Preliminary
Stormwater Management Report
for
Nickajack Retreat

Land Lots 331, 332, 389, & 390
17th District, 2nd Section
City of Smyrna
Cobb County, Georgia

prepared by:

Gaskins
ENGINEERING • SURVEYING • PLANNING/CONSULTING • CONSTRUCTION MGMT

SMALL BUSINESS HALL OF FAME

558 Old Norcross Rd, Suite 204
Lawrenceville, GA 30046
(770)-424-7168

12/10/18

OBJECTIVE

The objective of this preliminary study is to provide an overview of the hydrologic impact that will result from the construction of a single-family development. In general, the primary hydrologic impact of development is an increase in peak storm water runoff rates from the site. This report provides an assessment of proposed on-site storm water management facilities.

SITE DESCRIPTION

The existing property is located on Cooper Lake Rd in the City of Smyrna. The site is wooded with an abandoned building located toward the west of the property. The site is to be graded and paved with a single street. Currently, the runoff from the site flows into Nickajack Creek.

The entirety of the Pre-developed site drains to the north west into Nichajack Creek with 11,947 acres (Basin B1) draining to Nickajack creek and flowing through the onsite Basin A. There is a small offsite area draining onto the site from the southern property line, denoted as Basin B2.

HYDROLOGIC EVALUATION

Hydrologic data for the evaluation was based on field run topographic survey of the site, Cobb County GIS topography, USGS Quad Maps of the surrounding areas and the development plan for the tract. This data was used to compute peak storm water runoff rates for the 2, 5, 10, 25, 50, and 100 years events.

In this study, peak flow rates for all Study Points were determined using the SCS Method. Water quality storage volumes and Channel Protection Volumes were determined using the Georgia Stormwater Management Manual specifications.

Existing conditions were modeled at the Study Point as detailed in the basin maps. Proposed conditions were modeled looking at the same study point from the existing conditions. A summary of existing and proposed flows are provided later in this report.

DEVELOPMENT SUMMARY AND DOWNSTREAM ANALYSIS

The Post Developed Site will be subdivided into 19 lots. The onsite drainage area was split into 3 sub-basins. Basin A1 drains to the proposed stormwater management facility, while basins A2 and A3 bypass the proposed pond and drain directly to Nickajack Creek. Water quality will be provided by the proposed stormwater management facility and downspout disconnects.

The proposed stormwater management facility was analyzed for two separate designs. One stormwater management facility design provided water quality, channel protection, and detention. The other stormwater management facility design provided only water quality. A preliminary design of the proposed water quality facility is provided later in this report.

All the developed basins flow to Study Point A, which is also the study point for the downstream analysis. The basin for Nickajack Creek is approximately 12,000 acres at Study Point A, while the site is 7.7 acres.

RECOMMENDATIONS & CONCLUSIONS

This preliminary study demonstrates that providing onsite detention would increase the peak flow rates in Nickajack Creek Basin more than would result from releasing the stormwater from the site un-detained - except for the 2 and 5 year storms. This is due to the relative size difference in the site basin and the Nickjack Creek Basin, and the fact that routing stormwater through a detention facility would result in delayed peak time, thereby contributing more flow to the Nickajack Creek at the time that runoff from the Nickajack Creek basin peaks.

The study provides three models. The first is existing conditions. The second is a developed model with water quality only stormwater management facility. The third model represents developed conditions with the developed Basin A1 being routed through a detention facility to determine the impact that this would have on the peak flows. This detention facility is not being proposed to be used. It is included only to show that detention results in a greater increase in peak flow rates at the study points, except for the 2 and 5 year storms. A summary of existing and proposed flows at the study point is included in this report.

Water quality for the site will be provided per the Georgia Stormwater Management Manual and City of Smyrna requirements.

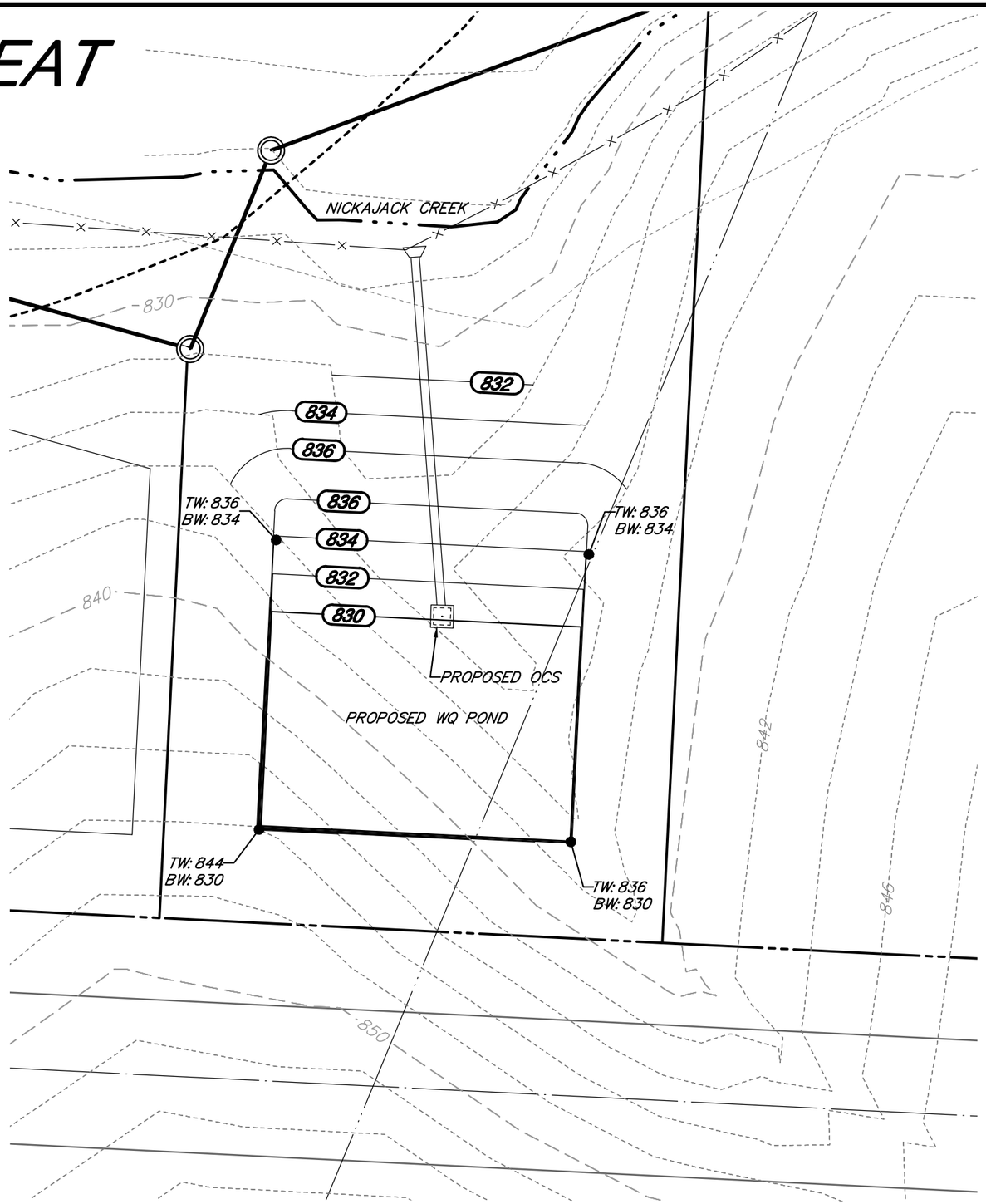
FLOOD PROTECTION SUMMARY TABLES

Study Point W/ Detention			
Peak Flow Summary			
Storm (year)	Existing (cfs)	Proposed (cfs)	% Reduction
2	2721.95	2722.01	**-0.002%**
5	3762.57	3762.60	**-0.001%**
10	4876.19	4876.53	**-0.007%**
25	6442.73	6443.11	**-0.006%**
50	7660.68	7661.09	**-0.005%**
100	8906.59	8907.03	**-0.005%**
Study Point WQ Only			
Peak Flow Summary			
Storm (year)	Existing (cfs)	Proposed (cfs)	% Reduction
2	2721.95	2722.20	**-0.009%**
5	3762.57	3762.85	**-0.007%**
10	4876.19	4876.50	**-0.006%**
25	6442.73	6443.07	**-0.005%**
50	7660.68	7661.04	**-0.005%**
100	8906.59	8906.97	**-0.004%**

Preliminary Water Quality Facility Design

NICKAJACK RETREAT

WQ POND DETAILS



NORTH

20 0 20 40

SCALE IN FEET

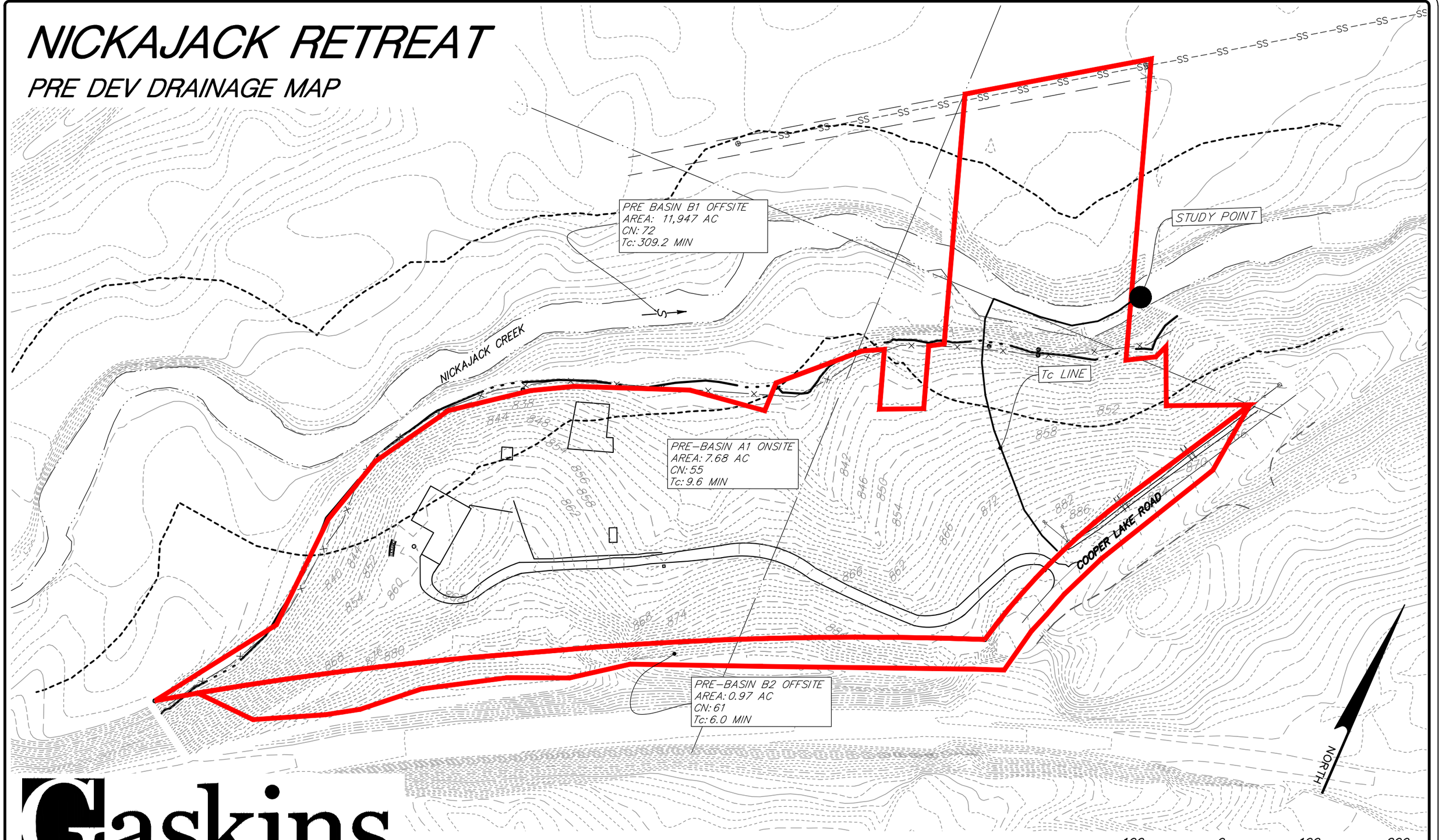
Gaskins

ENGINEERING • SURVEYING • LAND PLANNING • ENVIRONMENTAL

Basin Maps

NICKAJACK RETREAT

PRE DEV DRAINAGE MAP



Gaskins

ENGINEERING • SURVEYING • LAND PLANNING • ENVIRONMENTAL

NICKAJACK RETREAT

POST DEVELOPED DRAINAGE MAP

POST BASIN B1 OFFSITE
AREA: 11,947 AC
CN: 72
Tc:

STUDY POINT

NICKAJACK CREEK

Tc LINE

POST BASIN A2 –
ONSITE BYPASS
AREA: 2.0 AC
CN: 63.7
Tc: 8.8 MIN

POST BASIN A3 –
ONSITE BYPASS
AREA: 2.45 AC
CN: 62.5
Tc: 9.3 MIN

SWM
FACILITY

Tc LINE

POST BASIN A1 TO
POND – ONSITE
AREA: 3.22 AC
CN: 74.9
Tc: 11.1 MIN

COOPER LAKE ROAD

POST BASIN B3 –
OFFSITE BYPASS
AREA: 0.28 AC
CN: 55
Tc: 6.0 MIN

POST BASIN B2 TO
POND – OFFSITE
AREA: 0.69 AC
CN: 61
Tc: 6.0 MIN

NORTH

100 0 100 200

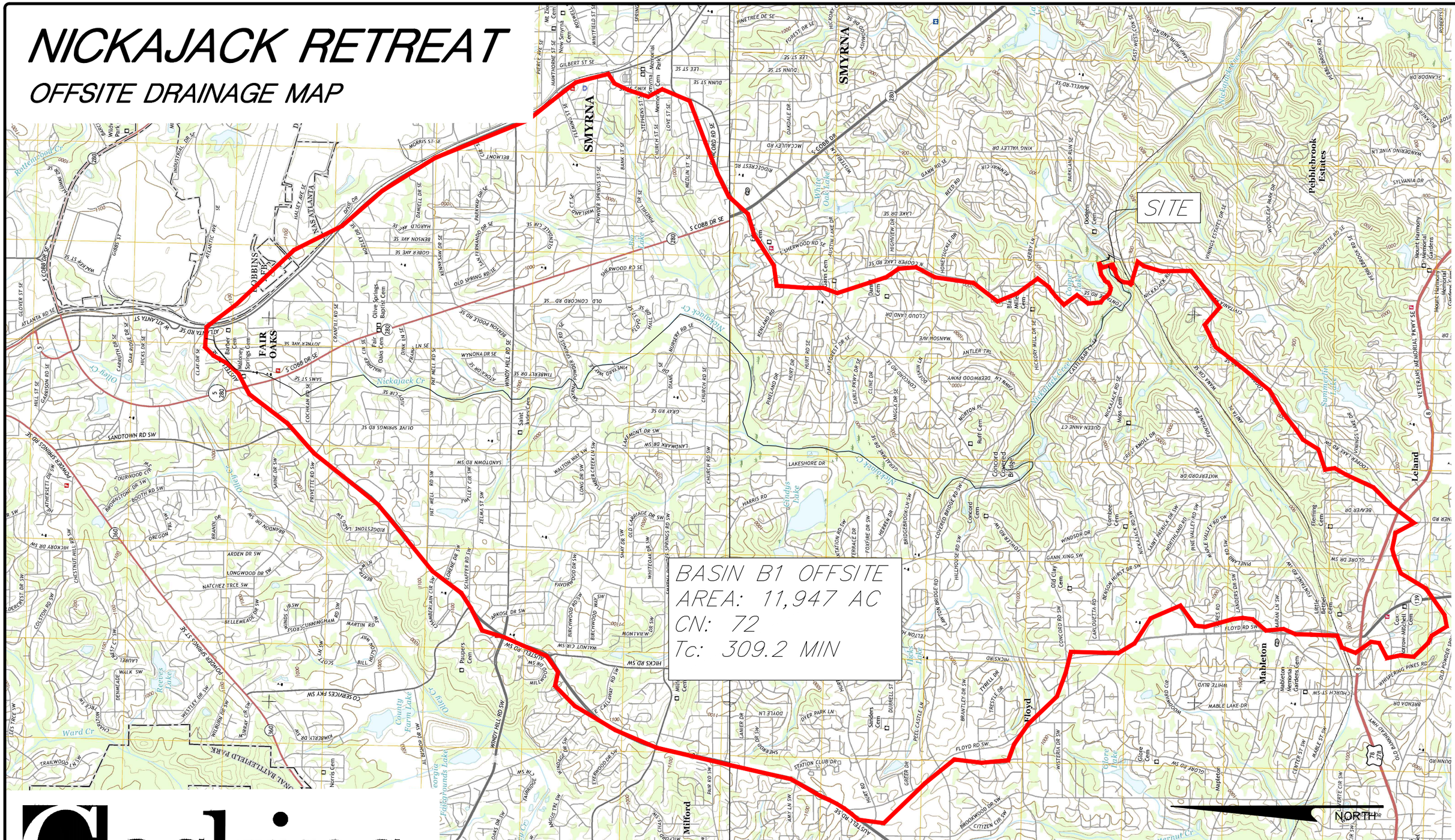
SCALE IN FEET

Gaskins

ENGINEERING • SURVEYING • LAND PLANNING • ENVIRONMENTAL

NICKAJACK RETREAT

OFFSITE DRAINAGE MAP



Gaskins

ENGINEERING • SURVEYING • LAND PLANNING • ENVIRONMENTAL

Hydrology Calculations

Hydrograph Return Period Recap

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

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	1.870	5.150	-------	9.422	14.23	21.32	27.04	33.03	Pre Basin A1 - Onsite
2	SCS Runoff	------	0.725	1.336	-------	2.027	2.778	3.851	4.696	5.568	Pre Basin B2 - Offsite
4	SCS Runoff	------	1780.89	2721.59	-------	3762.05	4875.49	6441.78	7659.55	8905.27	Basin B1 - Offsite
6	Combine	1, 2, 4,	1781.10	2721.95	-------	3762.57	4876.19	6442.73	7660.68	8906.59	Pre SP
10	SCS Runoff	------	5.457	7.919	-------	10.57	13.33	17.12	20.00	22.91	Post Basin A1 to Pond - Onsite
11	SCS Runoff	------	0.573	1.022	-------	1.526	2.072	2.848	3.457	4.084	Post B2 to Pond - Offsite
12	Combine	10, 11	5.903	8.778	-------	11.84	15.04	19.44	22.81	26.21	Combine to Pond
13	Reservoir	12	0.108	0.154	-------	0.194	0.654	2.318	8.082	16.16	Routed Pond
15	SCS Runoff	------	1.737	3.020	-------	4.453	5.999	8.191	9.907	11.68	Post Basin A2 - Onsite Bypass
16	SCS Runoff	------	1.887	3.402	-------	5.106	6.955	9.588	11.66	13.79	Post Basin A3 - Onsite Bypass
17	SCS Runoff	------	0.083	0.219	-------	0.386	0.574	0.848	1.069	1.300	Post Basin B3 - Offsite Bypass
20	Combine	4, 13, 15, 16, 17,	1781.16	2722.01	-------	3762.60	4876.52	6443.11	7661.09	8907.02	Post SP w/ Detention
23	Combine	10, 11,	5.903	8.778	-------	11.84	15.04	19.44	22.81	26.21	Combine to WQ Pond
24	Reservoir	23	1.115	6.945	-------	11.62	14.80	19.24	22.61	25.59	Routed WQ Pond
25	Combine	4, 15, 16, 17, 24	1781.30	2722.19	-------	3762.84	4876.49	6443.06	7661.03	8906.96	Post SP w/ WQ Pond

Hydrograph Summary Report

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

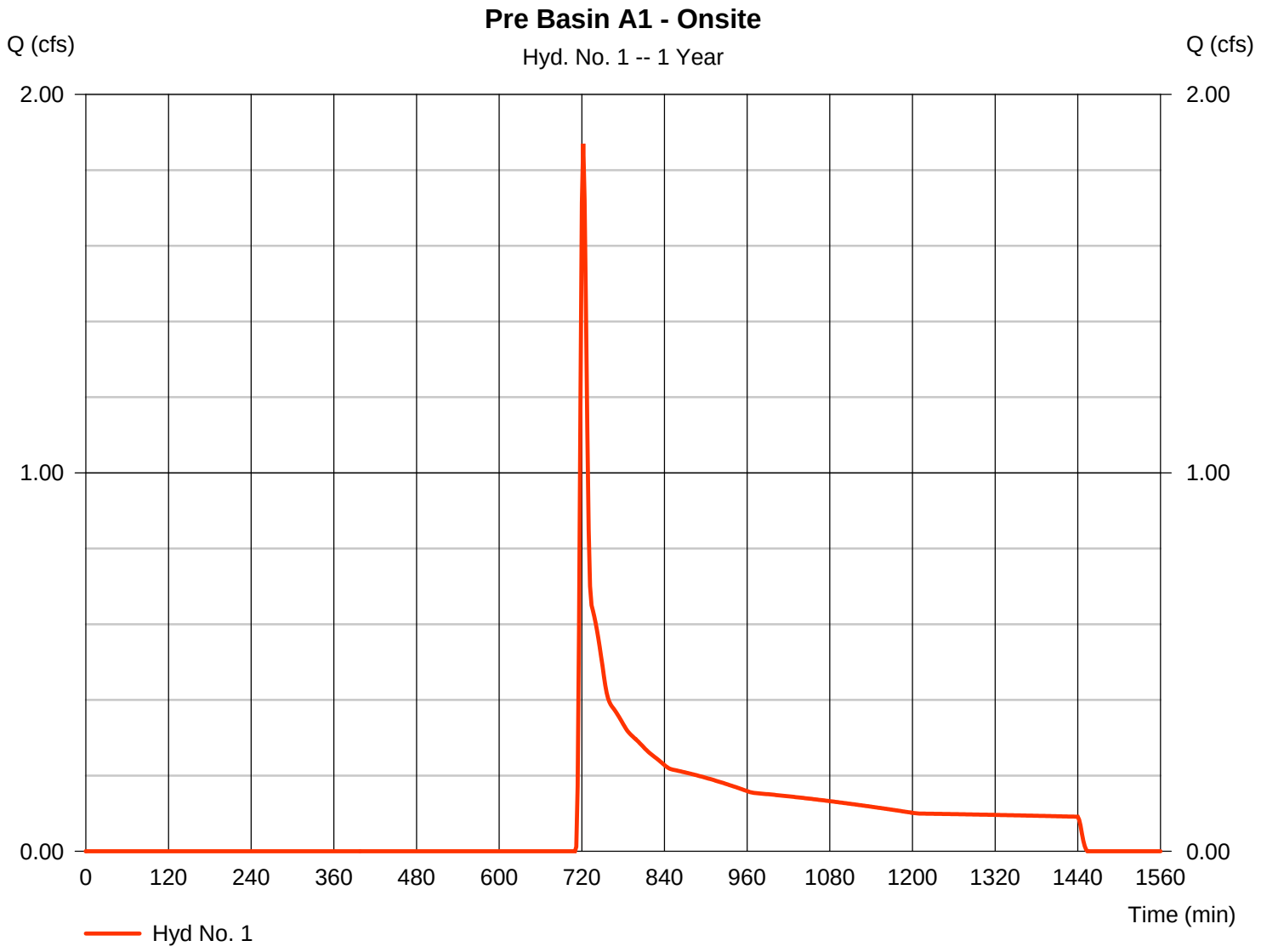
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	1.870	2	722	8,349	------	------	------	Pre Basin A1 - Onsite
2	SCS Runoff	0.725	2	718	1,687	------	------	------	Pre Basin B2 - Offsite
4	SCS Runoff	1780.89	2	920	44,625,304	------	------	------	Basin B1 - Offsite
6	Combine	1781.10	2	920	44,635,320	1, 2, 4,	------	------	Pre SP
10	SCS Runoff	5.457	2	722	14,436	------	------	------	Post Basin A1 to Pond - Onsite
11	SCS Runoff	0.573	2	718	1,294	------	------	------	Post B2 to Pond - Offsite
12	Combine	5.903	2	720	15,730	10, 11	------	------	Combine to Pond
13	Reservoir	0.108	2	1266	9,337	12	836.77	11,579	Routed Pond
15	SCS Runoff	1.737	2	720	4,519	------	------	------	Post Basin A2 - Onsite Bypass
16	SCS Runoff	1.887	2	720	5,085	------	------	------	Post Basin A3 - Onsite Bypass
17	SCS Runoff	0.083	2	720	285	------	------	------	Post Basin B3 - Offsite Bypass
20	Combine	1781.16	2	920	44,644,284	4, 13, 15, 16, 17,	------	------	Post SP w/ Detention
23	Combine	5.903	2	720	15,730	10, 11,	------	------	Combine to WQ Pond
24	Reservoir	1.115	2	740	9,390	23	833.15	6,666	Routed WQ Pond
25	Combine	1781.30	2	920	44,644,588	4, 15, 16, 17, 24	------	------	Post SP w/ WQ Pond

Hydrograph Report

Hyd. No. 1

Pre Basin A1 - Onsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.870 cfs
Storm frequency	=	1 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	8,349 cuft
Drainage area	=	7.680 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	9.60 min
Total precip.	=	3.36 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

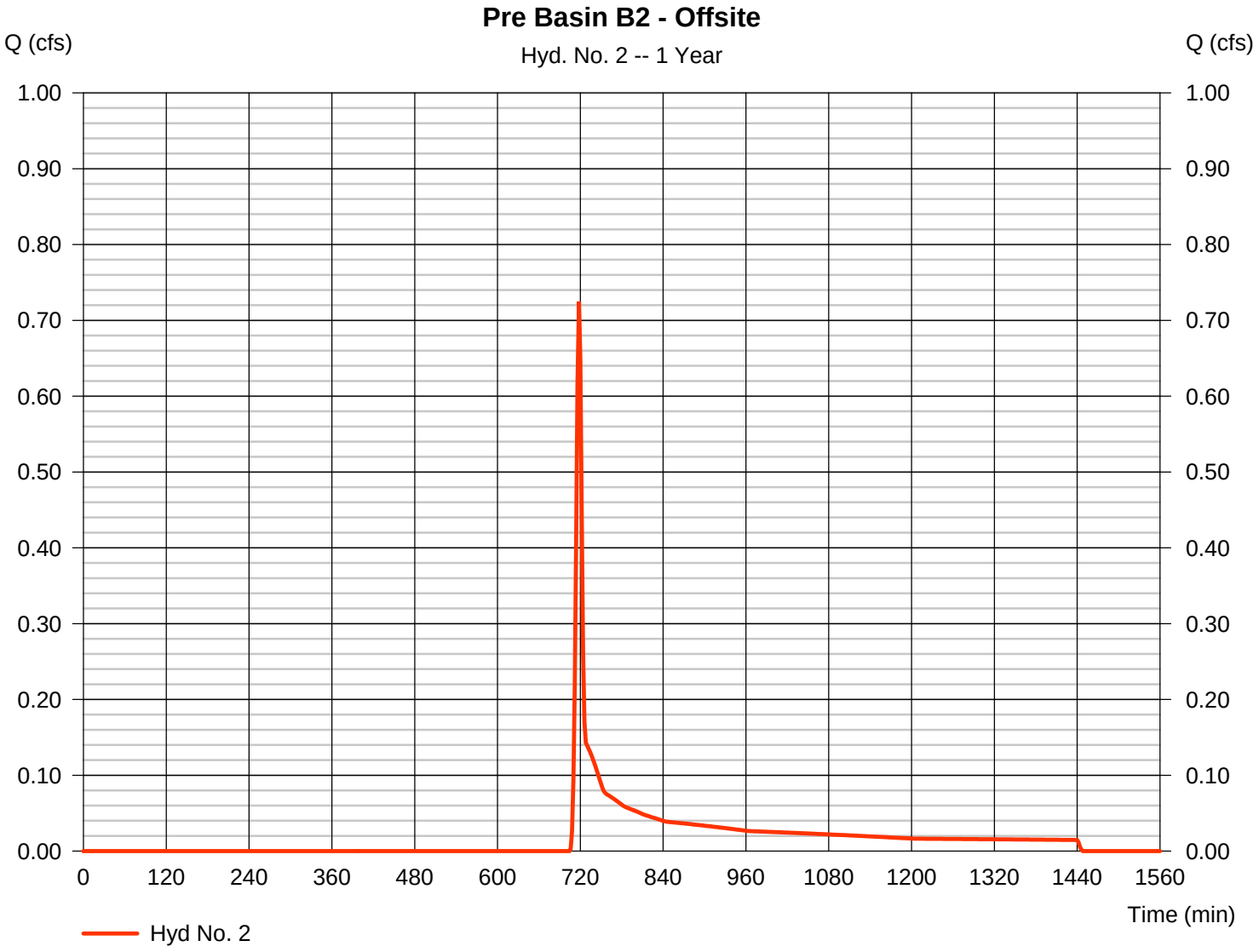


Hydrograph Report

Hyd. No. 2

Pre Basin B2 - Offsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.725 cfs
Storm frequency	=	1 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	1,687 cuft
Drainage area	=	0.970 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.36 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

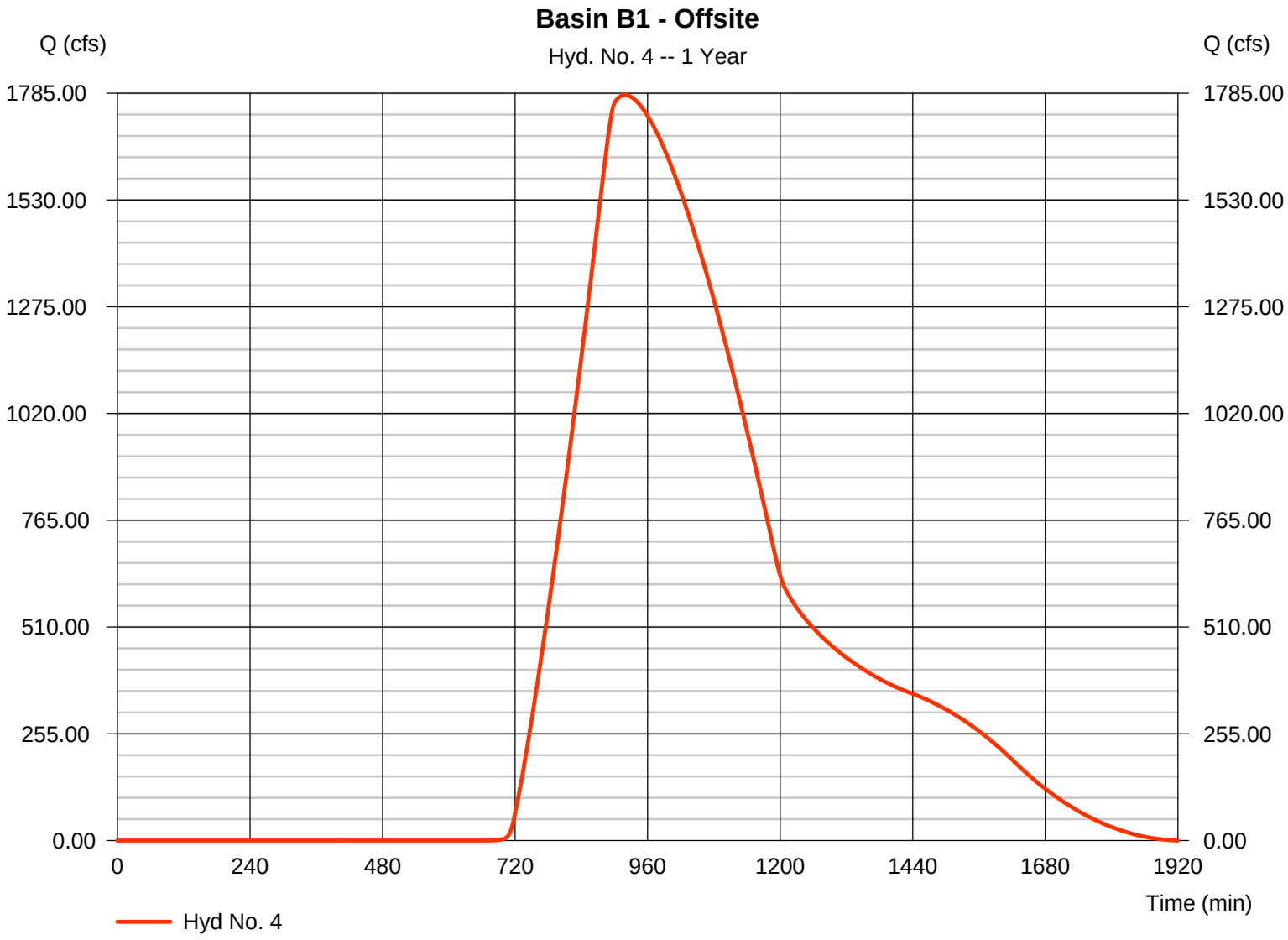


Hydrograph Report

Hyd. No. 4

Basin B1 - Offsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	1780.89 cfs
Storm frequency	=	1 yrs	Time to peak	=	920 min
Time interval	=	2 min	Hyd. volume	=	44,625,304 cuft
Drainage area	=	11947.000 ac	Curve number	=	72
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	309.20 min
Total precip.	=	3.36 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

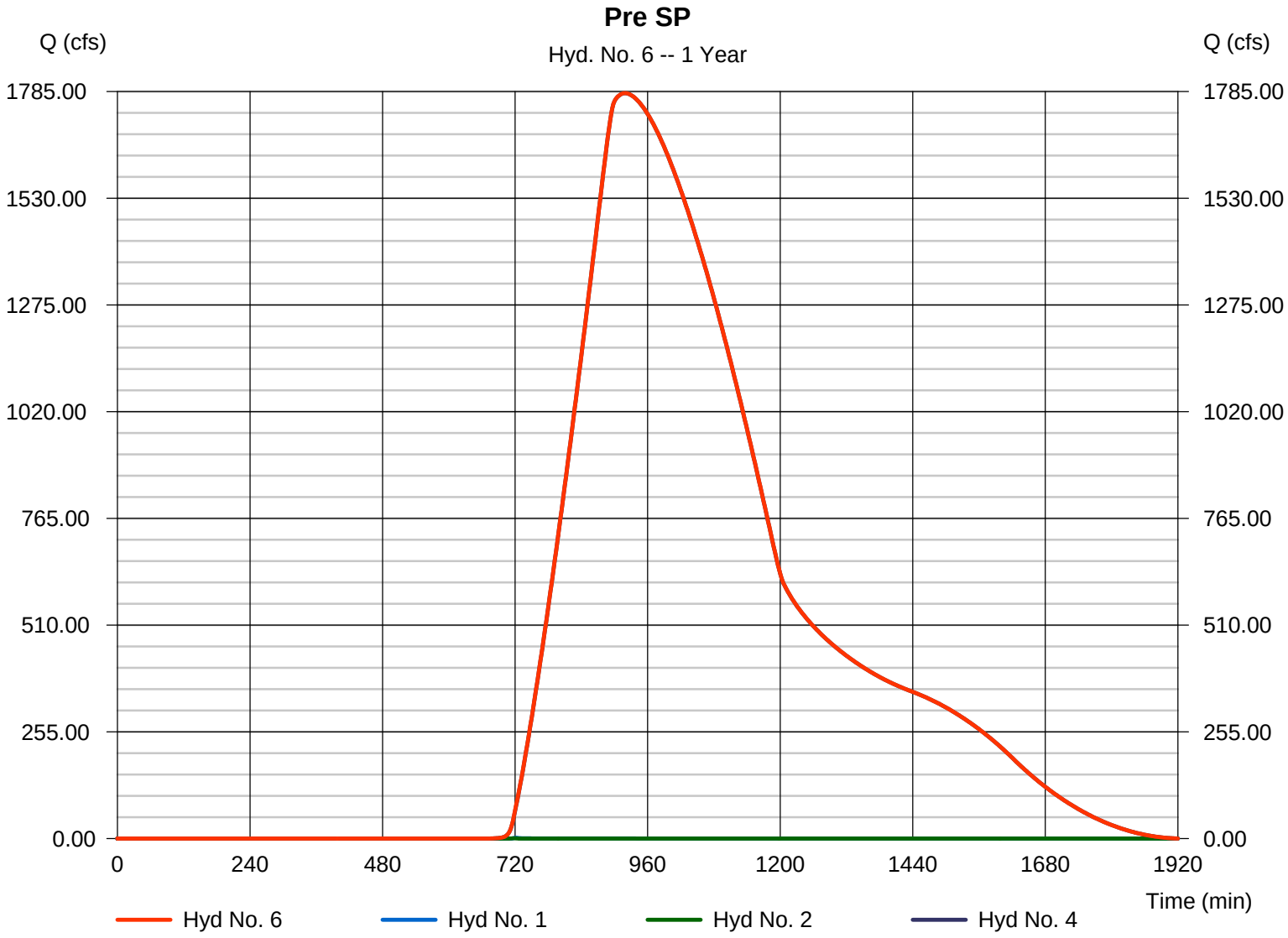


Hydrograph Report

Hyd. No. 6

Pre SP

Hydrograph type	=	Combine	Peak discharge	=	1781.10 cfs
Storm frequency	=	1 yrs	Time to peak	=	920 min
Time interval	=	2 min	Hyd. volume	=	44,635,320 cuft
Inflow hyds.	=	1, 2, 4	Contrib. drain. area	=	11955.650 ac

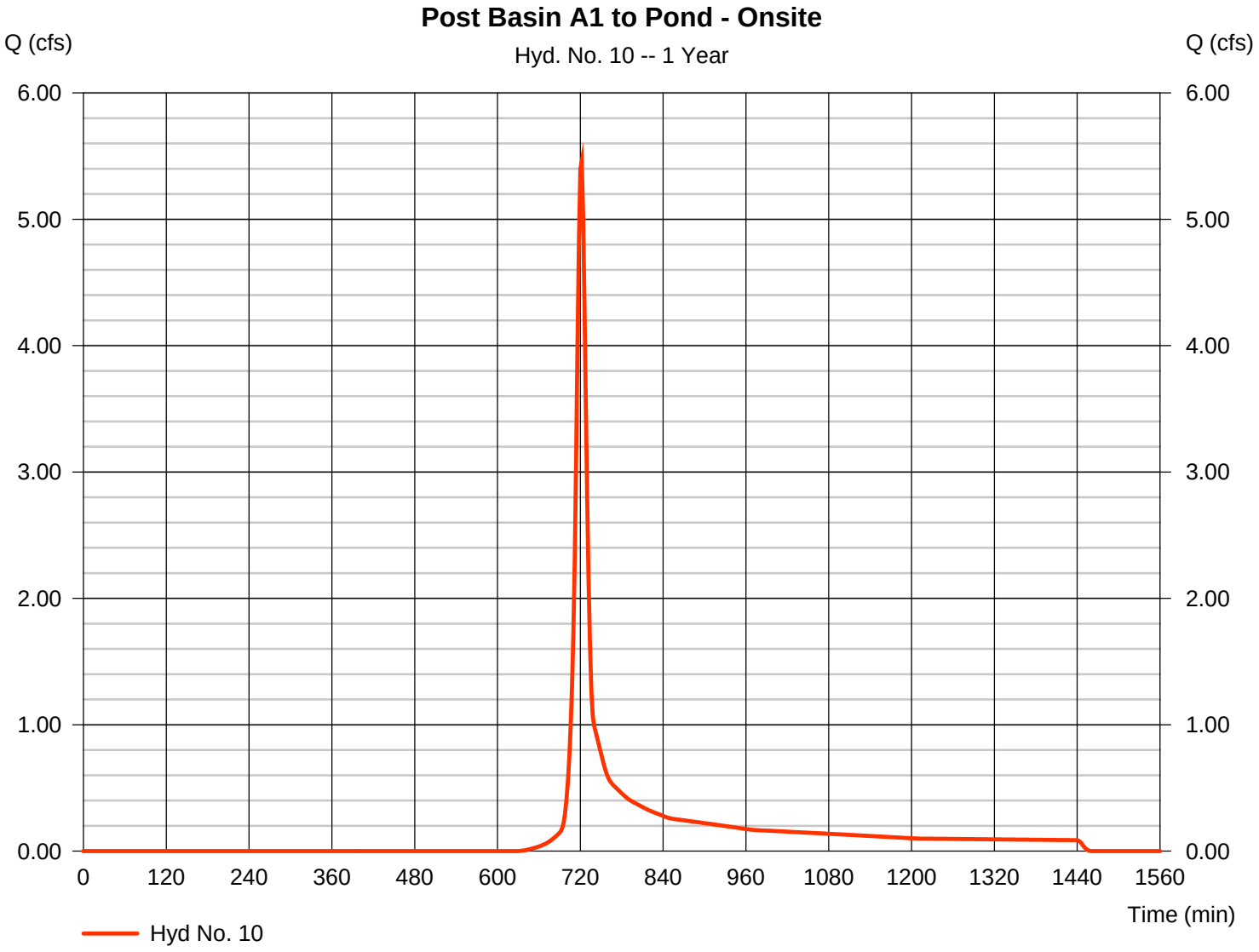


Hydrograph Report

Hyd. No. 10

Post Basin A1 to Pond - Onsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.457 cfs
Storm frequency	=	1 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	14,436 cuft
Drainage area	=	3.220 ac	Curve number	=	74.9
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	11.10 min
Total precip.	=	3.36 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

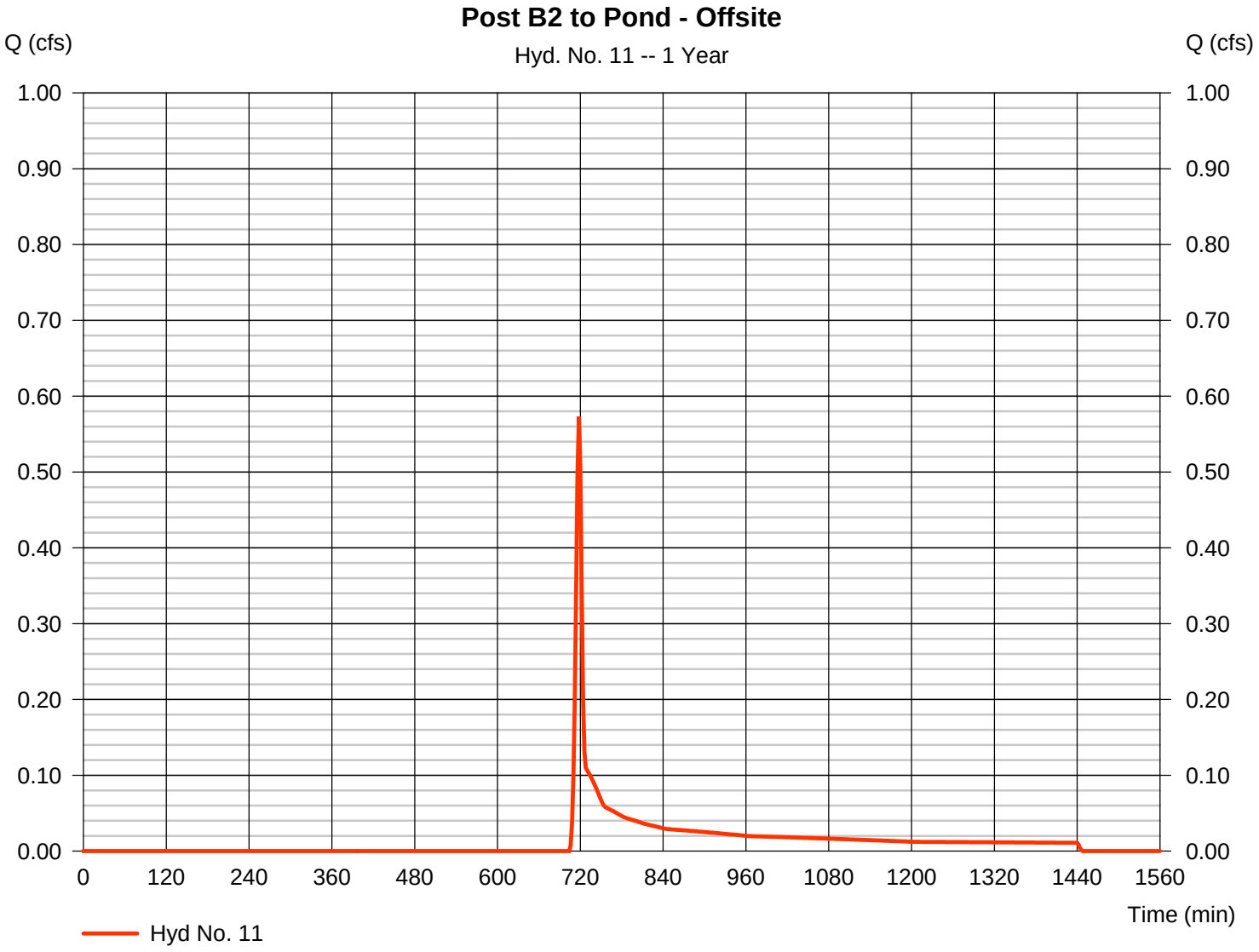


Hydrograph Report

Hyd. No. 11

Post B2 to Pond - Offsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.573 cfs
Storm frequency	=	1 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	1,294 cuft
Drainage area	=	0.690 ac	Curve number	=	62
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.36 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

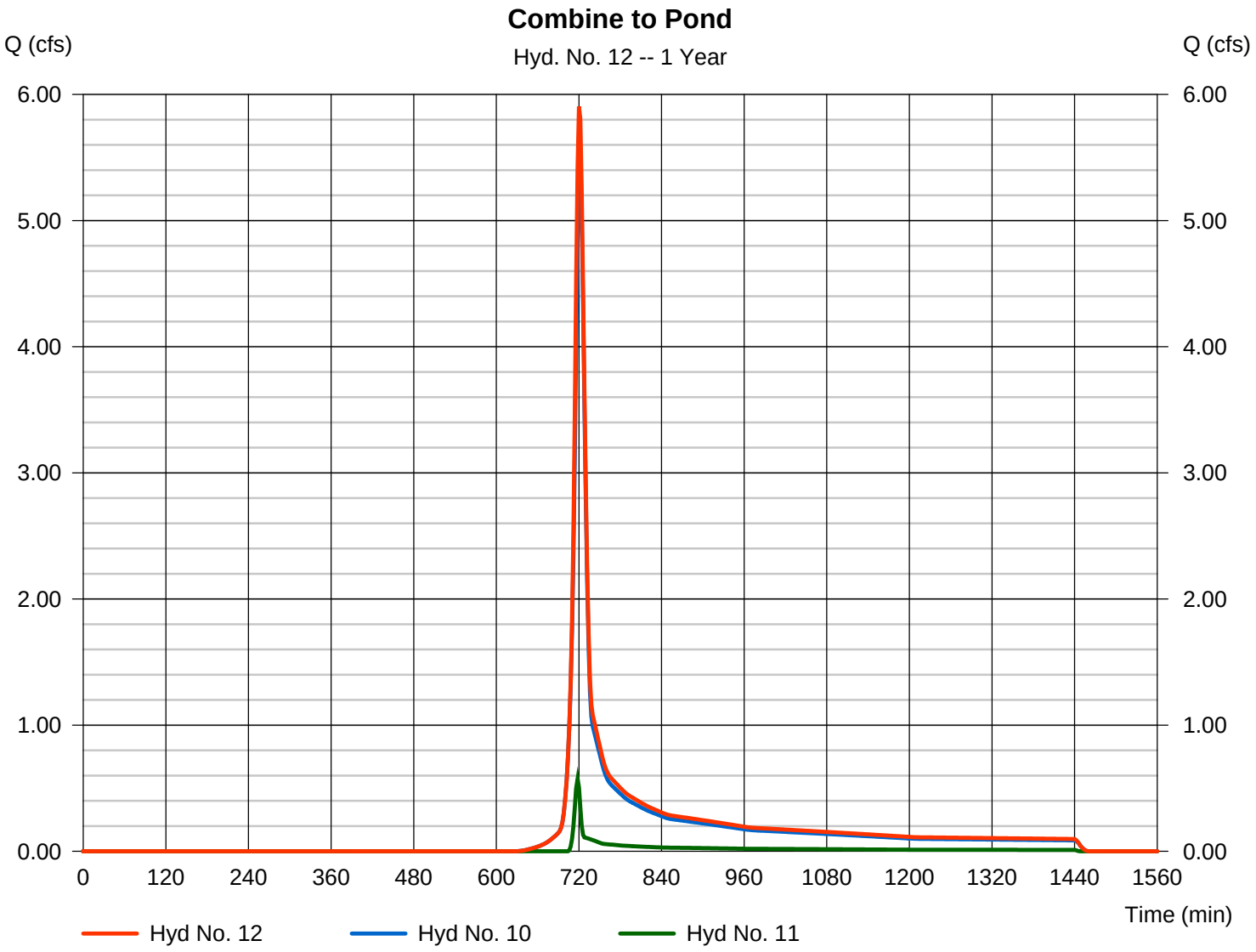


Hydrograph Report

Hyd. No. 12

Combine to Pond

Hydrograph type	=	Combine	Peak discharge	=	5.903 cfs
Storm frequency	=	1 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	15,730 cuft
Inflow hyds.	=	10, 11	Contrib. drain. area	=	3.910 ac



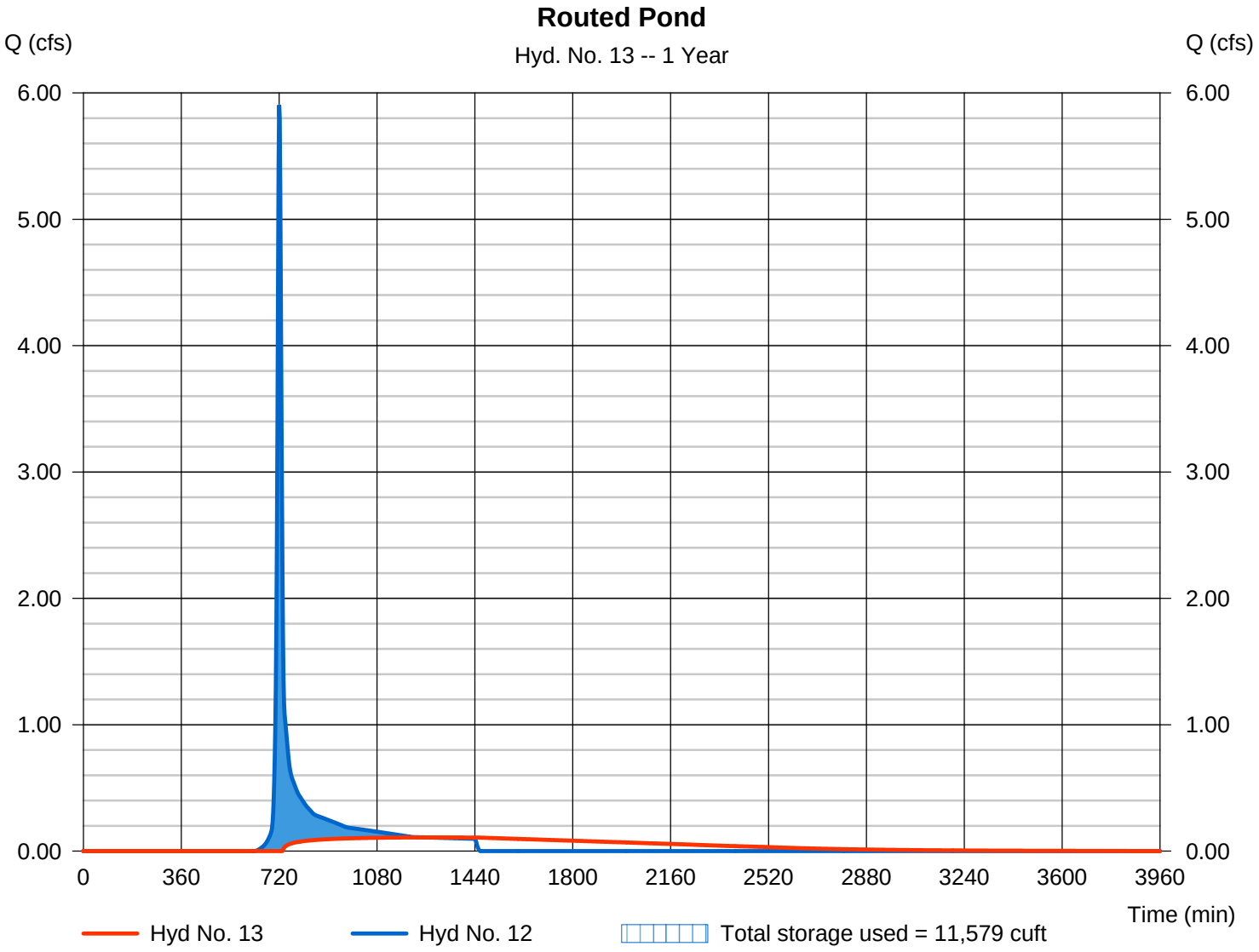
Hydrograph Report

Hyd. No. 13

Routed Pond

Hydrograph type	=	Reservoir	Peak discharge	=	0.108 cfs
Storm frequency	=	1 yrs	Time to peak	=	1266 min
Time interval	=	2 min	Hyd. volume	=	9,337 cuft
Inflow hyd. No.	=	12 - Combine to Pond	Max. Elevation	=	836.77 ft
Reservoir name	=	Pond	Max. Storage	=	11,579 cuft

Storage Indication method used.

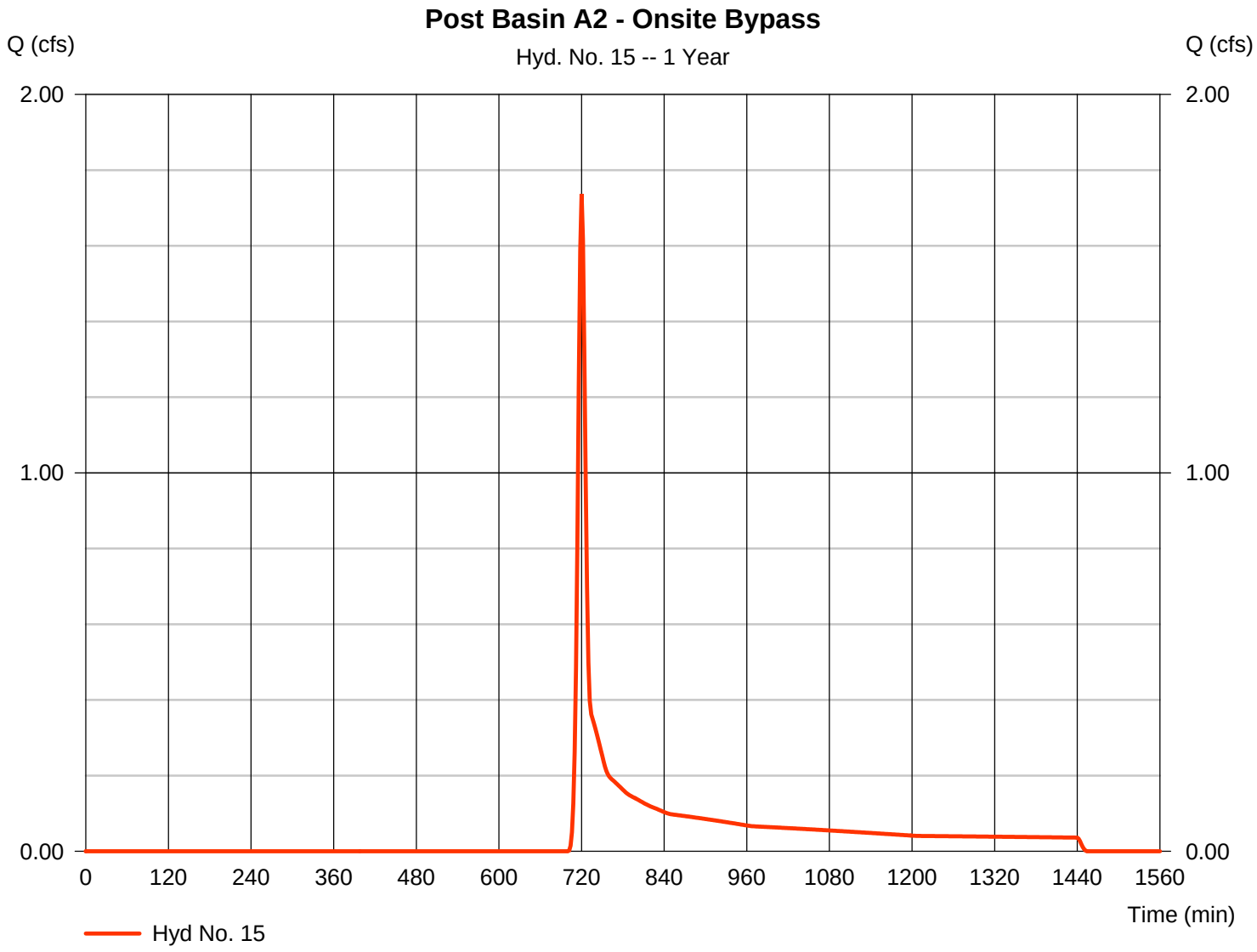


Hydrograph Report

Hyd. No. 15

Post Basin A2 - Onsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.737 cfs
Storm frequency	=	1 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	4,519 cuft
Drainage area	=	2.000 ac	Curve number	=	63.7
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	8.80 min
Total precip.	=	3.36 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

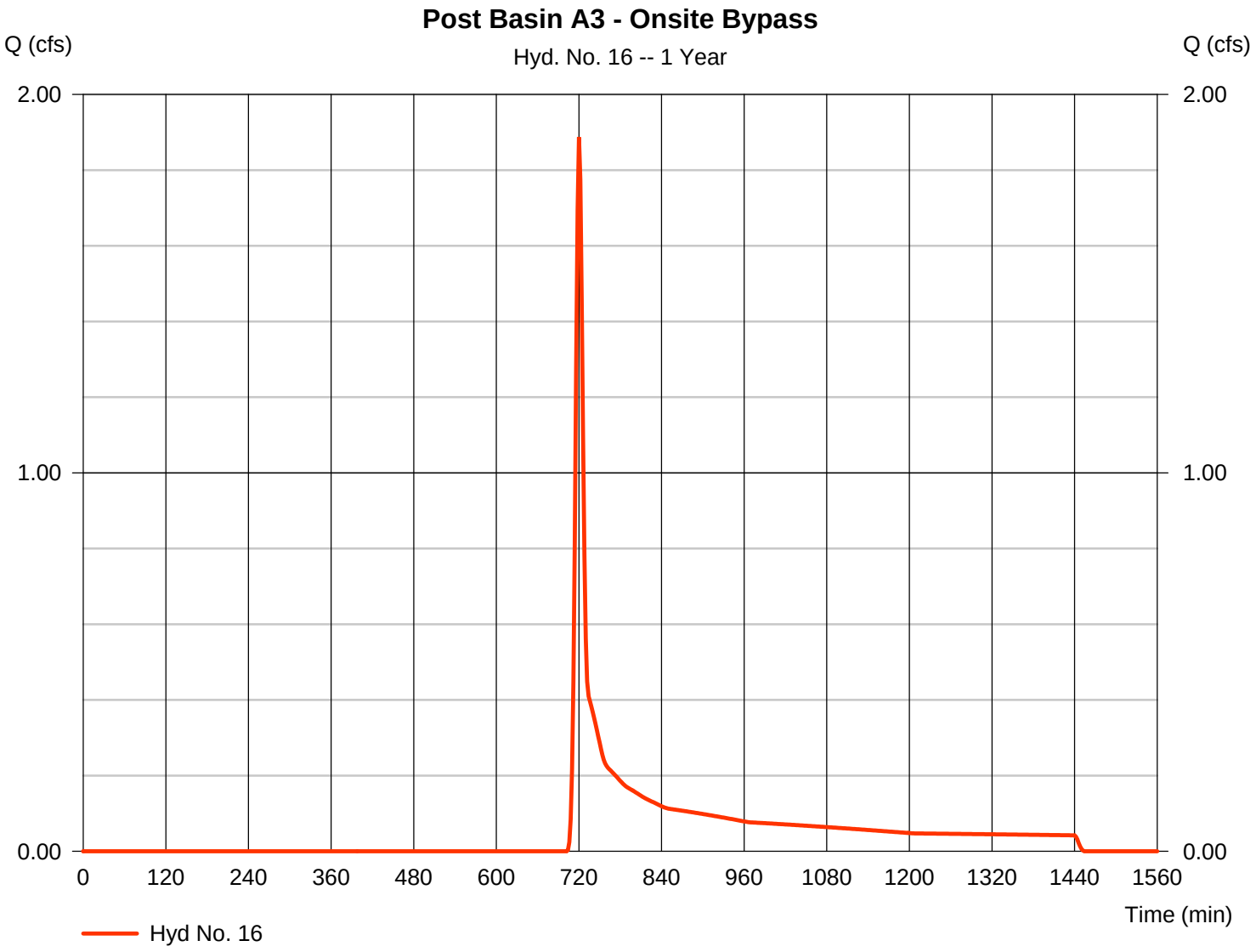


Hydrograph Report

Hyd. No. 16

Post Basin A3 - Onsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.887 cfs
Storm frequency	=	1 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	5,085 cuft
Drainage area	=	2.450 ac	Curve number	=	62.5
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	9.30 min
Total precip.	=	3.36 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

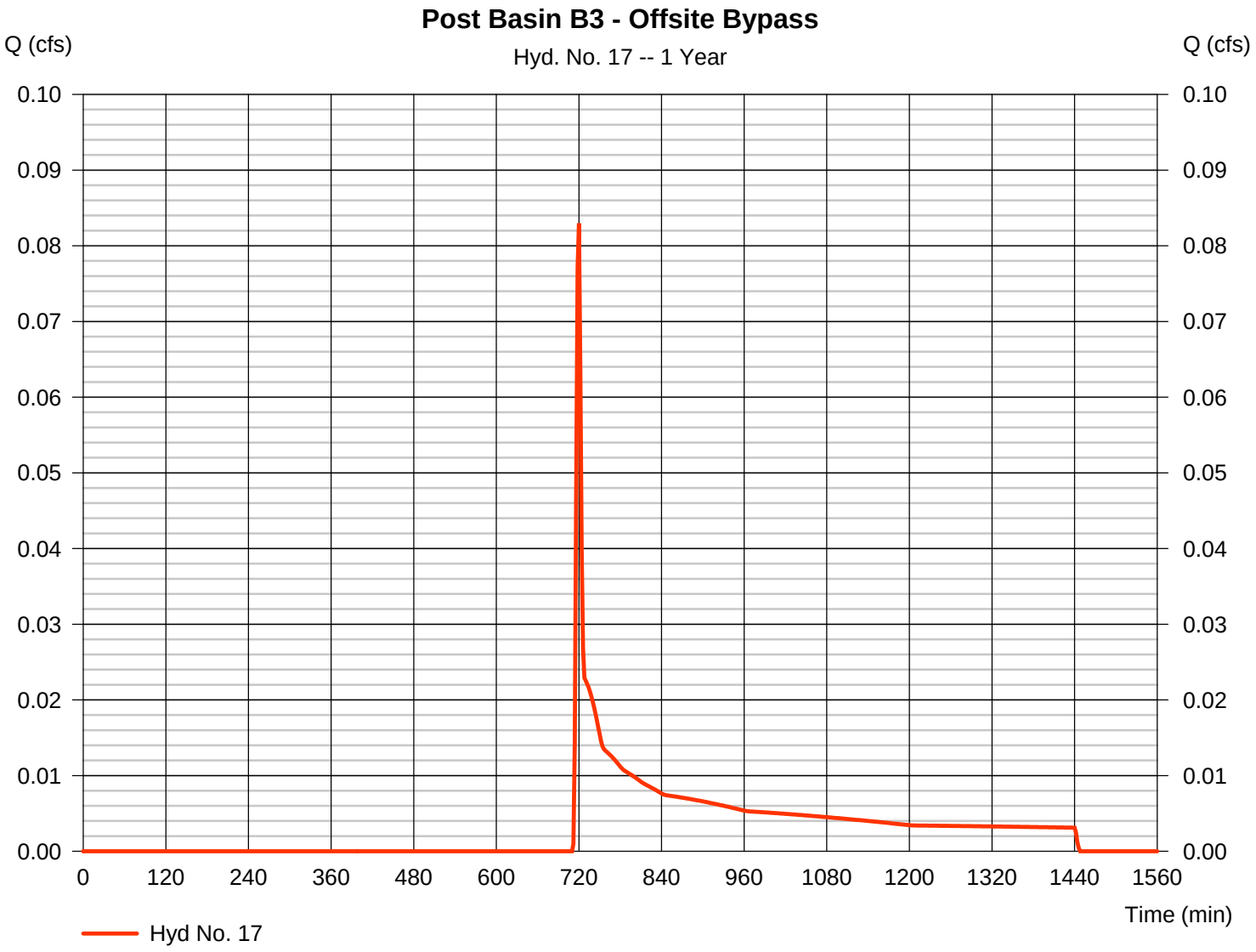


Hydrograph Report

Hyd. No. 17

Post Basin B3 - Offsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.083 cfs
Storm frequency	=	1 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	285 cuft
Drainage area	=	0.280 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.36 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

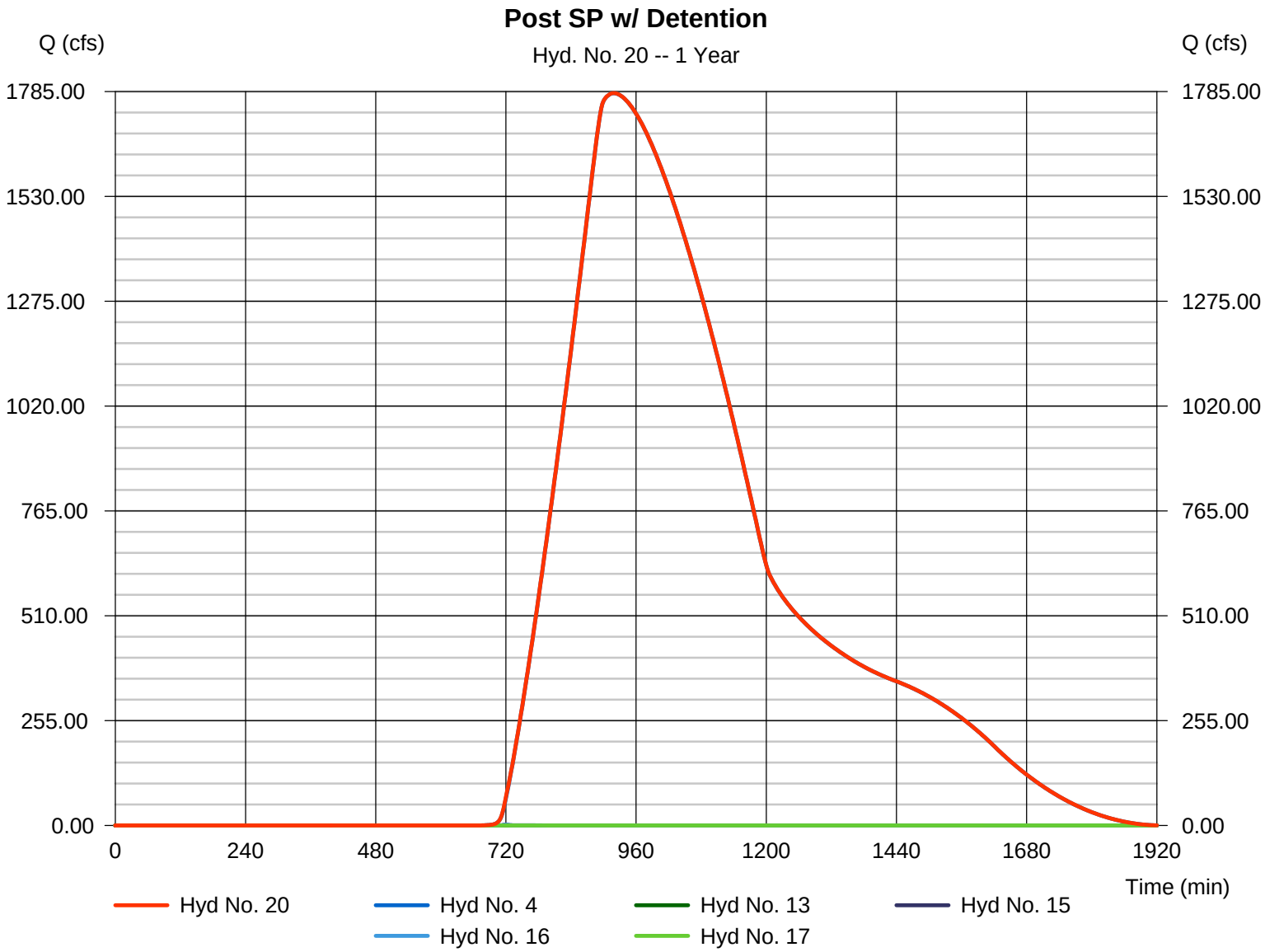


Hydrograph Report

Hyd. No. 20

Post SP w/ Detention

Hydrograph type	=	Combine	Peak discharge	=	1781.16 cfs
Storm frequency	=	1 yrs	Time to peak	=	920 min
Time interval	=	2 min	Hyd. volume	=	44,644,284 cuft
Inflow hyds.	=	4, 13, 15, 16, 17	Contrib. drain. area	=	11951.730 ac

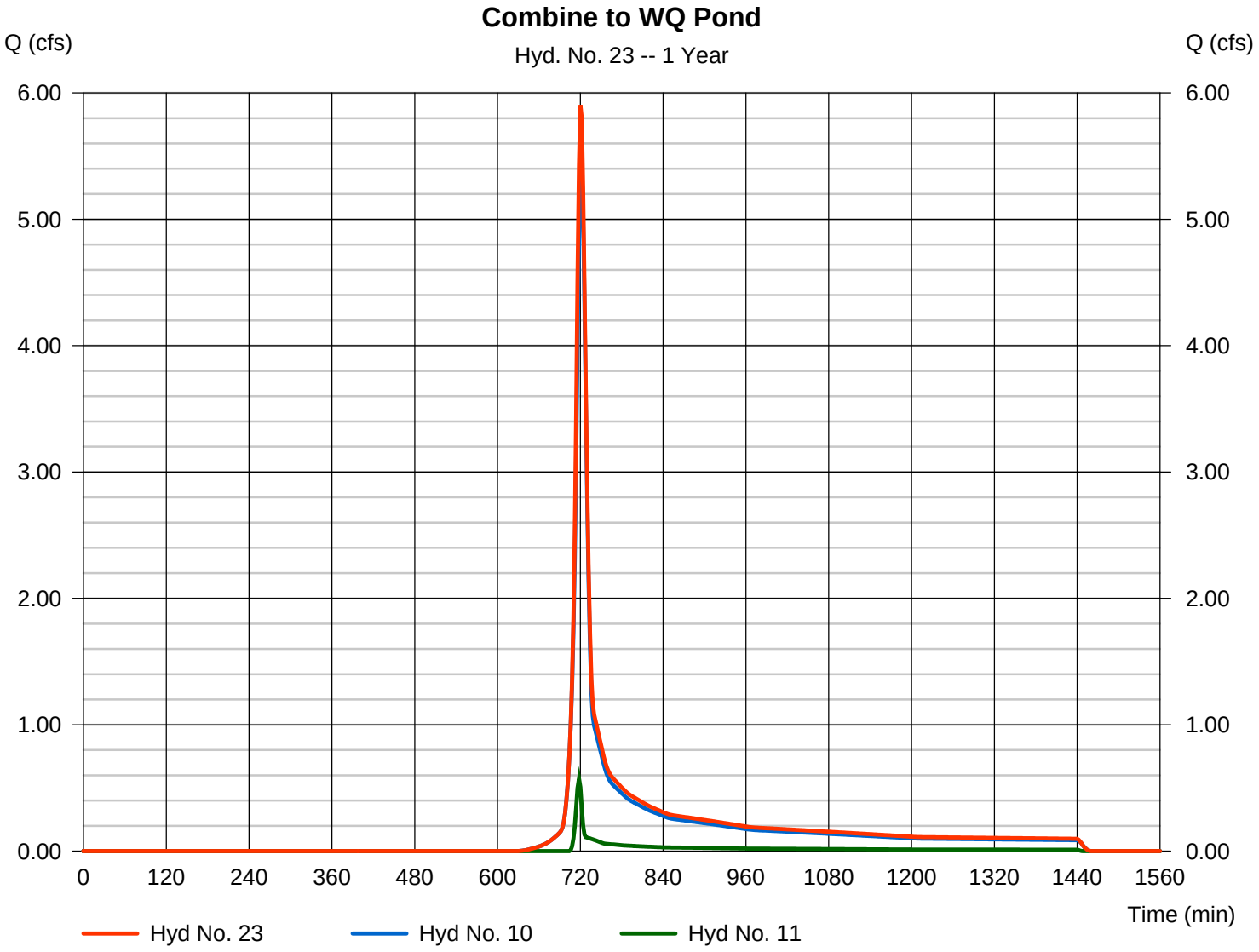


Hydrograph Report

Hyd. No. 23

Combine to WQ Pond

Hydrograph type	=	Combine	Peak discharge	=	5.903 cfs
Storm frequency	=	1 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	15,730 cuft
Inflow hyds.	=	10, 11	Contrib. drain. area	=	3.910 ac



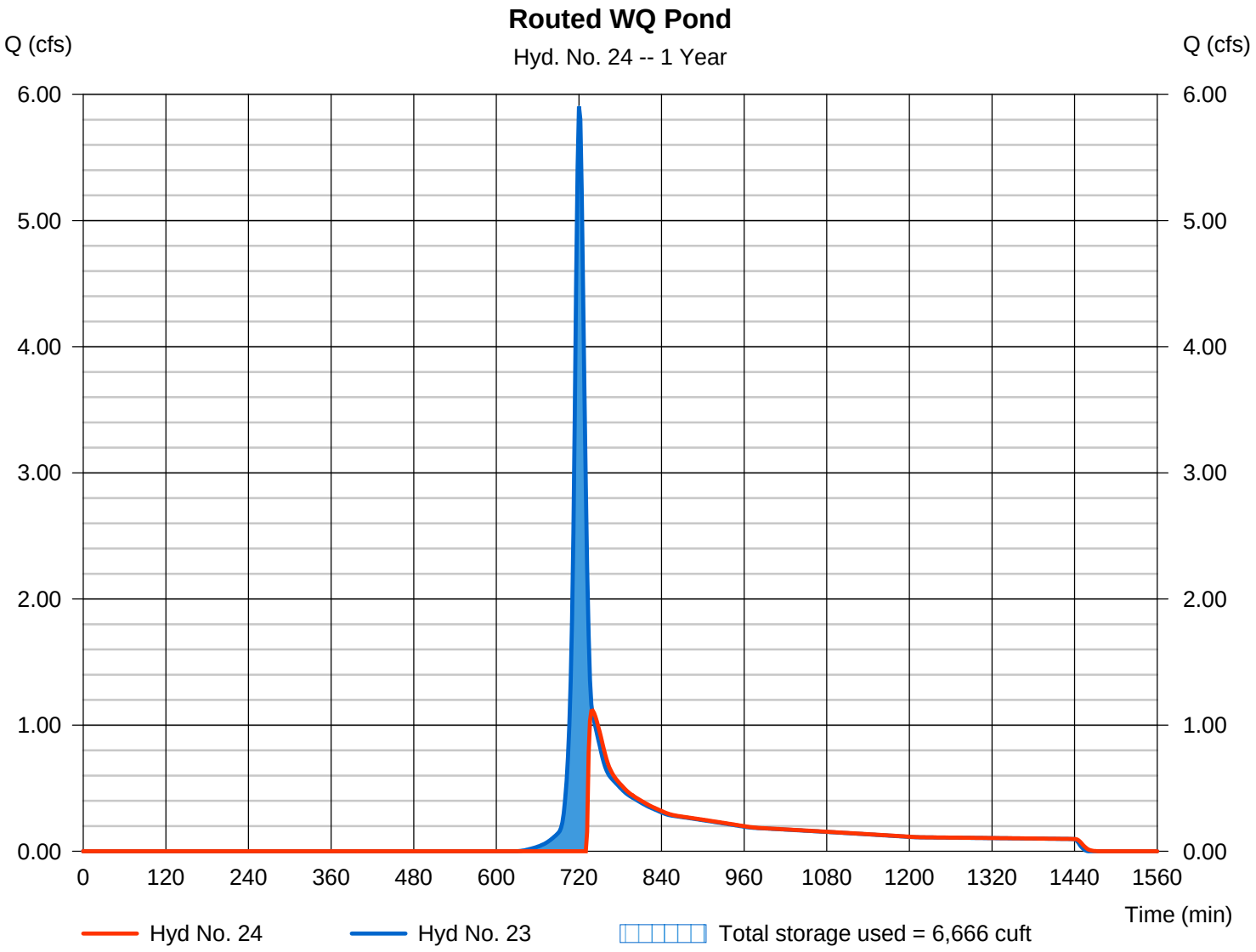
Hydrograph Report

Hyd. No. 24

Routed WQ Pond

Hydrograph type	=	Reservoir	Peak discharge	=	1.115 cfs
Storm frequency	=	1 yrs	Time to peak	=	740 min
Time interval	=	2 min	Hyd. volume	=	9,390 cuft
Inflow hyd. No.	=	23 - Combine to WQ Pond	Max. Elevation	=	833.15 ft
Reservoir name	=	WQ Pond	Max. Storage	=	6,666 cuft

Storage Indication method used.

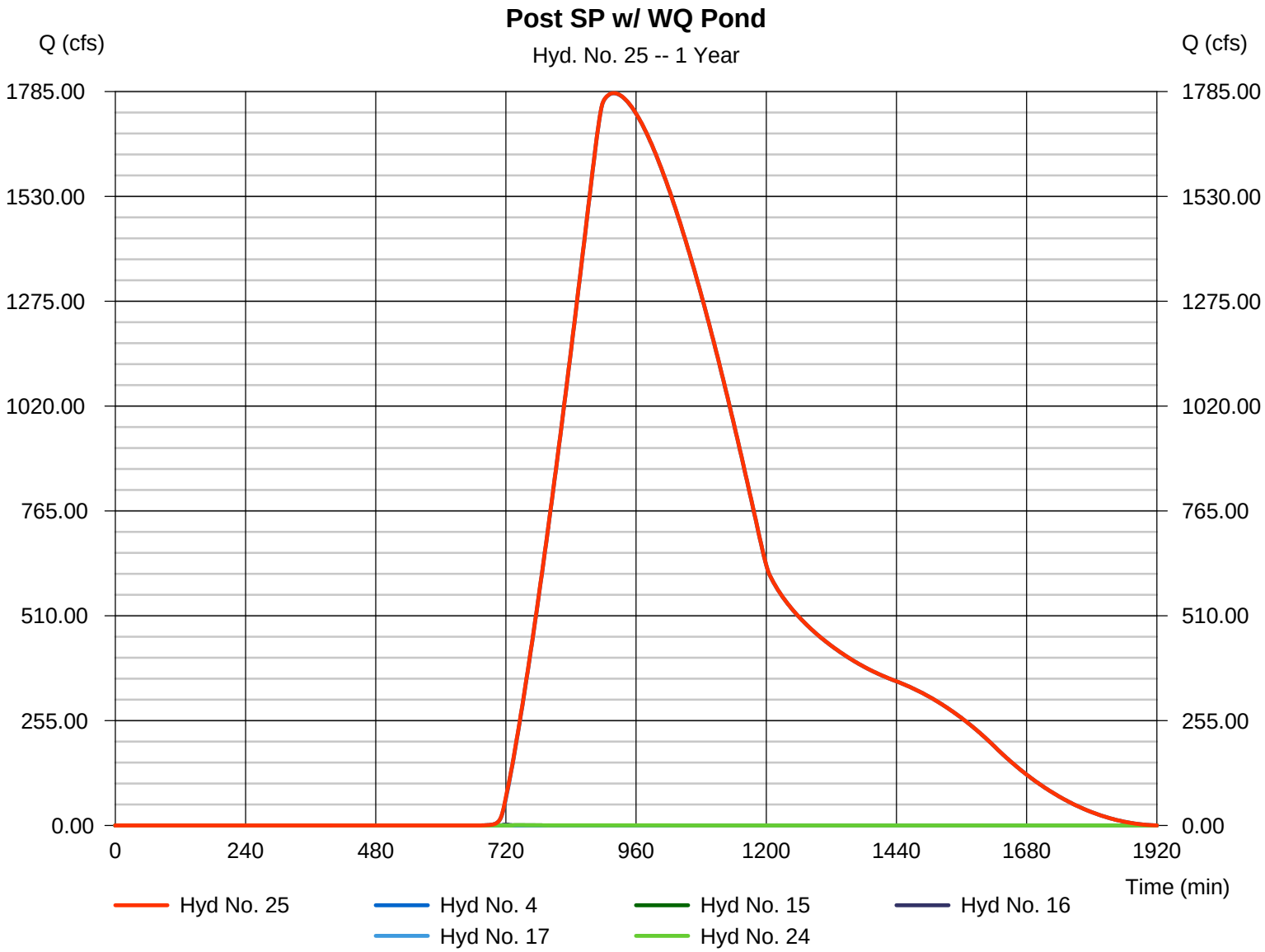


Hydrograph Report

Hyd. No. 25

Post SP w/ WQ Pond

Hydrograph type	= Combine	Peak discharge	= 1781.30 cfs
Storm frequency	= 1 yrs	Time to peak	= 920 min
Time interval	= 2 min	Hyd. volume	= 44,644,588 cuft
Inflow hyds.	= 4, 15, 16, 17, 24	Contrib. drain. area	= 11951.730 ac



Hydrograph Summary Report

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

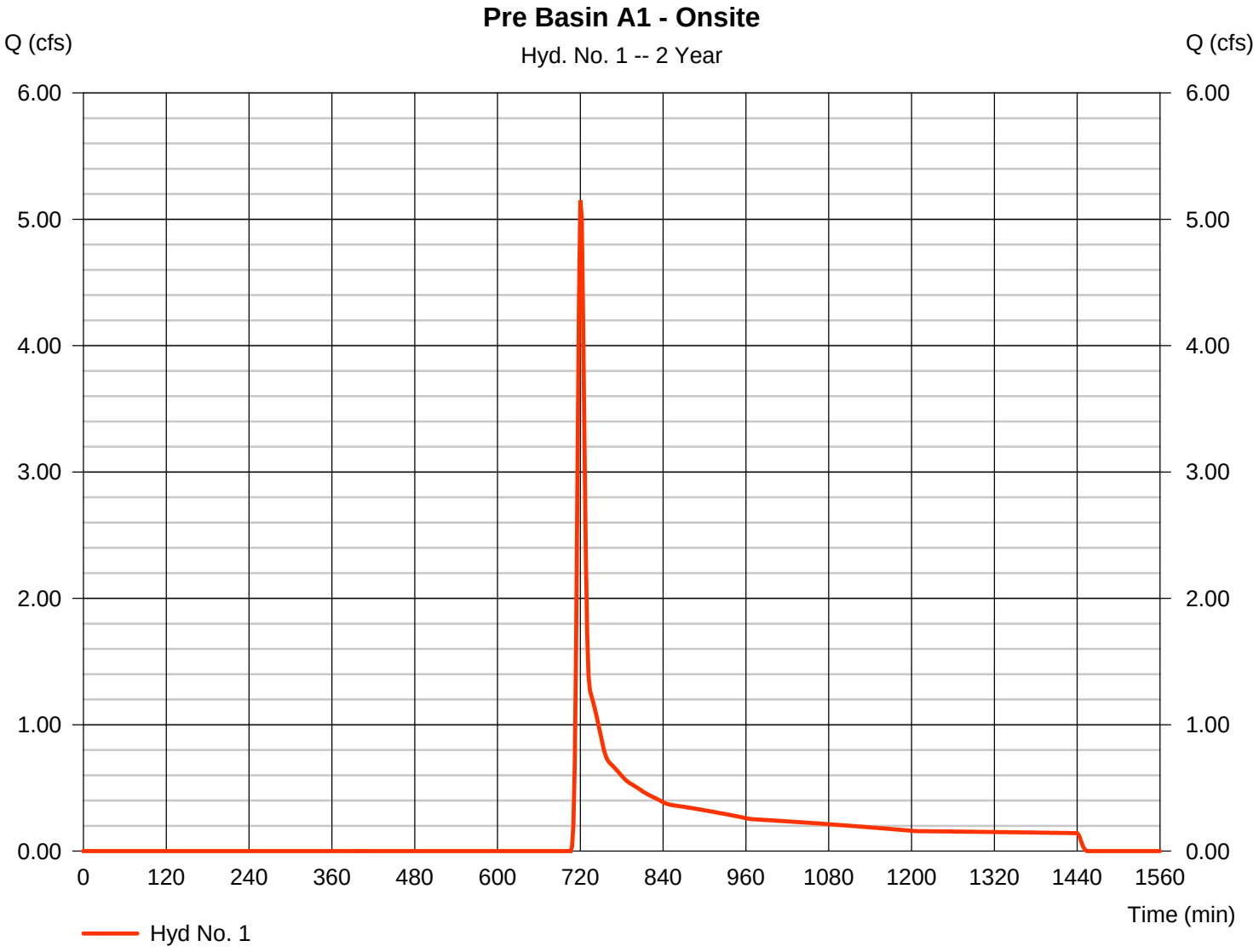
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	5.150	2	720	15,667	------	------	------	Pre Basin A1 - Onsite
2	SCS Runoff	1.336	2	718	2,817	------	------	------	Pre Basin B2 - Offsite
4	SCS Runoff	2721.59	2	912	65,673,612	------	------	------	Basin B1 - Offsite
6	Combine	2721.95	2	912	65,692,148	1, 2, 4,	------	------	Pre SP
10	SCS Runoff	7.919	2	722	20,729	------	------	------	Post Basin A1 to Pond - Onsite
11	SCS Runoff	1.022	2	718	2,129	------	------	------	Post B2 to Pond - Offsite
12	Combine	8.778	2	720	22,858	10, 11	------	------	Combine to Pond
13	Reservoir	0.154	2	1198	16,465	12	838.12	16,729	Routed Pond
15	SCS Runoff	3.020	2	720	7,265	------	------	------	Post Basin A2 - Onsite Bypass
16	SCS Runoff	3.402	2	720	8,307	------	------	------	Post Basin A3 - Onsite Bypass
17	SCS Runoff	0.219	2	718	535	------	------	------	Post Basin B3 - Offsite Bypass
20	Combine	2722.01	2	912	65,705,876	4, 13, 15, 16, 17,	------	------	Post SP w/ Detention
23	Combine	8.778	2	720	22,858	10, 11,	------	------	Combine to WQ Pond
24	Reservoir	6.945	2	726	16,518	23	833.39	7,150	Routed WQ Pond
25	Combine	2722.19	2	912	65,706,220	4, 15, 16, 17, 24	------	------	Post SP w/ WQ Pond

Hydrograph Report

Hyd. No. 1

Pre Basin A1 - Onsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.150 cfs
Storm frequency	=	2 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	15,667 cuft
Drainage area	=	7.680 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	9.60 min
Total precip.	=	4.08 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

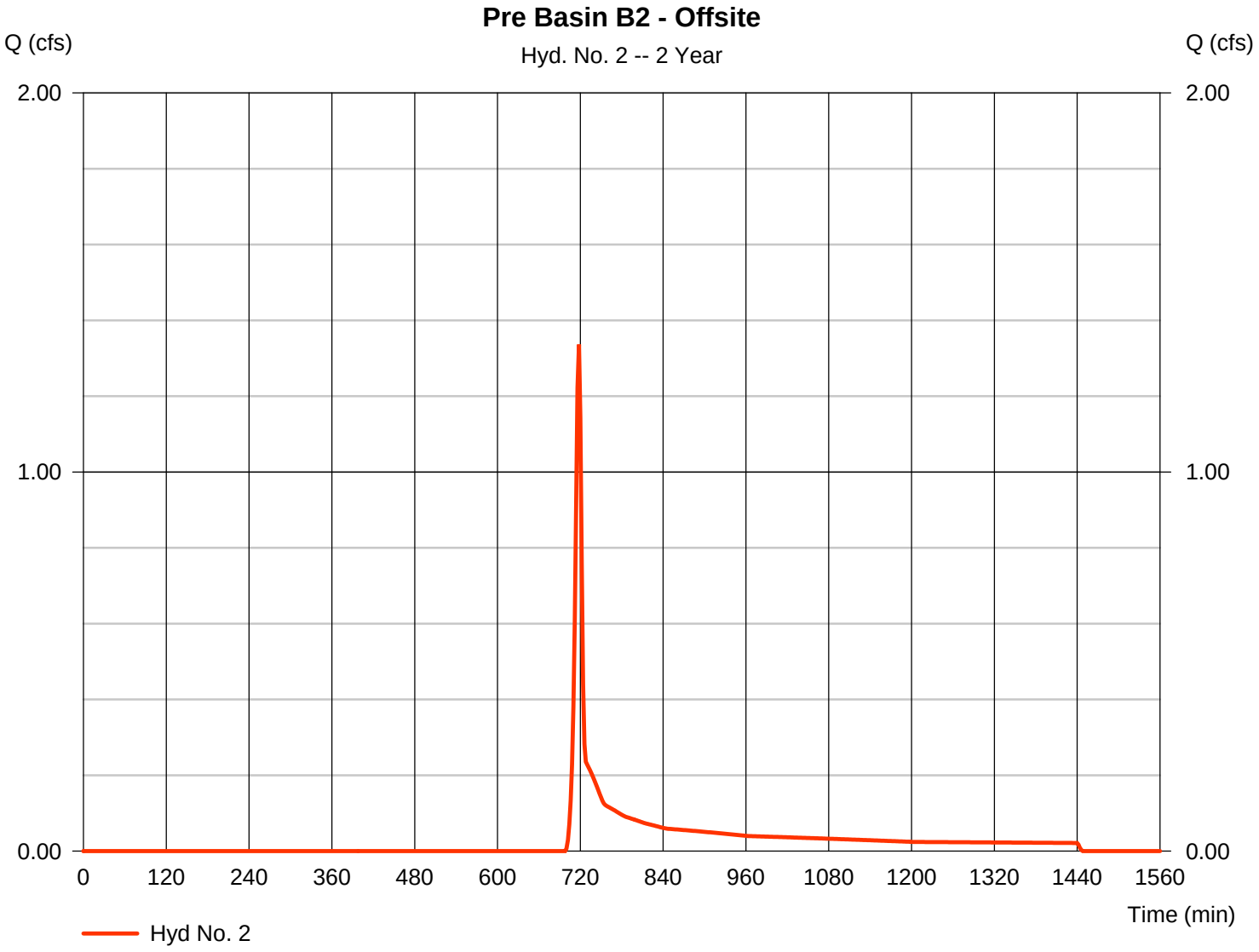


Hydrograph Report

Hyd. No. 2

Pre Basin B2 - Offsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.336 cfs
Storm frequency	=	2 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	2,817 cuft
Drainage area	=	0.970 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	4.08 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

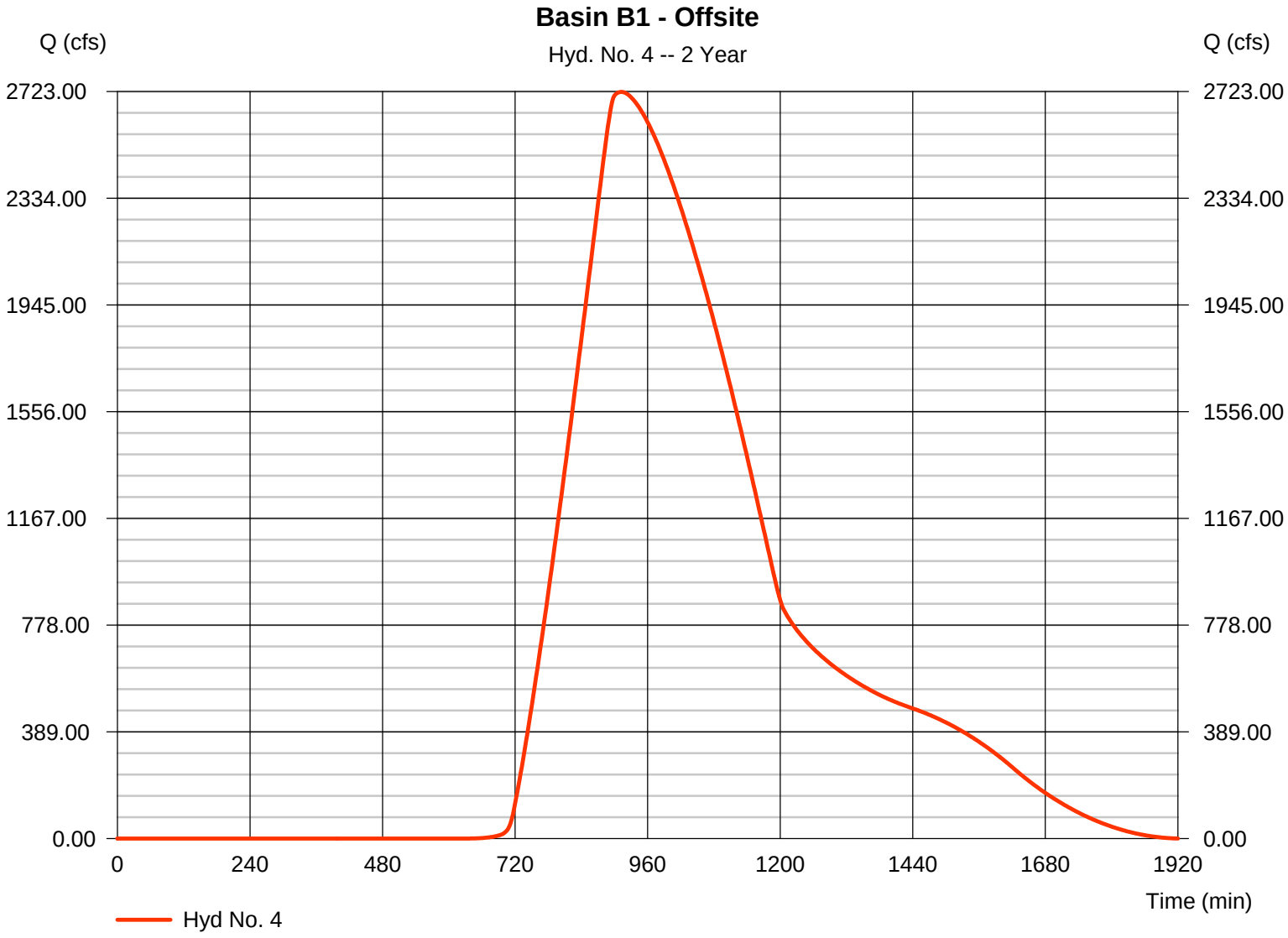


Hydrograph Report

Hyd. No. 4

Basin B1 - Offsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	2721.59 cfs
Storm frequency	=	2 yrs	Time to peak	=	912 min
Time interval	=	2 min	Hyd. volume	=	65,673,612 cuft
Drainage area	=	11947.000 ac	Curve number	=	72
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	309.20 min
Total precip.	=	4.08 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

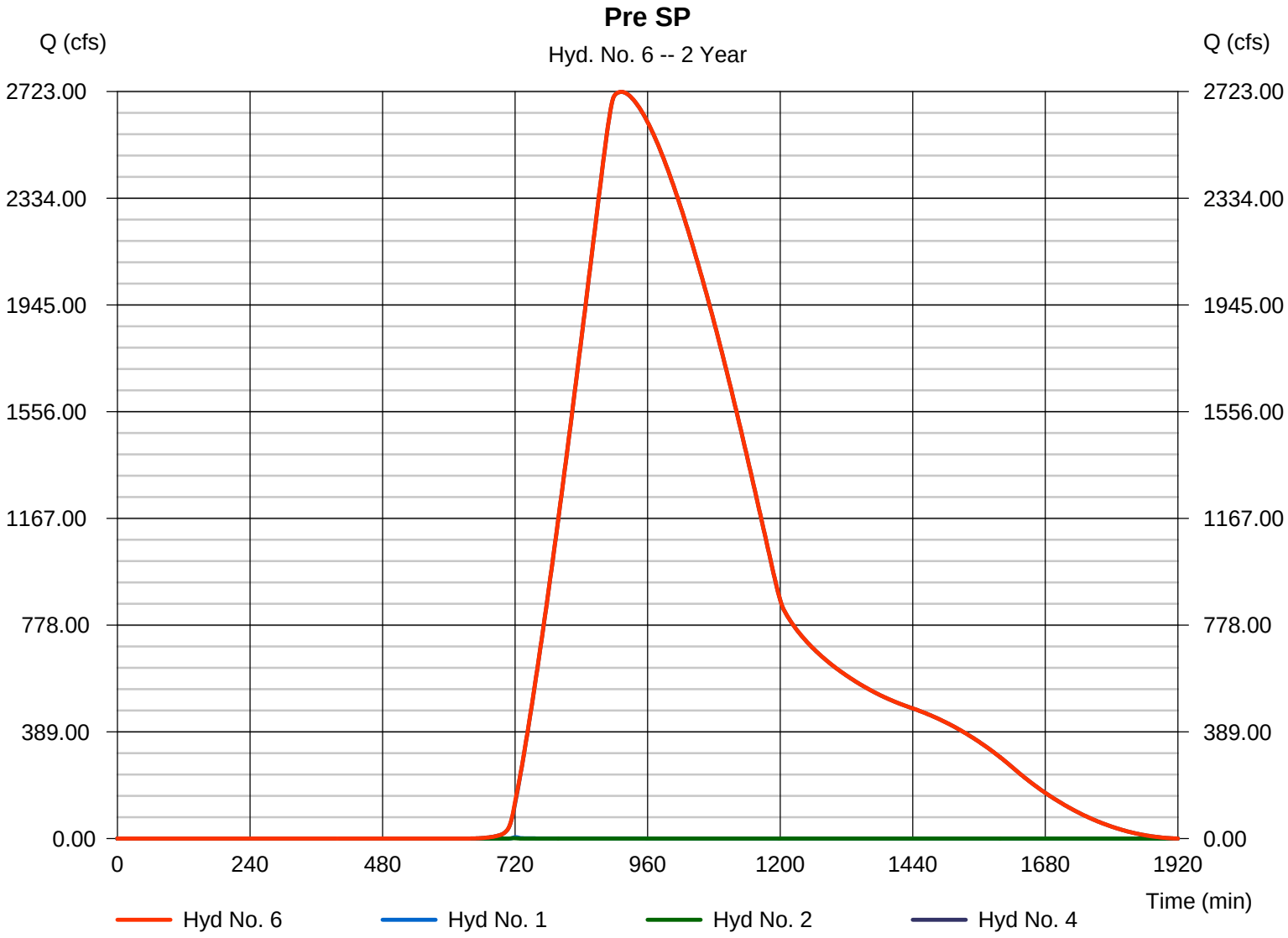


Hydrograph Report

Hyd. No. 6

Pre SP

Hydrograph type	=	Combine	Peak discharge	=	2721.95 cfs
Storm frequency	=	2 yrs	Time to peak	=	912 min
Time interval	=	2 min	Hyd. volume	=	65,692,148 cuft
Inflow hyds.	=	1, 2, 4	Contrib. drain. area	=	11955.650 ac

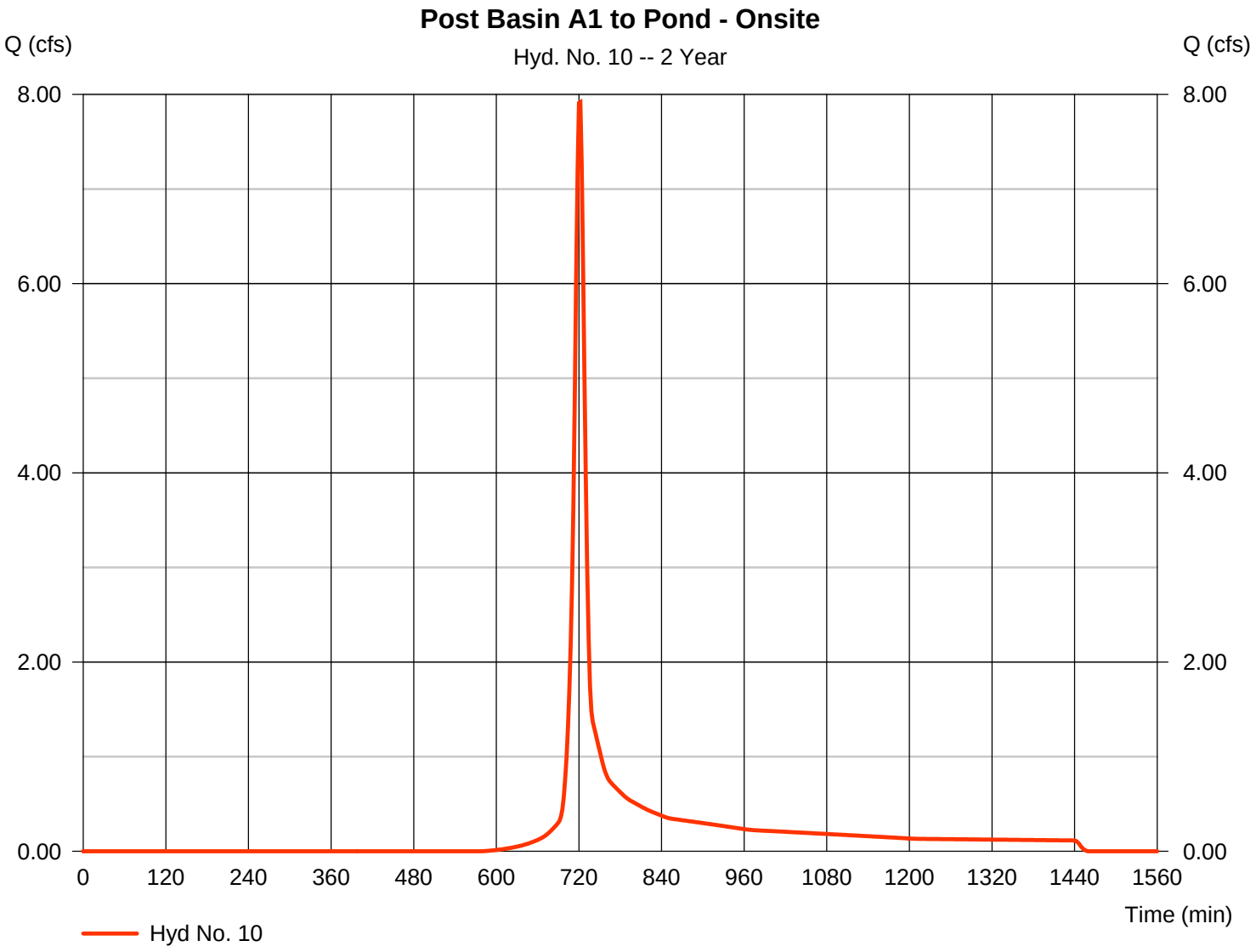


Hydrograph Report

Hyd. No. 10

Post Basin A1 to Pond - Onsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.919 cfs
Storm frequency	=	2 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	20,729 cuft
Drainage area	=	3.220 ac	Curve number	=	74.9
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	11.10 min
Total precip.	=	4.08 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

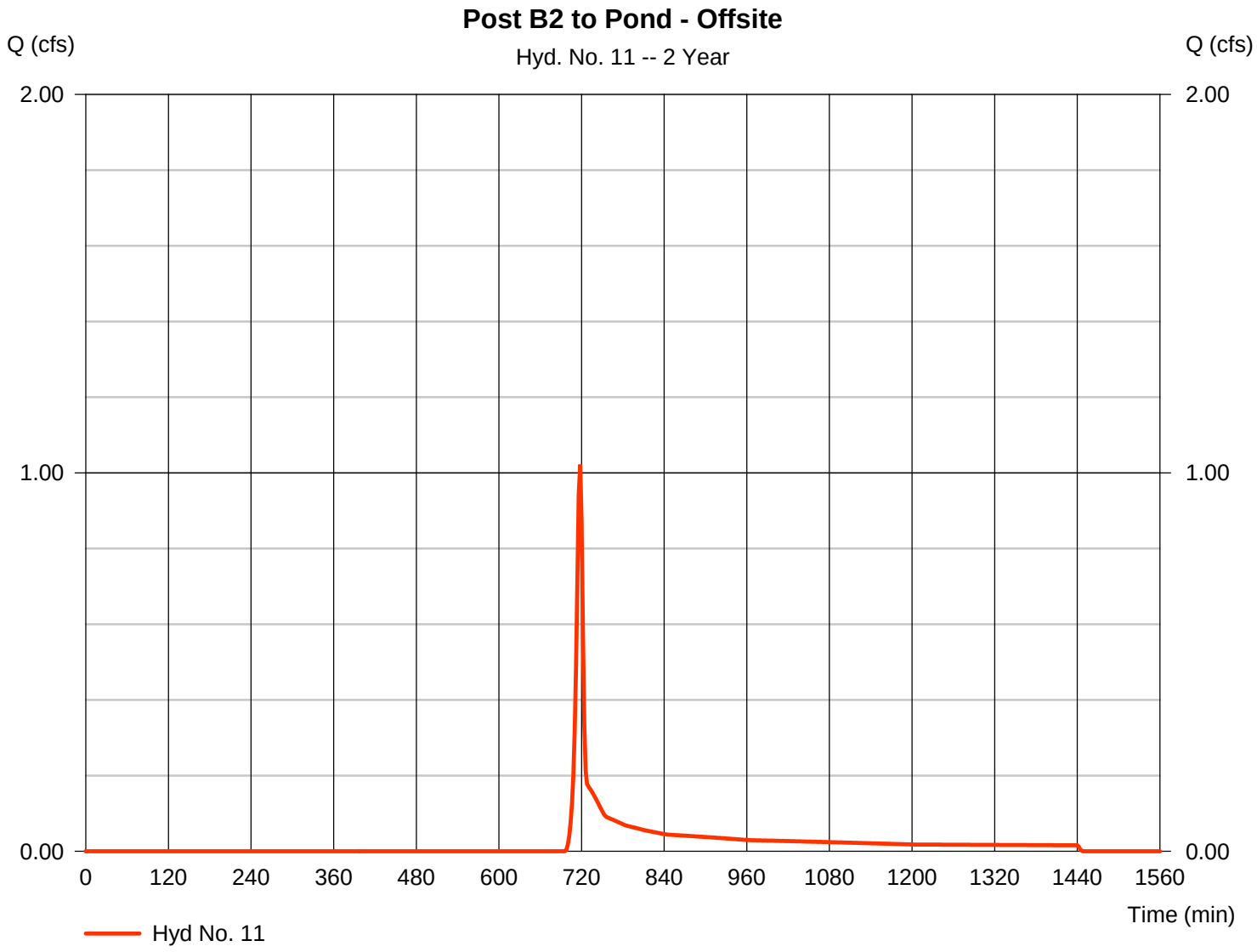


Hydrograph Report

Hyd. No. 11

Post B2 to Pond - Offsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.022 cfs
Storm frequency	=	2 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	2,129 cuft
Drainage area	=	0.690 ac	Curve number	=	62
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	4.08 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

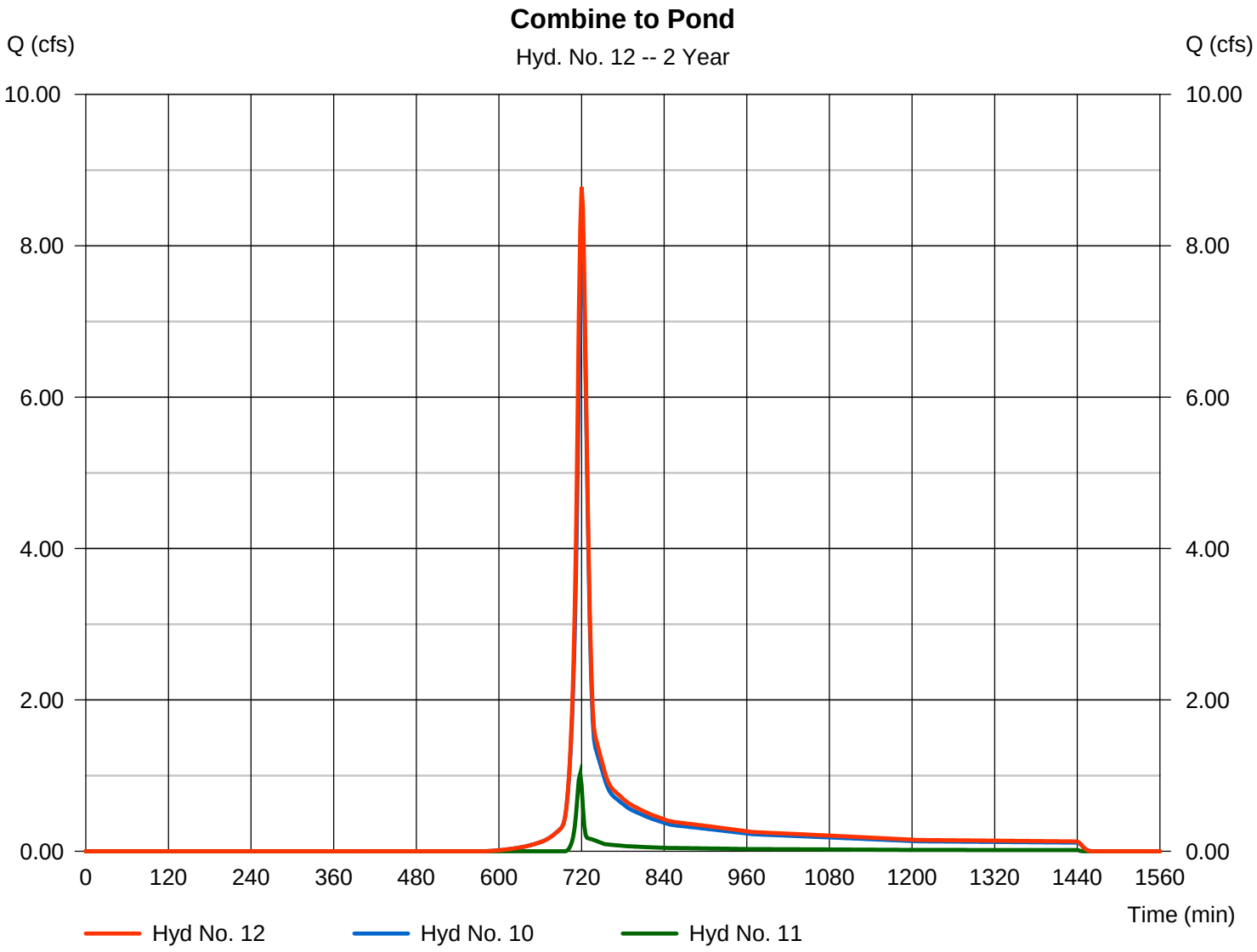


Hydrograph Report

Hyd. No. 12

Combine to Pond

Hydrograph type	=	Combine	Peak discharge	=	8.778 cfs
Storm frequency	=	2 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	22,858 cuft
Inflow hyds.	=	10, 11	Contrib. drain. area	=	3.910 ac



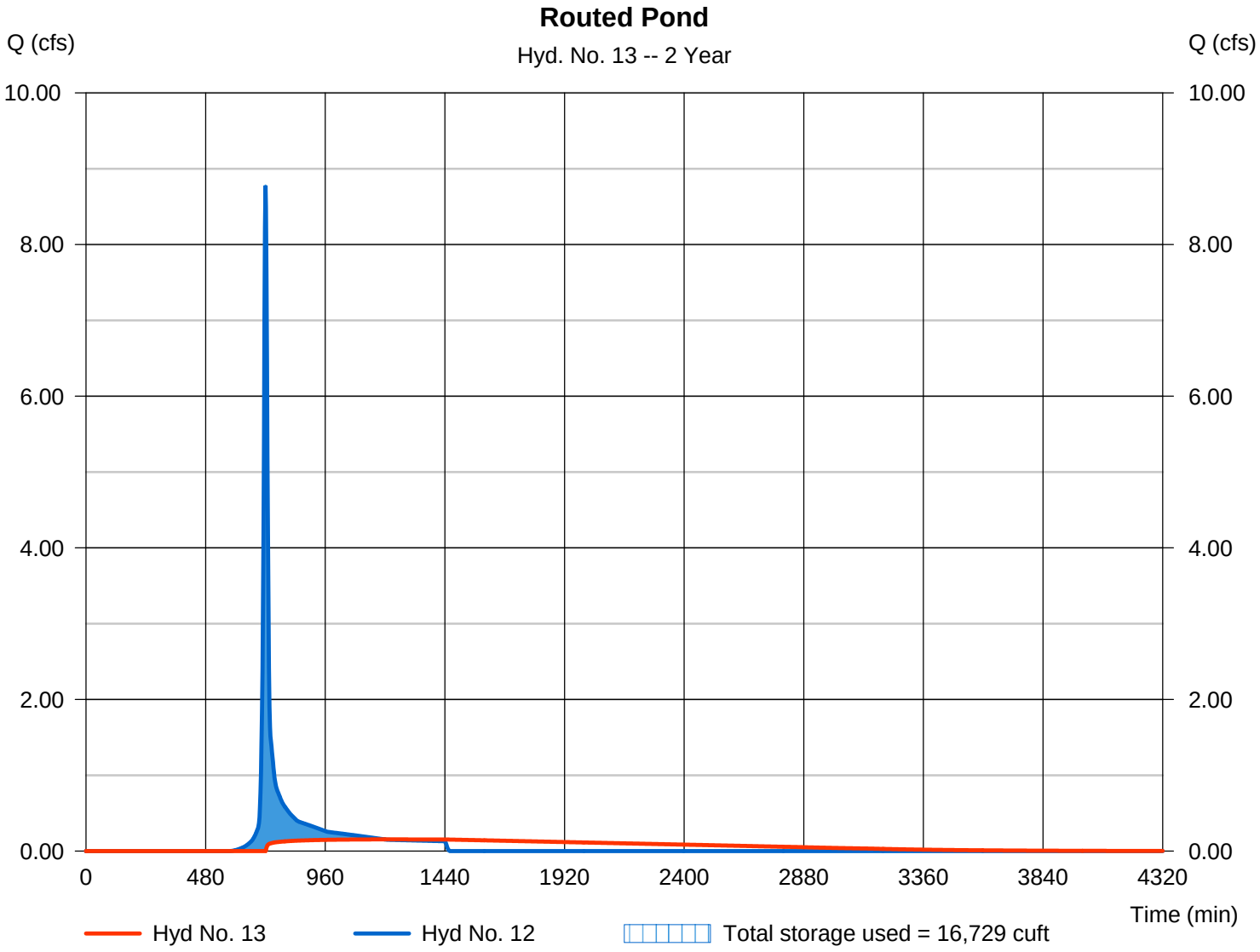
Hydrograph Report

Hyd. No. 13

Routed Pond

Hydrograph type	=	Reservoir	Peak discharge	=	0.154 cfs
Storm frequency	=	2 yrs	Time to peak	=	1198 min
Time interval	=	2 min	Hyd. volume	=	16,465 cuft
Inflow hyd. No.	=	12 - Combine to Pond	Max. Elevation	=	838.12 ft
Reservoir name	=	Pond	Max. Storage	=	16,729 cuft

Storage Indication method used.

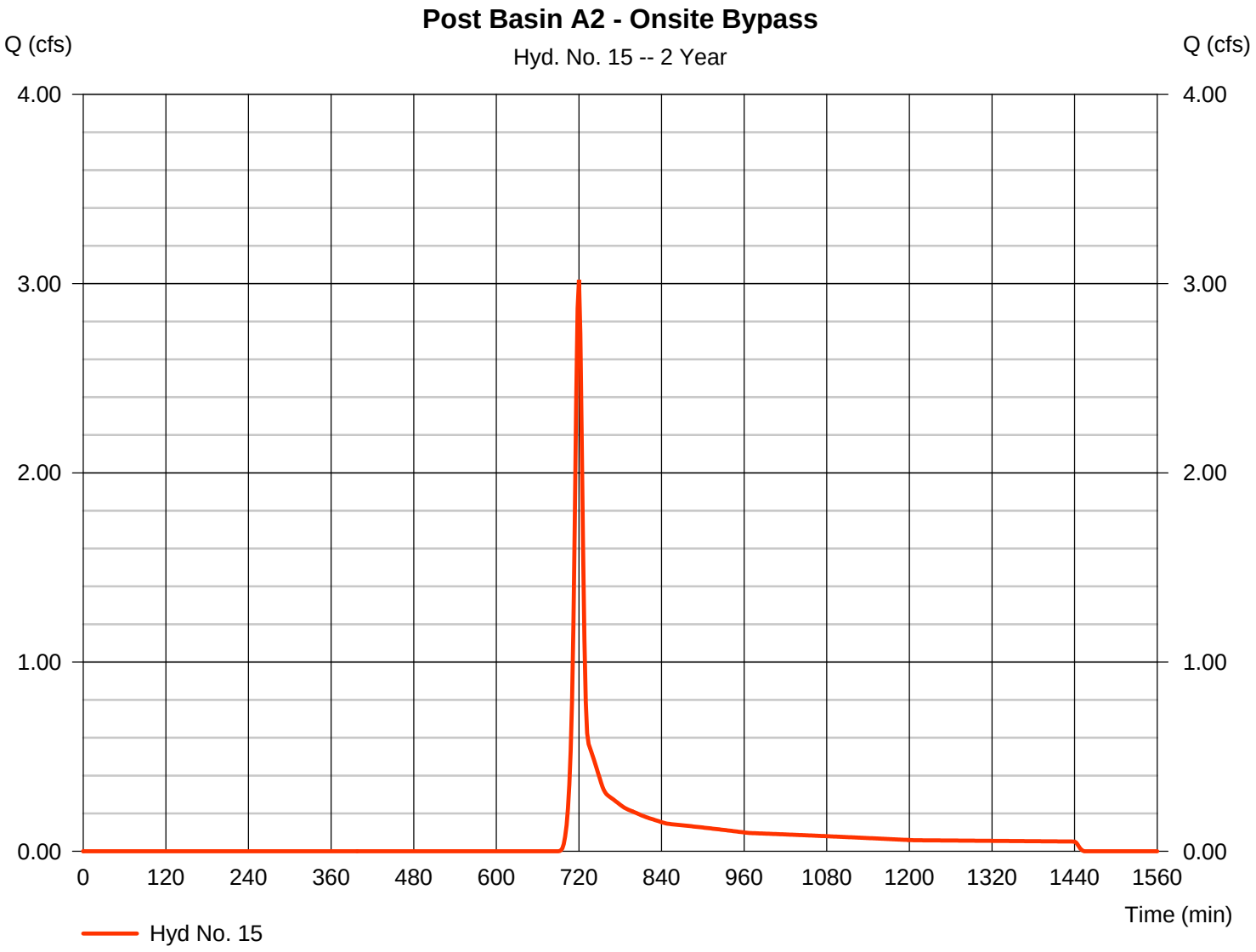


Hydrograph Report

Hyd. No. 15

Post Basin A2 - Onsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.020 cfs
Storm frequency	=	2 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	7,265 cuft
Drainage area	=	2.000 ac	Curve number	=	63.7
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	8.80 min
Total precip.	=	4.08 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

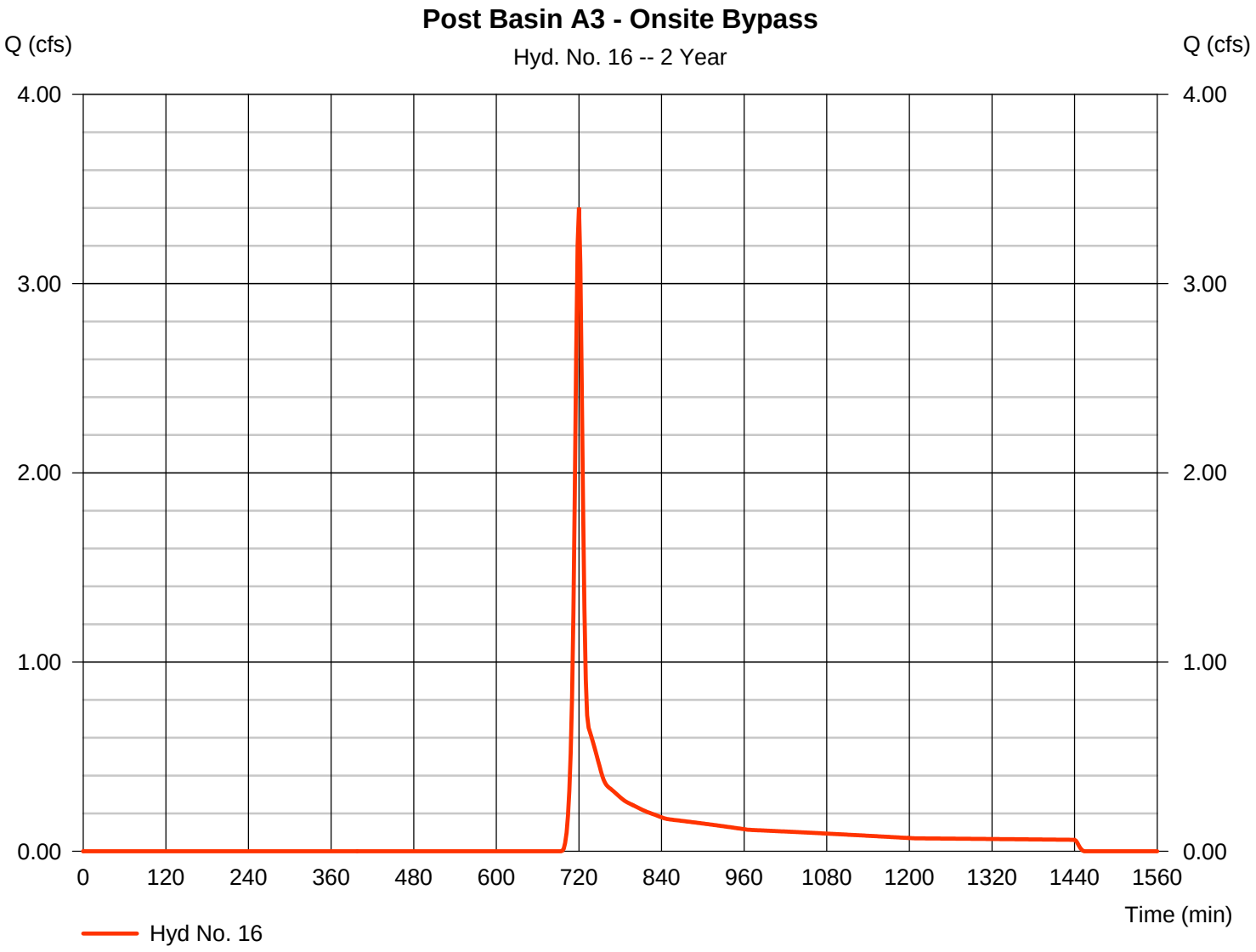


Hydrograph Report

Hyd. No. 16

Post Basin A3 - Onsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.402 cfs
Storm frequency	=	2 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	8,307 cuft
Drainage area	=	2.450 ac	Curve number	=	62.5
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	9.30 min
Total precip.	=	4.08 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

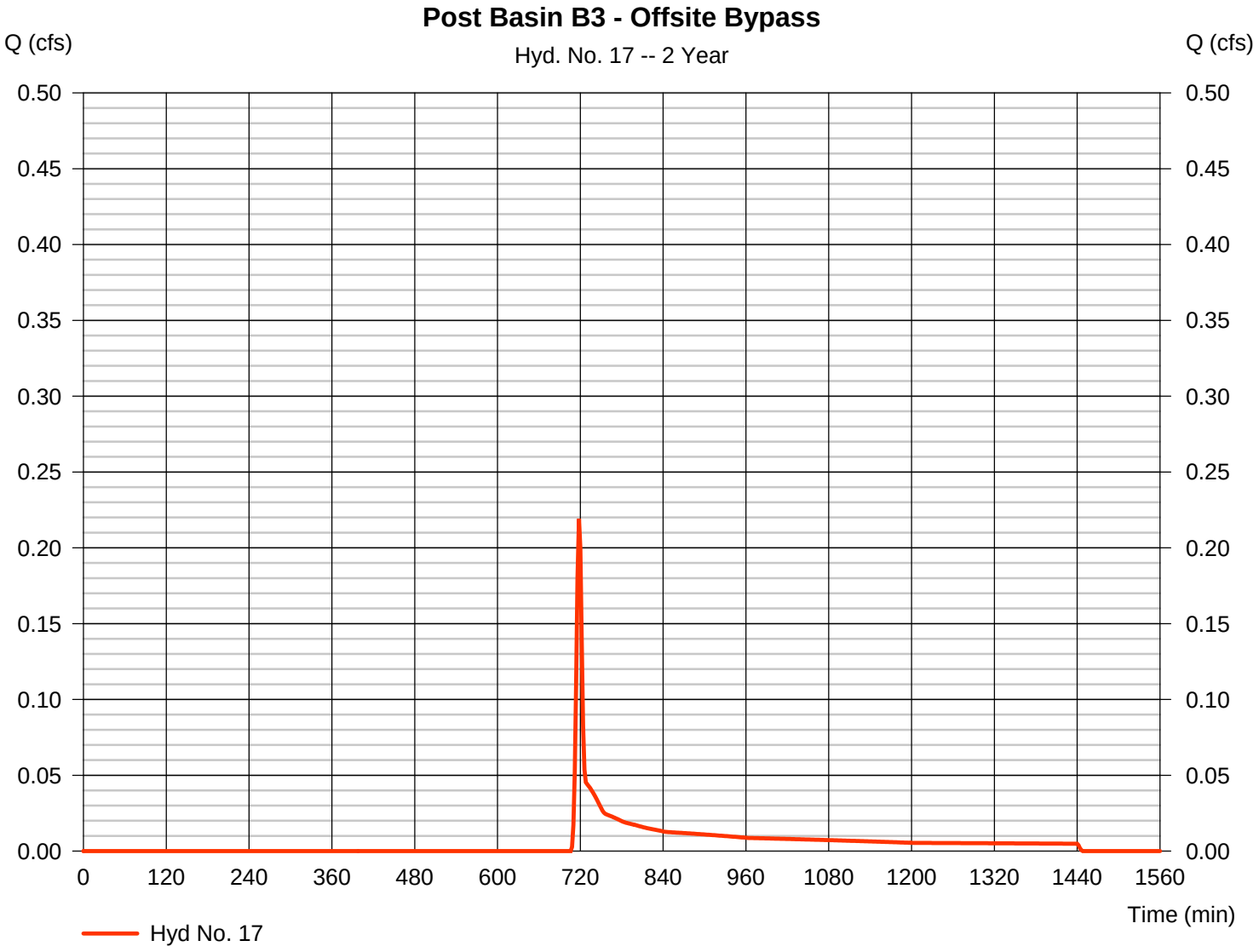


Hydrograph Report

Hyd. No. 17

Post Basin B3 - Offsite Bypass

Hydrograph type	= SCS Runoff	Peak discharge	= 0.219 cfs
Storm frequency	= 2 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 535 cuft
Drainage area	= 0.280 ac	Curve number	= 55
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 4.08 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

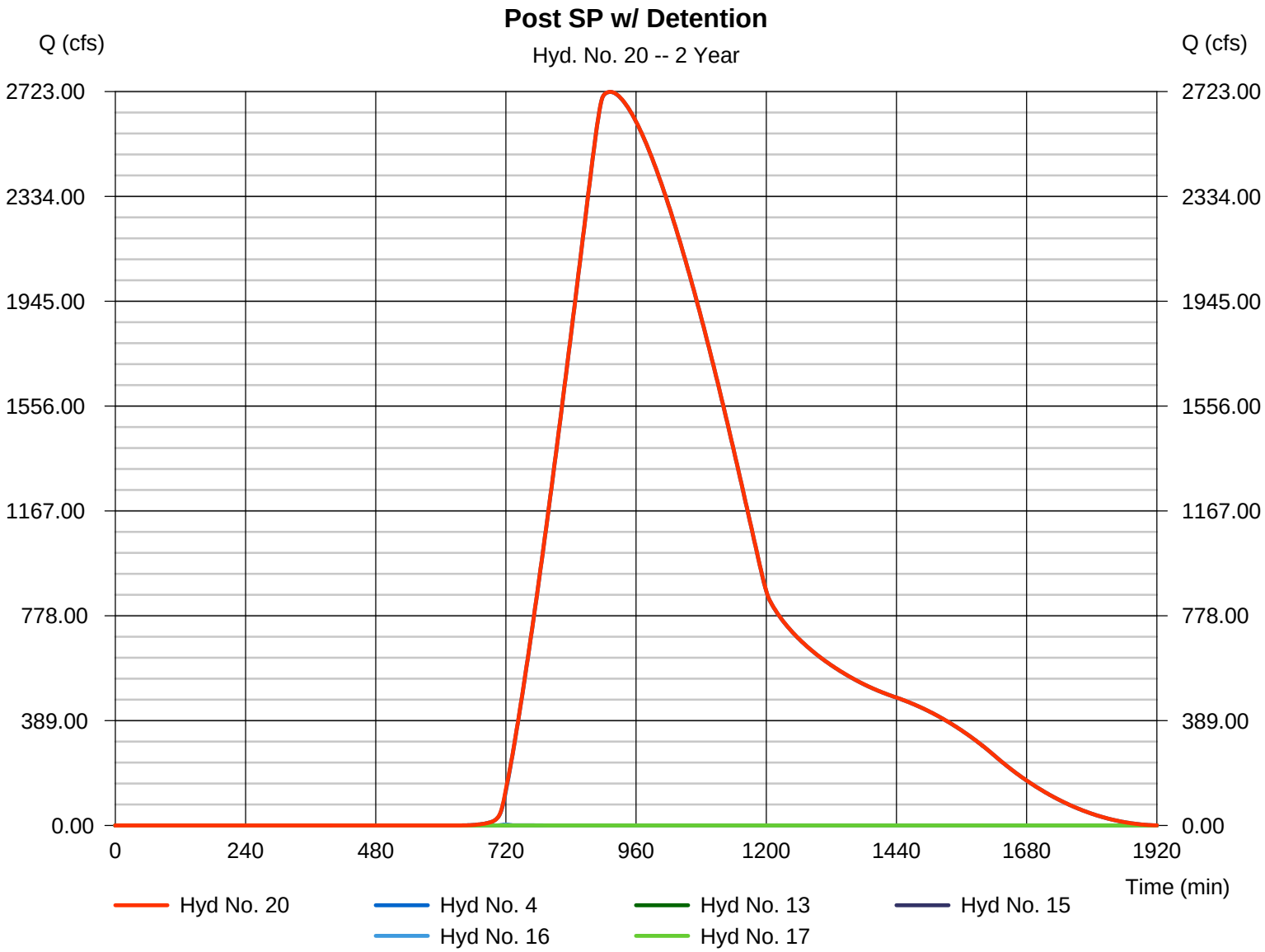


Hydrograph Report

Hyd. No. 20

Post SP w/ Detention

Hydrograph type	=	Combine	Peak discharge	=	2722.01 cfs
Storm frequency	=	2 yrs	Time to peak	=	912 min
Time interval	=	2 min	Hyd. volume	=	65,705,876 cuft
Inflow hyds.	=	4, 13, 15, 16, 17	Contrib. drain. area	=	11951.730 ac

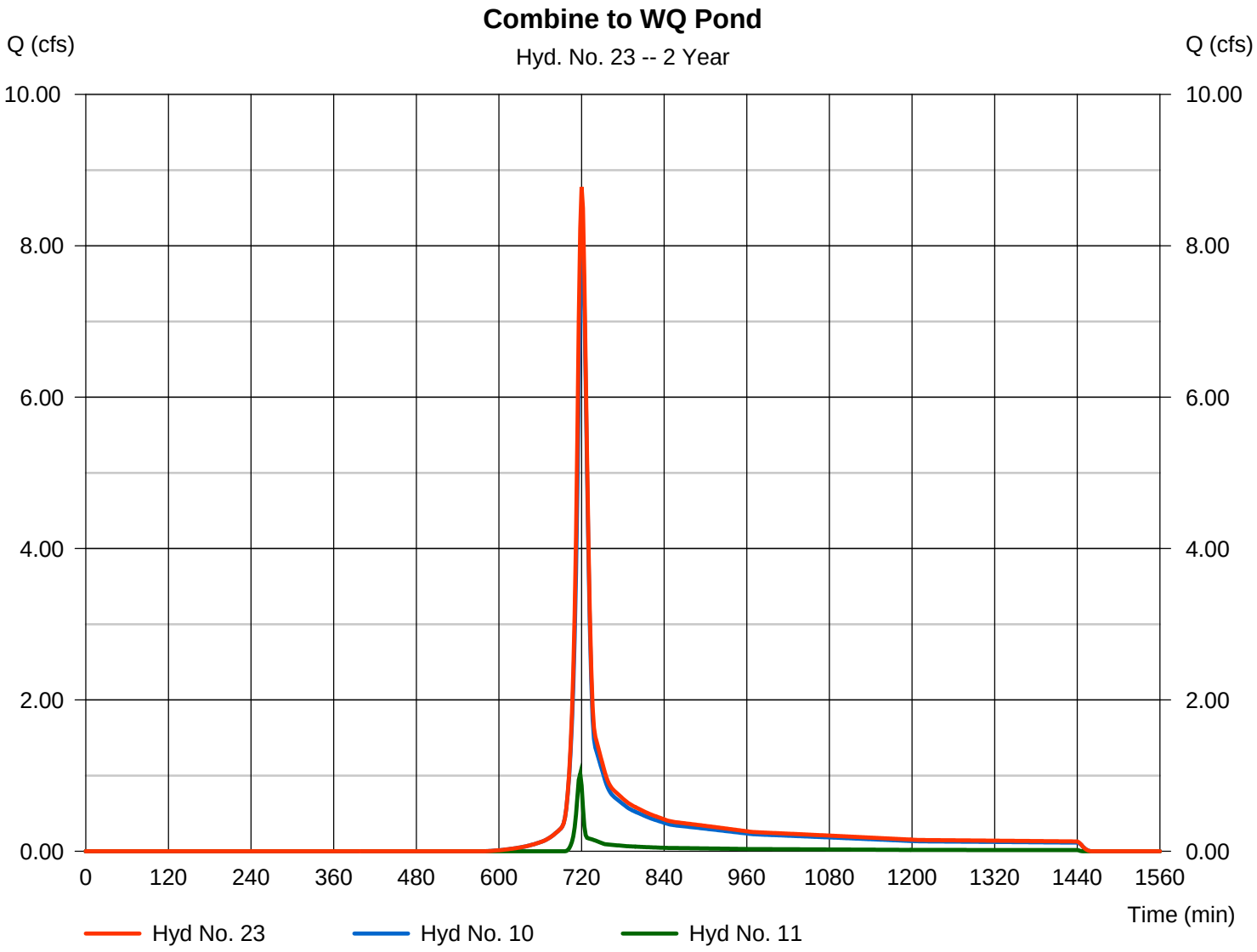


Hydrograph Report

Hyd. No. 23

Combine to WQ Pond

Hydrograph type	=	Combine	Peak discharge	=	8.778 cfs
Storm frequency	=	2 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	22,858 cuft
Inflow hyds.	=	10, 11	Contrib. drain. area	=	3.910 ac



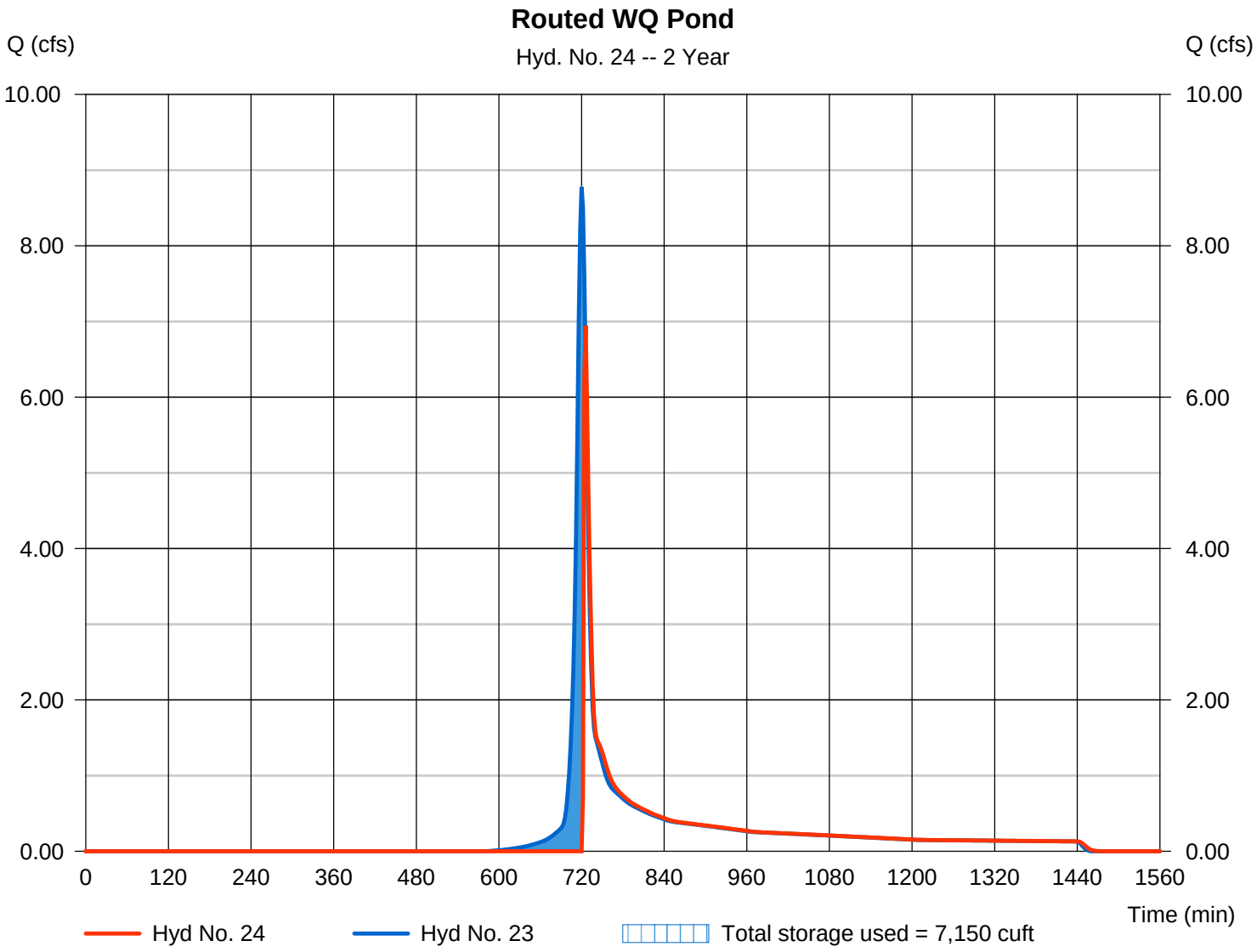
Hydrograph Report

Hyd. No. 24

Routed WQ Pond

Hydrograph type	=	Reservoir	Peak discharge	=	6.945 cfs
Storm frequency	=	2 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	16,518 cuft
Inflow hyd. No.	=	23 - Combine to WQ Pond	Max. Elevation	=	833.39 ft
Reservoir name	=	WQ Pond	Max. Storage	=	7,150 cuft

Storage Indication method used.

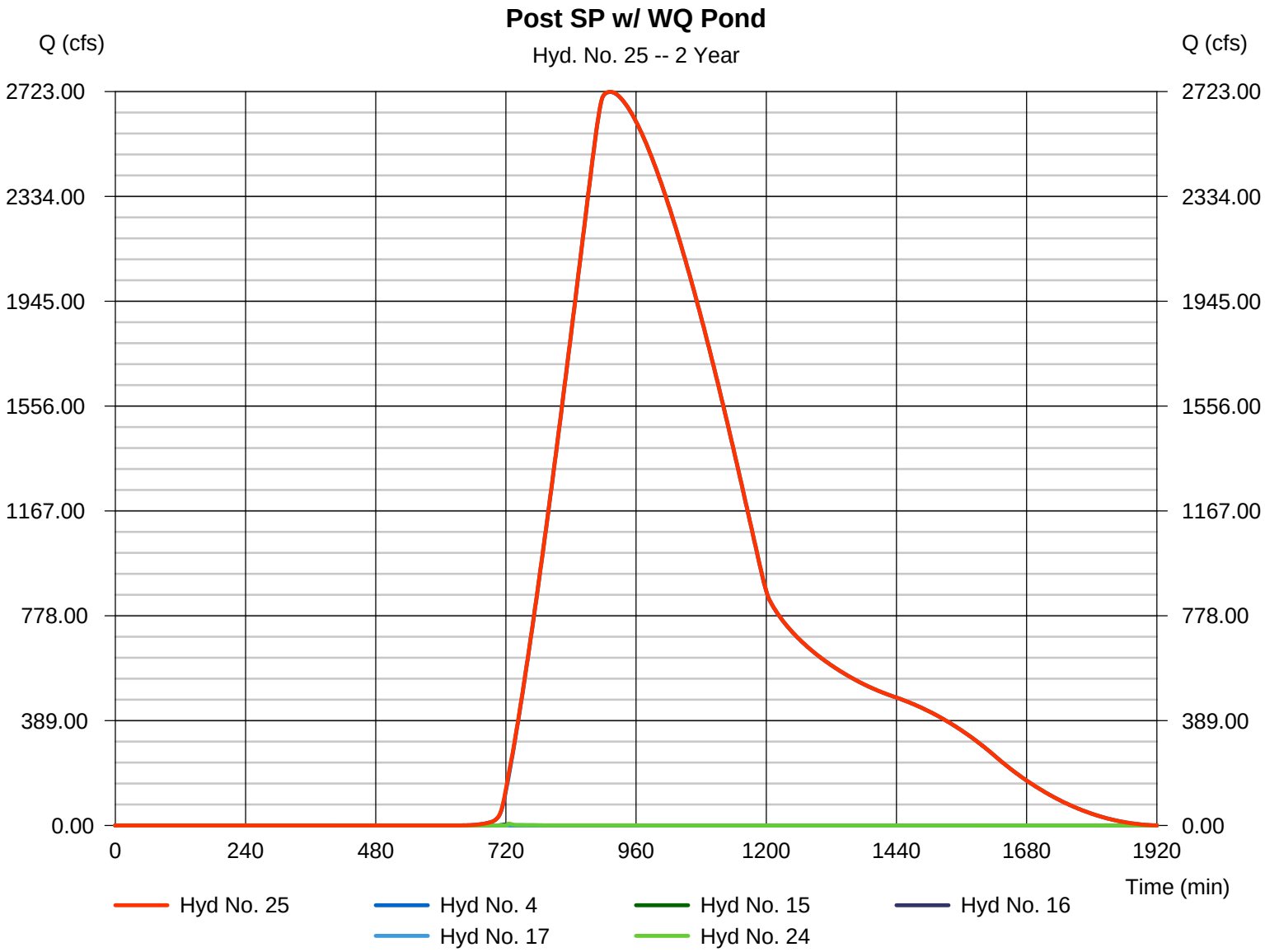


Hydrograph Report

Hyd. No. 25

Post SP w/ WQ Pond

Hydrograph type	=	Combine	Peak discharge	=	2722.19 cfs
Storm frequency	=	2 yrs	Time to peak	=	912 min
Time interval	=	2 min	Hyd. volume	=	65,706,220 cuft
Inflow hyds.	=	4, 15, 16, 17, 24	Contrib. drain. area	=	11951.730 ac



Hydrograph Summary Report

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

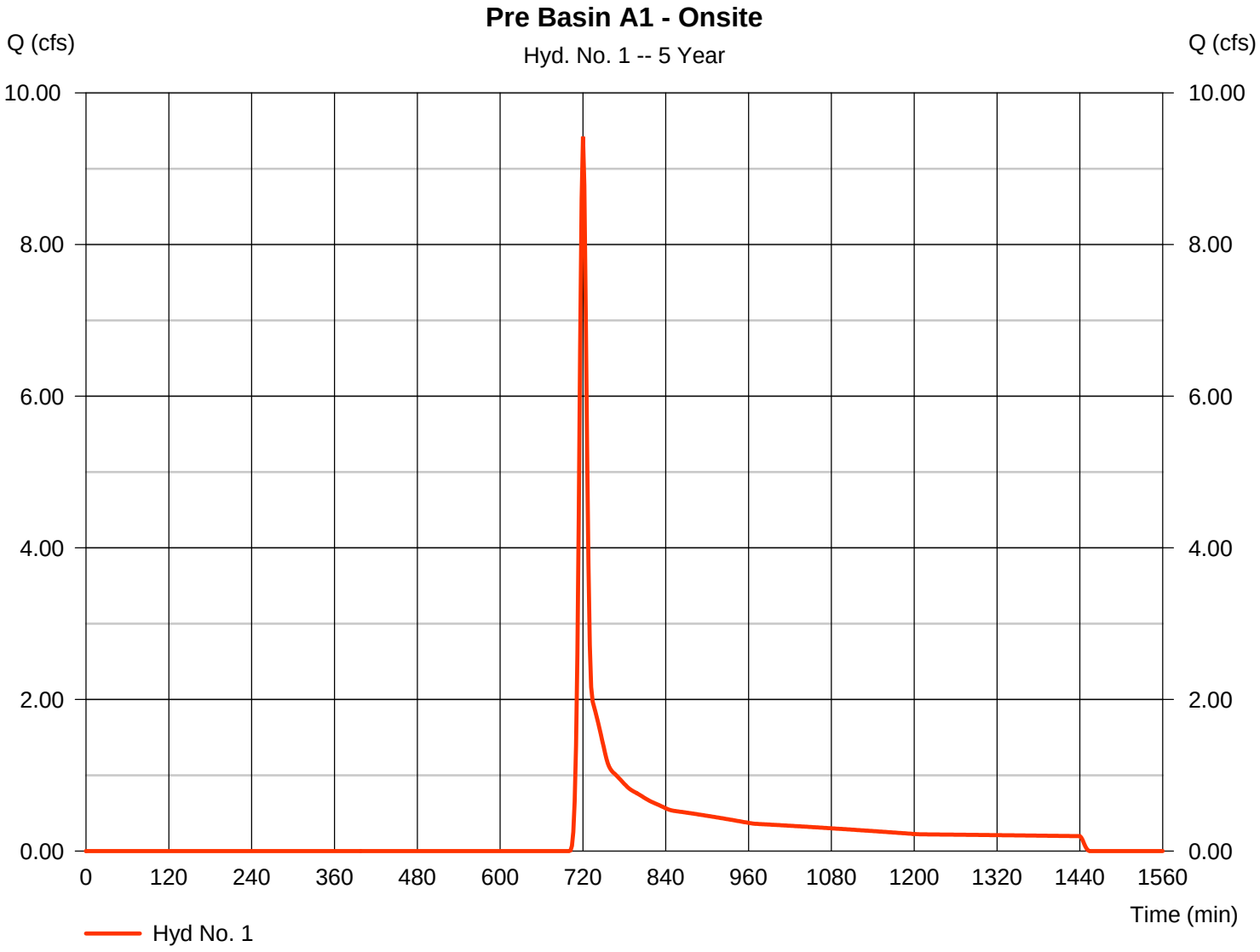
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	9.422	2	720	24,591	------	------	------	Pre Basin A1 - Onsite
2	SCS Runoff	2.027	2	718	4,128	------	------	------	Pre Basin B2 - Offsite
4	SCS Runoff	3762.05	2	908	88,566,448	------	------	------	Basin B1 - Offsite
6	Combine	3762.57	2	908	88,595,192	1, 2, 4,	------	------	Pre SP
10	SCS Runoff	10.57	2	720	27,480	------	------	------	Post Basin A1 to Pond - Onsite
11	SCS Runoff	1.526	2	718	3,091	------	------	------	Post B2 to Pond - Offsite
12	Combine	11.84	2	720	30,572	10, 11	------	------	Combine to Pond
13	Reservoir	0.194	2	1198	24,179	12	839.68	22,722	Routed Pond
15	SCS Runoff	4.453	2	720	10,393	------	------	------	Post Basin A2 - Onsite Bypass
16	SCS Runoff	5.106	2	720	12,006	------	------	------	Post Basin A3 - Onsite Bypass
17	SCS Runoff	0.386	2	718	841	------	------	------	Post Basin B3 - Offsite Bypass
20	Combine	3762.60	2	908	88,613,320	4, 13, 15, 16, 17,	------	------	Post SP w/ Detention
23	Combine	11.84	2	720	30,572	10, 11,	------	------	Combine to WQ Pond
24	Reservoir	11.62	2	722	24,232	23	833.50	7,393	Routed WQ Pond
25	Combine	3762.84	2	908	88,613,888	4, 15, 16, 17, 24	------	------	Post SP w/ WQ Pond

Hydrograph Report

Hyd. No. 1

Pre Basin A1 - Onsite

Hydrograph type	= SCS Runoff	Peak discharge	= 9.422 cfs
Storm frequency	= 5 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 24,591 cuft
Drainage area	= 7.680 ac	Curve number	= 55
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 9.60 min
Total precip.	= 4.80 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

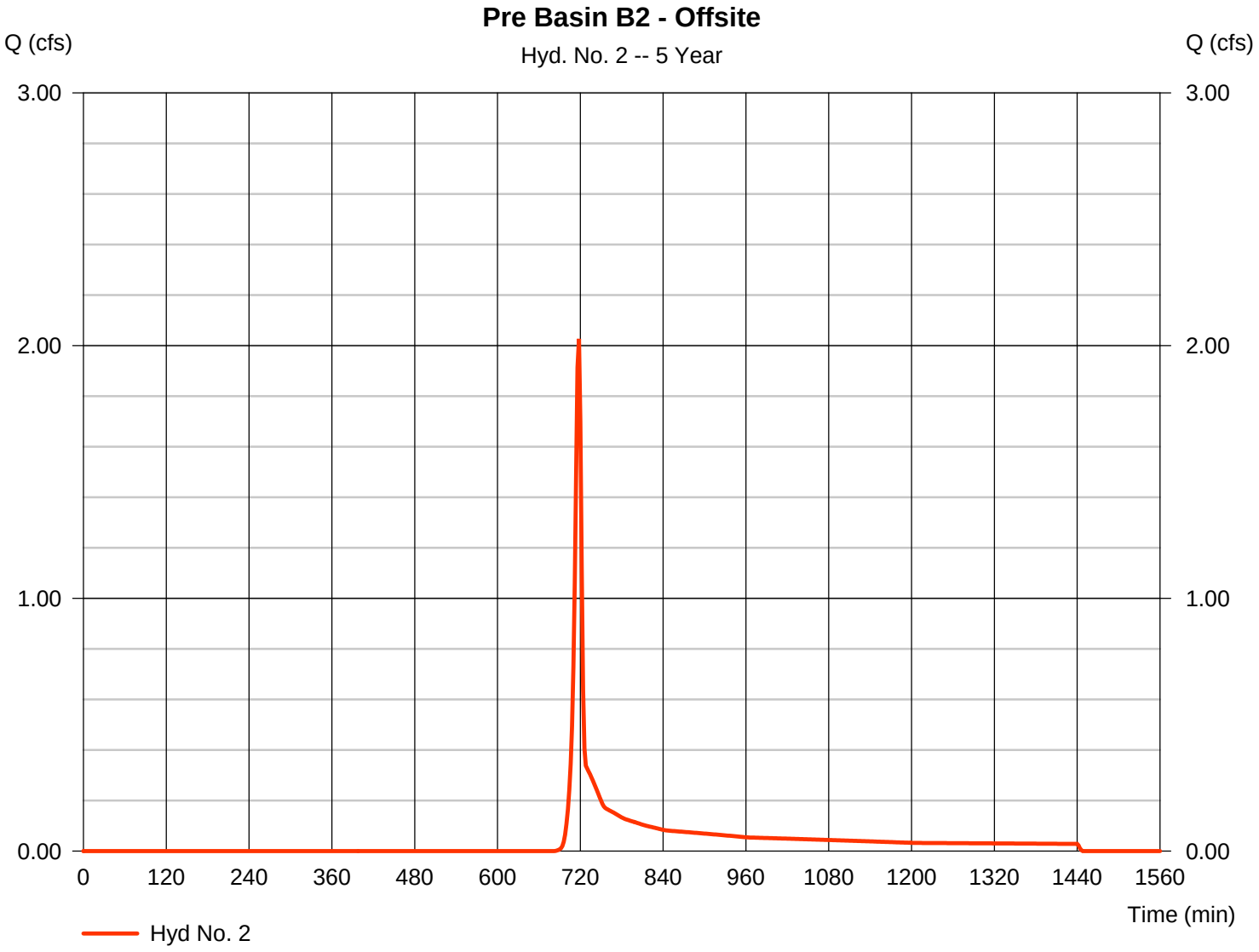


Hydrograph Report

Hyd. No. 2

Pre Basin B2 - Offsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.027 cfs
Storm frequency	=	5 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	4,128 cuft
Drainage area	=	0.970 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	4.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

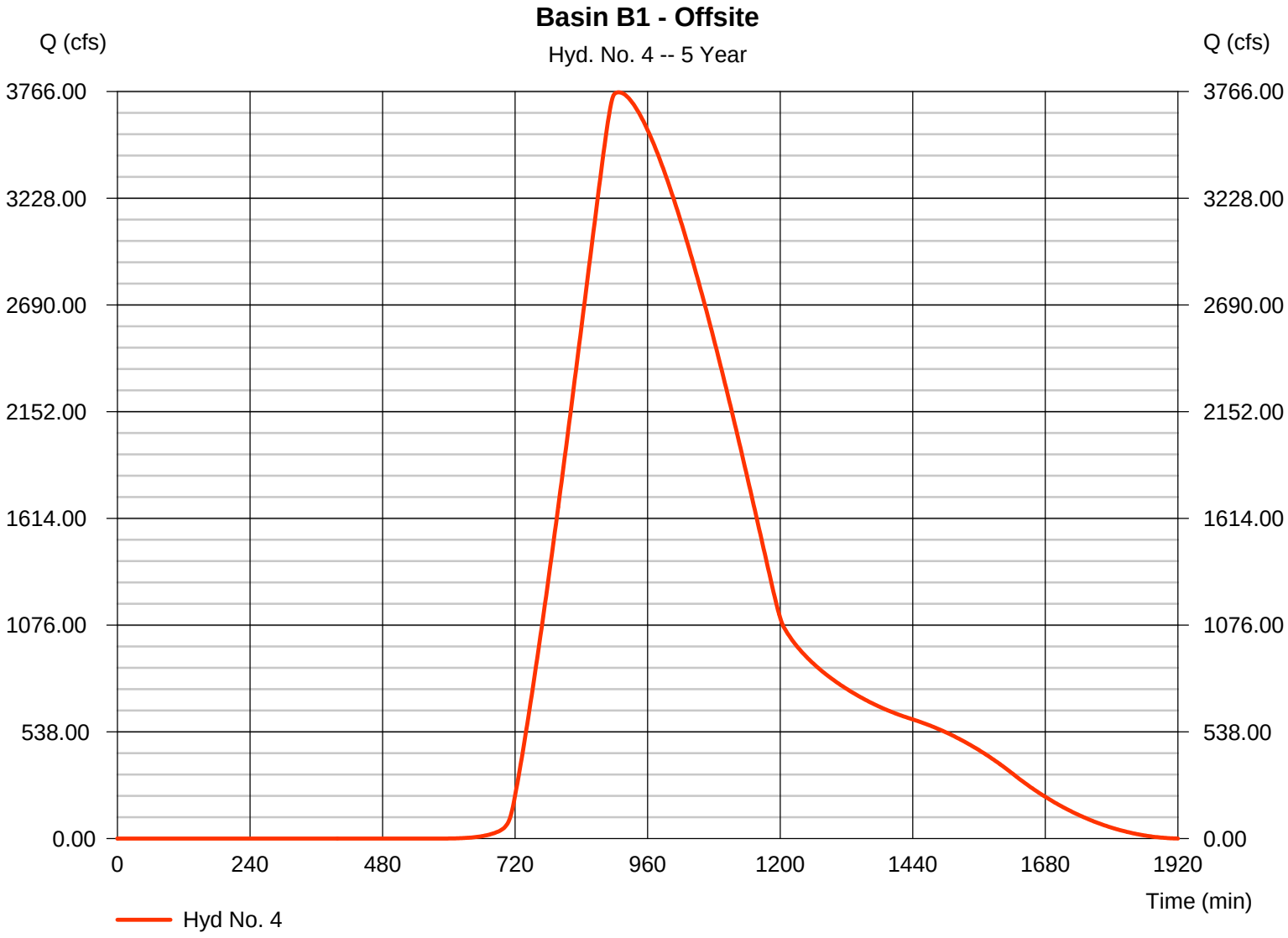


Hydrograph Report

Hyd. No. 4

Basin B1 - Offsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	3762.05 cfs
Storm frequency	=	5 yrs	Time to peak	=	908 min
Time interval	=	2 min	Hyd. volume	=	88,566,448 cuft
Drainage area	=	11947.000 ac	Curve number	=	72
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	309.20 min
Total precip.	=	4.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

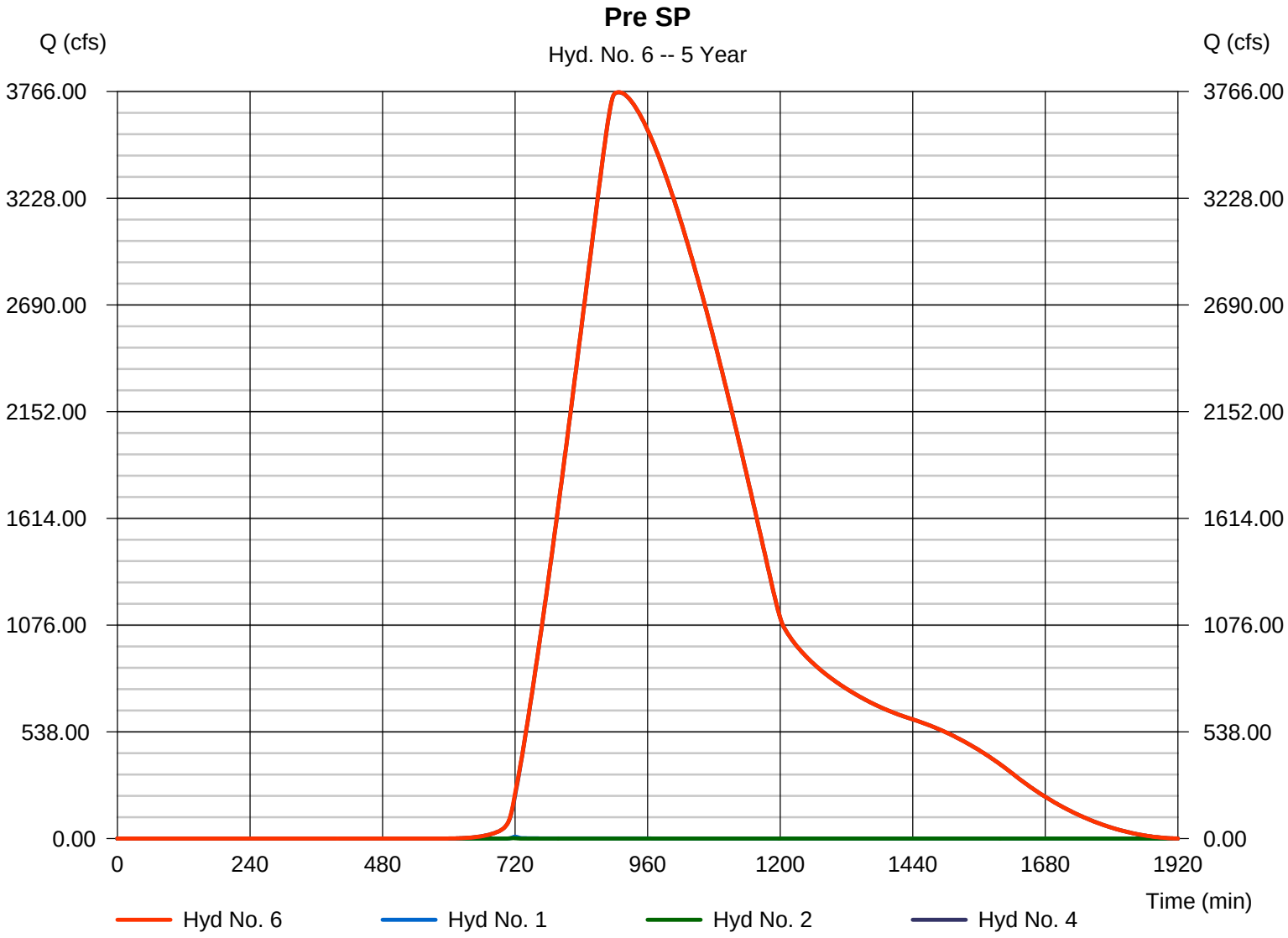


Hydrograph Report

Hyd. No. 6

Pre SP

Hydrograph type	=	Combine	Peak discharge	=	3762.57 cfs
Storm frequency	=	5 yrs	Time to peak	=	908 min
Time interval	=	2 min	Hyd. volume	=	88,595,192 cuft
Inflow hyds.	=	1, 2, 4	Contrib. drain. area	=	11955.650 ac

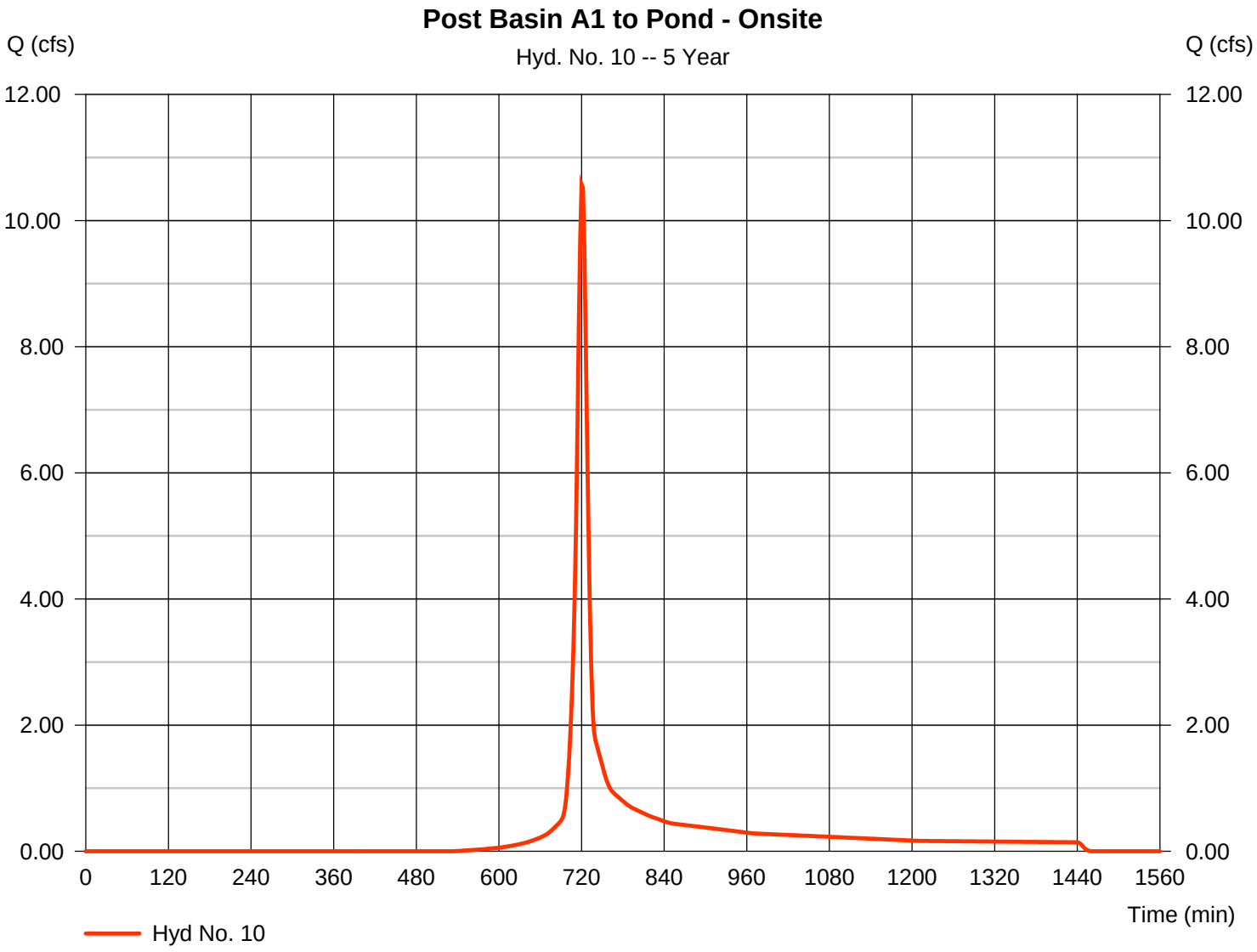


Hydrograph Report

Hyd. No. 10

Post Basin A1 to Pond - Onsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	10.57 cfs
Storm frequency	=	5 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	27,480 cuft
Drainage area	=	3.220 ac	Curve number	=	74.9
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	11.10 min
Total precip.	=	4.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

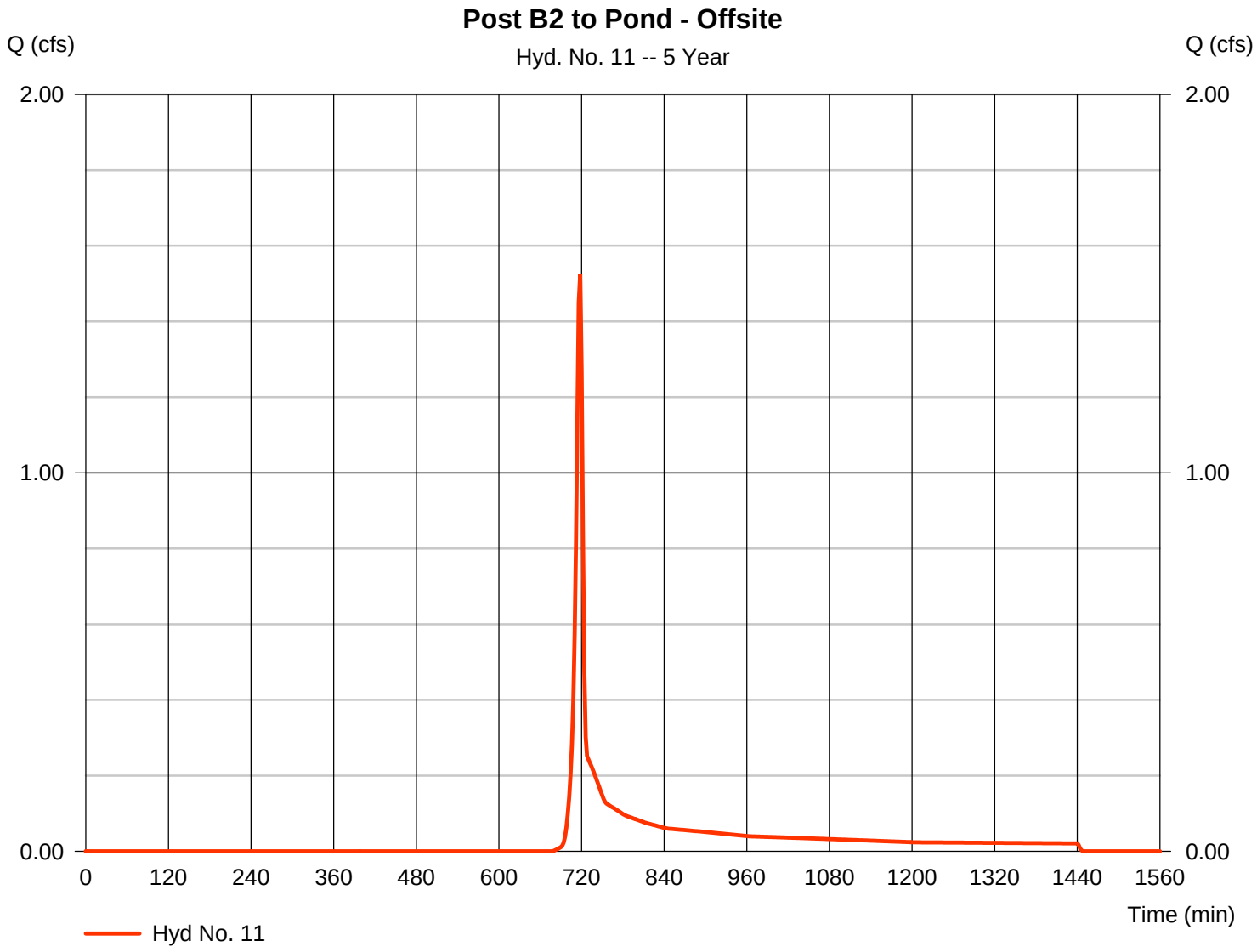


Hydrograph Report

Hyd. No. 11

Post B2 to Pond - Offsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.526 cfs
Storm frequency	=	5 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	3,091 cuft
Drainage area	=	0.690 ac	Curve number	=	62
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	4.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

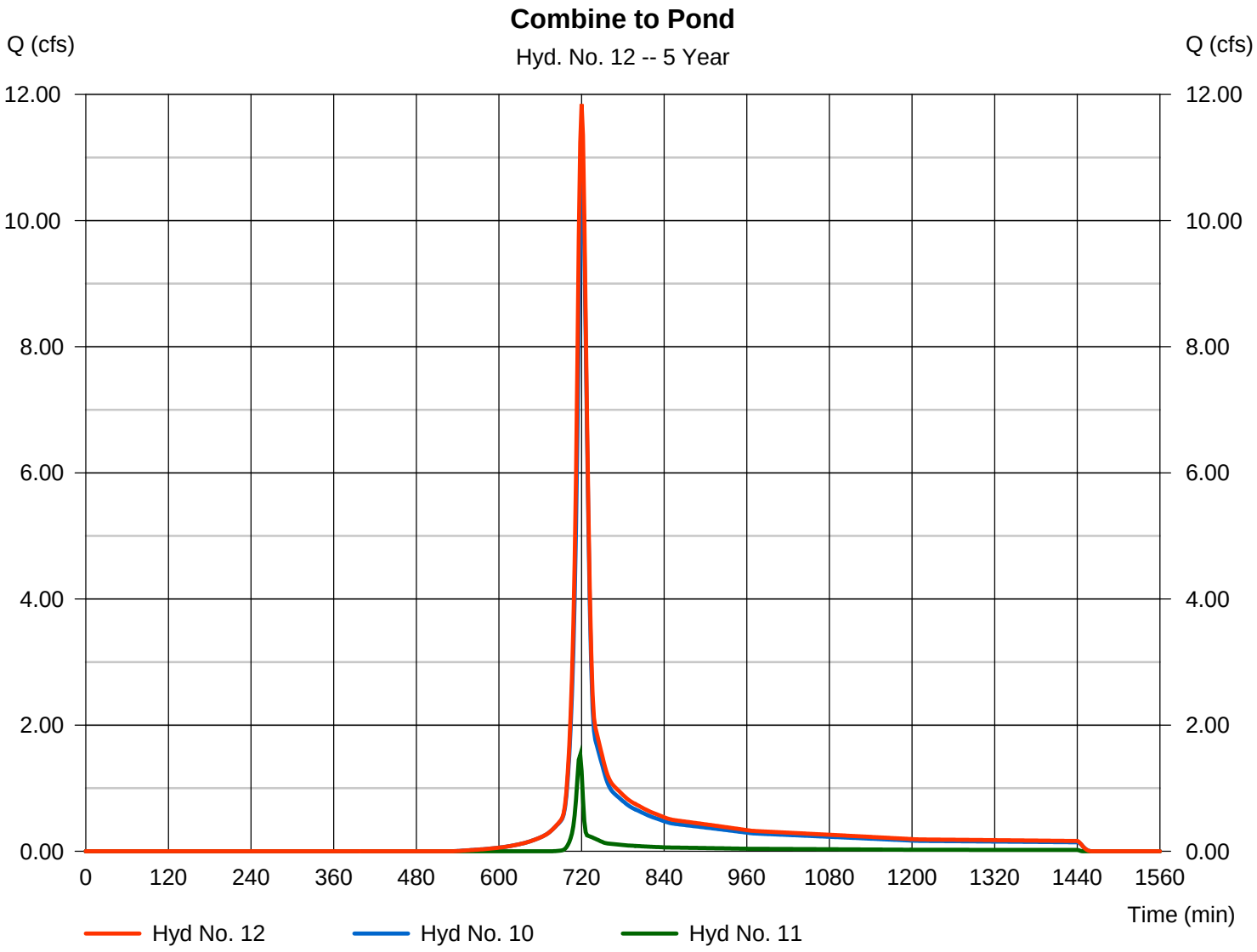


Hydrograph Report

Hyd. No. 12

Combine to Pond

Hydrograph type	=	Combine	Peak discharge	=	11.84 cfs
Storm frequency	=	5 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	30,572 cuft
Inflow hyds.	=	10, 11	Contrib. drain. area	=	3.910 ac



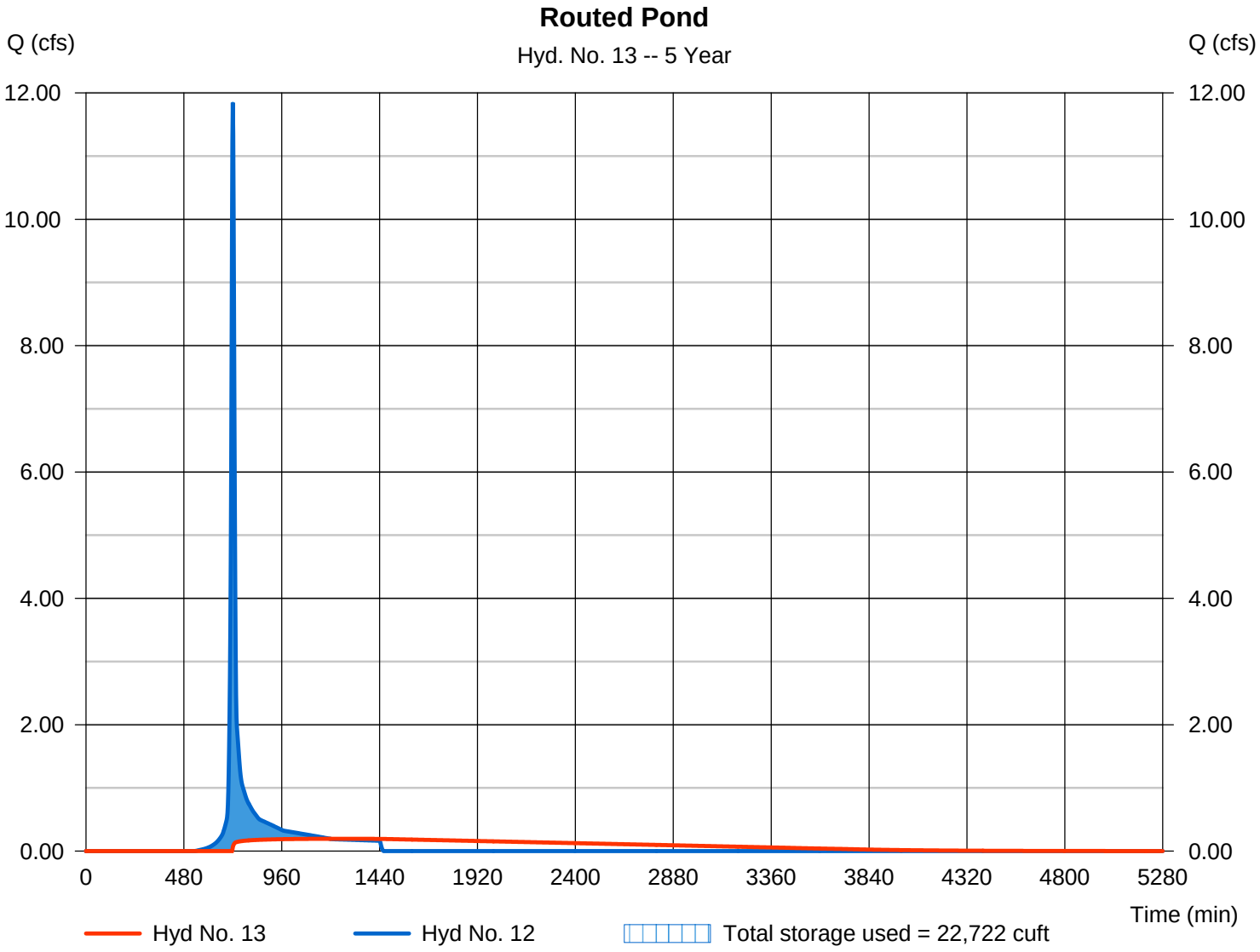
Hydrograph Report

Hyd. No. 13

Routed Pond

Hydrograph type	=	Reservoir	Peak discharge	=	0.194 cfs
Storm frequency	=	5 yrs	Time to peak	=	1198 min
Time interval	=	2 min	Hyd. volume	=	24,179 cuft
Inflow hyd. No.	=	12 - Combine to Pond	Max. Elevation	=	839.68 ft
Reservoir name	=	Pond	Max. Storage	=	22,722 cuft

Storage Indication method used.

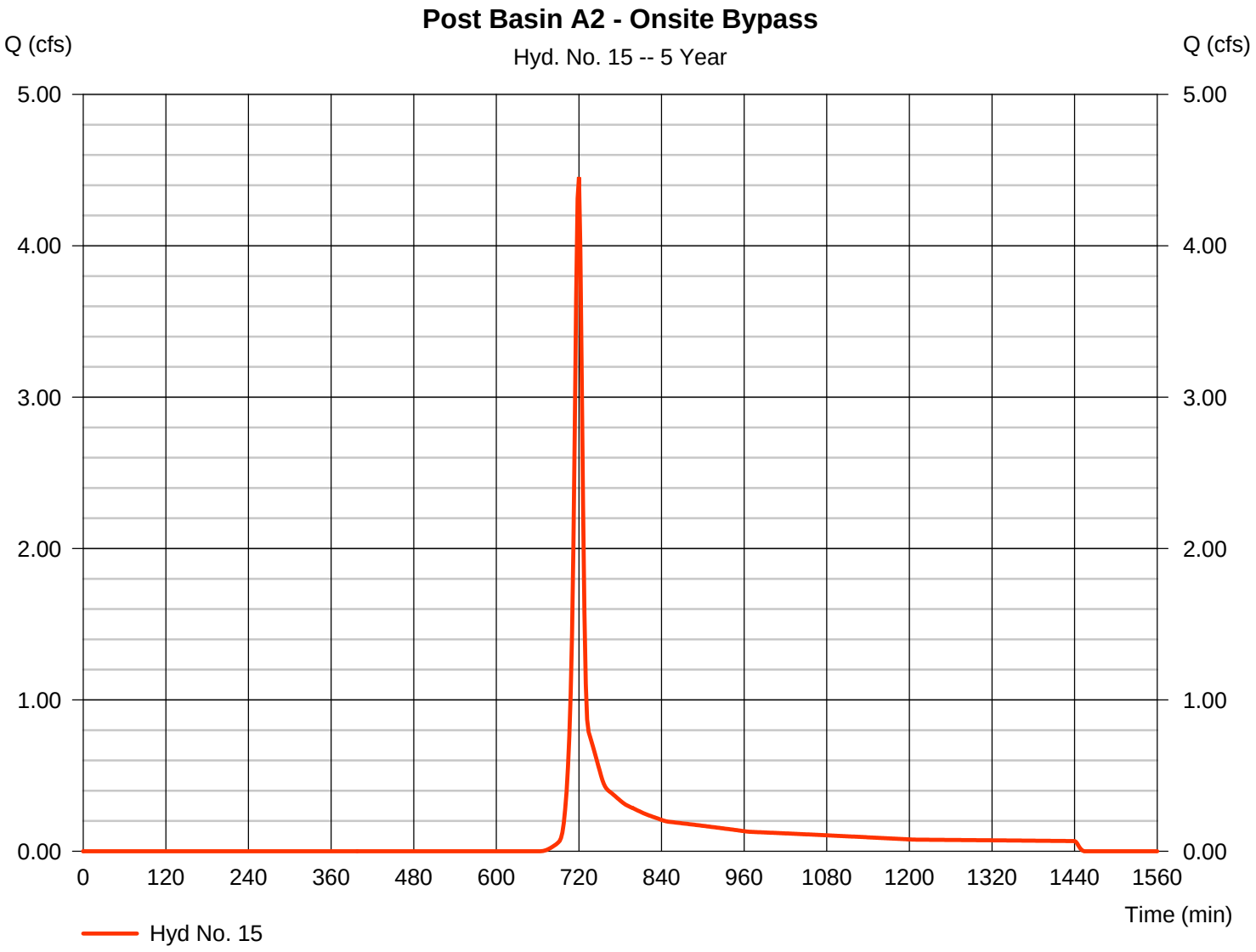


Hydrograph Report

Hyd. No. 15

Post Basin A2 - Onsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.453 cfs
Storm frequency	=	5 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	10,393 cuft
Drainage area	=	2.000 ac	Curve number	=	63.7
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	8.80 min
Total precip.	=	4.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

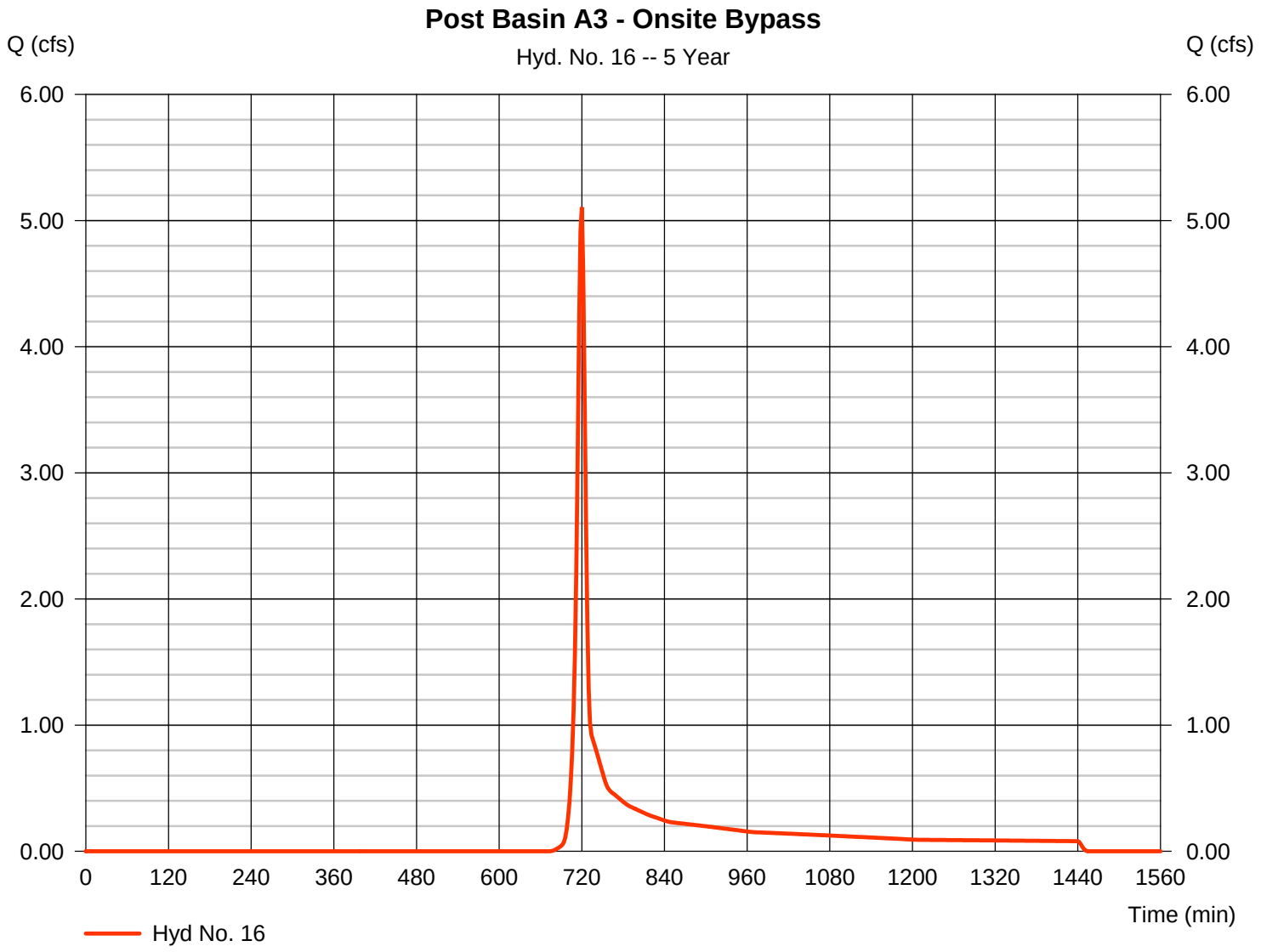


Hydrograph Report

Hyd. No. 16

Post Basin A3 - Onsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.106 cfs
Storm frequency	=	5 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	12,006 cuft
Drainage area	=	2.450 ac	Curve number	=	62.5
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	9.30 min
Total precip.	=	4.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

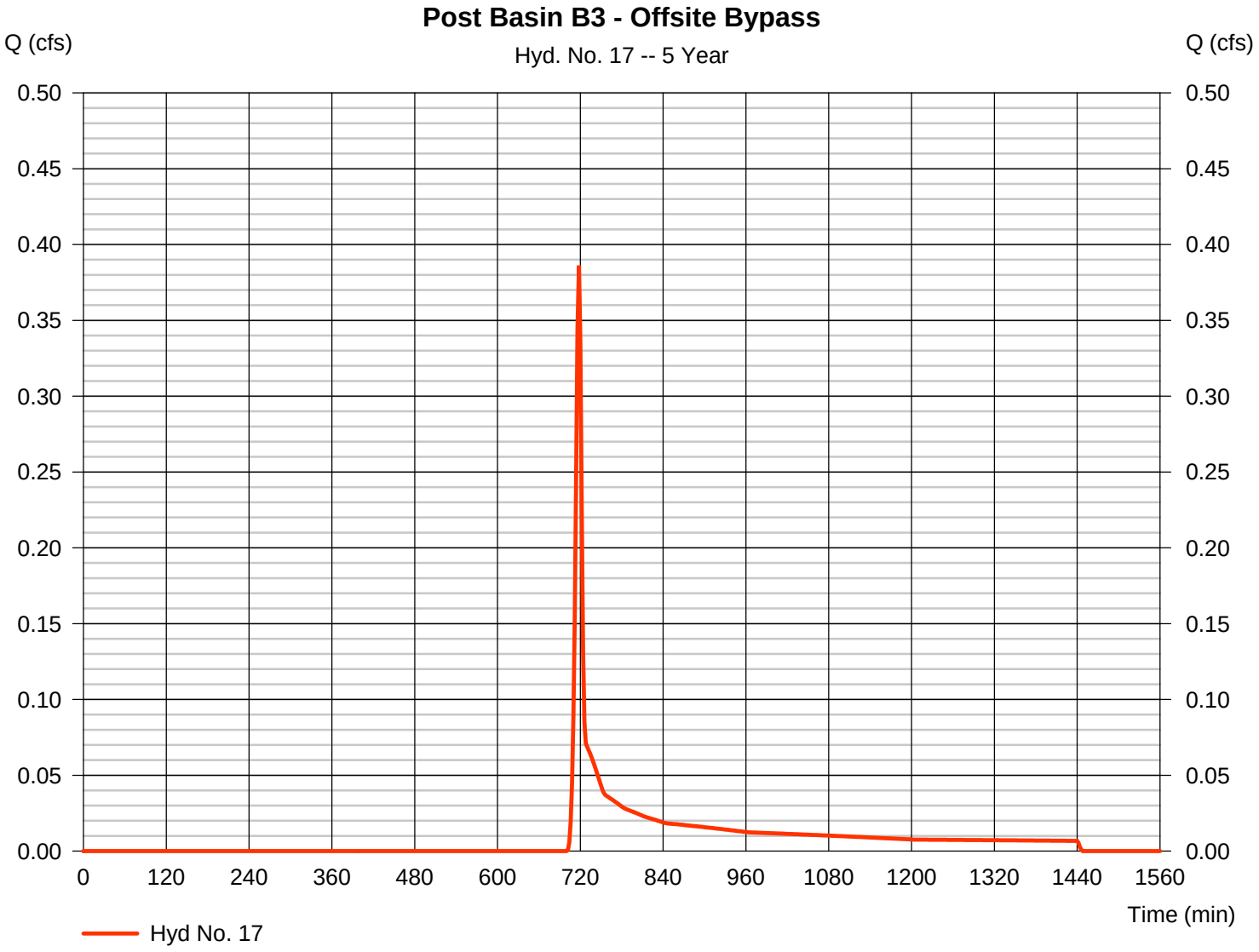


Hydrograph Report

Hyd. No. 17

Post Basin B3 - Offsite Bypass

Hydrograph type	= SCS Runoff	Peak discharge	= 0.386 cfs
Storm frequency	= 5 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 841 cuft
Drainage area	= 0.280 ac	Curve number	= 55
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 4.80 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

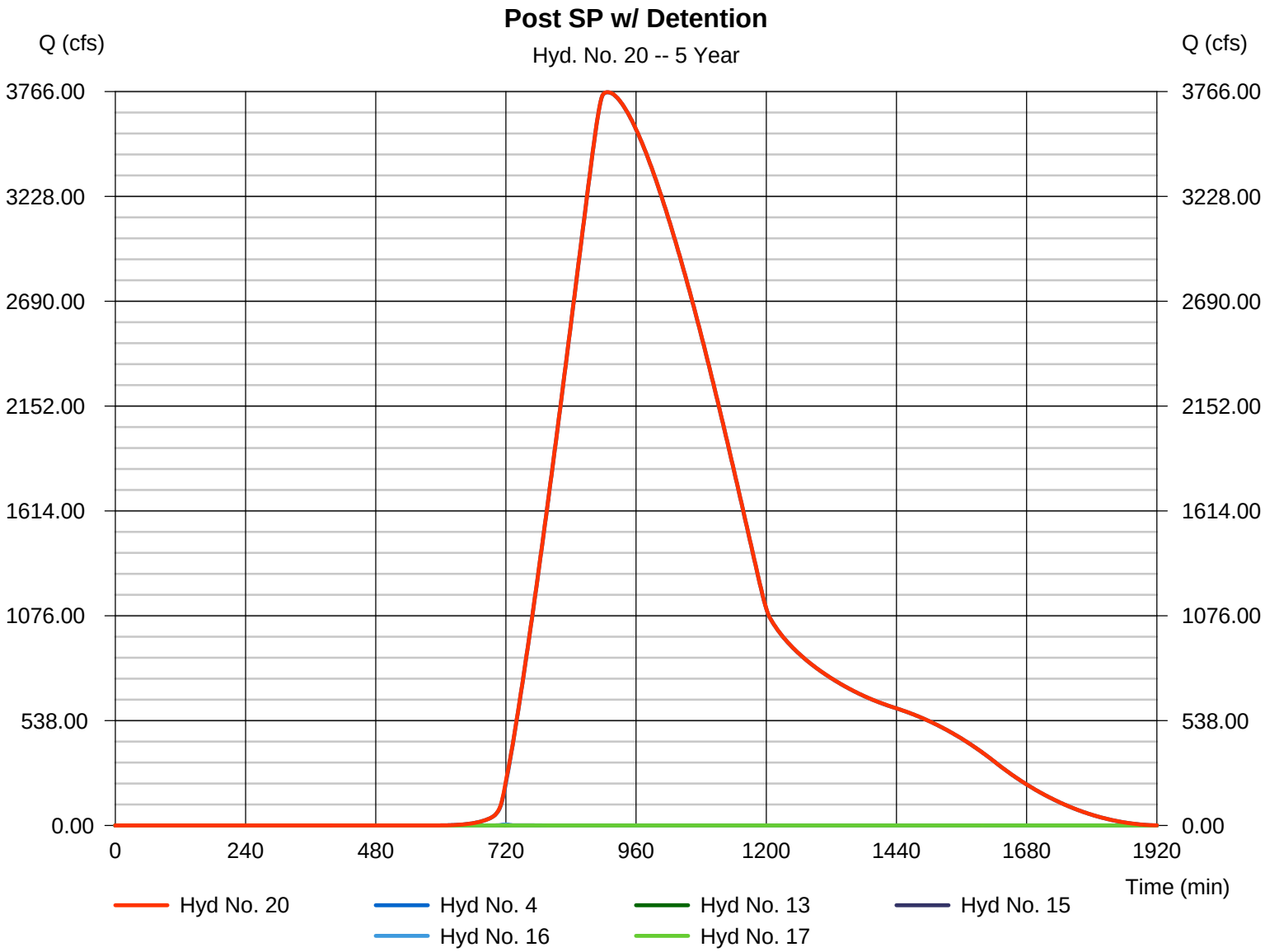


Hydrograph Report

Hyd. No. 20

Post SP w/ Detention

Hydrograph type	=	Combine	Peak discharge	=	3762.60 cfs
Storm frequency	=	5 yrs	Time to peak	=	908 min
Time interval	=	2 min	Hyd. volume	=	88,613,320 cuft
Inflow hyds.	=	4, 13, 15, 16, 17	Contrib. drain. area	=	11951.730 ac

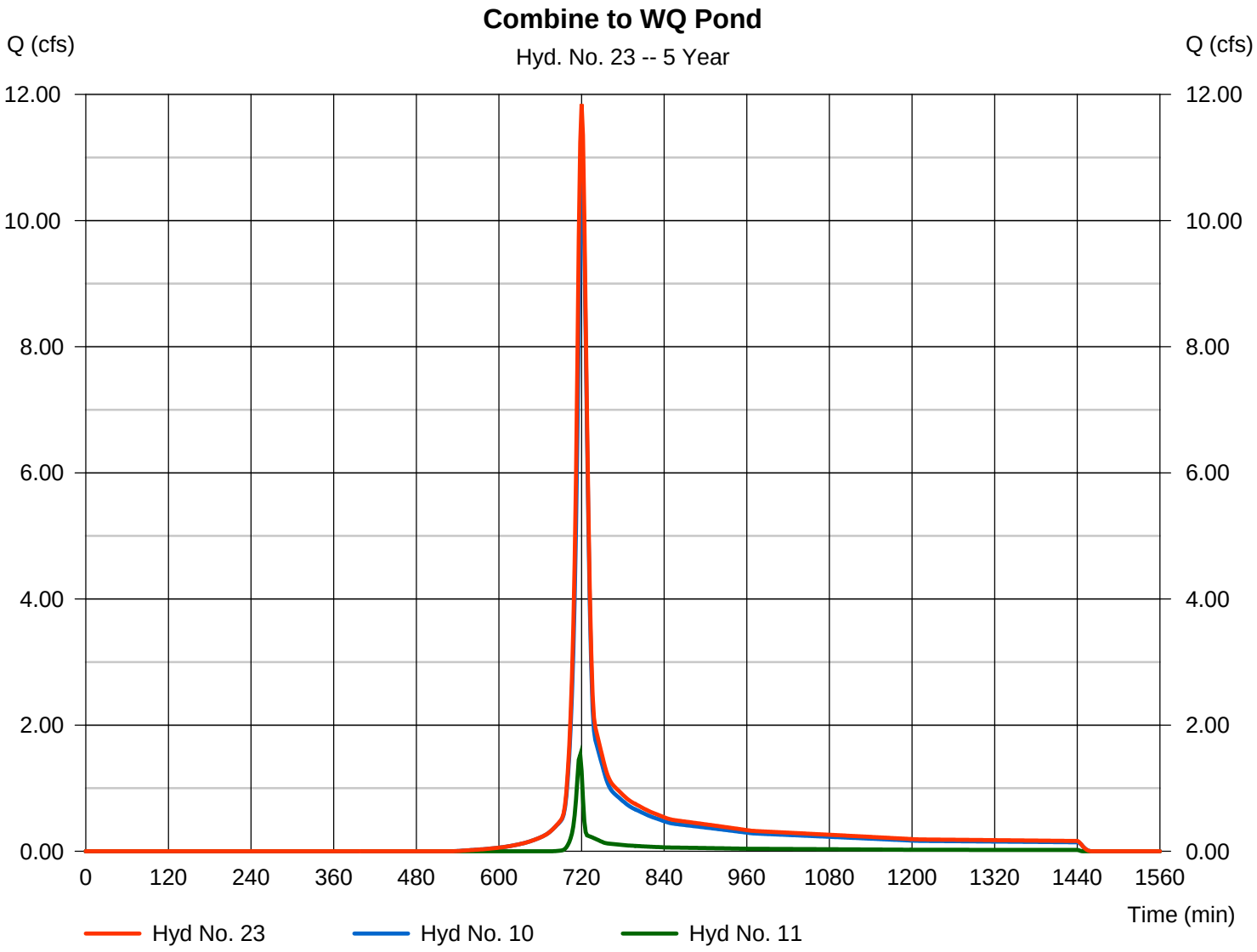


Hydrograph Report

Hyd. No. 23

Combine to WQ Pond

Hydrograph type	=	Combine	Peak discharge	=	11.84 cfs
Storm frequency	=	5 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	30,572 cuft
Inflow hyds.	=	10, 11	Contrib. drain. area	=	3.910 ac



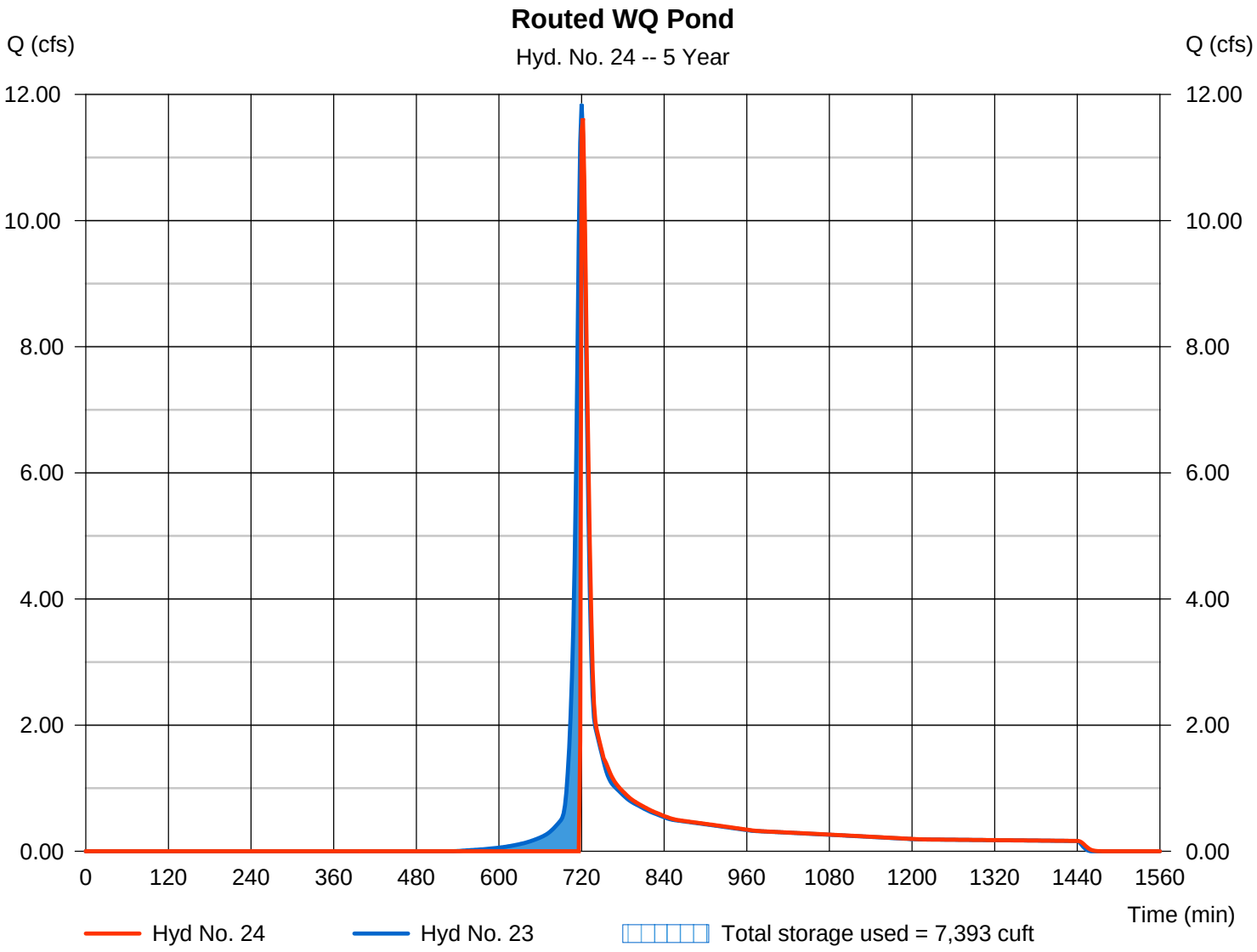
Hydrograph Report

Hyd. No. 24

Routed WQ Pond

Hydrograph type	=	Reservoir	Peak discharge	=	11.62 cfs
Storm frequency	=	5 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	24,232 cuft
Inflow hyd. No.	=	23 - Combine to WQ Pond	Max. Elevation	=	833.50 ft
Reservoir name	=	WQ Pond	Max. Storage	=	7,393 cuft

Storage Indication method used.

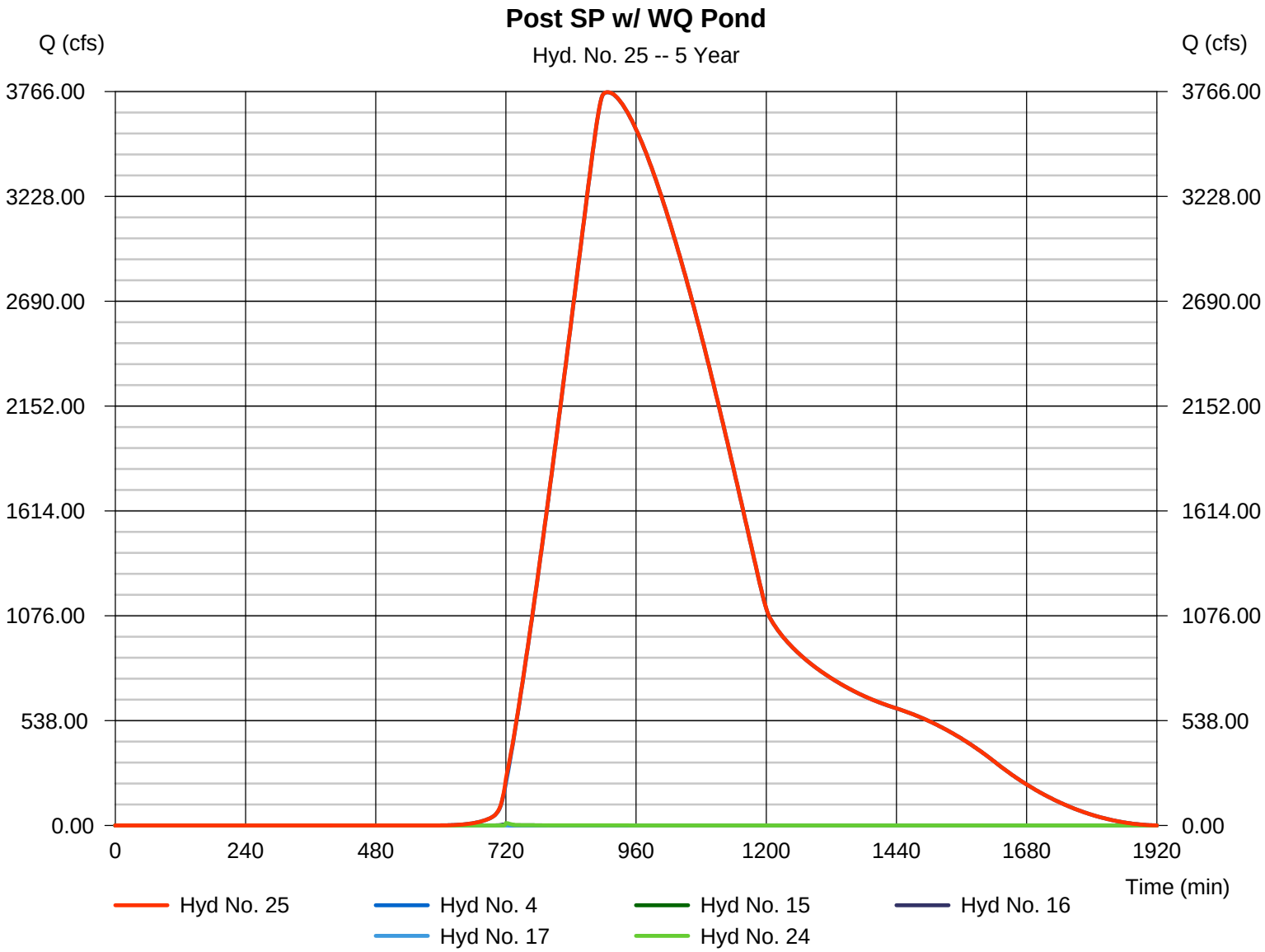


Hydrograph Report

Hyd. No. 25

Post SP w/ WQ Pond

Hydrograph type	=	Combine	Peak discharge	=	3762.84 cfs
Storm frequency	=	5 yrs	Time to peak	=	908 min
Time interval	=	2 min	Hyd. volume	=	88,613,888 cuft
Inflow hyds.	=	4, 15, 16, 17, 24	Contrib. drain. area	=	11951.730 ac



Hydrograph Summary Report

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

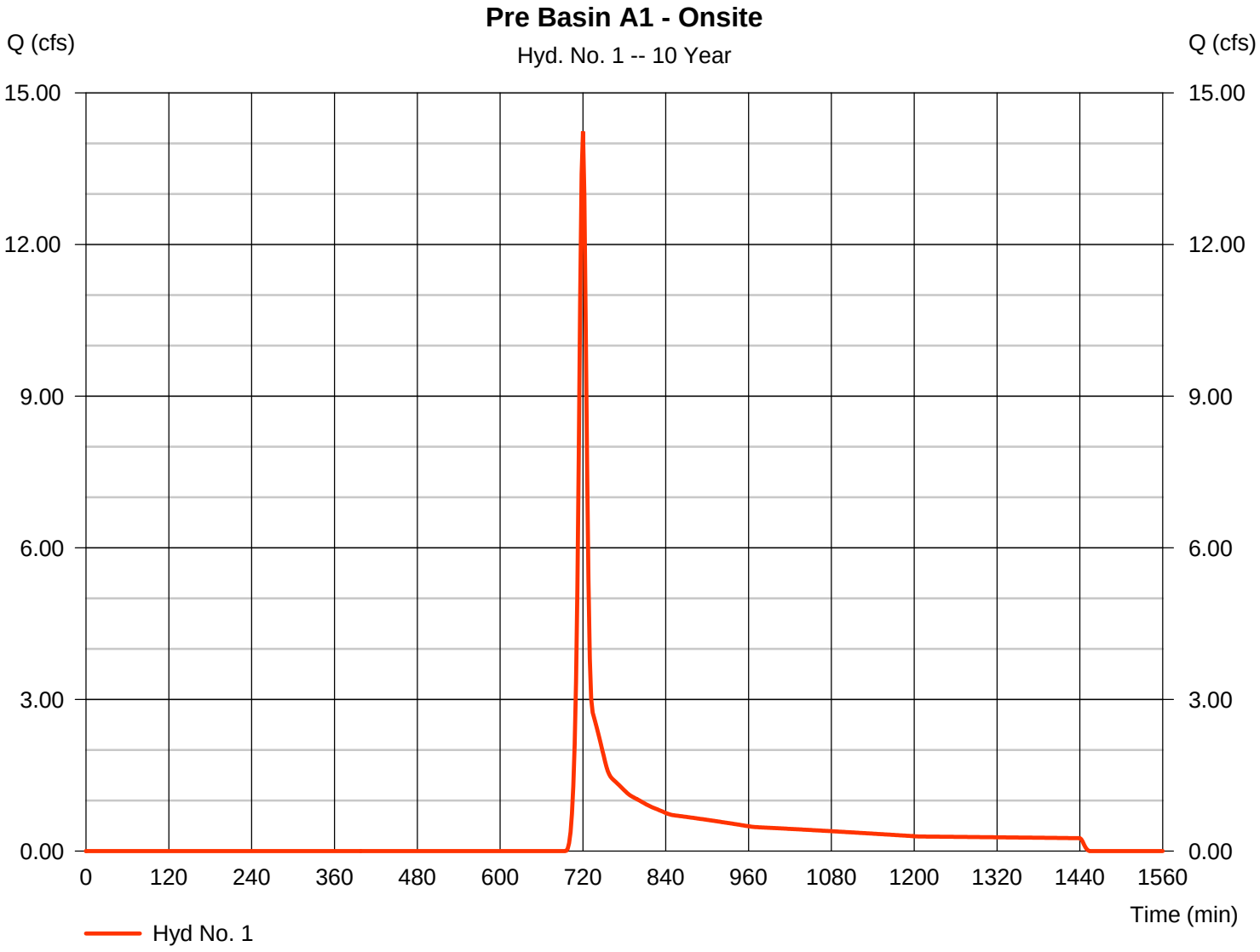
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	14.23	2	720	34,850	------	------	------	Pre Basin A1 - Onsite
2	SCS Runoff	2.778	2	718	5,584	------	------	------	Pre Basin B2 - Offsite
4	SCS Runoff	4875.49	2	904	112,842,208	------	------	------	Basin B1 - Offsite
6	Combine	4876.19	2	904	112,882,624	1, 2, 4,	------	------	Pre SP
10	SCS Runoff	13.33	2	720	34,571	------	------	------	Post Basin A1 to Pond - Onsite
11	SCS Runoff	2.072	2	718	4,154	------	------	------	Post B2 to Pond - Offsite
12	Combine	15.04	2	720	38,725	10, 11	------	------	Combine to Pond
13	Reservoir	0.654	2	840	32,332	12	840.25	24,927	Routed Pond
15	SCS Runoff	5.999	2	720	13,821	------	------	------	Post Basin A2 - Onsite Bypass
16	SCS Runoff	6.955	2	720	16,083	------	------	------	Post Basin A3 - Onsite Bypass
17	SCS Runoff	0.574	2	718	1,191	------	------	------	Post Basin B3 - Offsite Bypass
20	Combine	4876.52	2	904	112,905,080	4, 13, 15, 16, 17,	------	------	Post SP w/ Detention
23	Combine	15.04	2	720	38,725	10, 11,	------	------	Combine to WQ Pond
24	Reservoir	14.80	2	720	32,385	23	833.57	7,549	Routed WQ Pond
25	Combine	4876.49	2	904	112,905,688	4, 15, 16, 17, 24	------	------	Post SP w/ WQ Pond

Hydrograph Report

Hyd. No. 1

Pre Basin A1 - Onsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	14.23 cfs
Storm frequency	=	10 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	34,850 cuft
Drainage area	=	7.680 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	9.60 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

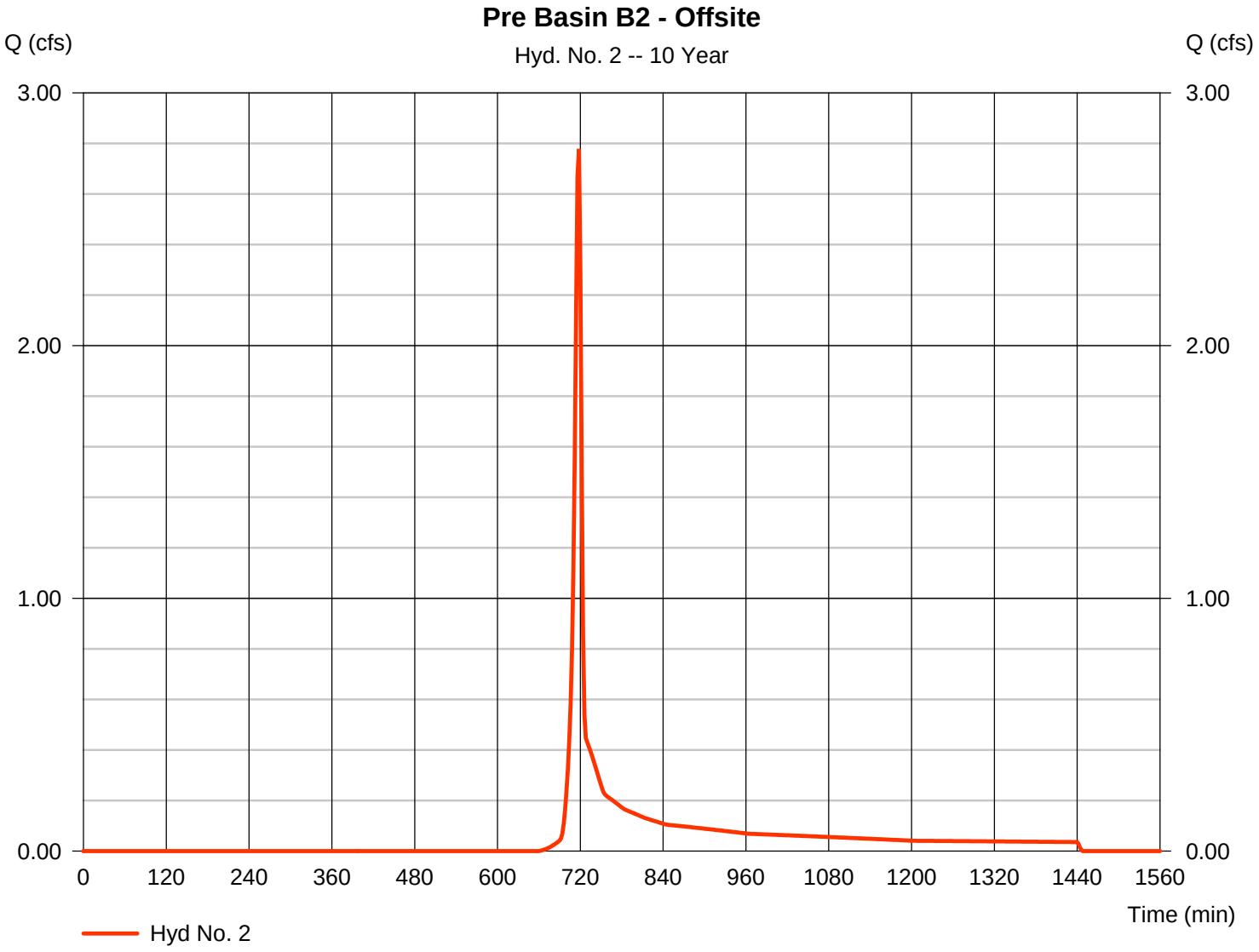


Hydrograph Report

Hyd. No. 2

Pre Basin B2 - Offsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.778 cfs
Storm frequency	=	10 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	5,584 cuft
Drainage area	=	0.970 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Report

Hyd. No. 4

Basin B1 - Offsite

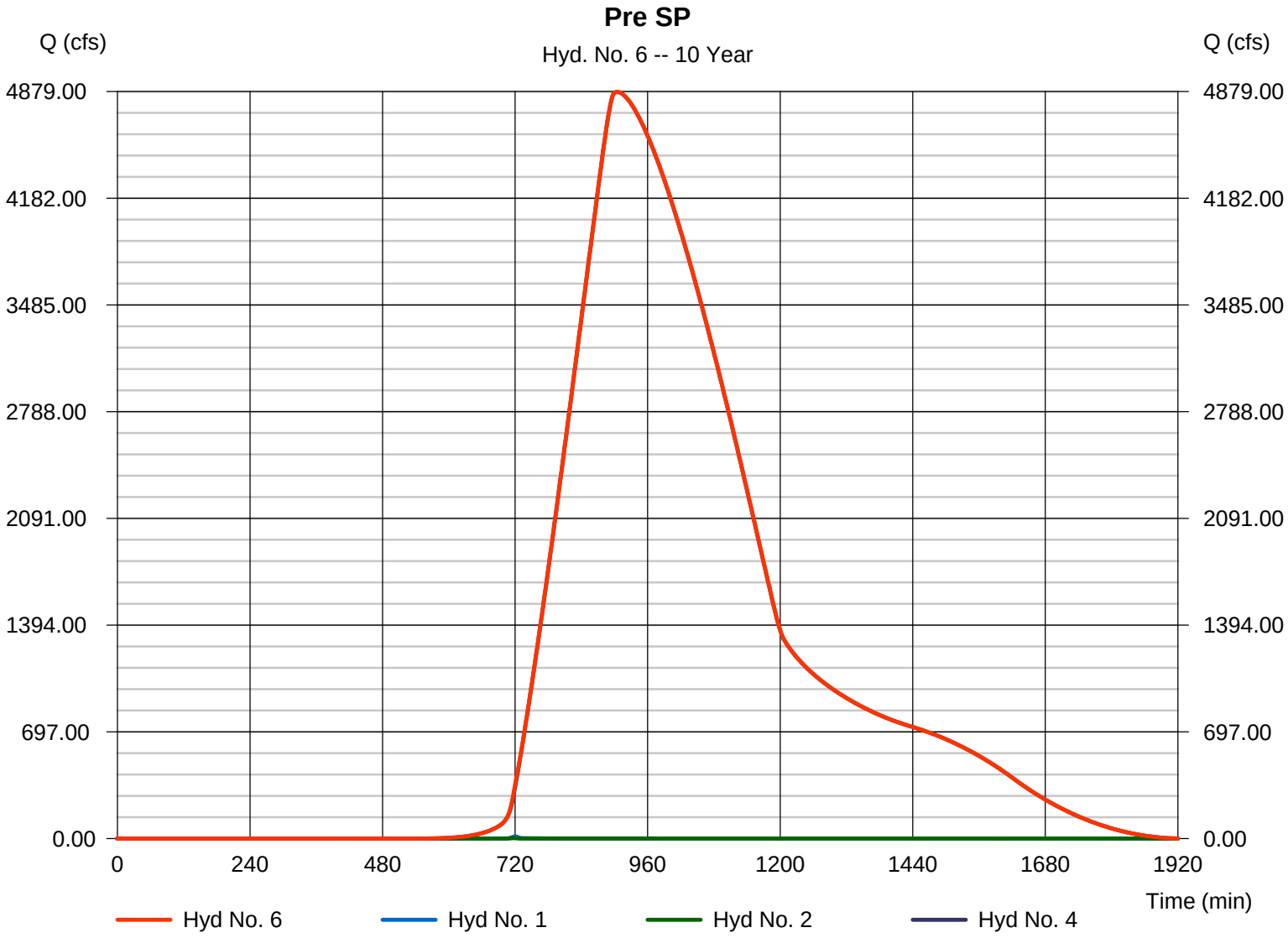
Hydrograph type	=	SCS Runoff	Peak discharge	=	4875.49 cfs
Storm frequency	=	10 yrs	Time to peak	=	904 min
Time interval	=	2 min	Hyd. volume	=	112,842,208 cuft
Drainage area	=	11947.000 ac	Curve number	=	72
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	309.20 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

Hydrograph Report

Hyd. No. 6

Pre SP

Hydrograph type	=	Combine	Peak discharge	=	4876.19 cfs
Storm frequency	=	10 yrs	Time to peak	=	904 min
Time interval	=	2 min	Hyd. volume	=	112,882,624 cuft
Inflow hyds.	=	1, 2, 4	Contrib. drain. area	=	11955.650 ac

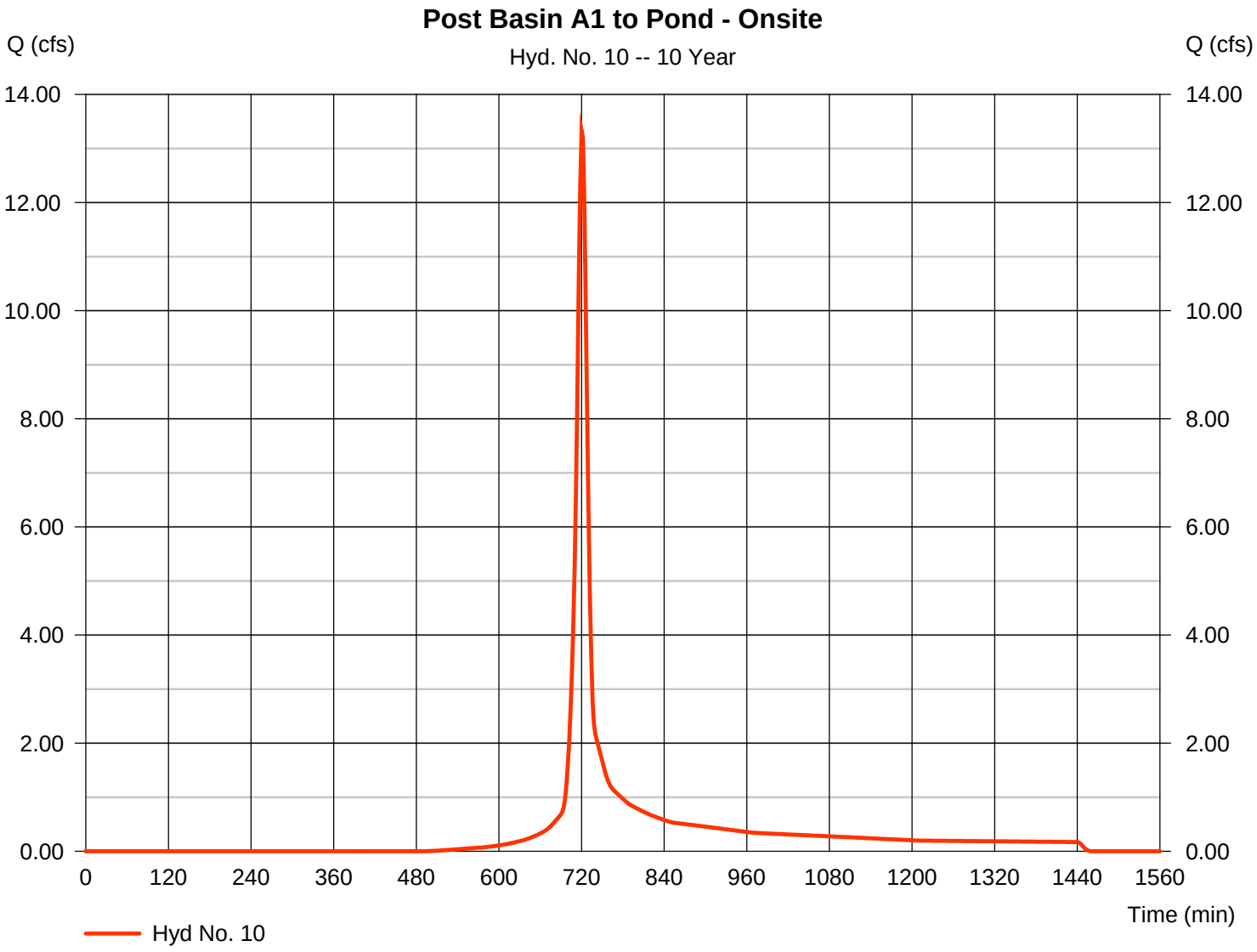


Hydrograph Report

Hyd. No. 10

Post Basin A1 to Pond - Onsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	13.33 cfs
Storm frequency	=	10 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	34,571 cuft
Drainage area	=	3.220 ac	Curve number	=	74.9
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	11.10 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

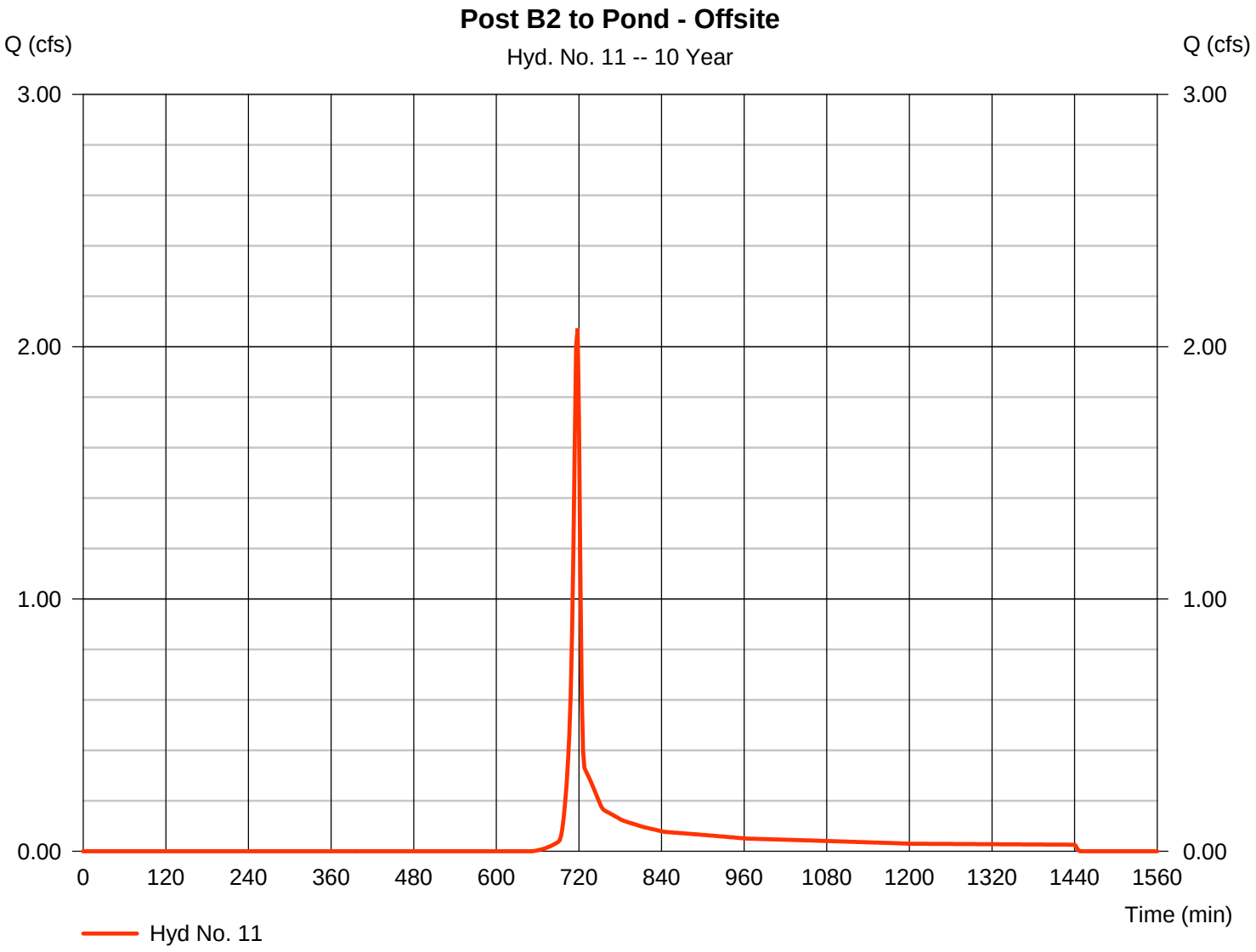


Hydrograph Report

Hyd. No. 11

Post B2 to Pond - Offsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.072 cfs
Storm frequency	=	10 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	4,154 cuft
Drainage area	=	0.690 ac	Curve number	=	62
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

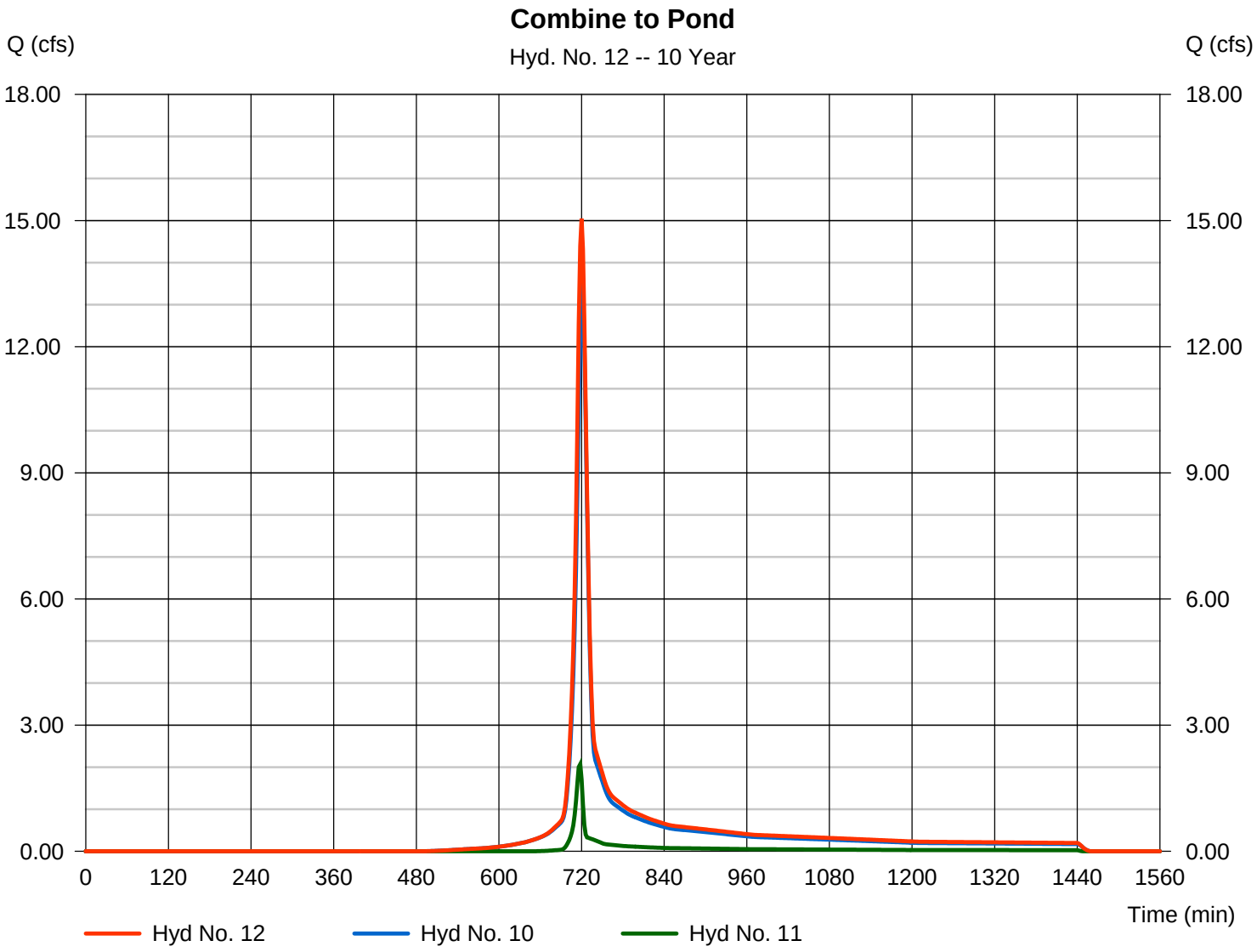


Hydrograph Report

Hyd. No. 12

Combine to Pond

Hydrograph type	=	Combine	Peak discharge	=	15.04 cfs
Storm frequency	=	10 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	38,725 cuft
Inflow hyds.	=	10, 11	Contrib. drain. area	=	3.910 ac



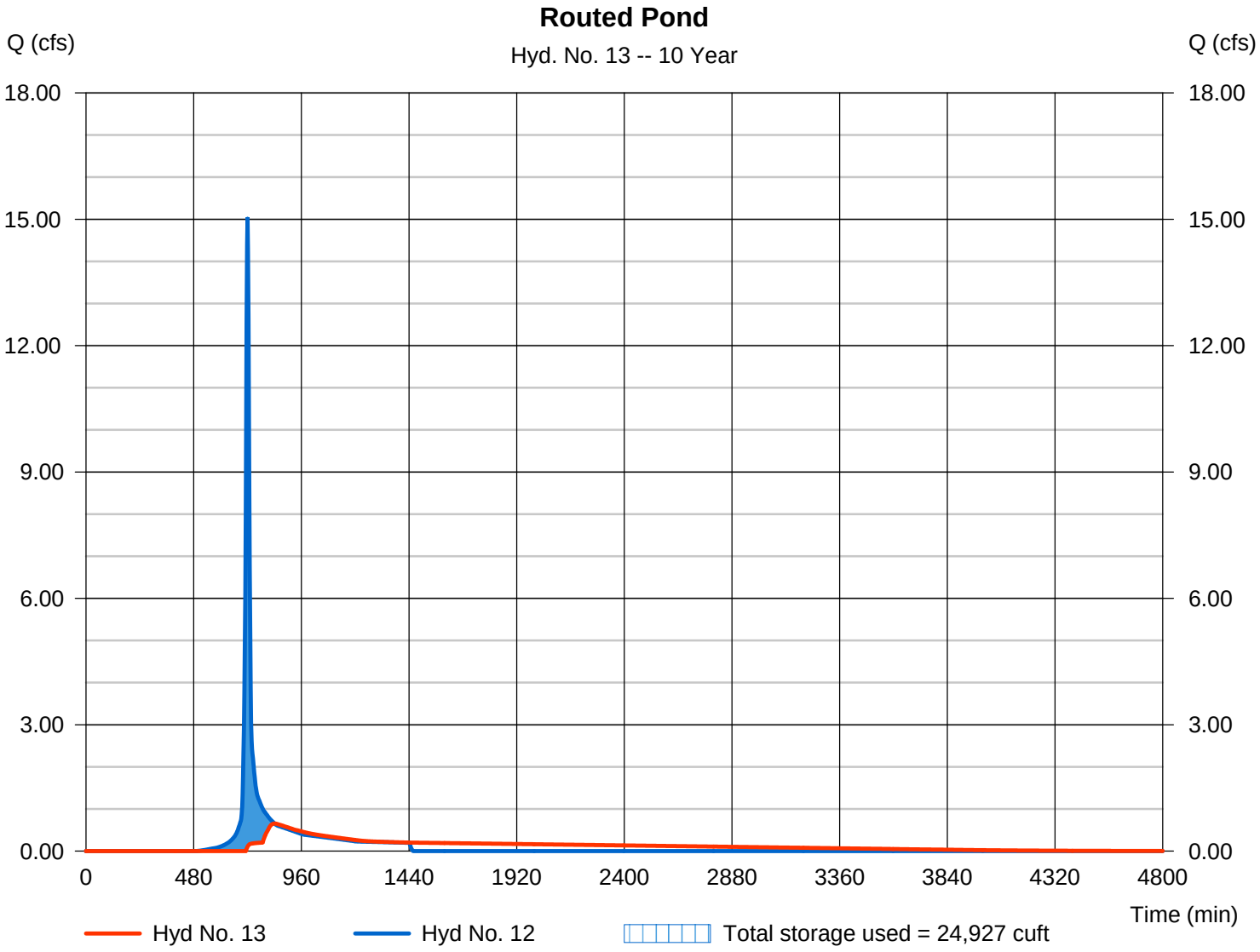
Hydrograph Report

Hyd. No. 13

Routed Pond

Hydrograph type	=	Reservoir	Peak discharge	=	0.654 cfs
Storm frequency	=	10 yrs	Time to peak	=	840 min
Time interval	=	2 min	Hyd. volume	=	32,332 cuft
Inflow hyd. No.	=	12 - Combine to Pond	Max. Elevation	=	840.25 ft
Reservoir name	=	Pond	Max. Storage	=	24,927 cuft

Storage Indication method used.

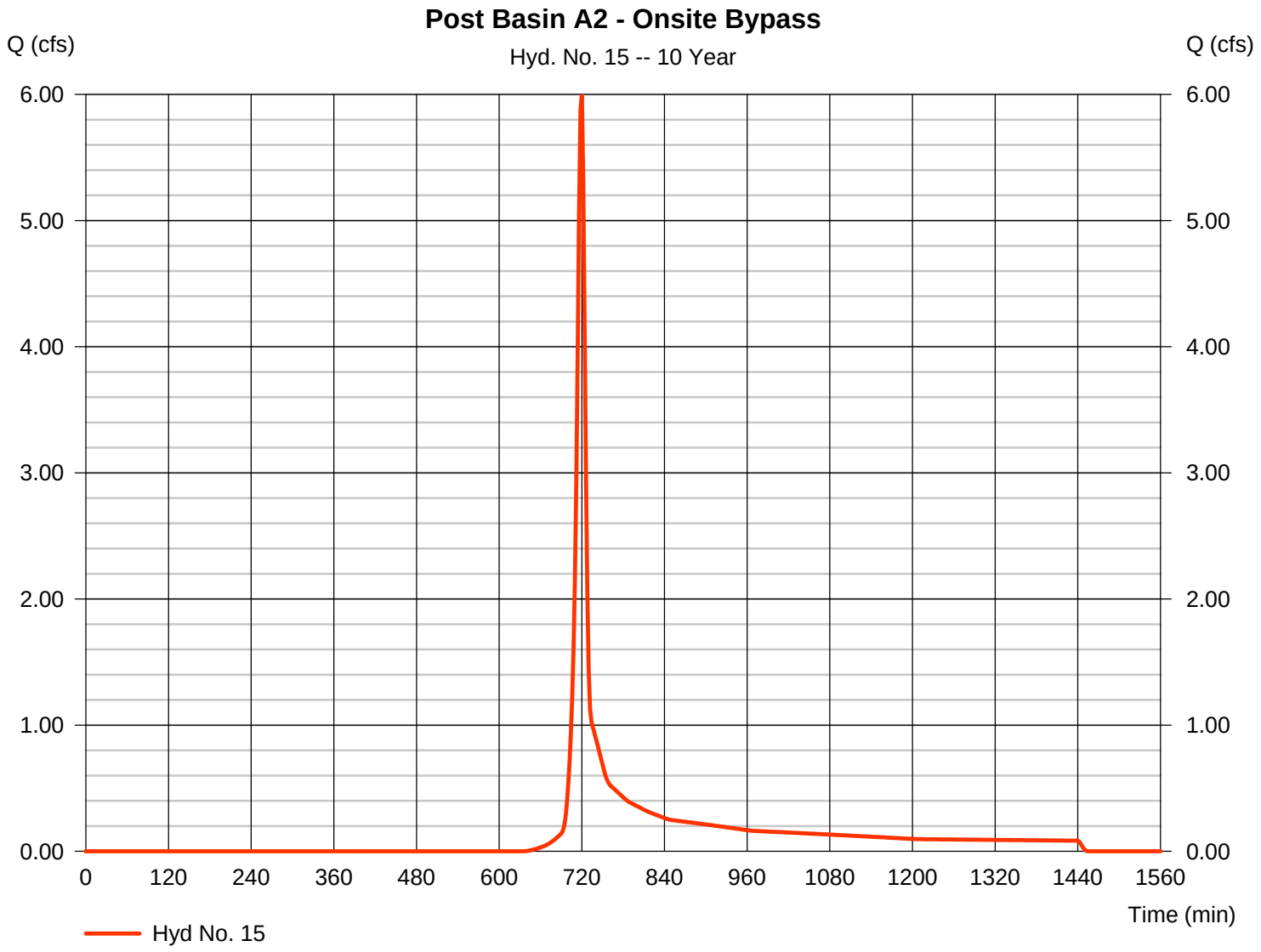


Hydrograph Report

Hyd. No. 15

Post Basin A2 - Onsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.999 cfs
Storm frequency	=	10 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	13,821 cuft
Drainage area	=	2.000 ac	Curve number	=	63.7
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	8.80 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

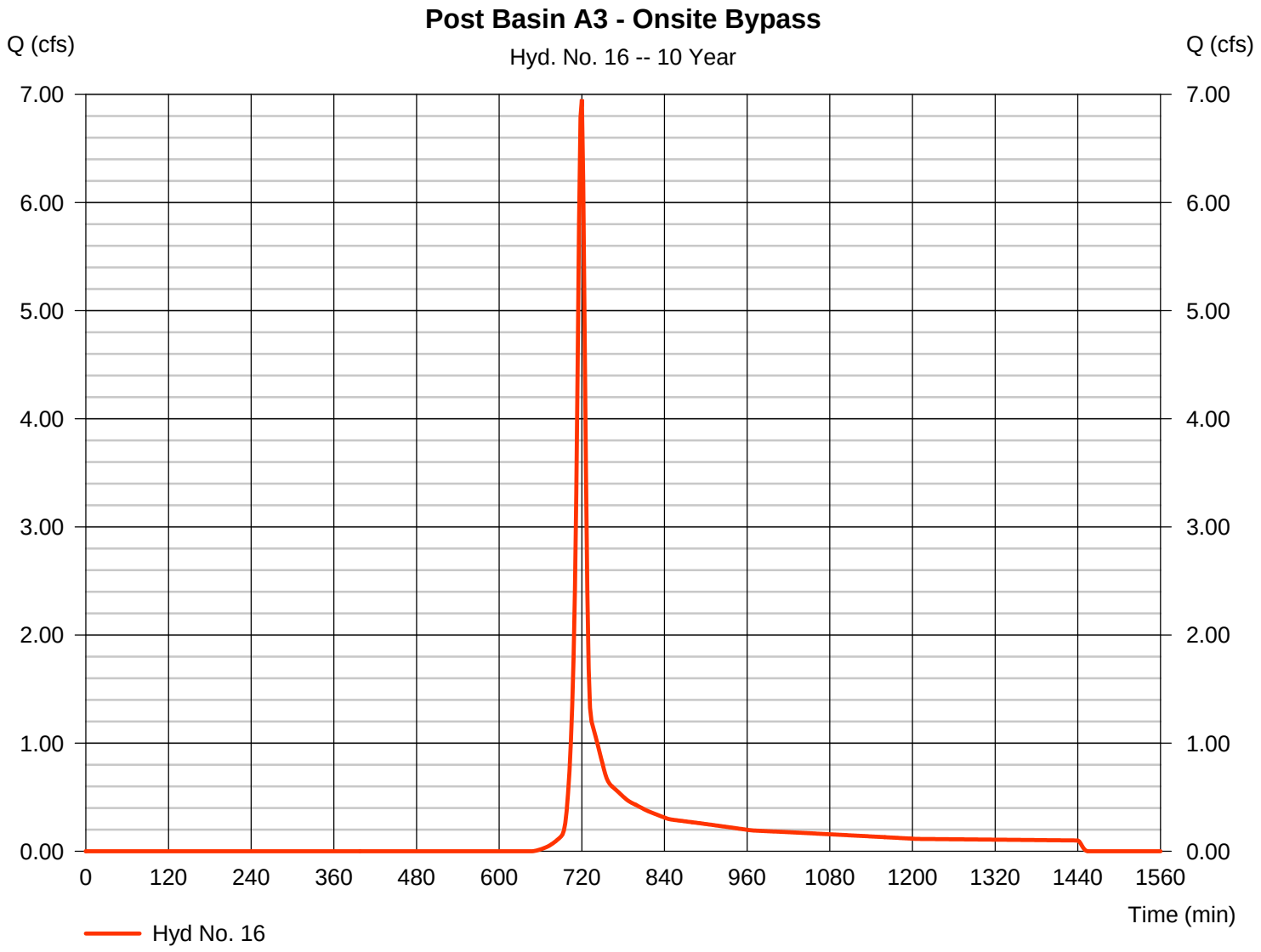


Hydrograph Report

Hyd. No. 16

Post Basin A3 - Onsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.955 cfs
Storm frequency	=	10 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	16,083 cuft
Drainage area	=	2.450 ac	Curve number	=	62.5
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	9.30 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

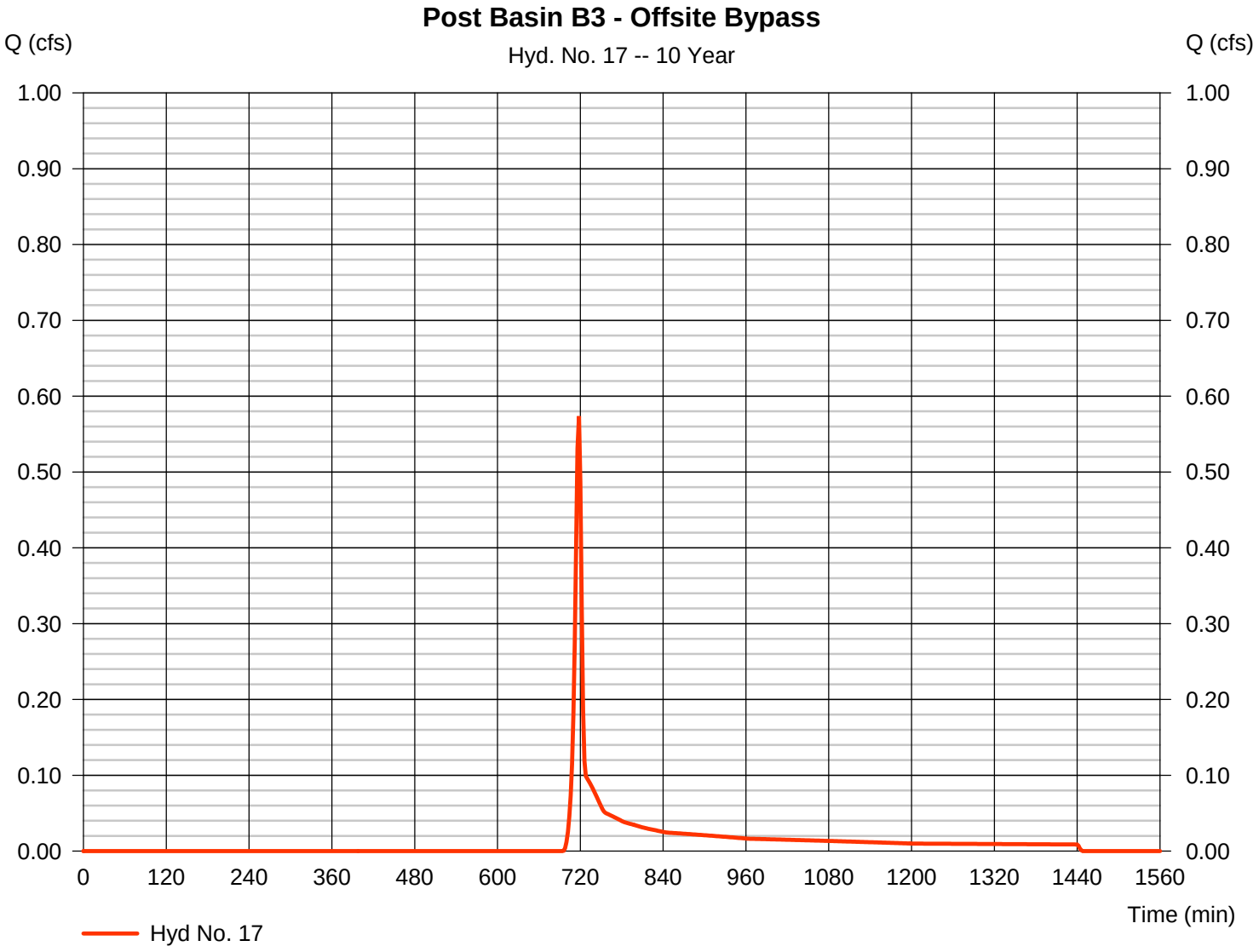


Hydrograph Report

Hyd. No. 17

Post Basin B3 - Offsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.574 cfs
Storm frequency	=	10 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	1,191 cuft
Drainage area	=	0.280 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

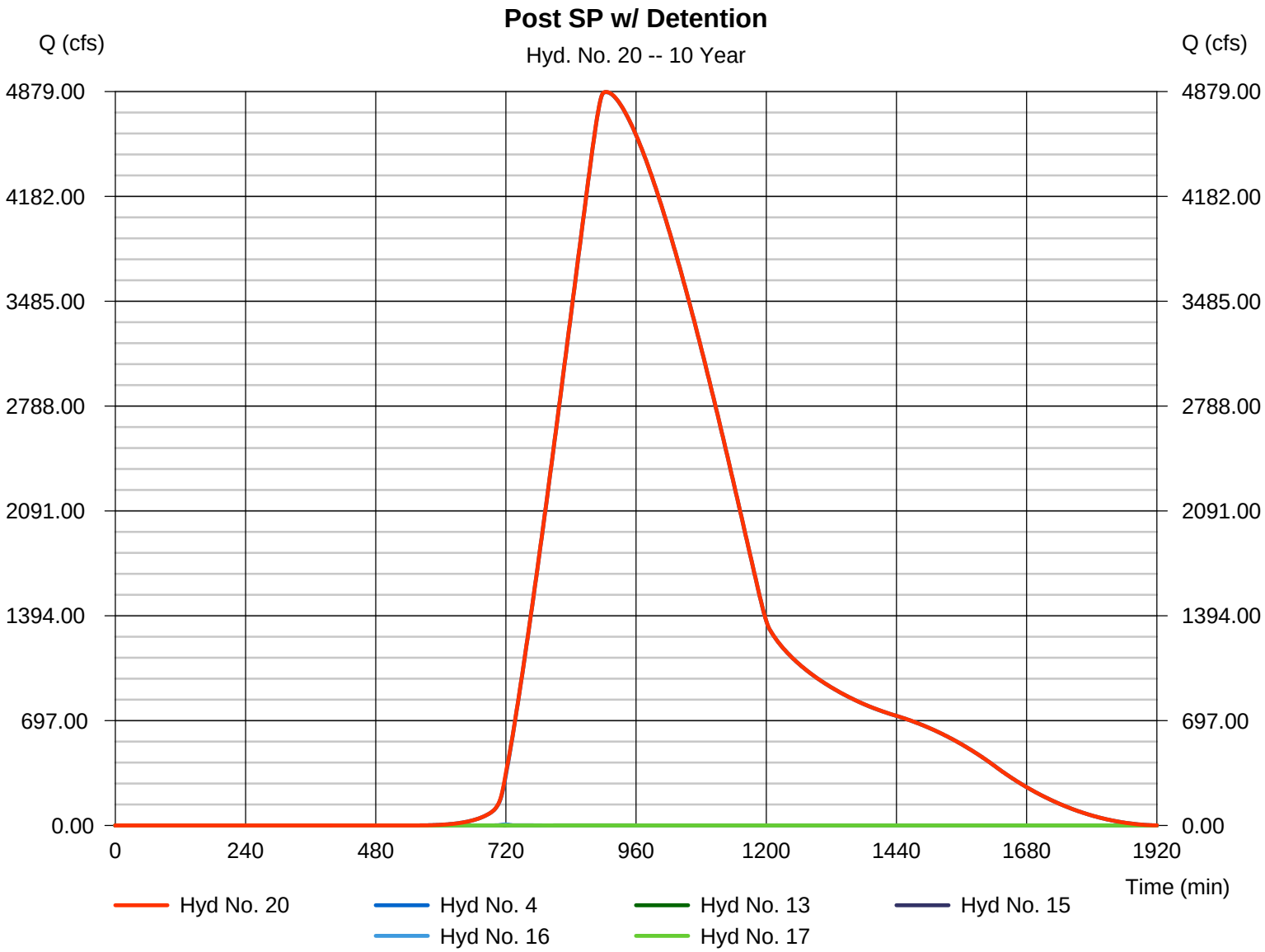


Hydrograph Report

Hyd. No. 20

Post SP w/ Detention

Hydrograph type	=	Combine	Peak discharge	=	4876.52 cfs
Storm frequency	=	10 yrs	Time to peak	=	904 min
Time interval	=	2 min	Hyd. volume	=	112,905,080 cuft
Inflow hyds.	=	4, 13, 15, 16, 17	Contrib. drain. area	=	11951.730 ac

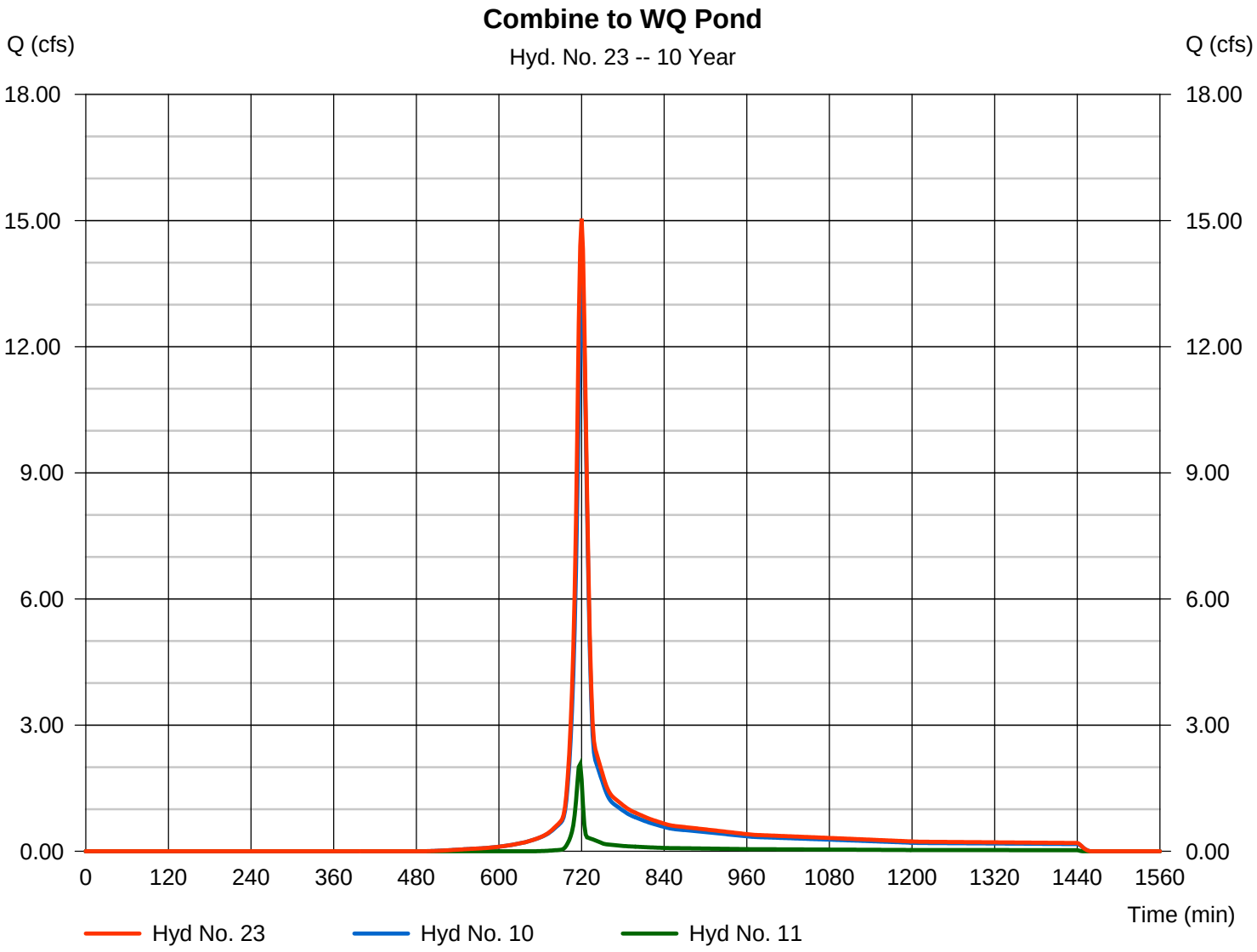


Hydrograph Report

Hyd. No. 23

Combine to WQ Pond

Hydrograph type	=	Combine	Peak discharge	=	15.04 cfs
Storm frequency	=	10 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	38,725 cuft
Inflow hyds.	=	10, 11	Contrib. drain. area	=	3.910 ac



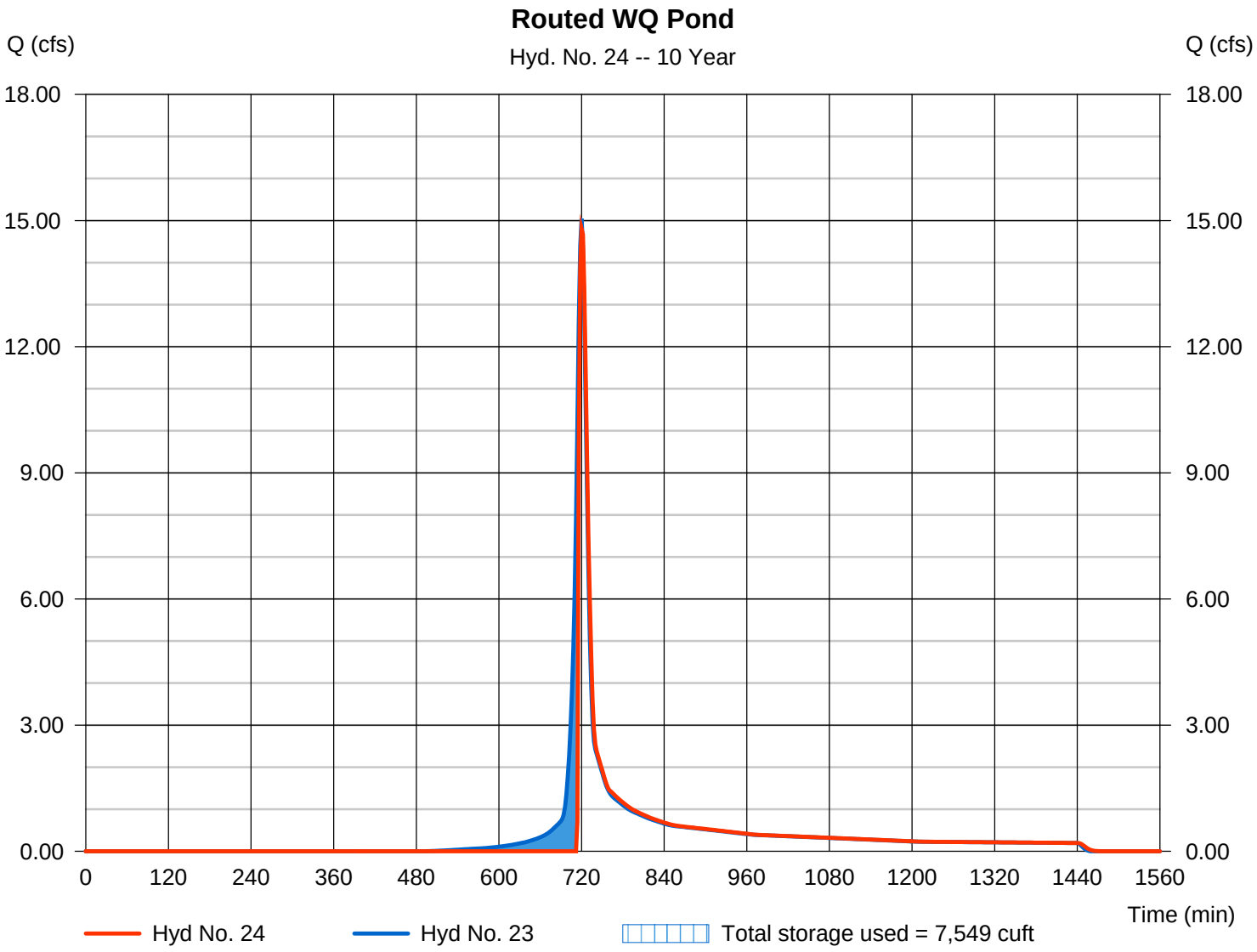
Hydrograph Report

Hyd. No. 24

Routed WQ Pond

Hydrograph type	=	Reservoir	Peak discharge	=	14.80 cfs
Storm frequency	=	10 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	32,385 cuft
Inflow hyd. No.	=	23 - Combine to WQ Pond	Max. Elevation	=	833.57 ft
Reservoir name	=	WQ Pond	Max. Storage	=	7,549 cuft

Storage Indication method used.

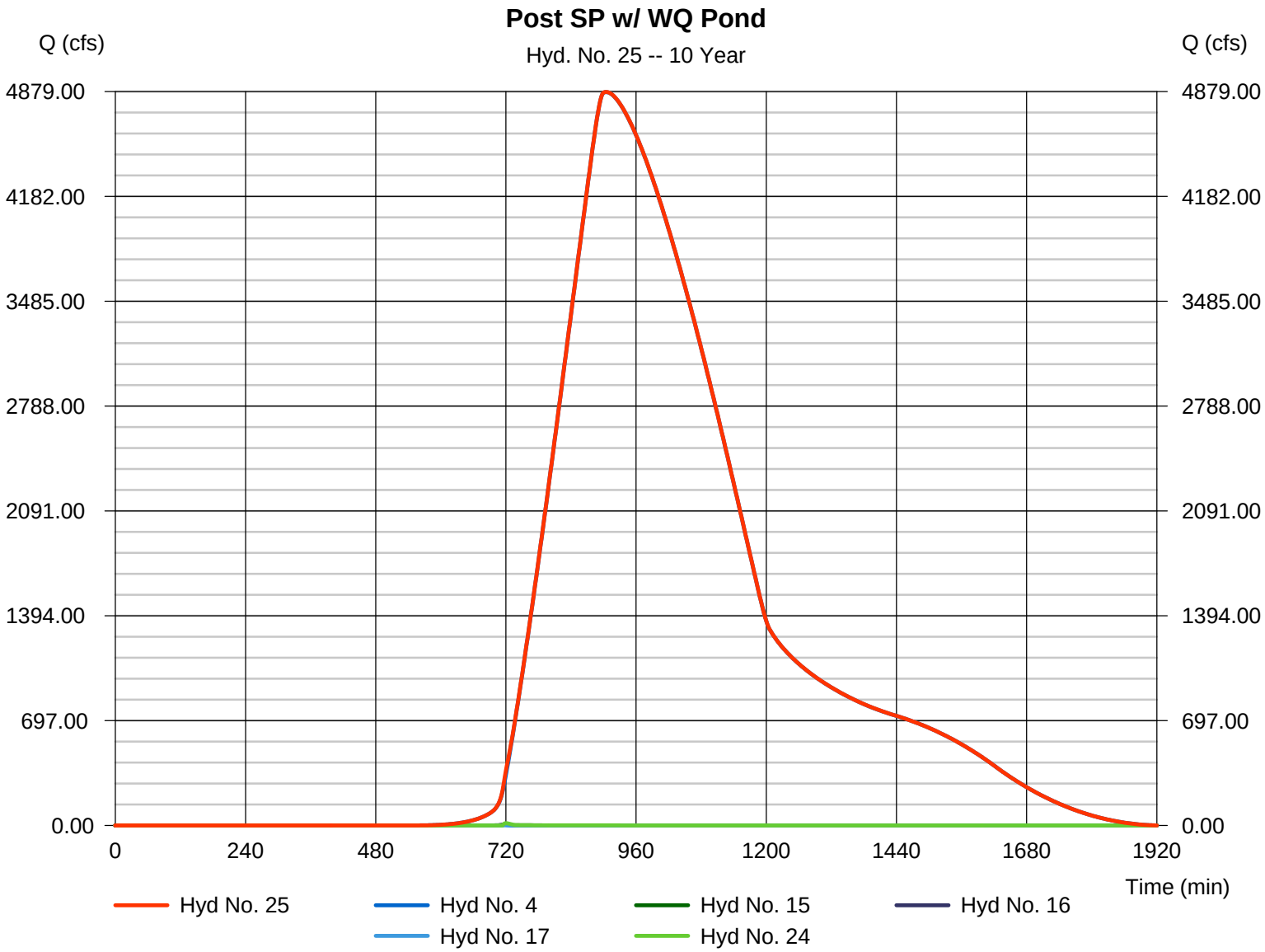


Hydrograph Report

Hyd. No. 25

Post SP w/ WQ Pond

Hydrograph type	=	Combine	Peak discharge	=	4876.49 cfs
Storm frequency	=	10 yrs	Time to peak	=	904 min
Time interval	=	2 min	Hyd. volume	=	112,905,688 cuft
Inflow hyds.	=	4, 15, 16, 17, 24	Contrib. drain. area	=	11951.730 ac



Hydrograph Summary Report

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

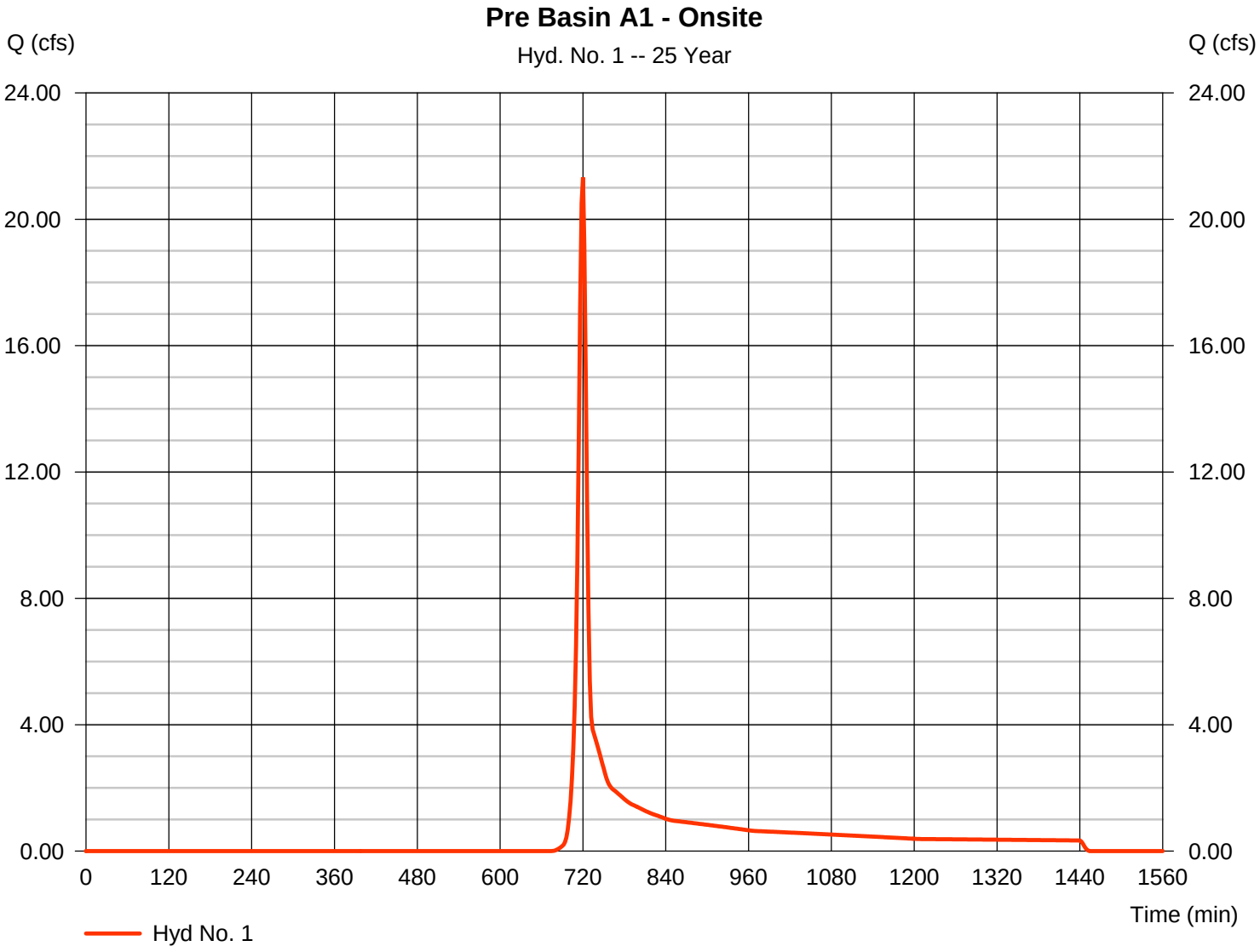
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	21.32	2	720	50,213	------	------	------	Pre Basin A1 - Onsite
2	SCS Runoff	3.851	2	718	7,702	------	------	------	Pre Basin B2 - Offsite
4	SCS Runoff	6441.78	2	902	146,822,800	------	------	------	Basin B1 - Offsite
6	Combine	6442.73	2	902	146,880,784	1, 2, 4,	------	------	Pre SP
10	SCS Runoff	17.12	2	720	44,413	------	------	------	Post Basin A1 to Pond - Onsite
11	SCS Runoff	2.848	2	718	5,695	------	------	------	Post B2 to Pond - Offsite
12	Combine	19.44	2	720	50,107	10, 11	------	------	Combine to Pond
13	Reservoir	2.318	2	750	43,714	12	840.73	26,773	Routed Pond
15	SCS Runoff	8.191	2	720	18,756	------	------	------	Post Basin A2 - Onsite Bypass
16	SCS Runoff	9.588	2	720	21,980	------	------	------	Post Basin A3 - Onsite Bypass
17	SCS Runoff	0.848	2	718	1,716	------	------	------	Post Basin B3 - Offsite Bypass
20	Combine	6443.11	2	902	146,908,240	4, 13, 15, 16, 17,	------	------	Post SP w/ Detention
23	Combine	19.44	2	720	50,107	10, 11,	------	------	Combine to WQ Pond
24	Reservoir	19.24	2	720	43,767	23	833.67	7,761	Routed WQ Pond
25	Combine	6443.06	2	902	146,909,152	4, 15, 16, 17, 24	------	------	Post SP w/ WQ Pond

Hydrograph Report

Hyd. No. 1

Pre Basin A1 - Onsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	21.32 cfs
Storm frequency	=	25 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	50,213 cuft
Drainage area	=	7.680 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	9.60 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

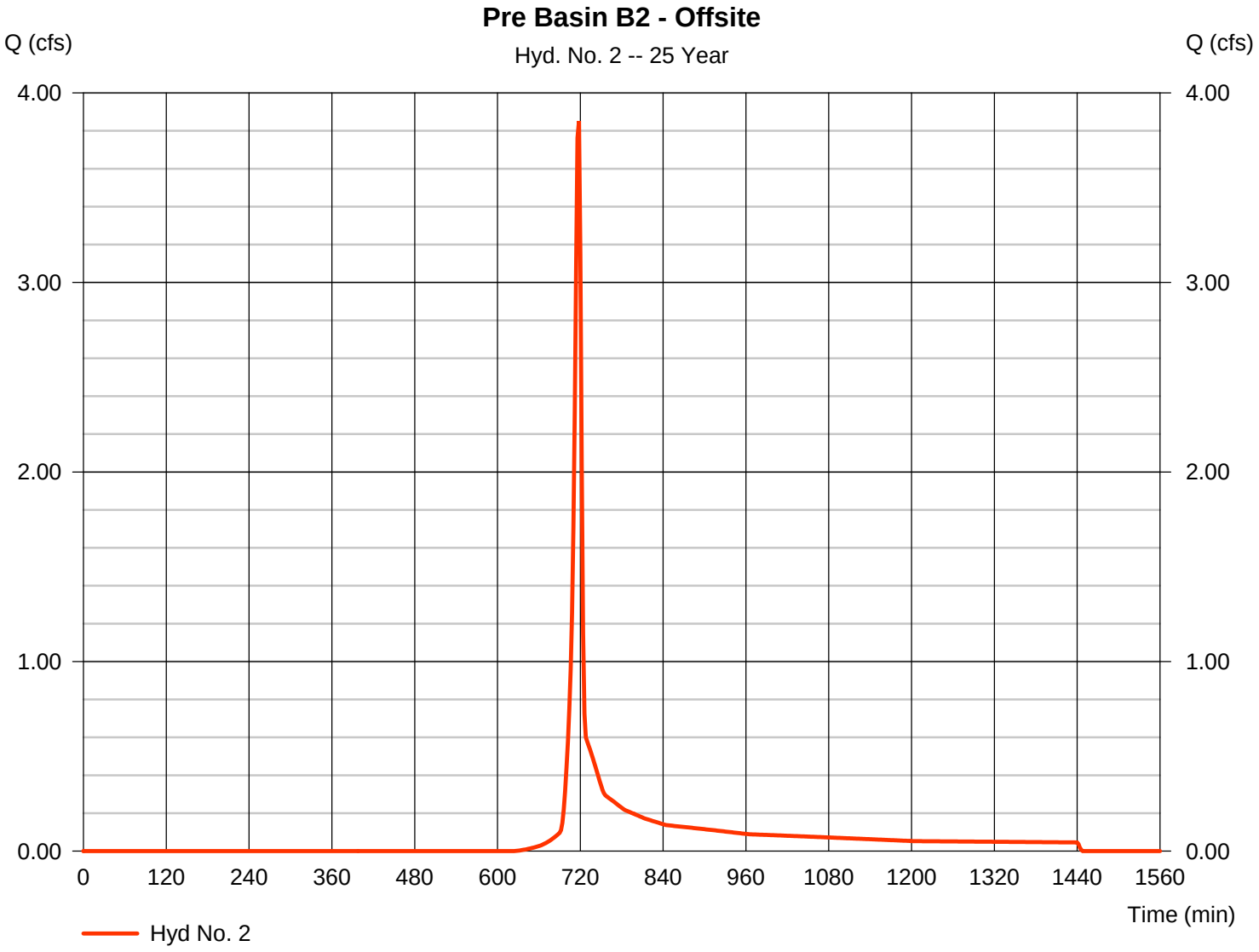


Hydrograph Report

Hyd. No. 2

Pre Basin B2 - Offsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.851 cfs
Storm frequency	=	25 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	7,702 cuft
Drainage area	=	0.970 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

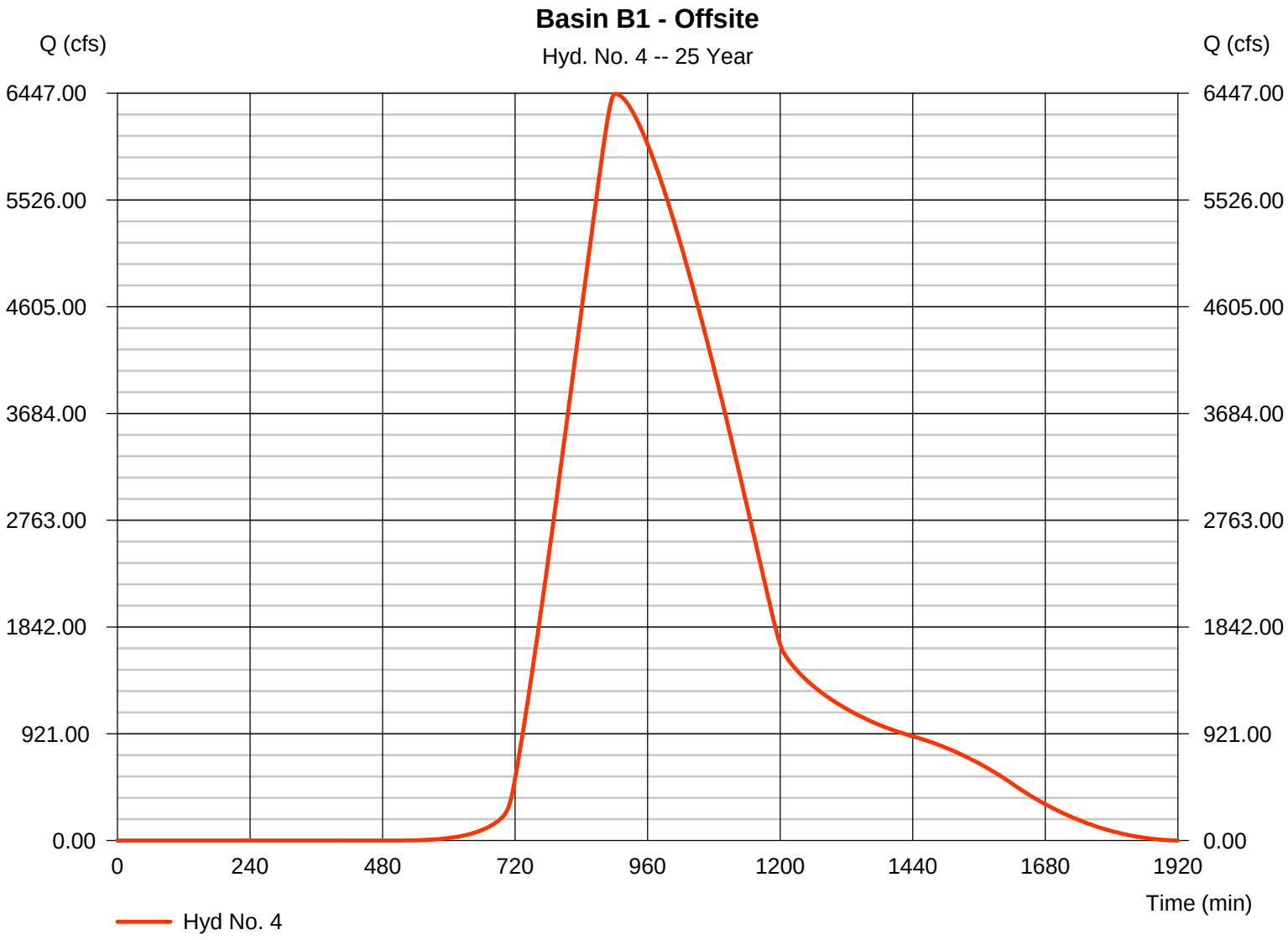


Hydrograph Report

Hyd. No. 4

Basin B1 - Offsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	6441.78 cfs
Storm frequency	=	25 yrs	Time to peak	=	902 min
Time interval	=	2 min	Hyd. volume	=	146,822,800 cuft
Drainage area	=	11947.000 ac	Curve number	=	72
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	309.20 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

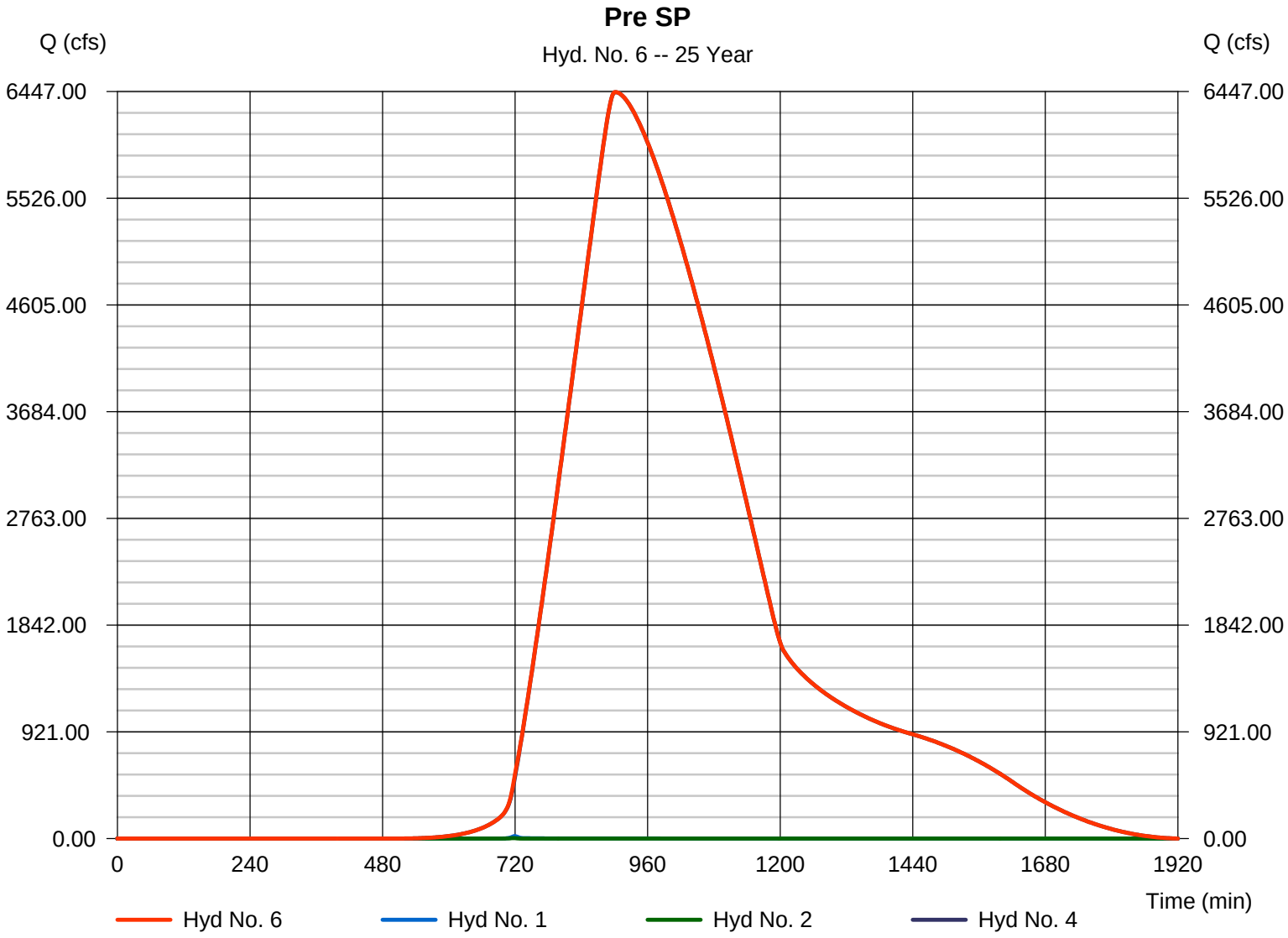


Hydrograph Report

Hyd. No. 6

Pre SP

Hydrograph type	=	Combine	Peak discharge	=	6442.73 cfs
Storm frequency	=	25 yrs	Time to peak	=	902 min
Time interval	=	2 min	Hyd. volume	=	146,880,784 cuft
Inflow hyds.	=	1, 2, 4	Contrib. drain. area	=	11955.650 ac

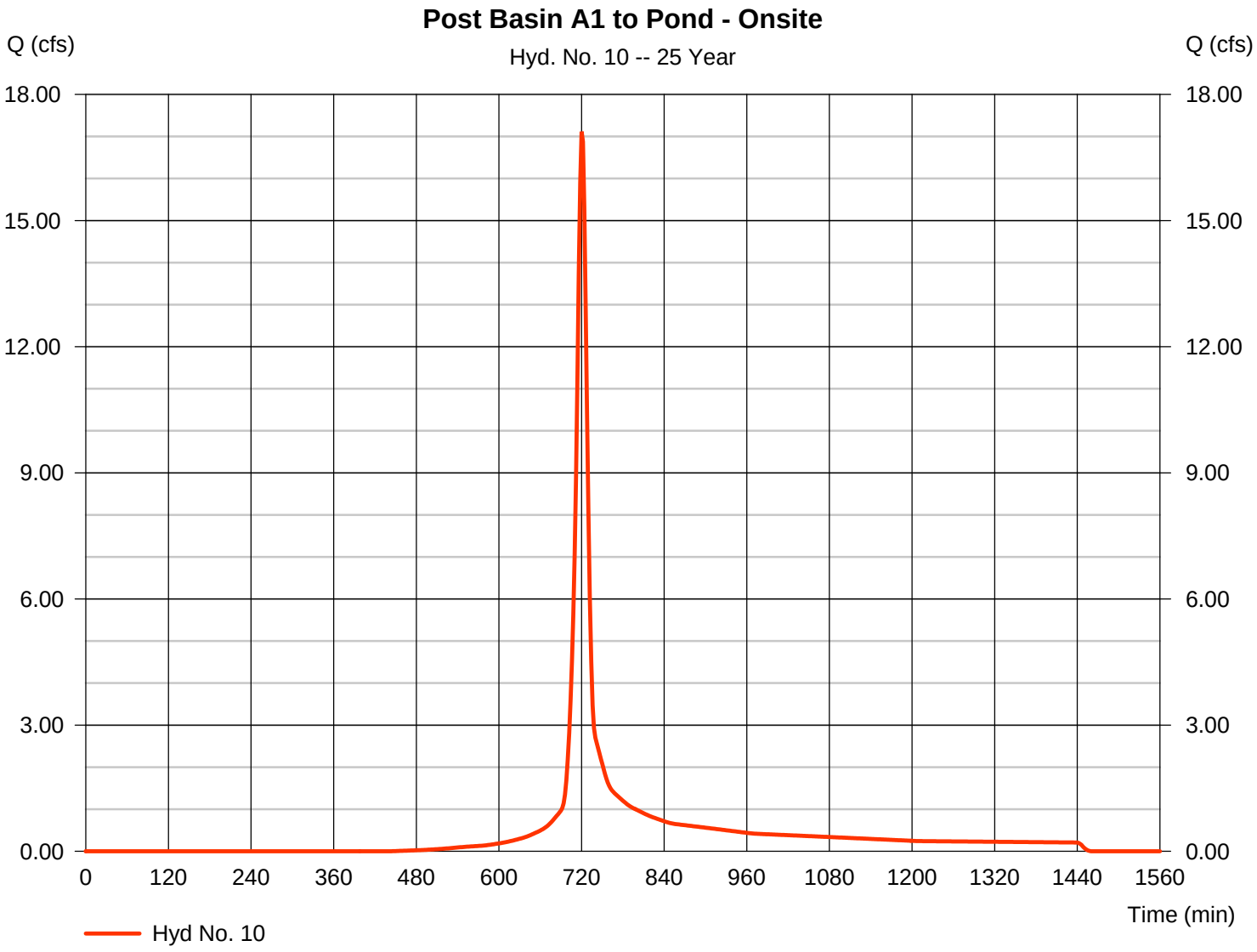


Hydrograph Report

Hyd. No. 10

Post Basin A1 to Pond - Onsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	17.12 cfs
Storm frequency	=	25 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	44,413 cuft
Drainage area	=	3.220 ac	Curve number	=	74.9
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	11.10 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

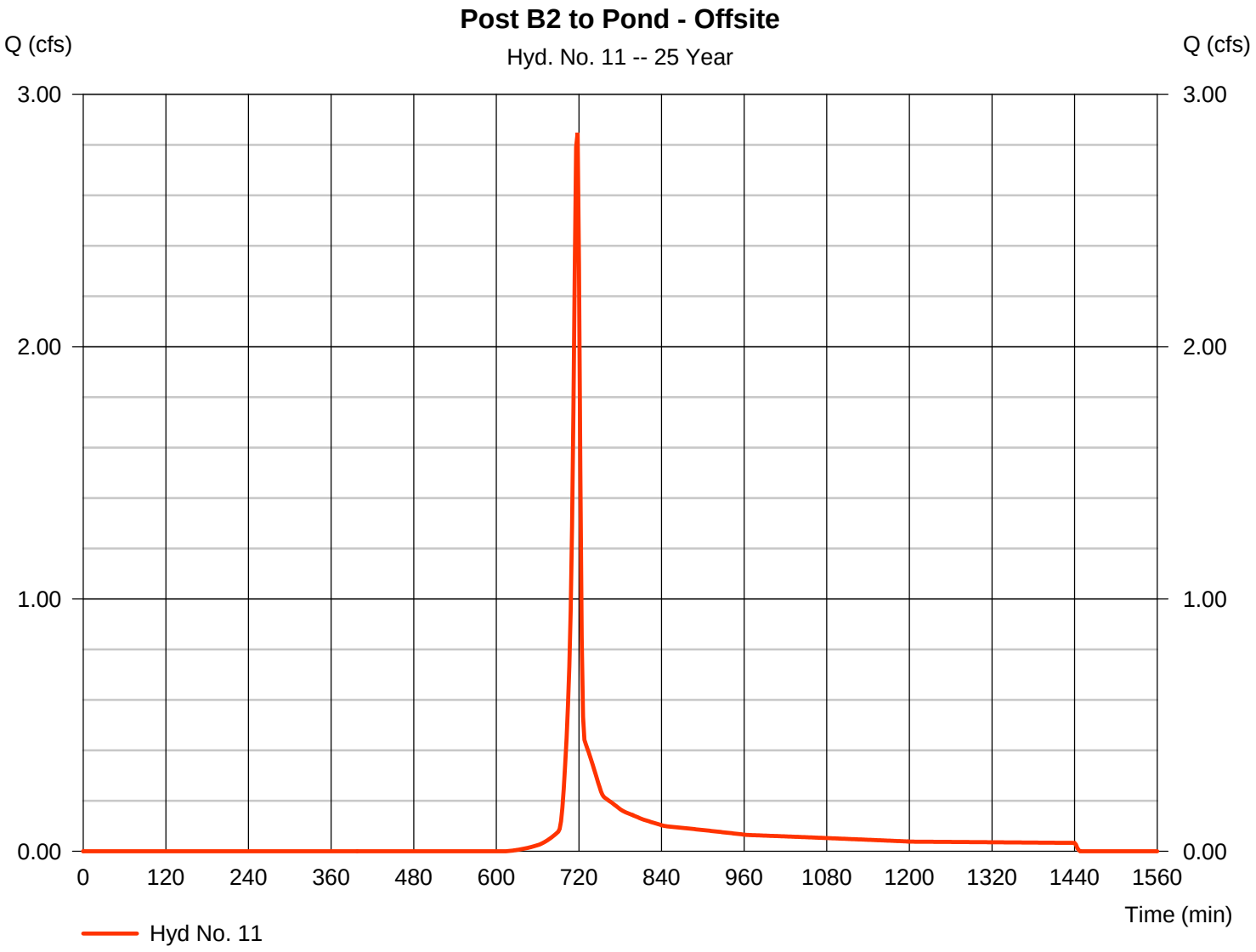


Hydrograph Report

Hyd. No. 11

Post B2 to Pond - Offsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.848 cfs
Storm frequency	=	25 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	5,695 cuft
Drainage area	=	0.690 ac	Curve number	=	62
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

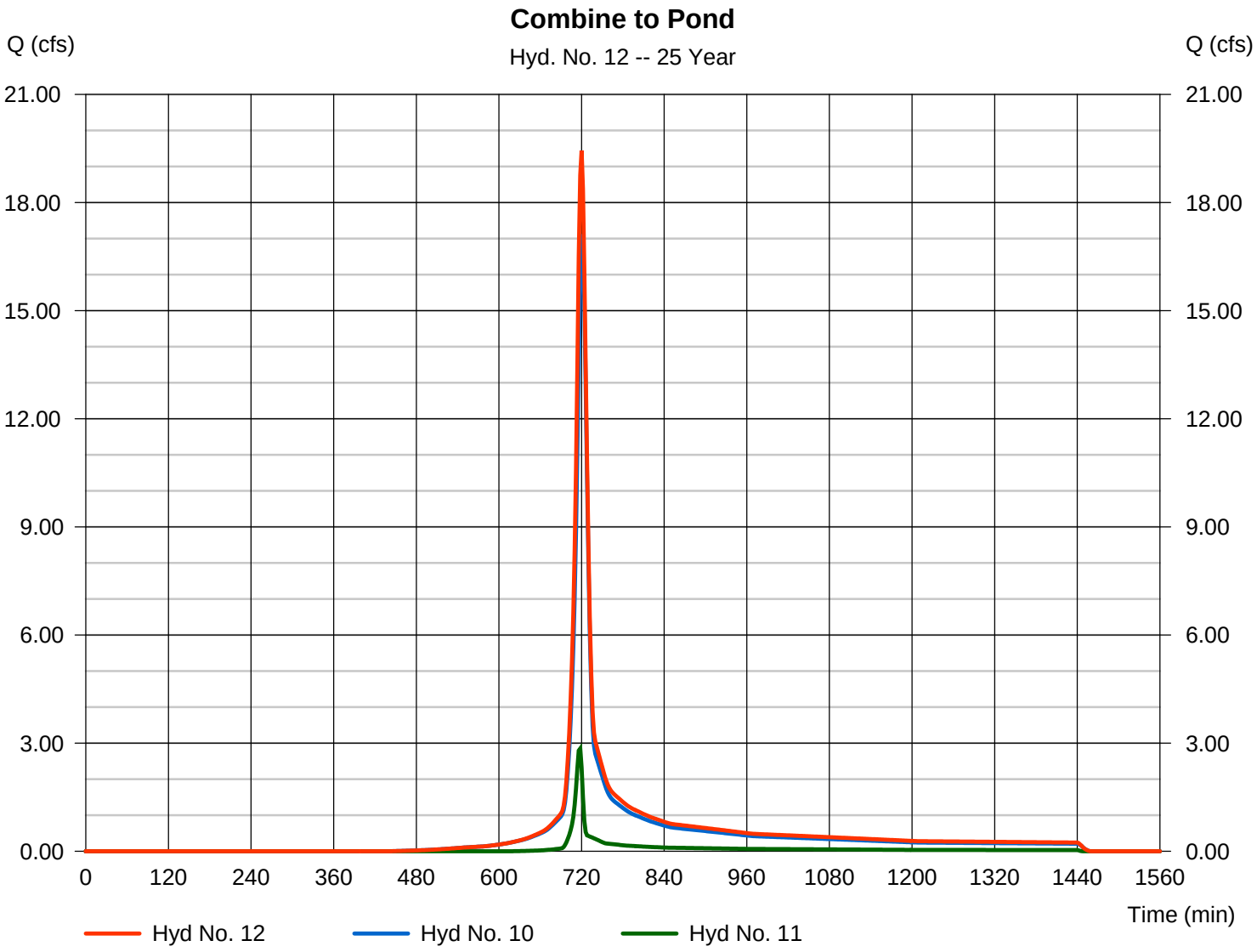


Hydrograph Report

Hyd. No. 12

Combine to Pond

Hydrograph type	=	Combine	Peak discharge	=	19.44 cfs
Storm frequency	=	25 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	50,107 cuft
Inflow hyds.	=	10, 11	Contrib. drain. area	=	3.910 ac



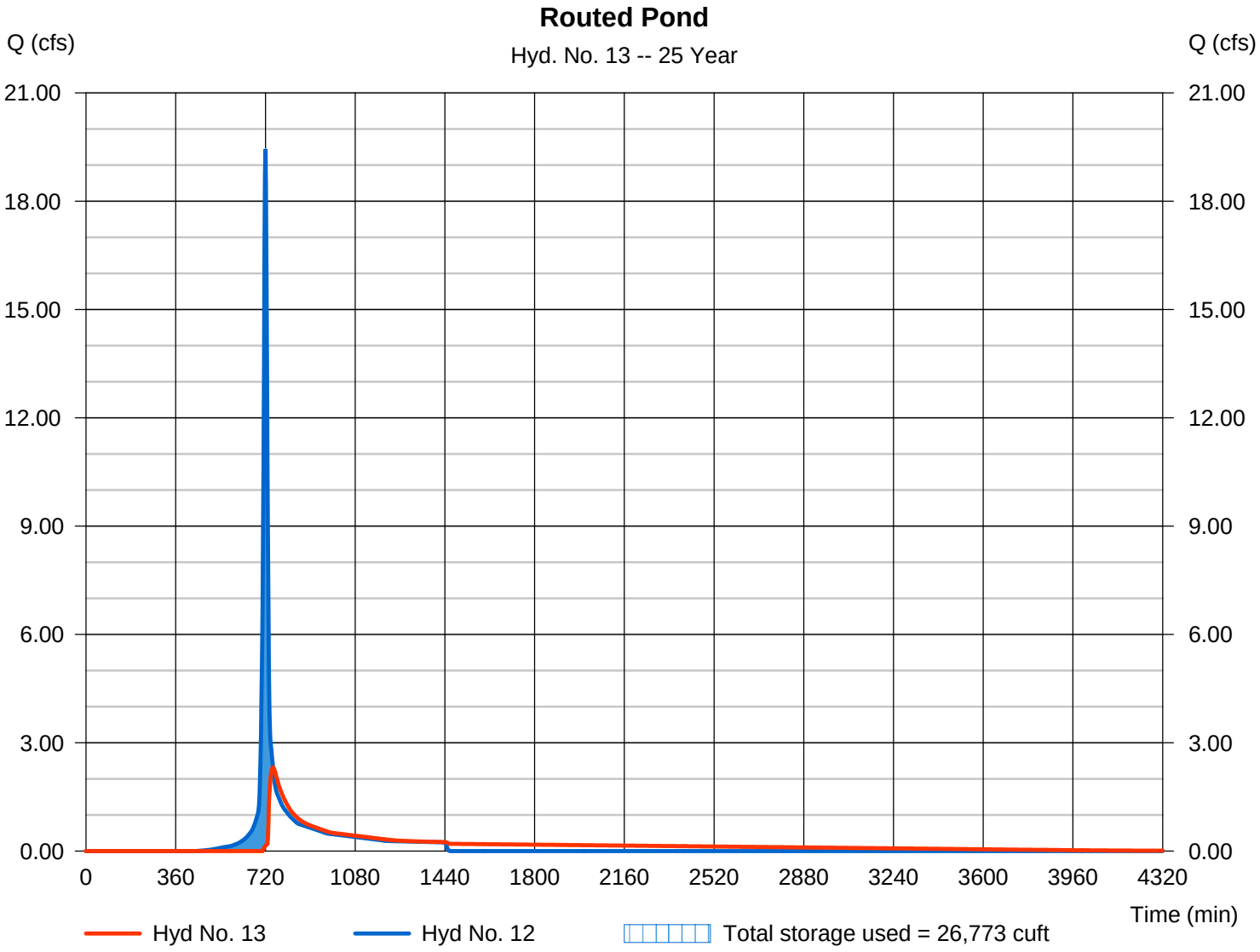
Hydrograph Report

Hyd. No. 13

Routed Pond

Hydrograph type	=	Reservoir	Peak discharge	=	2.318 cfs
Storm frequency	=	25 yrs	Time to peak	=	750 min
Time interval	=	2 min	Hyd. volume	=	43,714 cuft
Inflow hyd. No.	=	12 - Combine to Pond	Max. Elevation	=	840.73 ft
Reservoir name	=	Pond	Max. Storage	=	26,773 cuft

Storage Indication method used.

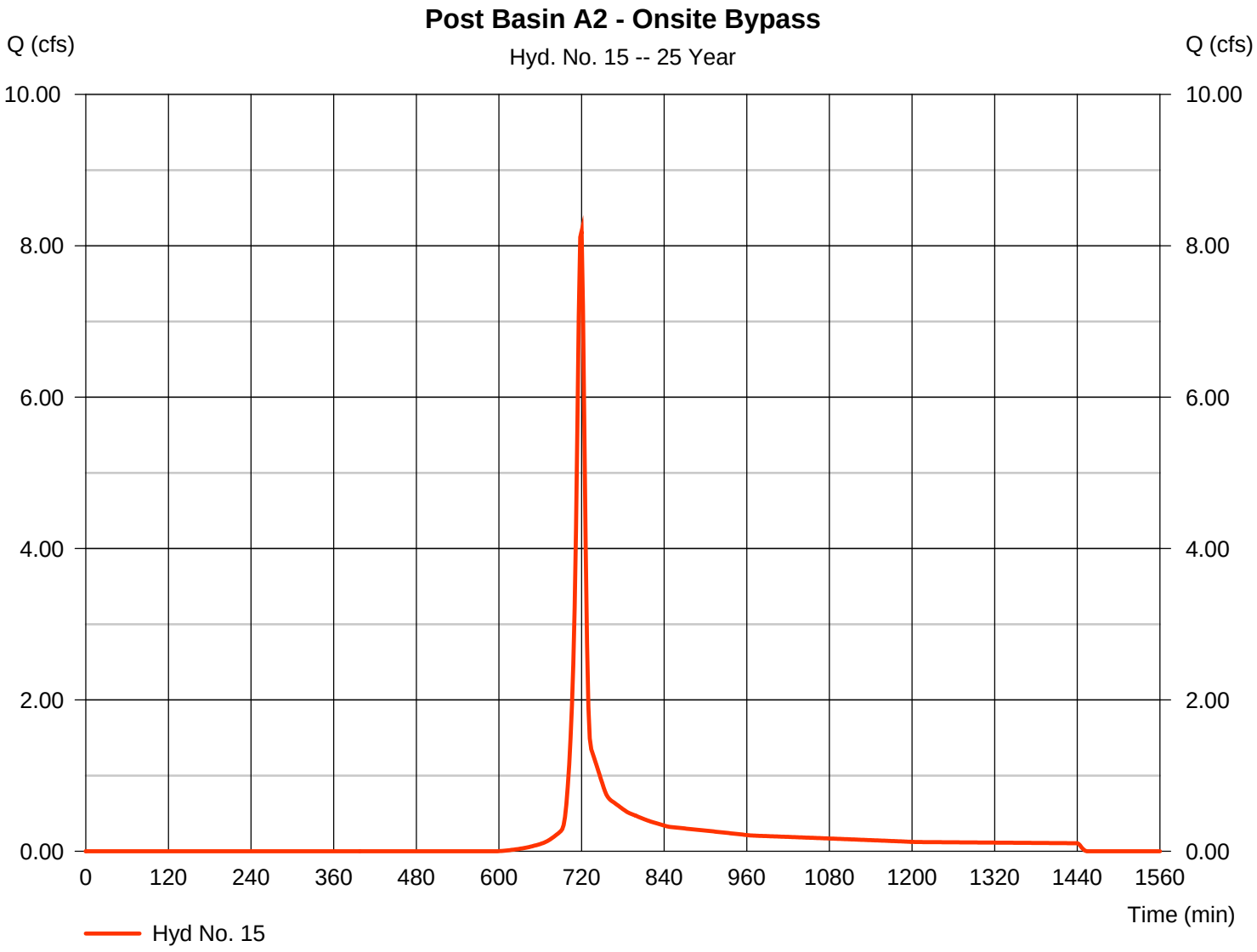


Hydrograph Report

Hyd. No. 15

Post Basin A2 - Onsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.191 cfs
Storm frequency	=	25 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	18,756 cuft
Drainage area	=	2.000 ac	Curve number	=	63.7
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	8.80 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

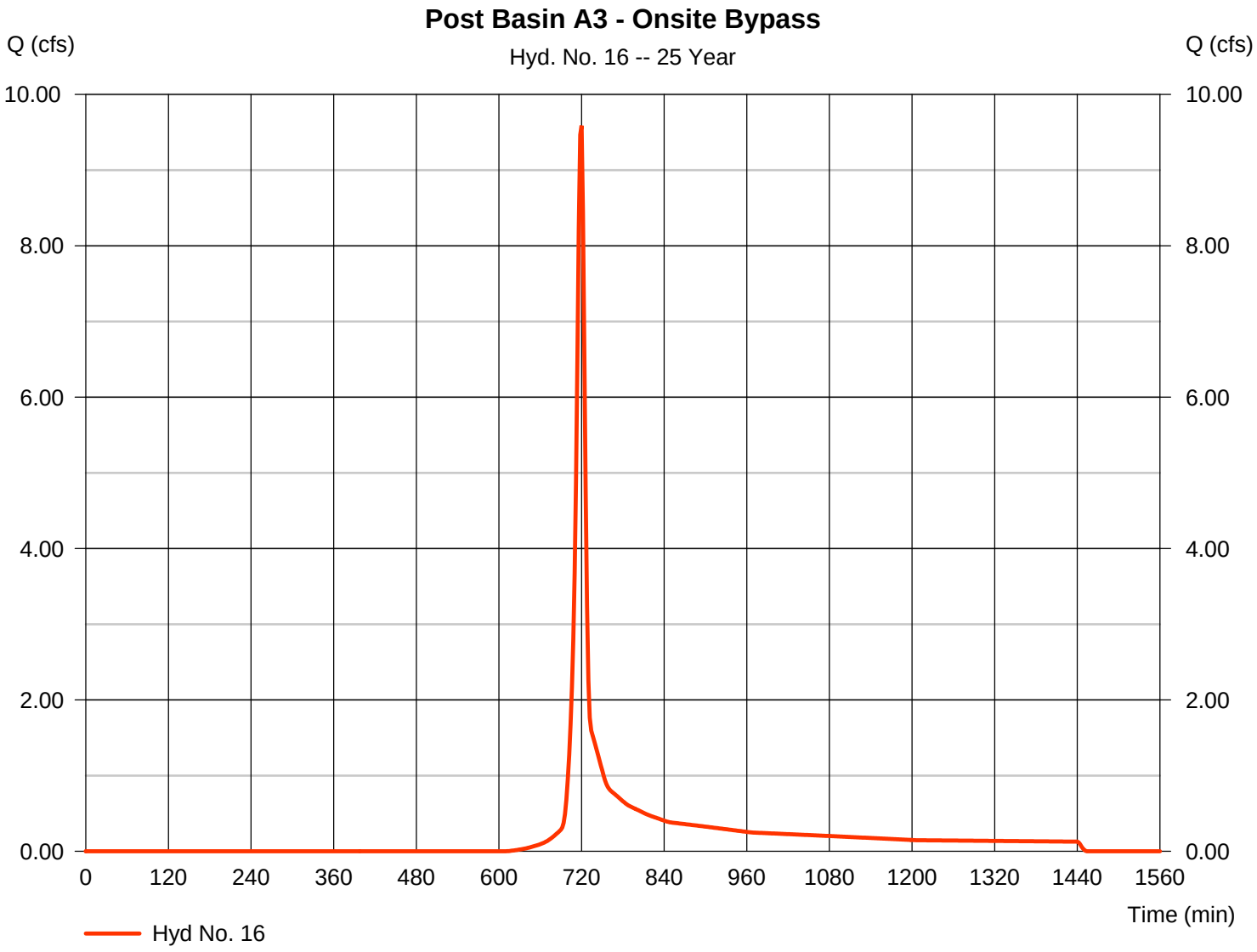


Hydrograph Report

Hyd. No. 16

Post Basin A3 - Onsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.588 cfs
Storm frequency	=	25 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	21,980 cuft
Drainage area	=	2.450 ac	Curve number	=	62.5
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	9.30 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

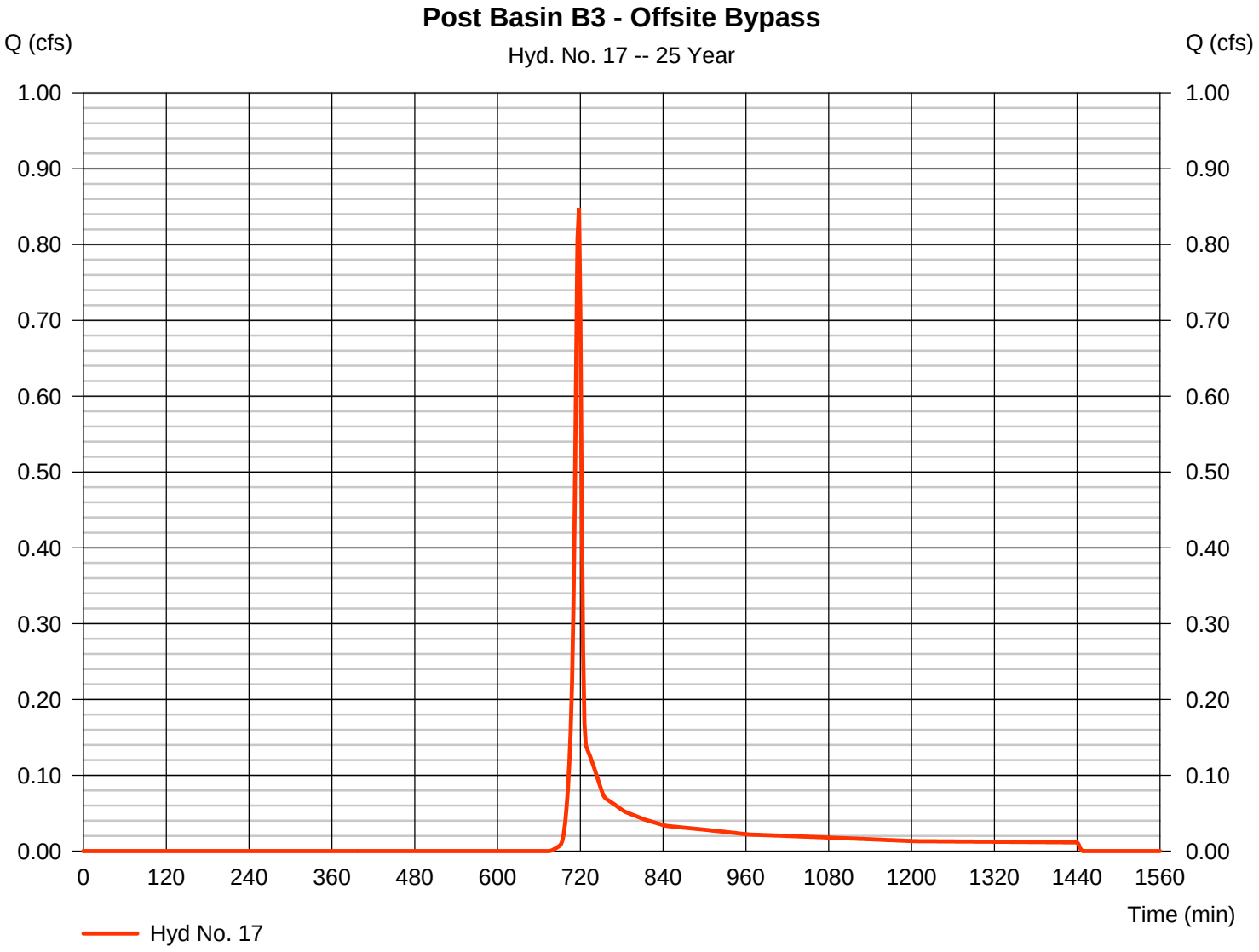


Hydrograph Report

Hyd. No. 17

Post Basin B3 - Offsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.848 cfs
Storm frequency	=	25 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	1,716 cuft
Drainage area	=	0.280 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

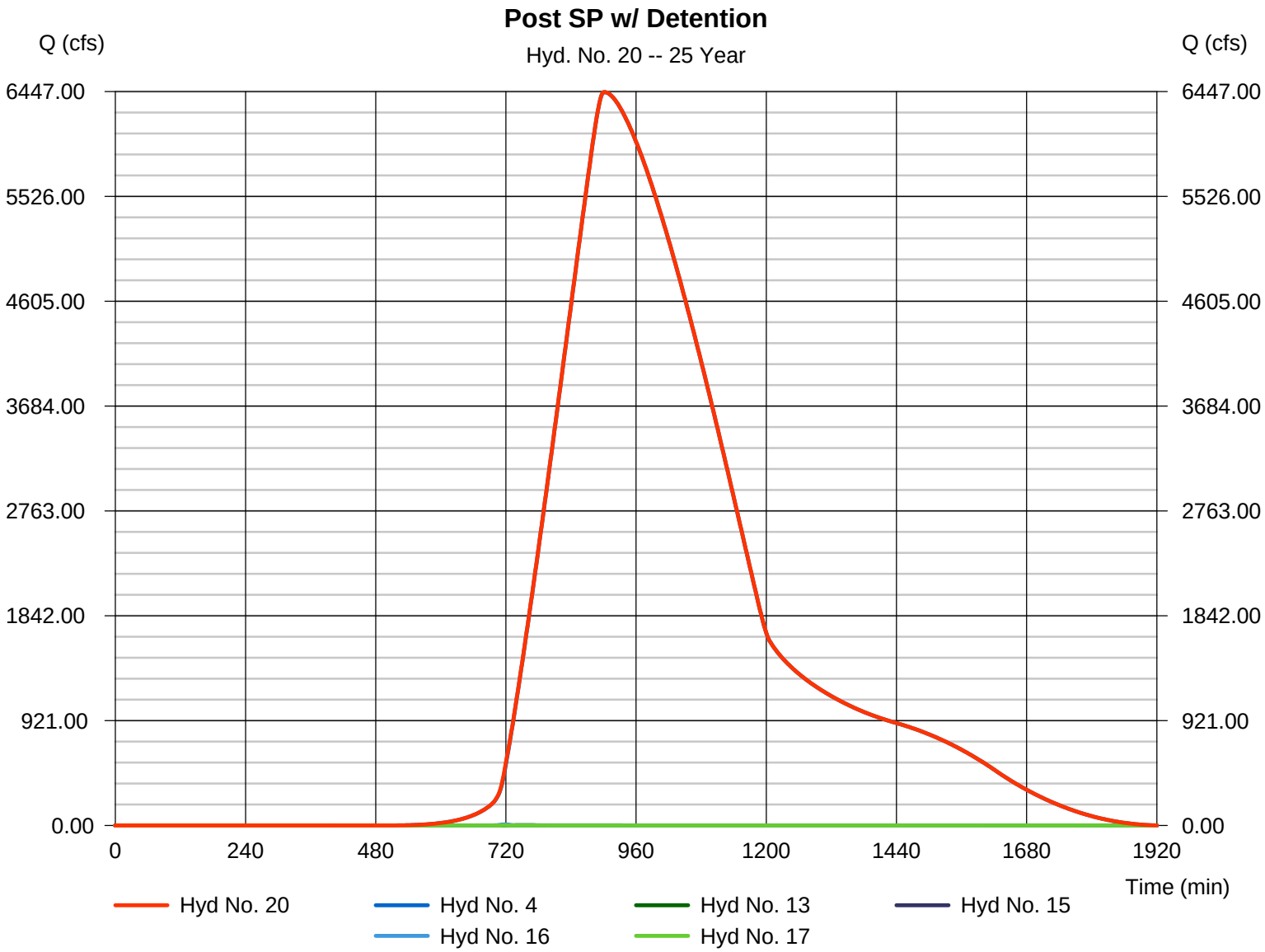


Hydrograph Report

Hyd. No. 20

Post SP w/ Detention

Hydrograph type	=	Combine	Peak discharge	=	6443.11 cfs
Storm frequency	=	25 yrs	Time to peak	=	902 min
Time interval	=	2 min	Hyd. volume	=	146,908,240 cuft
Inflow hyds.	=	4, 13, 15, 16, 17	Contrib. drain. area	=	11951.730 ac

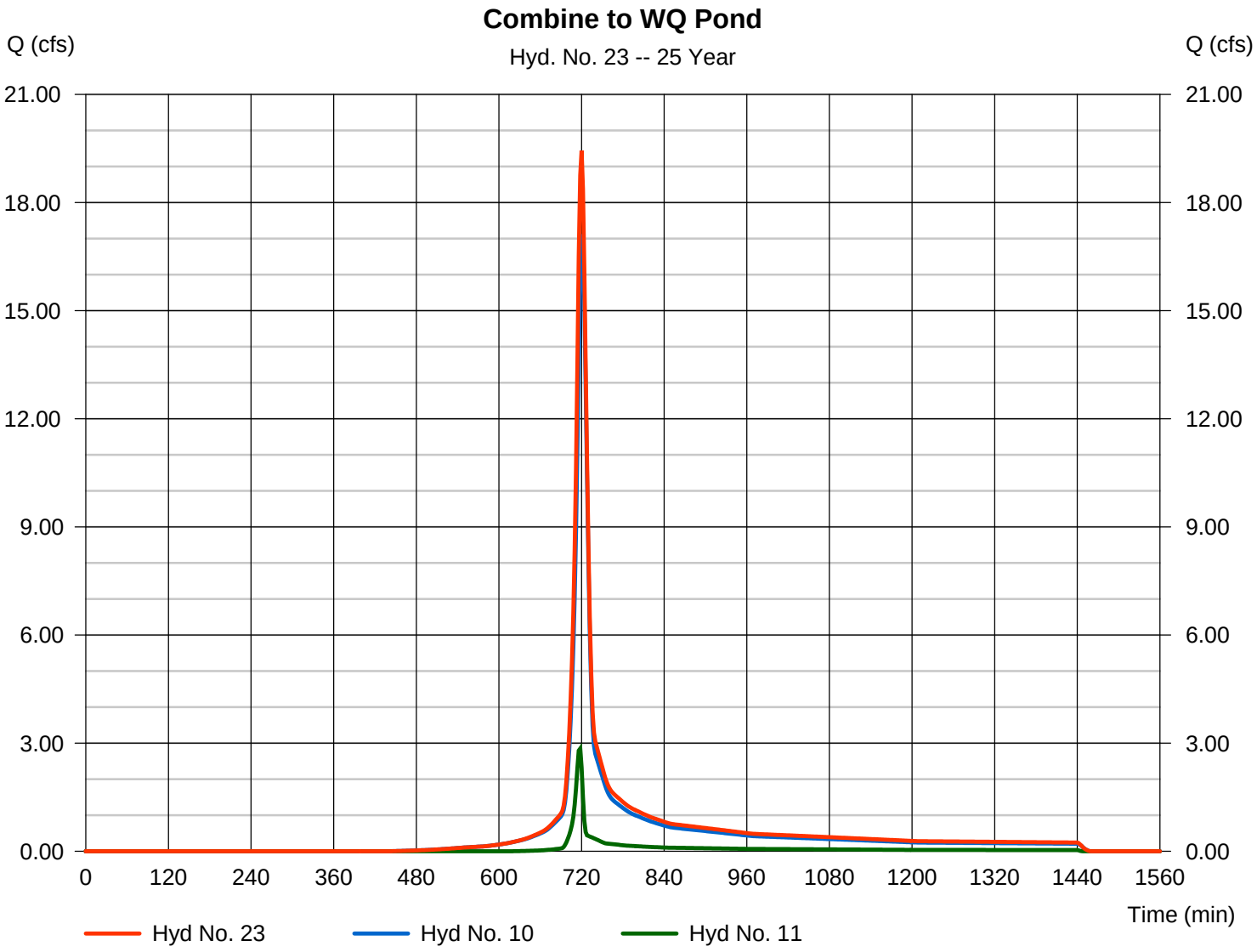


Hydrograph Report

Hyd. No. 23

Combine to WQ Pond

Hydrograph type	=	Combine	Peak discharge	=	19.44 cfs
Storm frequency	=	25 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	50,107 cuft
Inflow hyds.	=	10, 11	Contrib. drain. area	=	3.910 ac



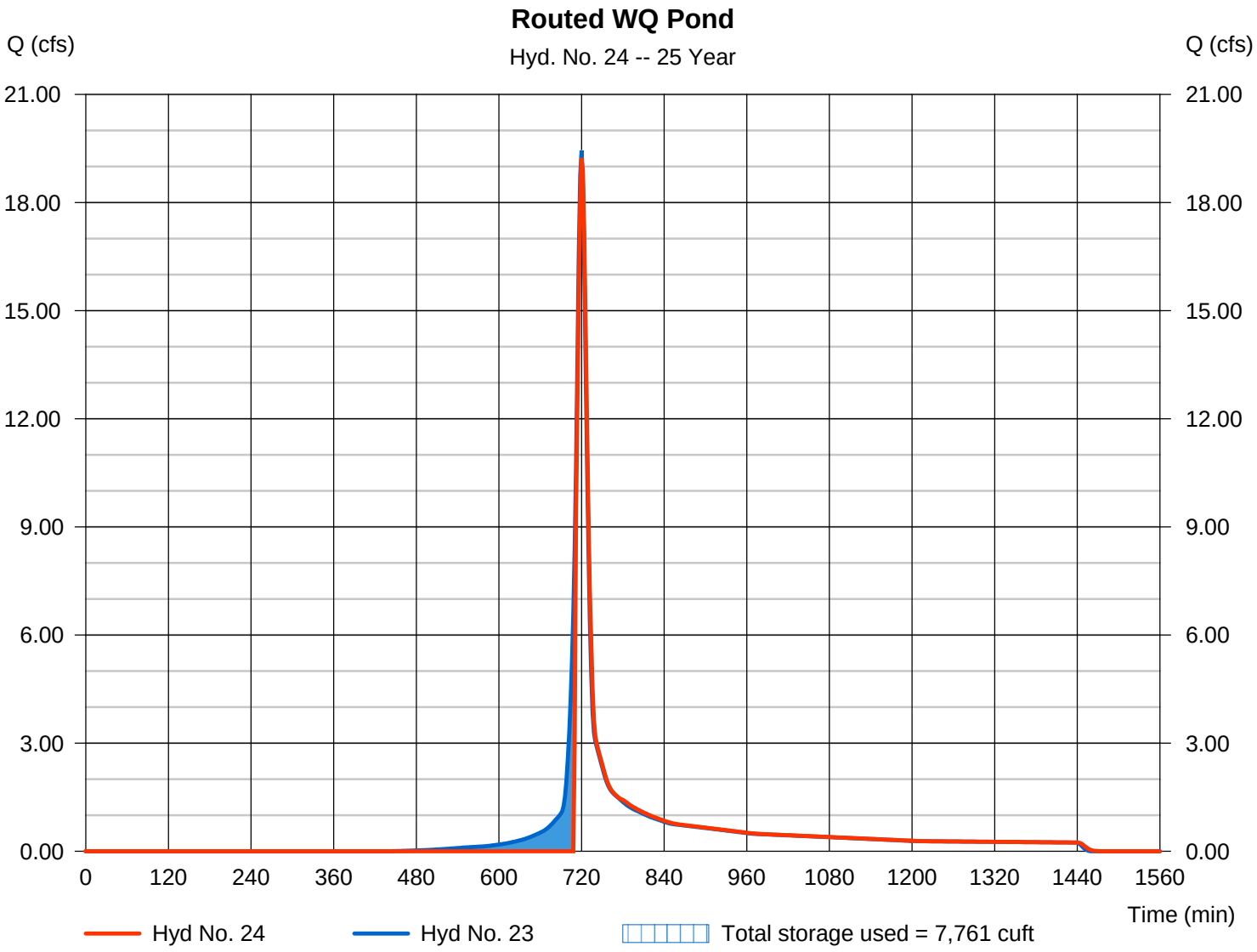
Hydrograph Report

Hyd. No. 24

Routed WQ Pond

Hydrograph type	=	Reservoir	Peak discharge	=	19.24 cfs
Storm frequency	=	25 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	43,767 cuft
Inflow hyd. No.	=	23 - Combine to WQ Pond	Max. Elevation	=	833.67 ft
Reservoir name	=	WQ Pond	Max. Storage	=	7,761 cuft

Storage Indication method used.

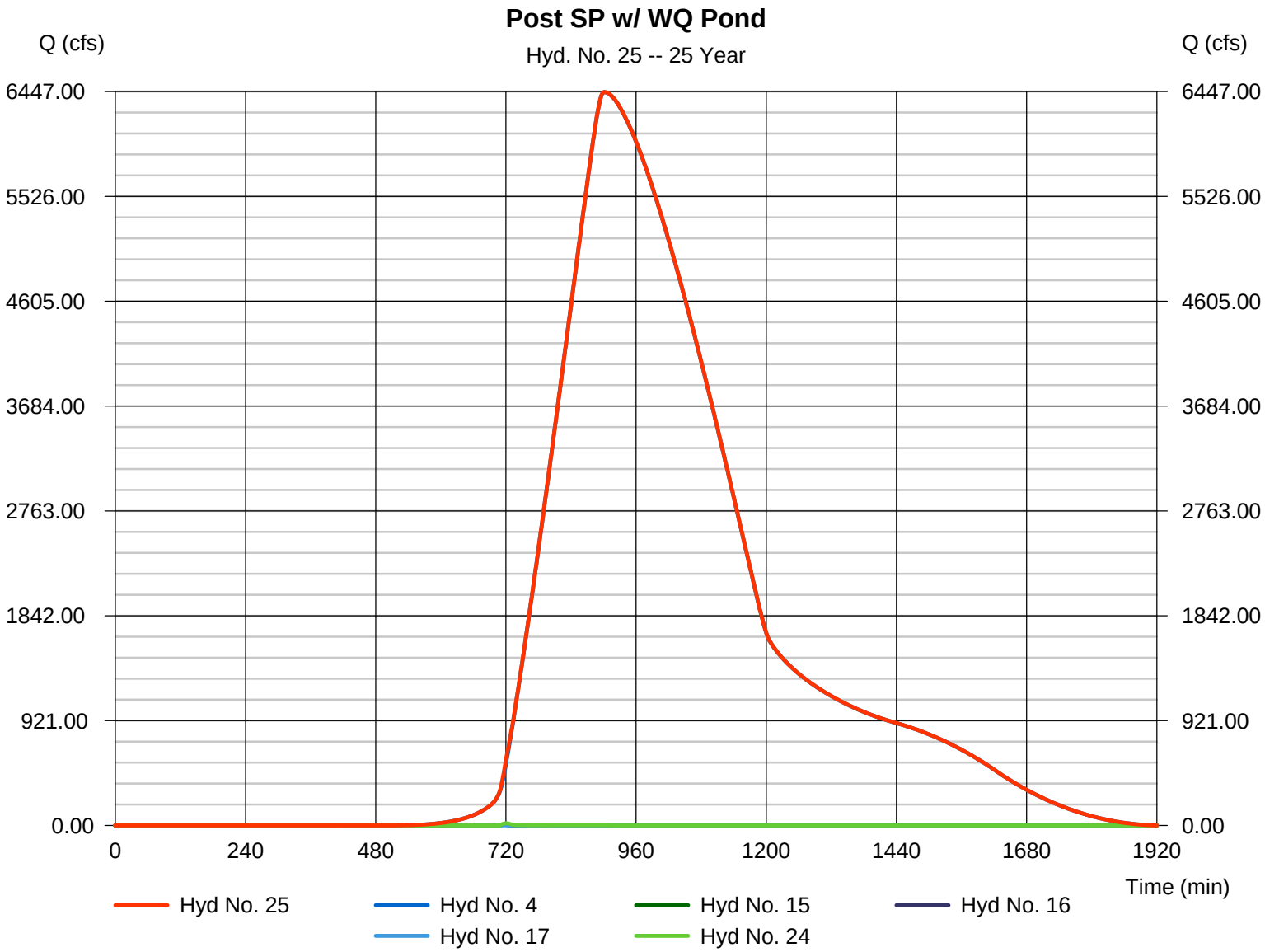


Hydrograph Report

Hyd. No. 25

Post SP w/ WQ Pond

Hydrograph type	=	Combine	Peak discharge	=	6443.06 cfs
Storm frequency	=	25 yrs	Time to peak	=	902 min
Time interval	=	2 min	Hyd. volume	=	146,909,152 cuft
Inflow hyds.	=	4, 15, 16, 17, 24	Contrib. drain. area	=	11951.730 ac



Hydrograph Summary Report

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

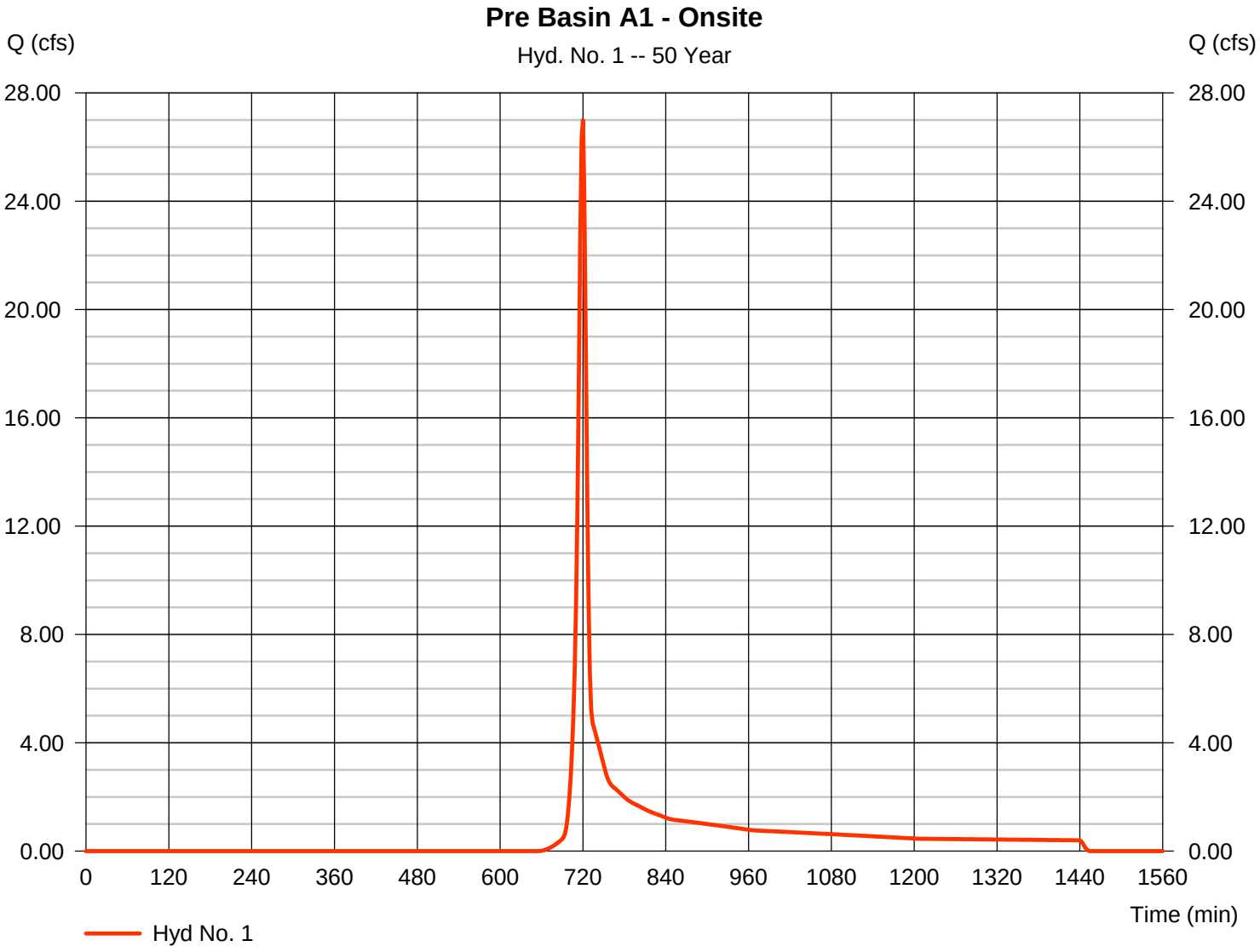
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	27.04	2	720	62,781	------	------	------	Pre Basin A1 - Onsite
2	SCS Runoff	4.696	2	718	9,399	------	------	------	Pre Basin B2 - Offsite
4	SCS Runoff	7659.55	2	902	173,236,512	------	------	------	Basin B1 - Offsite
6	Combine	7660.68	2	902	173,308,752	1, 2, 4,	------	------	Pre SP
10	SCS Runoff	20.00	2	720	52,015	------	------	------	Post Basin A1 to Pond - Onsite
11	SCS Runoff	3.457	2	718	6,924	------	------	------	Post B2 to Pond - Offsite
12	Combine	22.81	2	720	58,939	10, 11	------	------	Combine to Pond
13	Reservoir	8.082	2	732	52,546	12	841.19	28,524	Routed Pond
15	SCS Runoff	9.907	2	720	22,675	------	------	------	Post Basin A2 - Onsite Bypass
16	SCS Runoff	11.66	2	720	26,680	------	------	------	Post Basin A3 - Onsite Bypass
17	SCS Runoff	1.069	2	718	2,146	------	------	------	Post Basin B3 - Offsite Bypass
20	Combine	7661.09	2	902	173,340,032	4, 13, 15, 16, 17,	------	------	Post SP w/ Detention
23	Combine	22.81	2	720	58,939	10, 11,	------	------	Combine to WQ Pond
24	Reservoir	22.61	2	720	52,599	23	833.75	7,922	Routed WQ Pond
25	Combine	7661.03	2	902	173,340,576	4, 15, 16, 17, 24	------	------	Post SP w/ WQ Pond

Hydrograph Report

Hyd. No. 1

Pre Basin A1 - Onsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	27.04 cfs
Storm frequency	=	50 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	62,781 cuft
Drainage area	=	7.680 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	9.60 min
Total precip.	=	7.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

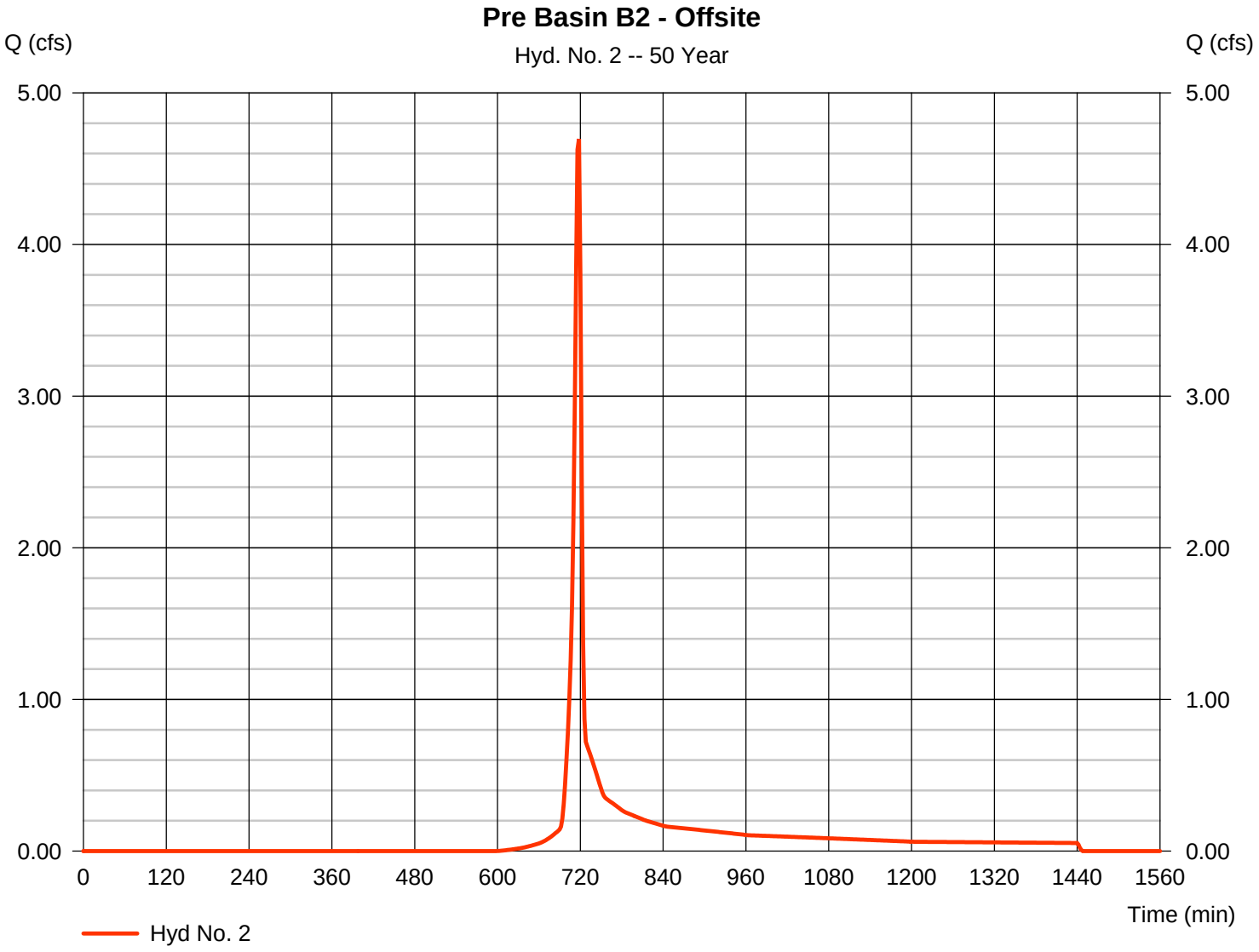


Hydrograph Report

Hyd. No. 2

Pre Basin B2 - Offsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.696 cfs
Storm frequency	=	50 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	9,399 cuft
Drainage area	=	0.970 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	7.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Report

Hyd. No. 4

Basin B1 - Offsite

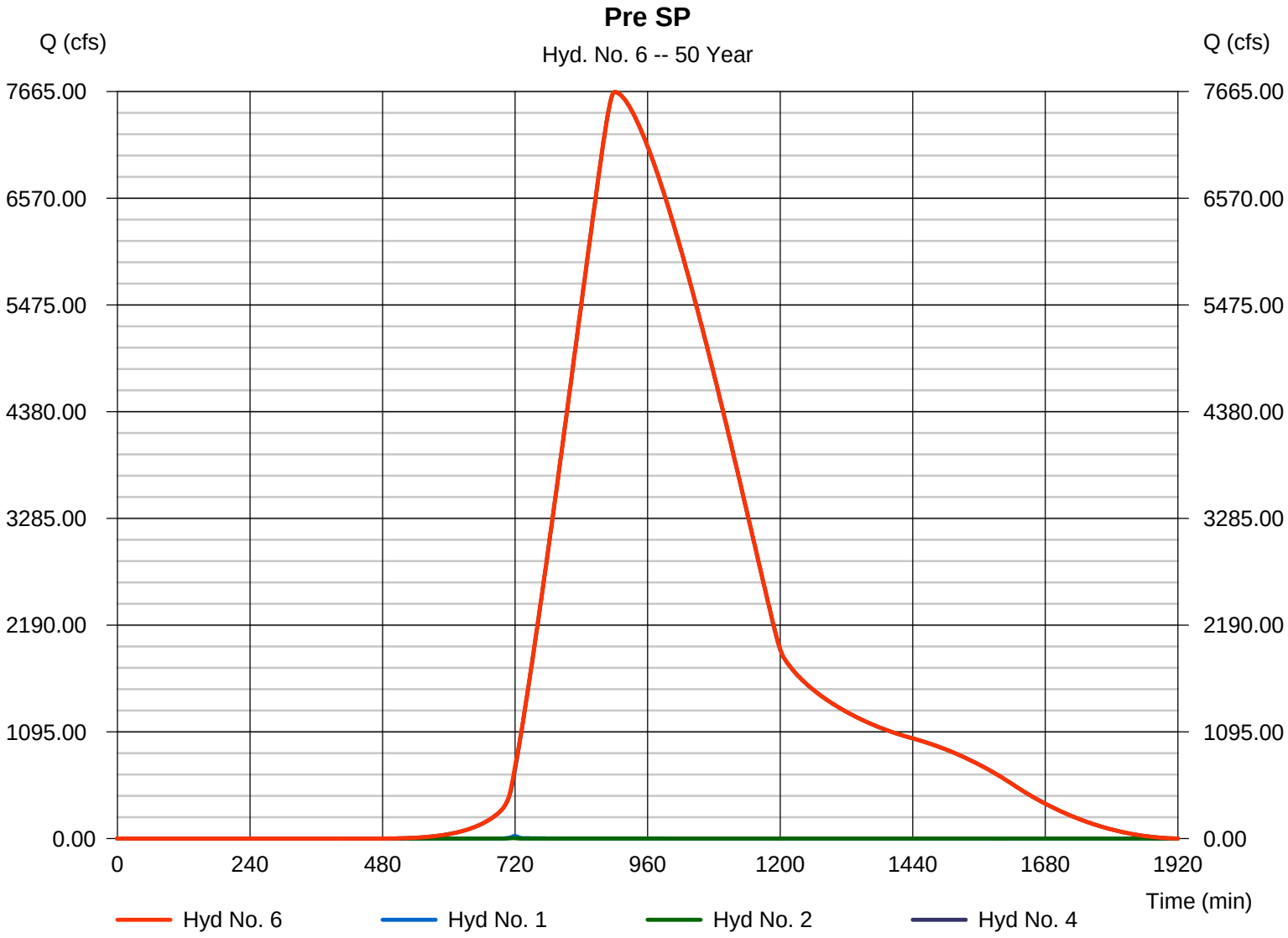
Hydrograph type	=	SCS Runoff	Peak discharge	=	7659.55 cfs
Storm frequency	=	50 yrs	Time to peak	=	902 min
Time interval	=	2 min	Hyd. volume	=	173,236,512 cuft
Drainage area	=	11947.000 ac	Curve number	=	72
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	309.20 min
Total precip.	=	7.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

Hydrograph Report

Hyd. No. 6

Pre SP

Hydrograph type	=	Combine	Peak discharge	=	7660.68 cfs
Storm frequency	=	50 yrs	Time to peak	=	902 min
Time interval	=	2 min	Hyd. volume	=	173,308,752 cuft
Inflow hyds.	=	1, 2, 4	Contrib. drain. area	=	11955.650 ac

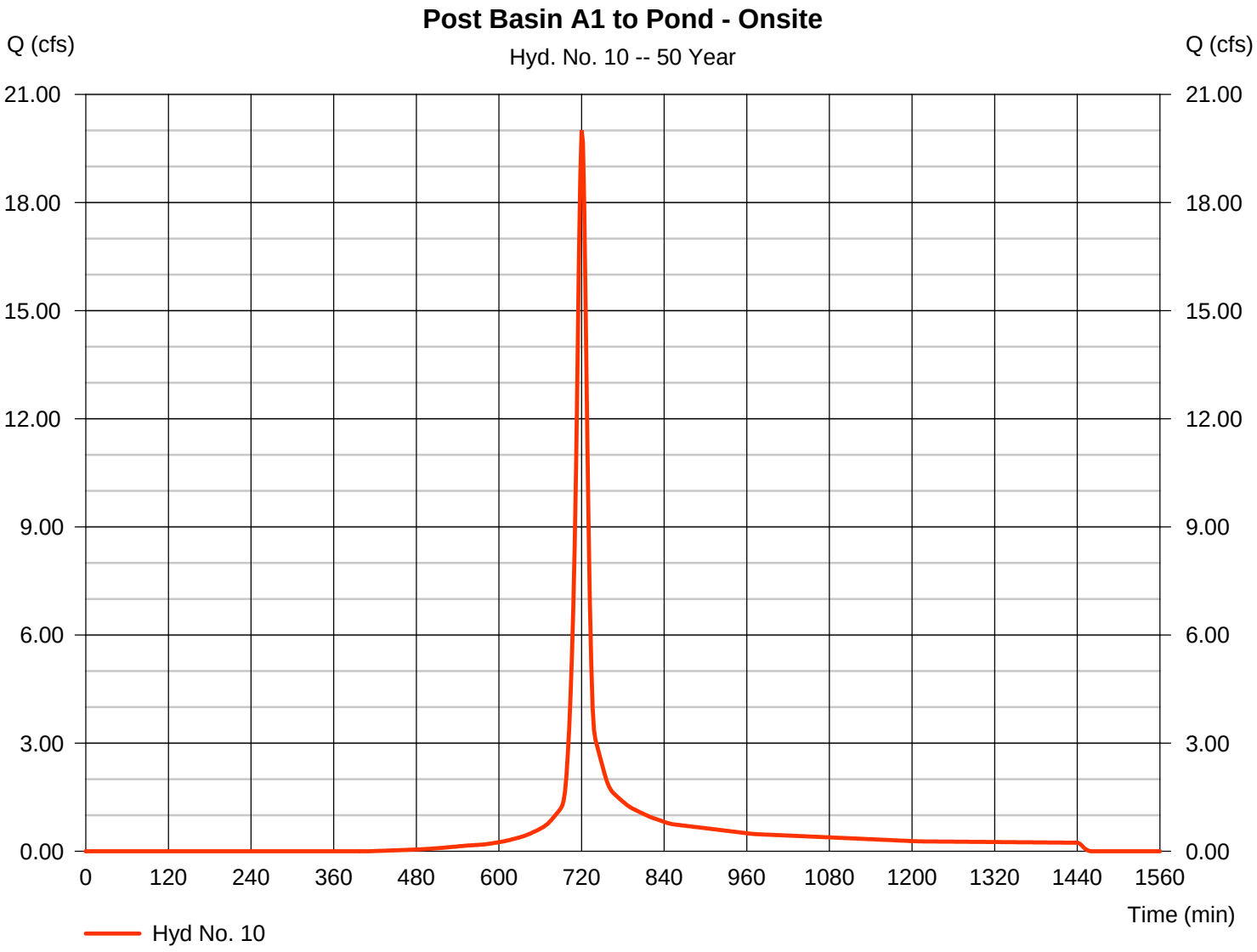


Hydrograph Report

Hyd. No. 10

Post Basin A1 to Pond - Onsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	20.00 cfs
Storm frequency	=	50 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	52,015 cuft
Drainage area	=	3.220 ac	Curve number	=	74.9
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	11.10 min
Total precip.	=	7.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

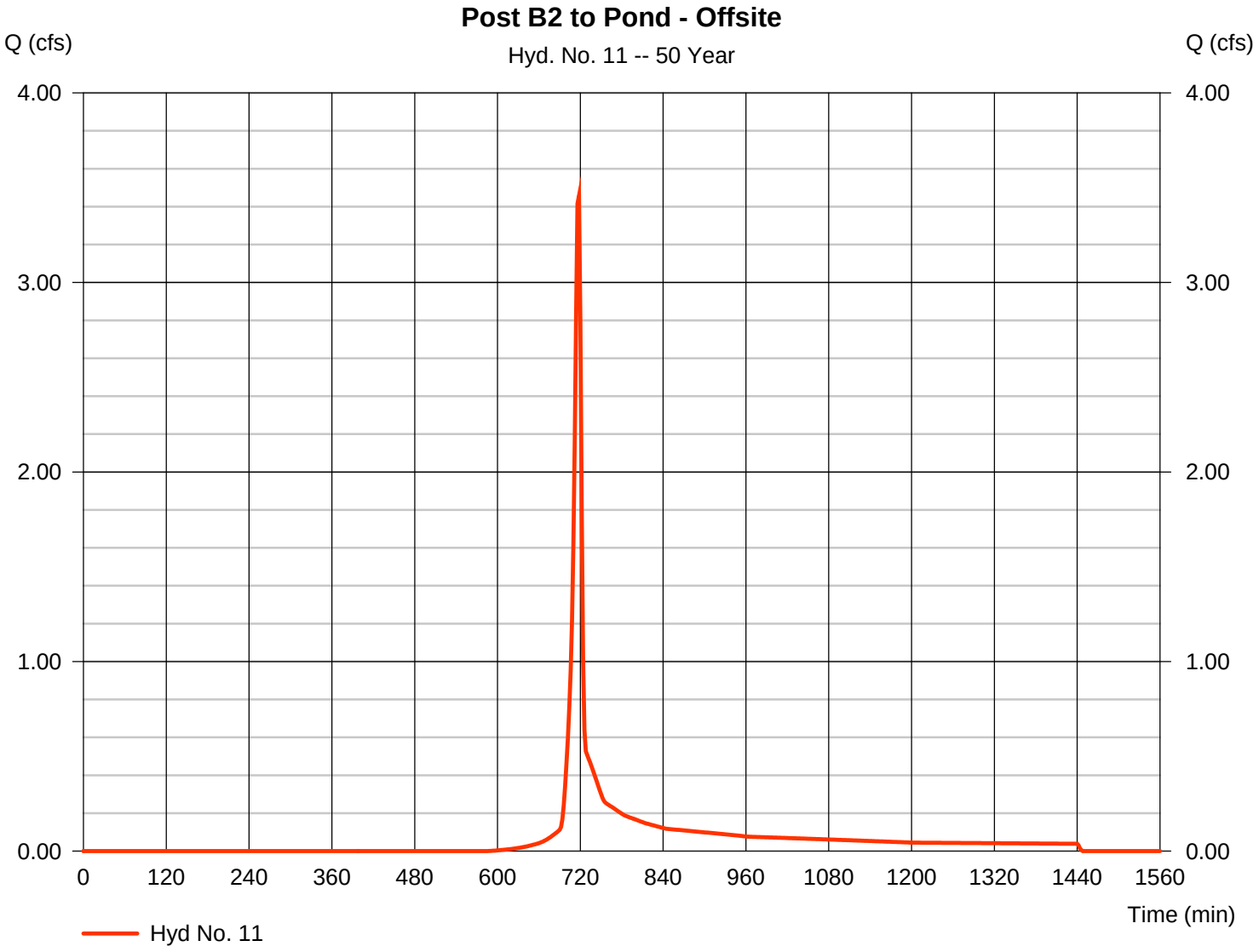


Hydrograph Report

Hyd. No. 11

Post B2 to Pond - Offsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.457 cfs
Storm frequency	=	50 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	6,924 cuft
Drainage area	=	0.690 ac	Curve number	=	62
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	7.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

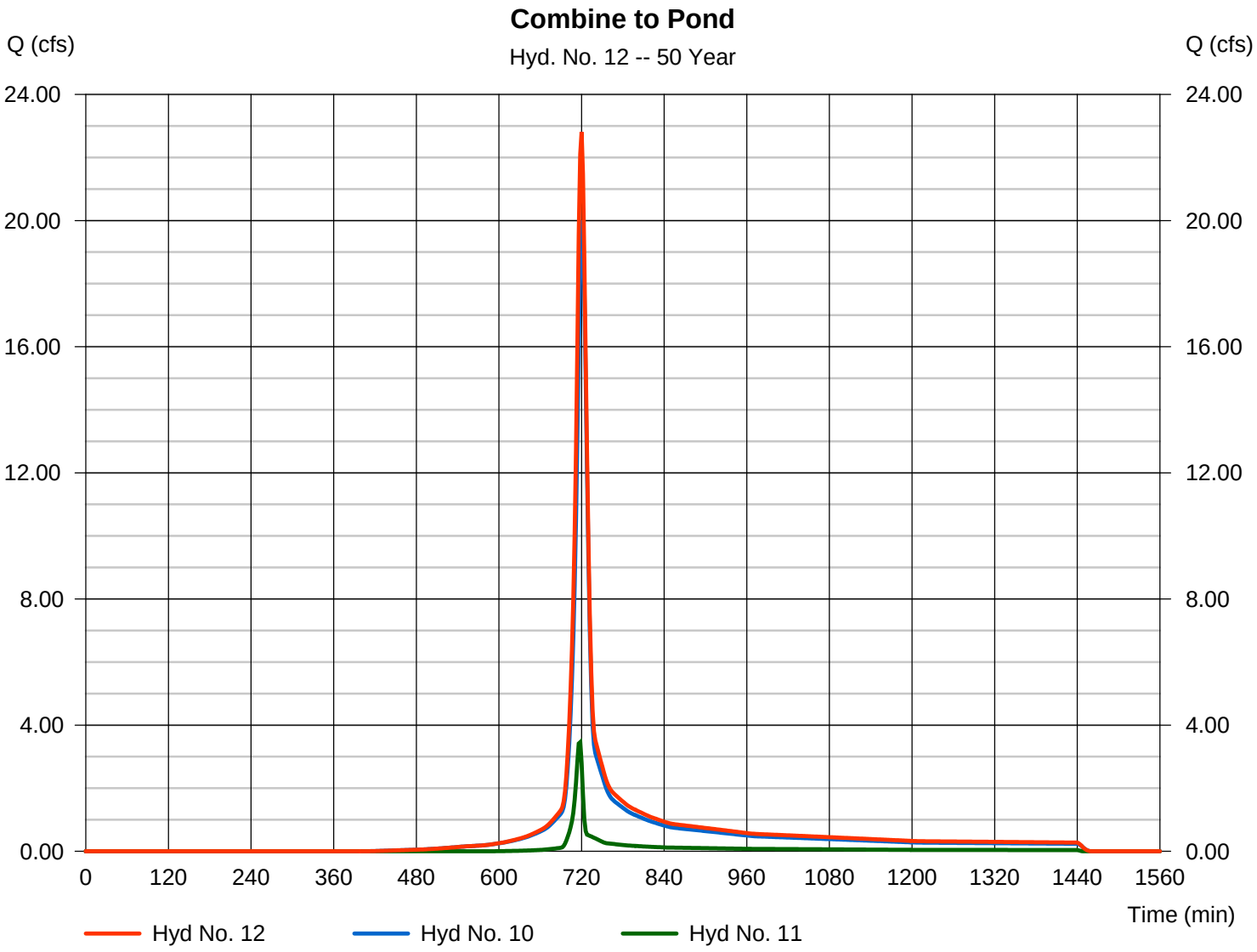


Hydrograph Report

Hyd. No. 12

Combine to Pond

Hydrograph type	=	Combine	Peak discharge	=	22.81 cfs
Storm frequency	=	50 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	58,939 cuft
Inflow hyds.	=	10, 11	Contrib. drain. area	=	3.910 ac



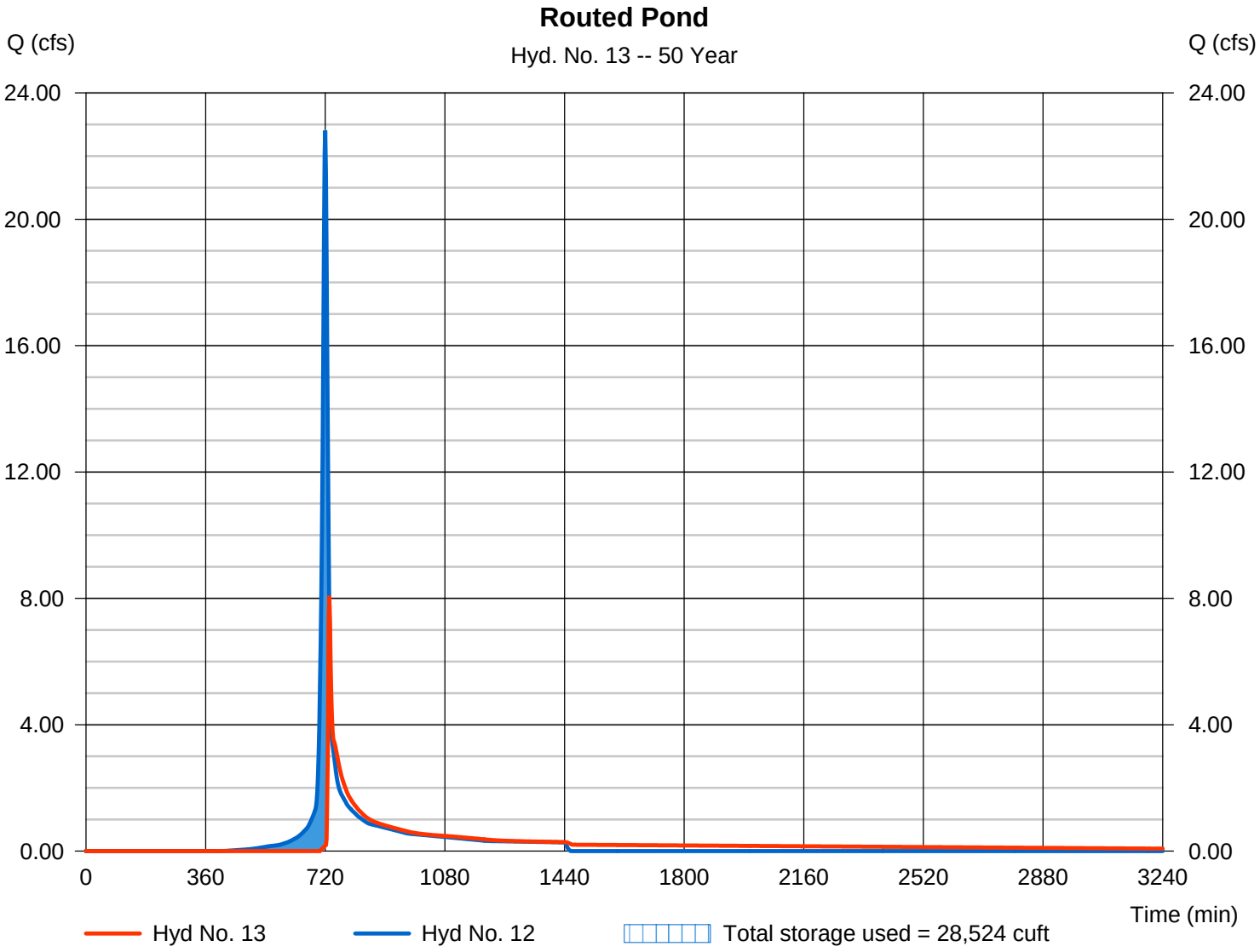
Hydrograph Report

Hyd. No. 13

Routed Pond

Hydrograph type	=	Reservoir	Peak discharge	=	8.082 cfs
Storm frequency	=	50 yrs	Time to peak	=	732 min
Time interval	=	2 min	Hyd. volume	=	52,546 cuft
Inflow hyd. No.	=	12 - Combine to Pond	Max. Elevation	=	841.19 ft
Reservoir name	=	Pond	Max. Storage	=	28,524 cuft

Storage Indication method used.

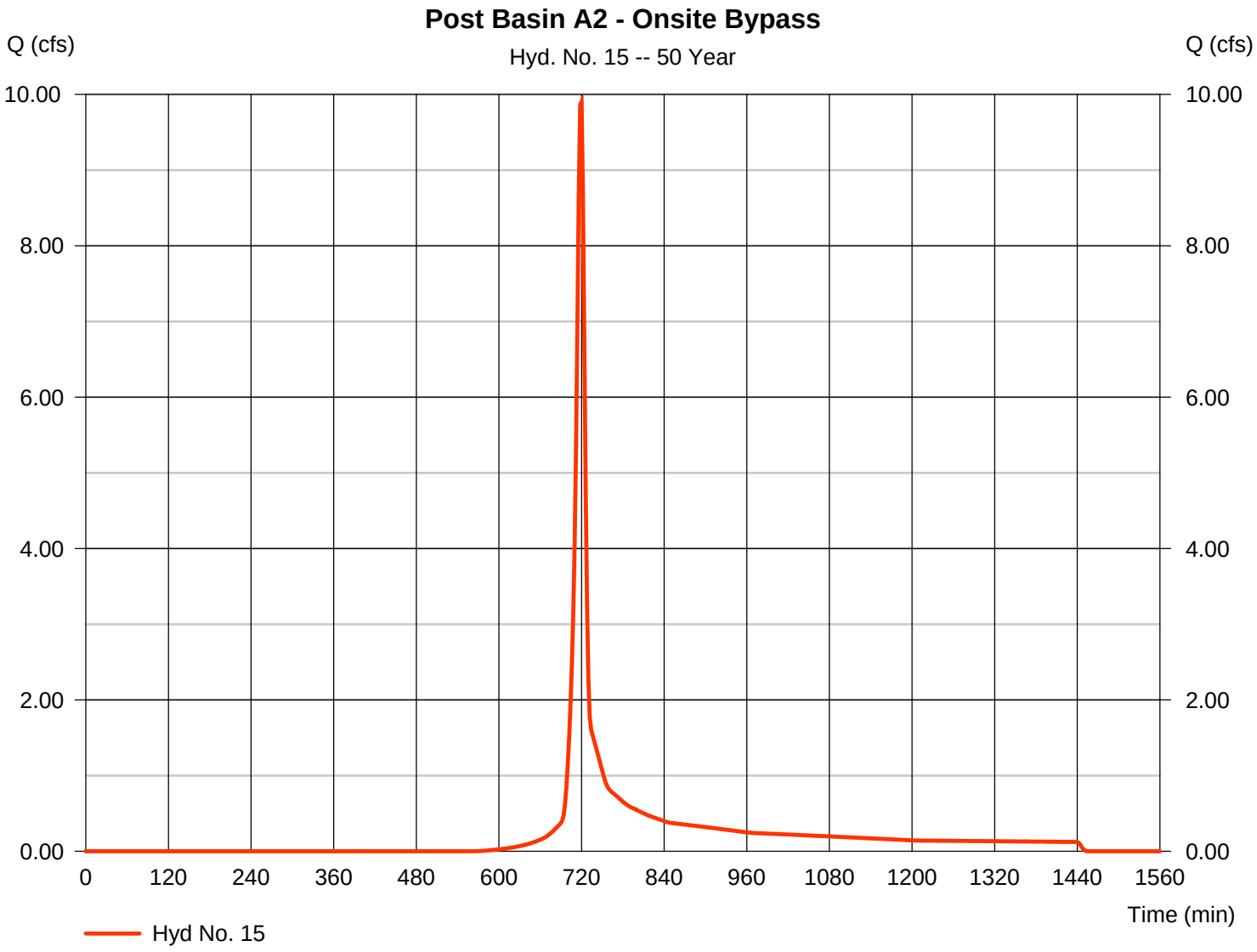


Hydrograph Report

Hyd. No. 15

Post Basin A2 - Onsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.907 cfs
Storm frequency	=	50 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	22,675 cuft
Drainage area	=	2.000 ac	Curve number	=	63.7
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	8.80 min
Total precip.	=	7.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

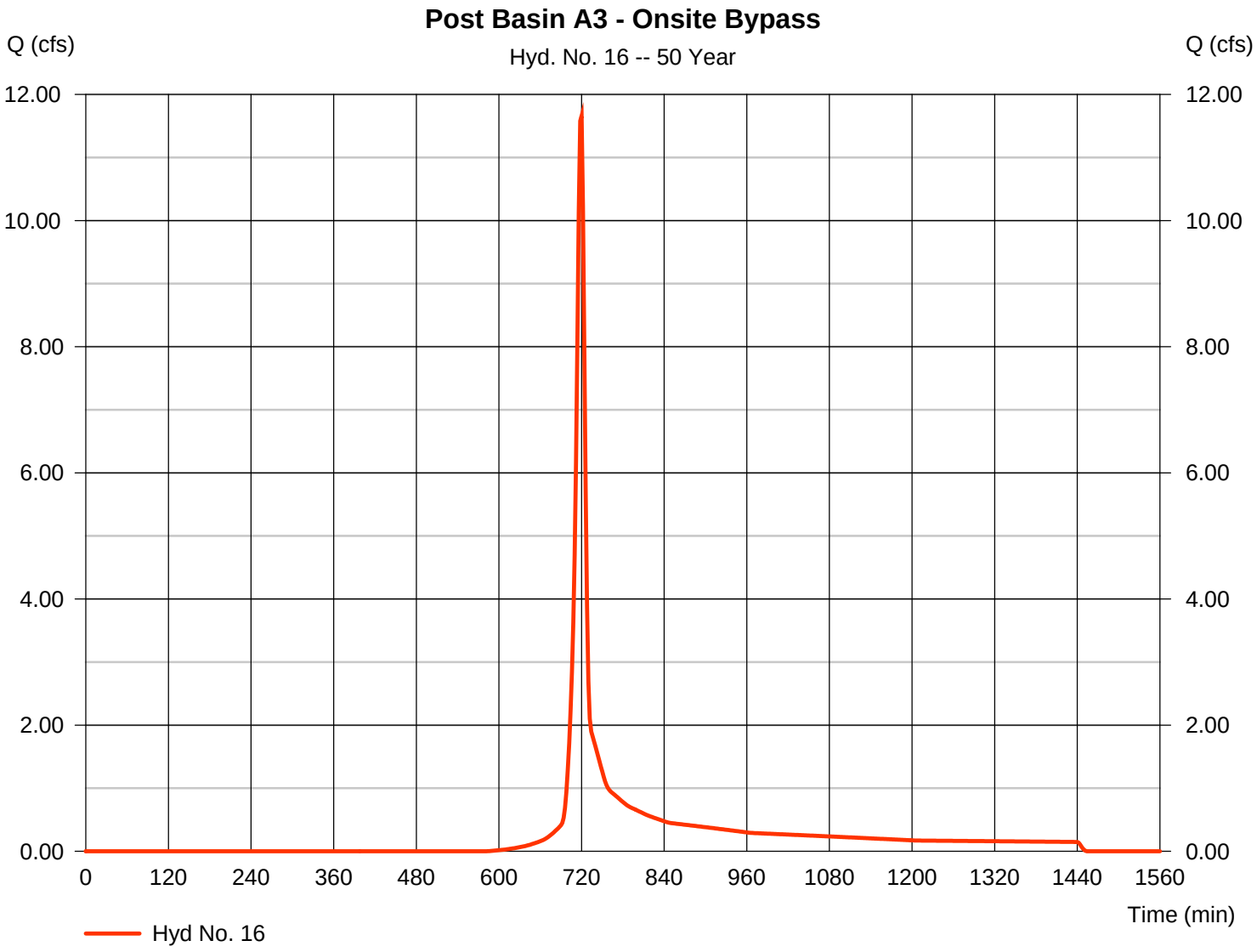


Hydrograph Report

Hyd. No. 16

Post Basin A3 - Onsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.66 cfs
Storm frequency	=	50 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	26,680 cuft
Drainage area	=	2.450 ac	Curve number	=	62.5
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	9.30 min
Total precip.	=	7.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

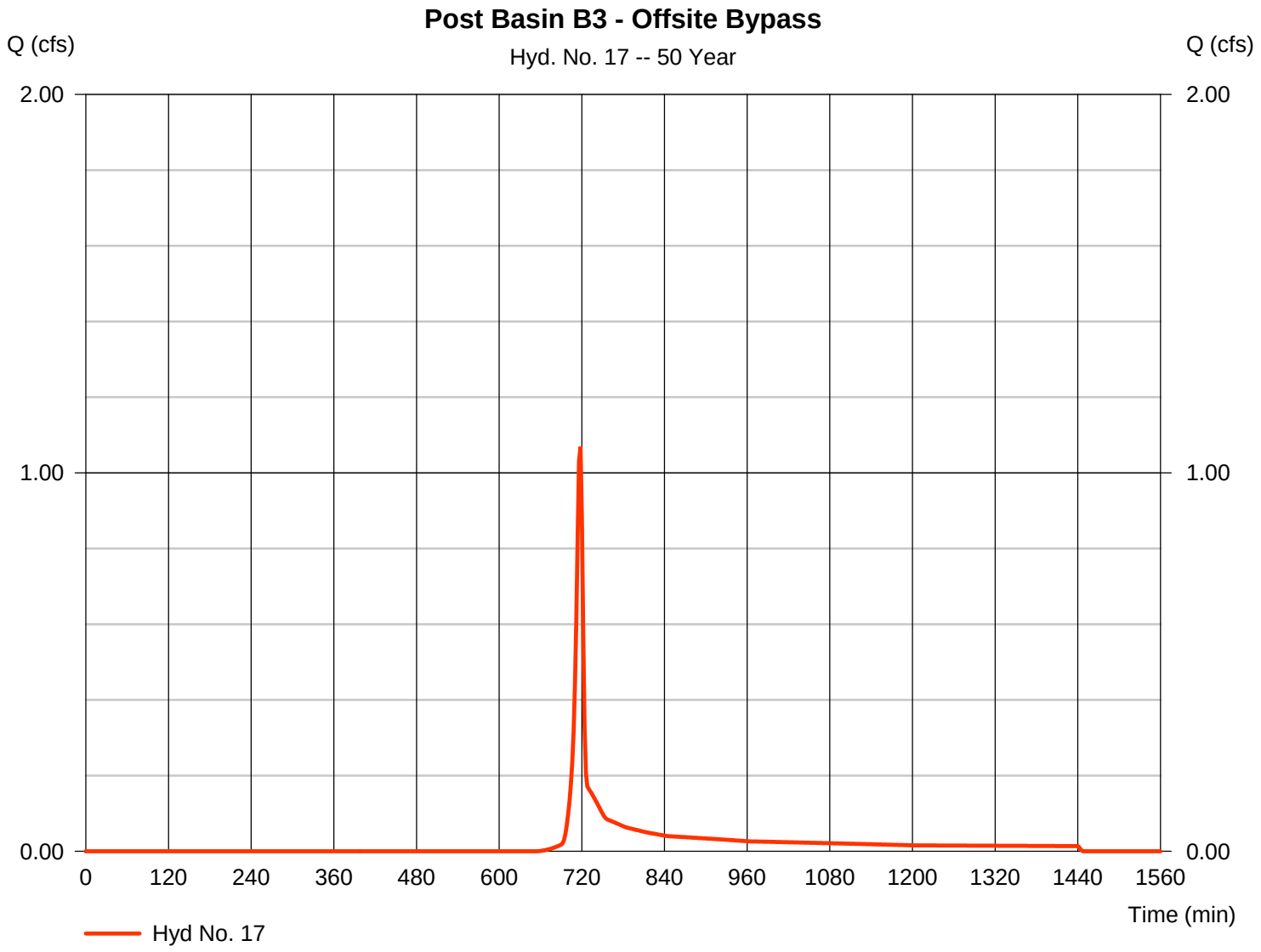


Hydrograph Report

Hyd. No. 17

Post Basin B3 - Offsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.069 cfs
Storm frequency	=	50 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	2,146 cuft
Drainage area	=	0.280 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	7.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

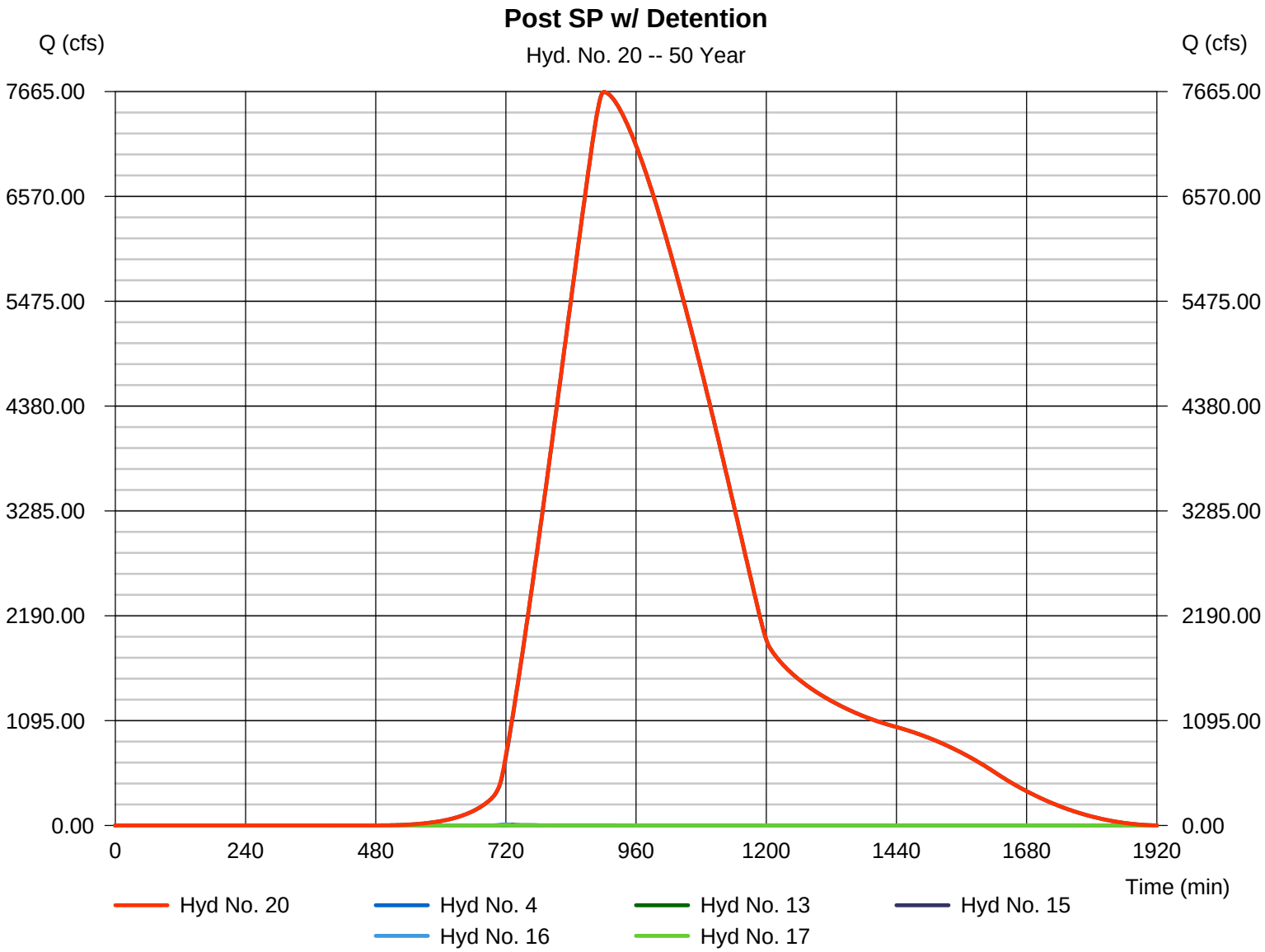


Hydrograph Report

Hyd. No. 20

Post SP w/ Detention

Hydrograph type	=	Combine	Peak discharge	=	7661.09 cfs
Storm frequency	=	50 yrs	Time to peak	=	902 min
Time interval	=	2 min	Hyd. volume	=	173,340,032 cuft
Inflow hyds.	=	4, 13, 15, 16, 17	Contrib. drain. area	=	11951.730 ac

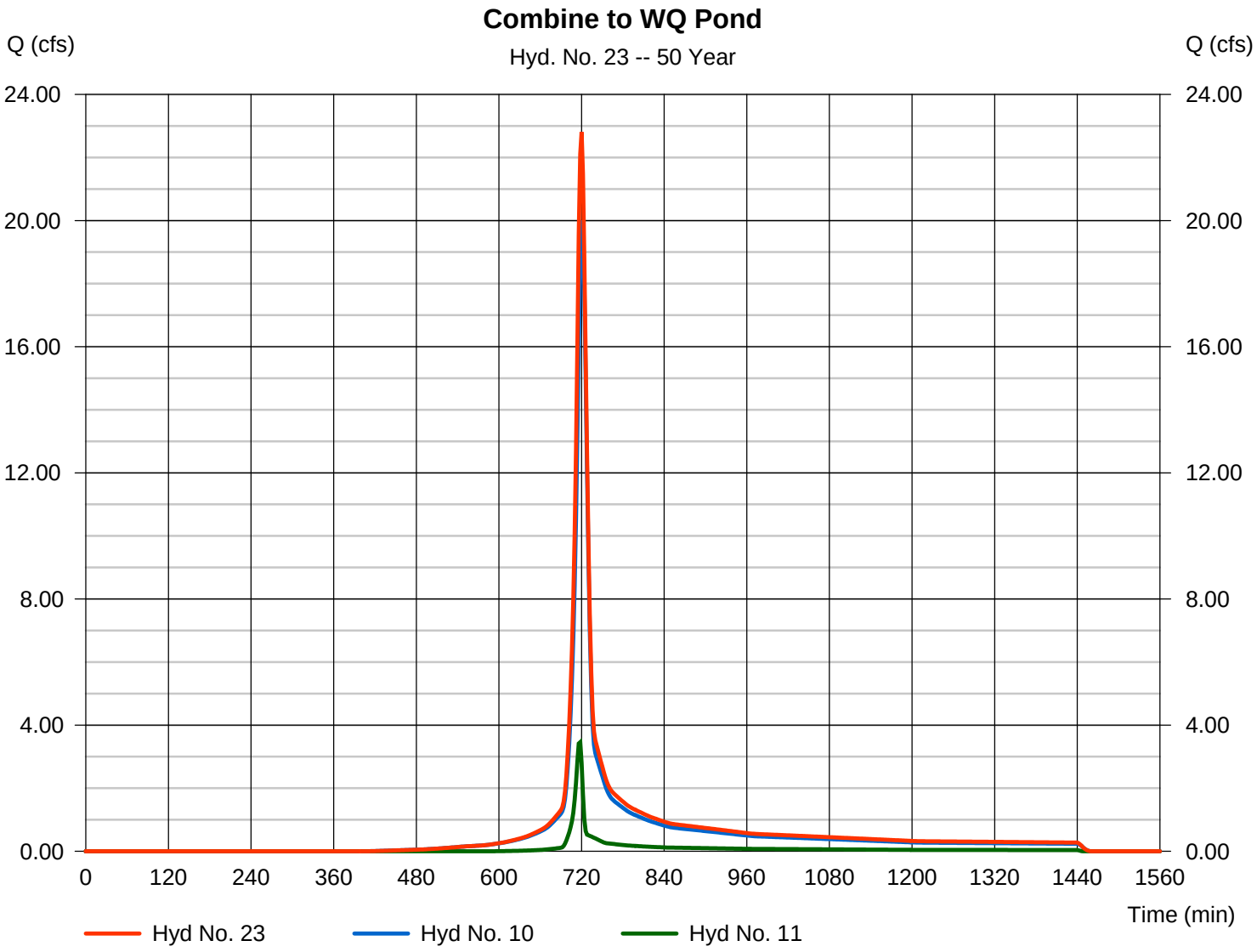


Hydrograph Report

Hyd. No. 23

Combine to WQ Pond

Hydrograph type	=	Combine	Peak discharge	=	22.81 cfs
Storm frequency	=	50 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	58,939 cuft
Inflow hyds.	=	10, 11	Contrib. drain. area	=	3.910 ac



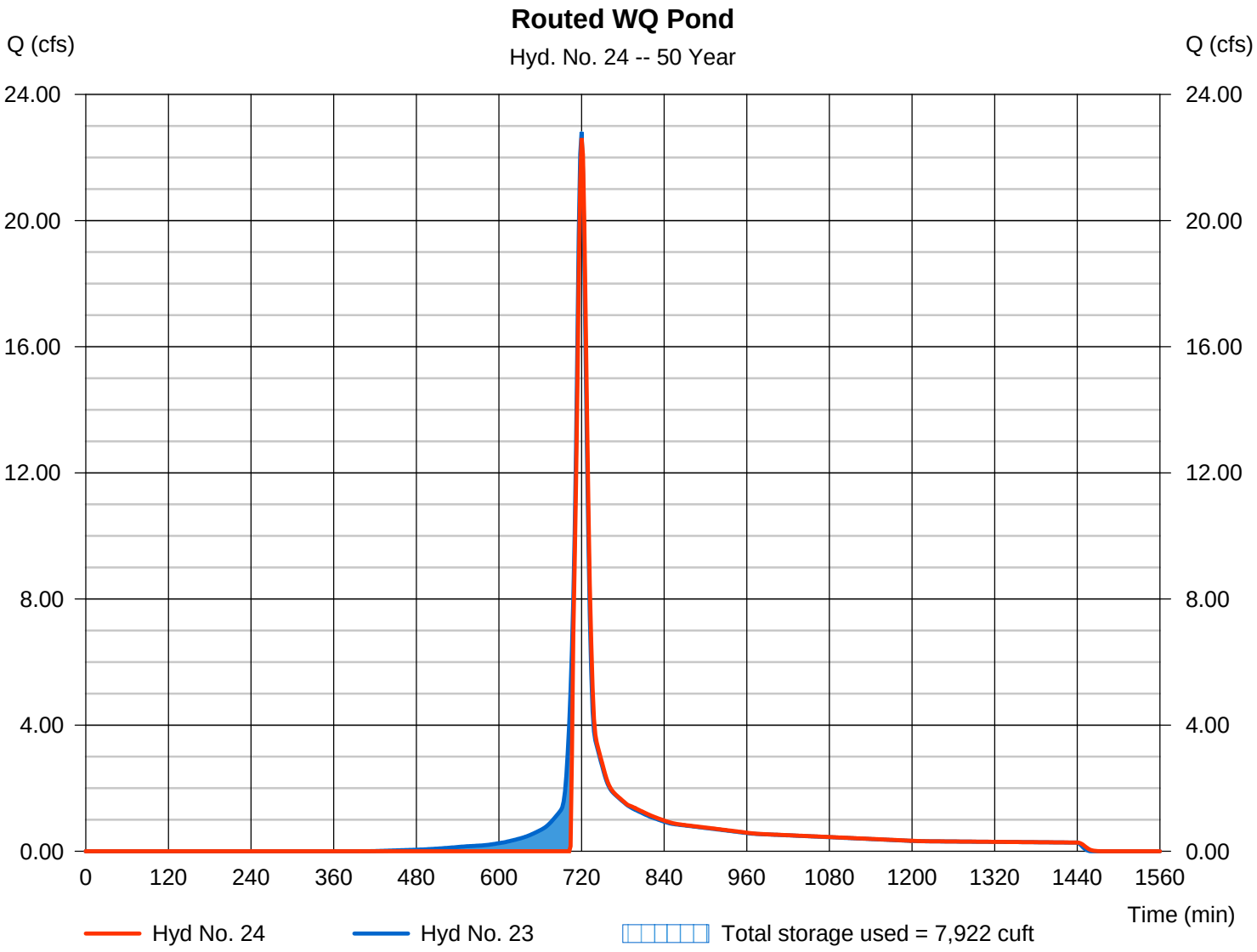
Hydrograph Report

Hyd. No. 24

Routed WQ Pond

Hydrograph type	=	Reservoir	Peak discharge	=	22.61 cfs
Storm frequency	=	50 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	52,599 cuft
Inflow hyd. No.	=	23 - Combine to WQ Pond	Max. Elevation	=	833.75 ft
Reservoir name	=	WQ Pond	Max. Storage	=	7,922 cuft

Storage Indication method used.

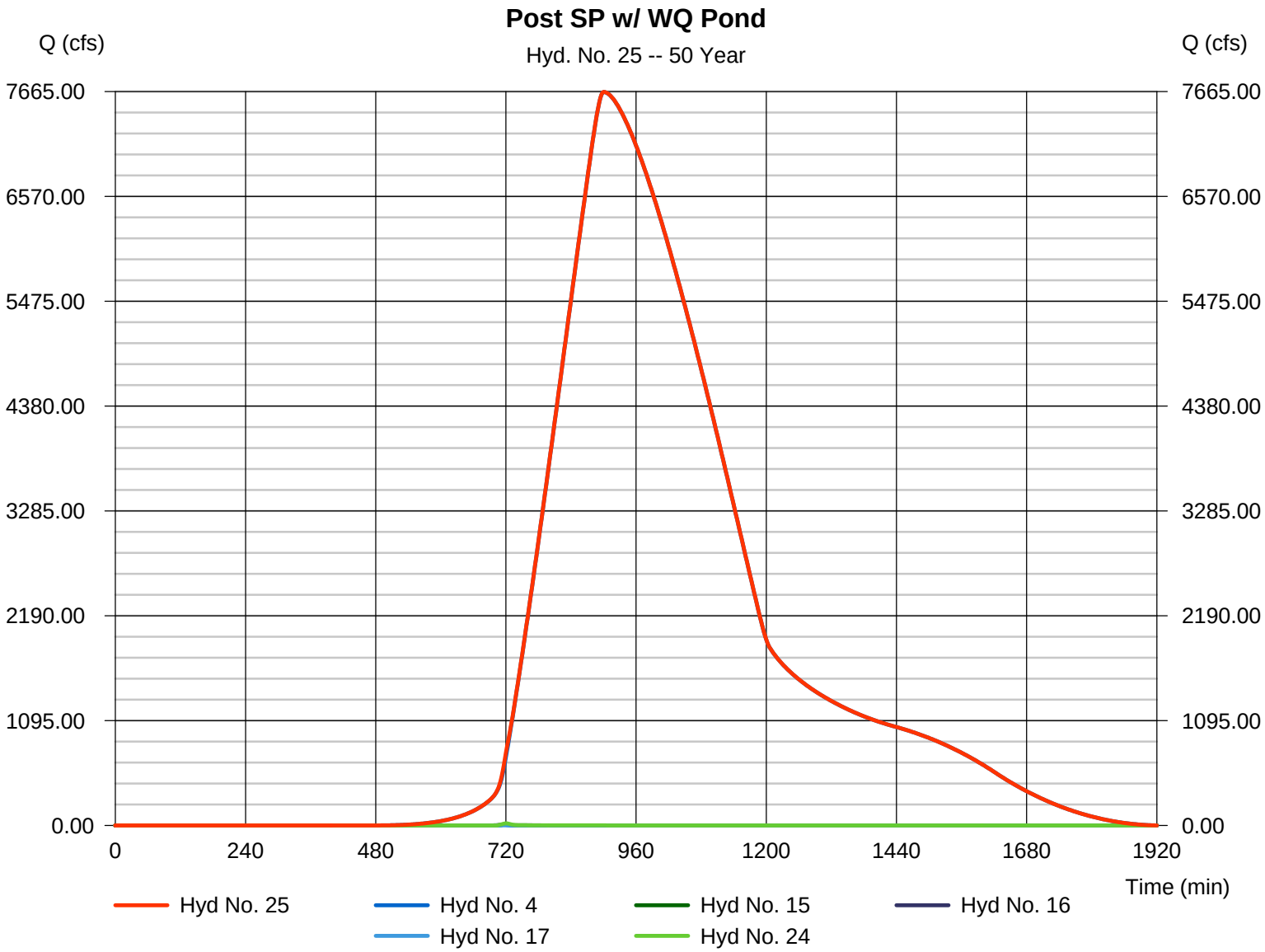


Hydrograph Report

Hyd. No. 25

Post SP w/ WQ Pond

Hydrograph type	=	Combine	Peak discharge	=	7661.03 cfs
Storm frequency	=	50 yrs	Time to peak	=	902 min
Time interval	=	2 min	Hyd. volume	=	173,340,576 cuft
Inflow hyds.	=	4, 15, 16, 17, 24	Contrib. drain. area	=	11951.730 ac



Hydrograph Summary Report

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

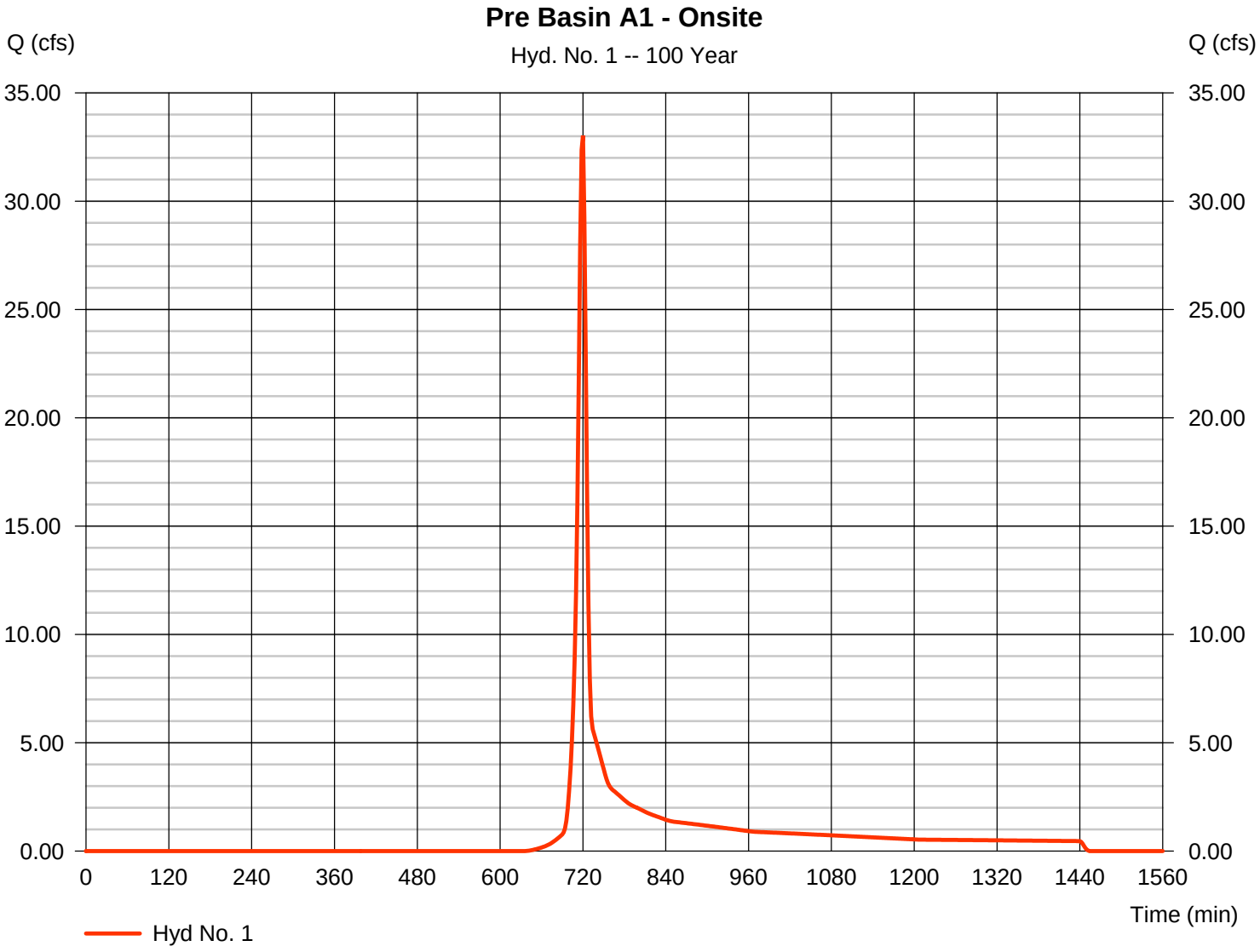
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	33.03	2	720	76,095	------	------	------	Pre Basin A1 - Onsite
2	SCS Runoff	5.568	2	718	11,170	------	------	------	Pre Basin B2 - Offsite
4	SCS Runoff	8905.27	2	900	200,272,896	------	------	------	Basin B1 - Offsite
6	Combine	8906.59	2	900	200,360,128	1, 2, 4,	------	------	Pre SP
10	SCS Runoff	22.91	2	720	59,763	------	------	------	Post Basin A1 to Pond - Onsite
11	SCS Runoff	4.084	2	718	8,206	------	------	------	Post B2 to Pond - Offsite
12	Combine	26.21	2	720	67,969	10, 11	------	------	Combine to Pond
13	Reservoir	16.16	2	726	61,576	12	841.42	29,313	Routed Pond
15	SCS Runoff	11.68	2	718	26,746	------	------	------	Post Basin A2 - Onsite Bypass
16	SCS Runoff	13.79	2	720	31,574	------	------	------	Post Basin A3 - Onsite Bypass
17	SCS Runoff	1.300	2	718	2,601	------	------	------	Post Basin B3 - Offsite Bypass
20	Combine	8907.02	2	900	200,394,544	4, 13, 15, 16, 17,	------	------	Post SP w/ Detention
23	Combine	26.21	2	720	67,969	10, 11,	------	------	Combine to WQ Pond
24	Reservoir	25.59	2	720	61,629	23	833.85	8,110	Routed WQ Pond
25	Combine	8906.96	2	900	200,395,360	4, 15, 16, 17, 24	------	------	Post SP w/ WQ Pond

Hydrograph Report

Hyd. No. 1

Pre Basin A1 - Onsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	33.03 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	76,095 cuft
Drainage area	=	7.680 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	9.60 min
Total precip.	=	7.92 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

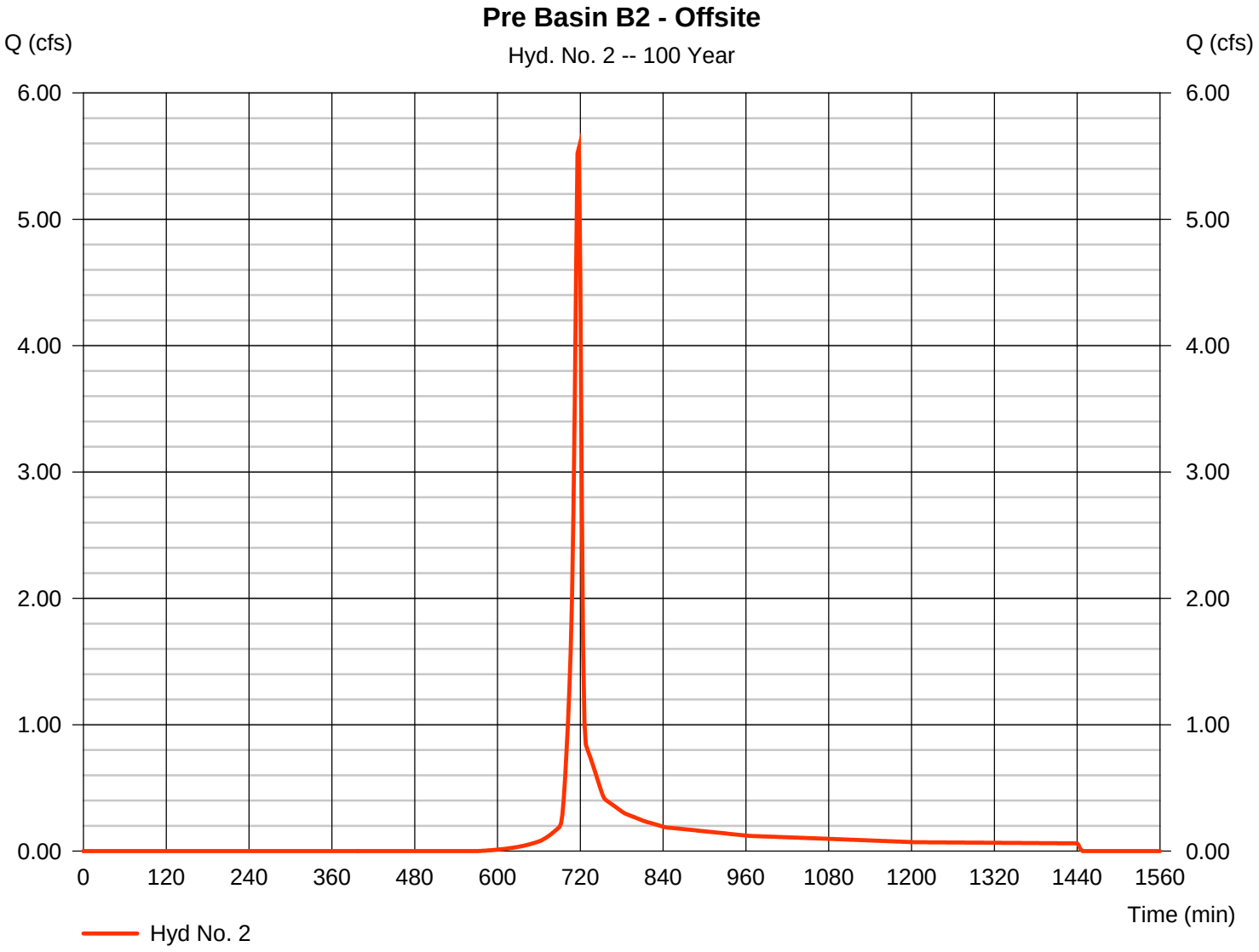


Hydrograph Report

Hyd. No. 2

Pre Basin B2 - Offsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.568 cfs
Storm frequency	=	100 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	11,170 cuft
Drainage area	=	0.970 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	7.92 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

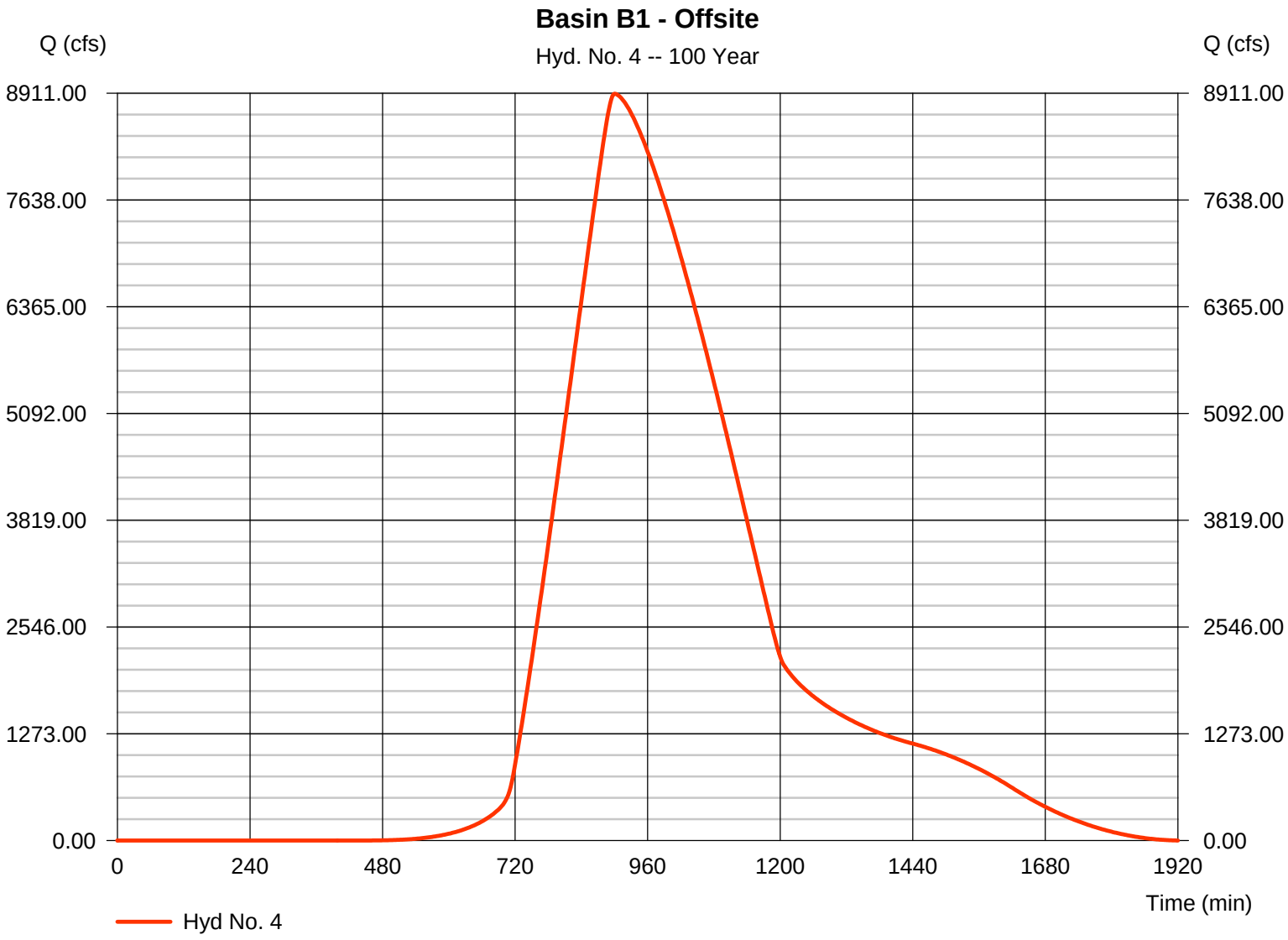


Hydrograph Report

Hyd. No. 4

Basin B1 - Offsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	8905.27 cfs
Storm frequency	=	100 yrs	Time to peak	=	900 min
Time interval	=	2 min	Hyd. volume	=	200,272,896 cuft
Drainage area	=	11947.000 ac	Curve number	=	72
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	309.20 min
Total precip.	=	7.92 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

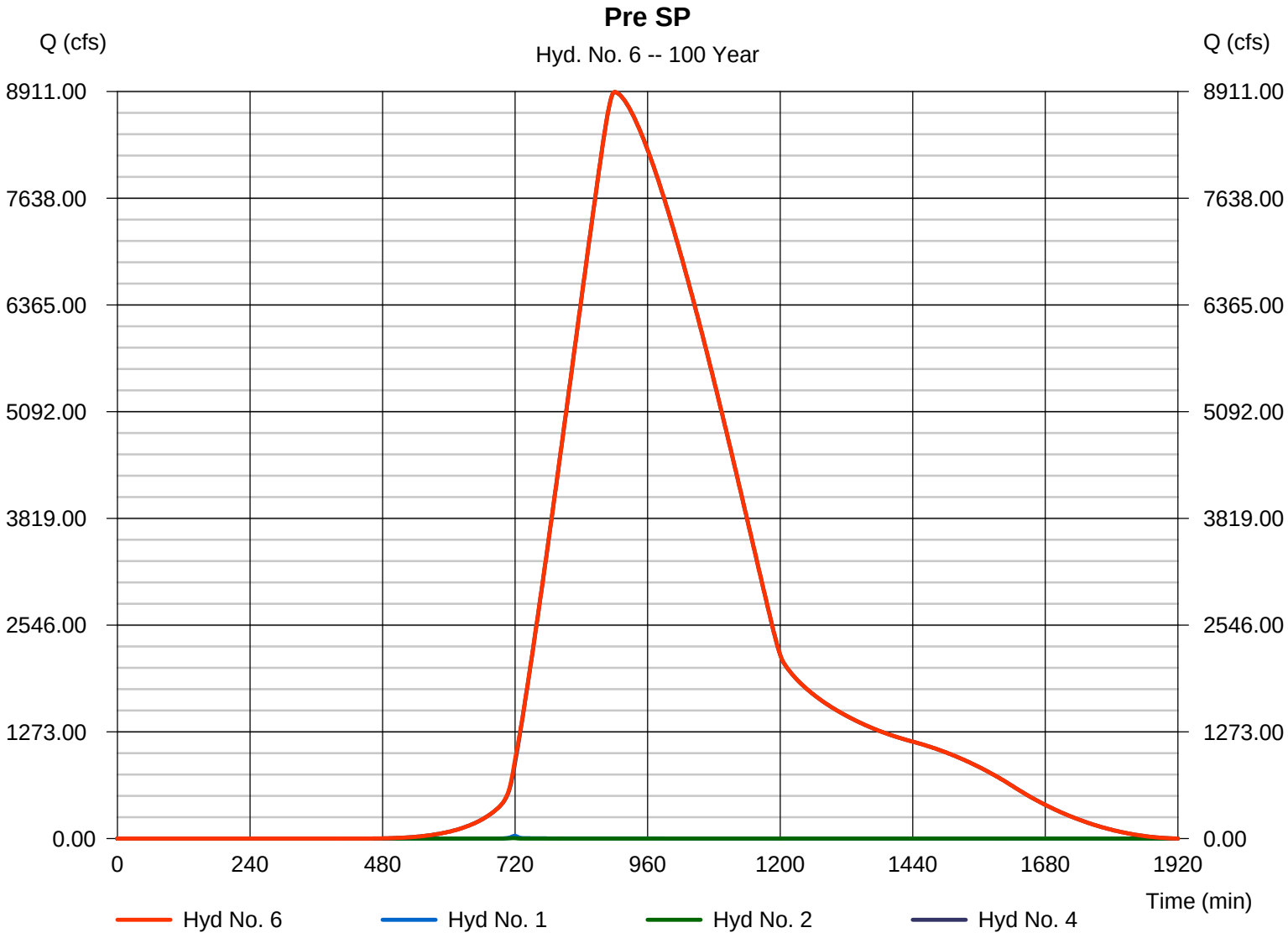


Hydrograph Report

Hyd. No. 6

Pre SP

Hydrograph type	=	Combine	Peak discharge	=	8906.59 cfs
Storm frequency	=	100 yrs	Time to peak	=	900 min
Time interval	=	2 min	Hyd. volume	=	200,360,128 cuft
Inflow hyds.	=	1, 2, 4	Contrib. drain. area	=	11955.650 ac

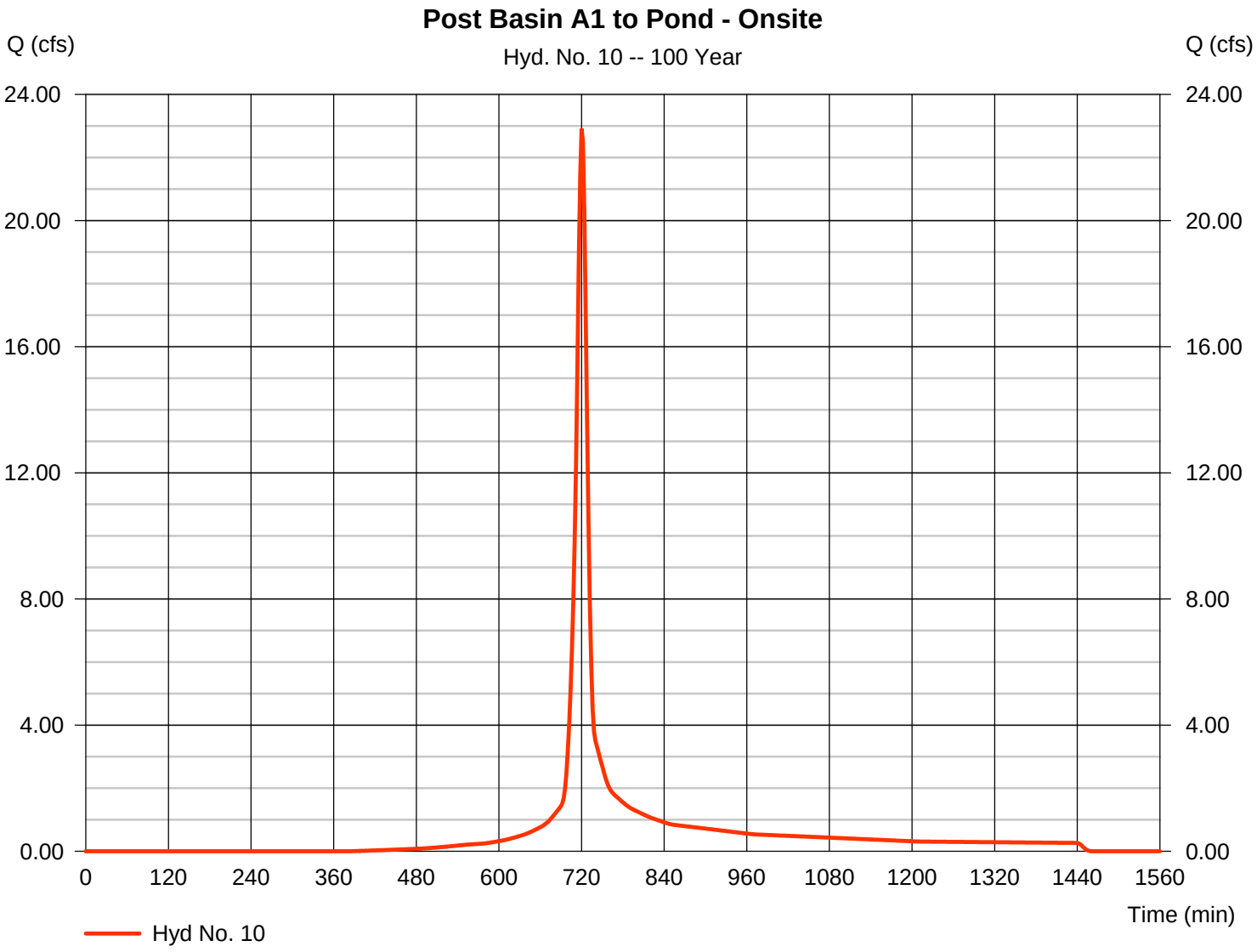


Hydrograph Report

Hyd. No. 10

Post Basin A1 to Pond - Onsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	22.91 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	59,763 cuft
Drainage area	=	3.220 ac	Curve number	=	74.9
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	11.10 min
Total precip.	=	7.92 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

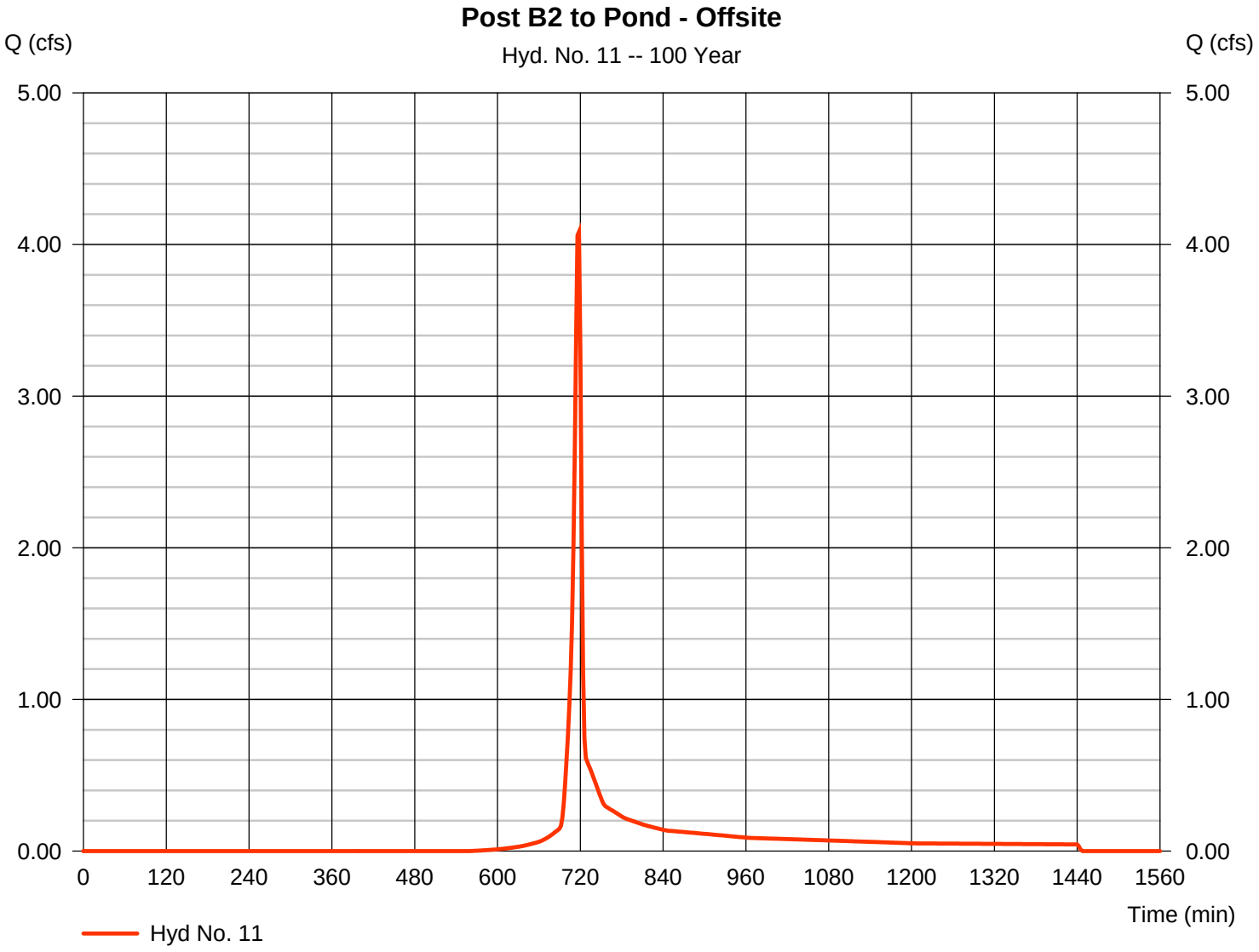


Hydrograph Report

Hyd. No. 11

Post B2 to Pond - Offsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.084 cfs
Storm frequency	=	100 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	8,206 cuft
Drainage area	=	0.690 ac	Curve number	=	62
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	7.92 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

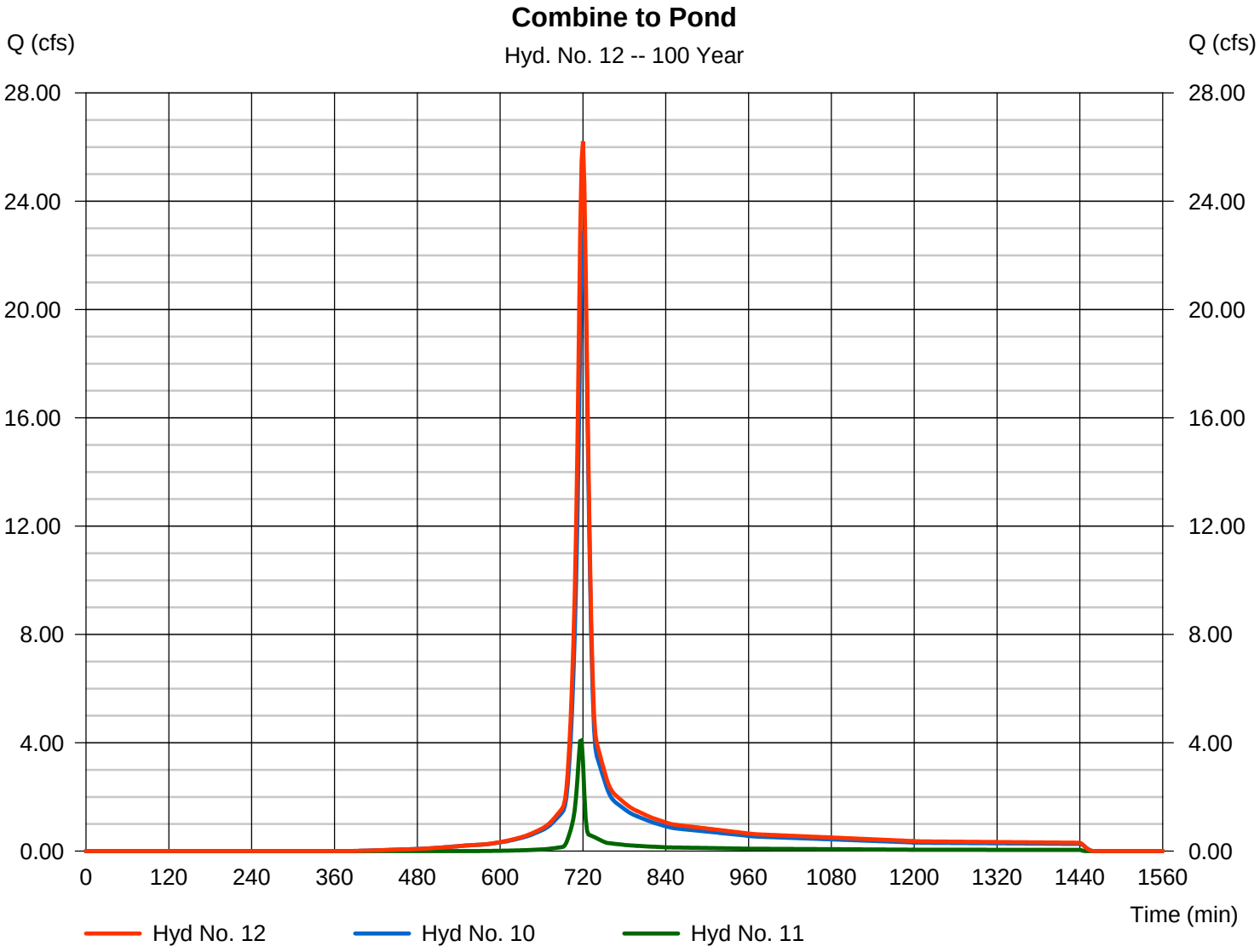


Hydrograph Report

Hyd. No. 12

Combine to Pond

Hydrograph type	=	Combine	Peak discharge	=	26.21 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	67,969 cuft
Inflow hyds.	=	10, 11	Contrib. drain. area	=	3.910 ac



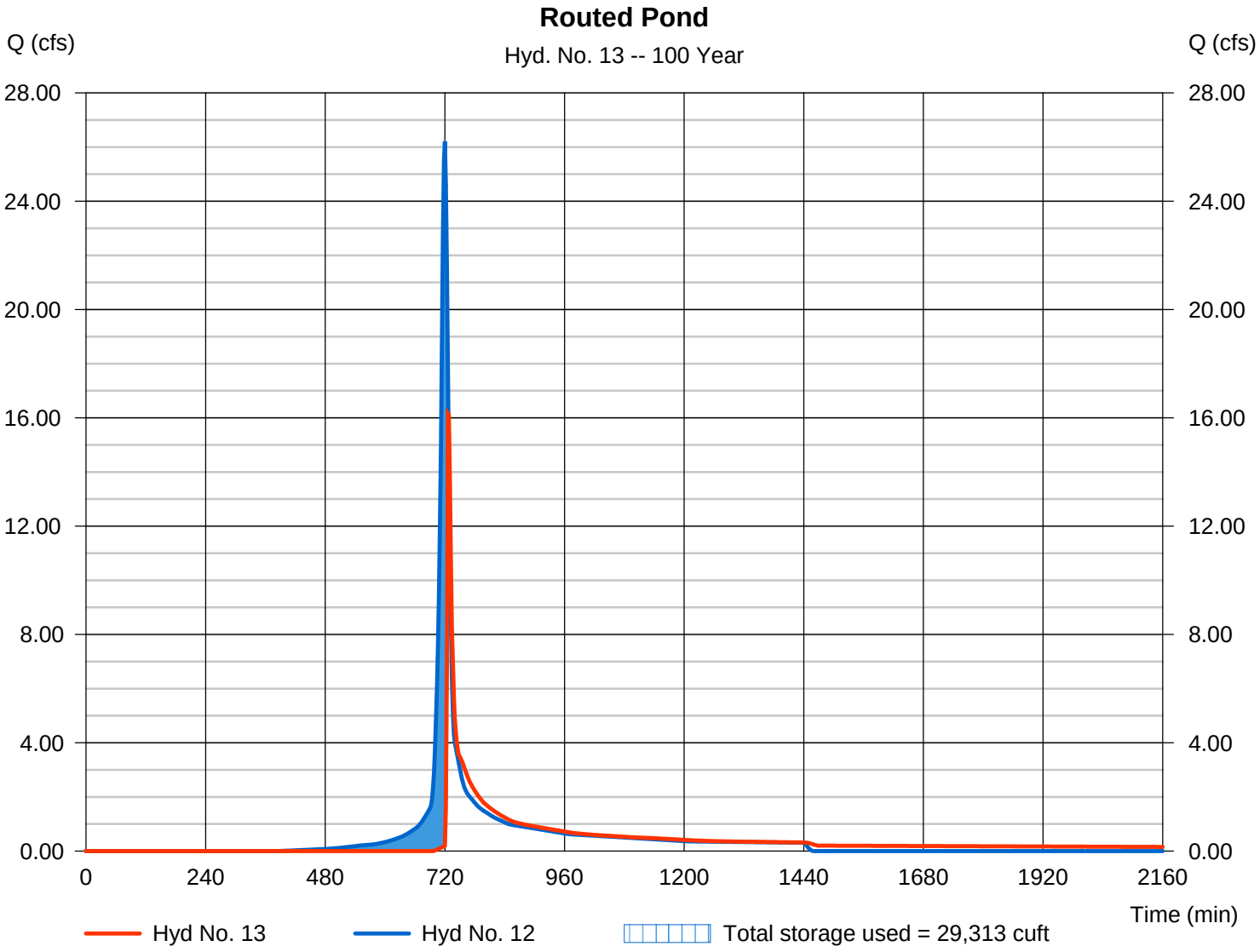
Hydrograph Report

Hyd. No. 13

Routed Pond

Hydrograph type	=	Reservoir	Peak discharge	=	16.16 cfs
Storm frequency	=	100 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	61,576 cuft
Inflow hyd. No.	=	12 - Combine to Pond	Max. Elevation	=	841.42 ft
Reservoir name	=	Pond	Max. Storage	=	29,313 cuft

Storage Indication method used.

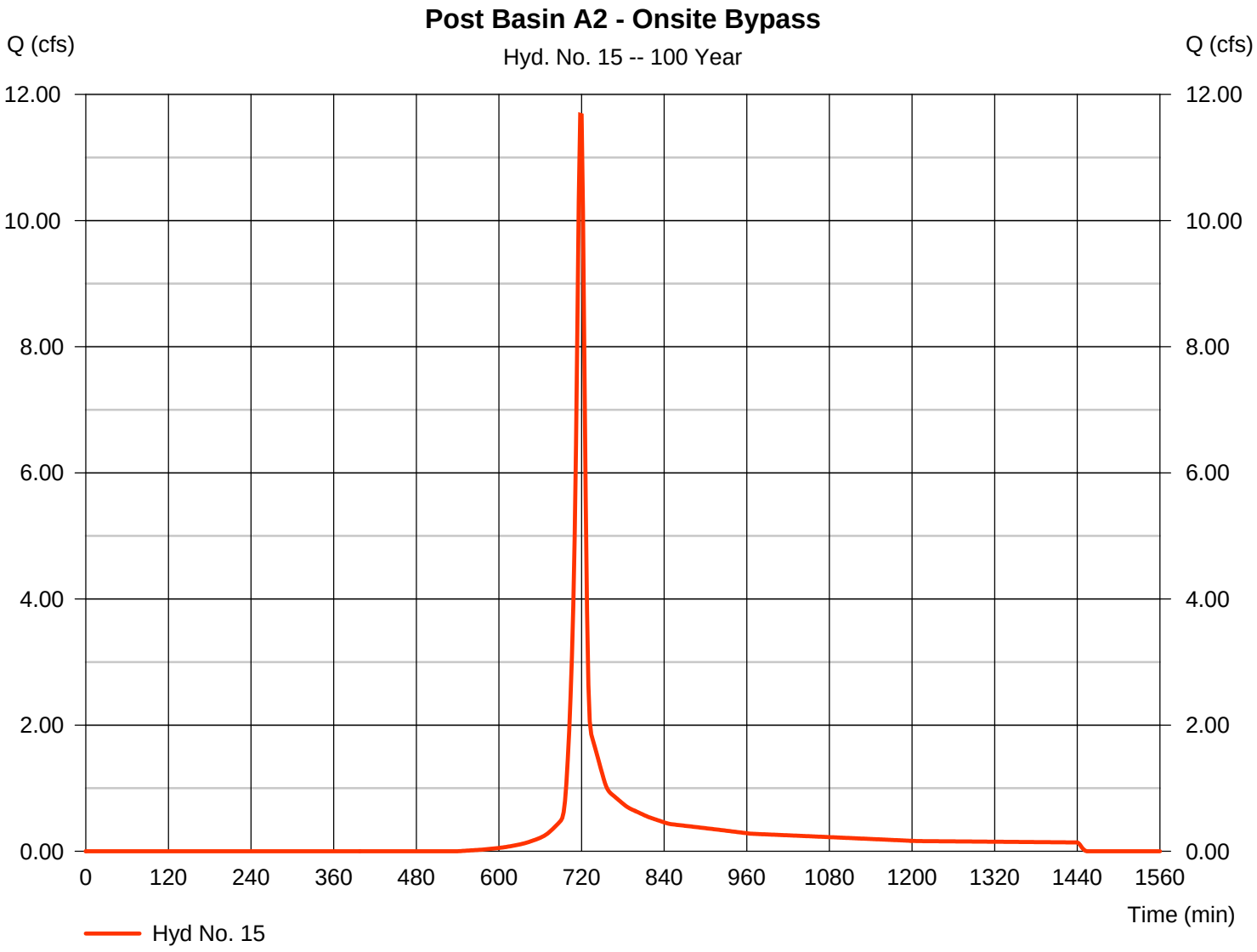


Hydrograph Report

Hyd. No. 15

Post Basin A2 - Onsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.68 cfs
Storm frequency	=	100 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	26,746 cuft
Drainage area	=	2.000 ac	Curve number	=	63.7
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	8.80 min
Total precip.	=	7.92 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

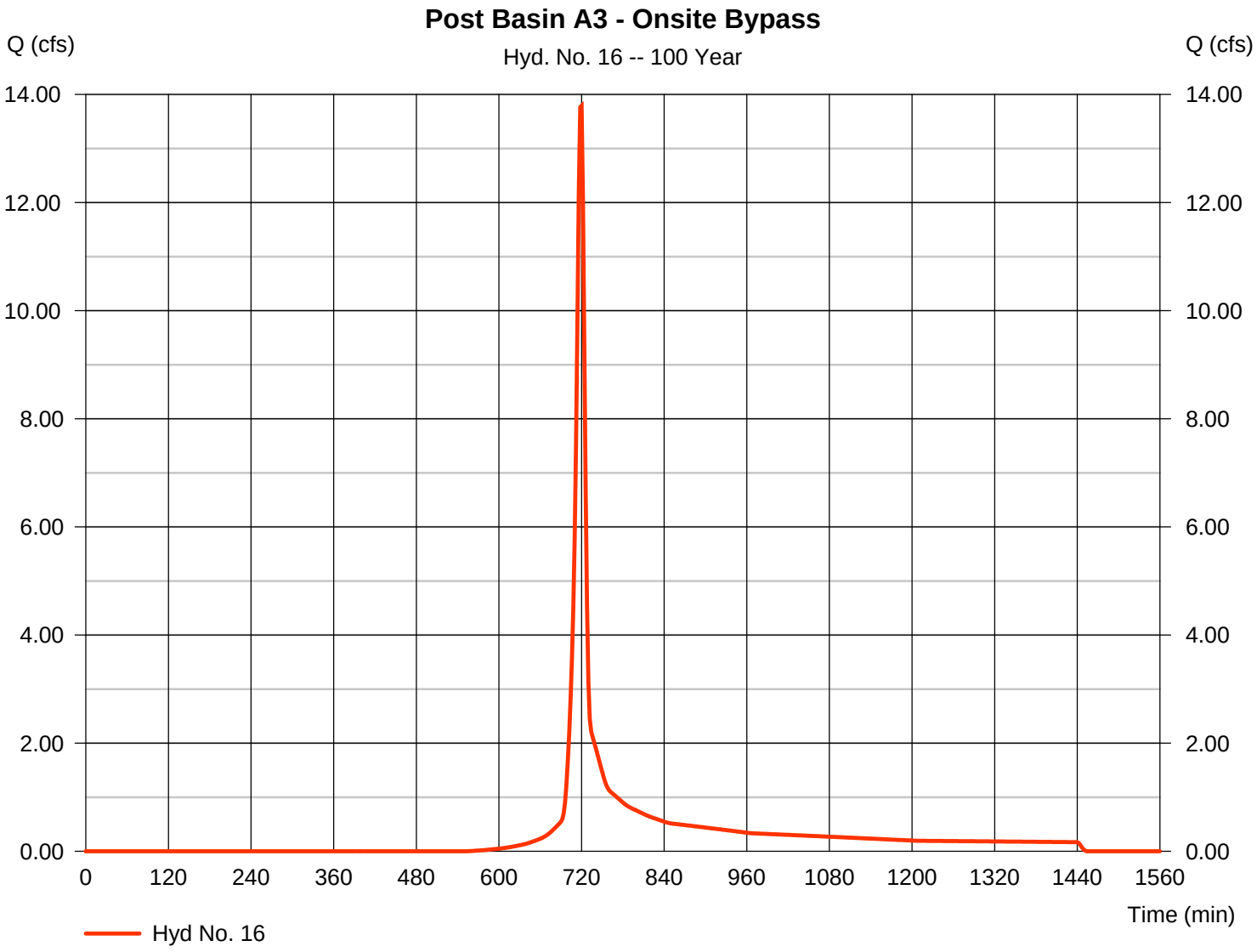


Hydrograph Report

Hyd. No. 16

Post Basin A3 - Onsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	13.79 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	31,574 cuft
Drainage area	=	2.450 ac	Curve number	=	62.5
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	9.30 min
Total precip.	=	7.92 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

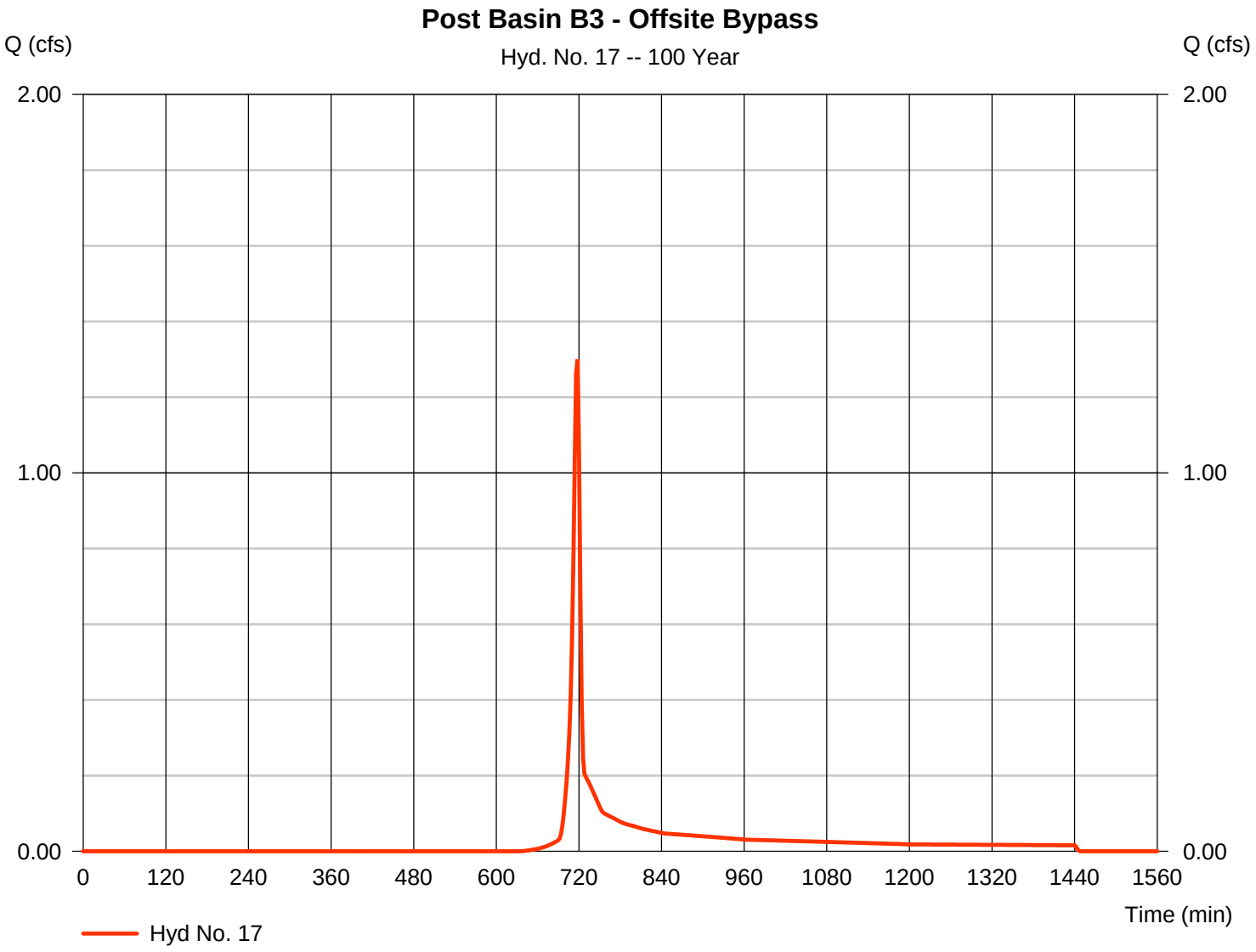


Hydrograph Report

Hyd. No. 17

Post Basin B3 - Offsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.300 cfs
Storm frequency	=	100 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	2,601 cuft
Drainage area	=	0.280 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	7.92 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

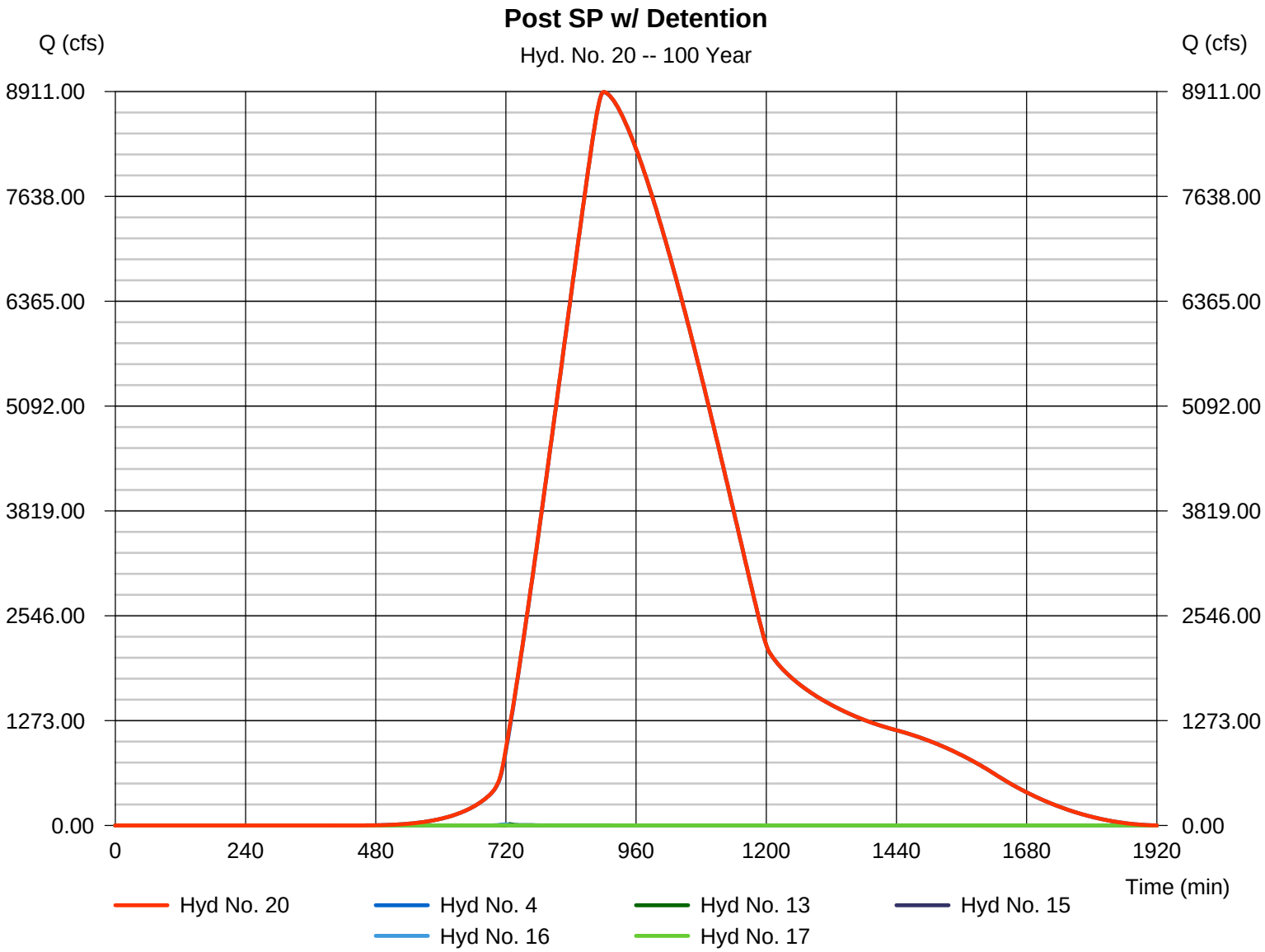


Hydrograph Report

Hyd. No. 20

Post SP w/ Detention

Hydrograph type	=	Combine	Peak discharge	=	8907.02 cfs
Storm frequency	=	100 yrs	Time to peak	=	900 min
Time interval	=	2 min	Hyd. volume	=	200,394,544 cuft
Inflow hyds.	=	4, 13, 15, 16, 17	Contrib. drain. area	=	11951.730 ac

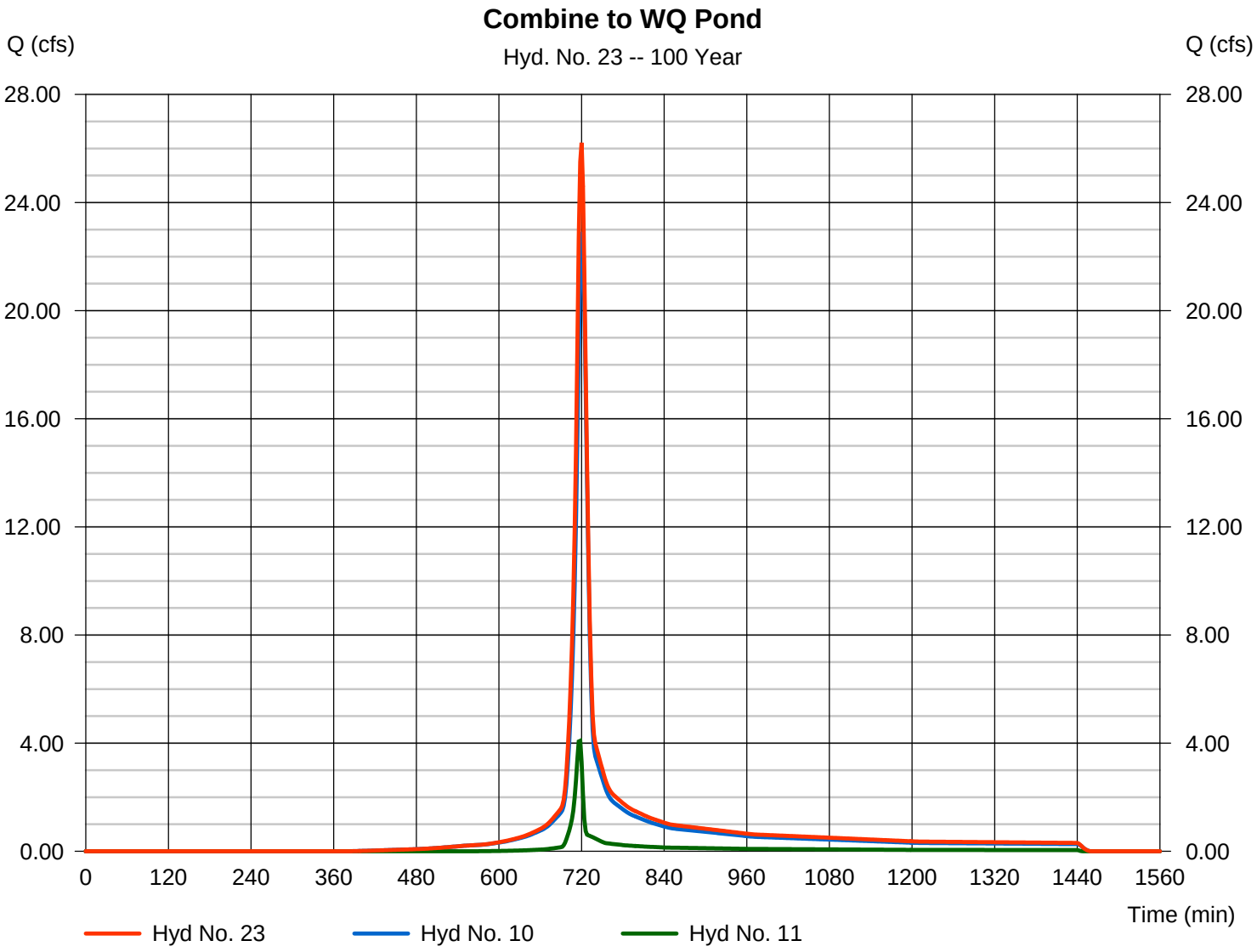


Hydrograph Report

Hyd. No. 23

Combine to WQ Pond

Hydrograph type	=	Combine	Peak discharge	=	26.21 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	67,969 cuft
Inflow hyds.	=	10, 11	Contrib. drain. area	=	3.910 ac



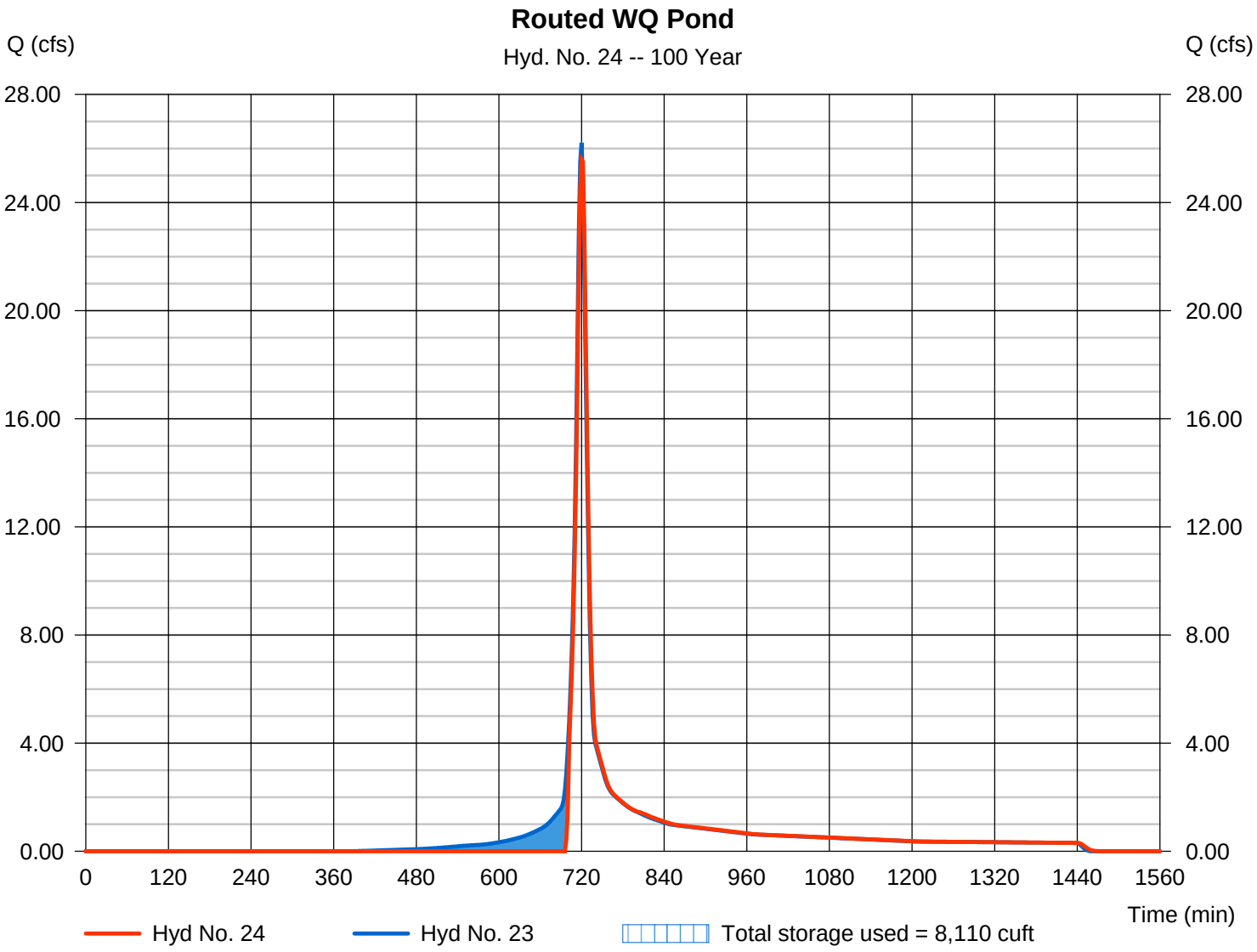
Hydrograph Report

Hyd. No. 24

Routed WQ Pond

Hydrograph type	=	Reservoir	Peak discharge	=	25.59 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	61,629 cuft
Inflow hyd. No.	=	23 - Combine to WQ Pond	Max. Elevation	=	833.85 ft
Reservoir name	=	WQ Pond	Max. Storage	=	8,110 cuft

Storage Indication method used.

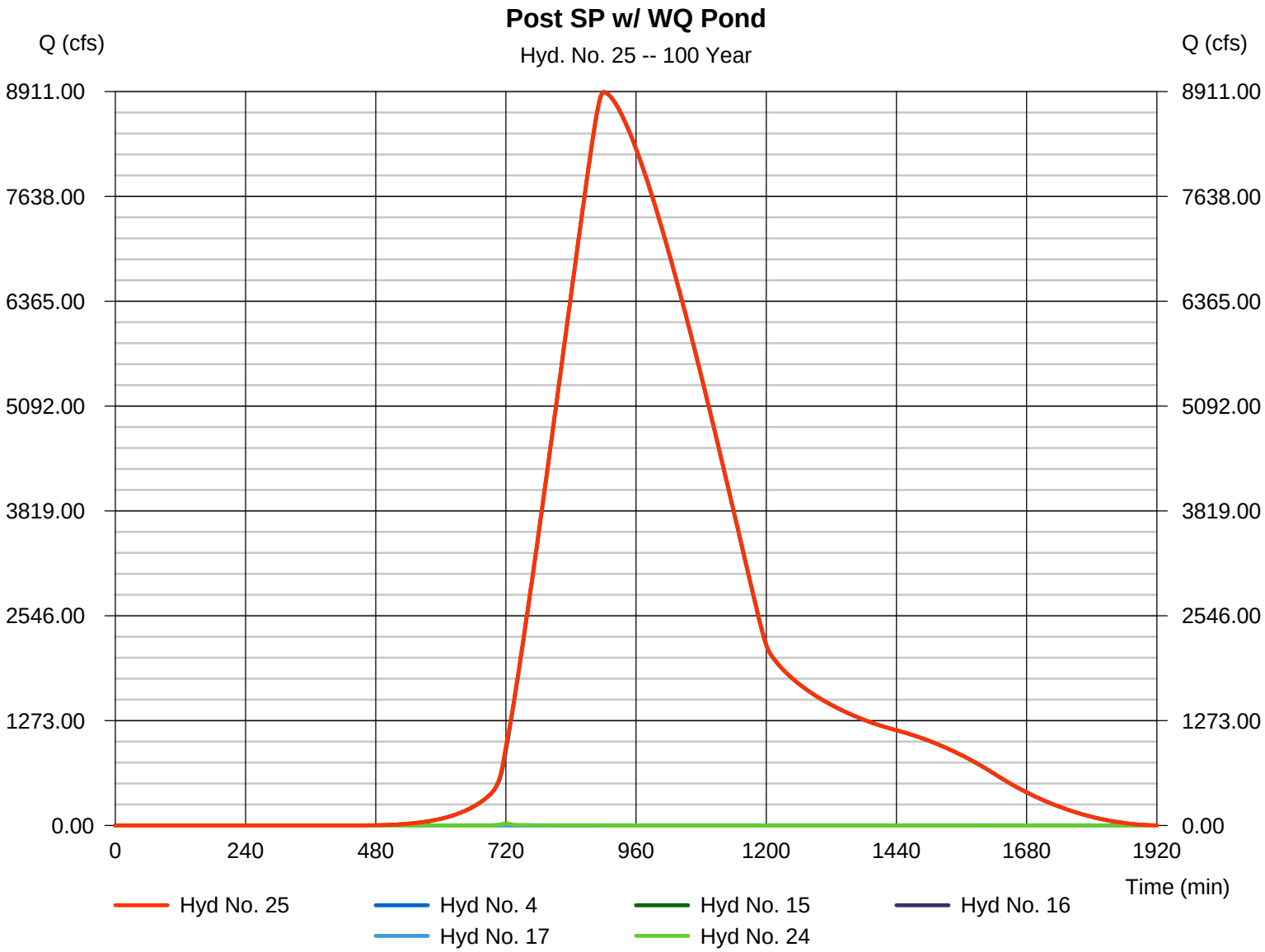


Hydrograph Report

Hyd. No. 25

Post SP w/ WQ Pond

Hydrograph type	=	Combine	Peak discharge	=	8906.96 cfs
Storm frequency	=	100 yrs	Time to peak	=	900 min
Time interval	=	2 min	Hyd. volume	=	200,395,360 cuft
Inflow hyds.	=	4, 15, 16, 17, 24	Contrib. drain. area	=	11951.730 ac



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	35.1100	7.0000	0.7510	--------
2	66.2000	12.0000	0.8542	--------
3	0.0000	0.0000	0.0000	--------
5	62.2800	12.0000	0.7846	--------
10	69.7400	13.0000	0.7768	--------
25	72.7900	13.0000	0.7475	--------
50	83.8300	14.0000	0.7519	--------
100	87.3600	14.0000	0.7378	--------

File name: atlanta.IDF

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	5.43	4.18	3.45	2.95	2.60	2.33	2.12	1.95	1.81	1.69	1.58	1.49
2	5.89	4.72	3.96	3.43	3.03	2.72	2.47	2.26	2.09	1.95	1.82	1.72
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	6.74	5.51	4.69	4.11	3.66	3.32	3.04	2.81	2.61	2.44	2.30	2.17
10	7.39	6.11	5.24	4.61	4.13	3.75	3.45	3.19	2.98	2.79	2.63	2.49
25	8.39	6.99	6.03	5.33	4.80	4.38	4.03	3.74	3.50	3.29	3.11	2.95
50	9.16	7.68	6.67	5.91	5.33	4.87	4.49	4.18	3.91	3.68	3.47	3.30
100	9.95	8.38	7.28	6.48	5.85	5.36	4.95	4.60	4.31	4.06	3.84	3.65

Tc = time in minutes. Values may exceed 60.

Precip. file name: Atlanta.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	3.36	4.08	1.20	4.80	5.52	6.48	7.20	7.92
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00