Indigo Land Design, LLC
40 Elm Street, 2nd Floor
Old Saybrook, CT 06475

860.388.9343 Phone
860.391.8854 Fax
jwren@Indigo-Land.com E-mail
www.Indigo-Land.com

May 14, 2024

Re: 52 Spencer Plains Road (CT Route 166) (Map 25 Lot 21)
Old Saybrook, CT 06475

DRAINAGE REPORT

This project involves the construction of a 23,820 square foot medical office building, a parking lot with landscaping, and low impact development (LID) measures as shown on the site plan, and other associated improvements. The subject property is currently a vacant wooded lot.

The proposed development will be located between the main wetlands area along the east side of the property and Spencer Plains Road to the west of the property. A small 0.13 acre area in the southwest corner of the property drains to Design Point #1 along the southwest property line. The larger southwest portion of the site drains to the proposed "Southwest Wetland Pocket" via overland flow and then drains to the north via a culvert under the access driveway. The rest of the developed portion of the site generally drain to the Stormwater Management Basin via a network of catch basins. The basin and the remainder of the site, totaling 6.62 acres, drain to Design Point # 2 along the southern and western edge of the north/east wetlands.

The underlying upland soils on the property consist of Timakwa and Natchaug soils, Agawam Fine Sandy loam, Woodbridge fine sandy loam, Paxton and Montauk fine sandy loams, Udorthents-Pits complex as shown on the drainage area map.

Three permeability samples were taken on-site. The permeability of the underlying soils is 0.52 ft./day (or 0.26 in./hour) minimum. An exfiltration rate of 0.13 in./hour, which provides a factor of safety of 2.0, was used in the design of the proposed Stormwater Management Basin. These parameters are ultra-conservative since the soil along the bottom of the basin will be replaced and/or augmented with a well-draining sand/compost mix. A composite exfiltration rate of 0.13 in./hour was used in model the Southwest Wetland Pocket and the surrounding soils.

The proposed project includes several BMP and LID techniques and measures to mitigate impacts of stormwater runoff and reduce the pollutant content of stormwater discharge. The proposed methods include, but are not limited to: avoiding combined concentrated point discharges, inhibiting erosion by using pre-formed scour holes at pipe outfalls, promoting infiltration by reducing impervious areas with proposed substantial landscaping, introducing wetlands buffer plantings, and a stormwater management basin with a sand/compost mix, plantings along the bottom, and a water quality volume (WQV) forebay. Additionally, all proposed catch

basins have 2’ deep sumps and the final catch basin prior to discharging to the stormwater management basin has a 4’ deep sump and an outlet hood.

The NRCS TR-55 methodology was utilized to evaluate existing and proposed stormwater runoff conditions with the AutoCAD embedded HydraFlow Hydrographs computer program. All times of concentration were computed using the TR-55 methodology as recommended by the ConnDOT Drainage Manual. The 24-hour NRCS Type III rainfall distribution was used for all storms. All rainfall amounts used in this analysis were taken from the Hydrometeorological Design Studies Center of the National Oceanic and Atmospheric Administration (NOAA) National Weather Service and published in NOAA Atlas 14 Volume 10: Precipitation-Frequency Atlas of the United States, Northeastern States, last revised on September 30, 2015. Refer to the plan entitled “Drainage Area Map” enclosed within this report for all watershed information.

Included with this report are HydraFlow supporting computations and hydrographs for the existing conditions and proposed conditions for both Design Point #1 and Design Point #2. Detailed summaries of the computational results for the 2, 10, 25, 50 and 100-year storms are also included.

The proposed peak rate of runoff for Design Point #1 will remain the same. The proposed volume of runoff to Design Point #1 will increase slightly due to slight changes in land cover; however, all increases are minor at less than 5%. The proposed peak rate of runoff and volume runoff to Design Point #2 decreases slightly for the 2-year through 100-year storms. It should be noted, while the proposed volume of runoff slightly increases to Design Point #1, the proposed overall volume of runoff leaving the development (the combined total volume of runoff to Design Point #1 and #2) will decrease for the 2-year through 100-year storms. See tables attached herein.

The Stormwater Management Basin provides a minimum of 1-foot of freeboard to the top of the spillway and 2-foot of freeboard to the top of the berm for the 100-year storm. The 100-year design storm water surface elevation is just below the top of the outlet structure overflow grate overflow. The forebay in the basin contains 27% of the WQV and exceeds the minimum 10%. The basin is proposed to capture, attenuate, and enhance the runoff generated from the proposed site improvements. The outlet control structure will meter the volume and rate of runoff and allow the proposed hydrology to mimic the existing hydrology as closely as possible. The basin outlet was designed so that any remaining stormwater that is not discharged from the outlet control structure will completely drain from the basin via infiltration within 72 hours. Refer to the attached summary tables for tabulated results for peak rates of runoff, volume of runoff and water surface elevations for the pre- and post-development conditions.

DESIGN POINT #1 (SOUTHWEST PROPERTY LINE)

PEAK RATE OF RUNOFF		
STORM	PEAK RATE OF RUNOFF (CFS)	
	EXISTING	PROPOSED
2–YEAR	0.2	0.2
10–YEAR	0.3	0.3
25–YEAR	0.4	0.4
50–YEAR	0.5	0.5
100–YEAR	0.6	0.6

VOLUME OF RUNOFF		
STORM	VOLUME OF RUNOFF (CF)	
	EXISTING	PROPOSED
2–YEAR	598	627
10–YEAR	1,248	1,290
25–YEAR	1,695	1,743
50–YEAR	2,041	2,093
100–YEAR	2,418	2,473

DESIGN POINT #2 (SOUTH & WESTERN EDGE OF NORTH/EAST WETLANDS)

PEAK RATE OF RUNOFF		
STORM	PEAK RATE OF RUNOFF (CFS)	
	EXISTING	PROPOSED
2–YEAR	3.6	2.0
10–YEAR	8.5	4.4
25–YEAR	11.9	5.9
50–YEAR	14.6	7.1
100–YEAR	17.5	8.4

VOLUME OF RUNOFF		
STORM	VOLUME OF RUNOFF (CF)	
	EXISTING	PROPOSED
2–YEAR	24,764	23,627
10–YEAR	55,176	52,158
25–YEAR	76,576	73,985
50–YEAR	93,395	91,305
100–YEAR	111,753	110,593

COMBINED TOTAL OF DESIGN POINT #1 & DESIGN POINT #2

VOLUME OF RUNOFF			
STORM	VOLUME OF RUNOFF (CF)		
	EXISTING	PROPOSED	CHANGE
2–YEAR	25,362	23,050	–1,108 (–4.6%)
10–YEAR	56,424	52,439	–2,976 (–5.6%)
25–YEAR	78,271	75,631	–2,543 (–3.4%)
50–YEAR	95,436	93,854	–2,038 (–2.2%)
100–YEAR	114,171	113,547	–1,105 (–1.0%)

#	DATE	DESCRIPTION	BY
1	5/14/2024	REVISIONS PER TOWN ENGINEER'S COMMENTS, MISC.	RG

DATE: APRIL 4, 2024	SCALE: N/A
DRAWN BY: MGA	CHKD BY: JW
DWG. NO.: DDS-1	SHEET NO.: 1 of 3

DRAINAGE DISCHARGE SUMMARY

PREPARED FOR ORTHO SAYBROOK, LLC
52 SPENCER PLAIN ROAD (CT ROUTE 166)
MAP 145 LOT 2871
OLD SAYBROOK, CONNECTICUT

PLAN PREPARED BY:
INDIGO LAND DESIGN, LLC
JOSEPH WREN, P.E.
CT REG. NO. 21090
40 ELM STREET, 2ND FLOOR
OLD SAYBROOK, CT 06475
PHONE: (860) 388-9343
WEB: INDIGO-LAND.COM

WATER SURFACE ELEVATION IN PROPOSED BASIN #1

STORM	ELEVATION
2–YEAR	22.00
10–YEAR	24.58
25–YEAR	24.69
50–YEAR	24.76
100–YEAR	24.85 (1.15' OF FREEBOARD TO TOP OF SPILLWAY) (2.15' OF FREEBOARD TO TOP OF BERM)

BASIN GRADE ELEVATIONS:
BASIN TOP OF BERM ELEV. = 27.00
BASIN TOP OF SPILLWAY ELEV. = 26.00
BASIN BOTTOM ELEV. = 19.3± (MIN.)
BASIN WQV AREA BOTTOM ELEV. = 21.00

OUTLET CONTROL STRUCTURE ELEVATIONS:
TOP OF GRATE ELEV. = 25.00
4"x8" (HxL) HIGH–LEVEL OPENING ELEV. = 24.00
3" DIAMETER LOW–LEVEL OPENING ELEV. = 21.00
15" HDPE INV. OUT ELEV. = 19.30

WATER SURFACE ELEVATION IN SOUTHWEST WETLAND POCKET

STORM	ELEVATION
2–YEAR	24.30
10–YEAR	24.58
25–YEAR	24.69
50–YEAR	24.76
100–YEAR	24.85

CULVERT ELEVATIONS:
CULVERT INLET INVERT ELEV. = 24.5±
CULVERT OUTLET INVERT ELEV. = 23.5±

#	DATE	DESCRIPTION	BY
1	5/14/2024	REVISIONS PER TOWN ENGINEER'S COMMENTS, MISC.	RG

DATE: APRIL 4, 2024	SCALE: N/A
DRAWN BY: MGA	CHKD BY: JW
DWG. NO.: DES-1	SHEET NO.: 2 of 3

DRAINAGE ELEVATION SUMMARY

PREPARED FOR ORTHO SAYBROOK, LLC
52 SPENCER PLAIN ROAD (CT ROUTE 166)
MAP 145 LOT 2871
OLD SAYBROOK, CONNECTICUT

PLAN PREPARED BY:
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OLD SAYBROOK, CT 06475
PHONE: (860) 388-9343
WEB: INDIGO-LAND.COM

REFERENCE: "WATER QUALITY VOLUME (WQV)" OF THE
CONNECTICUT STORMWATER QUALITY MANUAL BY THE
CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION
PUBLISHED SEPTEMBER 30, 2023, LAST REVISED: MARCH 26, 2024

WATER QUALITY VOLUME:
$WQV = (P)(R)(A) / 12$

WHERE:
P = 1.3" (90TH PERCENTILE RAINFALL EVENT)
$R = 0.05 + 0.009 \times I$
I = POST-DEVELOPMENT % IMPERVIOUS AREA
A = POST-DEVELOPMENT TOTAL DRAINAGE AREA

WATER QUALITY VOLUME (WQV) DATA					
SUB-WATERSHED	AREA (AC.)	I (%)	R (IN.)	WQV (AC.-FT.)	WQV (CU. FT.)
A	6.74	31.88	0.337	0.246	10,721
				MIN. WQV REQUIRED =	1,072.1 (10%)
				WQV PROVIDED (TO TOP OF RIPRAP FOREBAY BERM) =	2,897± (27%)

#	DATE	DESCRIPTION	BY
1	5/14/2024	REVISIONS PER TOWN ENGINEER'S COMMENTS, MISC.	RG

DATE: APRIL 4, 2024	SCALE: N/A
DRAWN BY: MGA	CHKD BY: JW
DWG. NO.: WQV-1	SHEET NO.: 3 of 3

WATER QUALITY VOLUME CALCULATIONS

PREPARED FOR ORTHO SAYBROOK, LLC
52 SPENCER PLAIN ROAD (CT ROUTE 166)
MAP 145 LOT 2871
OLD SAYBROOK, CONNECTICUT

PLAN PREPARED BY:
INDIGO LAND DESIGN, LLC
JOSEPH WREN, P.E.
CT REG. NO. 21090
40 ELM STREET, 2ND FLOOR
OLD SAYBROOK, CT 06475
PHONE: (860) 388-9343
WEB: INDIGO-LAND.COM

PREPARED FOR ORTHO SAYBROOK, LLC
52 SPENCER PLAIN ROAD (CT ROUTE 166)
MAP 145 LOT 2871
OLD SAYBROOK, CONNECTICUT

DRAINAGE COMPUTATIONS
4-4-2024

1	5/14/2024	REVISIONS PER TOWN ENGINEER'S COMMENTS, MISC.	RG
#	DATE	DESCRIPTION	BY

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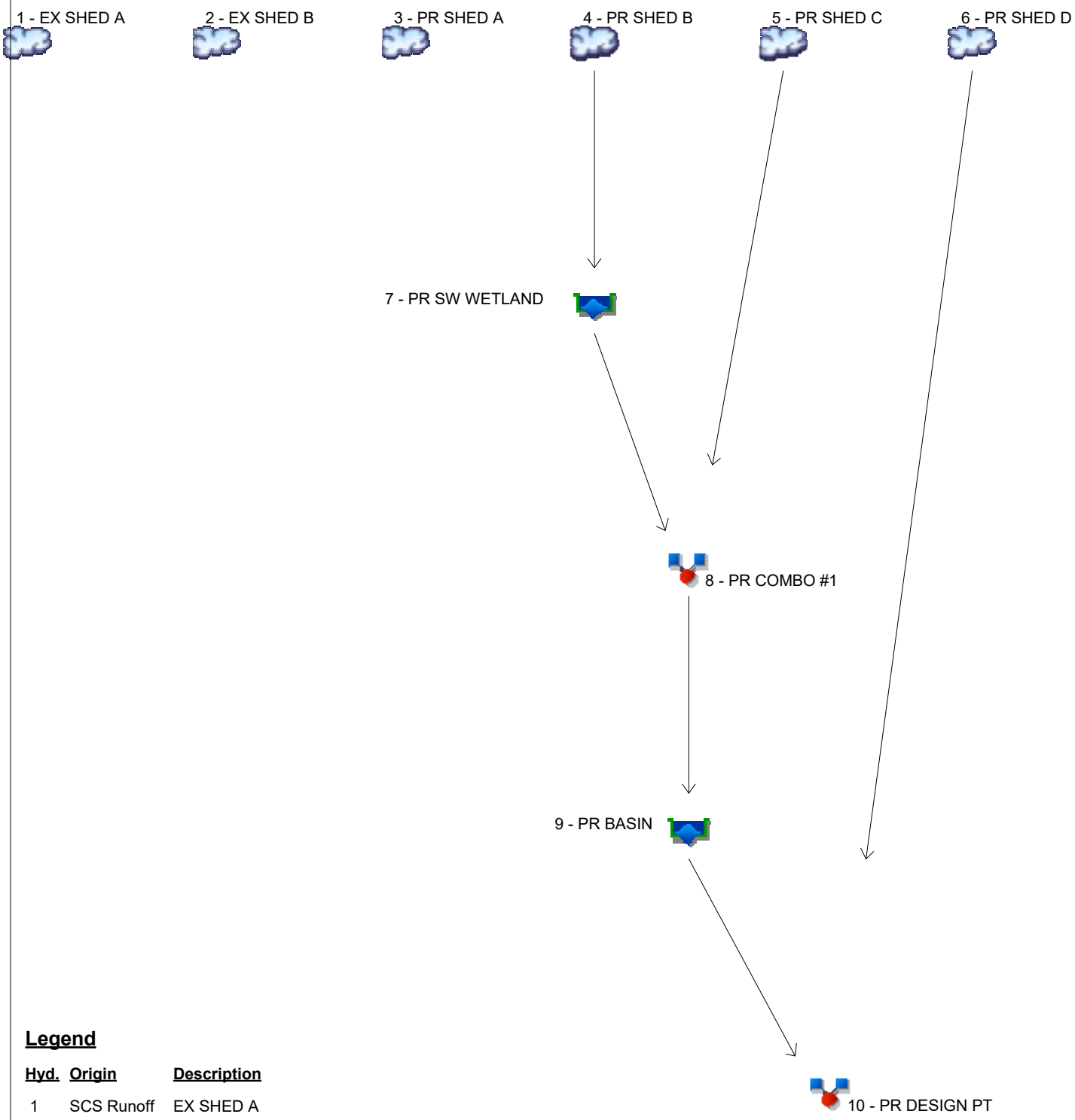
Watershed Model Schematic

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022



Legend

Hyd.	Origin	Description
1	SCS Runoff	EX SHED A
2	SCS Runoff	EX SHED B
3	SCS Runoff	PR SHED A
4	SCS Runoff	PR SHED B
5	SCS Runoff	PR SHED C
6	SCS Runoff	PR SHED D
7	Reservoir	PR SW WETLAND
8	Combine	PR COMBO #1
9	Reservoir	PR BASIN
10	Combine	PR DESIGN PT

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)							Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	-------	0.146	-------	-------	0.317	0.431	0.519	0.613	EX SHED A
2	SCS Runoff	------	-------	3.587	-------	-------	8.504	11.94	14.61	17.50	EX SHED B
3	SCS Runoff	------	-------	0.155	-------	-------	0.328	0.443	0.531	0.625	PR SHED A
4	SCS Runoff	------	-------	0.922	-------	-------	2.037	2.795	3.379	4.007	PR SHED B
5	SCS Runoff	------	-------	5.564	-------	-------	9.048	11.20	12.81	14.51	PR SHED C
6	SCS Runoff	------	-------	1.844	-------	-------	4.074	5.591	6.759	8.014	PR SHED D
7	Reservoir	4	-------	0.000	-------	-------	0.039	0.177	0.334	0.566	PR SW WETLAND
8	Combine	5, 7	-------	5.564	-------	-------	9.048	11.20	12.81	14.51	PR COMBO #1
9	Reservoir	8	-------	0.221	-------	-------	0.315	0.374	0.557	0.965	PR BASIN
10	Combine	6, 9	-------	2.014	-------	-------	4.351	5.911	7.109	8.392	PR DESIGN PT

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

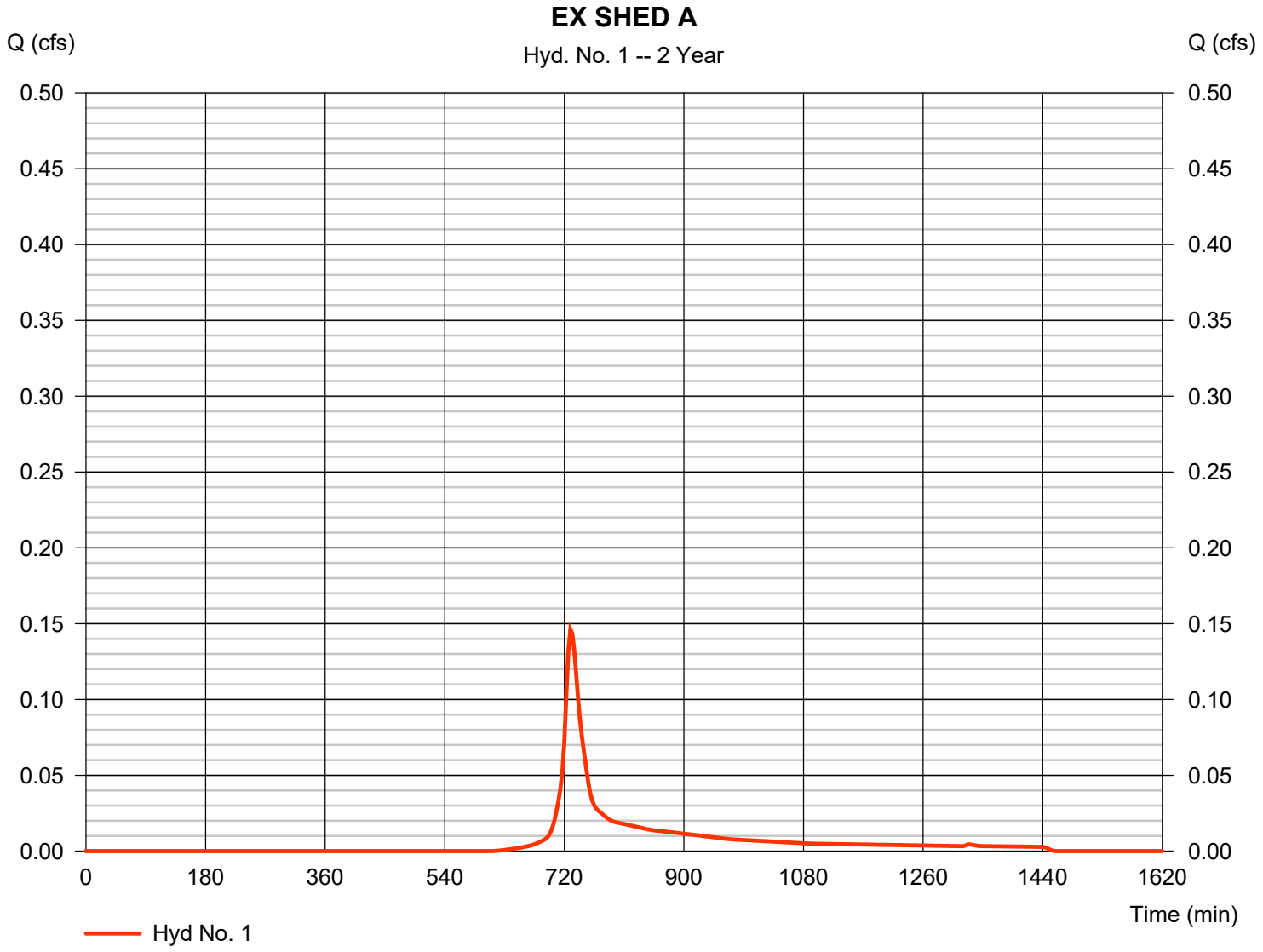
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	0.146	3	729	598	------	------	------	EX SHED A
2	SCS Runoff	3.587	3	753	24,764	------	------	------	EX SHED B
3	SCS Runoff	0.155	3	729	627	------	------	------	PR SHED A
4	SCS Runoff	0.922	3	753	6,170	------	------	------	PR SHED B
5	SCS Runoff	5.564	3	729	22,461	------	------	------	PR SHED C
6	SCS Runoff	1.844	3	753	12,341	------	------	------	PR SHED D
7	Reservoir	0.000	3	1002	0	4	24.30	5,307	PR SW WETLAND
8	Combine	5.564	3	729	22,461	5, 7	------	------	PR COMBO #1
9	Reservoir	0.221	3	936	11,287	8	22.00	15,692	PR BASIN
10	Combine	2.014	3	753	23,627	6, 9	------	------	PR DESIGN PT

Hydrograph Report

Hyd. No. 1

EX SHED A

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.146 cfs
Storm frequency	=	2 yrs	Time to peak	=	729 min
Time interval	=	3 min	Hyd. volume	=	598 cuft
Drainage area	=	0.130 ac	Curve number	=	75
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	3.45 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



TR55 Tc Worksheet

Hyd. No. 1

EX SHED A

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.011		0.240		0.600		
Flow length (ft)	= 21.0		50.0		38.0		
Two-year 24-hr precip. (in)	= 3.45		3.45		3.45		
Land slope (%)	= 2.90		35.20		4.20		
Travel Time (min)	**= 0.29**	**+**	**2.51**	**+**	**9.80**	**=**	**12.60**
Shallow Concentrated Flow							
Flow length (ft)	= 0.00		0.00		0.00		
Watercourse slope (%)	= 0.00		0.00		0.00		
Surface description	= Paved		Paved		Paved		
Average velocity (ft/s)	=0.00		0.00		0.00		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
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**

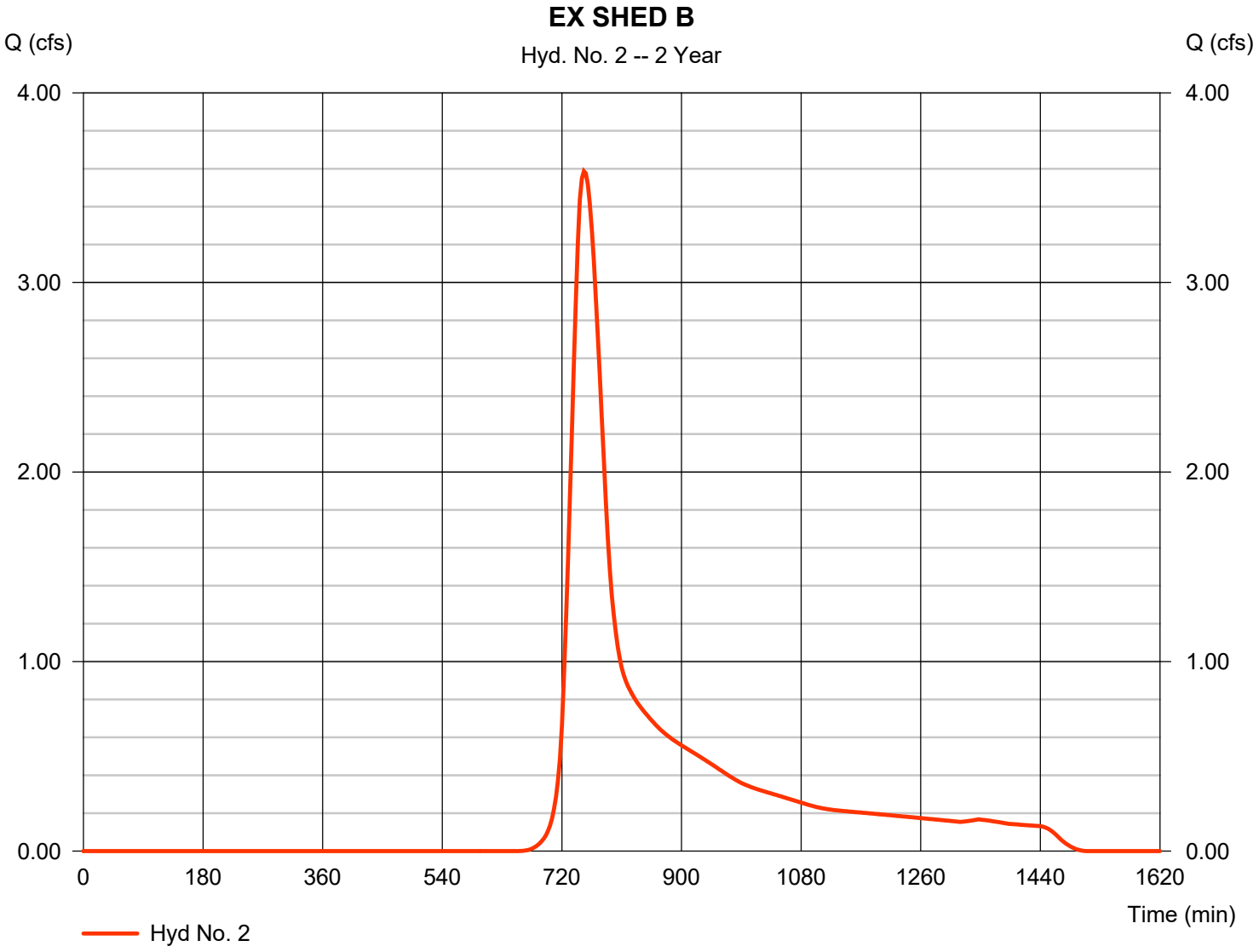
Total Travel Time, Tc ..... 12.60 min

Hydrograph Report

Hyd. No. 2

EX SHED B

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.587 cfs
Storm frequency	=	2 yrs	Time to peak	=	753 min
Time interval	=	3 min	Hyd. volume	=	24,764 cuft
Drainage area	=	6.610 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	44.60 min
Total precip.	=	3.45 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



TR55 Tc Worksheet

Hyd. No. 2

EX SHED B

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.600		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.45		0.00		0.00		
Land slope (%)	= 2.50		0.00		0.00		
Travel Time (min)	**= 36.19**	**+**	**0.00**	**+**	**0.00**	**=**	**36.19**
Shallow Concentrated Flow							
Flow length (ft)	= 578.00		0.00		0.00		
Watercourse slope (%)	= 0.50		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	=1.14		0.00		0.00		
Travel Time (min)	**= 8.44**	**+**	**0.00**	**+**	**0.00**	**=**	**8.44**
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**

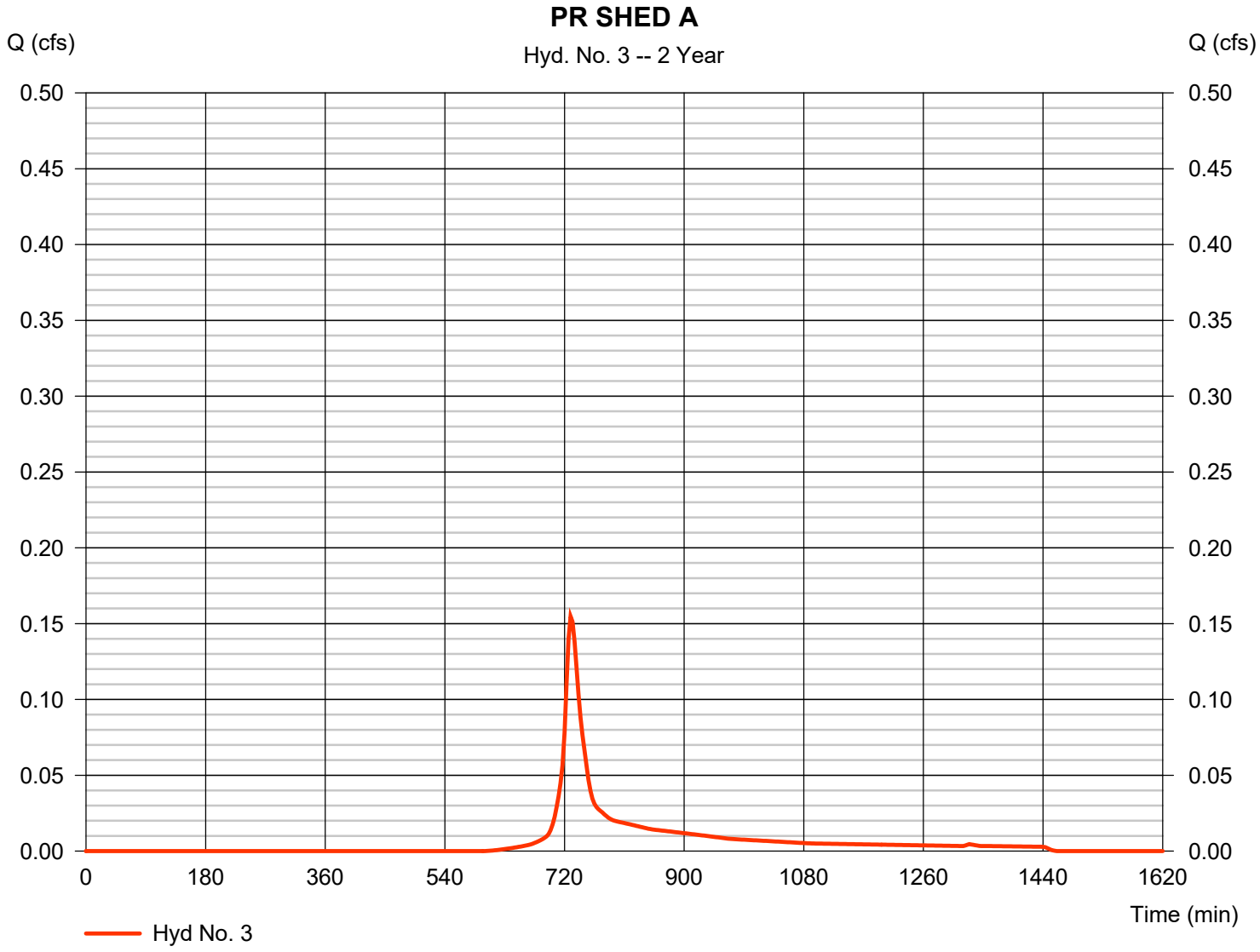
Total Travel Time, Tc ..... 44.60 min

Hydrograph Report

Hyd. No. 3

PR SHED A

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.155 cfs
Storm frequency	=	2 yrs	Time to peak	=	729 min
Time interval	=	3 min	Hyd. volume	=	627 cuft
Drainage area	=	0.130 ac	Curve number	=	76
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.30 min
Total precip.	=	3.45 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



TR55 Tc Worksheet

Hyd. No. 3

PR SHED A

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.011		0.240		0.600		
Flow length (ft)	= 27.0		44.0		38.0		
Two-year 24-hr precip. (in)	= 3.45		3.45		3.45		
Land slope (%)	= 2.60		39.80		4.20		
Travel Time (min)	**= 0.37**	**+**	**2.15**	**+**	**9.80**	**=**	**12.33**
Shallow Concentrated Flow							
Flow length (ft)	= 0.00		0.00		0.00		
Watercourse slope (%)	= 0.00		0.00		0.00		
Surface description	= Paved		Paved		Paved		
Average velocity (ft/s)	=0.00		0.00		0.00		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
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**

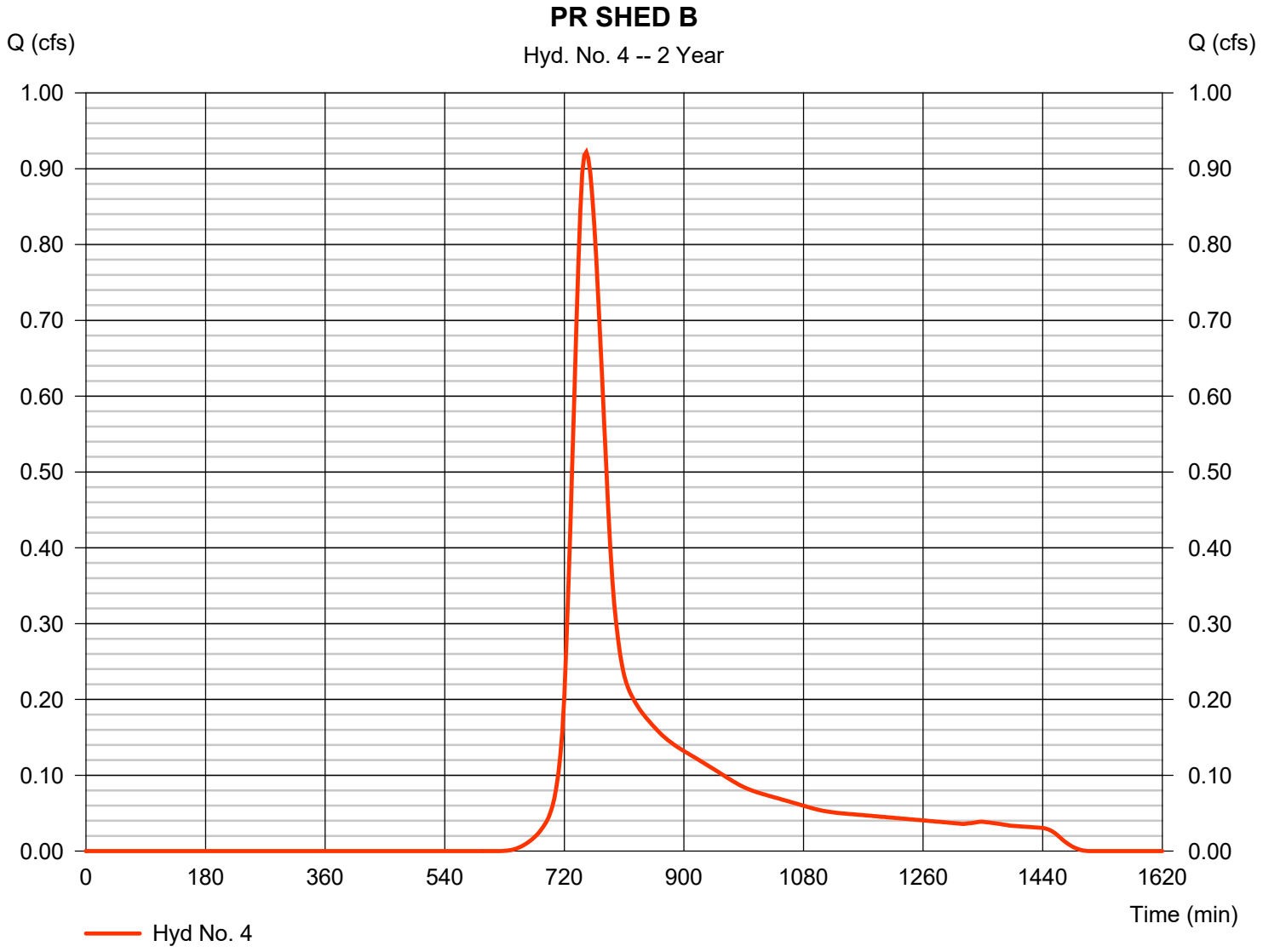
Total Travel Time, Tc ..... 12.30 min

Hydrograph Report

Hyd. No. 4

PR SHED B

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.922 cfs
Storm frequency	=	2 yrs	Time to peak	=	753 min
Time interval	=	3 min	Hyd. volume	=	6,170 cuft
Drainage area	=	1.410 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	42.50 min
Total precip.	=	3.45 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



TR55 Tc Worksheet

Hyd. No. 4

PR SHED B

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.600		0.600		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.45		0.00		0.00		
Land slope (%)	= 2.00		0.00		0.00		
Travel Time (min)	**= 39.57**	**+**	**0.00**	**+**	**0.00**	**=**	**39.57**
Shallow Concentrated Flow							
Flow length (ft)	= 200.00		0.00		0.00		
Watercourse slope (%)	= 0.50		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	=1.14		0.00		0.00		
Travel Time (min)	**= 2.92**	**+**	**0.00**	**+**	**0.00**	**=**	**2.92**
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**

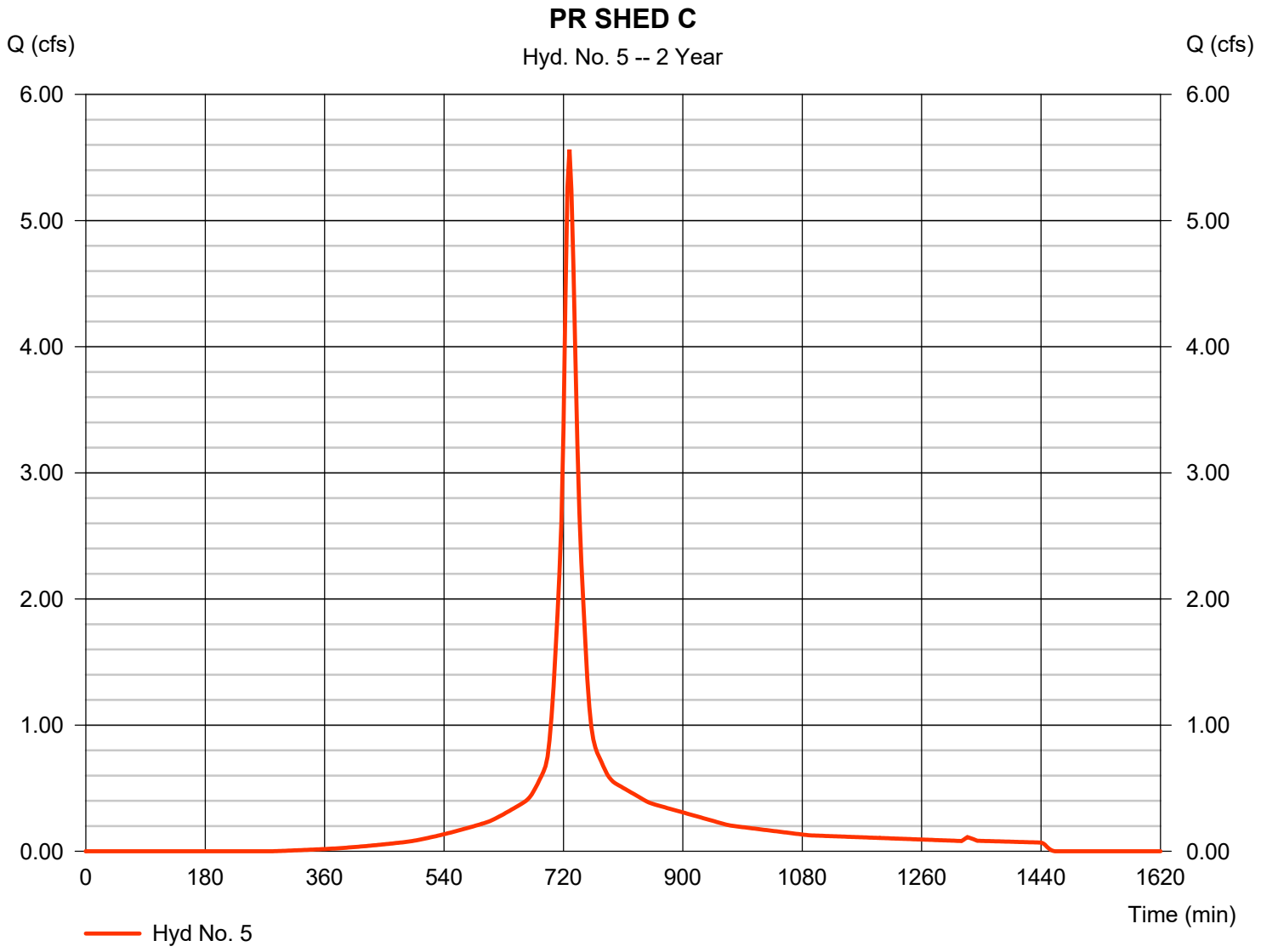
Total Travel Time, Tc ..... 42.50 min

Hydrograph Report

Hyd. No. 5

PR SHED C

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.564 cfs
Storm frequency	=	2 yrs	Time to peak	=	729 min
Time interval	=	3 min	Hyd. volume	=	22,461 cuft
Drainage area	=	2.390 ac	Curve number	=	92
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	3.45 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

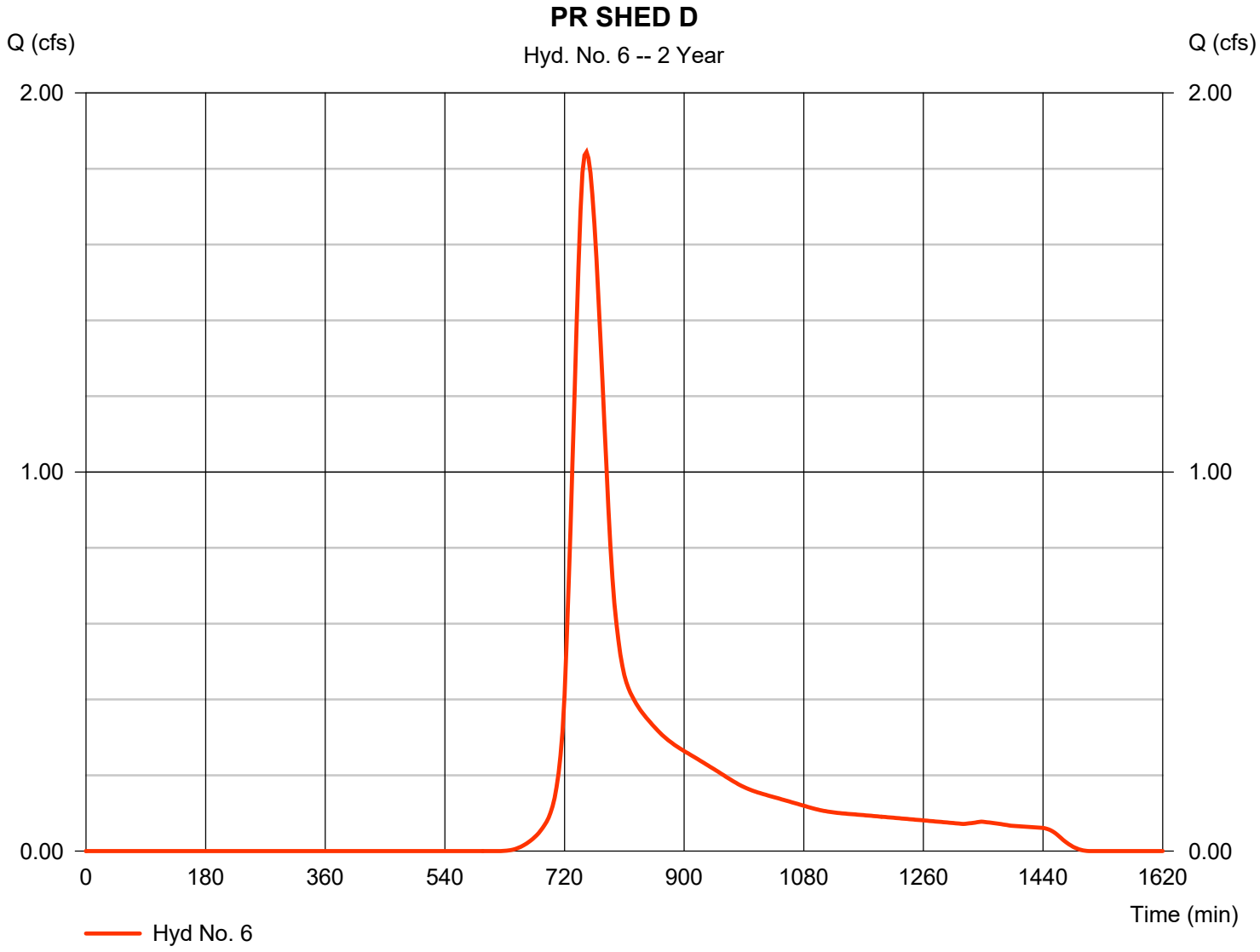


Hydrograph Report

Hyd. No. 6

PR SHED D

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.844 cfs
Storm frequency	=	2 yrs	Time to peak	=	753 min
Time interval	=	3 min	Hyd. volume	=	12,341 cuft
Drainage area	=	2.820 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	43.60 min
Total precip.	=	3.45 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



TR55 Tc Worksheet

Hyd. No. 6

PR SHED D

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.011		0.240		0.600		
Flow length (ft)	= 18.0		39.0		150.0		
Two-year 24-hr precip. (in)	= 3.45		3.45		3.45		
Land slope (%)	= 22.20		33.30		1.80		
Travel Time (min)	**= 0.11**	**+**	**2.10**	**+**	**41.27**	**=**	**43.48**
Shallow Concentrated Flow							
Flow length (ft)	= 0.00		0.00		13.00		
Watercourse slope (%)	= 0.00		0.00		1.80		
Surface description	= Paved		Paved		Unpaved		
Average velocity (ft/s)	=0.00		0.00		2.16		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.10**	**=**	**0.10**
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 ..... 43.60 min

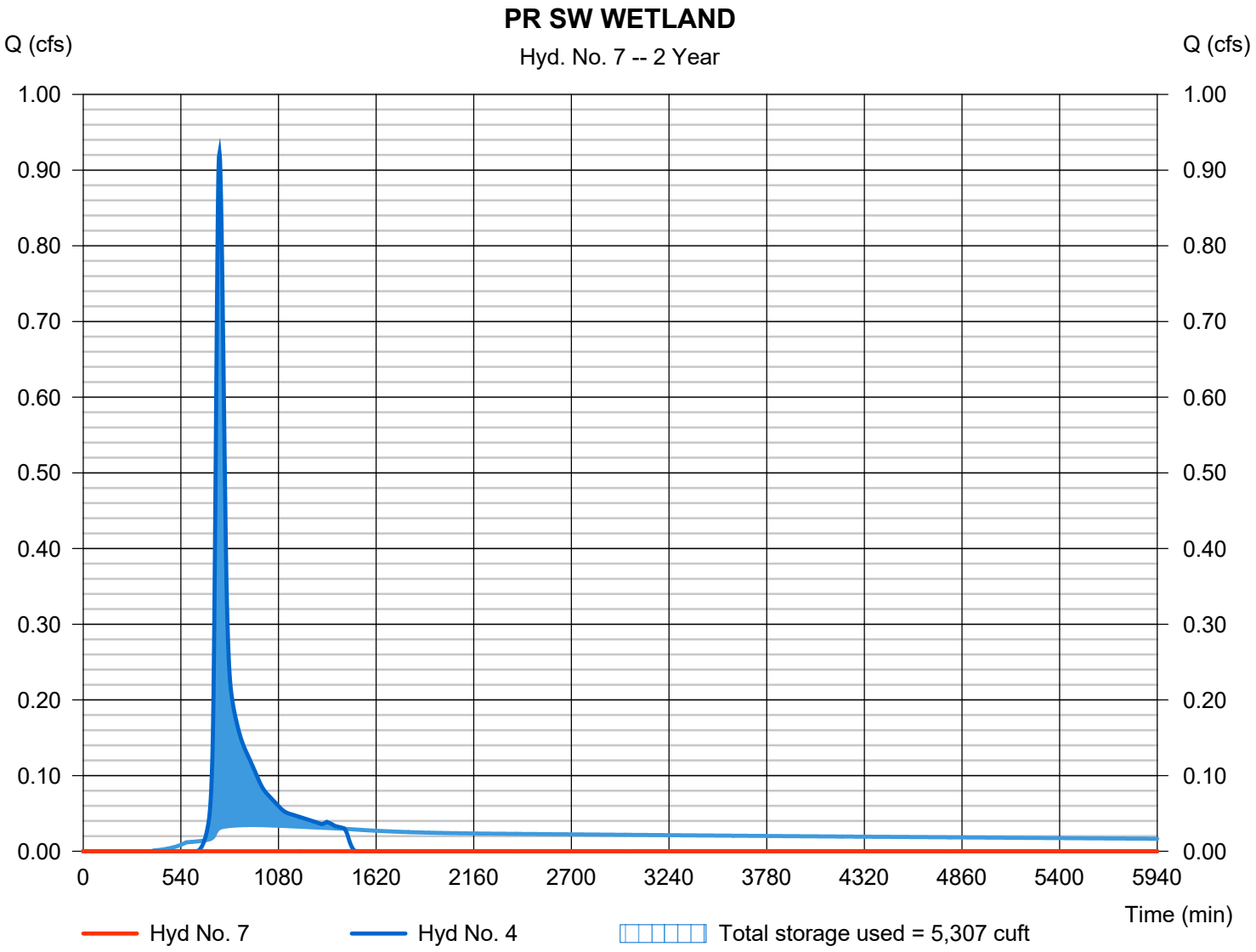
Hydrograph Report

Hyd. No. 7

PR SW WETLAND

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	2 yrs	Time to peak	=	1002 min
Time interval	=	3 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	4 - PR SHED B	Max. Elevation	=	24.30 ft
Reservoir name	=	SW WETLAND	Max. Storage	=	5,307 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Pond No. 2 - SW WETLAND

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 24.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	24.00	11,371	0	0
1.00	25.00	25,455	17,945	17,945
2.00	26.00	34,917	30,059	48,003
3.00	27.00	41,072	37,949	85,952

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	0.00	0.00	0.00
Span (in)	= 15.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 24.50	0.00	0.00	0.00
Length (ft)	= 105.00	0.00	0.00	0.00
Slope (%)	= 0.52	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 50.00	0.00	0.00	0.00
Crest El. (ft)	= 26.30	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.130 (by Contour)

TW Elev. (ft) = 0.00

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

Stage / Storage / Discharge Table

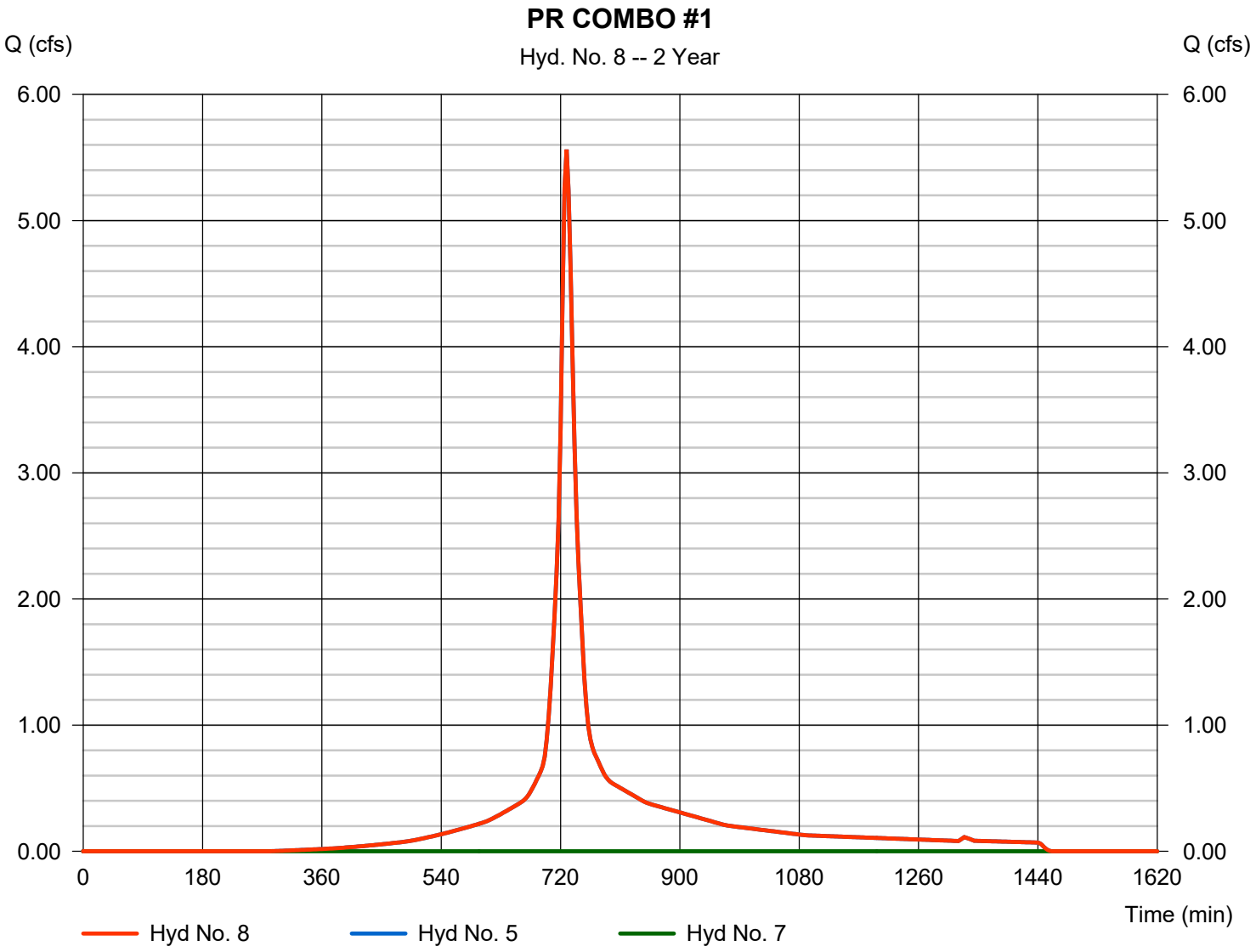
Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	24.00	0.00	---	---	---	0.00	---	---	---	0.000	---	0.000
0.10	1,794	24.10	0.00	---	---	---	0.00	---	---	---	0.008	---	0.008
0.20	3,589	24.20	0.00	---	---	---	0.00	---	---	---	0.015	---	0.015
0.30	5,383	24.30	0.00	---	---	---	0.00	---	---	---	0.023	---	0.023
0.40	7,178	24.40	0.00	---	---	---	0.00	---	---	---	0.031	---	0.031
0.50	8,972	24.50	0.00 oc	---	---	---	0.00	---	---	---	0.038	---	0.038
0.60	10,767	24.60	0.05 ic	---	---	---	0.00	---	---	---	0.046	---	0.096
0.70	12,561	24.70	0.19 ic	---	---	---	0.00	---	---	---	0.054	---	0.247
0.80	14,356	24.80	0.42 ic	---	---	---	0.00	---	---	---	0.061	---	0.484
0.90	16,150	24.90	0.73 ic	---	---	---	0.00	---	---	---	0.069	---	0.799
1.00	17,945	25.00	1.10 ic	---	---	---	0.00	---	---	---	0.077	---	1.181
1.10	20,950	25.10	1.54 ic	---	---	---	0.00	---	---	---	0.079	---	1.617
1.20	23,956	25.20	2.02 ic	---	---	---	0.00	---	---	---	0.082	---	2.098
1.30	26,962	25.30	2.53 ic	---	---	---	0.00	---	---	---	0.085	---	2.612
1.40	29,968	25.40	3.04 oc	---	---	---	0.00	---	---	---	0.088	---	3.130
1.50	32,974	25.50	3.40 oc	---	---	---	0.00	---	---	---	0.091	---	3.495
1.60	35,980	25.60	3.68 oc	---	---	---	0.00	---	---	---	0.094	---	3.778
1.70	38,986	25.70	3.81 oc	---	---	---	0.00	---	---	---	0.097	---	3.907
1.80	41,992	25.80	3.84 oc	---	---	---	0.00	---	---	---	0.099	---	3.940
1.90	44,997	25.90	4.15 oc	---	---	---	0.00	---	---	---	0.102	---	4.253
2.00	48,003	26.00	4.44 oc	---	---	---	0.00	---	---	---	0.105	---	4.544
2.10	51,798	26.10	4.71 oc	---	---	---	0.00	---	---	---	0.107	---	4.816
2.20	55,593	26.20	4.96 oc	---	---	---	0.00	---	---	---	0.109	---	5.074
2.30	59,388	26.30	5.21 oc	---	---	---	0.00	---	---	---	0.111	---	5.319
2.40	63,183	26.40	5.44 oc	---	---	---	4.11	---	---	---	0.112	---	9.664
2.50	66,978	26.50	5.66 oc	---	---	---	11.63	---	---	---	0.114	---	17.41
2.60	70,773	26.60	5.88 oc	---	---	---	21.36	---	---	---	0.116	---	27.36
2.70	74,568	26.70	6.08 oc	---	---	---	32.89	---	---	---	0.118	---	39.09
2.80	78,363	26.80	6.28 oc	---	---	---	45.96	---	---	---	0.120	---	52.37
2.90	82,157	26.90	6.48 oc	---	---	---	60.42	---	---	---	0.122	---	67.02
3.00	85,952	27.00	6.67 oc	---	---	---	76.14	---	---	---	0.124	---	82.93

Hydrograph Report

Hyd. No. 8

PR COMBO #1

Hydrograph type	=	Combine	Peak discharge	=	5.564 cfs
Storm frequency	=	2 yrs	Time to peak	=	729 min
Time interval	=	3 min	Hyd. volume	=	22,461 cuft
Inflow hyds.	=	5, 7	Contrib. drain. area	=	2.390 ac



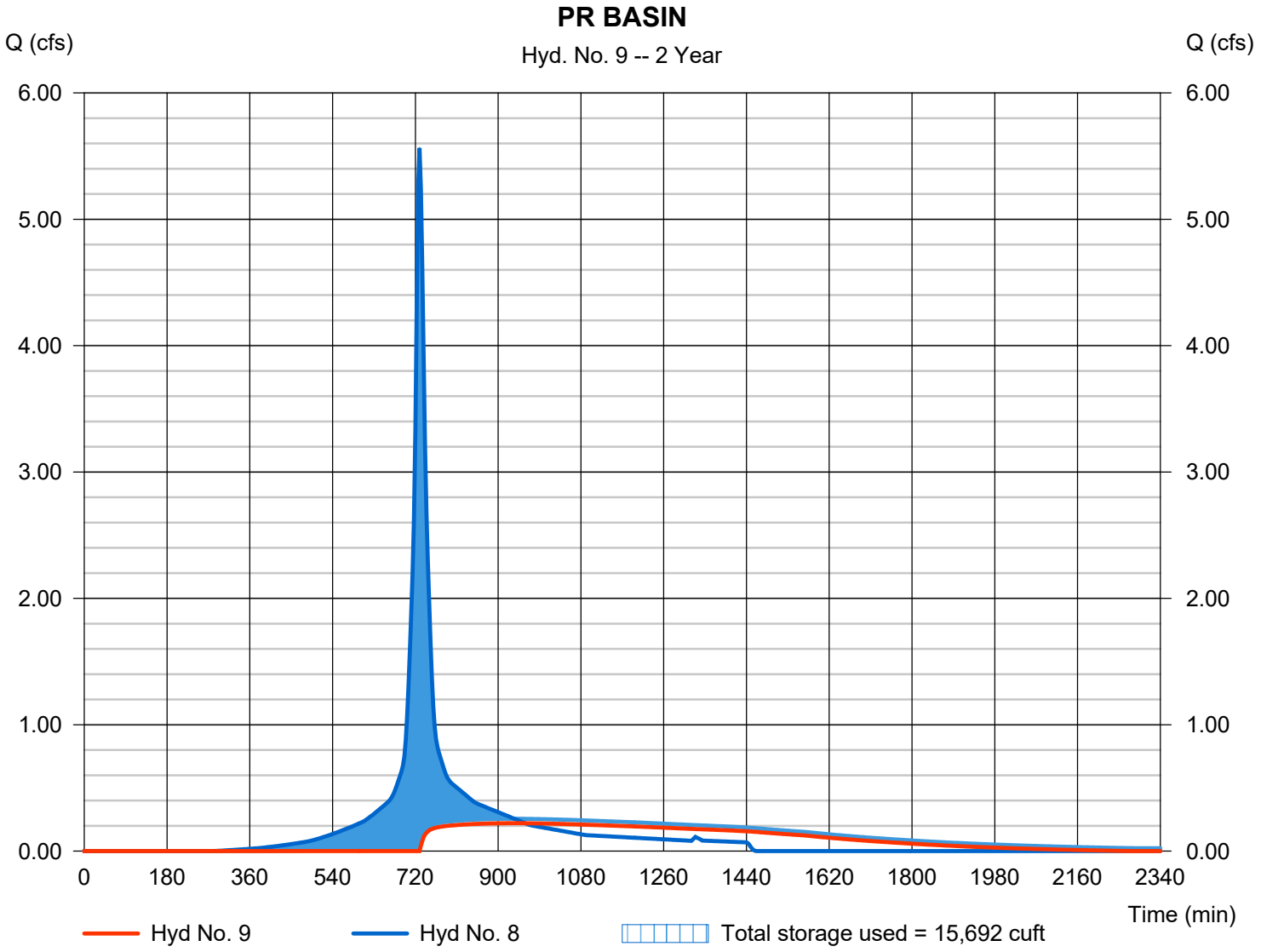
Hydrograph Report

Hyd. No. 9

PR BASIN

Hydrograph type	=	Reservoir	Peak discharge	=	0.221 cfs
Storm frequency	=	2 yrs	Time to peak	=	936 min
Time interval	=	3 min	Hyd. volume	=	11,287 cuft
Inflow hyd. No.	=	8 - PR COMBO #1	Max. Elevation	=	22.00 ft
Reservoir name	=	BASIN #1	Max. Storage	=	15,692 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Pond No. 1 - BASIN #1

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 19.30 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	19.30	01	0	0
0.70	20.00	3,926	931	931
2.70	22.00	11,515	14,775	15,706
4.70	24.00	14,077	25,547	41,252
6.70	26.00	17,148	31,171	72,424
7.70	27.00	18,386	17,762	90,185

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	4.00	3.00	0.00
Span (in)	= 15.00	8.00	3.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 19.30	24.00	21.00	0.00
Length (ft)	= 45.00	1.00	1.00	0.00
Slope (%)	= 2.00	1.00	1.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 10.00	10.00	0.00	0.00
Crest El. (ft)	= 25.00	26.00	0.00	0.00
Weir Coeff.	= 2.60	2.60	3.33	3.33
Weir Type	= Broad	Broad	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.130 (by Contour)

TW Elev. (ft) = 0.00

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

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	19.30	0.00	0.00	0.00	---	0.00	0.00	---	---	0.000	---	0.000
0.07	93	19.37	0.00	0.00	0.00	---	0.00	0.00	---	---	0.001	---	0.001
0.14	186	19.44	0.00	0.00	0.00	---	0.00	0.00	---	---	0.002	---	0.002
0.21	279	19.51	0.00	0.00	0.00	---	0.00	0.00	---	---	0.004	---	0.004
0.28	372	19.58	0.00	0.00	0.00	---	0.00	0.00	---	---	0.005	---	0.005
0.35	465	19.65	0.00	0.00	0.00	---	0.00	0.00	---	---	0.006	---	0.006
0.42	558	19.72	0.00	0.00	0.00	---	0.00	0.00	---	---	0.007	---	0.007
0.49	652	19.79	0.00	0.00	0.00	---	0.00	0.00	---	---	0.008	---	0.008
0.56	745	19.86	0.00	0.00	0.00	---	0.00	0.00	---	---	0.009	---	0.009
0.63	838	19.93	0.00	0.00	0.00	---	0.00	0.00	---	---	0.011	---	0.011
0.70	931	20.00	0.00	0.00	0.00	---	0.00	0.00	---	---	0.012	---	0.012
0.90	2,408	20.20	0.00	0.00	0.00	---	0.00	0.00	---	---	0.014	---	0.014
1.10	3,886	20.40	0.00	0.00	0.00	---	0.00	0.00	---	---	0.016	---	0.016
1.30	5,363	20.60	0.00	0.00	0.00	---	0.00	0.00	---	---	0.019	---	0.019
1.50	6,841	20.80	0.00	0.00	0.00	---	0.00	0.00	---	---	0.021	---	0.021
1.70	8,318	21.00	0.00	0.00	0.00	---	0.00	0.00	---	---	0.023	---	0.023
1.90	9,796	21.20	0.07 ic	0.00	0.06 ic	---	0.00	0.00	---	---	0.026	---	0.090
2.10	11,273	21.40	0.13 ic	0.00	0.12 ic	---	0.00	0.00	---	---	0.028	---	0.152
2.30	12,751	21.60	0.17 ic	0.00	0.16 ic	---	0.00	0.00	---	---	0.030	---	0.193
2.50	14,228	21.80	0.20 ic	0.00	0.19 ic	---	0.00	0.00	---	---	0.032	---	0.227
2.70	15,706	22.00	0.23 ic	0.00	0.22 ic	---	0.00	0.00	---	---	0.035	---	0.256
2.90	18,260	22.20	0.25 ic	0.00	0.25 ic	---	0.00	0.00	---	---	0.035	---	0.280
3.10	20,815	22.40	0.27 ic	0.00	0.27 ic	---	0.00	0.00	---	---	0.036	---	0.303
3.30	23,370	22.60	0.29 ic	0.00	0.29 ic	---	0.00	0.00	---	---	0.037	---	0.324
3.50	25,924	22.80	0.31 ic	0.00	0.31 ic	---	0.00	0.00	---	---	0.038	---	0.344
3.70	28,479	23.00	0.33 ic	0.00	0.32 ic	---	0.00	0.00	---	---	0.039	---	0.362
3.90	31,034	23.20	0.35 ic	0.00	0.34 ic	---	0.00	0.00	---	---	0.039	---	0.380
4.10	33,588	23.40	0.37 ic	0.00	0.36 ic	---	0.00	0.00	---	---	0.040	---	0.397
4.30	36,143	23.60	0.37 ic	0.00	0.37 ic	---	0.00	0.00	---	---	0.041	---	0.413
4.50	38,698	23.80	0.39 ic	0.00	0.39 ic	---	0.00	0.00	---	---	0.042	---	0.428
4.70	41,252	24.00	0.41 ic	0.00	0.40 ic	---	0.00	0.00	---	---	0.042	---	0.443
4.90	44,370	24.20	0.62 ic	0.20 ic	0.41 ic	---	0.00	0.00	---	---	0.043	---	0.661
5.10	47,487	24.40	0.94 ic	0.52 ic	0.43 ic	---	0.00	0.00	---	---	0.044	---	0.989
5.30	50,604	24.60	1.16 ic	0.70 ic	0.44 ic	---	0.00	0.00	---	---	0.045	---	1.190
5.50	53,721	24.80	1.33 ic	0.85 ic	0.45 ic	---	0.00	0.00	---	---	0.046	---	1.351
5.70	56,838	25.00	1.46 ic	0.98 ic	0.47 ic	---	0.00	0.00	---	---	0.047	---	1.489
5.90	59,955	25.20	3.91 ic	1.09 ic	0.48 ic	---	2.33	0.00	---	---	0.048	---	3.938

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BASIN #1

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
6.10	63,072	25.40	8.21 ic	1.19 ic	0.44 ic	---	6.58	0.00	---	---	0.049	---	8.260
6.30	66,190	25.60	13.18 ic	0.90 ic	0.20 ic	---	12.08	0.00	---	---	0.050	---	13.23
6.50	69,307	25.80	14.02 ic	0.53 ic	0.12 ic	---	13.37 s	0.00	---	---	0.051	---	14.07
6.70	72,424	26.00	14.40 ic	0.39 ic	0.09 ic	---	13.92 s	0.00	---	---	0.052	---	14.45
6.80	74,200	26.10	14.55 ic	0.35 ic	0.08 ic	---	14.12 s	0.82	---	---	0.052	---	15.42
6.90	75,976	26.20	14.70 ic	0.31 ic	0.07 ic	---	14.32 s	2.33	---	---	0.052	---	17.08
7.00	77,752	26.30	14.84 ic	0.28 ic	0.06 ic	---	14.49 s	4.27	---	---	0.053	---	19.16
7.10	79,528	26.40	14.97 ic	0.26 ic	0.06 ic	---	14.65 s	6.58	---	---	0.053	---	21.59
7.20	81,305	26.50	15.09 ic	0.23 ic	0.05 ic	---	14.80 s	9.19	---	---	0.053	---	24.34
7.30	83,081	26.60	15.22 ic	0.22 ic	0.05 ic	---	14.94 s	12.08	---	---	0.054	---	27.34
7.40	84,857	26.70	15.34 ic	0.20 ic	0.04 ic	---	15.09 s	15.23	---	---	0.054	---	30.62
7.50	86,633	26.80	15.46 ic	0.19 ic	0.04 ic	---	15.23 s	18.60	---	---	0.055	---	34.11
7.60	88,409	26.90	15.57 ic	0.17 ic	0.04 ic	---	15.34 s	22.20	---	---	0.055	---	37.81
7.70	90,185	27.00	15.69 ic	0.16 ic	0.04 ic	---	15.46 s	26.00	---	---	0.055	---	41.72

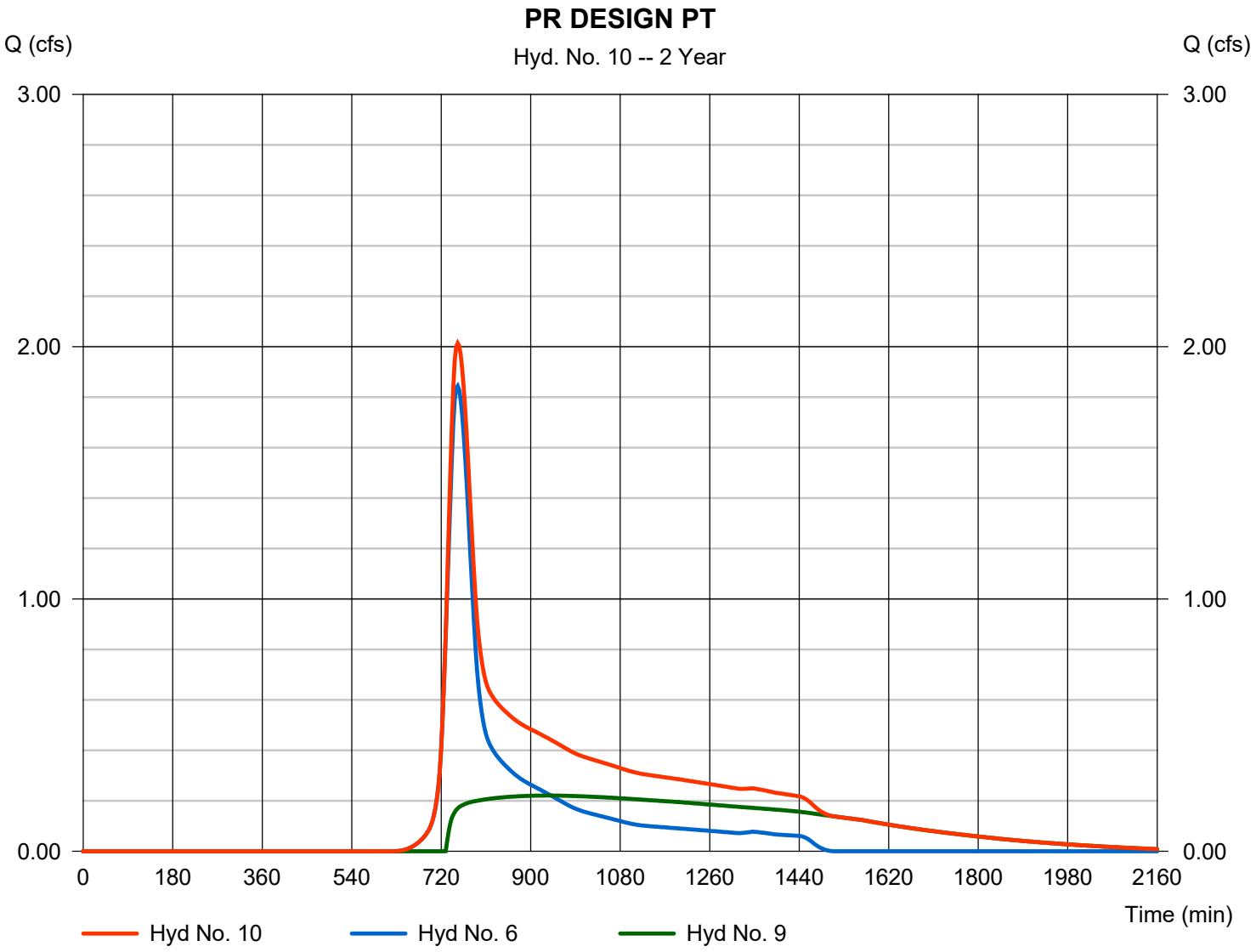
...End

Hydrograph Report

Hyd. No. 10

PR DESIGN PT

Hydrograph type	=	Combine	Peak discharge	=	2.014 cfs
Storm frequency	=	2 yrs	Time to peak	=	753 min
Time interval	=	3 min	Hyd. volume	=	23,627 cuft
Inflow hyds.	=	6, 9	Contrib. drain. area	=	2.820 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

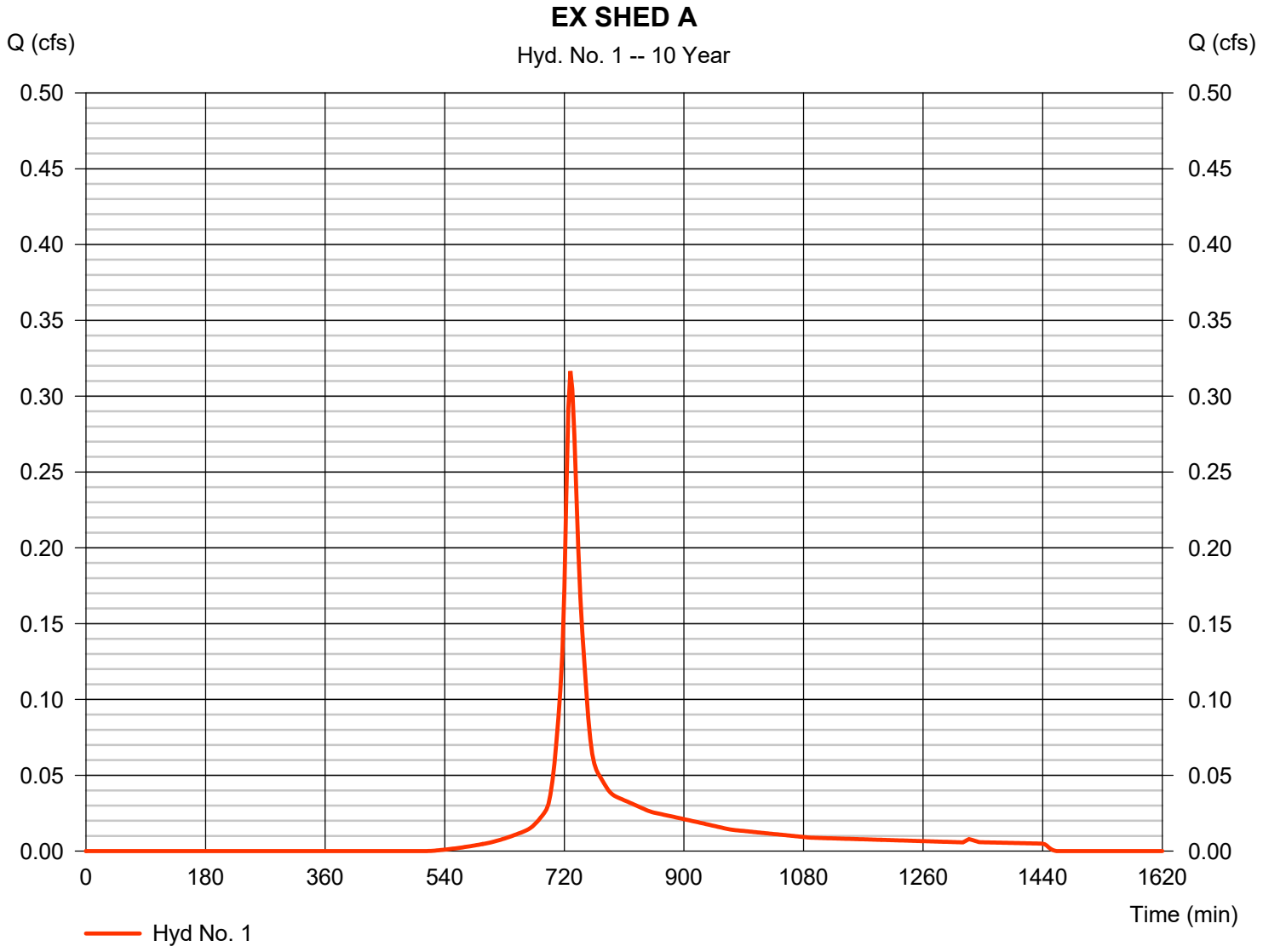
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	0.317	3	729	1,248	------	------	------	EX SHED A
2	SCS Runoff	8.504	3	750	55,176	------	------	------	EX SHED B
3	SCS Runoff	0.328	3	729	1,290	------	------	------	PR SHED A
4	SCS Runoff	2.037	3	750	13,088	------	------	------	PR SHED B
5	SCS Runoff	9.048	3	729	37,513	------	------	------	PR SHED C
6	SCS Runoff	4.074	3	750	26,176	------	------	------	PR SHED D
7	Reservoir	0.039	3	1194	1,453	4	24.58	10,358	PR SW WETLAND
8	Combine	9.048	3	729	38,966	5, 7	------	------	PR COMBO #1
9	Reservoir	0.315	3	966	25,981	8	22.90	27,199	PR BASIN
10	Combine	4.351	3	750	52,158	6, 9	------	------	PR DESIGN PT

Hydrograph Report

Hyd. No. 1

EX SHED A

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.317 cfs
Storm frequency	=	10 yrs	Time to peak	=	729 min
Time interval	=	3 min	Hyd. volume	=	1,248 cuft
Drainage area	=	0.130 ac	Curve number	=	75
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	5.24 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

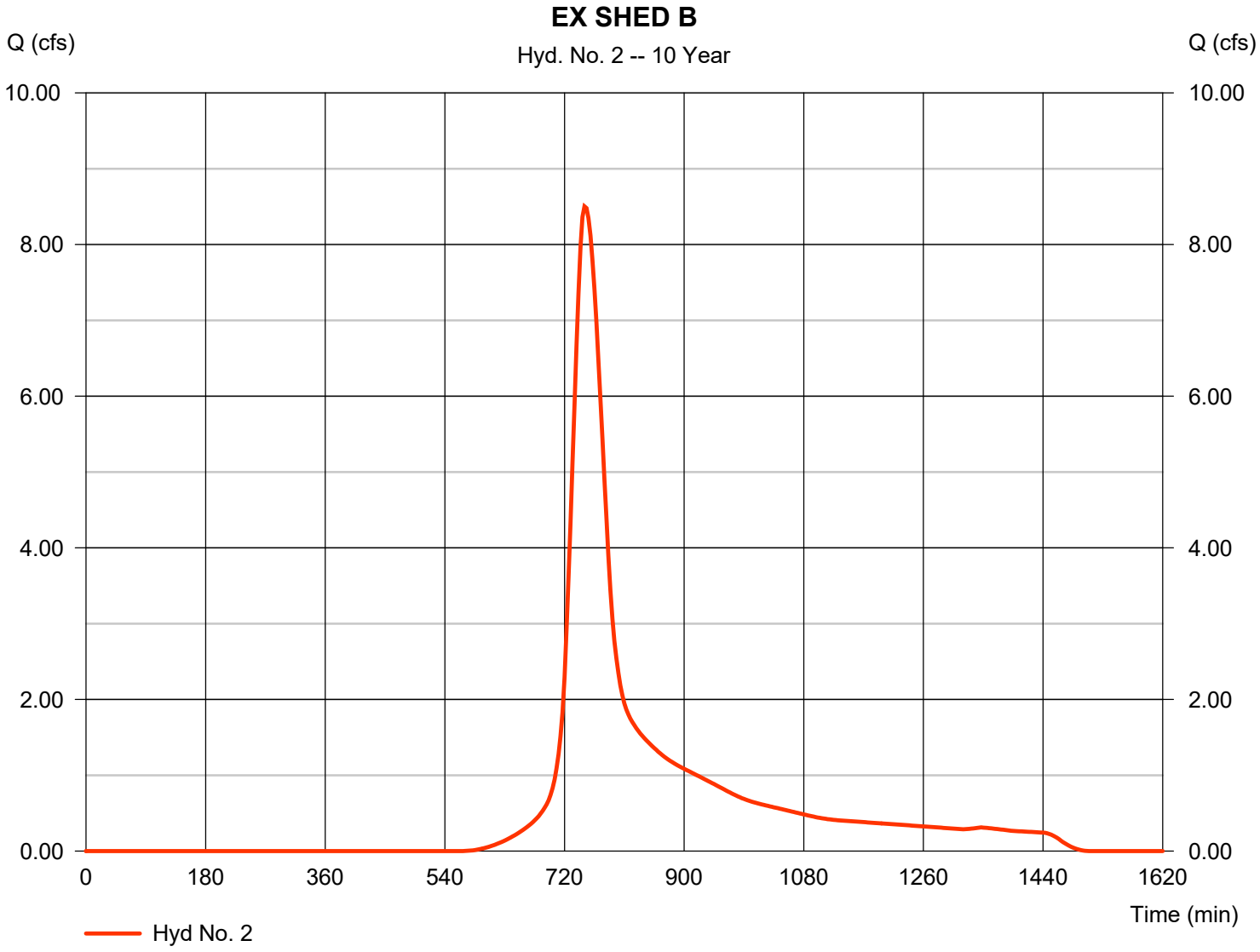


Hydrograph Report

Hyd. No. 2

EX SHED B

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.504 cfs
Storm frequency	=	10 yrs	Time to peak	=	750 min
Time interval	=	3 min	Hyd. volume	=	55,176 cuft
Drainage area	=	6.610 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	44.60 min
Total precip.	=	5.24 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

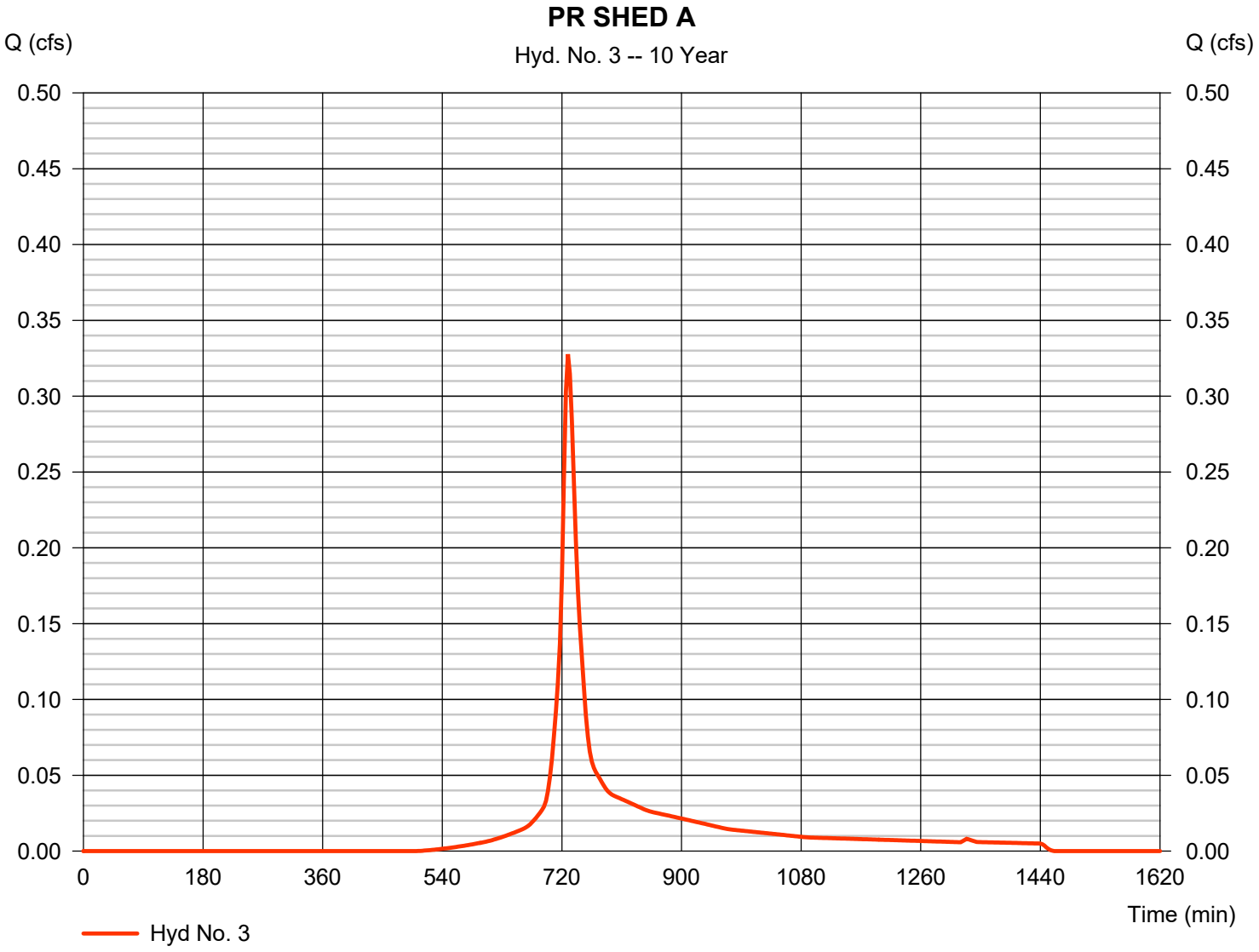


Hydrograph Report

Hyd. No. 3

PR SHED A

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.328 cfs
Storm frequency	=	10 yrs	Time to peak	=	729 min
Time interval	=	3 min	Hyd. volume	=	1,290 cuft
Drainage area	=	0.130 ac	Curve number	=	76
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.30 min
Total precip.	=	5.24 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

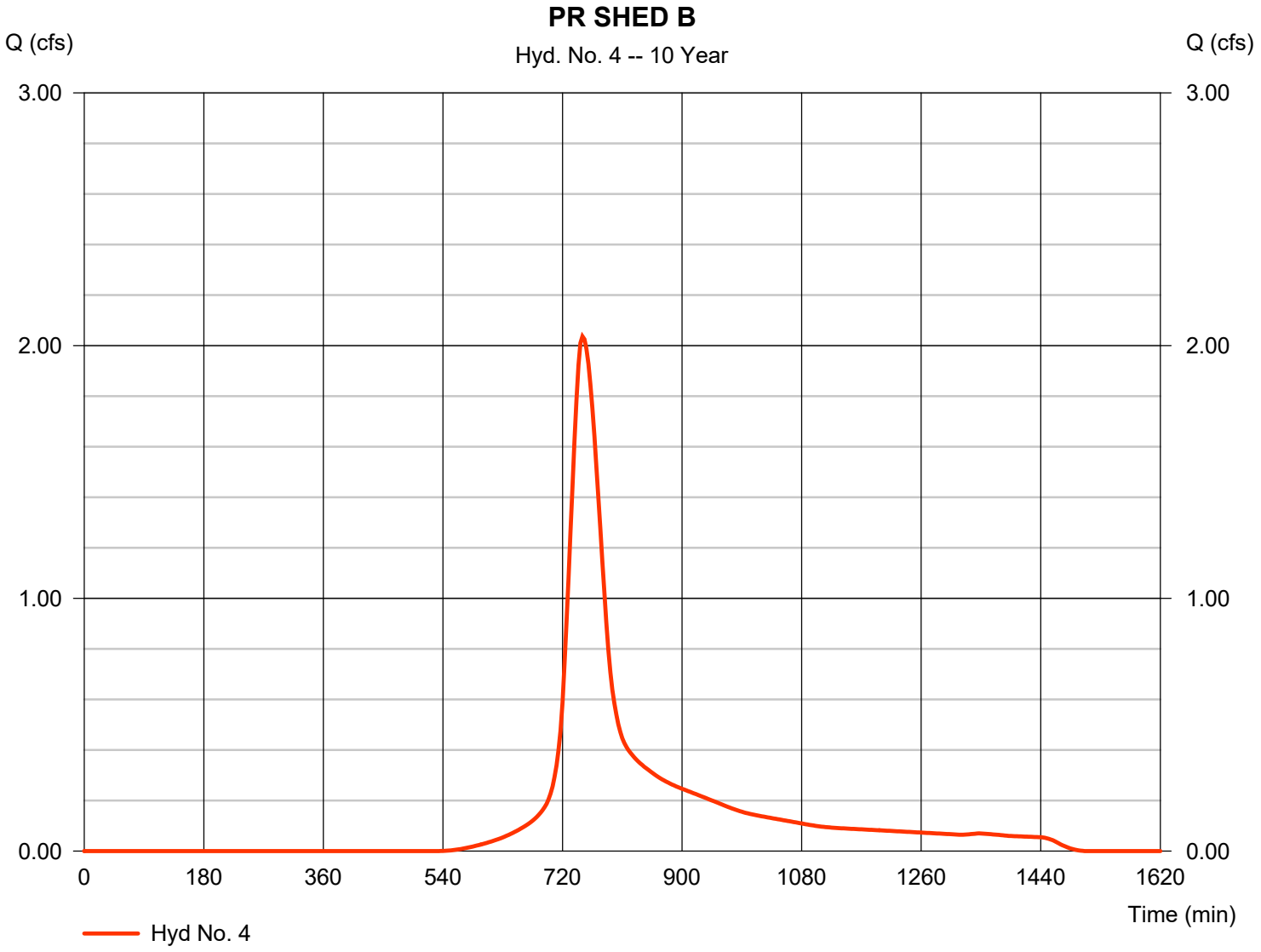


Hydrograph Report

Hyd. No. 4

PR SHED B

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.037 cfs
Storm frequency	=	10 yrs	Time to peak	=	750 min
Time interval	=	3 min	Hyd. volume	=	13,088 cuft
Drainage area	=	1.410 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	42.50 min
Total precip.	=	5.24 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

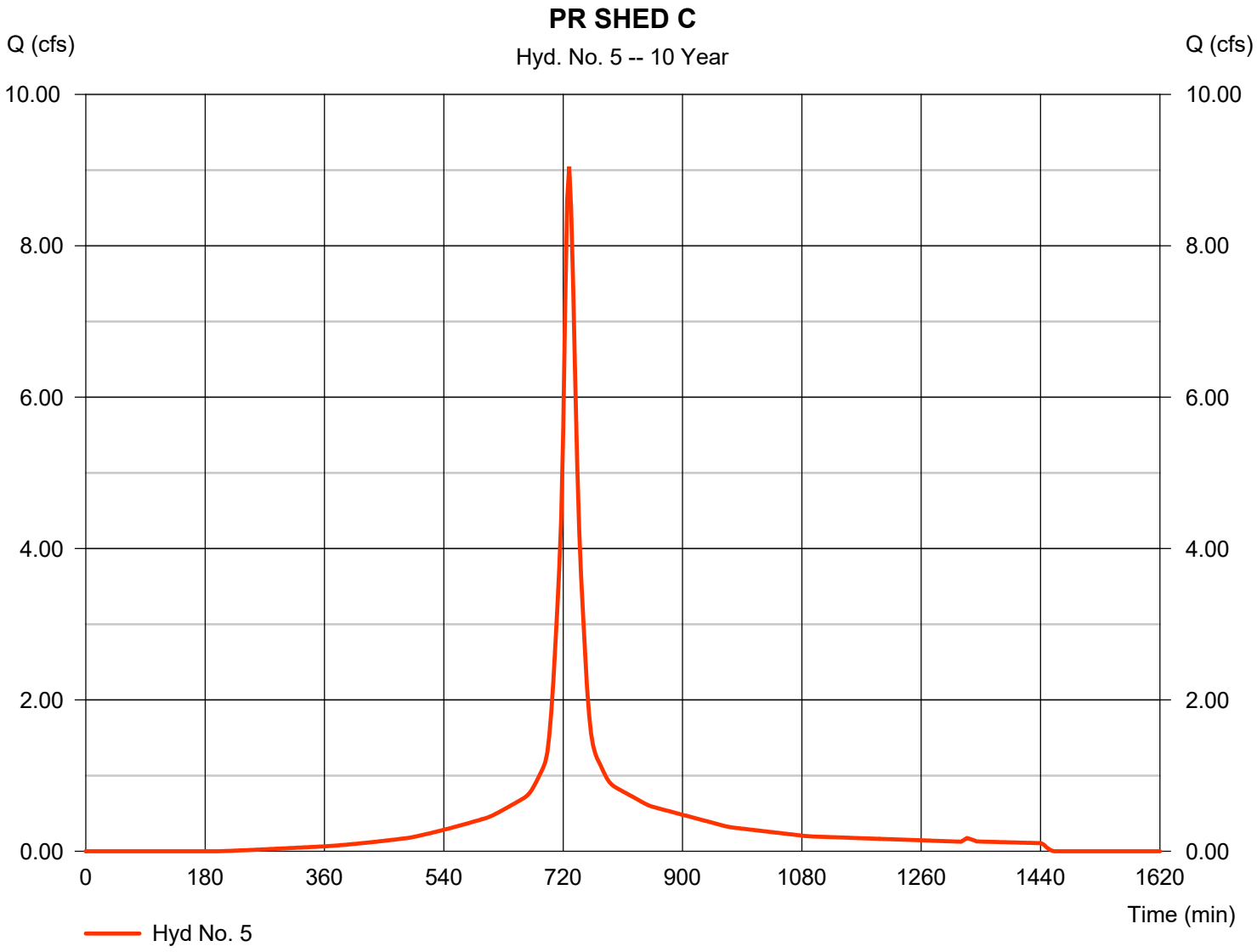


Hydrograph Report

Hyd. No. 5

PR SHED C

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.048 cfs
Storm frequency	=	10 yrs	Time to peak	=	729 min
Time interval	=	3 min	Hyd. volume	=	37,513 cuft
Drainage area	=	2.390 ac	Curve number	=	92
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	5.24 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

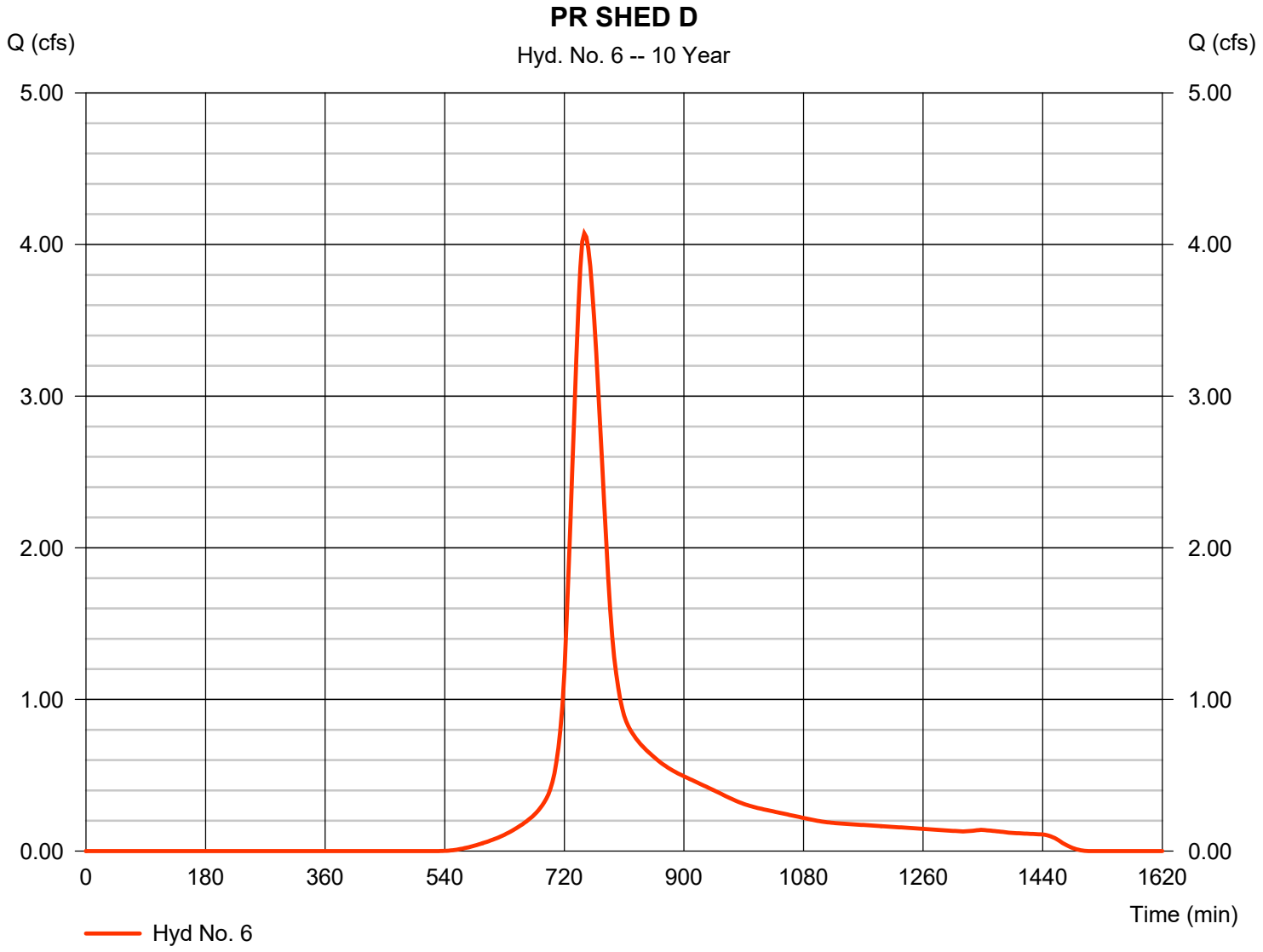


Hydrograph Report

Hyd. No. 6

PR SHED D

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.074 cfs
Storm frequency	=	10 yrs	Time to peak	=	750 min
Time interval	=	3 min	Hyd. volume	=	26,176 cuft
Drainage area	=	2.820 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	43.60 min
Total precip.	=	5.24 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



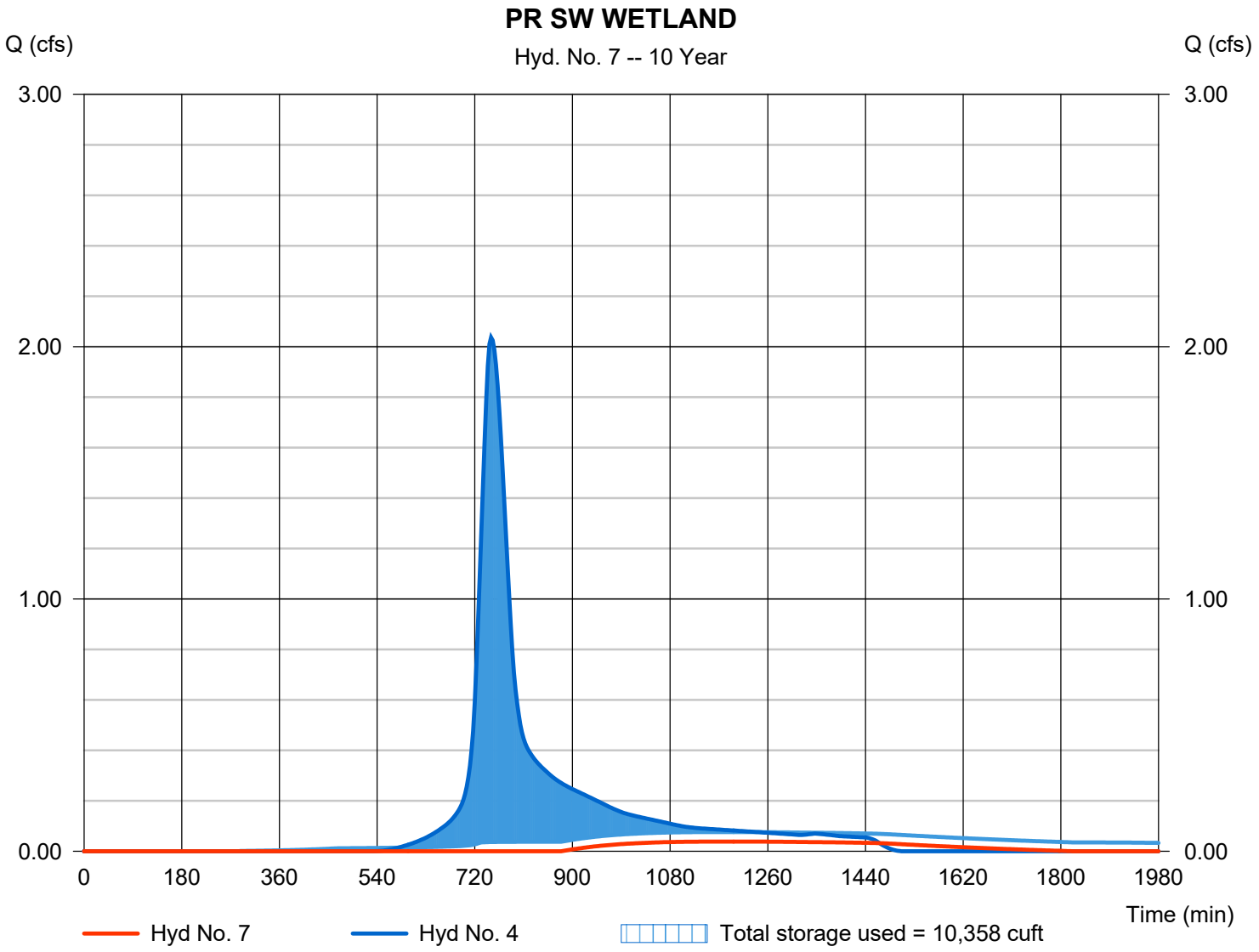
Hydrograph Report

Hyd. No. 7

PR SW WETLAND

Hydrograph type	=	Reservoir	Peak discharge	=	0.039 cfs
Storm frequency	=	10 yrs	Time to peak	=	1194 min
Time interval	=	3 min	Hyd. volume	=	1,453 cuft
Inflow hyd. No.	=	4 - PR SHED B	Max. Elevation	=	24.58 ft
Reservoir name	=	SW WETLAND	Max. Storage	=	10,358 cuft

Storage Indication method used. Exfiltration extracted from Outflow.

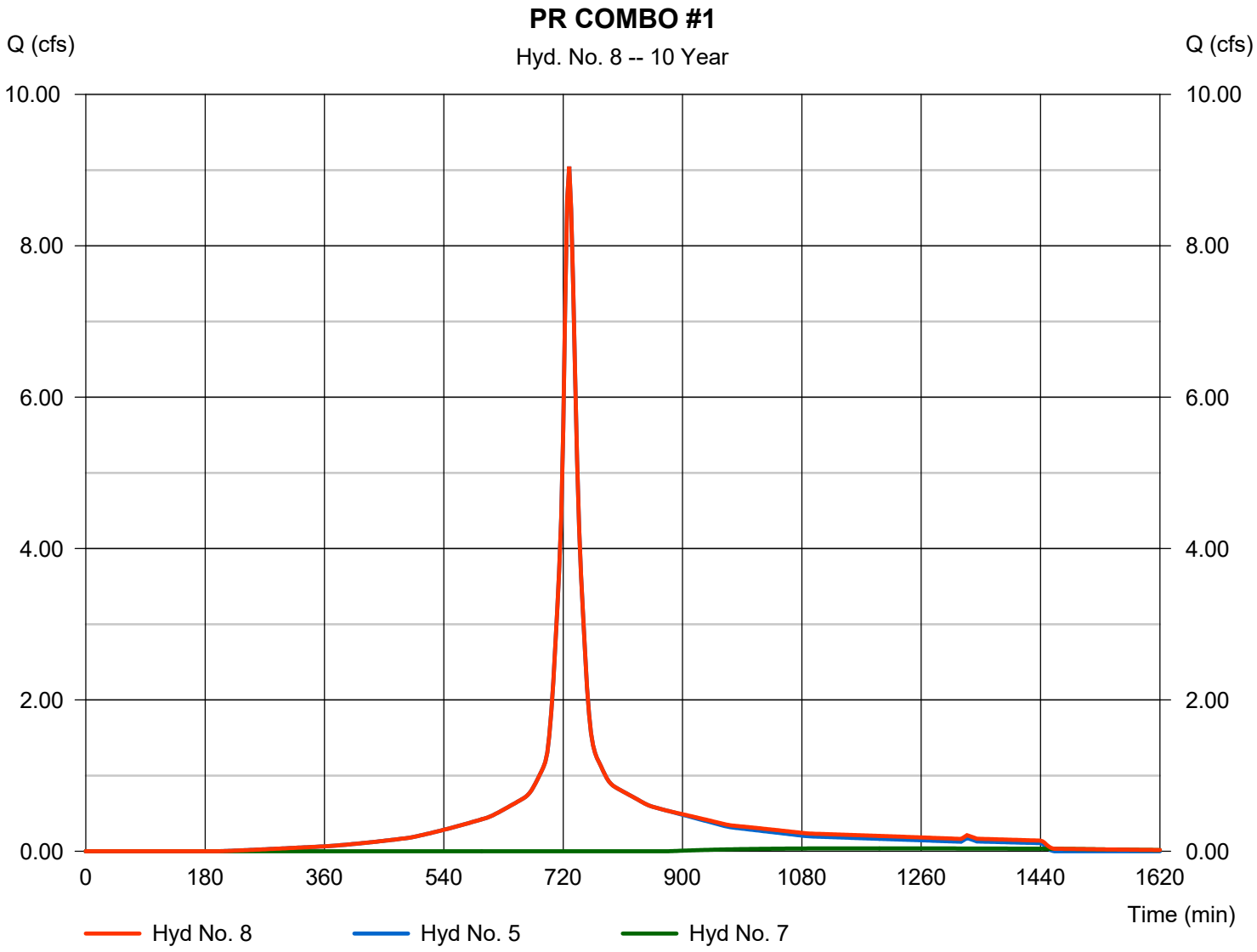


Hydrograph Report

Hyd. No. 8

PR COMBO #1

Hydrograph type	=	Combine	Peak discharge	=	9.048 cfs
Storm frequency	=	10 yrs	Time to peak	=	729 min
Time interval	=	3 min	Hyd. volume	=	38,966 cuft
Inflow hyds.	=	5, 7	Contrib. drain. area	=	2.390 ac



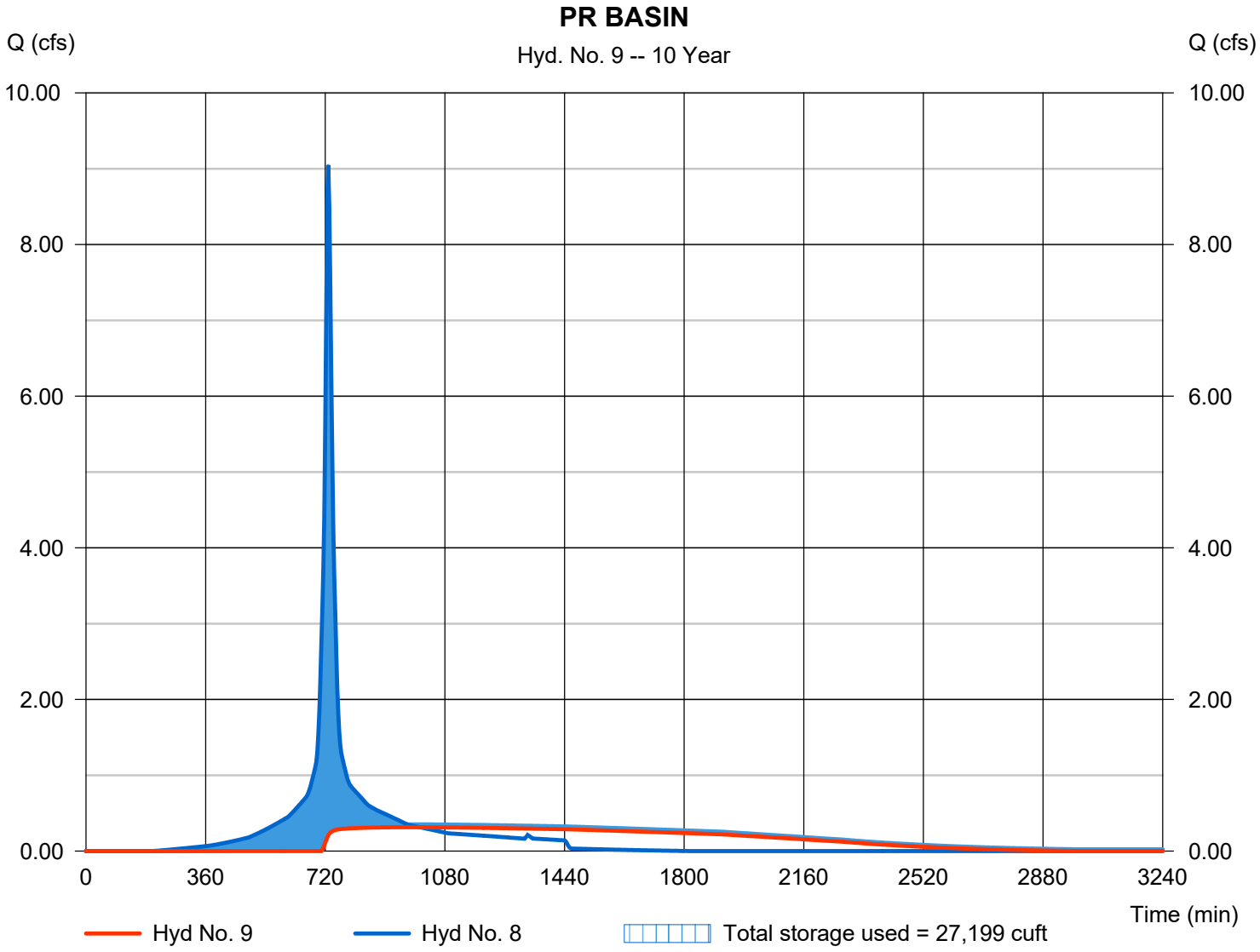
Hydrograph Report

Hyd. No. 9

PR BASIN

Hydrograph type	=	Reservoir	Peak discharge	=	0.315 cfs
Storm frequency	=	10 yrs	Time to peak	=	966 min
Time interval	=	3 min	Hyd. volume	=	25,981 cuft
Inflow hyd. No.	=	8 - PR COMBO #1	Max. Elevation	=	22.90 ft
Reservoir name	=	BASIN #1	Max. Storage	=	27,199 cuft

Storage Indication method used. Exfiltration extracted from Outflow.

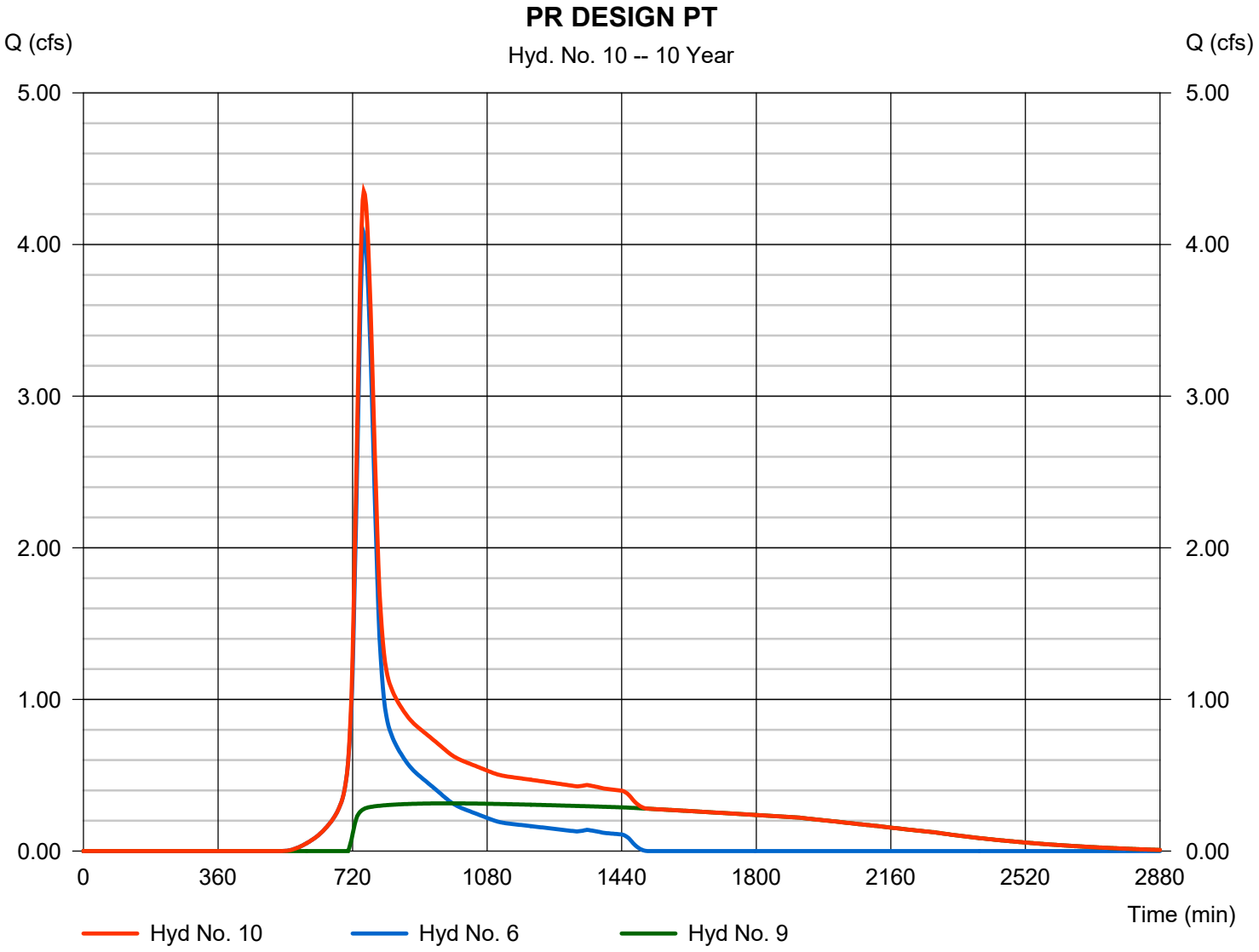


Hydrograph Report

Hyd. No. 10

PR DESIGN PT

Hydrograph type	=	Combine	Peak discharge	=	4.351 cfs
Storm frequency	=	10 yrs	Time to peak	=	750 min
Time interval	=	3 min	Hyd. volume	=	52,158 cuft
Inflow hyds.	=	6, 9	Contrib. drain. area	=	2.820 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

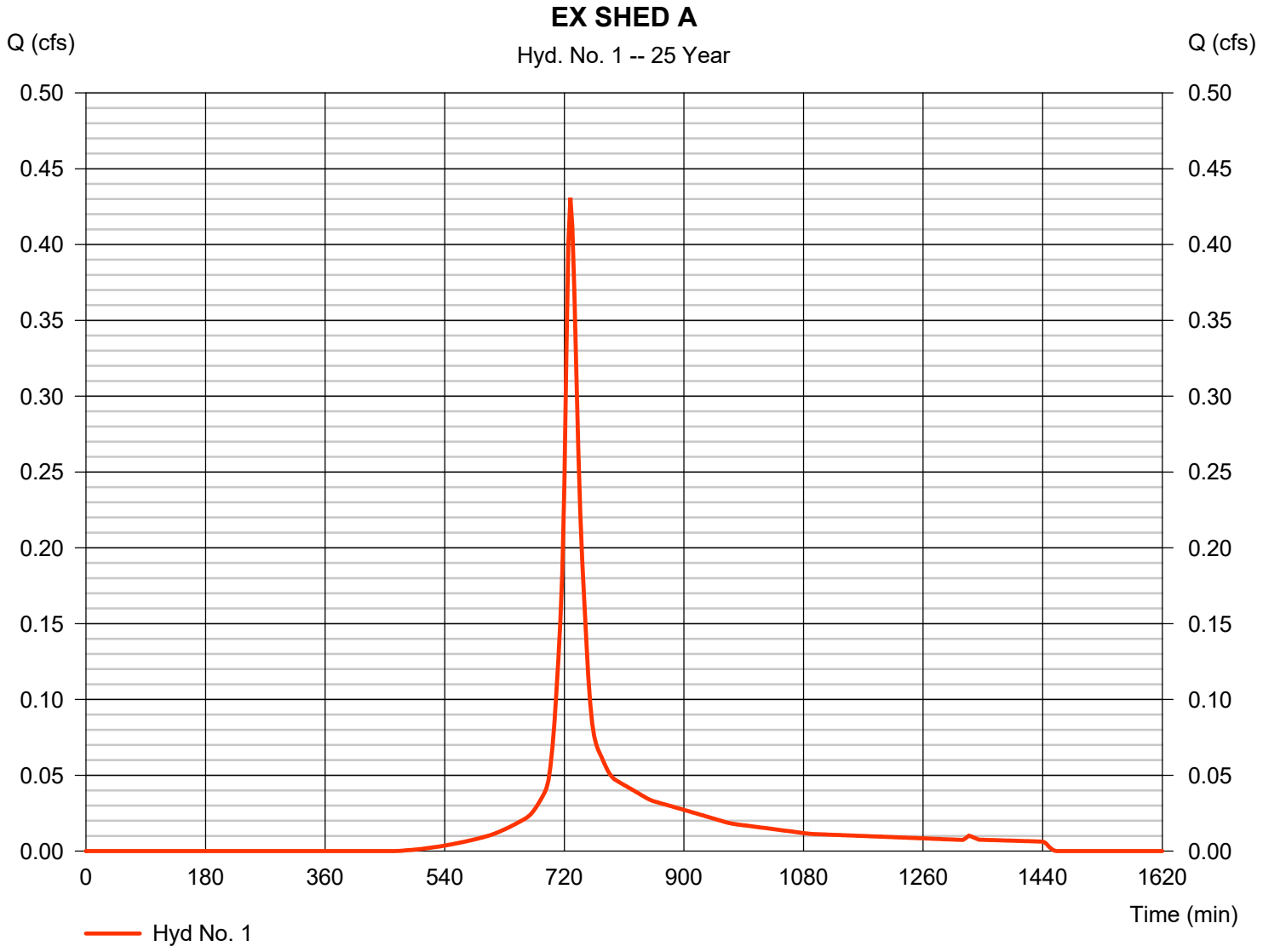
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	0.431	3	729	1,695	------	------	------	EX SHED A
2	SCS Runoff	11.94	3	750	76,576	------	------	------	EX SHED B
3	SCS Runoff	0.443	3	729	1,743	------	------	------	PR SHED A
4	SCS Runoff	2.795	3	750	17,862	------	------	------	PR SHED B
5	SCS Runoff	11.20	3	729	47,054	------	------	------	PR SHED C
6	SCS Runoff	5.591	3	750	35,724	------	------	------	PR SHED D
7	Reservoir	0.177	3	966	5,510	4	24.69	12,360	PR SW WETLAND
8	Combine	11.20	3	729	52,564	5, 7	------	------	PR COMBO #1
9	Reservoir	0.374	3	1074	38,260	8	23.63	36,493	PR BASIN
10	Combine	5.911	3	750	73,985	6, 9	------	------	PR DESIGN PT

Hydrograph Report

Hyd. No. 1

EX SHED A

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.431 cfs
Storm frequency	=	25 yrs	Time to peak	=	729 min
Time interval	=	3 min	Hyd. volume	=	1,695 cuft
Drainage area	=	0.130 ac	Curve number	=	75
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	6.36 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

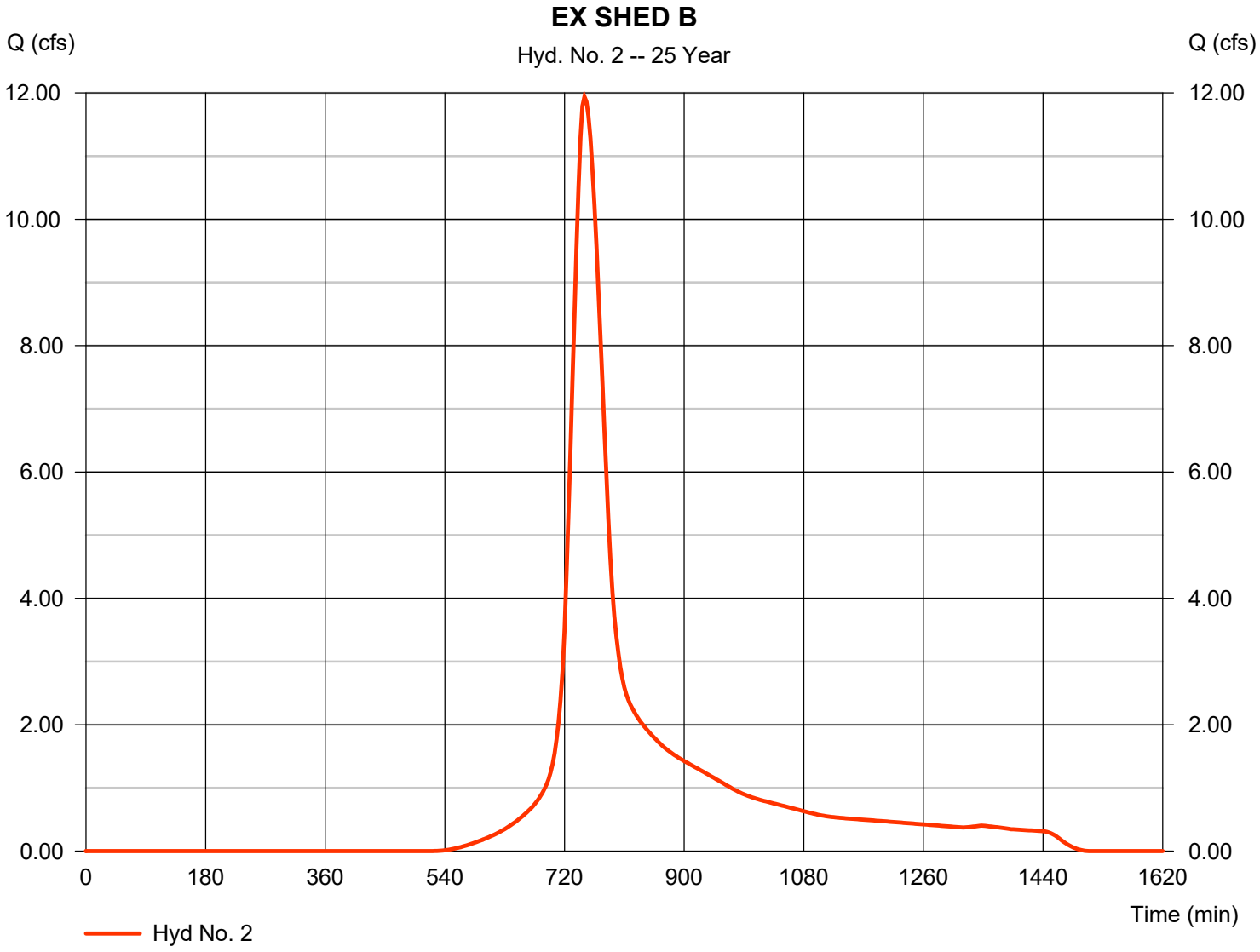


Hydrograph Report

Hyd. No. 2

EX SHED B

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.94 cfs
Storm frequency	=	25 yrs	Time to peak	=	750 min
Time interval	=	3 min	Hyd. volume	=	76,576 cuft
Drainage area	=	6.610 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	44.60 min
Total precip.	=	6.36 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

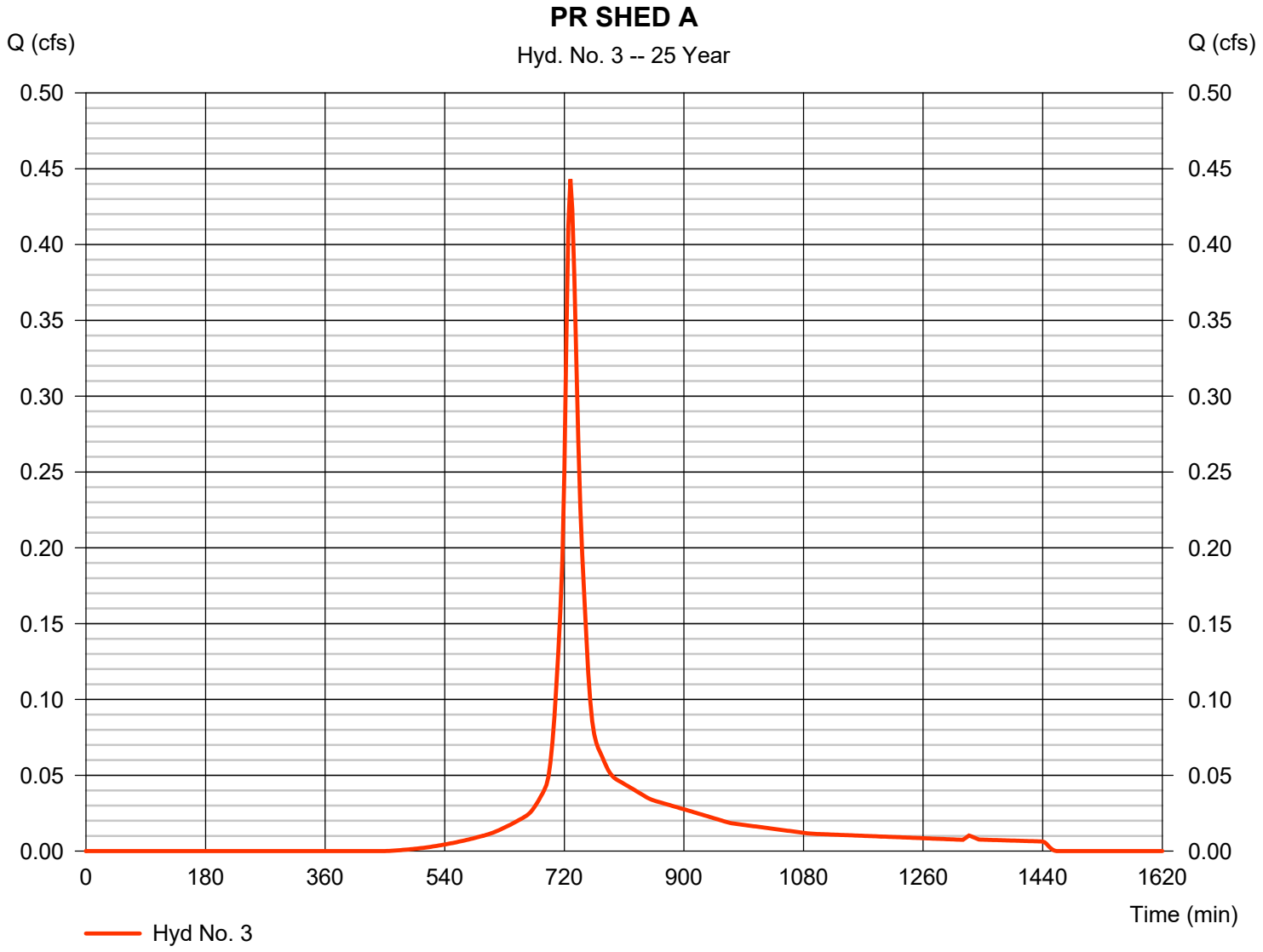


Hydrograph Report

Hyd. No. 3

PR SHED A

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.443 cfs
Storm frequency	=	25 yrs	Time to peak	=	729 min
Time interval	=	3 min	Hyd. volume	=	1,743 cuft
Drainage area	=	0.130 ac	Curve number	=	76
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.30 min
Total precip.	=	6.36 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

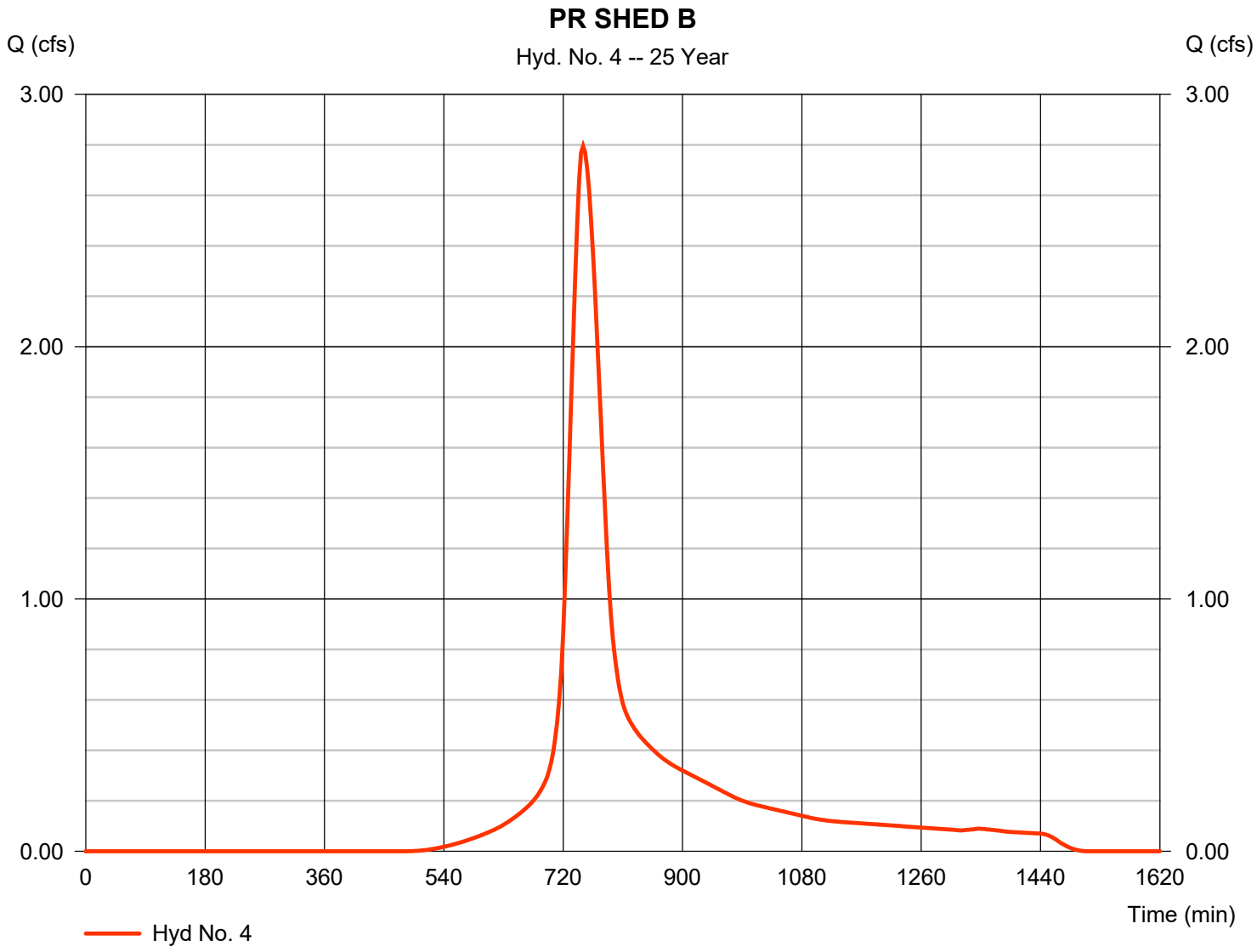


Hydrograph Report

Hyd. No. 4

PR SHED B

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.795 cfs
Storm frequency	=	25 yrs	Time to peak	=	750 min
Time interval	=	3 min	Hyd. volume	=	17,862 cuft
Drainage area	=	1.410 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	42.50 min
Total precip.	=	6.36 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

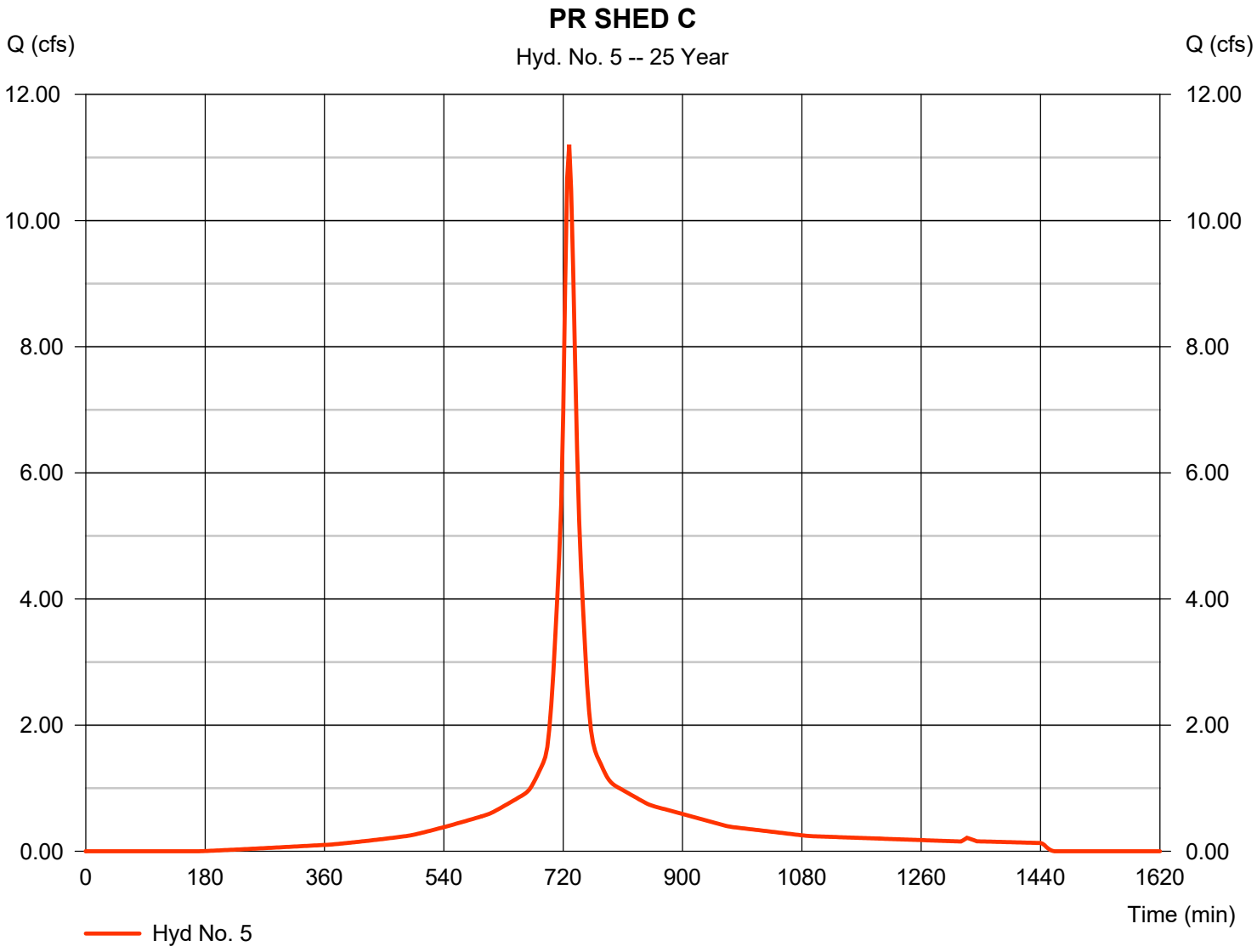


Hydrograph Report

Hyd. No. 5

PR SHED C

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.20 cfs
Storm frequency	=	25 yrs	Time to peak	=	729 min
Time interval	=	3 min	Hyd. volume	=	47,054 cuft
Drainage area	=	2.390 ac	Curve number	=	92
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	6.36 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

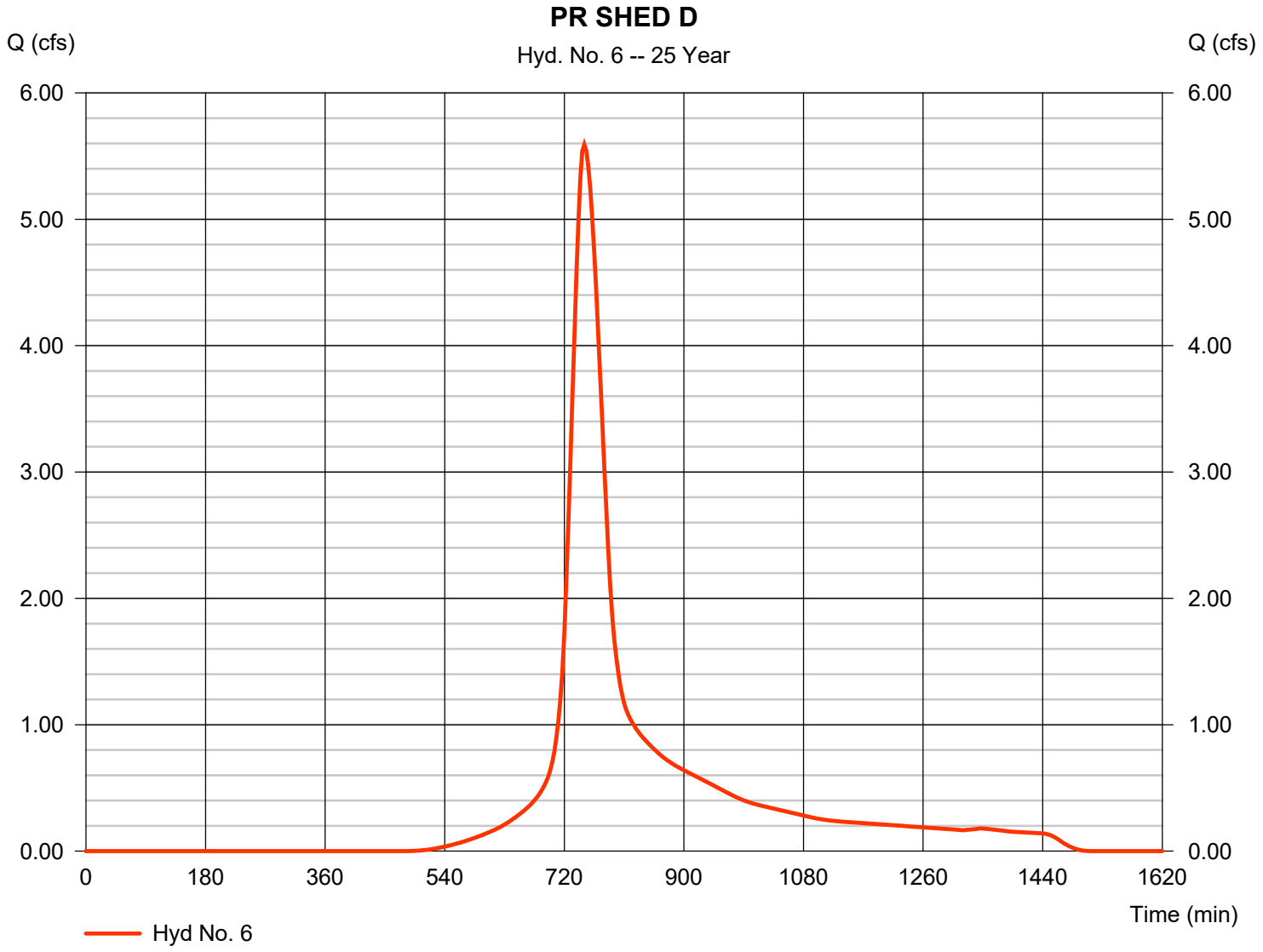


Hydrograph Report

Hyd. No. 6

PR SHED D

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.591 cfs
Storm frequency	=	25 yrs	Time to peak	=	750 min
Time interval	=	3 min	Hyd. volume	=	35,724 cuft
Drainage area	=	2.820 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	43.60 min
Total precip.	=	6.36 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



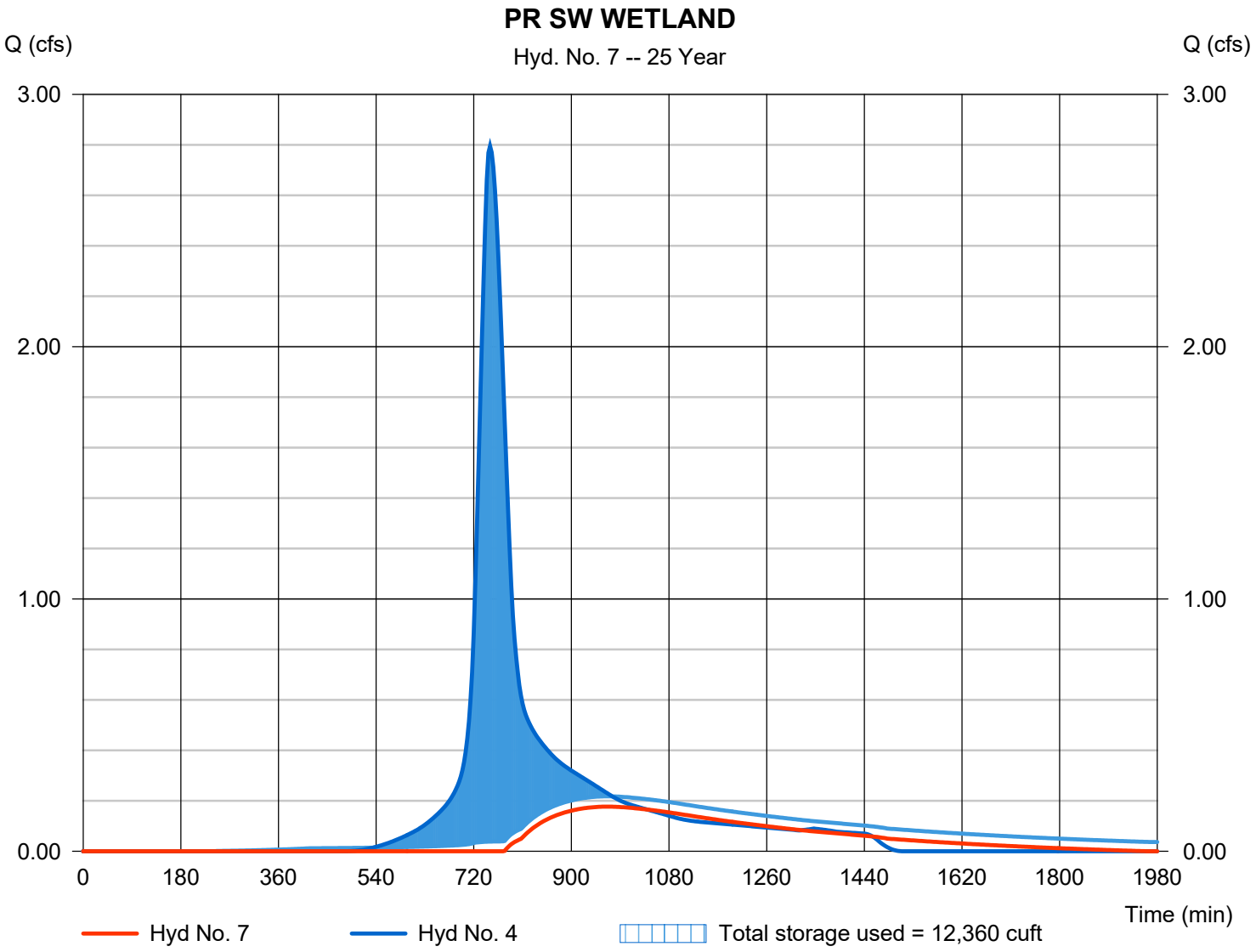
Hydrograph Report

Hyd. No. 7

PR SW WETLAND

Hydrograph type	=	Reservoir	Peak discharge	=	0.177 cfs
Storm frequency	=	25 yrs	Time to peak	=	966 min
Time interval	=	3 min	Hyd. volume	=	5,510 cuft
Inflow hyd. No.	=	4 - PR SHED B	Max. Elevation	=	24.69 ft
Reservoir name	=	SW WETLAND	Max. Storage	=	12,360 cuft

Storage Indication method used. Exfiltration extracted from Outflow.

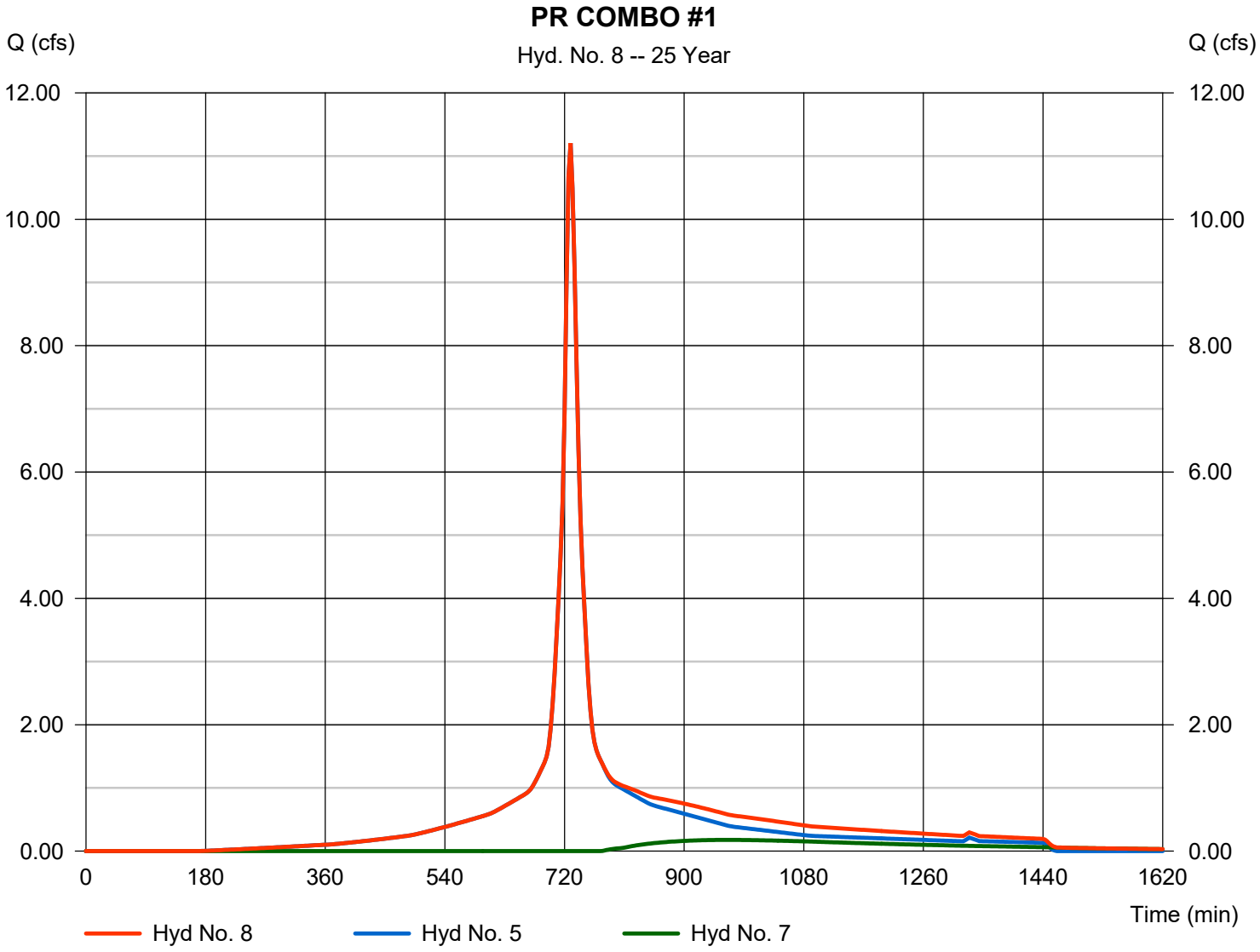


Hydrograph Report

Hyd. No. 8

PR COMBO #1

Hydrograph type	=	Combine	Peak discharge	=	11.20 cfs
Storm frequency	=	25 yrs	Time to peak	=	729 min
Time interval	=	3 min	Hyd. volume	=	52,564 cuft
Inflow hyds.	=	5, 7	Contrib. drain. area	=	2.390 ac



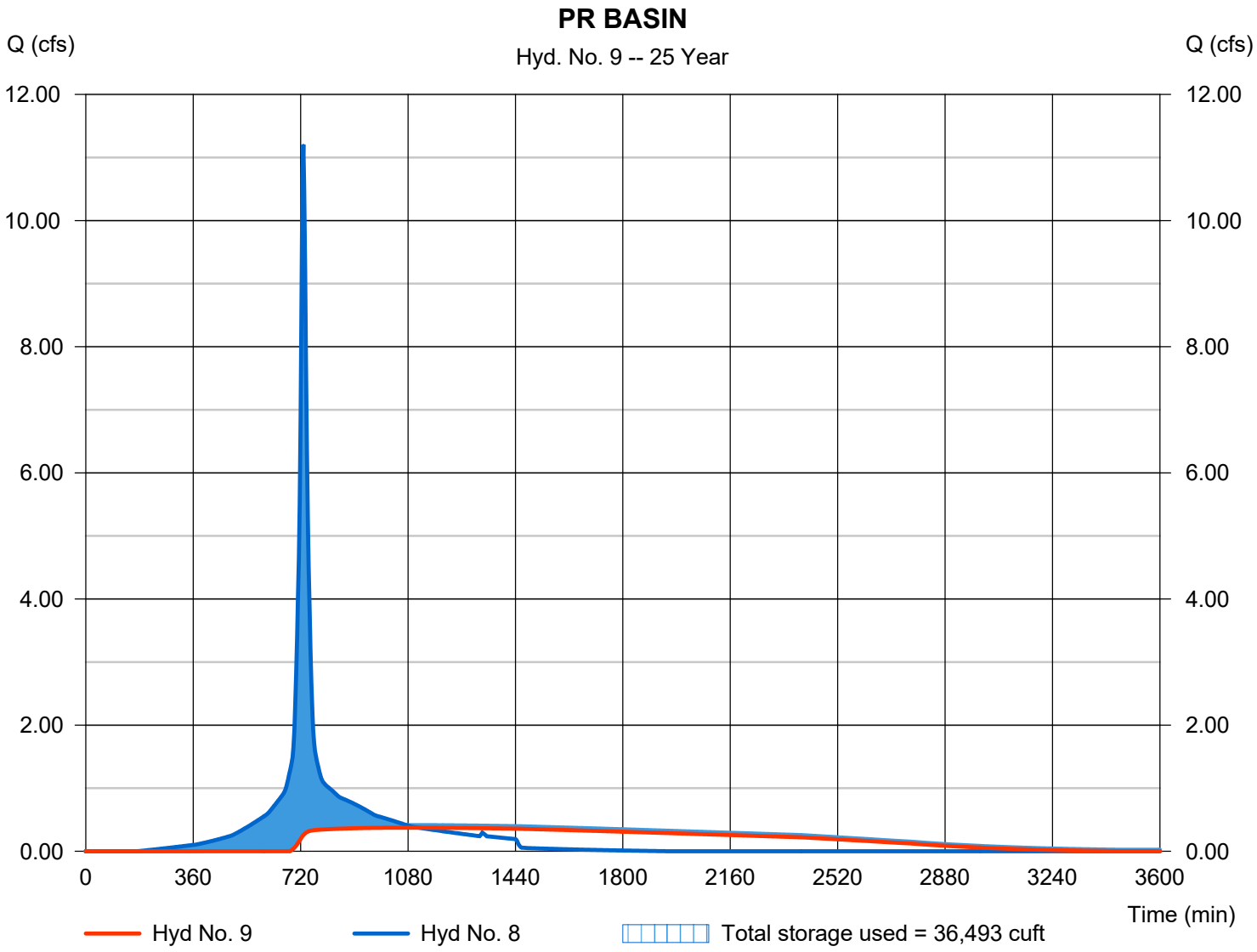
Hydrograph Report

Hyd. No. 9

PR BASIN

Hydrograph type	=	Reservoir	Peak discharge	=	0.374 cfs
Storm frequency	=	25 yrs	Time to peak	=	1074 min
Time interval	=	3 min	Hyd. volume	=	38,260 cuft
Inflow hyd. No.	=	8 - PR COMBO #1	Max. Elevation	=	23.63 ft
Reservoir name	=	BASIN #1	Max. Storage	=	36,493 cuft

Storage Indication method used. Exfiltration extracted from Outflow.

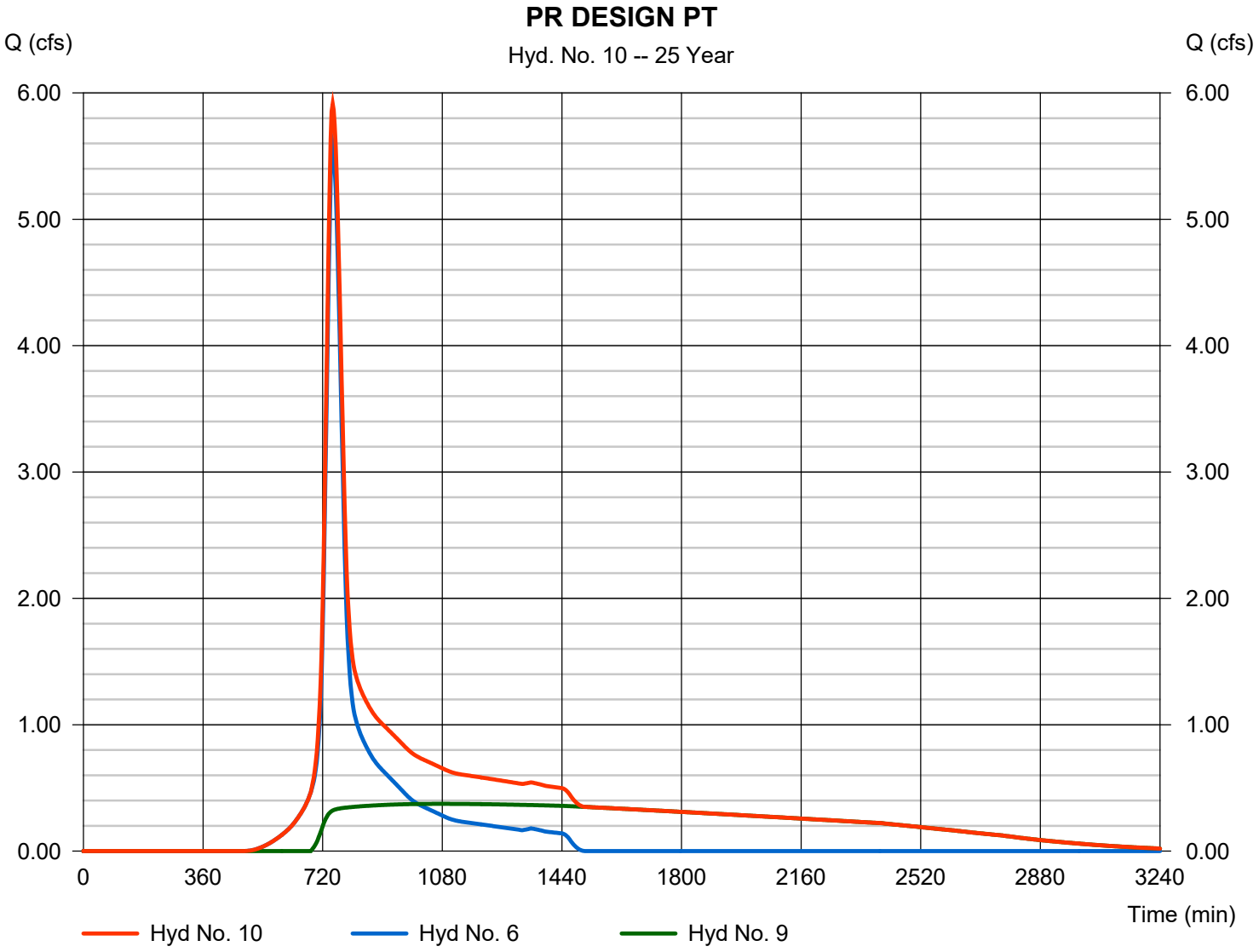


Hydrograph Report

Hyd. No. 10

PR DESIGN PT

Hydrograph type	=	Combine	Peak discharge	=	5.911 cfs
Storm frequency	=	25 yrs	Time to peak	=	750 min
Time interval	=	3 min	Hyd. volume	=	73,985 cuft
Inflow hyds.	=	6, 9	Contrib. drain. area	=	2.820 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

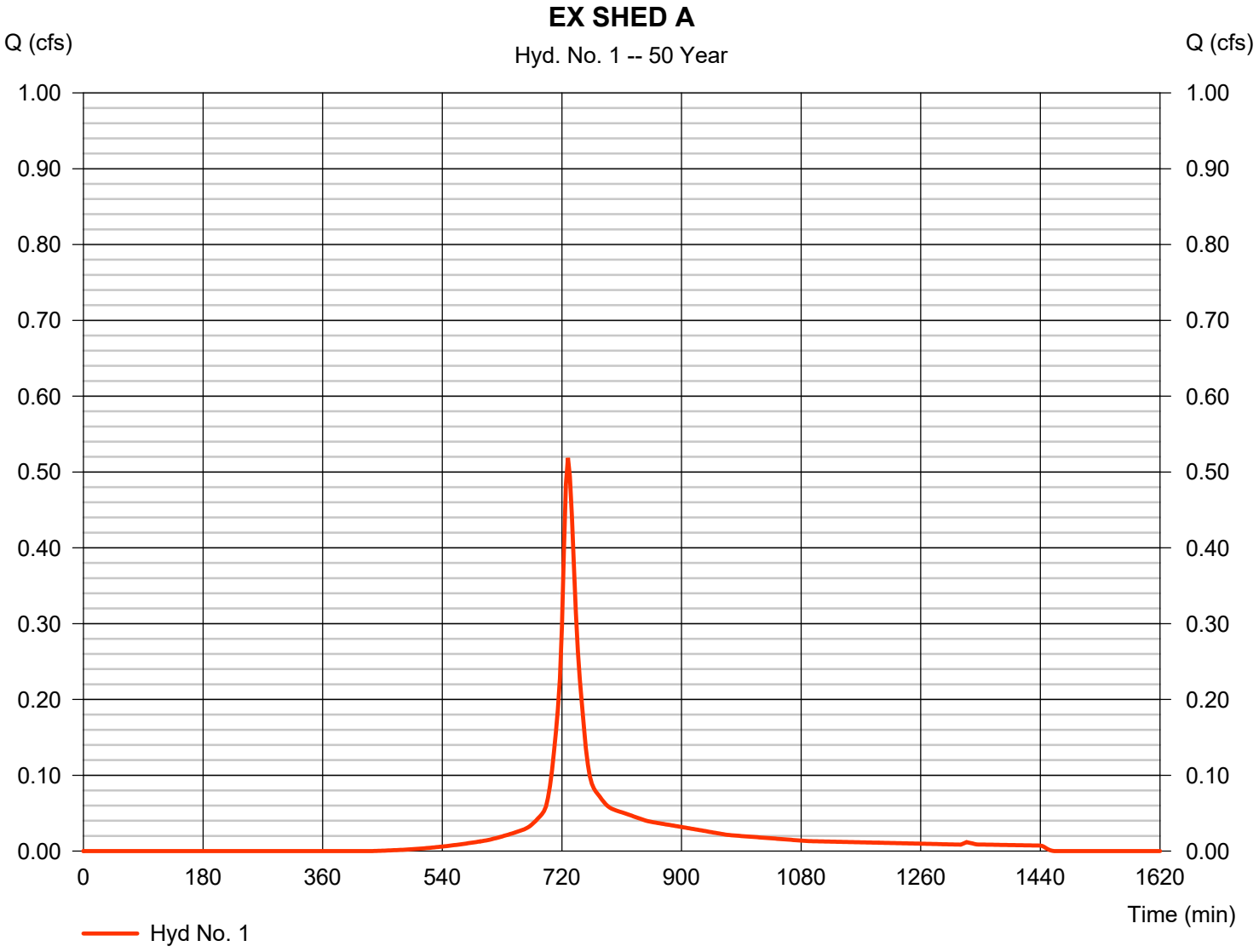
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	0.519	3	729	2,041	------	------	------	EX SHED A
2	SCS Runoff	14.61	3	750	93,395	------	------	------	EX SHED B
3	SCS Runoff	0.531	3	729	2,093	------	------	------	PR SHED A
4	SCS Runoff	3.379	3	750	21,583	------	------	------	PR SHED B
5	SCS Runoff	12.81	3	729	54,243	------	------	------	PR SHED C
6	SCS Runoff	6.759	3	750	43,167	------	------	------	PR SHED D
7	Reservoir	0.334	3	891	8,956	4	24.76	13,663	PR SW WETLAND
8	Combine	12.81	3	729	63,199	5, 7	------	------	PR COMBO #1
9	Reservoir	0.557	3	1035	48,138	8	24.14	43,494	PR BASIN
10	Combine	7.109	3	750	91,305	6, 9	------	------	PR DESIGN PT

Hydrograph Report

Hyd. No. 1

EX SHED A

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.519 cfs
Storm frequency	=	50 yrs	Time to peak	=	729 min
Time interval	=	3 min	Hyd. volume	=	2,041 cuft
Drainage area	=	0.130 ac	Curve number	=	75
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	7.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

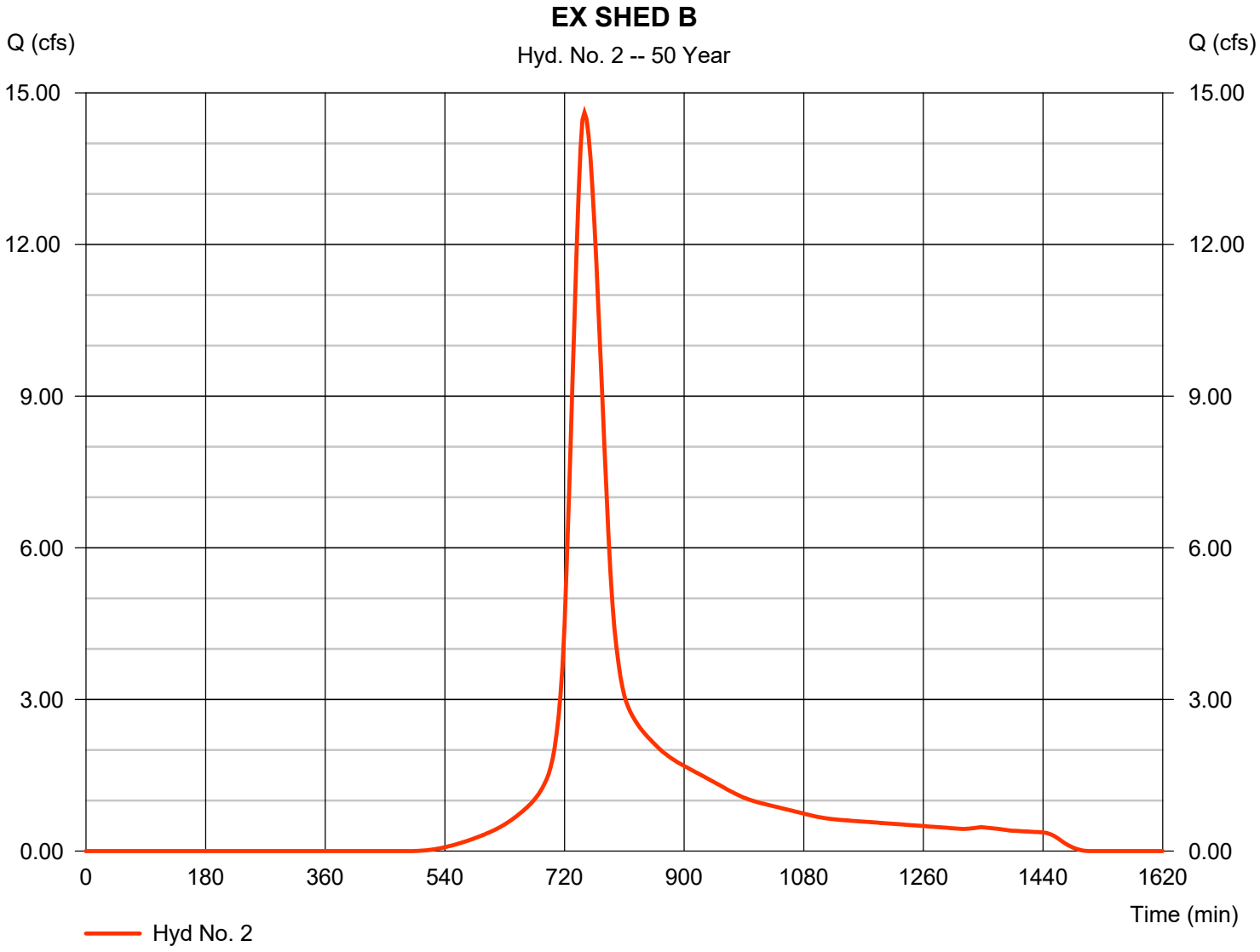


Hydrograph Report

Hyd. No. 2

EX SHED B

Hydrograph type	=	SCS Runoff	Peak discharge	=	14.61 cfs
Storm frequency	=	50 yrs	Time to peak	=	750 min
Time interval	=	3 min	Hyd. volume	=	93,395 cuft
Drainage area	=	6.610 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	44.60 min
Total precip.	=	7.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

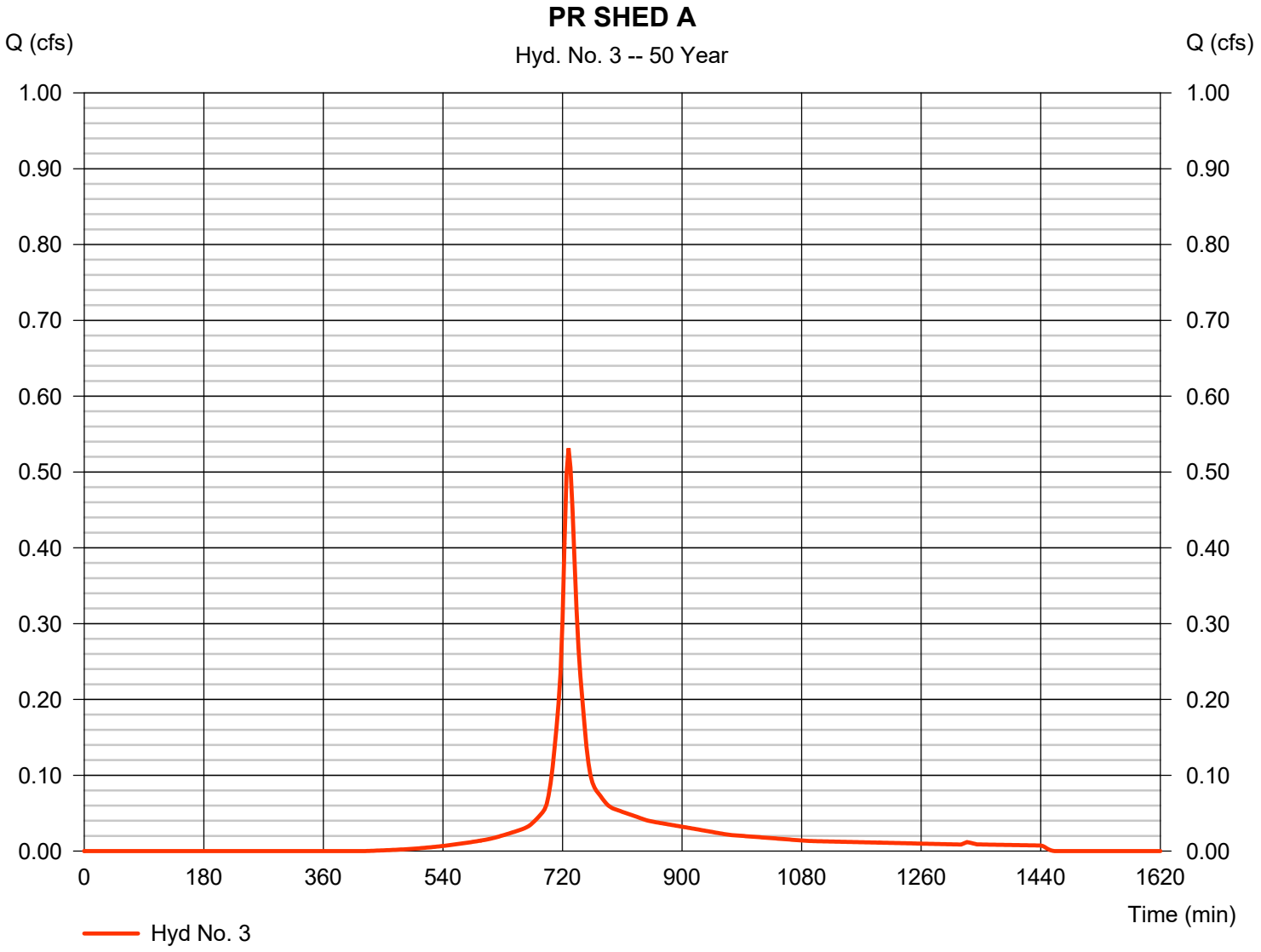


Hydrograph Report

Hyd. No. 3

PR SHED A

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.531 cfs
Storm frequency	=	50 yrs	Time to peak	=	729 min
Time interval	=	3 min	Hyd. volume	=	2,093 cuft
Drainage area	=	0.130 ac	Curve number	=	76
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.30 min
Total precip.	=	7.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

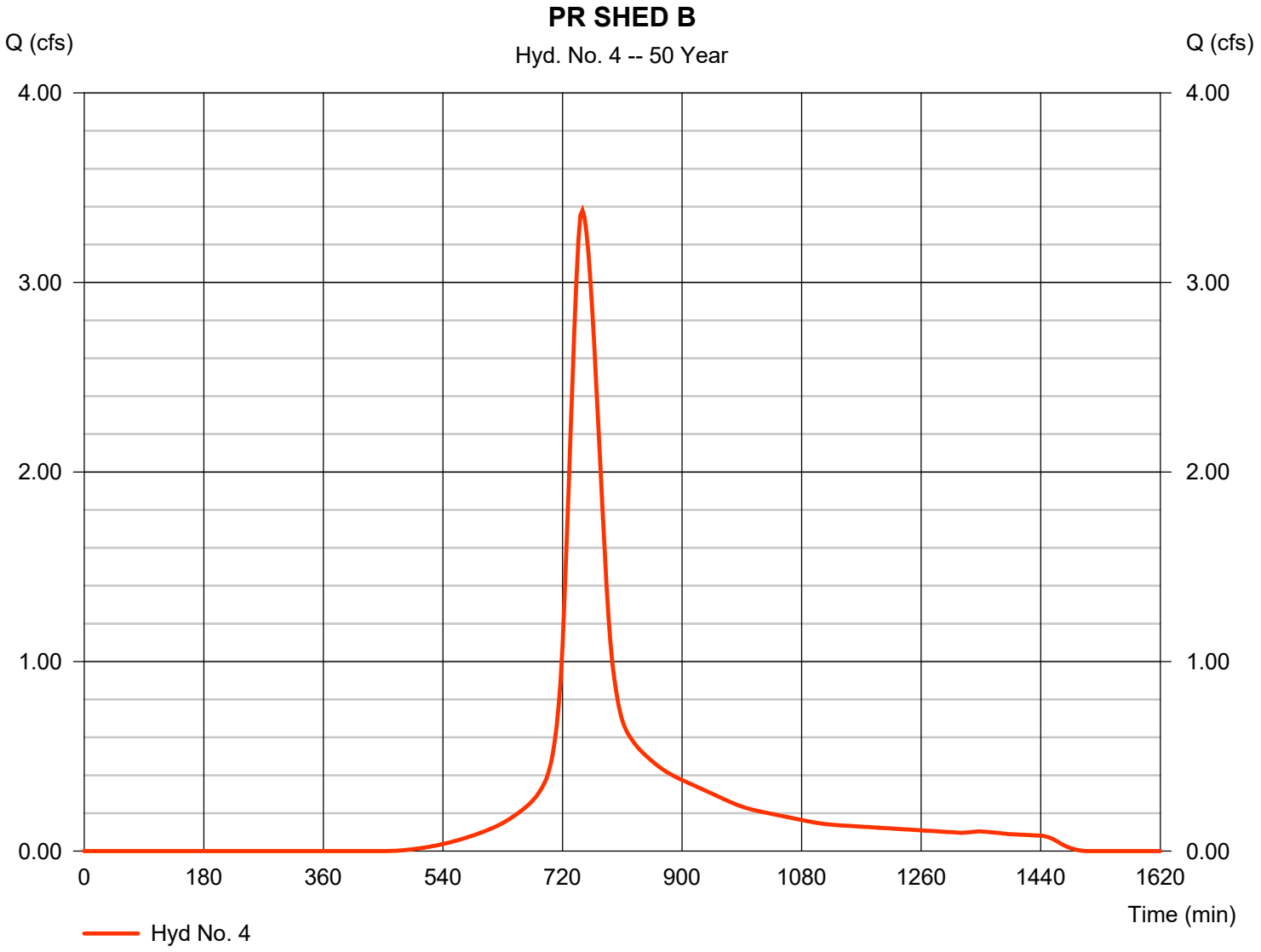


Hydrograph Report

Hyd. No. 4

PR SHED B

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.379 cfs
Storm frequency	=	50 yrs	Time to peak	=	750 min
Time interval	=	3 min	Hyd. volume	=	21,583 cuft
Drainage area	=	1.410 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	42.50 min
Total precip.	=	7.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

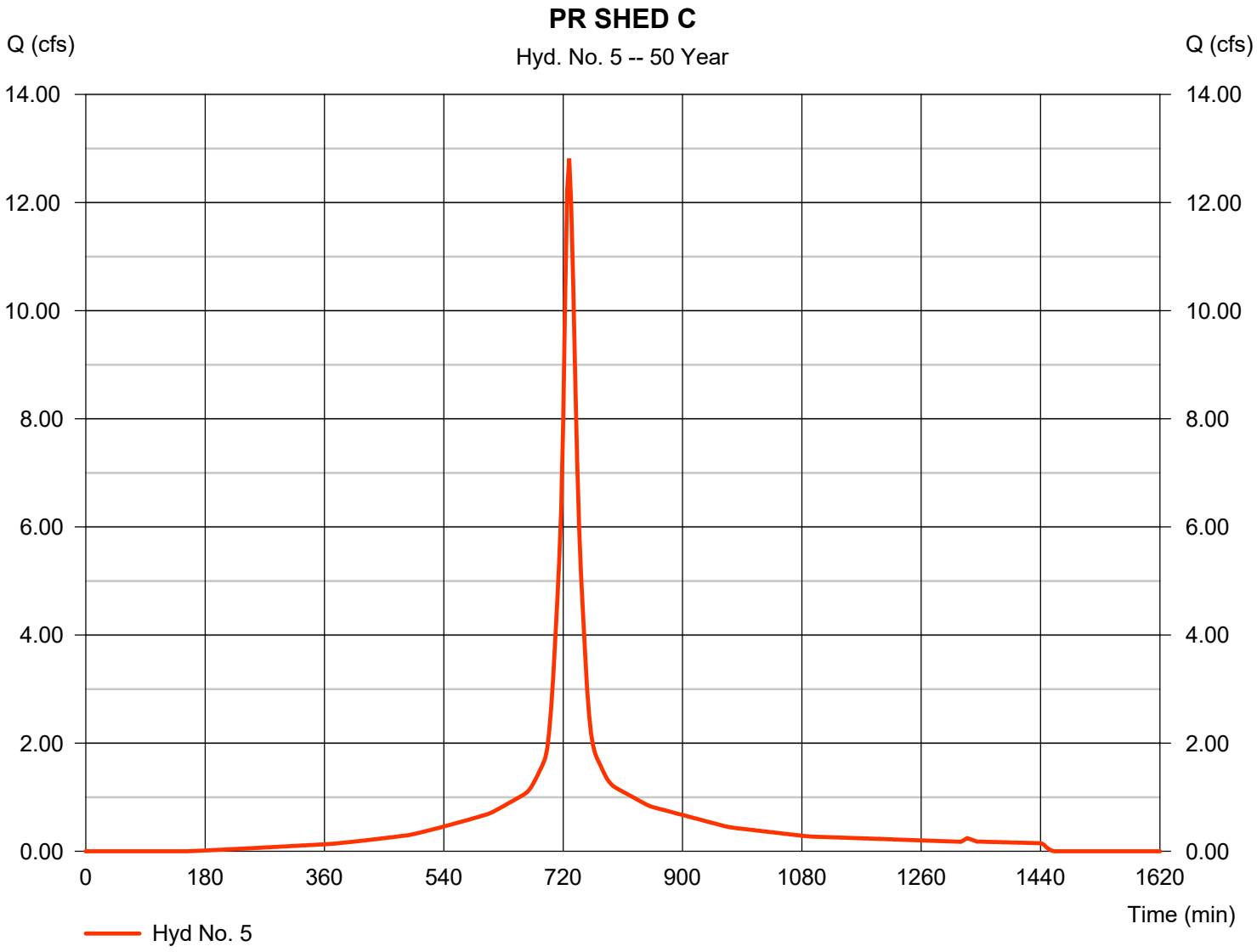


Hydrograph Report

Hyd. No. 5

PR SHED C

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.81 cfs
Storm frequency	=	50 yrs	Time to peak	=	729 min
Time interval	=	3 min	Hyd. volume	=	54,243 cuft
Drainage area	=	2.390 ac	Curve number	=	92
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	7.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

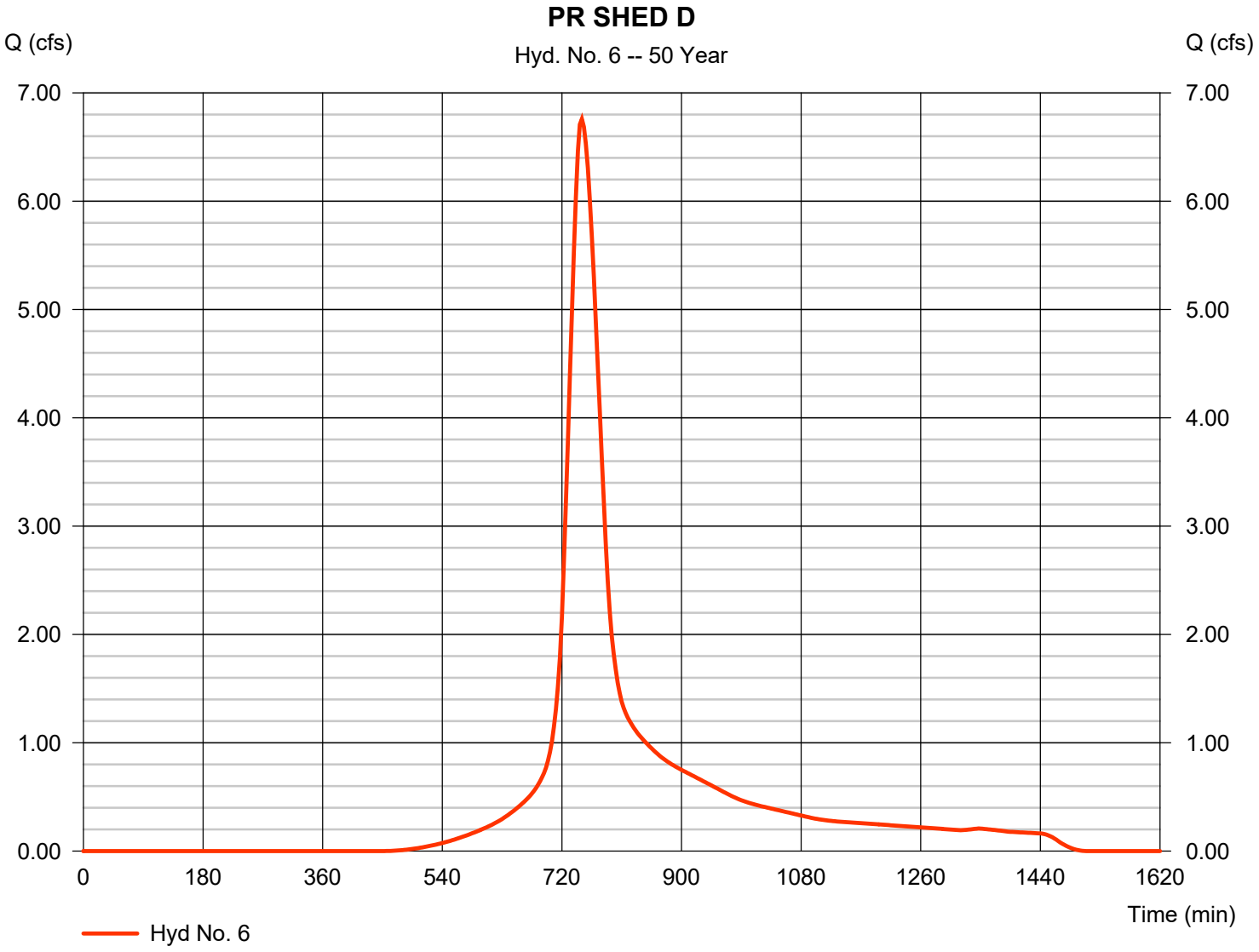


Hydrograph Report

Hyd. No. 6

PR SHED D

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.759 cfs
Storm frequency	=	50 yrs	Time to peak	=	750 min
Time interval	=	3 min	Hyd. volume	=	43,167 cuft
Drainage area	=	2.820 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	43.60 min
Total precip.	=	7.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Report

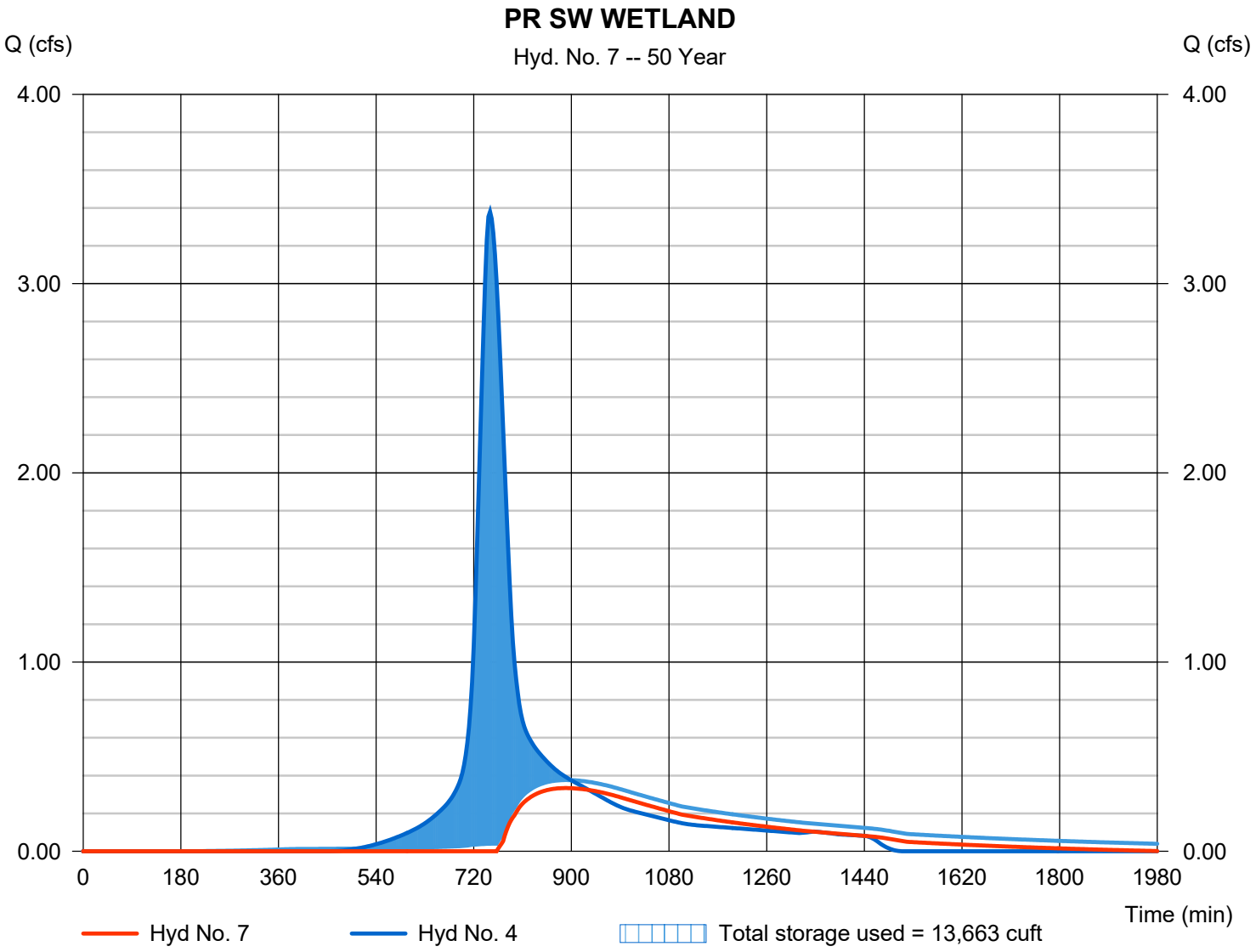
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Tuesday, 05 / 14 / 2024

Hyd. No. 7

PR SW WETLAND

Hydrograph type	=	Reservoir	Peak discharge	=	0.334 cfs
Storm frequency	=	50 yrs	Time to peak	=	891 min
Time interval	=	3 min	Hyd. volume	=	8,956 cuft
Inflow hyd. No.	=	4 - PR SHED B	Max. Elevation	=	24.76 ft
Reservoir name	=	SW WETLAND	Max. Storage	=	13,663 cuft

Storage Indication method used. Exfiltration extracted from Outflow.

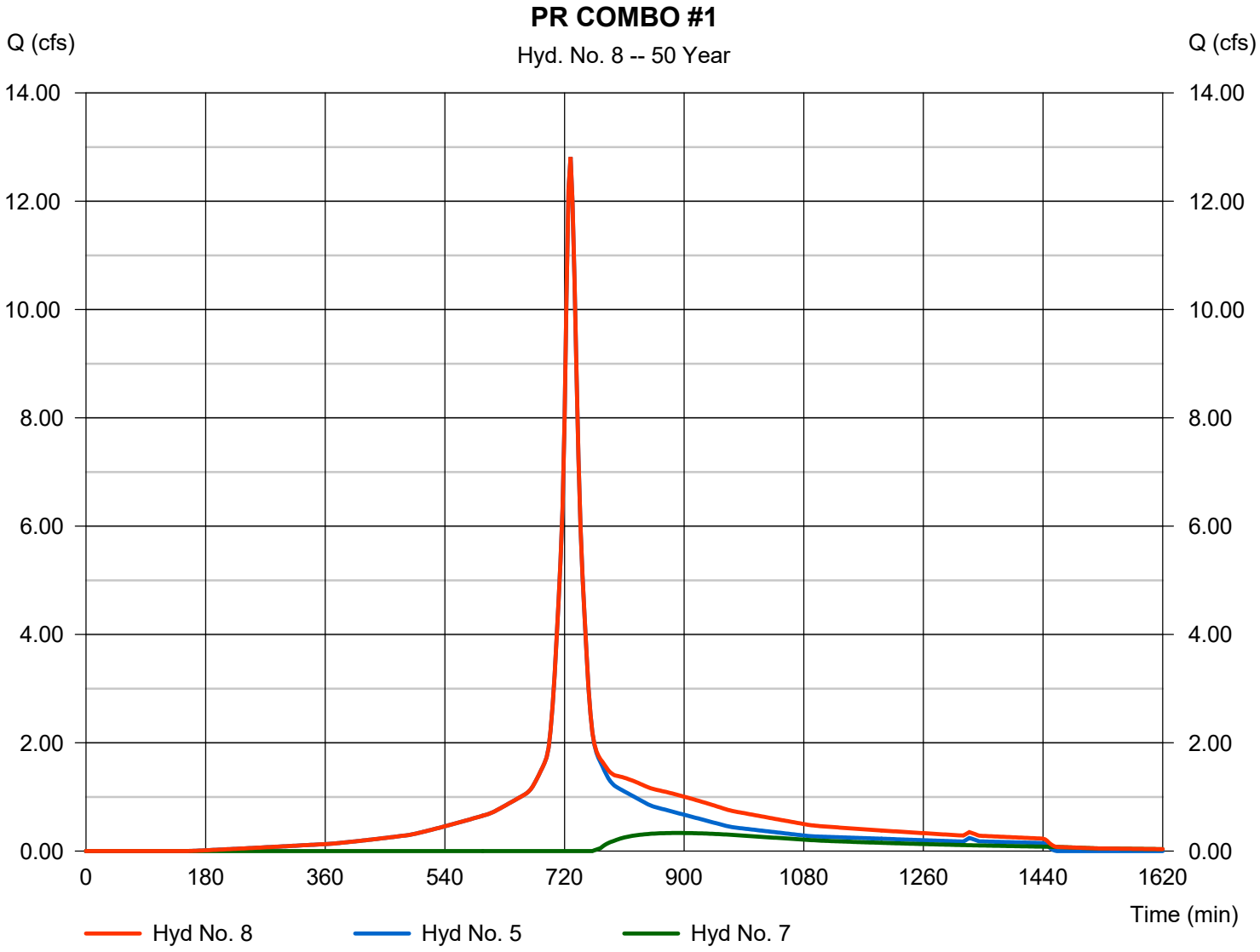


Hydrograph Report

Hyd. No. 8

PR COMBO #1

Hydrograph type	=	Combine	Peak discharge	=	12.81 cfs
Storm frequency	=	50 yrs	Time to peak	=	729 min
Time interval	=	3 min	Hyd. volume	=	63,199 cuft
Inflow hyds.	=	5, 7	Contrib. drain. area	=	2.390 ac



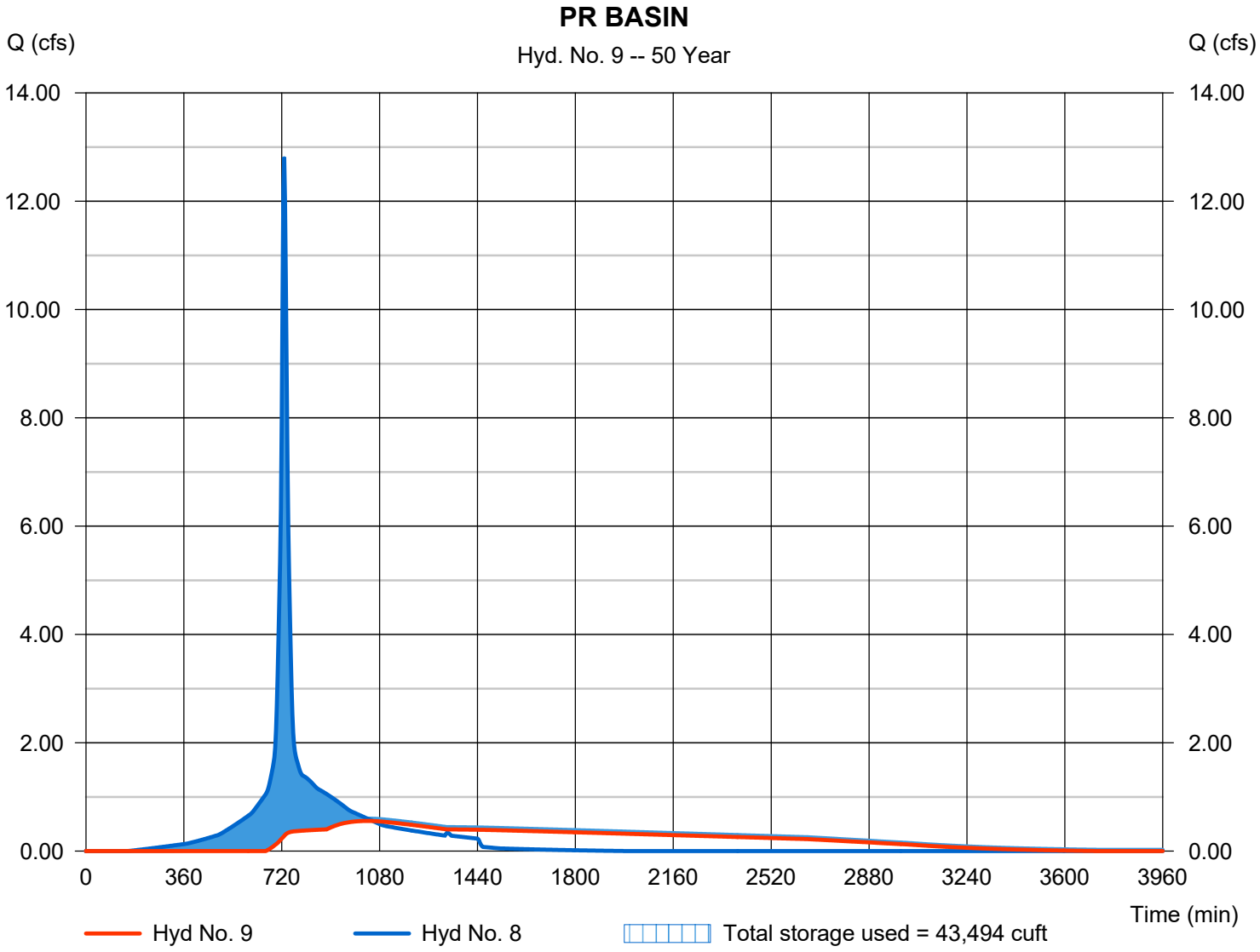
Hydrograph Report

Hyd. No. 9

PR BASIN

Hydrograph type	=	Reservoir	Peak discharge	=	0.557 cfs
Storm frequency	=	50 yrs	Time to peak	=	1035 min
Time interval	=	3 min	Hyd. volume	=	48,138 cuft
Inflow hyd. No.	=	8 - PR COMBO #1	Max. Elevation	=	24.14 ft
Reservoir name	=	BASIN #1	Max. Storage	=	43,494 cuft

Storage Indication method used. Exfiltration extracted from Outflow.

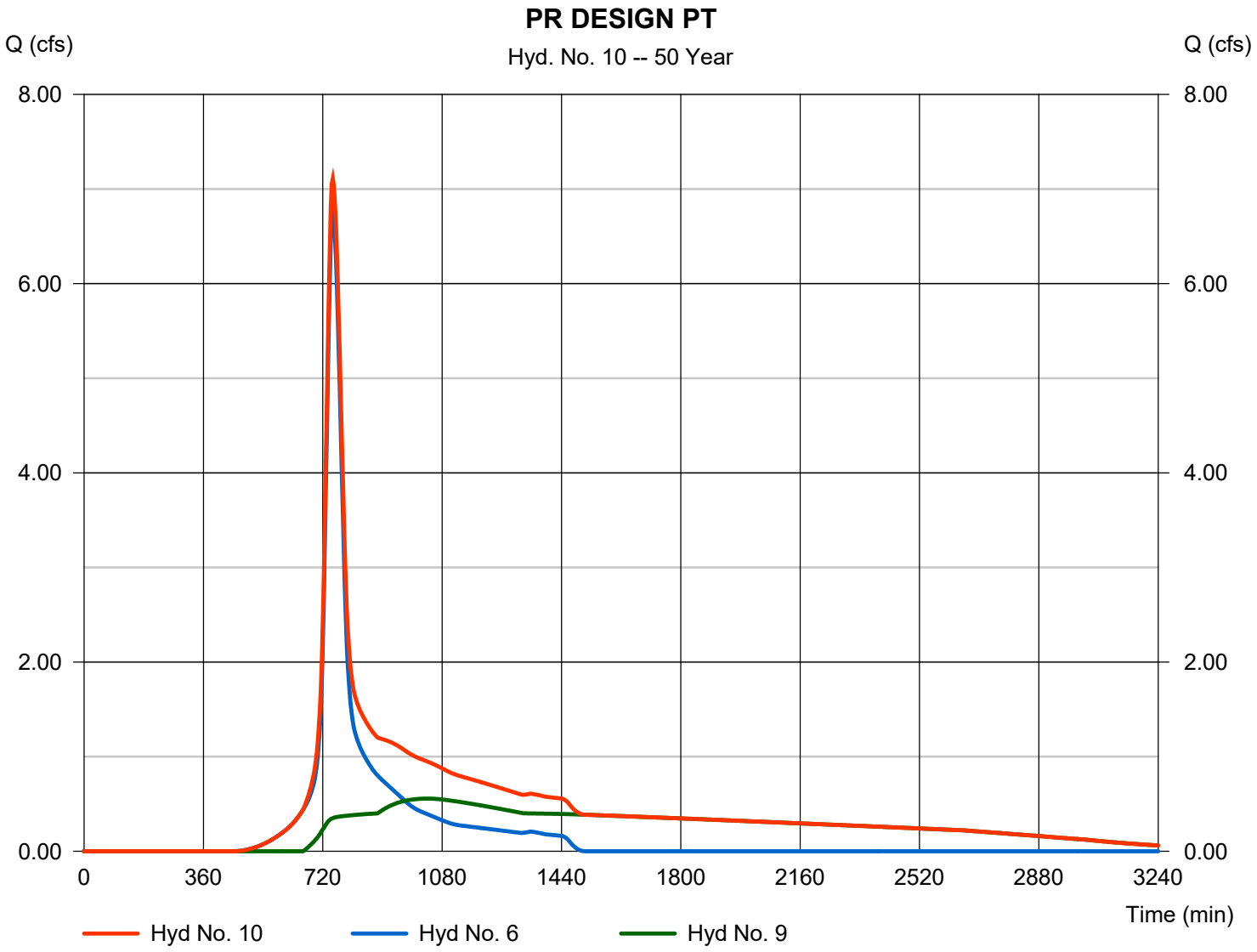


Hydrograph Report

Hyd. No. 10

PR DESIGN PT

Hydrograph type	=	Combine	Peak discharge	=	7.109 cfs
Storm frequency	=	50 yrs	Time to peak	=	750 min
Time interval	=	3 min	Hyd. volume	=	91,305 cuft
Inflow hyds.	=	6, 9	Contrib. drain. area	=	2.820 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

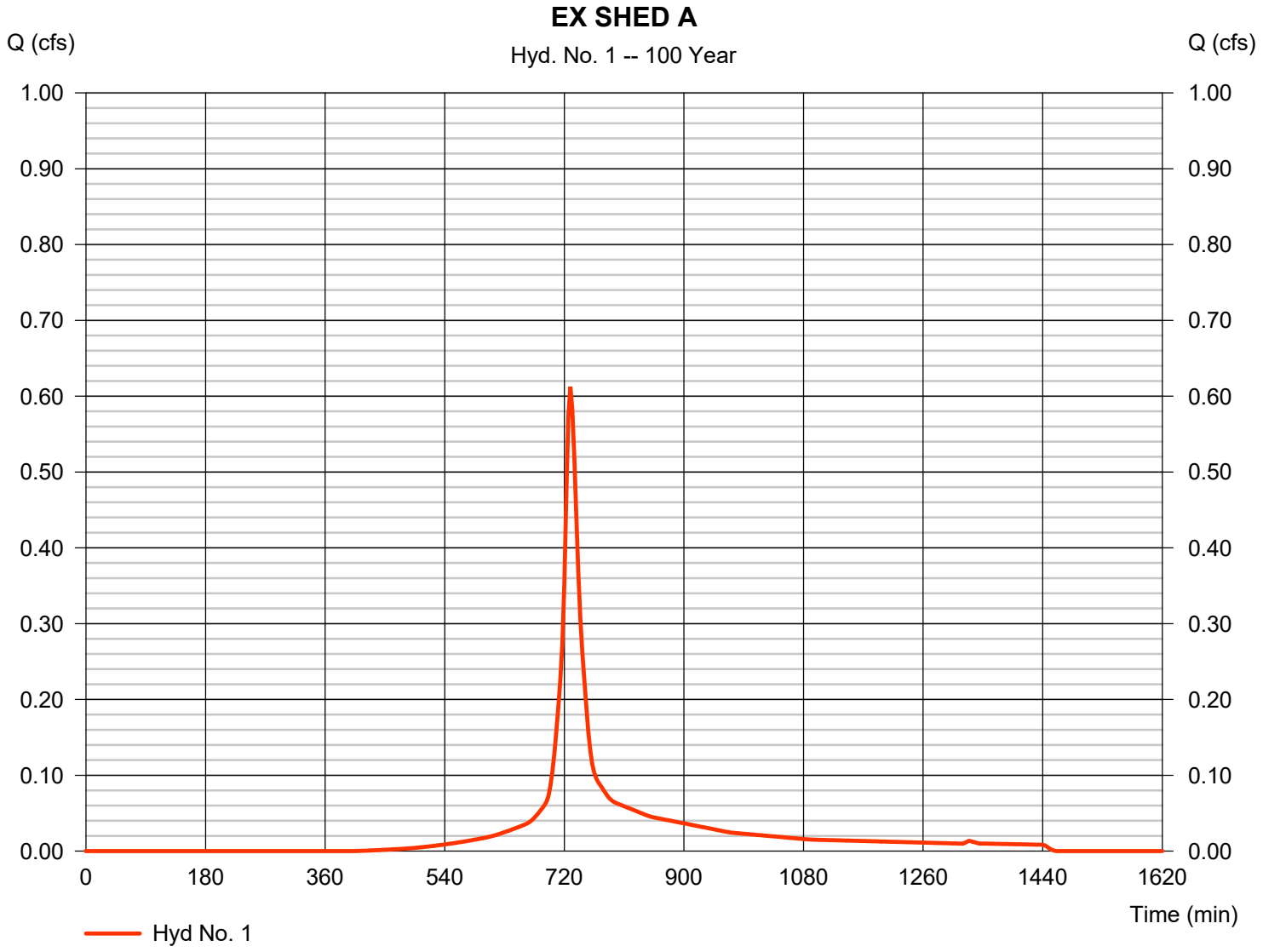
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	0.613	3	729	2,418	------	------	------	EX SHED A
2	SCS Runoff	17.50	3	750	111,753	------	------	------	EX SHED B
3	SCS Runoff	0.625	3	729	2,473	------	------	------	PR SHED A
4	SCS Runoff	4.007	3	750	25,623	------	------	------	PR SHED B
5	SCS Runoff	14.51	3	729	61,880	------	------	------	PR SHED C
6	SCS Runoff	8.014	3	750	51,247	------	------	------	PR SHED D
7	Reservoir	0.566	3	834	12,763	4	24.85	15,191	PR SW WETLAND
8	Combine	14.51	3	729	74,644	5, 7	------	------	PR COMBO #1
9	Reservoir	0.965	3	948	59,346	8	24.42	47,809	PR BASIN
10	Combine	8.392	3	750	110,593	6, 9	------	------	PR DESIGN PT

Hydrograph Report

Hyd. No. 1

EX SHED A

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.613 cfs
Storm frequency	=	100 yrs	Time to peak	=	729 min
Time interval	=	3 min	Hyd. volume	=	2,418 cuft
Drainage area	=	0.130 ac	Curve number	=	75
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	8.09 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

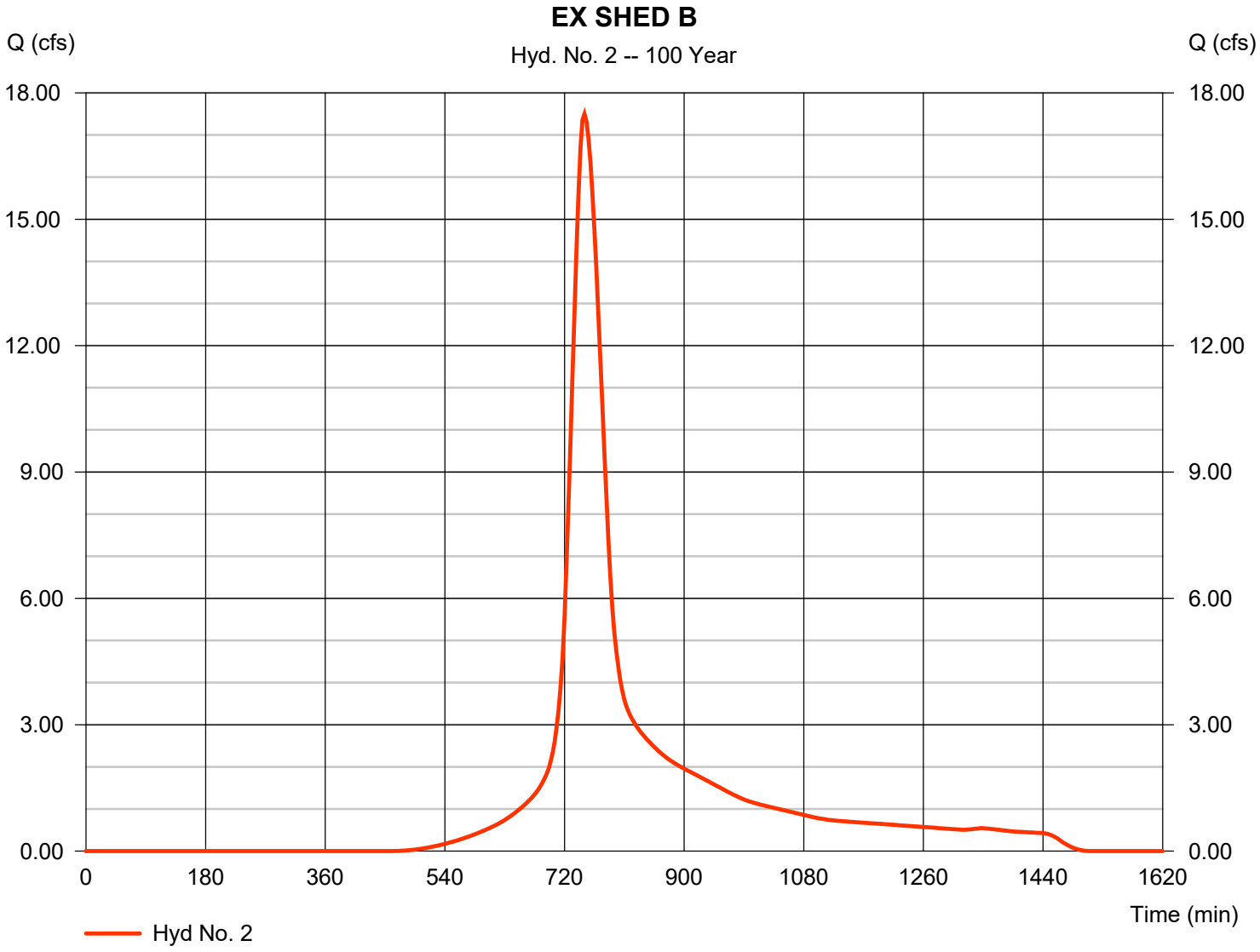


Hydrograph Report

Hyd. No. 2

EX SHED B

Hydrograph type	=	SCS Runoff	Peak discharge	=	17.50 cfs
Storm frequency	=	100 yrs	Time to peak	=	750 min
Time interval	=	3 min	Hyd. volume	=	111,753 cuft
Drainage area	=	6.610 ac	Curve number	=	71
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	44.60 min
Total precip.	=	8.09 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

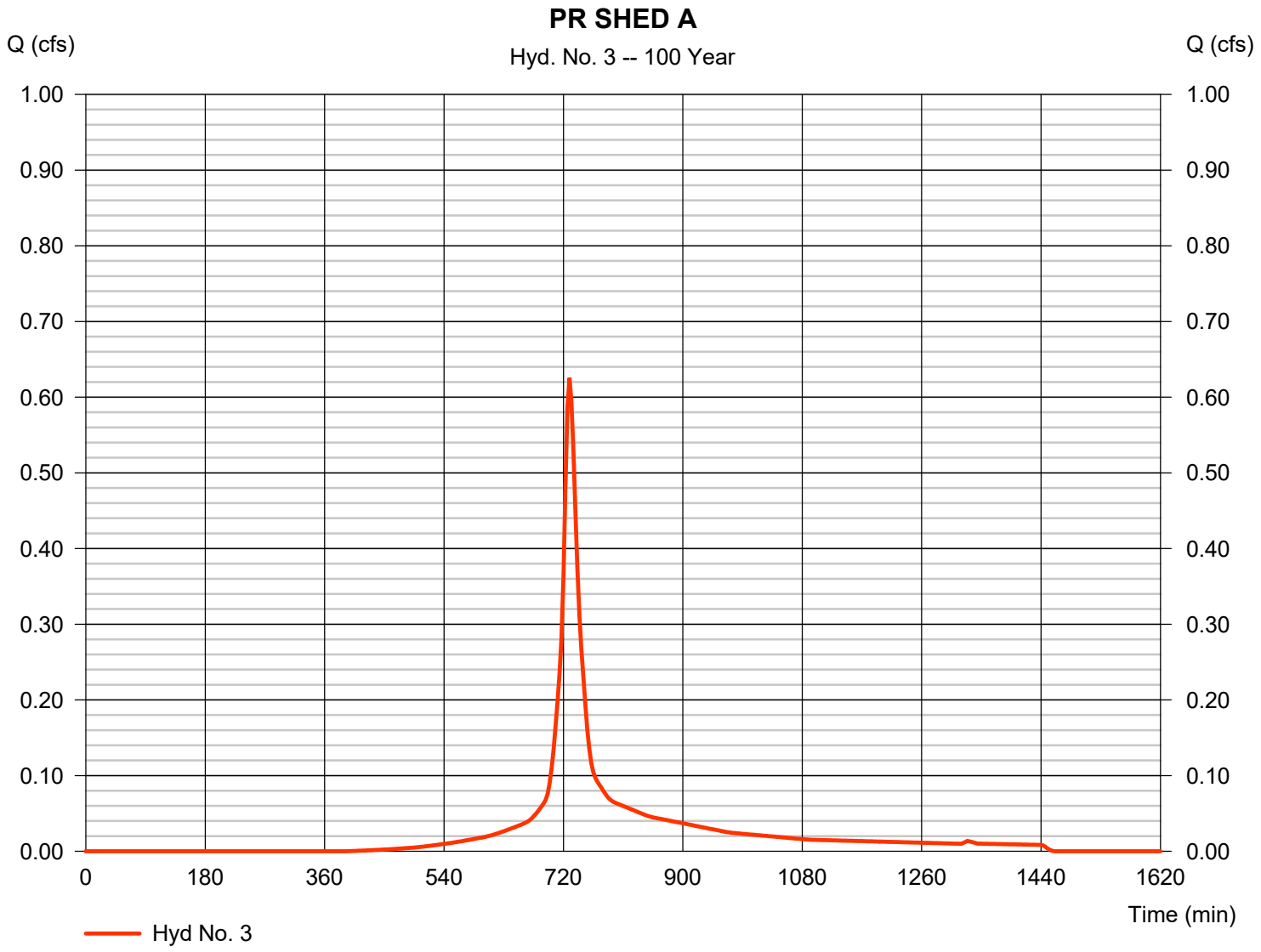


Hydrograph Report

Hyd. No. 3

PR SHED A

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.625 cfs
Storm frequency	=	100 yrs	Time to peak	=	729 min
Time interval	=	3 min	Hyd. volume	=	2,473 cuft
Drainage area	=	0.130 ac	Curve number	=	76
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.30 min
Total precip.	=	8.09 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

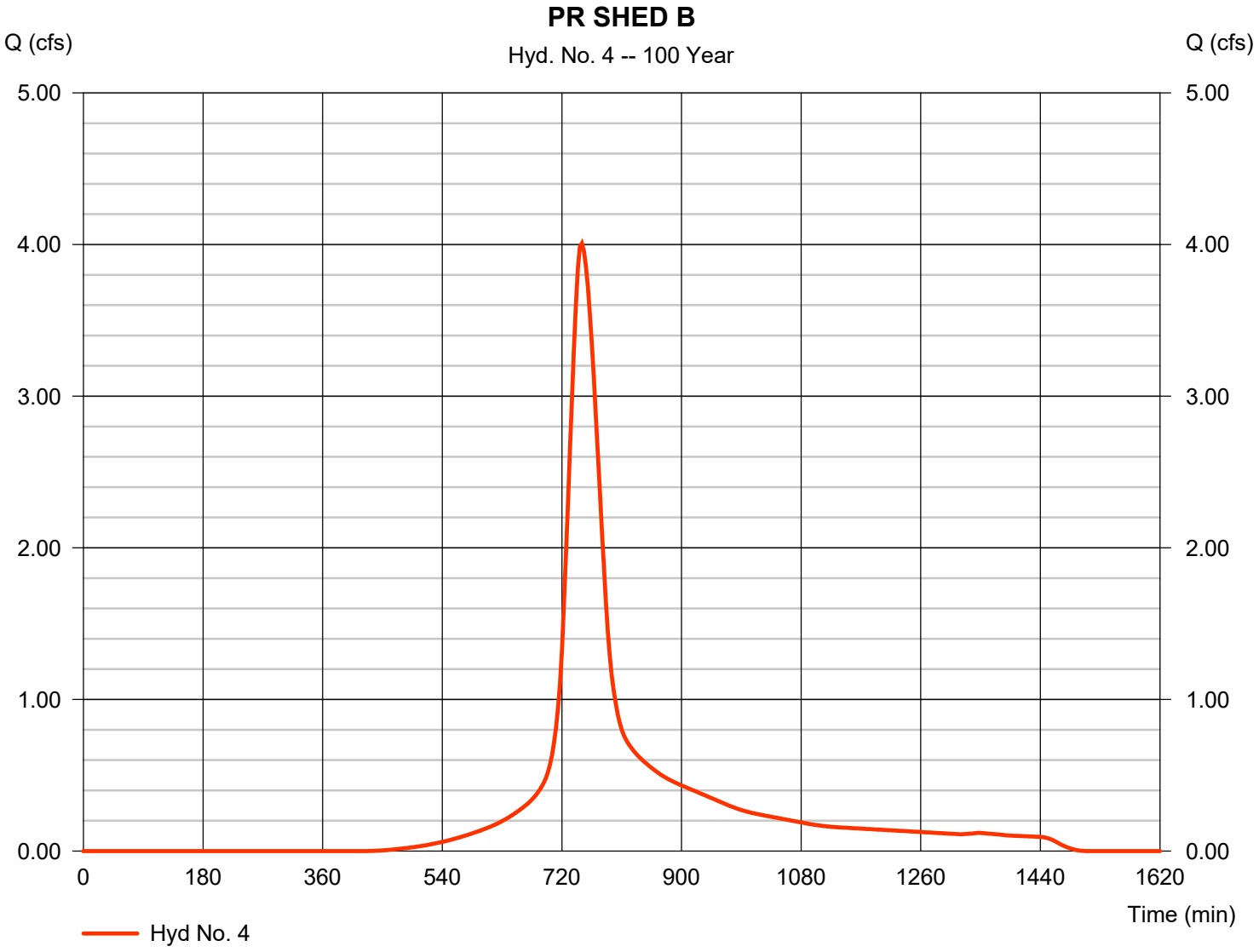


Hydrograph Report

Hyd. No. 4

PR SHED B

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.007 cfs
Storm frequency	=	100 yrs	Time to peak	=	750 min
Time interval	=	3 min	Hyd. volume	=	25,623 cuft
Drainage area	=	1.410 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	42.50 min
Total precip.	=	8.09 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

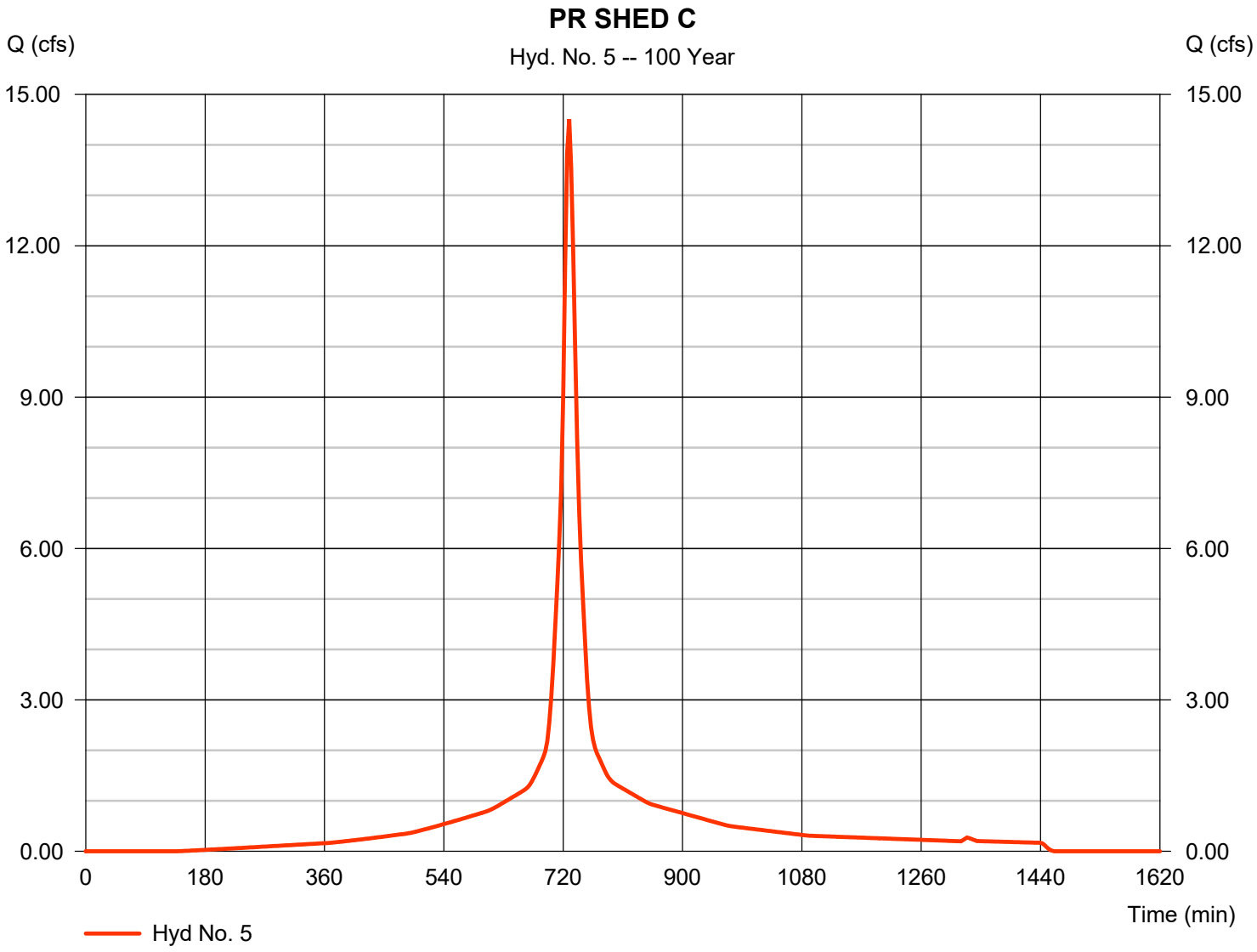


Hydrograph Report

Hyd. No. 5

PR SHED C

Hydrograph type	=	SCS Runoff	Peak discharge	=	14.51 cfs
Storm frequency	=	100 yrs	Time to peak	=	729 min
Time interval	=	3 min	Hyd. volume	=	61,880 cuft
Drainage area	=	2.390 ac	Curve number	=	92
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	8.09 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

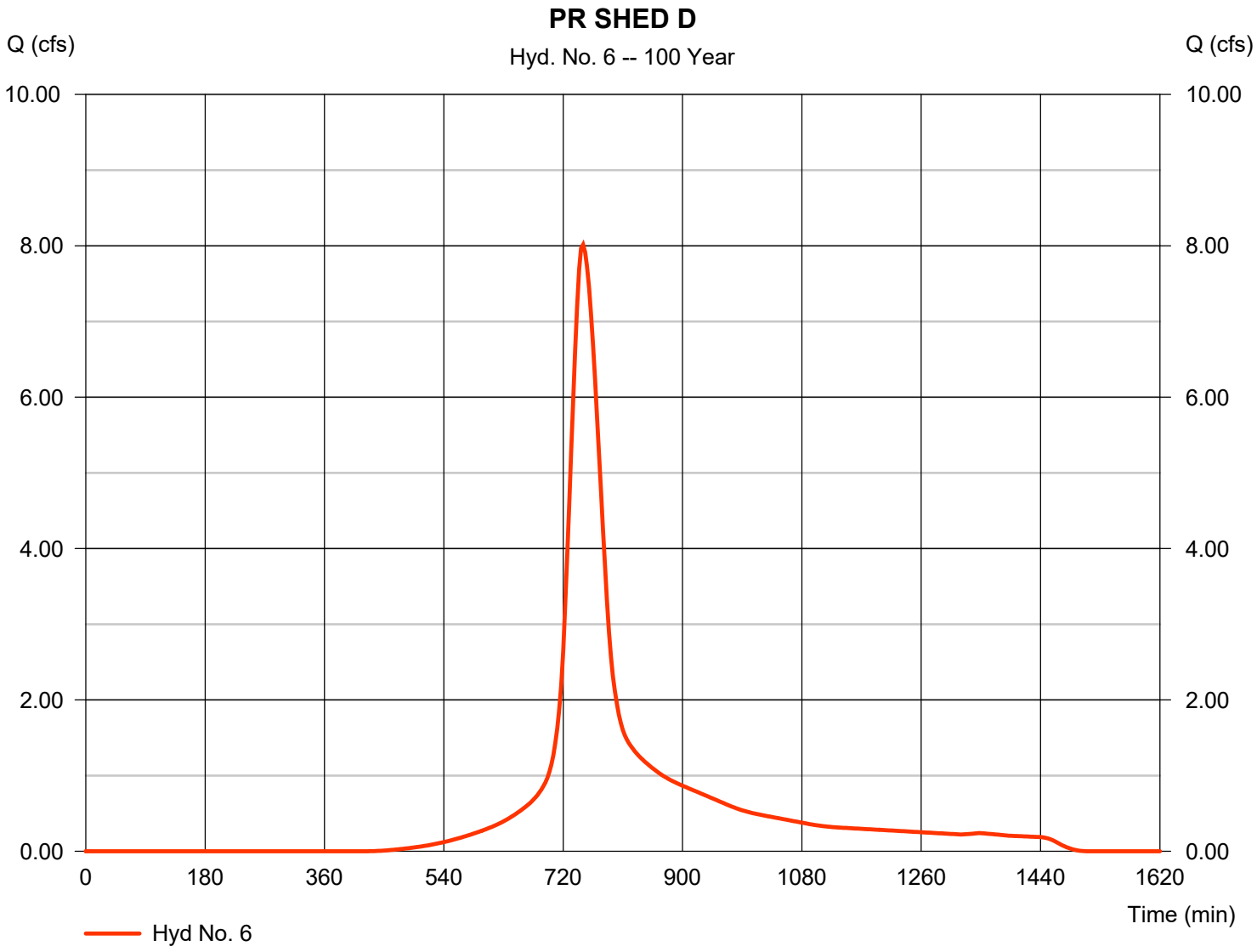


Hydrograph Report

Hyd. No. 6

PR SHED D

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.014 cfs
Storm frequency	=	100 yrs	Time to peak	=	750 min
Time interval	=	3 min	Hyd. volume	=	51,247 cuft
Drainage area	=	2.820 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	43.60 min
Total precip.	=	8.09 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



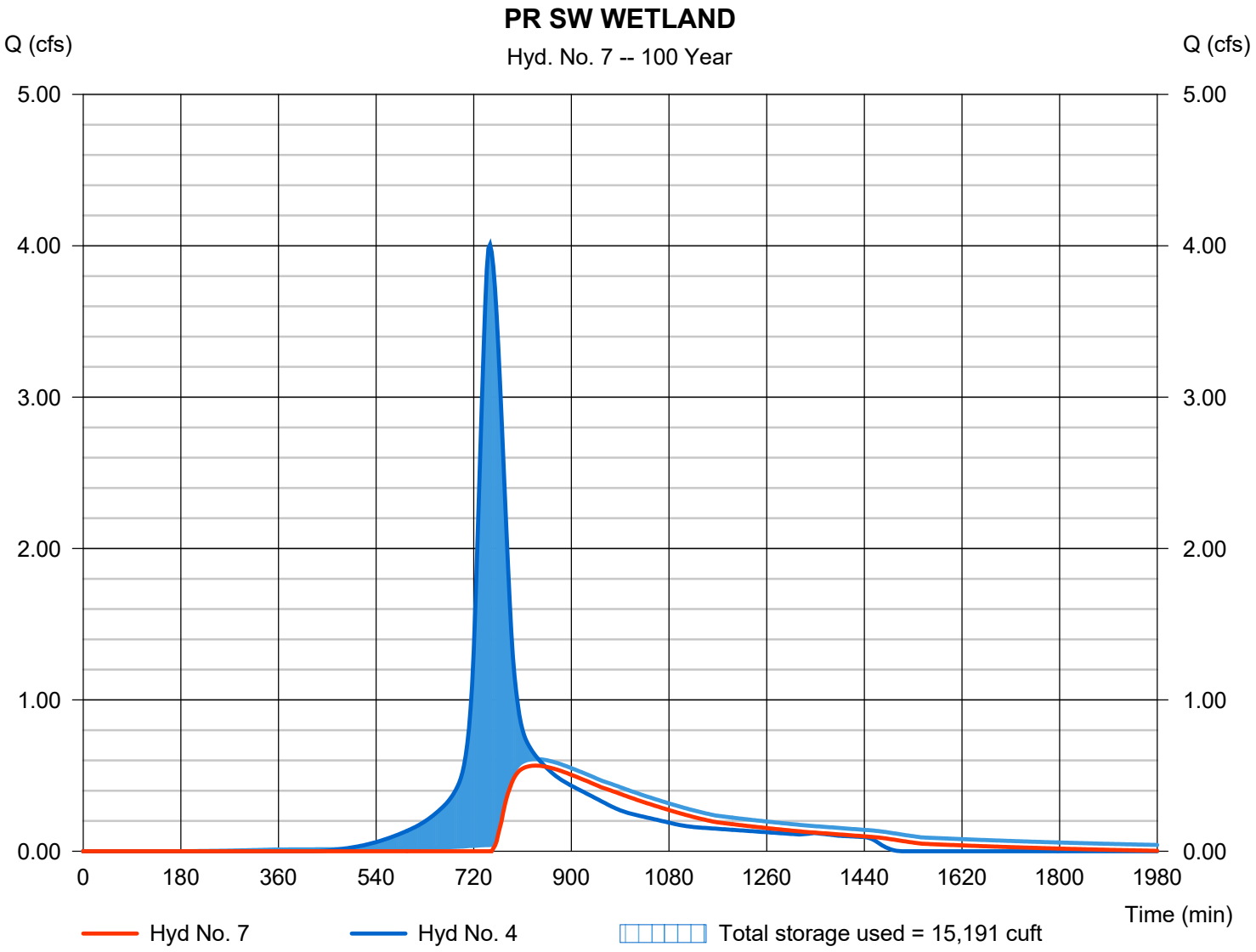
Hydrograph Report

Hyd. No. 7

PR SW WETLAND

Hydrograph type	=	Reservoir	Peak discharge	=	0.566 cfs
Storm frequency	=	100 yrs	Time to peak	=	834 min
Time interval	=	3 min	Hyd. volume	=	12,763 cuft
Inflow hyd. No.	=	4 - PR SHED B	Max. Elevation	=	24.85 ft
Reservoir name	=	SW WETLAND	Max. Storage	=	15,191 cuft

Storage Indication method used. Exfiltration extracted from Outflow.

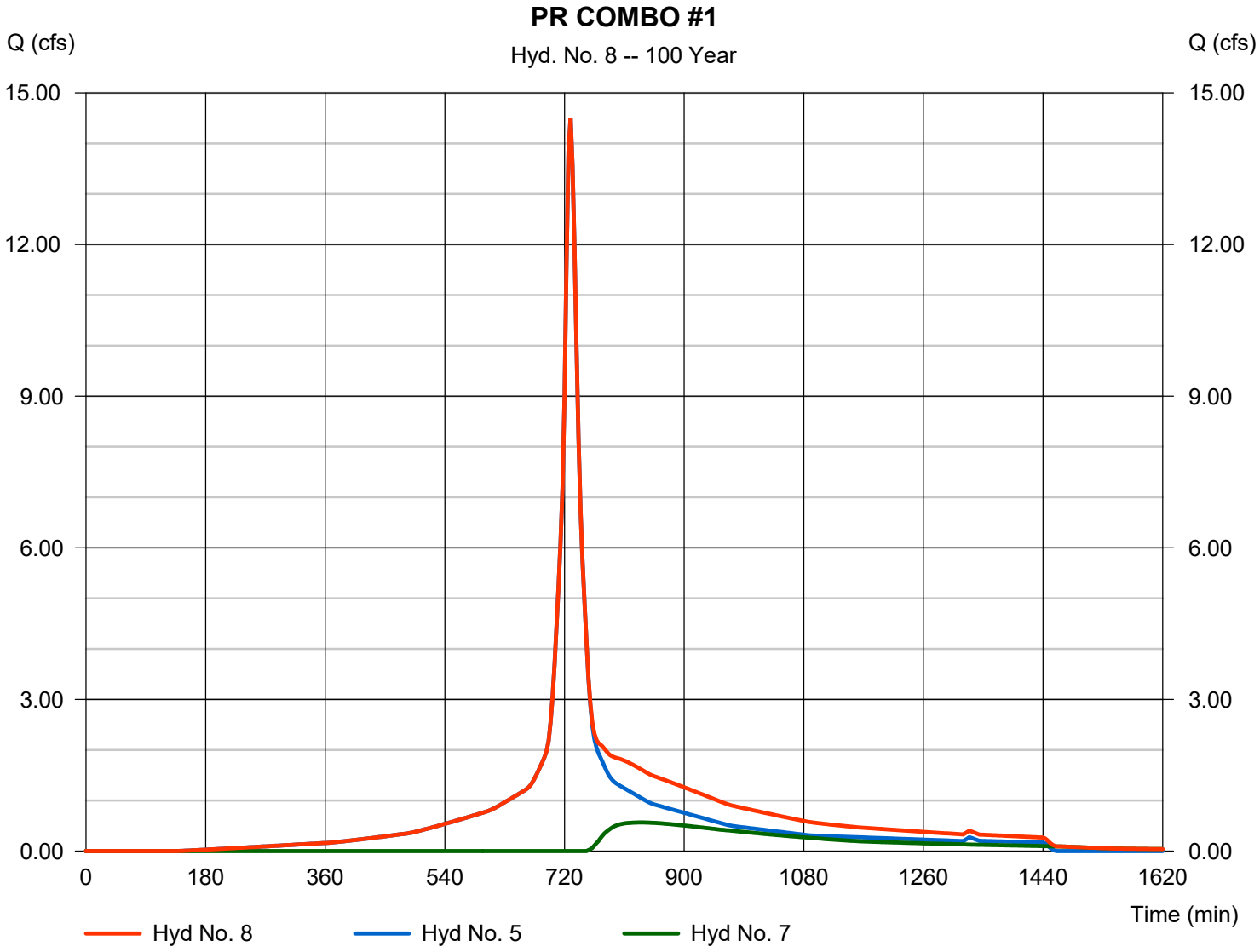


Hydrograph Report

Hyd. No. 8

PR COMBO #1

Hydrograph type	=	Combine	Peak discharge	=	14.51 cfs
Storm frequency	=	100 yrs	Time to peak	=	729 min
Time interval	=	3 min	Hyd. volume	=	74,644 cuft
Inflow hyds.	=	5, 7	Contrib. drain. area	=	2.390 ac



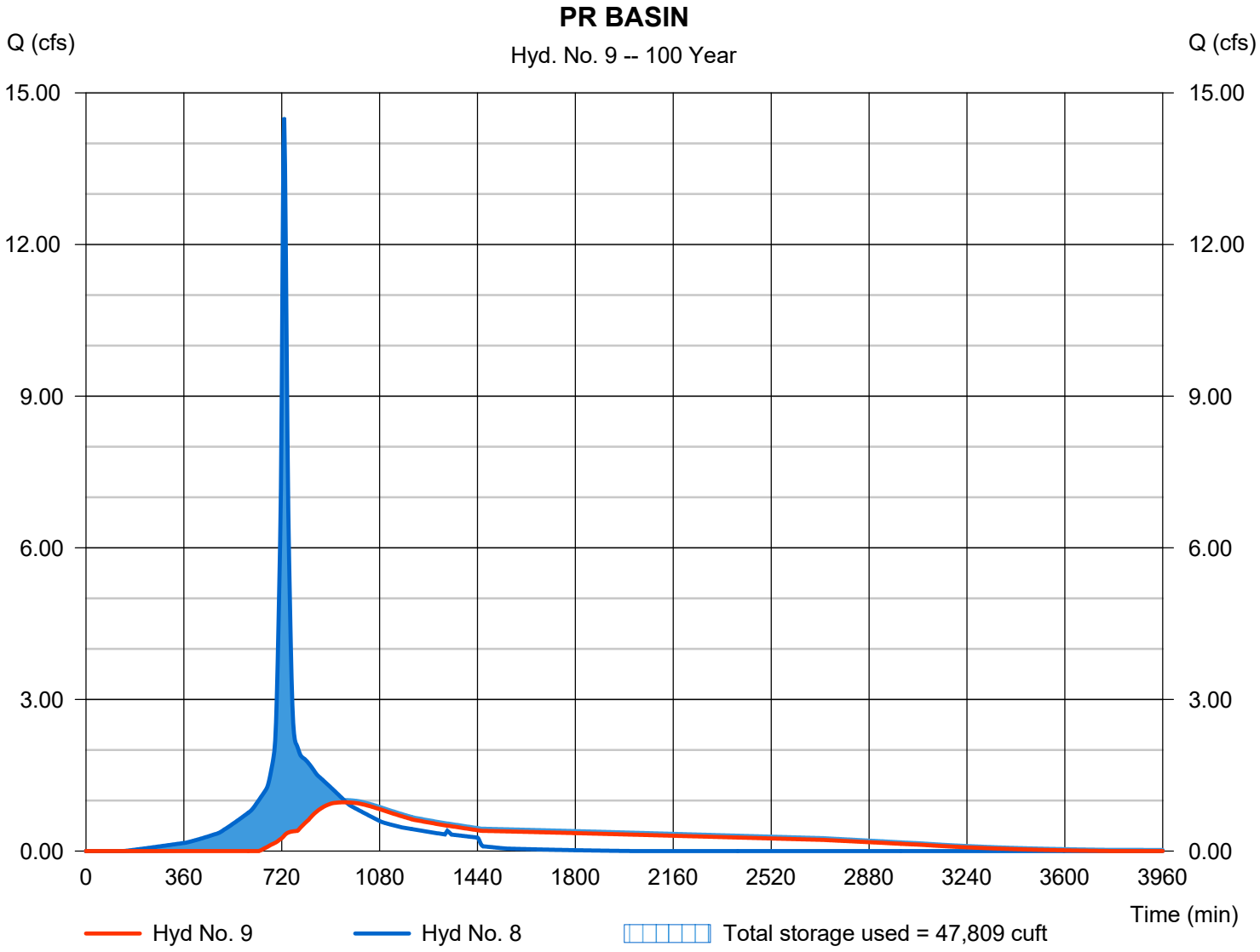
Hydrograph Report

Hyd. No. 9

PR BASIN

Hydrograph type	=	Reservoir	Peak discharge	=	0.965 cfs
Storm frequency	=	100 yrs	Time to peak	=	948 min
Time interval	=	3 min	Hyd. volume	=	59,346 cuft
Inflow hyd. No.	=	8 - PR COMBO #1	Max. Elevation	=	24.42 ft
Reservoir name	=	BASIN #1	Max. Storage	=	47,809 cuft

Storage Indication method used. Exfiltration extracted from Outflow.

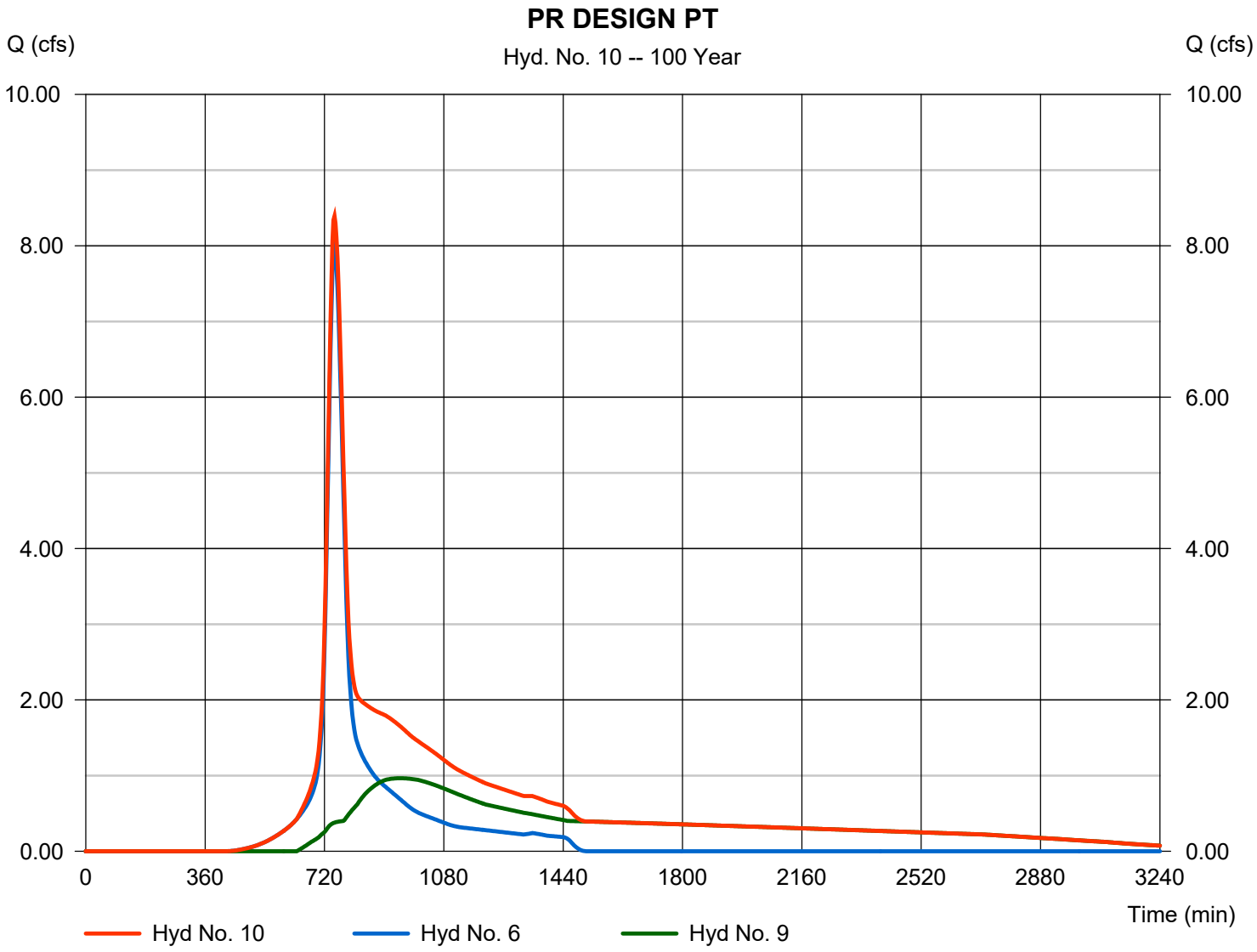


Hydrograph Report

Hyd. No. 10

PR DESIGN PT

Hydrograph type	=	Combine	Peak discharge	=	8.392 cfs
Storm frequency	=	100 yrs	Time to peak	=	750 min
Time interval	=	3 min	Hyd. volume	=	110,593 cuft
Inflow hyds.	=	6, 9	Contrib. drain. area	=	2.820 ac



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	--------
2	69.8703	13.1000	0.8658	--------
3	0.0000	0.0000	0.0000	--------
5	79.2597	14.6000	0.8369	--------
10	88.2351	15.5000	0.8279	--------
25	102.6072	16.5000	0.8217	--------
50	114.8193	17.2000	0.8199	--------
100	127.1596	17.8000	0.8186	--------

File name: SampleFHA.idf

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	5.69	4.61	3.89	3.38	2.99	2.69	2.44	2.24	2.07	1.93	1.81	1.70
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	6.57	5.43	4.65	4.08	3.65	3.30	3.02	2.79	2.59	2.42	2.27	2.15
10	7.24	6.04	5.21	4.59	4.12	3.74	3.43	3.17	2.95	2.77	2.60	2.46
25	8.25	6.95	6.03	5.34	4.80	4.38	4.02	3.73	3.48	3.26	3.07	2.91
50	9.04	7.65	6.66	5.92	5.34	4.87	4.49	4.16	3.88	3.65	3.44	3.25
100	9.83	8.36	7.30	6.50	5.87	5.36	4.94	4.59	4.29	4.03	3.80	3.60

Tc = time in minutes. Values may exceed 60.

Precip. file name: Sample.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	2.86	3.45	4.36	5.12	5.24	6.36	7.20	8.09
SCS 6-Hr	0.00	1.80	0.00	0.00	2.60	0.00	0.00	4.00
Huff-1st	0.00	1.55	0.00	2.75	4.00	5.38	6.50	8.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	1.75	0.00	2.80	3.90	5.25	6.00	7.10