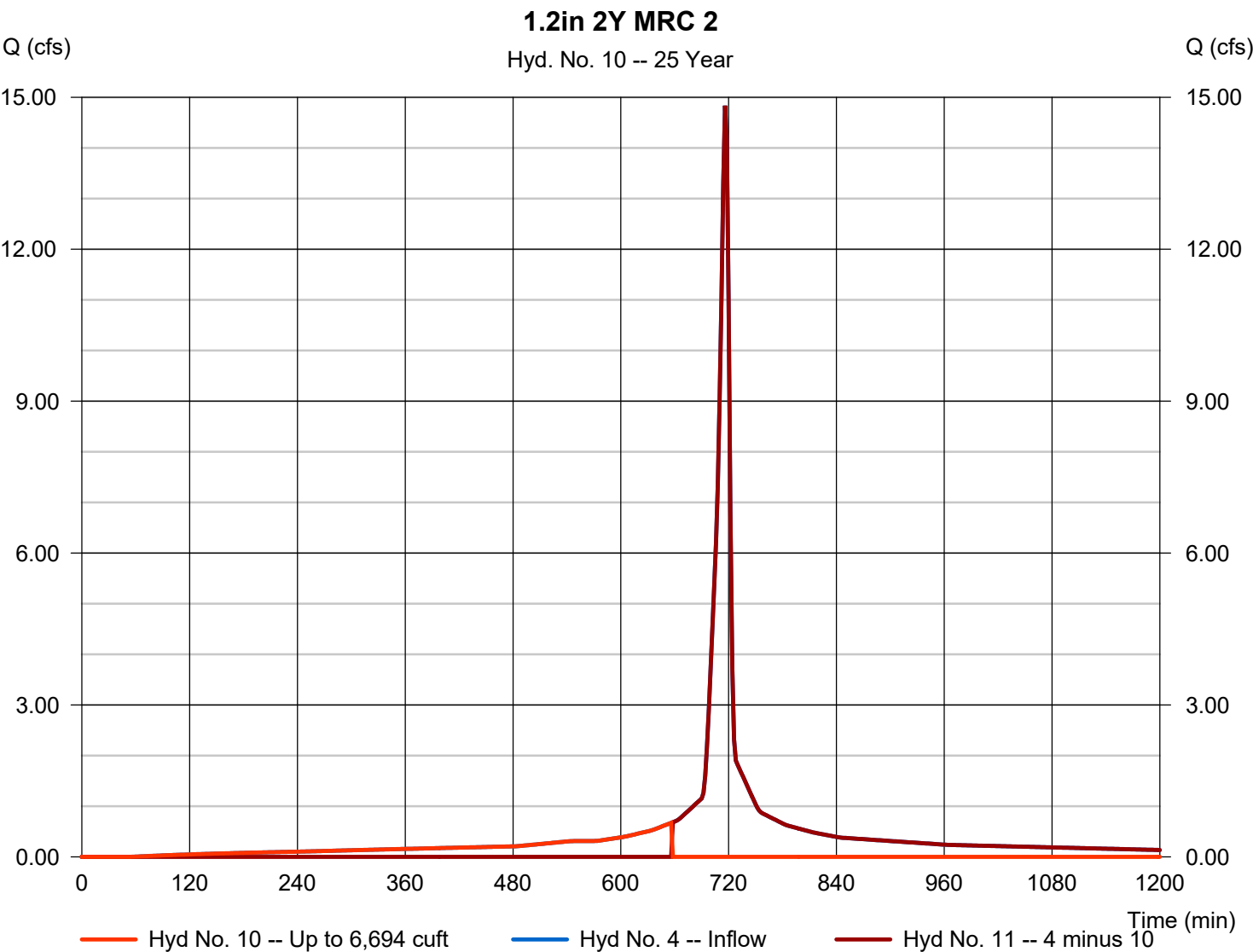


Hydrograph Report

Hyd. No. 10

1.2in 2Y MRC 2

Hydrograph type	= Diversion1	Peak discharge	= 0.671 cfs
Storm frequency	= 25 yrs	Time to peak	= 656 min
Time interval	= 2 min	Hyd. volume	= 6,752 cuft
Inflow hydrograph	= 4 - POST DA B1	2nd diverted hyd.	= 11
Diversion method	= First Flush Volume	Volume Up To	= 6,694 cuft

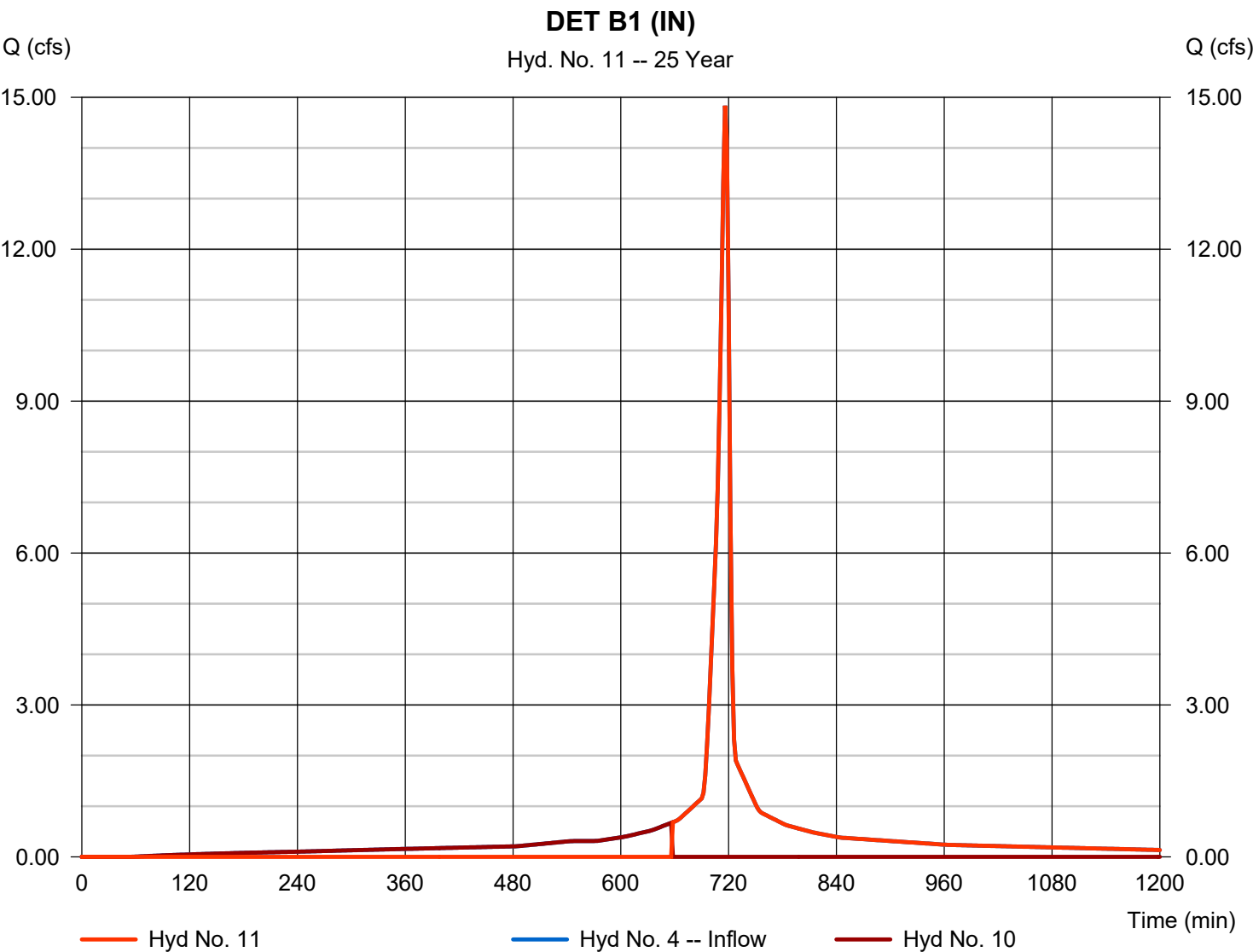


Hydrograph Report

Hyd. No. 11

DET B1 (IN)

Hydrograph type	= Diversion2	Peak discharge	= 14.84 cfs
Storm frequency	= 25 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 28,524 cuft
Inflow hydrograph	= 4 - POST DA B1	2nd diverted hyd.	= 10
Diversion method	= First Flush Volume	Volume Up To	= 6,694 cuft

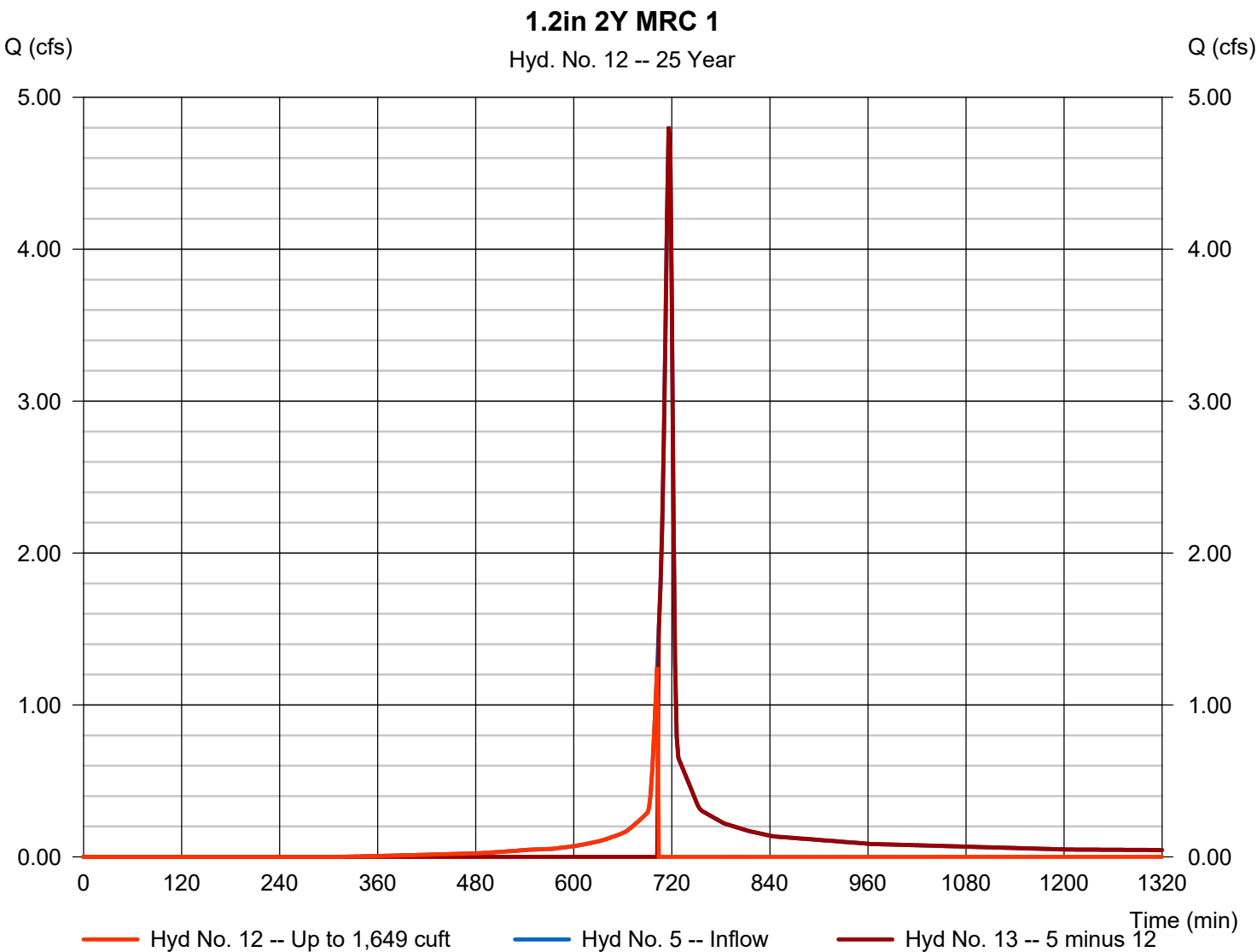


Hydrograph Report

Hyd. No. 12

1.2in 2Y MRC 1

Hydrograph type	=	Diversion1	Peak discharge	=	1.247 cfs
Storm frequency	=	25 yrs	Time to peak	=	702 min
Time interval	=	2 min	Hyd. volume	=	1,739 cuft
Inflow hydrograph	=	5 - POST DA B2	2nd diverted hyd.	=	13
Diversion method	=	First Flush Volume	Volume Up To	=	1,649 cuft

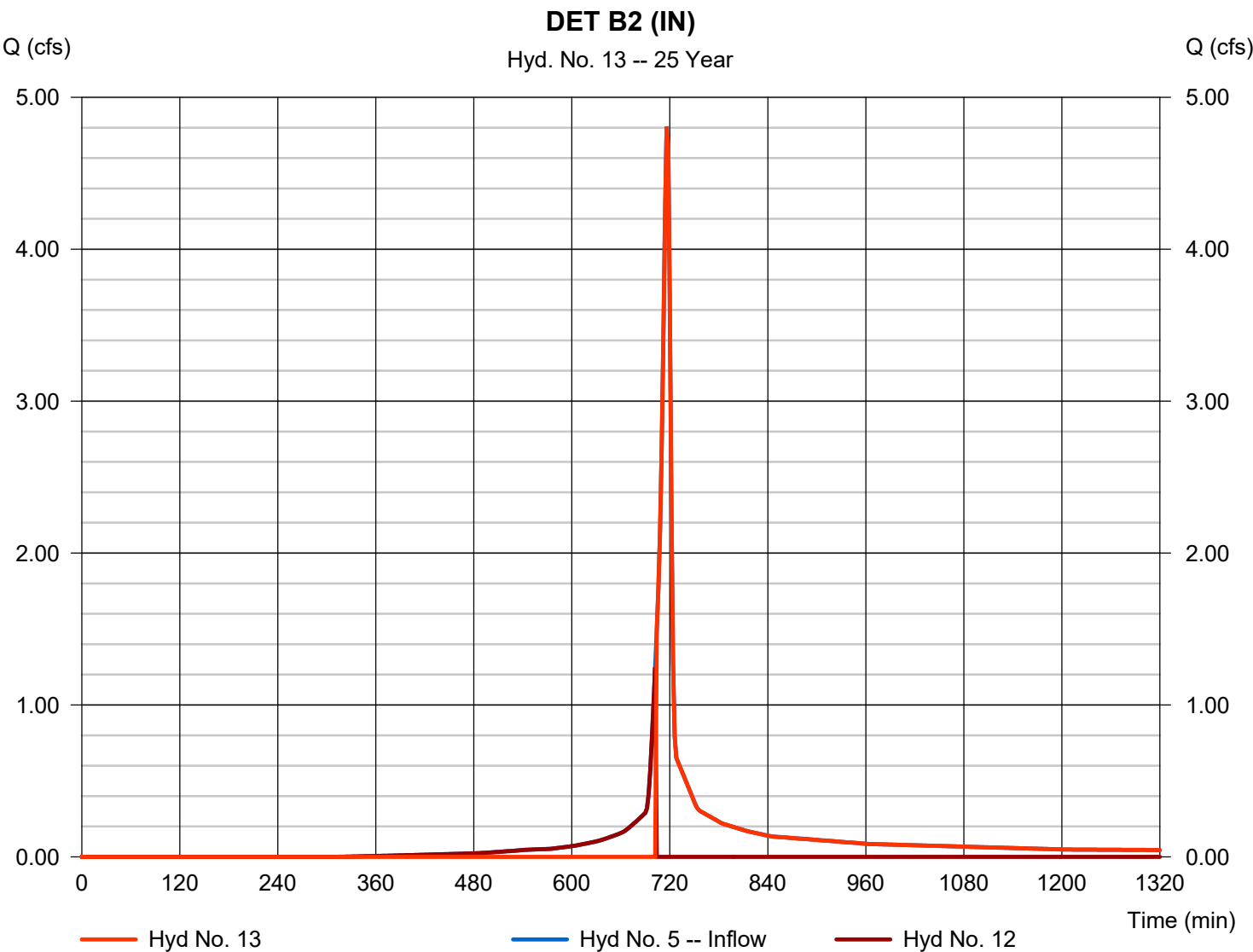


Hydrograph Report

Hyd. No. 13

DET B2 (IN)

Hydrograph type	=	Diversion2	Peak discharge	=	4.806 cfs
Storm frequency	=	25 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	8,285 cuft
Inflow hydrograph	=	5 - POST DA B2	2nd diverted hyd.	=	12
Diversion method	=	First Flush Volume	Volume Up To	=	1,649 cuft

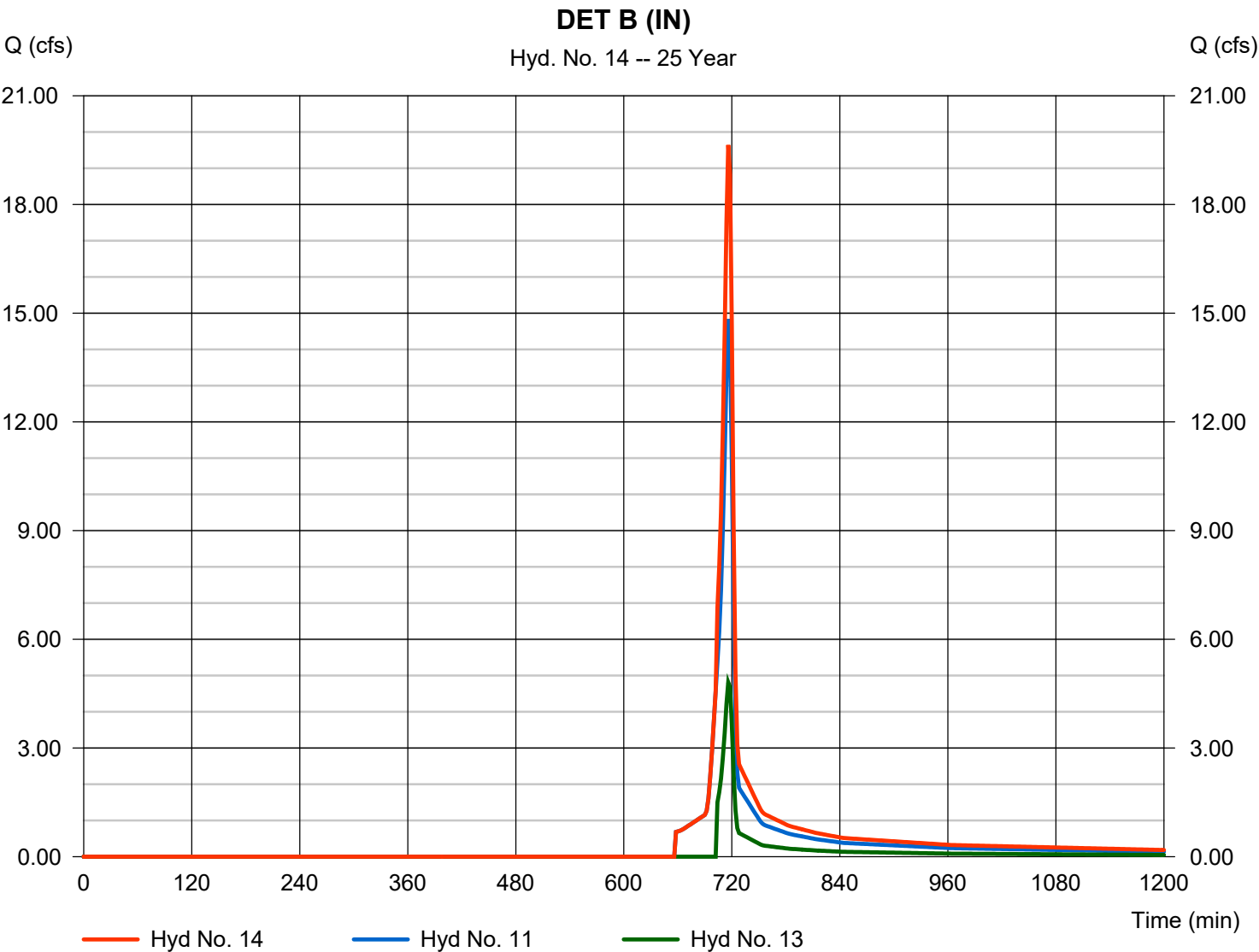


Hydrograph Report

Hyd. No. 14

DET B (IN)

Hydrograph type	= Combine	Peak discharge	= 19.64 cfs
Storm frequency	= 25 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 36,809 cuft
Inflow hyds.	= 11, 13	Contrib. drain. area	= 0.000 ac

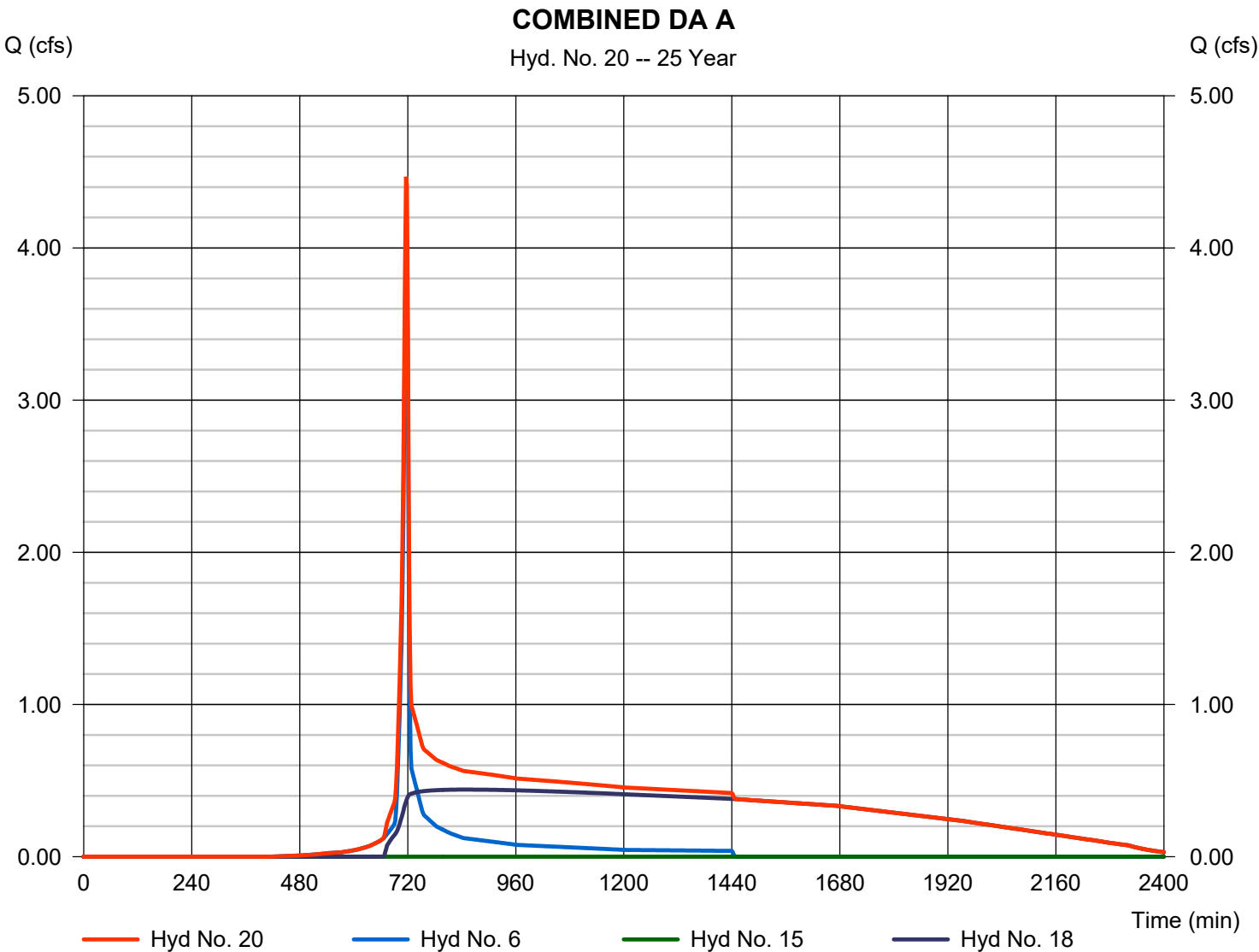


Hydrograph Report

Hyd. No. 20

COMBINED DA A

Hydrograph type	= Combine	Peak discharge	= 4.468 cfs
Storm frequency	= 25 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 40,592 cuft
Inflow hyds.	= 6, 15, 18	Contrib. drain. area	= 0.900 ac

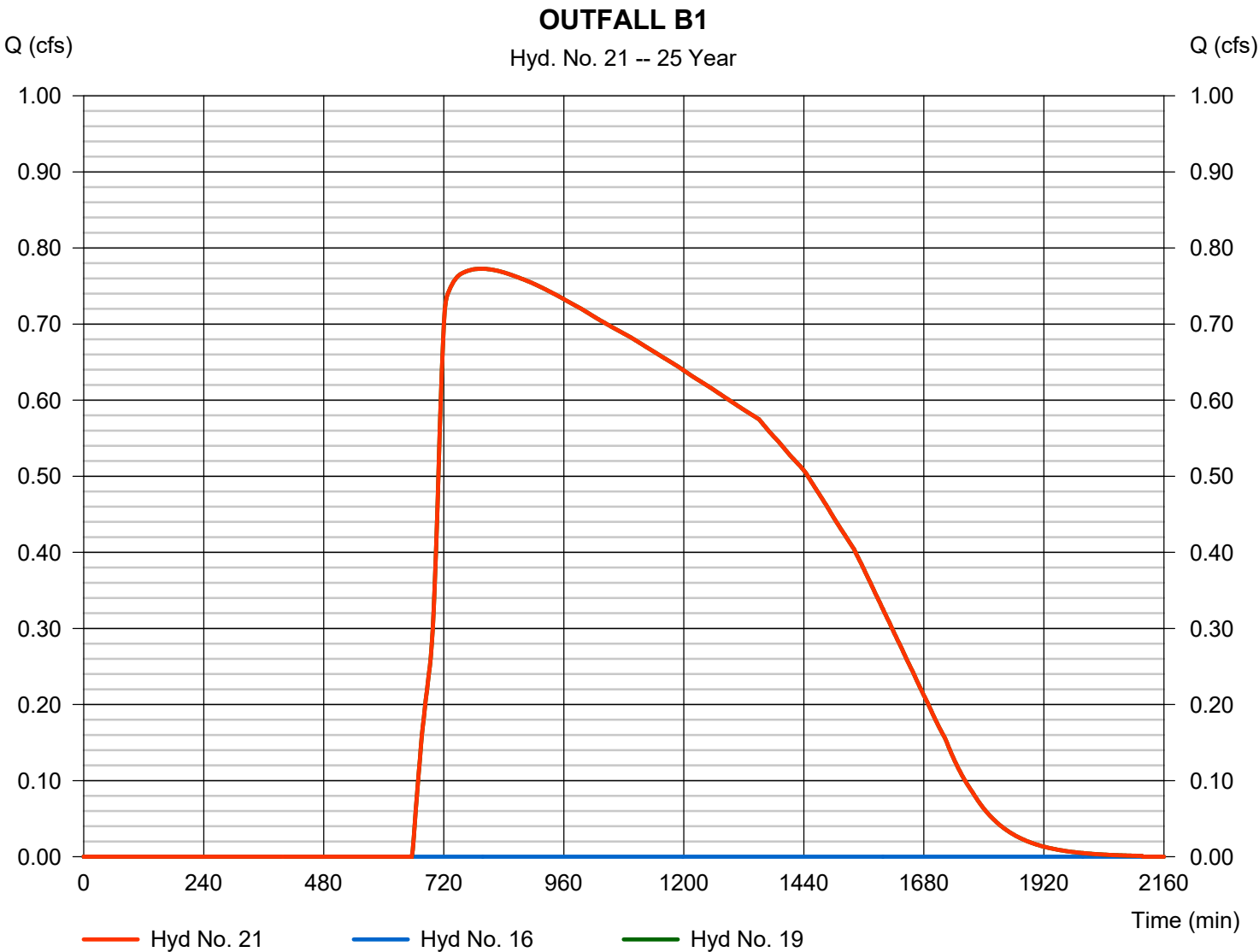


Hydrograph Report

Hyd. No. 21

OUTFALL B1

Hydrograph type	= Combine	Peak discharge	= 0.773 cfs
Storm frequency	= 25 yrs	Time to peak	= 796 min
Time interval	= 2 min	Hyd. volume	= 36,804 cuft
Inflow hyds.	= 16, 19	Contrib. drain. area	= 0.000 ac

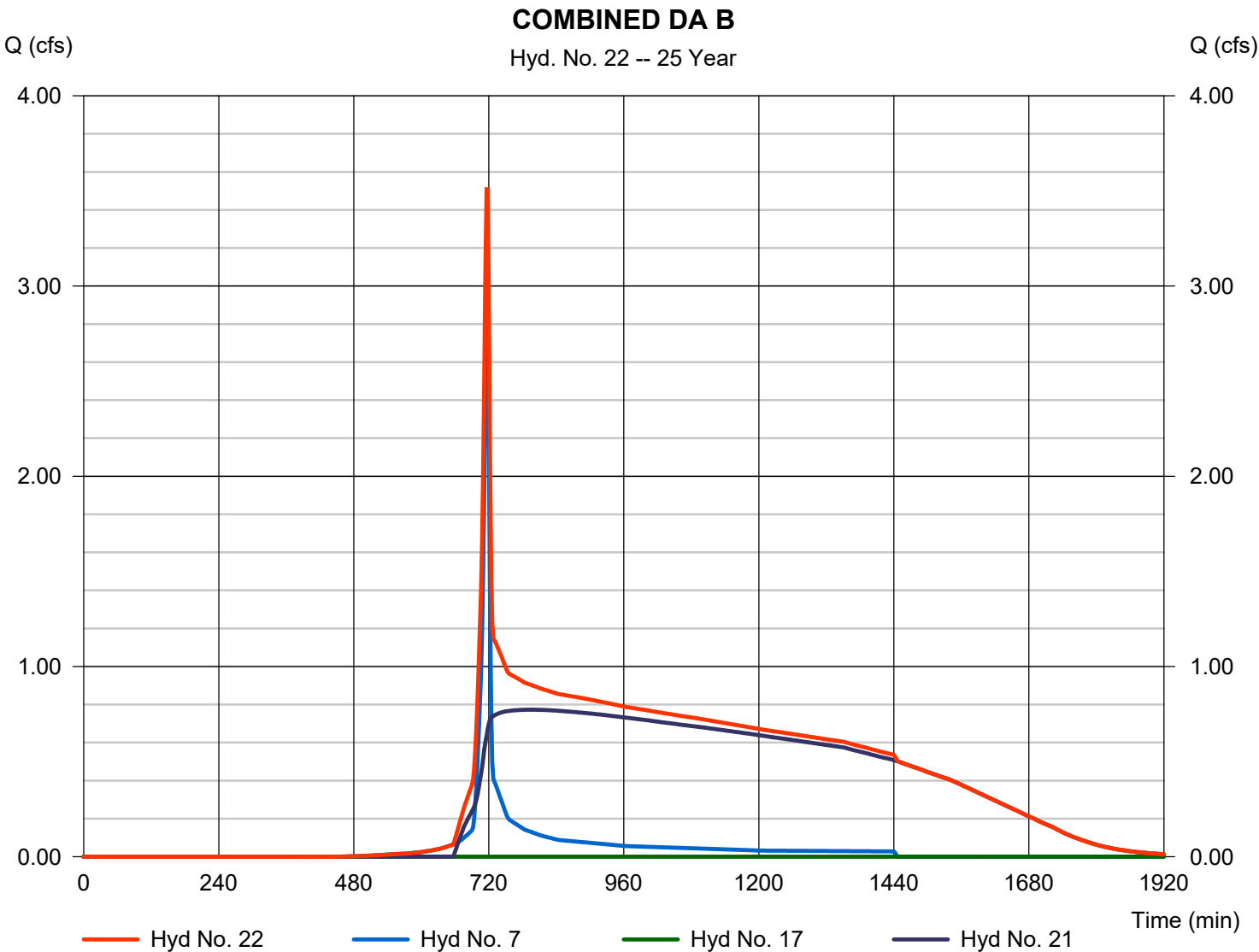


Hydrograph Report

Hyd. No. 22

COMBINED DA B

Hydrograph type	= Combine	Peak discharge	= 3.509 cfs
Storm frequency	= 25 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 42,631 cuft
Inflow hyds.	= 7, 17, 21	Contrib. drain. area	= 0.670 ac



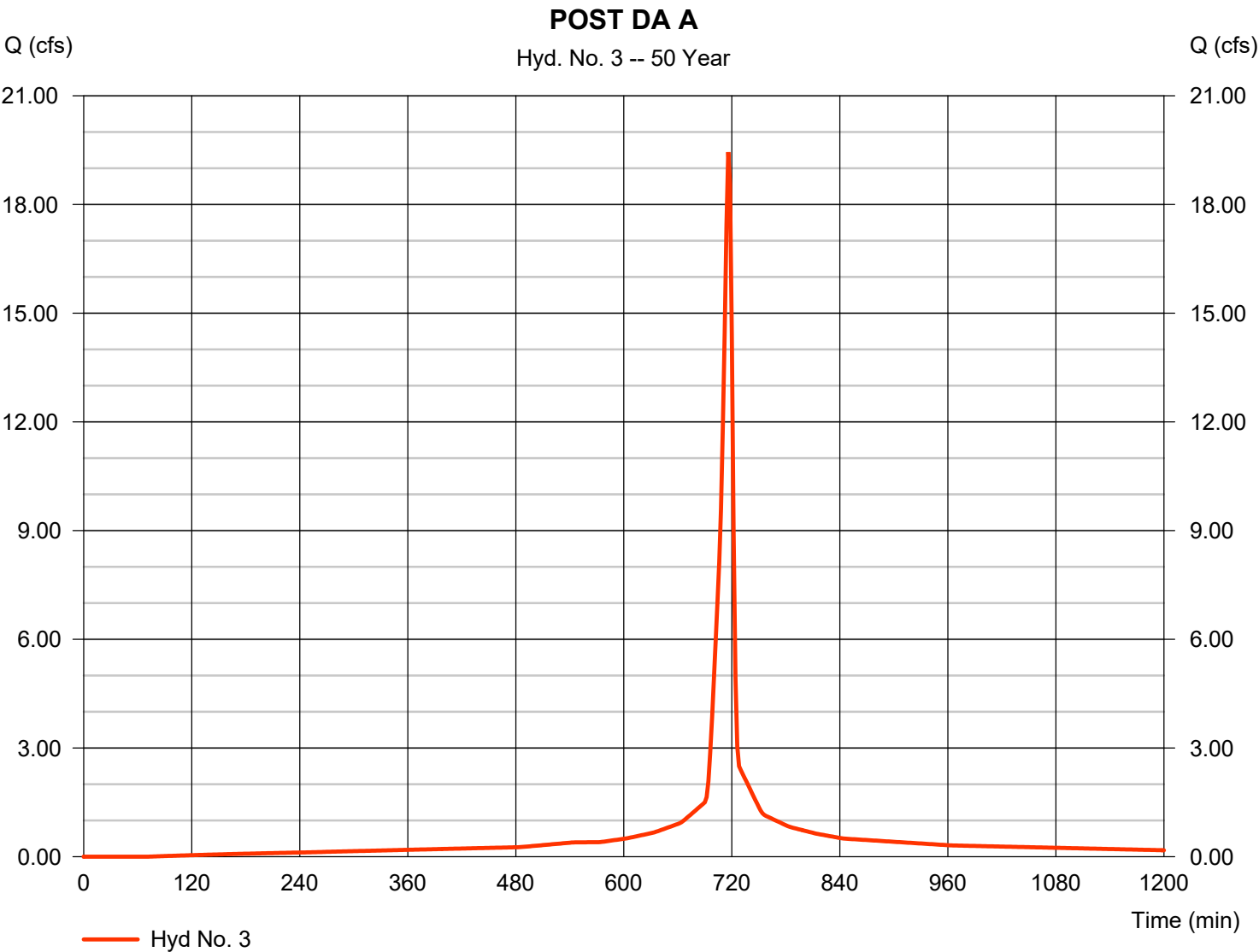
Hydrograph Report

Hyd. No. 3

POST DA A

Hydrograph type	=	SCS Runoff	Peak discharge	=	19.45 cfs
Storm frequency	=	50 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	45,656 cuft
Drainage area	=	2.740 ac	Curve number	=	97*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.25 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.750 x 80) + (1.990 x 98)] / 2.740



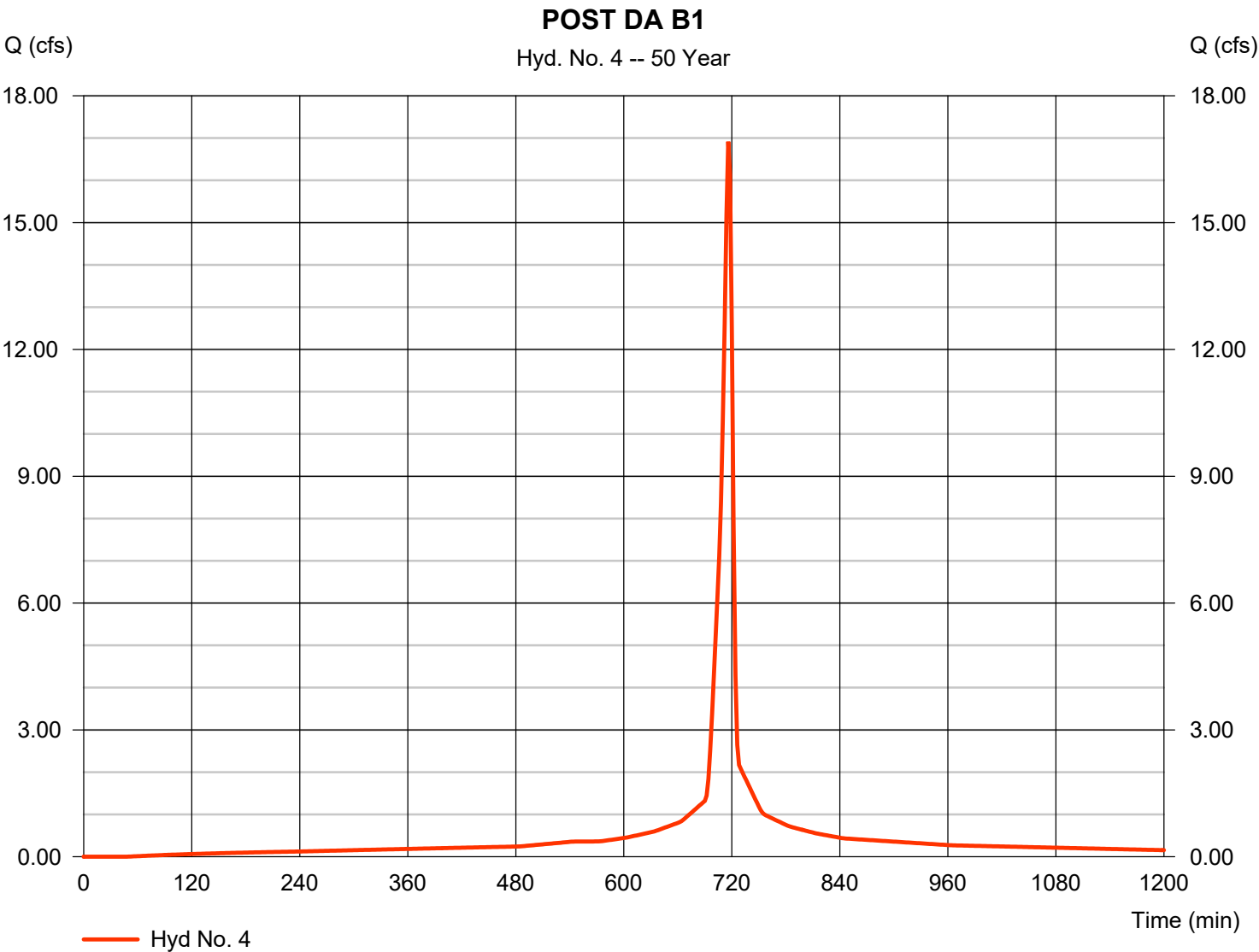
Hydrograph Report

Hyd. No. 4

POST DA B1

Hydrograph type	=	SCS Runoff	Peak discharge	=	16.92 cfs
Storm frequency	=	50 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	40,430 cuft
Drainage area	=	2.370 ac	Curve number	=	98*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.25 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.580 x 80) + (1.790 x 98)] / 2.370



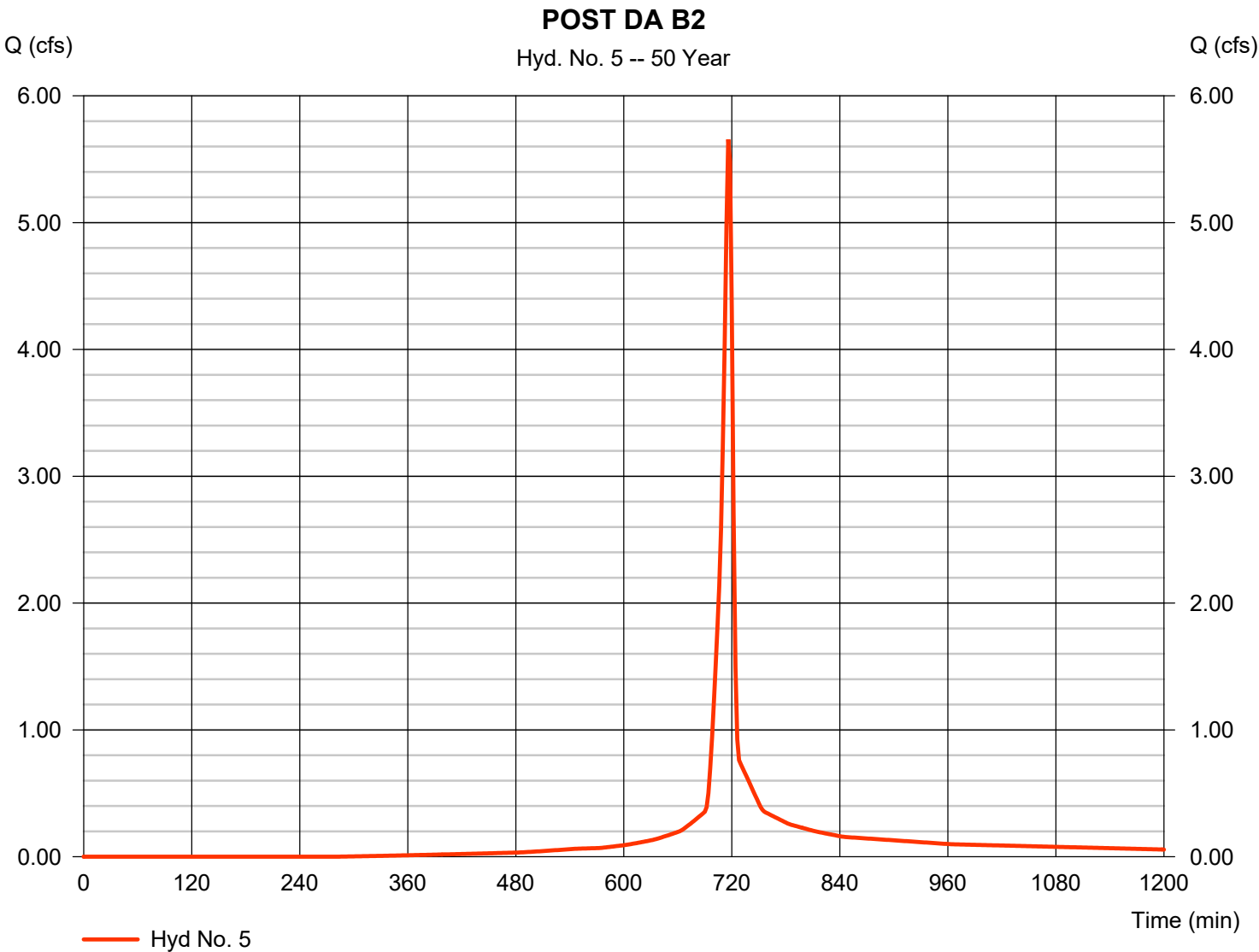
Hydrograph Report

Hyd. No. 5

POST DA B2

Hydrograph type	= SCS Runoff	Peak discharge	= 5.656 cfs
Storm frequency	= 50 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 11,908 cuft
Drainage area	= 0.920 ac	Curve number	= 87*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.25 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.540 x 80) + (0.380 x 98)] / 0.920



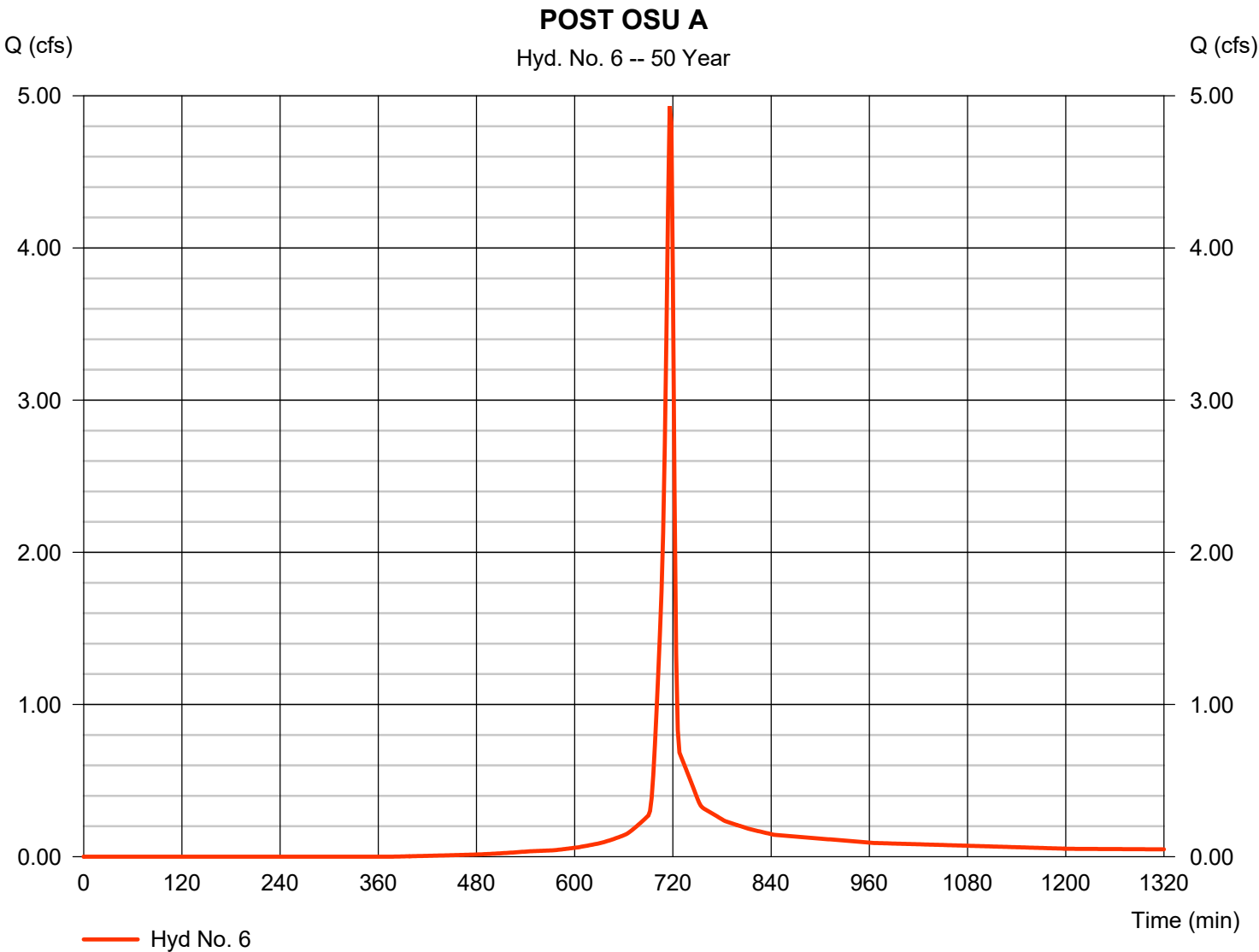
Hydrograph Report

Hyd. No. 6

POST OSU A

Hydrograph type	= SCS Runoff	Peak discharge	= 4.931 cfs
Storm frequency	= 50 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 10,118 cuft
Drainage area	= 0.900 ac	Curve number	= 82*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.25 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.820 x 80) + (0.080 x 98)] / 0.900



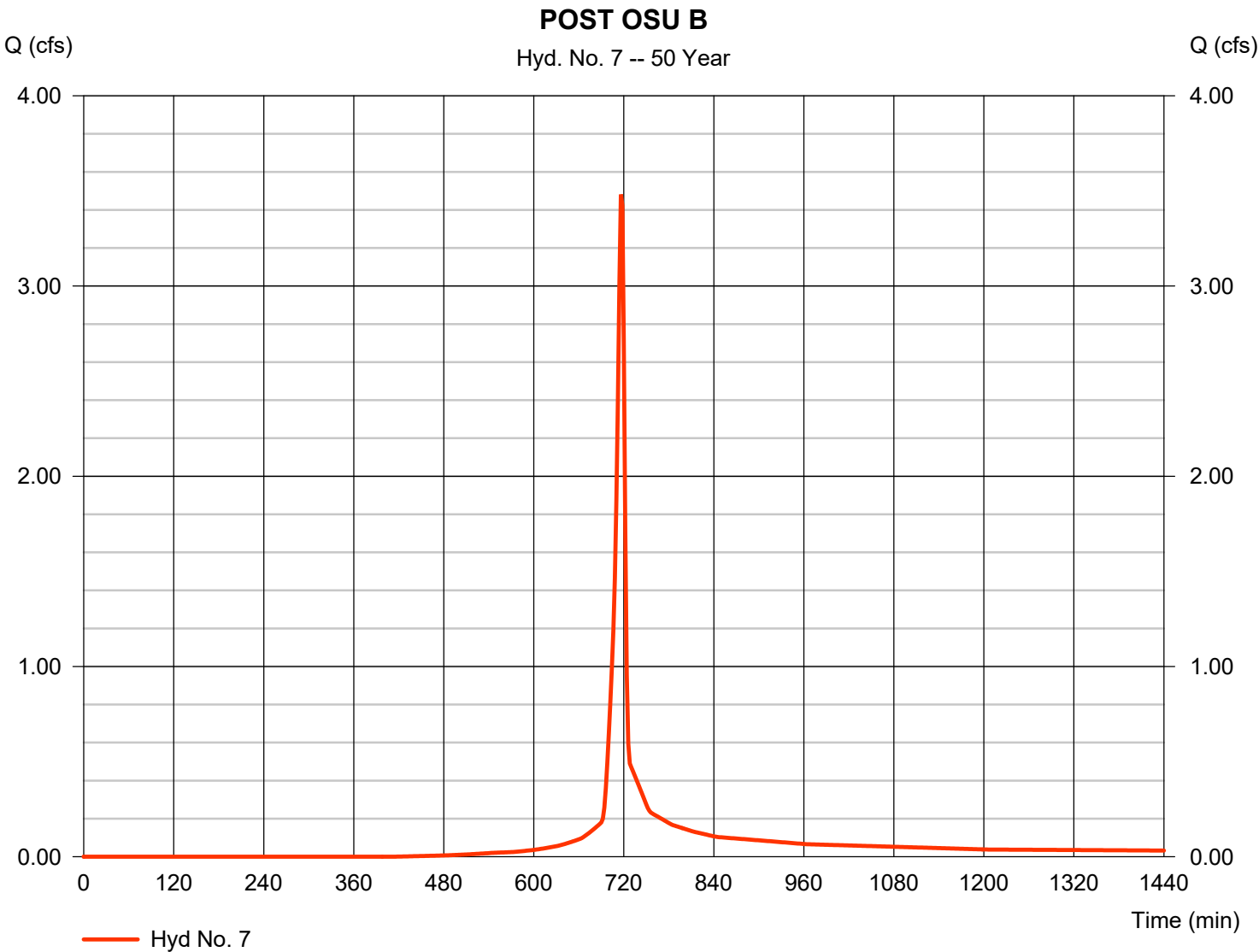
Hydrograph Report

Hyd. No. 7

POST OSU B

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.481 cfs
Storm frequency	=	50 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	7,096 cuft
Drainage area	=	0.670 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.25 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.670 x 80)] / 0.670

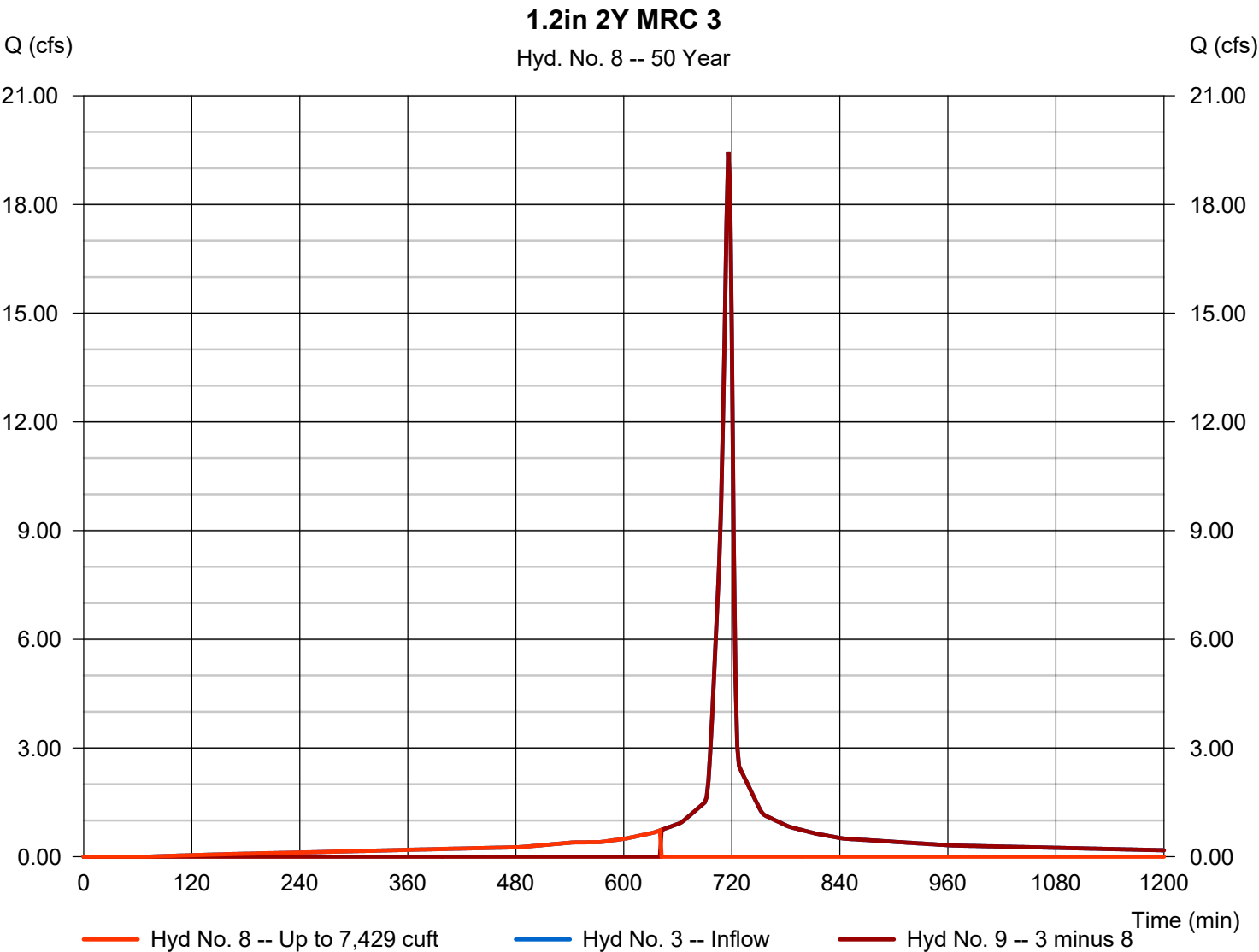


Hydrograph Report

Hyd. No. 8

1.2in 2Y MRC 3

Hydrograph type	=	Diversion1	Peak discharge	=	0.724 cfs
Storm frequency	=	50 yrs	Time to peak	=	640 min
Time interval	=	2 min	Hyd. volume	=	7,512 cuft
Inflow hydrograph	=	3 - POST DA A	2nd diverted hyd.	=	9
Diversion method	=	First Flush Volume	Volume Up To	=	7,429 cuft

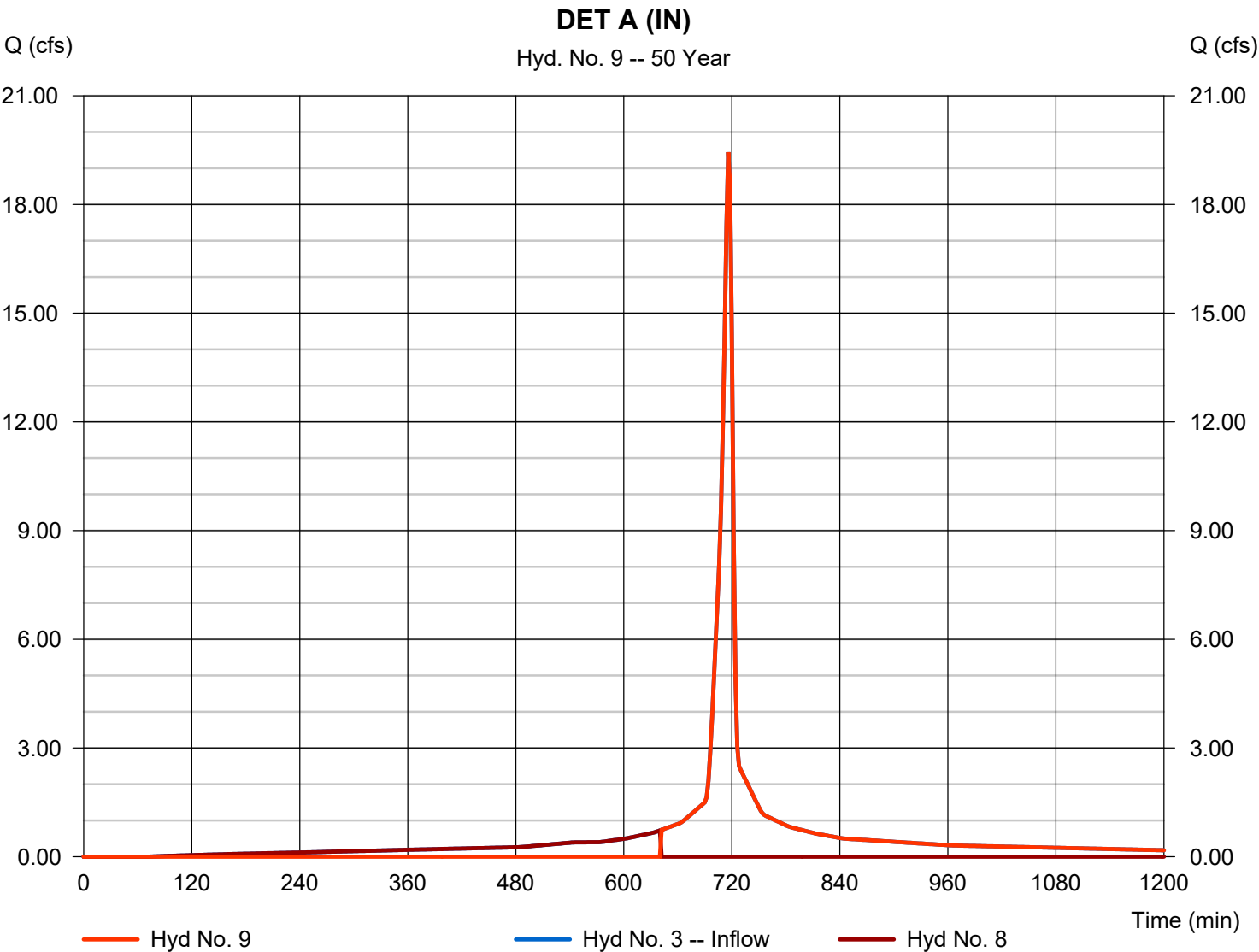


Hydrograph Report

Hyd. No. 9

DET A (IN)

Hydrograph type	= Diversion2	Peak discharge	= 19.45 cfs
Storm frequency	= 50 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 38,144 cuft
Inflow hydrograph	= 3 - POST DA A	2nd diverted hyd.	= 8
Diversion method	= First Flush Volume	Volume Up To	= 7,429 cuft

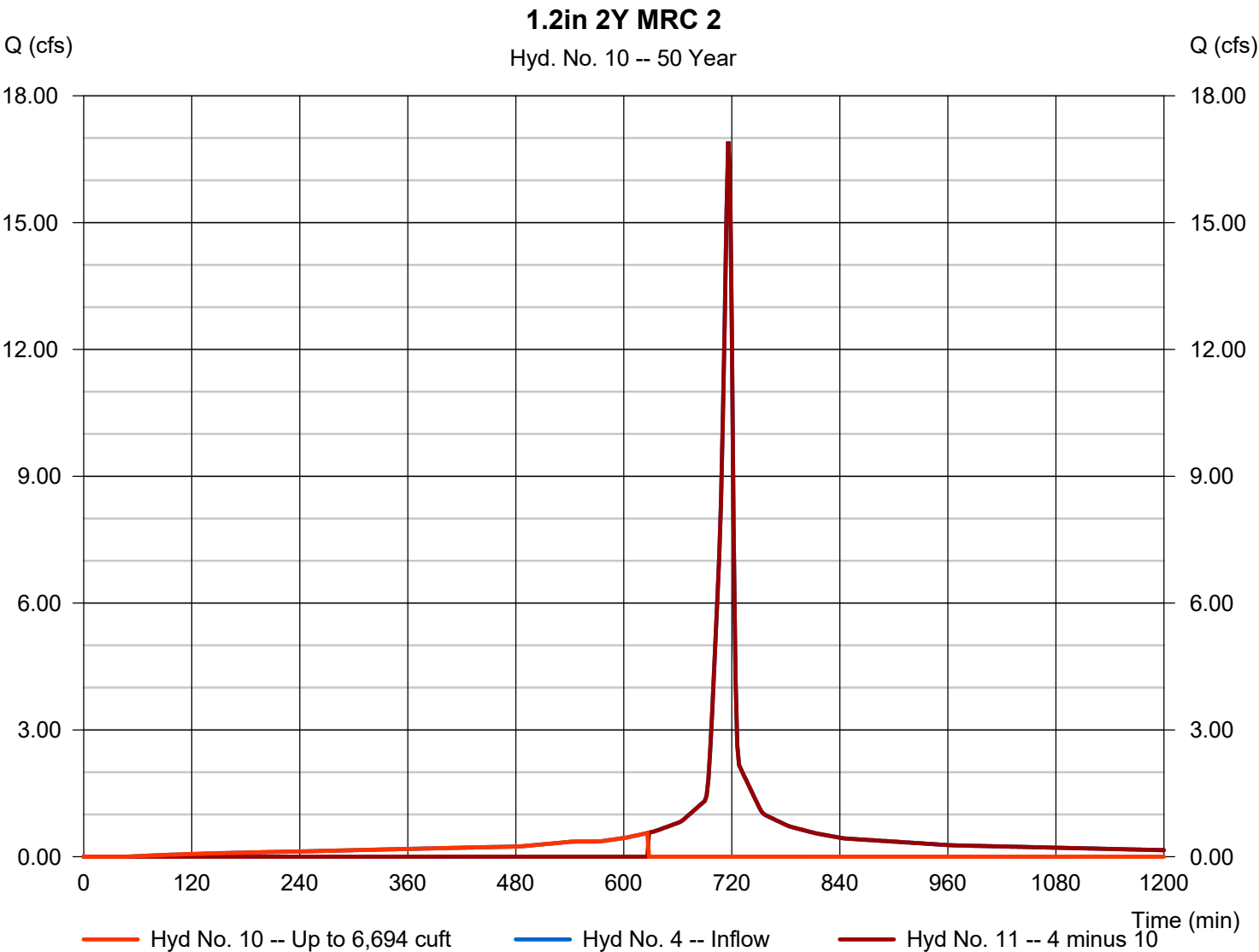


Hydrograph Report

Hyd. No. 10

1.2in 2Y MRC 2

Hydrograph type	= Diversion1	Peak discharge	= 0.559 cfs
Storm frequency	= 50 yrs	Time to peak	= 626 min
Time interval	= 2 min	Hyd. volume	= 6,704 cuft
Inflow hydrograph	= 4 - POST DA B1	2nd diverted hyd.	= 11
Diversion method	= First Flush Volume	Volume Up To	= 6,694 cuft

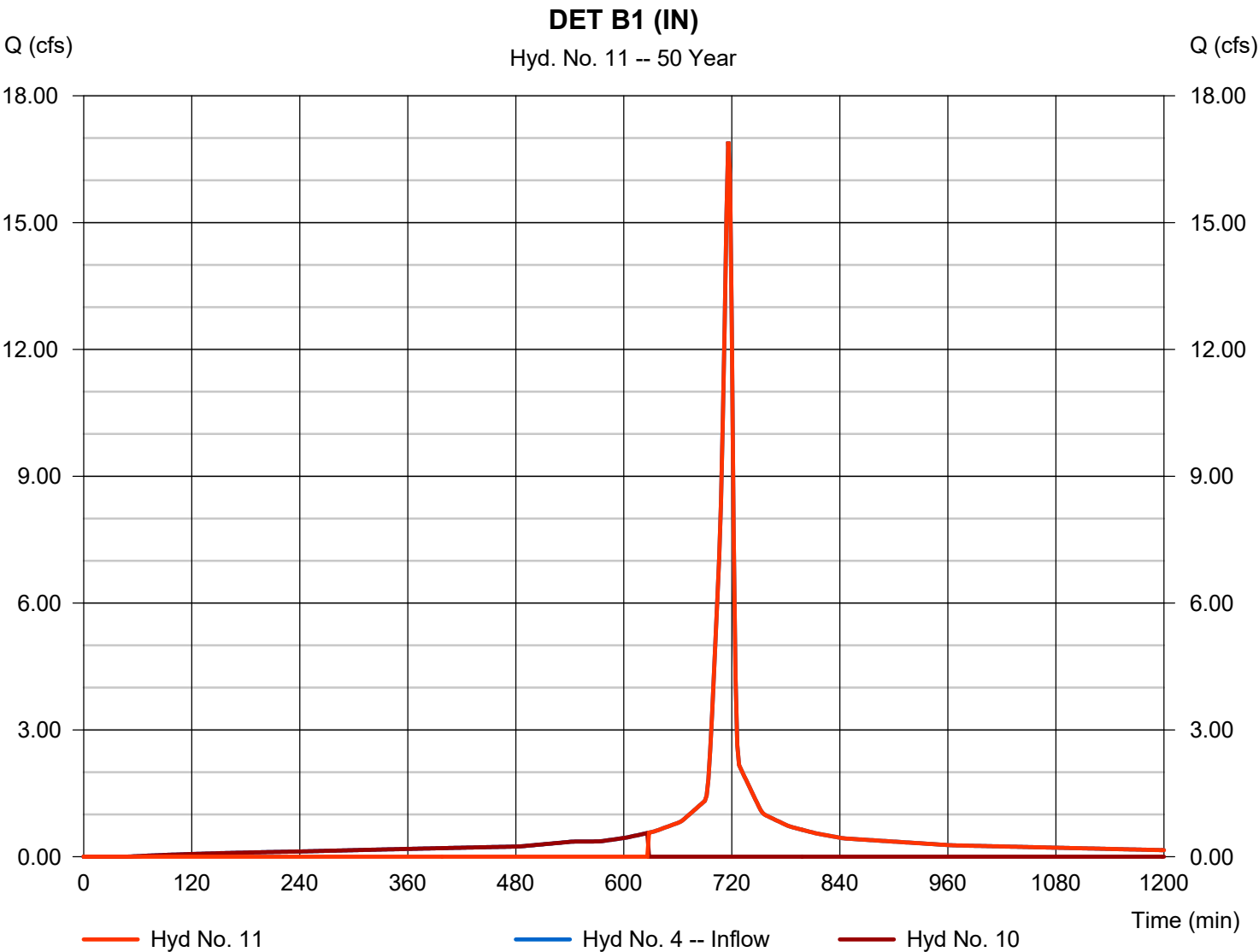


Hydrograph Report

Hyd. No. 11

DET B1 (IN)

Hydrograph type	= Diversion2	Peak discharge	= 16.92 cfs
Storm frequency	= 50 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 33,726 cuft
Inflow hydrograph	= 4 - POST DA B1	2nd diverted hyd.	= 10
Diversion method	= First Flush Volume	Volume Up To	= 6,694 cuft

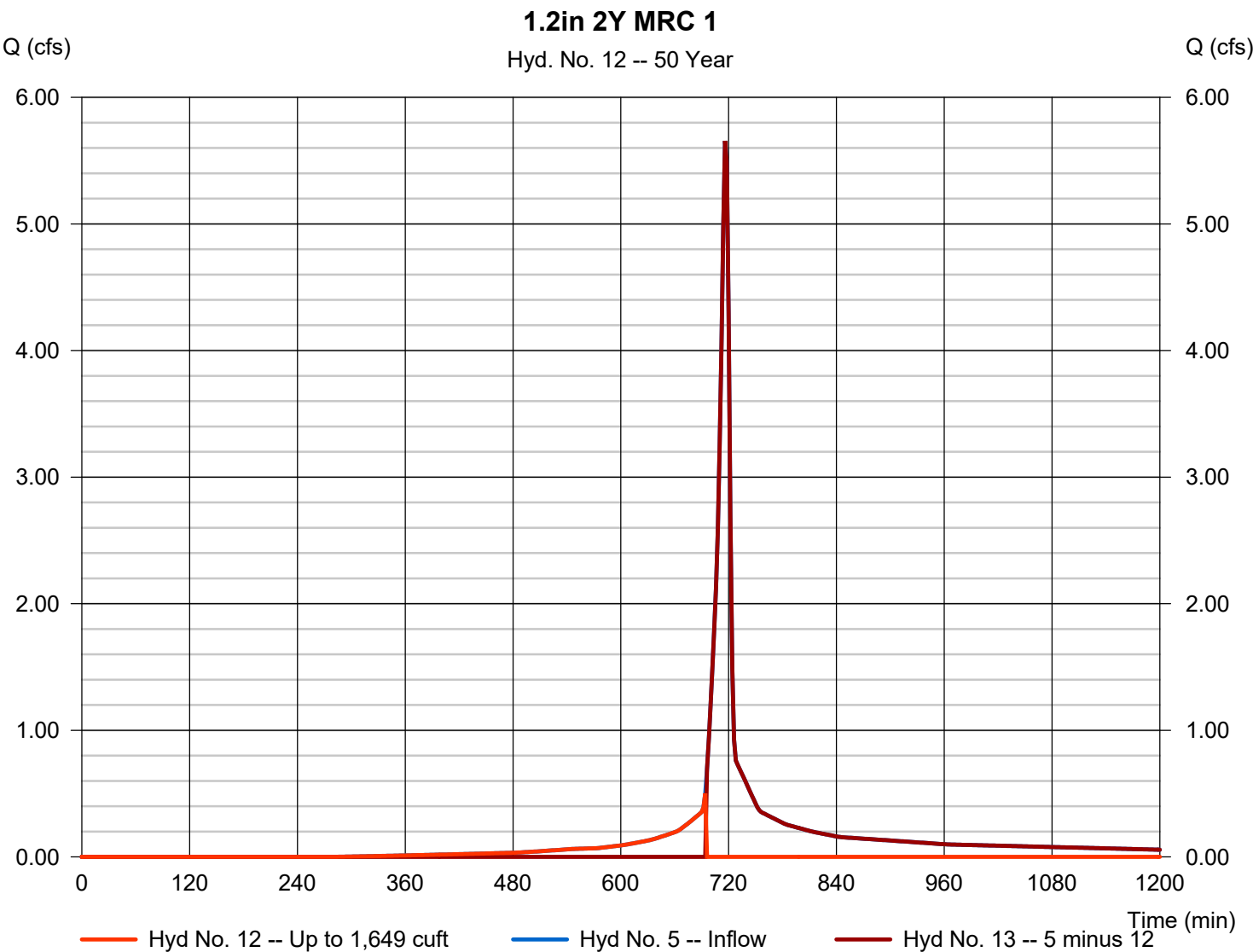


Hydrograph Report

Hyd. No. 12

1.2in 2Y MRC 1

Hydrograph type	= Diversion1	Peak discharge	= 0.501 cfs
Storm frequency	= 50 yrs	Time to peak	= 694 min
Time interval	= 2 min	Hyd. volume	= 1,694 cuft
Inflow hydrograph	= 5 - POST DA B2	2nd diverted hyd.	= 13
Diversion method	= First Flush Volume	Volume Up To	= 1,649 cuft

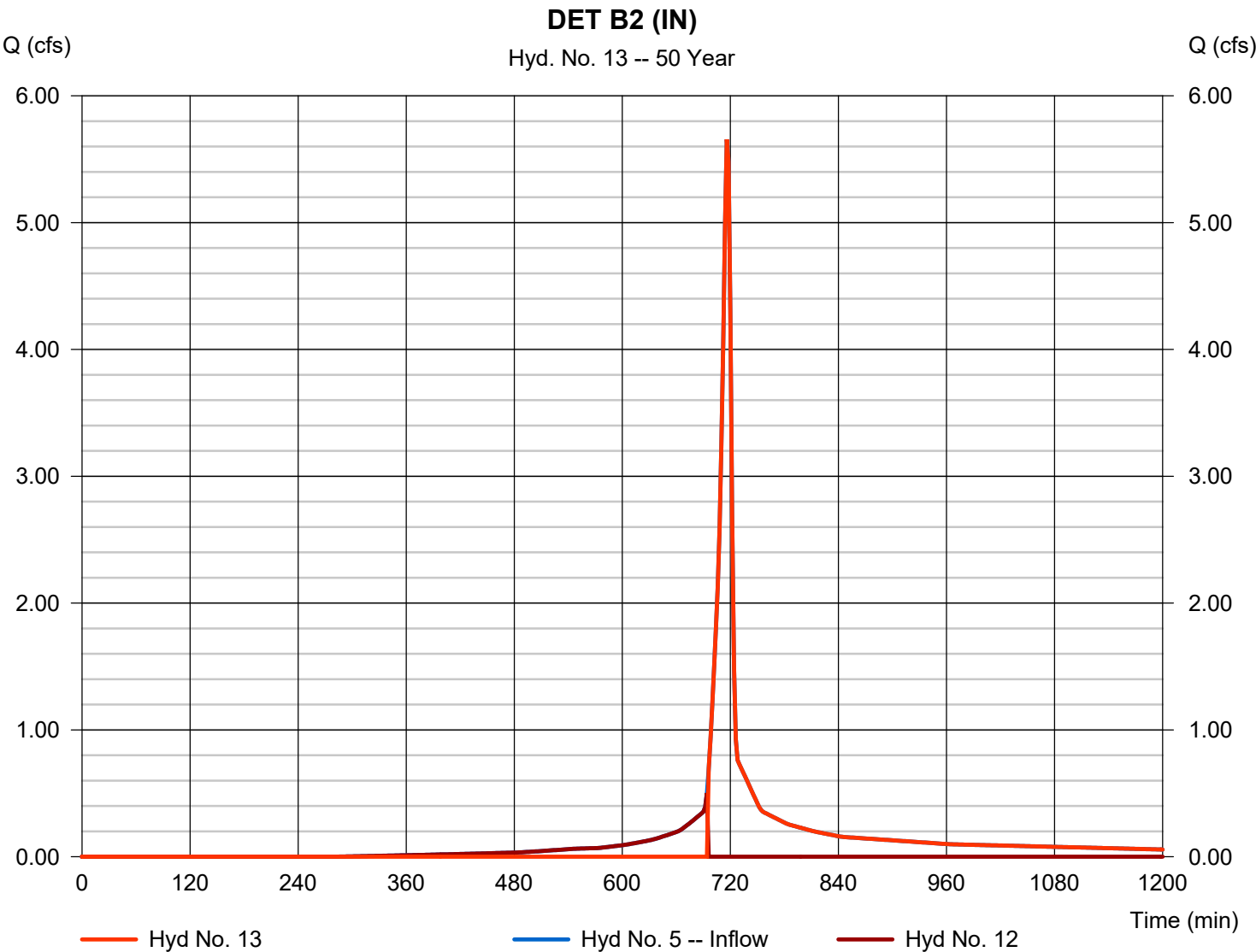


Hydrograph Report

Hyd. No. 13

DET B2 (IN)

Hydrograph type	=	Diversion2	Peak discharge	=	5.656 cfs
Storm frequency	=	50 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	10,214 cuft
Inflow hydrograph	=	5 - POST DA B2	2nd diverted hyd.	=	12
Diversion method	=	First Flush Volume	Volume Up To	=	1,649 cuft

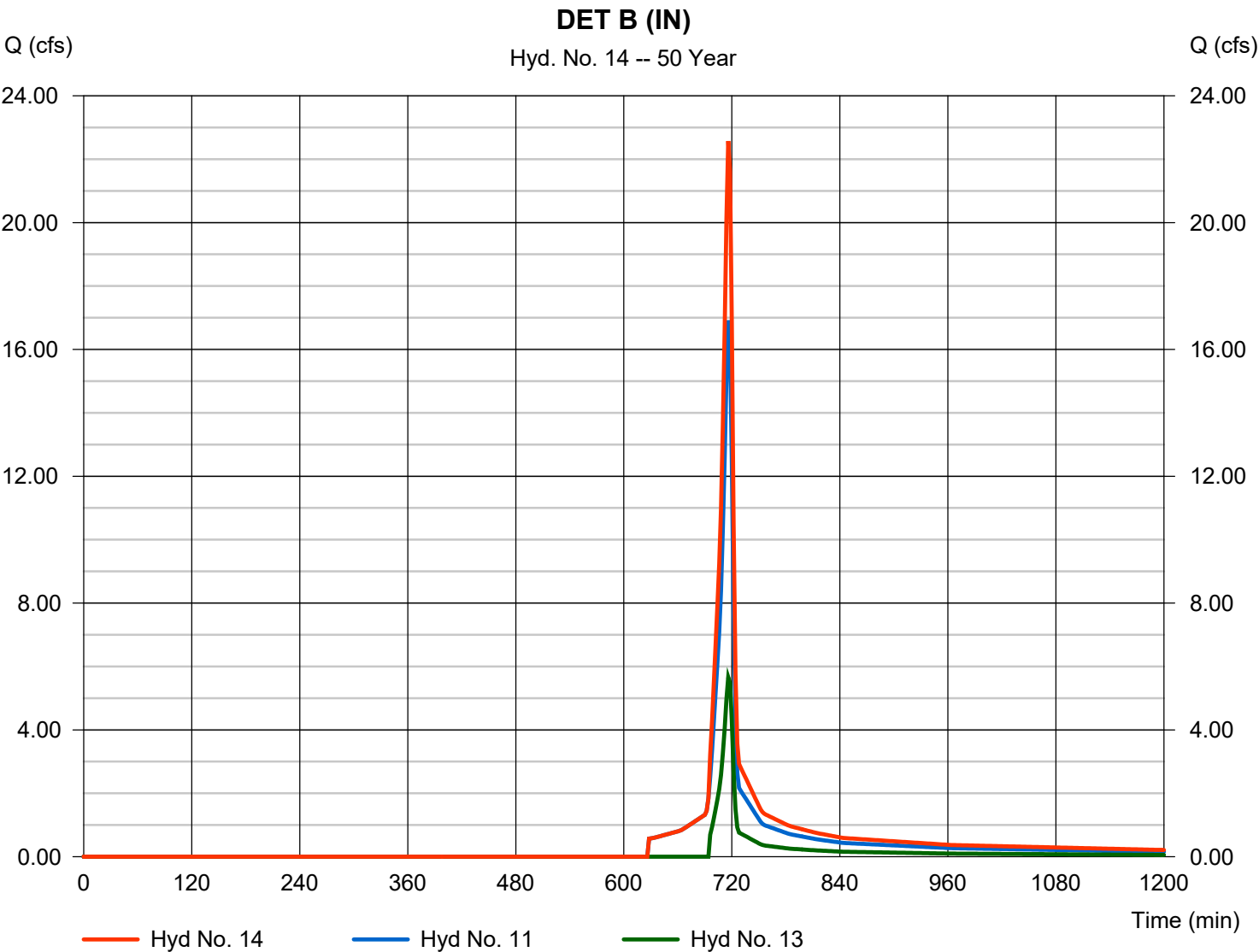


Hydrograph Report

Hyd. No. 14

DET B (IN)

Hydrograph type	= Combine	Peak discharge	= 22.57 cfs
Storm frequency	= 50 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 43,940 cuft
Inflow hyds.	= 11, 13	Contrib. drain. area	= 0.000 ac

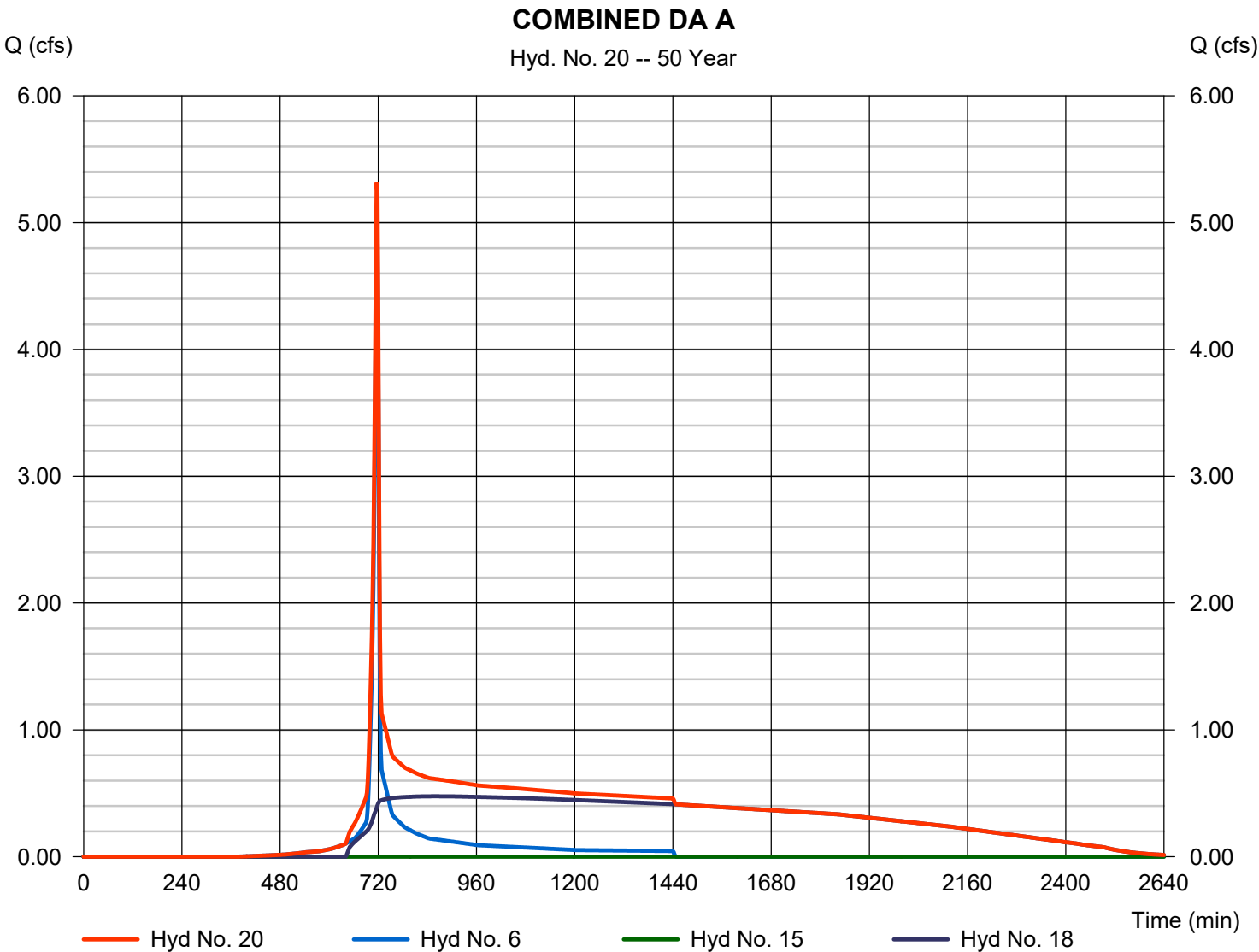


Hydrograph Report

Hyd. No. 20

COMBINED DA A

Hydrograph type	= Combine	Peak discharge	= 5.317 cfs
Storm frequency	= 50 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 48,257 cuft
Inflow hyds.	= 6, 15, 18	Contrib. drain. area	= 0.900 ac

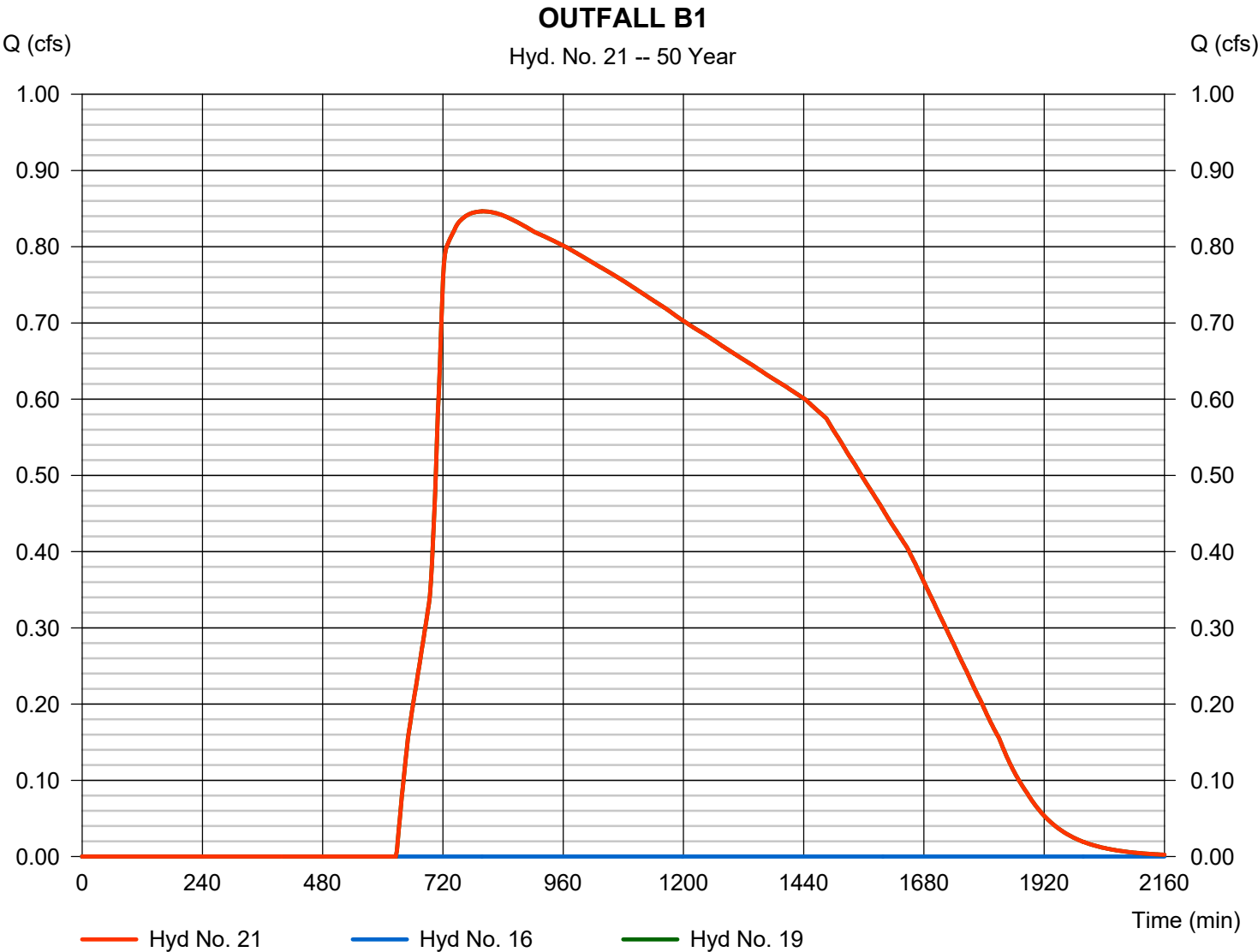


Hydrograph Report

Hyd. No. 21

OUTFALL B1

Hydrograph type	= Combine	Peak discharge	= 0.846 cfs
Storm frequency	= 50 yrs	Time to peak	= 800 min
Time interval	= 2 min	Hyd. volume	= 43,936 cuft
Inflow hyds.	= 16, 19	Contrib. drain. area	= 0.000 ac

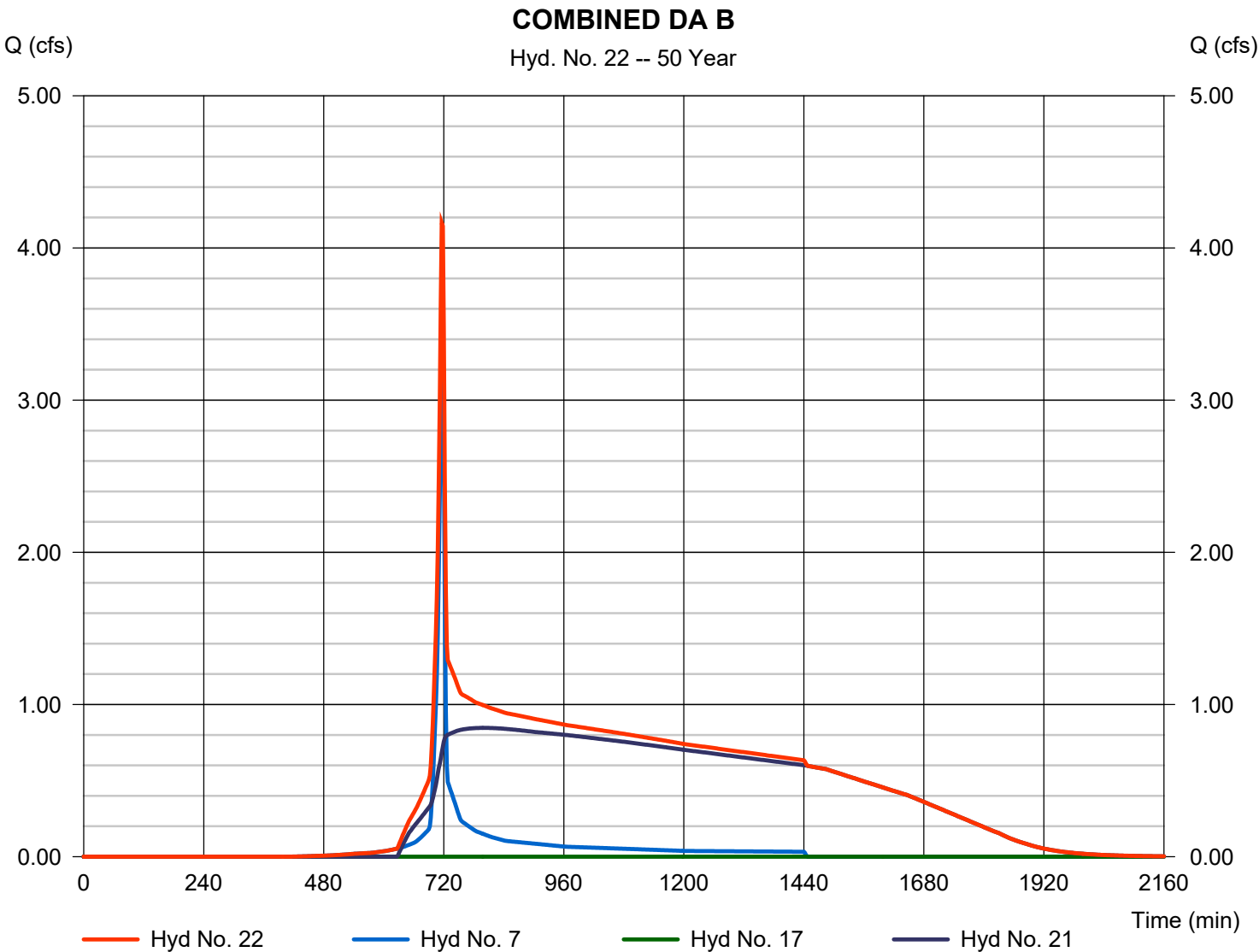


Hydrograph Report

Hyd. No. 22

COMBINED DA B

Hydrograph type	= Combine	Peak discharge	= 4.165 cfs
Storm frequency	= 50 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 51,032 cuft
Inflow hyds.	= 7, 17, 21	Contrib. drain. area	= 0.670 ac



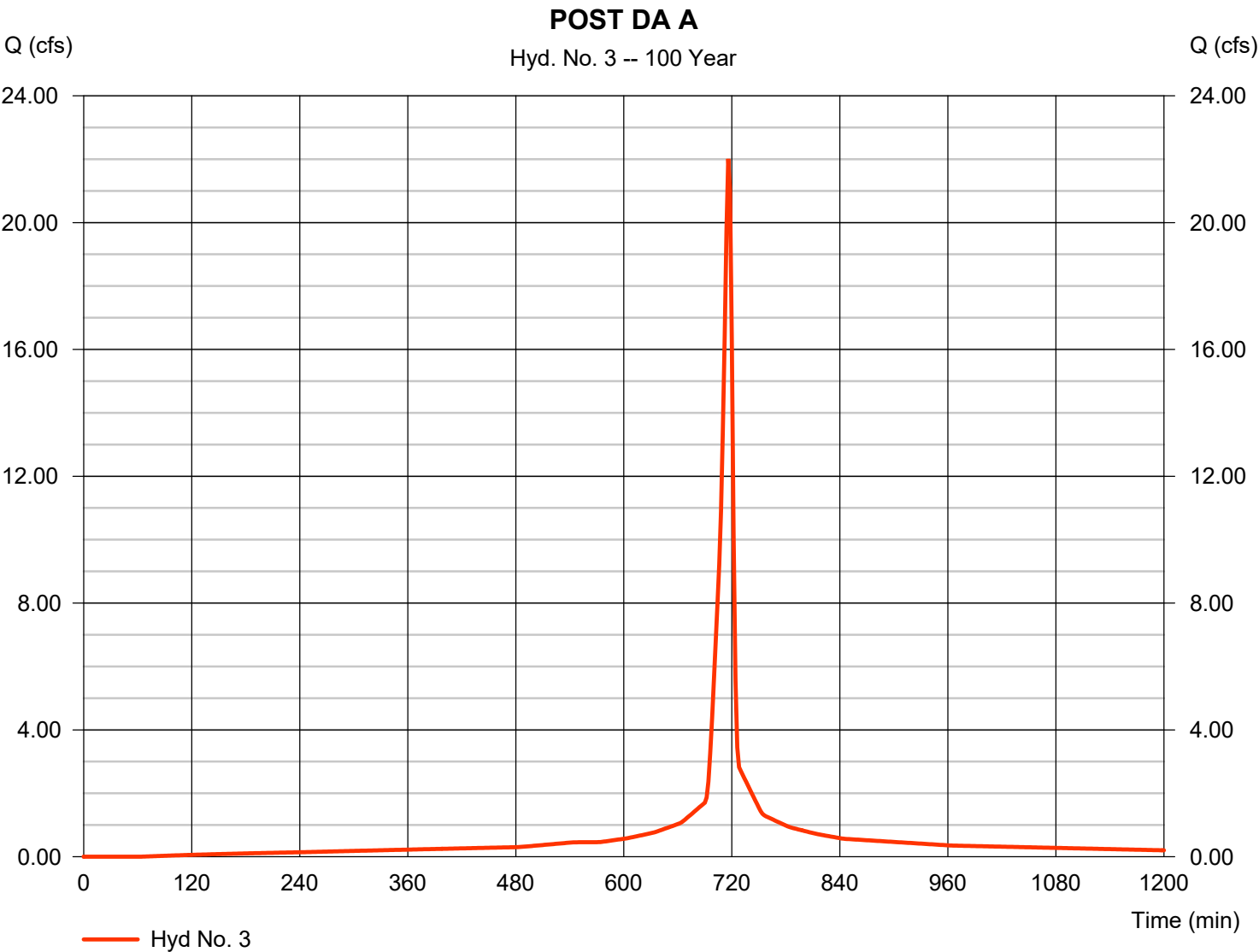
Hydrograph Report

Hyd. No. 3

POST DA A

Hydrograph type	=	SCS Runoff	Peak discharge	=	22.01 cfs
Storm frequency	=	100 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	51,978 cuft
Drainage area	=	2.740 ac	Curve number	=	97*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.93 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.750 x 80) + (1.990 x 98)] / 2.740



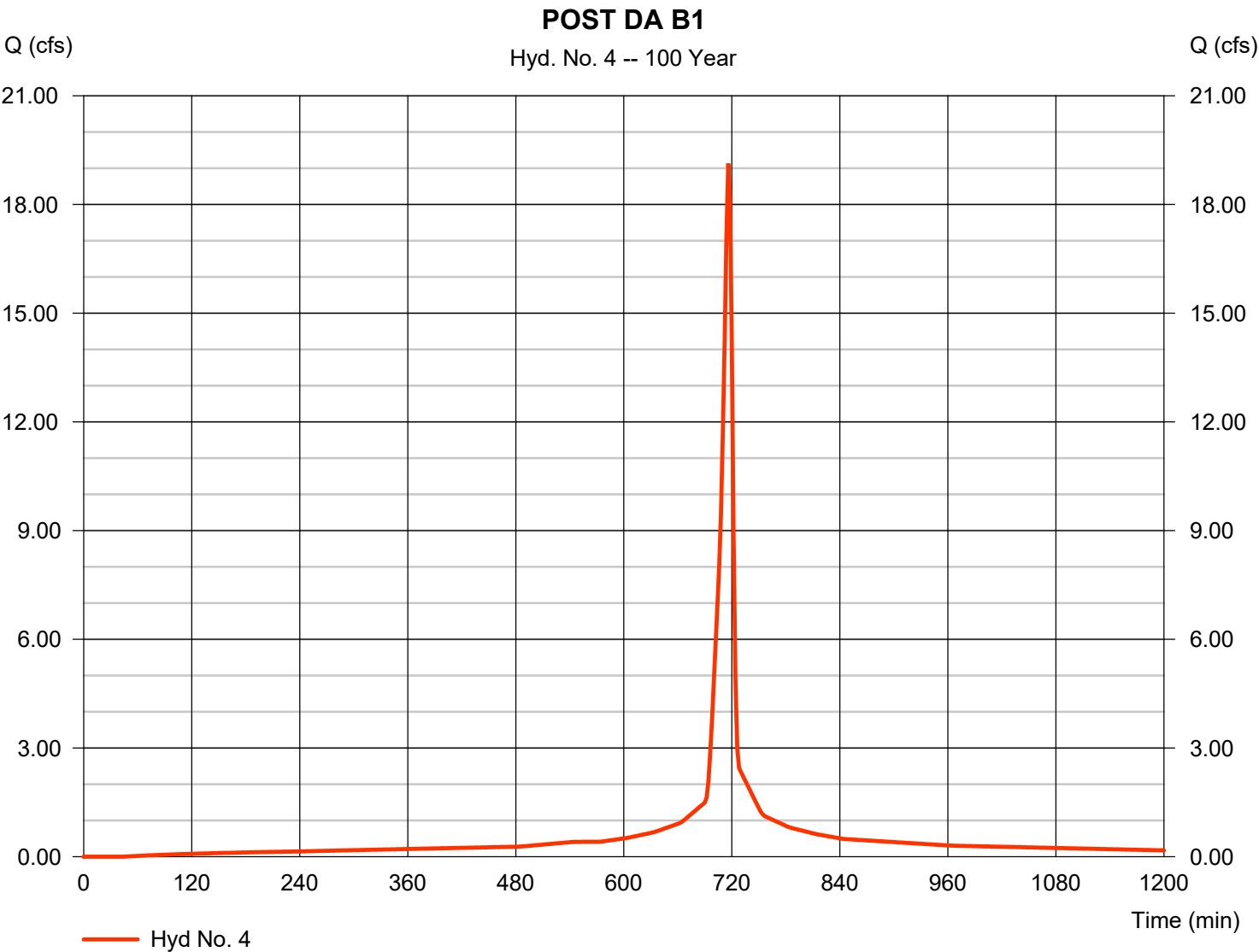
Hydrograph Report

Hyd. No. 4

POST DA B1

Hydrograph type	= SCS Runoff	Peak discharge	= 19.13 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 45,908 cuft
Drainage area	= 2.370 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.93 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.580 x 80) + (1.790 x 98)] / 2.370



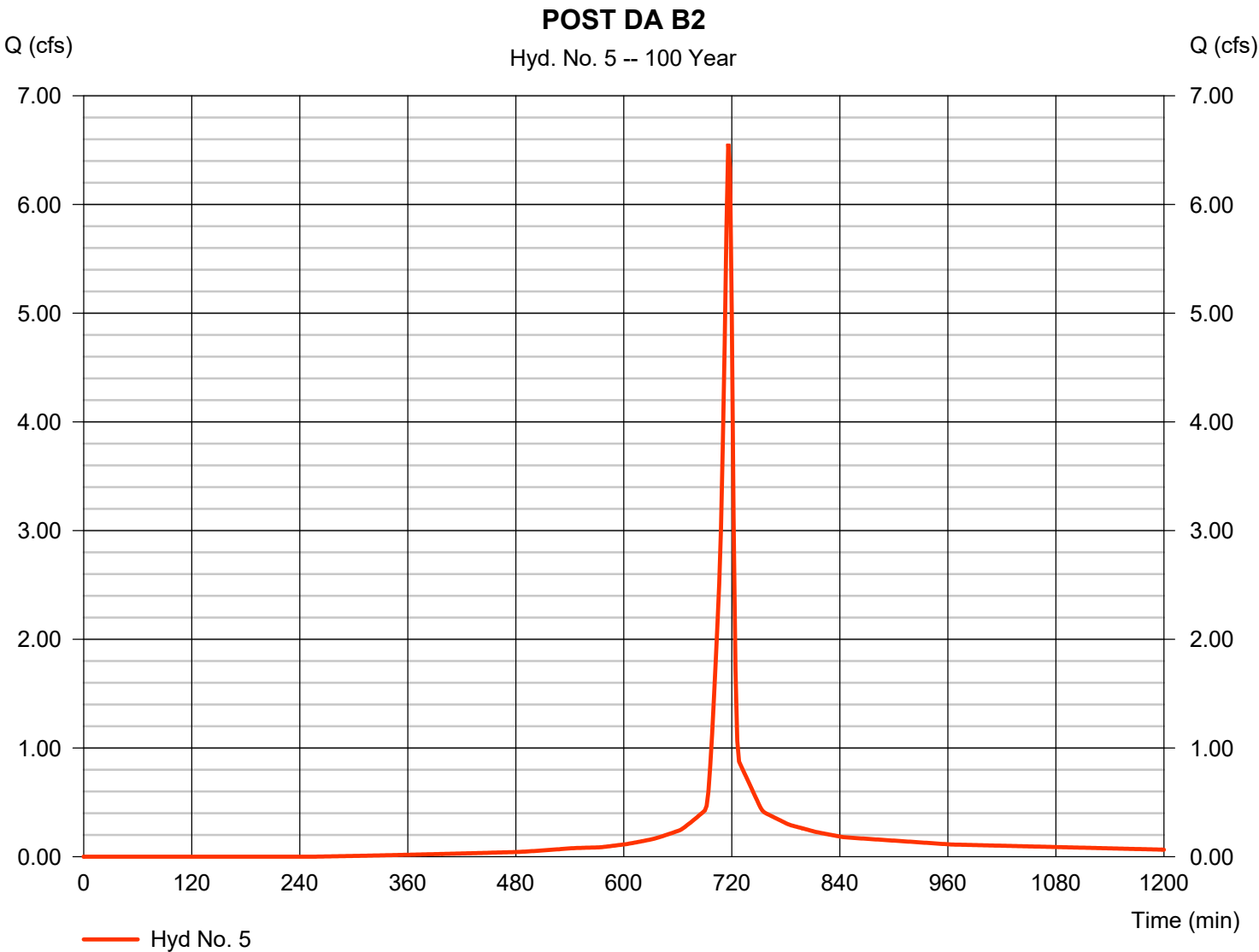
Hydrograph Report

Hyd. No. 5

POST DA B2

Hydrograph type	= SCS Runoff	Peak discharge	= 6.558 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 13,933 cuft
Drainage area	= 0.920 ac	Curve number	= 87*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.93 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.540 x 80) + (0.380 x 98)] / 0.920



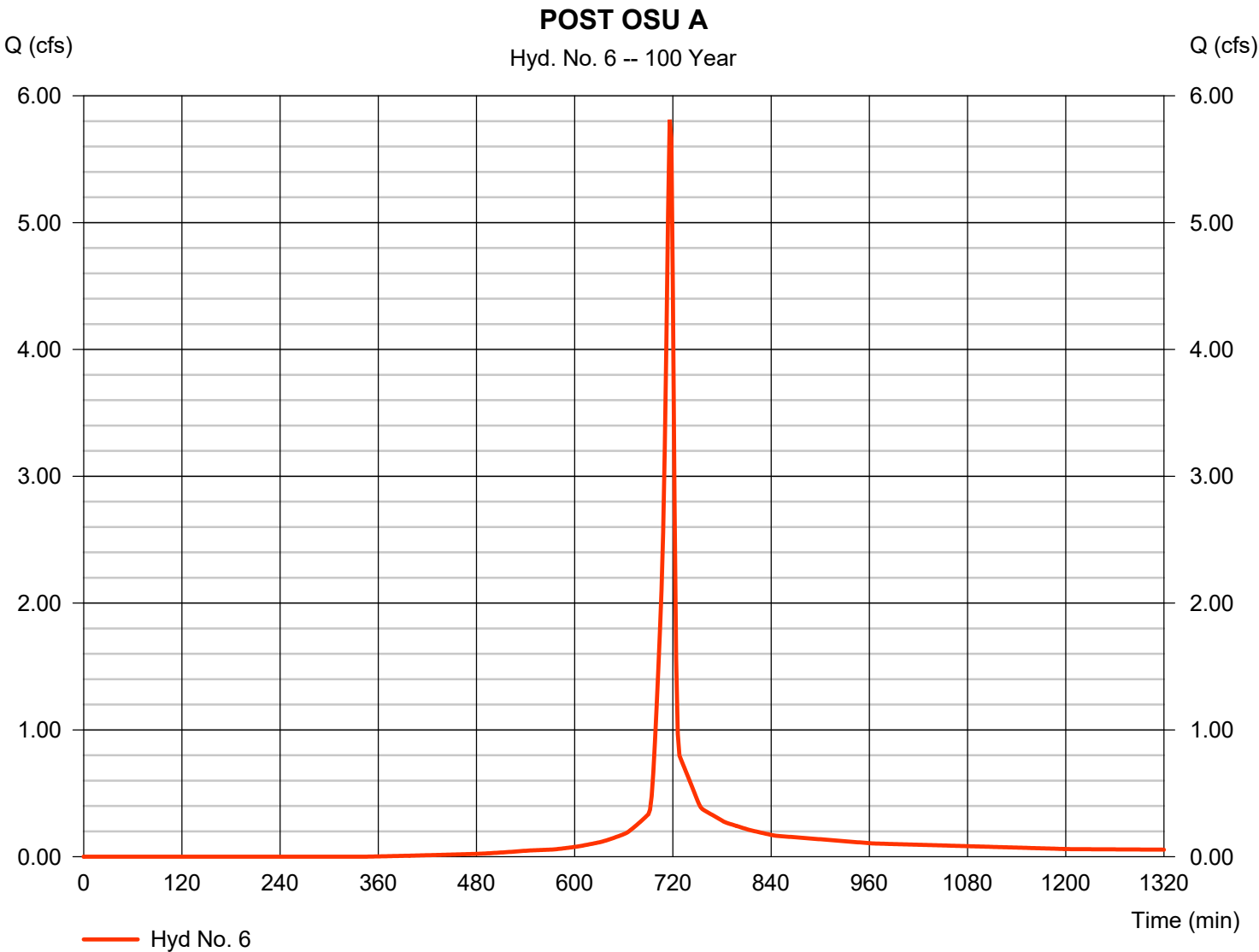
Hydrograph Report

Hyd. No. 6

POST OSU A

Hydrograph type	= SCS Runoff	Peak discharge	= 5.812 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 12,015 cuft
Drainage area	= 0.900 ac	Curve number	= 82*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.93 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.820 x 80) + (0.080 x 98)] / 0.900



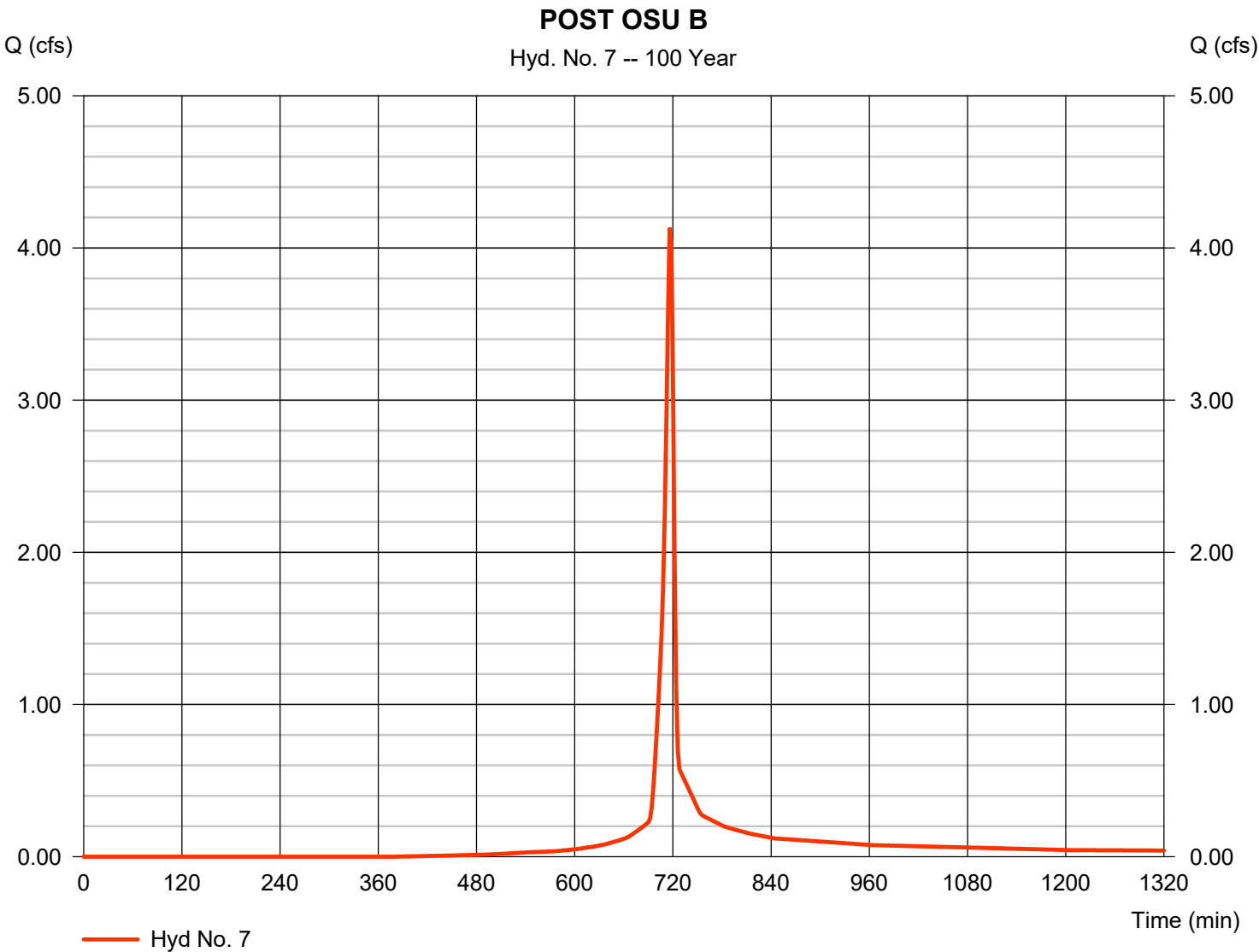
Hydrograph Report

Hyd. No. 7

POST OSU B

Hydrograph type	= SCS Runoff	Peak discharge	= 4.133 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 8,478 cuft
Drainage area	= 0.670 ac	Curve number	= 80*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.93 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.670 x 80)] / 0.670

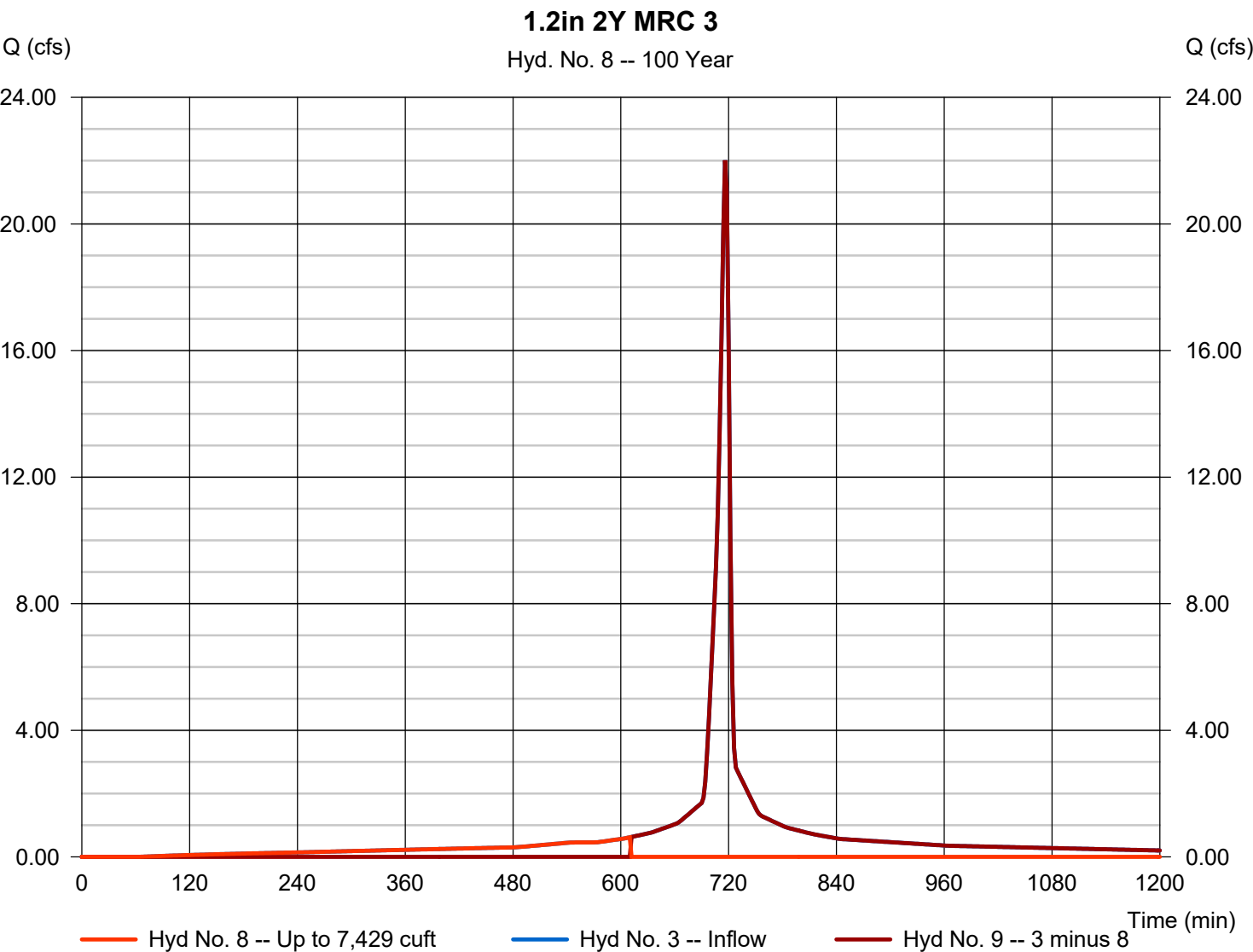


Hydrograph Report

Hyd. No. 8

1.2in 2Y MRC 3

Hydrograph type	=	Diversion1	Peak discharge	=	0.619 cfs
Storm frequency	=	100 yrs	Time to peak	=	610 min
Time interval	=	2 min	Hyd. volume	=	7,489 cuft
Inflow hydrograph	=	3 - POST DA A	2nd diverted hyd.	=	9
Diversion method	=	First Flush Volume	Volume Up To	=	7,429 cuft

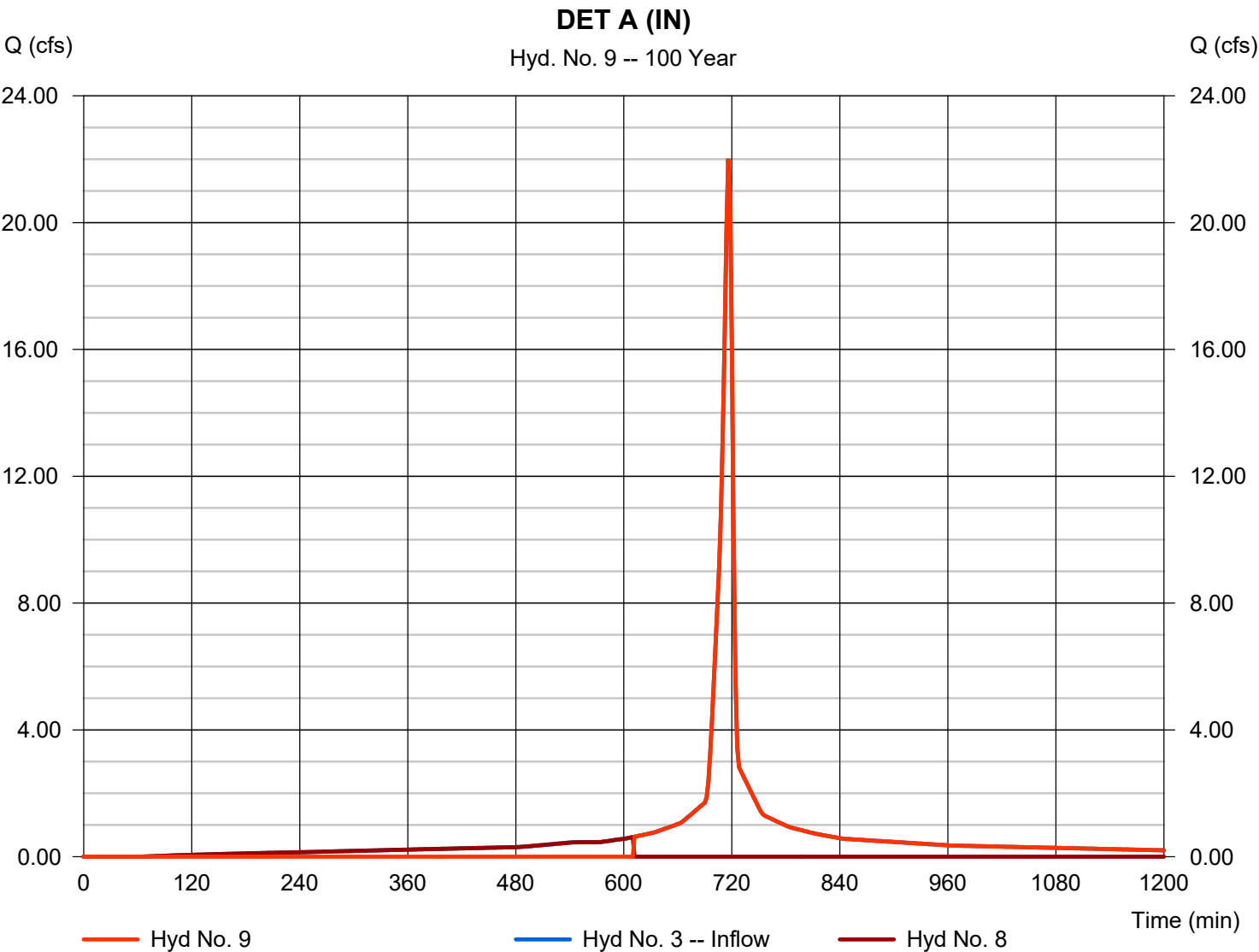


Hydrograph Report

Hyd. No. 9

DET A (IN)

Hydrograph type	= Diversion2	Peak discharge	= 22.01 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 44,490 cuft
Inflow hydrograph	= 3 - POST DA A	2nd diverted hyd.	= 8
Diversion method	= First Flush Volume	Volume Up To	= 7,429 cuft

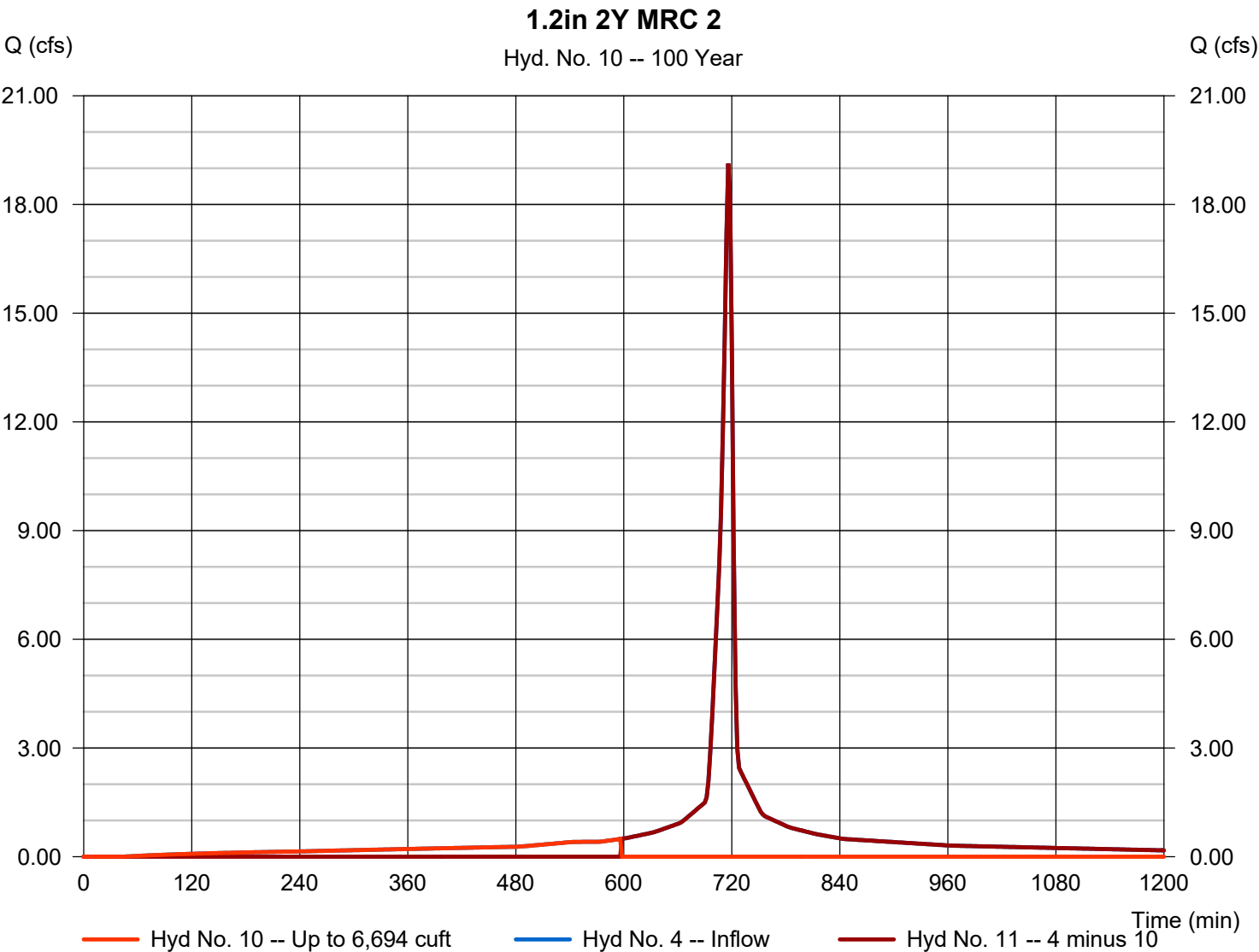


Hydrograph Report

Hyd. No. 10

1.2in 2Y MRC 2

Hydrograph type	=	Diversion1	Peak discharge	=	0.490 cfs
Storm frequency	=	100 yrs	Time to peak	=	596 min
Time interval	=	2 min	Hyd. volume	=	6,752 cuft
Inflow hydrograph	=	4 - POST DA B1	2nd diverted hyd.	=	11
Diversion method	=	First Flush Volume	Volume Up To	=	6,694 cuft

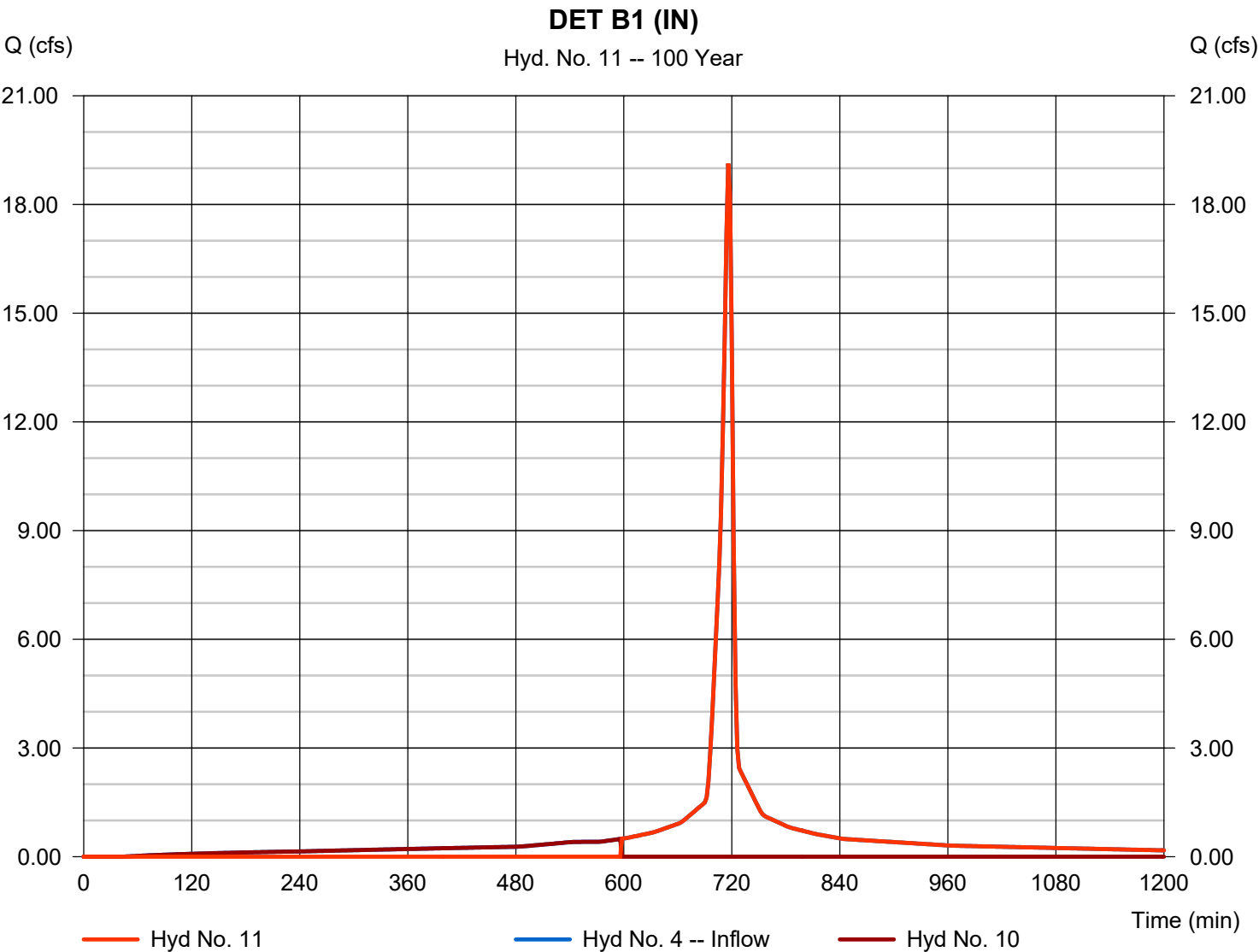


Hydrograph Report

Hyd. No. 11

DET B1 (IN)

Hydrograph type	= Diversion2	Peak discharge	= 19.13 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 39,156 cuft
Inflow hydrograph	= 4 - POST DA B1	2nd diverted hyd.	= 10
Diversion method	= First Flush Volume	Volume Up To	= 6,694 cuft

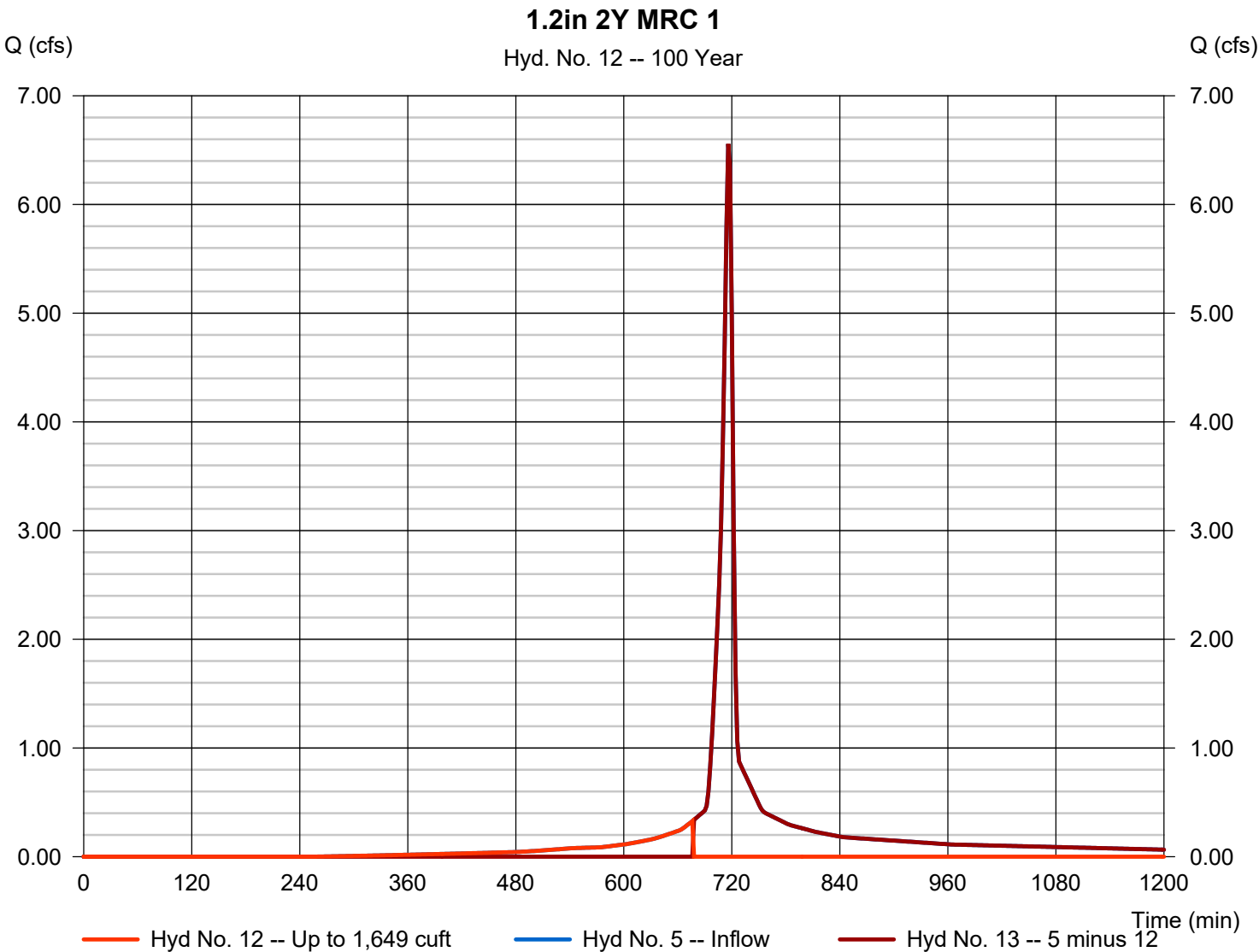


Hydrograph Report

Hyd. No. 12

1.2in 2Y MRC 1

Hydrograph type	= Diversion1	Peak discharge	= 0.327 cfs
Storm frequency	= 100 yrs	Time to peak	= 676 min
Time interval	= 2 min	Hyd. volume	= 1,682 cuft
Inflow hydrograph	= 5 - POST DA B2	2nd diverted hyd.	= 13
Diversion method	= First Flush Volume	Volume Up To	= 1,649 cuft

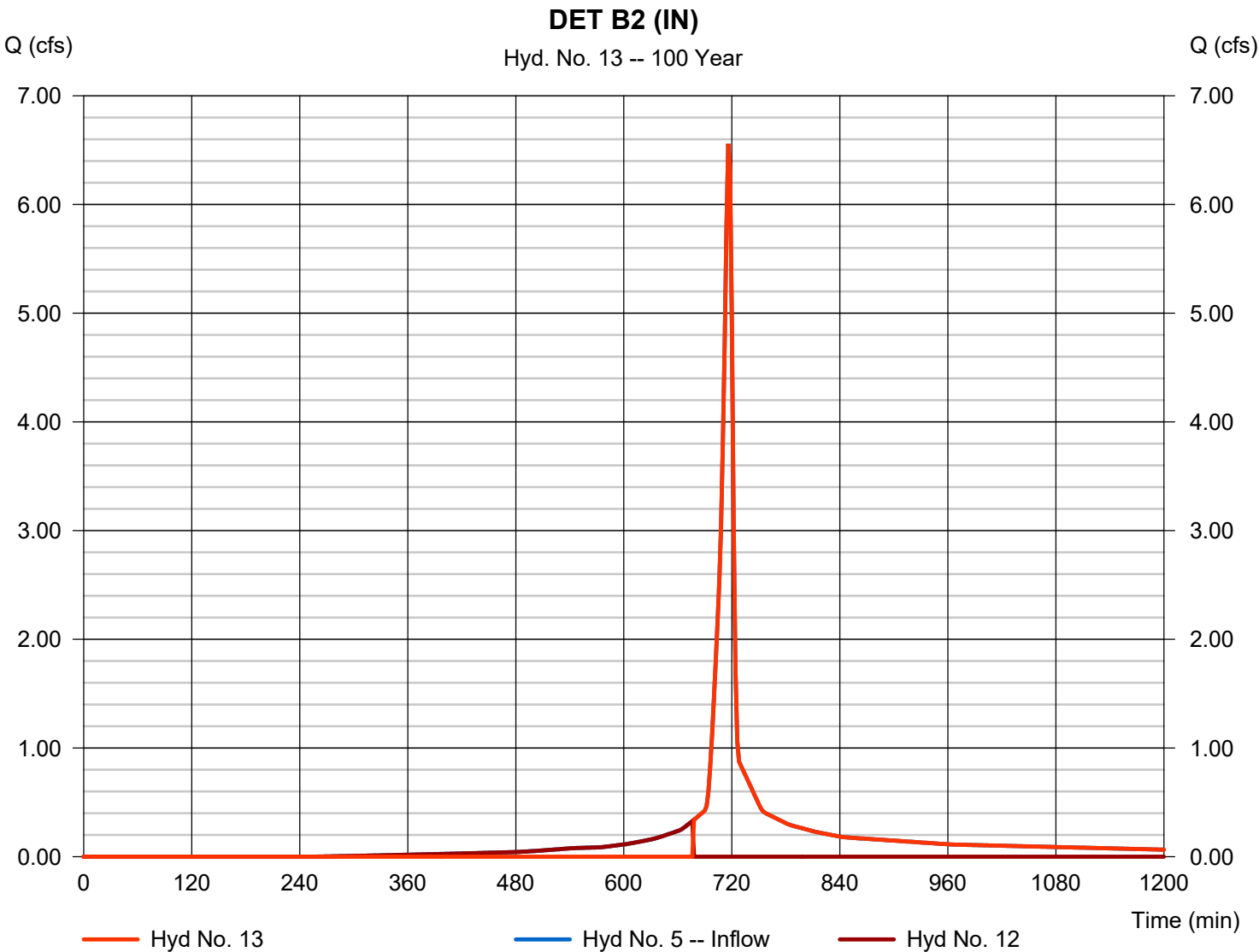


Hydrograph Report

Hyd. No. 13

DET B2 (IN)

Hydrograph type	= Diversion2	Peak discharge	= 6.558 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 12,251 cuft
Inflow hydrograph	= 5 - POST DA B2	2nd diverted hyd.	= 12
Diversion method	= First Flush Volume	Volume Up To	= 1,649 cuft

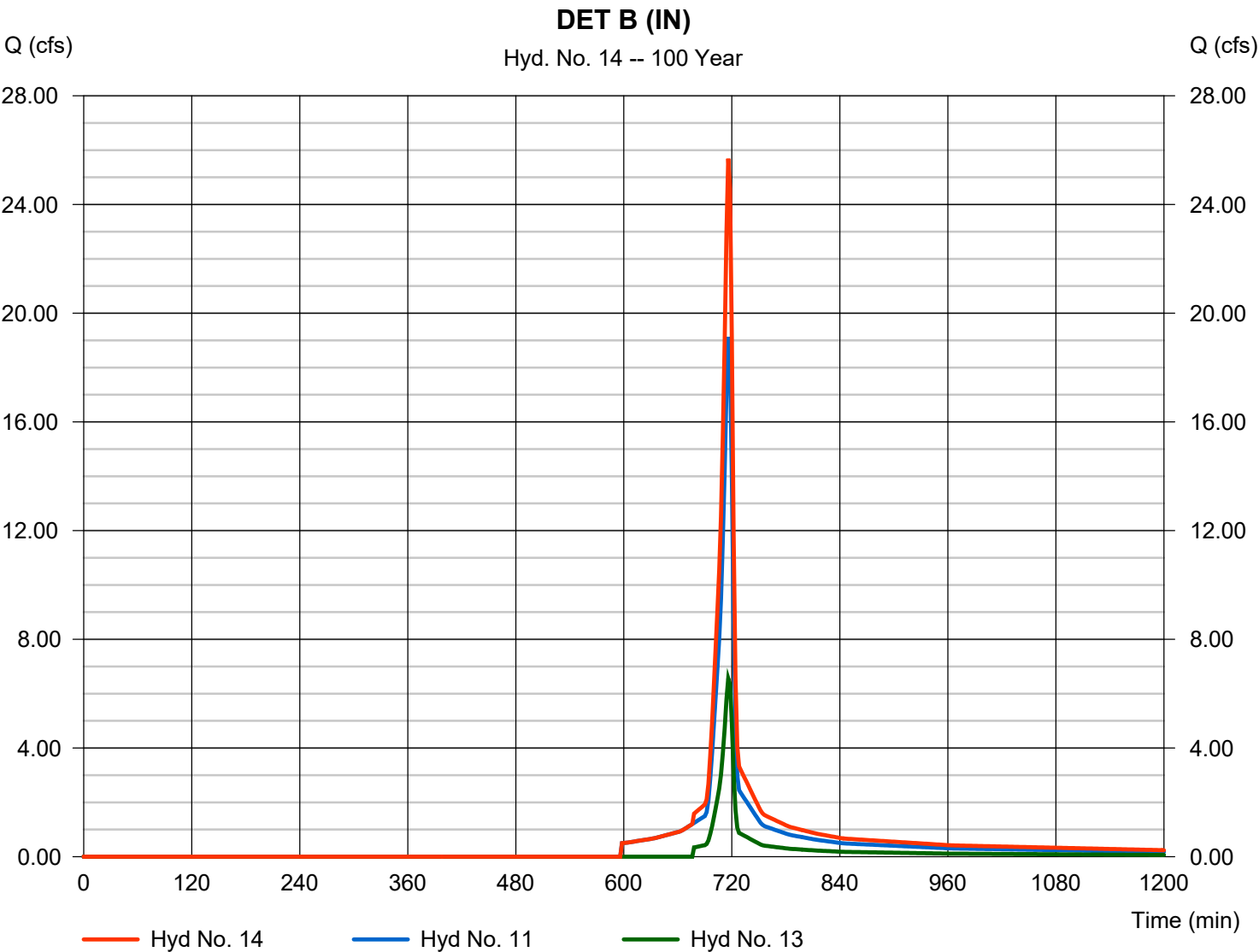


Hydrograph Report

Hyd. No. 14

DET B (IN)

Hydrograph type	= Combine	Peak discharge	= 25.69 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 51,407 cuft
Inflow hyds.	= 11, 13	Contrib. drain. area	= 0.000 ac

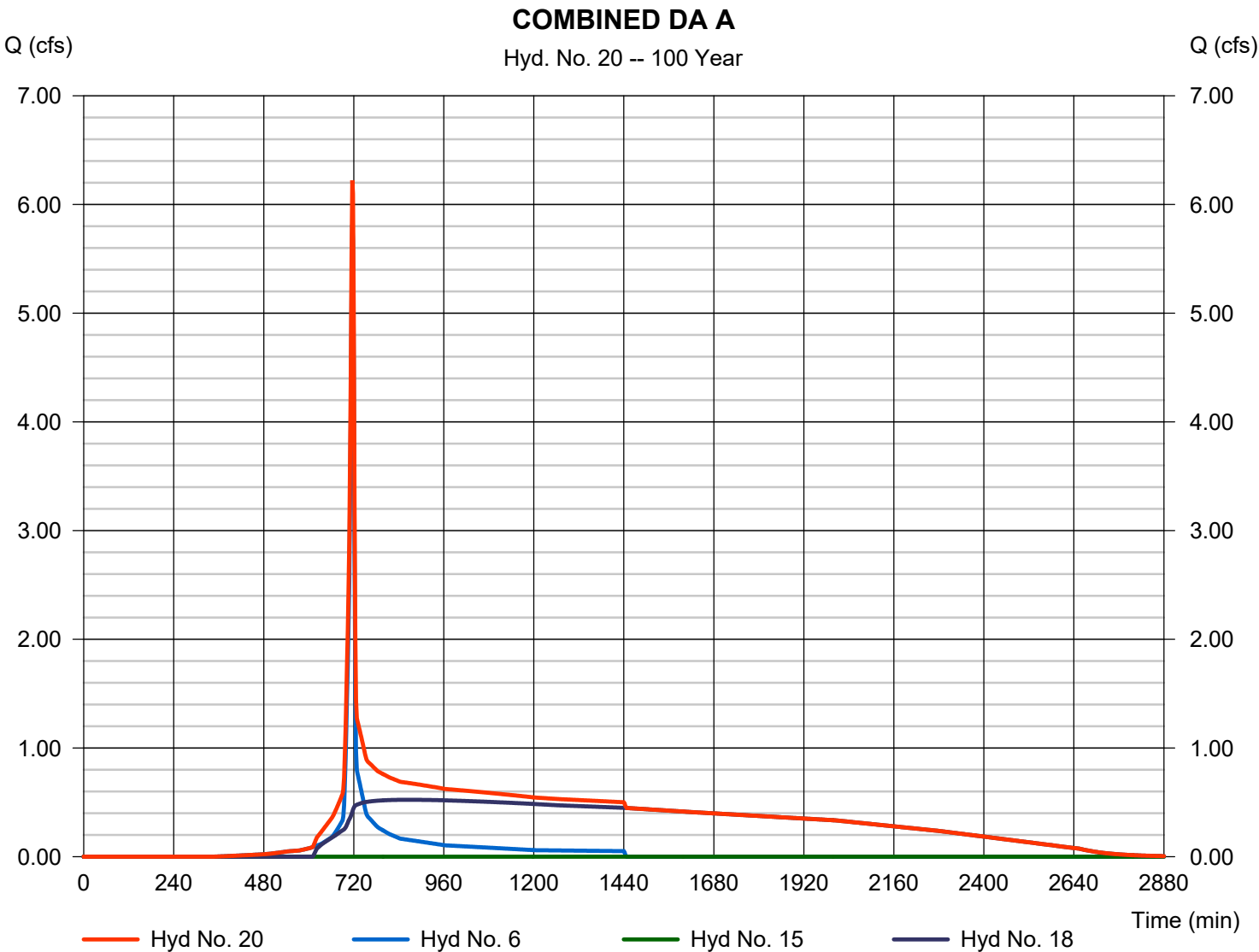


Hydrograph Report

Hyd. No. 20

COMBINED DA A

Hydrograph type	= Combine	Peak discharge	= 6.223 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 56,499 cuft
Inflow hyds.	= 6, 15, 18	Contrib. drain. area	= 0.900 ac

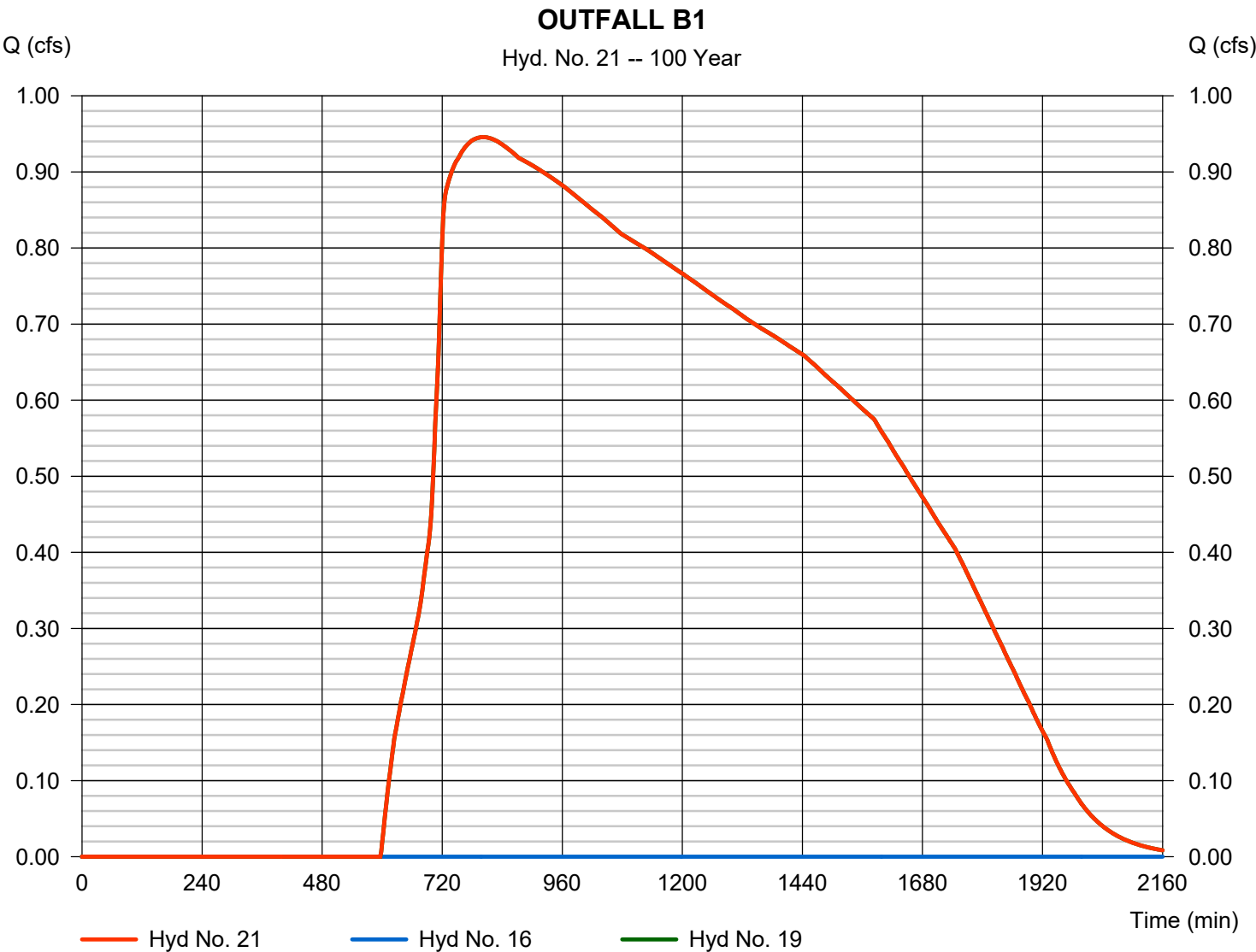


Hydrograph Report

Hyd. No. 21

OUTFALL B1

Hydrograph type	= Combine	Peak discharge	= 0.946 cfs
Storm frequency	= 100 yrs	Time to peak	= 802 min
Time interval	= 2 min	Hyd. volume	= 51,403 cuft
Inflow hyds.	= 16, 19	Contrib. drain. area	= 0.000 ac

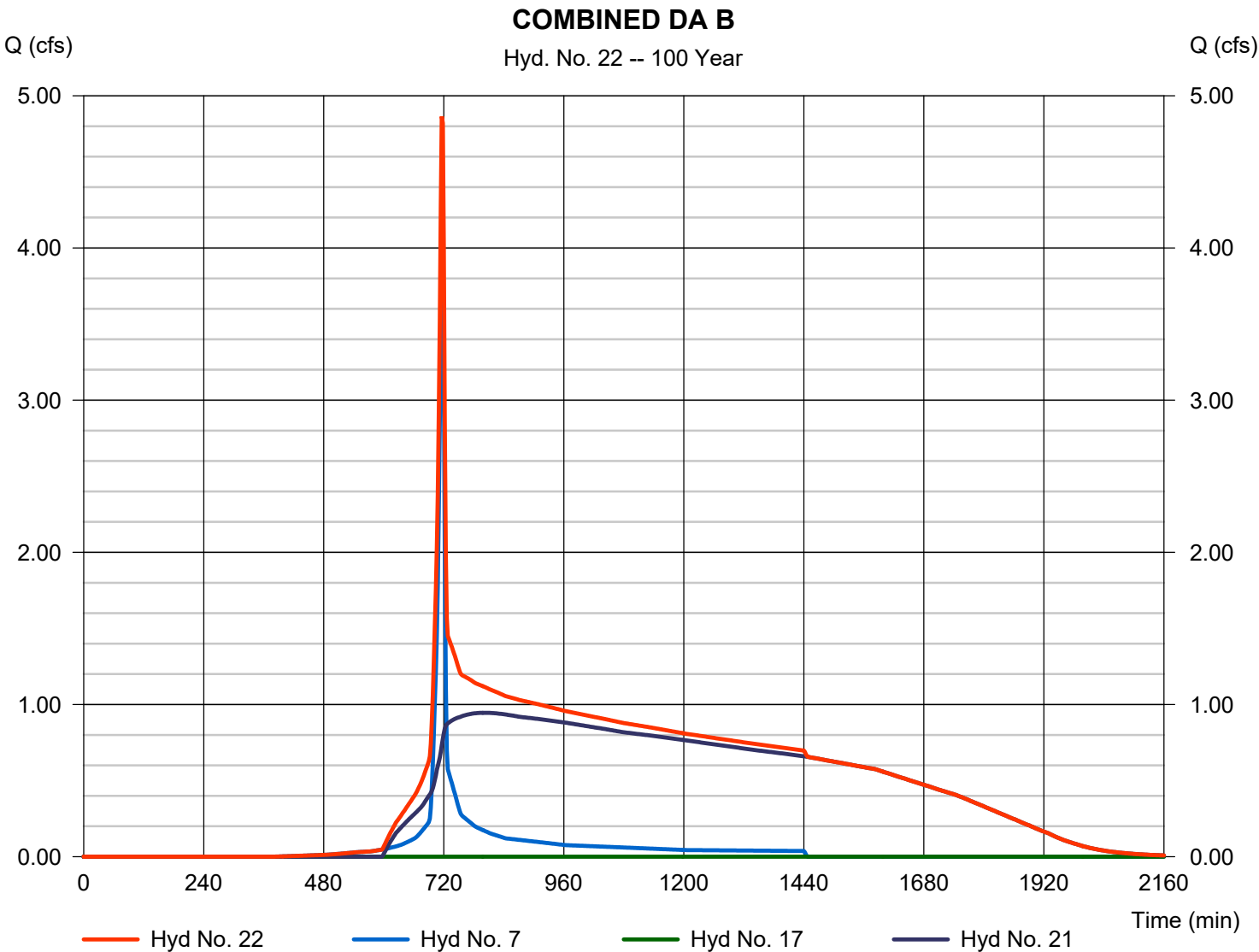


Hydrograph Report

Hyd. No. 22

COMBINED DA B

Hydrograph type	= Combine	Peak discharge	= 4.864 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 59,881 cuft
Inflow hyds.	= 7, 17, 21	Contrib. drain. area	= 0.670 ac



OUTLET STRUCTURES

Pond Report

Pond No. 1 - MRC 1

Pond Data

Pond storage is based on user-defined values.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	662.00	n/a	0	0
0.50	662.50	n/a	395	395
2.00	664.00	n/a	890	1,285
3.00	665.00	n/a	2,270	3,555
4.00	666.00	n/a	16,777	20,332

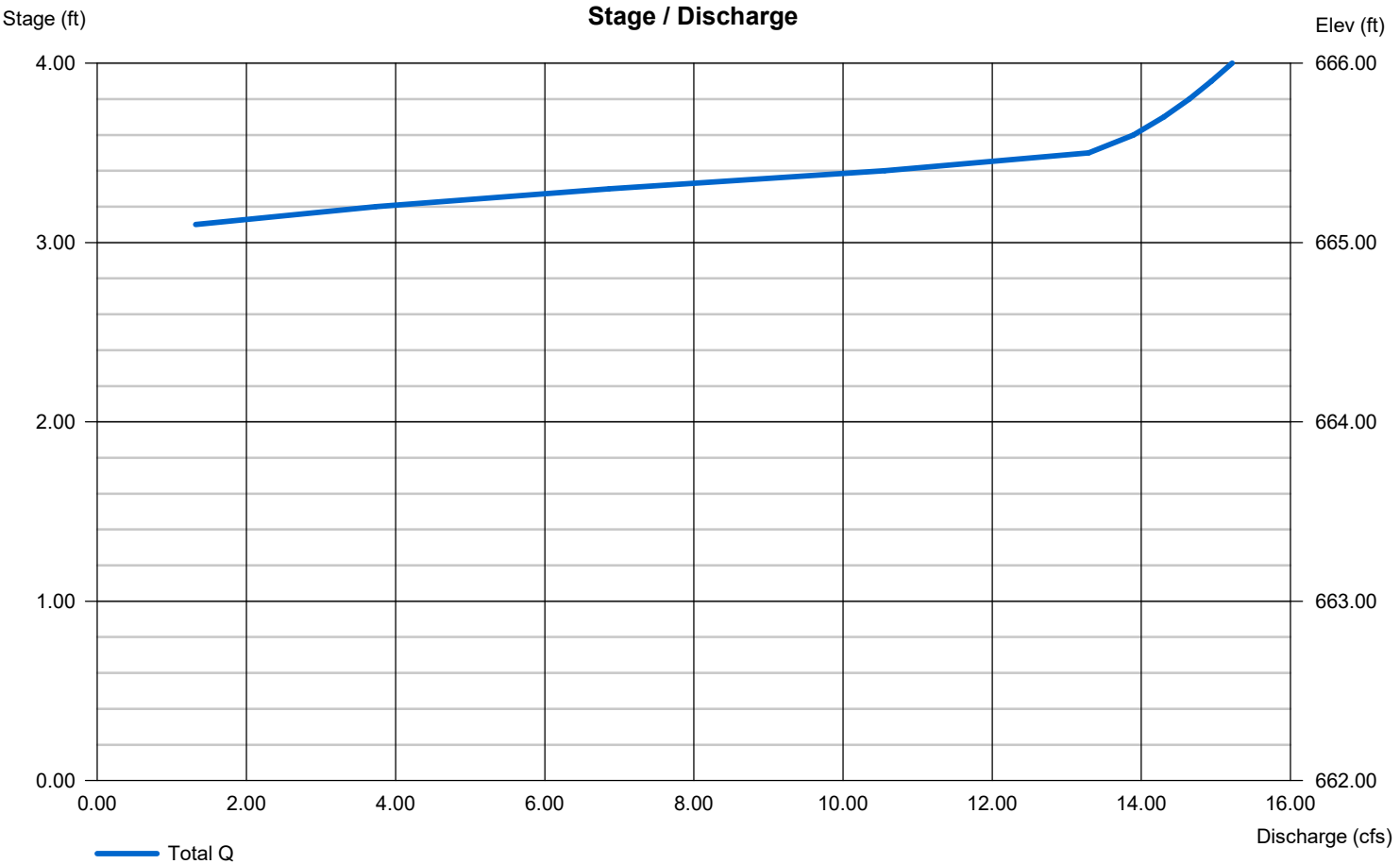
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	0.00	0.00	0.00
Span (in)	= 18.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 662.00	0.00	0.00	0.00
Length (ft)	= 23.00	0.00	0.00	0.00
Slope (%)	= 2.20	0.00	0.00	n/a
N-Value	= .011	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.54	0.00	0.00	0.00
Crest El. (ft)	= 665.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	---	---	---
Multi-Stage	= Yes	No	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).



Pond Report

Pond No. 2 - MRC 2

Pond Data

Pond storage is based on user-defined values.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	666.00	n/a	0	0
0.50	666.50	n/a	1,383	1,383
2.00	668.00	n/a	3,112	4,495
3.00	669.00	n/a	7,482	11,977
4.00	670.00	n/a	8,613	20,589

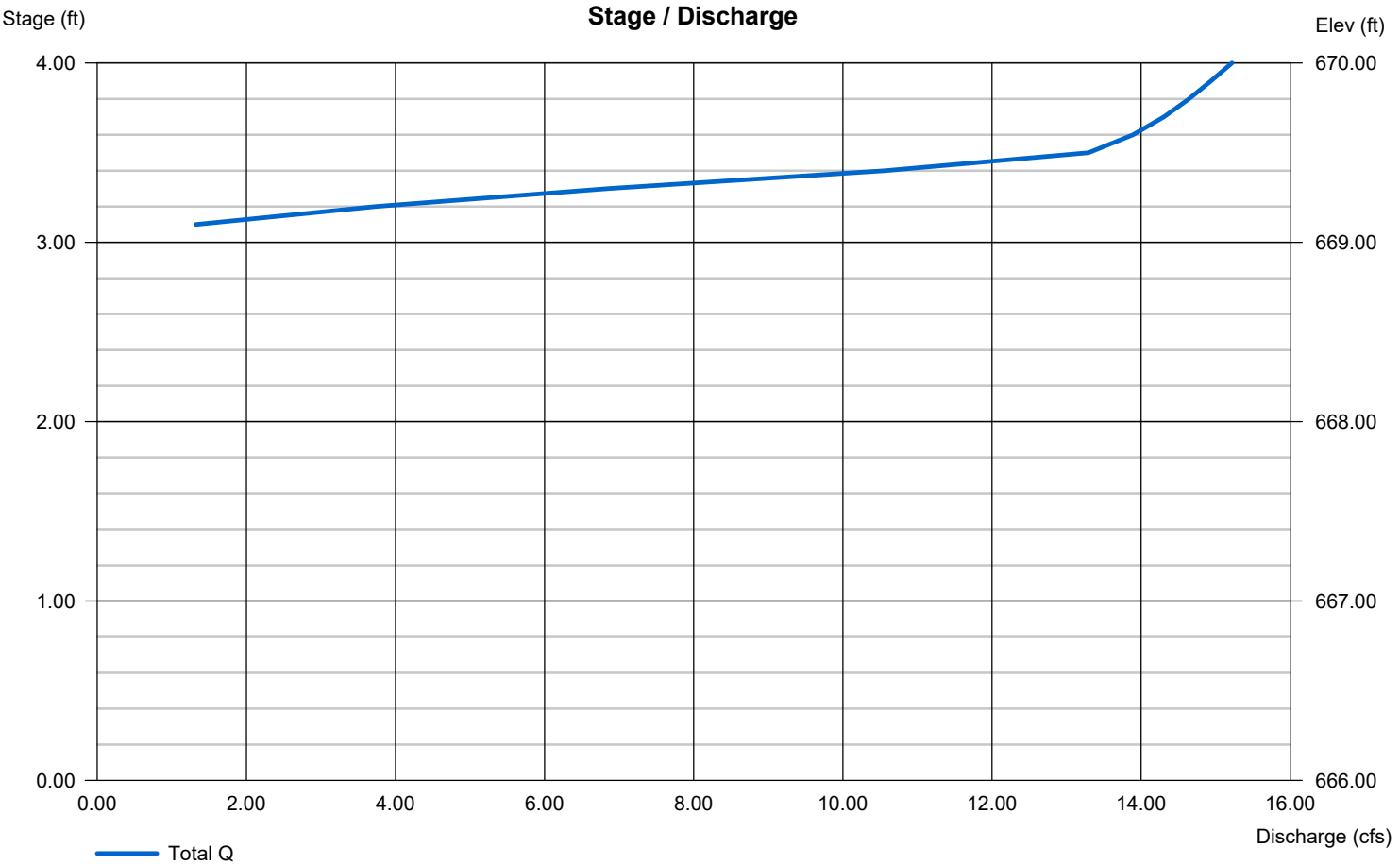
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	0.00	0.00	0.00
Span (in)	= 18.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 666.00	0.00	0.00	0.00
Length (ft)	= 35.00	0.00	0.00	0.00
Slope (%)	= 17.00	0.00	0.00	n/a
N-Value	= .011	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.54	0.00	0.00	0.00
Crest El. (ft)	= 669.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	---	---	---
Multi-Stage	= Yes	No	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).



Pond Report

Pond No. 3 - MRC 3

Pond Data

Pond storage is based on user-defined values.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	664.00	n/a	0	0
0.50	664.50	n/a	1,727	1,727
2.00	666.00	n/a	3,886	5,613
3.00	667.00	n/a	9,253	14,866
4.00	668.00	n/a	10,487	25,353

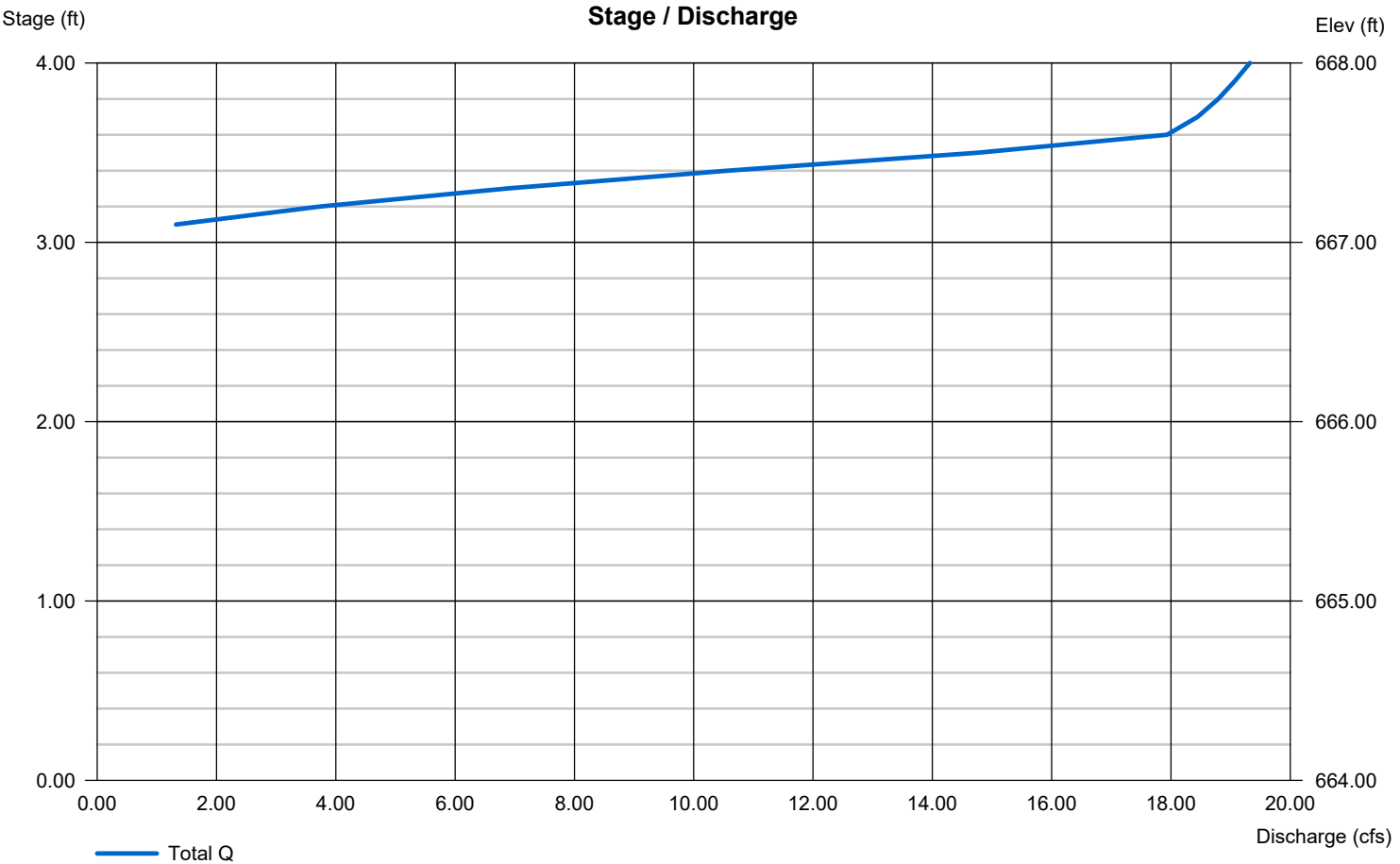
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	0.00	0.00	0.00
Span (in)	= 18.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 662.00	0.00	0.00	0.00
Length (ft)	= 16.00	0.00	0.00	0.00
Slope (%)	= 48.00	0.00	0.00	n/a
N-Value	= .011	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.54	0.00	0.00	0.00
Crest El. (ft)	= 667.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	---	---	---
Multi-Stage	= Yes	No	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).



Pond Report

Pond No. 4 - DET A

Pond Data

Pond storage is based on user-defined values.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	661.50	n/a	0	0
1.00	662.50	n/a	3,840	3,840
2.00	663.50	n/a	4,740	8,580
3.00	664.50	n/a	8,460	17,040
4.00	665.50	n/a	7,680	24,720
5.00	666.50	n/a	5,340	30,060
5.67	667.50	n/a	1,920	31,980

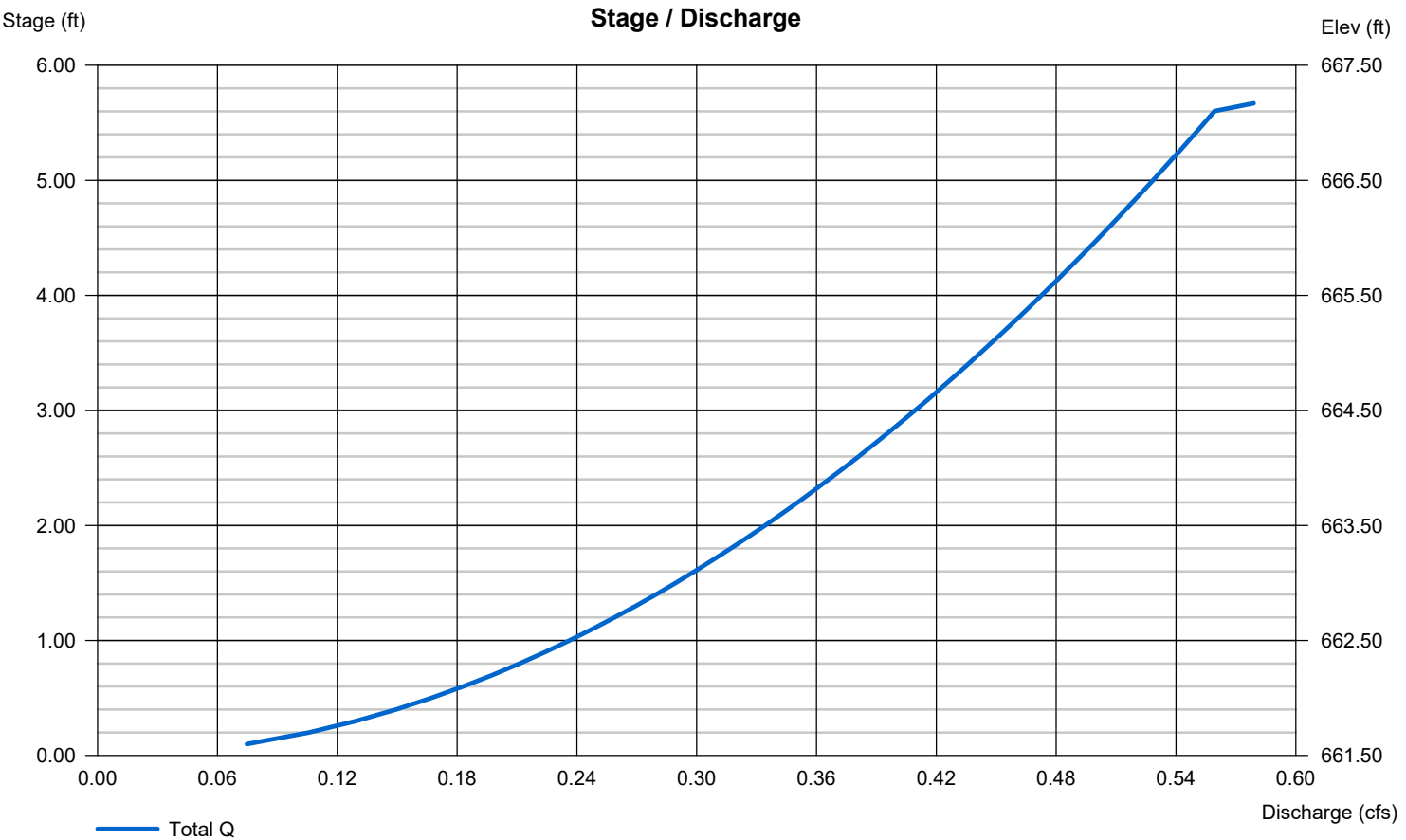
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	3.00	0.00	0.00
Span (in)	= 15.00	3.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 661.15	661.25	0.00	0.00
Length (ft)	= 141.00	0.04	0.00	0.00
Slope (%)	= 4.10	1.00	0.00	n/a
N-Value	= .011	.011	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	Inactive	0.00	0.00	0.00
Crest El. (ft)	= 663.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	---	---	---
Multi-Stage	= Yes	No	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).



Pond Report

Pond No. 5 - DET B

Pond Data

Pond storage is based on user-defined values.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	664.00	n/a	0	0
1.00	665.00	n/a	3,840	3,840
2.00	666.00	n/a	4,740	8,580
3.00	667.00	n/a	8,460	17,040
4.00	668.00	n/a	7,680	24,720
5.00	669.00	n/a	5,340	30,060
5.67	669.67	n/a	1,920	31,980

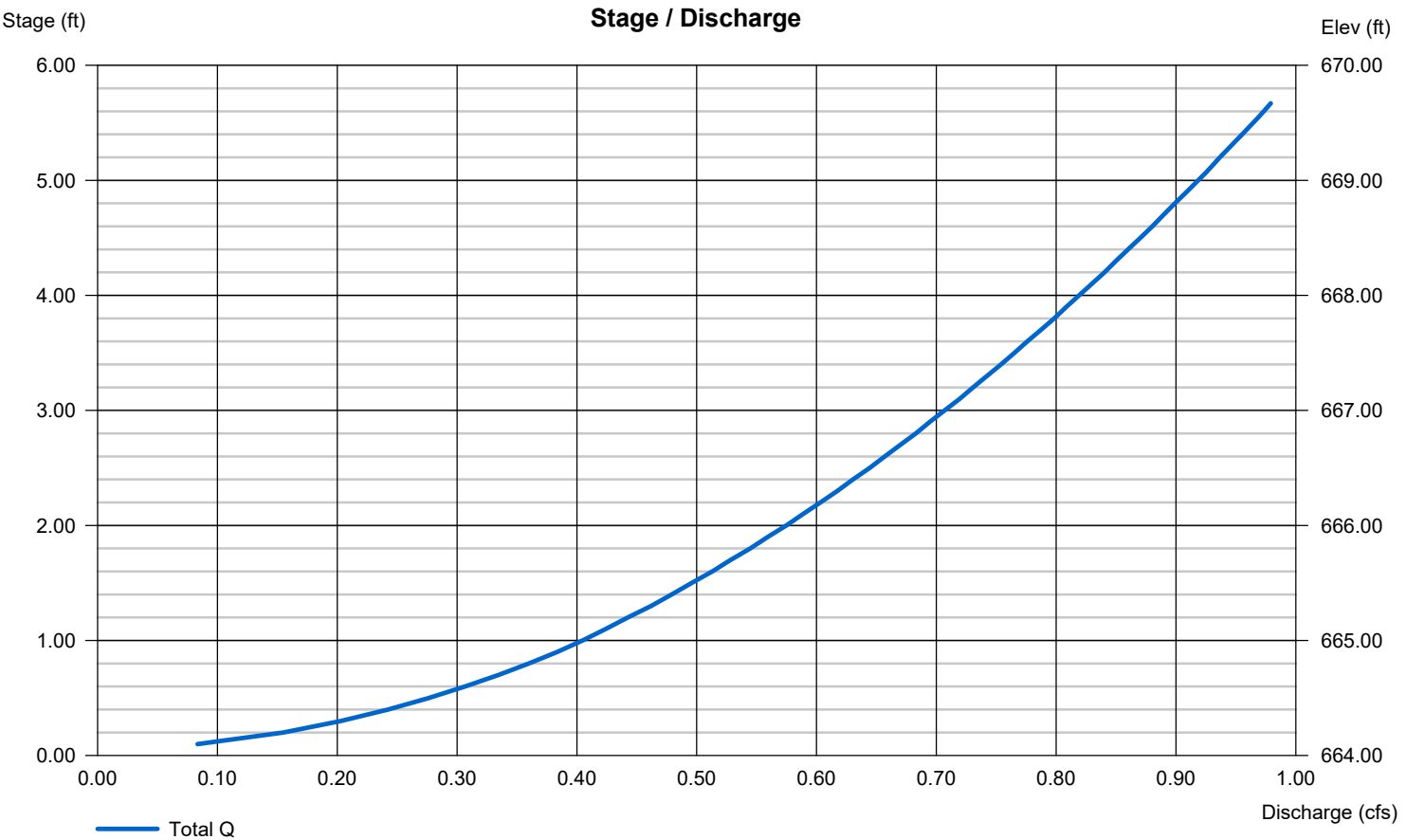
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	4.00	0.00	0.00
Span (in)	= 18.00	4.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 663.80	663.90	0.00	0.00
Length (ft)	= 52.00	0.04	0.00	0.00
Slope (%)	= 7.10	1.00	0.00	n/a
N-Value	= .011	.011	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	Inactive	0.00	0.00	0.00
Crest El. (ft)	= 663.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	---	---	---
Multi-Stage	= Yes	No	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).



BASIN ROUTING HYDROGRAPHS

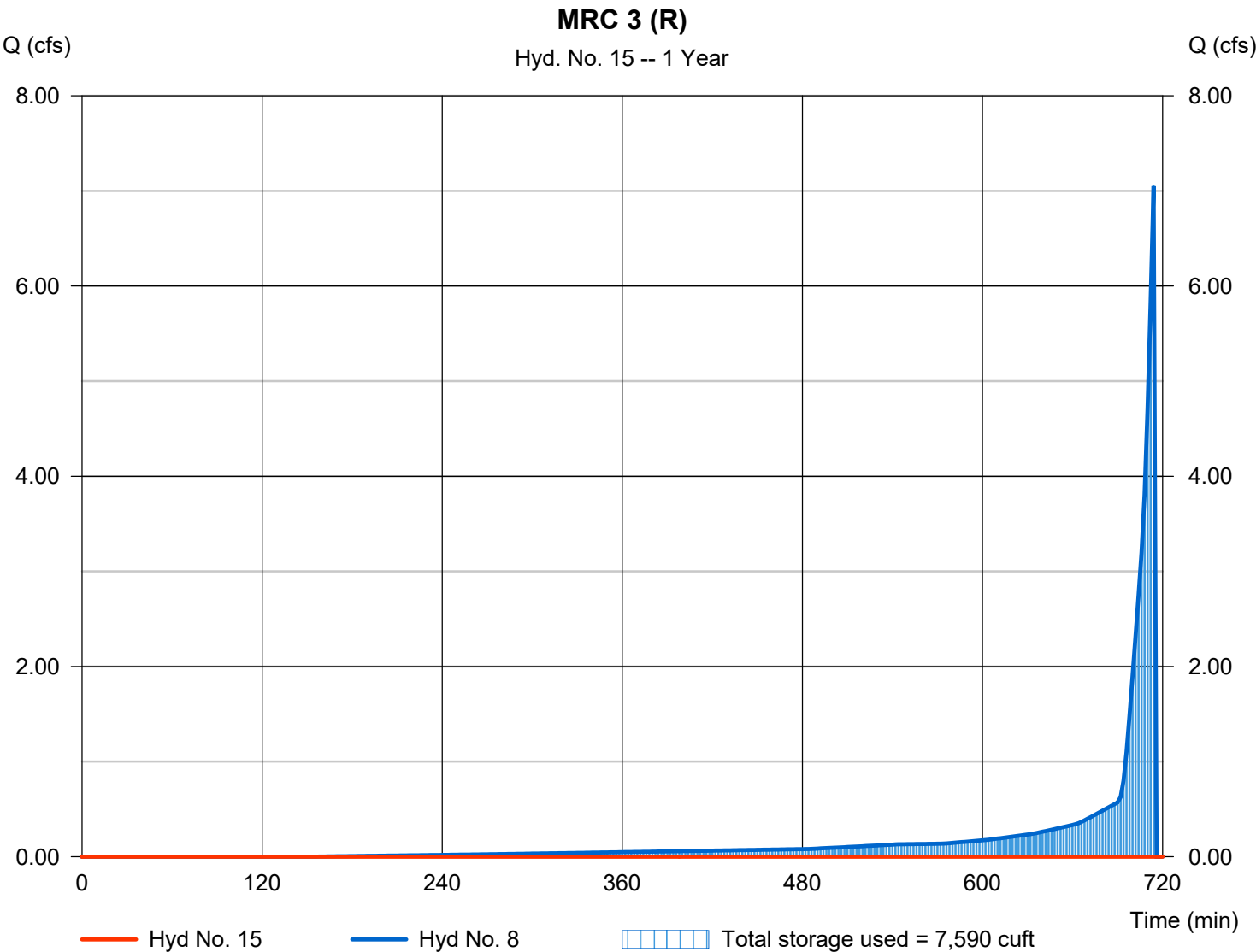
Hydrograph Report

Hyd. No. 15

MRC 3 (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 1 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 8 - 1.2in 2Y MRC 3	Max. Elevation	= 666.21 ft
Reservoir name	= MRC 3	Max. Storage	= 7,590 cuft

Storage Indication method used.



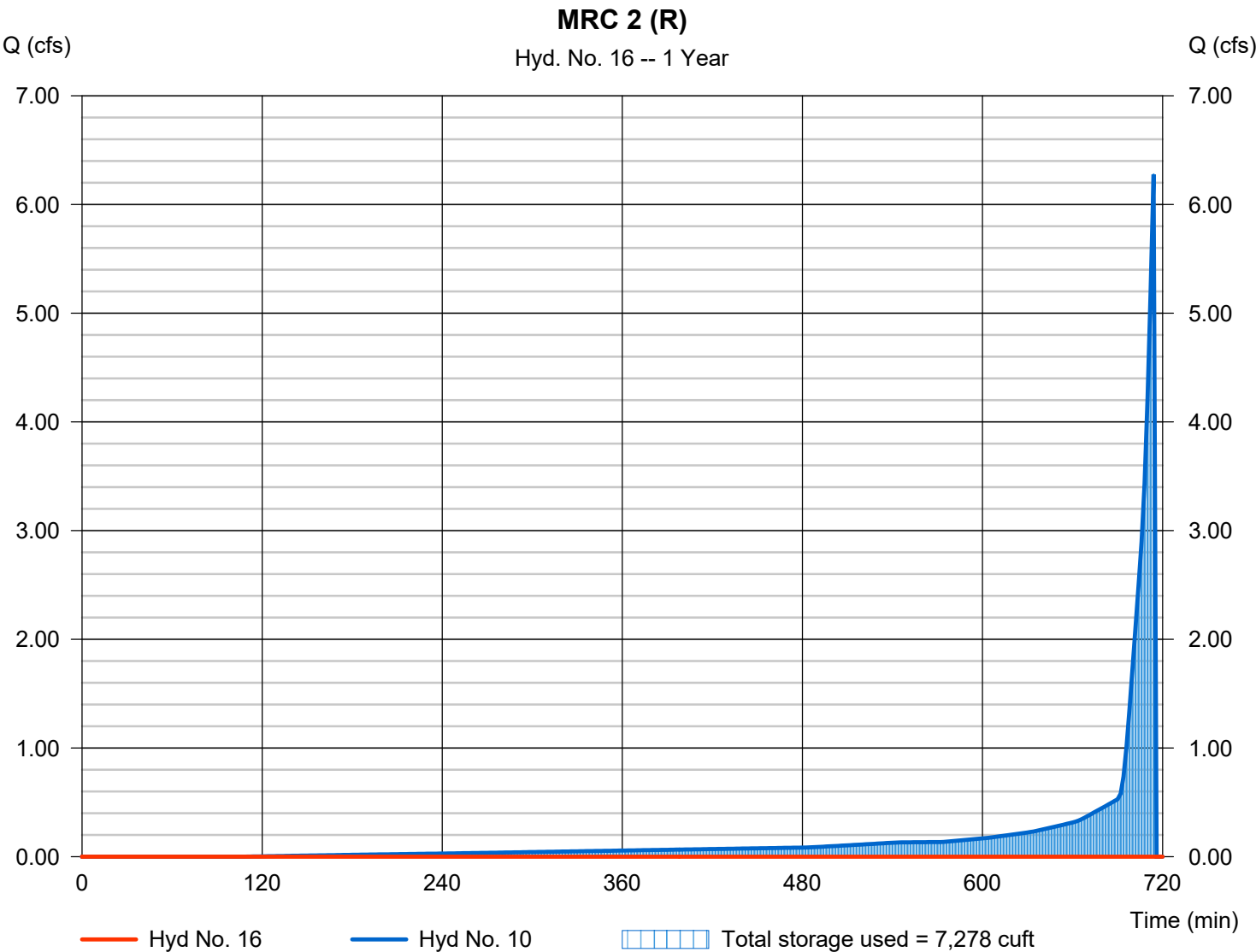
Hydrograph Report

Hyd. No. 16

MRC 2 (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 1 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 10 - 1.2in 2Y MRC 2	Max. Elevation	= 668.37 ft
Reservoir name	= MRC 2	Max. Storage	= 7,278 cuft

Storage Indication method used.



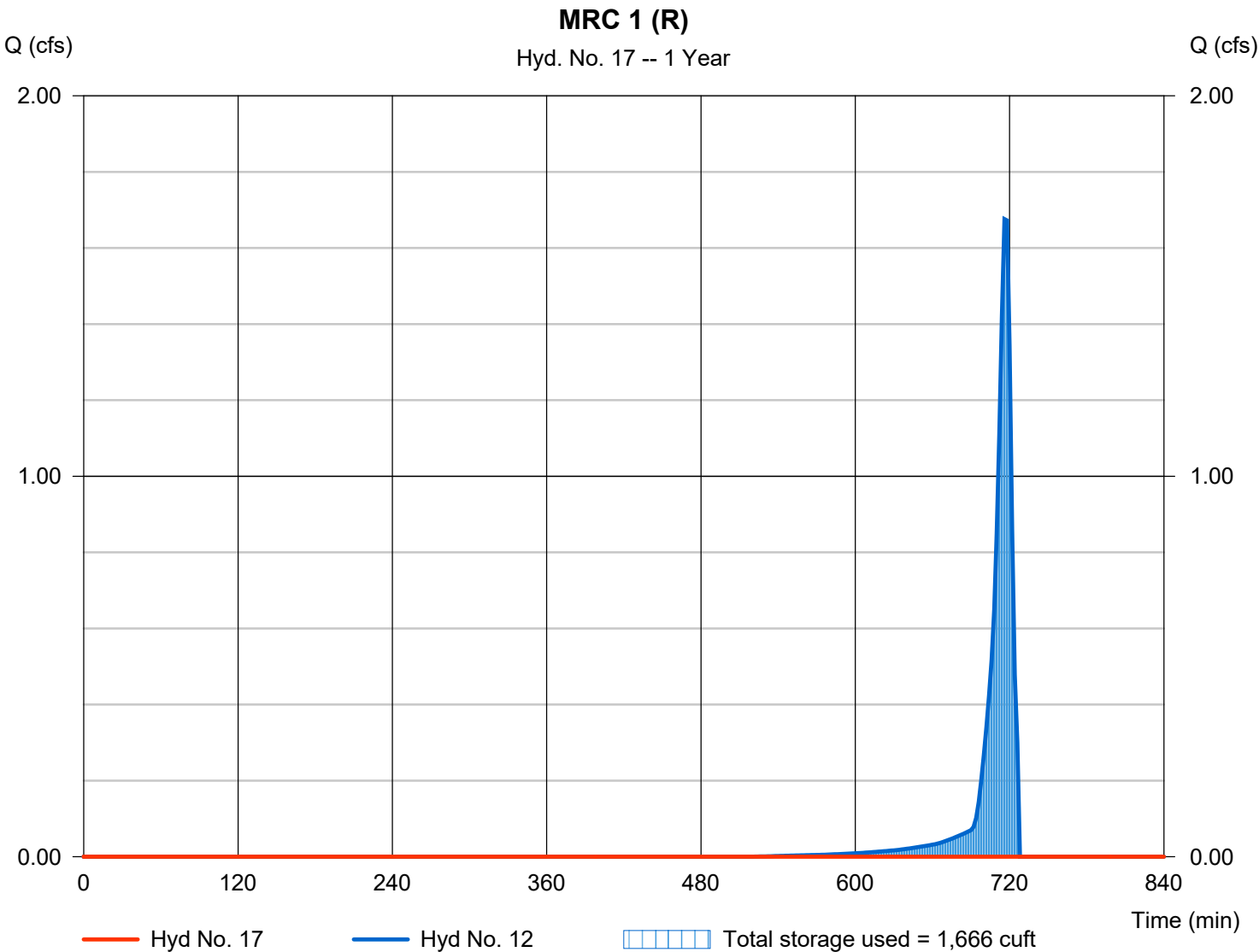
Hydrograph Report

Hyd. No. 17

MRC 1 (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 1 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 12 - 1.2in 2Y MRC 1	Max. Elevation	= 662.17 ft
Reservoir name	= MRC 1	Max. Storage	= 1,666 cuft

Storage Indication method used.



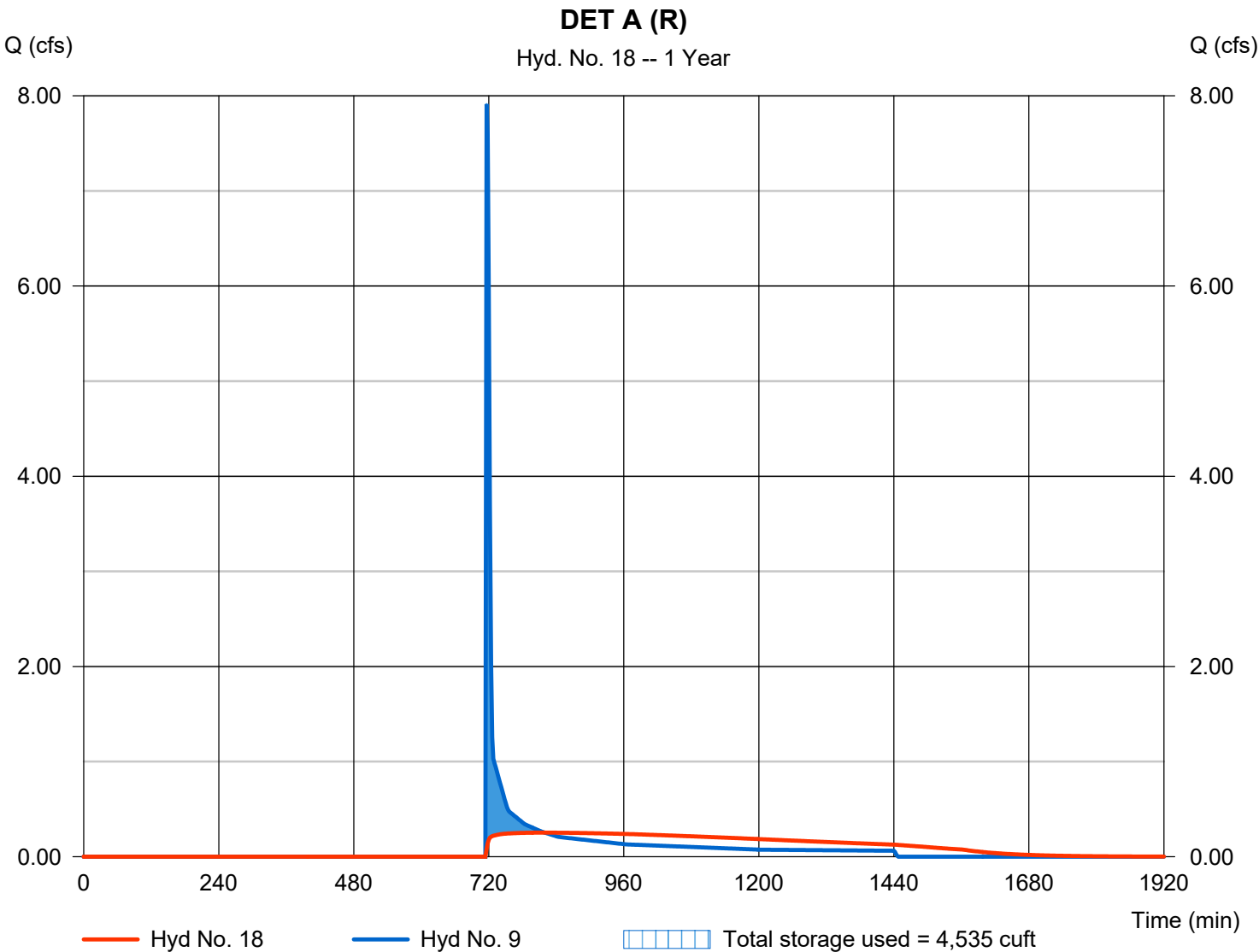
Hydrograph Report

Hyd. No. 18

DET A (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.253 cfs
Storm frequency	= 1 yrs	Time to peak	= 820 min
Time interval	= 2 min	Hyd. volume	= 10,007 cuft
Inflow hyd. No.	= 9 - DET A (IN)	Max. Elevation	= 662.65 ft
Reservoir name	= DET A	Max. Storage	= 4,535 cuft

Storage Indication method used.



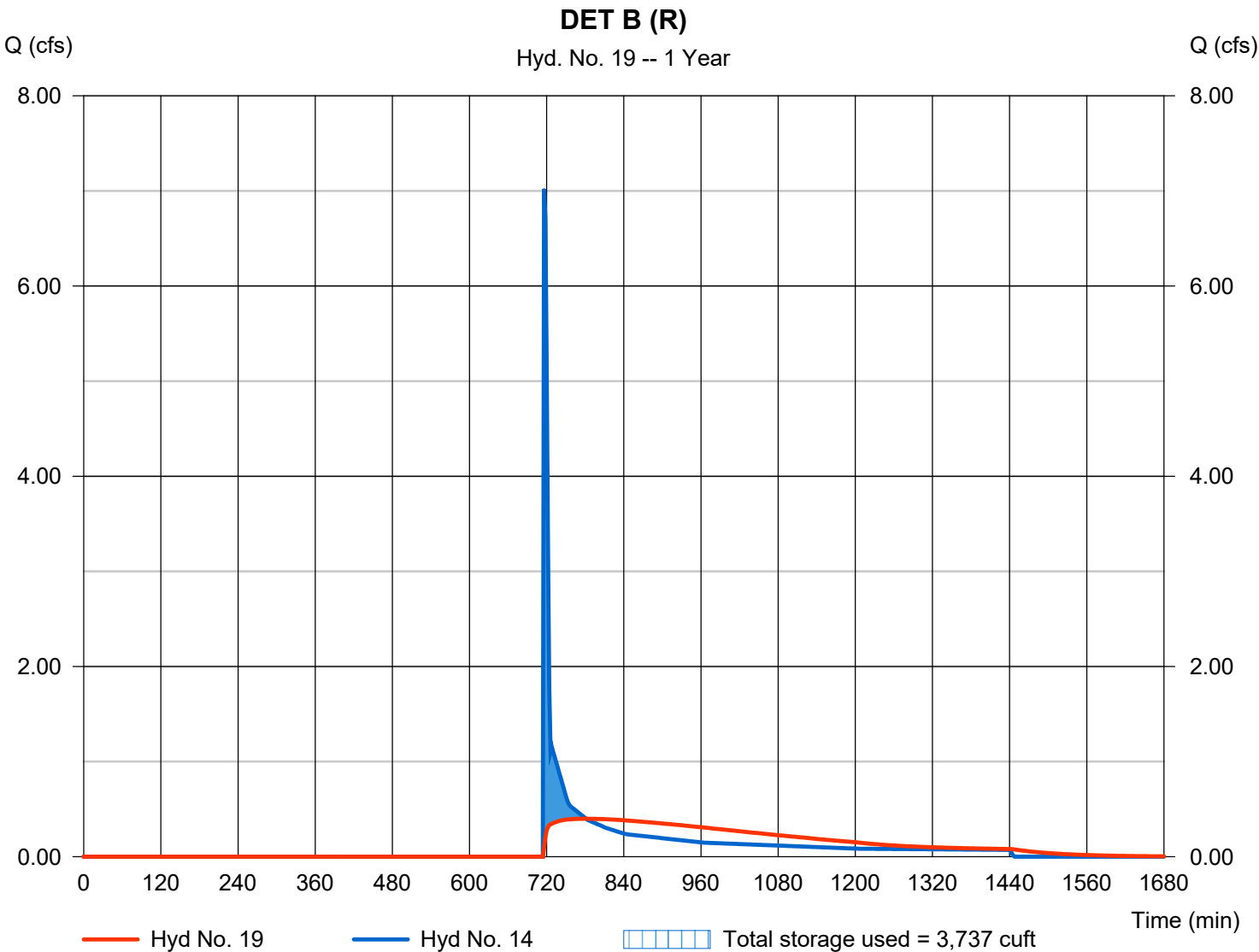
Hydrograph Report

Hyd. No. 19

DET B (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.399 cfs
Storm frequency	= 1 yrs	Time to peak	= 782 min
Time interval	= 2 min	Hyd. volume	= 10,505 cuft
Inflow hyd. No.	= 14 - DET B (IN)	Max. Elevation	= 664.97 ft
Reservoir name	= DET B	Max. Storage	= 3,737 cuft

Storage Indication method used.



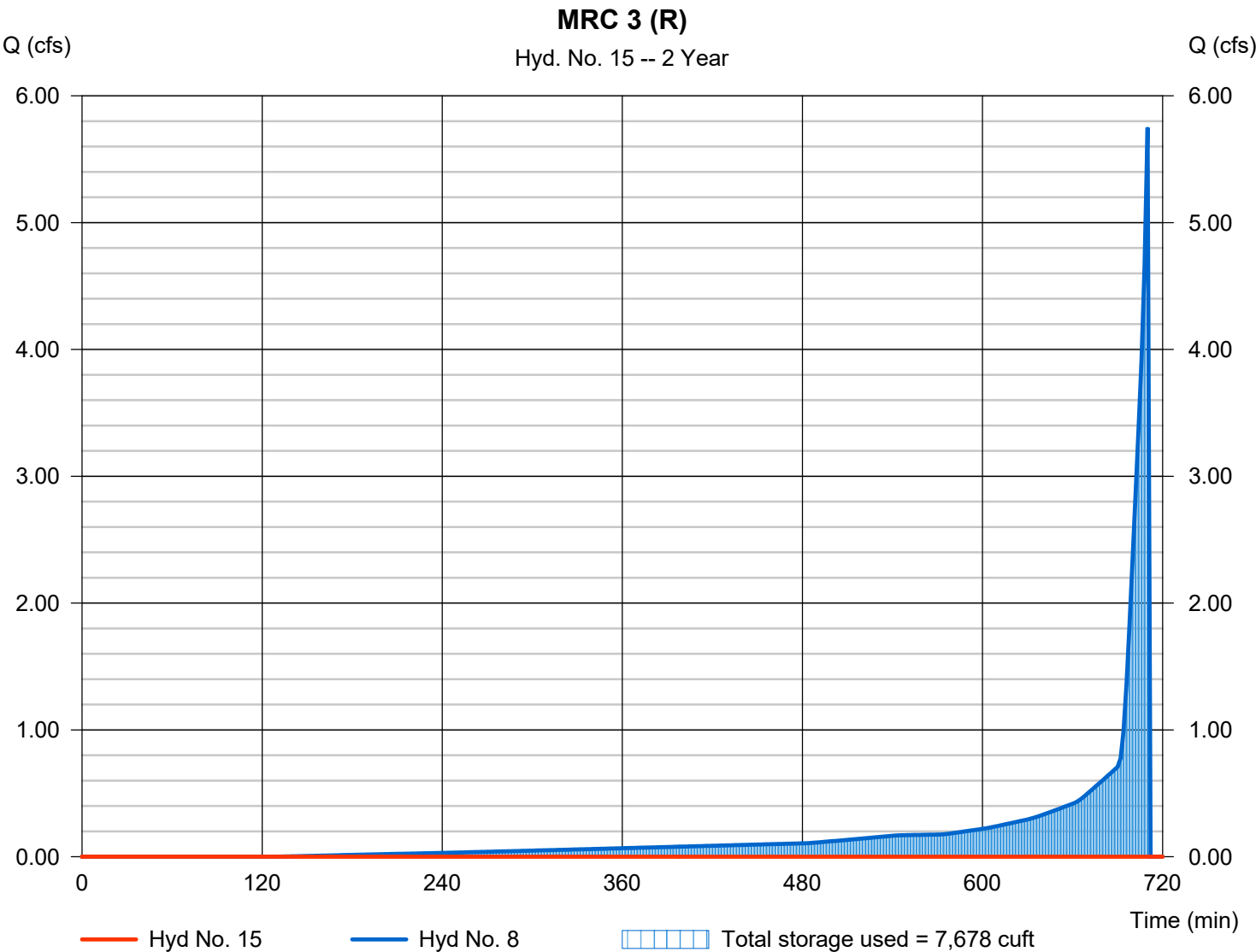
Hydrograph Report

Hyd. No. 15

MRC 3 (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 8 - 1.2in 2Y MRC 3	Max. Elevation	= 666.22 ft
Reservoir name	= MRC 3	Max. Storage	= 7,678 cuft

Storage Indication method used.



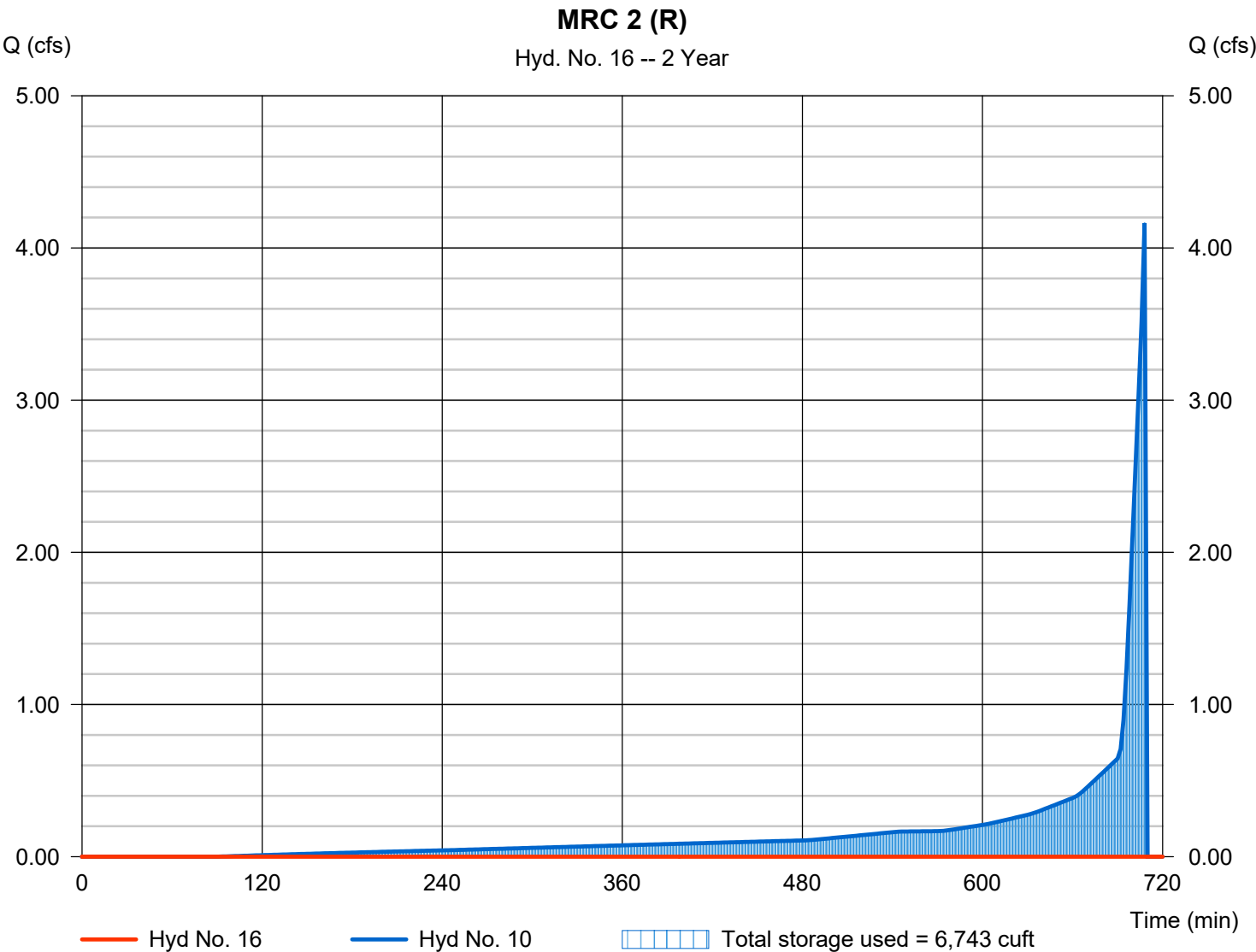
Hydrograph Report

Hyd. No. 16

MRC 2 (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 10 - 1.2in 2Y MRC 2	Max. Elevation	= 668.30 ft
Reservoir name	= MRC 2	Max. Storage	= 6,743 cuft

Storage Indication method used.



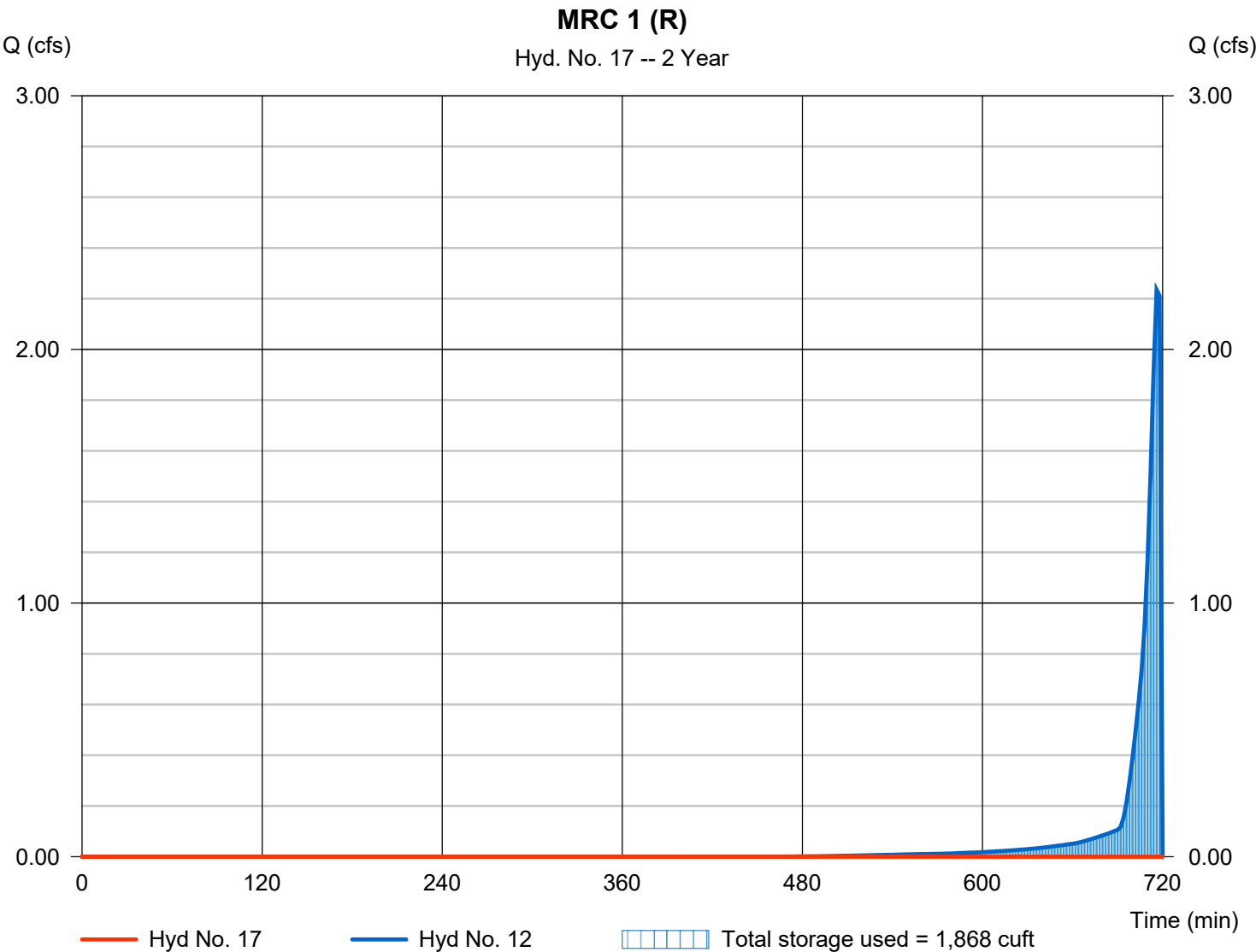
Hydrograph Report

Hyd. No. 17

MRC 1 (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 12 - 1.2in 2Y MRC 1	Max. Elevation	= 662.26 ft
Reservoir name	= MRC 1	Max. Storage	= 1,868 cuft

Storage Indication method used.



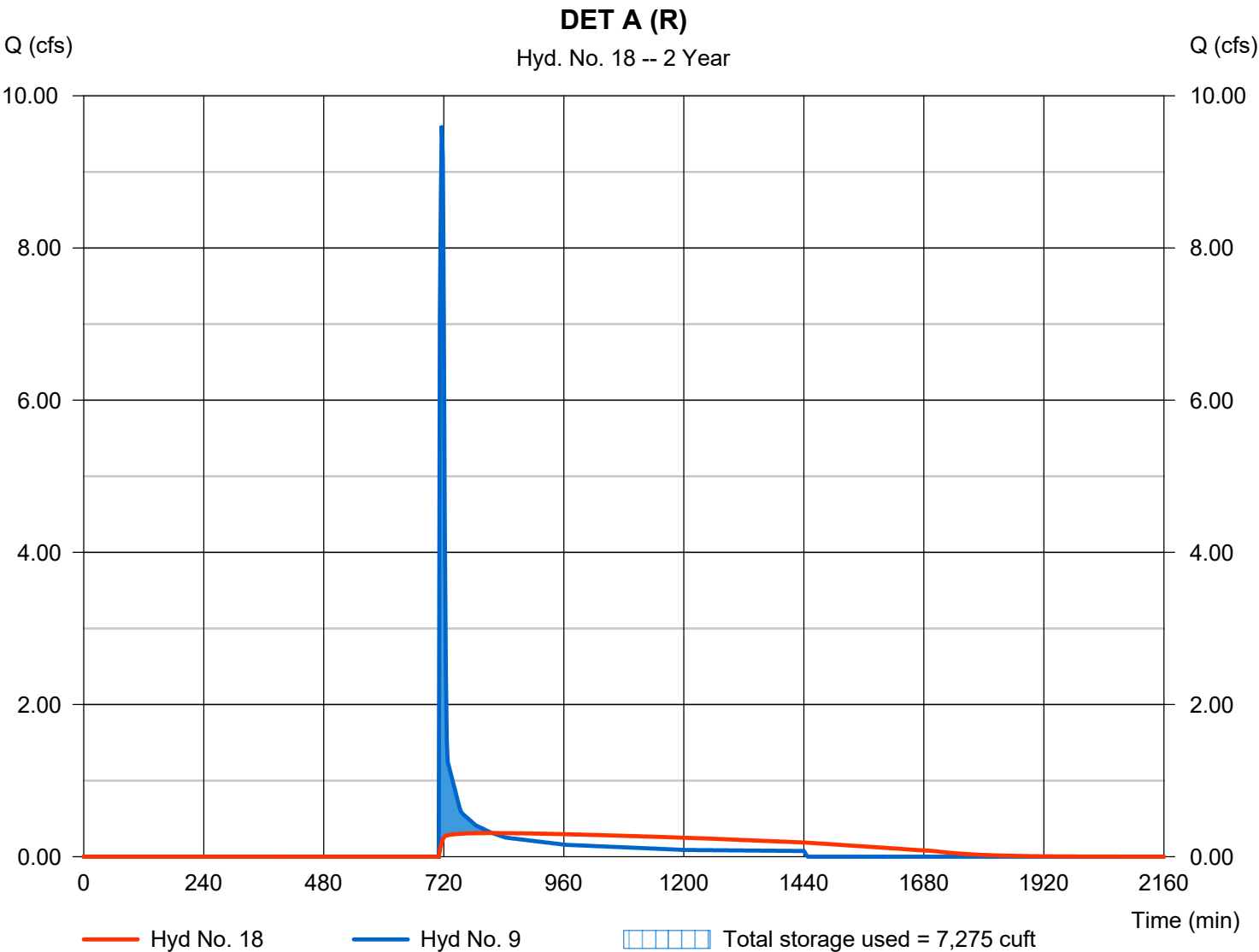
Hydrograph Report

Hyd. No. 18

DET A (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.310 cfs
Storm frequency	= 2 yrs	Time to peak	= 818 min
Time interval	= 2 min	Hyd. volume	= 13,967 cuft
Inflow hyd. No.	= 9 - DET A (IN)	Max. Elevation	= 663.22 ft
Reservoir name	= DET A	Max. Storage	= 7,275 cuft

Storage Indication method used.



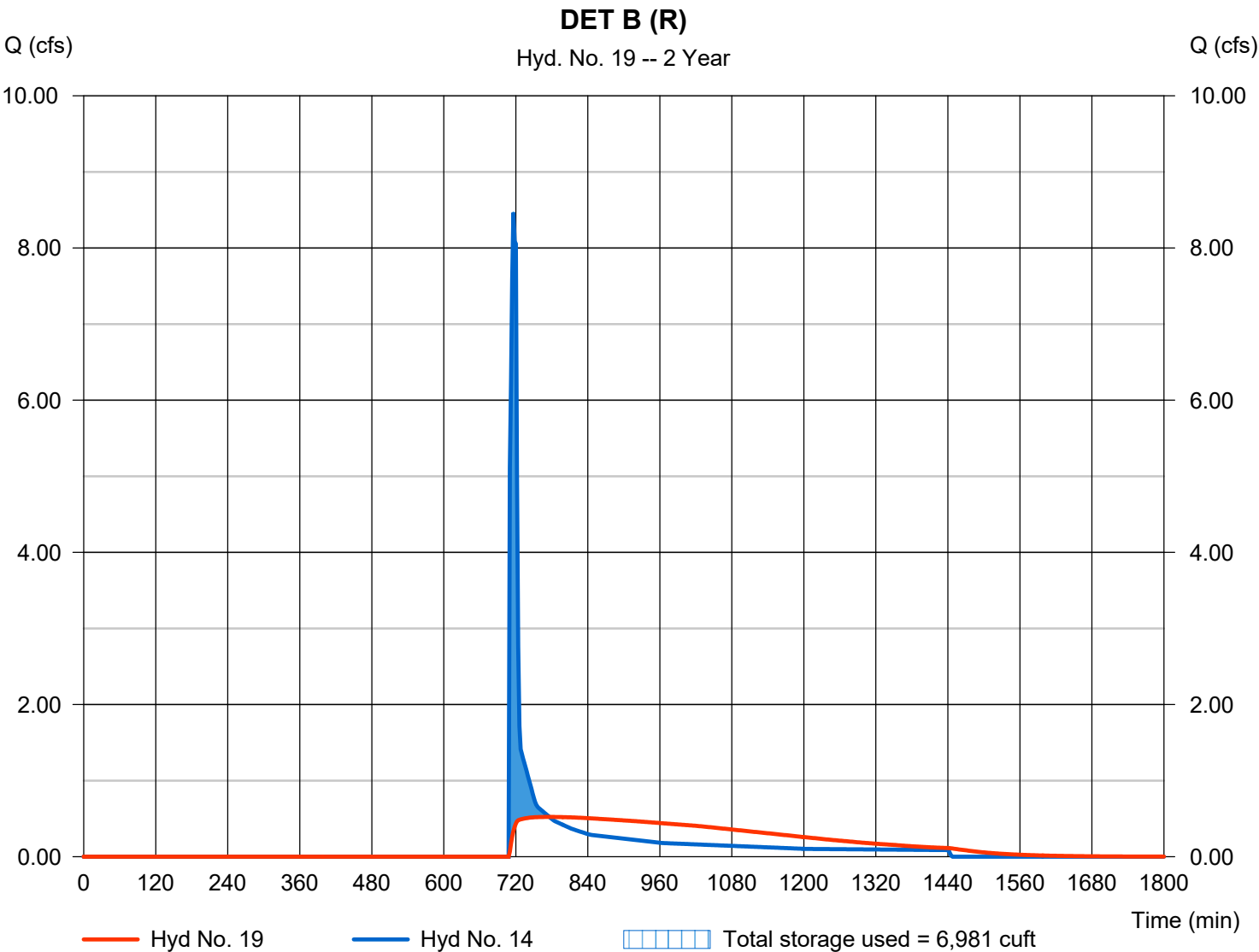
Hydrograph Report

Hyd. No. 19

DET B (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.523 cfs
Storm frequency	= 2 yrs	Time to peak	= 776 min
Time interval	= 2 min	Hyd. volume	= 15,509 cuft
Inflow hyd. No.	= 14 - DET B (IN)	Max. Elevation	= 665.66 ft
Reservoir name	= DET B	Max. Storage	= 6,981 cuft

Storage Indication method used.



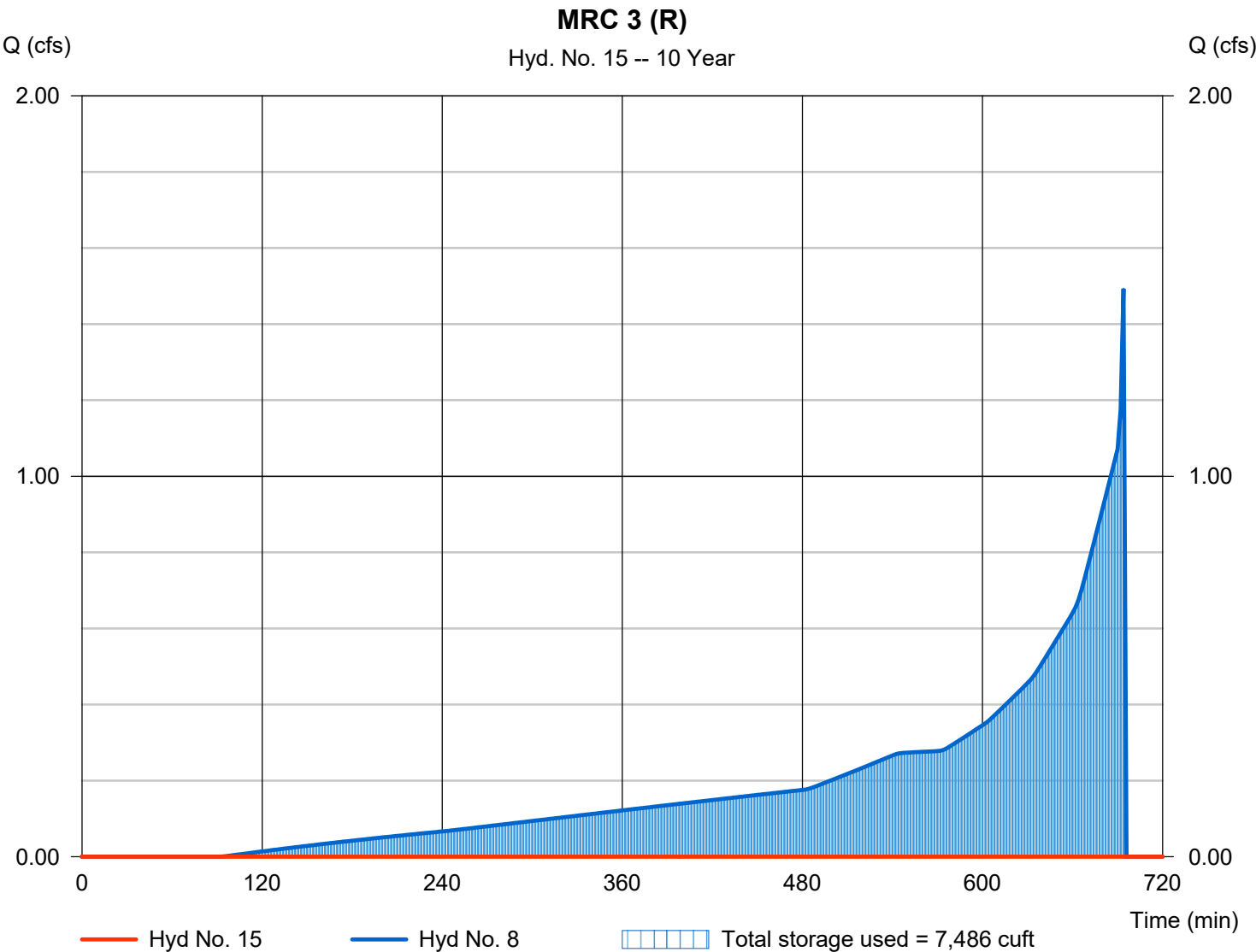
Hydrograph Report

Hyd. No. 15

MRC 3 (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 10 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 8 - 1.2in 2Y MRC 3	Max. Elevation	= 666.20 ft
Reservoir name	= MRC 3	Max. Storage	= 7,486 cuft

Storage Indication method used.



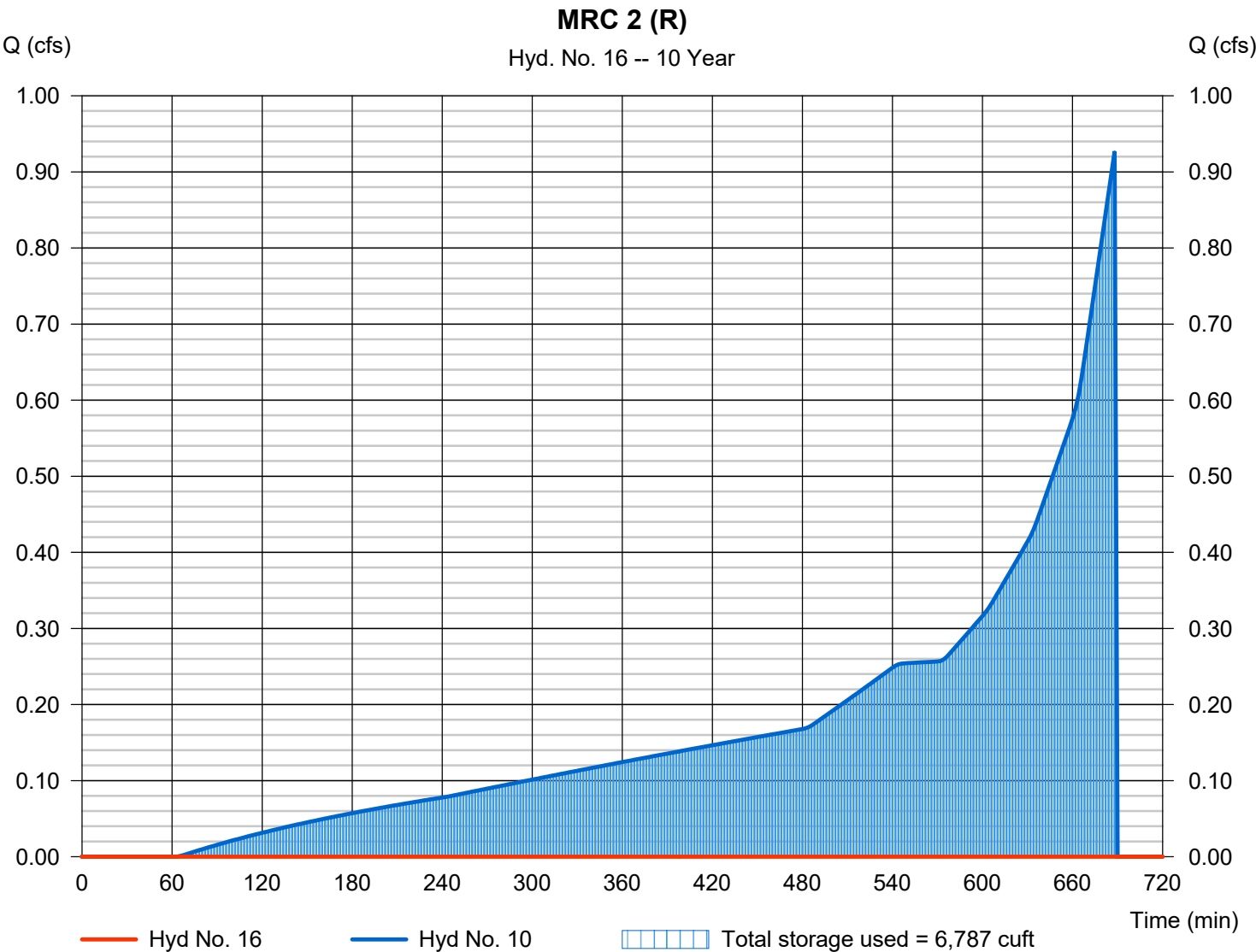
Hydrograph Report

Hyd. No. 16

MRC 2 (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 10 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 10 - 1.2in 2Y MRC 2	Max. Elevation	= 668.31 ft
Reservoir name	= MRC 2	Max. Storage	= 6,787 cuft

Storage Indication method used.



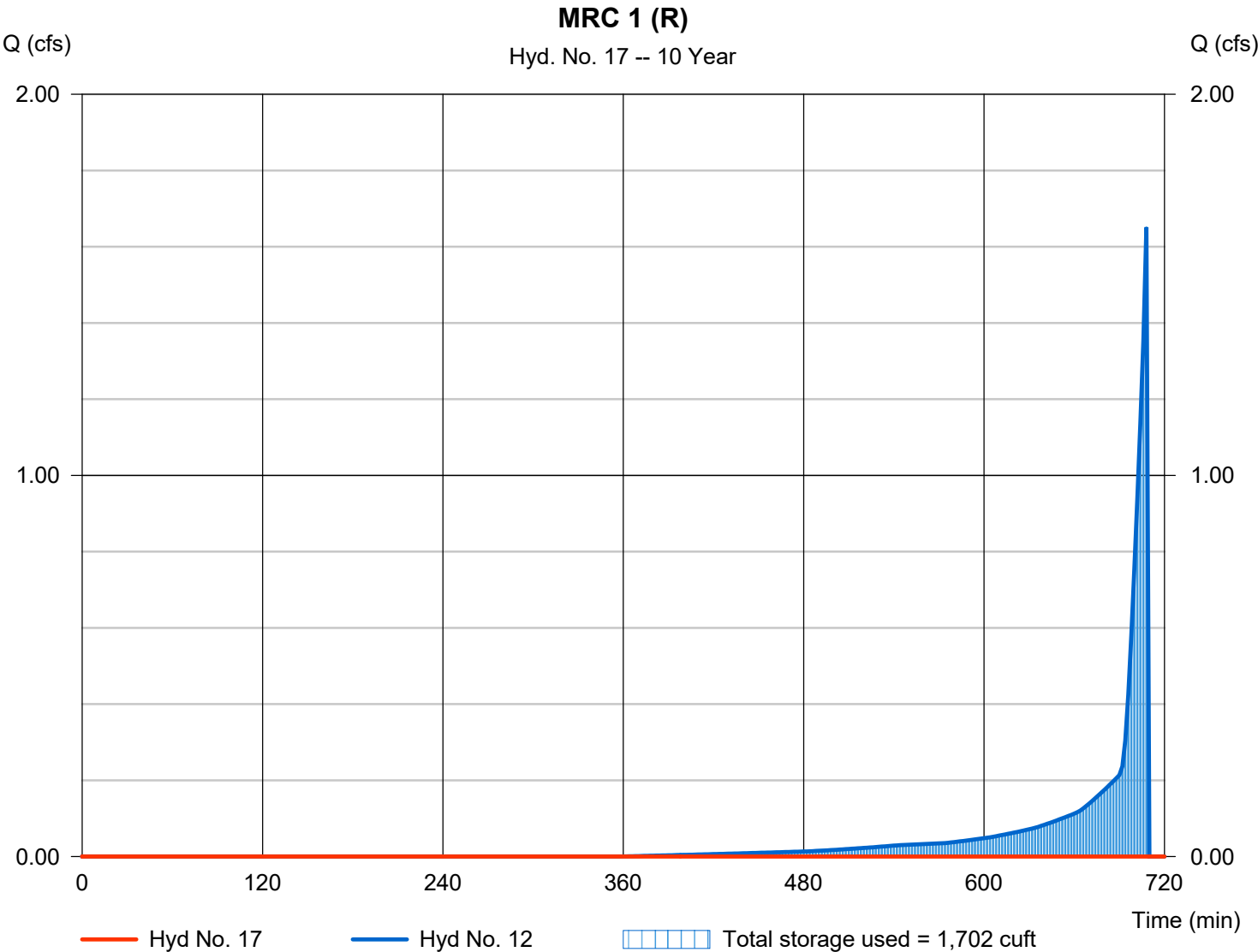
Hydrograph Report

Hyd. No. 17

MRC 1 (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 10 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 12 - 1.2in 2Y MRC 1	Max. Elevation	= 662.18 ft
Reservoir name	= MRC 1	Max. Storage	= 1,702 cuft

Storage Indication method used.



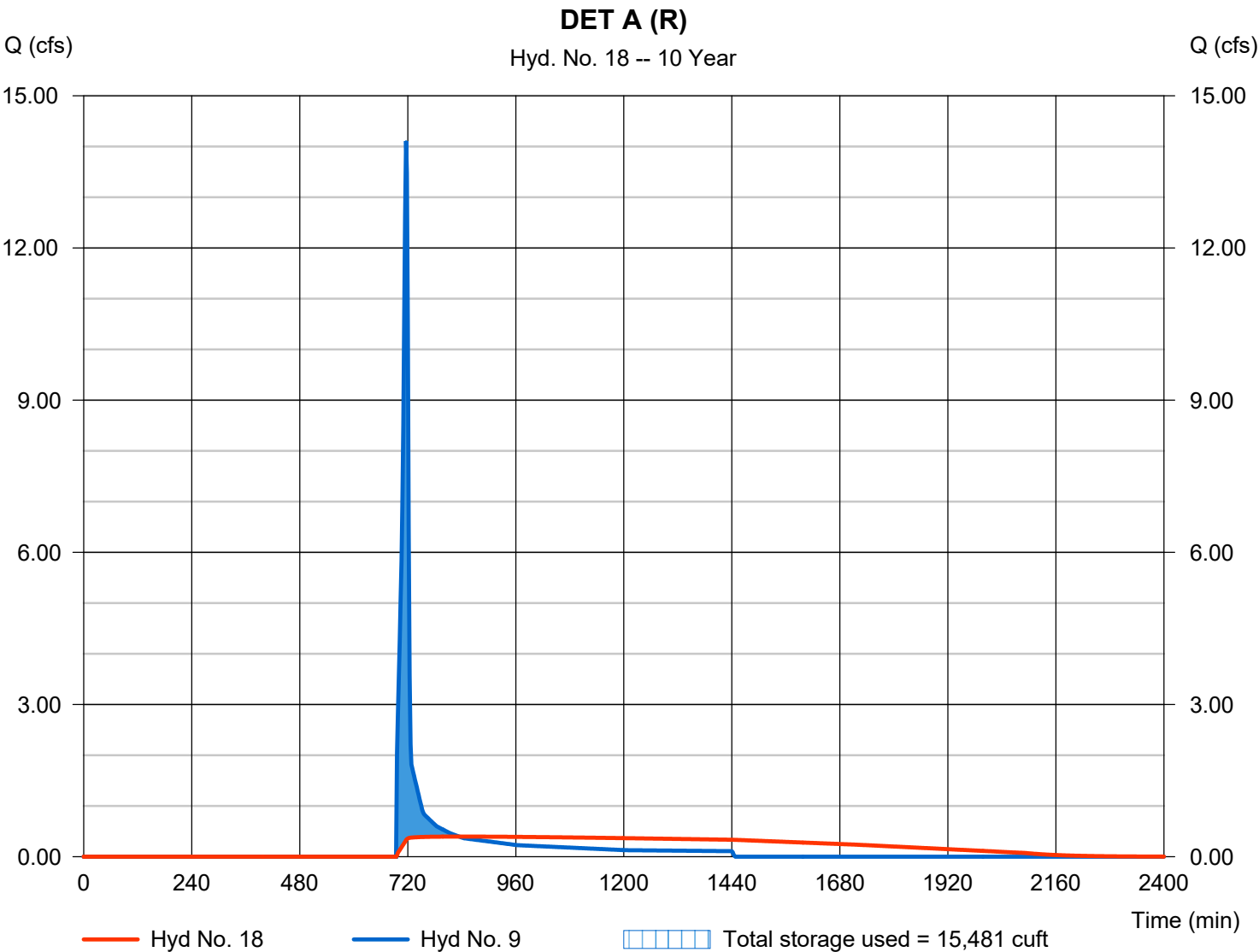
Hydrograph Report

Hyd. No. 18

DET A (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.397 cfs
Storm frequency	= 10 yrs	Time to peak	= 834 min
Time interval	= 2 min	Hyd. volume	= 25,073 cuft
Inflow hyd. No.	= 9 - DET A (IN)	Max. Elevation	= 664.32 ft
Reservoir name	= DET A	Max. Storage	= 15,481 cuft

Storage Indication method used.



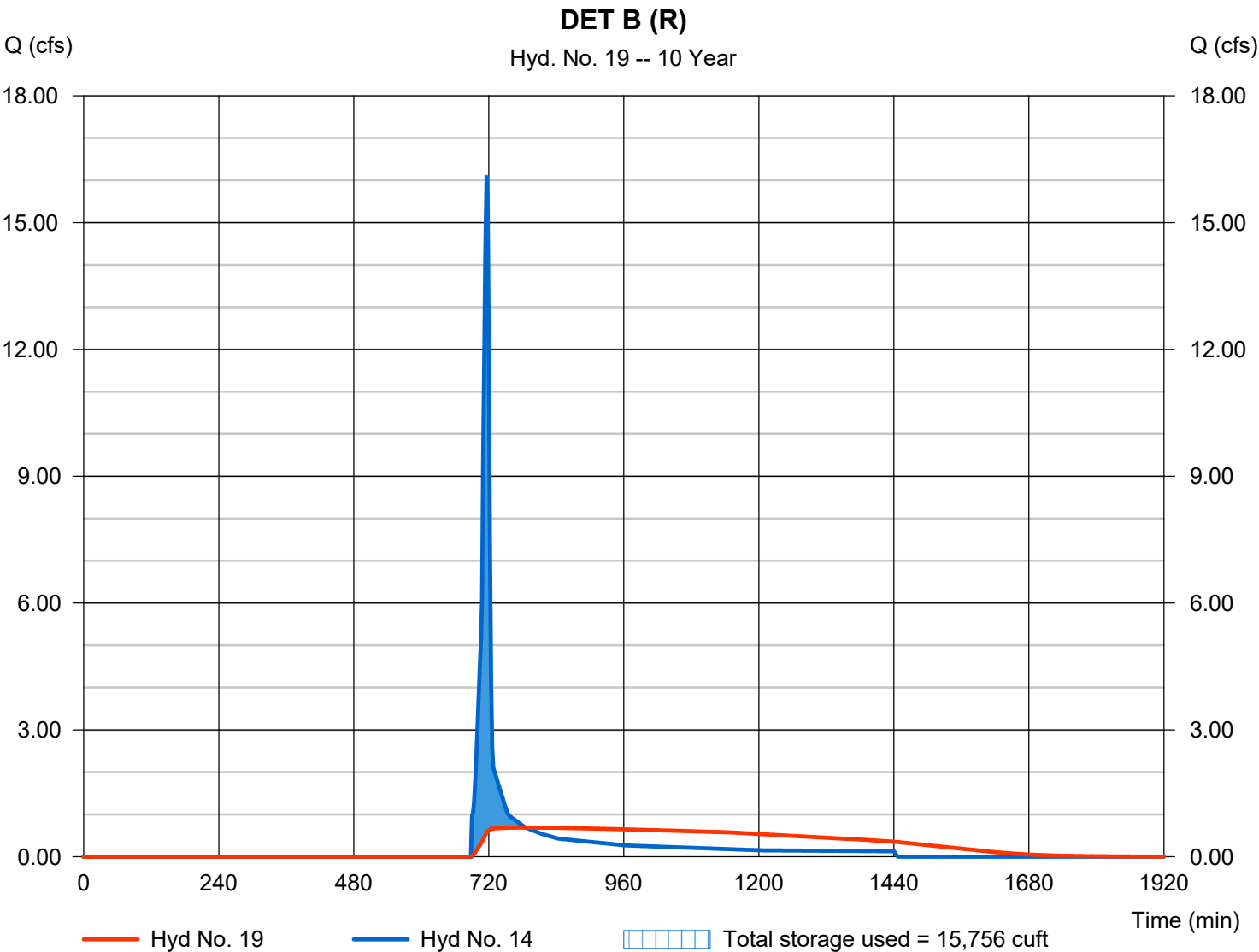
Hydrograph Report

Hyd. No. 19

DET B (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.688 cfs
Storm frequency	= 10 yrs	Time to peak	= 786 min
Time interval	= 2 min	Hyd. volume	= 28,383 cuft
Inflow hyd. No.	= 14 - DET B (IN)	Max. Elevation	= 666.85 ft
Reservoir name	= DET B	Max. Storage	= 15,756 cuft

Storage Indication method used.



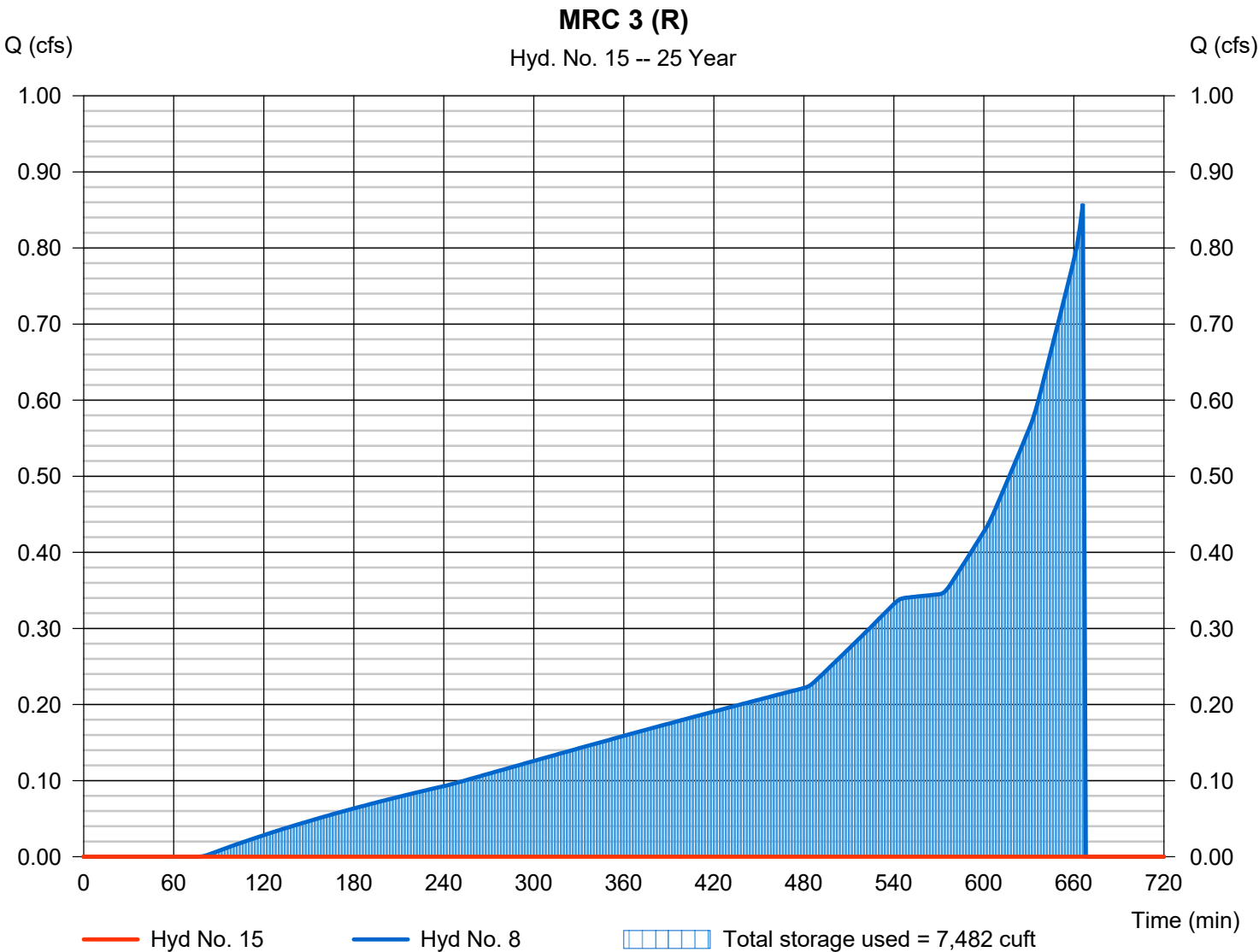
Hydrograph Report

Hyd. No. 15

MRC 3 (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 25 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 8 - 1.2in 2Y MRC 3	Max. Elevation	= 666.20 ft
Reservoir name	= MRC 3	Max. Storage	= 7,482 cuft

Storage Indication method used.



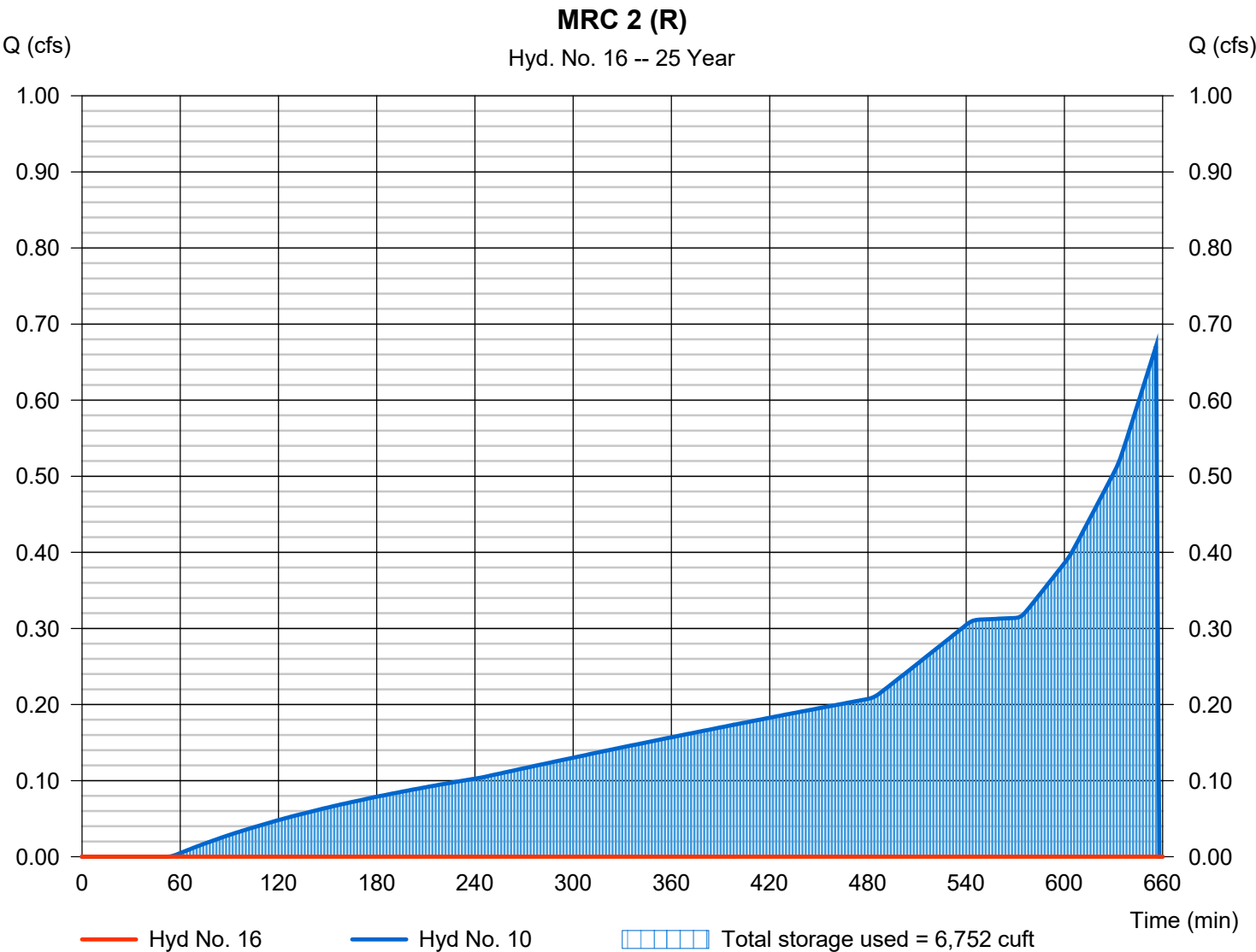
Hydrograph Report

Hyd. No. 16

MRC 2 (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 25 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 10 - 1.2in 2Y MRC 2	Max. Elevation	= 668.30 ft
Reservoir name	= MRC 2	Max. Storage	= 6,752 cuft

Storage Indication method used.



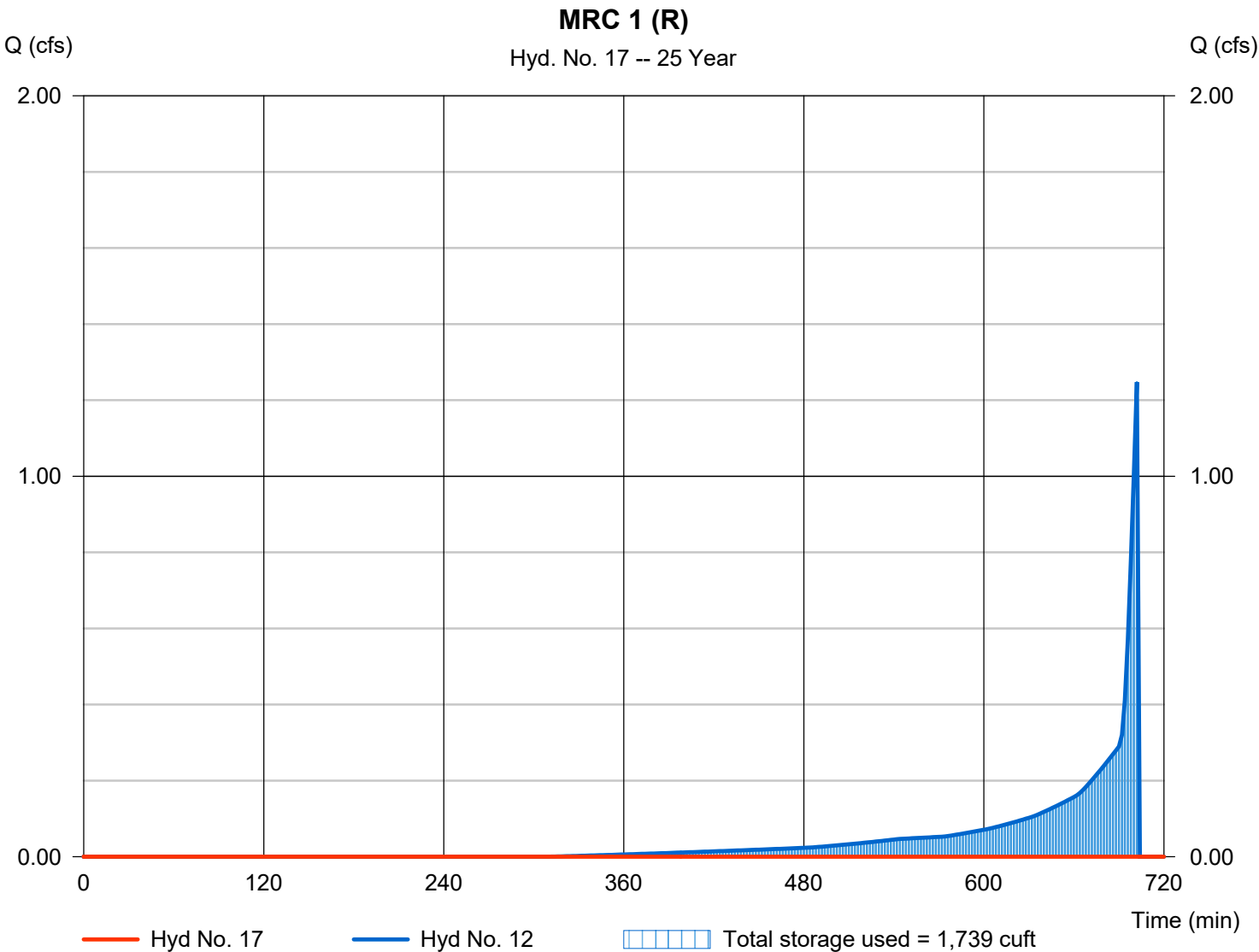
Hydrograph Report

Hyd. No. 17

MRC 1 (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 25 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 12 - 1.2in 2Y MRC 1	Max. Elevation	= 662.20 ft
Reservoir name	= MRC 1	Max. Storage	= 1,739 cuft

Storage Indication method used.



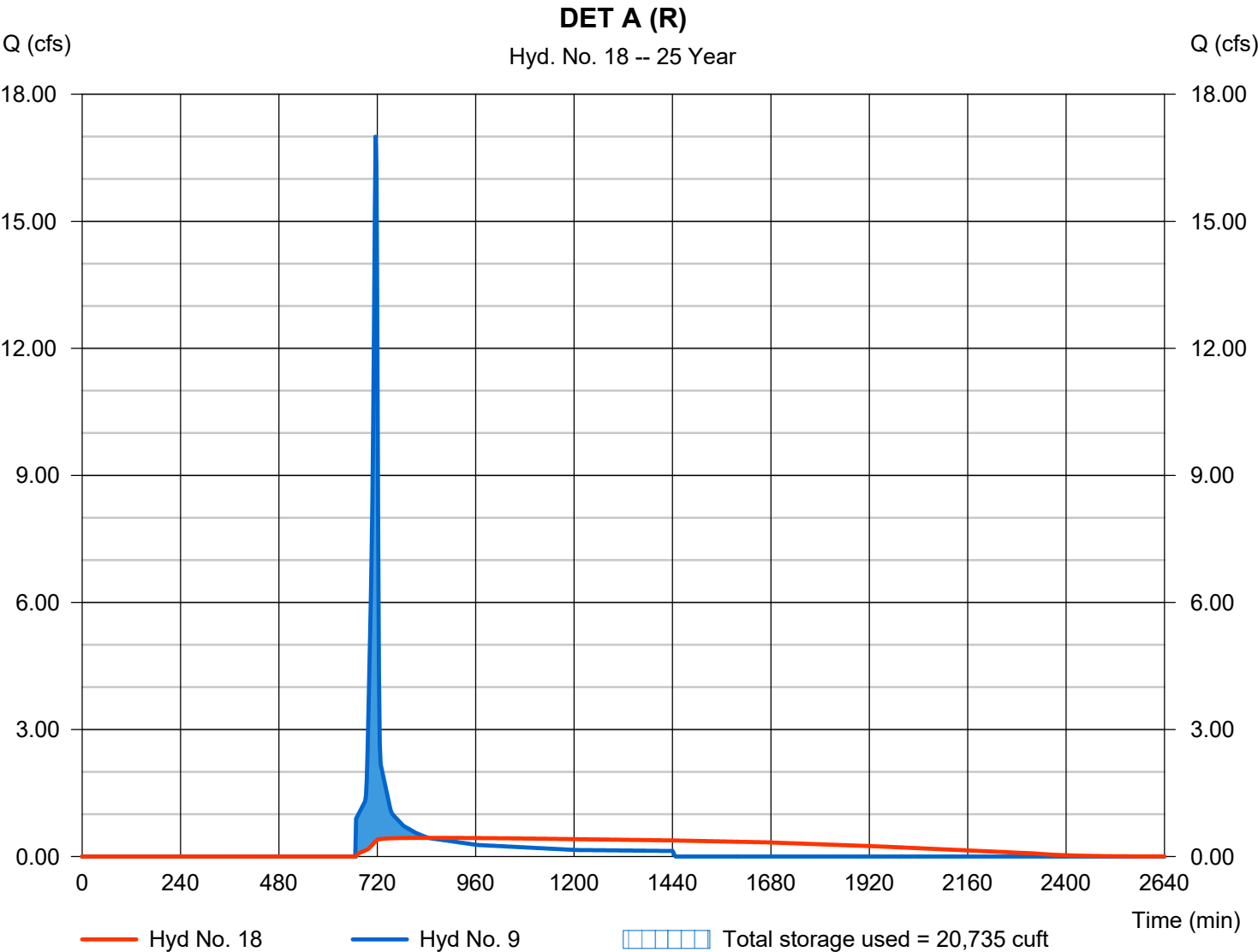
Hydrograph Report

Hyd. No. 18

DET A (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.441 cfs
Storm frequency	= 25 yrs	Time to peak	= 844 min
Time interval	= 2 min	Hyd. volume	= 32,222 cuft
Inflow hyd. No.	= 9 - DET A (IN)	Max. Elevation	= 664.98 ft
Reservoir name	= DET A	Max. Storage	= 20,735 cuft

Storage Indication method used.



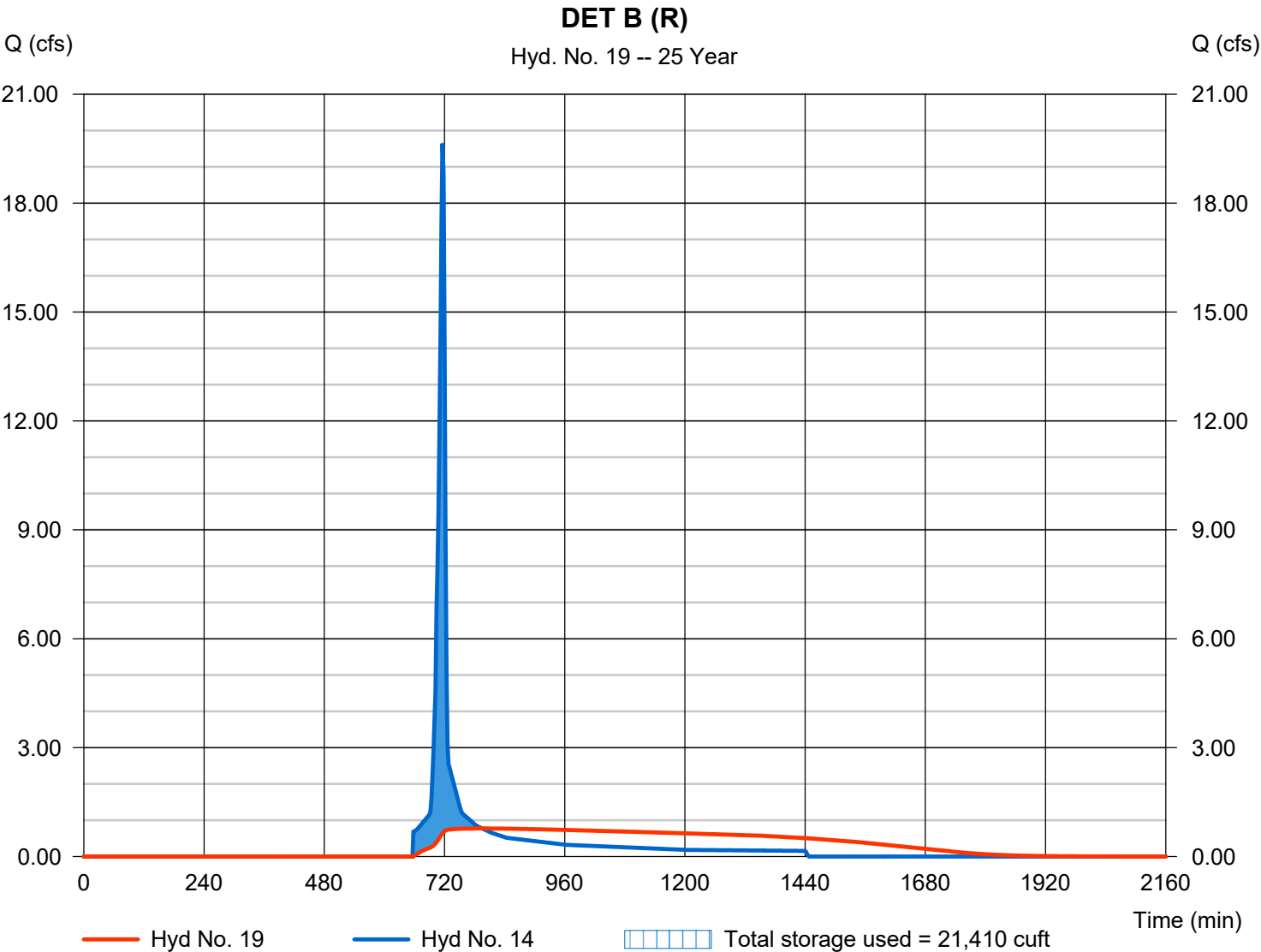
Hydrograph Report

Hyd. No. 19

DET B (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.773 cfs
Storm frequency	= 25 yrs	Time to peak	= 796 min
Time interval	= 2 min	Hyd. volume	= 36,804 cuft
Inflow hyd. No.	= 14 - DET B (IN)	Max. Elevation	= 667.57 ft
Reservoir name	= DET B	Max. Storage	= 21,410 cuft

Storage Indication method used.



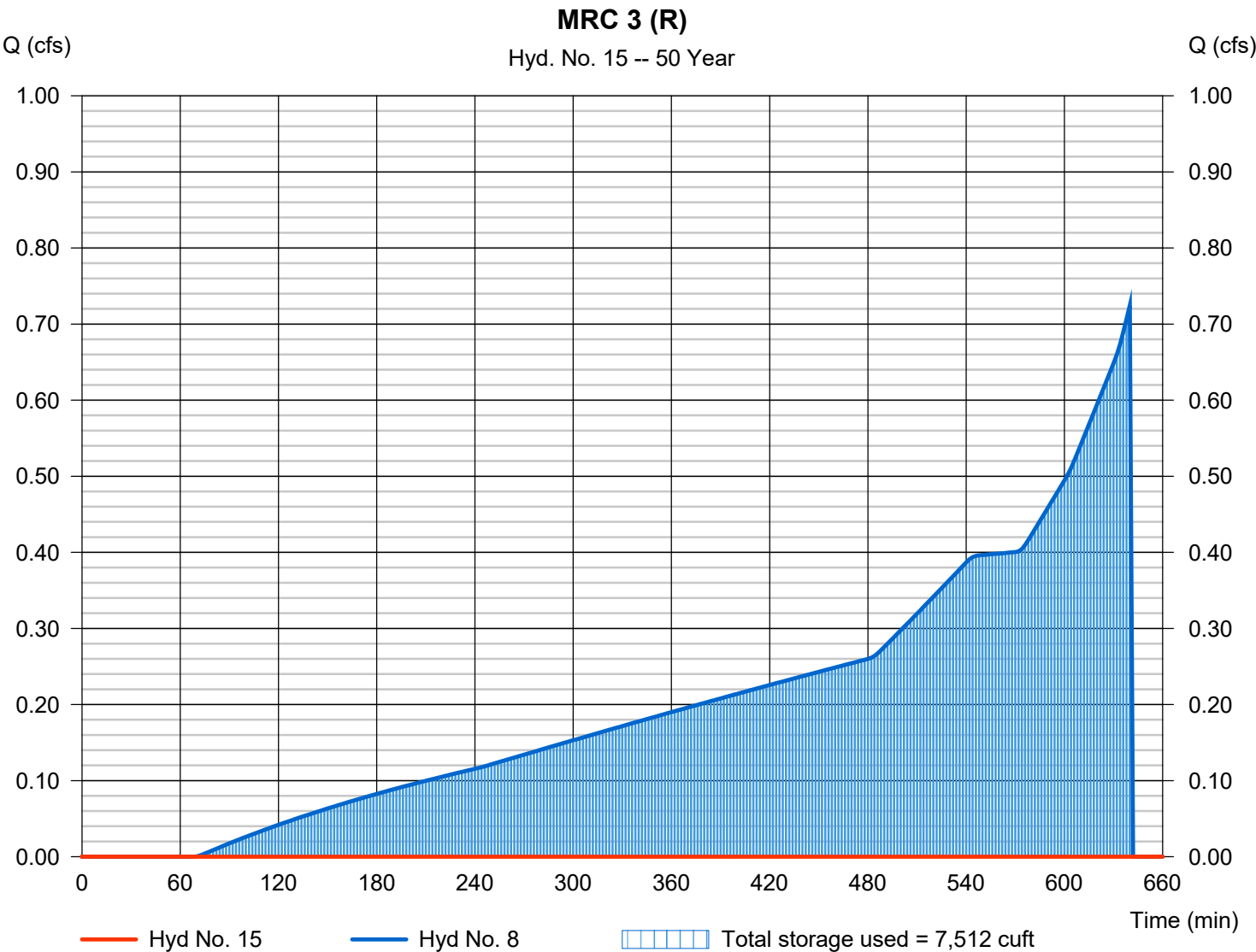
Hydrograph Report

Hyd. No. 15

MRC 3 (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 50 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 8 - 1.2in 2Y MRC 3	Max. Elevation	= 666.21 ft
Reservoir name	= MRC 3	Max. Storage	= 7,512 cuft

Storage Indication method used.



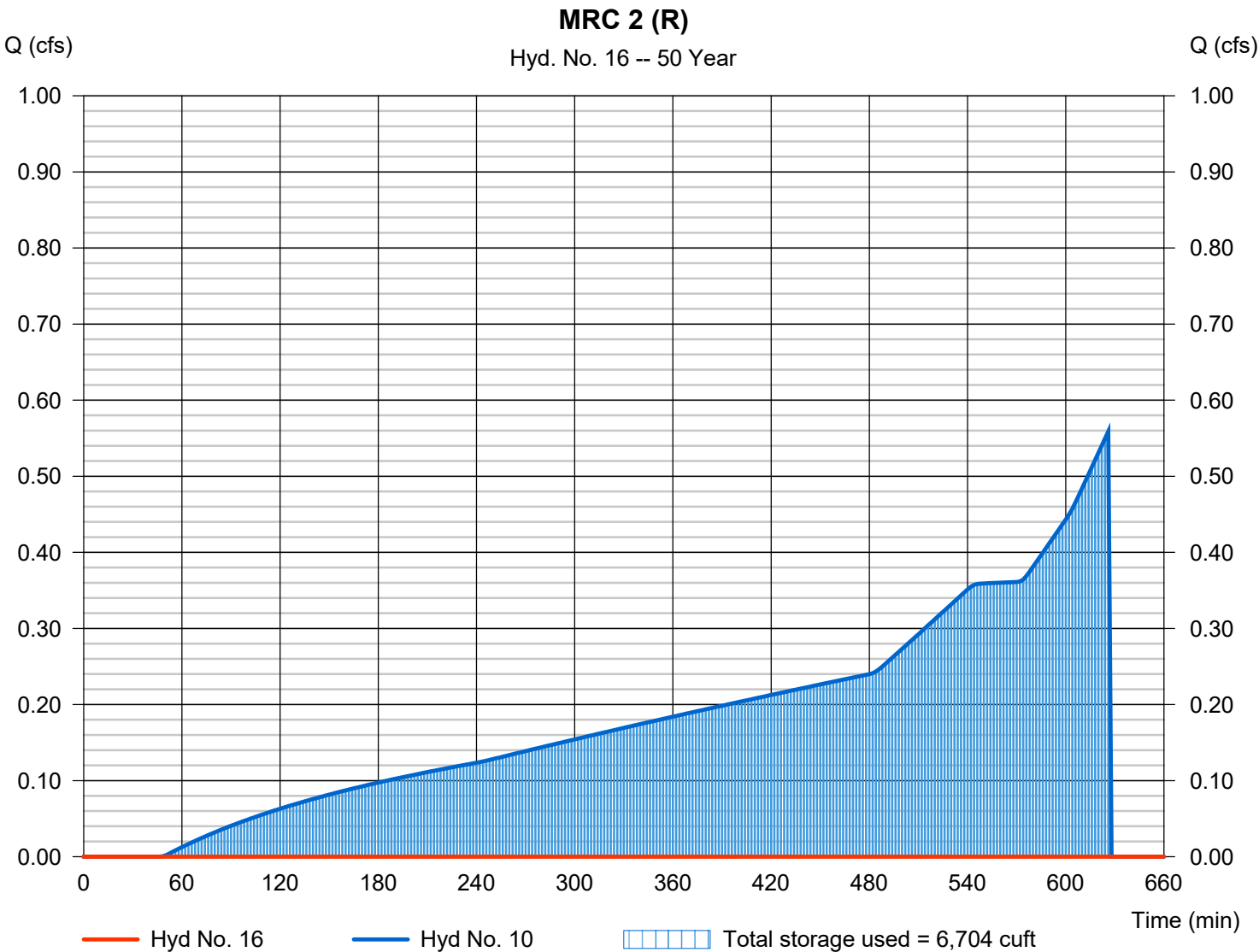
Hydrograph Report

Hyd. No. 16

MRC 2 (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 50 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 10 - 1.2in 2Y MRC 2	Max. Elevation	= 668.30 ft
Reservoir name	= MRC 2	Max. Storage	= 6,704 cuft

Storage Indication method used.



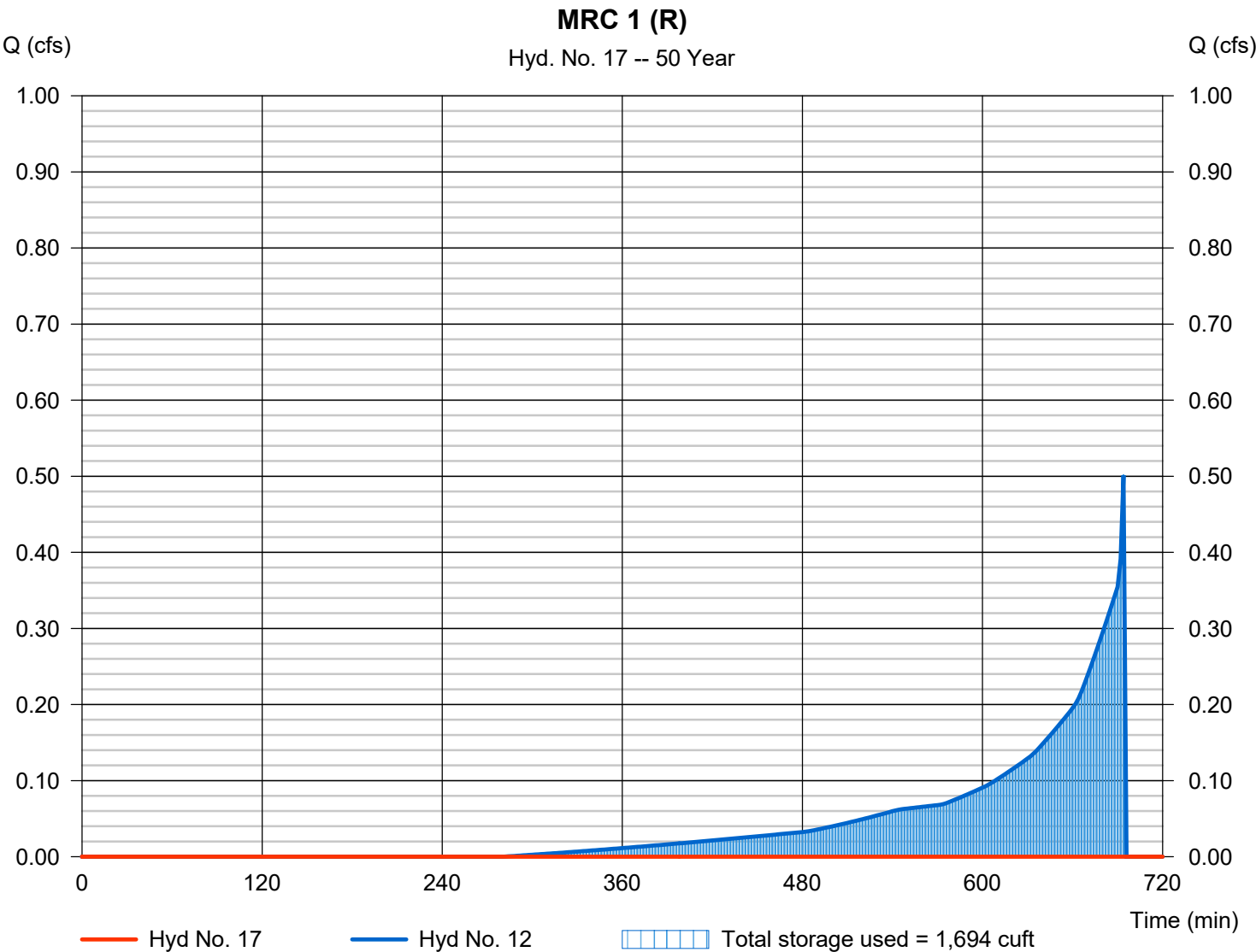
Hydrograph Report

Hyd. No. 17

MRC 1 (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 50 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 12 - 1.2in 2Y MRC 1	Max. Elevation	= 662.18 ft
Reservoir name	= MRC 1	Max. Storage	= 1,694 cuft

Storage Indication method used.



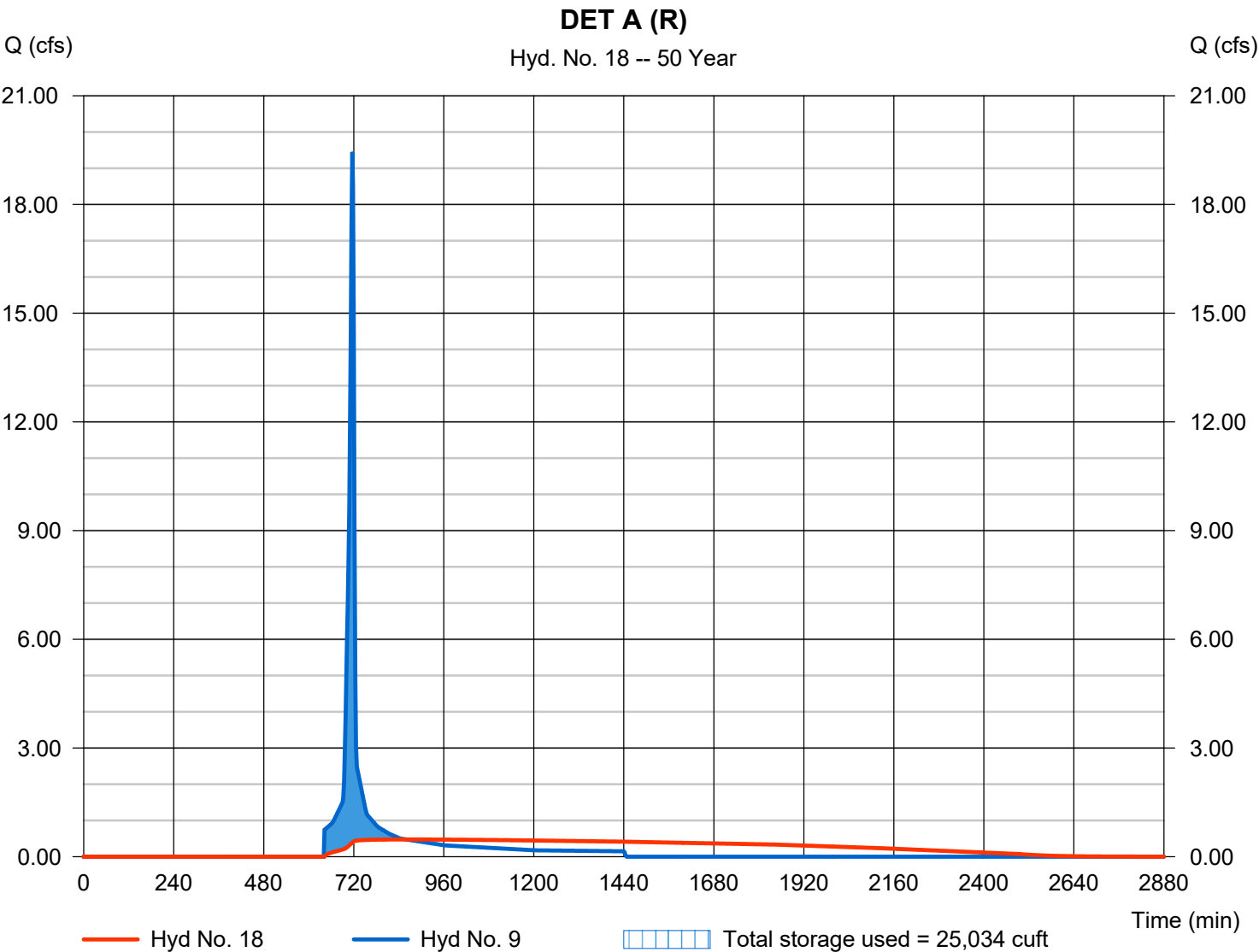
Hydrograph Report

Hyd. No. 18

DET A (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.476 cfs
Storm frequency	= 50 yrs	Time to peak	= 860 min
Time interval	= 2 min	Hyd. volume	= 38,139 cuft
Inflow hyd. No.	= 9 - DET A (IN)	Max. Elevation	= 665.56 ft
Reservoir name	= DET A	Max. Storage	= 25,034 cuft

Storage Indication method used.



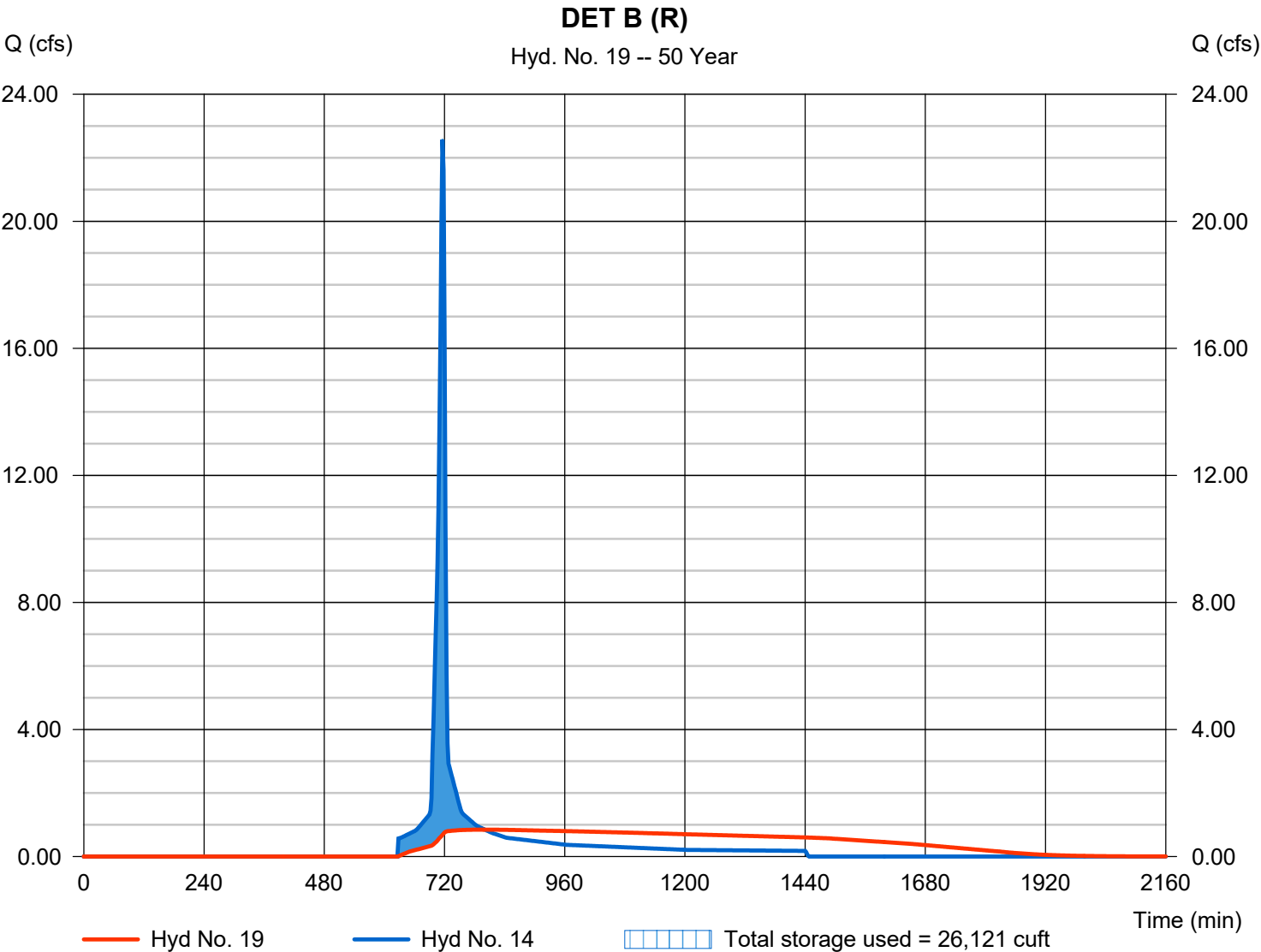
Hydrograph Report

Hyd. No. 19

DET B (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.846 cfs
Storm frequency	= 50 yrs	Time to peak	= 800 min
Time interval	= 2 min	Hyd. volume	= 43,936 cuft
Inflow hyd. No.	= 14 - DET B (IN)	Max. Elevation	= 668.26 ft
Reservoir name	= DET B	Max. Storage	= 26,121 cuft

Storage Indication method used.



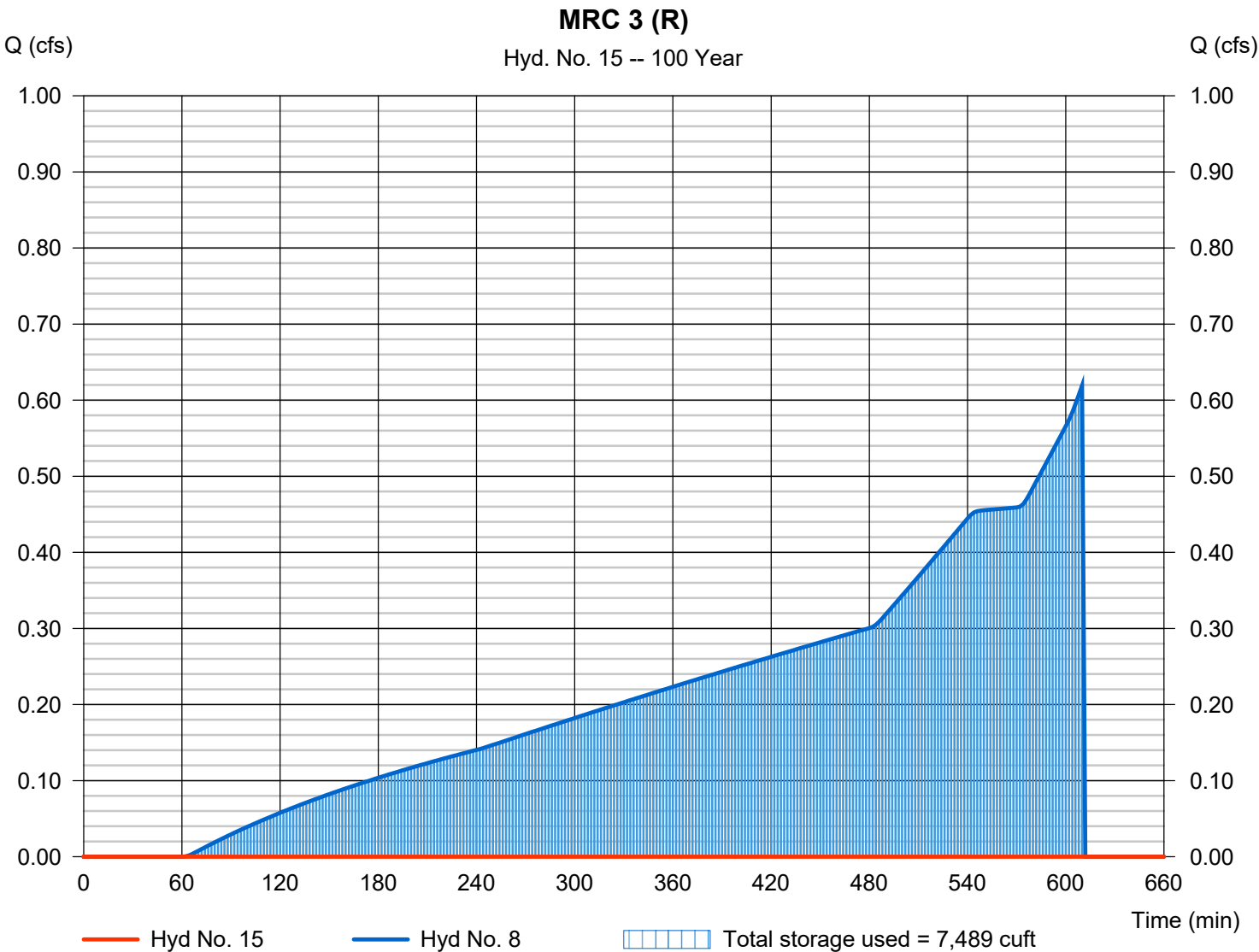
Hydrograph Report

Hyd. No. 15

MRC 3 (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 100 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 8 - 1.2in 2Y MRC 3	Max. Elevation	= 666.20 ft
Reservoir name	= MRC 3	Max. Storage	= 7,489 cuft

Storage Indication method used.



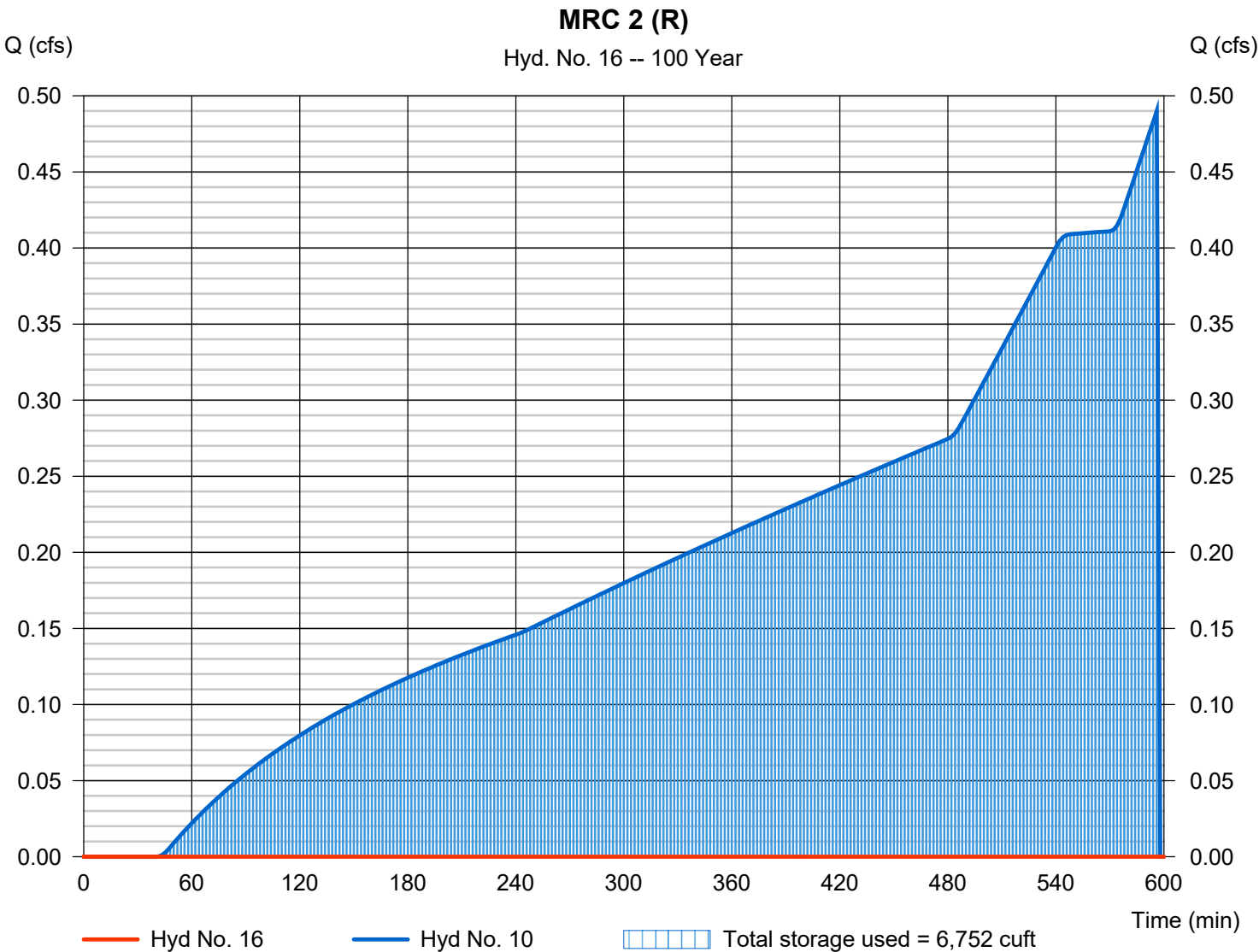
Hydrograph Report

Hyd. No. 16

MRC 2 (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 100 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 10 - 1.2in 2Y MRC 2	Max. Elevation	= 668.30 ft
Reservoir name	= MRC 2	Max. Storage	= 6,752 cuft

Storage Indication method used.



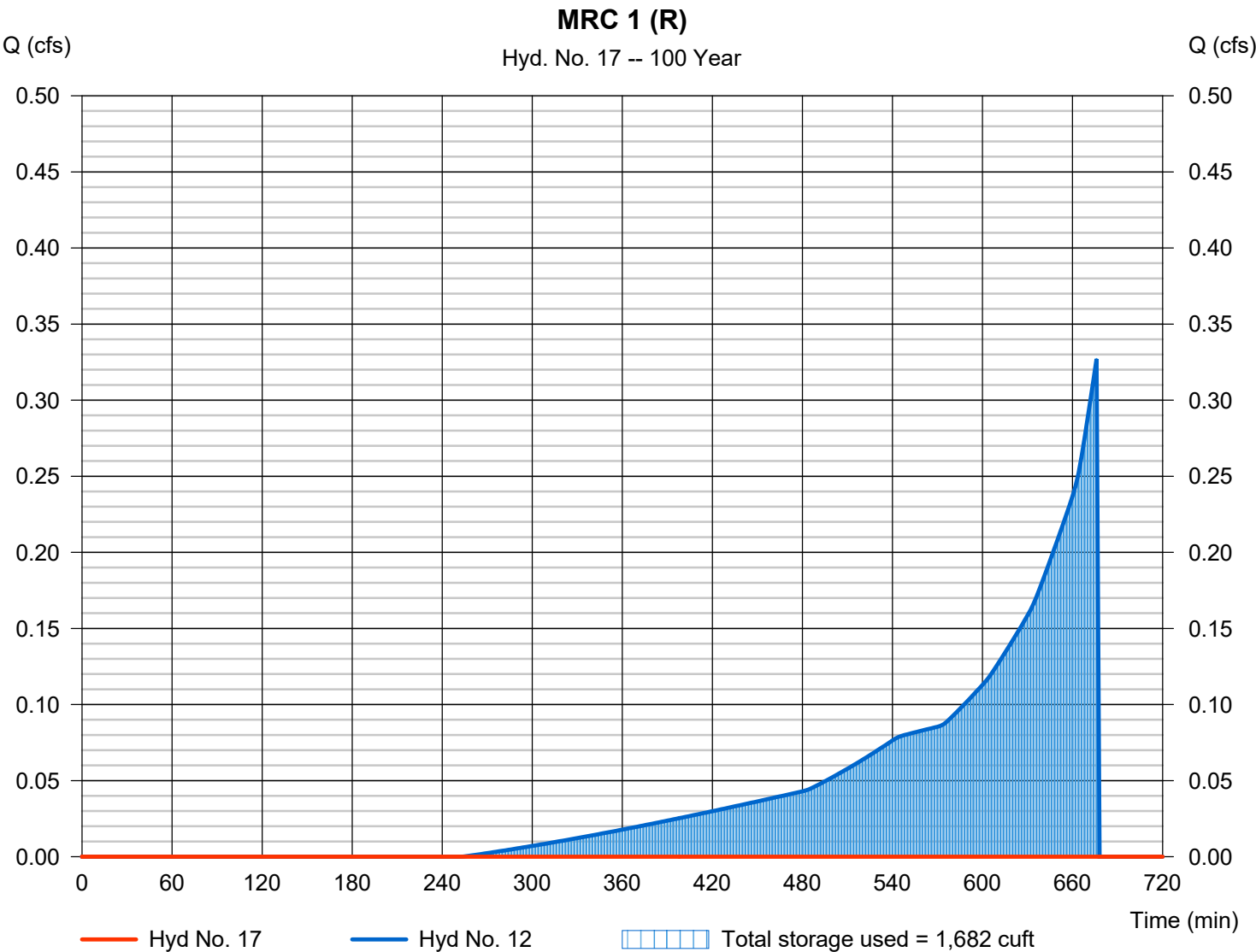
Hydrograph Report

Hyd. No. 17

MRC 1 (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 100 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 12 - 1.2in 2Y MRC 1	Max. Elevation	= 662.17 ft
Reservoir name	= MRC 1	Max. Storage	= 1,682 cuft

Storage Indication method used.



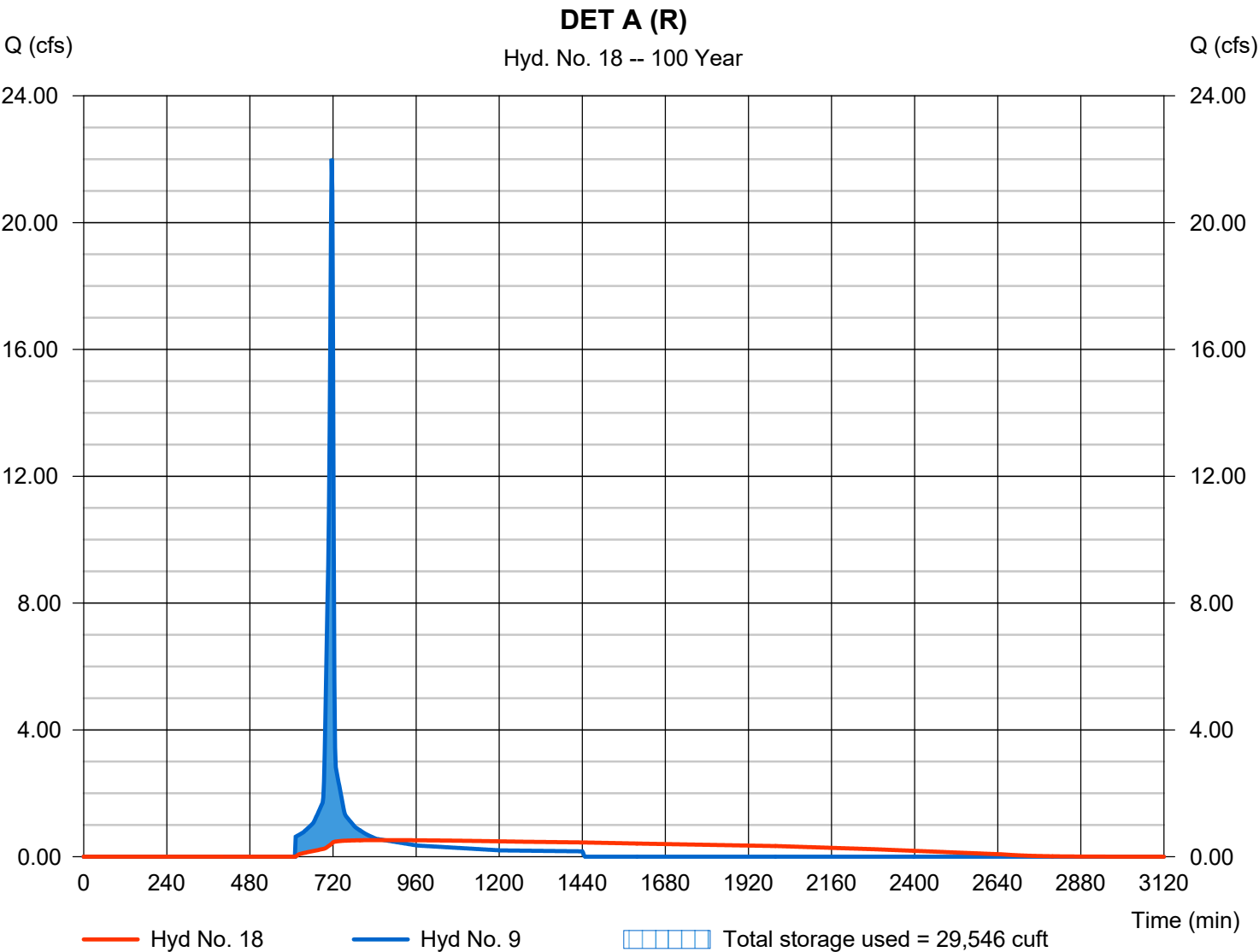
Hydrograph Report

Hyd. No. 18

DET A (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.523 cfs
Storm frequency	= 100 yrs	Time to peak	= 868 min
Time interval	= 2 min	Hyd. volume	= 44,484 cuft
Inflow hyd. No.	= 9 - DET A (IN)	Max. Elevation	= 666.40 ft
Reservoir name	= DET A	Max. Storage	= 29,546 cuft

Storage Indication method used.



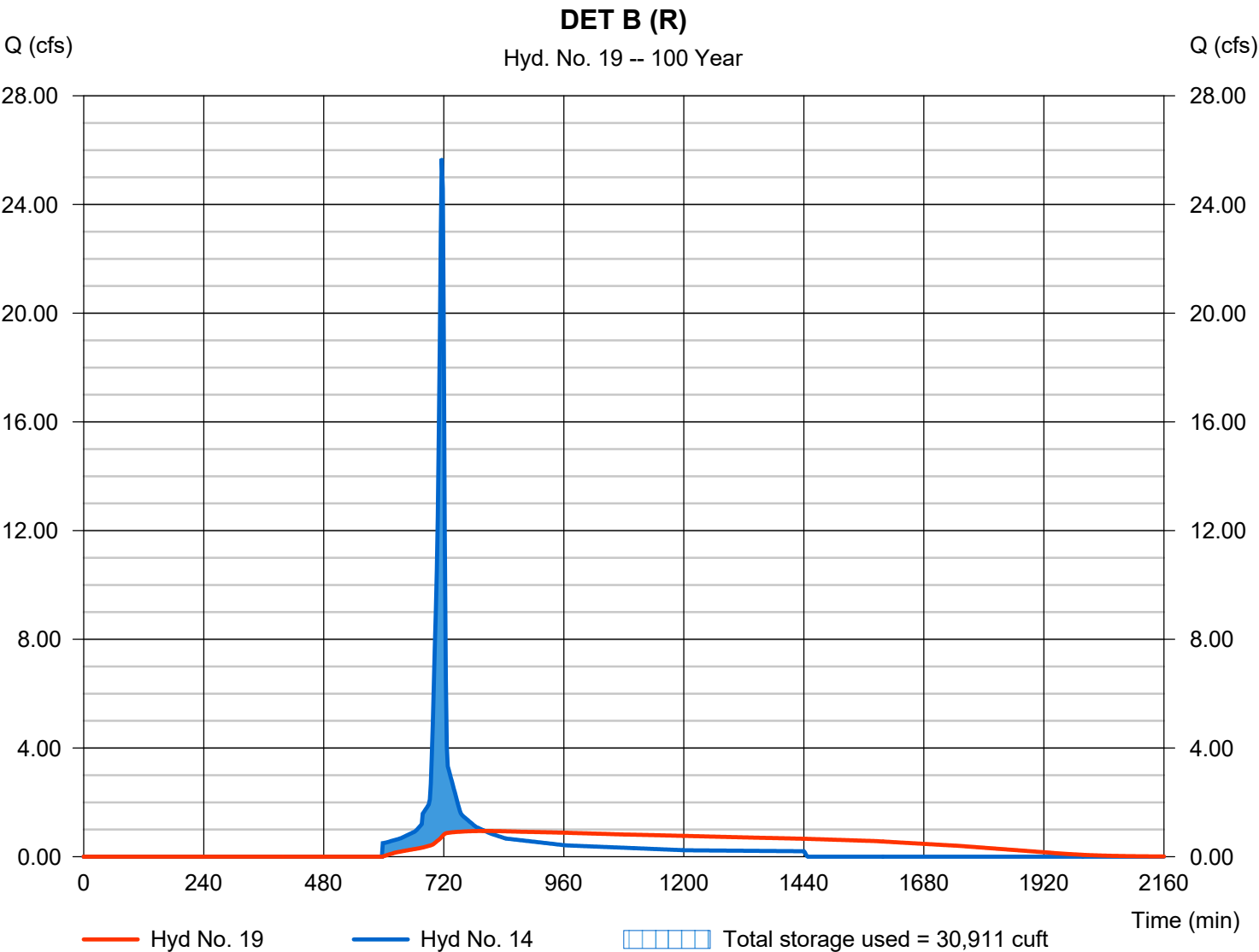
Hydrograph Report

Hyd. No. 19

DET B (R)

Hydrograph type	= Reservoir	Peak discharge	= 0.946 cfs
Storm frequency	= 100 yrs	Time to peak	= 802 min
Time interval	= 2 min	Hyd. volume	= 51,403 cuft
Inflow hyd. No.	= 14 - DET B (IN)	Max. Elevation	= 669.30 ft
Reservoir name	= DET B	Max. Storage	= 30,911 cuft

Storage Indication method used.



DEP SPREADSHEETS

General Information

Instructions

General

Volume

Rate

Quality

Project Name: **Huntingdon Rutter's Store 93**

Application Type: **PAG-02 NOI**

County: **Huntingdon**

Municipality: **Smithfield Township**

Project Type: **Commercial Building**

☐ New Project ☒ Minor / Major Amendment

Area: **7.39** acres
(In Watershed)

Total Earth Disturbance: **3.63** acres
(In Watershed)

No. of Post-Construction Points of Analysis: **1**

at: **002**

Point of Analysis (POA) No.	Drainage Area (DA) (acres)	Earth Disturbance in DA (acres)	Existing Impervious in DA (acres)	Proposed Impervious in DA (acres)	Receiving Waters	Ch. 93 Class	Structural SCM(s)
002	2.74	3.63	0.00	1.99	Wetlands tributary to UNT Juniata River	WWF	Yes
Undetained Areas	0.89				Wetlands tributary to UNT Juniata River	WWF	

Totals: **3.63** **3.63** **1.99**

Volume Management

Project: Huntingdon Rutter's Store 93

Instructions General **Volume** Rate Quality

2-Year / 24-Hour Storm Event (NOAA Atlas 14): inches Alternative 2-Year / 24-Hour Storm Event inches

Alternative Source:

Pre-Construction Conditions: No. Rows: ☐ Exempt from Meadow in Good Condition ☒ Automatically Calculate CN, Ia, Runoff and Volume

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Pervious as Meadow	3.63	D	78	0.564	0.99	13,028
TOTAL (ACRES):		3.63	TOTAL (CF):		13,028	

Post-Construction Conditions: No. Rows:

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	1.99	D	98	0.041	2.57	18,559
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	1.64	D	80	0.500	1.10	6,561
TOTAL (ACRES):		3.63	TOTAL (CF):		25,120	

NET CHANGE IN VOLUME TO MANAGE (CF):

Non-Structural SCM Volume Credits:

☐ Tree Planting Credit

☐ Other (attach calculations):

Structural SCM Volume Credits:

No. Structural SCMs:

1

Start SCM Numbering at:

3

POA No.	SCM No.	SCM Name	MRC?	Discharge	Incremental SCM DA (acres)	Volume Routed to SCM (CF)	Infiltration / Vegetated Area (SF)	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegetated?	Media Depth (ft)	Storage Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)
002	3	Rain Garden / Bioretention	Y	Off-Site	2.74	7,537	8,636	0.00	20	Yes	2.0	7,537		

Totals:

INFILTRATION & ET CREDITS (CF):	
MANAGED RELEASE CREDIT (CF):	21,559

NET CHANGE IN VOLUME TO MANAGE (CF):	12,092
TOTAL CREDITS (CF):	21,559

VOLUME REQUIREMENT SATISFIED

Rate Control

Project: Huntingdon Rutter's Store 93

Instructions

General

Volume

Rate

Quality

Precipitation Amounts:

NOAA 2-Year 24-Hour Storm Event (in):	2.8	Alternative 2-Year 24-Hour Storm Event (in):	
NOAA 10-Year 24-Hour Storm Event (in):		Alternative 10-Year 24-Hour Storm Event (in):	
NOAA 50-Year 24-Hour Storm Event (in):		Alternative 50-Year 24-Hour Storm Event (in):	
NOAA 100-Year 24-Hour Storm Event (in):		Alternative 100-Year 24-Hour Storm Event (in):	

☒ Report Summary of Peak Rates Only

Attach model input and output data or other calculations to support the rates reported below.

Peak Discharge Rates (cfs)			
	Pre-Construction	Post-Construction	Net Change
2-Year Storm:	4.23	1.93	-2.30
10-Year Storm:	8.67	3.49	-5.18
50-Year Storm:	14.58	5.32	-9.26
100-Year Storm:	17.54	6.22	-11.32

Rate Control Satisfied

Rate Control Satisfied

Rate Control Satisfied

Rate Control Satisfied

POA No.	SCM No.	SCM Name	MRC?	Inflow to SCM (cfs)				Outflow from SCM (cfs)			
				2-yr	10-yr	50-yr	100-yr	2-yr	10-yr	50-yr	100-yr
002	3	Rain Garden / Bioretention	Y	5.75	2.05	0.74	0.63	0.00	0.00	0.00	0.00

Water Quality

Project: Huntingdon Rutter's Store 93

PRINT

Instructions

General

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Rate

Quality

Pre-Construction Pollutant Loads:

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Pervious as Meadow	Grassland/Herbaceous	3.63	D	13,028	48.8	0.22	2.30	39.70	0.18	1.87
TOTAL (ACRES):		3.63			TOTALS:			39.70	0.18	1.87

Post-Construction Pollutant Loads (without SCMs):

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	Residential	1.99	D	18,559	65.0	0.29	2.05	75.33	0.34	2.38
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	Open Space	1.64	D	6,561	78.0	0.25	1.25	31.96	0.10	0.51
TOTAL (ACRES):		3.63			TOTALS:			107.28	0.44	2.89

POLLUTANT LOAD REDUCTION REQUIREMENTS (LBS):

67.58	0.26	1.02
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☒ Characterize Undetained Areas (for Untreated Stormwater)

No. Rows:

1

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	0.89	D	80	0.500	1.10	3,561

Non-Structural SCM Water Quality Credits:

☐ Pervious Undetained Area Credit

☐ Other (attach calculations)

Description:

TSS	TP	TN

Structural SCM Water Quality Credits:

☒ Use default SCM Outflows and Median SCM Outflow Concentrations

POA No.	SCM No.	SCM Name	MRC?	SCM DA (acres)	Vol. Routed to SCM (CF)	Inf. & ET Credits (CF)	Capture & Buffer Credits (CF)	Outflow (CF)	Outflow Conc. (mg/L)			Pollutant Loads (lbs)		
									TSS	TP	TN	TSS	TP	TN
002	3	Rain Garden / Bioretention	Y	2.74	7,537			7,537	-	-	-	-	-	-

POLLUTANT LOADS FROM STRUCTURAL SCM (TREATED) OUTFLOWS (LBS):

POLLUTANT LOADS FROM UNTREATED STORMWATER (LBS):

NON-STRUCTURAL SCM WATER QUALITY CREDITS (LBS):

NET POLLUTANT LOADS FROM SITE, POST-CONSTRUCTION (LBS):

POLLUTANT LOADS FROM SITE, PRE-CONSTRUCTION (LBS):

TSS	TP	TN
0.00	0.00	0.00
17.34	0.06	0.28
17.34	0.06	0.28
39.70	0.18	1.87

WATER QUALITY REQUIREMENT SATISFIED

CERTIFICATION

I certify under penalty of law and subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities) that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I further certify that the structure, function, and calculations contained in this spreadsheet have not been modified in comparison to the spreadsheet DEP has posted to its website or, if modifications were made, an explanation of the modifications made is attached to this spreadsheet.

Ben Piper

Spreadsheet User Name

3/31/2026

Date

General Information

Instructions	General	Volume	Rate	Quality
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Project Name:

Huntingdon Rutter's Store 93

Application Type:

PAG-02 NOI

County:

Huntingdon

Municipality:

Smithfield Township

Project Type:

Commercial Building

☐ New Project

☒ Minor / Major Amendment

Area:
(In Watershed)

7.39

acres

Total Earth Disturbance:
(In Watershed)

3.76

acres

No. of Post-Construction Points of Analysis:

1

at:

001

Point of Analysis (POA) No.	Drainage Area (DA) (acres)	Earth Disturbance in DA (acres)	Existing Impervious in DA (acres)	Proposed Impervious in DA (acres)	Receiving Waters	Ch. 93 Class	Structural SCM(s)
001	3.29	3.29	0.00	2.17	Wetlands tributary to UNT Juniata River	WWF	Yes
Undetained Areas	0.47	0.47			Wetlands tributary to UNT Juniata River	WWF	
Totals:	3.76	3.76		2.17			

Volume Management

Project: Huntingdon Rutter's Store 93

Instructions General **Volume** Rate Quality

2-Year / 24-Hour Storm Event (NOAA Atlas 14): inches Alternative 2-Year / 24-Hour Storm Event inches

Alternative Source:

Pre-Construction Conditions: No. Rows: ☐ Exempt from Meadow in Good Condition ☒ Automatically Calculate CN, Ia, Runoff and Volume

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Pervious as Meadow	3.76	D	78	0.564	0.99	13,494
TOTAL (ACRES):		3.76	TOTAL (CF):			13,494

Post-Construction Conditions: No. Rows:

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	2.17	D	98	0.041	2.57	20,238
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	1.59	D	80	0.500	1.10	6,361
TOTAL (ACRES):		3.76	TOTAL (CF):			26,598

NET CHANGE IN VOLUME TO MANAGE (CF):

Non-Structural SCM Volume Credits:

☐ Tree Planting Credit

☐ Other (attach calculations):

POA No.	SCM No.	SCM Name	MRC?	Discharge	Incremental SCM DA (acres)	Volume Routed to SCM (CF)	Infiltration / Vegetated Area (SF)	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegetated?	Media Depth (ft)	Storage Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)
001	1	Rain Garden / Bioretention	Y	Off-Site	0.92	1,660	1,954	0.00	13	Yes	2.0	1,660		
001	2	Rain Garden / Bioretention	Y	Off-Site	2.37	6,727	6,916	0.00	24	No	2.0	6,727		

Totals:

INFILTRATION & ET CREDITS (CF):	
MANAGED RELEASE CREDIT (CF):	24,718
NET CHANGE IN VOLUME TO MANAGE (CF):	13,104
TOTAL CREDITS (CF):	24,718

VOLUME REQUIREMENT SATISFIED

Rate Control

Project: Huntingdon Rutter's Store 93

Instructions	General	Volume	Rate	Quality
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Precipitation Amounts:

NOAA 2-Year 24-Hour Storm Event (in):	2.8	Alternative 2-Year 24-Hour Storm Event (in):	
NOAA 10-Year 24-Hour Storm Event (in):		Alternative 10-Year 24-Hour Storm Event (in):	
NOAA 50-Year 24-Hour Storm Event (in):		Alternative 50-Year 24-Hour Storm Event (in):	
NOAA 100-Year 24-Hour Storm Event (in):		Alternative 100-Year 24-Hour Storm Event (in):	

☒ Report Summary of Peak Rates Only

Attach model input and output data or other calculations to support the rates reported below.

Peak Discharge Rates (cfs)			
	Pre-Construction	Post-Construction	Net Change
2-Year Storm:	2.48	1.54	-0.94
10-Year Storm:	5.08	2.75	-2.33
50-Year Storm:	8.54	4.16	-4.38
100-Year Storm:	10.28	4.86	-5.42

Rate Control Satisfied

Rate Control Satisfied

Rate Control Satisfied

Rate Control Satisfied

POA No.	SCM No.	SCM Name	MRC?	Inflow to SCM (cfs)				Outflow from SCM (cfs)			
				2-yr	10-yr	50-yr	100-yr	2-yr	10-yr	50-yr	100-yr
001	1	Rain Garden / Bioretention	Y	2.24	1.65	0.50	0.33	0.00	0.00	0.00	0.00

001	2	Rain Garden / Bioretention	Y	4.16	0.93	0.57	0.49	0.00	0.00	0.00	0.00
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Water Quality

Project: Huntingdon Rutter's Store 93

PRINT

- Instructions
- General
- Volume
- Rate
- Quality

Pre-Construction Pollutant Loads:

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Pervious as Meadow	Grassland/Herbaceous	3.76	D	13,494	48.8	0.22	2.30	41.12	0.19	1.94
TOTAL (ACRES):		3.76			TOTALS:			41.12	0.19	1.94

Post-Construction Pollutant Loads (without SCMs):

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	Residential	2.17	D	20,238	65.0	0.29	2.05	82.14	0.37	2.59
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	Open Space	1.59	D	6,361	78.0	0.25	1.25	30.98	0.10	0.50
TOTAL (ACRES):		3.76			TOTALS:			113.12	0.47	3.09

POLLUTANT LOAD REDUCTION REQUIREMENTS (LBS):

72.00

0.28

1.15

☒ Characterize Undetained Areas (for Untreated Stormwater)

No. Rows:

1

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	0.47	D	80	0.500	1.10	1,880

Non-Structural SCM Water Quality Credits:

☐ Pervious Undetained Area Credit

☐ Other (attach calculations)

Description:

TSS	TP	TN

Structural SCM Water Quality Credits:

☒ Use default SCM Outflows and Median SCM Outflow Concentrations

POA No.	SCM No.	SCM Name	MRC?	SCM DA (acres)	Vol. Routed to SCM (CF)	Inf. & ET Credits (CF)	Capture & Buffer Credits (CF)	Outflow (CF)	Outflow Conc. (mg/L)			Pollutant Loads (lbs)		
									TSS	TP	TN	TSS	TP	TN
001	1	Rain Garden / Bioretention	Y	0.92	1,660			1,660	-	-	-	-	-	-
001	2	Rain Garden / Bioretention	Y	2.37	6,727			6,727	-	-	-	-	-	-

POLLUTANT LOADS FROM STRUCTURAL SCM (TREATED) OUTFLOWS (LBS):

POLLUTANT LOADS FROM UNTREATED STORMWATER (LBS):

NON-STRUCTURAL SCM WATER QUALITY CREDITS (LBS):

NET POLLUTANT LOADS FROM SITE, POST-CONSTRUCTION (LBS):

POLLUTANT LOADS FROM SITE, PRE-CONSTRUCTION (LBS):

TSS	TP	TN
0.00	0.00	0.00
9.16	0.03	0.15
9.16	0.03	0.15
41.12	0.19	1.94

WATER QUALITY REQUIREMENT SATISFIED

CERTIFICATION

I certify under penalty of law and subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities) that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I further certify that the structure, function, and calculations contained in this spreadsheet have not been modified in comparison to the spreadsheet DEP has posted to its website or, if modifications were made, an explanation of the modifications made is attached to this spreadsheet.

Ben Piper

Spreadsheet User Name

3/31/2026

Date

MRC DESIGN

Managed Release Concept (MRC) Spreadsheet

SCM ID: **1**

Type: **MRC Bioretention**

2-year/24-hour Precipitation Depth: **2.80** in Incremental SCM Drainage Area: **0.92** ac

Will flow from the drainage area be split into multiple MRC SCMs (cells) in parallel? ☐ Yes ☒ No

Is this SCM in series? ☒ Yes ☐ No

This SCM is: **Downstream** of a **PCSM Objective D** SCM SCM ID: **23**

This SCM discharges: **Off-Site**

Will at least 10% of runoff from the 1.2-Inch/2-Hour Storm be managed using PCSM Objective A SCMs?

☐ Yes ☒ No ☐ There are no or insufficient natural stormwater features on the project site.

☒ **Drainage Area Characterization**

Pre-Construction Drainage Area

Rows: **1**

☐ Exempt from §§ 102.8(g)(2)(ii) & (iii)

☒ Calculate runoff automatically

Pre-Construction Drainage Area Cover Type	Area (ac)	HSG	Runoff, 1.2-Inch (CF)	Runoff, 2-Year (CF)
Pervious as Meadow	0.92	D	391	3,302

Totals (CF): **391** **3,302**

Post-Construction Drainage Area

Rows: **2**

Post-Construction Drainage Area Cover Type	Area (ac)	HSG	Runoff, 1.2-Inch (CF)	Runoff, 2-Year (CF)
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	0.54	D	300	2,160
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	0.38	D	1,360	3,544

Totals (CF): **1,660** **5,704**

Total Volume Routed to SCM (CF): **1,660**

Total Volume from Off-Site Sources (CF): **0**

Equivalent Impervious Area (ac): **0.5**

☒ **Design Standards**

MRC Bioretention

Variation: **None**

Parameter	Standard	Design Value
Bypass/Overflow Volume @ 1.2-Inch/2-Hour Storm	0	0
Maximum Storm Event Routed to MRC SCM		< 1.2-Inch/2-Hour Storm
MRC SCM Drainage Area (Equivalent Impervious, maximum)	5.0	0.5
Hydraulic Allowance for Diversion (inches) (maximum)	6	6
Ponding Depth @ 1.2-Inch/2-Hour Storm (ft) (maximum)	1.0	0.2

Ponding Depth @ 2-Year/24-Hour Storm (ft) (maximum)	2.0	0.3
Pre-Construction 1-Year/24-Hour Peak Rate (cfs)		1.09
Post-Construction 2-Year/24-Hour Peak Rate (cfs) (see Note 1)	1.09	0.15
Controlled Release Rate for 1.2-Inch/2-Hour Storm (cfs) (see Note 2)	0.01	
Underdrain Outflow Rate for 1.2-Inch/2-Hour Storm (cfs).	≤ Controlled Release	0.01
Ponding Time for Storm Event Routed to MRC SCM (hrs) (maximum)	72	13
Soil Media Depth Above Internal Water Storage (IWS) (ft) (minimum)	1.0	1.0
IWS Depth (ft) (minimum)	1.0	1.0
Inflow Velocity for Storm Event Routed to MRC SCM (fps) (maximum)	2.0	1.9
Separation Distance Between MRC SCM Bottom and SHWT (in)	12	> 12
A Synthetic Liner Will Be Installed		FALSE
Diameter of Managed Release Orifice (in)		0.3
SCM Embankment Slopes	33%	33%
Pretreatment	-	SCM Surface
SCM Bed Bottom Area (SF)		1,954

Note 1: The standard is either 1) ≤ the pre-construction 1-Year/24-Hour Peak Rate OR 2) 0.15 cfs, if the 1-Year/24-Hour Peak Rate is < 0.15 cfs.

Note 2: The standard is calculated based on the MRC release rate for the 1.2-Inch/2-Hour storm of 0.02 cfs/acre equivalent impervious x equivalent impervious in the drainage area (of each cell).

☒ **Volume Management Credit**

Volume Management Credit (CF): **5,704**

CERTIFICATION

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PA-Licensed Professional Engineer Responsible for Design: **Ben Piper**

Professional Engineer Company: **Keller Engineers, Inc.** License No.: **PE086344**

Managed Release Concept (MRC) Spreadsheet

SCM ID: **2**

Type: **MRC Bioretention**

2-year/24-hour Precipitation Depth: **2.80** in Incremental SCM Drainage Area: **2.37** ac

Will flow from the drainage area be split into multiple MRC SCMs (cells) in parallel? ☐ Yes ☒ No

Is this SCM in series? ☒ Yes ☐ No

This SCM is: **Downstream** of a **PCSM Objective D** SCM

SCM ID: **17**

This SCM discharges: **Off-Site**

Will at least 10% of runoff from the 1.2-Inch/2-Hour Storm be managed using PCSM Objective A SCMs?

☐ Yes ☒ No ☐ There are no or insufficient natural stormwater features on the project site.

☒ **Drainage Area Characterization**

Pre-Construction Drainage Area

Rows: **1**

☐ Exempt from §§ 102.8(g)(2)(ii) & (iii)

☒ Calculate runoff automatically

Pre-Construction Drainage Area Cover Type	Area (ac)	HSG	Runoff, 1.2-Inch (CF)	Runoff, 2-Year (CF)
Pervious as Meadow	2.37	D	1,006	8,506

Totals (CF): **1,006** **8,506**

Post-Construction Drainage Area

Rows: **2**

Post-Construction Drainage Area Cover Type	Area (ac)	HSG	Runoff, 1.2-Inch (CF)	Runoff, 2-Year (CF)
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	0.58	D	322	2,320
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	1.79	D	6,404	16,694

Totals (CF): **6,727** **19,014**

Total Volume Routed to SCM (CF): **6,727**

Total Volume from Off-Site Sources (CF): **0**

Equivalent Impervious Area (ac): **1.9**

☒ **Design Standards**

MRC Bioretention

Variation: **None**

Parameter	Standard	Design Value
Bypass/Overflow Volume @ 1.2-Inch/2-Hour Storm	0	0
Maximum Storm Event Routed to MRC SCM		< 1.2-Inch/2-Hour Storm
MRC SCM Drainage Area (Equivalent Impervious, maximum)	5.0	1.9
Hydraulic Allowance for Diversion (inches) (maximum)	6	6
Ponding Depth @ 1.2-Inch/2-Hour Storm (ft) (maximum)	1.0	0.3

Ponding Depth @ 2-Year/24-Hour Storm (ft) (maximum)	2.0	0.3
Pre-Construction 1-Year/24-Hour Peak Rate (cfs)		2.82
Post-Construction 2-Year/24-Hour Peak Rate (cfs) (see Note 1)	2.82	0.15
Controlled Release Rate for 1.2-Inch/2-Hour Storm (cfs) (see Note 2)	0.04	
Underdrain Outflow Rate for 1.2-Inch/2-Hour Storm (cfs).	≤ Controlled Release	0.04
Ponding Time for Storm Event Routed to MRC SCM (hrs) (maximum)	72	24
Soil Media Depth Above Internal Water Storage (IWS) (ft) (minimum)	1.0	1.0
IWS Depth (ft) (minimum)	1.0	1.0
Inflow Velocity for Storm Event Routed to MRC SCM (fps) (maximum)	2.0	1.9
Separation Distance Between MRC SCM Bottom and SHWT (in)	12	> 12
A Synthetic Liner Will Be Installed		FALSE
Diameter of Managed Release Orifice (in)		0.3
SCM Embankment Slopes	33%	33%
Pretreatment	-	SCM Surface
SCM Bed Bottom Area (SF)		6,916

Note 1: The standard is either 1) ≤ the pre-construction 1-Year/24-Hour Peak Rate OR 2) 0.15 cfs, if the 1-Year/24-Hour Peak Rate is < 0.15 cfs.

Note 2: The standard is calculated based on the MRC release rate for the 1.2-Inch/2-Hour storm of 0.02 cfs/acre equivalent impervious x equivalent impervious in the drainage area (of each cell).

☒ **Volume Management Credit**

Volume Management Credit (CF): **19,014**

CERTIFICATION

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PA-Licensed Professional Engineer Responsible for Design: **Ben Piper**

Professional Engineer Company: **Keller Engineers, Inc.** License No.: **PE086344**

Managed Release Concept (MRC) Spreadsheet

SCM ID: **1**

Type: **MRC Bioretention**

2-year/24-hour Precipitation Depth: **2.80** in Incremental SCM Drainage Area: **2.74** ac

Will flow from the drainage area be split into multiple MRC SCMs (cells) in parallel? ☐ Yes ☒ No

Is this SCM in series? ☒ Yes ☐ No

This SCM is: **Downstream** of a **PCSM Objective D** SCM SCM ID: **12**

This SCM discharges: **Off-Site**

Will at least 10% of runoff from the 1.2-Inch/2-Hour Storm be managed using PCSM Objective A SCMs?

☐ Yes ☒ No ☐ There are no or insufficient natural stormwater features on the project site.

☒ **Drainage Area Characterization**

Pre-Construction Drainage Area

Rows: **1**

☐ Exempt from §§ 102.8(g)(2)(ii) & (iii)

☒ Calculate runoff automatically

Pre-Construction Drainage Area Cover Type	Area (ac)	HSG	Runoff, 1.2-Inch (CF)	Runoff, 2-Year (CF)
Pervious as Meadow	2.74	D	1,164	9,834

Totals (CF): **1,164** **9,834**

Post-Construction Drainage Area

Rows: **2**

Post-Construction Drainage Area Cover Type	Area (ac)	HSG	Runoff, 1.2-Inch (CF)	Runoff, 2-Year (CF)
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	0.75	D	417	3,000
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	1.99	D	7,120	18,559

Totals (CF): **7,537** **21,559**

Total Volume Routed to SCM (CF): **7,537**

Total Volume from Off-Site Sources (CF): **0**

Equivalent Impervious Area (ac): **2.1**

☒ **Design Standards**

MRC Bioretention

Variation: **None**

Parameter	Standard	Design Value
Bypass/Overflow Volume @ 1.2-Inch/2-Hour Storm	0	0
Maximum Storm Event Routed to MRC SCM		< 1.2-Inch/2-Hour Storm
MRC SCM Drainage Area (Equivalent Impervious, maximum)	5.0	2.1
Hydraulic Allowance for Diversion (inches) (maximum)	6	6
Ponding Depth @ 1.2-Inch/2-Hour Storm (ft) (maximum)	1.0	1.0

Ponding Depth @ 2-Year/24-Hour Storm (ft) (maximum)	2.0	1.0
Pre-Construction 1-Year/24-Hour Peak Rate (cfs)		3.26
Post-Construction 2-Year/24-Hour Peak Rate (cfs) (see Note 1)	3.26	0.15
Controlled Release Rate for 1.2-Inch/2-Hour Storm (cfs) (see Note 2)	0.05	
Underdrain Outflow Rate for 1.2-Inch/2-Hour Storm (cfs).	≤ Controlled Release	0.05
Ponding Time for Storm Event Routed to MRC SCM (hrs) (maximum)	72	20
Soil Media Depth Above Internal Water Storage (IWS) (ft) (minimum)	1.0	1.0
IWS Depth (ft) (minimum)	1.0	1.0
Inflow Velocity for Storm Event Routed to MRC SCM (fps) (maximum)	2.0	1.9
Separation Distance Between MRC SCM Bottom and SHWT (in)	12	> 12
A Synthetic Liner Will Be Installed		FALSE
Diameter of Managed Release Orifice (in)		0.3
SCM Embankment Slopes	33%	33%
Pretreatment	-	SCM Surface
SCM Bed Bottom Area (SF)		8,636

Note 1: The standard is either 1) ≤ the pre-construction 1-Year/24-Hour Peak Rate OR 2) 0.15 cfs, if the 1-Year/24-Hour Peak Rate is < 0.15 cfs.

Note 2: The standard is calculated based on the MRC release rate for the 1.2-Inch/2-Hour storm of 0.02 cfs/acre equivalent impervious x equivalent impervious in the drainage area (of each cell).

☒ **Volume Management Credit**

Volume Management Credit (CF): **21,559**

CERTIFICATION

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Dewater Time for Surface Storage

Facility #	24-hr Storm Event	Total Storage Used (cf)	Storage below Surface	Req'd Storage to Dewater (cf)	Underdrain Outflow Rate (cfs)	Subsurface Dewater Time (hrs)	Surface Dewater Time (hrs)
1	2-yr	1868.0	928.2	939.9	0.01	25.8	26.1
	10-yr	1702.0	928.2	773.9	0.01	25.8	21.5
	50-yr	1694.0	928.2	765.9	0.01	25.8	21.3
	100-yr	1682.0	928.2	753.9	0.01	25.8	20.9
2	2-yr	6743.0	3285.0	3458.0	0.04	22.8	24.0
	10-yr	6787.0	3285.0	3502.0	0.04	22.8	24.3
	50-yr	6704.0	3285.0	3419.0	0.04	22.8	23.7
	100-yr	6752.0	3285.0	3467.0	0.04	22.8	24.1
3	2-yr	7678.0	4102.0	3576.0	0.05	22.8	19.9
	10-yr	7486.0	4102.0	3384.0	0.05	22.8	18.8
	50-yr	7512.0	4102.0	3410.0	0.05	22.8	18.9
	100-yr	7489.0	4102.0	3387.0	0.05	22.8	18.8

Rain Garden Volumes

MRC Rain Garden 1

MRC Required Storage: 1649

Elev (Ft)	Elev Δ (Ft)	Area (Sf)	% Voids	Incremental Storage (Cf)	Total Storage (Cf)	IWS - 50% Storage (Cf)	Revised Total Storage (Cf)	Media	MRC Depth (Ft)
662.00		1954							
662.25	0.25	1954	0.4	195.4	195.4	97.7	97.7	Stone	
662.50	0.25	1954	0.4	195.4	390.8	97.7	195.4	Stone	
662.75	0.25	1954	0.3	146.55	537.35	73.275	268.675	Soil	
663.00	0.25	1954	0.3	146.55	683.9	73.275	341.95	Soil	
663.25	0.25	1954	0.3	146.55	830.45	146.55	488.5	Soil	
663.50	0.25	1954	0.3	146.55	977	146.55	635.05	Soil	
663.75	0.25	1954	0.3	146.55	1123.55	146.55	781.6	Soil	
664.00	0.25	1954	0.3	146.55	1270.1	146.55	928.15	Soil	
664.25	0.25	2095	1	506.09	1776.19	506.09	1434.24		664.19
664.50	0.25	2236	1	541.28	2317.48	541.28	1975.53		
664.75	0.25	2376	1	576.47	2893.94	576.47	2551.99		
665.00	0.25	2517	1	611.66	3505.60	611.66	3163.65		
665.25	0.25	2658	1	646.84	4152.44	646.84	3810.49		
665.50	0.25	2799	1	682.03	4834.48	682.03	4492.53		
665.75	0.25	2939	1	717.22	5551.69	717.22	5209.74		
666.00	0.25	3080	1	752.41	6304.10	752.41	5962.15		

MRC Rain Garden 2

MRC Required Storage: 6694

Elev (Ft)	Elev Δ (Ft)	Area (Sf)	% Voids	Incremental Storage (Cf)	Total Storage (Cf)	IWS - 50% Storage (Cf)	Revised Total Storage (Cf)	Media	MRC Depth (Ft)
666.00		6916							
666.25	0.25	6916	0.4	691.6	691.6	345.8	345.8	Stone	
666.50	0.25	6916	0.4	691.6	1383.2	345.8	691.6	Stone	
666.75	0.25	6916	0.3	518.7	1901.9	259.35	950.95	Soil	
667.00	0.25	6916	0.3	518.7	2420.6	259.35	1210.3	Soil	
667.25	0.25	6916	0.3	518.7	2939.3	518.7	1729	Soil	
667.50	0.25	6916	0.3	518.7	3458	518.7	2247.7	Soil	
667.75	0.25	6916	0.3	518.7	3976.7	518.7	2766.4	Soil	
668.00	0.25	6916	0.3	518.7	4495.4	518.7	3285.1	Soil	
668.25	0.25	7199	1	1764.34	6259.74	1764.34	5049.44		668.31
668.50	0.25	7482	1	1835.03	8094.78	1835.03	6884.48		
668.75	0.25	7764	1	1905.72	10000.49	1905.72	8790.19		
669.00	0.25	8047	1	1976.41	11976.90	1976.41	10766.60		
669.25	0.25	8330	1	2047.09	14023.99	2047.09	12813.69		
669.50	0.25	8613	1	2117.78	16141.78	2117.78	14931.48		
669.75	0.25	8895	1	2188.47	18330.24	2188.47	17119.94		
670.00	0.25	9178	1	2259.16	20589.40	2259.16	19379.10		

MRC Rain Garden 3

MRC Required Storage: 7429

Elev (Ft)	Elev Δ (Ft)	Area (Sf)	% Voids	Incremental Storage (Cf)	Total Storage (Cf)	IWS - 50% Storage (Cf)	Revised Total Storage (Cf)	Media	MRC Depth (Ft)
664.00		8636							
664.25	0.25	8636	0.4	863.6	863.6	431.8	431.8	Stone	
664.50	0.25	8636	0.4	863.6	1727.2	431.8	863.6	Stone	
664.75	0.25	8636	0.3	647.7	2374.9	323.85	1187.45	Soil	
665.00	0.25	8636	0.3	647.7	3022.6	323.85	1511.3	Soil	
665.25	0.25	8636	0.3	647.7	3670.3	647.7	2159	Soil	
665.50	0.25	8636	0.3	647.7	4318	647.7	2806.7	Soil	
665.75	0.25	8636	0.3	647.7	4965.7	647.7	3454.4	Soil	
666.00	0.25	8636	0.3	647.7	5613.4	647.7	4102.1	Soil	666.21

666.25	0.25	8945	1	2197.56	7810.96	2197.56	6299.66	000.21
666.50	0.25	9253	1	2274.69	10085.65	2274.69	8574.35	
666.75	0.25	9562	1	2351.81	12437.46	2351.81	10926.16	
667.00	0.25	9870	1	2428.94	14866.40	2428.94	13355.10	
667.25	0.25	10179	1	2506.06	17372.46	2506.06	15861.16	
667.50	0.25	10487	1	2583.19	19955.65	2583.19	18444.35	
667.75	0.25	10796	1	2660.31	22615.96	2660.31	21104.66	
668.00	0.25	11104	1	2737.44	25353.40	2737.44	23842.10	

Orifice Equation

$$Q = C_d * A * \sqrt{2gh}$$

SCM 1

Q	0.01	Controlled Release Rate (0.02 fps/acre of eq. impervious)
C _d	0.6	
g	32.2 ft/s ²	
h	1	Orifice is set at 1' ponding depth
A	0.002077 ft 0.02 in 0/16th inch	

SCM 2

Q	0.04	Controlled Release Rate (0.02 fps/acre of eq. impervious)
C _d	0.6	
g	32.2 ft/s ²	
h	1	Orifice is set at 1' ponding depth
A	0.008307 ft 0.10 in 2/16th inch	

SCM 3

Q	0.05	Controlled Release Rate (0.02 fps/acre of eq. impervious)
C _d	0.6	
g	32.2 ft/s ²	
h	1	Orifice is set at 1' ponding depth
A	0.010384 ft 0.12 in 2/16th inch	

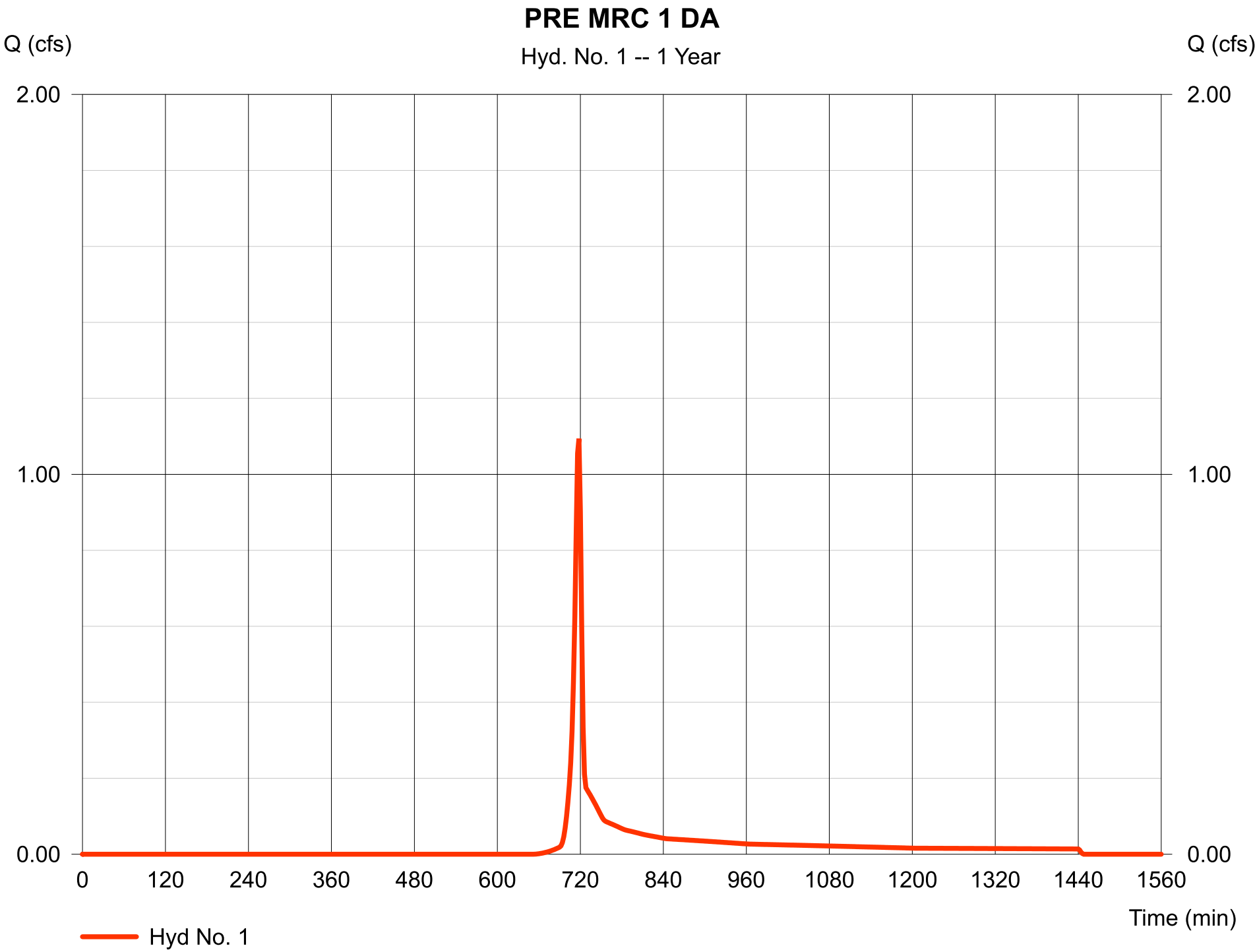
Hydrograph Report

Hyd. No. 1

PRE MRC 1 DA

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.094 cfs
Storm frequency	=	1 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	2,195 cuft
Drainage area	=	0.920 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	2.22 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.920 x 80)] / 0.920



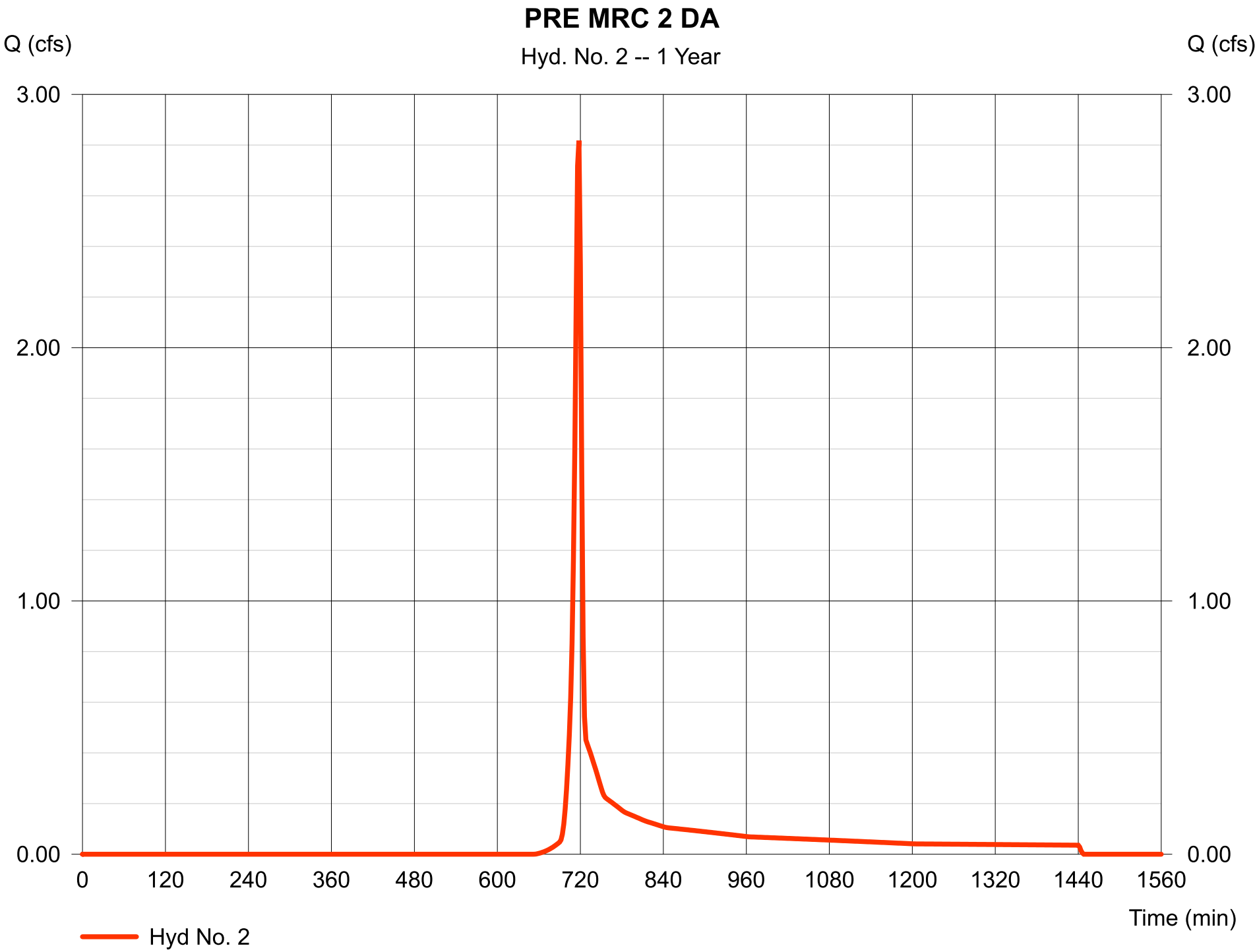
Hydrograph Report

Hyd. No. 2

PRE MRC 2 DA

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.818 cfs
Storm frequency	=	1 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	5,654 cuft
Drainage area	=	2.370 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	2.22 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.370 x 80)] / 2.370



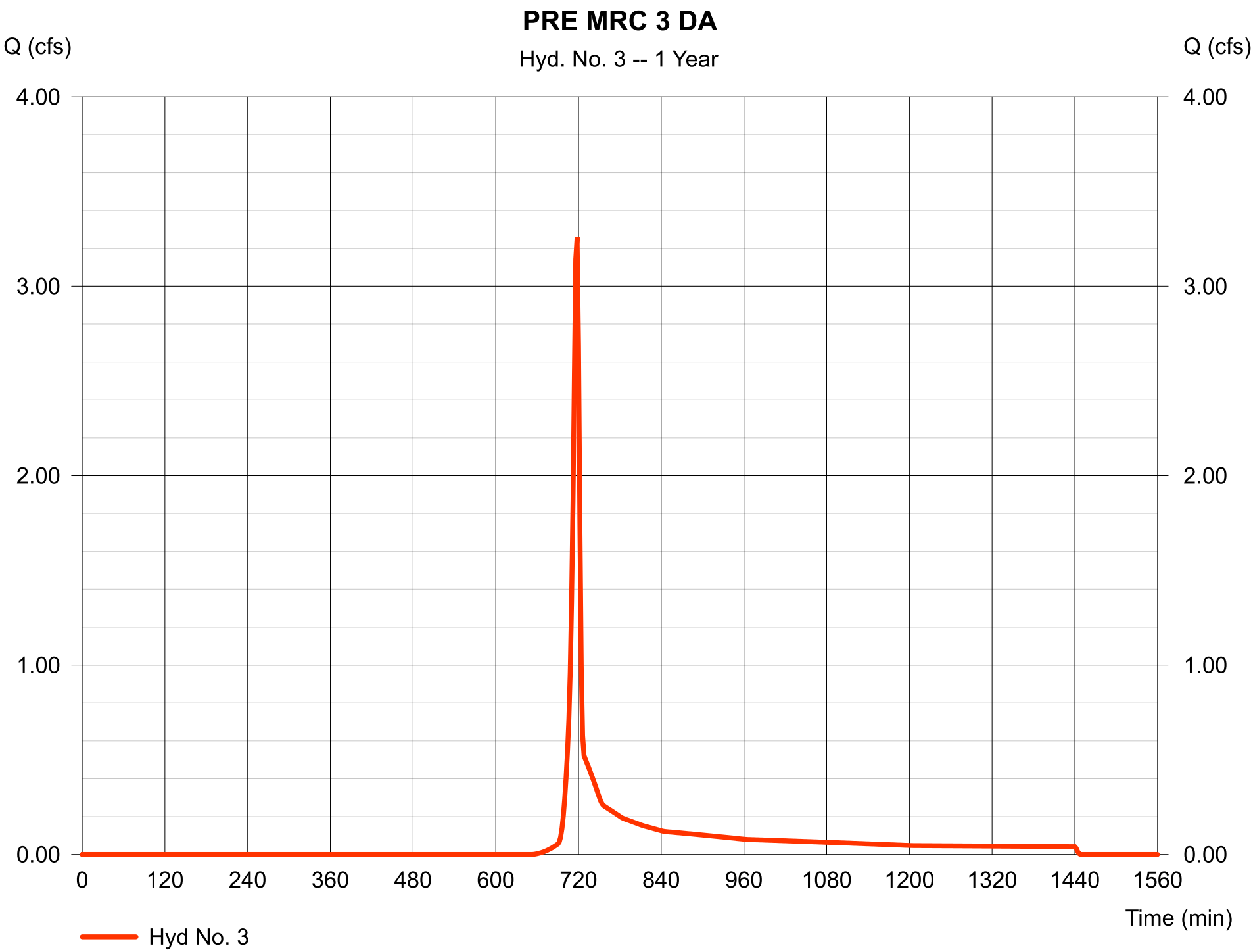
Hydrograph Report

Hyd. No. 3

PRE MRC 3 DA

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.258 cfs
Storm frequency	=	1 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	6,537 cuft
Drainage area	=	2.740 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	2.22 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.740 x 80)] / 2.740



VOLUME CALCULATIONS

Terre Arch 48

Arch + Stone above arch to top of parapet wall

Elevation (ft)	Storage (cf)
0	0
0.1	14
0.2	29
0.3	43
0.4	57
0.5	71
0.6	86
0.7	100
0.8	114
0.9	129
1	143
1.1	157
1.2	171
1.3	186
1.4	200
1.5	214
1.6	228
1.7	242
1.8	256
1.9	270
2	284
2.1	297
2.2	311
2.3	324
2.4	338
2.5	351
2.6	364
2.7	376
2.8	388
2.9	400
3	412
3.1	423
3.2	435
3.3	445
3.4	456
3.5	466
3.6	475
3.7	484
3.8	492
3.9	497
4	501
4.1	504
4.2	508
4.3	512
4.4	517
4.5	523
4.6	529
4.67	533

TERRE ARCH 48 DESIGN DETAILS					
PART TYPE	*INSTALLED VOLUME	CHAMBER VOLUME	INFILTRATION AREA	WEIGHT	DIMENSIONS
DISTRIBUTION MANIFOLD	265 CF	228 CF	57 SF	16,500 LBS	4'-0" x 20'-0" x 4'-8"
ARCH	608 CF	479 CF	160 SF	19,500 LBS	8'-0" x 20'-0" x 4'-8"
CAPPING SLAB (2 REQUIRED PER ARCH)	1.5 CF	N/A	N/A	2,400 LBS	0'-4" x 10'-0" x 4'-8"
*INCLUDES VALLEYS BETWEEN ARCHES FILLED WITH STONE TO THE TOP OF THE PARAPET WALL, 6" COVER STONE ABOVE ARCH & 12" BASE STONE. (40% VOID SPACE TYPICAL WITH STONE) TERRE ARCH CONFIGURATIONS SHALL BE SET ON A CLEAN ANGULAR STONE BASE. THE TOP 2 INCHES OF STONE BED SHALL BE #8 AASHTO (CLEAN ½" STONE) AND THE REMAINDER OF THE STONE BASE SHALL BE #5 AASHTO (CLEAN 1 ½" STONE). THE TOTAL STONE BASE SHALL BE 12" FOR TA48. MINIMUM REQUIRED BEARING CAPACITY IS 3000 PSF. STANDARD WIDTH AND HEIGHT DIMENSIONS ARE SHOWN. TO ACCOMMODATE LARGER PIPE SIZES, CONTACT YOUR CONTECH REPRESENTATIVE.					

SUMMARY

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	2.775	2	728	10,547	-----	-----	-----	PRE DA A
2	SCS Runoff	1.626	2	728	6,179	-----	-----	-----	PRE DA B
3	SCS Runoff	7.912	2	716	17,601	-----	-----	-----	POST DA A
4	SCS Runoff	7.019	2	716	16,071	-----	-----	-----	POST DA B1
5	SCS Runoff	1.676	2	716	3,383	-----	-----	-----	POST DA B2
6	SCS Runoff	1.222	2	718	2,443	-----	-----	-----	POST OSU A
7	SCS Runoff	0.797	2	718	1,598	-----	-----	-----	POST OSU B
8	Diversion1	7.050	2	714	7,590	3	-----	-----	1.2in 2Y MRC 3
9	Diversion2	7.912	2	716	10,012	3	-----	-----	DET A (IN)
10	Diversion1	6.277	2	714	7,278	4	-----	-----	1.2in 2Y MRC 2
11	Diversion2	7.019	2	716	8,793	4	-----	-----	DET B1 (IN)
12	Diversion1	1.676	2	716	1,666	5	-----	-----	1.2in 2Y MRC 1
13	Diversion2	0.248	2	728	1,717	5	-----	-----	DET B2 (IN)
14	Combine	7.019	2	716	10,510	11, 13	-----	-----	DET B (IN)
15	Reservoir	0.000	2	n/a	0	8	666.21	7,590	MRC 3 (R)
16	Reservoir	0.000	2	n/a	0	10	668.37	7,278	MRC 2 (R)
17	Reservoir	0.000	2	n/a	0	12	662.17	1,666	MRC 1 (R)
18	Reservoir	0.253	2	820	10,007	9	662.65	4,535	DET A (R)
19	Reservoir	0.399	2	782	10,505	14	664.97	3,737	DET B (R)
20	Combine	1.363	2	718	12,450	6, 15, 18,	-----	-----	COMBINED DA A
21	Combine	0.399	2	782	10,505	16, 19,	-----	-----	OUTFALL B1
22	Combine	1.007	2	718	12,104	7, 17, 21	-----	-----	COMBINED DA B
3746-5 PRE-POST.gpw					Return Period: 1 Year			Thursday, 03 / 26 / 2026	

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	4.234	2	728	15,384	-----	-----	-----	PRE DA A
2	SCS Runoff	2.480	2	728	9,013	-----	-----	-----	PRE DA B
3	SCS Runoff	9.605	2	716	21,649	-----	-----	-----	POST DA A
4	SCS Runoff	8.466	2	716	19,598	-----	-----	-----	POST DA B1
5	SCS Runoff	2.235	2	716	4,527	-----	-----	-----	POST DA B2
6	SCS Runoff	1.706	2	718	3,421	-----	-----	-----	POST OSU A
7	SCS Runoff	1.142	2	718	2,283	-----	-----	-----	POST OSU B
8	Diversion1	5.749	2	710	7,678	3	-----	-----	1.2in 2Y MRC 3
9	Diversion2	9.605	2	716	13,972	3	-----	-----	DET A (IN)
10	Diversion1	4.161	2	708	6,743	4	-----	-----	1.2in 2Y MRC 2
11	Diversion2	8.466	2	716	12,855	4	-----	-----	DET B1 (IN)
12	Diversion1	2.235	2	716	1,868	5	-----	-----	1.2in 2Y MRC 1
13	Diversion2	1.765	2	720	2,659	5	-----	-----	DET B2 (IN)
14	Combine	8.466	2	716	15,513	11, 13	-----	-----	DET B (IN)
15	Reservoir	0.000	2	n/a	0	8	666.22	7,678	MRC 3 (R)
16	Reservoir	0.000	2	n/a	0	10	668.30	6,743	MRC 2 (R)
17	Reservoir	0.000	2	n/a	0	12	662.26	1,868	MRC 1 (R)
18	Reservoir	0.310	2	818	13,967	9	663.22	7,275	DET A (R)
19	Reservoir	0.523	2	776	15,509	14	665.66	6,981	DET B (R)
20	Combine	1.933	2	718	17,388	6, 15, 18,	-----	-----	COMBINED DA A
21	Combine	0.523	2	776	15,509	16, 19,	-----	-----	OUTFALL B1
22	Combine	1.536	2	718	17,792	7, 17, 21	-----	-----	COMBINED DA B
3746-5 PRE-POST.gpw					Return Period: 2 Year			Thursday, 03 / 26 / 2026	

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	8.671	2	726	30,309	-----	-----	-----	PRE DA A
2	SCS Runoff	5.080	2	726	17,756	-----	-----	-----	PRE DA B
3	SCS Runoff	14.11	2	716	32,564	-----	-----	-----	POST DA A
4	SCS Runoff	12.33	2	716	29,080	-----	-----	-----	POST DA B1
5	SCS Runoff	3.784	2	716	7,797	-----	-----	-----	POST DA B2
6	SCS Runoff	3.127	2	716	6,331	-----	-----	-----	POST OSU A
7	SCS Runoff	2.157	2	716	4,355	-----	-----	-----	POST OSU B
8	Diversion1	1.493	2	694	7,486	3	-----	-----	1.2in 2Y MRC 3
9	Diversion2	14.11	2	716	25,078	3	-----	-----	DET A (IN)
10	Diversion1	0.927	2	688	6,787	4	-----	-----	1.2in 2Y MRC 2
11	Diversion2	12.33	2	716	22,292	4	-----	-----	DET B1 (IN)
12	Diversion1	1.651	2	708	1,702	5	-----	-----	1.2in 2Y MRC 1
13	Diversion2	3.784	2	716	6,095	5	-----	-----	DET B2 (IN)
14	Combine	16.11	2	716	28,387	11, 13	-----	-----	DET B (IN)
15	Reservoir	0.000	2	n/a	0	8	666.20	7,486	MRC 3 (R)
16	Reservoir	0.000	2	n/a	0	10	668.31	6,787	MRC 2 (R)
17	Reservoir	0.000	2	n/a	0	12	662.18	1,702	MRC 1 (R)
18	Reservoir	0.397	2	834	25,073	9	664.32	15,481	DET A (R)
19	Reservoir	0.688	2	786	28,383	14	666.85	15,756	DET B (R)
20	Combine	3.452	2	716	31,404	6, 15, 18,	-----	-----	COMBINED DA A
21	Combine	0.688	2	786	28,383	16, 19,	-----	-----	OUTFALL B1
22	Combine	2.752	2	718	32,738	7, 17, 21	-----	-----	COMBINED DA B
3746-5 PRE-POST.gpw					Return Period: 10 Year			Thursday, 03 / 26 / 2026	

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	11.85	2	726	41,047	-----	-----	-----	PRE DA A
2	SCS Runoff	6.943	2	726	24,047	-----	-----	-----	PRE DA B
3	SCS Runoff	17.03	2	716	39,709	-----	-----	-----	POST DA A
4	SCS Runoff	14.84	2	716	35,277	-----	-----	-----	POST DA B1
5	SCS Runoff	4.806	2	716	10,024	-----	-----	-----	POST DA B2
6	SCS Runoff	4.106	2	716	8,370	-----	-----	-----	POST OSU A
7	SCS Runoff	2.873	2	716	5,827	-----	-----	-----	POST OSU B
8	Diversion1	0.858	2	666	7,482	3	-----	-----	1.2in 2Y MRC 3
9	Diversion2	17.03	2	716	32,227	3	-----	-----	DET A (IN)
10	Diversion1	0.671	2	656	6,752	4	-----	-----	1.2in 2Y MRC 2
11	Diversion2	14.84	2	716	28,524	4	-----	-----	DET B1 (IN)
12	Diversion1	1.247	2	702	1,739	5	-----	-----	1.2in 2Y MRC 1
13	Diversion2	4.806	2	716	8,285	5	-----	-----	DET B2 (IN)
14	Combine	19.64	2	716	36,809	11, 13	-----	-----	DET B (IN)
15	Reservoir	0.000	2	n/a	0	8	666.20	7,482	MRC 3 (R)
16	Reservoir	0.000	2	n/a	0	10	668.30	6,752	MRC 2 (R)
17	Reservoir	0.000	2	n/a	0	12	662.20	1,739	MRC 1 (R)
18	Reservoir	0.441	2	844	32,222	9	664.98	20,735	DET A (R)
19	Reservoir	0.773	2	796	36,804	14	667.57	21,410	DET B (R)
20	Combine	4.468	2	716	40,592	6, 15, 18,	-----	-----	COMBINED DA A
21	Combine	0.773	2	796	36,804	16, 19,	-----	-----	OUTFALL B1
22	Combine	3.509	2	716	42,631	7, 17, 21	-----	-----	COMBINED DA B
3746-5 PRE-POST.gpw					Return Period: 25 Year			Thursday, 03 / 26 / 2026	

Hydrograph Summary Report

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

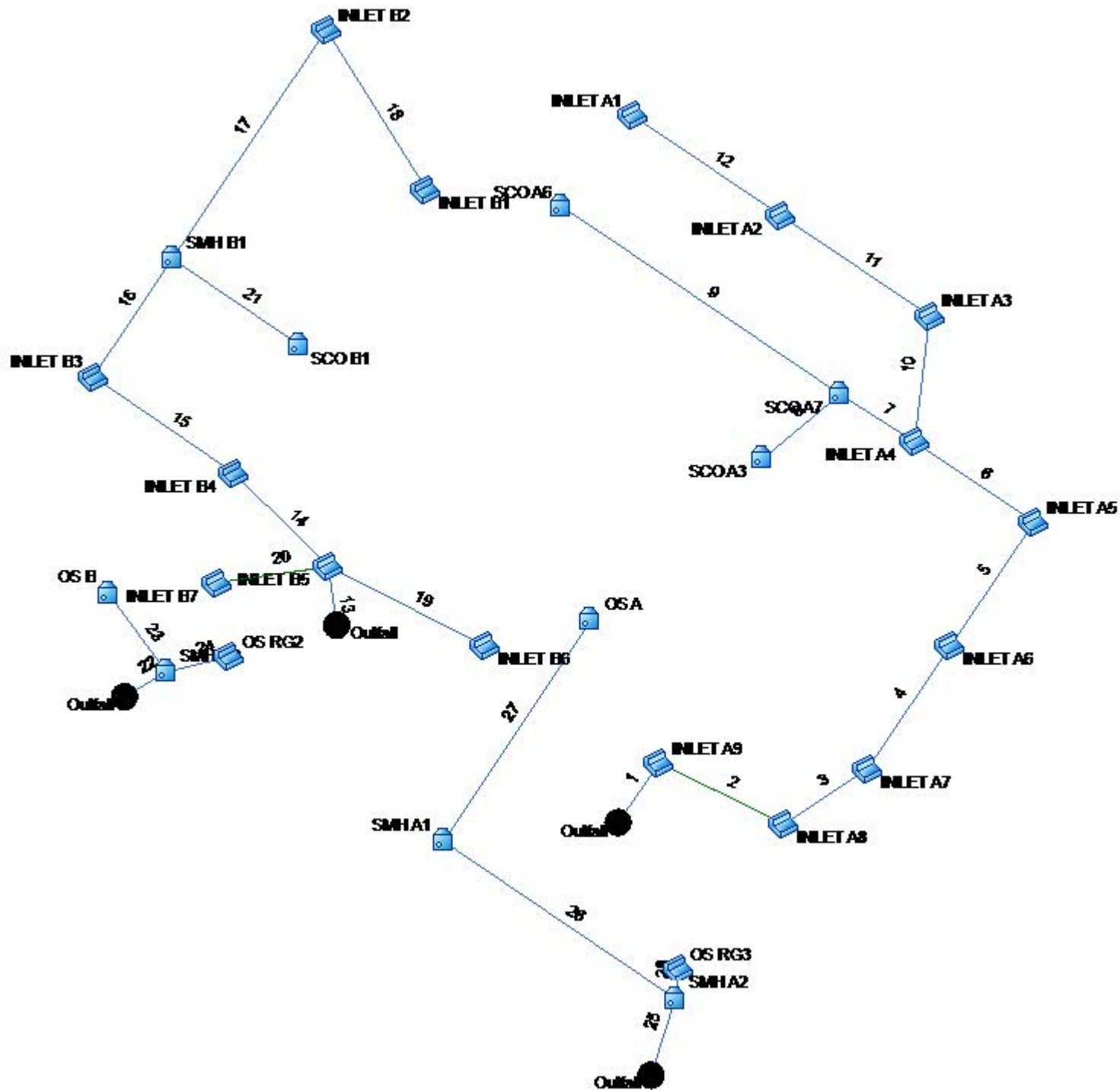
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	14.58	2	726	50,365	-----	-----	-----	PRE DA A
2	SCS Runoff	8.543	2	726	29,506	-----	-----	-----	PRE DA B
3	SCS Runoff	19.45	2	716	45,656	-----	-----	-----	POST DA A
4	SCS Runoff	16.92	2	716	40,430	-----	-----	-----	POST DA B1
5	SCS Runoff	5.656	2	716	11,908	-----	-----	-----	POST DA B2
6	SCS Runoff	4.931	2	716	10,118	-----	-----	-----	POST OSU A
7	SCS Runoff	3.481	2	716	7,096	-----	-----	-----	POST OSU B
8	Diversion1	0.724	2	640	7,512	3	-----	-----	1.2in 2Y MRC 3
9	Diversion2	19.45	2	716	38,144	3	-----	-----	DET A (IN)
10	Diversion1	0.559	2	626	6,704	4	-----	-----	1.2in 2Y MRC 2
11	Diversion2	16.92	2	716	33,726	4	-----	-----	DET B1 (IN)
12	Diversion1	0.501	2	694	1,694	5	-----	-----	1.2in 2Y MRC 1
13	Diversion2	5.656	2	716	10,214	5	-----	-----	DET B2 (IN)
14	Combine	22.57	2	716	43,940	11, 13	-----	-----	DET B (IN)
15	Reservoir	0.000	2	n/a	0	8	666.21	7,512	MRC 3 (R)
16	Reservoir	0.000	2	n/a	0	10	668.30	6,704	MRC 2 (R)
17	Reservoir	0.000	2	n/a	0	12	662.18	1,694	MRC 1 (R)
18	Reservoir	0.476	2	860	38,139	9	665.56	25,034	DET A (R)
19	Reservoir	0.846	2	800	43,936	14	668.26	26,121	DET B (R)
20	Combine	5.317	2	716	48,257	6, 15, 18,	-----	-----	COMBINED DA A
21	Combine	0.846	2	800	43,936	16, 19,	-----	-----	OUTFALL B1
22	Combine	4.165	2	716	51,032	7, 17, 21	-----	-----	COMBINED DA B
3746-5 PRE-POST.gpw					Return Period: 50 Year			Thursday, 03 / 26 / 2026	

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	17.54	2	726	60,558	-----	-----	-----	PRE DA A
2	SCS Runoff	10.28	2	726	35,477	-----	-----	-----	PRE DA B
3	SCS Runoff	22.01	2	716	51,978	-----	-----	-----	POST DA A
4	SCS Runoff	19.13	2	716	45,908	-----	-----	-----	POST DA B1
5	SCS Runoff	6.558	2	716	13,933	-----	-----	-----	POST DA B2
6	SCS Runoff	5.812	2	716	12,015	-----	-----	-----	POST OSU A
7	SCS Runoff	4.133	2	716	8,478	-----	-----	-----	POST OSU B
8	Diversion1	0.619	2	610	7,489	3	-----	-----	1.2in 2Y MRC 3
9	Diversion2	22.01	2	716	44,490	3	-----	-----	DET A (IN)
10	Diversion1	0.490	2	596	6,752	4	-----	-----	1.2in 2Y MRC 2
11	Diversion2	19.13	2	716	39,156	4	-----	-----	DET B1 (IN)
12	Diversion1	0.327	2	676	1,682	5	-----	-----	1.2in 2Y MRC 1
13	Diversion2	6.558	2	716	12,251	5	-----	-----	DET B2 (IN)
14	Combine	25.69	2	716	51,407	11, 13	-----	-----	DET B (IN)
15	Reservoir	0.000	2	n/a	0	8	666.20	7,489	MRC 3 (R)
16	Reservoir	0.000	2	n/a	0	10	668.30	6,752	MRC 2 (R)
17	Reservoir	0.000	2	n/a	0	12	662.17	1,682	MRC 1 (R)
18	Reservoir	0.523	2	868	44,484	9	666.40	29,546	DET A (R)
19	Reservoir	0.946	2	802	51,403	14	669.30	30,911	DET B (R)
20	Combine	6.223	2	716	56,499	6, 15, 18,	-----	-----	COMBINED DA A
21	Combine	0.946	2	802	51,403	16, 19,	-----	-----	OUTFALL B1
22	Combine	4.864	2	716	59,881	7, 17, 21	-----	-----	COMBINED DA B
3746-5 PRE-POST.gpw					Return Period: 100 Year			Thursday, 03 / 26 / 2026	

STORMWATER CONVEYANCE DESIGN

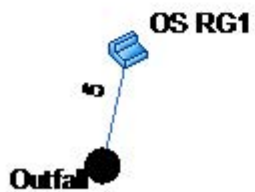
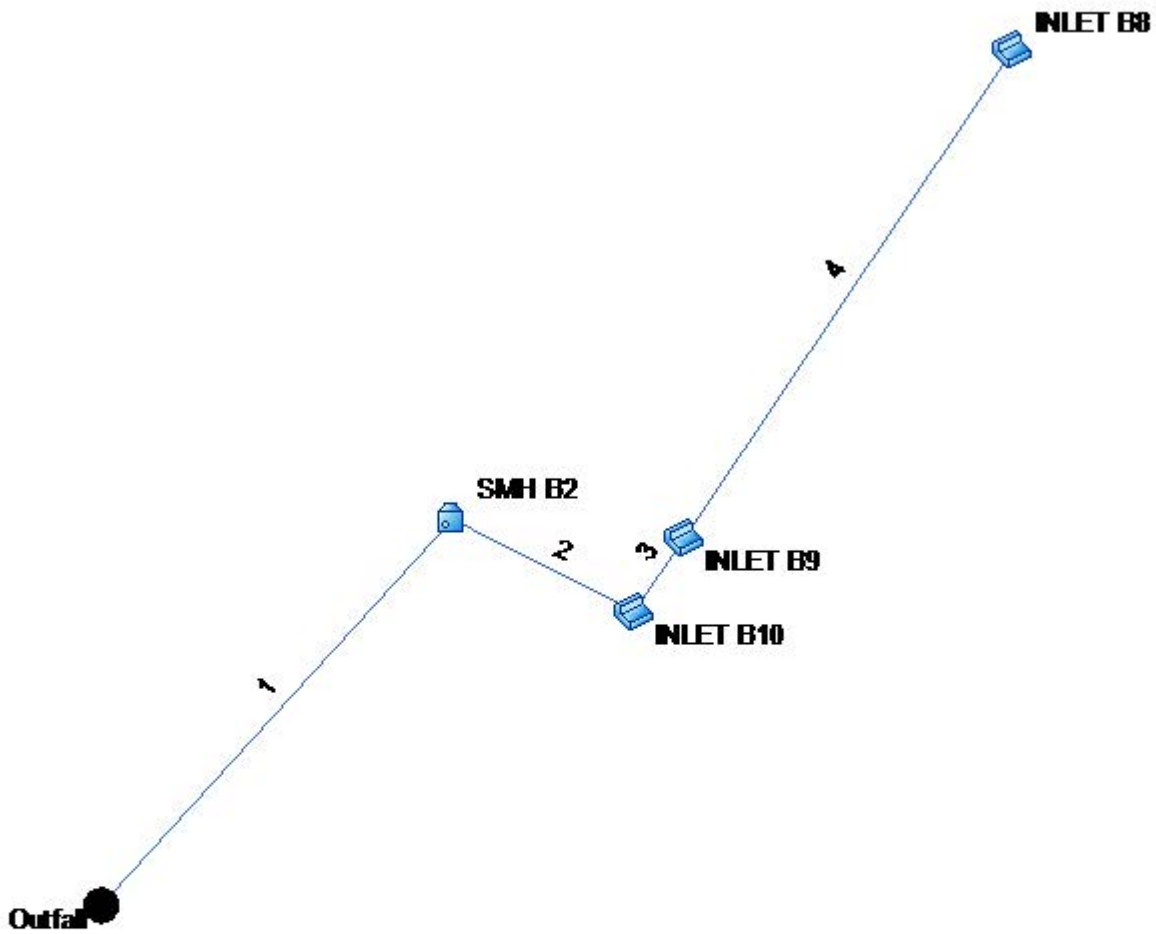


Storm Sewer Tabulation

Station		Len (ft)	Drng Area		Rnoff coeff (C)	Area x C		Tc		Rain (I) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID	
Line	To Line		Incr (ac)	Total (ac)		Incr (min)	Total (min)	Inlet (min)	Syst (min)					Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)		
1	End	38.321	0.10	2.36	0.84	0.08	1.80	5.0	10.7	5.9	10.61	9.79	8.73	15	1.96	666.00	666.75	667.23	667.95	0.00	674.35	PIPE A9	
2	1	73.825	0.14	2.26	0.86	0.12	1.71	5.0	10.4	6.0	10.23	18.04	3.26	24	0.54	666.85	667.25	669.72	669.85	674.35	673.15	PIPE A8	
3	2	53.011	0.11	2.12	0.85	0.09	1.59	5.0	10.1	6.0	9.59	18.43	3.05	24	0.57	667.35	667.65	670.07	670.15	673.15	673.95	PIPE A7	
4	3	78.556	0.22	2.01	0.74	0.16	1.50	5.0	9.7	6.1	9.15	17.49	2.91	24	0.51	667.75	668.15	670.24	670.35	673.95	673.55	PIPE A6	
5	4	79.367	0.37	1.79	0.69	0.26	1.34	5.0	9.5	6.2	8.23	8.08	4.66	18	0.50	668.25	668.65	670.42	670.83	673.55	673.30	PIPE A5	
6	5	76.400	0.19	1.42	0.74	0.14	1.08	5.0	9.1	6.2	6.73	8.23	3.81	18	0.52	668.65	669.05	671.34	671.61	673.30	673.85	PIPE A4	
7	6	47.000	0.00	0.44	0.00	0.00	0.40	5.0	6.4	6.8	2.71	5.19	3.45	12	1.81	669.15	670.00	671.91	672.15	673.85	674.60	RL-4	
8	7	53.413	0.33	0.33	0.90	0.30	0.30	5.0	5.0	7.2	2.15	2.89	3.52	12	0.56	671.50	671.80	672.32	672.46	674.60	675.55	RL-3	
9	7	178.098	0.11	0.11	0.90	0.10	0.10	5.0	5.0	7.2	0.72	1.31	2.67	8	0.84	671.50	673.00	672.32	673.40	674.60	674.52	RL-7	
10	6	67.449	0.35	0.79	0.69	0.24	0.55	5.0	8.8	6.3	3.44	5.04	2.80	15	0.52	669.15	669.50	671.91	672.08	673.85	672.80	PIPE A3	
11	10	94.895	0.29	0.44	0.73	0.21	0.30	5.0	7.9	6.5	1.98	5.08	1.61	15	0.53	669.60	670.10	672.24	672.32	672.80	673.20	PIPE A2	
12	11	95.005	0.15	0.15	0.62	0.09	0.09	5.0	5.0	7.2	0.67	8.49	0.71	15	1.47	670.20	671.60	672.34	672.35	673.20	674.60	PIPE A1	
13	End	31.250	0.04	2.06	0.90	0.04	1.69	5.0	11.9	5.7	9.61	22.29	6.46	18	3.84	668.00	669.20	669.16	670.40	0.00	673.63	PIPE B6	
14	13	70.216	0.51	1.74	0.89	0.45	1.40	5.0	11.7	5.7	8.02	8.59	5.52	18	0.57	669.30	669.70	670.45	670.85	673.63	672.88	PIPE B5	
15	14	90.982	0.20	1.23	0.90	0.18	0.95	5.0	11.3	5.8	5.49	8.43	4.17	18	0.55	669.80	670.30	671.09	671.20	672.88	674.35	PIPE B4	
16	15	75.269	0.00	1.03	0.00	0.00	0.77	5.0	10.8	5.9	4.50	8.29	4.64	18	0.53	670.40	670.80	671.20	671.61	674.35	673.53	PIPE B3	
17	16	146.559	0.91	0.98	0.73	0.66	0.72	5.0	10.0	6.0	4.36	8.14	4.61	18	0.51	670.90	671.65	671.68	672.45	673.53	674.15	PIPE B2	
18	17	100.284	0.07	0.07	0.81	0.06	0.06	5.0	5.0	7.2	0.41	4.94	1.47	15	0.50	671.75	672.25	672.45	672.50	674.15	675.25	PIPE B1	
19	13	93.554	0.18	0.18	0.90	0.16	0.16	5.0	5.0	7.2	1.17	19.33	1.95	18	2.89	669.30	672.00	670.40	672.40	673.63	675.05	PIPE B7	
20	13	60.014	0.10	0.10	0.90	0.09	0.09	5.0	5.0	7.2	0.65	18.58	1.53	18	2.67	669.30	670.90	670.40	671.20	673.63	671.93	PIPE B8	
21	16	81.784	0.05	0.05	0.90	0.05	0.05	5.0	5.0	7.2	0.33	0.67	3.08	6	1.22	672.50	673.50	672.75	673.79	673.53	676.35	RL-8	
22	End	25.891	0.00	0.00	0.00	0.00	0.00	5.0	25.5	0.0	0.74	15.81	2.68	18	1.93	659.50	660.00	659.82	660.32	661.63	662.43	PIPE B12	
Project File: 3764-5 PIPES.stm																Number of lines: 28				Run Date: 3/26/2026			
NOTES:Intensity = 88.24 / (Inlet time + 15.50) ^ 0.83 ; Return period =Yrs. 10 ; c = cir e = ellip b = box																							

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Dn	Up	Dn	Up	Dn	Up	
			(ft)	(ac)		(ac)	(C)							(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	
23	22	51.916	0.00	0.00	0.00	0.00	0.00	5.0	5.0	0.0	0.69	30.37	3.47	18	7.13	660.10	663.80	660.32	664.11	662.43	666.53	PIPE B11
24	22	34.774	0.00	0.00	0.00	0.00	0.00	5.0	5.0	0.0	0.05	46.86	0.82	18	16.97	660.10	666.00	660.32	666.08	662.43	669.00	PIPE B13
25	End	42.673	0.00	0.00	0.00	0.00	0.00	5.0	26.3	0.0	0.45	15.58	2.34	18	1.87	653.50	654.30	653.75	654.55	655.63	657.03	PIPE A14
26	25	148.659	0.00	0.00	0.00	0.00	0.00	5.0	15.4	0.0	0.40	8.35	2.35	18	0.54	654.40	655.20	654.62	655.43	657.03	657.28	PIPE A13
27	26	141.204	0.00	0.00	0.00	0.00	0.00	5.0	5.0	0.0	0.40	23.16	3.62	18	4.14	655.30	661.15	655.44	661.38	657.28	676.10	PIPE A12
28	25	15.755	0.00	0.00	0.00	0.00	0.00	5.0	5.0	0.0	0.05	79.01	0.94	18	48.24	654.40	662.00	654.55	662.08	657.03	667.00	PIPE A15
Project File: 3764-5 PIPES.stm																Number of lines: 28				Run Date: 3/26/2026		
NOTES:Intensity = 88.24 / (Inlet time + 15.50) ^ 0.83 ; Return period =Yrs. 10 ; c = cir e = ellip b = box																						



Storm Sewer Tabulation

Station		Len (ft)	Drng Area		Rnoff coeff (C)	Area x C		Tc		Rain (I) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr	Total		Incr	Total	Inlet	Syst					Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
			(ac)	(ac)		(min)	(min)	(min)	(min)													
1	End	100.990	0.00	0.56	0.00	0.00	0.40	0.0	7.6	6.6	2.64	13.92	4.31	15	3.96	664.00	668.00	664.60	668.65	0.00	672.63	PIPE B17
2	1	39.395	0.19	0.56	0.90	0.17	0.40	5.0	7.3	6.6	2.67	12.21	6.03	15	3.05	668.50	669.70	668.90	670.35	672.63	672.43	PIPE B16
3	2	17.195	0.10	0.37	0.78	0.08	0.23	5.0	7.1	6.7	1.55	5.34	3.60	15	0.58	670.30	670.40	670.76	670.89	672.43	674.85	PIPE B15
4	3	114.139	0.27	0.27	0.57	0.15	0.15	5.0	5.0	7.2	1.11	5.07	3.22	15	0.53	670.50	671.10	670.90	671.52	674.85	674.10	PIPE B14
5	End	22.985	0.00	0.00	0.00	0.00	0.00	5.0	5.0	0.0	0.05	10.32	1.32	15	2.18	661.50	662.00	661.59	662.09	0.00	665.00	PIPE B19
Project File: 3764-5 PIPES RG1 only.stm																Number of lines: 5				Run Date: 3/26/2026		
NOTES:Intensity = 88.24 / (Inlet time + 15.50) ^ 0.83 ; Return period =Yrs. 10 ; c = cir e = ellip b = box																						

INSPECTION & MAINTENANCE

STORMWATER FACILITIES MAINTENANCE AGREEMENT

1. THE MAINTENANCE OF ALL STORMWATER CONVEYANCE AND MANAGEMENT FACILITIES SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER, THEIR HEIRS, ASSIGNS OR SUCCESSORS IN TITLE. MAINTENANCE SHALL INCLUDE BUT, NOT BE LIMITED TO NORMAL MAINTENANCE AS WELL AS REPAIR OF STRUCTURAL DAMAGE OR DETERIORATION OF ANY KIND, INCLUDING THAT CAUSED BY SINKHOLES OR OTHER EVENTS. THE TOWNSHIP SHALL HAVE THE RIGHT, BUT NOT THE DUTY, OF ACCESS AT ANY TIME TO INSPECT AND MAINTAIN THE FACILITY AT THE PROPERTY OWNER'S EXPENSE IF THE OWNER SHALL FAIL TO PROPERLY MAINTAIN THE FACILITY. THE TOWNSHIP SHALL HAVE THE RIGHT TO SECURE RECOVERY OF SUCH COSTS BY FILING A MUNICIPAL LIEN AGAINST THE PROPERTY.

2. STORMWATER FACILITIES ASSOCIATED WITH THIS MAINTENANCE AGREEMENT INCLUDE, BUT ARE NOT LIMITED TO, STORMWATER INLETS, STORM WATER QUALITY UNITS, INFILTRATION BEDS, STORM PIPES, DOWNSPOUTS, ROOF DRAINS.

3. GENERAL OBJECTIVES OF MAINTENANCE ARE TO PREVENT CLOGGING OF STORM SEWERS FACILITIES AS WELL AS PREVENTING THE RELEASE OF TRASH, DEBRIS, OILS, GREASE, GRIT, ETC TO REGULATED WATERS OF THE COMMONWEALTH.

4. REQUIRED MAINTENANCE SHALL CONSIST OF INSPECTING AND CLEANING THE STORM WATER FACILITIES TO ENSURE THEY ARE IN PROPER WORKING ORDER. MAINTENANCE SHALL ALSO INCLUDE IMMEDIATELY REPAIRING OR REPLACING FACILITY COMPONENTS THAT ARE NOT WORKING PROPERLY. STORM SEWER FACILITIES SHALL BE INSPECTED QUARTERLY AND AFTER MAJOR STORMS. DETAILED INSPECTIONS BY A QUALIFIED INSPECTOR SHALL OCCUR AS NOTED BELOW TO ENSURE THAT THE FACILITIES ARE OPERATING AS DESIGNED AND TO SCHEDULE MAINTENANCE THAT THE FACILITIES MAY REQUIRE. IN ADDITION TO REGULARLY SCHEDULED INSPECTIONS, DEFICIENCIES SHOULD BE NOTED DURING ANY VISIT BY MAINTENANCE PERSONNEL. ANY TRASH, DEBRIS, OILS, GREASE, GRIT, ETC THAT HAS COLLECTED SHALL BE REMOVED AND DISPOSED OF IMMEDIATELY IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS.

5. LAWN SHALL NOT BE TREATED WITH FERTILIZERS - EXCEPT WHEN REESTABLISHING LAWN DUE TO DISTURBANCE.

6. THE POINT OF CONTACT FOR MAINTENANCE, INSPECTION, RECORDS, OR EMERGENCY SHALL BE:

CHR CORP. (CONTACT: ADAM BISKER, DIRECTOR OF MAINTENANCE)

2295 SUSQUEHANNA TRAIL, SUITE C

YORK, PA 17404

717-771-5908

7. MAINTENANCE OF SAID STORMWATER FACILITIES SHALL CONSIST OF:

INSPECTION - STORMWATER FACILITIES SHALL BE INSPECTED QUARTERLY AND AFTER MEASURABLE RAINFALL EVENTS (GREATER THAN 1"). REPAIRS, IF ANY, SHALL BE MADE IMMEDIATELY. THESE INSPECTIONS DO NOT NEED TO BE PERFORMED BY A QUALIFIED INSPECTOR. A

MAINTENANCE/INSPECTION LOG AND WRITTEN REPORT SHALL BE KEPT OF ALL INSPECTIONS, REPAIRS, AND MAINTENANCE ACTIVITIES.

IN ADDITION TO SOMEONE PERFORMING THE ABOVE INSPECTIONS, A QUALIFIED INSPECTOR SHALL PERFORM INSPECTIONS OF THE STORMWATER FACILITIES ANNUALLY FOR THE FIRST FIVE (5) YEARS. AFTER FIVE YEARS OF ANNUAL INSPECTIONS, INSPECTIONS THEREON SHALL BE PERFORMED EVERY THREE (3) YEARS. INSPECTIONS BY A QUALIFIED INSPECTOR ARE ALSO REQUIRED DURING OR IMMEDIATELY AFTER THE SECESSION OF A 10 YEAR OR GREATER STORM (EQUATING TO AT LEAST 4.5 INCHES OF RAINFALL IN A 24-HOUR PERIOD). SAID RECORDS SHALL BE KEPT ON SITE, ACCESSIBLE AND OPENED TO THE STORMWATER OFFICER UPON REQUEST SO THAT HE OR SHE MAY VERIFY THAT MAINTENANCE IS PROCEEDING AS APPROVED. THE ENTITY CONDUCTING THE INSPECTION SHALL

SUBMIT A WRITTEN REPORT TO THE OWNER AND MUNICIPALITY REGARDING ANY MAINTENANCE / REPAIRS PERFORMED WITHIN THE PREVIOUS YEAR, THE CONDITIONS OF THE BMP'S, ANY RECOMMENDED REPAIRS, IF NEEDED, AND A SCHEDULE FOR COMPLETION OF SUCH REPAIRS. THE OWNER SHALL IMPLEMENT ALL NECESSARY REPAIRS IN ACCORDANCE WITH THE SUBMITTED SCHEDULE.

DEBRIS AND LITTER CONTROL - STORMWATER MANAGEMENT FACILITIES SHALL BE KEPT IN FUNCTIONING ORDER FREE OF DEBRIS AND LITTER.

MAINTENANCE RECORD - THE LOT OWNER IS TO KEEP A WRITTEN RECORD OF ALL INSPECTIONS, REPAIRS, AND CLEANINGS. THE MAINTENANCE RECORD SHALL BE KEPT CURRENT AND PROVIDED TO THE MUNICIPALITY AS NOTED ABOVE.

SUBSURFACE INFILTRATION BED - STORMWATER FACILITIES SHALL BE INSPECTED QUARTERLY AND AFTER MEASURABLE RAINFALL EVENTS (GREATER THAN 1"). THESE INSPECTIONS DO NOT NEED TO BE PERFORMED BY A QUALIFIED INSPECTOR, AND WRITTEN REPORTS ARE NOT REQUIRED. THE OUTLET STRUCTURES SHALL BE INSPECTED YEARLY. PLEASE SEE THE "INSPECTION" SECTION FOR MORE DETAILS ON INSPECTIONS. IF ANY REPAIRS ARE REQUIRED, THEY SHALL BE MADE IMMEDIATELY. IF SEDIMENT ACCUMULATES TO A DEPTH GREATER THAN 4", SEDIMENT SHALL BE REMOVED VIA A VACUUM TRUCK. DEBRIS SHALL BE REMOVED FROM THE OUTLET STRUCTURES. DEFORMATION TO THE PAVEMENT ABOVE THE TERREARCH BASIN, CHANGES IN GRADE ACROSS THE BASIN, AND/OR POTHOLES IN THE STONE BASIN BOTTOM, COULD ALL BE INDICATIONS THAT A

SINKHOLE OR OTHER KARST FEATURE HAS DEVELOPED UNDER THE BASIN(S). CHR CORP SHALL BE CONSULTED IMMEDIATELY IF ANY OF THESE ITEMS ARE NOTICED. PARTIAL OR FULL REPLACEMENT OF THE BASIN(S) MAY BE REQUIRED. THE TERREARCH UNITS AND OR PIPING WOULD NEED TO BE REMOVED, THE SINKHOLE WOULD NEED TO BE FILLED/STABILIZED, AND THE BASIN(S) WOULD NEED TO BE REINSTALLED PER THE INSTALLATION DETAIL(S). THIS WORK SHALL BE DONE WHEN NO RAIN IS IN THE FORECAST.

ACCESS: VIA ACCESS MANHOLES

NATIVE TREE PLANTINGS - WHILE TREES ARE BEING ESTABLISHED, PRUNING MAY BE REQUIRED. DETRITUS MAY ALSO NEED TO BE REMOVED EVERY YEAR. STONE BASE COVER SHOULD BE RE-SPREAD WHEN LOSS OF STONE IS EVIDENT AND SHALL BE REPLENISHED AS NEEDED. DURING PERIODS OF EXTENDED DROUGHT, NATIVE PLANTINGS MAY REQUIRE WATERING. TREES SHOULD BE INSPECTED TWICE PER YEAR TO EVALUATE HEALTH. ANY DEAD TREES SHALL BE REPLANTED. IF NATIVE TREE REPLACEMENT IS NEEDED; TREE AND STONE SHALL BE REMOVED AND REPLACED. INSTALL THE NEW NATIVE TREE(S) PER THE LANDSCAPING NOTES, TREE PLANTING DETAIL, AND PER THE PLAN.

ACCESS: VIA PARKING LOT

TERRE ARCH™48 PERFORMANCE, DESIGN & INSTALLATION SPECIFICATIONS

The Terre Arch™48 is a precast concrete modular roman arch structure with 5000psi compressive strength consisting of three connected parallel vaults for subsurface storage of stormwater.

1. Infiltration to recharge the ground water; detention where site conditions require
2. HS-25 load rating on the crown of the arch; no minimum cover or fill requirements; no requirement for stone between the arches or above the structure; direct access for heavy installation equipment. (Perimeter stone fill is required prior to installation equipment access);
3. Minimum stone sub-base depth of six (6") inch with a minimum subsurface bearing capacity of 3000 PSF; stone base may be increased by Engineer, if required to balance loads;
4. Maximum cover up to 20 ft. (verify sub-base depth and soil bearing capacity);
5. A Water Quality Treatment device, such as Terre Kleen™, should be placed upstream from the Terre Arch™ to prevent entry of sediment, oil, grease, litter, and debris into Terre Arch
6. 160 Ft² (8 feet by 20 feet) infiltration surface per structure;
7. 638 Ft³ (5.32Ft³/Ft²) of in customary installation (i.e. 6" stone bed (5" #8 and 1" #5 stone) and valleys between arches filled with 4" of stone to the top of the buttresses & 6" of stone cover);
8. Terre Arch™48 weighs 15,700 lbs.; placement from truck into the prepared excavation by crane;
9. Vent and drain holes cast at the top of the arch and in the valley areas of the Terre Arch™;
10. Distribution holes are cast into the legs of the arches to allow flow between all sections;
11. The anti-scour and erosion mat required under manifold and Terre Arch where inflow occurs;
12. No grade subsidence or misalignment with proper installation;
13. No requirement for spacing or backfilling between each structure;
14. No requirement for geotextile separation layer below. Use filter fabric or geotextile where silt migration from the sides or top into the stone's void space is possible.
15. Manufacturer shall submit shop drawings and such other information requested by Engineer;
16. Each Terre Arch™ shall have four (4) lifting points with Uni-lift pins. Contractor shall provide equipment with sufficient lifting capacity to unload and set the Terre Arch™;
17. Contractor shall excavate, dewater and shore as required by Engineer or safety regulations;
18. Terre Arch Distribution Box shall include riser sections that extend to grade with manhole access into entire Terre Arch system.
19. Warranty: 4 years from date of substantial completion for labor and material in the event that the material supplied is not free from defects; structure shall be installed only for the particular application for which it was specifically manufactured;
20. Terre Arch™ installation may require distribution box(es) and end caps as shown on the Drawings.

PRODUCT SUBSTITUTION PROCEDURES

1. No substitute system shall be approved as equivalent to Terre Arch™ system unless the Engineer shall receive and approve drawings and specifications stamped and sealed by a professional engineer showing the following:
 - a. project specific sizing calculations clearly showing that the unit meets or exceeds the Performance, Design and Installation Specifications of the Terre Arch™.
 - b. System shall allow access from grade through manhole into the entire underground system

MAINTENANCE PROCEDURES

1. When a proper water quality device is placed in front of the Terre Arch™ system no clean out or maintenance is anticipated;
2. Inspection can be accomplished from grade with proper equipment, by entry through the manhole openings in the Distribution Manifold.
3. System shall contain sufficient Distribution Manifolds to allow entry for inspection and maintenance into each arch row of each Terre Arch.



FLOGARD+PLUS® CATCH BASIN INSERT FILTER

Inspection and Maintenance Guide



A division of
Oldcastle Infrastructure

SCOPE:

Federal, State and Local Clean Water Act regulations and those of insurance carriers require that stormwater filtration systems be maintained and serviced on a recurring basis. The intent of the regulations is to ensure that the systems, on a continuing basis, efficiently remove pollutants from stormwater runoff thereby preventing pollution of the nation's water resources. These specifications apply to the FloGard+Plus® Catch Basin Insert Filter.

RECOMMENDED FREQUENCY OF SERVICE:

Drainage Protection Systems (DPS) recommends that installed FloGard+Plus Catch Basin Insert Filters be serviced on a recurring basis. Ultimately, the frequency depends on the amount of runoff, pollutant loading and interference from debris (leaves, vegetation, cans, paper, etc.); however, it is recommended that each installation be serviced a minimum of three times per year, with a change of filter medium once per year. DPS technicians are available to do an on-site evaluation, upon request.

RECOMMENDED TIMING OF SERVICE:

DPS guidelines for the timing of service are as follows:

1. For areas with a definite rainy season: Prior to, during and following the rainy season.
2. For areas subject to year-round rainfall: On a recurring basis (at least three times per year).
3. For areas with winter snow and summer rain: Prior to and just after the snow season and during the summer rain season.
4. For installed devices not subject to the elements (wash racks, parking garages, etc.): On a recurring basis (no less than three times per year).

SERVICE PROCEDURES:

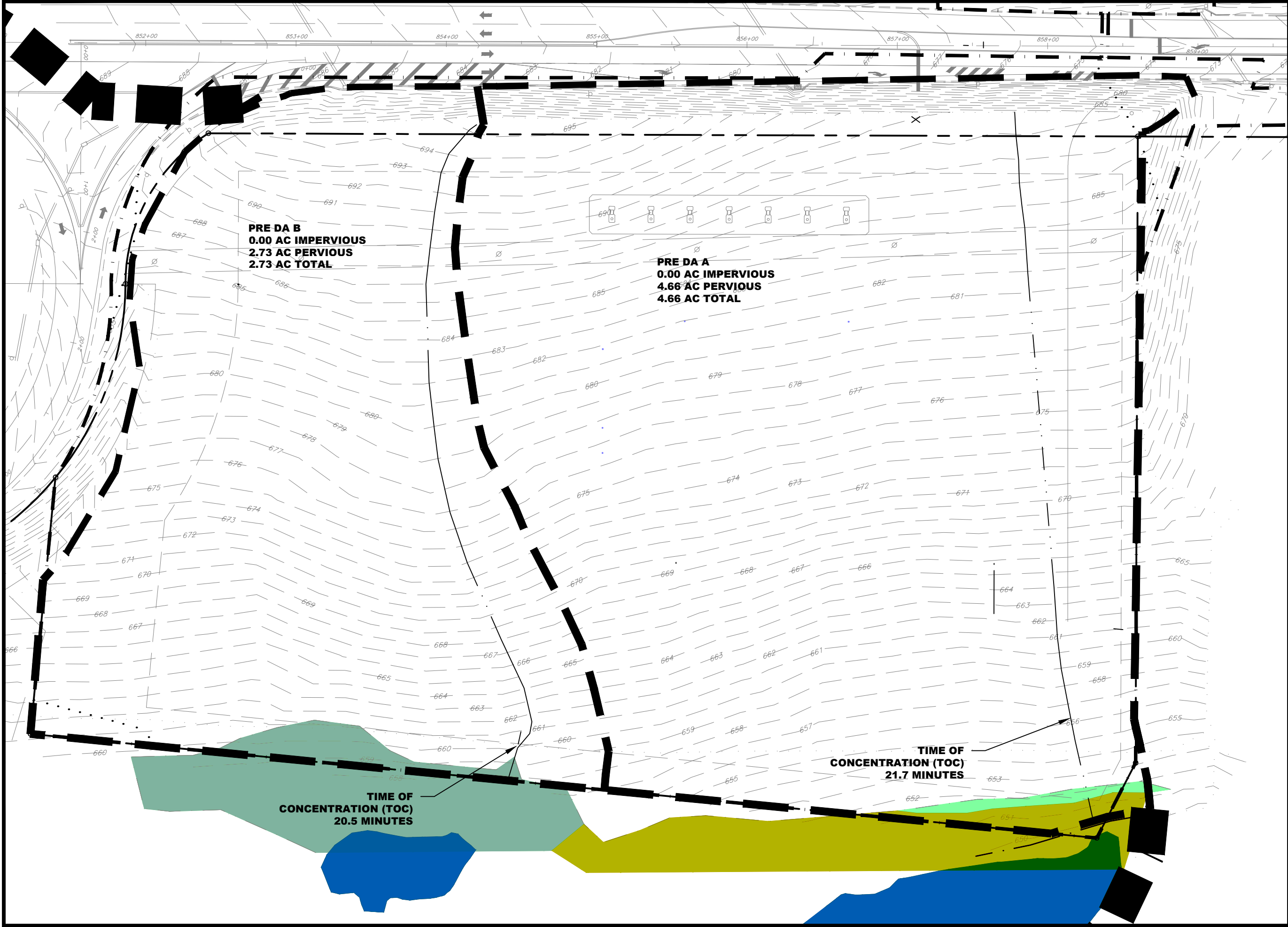
1. The catch basin grate shall be removed and set to one side. The catch basin shall be visually inspected for defects and possible illegal dumping. If illegal dumping has occurred, the proper authorities and property owner representative shall be notified as soon as practicable.
2. Using an industrial vacuum, the collected materials shall be removed from the liner. (Note: DPS uses a truck-mounted vacuum for servicing FloGard+Plus catch basin inserts).
3. When all of the collected materials have been removed, the filter medium pouches shall be removed by unsnapping the tether from the D-ring and set to one side. The filter liner, gaskets, stainless steel frame and mounting brackets, etc., shall be inspected for continued serviceability. Minor damage or defects found shall be corrected on-the-spot and a notation made on the Maintenance Record. More extensive deficiencies that affect the efficiency of the filter (torn liner, etc.), if approved by the customer representative, will be corrected and an invoice submitted to the representative along with the Maintenance Record.
4. The filter medium pouches shall be inspected for defects and continued serviceability and replaced as necessary, and the pouch tethers re-attached to the liner's D-ring.
5. The grate shall be replaced.

REPLACEMENT AND DISPOSAL OF EXPOSED FILTER MEDIUM AND COLLECTED DEBRIS

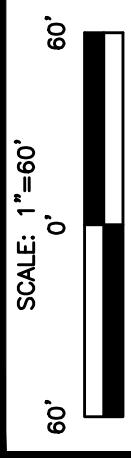
The frequency of filter medium exchange will be in accordance with the existing DPS-Customer Maintenance Contract. DPS recommends that the medium be changed at least once per year. During the appropriate service, or if so determined by the service technician during a non-scheduled service, the filter medium will be replaced with new material. Once the exposed pouches and debris have been removed, DPS has possession and must dispose of it in accordance with local, state and federal agency requirements.

DPS also has the capability of servicing all manner of storm drain filters, catch basin inserts and catch basins without inserts, underground oil/water separators, stormwater interceptors and other such devices. All DPS personnel are highly qualified technicians and are confined-space trained and certified. Call us at (888) 950-8826 for further information and assistance.

PRE & POST DEVELOPMENT DRAINAGE MAPS



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PRE DEVELOPMENT DRAINAGE MAP

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PENNSYLVANIA

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SCALE: 1"=60'

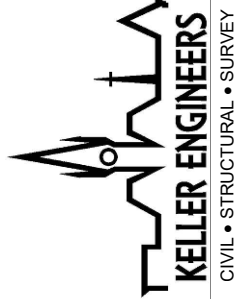
60' 0' 60'

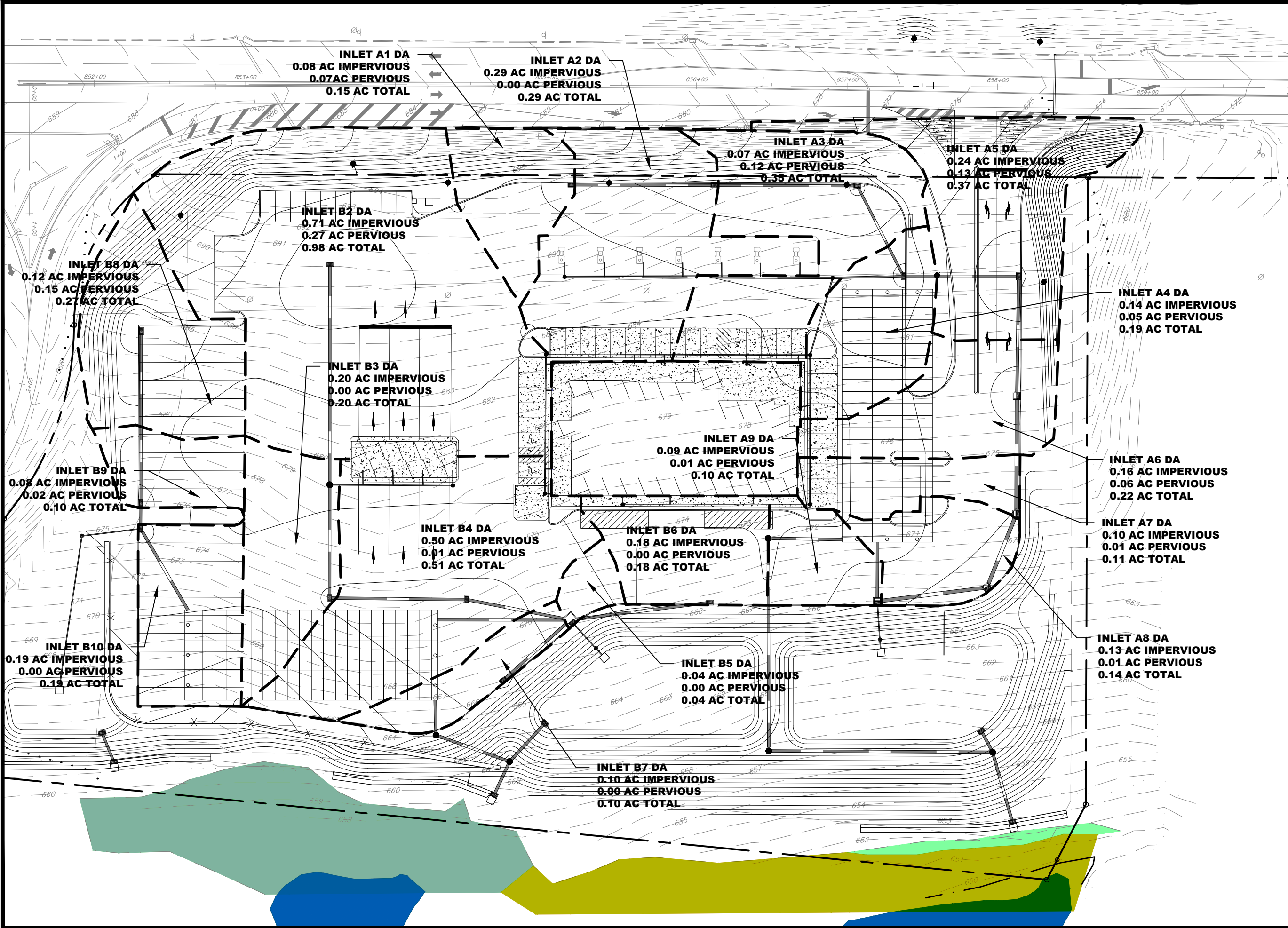
POST DEVELOPMENT DRAINAGE MAP

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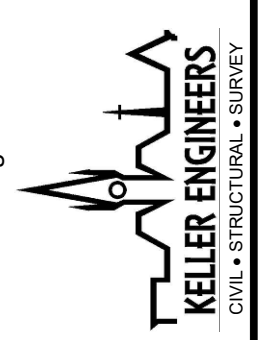
SCALE: 1"=60'
0' 60'

INLET AREA DRAINAGE MAP

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SCALE: 1"=60'

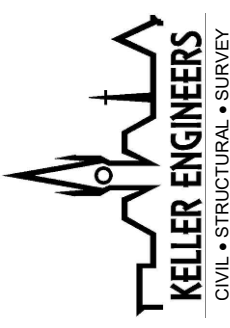
0' 60'

ROOF AREA DRAINAGE MAP

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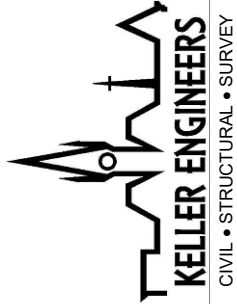


PRE DEVELOPMENT REGIONAL DRAINAGE MAP

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WETLAND AREA REGIONAL DRAINAGE MAP

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