SITE ENGINEERING DESIGN REPORT

Proposed
Commercial Building Addtion
Shelton, Connecticut
Job No. 2673

Prepared For:
R.D. Scinto, Inc.

Prepared By:

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May 17, 2022

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Project Engineer

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INTRODUCTION:

R.D. Scinto, Inc. is proposing the construction of a building addition to an existing commercial warehouse building, with associated parking improvements located at 15 Forest Parkway in Shelton, CT. The building addition and new parking areas will replace some existing paved and wooded areas on site.

The site is located at 15 Forest Parkway in Shelton, which is currently a developed lot with an existing 1 story commercial warehouse building and asphalt parking area. Currently the site is accessed from Forest Parkway. The existing driveway entrance into the parking lot will be maintained. The project site area will encompass approximately 3 acres of the lot.

Generally the site slopes from east to west towards an existing wetlands area located in the southern portion of the lot. This wetlands area eventually drains to the east of the lot into. The proposed project seeks to develop a portion of the existing wetlands area located south eastern area of the lot, and will create new wetlands areas to compensate for this.

EXISTING STORM WATER RUNOFF

For analysis purposes the site disturbance area has been examined as a two separate drainage areas. These drainage areas will be referred to as EDA-1 and EDA-2 for the balance of this report.

EDA-1 drains storm water via sheet flow over paved and other impervious surfaces as well as over lawn and wooded areas, until it reaches the wetland areas located to the east of the lot. The existing building is included in this drainage areas as well as the majority of the existing parking area.

EDA-2 drains storm water via sheet flow over paved surfaces as well as over lawn and wooded areas. The majority of the existing wetlands on site are included in this area, as well as a small swale that drains water from one wetlands area upstream to another wetlands area downstream.

Peak rates of storm water runoff, for the 2-year, 5-year, 10-year, 25-year, 50-year, and 100-year storm events have been calculated for the drainage areas (See Table 1 below). The supporting calculations are included as Appendix A. These calculations are based on U.S. Soil Conservation Service methodology (TR-55).

These existing flows will later be compared to post development flows as a means of assessing the impact of the proposed project on surrounding infrastructures.

TABLE 1

Existing Flows (CFS)

Existing Runoff from drainage areas EDA-1 and EDA-2

	Da-Ex				
2-year	5-year	10-year,	25-year	50-year	100-year
7.43	11.69	14.83	18.05	21.33	25.14

PROPOSED STORM WATER DRAINAGE

The storm water control system was designed to minimize the impact on the surrounding infrastructure. This was achieved by routing catch basins and roof leaders to underground storm water storage on site. The site was divided into two separate drainage area; Proposed Drainage Area-1 and Proposed Drainage Area-2. PDA-1 will drain the majority of the proposed impervious area via catch basins and roof leaders and will be routed through the underground storm water storage system. This system will eventually drain to the proposed wetland area. PDA-2 will drain water from the existing developed area located to the north of the proposed project.

Design details for these systems are presented on Sheet SP-2 (part of the overall Project Documents). The system will drain the roof on site, all paved areas, sidewalks, and grassy areas that contribute runoff to the system. The roof and paved parking areas will be the major element of the total impervious area on the site. (Calculations included as Appendix A) The roof, grassy areas, sidewalks and driveways will contribute to the runoff totals seen in table 2. Storm water flow has been reduced by routing the on-site drainage system through a storm water infiltration system. Additionally, this system located on the west side of the development has been sized to collect the storm water quality volume required for the proposed site. (See calculations below)

TABLE 2

Proposed Flows (CFS) for new condition

Da-Ex

Existing:	2-year	5-year	10-year,	25-year	50-year	100-year
	7.43	11.69	14.83	18.05	21.33	25.14
Proposed:	2-year	5-year	10-year,	25-year	50-year	100-year
	7.09	11.36	14.49	17.72	21.00	24.82
REDUCTION:						
	4.6%	2.8%	2.3%	1.8%	1.5%	1.3%

WATER QUALITY VOLUME COMPUTATION:
Commercial = 130,680 SF
WQV= (P*Rv*A); Rv = 0.05+0.009*I
Where P= 1" storm, I = % impervious, A = Area
WQV = (1*.650*130,680) / 12 = 7,079 C.F.
Provided = 16,270 C.F.

SANITARY SEWER

Sanitary Sewer discharge will maintained as existing on site.

Using the technical standards of the CT Public Health Code, the estimated addtional sewage flow is 0.1 gallons per day per square foot of commercial warehouse. This apartment development will have 43,000 square feet:

43,000 s.f. x 0.1 gallons per day = 4,300 GPD
Average Daily Flow = 3.0 gallons per minute

Peak flow estimate = 3.0 x 4 (peaking factor)

= 12.0 gpm peak

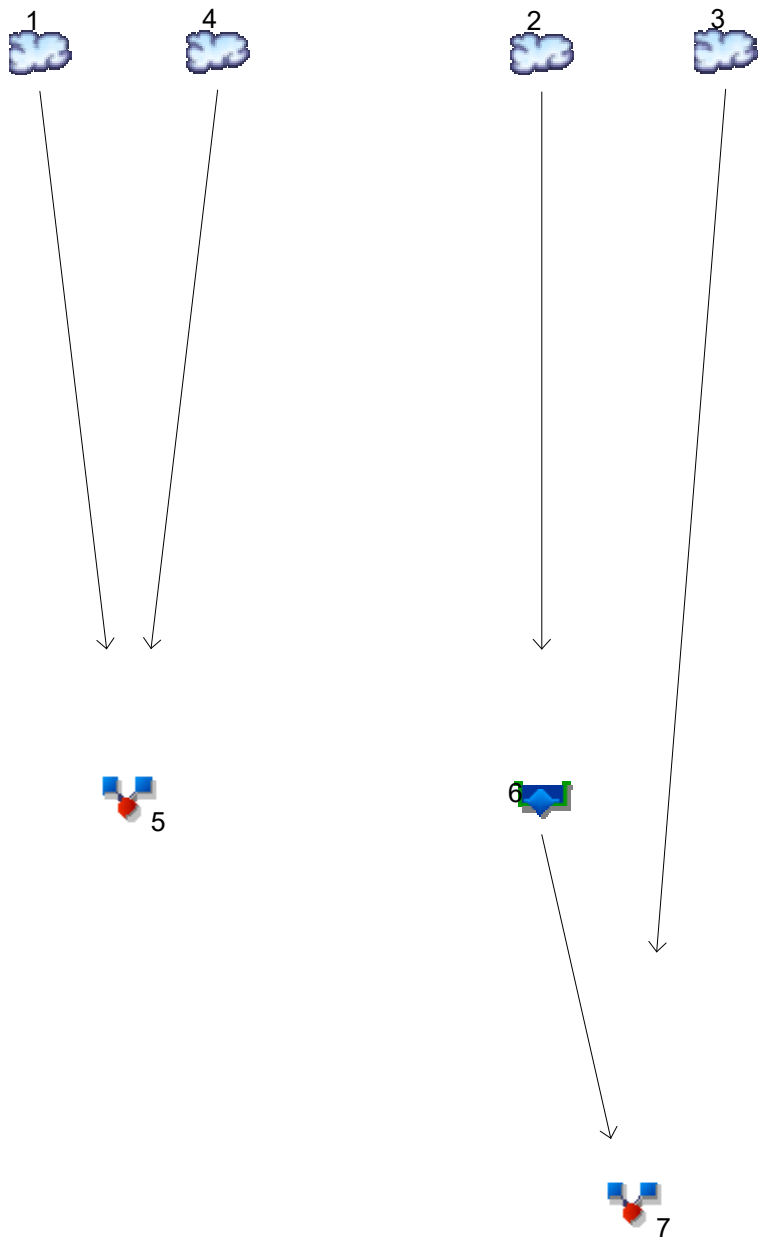
Other Utilities

Electrical service will remain as existing. Water & gas services will remain as existing on site.

APPENDIX A
STAGE HYDROGRAPHS
DRAINAGE AREA MAPS

Watershed Model Schematic

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



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	------	-------	6.980	-------	10.42	12.88	15.35	17.82	20.65	EDA-1
2	SCS Runoff	------	-------	4.836	-------	6.514	7.679	8.839	9.994	11.31	PDA-1
3	SCS Runoff	------	-------	6.204	-------	10.28	13.31	16.43	19.61	23.29	PDA-2
4	SCS Runoff	------	-------	1.040	-------	2.229	3.198	4.253	5.366	6.693	EDA-2
5	Combine	1, 4	-------	7.432	-------	11.69	14.83	18.05	21.33	25.14	Total Existing Runoff
6	Reservoir	2	-------	1.234	-------	1.491	1.892	2.599	3.522	4.769	u.g. chambers
7	Combine	3, 6	-------	7.088	-------	11.35	14.49	17.72	21.00	24.82	total proposed runoff

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	6.980	2	728	26,780	------	------	------	EDA-1
2	SCS Runoff	4.836	2	728	19,278	------	------	------	PDA-1
3	SCS Runoff	6.204	2	726	21,960	------	------	------	PDA-2
4	SCS Runoff	1.040	2	748	6,825	------	------	------	EDA-2
5	Combine	7.432	2	730	33,605	1, 4	------	------	Total Existing Runoff
6	Reservoir	1.234	2	754	19,259	2	319.95	6,758	u.g. chambers
7	Combine	7.088	2	726	41,219	3, 6	------	------	total proposed runoff

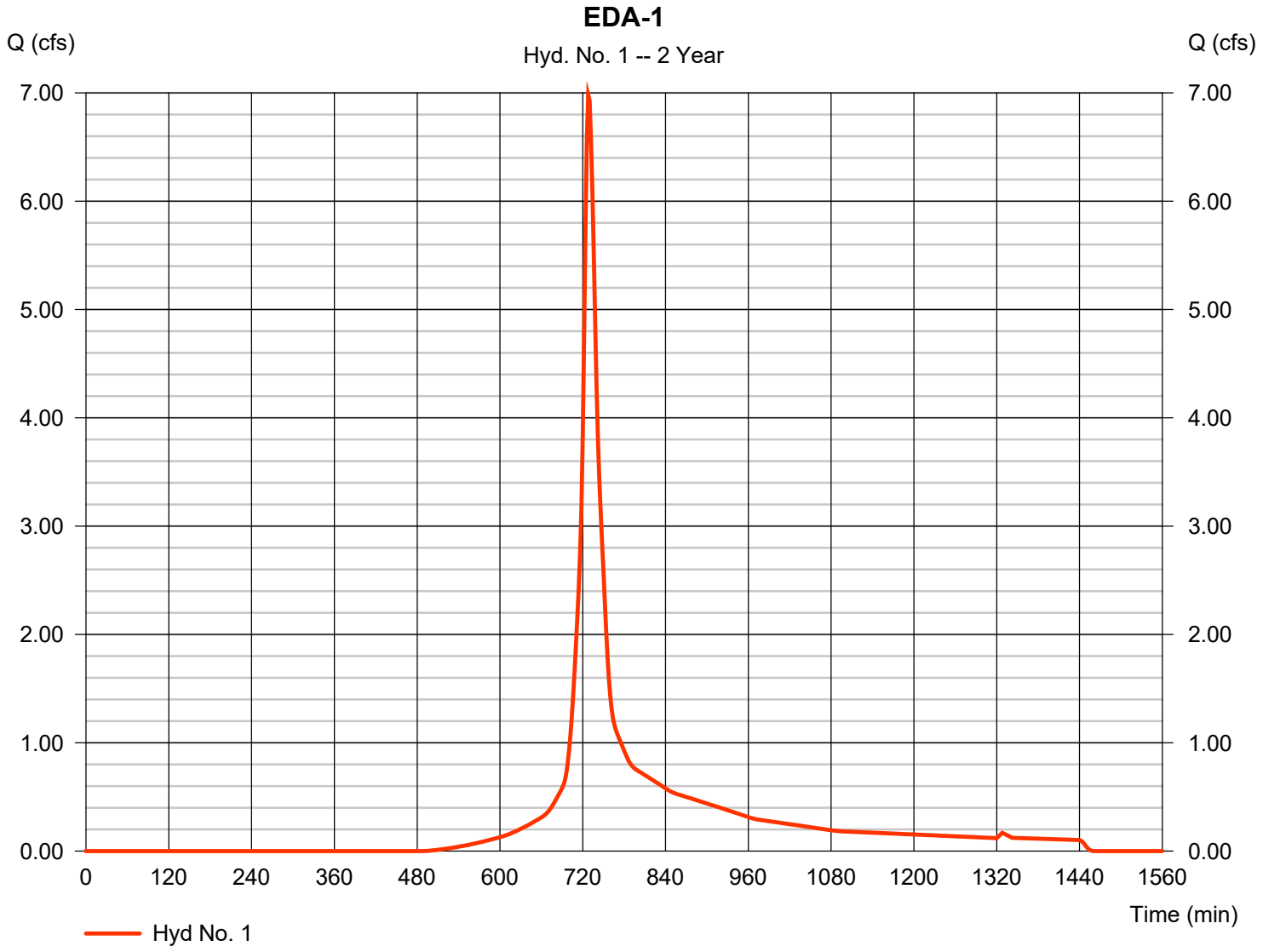
Hydrograph Report

Hyd. No. 1

EDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.980 cfs
Storm frequency	=	2 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	26,780 cuft
Drainage area	=	4.050 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.80 min
Total precip.	=	3.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.560 x 98) + (1.490 x 61)] / 4.050



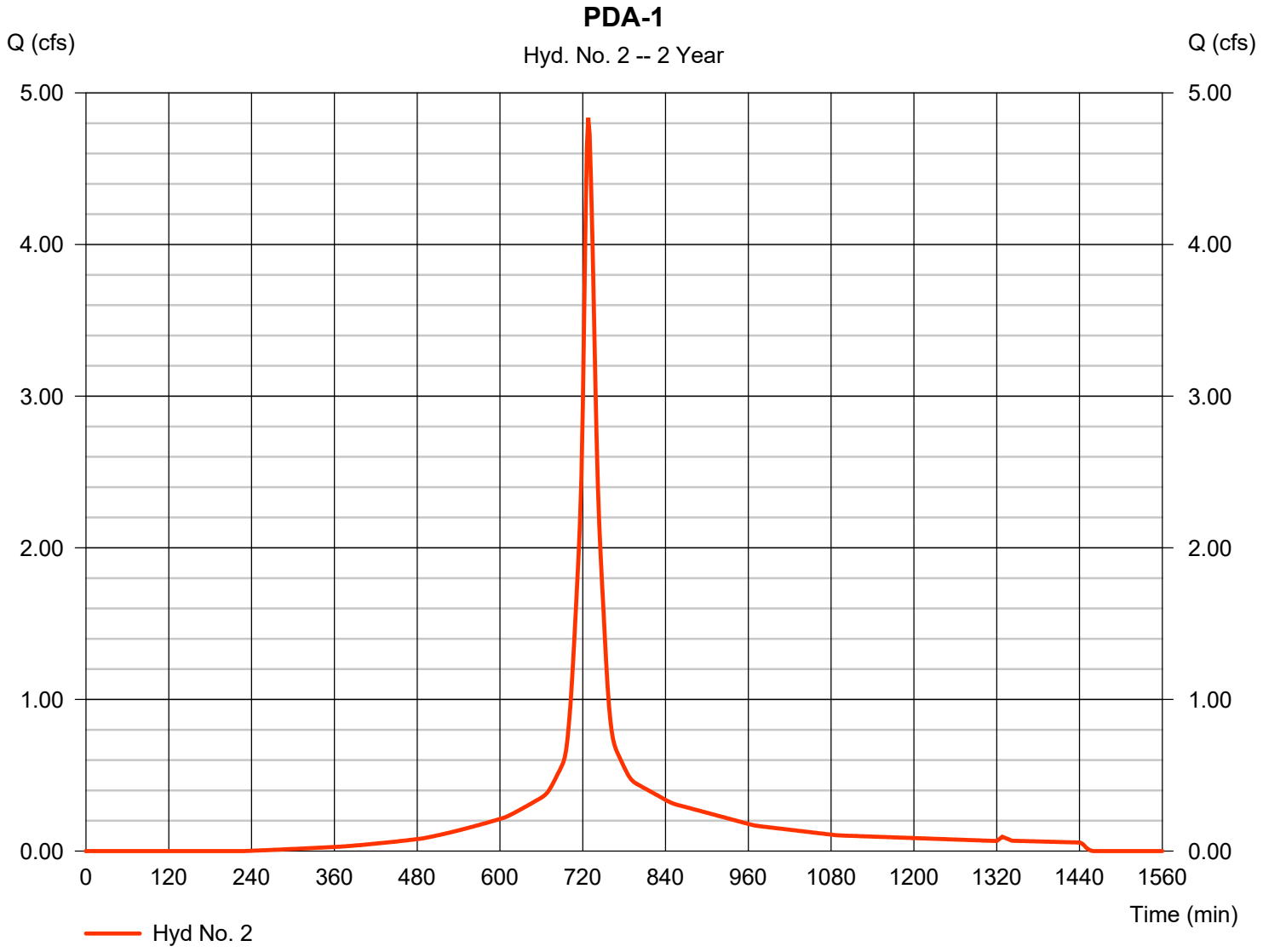
Hydrograph Report

Hyd. No. 2

PDA-1

Hydrograph type	= SCS Runoff	Peak discharge	= 4.836 cfs
Storm frequency	= 2 yrs	Time to peak	= 728 min
Time interval	= 2 min	Hyd. volume	= 19,278 cuft
Drainage area	= 1.950 ac	Curve number	= 94*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 10.40 min
Total precip.	= 3.30 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.750 x 98) + (0.200 x 61)] / 1.950



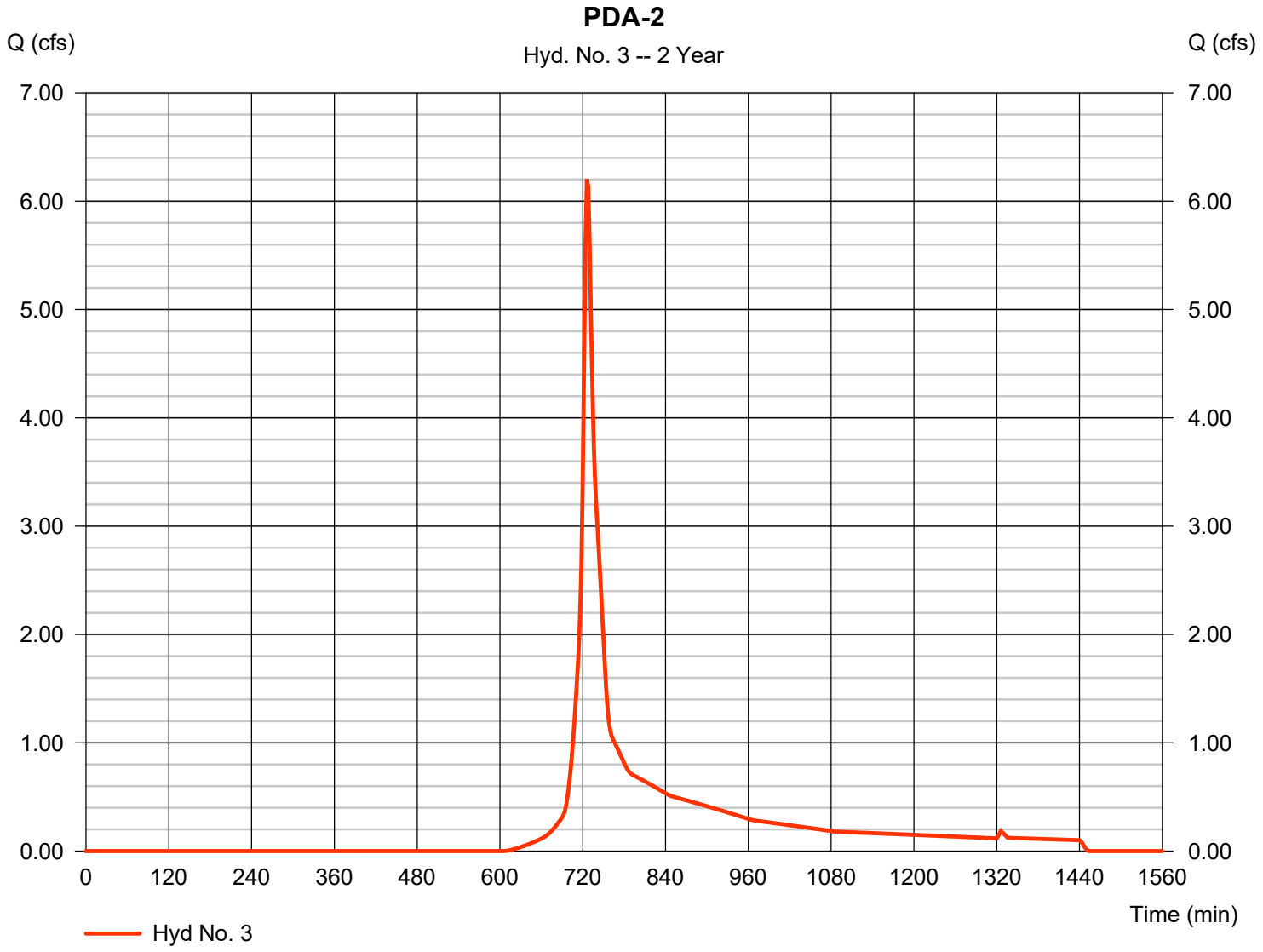
Hydrograph Report

Hyd. No. 3

PDA-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.204 cfs
Storm frequency	=	2 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	21,960 cuft
Drainage area	=	4.950 ac	Curve number	=	76*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.10 min
Total precip.	=	3.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(3.000 x 61) + (1.950 x 98)] / 4.950



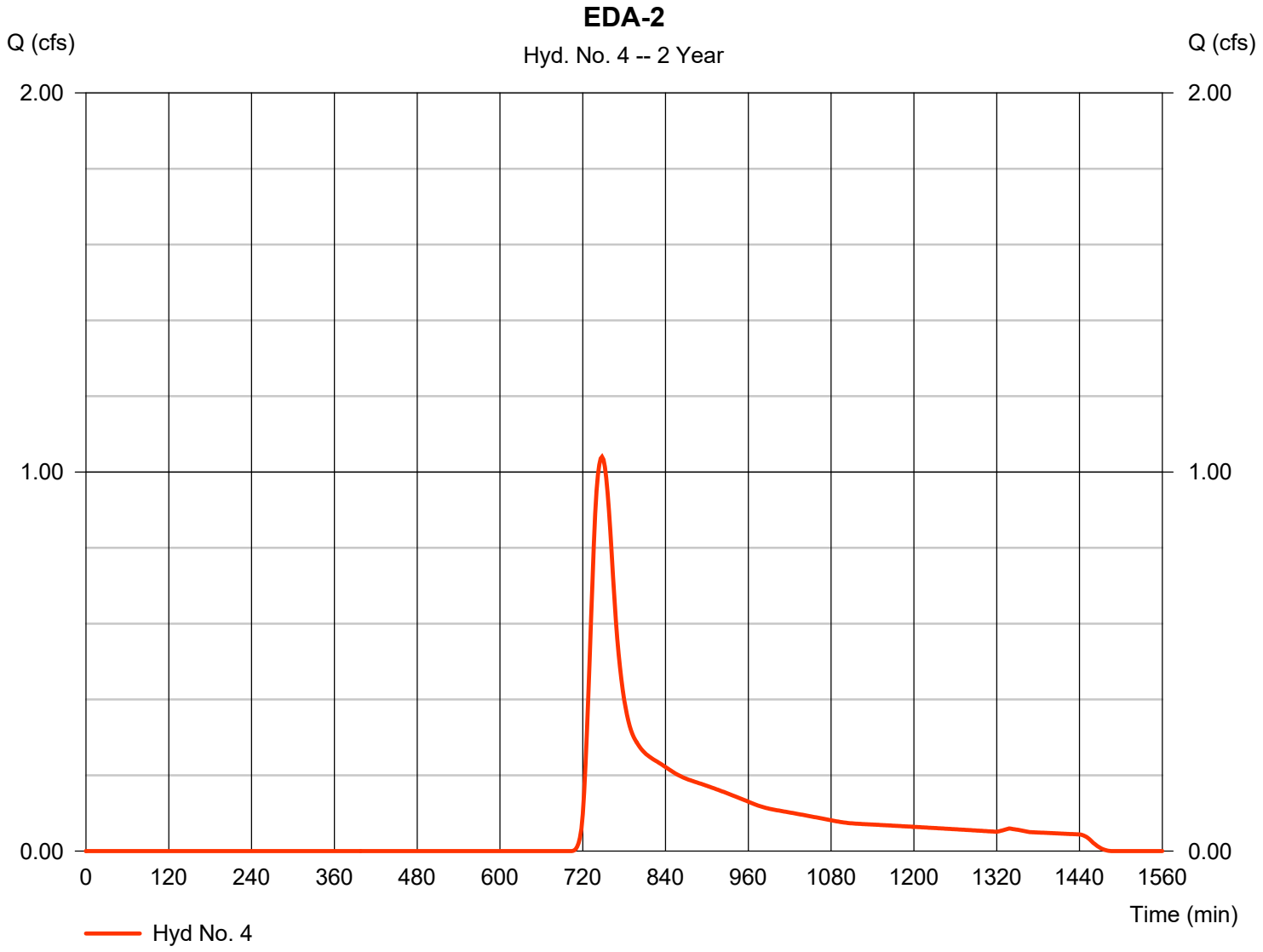
Hydrograph Report

Hyd. No. 4

EDA-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.040 cfs
Storm frequency	=	2 yrs	Time to peak	=	748 min
Time interval	=	2 min	Hyd. volume	=	6,825 cuft
Drainage area	=	3.100 ac	Curve number	=	64*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	27.70 min
Total precip.	=	3.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.860 x 61) + (0.240 x 98)] / 3.100

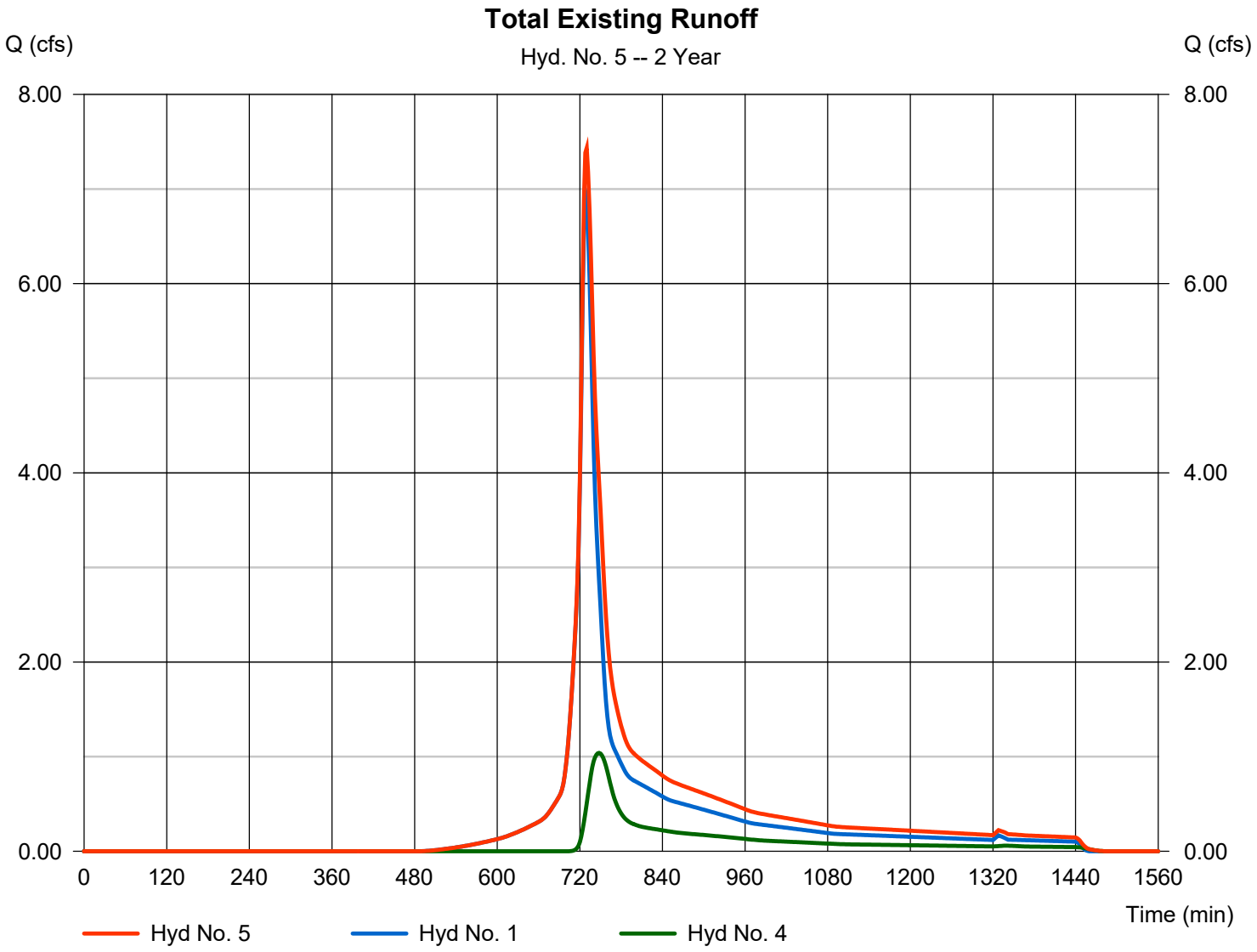


Hydrograph Report

Hyd. No. 5

Total Existing Runoff

Hydrograph type	= Combine	Peak discharge	= 7.432 cfs
Storm frequency	= 2 yrs	Time to peak	= 730 min
Time interval	= 2 min	Hyd. volume	= 33,605 cuft
Inflow hyds.	= 1, 4	Contrib. drain. area	= 7.150 ac



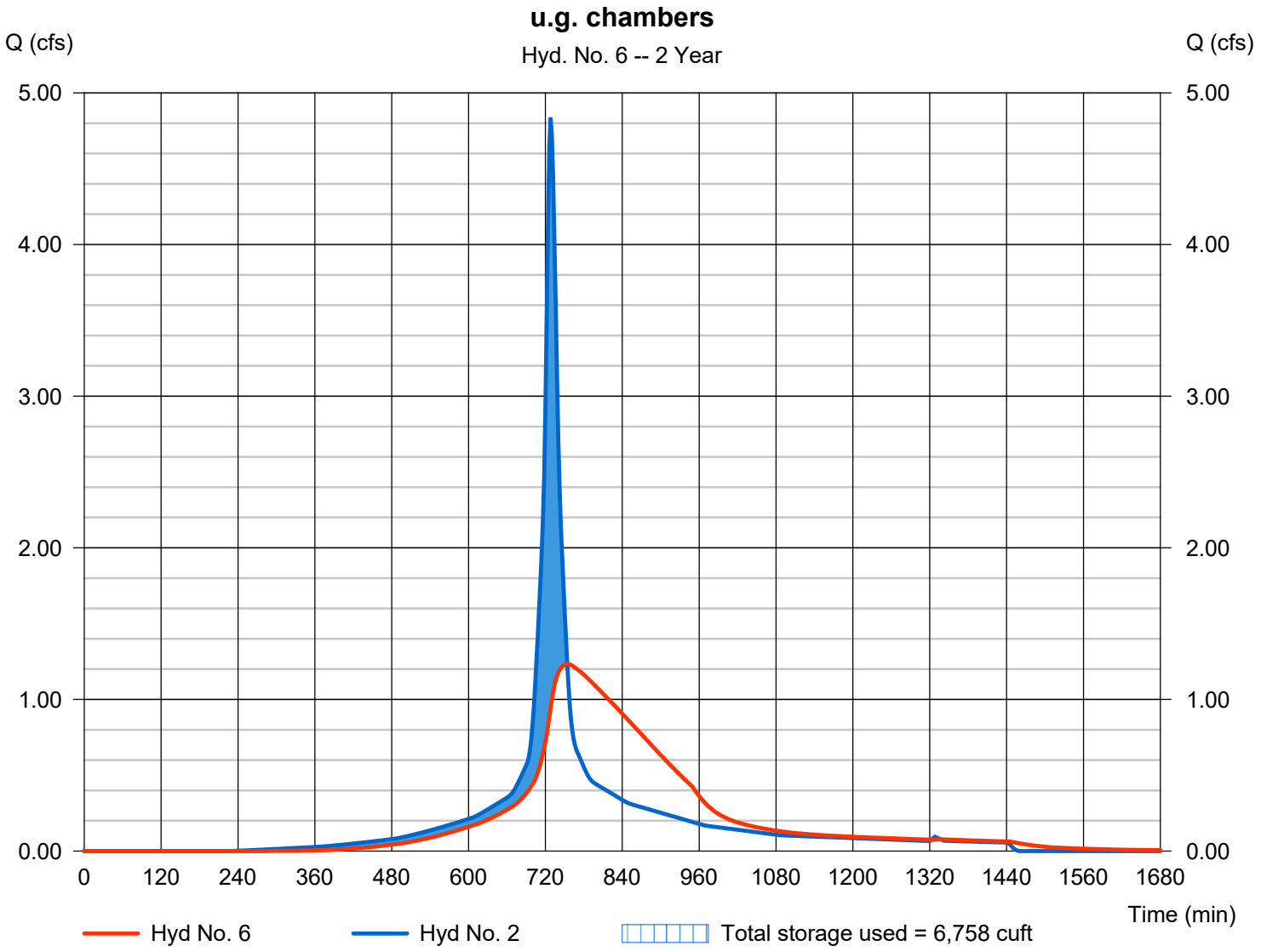
Hydrograph Report

Hyd. No. 6

u.g. chambers

Hydrograph type	= Reservoir	Peak discharge	= 1.234 cfs
Storm frequency	= 2 yrs	Time to peak	= 754 min
Time interval	= 2 min	Hyd. volume	= 19,259 cuft
Inflow hyd. No.	= 2 - PDA-1	Max. Elevation	= 319.95 ft
Reservoir name	= 4' X 4' CONC. CHAMBERS	Max. Storage	= 6,758 cuft

Storage Indication method used.



Pond Report

Pond No. 1 - 4' X 4' CONC. CHAMBERS

Pond Data

UG Chambers -Invert elev. = 318.50 ft, Rise x Span = 4.00 x 4.00 ft, Barrel Len = 800.00 ft, No. Barrels = 1, Slope = 0.00%, Headers = No
Encasement -Invert elev. = 318.00 ft, Width = 5.00 ft, Height = 4.50 ft, Voids = 66.67%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	318.00	n/a	0	0
0.45	318.45	n/a	1,200	1,200
0.90	318.90	n/a	1,627	2,827
1.35	319.35	n/a	1,680	4,508
1.80	319.80	n/a	1,680	6,188
2.25	320.25	n/a	1,680	7,868
2.70	320.70	n/a	1,680	9,549
3.15	321.15	n/a	1,680	11,229
3.60	321.60	n/a	1,680	12,909
4.05	322.05	n/a	1,680	14,590
4.50	322.50	n/a	1,680	16,270

Culvert / Orifice Structures

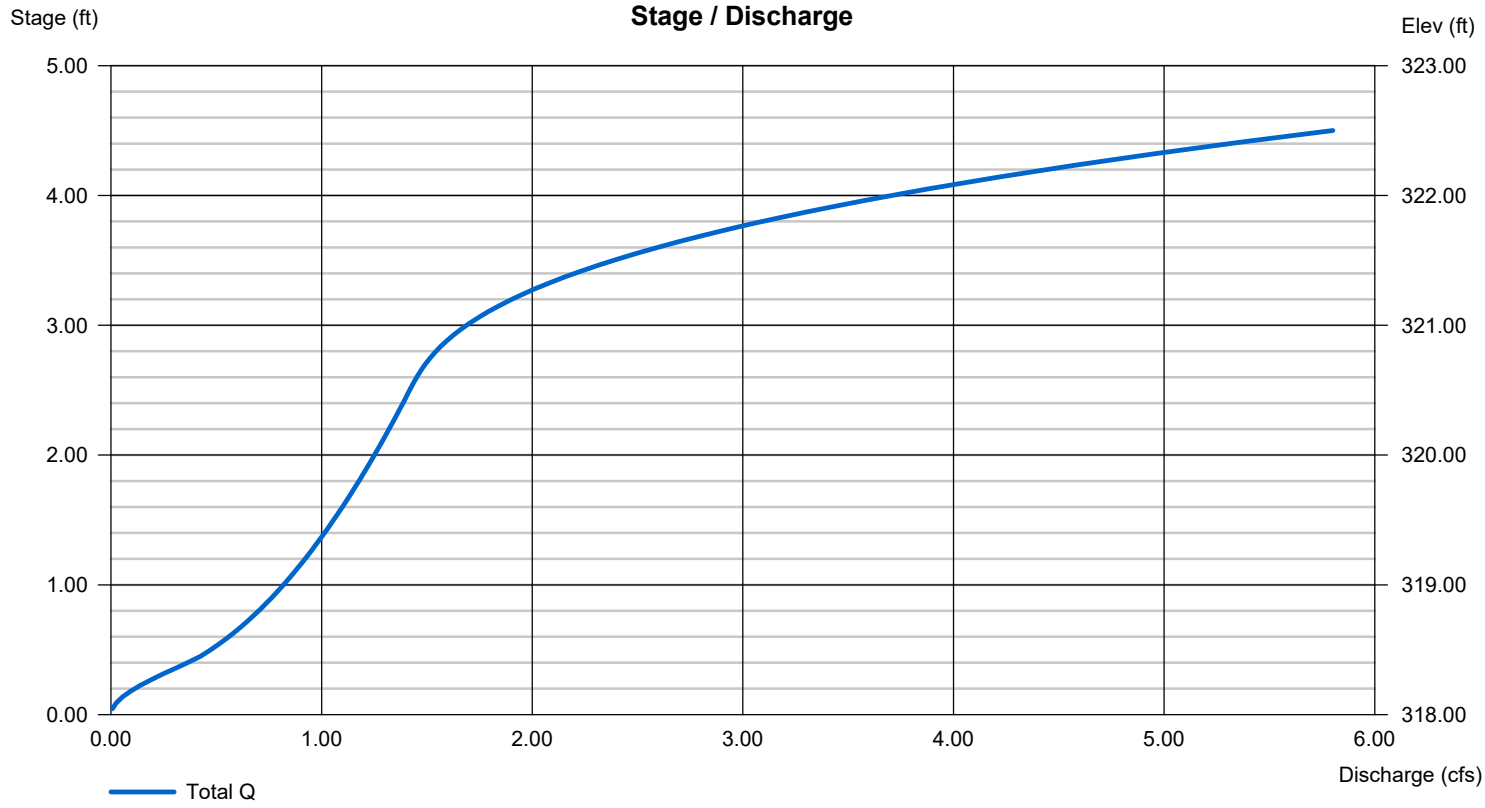
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	6.00	0.00	0.00
Span (in)	= 0.00	6.00	0.00	0.00
No. Barrels	= 0	1	0	0
Invert El. (ft)	= 0.00	318.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.00	0.00	0.00	0.00
Crest El. (ft)	= 0.00	320.50	0.00	0.00
Weir Coeff.	= 3.33	0.68	3.33	3.33
Weir Type	= ---	30 degV	---	---
Multi-Stage	= No	No	No	No

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

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

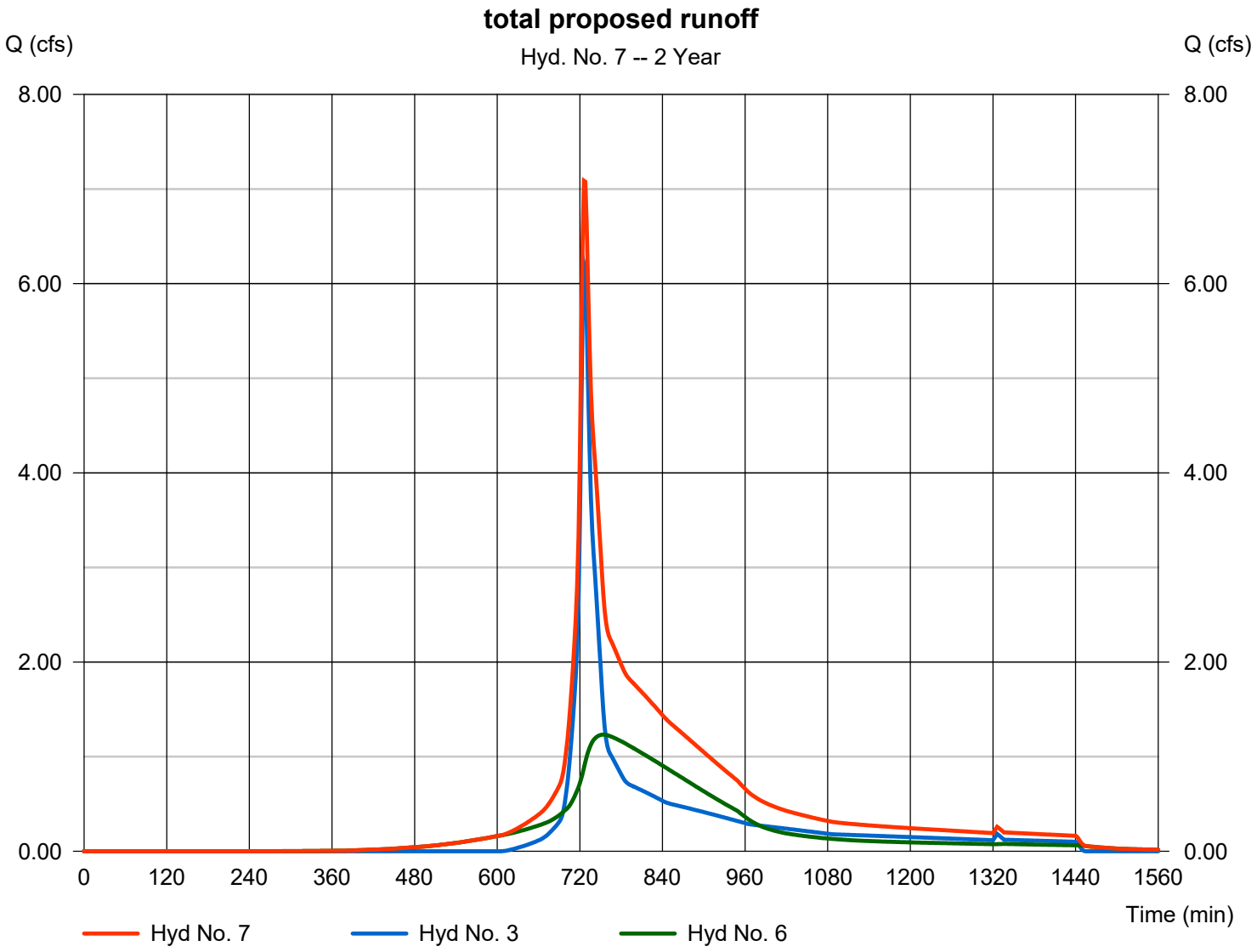


Hydrograph Report

Hyd. No. 7

total proposed runoff

Hydrograph type	=	Combine	Peak discharge	=	7.088 cfs
Storm frequency	=	2 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	41,219 cuft
Inflow hyds.	=	3, 6	Contrib. drain. area	=	4.950 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	10.42	2	728	39,983	------	------	------	EDA-1
2	SCS Runoff	6.514	2	728	26,416	------	------	------	PDA-1
3	SCS Runoff	10.28	2	726	35,423	------	------	------	PDA-2
4	SCS Runoff	2.229	2	744	12,891	------	------	------	EDA-2
5	Combine	11.69	2	730	52,874	1, 4	------	------	Total Existing Runoff
6	Reservoir	1.491	2	756	26,397	2	320.70	9,542	u.g. chambers
7	Combine	11.35	2	726	61,820	3, 6	------	------	total proposed runoff

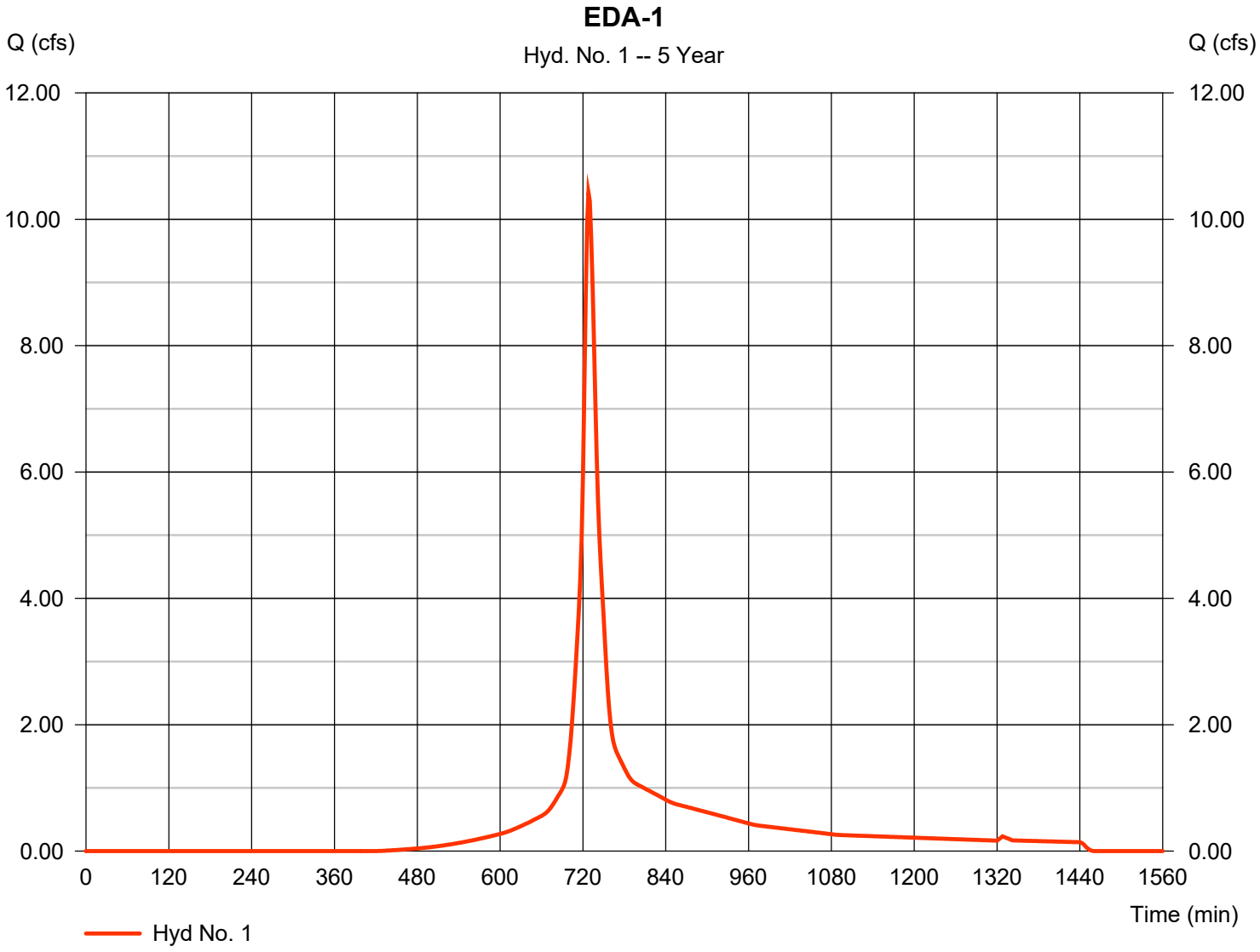
Hydrograph Report

Hyd. No. 1

EDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	10.42 cfs
Storm frequency	=	5 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	39,983 cuft
Drainage area	=	4.050 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.80 min
Total precip.	=	4.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.560 x 98) + (1.490 x 61)] / 4.050



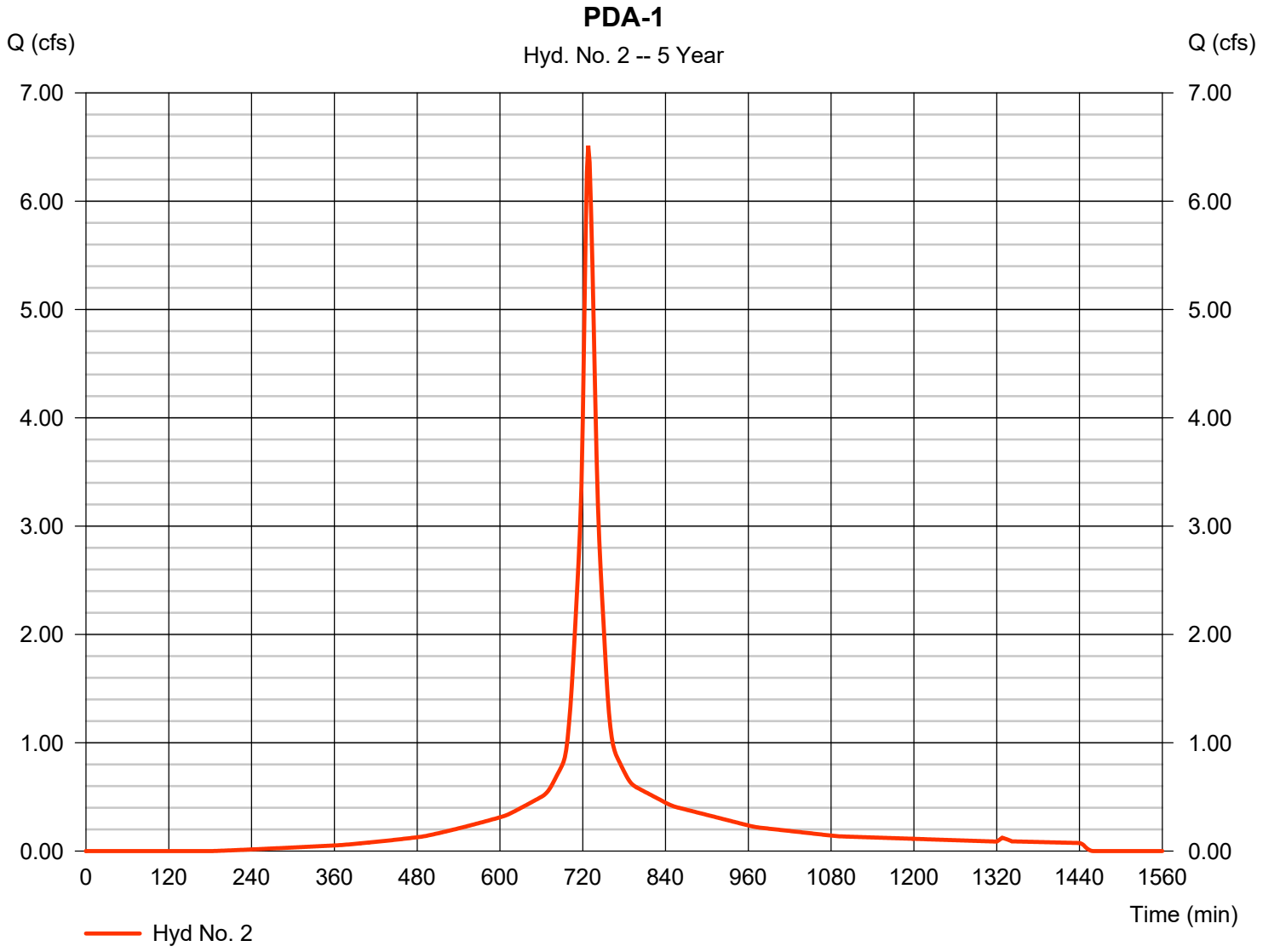
Hydrograph Report

Hyd. No. 2

PDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.514 cfs
Storm frequency	=	5 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	26,416 cuft
Drainage area	=	1.950 ac	Curve number	=	94*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	10.40 min
Total precip.	=	4.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.750 x 98) + (0.200 x 61)] / 1.950



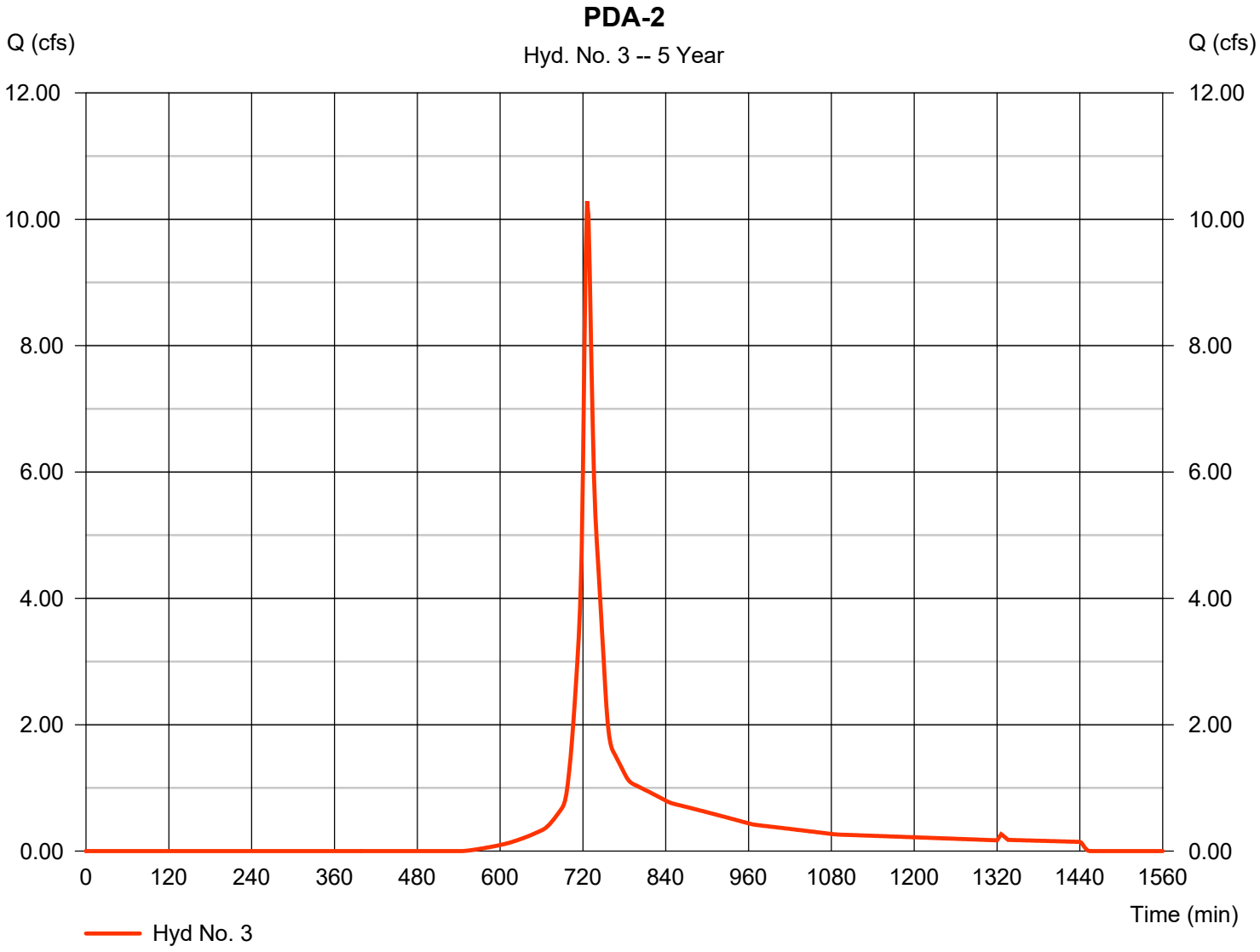
Hydrograph Report

Hyd. No. 3

PDA-2

Hydrograph type	= SCS Runoff	Peak discharge	= 10.28 cfs
Storm frequency	= 5 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 35,423 cuft
Drainage area	= 4.950 ac	Curve number	= 76*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 8.10 min
Total precip.	= 4.30 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(3.000 x 61) + (1.950 x 98)] / 4.950



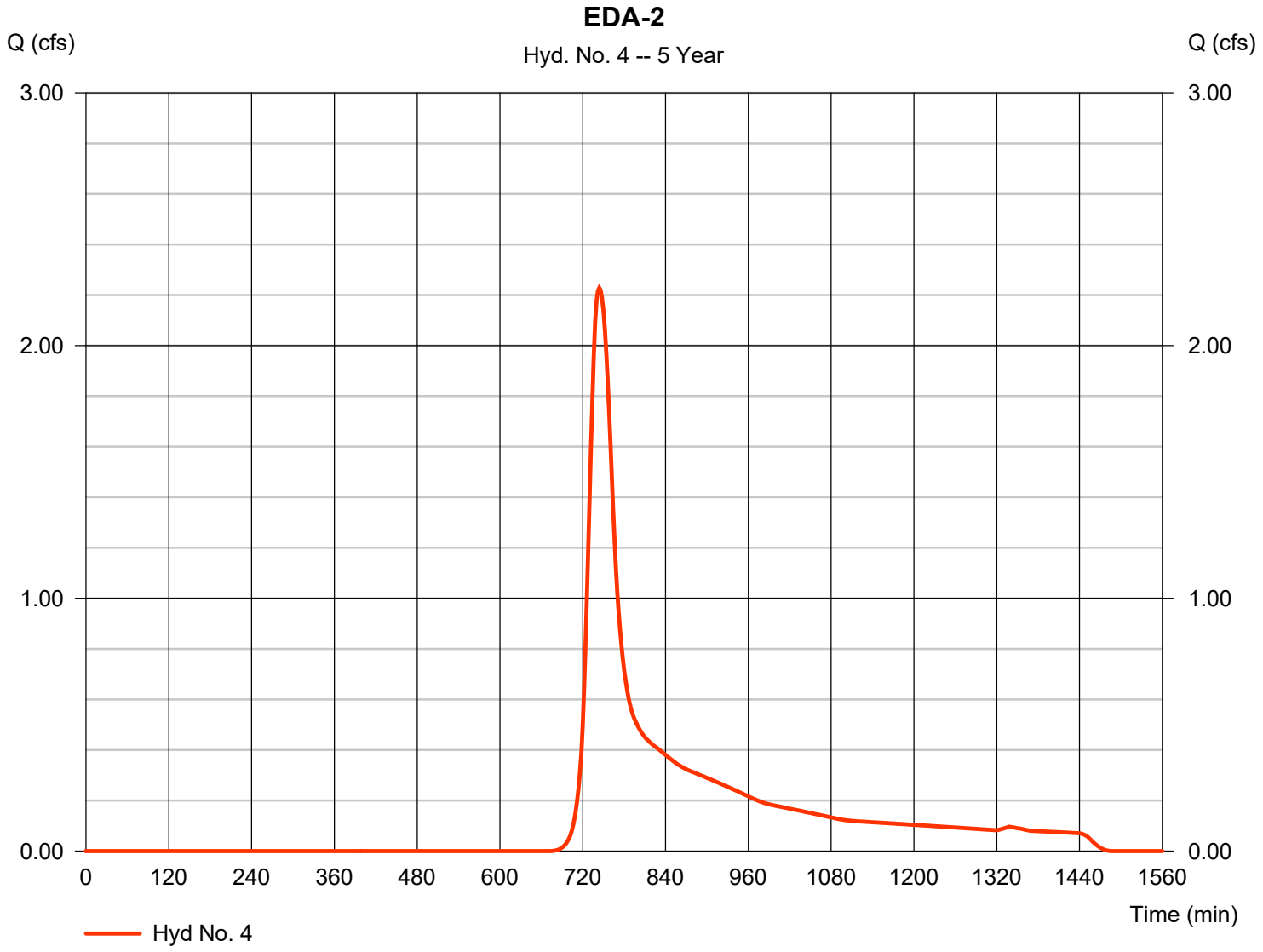
Hydrograph Report

Hyd. No. 4

EDA-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.229 cfs
Storm frequency	=	5 yrs	Time to peak	=	744 min
Time interval	=	2 min	Hyd. volume	=	12,891 cuft
Drainage area	=	3.100 ac	Curve number	=	64*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	27.70 min
Total precip.	=	4.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.860 x 61) + (0.240 x 98)] / 3.100

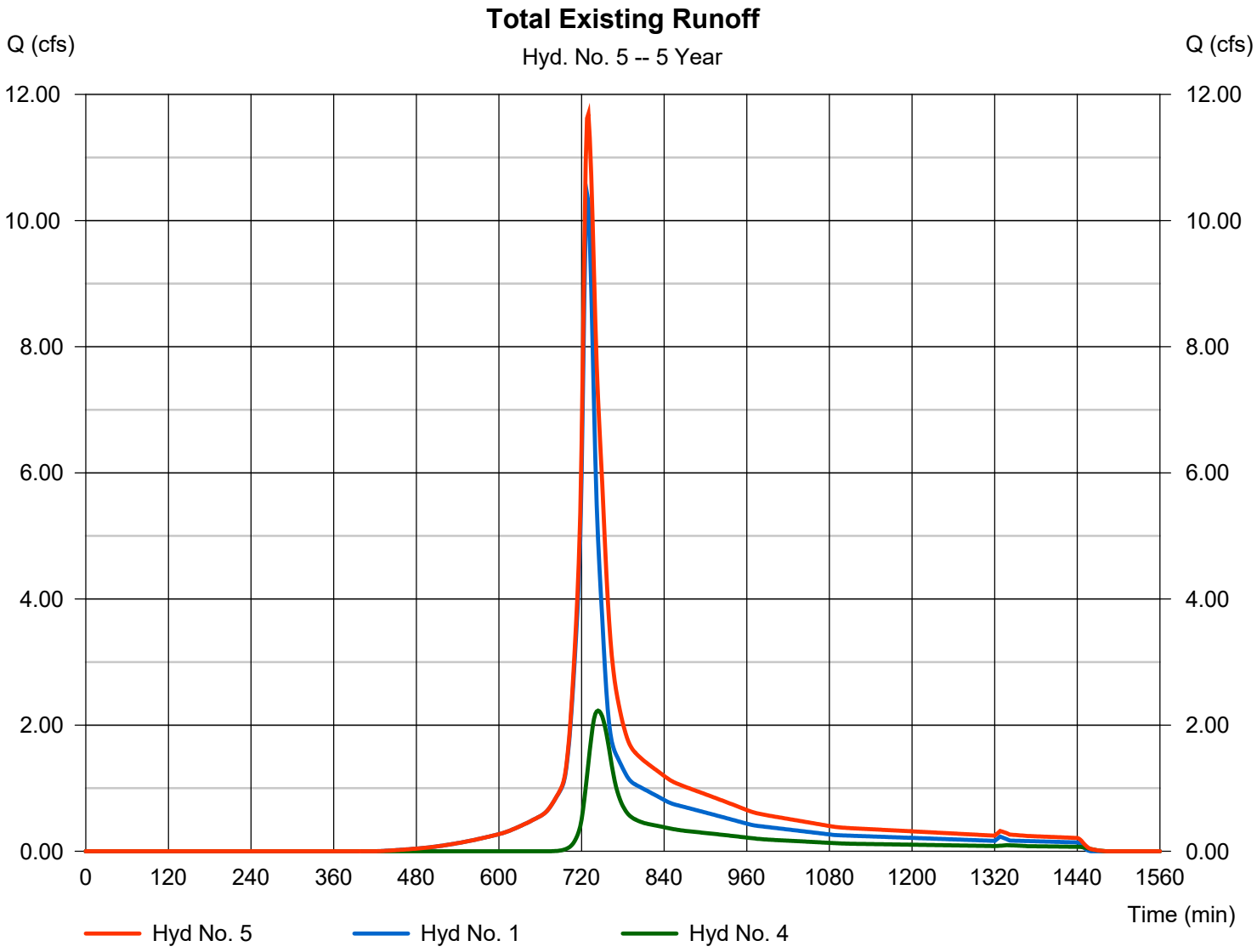


Hydrograph Report

Hyd. No. 5

Total Existing Runoff

Hydrograph type	= Combine	Peak discharge	= 11.69 cfs
Storm frequency	= 5 yrs	Time to peak	= 730 min
Time interval	= 2 min	Hyd. volume	= 52,874 cuft
Inflow hyds.	= 1, 4	Contrib. drain. area	= 7.150 ac



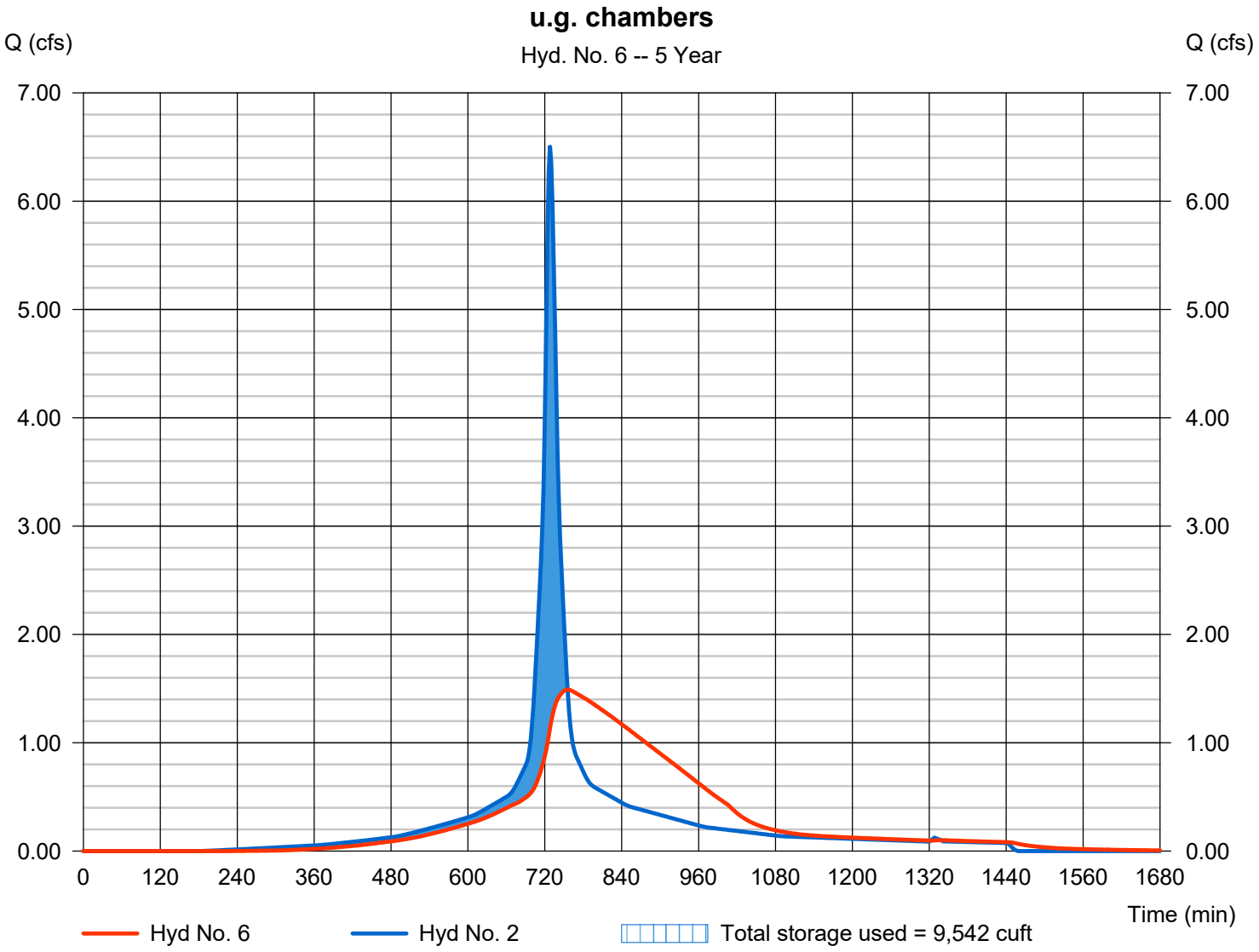
Hydrograph Report

Hyd. No. 6

u.g. chambers

Hydrograph type	=	Reservoir	Peak discharge	=	1.491 cfs
Storm frequency	=	5 yrs	Time to peak	=	756 min
Time interval	=	2 min	Hyd. volume	=	26,397 cuft
Inflow hyd. No.	=	2 - PDA-1	Max. Elevation	=	320.70 ft
Reservoir name	=	4' X 4' CONC. CHAMBERS	Max. Storage	=	9,542 cuft

Storage Indication method used.

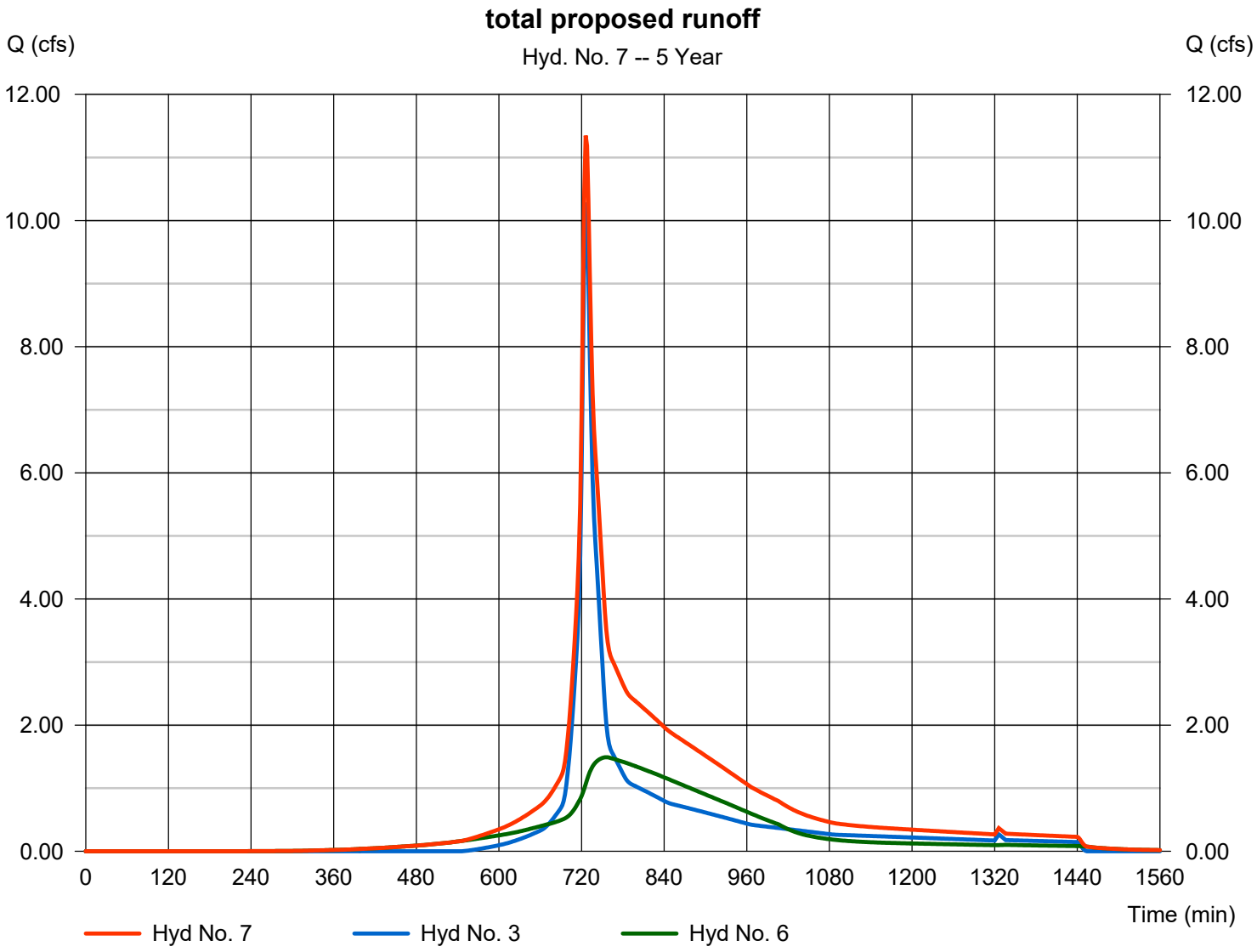


Hydrograph Report

Hyd. No. 7

total proposed runoff

Hydrograph type	=	Combine	Peak discharge	=	11.35 cfs
Storm frequency	=	5 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	61,820 cuft
Inflow hyds.	=	3, 6	Contrib. drain. area	=	4.950 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	12.88	2	728	49,583	------	------	------	EDA-1
2	SCS Runoff	7.679	2	728	31,447	------	------	------	PDA-1
3	SCS Runoff	13.31	2	726	45,559	------	------	------	PDA-2
4	SCS Runoff	3.198	2	742	17,786	------	------	------	EDA-2
5	Combine	14.83	2	730	67,369	1, 4	------	------	Total Existing Runoff
6	Reservoir	1.892	2	754	31,428	2	321.19	11,384	u.g. chambers
7	Combine	14.49	2	726	76,987	3, 6	------	------	total proposed runoff

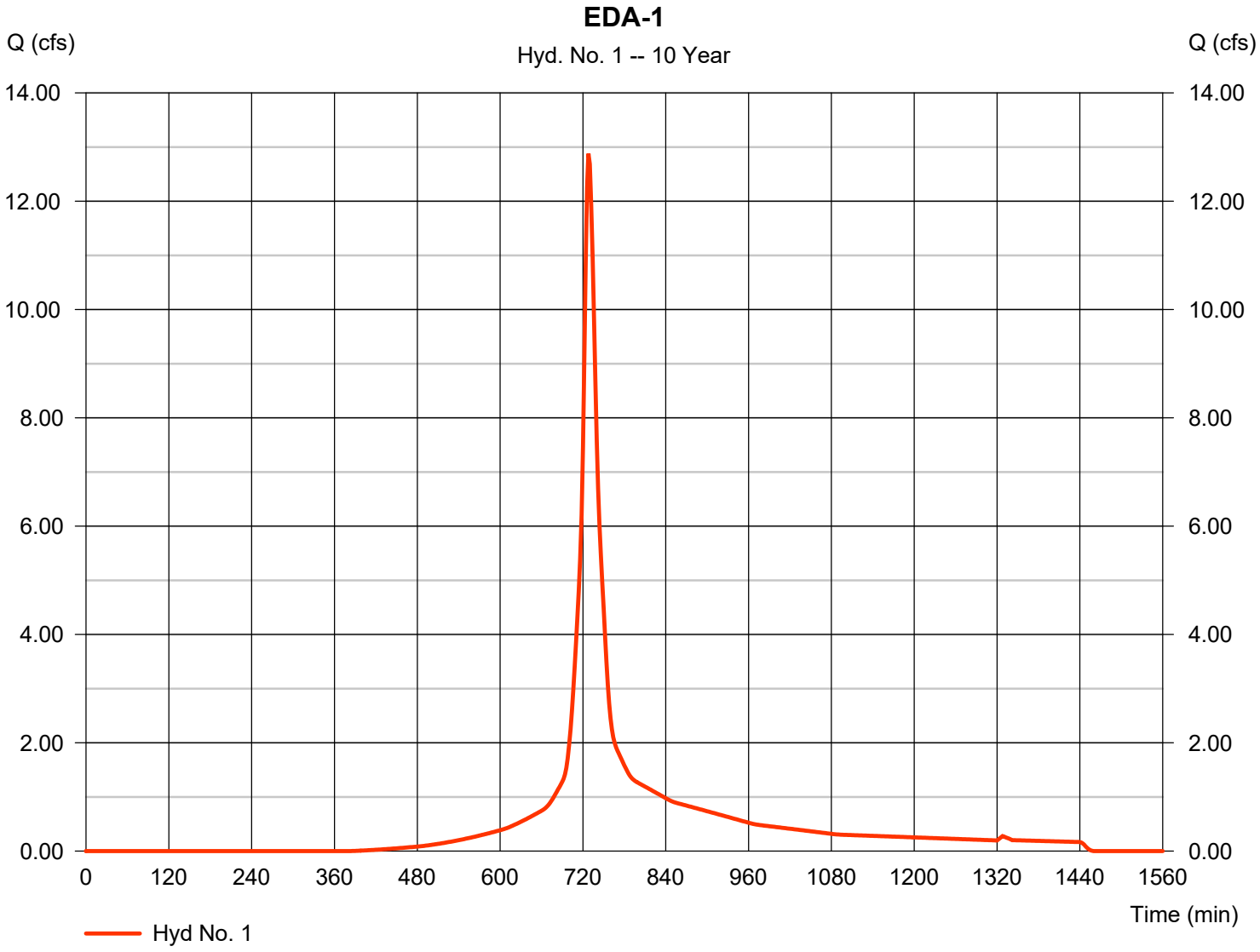
Hydrograph Report

Hyd. No. 1

EDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.88 cfs
Storm frequency	=	10 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	49,583 cuft
Drainage area	=	4.050 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.80 min
Total precip.	=	5.00 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.560 x 98) + (1.490 x 61)] / 4.050



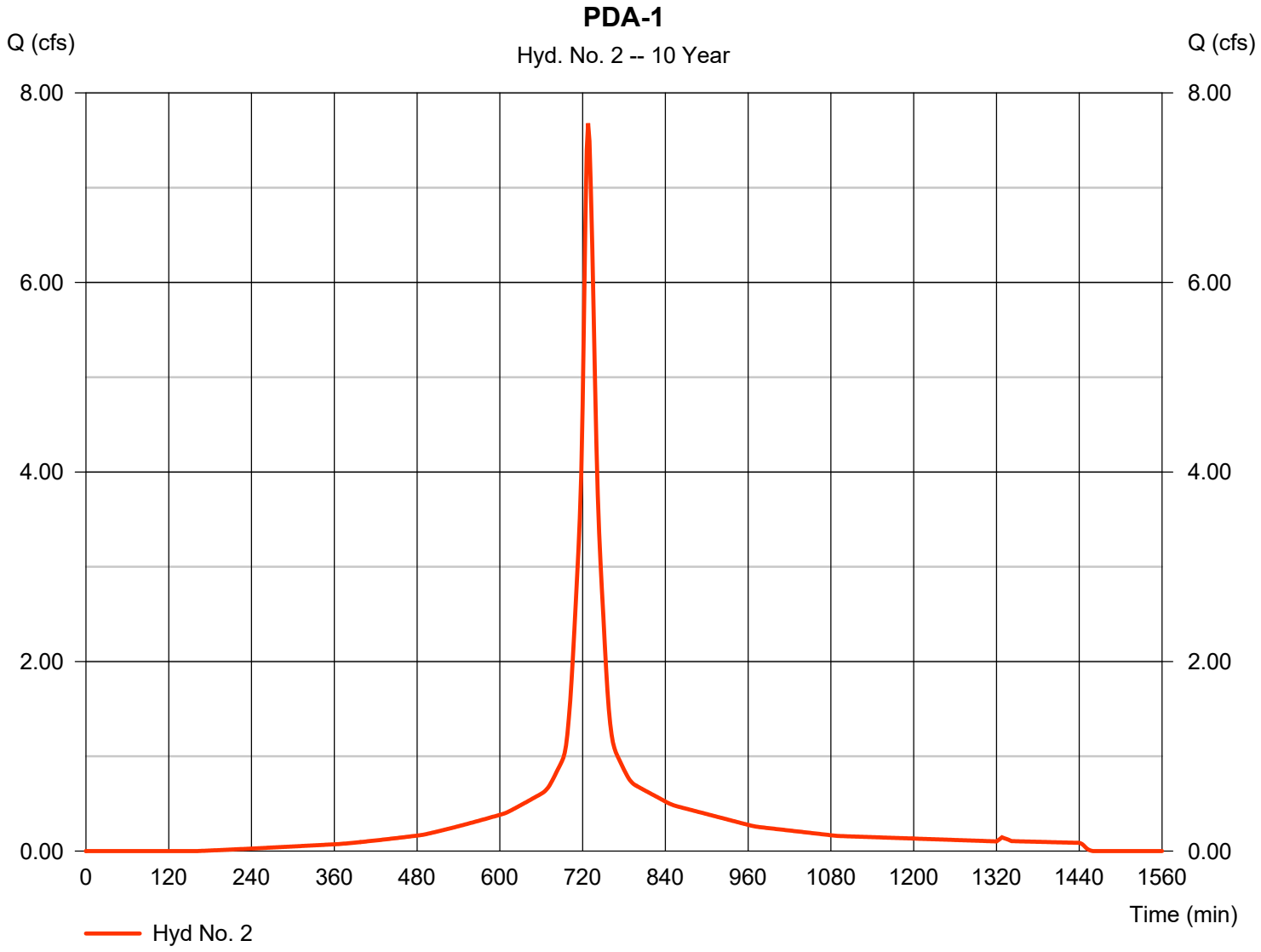
Hydrograph Report

Hyd. No. 2

PDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.679 cfs
Storm frequency	=	10 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	31,447 cuft
Drainage area	=	1.950 ac	Curve number	=	94*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	10.40 min
Total precip.	=	5.00 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.750 x 98) + (0.200 x 61)] / 1.950



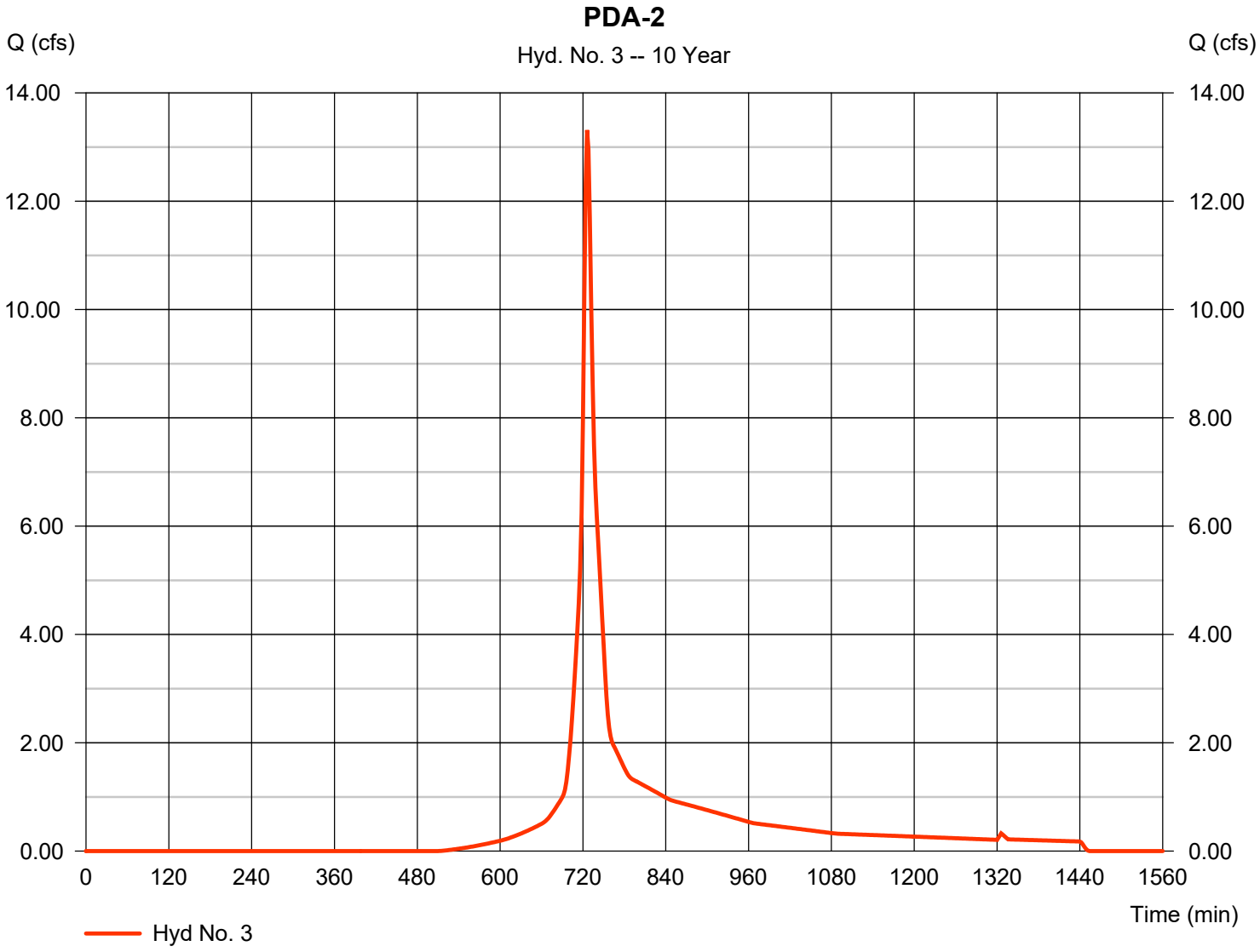
Hydrograph Report

Hyd. No. 3

PDA-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	13.31 cfs
Storm frequency	=	10 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	45,559 cuft
Drainage area	=	4.950 ac	Curve number	=	76*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.10 min
Total precip.	=	5.00 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(3.000 x 61) + (1.950 x 98)] / 4.950



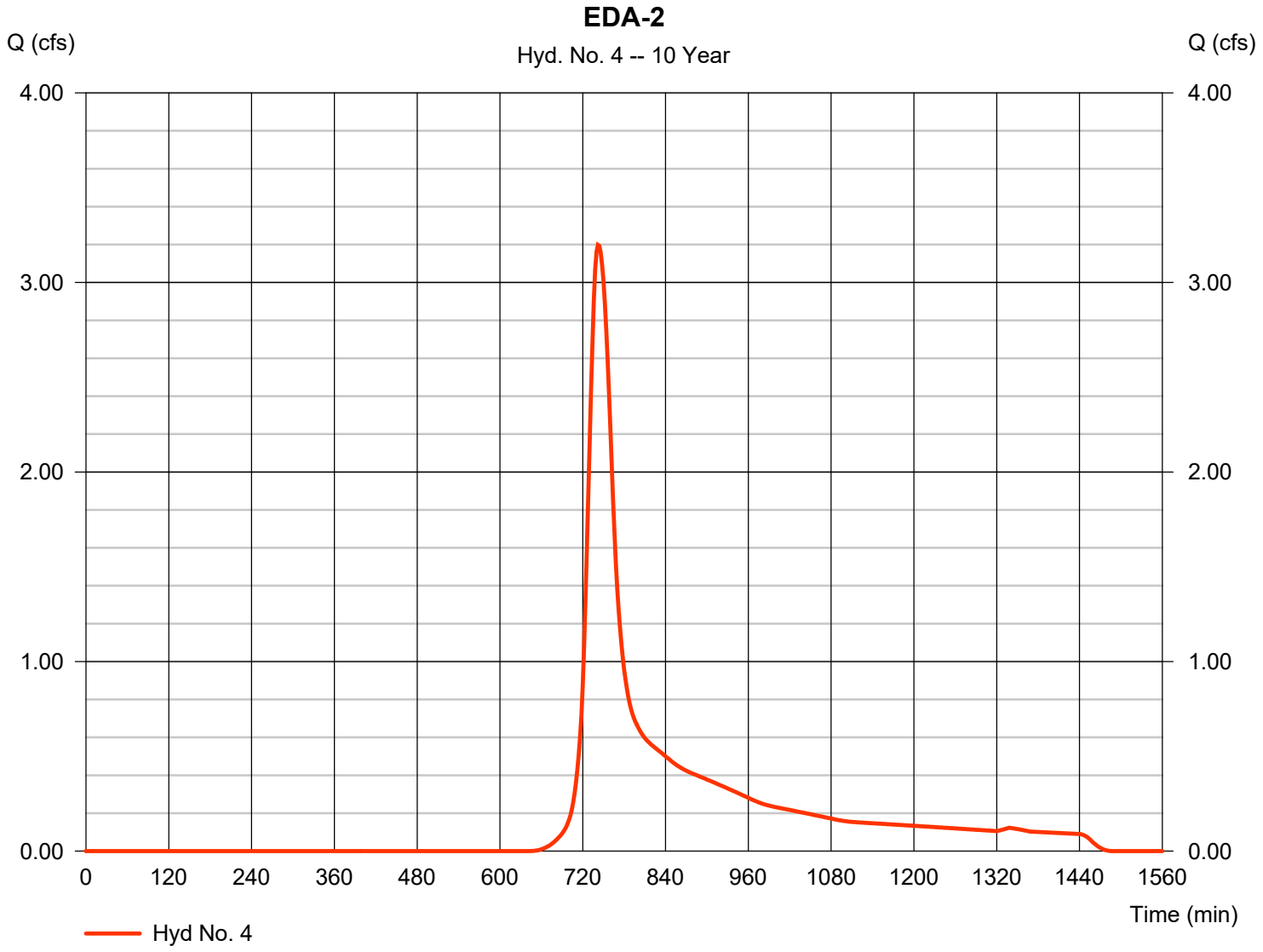
Hydrograph Report

Hyd. No. 4

EDA-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.198 cfs
Storm frequency	=	10 yrs	Time to peak	=	742 min
Time interval	=	2 min	Hyd. volume	=	17,786 cuft
Drainage area	=	3.100 ac	Curve number	=	64*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	27.70 min
Total precip.	=	5.00 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.860 x 61) + (0.240 x 98)] / 3.100

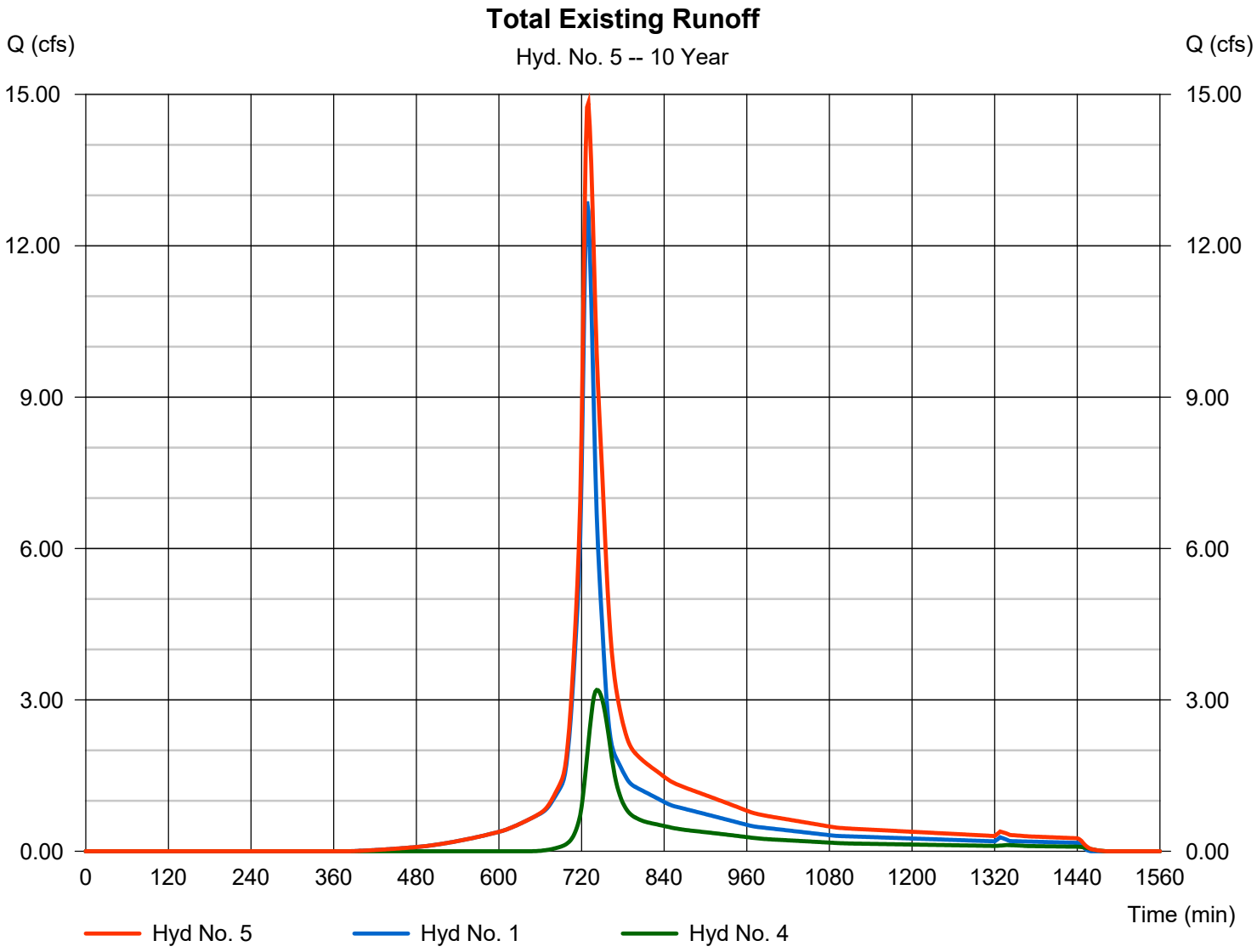


Hydrograph Report

Hyd. No. 5

Total Existing Runoff

Hydrograph type	= Combine	Peak discharge	= 14.83 cfs
Storm frequency	= 10 yrs	Time to peak	= 730 min
Time interval	= 2 min	Hyd. volume	= 67,369 cuft
Inflow hyds.	= 1, 4	Contrib. drain. area	= 7.150 ac



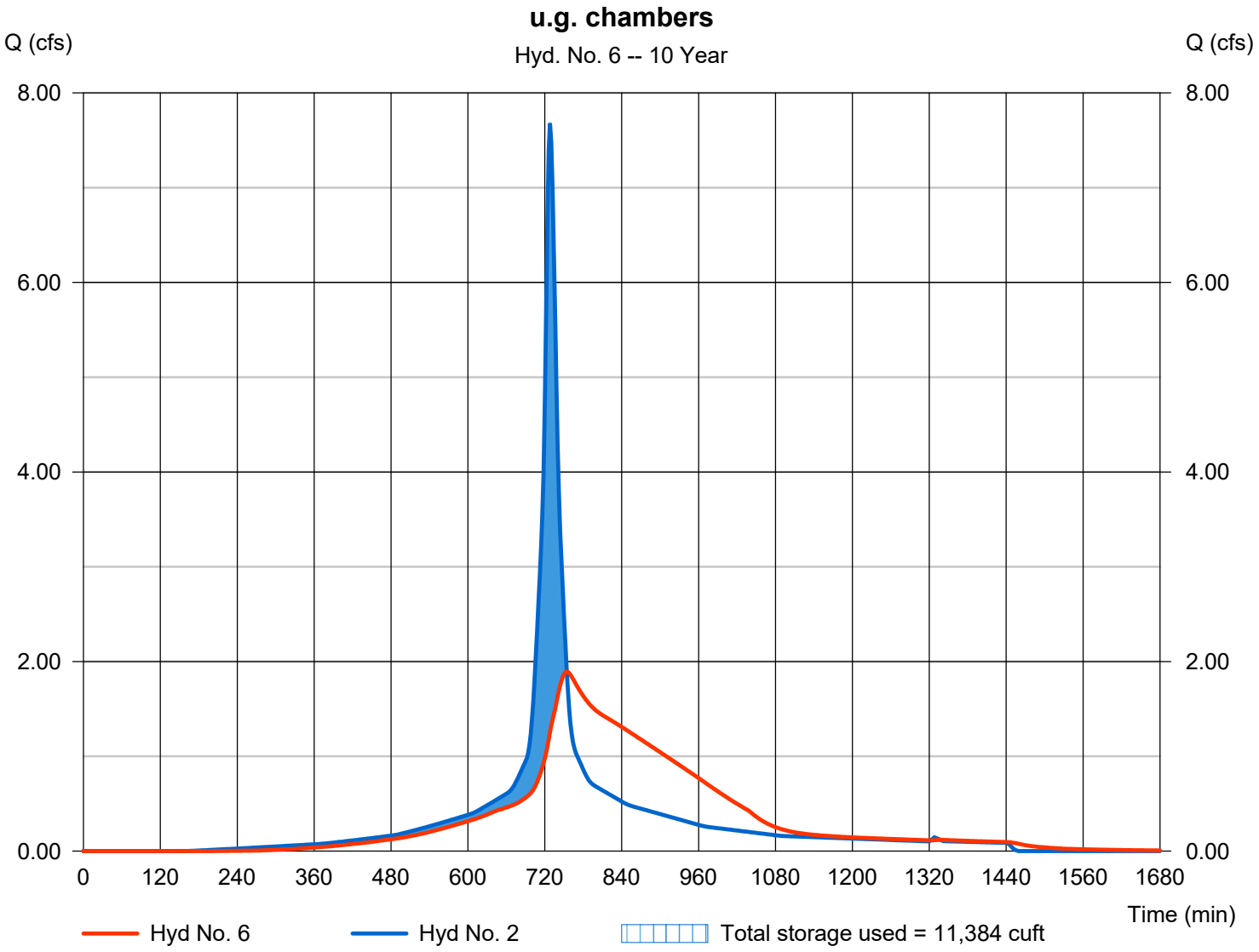
Hydrograph Report

Hyd. No. 6

u.g. chambers

Hydrograph type	=	Reservoir	Peak discharge	=	1.892 cfs
Storm frequency	=	10 yrs	Time to peak	=	754 min
Time interval	=	2 min	Hyd. volume	=	31,428 cuft
Inflow hyd. No.	=	2 - PDA-1	Max. Elevation	=	321.19 ft
Reservoir name	=	4' X 4' CONC. CHAMBERS	Max. Storage	=	11,384 cuft

Storage Indication method used.

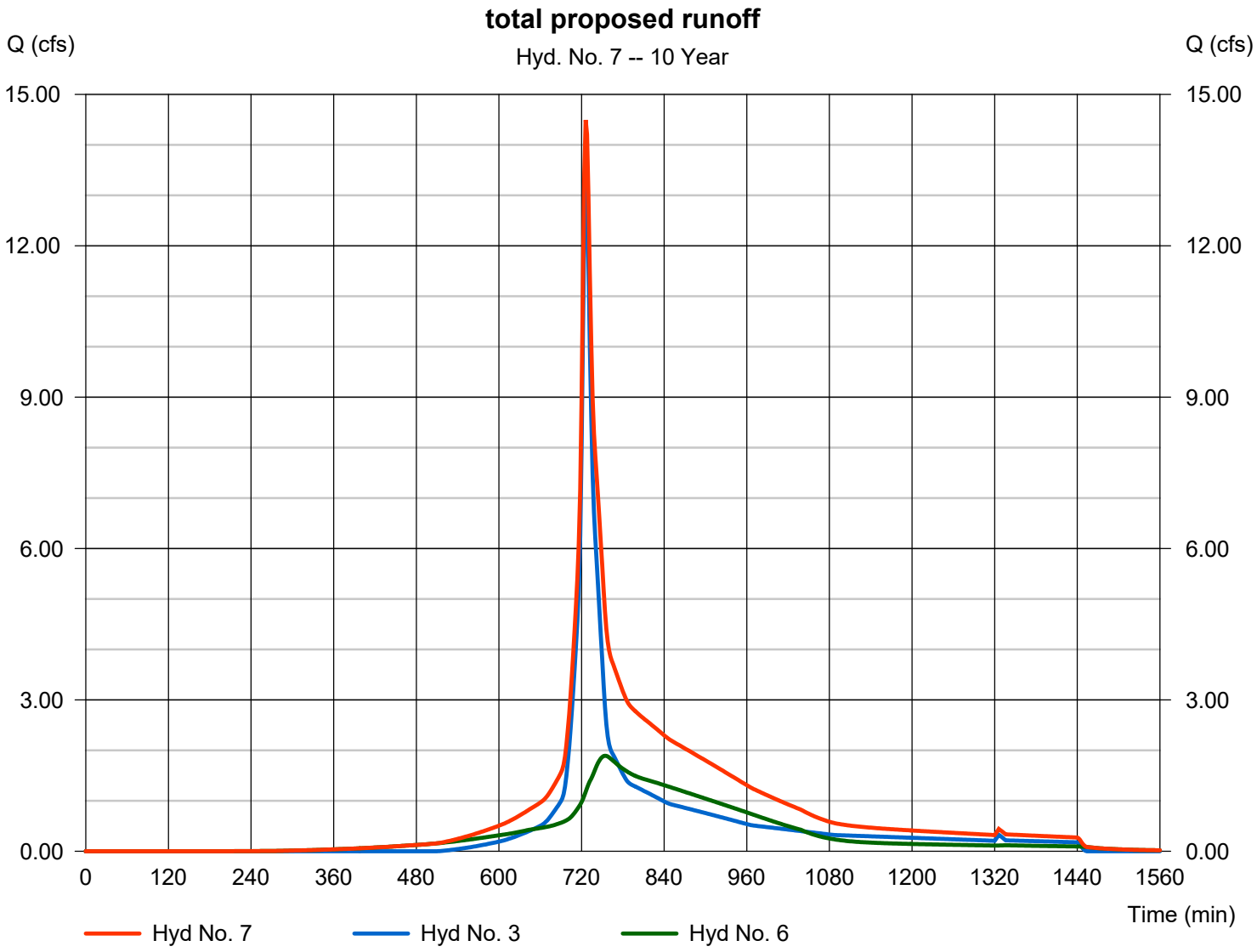


Hydrograph Report

Hyd. No. 7

total proposed runoff

Hydrograph type	=	Combine	Peak discharge	=	14.49 cfs
Storm frequency	=	10 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	76,987 cuft
Inflow hyds.	=	3, 6	Contrib. drain. area	=	4.950 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	15.35	2	728	59,378	------	------	------	EDA-1
2	SCS Runoff	8.839	2	728	36,496	------	------	------	PDA-1
3	SCS Runoff	16.43	2	726	56,111	------	------	------	PDA-2
4	SCS Runoff	4.253	2	742	23,091	------	------	------	EDA-2
5	Combine	18.05	2	730	82,470	1, 4	------	------	Total Existing Runoff
6	Reservoir	2.599	2	752	36,477	2	321.60	12,916	u.g. chambers
7	Combine	17.72	2	726	92,589	3, 6	------	------	total proposed runoff

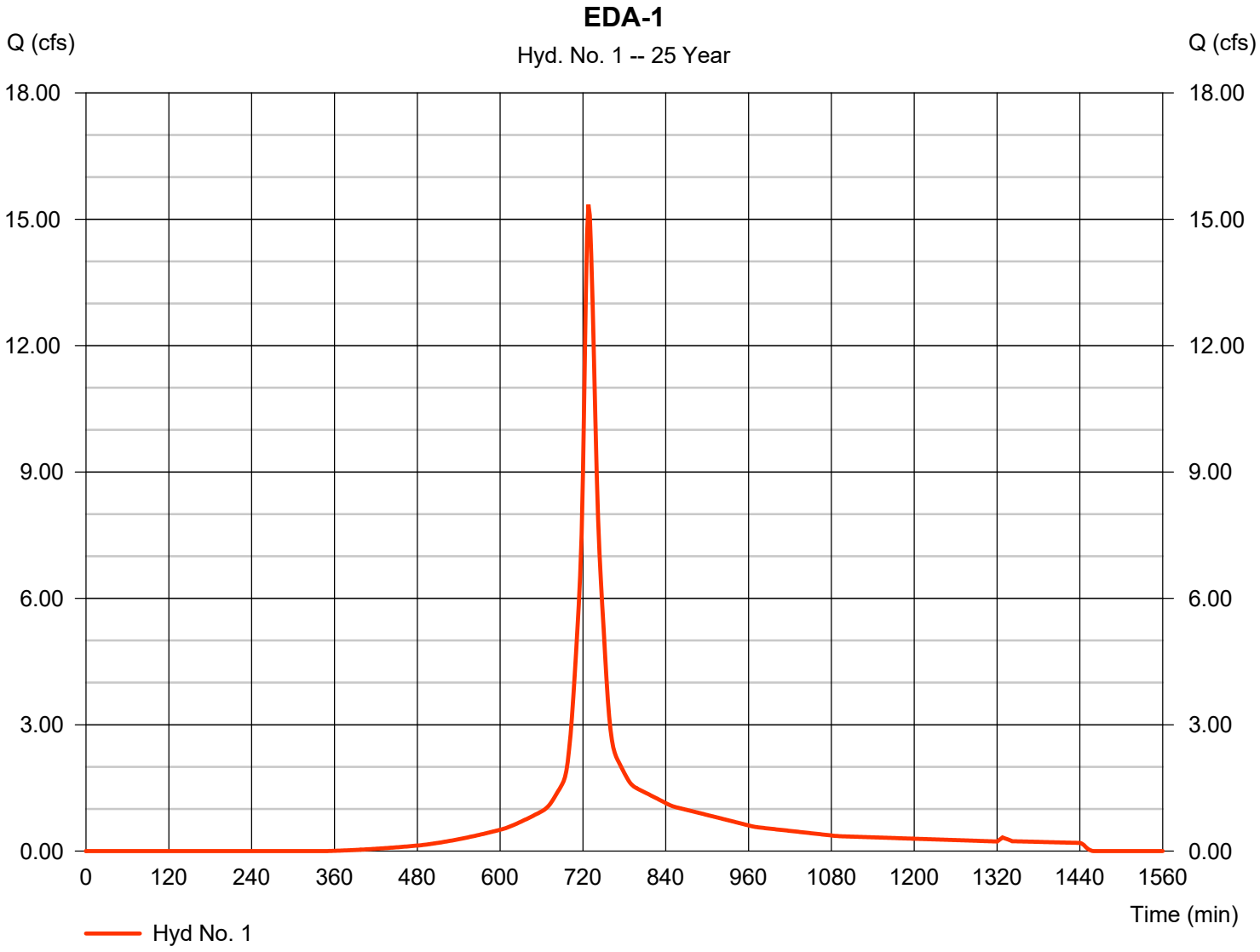
Hydrograph Report

Hyd. No. 1

EDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	15.35 cfs
Storm frequency	=	25 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	59,378 cuft
Drainage area	=	4.050 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.80 min
Total precip.	=	5.70 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.560 x 98) + (1.490 x 61)] / 4.050



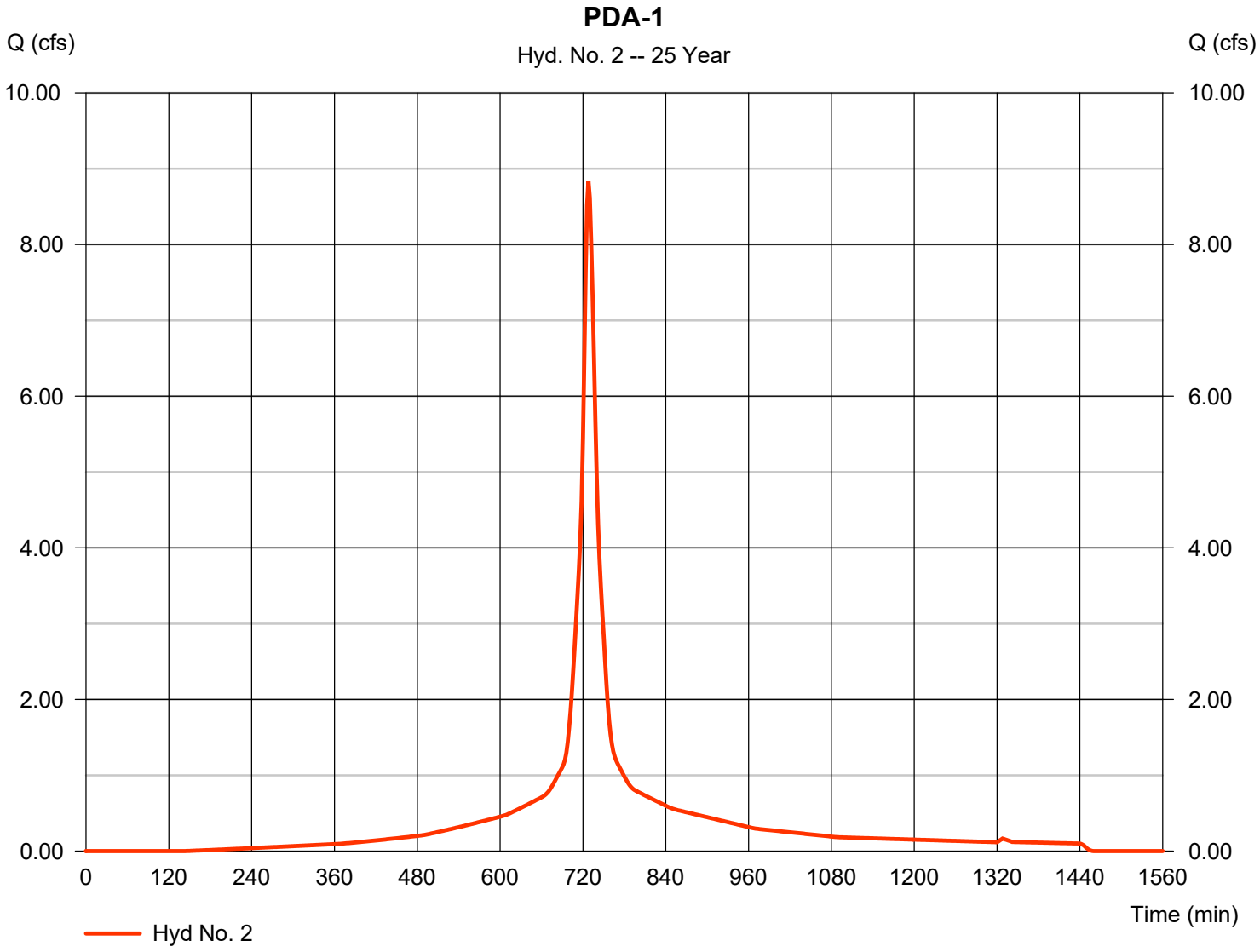
Hydrograph Report

Hyd. No. 2

PDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.839 cfs
Storm frequency	=	25 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	36,496 cuft
Drainage area	=	1.950 ac	Curve number	=	94*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	10.40 min
Total precip.	=	5.70 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.750 x 98) + (0.200 x 61)] / 1.950



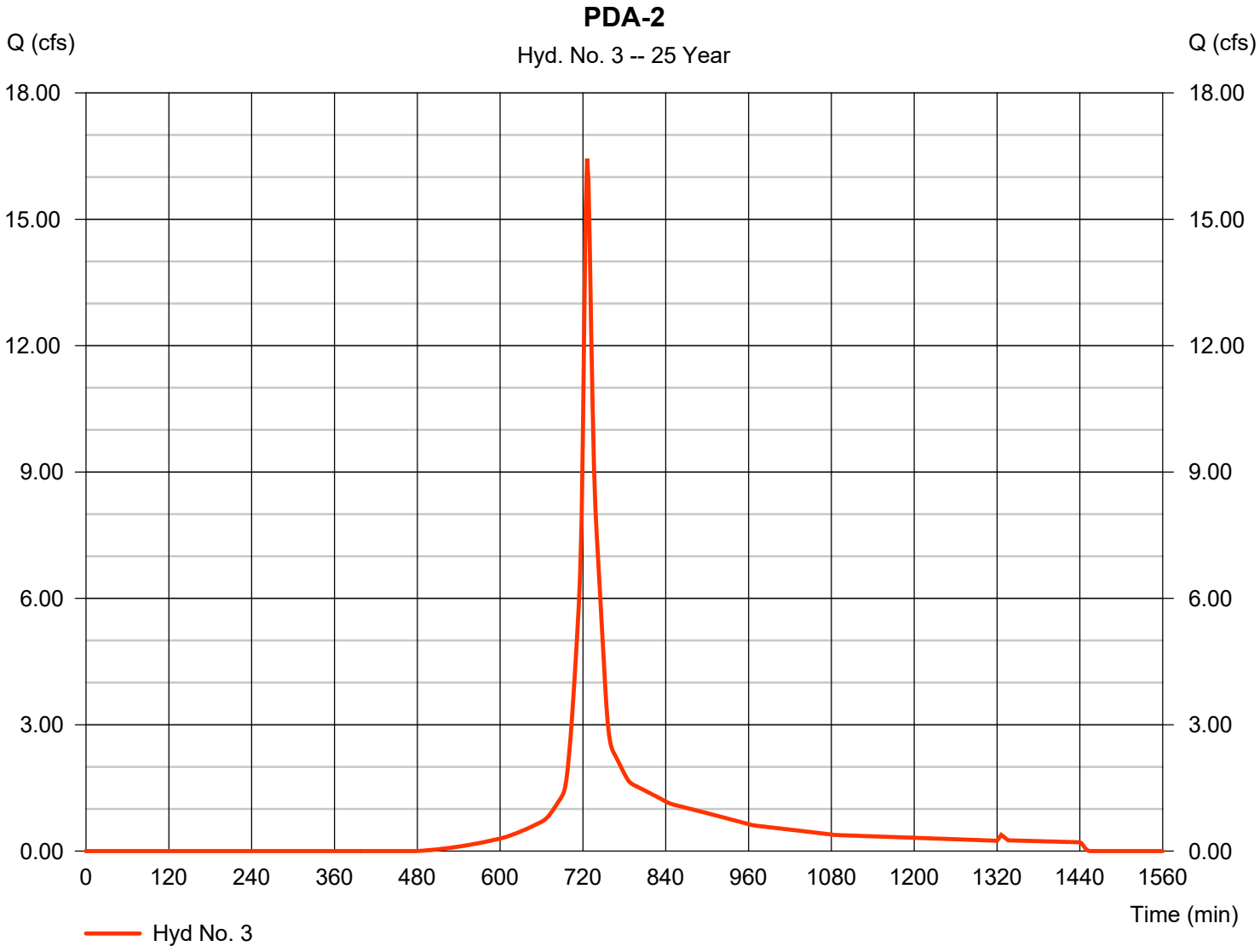
Hydrograph Report

Hyd. No. 3

PDA-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	16.43 cfs
Storm frequency	=	25 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	56,111 cuft
Drainage area	=	4.950 ac	Curve number	=	76*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.10 min
Total precip.	=	5.70 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(3.000 x 61) + (1.950 x 98)] / 4.950



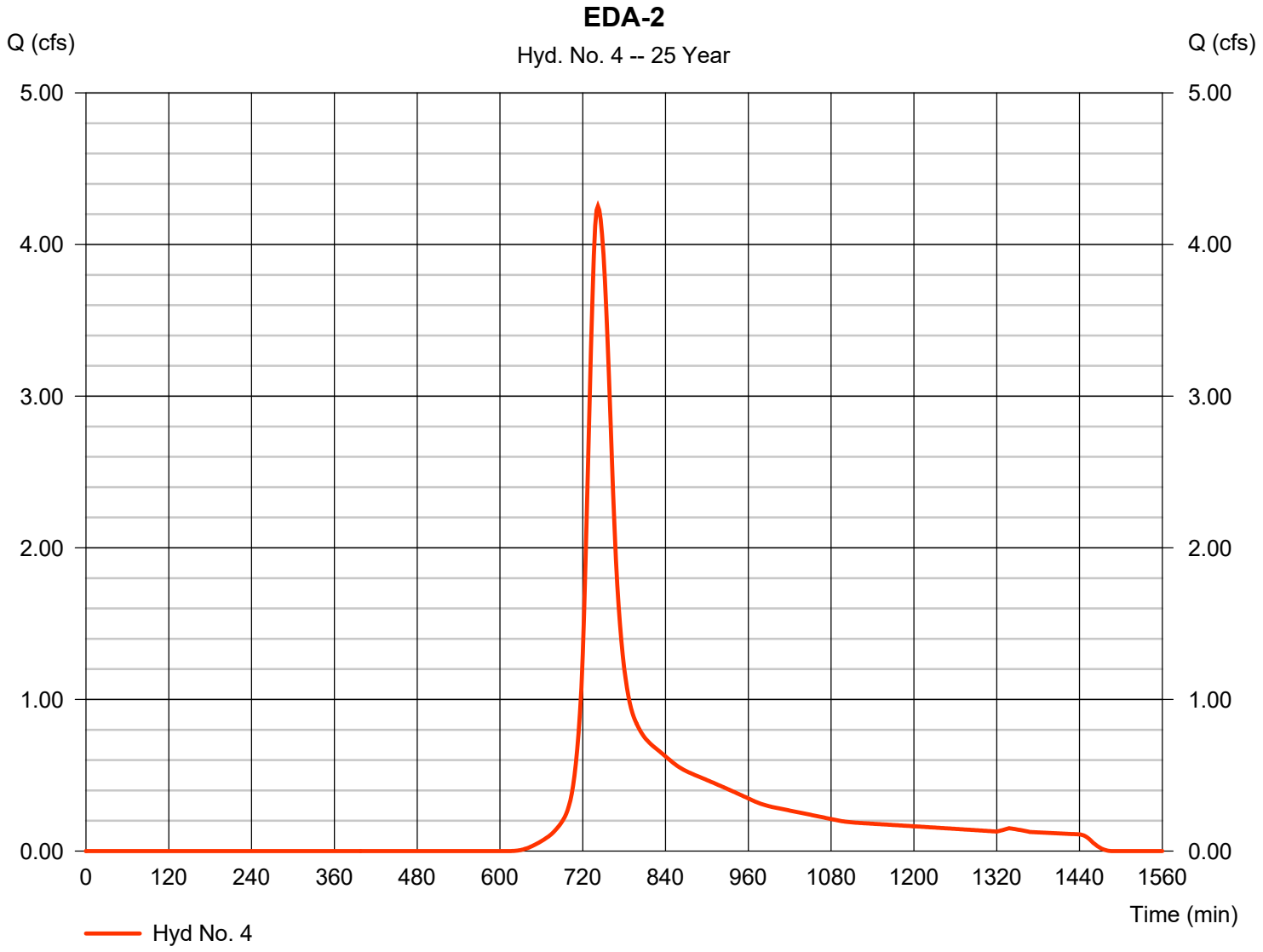
Hydrograph Report

Hyd. No. 4

EDA-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.253 cfs
Storm frequency	=	25 yrs	Time to peak	=	742 min
Time interval	=	2 min	Hyd. volume	=	23,091 cuft
Drainage area	=	3.100 ac	Curve number	=	64*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	27.70 min
Total precip.	=	5.70 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.860 x 61) + (0.240 x 98)] / 3.100

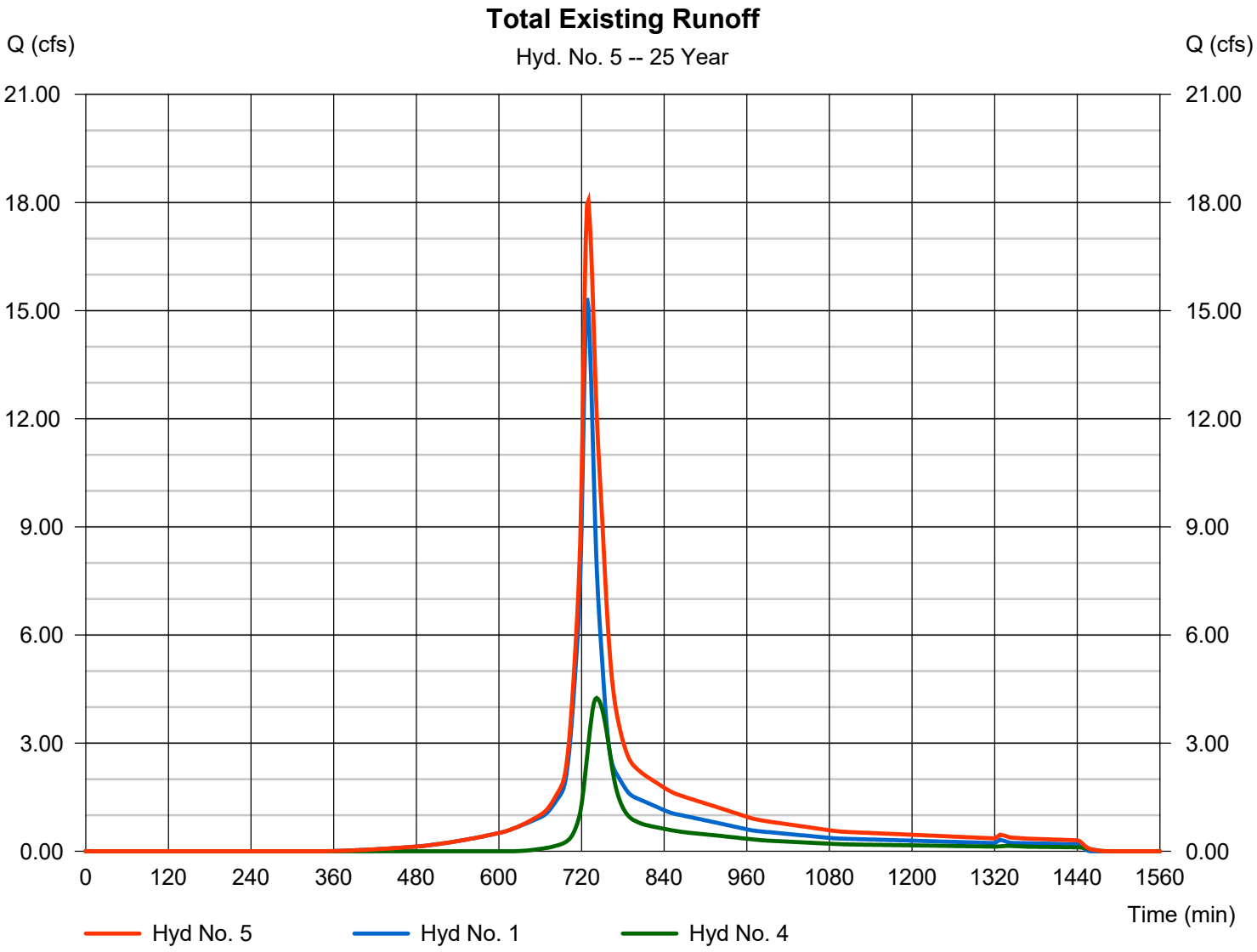


Hydrograph Report

Hyd. No. 5

Total Existing Runoff

Hydrograph type	=	Combine	Peak discharge	=	18.05 cfs
Storm frequency	=	25 yrs	Time to peak	=	730 min
Time interval	=	2 min	Hyd. volume	=	82,470 cuft
Inflow hyds.	=	1, 4	Contrib. drain. area	=	7.150 ac



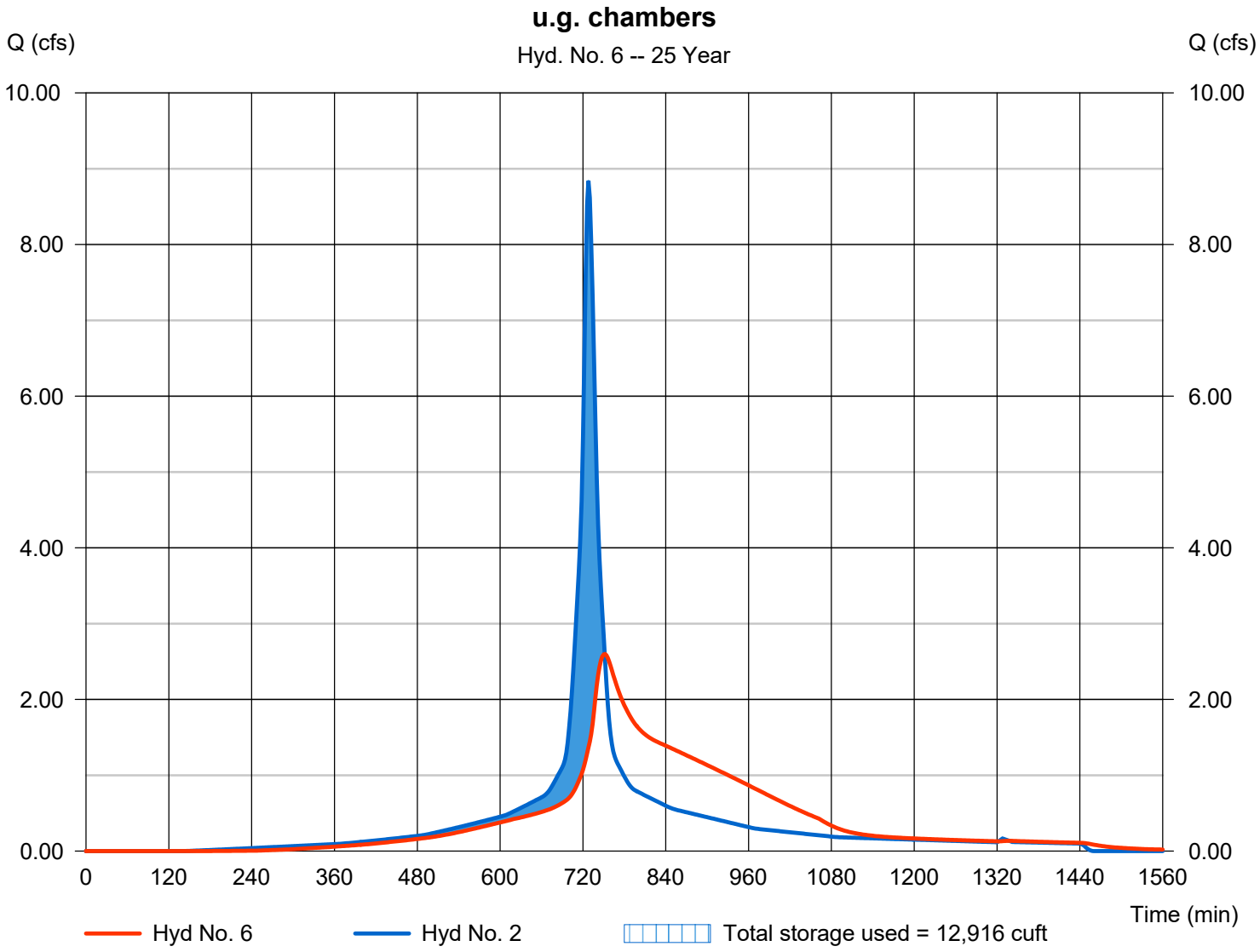
Hydrograph Report

Hyd. No. 6

u.g. chambers

Hydrograph type	=	Reservoir	Peak discharge	=	2.599 cfs
Storm frequency	=	25 yrs	Time to peak	=	752 min
Time interval	=	2 min	Hyd. volume	=	36,477 cuft
Inflow hyd. No.	=	2 - PDA-1	Max. Elevation	=	321.60 ft
Reservoir name	=	4' X 4' CONC. CHAMBERS	Max. Storage	=	12,916 cuft

Storage Indication method used.

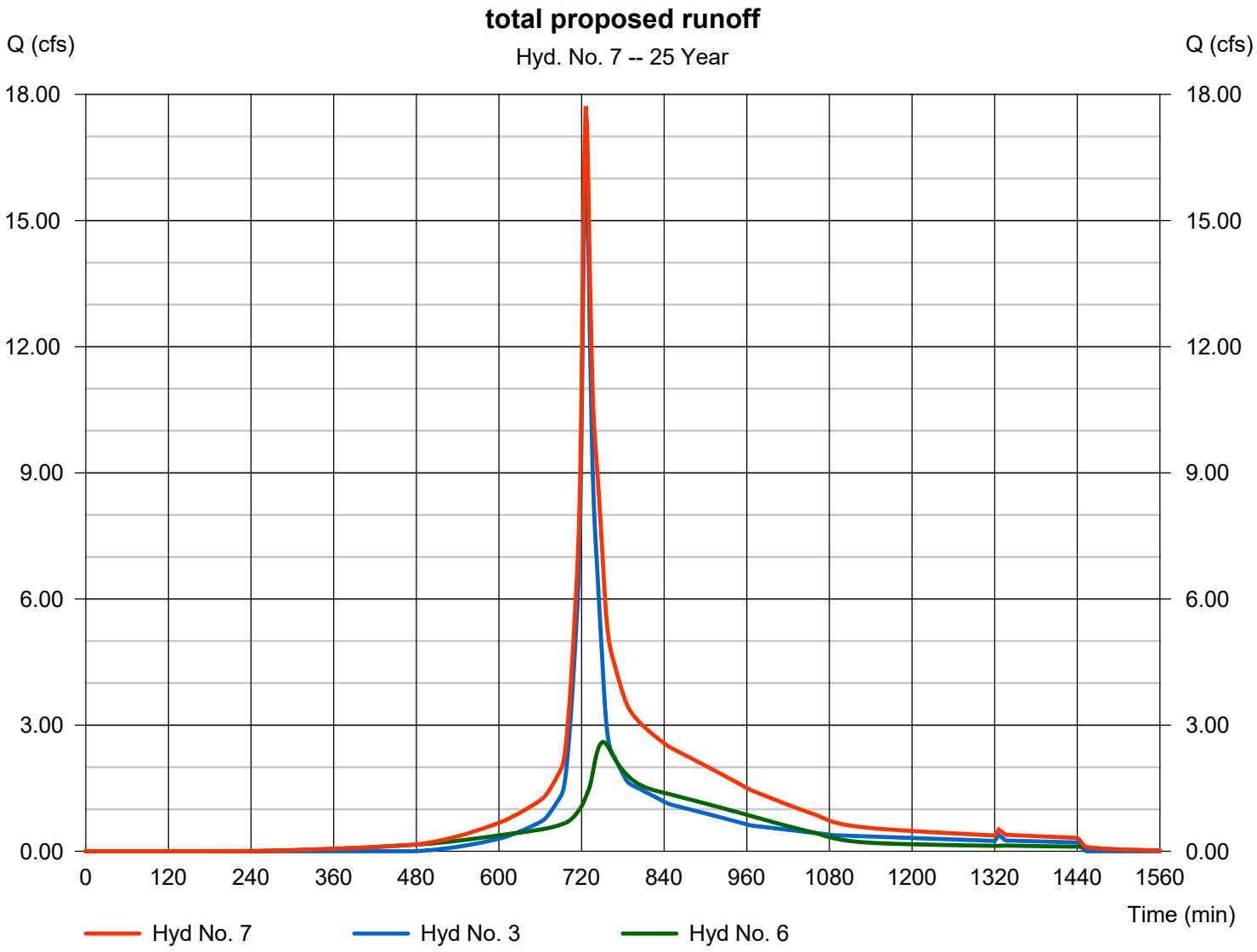


Hydrograph Report

Hyd. No. 7

total proposed runoff

Hydrograph type	=	Combine	Peak discharge	=	17.72 cfs
Storm frequency	=	25 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	92,589 cuft
Inflow hyds.	=	3, 6	Contrib. drain. area	=	4.950 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	17.82	2	728	69,318	------	------	------	EDA-1
2	SCS Runoff	9.994	2	728	41,557	------	------	------	PDA-1
3	SCS Runoff	19.61	2	726	66,981	------	------	------	PDA-2
4	SCS Runoff	5.366	2	742	28,727	------	------	------	EDA-2
5	Combine	21.33	2	730	98,045	1, 4	------	------	Total Existing Runoff
6	Reservoir	3.522	2	748	41,538	2	321.94	14,191	u.g. chambers
7	Combine	21.00	2	726	108,520	3, 6	------	------	total proposed runoff

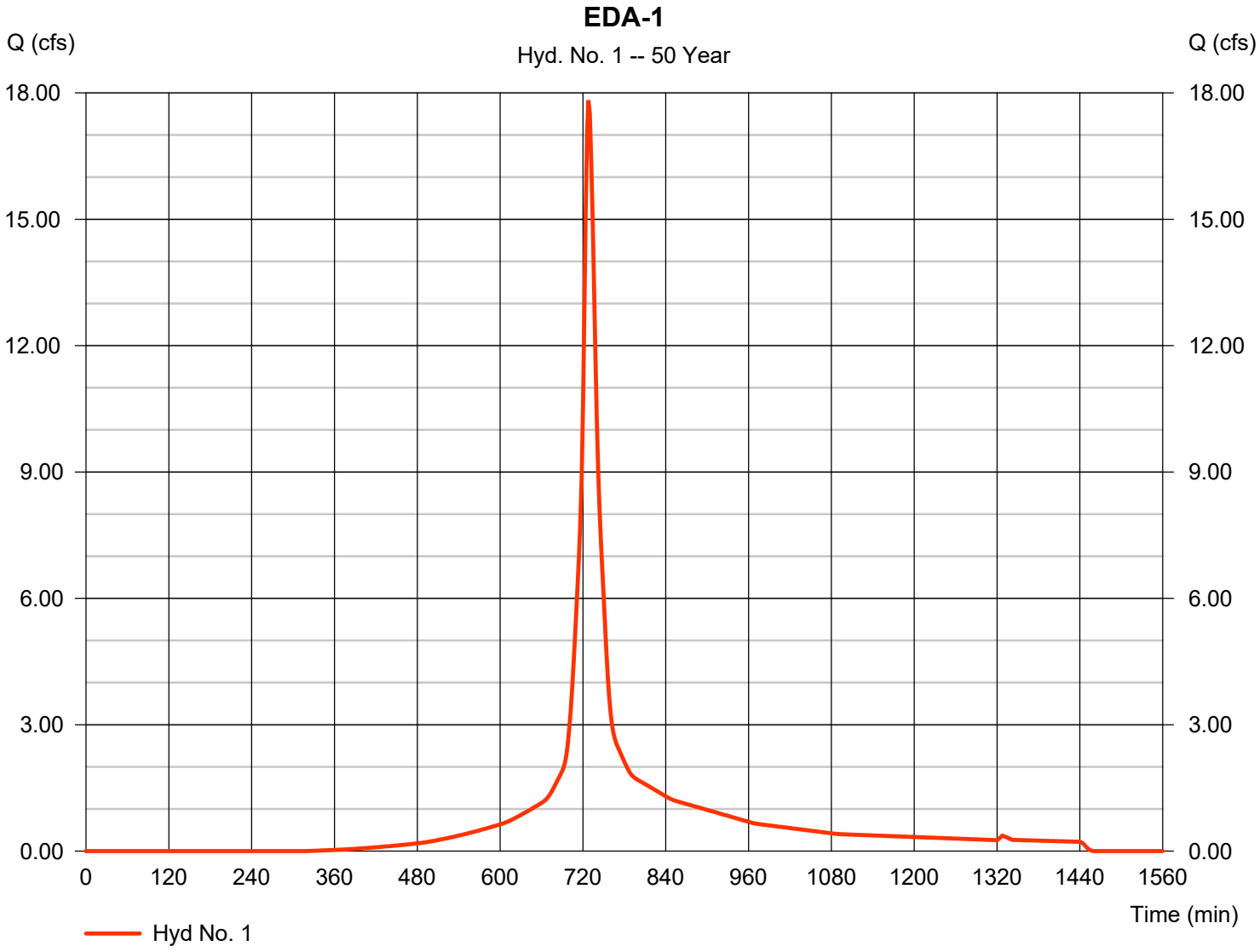
Hydrograph Report

Hyd. No. 1

EDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	17.82 cfs
Storm frequency	=	50 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	69,318 cuft
Drainage area	=	4.050 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.80 min
Total precip.	=	6.40 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.560 x 98) + (1.490 x 61)] / 4.050



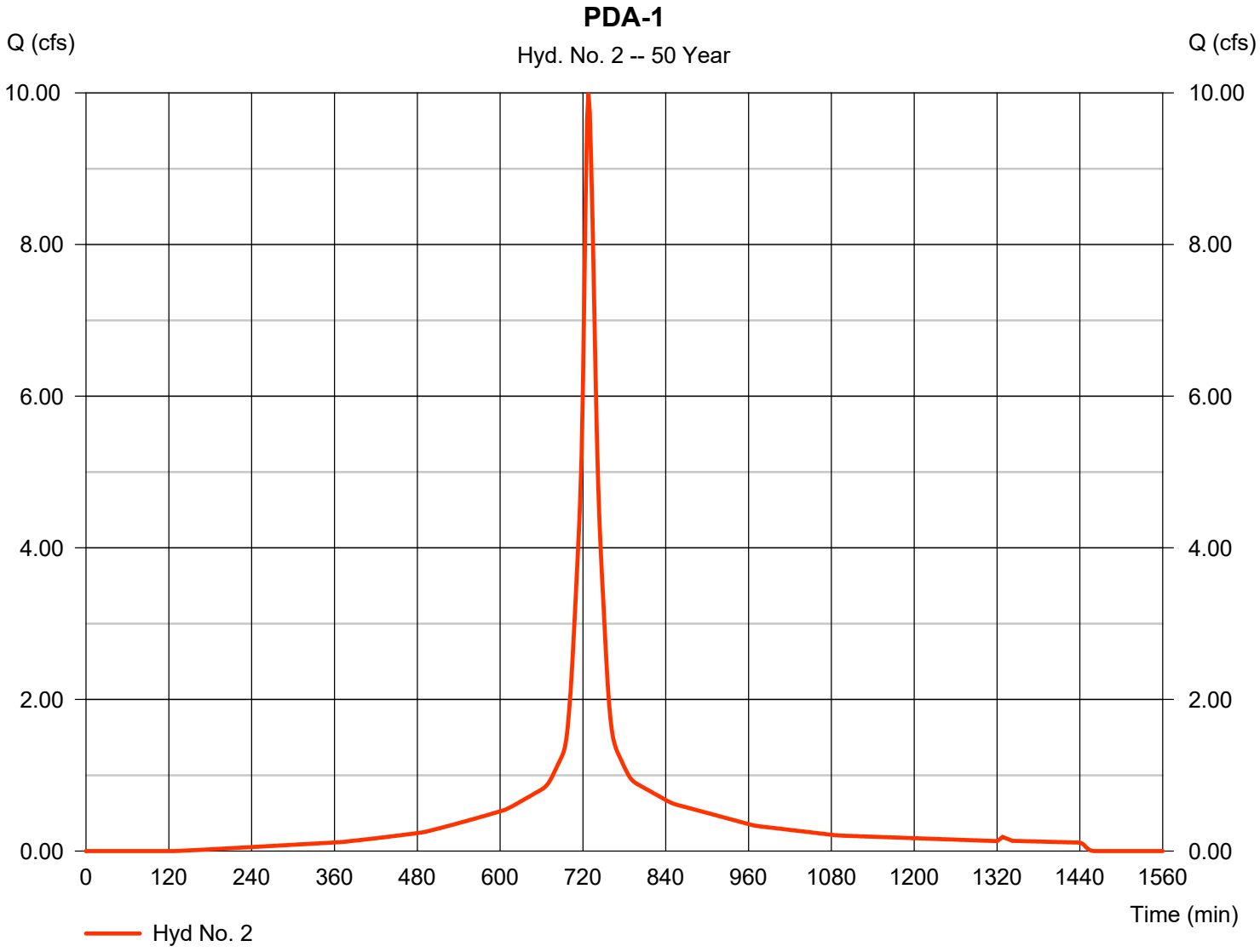
Hydrograph Report

Hyd. No. 2

PDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.994 cfs
Storm frequency	=	50 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	41,557 cuft
Drainage area	=	1.950 ac	Curve number	=	94*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	10.40 min
Total precip.	=	6.40 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.750 x 98) + (0.200 x 61)] / 1.950



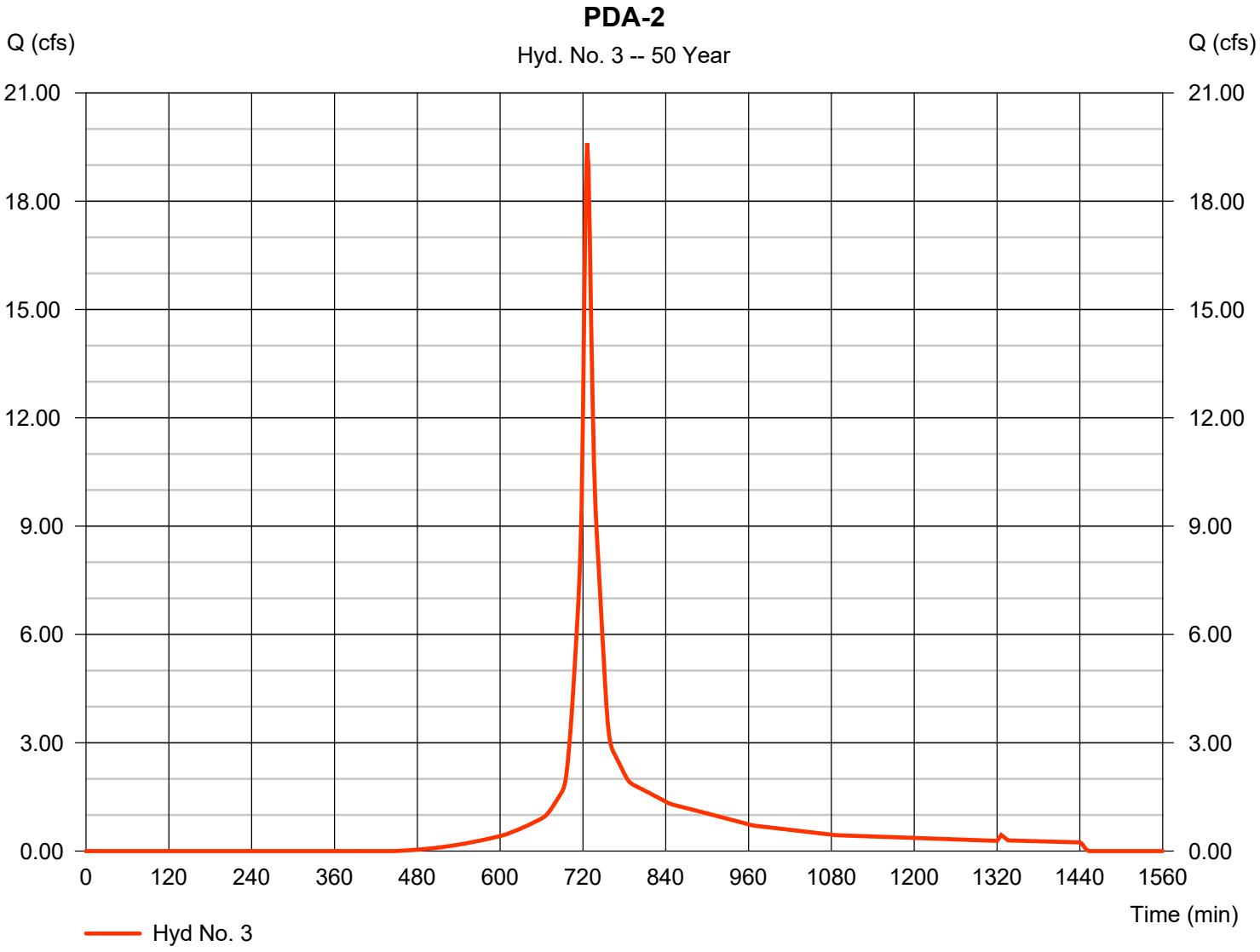
Hydrograph Report

Hyd. No. 3

PDA-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	19.61 cfs
Storm frequency	=	50 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	66,981 cuft
Drainage area	=	4.950 ac	Curve number	=	76*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.10 min
Total precip.	=	6.40 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(3.000 x 61) + (1.950 x 98)] / 4.950



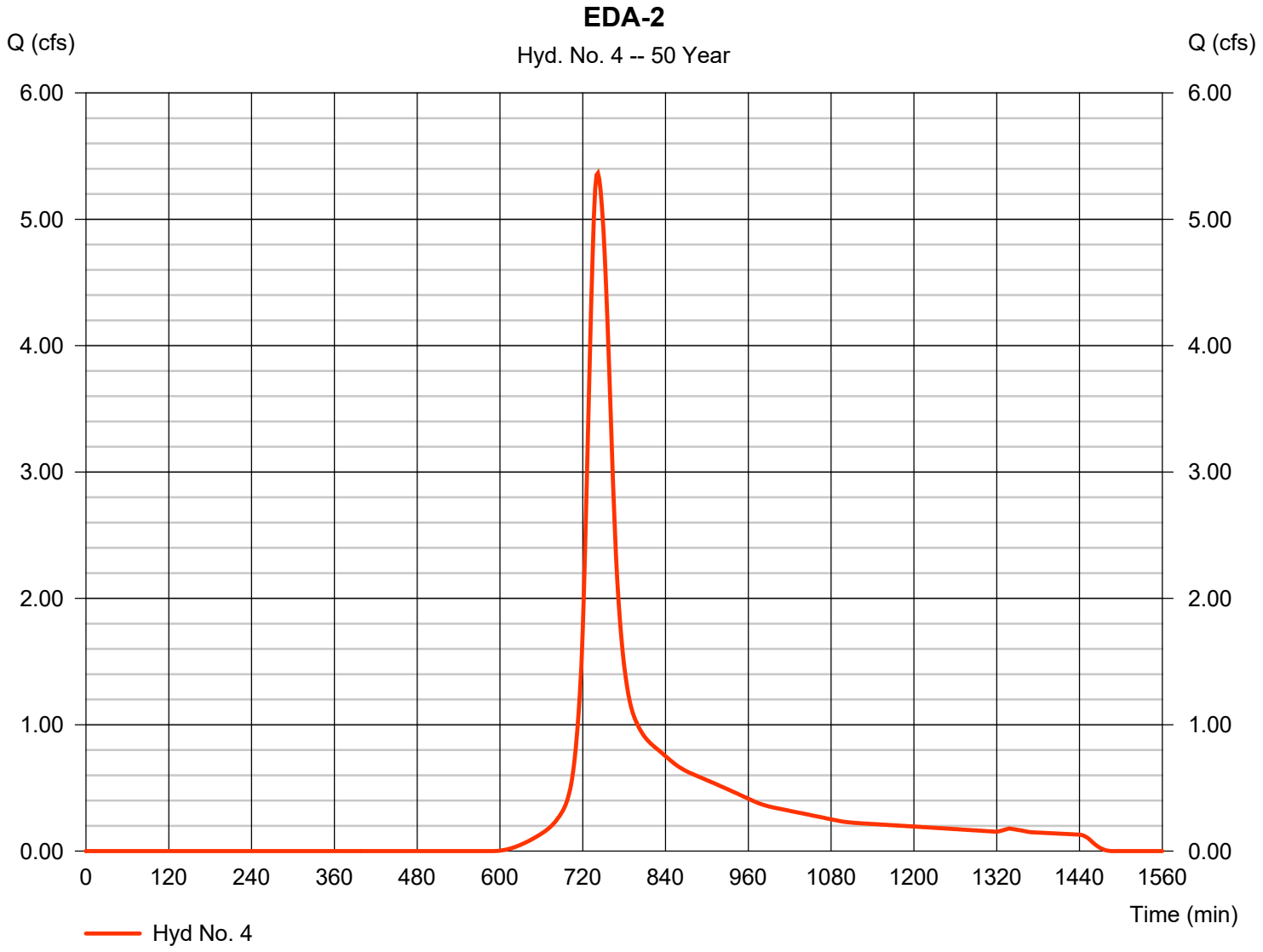
Hydrograph Report

Hyd. No. 4

EDA-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.366 cfs
Storm frequency	=	50 yrs	Time to peak	=	742 min
Time interval	=	2 min	Hyd. volume	=	28,727 cuft
Drainage area	=	3.100 ac	Curve number	=	64*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	27.70 min
Total precip.	=	6.40 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.860 x 61) + (0.240 x 98)] / 3.100

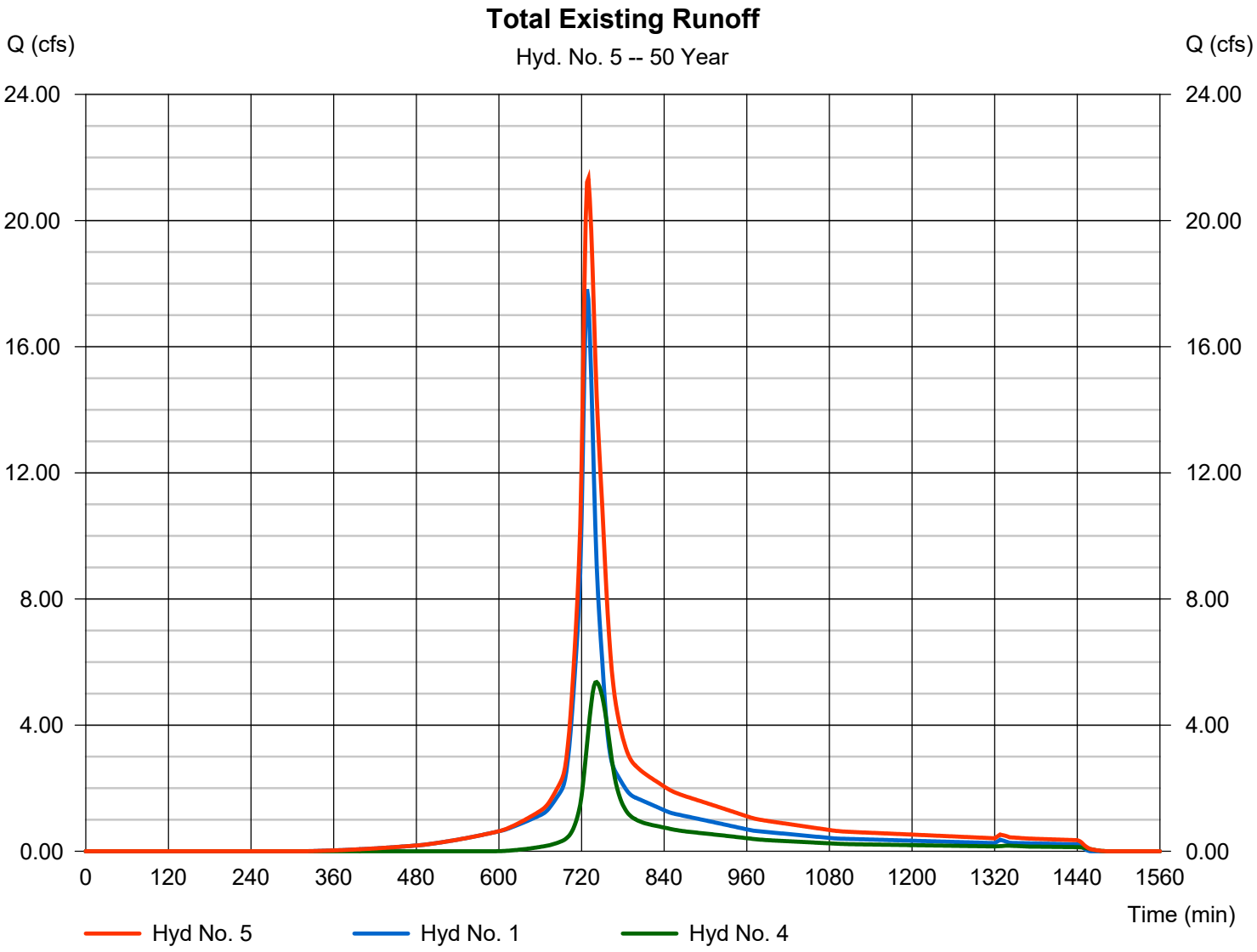


Hydrograph Report

Hyd. No. 5

Total Existing Runoff

Hydrograph type	=	Combine	Peak discharge	=	21.33 cfs
Storm frequency	=	50 yrs	Time to peak	=	730 min
Time interval	=	2 min	Hyd. volume	=	98,045 cuft
Inflow hyds.	=	1, 4	Contrib. drain. area	=	7.150 ac



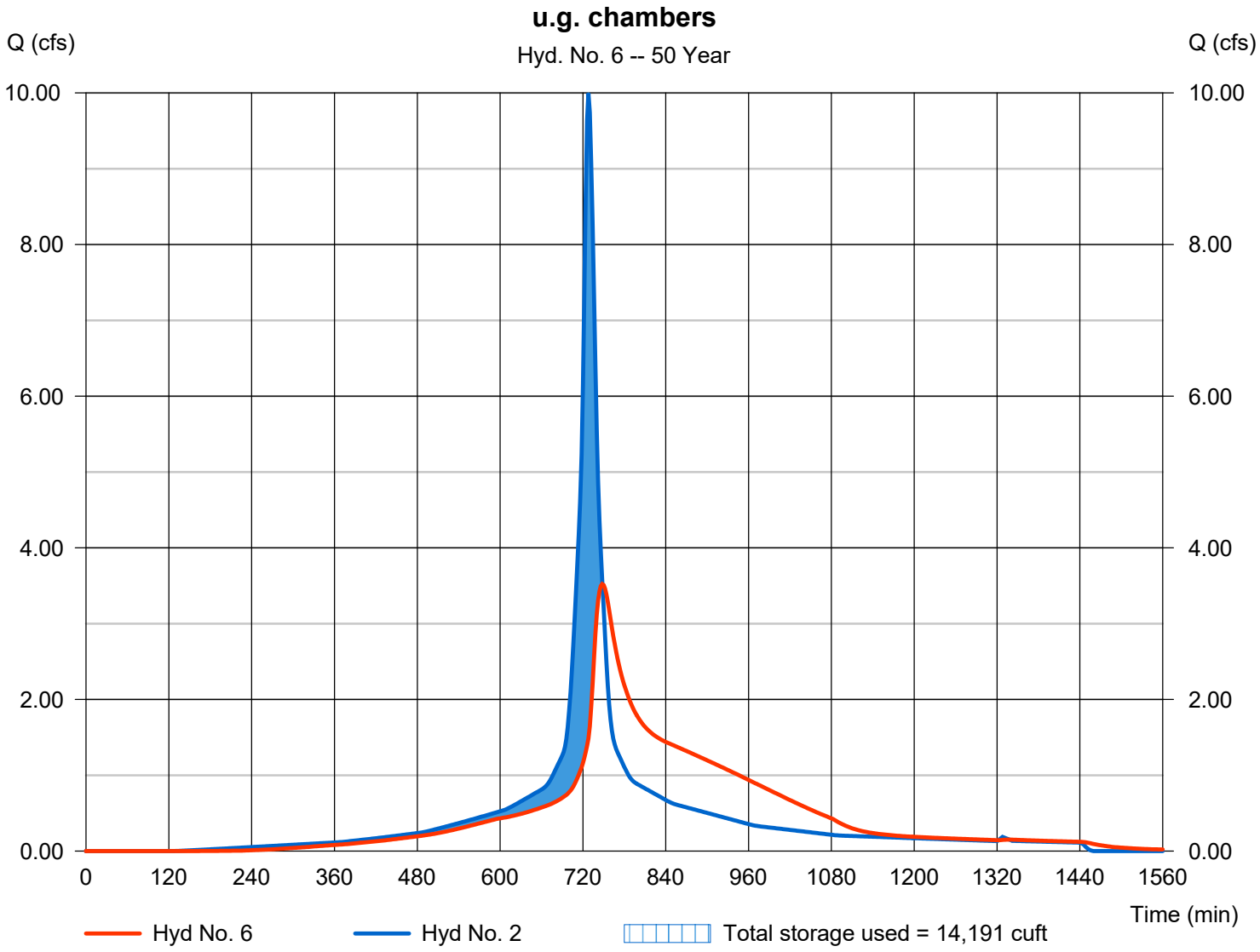
Hydrograph Report

Hyd. No. 6

u.g. chambers

Hydrograph type	=	Reservoir	Peak discharge	=	3.522 cfs
Storm frequency	=	50 yrs	Time to peak	=	748 min
Time interval	=	2 min	Hyd. volume	=	41,538 cuft
Inflow hyd. No.	=	2 - PDA-1	Max. Elevation	=	321.94 ft
Reservoir name	=	4' X 4' CONC. CHAMBERS	Max. Storage	=	14,191 cuft

Storage Indication method used.

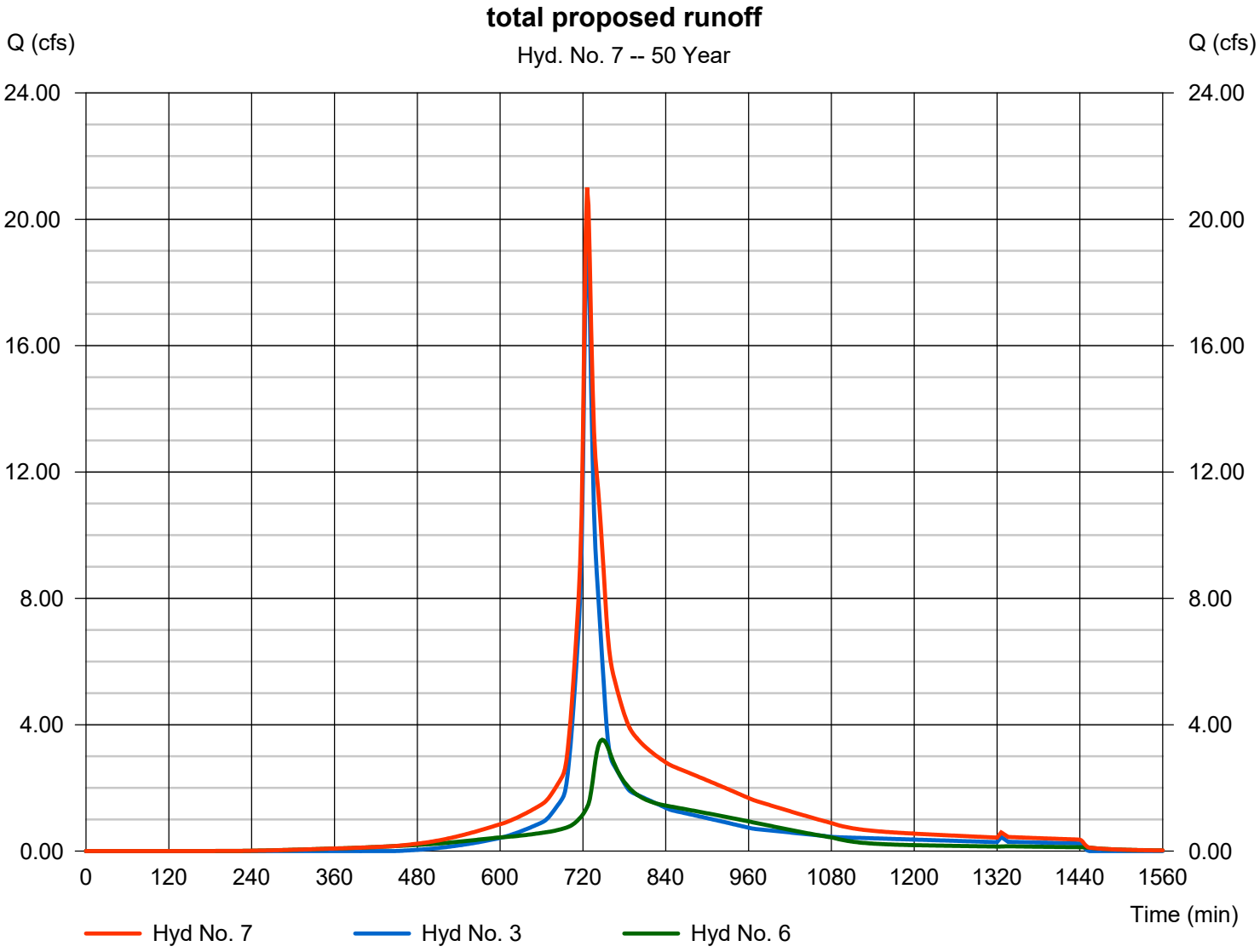


Hydrograph Report

Hyd. No. 7

total proposed runoff

Hydrograph type	=	Combine	Peak discharge	=	21.00 cfs
Storm frequency	=	50 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	108,520 cuft
Inflow hyds.	=	3, 6	Contrib. drain. area	=	4.950 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	20.65	2	728	80,810	------	------	------	EDA-1
2	SCS Runoff	11.31	2	728	47,352	------	------	------	PDA-1
3	SCS Runoff	23.29	2	726	79,705	------	------	------	PDA-2
4	SCS Runoff	6.693	2	742	35,496	------	------	------	EDA-2
5	Combine	25.14	2	730	116,306	1, 4	------	------	Total Existing Runoff
6	Reservoir	4.769	2	744	47,333	2	322.28	15,442	u.g. chambers
7	Combine	24.82	2	726	127,039	3, 6	------	------	total proposed runoff

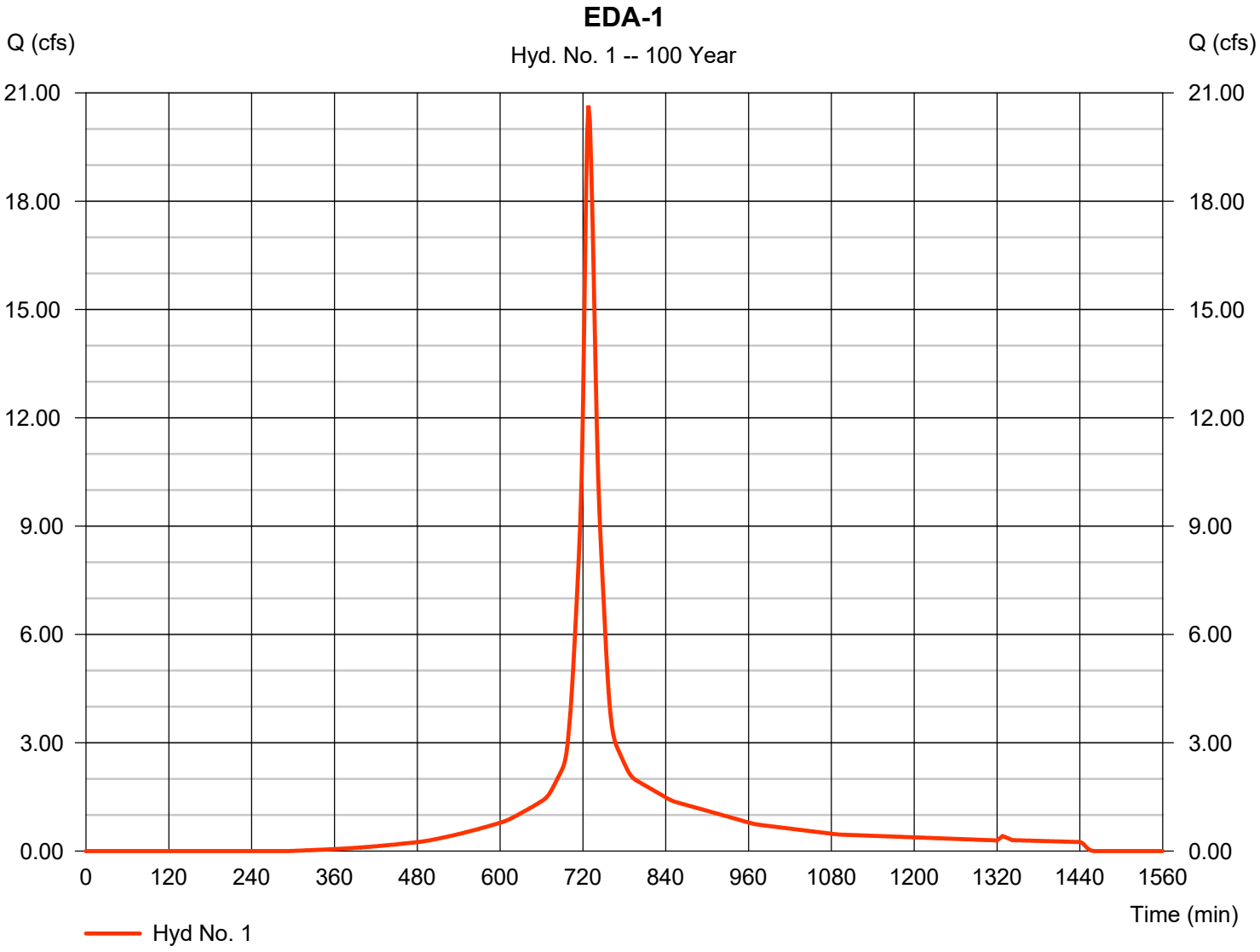
Hydrograph Report

Hyd. No. 1

EDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	20.65 cfs
Storm frequency	=	100 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	80,810 cuft
Drainage area	=	4.050 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.80 min
Total precip.	=	7.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.560 x 98) + (1.490 x 61)] / 4.050



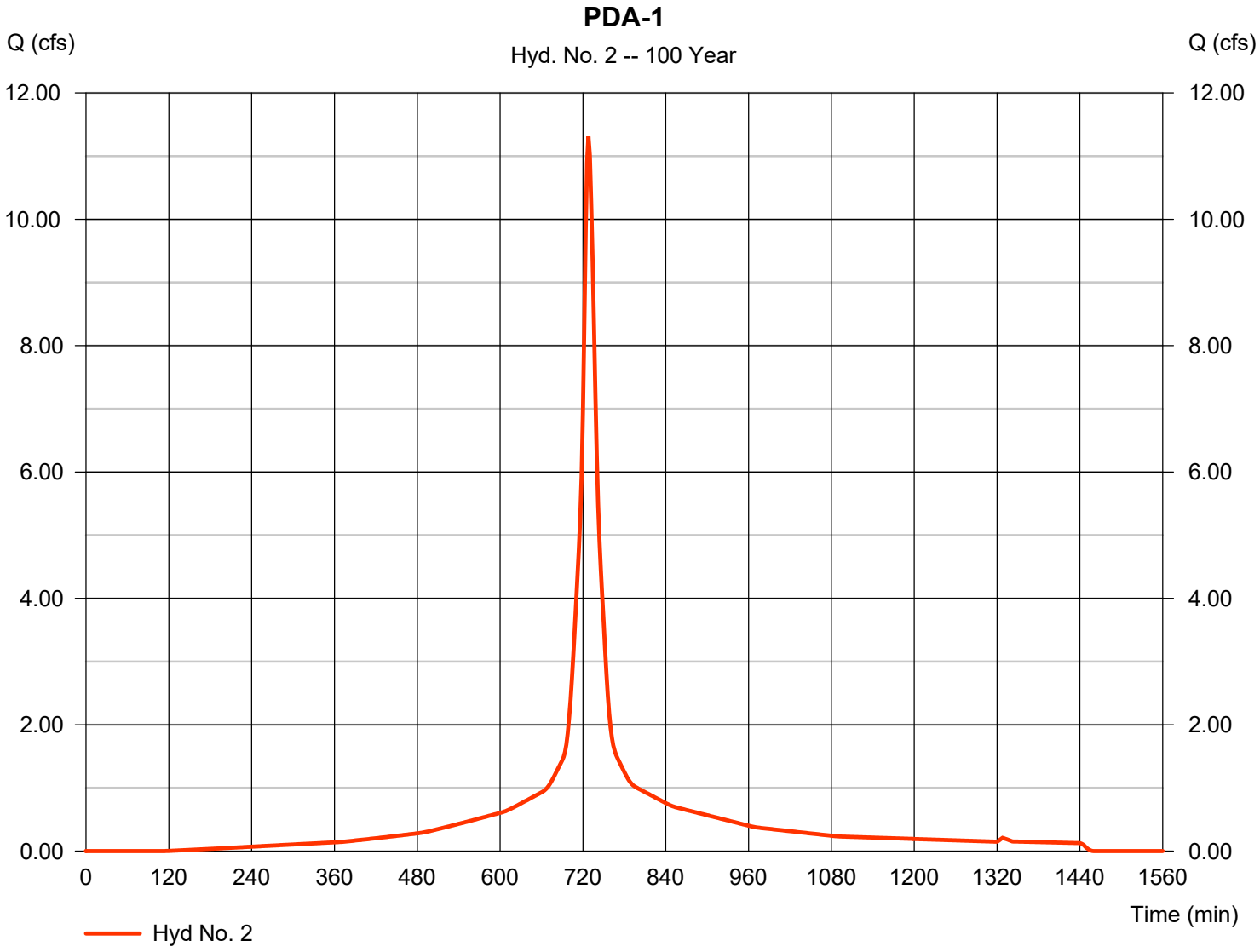
Hydrograph Report

Hyd. No. 2

PDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.31 cfs
Storm frequency	=	100 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	47,352 cuft
Drainage area	=	1.950 ac	Curve number	=	94*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	10.40 min
Total precip.	=	7.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.750 x 98) + (0.200 x 61)] / 1.950



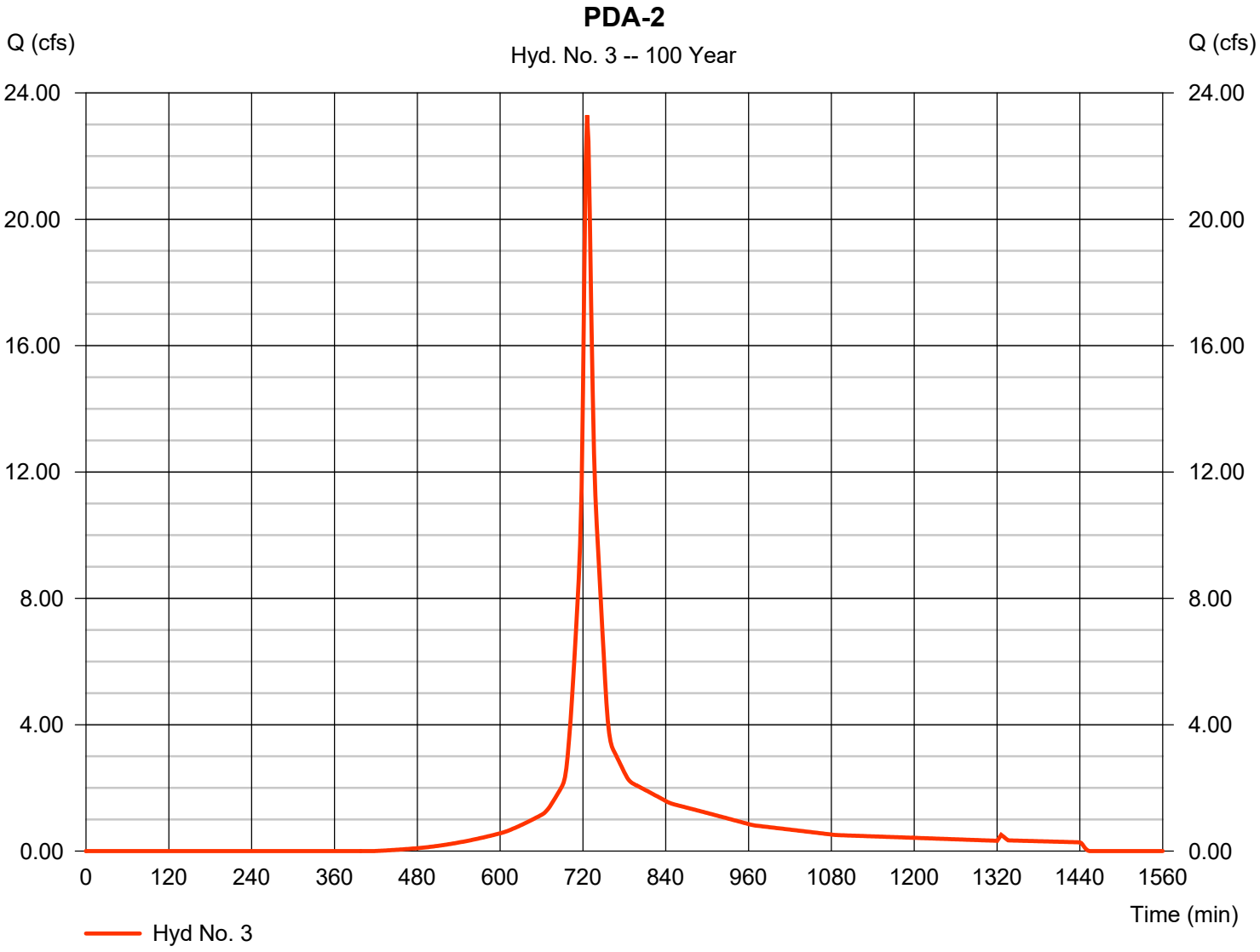
Hydrograph Report

Hyd. No. 3

PDA-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	23.29 cfs
Storm frequency	=	100 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	79,705 cuft
Drainage area	=	4.950 ac	Curve number	=	76*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.10 min
Total precip.	=	7.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(3.000 x 61) + (1.950 x 98)] / 4.950



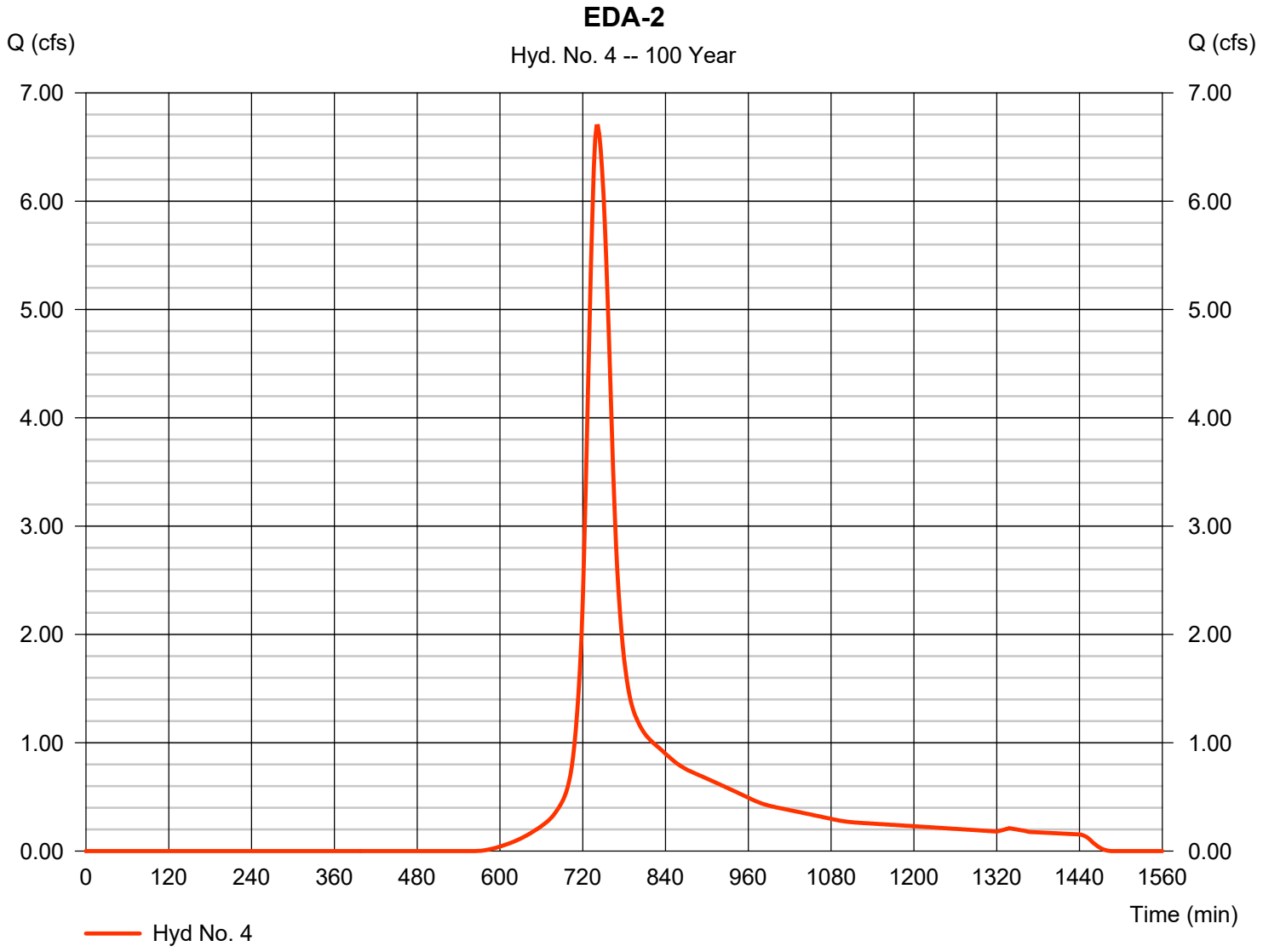
Hydrograph Report

Hyd. No. 4

EDA-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.693 cfs
Storm frequency	=	100 yrs	Time to peak	=	742 min
Time interval	=	2 min	Hyd. volume	=	35,496 cuft
Drainage area	=	3.100 ac	Curve number	=	64*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	27.70 min
Total precip.	=	7.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.860 x 61) + (0.240 x 98)] / 3.100

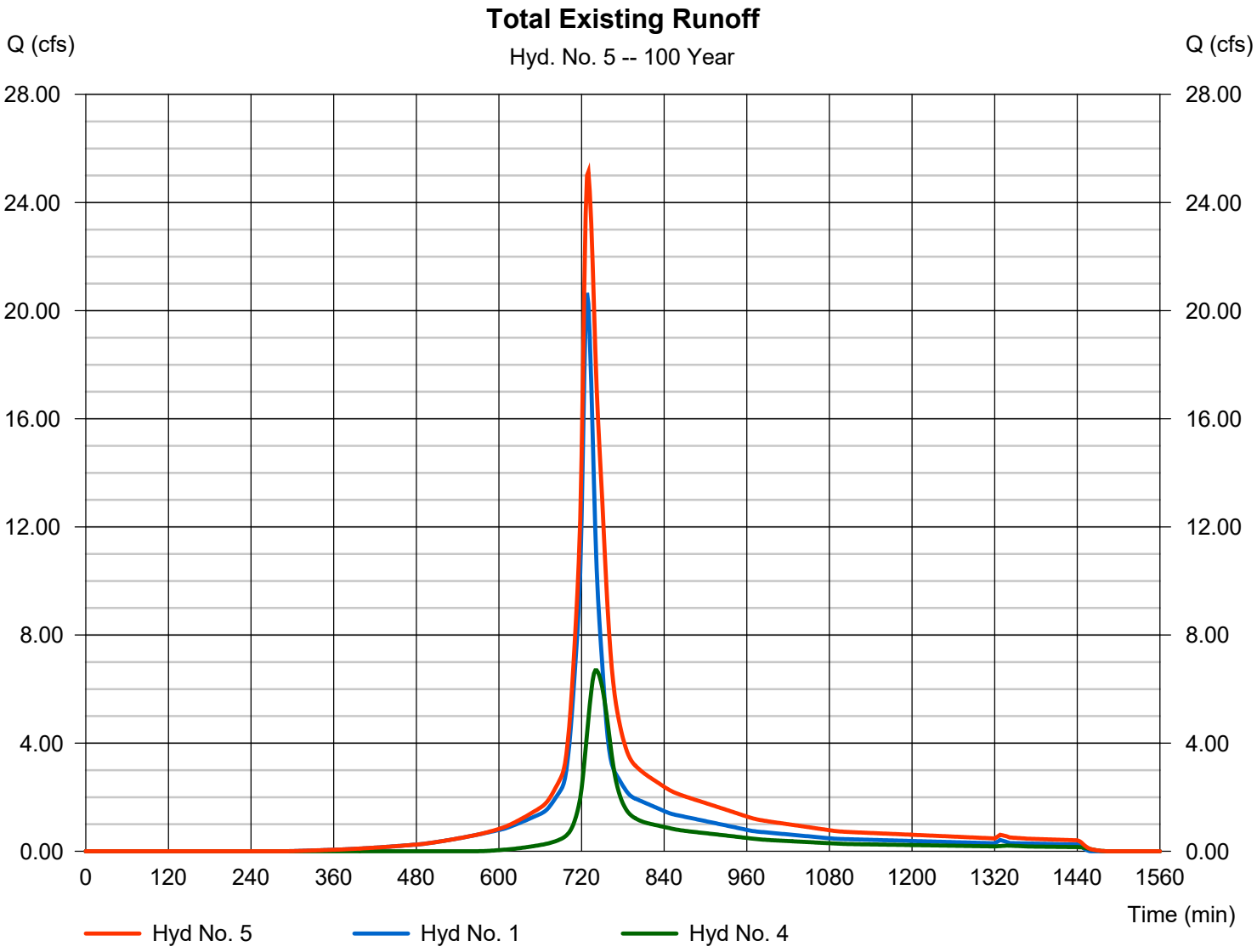


Hydrograph Report

Hyd. No. 5

Total Existing Runoff

Hydrograph type	= Combine	Peak discharge	= 25.14 cfs
Storm frequency	= 100 yrs	Time to peak	= 730 min
Time interval	= 2 min	Hyd. volume	= 116,306 cuft
Inflow hyds.	= 1, 4	Contrib. drain. area	= 7.150 ac



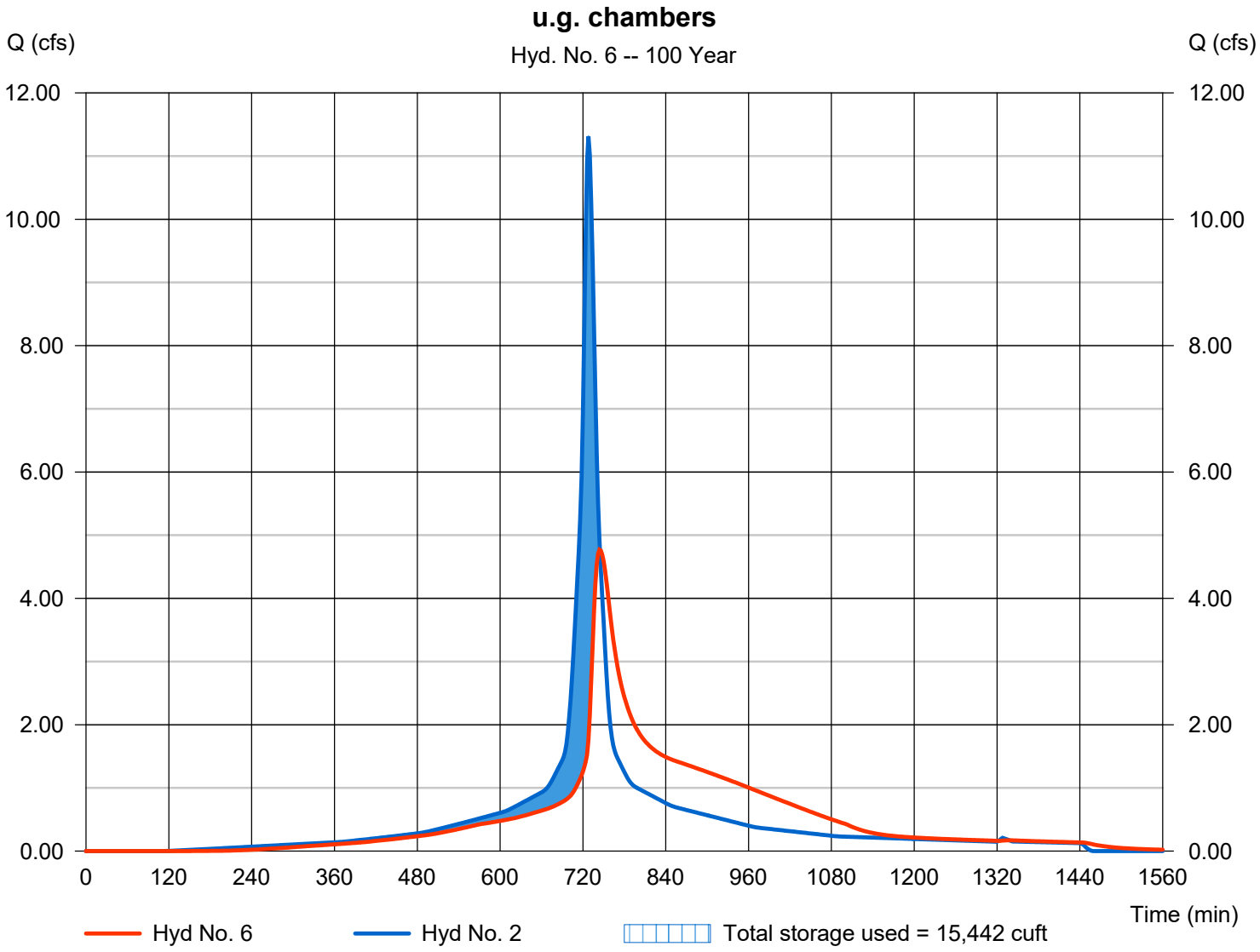
Hydrograph Report

Hyd. No. 6

u.g. chambers

Hydrograph type	= Reservoir	Peak discharge	= 4.769 cfs
Storm frequency	= 100 yrs	Time to peak	= 744 min
Time interval	= 2 min	Hyd. volume	= 47,333 cuft
Inflow hyd. No.	= 2 - PDA-1	Max. Elevation	= 322.28 ft
Reservoir name	= 4' X 4' CONC. CHAMBERS	Max. Storage	= 15,442 cuft

Storage Indication method used.

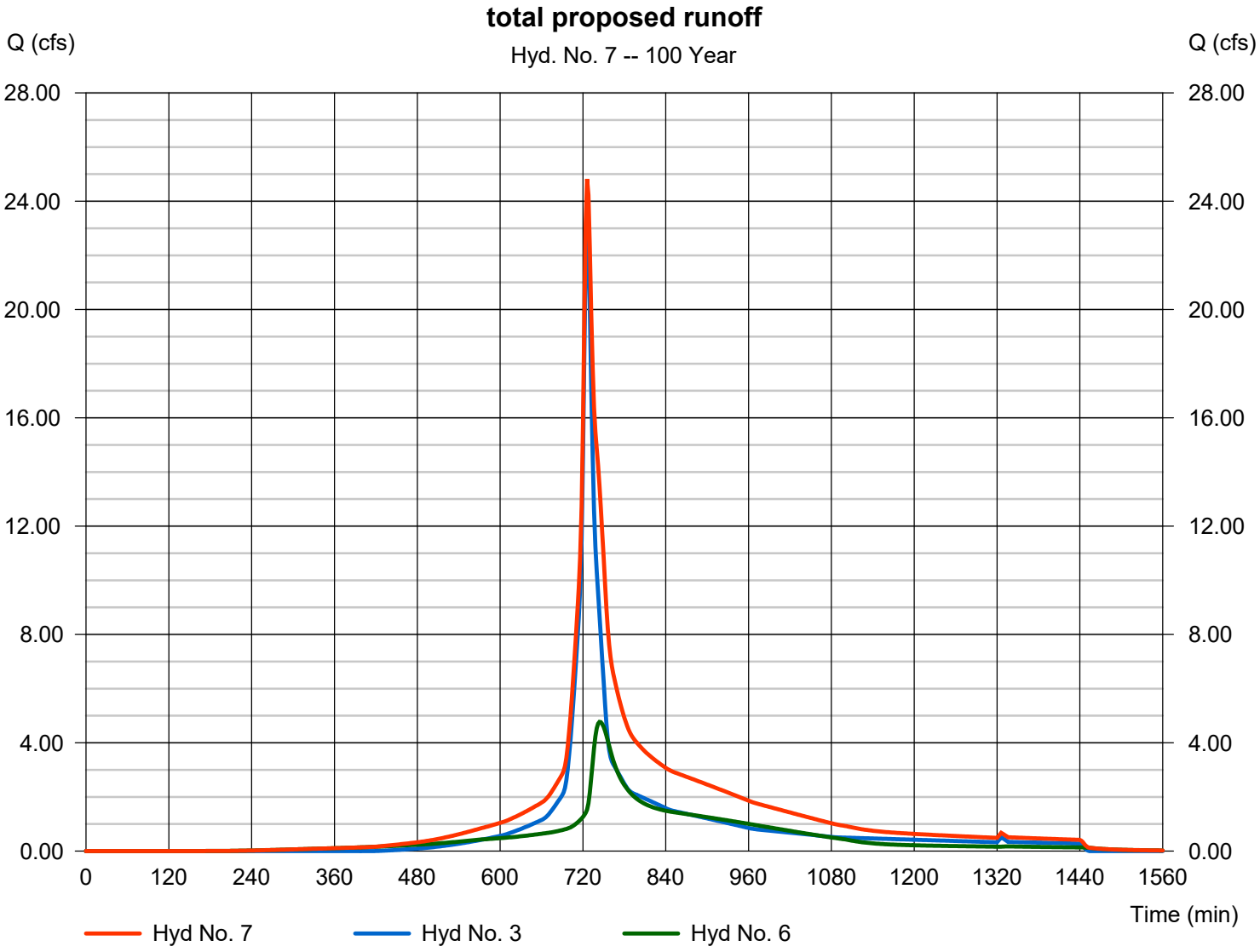


Hydrograph Report

Hyd. No. 7

total proposed runoff

Hydrograph type	=	Combine	Peak discharge	=	24.82 cfs
Storm frequency	=	100 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	127,039 cuft
Inflow hyds.	=	3, 6	Contrib. drain. area	=	4.950 ac



Hydraflow Table of Contents

50 - Year

100 - Year

GENERAL NOTES

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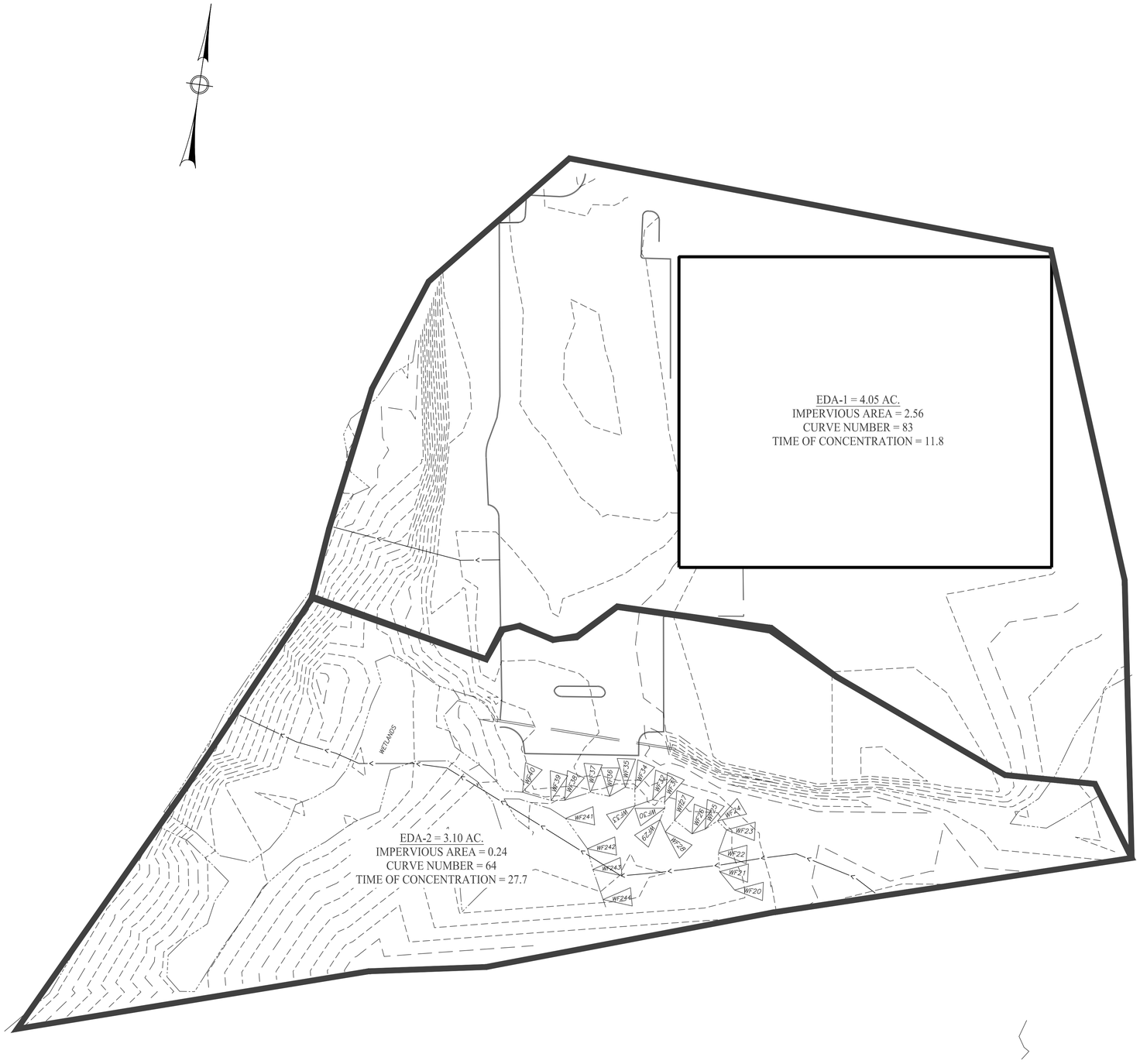

LEGEND

- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- PROPERTY LINE
- STREAM
- WETLANDS
- PROPOSED BUILDING
- 123.4 PROPOSED SPOT ELEVATION
- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- PROPOSED 2' CONTOUR
- EXISTING CATCH BASIN
- PROPOSED CATCH BASIN
- EXISTING MANHOLE
- PROPOSED MANHOLE
- EXISTING STORM PIPES
- PROPOSED STORM PIPES
- EXISTING SANITARY PIPES
- PROPOSED SANITARY PIPES
- GRADE TO DRAIN

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

ROSE •TISO & CO. LLC.
ARCHITECTS ● SURVEYORS ● ENGINEERS
WWW.ROSETISO.COM
35 BRENTWOOD AVENUE, FAIRFIELD, CT 06825
TEL: (203)610-6262 ● FAX: (203)610-6404

REVISIONS

NO.	BY	DATE	DESCRIPTION

PROJECT TITLE

PROPOSED COMMERCIAL BUILDING ADDITION

15 FOREST PARKWAY SHELTON, CONNECTICUT

Prepared For:

SHEET TITLE

EXISTING DRAINAGE AREA

DESIGNED BY: PMR	SCALE: 1"=40'
DRAWN BY: SFS	DATE: 05-11-22
CHECKED BY: PMR	PROJECT NUMBER: 2673
CAD FILE: R:\2673\dwg	

SEAL

SHEET NUMBER

DA-EX

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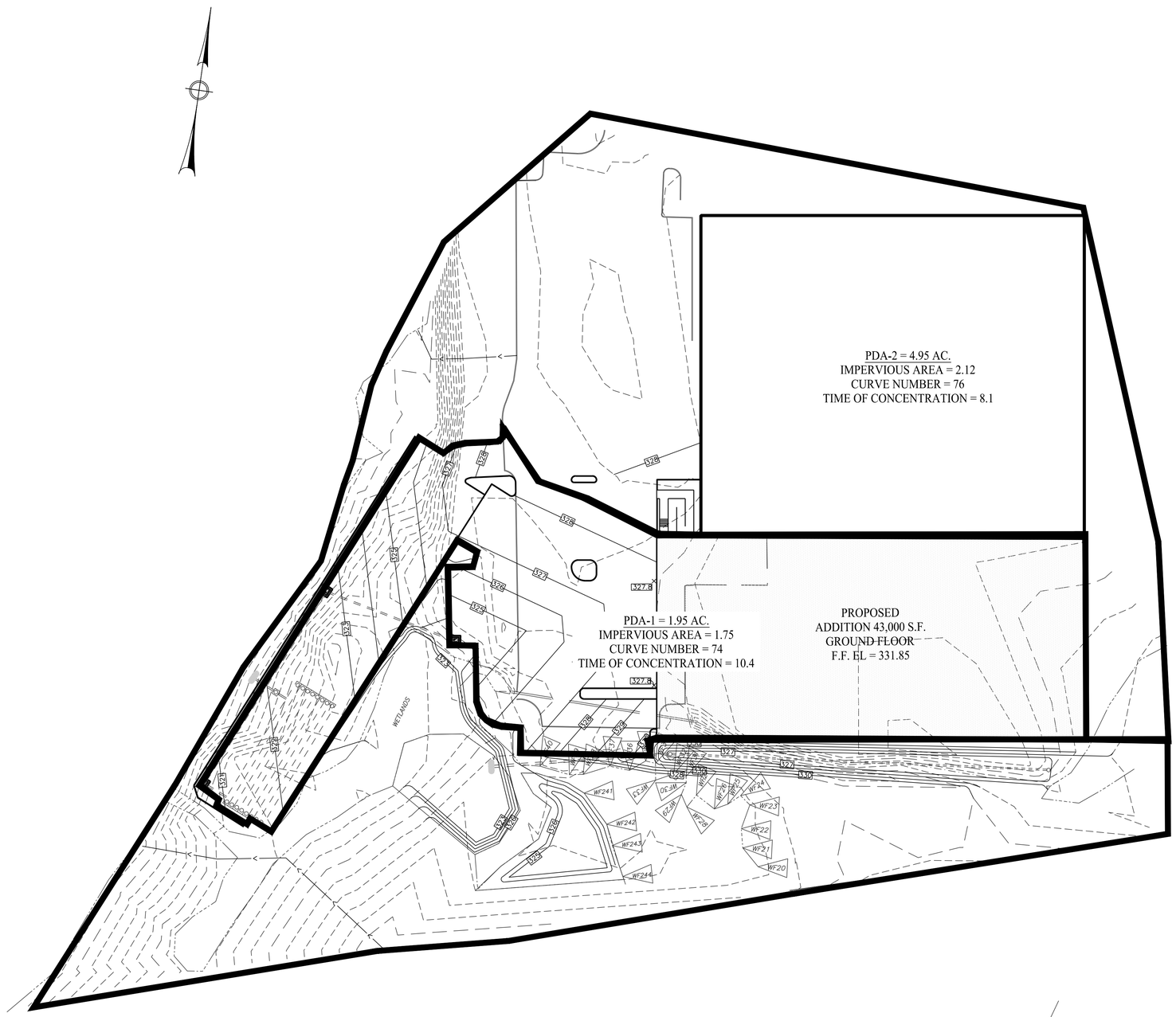

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REVISIONS

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SHELTON, CONNECTICUT

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SEAL

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DA-PR