Stormwater Management Facilities Report

C3 Industries
S. Cool Springs Road
O'Fallon, Missouri

STATE OF MISSOURI
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PROFESSIONAL ENGINEER

7-29-21

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Cochran Project No. M20-8003A

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DETENTION CALCULATIONS
FOR BMP #1
FOR
S. COOL SPRINGS ROAD
O'FALLON, MISSOURI
JULY 26, 2021
PROJECT NO. M20-8003A

The following detention calculations have been performed for final design for S. Cool Springs Road in O'Fallon, Missouri. Said calculations were performed in accordance with the City of O'Fallon Standards. All calculations and design was performed with the aid of AutoCAD Civil 3D Software. Existing, proposed, and routed hydrographs for the 2-year, 15-year, 25-year, 100-year storms are attached.

<u>BMP #1 CALCULATIONS SUMMARY:</u>
A summary of the detention calculations is shown below. All detention calculations, including release rates and volumes, are included in this report. Drainage area maps are also included at the end of this report.

Year of Storm Frequency	Existing Peak Runoff (cfs) [A]	Proposed Peak Runoff (cfs) [B]	**Required Detention (cfs) [B] – [A]**	Tributary/Runoff to Basin (cfs) [C]	Basin Peak Release Rate (cfs) [D]	**Actual Detention (cfs) [C] – [D]**
2	4.32	15.25	**10.93**	12.84	**0.021**	**12.819**
15	6.72	23.45	**16.73**	19.81	**0.027**	**19.783**
25	7.10	24.79	**17.69**	20.94	**0.028**	**20.912**
100	8.28	29.27	**20.99**	24.62	**0.030**	**24.590**

The 100-year storm, with low flow blocked reaches a peak elevation of 471.94 in the basin; the basin berm elevation is 473.00 providing 1.06' freeboard.

Storm Water Handling for S. Cool Springs Road will be provided in BMP #1 at the eastern portion of the property. The detention basin was designed so that the existing flow of the site would not be exceeded by the proposed flow of the site. Due to programming of the AutoCAD Civil 3D Software, the heading and title for the 15-year event is listed as the 3-year event on all hydrograph sheets. All necessary calculations are attached.

Water quality for the site is accomplished by utilizing extended detention for BMP #1. The rainfall used for the extended detention was 1.14 inches with a detention time of 27.66 hours.

2-YEAR STORM

Existing Onsite Runoff (2-year storm)

Total Development = 5.57 acres
Existing Runoff (cfs) = 4.32 cfs

Proposed On-Site Runoff (2-year storm)

Total Development = 5.57 acres
Proposed Runoff (cfs) = 15.25 cfs

Tributary Runoff to Basin (2-year storm)

Total On-Site Development = 5.57 acres
Proposed "C" Factor= Tributary area is made of subareas which each have separate runoff coefficients, see subarea hydrograph for specific runoff coefficient.
Proposed ToC = Tributary area is made of subareas which each have separate time of concentrations, see subarea hydrograph for specific time of concentrations.
Proposed Runoff (cfs) = 12.84 cfs

Required Detention (2-year storm)

Required Detained Runoff = Developed Runoff – Undeveloped Runoff
Required Detained Runoff = **10.93 cfs**

Actual Detained Run-off = Tributary run-off to basin – Peak detention basin release rate
Actual Detained Run-off = 12.84 cfs – 0.021 cfs = 12.819 cfs
Actual High Water Elevation = 470.32 ft

Total Stored Volume = 2,307 ft^3

Detention Basin Volume = 44,275 ft^3 (To elevation 473.00, not including 1 ft of freeboard)

15-YEAR STORM

Existing Onsite Runoff (15-year storm)

Total Development = 5.57 acres
Existing Runoff (cfs) = 6.72 cfs

Proposed On-Site Runoff (15-year storm)

Total Development = 5.57 acres
Proposed Runoff (cfs) = 23.45 cfs

Tributary Runoff to Basin (15-year storm)

Total On-Site Development = 5.57 acres
Proposed "C" Factor= Tributary area is made of subareas which each have separate runoff coefficients, see subarea hydrograph for specific runoff coefficient.
Proposed ToC = Tributary area is made of subareas which each have separate time of concentrations, see subarea hydrograph for specific time of concentrations.
Proposed Runoff (cfs) = 19.81 cfs

Required Detention (15-year storm)

Required Detained Runoff = Developed Runoff – Undeveloped Runoff
Required Detained Runoff = **16.73 cfs**

Actual Detained Run-off = Tributary run-off to basin – Peak detention basin release rate
Actual Detained Run-off = 19.81 cfs – 0.027 cfs = 19.783 cfs
Actual High Water Elevation = 470.49 ft

Total Stored Volume = 3,561 ft^3

Detention Basin Volume = 44,275 ft^3 (To elevation 473.00, not including 1 ft of freeboard)

25-YEAR STORM

Existing Onsite Runoff (25-year storm)

Total Development = 5.57 acres
Existing Runoff (cfs) = 7.10 cfs

Proposed Runoff (25-year storm)

Total Development = 5.57 acres
Proposed Runoff (cfs) = 24.79 cfs

Tributary Runoff to Basin (25-year storm)

Total On-Site Development = 5.57 acres
Proposed "C" Factor= Tributary area is made of subareas which each have separate runoff coefficients, see subarea hydrograph for specific runoff coefficient.
Proposed ToC = Tributary area is made of subareas which each have separate time of concentrations, see subarea hydrograph for specific time of concentrations.
Proposed Runoff (cfs) = 20.94 cfs

Required Detention (25-year storm)

Required Detained Runoff = Developed Runoff – Undeveloped Runoff
Required Detained Runoff = **17.69 cfs**

Actual Detained Run-off = Tributary run-off to basin – Peak detention basin release rate
Actual Detained Run-off = 20.94 – 0.028 cfs = 20.912 cfs
Actual High Water Elevation = 470.52 ft

Total Stored Volume = 3,763 ft^3

Detention Basin Volume = 44,275 ft^3 (To elevation 473.00, not including 1 ft of freeboard)

100-YEAR STORM

Existing Onsite Runoff (100-year storm)

Total Development = 5.57 acres
Existing Runoff (cfs) = 8.28 cfs

Proposed Runoff (100-year storm)

Total Development = 5.57 acres
Proposed Runoff (cfs) = 29.27 cfs

Tributary Runoff to Basin (100-year storm)

Total On-Site Development = 5.57 acres
Proposed "C" Factor= Tributary area is made of subareas which each have separate runoff coefficients, see subarea hydrograph for specific runoff coefficient.
Proposed ToC = Tributary area is made of subareas which each have separate time of concentrations, see subarea hydrograph for specific time of concentrations.
Proposed Runoff (cfs) = 24.62 cfs

Required Detention (100-year storm)

Required Detained Runoff = Developed Runoff – Undeveloped Runoff
Required Detained Runoff = **20.99 cfs**

Actual Detained Run-off = Tributary run-off to basin – Peak detention basin release rate
Actual Detained Run-off = 24.62 cfs – 0.030 cfs = 24.590 cfs
Actual High Water Elevation = 470.50 ft

Total Stored Volume = 4,426 ft^3

Detention Basin Volume = 44,275 ft^3 (To elevation 473.00, not including 1 ft of freeboard)

Hydrograph Return Period Recap

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

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	Rational	------	-------	3.035	4.850	-------	3.925	5.118	-------	5.774	EX_TRIB1
2	Rational	------	-------	3.844	5.615	-------	5.303	5.946	-------	7.506	EX_TRIB2
3	Rational	------	-------	3.409	4.979	-------	4.702	5.272	-------	6.656	EX_TRIB3
4	Rational	------	-------	0.287	0.483	-------	0.362	0.508	-------	0.541	EX_TRIB4
5	Rational	------	-------	0.095	0.160	-------	0.120	0.169	-------	0.179	EX_TRIB5
6	Rational	------	-------	1.128	1.698	-------	1.514	1.796	-------	2.178	EX_TRIB6
7	Rational	------	-------	0.482	0.726	-------	0.648	0.768	-------	0.931	EX_TRIB7
8	Rational	------	-------	0.225	0.333	-------	0.307	0.353	-------	0.437	EX_TRIB8
9	Rational	------	-------	0.013	0.022	-------	0.016	0.023	-------	0.024	EX_TRIB9
11	Combine	1, 2, 3, 4, 5, 6,	-------	7.817	11.44	-------	10.76	12.12	-------	15.25	TOTAL EX 1 OF 2
12	Combine	7, 8, 9,	-------	0.662	0.993	-------	0.893	1.050	-------	1.281	TOTAL EX 2 OF 2
13	Combine	11, 12	-------	8.238	12.07	-------	11.33	12.78	-------	16.07	TOTAL EX
15	Rational	------	-------	0.372	0.573	-------	0.490	0.606	-------	0.713	P_TRIB1
16	Rational	------	-------	2.715	4.089	-------	3.646	4.324	-------	5.243	P_TRIB2
17	Rational	------	-------	12.84	19.81	-------	16.95	20.94	-------	24.62	P_TRIB3
18	Rational	------	-------	0.122	0.205	-------	0.154	0.216	-------	0.230	P_TRIB4
20	Combine	15, 16, 17, 18,	-------	15.25	23.45	-------	20.17	24.79	-------	29.27	TOTAL P
22	Rational	------	-------	2.516	3.789	-------	3.378	4.007	-------	4.858	OFF_TRIB1
23	Rational	------	-------	3.545	5.245	-------	4.829	5.551	-------	6.885	OFF_TRIB2
24	Rational	------	-------	0.245	0.369	-------	0.329	0.390	-------	0.473	OFF_TRIB3
25	Rational	------	-------	1.519	2.555	-------	1.916	2.692	-------	2.862	OFF_TRIB4
26	Rational	------	-------	0.013	0.022	-------	0.016	0.023	-------	0.024	OFF_TRIB5
27	Rational	------	-------	0.272	0.457	-------	0.343	0.482	-------	0.512	OFF_TRIB6
29	Combine	22, 23, 24, 25, 26, 27,	-------	5.615	8.363	-------	7.609	8.848	-------	10.88	TOTAL OFF
30	Combine	20, 29	-------	19.44	29.72	-------	25.85	31.41	-------	37.40	TOTAL P AND OFF
32	Reservoir	17	-------	0.021	0.027	-------	0.024	0.028	-------	0.030	ROUTED BASIN
34	Combine	15, 16, 18, 32,	-------	2.980	4.494	-------	3.994	4.752	-------	5.744	TOTAL P W/DETENTION

Proj. file: M20-8003_detention_7-26-21.gpw | Monday, 07 / 26 / 2021

Hydrograph Summary Report

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

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	3.035	1	2	364	------	------	------	EX_TRIB1
2	Rational	3.844	1	6	1,384	------	------	------	EX_TRIB2
3	Rational	3.409	1	6	1,227	------	------	------	EX_TRIB3
4	Rational	0.287	1	1	17	------	------	------	EX_TRIB4
5	Rational	0.095	1	1	6	------	------	------	EX_TRIB5
6	Rational	1.128	1	4	271	------	------	------	EX_TRIB6
7	Rational	0.482	1	4	116	------	------	------	EX_TRIB7
8	Rational	0.225	1	5	68	------	------	------	EX_TRIB8
9	Rational	0.013	1	1	1	------	------	------	EX_TRIB9
11	Combine	7.817	1	6	3,269	1, 2, 3, 4, 5, 6,	------	------	TOTAL EX 1 OF 2
12	Combine	0.662	1	4	184	7, 8, 9,	------	------	TOTAL EX 2 OF 2
13	Combine	8.238	1	6	3,453	11, 12	------	------	TOTAL EX
15	Rational	0.372	1	3	67	------	------	------	P_TRIB1
16	Rational	2.715	1	4	652	------	------	------	P_TRIB2
17	Rational	12.84	1	3	2,311	------	------	------	P_TRIB3
18	Rational	0.122	1	1	7	------	------	------	P_TRIB4
20	Combine	15.25	1	3	3,037	15, 16, 17, 18,	------	------	TOTAL P
22	Rational	2.516	1	4	604	------	------	------	OFF_TRIB1
23	Rational	3.545	1	5	1,063	------	------	------	OFF_TRIB2
24	Rational	0.245	1	4	59	------	------	------	OFF_TRIB3
25	Rational	1.519	1	1	91	------	------	------	OFF_TRIB4
26	Rational	0.013	1	1	1	------	------	------	OFF_TRIB5
27	Rational	0.272	1	1	16	------	------	------	OFF_TRIB6
29	Combine	5.615	1	5	1,834	22, 23, 24, 25, 26, 27,	------	------	TOTAL OFF
30	Combine	19.44	1	3	4,871	20, 29	------	------	TOTAL P AND OFF
32	Reservoir	0.021	1	6	1,935	17	470.32	2,307	ROUTED BASIN
34	Combine	2.980	1	4	2,661	15, 16, 18, 32,	------	------	TOTAL P W/DETENTION

M20-8003_detention_7-26-21.gpw	Return Period: 2 Year	Monday, 07 / 26 / 2021

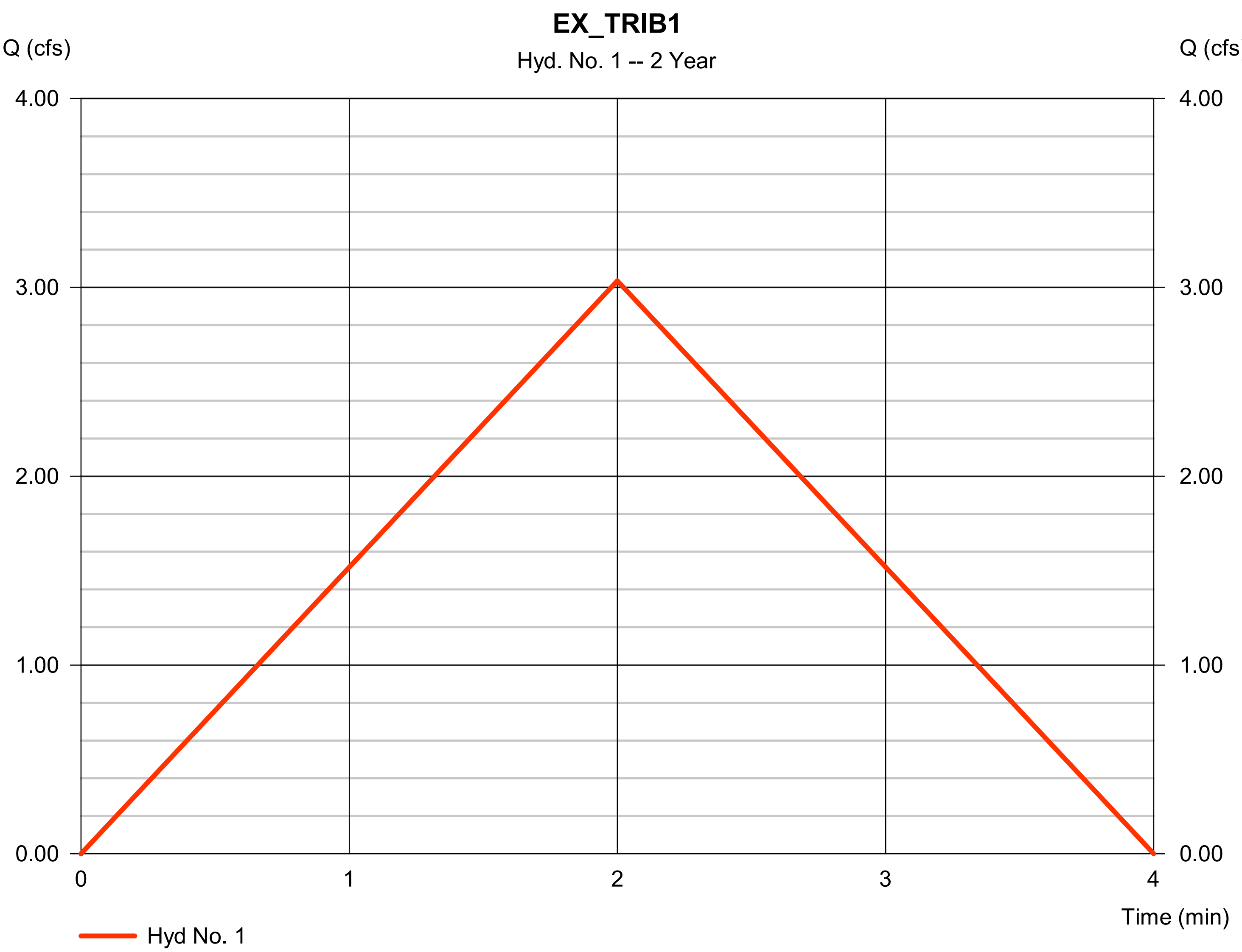
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 1

EX_TRIB1

Hydrograph type	= Rational	Peak discharge	= 3.035 cfs
Storm frequency	= 2 yrs	Time to peak	= 2 min
Time interval	= 1 min	Hyd. volume	= 364 cuft
Drainage area	= 1.750 ac	Runoff coeff.	= 0.25
Intensity	= 6.937 in/hr	Tc by User	= 2.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



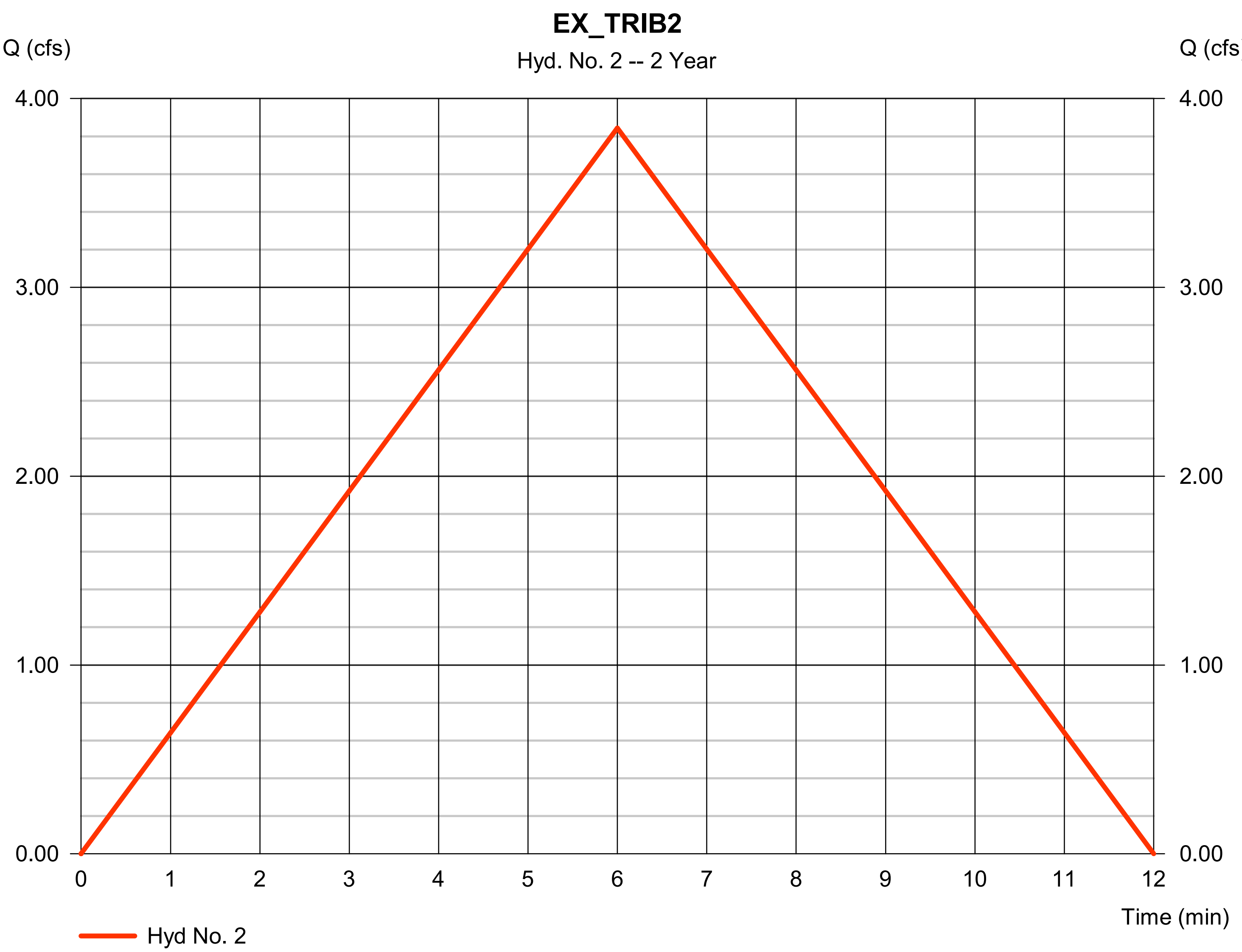
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 2

EX_TRIB2

Hydrograph type	= Rational	Peak discharge	= 3.844 cfs
Storm frequency	= 2 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 1,384 cuft
Drainage area	= 3.620 ac	Runoff coeff.	= 0.2
Intensity	= 5.310 in/hr	Tc by User	= 6.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

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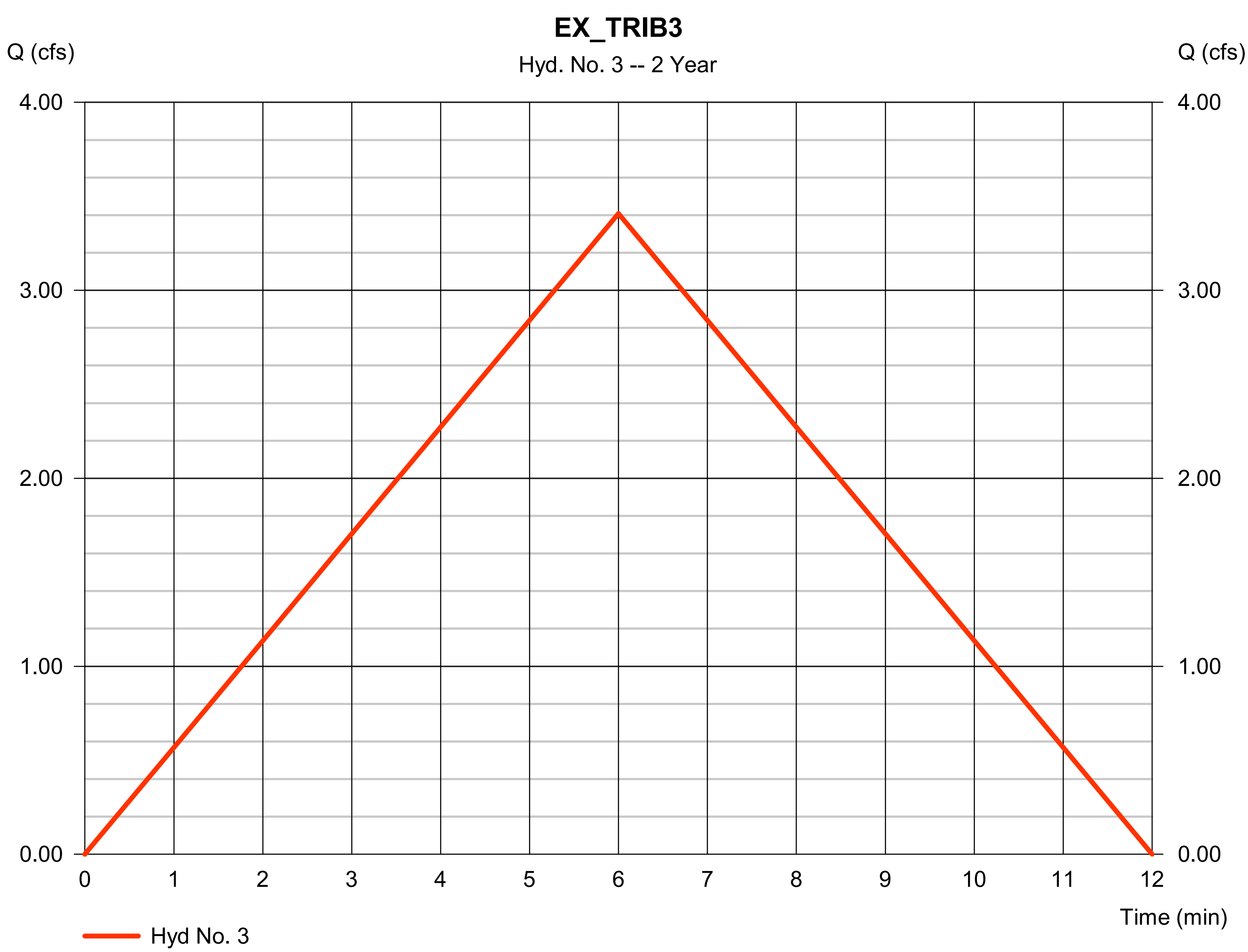
Hyd. No. 3

EX_TRIB3

Hydrograph type	= Rational	Peak discharge	= 3.409 cfs
Storm frequency	= 2 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 1,227 cuft
Drainage area	= 3.210 ac	Runoff coeff.	= 0.2
Intensity	= 5.310 in/hr	Tc by User	= 6.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1

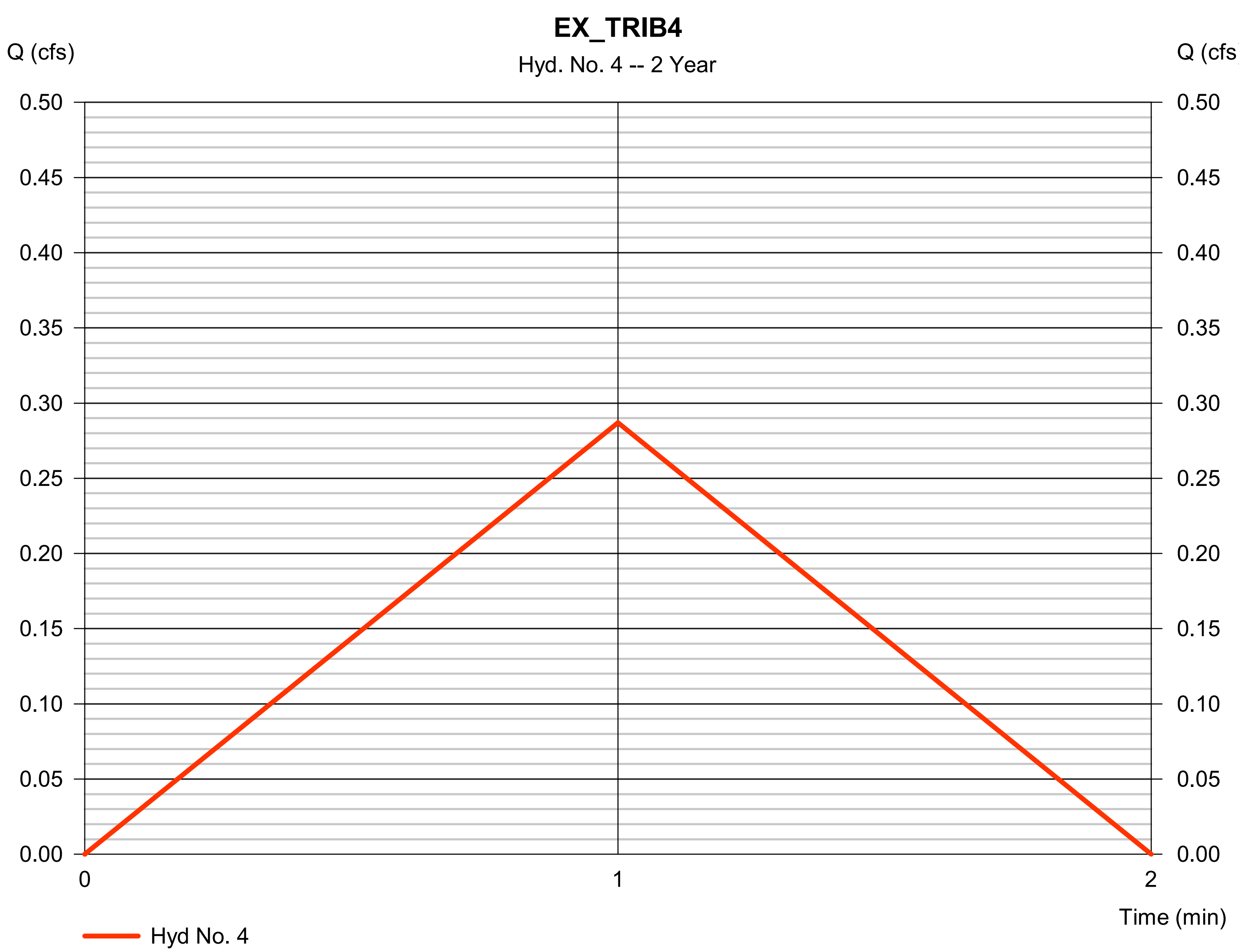


Hydrograph Report

Hyd. No. 4

EX_TRIB4

Hydrograph type	= Rational	Peak discharge	= 0.287 cfs
Storm frequency	= 2 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 17 cuft
Drainage area	= 0.190 ac	Runoff coeff.	= 0.2
Intensity	= 7.550 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



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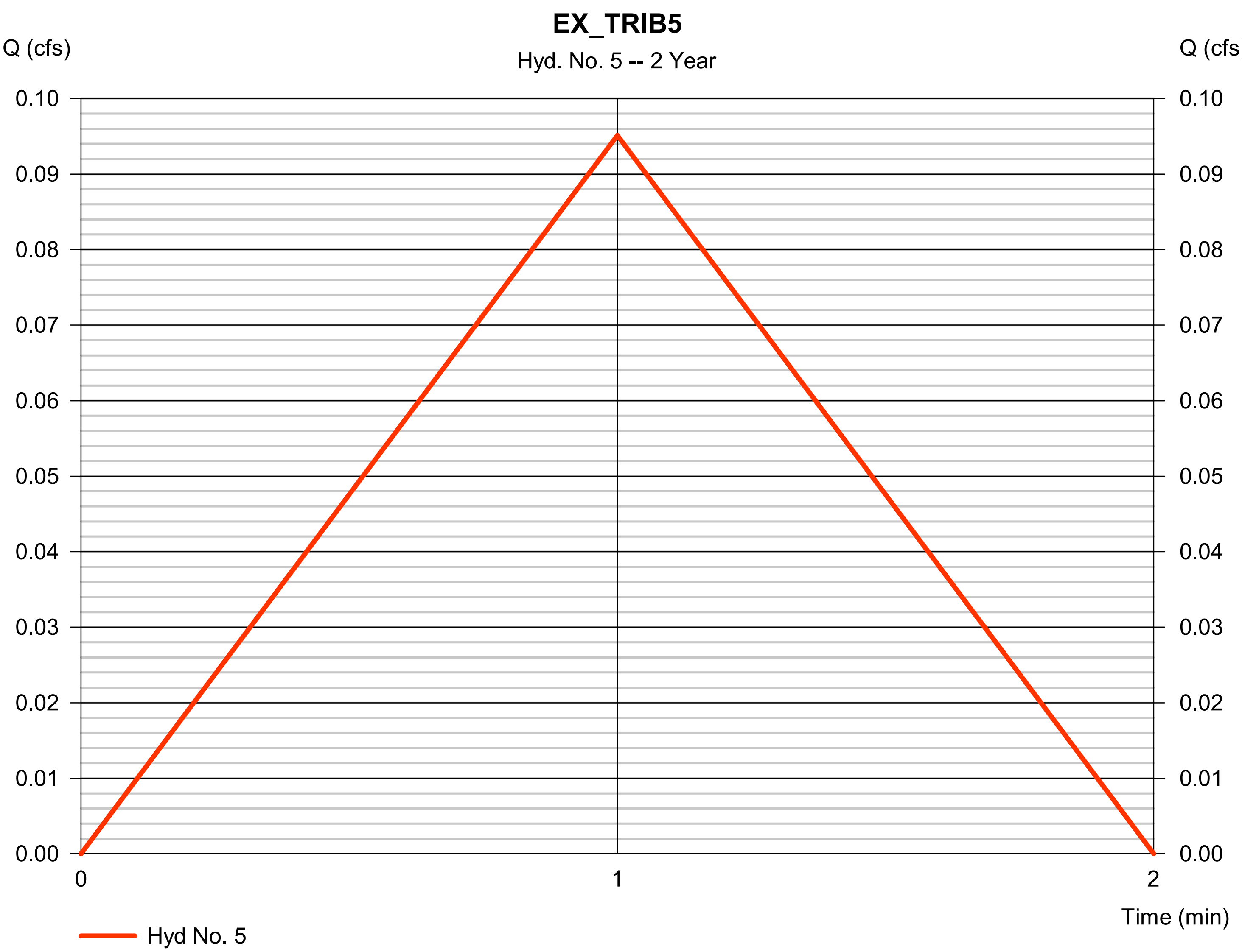
Hyd. No. 5

EX_TRIB5

Hydrograph type	= Rational	Peak discharge	= 0.095 cfs
Storm frequency	= 2 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 6 cuft
Drainage area	= 0.063 ac	Runoff coeff.	= 0.2
Intensity	= 7.550 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



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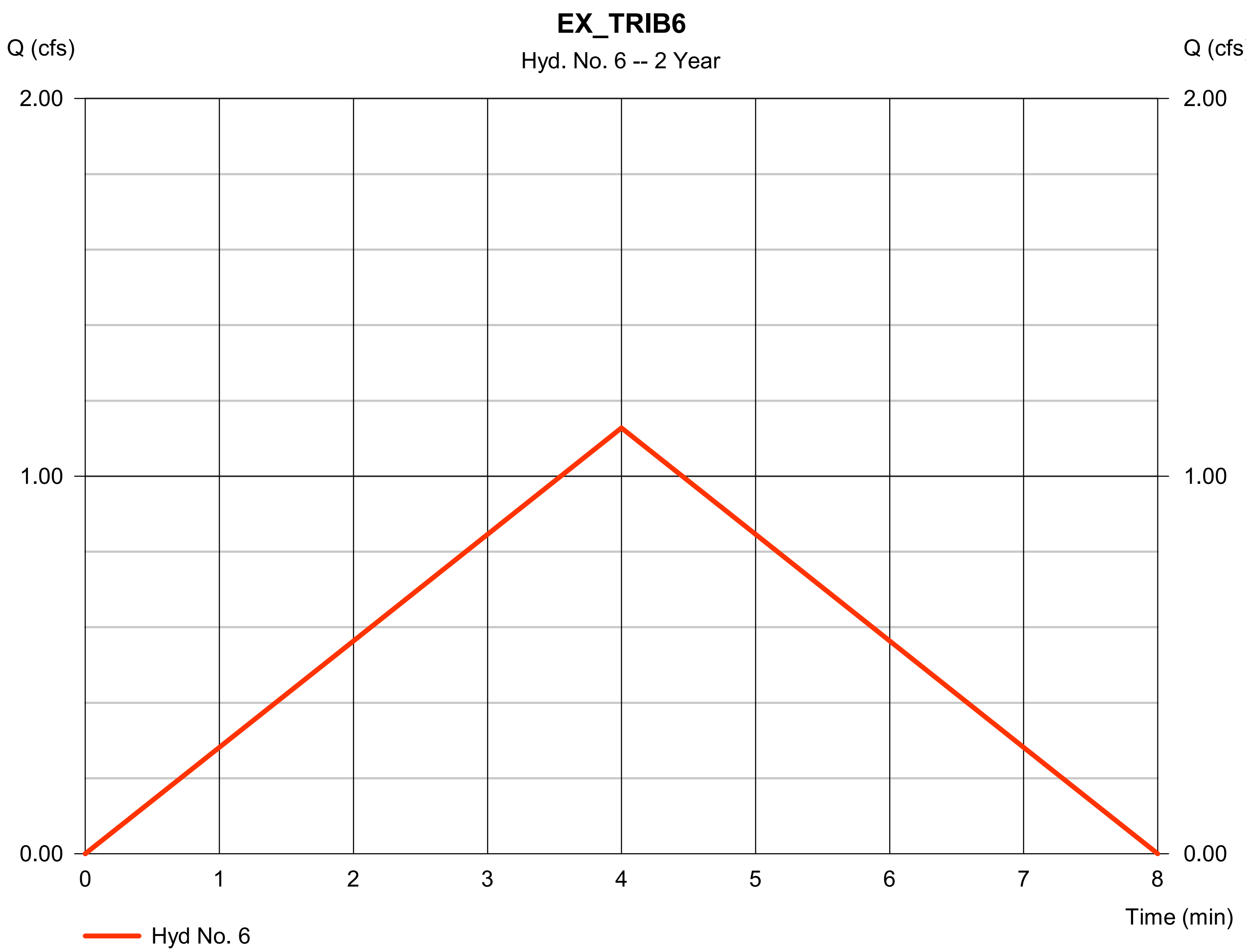
Hyd. No. 6

EX_TRIB6

Hydrograph type	= Rational	Peak discharge	= 1.128 cfs
Storm frequency	= 2 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 271 cuft
Drainage area	= 0.940 ac	Runoff coeff.	= 0.2
Intensity	= 5.999 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



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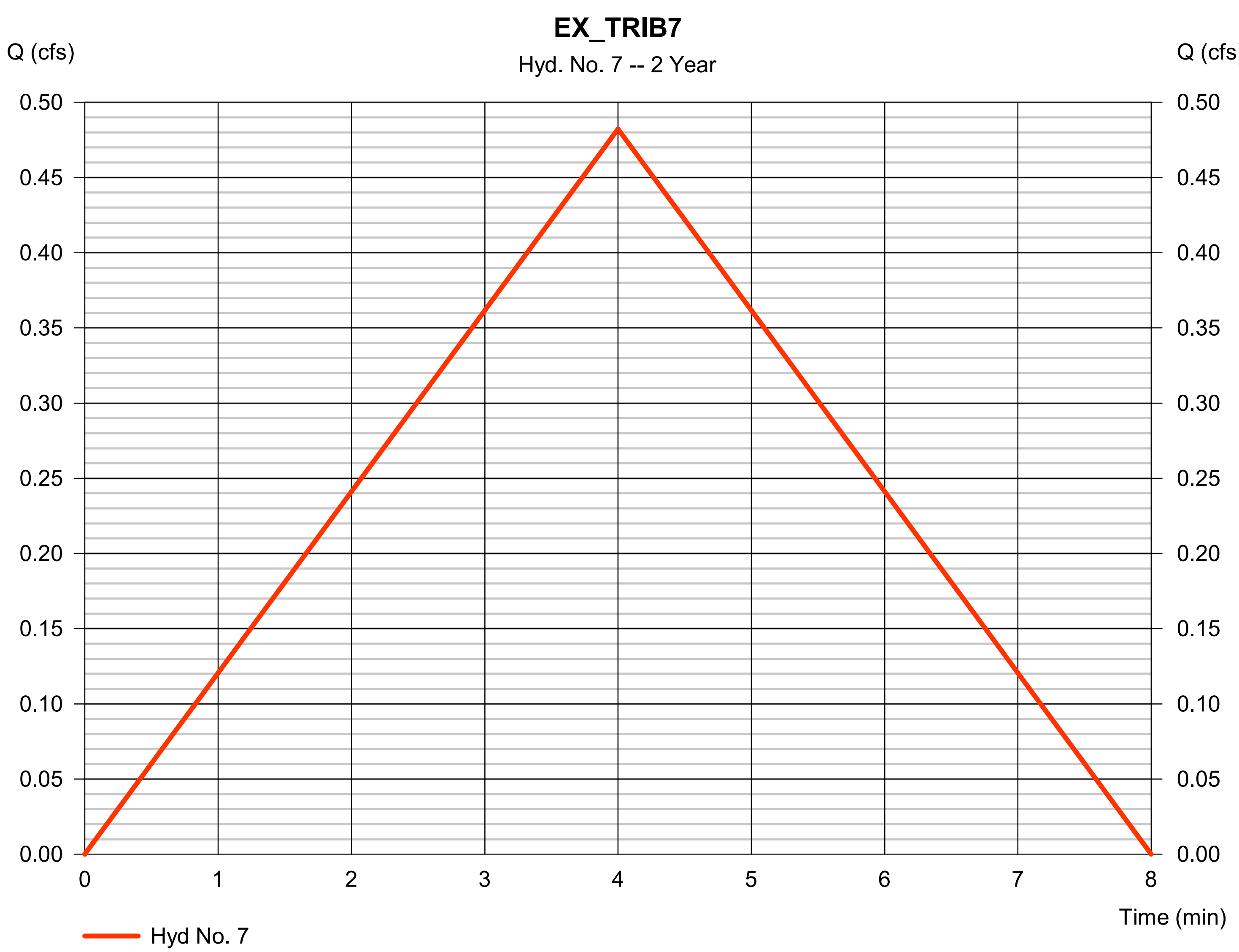
Hyd. No. 7

EX_TRIB7

Hydrograph type	= Rational	Peak discharge	= 0.482 cfs
Storm frequency	= 2 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 116 cuft
Drainage area	= 0.402 ac	Runoff coeff.	= 0.2
Intensity	= 5.999 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



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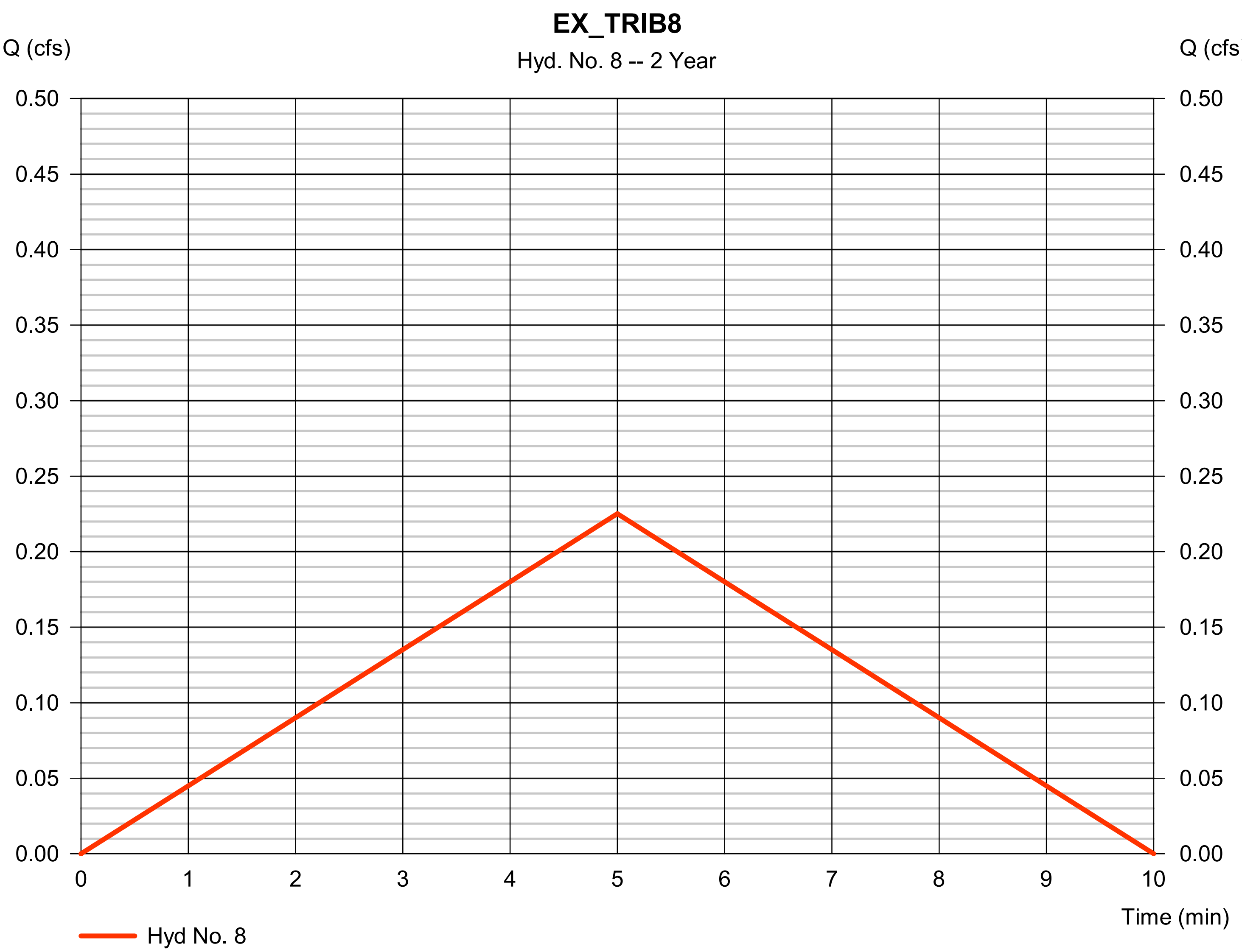
Hyd. No. 8

EX_TRIB8

Hydrograph type	= Rational	Peak discharge	= 0.225 cfs
Storm frequency	= 2 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 68 cuft
Drainage area	= 0.200 ac	Runoff coeff.	= 0.2
Intensity	= 5.630 in/hr	Tc by User	= 5.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



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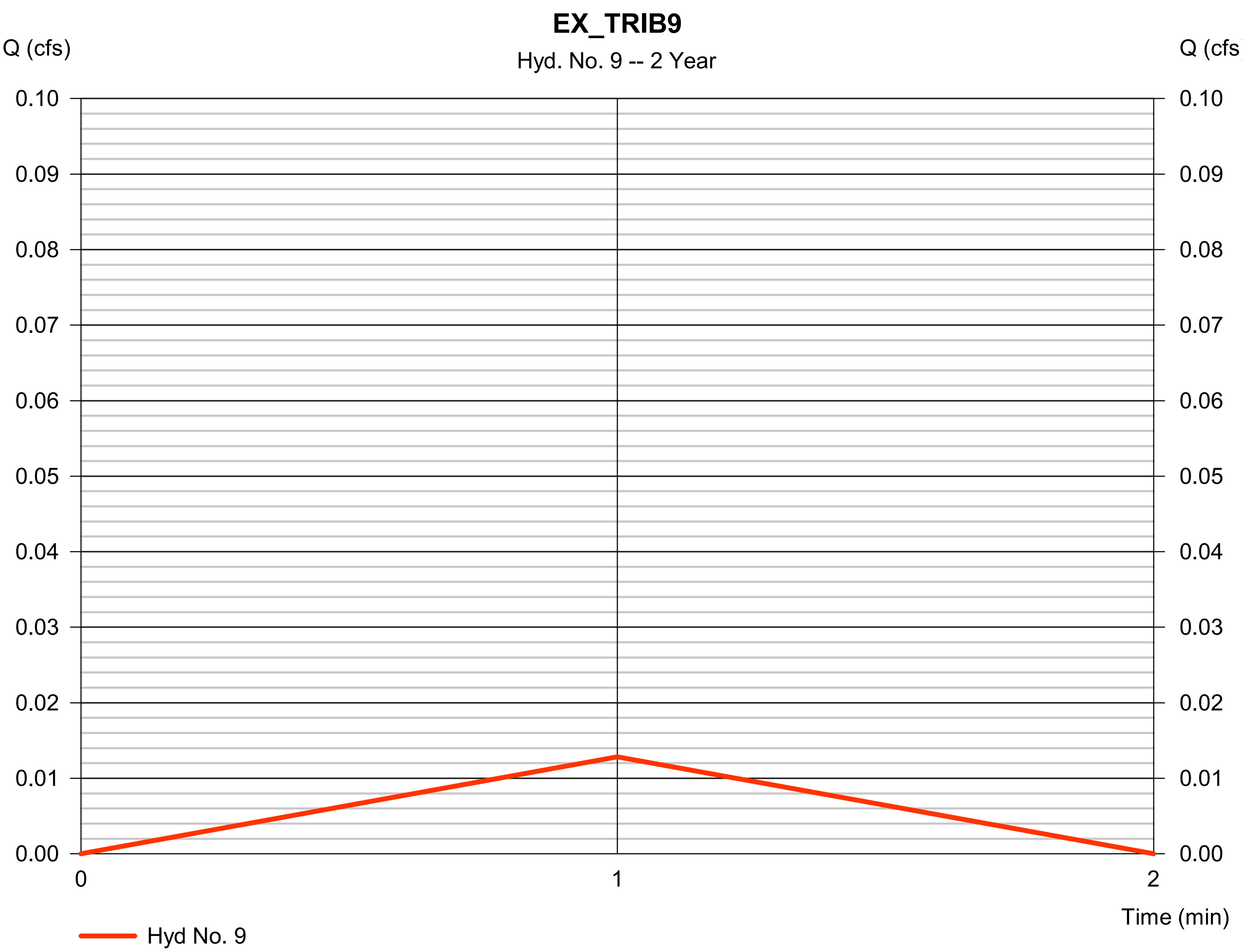
Hyd. No. 9

EX_TRIB9

Hydrograph type	= Rational	Peak discharge	= 0.013 cfs
Storm frequency	= 2 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 1 cuft
Drainage area	= 0.009 ac	Runoff coeff.	= 0.2
Intensity	= 7.550 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



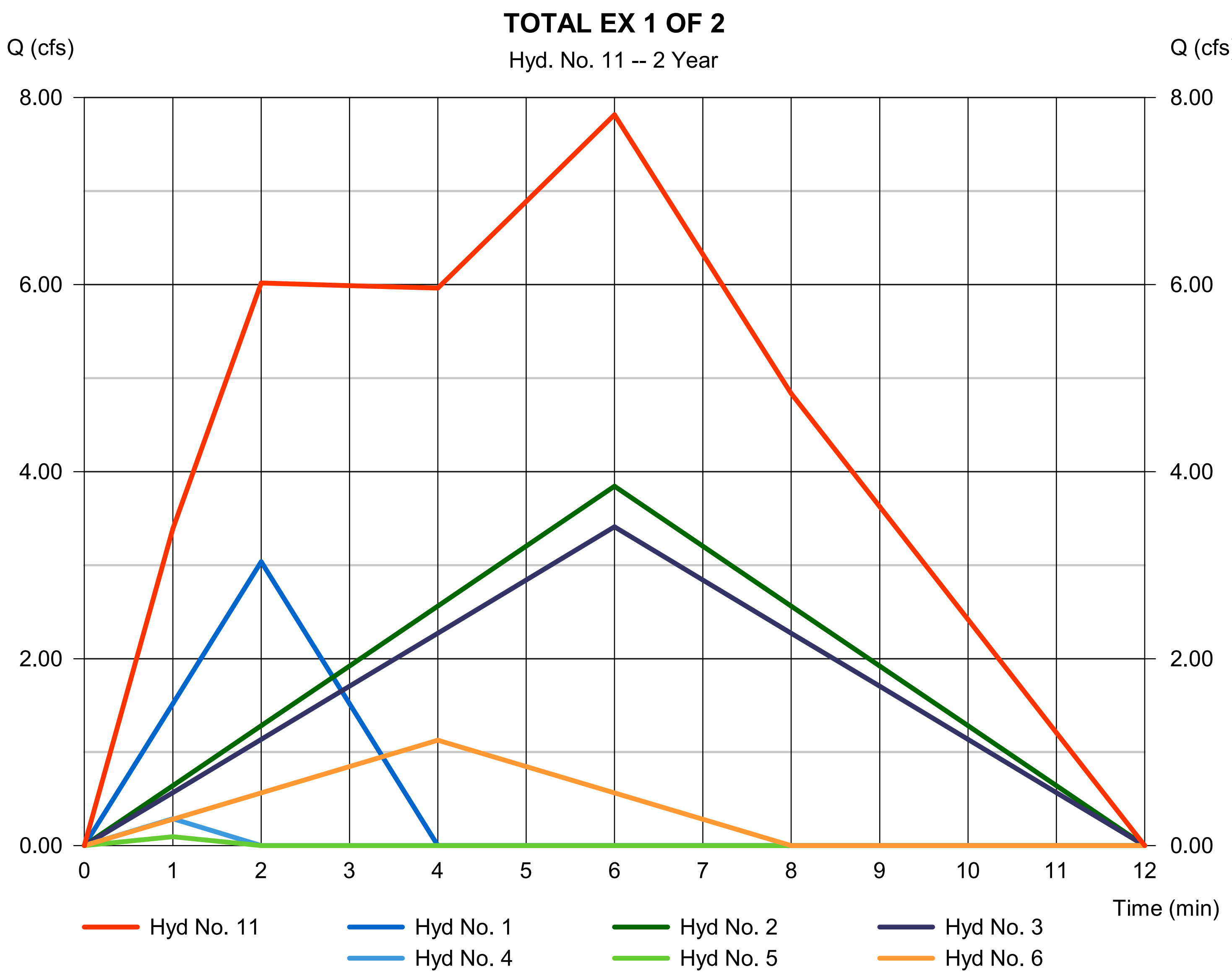
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 11

TOTAL EX 1 OF 2

Hydrograph type	= Combine	Peak discharge	= 7.817 cfs
Storm frequency	= 2 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 3,269 cuft
Inflow hyds.	= 1, 2, 3, 4, 5, 6	Contrib. drain. area	= 9.773 ac



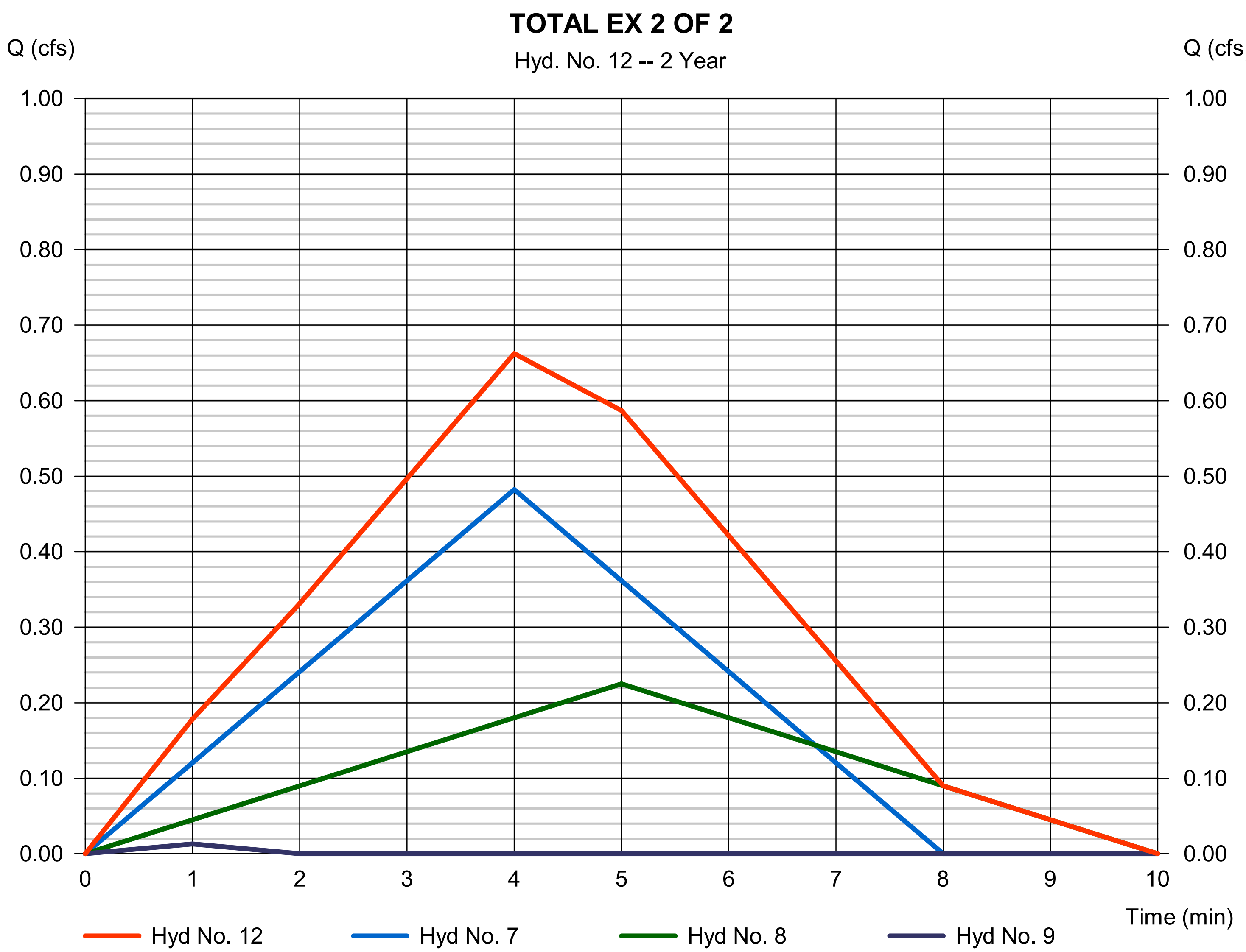
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 12

TOTAL EX 2 OF 2

Hydrograph type	= Combine	Peak discharge	= 0.662 cfs
Storm frequency	= 2 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 184 cuft
Inflow hyds.	= 7, 8, 9	Contrib. drain. area	= 0.610 ac



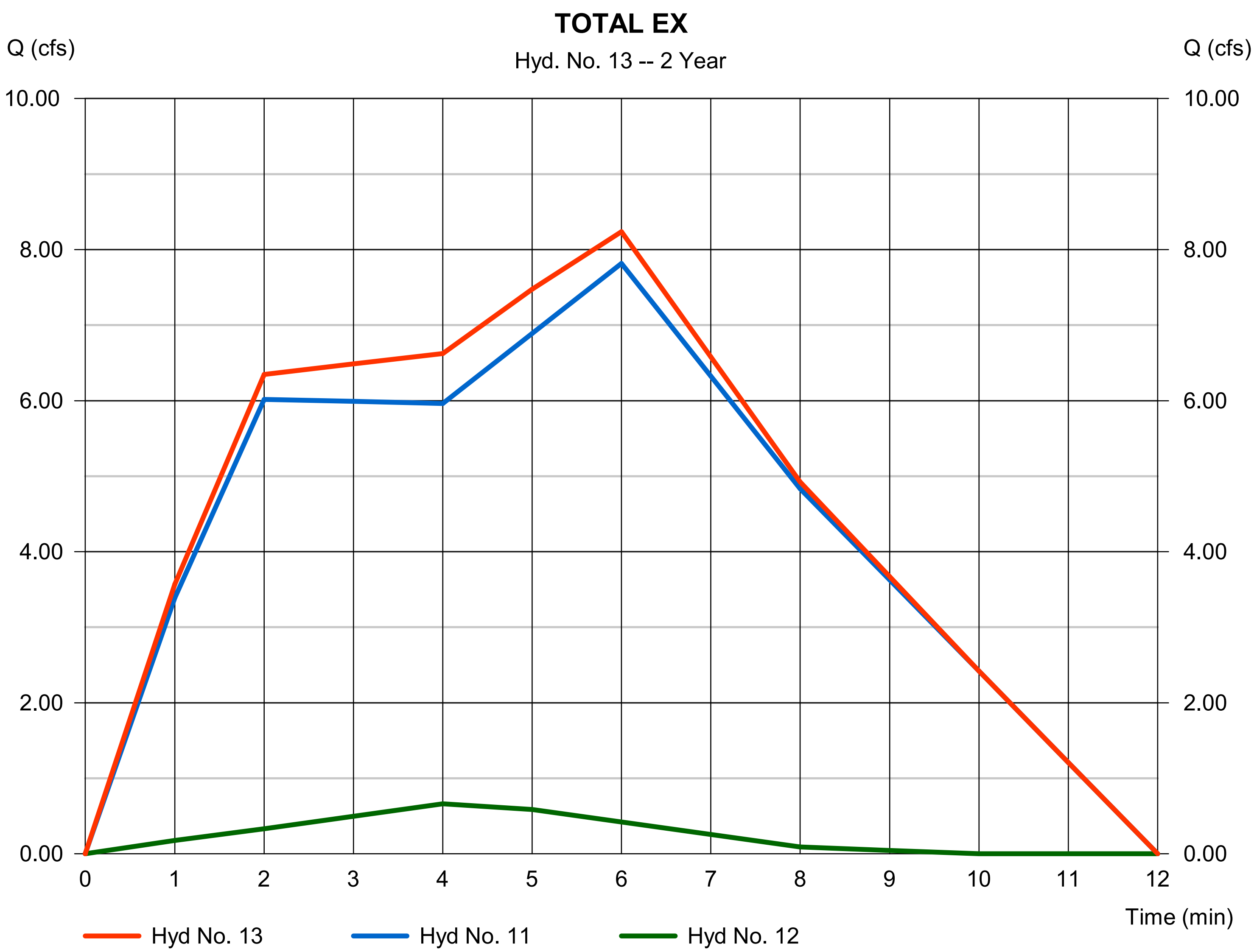
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 13

TOTAL EX

Hydrograph type	= Combine	Peak discharge	= 8.238 cfs
Storm frequency	= 2 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 3,453 cuft
Inflow hyds.	= 11, 12	Contrib. drain. area	= 0.000 ac

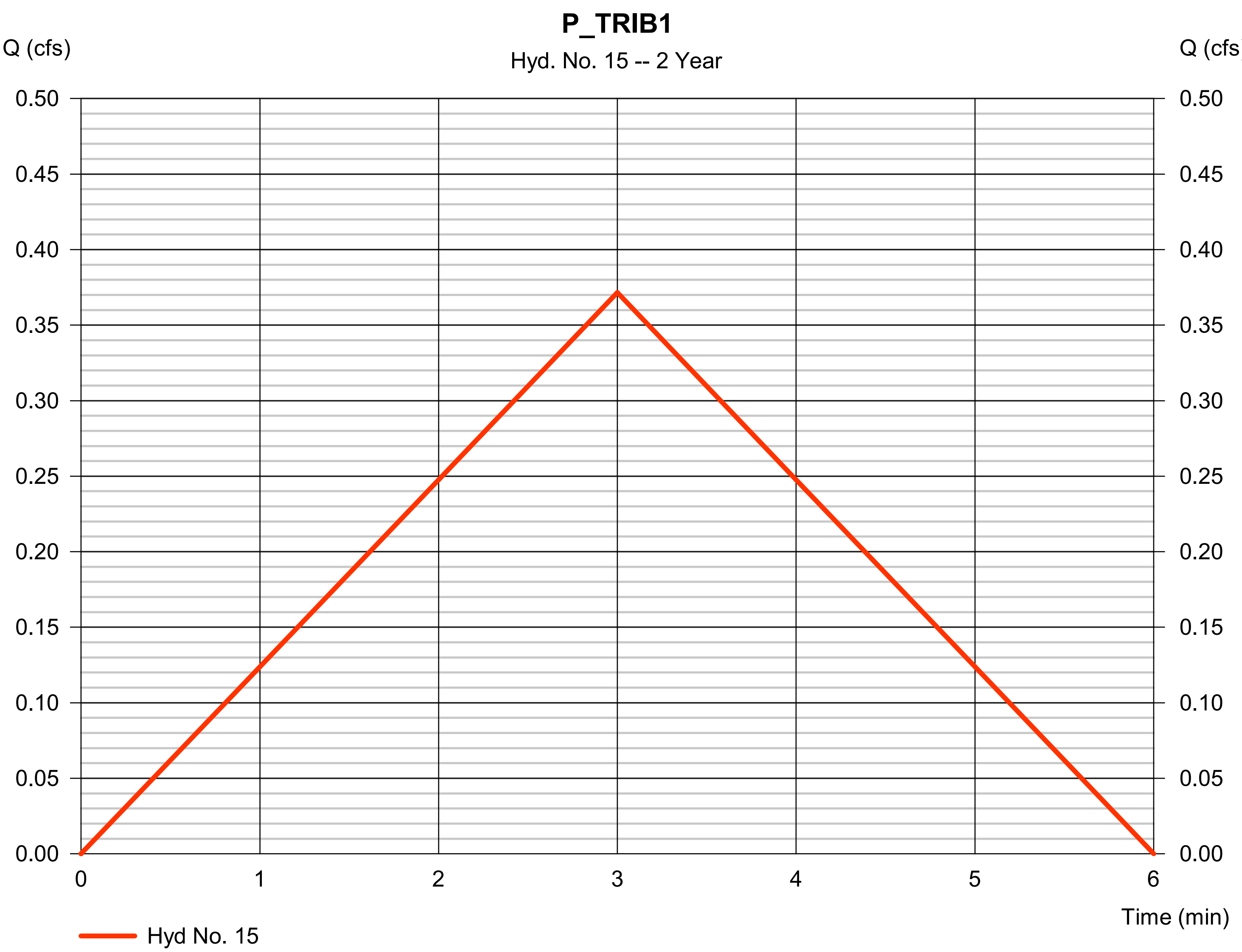


Hydrograph Report

Hyd. No. 15

P_TRIB1

Hydrograph type	= Rational	Peak discharge	= 0.372 cfs
Storm frequency	= 2 yrs	Time to peak	= 3 min
Time interval	= 1 min	Hyd. volume	= 67 cuft
Drainage area	= 0.289 ac	Runoff coeff.	= 0.2
Intensity	= 6.429 in/hr	Tc by User	= 3.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



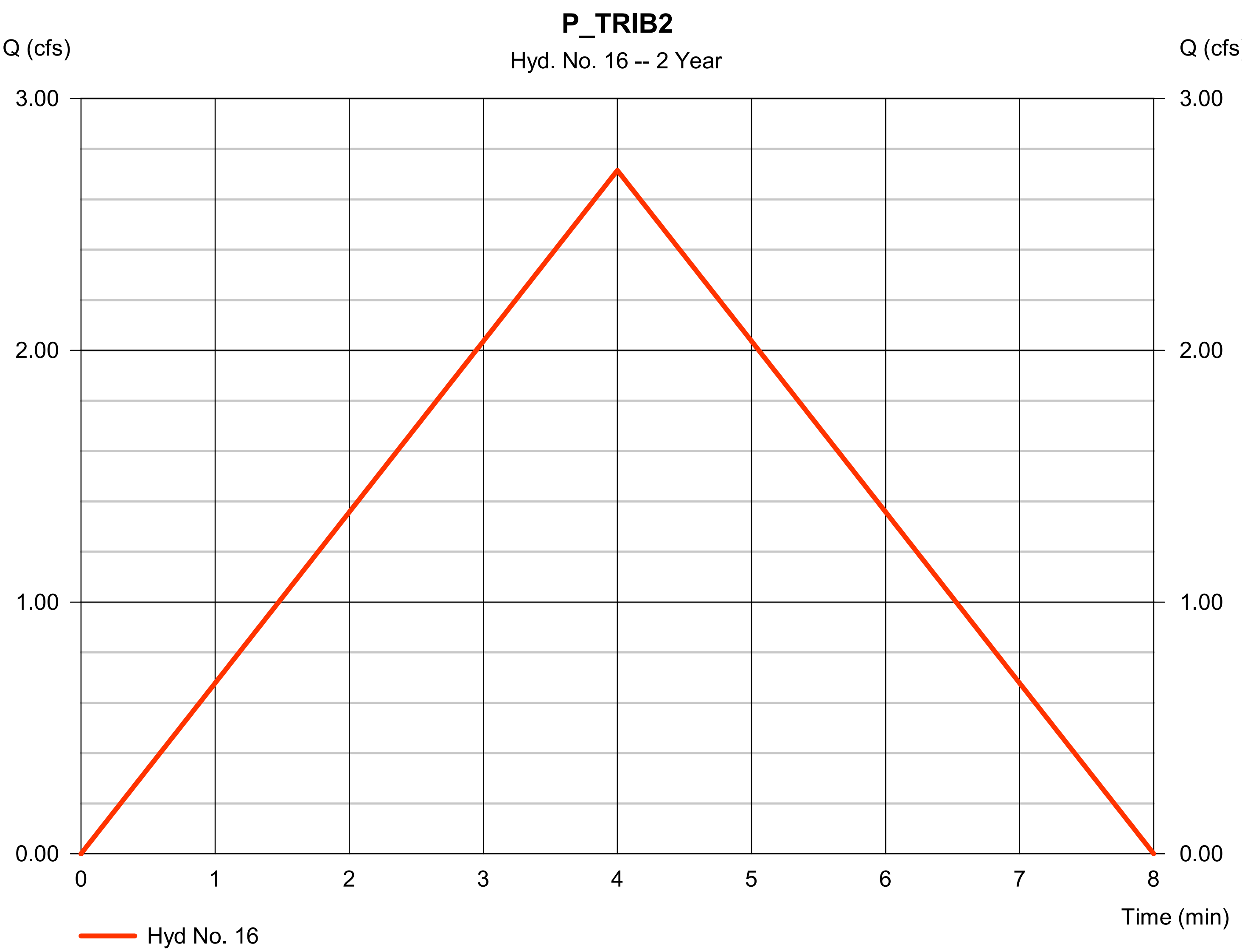
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 16

P_TRIB2

Hydrograph type	= Rational	Peak discharge	= 2.715 cfs
Storm frequency	= 2 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 652 cuft
Drainage area	= 2.263 ac	Runoff coeff.	= 0.2
Intensity	= 5.999 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



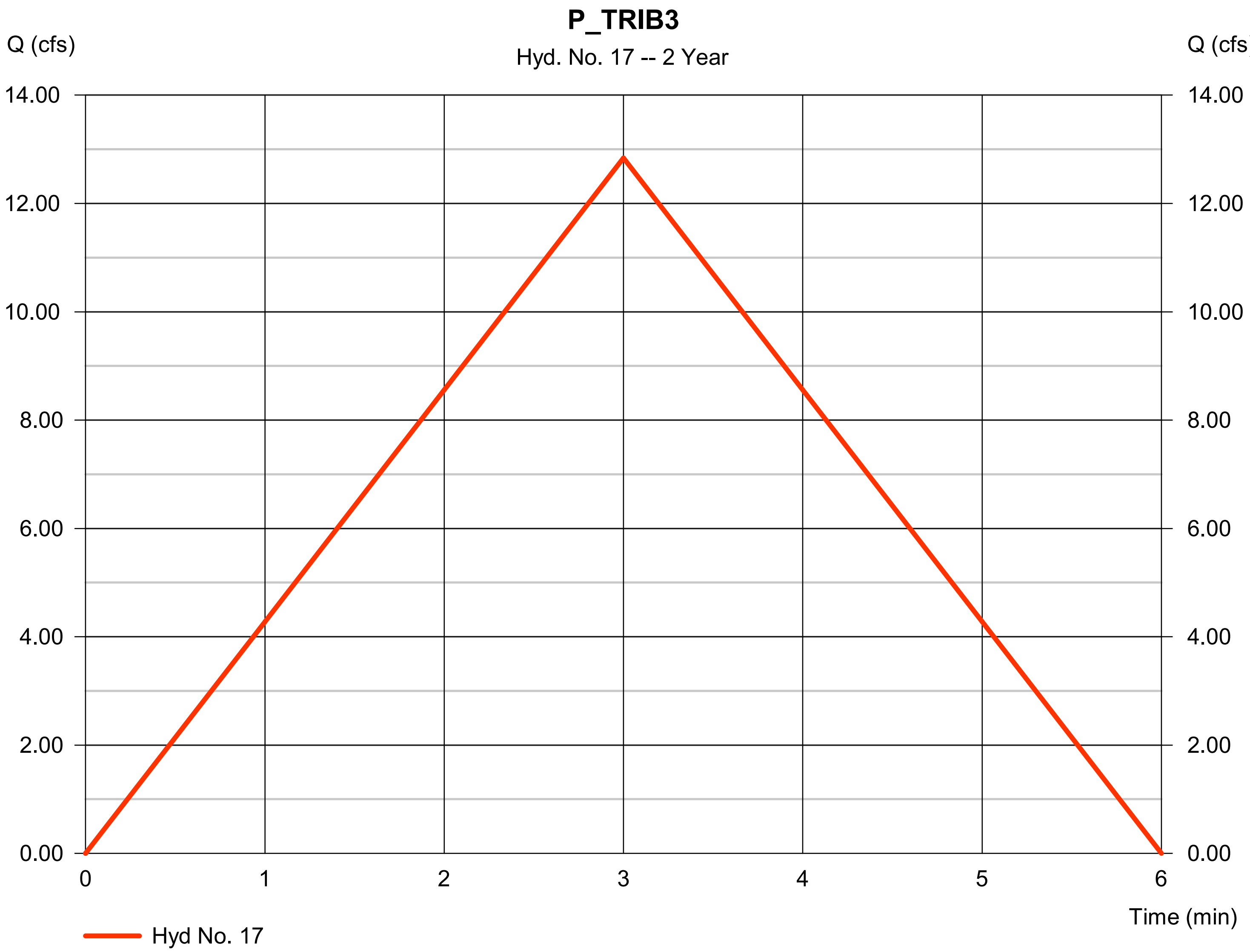
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 17

P_TRIB3

Hydrograph type	= Rational	Peak discharge	= 12.84 cfs
Storm frequency	= 2 yrs	Time to peak	= 3 min
Time interval	= 1 min	Hyd. volume	= 2,311 cuft
Drainage area	= 2.937 ac	Runoff coeff.	= 0.68
Intensity	= 6.429 in/hr	Tc by User	= 3.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



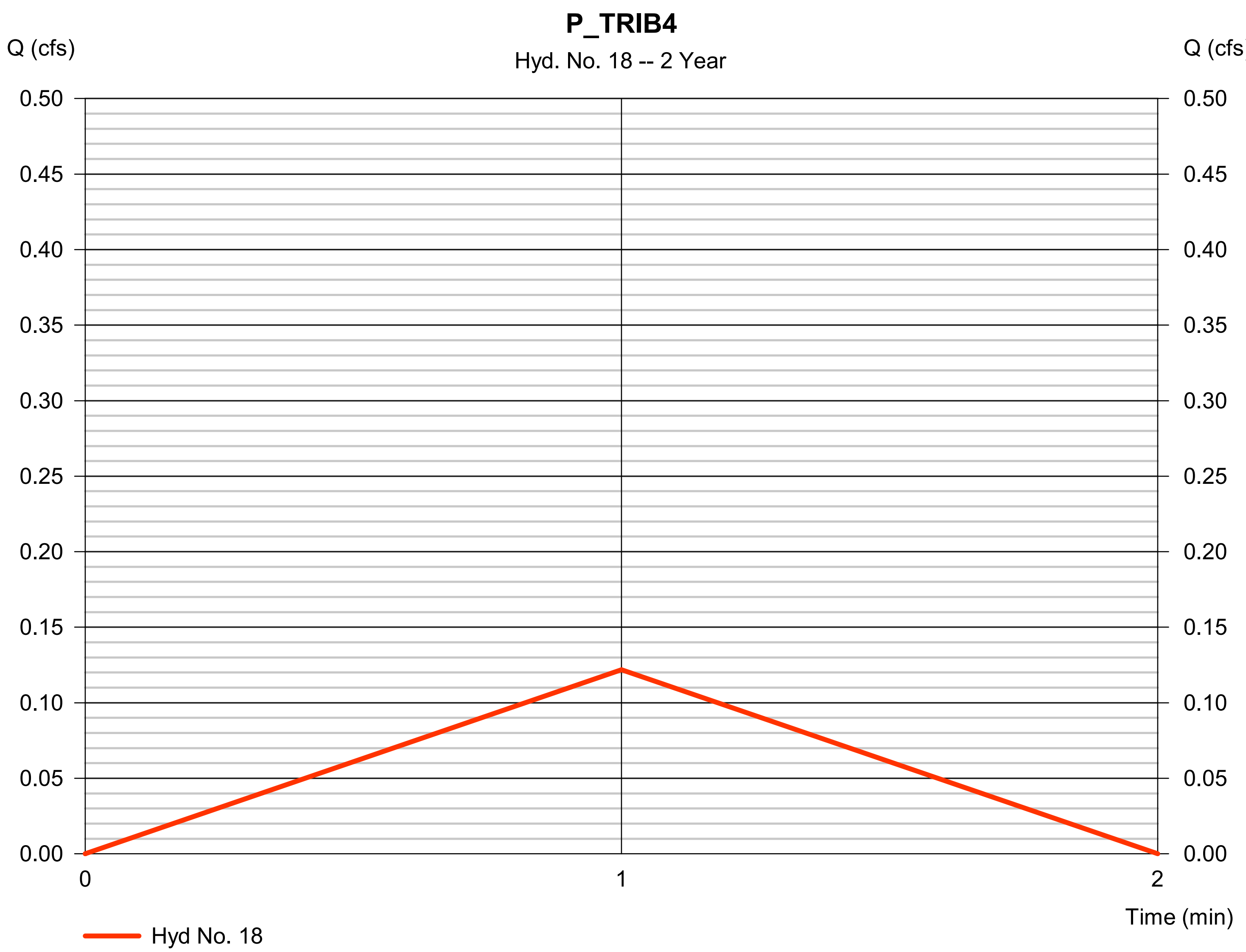
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 18

P_TRIB4

Hydrograph type	= Rational	Peak discharge	= 0.122 cfs
Storm frequency	= 2 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 7 cuft
Drainage area	= 0.081 ac	Runoff coeff.	= 0.2
Intensity	= 7.550 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



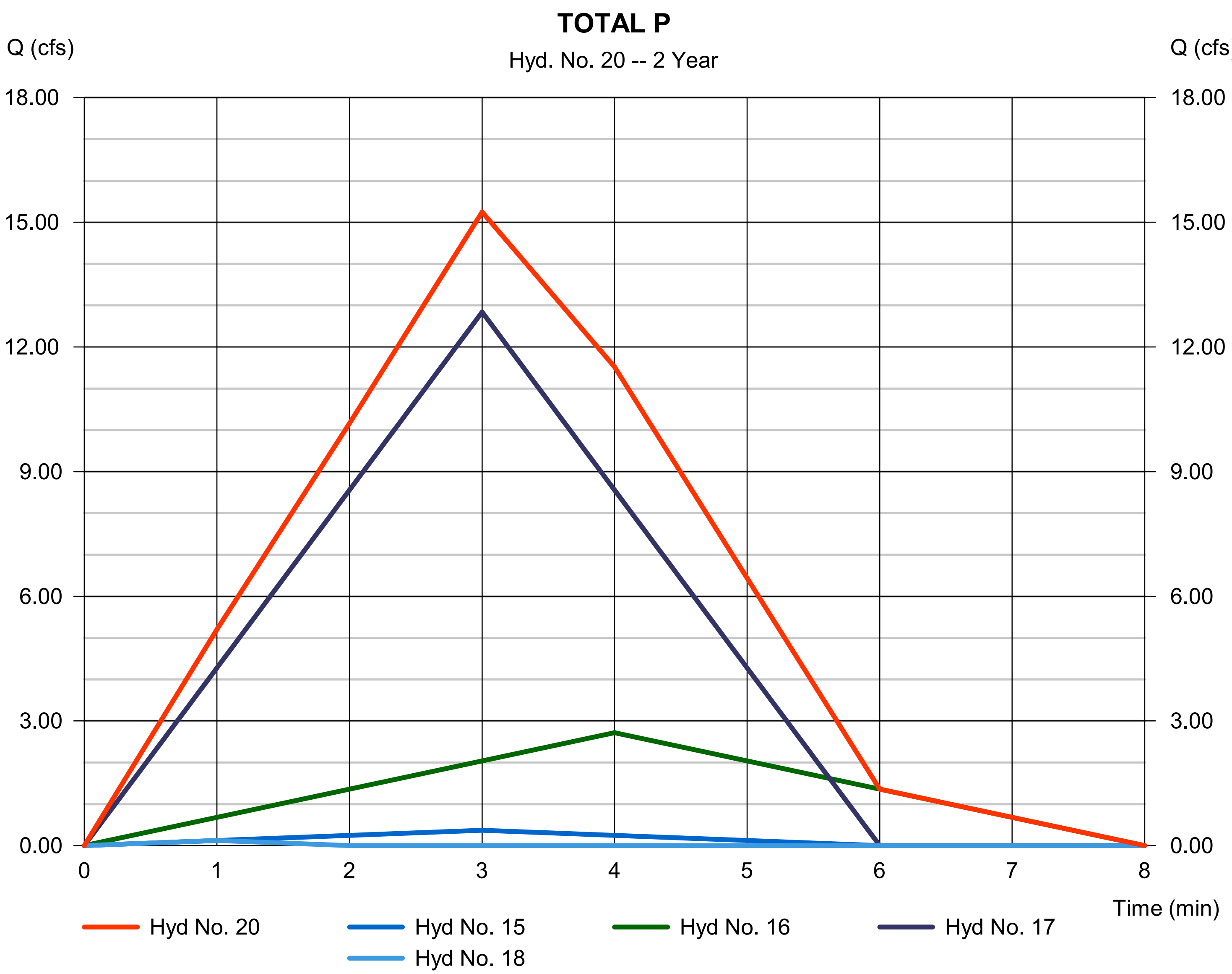
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 20

TOTAL P

Hydrograph type	= Combine	Peak discharge	= 15.25 cfs
Storm frequency	= 2 yrs	Time to peak	= 3 min
Time interval	= 1 min	Hyd. volume	= 3,037 cuft
Inflow hyds.	= 15, 16, 17, 18	Contrib. drain. area	= 5.570 ac

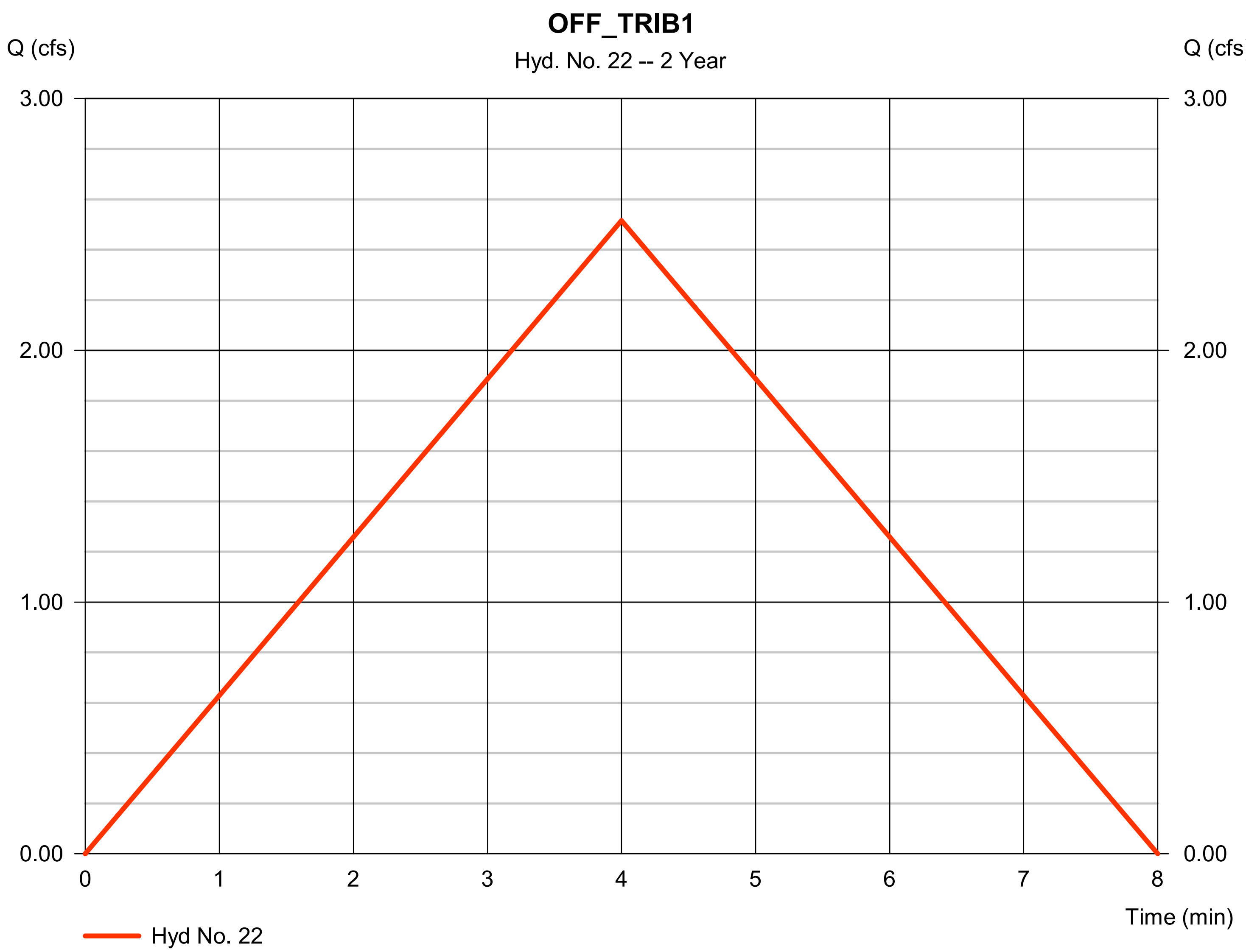


Hydrograph Report

Hyd. No. 22

OFF_TRIB1

Hydrograph type	= Rational	Peak discharge	= 2.516 cfs
Storm frequency	= 2 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 604 cuft
Drainage area	= 0.466 ac	Runoff coeff.	= 0.9
Intensity	= 5.999 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



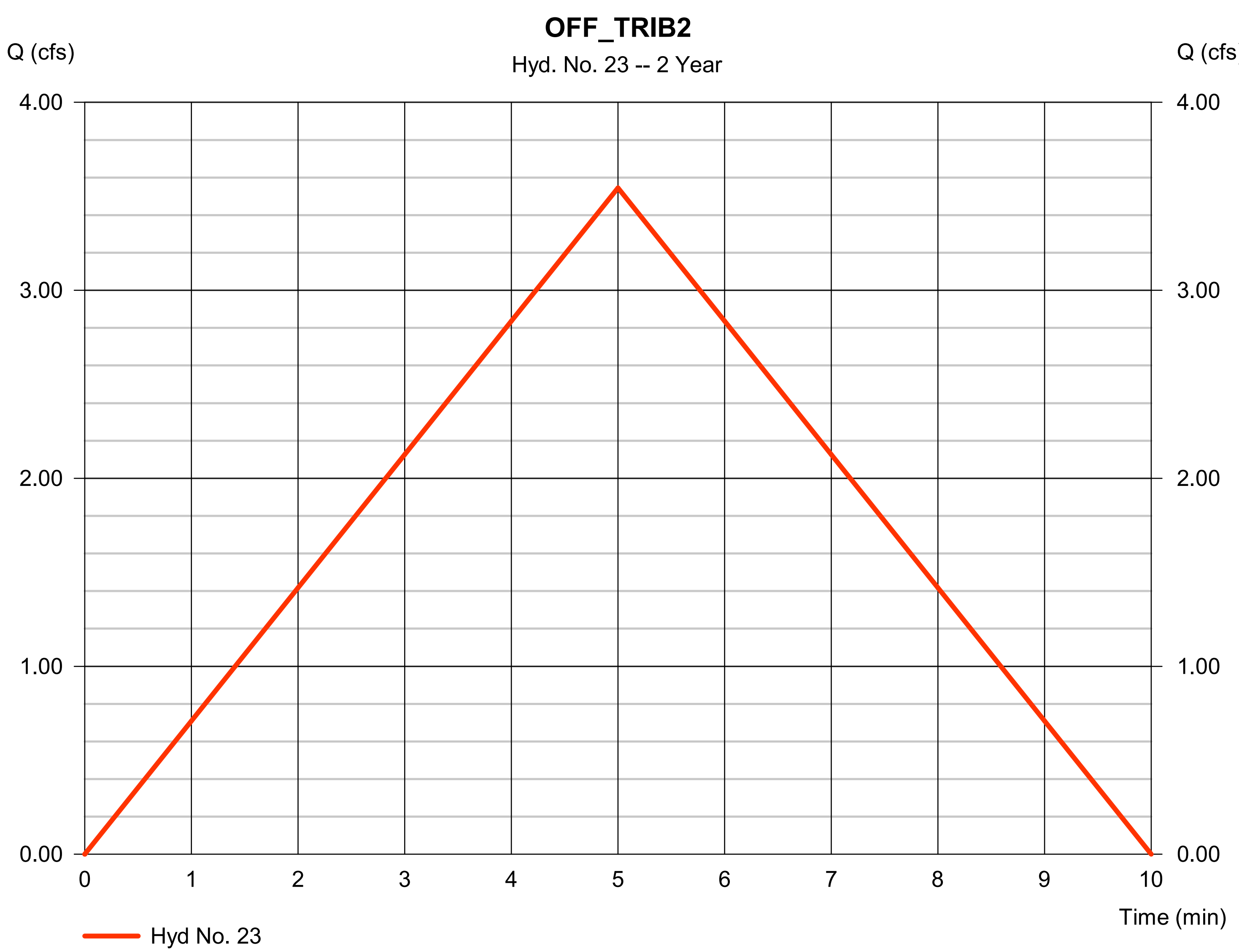
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 23

OFF_TRIB2

Hydrograph type	= Rational	Peak discharge	= 3.545 cfs
Storm frequency	= 2 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 1,063 cuft
Drainage area	= 3.148 ac	Runoff coeff.	= 0.2
Intensity	= 5.630 in/hr	Tc by User	= 5.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



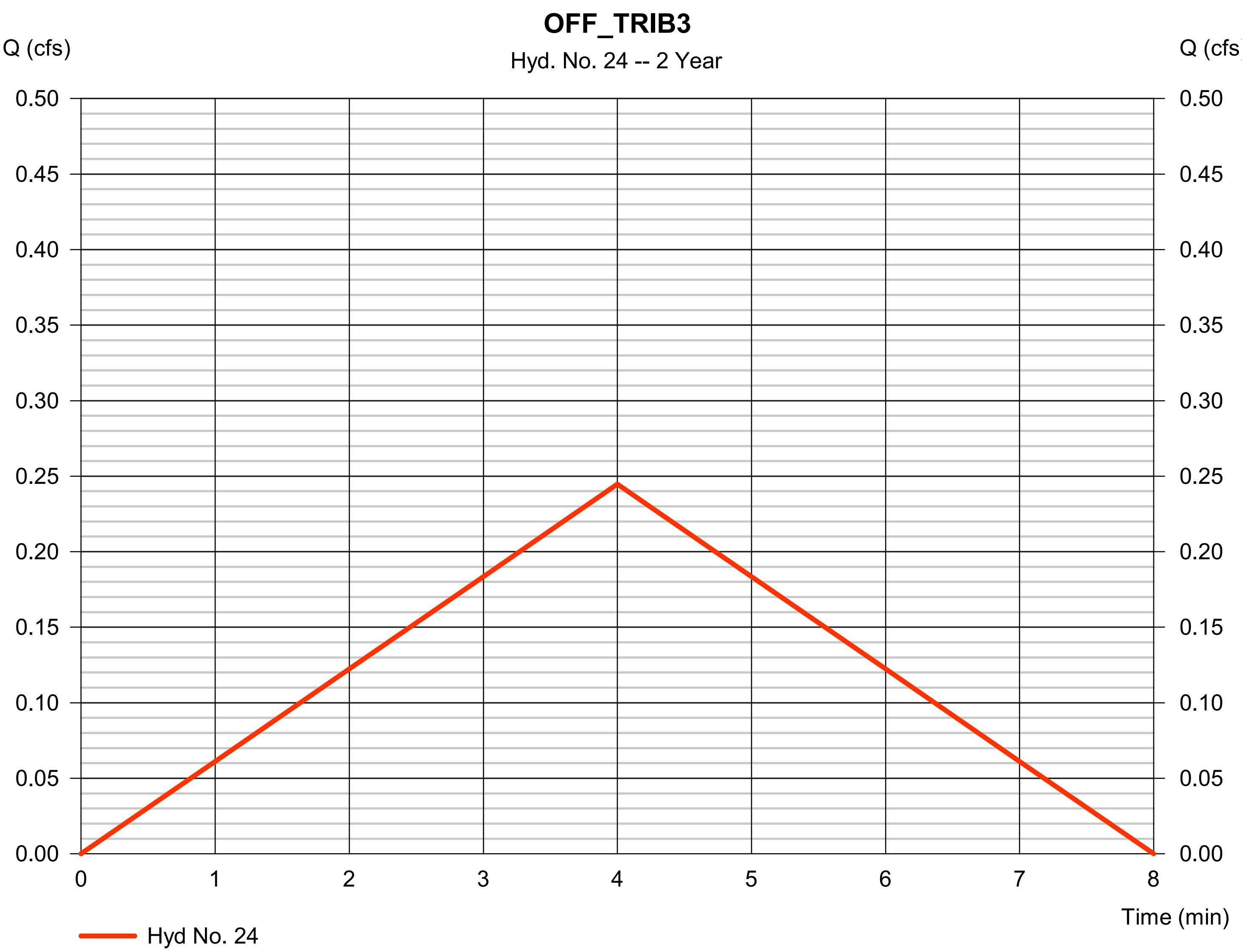
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 24

OFF_TRIB3

Hydrograph type	= Rational	Peak discharge	= 0.245 cfs
Storm frequency	= 2 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 59 cuft
Drainage area	= 0.204 ac	Runoff coeff.	= 0.2
Intensity	= 5.999 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



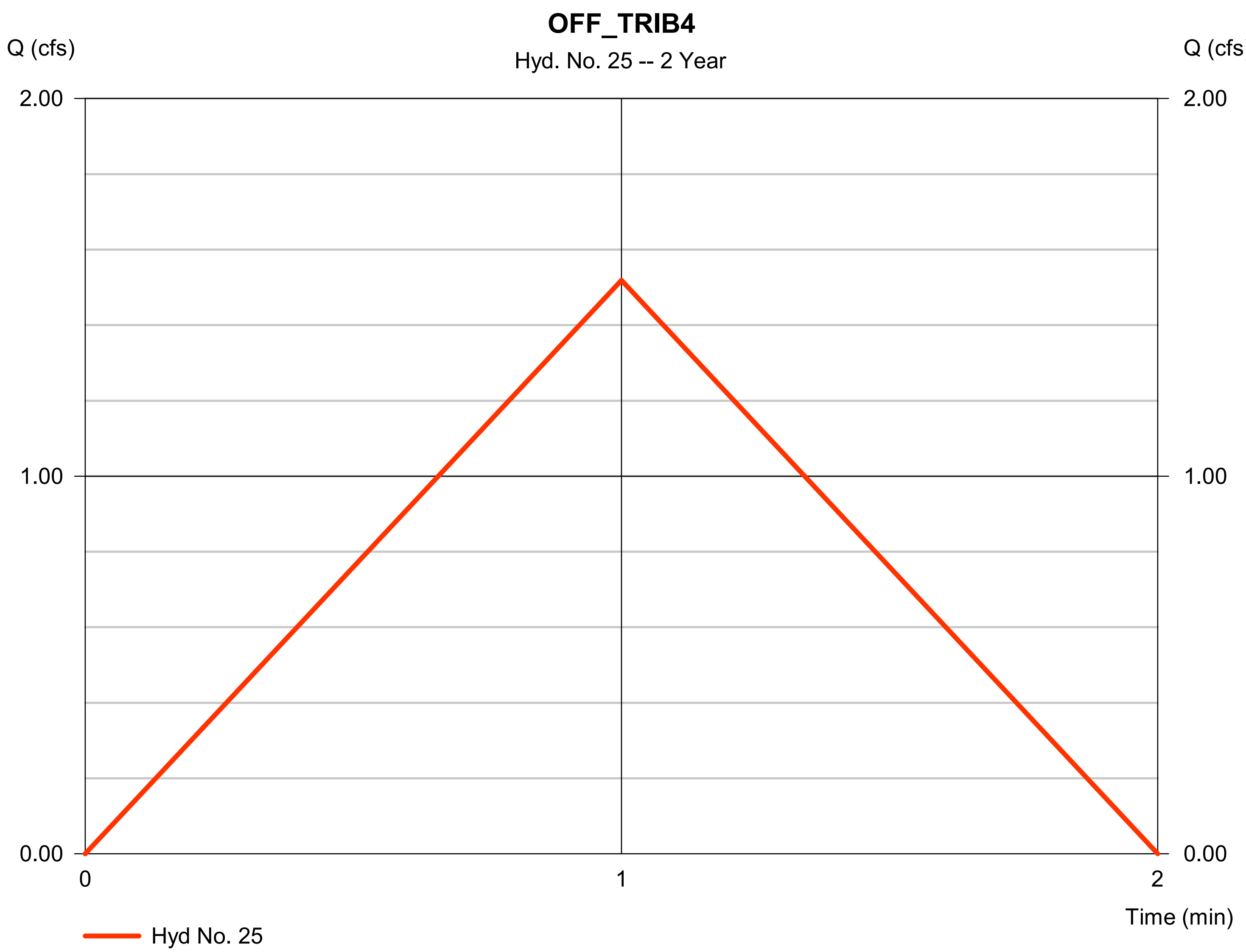
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 25

OFF_TRIB4

Hydrograph type	= Rational	Peak discharge	= 1.519 cfs
Storm frequency	= 2 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 91 cuft
Drainage area	= 1.006 ac	Runoff coeff.	= 0.2
Intensity	= 7.550 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1

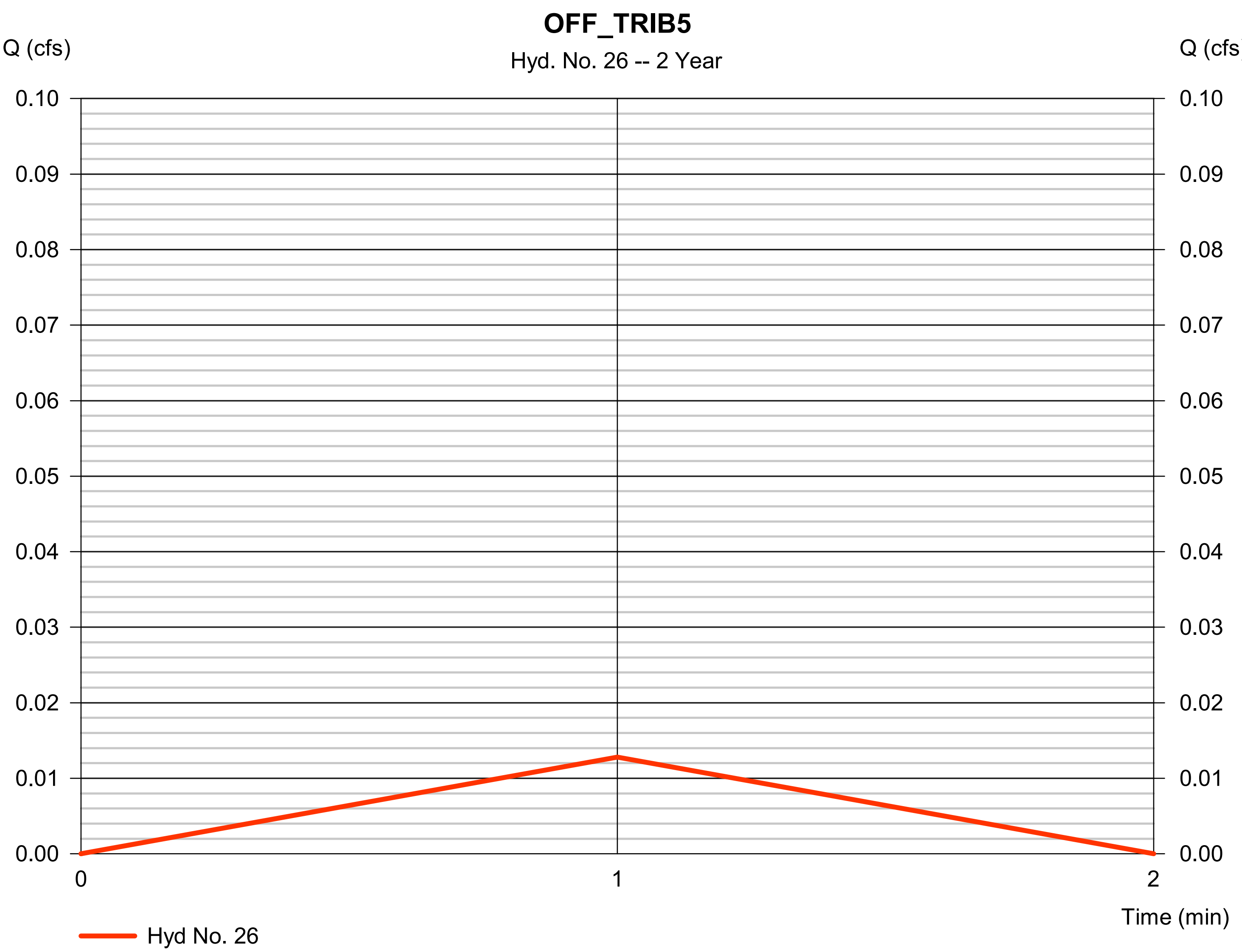


Hydrograph Report

Hyd. No. 26

OFF_TRIB5

Hydrograph type	= Rational	Peak discharge	= 0.013 cfs
Storm frequency	= 2 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 1 cuft
Drainage area	= 0.008 ac	Runoff coeff.	= 0.2
Intensity	= 7.550 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



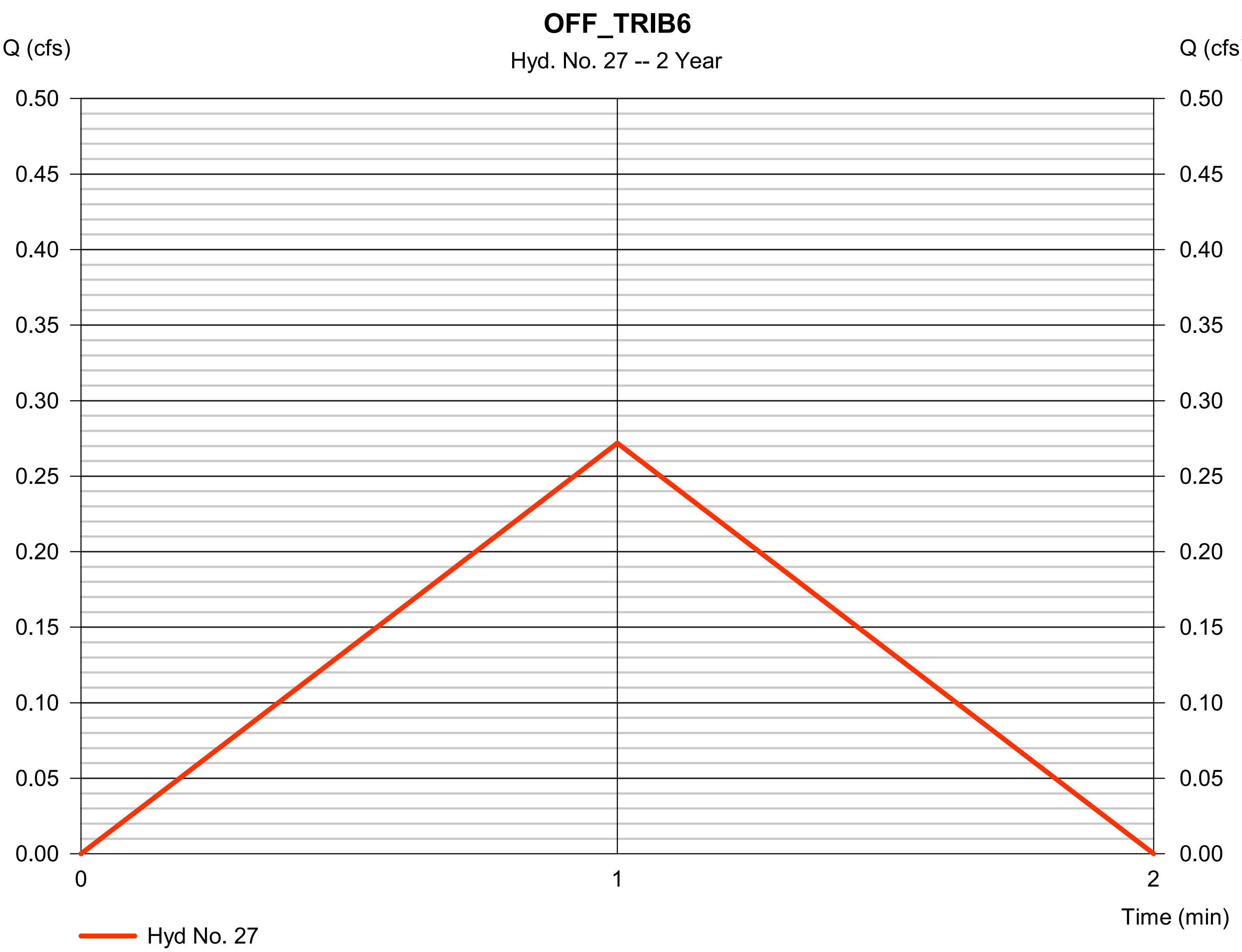
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 27

OFF_TRIB6

Hydrograph type	= Rational	Peak discharge	= 0.272 cfs
Storm frequency	= 2 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 16 cuft
Drainage area	= 0.180 ac	Runoff coeff.	= 0.2
Intensity	= 7.550 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



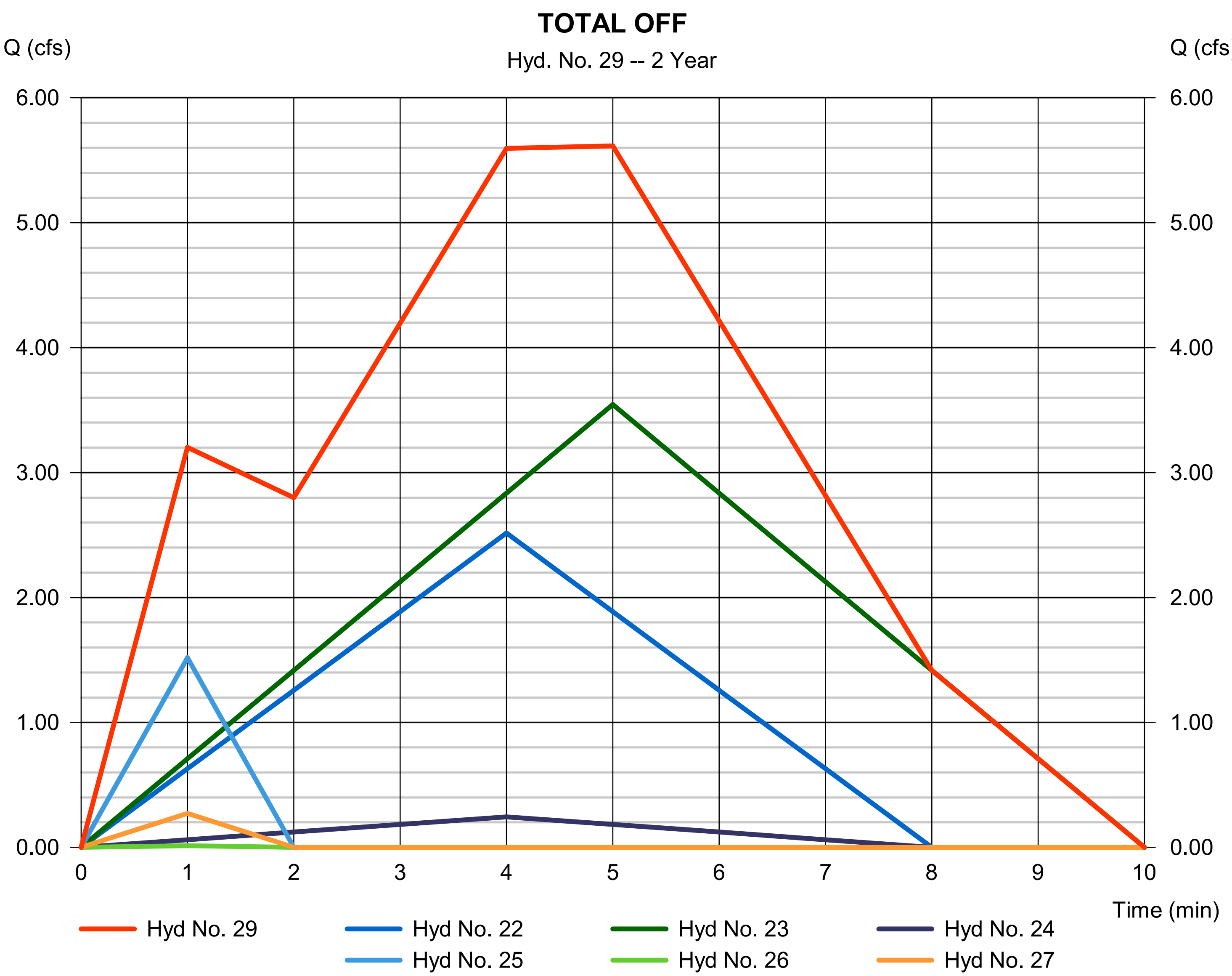
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 29

TOTAL OFF

Hydrograph type	= Combine	Peak discharge	= 5.615 cfs
Storm frequency	= 2 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 1,834 cuft
Inflow hyds.	= 22, 23, 24, 25, 26, 27	Contrib. drain. area	= 5.012 ac



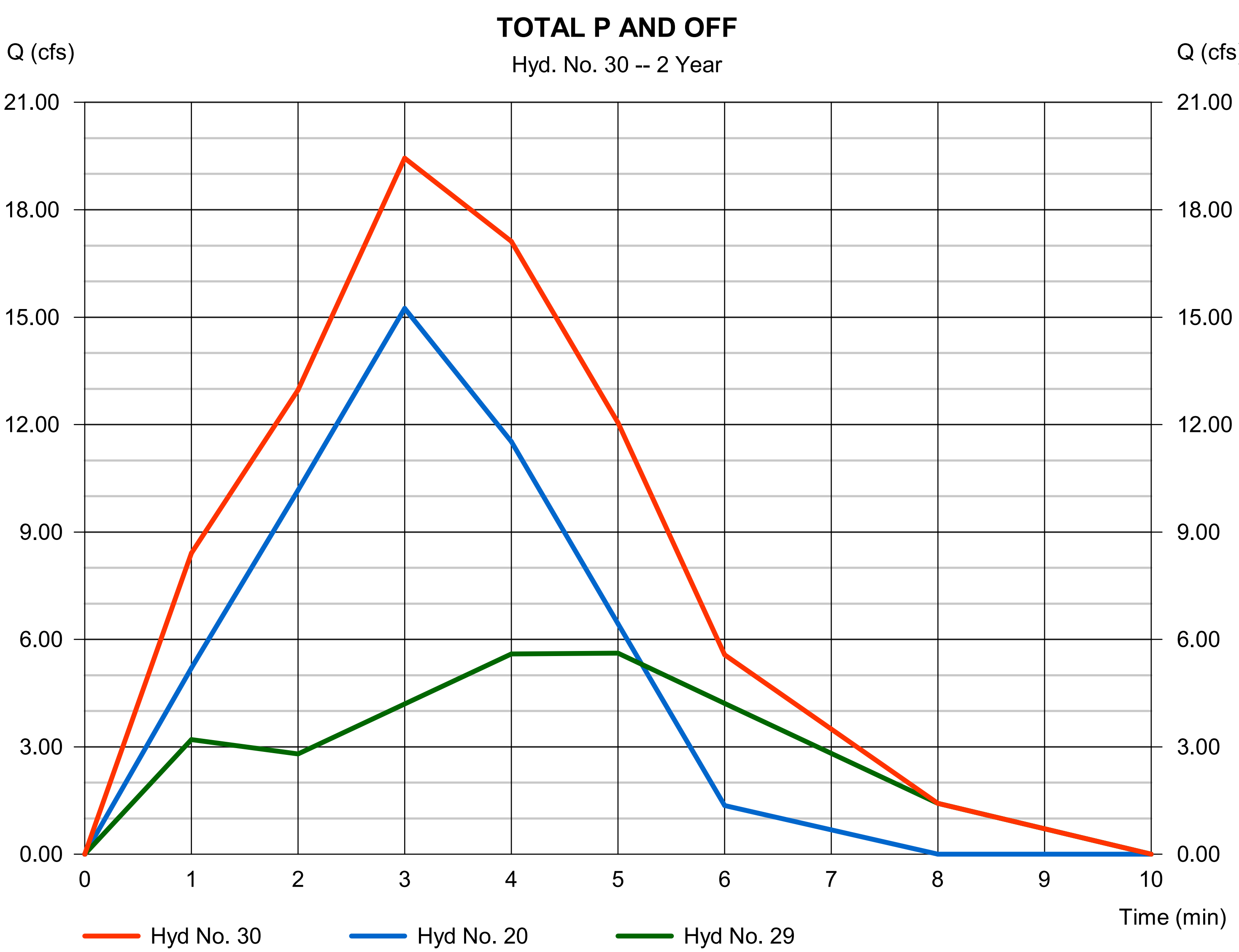
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 30

TOTAL P AND OFF

Hydrograph type	= Combine	Peak discharge	= 19.44 cfs
Storm frequency	= 2 yrs	Time to peak	= 3 min
Time interval	= 1 min	Hyd. volume	= 4,871 cuft
Inflow hyds.	= 20, 29	Contrib. drain. area	= 0.000 ac



Hydrograph Report

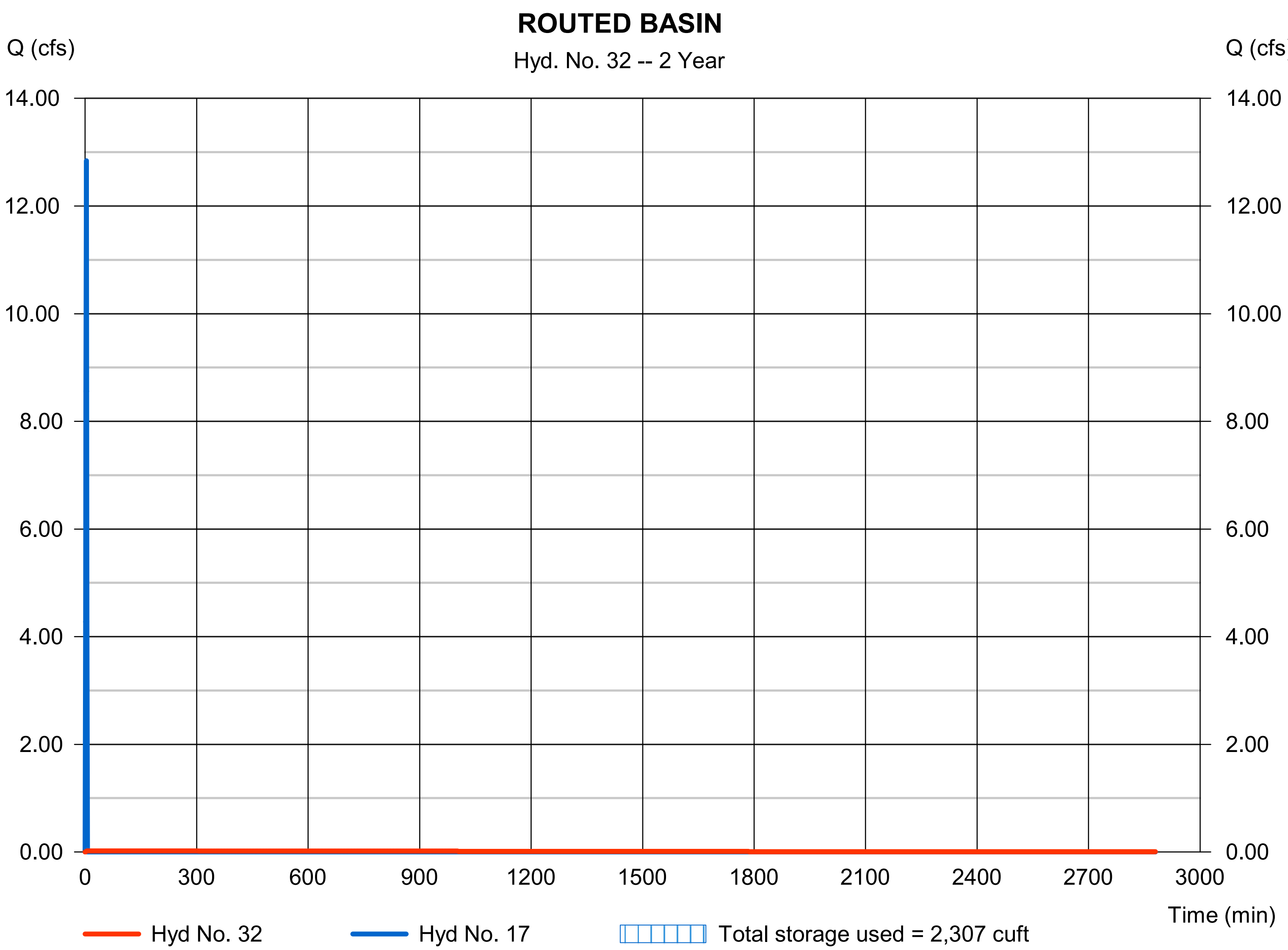
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 32

ROUTED BASIN

Hydrograph type	= Reservoir	Peak discharge	= 0.021 cfs
Storm frequency	= 2 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 1,935 cuft
Inflow hyd. No.	= 17 - P_TRIB3	Max. Elevation	= 470.32 ft
Reservoir name	= BMP 1	Max. Storage	= 2,307 cuft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Pond No. 1 - BMP 1

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 470.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	470.00	1,693	0	0
1.00	471.00	15,086	7,277	7,277
2.00	472.00	17,923	16,482	23,759
3.00	473.00	23,226	20,515	44,275

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	1.25	6.00	0.00
Span (in)	= 18.00	1.25	8.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 468.40	470.01	471.25	0.00
Length (ft)	= 40.00	0.00	0.00	0.00
Slope (%)	= 1.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	0.00	0.00	0.00
Crest El. (ft)	= 471.75	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
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).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	470.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.10	728	470.10	6.73 oc	0.01 ic	0.00	---	0.00	---	---	---	---	---	0.008
0.20	1,455	470.20	6.73 oc	0.02 ic	0.00	---	0.00	---	---	---	---	---	0.015
0.30	2,183	470.30	6.73 oc	0.02 ic	0.00	---	0.00	---	---	---	---	---	0.020
0.40	2,911	470.40	6.73 oc	0.02 ic	0.00	---	0.00	---	---	---	---	---	0.024
0.50	3,638	470.50	6.73 oc	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.027
0.60	4,366	470.60	6.73 oc	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.030
0.70	5,094	470.70	6.73 oc	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.033
0.80	5,821	470.80	6.73 oc	0.04 ic	0.00	---	0.00	---	---	---	---	---	0.035
0.90	6,549	470.90	6.73 oc	0.04 ic	0.00	---	0.00	---	---	---	---	---	0.038
1.00	7,277	471.00	6.73 oc	0.04 ic	0.00	---	0.00	---	---	---	---	---	0.040
1.10	8,925	471.10	6.73 oc	0.04 ic	0.00	---	0.00	---	---	---	---	---	0.042
1.20	10,573	471.20	6.73 oc	0.04 ic	0.00	---	0.00	---	---	---	---	---	0.044
1.30	12,222	471.30	6.73 oc	0.05 ic	0.03 ic	---	0.00	---	---	---	---	---	0.071
1.40	13,870	471.40	6.73 oc	0.05 ic	0.13 ic	---	0.00	---	---	---	---	---	0.179
1.50	15,518	471.50	6.73 oc	0.05 ic	0.28 ic	---	0.00	---	---	---	---	---	0.333
1.60	17,166	471.60	6.73 oc	0.05 ic	0.47 ic	---	0.00	---	---	---	---	---	0.521
1.70	18,815	471.70	6.73 oc	0.05 ic	0.69 ic	---	0.00	---	---	---	---	---	0.738
1.80	20,463	471.80	6.73 oc	0.05 ic	0.88 ic	---	0.45	---	---	---	---	---	1.380
1.90	22,111	471.90	6.73 oc	0.06 ic	1.02 ic	---	2.32	---	---	---	---	---	3.394
2.00	23,759	472.00	6.73 oc	0.06 ic	1.13 ic	---	4.99	---	---	---	---	---	6.187
2.10	25,811	472.10	9.57 oc	0.05 ic	1.24 ic	---	8.27	---	---	---	---	---	9.569
2.20	27,862	472.20	13.33 ic	0.03 ic	1.24 ic	---	12.06	---	---	---	---	---	13.33
2.30	29,914	472.30	14.45 ic	0.02 ic	0.83 ic	---	13.61 s	---	---	---	---	---	14.45
2.40	31,965	472.40	14.93 ic	0.02 ic	0.66 ic	---	14.24 s	---	---	---	---	---	14.93
2.50	34,017	472.50	15.29 ic	0.01 ic	0.55 ic	---	14.72 s	---	---	---	---	---	15.29
2.60	36,069	472.60	15.60 ic	0.01 ic	0.48 ic	---	15.11 s	---	---	---	---	---	15.60
2.70	38,120	472.70	15.88 ic	0.01 ic	0.41 ic	---	15.45 s	---	---	---	---	---	15.87
2.80	40,172	472.80	16.14 ic	0.01 ic	0.37 ic	---	15.76 s	---	---	---	---	---	16.13
2.90	42,223	472.90	16.38 ic	0.01 ic	0.33 ic	---	16.04 s	---	---	---	---	---	16.37
3.00	44,275	473.00	16.62 ic	0.01 ic	0.30 ic	---	16.31 s	---	---	---	---	---	16.61

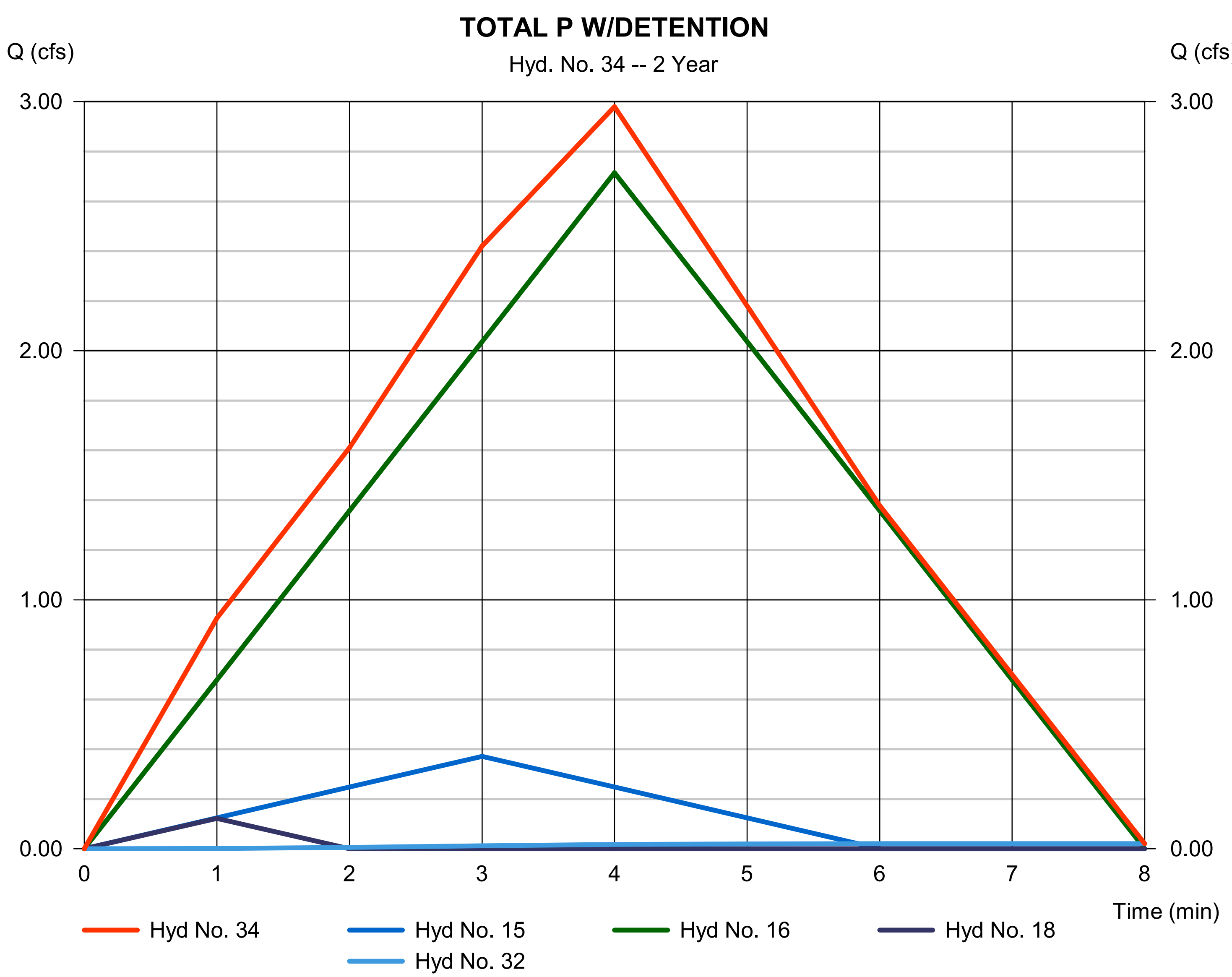
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 34

TOTAL P W/DETENTION

Hydrograph type	= Combine	Peak discharge	= 2.980 cfs
Storm frequency	= 2 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 2,661 cuft
Inflow hyds.	= 15, 16, 18, 32	Contrib. drain. area	= 2.633 ac



Hydrograph Summary Report

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

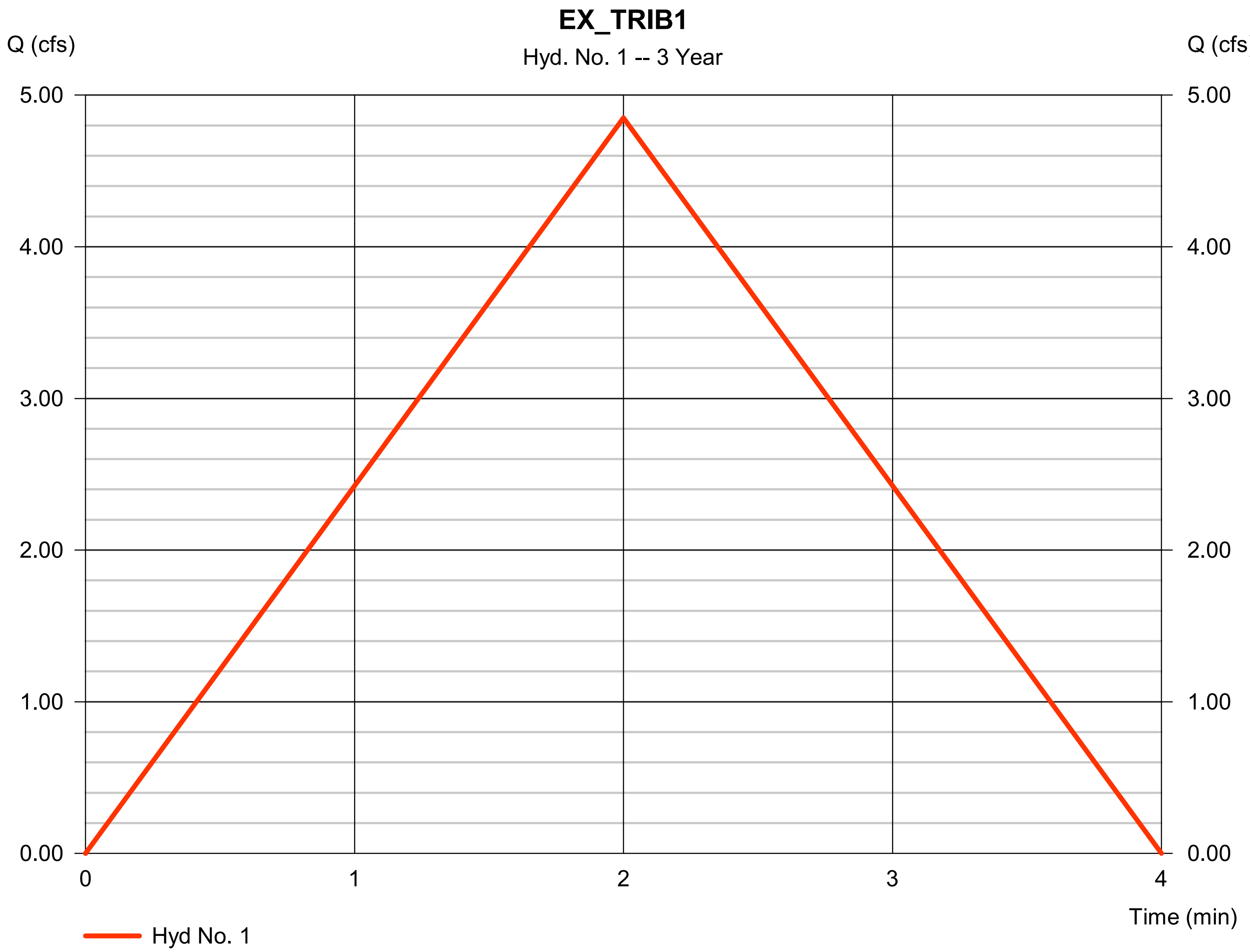
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	4.850	1	2	582	------	------	------	EX_TRIB1
2	Rational	5.615	1	6	2,022	------	------	------	EX_TRIB2
3	Rational	4.979	1	6	1,793	------	------	------	EX_TRIB3
4	Rational	0.483	1	1	29	------	------	------	EX_TRIB4
5	Rational	0.160	1	1	10	------	------	------	EX_TRIB5
6	Rational	1.698	1	4	408	------	------	------	EX_TRIB6
7	Rational	0.726	1	4	174	------	------	------	EX_TRIB7
8	Rational	0.333	1	5	100	------	------	------	EX_TRIB8
9	Rational	0.022	1	1	1	------	------	------	EX_TRIB9
11	Combine	11.44	1	6	4,842	1, 2, 3, 4, 5, 6, 7, 8, 9,	------	------	TOTAL EX 1 OF 2
12	Combine	0.993	1	4	276		------	------	TOTAL EX 2 OF 2
13	Combine	12.07	1	6	5,118	11, 12	------	------	TOTAL EX
15	Rational	0.573	1	3	103	------	------	------	P_TRIB1
16	Rational	4.089	1	4	981	------	------	------	P_TRIB2
17	Rational	19.81	1	3	3,567	------	------	------	P_TRIB3
18	Rational	0.205	1	1	12	------	------	------	P_TRIB4
20	Combine	23.45	1	3	4,663	15, 16, 17, 18,	------	------	TOTAL P
22	Rational	3.789	1	4	909	------	------	------	OFF_TRIB1
23	Rational	5.245	1	5	1,573	------	------	------	OFF_TRIB2
24	Rational	0.369	1	4	88	------	------	------	OFF_TRIB3
25	Rational	2.555	1	1	153	------	------	------	OFF_TRIB4
26	Rational	0.022	1	1	1	------	------	------	OFF_TRIB5
27	Rational	0.457	1	1	27	------	------	------	OFF_TRIB6
29	Combine	8.363	1	5	2,753	22, 23, 24, 25, 26, 27,	------	------	TOTAL OFF
30	Combine	29.72	1	3	7,417	20, 29	------	------	TOTAL P AND OFF
32	Reservoir	0.027	1	6	2,894	17	470.49	3,561	ROUTED BASIN
34	Combine	4.494	1	4	3,991	15, 16, 18, 32,	------	------	TOTAL P W/DETENTION

Hydrograph Report

Hyd. No. 1

EX_TRIB1

Hydrograph type	= Rational	Peak discharge	= 4.850 cfs
Storm frequency	= 3 yrs	Time to peak	= 2 min
Time interval	= 1 min	Hyd. volume	= 582 cuft
Drainage area	= 1.750 ac	Runoff coeff.	= 0.25
Intensity	= 11.085 in/hr	Tc by User	= 2.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



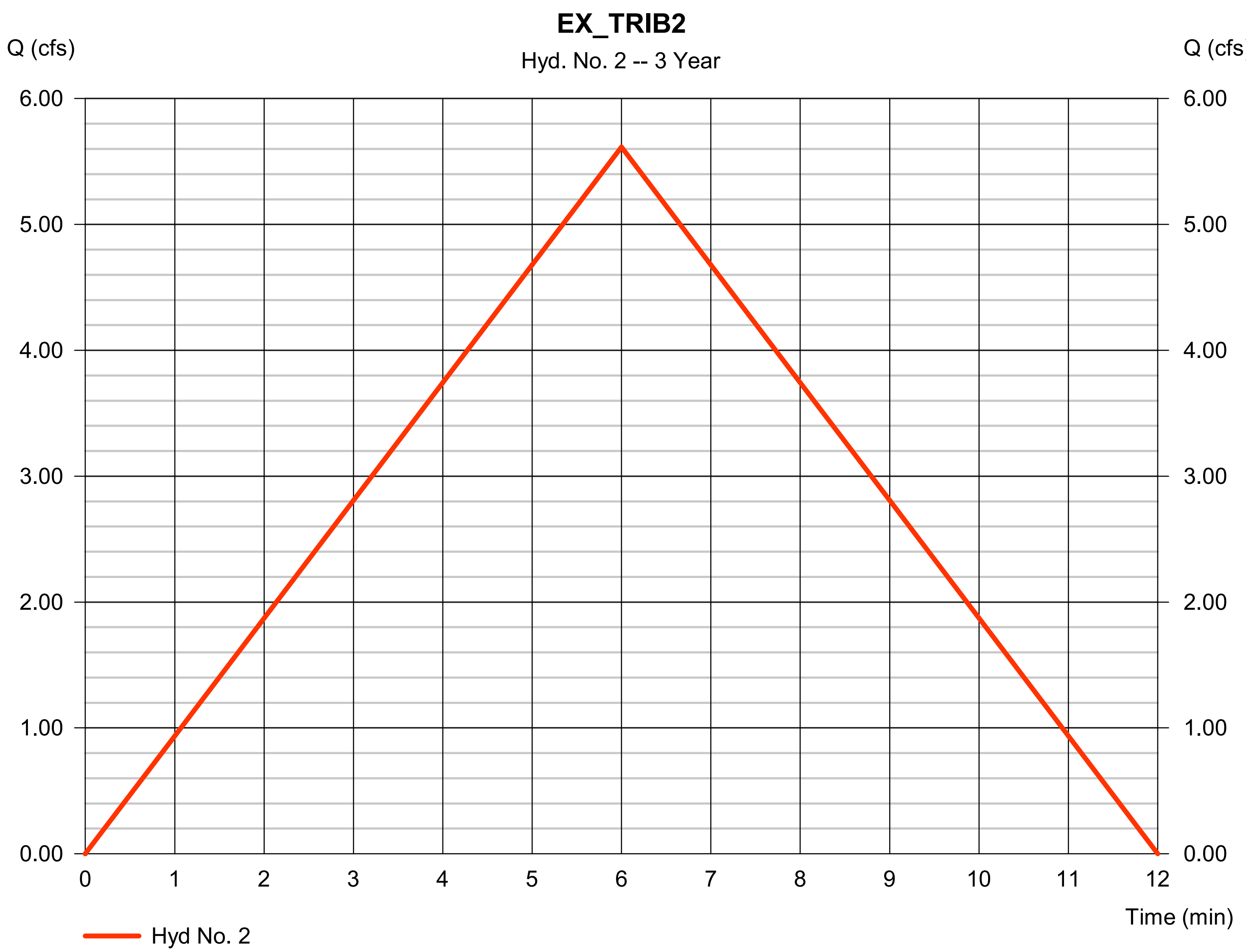
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 2

EX_TRIB2

Hydrograph type	= Rational	Peak discharge	= 5.615 cfs
Storm frequency	= 3 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 2,022 cuft
Drainage area	= 3.620 ac	Runoff coeff.	= 0.2
Intensity	= 7.756 in/hr	Tc by User	= 6.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



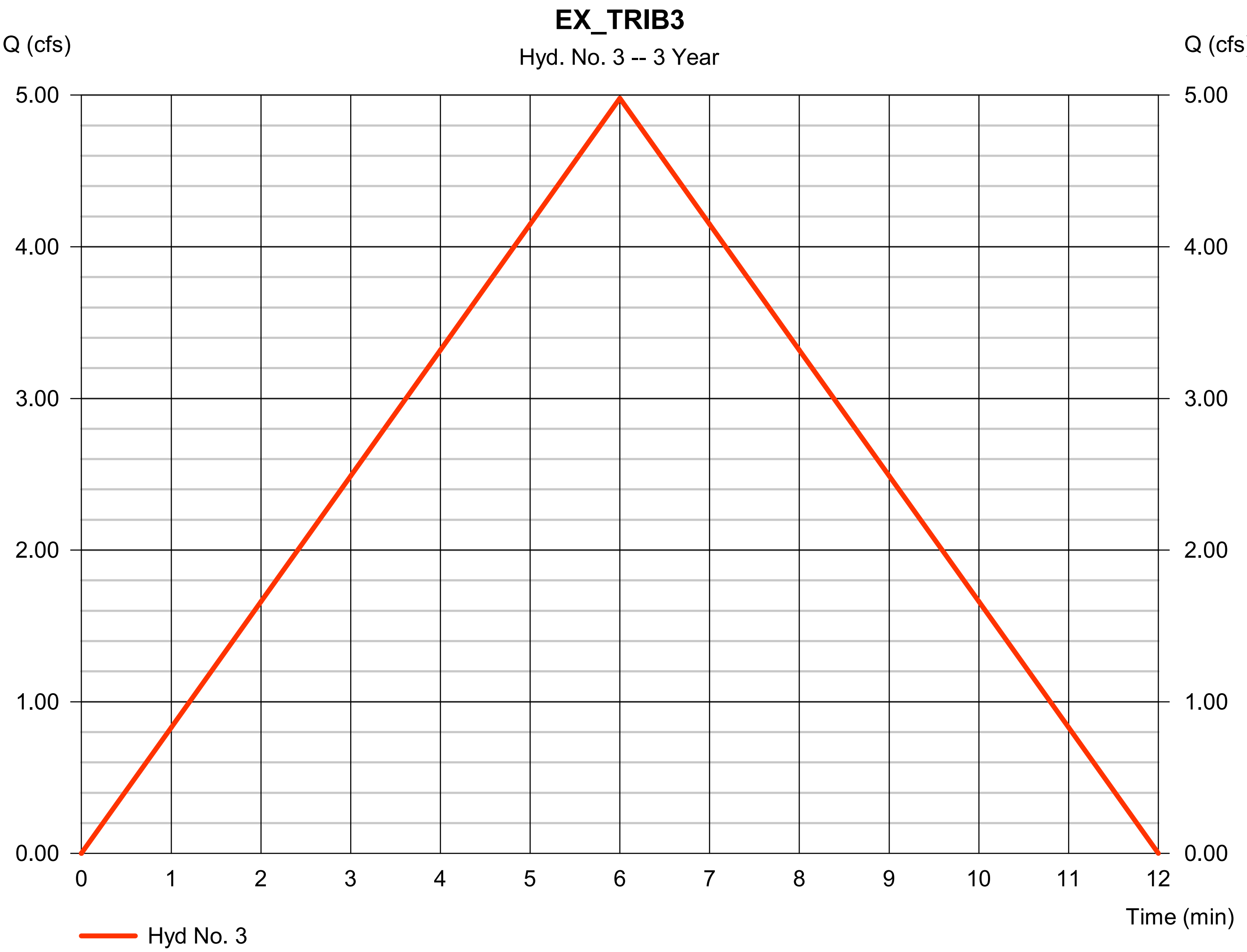
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 3

EX_TRIB3

Hydrograph type	= Rational	Peak discharge	= 4.979 cfs
Storm frequency	= 3 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 1,793 cuft
Drainage area	= 3.210 ac	Runoff coeff.	= 0.2
Intensity	= 7.756 in/hr	Tc by User	= 6.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1

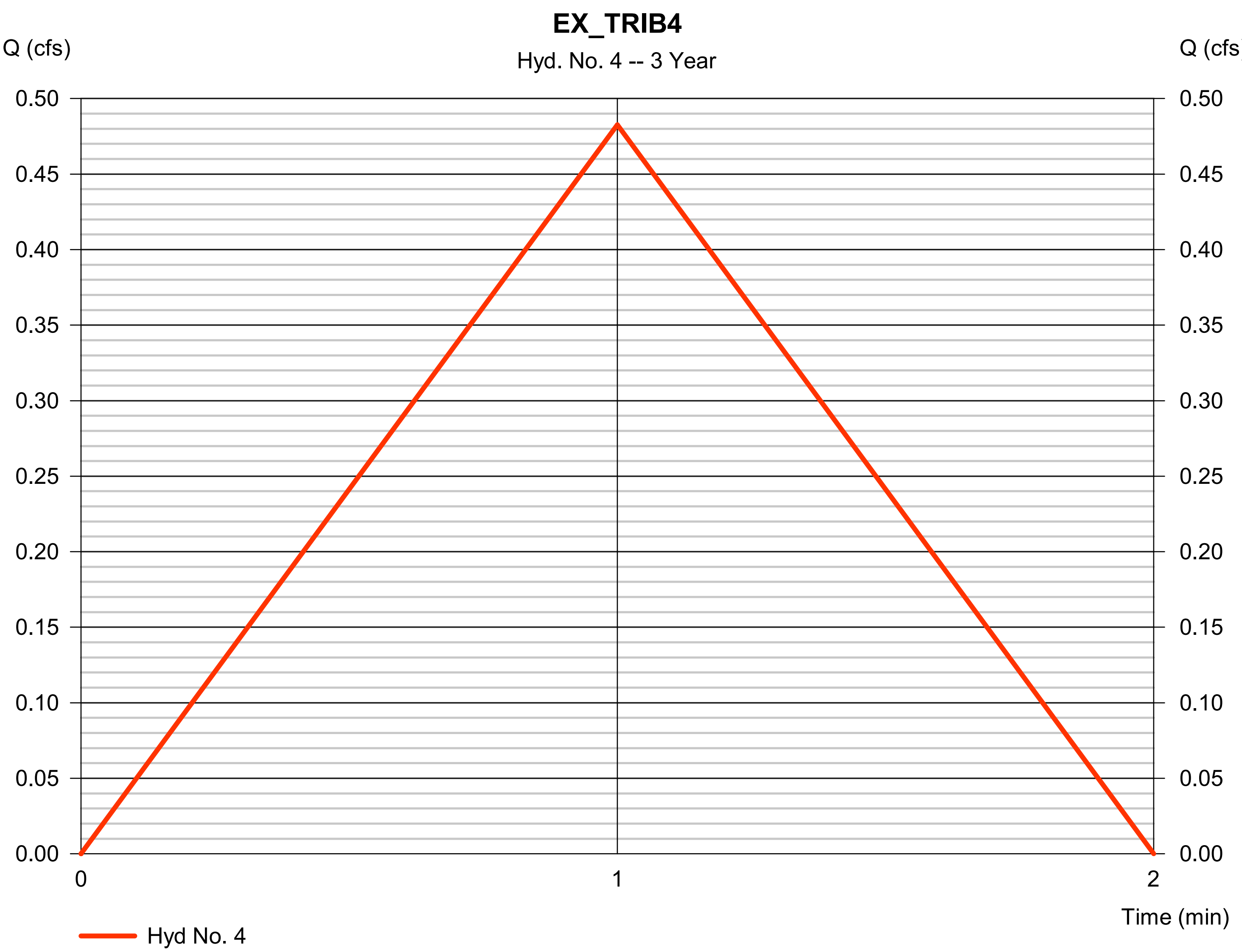


Hydrograph Report

Hyd. No. 4

EX_TRIB4

Hydrograph type	= Rational	Peak discharge	= 0.483 cfs
Storm frequency	= 3 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 29 cuft
Drainage area	= 0.190 ac	Runoff coeff.	= 0.2
Intensity	= 12.701 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



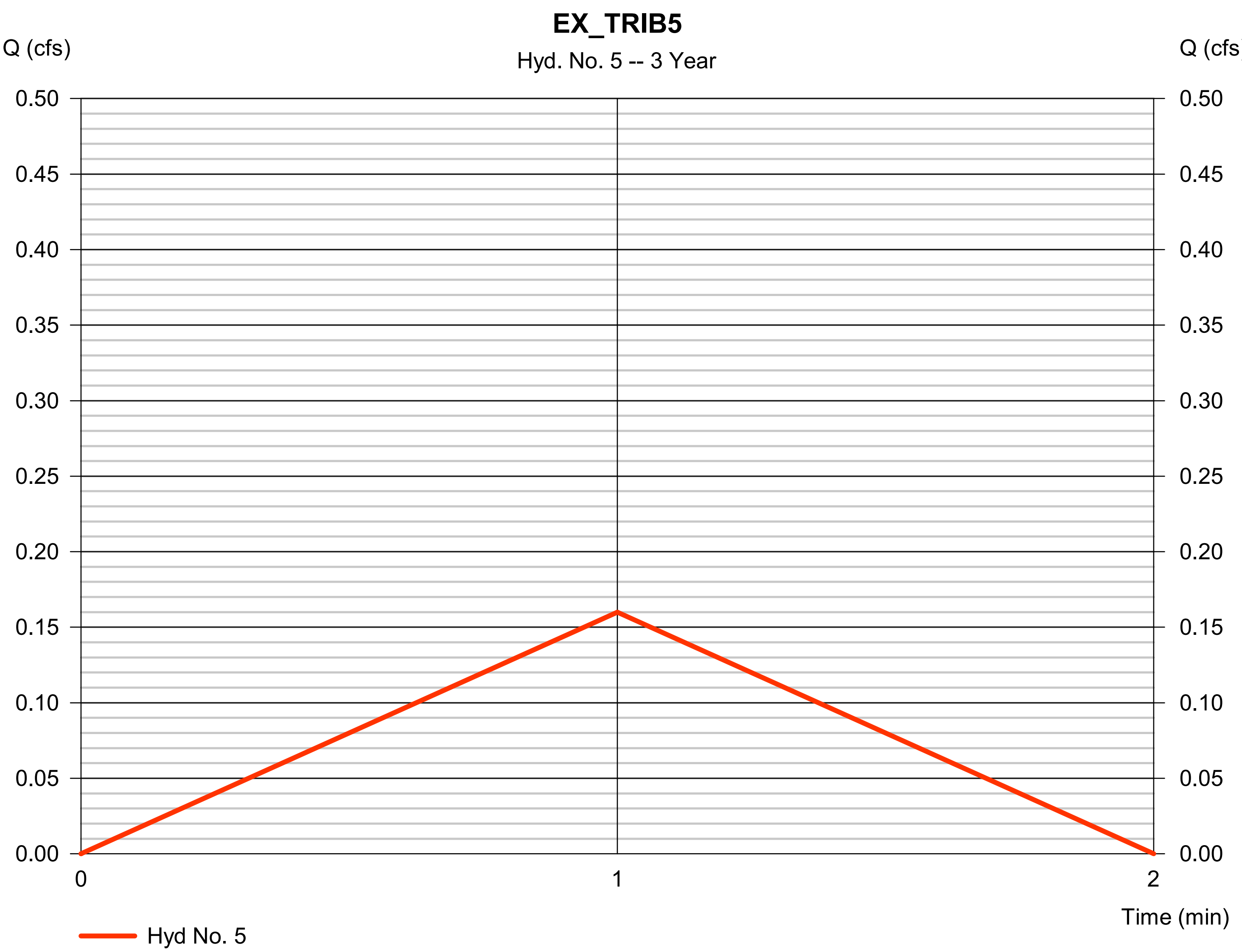
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 5

EX_TRIB5

Hydrograph type	= Rational	Peak discharge	= 0.160 cfs
Storm frequency	= 3 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 10 cuft
Drainage area	= 0.063 ac	Runoff coeff.	= 0.2
Intensity	= 12.701 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



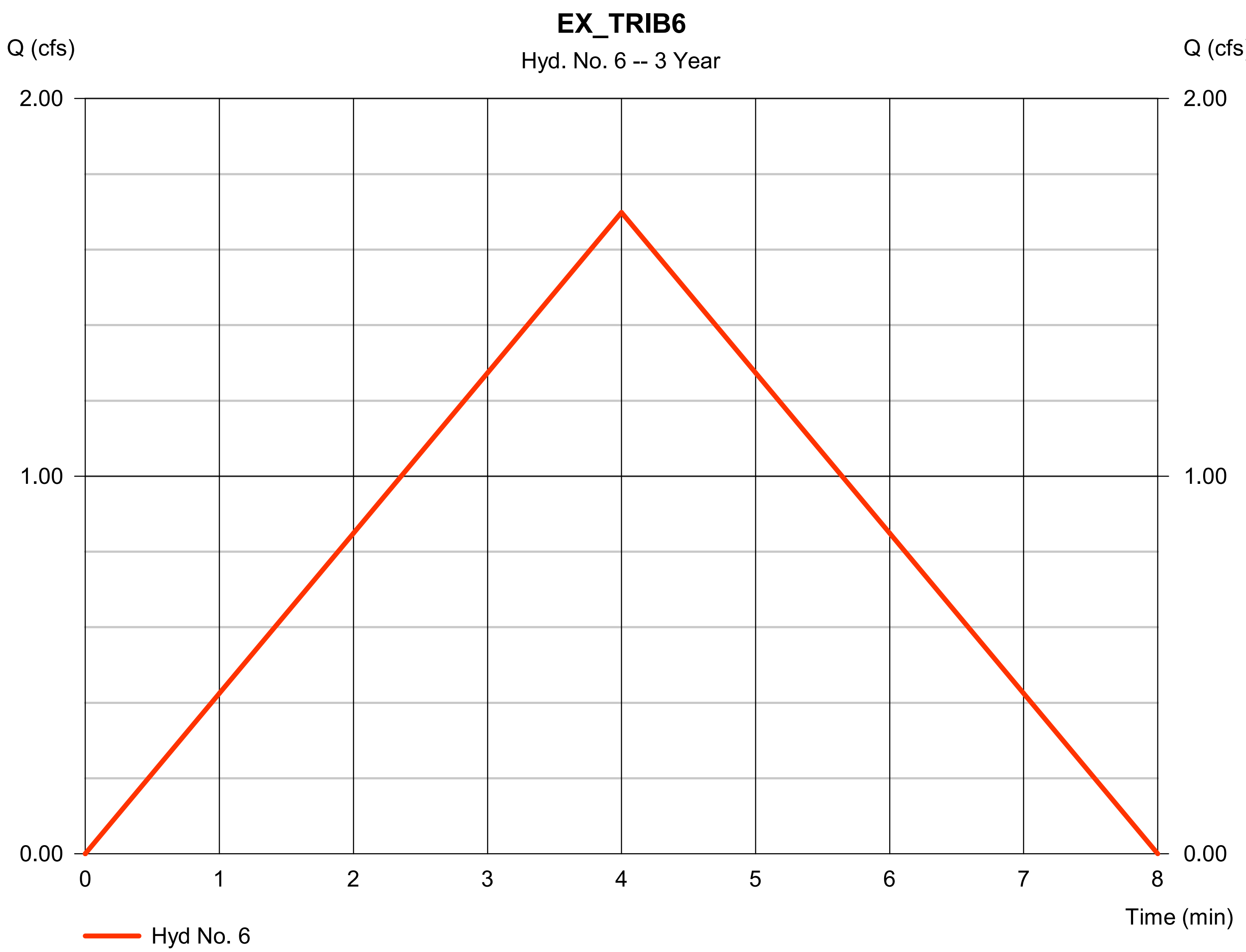
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 6

EX_TRIB6

Hydrograph type	= Rational	Peak discharge	= 1.698 cfs
Storm frequency	= 3 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 408 cuft
Drainage area	= 0.940 ac	Runoff coeff.	= 0.2
Intensity	= 9.034 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

Hyd. No. 7

EX_TRIB7

Hydrograph type	= Rational	Peak discharge	= 0.726 cfs
Storm frequency	= 3 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 174 cuft
Drainage area	= 0.402 ac	Runoff coeff.	= 0.2
Intensity	= 9.034 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1

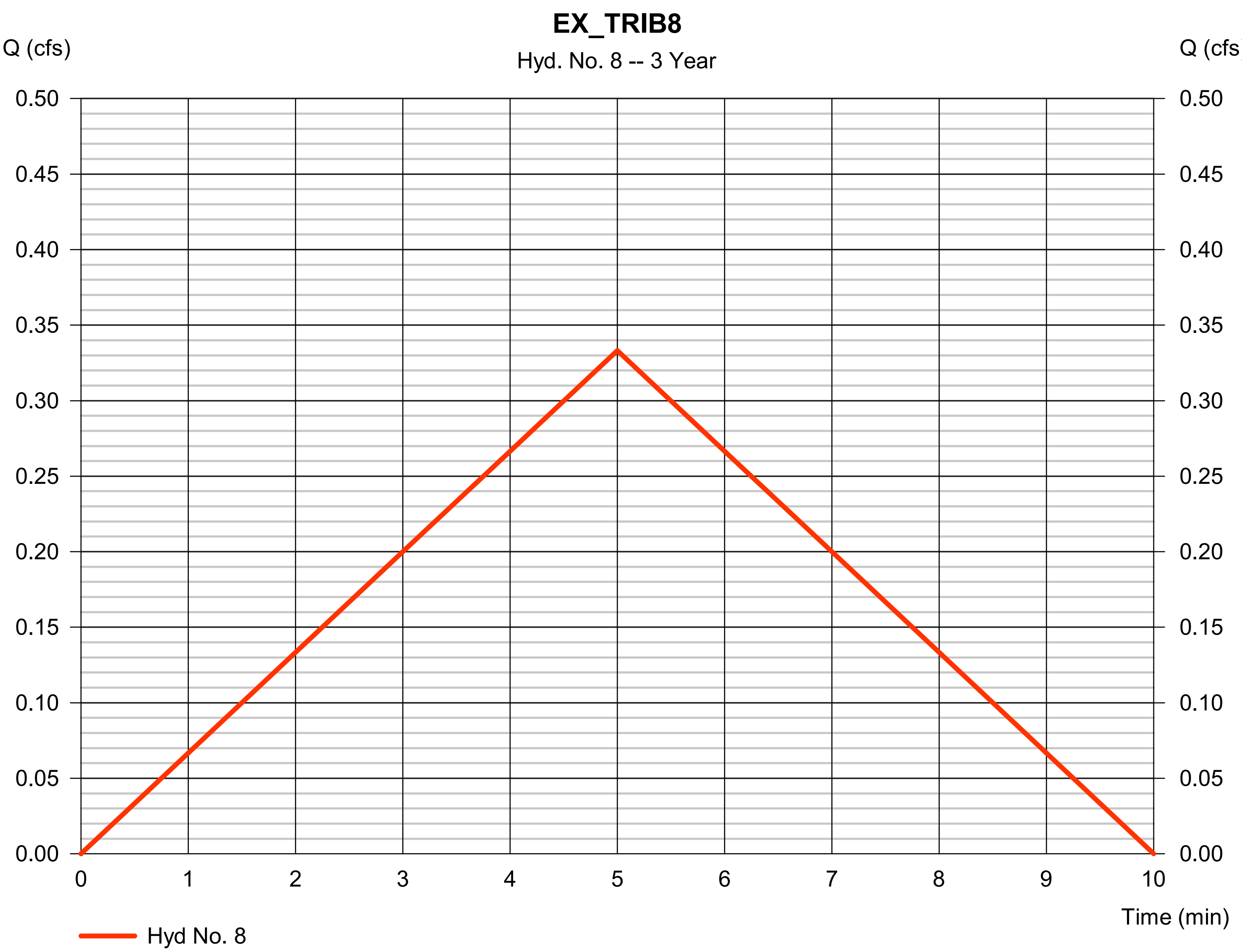
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 8

EX_TRIB8

Hydrograph type	= Rational	Peak discharge	= 0.333 cfs
Storm frequency	= 3 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 100 cuft
Drainage area	= 0.200 ac	Runoff coeff.	= 0.2
Intensity	= 8.331 in/hr	Tc by User	= 5.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



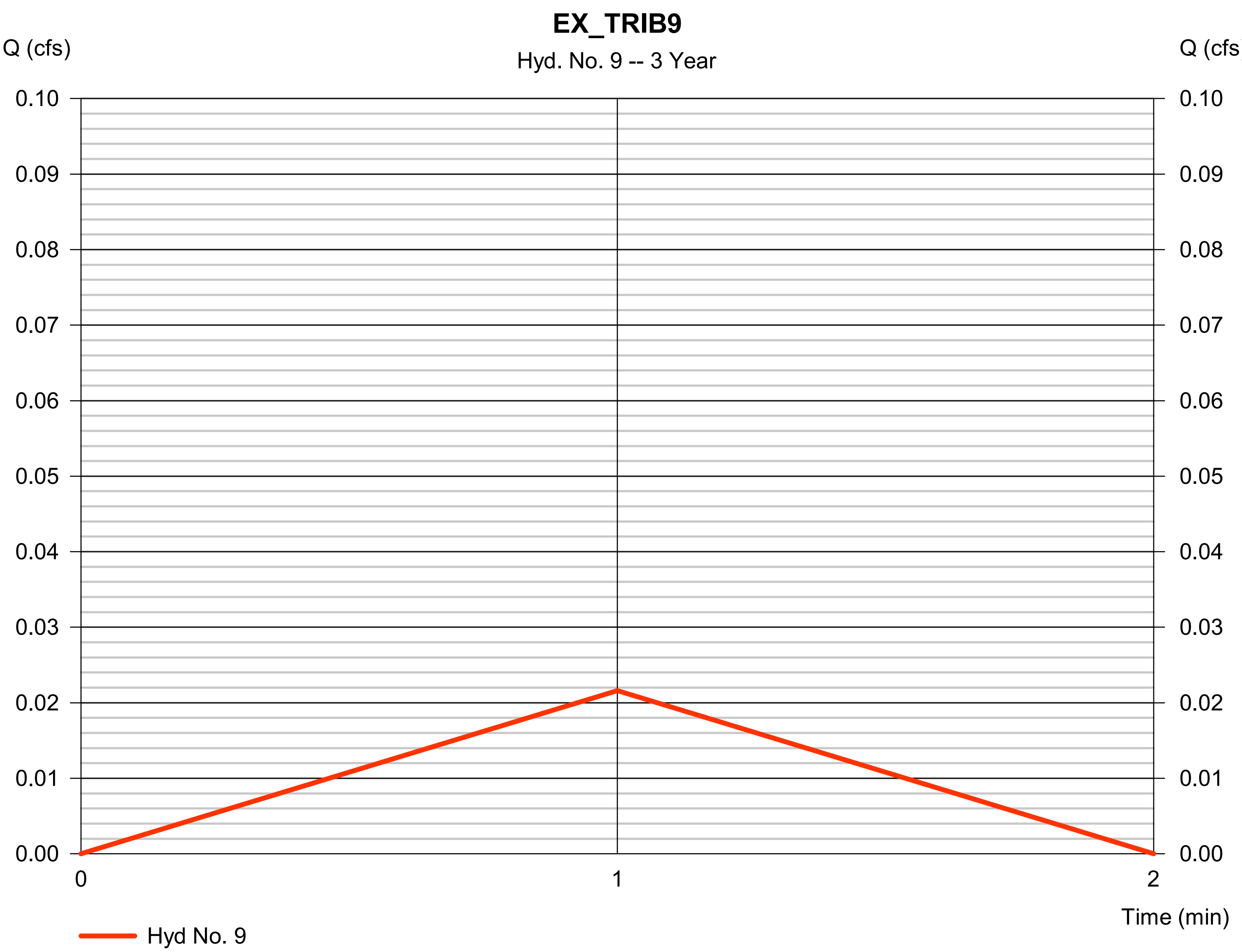
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 9

EX_TRIB9

Hydrograph type	= Rational	Peak discharge	= 0.022 cfs
Storm frequency	= 3 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 1 cuft
Drainage area	= 0.009 ac	Runoff coeff.	= 0.2
Intensity	= 12.701 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



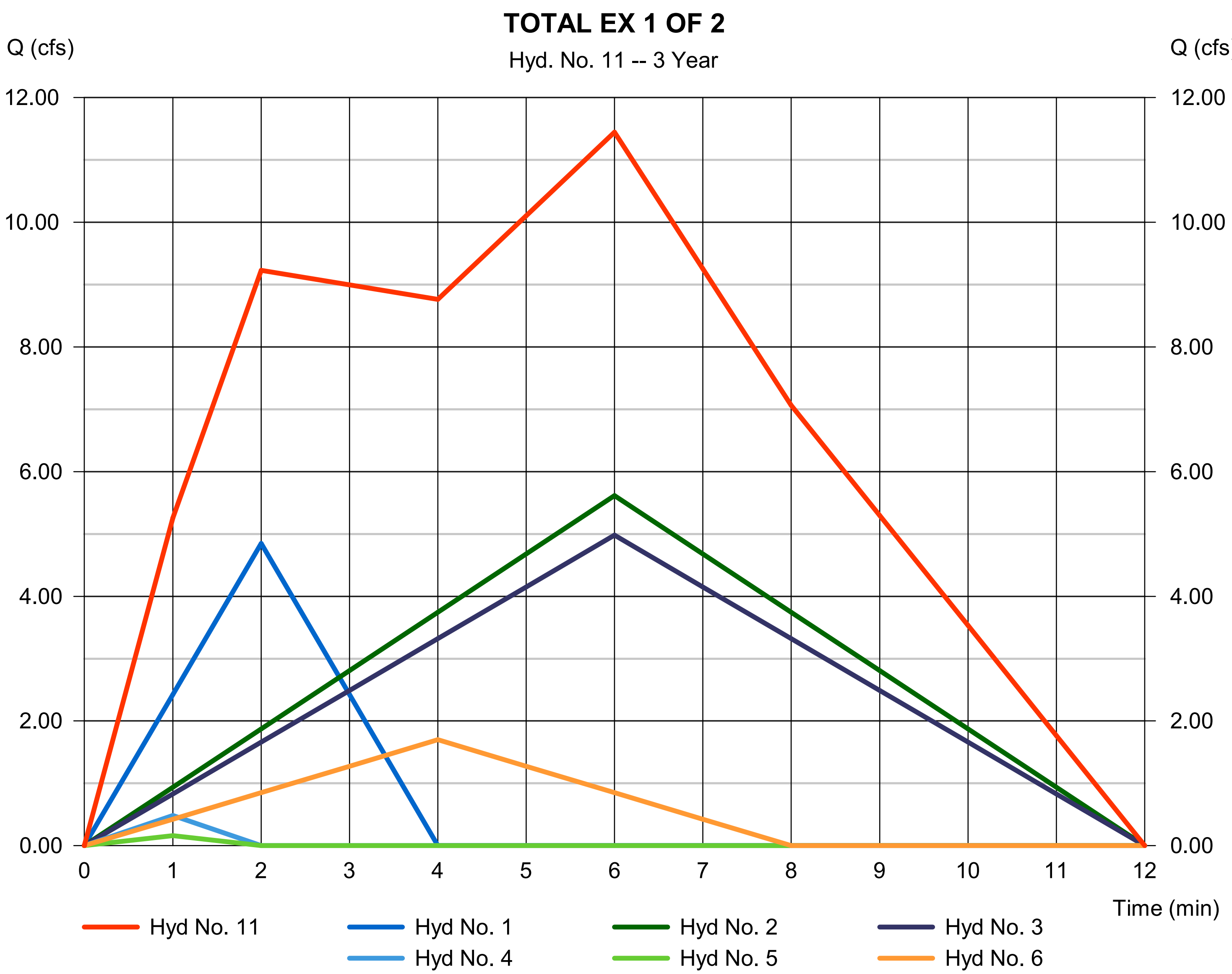
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 11

TOTAL EX 1 OF 2

Hydrograph type	= Combine	Peak discharge	= 11.44 cfs
Storm frequency	= 3 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 4,842 cuft
Inflow hyds.	= 1, 2, 3, 4, 5, 6	Contrib. drain. area	= 9.773 ac



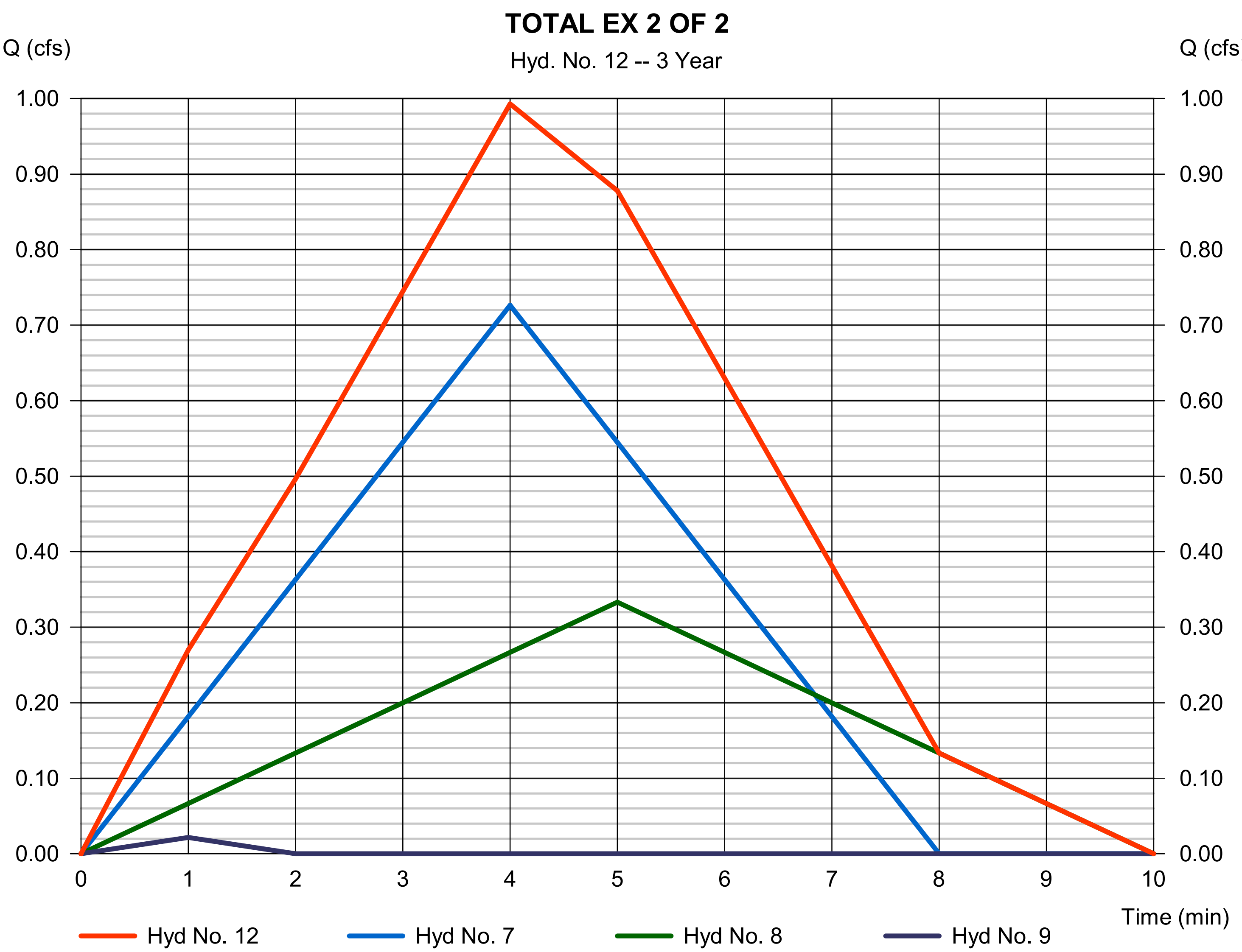
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 12

TOTAL EX 2 OF 2

Hydrograph type	= Combine	Peak discharge	= 0.993 cfs
Storm frequency	= 3 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 276 cuft
Inflow hyds.	= 7, 8, 9	Contrib. drain. area	= 0.610 ac



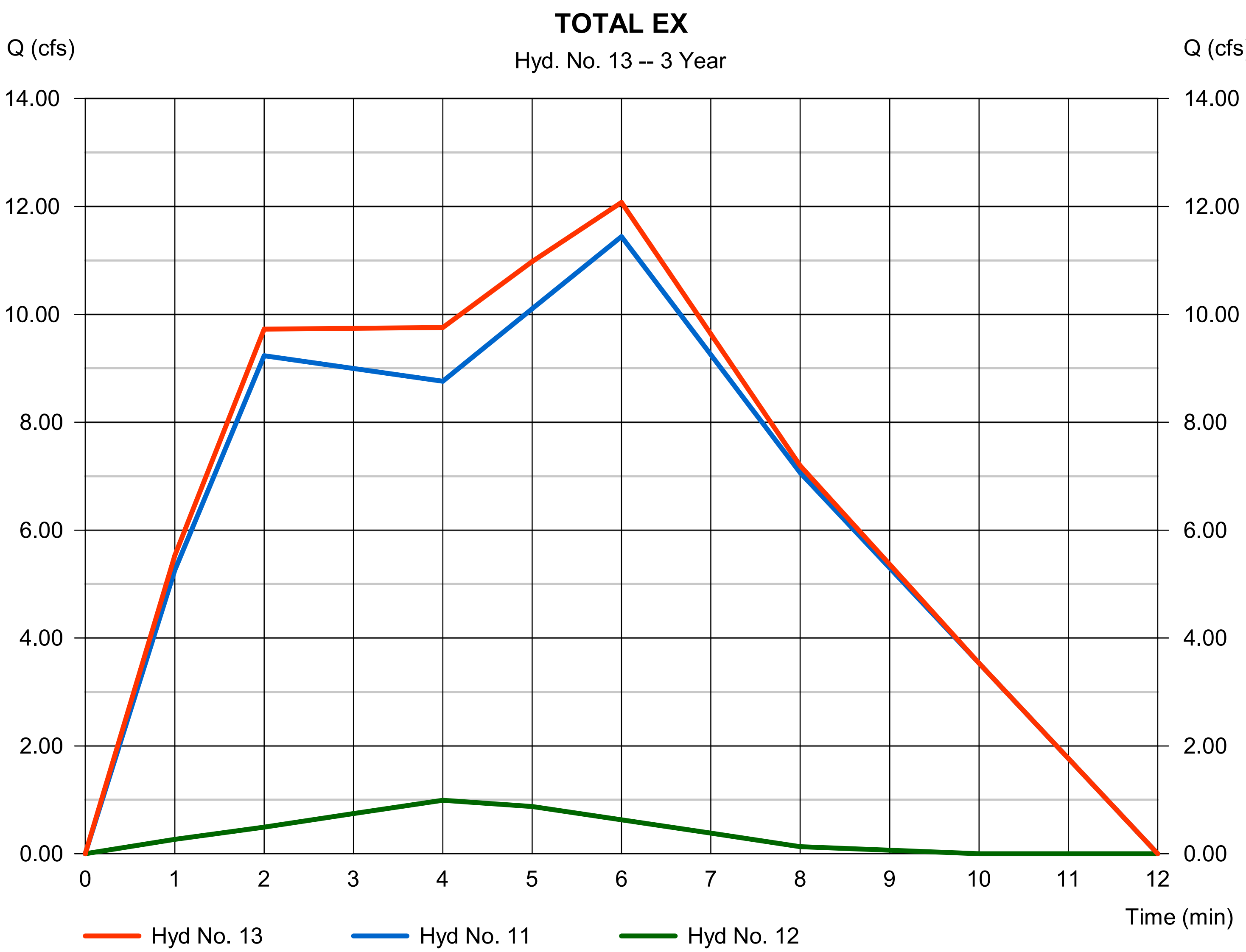
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 13

TOTAL EX

Hydrograph type	= Combine	Peak discharge	= 12.07 cfs
Storm frequency	= 3 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 5,118 cuft
Inflow hyds.	= 11, 12	Contrib. drain. area	= 0.000 ac



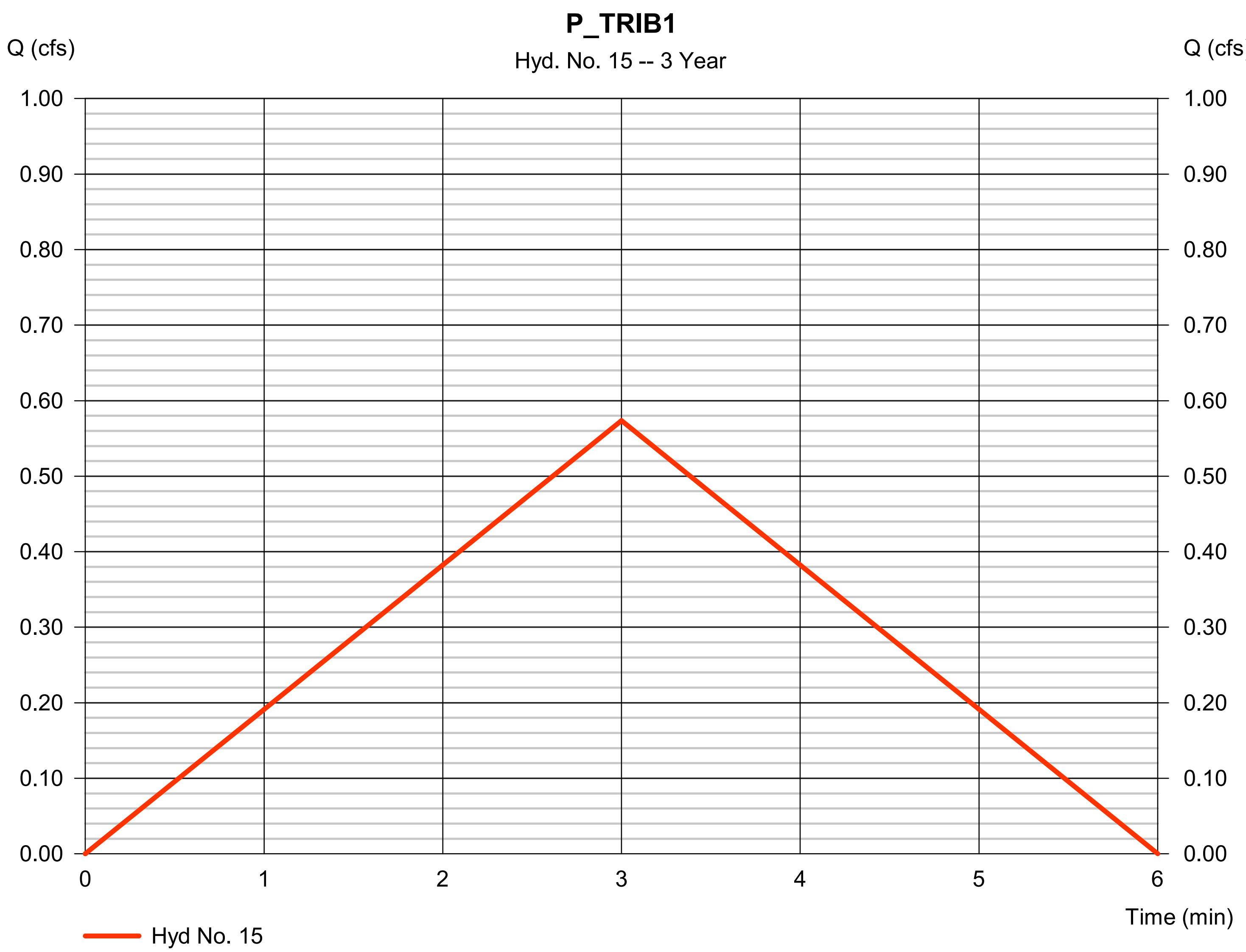
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 15

P_TRIB1

Hydrograph type	= Rational	Peak discharge	= 0.573 cfs
Storm frequency	= 3 yrs	Time to peak	= 3 min
Time interval	= 1 min	Hyd. volume	= 103 cuft
Drainage area	= 0.289 ac	Runoff coeff.	= 0.2
Intensity	= 9.921 in/hr	Tc by User	= 3.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1

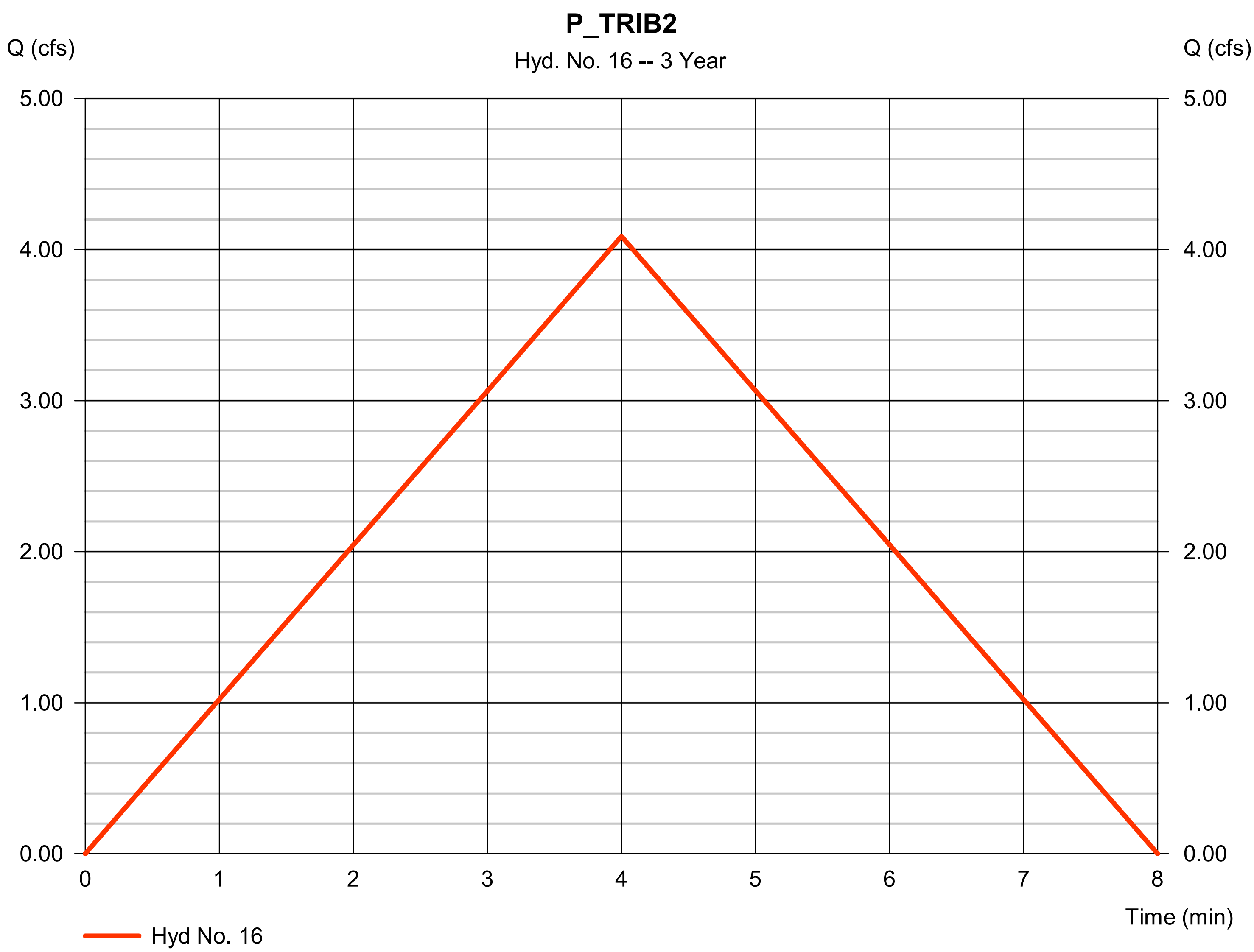


Hydrograph Report

Hyd. No. 16

P_TRIB2

Hydrograph type	= Rational	Peak discharge	= 4.089 cfs
Storm frequency	= 3 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 981 cuft
Drainage area	= 2.263 ac	Runoff coeff.	= 0.2
Intensity	= 9.034 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



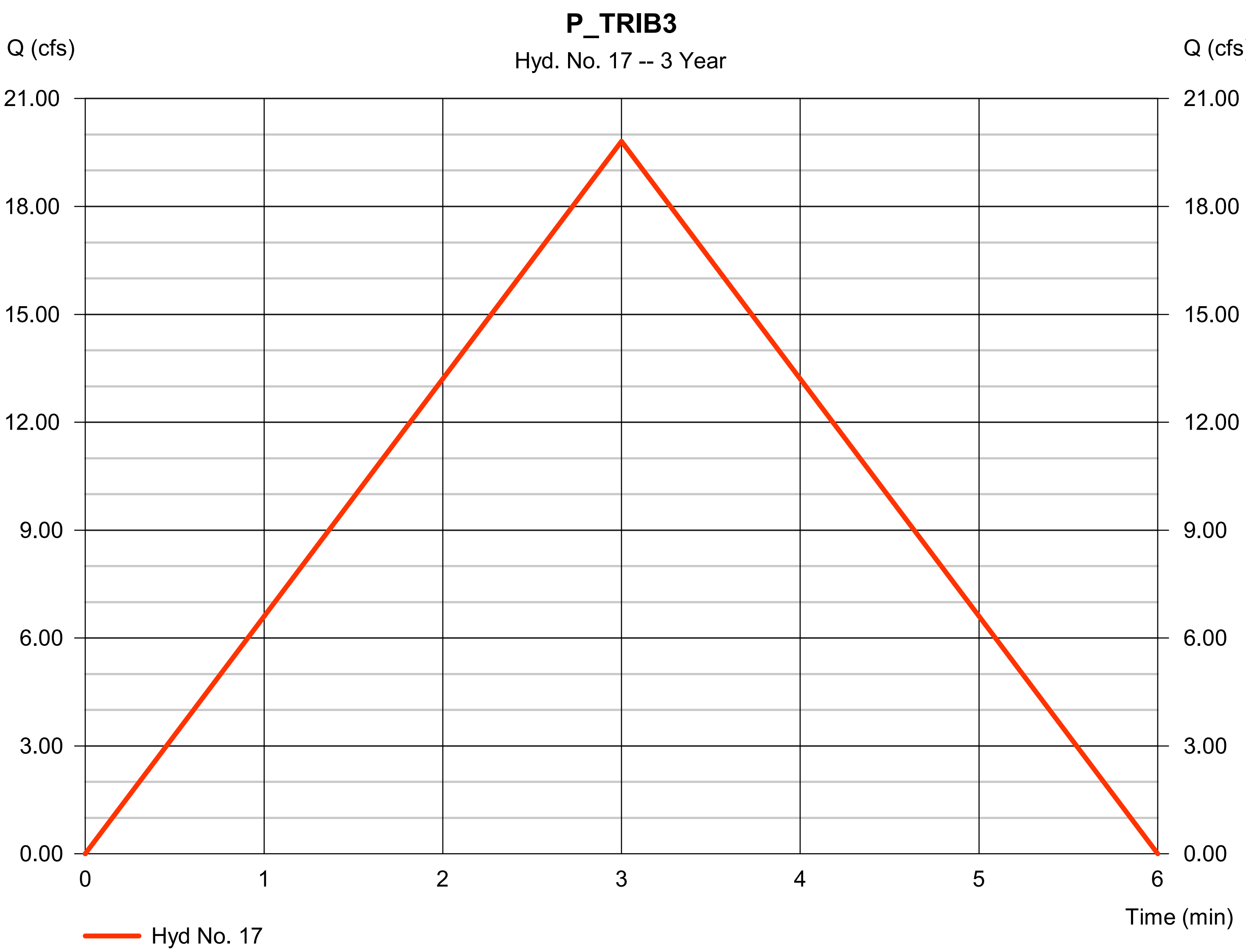
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 17

P_TRIB3

Hydrograph type	= Rational	Peak discharge	= 19.81 cfs
Storm frequency	= 3 yrs	Time to peak	= 3 min
Time interval	= 1 min	Hyd. volume	= 3,567 cuft
Drainage area	= 2.937 ac	Runoff coeff.	= 0.68
Intensity	= 9.921 in/hr	Tc by User	= 3.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



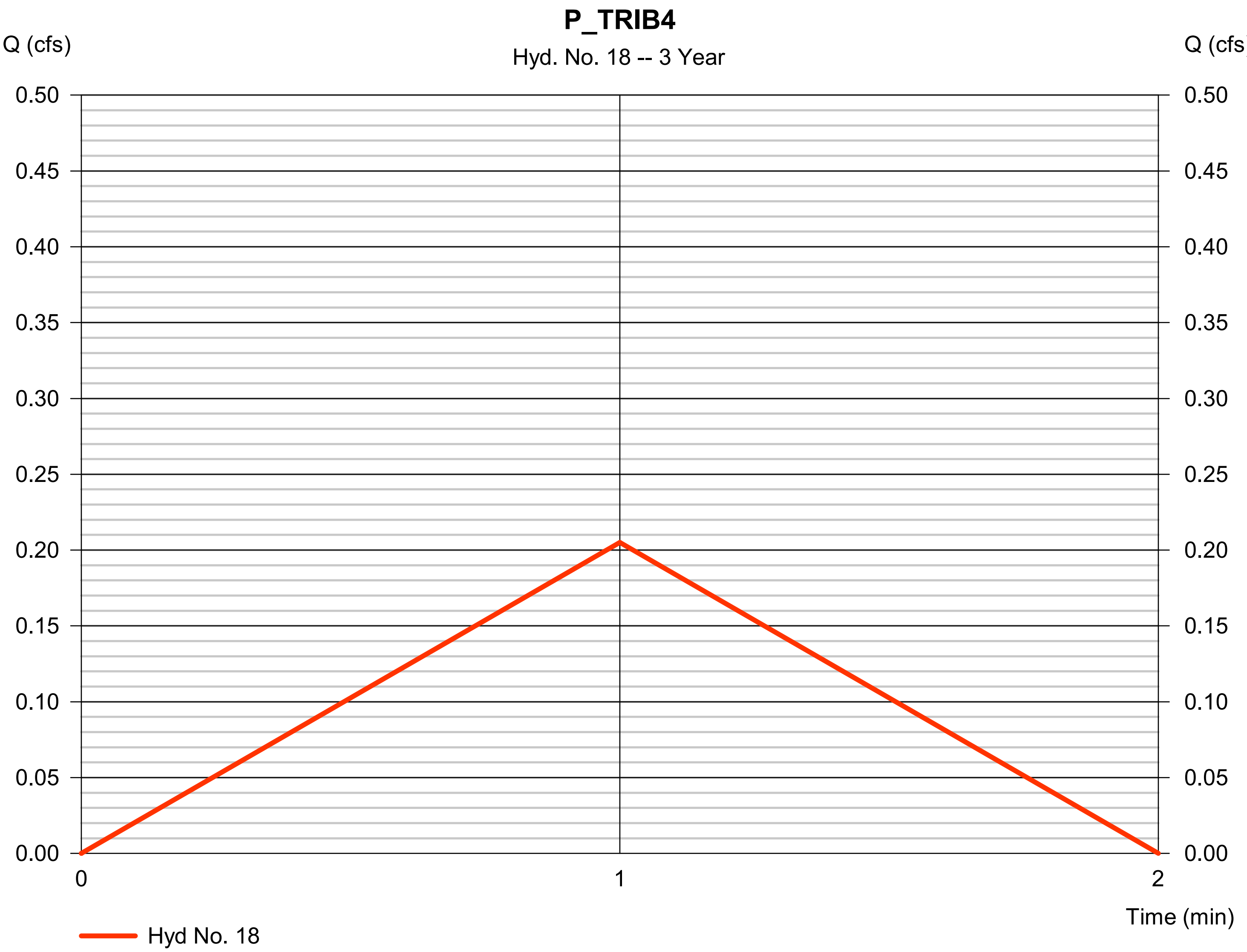
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 18

P_TRIB4

Hydrograph type	= Rational	Peak discharge	= 0.205 cfs
Storm frequency	= 3 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 12 cuft
Drainage area	= 0.081 ac	Runoff coeff.	= 0.2
Intensity	= 12.701 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



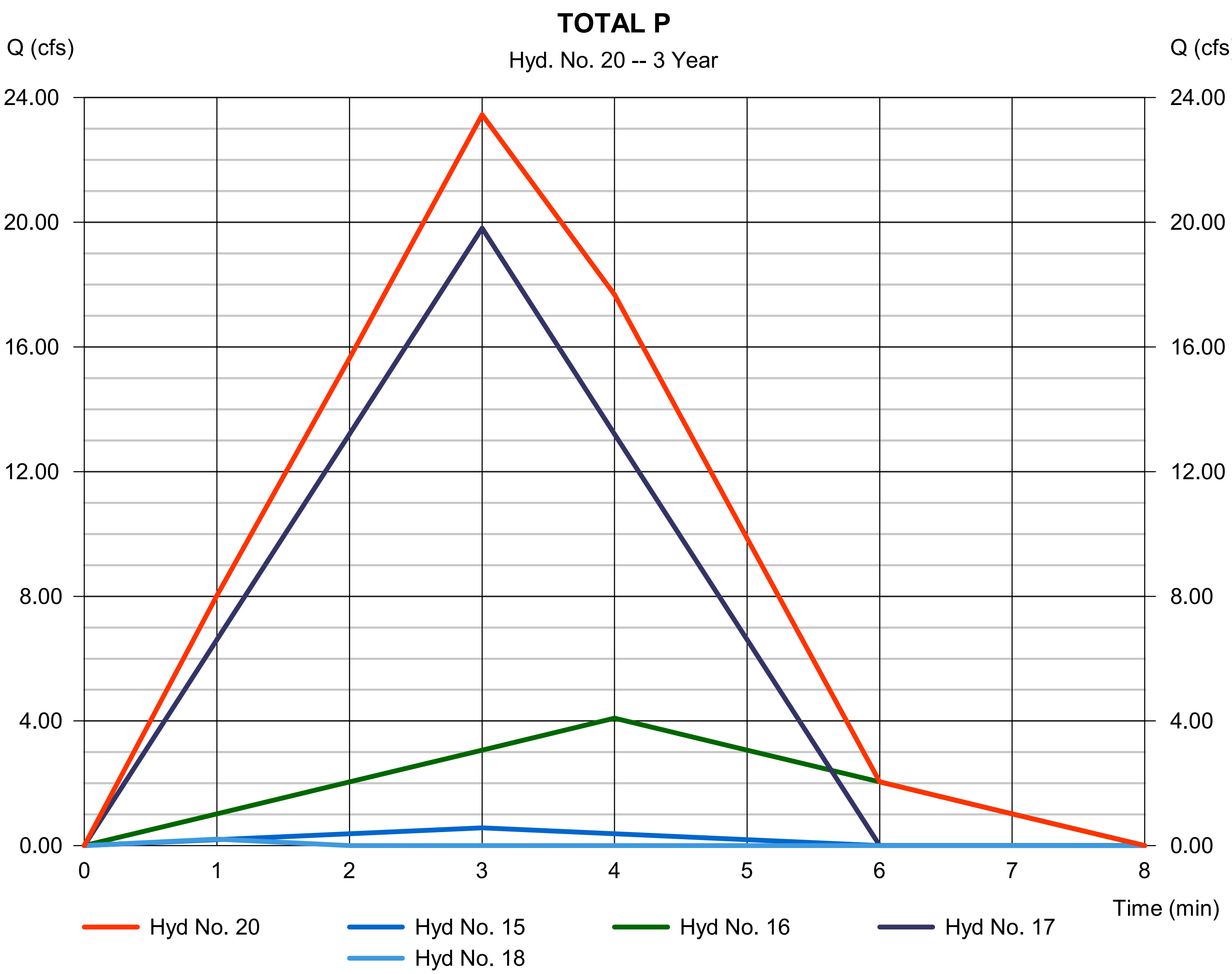
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 20

TOTAL P

Hydrograph type	= Combine	Peak discharge	= 23.45 cfs
Storm frequency	= 3 yrs	Time to peak	= 3 min
Time interval	= 1 min	Hyd. volume	= 4,663 cuft
Inflow hyds.	= 15, 16, 17, 18	Contrib. drain. area	= 5.570 ac



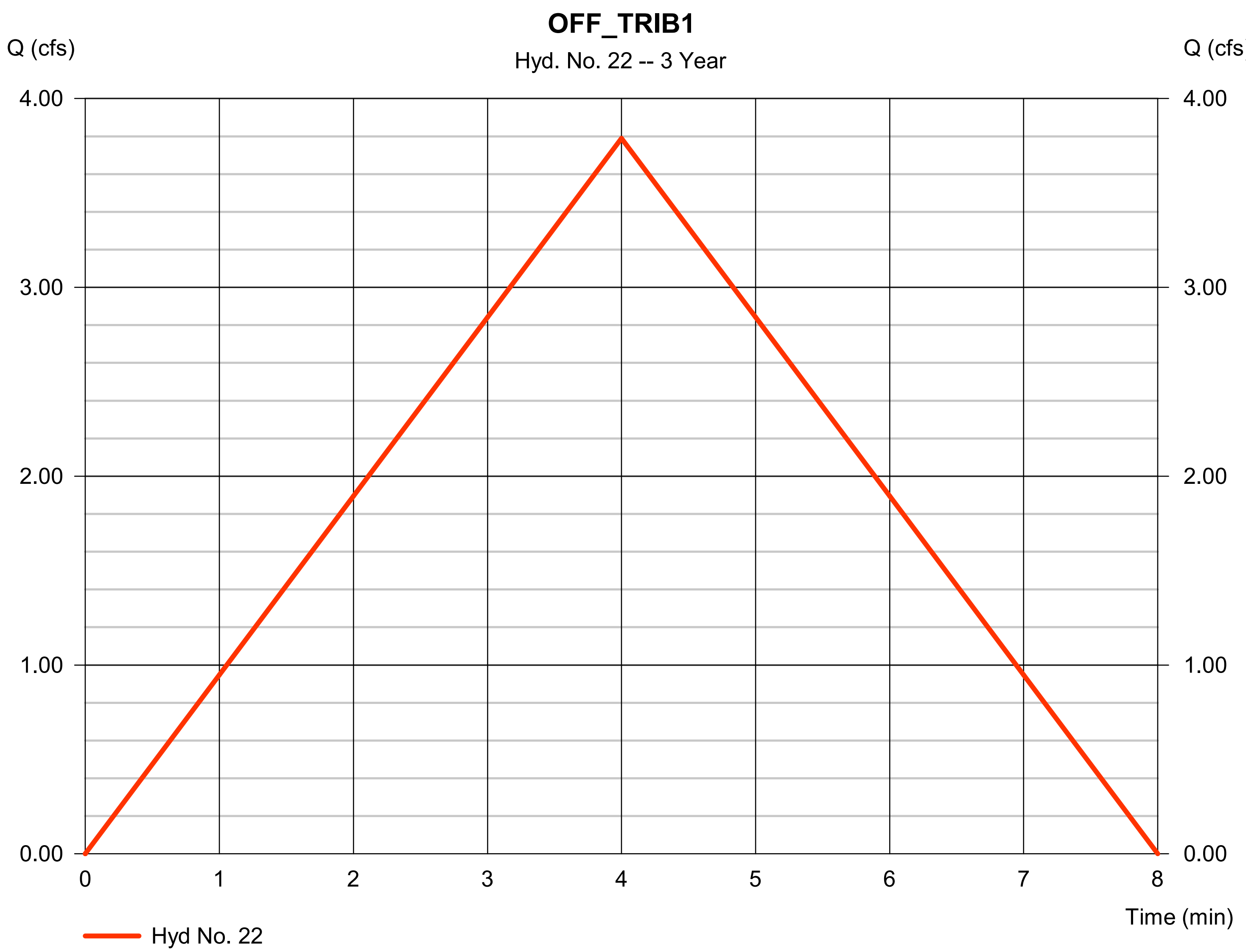
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 22

OFF_TRIB1

Hydrograph type	= Rational	Peak discharge	= 3.789 cfs
Storm frequency	= 3 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 909 cuft
Drainage area	= 0.466 ac	Runoff coeff.	= 0.9
Intensity	= 9.034 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 23

OFF_TRIB2

Hydrograph type	= Rational	Peak discharge	= 5.245 cfs
Storm frequency	= 3 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 1,573 cuft
Drainage area	= 3.148 ac	Runoff coeff.	= 0.2
Intensity	= 8.331 in/hr	Tc by User	= 5.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1

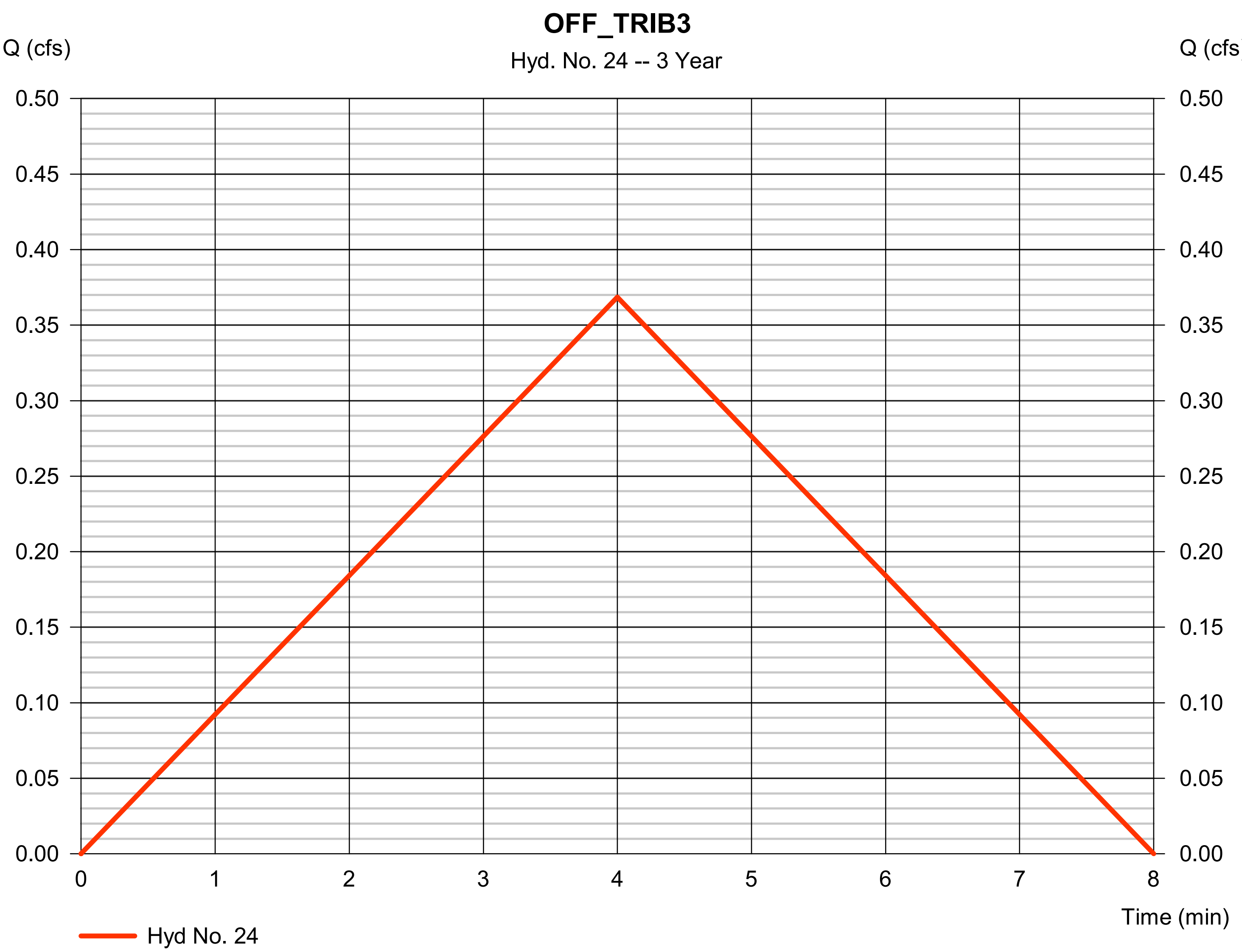
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 24

OFF_TRIB3

Hydrograph type	= Rational	Peak discharge	= 0.369 cfs
Storm frequency	= 3 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 88 cuft
Drainage area	= 0.204 ac	Runoff coeff.	= 0.2
Intensity	= 9.034 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1

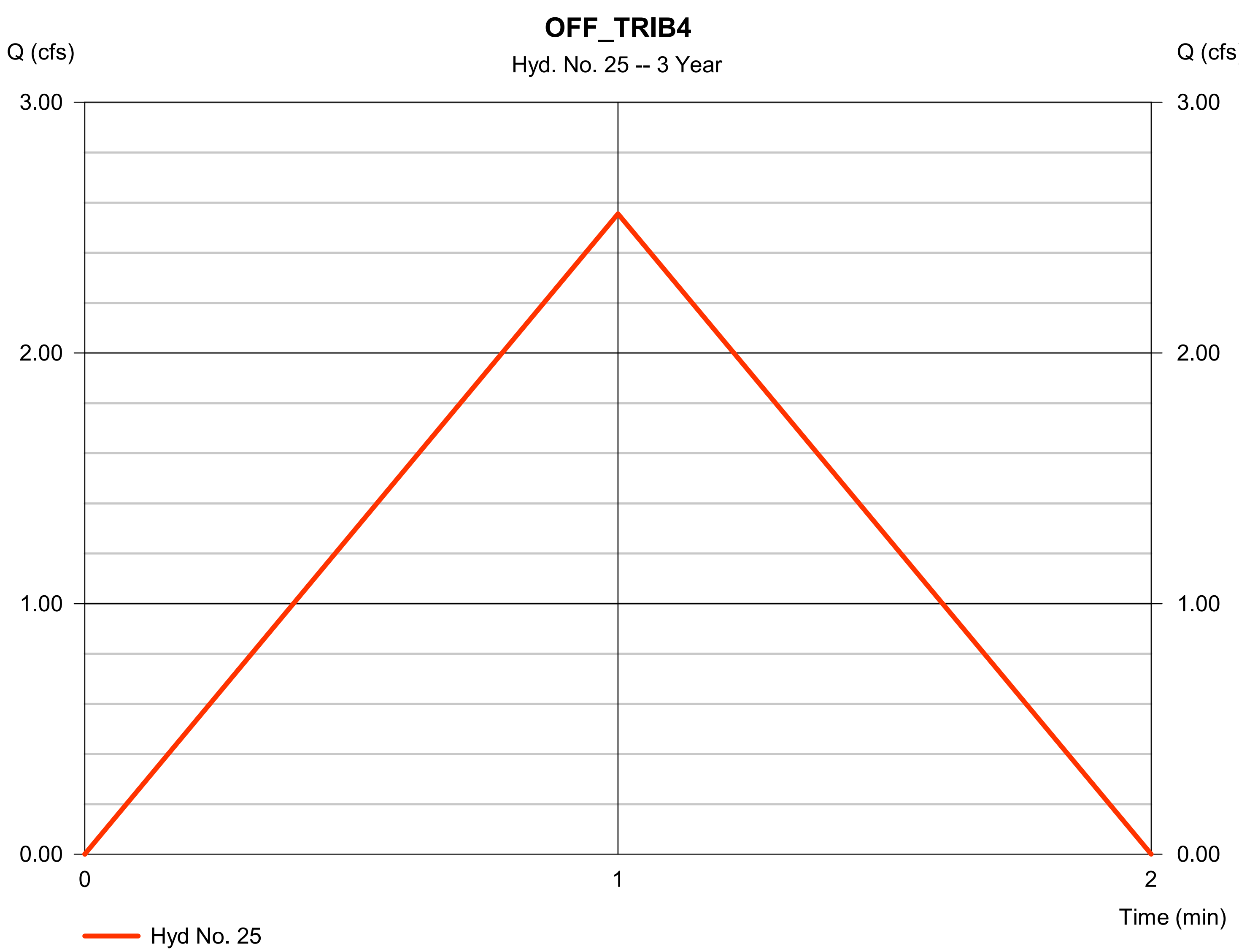


Hydrograph Report

Hyd. No. 25

OFF_TRIB4

Hydrograph type	= Rational	Peak discharge	= 2.555 cfs
Storm frequency	= 3 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 153 cuft
Drainage area	= 1.006 ac	Runoff coeff.	= 0.2
Intensity	= 12.701 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



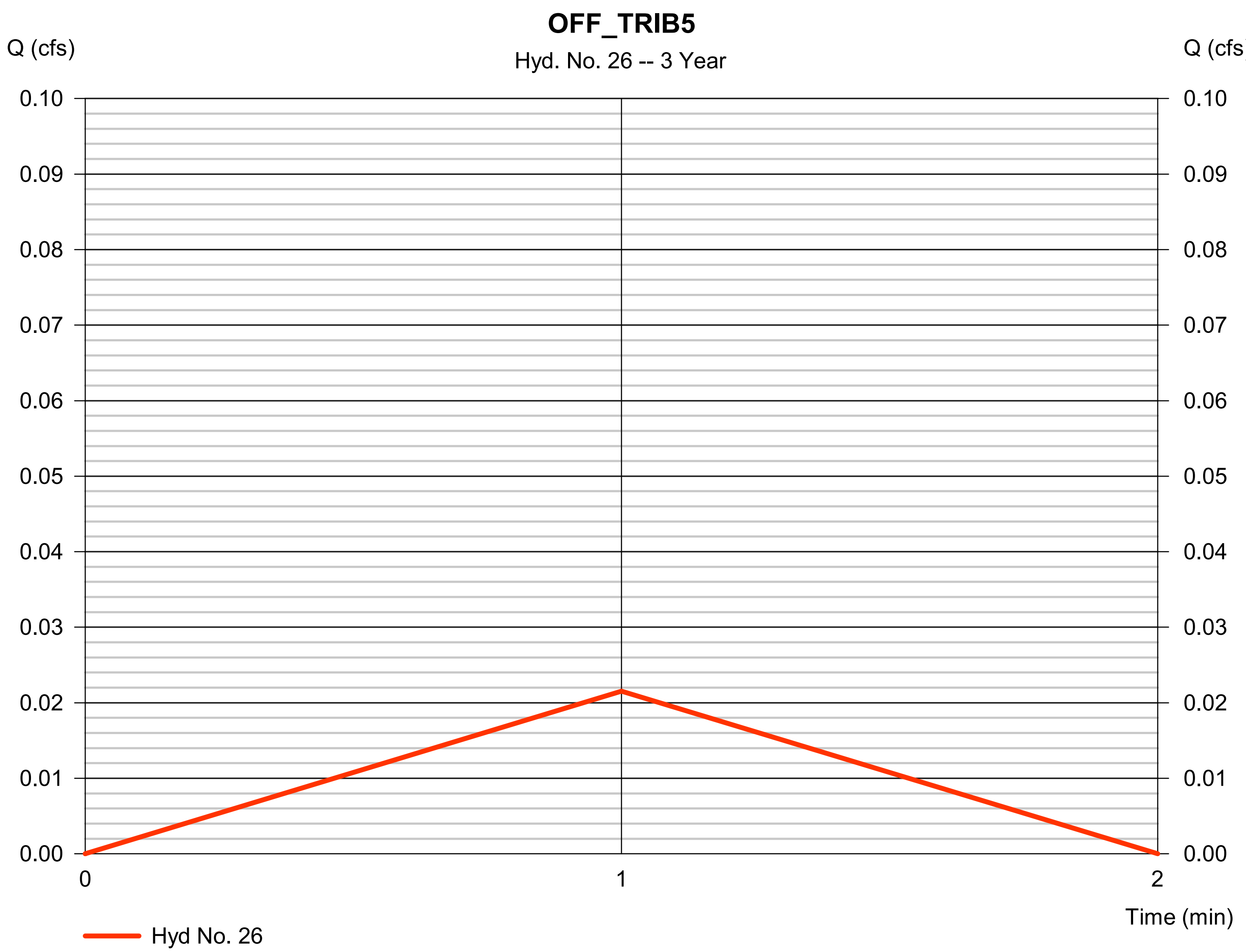
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 26

OFF_TRIB5

Hydrograph type	= Rational	Peak discharge	= 0.022 cfs
Storm frequency	= 3 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 1 cuft
Drainage area	= 0.008 ac	Runoff coeff.	= 0.2
Intensity	= 12.701 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



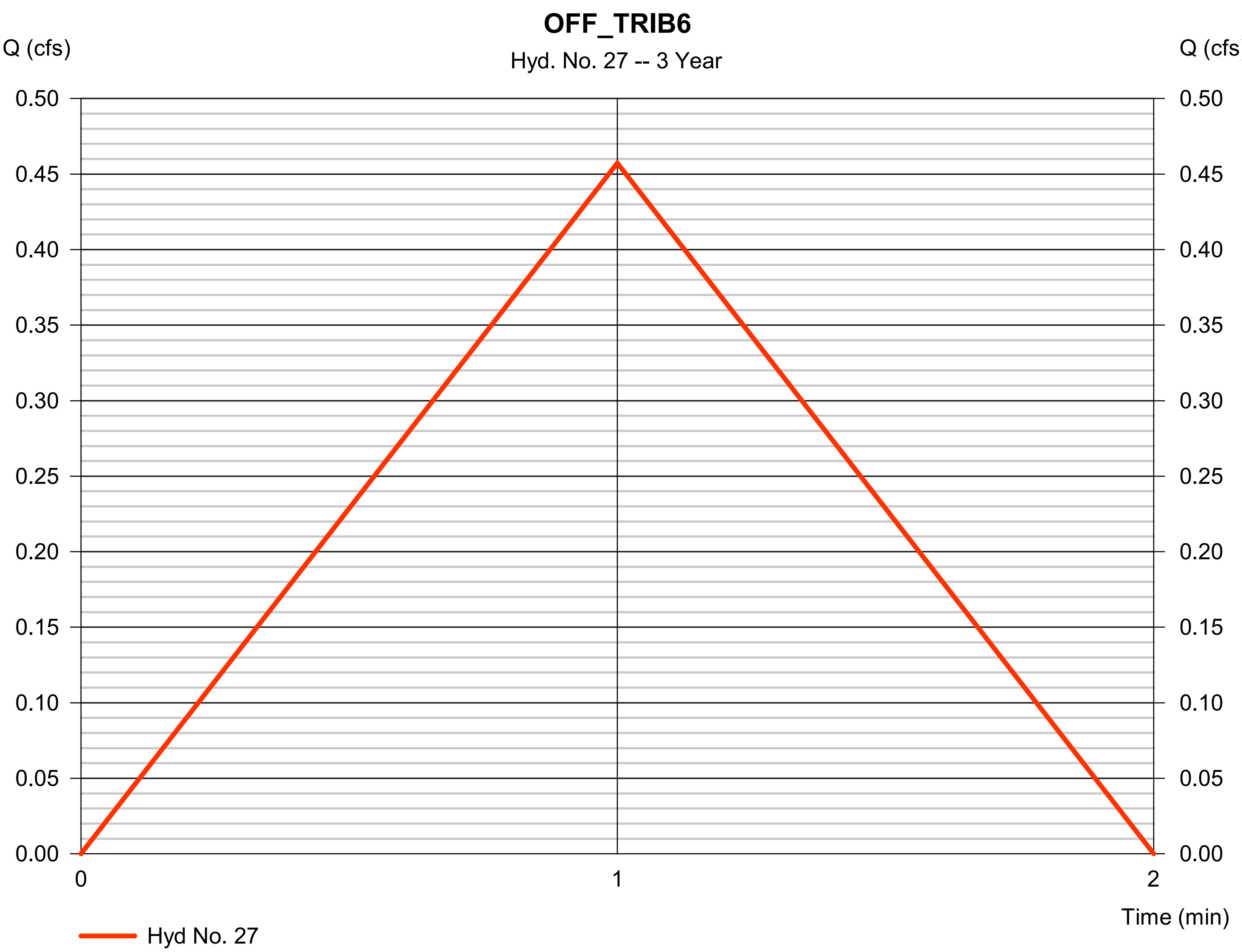
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 27

OFF_TRIB6

Hydrograph type	= Rational	Peak discharge	= 0.457 cfs
Storm frequency	= 3 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 27 cuft
Drainage area	= 0.180 ac	Runoff coeff.	= 0.2
Intensity	= 12.701 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



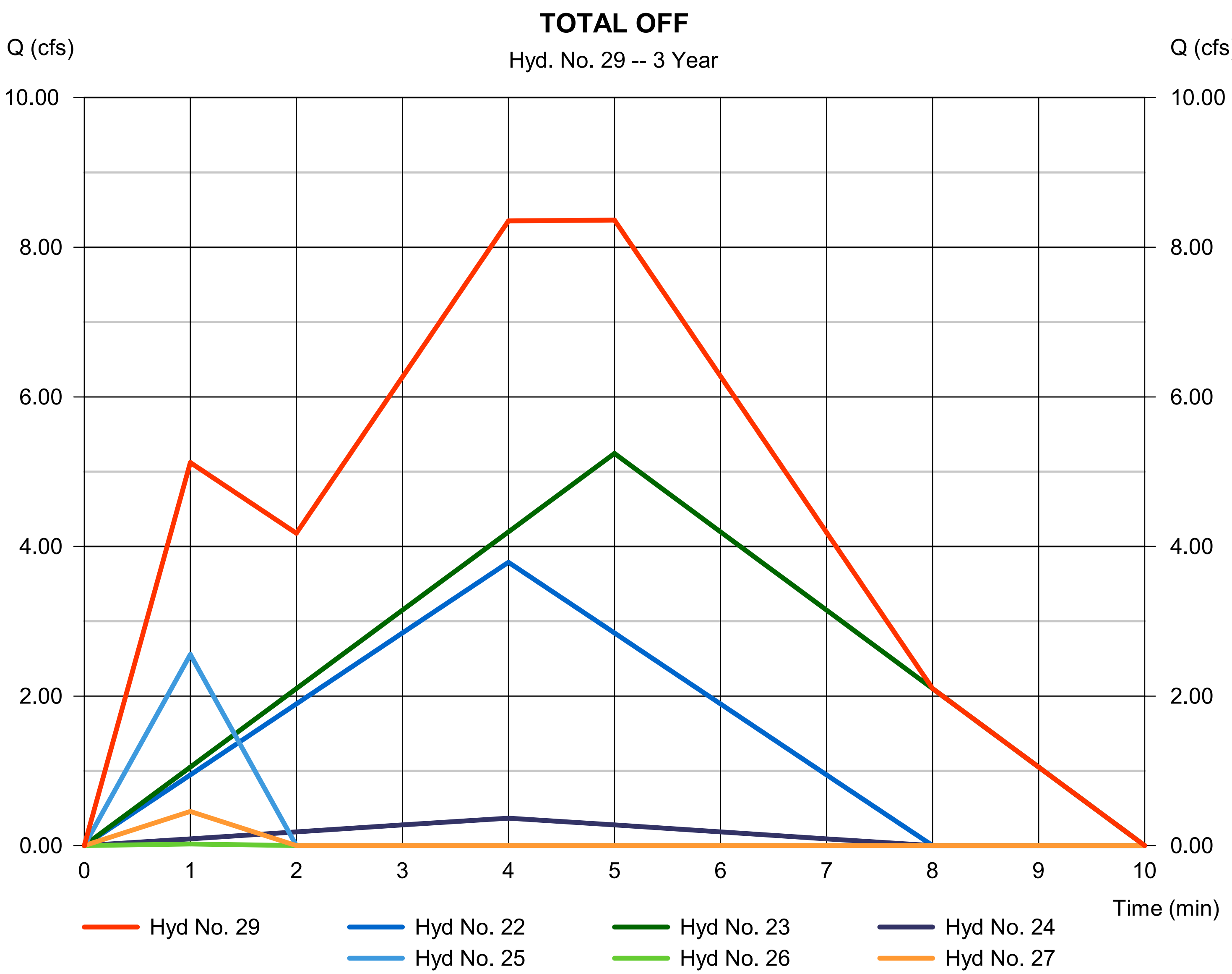
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 29

TOTAL OFF

Hydrograph type	= Combine	Peak discharge	= 8.363 cfs
Storm frequency	= 3 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 2,753 cuft
Inflow hyds.	= 22, 23, 24, 25, 26, 27	Contrib. drain. area	= 5.012 ac



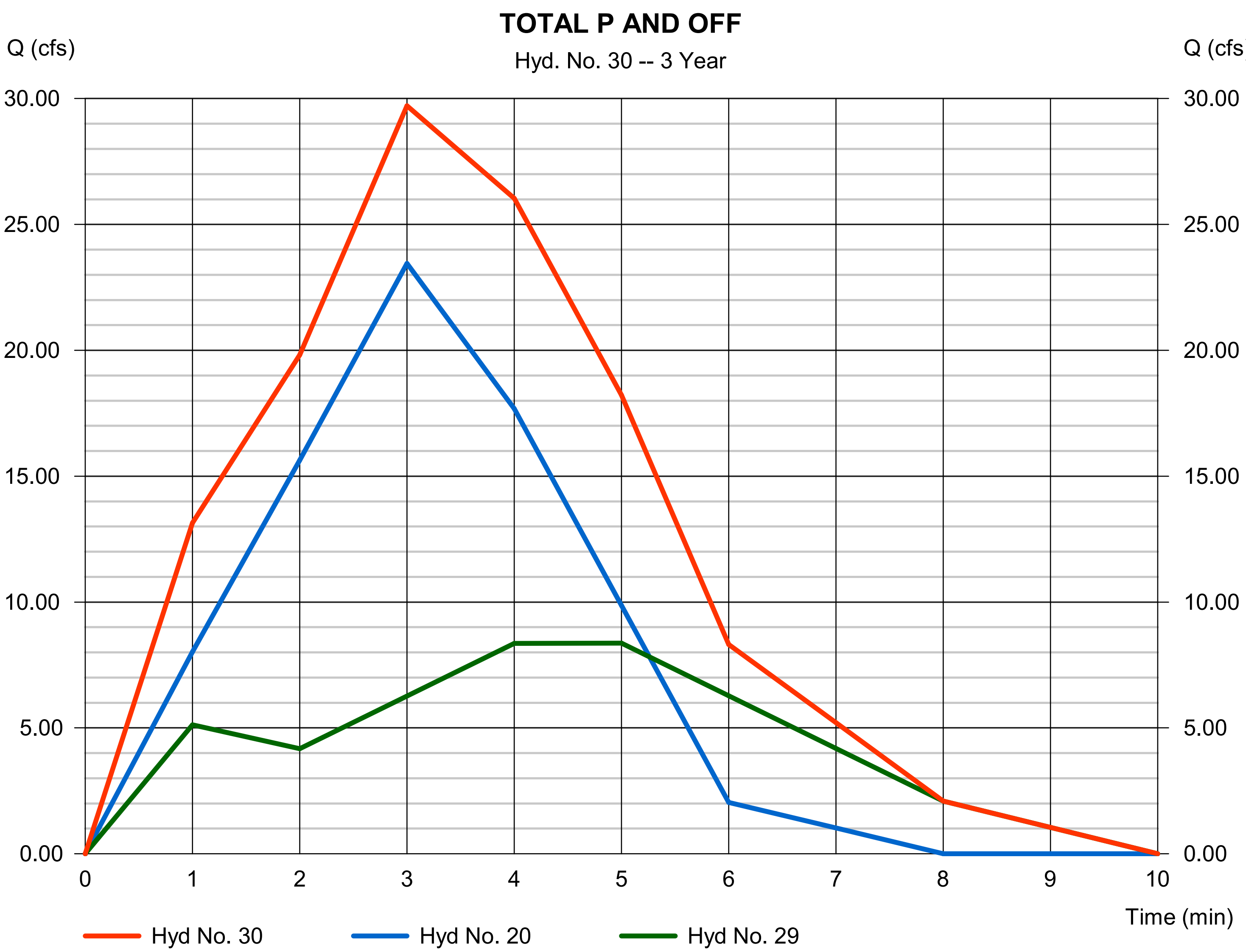
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 30

TOTAL P AND OFF

Hydrograph type	= Combine	Peak discharge	= 29.72 cfs
Storm frequency	= 3 yrs	Time to peak	= 3 min
Time interval	= 1 min	Hyd. volume	= 7,417 cuft
Inflow hyds.	= 20, 29	Contrib. drain. area	= 0.000 ac



Hydrograph Report

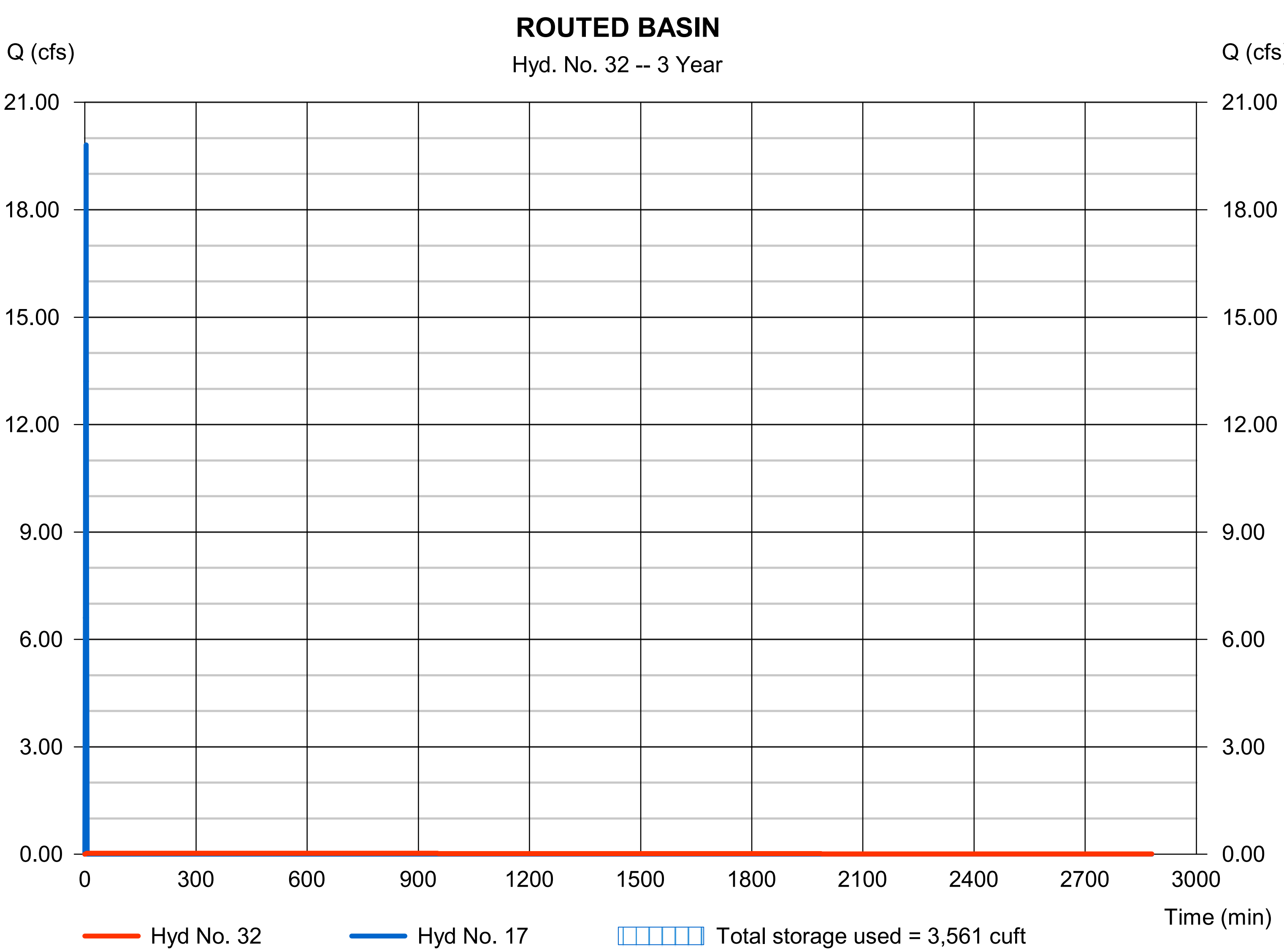
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 32

ROUTED BASIN

Hydrograph type	= Reservoir	Peak discharge	= 0.027 cfs
Storm frequency	= 3 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 2,894 cuft
Inflow hyd. No.	= 17 - P_TRIB3	Max. Elevation	= 470.49 ft
Reservoir name	= BMP 1	Max. Storage	= 3,561 cuft

Storage Indication method used.



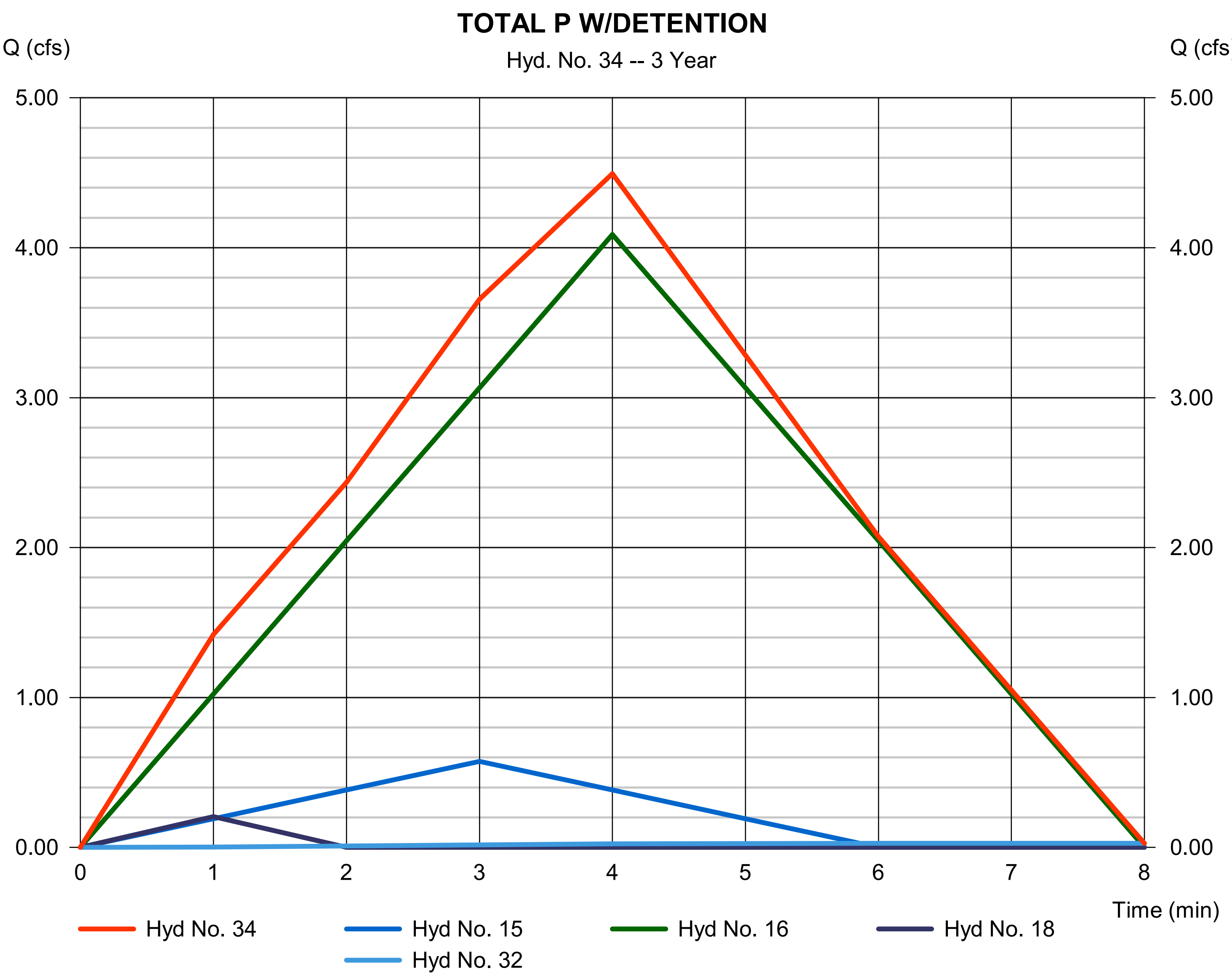
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 34

TOTAL P W/DETENTION

Hydrograph type	= Combine	Peak discharge	= 4.494 cfs
Storm frequency	= 3 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 3,991 cuft
Inflow hyds.	= 15, 16, 18, 32	Contrib. drain. area	= 2.633 ac



Hydrograph Summary Report

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

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	3.925	1	2	471	------	------	------	EX_TRIB1
2	Rational	5.303	1	6	1,909	------	------	------	EX_TRIB2
3	Rational	4.702	1	6	1,693	------	------	------	EX_TRIB3
4	Rational	0.362	1	1	22	------	------	------	EX_TRIB4
5	Rational	0.120	1	1	7	------	------	------	EX_TRIB5
6	Rational	1.514	1	4	363	------	------	------	EX_TRIB6
7	Rational	0.648	1	4	155	------	------	------	EX_TRIB7
8	Rational	0.307	1	5	92	------	------	------	EX_TRIB8
9	Rational	0.016	1	1	1	------	------	------	EX_TRIB9
11	Combine	10.76	1	6	4,465	1, 2, 3, 4, 5, 6, 7, 8, 9,	------	------	TOTAL EX 1 OF 2
12	Combine	0.893	1	4	248		------	------	TOTAL EX 2 OF 2
13	Combine	11.33	1	6	4,714	11, 12	------	------	TOTAL EX
15	Rational	0.490	1	3	88	------	------	------	P_TRIB1
16	Rational	3.646	1	4	875	------	------	------	P_TRIB2
17	Rational	16.95	1	3	3,050	------	------	------	P_TRIB3
18	Rational	0.154	1	1	9	------	------	------	P_TRIB4
20	Combine	20.17	1	3	4,023	15, 16, 17, 18,	------	------	TOTAL P
22	Rational	3.378	1	4	811	------	------	------	OFF_TRIB1
23	Rational	4.829	1	5	1,449	------	------	------	OFF_TRIB2
24	Rational	0.329	1	4	79	------	------	------	OFF_TRIB3
25	Rational	1.916	1	1	115	------	------	------	OFF_TRIB4
26	Rational	0.016	1	1	1	------	------	------	OFF_TRIB5
27	Rational	0.343	1	1	21	------	------	------	OFF_TRIB6
29	Combine	7.609	1	5	2,475	22, 23, 24, 25, 26, 27,	------	------	TOTAL OFF
30	Combine	25.85	1	3	6,498	20, 29	------	------	TOTAL P AND OFF
32	Reservoir	0.024	1	6	2,511	17	470.42	3,046	ROUTED BASIN
34	Combine	3.994	1	4	3,484	15, 16, 18, 32,	------	------	TOTAL P W/DETENTION

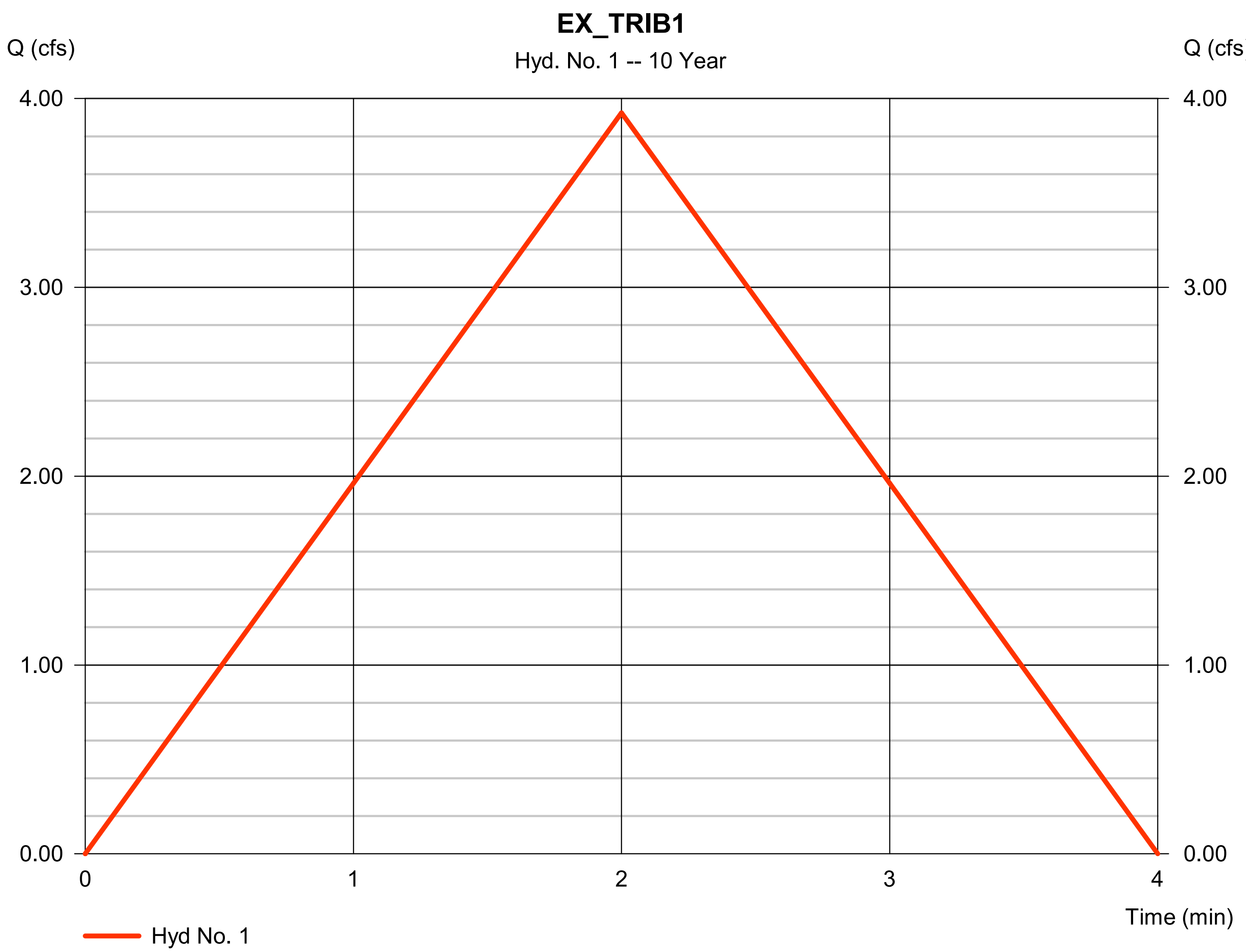
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 1

EX_TRIB1

Hydrograph type	= Rational	Peak discharge	= 3.925 cfs
Storm frequency	= 10 yrs	Time to peak	= 2 min
Time interval	= 1 min	Hyd. volume	= 471 cuft
Drainage area	= 1.750 ac	Runoff coeff.	= 0.25
Intensity	= 8.971 in/hr	Tc by User	= 2.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



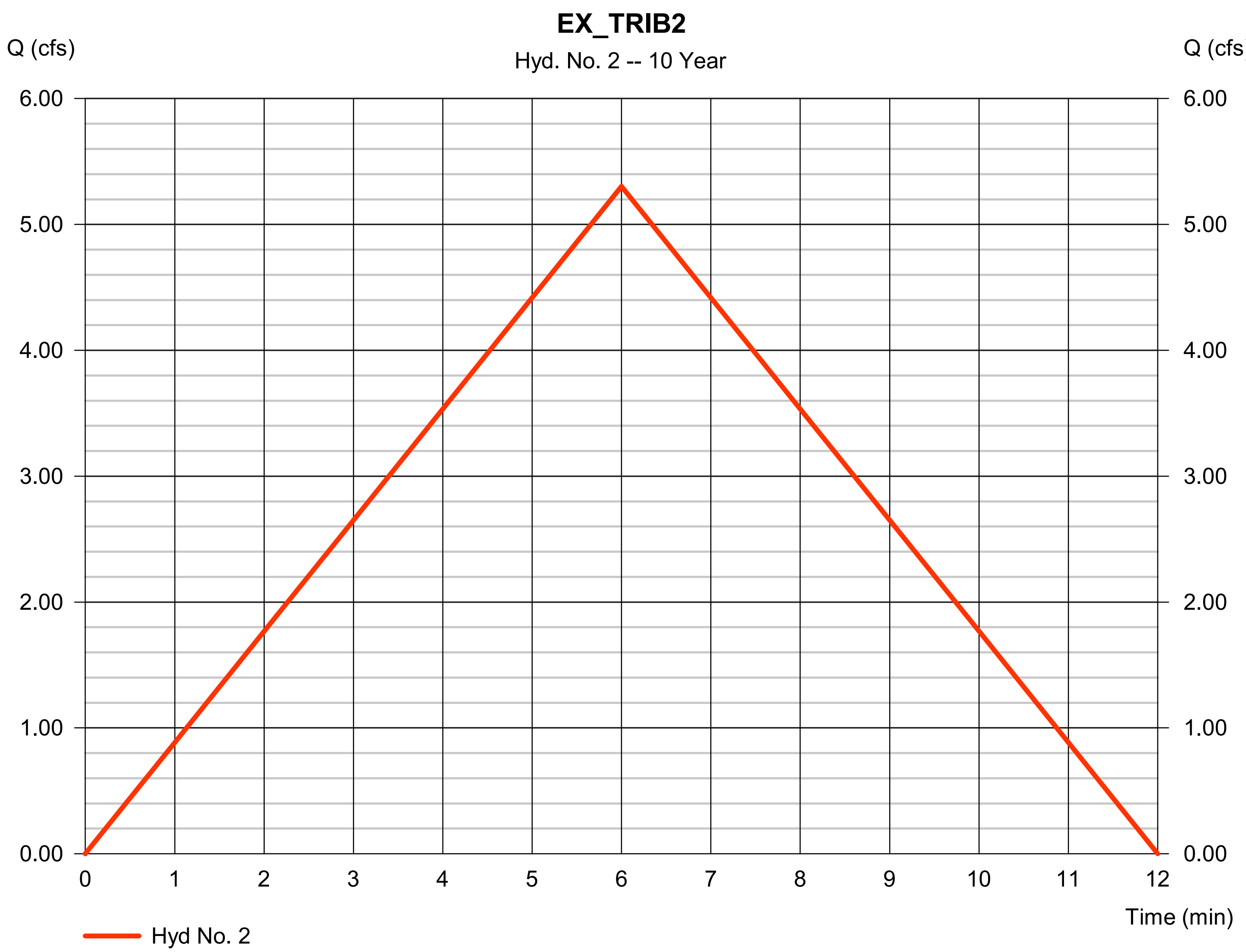
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 2

EX_TRIB2

Hydrograph type	= Rational	Peak discharge	= 5.303 cfs
Storm frequency	= 10 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 1,909 cuft
Drainage area	= 3.620 ac	Runoff coeff.	= 0.2
Intensity	= 7.324 in/hr	Tc by User	= 6.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



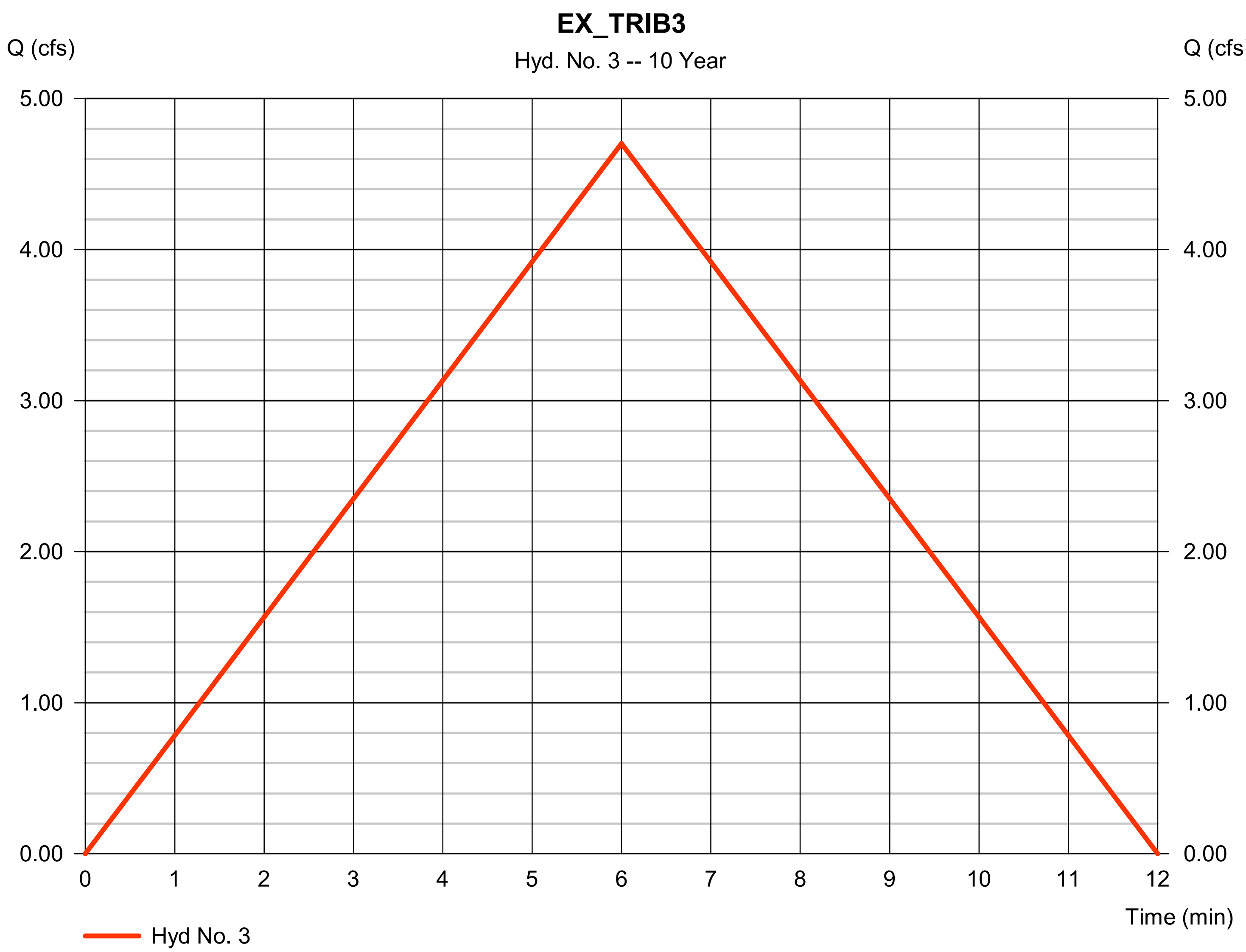
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 3

EX_TRIB3

Hydrograph type	= Rational	Peak discharge	= 4.702 cfs
Storm frequency	= 10 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 1,693 cuft
Drainage area	= 3.210 ac	Runoff coeff.	= 0.2
Intensity	= 7.324 in/hr	Tc by User	= 6.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



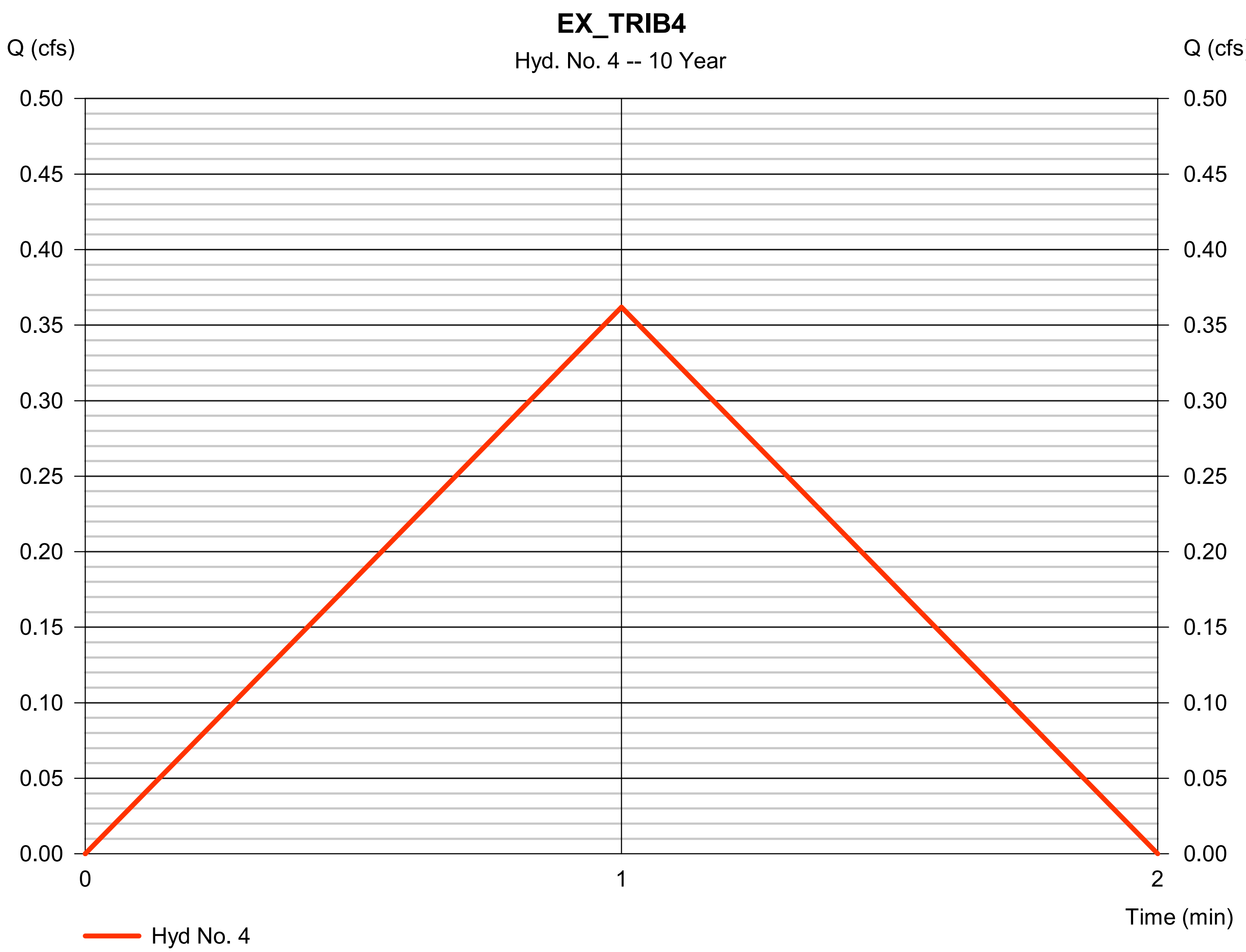
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 4

EX_TRIB4

Hydrograph type	= Rational	Peak discharge	= 0.362 cfs
Storm frequency	= 10 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 22 cuft
Drainage area	= 0.190 ac	Runoff coeff.	= 0.2
Intensity	= 9.522 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



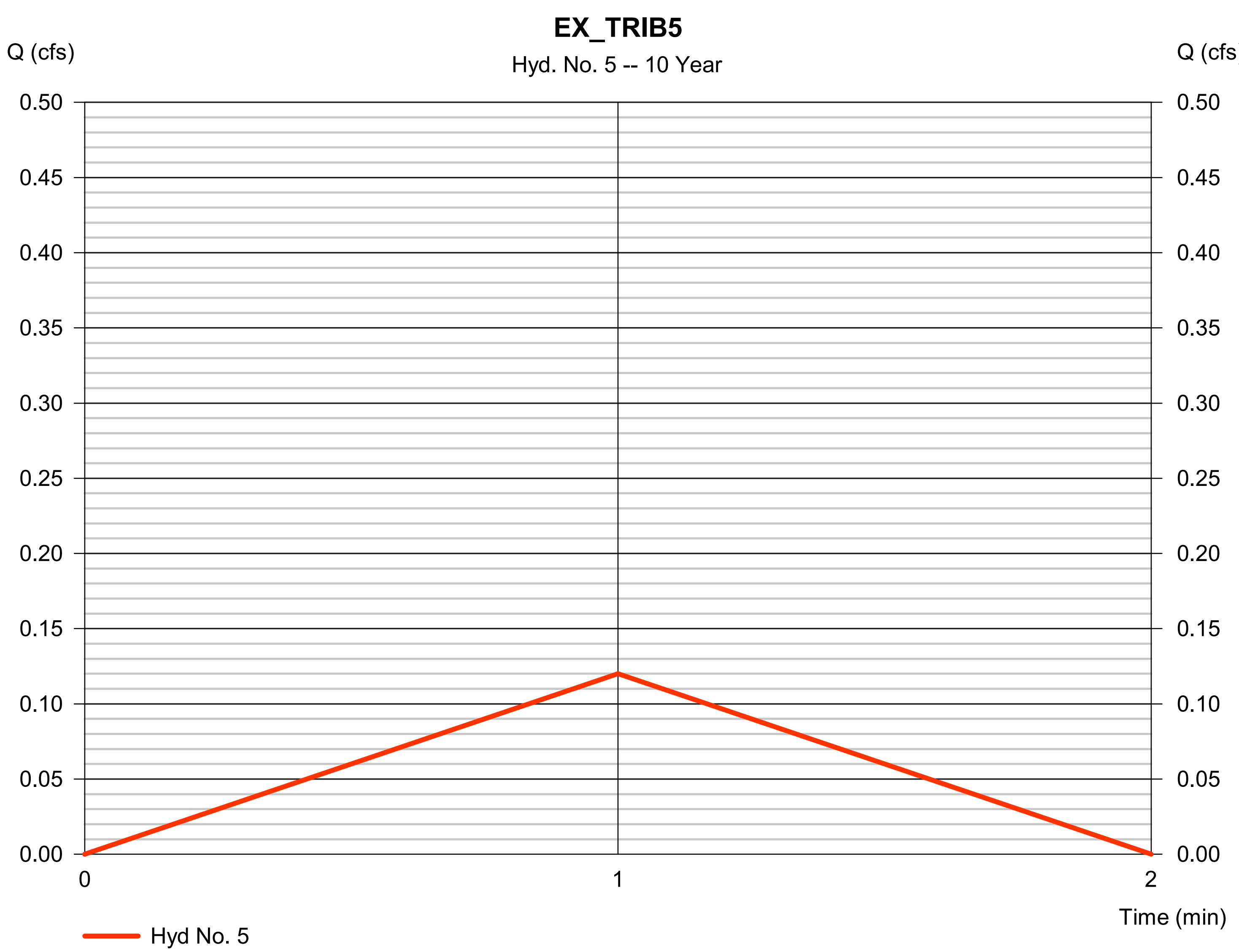
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 5

EX_TRIB5

Hydrograph type	= Rational	Peak discharge	= 0.120 cfs
Storm frequency	= 10 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 7 cuft
Drainage area	= 0.063 ac	Runoff coeff.	= 0.2
Intensity	= 9.522 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



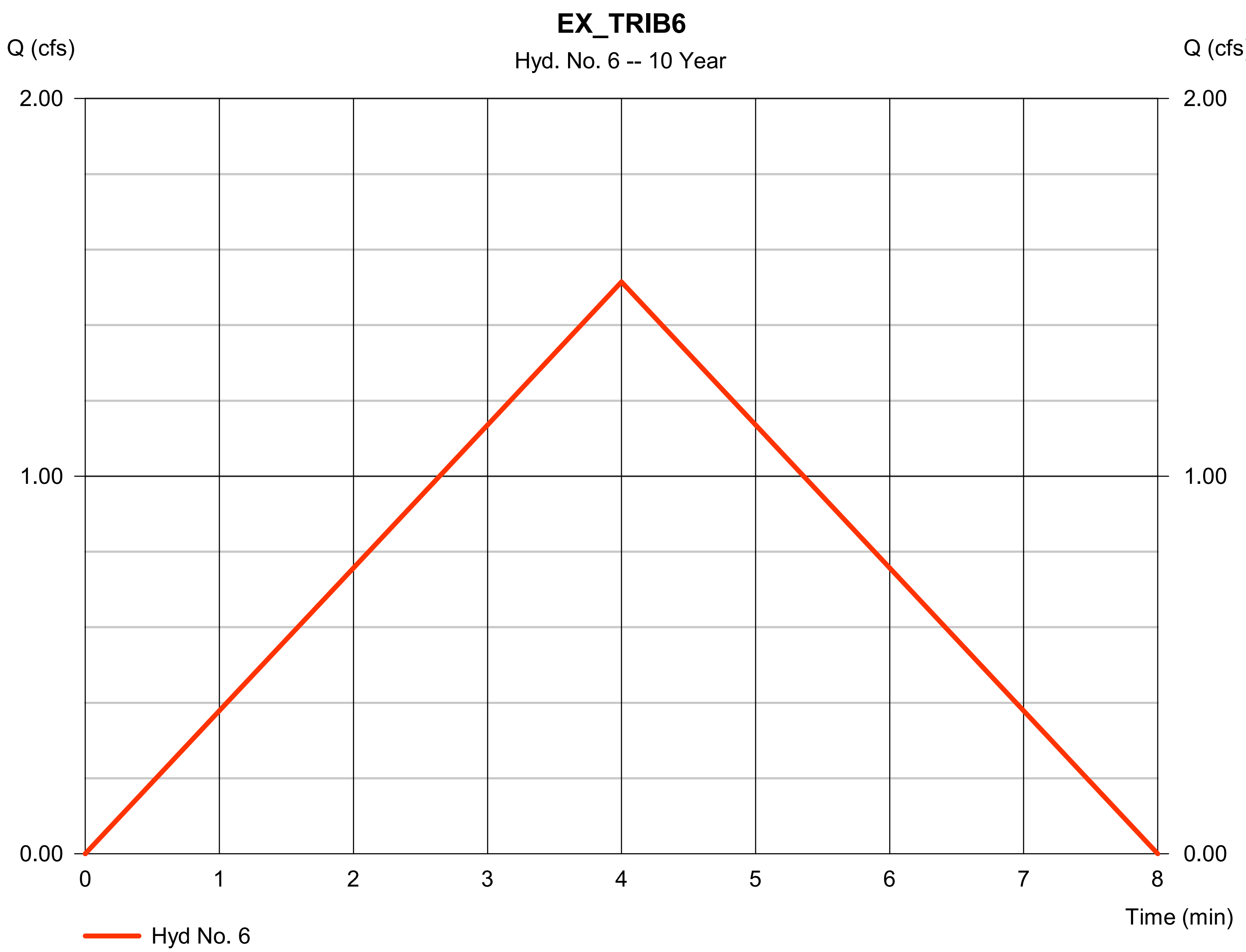
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 6

EX_TRIB6

Hydrograph type	= Rational	Peak discharge	= 1.514 cfs
Storm frequency	= 10 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 363 cuft
Drainage area	= 0.940 ac	Runoff coeff.	= 0.2
Intensity	= 8.055 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



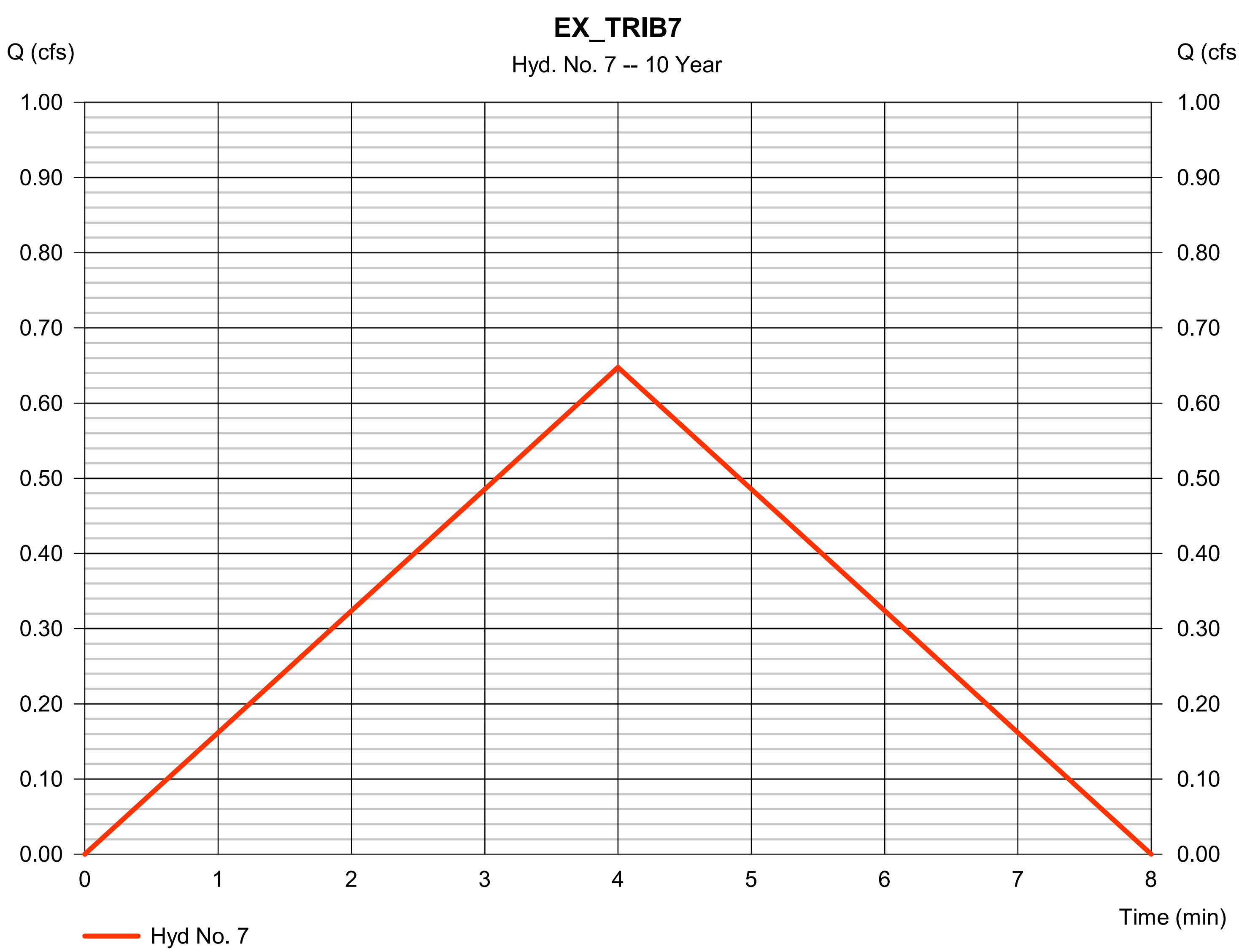
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 7

EX_TRIB7

Hydrograph type	= Rational	Peak discharge	= 0.648 cfs
Storm frequency	= 10 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 155 cuft
Drainage area	= 0.402 ac	Runoff coeff.	= 0.2
Intensity	= 8.055 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 8

EX_TRIB8

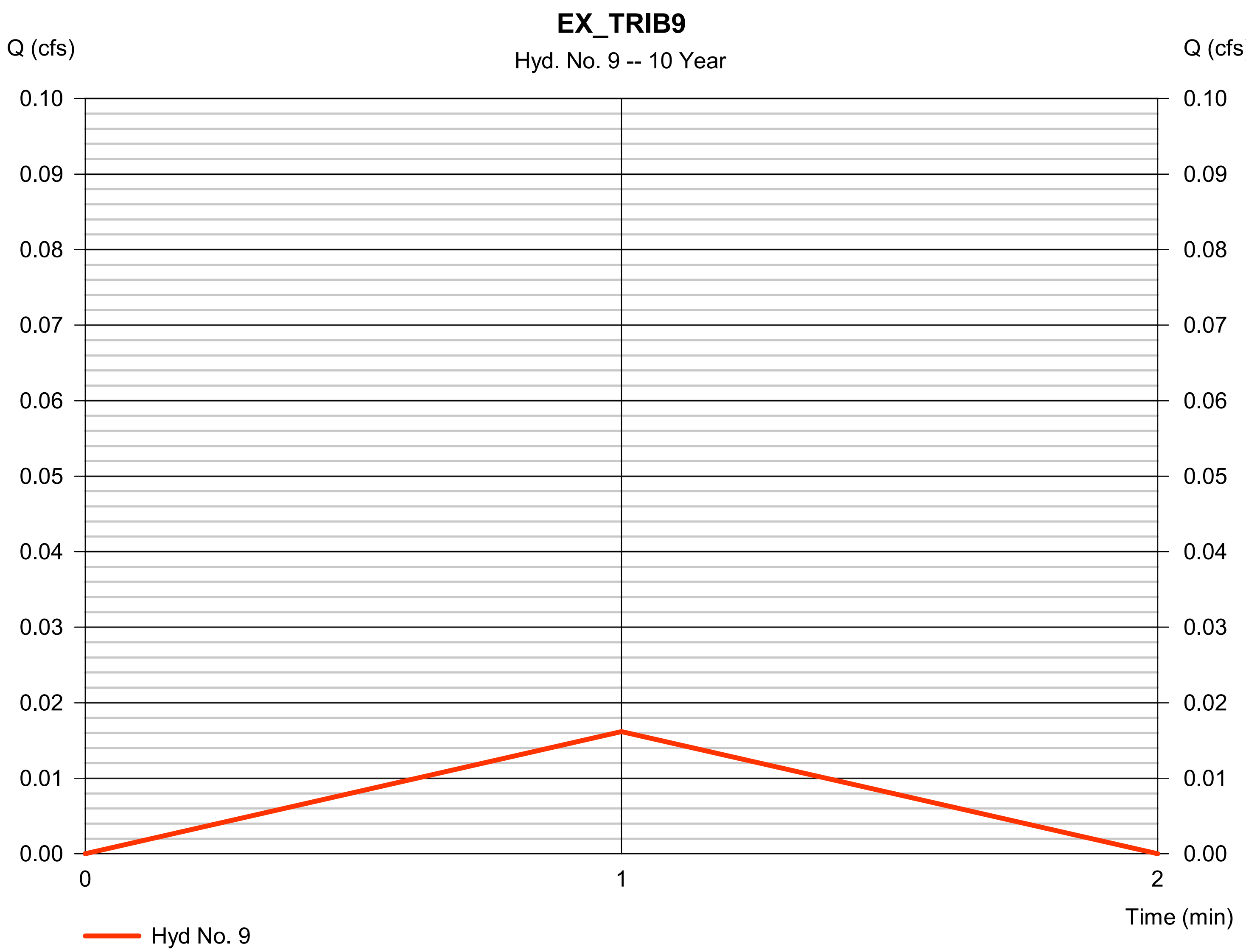
Hydrograph type	= Rational	Peak discharge	= 0.307 cfs
Storm frequency	= 10 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 92 cuft
Drainage area	= 0.200 ac	Runoff coeff.	= 0.2
Intensity	= 7.670 in/hr	Tc by User	= 5.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Report

Hyd. No. 9

EX_TRIB9

Hydrograph type	= Rational	Peak discharge	= 0.016 cfs
Storm frequency	= 10 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 1 cuft
Drainage area	= 0.009 ac	Runoff coeff.	= 0.2
Intensity	= 9.522 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



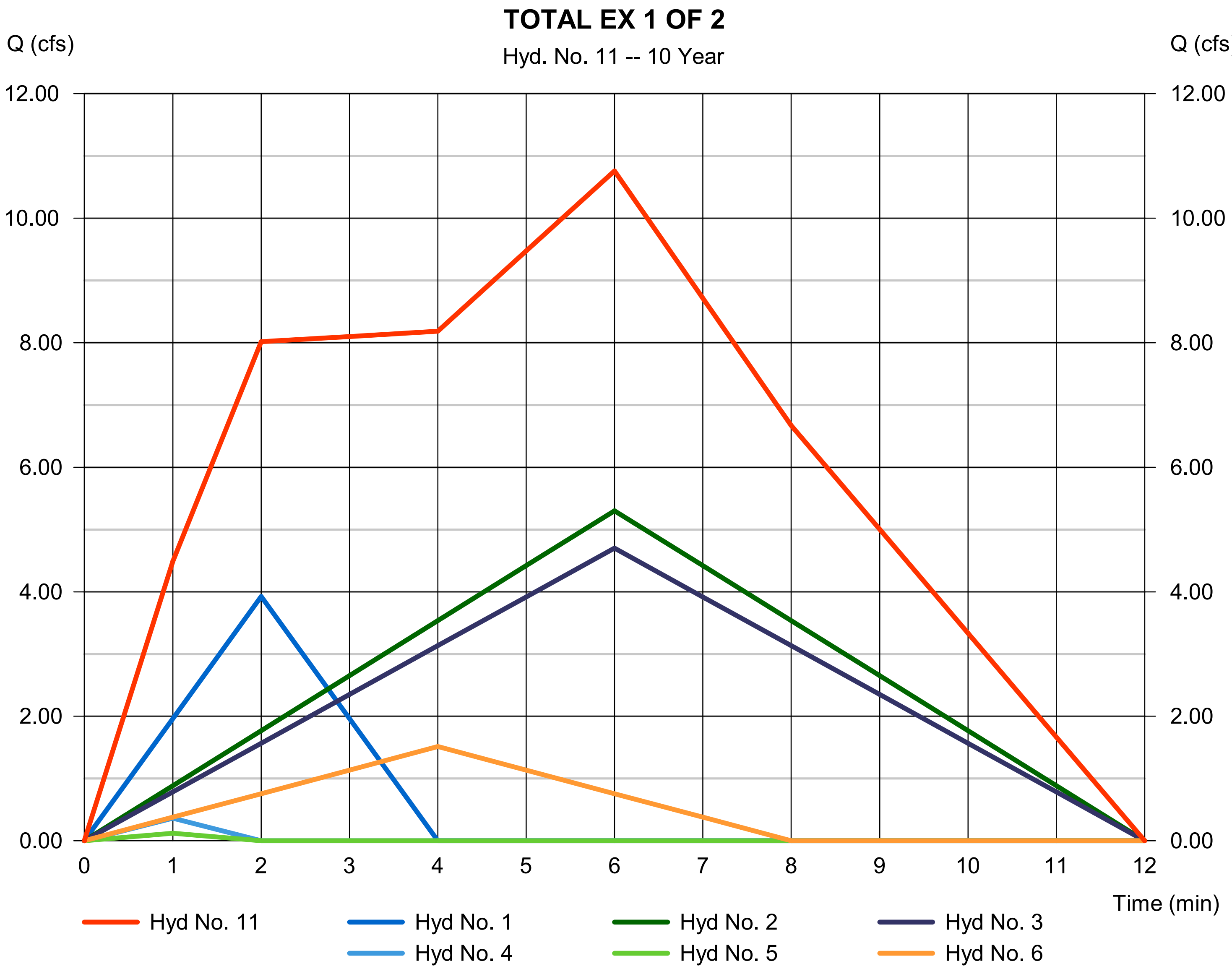
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 11

TOTAL EX 1 OF 2

Hydrograph type	= Combine	Peak discharge	= 10.76 cfs
Storm frequency	= 10 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 4,465 cuft
Inflow hyds.	= 1, 2, 3, 4, 5, 6	Contrib. drain. area	= 9.773 ac



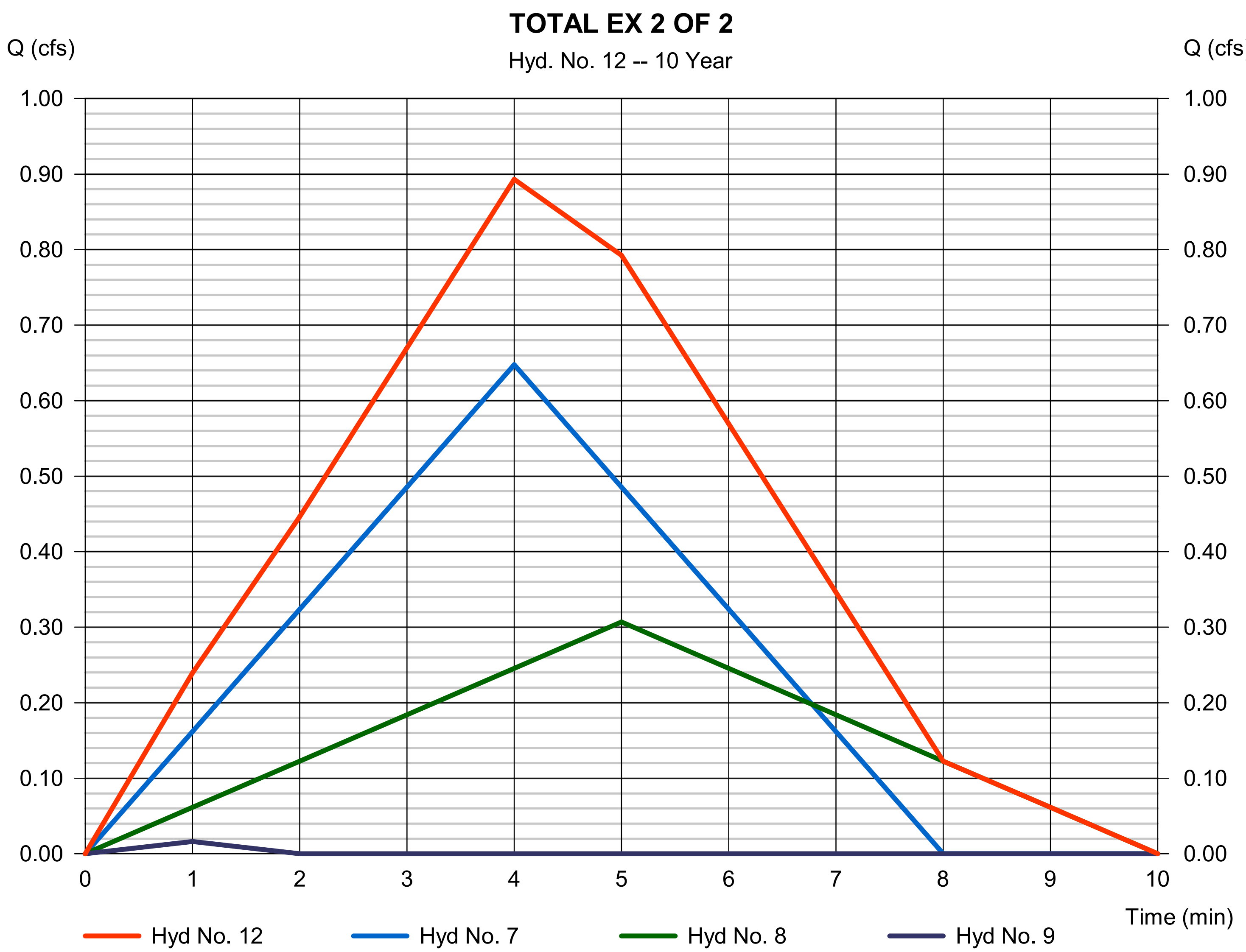
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 12

TOTAL EX 2 OF 2

Hydrograph type	= Combine	Peak discharge	= 0.893 cfs
Storm frequency	= 10 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 248 cuft
Inflow hyds.	= 7, 8, 9	Contrib. drain. area	= 0.610 ac



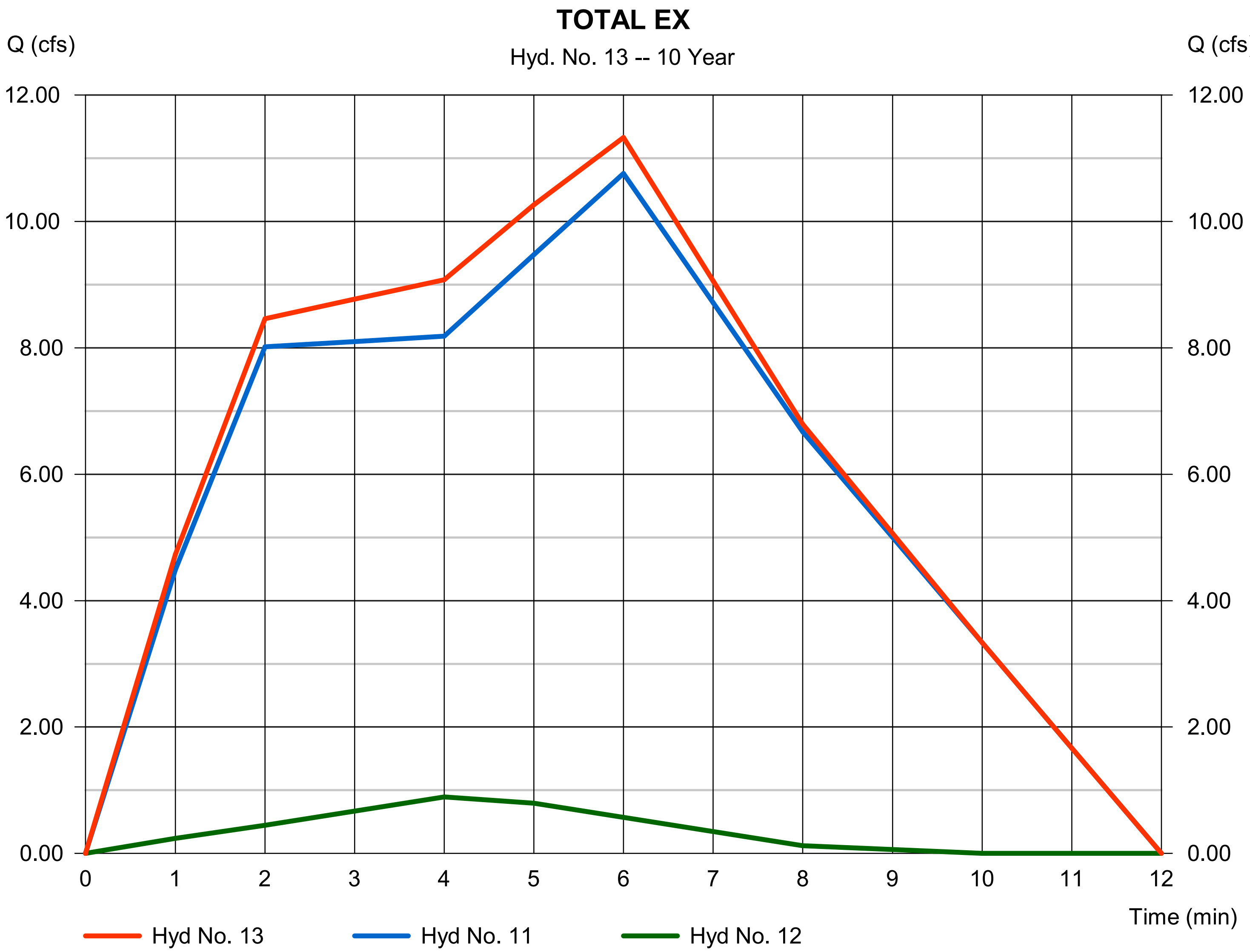
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 13

TOTAL EX

Hydrograph type	= Combine	Peak discharge	= 11.33 cfs
Storm frequency	= 10 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 4,714 cuft
Inflow hyds.	= 11, 12	Contrib. drain. area	= 0.000 ac



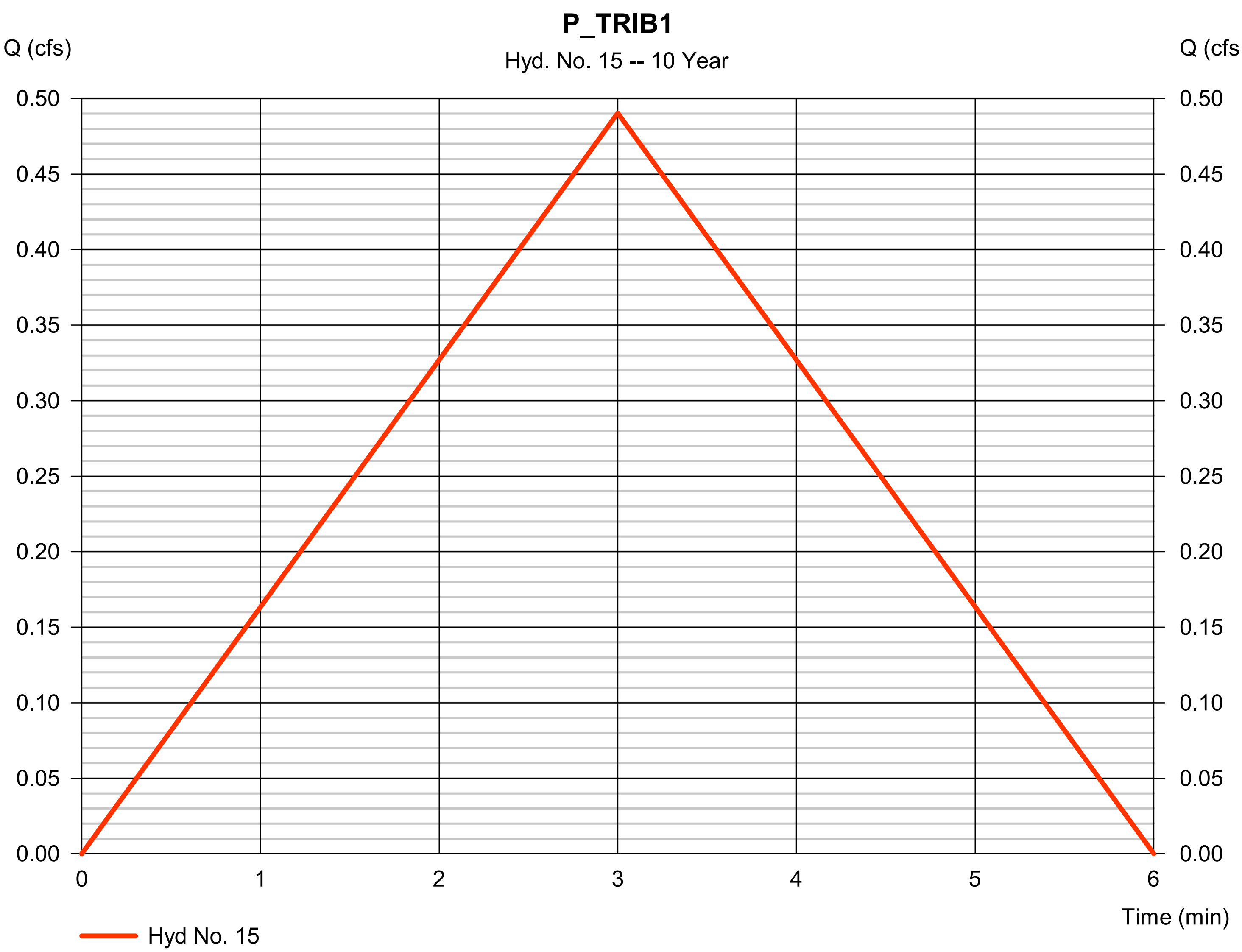
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 15

P_TRIB1

Hydrograph type	= Rational	Peak discharge	= 0.490 cfs
Storm frequency	= 10 yrs	Time to peak	= 3 min
Time interval	= 1 min	Hyd. volume	= 88 cuft
Drainage area	= 0.289 ac	Runoff coeff.	= 0.2
Intensity	= 8.486 in/hr	Tc by User	= 3.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



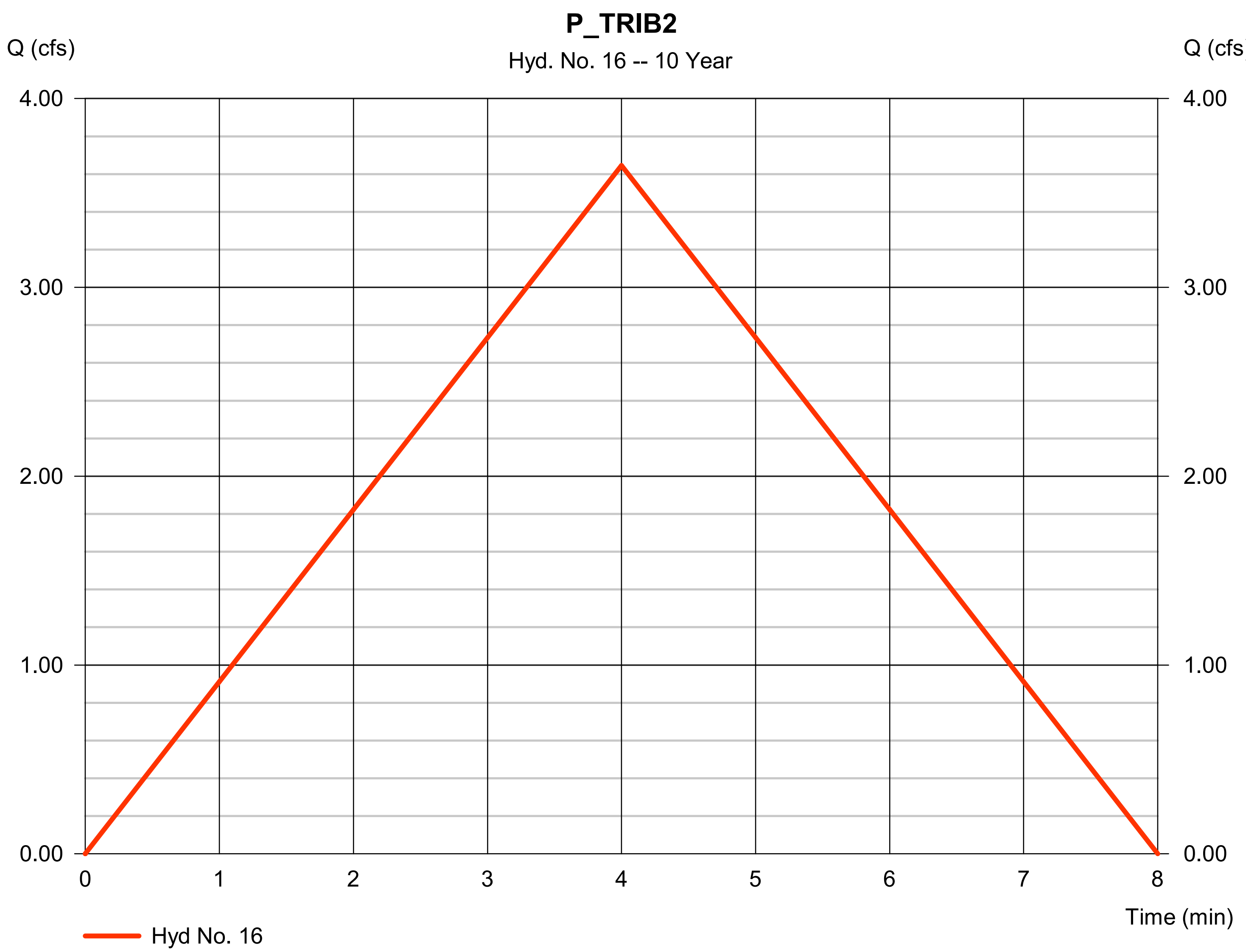
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 16

P_TRIB2

Hydrograph type	= Rational	Peak discharge	= 3.646 cfs
Storm frequency	= 10 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 875 cuft
Drainage area	= 2.263 ac	Runoff coeff.	= 0.2
Intensity	= 8.055 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



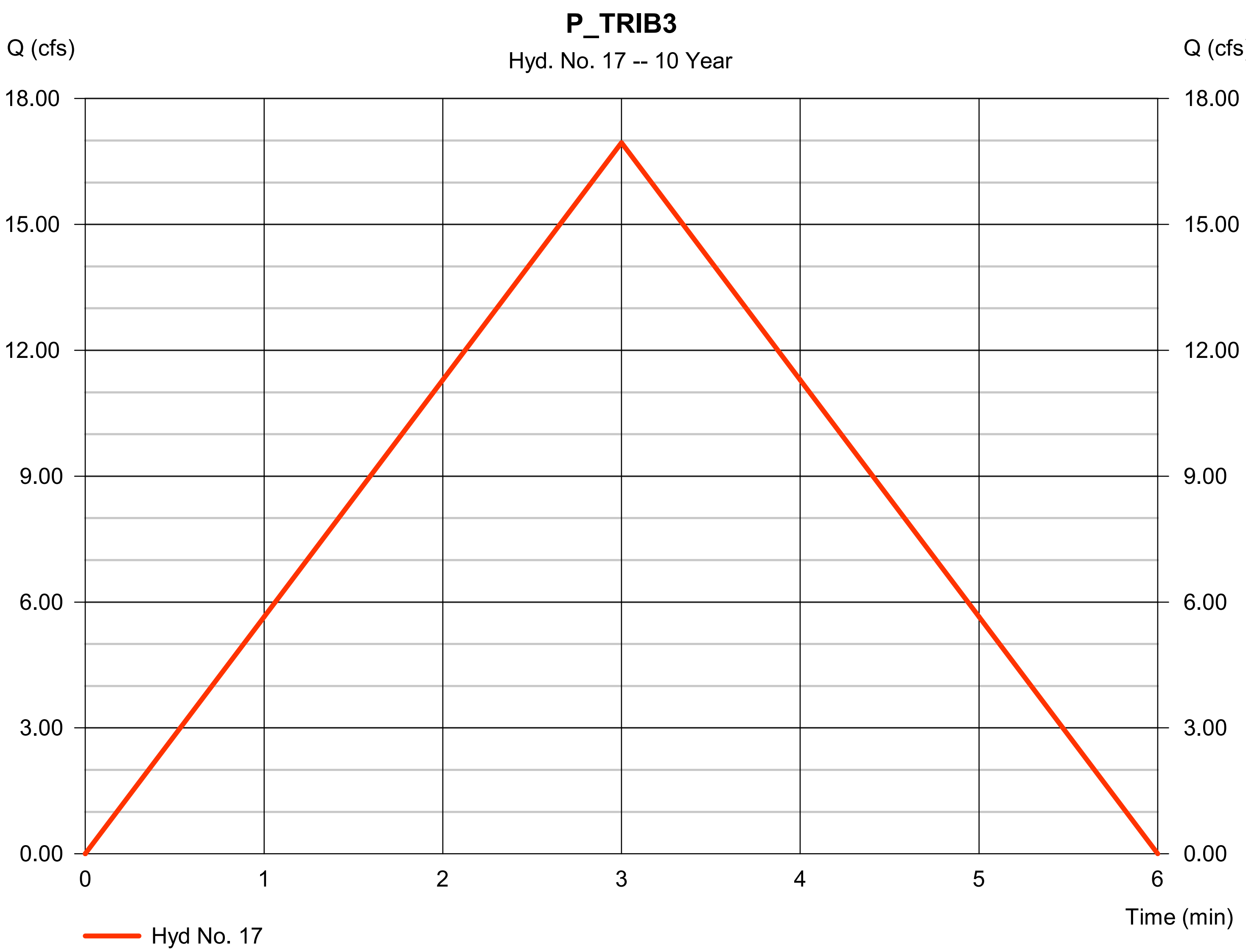
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 17

P_TRIB3

Hydrograph type	= Rational	Peak discharge	= 16.95 cfs
Storm frequency	= 10 yrs	Time to peak	= 3 min
Time interval	= 1 min	Hyd. volume	= 3,050 cuft
Drainage area	= 2.937 ac	Runoff coeff.	= 0.68
Intensity	= 8.486 in/hr	Tc by User	= 3.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



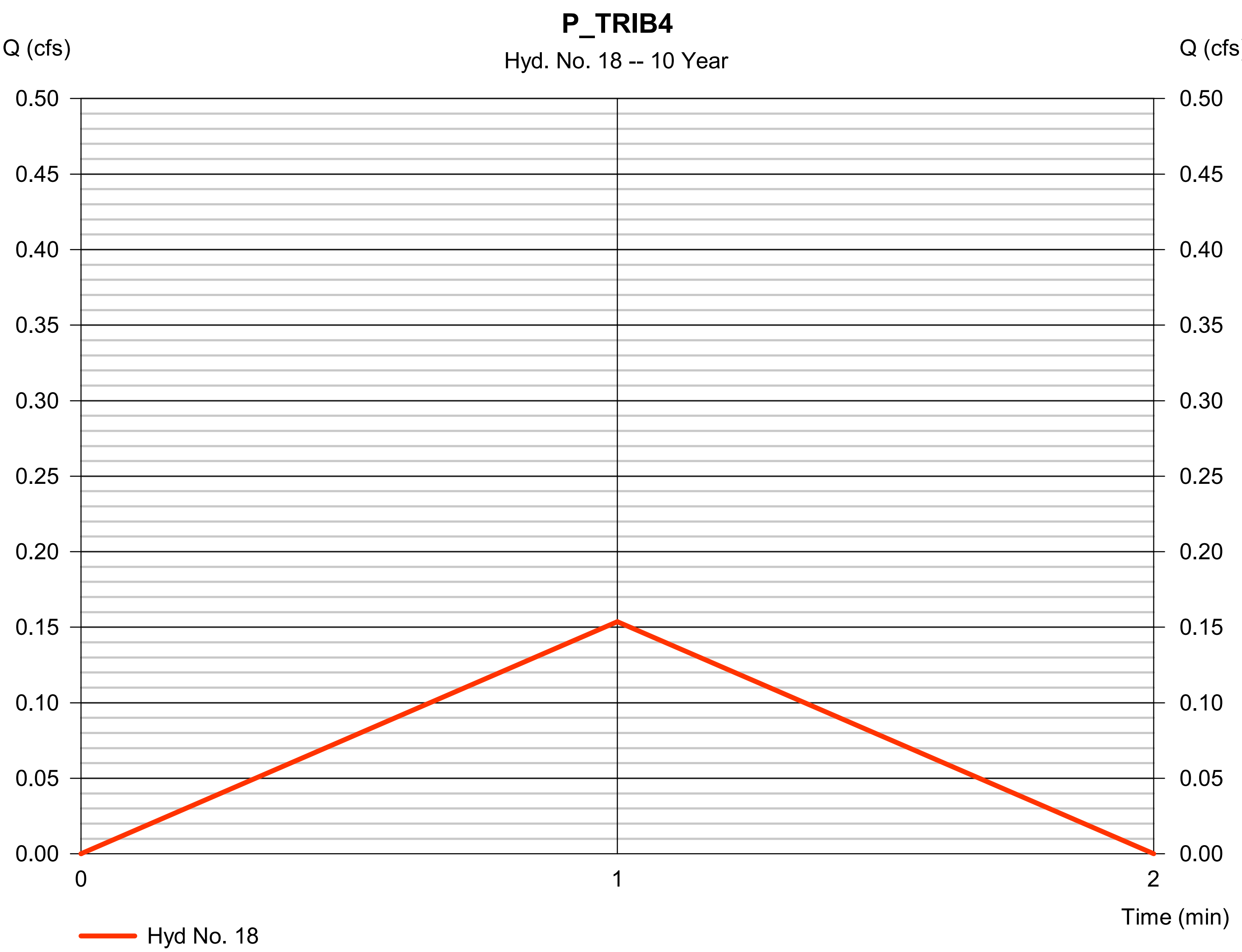
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 18

P_TRIB4

Hydrograph type	= Rational	Peak discharge	= 0.154 cfs
Storm frequency	= 10 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 9 cuft
Drainage area	= 0.081 ac	Runoff coeff.	= 0.2
Intensity	= 9.522 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



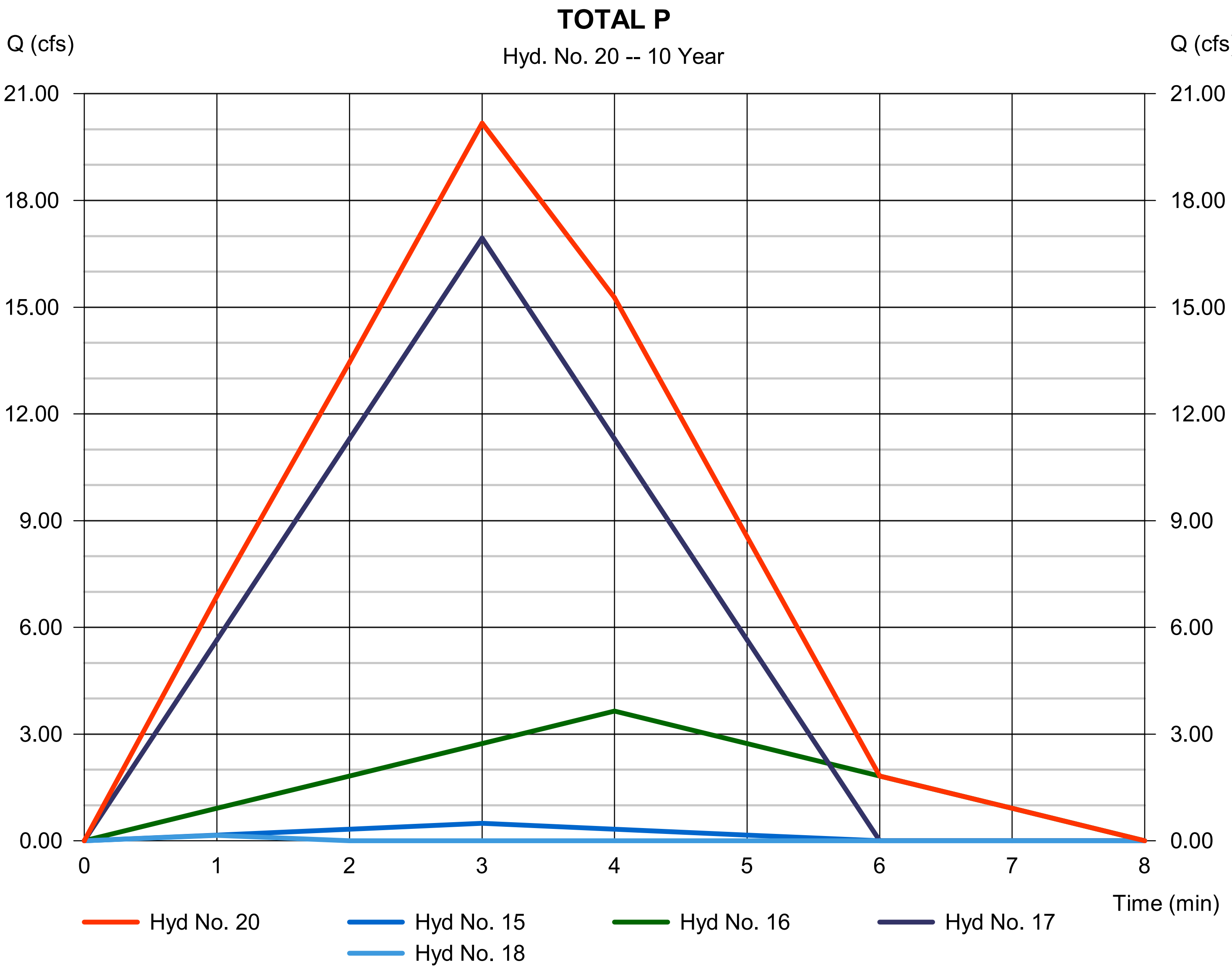
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 20

TOTAL P

Hydrograph type	= Combine	Peak discharge	= 20.17 cfs
Storm frequency	= 10 yrs	Time to peak	= 3 min
Time interval	= 1 min	Hyd. volume	= 4,023 cuft
Inflow hyds.	= 15, 16, 17, 18	Contrib. drain. area	= 5.570 ac



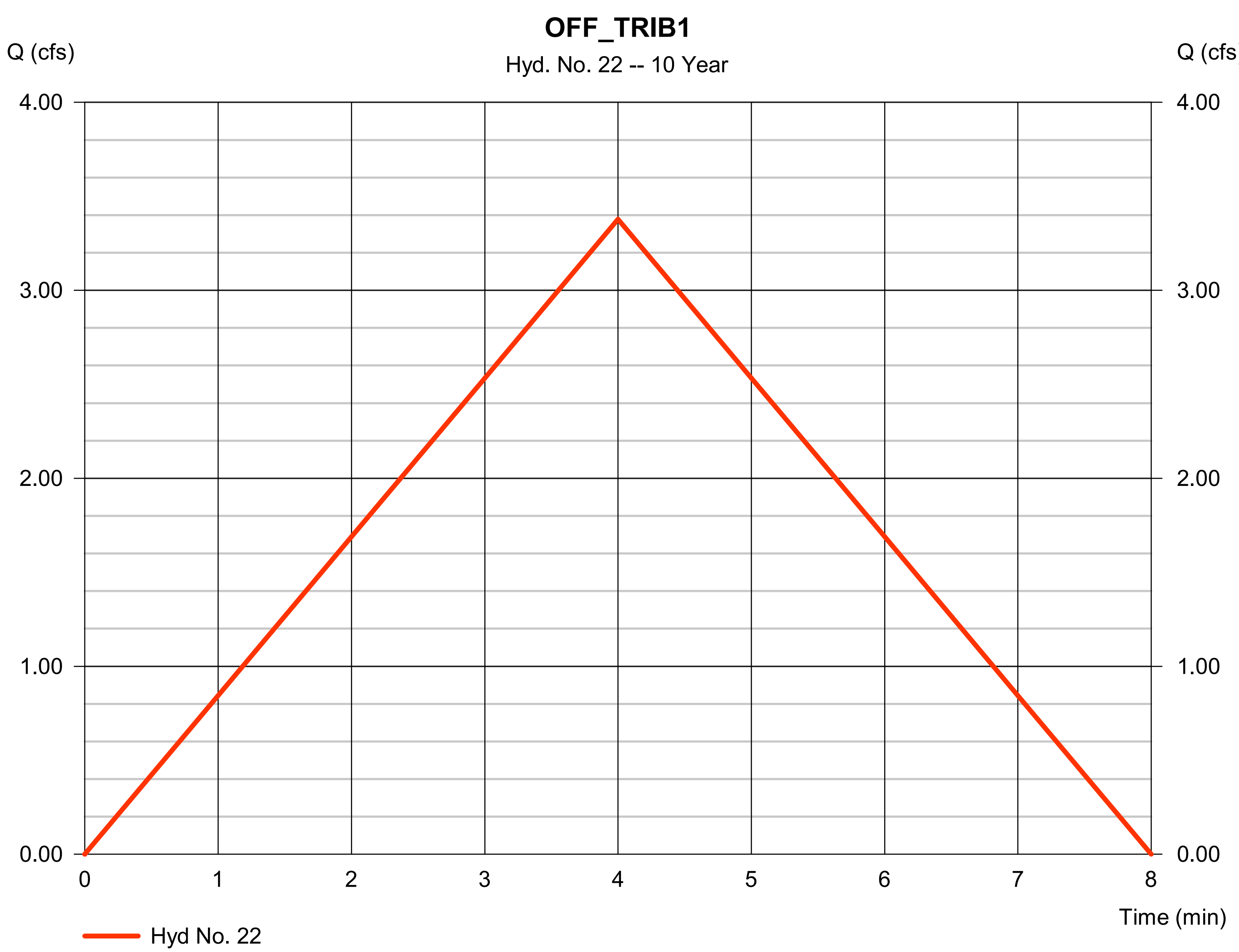
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 22

OFF_TRIB1

Hydrograph type	= Rational	Peak discharge	= 3.378 cfs
Storm frequency	= 10 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 811 cuft
Drainage area	= 0.466 ac	Runoff coeff.	= 0.9
Intensity	= 8.055 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



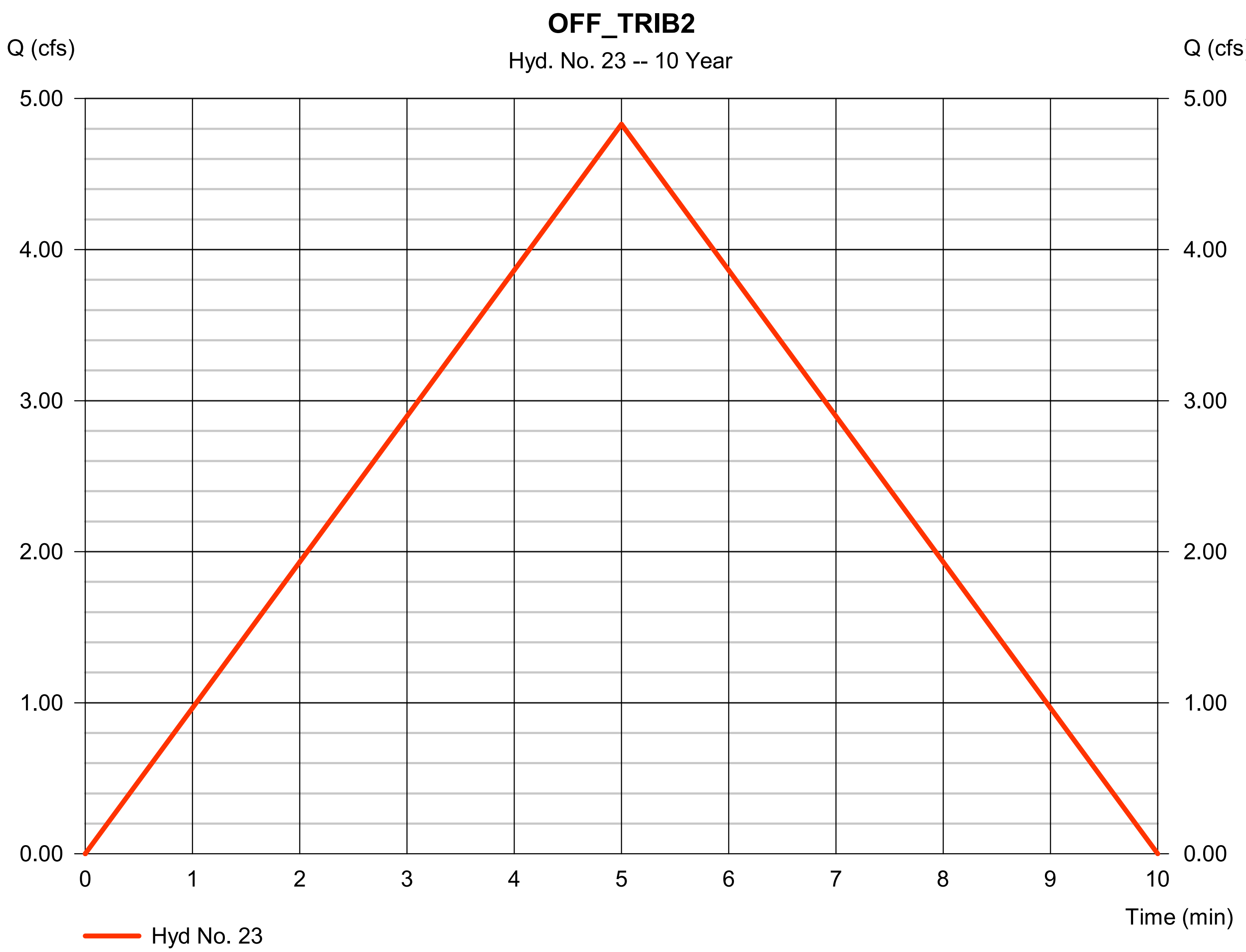
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 23

OFF_TRIB2

Hydrograph type	= Rational	Peak discharge	= 4.829 cfs
Storm frequency	= 10 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 1,449 cuft
Drainage area	= 3.148 ac	Runoff coeff.	= 0.2
Intensity	= 7.670 in/hr	Tc by User	= 5.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



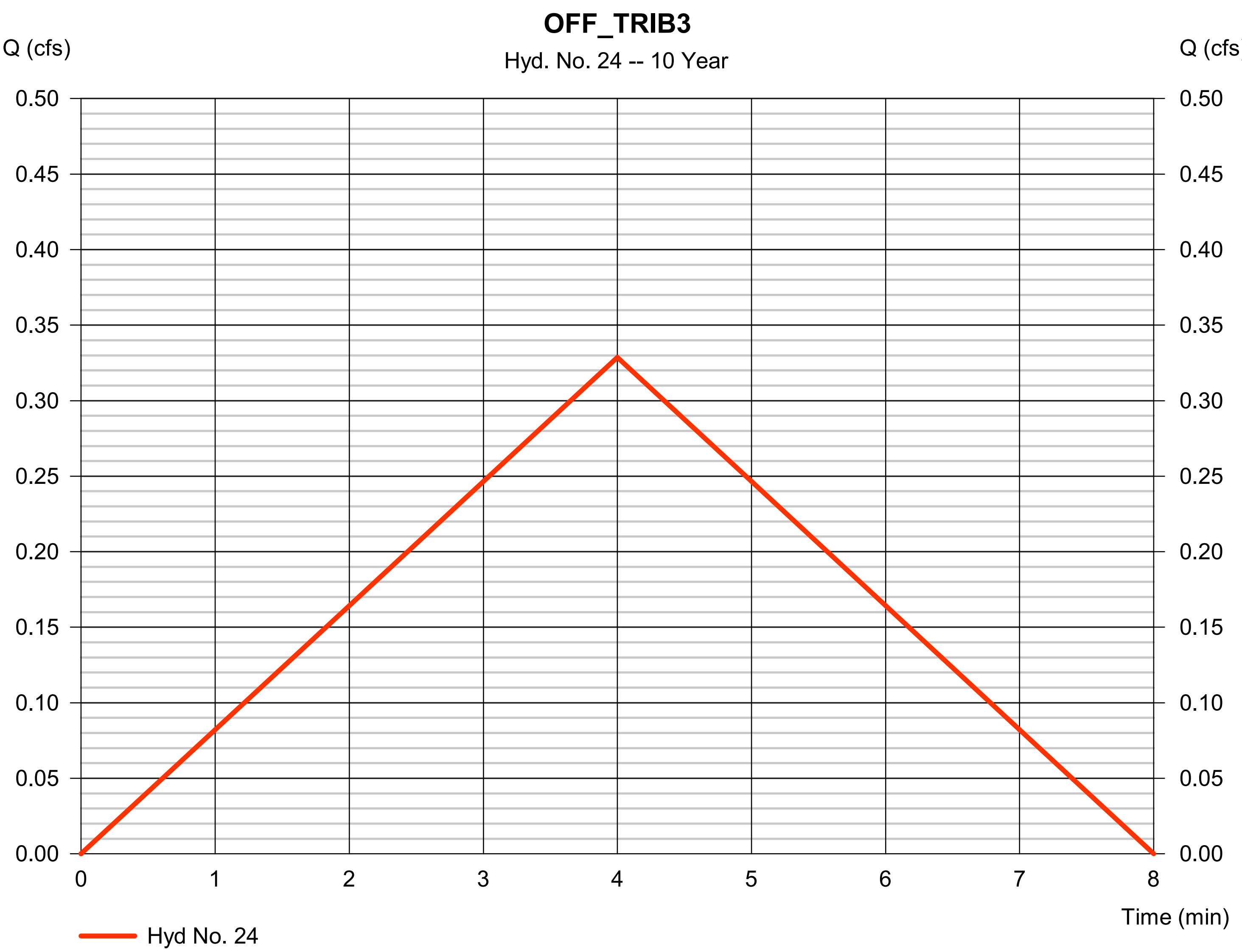
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 | Monday, 07 / 26 / 2021

Hyd. No. 24

OFF_TRIB3

Hydrograph type	= Rational	Peak discharge	= 0.329 cfs
Storm frequency	= 10 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 79 cuft
Drainage area	= 0.204 ac	Runoff coeff.	= 0.2
Intensity	= 8.055 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 25

OFF_TRIB4

Hydrograph type	= Rational	Peak discharge	= 1.916 cfs
Storm frequency	= 10 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 115 cuft
Drainage area	= 1.006 ac	Runoff coeff.	= 0.2
Intensity	= 9.522 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1

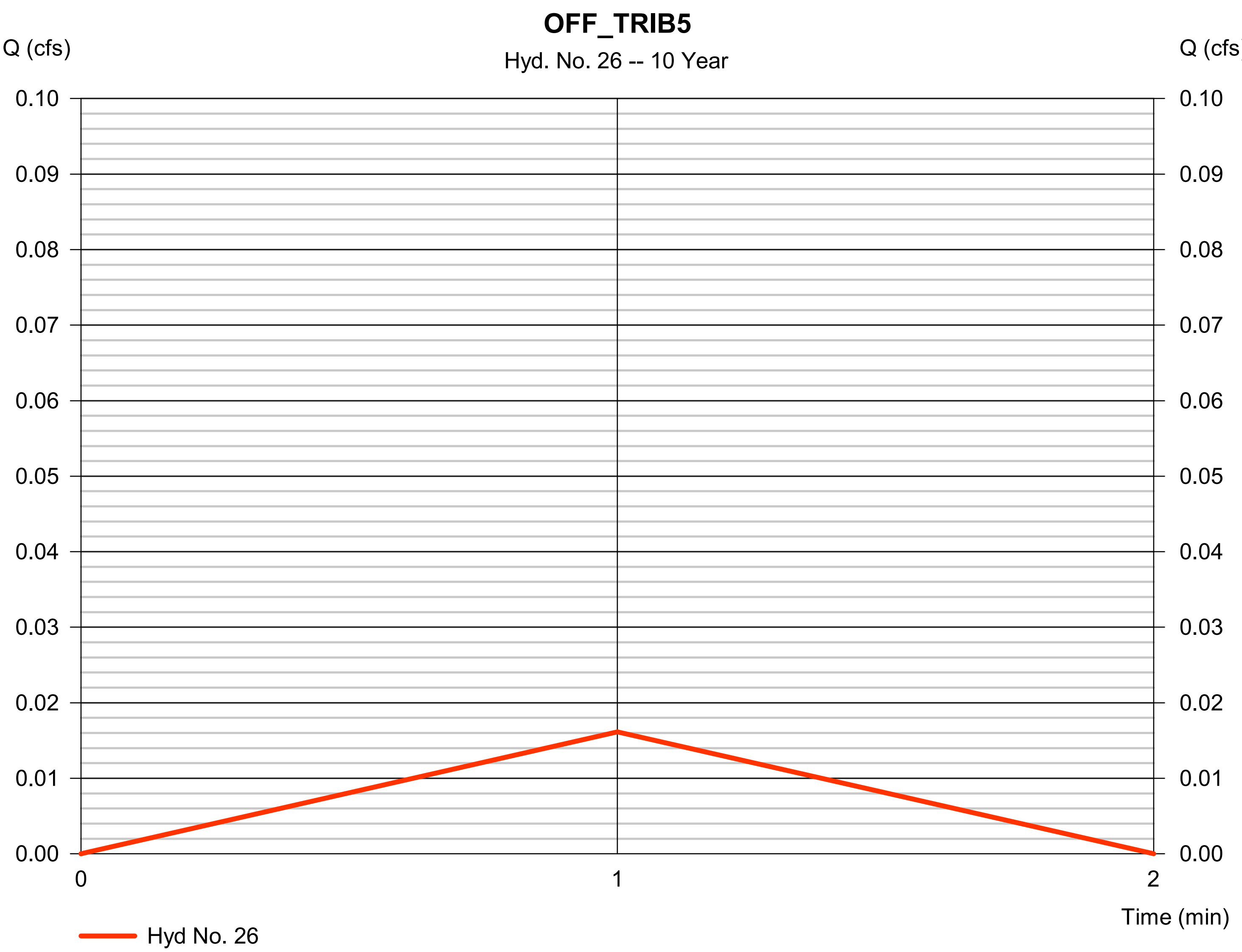
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 26

OFF_TRIB5

Hydrograph type	= Rational	Peak discharge	= 0.016 cfs
Storm frequency	= 10 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 1 cuft
Drainage area	= 0.008 ac	Runoff coeff.	= 0.2
Intensity	= 9.522 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



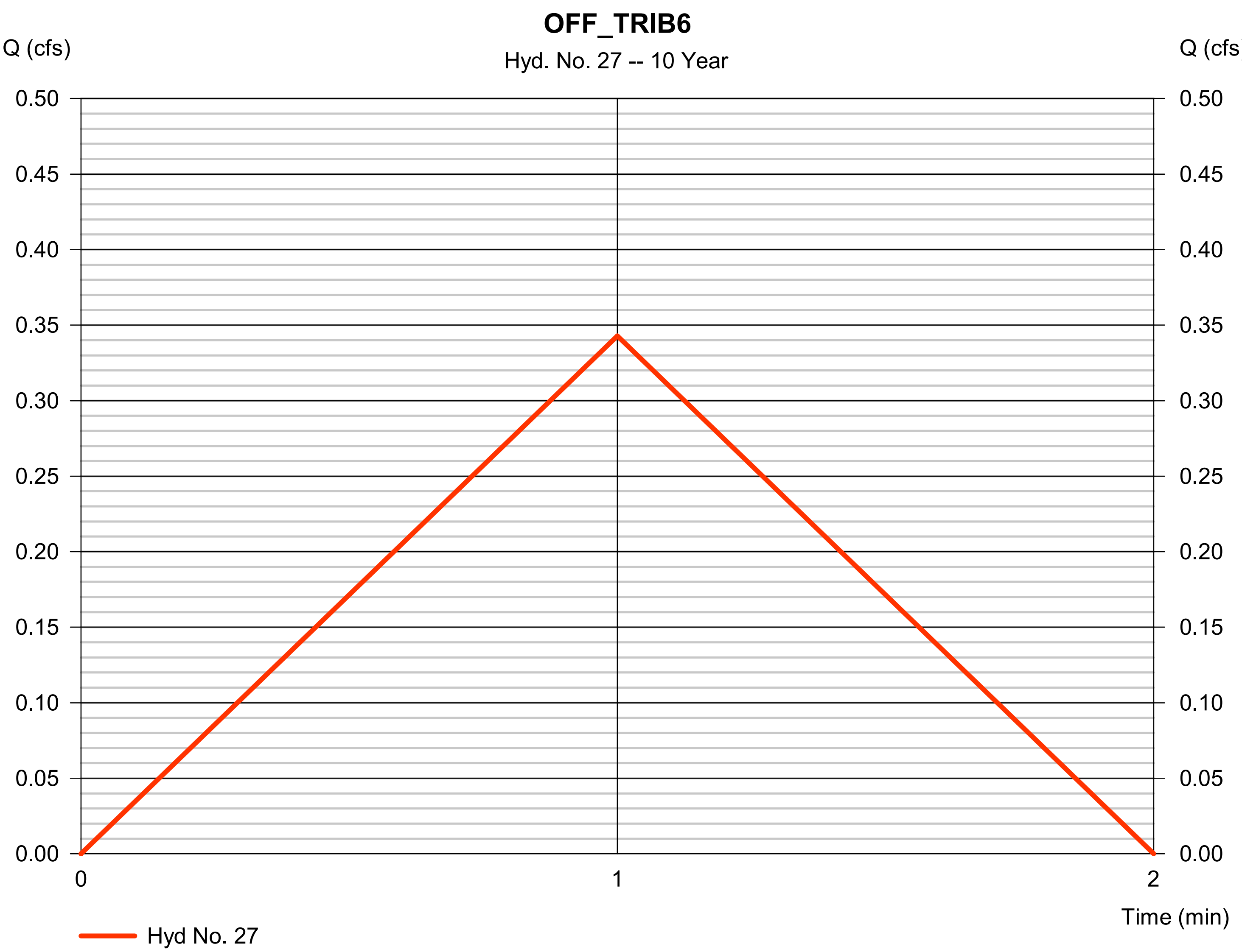
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 27

OFF_TRIB6

Hydrograph type	= Rational	Peak discharge	= 0.343 cfs
Storm frequency	= 10 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 21 cuft
Drainage area	= 0.180 ac	Runoff coeff.	= 0.2
Intensity	= 9.522 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



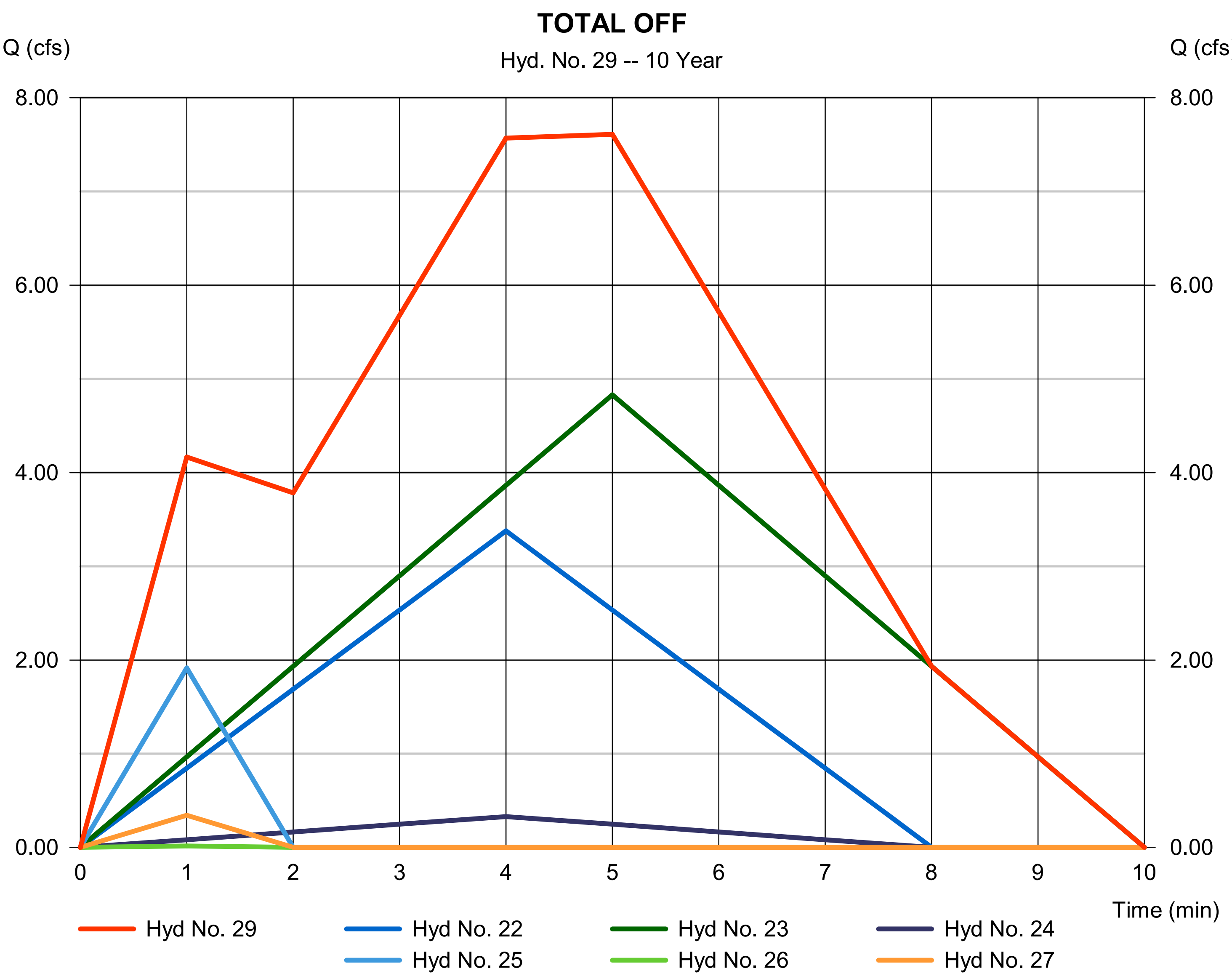
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 29

TOTAL OFF

Hydrograph type	= Combine	Peak discharge	= 7.609 cfs
Storm frequency	= 10 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 2,475 cuft
Inflow hyds.	= 22, 23, 24, 25, 26, 27	Contrib. drain. area	= 5.012 ac



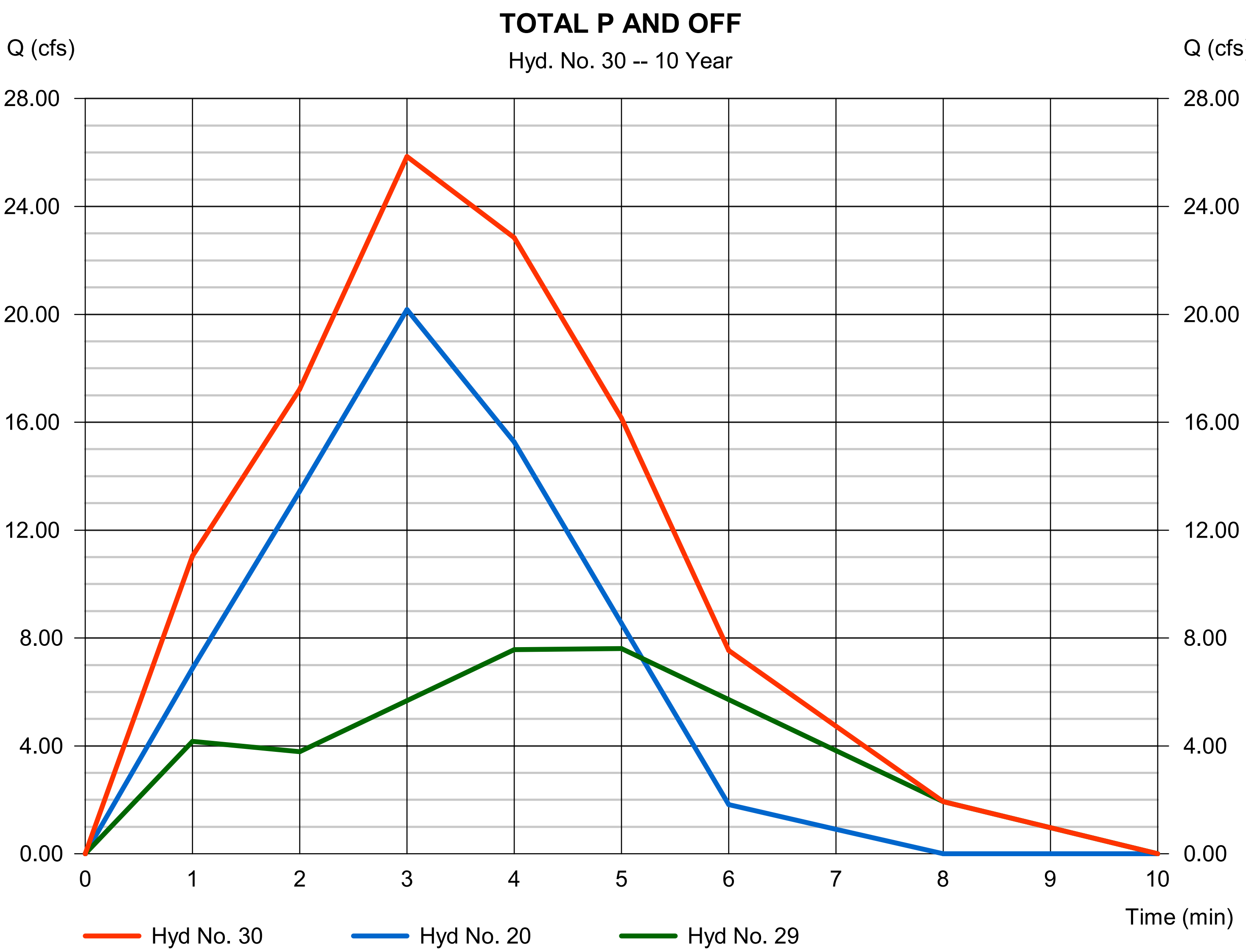
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 30

TOTAL P AND OFF

Hydrograph type	= Combine	Peak discharge	= 25.85 cfs
Storm frequency	= 10 yrs	Time to peak	= 3 min
Time interval	= 1 min	Hyd. volume	= 6,498 cuft
Inflow hyds.	= 20, 29	Contrib. drain. area	= 0.000 ac



Hydrograph Report

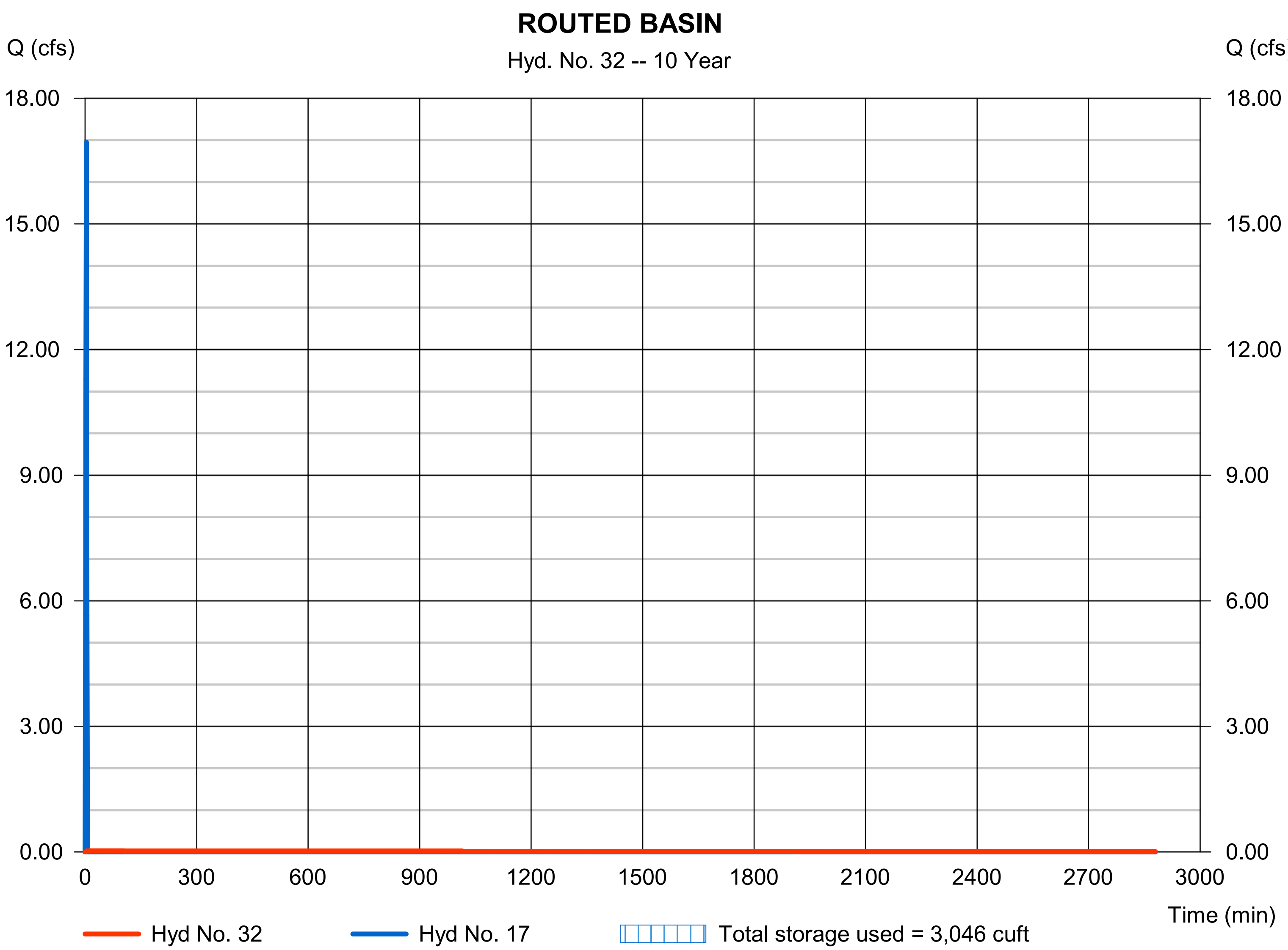
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 32

ROUTED BASIN

Hydrograph type	= Reservoir	Peak discharge	= 0.024 cfs
Storm frequency	= 10 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 2,511 cuft
Inflow hyd. No.	= 17 - P_TRIB3	Max. Elevation	= 470.42 ft
Reservoir name	= BMP 1	Max. Storage	= 3,046 cuft

Storage Indication method used.



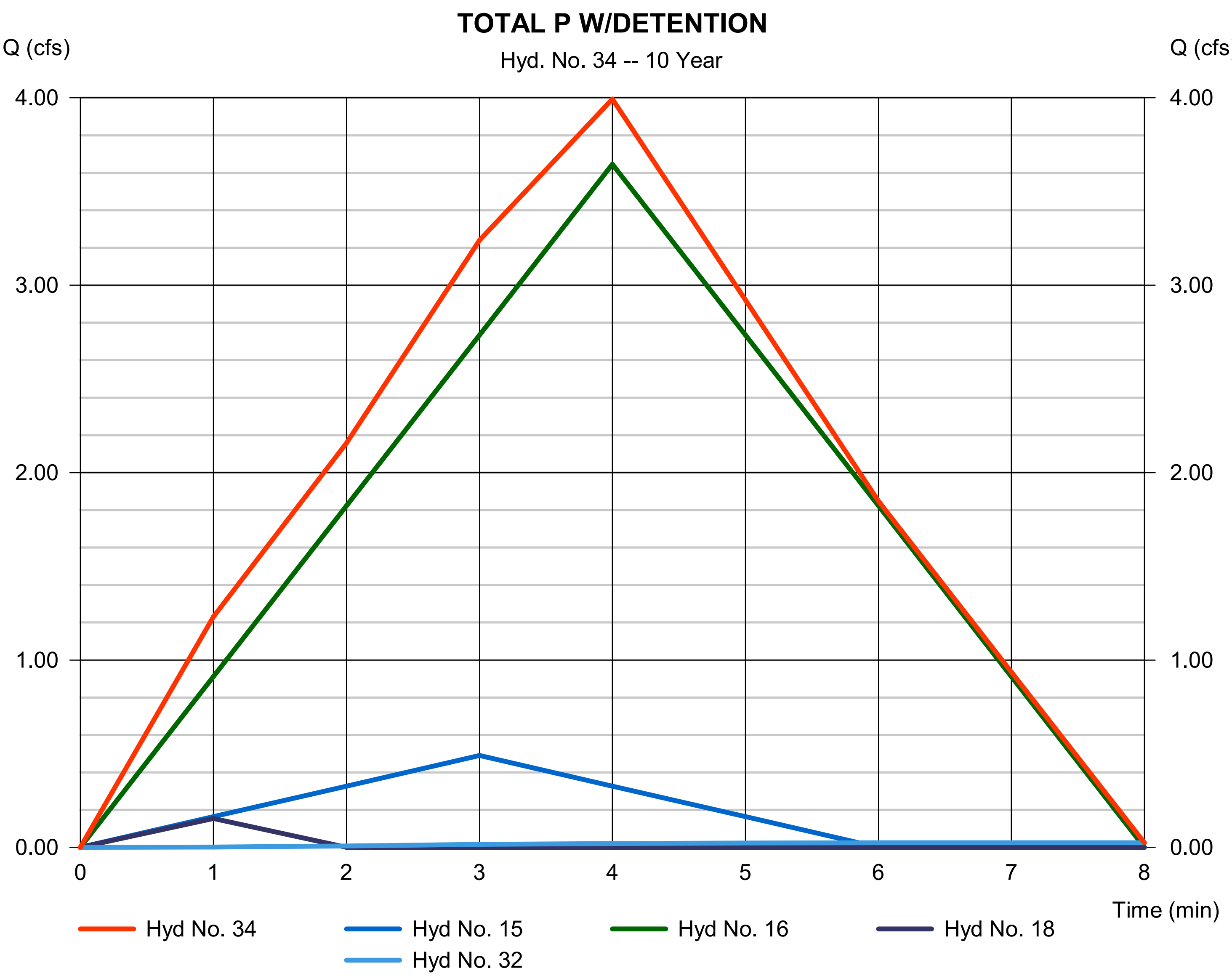
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 34

TOTAL P W/DETENTION

Hydrograph type	= Combine	Peak discharge	= 3.994 cfs
Storm frequency	= 10 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 3,484 cuft
Inflow hyds.	= 15, 16, 18, 32	Contrib. drain. area	= 2.633 ac



Hydrograph Summary Report

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

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	5.118	1	2	614	------	------	------	EX_TRIB1
2	Rational	5.946	1	6	2,141	------	------	------	EX_TRIB2
3	Rational	5.272	1	6	1,898	------	------	------	EX_TRIB3
4	Rational	0.508	1	1	31	------	------	------	EX_TRIB4
5	Rational	0.169	1	1	10	------	------	------	EX_TRIB5
6	Rational	1.796	1	4	431	------	------	------	EX_TRIB6
7	Rational	0.768	1	4	184	------	------	------	EX_TRIB7
8	Rational	0.353	1	5	106	------	------	------	EX_TRIB8
9	Rational	0.023	1	1	1	------	------	------	EX_TRIB9
11	Combine	12.12	1	6	5,124	1, 2, 3, 4, 5, 6,	------	------	TOTAL EX 1 OF 2
12	Combine	1.050	1	4	292	7, 8, 9,	------	------	TOTAL EX 2 OF 2
13	Combine	12.78	1	6	5,416	11, 12	------	------	TOTAL EX
15	Rational	0.606	1	3	109	------	------	------	P_TRIB1
16	Rational	4.324	1	4	1,038	------	------	------	P_TRIB2
17	Rational	20.94	1	3	3,769	------	------	------	P_TRIB3
18	Rational	0.216	1	1	13	------	------	------	P_TRIB4
20	Combine	24.79	1	3	4,928	15, 16, 17, 18,	------	------	TOTAL P
22	Rational	4.007	1	4	962	------	------	------	OFF_TRIB1
23	Rational	5.551	1	5	1,665	------	------	------	OFF_TRIB2
24	Rational	0.390	1	4	94	------	------	------	OFF_TRIB3
25	Rational	2.692	1	1	162	------	------	------	OFF_TRIB4
26	Rational	0.023	1	1	1	------	------	------	OFF_TRIB5
27	Rational	0.482	1	1	29	------	------	------	OFF_TRIB6
29	Combine	8.848	1	5	2,912	22, 23, 24, 25, 26, 27,	------	------	TOTAL OFF
30	Combine	31.41	1	3	7,840	20, 29	------	------	TOTAL P AND OFF
32	Reservoir	0.028	1	6	3,039	17	470.52	3,763	ROUTED BASIN
34	Combine	4.752	1	4	4,199	15, 16, 18, 32,	------	------	TOTAL P W/DETENTION

M20-8003_detention_7-26-21.gpw	Return Period: 25 Year	Monday, 07 / 26 / 2021

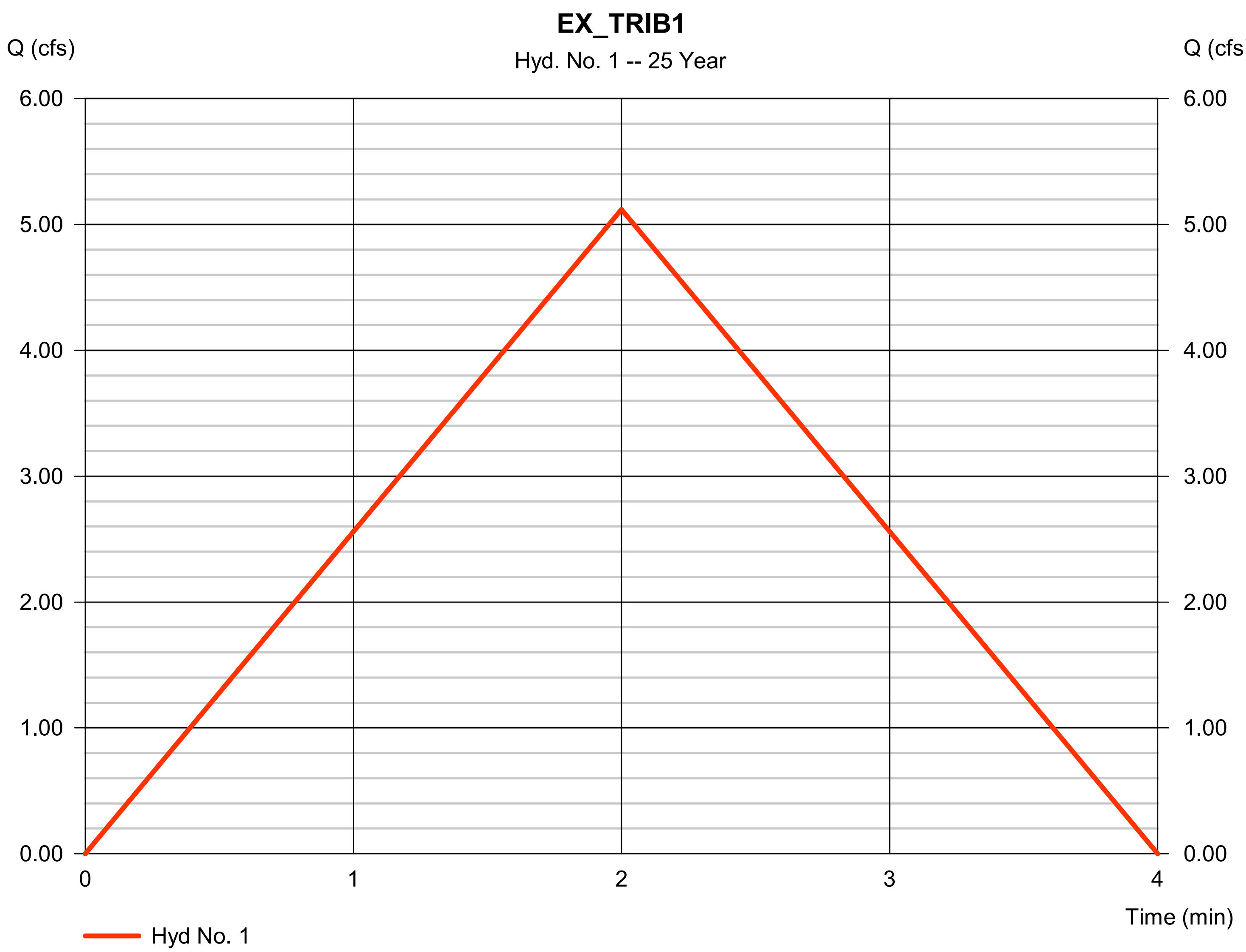
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 1

EX_TRIB1

Hydrograph type	= Rational	Peak discharge	= 5.118 cfs
Storm frequency	= 25 yrs	Time to peak	= 2 min
Time interval	= 1 min	Hyd. volume	= 614 cuft
Drainage area	= 1.750 ac	Runoff coeff.	= 0.25
Intensity	= 11.699 in/hr	Tc by User	= 2.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



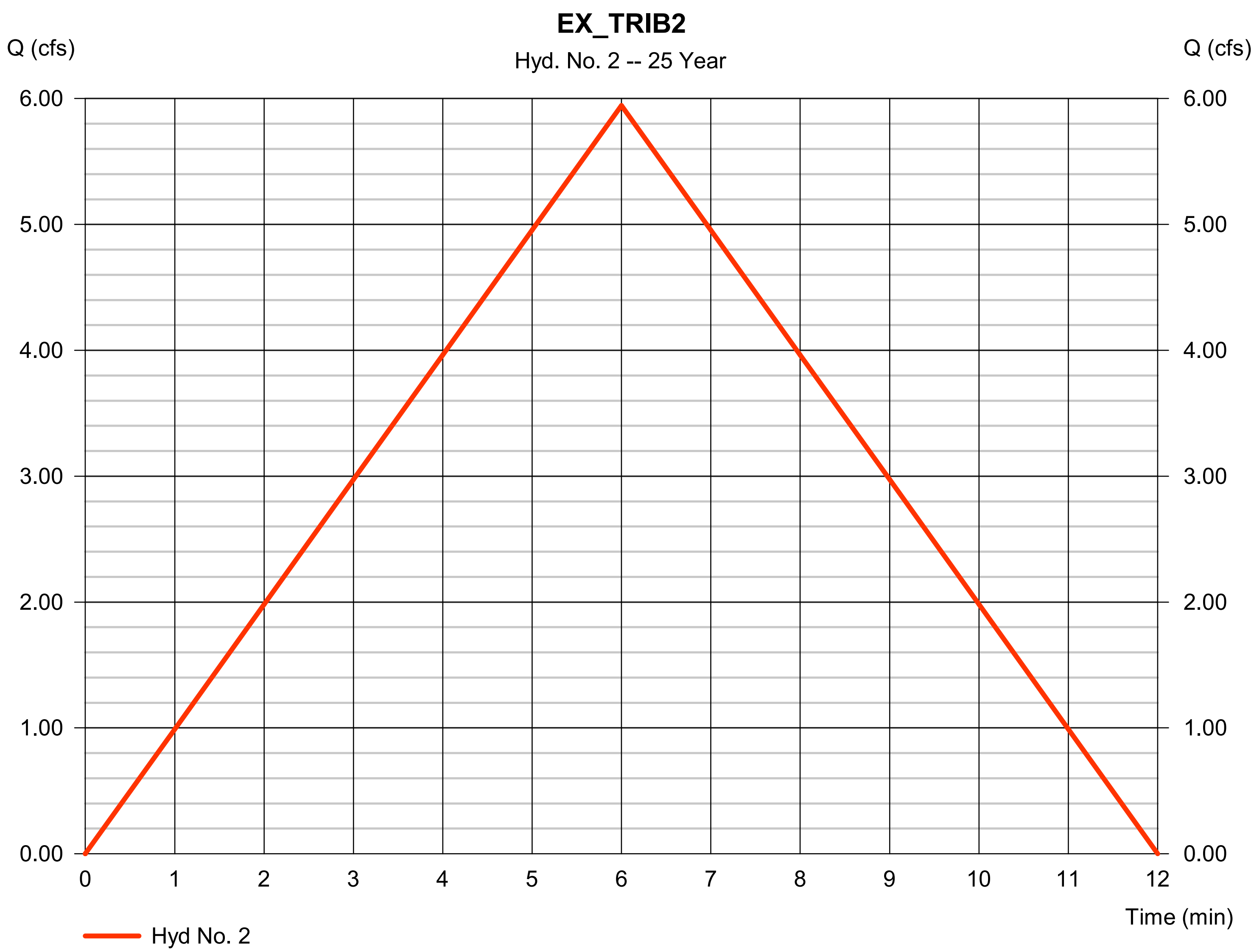
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 | Monday, 07 / 26 / 2021

Hyd. No. 2

EX_TRIB2

Hydrograph type	= Rational	Peak discharge	= 5.946 cfs
Storm frequency	= 25 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 2,141 cuft
Drainage area	= 3.620 ac	Runoff coeff.	= 0.2
Intensity	= 8.213 in/hr	Tc by User	= 6.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



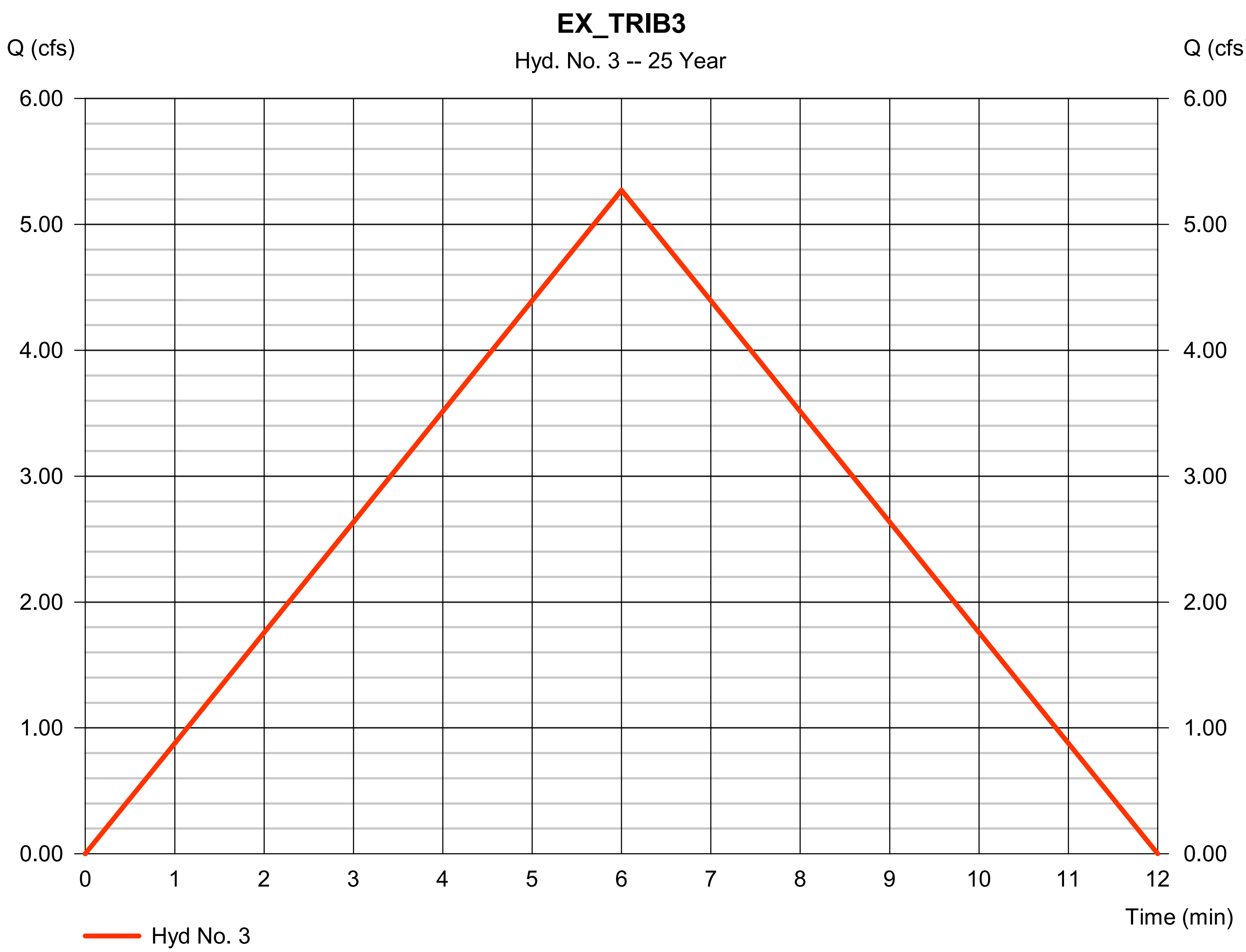
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 3

EX_TRIB3

Hydrograph type	= Rational	Peak discharge	= 5.272 cfs
Storm frequency	= 25 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 1,898 cuft
Drainage area	= 3.210 ac	Runoff coeff.	= 0.2
Intensity	= 8.213 in/hr	Tc by User	= 6.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



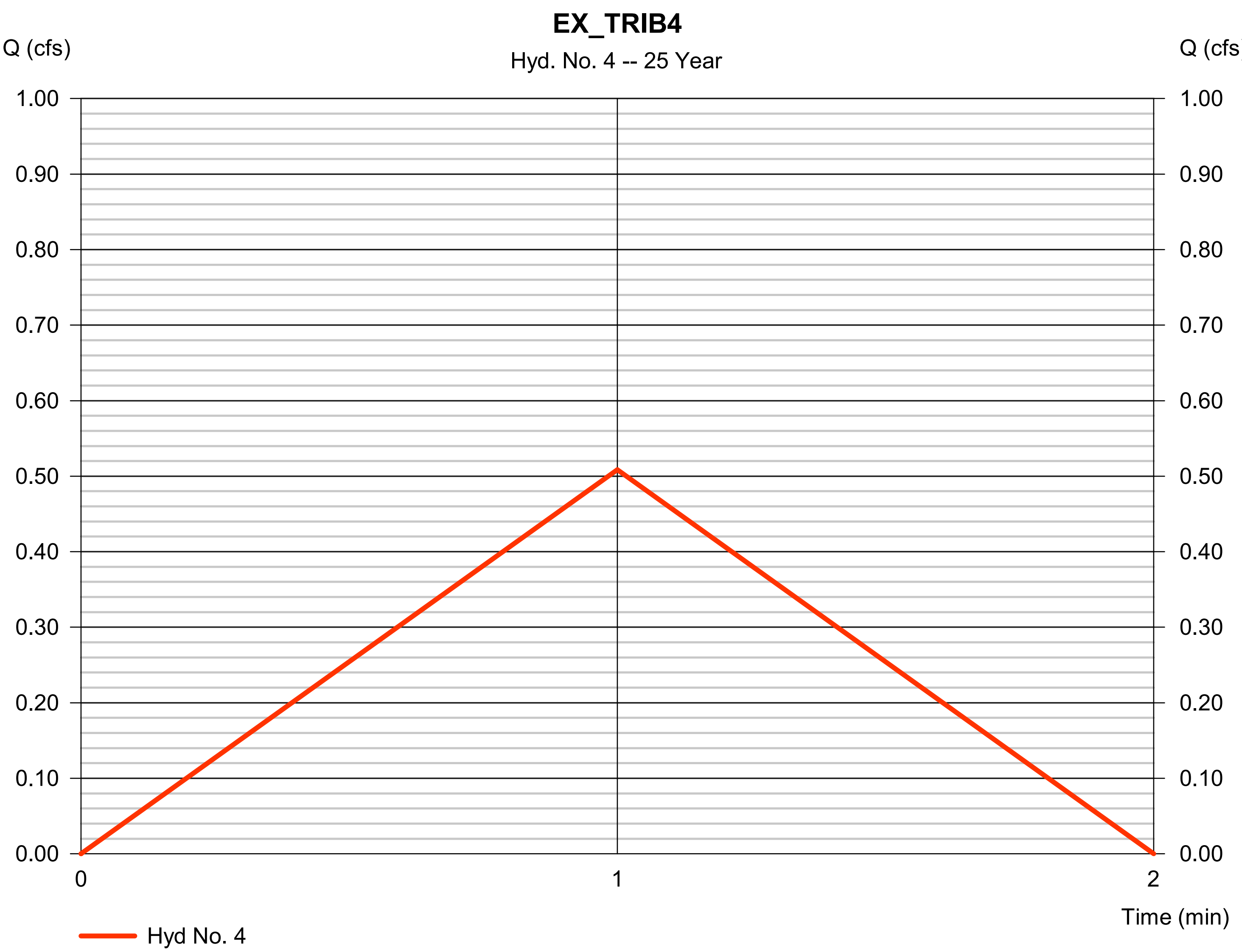
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 4

EX_TRIB4

Hydrograph type	= Rational	Peak discharge	= 0.508 cfs
Storm frequency	= 25 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 31 cuft
Drainage area	= 0.190 ac	Runoff coeff.	= 0.2
Intensity	= 13.381 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



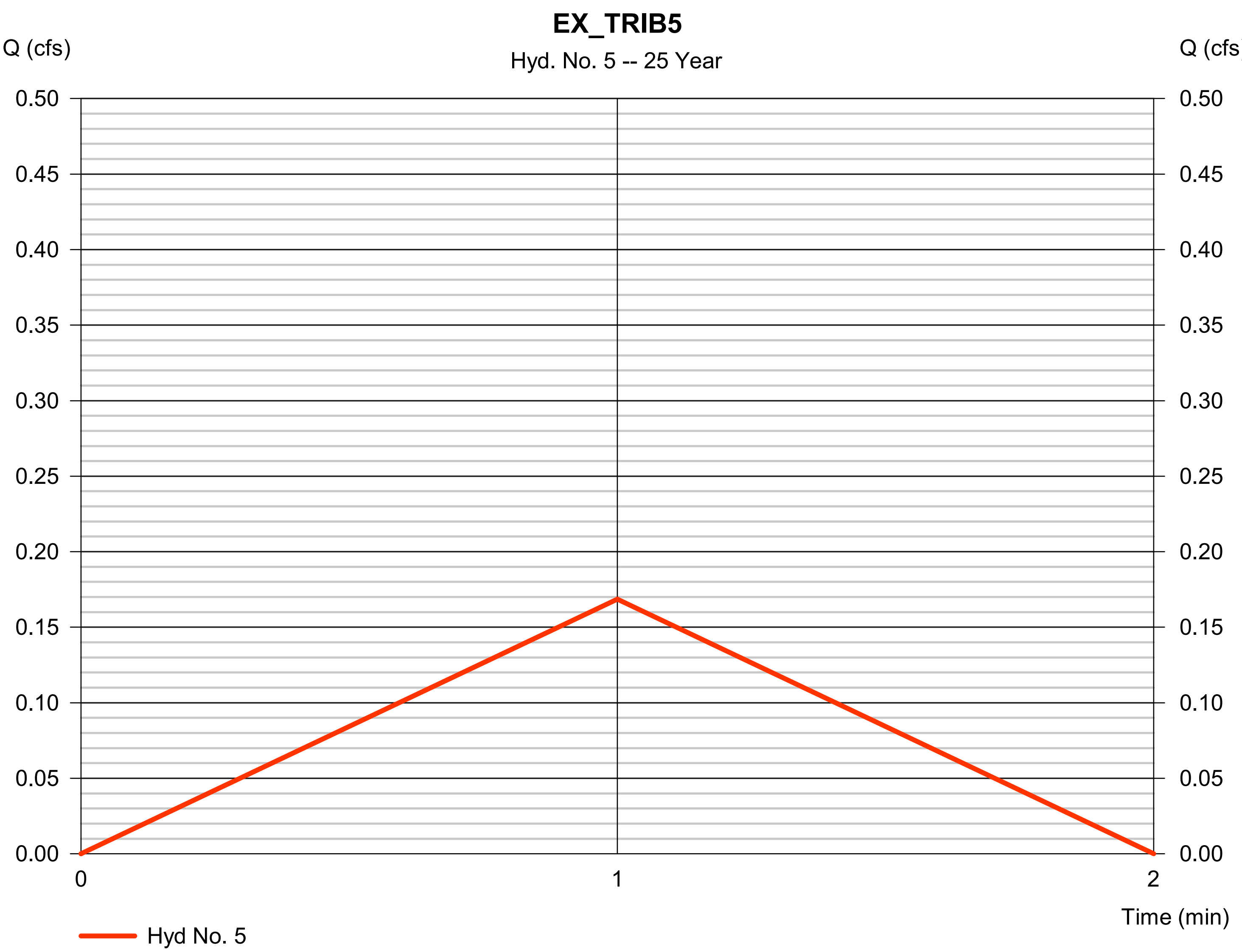
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 5

EX_TRIB5

Hydrograph type	= Rational	Peak discharge	= 0.169 cfs
Storm frequency	= 25 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 10 cuft
Drainage area	= 0.063 ac	Runoff coeff.	= 0.2
Intensity	= 13.381 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



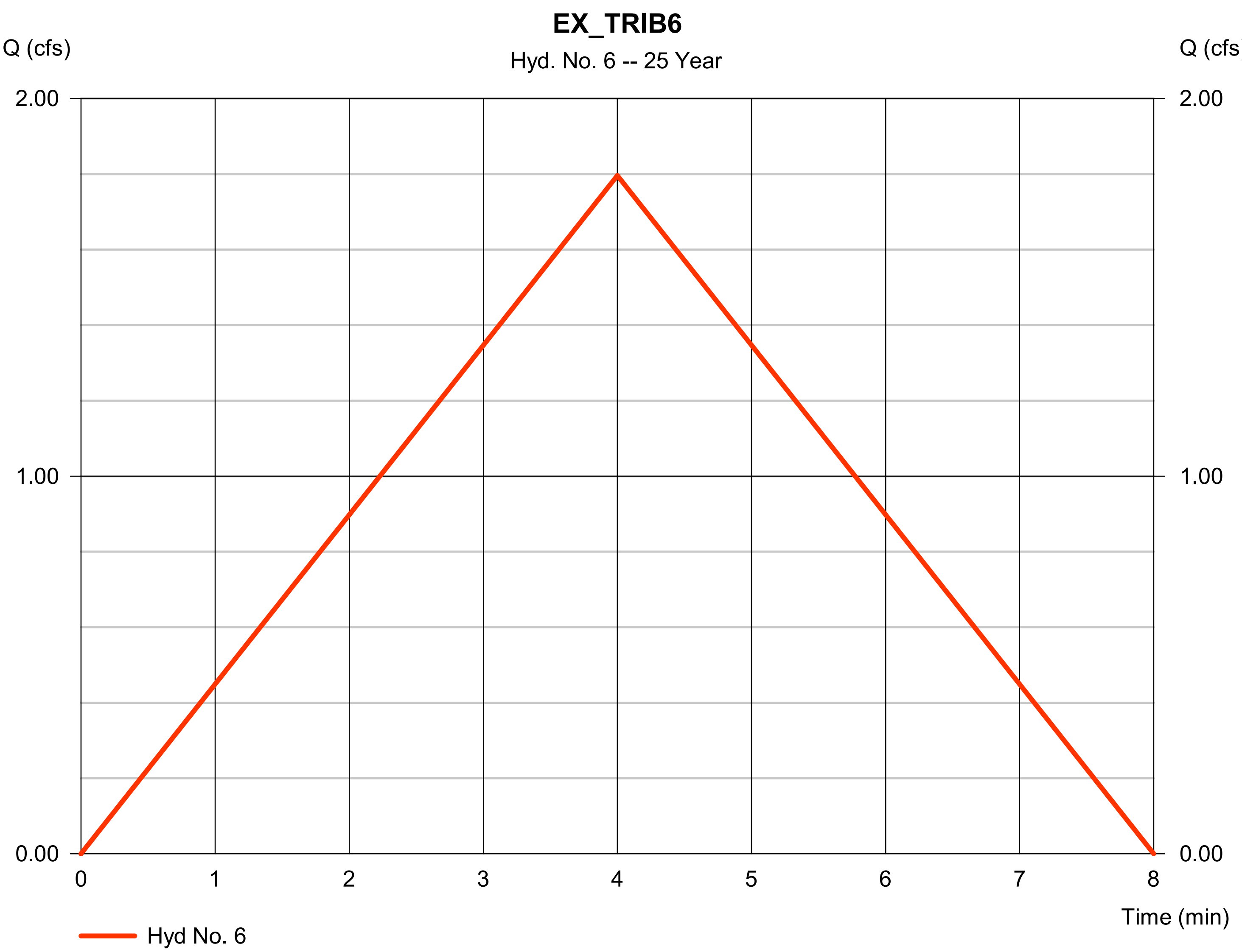
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 6

EX_TRIB6

Hydrograph type	= Rational	Peak discharge	= 1.796 cfs
Storm frequency	= 25 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 431 cuft
Drainage area	= 0.940 ac	Runoff coeff.	= 0.2
Intensity	= 9.554 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



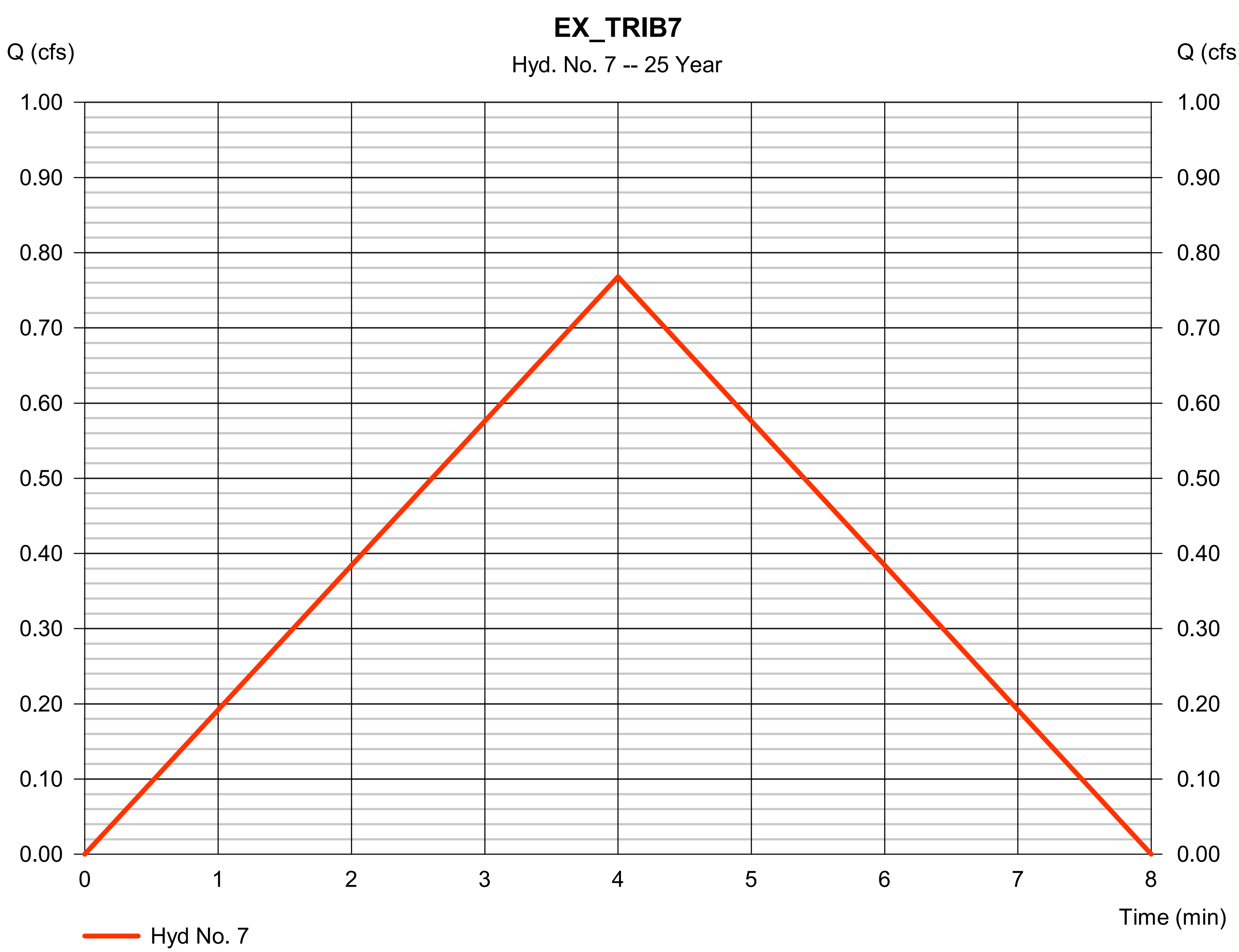
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 7

EX_TRIB7

Hydrograph type	= Rational	Peak discharge	= 0.768 cfs
Storm frequency	= 25 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 184 cuft
Drainage area	= 0.402 ac	Runoff coeff.	= 0.2
Intensity	= 9.554 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



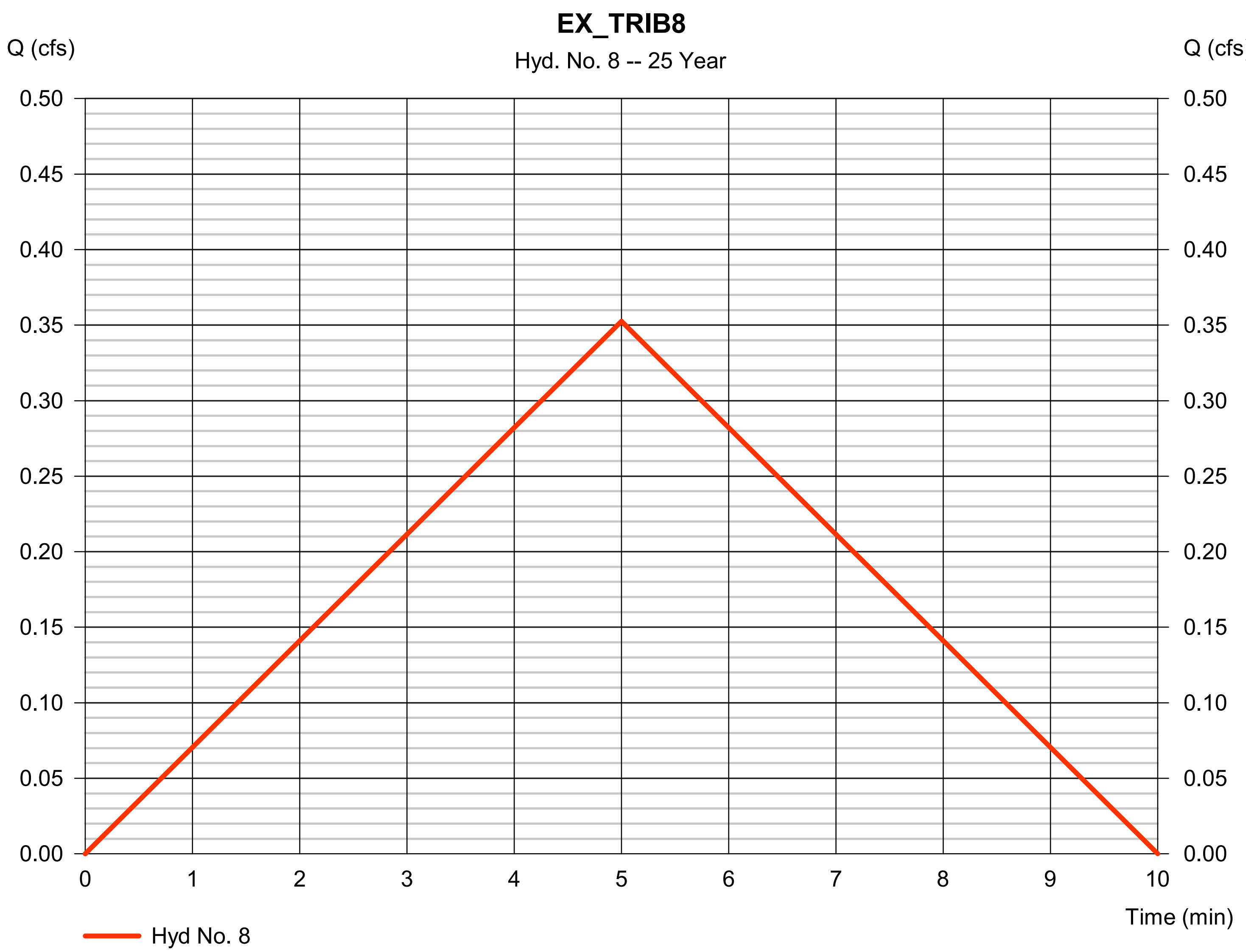
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 8

EX_TRIB8

Hydrograph type	= Rational	Peak discharge	= 0.353 cfs
Storm frequency	= 25 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 106 cuft
Drainage area	= 0.200 ac	Runoff coeff.	= 0.2
Intensity	= 8.816 in/hr	Tc by User	= 5.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



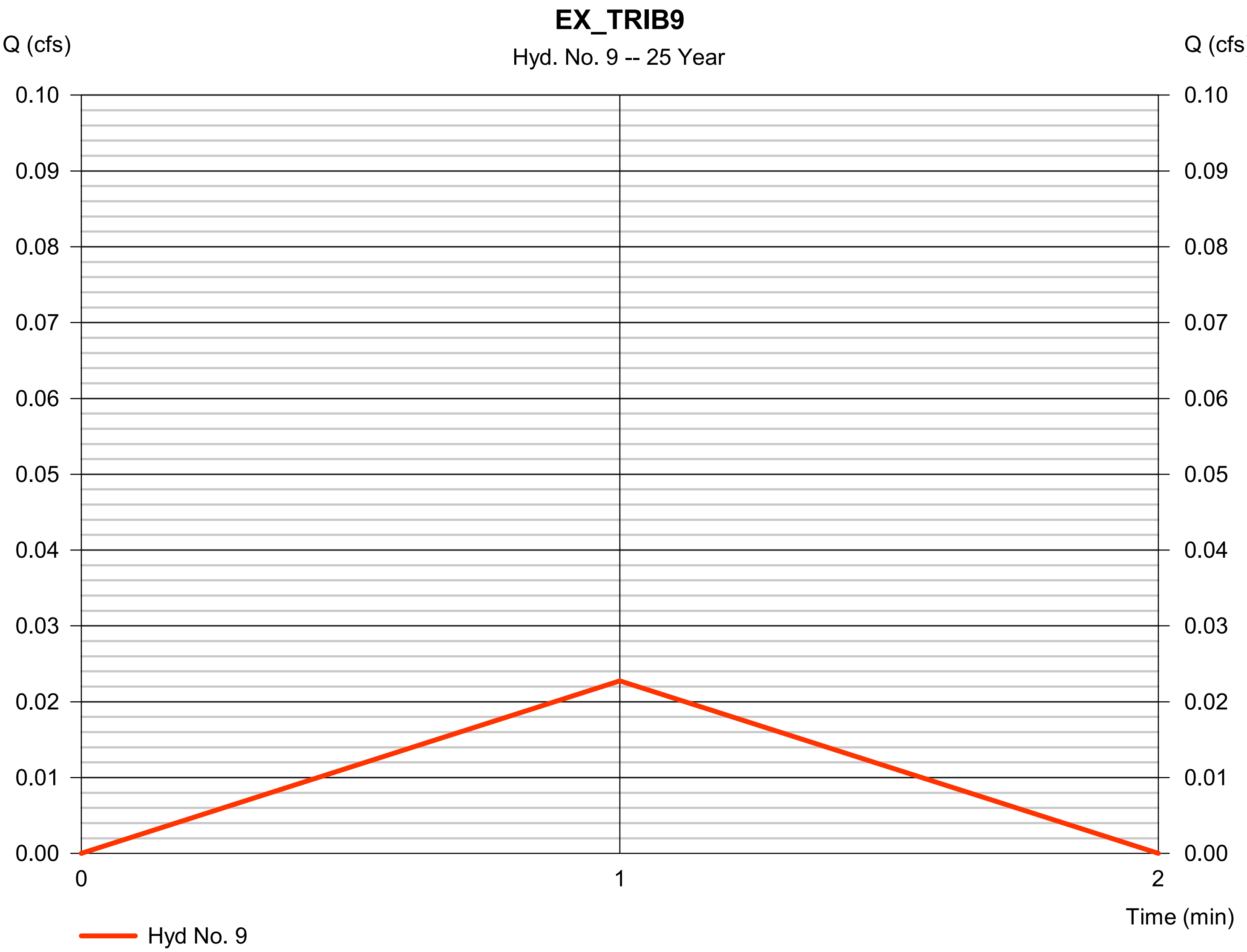
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 9

EX_TRIB9

Hydrograph type	= Rational	Peak discharge	= 0.023 cfs
Storm frequency	= 25 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 1 cuft
Drainage area	= 0.009 ac	Runoff coeff.	= 0.2
Intensity	= 13.381 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



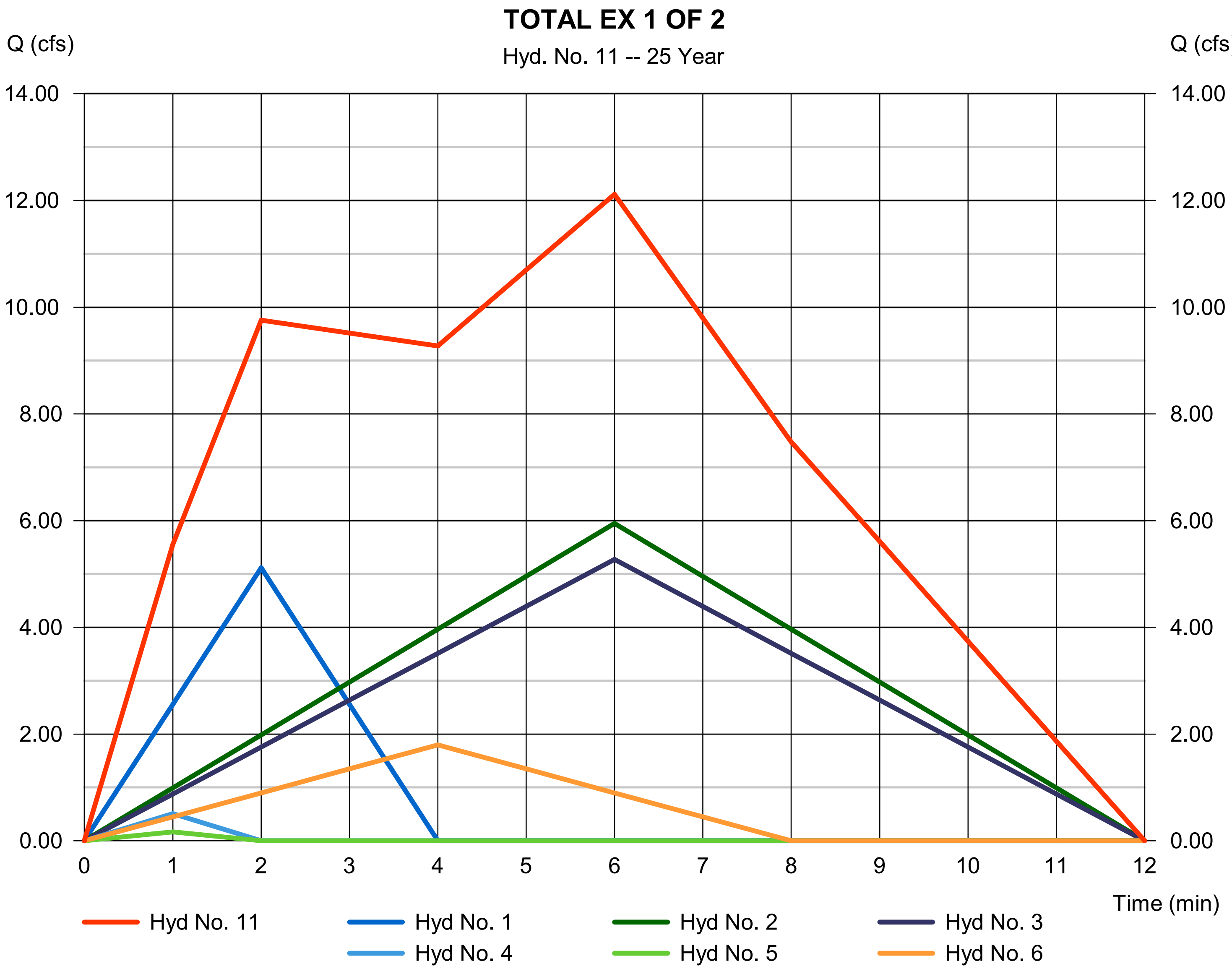
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 11

TOTAL EX 1 OF 2

Hydrograph type	= Combine	Peak discharge	= 12.12 cfs
Storm frequency	= 25 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 5,124 cuft
Inflow hyds.	= 1, 2, 3, 4, 5, 6	Contrib. drain. area	= 9.773 ac



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

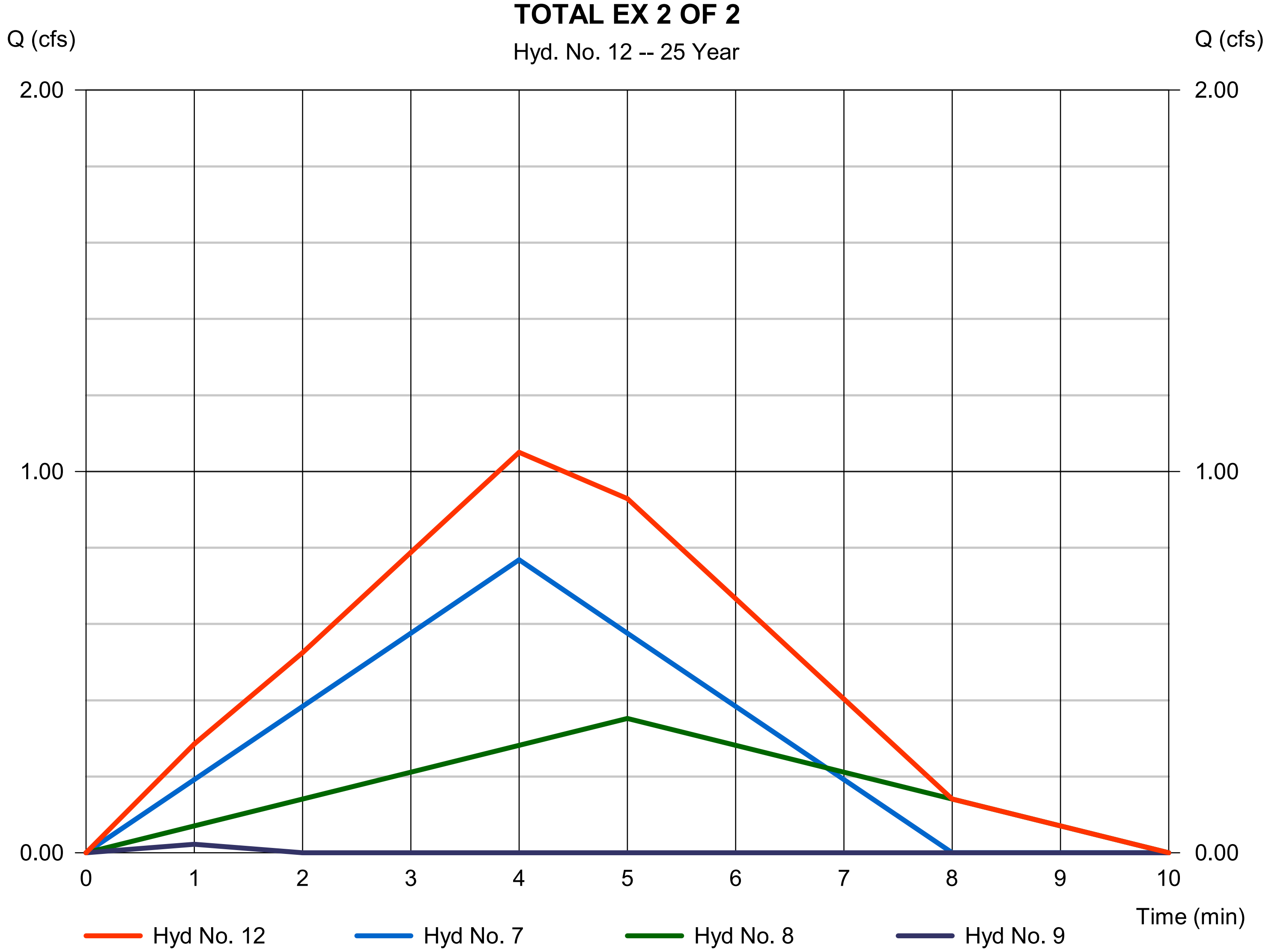
Hyd. No. 12

TOTAL EX 2 OF 2

Hydrograph type	= Combine	Peak discharge	= 1.050 cfs
Storm frequency	= 25 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 292 cuft
Inflow hyds.	= 7, 8, 9	Contrib. drain. area	= 0.610 ac

TOTAL EX 2 OF 2

Hyd. No. 12 -- 25 Year



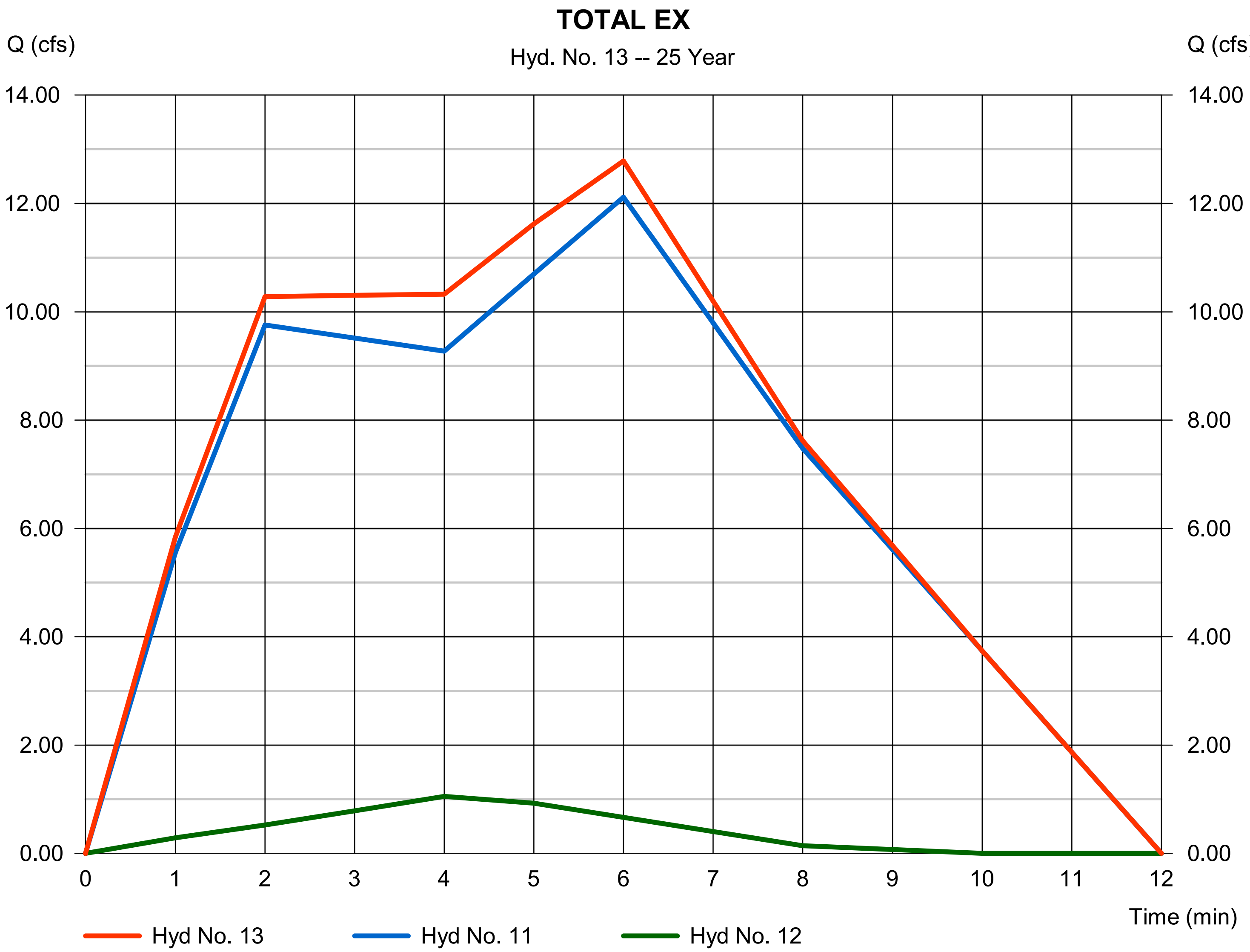
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 13

TOTAL EX

Hydrograph type	= Combine	Peak discharge	= 12.78 cfs
Storm frequency	= 25 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 5,416 cuft
Inflow hyds.	= 11, 12	Contrib. drain. area	= 0.000 ac



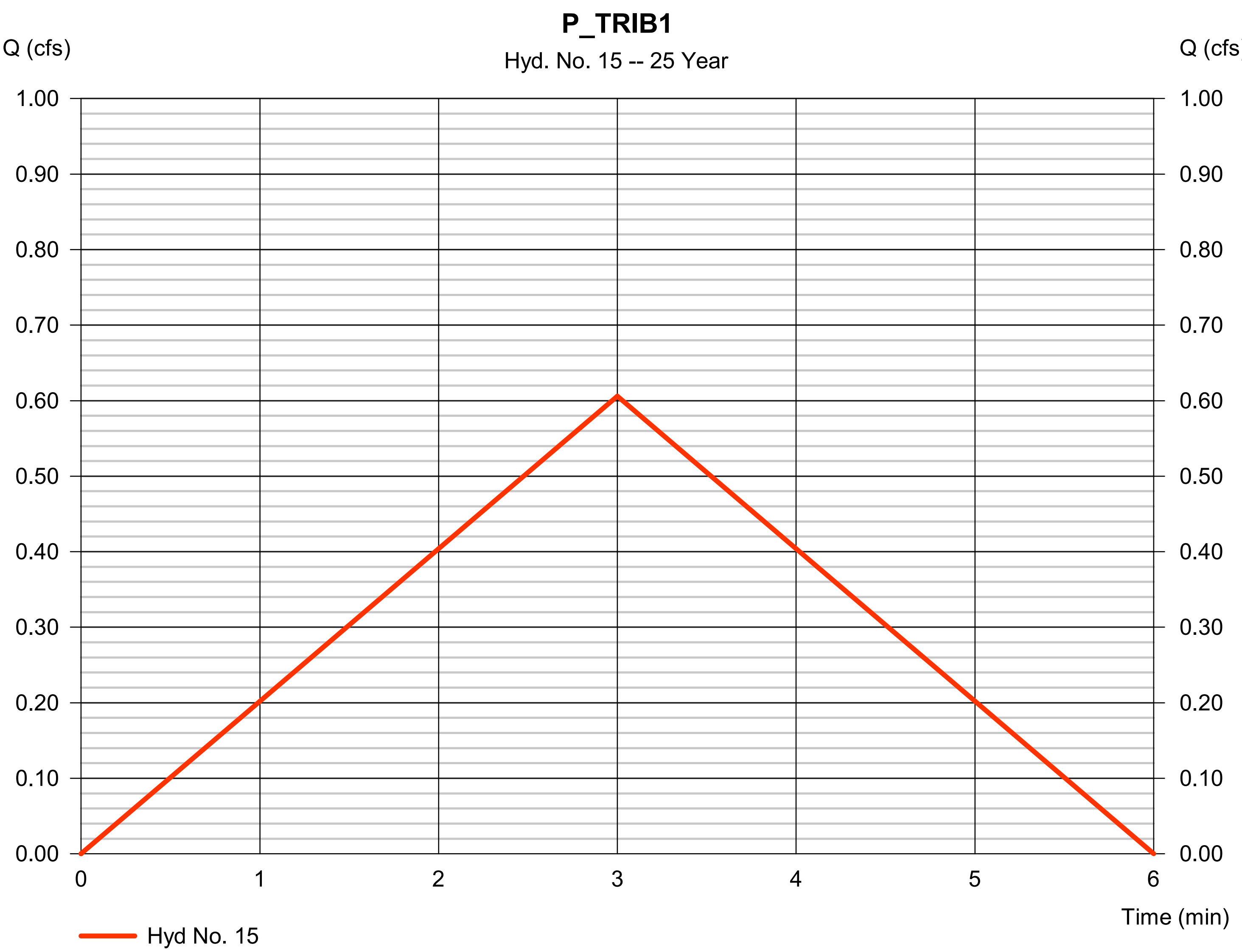
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 | Monday, 07 / 26 / 2021

Hyd. No. 15

P_TRIB1

Hydrograph type	= Rational	Peak discharge	= 0.606 cfs
Storm frequency	= 25 yrs	Time to peak	= 3 min
Time interval	= 1 min	Hyd. volume	= 109 cuft
Drainage area	= 0.289 ac	Runoff coeff.	= 0.2
Intensity	= 10.483 in/hr	Tc by User	= 3.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



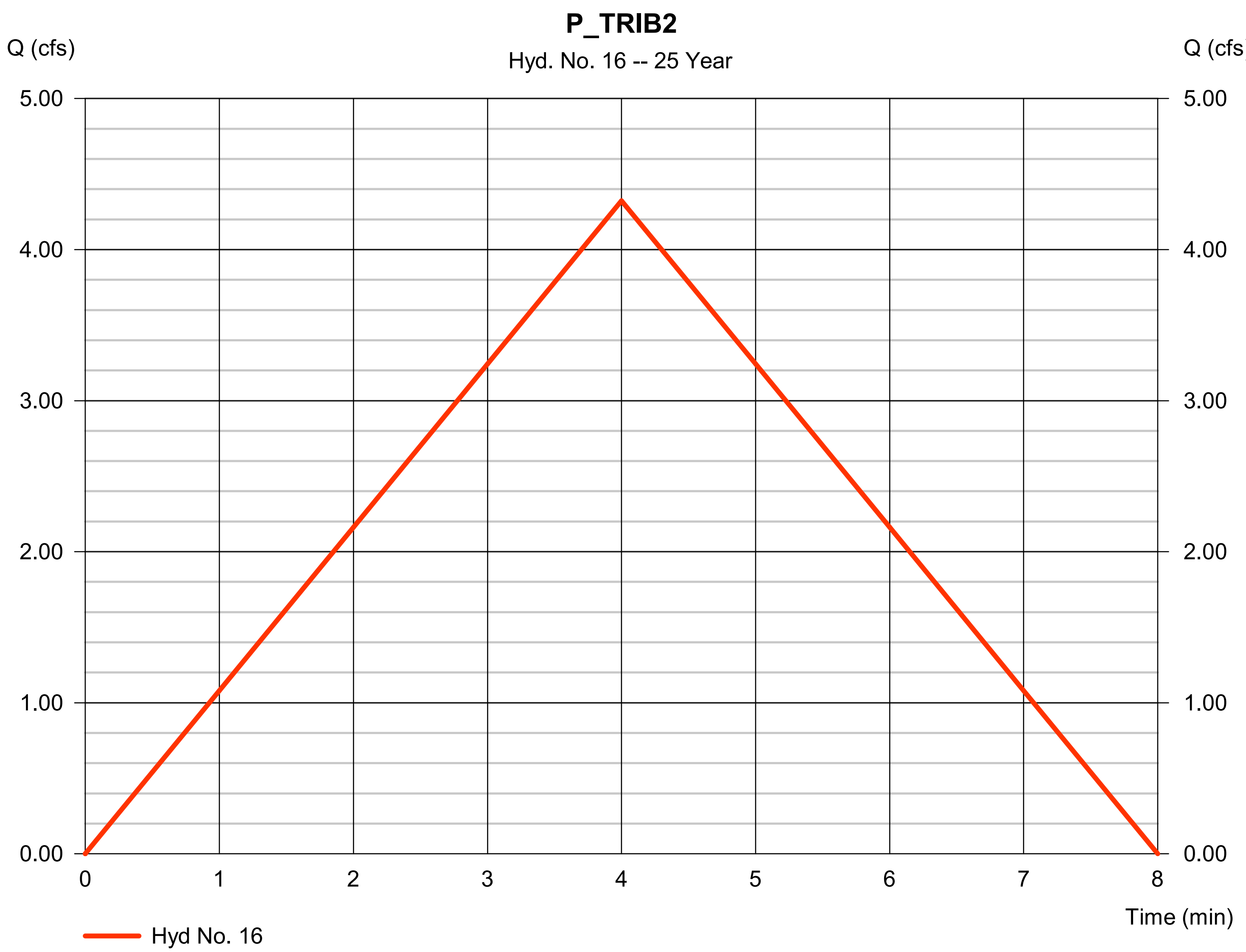
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 16

P_TRIB2

Hydrograph type	= Rational	Peak discharge	= 4.324 cfs
Storm frequency	= 25 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 1,038 cuft
Drainage area	= 2.263 ac	Runoff coeff.	= 0.2
Intensity	= 9.554 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1

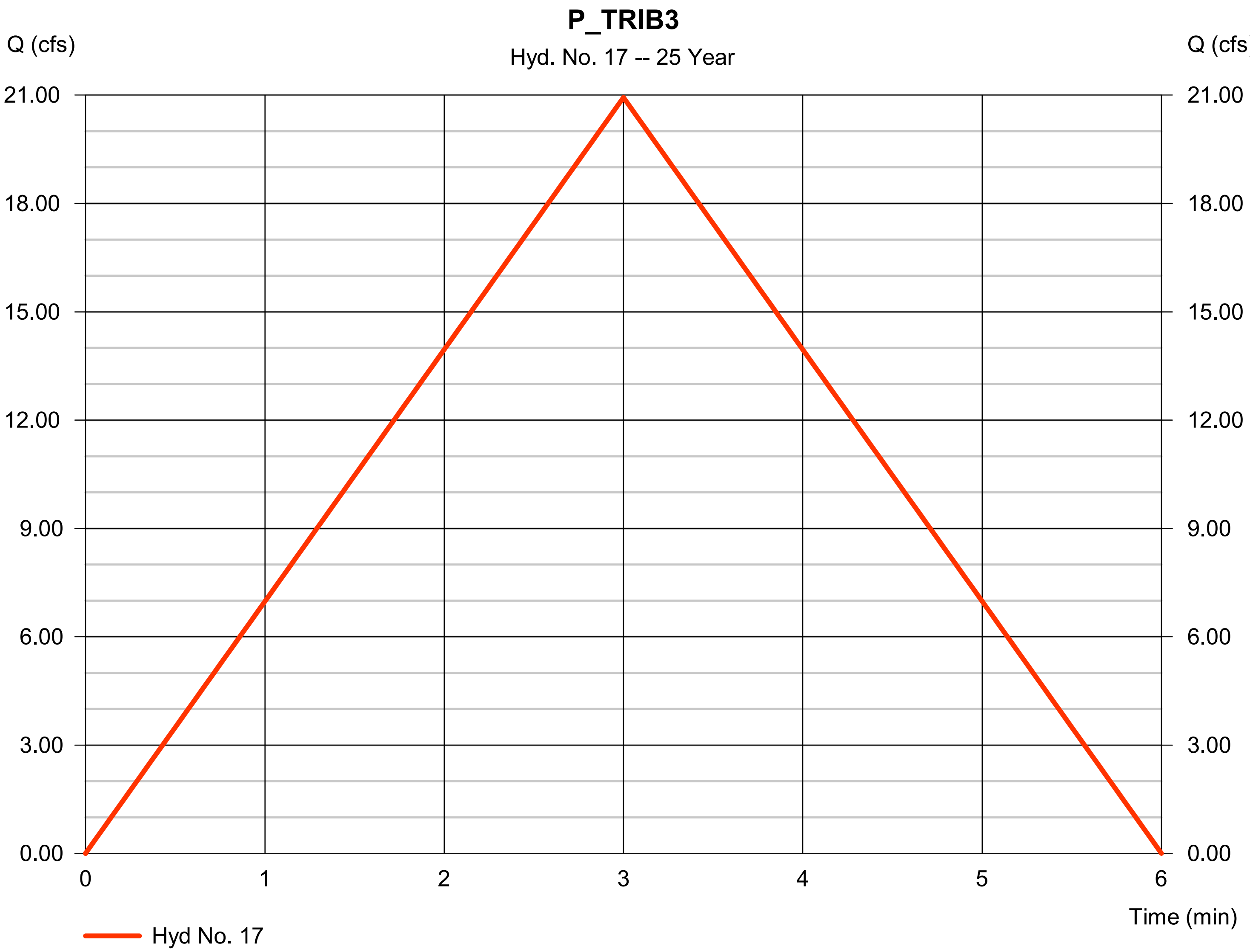


Hydrograph Report

Hyd. No. 17

P_TRIB3

Hydrograph type	= Rational	Peak discharge	= 20.94 cfs
Storm frequency	= 25 yrs	Time to peak	= 3 min
Time interval	= 1 min	Hyd. volume	= 3,769 cuft
Drainage area	= 2.937 ac	Runoff coeff.	= 0.68
Intensity	= 10.483 in/hr	Tc by User	= 3.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



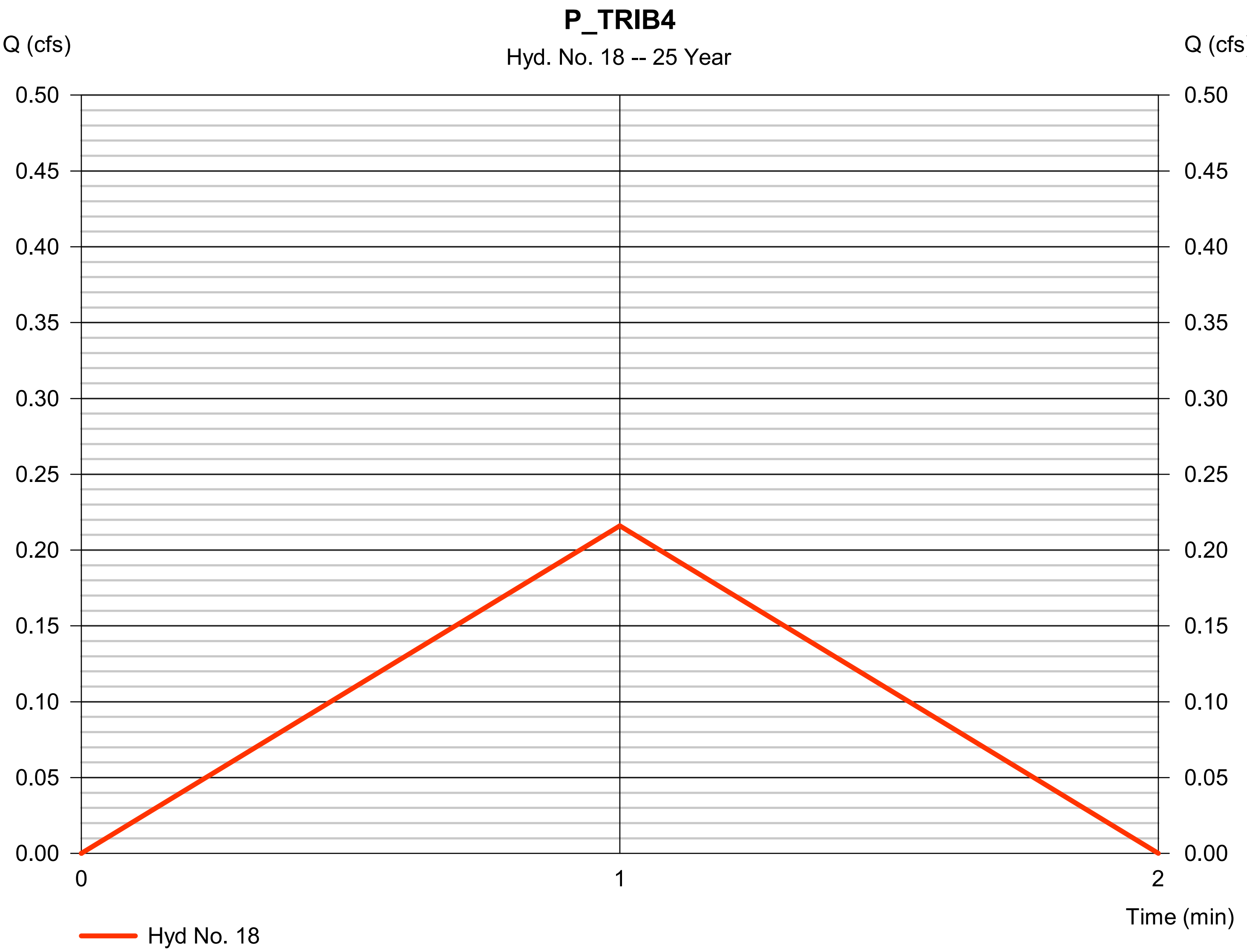
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 18

P_TRIB4

Hydrograph type	= Rational	Peak discharge	= 0.216 cfs
Storm frequency	= 25 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 13 cuft
Drainage area	= 0.081 ac	Runoff coeff.	= 0.2
Intensity	= 13.381 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



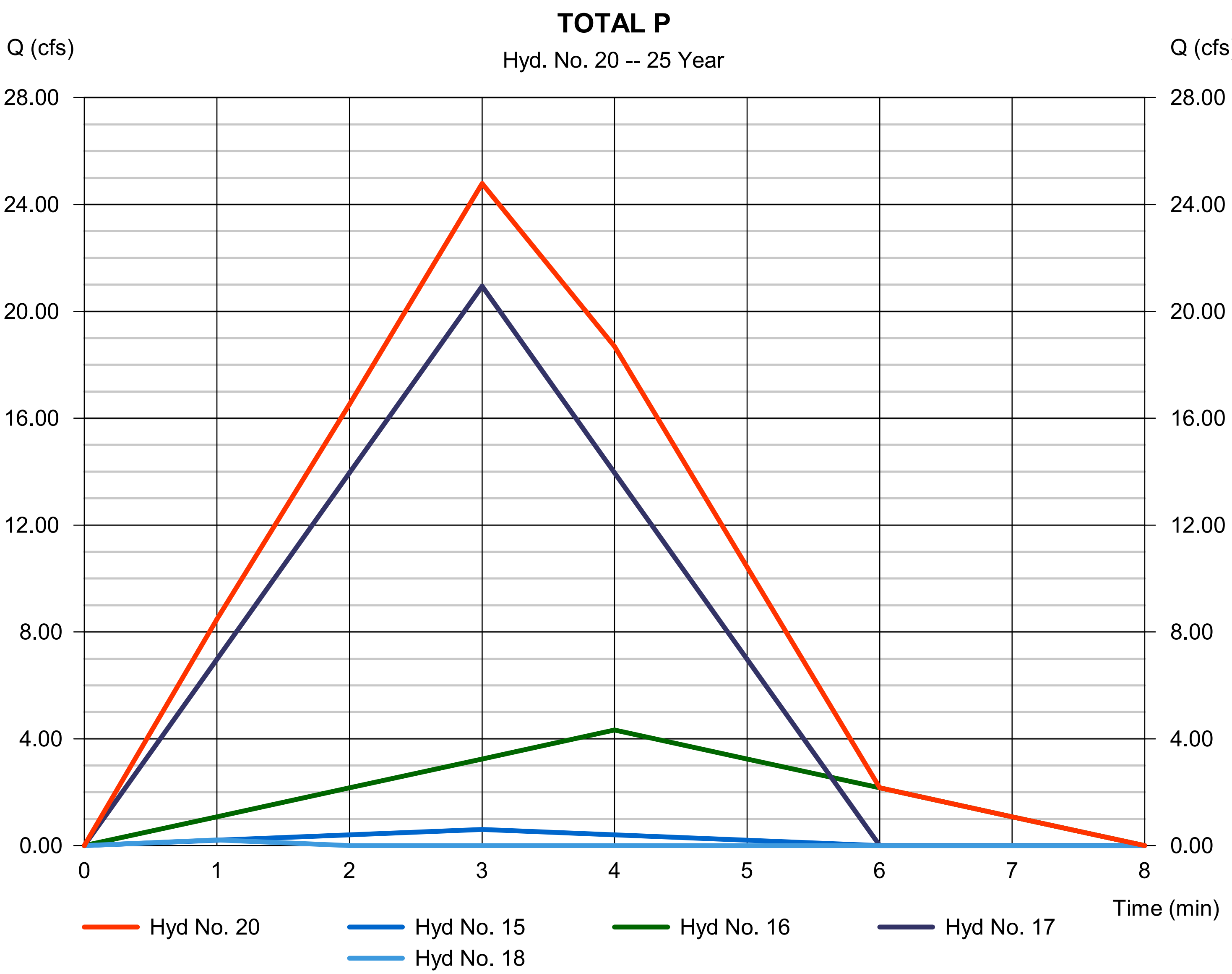
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 20

TOTAL P

Hydrograph type	= Combine	Peak discharge	= 24.79 cfs
Storm frequency	= 25 yrs	Time to peak	= 3 min
Time interval	= 1 min	Hyd. volume	= 4,928 cuft
Inflow hyds.	= 15, 16, 17, 18	Contrib. drain. area	= 5.570 ac



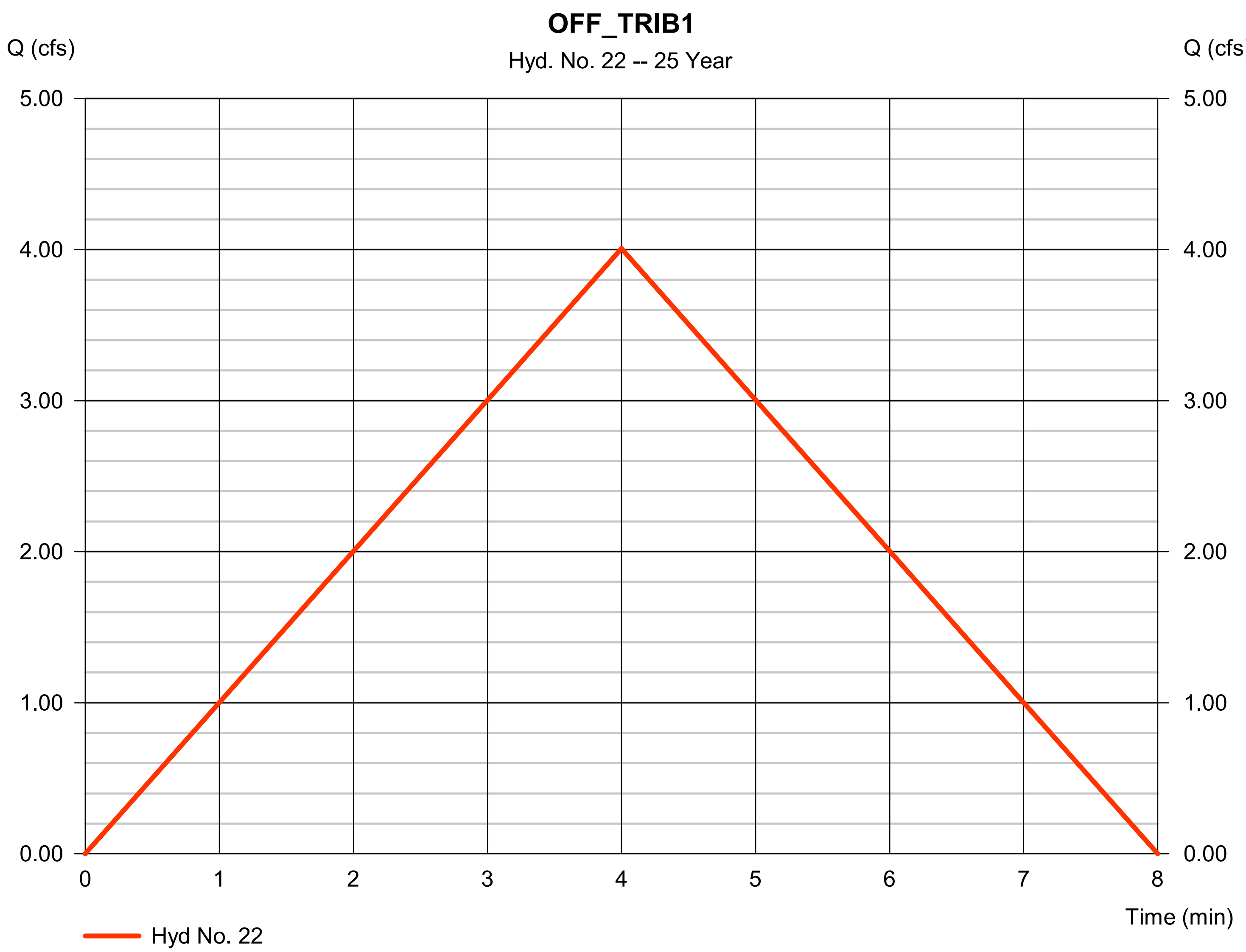
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 22

OFF_TRIB1

Hydrograph type	= Rational	Peak discharge	= 4.007 cfs
Storm frequency	= 25 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 962 cuft
Drainage area	= 0.466 ac	Runoff coeff.	= 0.9
Intensity	= 9.554 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



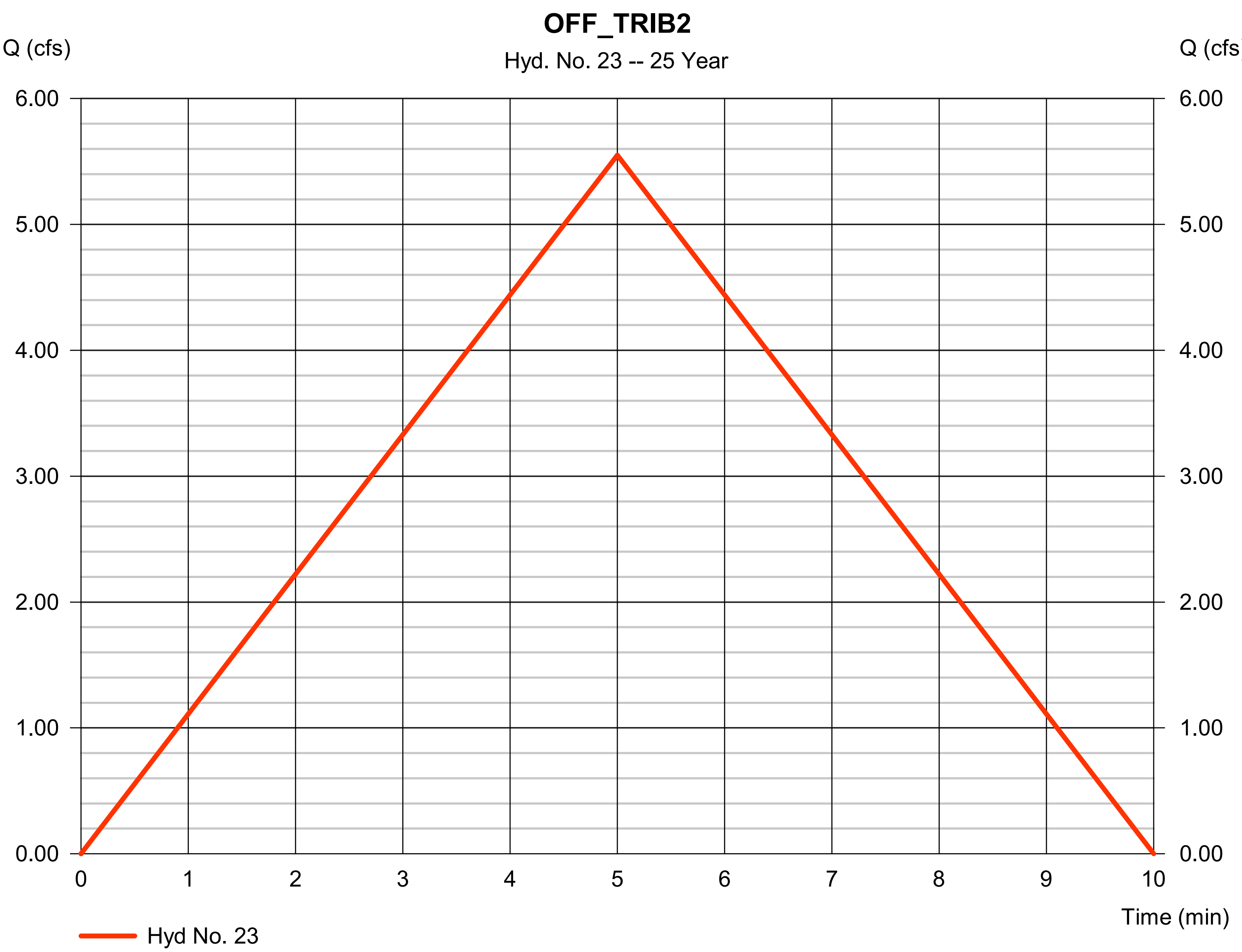
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 23

OFF_TRIB2

Hydrograph type	= Rational	Peak discharge	= 5.551 cfs
Storm frequency	= 25 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 1,665 cuft
Drainage area	= 3.148 ac	Runoff coeff.	= 0.2
Intensity	= 8.816 in/hr	Tc by User	= 5.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



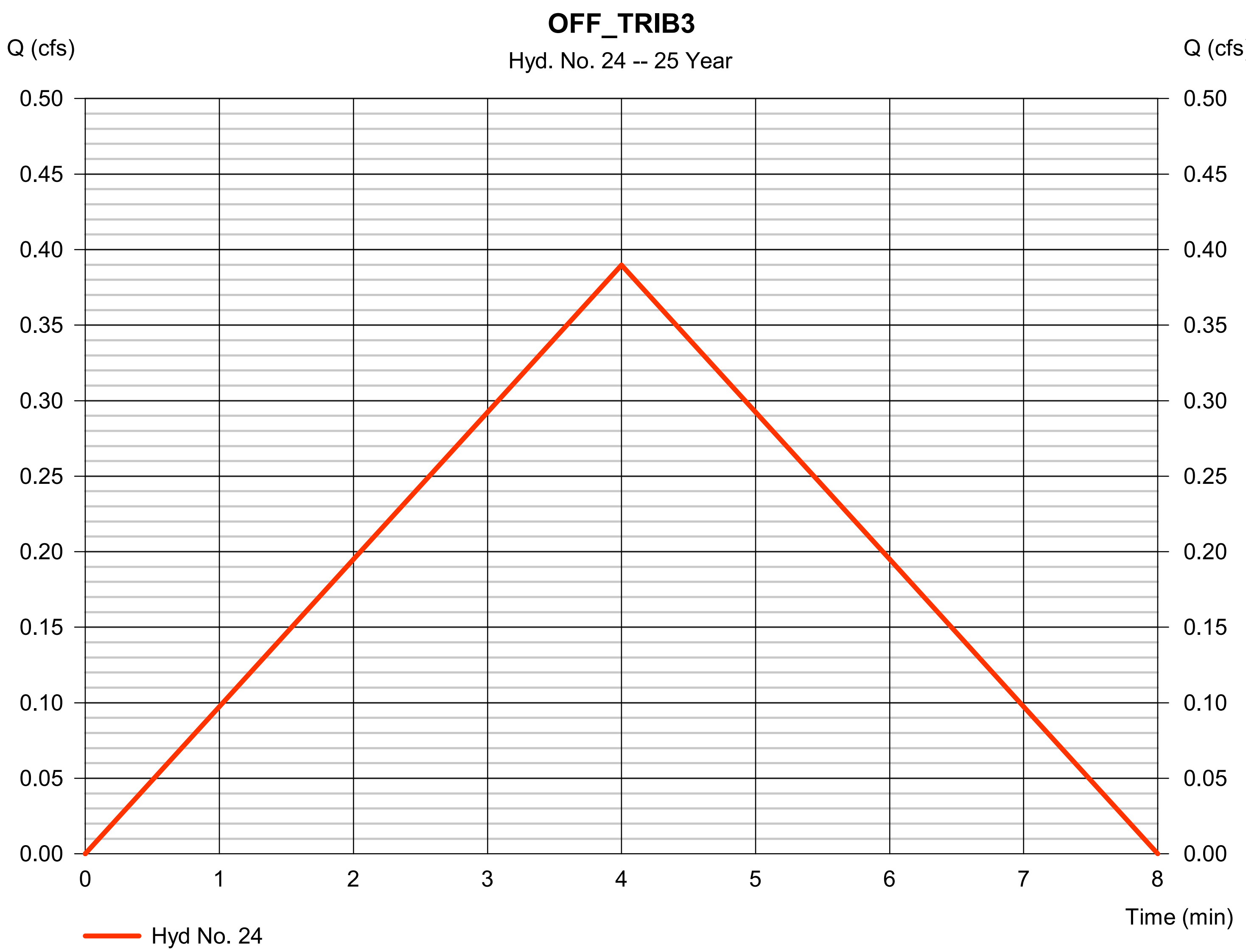
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 | Monday, 07 / 26 / 2021

Hyd. No. 24

OFF_TRIB3

Hydrograph type	= Rational	Peak discharge	= 0.390 cfs
Storm frequency	= 25 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 94 cuft
Drainage area	= 0.204 ac	Runoff coeff.	= 0.2
Intensity	= 9.554 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



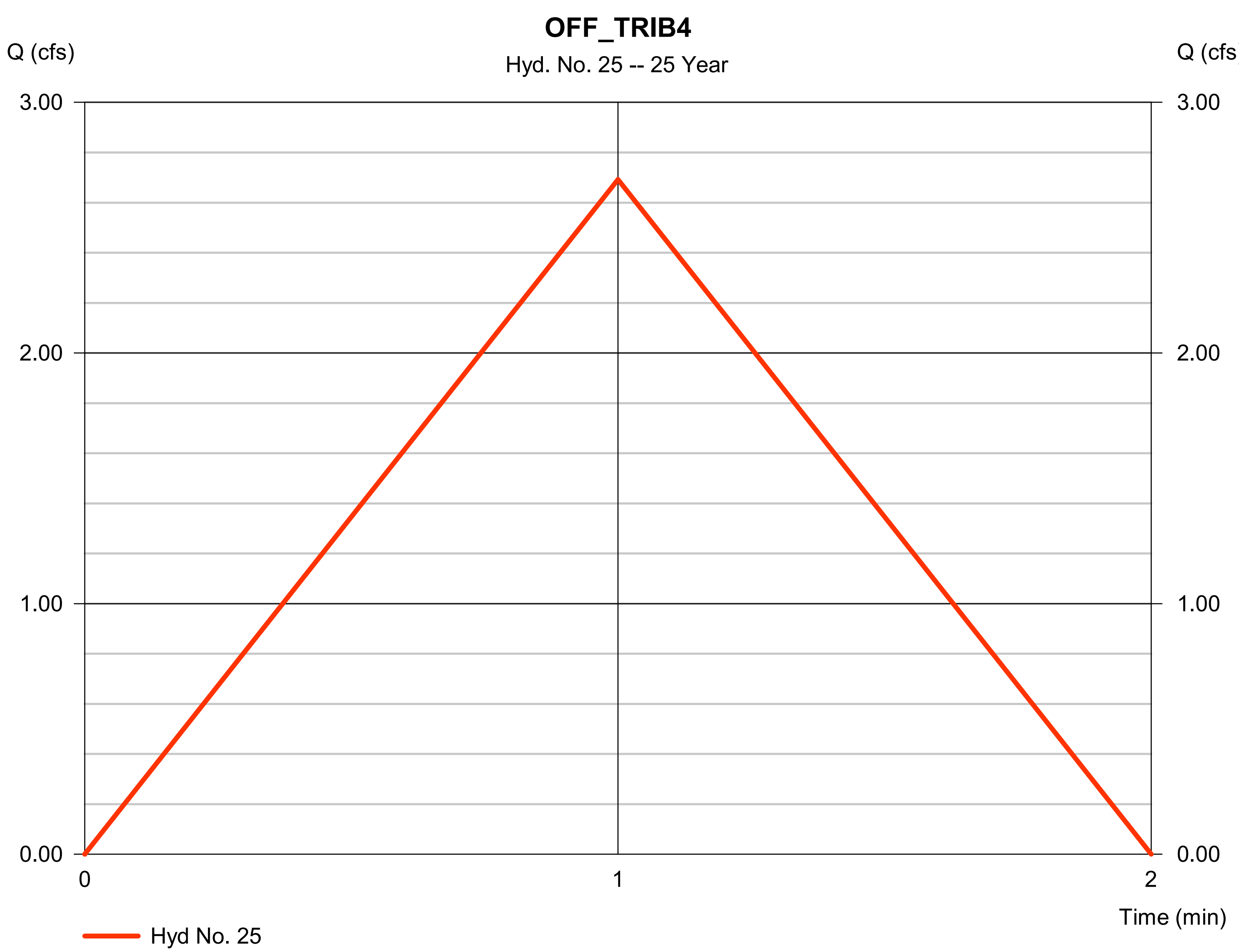
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 | Monday, 07 / 26 / 2021

Hyd. No. 25

OFF_TRIB4

Hydrograph type	= Rational	Peak discharge	= 2.692 cfs
Storm frequency	= 25 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 162 cuft
Drainage area	= 1.006 ac	Runoff coeff.	= 0.2
Intensity	= 13.381 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



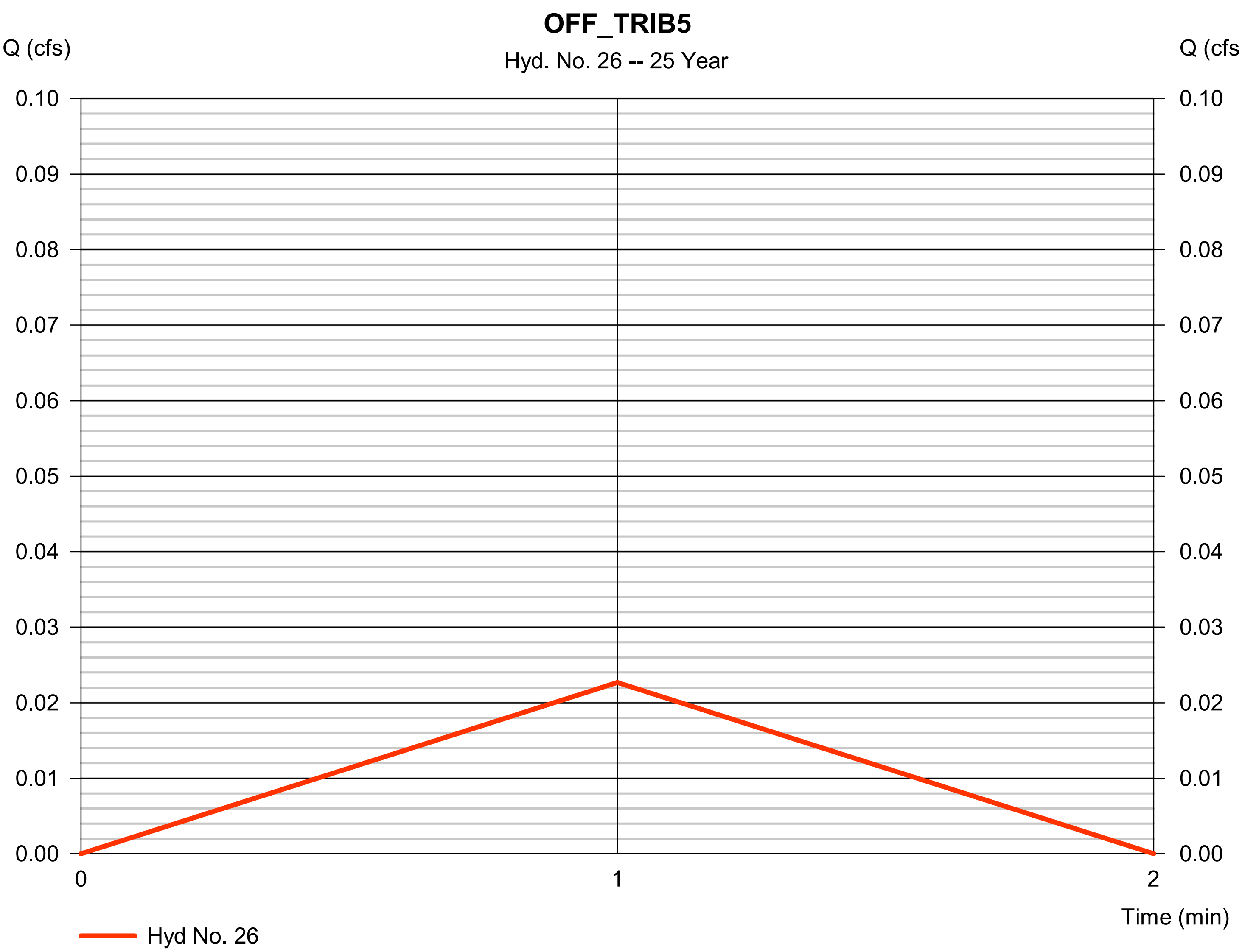
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 26

OFF_TRIB5

Hydrograph type	= Rational	Peak discharge	= 0.023 cfs
Storm frequency	= 25 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 1 cuft
Drainage area	= 0.008 ac	Runoff coeff.	= 0.2
Intensity	= 13.381 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



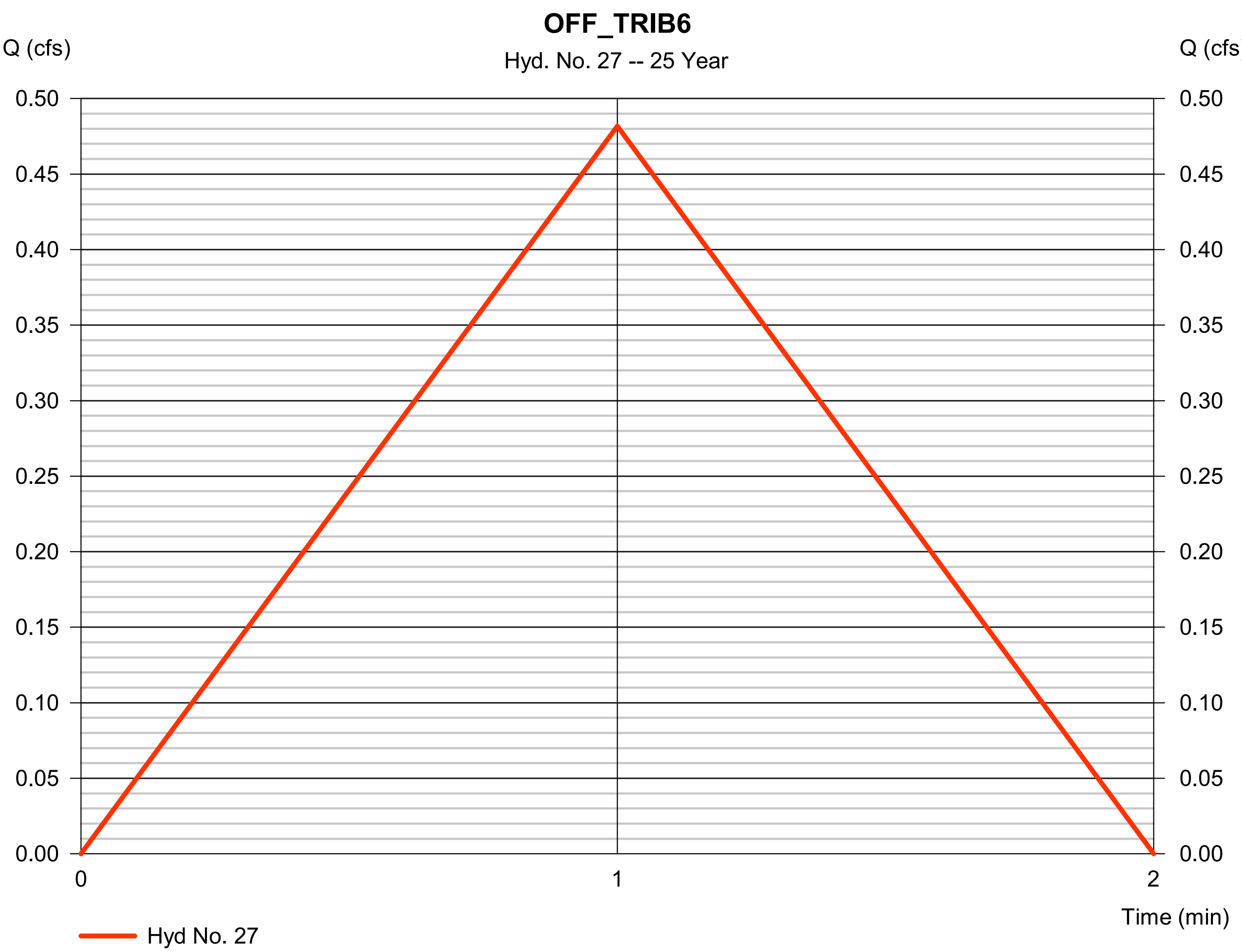
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 27

OFF_TRIB6

Hydrograph type	= Rational	Peak discharge	= 0.482 cfs
Storm frequency	= 25 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 29 cuft
Drainage area	= 0.180 ac	Runoff coeff.	= 0.2
Intensity	= 13.381 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



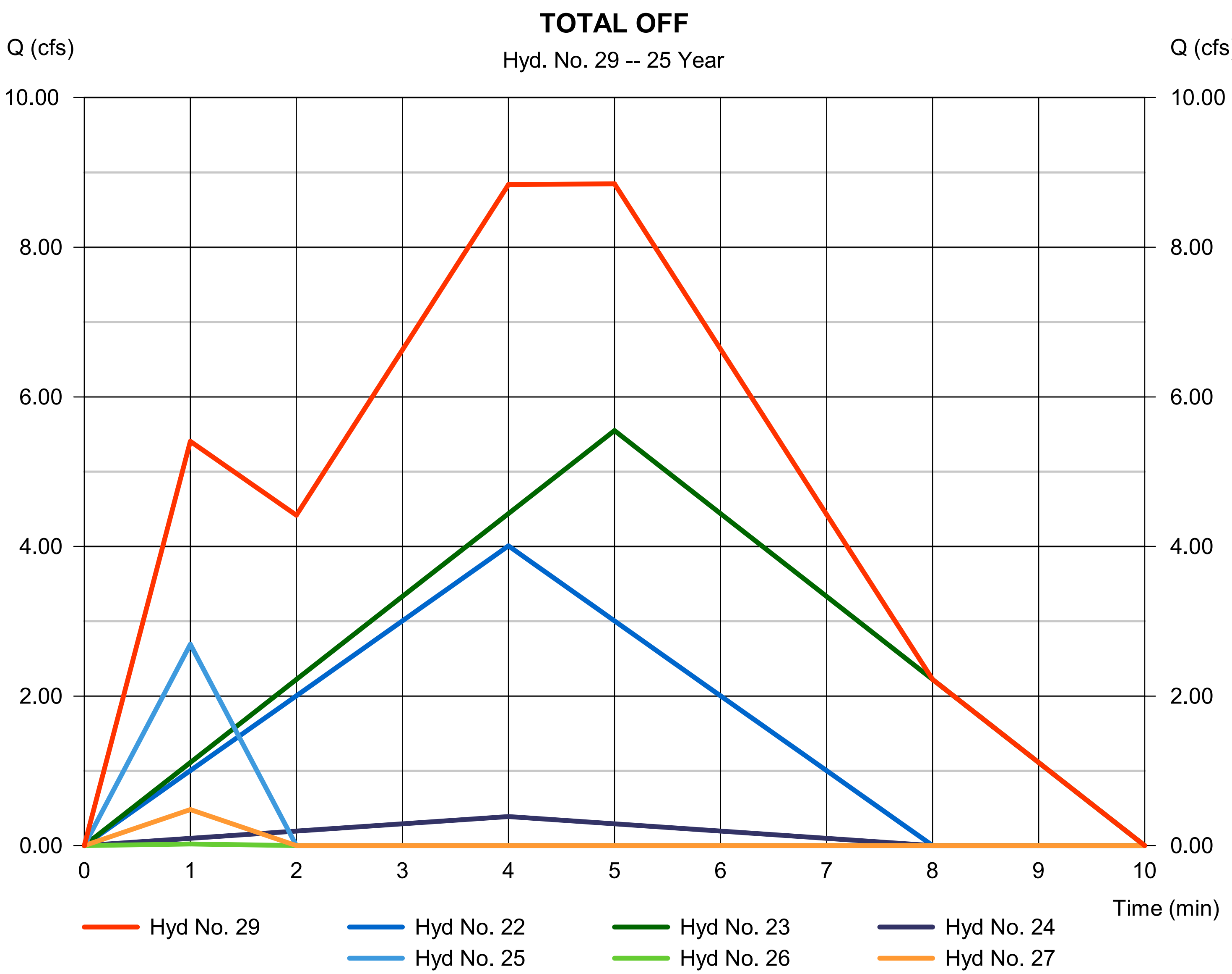
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 29

TOTAL OFF

Hydrograph type	= Combine	Peak discharge	= 8.848 cfs
Storm frequency	= 25 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 2,912 cuft
Inflow hyds.	= 22, 23, 24, 25, 26, 27	Contrib. drain. area	= 5.012 ac



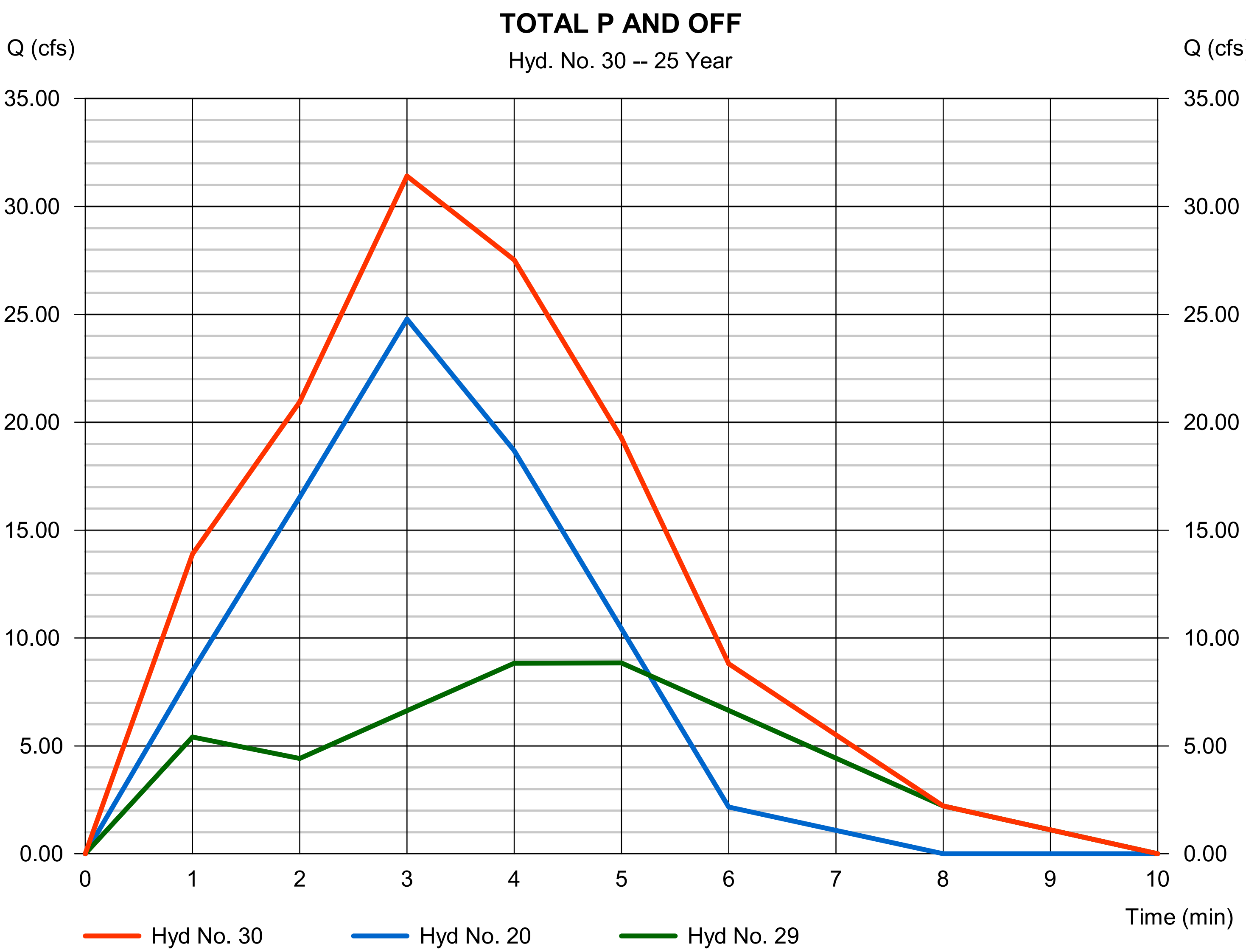
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 30

TOTAL P AND OFF

Hydrograph type	= Combine	Peak discharge	= 31.41 cfs
Storm frequency	= 25 yrs	Time to peak	= 3 min
Time interval	= 1 min	Hyd. volume	= 7,840 cuft
Inflow hyds.	= 20, 29	Contrib. drain. area	= 0.000 ac



Hydrograph Report

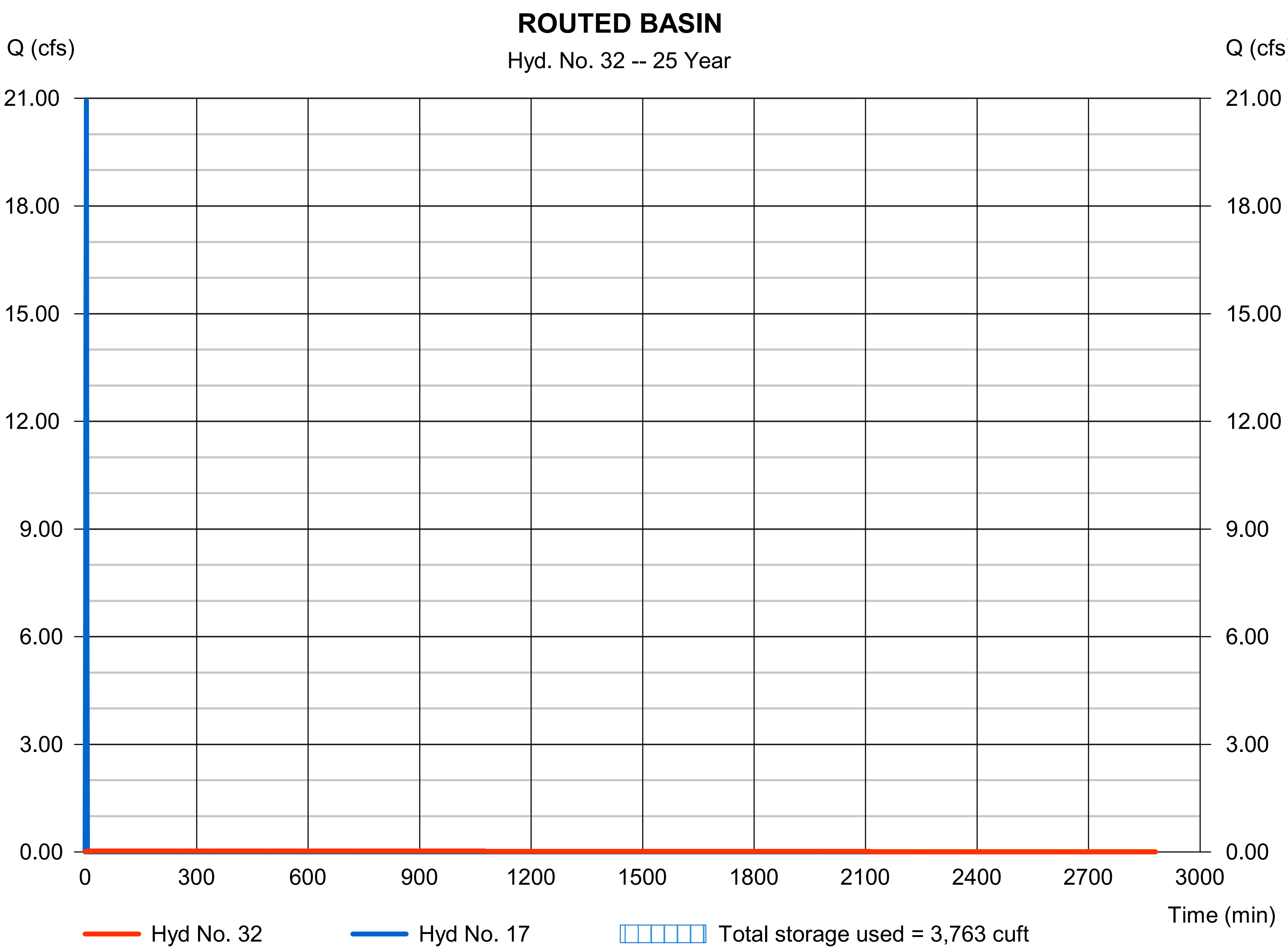
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 32

ROUTED BASIN

Hydrograph type	= Reservoir	Peak discharge	= 0.028 cfs
Storm frequency	= 25 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 3,039 cuft
Inflow hyd. No.	= 17 - P_TRIB3	Max. Elevation	= 470.52 ft
Reservoir name	= BMP 1	Max. Storage	= 3,763 cuft

Storage Indication method used.



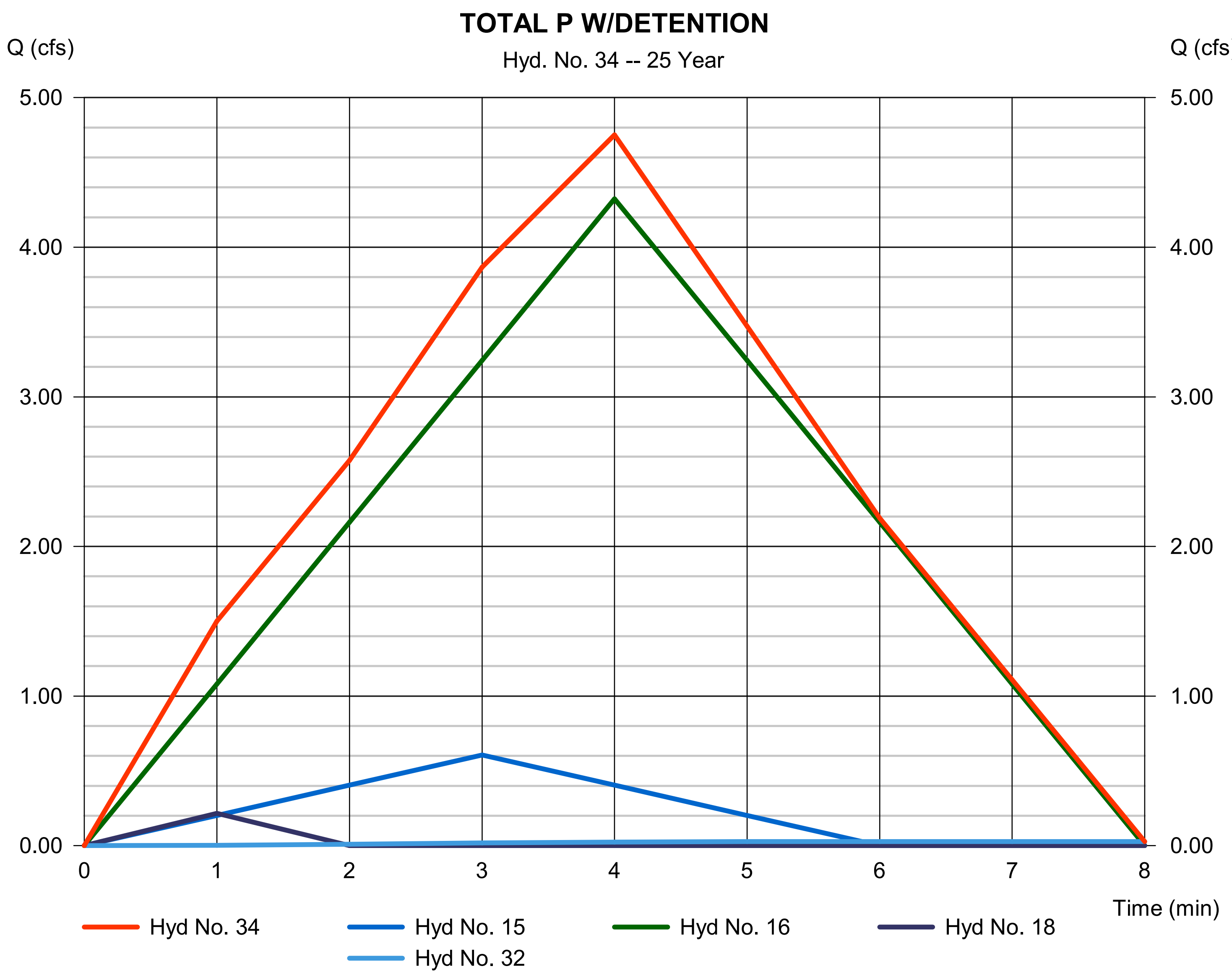
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 34

TOTAL P W/DETENTION

Hydrograph type	= Combine	Peak discharge	= 4.752 cfs
Storm frequency	= 25 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 4,199 cuft
Inflow hyds.	= 15, 16, 18, 32	Contrib. drain. area	= 2.633 ac



Hydrograph Summary Report

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

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	5.774	1	2	693	------	------	------	EX_TRIB1
2	Rational	7.506	1	6	2,702	------	------	------	EX_TRIB2
3	Rational	6.656	1	6	2,396	------	------	------	EX_TRIB3
4	Rational	0.541	1	1	32	------	------	------	EX_TRIB4
5	Rational	0.179	1	1	11	------	------	------	EX_TRIB5
6	Rational	2.178	1	4	523	------	------	------	EX_TRIB6
7	Rational	0.931	1	4	224	------	------	------	EX_TRIB7
8	Rational	0.437	1	5	131	------	------	------	EX_TRIB8
9	Rational	0.024	1	1	1	------	------	------	EX_TRIB9
11	Combine	15.25	1	6	6,357	1, 2, 3, 4, 5, 6,	------	------	TOTAL EX 1 OF 2
12	Combine	1.281	1	4	356	7, 8, 9,	------	------	TOTAL EX 2 OF 2
13	Combine	16.07	1	6	6,713	11, 12	------	------	TOTAL EX
15	Rational	0.713	1	3	128	------	------	------	P_TRIB1
16	Rational	5.243	1	4	1,258	------	------	------	P_TRIB2
17	Rational	24.62	1	3	4,432	------	------	------	P_TRIB3
18	Rational	0.230	1	1	14	------	------	------	P_TRIB4
20	Combine	29.27	1	3	5,833	15, 16, 17, 18,	------	------	TOTAL P
22	Rational	4.858	1	4	1,166	------	------	------	OFF_TRIB1
23	Rational	6.885	1	5	2,066	------	------	------	OFF_TRIB2
24	Rational	0.473	1	4	113	------	------	------	OFF_TRIB3
25	Rational	2.862	1	1	172	------	------	------	OFF_TRIB4
26	Rational	0.024	1	1	1	------	------	------	OFF_TRIB5
27	Rational	0.512	1	1	31	------	------	------	OFF_TRIB6
29	Combine	10.88	1	5	3,549	22, 23, 24, 25, 26, 27,	------	------	TOTAL OFF
30	Combine	37.40	1	3	9,382	20, 29	------	------	TOTAL P AND OFF
32	Reservoir	0.030	1	6	3,497	17	470.61	4,426	ROUTED BASIN
34	Combine	5.744	1	4	4,897	15, 16, 18, 32,	------	------	TOTAL P W/DETENTION

M20-8003_detention_7-26-21.gpw	Return Period: 100 Year	Monday, 07 / 26 / 2021

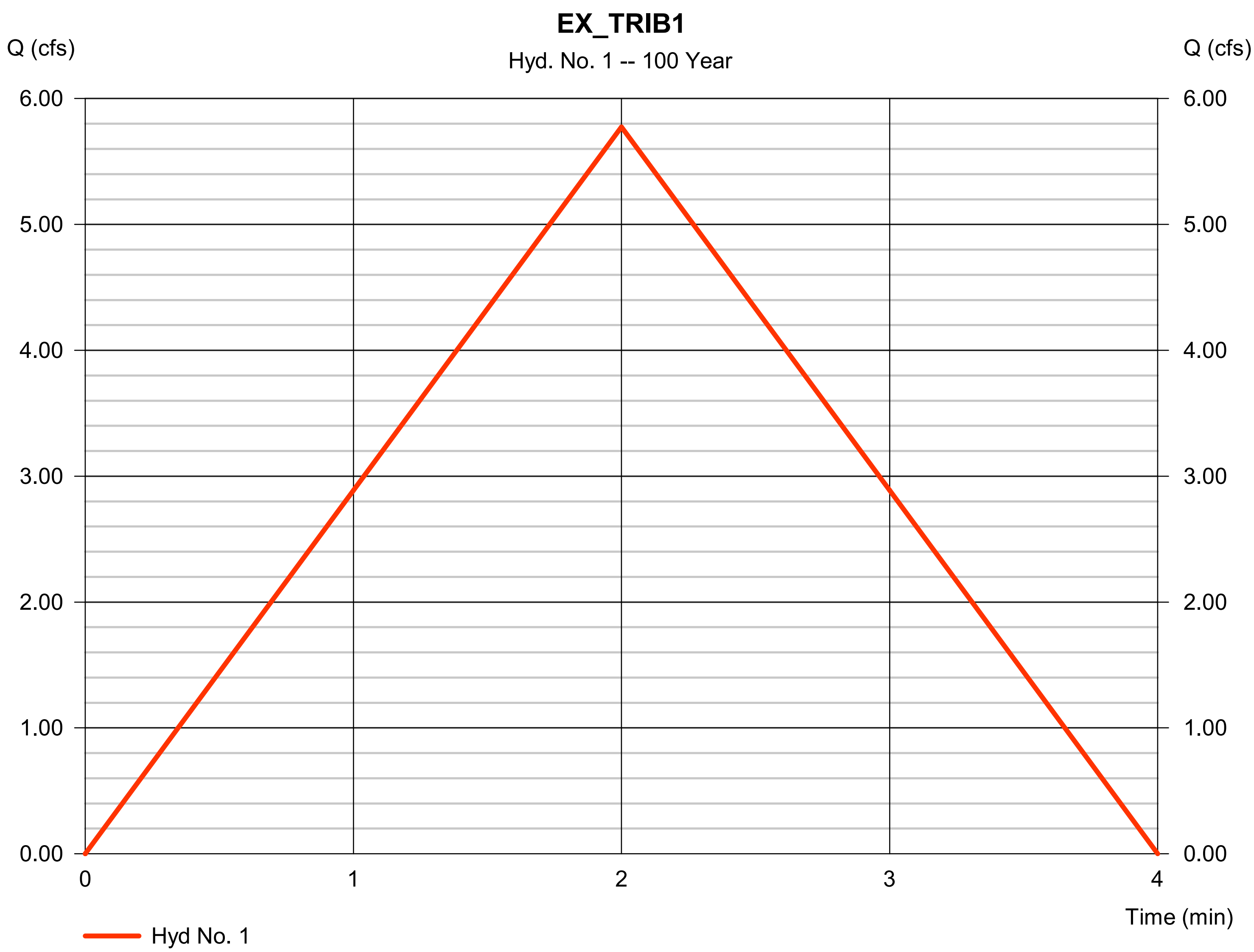
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 1

EX_TRIB1

Hydrograph type	= Rational	Peak discharge	= 5.774 cfs
Storm frequency	= 100 yrs	Time to peak	= 2 min
Time interval	= 1 min	Hyd. volume	= 693 cuft
Drainage area	= 1.750 ac	Runoff coeff.	= 0.25
Intensity	= 13.198 in/hr	Tc by User	= 2.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



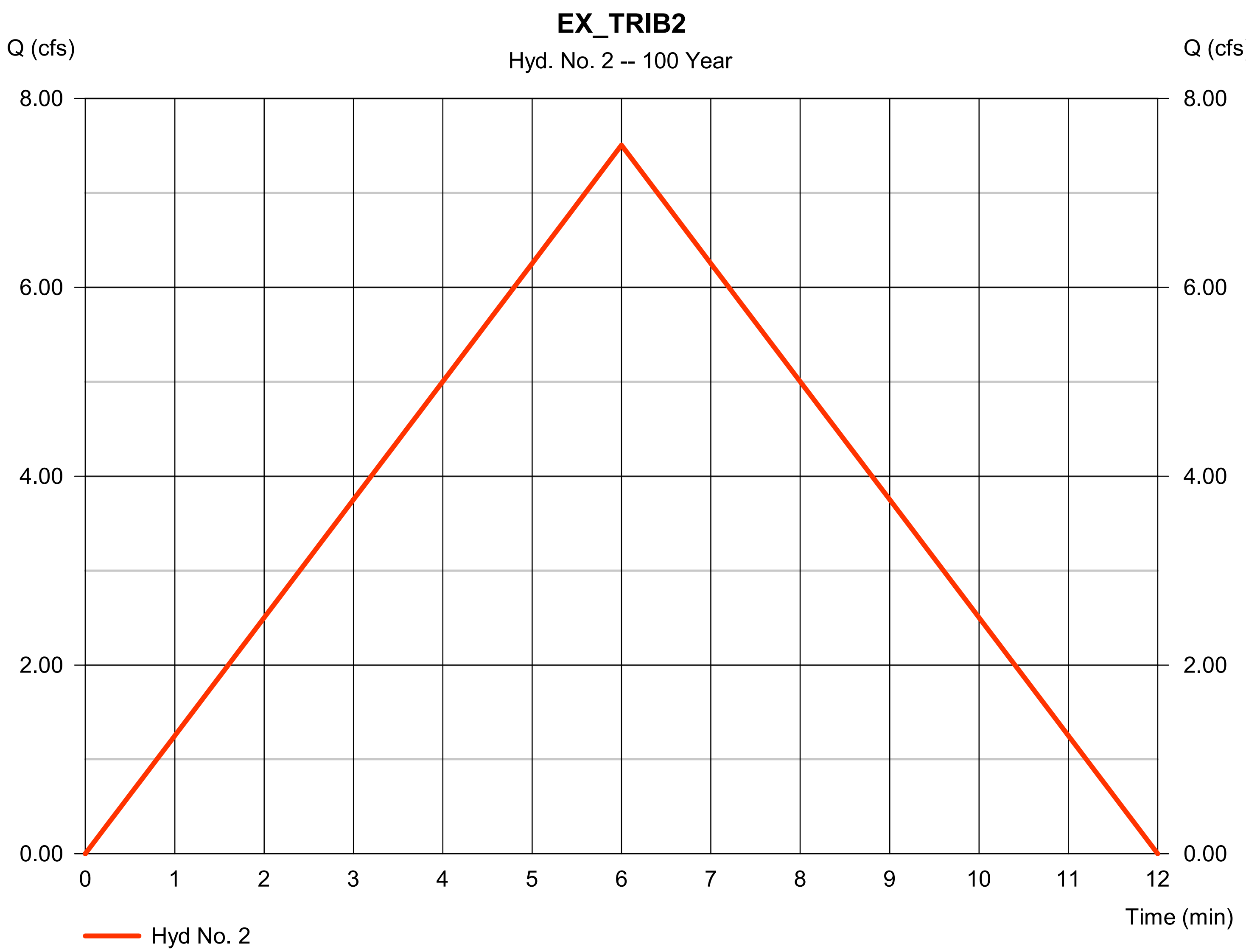
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 2

EX_TRIB2

Hydrograph type	= Rational	Peak discharge	= 7.506 cfs
Storm frequency	= 100 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 2,702 cuft
Drainage area	= 3.620 ac	Runoff coeff.	= 0.2
Intensity	= 10.367 in/hr	Tc by User	= 6.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1

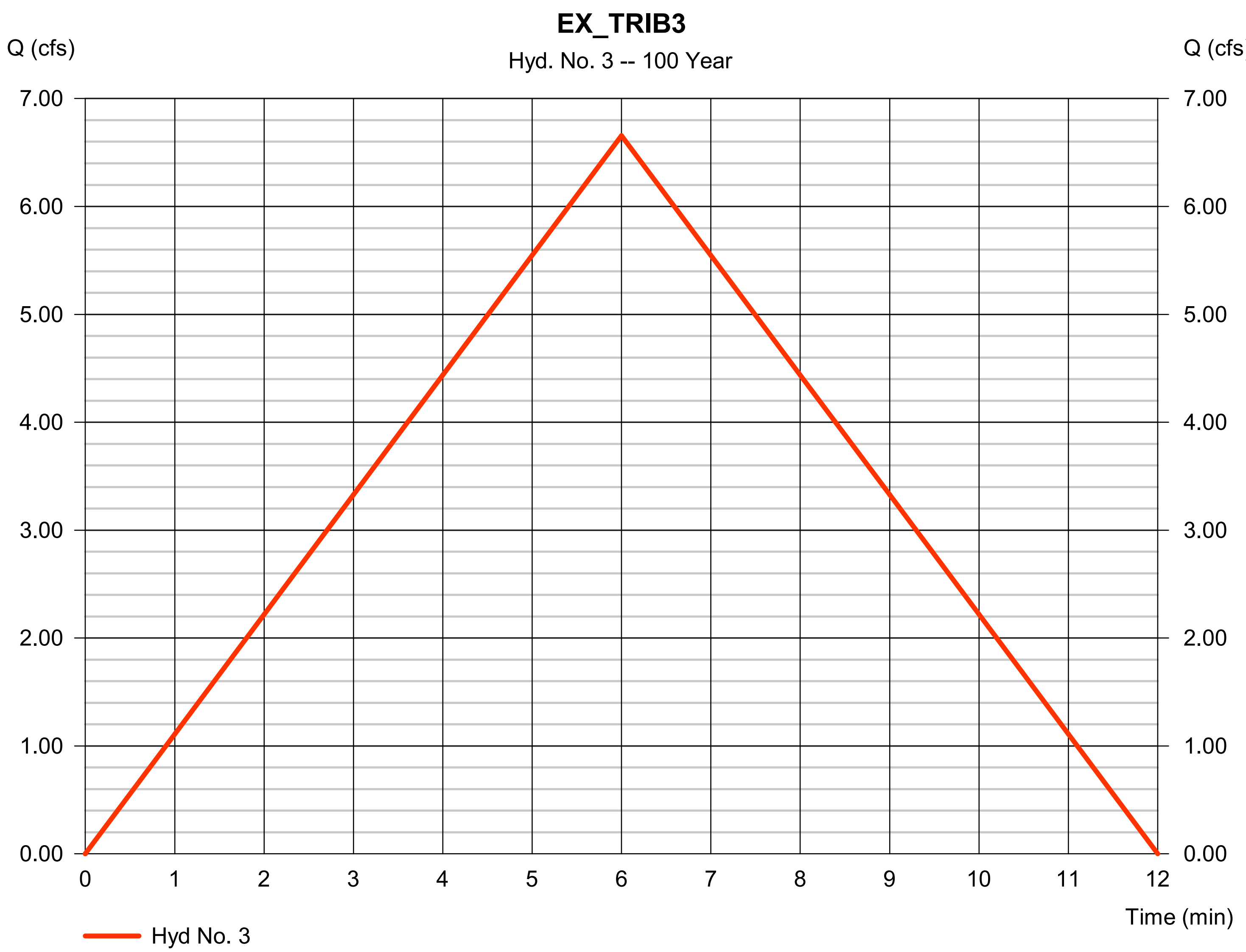


Hydrograph Report

Hyd. No. 3

EX_TRIB3

Hydrograph type	= Rational	Peak discharge	= 6.656 cfs
Storm frequency	= 100 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 2,396 cuft
Drainage area	= 3.210 ac	Runoff coeff.	= 0.2
Intensity	= 10.367 in/hr	Tc by User	= 6.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1

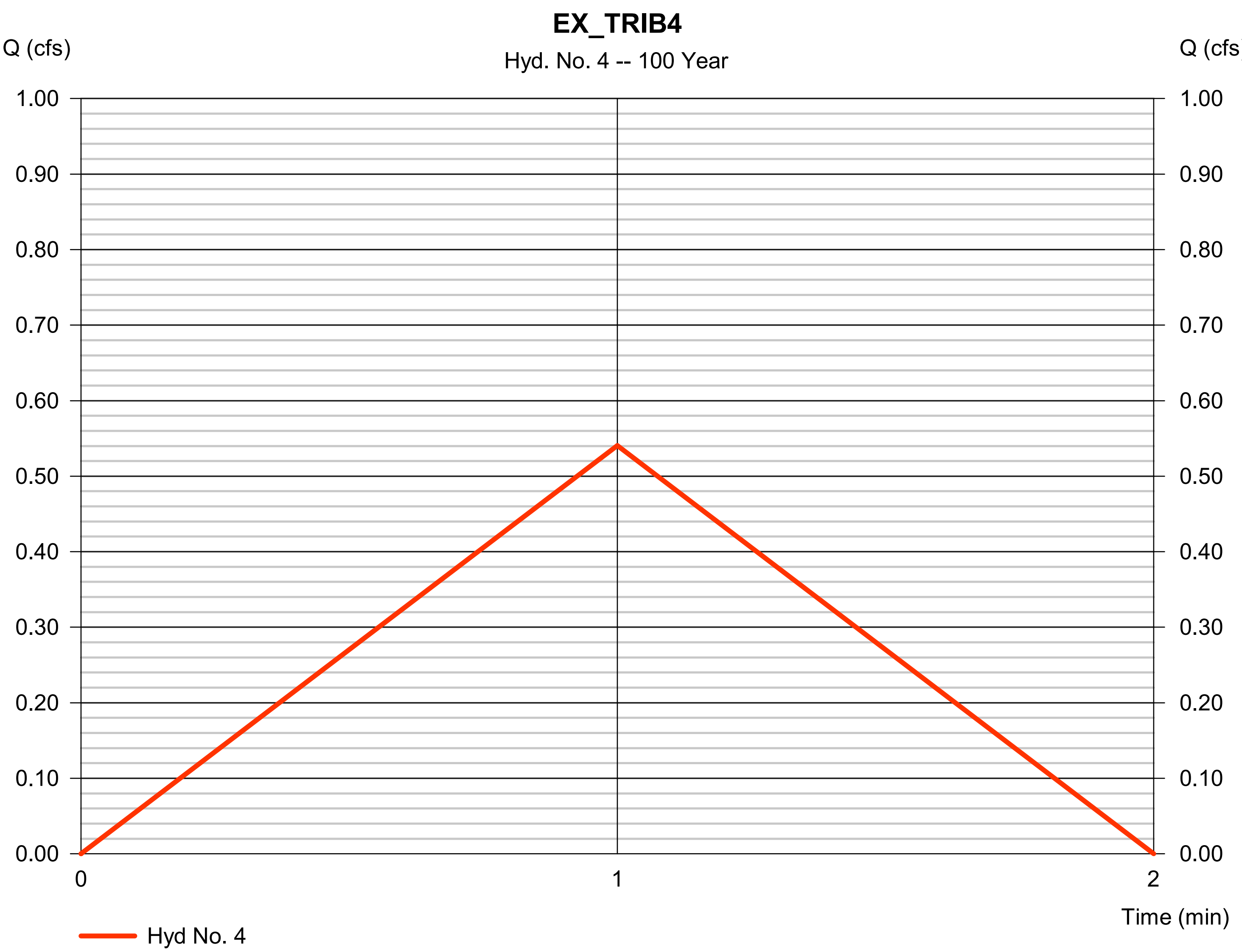


Hydrograph Report

Hyd. No. 4

EX_TRIB4

Hydrograph type	= Rational	Peak discharge	= 0.541 cfs
Storm frequency	= 100 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 32 cuft
Drainage area	= 0.190 ac	Runoff coeff.	= 0.2
Intensity	= 14.224 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1

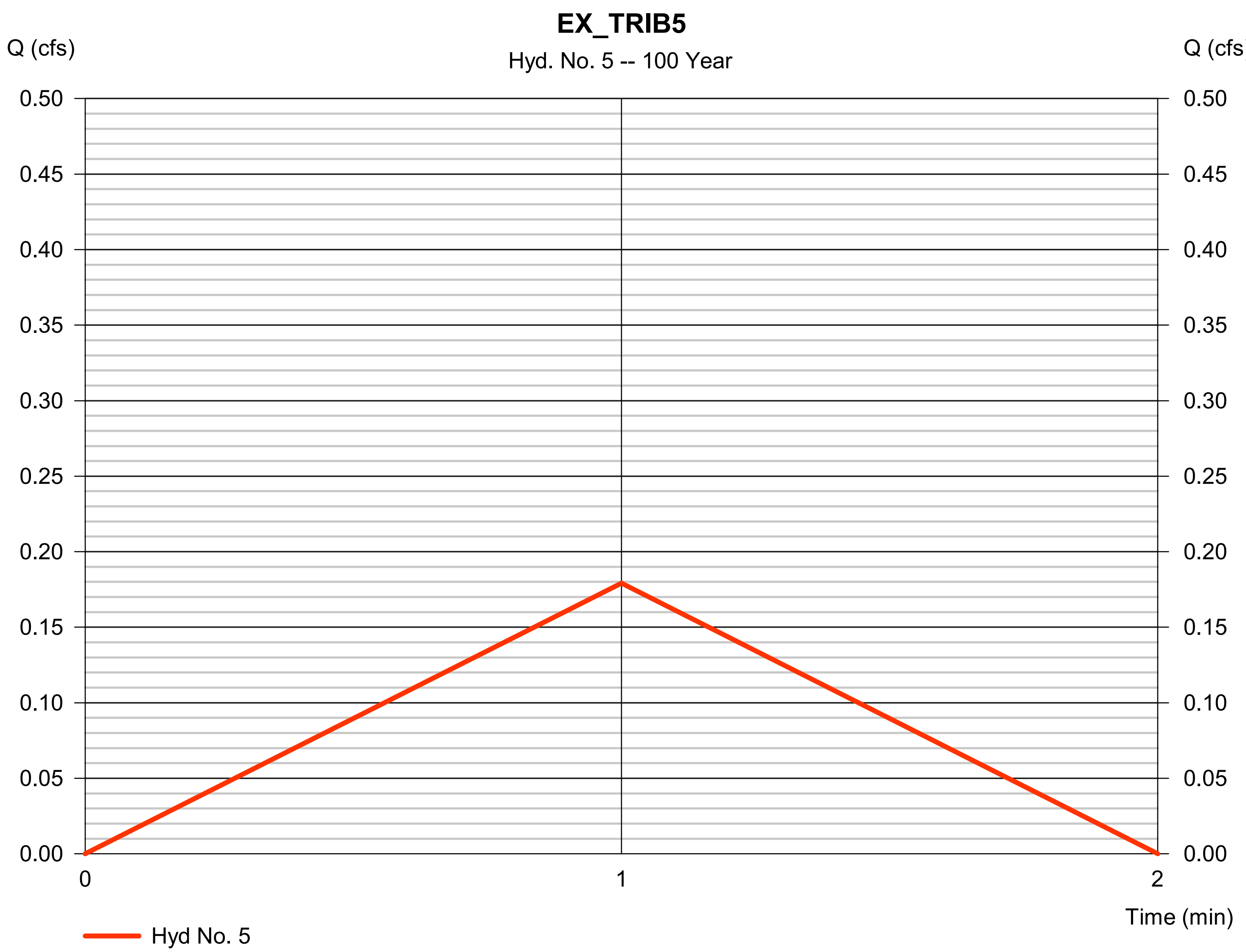


Hydrograph Report

Hyd. No. 5

EX_TRIB5

Hydrograph type	= Rational	Peak discharge	= 0.179 cfs
Storm frequency	= 100 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 11 cuft
Drainage area	= 0.063 ac	Runoff coeff.	= 0.2
Intensity	= 14.224 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



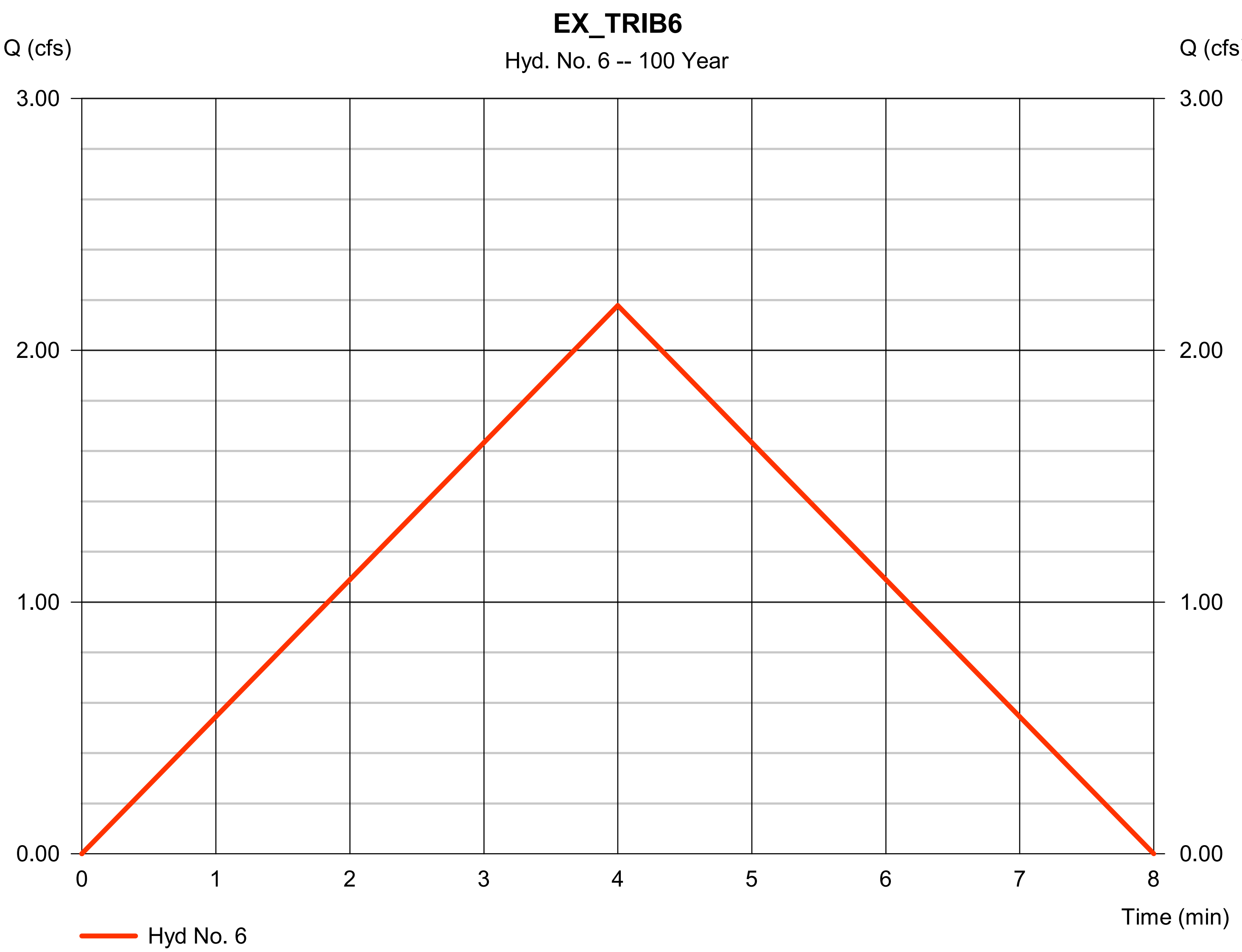
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 6

EX_TRIB6

Hydrograph type	= Rational	Peak discharge	= 2.178 cfs
Storm frequency	= 100 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 523 cuft
Drainage area	= 0.940 ac	Runoff coeff.	= 0.2
Intensity	= 11.584 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 | Monday, 07 / 26 / 2021

Hyd. No. 7

EX_TRIB7

Hydrograph type	= Rational	Peak discharge	= 0.931 cfs
Storm frequency	= 100 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 224 cuft
Drainage area	= 0.402 ac	Runoff coeff.	= 0.2
Intensity	= 11.584 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1

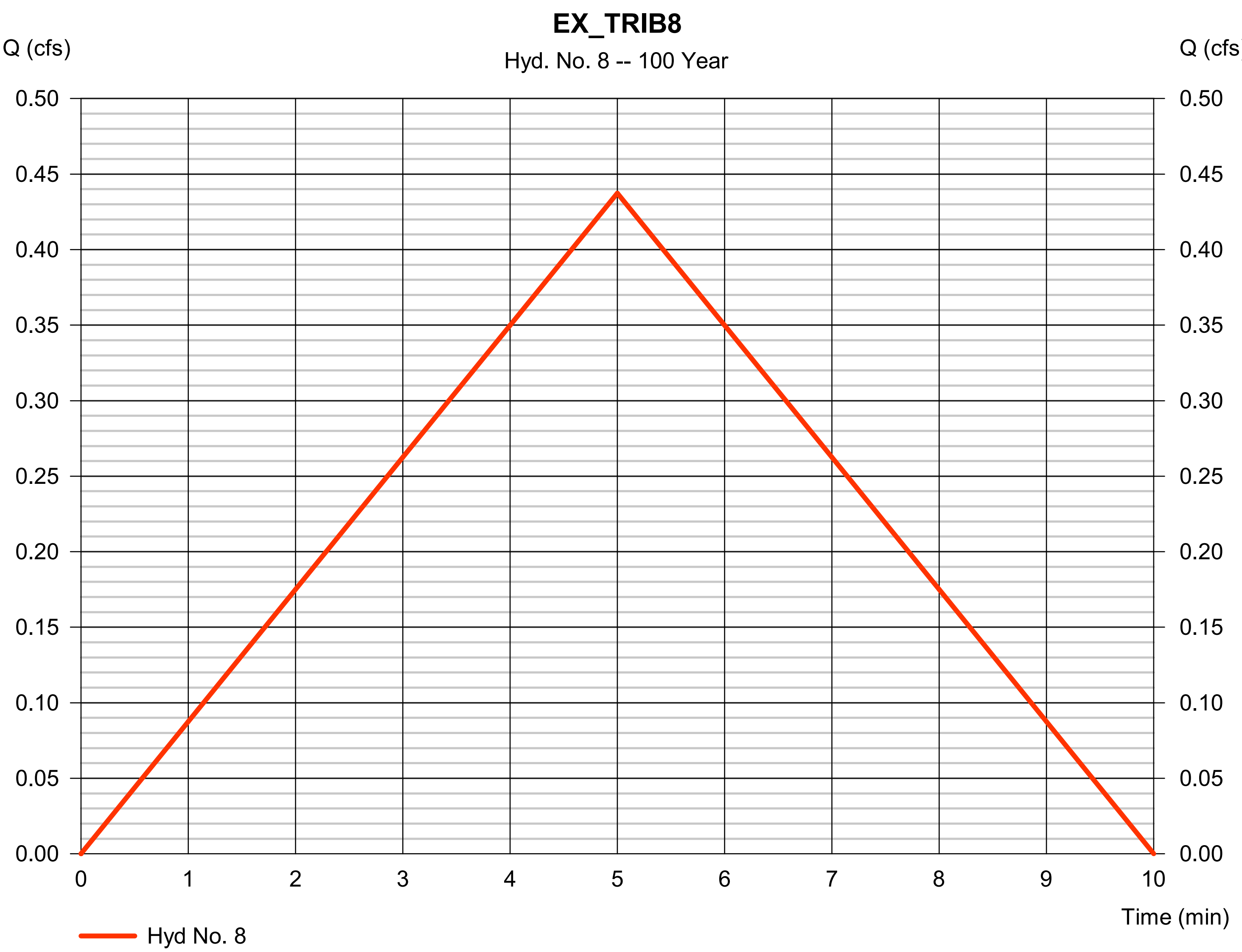
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 8

EX_TRIB8

Hydrograph type	= Rational	Peak discharge	= 0.437 cfs
Storm frequency	= 100 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 131 cuft
Drainage area	= 0.200 ac	Runoff coeff.	= 0.2
Intensity	= 10.936 in/hr	Tc by User	= 5.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



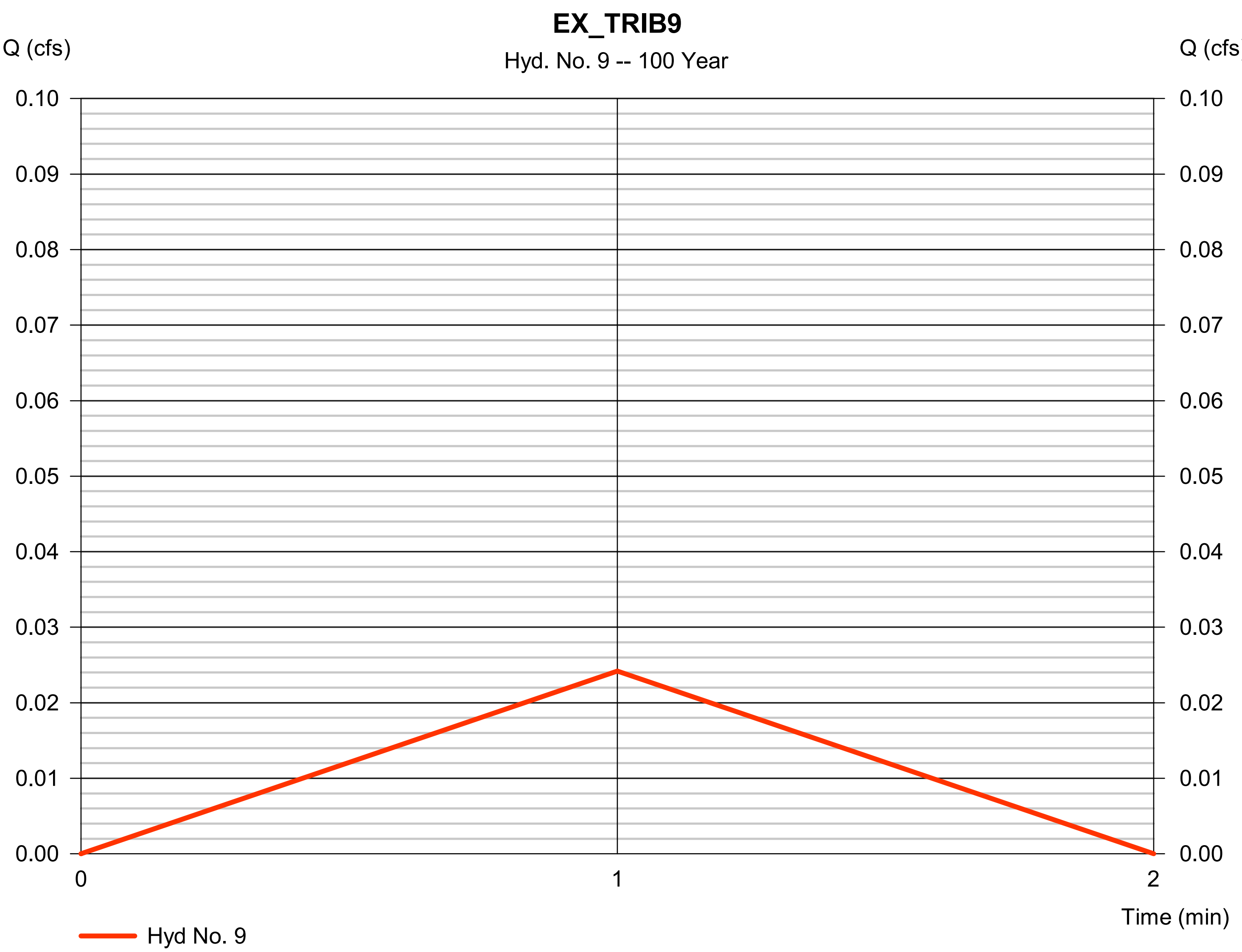
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 9

EX_TRIB9

Hydrograph type	= Rational	Peak discharge	= 0.024 cfs
Storm frequency	= 100 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 1 cuft
Drainage area	= 0.009 ac	Runoff coeff.	= 0.2
Intensity	= 14.224 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



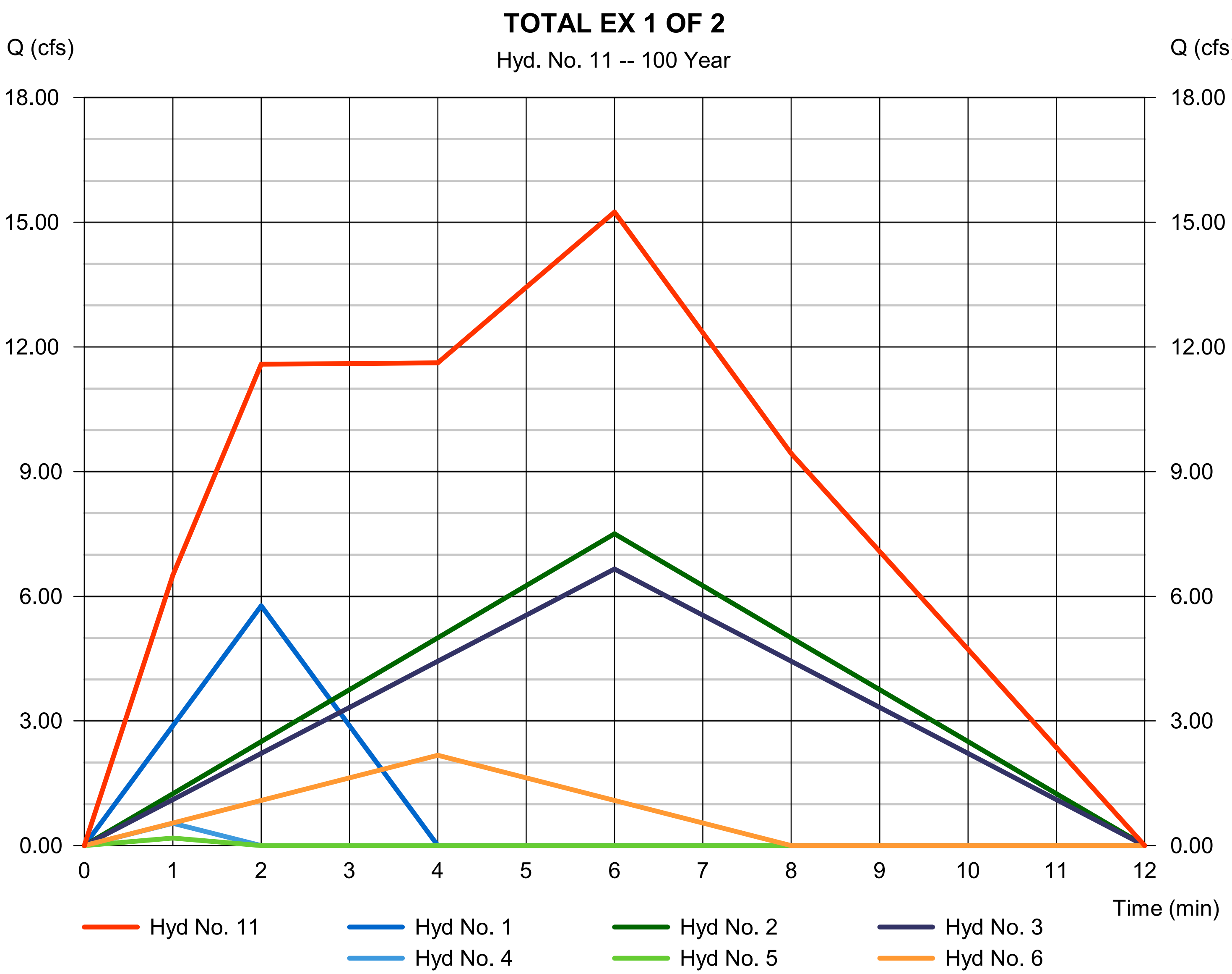
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 11

TOTAL EX 1 OF 2

Hydrograph type	= Combine	Peak discharge	= 15.25 cfs
Storm frequency	= 100 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 6,357 cuft
Inflow hyds.	= 1, 2, 3, 4, 5, 6	Contrib. drain. area	= 9.773 ac



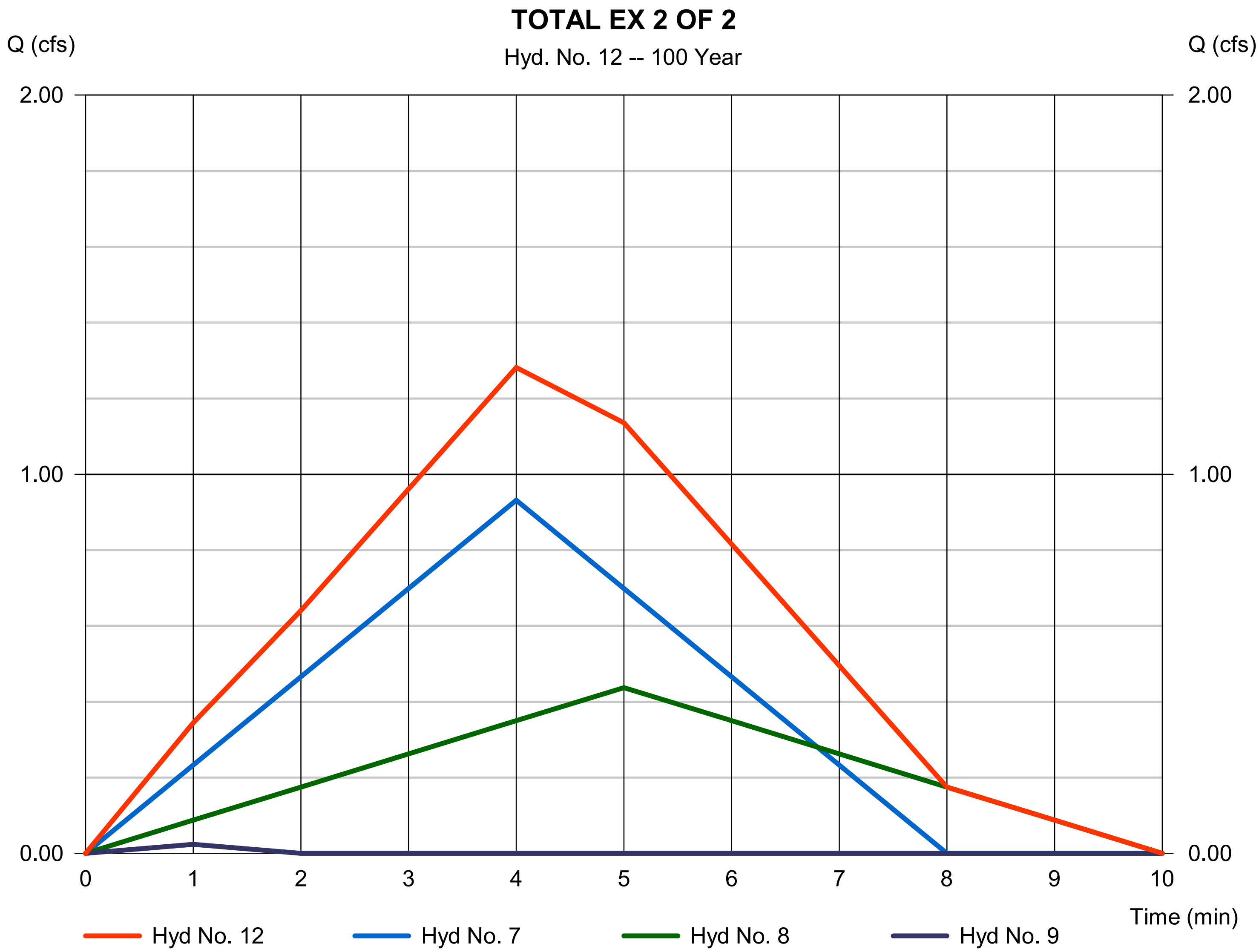
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 12

TOTAL EX 2 OF 2

Hydrograph type	= Combine	Peak discharge	= 1.281 cfs
Storm frequency	= 100 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 356 cuft
Inflow hyds.	= 7, 8, 9	Contrib. drain. area	= 0.610 ac



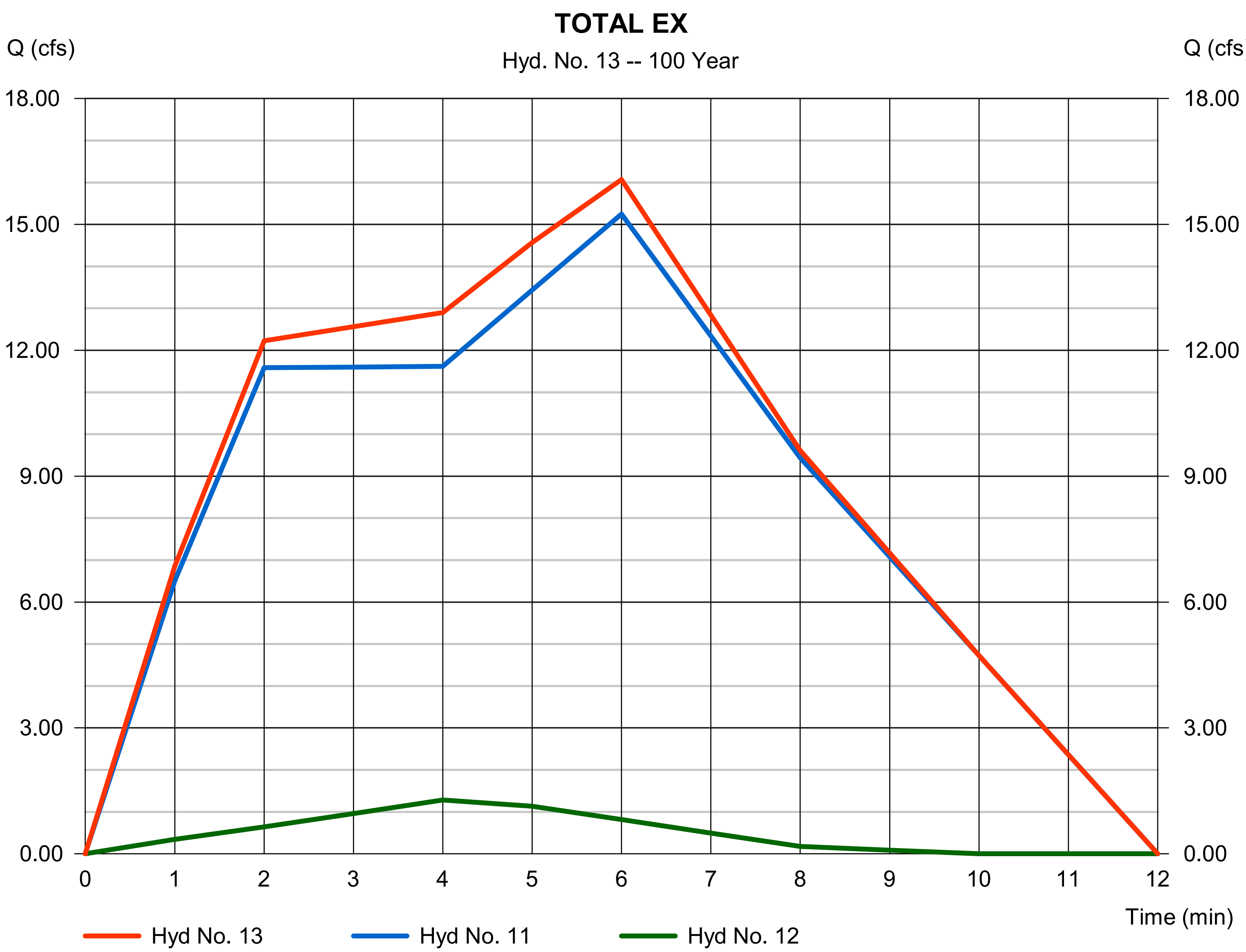
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 13

TOTAL EX

Hydrograph type	= Combine	Peak discharge	= 16.07 cfs
Storm frequency	= 100 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 6,713 cuft
Inflow hyds.	= 11, 12	Contrib. drain. area	= 0.000 ac



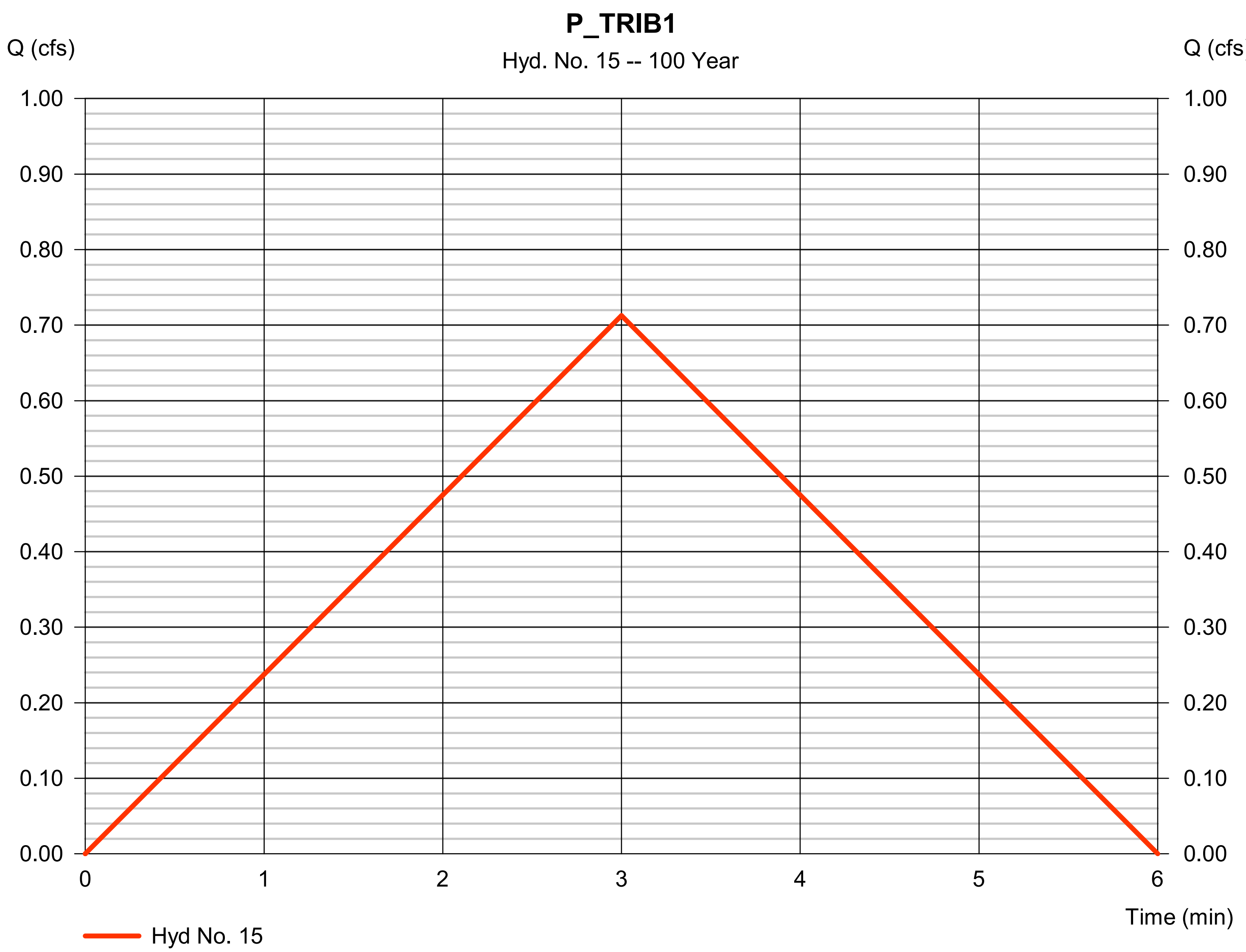
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 15

P_TRIB1

Hydrograph type	= Rational	Peak discharge	= 0.713 cfs
Storm frequency	= 100 yrs	Time to peak	= 3 min
Time interval	= 1 min	Hyd. volume	= 128 cuft
Drainage area	= 0.289 ac	Runoff coeff.	= 0.2
Intensity	= 12.330 in/hr	Tc by User	= 3.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



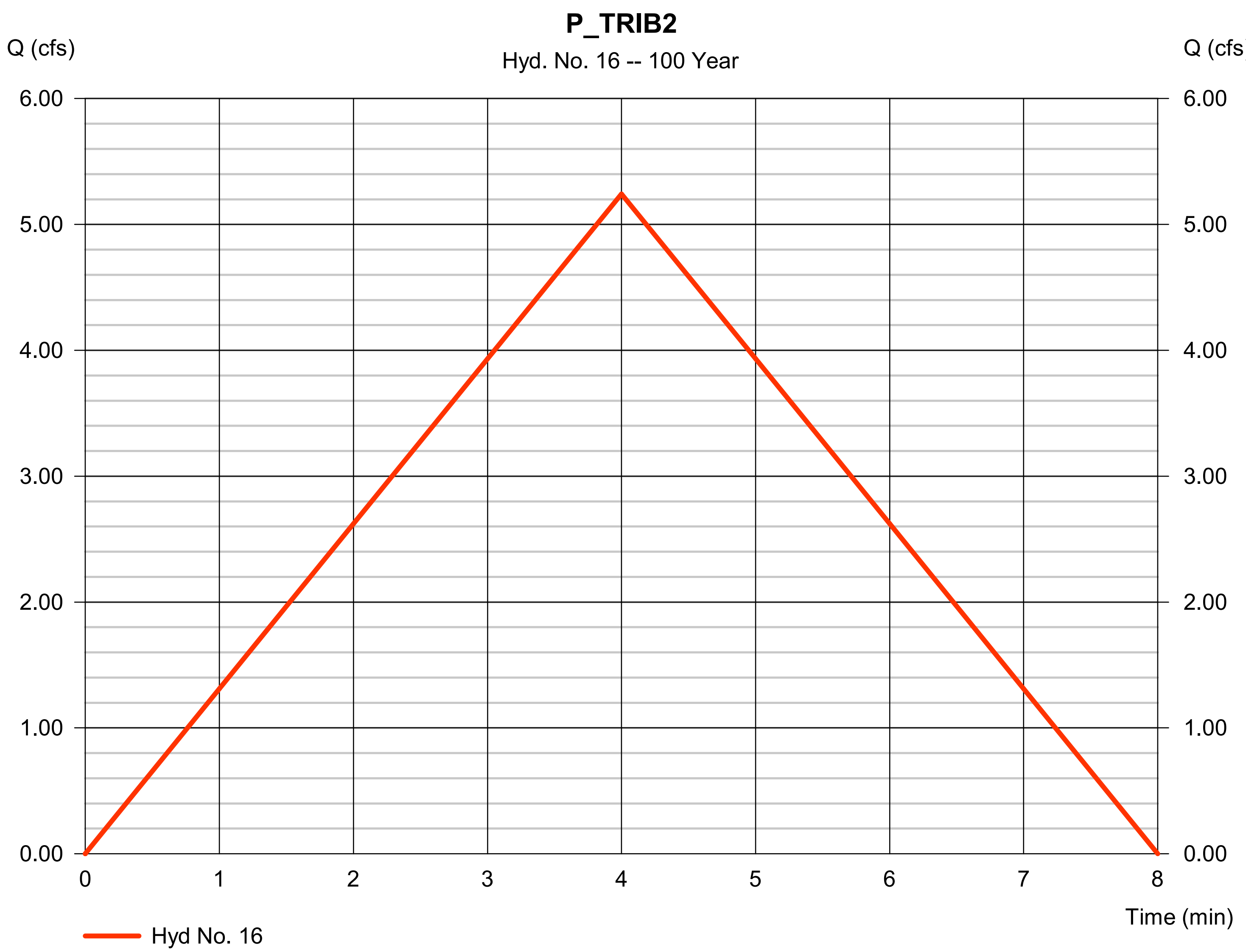
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 16

P_TRIB2

Hydrograph type	= Rational	Peak discharge	= 5.243 cfs
Storm frequency	= 100 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 1,258 cuft
Drainage area	= 2.263 ac	Runoff coeff.	= 0.2
Intensity	= 11.584 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1

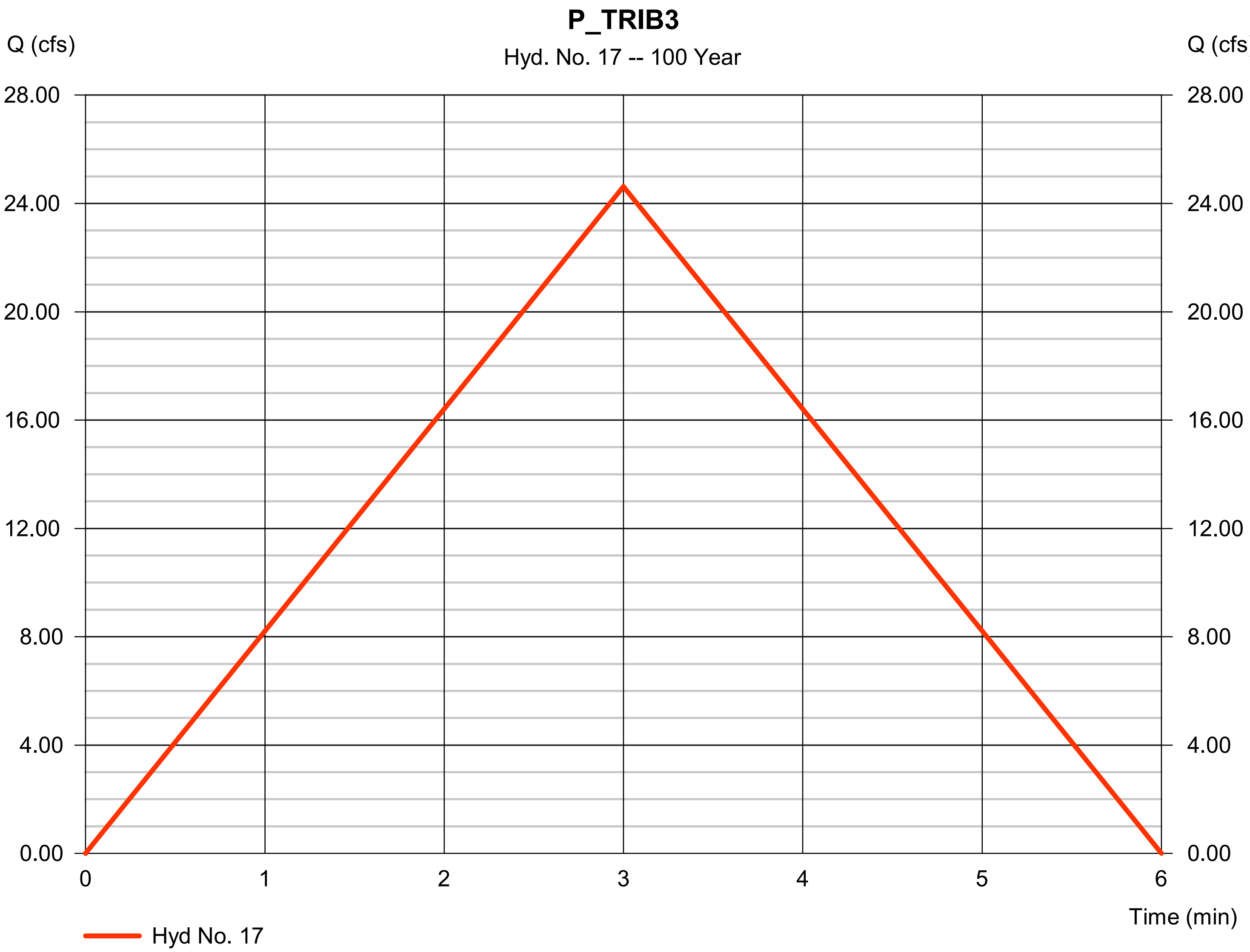


Hydrograph Report

Hyd. No. 17

P_TRIB3

Hydrograph type	= Rational	Peak discharge	= 24.62 cfs
Storm frequency	= 100 yrs	Time to peak	= 3 min
Time interval	= 1 min	Hyd. volume	= 4,432 cuft
Drainage area	= 2.937 ac	Runoff coeff.	= 0.68
Intensity	= 12.330 in/hr	Tc by User	= 3.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



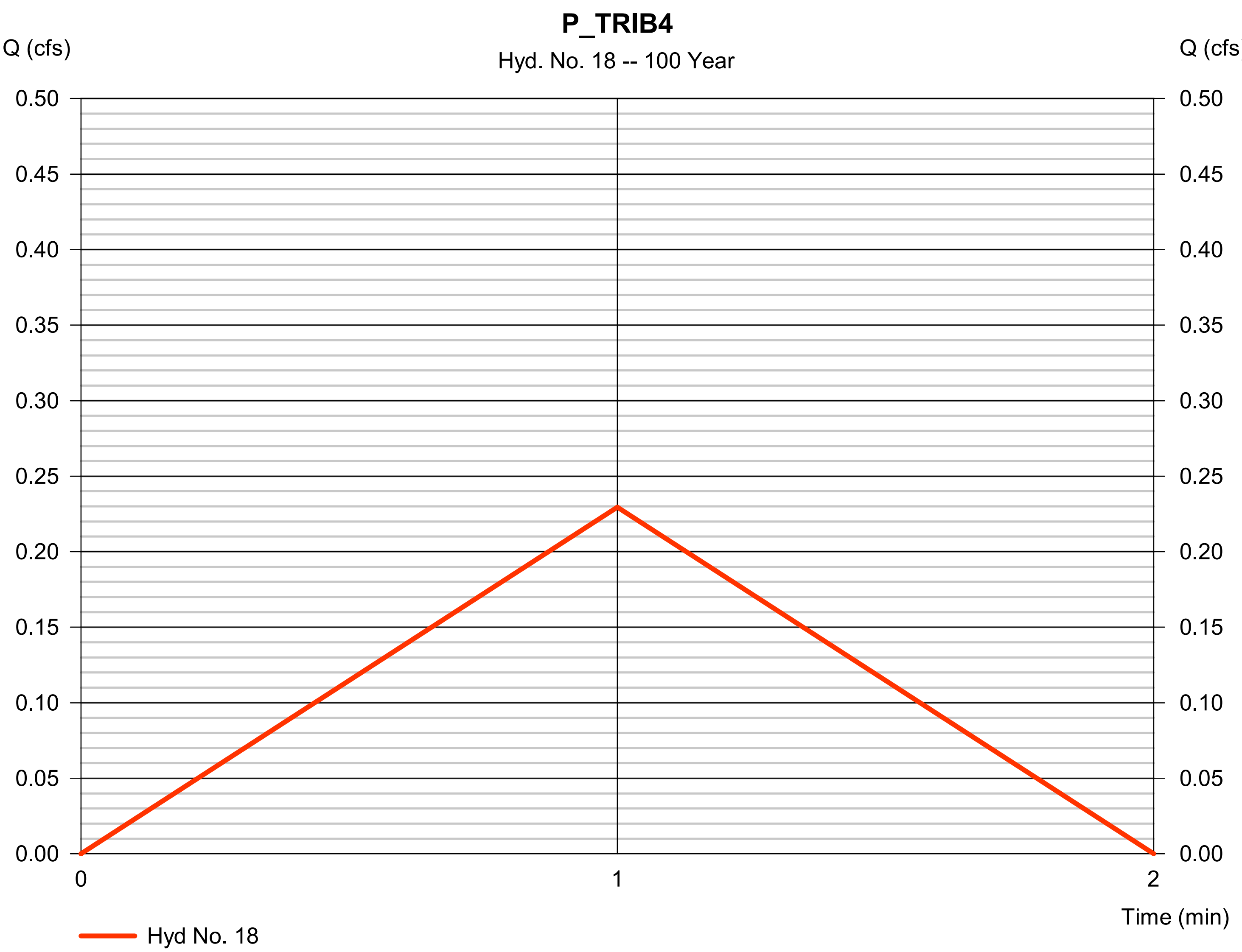
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 18

P_TRIB4

Hydrograph type	= Rational	Peak discharge	= 0.230 cfs
Storm frequency	= 100 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 14 cuft
Drainage area	= 0.081 ac	Runoff coeff.	= 0.2
Intensity	= 14.224 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



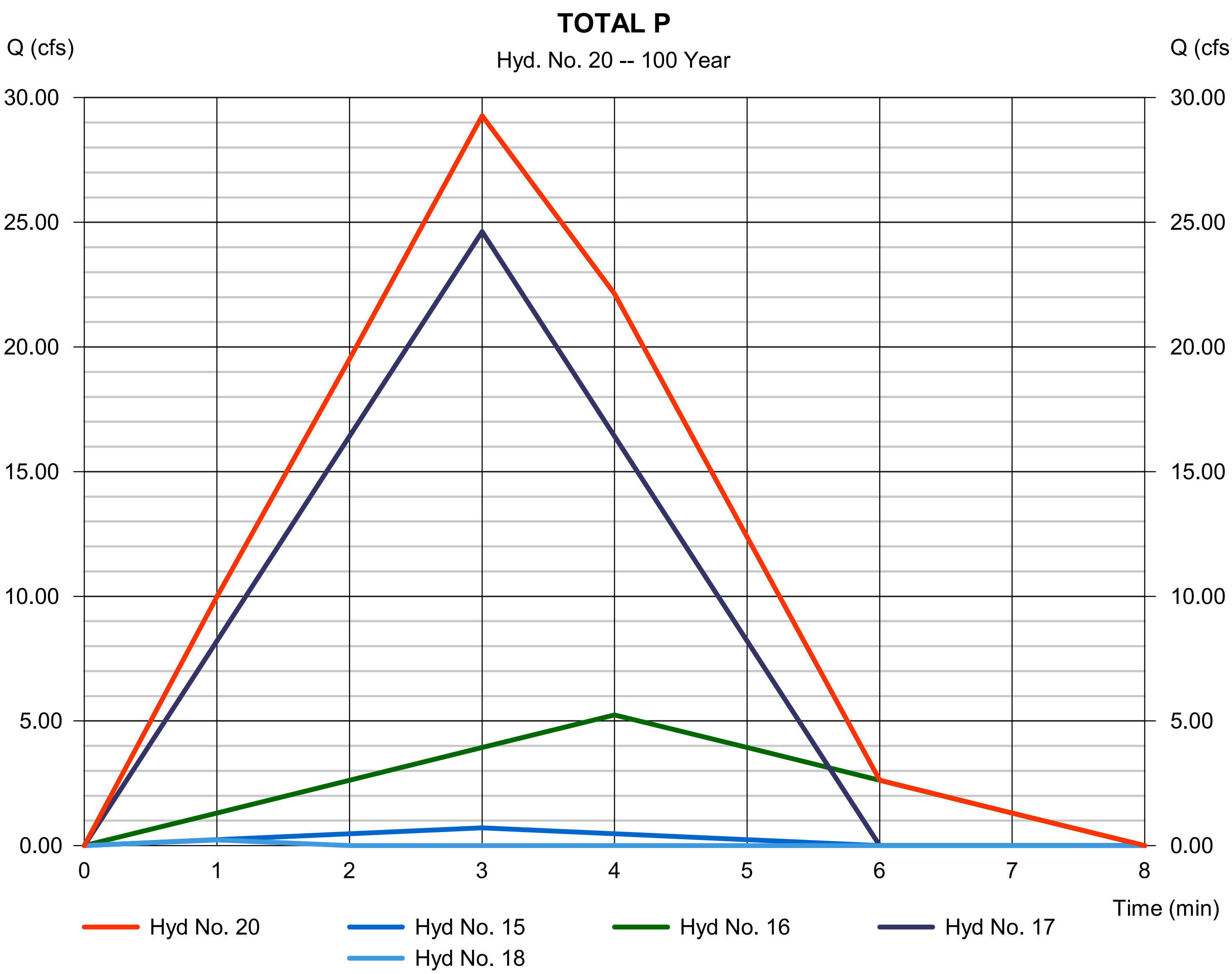
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 20

TOTAL P

Hydrograph type	= Combine	Peak discharge	= 29.27 cfs
Storm frequency	= 100 yrs	Time to peak	= 3 min
Time interval	= 1 min	Hyd. volume	= 5,833 cuft
Inflow hyds.	= 15, 16, 17, 18	Contrib. drain. area	= 5.570 ac



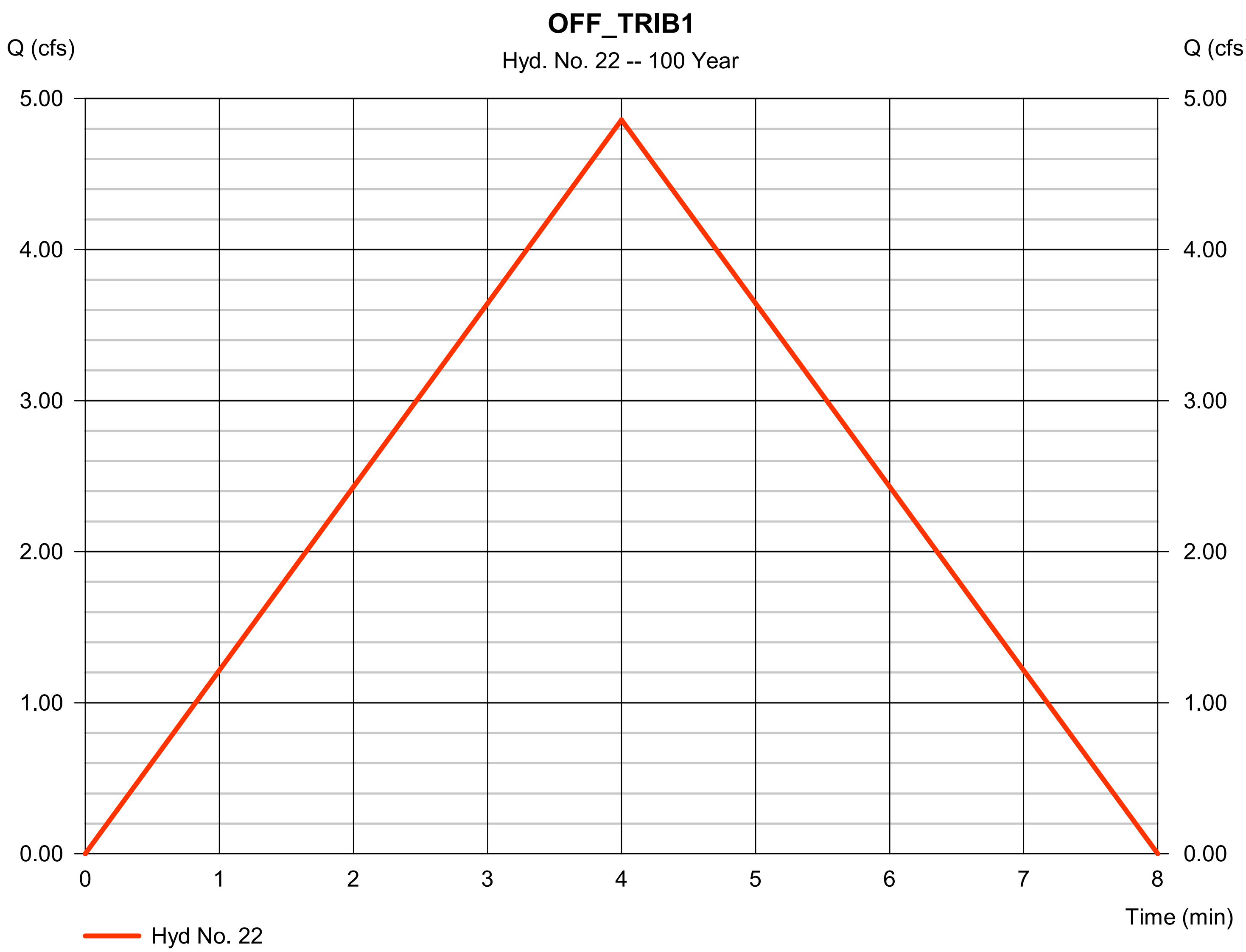
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 22

OFF_TRIB1

Hydrograph type	= Rational	Peak discharge	= 4.858 cfs
Storm frequency	= 100 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 1,166 cuft
Drainage area	= 0.466 ac	Runoff coeff.	= 0.9
Intensity	= 11.584 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



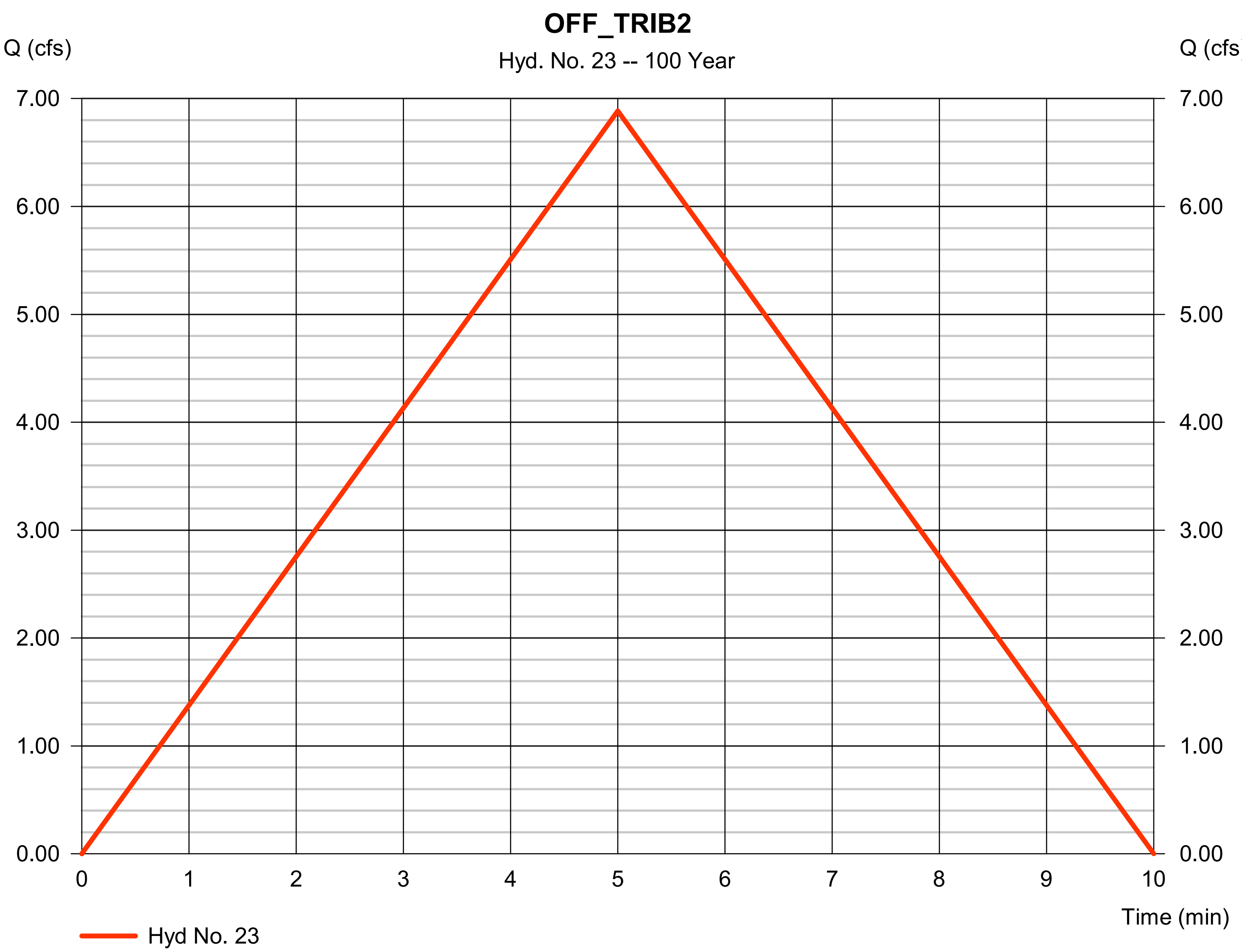
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 23

OFF_TRIB2

Hydrograph type	= Rational	Peak discharge	= 6.885 cfs
Storm frequency	= 100 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 2,066 cuft
Drainage area	= 3.148 ac	Runoff coeff.	= 0.2
Intensity	= 10.936 in/hr	Tc by User	= 5.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



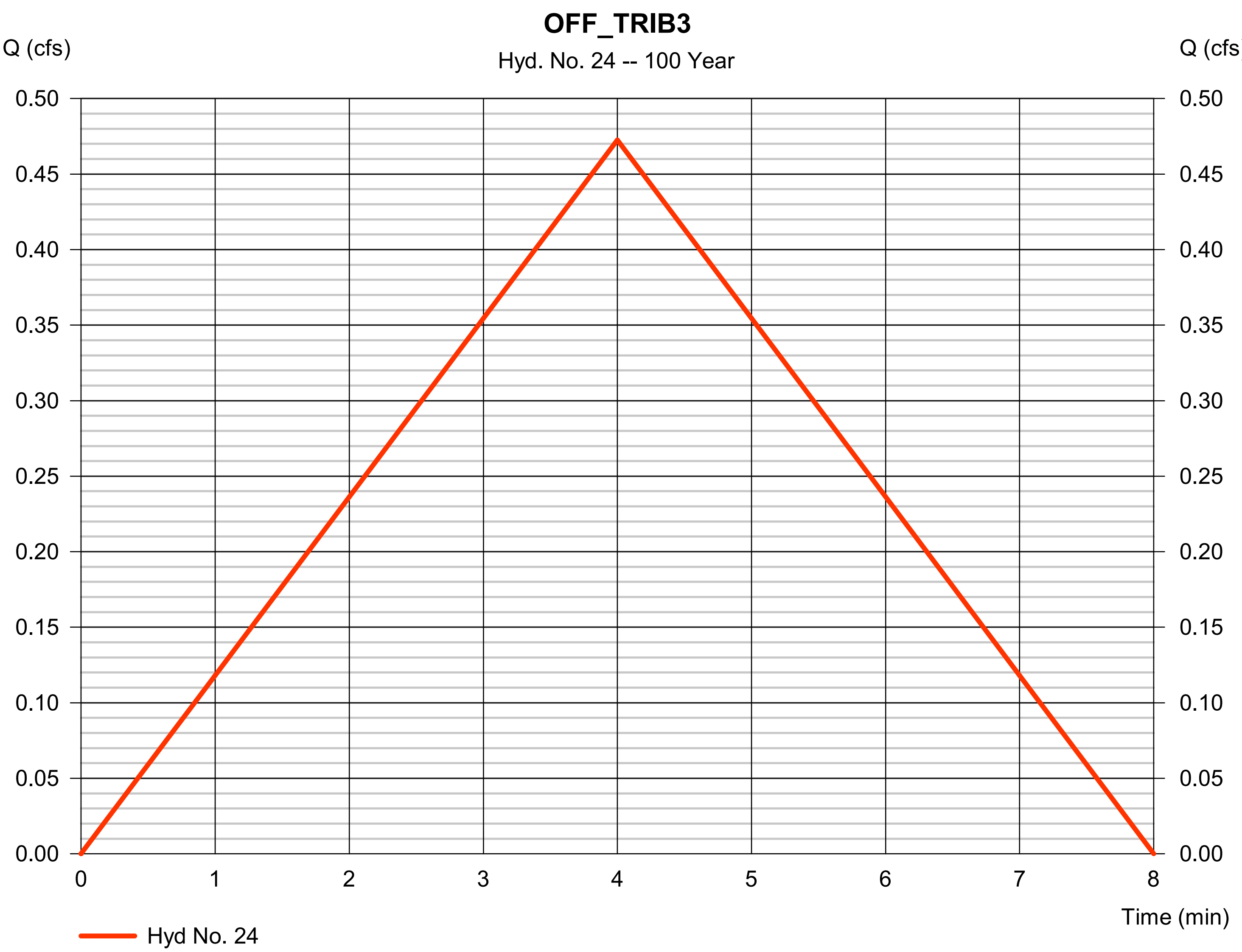
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 24

OFF_TRIB3

Hydrograph type	= Rational	Peak discharge	= 0.473 cfs
Storm frequency	= 100 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 113 cuft
Drainage area	= 0.204 ac	Runoff coeff.	= 0.2
Intensity	= 11.584 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



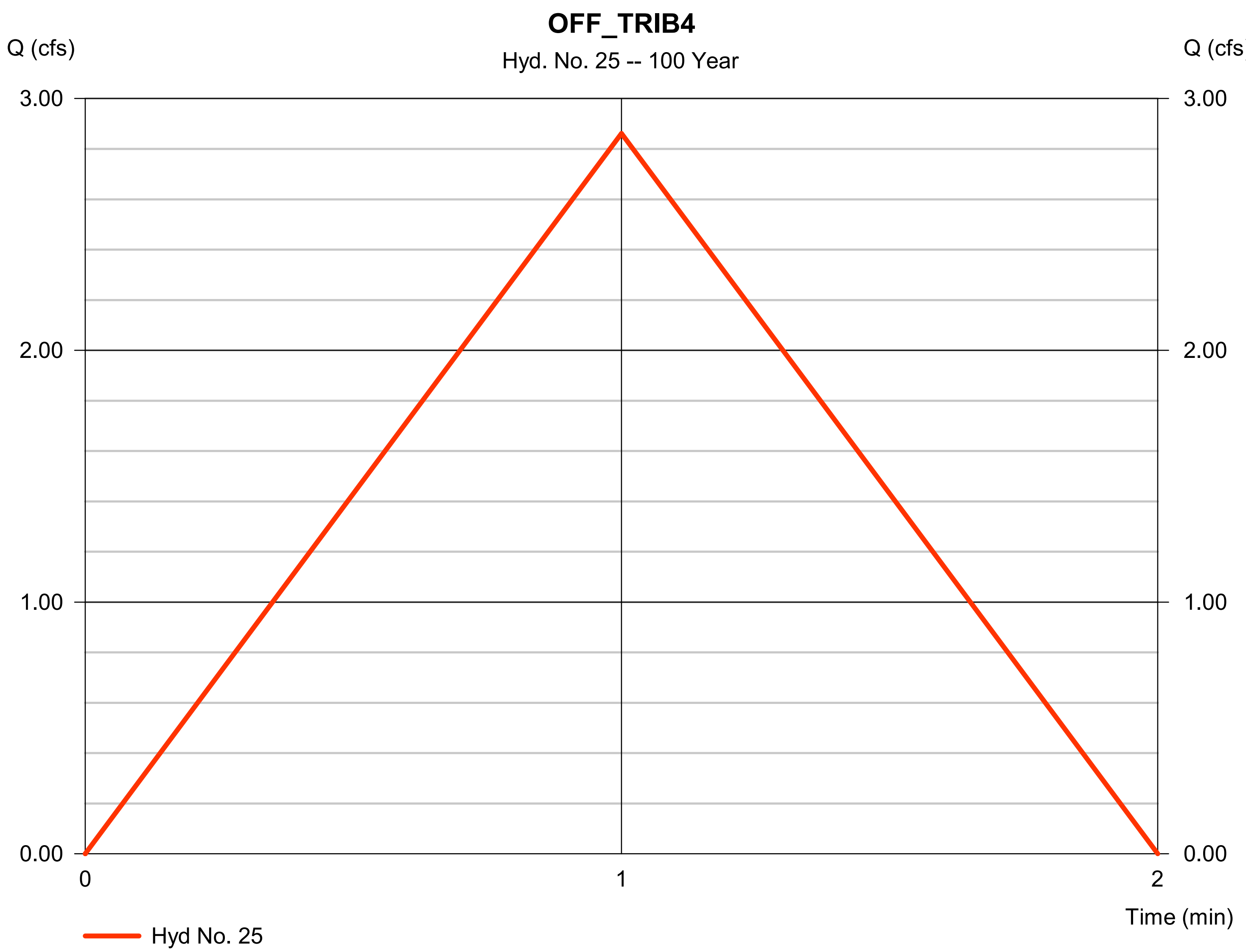
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 25

OFF_TRIB4

Hydrograph type	= Rational	Peak discharge	= 2.862 cfs
Storm frequency	= 100 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 172 cuft
Drainage area	= 1.006 ac	Runoff coeff.	= 0.2
Intensity	= 14.224 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



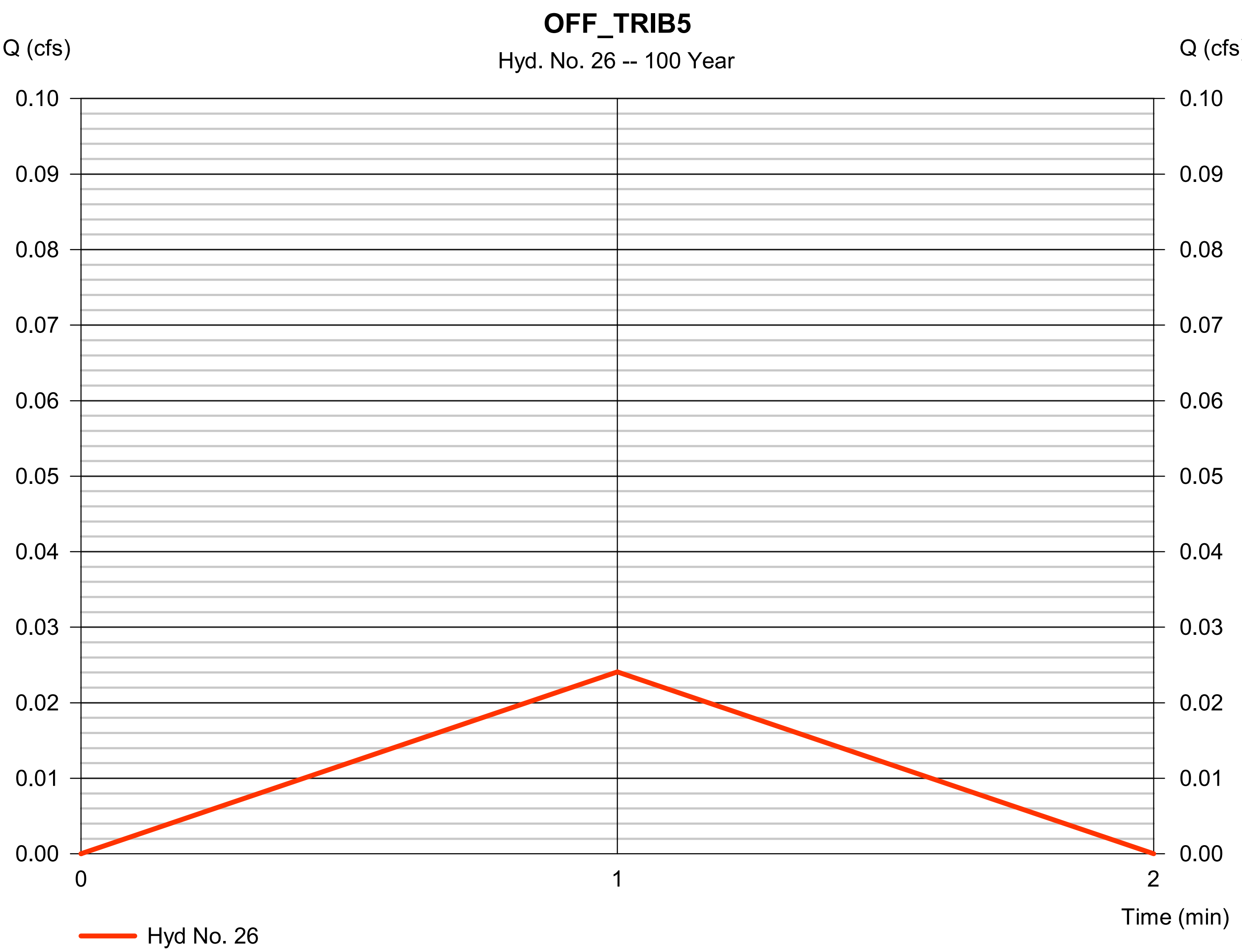
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 26

OFF_TRIB5

Hydrograph type	= Rational	Peak discharge	= 0.024 cfs
Storm frequency	= 100 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 1 cuft
Drainage area	= 0.008 ac	Runoff coeff.	= 0.2
Intensity	= 14.224 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



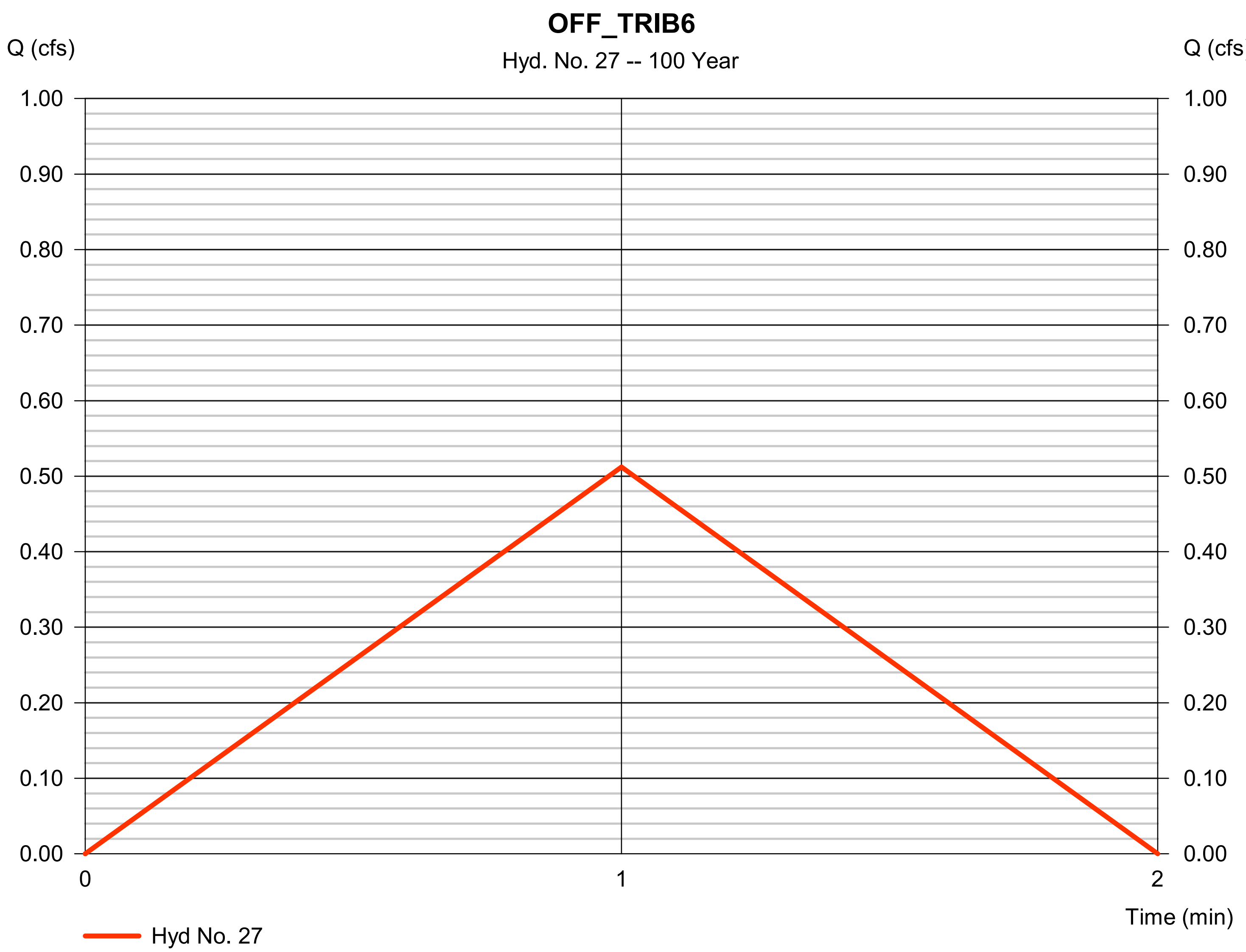
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 27

OFF_TRIB6

Hydrograph type	= Rational	Peak discharge	= 0.512 cfs
Storm frequency	= 100 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 31 cuft
Drainage area	= 0.180 ac	Runoff coeff.	= 0.2
Intensity	= 14.224 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



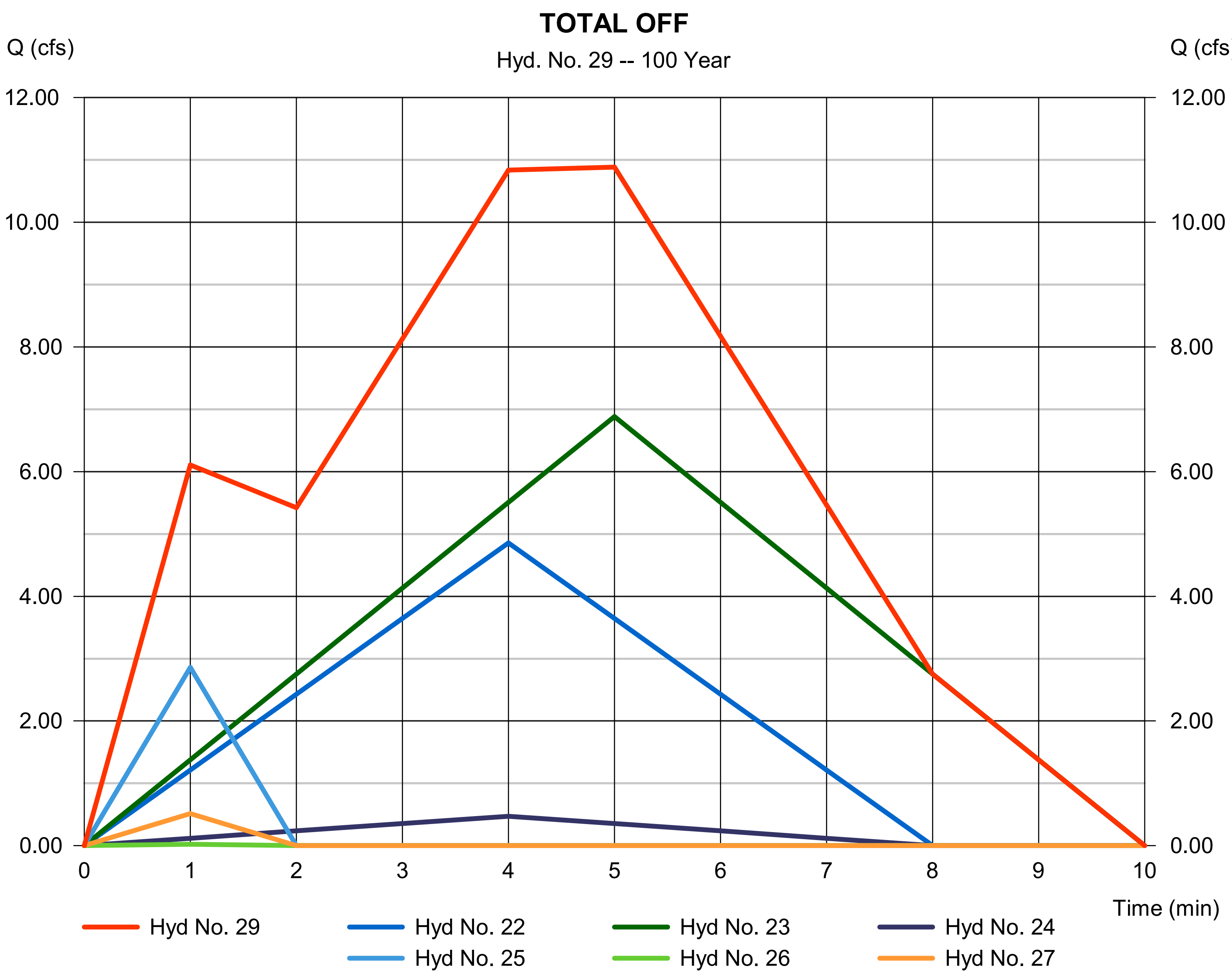
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 29

TOTAL OFF

Hydrograph type	= Combine	Peak discharge	= 10.88 cfs
Storm frequency	= 100 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 3,549 cuft
Inflow hyds.	= 22, 23, 24, 25, 26, 27	Contrib. drain. area	= 5.012 ac



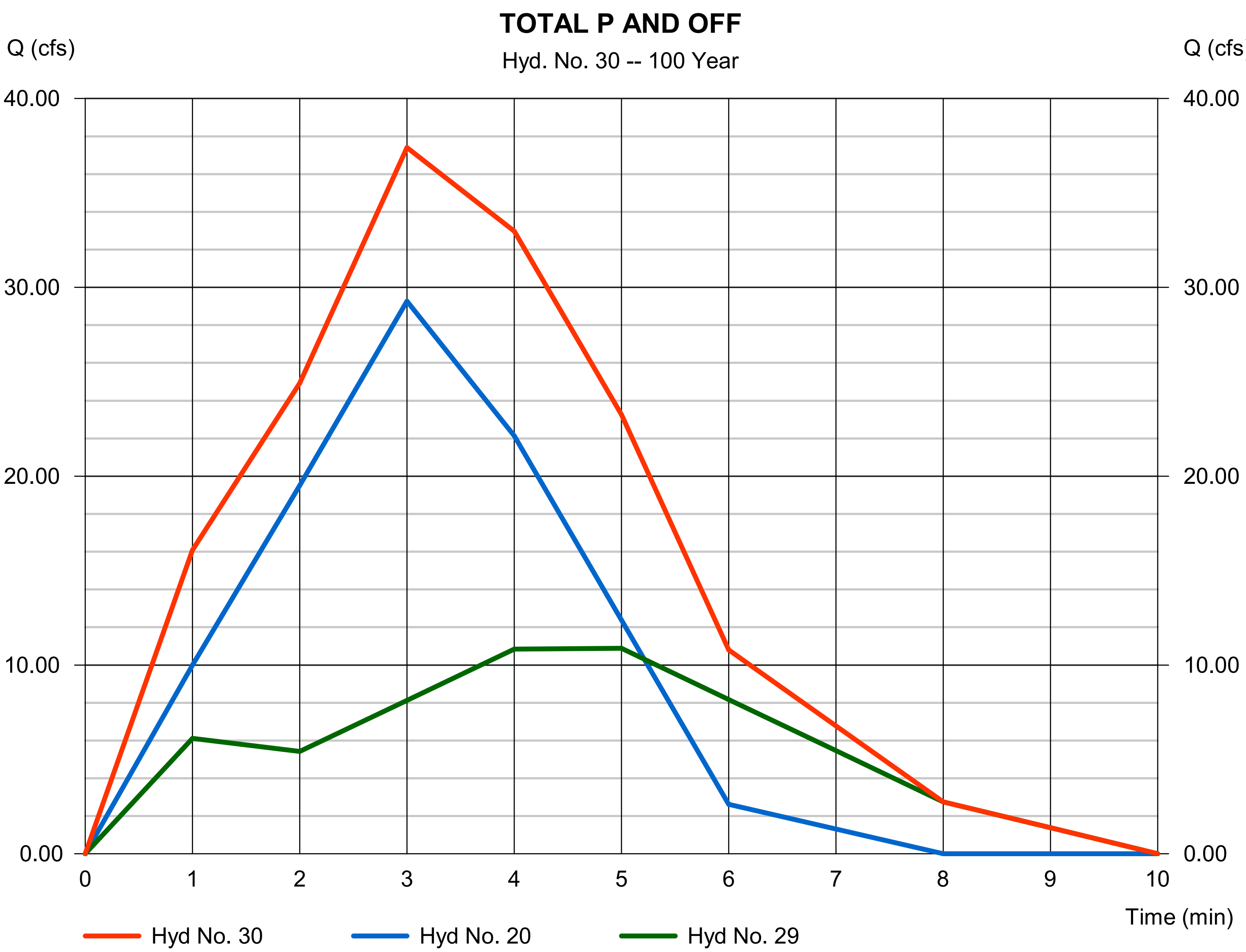
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 30

TOTAL P AND OFF

Hydrograph type	= Combine	Peak discharge	= 37.40 cfs
Storm frequency	= 100 yrs	Time to peak	= 3 min
Time interval	= 1 min	Hyd. volume	= 9,382 cuft
Inflow hyds.	= 20, 29	Contrib. drain. area	= 0.000 ac



Hydrograph Report

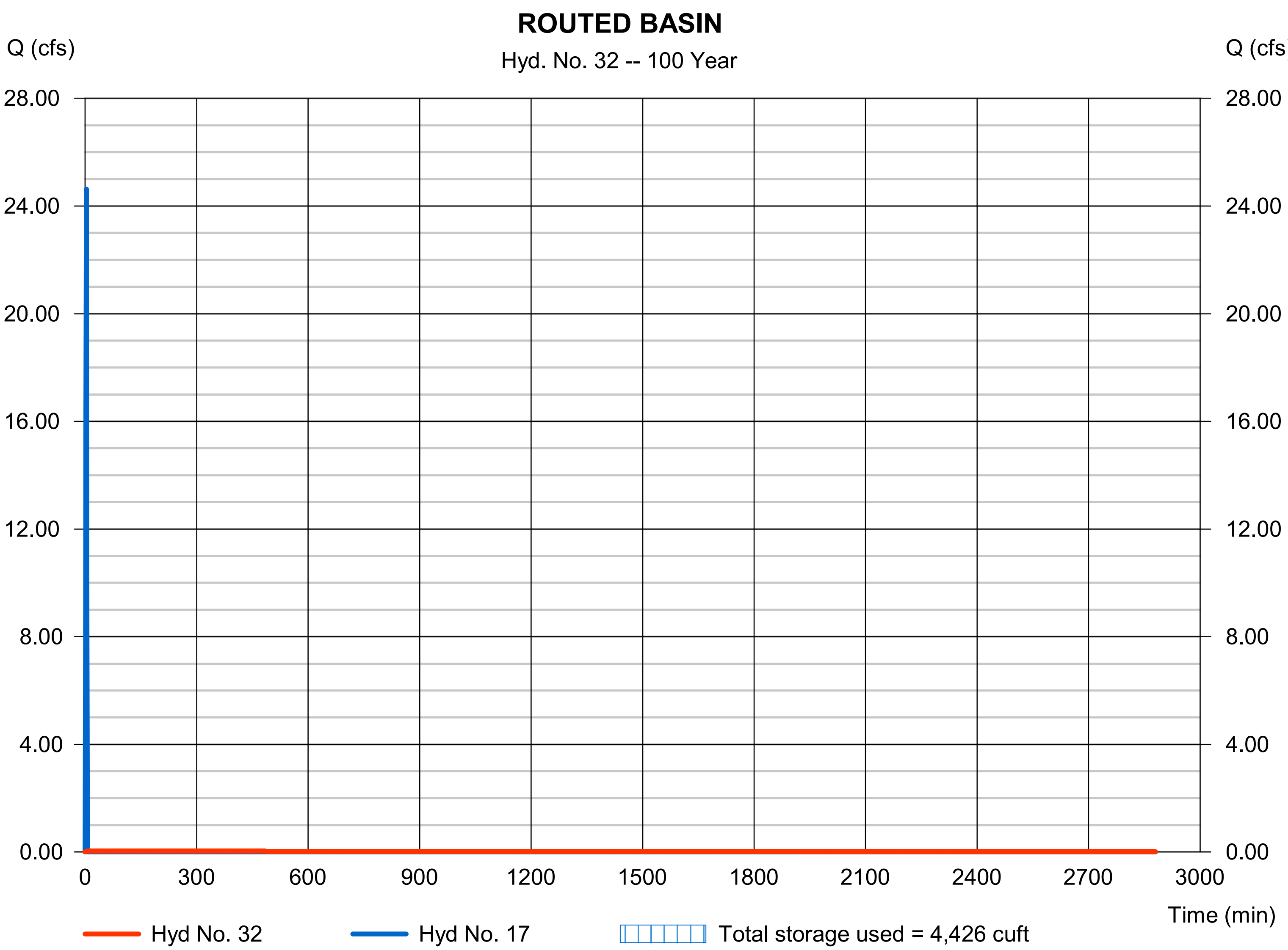
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 32

ROUTED BASIN

Hydrograph type	= Reservoir	Peak discharge	= 0.030 cfs
Storm frequency	= 100 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 3,497 cuft
Inflow hyd. No.	= 17 - P_TRIB3	Max. Elevation	= 470.61 ft
Reservoir name	= BMP 1	Max. Storage	= 4,426 cuft

Storage Indication method used.



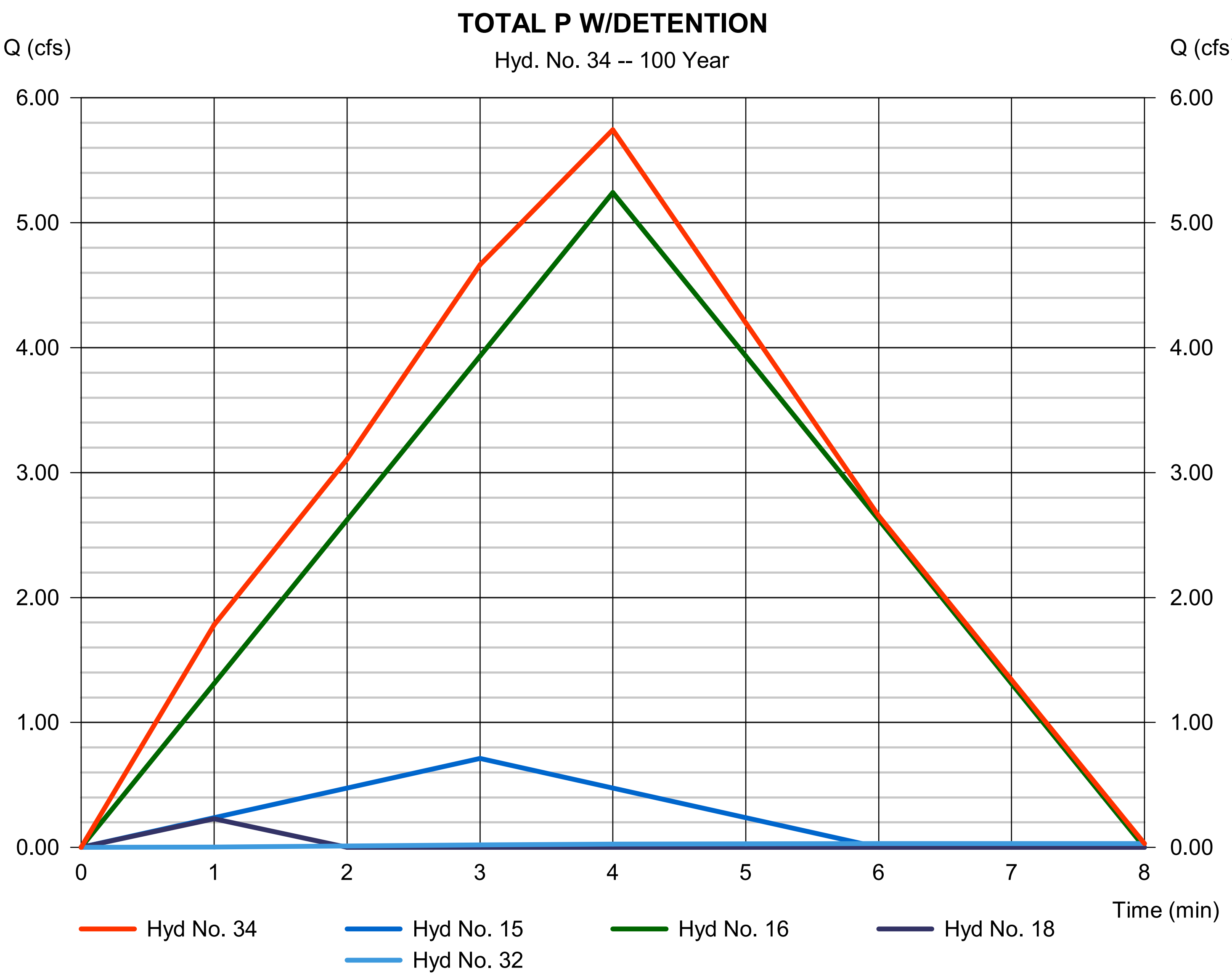
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 34

TOTAL P W/DETENTION

Hydrograph type	= Combine	Peak discharge	= 5.744 cfs
Storm frequency	= 100 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 4,897 cuft
Inflow hyds.	= 15, 16, 18, 32	Contrib. drain. area	= 2.633 ac



Hydrograph Return Period Recap

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

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	Rational	------	-------	-------	-------	-------	-------	-------	-------	5.774	EX_TRIB1
2	Rational	------	-------	-------	-------	-------	-------	-------	-------	7.506	EX_TRIB2
3	Rational	------	-------	-------	-------	-------	-------	-------	-------	6.656	EX_TRIB3
4	Rational	------	-------	-------	-------	-------	-------	-------	-------	0.541	EX_TRIB4
5	Rational	------	-------	-------	-------	-------	-------	-------	-------	0.179	EX_TRIB5
6	Rational	------	-------	-------	-------	-------	-------	-------	-------	2.178	EX_TRIB6
7	Rational	------	-------	-------	-------	-------	-------	-------	-------	0.931	EX_TRIB7
8	Rational	------	-------	-------	-------	-------	-------	-------	-------	0.437	EX_TRIB8
9	Rational	------	-------	-------	-------	-------	-------	-------	-------	0.024	EX_TRIB9
11	Combine	1, 2, 3, 4, 5, 6,	-------	-------	-------	-------	-------	-------	-------	15.25	TOTAL EX 1 OF 2
12	Combine	7, 8, 9,	-------	-------	-------	-------	-------	-------	-------	1.281	TOTAL EX 2 OF 2
13	Combine	11, 12	-------	-------	-------	-------	-------	-------	-------	16.07	TOTAL EX
15	Rational	------	-------	-------	-------	-------	-------	-------	-------	0.713	P_TRIB1
16	Rational	------	-------	-------	-------	-------	-------	-------	-------	5.243	P_TRIB2
17	Rational	------	-------	-------	-------	-------	-------	-------	-------	24.62	P_TRIB3
18	Rational	------	-------	-------	-------	-------	-------	-------	-------	0.230	P_TRIB4
20	Combine	15, 16, 17, 18,	-------	-------	-------	-------	-------	-------	-------	29.27	TOTAL P
22	Rational	------	-------	-------	-------	-------	-------	-------	-------	4.858	OFF_TRIB1
23	Rational	------	-------	-------	-------	-------	-------	-------	-------	6.885	OFF_TRIB2
24	Rational	------	-------	-------	-------	-------	-------	-------	-------	0.473	OFF_TRIB3
25	Rational	------	-------	-------	-------	-------	-------	-------	-------	2.862	OFF_TRIB4
26	Rational	------	-------	-------	-------	-------	-------	-------	-------	0.024	OFF_TRIB5
27	Rational	------	-------	-------	-------	-------	-------	-------	-------	0.512	OFF_TRIB6
29	Combine	22, 23, 24, 25, 26,	-------	-------	-------	-------	-------	-------	-------	10.88	TOTAL OFF
30	Combine	20, 29	-------	-------	-------	-------	-------	-------	-------	37.40	TOTAL P AND OFF
32	Reservoir	17	-------	-------	-------	-------	-------	-------	-------	3.328	ROUTED BASIN
34	Combine	15, 16, 18, 32,	-------	-------	-------	-------	-------	-------	-------	8.041	TOTAL P W/DETENTION

Proj. file: M20-8003_detention_7-26-21_LFB.gpw	Monday, 07 / 26 / 2021

Hydrograph Summary Report

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

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	5.774	1	2	693	------	------	------	EX_TRIB1
2	Rational	7.506	1	6	2,702	------	------	------	EX_TRIB2
3	Rational	6.656	1	6	2,396	------	------	------	EX_TRIB3
4	Rational	0.541	1	1	32	------	------	------	EX_TRIB4
5	Rational	0.179	1	1	11	------	------	------	EX_TRIB5
6	Rational	2.178	1	4	523	------	------	------	EX_TRIB6
7	Rational	0.931	1	4	224	------	------	------	EX_TRIB7
8	Rational	0.437	1	5	131	------	------	------	EX_TRIB8
9	Rational	0.024	1	1	1	------	------	------	EX_TRIB9
11	Combine	15.25	1	6	6,357	1, 2, 3, 4, 5, 6, 7, 8, 9,	------	------	TOTAL EX 1 OF 2
12	Combine	1.281	1	4	356		------	------	TOTAL EX 2 OF 2
13	Combine	16.07	1	6	6,713	11, 12	------	------	TOTAL EX
15	Rational	0.713	1	3	128	------	------	------	P_TRIB1
16	Rational	5.243	1	4	1,258	------	------	------	P_TRIB2
17	Rational	24.62	1	3	4,432	------	------	------	P_TRIB3
18	Rational	0.230	1	1	14	------	------	------	P_TRIB4
20	Combine	29.27	1	3	5,833	15, 16, 17, 18,	------	------	TOTAL P
22	Rational	4.858	1	4	1,166	------	------	------	OFF_TRIB1
23	Rational	6.885	1	5	2,066	------	------	------	OFF_TRIB2
24	Rational	0.473	1	4	113	------	------	------	OFF_TRIB3
25	Rational	2.862	1	1	172	------	------	------	OFF_TRIB4
26	Rational	0.024	1	1	1	------	------	------	OFF_TRIB5
27	Rational	0.512	1	1	31	------	------	------	OFF_TRIB6
29	Combine	10.88	1	5	3,518	22, 23, 24, 25, 26,	------	------	TOTAL OFF
30	Combine	37.40	1	3	9,351	20, 29	------	------	TOTAL P AND OFF
32	Reservoir	3.328	1	6	4,429	17	471.94	22,731	ROUTED BASIN
34	Combine	8.041	1	4	5,829	15, 16, 18, 32,	------	------	TOTAL P W/DETENTION

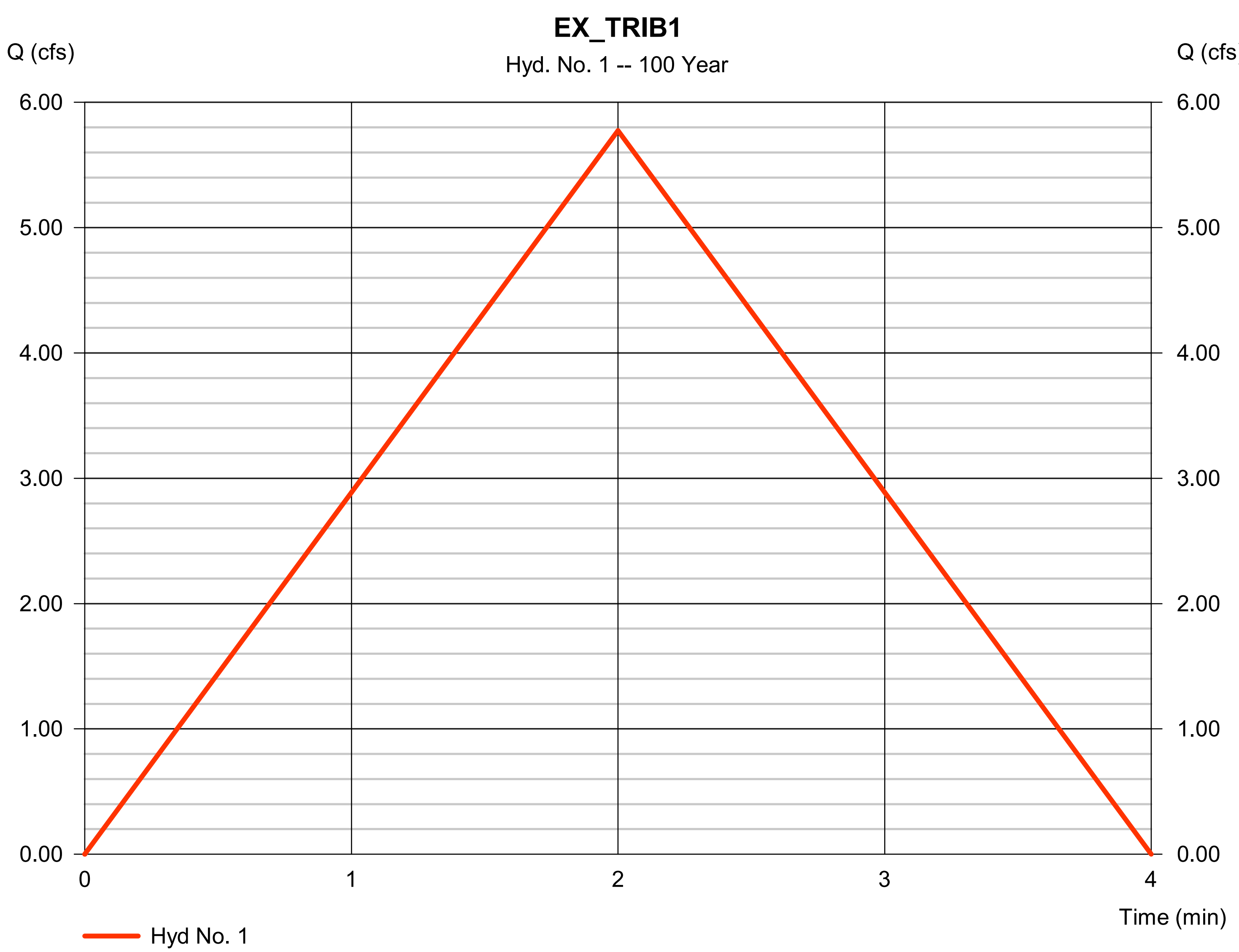
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 | Monday, 07 / 26 / 2021

Hyd. No. 1

EX_TRIB1

Hydrograph type	= Rational	Peak discharge	= 5.774 cfs
Storm frequency	= 100 yrs	Time to peak	= 2 min
Time interval	= 1 min	Hyd. volume	= 693 cuft
Drainage area	= 1.750 ac	Runoff coeff.	= 0.25
Intensity	= 13.198 in/hr	Tc by User	= 2.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



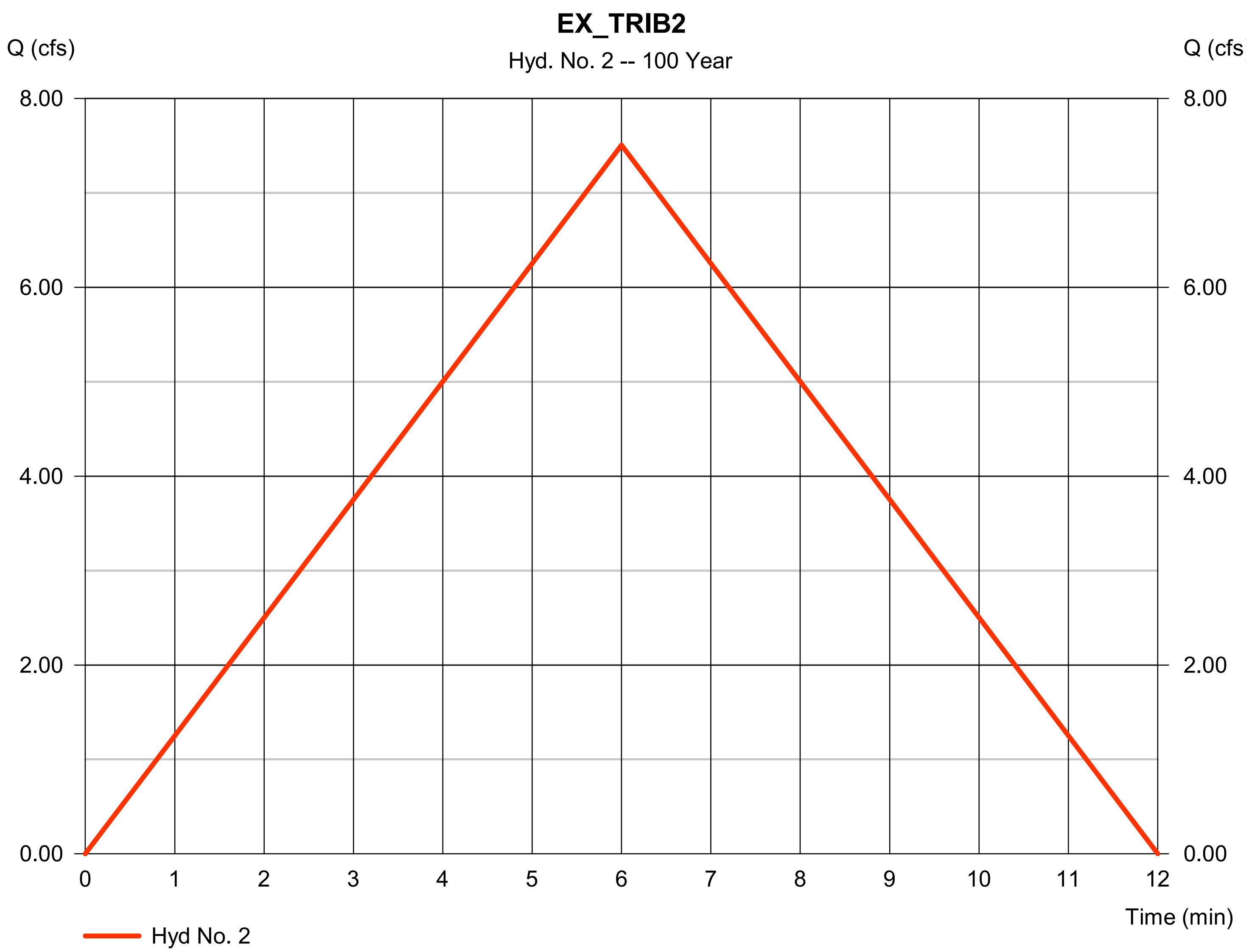
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 2

EX_TRIB2

Hydrograph type	= Rational	Peak discharge	= 7.506 cfs
Storm frequency	= 100 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 2,702 cuft
Drainage area	= 3.620 ac	Runoff coeff.	= 0.2
Intensity	= 10.367 in/hr	Tc by User	= 6.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



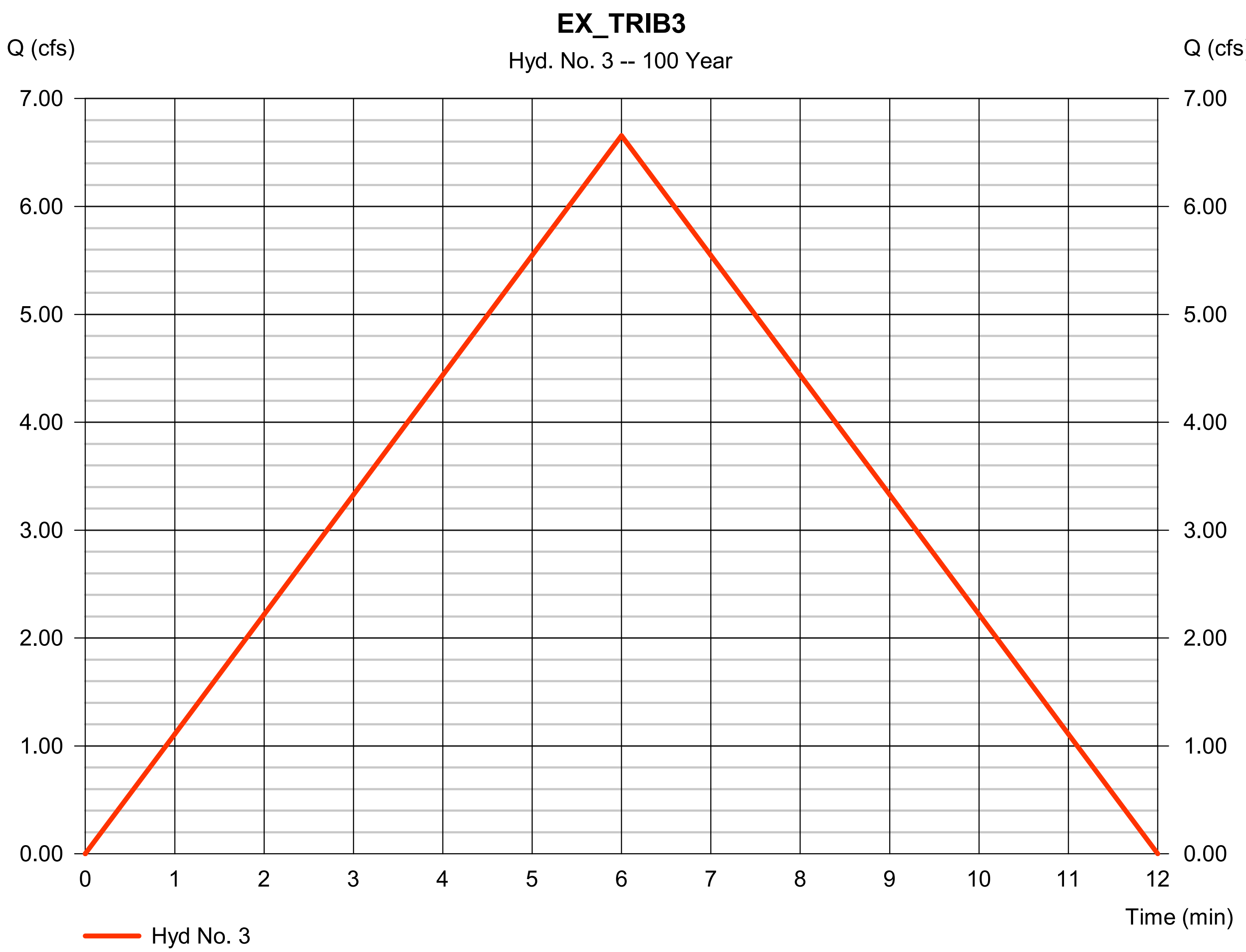
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 3

EX_TRIB3

Hydrograph type	= Rational	Peak discharge	= 6.656 cfs
Storm frequency	= 100 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 2,396 cuft
Drainage area	= 3.210 ac	Runoff coeff.	= 0.2
Intensity	= 10.367 in/hr	Tc by User	= 6.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



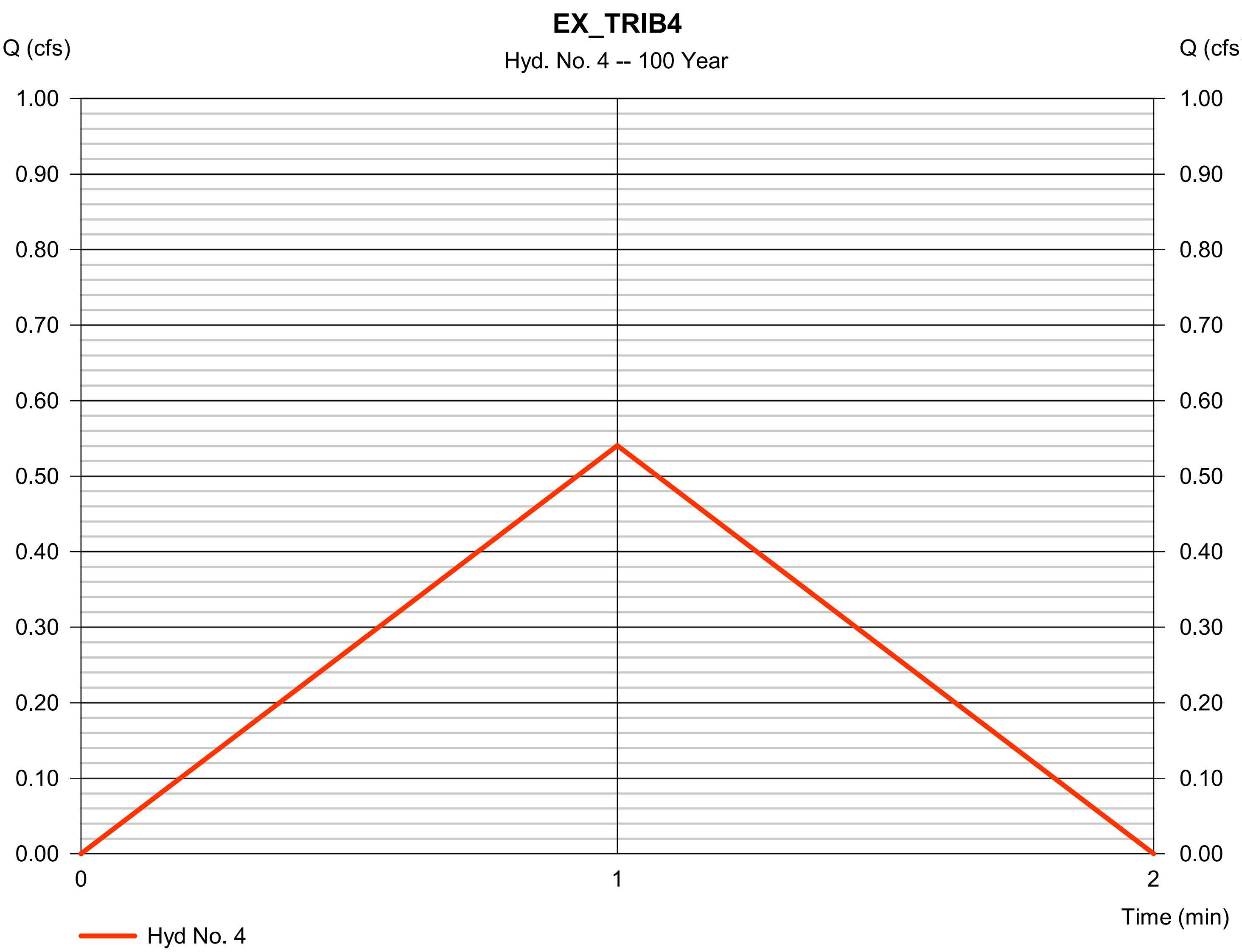
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 4

EX_TRIB4

Hydrograph type	= Rational	Peak discharge	= 0.541 cfs
Storm frequency	= 100 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 32 cuft
Drainage area	= 0.190 ac	Runoff coeff.	= 0.2
Intensity	= 14.224 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



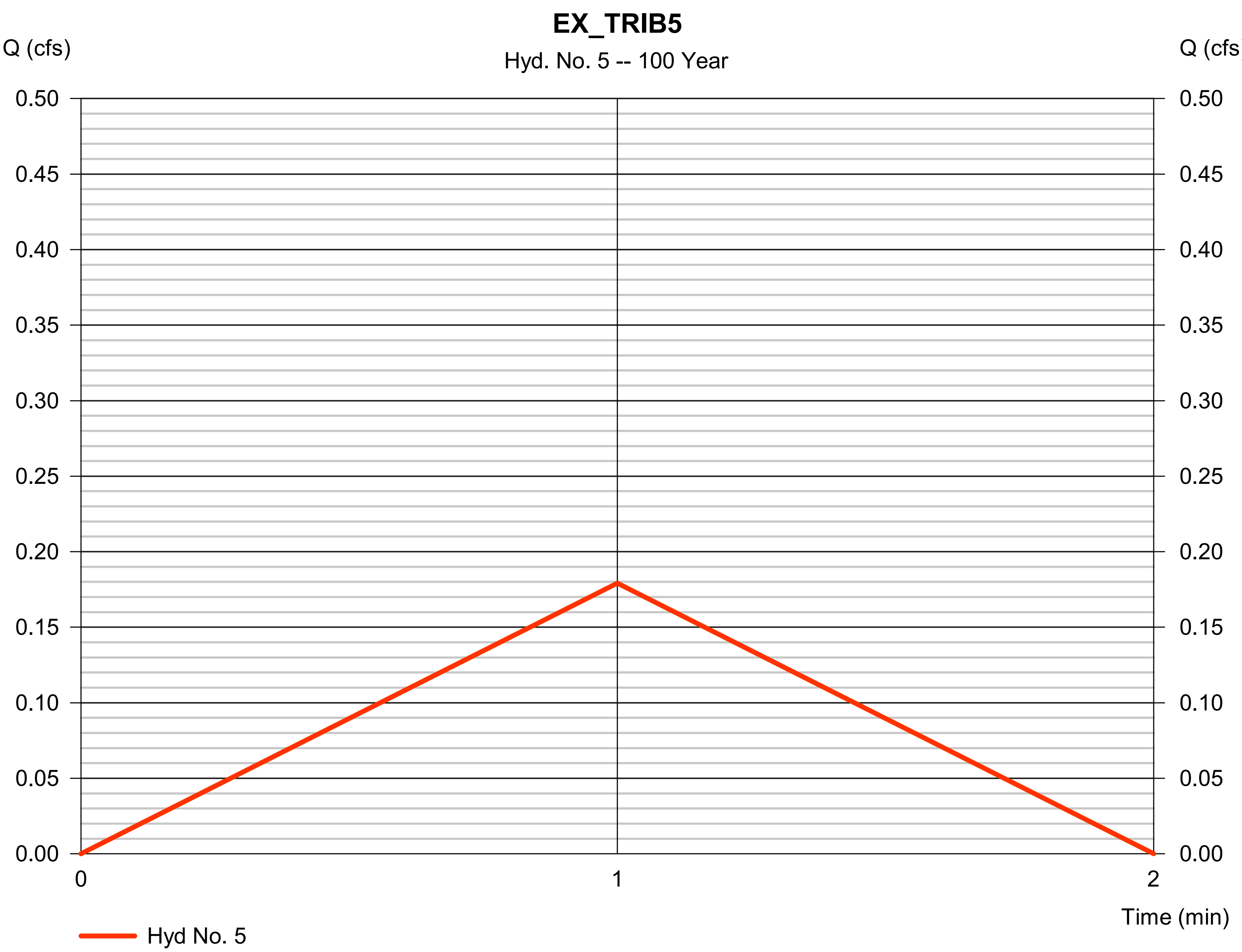
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 | Monday, 07 / 26 / 2021

Hyd. No. 5

EX_TRIB5

Hydrograph type	= Rational	Peak discharge	= 0.179 cfs
Storm frequency	= 100 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 11 cuft
Drainage area	= 0.063 ac	Runoff coeff.	= 0.2
Intensity	= 14.224 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



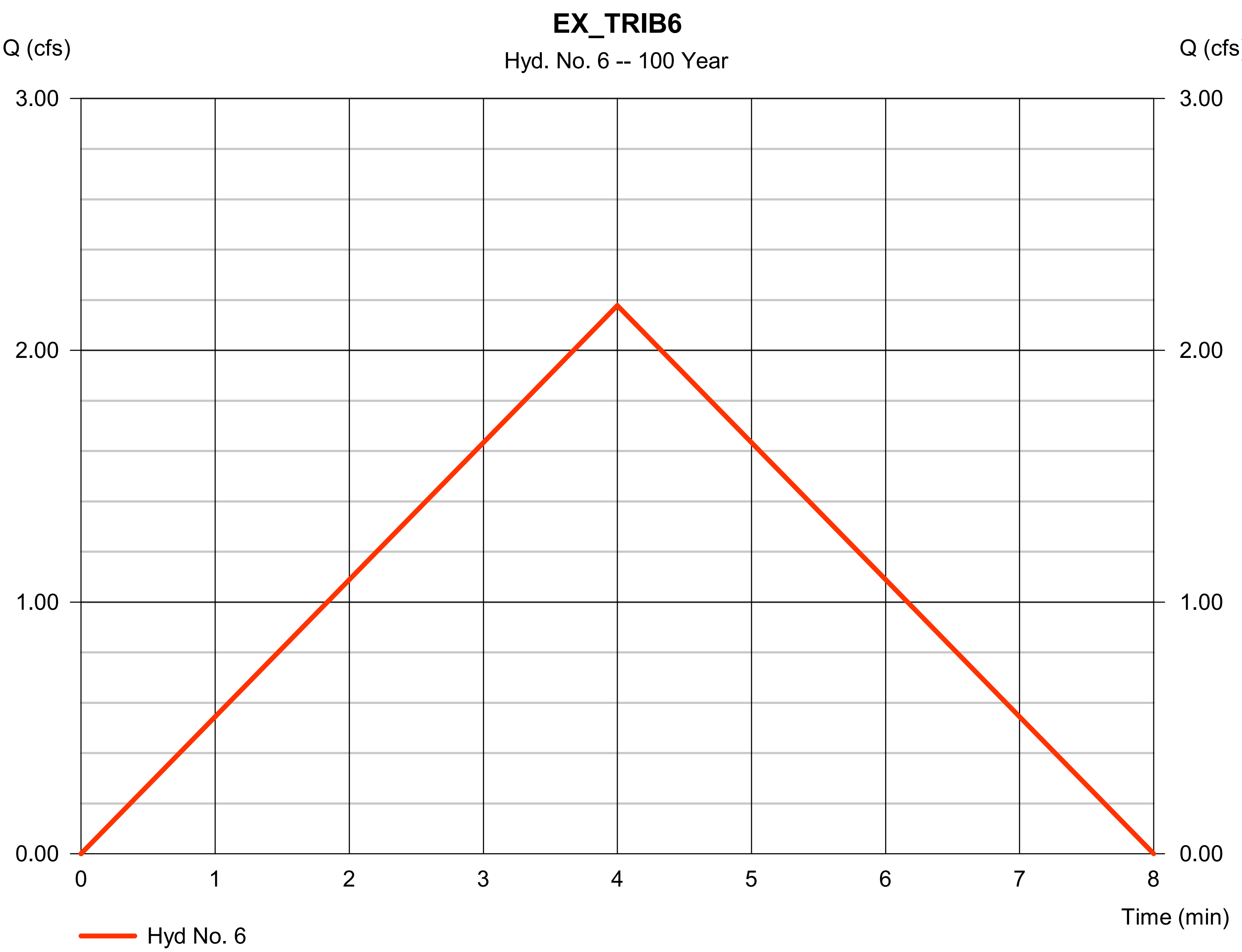
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 6

EX_TRIB6

Hydrograph type	= Rational	Peak discharge	= 2.178 cfs
Storm frequency	= 100 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 523 cuft
Drainage area	= 0.940 ac	Runoff coeff.	= 0.2
Intensity	= 11.584 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



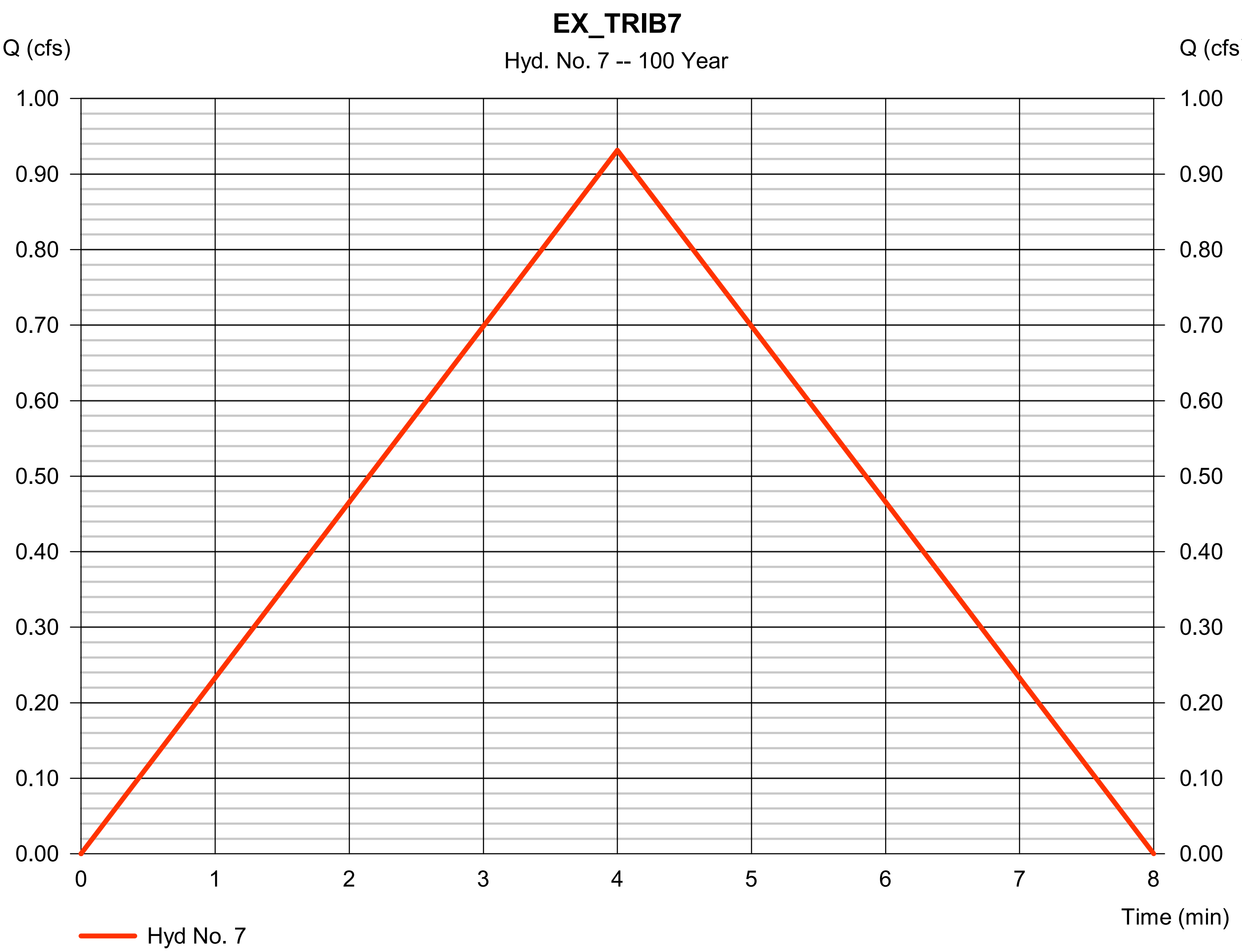
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 7

EX_TRIB7

Hydrograph type	= Rational	Peak discharge	= 0.931 cfs
Storm frequency	= 100 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 224 cuft
Drainage area	= 0.402 ac	Runoff coeff.	= 0.2
Intensity	= 11.584 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



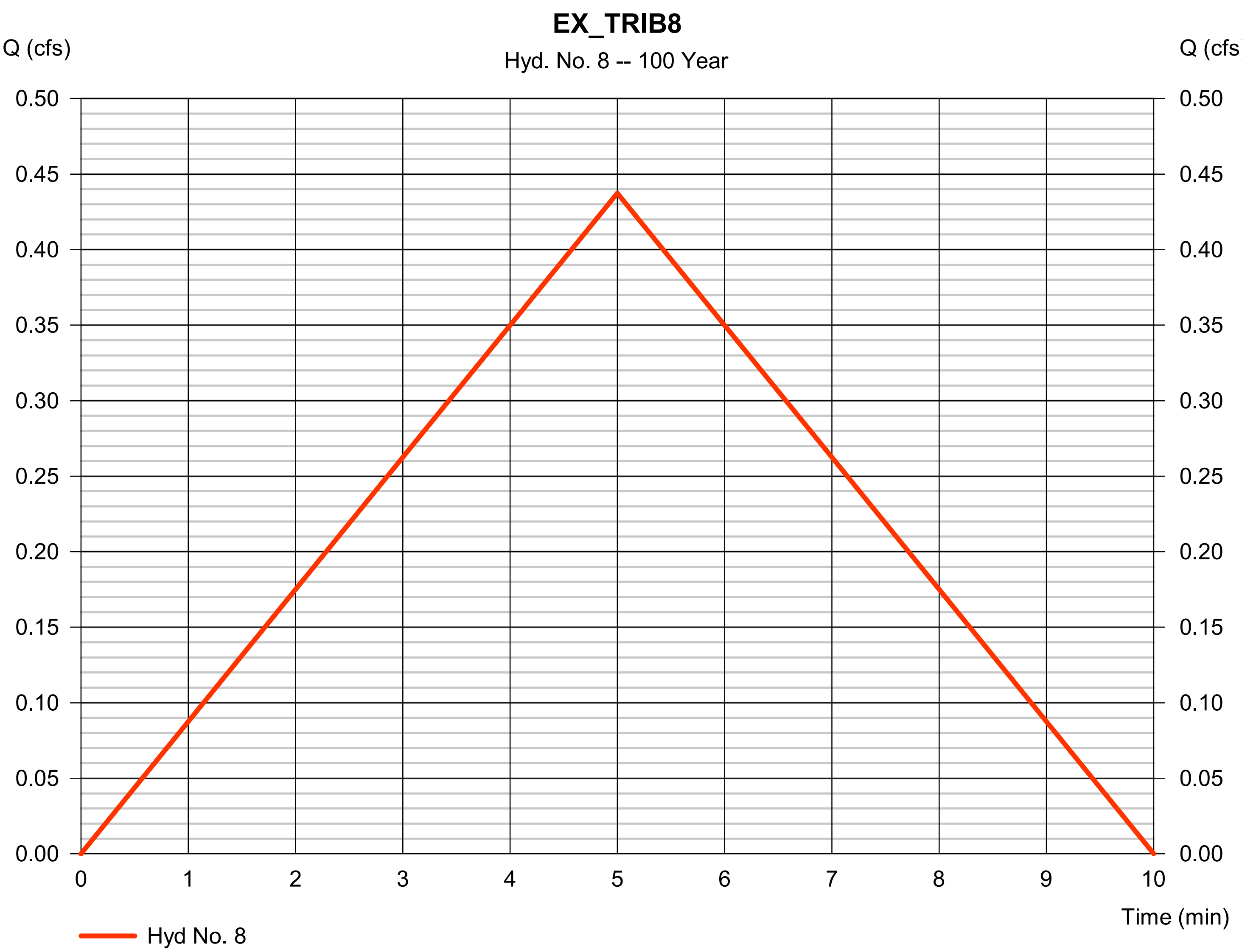
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 8

EX_TRIB8

Hydrograph type	= Rational	Peak discharge	= 0.437 cfs
Storm frequency	= 100 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 131 cuft
Drainage area	= 0.200 ac	Runoff coeff.	= 0.2
Intensity	= 10.936 in/hr	Tc by User	= 5.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



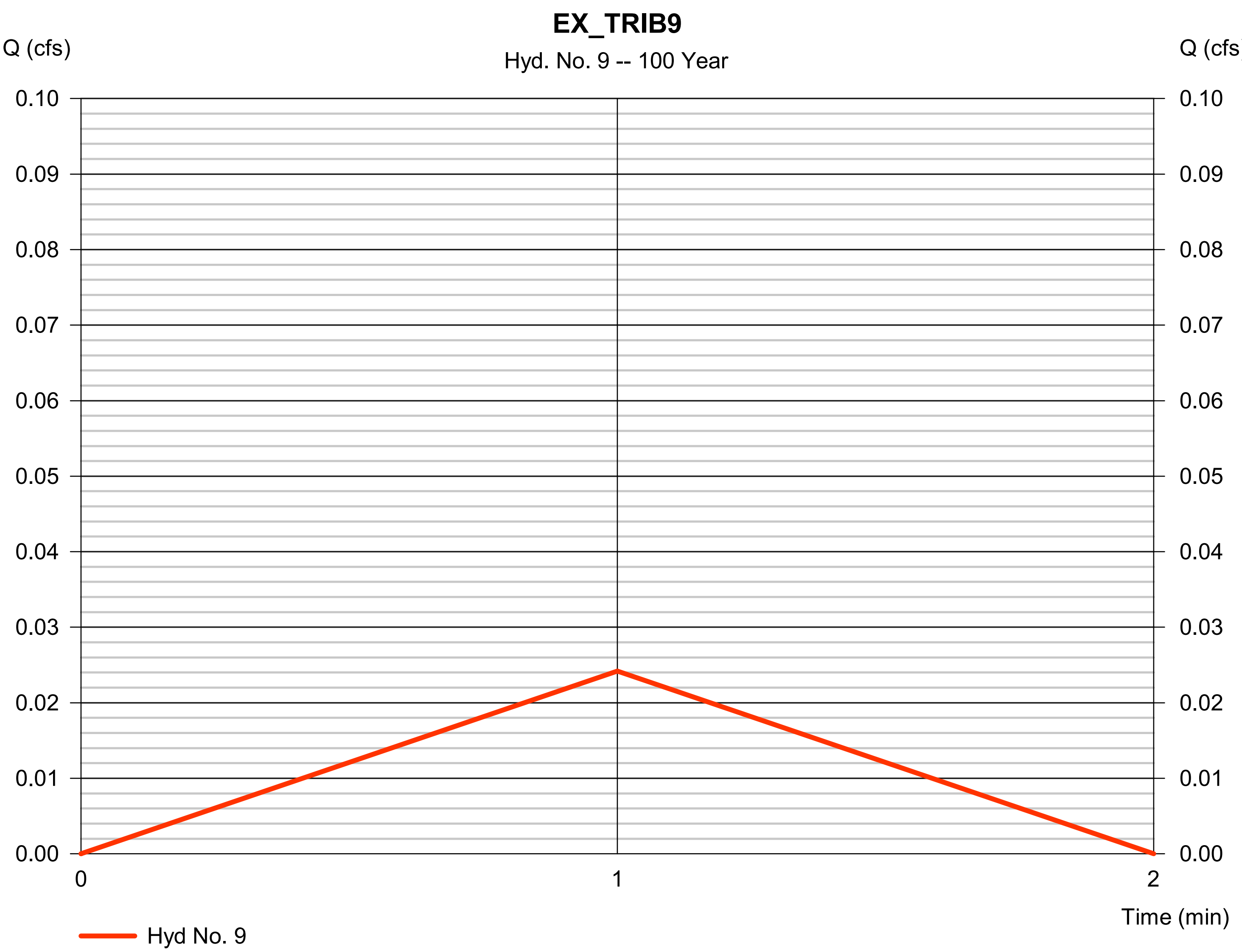
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 9

EX_TRIB9

Hydrograph type	=	Rational	Peak discharge	=	0.024 cfs
Storm frequency	=	100 yrs	Time to peak	=	1 min
Time interval	=	1 min	Hyd. volume	=	1 cuft
Drainage area	=	0.009 ac	Runoff coeff.	=	0.2
Intensity	=	14.224 in/hr	Tc by User	=	1.00 min
IDF Curve	=	MSD.IDF	Asc/Rec limb fact	=	1/1



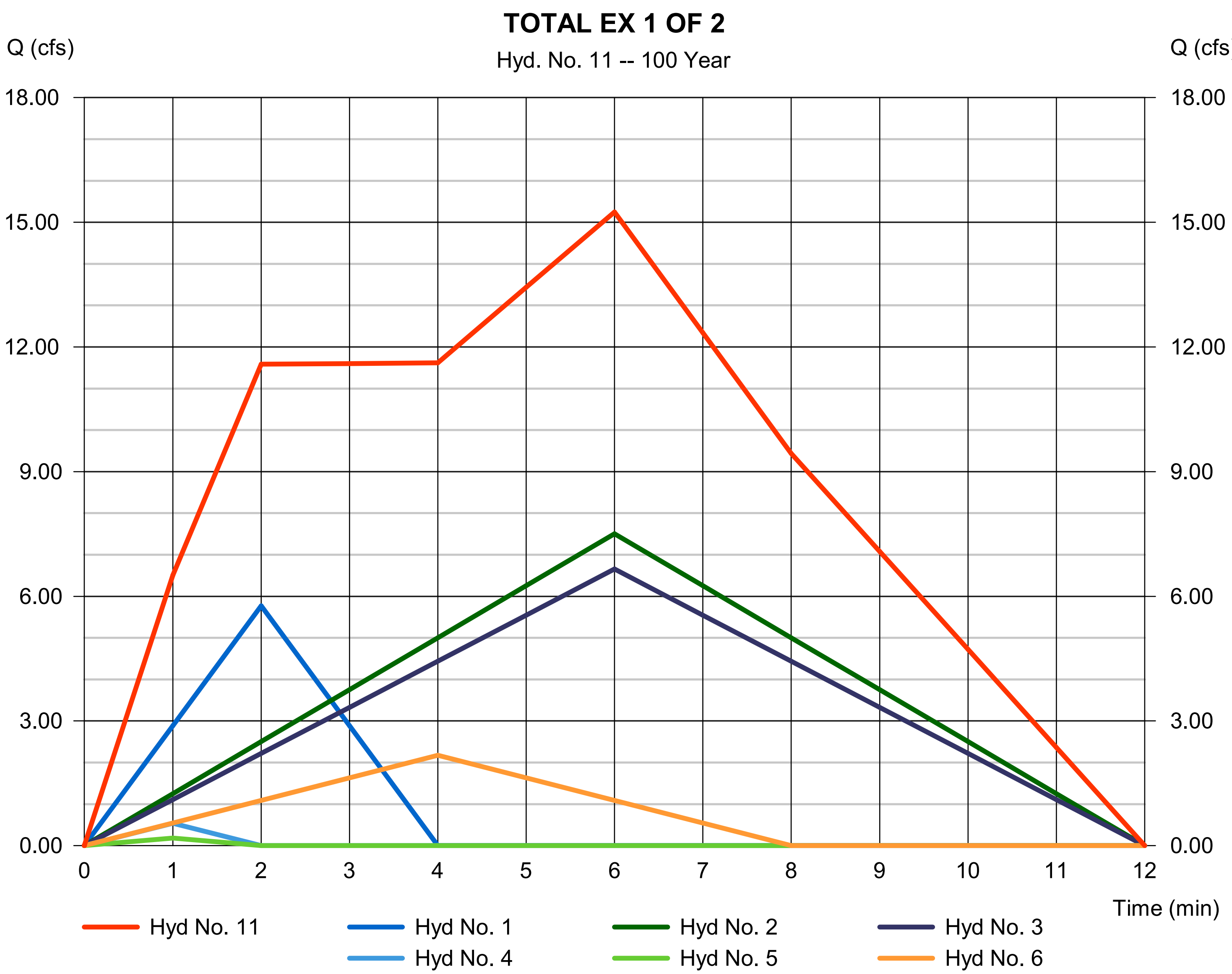
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 11

TOTAL EX 1 OF 2

Hydrograph type	= Combine	Peak discharge	= 15.25 cfs
Storm frequency	= 100 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 6,357 cuft
Inflow hyds.	= 1, 2, 3, 4, 5, 6	Contrib. drain. area	= 9.773 ac



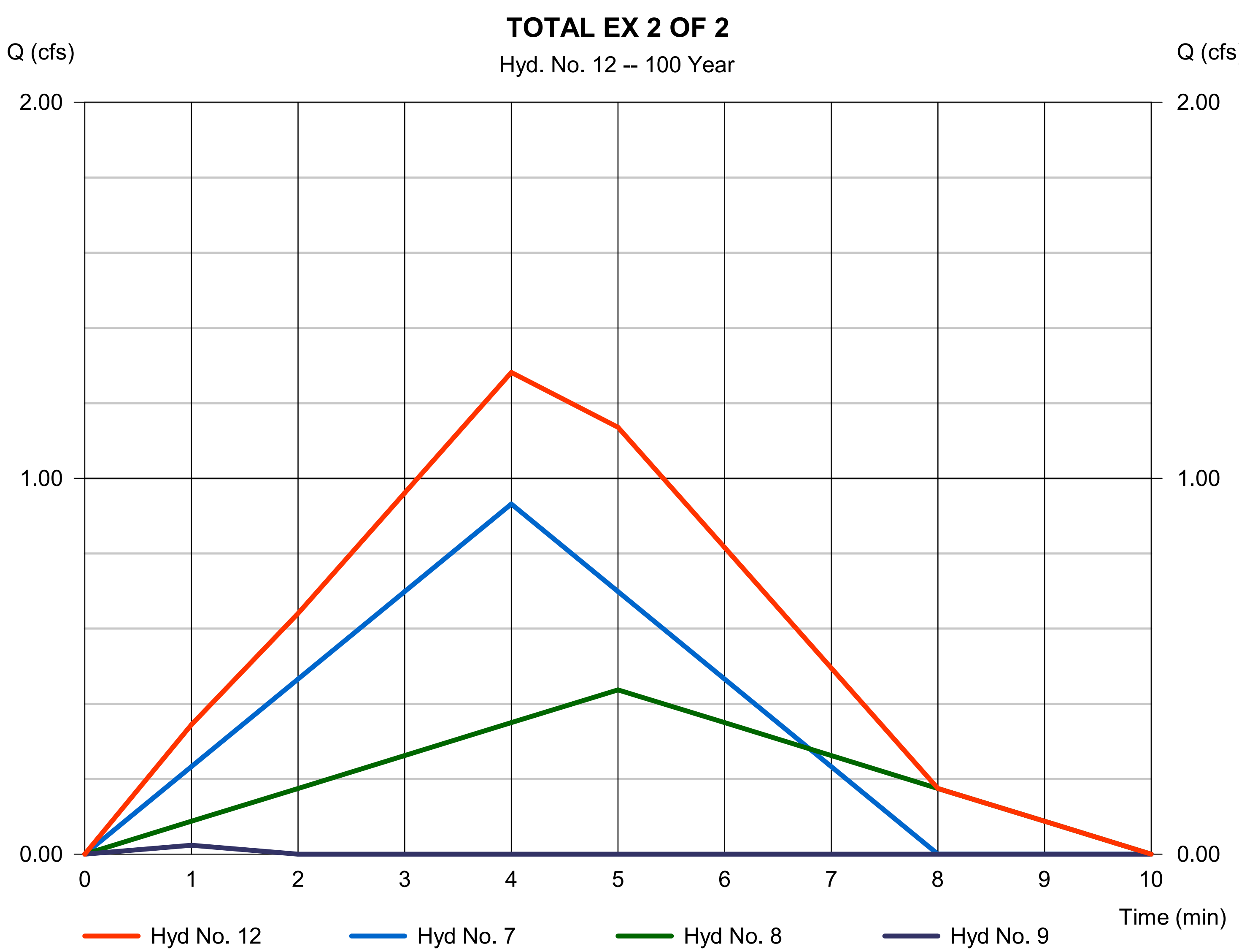
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 12

TOTAL EX 2 OF 2

Hydrograph type	= Combine	Peak discharge	= 1.281 cfs
Storm frequency	= 100 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 356 cuft
Inflow hyds.	= 7, 8, 9	Contrib. drain. area	= 0.610 ac

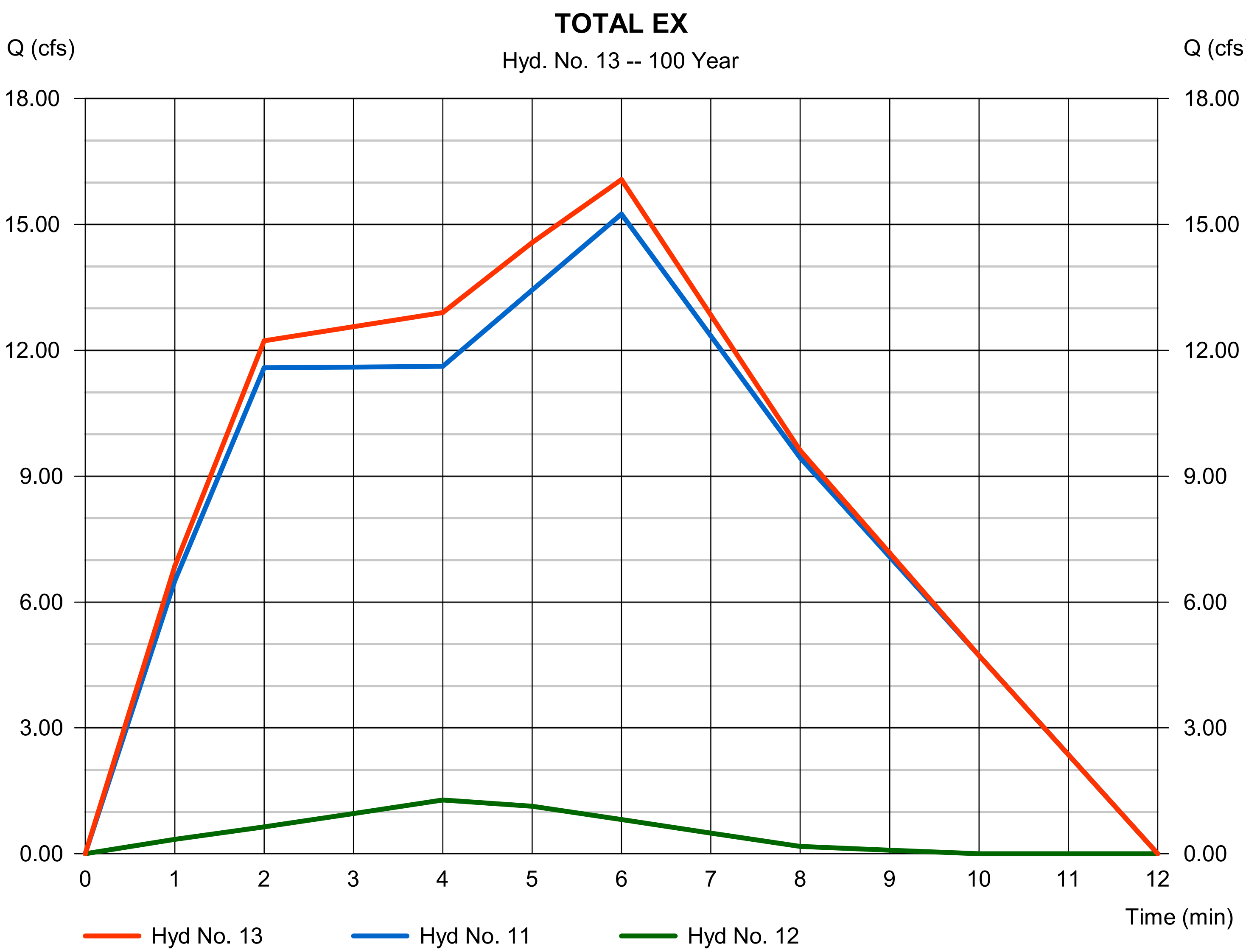


Hydrograph Report

Hyd. No. 13

TOTAL EX

Hydrograph type	= Combine	Peak discharge	= 16.07 cfs
Storm frequency	= 100 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 6,713 cuft
Inflow hyds.	= 11, 12	Contrib. drain. area	= 0.000 ac



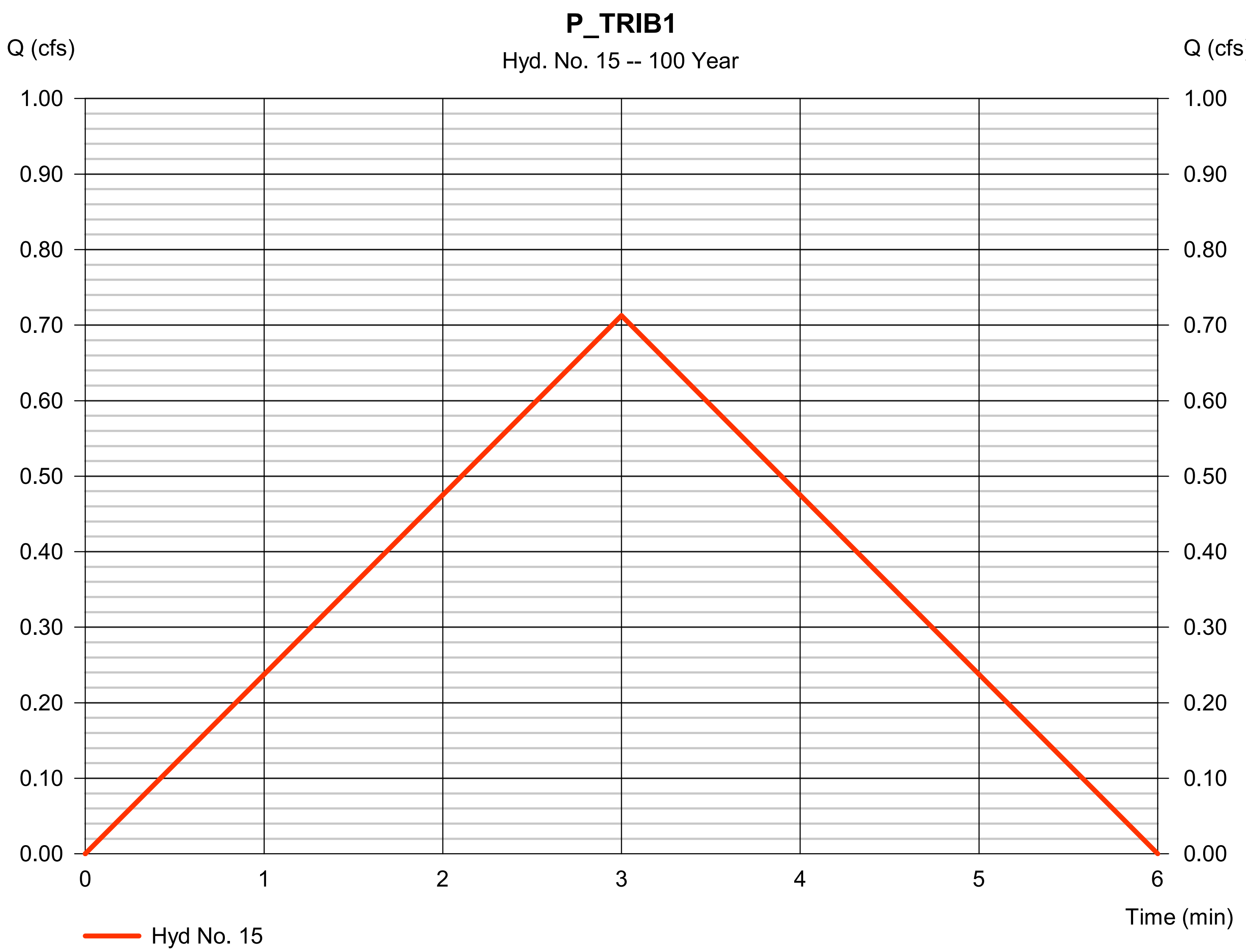
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 15

P_TRIB1

Hydrograph type	= Rational	Peak discharge	= 0.713 cfs
Storm frequency	= 100 yrs	Time to peak	= 3 min
Time interval	= 1 min	Hyd. volume	= 128 cuft
Drainage area	= 0.289 ac	Runoff coeff.	= 0.2
Intensity	= 12.330 in/hr	Tc by User	= 3.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



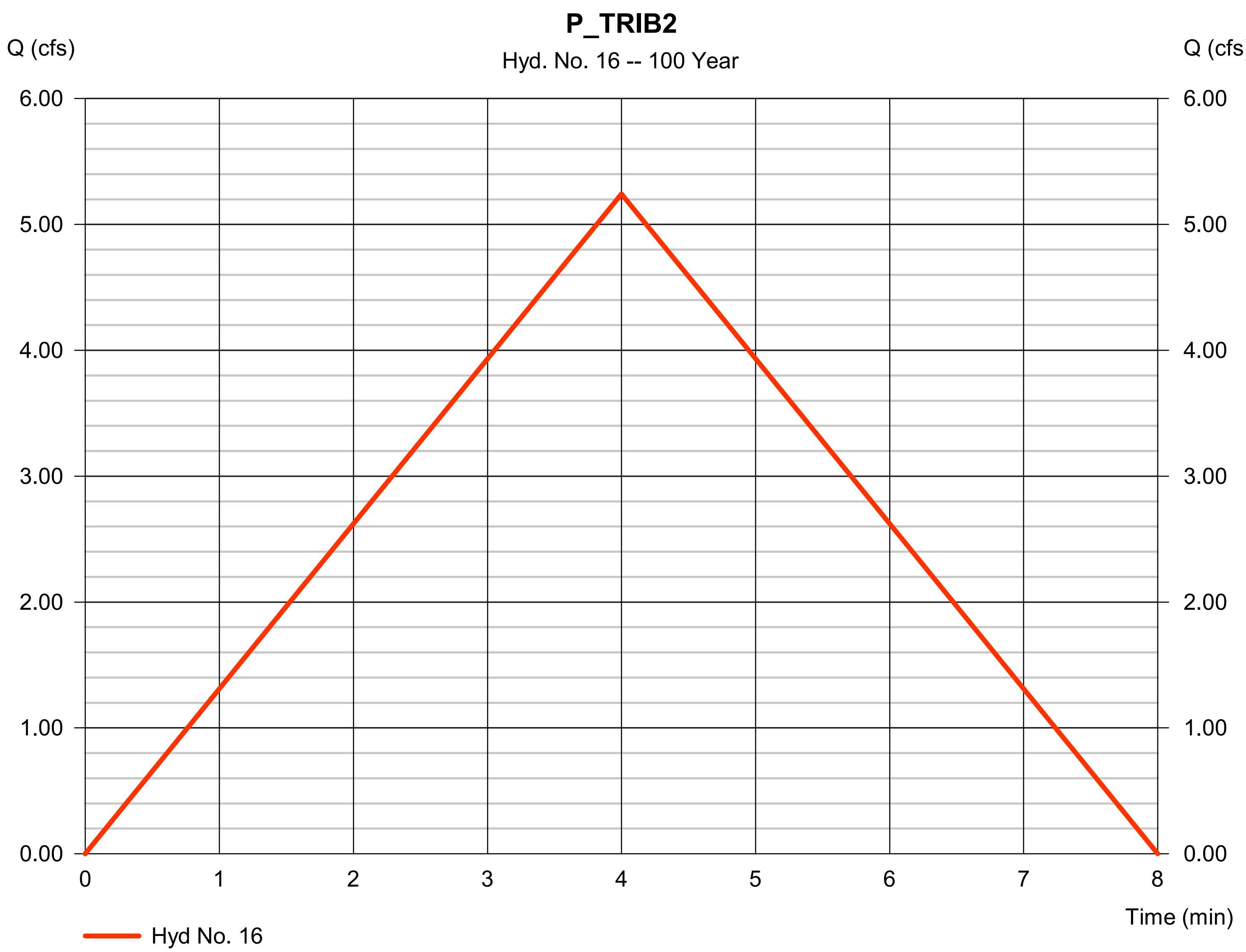
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 | Monday, 07 / 26 / 2021

Hyd. No. 16

P_TRIB2

Hydrograph type	= Rational	Peak discharge	= 5.243 cfs
Storm frequency	= 100 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 1,258 cuft
Drainage area	= 2.263 ac	Runoff coeff.	= 0.2
Intensity	= 11.584 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



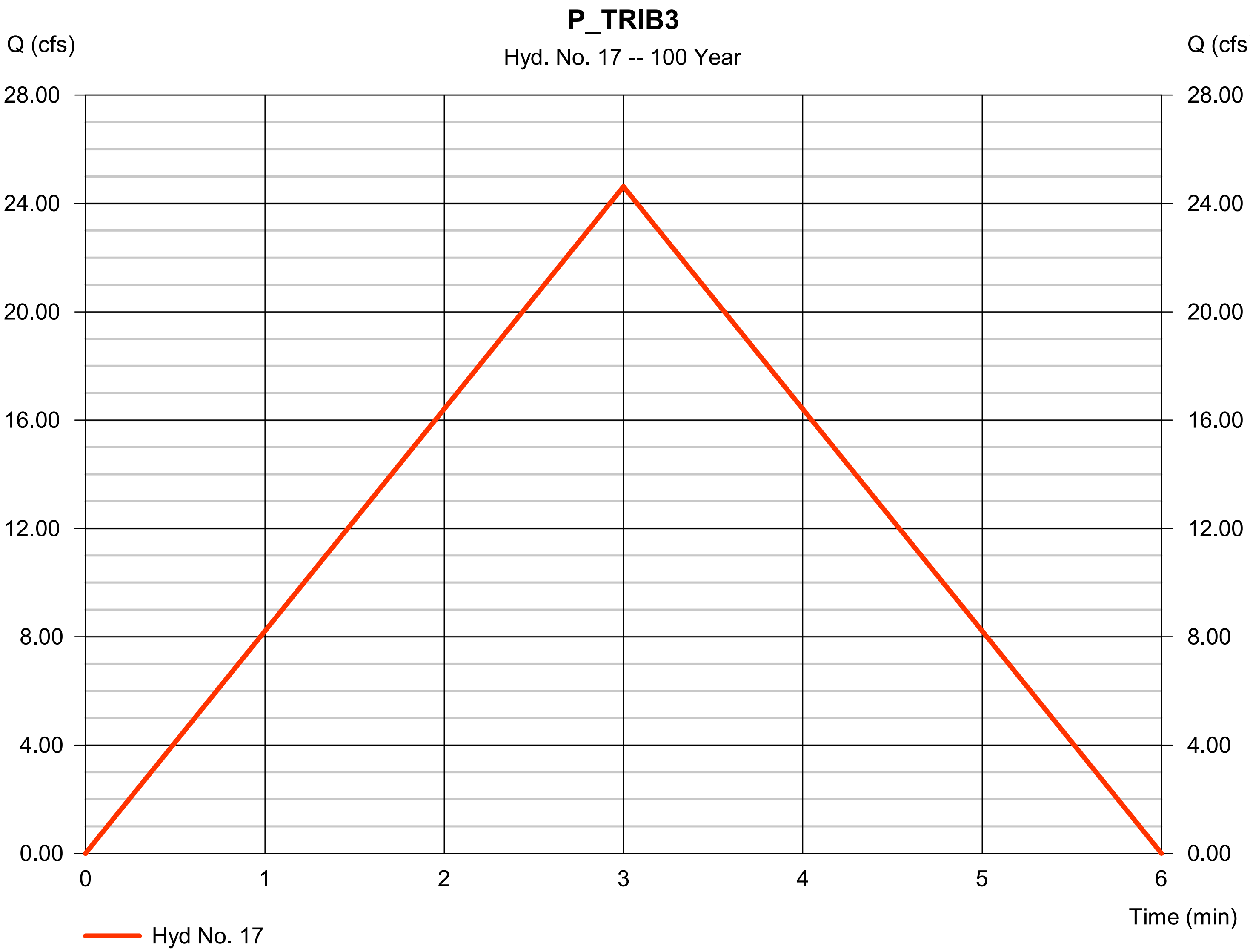
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 17

P_TRIB3

Hydrograph type	= Rational	Peak discharge	= 24.62 cfs
Storm frequency	= 100 yrs	Time to peak	= 3 min
Time interval	= 1 min	Hyd. volume	= 4,432 cuft
Drainage area	= 2.937 ac	Runoff coeff.	= 0.68
Intensity	= 12.330 in/hr	Tc by User	= 3.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1

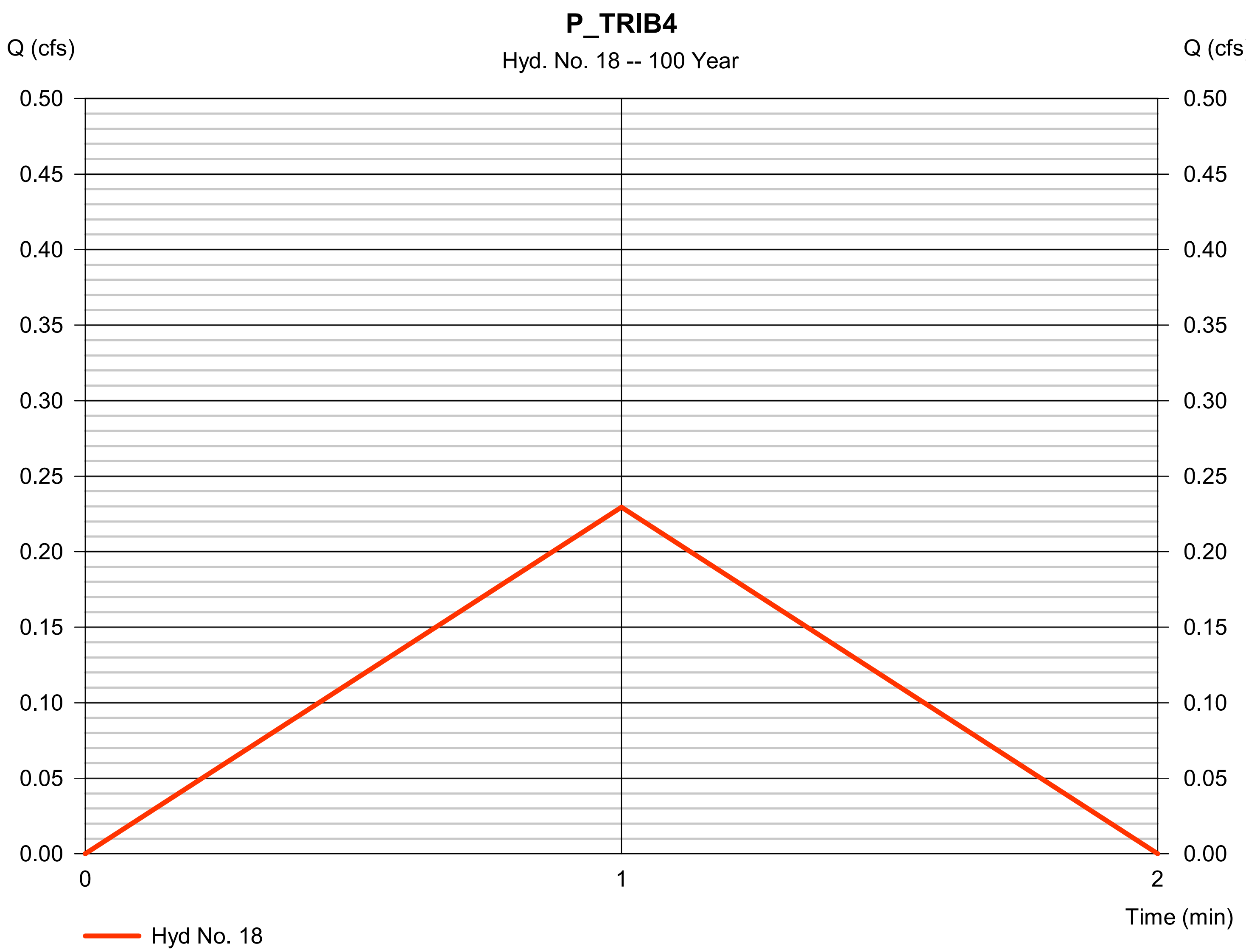


Hydrograph Report

Hyd. No. 18

P_TRIB4

Hydrograph type	= Rational	Peak discharge	= 0.230 cfs
Storm frequency	= 100 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 14 cuft
Drainage area	= 0.081 ac	Runoff coeff.	= 0.2
Intensity	= 14.224 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



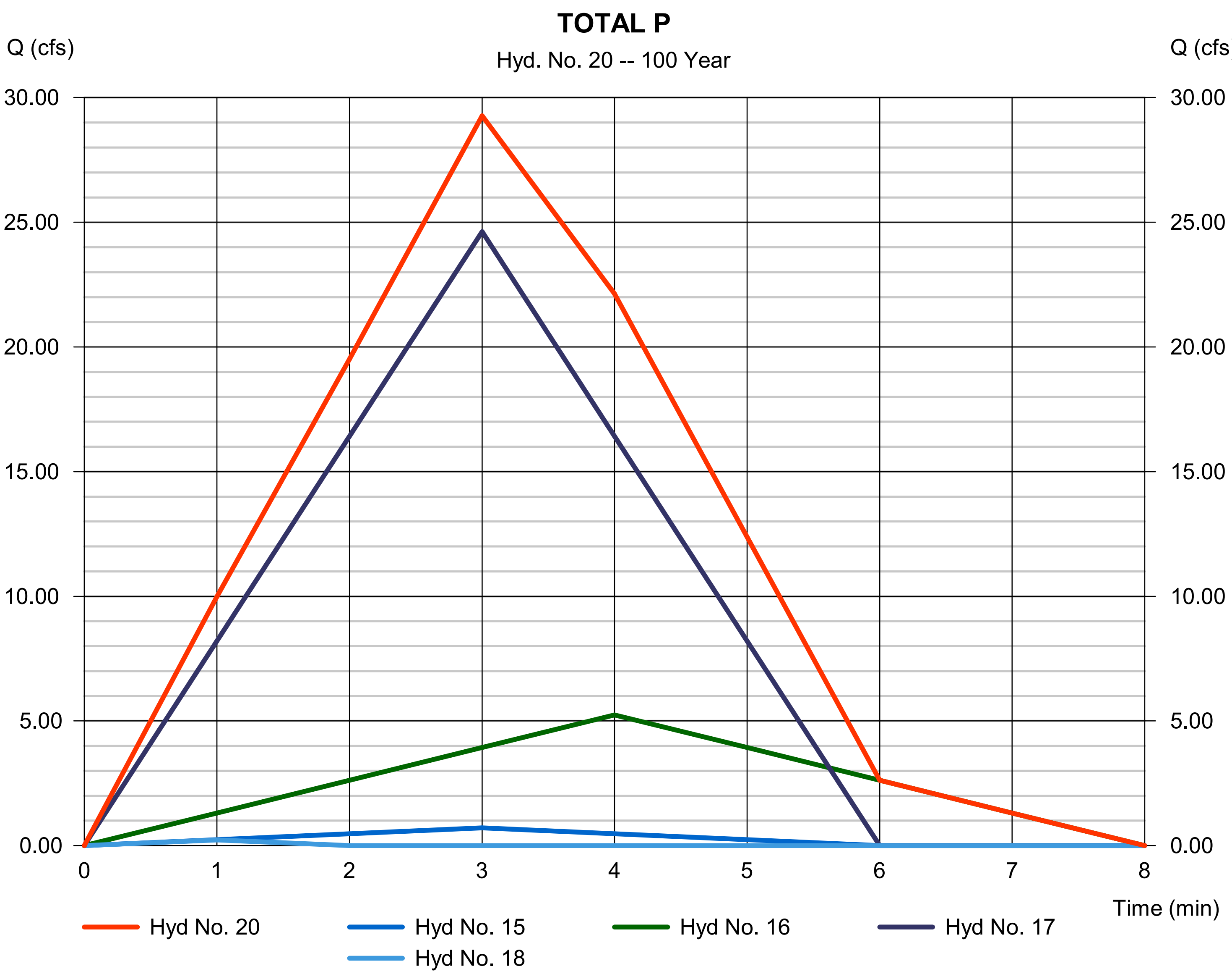
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 20

TOTAL P

Hydrograph type	= Combine	Peak discharge	= 29.27 cfs
Storm frequency	= 100 yrs	Time to peak	= 3 min
Time interval	= 1 min	Hyd. volume	= 5,833 cuft
Inflow hyds.	= 15, 16, 17, 18	Contrib. drain. area	= 5.570 ac



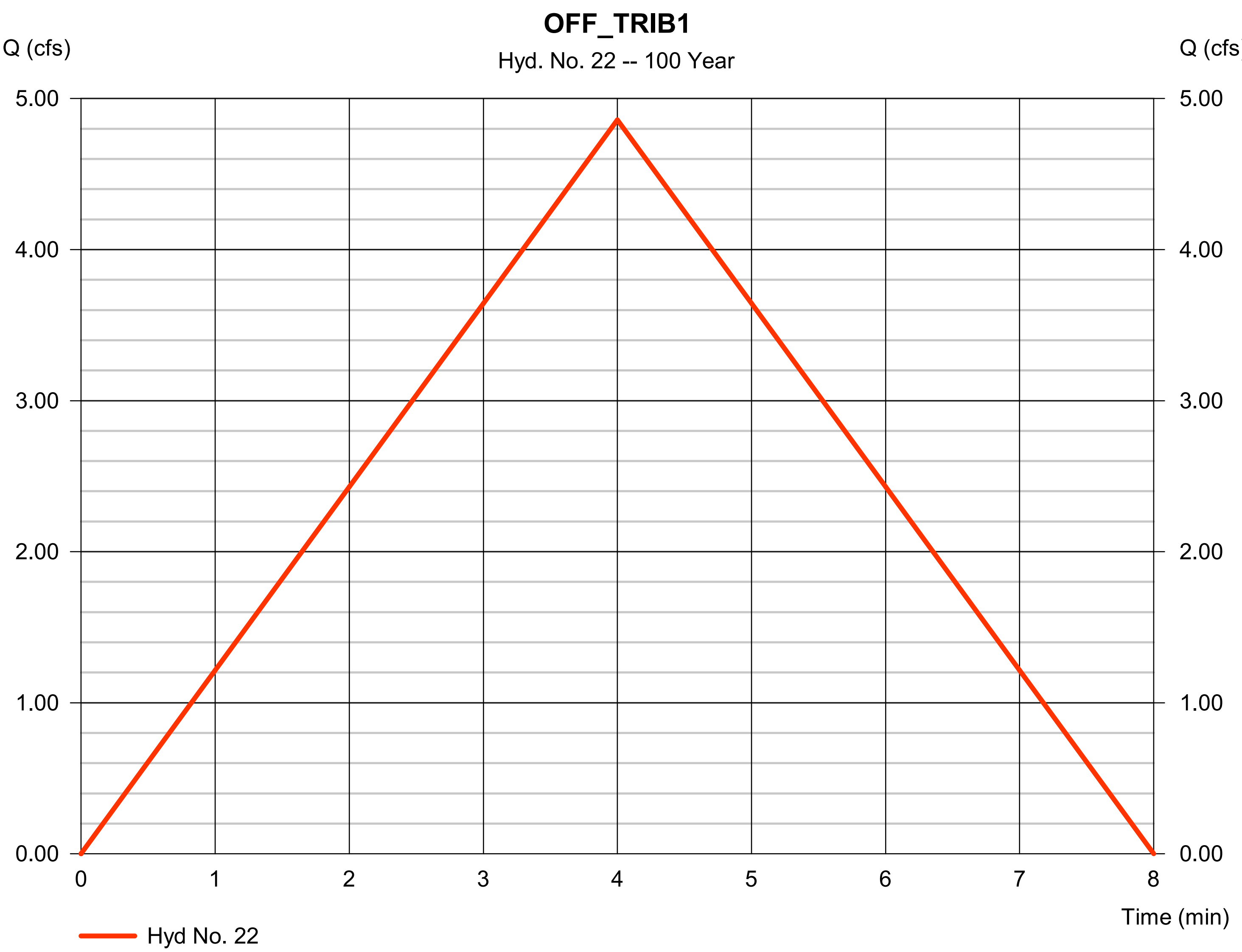
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 22

OFF_TRIB1

Hydrograph type	= Rational	Peak discharge	= 4.858 cfs
Storm frequency	= 100 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 1,166 cuft
Drainage area	= 0.466 ac	Runoff coeff.	= 0.9
Intensity	= 11.584 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



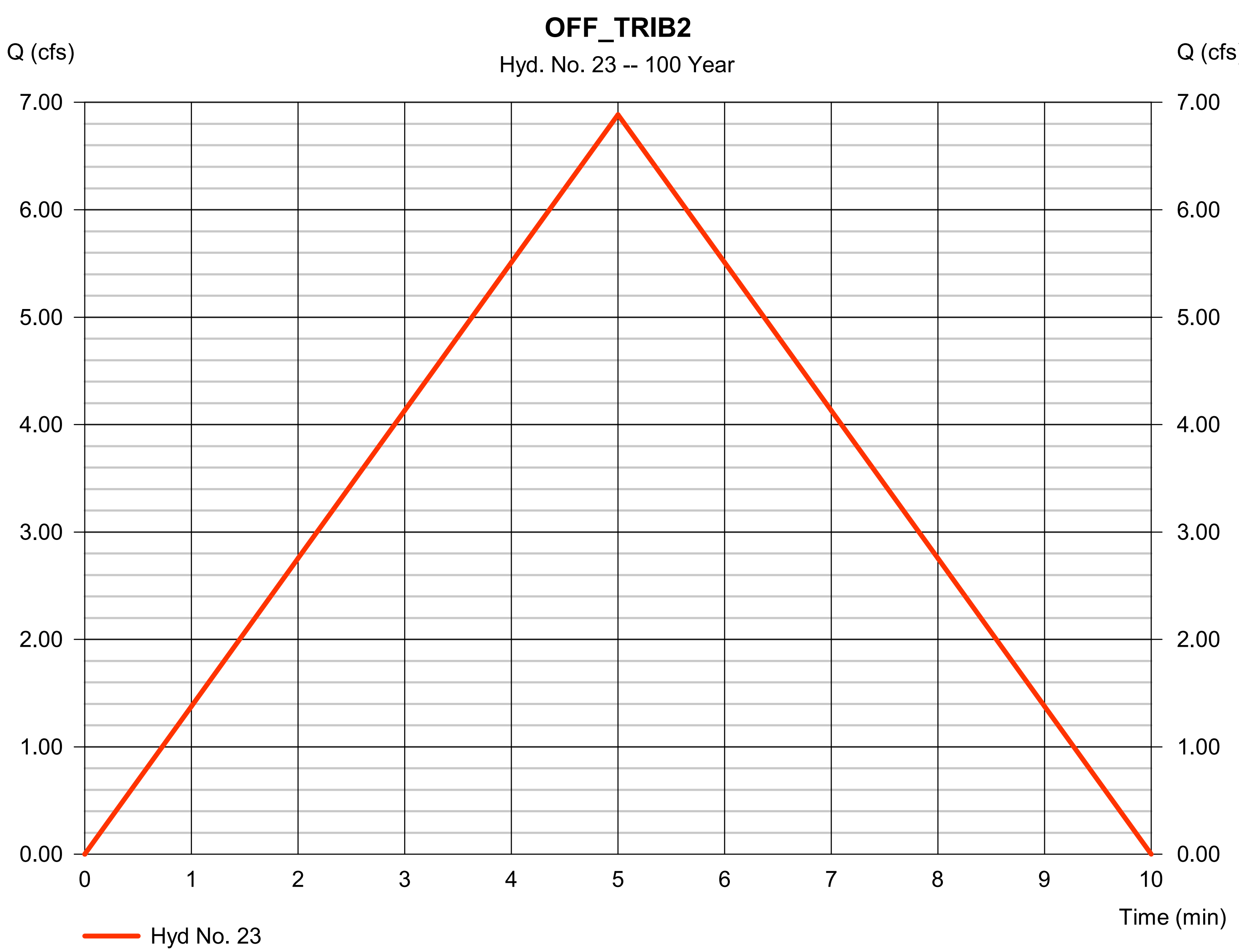
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 23

OFF_TRIB2

Hydrograph type	= Rational	Peak discharge	= 6.885 cfs
Storm frequency	= 100 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 2,066 cuft
Drainage area	= 3.148 ac	Runoff coeff.	= 0.2
Intensity	= 10.936 in/hr	Tc by User	= 5.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



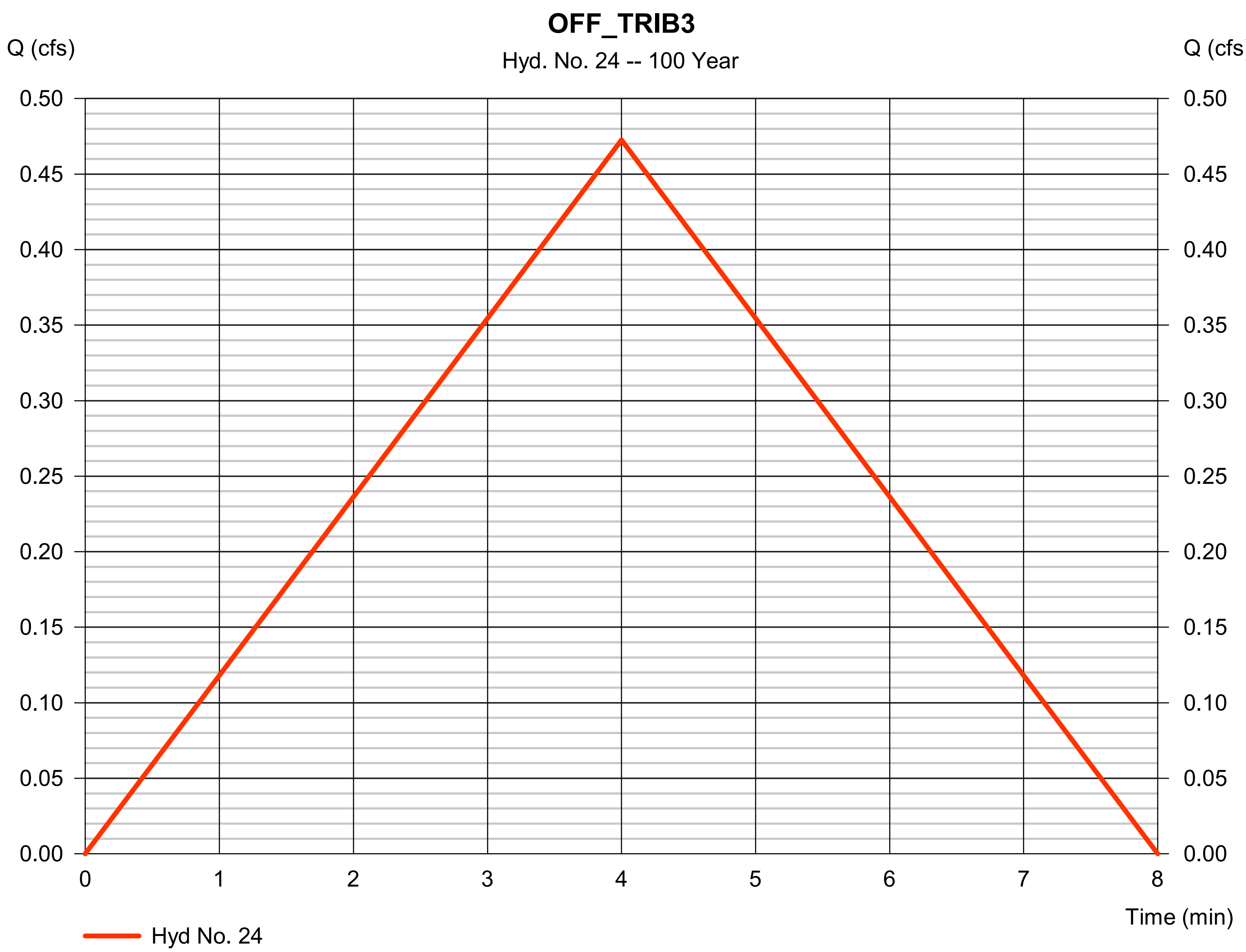
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 24

OFF_TRIB3

Hydrograph type	= Rational	Peak discharge	= 0.473 cfs
Storm frequency	= 100 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 113 cuft
Drainage area	= 0.204 ac	Runoff coeff.	= 0.2
Intensity	= 11.584 in/hr	Tc by User	= 4.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



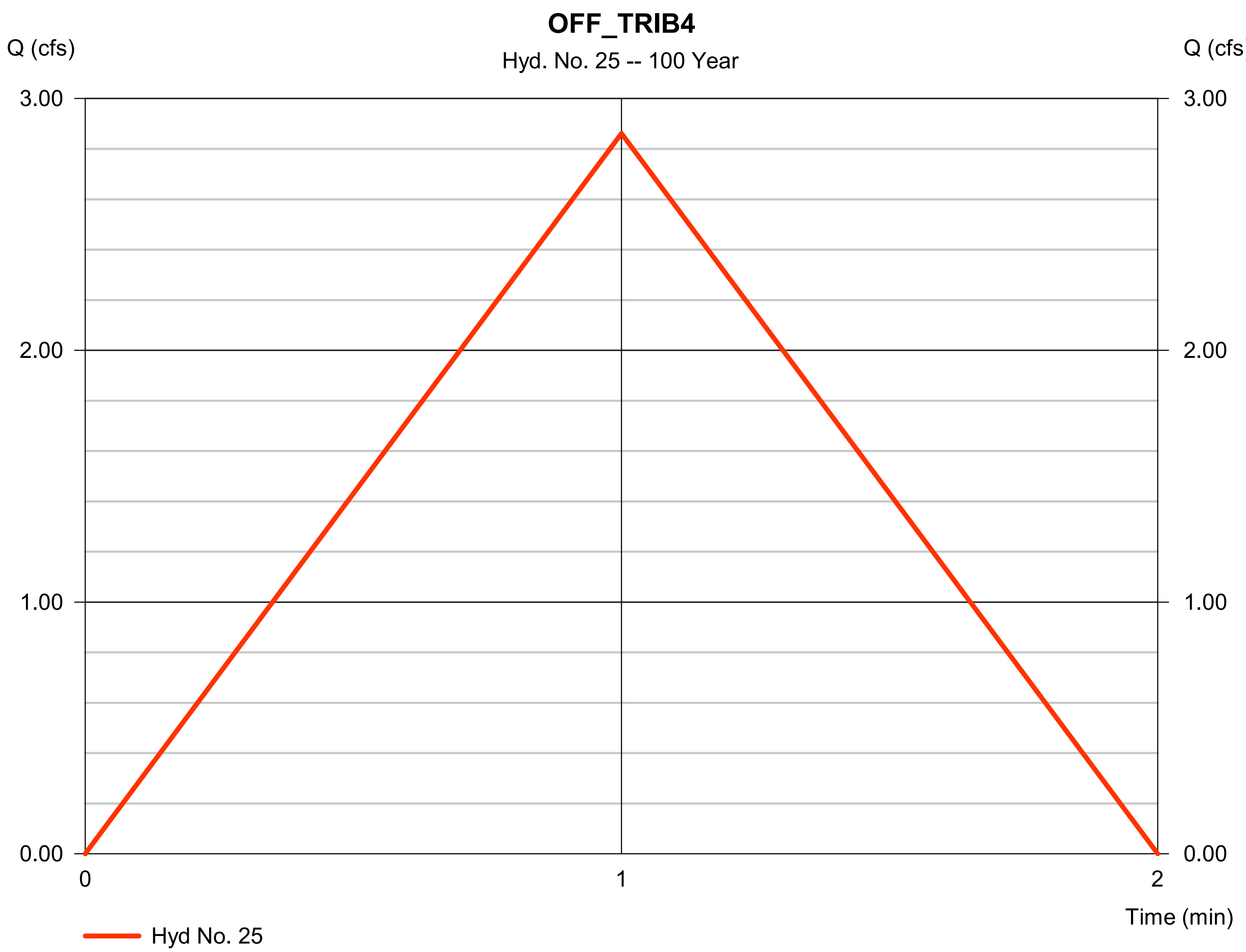
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 25

OFF_TRIB4

Hydrograph type	= Rational	Peak discharge	= 2.862 cfs
Storm frequency	= 100 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 172 cuft
Drainage area	= 1.006 ac	Runoff coeff.	= 0.2
Intensity	= 14.224 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



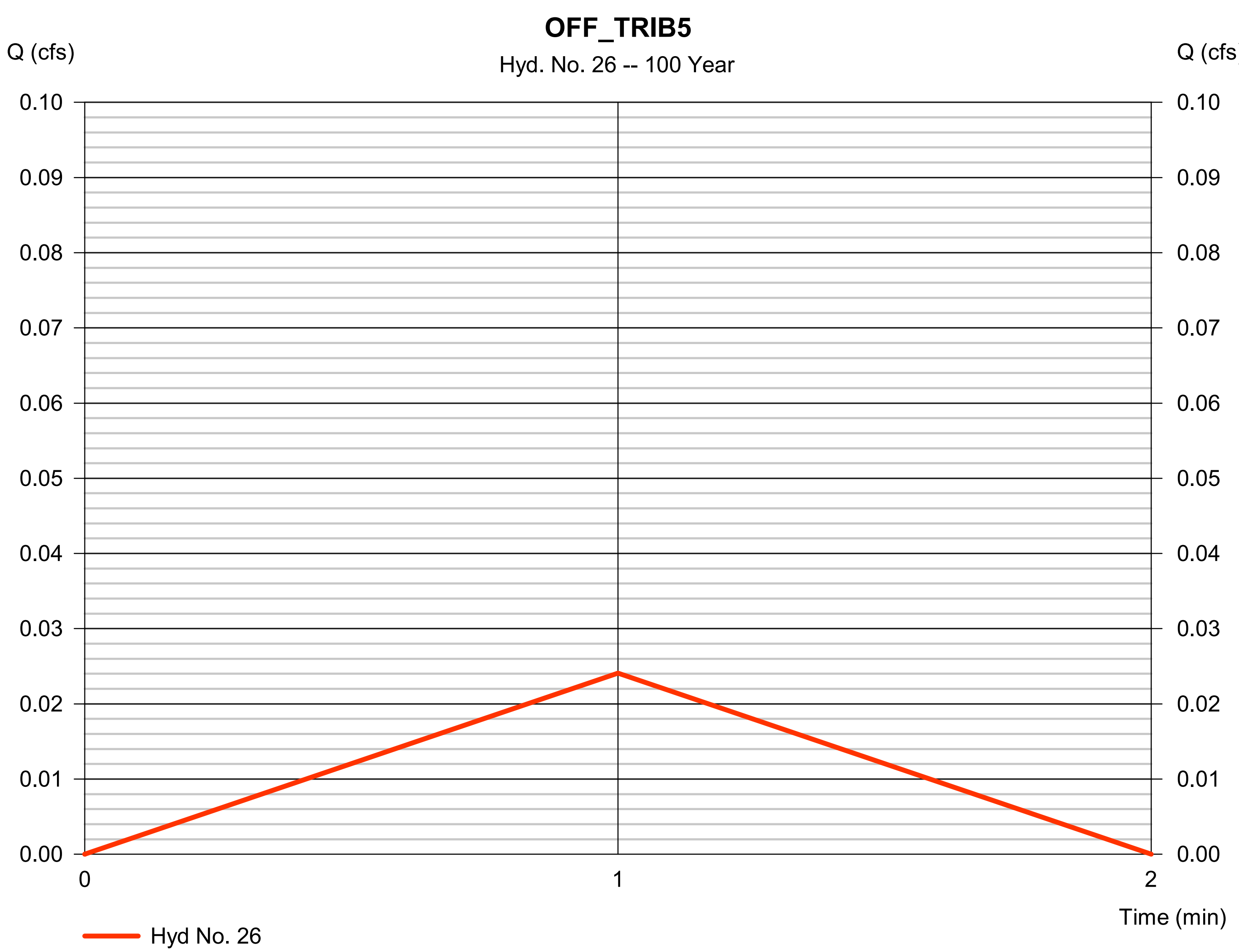
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 26

OFF_TRIB5

Hydrograph type	= Rational	Peak discharge	= 0.024 cfs
Storm frequency	= 100 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 1 cuft
Drainage area	= 0.008 ac	Runoff coeff.	= 0.2
Intensity	= 14.224 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



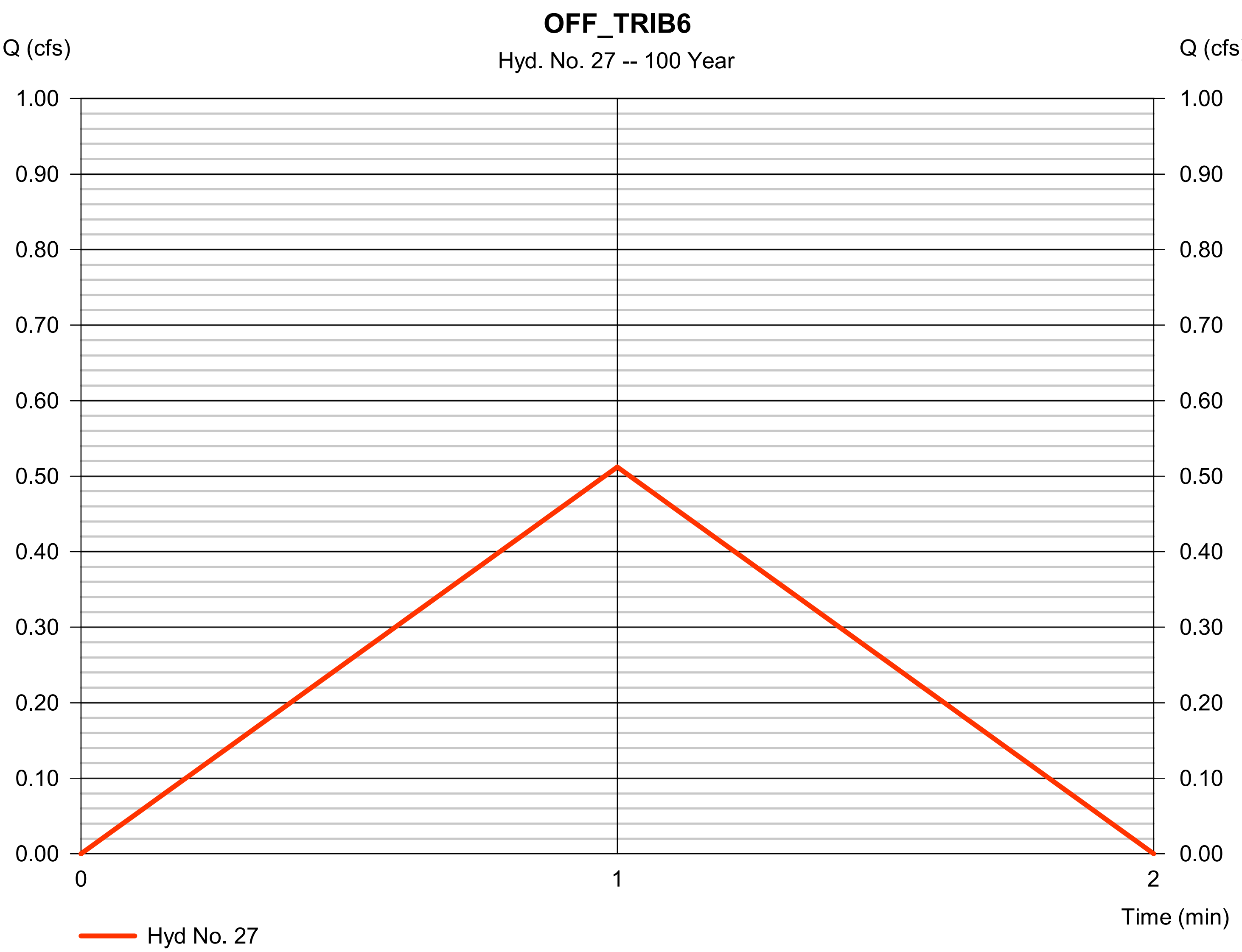
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 27

OFF_TRIB6

Hydrograph type	= Rational	Peak discharge	= 0.512 cfs
Storm frequency	= 100 yrs	Time to peak	= 1 min
Time interval	= 1 min	Hyd. volume	= 31 cuft
Drainage area	= 0.180 ac	Runoff coeff.	= 0.2
Intensity	= 14.224 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1



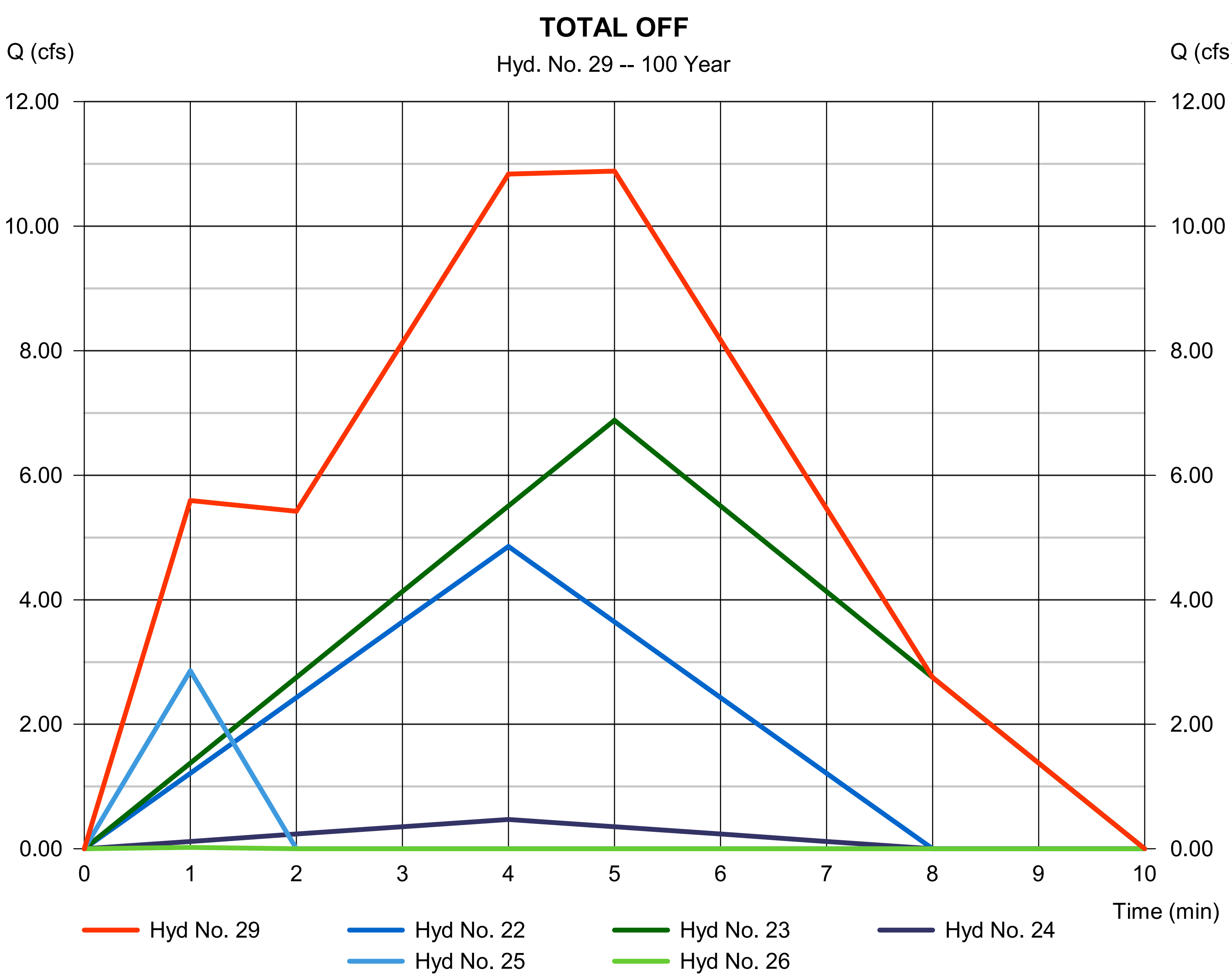
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Hyd. No. 29

TOTAL OFF

Hydrograph type	= Combine	Peak discharge	= 10.88 cfs
Storm frequency	= 100 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 3,518 cuft
Inflow hyds.	= 22, 23, 24, 25, 26	Contrib. drain. area	= 4.832 ac



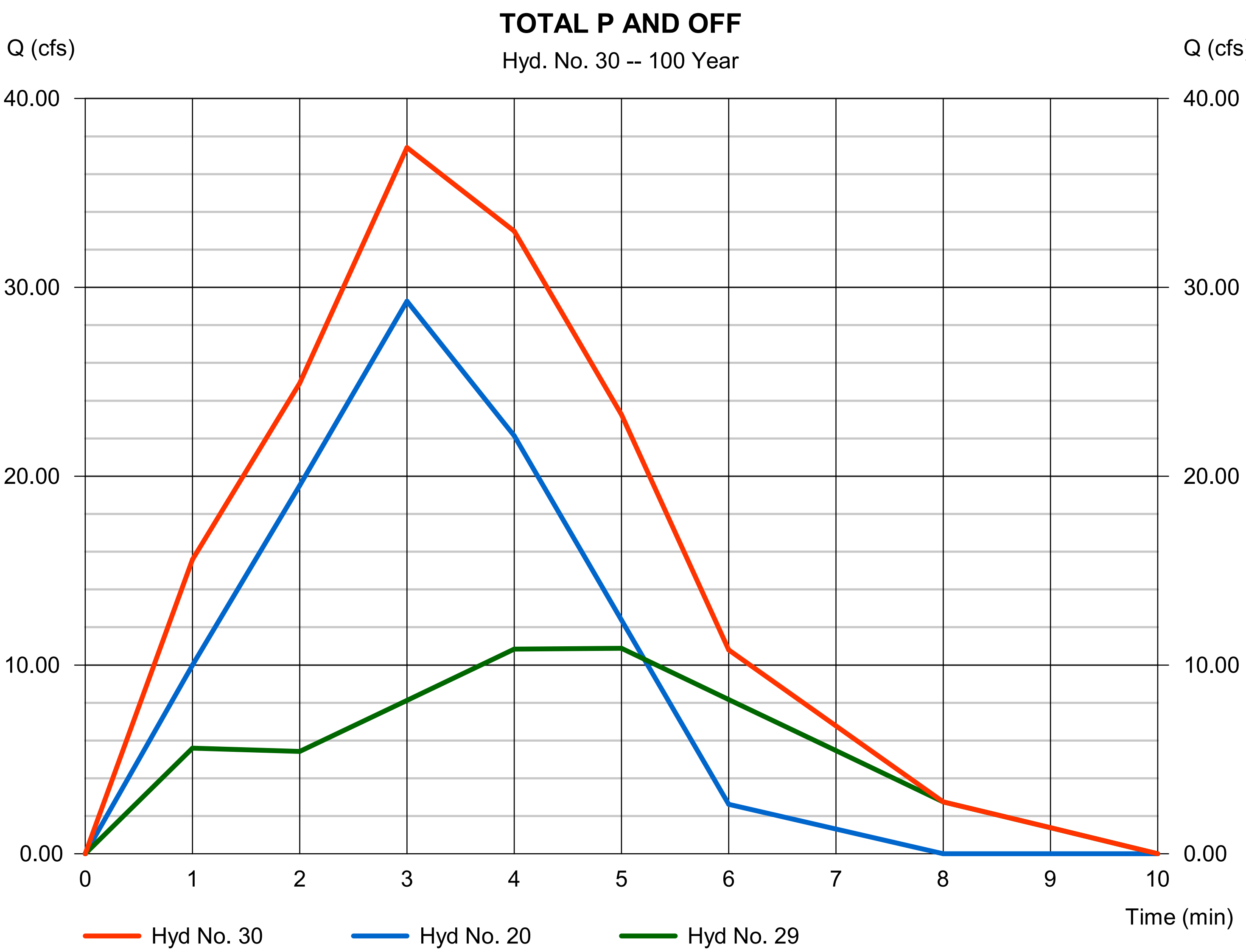
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 30

TOTAL P AND OFF

Hydrograph type	= Combine	Peak discharge	= 37.40 cfs
Storm frequency	= 100 yrs	Time to peak	= 3 min
Time interval	= 1 min	Hyd. volume	= 9,351 cuft
Inflow hyds.	= 20, 29	Contrib. drain. area	= 0.000 ac



Hydrograph Report

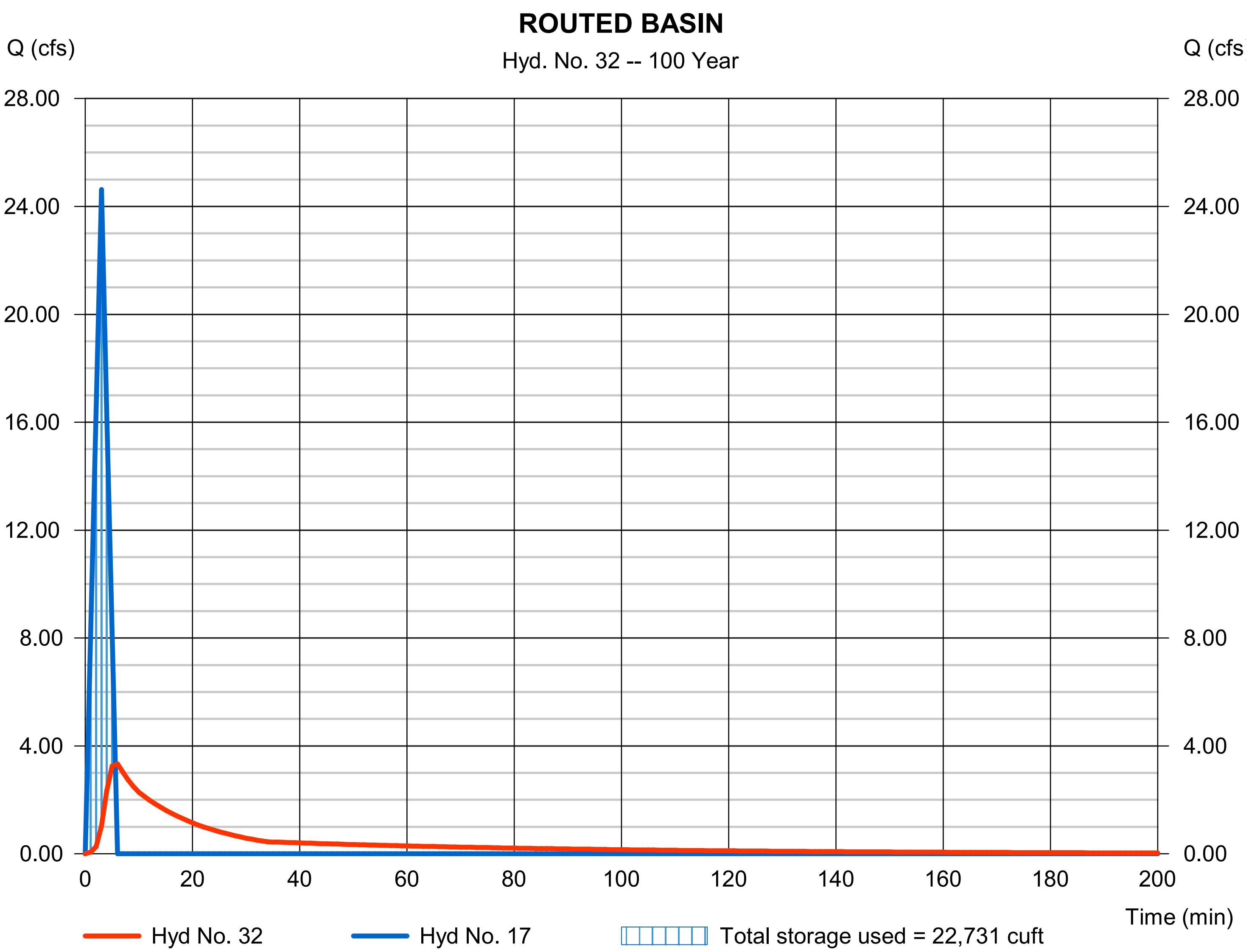
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 32

ROUTED BASIN

Hydrograph type	= Reservoir	Peak discharge	= 3.328 cfs
Storm frequency	= 100 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 4,429 cuft
Inflow hyd. No.	= 17 - P_TRIB3	Max. Elevation	= 471.94 ft
Reservoir name	= BMP 1	Max. Storage	= 22,731 cuft

Storage Indication method used. Wet pond routing start elevation = 471.70 ft.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 — Monday, 07 / 26 / 2021

Pond No. 1 - BMP 1

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 470.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	470.00	1,693	0	0
1.00	471.00	15,086	7,277	7,277
2.00	472.00	17,923	16,482	23,759
3.00	473.00	23,226	20,515	44,275

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	Inactive	Inactive	0.00
Span (in)	= 18.00	1.25	8.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 468.40	470.01	471.25	0.00
Length (ft)	= 40.00	0.00	0.00	0.00
Slope (%)	= 1.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	0.00	0.00	0.00
Crest El. (ft)	= 471.75	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
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).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	470.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.10	728	470.10	6.73 oc	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.20	1,455	470.20	6.73 oc	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.30	2,183	470.30	6.73 oc	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.40	2,911	470.40	6.73 oc	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.50	3,638	470.50	6.73 oc	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.60	4,366	470.60	6.73 oc	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.70	5,094	470.70	6.73 oc	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.80	5,821	470.80	6.73 oc	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.90	6,549	470.90	6.73 oc	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.00	7,277	471.00	6.73 oc	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.10	8,925	471.10	6.73 oc	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.20	10,573	471.20	6.73 oc	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.30	12,222	471.30	6.73 oc	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.40	13,870	471.40	6.73 oc	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.50	15,518	471.50	6.73 oc	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.60	17,166	471.60	6.73 oc	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.70	18,815	471.70	6.73 oc	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.80	20,463	471.80	6.73 oc	0.00	0.00	---	0.45	---	---	---	---	---	0.447
1.90	22,111	471.90	6.73 oc	0.00	0.00	---	2.32	---	---	---	---	---	2.323
2.00	23,759	472.00	6.73 oc	0.00	0.00	---	4.99	---	---	---	---	---	4.995
2.10	25,811	472.10	8.27 oc	0.00	0.00	---	8.27	---	---	---	---	---	8.274
2.20	27,862	472.20	12.06 ic	0.00	0.00	---	12.06	---	---	---	---	---	12.06
2.30	29,914	472.30	14.33 ic	0.00	0.00	---	14.33 s	---	---	---	---	---	14.33
2.40	31,965	472.40	14.87 ic	0.00	0.00	---	14.87 s	---	---	---	---	---	14.87
2.50	34,017	472.50	15.26 ic	0.00	0.00	---	15.26 s	---	---	---	---	---	15.26
2.60	36,069	472.60	15.58 ic	0.00	0.00	---	15.58 s	---	---	---	---	---	15.58
2.70	38,120	472.70	15.87 ic	0.00	0.00	---	15.87 s	---	---	---	---	---	15.87
2.80	40,172	472.80	16.13 ic	0.00	0.00	---	16.13 s	---	---	---	---	---	16.13
2.90	42,223	472.90	16.38 ic	0.00	0.00	---	16.36 s	---	---	---	---	---	16.36
3.00	44,275	473.00	16.62 ic	0.00	0.00	---	16.61 s	---	---	---	---	---	16.61

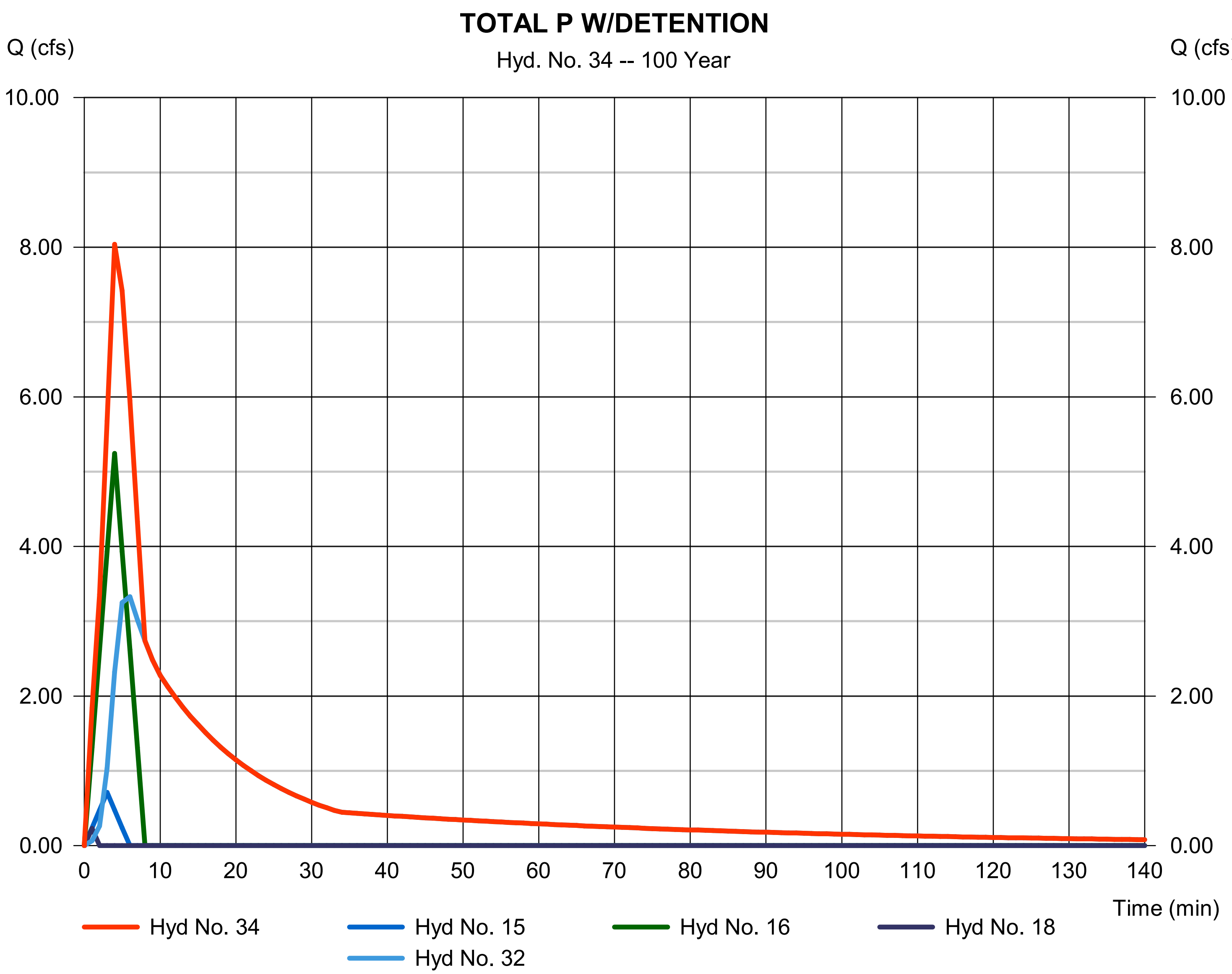
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 34

TOTAL P W/DETENTION

Hydrograph type	= Combine	Peak discharge	= 8.041 cfs
Storm frequency	= 100 yrs	Time to peak	= 4 min
Time interval	= 1 min	Hyd. volume	= 5,829 cuft
Inflow hyds.	= 15, 16, 18, 32	Contrib. drain. area	= 2.633 ac



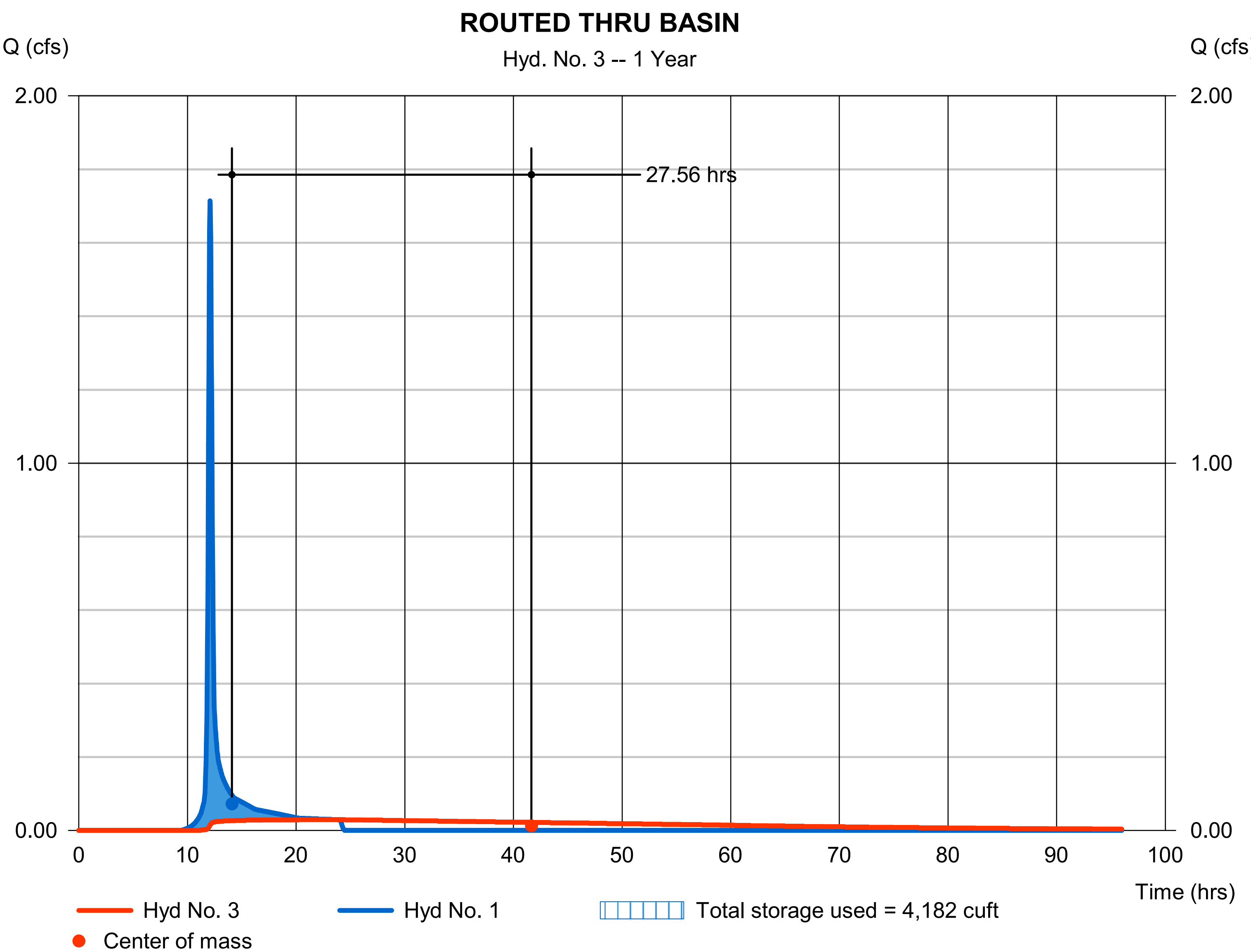
Hydrograph Report

Hyd. No. 3

ROUTED THRU BASIN

Hydrograph type	= Reservoir	Peak discharge	= 0.029 cfs
Storm frequency	= 1 yrs	Time to peak	= 23.77 hrs
Time interval	= 2 min	Hyd. volume	= 5,087 cuft
Inflow hyd. No.	= 1 - P_TRIB3	Max. Elevation	= 470.57 ft
Reservoir name	= BMP 1	Max. Storage	= 4,182 cuft

Storage Indication method used.



EXISTING DRAINAGE AREA MAP

ALL AREAS
PI VALUE OPEN = 1.70
PI VALUE GRAVEL = 3.36
PI VALUE PAVEMENT/BUILDING = 3.54

DA–01
OPEN = 0.56 ACRES
GRAVEL = 0.04 ACRES
PAVEMENT/BUILDING = 0.00 ACRES
$PI = \left(\frac{0.56}{0.60}1.70\right)+\left(\frac{0.04}{0.60}3.36\right)+\left(\frac{0.00}{0.60}3.54\right)=1.81$
Q(15YR, 20MIN) = API = (0.60)(1.81) = 1.09

DA–02
OPEN = 0.47 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.00 ACRES
$PI = \left(\frac{0.47}{0.47}1.70\right)+\left(\frac{0.00}{0.47}3.36\right)+\left(\frac{0.00}{0.47}3.54\right)=1.70$
Q(15YR, 20MIN) = API = (0.47)(1.70) = 0.80

DA–03
OPEN = 1.05 ACRES
GRAVEL = 0.11 ACRES
PAVEMENT/BUILDING = 0.00 ACRES
$PI = \left(\frac{1.05}{1.16}1.70\right)+\left(\frac{0.11}{1.16}3.36\right)+\left(\frac{0.00}{1.16}3.54\right)=1.86$
Q(15YR, 20MIN) = API = (1.16)(1.86) = 2.16

DA–04
OPEN = 1.23 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.00 ACRES
$PI = \left(\frac{1.23}{1.23}1.70\right)+\left(\frac{0.00}{1.23}3.36\right)+\left(\frac{0.00}{1.23}3.54\right)=1.70$
Q(15YR, 20MIN) = API = (1.23)(1.70) = 2.09

DA–05
OPEN = 0.19 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.00 ACRES
$PI = \left(\frac{0.19}{0.19}1.70\right)+\left(\frac{0.00}{0.19}3.36\right)+\left(\frac{0.00}{0.19}3.54\right)=1.70$
Q(15YR, 20MIN) = API = (0.19)(1.70) = 0.32

DA–06
OPEN = 1.92 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.00 ACRES
$PI = \left(\frac{1.92}{1.92}1.70\right)+\left(\frac{0.00}{1.92}3.36\right)+\left(\frac{0.00}{1.92}3.54\right)=1.70$
Q(15YR, 20MIN) = API = (1.92)(1.70) = 3.26

DA–07
OPEN = 3.21 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.00 ACRES
$PI = \left(\frac{3.21}{3.21}1.70\right)+\left(\frac{0.00}{3.21}3.36\right)+\left(\frac{0.00}{3.21}3.54\right)=1.70$
Q(15YR, 20MIN) = API = (3.21)(1.70) = 5.46

DA–08
OPEN = 0.20 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.00 ACRES
$PI = \left(\frac{0.20}{0.20}1.70\right)+\left(\frac{0.00}{0.20}3.36\right)+\left(\frac{0.00}{0.20}3.54\right)=1.70$
Q(15YR, 20MIN) = API = (0.20)(1.70) = 0.34

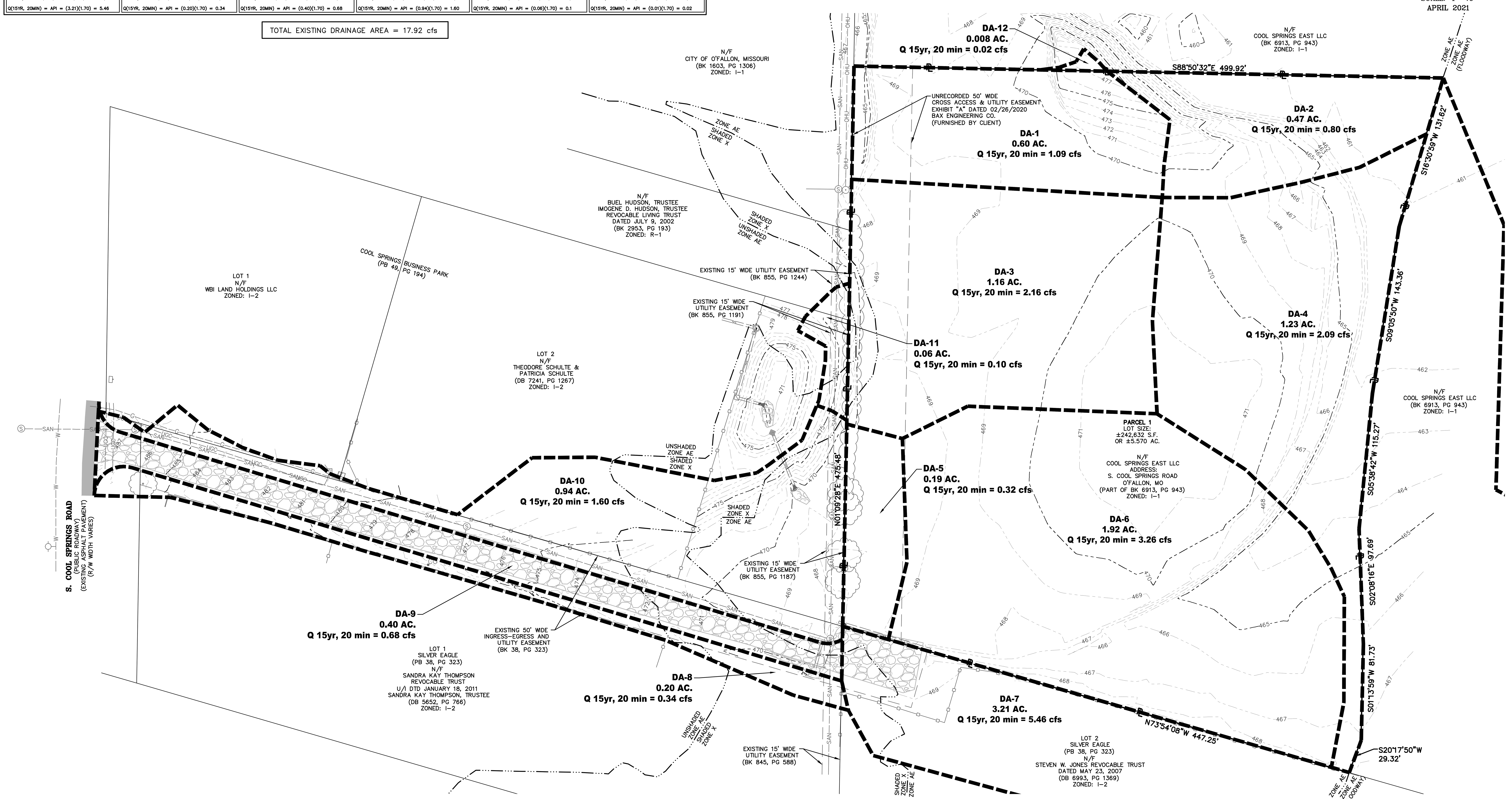
DA–09
OPEN = 0.40 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.00 ACRES
$PI = \left(\frac{0.40}{0.40}1.70\right)+\left(\frac{0.00}{0.40}3.36\right)+\left(\frac{0.00}{0.40}3.54\right)=1.70$
Q(15YR, 20MIN) = API = (0.40)(1.70) = 0.68

DA–10
OPEN = 0.94 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.00 ACRES
$PI = \left(\frac{0.94}{0.94}1.70\right)+\left(\frac{0.00}{0.94}3.36\right)+\left(\frac{0.00}{0.94}3.54\right)=1.70$
Q(15YR, 20MIN) = API = (0.94)(1.70) = 1.60

DA–11
OPEN = 0.06 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.00 ACRES
$PI = \left(\frac{0.06}{0.06}1.70\right)+\left(\frac{0.00}{0.06}3.36\right)+\left(\frac{0.00}{0.06}3.54\right)=1.70$
Q(15YR, 20MIN) = API = (0.06)(1.70) = 0.1

DA–12
OPEN = 0.01 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.00 ACRES
$PI = \left(\frac{0.01}{0.01}1.70\right)+\left(\frac{0.00}{0.01}3.36\right)+\left(\frac{0.00}{0.01}3.54\right)=1.70$
Q(15YR, 20MIN) = API = (0.01)(1.70) = 0.02

TOTAL EXISTING DRAINAGE AREA = 17.92 cfs



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636-327-0760 (fax)
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• Land Surveying
• Architecture
• Site Development
• General Consulting
• Master Planning

Missouri State Certificate of Authority Number: 2010000046

Cochran Project No. M20-8003A

STATE OF MISSOURI
MICHAEL L. HACKMEISTER
NUMBER PE-2017018980
PROFESSIONAL ENGINEER

DATE

Michael L. Hackmeister No. E-2017018980
Registered Professional Engineer
State of Missouri
for Cochran Engineering & Surveying

Developer Information
OPS MISSOURI HOLDINGS, LLC
2082 SOUTH STATE STREET: ANN ARBOR, MI 48104
(734)-323-1822

Owner Information
COOL SPRINGS EAST, LLC
2025 ZUMBEHL ROAD #187: ST. CHARLES, MO 63303

Existing Drainage Area Map

P+Z No. 21-00856

City No.

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PROPOSED DRAINAGE AREA MAP

ALL AREAS
PI VALUE OPEN = 1.70
PI VALUE GRAVEL = 3.36
PI VALUE PAVEMENT/BUILDING = 3.54

DA-01
OPEN = 0.00 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.04 ACRES
$PI = \left(\frac{0.00}{0.04} 1.70\right)+\left(\frac{0.00}{0.04} 3.36\right)+\left(\frac{0.04}{0.04} 3.54\right)=3.54$
Q(15YR, 20MIN) = API = (0.04)(3.54) = 0.14

DA-02
OPEN = 0.29 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.00 ACRES
$PI = \left(\frac{0.29}{0.29} 1.70\right)+\left(\frac{0.00}{0.29} 3.36\right)+\left(\frac{0.00}{0.29} 3.54\right)=1.70$
Q(15YR, 20MIN) = API = (0.29)(1.70) = 0.49

DA-03
OPEN = 2.26 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.00 ACRES
$PI = \left(\frac{2.26}{2.26} 1.70\right)+\left(\frac{0.00}{2.26} 3.36\right)+\left(\frac{0.00}{2.26} 3.54\right)=1.70$
Q(15YR, 20MIN) = API = (2.26)(1.70) = 3.84

DA-04
OPEN = 0.61 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.00 ACRES
$PI = \left(\frac{0.61}{0.61} 1.70\right)+\left(\frac{0.00}{0.61} 3.36\right)+\left(\frac{0.00}{0.61} 3.54\right)=1.70$
Q(15YR, 20MIN) = API = (0.61)(1.70) = 1.46

DA-05
OPEN = 0.00 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.05 ACRES
$PI = \left(\frac{0.00}{0.05} 1.70\right)+\left(\frac{0.00}{0.05} 3.36\right)+\left(\frac{0.05}{0.05} 3.54\right)=3.54$
Q(15YR, 20MIN) = API = (0.05)(3.54) = 0.18

DA-06
OPEN = 0.00 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.05 ACRES
$PI = \left(\frac{0.00}{0.05} 1.70\right)+\left(\frac{0.00}{0.05} 3.36\right)+\left(\frac{0.05}{0.05} 3.54\right)=3.54$
Q(15YR, 20MIN) = API = (0.05)(2.72) = 0.18

DA-07
OPEN = 0.00 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.17 ACRES
$PI = \left(\frac{0.00}{0.17} 1.70\right)+\left(\frac{0.00}{0.17} 3.36\right)+\left(\frac{0.17}{0.17} 3.54\right)=3.54$
Q(15YR, 20MIN) = API = (0.17)(3.54) = 0.60

DA-08
OPEN = 0.00 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.46 ACRES
$PI = \left(\frac{0.00}{0.46} 1.70\right)+\left(\frac{0.00}{0.46} 3.36\right)+\left(\frac{0.46}{0.46} 3.54\right)=3.54$
Q(15YR, 20MIN) = API = (0.46)(3.54) = 1.63

DA-09
OPEN = 0.49 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.23 ACRES
$PI = \left(\frac{0.49}{0.72} 1.70\right)+\left(\frac{0.00}{0.72} 3.36\right)+\left(\frac{0.23}{0.72} 3.54\right)=2.29$
Q(15YR, 20MIN) = API = (0.72)(2.29) = 1.65

DA-10
OPEN = 0.00 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.13 ACRES
$PI = \left(\frac{0.00}{0.13} 1.70\right)+\left(\frac{0.00}{0.13} 3.36\right)+\left(\frac{0.13}{0.13} 3.54\right)=3.54$
Q(15YR, 20MIN) = API = (0.13)(3.54) = 0.46

DA-11
OPEN = 0.00 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.12 ACRES
$PI = \left(\frac{0.00}{0.12} 1.70\right)+\left(\frac{0.00}{0.12} 3.36\right)+\left(\frac{0.00}{0.12} 3.54\right)=3.54$
Q(15YR, 20MIN) = API = (0.12)(3.54) = 0.42

DA-12
OPEN = 0.01 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.12 ACRES
$PI = \left(\frac{0.01}{0.13} 1.70\right)+\left(\frac{0.00}{0.13} 3.36\right)+\left(\frac{0.12}{0.13} 3.54\right)=3.4$
Q(15YR, 20MIN) = API = (0.13)(3.4) = 0.44

DA-13
OPEN = 0.01 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.09 ACRES
$PI = \left(\frac{0.01}{0.10} 1.70\right)+\left(\frac{0.00}{0.10} 3.36\right)+\left(\frac{0.09}{0.10} 3.54\right)=3.36$
Q(15YR, 20MIN) = API = (0.10)(3.36) = 0.34

DA-14
OPEN = 0.02 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.12 ACRES
$PI = \left(\frac{0.02}{0.14} 1.70\right)+\left(\frac{0.00}{0.14} 3.36\right)+\left(\frac{0.12}{0.14} 3.54\right)=3.28$
Q(15YR, 20MIN) = API = (0.14)(3.28) = 0.46

DA-15
OPEN = 0.00 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.03 ACRES
$PI = \left(\frac{0.00}{0.03} 1.70\right)+\left(\frac{0.00}{0.03} 3.36\right)+\left(\frac{0.03}{0.03} 3.54\right)=3.54$
Q(15YR, 20MIN) = API = (0.03)(3.54) = 0.11

DA-16
OPEN = 0.00 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.03 ACRES
$PI = \left(\frac{0.00}{0.03} 1.70\right)+\left(\frac{0.00}{0.03} 3.36\right)+\left(\frac{0.03}{0.03} 3.54\right)=3.54$
Q(15YR, 20MIN) = API = (0.03)(3.54) = 0.11

DA-17
OPEN = 0.00 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.03 ACRES
$PI = \left(\frac{0.00}{0.03} 1.70\right)+\left(\frac{0.00}{0.03} 3.36\right)+\left(\frac{0.03}{0.03} 3.54\right)=3.54$
Q(15YR, 20MIN) = API = (0.03)(3.54) = 0.11

DA-18
OPEN = 0.00 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.081 ACRES
$PI = \left(\frac{0.00}{0.081} 1.70\right)+\left(\frac{0.00}{0.081} 3.36\right)+\left(\frac{0.081}{0.081} 3.54\right)=3.54$
Q(15YR, 20MIN) = API = (0.081)(3.54) = 0.28

DA-19
OPEN = 0.02 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.12 ACRES
$PI = \left(\frac{0.02}{0.14} 1.70\right)+\left(\frac{0.00}{0.14} 3.36\right)+\left(\frac{0.12}{0.14} 3.54\right)=3.28$
Q(15YR, 20MIN) = API = (0.14)(3.28) = 0.46

OFF-1
OPEN = 3.15 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.00 ACRES
$PI = \left(\frac{3.15}{3.15} 1.70\right)+\left(\frac{0.00}{3.15} 3.36\right)+\left(\frac{0.00}{3.15} 3.54\right)=1.70$
Q(15YR, 20MIN) = API = (3.15)(1.70) = 5.36

OFF-2
OPEN = 0.20 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.00 ACRES
$PI = \left(\frac{0.20}{0.20} 1.70\right)+\left(\frac{0.00}{0.20} 3.36\right)+\left(\frac{0.00}{0.20} 3.54\right)=1.70$
Q(15YR, 20MIN) = API = (0.20)(1.70) = 0.34

OFF-3
OPEN = 0.00 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.24 ACRES
$PI = \left(\frac{0.00}{0.24} 1.70\right)+\left(\frac{0.00}{0.24} 3.36\right)+\left(\frac{0.24}{0.24} 3.54\right)=3.54$
Q(15YR, 20MIN) = API = (0.24)(3.54) = 0.85

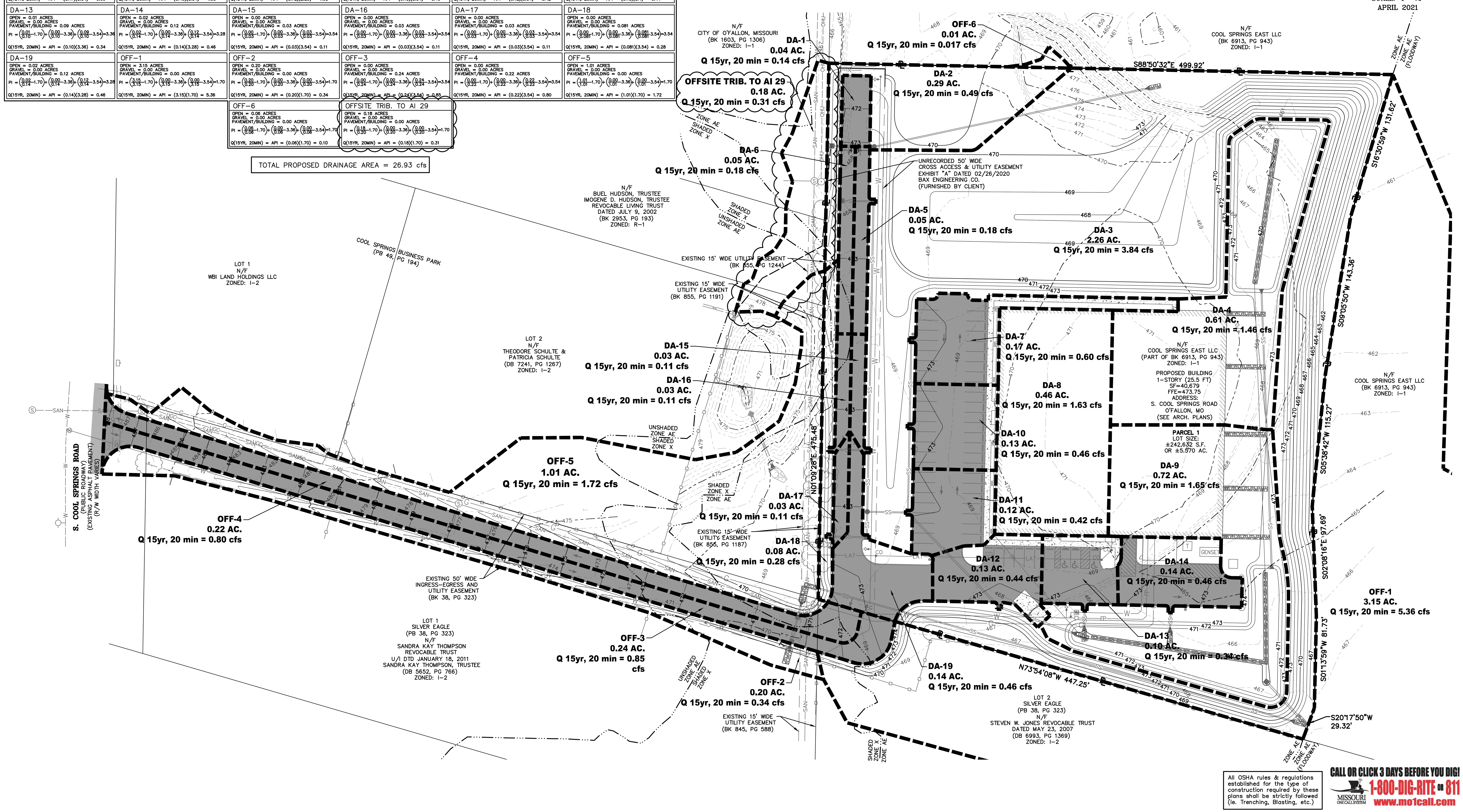
OFF-4
OPEN = 0.00 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.22 ACRES
$PI = \left(\frac{0.00}{0.22} 1.70\right)+\left(\frac{0.00}{0.22} 3.36\right)+\left(\frac{0.22}{0.22} 3.54\right)=3.54$
Q(15YR, 20MIN) = API = (0.22)(3.54) = 0.80

OFF-5
OPEN = 1.01 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.00 ACRES
$PI = \left(\frac{1.01}{1.01} 1.70\right)+\left(\frac{0.00}{1.01} 3.36\right)+\left(\frac{0.00}{1.01} 3.54\right)=1.70$
Q(15YR, 20MIN) = API = (1.01)(1.70) = 1.72

OFF-6
OPEN = 0.06 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.00 ACRES
$PI = \left(\frac{0.06}{0.06} 1.70\right)+\left(\frac{0.00}{0.06} 3.36\right)+\left(\frac{0.00}{0.06} 3.54\right)=1.70$
Q(15YR, 20MIN) = API = (0.06)(1.70) = 0.10

OFFSITE TRIB. TO AI 29
OPEN = 0.18 ACRES
GRAVEL = 0.00 ACRES
PAVEMENT/BUILDING = 0.00 ACRES
$PI = \left(\frac{0.18}{0.20} 1.70\right)+\left(\frac{0.00}{0.20} 3.36\right)+\left(\frac{0.00}{0.20} 3.54\right)=1.70$
Q(15YR, 20MIN) = API = (0.18)(1.70) = 0.31

TOTAL PROPOSED DRAINAGE AREA = 26.93 cfs



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636-327-0760 (fax)
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• Architecture
• Site Development
• General Consulting
• Master Planning

Missouri State Certificate of Authority Number: 2010000046

Cochran Project No. M20-8003A

STATE OF MISSOURI
MICHAEL L. HACKMEISTER
NUMBER PE-2017018980
PROFESSIONAL ENGINEER

DATE

Michael L. Hackmeister No. E-2017018980
Registered Professional Engineer
State of Missouri
for Cochran Engineering & Surveying

Developer Information
OPS MISSOURI HOLDINGS, LLC
2082 SOUTH STATE STREET; ANN ARBOR, MI 48104
(734)-323-1822

Owner Information
COOL SPRINGS EAST, LLC
2025 ZUMBEHL ROAD #187; ST. CHARLES, MO 63303

Proposed Drainage Area Map

P+Z No. 21-00856

City No.

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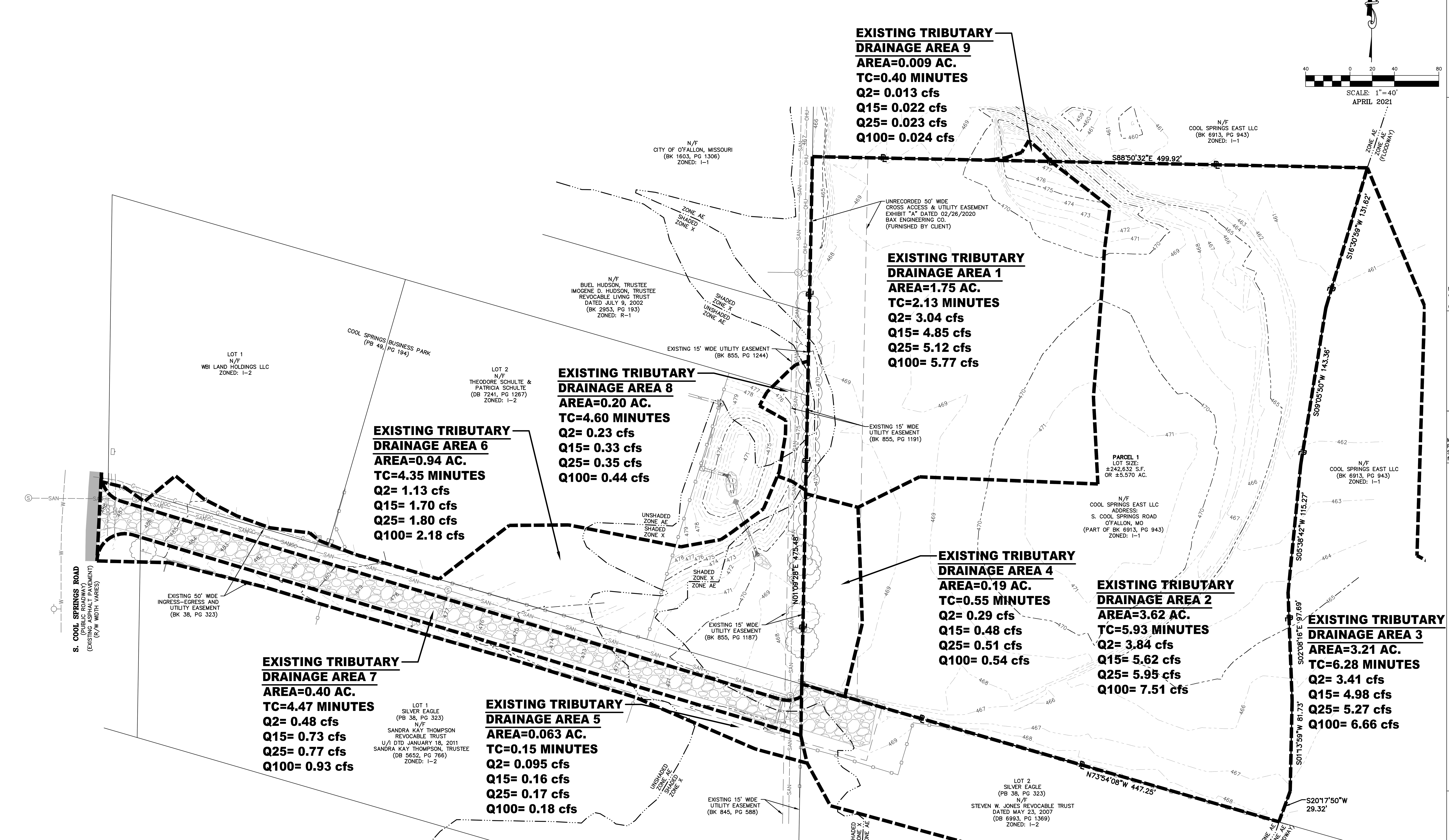
EXISTING TRIBUTARY DRAINAGE AREA MAP



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Missouri State Certificate of Authority Number: 2010000046

Cochran Project No. M20-8003A

STATE OF MISSOURI MICHAEL L. HACKMEISTER NUMBER PE-2017018980 PROFESSIONAL ENGINEER

DATE

Michael L. Hackmeister No. E-2017018980
Registered Professional Engineer
State of Missouri
for Cochran Engineering & Surveying

Developer Information
QPS MISSOURI HOLDINGS, LLC
2082 SOUTH STATE STREET: ANN ARBOR, MI 48104
(734)-323-1822

Owner Information
COOL SPRINGS EAST, LLC
2025 ZUMBEHL ROAD #187: ST. CHARLES, MO 63303

Existing Tributary Drainage Area Map

P+Z No. 21-00856

City No.

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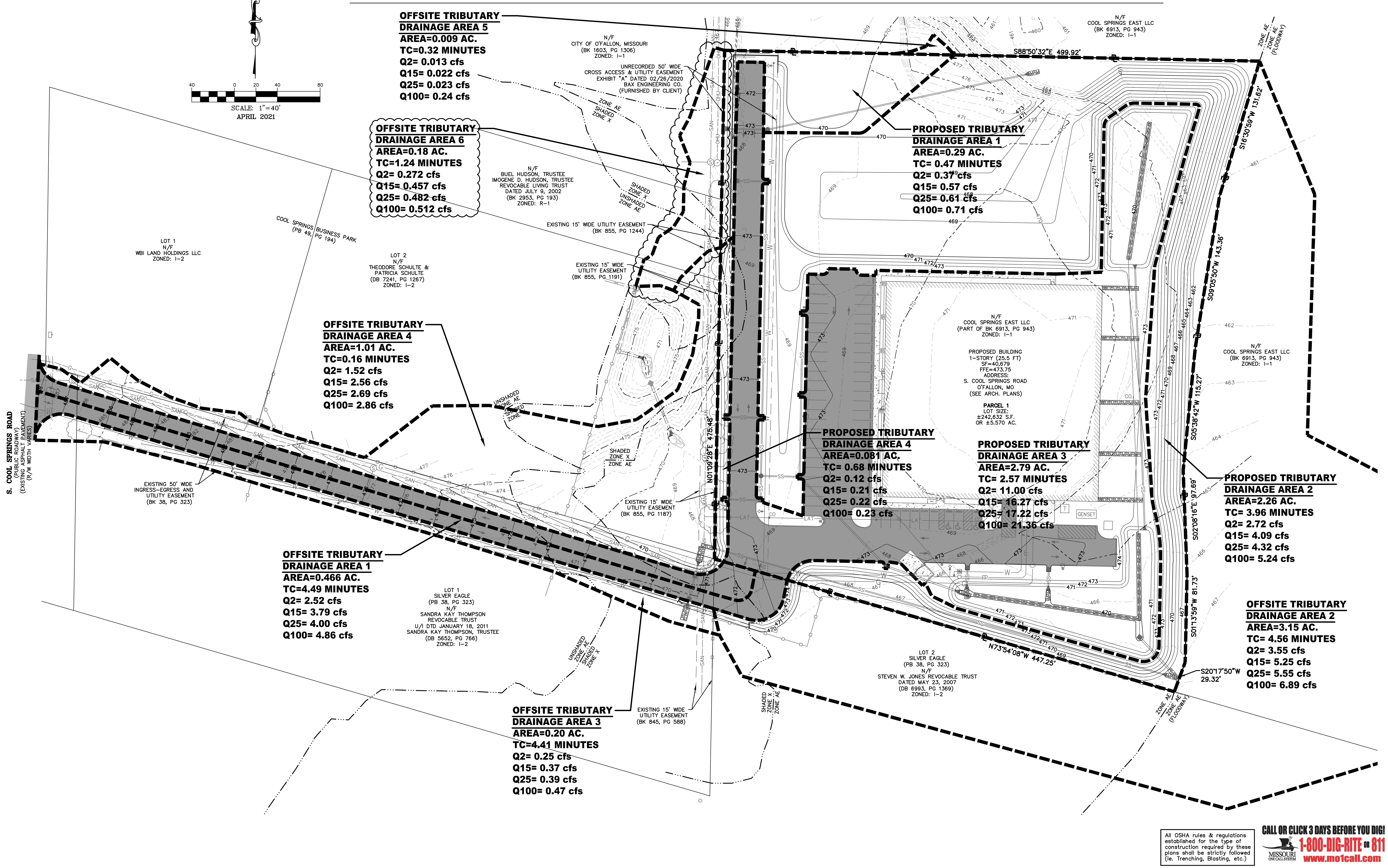
PROPOSED TRIBUTARY DRAINAGE AREA MAP



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City of O'Fallon Standard Notes and Details – July 2019

C3 INDUSTRIES

COCHRAN
North Office 8 East Main Street Wentzville, Missouri 63385
636-332-4574 (tel.) 636-327-0760 (fax)
• Civil Engineering • Land Surveying • Architecture • Site Development • General Consulting • Master Planning

Missouri State Certificate of Authority Number: 2010000046

Cochran Project No. M20-8003A

DATE

Michael L. Hackmeister No. E-2017018980
Registered Professional Engineer
State of Missouri
for Cochran Engineering & Surveying

Developer Information
QPS MISSOURI HOLDINGS, LLC
2082 SOUTH STATE STREET; ANN ARBOR, MI 48104
(734)-323-1822

Owner Information
COOL SPRINGS EAST, LLC
2025 ZUMBEHL ROAD #187; ST. CHARLES, MO 63303

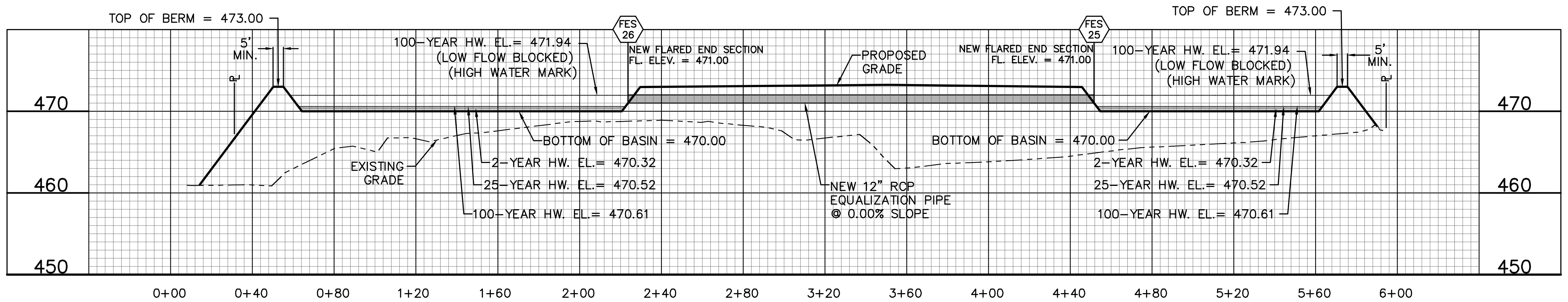
Proposed Tributary Drainage Area Map

P+Z No. 21-00856

City No.

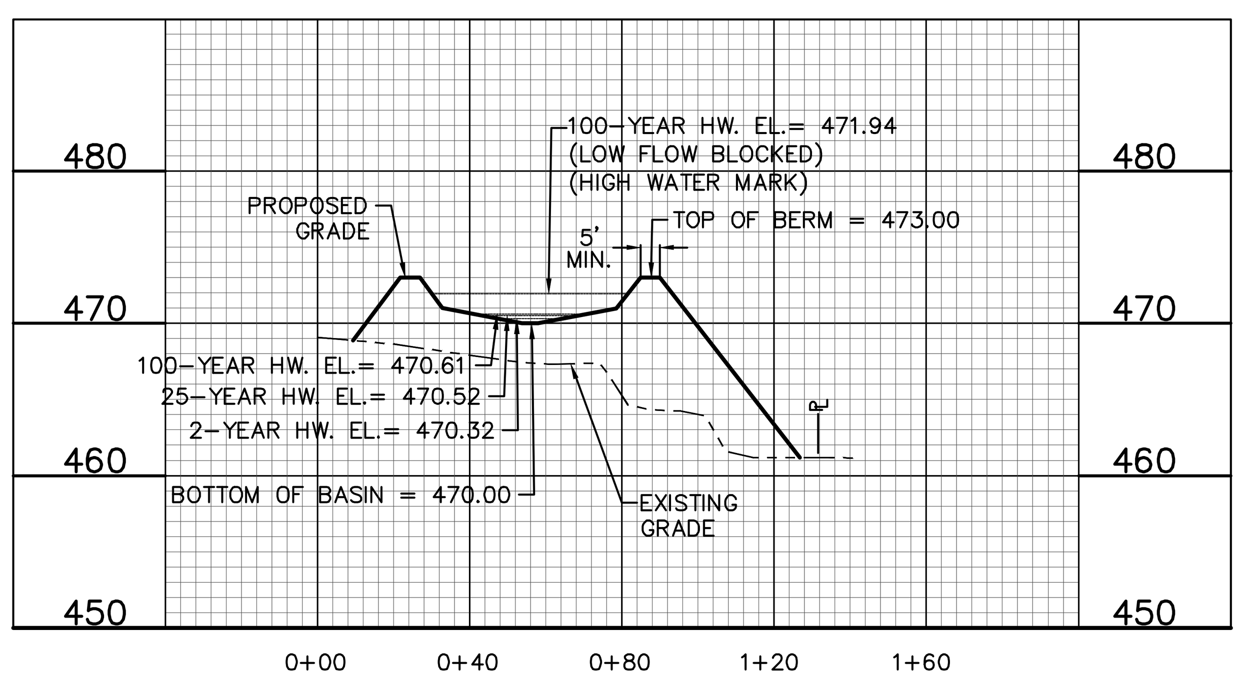
Page No.
C14

DETENTION BASIN CROSS-SECTIONS



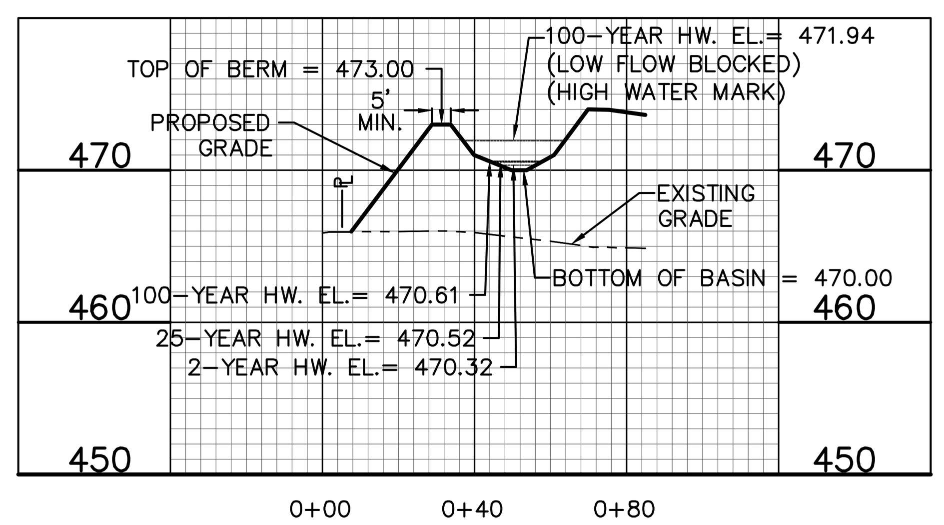
SECTION A-A

HORZ. 0 20 40
VERT. 0 5 10



SECTION B-B

HORZ. 0 20 40
VERT. 0 5 10

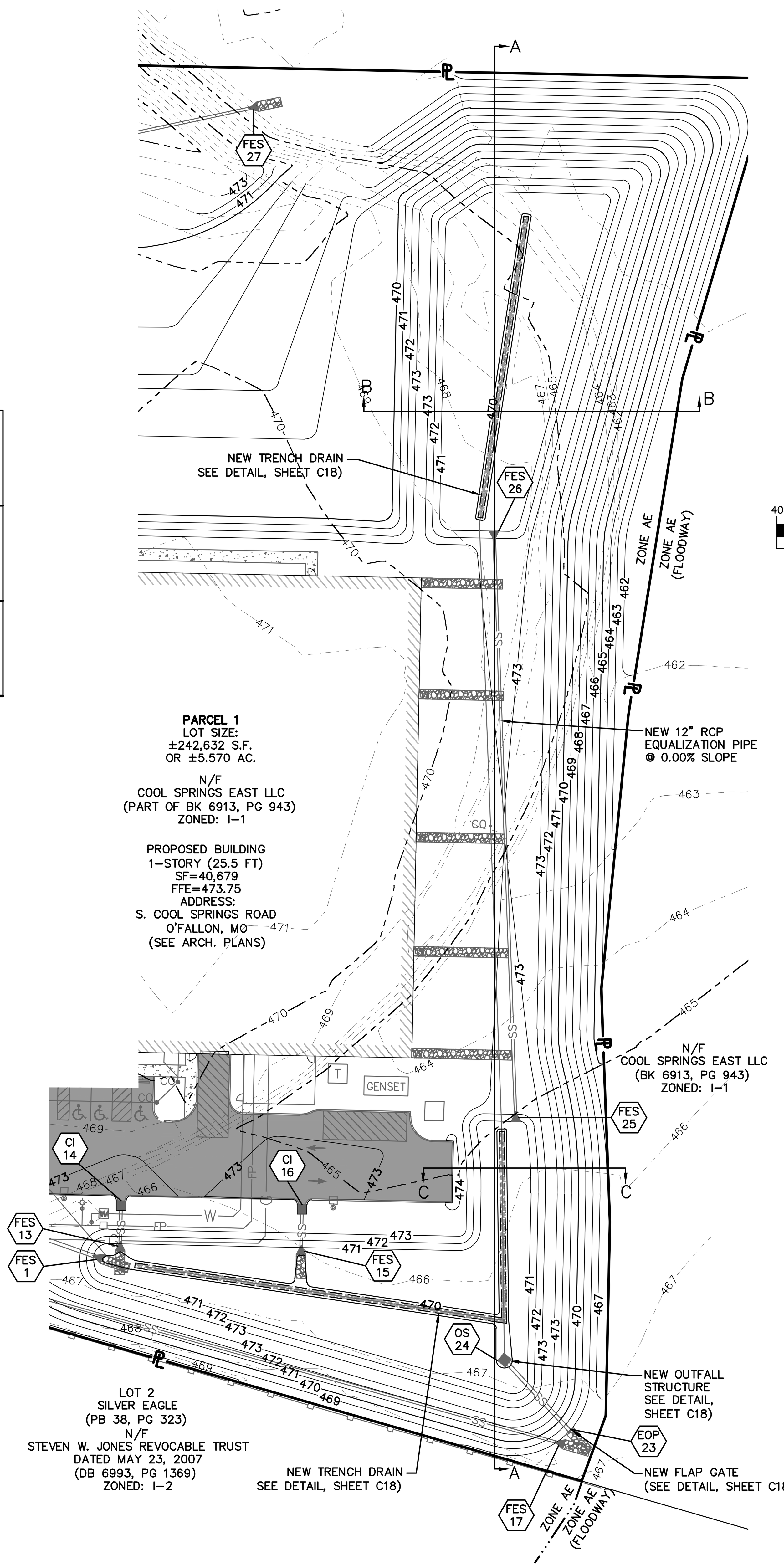


SECTION C-C

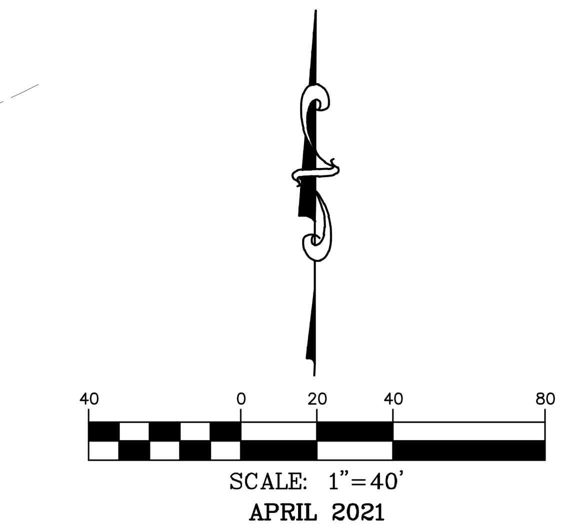
HORZ. 0 20 40
VERT. 0 5 10

NOTE: SEE TRENCH DRAIN DETAIL ON SHEET C18.

NOTE: SEE STORM WATER PLAN AND PROFILE ON SHEET C10 FOR EQUALIZER PIPE



PLAN VIEW



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STATE OF MISSOURI
MICHAEL L. HACKMEISTER
NUMBER PE-2017018980
PROFESSIONAL ENGINEER

DATE

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Detention Basin Cross-Sections

P+Z No. 21-00856

City No.

Page No.

C15

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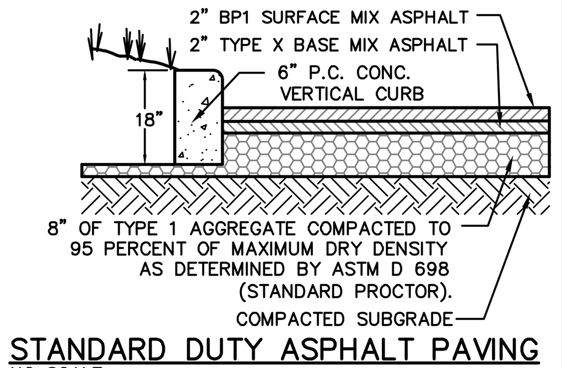
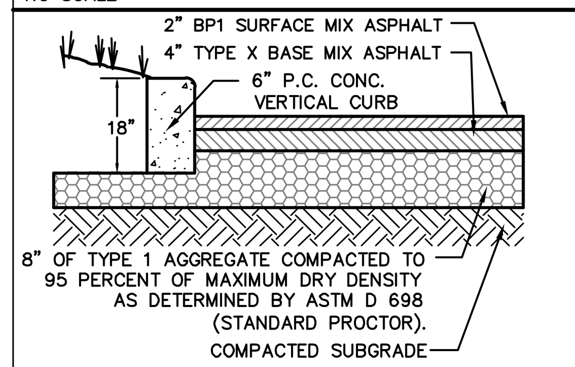
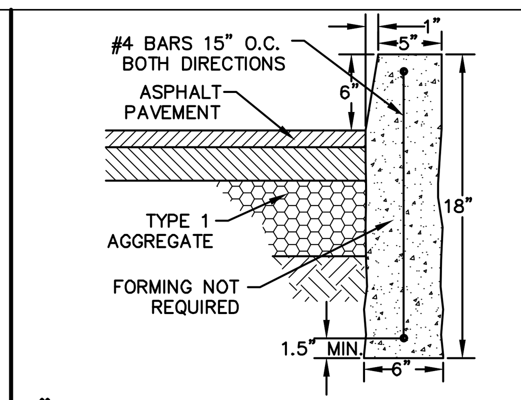
MISSOURI ONE CALL SYSTEM



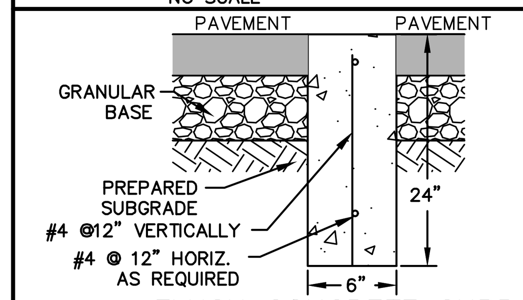
STANDARD DUTY ASPHALT PAVING
NO SCALE



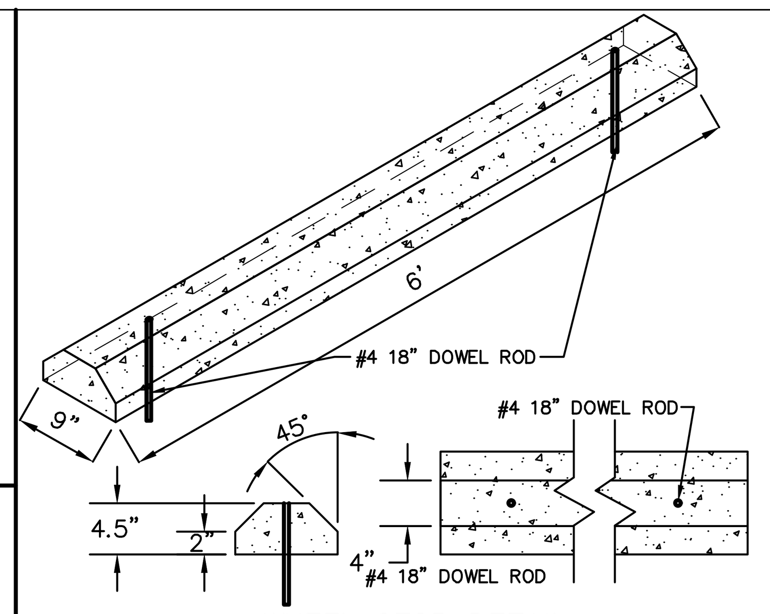
HEAVY DUTY ASPHALT PAVING
NO SCALE



6" VERTICAL CONCRETE CURB DETAIL
NO SCALE

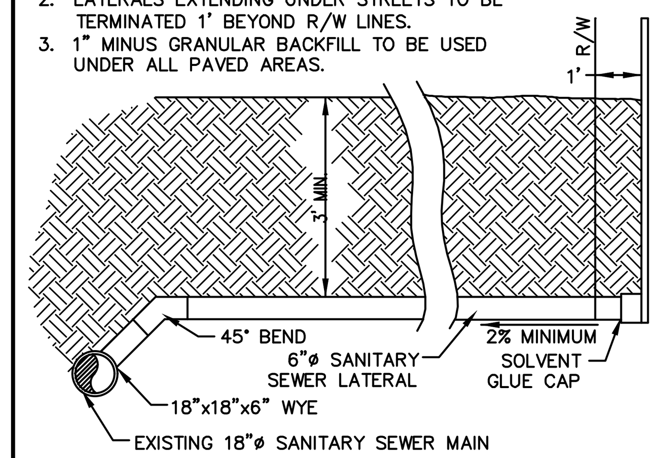


FLUSH CONCRETE CURB
NO SCALE

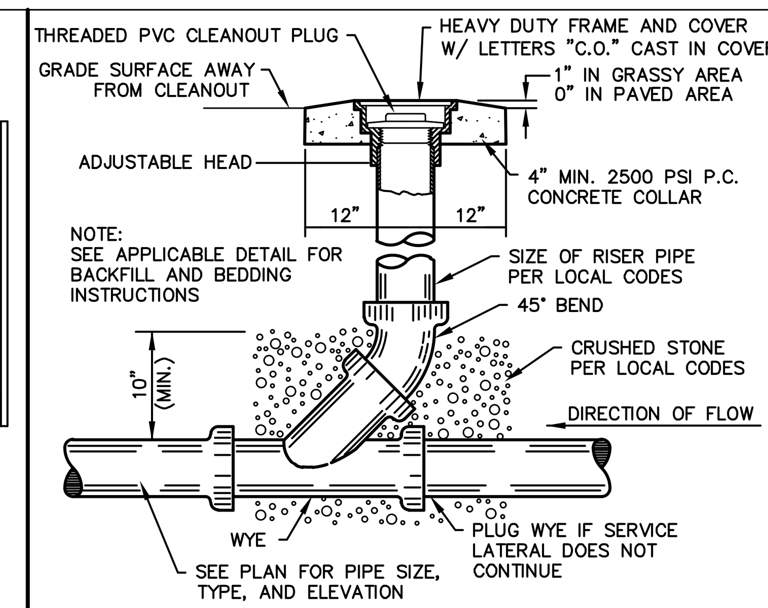


WHEEL STOP DETAIL
NO SCALE

NOTE:
1. SANITARY SEWER LATERALS TO BE 13' MINIMUM.
2. LATERALS EXTENDING UNDER STREETS TO BE TERMINATED 1' BEYOND R/W LINES.
3. 1" MINUS GRANULAR BACKFILL TO BE USED UNDER ALL PAVED AREAS.

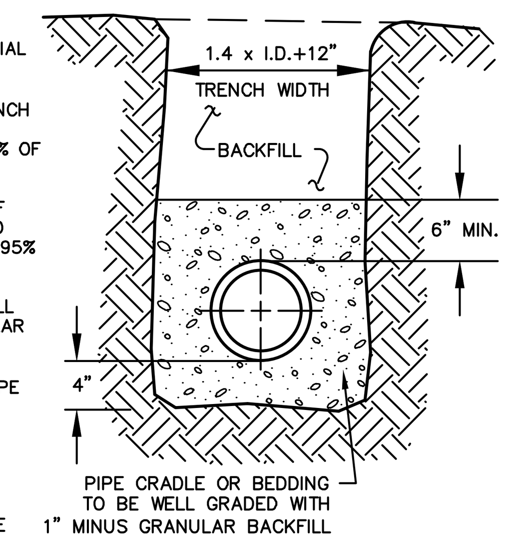


SANITARY SEWER LATERAL DETAIL
NO SCALE

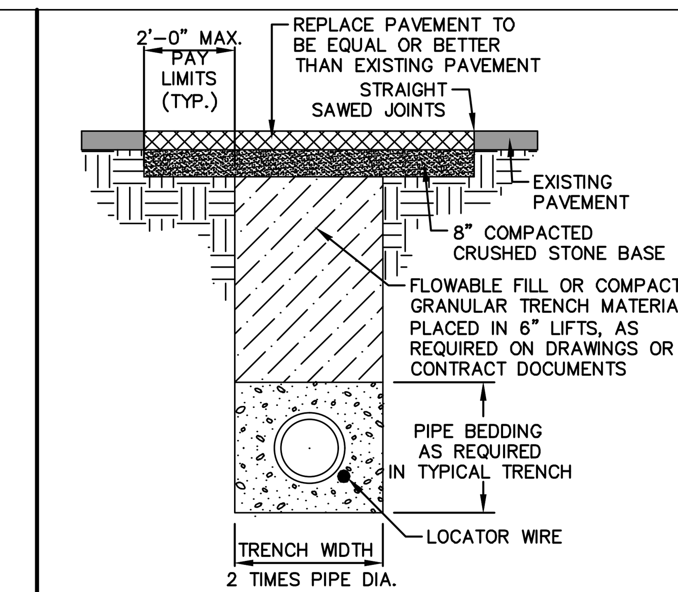


SANITARY SEWER CLEAN-OUT
NO SCALE

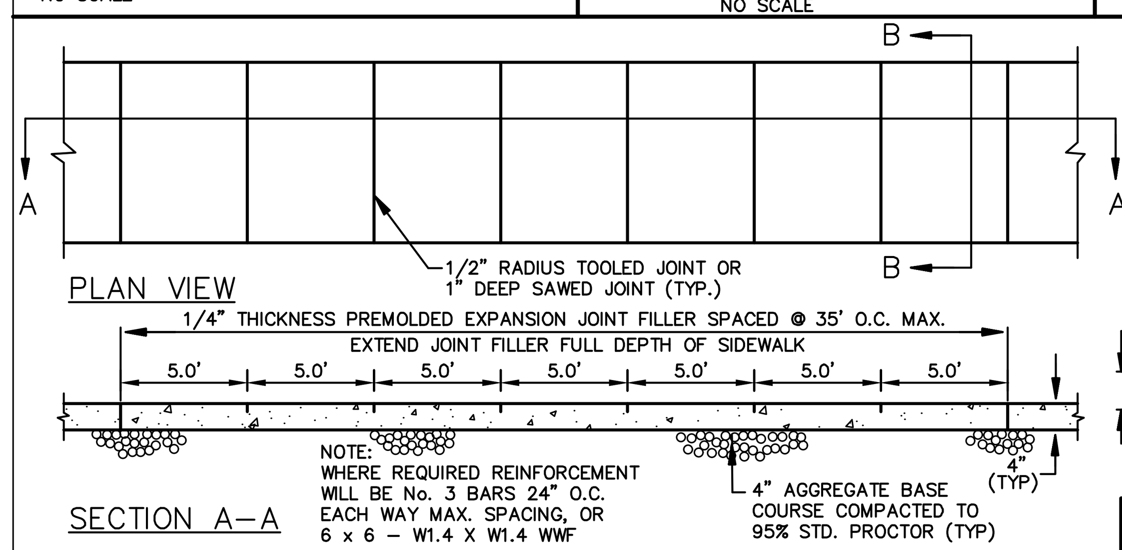
1. ALL TRENCHES SHALL HAVE A BEDDING OF WELL GRADED, 1" MINUS, GRANULAR MATERIAL FROM 4" BELOW THE BOTTOM OF THE PIPE.
2. IN AREAS TO BE PAVED OVER, ENTIRE TRENCH TO BE BACKFILLED WITH WELL GRADED GRANULAR MATERIAL & COMPACTED TO 95% OF THE STANDARD PROCTOR DENSITY.
3. IN AREAS OF CLEAN DIRT CUTS OUTSIDE OF PAVED AREAS, TRENCH MAY BE BACKFILLED WITH SAME MATERIAL AND COMPACTED TO 95% OF THE STANDARD PROCTOR DENSITY.
4. IN AREAS OF ROCK CUT, THE TRENCH SHALL BE BACKFILLED WITH WELL GRADED GRANULAR MATERIAL TO 6" ABOVE TOP OF PIPE.
5. BACKFILL SHALL BE HOLLOWED OUT FOR PIPE JOINTS AND FITTINGS. PIPE JOINTS ARE UNSUPPORTED.
6. INSTALLATION OF SEWERS TO MEET WITH MANUFACTURER SPECIFICATIONS.
7. ALL SEWER STRUCTURES TO MEET WITH THE JURISDICTIONAL SEWER SPECIFICATIONS

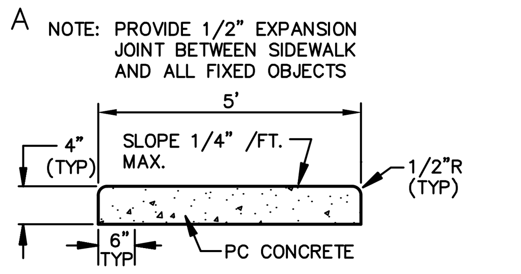


STORM/SANITARY SEWER TRENCHING DETAIL
NO SCALE

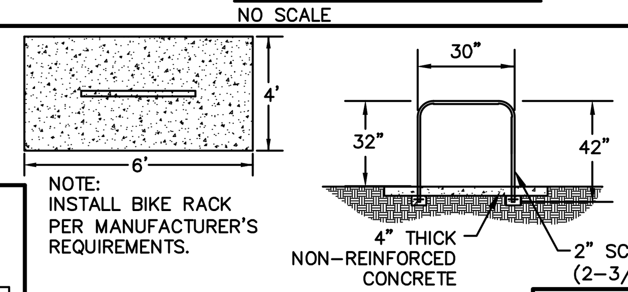


TRENCH THRU PAVEMENT
NO SCALE

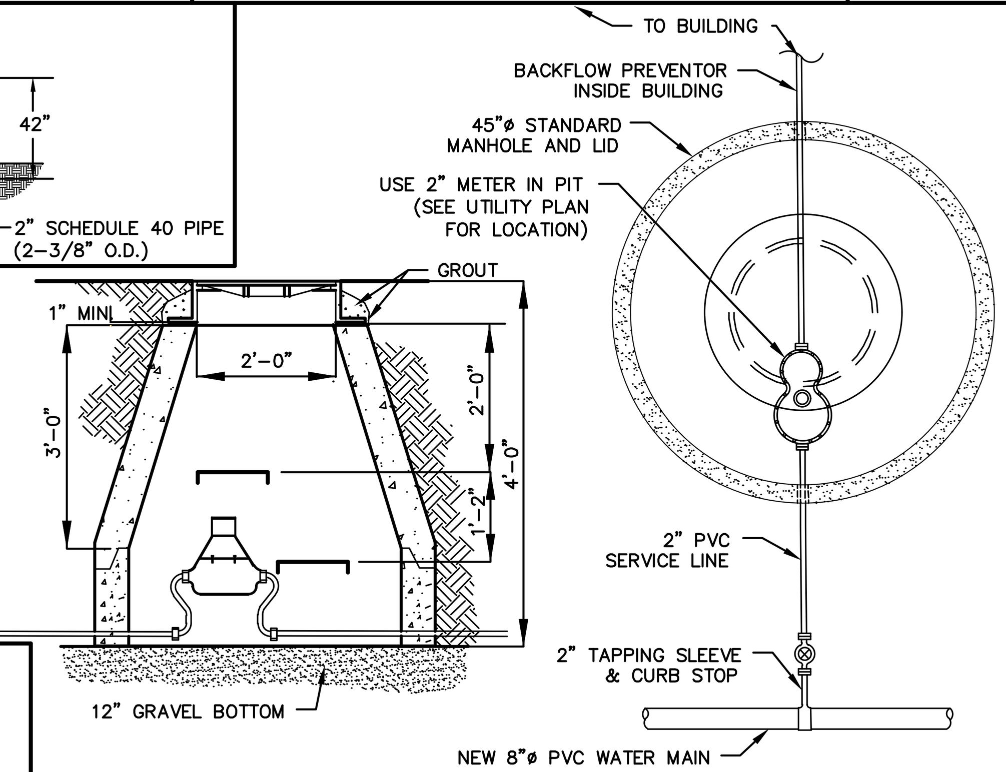




CONCRETE SIDEWALK DETAIL
NO SCALE

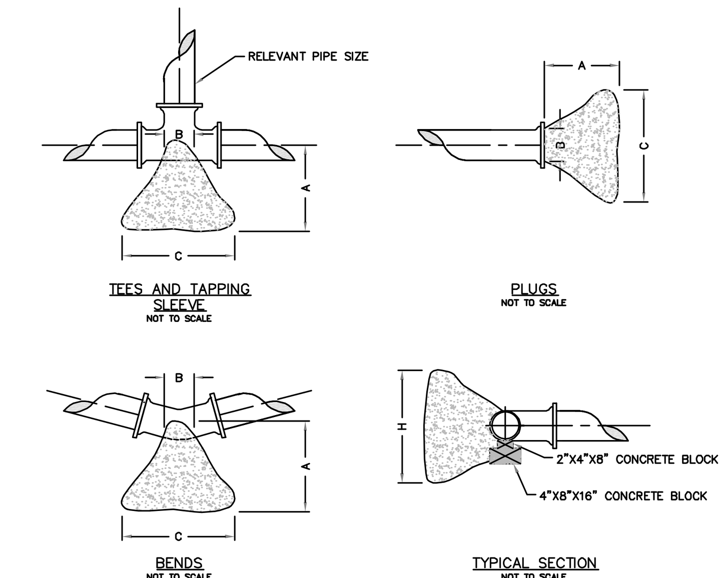


INVERTED U BIKE RACK
NO SCALE



METER PIT DETAIL
NO SCALE

NOTE: THIS DETAIL IS FROM PWSD#2

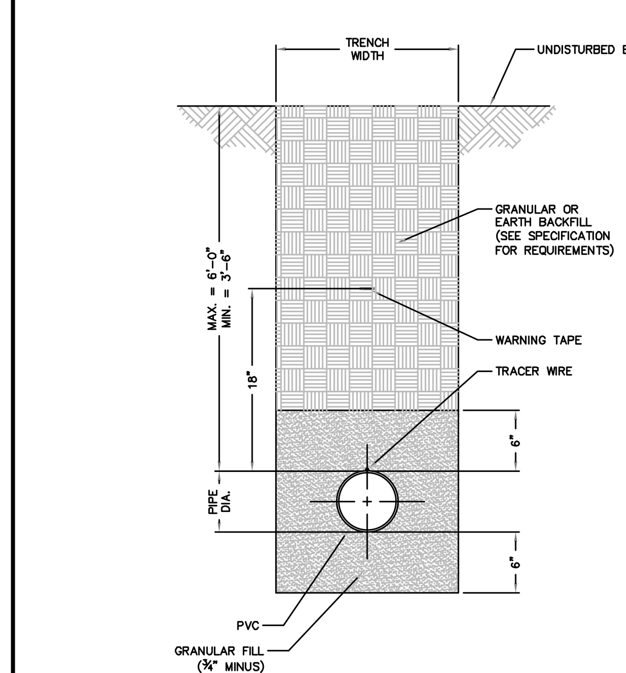


THRUST BLOCK DIMENSIONS - INCHES												
PIPE DIA.	ALL FTGS.		TEE PLUG TAPPING		90 DEGREE BEND		45 DEGREE BEND		22-1/2 BEND		11-1/4 BEND	
	A	B	C	H	C	H	C	H	C	H	C	H
4	14	4	24	12	26	15	18	12	12	12	12	12
6	16	6	36	18	36	24	30	18	24	12	12	12
8	20	8	36	30	42	36	36	24	24	18	18	12
10	20	10	48	36	66	36	36	36	28	24	18	18
12	24	12	68	36	82	42	52	36	40	24	28	18

NOTE
FOR FITTINGS LARGER THAN 12", SPECIAL RESTRAINT DESIGNS ARE REQUIRED.

HORIZONTAL THRUST BLOCKING
DETAIL "C"

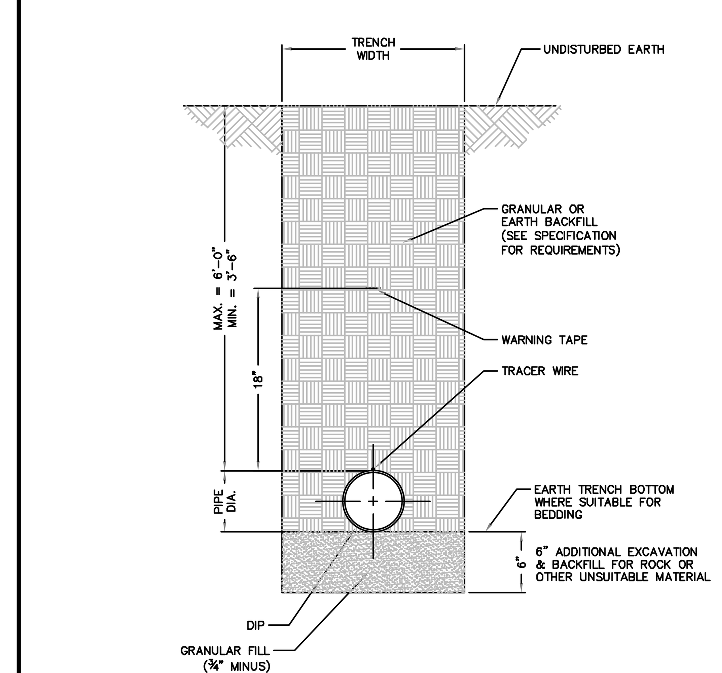
NOTE: THIS DETAIL IS FROM PWSD#2



NOTES
1) SEE SPECIFICATIONS FOR ADDITIONAL DETAILS FOR BEDDING AND BACKFILL.

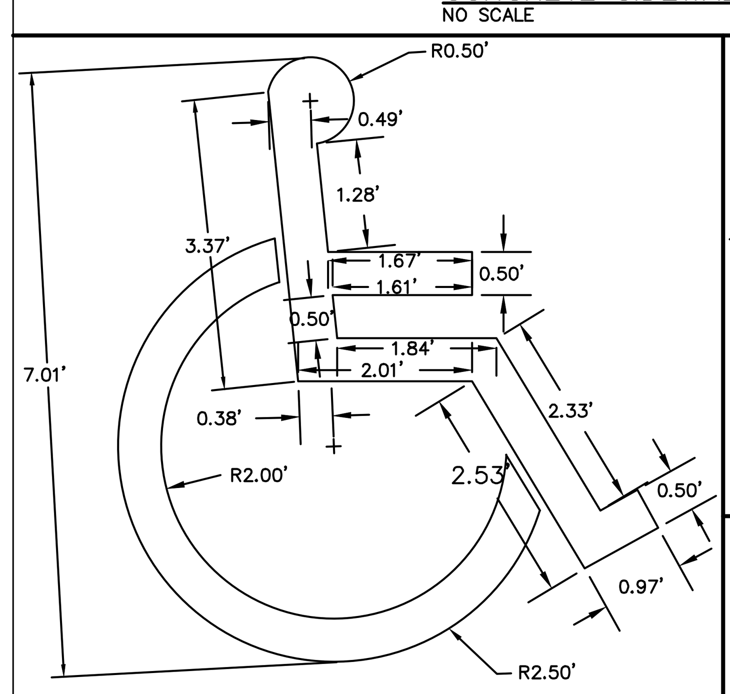
TYPICAL TRENCH SECTION
FOR PVC PIPE
NOT TO SCALE
DETAIL "A"
PAGE 1 OF 2

NOTE: THIS DETAIL IS FROM PWSD#2

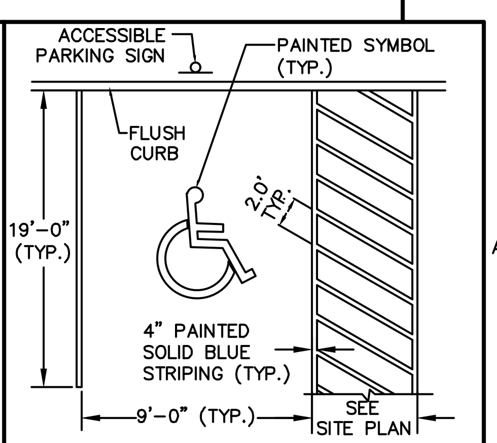


NOTES
1) POLYWRAP REQUIRED FOR DUCTILE IRON PIPE
2) SEE SPECIFICATIONS FOR ADDITIONAL DETAILS FOR BEDDING AND BACKFILL.

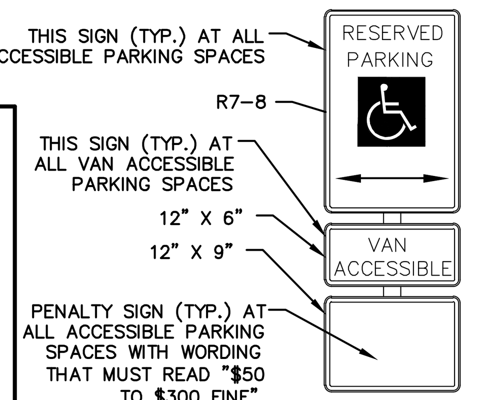
TYPICAL TRENCH SECTION
FOR DUCTILE IRON PIPE
NOT TO SCALE
DETAIL "A"
PAGE 2 OF 2



ACCESSIBLE PARKING SPACE SYMBOL DETAIL
NO SCALE

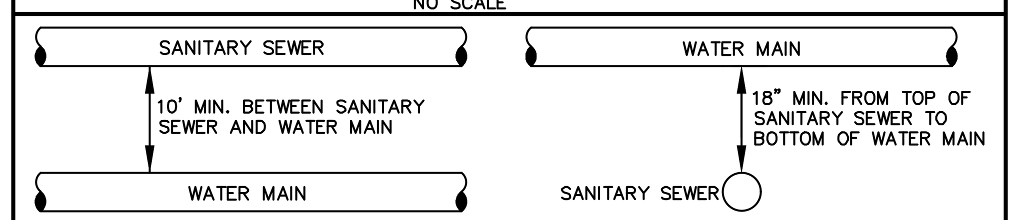


ACCESSIBLE STRIPING DETAIL
NO SCALE



ACCESSIBLE PARKING SIGN
NO SCALE

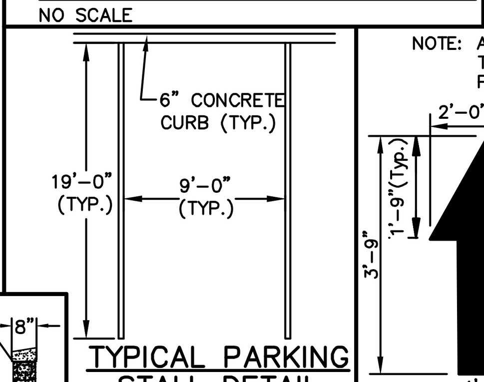
NOTE: CLEARANCE FROM LOWEST PART OF SIGN OR PLAQUE FACE TO FINISHED GRADE SHALL BE 60 INCHES.



TYPICAL WATER AND SEWER SEPARATION
NO SCALE

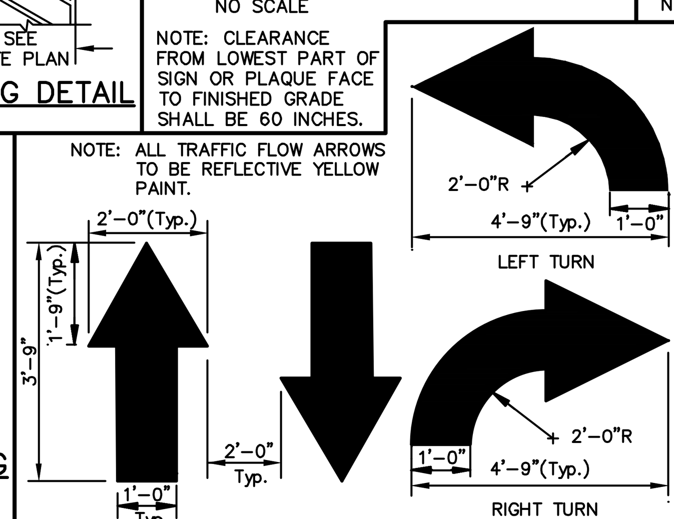
CITY OF O'FALLON
ENGINEERING DEPARTMENT
O'FALLON, MISSOURI

WATER AND SEWER SEPARATION DETAIL



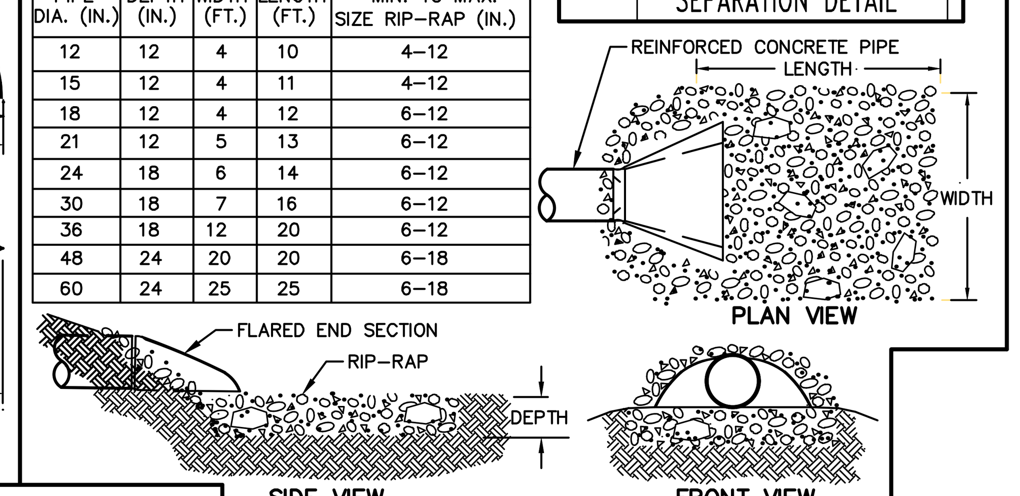
TYPICAL PARKING STALL DETAIL
NO SCALE

NOTE: ALL TRAFFIC FLOW ARROWS TO BE REFLECTIVE YELLOW PAINT.



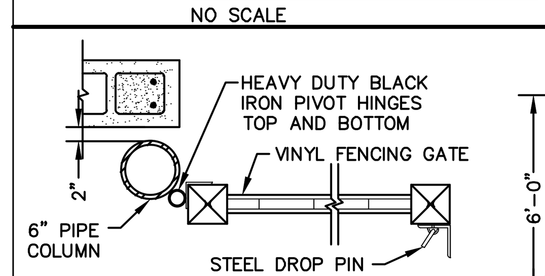
TRAFFIC FLOW ARROW
NO SCALE

RIP-RAP SCHEDULE (MINIMUMS)				
PIPE DIA. (IN.)	DEPTH (IN.)	WIDTH (FT.)	LENGTH (FT.)	MIN. TO MAX. SIZE RIP-RAP (IN.)
12	12	4	10	4-12
15	12	4	11	4-12
18	12	4	12	6-12
21	12	5	13	6-12
24	18	6	14	6-12
30	18	7	16	6-12
36	18	12	20	6-12
48	24	20	20	6-18
60	24	25	25	6-18

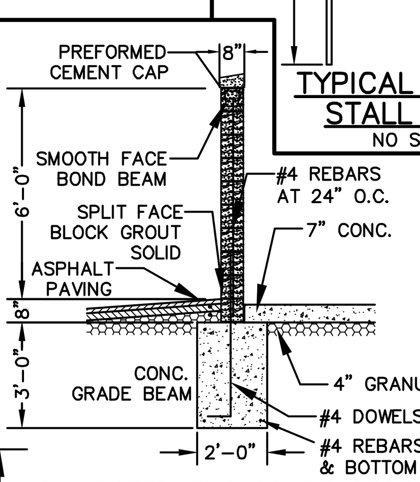


END SECTION AND RIP-RAP DETAIL
NO SCALE

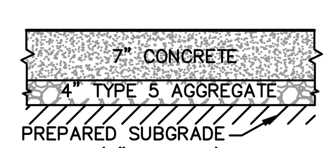
NOTE:
ALL NON-REINFORCED CONCRETE SHALL BE 4,000 PSI AT 28 DAYS.



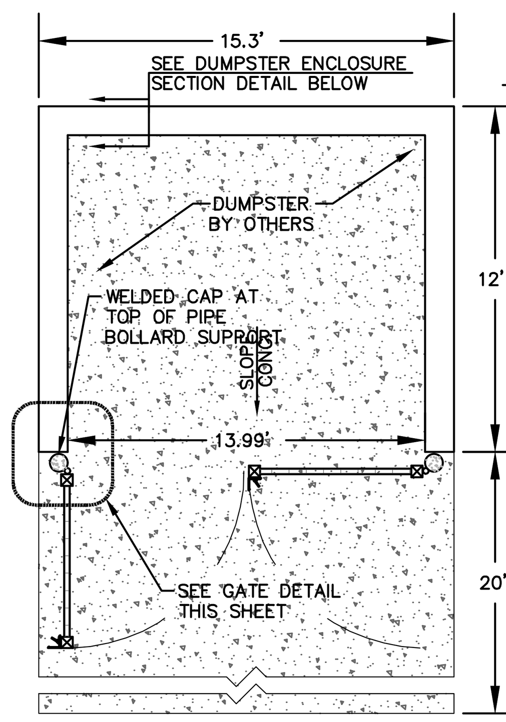
GATE DETAIL



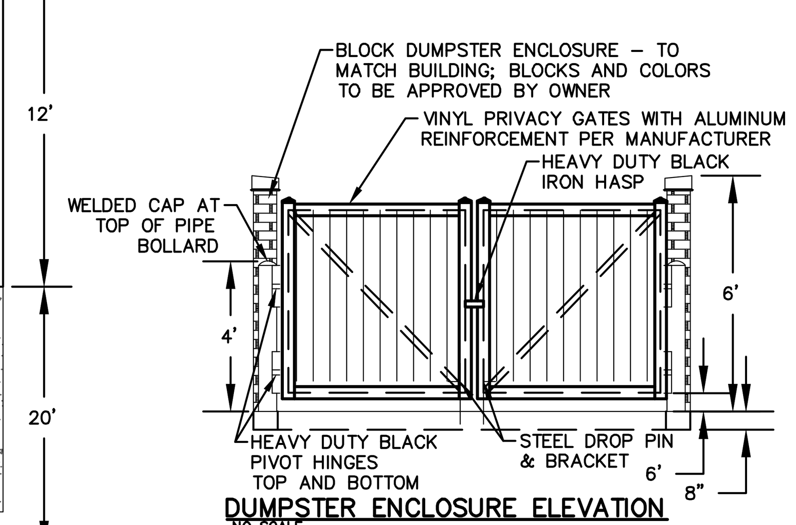
DUMPSTER ENCLOSURE SECTION



CONCRETE PAD DETAIL



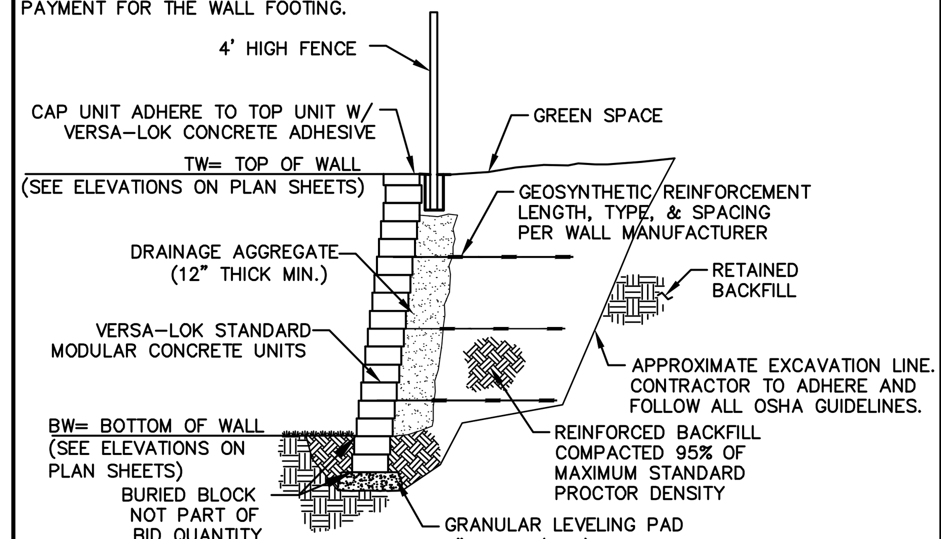
DUMPSTER ENCLOSURE PLAN
NO SCALE



DUMPSTER ENCLOSURE ELEVATION
NO SCALE

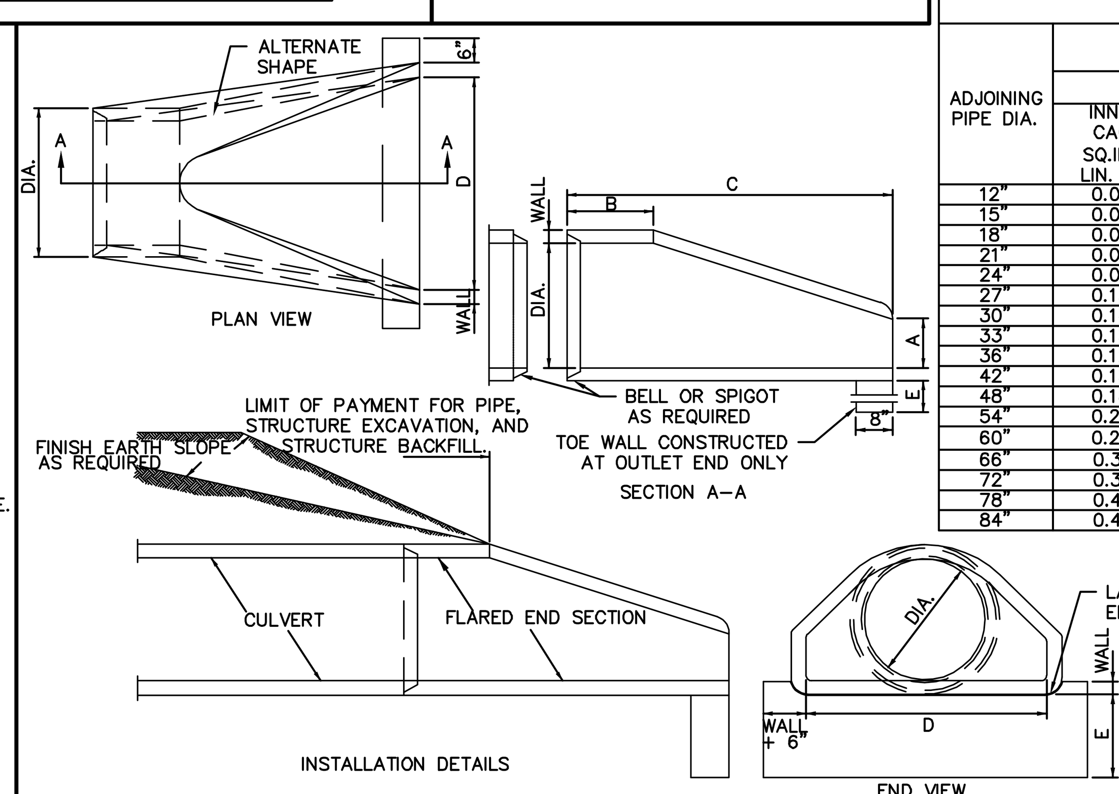
DUMPSTER ENCLOSURE DETAIL
NO SCALE

NOTE:
THE QUANTITIES OF WALL SHOWN IN THE BID FORM ARE BASED UPON SQUARE FEET OF EXPOSED WALL ACCORDING TO THE TW AND BW ELEVATIONS SHOWN ON THE PLANS. ANY BLOCK OR FOOTING BELOW THE BW ELEVATION SHOWN ON THE PLANS ARE DEPENDENT ON THE CONTRACTOR AND SELECTED WALL MANUFACTURER/DESIGNER AND SHOULD BE INCLUDED IN THE CONTRACTOR'S UNIT PRICE FOR THE WALL. THE CONTRACTOR SHALL NOT RECEIVE UNIT PRICE PAYMENT FOR ANY BLOCK BELOW FINISH GRADE OR ANY ADDITIONAL PAYMENT FOR THE WALL FOOTING.



NOTE:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR SELECTING A WALL MANUFACTURER WHO WILL BE RESPONSIBLE FOR THE WALL DESIGN ACCORDING TO SITE CHARACTERISTICS AND SUBMIT TO THE CITY FOR WALL PERMIT INDEPENDENT OF THE PERMIT ASSOCIATED WITH THIS SET OF PLANS.

TYPICAL SECTION—REINFORCED RETAINING WALL
NO SCALE

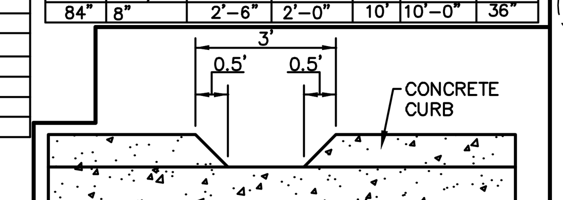


REINFORCEMENT					
ADJOINING PIPE DIA.	BARREL SECTION REINFORCEMENT			FLARE SECTION REINFORCEMENT (ONE LAYER ONLY IN CENTER OF WALL)	
	CIRCULAR		ELLIPTICAL		
	INNER CAGE SQ.IN./ LIN. FT.	OUTER CAGE SQ.IN./ LIN. FT.	SQ.IN./ LIN. FT.	AREA OF LONGITUDINAL SQ. IN./ LIN. FT.	AREA OF TRANSVERSE SQ. IN./ LIN. FT.
12"	0.07			0.048	0.048
15"	0.07			0.054	0.054
18"	0.07		0.07	0.060	0.060
21"	0.07		0.07	0.066	0.066
24"	0.07		0.07	0.072	0.072
27"	0.13		0.11	0.078	0.078
30"	0.14		0.12	0.084	0.084
33"	0.15		0.13	0.090	0.090
36"	0.12	0.09	0.13	0.096	0.096
42"	0.15	0.12	0.17	0.108	0.108
48"	0.18	0.14	0.20	0.120	0.120
54"	0.22	0.16	0.24	0.132	0.132
60"	0.25	0.19	0.28	0.144	0.144
66"	0.31	0.23	0.34	0.156	0.156
72"	0.35	0.21	0.39	0.170	0.170
78"	0.40	0.24	0.44	0.185	0.185
84"	0.46	0.28	0.51	0.205	0.205

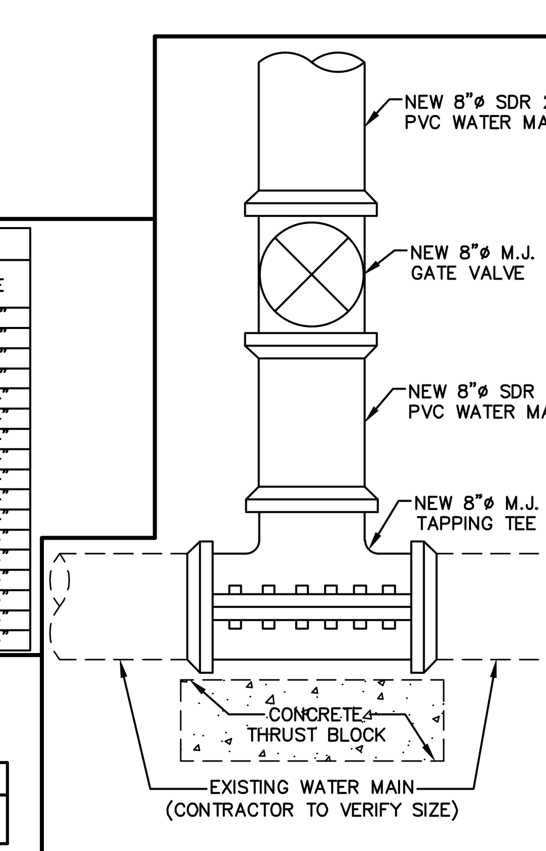
DIMENSIONS						
DIA.	WALL	A	B MIN.	C MIN.	D	E
12"	2"	4"	4'-0"	6'	2'-0"	18"
15"	2-1/4"	6"	3'-10"	6'	2'-6"	18"
18"	2-1/2"	9"	3'-10"	6'	3'-0"	18"
21"	2-3/4"	9"	3'-2"	6'	3'-6"	18"
24"	3"	9-1/2"	2'-6"	6'	4'-0"	24"
27"	3-1/4"	10-1/2"	2'-1"	6'	4'-6"	24"
30"	3-1/2"	1'-0"	1'-7"	6'	5'-0"	24"
33"	3-3/4"	1'-2"	1'-7"	6'	5'-6"	24"
36"	4"	1'-3"	2'-10"	8'	6'-0"	24"
42"	4-1/2"	1'-9"	2'-11"	8'	6'-6"	24"
48"	5"	2'-0"	2'-2"	8'	7'-0"	24"
54"	5-1/2"	2'-3"	2'-11"	8'	7'-6"	36"
60"	6"	2'-6"	3'-3"	8'	8'-0"	36"
66"	6-1/2"	2'-0"	1'-9"	8'	8'-6"	36"
72"	7"	2'-0"	2'-9"	10'	9'-0"	36"
78"	7-1/2"	2'-3"	2'-3"	10'	9'-6"	36"
84"	8"	2'-6"	2'-0"	10'	10'-0"	36"

GENERAL NOTES:
1. SLIGHT VARIATIONS IN BOTH SHAPE AND DIMENSIONS FROM THOSE SHOWN MAY BE ACCEPTED IF APPROVED BY THE ENGINEER.
2. NOT MORE THAN THREE LIFT HOLES MAY BE DRILLED OR CAST IN THE END SECTION FOR HANDLING AND LAYING.
3. LIFT LUGS OR BARS WILL BE PERMITTED IN PRECAST TOE WALLS.
4. TOE WALLS MAY BE CAST-IN-PLACE OR PRECAST.

CONCRETE FLARED END
NO SCALE



CURB CUT DETAIL
NO SCALE



DETAIL "A"
NO SCALE

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City of O'Fallon Standard Notes and Details — July 2019

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wentmail@cochraneng.com

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Missouri State Certificate of Authority Number: 2010000046

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Details

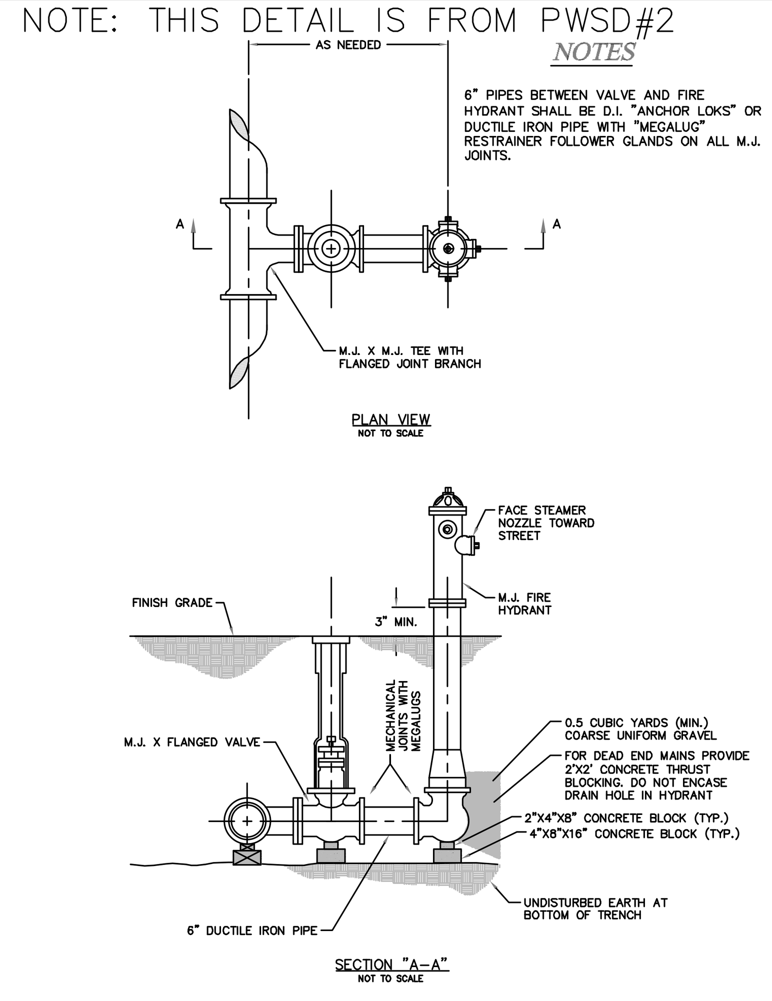
P+Z No. 21-00856

City No.

Page No.

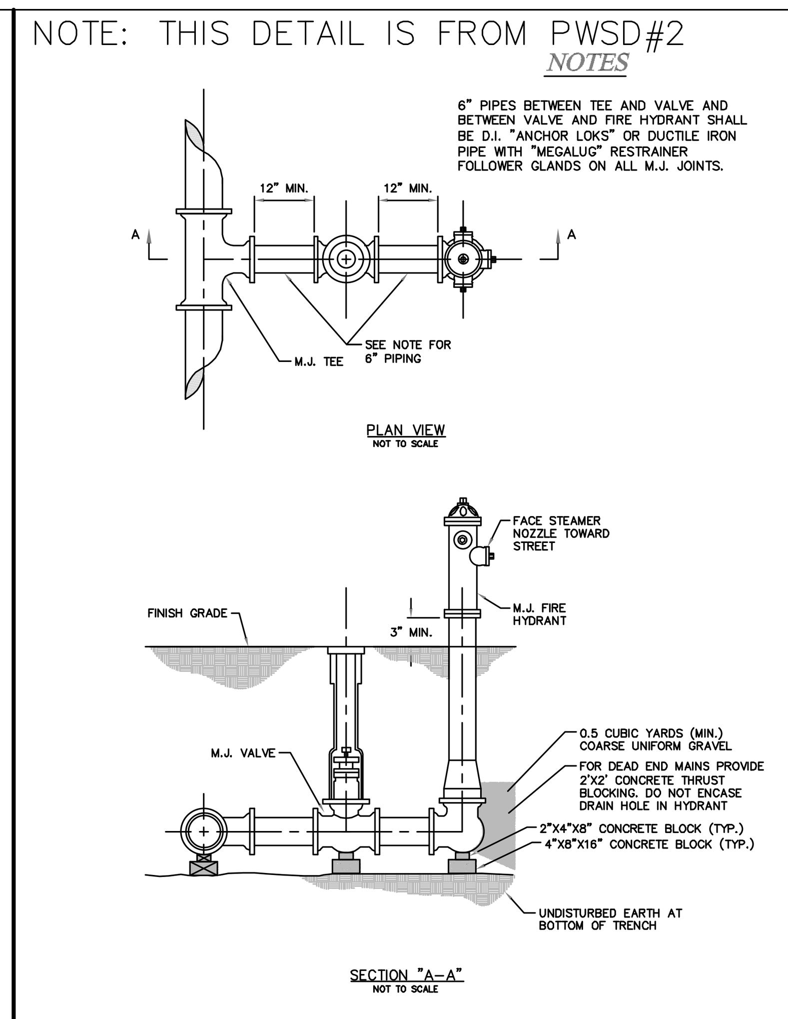
C16

NOTE: THIS DETAIL IS FROM PWSD#2



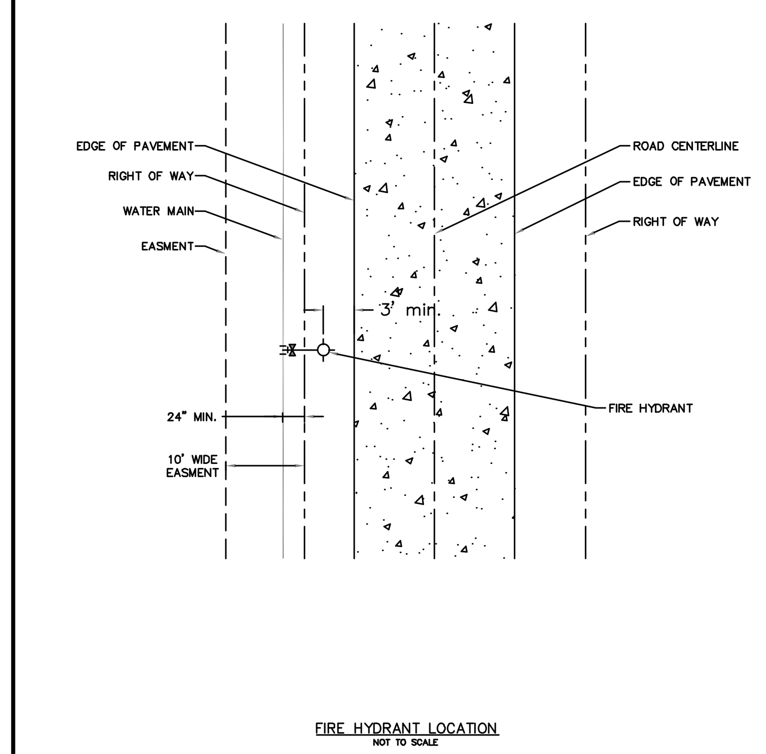
FIRE HYDRANT DETAIL
DETAIL "B"
PAGE 1 OF 3

NOTE: THIS DETAIL IS FROM PWSD#2



FIRE HYDRANT DETAIL
DETAIL "B"
PAGE 2 OF 3

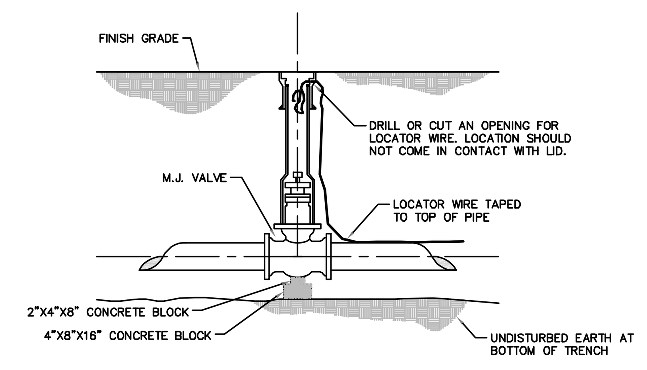
NOTE: MODIFIED DETAIL FROM PWSD#2



FIRE HYDRANT DETAIL
DETAIL "B"
PAGE 3 OF 3

NOTE: THIS DETAIL IS FROM PWSD#2

Buffalo box is an acceptable product to use.
Tyler 562–S and 564–S are acceptable products.

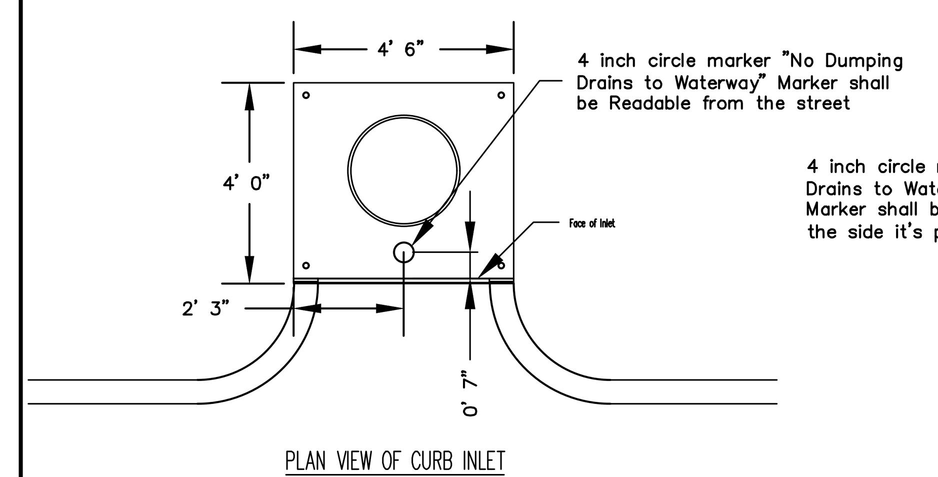


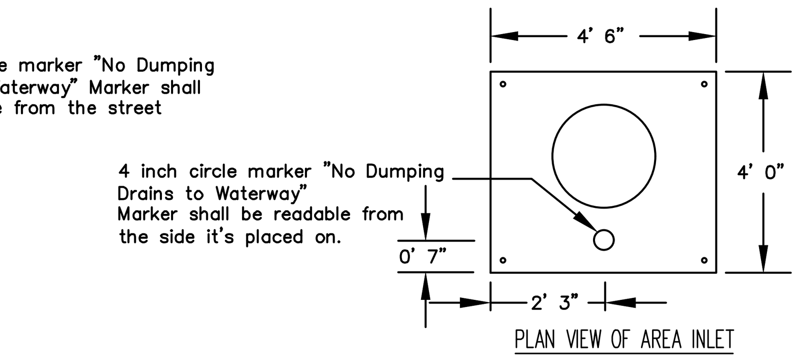
GATE VALVE DETAIL
NOT TO SCALE
DETAIL "D"

* The City of O'Fallon must be provided with a symbol/medallion for review and approval prior to installation.
Contact the City if any information is needed.

Size	Style	Adhesive	Message (Part #)
3 7/8" TO 4"	Crystal Cap or Standard Style	Epoxy	No Dumping Drains to Waterway

City will also allow the precast inlet stone with a similar message as an approved alternate to the marker.

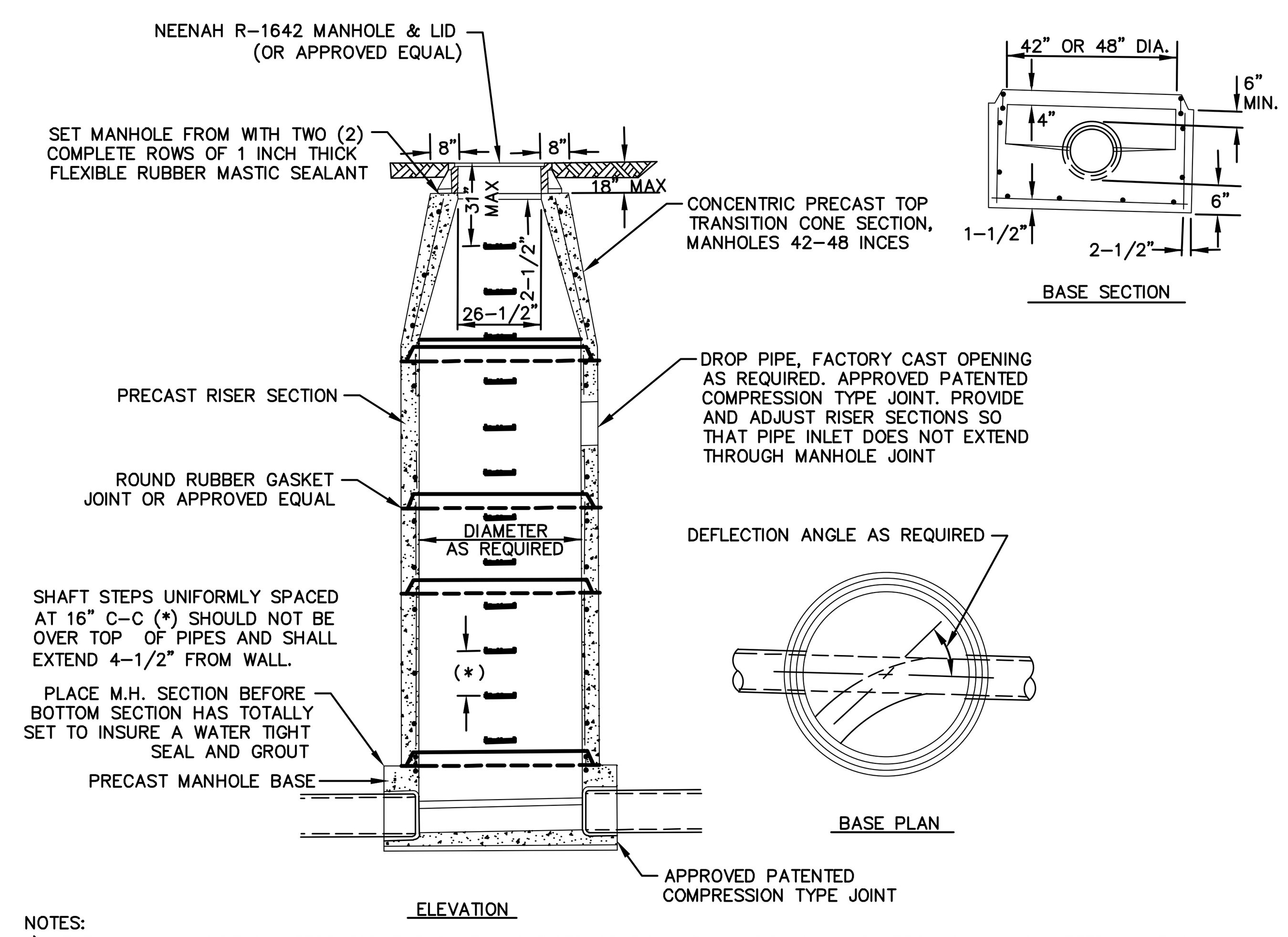




Public or Private inlets

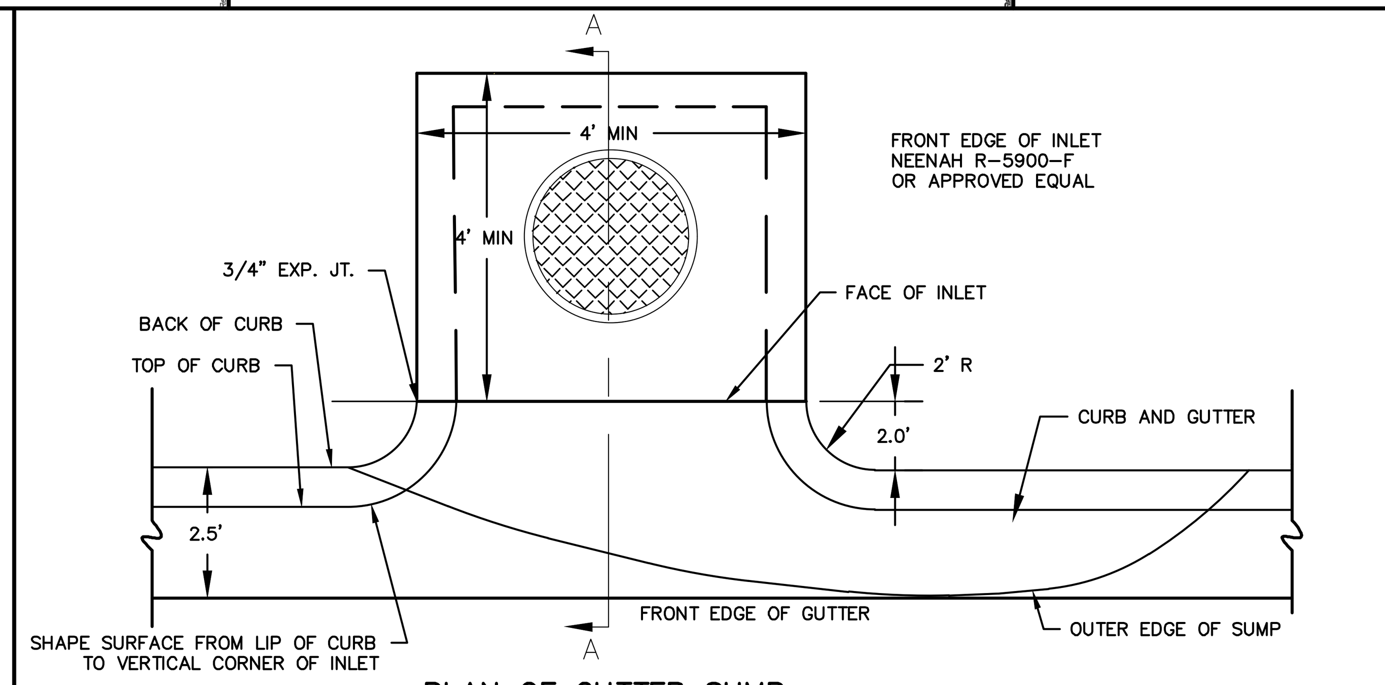
CITY OF O'FALLON
ENGINEERING DEPARTMENT
O'FALLON, MISSOURI

STORM DRAIN MARKER LOCATION

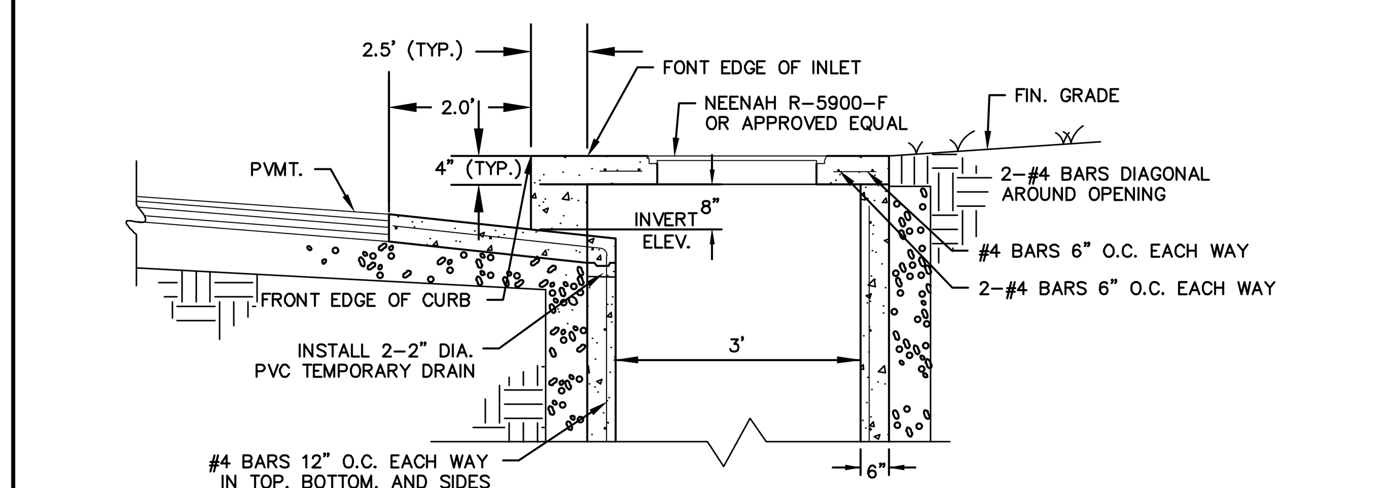


NOTES:
1) THE MINIMUM INSIDE DIAMETER FOR THE BASE AND RISER SECTIONS SHALL BE 42 INCHES FROM 8 INCH DIAMETER SANITARY SEWER AND ALL STORM SEWERS. THE MINIMUM INSIDE DIAMETER FOR SANITARY/STORM SEWER LARGER THAN 8 INCH DIAMETER IS 48 INCHES. MANHOLE SHALL MEET ASTM C-478 REQUIREMENTS.
2) FLOWLINE ELEVATIONS OF INCOMING PIPES SHALL BE 0.2 FEET HIGHER THAN THAT OF OUTGOING PIPE.
3) PIPE SIZES LARGER THAN 24 INCH DIAMETER MAY REQUIRE MANHOLE DIAMETERS OF 60 INCH, 72 INCH OR 96 INCH AS DETERMINED BY OUTSIDE DIAMETERS AND ORIENTATIONS FOR CONNECTING OF PIPES.
4) ECCENTRIC CONES SHALL BE USED ON DIAMETERS 60 INCH AND LARGER. STEPS SHALL EXTEND DOWN VERTICAL WALL OF CONE.
5) PRIOR TO FABRICATION, SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL OF MANHOLES ON PIPE DIAMETERS LARGER THAN 24 INCH AND ALSO FOR THOSE STRUCTURES WITH A DROP PIPE CONNECTION.

MANHOLE DETAIL
NO SCALE

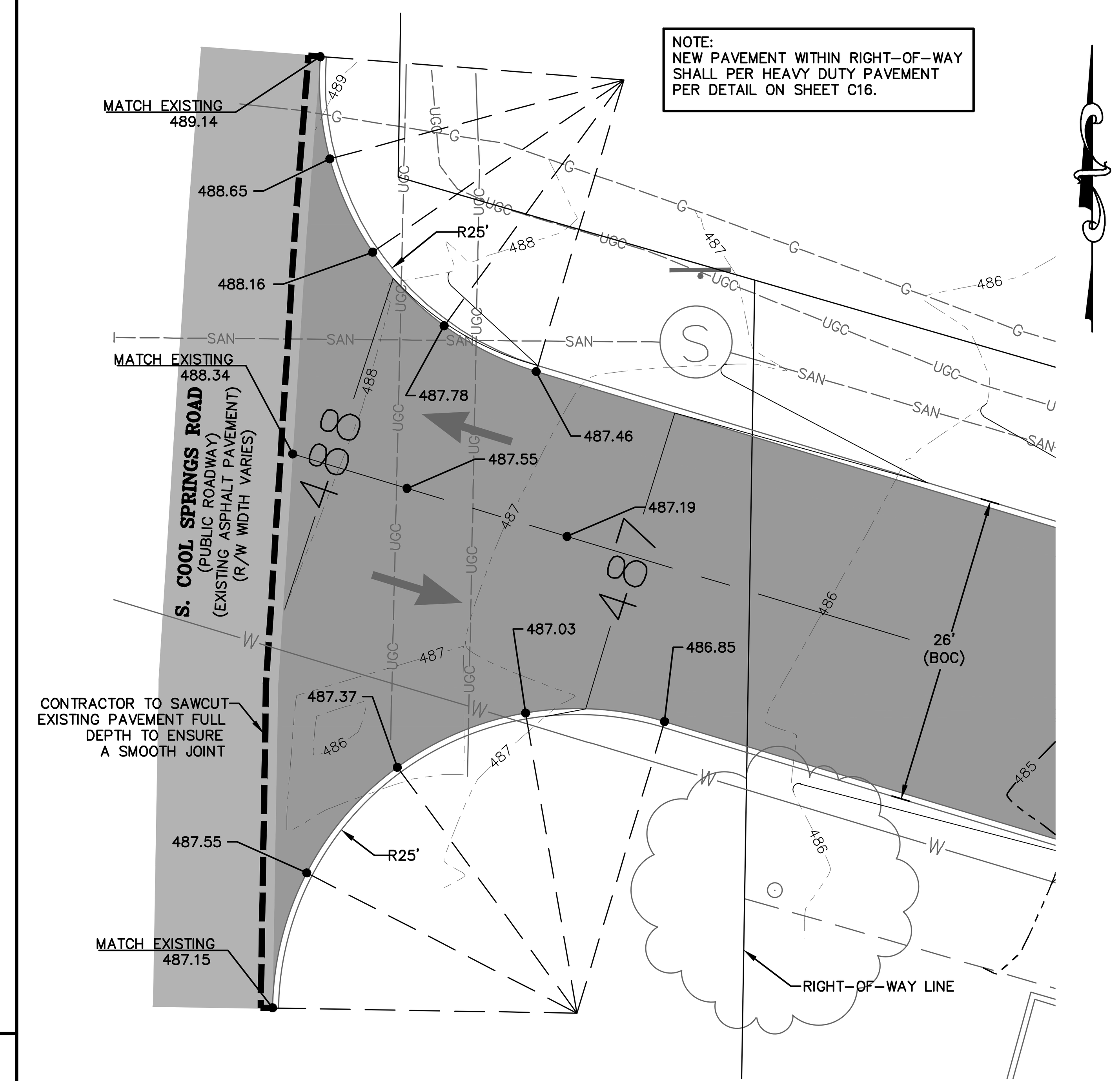


PLAN OF GUTTER SUMP



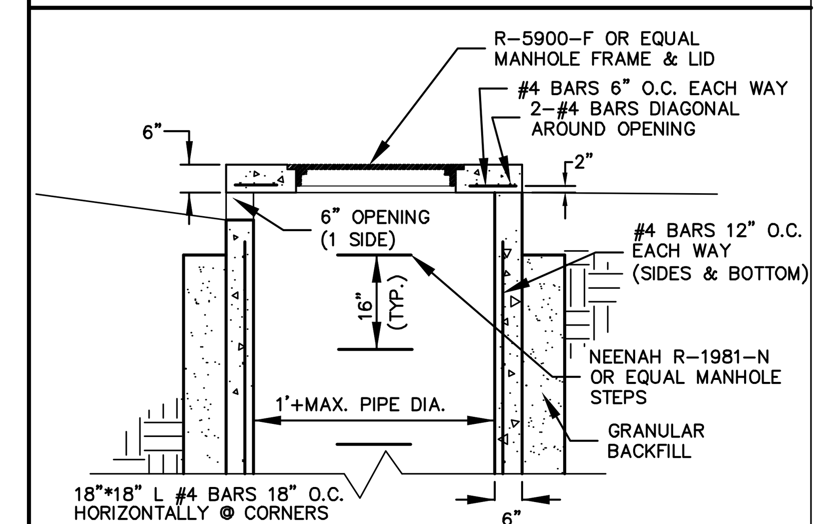
SECTION A–A SQUARE

TYPE "A" TOP CURB INLET DETAIL
NO SCALE



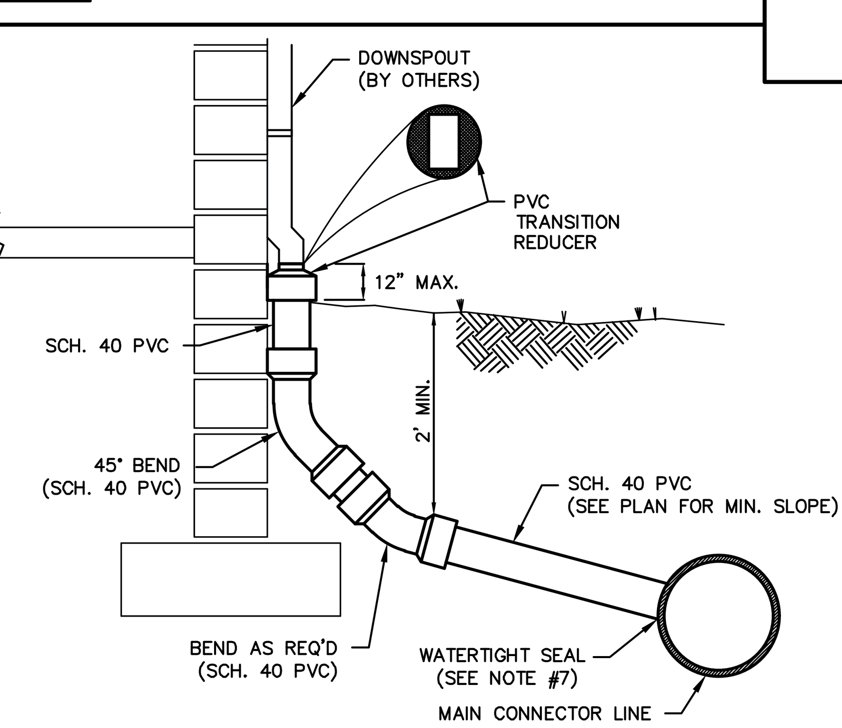
ENTRANCE WARPING DETAIL
SCALE 1" = 10'

NOTE:
ALL ELEVATIONS ARE TOP OF PAVEMENT.

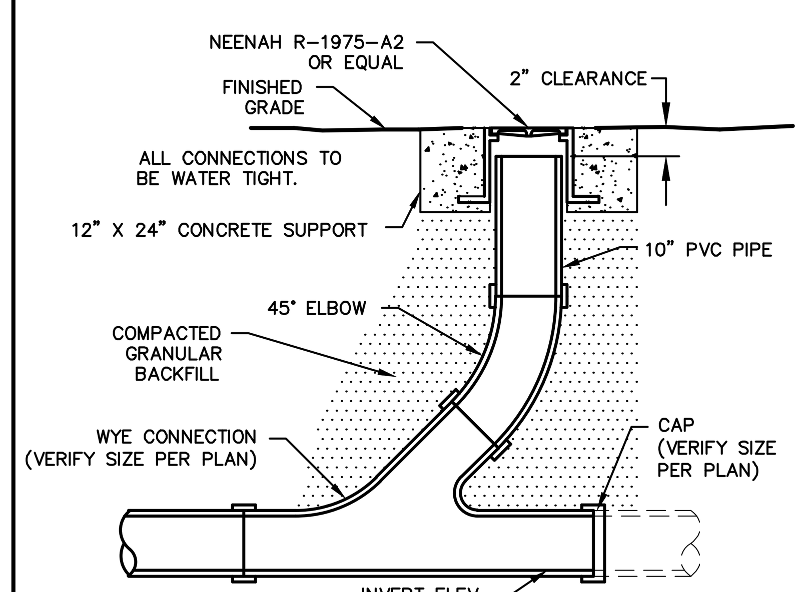


TYPE "B"
AREA INLET DETAIL
NO SCALE

1. ALL TRENCHES SHALL HAVE A BEDDING OF WELL GRADED, 1" MINUS, GRANULAR MATERIAL FROM 4" BELOW THE BOTTOM OF THE PIPE TO 1/2 THE DIAMETER OF THE PIPE COMPACTED TO 95% STANDARD PROCTOR DENSITY.
2. IN AREAS TO BE PAVED OVER, ENTIRE TRENCH TO BE BACKFILLED WITH WELL GRADED 1" MINUS GRANULAR MATERIAL & COMPACTED TO 95% OF THE STANDARD PROCTOR DENSITY.
3. IN AREAS OF CLEAN DIRT CUTS OUTSIDE OF PAVED AREAS, TRENCH MAY BE BACKFILLED WITH SAME MATERIAL AND COMPACTED TO 95% OF THE STANDARD PROCTOR DENSITY.
4. IN AREAS OF ROCK CUT, THE TRENCH SHALL BE BACKFILLED WITH WELL GRADED 1" MINUS GRANULAR MATERIAL TO 6" ABOVE TOP OF PIPE.
5. BACKFILL SHALL BE HOLLOWED OUT FOR PIPE JOINTS AND FITTINGS. PIPE JOINTS ARE TO BE UNSUPPORTED.
6. IN ALL CASES TRENCHING & BACKFILLING SHALL MEET OR EXCEED THE PIPE MANUFACTURER'S RECOMMENDED INSTALLATION METHODS
7. WATERTIGHT CONNECTION SHALL BE MAINTAINED WITH ANY TRANSITION FROM SCHEDULE 40 PVC PIPE TO ANY OTHER PIPE TYPE.
8. THE DOWNSPOUT COLLECTOR DRAIN SHALL BE INSTALLED BEFORE THE DOWNSPOUTS ARE INSTALLED ON THE BUILDING. SITEWORK CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK TO AND INCLUDING THE RODENT SCREEN. BUILDING CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONNECTION AT THE POINT OF THE RODENT SCREEN.
9. DOWNSPOUT SIZE WILL CONTROL SCH 40 SIZE TO MAIN COLLECTOR LINE

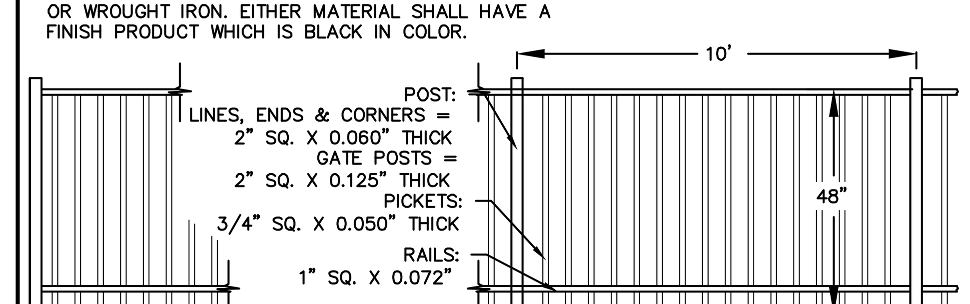


DOWNSPOUT COLLECTOR DETAIL
NO SCALE



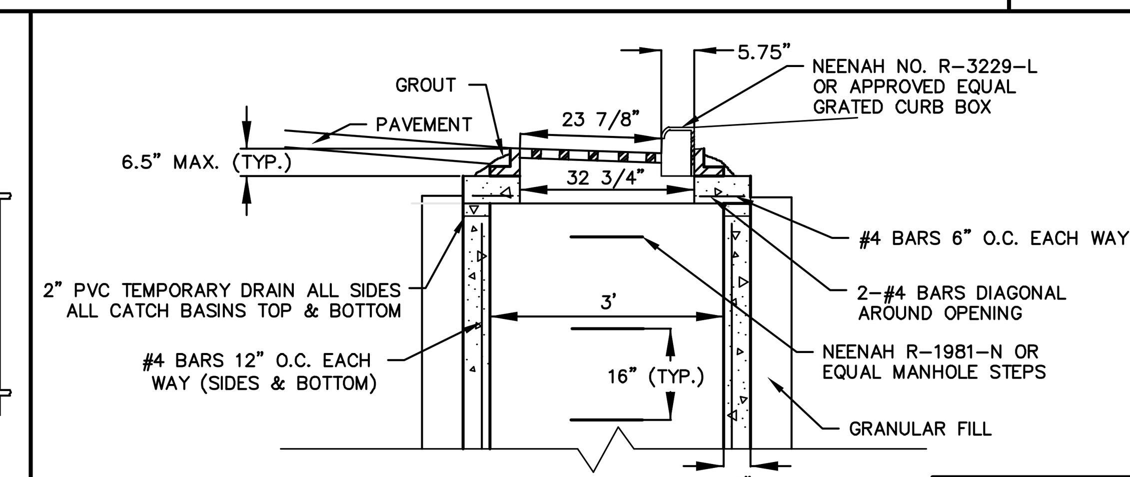
DOWNSPOUT CLEANOUT DETAIL
NO SCALE

NOTE:
FENCE SHALL BE PAINTED POWDER COATED ALUMINUM OR WROUGHT IRON. EITHER MATERIAL SHALL HAVE A FINISH PRODUCT WHICH IS BLACK IN COLOR.



NOTE: ALL FENCING TO BE "CELTIC" STYLE, FLAT TOP 3-RAIL, 48" TALL, STANDARD VINTAGE SQUARE DESIGN, BY MERCHANT METALS. ALL FENCING, GATES AND INSTALLATION SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS.

METAL FENCE
NO SCALE



GRATED CURB INLET DETAIL
NO SCALE

All OSHA rules & regulations established for the type of construction required by these plans shall be strictly followed (ie. Trenching, Blasting, etc.)

CALL OR CLICK 3 DAYS BEFORE YOU DIG!
1-800-DIG-RITE or 811
www.mo1call.com
MISSOURI ONE CALL SYSTEM

City of O'Fallon Standard Notes and Details – July 2019

C3 INDUSTRIES

North Office
8 East Main Street
Wentzville, Missouri 63385
636-332-4574 (tel.)
636-327-0760 (fax)
• Civil Engineering
• Land Surveying
• Architecture
• Site Development
• General Consulting
• Master Planning

COCHRAN

Missouri State Certificate of Authority Number: 2010000046

Cochran Project No. M20-8003A

STATE OF MISSOURI
MICHAEL L. HACKMEISTER
NUMBER PE-2017018980
PROFESSIONAL ENGINEER

DATE

Michael L. Hackmeister No. E-2017018980
Registered Professional Engineer
State of Missouri
for Cochran Engineering & Surveying

Developer Information
OPS MISSOURI HOLDINGS, LLC
2082 SOUTH STATE STREET: ANN ARBOR, MI 48104
(734)-323-1822

Owner Information
COOL SPRINGS EAST, LLC
2025 ZUMBEHL ROAD #187; ST. CHARLES, MO 63303

Details

P+Z No. 21-00856

City No.

Page No.
C17

EX1			
OPEN	GRAVEL	PAVED	BUILDING
24375	1544		
24375	1544	0	0
0.56	0.04	0	0
COMPOSITE PI =		1.81	
		Q =	1.09

EX2			
OPEN	GRAVEL	PAVED	BUILDING
20687			
20687	0	0	0
0.47	0	0	0
COMPOSITE PI =		1.7	
		Q =	0.8

EX3			
OPEN	GRAVEL	PAVED	BUILDING
45693	4726		
45693	4726	0	0
1.05	0.11	0	0
COMPOSITE PI =		1.86	
		Q =	2.16

EX4			
OPEN	GRAVEL	PAVED	BUILDING
53495			
53495	0	0	0
1.23	0	0	0
COMPOSITE PI =		1.7	
		Q =	2.09

OPEN	GRAVEL
8394	
8394	0
0.19	0
COMPOSITE PI =	

TOTAL EXISTING =	17.92

15YR 20 MIN

POST 1			
OPEN	GRAVEL	PAVED	BUILDING
,		1590	
0	0	1590	0
0	0	0.04	0
COMPOSITE PI =		3.54	
		Q =	0.14

15YR 20 MIN

POST 2			
OPEN	GRAVEL	PAVED	BUILDING
12602			
12602	0	0	0
0.29	0	0	0
COMPOSITE PI =		1.7	
		Q =	0.49

POST 3			
OPEN	GRAVEL	PAVED	BUILDING
98565			
98565	0	0	0
2.26	0	0	0
COMPOSITE PI =		1.70	
		Q =	3.84

POST 4			
OPEN	GRAVEL	PAVED	BUILDING
16561			10101
16561	0	0	10101
0.38	0	0	0.23
COMPOSITE PI =		2.39	
		Q =	1.46

	P
OPEN	GRAVEL
0	0
0	0
COMPOSITE PI =	

TOTAL PROPOSED =	13.32

OFF 1			
OPEN	GRAVEL	PAVED	BUILDING
137119			
137119	0	0	0
3.15	0	0	0
COMPOSITE PI =		1.7	
		Q =	5.36

OFF 2			
OPEN	GRAVEL	PAVED	BUILDING
8899			
8899	0	0	0
0.2	0	0	0
COMPOSITE PI =		1.7	
		Q =	0.34

OFF 3			
OPEN	GRAVEL	PAVED	BUILDING
		10517	
0	0	10517	0
0	0	0.24	0
COMPOSITE PI =		3.54	
		Q =	0.85

OFF 4			
OPEN	GRAVEL	PAVED	BUILDING
		9775	
0	0	9775	0
0	0	0.22	0
COMPOSITE PI =		3.54	
		Q =	0.779

	(
OPEN	GRAVEL
43842	
43842	0
1.01	0
COMPOSITE PI =	

TOTAL OFFSITE =	8.284

EX5	
PAVED	BUILDING
0	0
0	0
1.7	
Q =	0.32

EX6			
OPEN	GRAVEL	PAVED	BUILDING
83717			
83717	0	0	0
1.92	0	0	0
COMPOSITE PI =		1.7	
		Q =	3.26

EX7			
OPEN	GRAVEL	PAVED	BUILDING
139951			
139951	0	0	0
3.21	0	0	0
COMPOSITE PI =		1.7	
		Q =	5.46

EX8			
OPEN	GRAVEL	PAVED	BUILDING
8899			
8899	0	0	0
0.2	0	0	0
COMPOSITE PI =		1.7	
		Q =	0.34

EX9		
OPEN	GRAVEL	PAVED
17511		
17511	0	0
0.4	0	0
COMPOSITE PI =		1
		Q =

OST 5	
PAVED	BUILDING
2185	
2185	0
0.05	0
3.54	
Q =	0.18

POST 6			
OPEN	GRAVEL	PAVED	BUILDING
		2161	
0	0	2161	0
0	0	0.05	0
COMPOSITE PI =		3.54	
		Q =	0.18

POST 7			
OPEN	GRAVEL	PAVED	BUILDING
		7514	
0	0	7514	0
0	0	0.17	0
COMPOSITE PI =		3.54	
		Q =	0.6

POST 8			
OPEN	GRAVEL	PAVED	BUILDING
			20124
0	0	0	20124
0	0	0	0.46
COMPOSITE PI =		3.54	
		Q =	1.63

POST 9		
OPEN	GRAVEL	PAVED
21294		
21294	0	0
0.49	0	0
COMPOSITE PI =		2
		Q =

OFF 5	
PAVED	BUILDING
0	0
0	0
1.7	
Q =	1.717

OFF 6			
OPEN	GRAVEL	PAVED	BUILDING
369			
369	0	0	0
0.01	0	0	0
COMPOSITE PI =		1.7	
		Q =	0.017

OFFSITE TRIB. TO AI 29			
OPEN	GRAVEL	PAVED	BUILDING
7715			
7715	0	0	0
0.18	0	0	0
COMPOSITE PI =		1.7	
		Q =	0.306

	BUILDING
	0
	0
.70	
	0.68

EX10			
OPEN	GRAVEL	PAVED	BUILDING
41052			
41052	0	0	0
0.94	0	0	0
COMPOSITE PI =		1.7	
	Q =	1.6	

EX11			
OPEN	GRAVEL	PAVED	BUILDING
2729			
2729	0	0	0
0.06	0	0	0
COMPOSITE PI =		1.7	
	Q =	0.1	

EX12			
OPEN	GRAVEL	PAVED	BUILDING
369			
369	0	0	0
0.01	0	0	0
COMPOSITE PI =		1.7	
	Q =	0.02	

	BUILDING
	9994
	9994
	0.23
.29	
	1.65

POST 10			
OPEN	GRAVEL	PAVED	BUILDING
		5582	
0	0	5582	0
0	0	0.13	0
COMPOSITE PI =		3.54	
	Q =	0.46	

POST 11			
OPEN	GRAVEL	PAVED	BUILDING
		5183	
0	0	5183	0
0	0	0.12	0
COMPOSITE PI =		3.54	
	Q =	0.42	

POST 12			
OPEN	GRAVEL	PAVED	BUILDING
301		5283	
301	0	5283	0
0.01	0	0.12	0
COMPOSITE PI =		3.4	
	Q =	0.44	

POST 13			
OPEN	GRAVEL	PAVED	BUILDING
252		3921	
252	0	3921	0
0.01	0	0.09	0
COMPOSITE PI =		3.36	
	Q =	0.34	

POST 14			
OPEN	GRAVEL	PAVED	BUILDING
1753		4241	
1753	0	4241	0
0.04	0	0.1	0
COMPOSITE PI =		3.01	
		Q =	0.42

POST 15			
OPEN	GRAVEL	PAVED	BUILDING
		1281	
0	0	1281	0
0	0	0.03	0
COMPOSITE PI =		3.54	
		Q =	0.11

POST 16			
OPEN	GRAVEL	PAVED	BUILDING
		1281	
0	0	1281	0
0	0	0.03	0
COMPOSITE PI =		3.54	
		Q =	0.11

POST 17			
OPEN	GRAVEL	PAVED	BUILDING
		1152	
0	0	1152	0
0	0	0.03	0
COMPOSITE PI =		3.54	
		Q =	0.11

POS	
OPEN	GRAVEL
0	0
0	0
COMPOSITE PI =	

ST 18	
PAVED	BUILDING
3516	
3516	0
0.08	0
3.54	
Q =	0.28

POST 19			
OPEN	GRAVEL	PAVED	BUILDING
837		5332	
837	0	5332	0
0.02	0	0.12	0
COMPOSITE PI =		3.28	
		Q =	0.46

RESULTS

	Tc			
	2 YEAR	15 YEAR	25 YEAR	100 YEAR
EXISTING =	11.729	16.409	18.305	21.861
PROPOSED =	13.404	20.153	22.451	26.834
PROPOSED OFFSITE =	7.070	10.120	11.281	13.477
PROPOSED TOTAL =	20.474	30.274	33.732	40.311
DIFFERENCE =	8.745	13.865	15.427	18.450

	1-HOUR			
	2 YEAR	15 YEAR	25 YEAR	100 YEAR
EXISTING =	3.414	5.268	7.902	7.483
PROPOSED =	3.944	6.085	9.127	8.643
PROPOSED OFFSITE =	2.086	3.132	4.698	4.449
PROPOSED TOTAL =	6.029	9.217	13.825	13.092
DIFFERENCE =	2.615	3.949	5.923	5.609

	24-HOUR			
	2 YEAR	15 YEAR	25 YEAR	100 YEAR
EXISTING =	0.273	0.469	0.854	0.855
PROPOSED =	0.316	0.541	0.986	0.988
PROPOSED OFFSITE =	0.162	0.279	0.508	0.509
PROPOSED TOTAL =	0.478	0.820	1.494	1.496
DIFFERENCE =	0.205	0.351	0.640	0.641

WORST CASE FOR EACH STORM EVENT

	2 YEAR	15 YEAR	25 YEAR	100 YEAR
EXISTING =	11.729	16.409	18.305	21.861
PROPOSED =	13.404	20.153	22.451	26.834
PROPOSED OFFSITE =	7.070	10.120	11.281	13.477
PROPOSED TOTAL =	20.474	30.274	33.732	40.311
DIFFERENCE =	8.745	13.865	15.427	18.450

2 YEAR, TC

EX1			
OPEN	GRAVEL	PAVED	BUILDING
70068.33	6269.89		
70068.33	6269.89	0	0
0.322	0.122	0.000	0.000
COMPOSITE C =		0.253	
L =	268	S =	0.034
Tc =	2.134	I =	6.226
Q =		2.764	

EX2			
OPEN	GRAVEL	PAVED	BUILDING
157899.9			
157899.9	0	0	0
0.725	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	624	S =	0.013
Tc =	5.931	I =	5.085
Q =		3.686	

EX3			
OPEN	GRAVEL	PAVED	BUILDING
139950.8			
139950.8	0	0	0
0.643	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	594	S =	0.010
Tc =	6.279	I =	5.002
Q =		3.214	

EX4			
OPEN	GRAVEL	PAVED	BUILDING
8394.2			
8394.2	0	0	0
0.039	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	40	S =	0.025
Tc =	0.553	I =	6.888
Q =		0.265	

EX5			
OPEN	GRAVEL	PAVED	BUILDING
2729.03			
2729.03	0	0	0
0.013	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	23	S =	0.261
Tc =	0.146	I =	7.085
Q =		0.089	

EX6			
OPEN	GRAVEL	PAVED	BUILDING
41051.63			
41051.63	0	0	0
0.188	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	659	S =	0.032
Tc =	4.352	I =	5.499
Q =		1.036	

POST 1			
OPEN	GRAVEL	PAVED	BUILDING
12602			
12602	0	0	0
0.058	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	101	S =	0.040
Tc =	0.945	I =	6.710
Q =		0.388	

POST 2			
OPEN	GRAVEL	PAVED	BUILDING
98565			
98565	0	0	0
0.453	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	505	S =	0.024
Tc =	3.956	I =	5.615
Q =		2.541	

POST 3			
OPEN	GRAVEL	PAVED	BUILDING
40998		46705	40236
40998	0	46705	40236
0.188	0.000	0.965	0.831
COMPOSITE C =		0.676	
L =	241	S =	0.003
Tc =	5.346	I =	5.230
Q =		10.379	

POST 4			
OPEN	GRAVEL	PAVED	BUILDING
3516			
3516	0	0	0
0.016	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	123	S =	0.003
Tc =	2.896	I =	5.953
Q =		0.096	

OFF 1			
OPEN	GRAVEL	PAVED	BUILDING
		20288	
0	0	20288	0
0.000	0.000	0.419	0.000
COMPOSITE C =		0.900	
L =	642	S =	0.027
Tc =	4.555	I =	5.442
Q =		2.281	

OFF 2			
OPEN	GRAVEL	PAVED	BUILDING
137119			
137119	0	0	0
0.630	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	592	S =	0.012
Tc =	5.838	I =	5.107
Q =		3.215	

OFF 3			
OPEN	GRAVEL	PAVED	BUILDING
8899			
8899	0	0	0
0.041	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	631	S =	0.027
Tc =	4.488	I =	5.460
Q =		0.223	

OFF 4			
OPEN	GRAVEL	PAVED	BUILDING
43842			
43842	0	0	0
0.201	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	645	S =	0.030
Tc =	4.383	I =	5.490
Q =		1.105	

OFF 5			
OPEN	GRAVEL	PAVED	BUILDING
369			
369	0	0	0
0.002	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	26	S =	0.269
Tc =	0.159	I =	7.078
Q =		0.012	

OFF 6			
OPEN	GRAVEL	PAVED	BUILDING
7715			
7715	0	0	0
0.035	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	183	S =	0.067
Tc =	1.219	I =	6.591
Q =		0.233	

EXISTING =	11.729
PROPOSED =	13.404
PROPOSED OFFSITE =	7.070
PROPOSED TOTAL =	20.474
DIFFERENCE =	8.745

RATIONAL DATA		
FREQUENC	2	YEARS
DURATION	TC	MIN.
I =	0.126	
C, IMP =	0.9	
C, PERV =	0.2	
C, GRA. =	0.85	

EX7			
OPEN	GRAVEL	PAVED	BUILDING
17510.95			
17510.95	0	0	0
0.080	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	663	S =	0.030
Tc =	4.465	I =	5.467
Q =		0.440	

EX8			
OPEN	GRAVEL	PAVED	BUILDING
8898.62			
8898.62	0	0	0
0.041	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	668	S =	0.028
Tc =	4.599	I =	5.429
Q =		0.222	

EX9			
OPEN	GRAVEL	PAVED	BUILDING
369.03			
369.03	0	0	0
0.002	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	30	S =	0.033
Tc =	0.398	I =	6.962
Q =		0.012	

2 YEAR,1 HOUR

EX1			
OPEN	GRAVEL	PAVED	BUILDING
70068.33	6269.89		
70068.33	6269.89	0	0
0.322	0.122	0.000	0.000
COMPOSITE C =		0.253	
L =	268	S =	0.034
Tc =	2.134	I =	1.571
Q =		0.697	

EX2			
OPEN	GRAVEL	PAVED	BUILDING
157899.9			
157899.9	0	0	0
0.725	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	624	S =	0.013
Tc =	5.931	I =	1.571
Q =		1.139	

EX3			
OPEN	GRAVEL	PAVED	BUILDING
139950.8			
139950.8	0	0	0
0.643	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	594	S =	0.010
Tc =	6.279	I =	1.571
Q =		1.009	

EX4			
OPEN	GRAVEL	PAVED	BUILDING
8394.2			
8394.2	0	0	0
0.039	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	40	S =	0.025
Tc =	0.553	I =	1.571
Q =		0.061	

EX5			
OPEN	GRAVEL	PAVED	BUILDING
2729.03			
2729.03	0	0	0
0.013	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	23	S =	0.261
Tc =	0.146	I =	1.571
Q =		0.020	

EX6			
OPEN	GRAVEL	PAVED	BUILDING
41051.63			
41051.63	0	0	0
0.188	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	659	S =	0.032
Tc =	4.352	I =	1.571
Q =		0.296	

POST 1			
OPEN	GRAVEL	PAVED	BUILDING
12602	0	0	0
12602	0	0	0
0.058	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	101	S =	0.040
Tc =	0.945	I =	1.571
Q =		0.091	

POST 2			
OPEN	GRAVEL	PAVED	BUILDING
98565	0	0	0
98565	0	0	0
0.453	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	505	S =	0.024
Tc =	3.956	I =	1.571
Q =		0.711	

POST 3			
OPEN	GRAVEL	PAVED	BUILDING
40998	0	46705	40236
40998	0	46705	40236
0.188	0.000	0.965	0.831
COMPOSITE C =		0.676	
L =	241	S =	0.003
Tc =	5.346	I =	1.571
Q =		3.117	

POST 4			
OPEN	GRAVEL	PAVED	BUILDING
3516	0	0	0
3516	0	0	0
0.016	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	123	S =	0.003
Tc =	2.896	I =	1.571
Q =		0.025	

OFF 1			
OPEN	GRAVEL	PAVED	BUILDING
0	0	20288	0
0	0	20288	0
0.000	0.000	0.419	0.000
COMPOSITE C =		0.900	
L =	642	S =	0.027
Tc =	4.555	I =	1.571
Q =		0.658	

OFF 2			
OPEN	GRAVEL	PAVED	BUILDING
137119	0	0	0
137119	0	0	0
0.630	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	592	S =	0.012
Tc =	5.838	I =	1.571
Q =		0.989	

OFF 3			
OPEN	GRAVEL	PAVED	BUILDING
8899	0	0	0
8899	0	0	0
0.041	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	631	S =	0.030
Tc =	4.337	I =	1.571
Q =		0.064	

OFF 4			
OPEN	GRAVEL	PAVED	BUILDING
43842	0	0	0
43842	0	0	0
0.201	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	645	S =	0.030
Tc =	4.383	I =	1.571
Q =		0.316	

OFF 5			
OPEN	GRAVEL	PAVED	BUILDING
369	0	0	0
369	0	0	0
0.002	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	26	S =	0.269
Tc =	0.159	I =	1.571
Q =		0.003	

OFF 6			
OPEN	GRAVEL	PAVED	BUILDING
7715	0	0	0
7715	0	0	0
0.035	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	183	S =	0.067
Tc =	1.219	I =	1.571
Q =		0.056	

EXISTING =	3.414
PROPOSED =	3.944
PROPOSED OFFSITE =	2.086
PROPOSED TOTAL =	6.029
DIFFERENCE =	2.615

RATIONAL DATA		
FREQUENC	2	YEARS
DURATION	60	MIN.
I =	1.571	
C, IMP =	0.9	
C, PERV =	0.2	
C, GRA. =	0.85	

EX7			
OPEN	GRAVEL	PAVED	BUILDING
17510.95			
17510.95	0	0	0
0.080	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	663	S =	0.030
Tc =	4.465	I =	1.571
Q =		0.126	

EX8			
OPEN	GRAVEL	PAVED	BUILDING
8898.62			
8898.62	0	0	0
0.041	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	668	S =	0.028
Tc =	4.599	I =	1.571
Q =		0.064	

EX9			
OPEN	GRAVEL	PAVED	BUILDING
369.03			
369.03	0	0	0
0.002	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	30	S =	0.033
Tc =	0.398	I =	1.571
Q =		0.003	

2 YEAR,24 HOUR

EX1			
OPEN	GRAVEL	PAVED	BUILDING
70068.33	6269.89		
70068.33	6269.89	0	0
0.322	0.122	0.000	0.000
COMPOSITE C =		0.253	
L =	268	S =	0.034
Tc =	2.134	I =	0.126
Q =		0.056	

EX2			
OPEN	GRAVEL	PAVED	BUILDING
157899.9			
157899.9	0	0	0
0.725	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	624	S =	0.013
Tc =	5.931	I =	0.126
Q =		0.091	

EX3			
OPEN	GRAVEL	PAVED	BUILDING
139950.8			
139950.8	0	0	0
0.643	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	594	S =	0.010
Tc =	6.279	I =	0.126
Q =		0.081	

EX4			
OPEN	GRAVEL	PAVED	BUILDING
8394.2			
8394.2	0	0	0
0.039	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	40	S =	0.025
Tc =	0.553	I =	0.126
Q =		0.005	

EX5			
OPEN	GRAVEL	PAVED	BUILDING
2729.03			
2729.03	0	0	0
0.013	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	23	S =	0.261
Tc =	0.146	I =	0.126
Q =		0.002	

EX6			
OPEN	GRAVEL	PAVED	BUILDING
41051.63			
41051.63	0	0	0
0.188	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	659	S =	0.032
Tc =	4.352	I =	0.126
Q =		0.024	

POST 1			
OPEN	GRAVEL	PAVED	BUILDING
12602	0	0	0
12602	0	0	0
0.058	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	101	S =	0.040
Tc =	0.945	I =	0.126
Q =		0.007	

POST 2			
OPEN	GRAVEL	PAVED	BUILDING
98565	0	0	0
98565	0	0	0
0.453	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	505	S =	0.024
Tc =	3.956	I =	0.126
Q =		0.057	

POST 3			
OPEN	GRAVEL	PAVED	BUILDING
40998	0	46705	40236
40998	0	46705	40236
0.188	0.000	0.965	0.831
COMPOSITE C =		0.676	
L =	241	S =	0.003
Tc =	5.346	I =	0.126
Q =		0.249	

POST 4			
OPEN	GRAVEL	PAVED	BUILDING
3516	0	0	0
3516	0	0	0
0.016	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	123	S =	0.003
Tc =	2.896	I =	0.126
Q =		0.002	

OFF 1			
OPEN	GRAVEL	PAVED	BUILDING
0	0	20288	0
0	0	20288	0
0.000	0.000	0.419	0.000
COMPOSITE C =		0.900	
L =	642	S =	0.027
Tc =	4.555	I =	0.126
Q =		0.053	

OFF 4			
OPEN	GRAVEL	PAVED	BUILDING
137119	0	0	0
137119	0	0	0
0.630	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	592	S =	0.012
Tc =	5.838	I =	0.126
Q =		0.079	

OFF 3			
OPEN	GRAVEL	PAVED	BUILDING
8899	0	0	0
8899	0	0	0
0.041	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	631	S =	0.027
Tc =	4.488	I =	0.126
Q =		0.005	

OFF 4			
OPEN	GRAVEL	PAVED	BUILDING
43842	0	0	0
43842	0	0	0
0.201	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	645	S =	0.030
Tc =	4.383	I =	0.126
Q =		0.025	

OFF 5			
OPEN	GRAVEL	PAVED	BUILDING
369	0	0	0
369	0	0	0
0.002	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	26	S =	0.269
Tc =	0.159	I =	0.126
Q =		0.000	

OFF 6			
OPEN	GRAVEL	PAVED	BUILDING
7715	0	0	0
7715	0	0	0
0.035	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	183	S =	0.067
Tc =	1.219	I =	0.126
Q =		0.004	

EXISTING =	0.273
PROPOSED =	0.316
PROPOSED OFFSITE =	0.162
PROPOSED TOTAL =	0.478
DIFFERENCE =	0.205

RATIONAL DATA		
FREQUENC	2	YEARS
DURATION	1440	MIN.
I =	0.126	
C, IMP =	0.9	
C, PERV =	0.2	
C, GRA. =	0.85	

EX7			
OPEN	GRAVEL	PAVED	BUILDING
17510.95			
17510.95	0	0	0
0.080	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	663	S =	0.030
Tc =	4.465	I =	0.126
Q =		0.010	

EX8			
OPEN	GRAVEL	PAVED	BUILDING
8898.62			
8898.62	0	0	0
0.041	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	668	S =	0.028
Tc =	4.599	I =	0.126
Q =		0.005	

EX9			
OPEN	GRAVEL	PAVED	BUILDING
369.03			
369.03	0	0	0
0.002	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	30	S =	0.033
Tc =	0.398	I =	0.126
Q =		0.000	

15 YEAR, TC

EX1			
OPEN	GRAVEL	PAVED	BUILDING
70068.33	6269.89		
70068.33	6269.89	0	0
0.322	0.122	0.000	0.000
COMPOSITE C =		0.253	
L =	268	S =	0.034
Tc =	2.134	I =	8.567
Q =		3.804	

EX2			
OPEN	GRAVEL	PAVED	BUILDING
157899.9			
157899.9	0	0	0
0.725	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	624	S =	0.013
Tc =	5.931	I =	7.167
Q =		5.196	

EX3			
OPEN	GRAVEL	PAVED	BUILDING
139950.8			
139950.8	0	0	0
0.643	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	594	S =	0.010
Tc =	6.279	I =	7.064
Q =		4.539	

EX4			
OPEN	GRAVEL	PAVED	BUILDING
8394.2			
8394.2	0	0	0
0.039	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	40	S =	0.025
Tc =	0.553	I =	9.352
Q =		0.360	

EX5			
OPEN	GRAVEL	PAVED	BUILDING
2729.03			
2729.03	0	0	0
0.013	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	23	S =	0.261
Tc =	0.146	I =	9.581
Q =		0.120	

EX6			
OPEN	GRAVEL	PAVED	BUILDING
41051.63			
41051.63	0	0	0
0.188	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	659	S =	0.032
Tc =	4.352	I =	7.683
Q =		1.448	

POST 1			
OPEN	GRAVEL	PAVED	BUILDING
12602	0	0	0
12602	0	0	0
0.058	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	101	S =	0.012
Tc =	1.516	I =	8.856
Q =		0.512	

POST 2			
OPEN	GRAVEL	PAVED	BUILDING
98565	0	0	0
98565	0	0	0
0.453	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	505	S =	0.019
Tc =	4.302	I =	7.701
Q =		3.485	

POST 3			
OPEN	GRAVEL	PAVED	BUILDING
40998	0	46705	40236
40998	0	46705	40236
0.188	0.000	0.965	0.831
COMPOSITE C =		0.676	
L =	241	S =	0.009
Tc =	3.312	I =	8.071
Q =		16.017	

POST 4			
OPEN	GRAVEL	PAVED	BUILDING
3516	0	0	0
3516	0	0	0
0.016	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	123	S =	0.008
Tc =	2.017	I =	8.620
Q =		0.139	

OFF 1			
OPEN	GRAVEL	PAVED	BUILDING
0	0	20288	0
0	0	20288	0
0.000	0.000	0.419	0.000
COMPOSITE C =		0.900	
L =	642	S =	0.027
Tc =	4.555	I =	7.612
Q =		3.191	

OFF 2			
OPEN	GRAVEL	PAVED	BUILDING
137119	0	0	0
137119	0	0	0
0.630	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	592	S =	0.027
Tc =	4.285	I =	7.707
Q =		4.852	

OFF 3			
OPEN	GRAVEL	PAVED	BUILDING
8899	0	0	0
8899	0	0	0
0.041	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	631	S =	0.030
Tc =	4.337	I =	7.688
Q =		0.314	

OFF 4			
OPEN	GRAVEL	PAVED	BUILDING
43842	0	0	0
43842	0	0	0
0.201	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	645	S =	0.269
Tc =	1.884	I =	8.681
Q =		1.747	

OFF 5			
OPEN	GRAVEL	PAVED	BUILDING
369	0	0	0
369	0	0	0
0.002	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	26	S =	0.065
Tc =	0.275	I =	9.507
Q =		0.016	

OFF 6			
OPEN	GRAVEL	PAVED	BUILDING
7715	0	0	0
7715	0	0	0
0.035	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	183	S =	0.065
Tc =	1.237	I =	8.993
Q =		0.319	

EXISTING =	16.409
PROPOSED =	20.153
PROPOSED OFFSITE =	10.120
PROPOSED TOTAL =	30.274
DIFFERENCE =	13.865

RATIONAL DATA		
FREQUENC	15	YEARS
DURATION	TC	MIN.
I =	N/A	
C, IMP =	0.9	
C, PERV =	0.2	
C, GRA. =	0.85	

EX7			
OPEN	GRAVEL	PAVED	BUILDING
17510.95			
17510.95	0	0	0
0.080	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	663	S =	0.030
Tc =	4.465	I =	7.643
Q =		0.615	

EX8			
OPEN	GRAVEL	PAVED	BUILDING
8898.62			
8898.62	0	0	0
0.041	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	668	S =	0.028
Tc =	4.599	I =	7.597
Q =		0.310	

EX9			
OPEN	GRAVEL	PAVED	BUILDING
369.03			
369.03	0	0	0
0.002	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	30	S =	0.033
Tc =	0.398	I =	9.438
Q =		0.016	

15 YEAR, 1-HOUR

EX1			
OPEN	GRAVEL	PAVED	BUILDING
70068.33	6269.89		
70068.33	6269.89	0	0
0.322	0.122	0.000	0.000
COMPOSITE C =		0.253	
L =	268	S =	0.034
Tc =	2.134	I =	2.423
Q =		1.076	

EX2			
OPEN	GRAVEL	PAVED	BUILDING
157899.9			
157899.9	0	0	0
0.725	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	624	S =	0.013
Tc =	5.931	I =	2.423
Q =		1.757	

EX3			
OPEN	GRAVEL	PAVED	BUILDING
139950.8			
139950.8	0	0	0
0.643	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	594	S =	0.010
Tc =	6.279	I =	2.423
Q =		1.557	

EX4			
OPEN	GRAVEL	PAVED	BUILDING
8394.2			
8394.2	0	0	0
0.039	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	40	S =	0.025
Tc =	0.553	I =	2.423
Q =		0.093	

EX5			
OPEN	GRAVEL	PAVED	BUILDING
2729.03			
2729.03	0	0	0
0.013	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	23	S =	0.261
Tc =	0.146	I =	2.423
Q =		0.030	

EX6			
OPEN	GRAVEL	PAVED	BUILDING
41051.63			
41051.63	0	0	0
0.188	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	659	S =	0.032
Tc =	4.352	I =	2.423
Q =		0.457	

POST 1			
OPEN	GRAVEL	PAVED	BUILDING
12602	0	0	0
12602	0	0	0
0.058	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	101	S =	0.012
Tc =	1.516	I =	2.423
Q =		0.140	

POST 2			
OPEN	GRAVEL	PAVED	BUILDING
98565	0	0	0
98565	0	0	0
0.453	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	505	S =	0.019
Tc =	4.302	I =	2.423
Q =		1.097	

POST 3			
OPEN	GRAVEL	PAVED	BUILDING
40998	0	46705	40236
40998	0	46705	40236
0.188	0.000	0.965	0.831
COMPOSITE C =		0.676	
L =	241	S =	0.009
Tc =	3.312	I =	2.423
Q =		4.809	

POST 4			
OPEN	GRAVEL	PAVED	BUILDING
3516	0	0	0
3516	0	0	0
0.016	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	123	S =	0.008
Tc =	2.017	I =	2.423
Q =		0.039	

OFF 1			
OPEN	GRAVEL	PAVED	BUILDING
0	0	20288	0
0	0	20288	0
0.000	0.000	0.419	0.000
COMPOSITE C =		0.900	
L =	642	S =	0.027
Tc =	4.555	I =	2.423
Q =		1.016	

OFF 2			
OPEN	GRAVEL	PAVED	BUILDING
137119	0	0	0
137119	0	0	0
0.630	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	592	S =	0.027
Tc =	4.285	I =	2.423
Q =		1.526	

OFF 3			
OPEN	GRAVEL	PAVED	BUILDING
8899	0	0	0
8899	0	0	0
0.041	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	631	S =	0.030
Tc =	4.337	I =	2.423
Q =		0.099	

OFF 4			
OPEN	GRAVEL	PAVED	BUILDING
43842	0	0	0
43842	0	0	0
0.201	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	645	S =	0.269
Tc =	1.884	I =	2.423
Q =		0.488	

OFF 5			
OPEN	GRAVEL	PAVED	BUILDING
369	0	0	0
369	0	0	0
0.002	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	26	S =	0.065
Tc =	0.275	I =	2.423
Q =		0.004	

OFF 6			
OPEN	GRAVEL	PAVED	BUILDING
7715	0	0	0
7715	0	0	0
0.035	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	183	S =	0.065
Tc =	1.237	I =	2.423
Q =		0.086	

EXISTING =	5.268
PROPOSED =	6.085
PROPOSED OFFSITE =	3.132
PROPOSED TOTAL =	9.217
DIFFERENCE =	3.949

RATIONAL DATA		
FREQUENC	15	YEARS
DURATION	60	MIN.
I =	2.423	
C, IMP =	0.9	
C, PERV =	0.2	
C, GRA. =	0.85	

EX7			
OPEN	GRAVEL	PAVED	BUILDING
17510.95			
17510.95	0	0	0
0.080	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	663	S =	0.030
Tc =	4.465	I =	2.423
Q =		0.195	

EX8			
OPEN	GRAVEL	PAVED	BUILDING
8898.62			
8898.62	0	0	0
0.041	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	668	S =	0.028
Tc =	4.599	I =	2.423
Q =		0.099	

EX9			
OPEN	GRAVEL	PAVED	BUILDING
369.03			
369.03	0	0	0
0.002	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	30	S =	0.033
Tc =	0.398	I =	2.423
Q =		0.004	

15 YEAR, 24-HOUR

EX1			
OPEN	GRAVEL	PAVED	BUILDING
70068.33	6269.89		
70068.33	6269.89	0	0
0.322	0.122	0.000	0.000
COMPOSITE C =		0.253	
L =	268	S =	0.034
Tc =	2.134	I =	0.216
Q =		0.096	

EX2			
OPEN	GRAVEL	PAVED	BUILDING
157899.9			
157899.9	0	0	0
0.725	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	624	S =	0.013
Tc =	5.931	I =	0.216
Q =		0.156	

EX3			
OPEN	GRAVEL	PAVED	BUILDING
139950.8			
139950.8	0	0	0
0.643	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	594	S =	0.010
Tc =	6.279	I =	0.216
Q =		0.139	

EX4			
OPEN	GRAVEL	PAVED	BUILDING
8394.2			
8394.2	0	0	0
0.039	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	40	S =	0.025
Tc =	0.553	I =	0.216
Q =		0.008	

EX5			
OPEN	GRAVEL	PAVED	BUILDING
2729.03			
2729.03	0	0	0
0.013	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	23	S =	0.261
Tc =	0.146	I =	0.216
Q =		0.003	

EX6			
OPEN	GRAVEL	PAVED	BUILDING
41051.63			
41051.63	0	0	0
0.188	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	659	S =	0.032
Tc =	4.352	I =	0.216
Q =		0.041	

POST 1			
OPEN	GRAVEL	PAVED	BUILDING
12602	0	0	0
12602	0	0	0
0.058	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	101	S =	0.012
Tc =	1.516	I =	0.216
Q =		0.012	

POST 2			
OPEN	GRAVEL	PAVED	BUILDING
98565	0	0	0
98565	0	0	0
0.453	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	505	S =	0.019
Tc =	4.302	I =	0.216
Q =		0.098	

POST 3			
OPEN	GRAVEL	PAVED	BUILDING
40998	0	46705	40236
40998	0	46705	40236
0.188	0.000	0.965	0.831
COMPOSITE C =		0.676	
L =	241	S =	0.009
Tc =	3.312	I =	0.216
Q =		0.428	

POST 4			
OPEN	GRAVEL	PAVED	BUILDING
3516	0	0	0
3516	0	0	0
0.016	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	123	S =	0.008
Tc =	2.017	I =	0.216
Q =		0.003	

OFF 1			
OPEN	GRAVEL	PAVED	BUILDING
0	0	20288	0
0	0	20288	0
0.000	0.000	0.419	0.000
COMPOSITE C =		0.900	
L =	642	S =	0.027
Tc =	4.555	I =	0.216
Q =		0.090	

OFF 2			
OPEN	GRAVEL	PAVED	BUILDING
137119	0	0	0
137119	0	0	0
0.630	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	592	S =	0.027
Tc =	4.285	I =	0.216
Q =		0.136	

OFF 3			
OPEN	GRAVEL	PAVED	BUILDING
8899	0	0	0
8899	0	0	0
0.041	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	631	S =	0.030
Tc =	4.337	I =	0.216
Q =		0.009	

OFF 4			
OPEN	GRAVEL	PAVED	BUILDING
43842	0	0	0
43842	0	0	0
0.201	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	645	S =	0.269
Tc =	1.884	I =	0.216
Q =		0.043	

OFF 5			
OPEN	GRAVEL	PAVED	BUILDING
369	0	0	0
369	0	0	0
0.002	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	26	S =	0.065
Tc =	0.275	I =	0.216
Q =		0.000	

OFF 6			
OPEN	GRAVEL	PAVED	BUILDING
7715	0	0	0
7715	0	0	0
0.035	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	183	S =	0.065
Tc =	1.237	I =	0.216
Q =		0.008	

EXISTING =	0.469
PROPOSED =	0.541
PROPOSED OFFSITE =	0.279
PROPOSED TOTAL =	0.820
DIFFERENCE =	0.351

RATIONAL DATA		
FREQUENC	15	YEARS
DURATION	1440	MIN.
I =	0.215542	
C, IMP =	0.9	
C, PERV =	0.2	
C, GRA. =	0.85	

EX7			
OPEN	GRAVEL	PAVED	BUILDING
17510.95			
17510.95	0	0	0
0.080	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	663	S =	0.030
Tc =	4.465	I =	0.216
Q =		0.017	

EX8			
OPEN	GRAVEL	PAVED	BUILDING
8898.62			
8898.62	0	0	0
0.041	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	668	S =	0.028
Tc =	4.599	I =	0.216
Q =		0.009	

EX9			
OPEN	GRAVEL	PAVED	BUILDING
369.03			
369.03	0	0	0
0.002	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	30	S =	0.033
Tc =	0.398	I =	0.216
Q =		0.000	

25 YEAR, TC

EX1			
OPEN	GRAVEL	PAVED	BUILDING
70068.33	6269.89		
70068.33	6269.89	0	0
0.322	0.122	0.000	0.000
COMPOSITE C =		0.253	
L =	268	S =	0.034
Tc =	2.134	I =	9.528
Q =		4.231	

EX2			
OPEN	GRAVEL	PAVED	BUILDING
157899.9			
157899.9	0	0	0
0.725	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	624	S =	0.013
Tc =	5.931	I =	8.006
Q =		5.804	

EX3			
OPEN	GRAVEL	PAVED	BUILDING
139950.8			
139950.8	0	0	0
0.643	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	594	S =	0.010
Tc =	6.279	I =	7.893
Q =		5.072	

EX4			
OPEN	GRAVEL	PAVED	BUILDING
8394.2			
8394.2	0	0	0
0.039	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	40	S =	0.025
Tc =	0.553	I =	10.377
Q =		0.400	

EX5			
OPEN	GRAVEL	PAVED	BUILDING
2729.03			
2729.03	0	0	0
0.013	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	23	S =	0.261
Tc =	0.146	I =	10.624
Q =		0.133	

EX6			
OPEN	GRAVEL	PAVED	BUILDING
41051.63			
41051.63	0	0	0
0.188	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	659	S =	0.032
Tc =	4.352	I =	8.568
Q =		1.615	

POST 1			
OPEN	GRAVEL	PAVED	BUILDING
12602	0	0	0
12602	0	0	0
0.058	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	101	S =	0.012
Tc =	1.516	I =	9.841
Q =		0.569	

POST 2			
OPEN	GRAVEL	PAVED	BUILDING
98565	0	0	0
98565	0	0	0
0.453	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	505	S =	0.019
Tc =	4.302	I =	8.587
Q =		3.886	

POST 3			
OPEN	GRAVEL	PAVED	BUILDING
40998	0	46705	40236
40998	0	46705	40236
0.188	0.000	0.965	0.831
COMPOSITE C =		0.676	
L =	241	S =	0.009
Tc =	3.312	I =	8.990
Q =		17.841	

POST 4			
OPEN	GRAVEL	PAVED	BUILDING
3516	0	0	0
3516	0	0	0
0.016	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	123	S =	0.008
Tc =	2.017	I =	9.586
Q =		0.155	

OFF 1			
OPEN	GRAVEL	PAVED	BUILDING
0	0	20288	0
0	0	20288	0
0.000	0.000	0.419	0.000
COMPOSITE C =		0.900	
L =	642	S =	0.027
Tc =	4.555	I =	8.491
Q =		3.559	

OFF 2			
OPEN	GRAVEL	PAVED	BUILDING
137119	0	0	0
137119	0	0	0
0.630	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	592	S =	0.027
Tc =	4.285	I =	8.594
Q =		5.410	

OFF 3			
OPEN	GRAVEL	PAVED	BUILDING
8899	0	0	0
8899	0	0	0
0.041	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	631	S =	0.030
Tc =	4.337	I =	8.574
Q =		0.350	

OFF 4			
OPEN	GRAVEL	PAVED	BUILDING
43842	0	0	0
43842	0	0	0
0.201	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	645	S =	0.269
Tc =	1.884	I =	9.652
Q =		1.943	

OFF 5			
OPEN	GRAVEL	PAVED	BUILDING
369	0	0	0
369	0	0	0
0.002	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	26	S =	0.065
Tc =	0.275	I =	10.544
Q =		0.018	

OFF 6			
OPEN	GRAVEL	PAVED	BUILDING
7715	0	0	0
7715	0	0	0
0.035	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	183	S =	0.065
Tc =	1.237	I =	9.989
Q =		0.354	

EXISTING =	18.305
PROPOSED =	22.451
PROPOSED OFFSITE =	11.281
PROPOSED TOTAL =	33.732
DIFFERENCE =	15.427

RATIONAL DATA		
FREQUENC	25	YEARS
DURATION	TC	MIN.
I =	N/A	
C, IMP =	0.9	
C, PERV =	0.2	
C, GRA. =	0.85	

EX7			
OPEN	GRAVEL	PAVED	BUILDING
17510.95			
17510.95	0	0	0
0.080	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	663	S =	0.030
Tc =	4.465	I =	8.525
Q =		0.685	

EX8			
OPEN	GRAVEL	PAVED	BUILDING
8898.62			
8898.62	0	0	0
0.041	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	668	S =	0.028
Tc =	4.599	I =	8.475
Q =		0.346	

EX9			
OPEN	GRAVEL	PAVED	BUILDING
369.03			
369.03	0	0	0
0.002	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	30	S =	0.033
Tc =	0.398	I =	10.470
Q =		0.018	

25 YEAR, 1-HOUR

EX1			
OPEN	GRAVEL	PAVED	BUILDING
70068.33	6269.89		
70068.33	6269.89	0	0
0.322	0.122	0.000	0.000
COMPOSITE C =		0.253	
L =	268	S =	0.034
Tc =	2.134	I =	3.635
Q =		1.614	

EX2			
OPEN	GRAVEL	PAVED	BUILDING
157899.9			
157899.9	0	0	0
0.725	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	624	S =	0.013
Tc =	5.931	I =	3.635
Q =		2.635	

EX3			
OPEN	GRAVEL	PAVED	BUILDING
139950.8			
139950.8	0	0	0
0.643	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	594	S =	0.010
Tc =	6.279	I =	3.635
Q =		2.336	

EX4			
OPEN	GRAVEL	PAVED	BUILDING
8394.2			
8394.2	0	0	0
0.039	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	40	S =	0.025
Tc =	0.553	I =	3.635
Q =		0.140	

EX5			
OPEN	GRAVEL	PAVED	BUILDING
2729.03			
2729.03	0	0	0
0.013	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	23	S =	0.261
Tc =	0.146	I =	3.635
Q =		0.046	

EX6			
OPEN	GRAVEL	PAVED	BUILDING
41051.63			
41051.63	0	0	0
0.188	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	659	S =	0.032
Tc =	4.352	I =	3.635
Q =		0.685	

POST 1			
OPEN	GRAVEL	PAVED	BUILDING
12602	0	0	0
12602	0	0	0
0.058	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	101	S =	0.012
Tc =	1.516	I =	3.635
Q =		0.210	

POST 2			
OPEN	GRAVEL	PAVED	BUILDING
98565	0	0	0
98565	0	0	0
0.453	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	505	S =	0.019
Tc =	4.302	I =	3.635
Q =		1.645	

POST 3			
OPEN	GRAVEL	PAVED	BUILDING
40998	0	46705	40236
40998	0	46705	40236
0.188	0.000	0.965	0.831
COMPOSITE C =		0.676	
L =	241	S =	0.009
Tc =	3.312	I =	3.635
Q =		7.213	

POST 4			
OPEN	GRAVEL	PAVED	BUILDING
3516	0	0	0
3516	0	0	0
0.016	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	123	S =	0.008
Tc =	2.017	I =	3.635
Q =		0.059	

OFF 1			
OPEN	GRAVEL	PAVED	BUILDING
0	0	20288	0
0	0	20288	0
0.000	0.000	0.419	0.000
COMPOSITE C =		0.900	
L =	642	S =	0.027
Tc =	4.555	I =	3.635
Q =		1.524	

OFF 2			
OPEN	GRAVEL	PAVED	BUILDING
137119	0	0	0
137119	0	0	0
0.630	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	592	S =	0.027
Tc =	4.285	I =	3.635
Q =		2.288	

OFF 3			
OPEN	GRAVEL	PAVED	BUILDING
8899	0	0	0
8899	0	0	0
0.041	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	631	S =	0.030
Tc =	4.337	I =	3.635
Q =		0.149	

OFF 4			
OPEN	GRAVEL	PAVED	BUILDING
43842	0	0	0
43842	0	0	0
0.201	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	645	S =	0.269
Tc =	1.884	I =	3.635
Q =		0.732	

OFF 5			
OPEN	GRAVEL	PAVED	BUILDING
369	0	0	0
369	0	0	0
0.002	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	26	S =	0.065
Tc =	0.275	I =	3.635
Q =		0.006	

OFF 6			
OPEN	GRAVEL	PAVED	BUILDING
7715	0	0	0
7715	0	0	0
0.035	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	183	S =	0.065
Tc =	1.237	I =	3.635
Q =		0.129	

EXISTING =	7.902
PROPOSED =	9.127
PROPOSED OFFSITE =	4.698
PROPOSED TOTAL =	13.825
DIFFERENCE =	5.923

RATIONAL DATA		
FREQUENC	25	YEARS
DURATION	60	MIN.
I =	3.634686	
C, IMP =	0.9	
C, PERV =	0.2	
C, GRA. =	0.85	

EX7			
OPEN	GRAVEL	PAVED	BUILDING
17510.95			
17510.95	0	0	0
0.080	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	663	S =	0.030
Tc =	4.465	I =	3.635
Q =		0.292	

EX8			
OPEN	GRAVEL	PAVED	BUILDING
8898.62			
8898.62	0	0	0
0.041	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	668	S =	0.028
Tc =	4.599	I =	3.635
Q =		0.149	

EX9			
OPEN	GRAVEL	PAVED	BUILDING
369.03			
369.03	0	0	0
0.002	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	30	S =	0.033
Tc =	0.398	I =	3.635
Q =		0.006	

25 YEAR, 24-HOUR

EX1			
OPEN	GRAVEL	PAVED	BUILDING
70068.33	6269.89		
70068.33	6269.89	0	0
0.322	0.122	0.000	0.000
COMPOSITE C =		0.253	
L =	268	S =	0.034
Tc =	2.134	I =	0.393
Q =		0.174	

EX2			
OPEN	GRAVEL	PAVED	BUILDING
157899.9			
157899.9	0	0	0
0.725	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	624	S =	0.013
Tc =	5.931	I =	0.393
Q =		0.285	

EX3			
OPEN	GRAVEL	PAVED	BUILDING
139950.8			
139950.8	0	0	0
0.643	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	594	S =	0.010
Tc =	6.279	I =	0.393
Q =		0.252	

EX4			
OPEN	GRAVEL	PAVED	BUILDING
8394.2			
8394.2	0	0	0
0.039	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	40	S =	0.025
Tc =	0.553	I =	0.393
Q =		0.015	

EX5			
OPEN	GRAVEL	PAVED	BUILDING
2729.03			
2729.03	0	0	0
0.013	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	23	S =	0.261
Tc =	0.146	I =	0.393
Q =		0.005	

EX6			
OPEN	GRAVEL	PAVED	BUILDING
41051.63			
41051.63	0	0	0
0.188	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	659	S =	0.032
Tc =	4.352	I =	0.393
Q =		0.074	

POST 1			
OPEN	GRAVEL	PAVED	BUILDING
12602	0	0	0
12602	0	0	0
0.058	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	101	S =	0.012
Tc =	1.516	I =	0.393
Q =		0.023	

POST 2			
OPEN	GRAVEL	PAVED	BUILDING
98565	0	0	0
98565	0	0	0
0.453	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	505	S =	0.019
Tc =	4.302	I =	0.393
Q =		0.178	

POST 3			
OPEN	GRAVEL	PAVED	BUILDING
40998	0	46705	40236
40998	0	46705	40236
0.188	0.000	0.965	0.831
COMPOSITE C =		0.676	
L =	241	S =	0.009
Tc =	3.312	I =	0.393
Q =		0.780	

POST 4			
OPEN	GRAVEL	PAVED	BUILDING
3516	0	0	0
3516	0	0	0
0.016	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	123	S =	0.008
Tc =	2.017	I =	0.393
Q =		0.006	

OFF 1			
OPEN	GRAVEL	PAVED	BUILDING
0	0	20288	0
0	0	20288	0
0.000	0.000	0.419	0.000
COMPOSITE C =		0.900	
L =	642	S =	0.027
Tc =	4.555	I =	0.393
Q =		0.165	

OFF 2			
OPEN	GRAVEL	PAVED	BUILDING
137119	0	0	0
137119	0	0	0
0.630	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	592	S =	0.027
Tc =	4.285	I =	0.393
Q =		0.247	

OFF 3			
OPEN	GRAVEL	PAVED	BUILDING
8899	0	0	0
8899	0	0	0
0.041	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	631	S =	0.030
Tc =	4.337	I =	0.393
Q =		0.016	

OFF 4			
OPEN	GRAVEL	PAVED	BUILDING
43842	0	0	0
43842	0	0	0
0.201	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	645	S =	0.269
Tc =	1.884	I =	0.393
Q =		0.079	

OFF 5			
OPEN	GRAVEL	PAVED	BUILDING
369	0	0	0
369	0	0	0
0.002	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	26	S =	0.065
Tc =	0.275	I =	0.393
Q =		0.001	

OFF 6			
OPEN	GRAVEL	PAVED	BUILDING
7715	0	0	0
7715	0	0	0
0.035	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	183	S =	0.065
Tc =	1.237	I =	0.393
Q =		0.014	

EXISTING =	0.854
PROPOSED =	0.986
PROPOSED OFFSITE =	0.508
PROPOSED TOTAL =	1.494
DIFFERENCE =	0.640

RATIONAL DATA		
FREQUENC	25	YEARS
DURATION	1440	MIN.
I =	0.392853	
C, IMP =	0.9	
C, PERV =	0.2	
C, GRA. =	0.85	

EX7			
OPEN	GRAVEL	PAVED	BUILDING
17510.95			
17510.95	0	0	0
0.080	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	663	S =	0.030
Tc =	4.465	I =	0.393
Q =		0.032	

EX8			
OPEN	GRAVEL	PAVED	BUILDING
8898.62			
8898.62	0	0	0
0.041	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	668	S =	0.028
Tc =	4.599	I =	0.393
Q =		0.016	

EX9			
OPEN	GRAVEL	PAVED	BUILDING
369.03			
369.03	0	0	0
0.002	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	30	S =	0.033
Tc =	0.398	I =	0.393
Q =		0.001	

100 YEAR, TC

EX1			
OPEN	GRAVEL	PAVED	BUILDING
70068.33	6269.89		
70068.33	6269.89	0	0
0.322	0.122	0.000	0.000
COMPOSITE C =		0.253	
L =	268	S =	0.034
Tc =	2.134	I =	11.413
Q =		5.068	

EX2			
OPEN	GRAVEL	PAVED	BUILDING
157899.9			
157899.9	0	0	0
0.725	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	624	S =	0.013
Tc =	5.931	I =	9.548
Q =		6.922	

EX3			
OPEN	GRAVEL	PAVED	BUILDING
139950.8			
139950.8	0	0	0
0.643	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	594	S =	0.010
Tc =	6.279	I =	9.412
Q =		6.048	

EX4			
OPEN	GRAVEL	PAVED	BUILDING
8394.2			
8394.2	0	0	0
0.039	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	40	S =	0.025
Tc =	0.553	I =	12.484
Q =		0.481	

EX5			
OPEN	GRAVEL	PAVED	BUILDING
2729.03			
2729.03	0	0	0
0.013	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	23	S =	0.261
Tc =	0.146	I =	12.800
Q =		0.160	

EX6			
OPEN	GRAVEL	PAVED	BUILDING
41051.63			
41051.63	0	0	0
0.188	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	659	S =	0.032
Tc =	4.352	I =	10.230
Q =		1.928	

POST 1			
OPEN	GRAVEL	PAVED	BUILDING
12602	0	0	0
12602	0	0	0
0.058	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	101	S =	0.012
Tc =	1.516	I =	11.805
Q =		0.683	

POST 2			
OPEN	GRAVEL	PAVED	BUILDING
98565	0	0	0
98565	0	0	0
0.453	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	505	S =	0.019
Tc =	4.302	I =	10.253
Q =		4.640	

POST 3			
OPEN	GRAVEL	PAVED	BUILDING
40998	0	46705	40236
40998	0	46705	40236
0.188	0.000	0.965	0.831
COMPOSITE C =		0.676	
L =	241	S =	0.009
Tc =	3.312	I =	10.746
Q =		21.326	

POST 4			
OPEN	GRAVEL	PAVED	BUILDING
3516	0	0	0
3516	0	0	0
0.016	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	123	S =	0.008
Tc =	2.017	I =	11.485
Q =		0.185	

OFF 1			
OPEN	GRAVEL	PAVED	BUILDING
0	0	20288	0
0	0	20288	0
0.000	0.000	0.419	0.000
COMPOSITE C =		0.900	
L =	642	S =	0.027
Tc =	4.555	I =	10.136
Q =		4.249	

OFF 2			
OPEN	GRAVEL	PAVED	BUILDING
137119	0	0	0
137119	0	0	0
0.630	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	592	S =	0.027
Tc =	4.285	I =	10.261
Q =		6.460	

OFF 3			
OPEN	GRAVEL	PAVED	BUILDING
8899	0	0	0
8899	0	0	0
0.041	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	631	S =	0.030
Tc =	4.337	I =	10.236
Q =		0.418	

OFF 4			
OPEN	GRAVEL	PAVED	BUILDING
43842	0	0	0
43842	0	0	0
0.201	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	645	S =	0.269
Tc =	1.884	I =	11.568
Q =		2.329	

OFF 5			
OPEN	GRAVEL	PAVED	BUILDING
369	0	0	0
369	0	0	0
0.002	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	26	S =	0.065
Tc =	0.275	I =	12.697
Q =		0.022	

OFF 6			
OPEN	GRAVEL	PAVED	BUILDING
7715	0	0	0
7715	0	0	0
0.035	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	183	S =	0.065
Tc =	1.237	I =	11.992
Q =		0.425	

EXISTING =	21.861
PROPOSED =	26.834
PROPOSED OFFSITE =	13.477
PROPOSED TOTAL =	40.311
DIFFERENCE =	18.450

RATIONAL DATA		
FREQUENC	100	YEARS
DURATION	TC	MIN.
I =	N/A	
C, IMP =	0.9	
C, PERV =	0.2	
C, GRA. =	0.85	

EX7			
OPEN	GRAVEL	PAVED	BUILDING
17510.95			
17510.95	0	0	0
0.080	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	663	S =	0.030
Tc =	4.465	I =	10.177
Q =		0.818	

EX8			
OPEN	GRAVEL	PAVED	BUILDING
8898.62			
8898.62	0	0	0
0.041	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	668	S =	0.028
Tc =	4.599	I =	10.115
Q =		0.413	

EX9			
OPEN	GRAVEL	PAVED	BUILDING
369.03			
369.03	0	0	0
0.002	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	30	S =	0.033
Tc =	0.398	I =	12.602
Q =		0.021	

100 YEAR, 1 HOUR

EX1			
OPEN	GRAVEL	PAVED	BUILDING
70068.33	6269.89		
70068.33	6269.89	0	0
0.322	0.122	0.000	0.000
COMPOSITE C =		0.253	
L =	268	S =	0.034
Tc =	2.134	I =	3.442
Q =		1.528	

EX2			
OPEN	GRAVEL	PAVED	BUILDING
157899.9			
157899.9	0	0	0
0.725	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	624	S =	0.013
Tc =	5.931	I =	3.442
Q =		2.495	

EX3			
OPEN	GRAVEL	PAVED	BUILDING
139950.8			
139950.8	0	0	0
0.643	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	594	S =	0.010
Tc =	6.279	I =	3.442
Q =		2.212	

EX4			
OPEN	GRAVEL	PAVED	BUILDING
8394.2			
8394.2	0	0	0
0.039	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	40	S =	0.025
Tc =	0.553	I =	3.442
Q =		0.133	

EX5			
OPEN	GRAVEL	PAVED	BUILDING
2729.03			
2729.03	0	0	0
0.013	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	23	S =	0.261
Tc =	0.146	I =	3.442
Q =		0.043	

EX6			
OPEN	GRAVEL	PAVED	BUILDING
41051.63			
41051.63	0	0	0
0.188	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	659	S =	0.032
Tc =	4.352	I =	3.442
Q =		0.649	

POST 1			
OPEN	GRAVEL	PAVED	BUILDING
12602	0	0	0
12602	0	0	0
0.058	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	101	S =	0.012
Tc =	1.516	I =	3.442
Q =		0.199	

POST 2			
OPEN	GRAVEL	PAVED	BUILDING
98565	0	0	0
98565	0	0	0
0.453	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	505	S =	0.019
Tc =	4.302	I =	3.442
Q =		1.558	

POST 3			
OPEN	GRAVEL	PAVED	BUILDING
40998	0	46705	40236
40998	0	46705	40236
0.188	0.000	0.965	0.831
COMPOSITE C =		0.676	
L =	241	S =	0.009
Tc =	3.312	I =	3.442
Q =		6.831	

POST 4			
OPEN	GRAVEL	PAVED	BUILDING
3516	0	0	0
3516	0	0	0
0.016	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	123	S =	0.008
Tc =	2.017	I =	3.442
Q =		0.056	

OFF 1			
OPEN	GRAVEL	PAVED	BUILDING
0	0	20288	0
0	0	20288	0
0.000	0.000	0.419	0.000
COMPOSITE C =		0.900	
L =	642	S =	0.027
Tc =	4.555	I =	3.442
Q =		1.443	

OFF 2			
OPEN	GRAVEL	PAVED	BUILDING
137119	0	0	0
137119	0	0	0
0.630	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	592	S =	0.027
Tc =	4.285	I =	3.442
Q =		2.167	

OFF 3			
OPEN	GRAVEL	PAVED	BUILDING
8899	0	0	0
8899	0	0	0
0.041	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	631	S =	0.030
Tc =	4.337	I =	3.442
Q =		0.141	

OFF 4			
OPEN	GRAVEL	PAVED	BUILDING
43842	0	0	0
43842	0	0	0
0.201	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	645	S =	0.269
Tc =	1.884	I =	3.442
Q =		0.693	

OFF 5			
OPEN	GRAVEL	PAVED	BUILDING
369	0	0	0
369	0	0	0
0.002	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	26	S =	0.065
Tc =	0.275	I =	3.442
Q =		0.006	

OFF 6			
OPEN	GRAVEL	PAVED	BUILDING
7715	0	0	0
7715	0	0	0
0.035	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	183	S =	0.065
Tc =	1.237	I =	3.442
Q =		0.122	

EXISTING =	7.483
PROPOSED =	8.643
PROPOSED OFFSITE =	4.449
PROPOSED TOTAL =	13.092
DIFFERENCE =	5.609

RATIONAL DATA		
FREQUENC	100	YEARS
DURATION	60	MIN.
I =	3.441978	
C, IMP =	0.9	
C, PERV =	0.2	
C, GRA. =	0.85	

EX7			
OPEN	GRAVEL	PAVED	BUILDING
17510.95			
17510.95	0	0	0
0.080	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	663	S =	0.030
Tc =	4.465	I =	3.442
Q =		0.277	

EX8			
OPEN	GRAVEL	PAVED	BUILDING
8898.62			
8898.62	0	0	0
0.041	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	668	S =	0.028
Tc =	4.599	I =	3.442
Q =		0.141	

EX9			
OPEN	GRAVEL	PAVED	BUILDING
369.03			
369.03	0	0	0
0.002	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	30	S =	0.033
Tc =	0.398	I =	3.442
Q =		0.006	

100 YEAR, 24 HOUR

EX1			
OPEN	GRAVEL	PAVED	BUILDING
70068.33	6269.89		
70068.33	6269.89	0	0
0.322	0.122	0.000	0.000
COMPOSITE C =		0.253	
L =	268	S =	0.034
Tc =	2.134	I =	0.393
Q =		0.175	

EX2			
OPEN	GRAVEL	PAVED	BUILDING
157899.9			
157899.9	0	0	0
0.725	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	624	S =	0.013
Tc =	5.931	I =	0.393
Q =		0.285	

EX3			
OPEN	GRAVEL	PAVED	BUILDING
139950.8			
139950.8	0	0	0
0.643	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	594	S =	0.010
Tc =	6.279	I =	0.393
Q =		0.253	

EX4			
OPEN	GRAVEL	PAVED	BUILDING
8394.2			
8394.2	0	0	0
0.039	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	40	S =	0.025
Tc =	0.553	I =	0.393
Q =		0.015	

EX5			
OPEN	GRAVEL	PAVED	BUILDING
2729.03			
2729.03	0	0	0
0.013	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	23	S =	0.261
Tc =	0.146	I =	0.393
Q =		0.005	

EX6			
OPEN	GRAVEL	PAVED	BUILDING
41051.63			
41051.63	0	0	0
0.188	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	659	S =	0.032
Tc =	4.352	I =	0.393
Q =		0.074	

POST 1			
OPEN	GRAVEL	PAVED	BUILDING
12602	0	0	0
12602	0	0	0
0.058	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	101	S =	0.012
Tc =	1.516	I =	0.393
Q =		0.023	

POST 2			
OPEN	GRAVEL	PAVED	BUILDING
98565	0	0	0
98565	0	0	0
0.453	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	505	S =	0.019
Tc =	4.302	I =	0.393
Q =		0.178	

POST 3			
OPEN	GRAVEL	PAVED	BUILDING
40998	0	46705	40236
40998	0	46705	40236
0.188	0.000	0.965	0.831
COMPOSITE C =		0.676	
L =	241	S =	0.009
Tc =	3.312	I =	0.393
Q =		0.781	

POST 4			
OPEN	GRAVEL	PAVED	BUILDING
3516	0	0	0
3516	0	0	0
0.016	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	123	S =	0.008
Tc =	2.017	I =	0.393
Q =		0.006	

OFF 1			
OPEN	GRAVEL	PAVED	BUILDING
0	0	20288	0
0	0	20288	0
0.000	0.000	0.419	0.000
COMPOSITE C =		0.900	
L =	642	S =	0.027
Tc =	4.555	I =	0.393
Q =		0.165	

OFF 2			
OPEN	GRAVEL	PAVED	BUILDING
137119	0	0	0
137119	0	0	0
0.630	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	592	S =	0.027
Tc =	4.285	I =	0.393
Q =		0.248	

OFF 3			
OPEN	GRAVEL	PAVED	BUILDING
8899	0	0	0
8899	0	0	0
0.041	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	631	S =	0.030
Tc =	4.337	I =	0.393
Q =		0.016	

OFF 4			
OPEN	GRAVEL	PAVED	BUILDING
43842	0	0	0
43842	0	0	0
0.201	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	645	S =	0.269
Tc =	1.884	I =	0.393
Q =		0.079	

OFF 5			
OPEN	GRAVEL	PAVED	BUILDING
369	0	0	0
369	0	0	0
0.002	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	26	S =	0.065
Tc =	0.275	I =	0.393
Q =		0.001	

OFF 6			
OPEN	GRAVEL	PAVED	BUILDING
7715	0	0	0
7715	0	0	0
0.035	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	183	S =	0.065
Tc =	1.237	I =	0.393
Q =		0.014	

EXISTING =	0.855
PROPOSED =	0.988
PROPOSED OFFSITE =	0.509
PROPOSED TOTAL =	1.496
DIFFERENCE =	0.641

RATIONAL DATA		
FREQUENC	25	YEARS
DURATION	1440	MIN.
I =	0.393422	
C, IMP =	0.9	
C, PERV =	0.2	
C, GRA. =	0.85	

EX7			
OPEN	GRAVEL	PAVED	BUILDING
17510.95			
17510.95	0	0	0
0.080	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	663	S =	0.030
Tc =	4.465	I =	0.393
Q =		0.032	

EX8			
OPEN	GRAVEL	PAVED	BUILDING
8898.62			
8898.62	0	0	0
0.041	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	668	S =	0.028
Tc =	4.599	I =	0.393
Q =		0.016	

EX9			
OPEN	GRAVEL	PAVED	BUILDING
369.03			
369.03	0	0	0
0.002	0.000	0.000	0.000
COMPOSITE C =		0.200	
L =	30	S =	0.033
Tc =	0.398	I =	0.393
Q =		0.001	

HGL CALCS

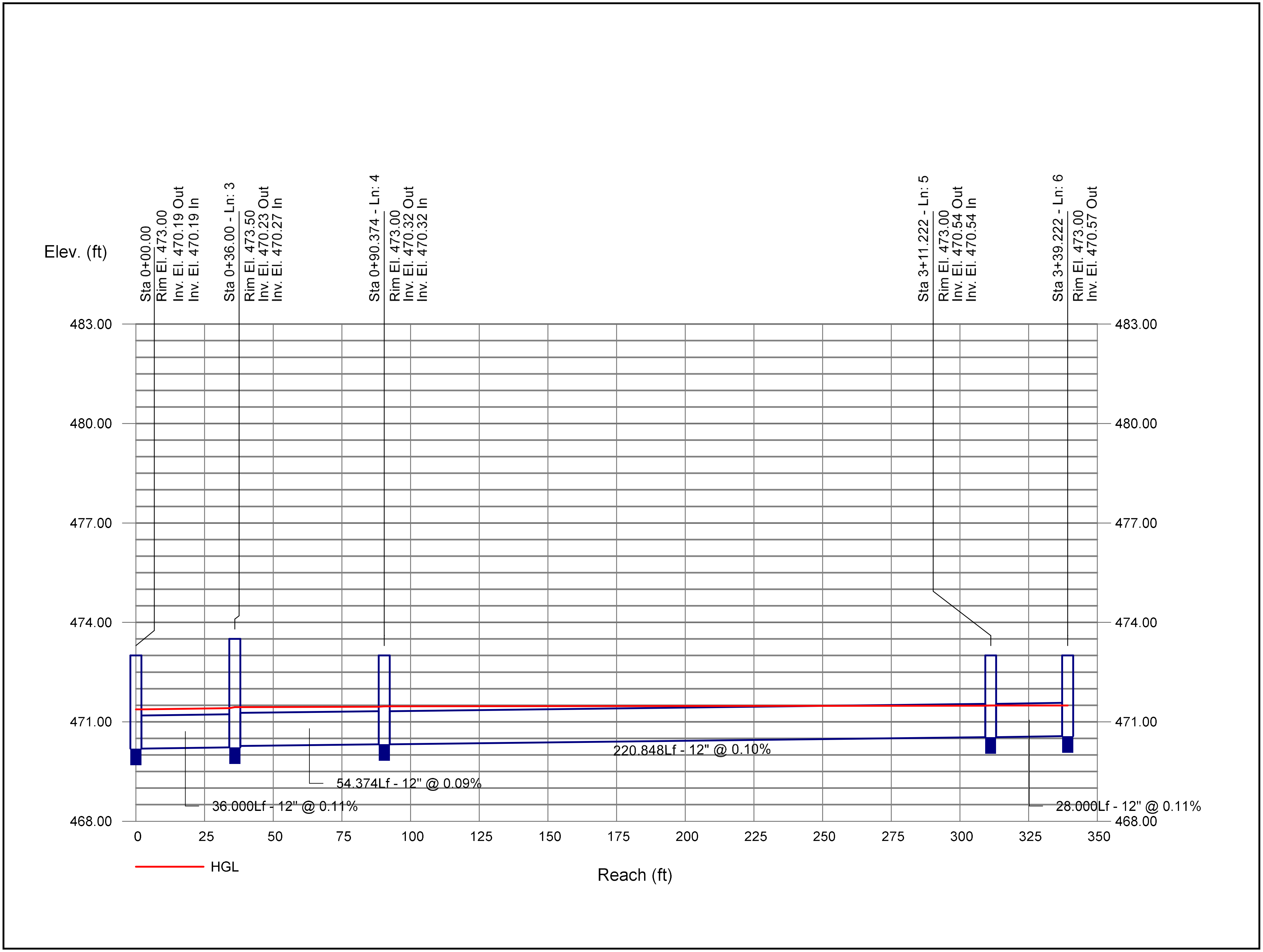
Line No.	Line ID	DnStm Ln No	Invert Dn (ft)	Invert Up (ft)	Line Length (ft)	Line Slope (%)	Line Size (in)	Capac Full (cfs)	Known Q (cfs)	Flow Rate (cfs)	Depth Dn (ft)	Depth Up (ft)	HGL Dn (ft)	HGL Up (ft)	Vel Ave (ft/s)	Vel Dn (ft/s)	Rim-Hw (ft)
1	FES1-CI2	Outfall	470.00	470.07	71.963	0.10	18	3.28	0.44	3.07	1.15	1.15	471.15	471.22	2.11	2.11	1.86
2	CI2-CI3	1	470.07	470.19	116.320	0.10	18	3.37	0.42	2.63	1.19	1.14	471.26	471.33	1.79	1.75	1.63
3	CI3-MH6	2	470.19	470.23	36.000	0.11	12	1.19	0.00	1.15	1.00	1.00	471.37	471.41	1.46	1.46	2.06
4	MH6-CI7	3	470.27	470.32	54.374	0.09	12	1.08	0.11	0.58	1.00	1.00	471.44	471.46	0.74	0.74	1.53
5	CI7-CI8	4	470.32	470.54	220.848	0.10	12	1.12	0.18	0.36	1.00	0.95	471.47	471.49	0.46	0.46	1.51
6	CI8-GCI9	5	470.54	470.57	28.000	0.11	12	1.17	0.18	0.18	0.95	0.92	471.49	471.49	0.24	0.23	1.51
7	MH6-CI11	3	470.32	470.34	22.626	0.09	12	1.06	0.46	0.57	1.00	1.00	471.44	471.45	0.73	0.73	1.79
8	CI11-CI12	7	470.34	470.37	34.000	0.09	12	1.06	0.11	0.11	1.00	1.00	471.46	471.46	0.14	0.14	1.79
9	CI3-CI4	2	470.19	470.27	76.500	0.10	12	1.15	0.46	1.06	1.00	1.00	471.37	471.44	1.35	1.35	1.56
10	CI4-CI5	9	470.27	470.35	76.500	0.10	12	1.15	0.60	0.60	1.00	1.00	471.44	471.47	0.76	0.76	1.52
11	CI7-CI10	4	470.27	470.30	34.000	0.09	12	1.06	0.11	0.11	1.00	1.00	471.47	471.47	0.14	0.14	1.53
12	FES13-CI14	Outfall	470.00	470.10	19.000	0.53	12	2.58	0.34	0.34	0.24	0.24**	470.24	470.34	2.34	2.40	2.67
13	FES15-CI16	Outfall	470.00	470.10	19.000	0.53	12	2.58	0.42	0.42	0.27	0.27**	470.27	470.37	2.42	2.42	2.64
14	FES19-GCI20	Outfall	468.00	468.14	14.020	1.00	12	3.56	0.78	1.97	0.53	0.60**	468.53	468.74	4.33	4.64	2.41
15	GCI20-GCI21	14	468.34	468.56	22.140	0.99	12	3.55	0.85	1.19	0.40	0.46**	468.74	469.02	3.72	4.07	2.13
16	GCI21-FES22	15	468.76	468.83	6.541	1.07	12	3.68	0.34	0.34	0.26	0.24**	469.02	469.07 j	2.22	2.10	....
17	EOP23-OS24	Outfall	468.00	468.40	40.365	0.99	18	10.45	24.62	24.62	1.50	1.50	469.50	471.72	13.93	13.93	-1.99
18	FES17-FES18	Outfall	467.30	467.74	440.371	0.10	15	2.04	2.66	2.66	1.25	1.25	468.55	469.30	2.17	2.17	....
19	FES27-MH28	Outfall	462.00	463.25	249.743	0.50	12	2.52	0.00	0.31	0.24	0.24**	462.24	463.49 j	2.17	2.18	10.09
20	MH28-AI29	19	463.45	463.64	37.000	0.51	12	2.55	0.31	0.31	0.24	0.24**	463.69	463.88	2.20	2.20	2.72

Project File: storm network_7-26-21.stm | Number of lines: 20 | Date: 7/26/2021

NOTES: ** Critical depth

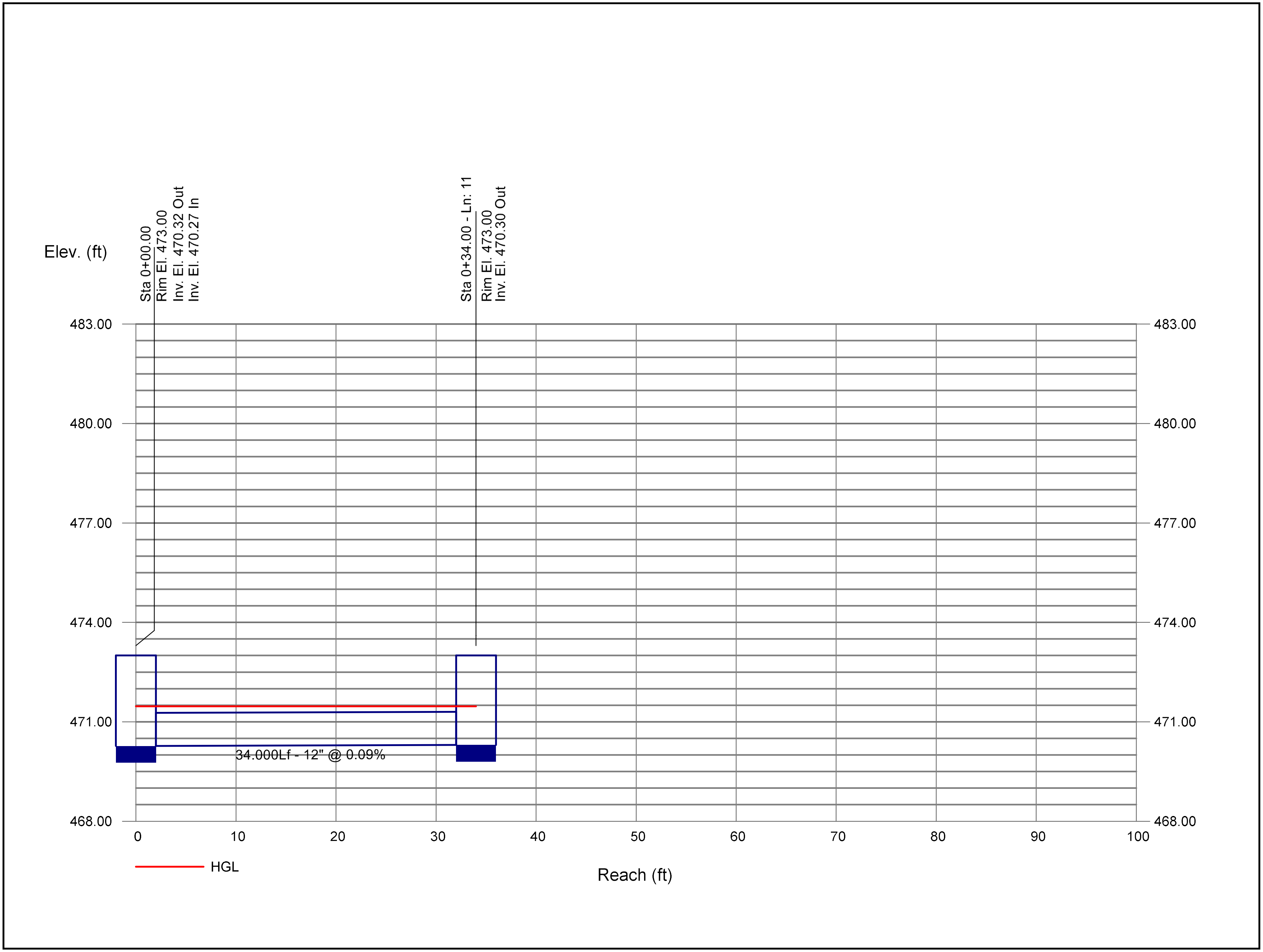
Storm Sewer Profile

Proj. file: storm network_7-9-21.stm



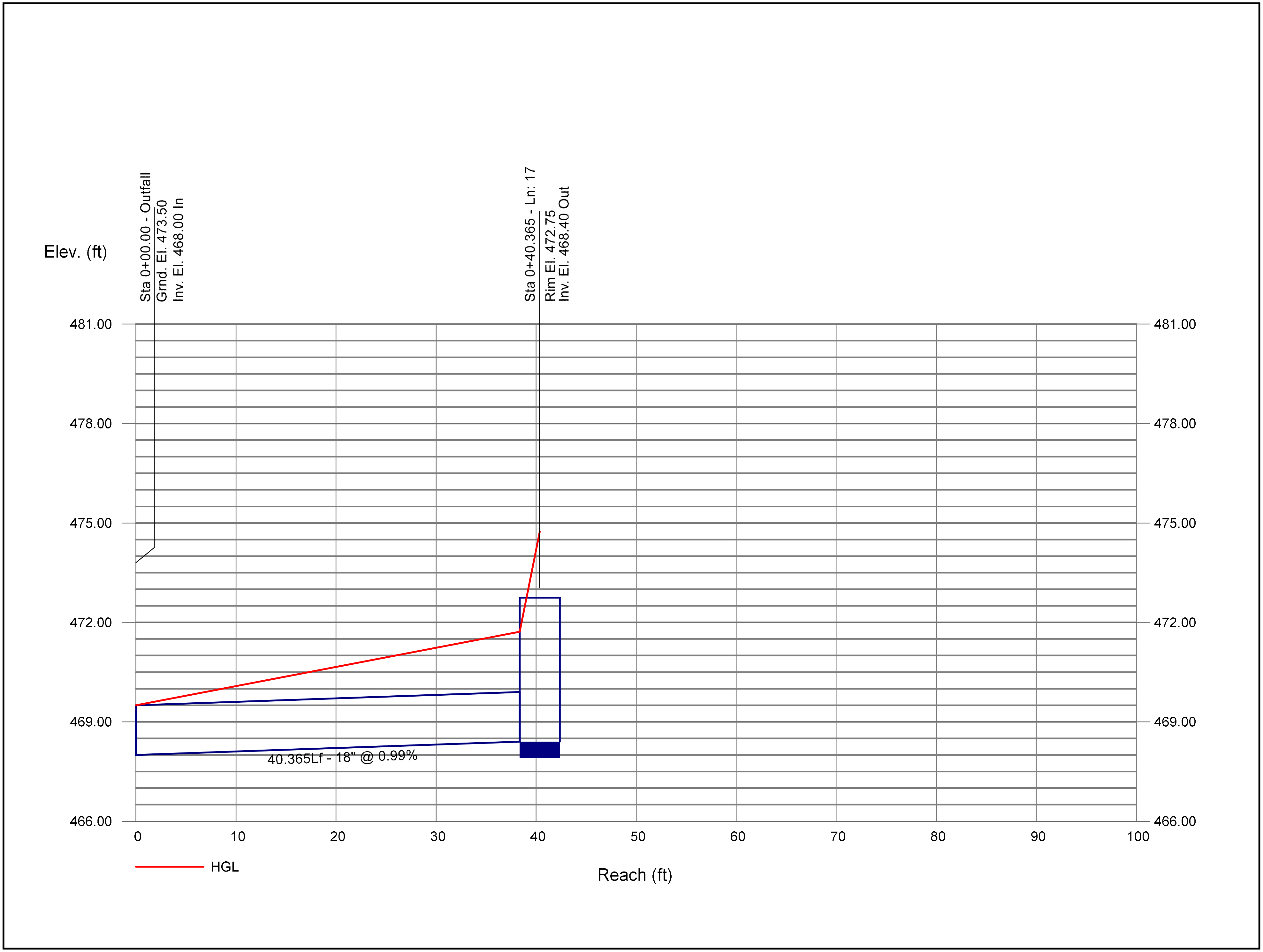
Storm Sewer Profile

Proj. file: storm network_7-9-21.stm



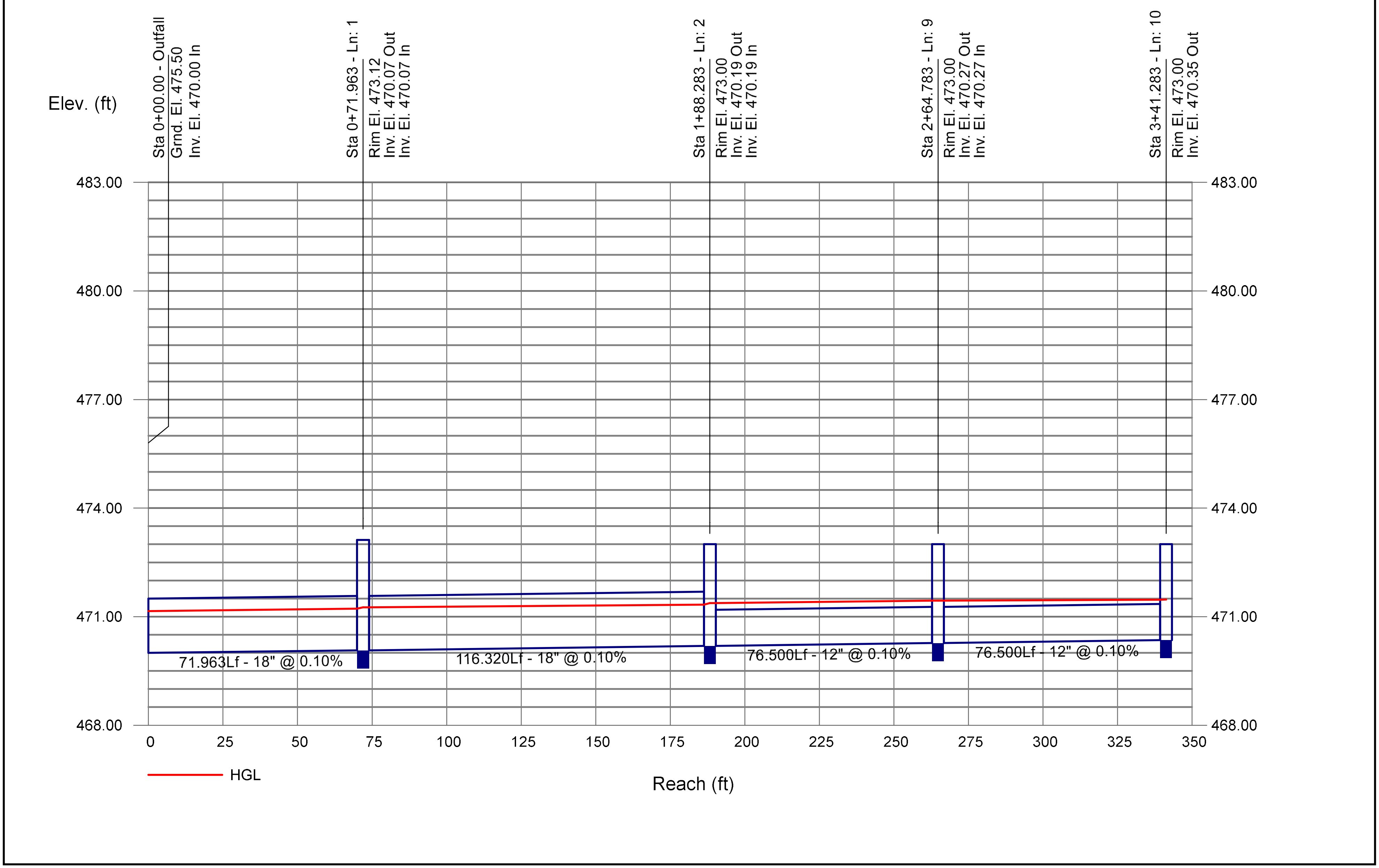
Storm Sewer Profile

Proj. file: storm network_7-9-21.stm



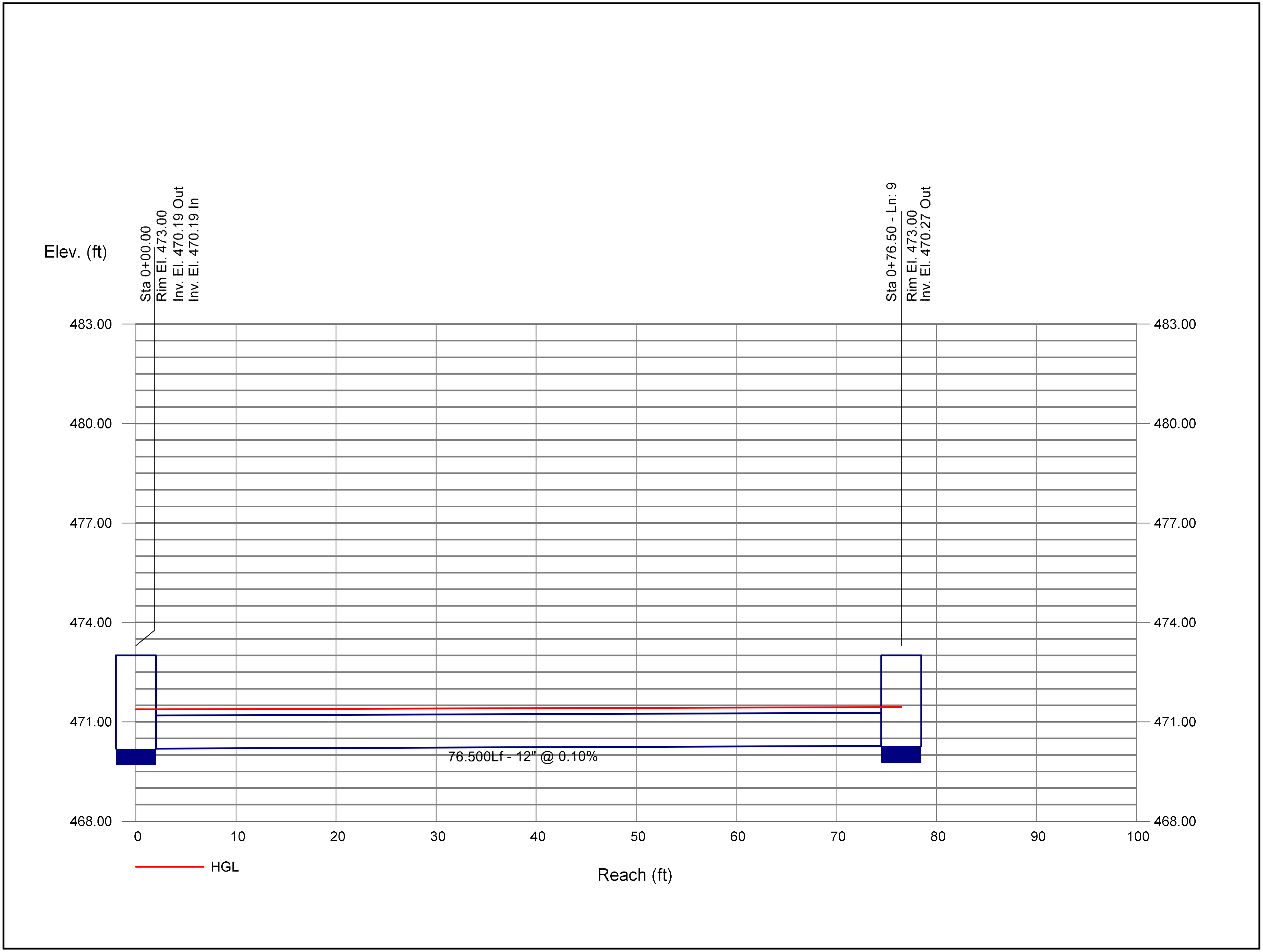
Storm Sewer Profile

Proj. file: storm network_7-9-21.stm



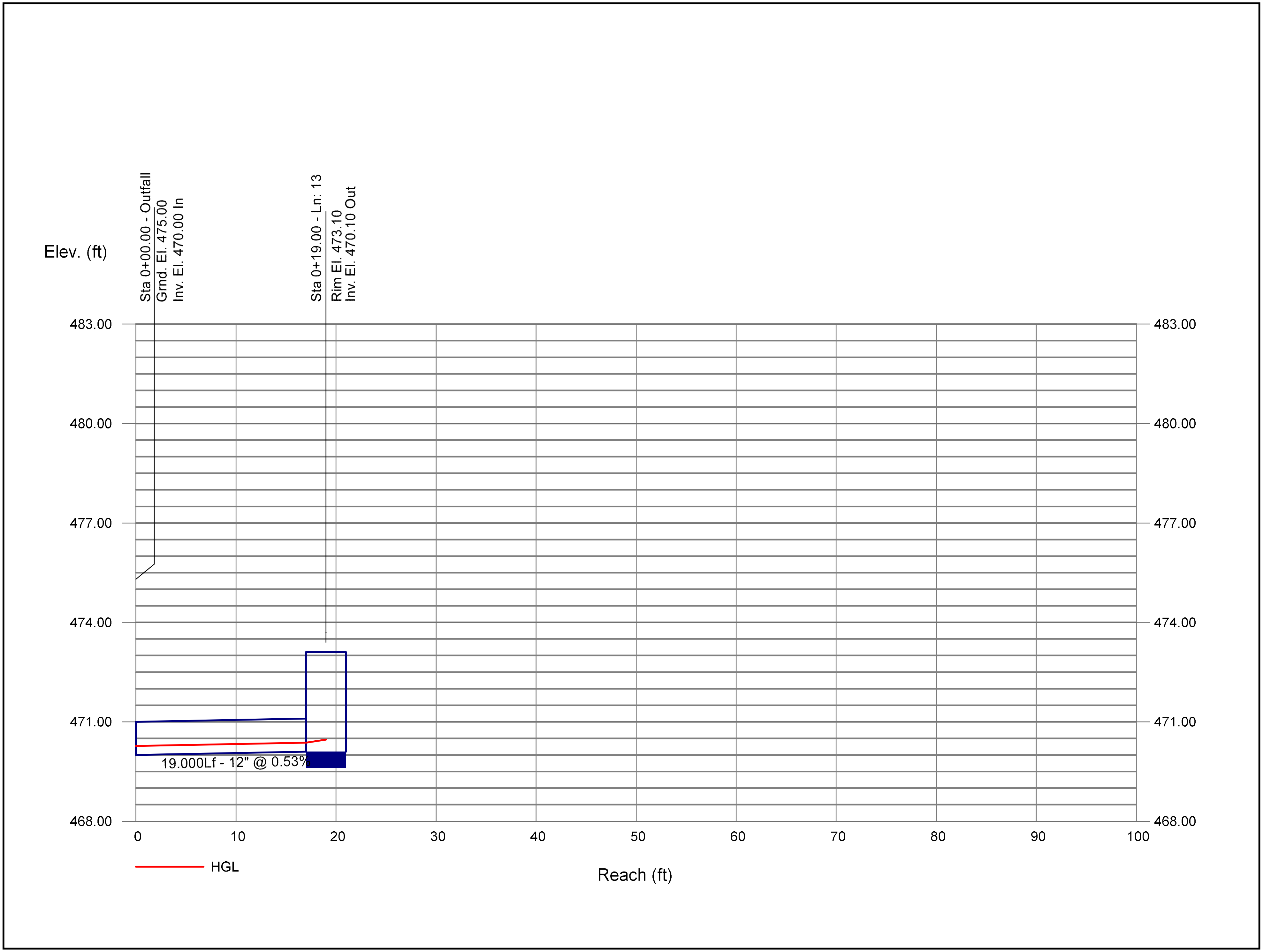
Storm Sewer Profile

Proj. file: storm network_7-9-21.stm



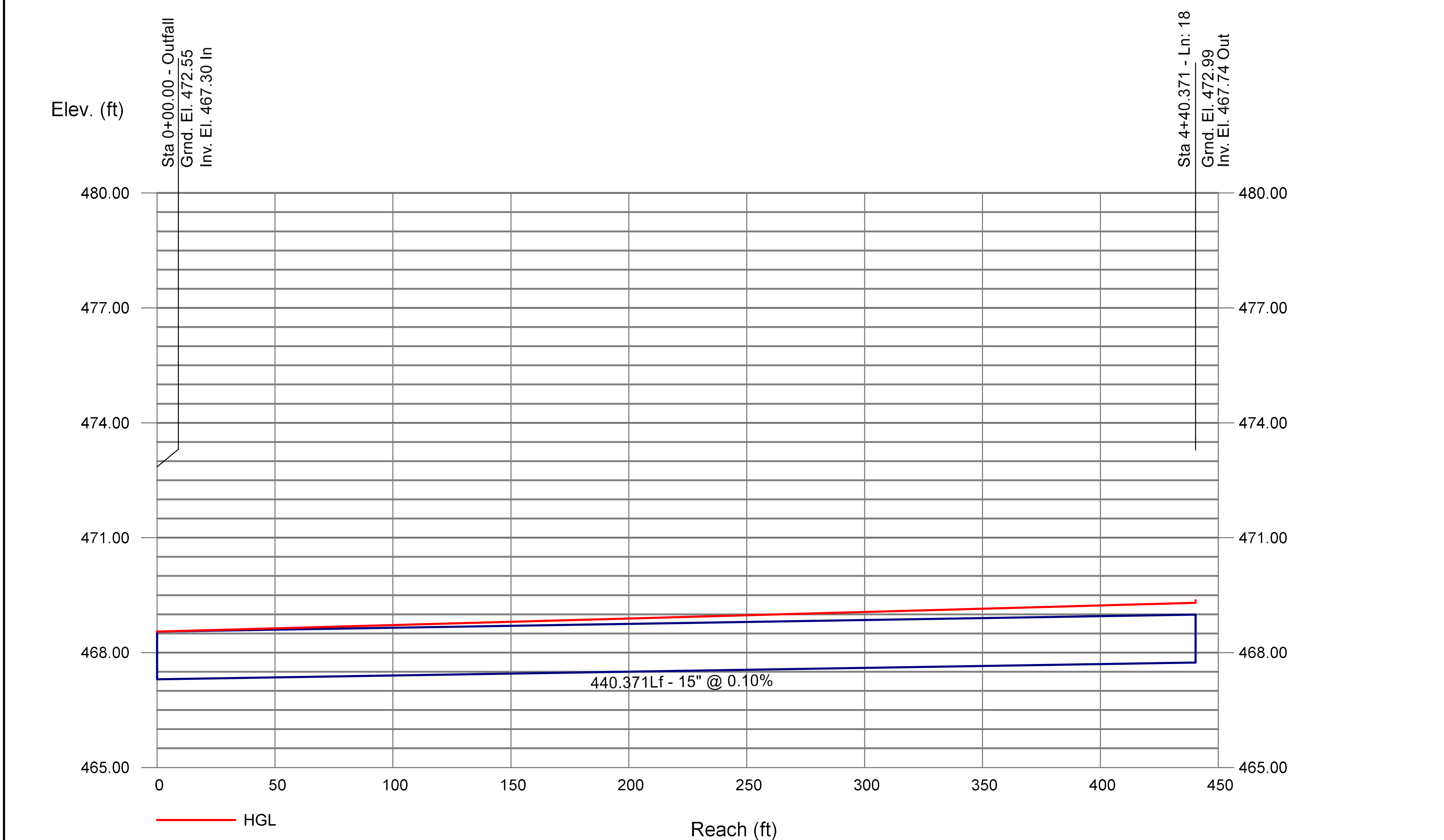
Storm Sewer Profile

Proj. file: storm network_7-9-21.stm



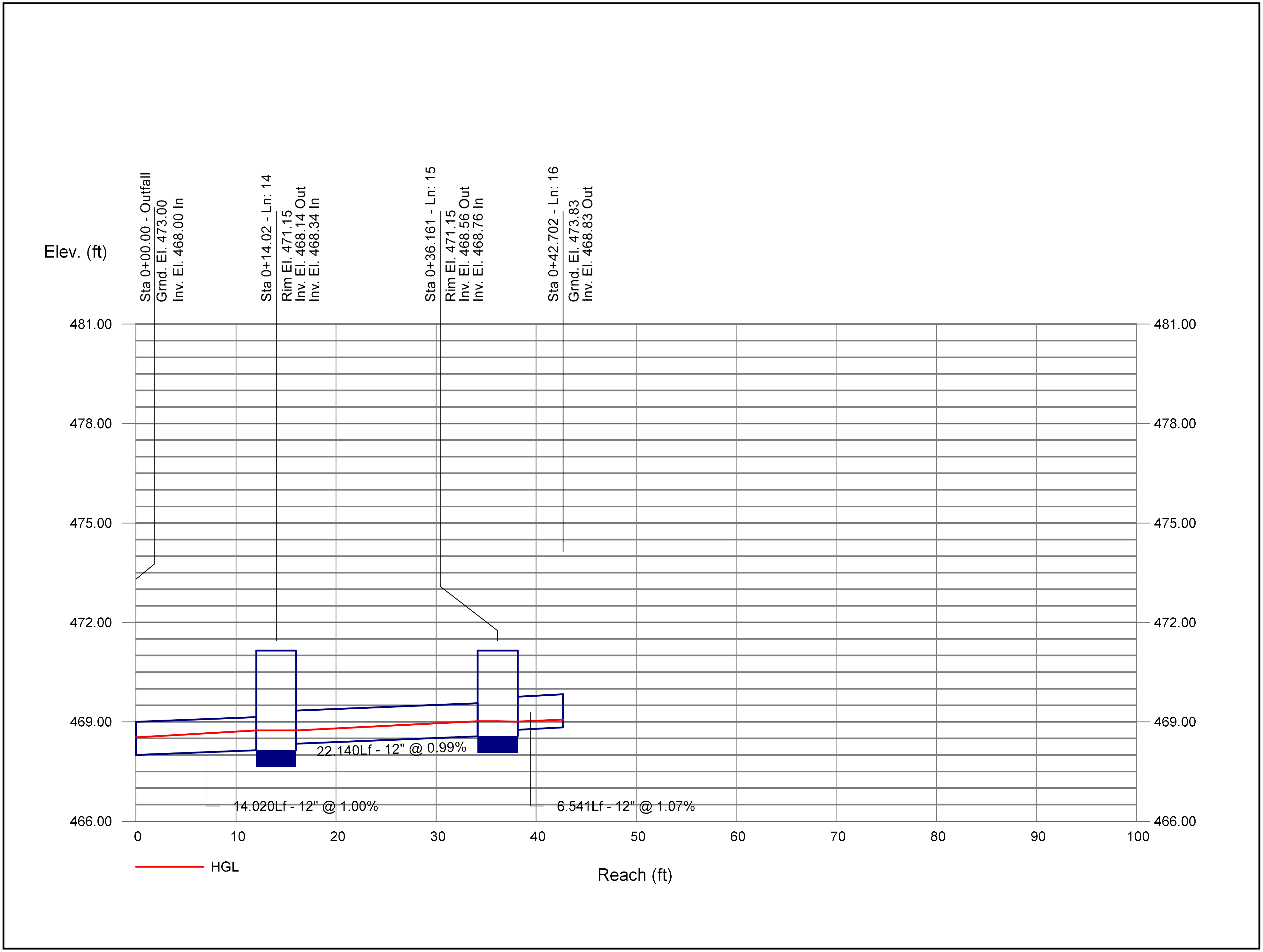
Storm Sewer Profile

Proj. file: storm network_7-9-21.stm



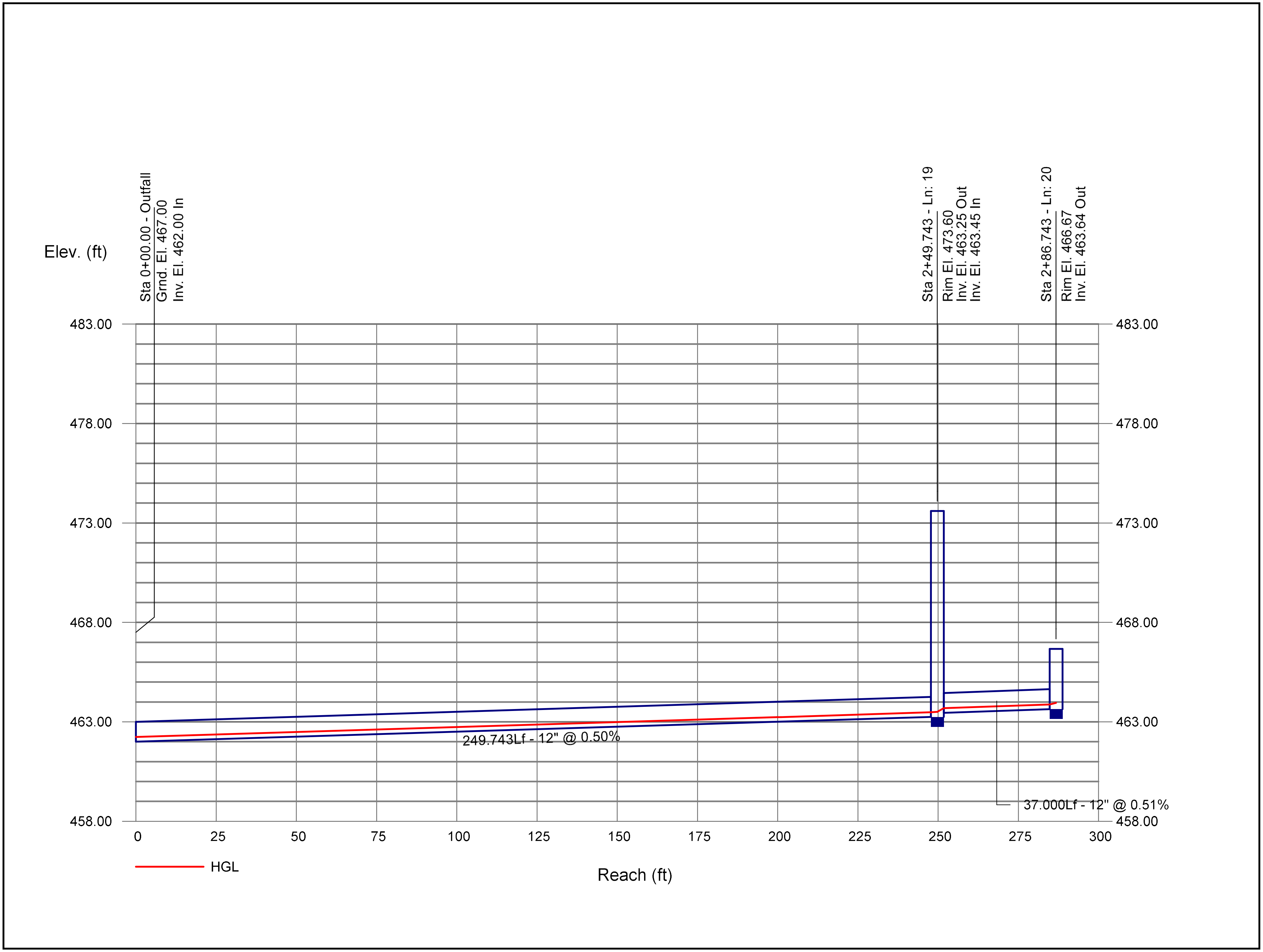
Storm Sewer Profile

Proj. file: storm network_7-9-21.stm



Storm Sewer Profile

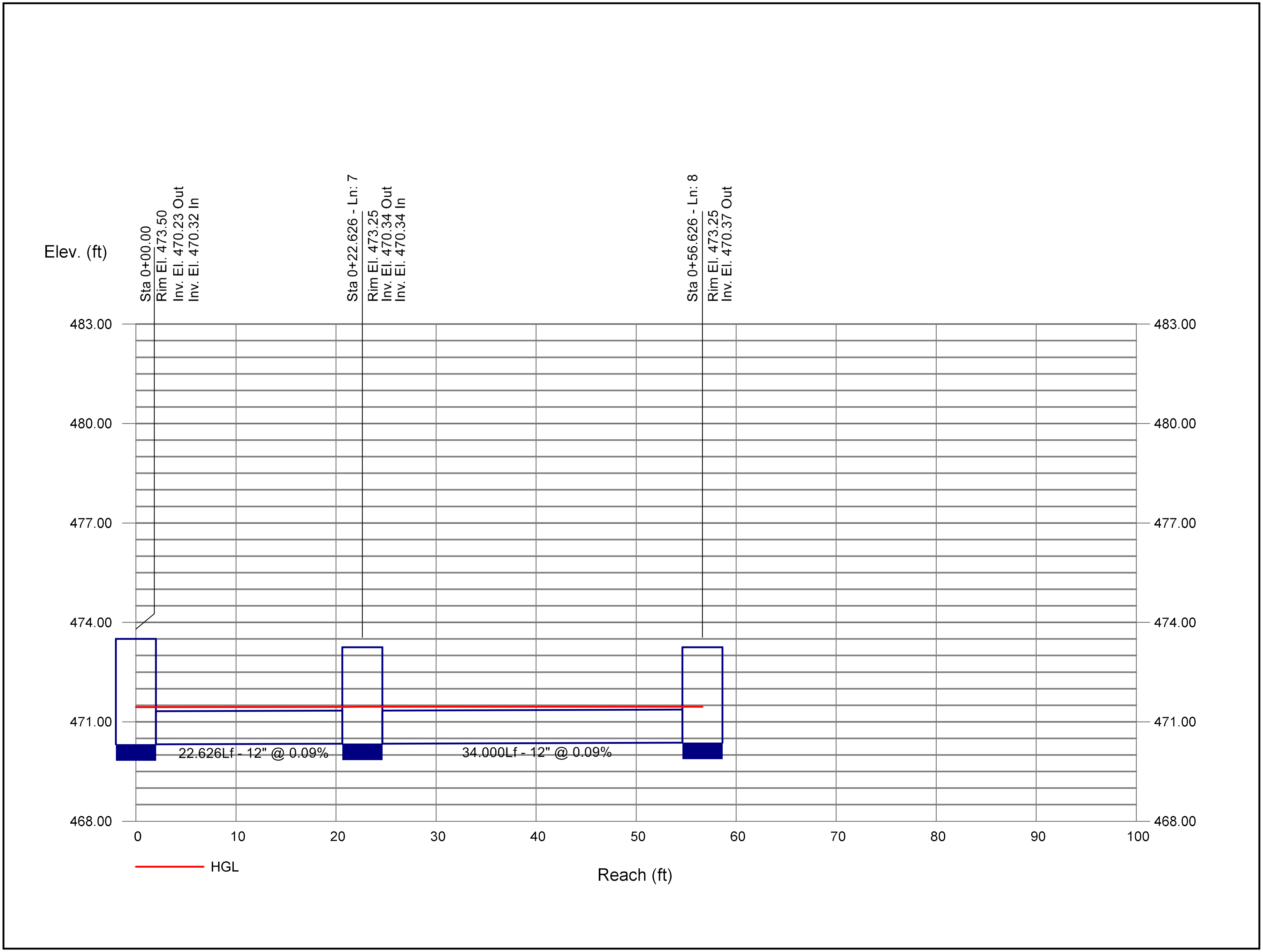
Proj. file: storm network_7-26-21.stm



Storm Sewers

Storm Sewer Profile

Proj. file: storm network_7-9-21.stm



Hydrograph Return Period Recap

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

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	1.714	-------	-------	-------	-------	-------	-------	-------	P_TRIB3
3	Reservoir	1	0.029	-------	-------	-------	-------	-------	-------	-------	ROUTED THRU BASIN

Hydrograph Summary Report

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

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	1.714	2	724	5,421	------	------	------	P_TRIB3
3	Reservoir	0.029	2	1426	5,087	1	470.57	4,182	ROUTED THRU BASIN

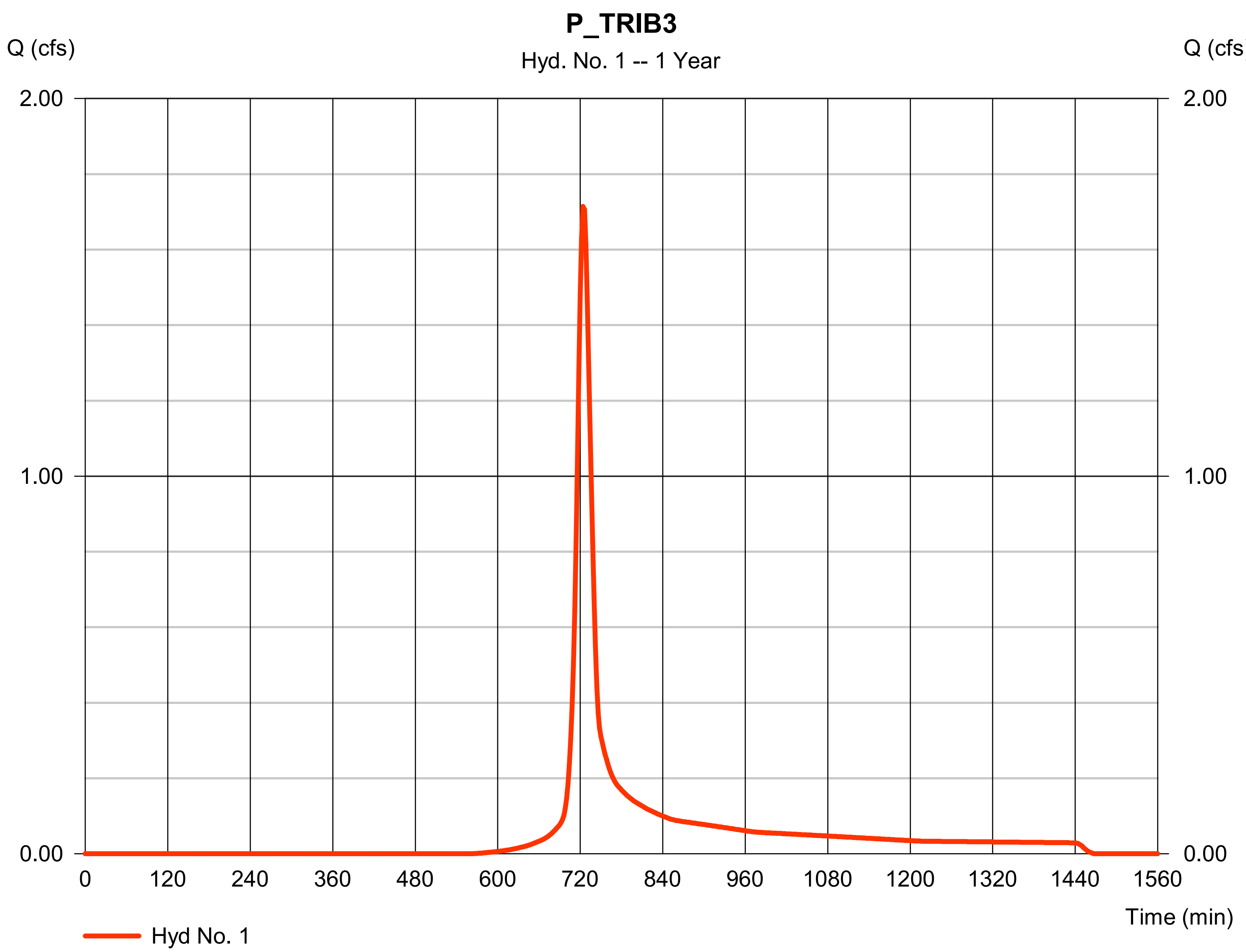
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 1

P_TRIB3

Hydrograph type	= SCS Runoff	Peak discharge	= 1.714 cfs
Storm frequency	= 1 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 5,421 cuft
Drainage area	= 2.937 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 17.40 min
Total precip.	= 1.14 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

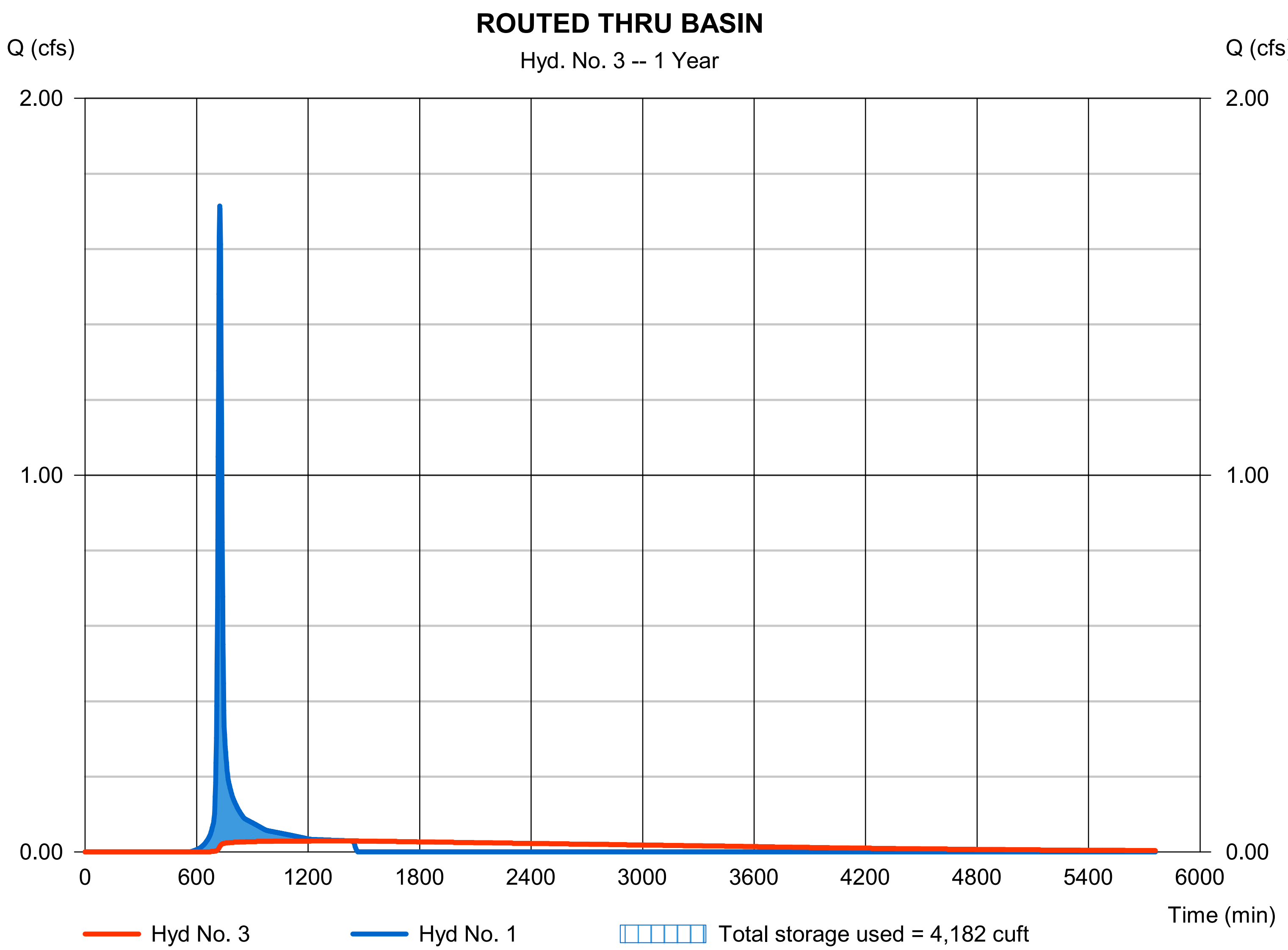
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Hyd. No. 3

ROUTED THRU BASIN

Hydrograph type	= Reservoir	Peak discharge	= 0.029 cfs
Storm frequency	= 1 yrs	Time to peak	= 1426 min
Time interval	= 2 min	Hyd. volume	= 5,087 cuft
Inflow hyd. No.	= 1 - P_TRIB3	Max. Elevation	= 470.57 ft
Reservoir name	= BMP 1	Max. Storage	= 4,182 cuft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 07 / 26 / 2021

Pond No. 1 - BMP 1

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 470.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	470.00	1,693	0	0
1.00	471.00	15,086	7,277	7,277
2.00	472.00	17,923	16,482	23,759
3.00	473.00	23,226	20,515	44,275

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	1.25	6.00	0.00
Span (in)	= 18.00	1.25	8.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 468.40	470.01	471.25	0.00
Length (ft)	= 40.00	0.00	0.00	0.00
Slope (%)	= 1.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	0.00	0.00	0.00
Crest El. (ft)	= 471.75	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
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).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	470.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.10	728	470.10	6.73 oc	0.01 ic	0.00	---	0.00	---	---	---	---	---	0.008
0.20	1,455	470.20	6.73 oc	0.02 ic	0.00	---	0.00	---	---	---	---	---	0.015
0.30	2,183	470.30	6.73 oc	0.02 ic	0.00	---	0.00	---	---	---	---	---	0.020
0.40	2,911	470.40	6.73 oc	0.02 ic	0.00	---	0.00	---	---	---	---	---	0.024
0.50	3,638	470.50	6.73 oc	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.027
0.60	4,366	470.60	6.73 oc	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.030
0.70	5,094	470.70	6.73 oc	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.033
0.80	5,821	470.80	6.73 oc	0.04 ic	0.00	---	0.00	---	---	---	---	---	0.035
0.90	6,549	470.90	6.73 oc	0.04 ic	0.00	---	0.00	---	---	---	---	---	0.038
1.00	7,277	471.00	6.73 oc	0.04 ic	0.00	---	0.00	---	---	---	---	---	0.040
1.10	8,925	471.10	6.73 oc	0.04 ic	0.00	---	0.00	---	---	---	---	---	0.042
1.20	10,573	471.20	6.73 oc	0.04 ic	0.00	---	0.00	---	---	---	---	---	0.044
1.30	12,222	471.30	6.73 oc	0.05 ic	0.03 ic	---	0.00	---	---	---	---	---	0.071
1.40	13,870	471.40	6.73 oc	0.05 ic	0.13 ic	---	0.00	---	---	---	---	---	0.179
1.50	15,518	471.50	6.73 oc	0.05 ic	0.28 ic	---	0.00	---	---	---	---	---	0.333
1.60	17,166	471.60	6.73 oc	0.05 ic	0.47 ic	---	0.00	---	---	---	---	---	0.521
1.70	18,815	471.70	6.73 oc	0.05 ic	0.69 ic	---	0.00	---	---	---	---	---	0.738
1.80	20,463	471.80	6.73 oc	0.05 ic	0.88 ic	---	0.45	---	---	---	---	---	1.380
1.90	22,111	471.90	6.73 oc	0.06 ic	1.02 ic	---	2.32	---	---	---	---	---	3.394
2.00	23,759	472.00	6.73 oc	0.06 ic	1.13 ic	---	4.99	---	---	---	---	---	6.187
2.10	25,811	472.10	9.57 oc	0.05 ic	1.24 ic	---	8.27	---	---	---	---	---	9.569
2.20	27,862	472.20	13.33 ic	0.03 ic	1.24 ic	---	12.06	---	---	---	---	---	13.33
2.30	29,914	472.30	14.45 ic	0.02 ic	0.83 ic	---	13.61 s	---	---	---	---	---	14.45
2.40	31,965	472.40	14.93 ic	0.02 ic	0.66 ic	---	14.24 s	---	---	---	---	---	14.93
2.50	34,017	472.50	15.29 ic	0.01 ic	0.55 ic	---	14.72 s	---	---	---	---	---	15.29
2.60	36,069	472.60	15.60 ic	0.01 ic	0.48 ic	---	15.11 s	---	---	---	---	---	15.60
2.70	38,120	472.70	15.88 ic	0.01 ic	0.41 ic	---	15.45 s	---	---	---	---	---	15.87
2.80	40,172	472.80	16.14 ic	0.01 ic	0.37 ic	---	15.76 s	---	---	---	---	---	16.13
2.90	42,223	472.90	16.38 ic	0.01 ic	0.33 ic	---	16.04 s	---	---	---	---	---	16.37
3.00	44,275	473.00	16.62 ic	0.01 ic	0.30 ic	---	16.31 s	---	---	---	---	---	16.61