DRAINAGE REPORT

170 NORTH MAIN STREET

LOT 1 BLOCK 301

BOROUGH OF WHARTON

COUNTY OF MORRIS

NEW JERSEY

PREPARED BY:

ALFRED A. STEWART, JR.

OF

STEWART SURVEYING & ENGINEERING, LLC

148 EAST MAIN STREET, SUITE 1
ROCKAWAY, NEW JERSEY 07866

September 23, 2020

PROJECT NUMBER 17-113-A

Alfred A. Stewart, Jr. P.E., P.L.S.
New Jersey License Number 24GB03588300

PROJECT SCOPE & LOCATION

This project is located in the Borough of Wharton, Morris County, New Jersey and is identified on the Borough of Wharton Tax Assessment Maps as Lot 1 in Block 301. The property fronts on North Main Street, Morris County Route No. 634, North Main Street Extension, currently being constructed by Morris County and Ross Street, a municipal roadway. The parcel has an area of 2.954 acres.

The topography on site varies from an elevation of 636 near the intersection of North Main Street and Ross Street to approximately elevation 624 near the easterly boundary at the North Main Street extension.

The property consists of a one story building, a former existing building previoiusly removed, paved parking areas and other various improvements throughout the site. The existing impervious coverage is 63,105.3 square feet or 1.449 acres. The Applicant proposes to construct a 4 story building having retail space on the first floor and residential on the upper 3 floors. The proposed building along with the associated improvements such as parking, walkways, etc. will produce an impervious coverage of 94,472.0 square feet or 2.169 acres. The land disturbance is estimated to be approximately 145,008 square feet or 3.329 acres (more than one acre). Thus, the land disturbance exceeds one acre and the new impervious cover exceeds ¼ acre, this project is deemed a 'major development' as per New Jersey Stormwater Regulations.

Currently, the surface water runoff flows from the intersection of North Main Street and Ross Street towards the easterly boundary parcel. The hydrographs reflect the routing of the existing surface runoff through the parcel.

The proposed storm water design utilizes several methods in order to comply with the New Jersey Storm Water Regulations. These methods meet the required reduction of the post-construction peak runoff rate, water quality enhancement and ground water recharge requirements of the regulations for the proposed runoff leaving the site. The methods are outlined later within this report.

METHODOLOGY

Hydrographs generated were developed using SCS methodology. Analysis of the two, ten, and one-hundred year storm is performed for the storm water design. Hydrograph computations were prepared with the assistance of "Hydraflow Hydrographs 2007". The computations are summarized throughout this report.

REFERENCES

- Site Plan drawing prepared by this firm,
- NJDEP's "Storm Water Regulations"
- NJ Stormwater Best Management Practices Manual

- SCS's Urban "Hydrology for Small Watersheds"
- Morris County Soil Survey

EXISTING CONDITIONS

One existing drainage area was utilized for the project as shown on the attached Existing Drainage Area Map. The 'high' point is near the intersection of North Main Street and Ross Street. The surface runoff from Drainage Area Ae flows towards easterly boundary of the site. Within the site is a drainage system that is believed to run offsite and continue back on site to an existing headwall located near the easterly boundary of the site.

The topography on site varies from an elevation of 636 near the intersection of North Main Street and Ross Street to approximately elevation 624 near the easterly boundary at the North Main Street extension. This tract is gently sloping, with an average slope of the parcel of approximately two percent. The property consists of a one story building, a former existing building previoiusly removed, paved parking areas and other various improvements throughout the site.

The soil types within the site taken from the Soil Survey of Morris County are as follows;

RkgBb	Ridgebury Loam, 0-8 percent slopes, very stony - HSG C
Ur	Urban Land – HSG C - Estimated
USROCC	Urban Land – Rockaway Complex, 3-15 percent slopes – HSG C

The curve numbers utilized are 98 for the impervious areas and 74 for the lawn areas from TR55 Table 2.2c. The HSG was also taken from TR55 Exhibit A1. The time of concentration utilized for existing conditions is calculated and provided later on within this report.

PROPOSED CONDITIONS

The Applicant proposes to construct a 4 story building having retail space on the first floor and residential on the upper 3 floors. The proposed building along with the associated improvements such as parking, walkways, etc. will produce an impervious coverage of 94,472.0 square feet or 2.169 acres. The land disturbance is estimated to be approximately 145,008 square feet or 3.329 acres (more than one acre). Thus, the land disturbance exceeds one acre and the new impervious cover exceeds ¼ acre, this project is deemed a 'major development' as per New Jersey Stormwater Regulations.

Currently, the surface water runoff flows from the intersection of North Main Street and Ross Street towards the easterly boundary parcel. The area of disturbance is being analyzed for the purpose of this report. The times of concentration are calculated and are provided later within this report. The proposed drainage system consists of proposed detention area A, proposed detention area B, stormwater collection system, two water quality units prior to the detention areas, a roof leader system and two outlet

structures. The detention areas are controlled by the outlet structures that connect to the drainage line prior to the headwall near the easterly boundary of the property as the surface runoff drains to now.

Proposed detention area A consists of Stormtech's SC-740 chambers to allow for infiltration and detention. Proposed detention area B consists of 18 inch HDPE pipe to allow for detention. Both systems have an outlet structure controlling the runoff to assist in meeting NJ Stormwater regulation's requirements.

Hydrograph 33 is the combined total of the proposed conditions runoff of the project. Hydrograph 3 is the existing combined runoff of the site. The comparison of the proposed to the existing conditions is summarized below.

	2 - Year Storm Event	10 - Year Storm Event	100 - Year Storm Event
Existing Conditions Hyd. No. 3	***6.916 cfs 22,813 cu ft***	***11.54 cfs 37,783 cu ft***	***20.38 cfs 66,840 cu ft***
Percent Req'd	50%	75%	80%
Target Q	3.458 cfs	8.655 cfs	16.304 cfs
Proposed Conditions - Leaving Site Hyd. No. 33	***2.602 cfs 27,675 cu ft***	***5.467 cfs 43,504 cu ft***	***13.76 cfs 73,307 cu ft***

The result of the proposed drainage system is the post-construction peak runoff rates for the 2, 10 and 100 year storm events are less than 50, 75 and 80 percent, respectively, of the pre-construction peak runoff rates. The project meets the requirements for stormwater quantity control as required within NJAC 7:8 5.4(a)3iii.

Detention Area A - Infiltrator System Drain Time

The 2.5" orifice is set at an elevation of 625.5 and the bottom of the stone of the infiltrator system is at 624.50. This equates to a depth of 625.5-624.5= 1.0' feet of volume within the system. The area of the basin is 34.75' x 144.33 = 5,015 square feet. The volume of the depth of 1.0' is 5,015 cubic feet x 0.40 void ratio of the stone = 2,006 cubic feet. The estimated drain time for the volume below the 2.5" orifice is;

Drain Time=2,006 cu ft/(5,015 sq. ft. x 0.7 inches per hour/12 inches per foot) = 6.9 hours

The Drain Time for the 1.0' depth below the 8" orifice is 6.9 hours, meets the required 72 hour maximum utilizing the average permeability rate of HSG C soil at 0.7 inches per hour as stated within the Addendum to NJDEP's BMP Manual September, 2009 page E-12.

WATER QUALITY

Water Quality is being addressed with the use of two Jellyfish JF8-7-2 filtration units that have a total suspended solid removal rate of 80 percent as per the NJDEP stormwater regulations 7:8-5.5. Greater storm events will be diverted prior to the Jellyfish with a diversion inlet directing the greater flow to the detention areas.

Water Quality Design Storm Drain Time

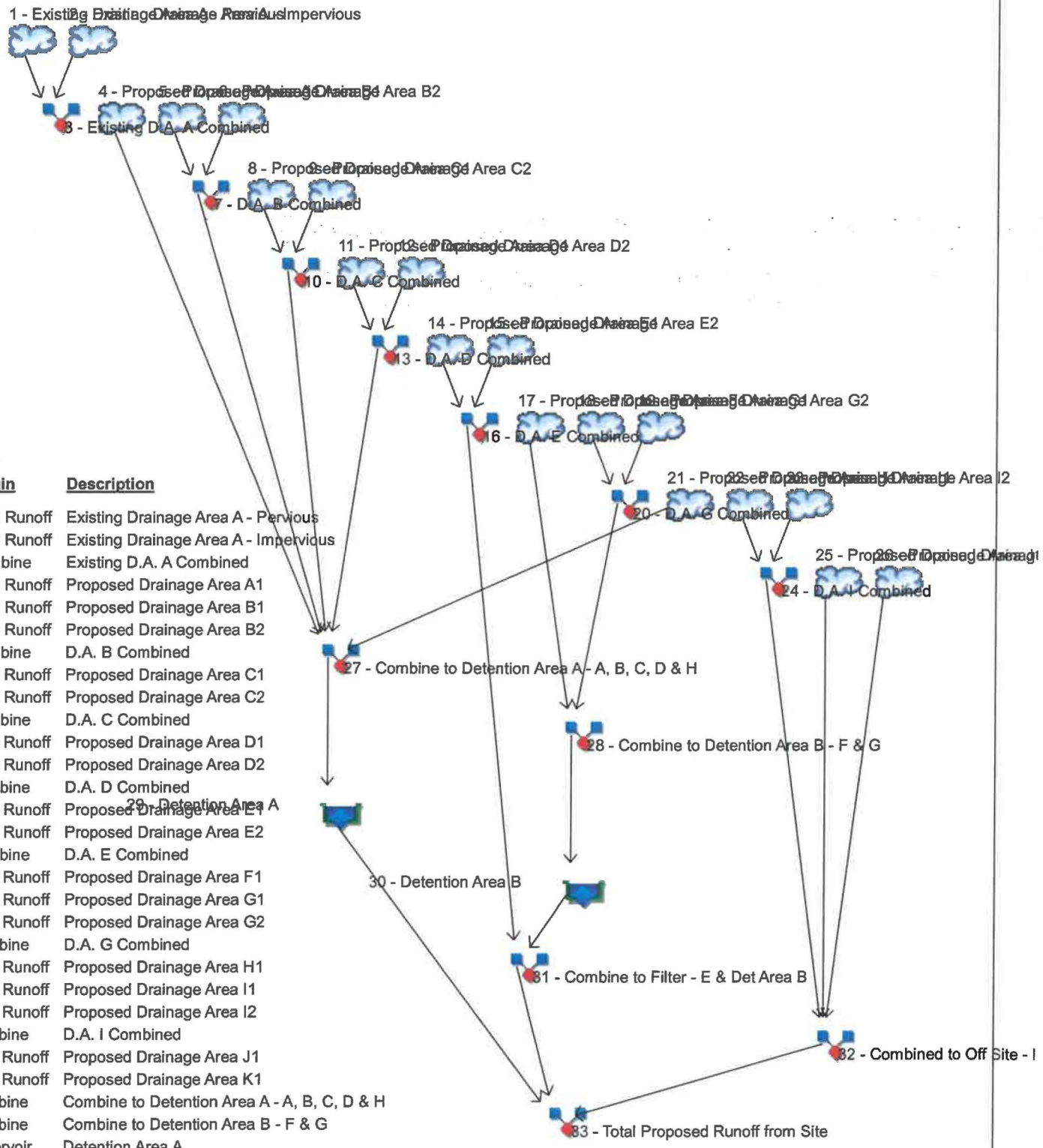
The design elevation of the WQDS is at a maximum of 625.70, 0.20' above the 2.5" orifice. The volume of area below the 2.5" orifice is 2,006 cubic feet as shown within the previous calculation. The 0.2' feet above the 2.5" orifice has a volume of 0.2' x 5,015 square feet = 1,003 cubic feet. The total volume of the water quality storm within detention area A is 2,006 cubic feet + 1,003 cubic feet = 3,009 cubic feet. The estimated drain time for this volume is;

Drain Time=3,009 cu ft/(5,015 sq. ft. x 0.7 inches per hour/12 inches per foot) = 10.3 hours.

The Drain Time for the water quality storm is 10.3 hours, meets the required 72 hour maximum utilizing the permeability rate of HSG C soil at 0.7 inches per hour as stated within the Addendum to NJDEP's BMP Manual September, 2009 page E-12.

2-YEAR STORM EVENT

Watershed Model Schematic



Legend

Hyd.	Origin	Description
1	SCS Runoff	Existing Drainage Area A - Pervious
2	SCS Runoff	Existing Drainage Area A - Impervious
3	Combine	Existing D.A. A Combined
4	SCS Runoff	Proposed Drainage Area A1
5	SCS Runoff	Proposed Drainage Area B1
6	SCS Runoff	Proposed Drainage Area B2
7	Combine	D.A. B Combined
8	SCS Runoff	Proposed Drainage Area C1
9	SCS Runoff	Proposed Drainage Area C2
10	Combine	D.A. C Combined
11	SCS Runoff	Proposed Drainage Area D1
12	SCS Runoff	Proposed Drainage Area D2
13	Combine	D.A. D Combined
14	SCS Runoff	Proposed Drainage Area E1
15	SCS Runoff	Proposed Drainage Area E2
16	Combine	D.A. E Combined
17	SCS Runoff	Proposed Drainage Area F1
18	SCS Runoff	Proposed Drainage Area G1
19	SCS Runoff	Proposed Drainage Area G2
20	Combine	D.A. G Combined
21	SCS Runoff	Proposed Drainage Area H1
22	SCS Runoff	Proposed Drainage Area I1
23	SCS Runoff	Proposed Drainage Area I2
24	Combine	D.A. I Combined
25	SCS Runoff	Proposed Drainage Area J1
26	SCS Runoff	Proposed Drainage Area K1
27	Combine	Combine to Detention Area A - A, B, C, D & H
28	Combine	Combine to Detention Area B - F & G
29	Reservoir	Detention Area A
30	Reservoir	Detention Area B
31	Combine	Combine to Filter - E & Det Area B
32	Combine	Combined to Off Site - I, J & K
33	Combine	Total Proposed Runoff from Site

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.23

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	2.094	2	724	6,475	----	------	------	Existing Drainage Area A - Pervious
2	SCS Runoff	4.822	2	724	16,338	----	------	------	Existing Drainage Area A - Impervio
3	Combine	6.916	2	724	22,813	1, 2	------	------	Existing D.A. A Combined
4	SCS Runoff	0.379	2	724	1,283	----	------	------	Proposed Drainage Area A1
5	SCS Runoff	0.375	2	724	1,271	----	------	------	Proposed Drainage Area B1
6	SCS Runoff	0.211	2	724	651	----	------	------	Proposed Drainage Area B2
7	Combine	0.586	2	724	1,923	5, 6	------	------	D.A. B Combined
8	SCS Runoff	0.820	2	724	2,779	----	------	------	Proposed Drainage Area C1
9	SCS Runoff	0.068	2	724	211	----	------	------	Proposed Drainage Area C2
10	Combine	0.889	2	724	2,991	8, 9	------	------	D.A. C Combined
11	SCS Runoff	0.687	2	724	2,329	----	------	------	Proposed Drainage Area D1
12	SCS Runoff	0.073	2	724	224	----	------	------	Proposed Drainage Area D2
13	Combine	0.760	2	724	2,553	11, 12	------	------	D.A. D Combined
14	SCS Runoff	1.003	2	724	3,398	----	------	------	Proposed Drainage Area E1
15	SCS Runoff	0.095	2	724	293	----	------	------	Proposed Drainage Area E2
16	Combine	1.098	2	724	3,691	14, 15	------	------	D.A. E Combined
17	SCS Runoff	0.375	2	724	1,271	----	------	------	Proposed Drainage Area F1
18	SCS Runoff	0.986	2	724	3,342	----	------	------	Proposed Drainage Area G1
19	SCS Runoff	0.075	2	724	233	----	------	------	Proposed Drainage Area G2
20	Combine	1.062	2	724	3,575	18, 19	------	------	D.A. G Combined
21	SCS Runoff	2.467	2	724	8,360	----	------	------	Proposed Drainage Area H1
22	SCS Runoff	0.136	2	724	461	----	------	------	Proposed Drainage Area I1
23	SCS Runoff	0.148	2	724	457	----	------	------	Proposed Drainage Area I2
24	Combine	0.284	2	724	919	22, 23	------	------	D.A. I Combined
25	SCS Runoff	0.038	2	724	116	----	------	------	Proposed Drainage Area J1
26	SCS Runoff	0.329	2	724	1,018	----	------	------	Proposed Drainage Area K1
27	Combine	5.081	2	724	17,110	4, 7, 10, 13, 21,	------	------	Combine to Detention Area A - A, B,
28	Combine	1.437	2	724	4,846	17, 20,	------	------	Combine to Detention Area B - F &
29	Reservoir	0.884	2	750	17,110	27	626.24	5,008	Detention Area A
30	Reservoir	0.331	2	746	4,821	28	625.89	1,908	Detention Area B
31	Combine	1.229	2	724	8,512	16, 30	------	------	Combine to Filter - E & Det Area B
32	Combine	0.651	2	724	2,053	24, 25, 26,	------	------	Combined to Off Site - I, J & K
33	Combine	2.602	2	724	27,675	29, 31, 32	------	------	Total Proposed Runoff from Site

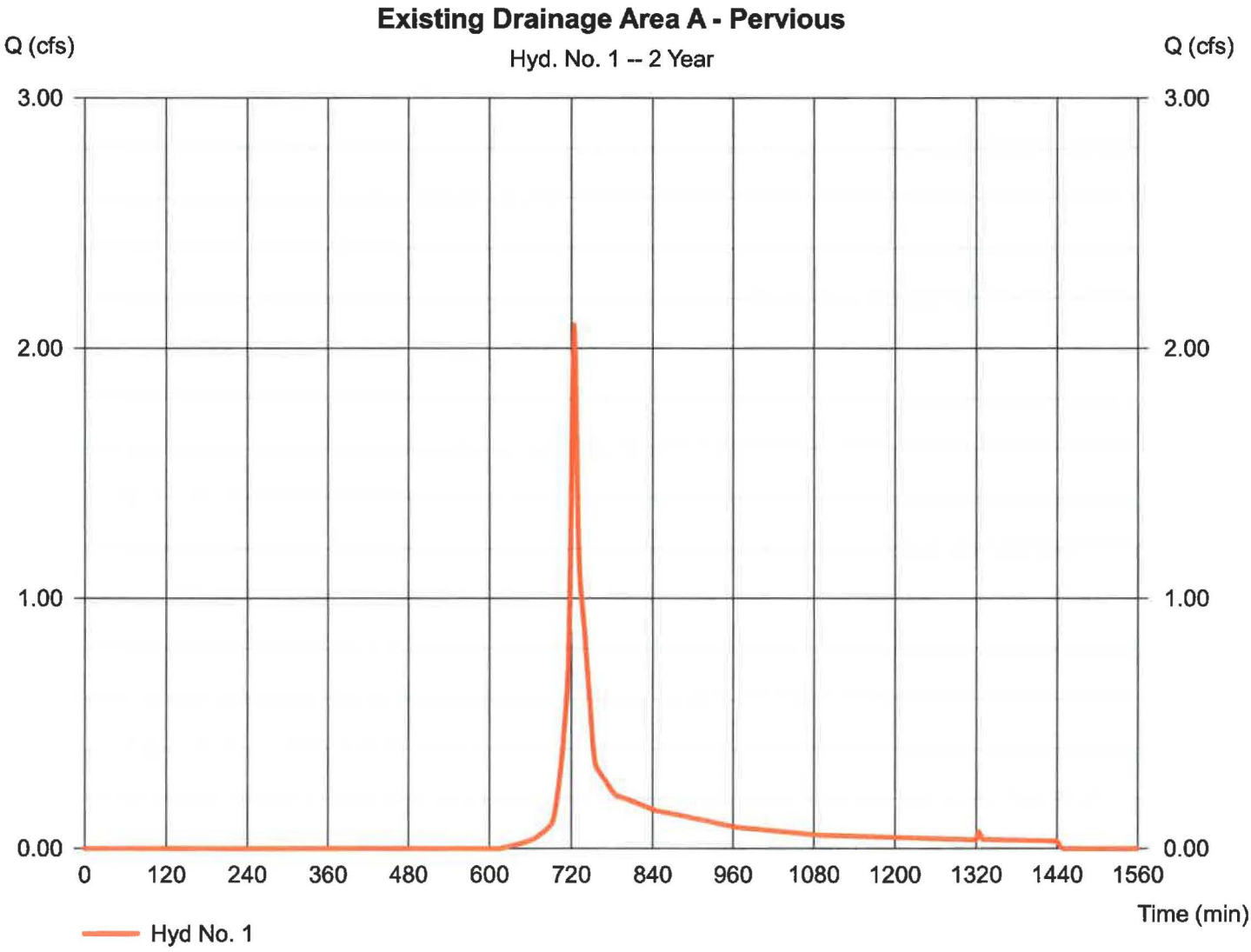
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 1

Existing Drainage Area A - Pervious

Hydrograph type	= SCS Runoff	Peak discharge	= 2.094 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 6,475 cuft
Drainage area	= 1.501 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 6.50 min
Total precip.	= 3.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



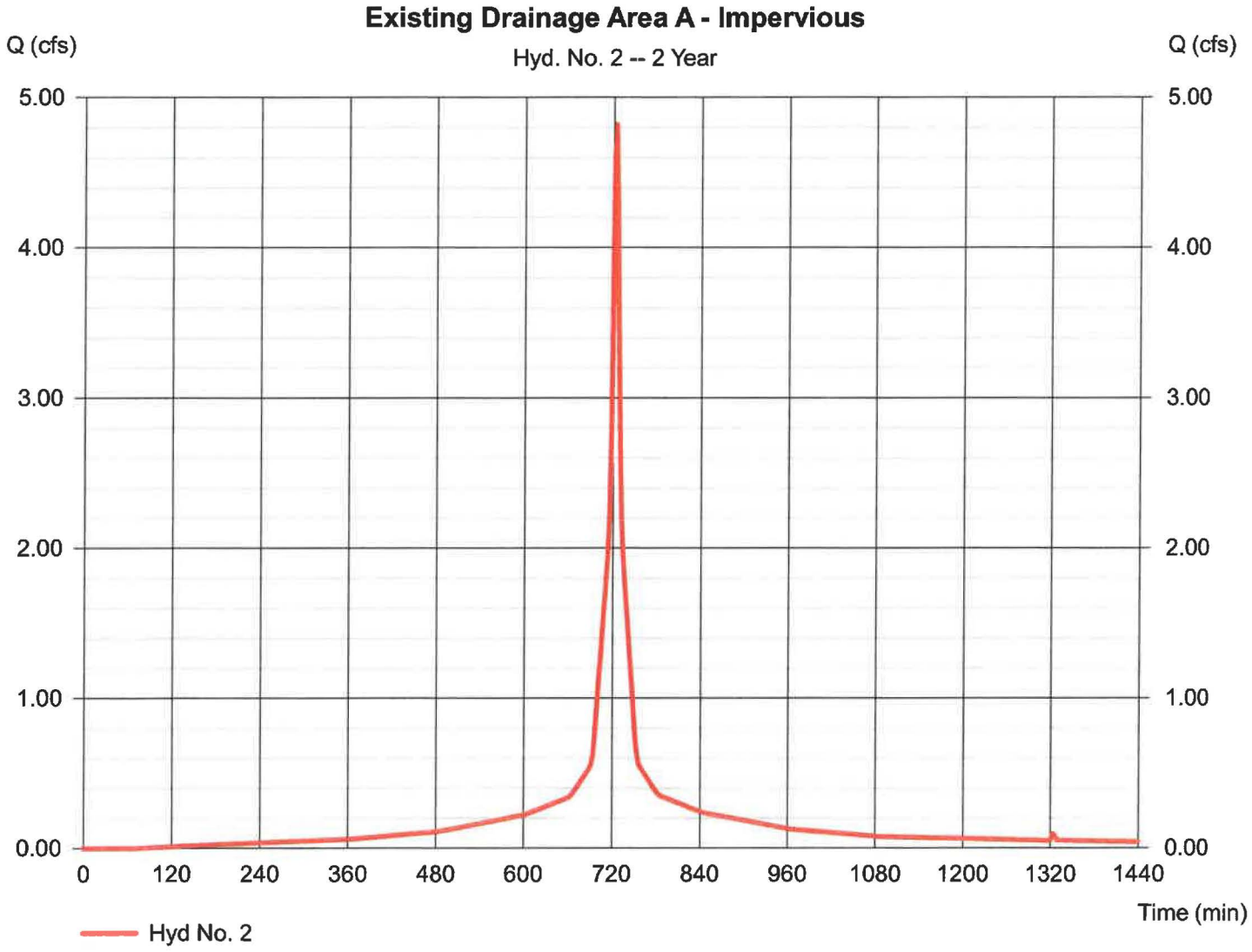
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 2

Existing Drainage Area A - Impervious

Hydrograph type	= SCS Runoff	Peak discharge	= 4.822 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 16,338 cuft
Drainage area	= 1.452 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.50 min
Total precip.	= 3.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



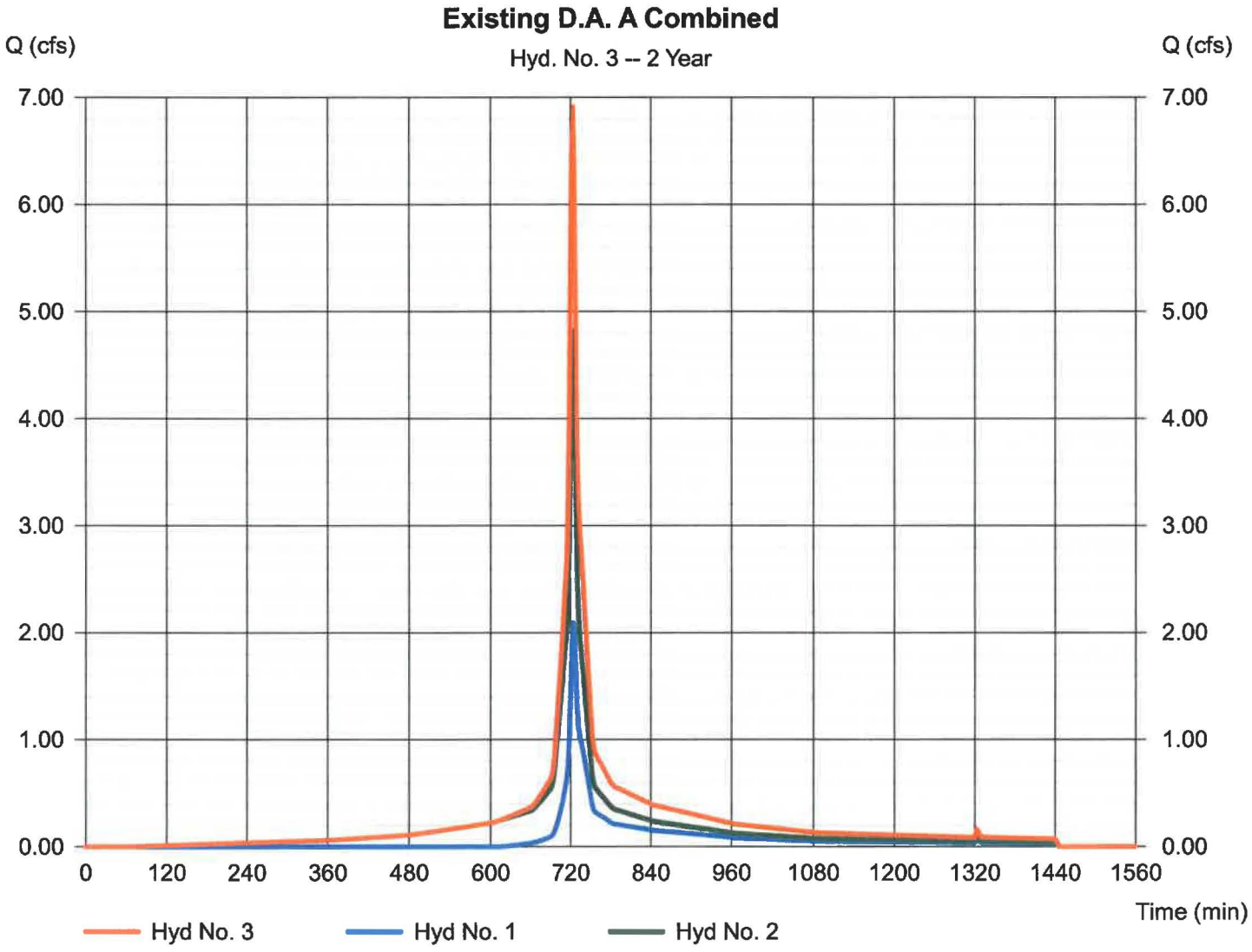
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 3

Existing D.A. A Combined

Hydrograph type	= Combine	Peak discharge	= 6.916 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 22,813 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 2.953 ac



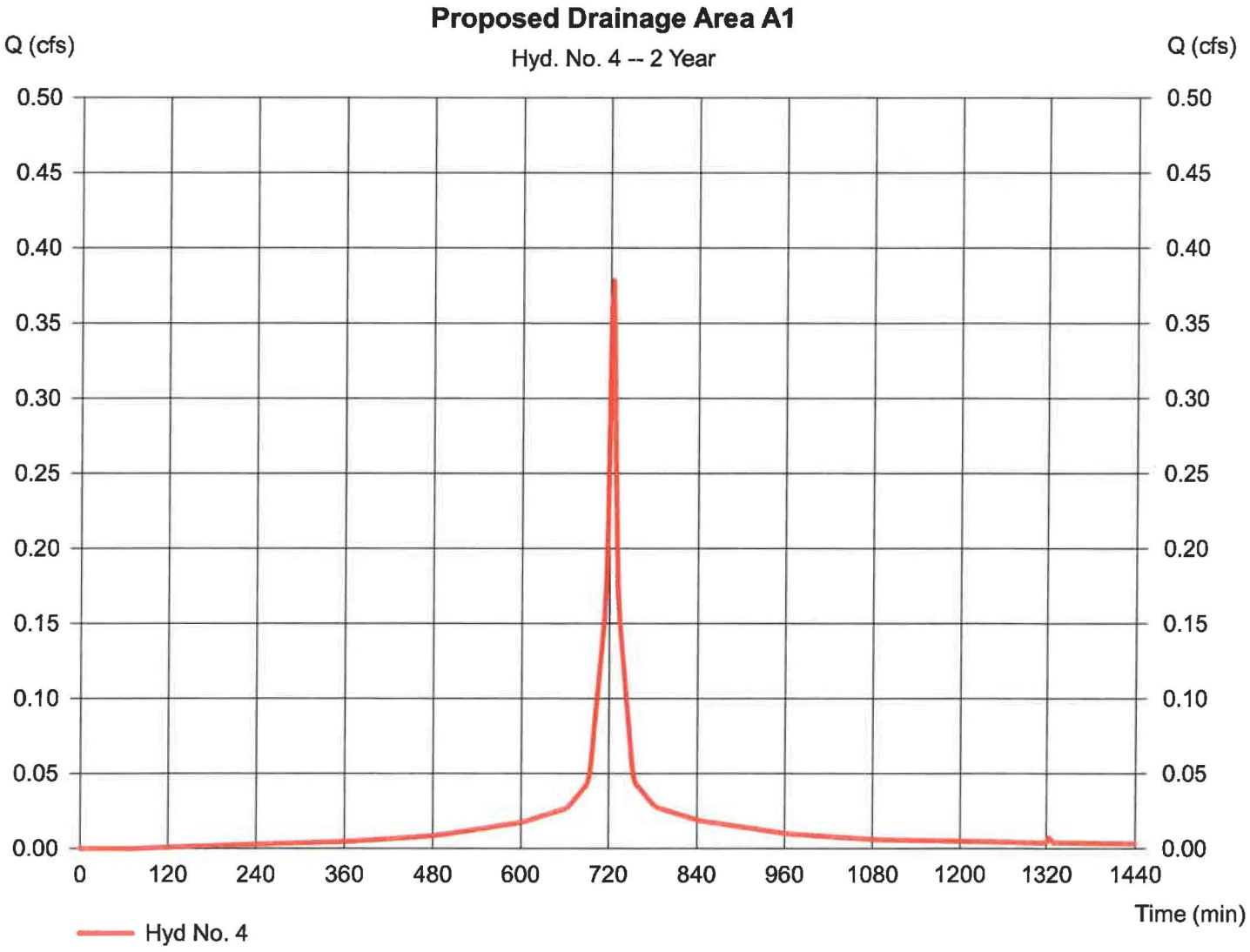
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 4

Proposed Drainage Area A1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.379 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 1,283 cuft
Drainage area	= 0.114 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



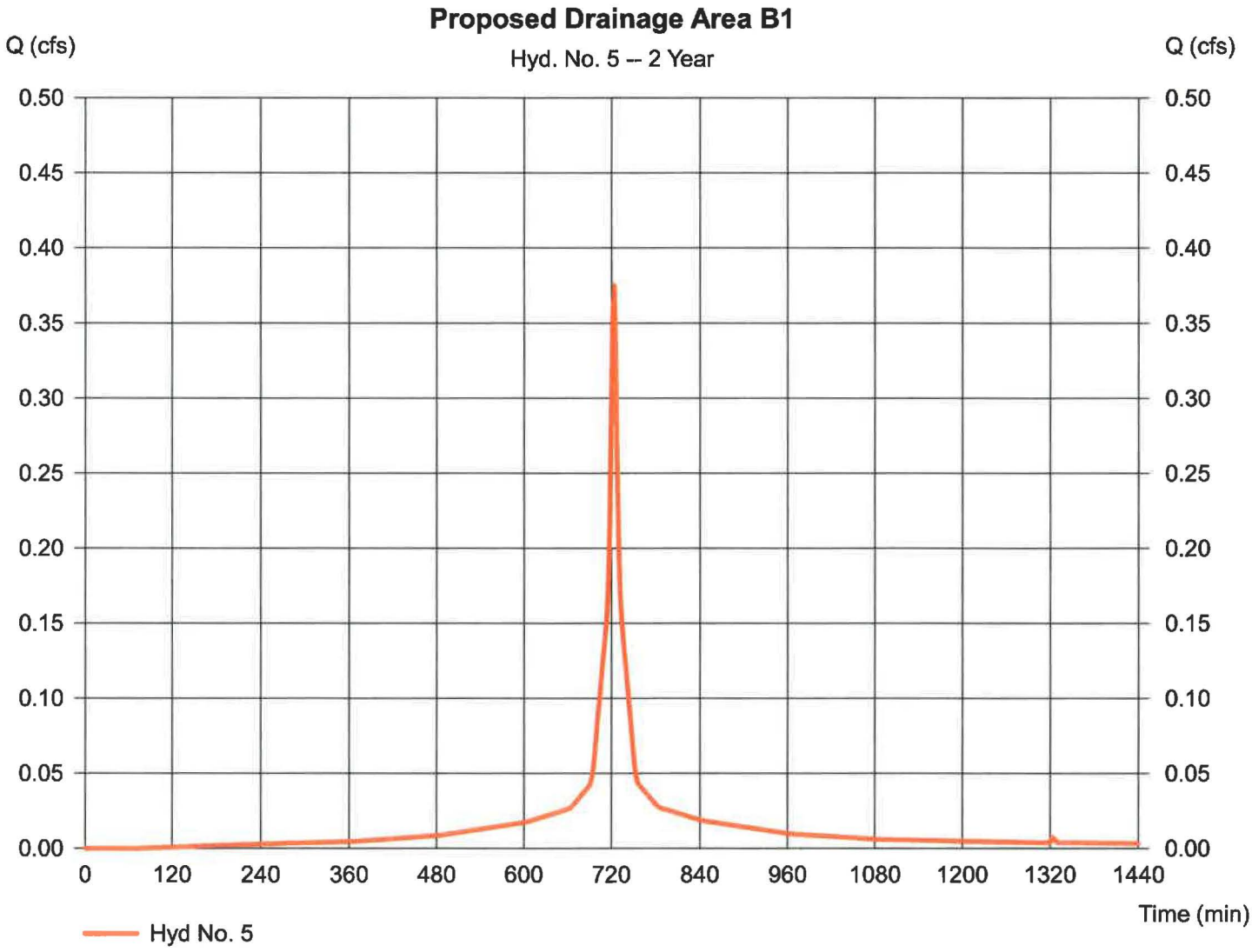
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 5

Proposed Drainage Area B1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.375 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 1,271 cuft
Drainage area	= 0.113 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



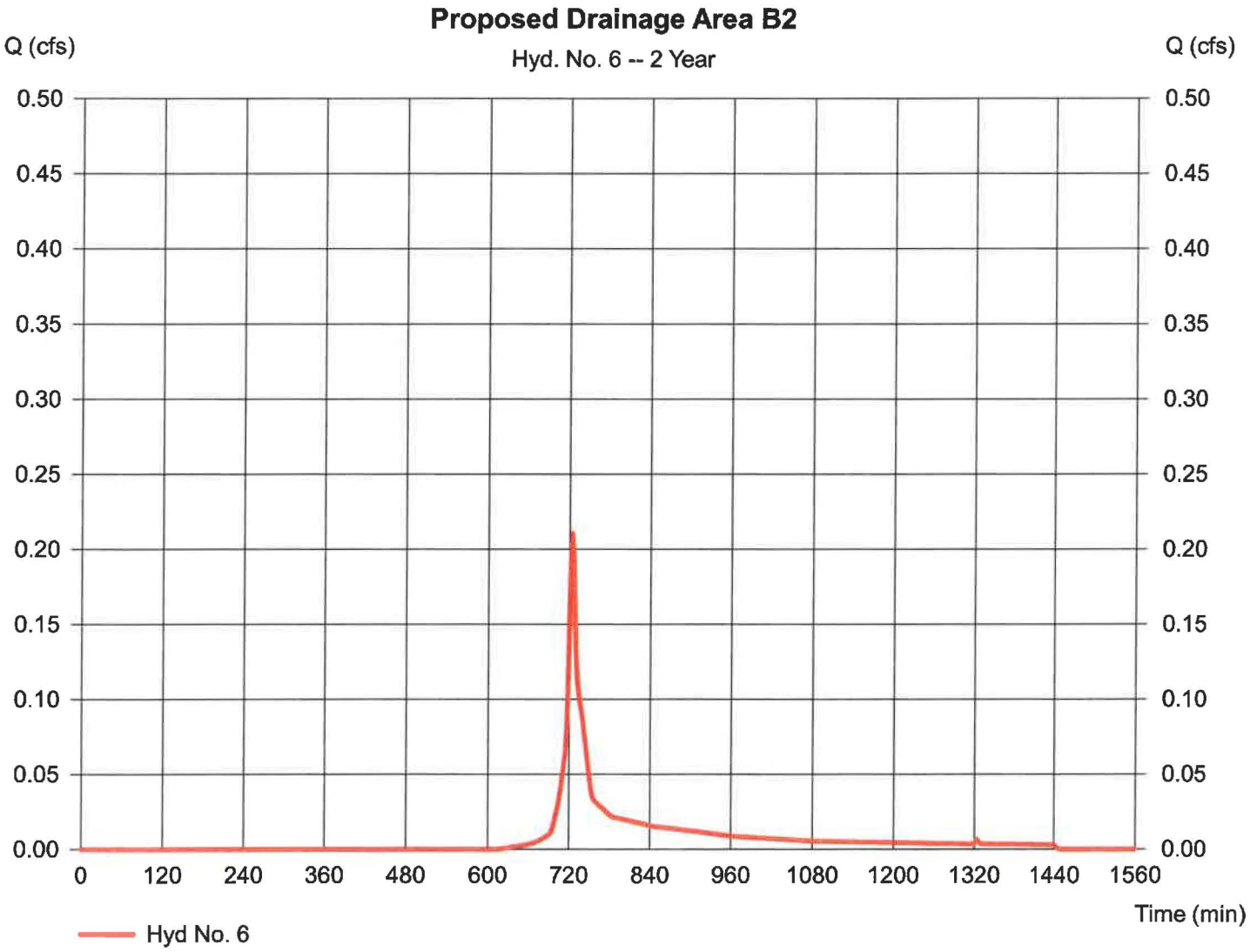
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 6

Proposed Drainage Area B2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.211 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 651 cuft
Drainage area	= 0.151 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



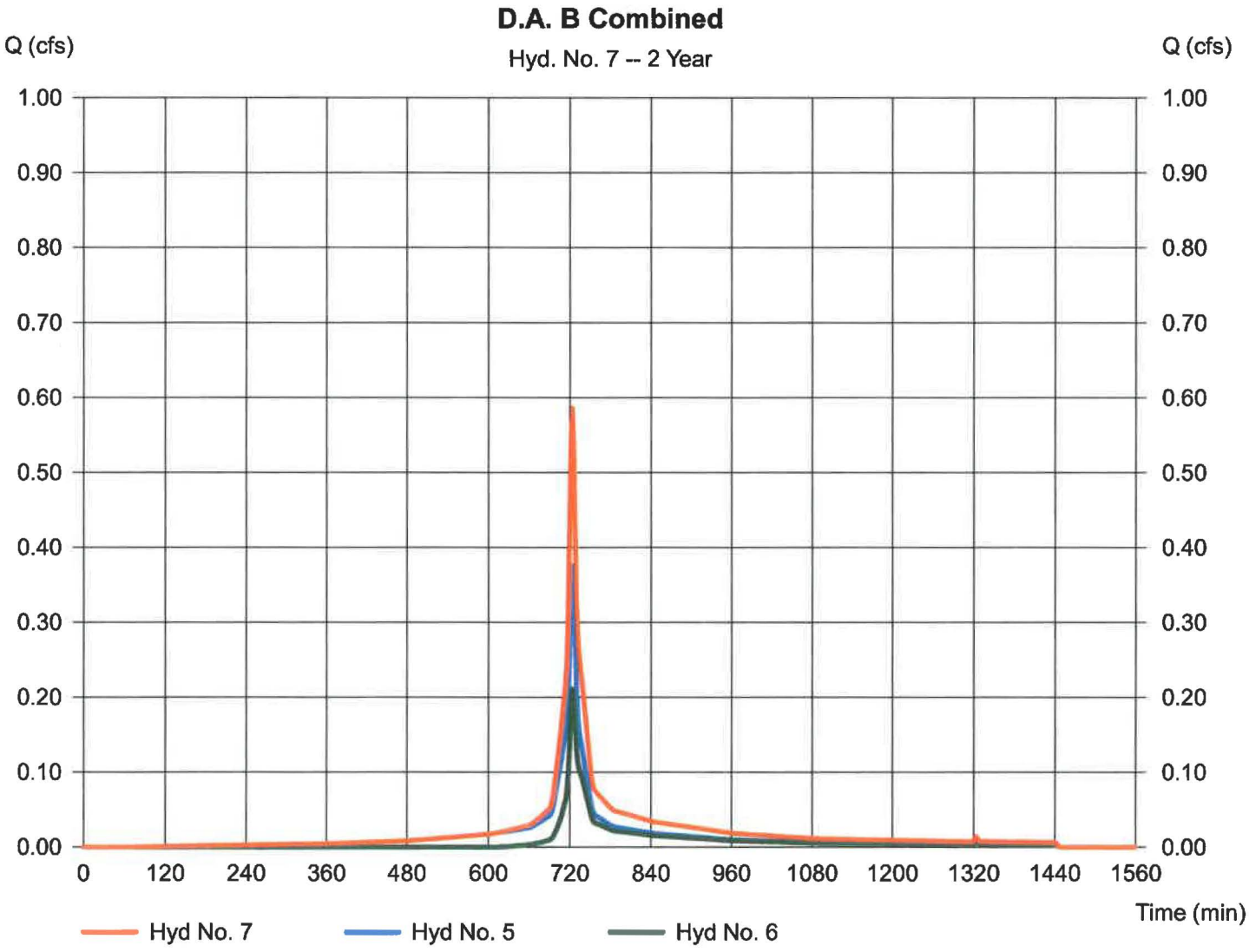
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 Monday, Sep 28, 2020

Hyd. No. 7

D.A. B Combined

Hydrograph type	= Combine	Peak discharge	= 0.586 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 1,923 cuft
Inflow hyds.	= 5, 6	Contrib. drain. area	= 0.264 ac



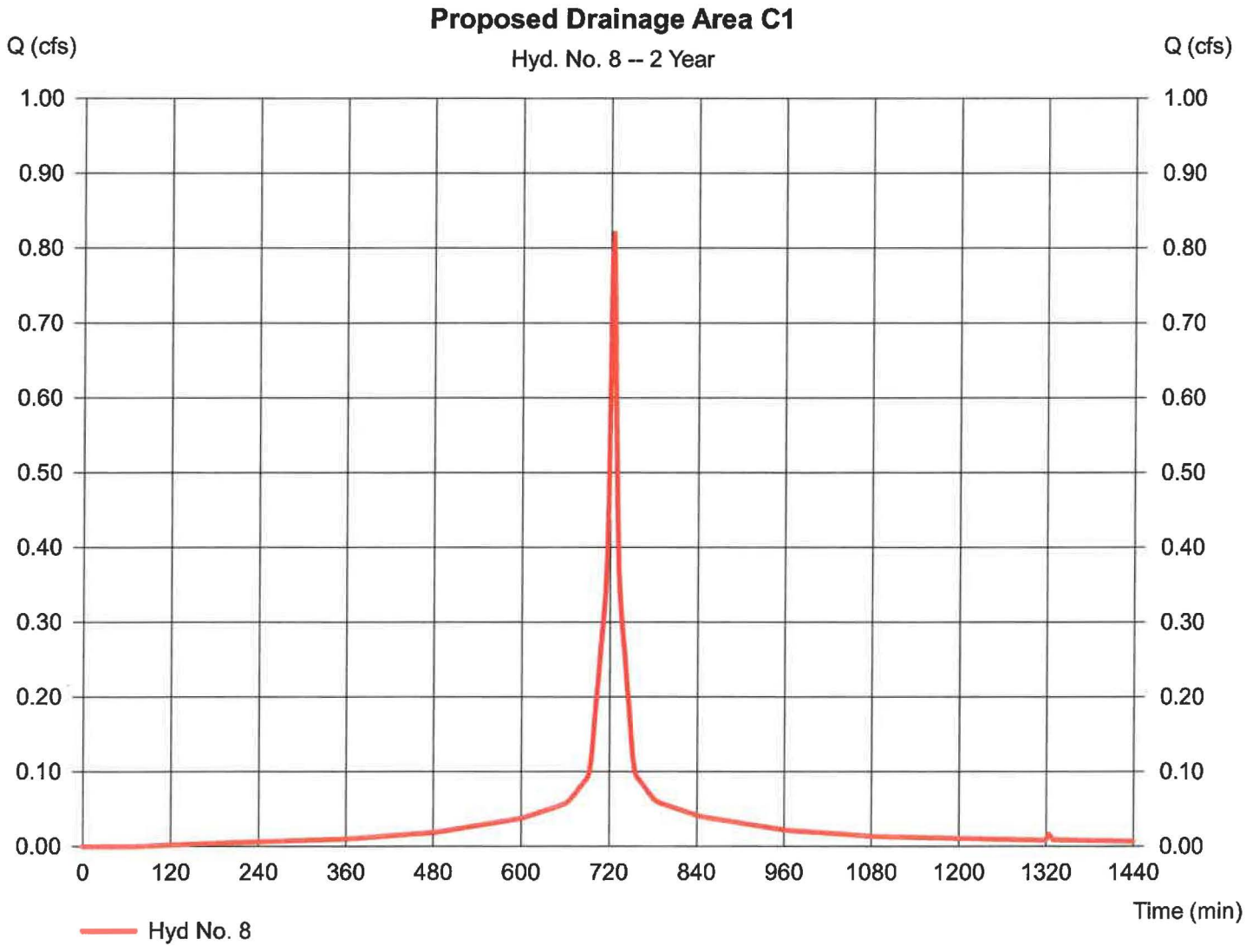
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 8

Proposed Drainage Area C1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.820 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 2,779 cuft
Drainage area	= 0.247 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



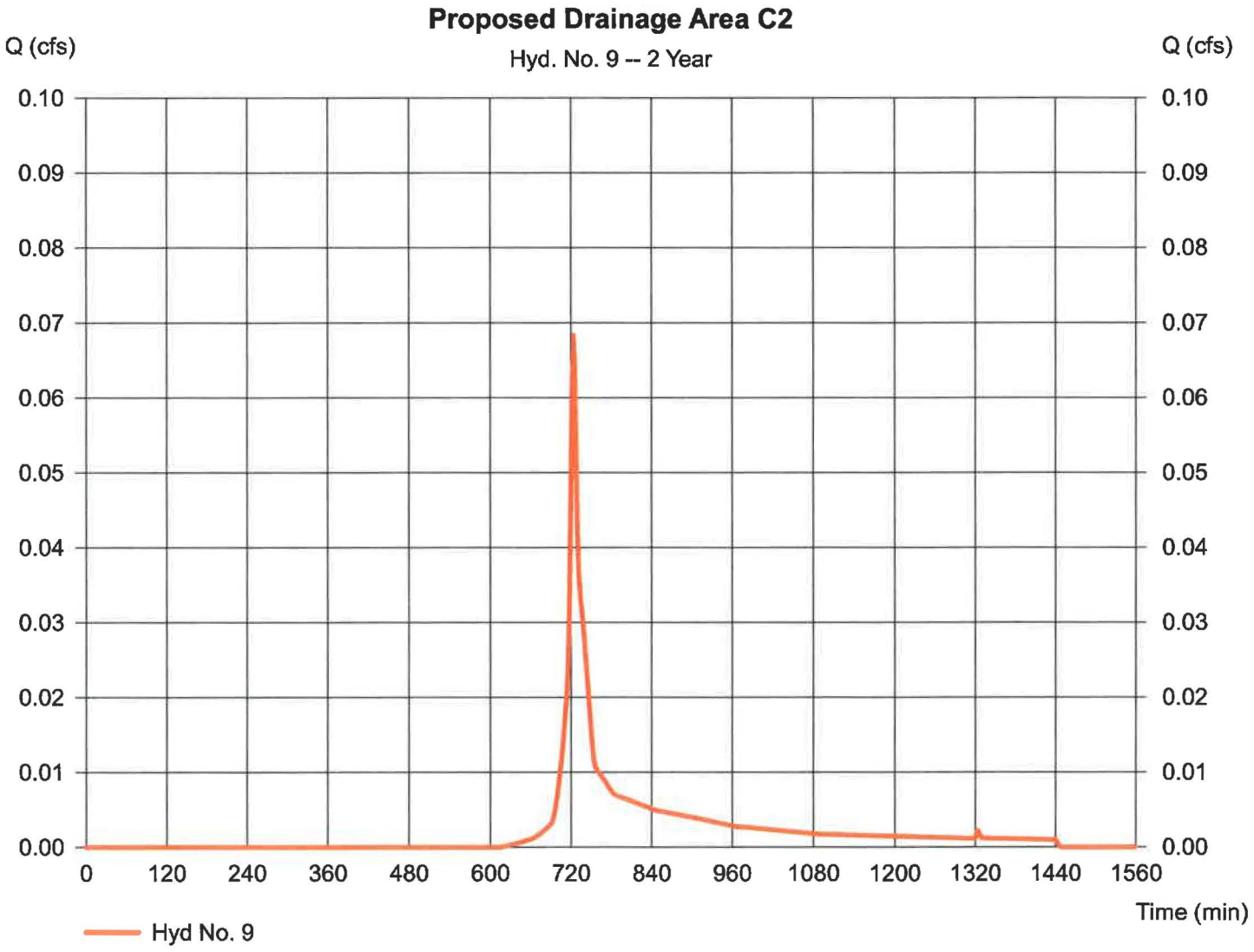
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 9

Proposed Drainage Area C2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.068 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 211 cuft
Drainage area	= 0.049 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



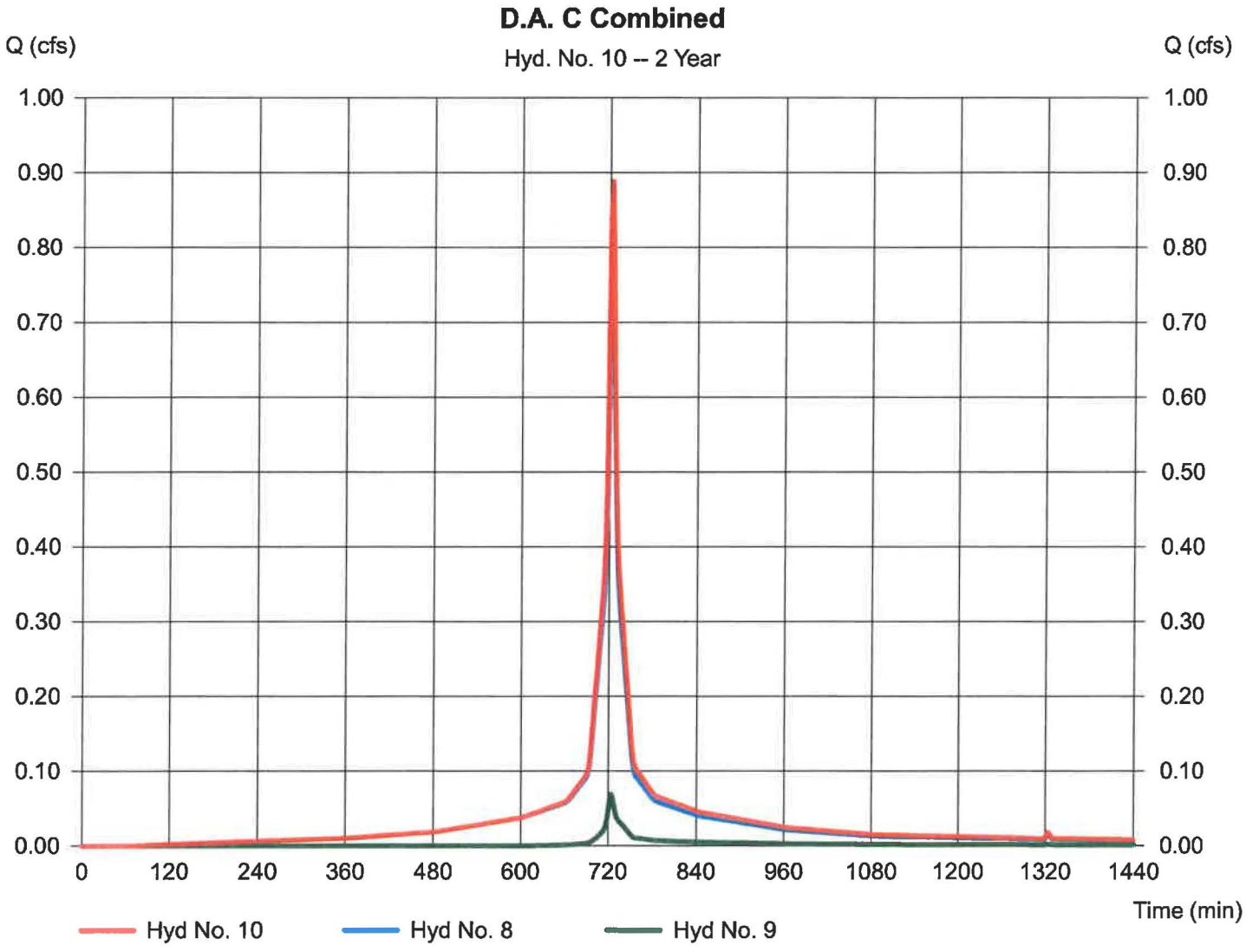
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 10

D.A. C Combined

Hydrograph type	= Combine	Peak discharge	= 0.889 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 2,991 cuft
Inflow hyds.	= 8, 9	Contrib. drain. area	= 0.296 ac



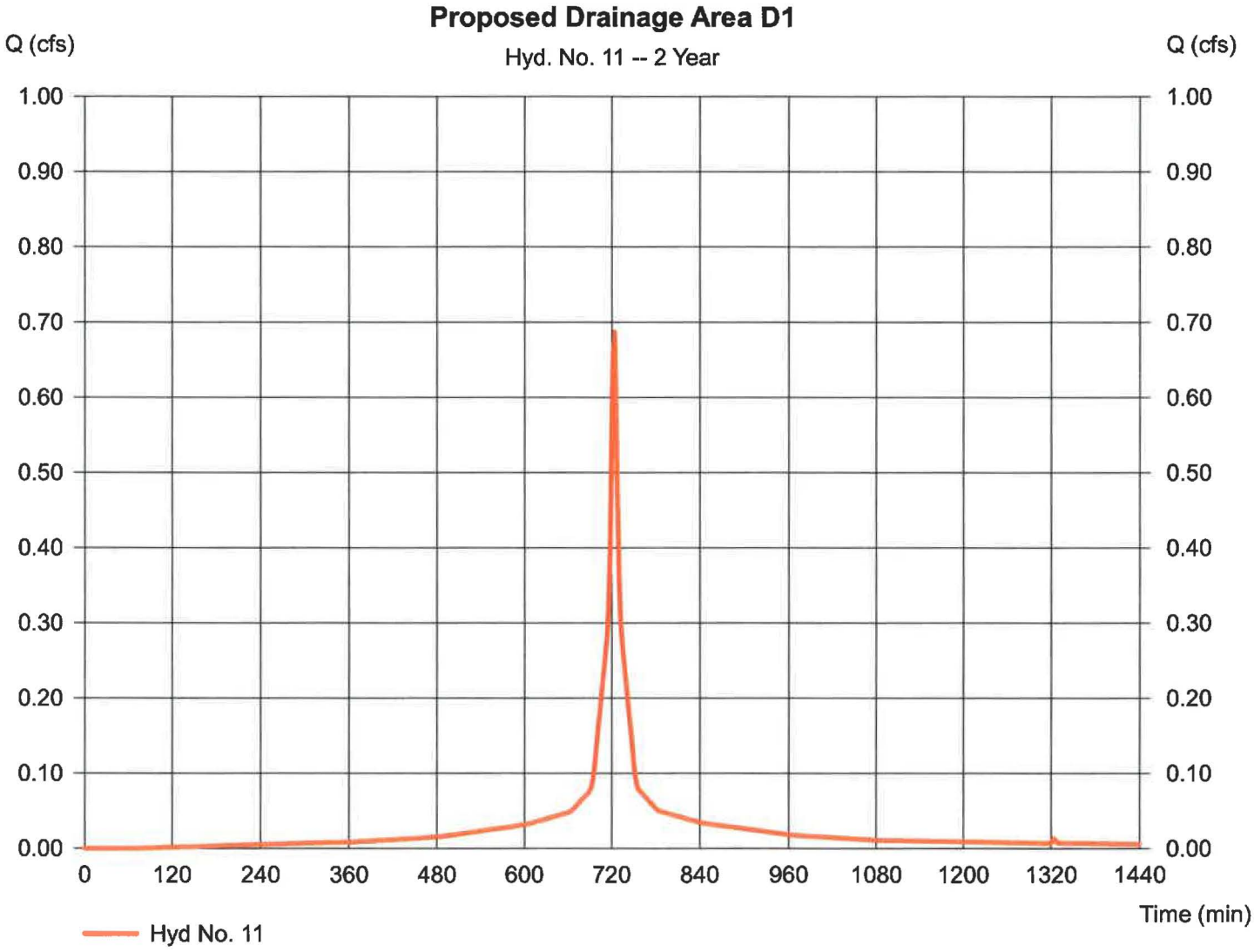
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 11

Proposed Drainage Area D1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.687 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 2,329 cuft
Drainage area	= 0.207 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

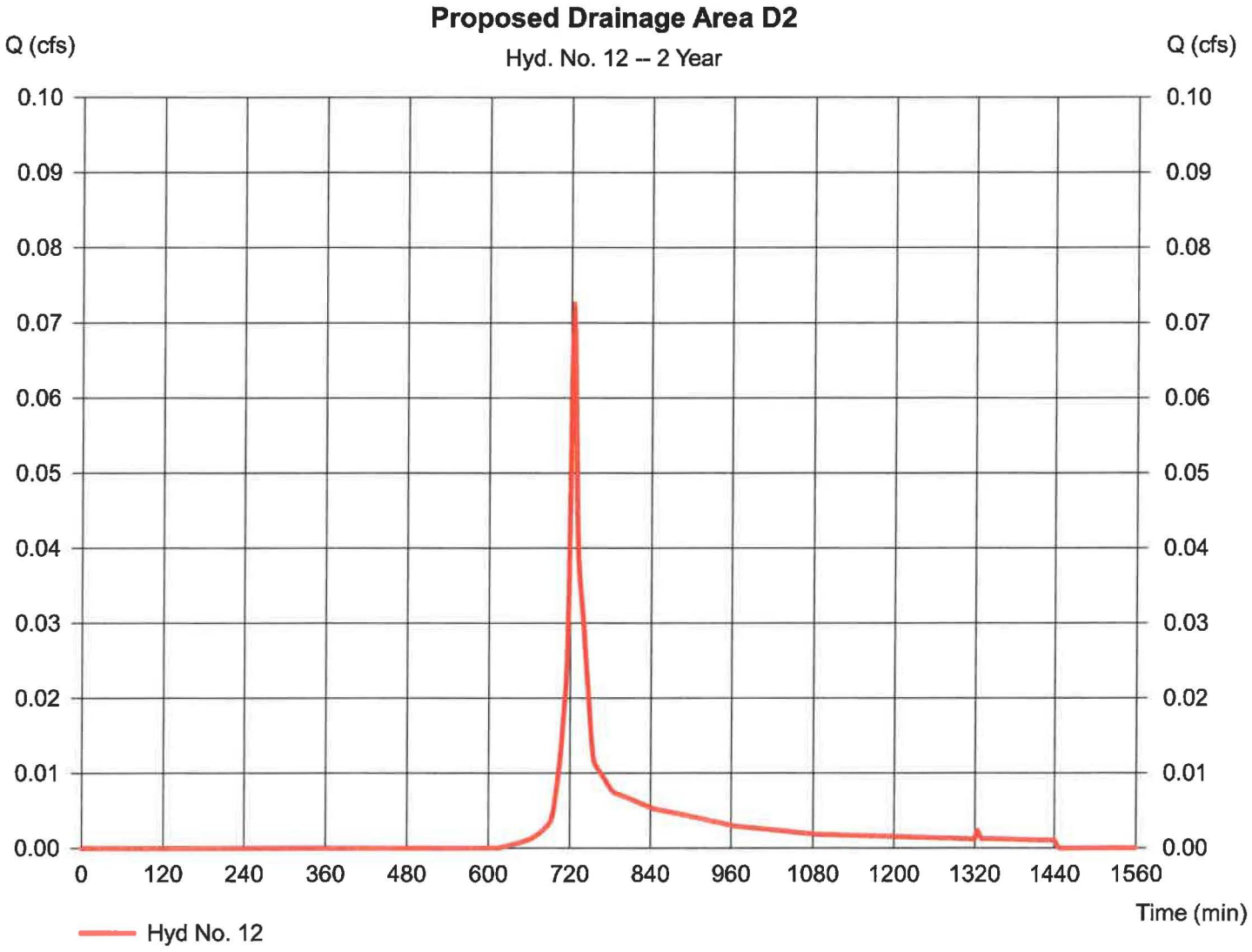
Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 12

Proposed Drainage Area D2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.073 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 224 cuft
Drainage area	= 0.052 ac	Curve number	= 74*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.037 x 74) + (0.015 x 80)] / 0.052



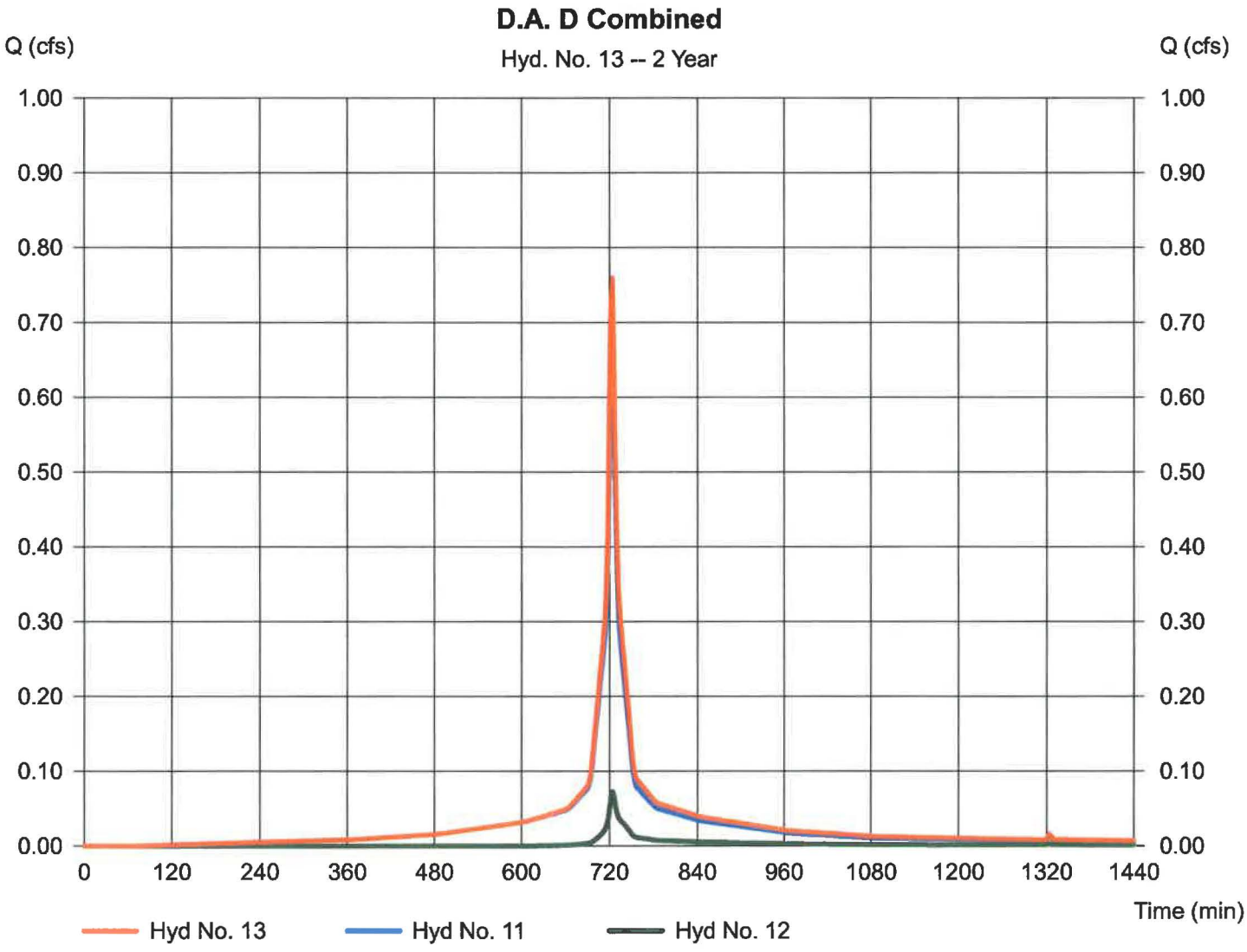
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 13

D.A. D Combined

Hydrograph type	= Combine	Peak discharge	= 0.760 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 2,553 cuft
Inflow hyds.	= 11, 12	Contrib. drain. area	= 0.259 ac



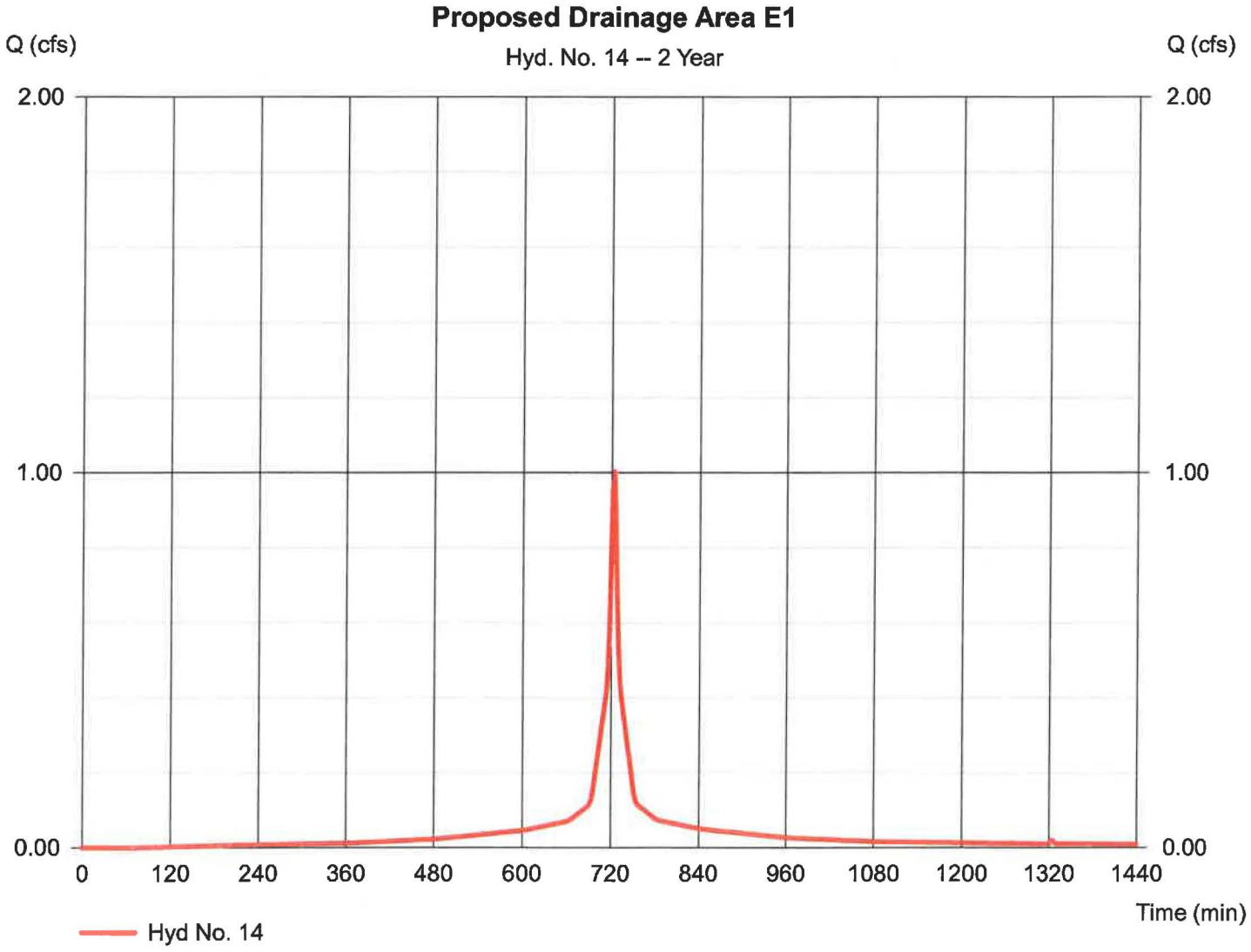
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 14

Proposed Drainage Area E1

Hydrograph type	= SCS Runoff	Peak discharge	= 1.003 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 3,398 cuft
Drainage area	= 0.302 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



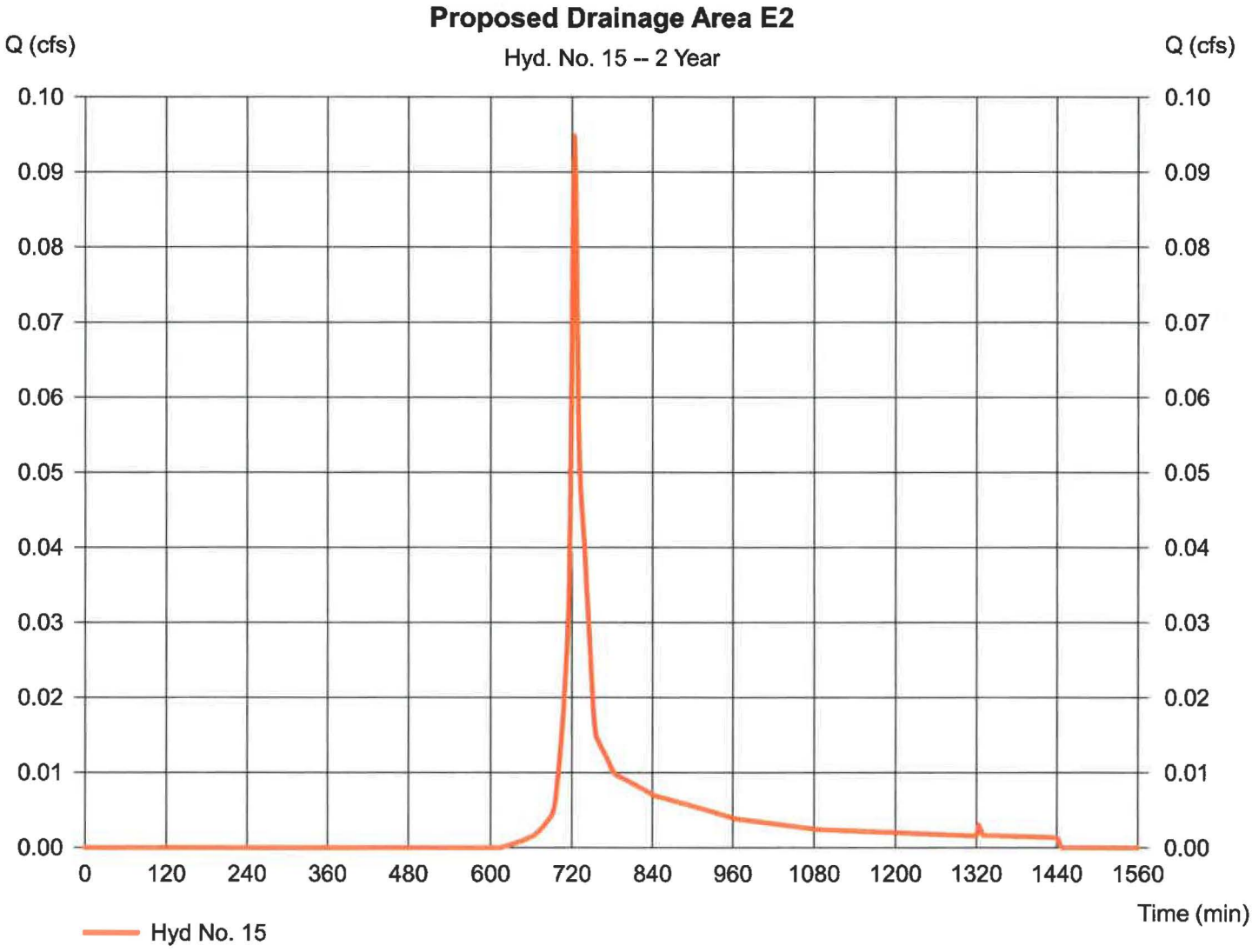
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 15

Proposed Drainage Area E2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.095 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 293 cuft
Drainage area	= 0.068 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



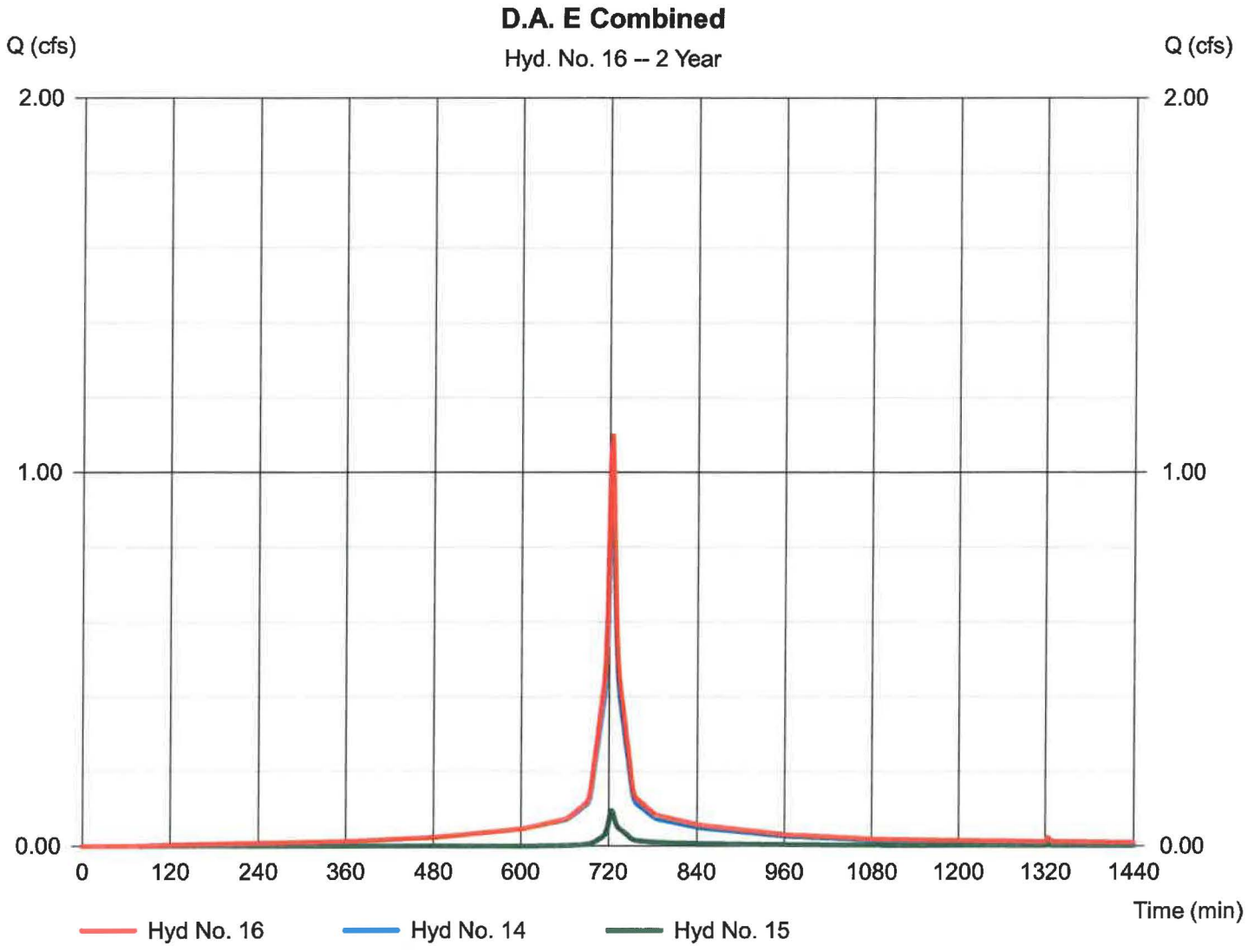
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 16

D.A. E Combined

Hydrograph type	= Combine	Peak discharge	= 1.098 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 3,691 cuft
Inflow hyds.	= 14, 15	Contrib. drain. area	= 0.370 ac



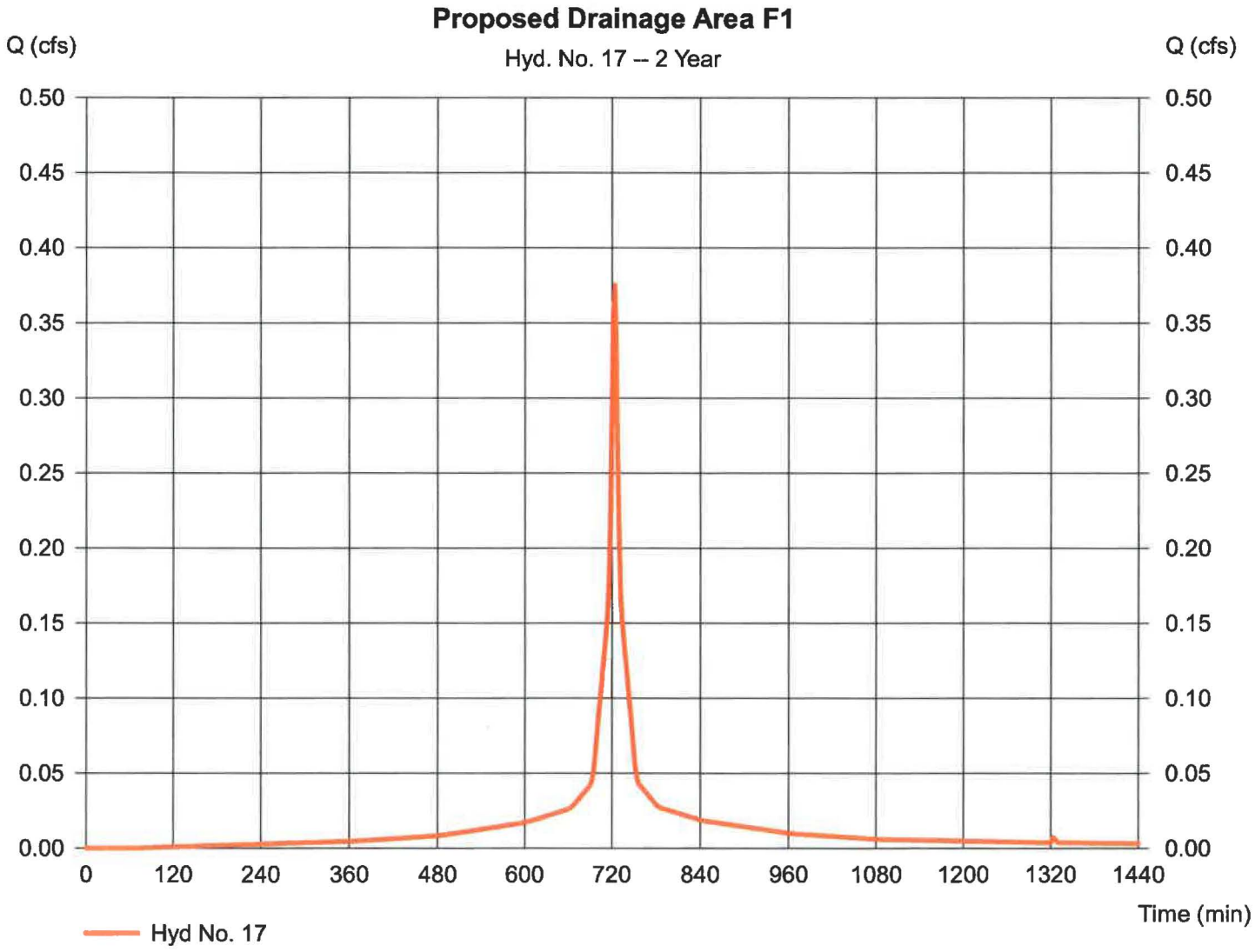
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 17

Proposed Drainage Area F1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.375 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 1,271 cuft
Drainage area	= 0.113 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



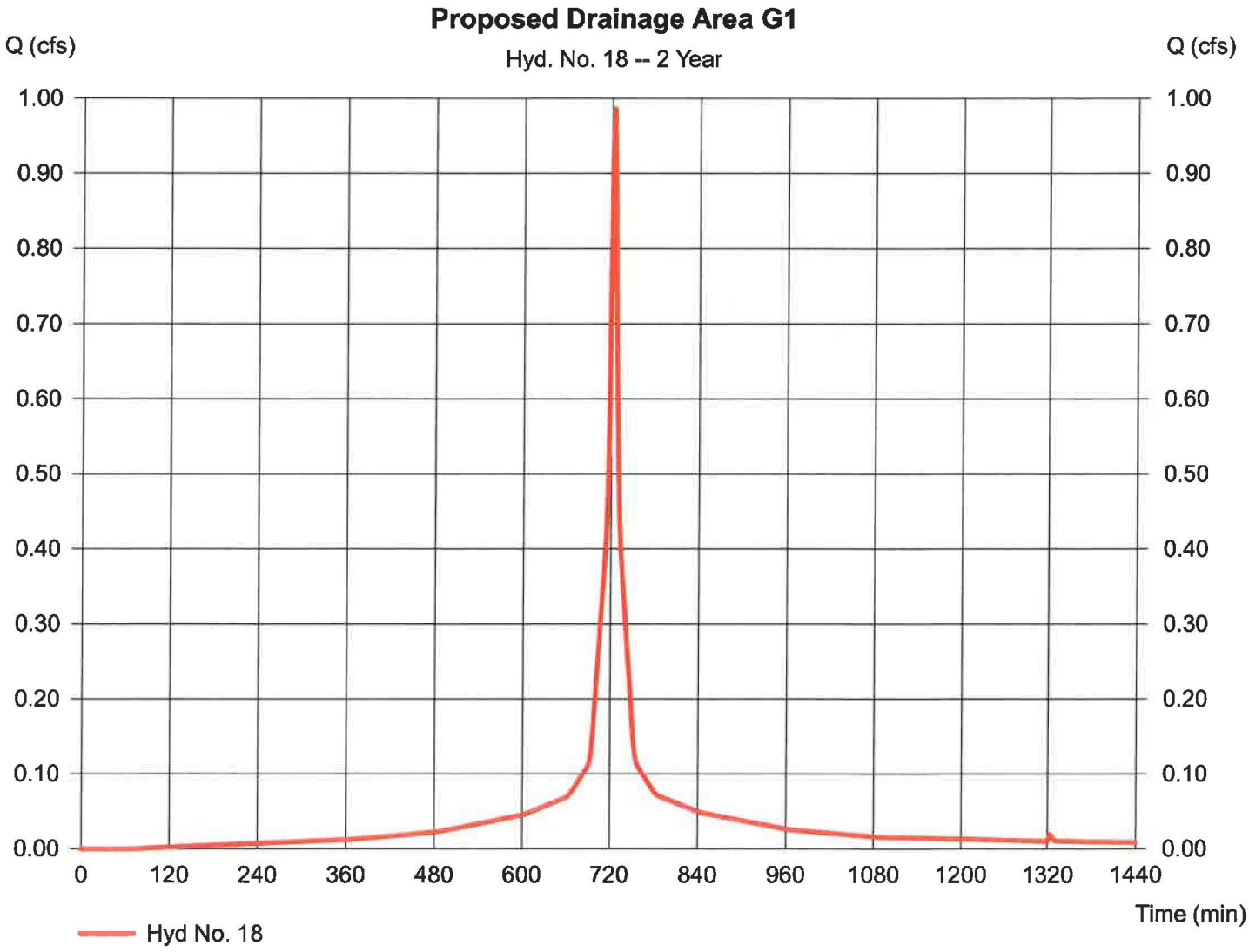
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 18

Proposed Drainage Area G1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.986 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 3,342 cuft
Drainage area	= 0.297 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



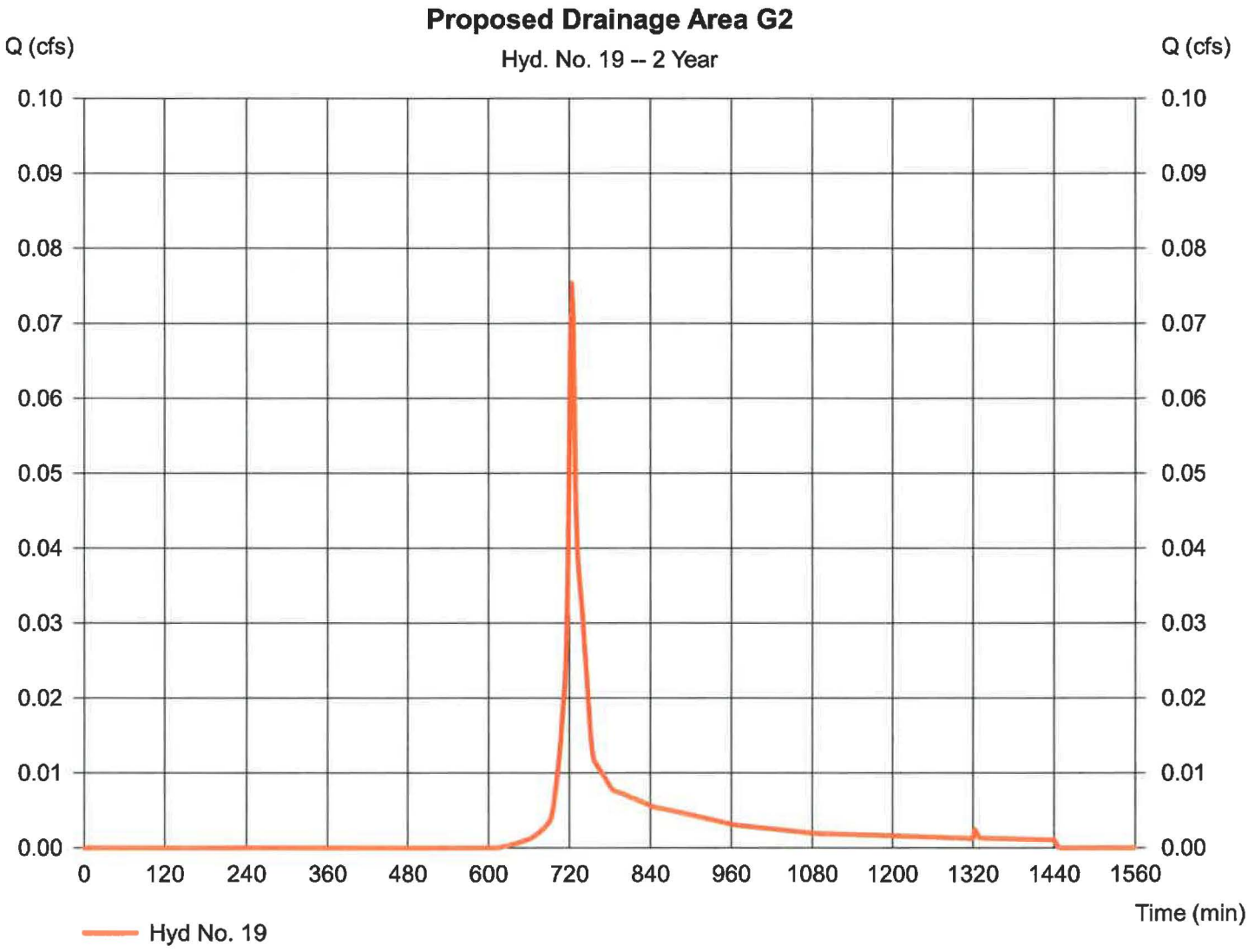
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 19

Proposed Drainage Area G2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.075 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 233 cuft
Drainage area	= 0.054 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



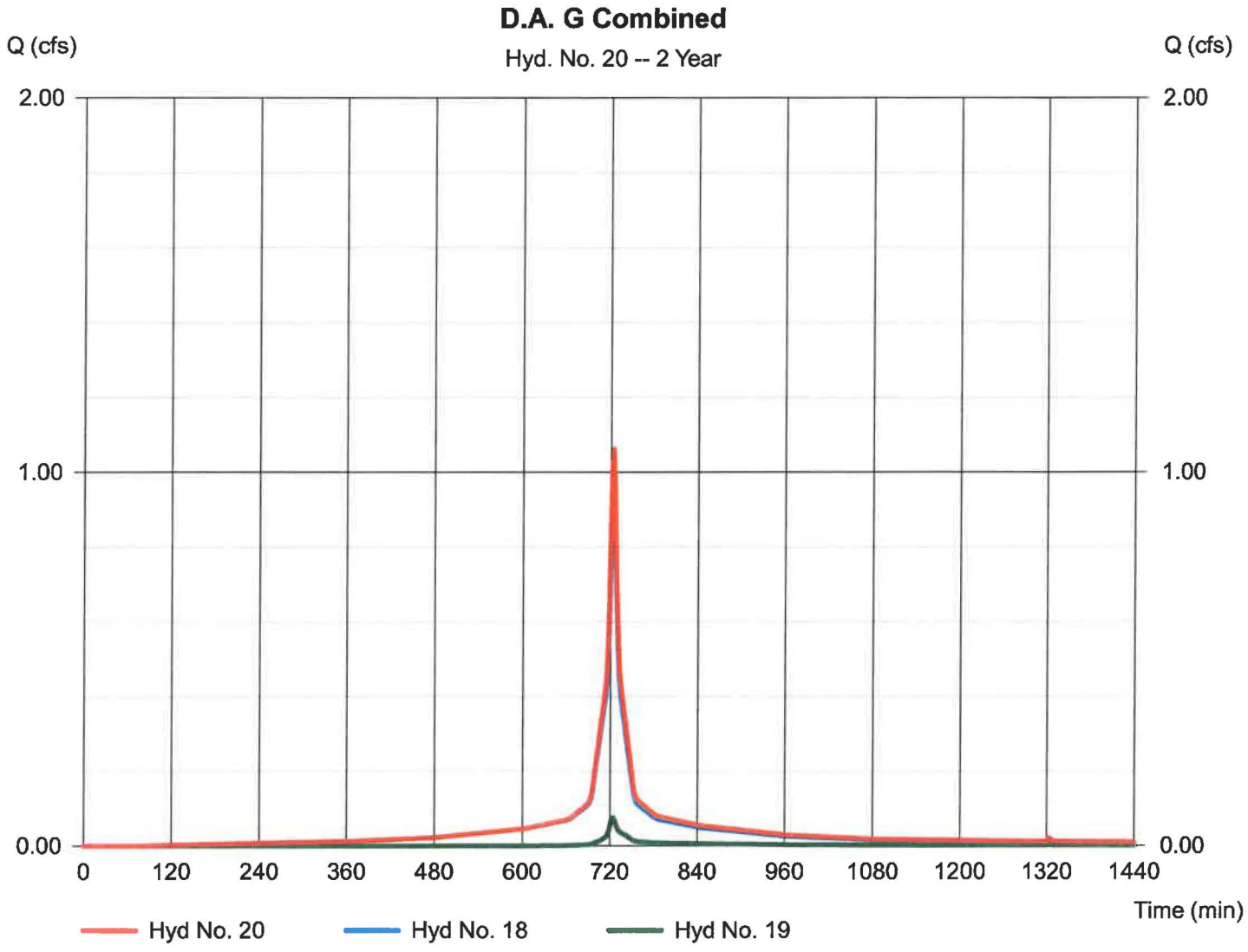
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 20

D.A. G Combined

Hydrograph type	= Combine	Peak discharge	= 1.062 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 3,575 cuft
Inflow hyds.	= 18, 19	Contrib. drain. area	= 0.351 ac



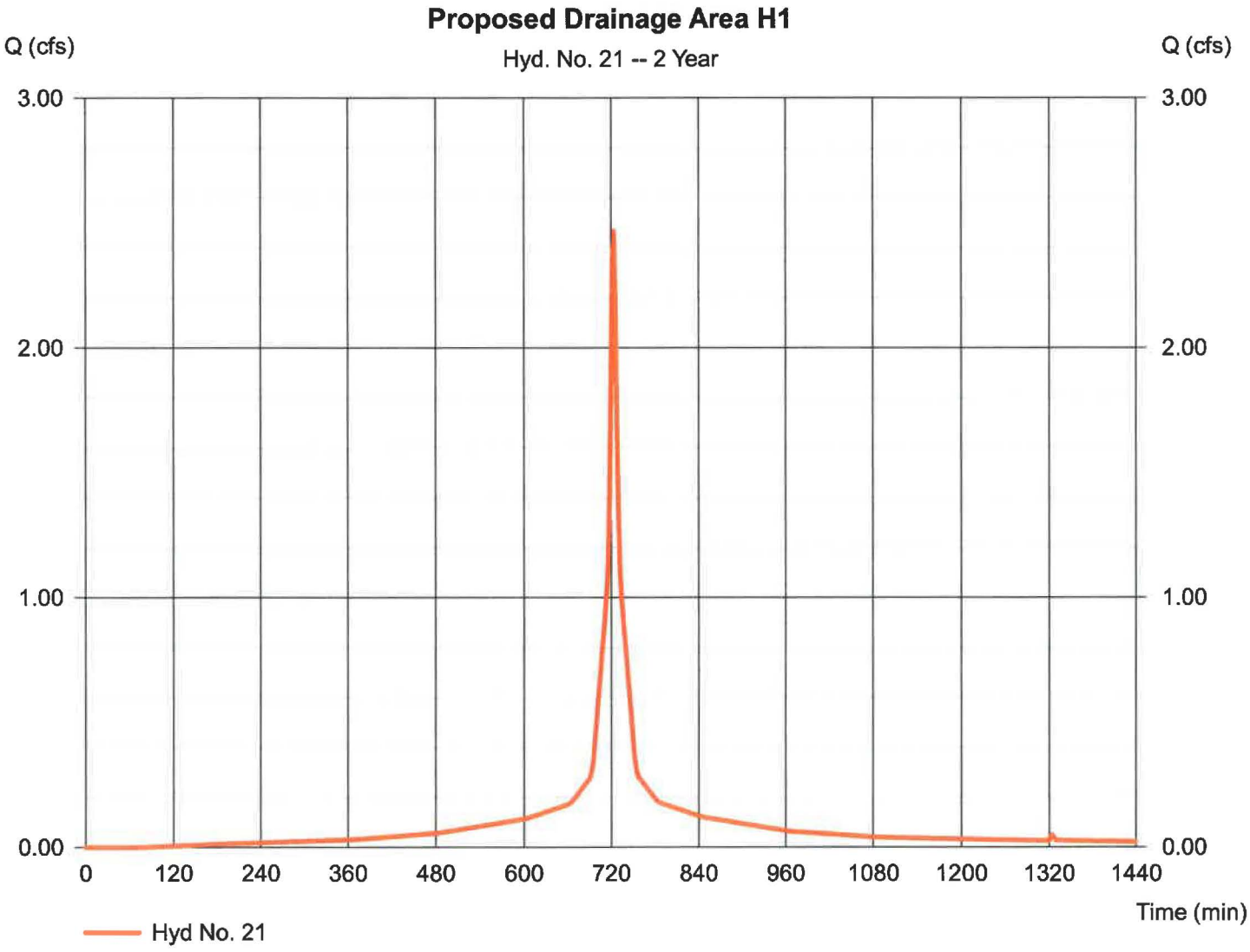
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 21

Proposed Drainage Area H1

Hydrograph type	= SCS Runoff	Peak discharge	= 2.467 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 8,360 cuft
Drainage area	= 0.743 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



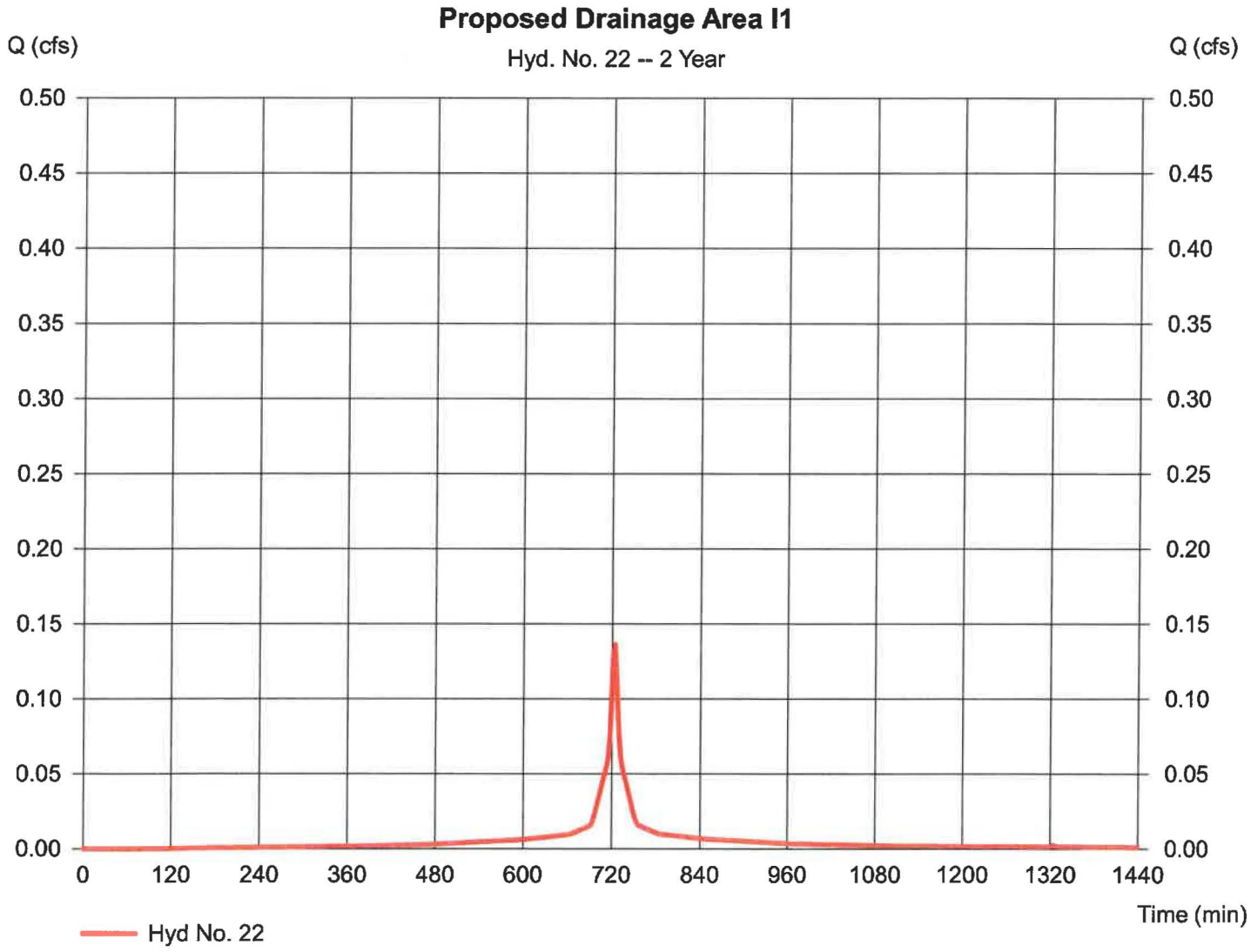
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 22

Proposed Drainage Area I1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.136 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 461 cuft
Drainage area	= 0.041 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



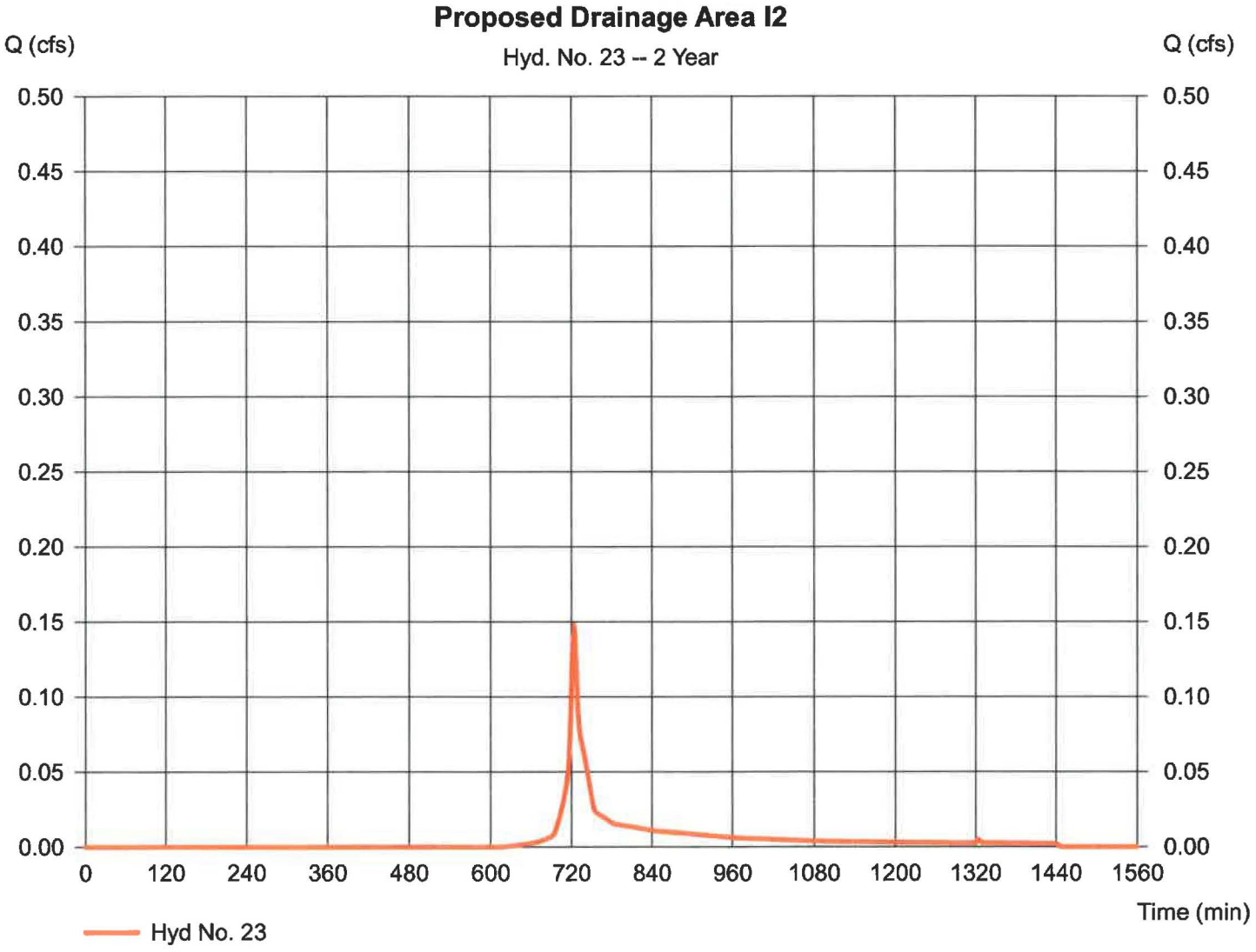
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 23

Proposed Drainage Area I2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.148 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 457 cuft
Drainage area	= 0.106 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



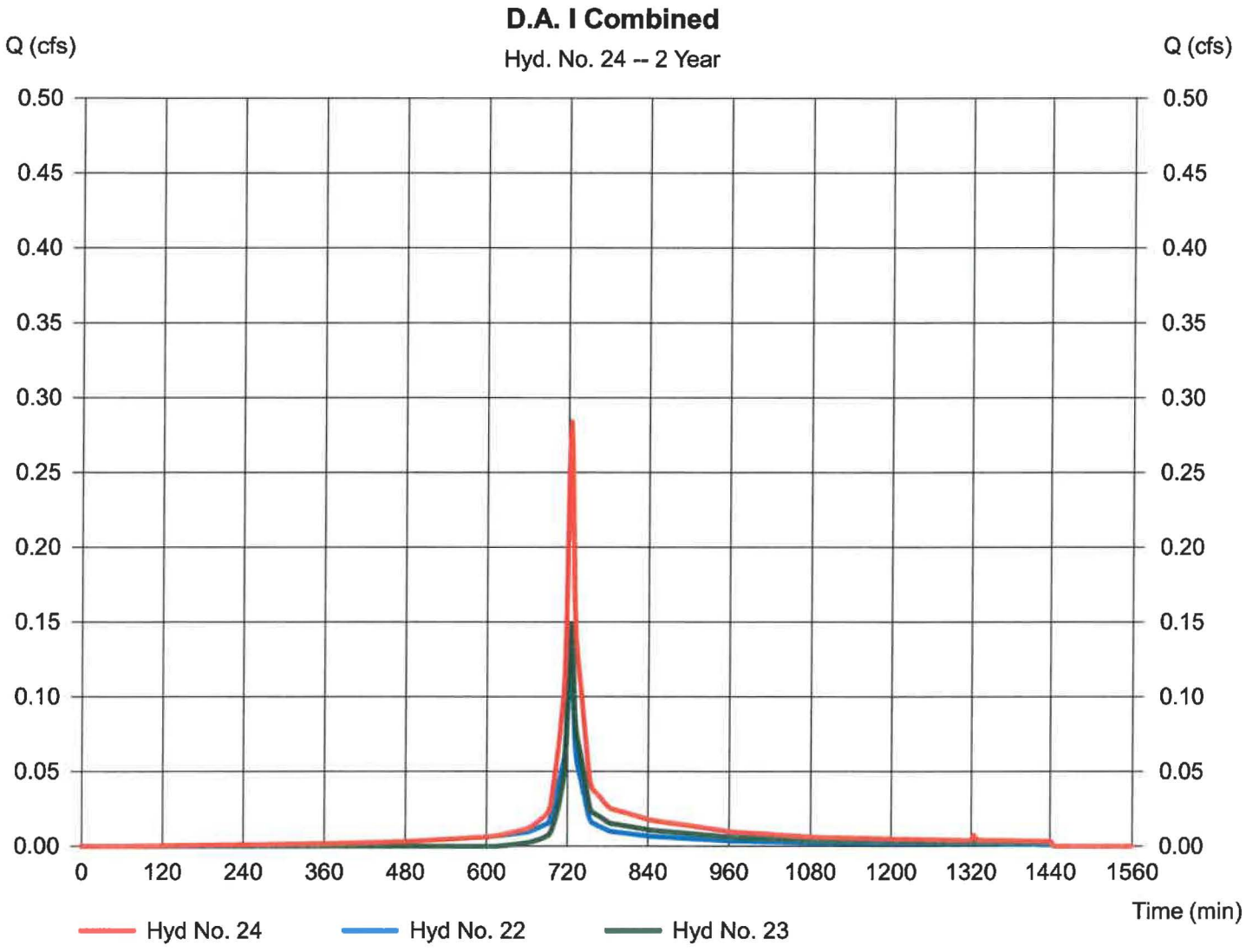
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 24

D.A. I Combined

Hydrograph type	= Combine	Peak discharge	= 0.284 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 919 cuft
Inflow hyds.	= 22, 23	Contrib. drain. area	= 0.147 ac



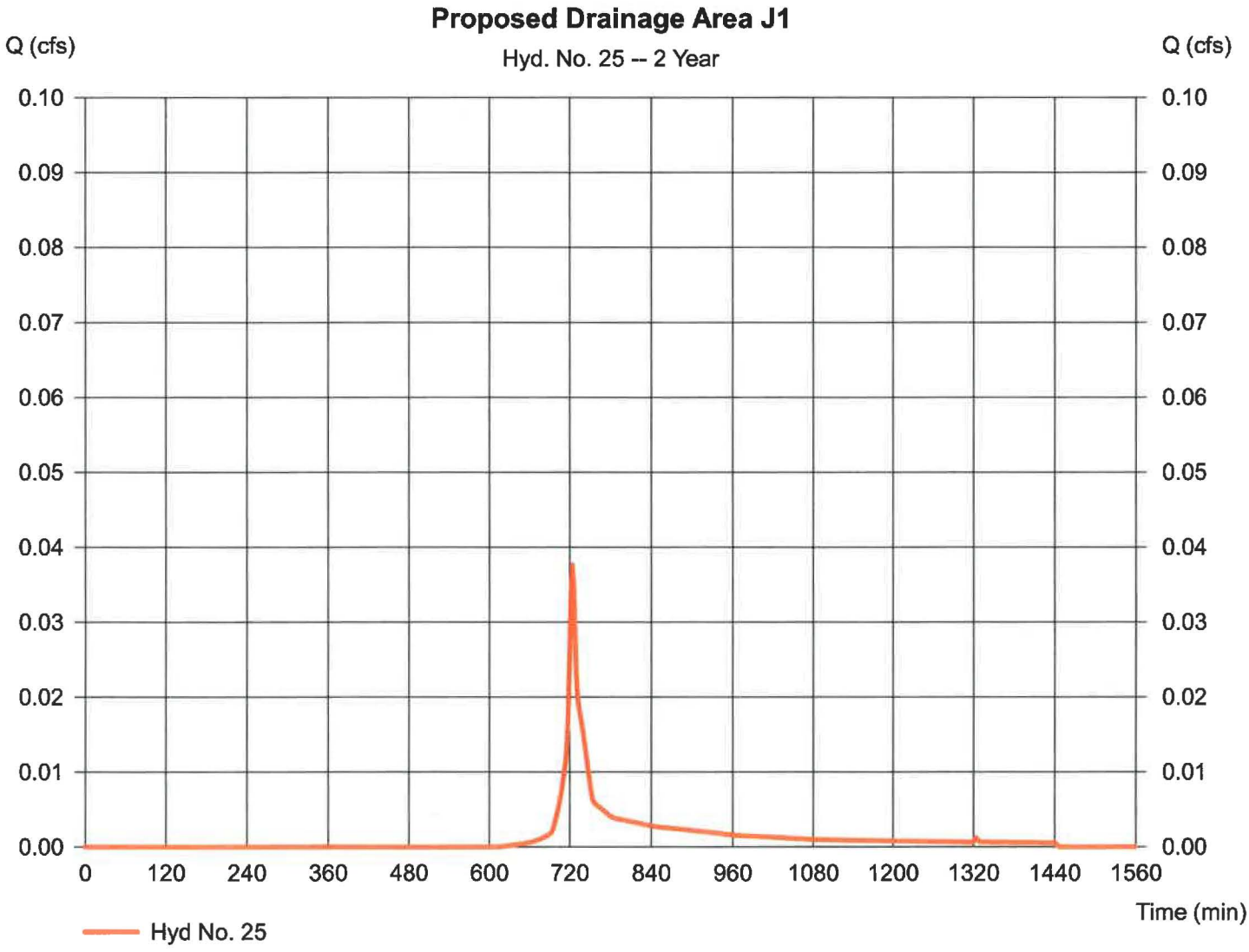
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 25

Proposed Drainage Area J1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.038 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 116 cuft
Drainage area	= 0.027 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



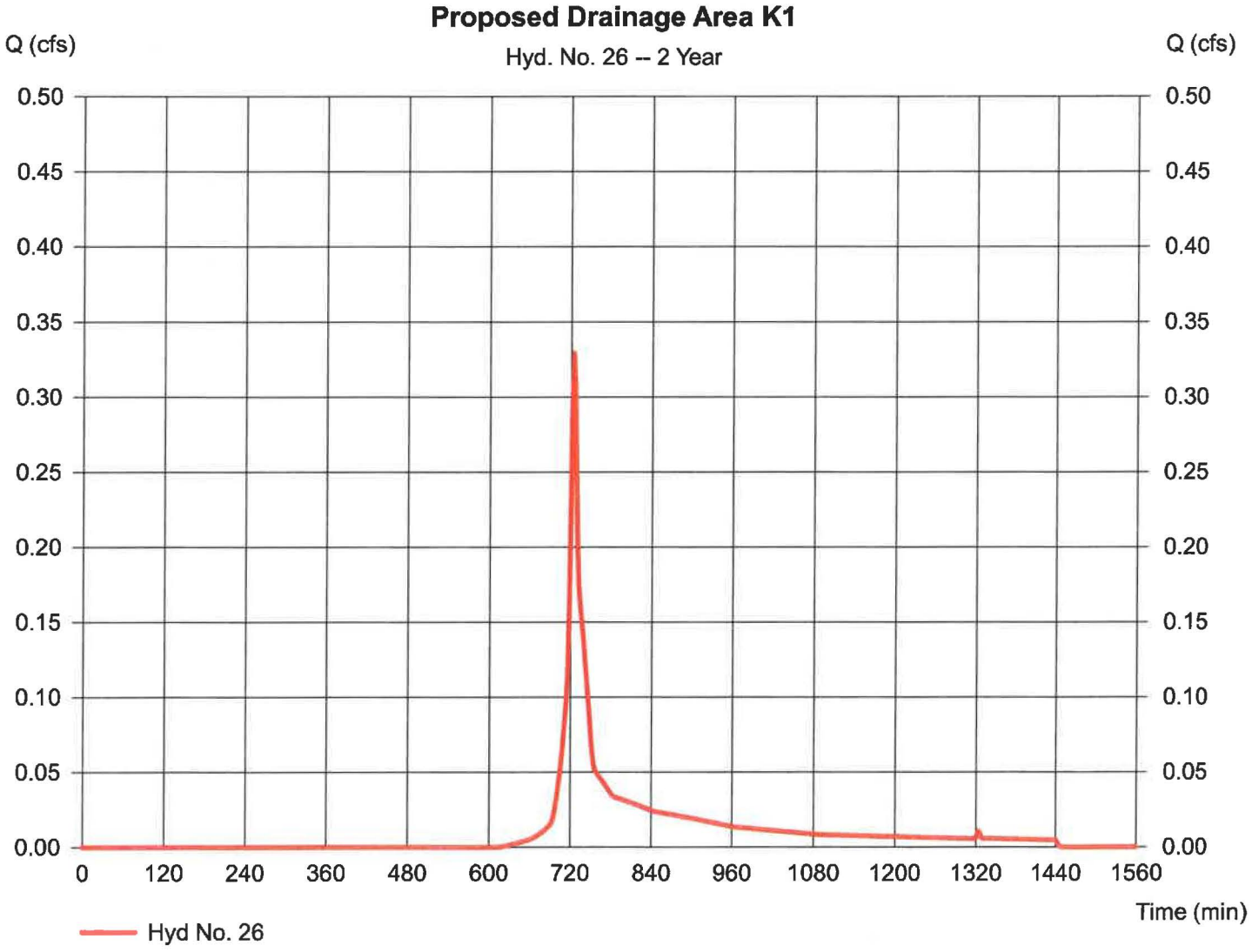
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 26

Proposed Drainage Area K1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.329 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 1,018 cuft
Drainage area	= 0.236 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



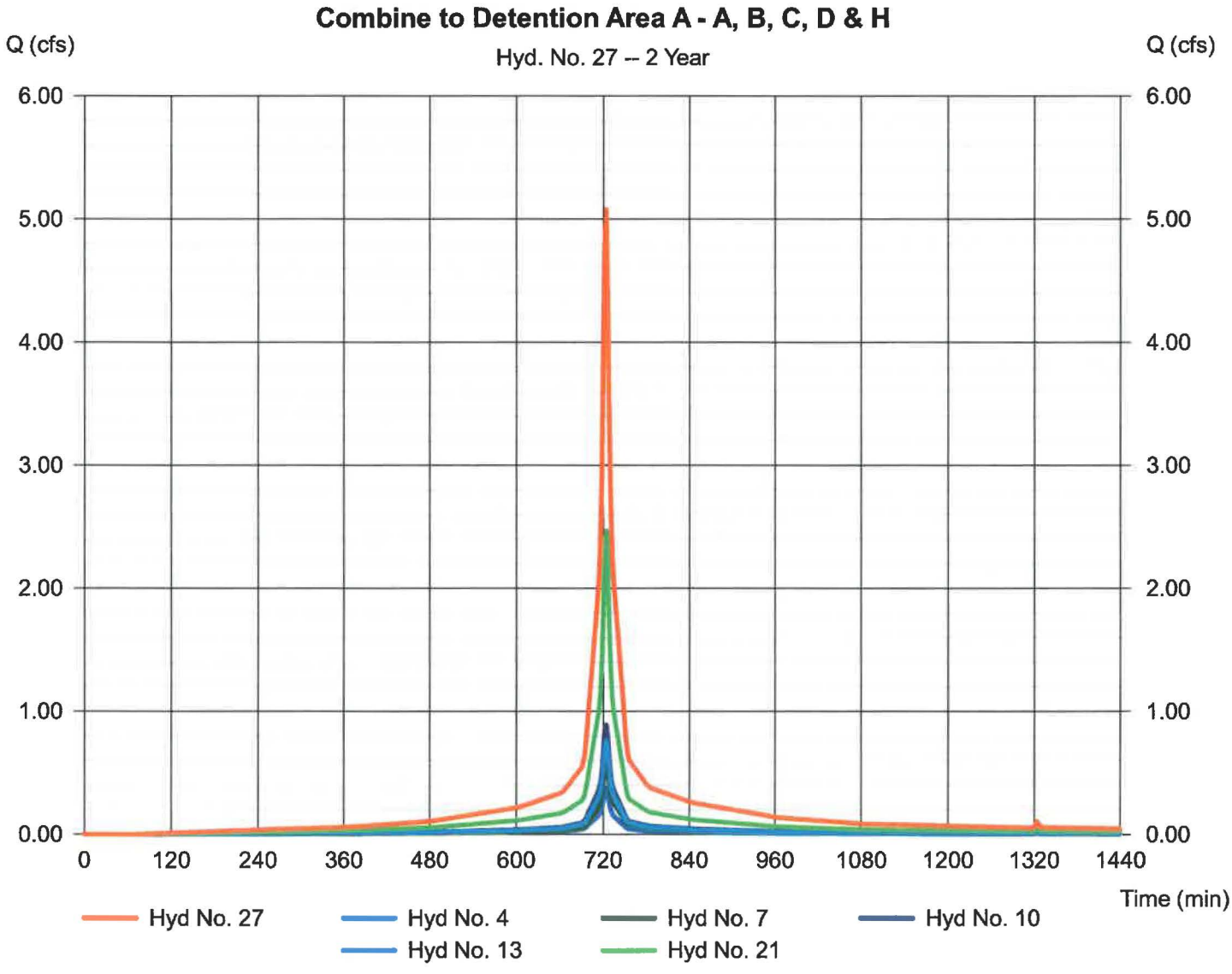
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 27

Combine to Detention Area A - A, B, C, D & H

Hydrograph type	= Combine	Peak discharge	= 5.081 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 17,110 cuft
Inflow hyds.	= 4, 7, 10, 13, 21	Contrib. drain. area	= 0.857 ac



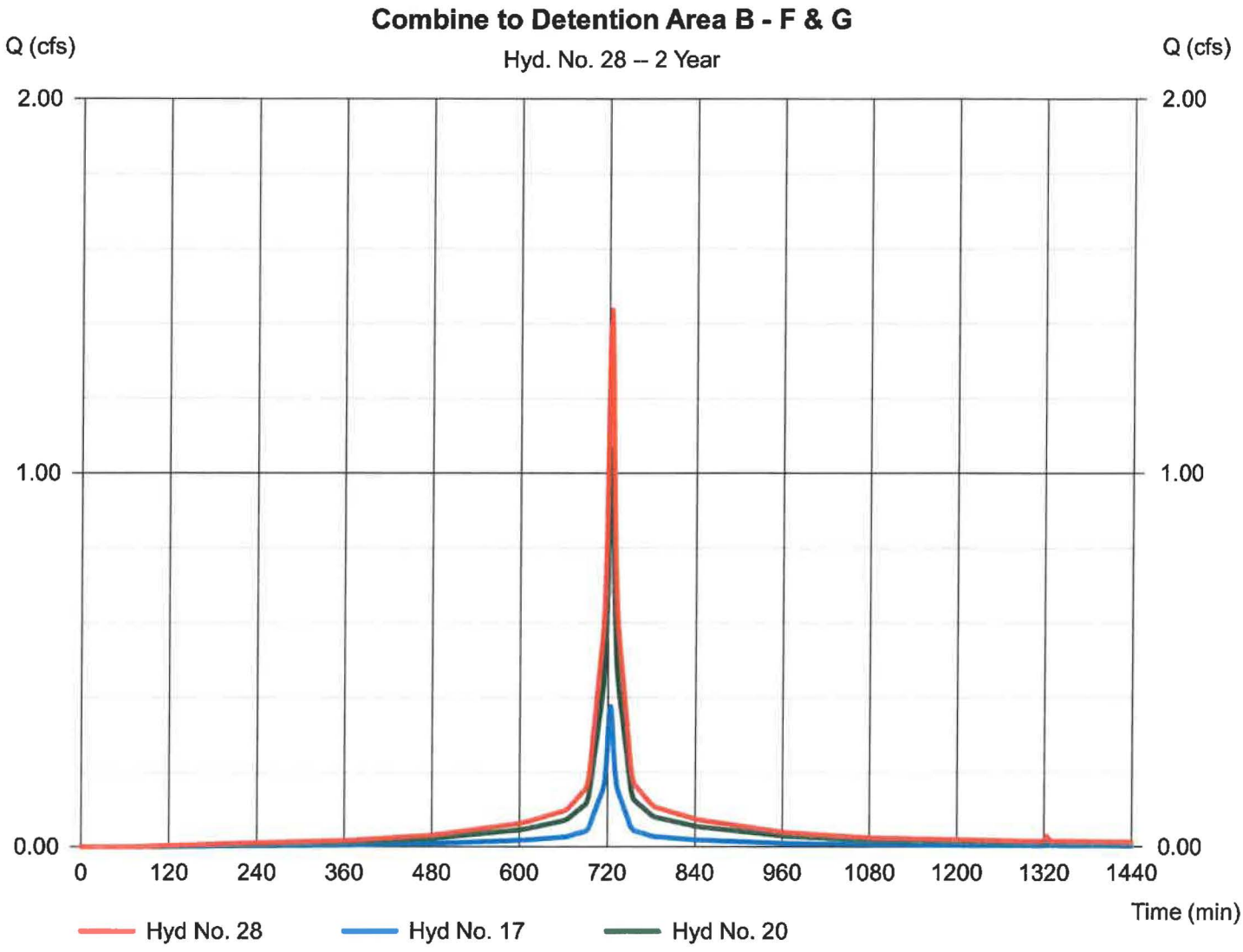
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 28

Combine to Detention Area B - F & G

Hydrograph type	= Combine	Peak discharge	= 1.437 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 4,846 cuft
Inflow hyds.	= 17, 20	Contrib. drain. area	= 0.113 ac



Hydrograph Report

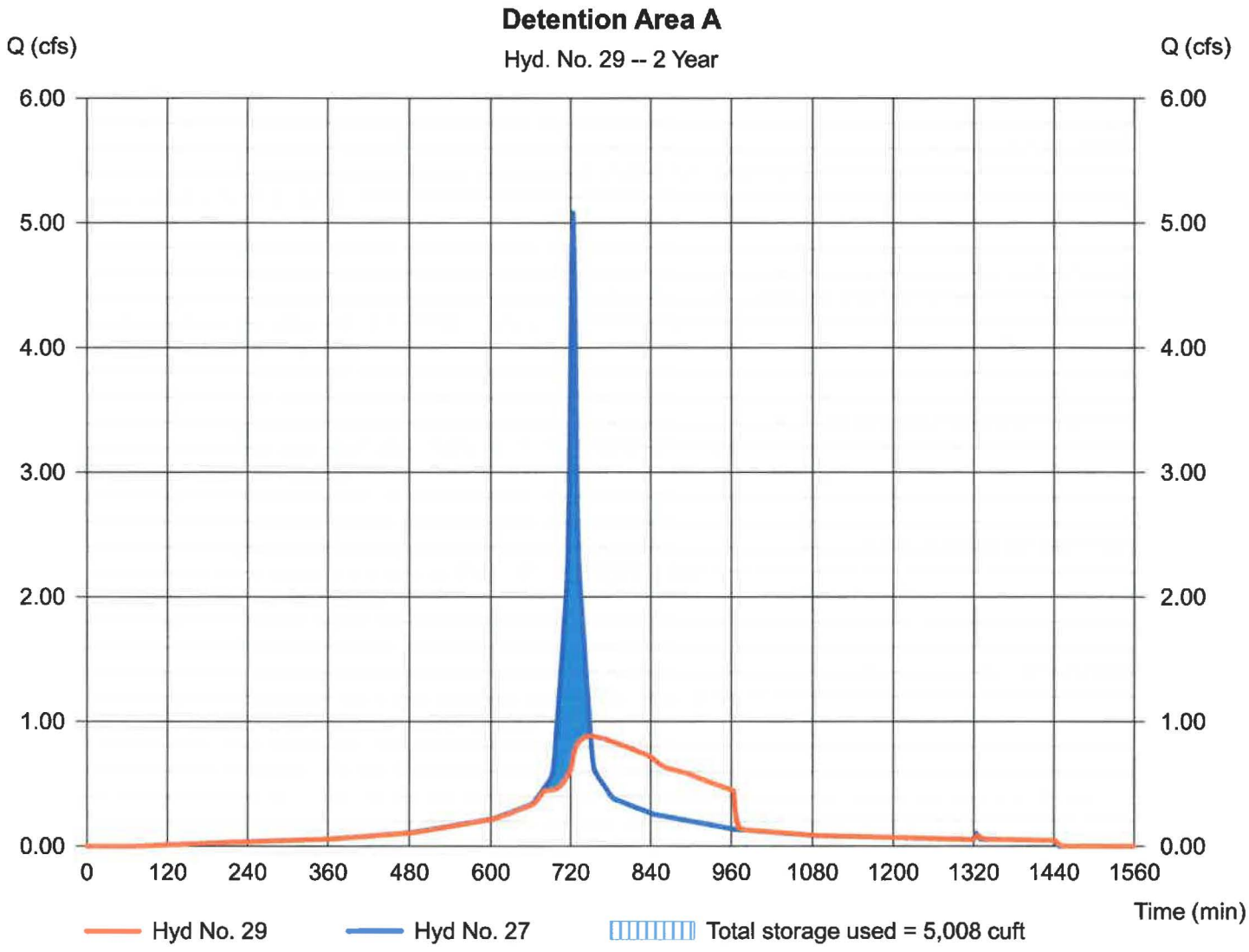
Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 29

Detention Area A

Hydrograph type	= Reservoir	Peak discharge	= 0.884 cfs
Storm frequency	= 2 yrs	Time to peak	= 750 min
Time interval	= 2 min	Hyd. volume	= 17,110 cuft
Inflow hyd. No.	= 27 - Combine to Detention Area A - A, B, Ma, D Bldg	Max. Elevation	= 626.24 ft
Reservoir name	= Detentioin Area A	Max. Storage	= 5,008 cuft

Storage Indication method used. Outflow includes exfiltration.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Pond No. 1 - Detentioin Area A

Pond Data

UG Chambers - Invert elev. = 625.50 ft, Rise x Span = 2.05 x 4.00 ft, Barrel Len = 7.12 ft, No. Barrels = 140, Slope = 0.00%, Headers = No
Encasement - Invert elev. = 624.50 ft, Width = 4.75 ft, Height = 4.00 ft, Voids = 40.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	624.50	n/a	0	0
0.40	624.90	n/a	758	758
0.80	625.30	n/a	758	1,515
1.20	625.70	n/a	1,236	2,751
1.60	626.10	n/a	1,695	4,446
2.00	626.50	n/a	1,637	6,083
2.40	626.90	n/a	1,531	7,614
2.80	627.30	n/a	1,350	8,963
3.20	627.70	n/a	951	9,914
3.60	628.10	n/a	758	10,672
4.00	628.50	n/a	758	11,430

Culvert / Orifice Structures

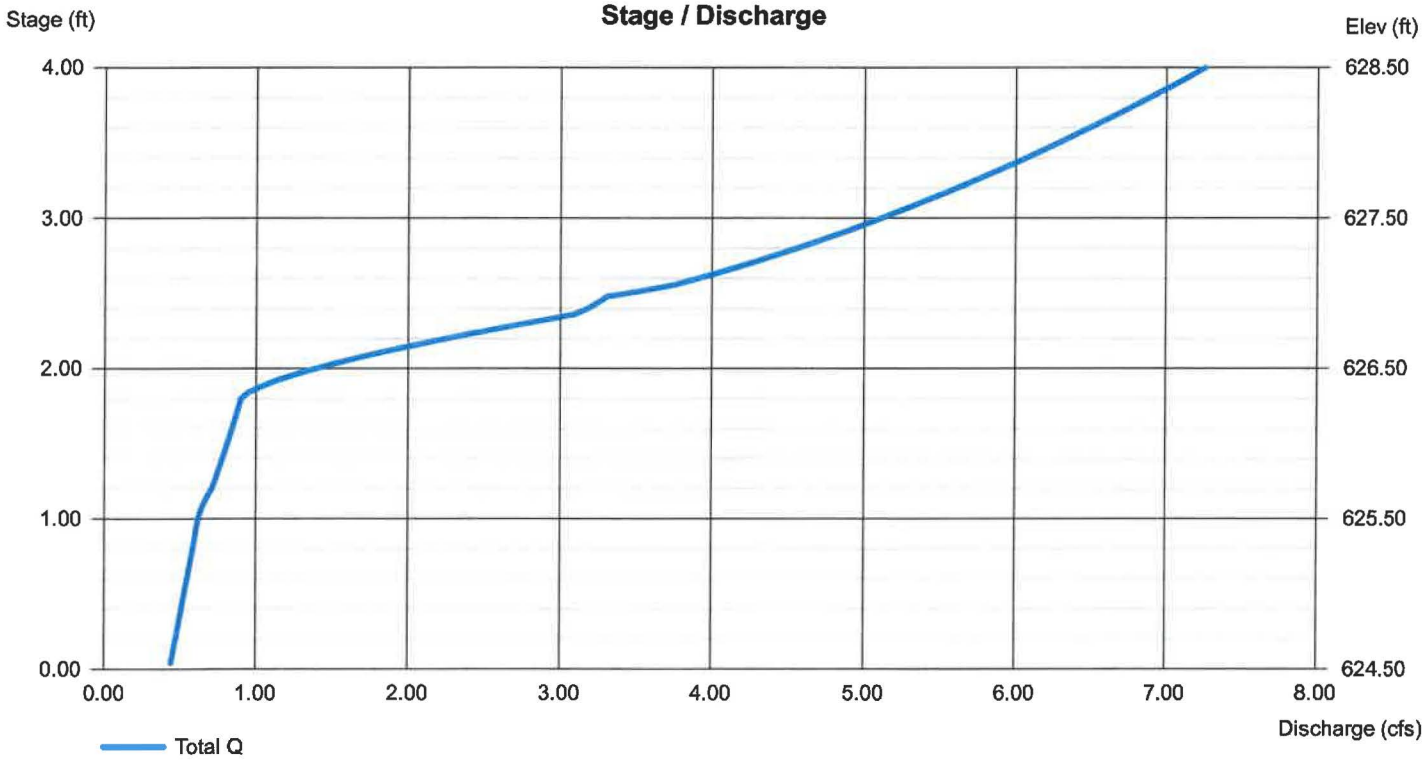
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	2.50	9.00	0.00
Span (in)	= 15.00	2.50	18.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 625.50	625.50	626.30	0.00
Length (ft)	= 10.00	0.50	0.50	0.00
Slope (%)	= 1.00	0.01	0.01	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.00	0.00	0.00	0.00
Crest El. (ft)	= 628.50	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 4.000 (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

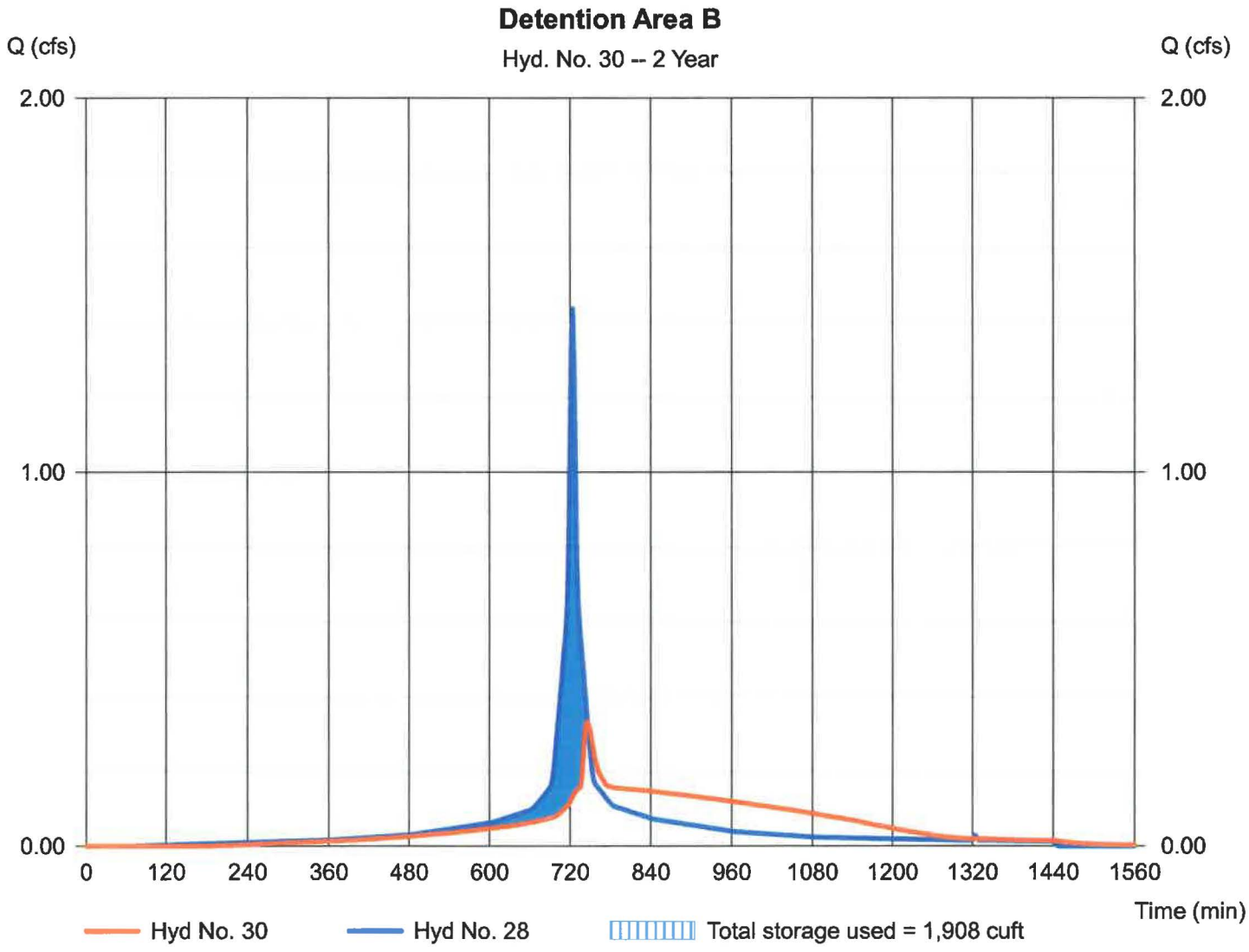
Hydraflow Hydrographs by Intelisolve v9.23 Monday, Sep 28, 2020

Hyd. No. 30

Detention Area B

Hydrograph type	= Reservoir	Peak discharge	= 0.331 cfs
Storm frequency	= 2 yrs	Time to peak	= 746 min
Time interval	= 2 min	Hyd. volume	= 4,821 cuft
Inflow hyd. No.	= 28 - Combine to Detention Area B - F & G	Max. Elevation	= 625.89 ft
Reservoir name	= Detentiion Area B	Max. Storage	= 1,908 cuft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Pond No. 2 - Detentiion Area B

Pond Data

UG Chambers - Invert elev. = 624.74 ft, Rise x Span = 1.50 x 1.50 ft, Barrel Len = 20.00 ft, No. Barrels = 66, Slope = 0.00%, Headers = No

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	624.74	n/a	0	0
0.15	624.89	n/a	121	121
0.30	625.04	n/a	211	332
0.45	625.19	n/a	257	589
0.60	625.34	n/a	283	872
0.75	625.49	n/a	295	1,167
0.90	625.64	n/a	295	1,462
1.05	625.79	n/a	283	1,745
1.20	625.94	n/a	256	2,001
1.35	626.09	n/a	211	2,212
1.50	626.24	n/a	121	2,333

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	2.50	Inactive	0.00
Span (in)	= 15.00	2.50	18.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 624.74	624.75	625.25	0.00
Length (ft)	= 115.00	0.33	0.33	0.00
Slope (%)	= 0.50	0.01	0.01	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

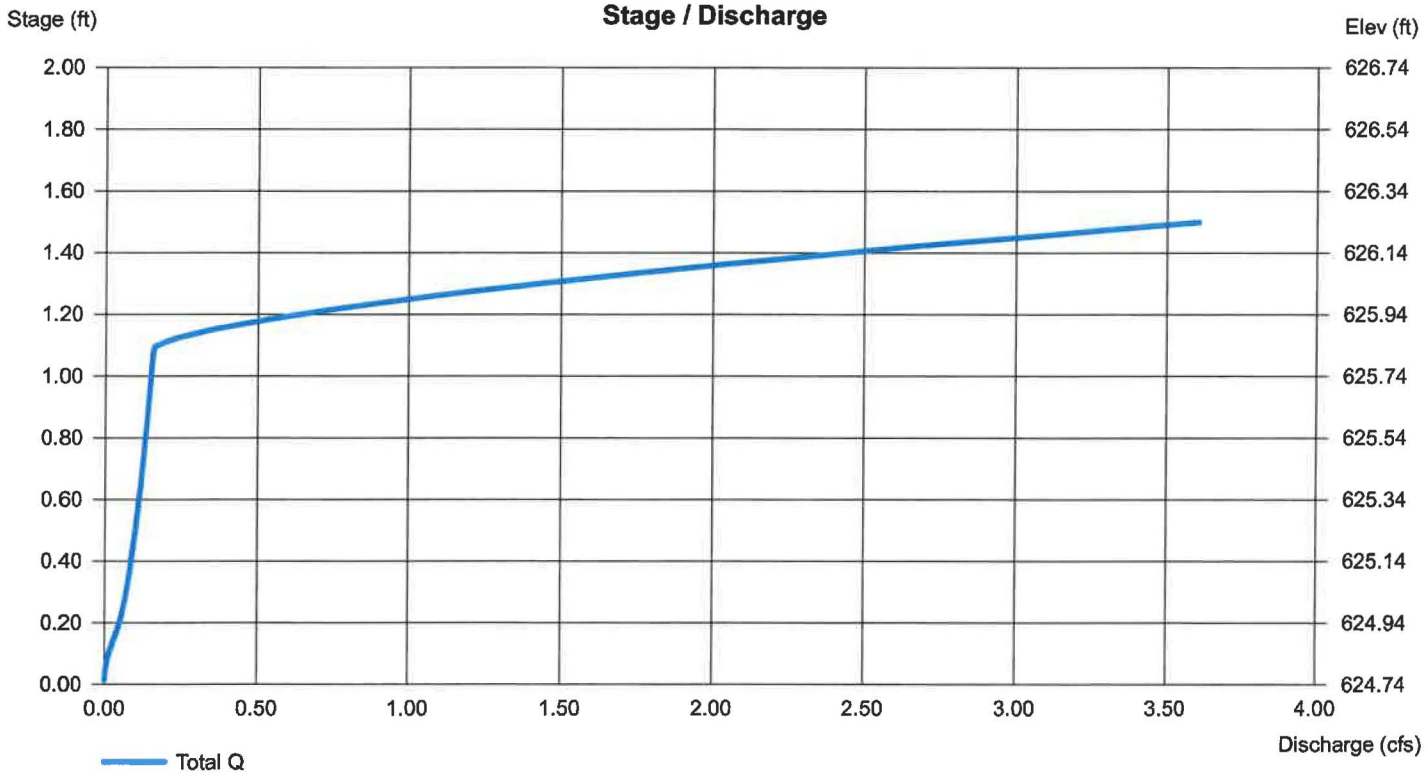
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 4.00	0.00	0.00	0.00
Crest El. (ft)	= 625.83	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Contour)

TW Elev. (ft) = 0.00

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



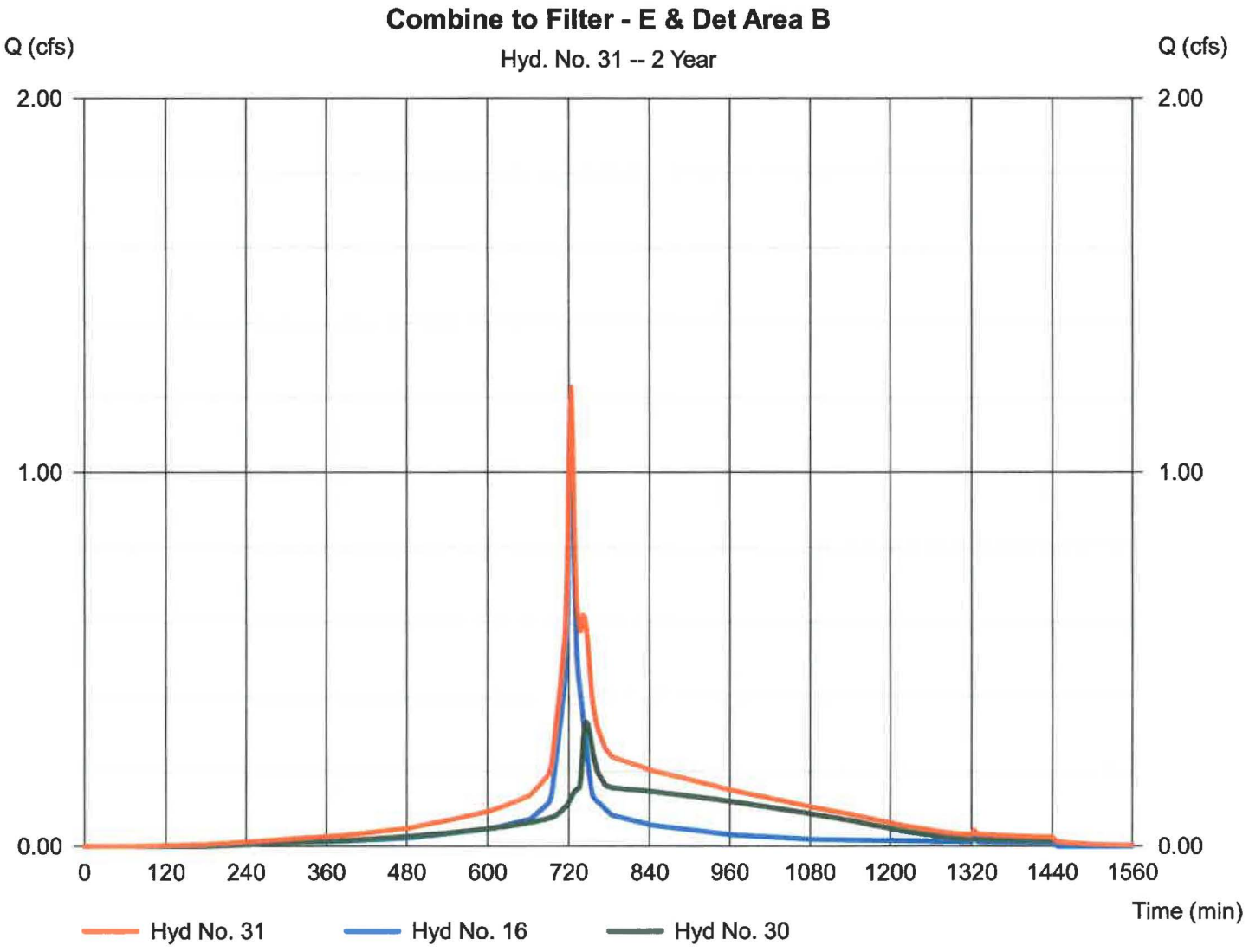
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 Monday, Sep 28, 2020

Hyd. No. 31

Combine to Filter - E & Det Area B

Hydrograph type	= Combine	Peak discharge	= 1.229 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 8,512 cuft
Inflow hyds.	= 16, 30	Contrib. drain. area	= 0.000 ac



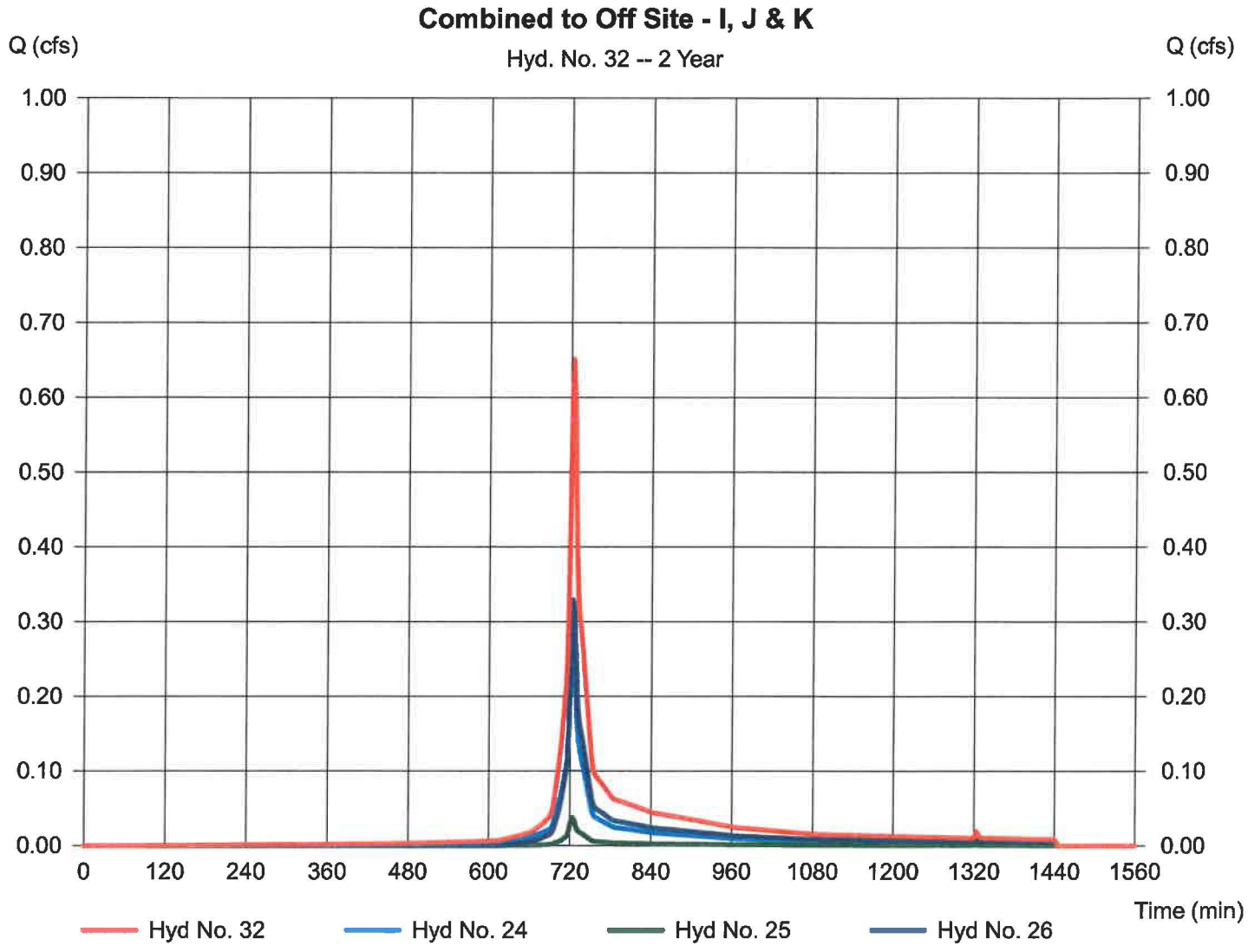
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 32

Combined to Off Site - I, J & K

Hydrograph type	= Combine	Peak discharge	= 0.651 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 2,053 cuft
Inflow hyds.	= 24, 25, 26	Contrib. drain. area	= 0.263 ac



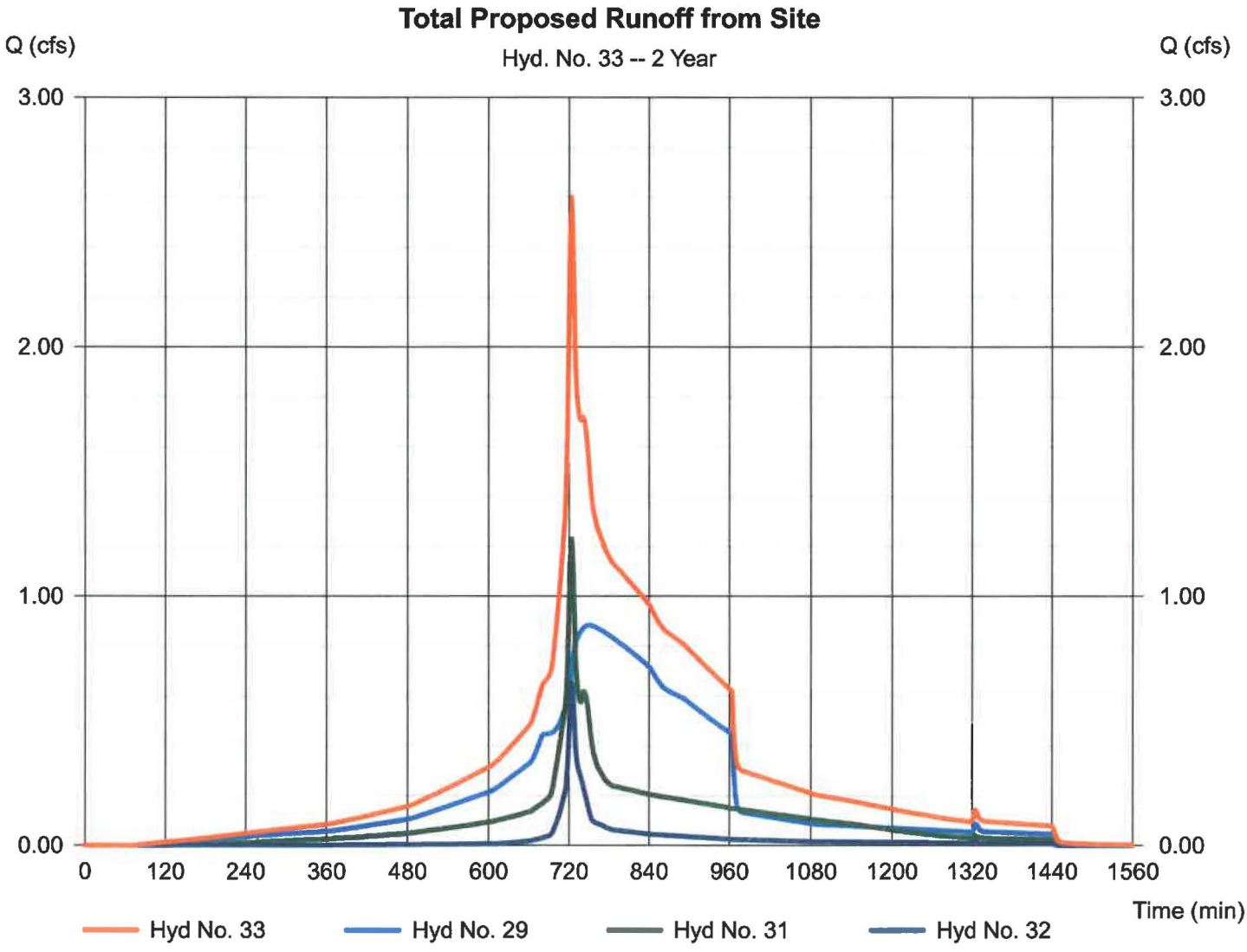
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 33

Total Proposed Runoff from Site

Hydrograph type	= Combine	Peak discharge	= 2.602 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 27,675 cuft
Inflow hyds.	= 29, 31, 32	Contrib. drain. area	= 0.000 ac



10-YEAR STORM EVENT

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.23

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	4.362	2	724	13,062	----	------	------	Existing Drainage Area A - Pervious
2	SCS Runoff	7.179	2	724	24,721	----	------	------	Existing Drainage Area A - Impervio
3	Combine	11.54	2	724	37,783	1, 2	------	------	Existing D.A. A Combined
4	SCS Runoff	0.564	2	724	1,941	----	------	------	Proposed Drainage Area A1
5	SCS Runoff	0.559	2	724	1,924	----	------	------	Proposed Drainage Area B1
6	SCS Runoff	0.439	2	724	1,314	----	------	------	Proposed Drainage Area B2
7	Combine	0.997	2	724	3,238	5, 6	------	------	D.A. B Combined
8	SCS Runoff	1.221	2	724	4,205	----	------	------	Proposed Drainage Area C1
9	SCS Runoff	0.142	2	724	426	----	------	------	Proposed Drainage Area C2
10	Combine	1.364	2	724	4,632	8, 9	------	------	D.A. C Combined
11	SCS Runoff	1.023	2	724	3,524	----	------	------	Proposed Drainage Area D1
12	SCS Runoff	0.151	2	724	453	----	------	------	Proposed Drainage Area D2
13	Combine	1.175	2	724	3,977	11, 12	------	------	D.A. D Combined
14	SCS Runoff	1.493	2	724	5,142	----	------	------	Proposed Drainage Area E1
15	SCS Runoff	0.198	2	724	592	----	------	------	Proposed Drainage Area E2
16	Combine	1.691	2	724	5,733	14, 15	------	------	D.A. E Combined
17	SCS Runoff	0.559	2	724	1,924	----	------	------	Proposed Drainage Area F1
18	SCS Runoff	1.468	2	724	5,056	----	------	------	Proposed Drainage Area G1
19	SCS Runoff	0.157	2	724	470	----	------	------	Proposed Drainage Area G2
20	Combine	1.625	2	724	5,526	18, 19	------	------	D.A. G Combined
21	SCS Runoff	3.673	2	724	12,650	----	------	------	Proposed Drainage Area H1
22	SCS Runoff	0.203	2	724	698	----	------	------	Proposed Drainage Area I1
23	SCS Runoff	0.308	2	724	922	----	------	------	Proposed Drainage Area I2
24	Combine	0.511	2	724	1,620	22, 23	------	------	D.A. I Combined
25	SCS Runoff	0.078	2	724	235	----	------	------	Proposed Drainage Area J1
26	SCS Runoff	0.686	2	724	2,054	----	------	------	Proposed Drainage Area K1
27	Combine	7.773	2	724	26,437	4, 7, 10, 13, 21,	------	------	Combine to Detention Area A - A, B,
28	Combine	2.184	2	724	7,450	17, 20,	------	------	Combine to Detention Area B - F &
29	Reservoir	2.665	2	738	26,437	27	626.78	7,157	Detention Area A
30	Reservoir	1.598	2	728	7,425	28	626.06	2,168	Detention Area B
31	Combine	2.927	2	726	13,158	16, 30	------	------	Combine to Filter - E & Det Area B
32	Combine	1.275	2	724	3,909	24, 25, 26,	------	------	Combined to Off Site - I, J & K
33	Combine	5.467	2	728	43,504	29, 31, 32	------	------	Total Proposed Runoff from Site

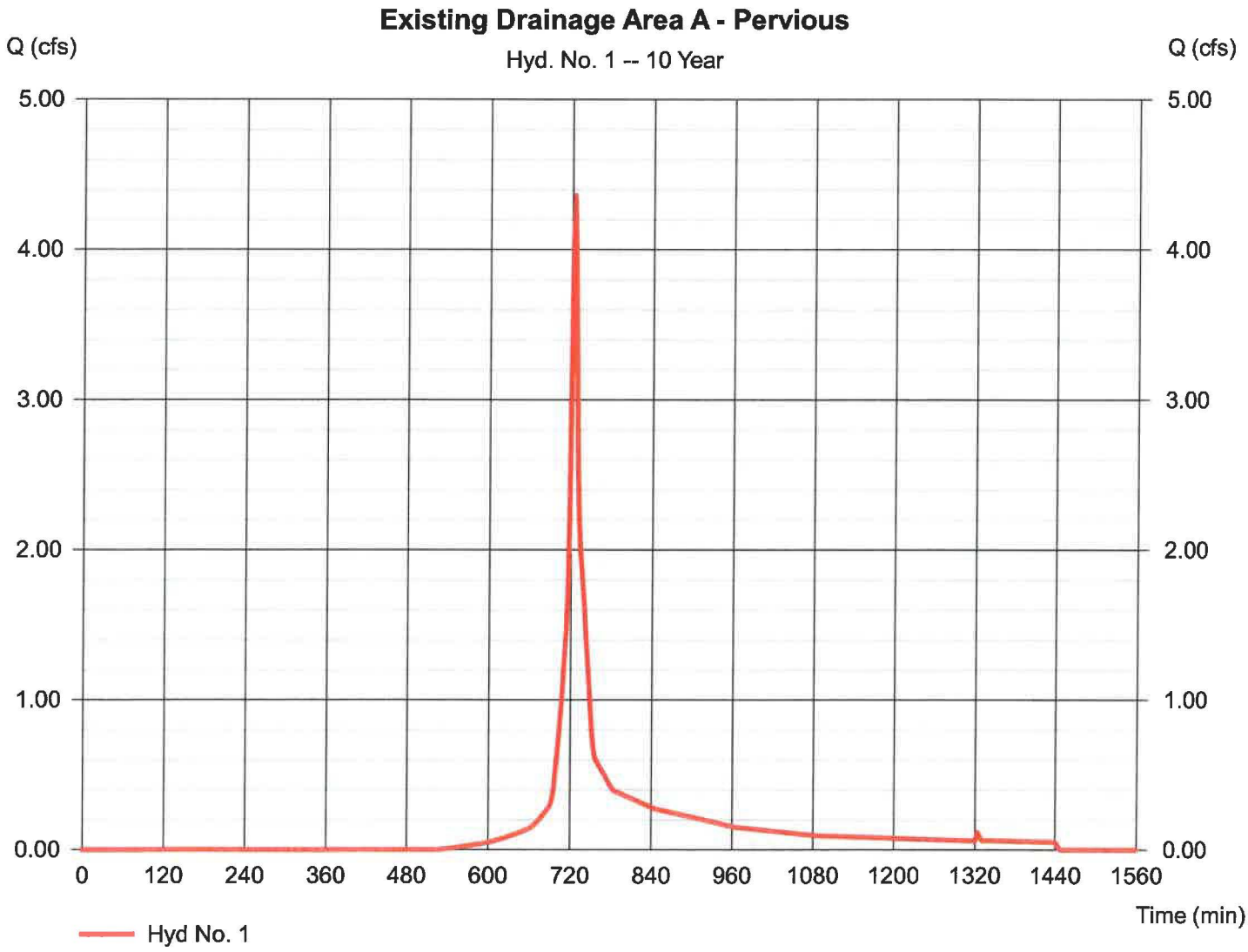
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 1

Existing Drainage Area A - Pervious

Hydrograph type	= SCS Runoff	Peak discharge	= 4.362 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 13,062 cuft
Drainage area	= 1.501 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 6.50 min
Total precip.	= 5.24 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



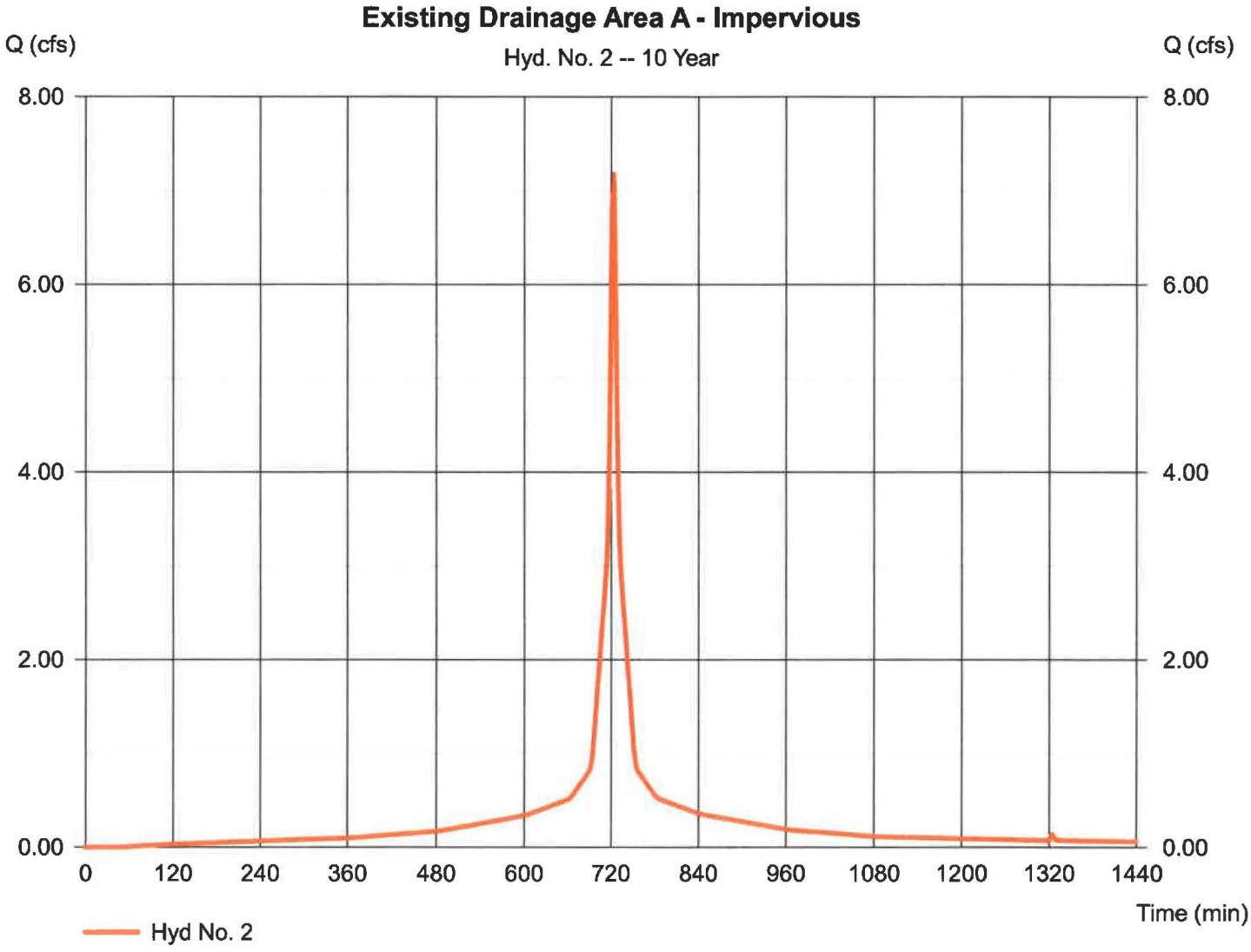
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 2

Existing Drainage Area A - Impervious

Hydrograph type	= SCS Runoff	Peak discharge	= 7.179 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 24,721 cuft
Drainage area	= 1.452 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.50 min
Total precip.	= 5.24 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



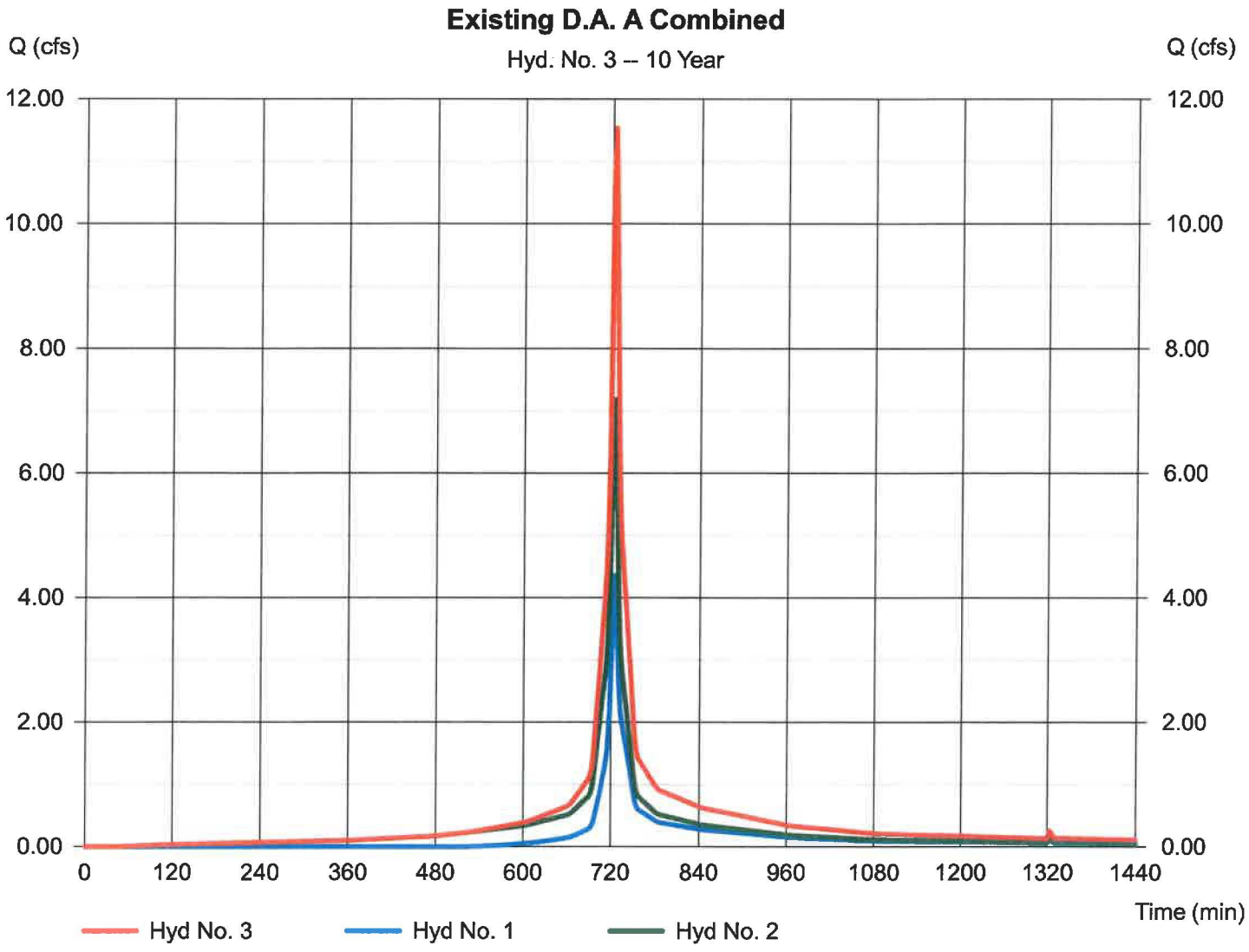
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 3

Existing D.A. A Combined

Hydrograph type	= Combine	Peak discharge	= 11.54 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 37,783 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 2.953 ac



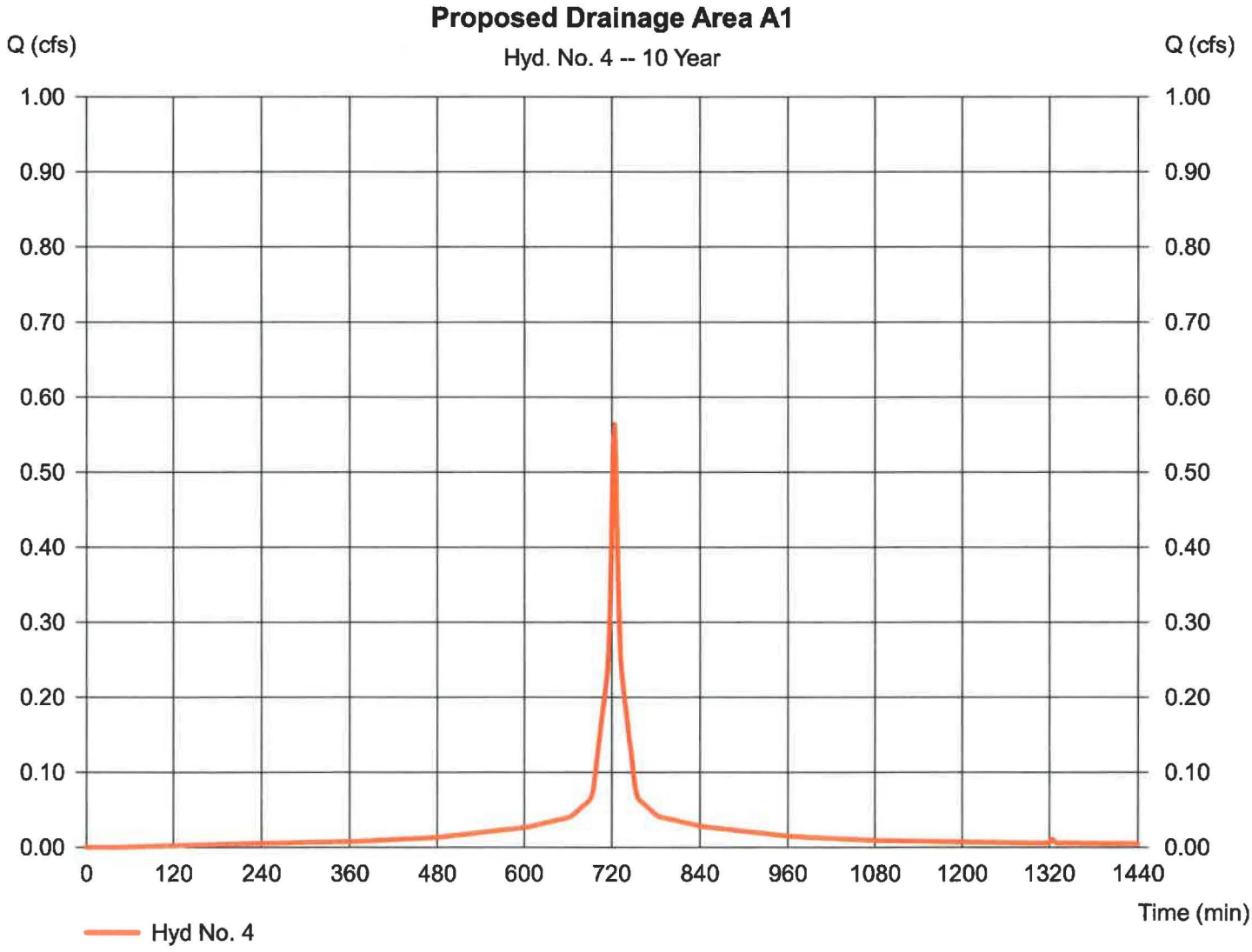
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 4

Proposed Drainage Area A1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.564 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 1,941 cuft
Drainage area	= 0.114 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 5.24 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



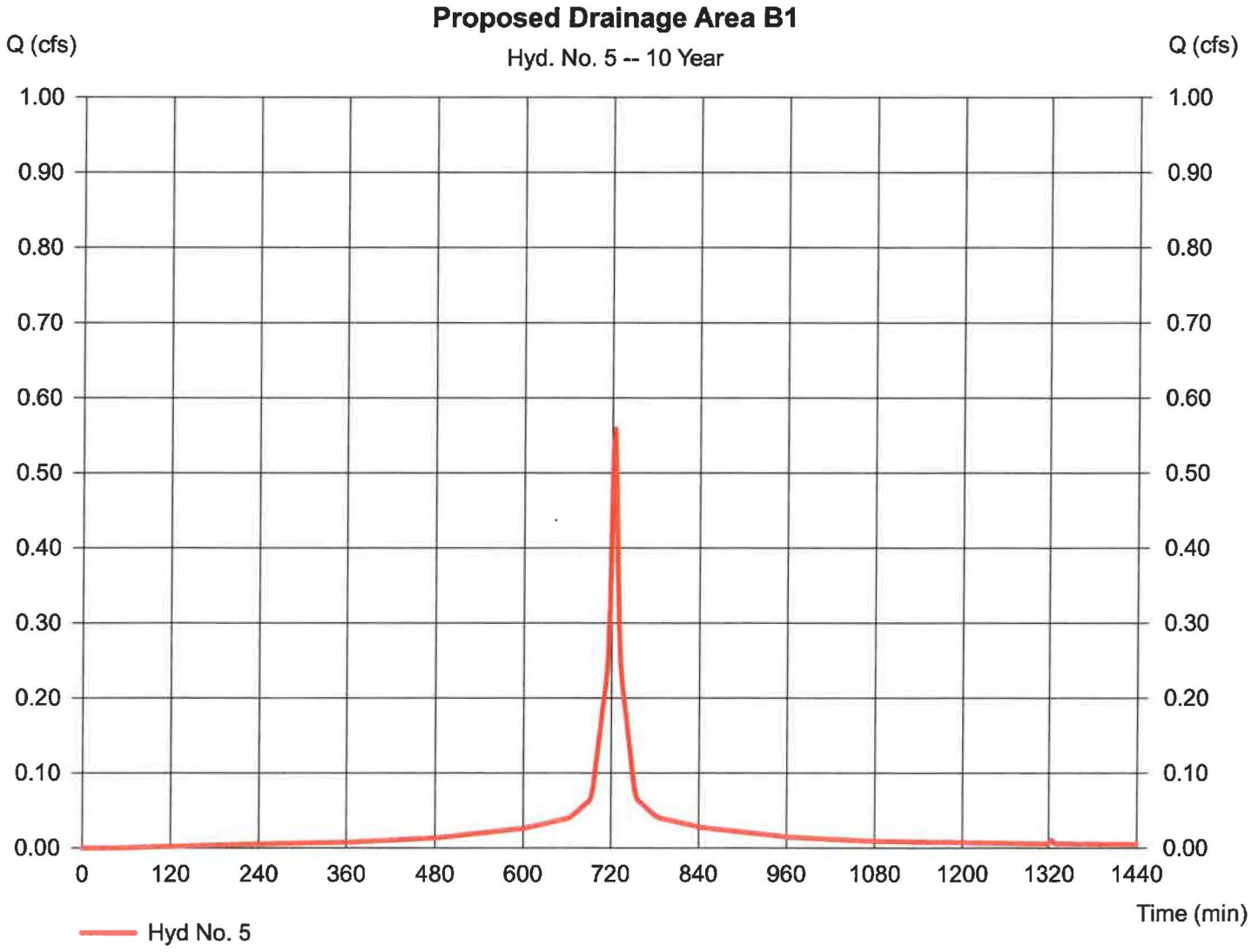
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 5

Proposed Drainage Area B1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.559 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 1,924 cuft
Drainage area	= 0.113 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 5.24 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



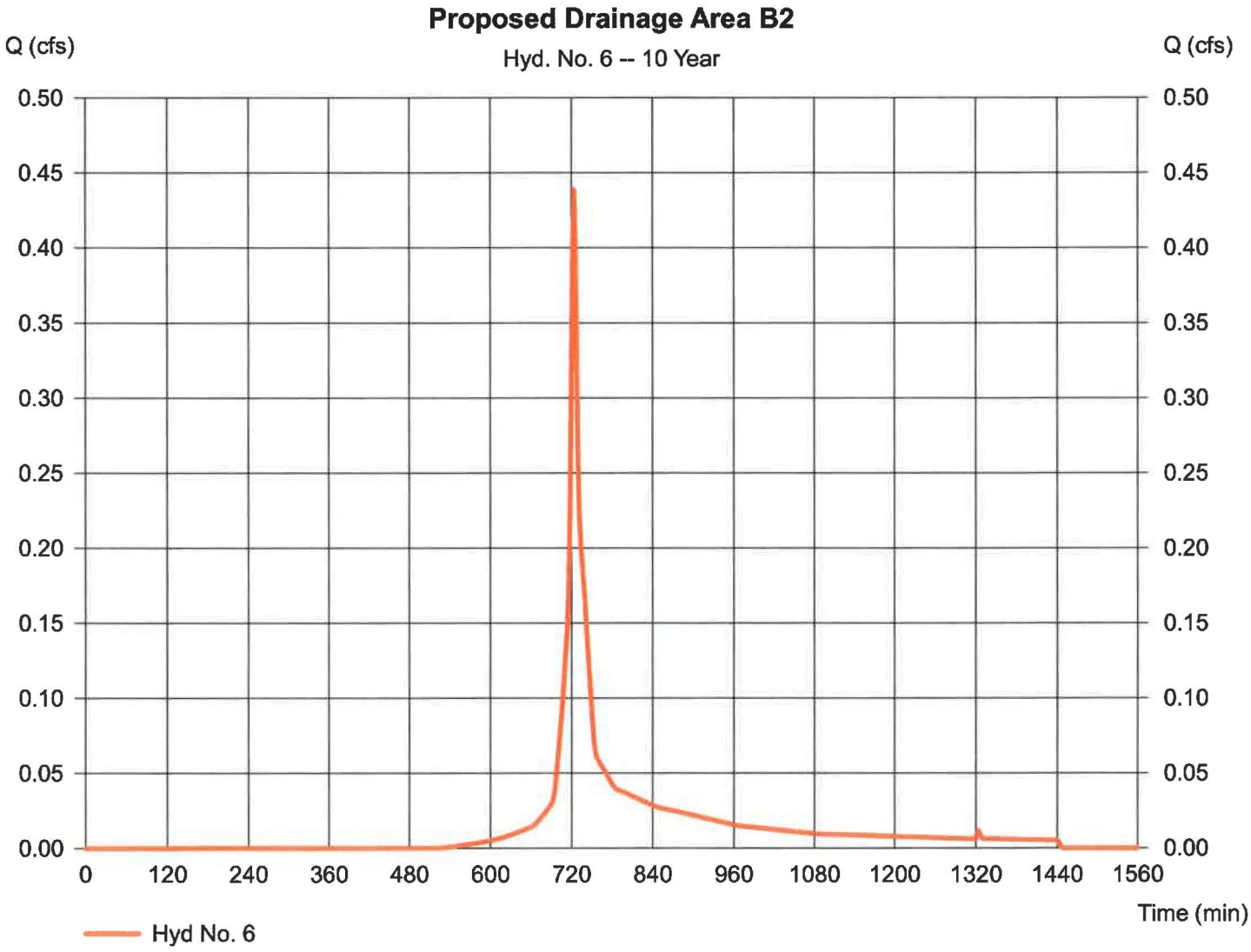
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 6

Proposed Drainage Area B2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.439 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 1,314 cuft
Drainage area	= 0.151 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 5.24 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



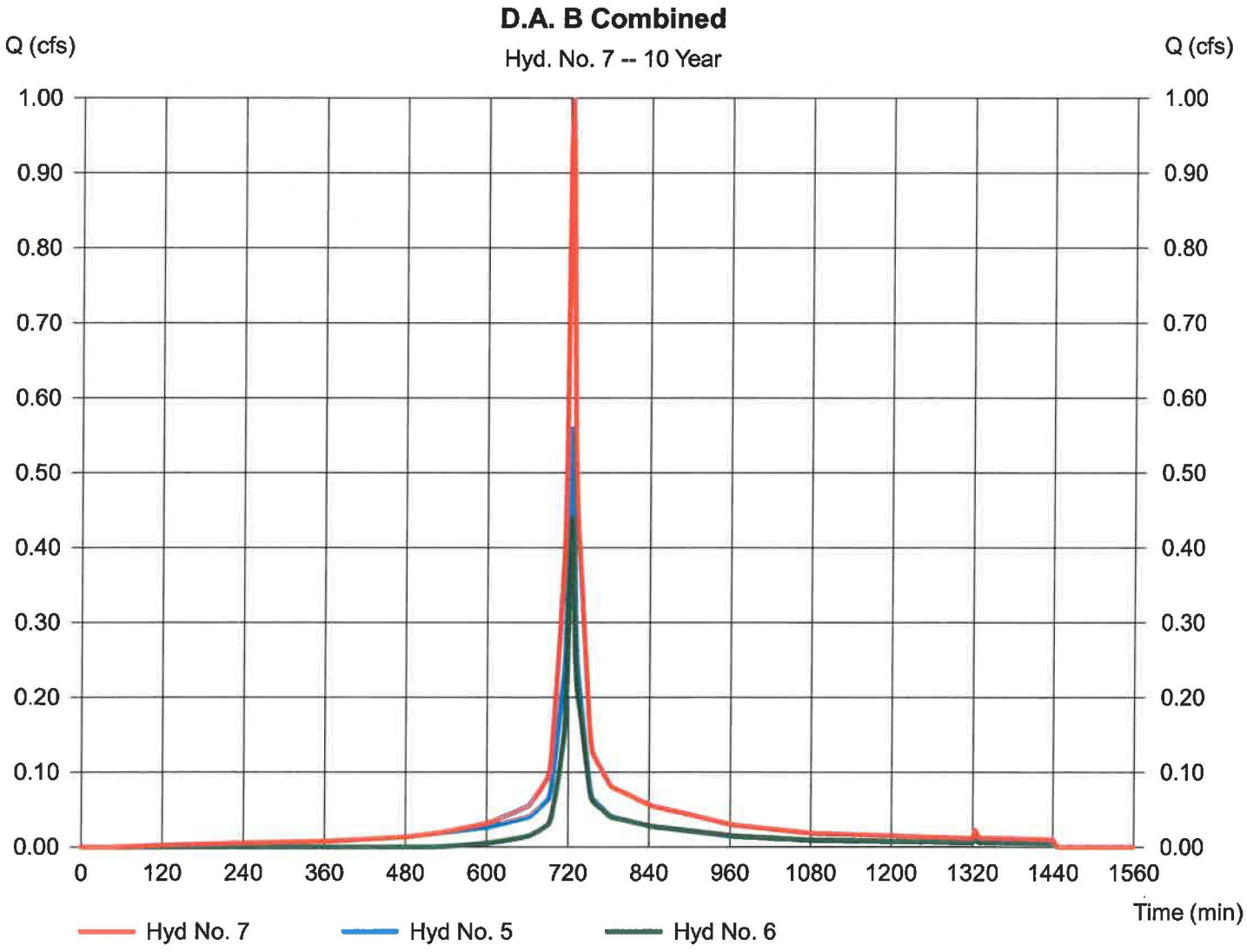
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 7

D.A. B Combined

Hydrograph type	= Combine	Peak discharge	= 0.997 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 3,238 cuft
Inflow hyds.	= 5, 6	Contrib. drain. area	= 0.264 ac



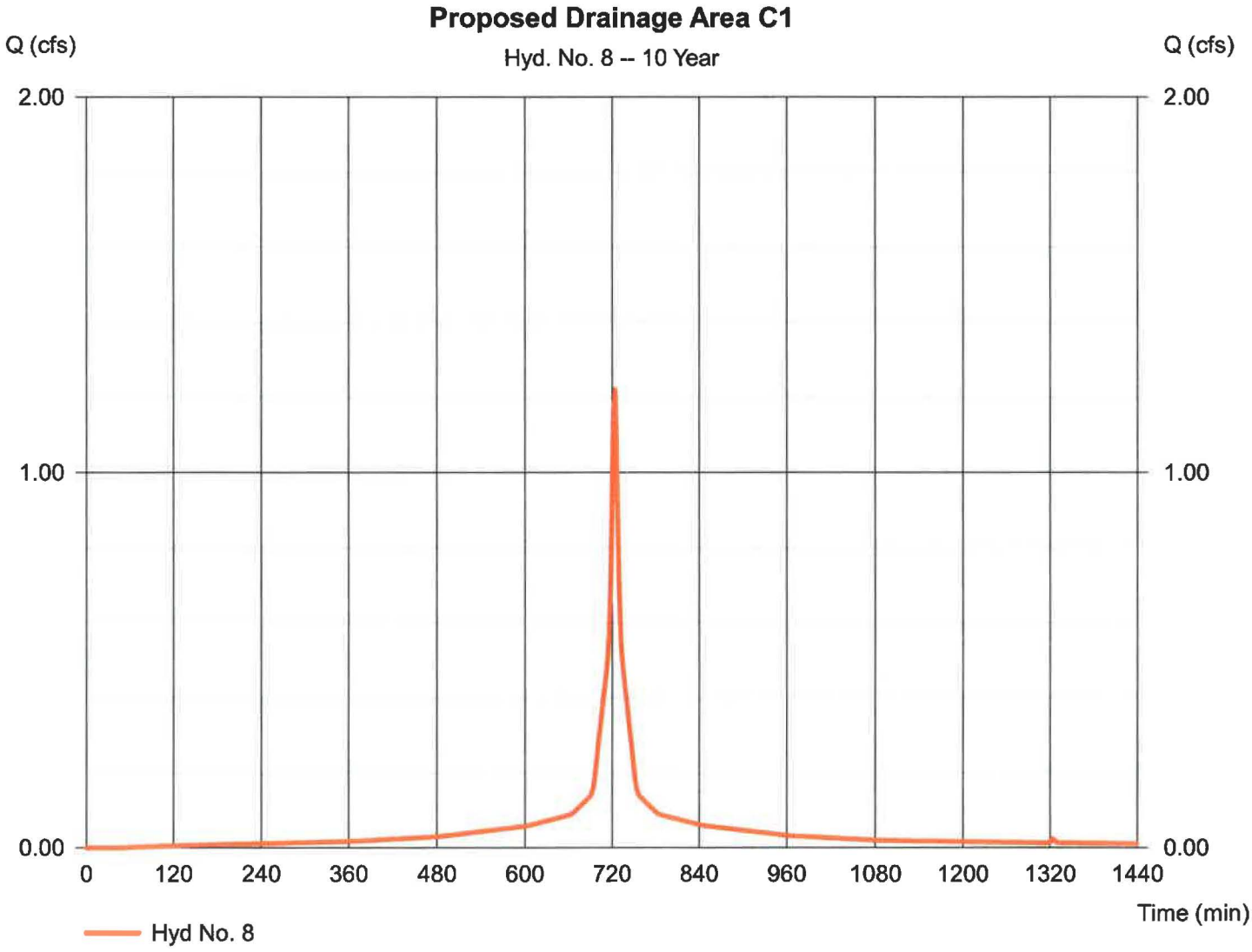
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 8

Proposed Drainage Area C1

Hydrograph type	= SCS Runoff	Peak discharge	= 1.221 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 4,205 cuft
Drainage area	= 0.247 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 5.24 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



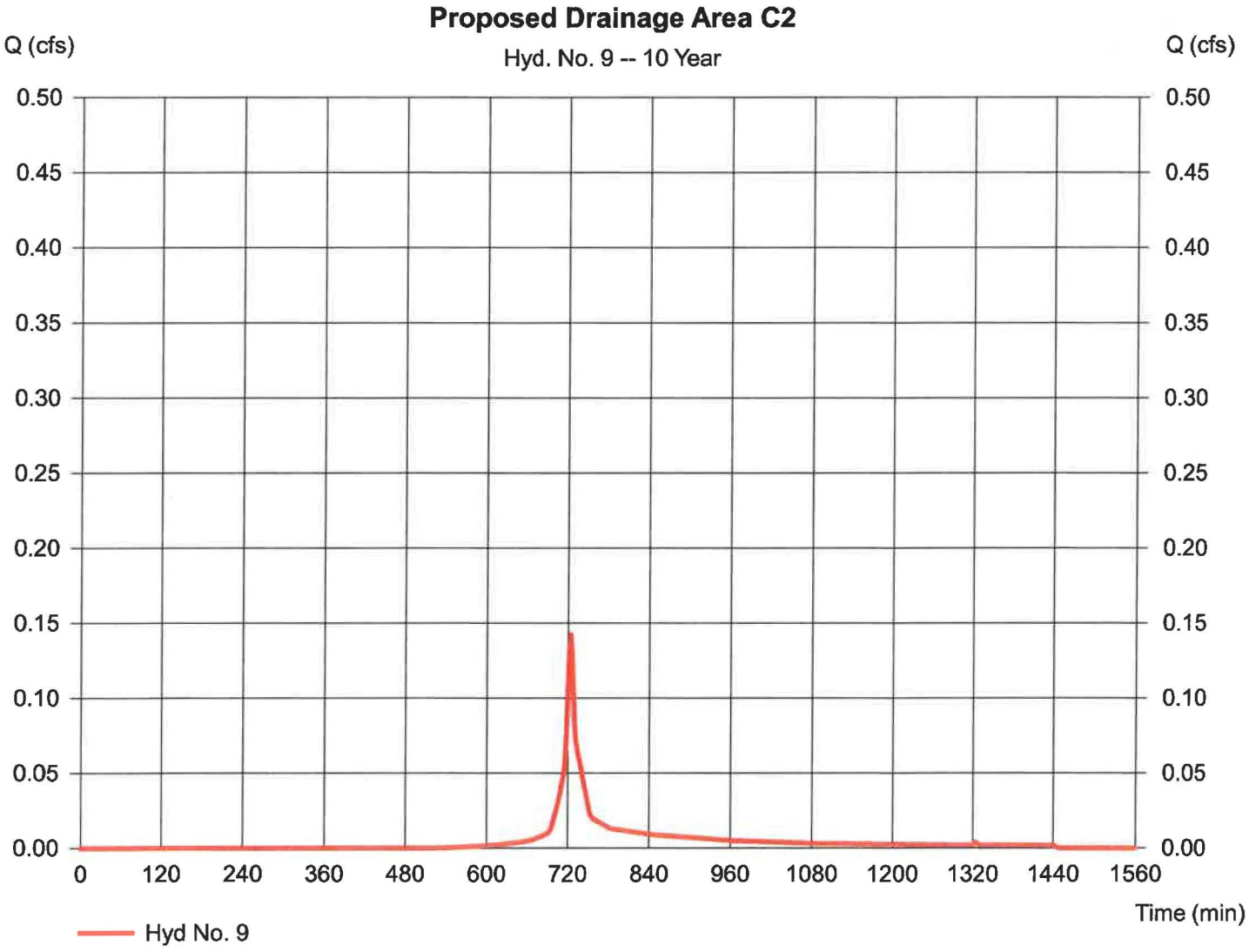
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 9

Proposed Drainage Area C2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.142 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 426 cuft
Drainage area	= 0.049 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 5.24 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



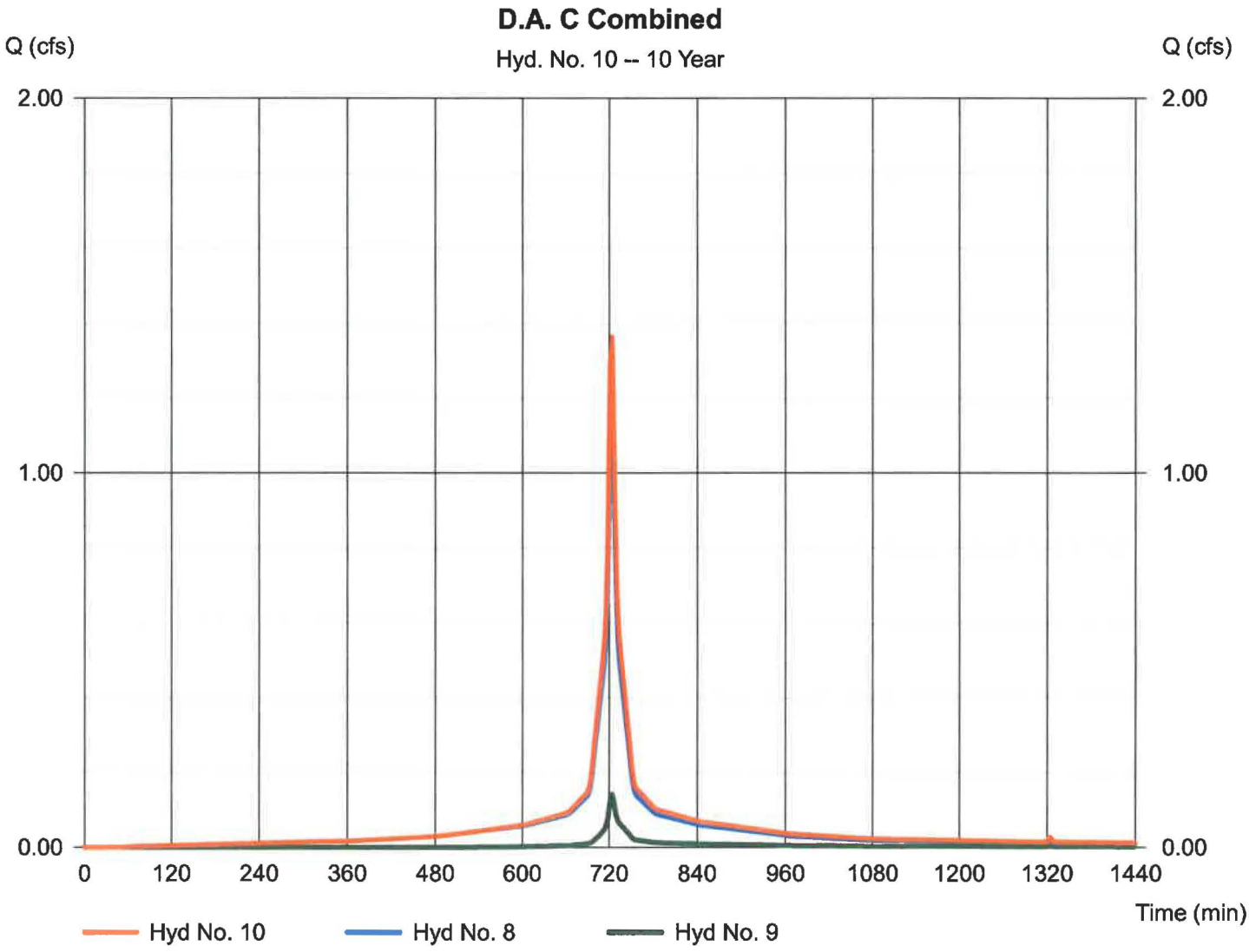
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 Monday, Sep 28, 2020

Hyd. No. 10

D.A. C Combined

Hydrograph type	= Combine	Peak discharge	= 1.364 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 4,632 cuft
Inflow hyds.	= 8, 9	Contrib. drain. area	= 0.296 ac



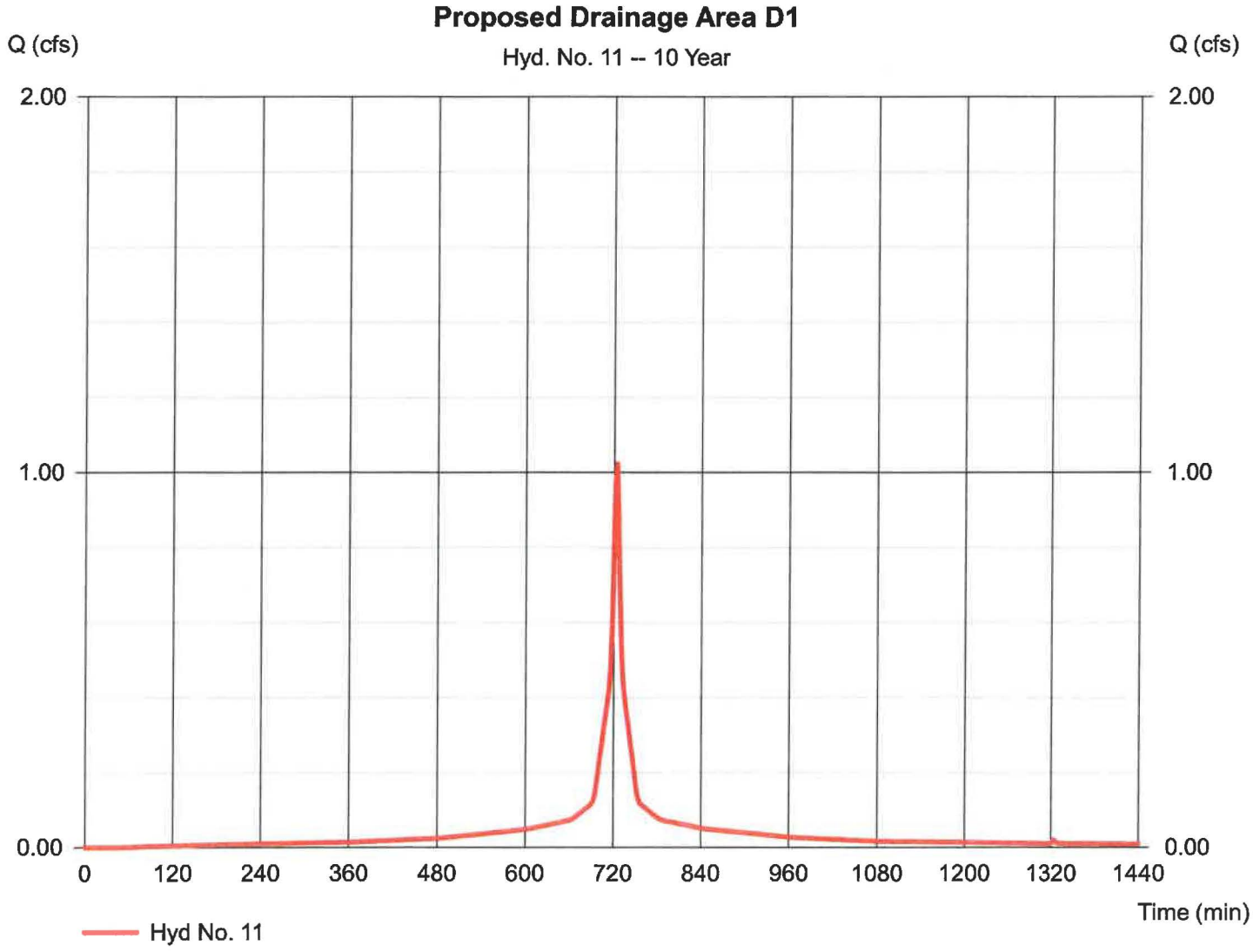
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 11

Proposed Drainage Area D1

Hydrograph type	= SCS Runoff	Peak discharge	= 1.023 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 3,524 cuft
Drainage area	= 0.207 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 5.24 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

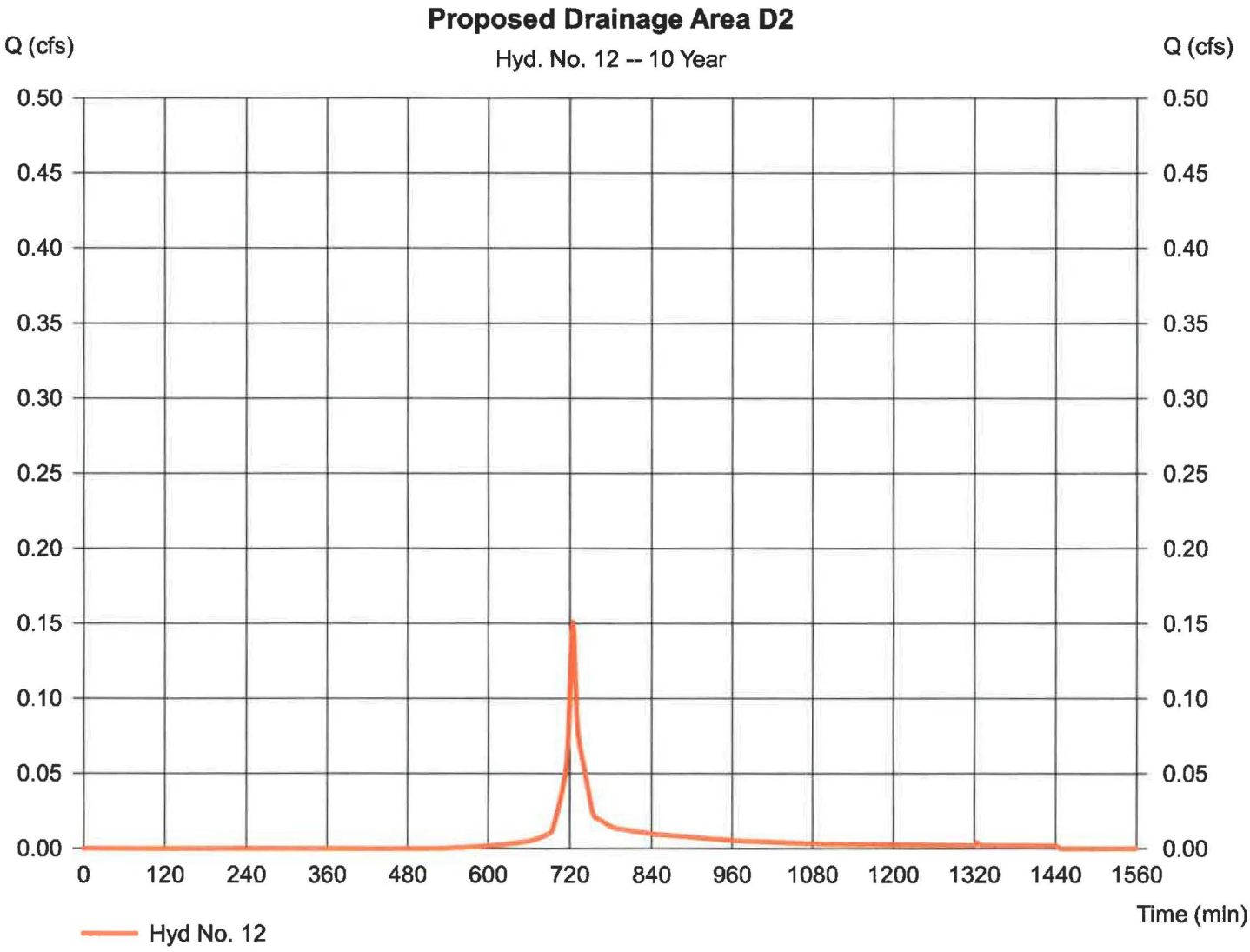
Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 12

Proposed Drainage Area D2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.151 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 453 cuft
Drainage area	= 0.052 ac	Curve number	= 74*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 5.24 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.037 x 74) + (0.015 x 80)] / 0.052



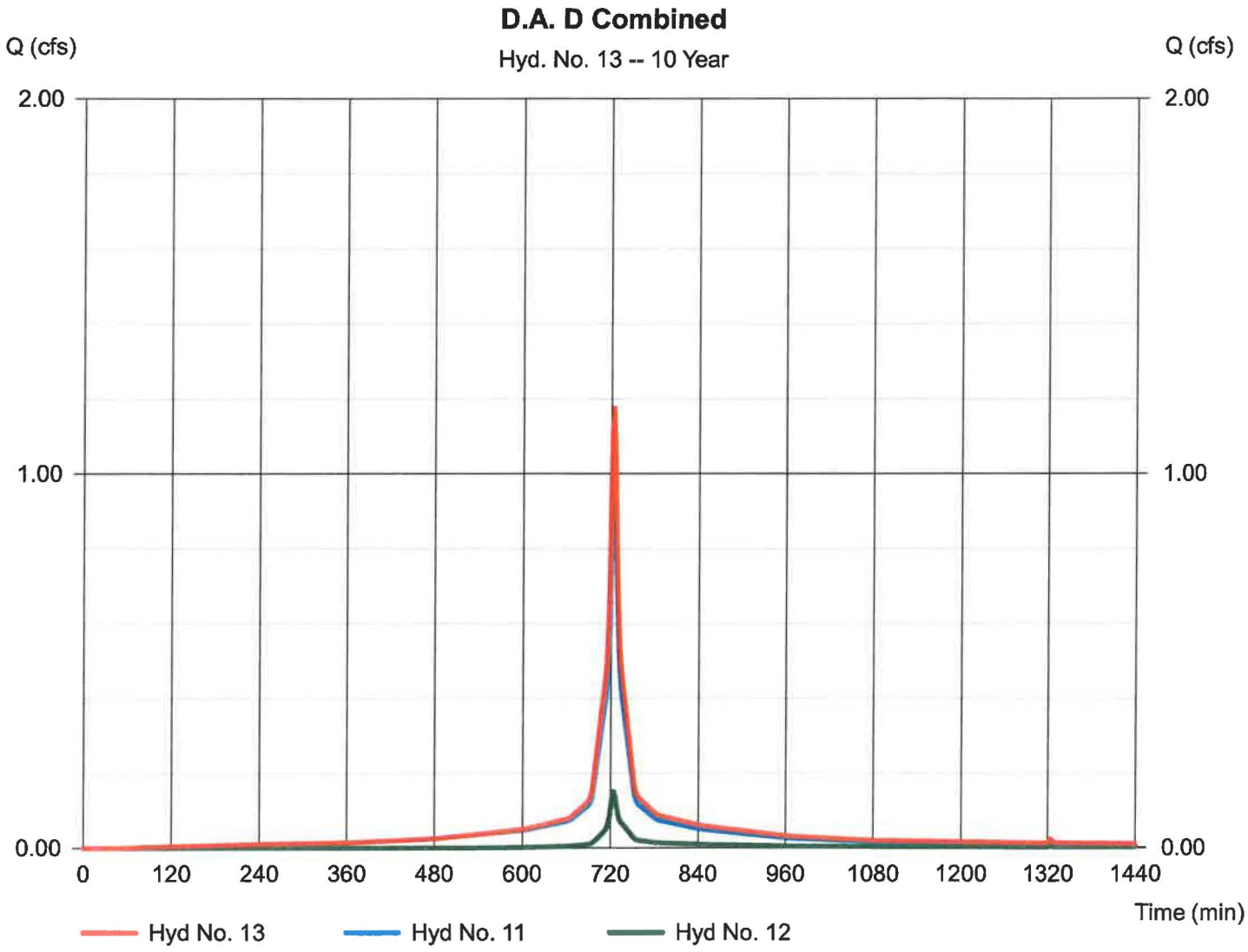
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 13

D.A. D Combined

Hydrograph type	= Combine	Peak discharge	= 1.175 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 3,977 cuft
Inflow hyds.	= 11, 12	Contrib. drain. area	= 0.259 ac



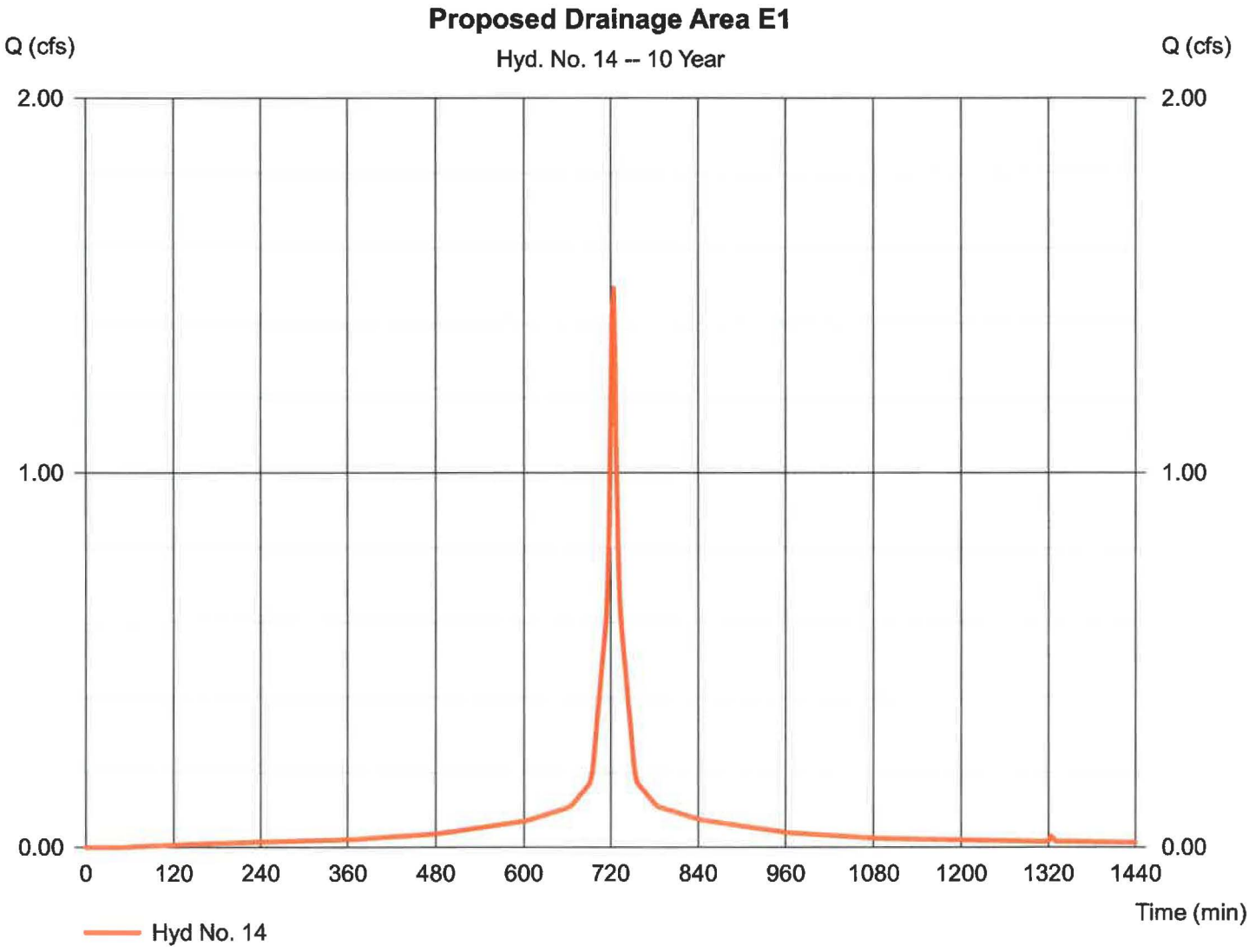
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 14

Proposed Drainage Area E1

Hydrograph type	= SCS Runoff	Peak discharge	= 1.493 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 5,142 cuft
Drainage area	= 0.302 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 5.24 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



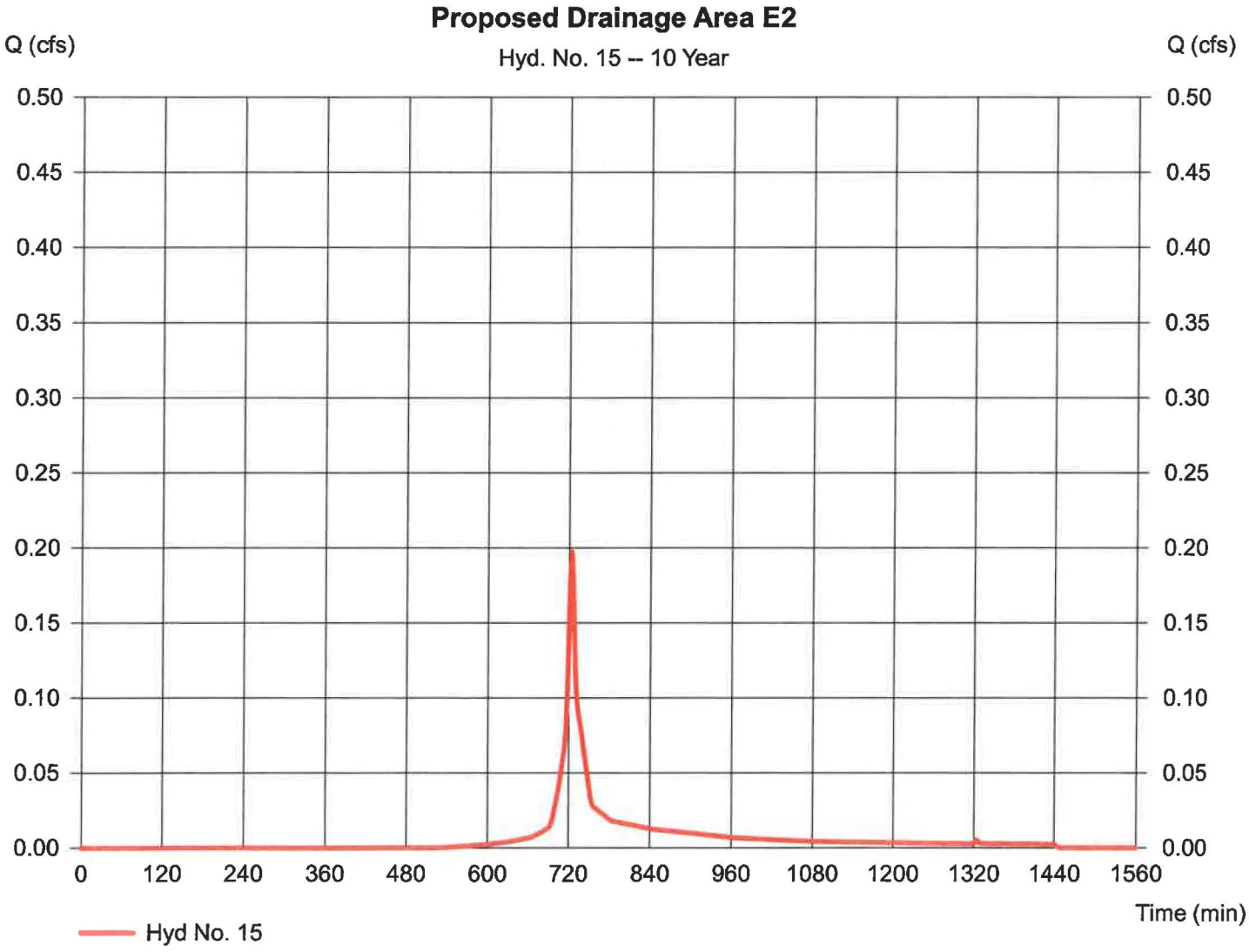
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 15

Proposed Drainage Area E2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.198 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 592 cuft
Drainage area	= 0.068 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 5.24 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



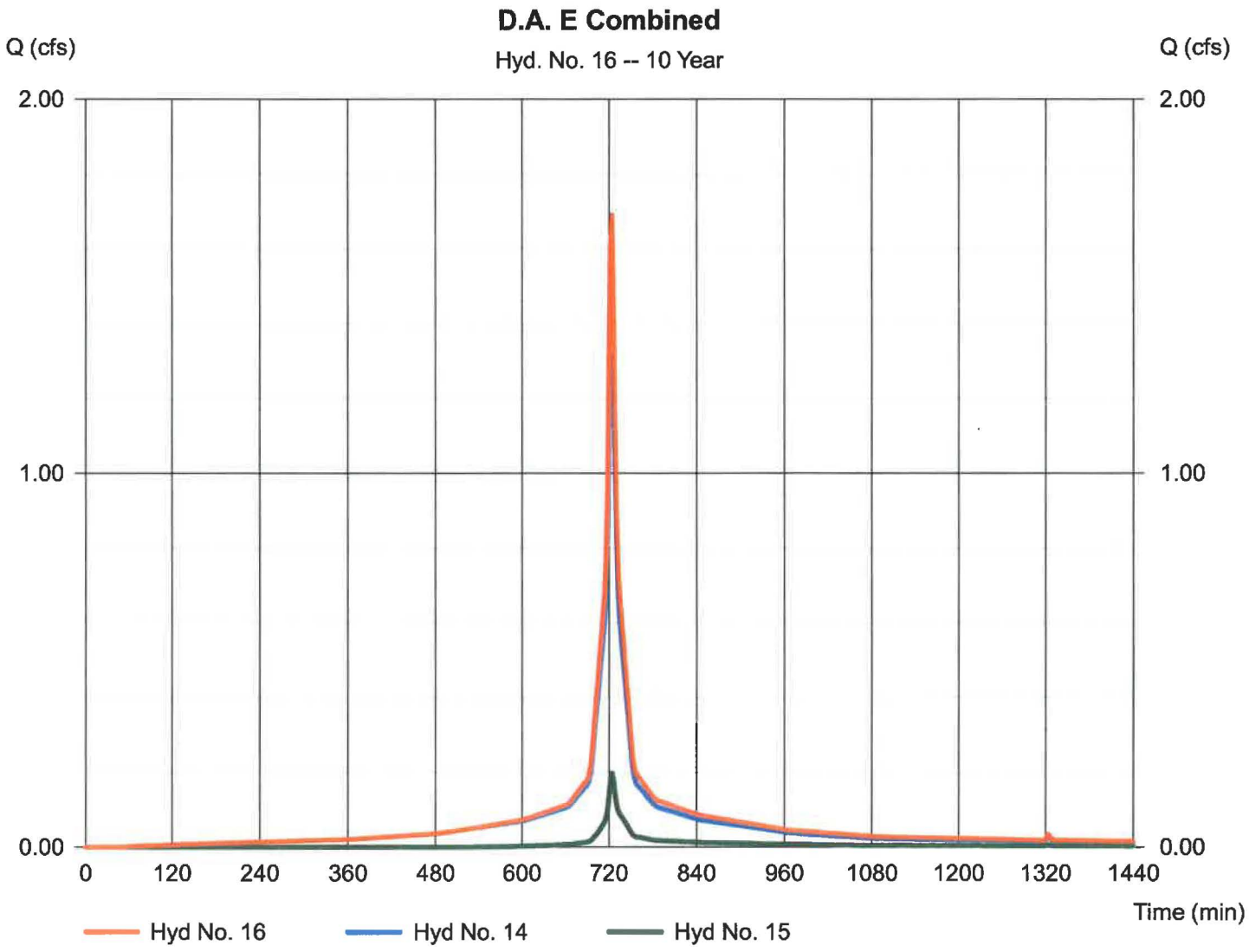
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 Monday, Sep 28, 2020

Hyd. No. 16

D.A. E Combined

Hydrograph type	= Combine	Peak discharge	= 1.691 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 5,733 cuft
Inflow hyds.	= 14, 15	Contrib. drain. area	= 0.370 ac



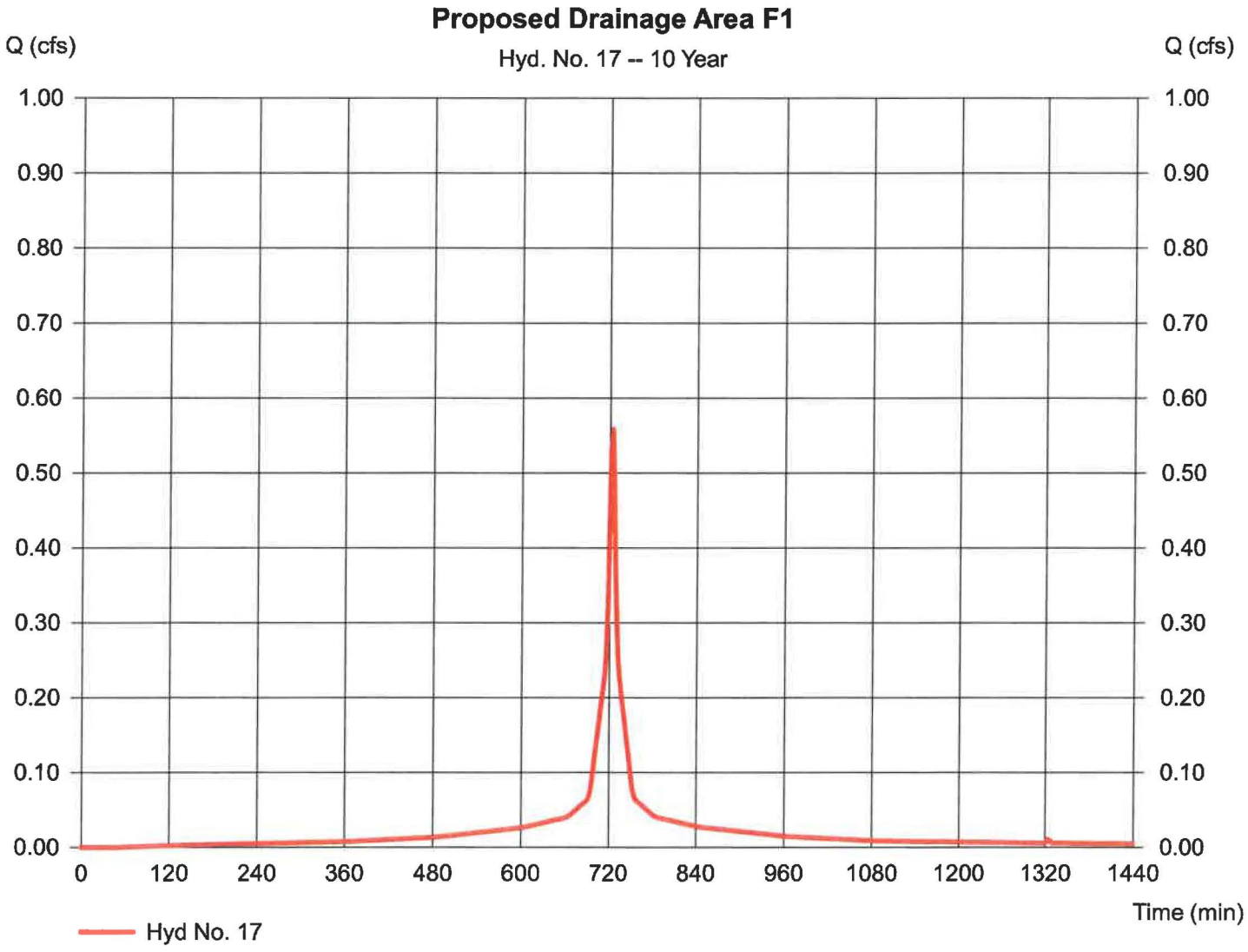
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 17

Proposed Drainage Area F1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.559 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 1,924 cuft
Drainage area	= 0.113 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 5.24 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



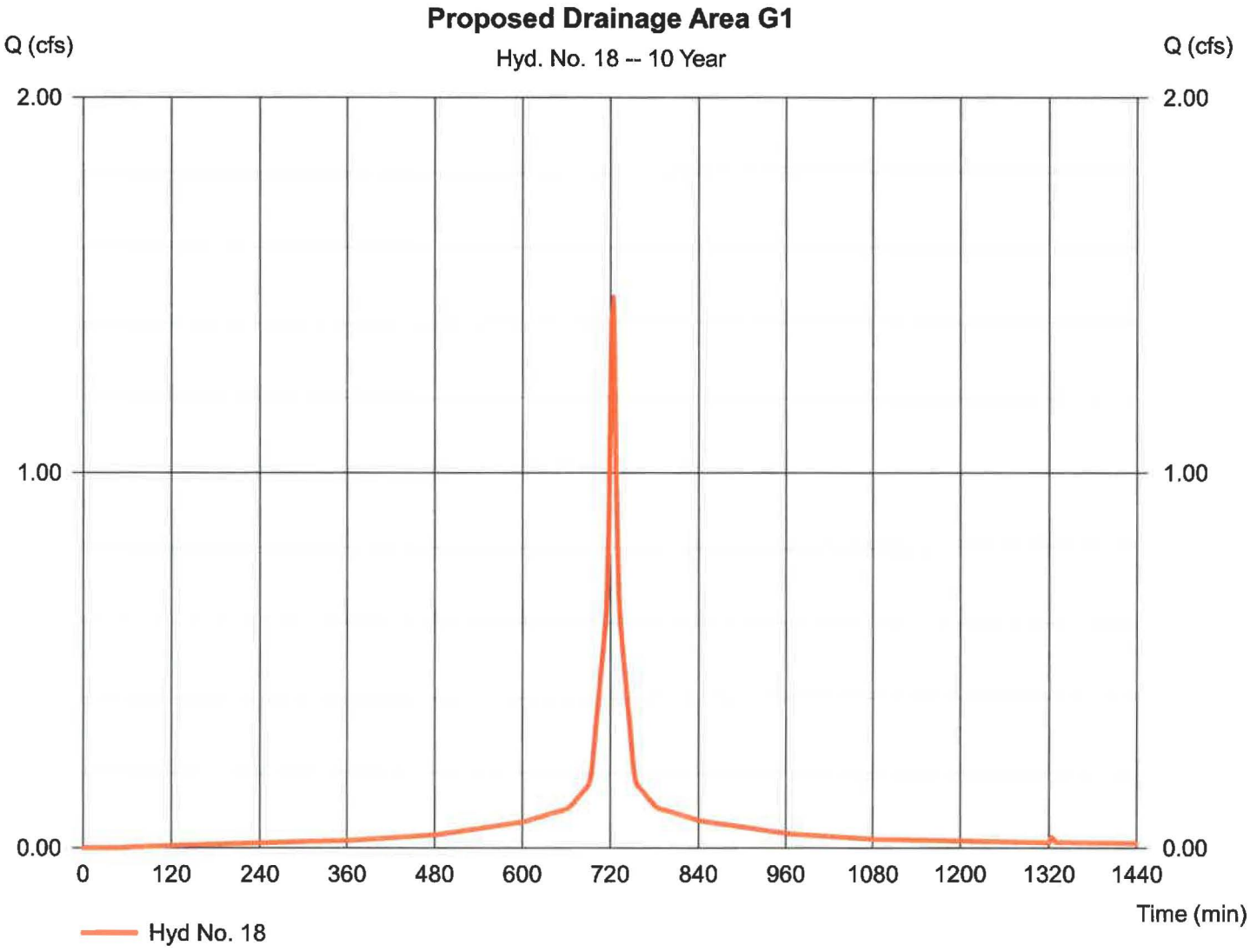
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 18

Proposed Drainage Area G1

Hydrograph type	= SCS Runoff	Peak discharge	= 1.468 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 5,056 cuft
Drainage area	= 0.297 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 5.24 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



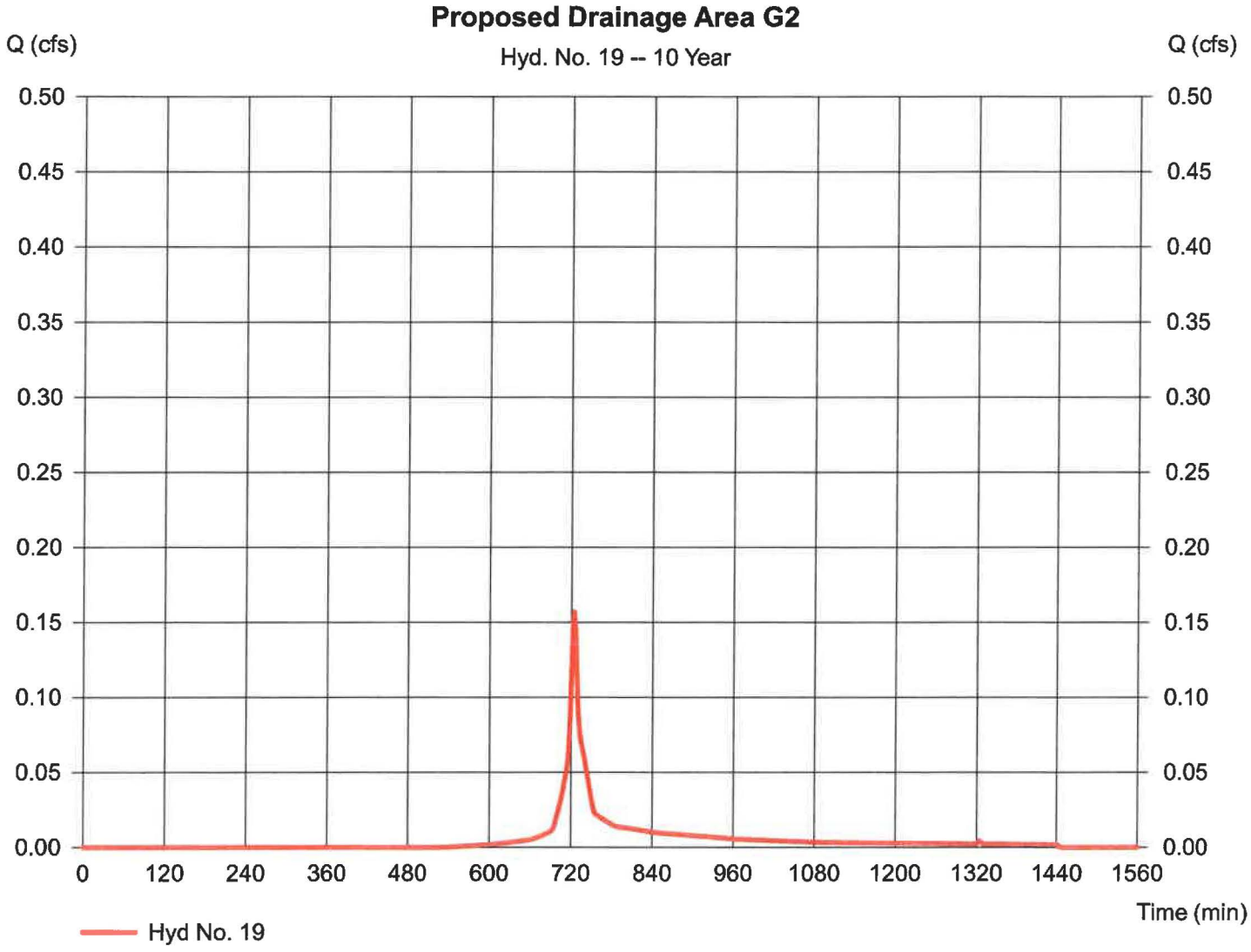
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 19

Proposed Drainage Area G2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.157 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 470 cuft
Drainage area	= 0.054 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 5.24 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



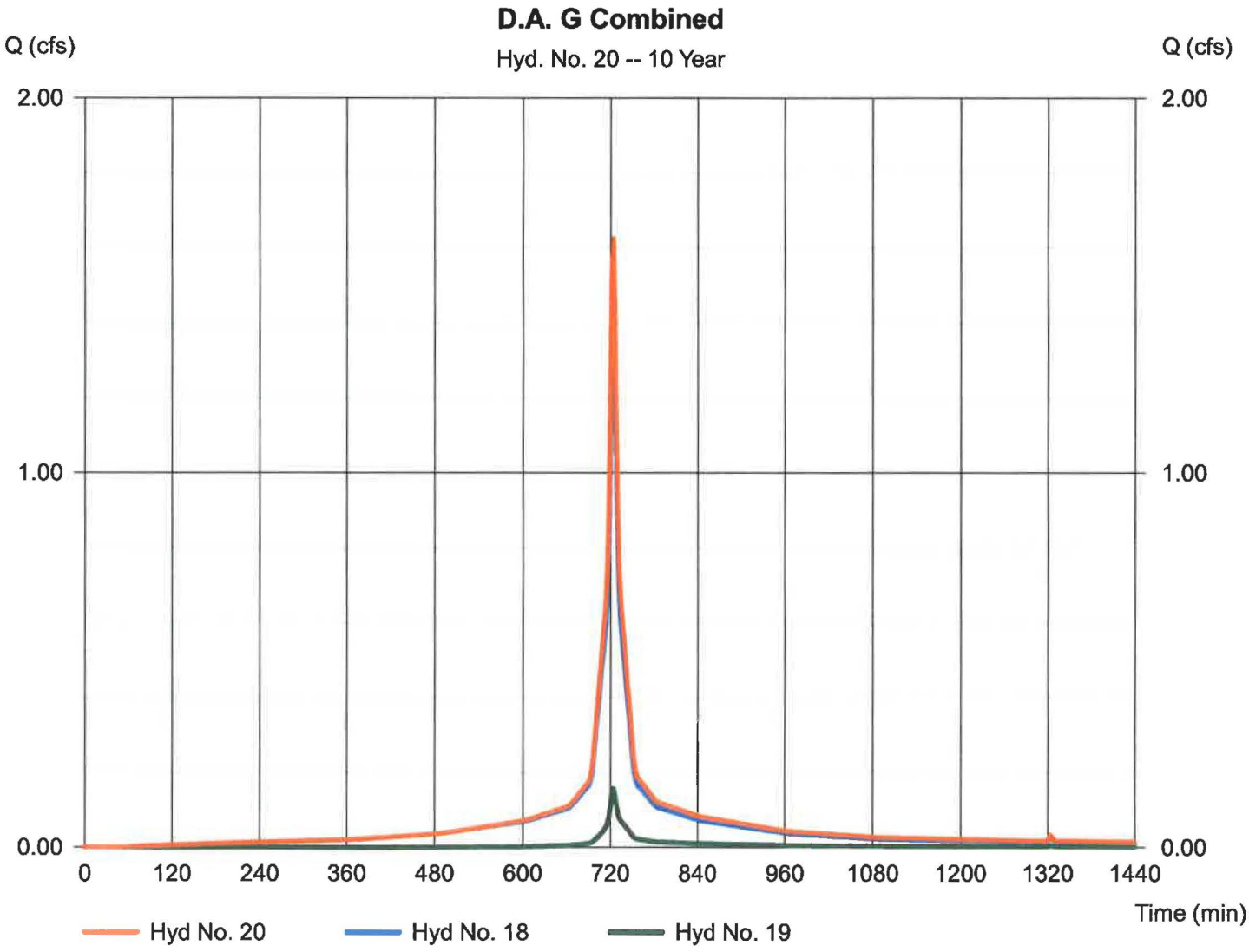
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 Monday, Sep 28, 2020

Hyd. No. 20

D.A. G Combined

Hydrograph type	= Combine	Peak discharge	= 1.625 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 5,526 cuft
Inflow hyds.	= 18, 19	Contrib. drain. area	= 0.351 ac



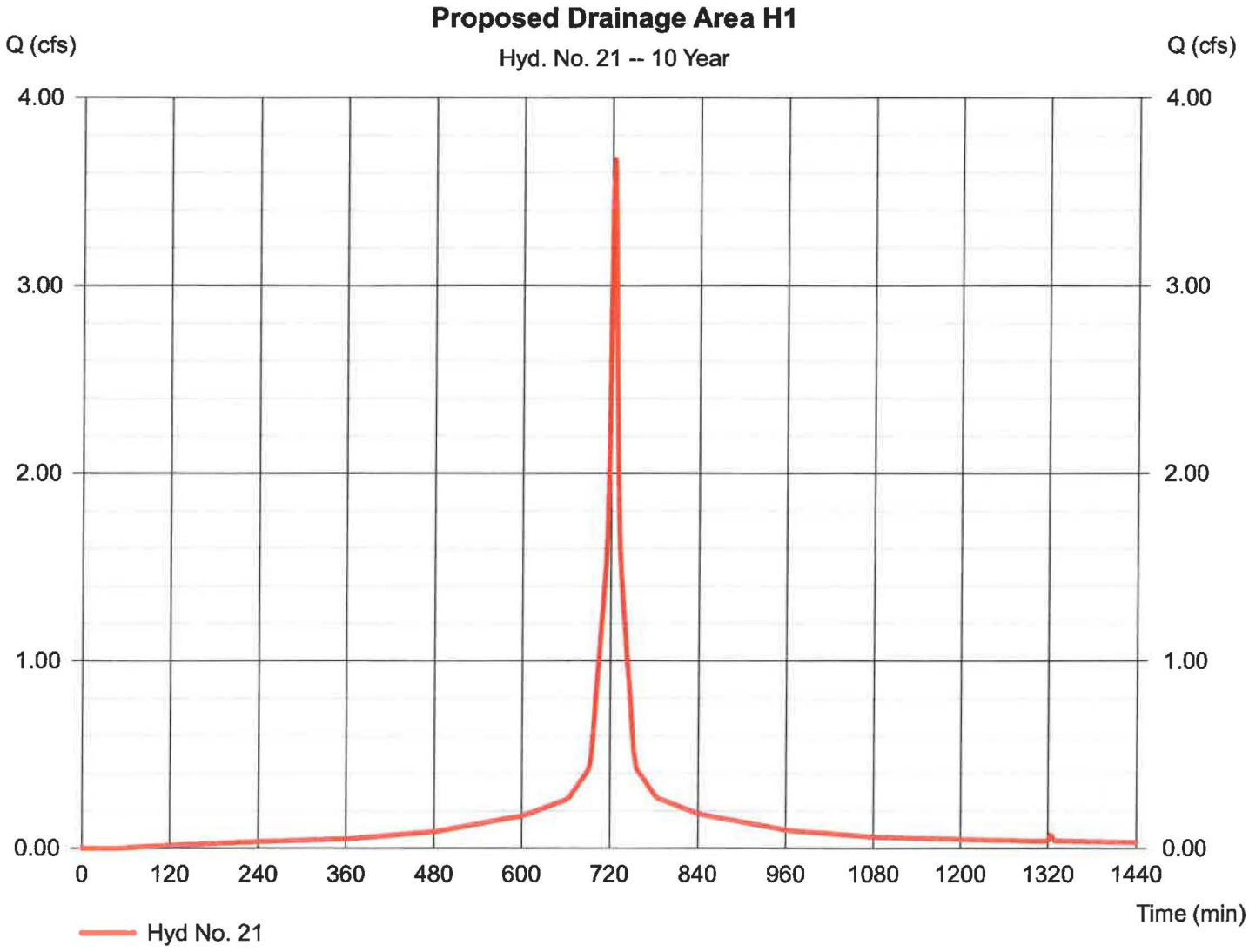
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 21

Proposed Drainage Area H1

Hydrograph type	= SCS Runoff	Peak discharge	= 3.673 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 12,650 cuft
Drainage area	= 0.743 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 5.24 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



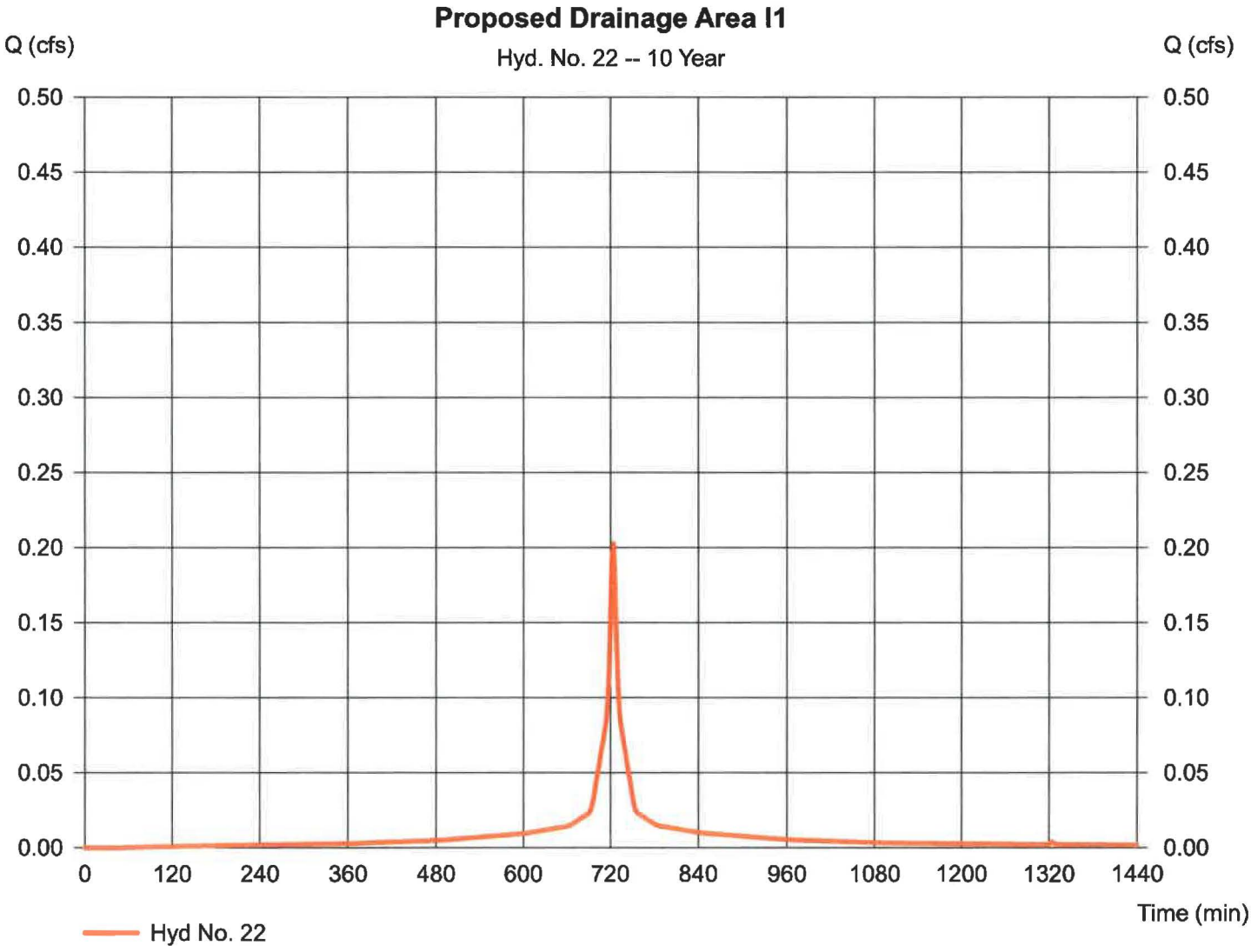
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 22

Proposed Drainage Area I1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.203 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 698 cuft
Drainage area	= 0.041 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 5.24 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



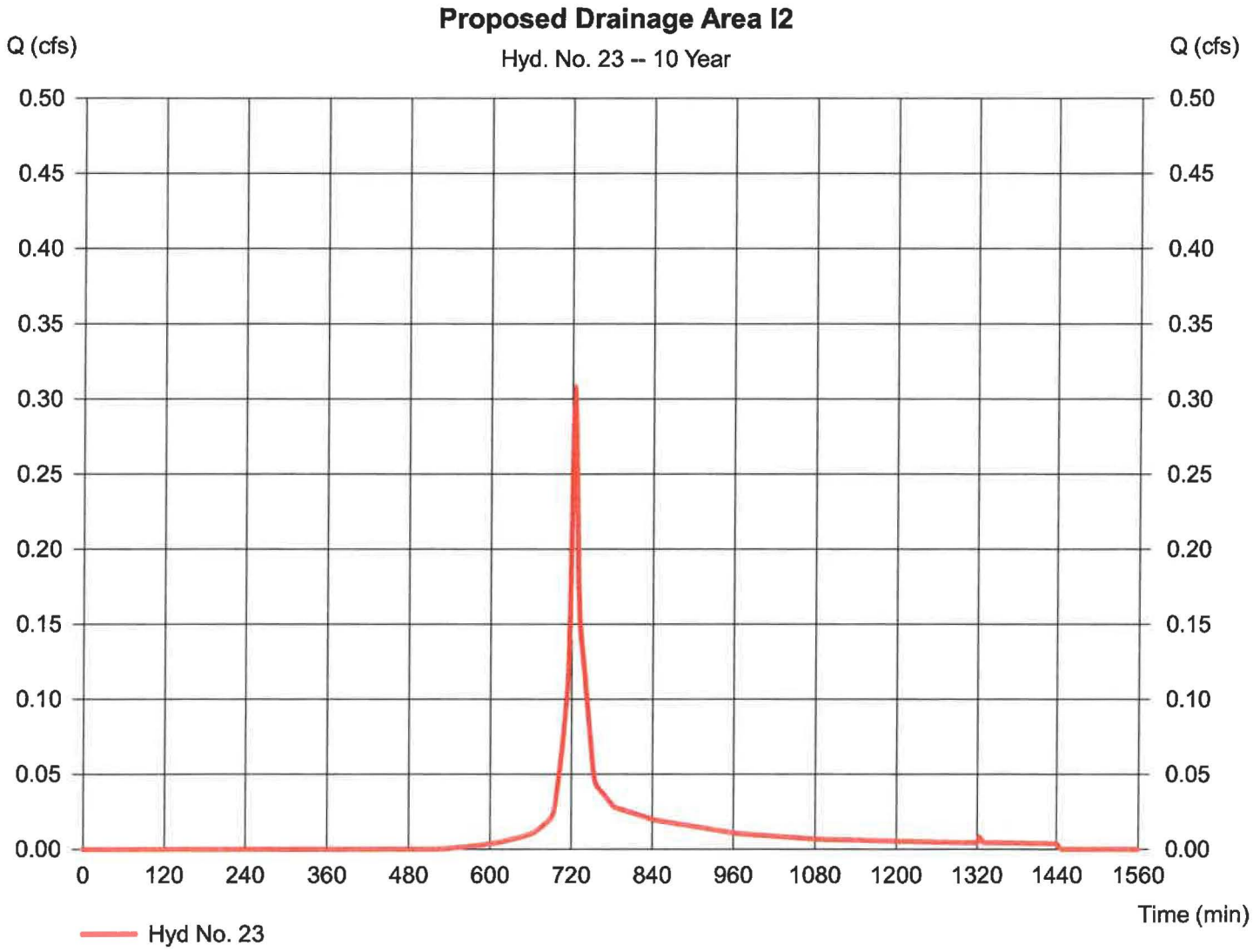
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 23

Proposed Drainage Area I2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.308 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 922 cuft
Drainage area	= 0.106 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 5.24 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



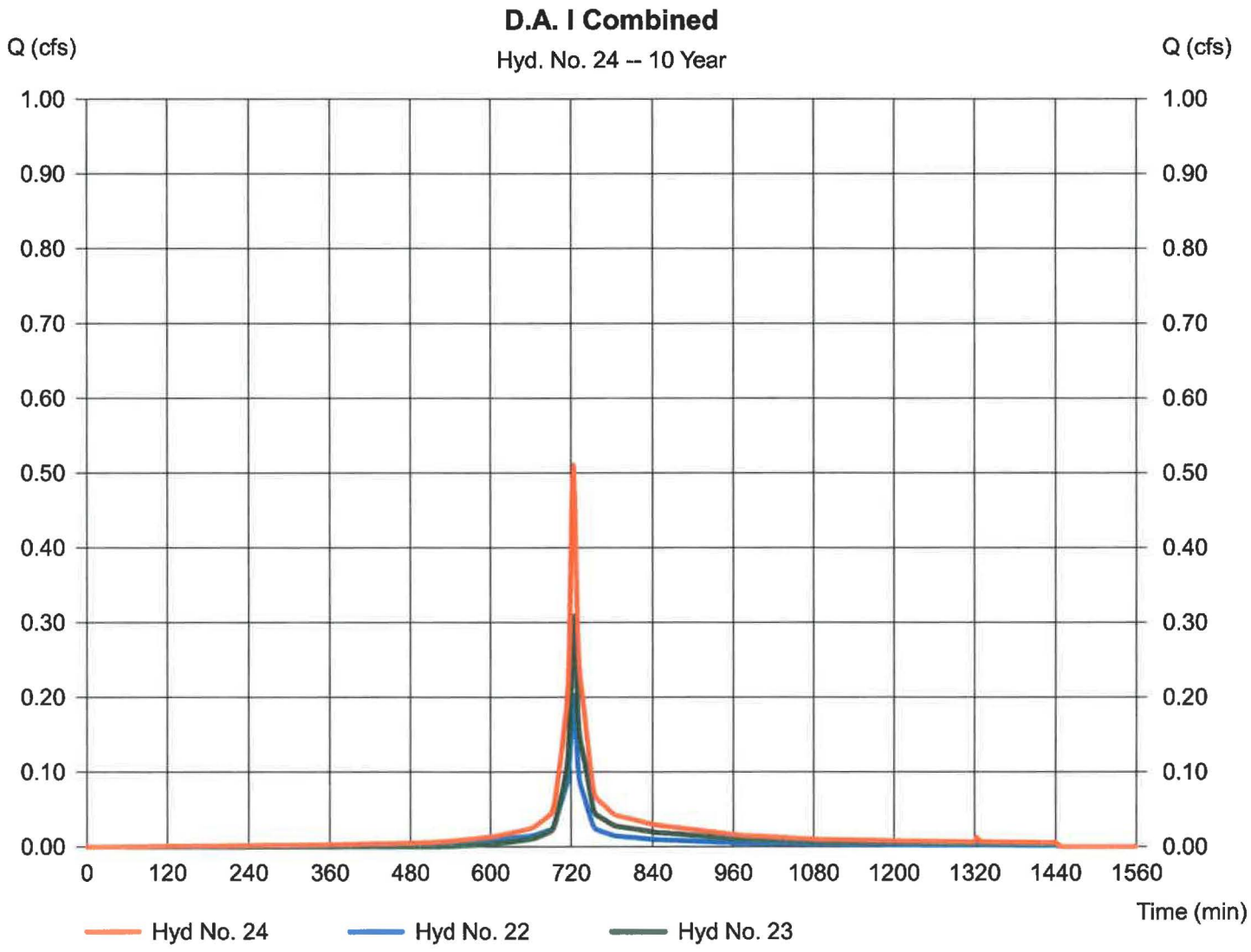
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 24

D.A. I Combined

Hydrograph type	= Combine	Peak discharge	= 0.511 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 1,620 cuft
Inflow hyds.	= 22, 23	Contrib. drain. area	= 0.147 ac



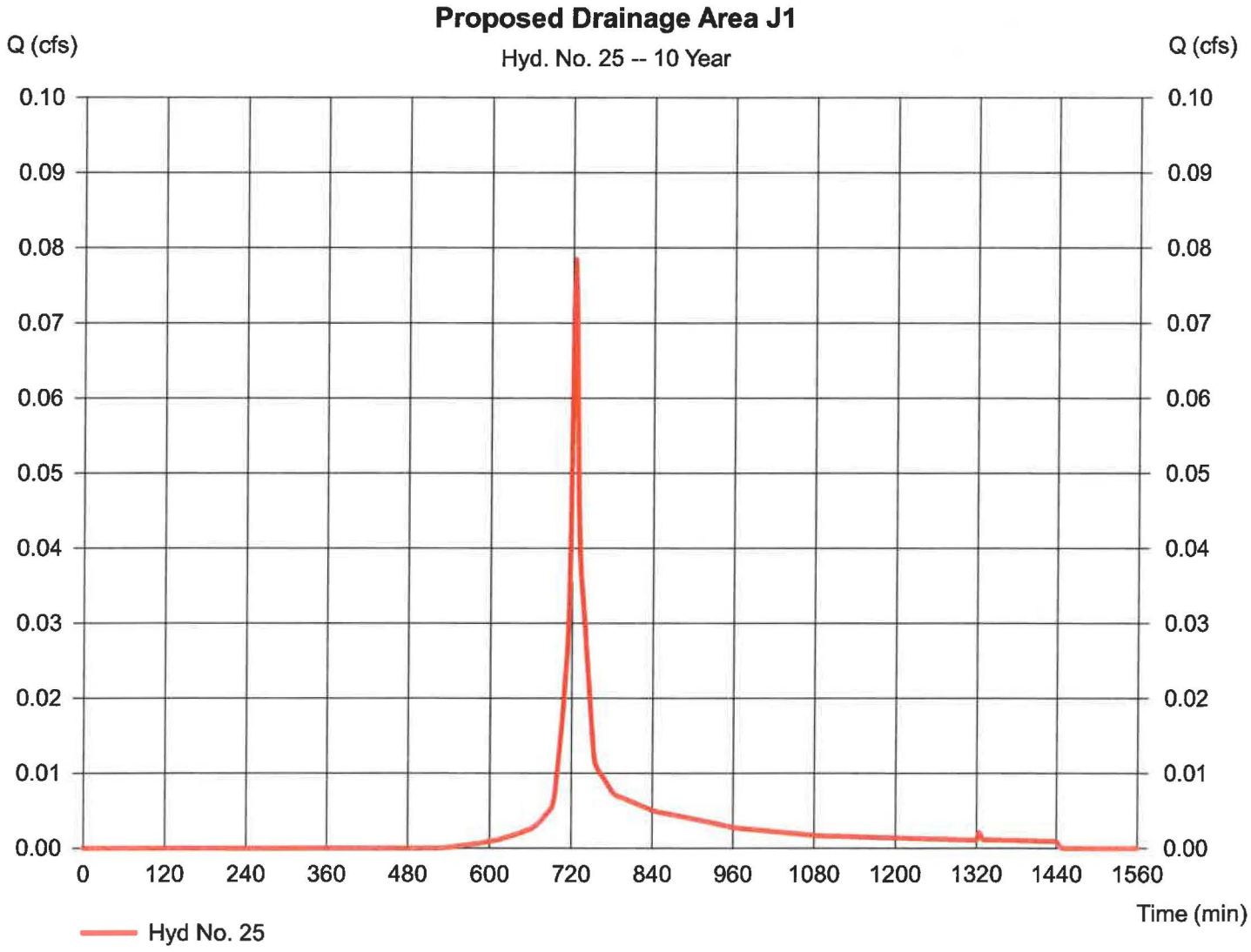
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 25

Proposed Drainage Area J1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.078 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 235 cuft
Drainage area	= 0.027 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 5.24 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



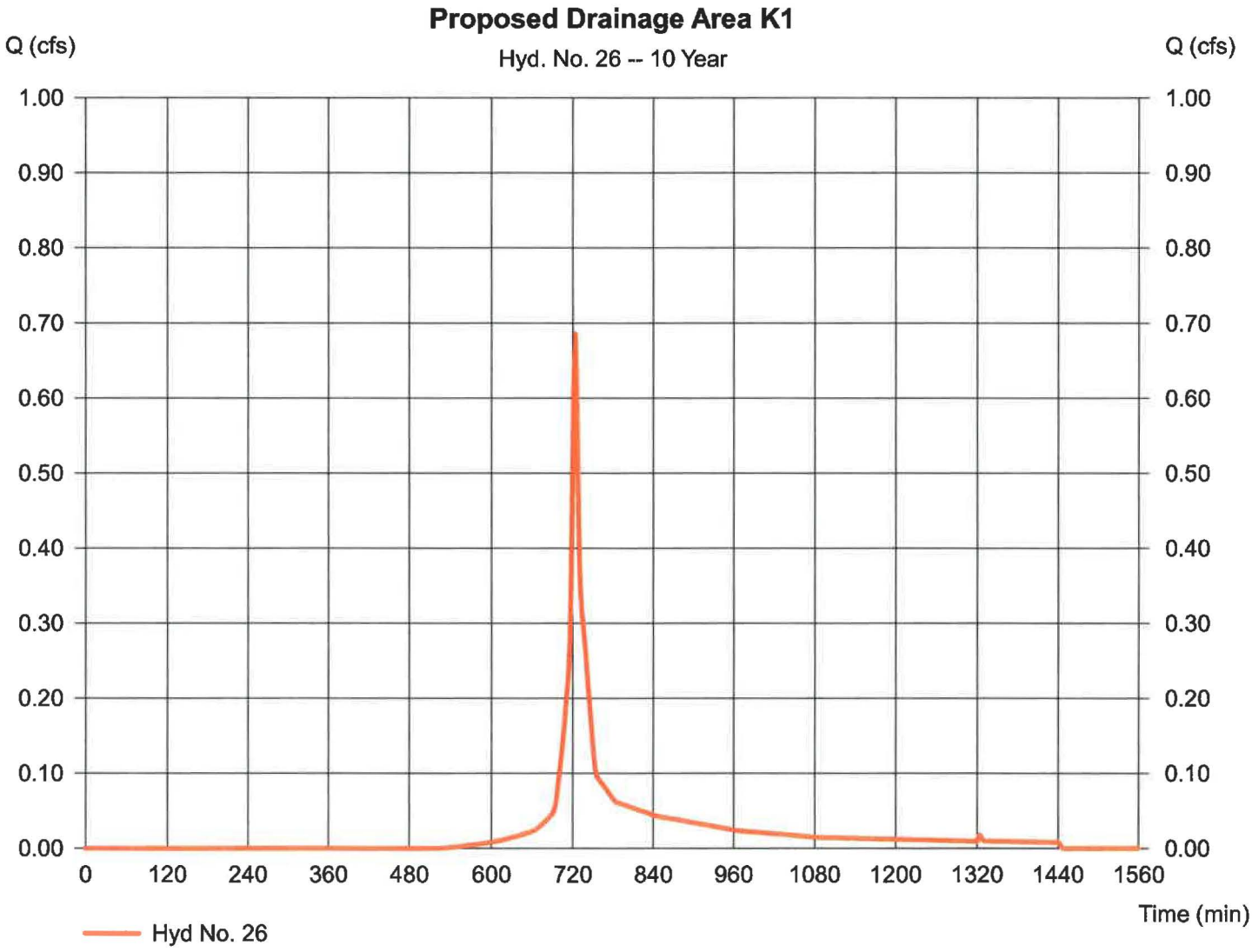
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 26

Proposed Drainage Area K1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.686 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 2,054 cuft
Drainage area	= 0.236 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 5.24 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



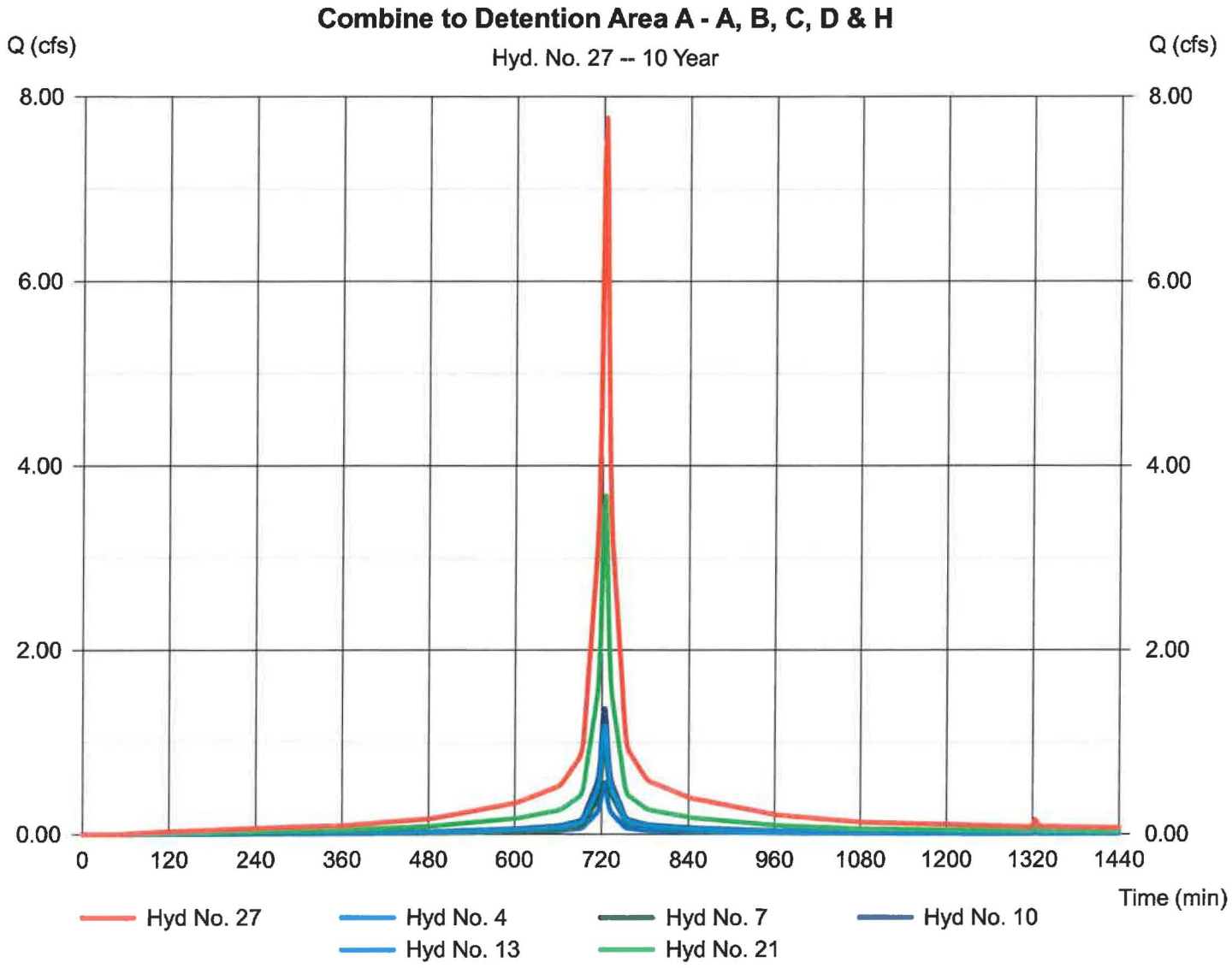
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 27

Combine to Detention Area A - A, B, C, D & H

Hydrograph type	= Combine	Peak discharge	= 7.773 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 26,437 cuft
Inflow hyds.	= 4, 7, 10, 13, 21	Contrib. drain. area	= 0.857 ac



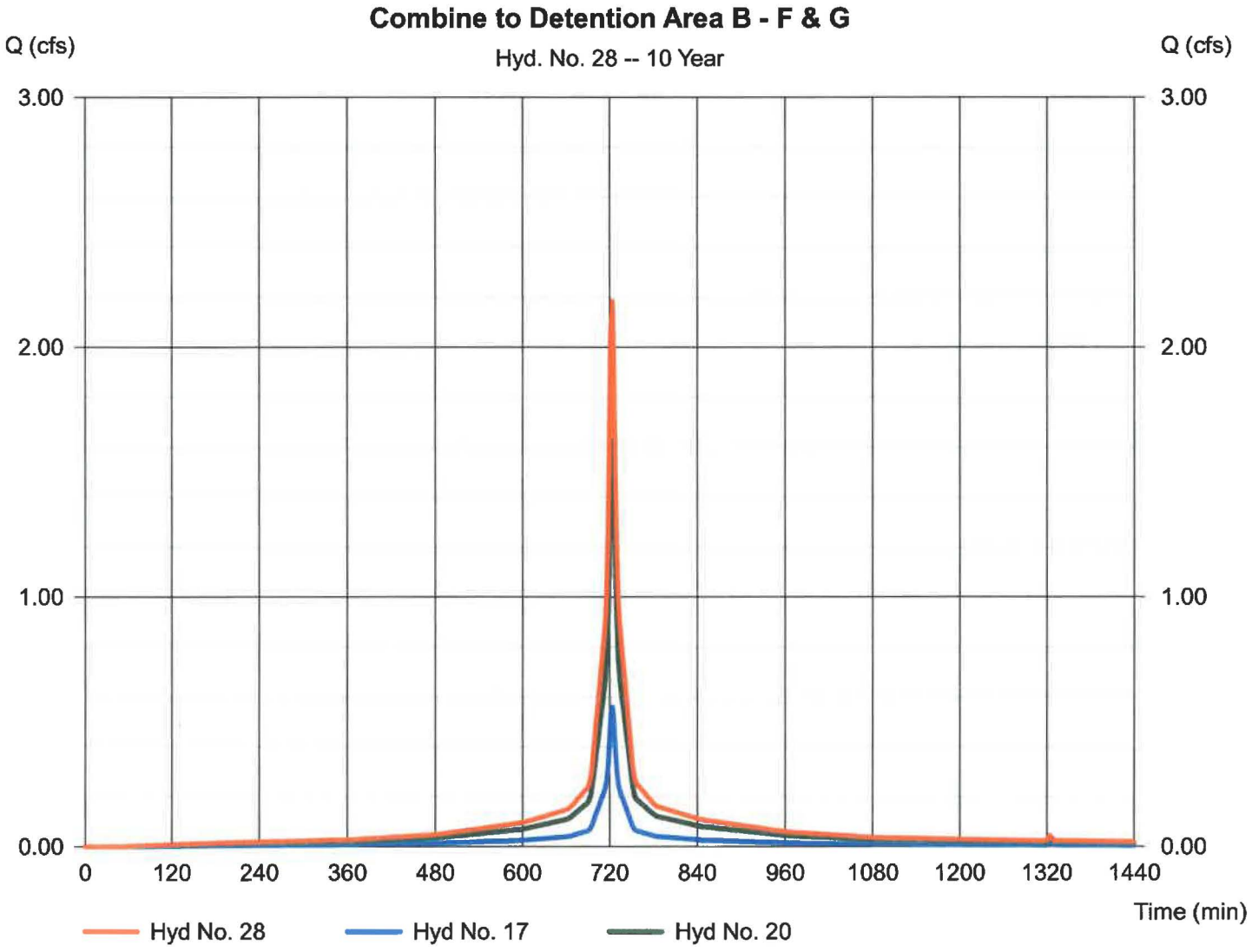
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 28

Combine to Detention Area B - F & G

Hydrograph type	= Combine	Peak discharge	= 2.184 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 7,450 cuft
Inflow hyds.	= 17, 20	Contrib. drain. area	= 0.113 ac



Hydrograph Report

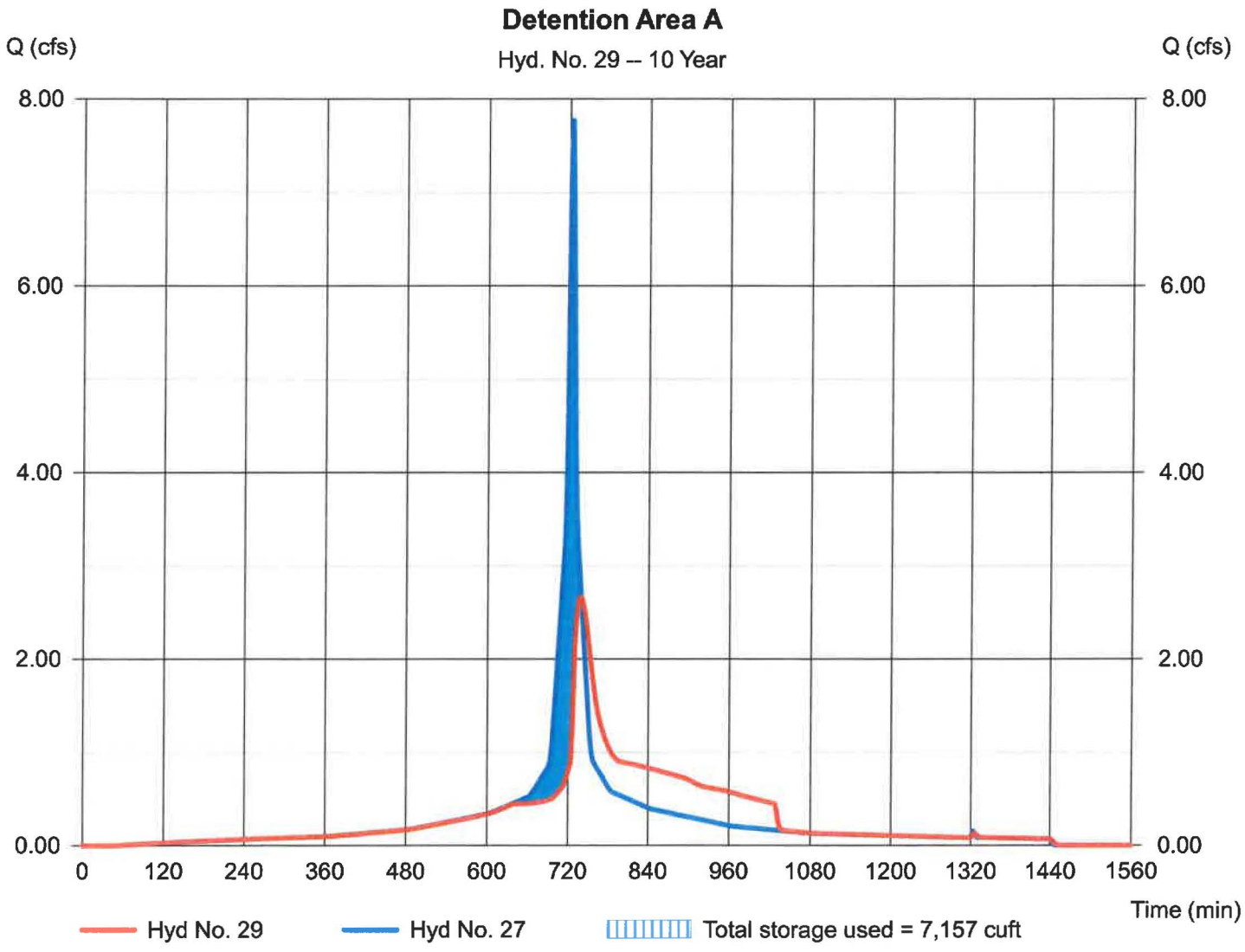
Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 29

Detention Area A

Hydrograph type	= Reservoir	Peak discharge	= 2.665 cfs
Storm frequency	= 10 yrs	Time to peak	= 738 min
Time interval	= 2 min	Hyd. volume	= 26,437 cuft
Inflow hyd. No.	= 27 - Combine to Detention Area A - A, B, C, D	Max. Elevation	= 626.78 ft
Reservoir name	= Detentioin Area A	Max. Storage	= 7,157 cuft

Storage Indication method used. Outflow includes exfiltration.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Pond No. 1 - Detentioin Area A

Pond Data

UG Chambers - Invert elev. = 625.50 ft, Rise x Span = 2.05 x 4.00 ft, Barrel Len = 7.12 ft, No. Barrels = 140, Slope = 0.00%, Headers = No
Encasement - Invert elev. = 624.50 ft, Width = 4.75 ft, Height = 4.00 ft, Voids = 40.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	624.50	n/a	0	0
0.40	624.90	n/a	758	758
0.80	625.30	n/a	758	1,515
1.20	625.70	n/a	1,236	2,751
1.60	626.10	n/a	1,695	4,446
2.00	626.50	n/a	1,637	6,083
2.40	626.90	n/a	1,531	7,614
2.80	627.30	n/a	1,350	8,963
3.20	627.70	n/a	951	9,914
3.60	628.10	n/a	758	10,672
4.00	628.50	n/a	758	11,430

Culvert / Orifice Structures

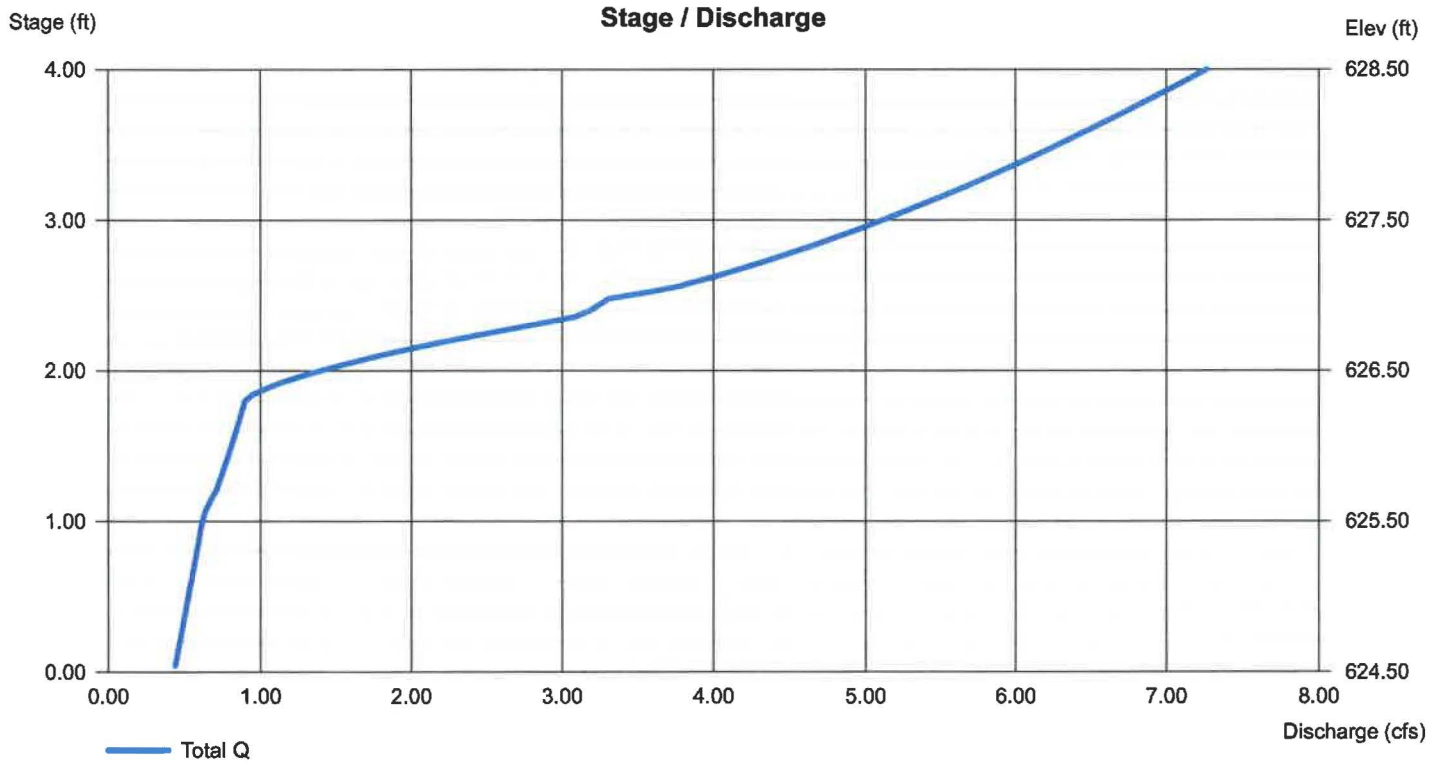
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	2.50	9.00	0.00
Span (in)	= 15.00	2.50	18.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 625.50	625.50	626.30	0.00
Length (ft)	= 10.00	0.50	0.50	0.00
Slope (%)	= 1.00	0.01	0.01	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.00	0.00	0.00	0.00
Crest El. (ft)	= 628.50	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 4.000 (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

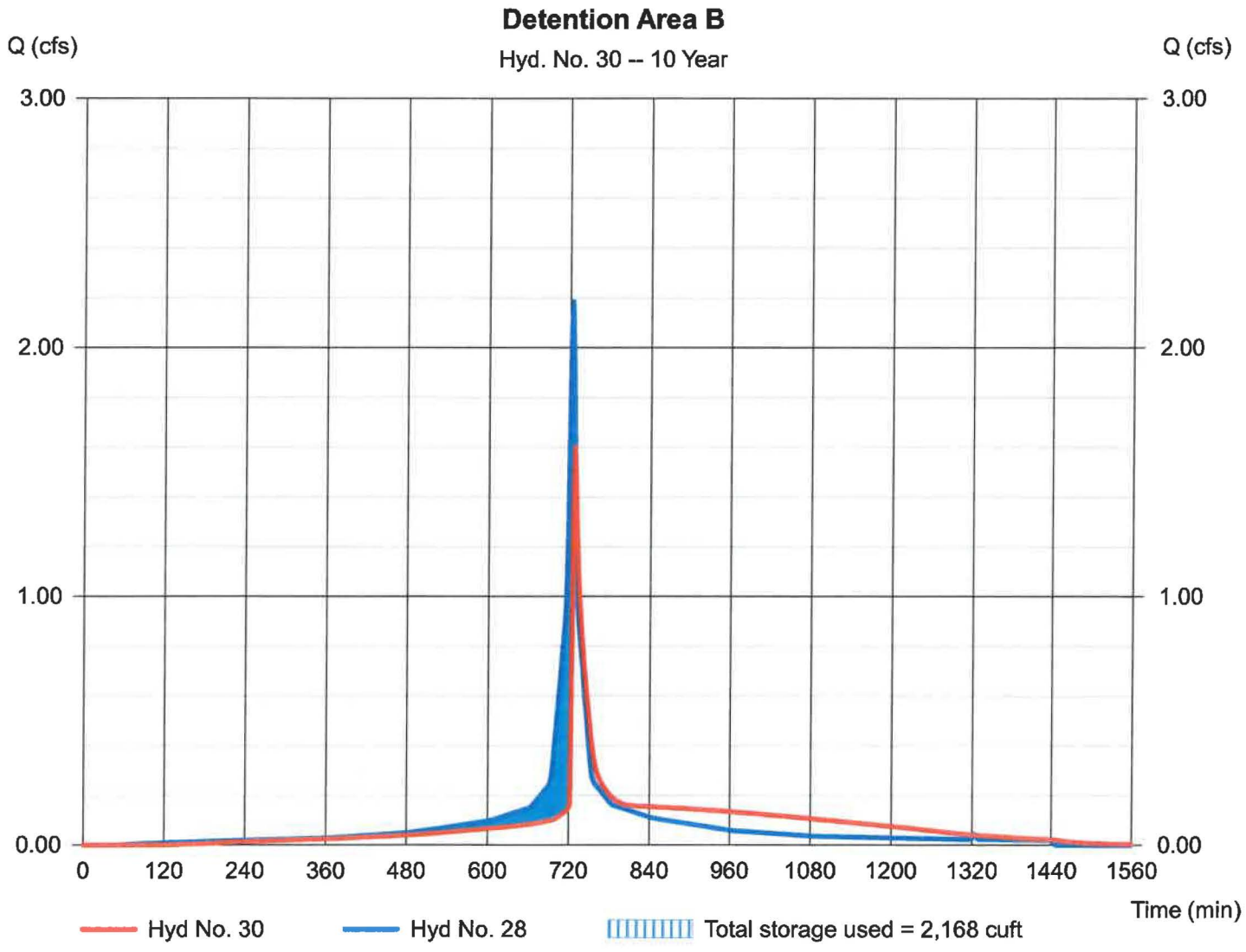
Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 30

Detention Area B

Hydrograph type	= Reservoir	Peak discharge	= 1.598 cfs
Storm frequency	= 10 yrs	Time to peak	= 728 min
Time interval	= 2 min	Hyd. volume	= 7,425 cuft
Inflow hyd. No.	= 28 - Combine to Detention Area B - F & G	Max. Elevation	= 626.06 ft
Reservoir name	= Detentiion Area B	Max. Storage	= 2,168 cuft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Pond No. 2 - Detentiion Area B

Pond Data

UG Chambers - Invert elev. = 624.74 ft, Rise x Span = 1.50 x 1.50 ft, Barrel Len = 20.00 ft, No. Barrels = 66, Slope = 0.00%, Headers = No

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	624.74	n/a	0	0
0.15	624.89	n/a	121	121
0.30	625.04	n/a	211	332
0.45	625.19	n/a	257	589
0.60	625.34	n/a	283	872
0.75	625.49	n/a	295	1,167
0.90	625.64	n/a	295	1,462
1.05	625.79	n/a	283	1,745
1.20	625.94	n/a	256	2,001
1.35	626.09	n/a	211	2,212
1.50	626.24	n/a	121	2,333

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	2.50	Inactive	0.00
Span (in)	= 15.00	2.50	18.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 624.74	624.75	625.25	0.00
Length (ft)	= 115.00	0.33	0.33	0.00
Slope (%)	= 0.50	0.01	0.01	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

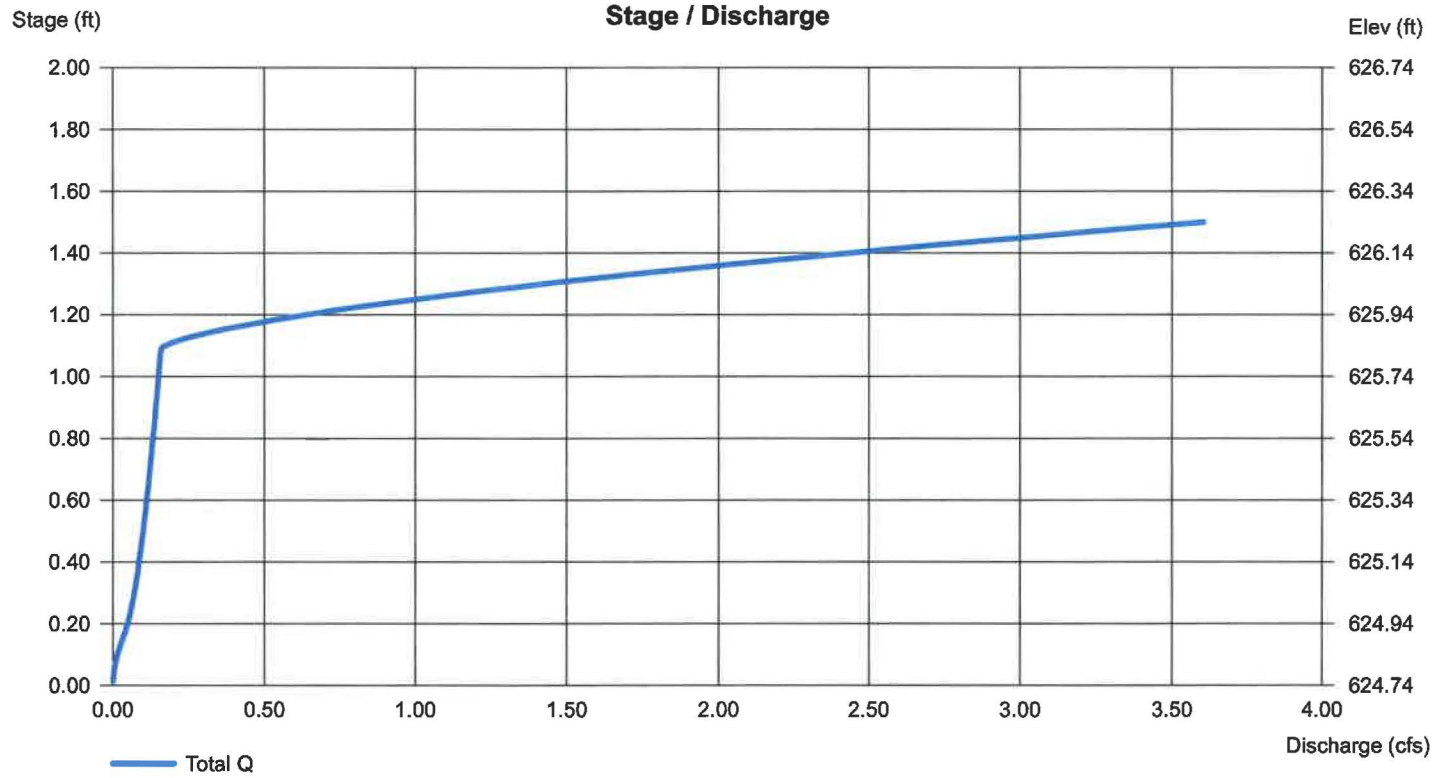
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 4.00	0.00	0.00	0.00
Crest El. (ft)	= 625.83	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Contour)

TW Elev. (ft) = 0.00

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



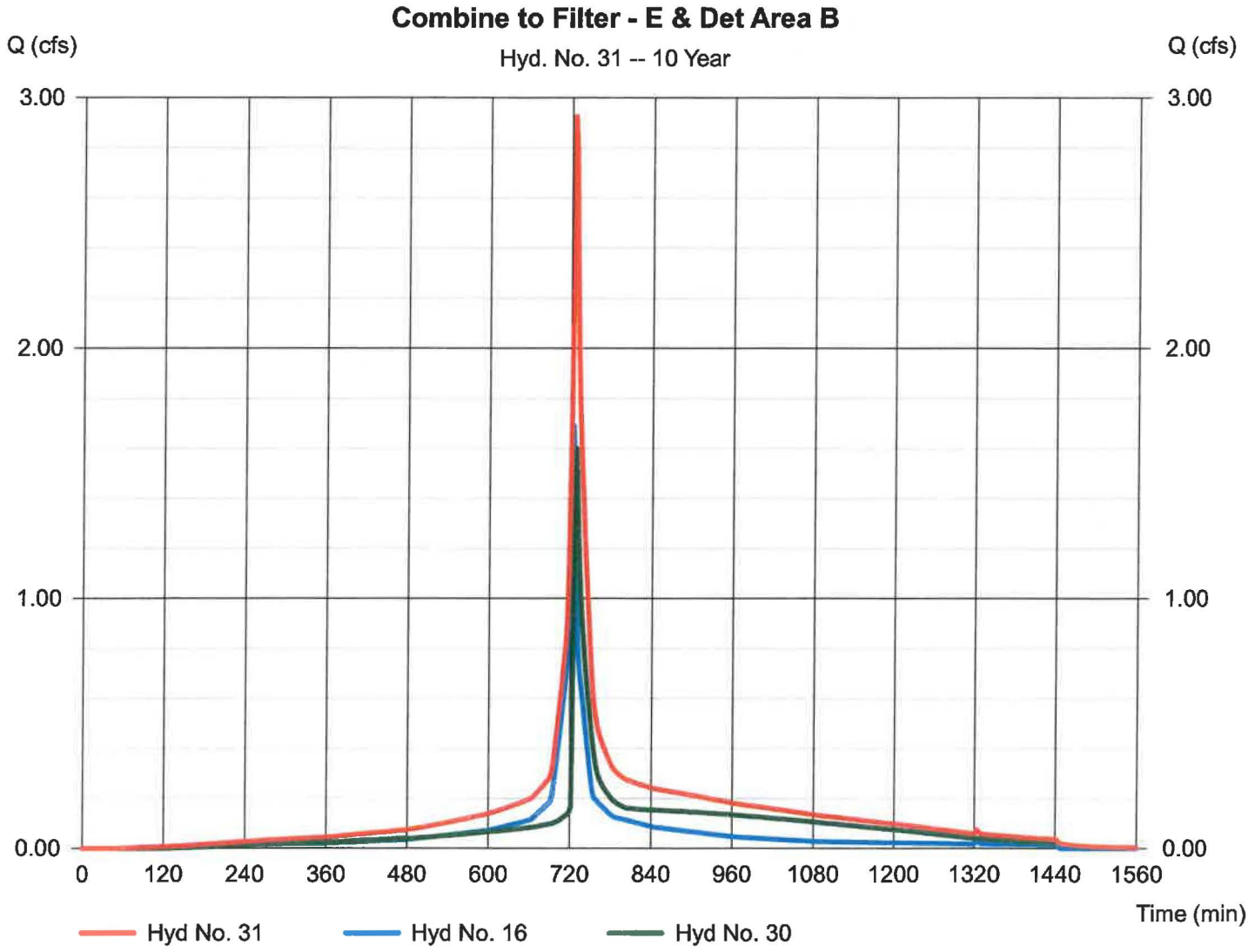
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 31

Combine to Filter - E & Det Area B

Hydrograph type	= Combine	Peak discharge	= 2.927 cfs
Storm frequency	= 10 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 13,158 cuft
Inflow hyds.	= 16, 30	Contrib. drain. area	= 0.000 ac



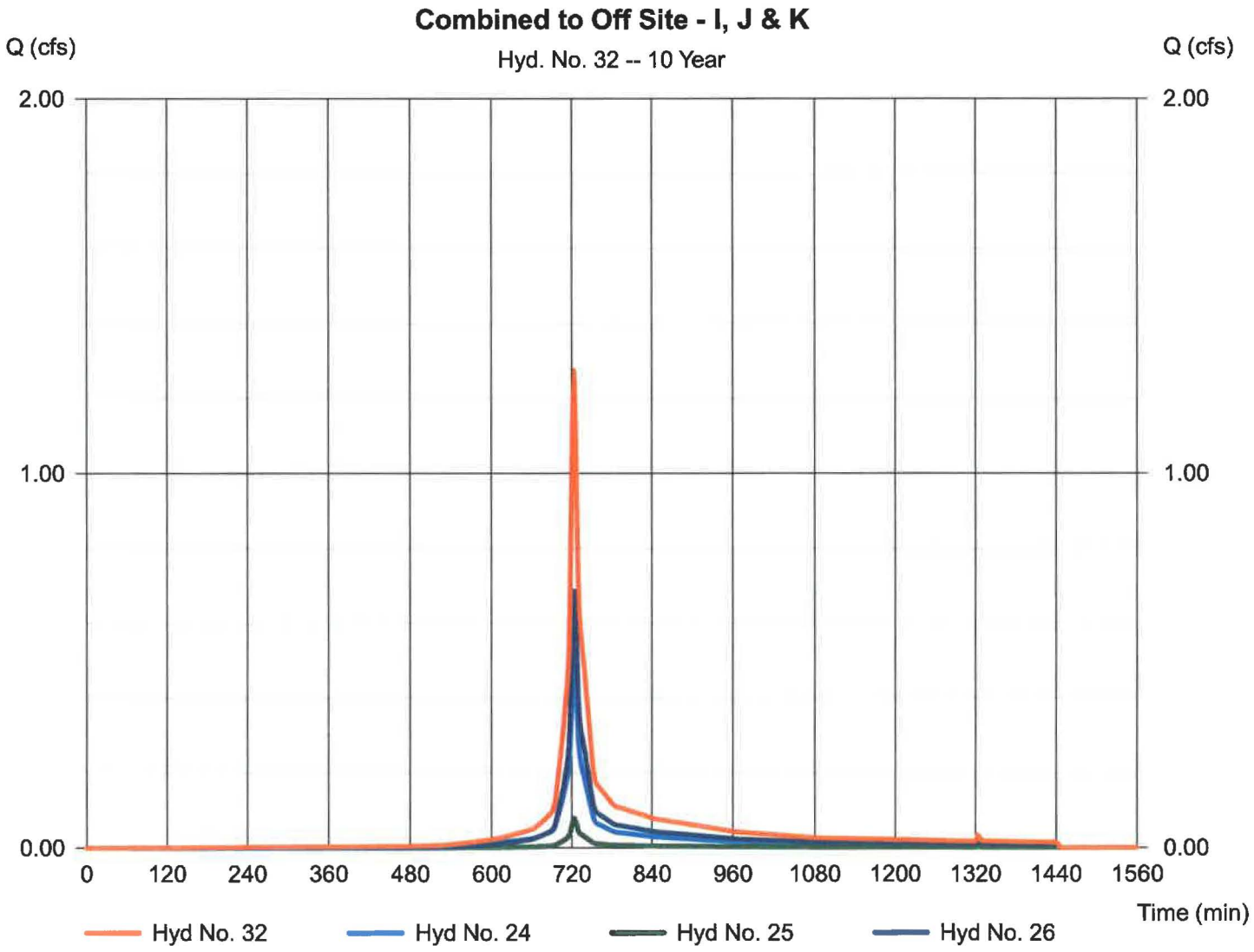
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 32

Combined to Off Site - I, J & K

Hydrograph type	= Combine	Peak discharge	= 1.275 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 3,909 cuft
Inflow hyds.	= 24, 25, 26	Contrib. drain. area	= 0.263 ac



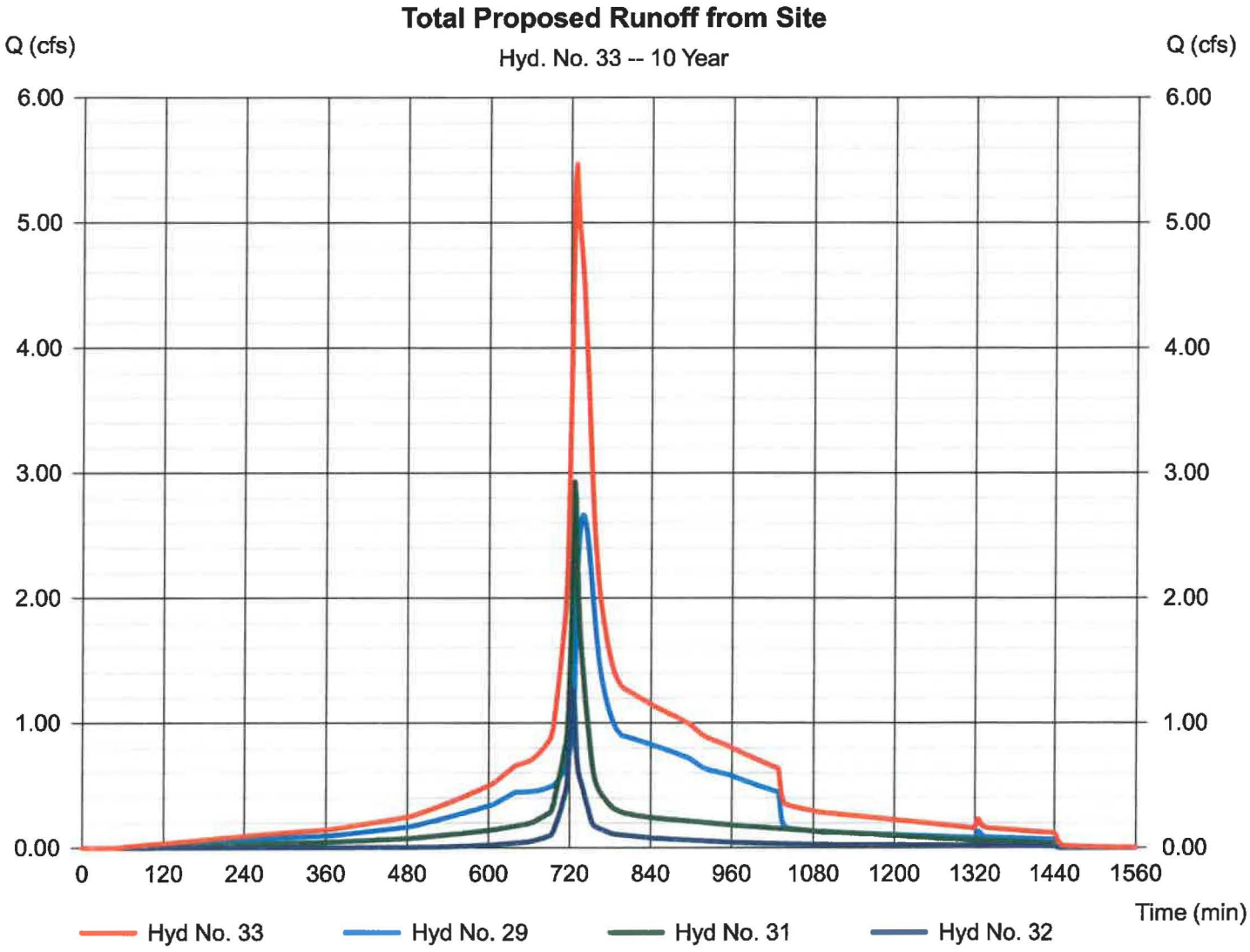
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 33

Total Proposed Runoff from Site

Hydrograph type	= Combine	Peak discharge	= 5.467 cfs
Storm frequency	= 10 yrs	Time to peak	= 728 min
Time interval	= 2 min	Hyd. volume	= 43,504 cuft
Inflow hyds.	= 29, 31, 32	Contrib. drain. area	= 0.000 ac



25-YEAR STORM EVENT

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.23

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	5.980	2	724	17,870	----	------	------	Existing Drainage Area A - Pervious
2	SCS Runoff	8.741	2	724	30,298	----	------	------	Existing Drainage Area A - Impervio
3	Combine	14.72	2	724	48,168	1, 2	------	------	Existing D.A. A Combined
4	SCS Runoff	0.686	2	724	2,379	----	------	------	Proposed Drainage Area A1
5	SCS Runoff	0.680	2	724	2,358	----	------	------	Proposed Drainage Area B1
6	SCS Runoff	0.602	2	724	1,798	----	------	------	Proposed Drainage Area B2
7	Combine	1.282	2	724	4,156	5, 6	------	------	D.A. B Combined
8	SCS Runoff	1.487	2	724	5,154	----	------	------	Proposed Drainage Area C1
9	SCS Runoff	0.195	2	724	583	----	------	------	Proposed Drainage Area C2
10	Combine	1.682	2	724	5,737	8, 9	------	------	D.A. C Combined
11	SCS Runoff	1.246	2	724	4,319	----	------	------	Proposed Drainage Area D1
12	SCS Runoff	0.207	2	724	619	----	------	------	Proposed Drainage Area D2
13	Combine	1.453	2	724	4,938	11, 12	------	------	D.A. D Combined
14	SCS Runoff	1.818	2	724	6,302	----	------	------	Proposed Drainage Area E1
15	SCS Runoff	0.271	2	724	810	----	------	------	Proposed Drainage Area E2
16	Combine	2.089	2	724	7,111	14, 15	------	------	D.A. E Combined
17	SCS Runoff	0.680	2	724	2,358	----	------	------	Proposed Drainage Area F1
18	SCS Runoff	1.788	2	724	6,197	----	------	------	Proposed Drainage Area G1
19	SCS Runoff	0.215	2	724	643	----	------	------	Proposed Drainage Area G2
20	Combine	2.003	2	724	6,840	18, 19	------	------	D.A. G Combined
21	SCS Runoff	4.473	2	724	15,504	----	------	------	Proposed Drainage Area H1
22	SCS Runoff	0.247	2	724	856	----	------	------	Proposed Drainage Area I1
23	SCS Runoff	0.422	2	724	1,262	----	------	------	Proposed Drainage Area I2
24	Combine	0.669	2	724	2,118	22, 23	------	------	D.A. I Combined
25	SCS Runoff	0.108	2	724	321	----	------	------	Proposed Drainage Area J1
26	SCS Runoff	0.940	2	724	2,810	----	------	------	Proposed Drainage Area K1
27	Combine	9.577	2	724	32,714	4, 7, 10, 13, 21,	------	------	Combine to Detention Area A - A, B,
28	Combine	2.683	2	724	9,198	17, 20,	------	------	Combine to Detention Area B - F &
29	Reservoir	4.013	2	734	32,713	27	627.13	8,380	Detention Area A
30	Reservoir	2.512	2	726	9,173	28	626.16	2,258	Detention Area B
31	Combine	4.414	2	724	16,284	16, 30	------	------	Combine to Filter - E & Det Area B
32	Combine	1.717	2	724	5,249	24, 25, 26,	------	------	Combined to Off Site - I, J & K
33	Combine	9.031	2	726	54,246	29, 31, 32	------	------	Total Proposed Runoff from Site

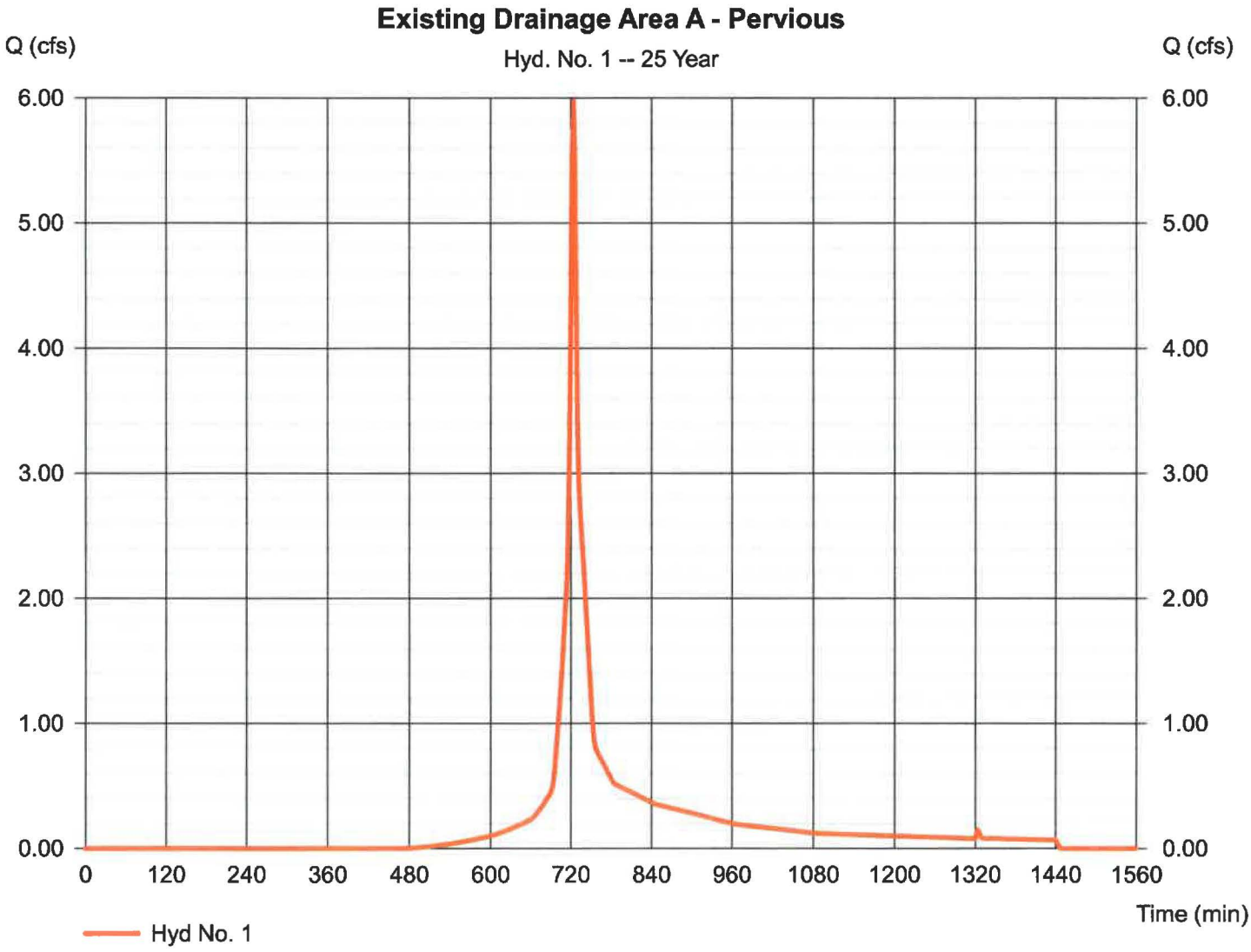
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 1

Existing Drainage Area A - Pervious

Hydrograph type	= SCS Runoff	Peak discharge	= 5.980 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 17,870 cuft
Drainage area	= 1.501 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 6.50 min
Total precip.	= 6.37 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



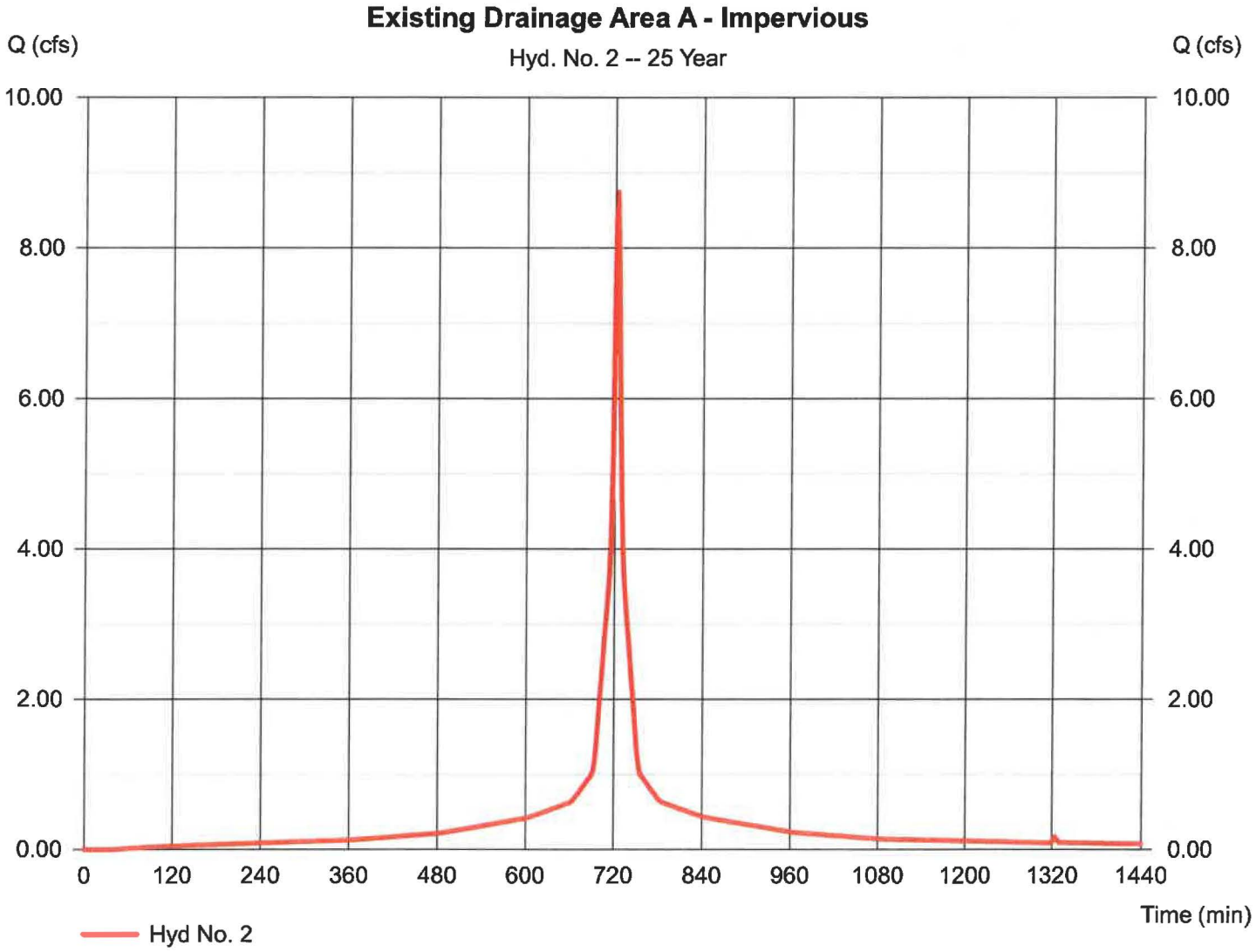
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 2

Existing Drainage Area A - Impervious

Hydrograph type	= SCS Runoff	Peak discharge	= 8.741 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 30,298 cuft
Drainage area	= 1.452 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.50 min
Total precip.	= 6.37 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



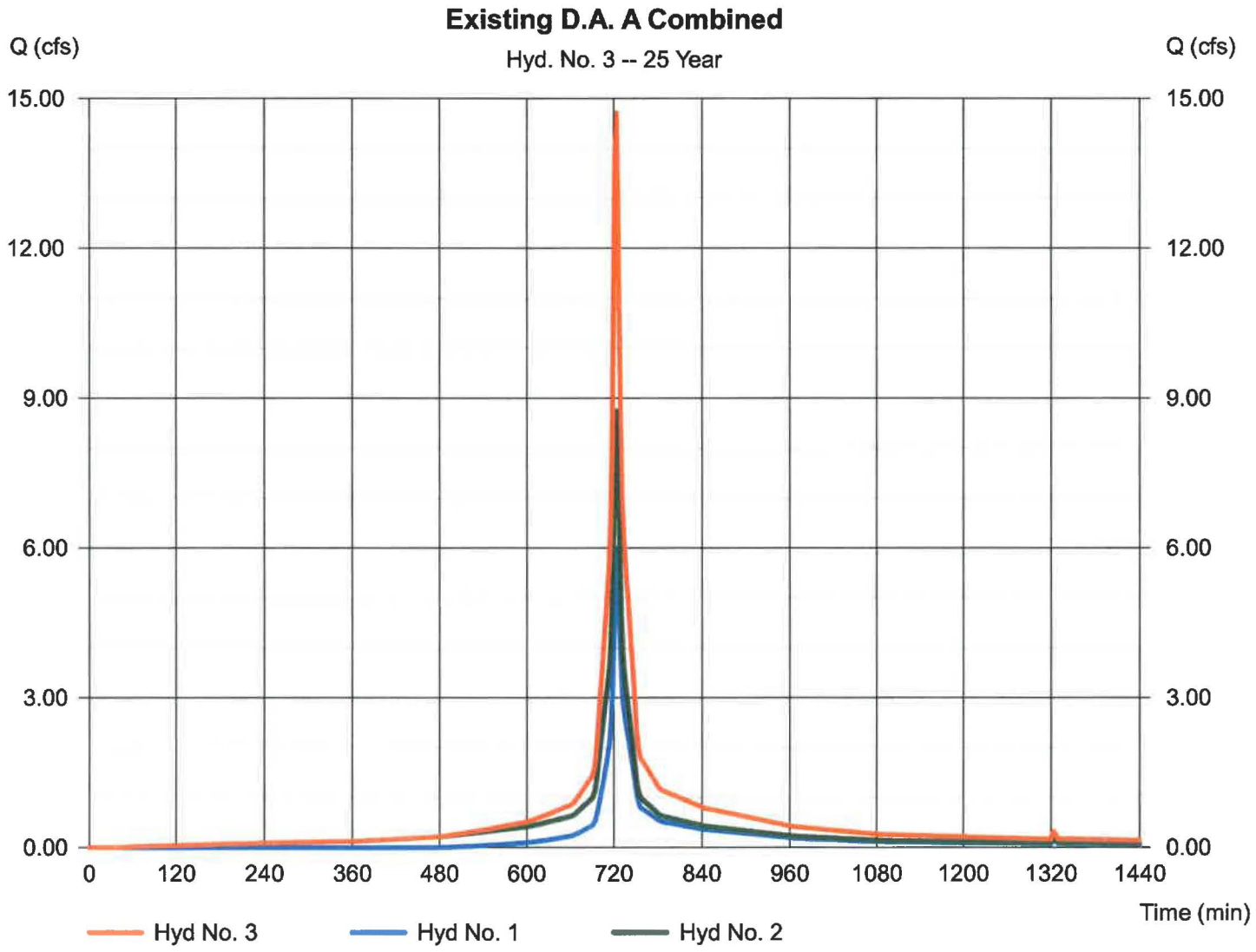
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 3

Existing D.A. A Combined

Hydrograph type	= Combine	Peak discharge	= 14.72 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 48,168 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 2.953 ac



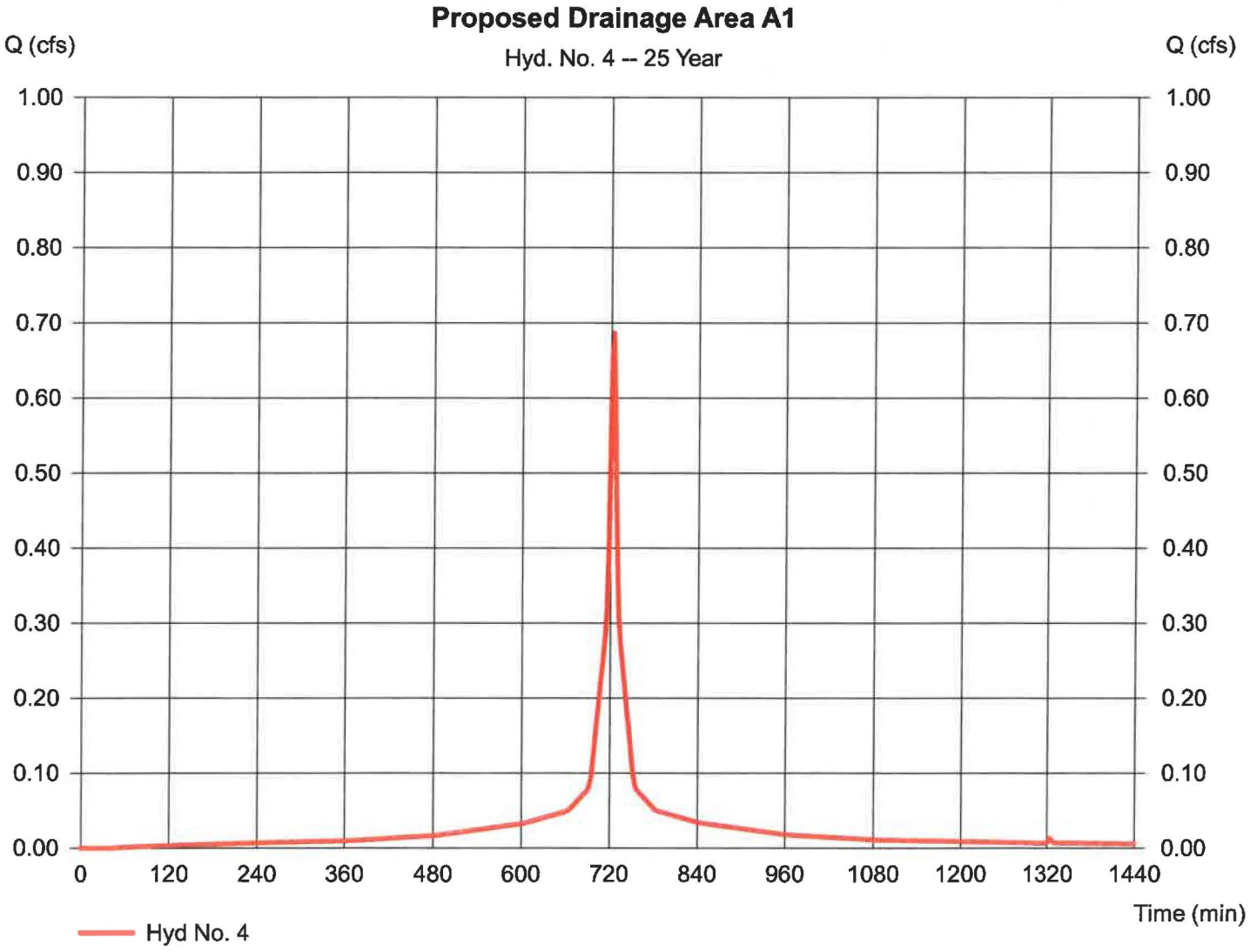
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 4

Proposed Drainage Area A1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.686 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 2,379 cuft
Drainage area	= 0.114 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.37 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



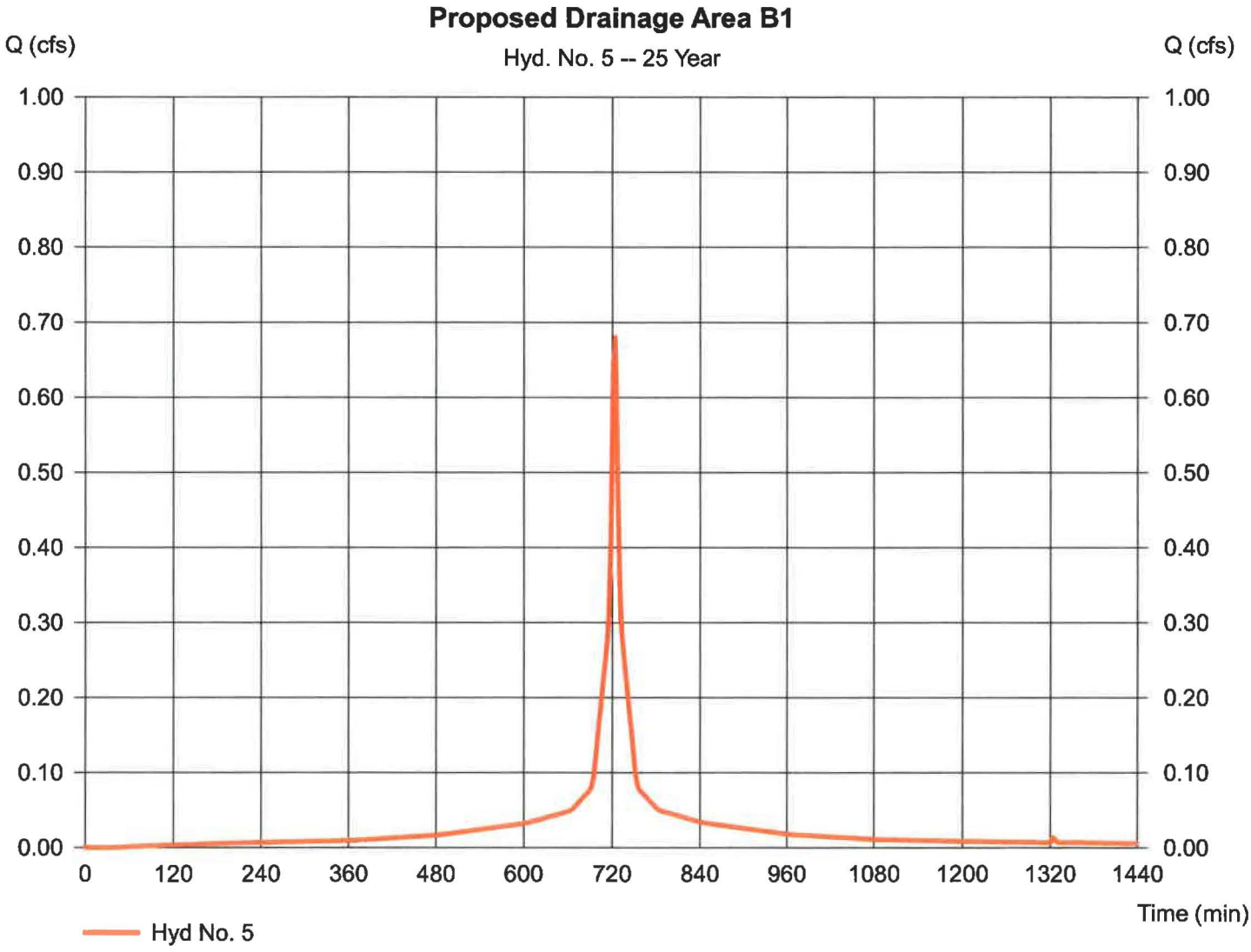
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 5

Proposed Drainage Area B1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.680 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 2,358 cuft
Drainage area	= 0.113 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.37 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



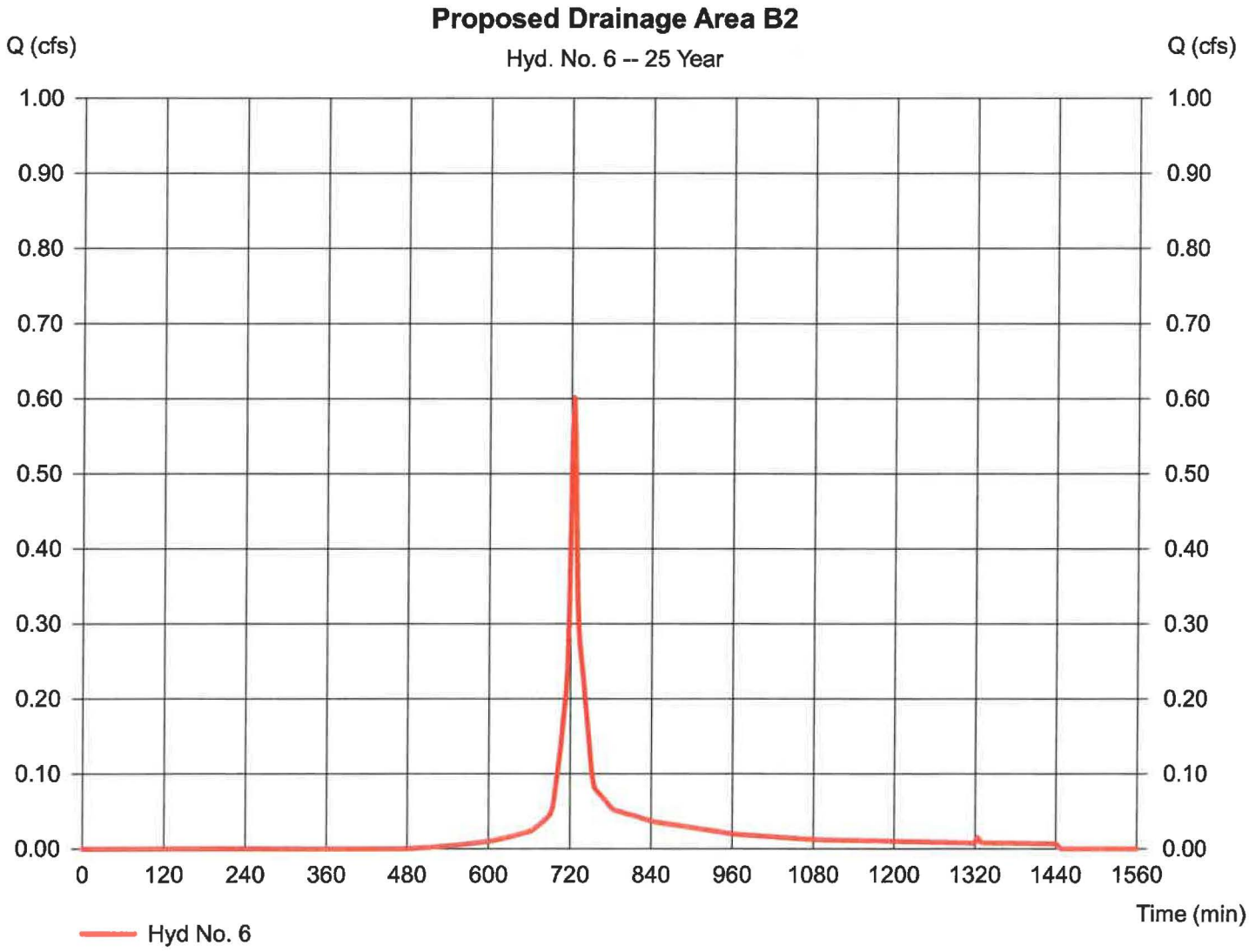
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 6

Proposed Drainage Area B2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.602 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 1,798 cuft
Drainage area	= 0.151 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.37 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



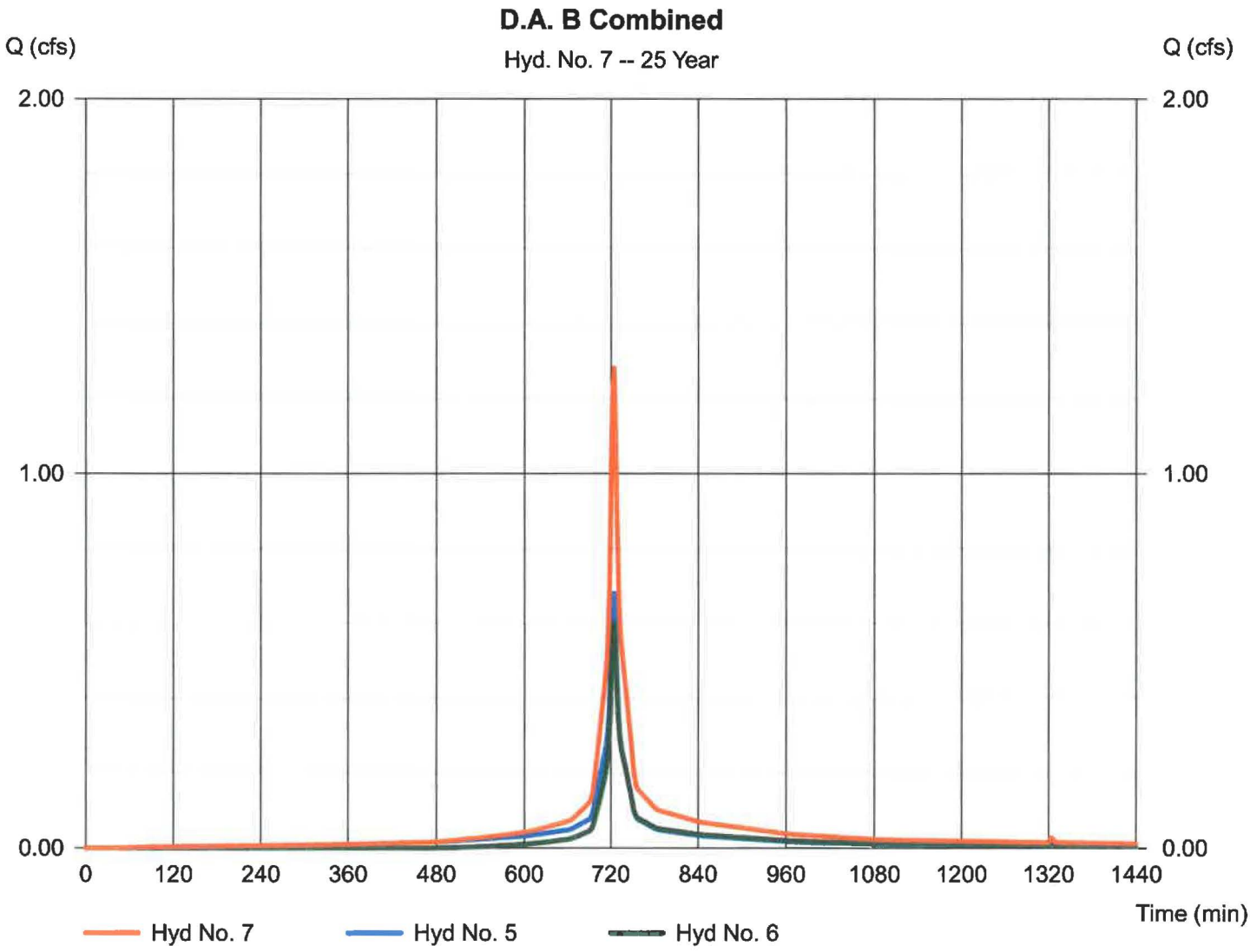
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 Monday, Sep 28, 2020

Hyd. No. 7

D.A. B Combined

Hydrograph type	= Combine	Peak discharge	= 1.282 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 4,156 cuft
Inflow hyds.	= 5, 6	Contrib. drain. area	= 0.264 ac



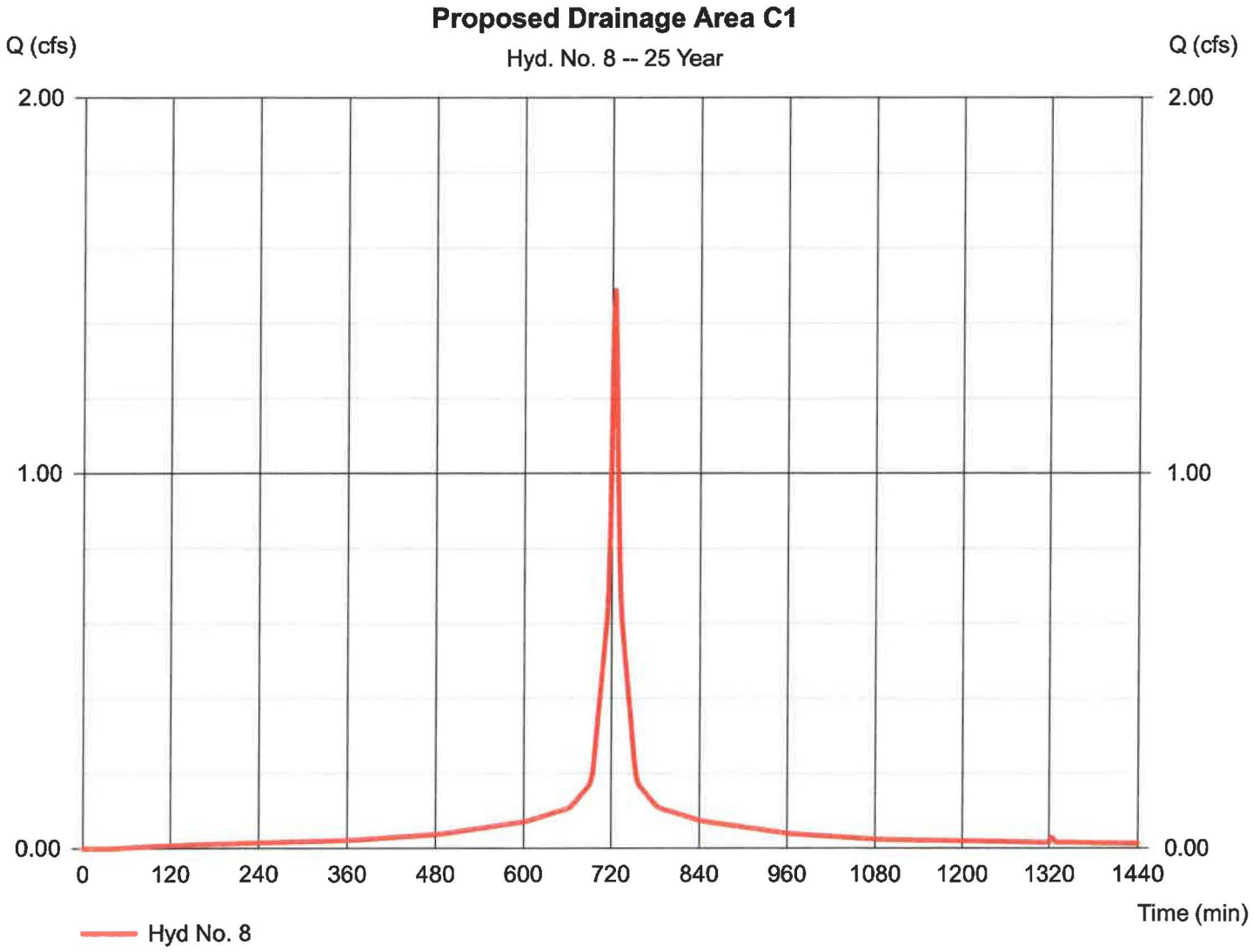
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 8

Proposed Drainage Area C1

Hydrograph type	= SCS Runoff	Peak discharge	= 1.487 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 5,154 cuft
Drainage area	= 0.247 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.37 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



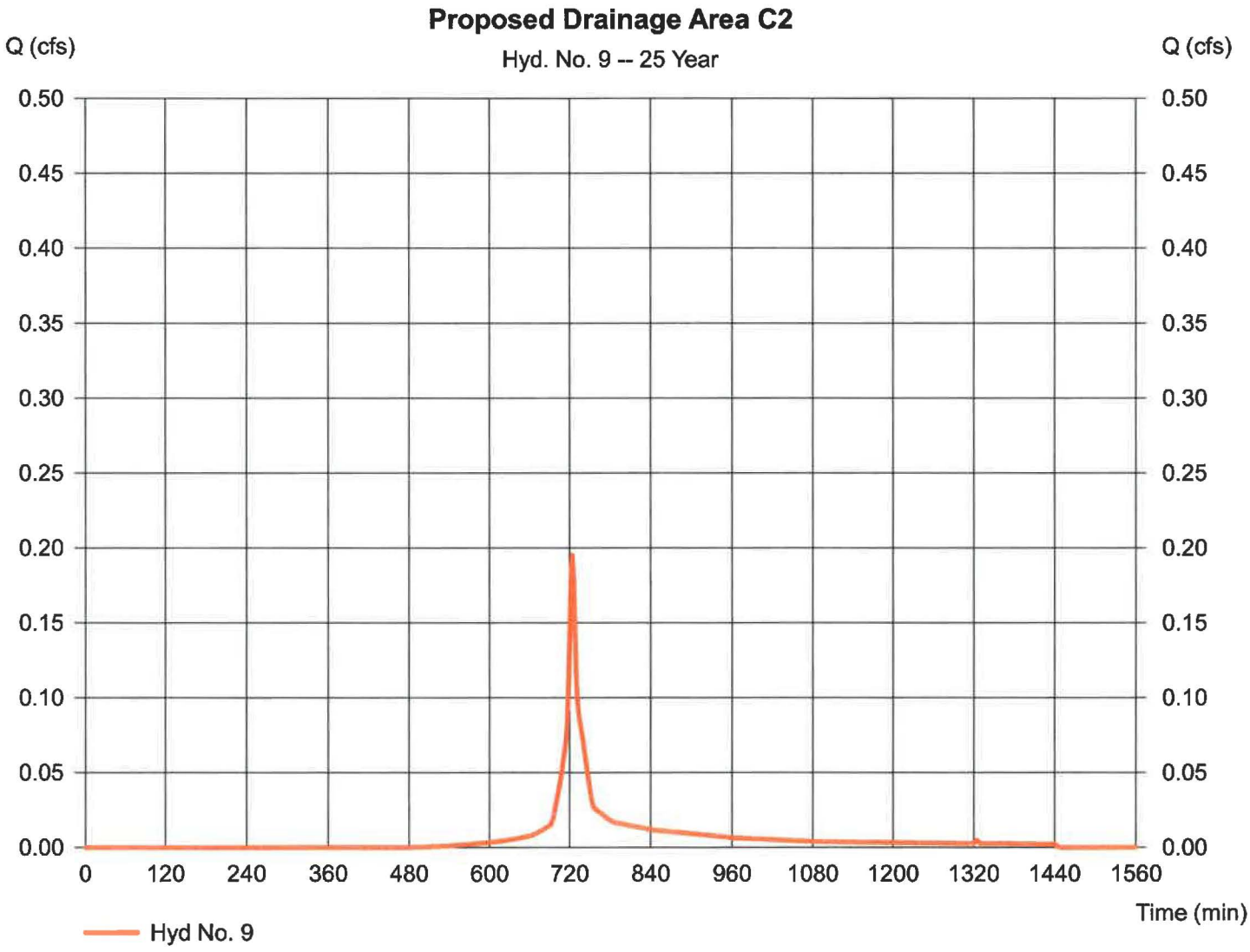
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 9

Proposed Drainage Area C2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.195 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 583 cuft
Drainage area	= 0.049 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.37 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



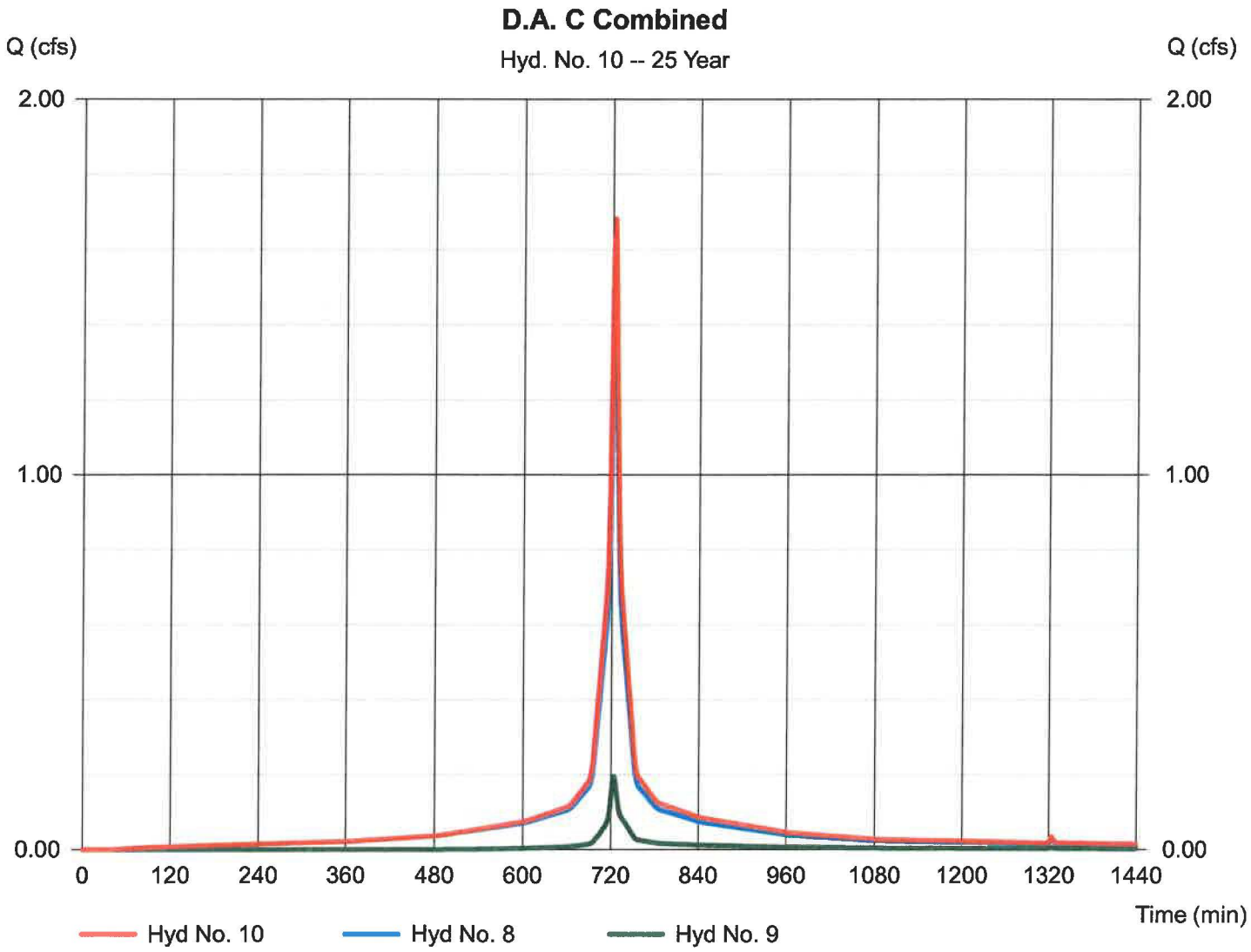
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 10

D.A. C Combined

Hydrograph type	= Combine	Peak discharge	= 1.682 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 5,737 cuft
Inflow hyds.	= 8, 9	Contrib. drain. area	= 0.296 ac



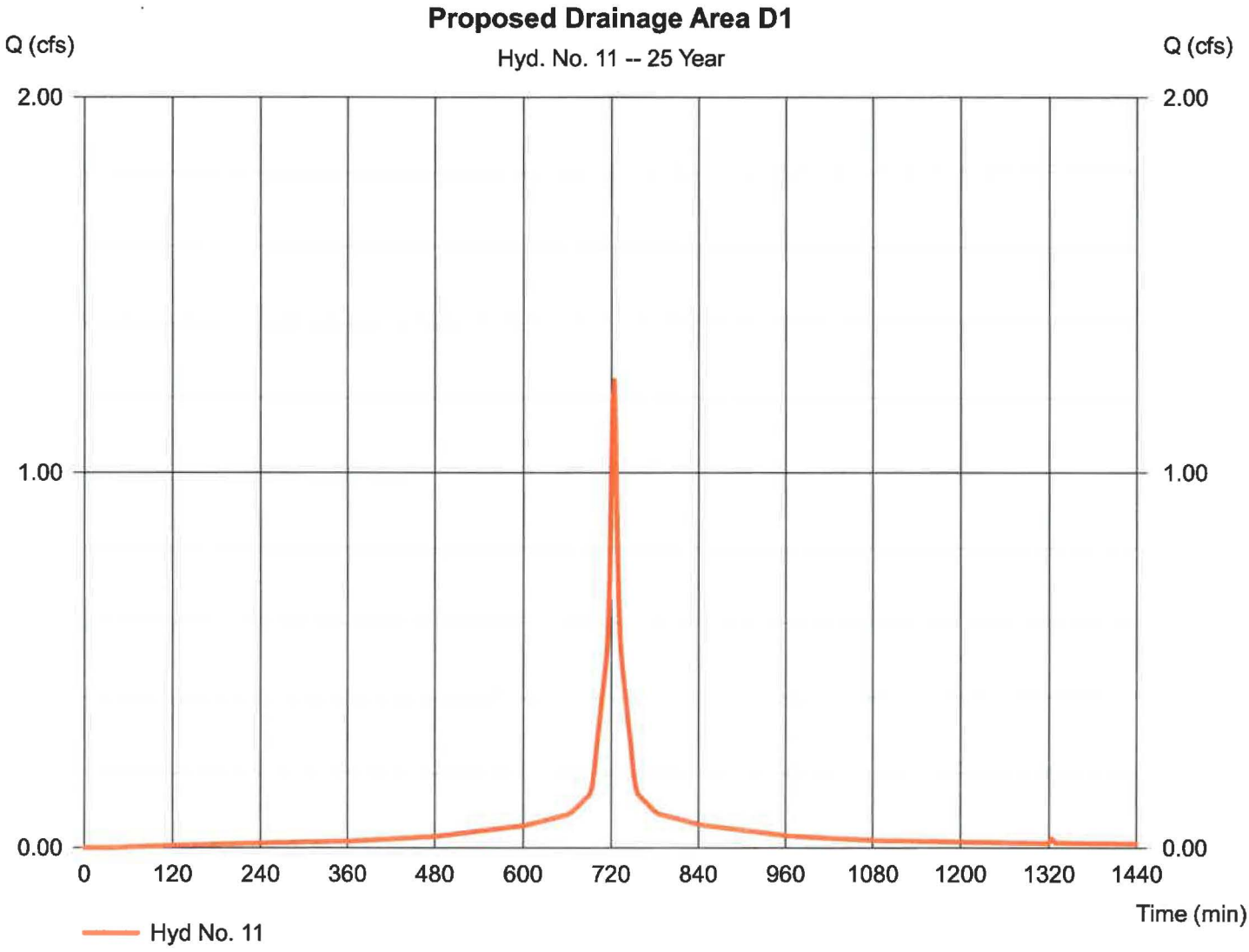
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 11

Proposed Drainage Area D1

Hydrograph type	= SCS Runoff	Peak discharge	= 1.246 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 4,319 cuft
Drainage area	= 0.207 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.37 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

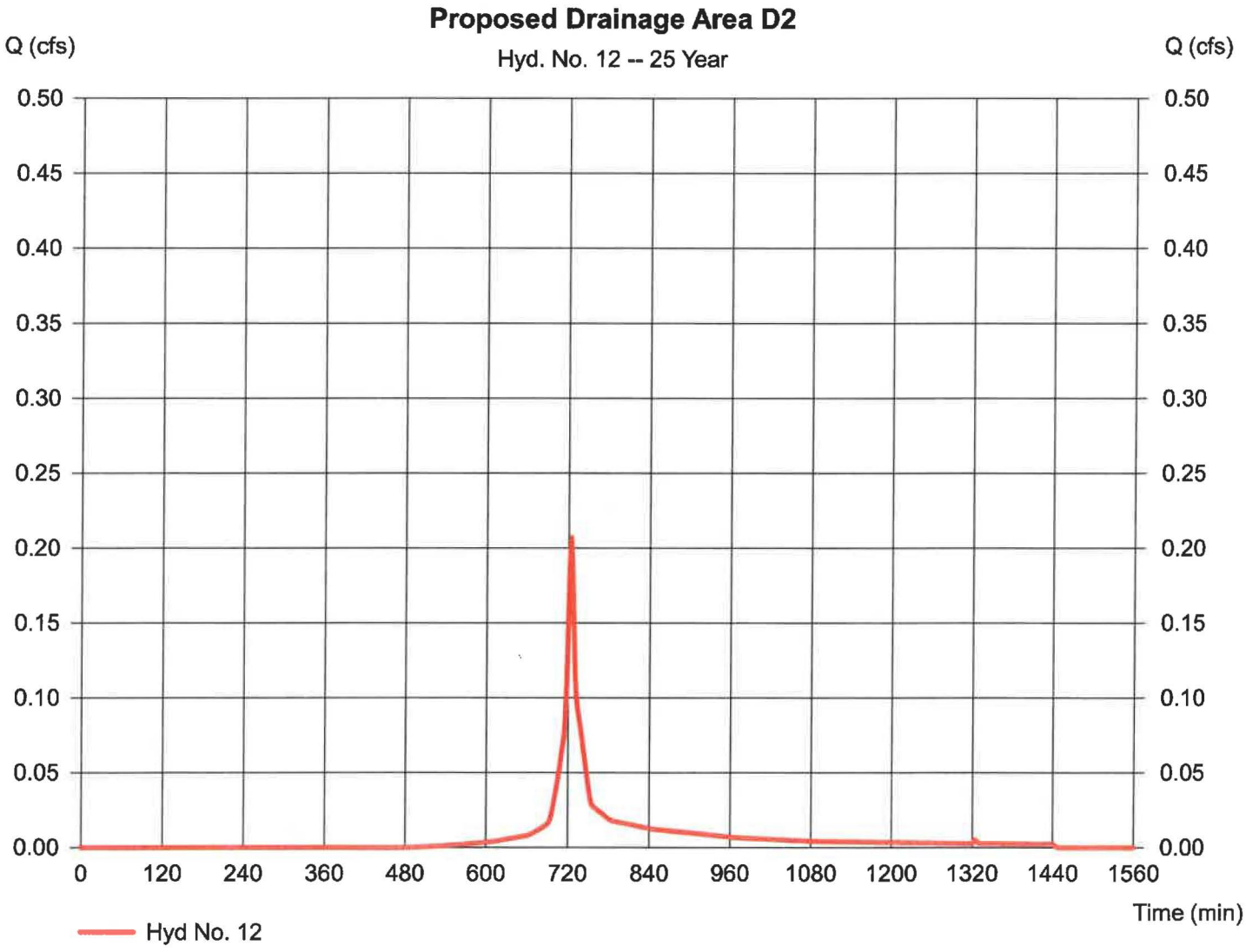
Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 12

Proposed Drainage Area D2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.207 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 619 cuft
Drainage area	= 0.052 ac	Curve number	= 74*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.37 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.037 x 74) + (0.015 x 80)] / 0.052



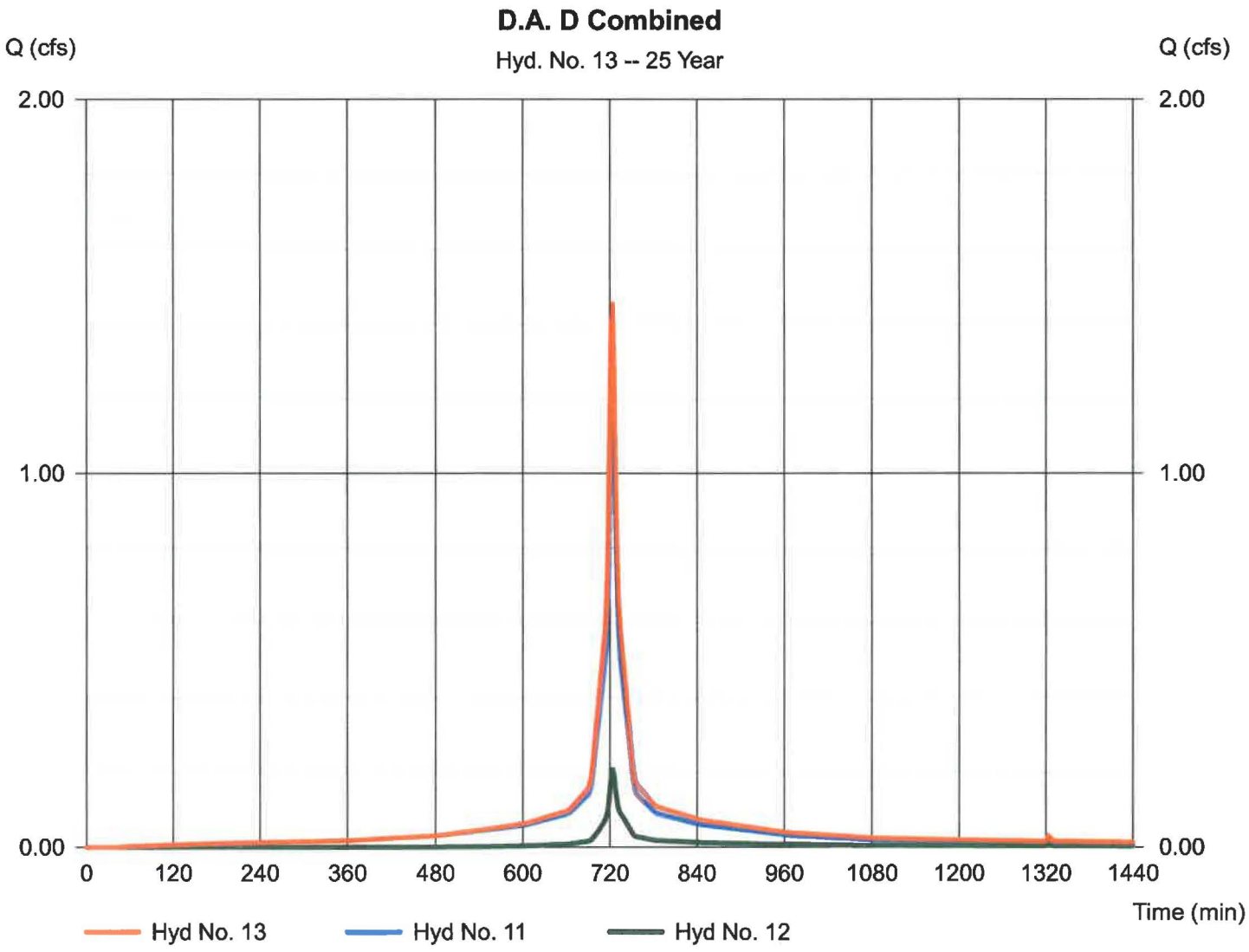
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 Monday, Sep 28, 2020

Hyd. No. 13

D.A. D Combined

Hydrograph type	= Combine	Peak discharge	= 1.453 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 4,938 cuft
Inflow hyds.	= 11, 12	Contrib. drain. area	= 0.259 ac



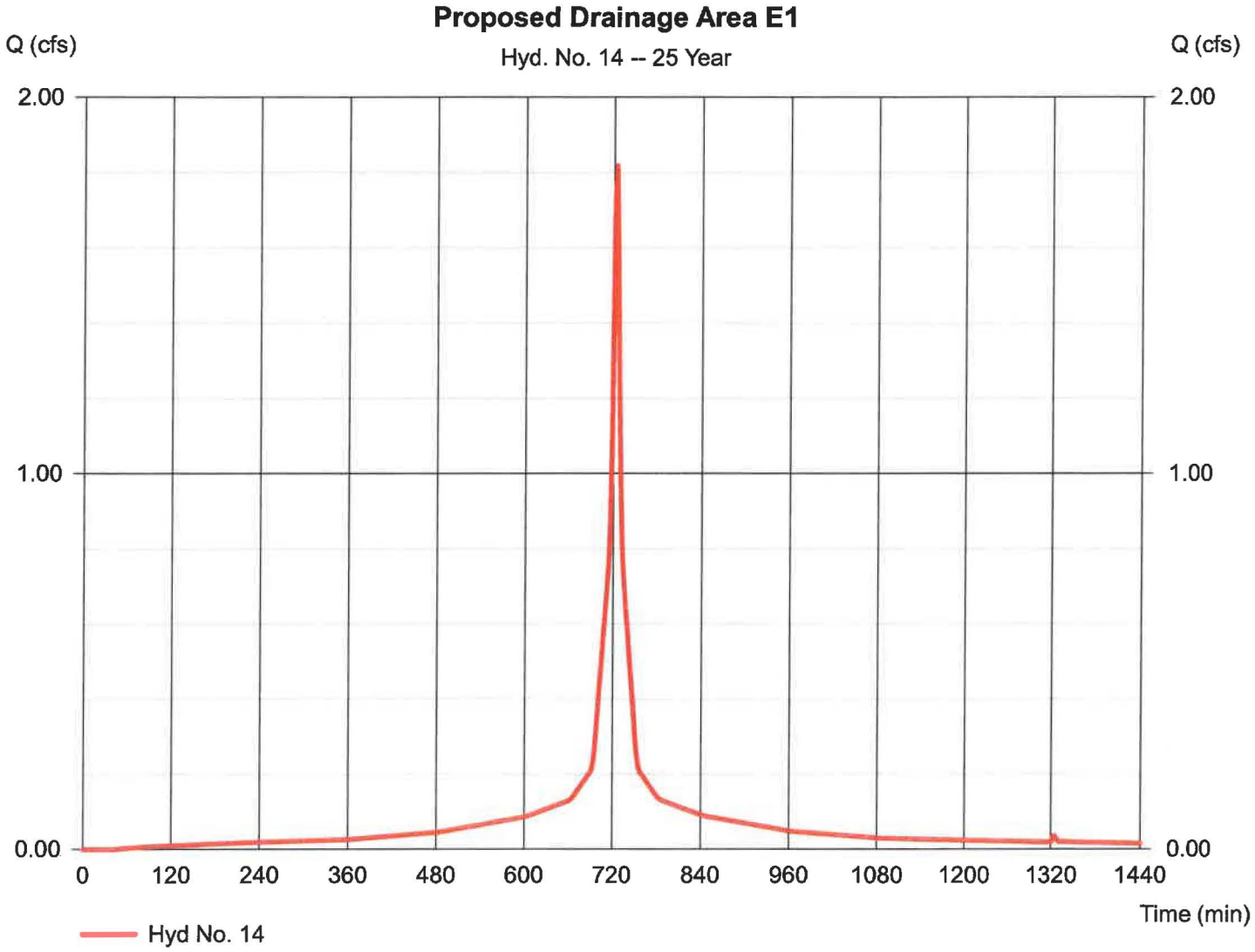
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 14

Proposed Drainage Area E1

Hydrograph type	= SCS Runoff	Peak discharge	= 1.818 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 6,302 cuft
Drainage area	= 0.302 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.37 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



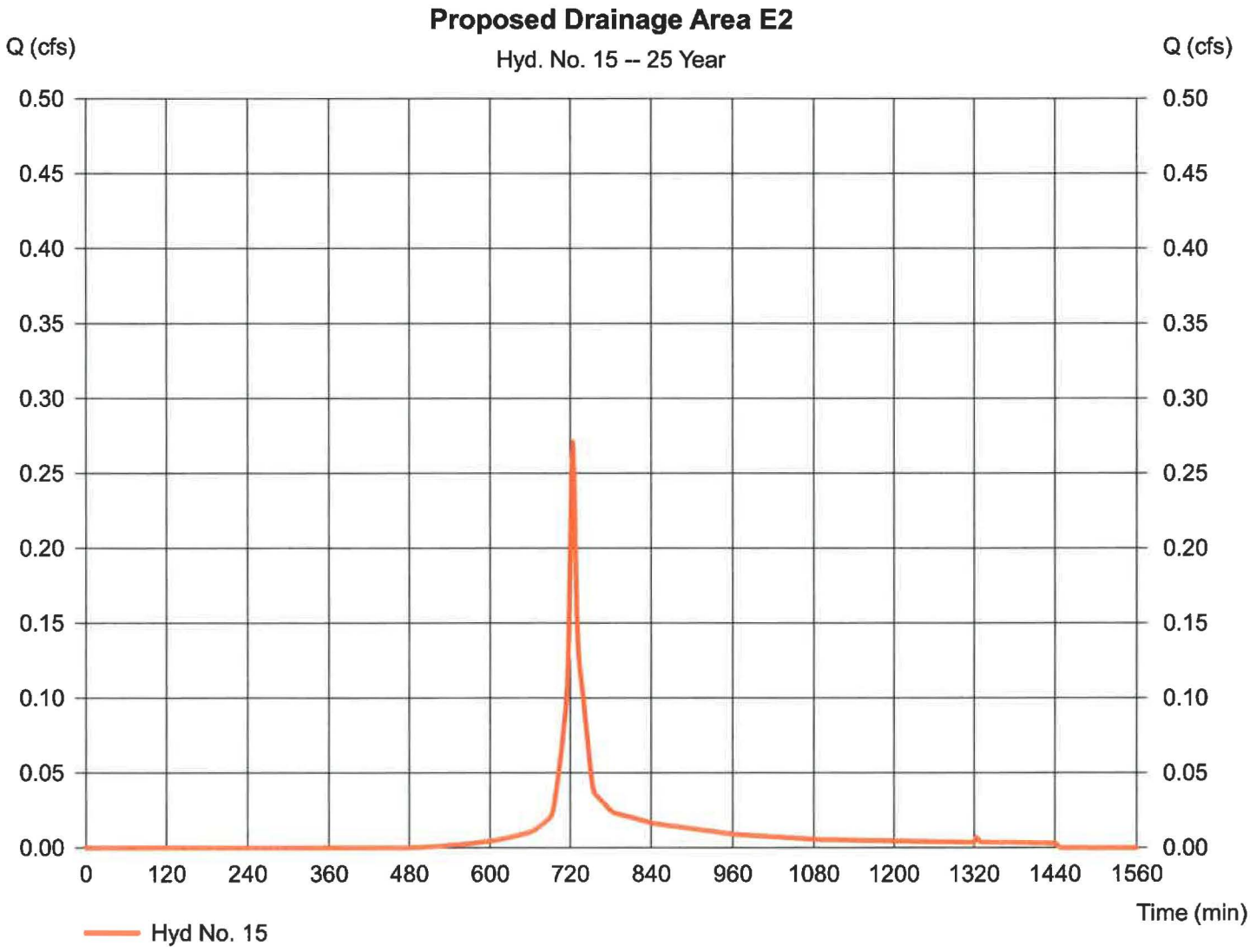
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 15

Proposed Drainage Area E2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.271 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 810 cuft
Drainage area	= 0.068 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.37 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



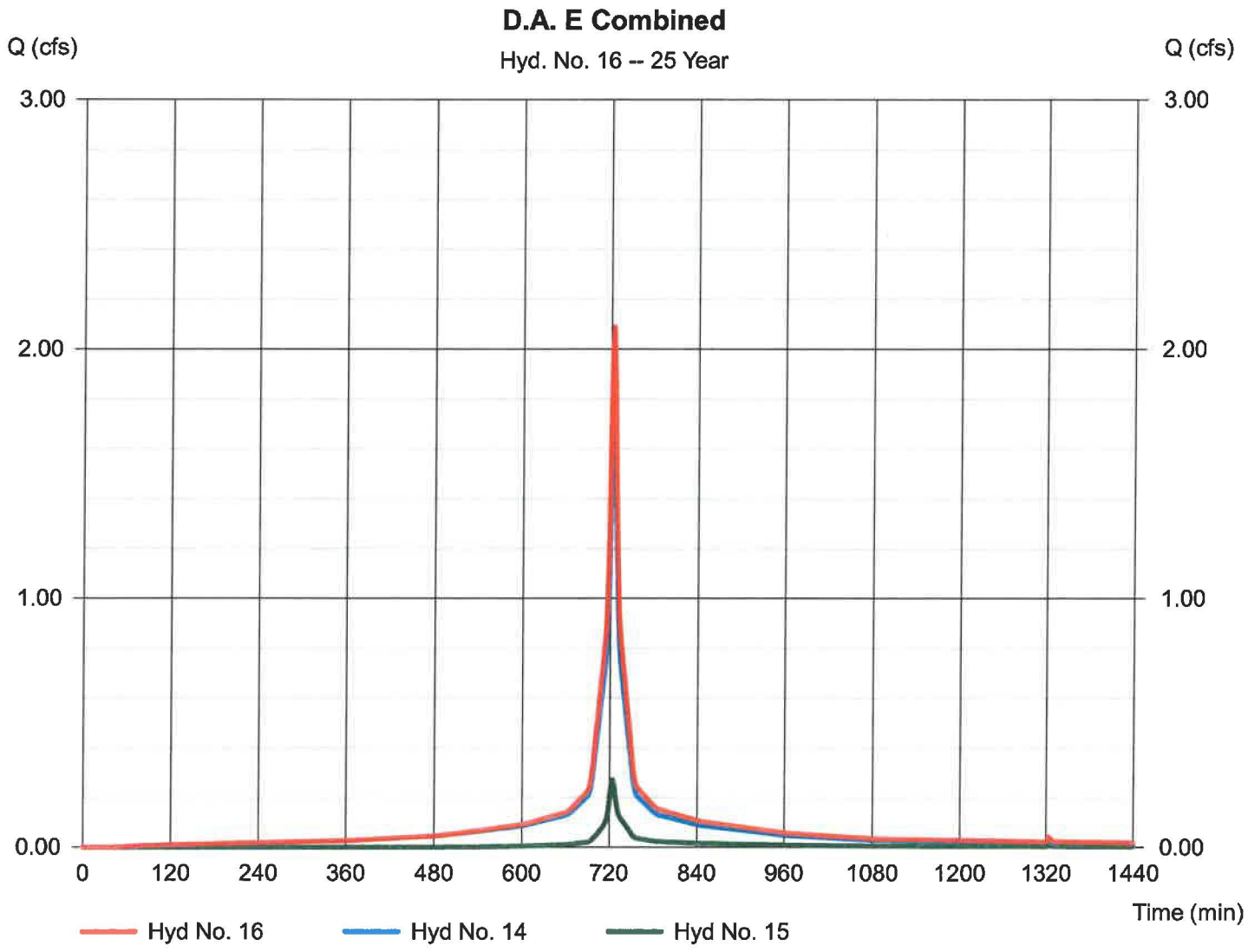
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 16

D.A. E Combined

Hydrograph type	= Combine	Peak discharge	= 2.089 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 7,111 cuft
Inflow hyds.	= 14, 15	Contrib. drain. area	= 0.370 ac



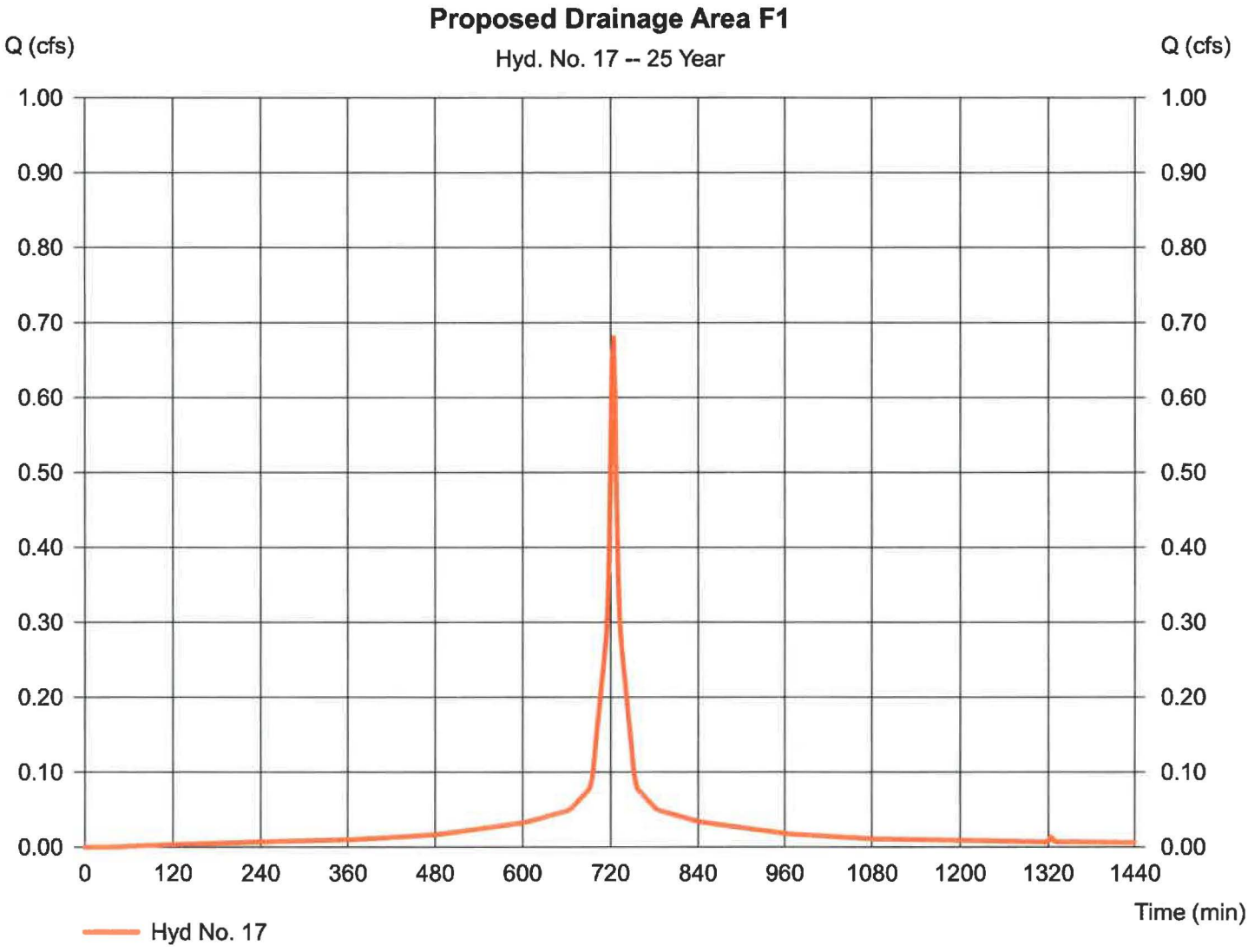
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 17

Proposed Drainage Area F1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.680 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 2,358 cuft
Drainage area	= 0.113 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.37 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



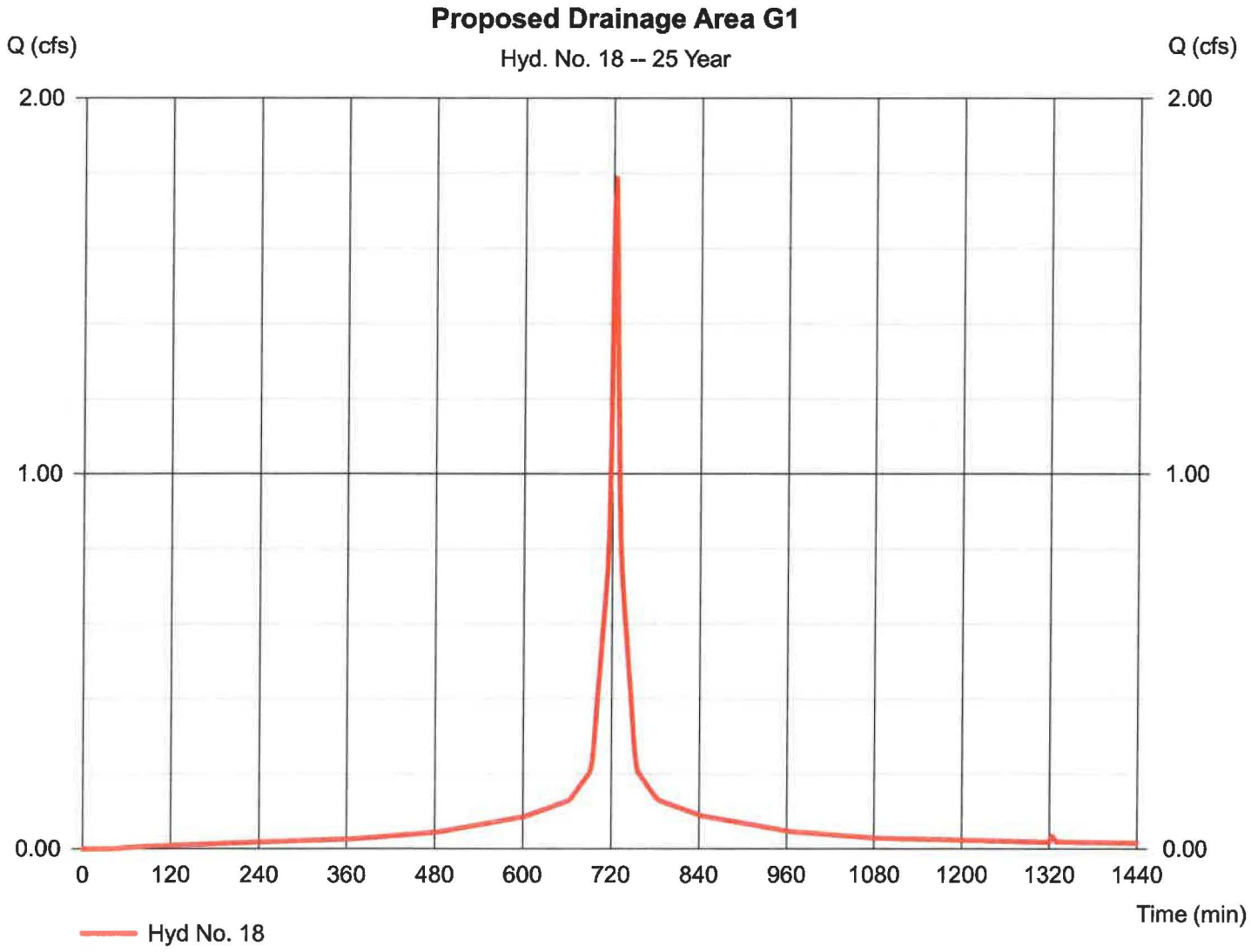
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 18

Proposed Drainage Area G1

Hydrograph type	= SCS Runoff	Peak discharge	= 1.788 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 6,197 cuft
Drainage area	= 0.297 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.37 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



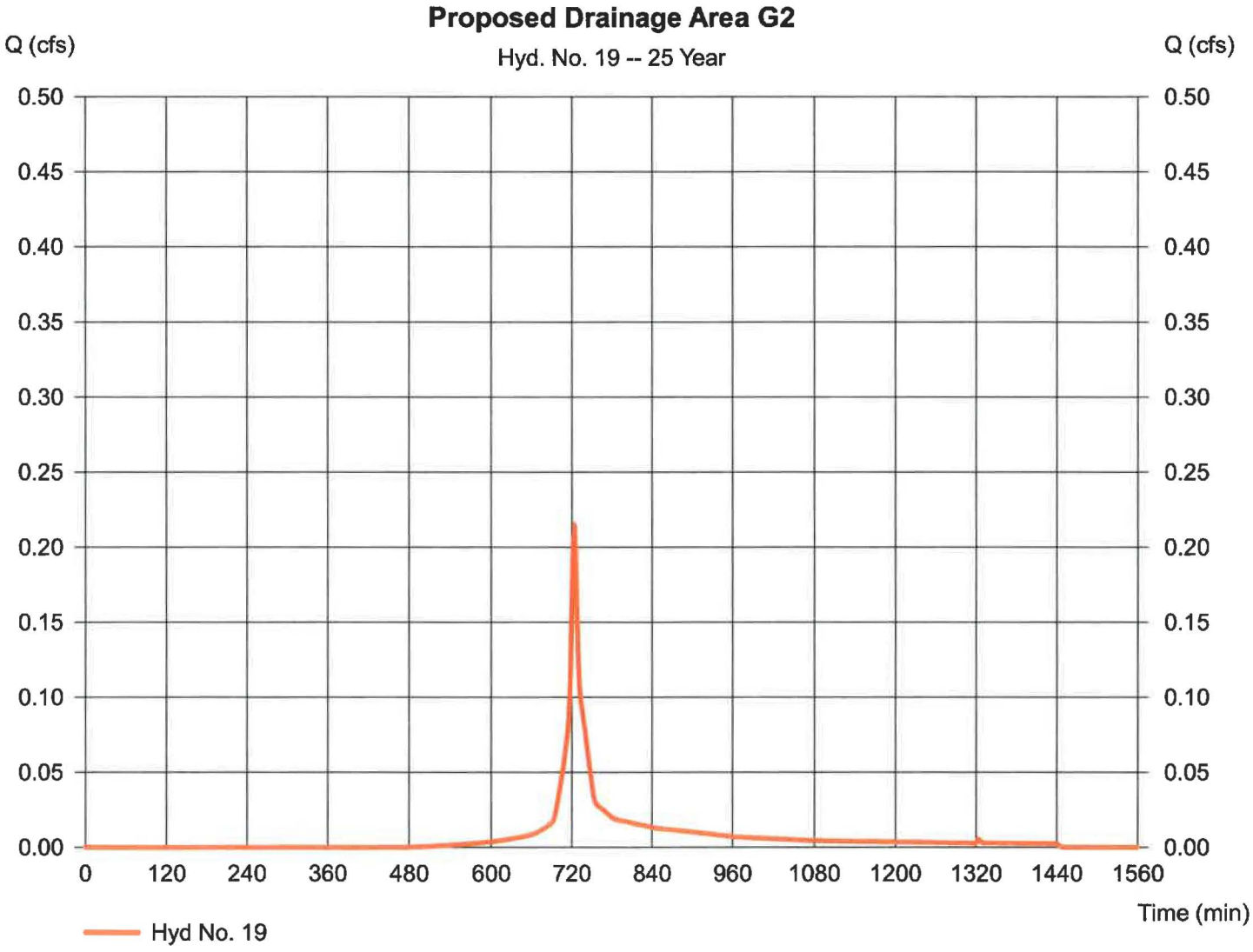
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 19

Proposed Drainage Area G2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.215 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 643 cuft
Drainage area	= 0.054 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.37 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



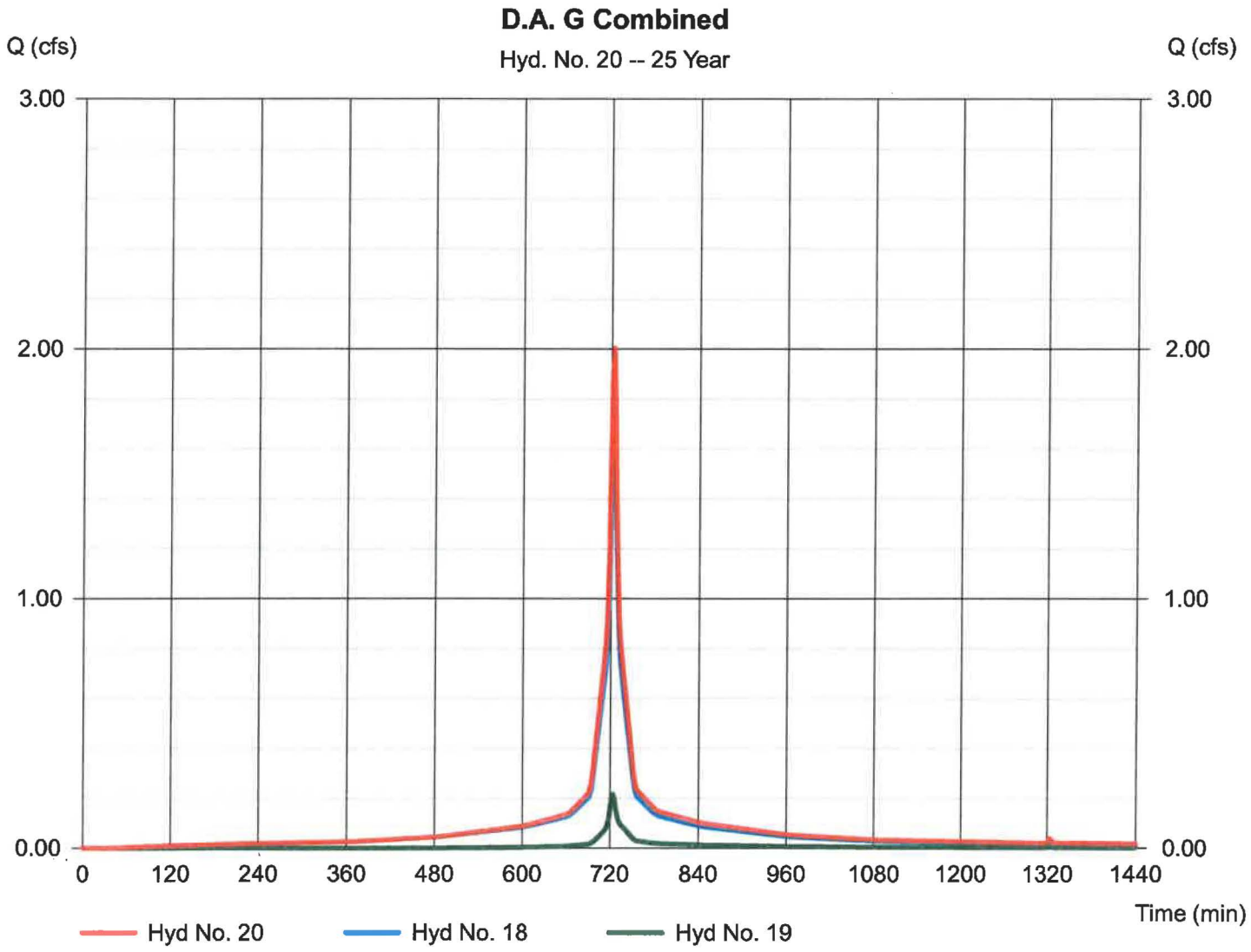
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 20

D.A. G Combined

Hydrograph type	= Combine	Peak discharge	= 2.003 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 6,840 cuft
Inflow hyds.	= 18, 19	Contrib. drain. area	= 0.351 ac



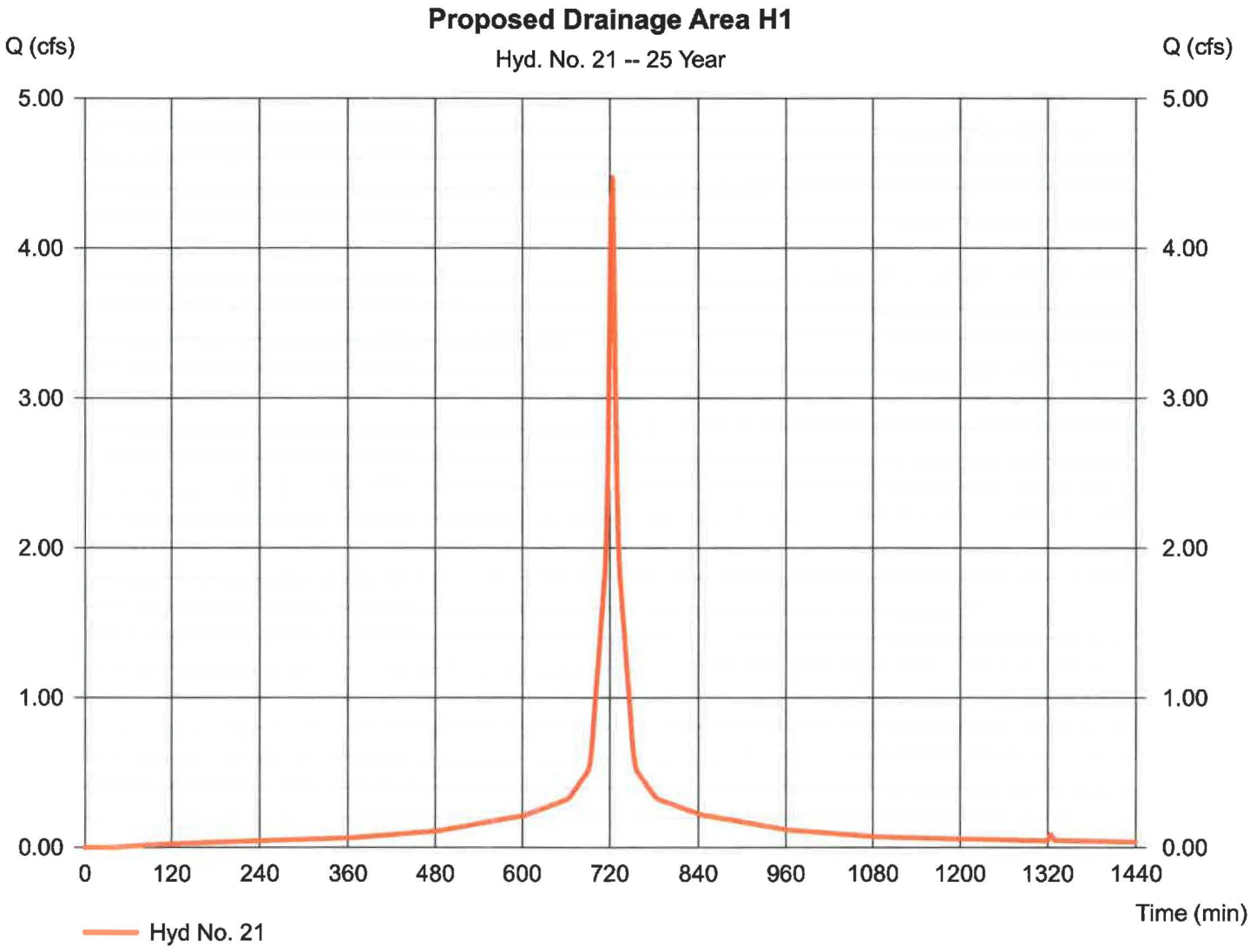
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 21

Proposed Drainage Area H1

Hydrograph type	= SCS Runoff	Peak discharge	= 4.473 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 15,504 cuft
Drainage area	= 0.743 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.37 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



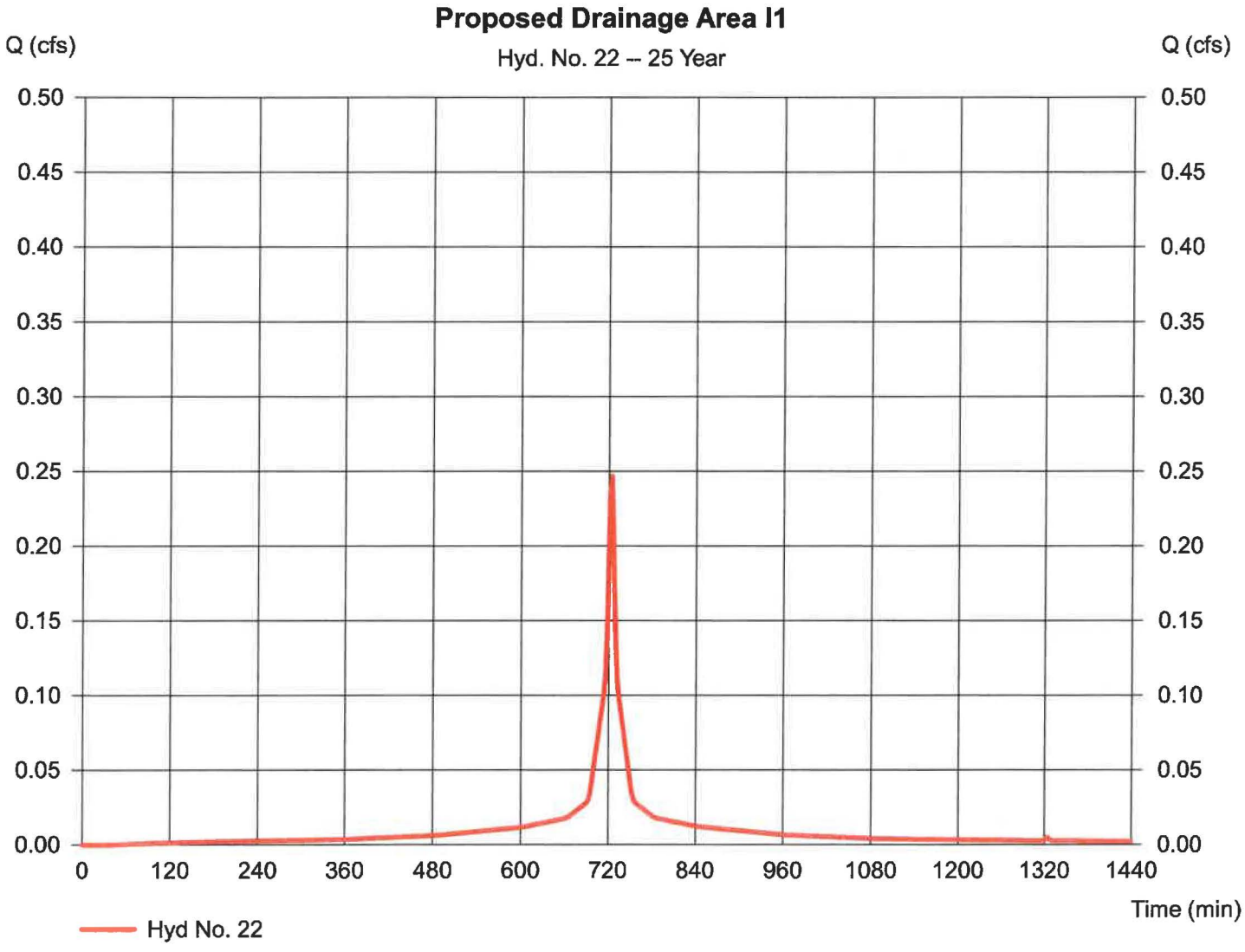
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 22

Proposed Drainage Area I1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.247 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 856 cuft
Drainage area	= 0.041 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.37 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



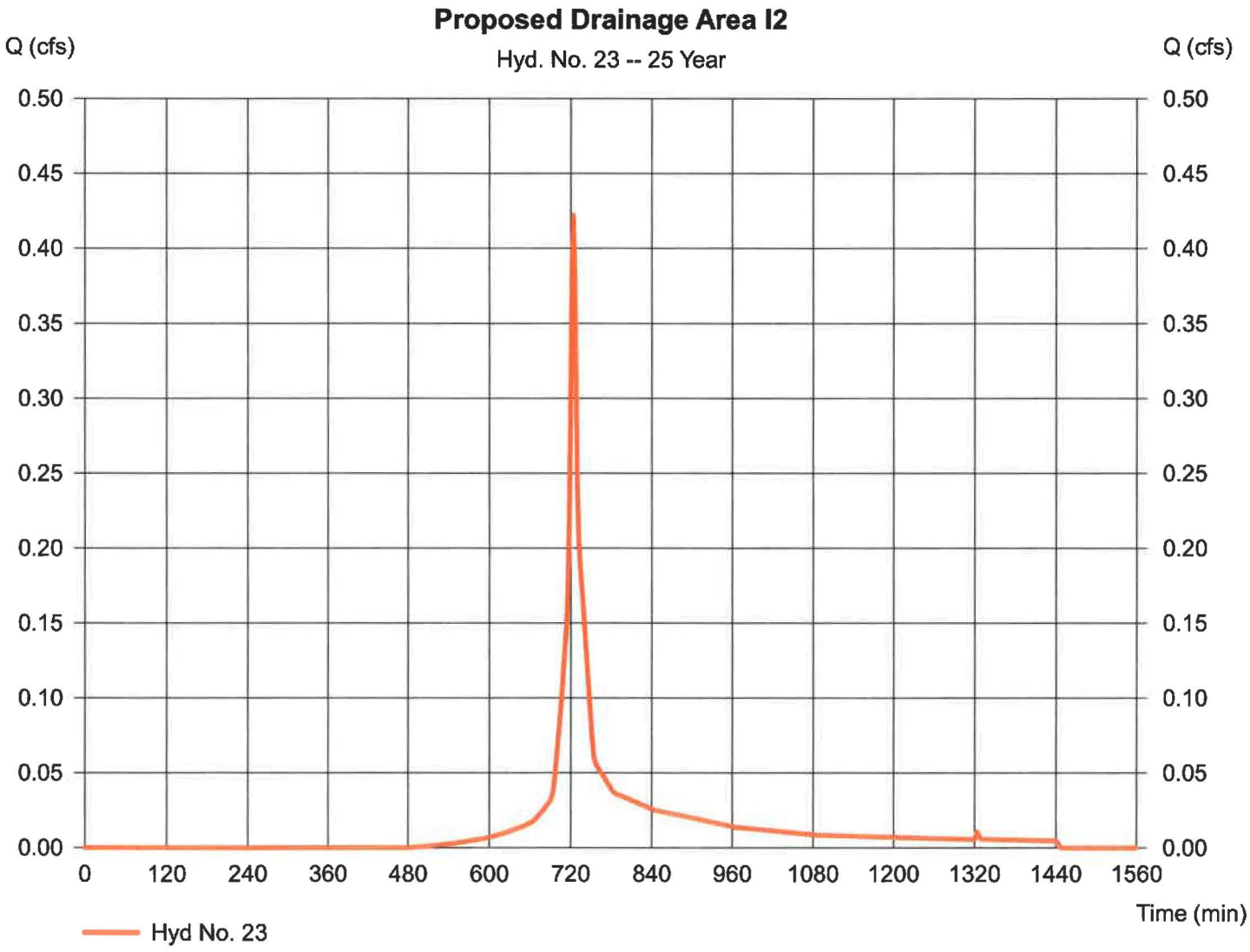
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 23

Proposed Drainage Area I2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.422 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 1,262 cuft
Drainage area	= 0.106 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.37 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



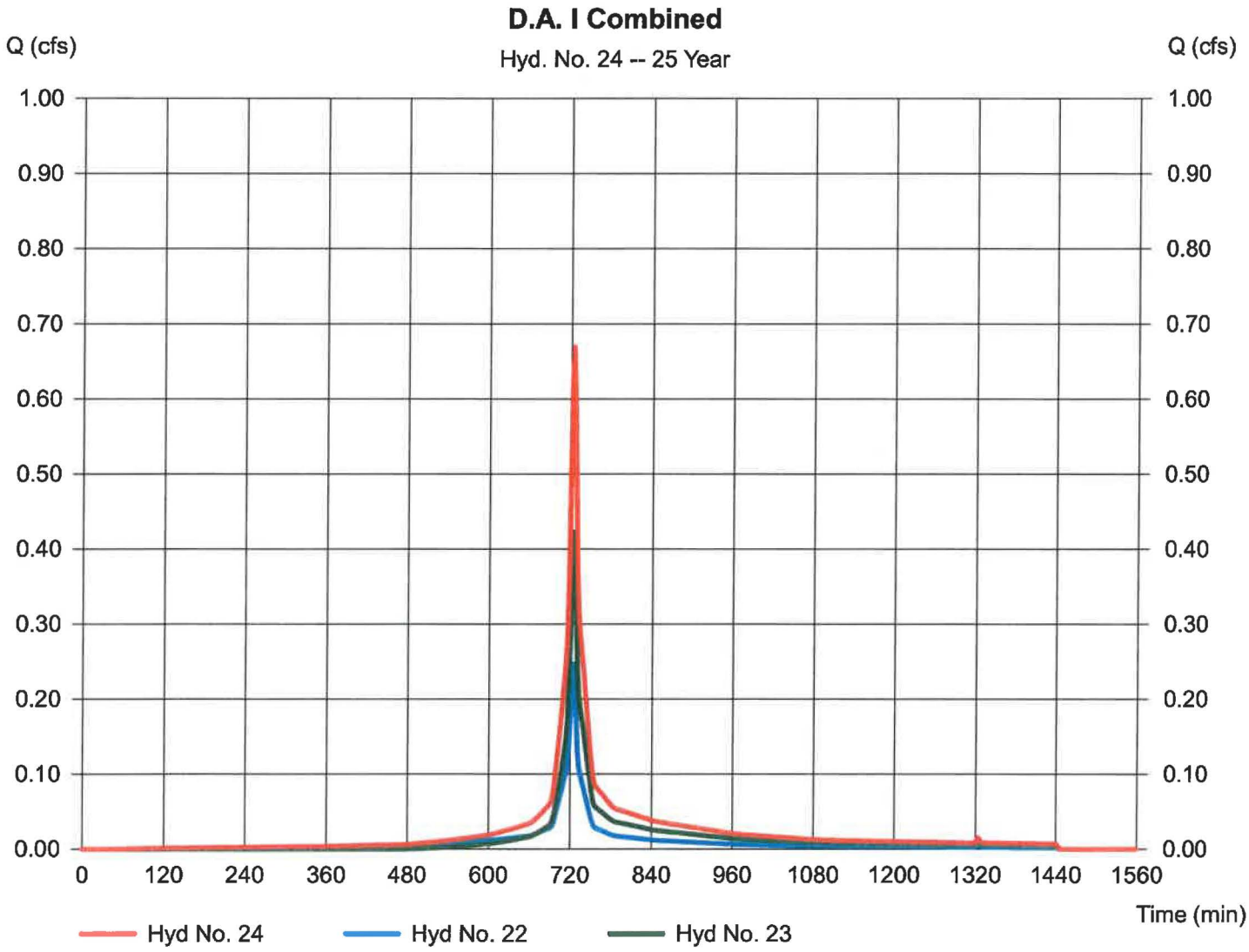
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 24

D.A. I Combined

Hydrograph type	= Combine	Peak discharge	= 0.669 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 2,118 cuft
Inflow hyds.	= 22, 23	Contrib. drain. area	= 0.147 ac



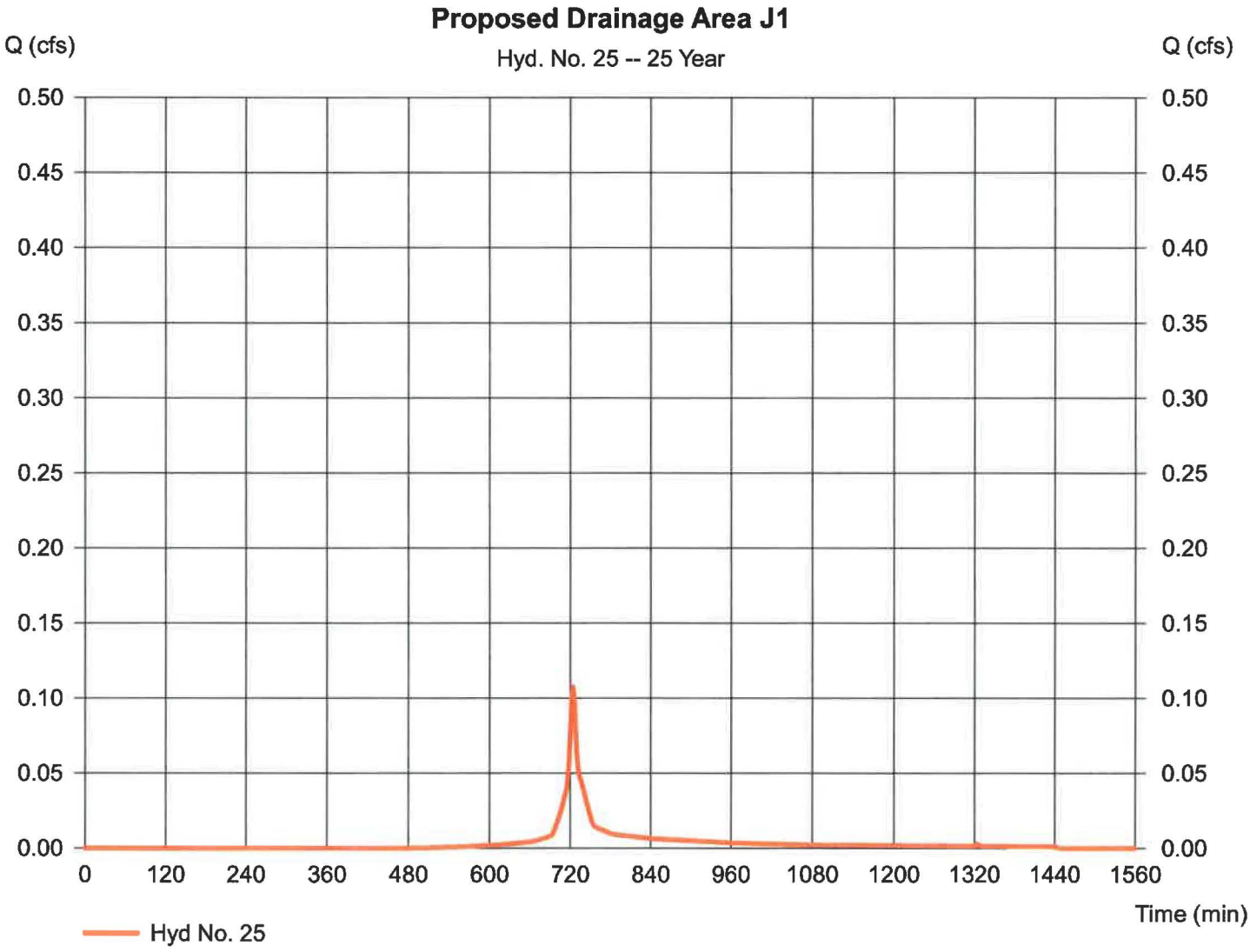
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 25

Proposed Drainage Area J1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.108 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 321 cuft
Drainage area	= 0.027 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.37 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



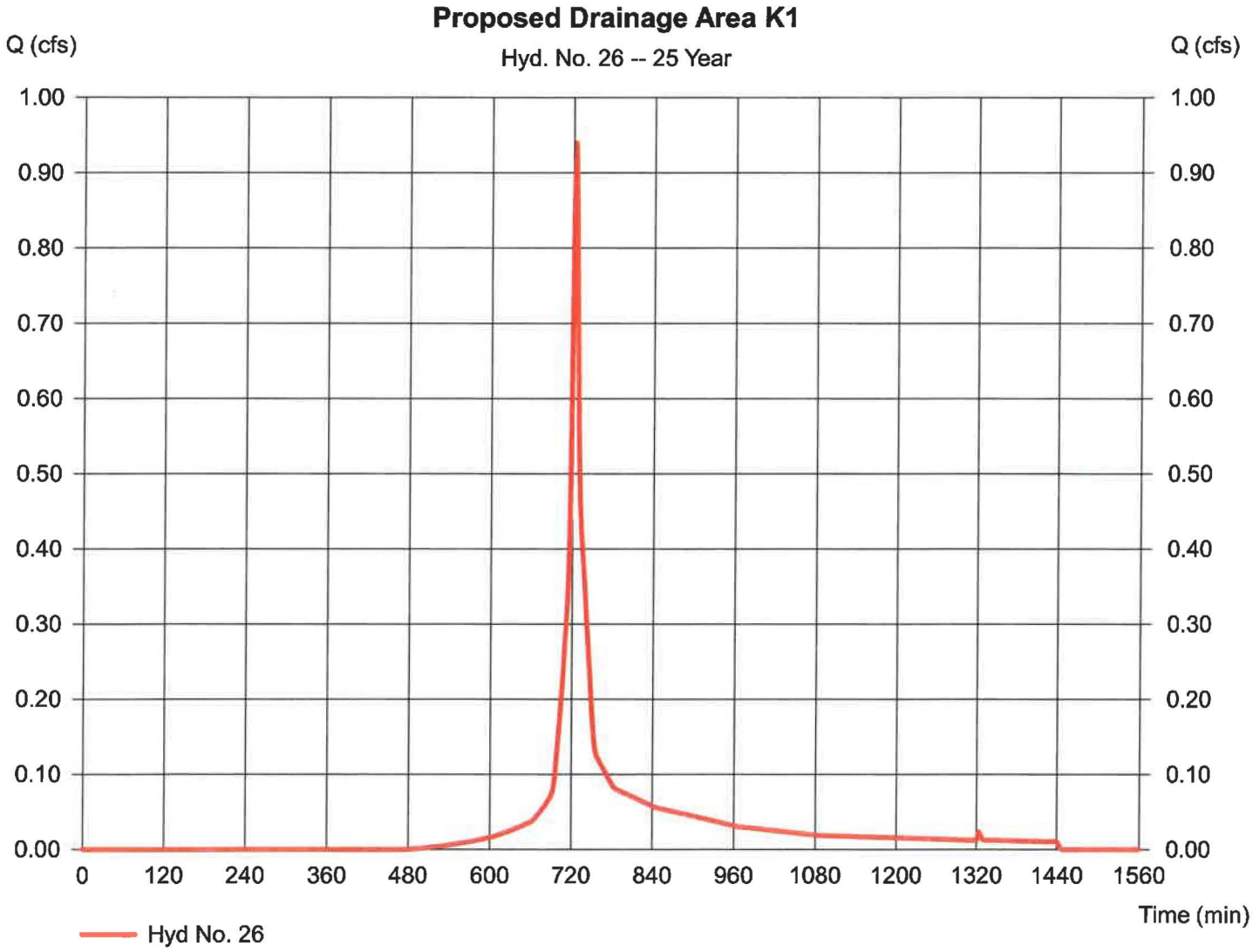
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 26

Proposed Drainage Area K1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.940 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 2,810 cuft
Drainage area	= 0.236 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.37 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



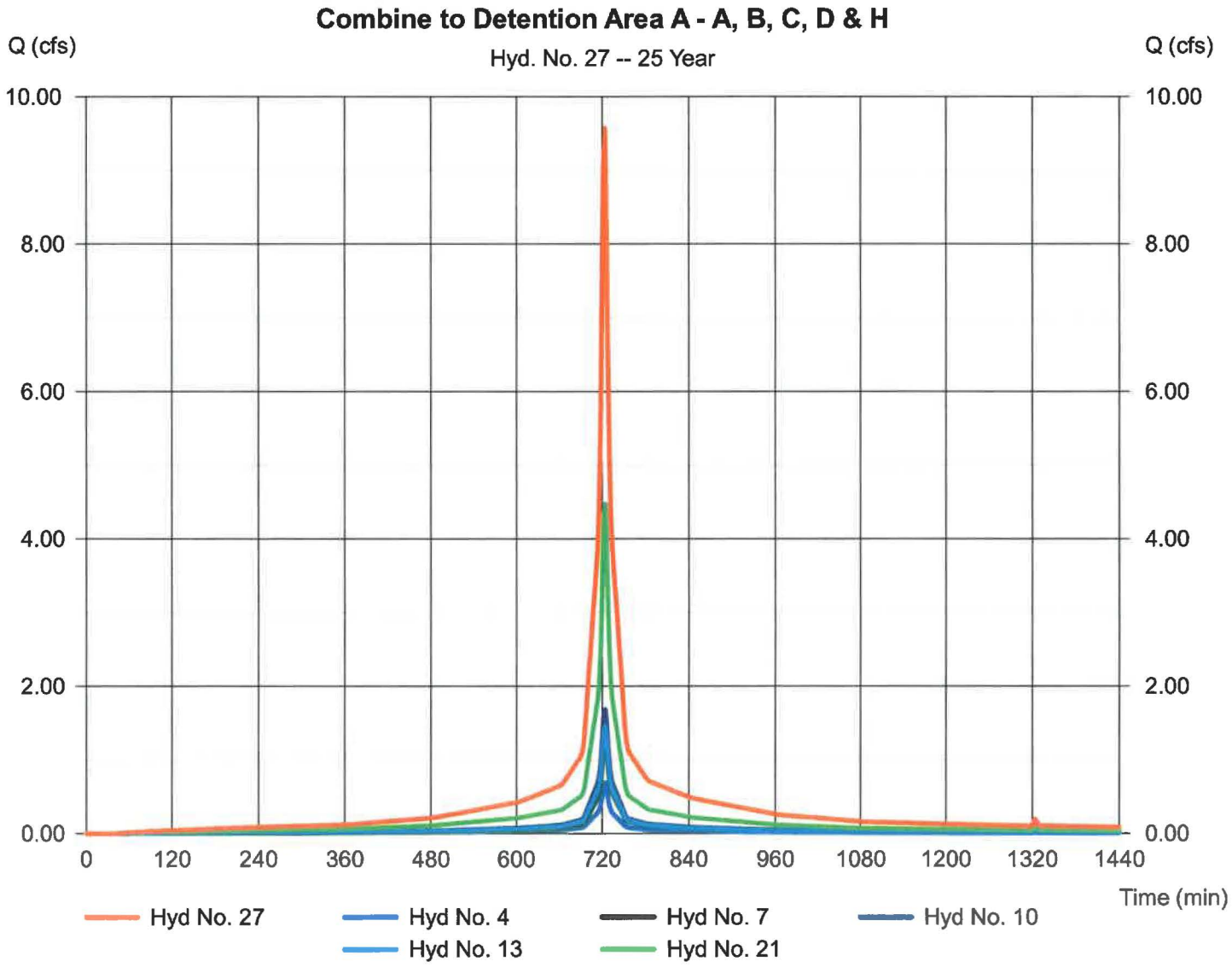
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 27

Combine to Detention Area A - A, B, C, D & H

Hydrograph type	= Combine	Peak discharge	= 9.577 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 32,714 cuft
Inflow hyds.	= 4, 7, 10, 13, 21	Contrib. drain. area	= 0.857 ac



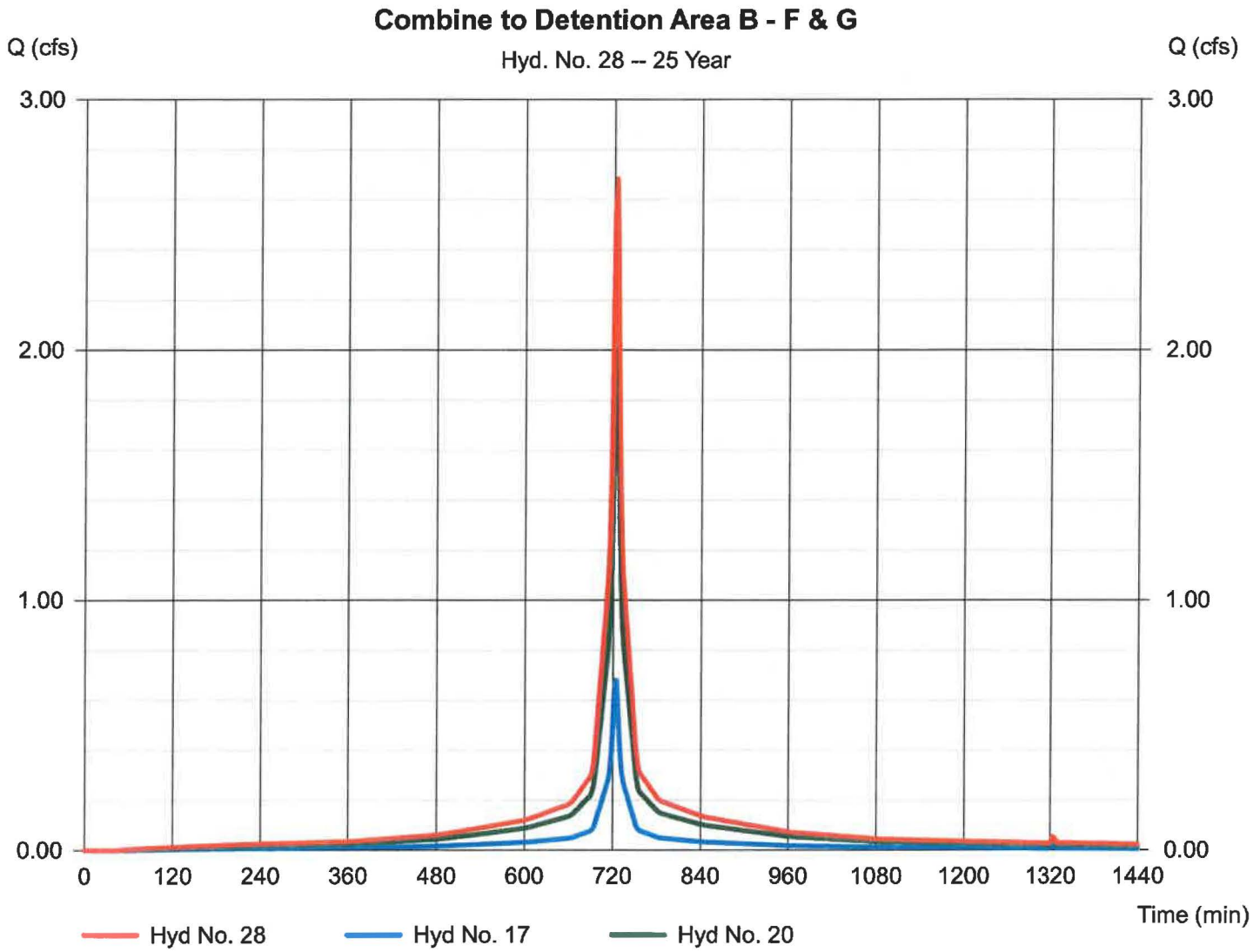
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 28

Combine to Detention Area B - F & G

Hydrograph type	= Combine	Peak discharge	= 2.683 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 9,198 cuft
Inflow hyds.	= 17, 20	Contrib. drain. area	= 0.113 ac



Hydrograph Report

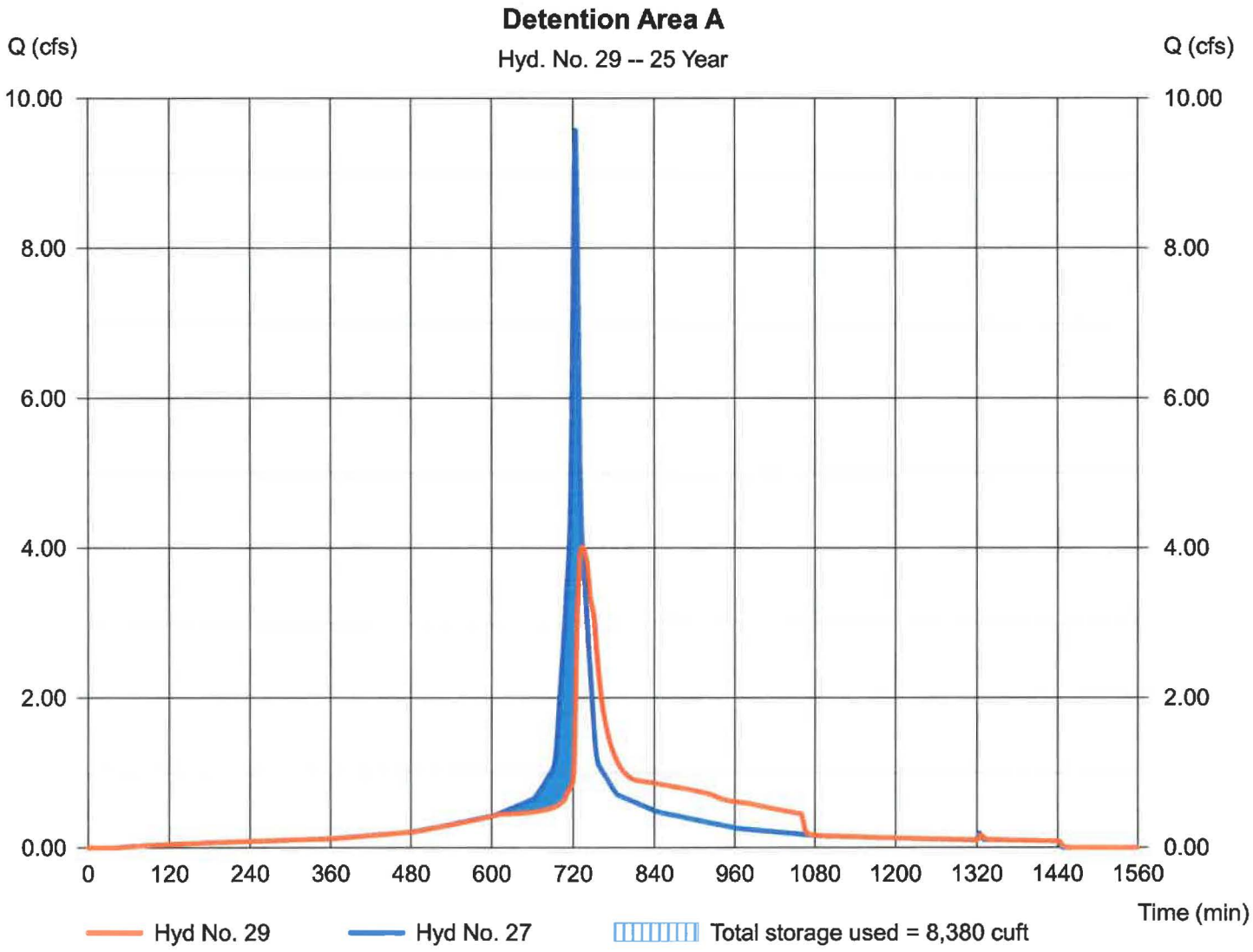
Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 29

Detention Area A

Hydrograph type	= Reservoir	Peak discharge	= 4.013 cfs
Storm frequency	= 25 yrs	Time to peak	= 734 min
Time interval	= 2 min	Hyd. volume	= 32,713 cuft
Inflow hyd. No.	= 27 - Combine to Detention Area A - A, B, C, D, E, H	Max. Elevation	= 627.13 ft
Reservoir name	= Detentioin Area A	Max. Storage	= 8,380 cuft

Storage Indication method used. Outflow includes exfiltration.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Pond No. 1 - Detentioin Area A

Pond Data

UG Chambers - Invert elev. = 625.50 ft, Rise x Span = 2.05 x 4.00 ft, Barrel Len = 7.12 ft, No. Barrels = 140, Slope = 0.00%, Headers = No
Encasement - Invert elev. = 624.50 ft, Width = 4.75 ft, Height = 4.00 ft, Voids = 40.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	624.50	n/a	0	0
0.40	624.90	n/a	758	758
0.80	625.30	n/a	758	1,515
1.20	625.70	n/a	1,236	2,751
1.60	626.10	n/a	1,695	4,446
2.00	626.50	n/a	1,637	6,083
2.40	626.90	n/a	1,531	7,614
2.80	627.30	n/a	1,350	8,963
3.20	627.70	n/a	951	9,914
3.60	628.10	n/a	758	10,672
4.00	628.50	n/a	758	11,430

Culvert / Orifice Structures

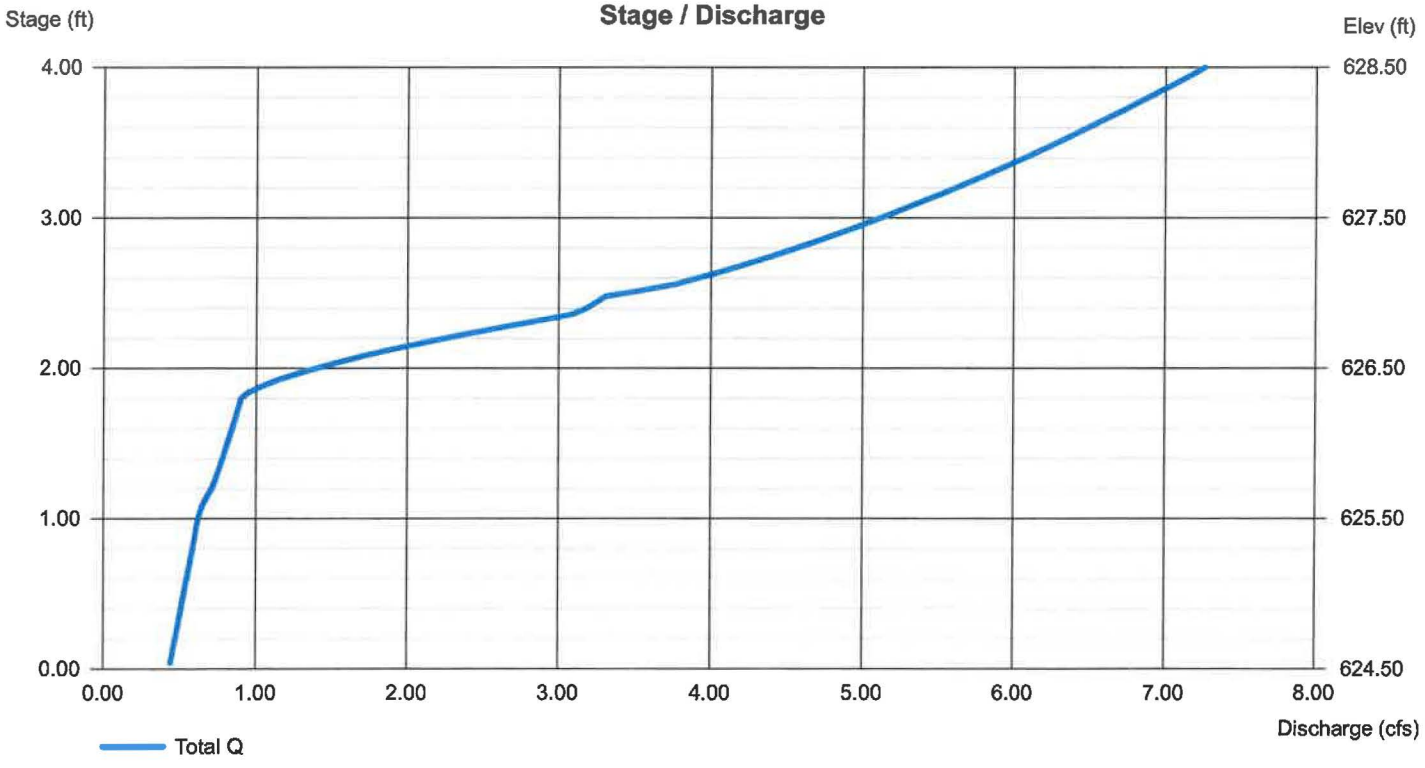
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	2.50	9.00	0.00
Span (in)	= 15.00	2.50	18.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 625.50	625.50	626.30	0.00
Length (ft)	= 10.00	0.50	0.50	0.00
Slope (%)	= 1.00	0.01	0.01	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.00	0.00	0.00	0.00
Crest El. (ft)	= 628.50	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 4.000 (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

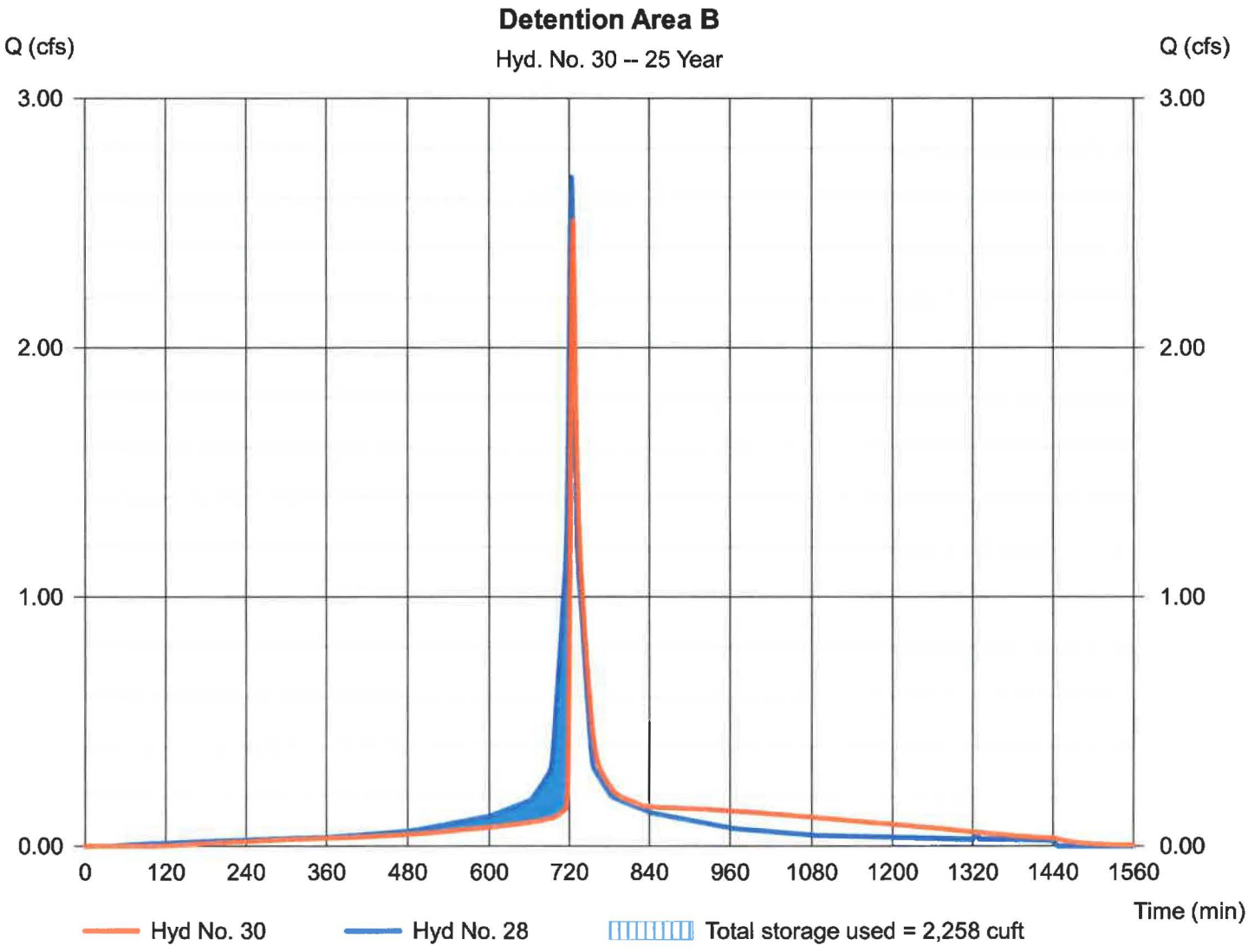
Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 30

Detention Area B

Hydrograph type	= Reservoir	Peak discharge	= 2.512 cfs
Storm frequency	= 25 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 9,173 cuft
Inflow hyd. No.	= 28 - Combine to Detention Area B - F & G	Max. Elevation	= 626.16 ft
Reservoir name	= Detentiion Area B	Max. Storage	= 2,258 cuft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Pond No. 2 - Detentiion Area B

Pond Data

UG Chambers - Invert elev. = 624.74 ft, Rise x Span = 1.50 x 1.50 ft, Barrel Len = 20.00 ft, No. Barrels = 66, Slope = 0.00%, Headers = No

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	624.74	n/a	0	0
0.15	624.89	n/a	121	121
0.30	625.04	n/a	211	332
0.45	625.19	n/a	257	589
0.60	625.34	n/a	283	872
0.75	625.49	n/a	295	1,167
0.90	625.64	n/a	295	1,462
1.05	625.79	n/a	283	1,745
1.20	625.94	n/a	256	2,001
1.35	626.09	n/a	211	2,212
1.50	626.24	n/a	121	2,333

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	2.50	Inactive	0.00
Span (in)	= 15.00	2.50	18.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 624.74	624.75	625.25	0.00
Length (ft)	= 115.00	0.33	0.33	0.00
Slope (%)	= 0.50	0.01	0.01	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

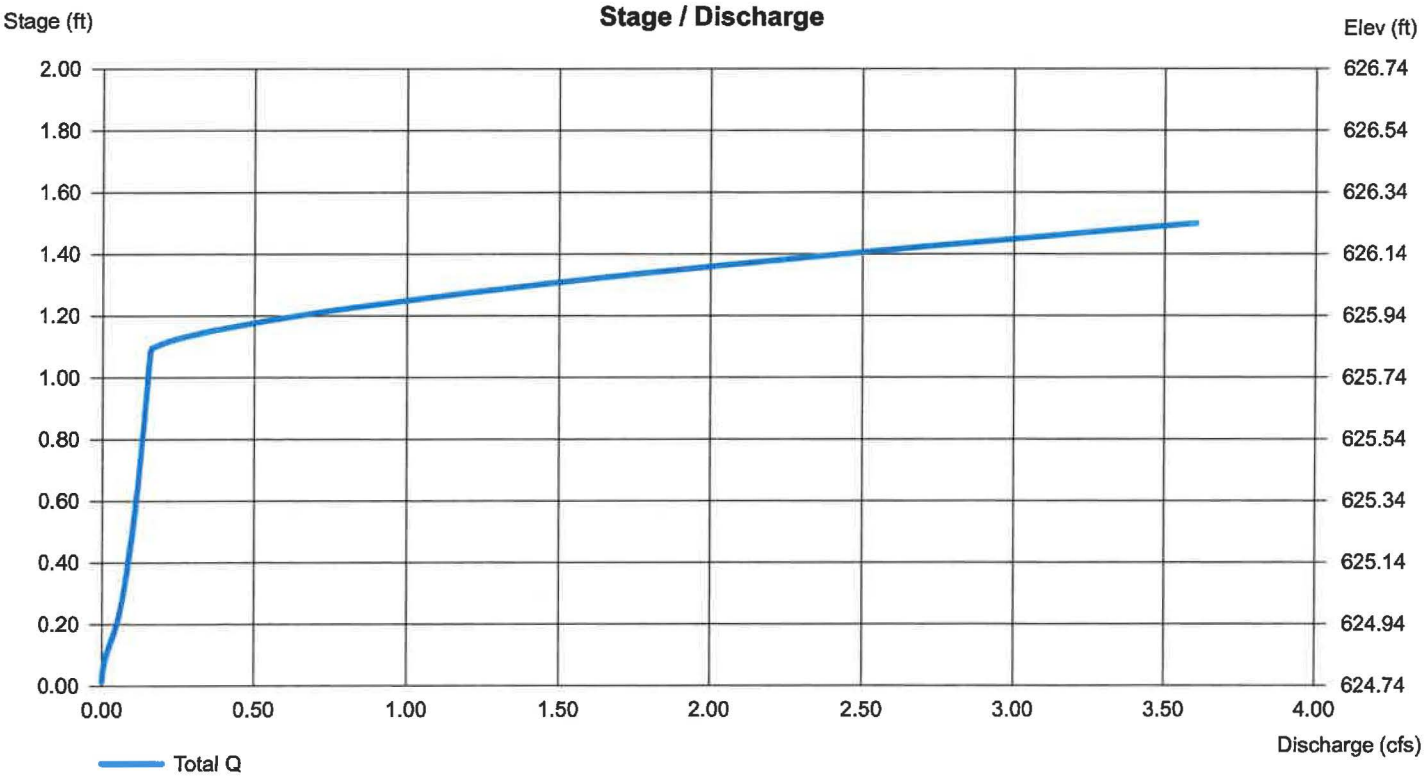
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 4.00	0.00	0.00	0.00
Crest El. (ft)	= 625.83	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Contour)

TW Elev. (ft) = 0.00

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



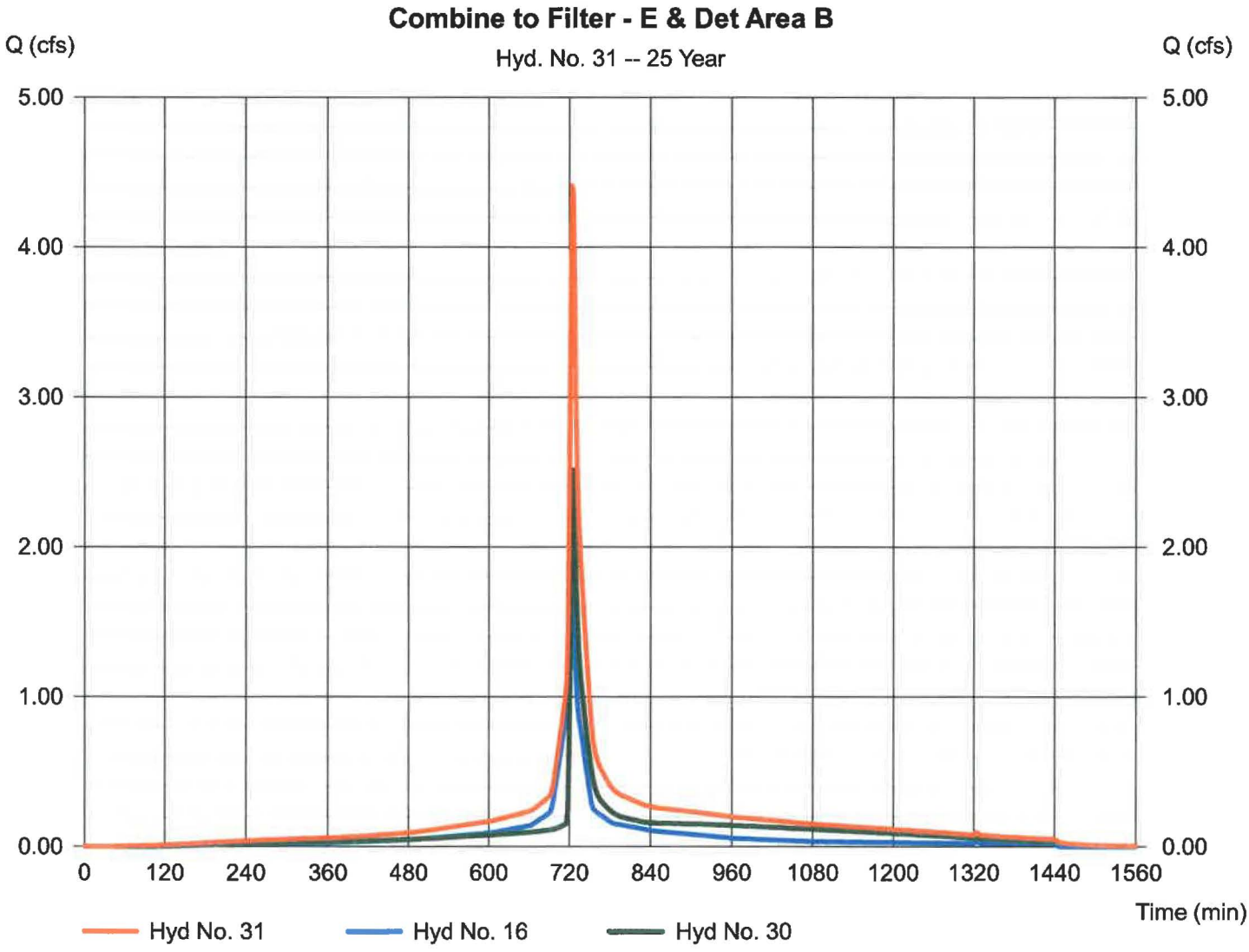
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 31

Combine to Filter - E & Det Area B

Hydrograph type	= Combine	Peak discharge	= 4.414 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 16,284 cuft
Inflow hyds.	= 16, 30	Contrib. drain. area	= 0.000 ac



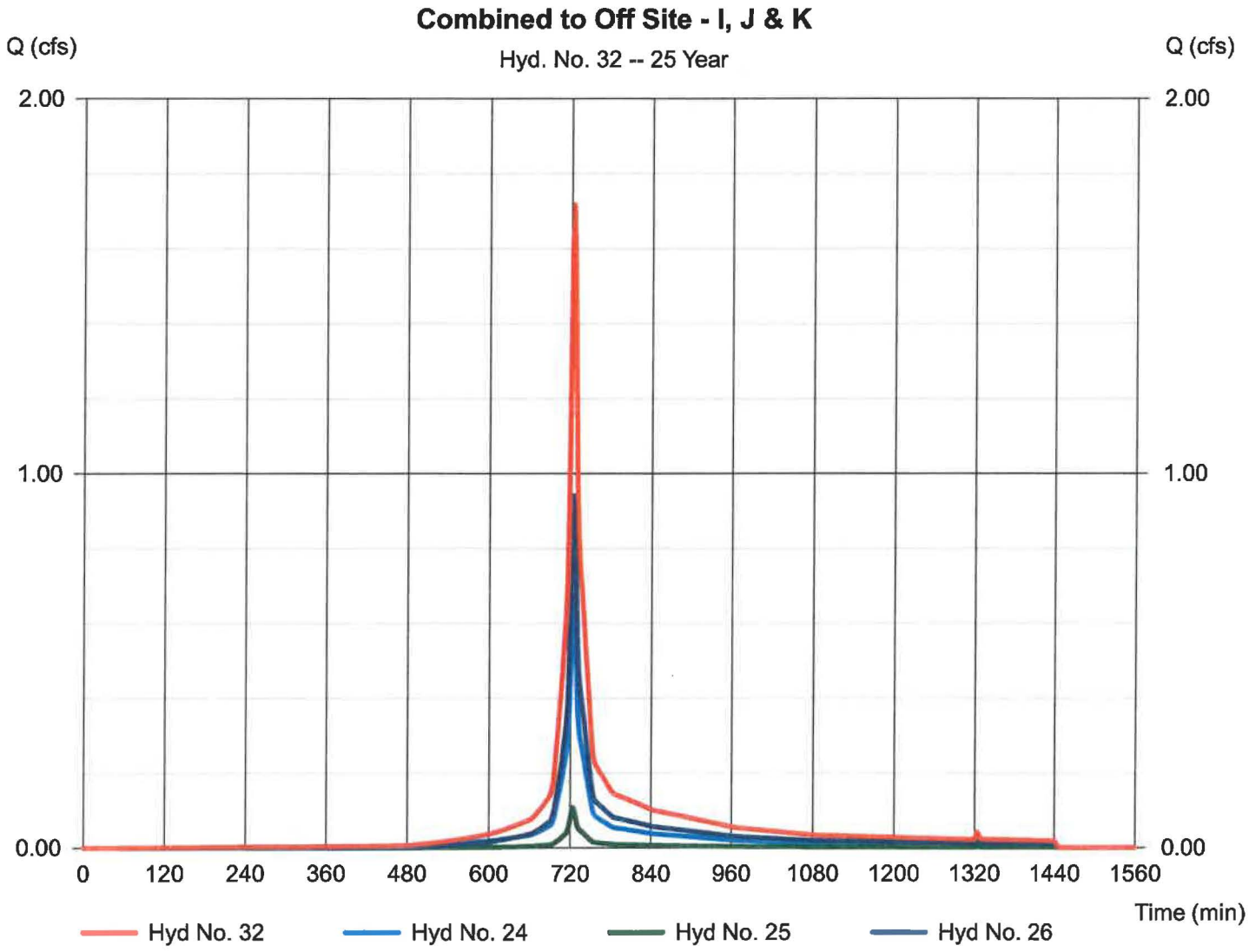
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 32

Combined to Off Site - I, J & K

Hydrograph type	= Combine	Peak discharge	= 1.717 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 5,249 cuft
Inflow hyds.	= 24, 25, 26	Contrib. drain. area	= 0.263 ac



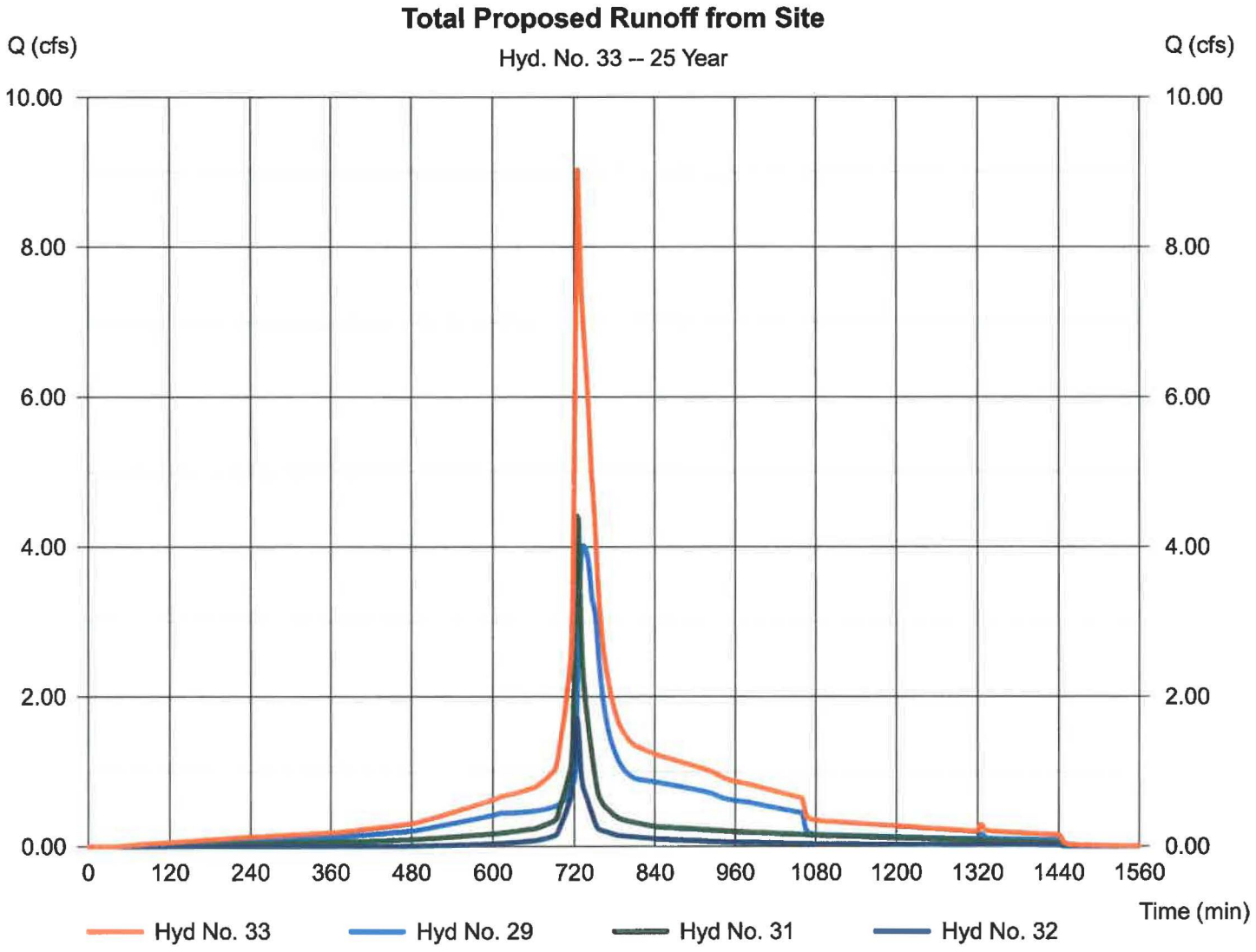
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 33

Total Proposed Runoff from Site

Hydrograph type	= Combine	Peak discharge	= 9.031 cfs
Storm frequency	= 25 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 54,246 cuft
Inflow hyds.	= 29, 31, 32	Contrib. drain. area	= 0.000 ac



100-YEAR STORM EVENT

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.23

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	8.907	2	724	26,766	----	------	------	Existing Drainage Area A - Pervious
2	SCS Runoff	11.48	2	724	40,074	----	------	------	Existing Drainage Area A - Impervio
3	Combine	20.38	2	724	66,840	1, 2	------	------	Existing D.A. A Combined
4	SCS Runoff	0.901	2	724	3,146	----	------	------	Proposed Drainage Area A1
5	SCS Runoff	0.893	2	724	3,119	----	------	------	Proposed Drainage Area B1
6	SCS Runoff	0.896	2	724	2,693	----	------	------	Proposed Drainage Area B2
7	Combine	1.789	2	724	5,811	5, 6	------	------	D.A. B Combined
8	SCS Runoff	1.952	2	724	6,817	----	------	------	Proposed Drainage Area C1
9	SCS Runoff	0.291	2	724	874	----	------	------	Proposed Drainage Area C2
10	Combine	2.243	2	724	7,691	8, 9	------	------	D.A. C Combined
11	SCS Runoff	1.636	2	724	5,713	----	------	------	Proposed Drainage Area D1
12	SCS Runoff	0.309	2	724	927	----	------	------	Proposed Drainage Area D2
13	Combine	1.945	2	724	6,640	11, 12	------	------	D.A. D Combined
14	SCS Runoff	2.387	2	724	8,335	----	------	------	Proposed Drainage Area E1
15	SCS Runoff	0.404	2	724	1,213	----	------	------	Proposed Drainage Area E2
16	Combine	2.790	2	724	9,548	14, 15	------	------	D.A. E Combined
17	SCS Runoff	0.893	2	724	3,119	----	------	------	Proposed Drainage Area F1
18	SCS Runoff	2.347	2	724	8,197	----	------	------	Proposed Drainage Area G1
19	SCS Runoff	0.320	2	724	963	----	------	------	Proposed Drainage Area G2
20	Combine	2.668	2	724	9,160	18, 19	------	------	D.A. G Combined
21	SCS Runoff	5.872	2	724	20,506	----	------	------	Proposed Drainage Area H1
22	SCS Runoff	0.324	2	724	1,132	----	------	------	Proposed Drainage Area I1
23	SCS Runoff	0.629	2	724	1,890	----	------	------	Proposed Drainage Area I2
24	Combine	0.953	2	724	3,022	22, 23	------	------	D.A. I Combined
25	SCS Runoff	0.160	2	724	481	----	------	------	Proposed Drainage Area J1
26	SCS Runoff	1.400	2	724	4,208	----	------	------	Proposed Drainage Area K1
27	Combine	12.75	2	724	43,795	4, 7, 10, 13, 21,	------	------	Combine to Detention Area A - A, B,
28	Combine	3.561	2	724	12,279	17, 20,	------	------	Combine to Detention Area B - F &
29	Reservoir	6.447	2	730	43,795	27	628.09	10,632	Detention Area A
30	Reservoir	3.442	2	724	12,253	28	626.24	2,322	Detention Area B
31	Combine	6.232	2	724	21,801	16, 30	------	------	Combine to Filter - E & Det Area B
32	Combine	2.514	2	724	7,712	24, 25, 26,	------	------	Combined to Off Site - I, J & K
33	Combine	13.76	2	726	73,307	29, 31, 32	------	------	Total Proposed Runoff from Site

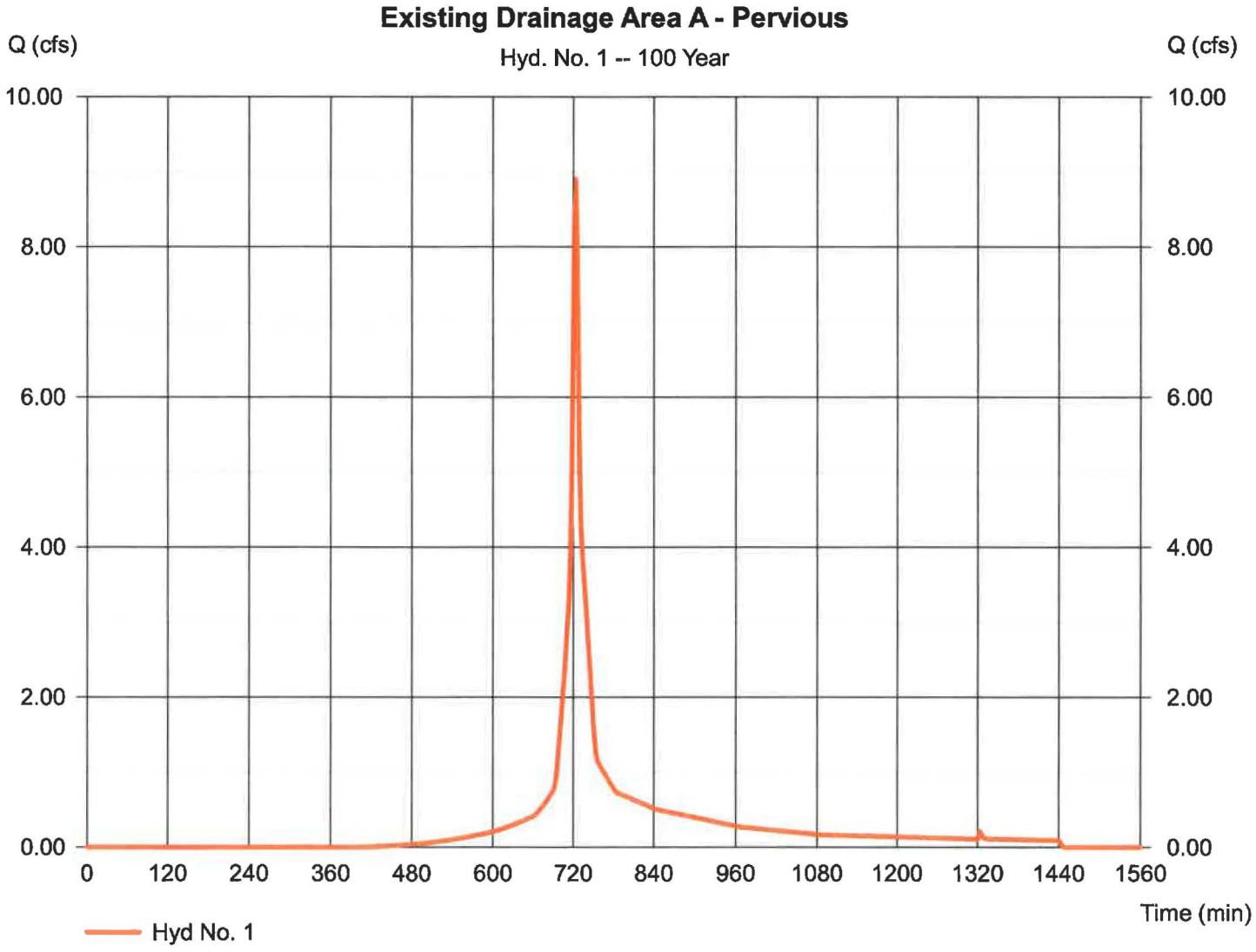
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 1

Existing Drainage Area A - Pervious

Hydrograph type	= SCS Runoff	Peak discharge	= 8.907 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 26,766 cuft
Drainage area	= 1.501 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 6.50 min
Total precip.	= 8.35 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



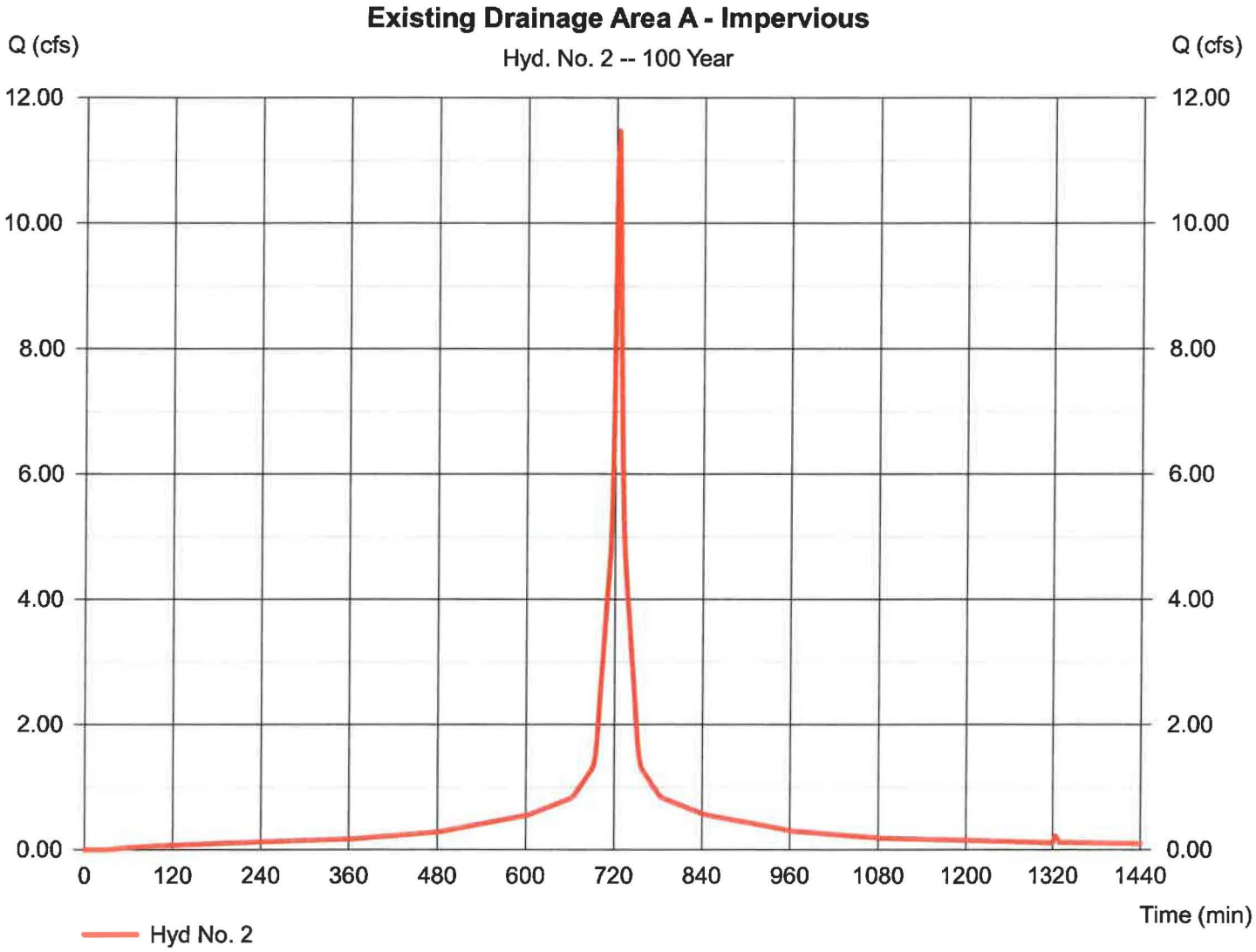
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 2

Existing Drainage Area A - Impervious

Hydrograph type	= SCS Runoff	Peak discharge	= 11.48 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 40,074 cuft
Drainage area	= 1.452 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.50 min
Total precip.	= 8.35 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



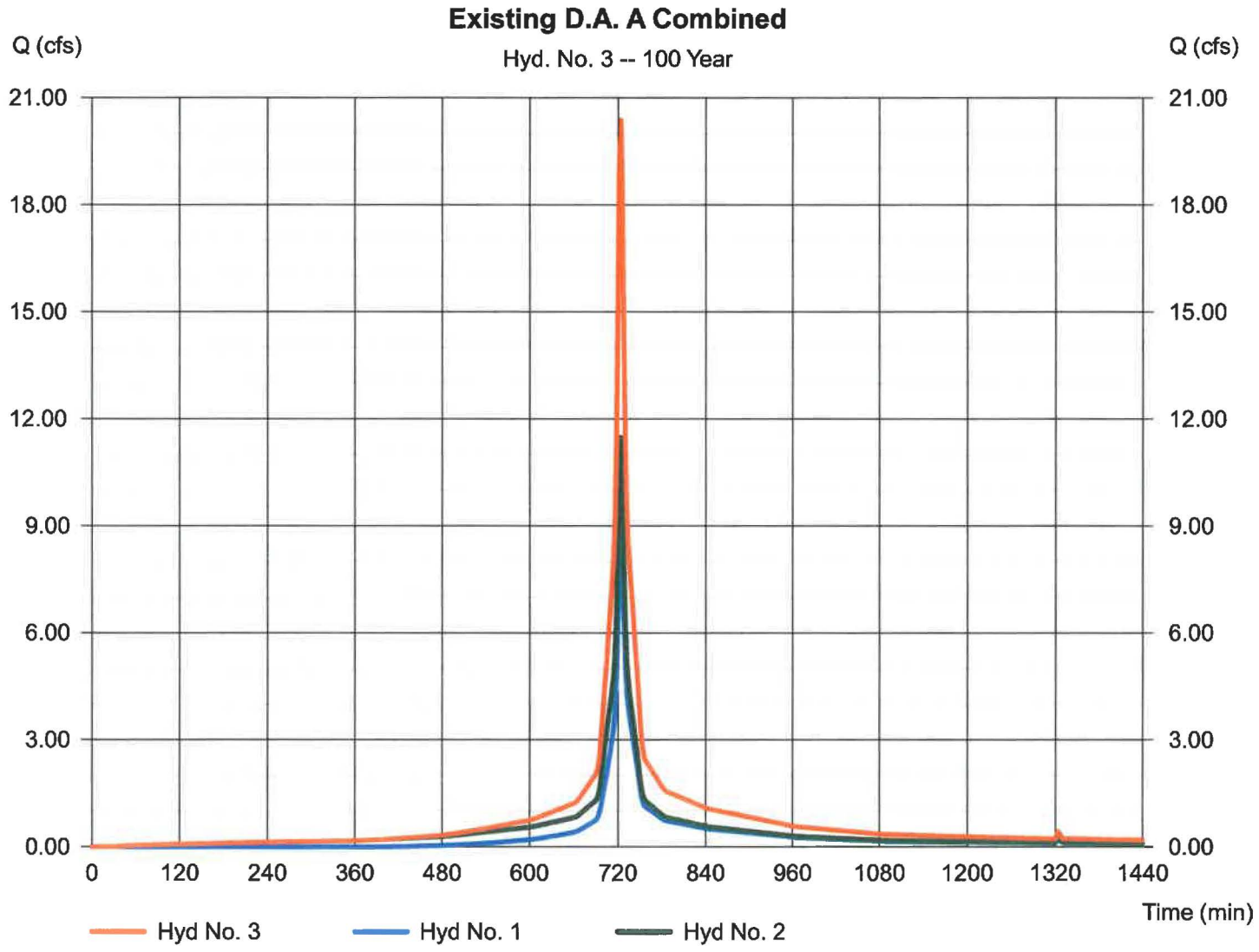
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 3

Existing D.A. A Combined

Hydrograph type	= Combine	Peak discharge	= 20.38 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 66,840 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 2.953 ac



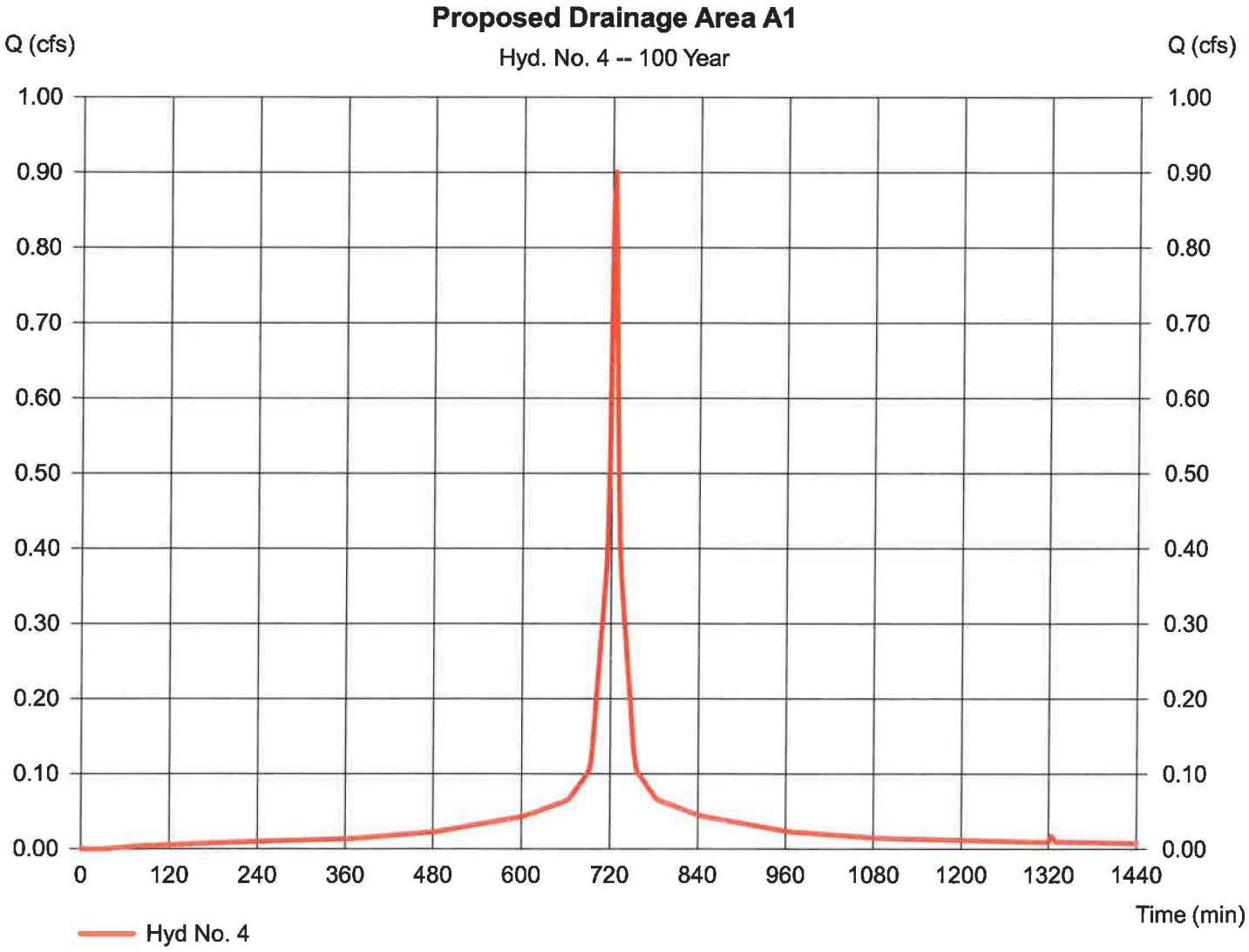
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 4

Proposed Drainage Area A1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.901 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 3,146 cuft
Drainage area	= 0.114 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 8.35 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



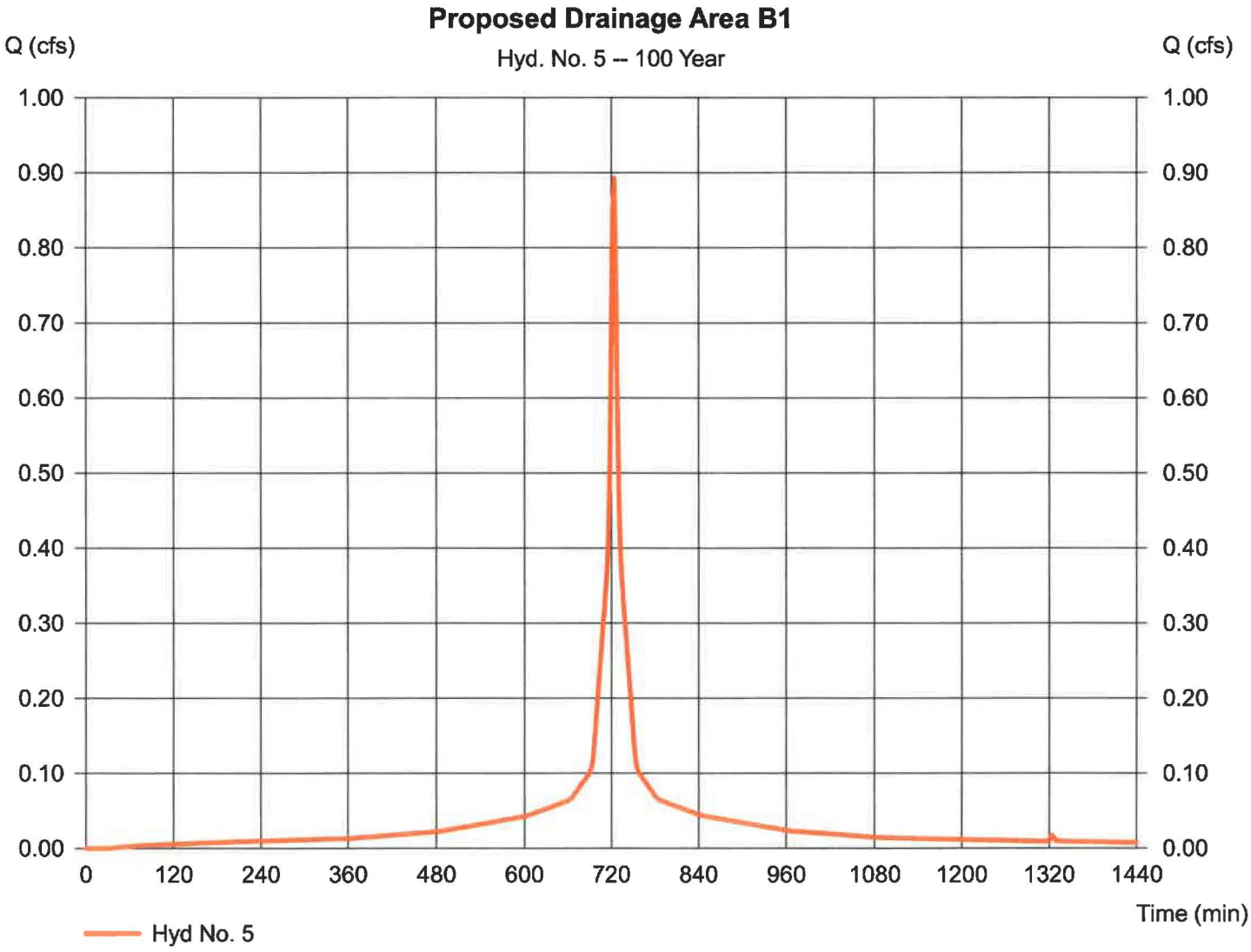
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 5

Proposed Drainage Area B1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.893 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 3,119 cuft
Drainage area	= 0.113 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 8.35 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



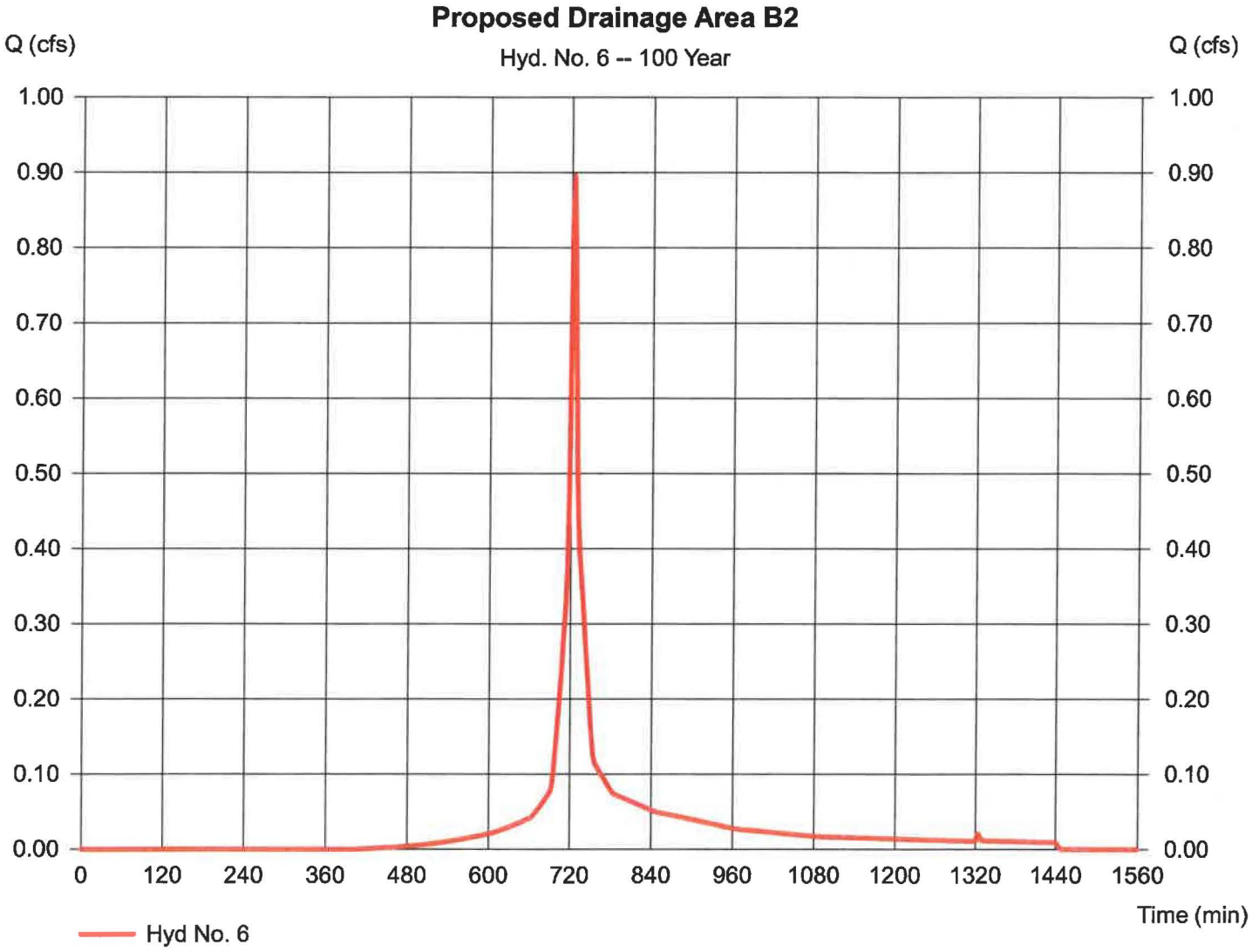
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 6

Proposed Drainage Area B2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.896 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 2,693 cuft
Drainage area	= 0.151 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 8.35 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



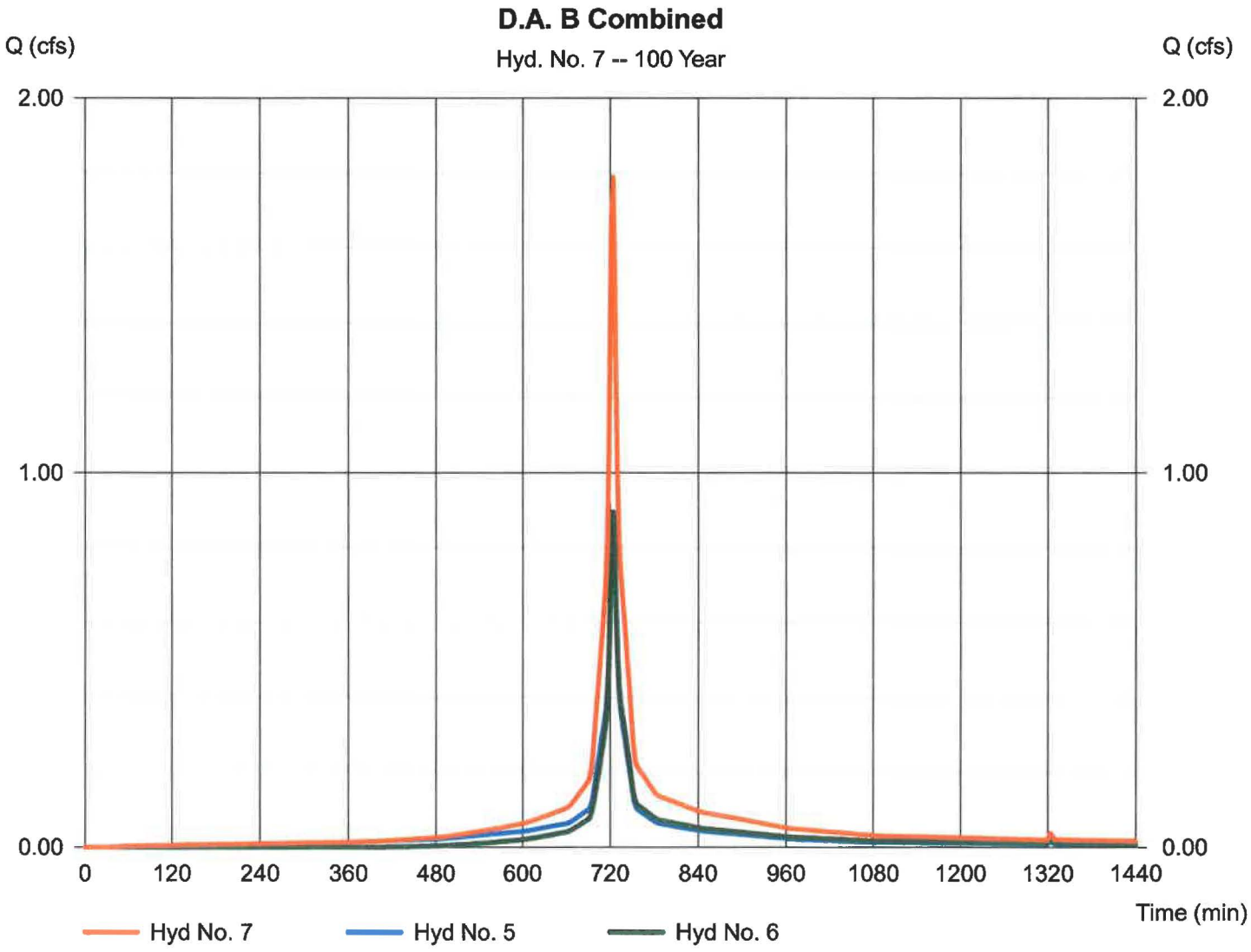
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 7

D.A. B Combined

Hydrograph type	= Combine	Peak discharge	= 1.789 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 5,811 cuft
Inflow hyds.	= 5, 6	Contrib. drain. area	= 0.264 ac



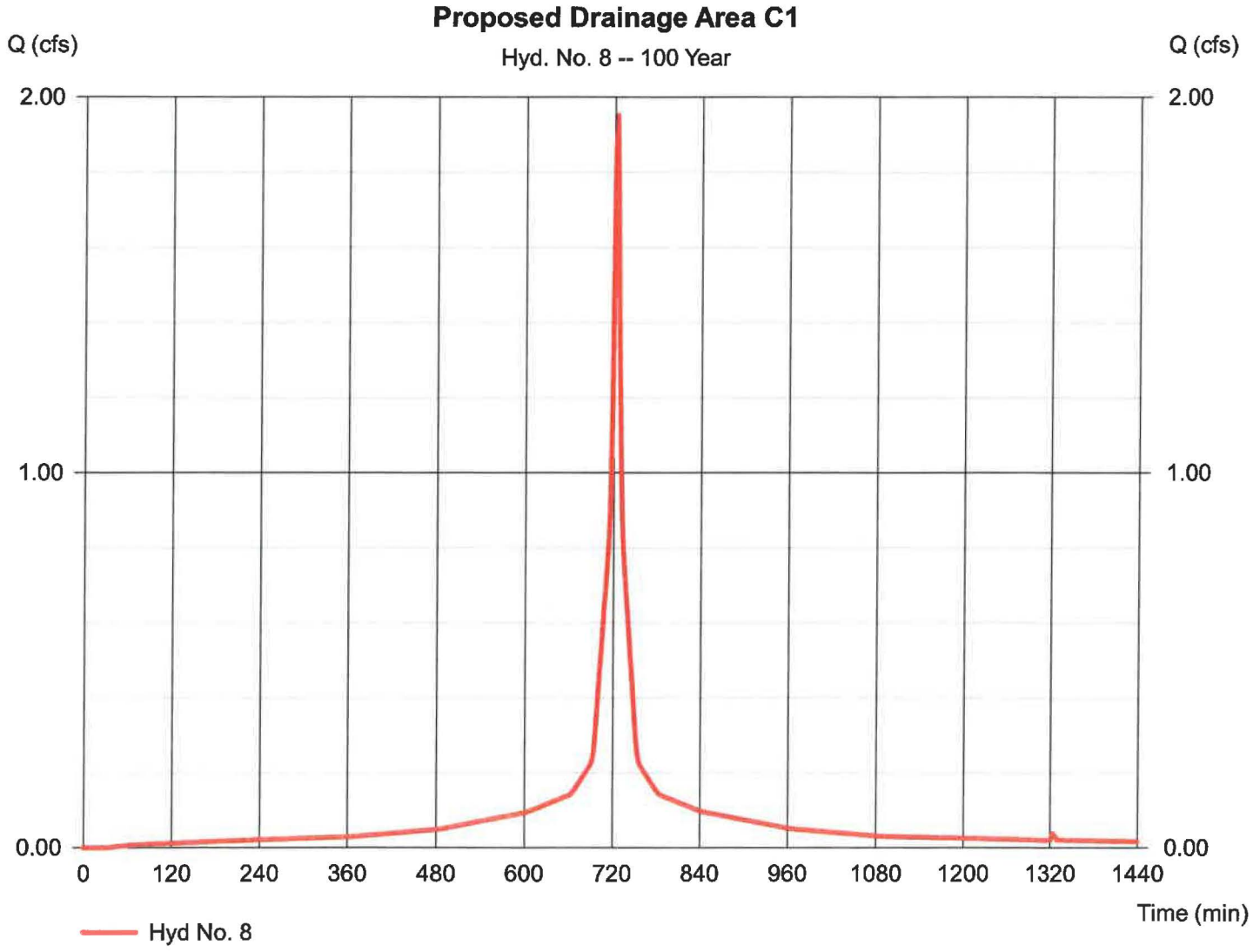
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 8

Proposed Drainage Area C1

Hydrograph type	= SCS Runoff	Peak discharge	= 1.952 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 6,817 cuft
Drainage area	= 0.247 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 8.35 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



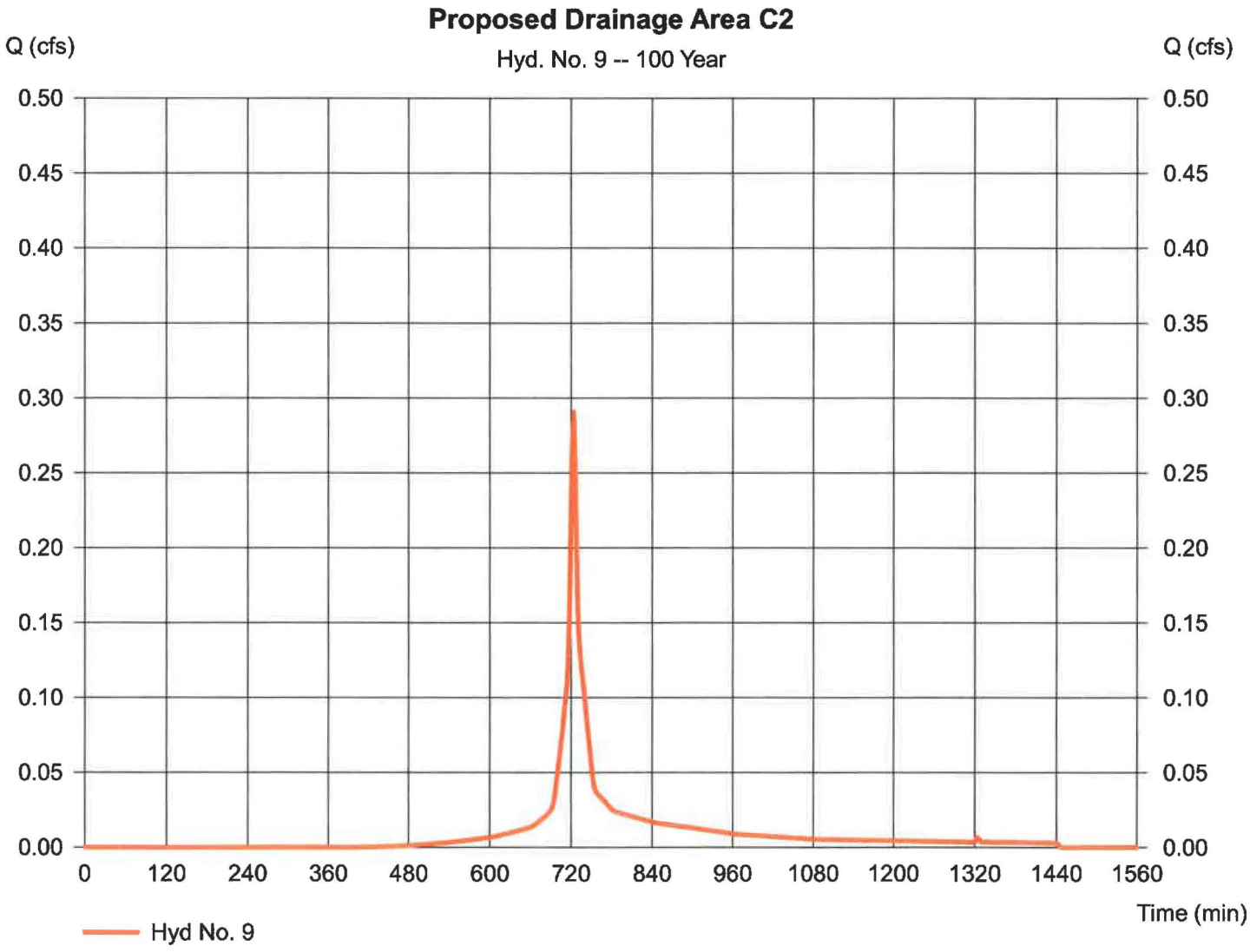
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 9

Proposed Drainage Area C2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.291 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 874 cuft
Drainage area	= 0.049 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 8.35 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



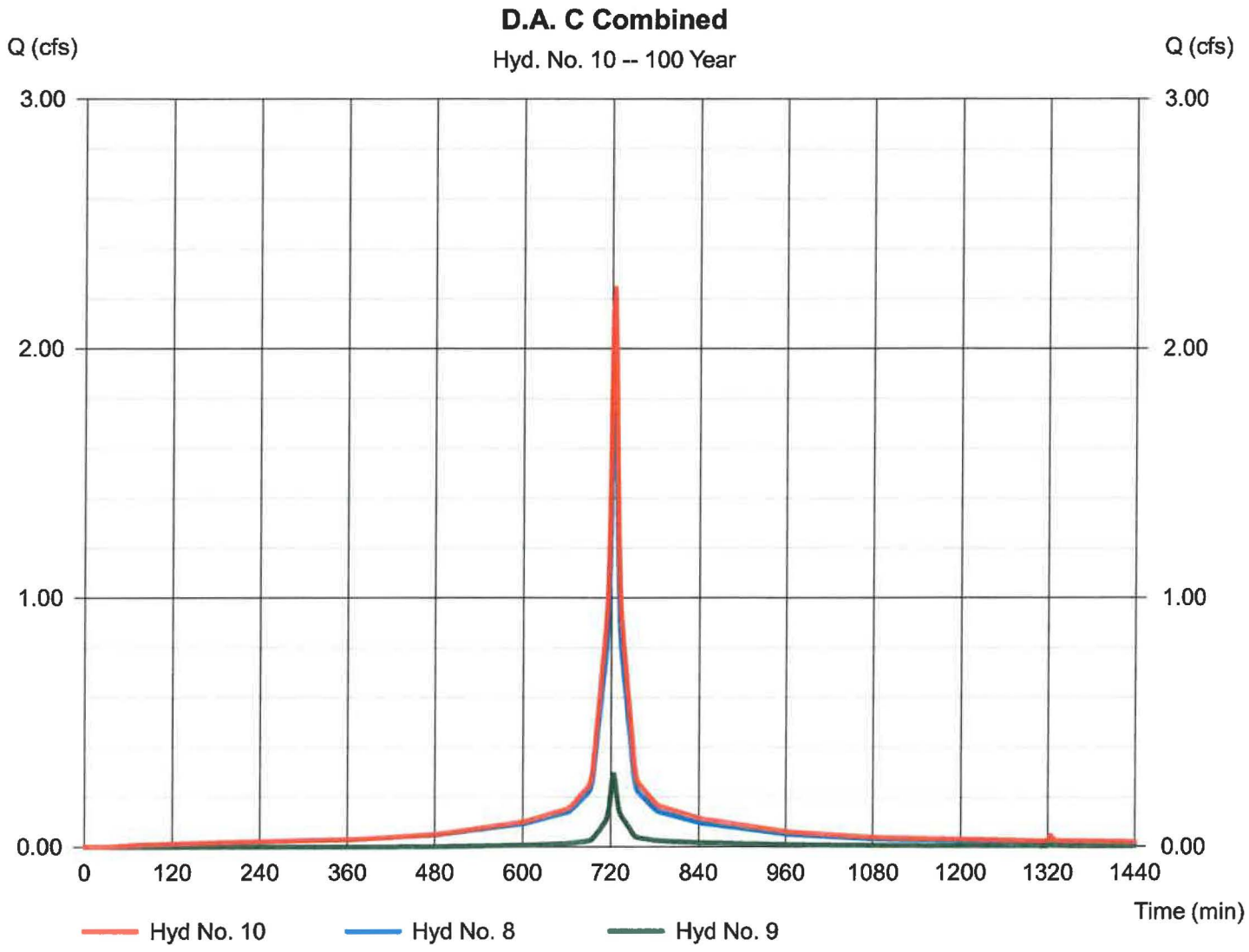
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 10

D.A. C Combined

Hydrograph type	= Combine	Peak discharge	= 2.243 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 7,691 cuft
Inflow hyds.	= 8, 9	Contrib. drain. area	= 0.296 ac



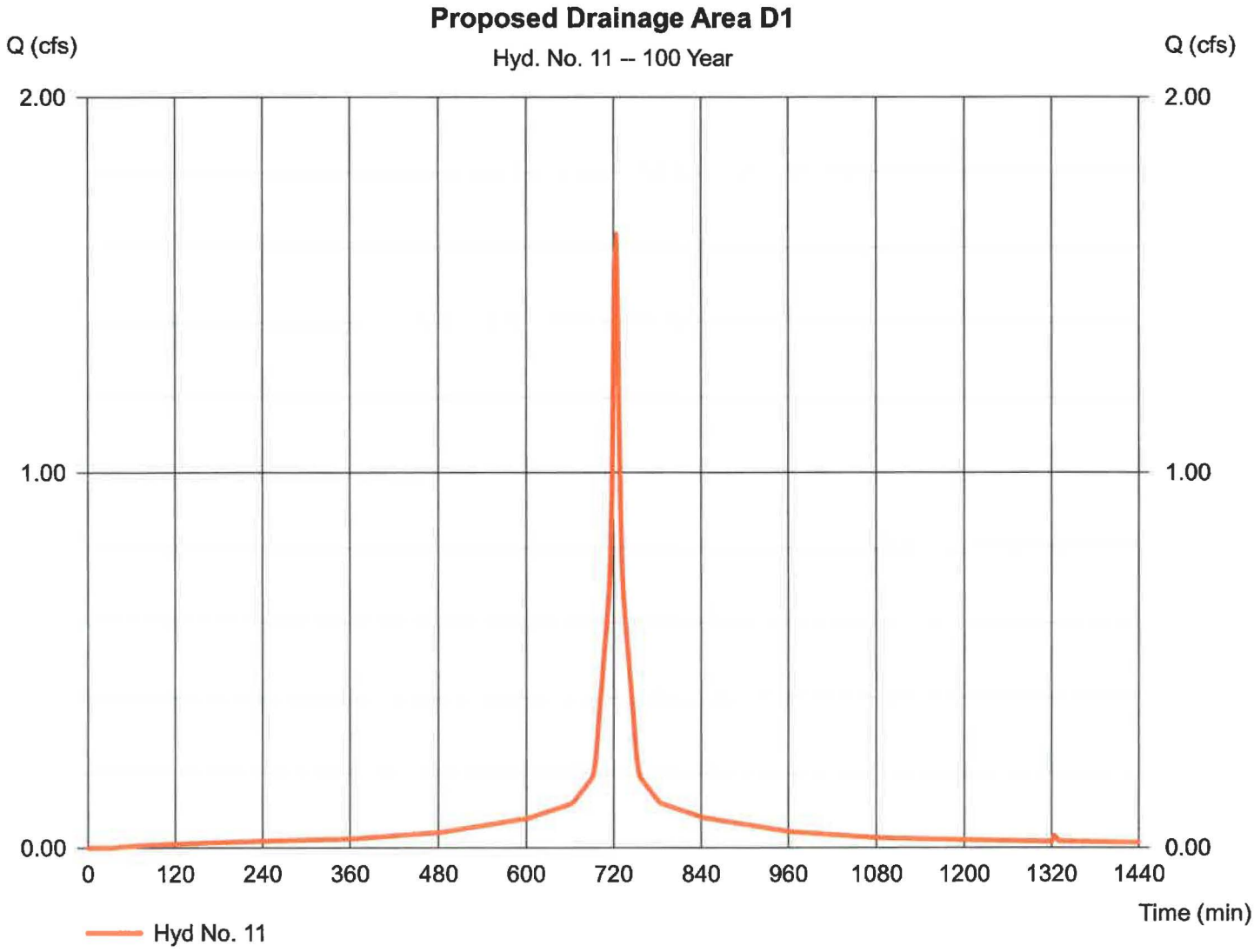
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 11

Proposed Drainage Area D1

Hydrograph type	= SCS Runoff	Peak discharge	= 1.636 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 5,713 cuft
Drainage area	= 0.207 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 8.35 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

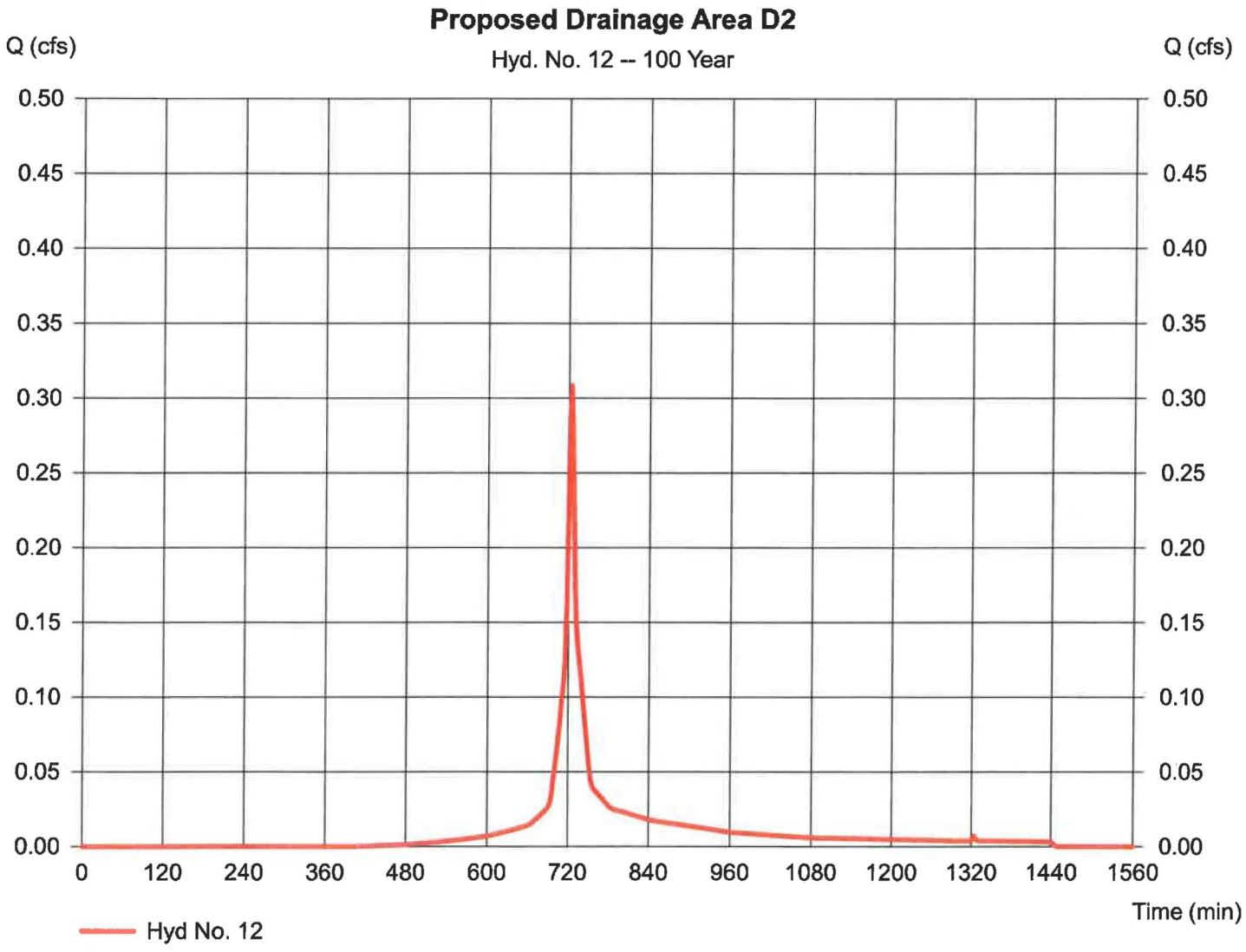
Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 12

Proposed Drainage Area D2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.309 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 927 cuft
Drainage area	= 0.052 ac	Curve number	= 74*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 8.35 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.037 x 74) + (0.015 x 80)] / 0.052



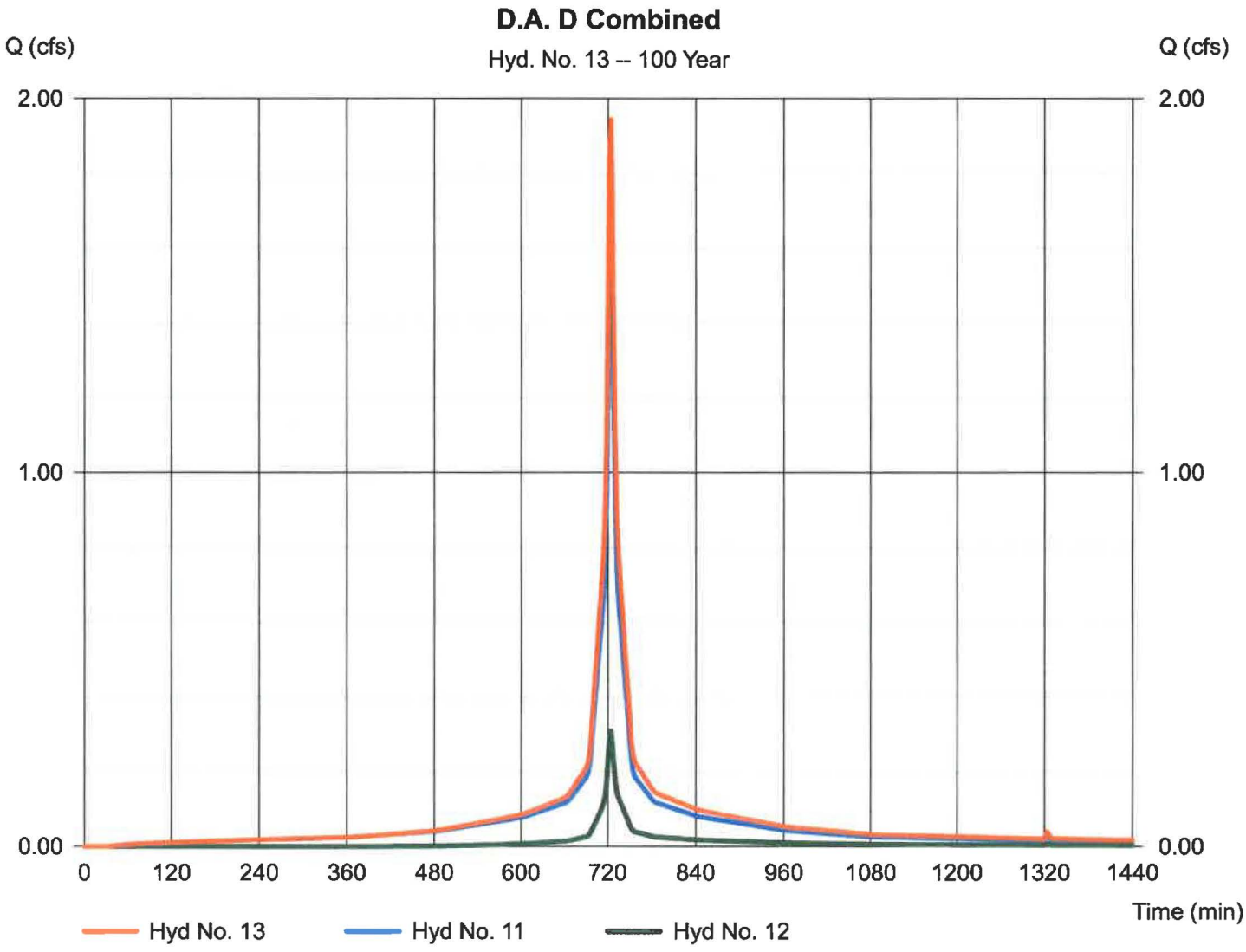
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 13

D.A. D Combined

Hydrograph type	= Combine	Peak discharge	= 1.945 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 6,640 cuft
Inflow hyds.	= 11, 12	Contrib. drain. area	= 0.259 ac



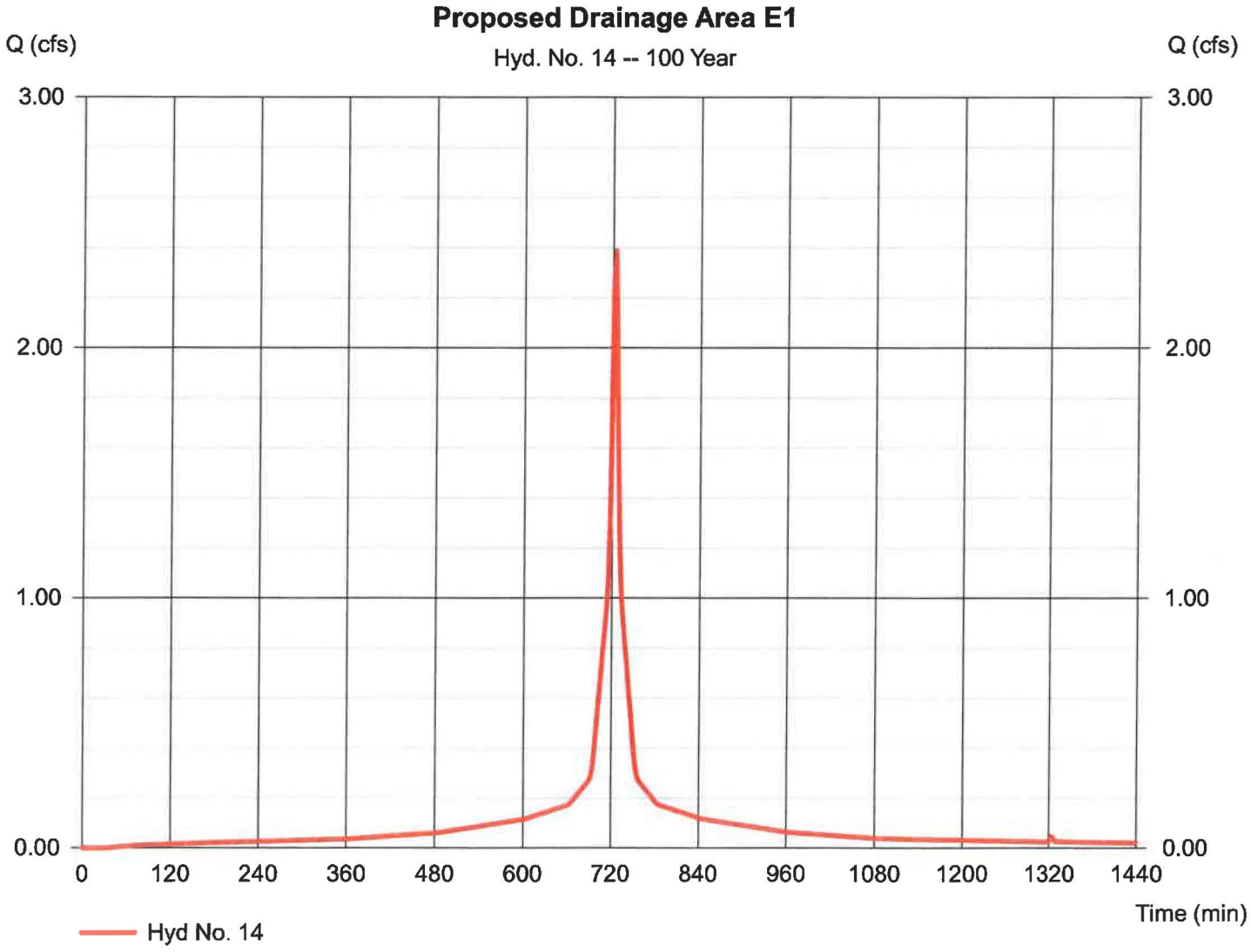
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 14

Proposed Drainage Area E1

Hydrograph type	= SCS Runoff	Peak discharge	= 2.387 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 8,335 cuft
Drainage area	= 0.302 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 8.35 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



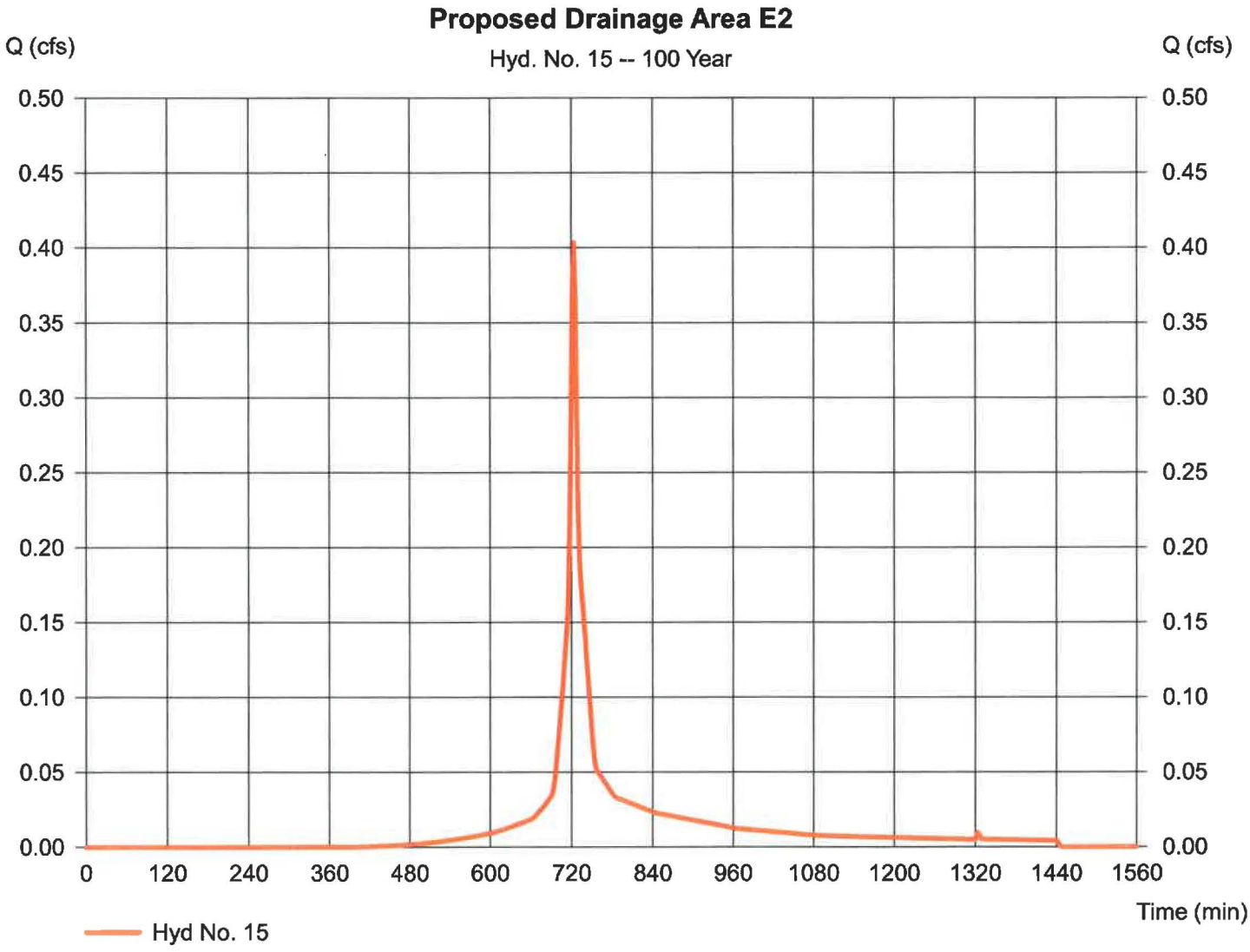
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 15

Proposed Drainage Area E2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.404 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 1,213 cuft
Drainage area	= 0.068 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 8.35 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



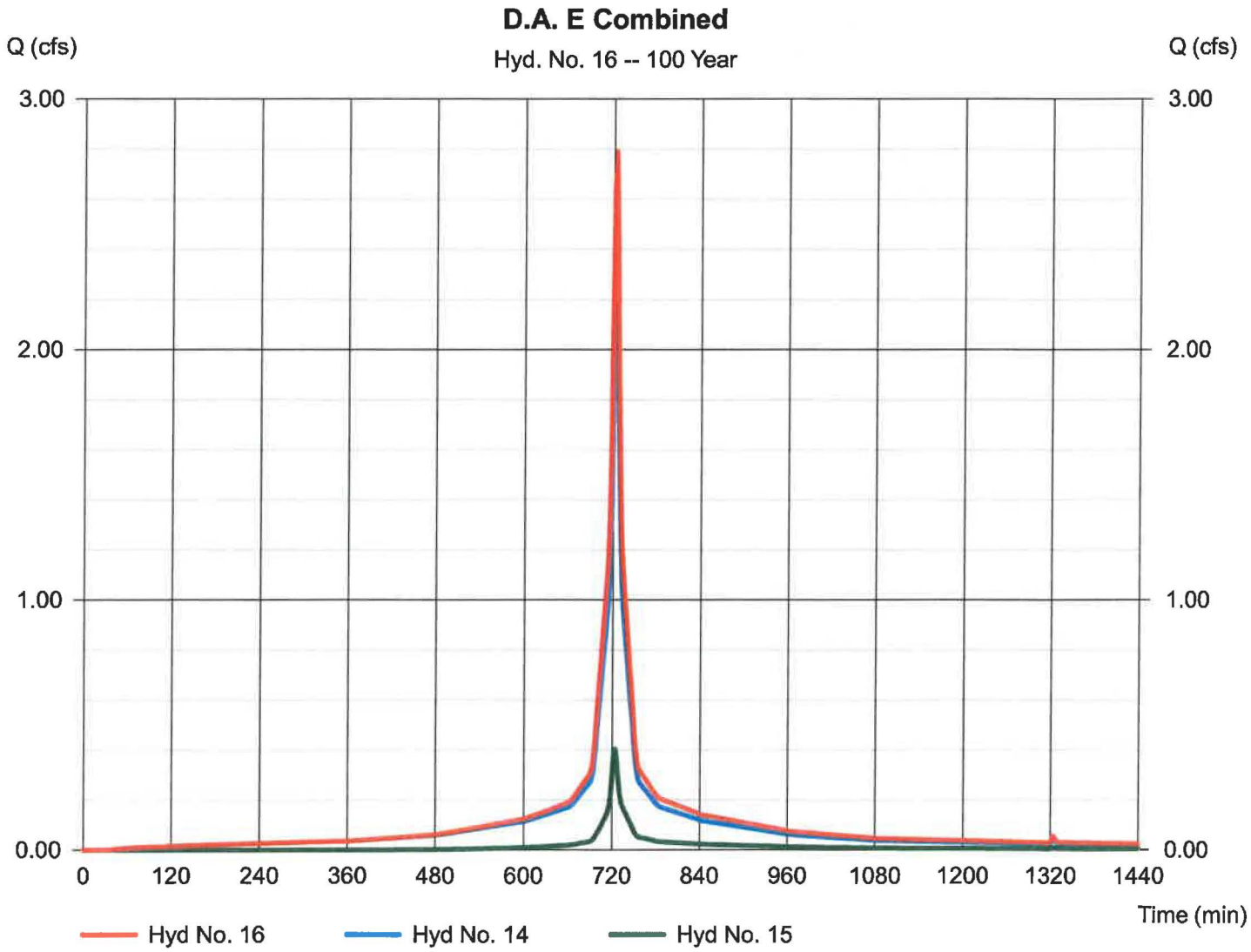
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 16

D.A. E Combined

Hydrograph type	= Combine	Peak discharge	= 2.790 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 9,548 cuft
Inflow hyds.	= 14, 15	Contrib. drain. area	= 0.370 ac



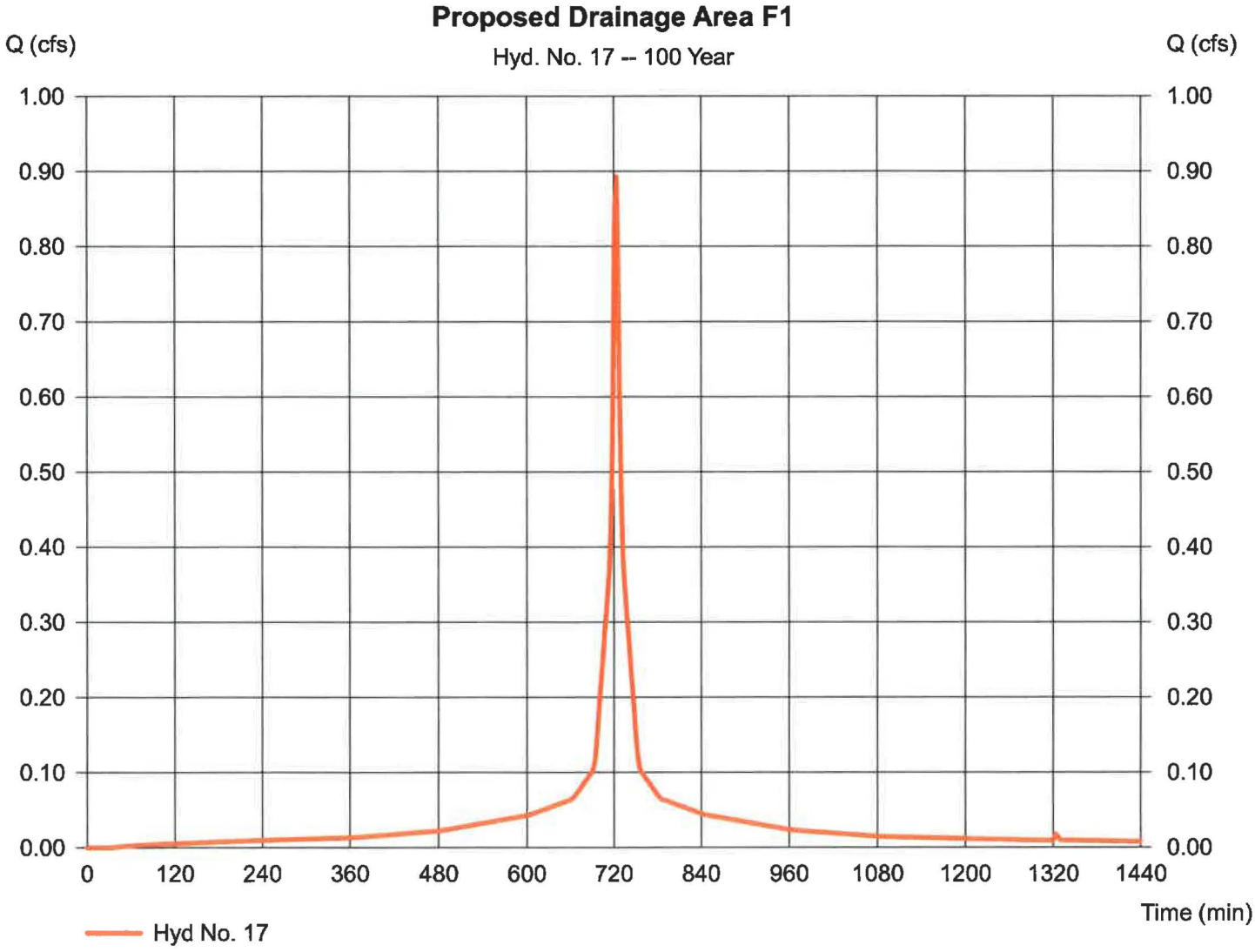
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 17

Proposed Drainage Area F1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.893 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 3,119 cuft
Drainage area	= 0.113 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 8.35 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



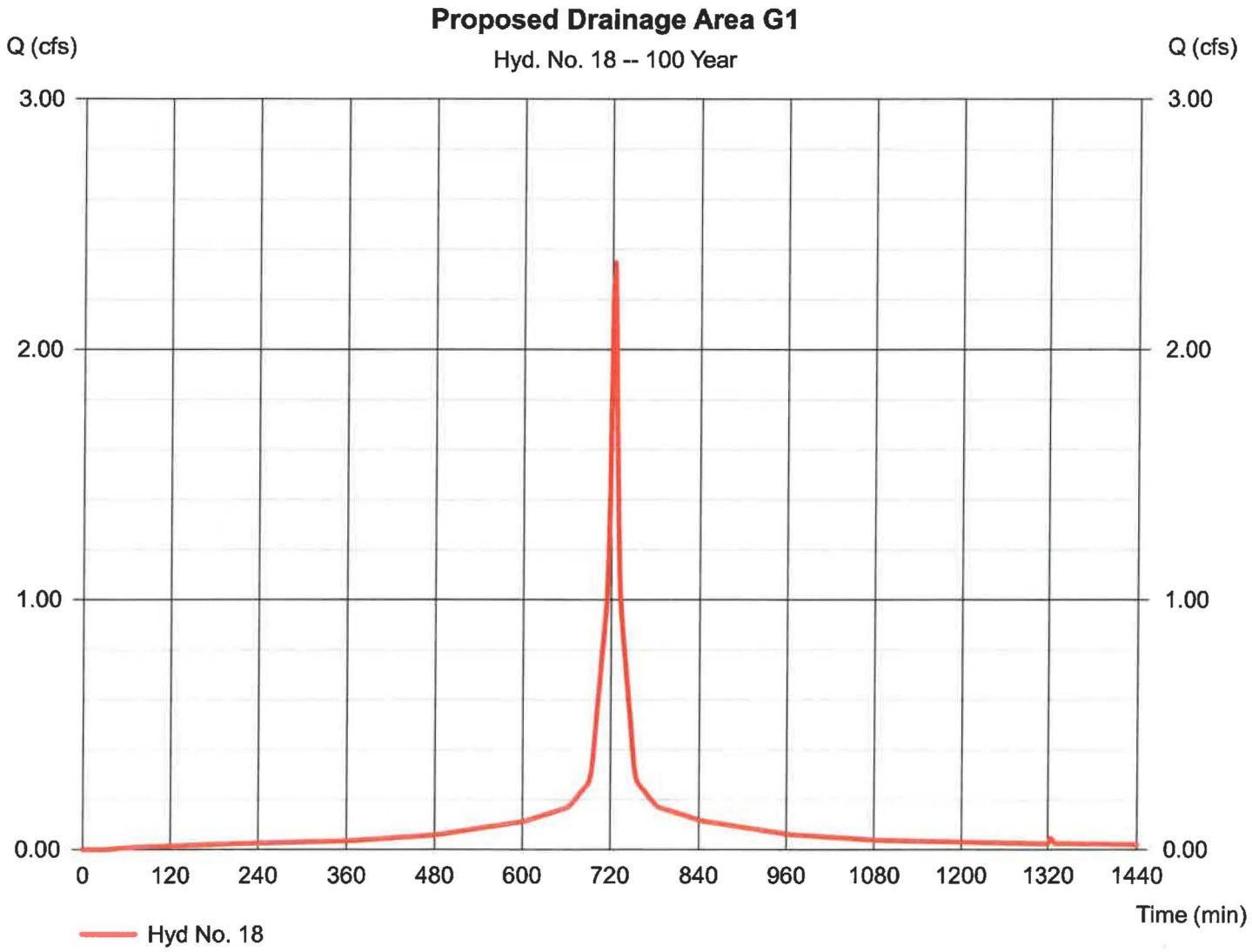
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 18

Proposed Drainage Area G1

Hydrograph type	= SCS Runoff	Peak discharge	= 2.347 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 8,197 cuft
Drainage area	= 0.297 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 8.35 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



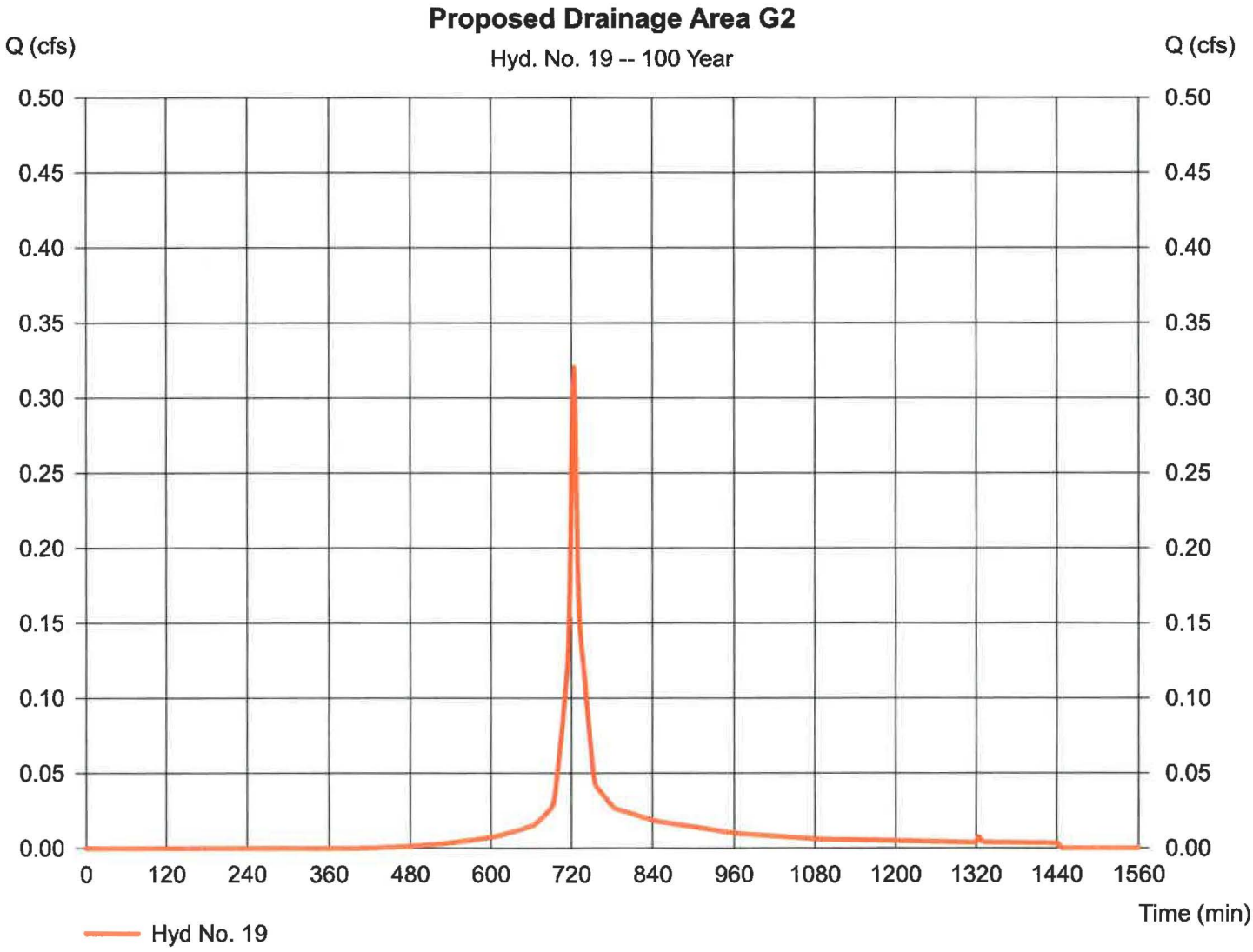
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 19

Proposed Drainage Area G2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.320 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 963 cuft
Drainage area	= 0.054 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 8.35 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



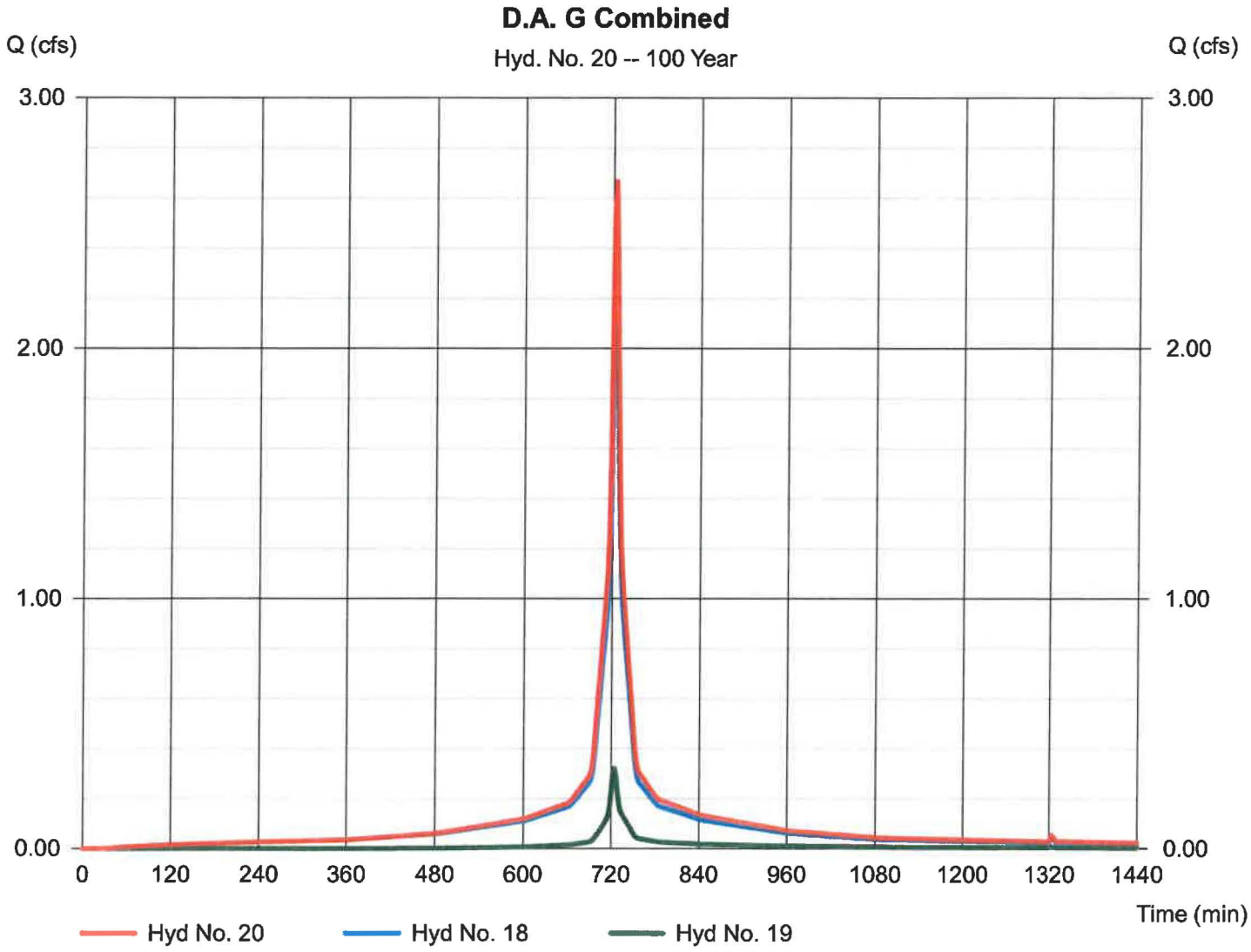
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 20

D.A. G Combined

Hydrograph type	= Combine	Peak discharge	= 2.668 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 9,160 cuft
Inflow hyds.	= 18, 19	Contrib. drain. area	= 0.351 ac



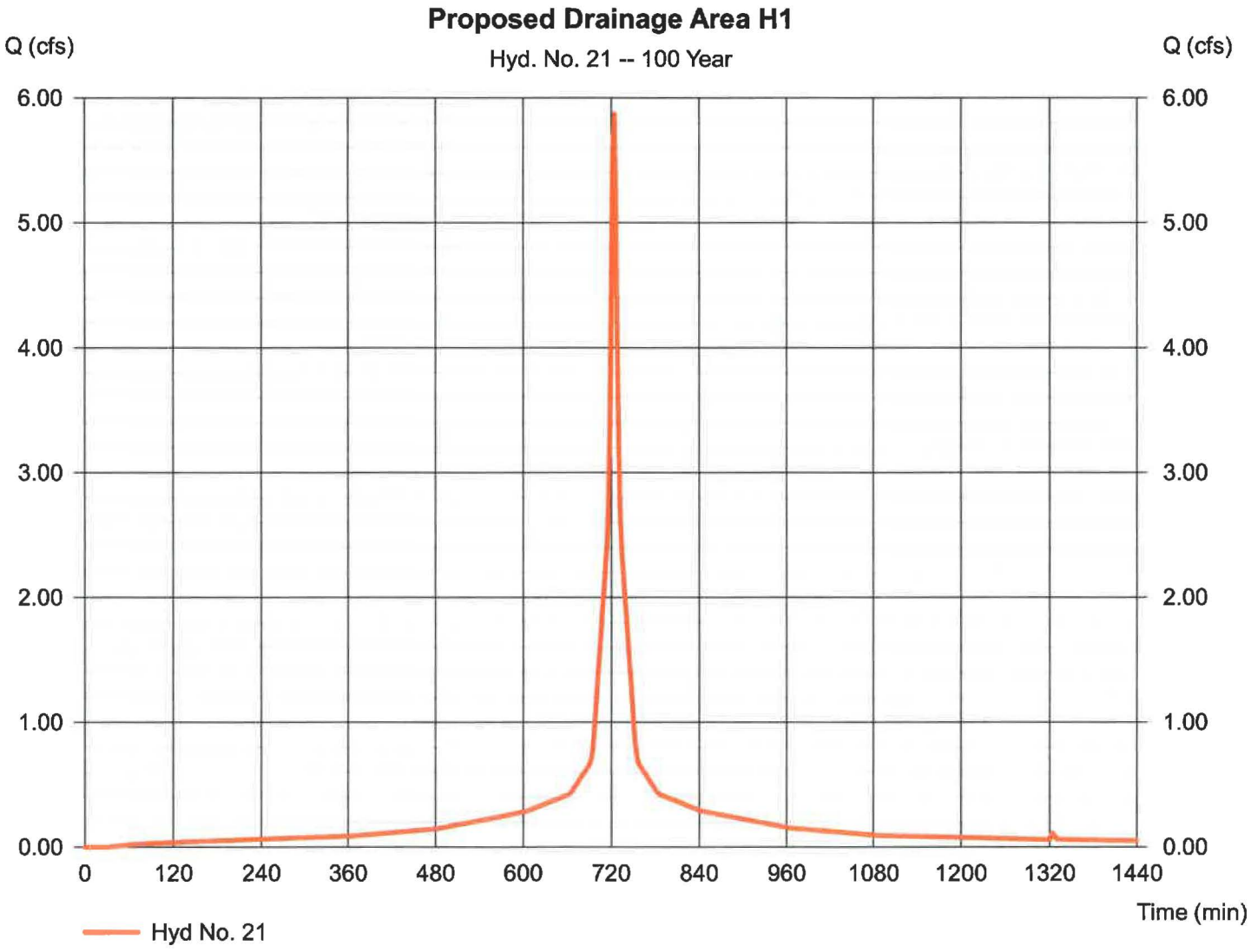
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 21

Proposed Drainage Area H1

Hydrograph type	= SCS Runoff	Peak discharge	= 5.872 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 20,506 cuft
Drainage area	= 0.743 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 8.35 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



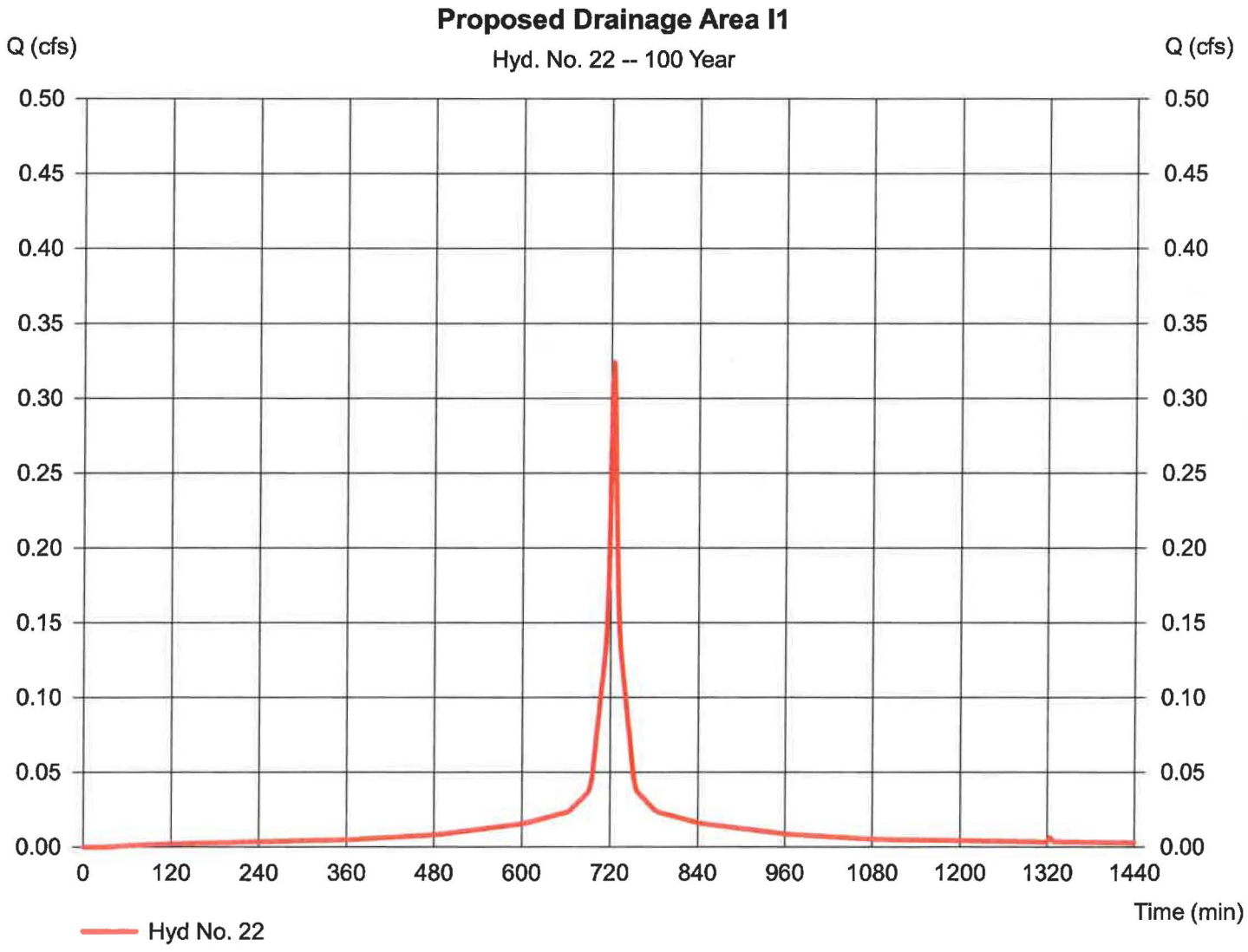
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 22

Proposed Drainage Area I1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.324 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 1,132 cuft
Drainage area	= 0.041 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 8.35 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



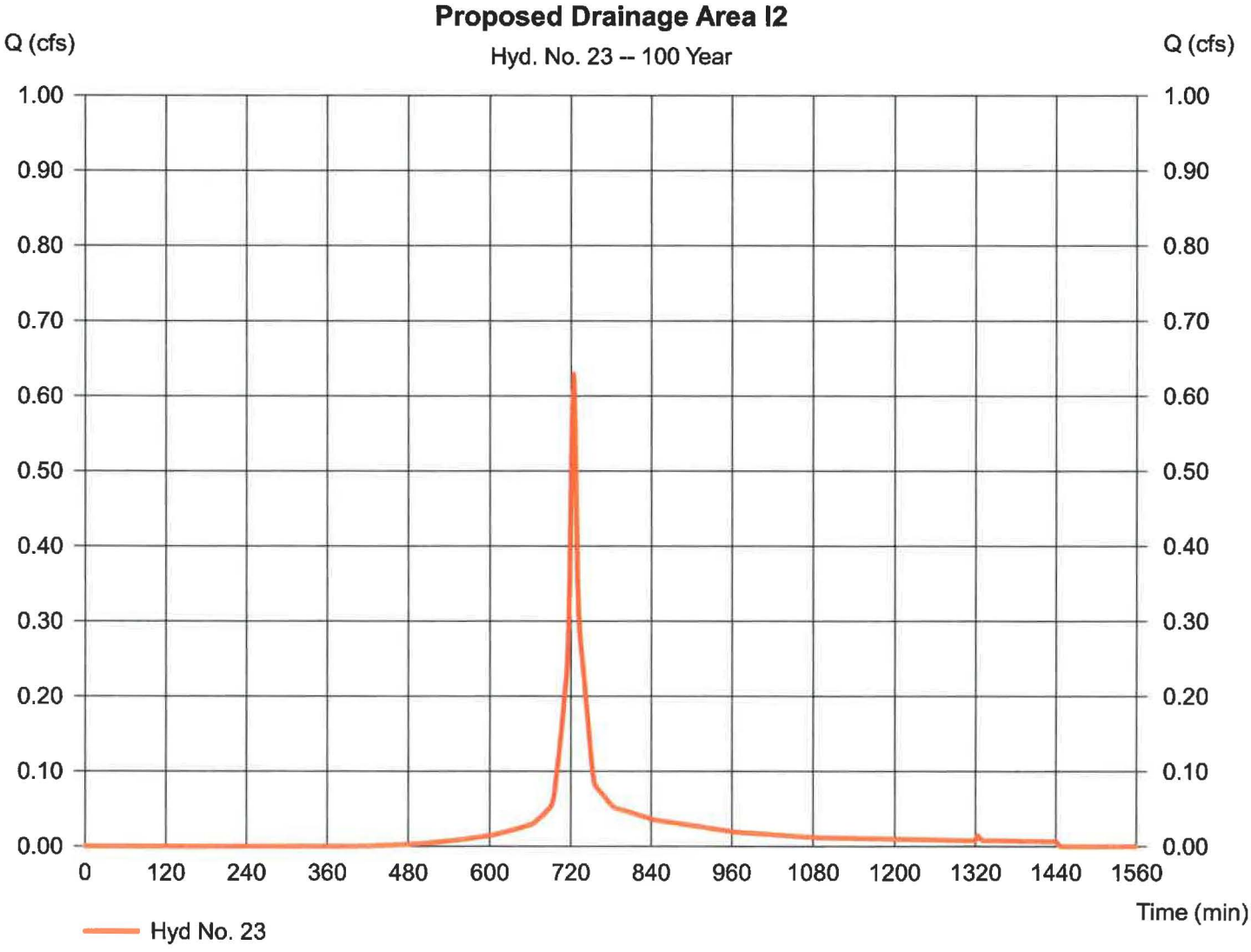
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 23

Proposed Drainage Area I2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.629 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 1,890 cuft
Drainage area	= 0.106 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 8.35 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



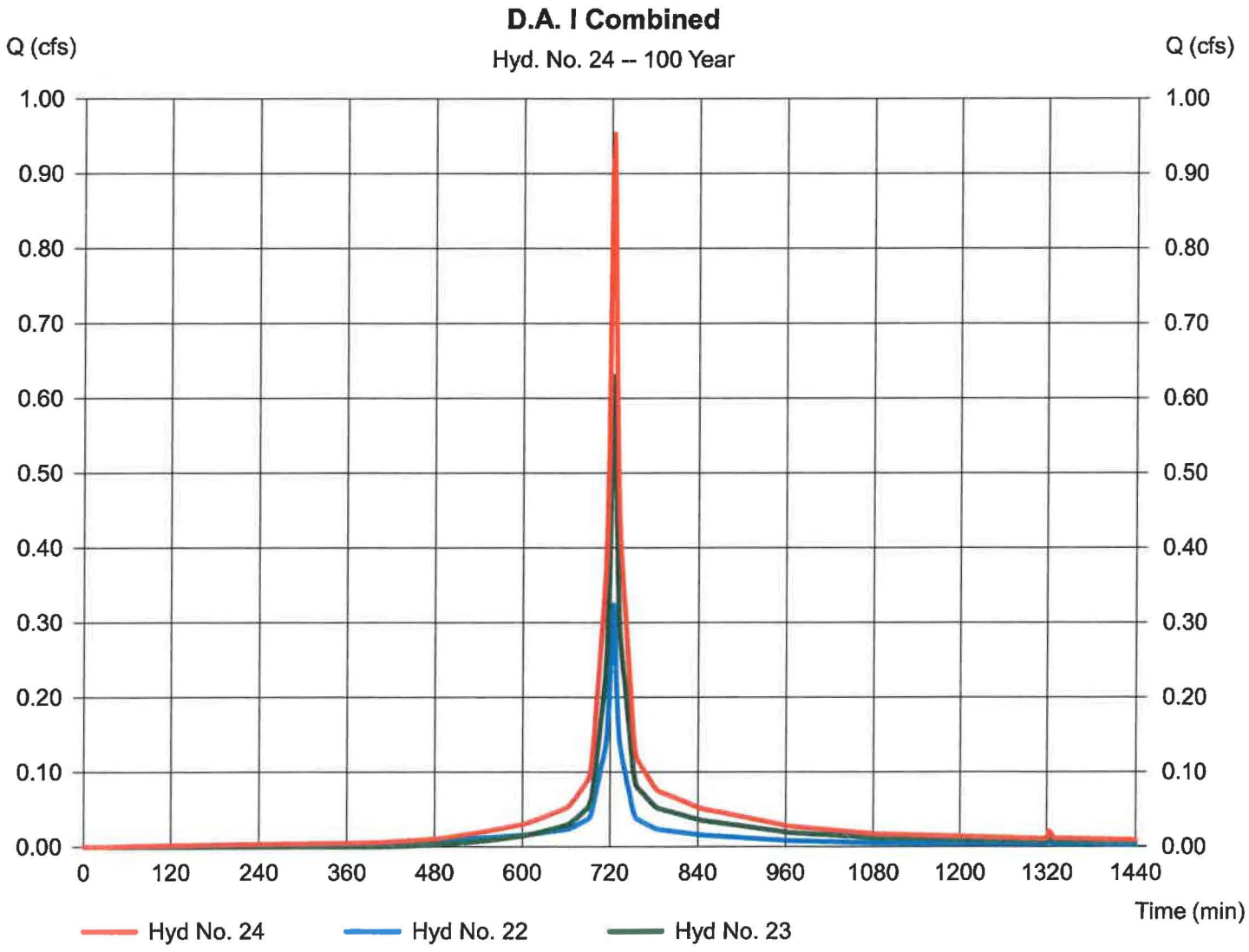
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 24

D.A. I Combined

Hydrograph type	= Combine	Peak discharge	= 0.953 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 3,022 cuft
Inflow hyds.	= 22, 23	Contrib. drain. area	= 0.147 ac



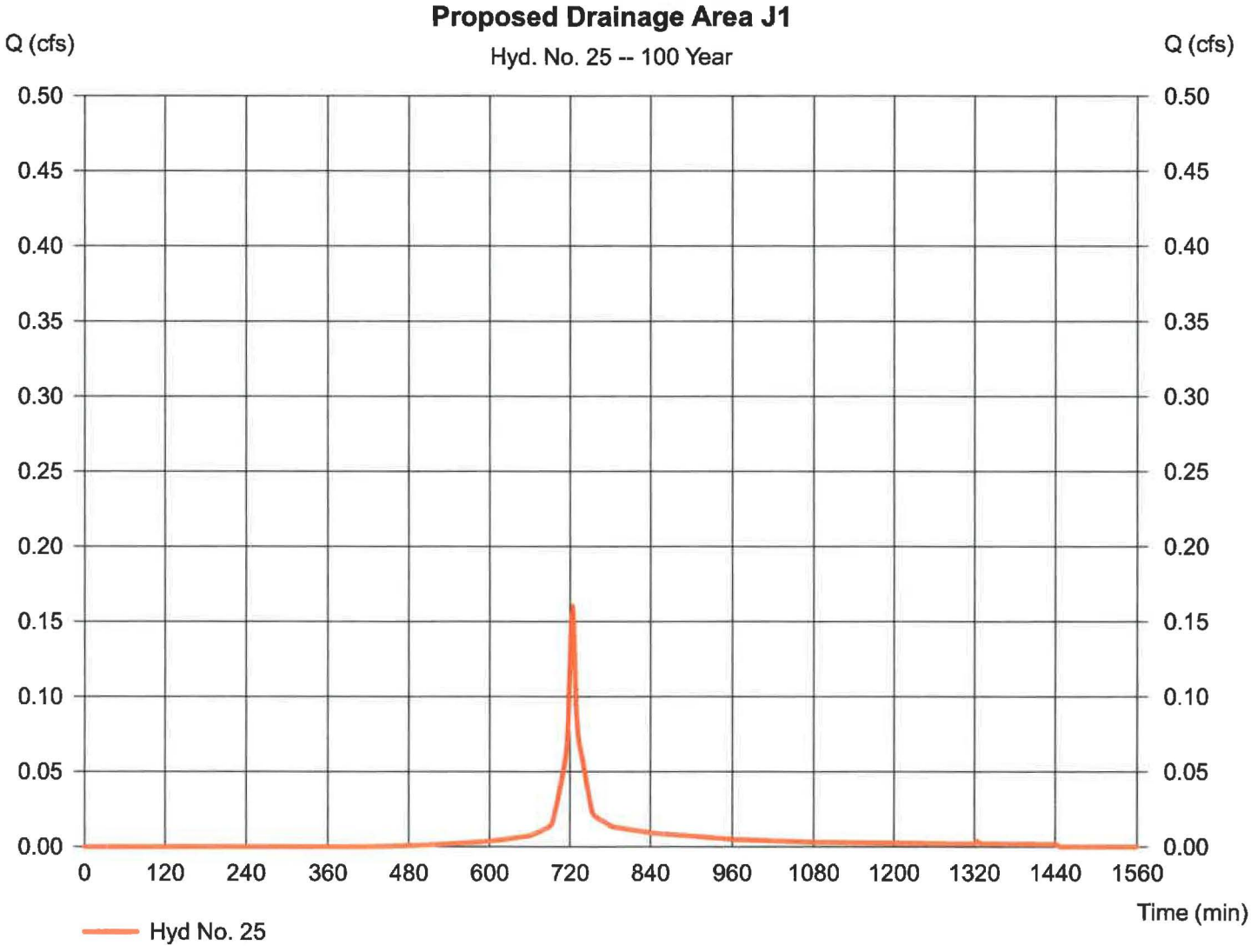
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 25

Proposed Drainage Area J1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.160 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 481 cuft
Drainage area	= 0.027 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 8.35 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



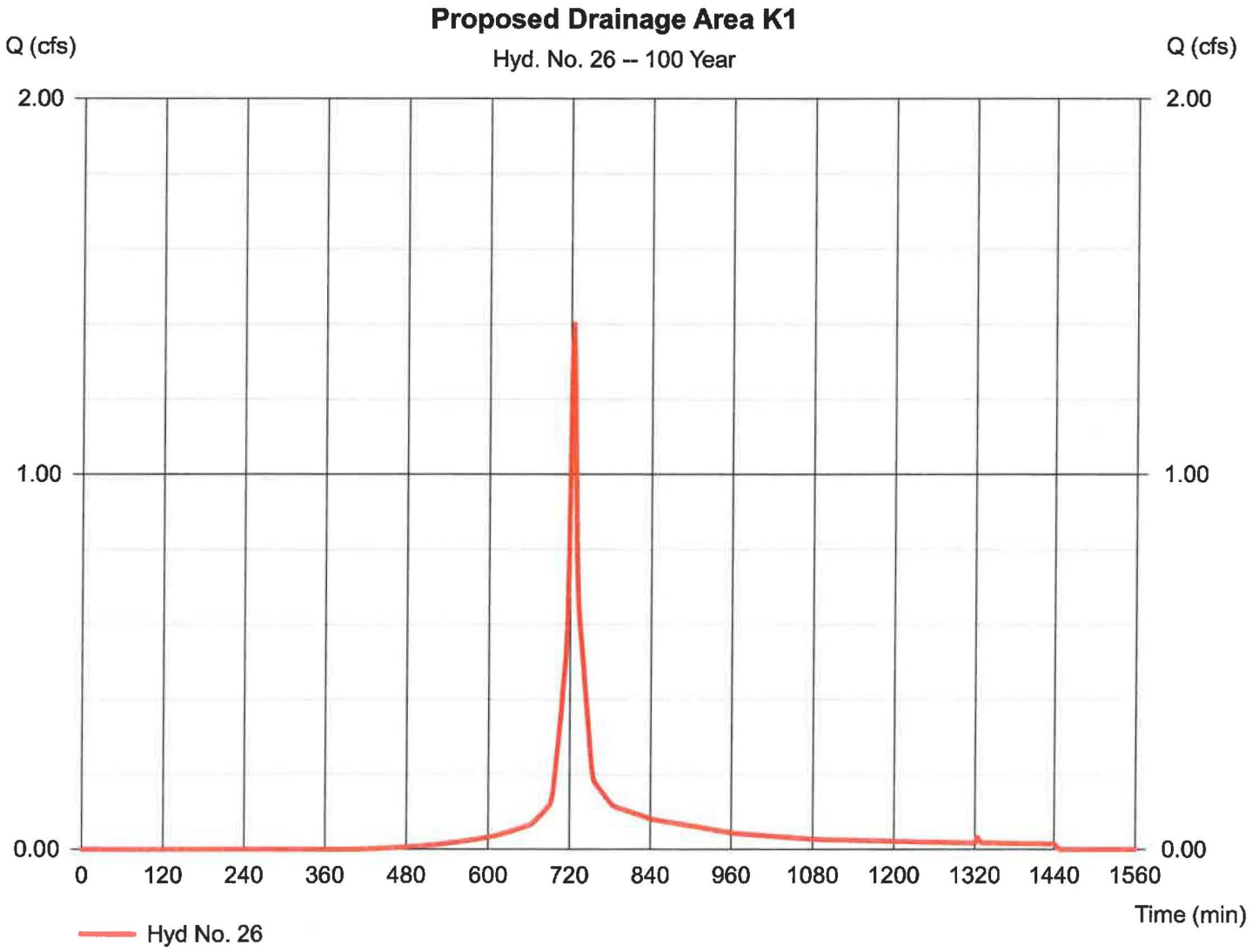
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 26

Proposed Drainage Area K1

Hydrograph type	= SCS Runoff	Peak discharge	= 1.400 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 4,208 cuft
Drainage area	= 0.236 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 8.35 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



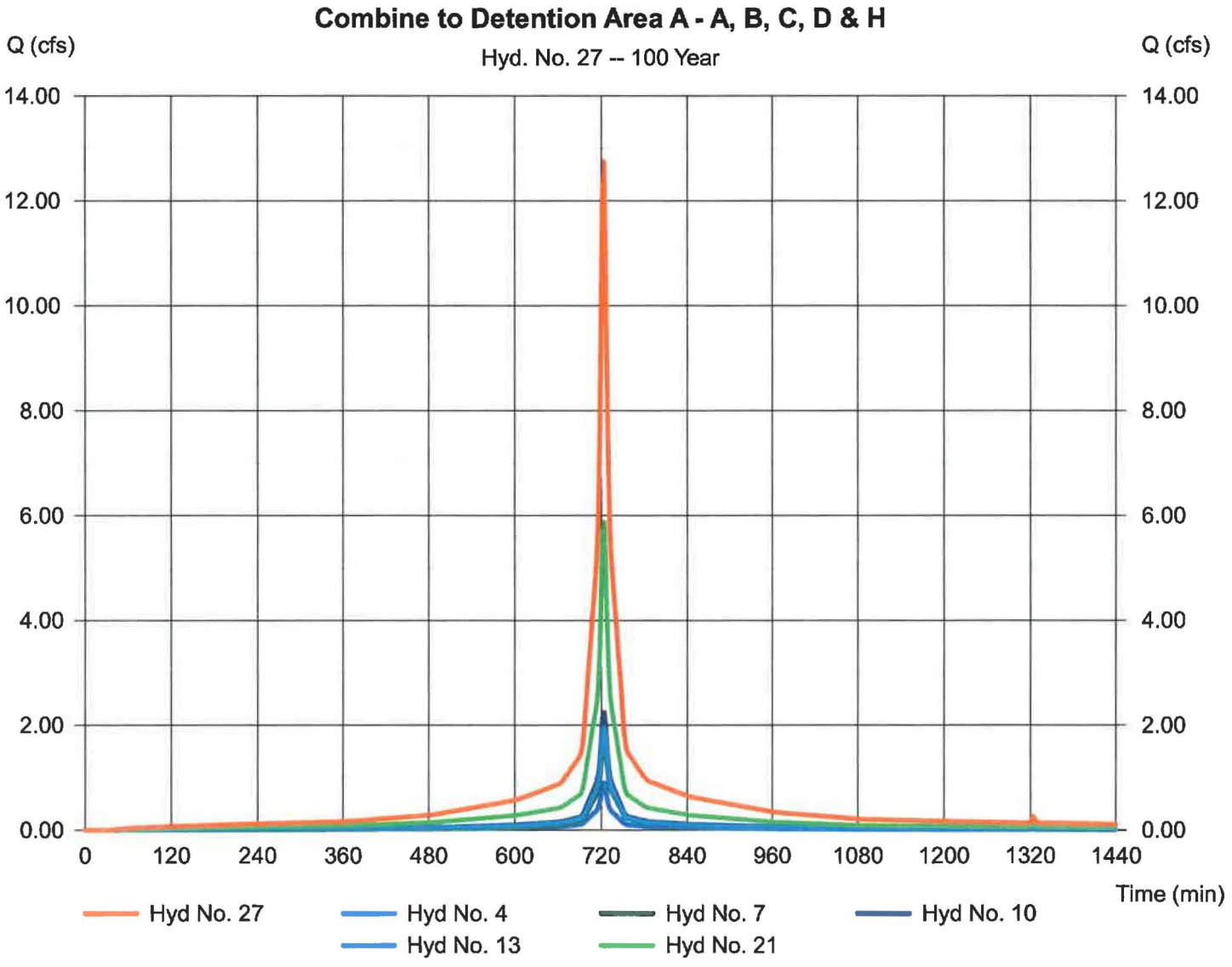
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 27

Combine to Detention Area A - A, B, C, D & H

Hydrograph type	= Combine	Peak discharge	= 12.75 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 43,795 cuft
Inflow hyds.	= 4, 7, 10, 13, 21	Contrib. drain. area	= 0.857 ac



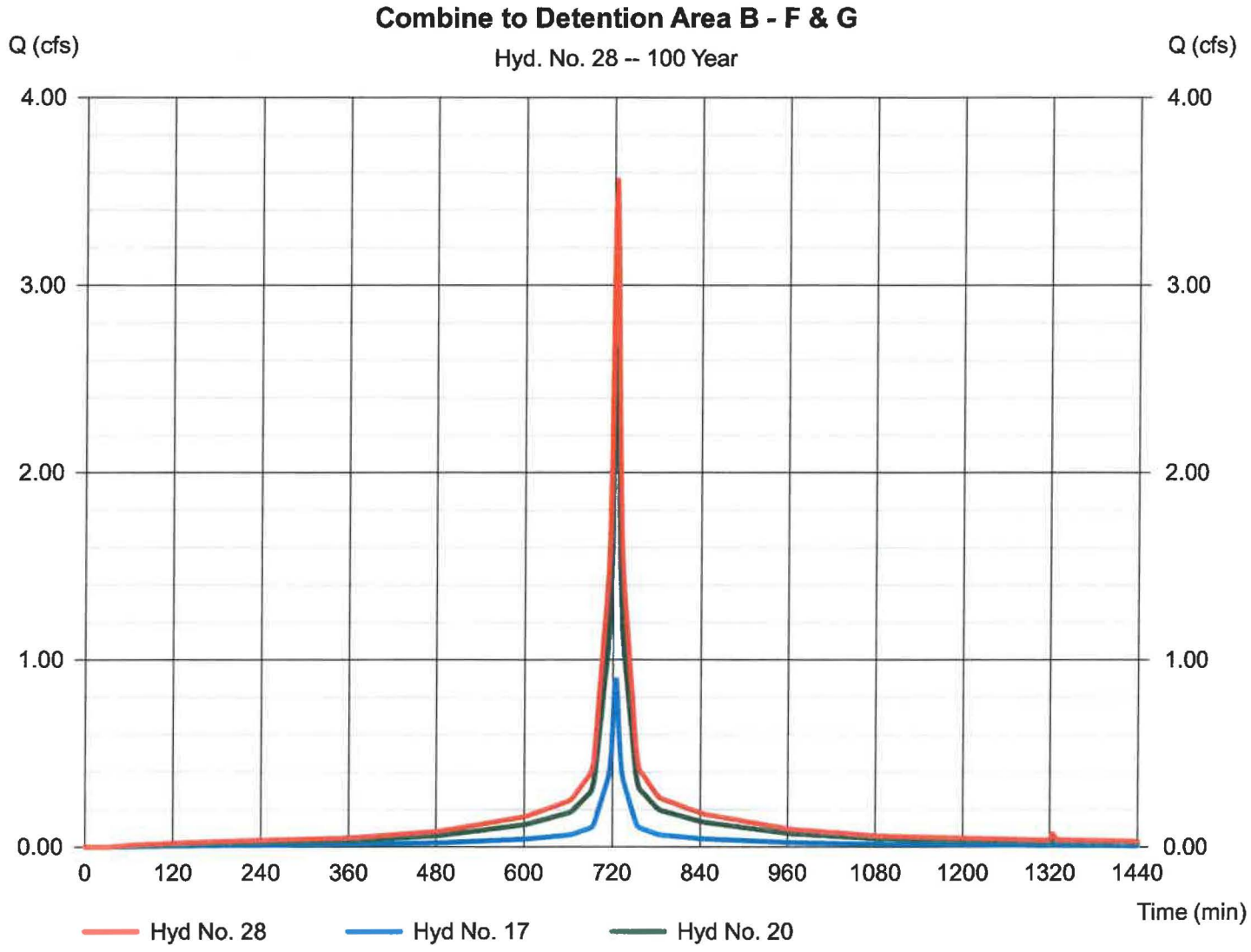
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 28

Combine to Detention Area B - F & G

Hydrograph type	= Combine	Peak discharge	= 3.561 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 12,279 cuft
Inflow hyds.	= 17, 20	Contrib. drain. area	= 0.113 ac



Hydrograph Report

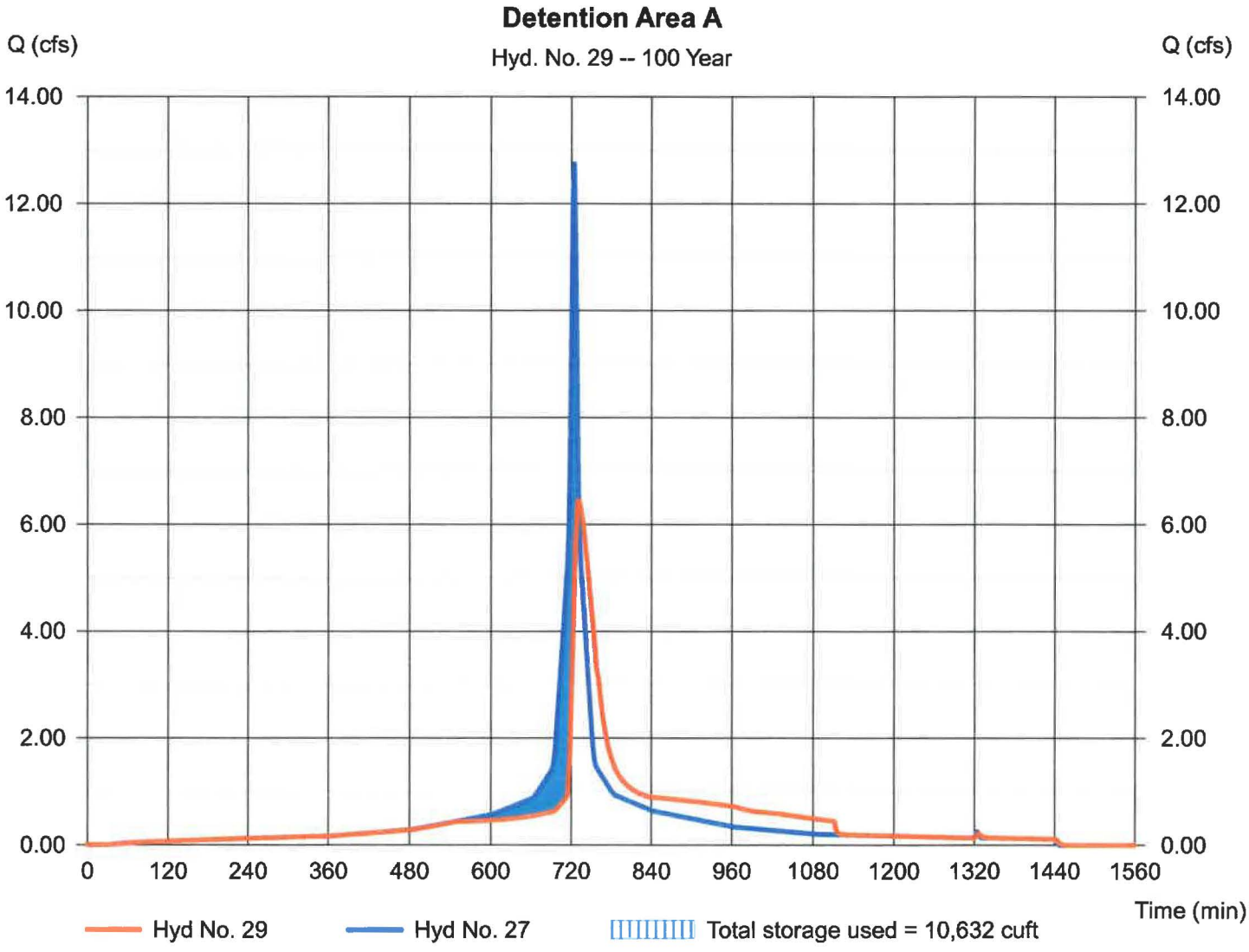
Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 29

Detention Area A

Hydrograph type	= Reservoir	Peak discharge	= 6.447 cfs
Storm frequency	= 100 yrs	Time to peak	= 730 min
Time interval	= 2 min	Hyd. volume	= 43,795 cuft
Inflow hyd. No.	= 27 - Combine to Detention Area A - A, B, C, D, E+	Max. Elevation	= 628.09 ft
Reservoir name	= Detentioin Area A	Max. Storage	= 10,632 cuft

Storage Indication method used. Outflow includes exfiltration.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Pond No. 1 - Detentioin Area A

Pond Data

UG Chambers - Invert elev. = 625.50 ft, Rise x Span = 2.05 x 4.00 ft, Barrel Len = 7.12 ft, No. Barrels = 140, Slope = 0.00%, Headers = No
Encasement - Invert elev. = 624.50 ft, Width = 4.75 ft, Height = 4.00 ft, Voids = 40.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	624.50	n/a	0	0
0.40	624.90	n/a	758	758
0.80	625.30	n/a	758	1,515
1.20	625.70	n/a	1,236	2,751
1.60	626.10	n/a	1,695	4,446
2.00	626.50	n/a	1,637	6,083
2.40	626.90	n/a	1,531	7,614
2.80	627.30	n/a	1,350	8,963
3.20	627.70	n/a	951	9,914
3.60	628.10	n/a	758	10,672
4.00	628.50	n/a	758	11,430

Culvert / Orifice Structures

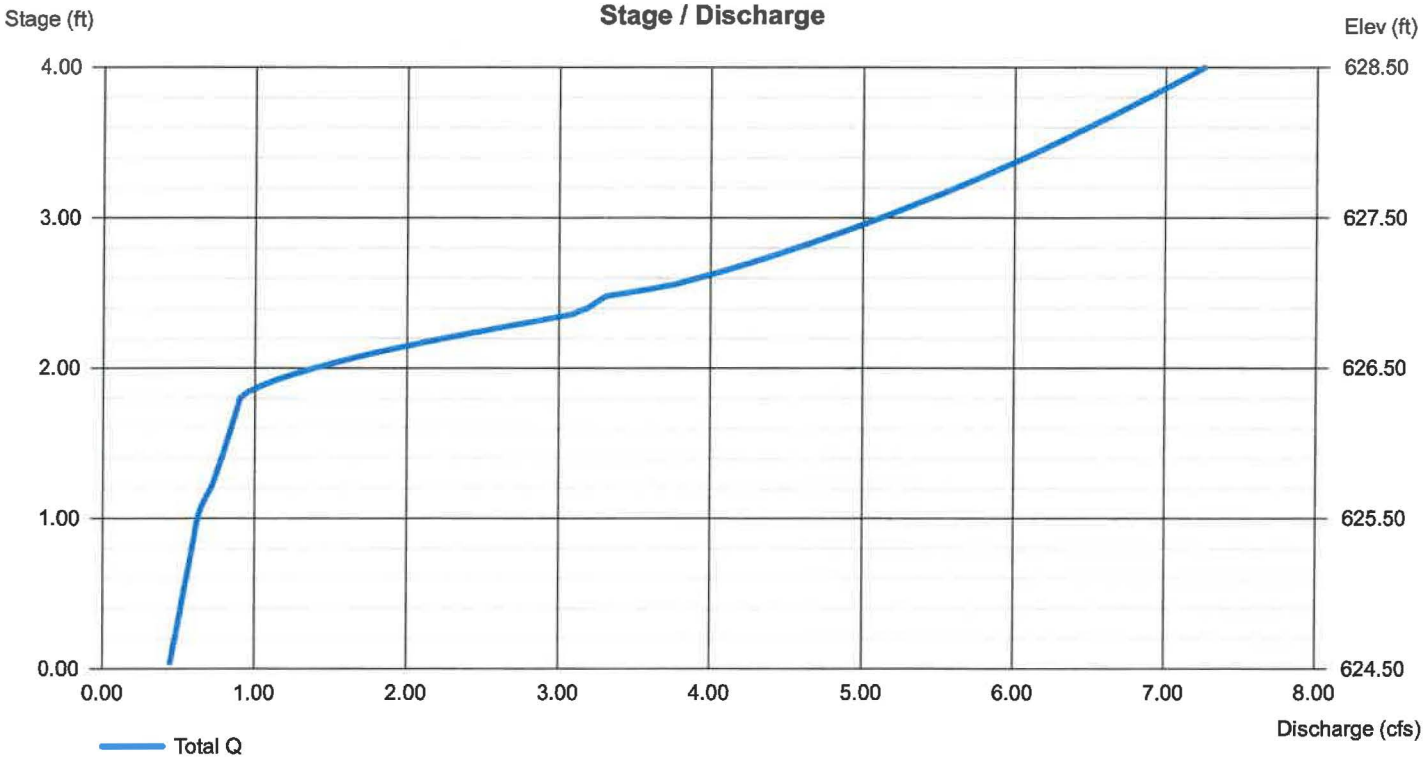
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	2.50	9.00	0.00
Span (in)	= 15.00	2.50	18.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 625.50	625.50	626.30	0.00
Length (ft)	= 10.00	0.50	0.50	0.00
Slope (%)	= 1.00	0.01	0.01	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.00	0.00	0.00	0.00
Crest El. (ft)	= 628.50	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 4.000 (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

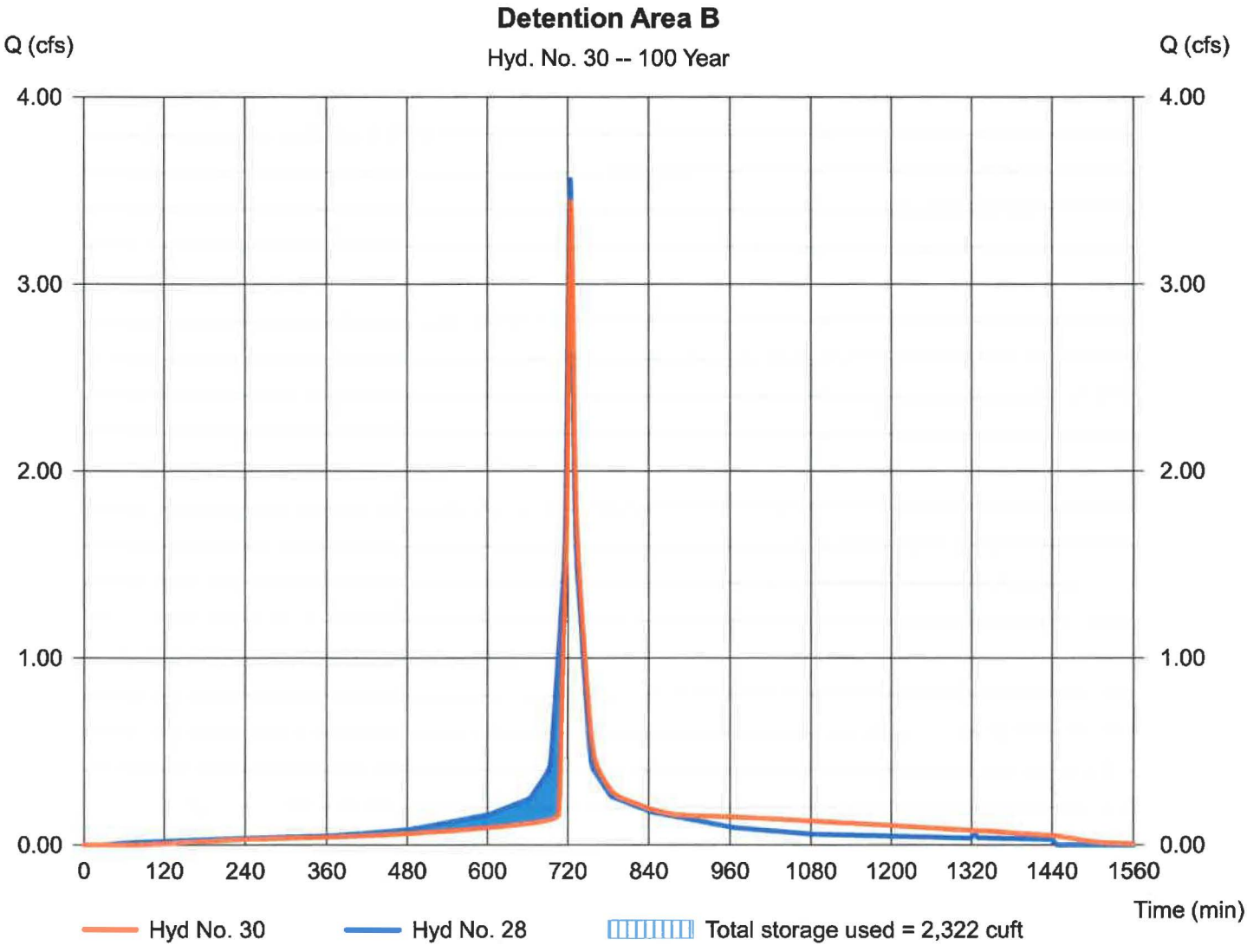
Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 30

Detention Area B

Hydrograph type	= Reservoir	Peak discharge	= 3.442 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 12,253 cuft
Inflow hyd. No.	= 28 - Combine to Detention Area B - F & G	Max. Elevation	= 626.24 ft
Reservoir name	= Detentiion Area B	Max. Storage	= 2,322 cuft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Pond No. 2 - Detentiion Area B

Pond Data

UG Chambers - Invert elev. = 624.74 ft, Rise x Span = 1.50 x 1.50 ft, Barrel Len = 20.00 ft, No. Barrels = 66, Slope = 0.00%, Headers = No

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	624.74	n/a	0	0
0.15	624.89	n/a	121	121
0.30	625.04	n/a	211	332
0.45	625.19	n/a	257	589
0.60	625.34	n/a	283	872
0.75	625.49	n/a	295	1,167
0.90	625.64	n/a	295	1,462
1.05	625.79	n/a	283	1,745
1.20	625.94	n/a	256	2,001
1.35	626.09	n/a	211	2,212
1.50	626.24	n/a	121	2,333

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	2.50	Inactive	0.00
Span (in)	= 15.00	2.50	18.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 624.74	624.75	625.25	0.00
Length (ft)	= 115.00	0.33	0.33	0.00
Slope (%)	= 0.50	0.01	0.01	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

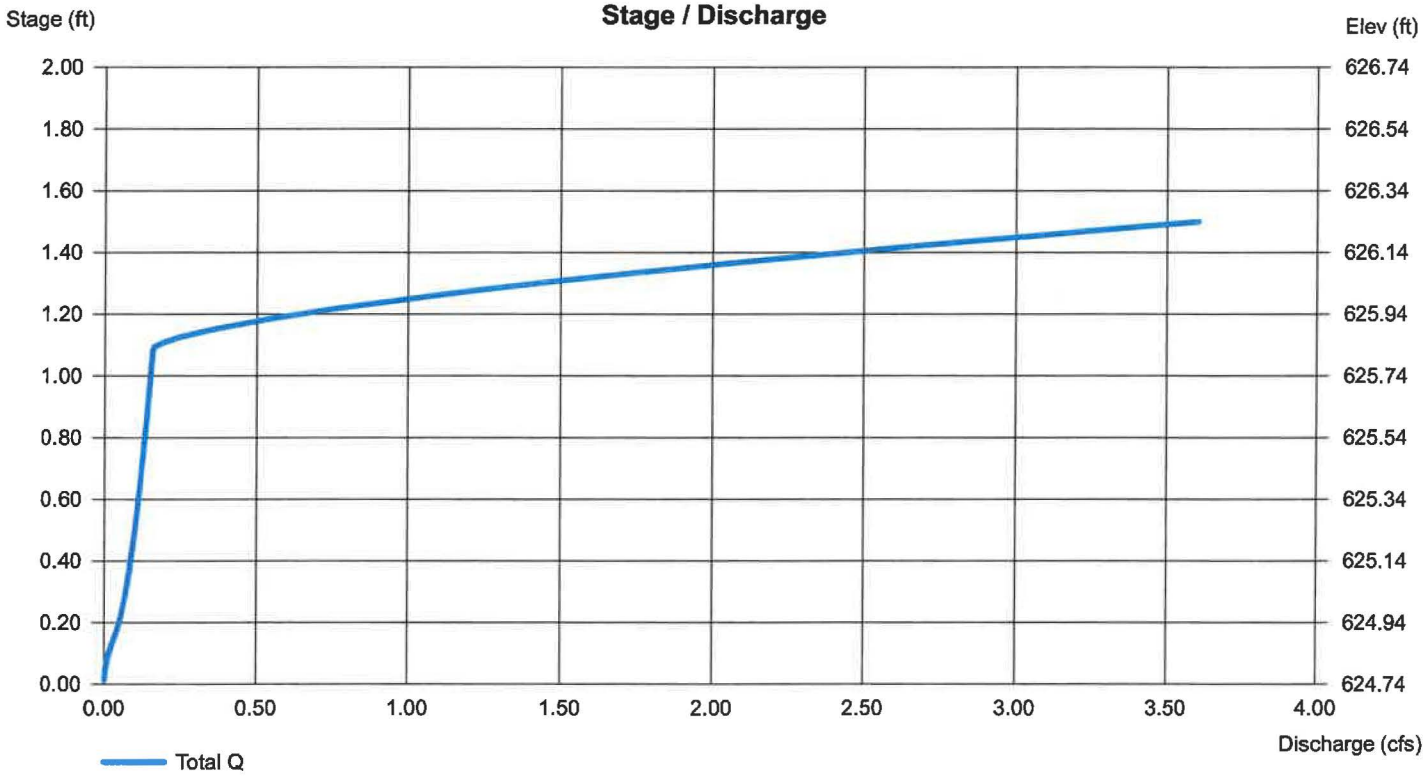
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 4.00	0.00	0.00	0.00
Crest El. (ft)	= 625.83	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Contour)

TW Elev. (ft) = 0.00

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



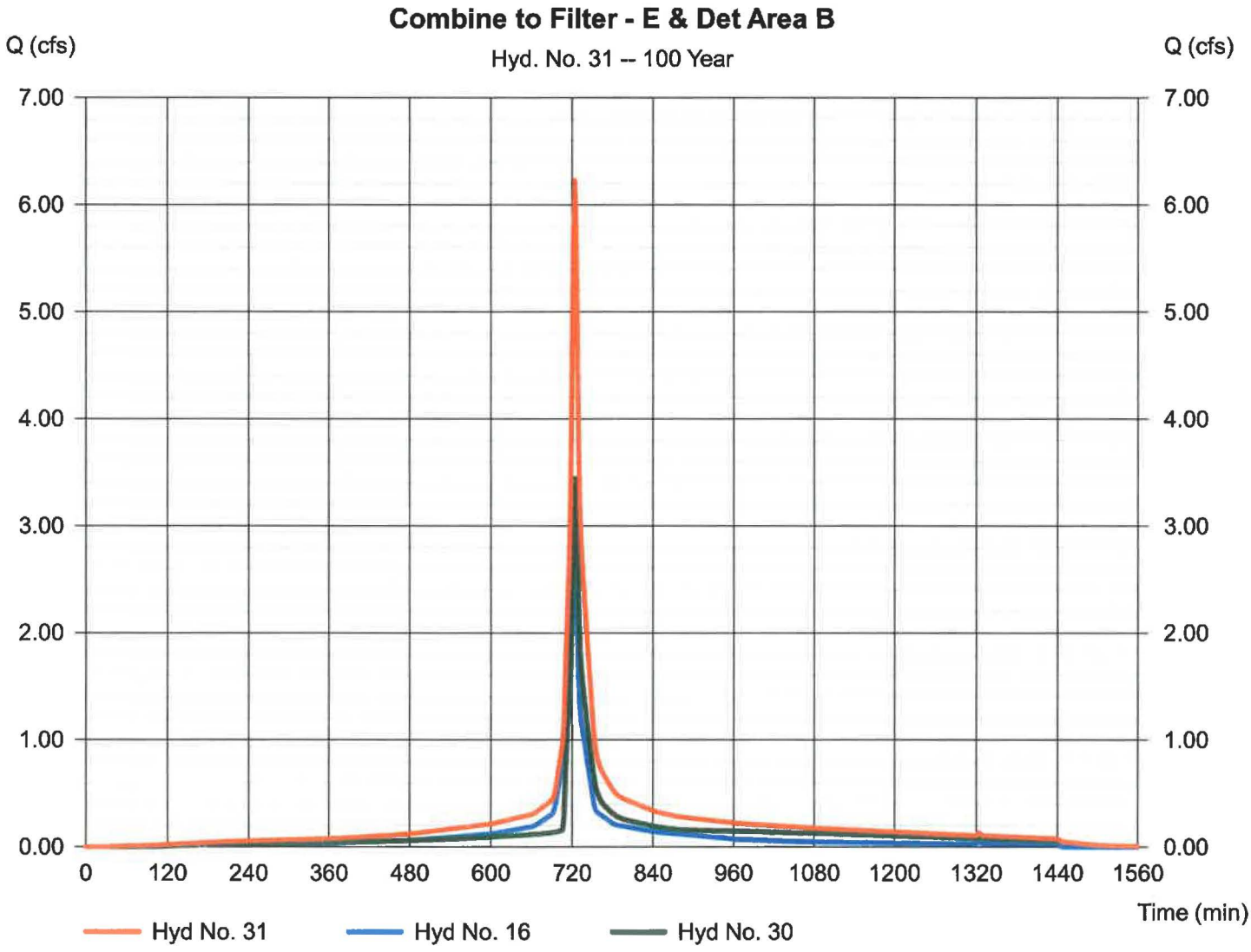
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 31

Combine to Filter - E & Det Area B

Hydrograph type	= Combine	Peak discharge	= 6.232 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 21,801 cuft
Inflow hyds.	= 16, 30	Contrib. drain. area	= 0.000 ac



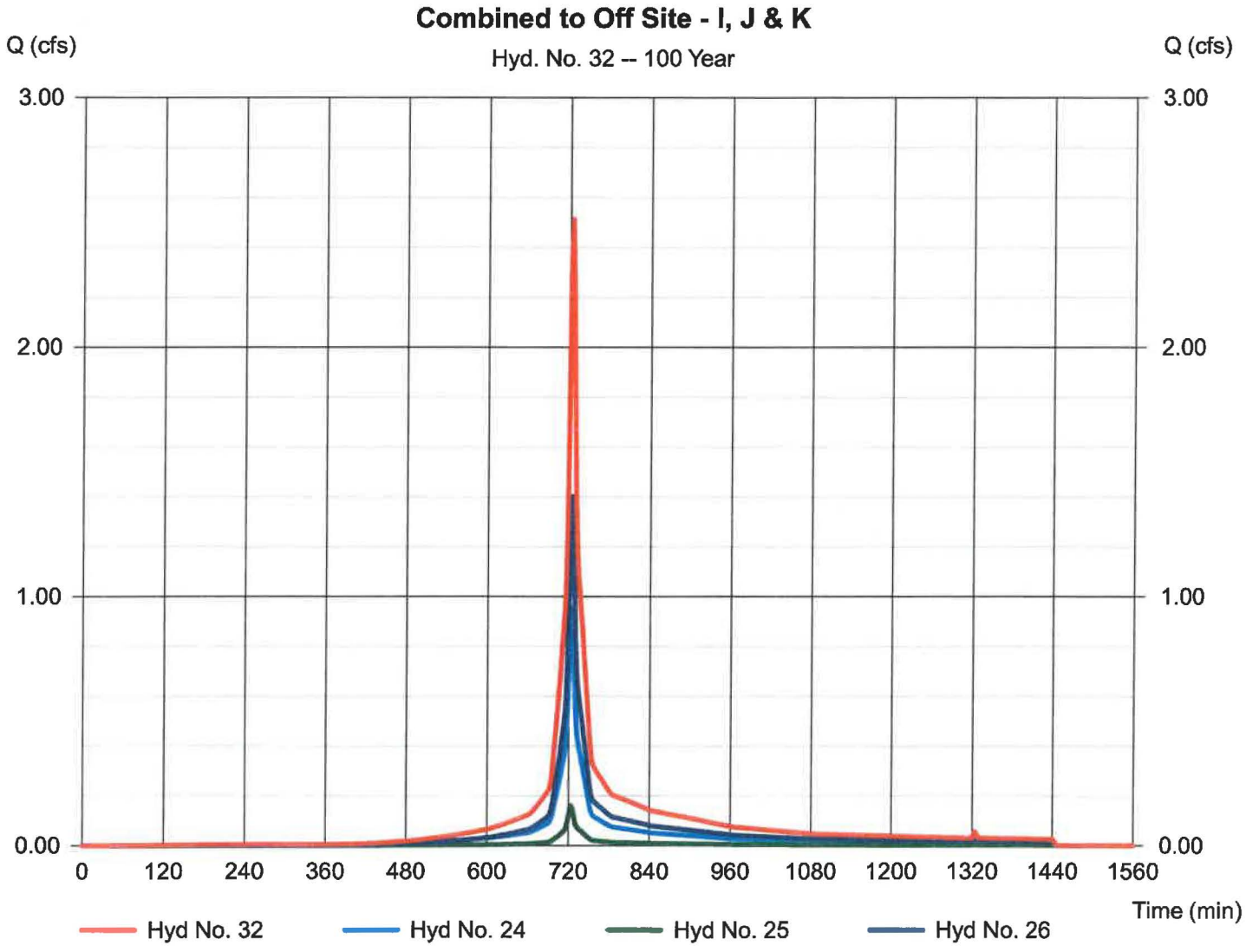
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 32

Combined to Off Site - I, J & K

Hydrograph type	= Combine	Peak discharge	= 2.514 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 7,712 cuft
Inflow hyds.	= 24, 25, 26	Contrib. drain. area	= 0.263 ac



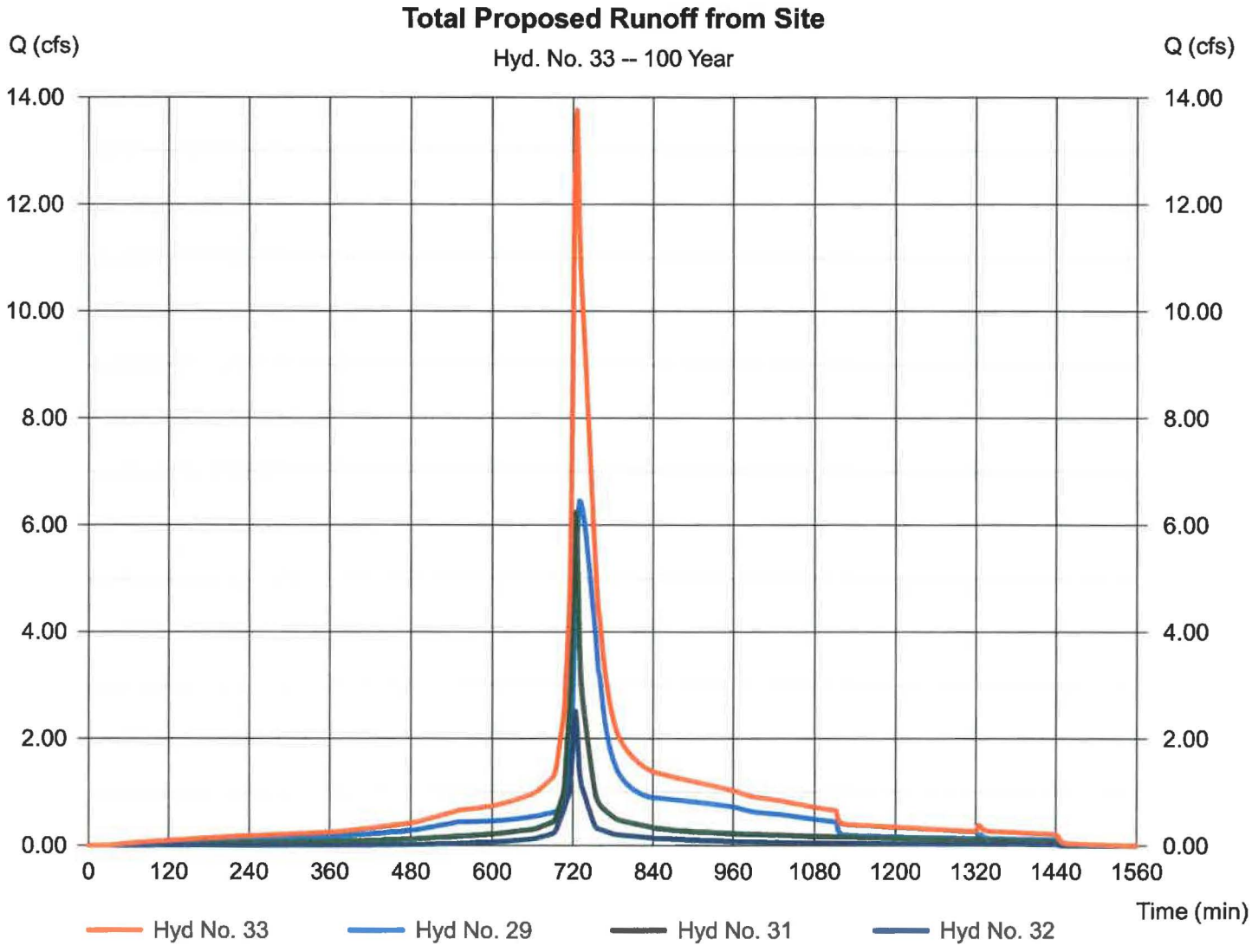
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 33

Total Proposed Runoff from Site

Hydrograph type	= Combine	Peak discharge	= 13.76 cfs
Storm frequency	= 100 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 73,307 cuft
Inflow hyds.	= 29, 31, 32	Contrib. drain. area	= 0.000 ac



WATER QUALITY STORM

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.23

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	0.231	2	70	376	----	------	------	Existing Drainage Area A - Pervious
2	SCS Runoff	4.096	2	64	5,112	----	------	------	Existing Drainage Area A - Impervio
3	Combine	4.137	2	64	5,488	1, 2	------	------	Existing D.A. A Combined
4	SCS Runoff	0.322	2	64	401	----	------	------	Proposed Drainage Area A1
5	SCS Runoff	0.319	2	64	398	----	------	------	Proposed Drainage Area B1
6	SCS Runoff	0.023	2	70	38	----	------	------	Proposed Drainage Area B2
7	Combine	0.323	2	64	436	5, 6	------	------	D.A. B Combined
8	SCS Runoff	0.697	2	64	870	----	------	------	Proposed Drainage Area C1
9	SCS Runoff	0.008	2	70	12	----	------	------	Proposed Drainage Area C2
10	Combine	0.698	2	64	882	8, 9	------	------	D.A. C Combined
11	SCS Runoff	0.584	2	64	729	----	------	------	Proposed Drainage Area D1
12	SCS Runoff	0.008	2	70	13	----	------	------	Proposed Drainage Area D2
13	Combine	0.585	2	64	742	11, 12	------	------	D.A. D Combined
14	SCS Runoff	0.852	2	64	1,063	----	------	------	Proposed Drainage Area E1
15	SCS Runoff	0.010	2	70	17	----	------	------	Proposed Drainage Area E2
16	Combine	0.854	2	64	1,080	14, 15	------	------	D.A. E Combined
17	SCS Runoff	0.319	2	64	398	----	------	------	Proposed Drainage Area F1
18	SCS Runoff	0.838	2	64	1,046	----	------	------	Proposed Drainage Area G1
19	SCS Runoff	0.008	2	70	14	----	------	------	Proposed Drainage Area G2
20	Combine	0.839	2	64	1,059	18, 19	------	------	D.A. G Combined
21	SCS Runoff	2.096	2	64	2,616	----	------	------	Proposed Drainage Area H1
22	SCS Runoff	0.116	2	64	144	----	------	------	Proposed Drainage Area I1
23	SCS Runoff	0.016	2	70	27	----	------	------	Proposed Drainage Area I2
24	Combine	0.120	2	66	171	22, 23	------	------	D.A. I Combined
25	SCS Runoff	0.004	2	70	7	----	------	------	Proposed Drainage Area J1
26	SCS Runoff	0.036	2	70	59	----	------	------	Proposed Drainage Area K1
27	Combine	4.024	2	64	5,077	4, 7, 10, 13, 21,	------	------	Combine to Detention Area A - A, B,
28	Combine	1.158	2	64	1,457	17, 20,	------	------	Combine to Detention Area B - F &
29	Reservoir	0.712	2	80	5,076	27	625.70	2,760	Detention Area A
30	Reservoir	0.120	2	96	1,432	28	625.43	1,056	Detention Area B
31	Combine	0.945	2	64	2,512	16, 30	------	------	Combine to Filter - E & Det Area B
32	Combine	0.144	2	66	237	24, 25, 26,	------	------	Combined to Off Site - I, J & K
33	Combine	1.668	2	66	7,825	29, 31, 32	------	------	Total Proposed Runoff from Site

Hydrograph Report

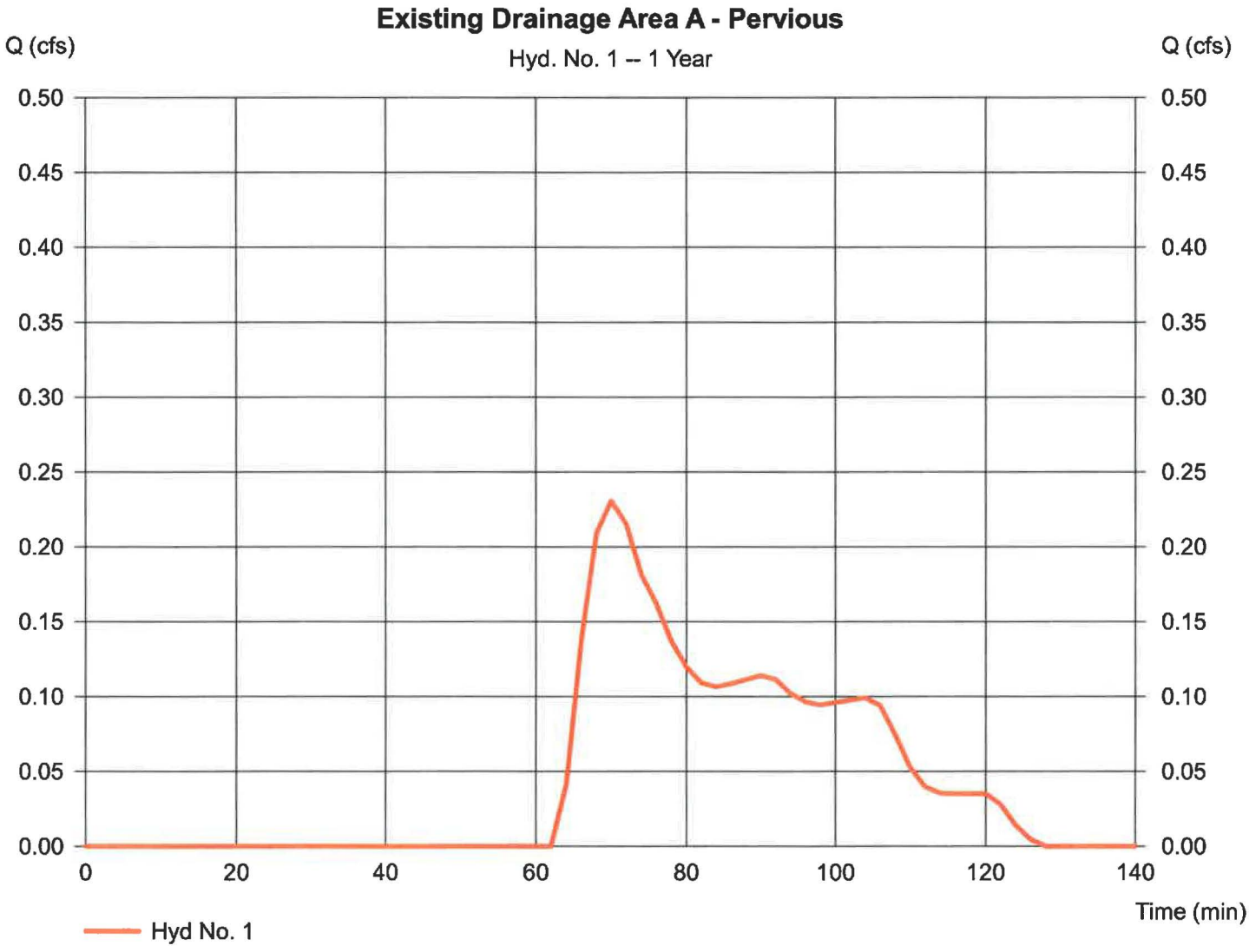
Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 1

Existing Drainage Area A - Pervious

Hydrograph type	= SCS Runoff	Peak discharge	= 0.231 cfs
Storm frequency	= 1 yrs	Time to peak	= 70 min
Time interval	= 2 min	Hyd. volume	= 376 cuft
Drainage area	= 1.501 ac	Curve number	= 74*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 6.50 min
Total precip.	= 1.25 in	Distribution	= Custom
Storm duration	= NJWaterQuality2MIN.cds	Shape factor	= 484

* Composite (Area/CN) = [(0.780 x 74) + (0.720 x 80)] / 1.501



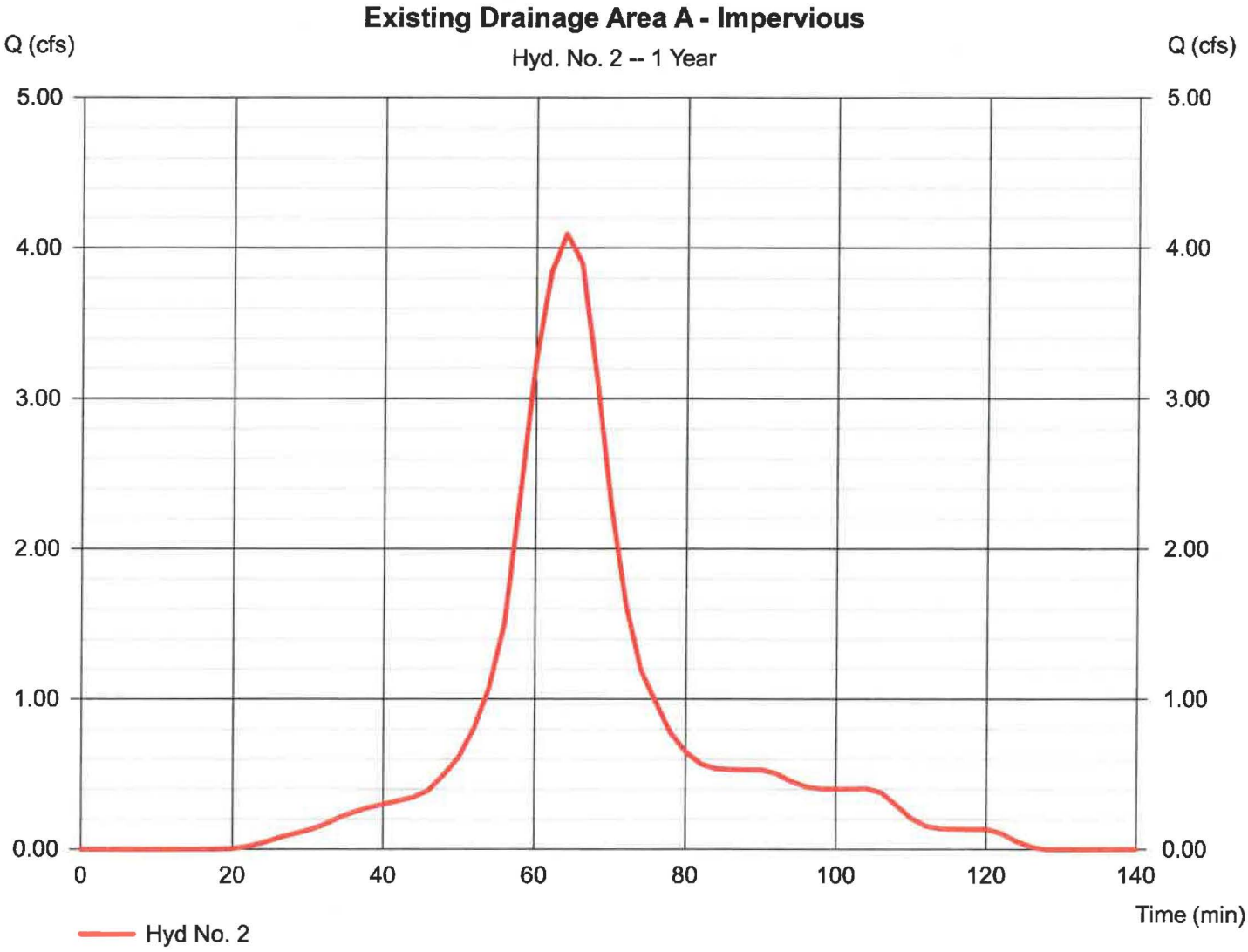
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 2

Existing Drainage Area A - Impervious

Hydrograph type	= SCS Runoff	Peak discharge	= 4.096 cfs
Storm frequency	= 1 yrs	Time to peak	= 64 min
Time interval	= 2 min	Hyd. volume	= 5,112 cuft
Drainage area	= 1.452 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.50 min
Total precip.	= 1.25 in	Distribution	= Custom
Storm duration	= NJWaterQuality2MIN.cds	Shape factor	= 484



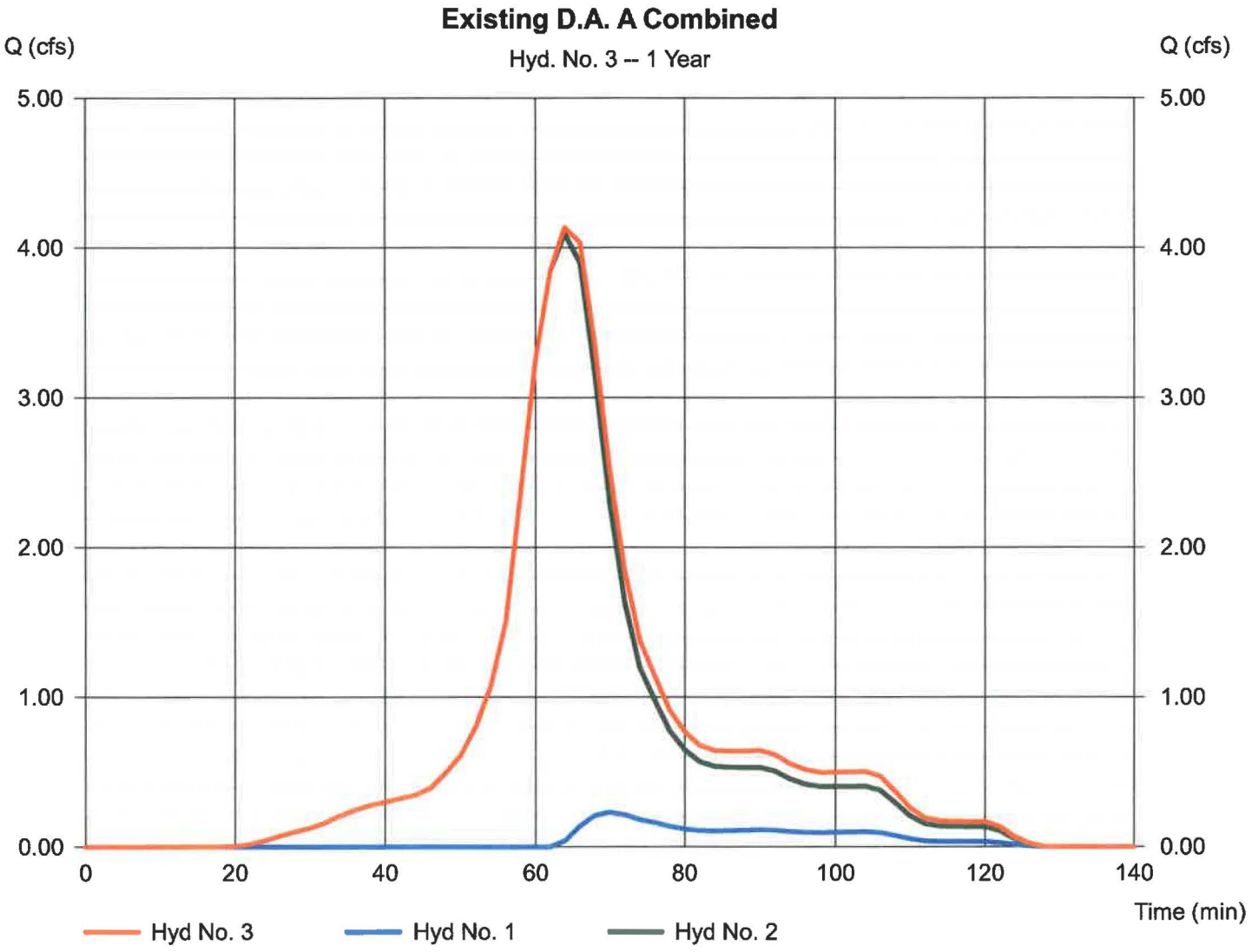
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 Monday, Sep 28, 2020

Hyd. No. 3

Existing D.A. A Combined

Hydrograph type	= Combine	Peak discharge	= 4.137 cfs
Storm frequency	= 1 yrs	Time to peak	= 64 min
Time interval	= 2 min	Hyd. volume	= 5,488 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 2.953 ac



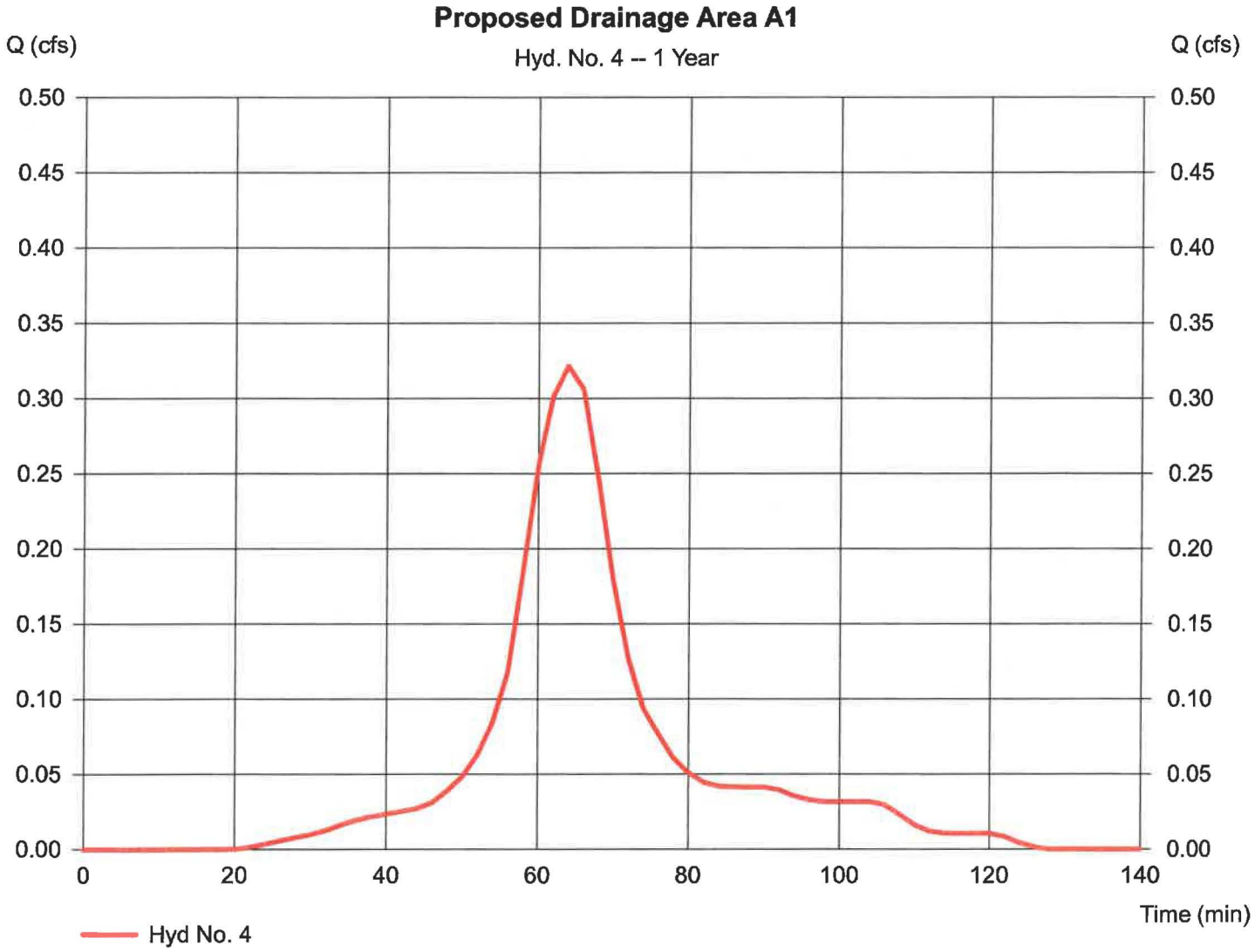
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 4

Proposed Drainage Area A1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.322 cfs
Storm frequency	= 1 yrs	Time to peak	= 64 min
Time interval	= 2 min	Hyd. volume	= 401 cuft
Drainage area	= 0.114 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 1.25 in	Distribution	= Custom
Storm duration	= NJWaterQuality2MIN.cds	Shape factor	= 484



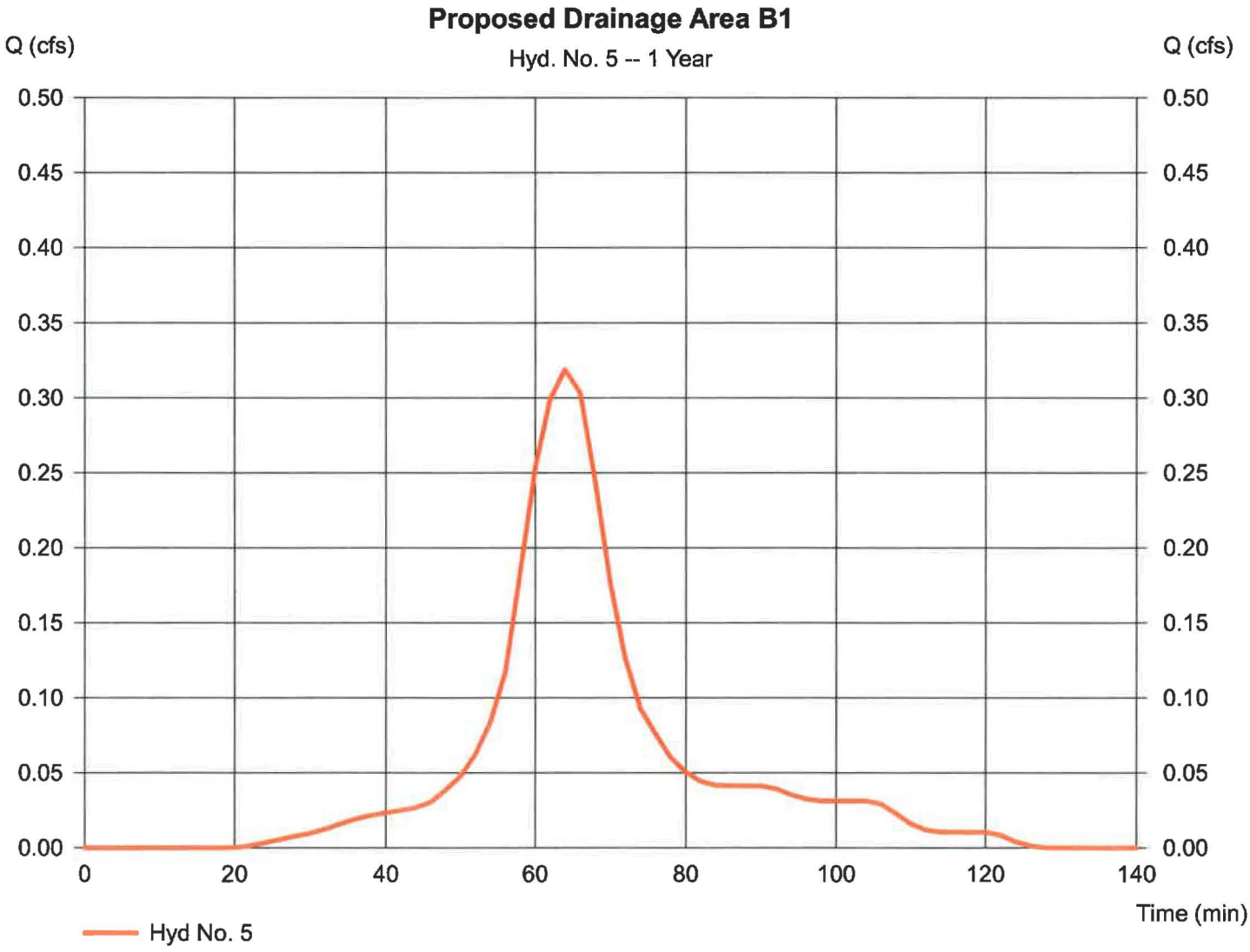
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 5

Proposed Drainage Area B1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.319 cfs
Storm frequency	= 1 yrs	Time to peak	= 64 min
Time interval	= 2 min	Hyd. volume	= 398 cuft
Drainage area	= 0.113 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 1.25 in	Distribution	= Custom
Storm duration	= NJWaterQuality2MIN.cds	Shape factor	= 484



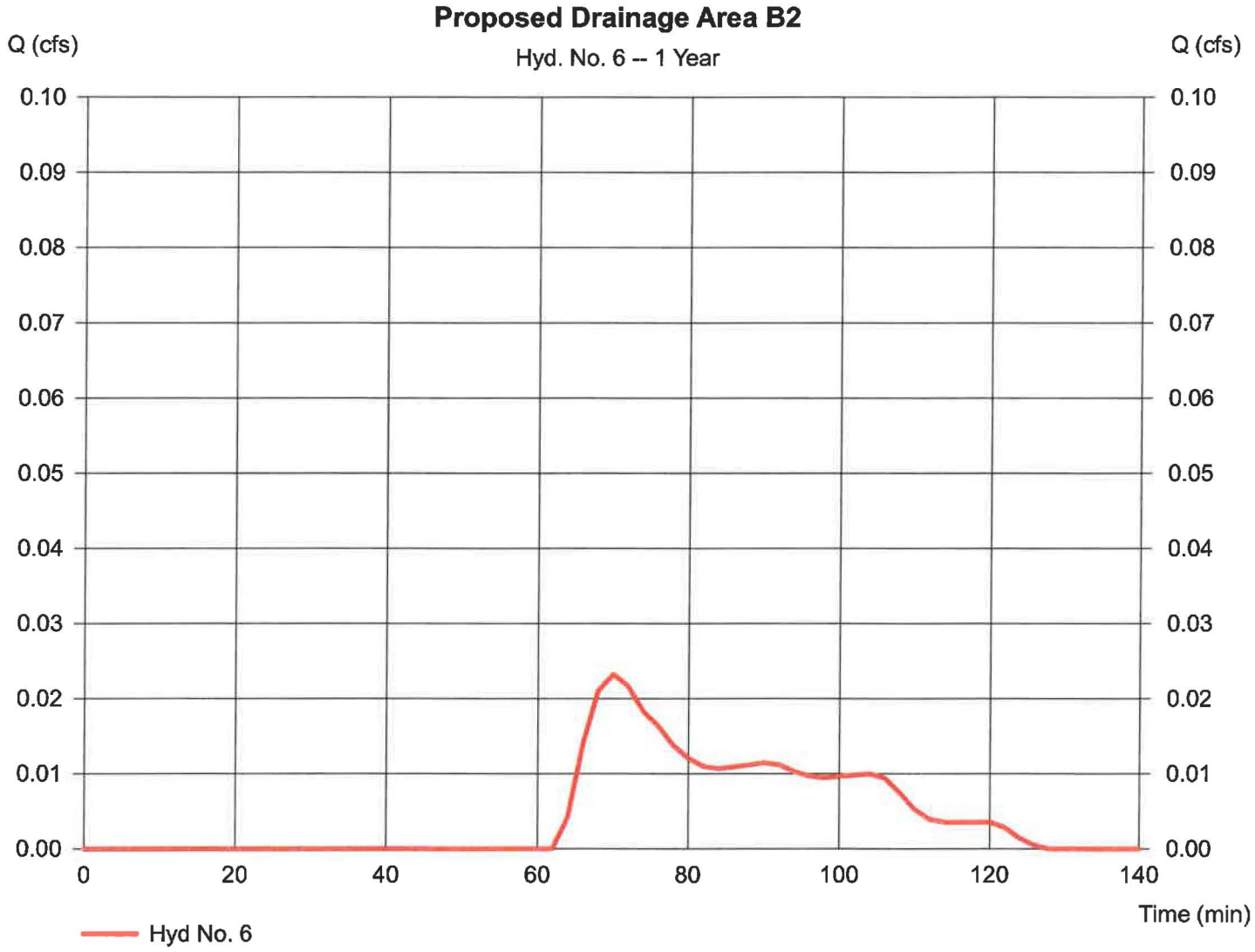
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 6

Proposed Drainage Area B2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.023 cfs
Storm frequency	= 1 yrs	Time to peak	= 70 min
Time interval	= 2 min	Hyd. volume	= 38 cuft
Drainage area	= 0.151 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 1.25 in	Distribution	= Custom
Storm duration	= NJWaterQuality2MIN.cds	Shape factor	= 484



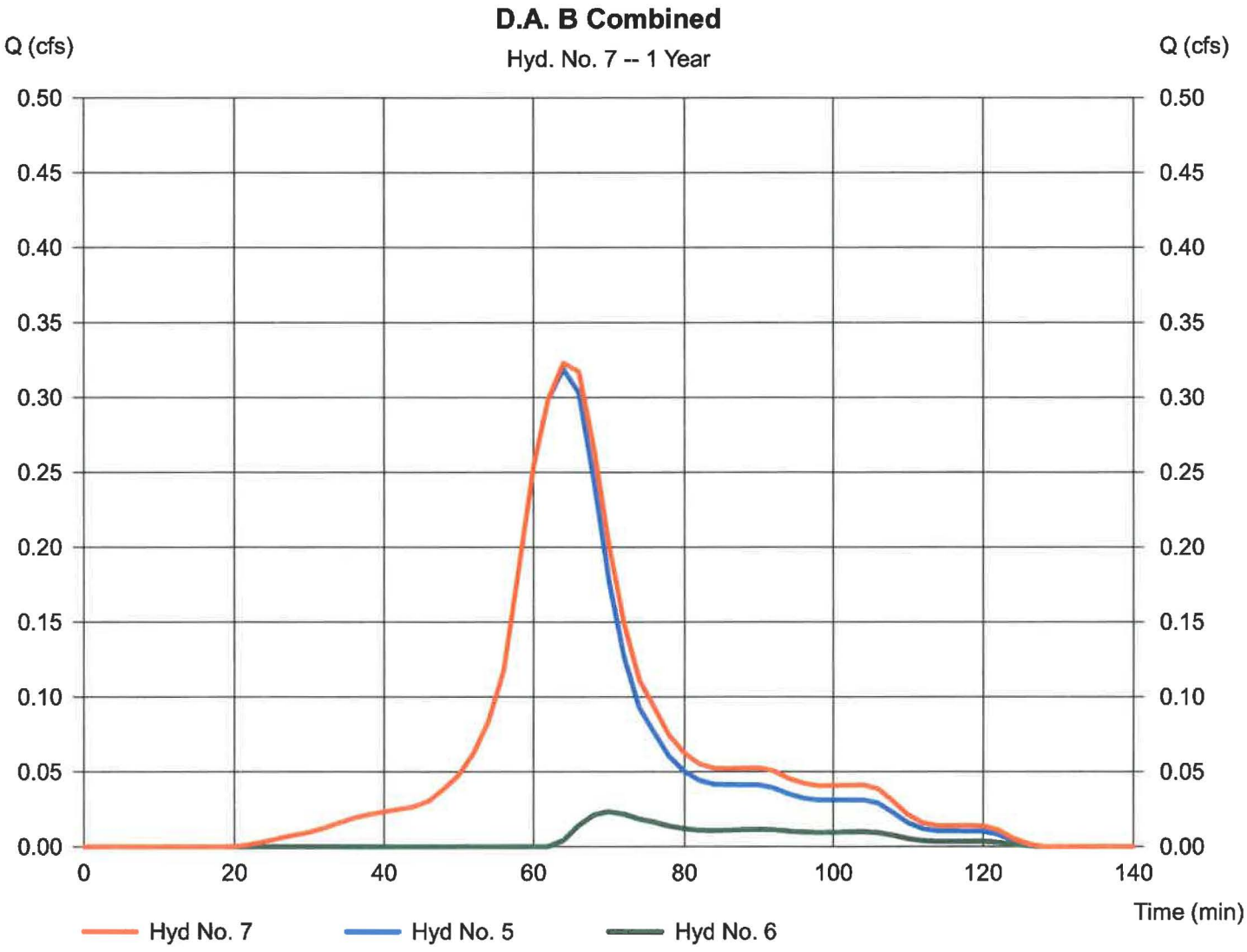
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 Monday, Sep 28, 2020

Hyd. No. 7

D.A. B Combined

Hydrograph type	= Combine	Peak discharge	= 0.323 cfs
Storm frequency	= 1 yrs	Time to peak	= 64 min
Time interval	= 2 min	Hyd. volume	= 436 cuft
Inflow hyds.	= 5, 6	Contrib. drain. area	= 0.264 ac



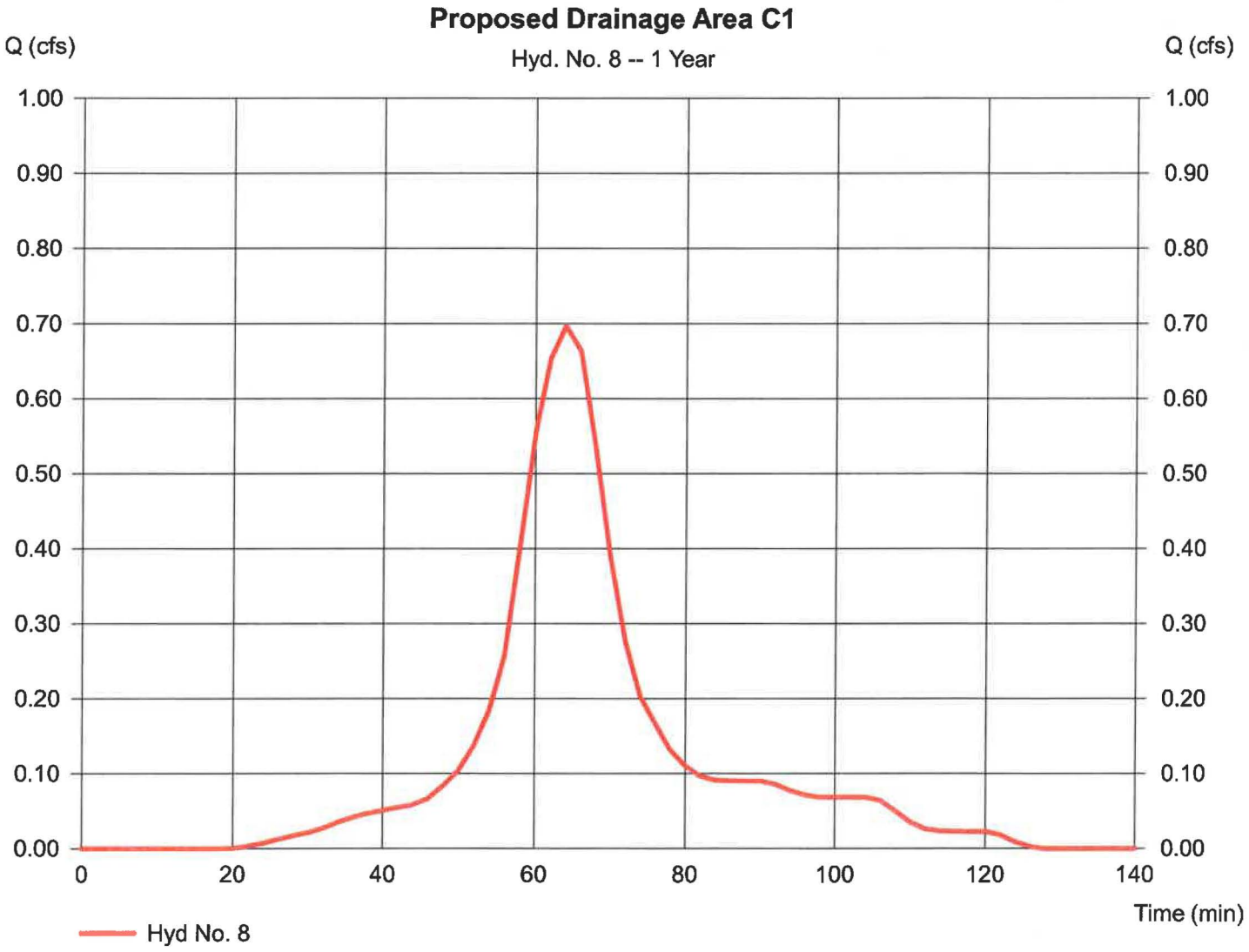
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 8

Proposed Drainage Area C1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.697 cfs
Storm frequency	= 1 yrs	Time to peak	= 64 min
Time interval	= 2 min	Hyd. volume	= 870 cuft
Drainage area	= 0.247 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 1.25 in	Distribution	= Custom
Storm duration	= NJWaterQuality2MIN.cds	Shape factor	= 484



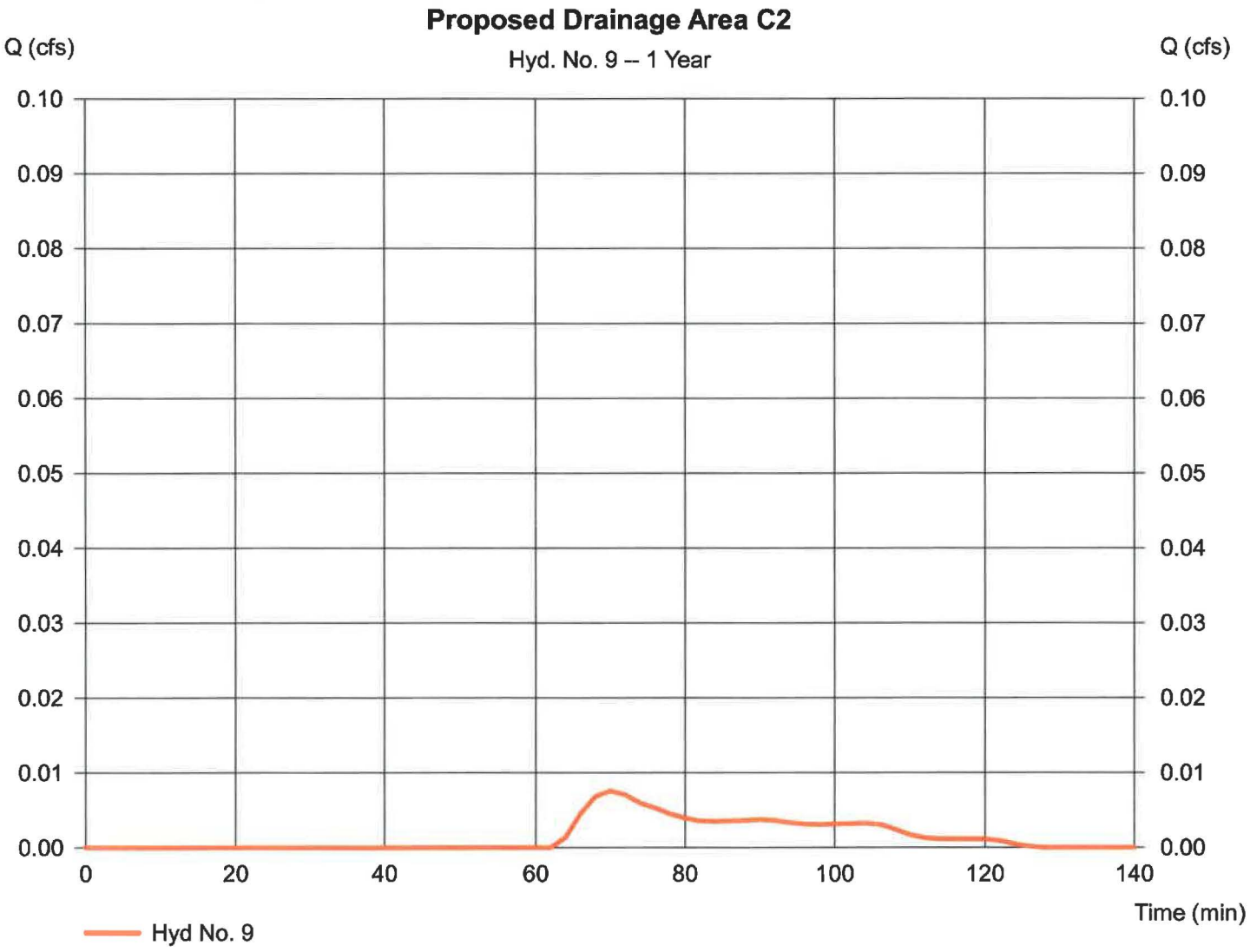
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 9

Proposed Drainage Area C2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.008 cfs
Storm frequency	= 1 yrs	Time to peak	= 70 min
Time interval	= 2 min	Hyd. volume	= 12 cuft
Drainage area	= 0.049 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 1.25 in	Distribution	= Custom
Storm duration	= NJWaterQuality2MIN.cds	Shape factor	= 484



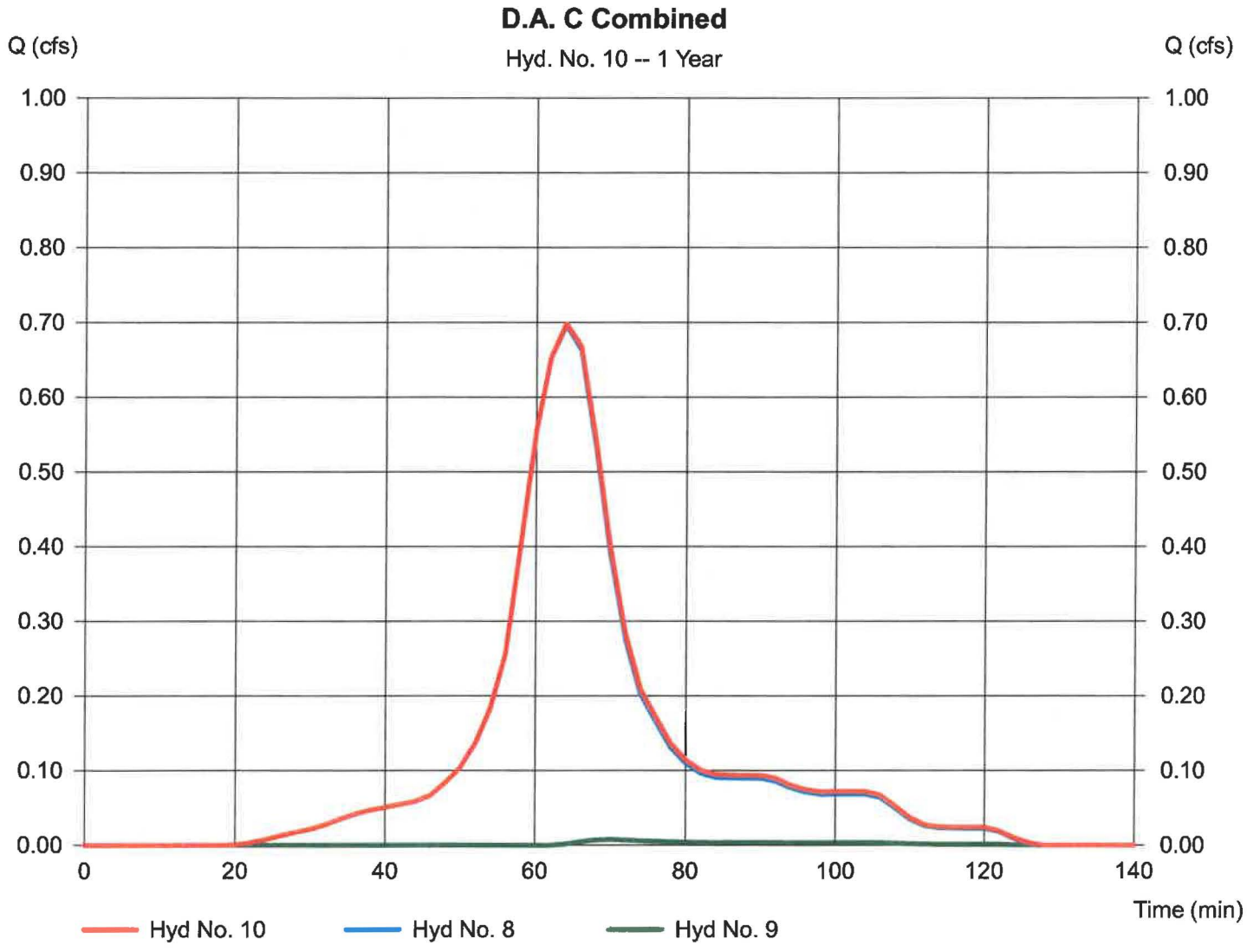
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 10

D.A. C Combined

Hydrograph type	= Combine	Peak discharge	= 0.698 cfs
Storm frequency	= 1 yrs	Time to peak	= 64 min
Time interval	= 2 min	Hyd. volume	= 882 cuft
Inflow hyds.	= 8, 9	Contrib. drain. area	= 0.296 ac



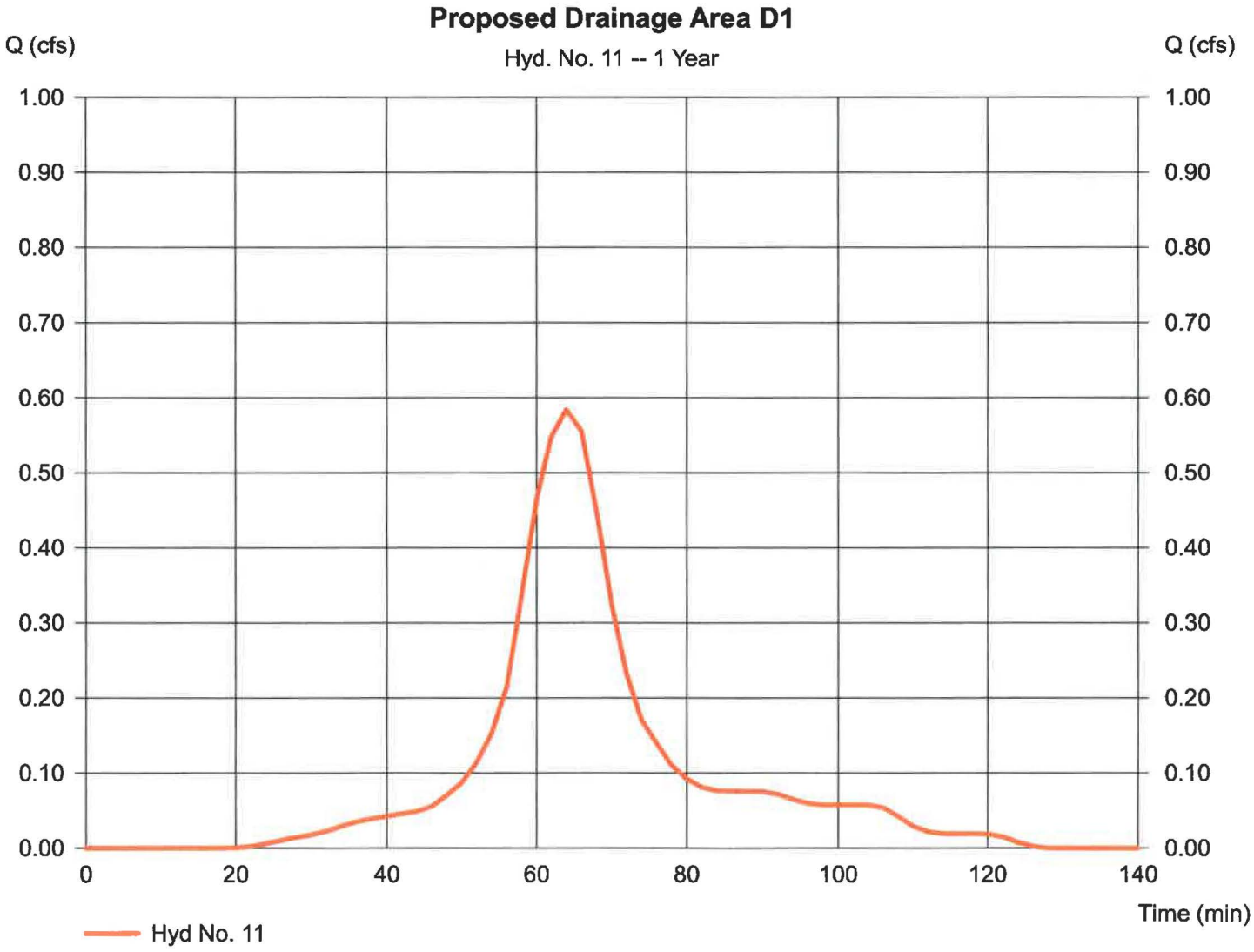
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 11

Proposed Drainage Area D1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.584 cfs
Storm frequency	= 1 yrs	Time to peak	= 64 min
Time interval	= 2 min	Hyd. volume	= 729 cuft
Drainage area	= 0.207 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 1.25 in	Distribution	= Custom
Storm duration	= NJWaterQuality2MIN.cds	Shape factor	= 484



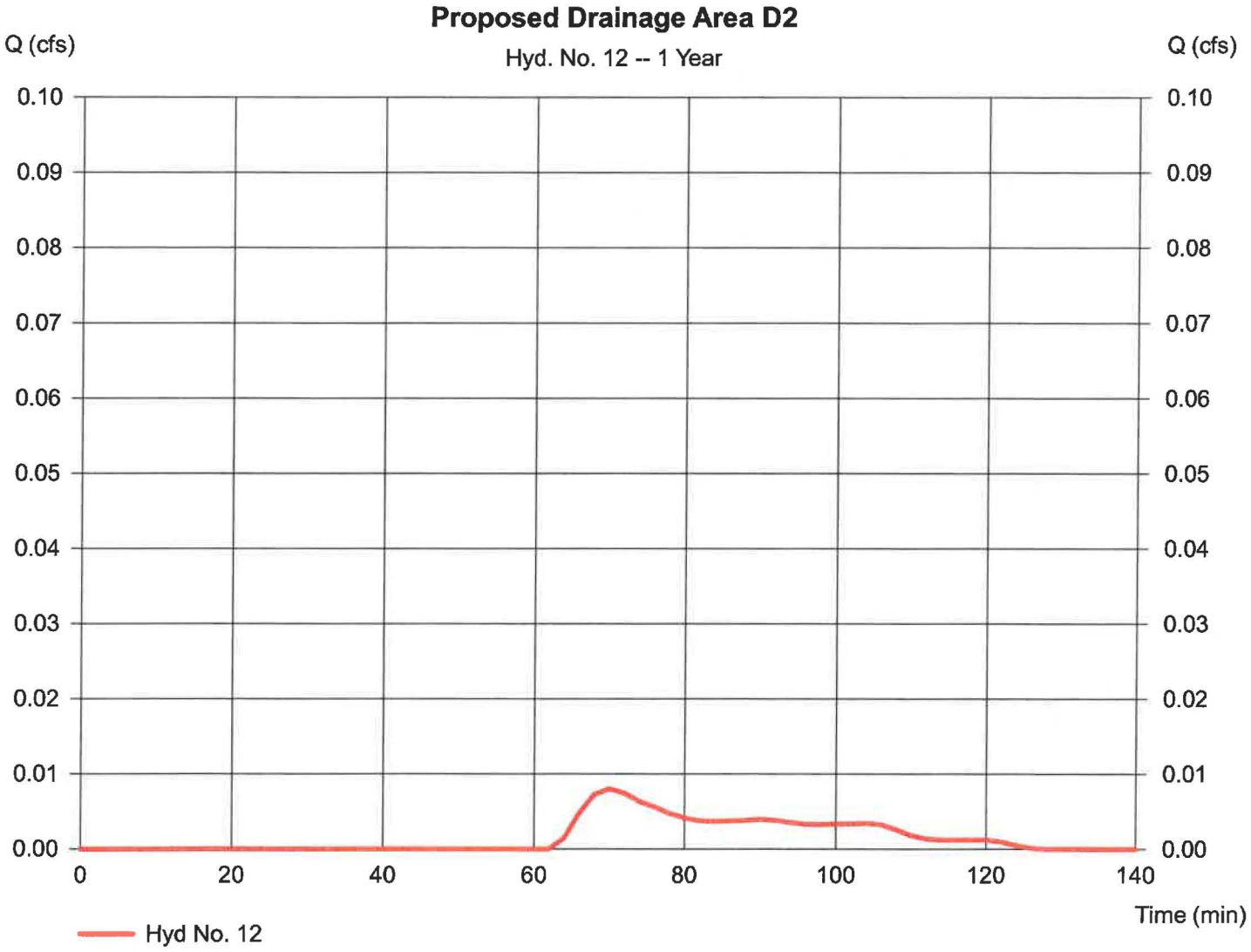
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 12

Proposed Drainage Area D2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.008 cfs
Storm frequency	= 1 yrs	Time to peak	= 70 min
Time interval	= 2 min	Hyd. volume	= 13 cuft
Drainage area	= 0.052 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 1.25 in	Distribution	= Custom
Storm duration	= NJWaterQuality2MIN.cds	Shape factor	= 484



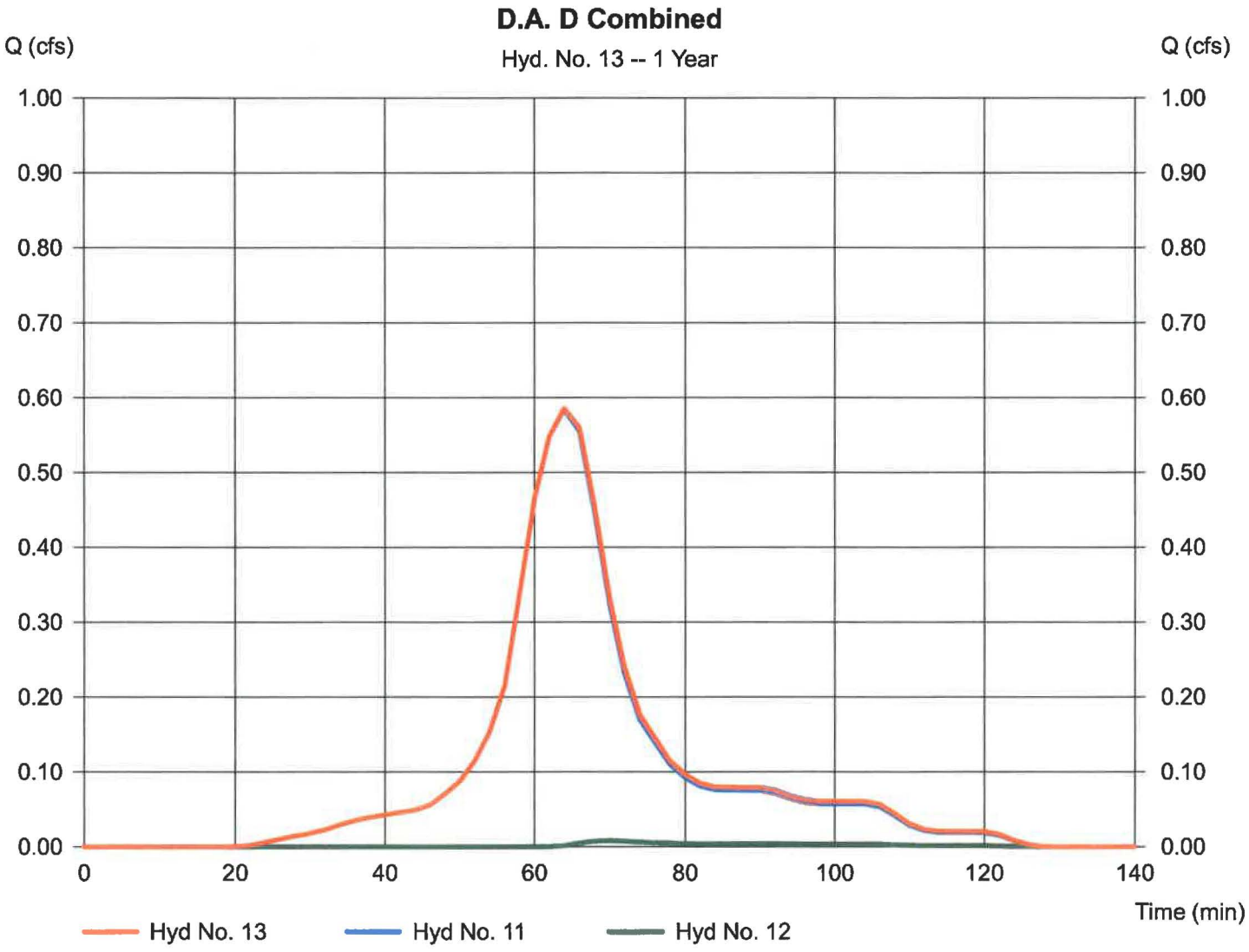
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 13

D.A. D Combined

Hydrograph type	= Combine	Peak discharge	= 0.585 cfs
Storm frequency	= 1 yrs	Time to peak	= 64 min
Time interval	= 2 min	Hyd. volume	= 742 cuft
Inflow hyds.	= 11, 12	Contrib. drain. area	= 0.259 ac



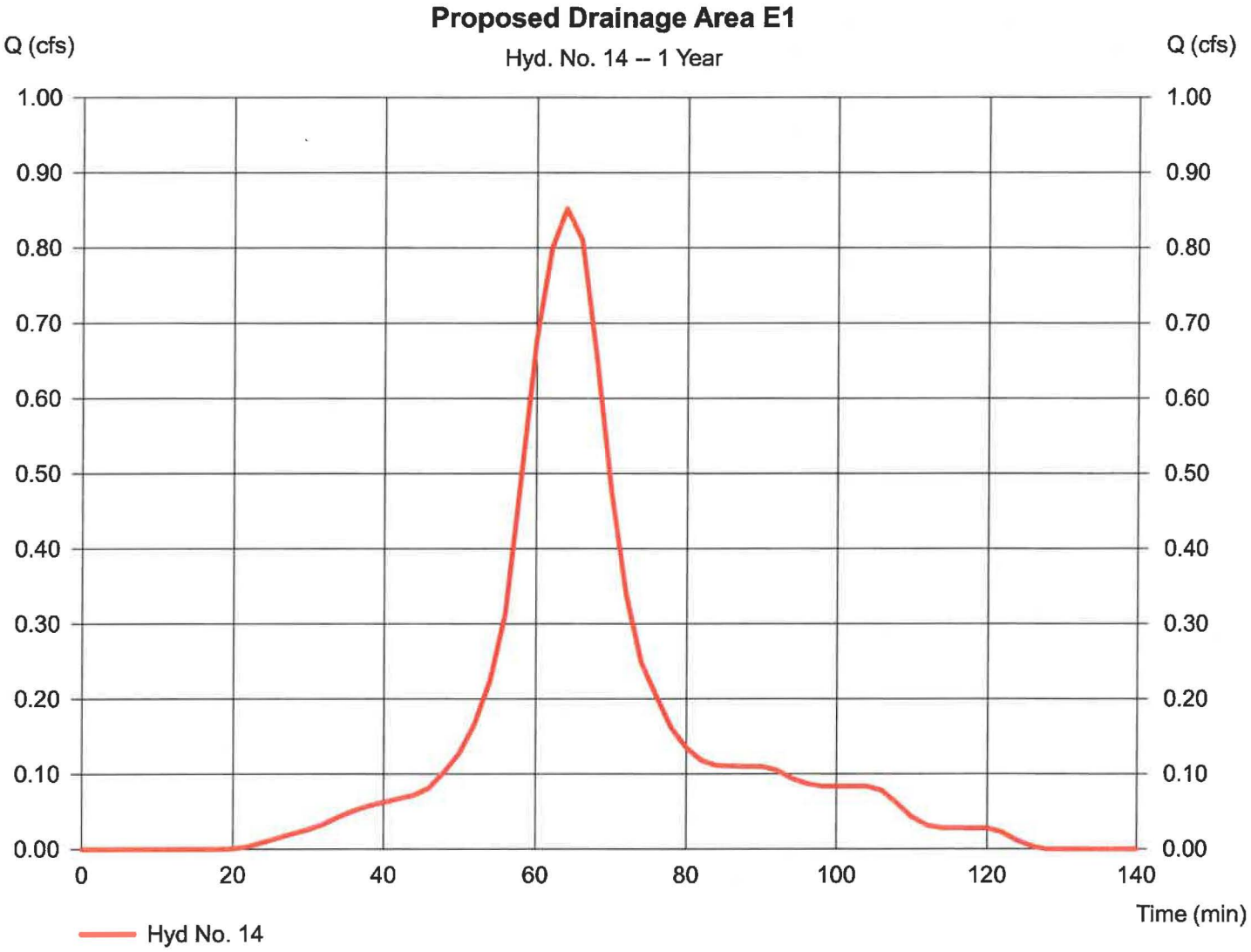
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 14

Proposed Drainage Area E1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.852 cfs
Storm frequency	= 1 yrs	Time to peak	= 64 min
Time interval	= 2 min	Hyd. volume	= 1,063 cuft
Drainage area	= 0.302 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 1.25 in	Distribution	= Custom
Storm duration	= NJWaterQuality2MIN.cds	Shape factor	= 484



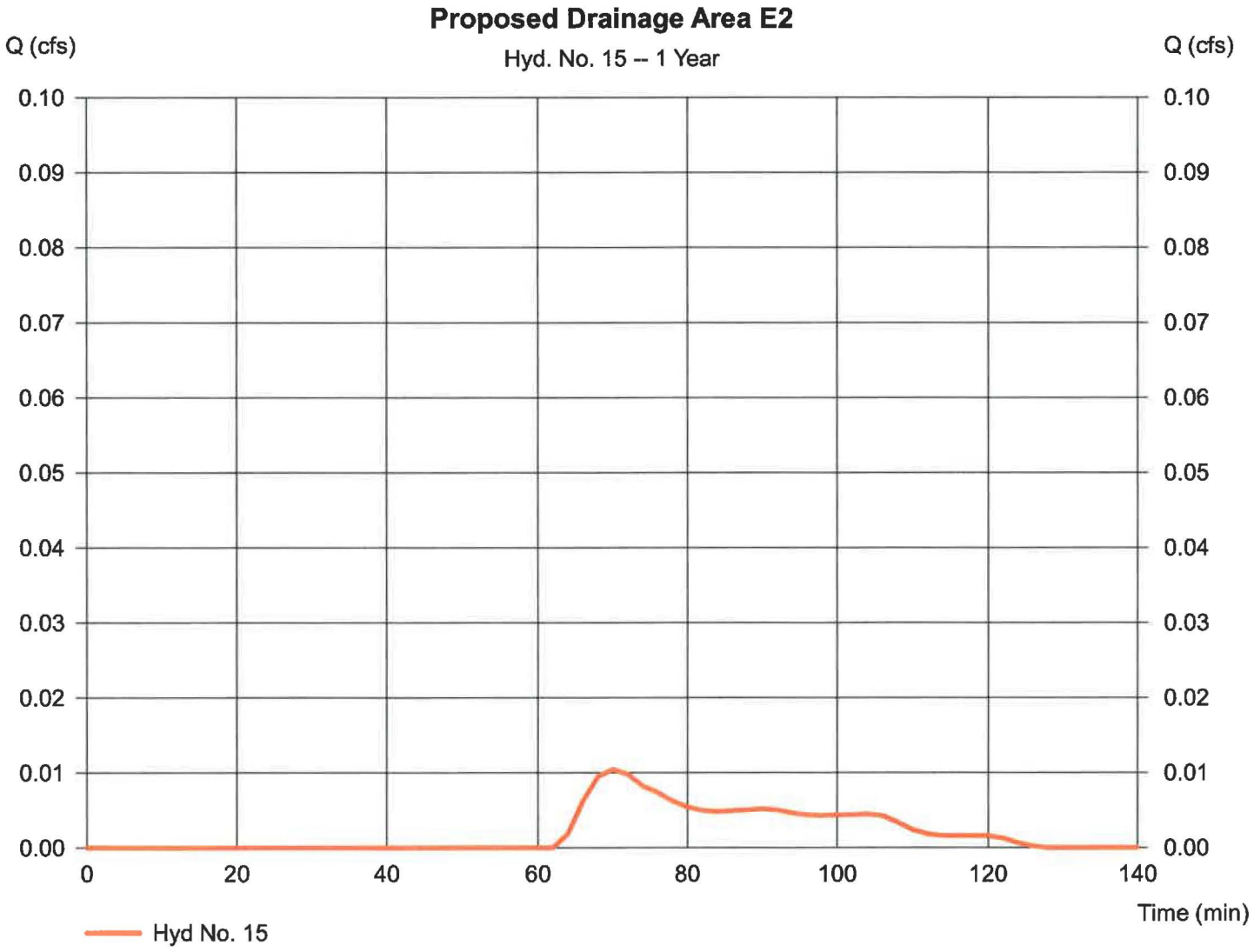
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 15

Proposed Drainage Area E2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.010 cfs
Storm frequency	= 1 yrs	Time to peak	= 70 min
Time interval	= 2 min	Hyd. volume	= 17 cuft
Drainage area	= 0.068 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 1.25 in	Distribution	= Custom
Storm duration	= NJWaterQuality2MIN.cds	Shape factor	= 484



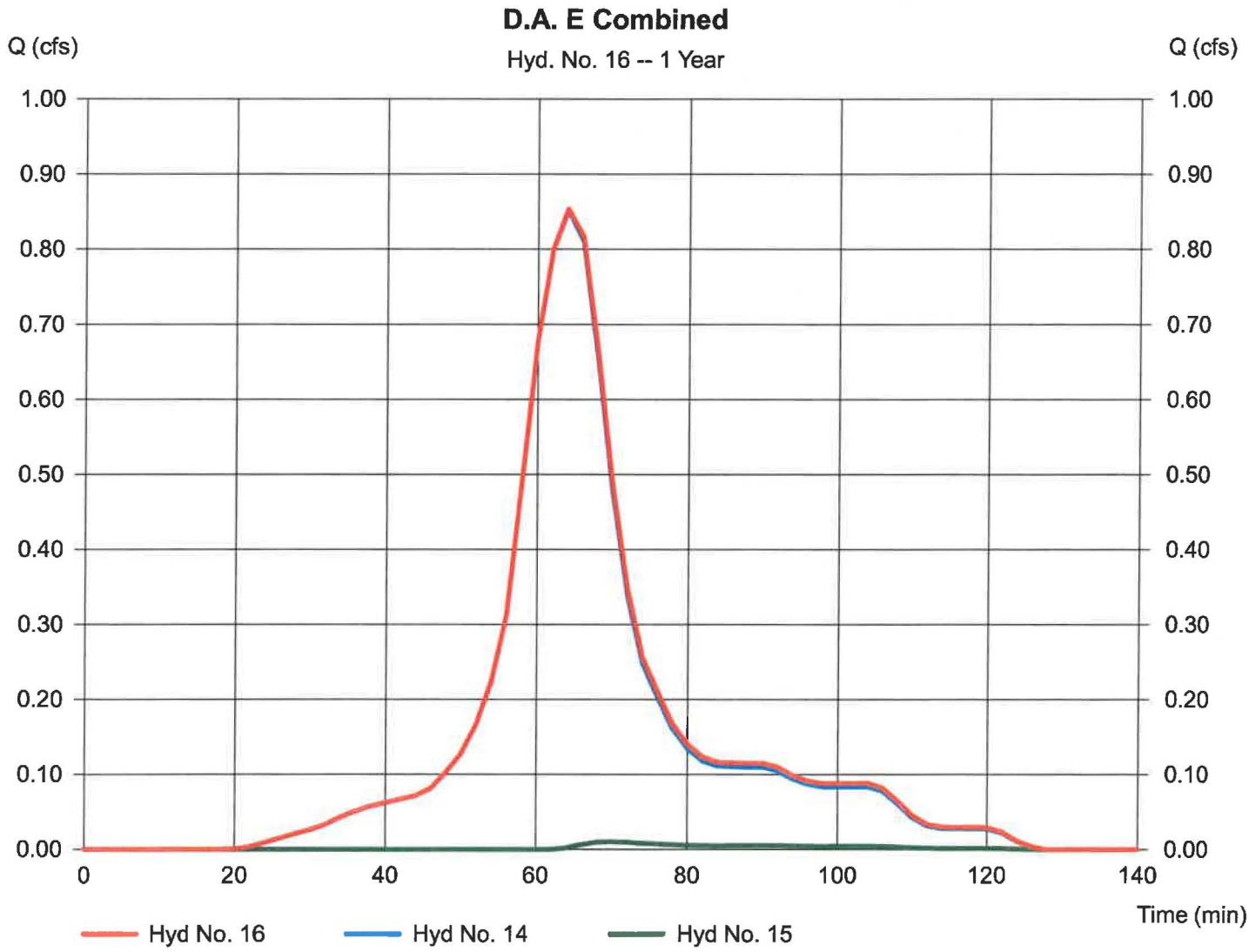
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 16

D.A. E Combined

Hydrograph type	= Combine	Peak discharge	= 0.854 cfs
Storm frequency	= 1 yrs	Time to peak	= 64 min
Time interval	= 2 min	Hyd. volume	= 1,080 cuft
Inflow hyds.	= 14, 15	Contrib. drain. area	= 0.370 ac



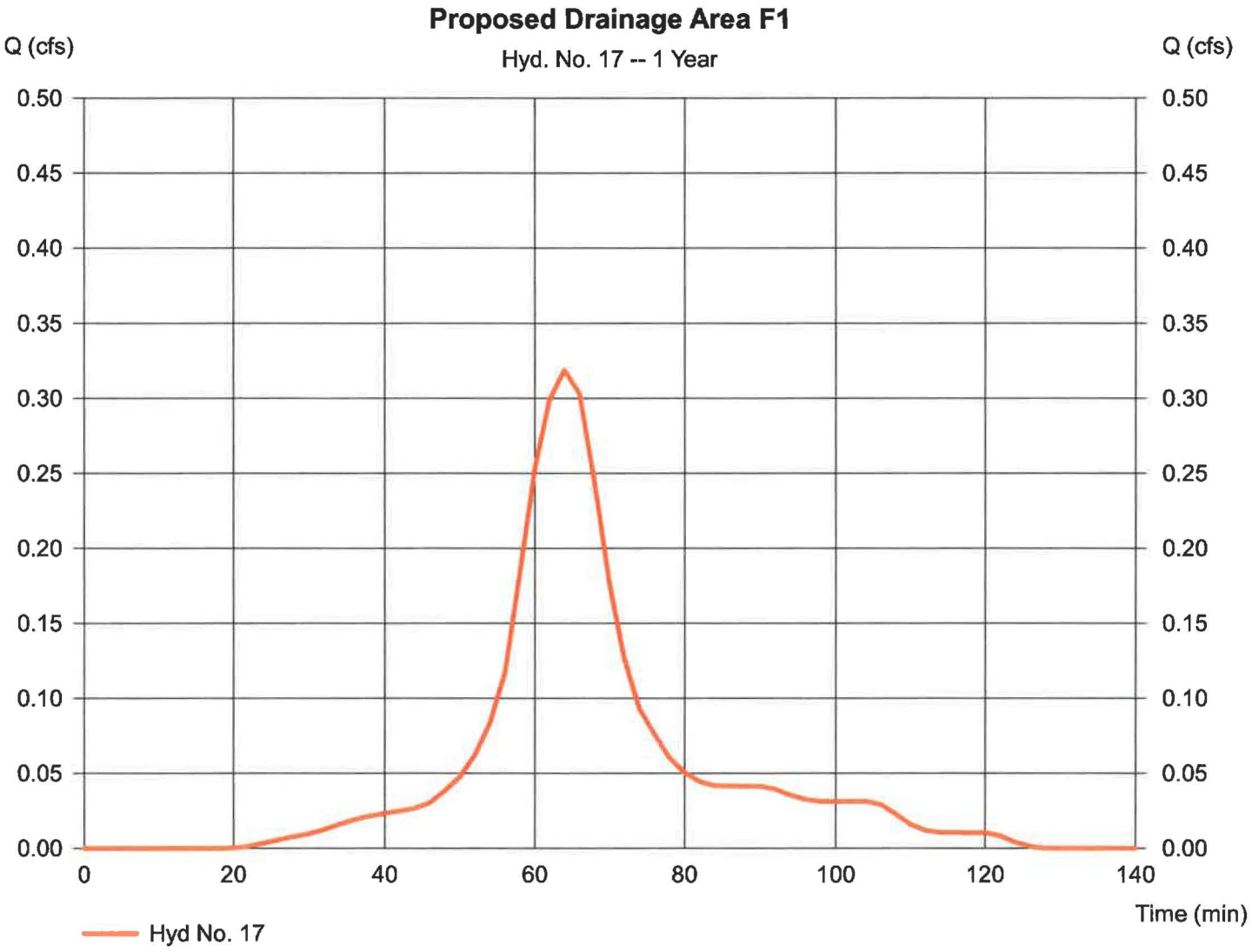
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 17

Proposed Drainage Area F1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.319 cfs
Storm frequency	= 1 yrs	Time to peak	= 64 min
Time interval	= 2 min	Hyd. volume	= 398 cuft
Drainage area	= 0.113 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 1.25 in	Distribution	= Custom
Storm duration	= NJWaterQuality2MIN.cds	Shape factor	= 484



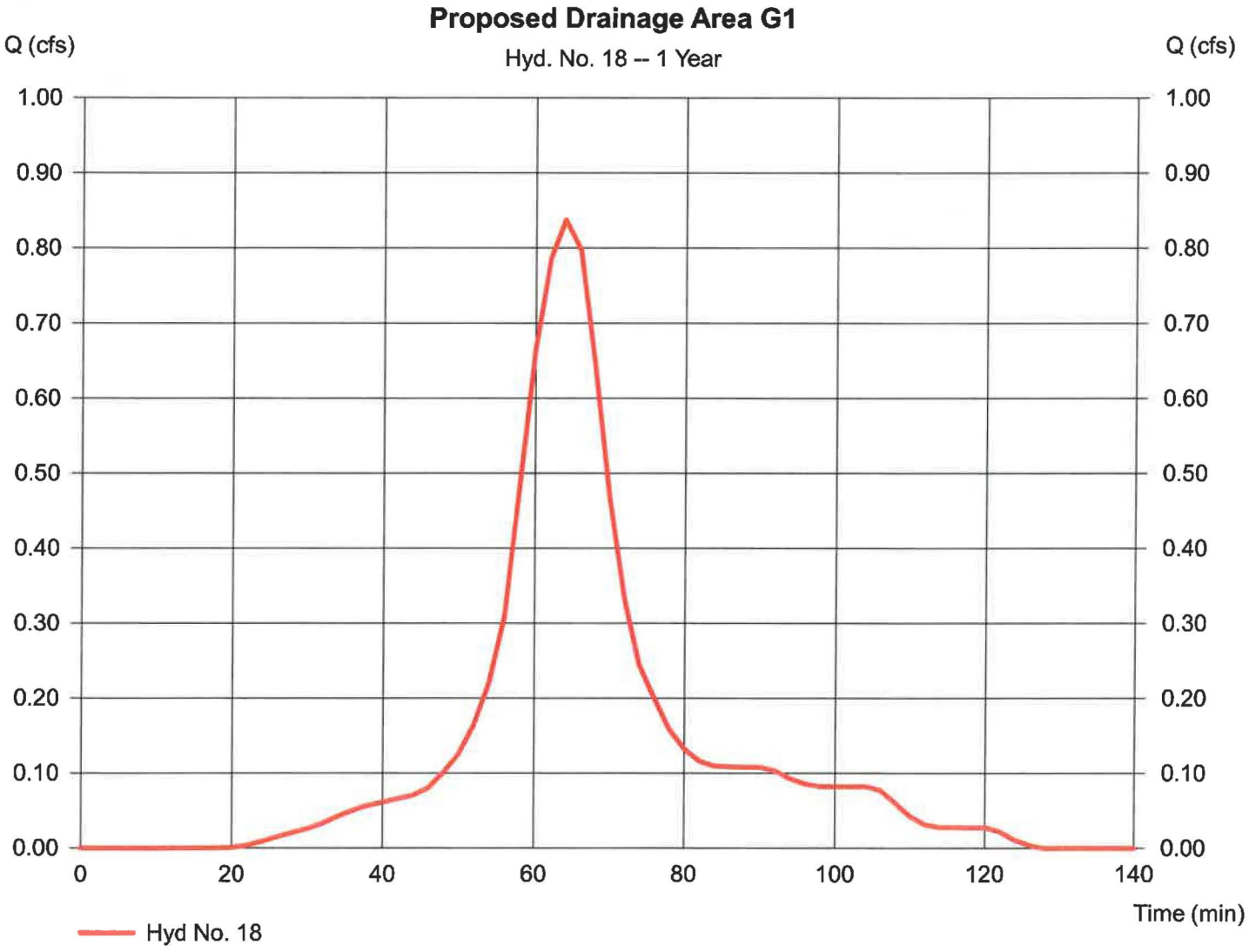
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 18

Proposed Drainage Area G1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.838 cfs
Storm frequency	= 1 yrs	Time to peak	= 64 min
Time interval	= 2 min	Hyd. volume	= 1,046 cuft
Drainage area	= 0.297 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 1.25 in	Distribution	= Custom
Storm duration	= NJWaterQuality2MIN.cds	Shape factor	= 484



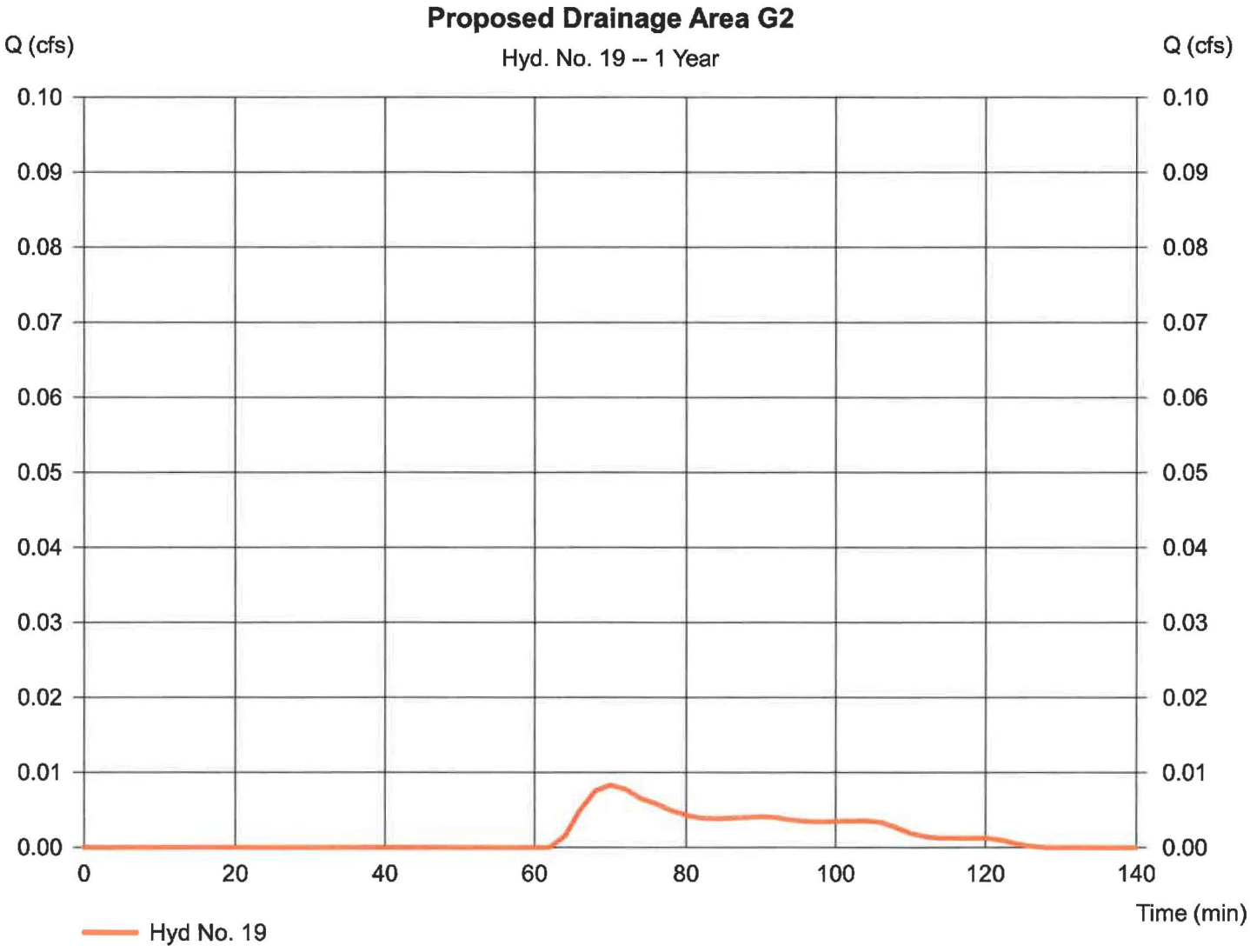
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 19

Proposed Drainage Area G2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.008 cfs
Storm frequency	= 1 yrs	Time to peak	= 70 min
Time interval	= 2 min	Hyd. volume	= 14 cuft
Drainage area	= 0.054 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 1.25 in	Distribution	= Custom
Storm duration	= NJWaterQuality2MIN.cds	Shape factor	= 484



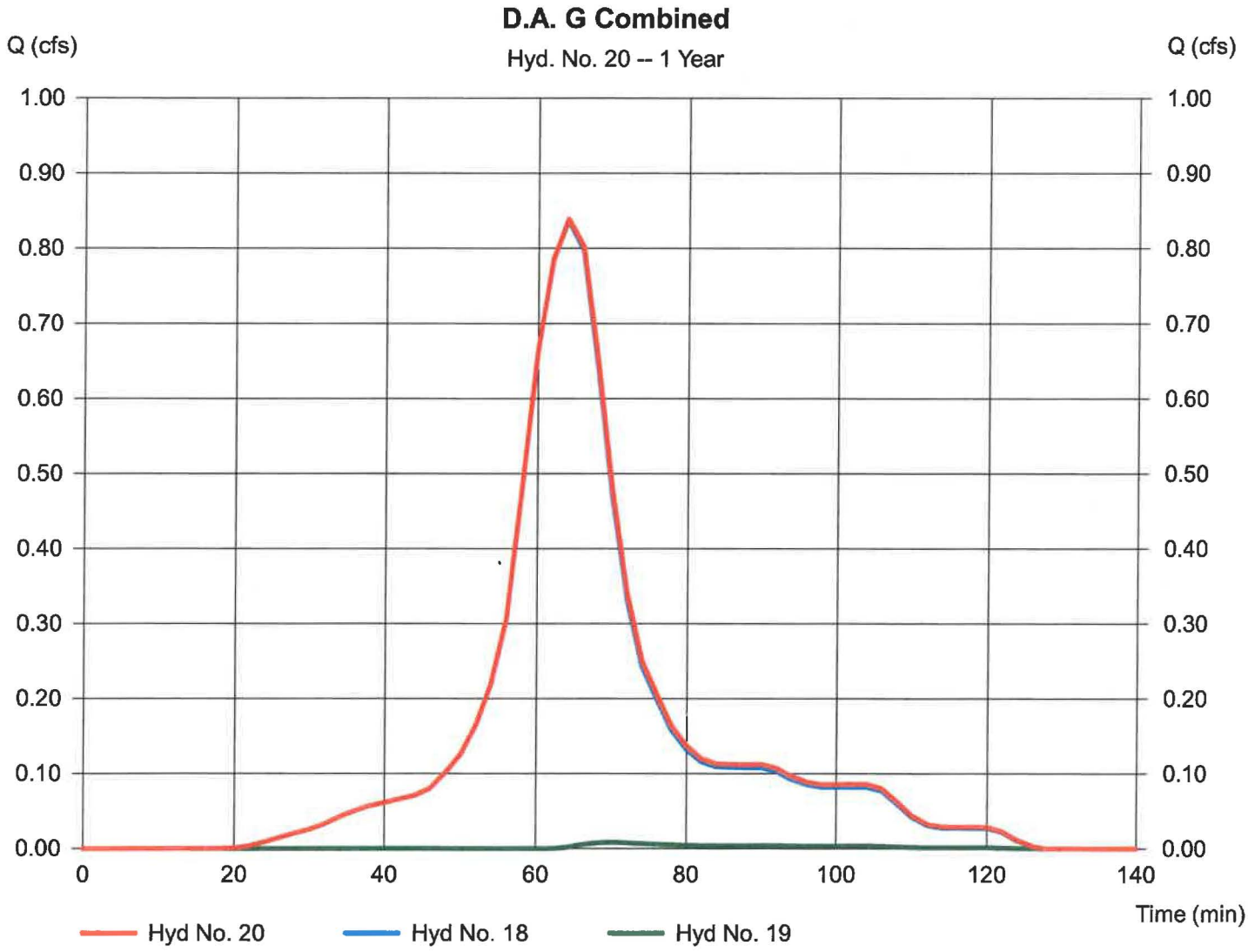
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 20

D.A. G Combined

Hydrograph type	= Combine	Peak discharge	= 0.839 cfs
Storm frequency	= 1 yrs	Time to peak	= 64 min
Time interval	= 2 min	Hyd. volume	= 1,059 cuft
Inflow hyds.	= 18, 19	Contrib. drain. area	= 0.351 ac



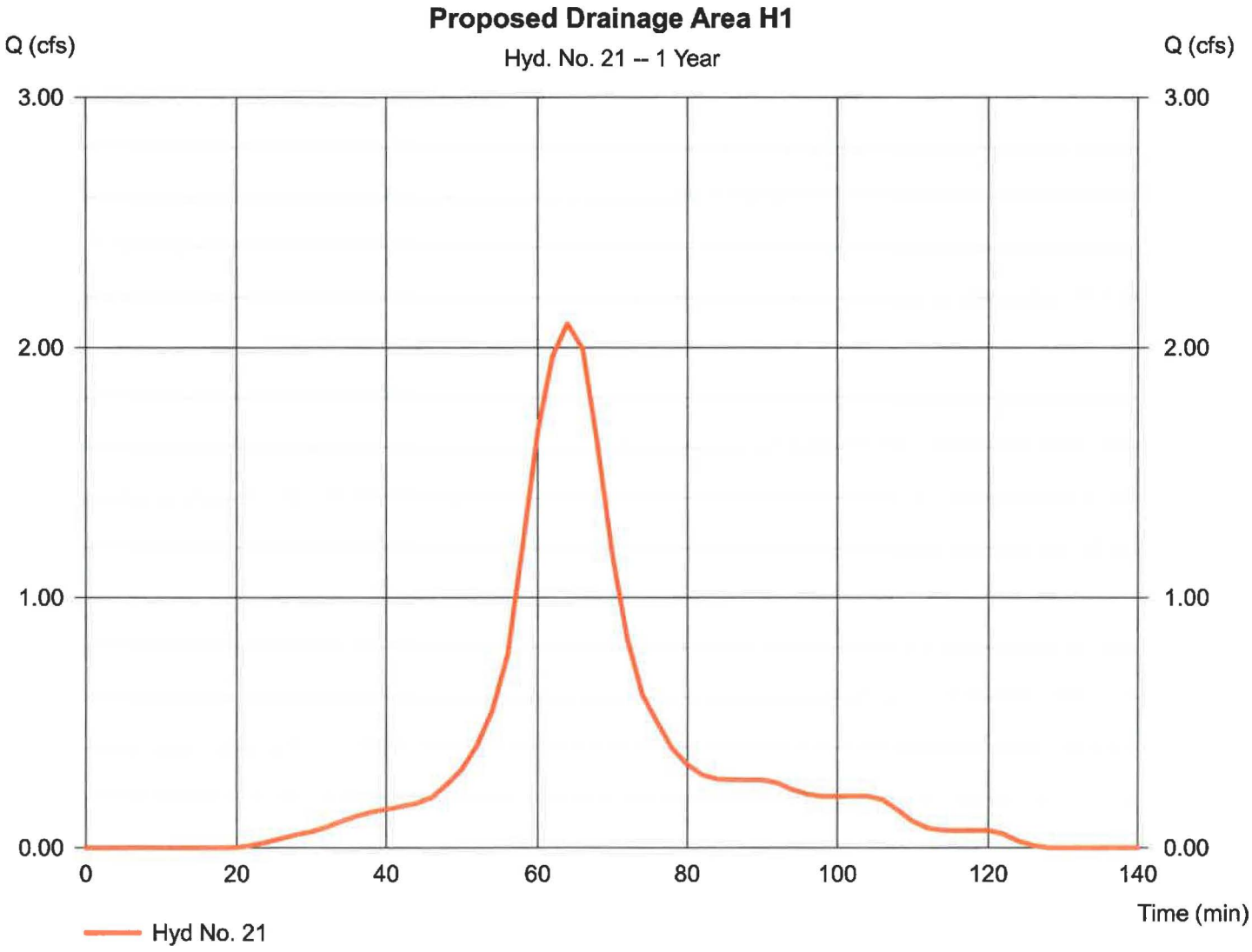
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 21

Proposed Drainage Area H1

Hydrograph type	= SCS Runoff	Peak discharge	= 2.096 cfs
Storm frequency	= 1 yrs	Time to peak	= 64 min
Time interval	= 2 min	Hyd. volume	= 2,616 cuft
Drainage area	= 0.743 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 1.25 in	Distribution	= Custom
Storm duration	= NJWaterQuality2MIN.cds	Shape factor	= 484



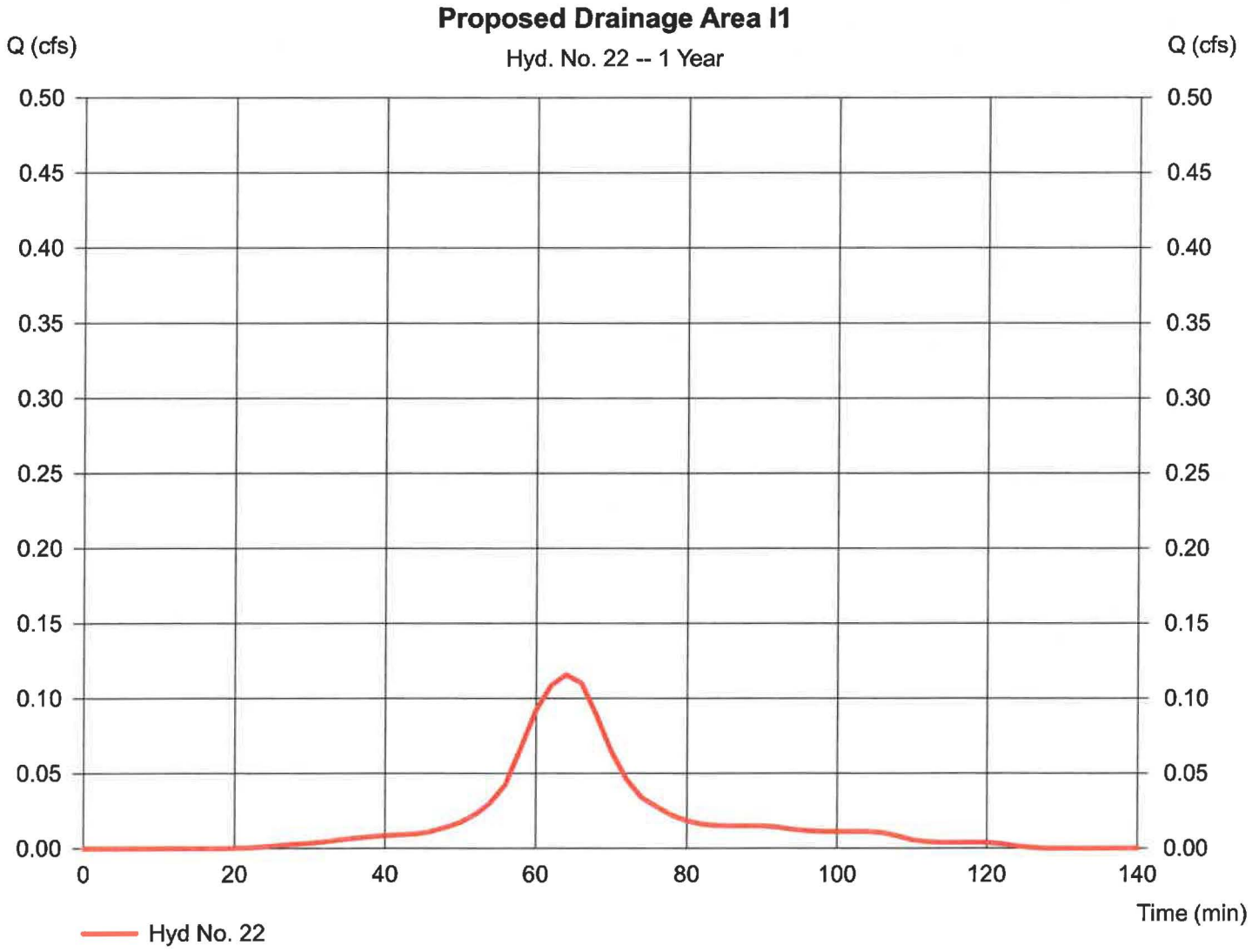
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 22

Proposed Drainage Area I1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.116 cfs
Storm frequency	= 1 yrs	Time to peak	= 64 min
Time interval	= 2 min	Hyd. volume	= 144 cuft
Drainage area	= 0.041 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 1.25 in	Distribution	= Custom
Storm duration	= NJWaterQuality2MIN.cds	Shape factor	= 484



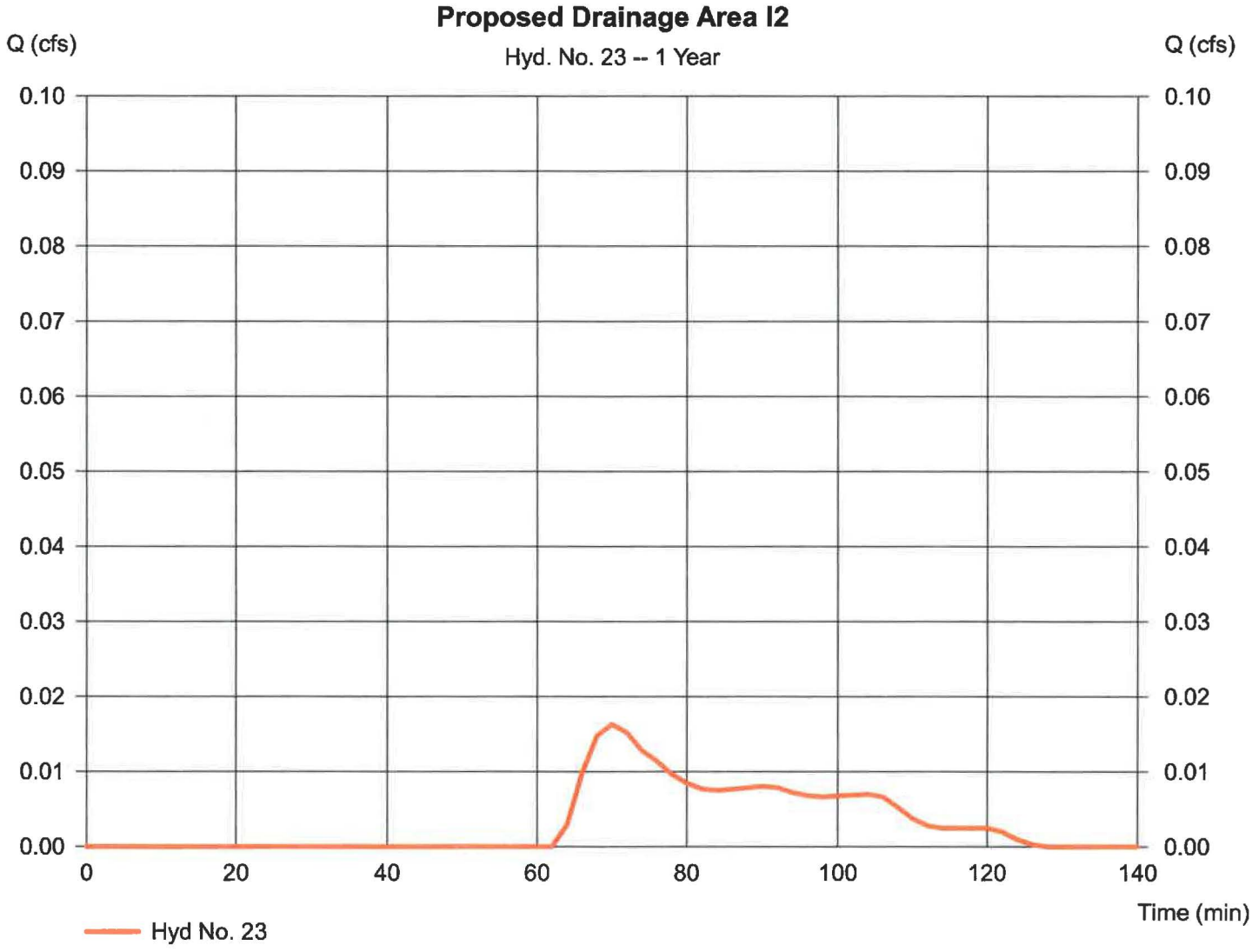
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 23

Proposed Drainage Area I2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.016 cfs
Storm frequency	= 1 yrs	Time to peak	= 70 min
Time interval	= 2 min	Hyd. volume	= 27 cuft
Drainage area	= 0.106 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 1.25 in	Distribution	= Custom
Storm duration	= NJWaterQuality2MIN.cds	Shape factor	= 484



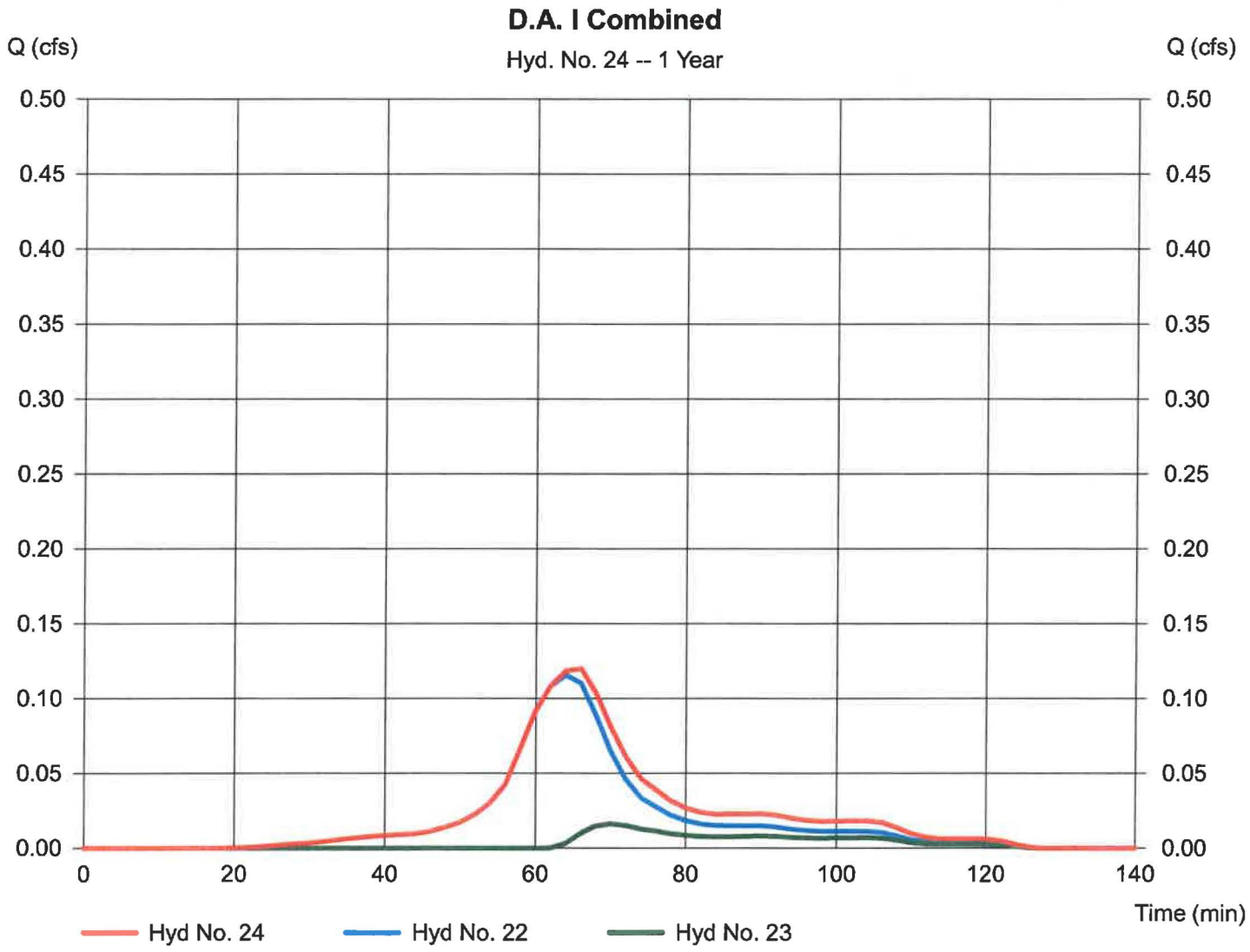
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 24

D.A. I Combined

Hydrograph type	= Combine	Peak discharge	= 0.120 cfs
Storm frequency	= 1 yrs	Time to peak	= 66 min
Time interval	= 2 min	Hyd. volume	= 171 cuft
Inflow hyds.	= 22, 23	Contrib. drain. area	= 0.147 ac



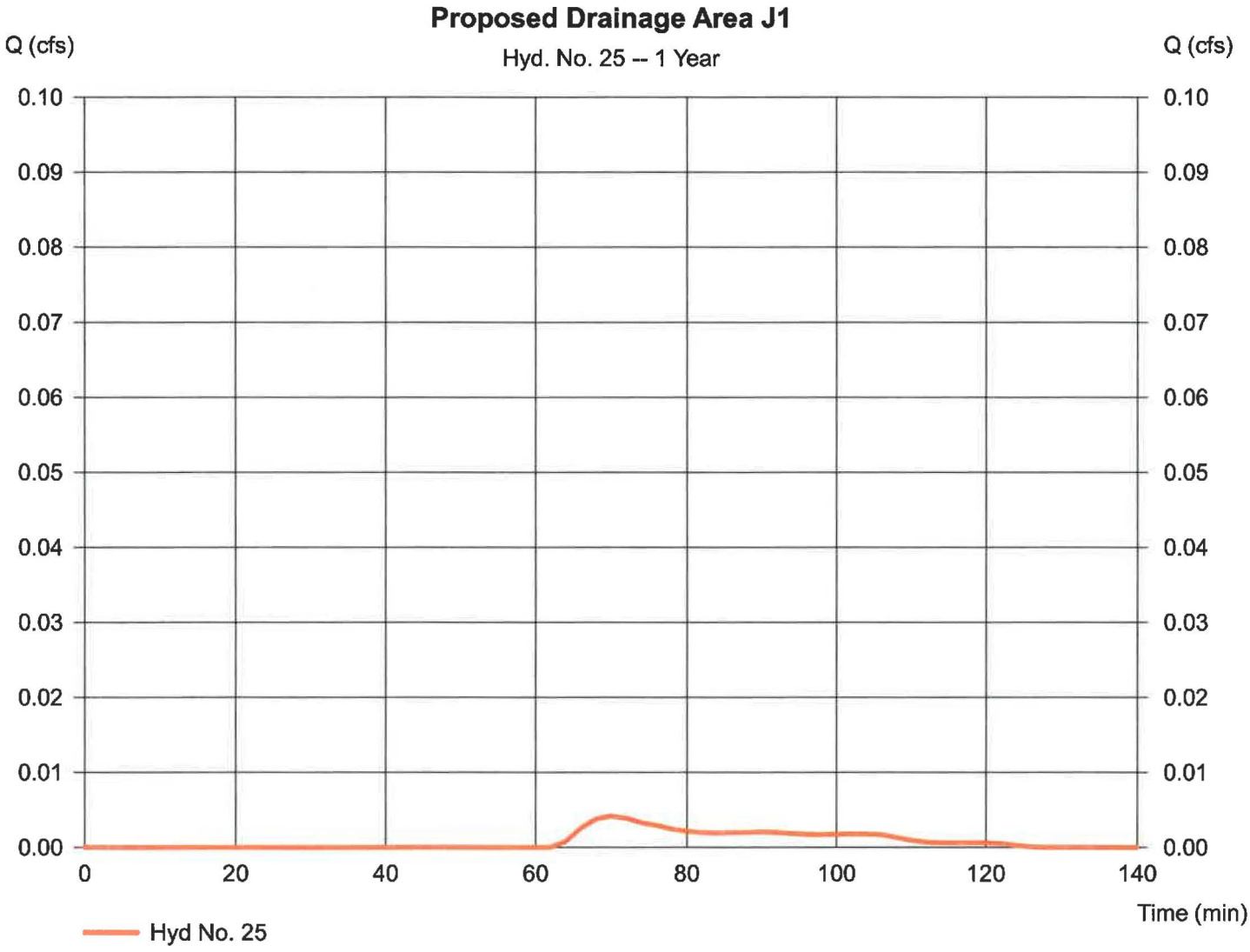
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 25

Proposed Drainage Area J1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.004 cfs
Storm frequency	= 1 yrs	Time to peak	= 70 min
Time interval	= 2 min	Hyd. volume	= 7 cuft
Drainage area	= 0.027 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 1.25 in	Distribution	= Custom
Storm duration	= NJWaterQuality2MIN.cds	Shape factor	= 484



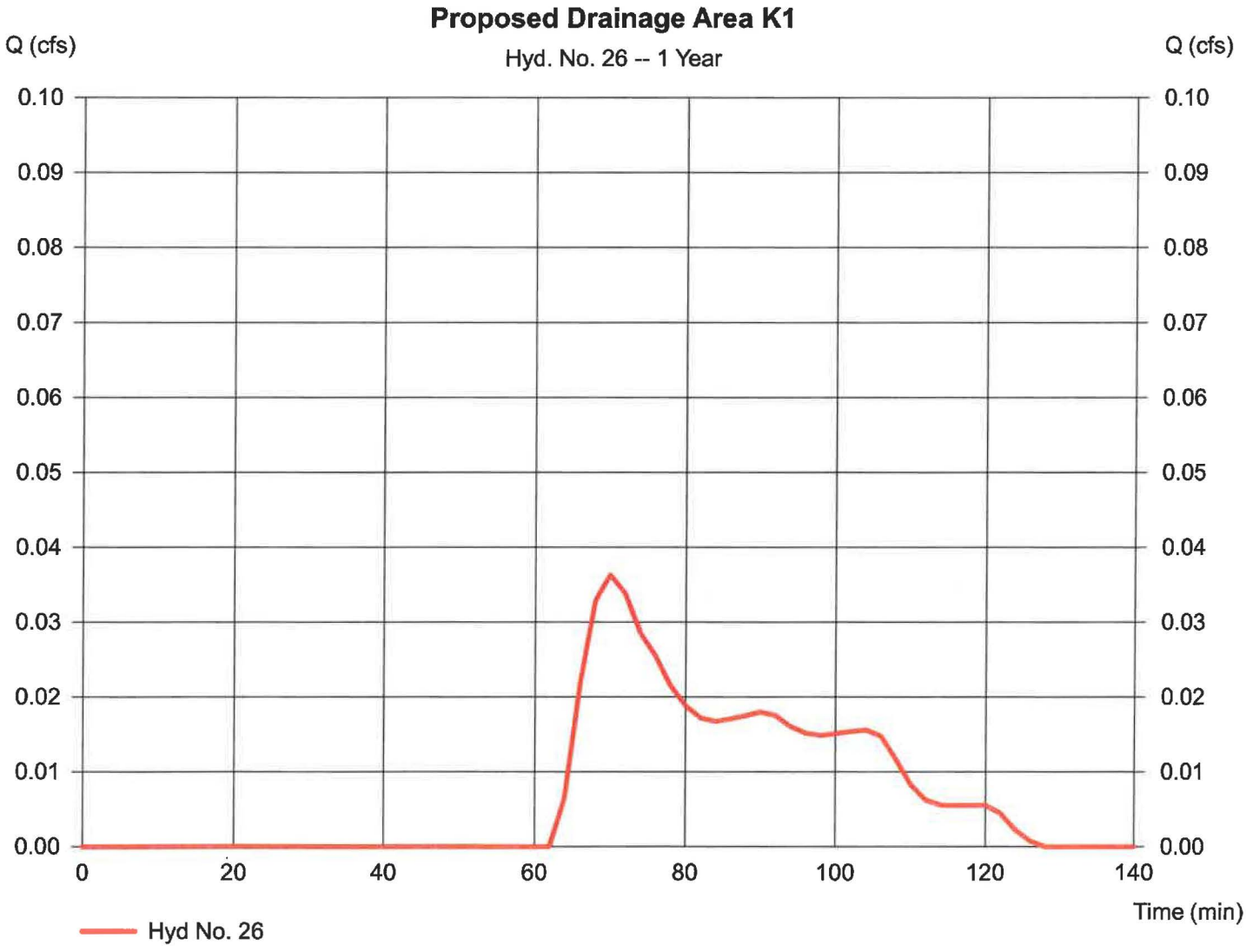
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 26

Proposed Drainage Area K1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.036 cfs
Storm frequency	= 1 yrs	Time to peak	= 70 min
Time interval	= 2 min	Hyd. volume	= 59 cuft
Drainage area	= 0.236 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 1.25 in	Distribution	= Custom
Storm duration	= NJWaterQuality2MIN.cds	Shape factor	= 484



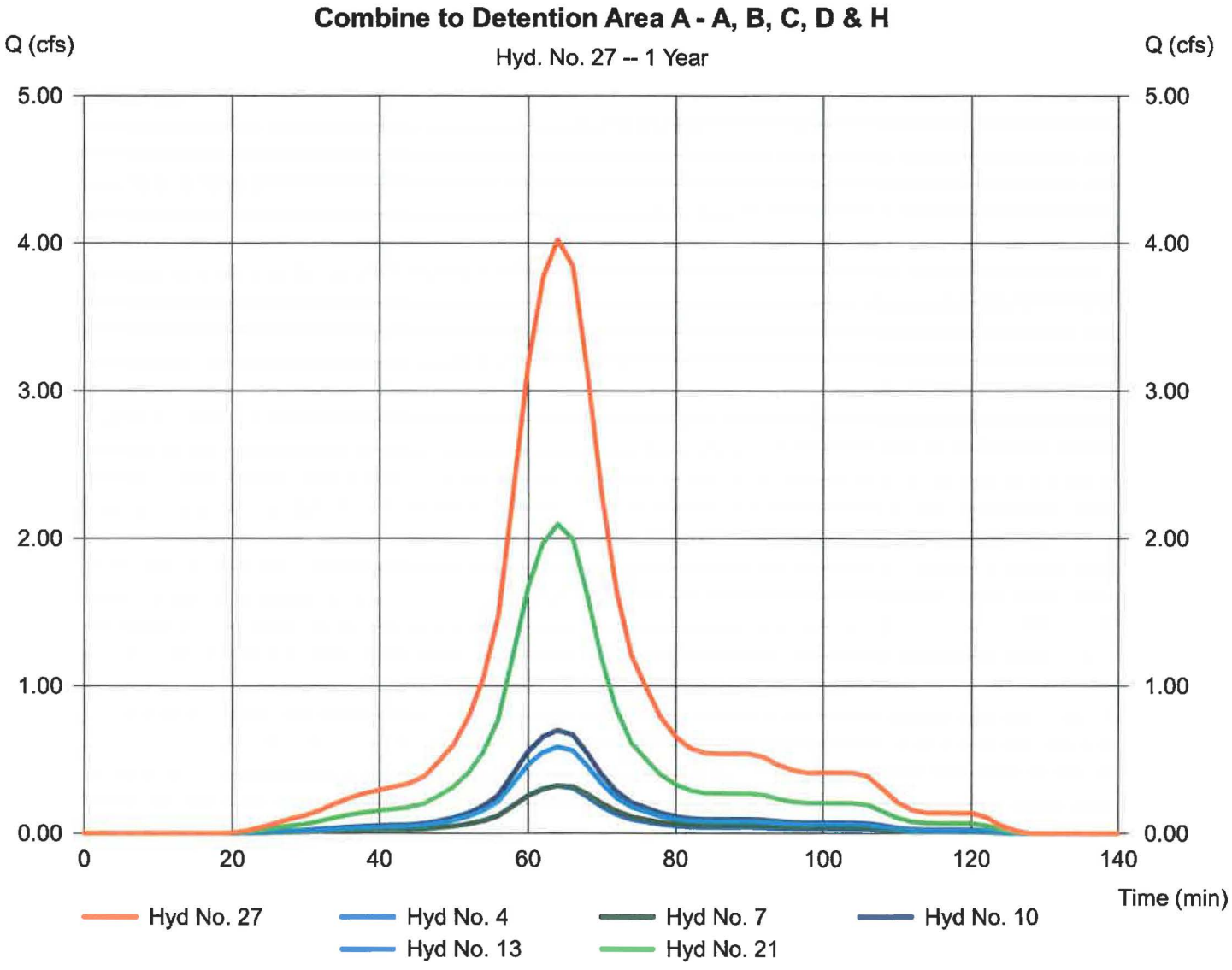
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 27

Combine to Detention Area A - A, B, C, D & H

Hydrograph type	= Combine	Peak discharge	= 4.024 cfs
Storm frequency	= 1 yrs	Time to peak	= 64 min
Time interval	= 2 min	Hyd. volume	= 5,077 cuft
Inflow hyds.	= 4, 7, 10, 13, 21	Contrib. drain. area	= 0.857 ac



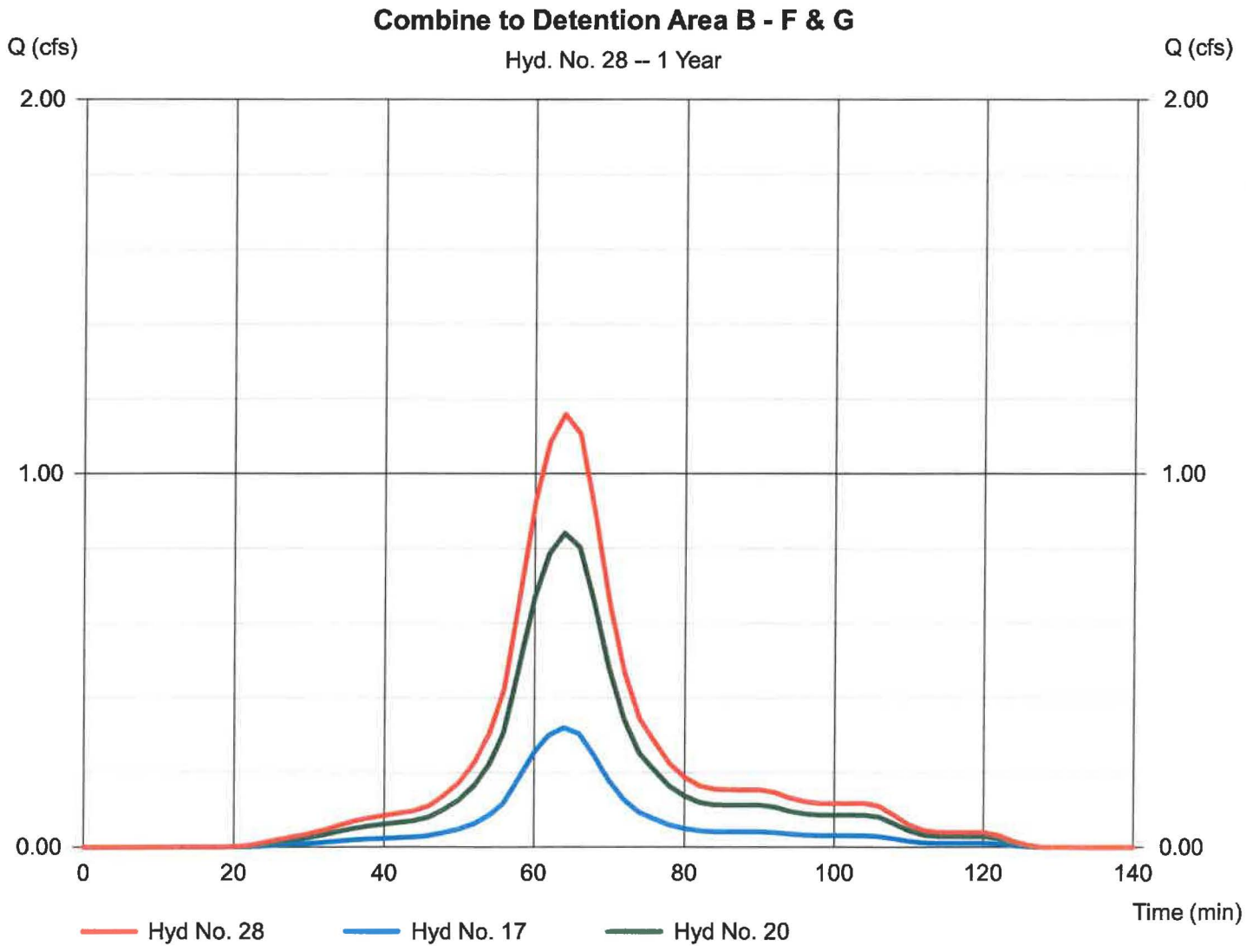
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 28

Combine to Detention Area B - F & G

Hydrograph type	= Combine	Peak discharge	= 1.158 cfs
Storm frequency	= 1 yrs	Time to peak	= 64 min
Time interval	= 2 min	Hyd. volume	= 1,457 cuft
Inflow hyds.	= 17, 20	Contrib. drain. area	= 0.113 ac



Hydrograph Report

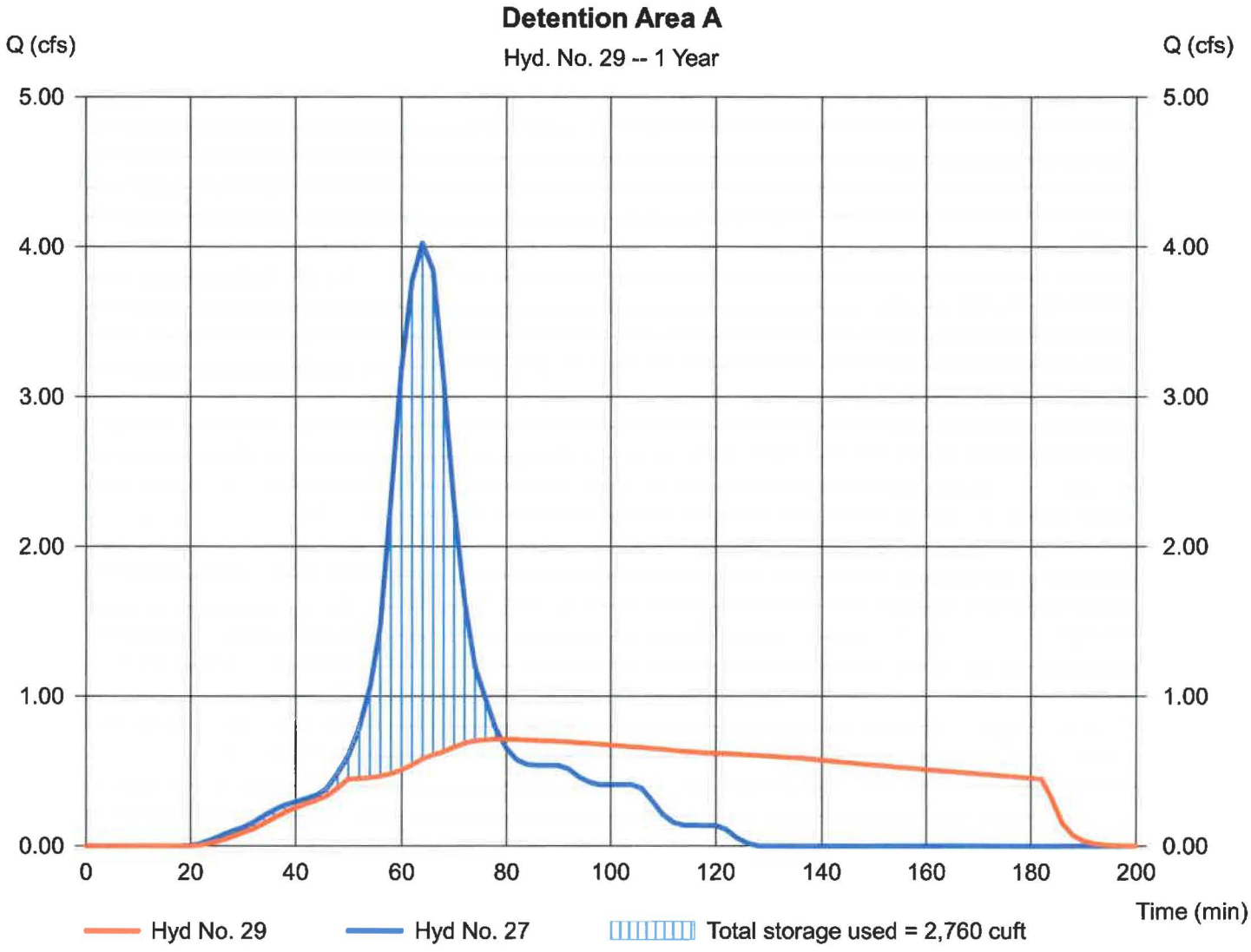
Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 29

Detention Area A

Hydrograph type	= Reservoir	Peak discharge	= 0.712 cfs
Storm frequency	= 1 yrs	Time to peak	= 80 min
Time interval	= 2 min	Hyd. volume	= 5,076 cuft
Inflow hyd. No.	= 27 - Combine to Detention Area A - A, B, C, D, E, V	Max. Elevation	= 625.70 ft
Reservoir name	= Detentioin Area A	Max. Storage	= 2,760 cuft

Storage Indication method used. Outflow includes exfiltration.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Pond No. 1 - Detentioin Area A

Pond Data

UG Chambers - Invert elev. = 625.50 ft, Rise x Span = 2.05 x 4.00 ft, Barrel Len = 7.12 ft, No. Barrels = 140, Slope = 0.00%, Headers = No
Encasement - Invert elev. = 624.50 ft, Width = 4.75 ft, Height = 4.00 ft, Voids = 40.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	624.50	n/a	0	0
0.40	624.90	n/a	758	758
0.80	625.30	n/a	758	1,515
1.20	625.70	n/a	1,236	2,751
1.60	626.10	n/a	1,695	4,446
2.00	626.50	n/a	1,637	6,083
2.40	626.90	n/a	1,531	7,614
2.80	627.30	n/a	1,350	8,963
3.20	627.70	n/a	951	9,914
3.60	628.10	n/a	758	10,672
4.00	628.50	n/a	758	11,430

Culvert / Orifice Structures

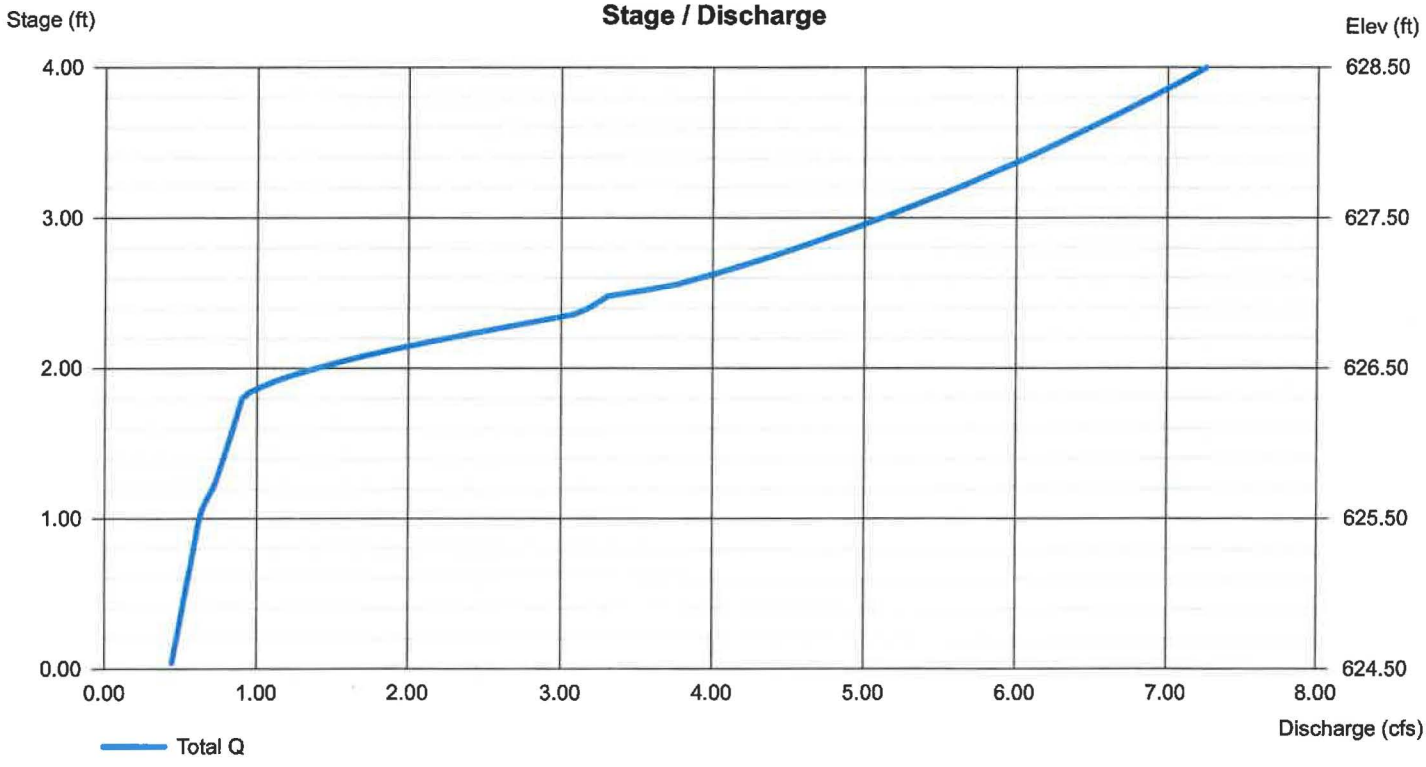
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	2.50	9.00	0.00
Span (in)	= 15.00	2.50	18.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 625.50	625.50	626.30	0.00
Length (ft)	= 10.00	0.50	0.50	0.00
Slope (%)	= 1.00	0.01	0.01	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.00	0.00	0.00	0.00
Crest El. (ft)	= 628.50	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 4.000 (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

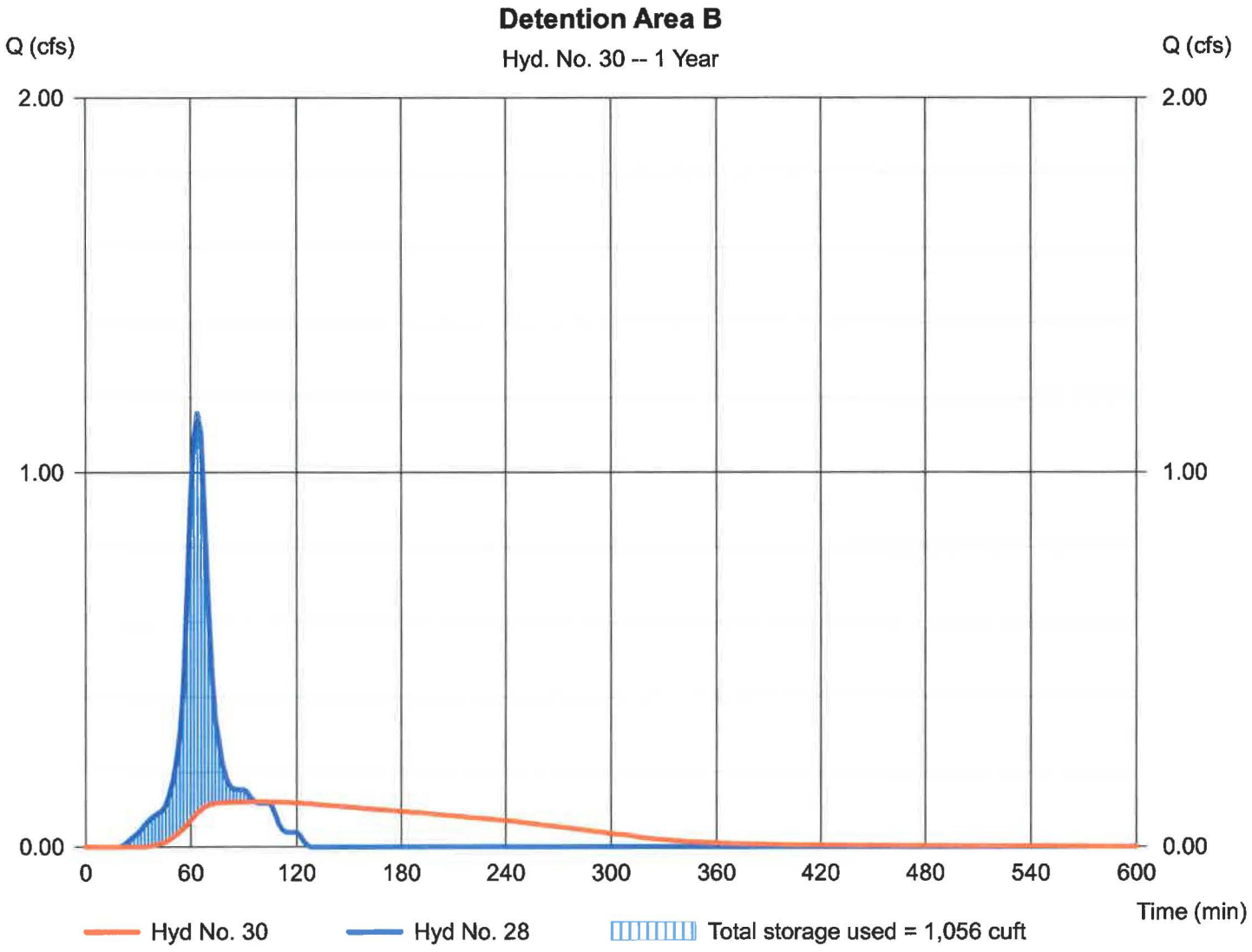
Hydraflow Hydrographs by Intelisolve v9.23 Monday, Sep 28, 2020

Hyd. No. 30

Detention Area B

Hydrograph type	= Reservoir	Peak discharge	= 0.120 cfs
Storm frequency	= 1 yrs	Time to peak	= 96 min
Time interval	= 2 min	Hyd. volume	= 1,432 cuft
Inflow hyd. No.	= 28 - Combine to Detention Area B - F & G	Max. Elevation	= 625.43 ft
Reservoir name	= Detentiion Area B	Max. Storage	= 1,056 cuft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Pond No. 2 - Detentiion Area B

Pond Data

UG Chambers - Invert elev. = 624.74 ft, Rise x Span = 1.50 x 1.50 ft, Barrel Len = 20.00 ft, No. Barrels = 66, Slope = 0.00%, Headers = No

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	624.74	n/a	0	0
0.15	624.89	n/a	121	121
0.30	625.04	n/a	211	332
0.45	625.19	n/a	257	589
0.60	625.34	n/a	283	872
0.75	625.49	n/a	295	1,167
0.90	625.64	n/a	295	1,462
1.05	625.79	n/a	283	1,745
1.20	625.94	n/a	256	2,001
1.35	626.09	n/a	211	2,212
1.50	626.24	n/a	121	2,333

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	2.50	Inactive	0.00
Span (in)	= 15.00	2.50	18.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 624.74	624.75	625.25	0.00
Length (ft)	= 115.00	0.33	0.33	0.00
Slope (%)	= 0.50	0.01	0.01	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

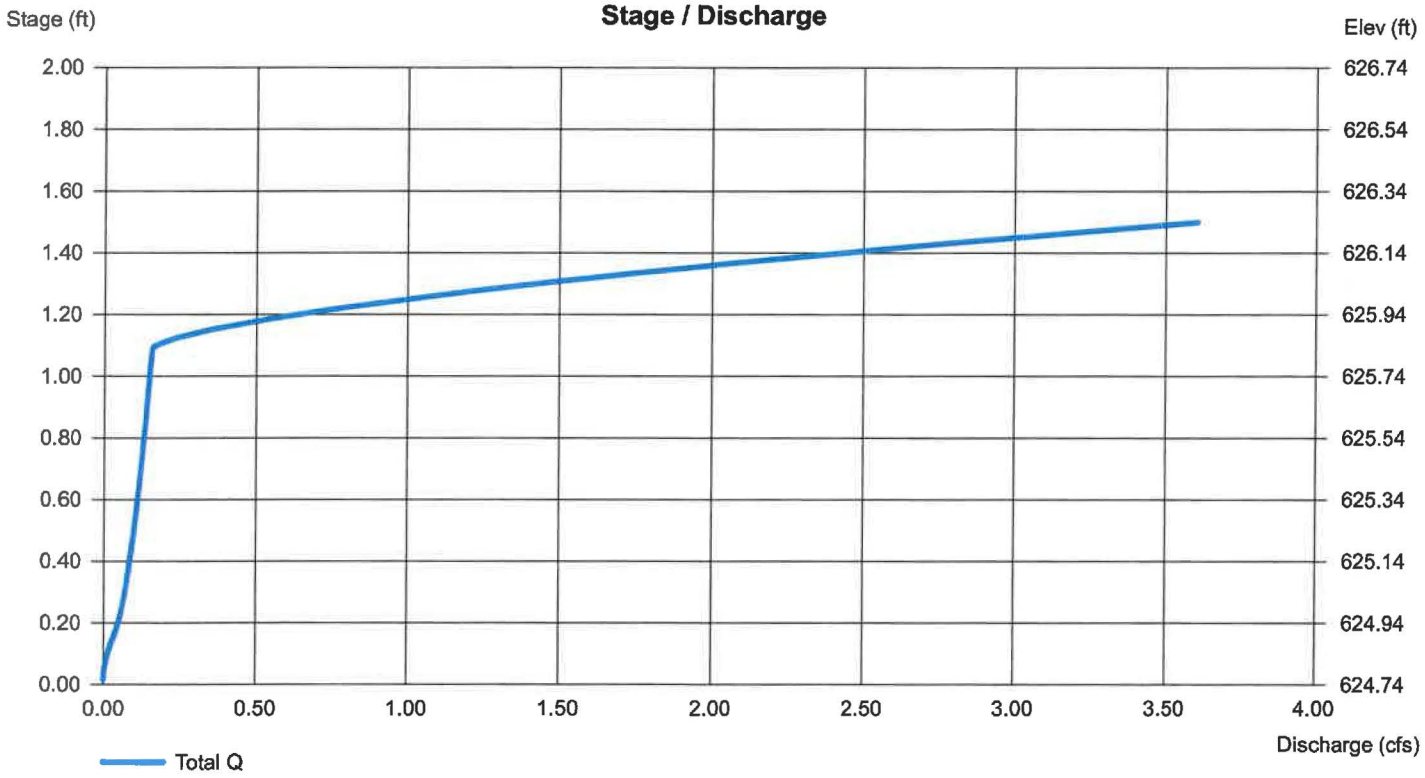
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 4.00	0.00	0.00	0.00
Crest El. (ft)	= 625.83	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Contour)

TW Elev. (ft) = 0.00

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



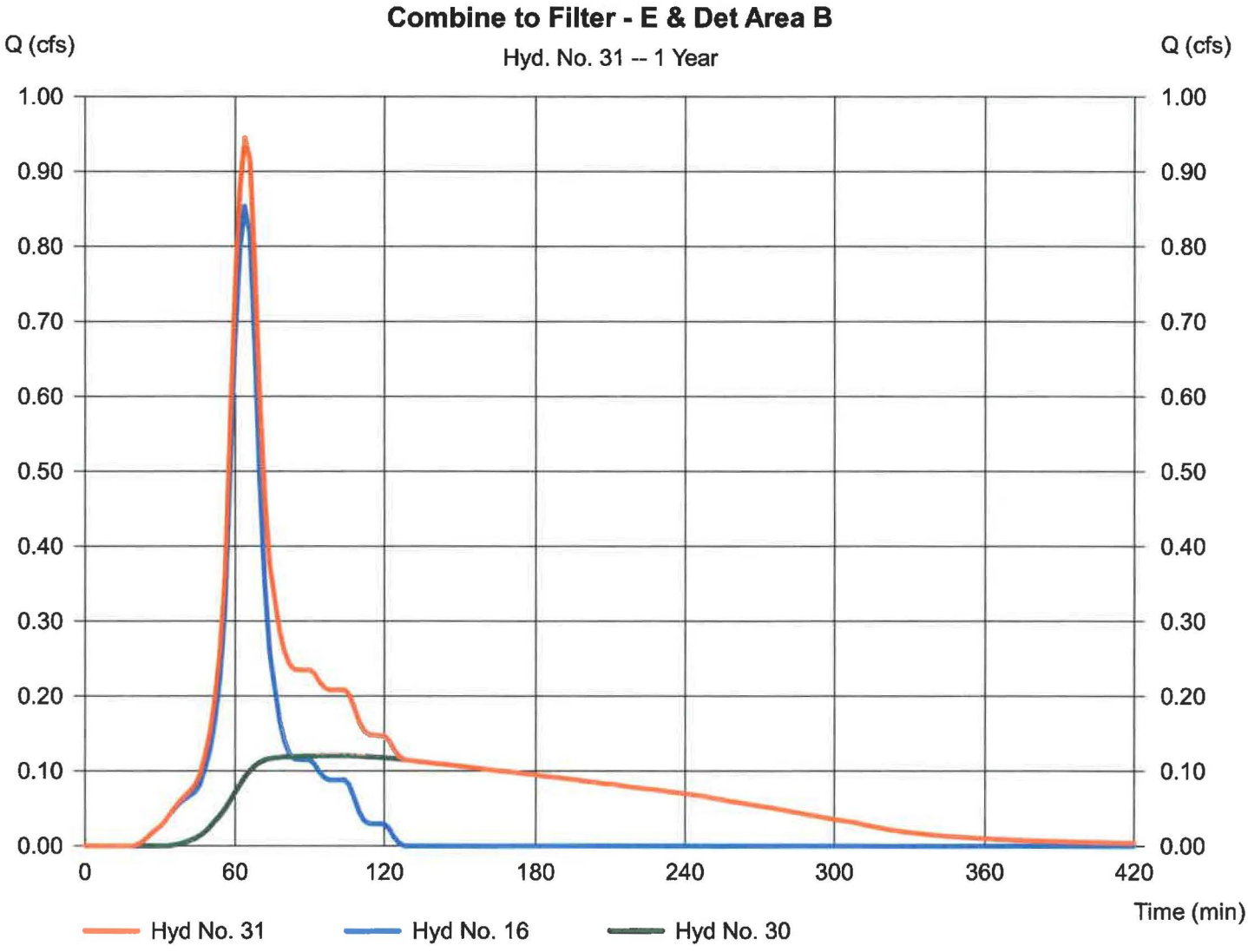
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 31

Combine to Filter - E & Det Area B

Hydrograph type	= Combine	Peak discharge	= 0.945 cfs
Storm frequency	= 1 yrs	Time to peak	= 64 min
Time interval	= 2 min	Hyd. volume	= 2,512 cuft
Inflow hyds.	= 16, 30	Contrib. drain. area	= 0.000 ac



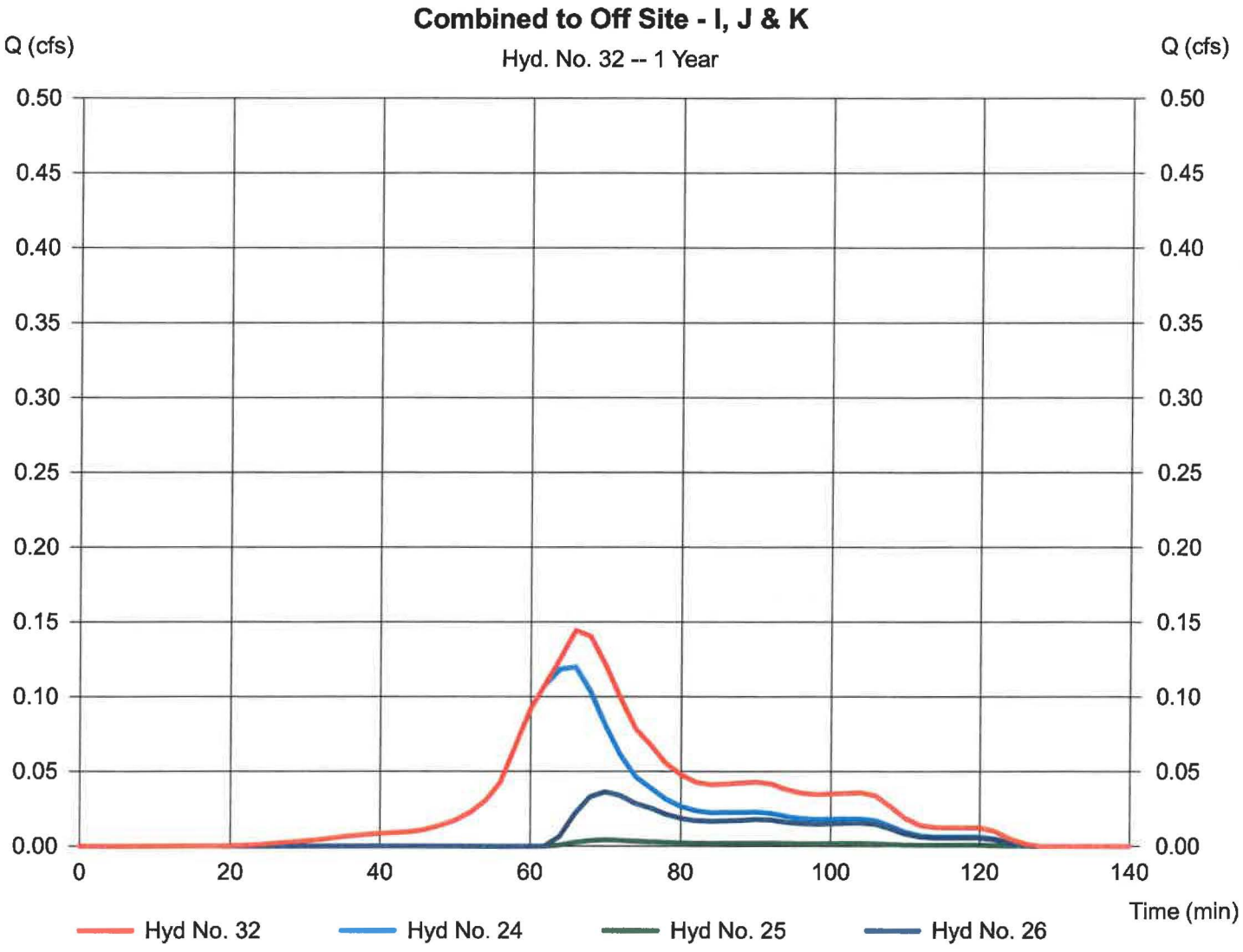
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 32

Combined to Off Site - I, J & K

Hydrograph type	= Combine	Peak discharge	= 0.144 cfs
Storm frequency	= 1 yrs	Time to peak	= 66 min
Time interval	= 2 min	Hyd. volume	= 237 cuft
Inflow hyds.	= 24, 25, 26	Contrib. drain. area	= 0.263 ac



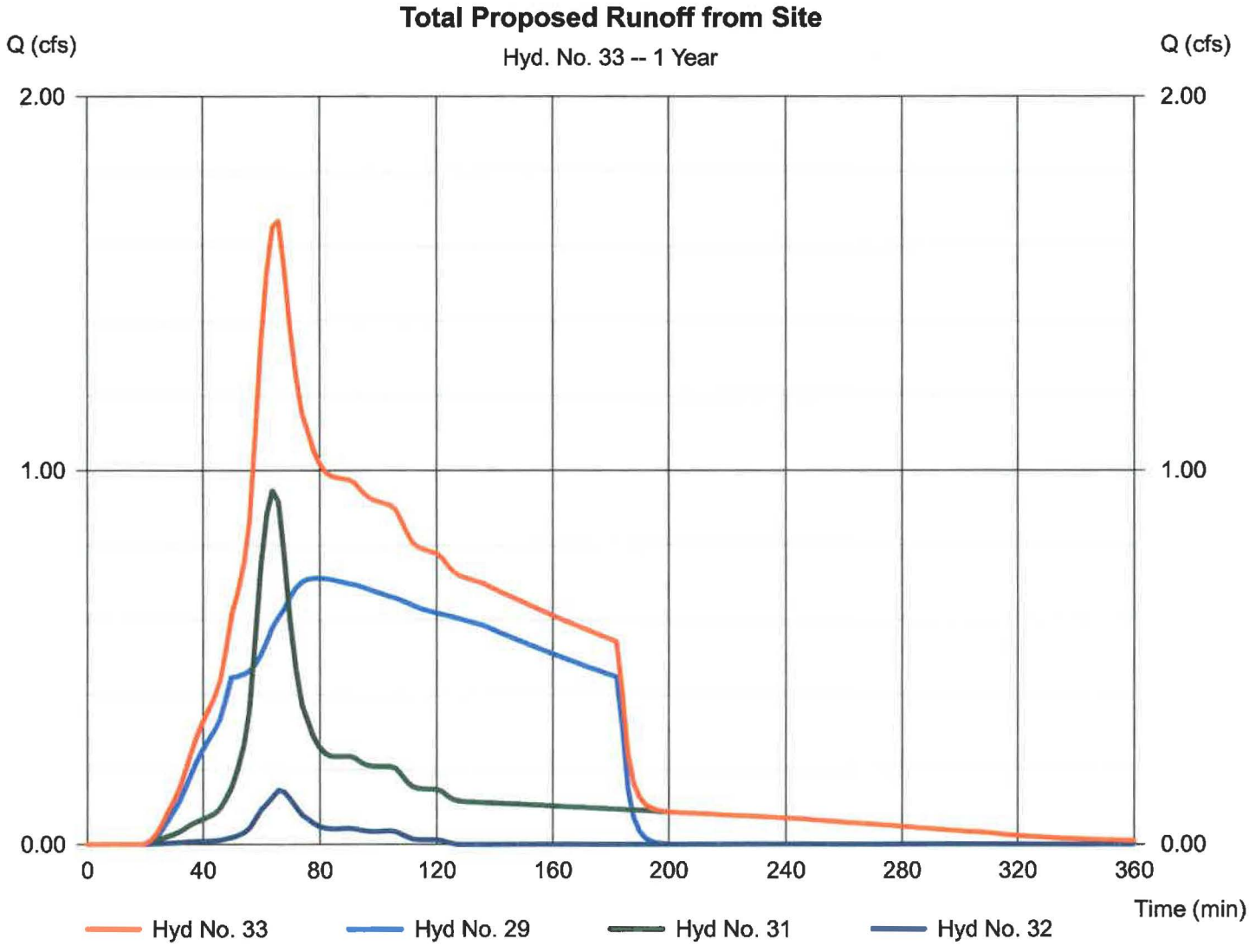
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 33

Total Proposed Runoff from Site

Hydrograph type	= Combine	Peak discharge	= 1.668 cfs
Storm frequency	= 1 yrs	Time to peak	= 66 min
Time interval	= 2 min	Hyd. volume	= 7,825 cuft
Inflow hyds.	= 29, 31, 32	Contrib. drain. area	= 0.000 ac



TIME OF CONCENTRATION CALCULATIONS

TR55 Tc Worksheet

Hyd. No. 1

Existing Drainage Area A

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.011		0.011		0.011		
Flow length (ft)	=	150.0		0.0		0.0		
Two-year 24-hr precip. (in)	=	3.54		0.00		0.00		
Land slope (%)	=	1.30		0.00		0.00		
Travel Time (min)	**=**	**1.89**	**+**	**0.00**	**+**	**0.00**	**=**	**1.89**
Shallow Concentrated Flow								
Flow length (ft)	=	205.00		115.00		315.00		
Watercourse slope (%)	=	2.30		1.30		1.80		
Surface description	=	Unpaved		Paved		Unpaved		
Average velocity (ft/s)	=	2.45		2.32		2.16		
Travel Time (min)	**=**	**1.40**	**+**	**0.83**	**+**	**2.43**	**=**	**4.65**
Channel Flow								
X sectional flow area (sqft)	=	0.00		0.00		0.00		
Wetted perimeter (ft)	=	0.00		0.00		0.00		
Channel slope (%)	=	0.00		0.00		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	0.00		0.00		0.00		
Flow length (ft)	=	0.0		0.0		0.0		
Travel Time (min)	**=**	**0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 6.54 min

GROUNDWATER RECHARGE

GROUNDWATER RECHARGE

The groundwater recharge requirement is met based on the increase of stormwater runoff volume from pre-construction to post-construction for the two year storm event is infiltrated as stated within NJAC 7:8-5.4(a)2i(2).

The existing stormwater runoff volume for the two year storm event is 22,813 cubic feet as shown within Hydrograph Number 3.

Hydrograph 33, modified to extract infiltration from the hydrograph, reflects the volume of 11,293 cubic feet of stormwater runoff from the project.

Hydrograph 33, without extracting infiltration, reflects the volume of 27,675 cubic feet of stormwater runoff from the project without infiltration.

The amount of stormwater runoff being infiltrated is;

27,675 cu. ft. (total generated volume) – 11,293 cu. ft. (controlled volume)
= 16,382 cubic feet being infiltrated

The increase of stormwater runoff volume from pre-construction to post-construction is:

27,675 cu. ft. (total generated volume) – 22,813 cu. ft. (exist. conditions volume)
= 4,862 cubic feet increase pre- to post-construction

The amount being infiltrated is 11,293 cubic feet which is greater than the volume of pre-construction to post-construction of 4,862 cubic feet, therefore, the groundwater recharge requirement is being met.

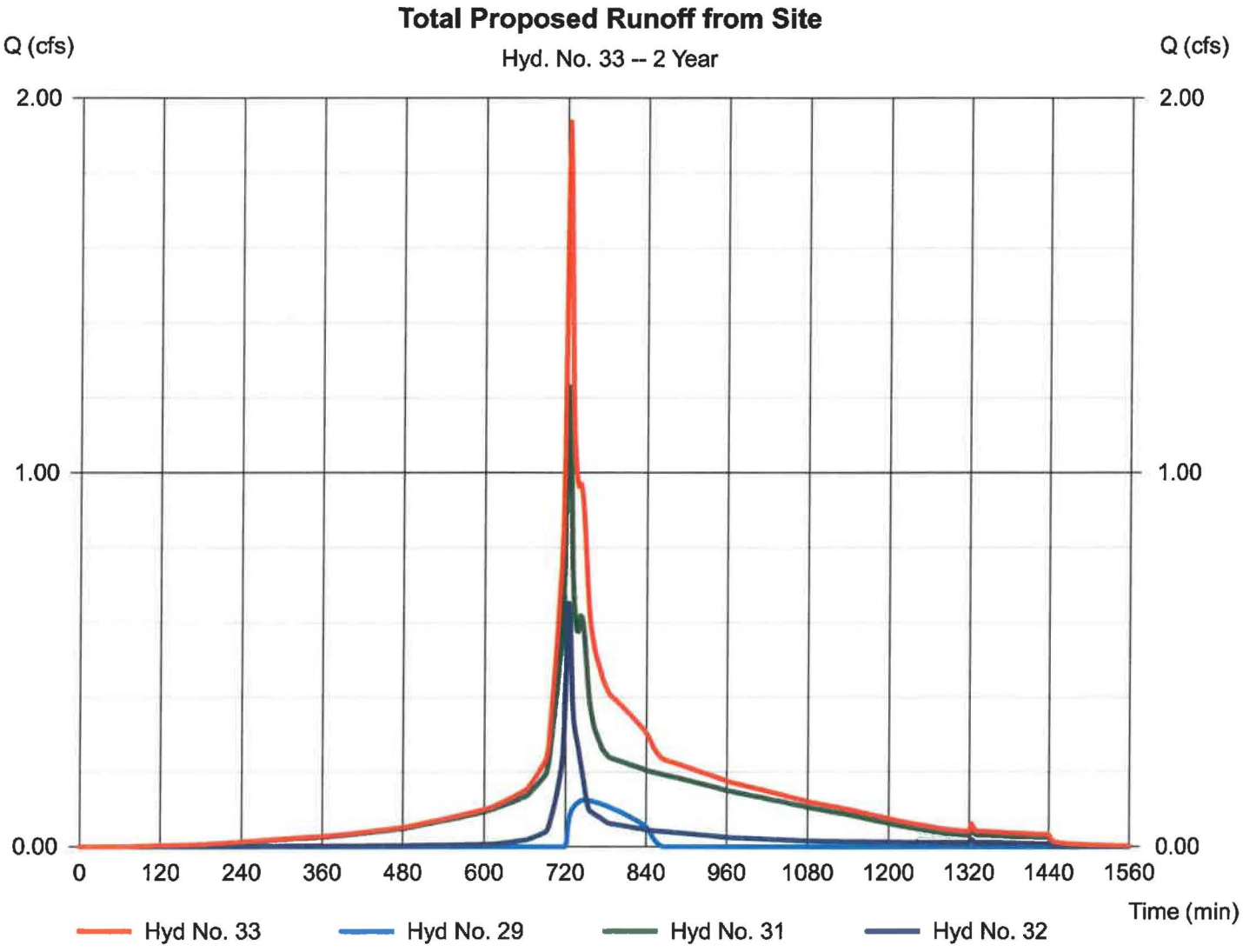
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23 — Monday, Sep 28, 2020

Hyd. No. 33

Total Proposed Runoff from Site

Hydrograph type	= Combine	Peak discharge	= 1.937 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 11,293 cuft
Inflow hyds.	= 29, 31, 32	Contrib. drain. area	= 0.000 ac



SOILS

Soil Map—Morris County, New Jersey

Map Scale: 1:1,700 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

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

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

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

Soil Survey Area: Morris County, New Jersey
Survey Area Data: Version 12, Oct 6, 2017

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

Date(s) aerial images were photographed: Mar 31, 2014—Apr 2, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
RkgBb	Ridgebury loam, 0 to 8 percent slopes, very stony	2.5	43.2%
UR	Urban land	2.9	50.0%
USROCC	Urban land-Rockaway complex, 3 to 15 percent slopes	0.4	6.8%
Totals for Area of Interest		**5.9**	**100.0%**

Morris County, New Jersey

RkgBb—Ridgebury loam, 0 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: b0nb
Elevation: 0 to 2,100 feet
Mean annual precipitation: 30 to 64 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 131 to 178 days
Farmland classification: Not prime farmland

Map Unit Composition

Ridgebury, very stony, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ridgebury, Very Stony

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy till derived from granite and/or gneiss and/or schist

Typical profile

A - 0 to 4 inches: loam
AB - 4 to 9 inches: loam
Bg - 9 to 14 inches: gravelly sandy loam
Bx - 14 to 31 inches: gravelly sandy loam
Cx - 31 to 36 inches: gravelly sandy loam
C - 36 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 3 percent
Percent of area covered with surface fragments: 1.6 percent
Depth to restrictive feature: About 14 inches to fragipan
Natural drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Hydric soil rating: Yes

Minor Components

Hibernia, very stony
Percent of map unit: 5 percent
Landform: Ground moraines
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Whitman, very stony
Percent of map unit: 5 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Morris County, New Jersey
Survey Area Data: Version 12, Oct 6, 2017

Morris County, New Jersey

USROCC—Urban land-Rockaway complex, 3 to 15 percent slopes

Map Unit Setting

National map unit symbol: 13q0f
Mean annual precipitation: 30 to 64 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 131 to 178 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 55 percent
Rockaway and similar soils: 35 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Ground moraines
Landform position (three-dimensional): Tread
Down-slope shape: Linear, convex
Across-slope shape: Linear
Parent material: Surface covered by pavement, concrete, buildings, and other structures underlain by disturbed and natural soil material

Typical profile

C - 0 to 60 inches: variable

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: Unranked

Description of Rockaway

Setting

Landform: Ground moraines
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Coarse-loamy till derived from granite and gneiss

Typical profile

A - 0 to 4 inches: sandy loam
AB - 4 to 8 inches: sandy loam
Bw - 8 to 20 inches: gravelly sandy loam
Bx - 20 to 36 inches: gravelly sandy loam
Cx1 - 36 to 40 inches: gravelly sandy loam
C2 - 40 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: 18 to 30 inches to fragipan
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 24 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Netcong

Percent of map unit: 5 percent
Landform: Ground moraines
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Hibernia, very stony

Percent of map unit: 5 percent
Landform: Ground moraines
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Data Source Information

Soil Survey Area: Morris County, New Jersey
Survey Area Data: Version 12, Oct 6, 2017

Morris County, New Jersey

UR—Urban land

Map Unit Setting

National map unit symbol: b0nx
Elevation: 0 to 170 feet
Mean annual precipitation: 30 to 64 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 131 to 178 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Parent material: Surface covered by pavement, concrete, buildings, and other structures underlain by disturbed and natural soil material

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: Unranked

Minor Components

Udorthents

Percent of map unit: 5 percent
Landform: Low hills
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Data Source Information

Soil Survey Area: Morris County, New Jersey
Survey Area Data: Version 12, Oct 6, 2017