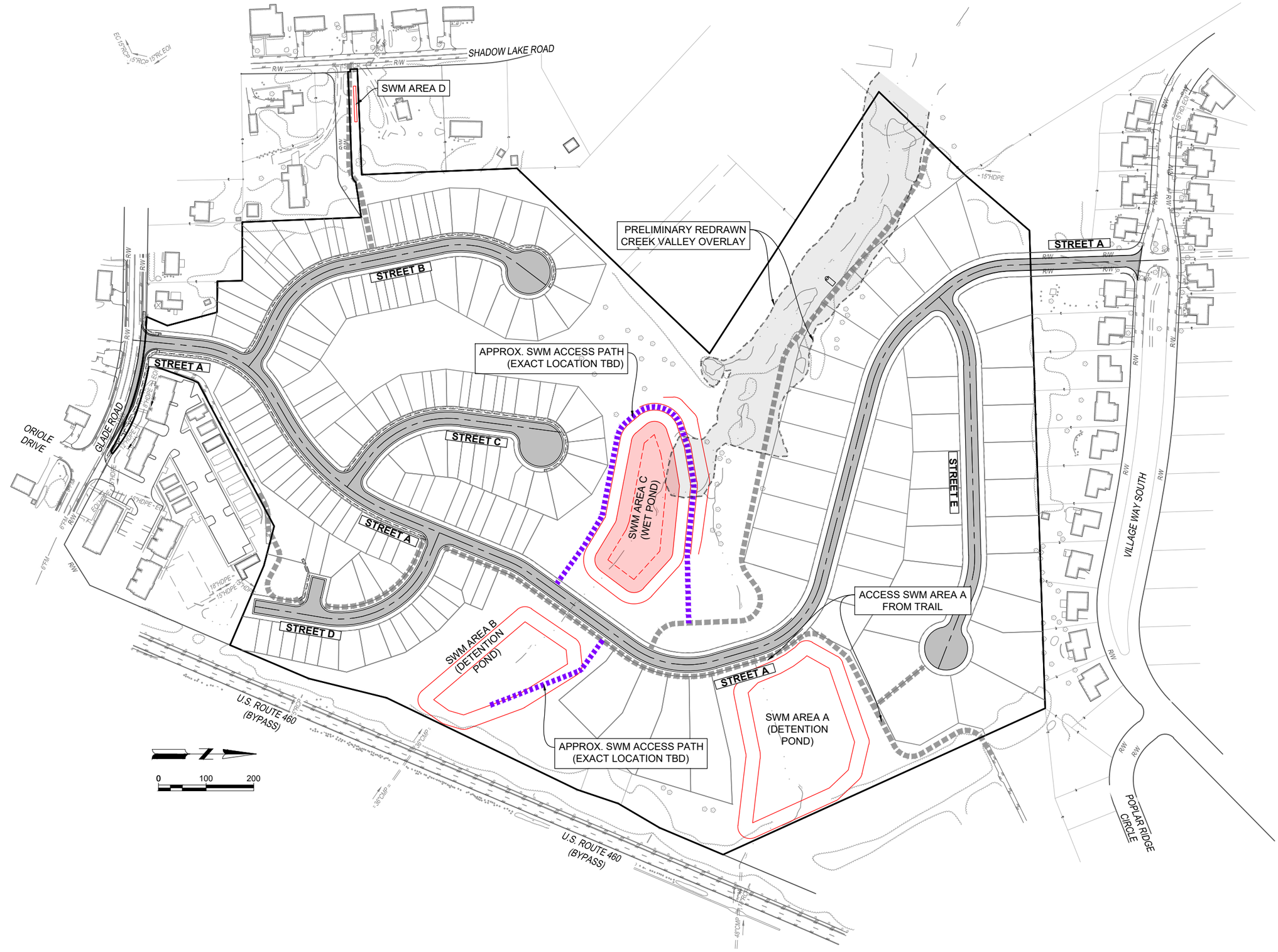
POST-DEVELOPMENT

Point of Analysis A



EDEN & ASSOCIATES
engineering • planning • development
1700 KRAFT DRIVE, SUITE 2350
BLACKSBURG, VIRGINIA 24060
VOICE 276-632-6231
FAX. 276-632-3648

No.	Revision / Issue	Date

PRELIMINARY

STORMWATER MANAGEMENT AREAS EXHIBIT

PROPOSED DEVELOPMENT OF

GLADE SPRING CROSSING

PROPERTY OF GLADE HGTS, LLC - TAX PARCELS 225-(A)-3, 225-(A)-4, & 224-(A)-57; 45.0976 AC.
TOWN OF BLACKSBURG - PRICES FORK DISTRICT
MONTGOMERY COUNTY, VIRGINIA

Drawn By:	Scale:
MSF	AS SHOWN
Checked By:	Date:
PJB	11/15/2022
Sheet No.	
1 of 1	SWM

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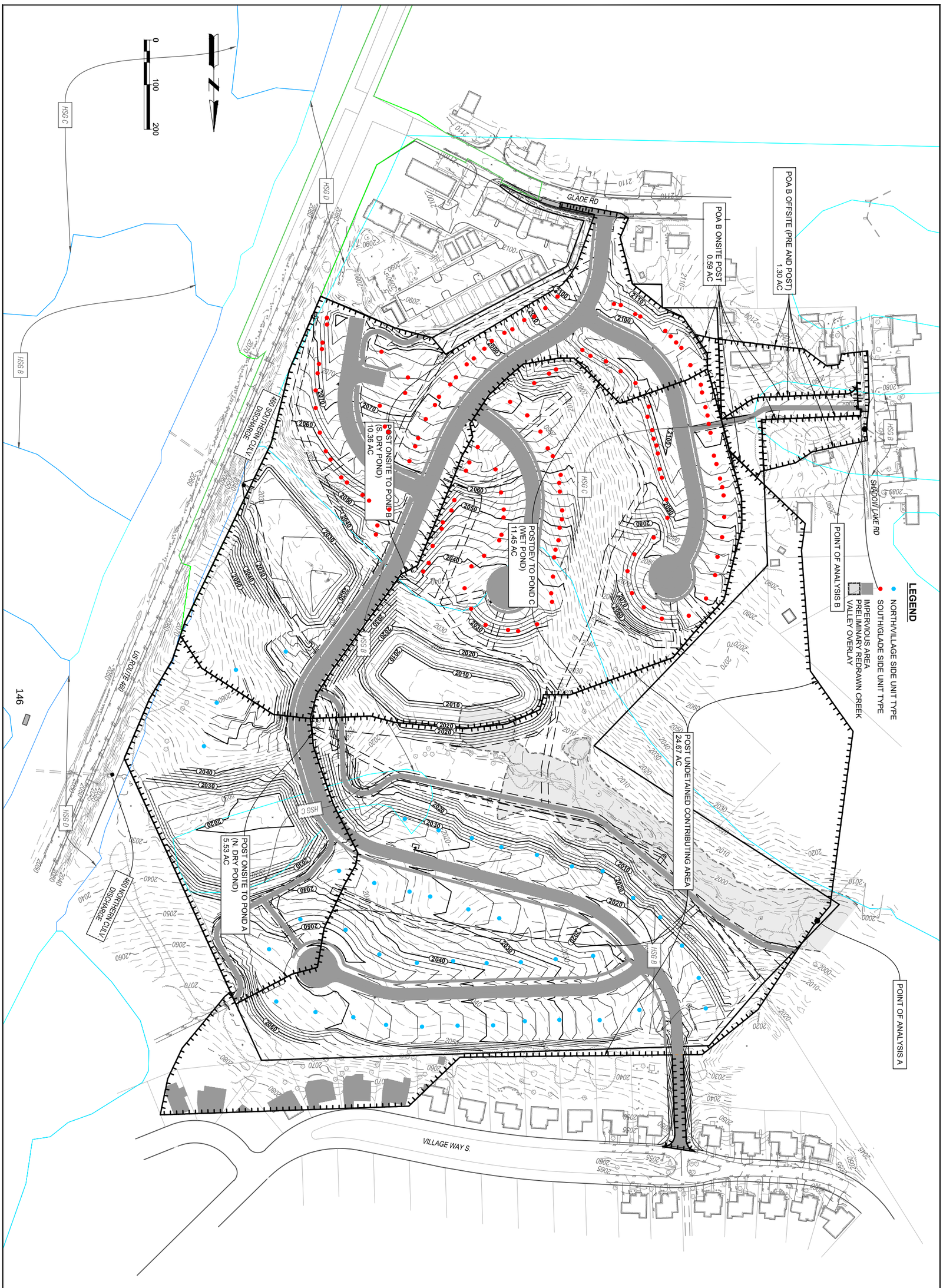

PROPOSED DEVELOPMENT OF

GLADE SPRING CROSSING

PROPERTY OF GLADE HGTS, LLC - TAX PARCELS
225-(A)-3, 225-(A)-4, & 224-(A)-57; 45.0976 AC.

TOWN OF BLACKSBURG - PRICES FORK DISTRICT
MONTGOMERY COUNTY, VIRGINIA

POSTDEVELOPMENT ONSITE DRAINAGE AREAS

PRELIMINARY

No.	Revision Issue	Date

Drawn By: MSF
Checked By: ---
Scale: AS SHOWN
Date: 11/15/2022
Sheet No. 1 of 1
D3

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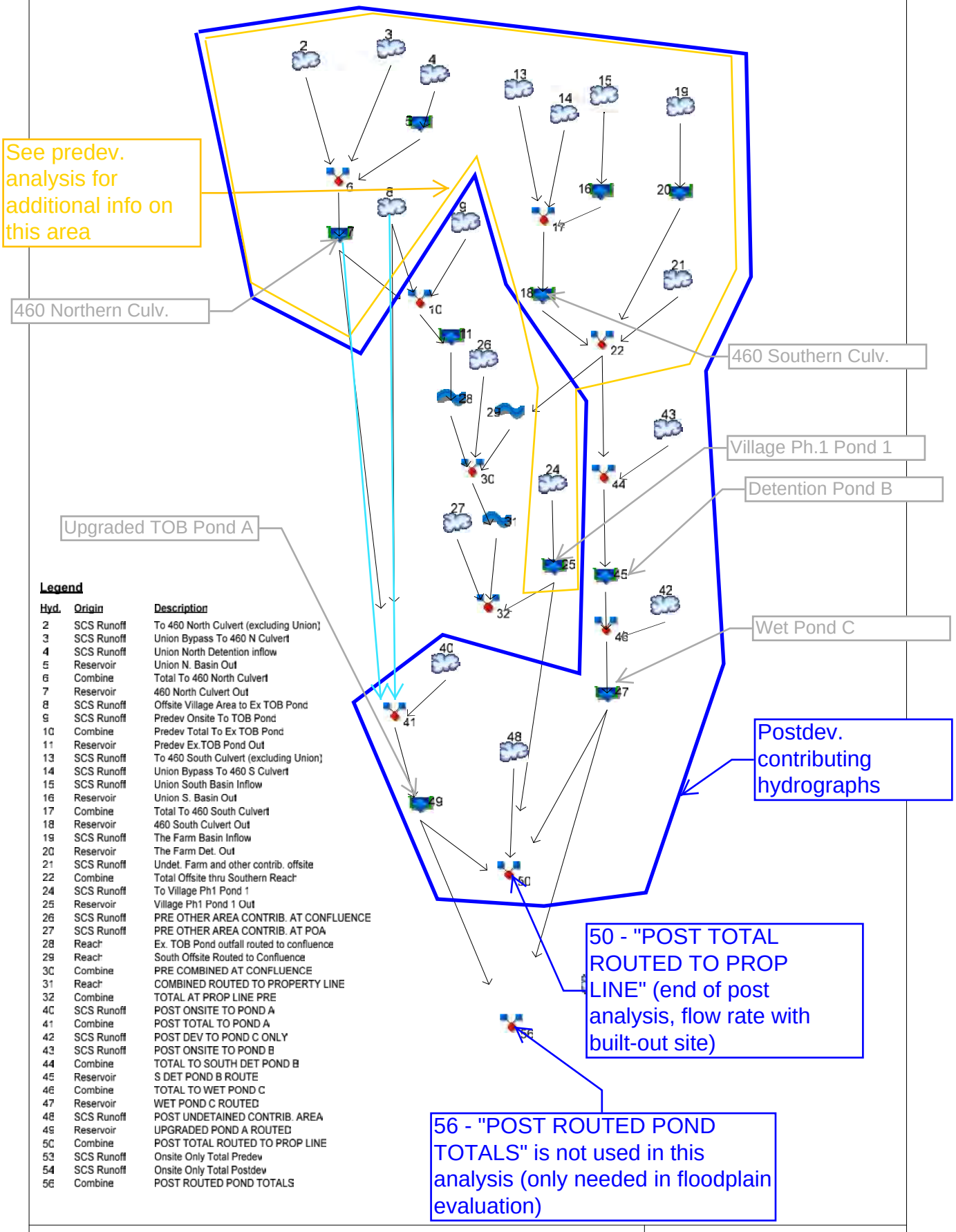
Watershed Model Schematic



Legend

Hyd.	Origin	Description
2	SCS Runoff	To 460 North Culvert (excluding Union)
3	SCS Runoff	Union Bypass To 460 N Culvert
4	SCS Runoff	Union North Detention inflow
5	Reservoir	Union N. Basin Out
6	Combine	Total To 460 North Culvert
7	Reservoir	460 North Culvert Out
8	SCS Runoff	Offsite Village Area to Ex TOB Pond
9	SCS Runoff	Predev Onsite To TOB Pond
10	Combine	Predev Total To Ex TOB Pond
11	Reservoir	Predev Ex.TOB Pond Out
13	SCS Runoff	To 460 South Culvert (excluding Union)
14	SCS Runoff	Union Bypass To 460 S Culvert
15	SCS Runoff	Union South Basin Inflow
16	Reservoir	Union S. Basin Out
17	Combine	Total To 460 South Culvert
18	Reservoir	460 South Culvert Out
19	SCS Runoff	The Farm Basin Inflow
20	Reservoir	The Farm Det. Out
21	SCS Runoff	Undet. Farm and other contrib. offsite
22	Combine	Total Offsite thru Southern Reach
24	SCS Runoff	To Village Ph1 Pond 1
25	Reservoir	Village Ph1 Pond 1 Out
26	SCS Runoff	PRE OTHER AREA CONTRIB. AT CONFLUENCE
27	SCS Runoff	PRE OTHER AREA CONTRIB. AT POA
28	Reach	Ex. TOB Pond outfall routed to confluence
29	Reach	South Offsite Routed to Confluence
30	Combine	PRE COMBINED AT CONFLUENCE
31	Reach	COMBINED ROUTED TO PROPERTY LINE
32	Combine	TOTAL AT PROP LINE PRE
40	SCS Runoff	POST ONSITE TO POND A
41	Combine	POST TOTAL TO POND A
42	SCS Runoff	POST DEV TO POND C ONLY
43	SCS Runoff	POST ONSITE TO POND B
44	Combine	TOTAL TO SOUTH DET POND B
45	Reservoir	S DET POND B ROUTE
46	Combine	TOTAL TO WET POND C
47	Reservoir	WET POND C ROUTED
48	SCS Runoff	POST UNDETAINED CONTRIB. AREA
49	Reservoir	UPGRADED POND A ROUTED
50	Combine	POST TOTAL ROUTED TO PROP LINE
53	SCS Runoff	Onsite Only Total Predev
54	SCS Runoff	Onsite Only Total Postdev
56	Combine	POST ROUTED POND TOTALS

South/Glade Side Units	
Typical Unit Impervious Footprint	Area (sf)
18'x35' (incl. 18'x5' porch)	630
28'x30' (incl. 28'x6' porch)	840
24'x34' (incl. 24'x6' porch)	816
Average	770
Typical 18'x34' Driveway (total to back of curb)	612
Total Typical Impervious Area per Unit (average+driveway)	**1382**

North/Village Side Units	
Typical Unit Impervious Footprint	Area (sf)
48'x48' (incl. variable porch)	2304
45'x63' (incl. variable porch)	2835
Average	2570
Typical 20'x37' Driveway (total to EP)	740
Typical 12'x12' Deck	144
Total Typical Impervious Area per Unit (average+driveway+deck)	**3454**

Typical Lot Impervious Area Estimates

South/Glade side dwelling unit assumed impervious area (sf):	1,382
North/Village side dwelling unit assumed impervious area (sf):	3,454

Hydrologic Soil Group B Dwelling Unit Impervious Estimate						
	South/Glade		North/Village		Total Impervious Area	
Drainage Area	No. units	Imperv. area (sf)	No. units	Imperv. area (sf)	(sf)	(ac.)
POST ONSITE TO POND B (S. DRY POND)	0	0	2	6,908	6,908	0.159
POSTDEV TO POND C (WETPOND)	8	11,056	0	0	11,056	0.254
POST ONSITE TO POND A (N. DRY POND)	0	0	5	17,270	17,270	0.396
Undetained	0	0	36	124,344	124,344	2.855

Hydrologic Soil Group C Dwelling Unit Impervious Estimate						
	South/Glade		North/Village		Total Impervious Area	
Drainage Area	No. units	Imperv. area (sf)	No. units	Imperv. area (sf)	(sf)	(ac.)
POST ONSITE TO POND B (S. DRY POND)	56	77,392	0	0	77,392	1.777
POSTDEV TO POND C (WETPOND)	69	95,358	0	0	95,358	2.189
POST ONSITE TO POND A (N. DRY POND)	0	0	0	0	0	0.000
Undetained	0	0	0	0	0	0.000

Drainage Area Runoff and Time of Concentration

Drainage Area: POST ONSITE TO POND A (N. DRY POND)
POSTDEVELOPMENT

Composite Curve Number (CN)						Notes:
	Hydrologic Soil Group	Land Cover	CN	Area, A (ac.)	CN*A	
CN_1	B	Open space	61	3.56	217.30	Impervious lot area calculated on "Typical Lot Impervious Area Estimate" table elsewhere
CN_2	C	Open space	74	1.08	79.82	
CN_3	B	Imperv. (measured)	98	0.42	40.81	
CN_4	C	Imperv. (measured)	98	0.07	7.15	
CN_5	B	Imperv. (est. lots)	98	0.40	38.81	
CN_6	C	Imperv. (est. lots)	98	0.00	0.00	
CN_7					0.00	
CN_8					0.00	
CN_9					0.00	
CN_{10}					0.00	
			Total	**5.53**	**383.89**	
				Composite CN =	**69**	

Time of Concentration, T_c						
2 yr. Precip. (in.) =			2.73			
Flow Segment	Flow Regime	Land Cover	Length (ft)	Roughness Coeff., n	Slope (ft/ft)	Travel Time, T_t (min.)
1	Other Tt	Estimate				10.0
2						
3						
4						
5						
6						
7						
8						
9						
10						
					Total Time of Concentration, T_c (min.) =	**10.0**

Runoff			
	1 Yr.	10 Yr.	100 Yr.
Precipitation (in.), P	2.26	4.06	6.44
Composite CN	69	69	69
Storage (in.) S=1000/CN-10	4.49	4.49	4.49
Initial abstraction (in.), I_a=0.2S	0.90	0.90	0.90
Runoff depth (in.), $Q=(P-0.2S)^2/[(P-I_a)+S]$	0.32	1.31	3.06
Runoff volume (ac-ft), RV = Q/12*A	0.15	0.60	1.41
Flow rate (cfs), q_{peak} from hydrograph	1.78	10.10	24.37

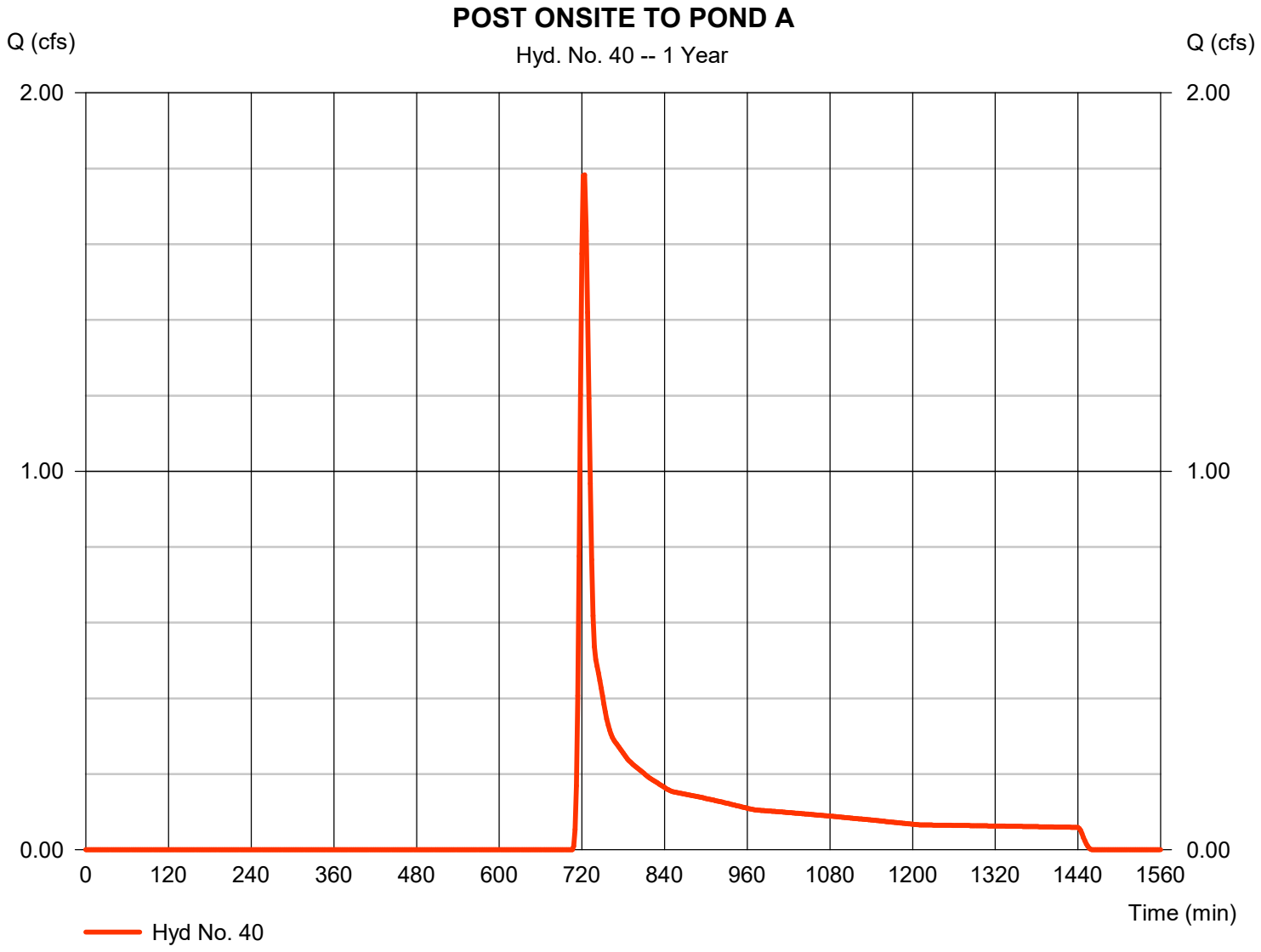
Hydrograph Number: 40

Hydrograph Report

Hyd. No. 40

POST ONSITE TO POND A

Hydrograph type	= SCS Runoff	Peak discharge	= 1.783 cfs
Storm frequency	= 1 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 6,554 cuft
Drainage area	= 5.530 ac	Curve number	= 69
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 2.26 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



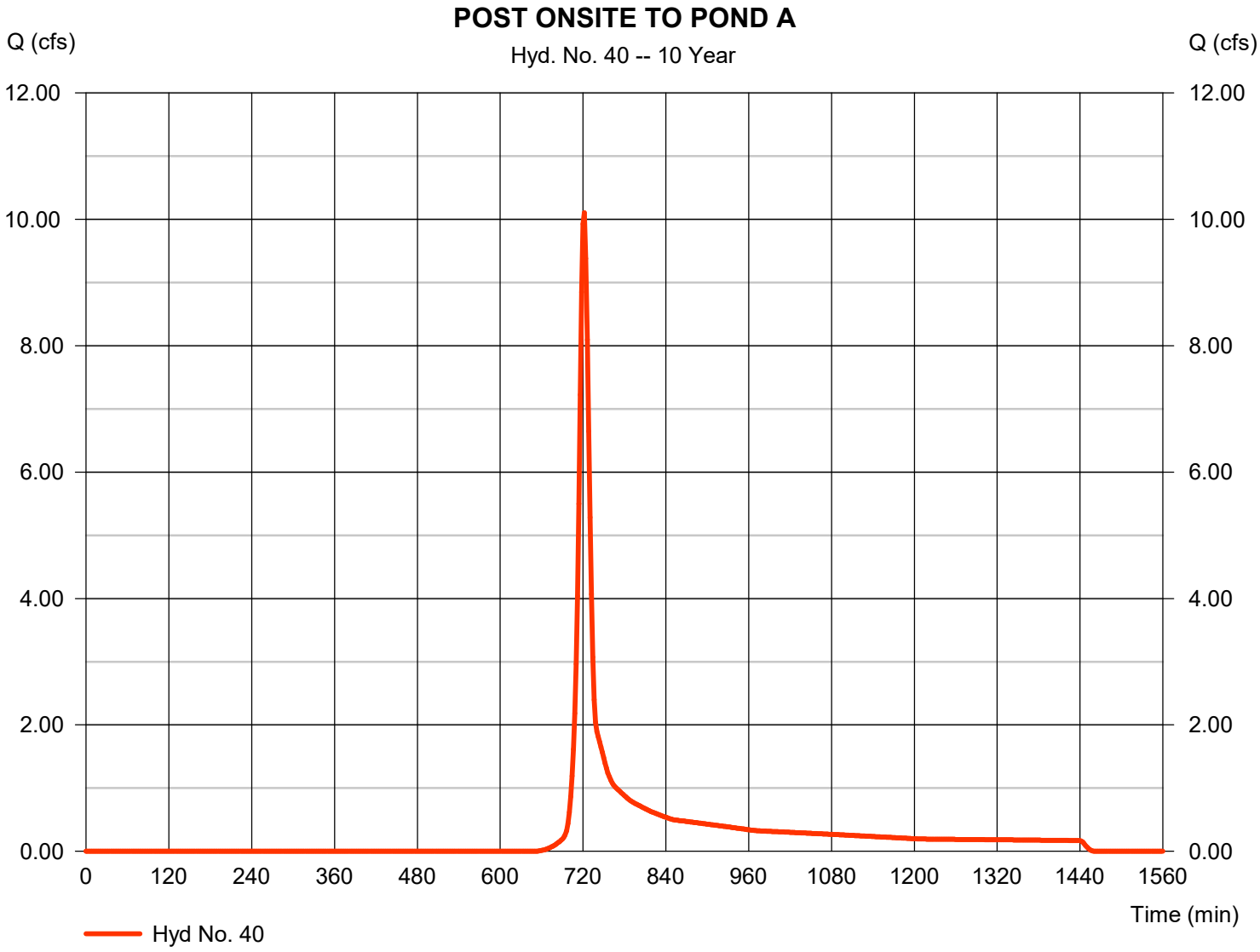
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Tuesday, 11 / 1 / 2022

Hyd. No. 40

POST ONSITE TO POND A

Hydrograph type	=	SCS Runoff	Peak discharge	=	10.10 cfs
Storm frequency	=	10 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	27,031 cuft
Drainage area	=	5.530 ac	Curve number	=	69
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	4.06 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



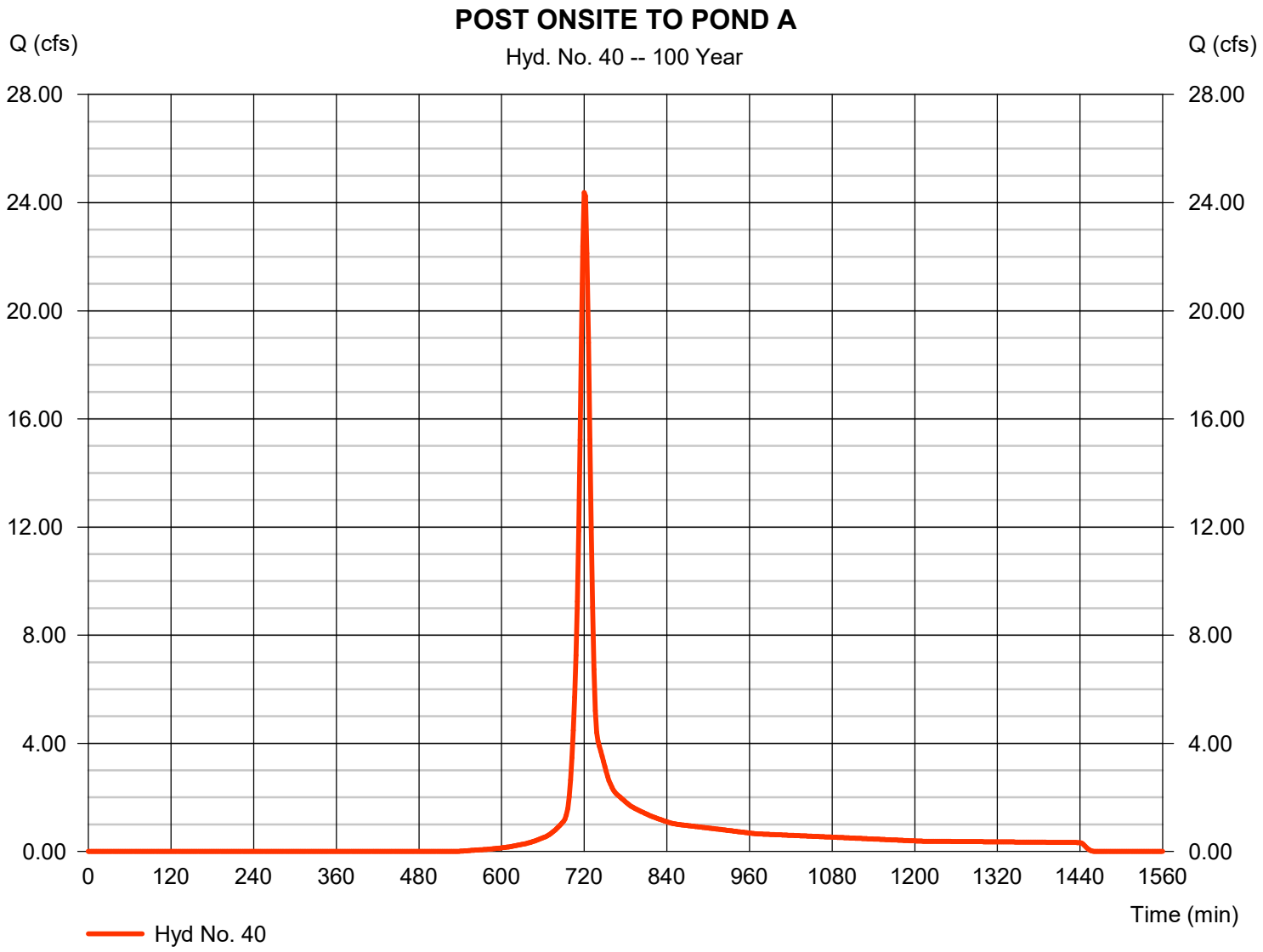
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Tuesday, 11 / 1 / 2022

Hyd. No. 40

POST ONSITE TO POND A

Hydrograph type	= SCS Runoff	Peak discharge	= 24.37 cfs
Storm frequency	= 100 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 63,352 cuft
Drainage area	= 5.530 ac	Curve number	= 69
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 6.44 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

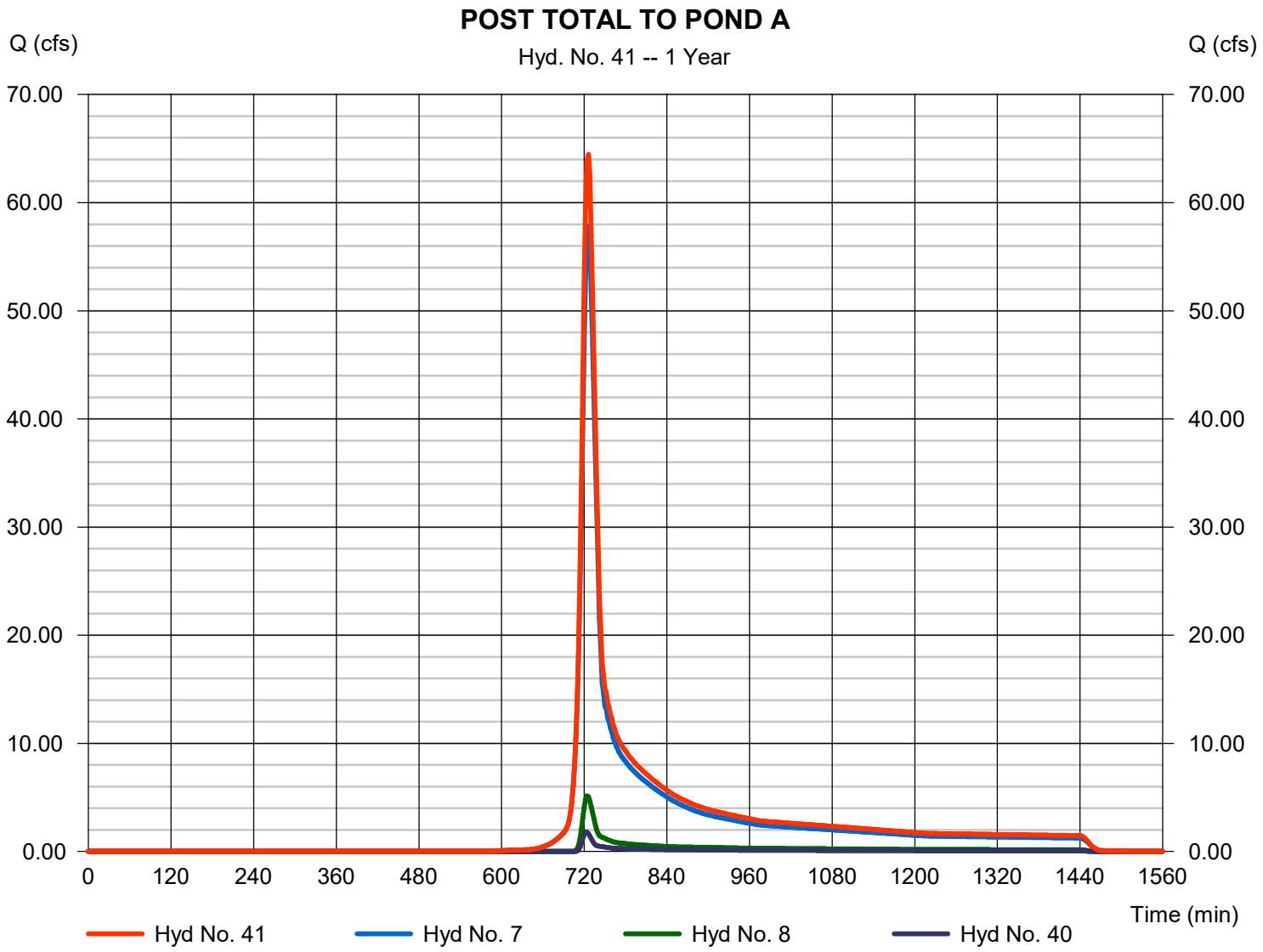


Hydrograph Report

Hyd. No. 41

POST TOTAL TO POND A

Hydrograph type	= Combine	Peak discharge	= 64.46 cfs
Storm frequency	= 1 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 235,179 cuft
Inflow hyds.	= 7, 8, 40	Contrib. drain. area	= 19.590 ac

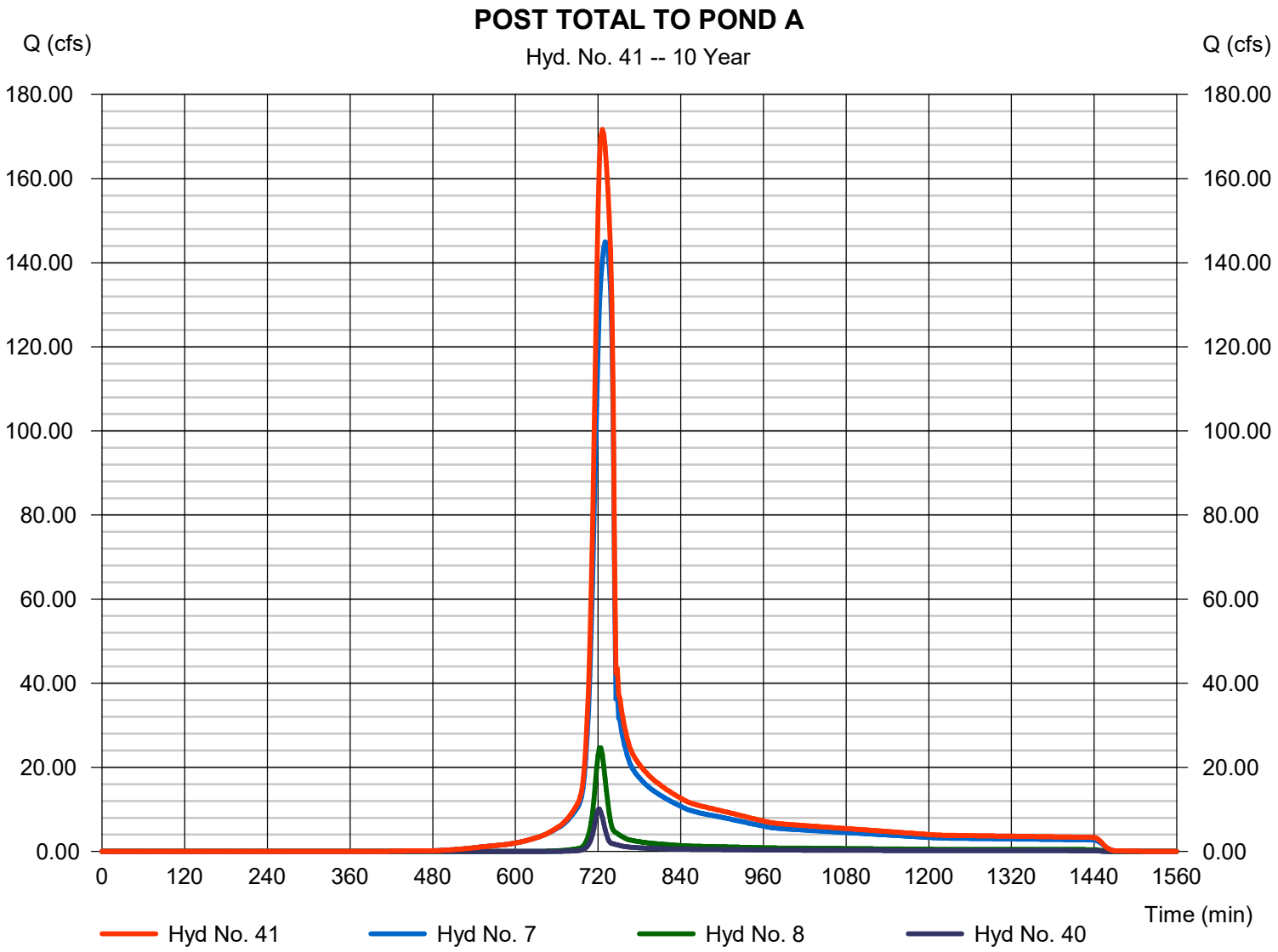


Hydrograph Report

Hyd. No. 41

POST TOTAL TO POND A

Hydrograph type	= Combine	Peak discharge	= 171.71 cfs
Storm frequency	= 10 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 671,126 cuft
Inflow hyds.	= 7, 8, 40	Contrib. drain. area	= 19.590 ac



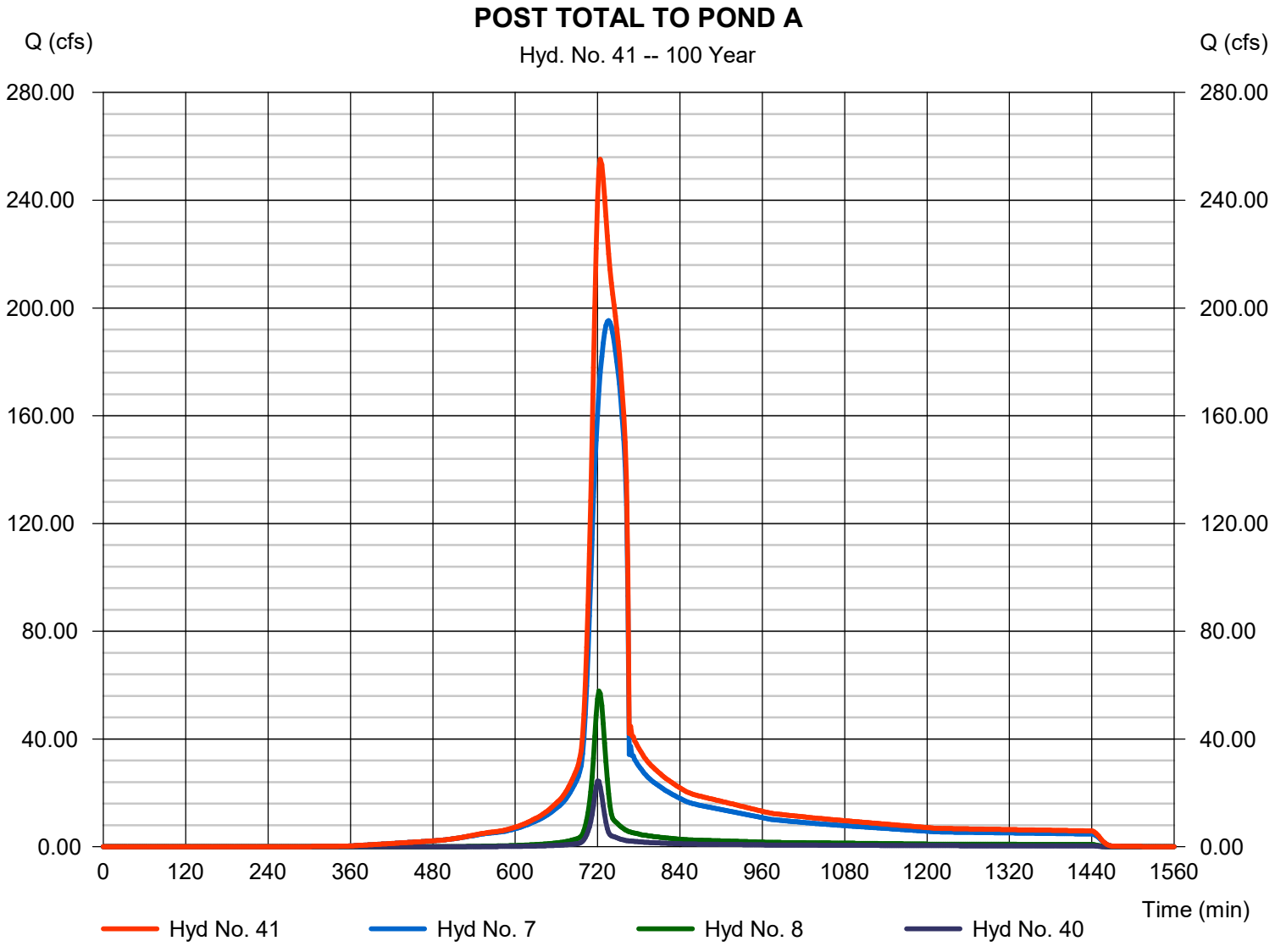
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Tuesday, 11 / 1 / 2022

Hyd. No. 41

POST TOTAL TO POND A

Hydrograph type	= Combine	Peak discharge	= 255.21 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 1,343,252 cuft
Inflow hyds.	= 7, 8, 40	Contrib. drain. area	= 19.590 ac



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Tuesday, 11 / 1 / 2022

Pond No. 4 - Pond A-Upgraded TOB Pond

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2018.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2018.00	27	0	0
1.00	2019.00	2,927	1,078	1,078
2.00	2020.00	10,298	6,238	7,316
3.00	2021.00	19,913	14,842	22,158
4.00	2022.00	30,584	25,056	47,214
5.00	2023.00	43,395	36,800	84,014
6.00	2024.00	47,862	45,606	129,619
7.00	2025.00	52,118	49,970	179,589
8.00	2026.00	55,880	53,983	233,572
9.00	2027.00	59,237	57,545	291,117
10.00	2028.00	63,672	61,435	352,552
11.00	2029.00	68,439	66,035	418,586
12.00	2030.00	77,946	73,134	491,720
13.00	2031.00	91,064	84,412	576,131
14.00	2032.00	99,712	95,346	671,477
15.00	2033.00	107,355	103,500	774,977
16.00	2034.00	115,265	111,275	886,252
17.00	2035.00	122,400	118,803	1,005,055

Proposed Pond A improvements: Increased storage volume, new discharge culvert, new outlet structure and outlet structure configuration

Culvert / Orifice Structures

		[A]	[B]	[C]	[PrfRsr]
Rise (in)	=	30.00	12.00	Inactive	0.00
Span (in)	=	30.00	12.00	24.00	0.00
No. Barrels	=	1	1	2	0
Invert El. (ft)	=	2018.00	2018.01	2028.50	0.00
Length (ft)	=	200.00	0.50	100.00	0.00
Slope (%)	=	2.00	1.00	5.00	n/a
N-Value	=	.013	.013	.013	n/a
Orifice Coeff.	=	0.60	0.60	0.60	0.60
Multi-Stage	=	n/a	Yes	No	No

Weir Structures

		[A]	[B]	[C]	[D]
Crest Len (ft)	=	13.20	Inactive	1.50	0.00
Crest El. (ft)	=	2027.50	2029.50	2024.00	0.00
Weir Coeff.	=	3.33	2.60	3.33	3.33
Weir Type	=	1	Broad	Rect	---
Multi-Stage	=	Yes	No	Yes	No
Exfil.(in/hr)	=	0.000 (by Wet area)			
TW Elev. (ft)	=	0.00			

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

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	2018.00	0.00	0.00	0.00	---	0.00	0.00	0.00	---	---	---	0.000
0.10	108	2018.10	0.03 ic	0.03 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.032
0.20	216	2018.20	0.13 ic	0.13 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.131
0.30	323	2018.30	0.29 ic	0.29 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.292
0.40	431	2018.40	0.51 ic	0.51 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.508
0.50	539	2018.50	0.77 ic	0.77 ic	0.00	---	0.00	0.00	0.00	---	---	---	0.774
0.60	647	2018.60	1.06 ic	1.06 ic	0.00	---	0.00	0.00	0.00	---	---	---	1.061
0.70	755	2018.70	1.39 ic	1.39 ic	0.00	---	0.00	0.00	0.00	---	---	---	1.389
0.80	863	2018.80	1.76 ic	1.76 ic	0.00	---	0.00	0.00	0.00	---	---	---	1.759
0.90	970	2018.90	2.10 ic	2.10 ic	0.00	---	0.00	0.00	0.00	---	---	---	2.097
1.00	1,078	2019.00	2.46 ic	2.40 ic	0.00	---	0.00	0.00	0.00	---	---	---	2.397
1.10	1,702	2019.10	2.61 ic	2.61 ic	0.00	---	0.00	0.00	0.00	---	---	---	2.612
1.20	2,326	2019.20	2.87 ic	2.81 ic	0.00	---	0.00	0.00	0.00	---	---	---	2.809
1.30	2,950	2019.30	3.02 ic	3.01 ic	0.00	---	0.00	0.00	0.00	---	---	---	3.013
1.40	3,573	2019.40	3.18 ic	3.18 ic	0.00	---	0.00	0.00	0.00	---	---	---	3.184
1.50	4,197	2019.50	3.35 ic	3.35 ic	0.00	---	0.00	0.00	0.00	---	---	---	3.352
1.60	4,821	2019.60	3.52 ic	3.52 ic	0.00	---	0.00	0.00	0.00	---	---	---	3.518
1.70	5,445	2019.70	3.68 ic	3.68 ic	0.00	---	0.00	0.00	0.00	---	---	---	3.681
1.80	6,068	2019.80	3.84 ic	3.84 ic	0.00	---	0.00	0.00	0.00	---	---	---	3.842
1.90	6,692	2019.90	4.00 ic	4.00 ic	0.00	---	0.00	0.00	0.00	---	---	---	4.001
2.00	7,316	2020.00	4.16 ic	4.16 ic	0.00	---	0.00	0.00	0.00	---	---	---	4.158
2.10	8,800	2020.10	4.34 ic	4.30 ic	0.00	---	0.00	0.00	0.00	---	---	---	4.298
2.20	10,284	2020.20	4.52 ic	4.43 ic	0.00	---	0.00	0.00	0.00	---	---	---	4.431
2.30	11,769	2020.30	4.56 ic	4.56 ic	0.00	---	0.00	0.00	0.00	---	---	---	4.564
2.40	13,253	2020.40	4.71 ic	4.71 ic	0.00	---	0.00	0.00	0.00	---	---	---	4.713

Continues on next page...

Pond A-Upgraded TOB Pond

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
2.50	14,737	2020.50	4.90 ic	4.84 ic	0.00	---	0.00	0.00	0.00	---	---	---	4.837
2.60	16,221	2020.60	5.10 ic	4.96 ic	0.00	---	0.00	0.00	0.00	---	---	---	4.955
2.70	17,706	2020.70	5.10 ic	5.10 ic	0.00	---	0.00	0.00	0.00	---	---	---	5.097
2.80	19,190	2020.80	5.30 ic	5.21 ic	0.00	---	0.00	0.00	0.00	---	---	---	5.210
2.90	20,674	2020.90	5.33 ic	5.33 ic	0.00	---	0.00	0.00	0.00	---	---	---	5.331
3.00	22,158	2021.00	5.50 ic	5.45 ic	0.00	---	0.00	0.00	0.00	---	---	---	5.453
3.10	24,664	2021.10	5.56 ic	5.56 ic	0.00	---	0.00	0.00	0.00	---	---	---	5.559
3.20	27,169	2021.20	5.71 ic	5.69 ic	0.00	---	0.00	0.00	0.00	---	---	---	5.685
3.30	29,675	2021.30	5.93 ic	5.79 ic	0.00	---	0.00	0.00	0.00	---	---	---	5.786
3.40	32,181	2021.40	5.93 ic	5.91 ic	0.00	---	0.00	0.00	0.00	---	---	---	5.908
3.50	34,686	2021.50	6.14 ic	6.01 ic	0.00	---	0.00	0.00	0.00	---	---	---	6.005
3.60	37,192	2021.60	6.14 ic	6.12 ic	0.00	---	0.00	0.00	0.00	---	---	---	6.123
3.70	39,697	2021.70	6.36 ic	6.22 ic	0.00	---	0.00	0.00	0.00	---	---	---	6.217
3.80	42,203	2021.80	6.36 ic	6.33 ic	0.00	---	0.00	0.00	0.00	---	---	---	6.331
3.90	44,709	2021.90	6.42 ic	6.42 ic	0.00	---	0.00	0.00	0.00	---	---	---	6.422
4.00	47,214	2022.00	6.59 ic	6.53 ic	0.00	---	0.00	0.00	0.00	---	---	---	6.532
4.10	50,894	2022.10	6.63 ic	6.63 ic	0.00	---	0.00	0.00	0.00	---	---	---	6.627
4.20	54,574	2022.20	6.82 ic	6.73 ic	0.00	---	0.00	0.00	0.00	---	---	---	6.727
4.30	58,254	2022.30	6.83 ic	6.83 ic	0.00	---	0.00	0.00	0.00	---	---	---	6.828
4.40	61,934	2022.40	7.05 ic	6.92 ic	0.00	---	0.00	0.00	0.00	---	---	---	6.916
4.50	65,614	2022.50	7.05 ic	7.02 ic	0.00	---	0.00	0.00	0.00	---	---	---	7.019
4.60	69,294	2022.60	7.10 ic	7.10 ic	0.00	---	0.00	0.00	0.00	---	---	---	7.103
4.70	72,974	2022.70	7.28 ic	7.20 ic	0.00	---	0.00	0.00	0.00	---	---	---	7.200
4.80	76,654	2022.80	7.30 ic	7.29 ic	0.00	---	0.00	0.00	0.00	---	---	---	7.295
4.90	80,334	2022.90	7.52 ic	7.38 ic	0.00	---	0.00	0.00	0.00	---	---	---	7.377
5.00	84,014	2023.00	7.52 ic	7.47 ic	0.00	---	0.00	0.00	0.00	---	---	---	7.474
5.10	88,574	2023.10	7.56 ic	7.56 ic	0.00	---	0.00	0.00	0.00	---	---	---	7.558
5.20	93,135	2023.20	7.76 ic	7.64 ic	0.00	---	0.00	0.00	0.00	---	---	---	7.644
5.30	97,695	2023.30	7.76 ic	7.74 ic	0.00	---	0.00	0.00	0.00	---	---	---	7.737
5.40	102,256	2023.40	7.81 ic	7.81 ic	0.00	---	0.00	0.00	0.00	---	---	---	7.815
5.50	106,817	2023.50	8.00 ic	7.90 ic	0.00	---	0.00	0.00	0.00	---	---	---	7.902
5.60	111,377	2023.60	8.00 ic	7.99 ic	0.00	---	0.00	0.00	0.00	---	---	---	7.992
5.70	115,938	2023.70	8.07 ic	8.07 ic	0.00	---	0.00	0.00	0.00	---	---	---	8.066
5.80	120,498	2023.80	8.25 ic	8.15 ic	0.00	---	0.00	0.00	0.00	---	---	---	8.152
5.90	125,059	2023.90	8.25 ic	8.24 ic	0.00	---	0.00	0.00	0.00	---	---	---	8.239
6.00	129,619	2024.00	8.31 ic	8.31 ic	0.00	---	0.00	0.00	0.00	---	---	---	8.311
6.10	134,616	2024.10	8.54 ic	8.38 ic	0.00	---	0.00	0.00	0.16	---	---	---	8.543
6.20	139,613	2024.20	9.01 ic	8.45 ic	0.00	---	0.00	0.00	0.45	---	---	---	8.892
6.30	144,610	2024.30	9.32 ic	8.50 ic	0.00	---	0.00	0.00	0.82	---	---	---	9.322
6.40	149,607	2024.40	9.82 ic	8.56 ic	0.00	---	0.00	0.00	1.26	---	---	---	9.821
6.50	154,604	2024.50	10.37 ic	8.61 ic	0.00	---	0.00	0.00	1.77	---	---	---	10.37
6.60	159,601	2024.60	11.14 ic	8.65 ic	0.00	---	0.00	0.00	2.32	---	---	---	10.97
6.70	164,598	2024.70	11.68 ic	8.70 ic	0.00	---	0.00	0.00	2.92	---	---	---	11.62
6.80	169,595	2024.80	12.31 ic	8.74 ic	0.00	---	0.00	0.00	3.57	---	---	---	12.31
6.90	174,592	2024.90	13.07 ic	8.78 ic	0.00	---	0.00	0.00	4.26	---	---	---	13.05
7.00	179,589	2025.00	13.91 ic	8.82 ic	0.00	---	0.00	0.00	4.99	---	---	---	13.81
7.10	184,988	2025.10	14.74 ic	8.85 ic	0.00	---	0.00	0.00	5.76	---	---	---	14.62
7.20	190,386	2025.20	15.57 ic	8.89 ic	0.00	---	0.00	0.00	6.57	---	---	---	15.45
7.30	195,784	2025.30	16.39 ic	8.93 ic	0.00	---	0.00	0.00	7.40	---	---	---	16.33
7.40	201,182	2025.40	17.23 ic	8.96 ic	0.00	---	0.00	0.00	8.27	---	---	---	17.23
7.50	206,581	2025.50	18.24 ic	8.99 ic	0.00	---	0.00	0.00	9.18	---	---	---	18.16
7.60	211,979	2025.60	19.25 ic	9.01 ic	0.00	---	0.00	0.00	10.11	---	---	---	19.12
7.70	217,377	2025.70	20.20 ic	9.04 ic	0.00	---	0.00	0.00	11.07	---	---	---	20.11
7.80	222,775	2025.80	21.13 ic	9.06 ic	0.00	---	0.00	0.00	12.06	---	---	---	21.13
7.90	228,174	2025.90	22.16 ic	9.08 ic	0.00	---	0.00	0.00	13.08	---	---	---	22.16
8.00	233,572	2026.00	23.23 ic	9.10 ic	0.00	---	0.00	0.00	14.13	---	---	---	23.23
8.10	239,326	2026.10	24.31 ic	9.11 ic	0.00	---	0.00	0.00	15.20	---	---	---	24.31
8.20	245,081	2026.20	25.42 ic	9.12 ic	0.00	---	0.00	0.00	16.30	---	---	---	25.42
8.30	250,835	2026.30	26.52 ic	9.10 ic	0.00	---	0.00	0.00	17.42	---	---	---	26.52
8.40	256,590	2026.40	27.66 ic	9.09 ic	0.00	---	0.00	0.00	18.57	---	---	---	27.66
8.50	262,344	2026.50	28.82 ic	9.08 ic	0.00	---	0.00	0.00	19.74	---	---	---	28.82
8.60	268,099	2026.60	30.00 ic	9.06 ic	0.00	---	0.00	0.00	20.94	---	---	---	30.00
8.70	273,853	2026.70	31.19 ic	9.03 ic	0.00	---	0.00	0.00	22.16	---	---	---	31.19
8.80	279,608	2026.80	32.40 ic	9.00 ic	0.00	---	0.00	0.00	23.40	---	---	---	32.40
8.90	285,362	2026.90	33.63 ic	8.97 ic	0.00	---	0.00	0.00	24.67	---	---	---	33.63
9.00	291,117	2027.00	34.88 ic	8.93 ic	0.00	---	0.00	0.00	25.95	---	---	---	34.88
9.10	297,260	2027.10	36.14 ic	8.88 ic	0.00	---	0.00	0.00	27.26	---	---	---	36.14
9.20	303,404	2027.20	37.41 ic	8.82 ic	0.00	---	0.00	0.00	28.59	---	---	---	37.41
9.30	309,547	2027.30	38.70 ic	8.76 ic	0.00	---	0.00	0.00	29.94	---	---	---	38.70
9.40	315,691	2027.40	40.01 ic	8.69 ic	0.00	---	0.00	0.00	31.31	---	---	---	40.01
9.50	321,834	2027.50	41.32 ic	8.62 ic	0.00	---	0.00	0.00	32.71	---	---	---	41.32
9.60	327,978	2027.60	43.88 ic	8.37 ic	0.00	---	1.39	0.00	34.12	---	---	---	43.88

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Pond A-Upgraded TOB Pond

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
9.70	334,121	2027.70	47.43 ic	7.95 ic	0.00	---	3.93	0.00	35.55	---	---	---	47.43
9.80	340,265	2027.80	51.57 ic	7.36 ic	0.00	---	7.22	0.00	37.00 s	---	---	---	51.57
9.90	346,408	2027.90	55.18 ic	6.76 ic	0.00	---	11.11	0.00	37.31 s	---	---	---	55.18
10.00	352,552	2028.00	58.40 ic	6.15 ic	0.00	---	15.54	0.00	36.71 s	---	---	---	58.40
10.10	359,155	2028.10	61.33 ic	5.50 ic	0.00	---	20.43	0.00	35.40 s	---	---	---	61.33
10.20	365,759	2028.20	63.97 ic	4.82 ic	0.00	---	25.74	0.00	33.41 s	---	---	---	63.97
10.30	372,362	2028.30	66.30 ic	4.11 ic	0.00	---	31.45	0.00	30.74 s	---	---	---	66.30
10.40	378,965	2028.40	68.21 ic	3.42 ic	0.00	---	37.13 s	0.00	27.67 s	---	---	---	68.21
10.50	385,569	2028.50	69.31 ic	3.05 ic	0.00	---	40.18 s	0.00	26.07 s	---	---	---	69.30
10.60	392,172	2028.60	70.16 ic	2.77 ic	0.00	---	42.51 s	0.00	24.88 s	---	---	---	70.16
10.70	398,776	2028.70	70.89 ic	2.54 ic	0.00	---	44.46 s	0.00	23.89 s	---	---	---	70.89
10.80	405,379	2028.80	71.55 ic	2.34 ic	0.00	---	46.16 s	0.00	23.04 s	---	---	---	71.54
10.90	411,983	2028.90	72.14 ic	2.18 ic	0.00	---	47.67 s	0.00	22.29 s	---	---	---	72.13
11.00	418,586	2029.00	72.69 ic	2.03 ic	0.00	---	49.03 s	0.00	21.63 s	---	---	---	72.69
11.10	425,900	2029.10	73.21 ic	1.90 ic	0.00	---	50.27 s	0.00	21.04 s	---	---	---	73.21
11.20	433,213	2029.20	73.71 ic	1.79 ic	0.00	---	51.41 s	0.00	20.51 s	---	---	---	73.70
11.30	440,526	2029.30	74.18 ic	1.68 ic	0.00	---	52.46 s	0.00	20.02 s	---	---	---	74.17
11.40	447,840	2029.40	74.63 ic	1.59 ic	0.00	---	53.45 s	0.00	19.58 s	---	---	---	74.62
11.50	455,153	2029.50	75.07 ic	1.51 ic	0.00	---	54.37 s	0.00	19.18 s	---	---	---	75.06
11.60	462,466	2029.60	75.50 ic	1.43 ic	0.00	---	55.25 s	0.00	18.82 s	---	---	---	75.50
11.70	469,780	2029.70	75.92 ic	1.36 ic	0.00	---	56.07 s	0.00	18.48 s	---	---	---	75.92
11.80	477,093	2029.80	76.33 ic	1.30 ic	0.00	---	56.85 s	0.00	18.17 s	---	---	---	76.32
11.90	484,407	2029.90	76.73 ic	1.24 ic	0.00	---	57.58 s	0.00	17.89 s	---	---	---	76.71
12.00	491,720	2030.00	77.13 ic	1.19 ic	0.00	---	58.30 s	0.00	17.62 s	---	---	---	77.11
12.10	500,161	2030.10	77.52 ic	1.14 ic	0.00	---	58.99 s	0.00	17.38 s	---	---	---	77.51
12.20	508,602	2030.20	77.90 ic	1.09 ic	0.00	---	59.63 s	0.00	17.15 s	---	---	---	77.88
12.30	517,043	2030.30	78.28 ic	1.05 ic	0.00	---	60.28 s	0.00	16.94 s	---	---	---	78.28
12.40	525,484	2030.40	78.66 ic	1.01 ic	0.00	---	60.89 s	0.00	16.75 s	---	---	---	78.65
12.50	533,926	2030.50	79.03 ic	0.98 ic	0.00	---	61.47 s	0.00	16.56 s	---	---	---	79.01
12.60	542,367	2030.60	79.40 ic	0.94 ic	0.00	---	62.04 s	0.00	16.39 s	---	---	---	79.37
12.70	550,808	2030.70	79.76 ic	0.91 ic	0.00	---	62.60 s	0.00	16.23 s	---	---	---	79.74
12.80	559,249	2030.80	80.13 ic	0.88 ic	0.00	---	63.14 s	0.00	16.08 s	---	---	---	80.10
12.90	567,690	2030.90	80.49 ic	0.85 ic	0.00	---	63.66 s	0.00	15.94 s	---	---	---	80.45
13.00	576,131	2031.00	80.84 ic	0.82 ic	0.00	---	64.18 s	0.00	15.81 s	---	---	---	80.81
13.10	585,666	2031.10	81.20 ic	0.80 ic	0.00	---	64.67 s	0.00	15.68 s	---	---	---	81.15
13.20	595,201	2031.20	81.55 ic	0.78 ic	0.00	---	65.19 s	0.00	15.57 s	---	---	---	81.54
13.30	604,735	2031.30	81.90 ic	0.75 ic	0.00	---	65.63 s	0.00	15.45 s	---	---	---	81.83
13.40	614,270	2031.40	82.25 ic	0.73 ic	0.00	---	66.13 s	0.00	15.35 s	---	---	---	82.21
13.50	623,804	2031.50	82.59 ic	0.71 ic	0.00	---	66.56 s	0.00	15.25 s	---	---	---	82.53
13.60	633,339	2031.60	82.94 ic	0.69 ic	0.00	---	67.03 s	0.00	15.16 s	---	---	---	82.88
13.70	642,873	2031.70	83.28 ic	0.67 ic	0.00	---	67.45 s	0.00	15.07 s	---	---	---	83.19
13.80	652,408	2031.80	83.62 ic	0.66 ic	0.00	---	67.90 s	0.00	14.99 s	---	---	---	83.56
13.90	661,942	2031.90	83.96 ic	0.64 ic	0.00	---	68.36 s	0.00	14.92 s	---	---	---	83.93
14.00	671,477	2032.00	84.29 ic	0.63 ic	0.00	---	68.76 s	0.00	14.85 s	---	---	---	84.23
14.10	681,827	2032.10	84.63 ic	0.61 ic	0.00	---	69.19 s	0.00	14.78 s	---	---	---	84.58
14.20	692,177	2032.20	84.96 ic	0.60 ic	0.00	---	69.62 s	0.00	14.72 s	---	---	---	84.94
14.30	702,527	2032.30	85.29 ic	0.58 ic	0.00	---	69.96 s	0.00	14.64 s	---	---	---	85.19
14.40	712,877	2032.40	85.62 ic	0.57 ic	0.00	---	70.44 s	0.00	14.60 s	---	---	---	85.62
14.50	723,227	2032.50	85.95 ic	0.56 ic	0.00	---	70.72 s	0.00	14.52 s	---	---	---	85.80
14.60	733,577	2032.60	86.28 ic	0.55 ic	0.00	---	71.16 s	0.00	14.48 s	---	---	---	86.19
14.70	743,927	2032.70	86.61 ic	0.53 ic	0.00	---	71.53 s	0.00	14.43 s	---	---	---	86.49
14.80	754,277	2032.80	86.93 ic	0.52 ic	0.00	---	71.96 s	0.00	14.39 s	---	---	---	86.87
14.90	764,627	2032.90	87.25 ic	0.51 ic	0.00	---	72.31 s	0.00	14.35 s	---	---	---	87.17
15.00	774,977	2033.00	87.58 ic	0.50 ic	0.00	---	72.67 s	0.00	14.30 s	---	---	---	87.47
15.10	786,104	2033.10	87.87 oc	0.49 ic	0.00	---	73.04 s	0.00	14.26 s	---	---	---	87.79
15.20	797,232	2033.20	88.14 oc	0.48 ic	0.00	---	73.30 s	0.00	14.21 s	---	---	---	87.98
15.30	808,359	2033.30	88.40 oc	0.47 ic	0.00	---	73.70 s	0.00	14.18 s	---	---	---	88.36
15.40	819,487	2033.40	88.67 oc	0.46 ic	0.00	---	74.00 s	0.00	14.14 s	---	---	---	88.60
15.50	830,615	2033.50	88.93 oc	0.46 ic	0.00	---	74.28 s	0.00	14.09 s	---	---	---	88.83
15.60	841,742	2033.60	89.20 oc	0.45 ic	0.00	---	74.50 s	0.00	14.04 s	---	---	---	88.98
15.70	852,870	2033.70	89.46 oc	0.44 ic	0.00	---	74.80 s	0.00	14.00 s	---	---	---	89.24
15.80	863,997	2033.80	89.72 oc	0.43 ic	0.00	---	75.10 s	0.00	13.97 s	---	---	---	89.50
15.90	875,125	2033.90	89.98 oc	0.42 ic	0.00	---	75.52 s	0.00	13.96 s	---	---	---	89.90
16.00	886,252	2034.00	90.24 oc	0.42 ic	0.00	---	75.81 s	0.00	13.93 s	---	---	---	90.15
16.10	898,132	2034.10	90.50 oc	0.41 ic	0.00	---	76.12 s	0.00	13.90 s	---	---	---	90.43
16.20	910,013	2034.20	90.75 oc	0.40 ic	0.00	---	76.44 s	0.00	13.88 s	---	---	---	90.73
16.30	921,893	2034.30	91.01 oc	0.40 ic	0.00	---	76.65 s	0.00	13.84 s	---	---	---	90.89
16.40	933,773	2034.40	91.27 oc	0.39 ic	0.00	---	76.81 s	0.00	13.79 s	---	---	---	90.99
16.50	945,653	2034.50	91.52 oc	0.38 ic	0.00	---	77.26 s	0.00	13.80 s	---	---	---	91.44
16.60	957,534	2034.60	91.78 oc	0.38 ic	0.00	---	77.60 s	0.00	13.79 s	---	---	---	91.76
16.70	969,414	2034.70	92.03 oc	0.37 ic	0.00	---	77.59 s	0.00	13.71 s	---	---	---	91.68
16.80	981,294	2034.80	92.29 oc	0.37 ic	0.00	---	77.91 s	0.00	13.70 s	---	---	---	91.98

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Pond A-Upgraded TOB Pond

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
16.90	993,174	2034.90	92.54 oc	0.36 ic	0.00	---	78.45 s	0.00	13.73 s	---	---	---	92.54
17.00	1,005,055	2035.00	92.79 oc	0.35 ic	0.00	---	78.42 s	0.00	13.66 s	---	---	---	92.43

...End

Hydrograph Report

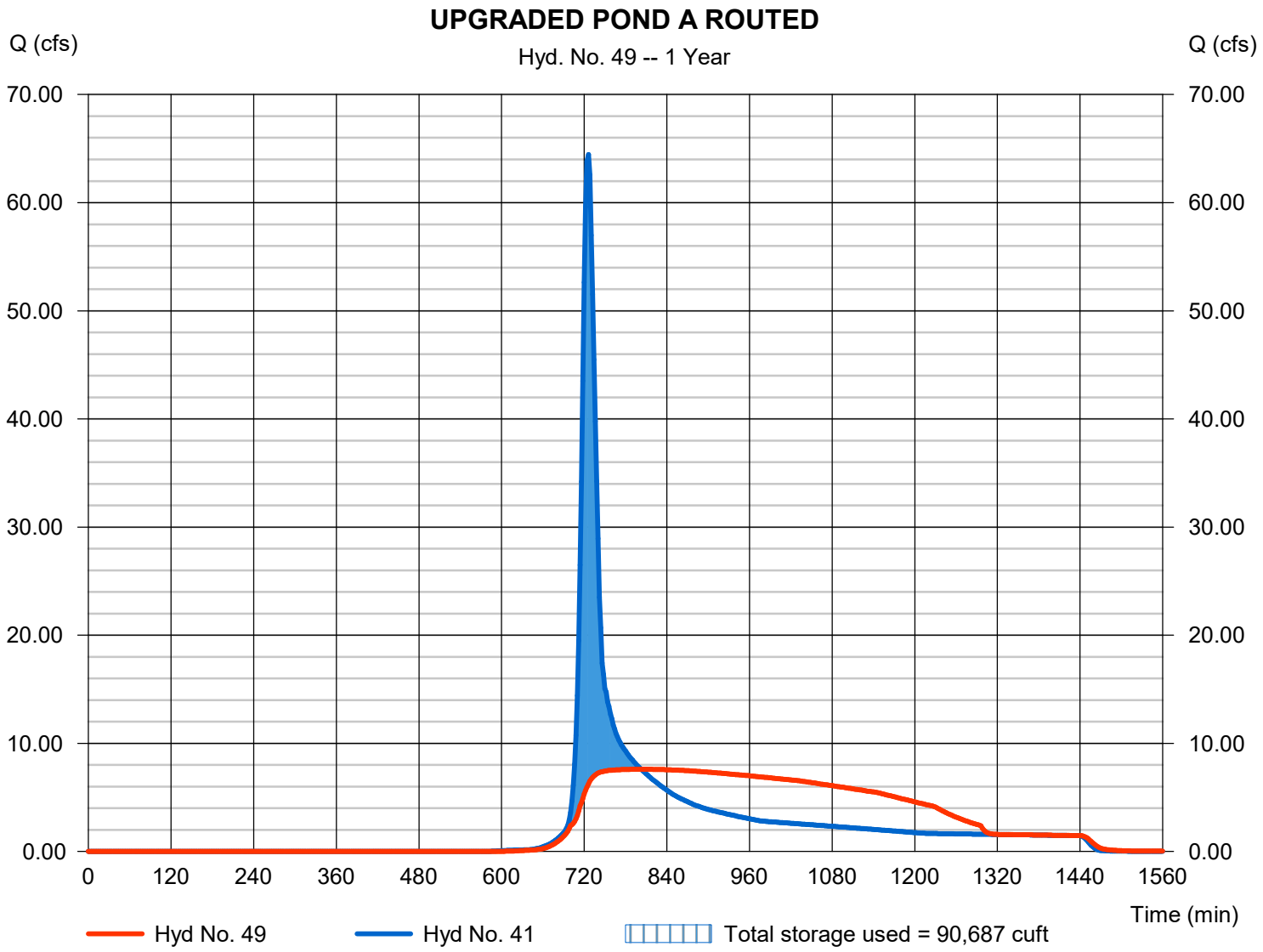
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Tuesday, 11 / 1 / 2022

Hyd. No. 49

UPGRADED POND A ROUTED

Hydrograph type	= Reservoir	Peak discharge	= 7.598 cfs
Storm frequency	= 1 yrs	Time to peak	= 802 min
Time interval	= 2 min	Hyd. volume	= 235,176 cuft
Inflow hyd. No.	= 41 - POST TOTAL TO POND A	Max. Elevation	= 2023.15 ft
Reservoir name	= Pond A-Upgraded TOB Pond	Max. Storage	= 90,687 cuft

Storage Indication method used.



Hydrograph Report

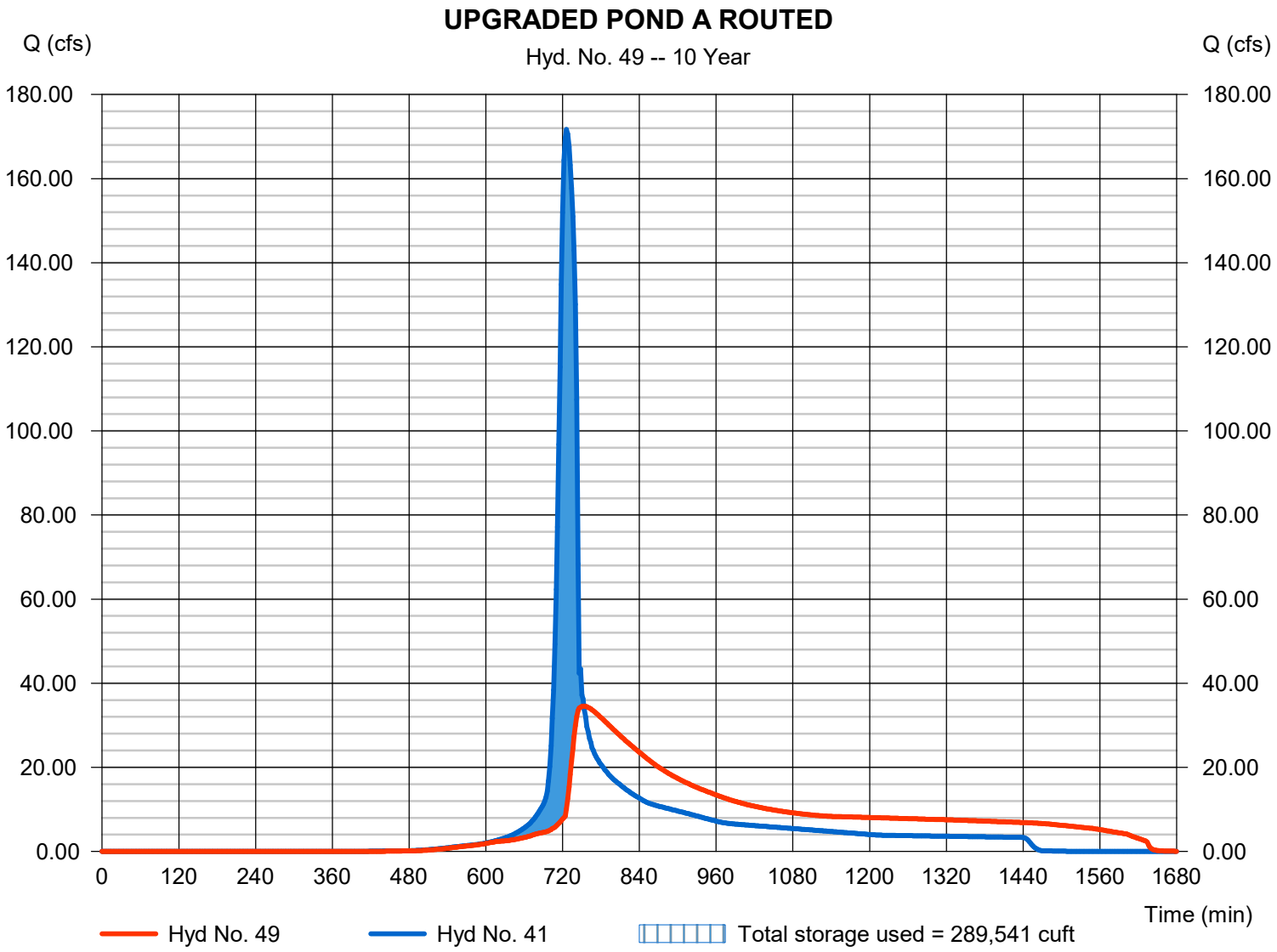
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Tuesday, 11 / 1 / 2022

Hyd. No. 49

UPGRADED POND A ROUTED

Hydrograph type	= Reservoir	Peak discharge	= 34.54 cfs
Storm frequency	= 10 yrs	Time to peak	= 754 min
Time interval	= 2 min	Hyd. volume	= 671,122 cuft
Inflow hyd. No.	= 41 - POST TOTAL TO POND A	Max. Elevation	= 2026.97 ft
Reservoir name	= Pond A-Upgraded TOB Pond	Max. Storage	= 289,541 cuft

Storage Indication method used.



Hydrograph Report

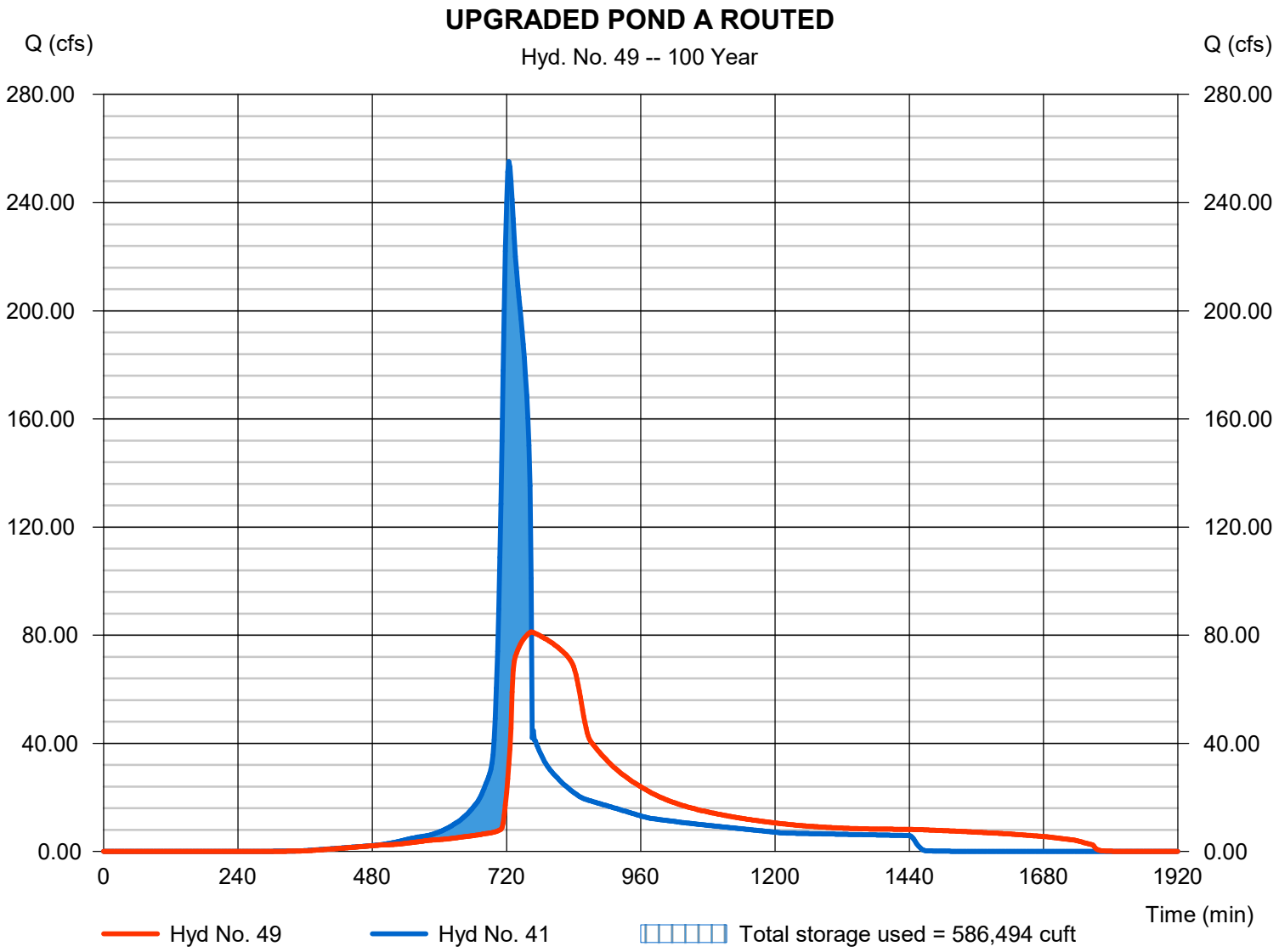
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Tuesday, 11 / 1 / 2022

Hyd. No. 49

UPGRADED POND A ROUTED

Hydrograph type	= Reservoir	Peak discharge	= 81.19 cfs
Storm frequency	= 100 yrs	Time to peak	= 764 min
Time interval	= 2 min	Hyd. volume	= 1,343,249 cuft
Inflow hyd. No.	= 41 - POST TOTAL TO POND A	Max. Elevation	= 2031.11 ft
Reservoir name	= Pond A-Upgraded TOB Pond	Max. Storage	= 586,494 cuft

Storage Indication method used.

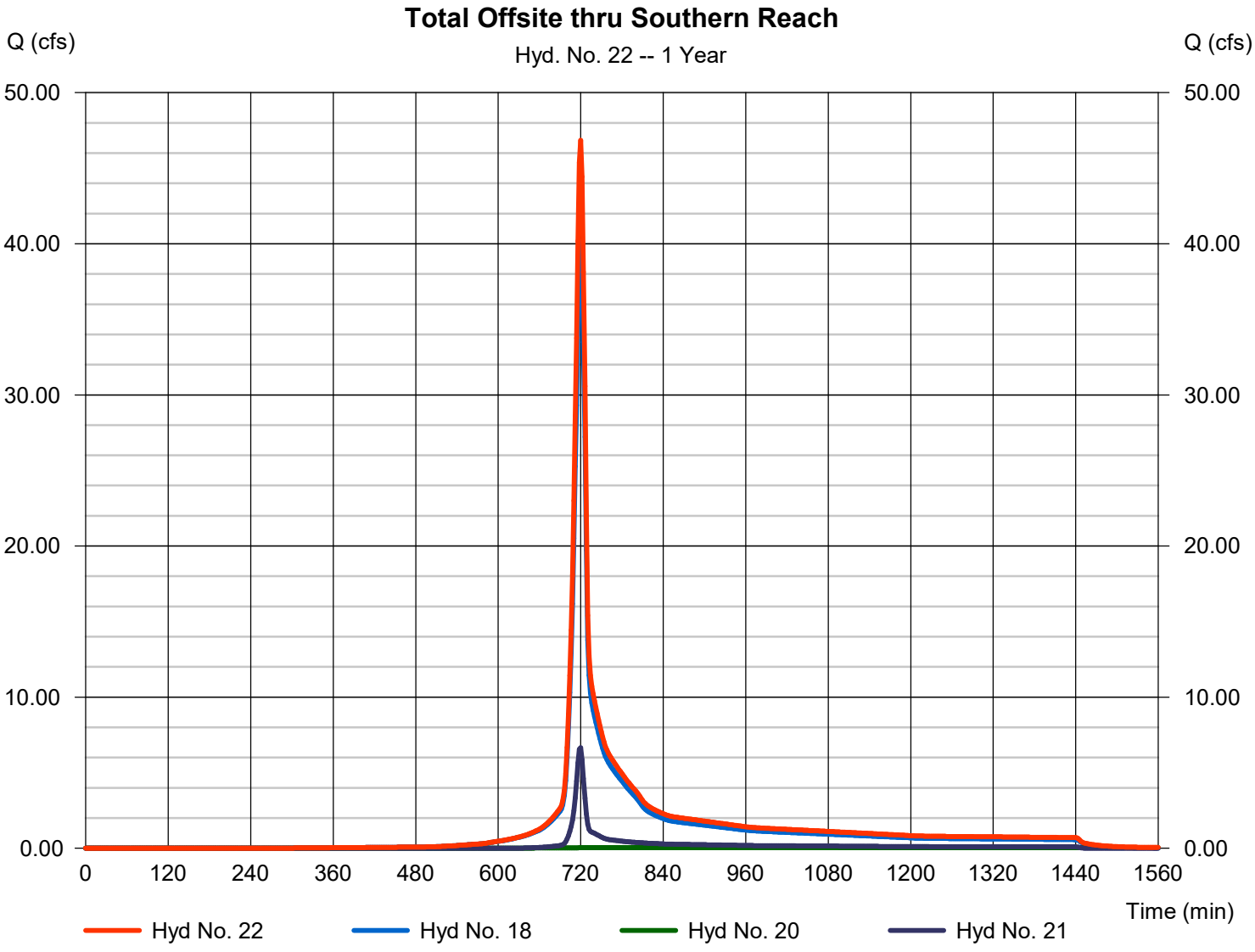


Hydrograph Report

Hyd. No. 22

Total Offsite thru Southern Reach

Hydrograph type	= Combine	Peak discharge	= 46.84 cfs
Storm frequency	= 1 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 144,746 cuft
Inflow hyds.	= 18, 20, 21	Contrib. drain. area	= 5.090 ac

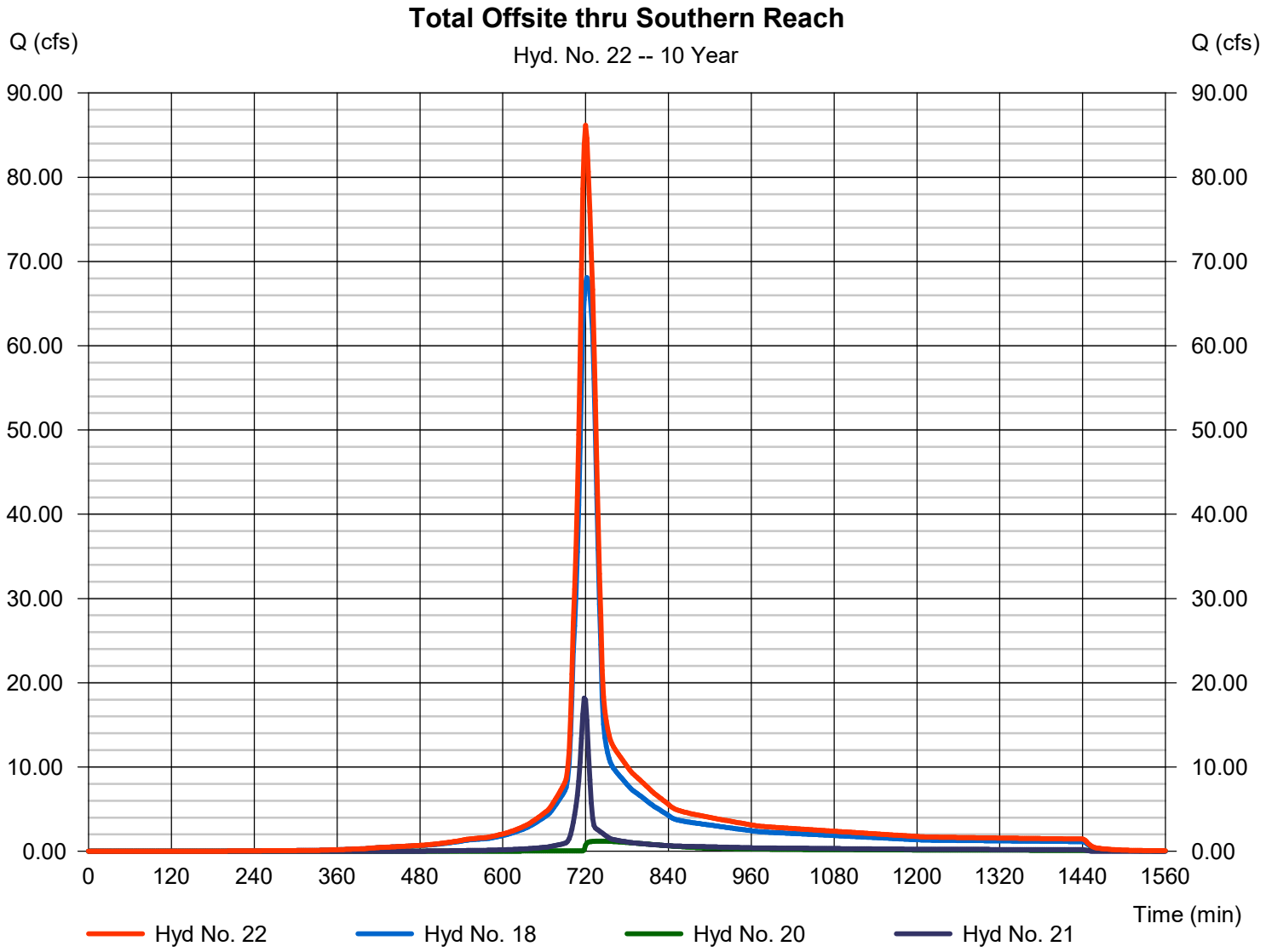


Hydrograph Report

Hyd. No. 22

Total Offsite thru Southern Reach

Hydrograph type	= Combine	Peak discharge	= 86.16 cfs
Storm frequency	= 10 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 341,950 cuft
Inflow hyds.	= 18, 20, 21	Contrib. drain. area	= 5.090 ac



Drainage Area Runoff and Time of Concentration

Drainage Area: POST ONSITE TO POND B (S. DRY POND)
POSTDEVELOPMENT

Composite Curve Number (CN)						Notes:
	Hydrologic Soil Group	Land Cover	CN	Area, A (ac.)	CN*A	
CN_1	B	Open space	61	3.15	192.37	Impervious lot area calculated on "Typical Lot Impervious Area Estimate" table elsewhere
CN_2	C	Open space	74	3.27	242.32	
CN_3	B	Imperv. (measured)	98	0.38	36.97	
CN_4	C	Imperv. (measured)	98	1.62	158.58	
CN_5	B	Imperv. (est. lots)	98	0.16	15.58	
CN_6	C	Imperv. (est. lots)	98	1.78	174.15	
CN_7					0.00	
CN_8					0.00	
CN_9					0.00	
CN_{10}					0.00	
				Total	**10.36**	**819.97**
					Composite CN =	**79**

Time of Concentration, T_c						
2 yr. Precip. (in.) =		2.73				
Flow Segment	Flow Regime	Land Cover	Length (ft)	Roughness Coeff., n	Slope (ft/ft)	Travel Time, T_t (min.)
1	Other Tt	Estimate				5.0
2						
3						
4						
5						
6						
7						
8						
9						
10						
					Total Time of Concentration, T_c (min.) =	**5.0**

Runoff			
	1 Yr.	10 Yr.	100 Yr.
Precipitation (in.), P	2.26	4.06	6.44
Composite CN	79	79	79
Storage (in.) S=1000/CN-10	2.66	2.66	2.66
Initial abstraction (in.), I_a=0.2S	0.53	0.53	0.53
Runoff depth (in.), $Q=(P-0.2S)^2/[(P-I_a)+S]$	0.68	2.01	4.07
Runoff volume (ac-ft), RV = Q/12*A	0.59	1.74	3.52
Flow rate (cfs), q_{peak} from hydrograph	11.94	35.13	69.96

Hydrograph Number: 43

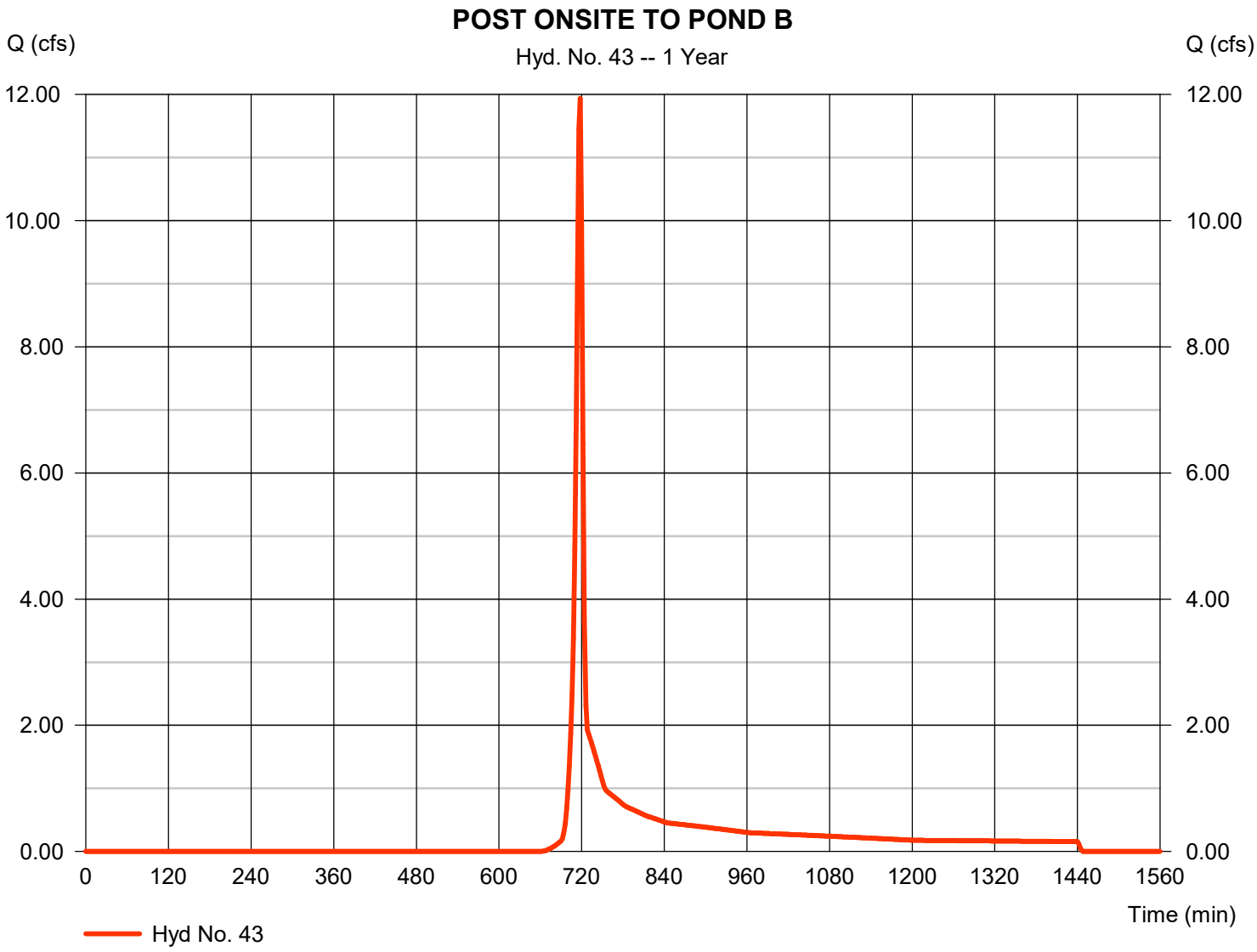
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Tuesday, 11 / 1 / 2022

Hyd. No. 43

POST ONSITE TO POND B

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.94 cfs
Storm frequency	=	1 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	24,009 cuft
Drainage area	=	10.360 ac	Curve number	=	79
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	2.26 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



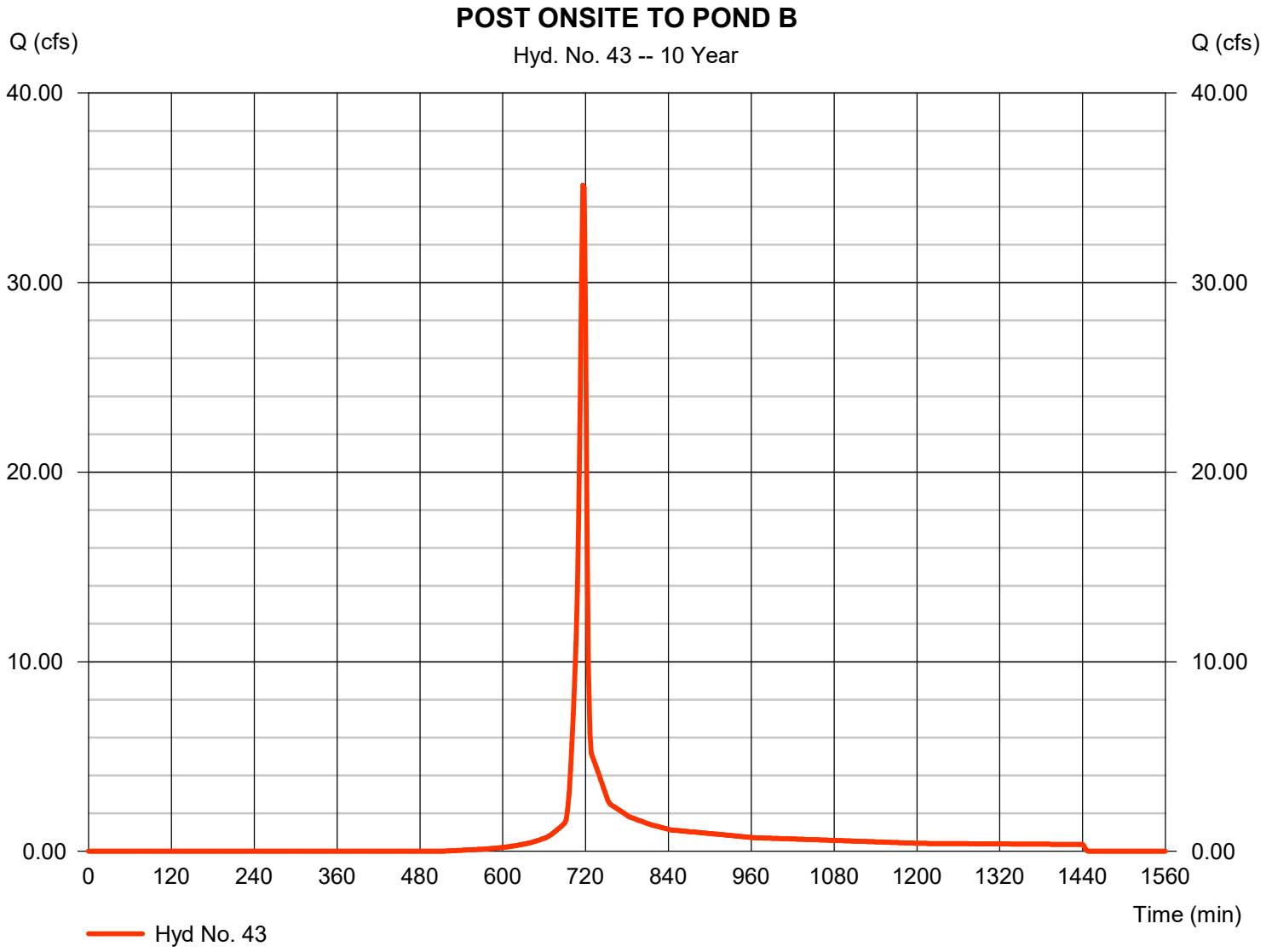
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Tuesday, 11 / 1 / 2022

Hyd. No. 43

POST ONSITE TO POND B

Hydrograph type	= SCS Runoff	Peak discharge	= 35.13 cfs
Storm frequency	= 10 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 70,946 cuft
Drainage area	= 10.360 ac	Curve number	= 79
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.06 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

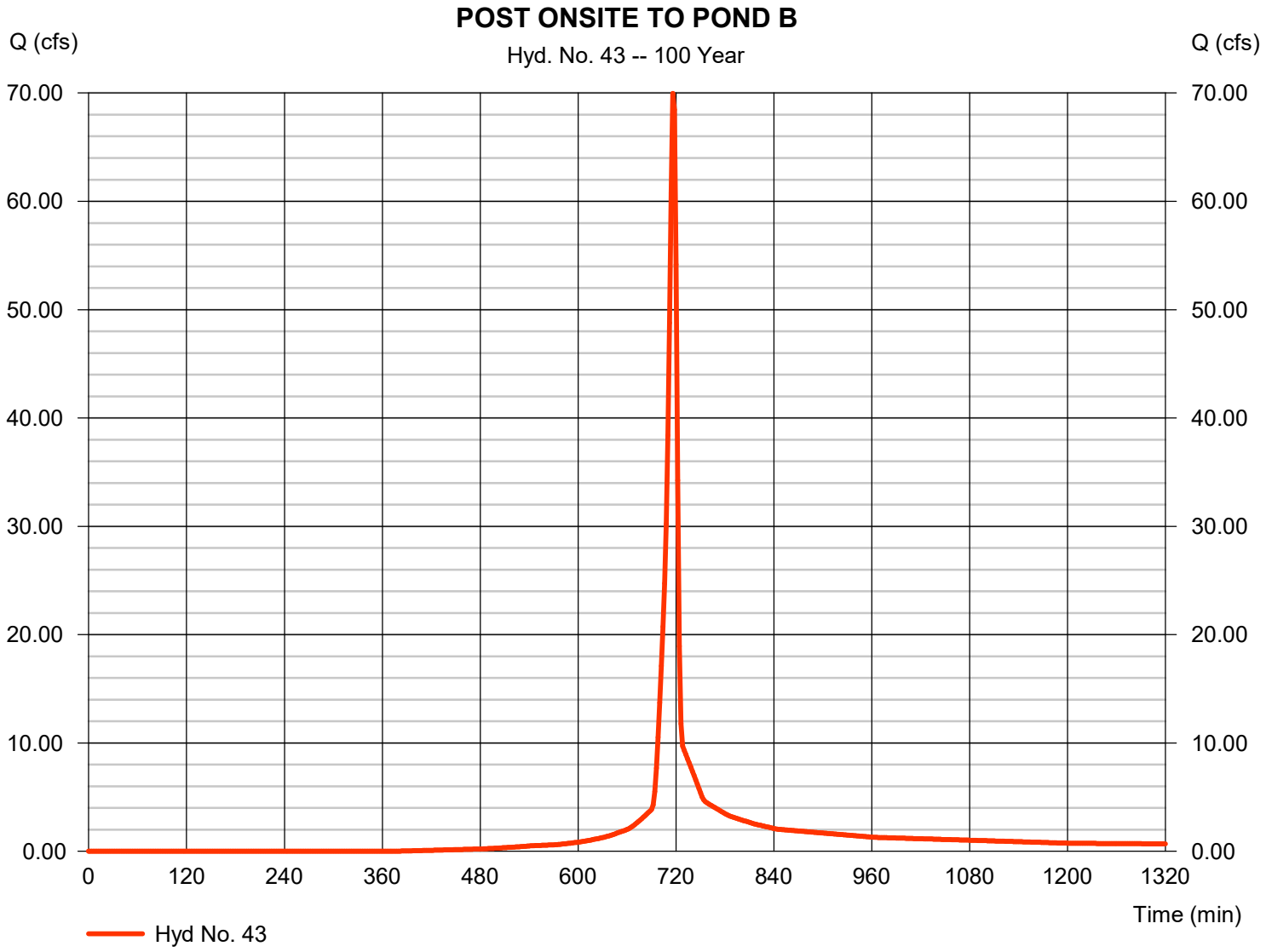


Hydrograph Report

Hyd. No. 43

POST ONSITE TO POND B

Hydrograph type	=	SCS Runoff	Peak discharge	=	69.96 cfs
Storm frequency	=	100 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	143,669 cuft
Drainage area	=	10.360 ac	Curve number	=	79
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	6.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

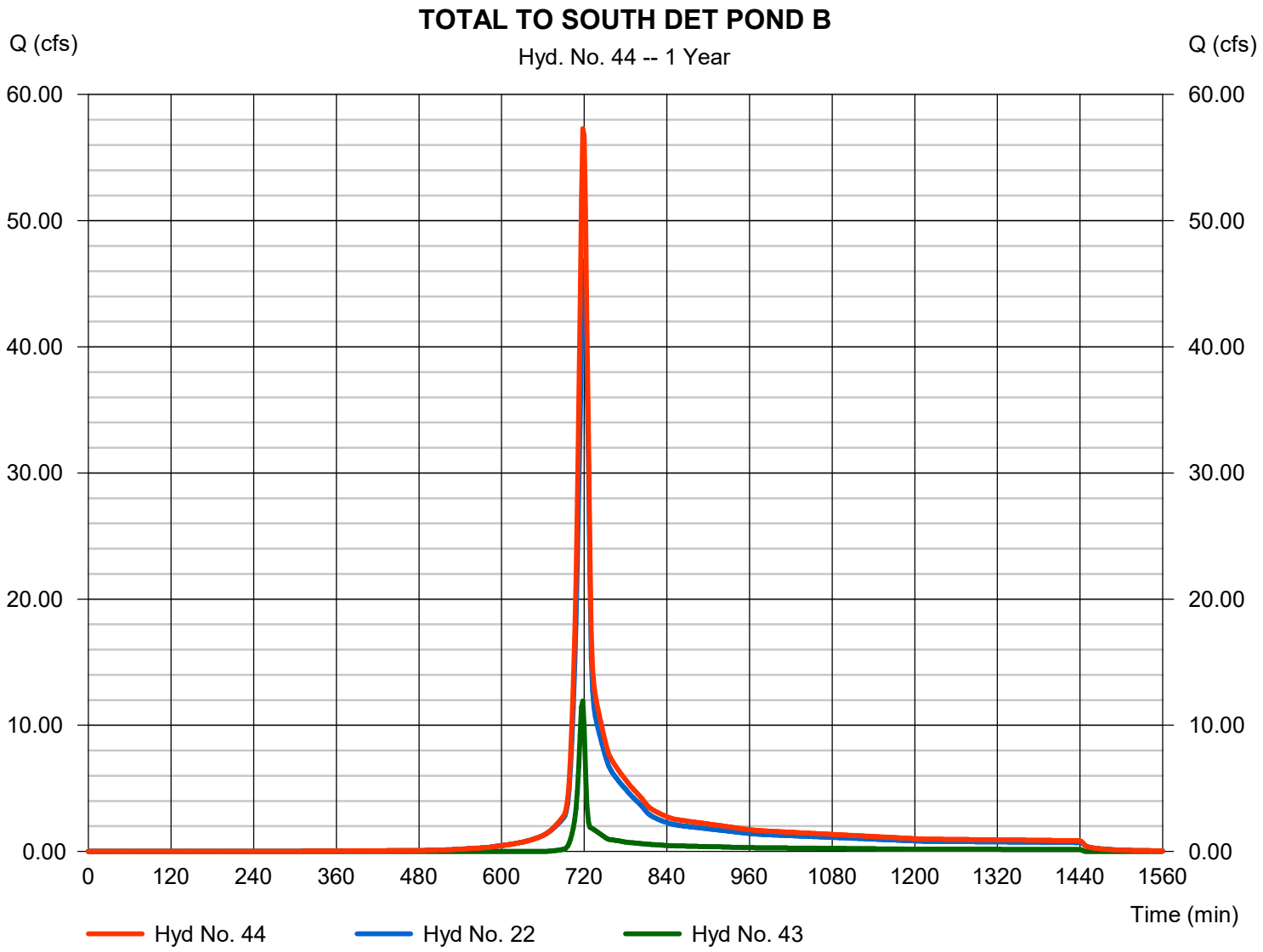


Hydrograph Report

Hyd. No. 44

TOTAL TO SOUTH DET POND B

Hydrograph type	= Combine	Peak discharge	= 57.30 cfs
Storm frequency	= 1 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 168,755 cuft
Inflow hyds.	= 22, 43	Contrib. drain. area	= 10.360 ac

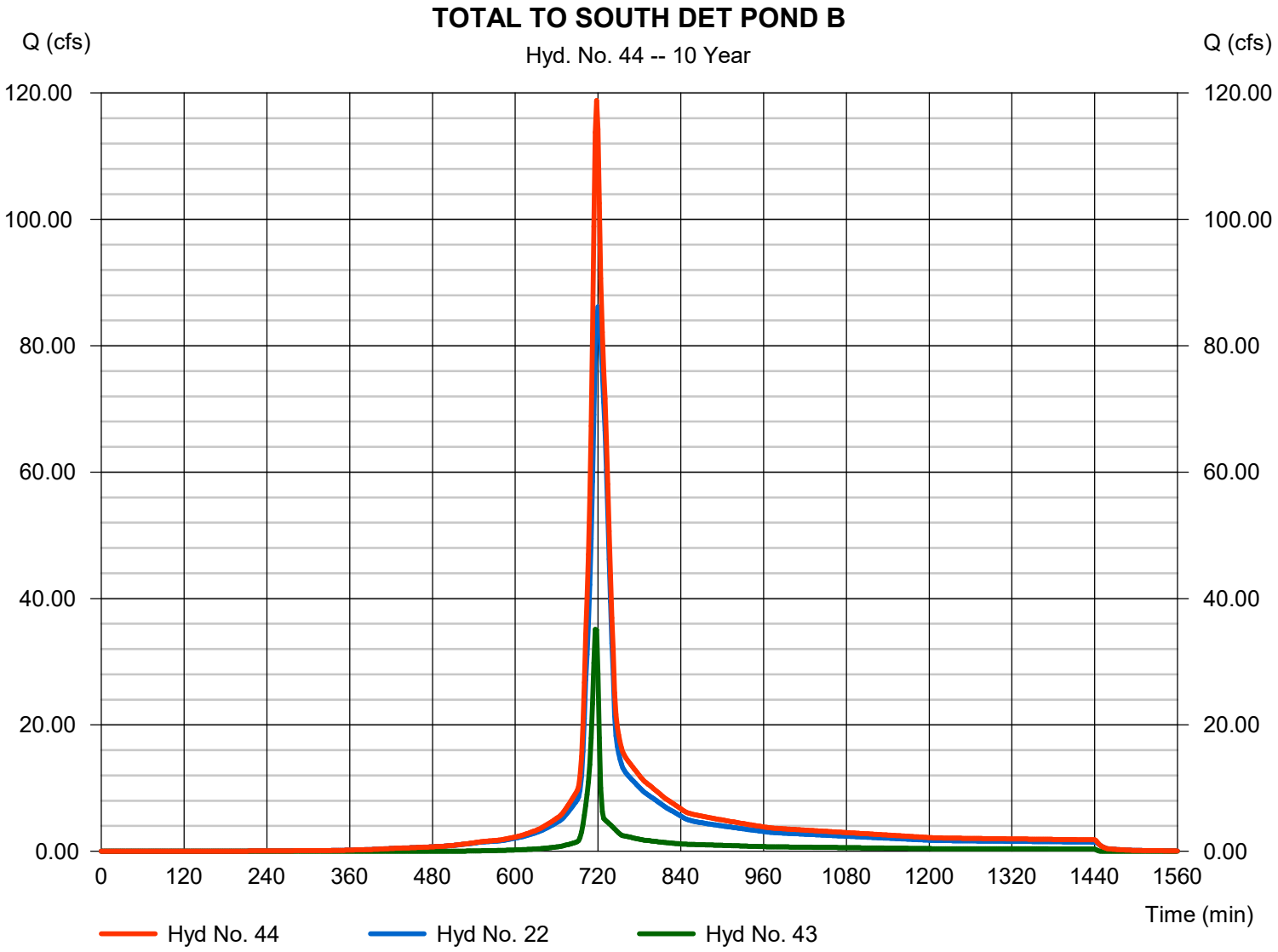


Hydrograph Report

Hyd. No. 44

TOTAL TO SOUTH DET POND B

Hydrograph type	= Combine	Peak discharge	= 118.81 cfs
Storm frequency	= 10 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 412,897 cuft
Inflow hyds.	= 22, 43	Contrib. drain. area	= 10.360 ac

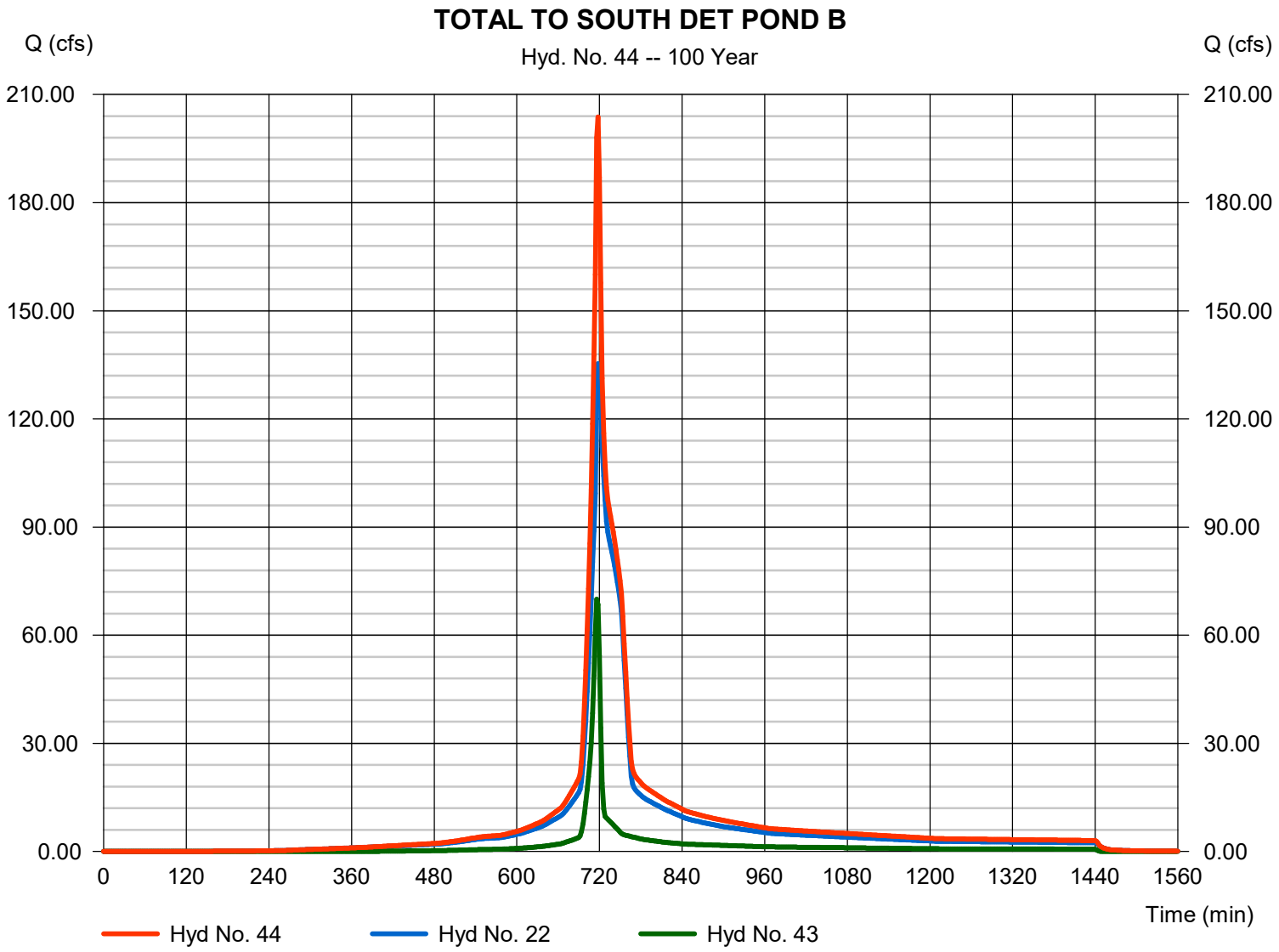


Hydrograph Report

Hyd. No. 44

TOTAL TO SOUTH DET POND B

Hydrograph type	= Combine	Peak discharge	= 203.78 cfs
Storm frequency	= 100 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 767,286 cuft
Inflow hyds.	= 22, 43	Contrib. drain. area	= 10.360 ac



Pond Report

Pond No. 2 - Pond B-South Detention Pond

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2021.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2021.00	24	0	0
1.00	2022.00	2,752	1,011	1,011
2.00	2023.00	9,028	5,588	6,599
3.00	2024.00	16,214	12,446	19,044
4.00	2025.00	23,731	19,852	38,896
5.00	2026.00	31,571	27,555	66,451
6.00	2027.00	38,958	35,196	101,647
7.00	2028.00	44,308	41,600	143,247
8.00	2029.00	48,858	46,560	189,807
9.00	2030.00	52,814	50,818	240,625
10.00	2031.00	56,575	54,678	295,304
11.00	2032.00	60,436	58,489	353,793
12.00	2033.00	64,395	62,399	416,191
13.00	2034.00	68,452	66,407	482,598
14.00	2035.00	72,607	70,512	553,110
15.00	2036.00	76,860	74,716	627,826

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 54.00	30.00	Inactive	0.00
Span (in)	= 54.00	30.00	24.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 2021.00	2021.01	2027.00	0.00
Length (ft)	= 150.00	0.50	150.00	0.00
Slope (%)	= 2.00	1.00	2.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 18.85	Inactive	0.00	0.00
Crest El. (ft)	= 2027.00	2028.00	0.00	0.00
Weir Coeff.	= 3.33	2.60	3.33	3.33
Weir Type	= 1	Broad	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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

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	2021.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.10	101	2021.10	0.06 ic	0.05 ic	0.00	---	0.00	0.00	---	---	---	---	0.050
0.20	202	2021.20	0.20 ic	0.20 ic	0.00	---	0.00	0.00	---	---	---	---	0.200
0.30	303	2021.30	0.48 ic	0.47 ic	0.00	---	0.00	0.00	---	---	---	---	0.469
0.40	404	2021.40	0.81 ic	0.81 ic	0.00	---	0.00	0.00	---	---	---	---	0.810
0.50	505	2021.50	1.26 ic	1.26 ic	0.00	---	0.00	0.00	---	---	---	---	1.263
0.60	607	2021.60	1.85 ic	1.79 ic	0.00	---	0.00	0.00	---	---	---	---	1.785
0.70	708	2021.70	2.43 ic	2.43 ic	0.00	---	0.00	0.00	---	---	---	---	2.433
0.80	809	2021.80	3.11 ic	3.11 ic	0.00	---	0.00	0.00	---	---	---	---	3.112
0.90	910	2021.90	3.93 ic	3.93 ic	0.00	---	0.00	0.00	---	---	---	---	3.928
1.00	1,011	2022.00	4.86 ic	4.73 ic	0.00	---	0.00	0.00	---	---	---	---	4.734
1.10	1,570	2022.10	5.63 ic	5.63 ic	0.00	---	0.00	0.00	---	---	---	---	5.630
1.20	2,128	2022.20	6.75 ic	6.63 ic	0.00	---	0.00	0.00	---	---	---	---	6.635
1.30	2,687	2022.30	7.72 ic	7.72 ic	0.00	---	0.00	0.00	---	---	---	---	7.719
1.40	3,246	2022.40	9.08 ic	8.82 ic	0.00	---	0.00	0.00	---	---	---	---	8.820
1.50	3,805	2022.50	10.14 ic	10.02 ic	0.00	---	0.00	0.00	---	---	---	---	10.02
1.60	4,363	2022.60	11.27 ic	11.23 ic	0.00	---	0.00	0.00	---	---	---	---	11.23
1.70	4,922	2022.70	12.48 ic	12.44 ic	0.00	---	0.00	0.00	---	---	---	---	12.44
1.80	5,481	2022.80	13.76 ic	13.76 ic	0.00	---	0.00	0.00	---	---	---	---	13.76
1.90	6,040	2022.90	15.12 ic	15.05 ic	0.00	---	0.00	0.00	---	---	---	---	15.05
2.00	6,599	2023.00	16.55 ic	16.26 ic	0.00	---	0.00	0.00	---	---	---	---	16.26
2.10	7,843	2023.10	17.47 ic	17.46 ic	0.00	---	0.00	0.00	---	---	---	---	17.46
2.20	9,088	2023.20	18.90 ic	18.90 ic	0.00	---	0.00	0.00	---	---	---	---	18.90
2.30	10,332	2023.30	20.47 ic	20.04 ic	0.00	---	0.00	0.00	---	---	---	---	20.04
2.40	11,577	2023.40	21.35 ic	21.35 ic	0.00	---	0.00	0.00	---	---	---	---	21.35
2.50	12,821	2023.50	22.30 ic	22.30 ic	0.00	---	0.00	0.00	---	---	---	---	22.30
2.60	14,066	2023.60	23.16 ic	23.16 ic	0.00	---	0.00	0.00	---	---	---	---	23.16

Continues on next page...

Pond B-South Detention Pond

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
2.70	15,310	2023.70	24.01 ic	24.01 ic	0.00	---	0.00	0.00	---	---	---	---	24.01
2.80	16,555	2023.80	24.86 ic	24.86 ic	0.00	---	0.00	0.00	---	---	---	---	24.86
2.90	17,800	2023.90	25.76 ic	25.62 ic	0.00	---	0.00	0.00	---	---	---	---	25.62
3.00	19,044	2024.00	26.70 ic	26.32 ic	0.00	---	0.00	0.00	---	---	---	---	26.32
3.10	21,029	2024.10	27.66 ic	27.01 ic	0.00	---	0.00	0.00	---	---	---	---	27.01
3.20	23,014	2024.20	27.82 ic	27.82 ic	0.00	---	0.00	0.00	---	---	---	---	27.82
3.30	25,000	2024.30	28.65 ic	28.65 ic	0.00	---	0.00	0.00	---	---	---	---	28.65
3.40	26,985	2024.40	29.63 ic	29.30 ic	0.00	---	0.00	0.00	---	---	---	---	29.30
3.50	28,970	2024.50	30.63 ic	29.91 ic	0.00	---	0.00	0.00	---	---	---	---	29.91
3.60	30,955	2024.60	30.73 ic	30.72 ic	0.00	---	0.00	0.00	---	---	---	---	30.72
3.70	32,940	2024.70	31.65 ic	31.41 ic	0.00	---	0.00	0.00	---	---	---	---	31.41
3.80	34,925	2024.80	32.69 ic	31.98 ic	0.00	---	0.00	0.00	---	---	---	---	31.98
3.90	36,911	2024.90	32.77 ic	32.76 ic	0.00	---	0.00	0.00	---	---	---	---	32.76
4.00	38,896	2025.00	33.73 ic	33.40 ic	0.00	---	0.00	0.00	---	---	---	---	33.40
4.10	41,651	2025.10	33.98 ic	33.98 ic	0.00	---	0.00	0.00	---	---	---	---	33.98
4.20	44,407	2025.20	34.80 ic	34.75 ic	0.00	---	0.00	0.00	---	---	---	---	34.75
4.30	47,162	2025.30	35.87 ic	35.26 ic	0.00	---	0.00	0.00	---	---	---	---	35.26
4.40	49,918	2025.40	35.96 ic	35.96 ic	0.00	---	0.00	0.00	---	---	---	---	35.96
4.50	52,673	2025.50	36.96 ic	36.54 ic	0.00	---	0.00	0.00	---	---	---	---	36.54
4.60	55,429	2025.60	37.14 ic	37.14 ic	0.00	---	0.00	0.00	---	---	---	---	37.14
4.70	58,184	2025.70	38.06 ic	37.78 ic	0.00	---	0.00	0.00	---	---	---	---	37.78
4.80	60,940	2025.80	38.31 ic	38.31 ic	0.00	---	0.00	0.00	---	---	---	---	38.31
4.90	63,695	2025.90	39.17 ic	38.98 ic	0.00	---	0.00	0.00	---	---	---	---	38.98
5.00	66,451	2026.00	39.46 ic	39.46 ic	0.00	---	0.00	0.00	---	---	---	---	39.46
5.10	69,971	2026.10	40.29 ic	40.14 ic	0.00	---	0.00	0.00	---	---	---	---	40.14
5.20	73,490	2026.20	40.60 ic	40.60 ic	0.00	---	0.00	0.00	---	---	---	---	40.60
5.30	77,010	2026.30	41.42 ic	41.27 ic	0.00	---	0.00	0.00	---	---	---	---	41.27
5.40	80,529	2026.40	41.73 ic	41.72 ic	0.00	---	0.00	0.00	---	---	---	---	41.72
5.50	84,049	2026.50	42.57 ic	42.37 ic	0.00	---	0.00	0.00	---	---	---	---	42.37
5.60	87,569	2026.60	42.84 ic	42.84 ic	0.00	---	0.00	0.00	---	---	---	---	42.84
5.70	91,088	2026.70	43.72 ic	43.44 ic	0.00	---	0.00	0.00	---	---	---	---	43.44
5.80	94,608	2026.80	43.93 ic	43.93 ic	0.00	---	0.00	0.00	---	---	---	---	43.93
5.90	98,128	2026.90	44.88 ic	44.49 ic	0.00	---	0.00	0.00	---	---	---	---	44.49
6.00	101,647	2027.00	45.02 ic	45.02 ic	0.00	---	0.00	0.00	---	---	---	---	45.02
6.10	105,807	2027.10	47.26 ic	45.27 ic	0.00	---	1.98	0.00	---	---	---	---	47.26
6.20	109,967	2027.20	50.84 ic	45.23 ic	0.00	---	5.61	0.00	---	---	---	---	50.84
6.30	114,127	2027.30	55.60 ic	45.02 ic	0.00	---	10.31	0.00	---	---	---	---	55.33
6.40	118,287	2027.40	60.58 ic	44.70 ic	0.00	---	15.87	0.00	---	---	---	---	60.58
6.50	122,447	2027.50	66.52 ic	44.33 ic	0.00	---	22.18	0.00	---	---	---	---	66.52
6.60	126,607	2027.60	73.59 ic	43.73 ic	0.00	---	29.16	0.00	---	---	---	---	72.89
6.70	130,767	2027.70	80.40 ic	43.16 ic	0.00	---	36.75	0.00	---	---	---	---	79.91
6.80	134,927	2027.80	87.80 ic	42.45 ic	0.00	---	44.90	0.00	---	---	---	---	87.35
6.90	139,087	2027.90	95.31 ic	41.67 ic	0.00	---	53.57	0.00	---	---	---	---	95.25
7.00	143,247	2028.00	103.67 ic	40.59 ic	0.00	---	62.77	0.00	---	---	---	---	103.37
7.10	147,903	2028.10	111.73 ic	39.25 ic	0.00	---	72.42	0.00	---	---	---	---	111.66
7.20	152,559	2028.20	119.87 ic	37.36 ic	0.00	---	82.51	0.00	---	---	---	---	119.87
7.30	157,215	2028.30	128.39 ic	35.36 ic	0.00	---	93.03	0.00	---	---	---	---	128.39
7.40	161,871	2028.40	136.97 ic	33.00 ic	0.00	---	103.97	0.00	---	---	---	---	136.97
7.50	166,527	2028.50	145.54 ic	30.24 ic	0.00	---	115.30	0.00	---	---	---	---	145.54
7.60	171,183	2028.60	152.43 ic	27.83 ic	0.00	---	124.60 s	0.00	---	---	---	---	152.43
7.70	175,839	2028.70	157.25 ic	26.23 ic	0.00	---	131.01 s	0.00	---	---	---	---	157.25
7.80	180,495	2028.80	161.37 ic	24.88 ic	0.00	---	136.49 s	0.00	---	---	---	---	161.37
7.90	185,151	2028.90	165.04 ic	23.68 ic	0.00	---	141.37 s	0.00	---	---	---	---	165.04
8.00	189,807	2029.00	168.39 ic	22.59 ic	0.00	---	145.80 s	0.00	---	---	---	---	168.39
8.10	194,889	2029.10	171.47 ic	21.60 ic	0.00	---	149.87 s	0.00	---	---	---	---	171.46
8.20	199,971	2029.20	174.33 ic	20.69 ic	0.00	---	153.64 s	0.00	---	---	---	---	174.33
8.30	205,053	2029.30	177.02 ic	19.85 ic	0.00	---	157.17 s	0.00	---	---	---	---	177.01
8.40	210,135	2029.40	179.55 ic	19.07 ic	0.00	---	160.48 s	0.00	---	---	---	---	179.55
8.50	215,216	2029.50	181.95 ic	18.35 ic	0.00	---	163.60 s	0.00	---	---	---	---	181.95
8.60	220,298	2029.60	184.25 ic	17.68 ic	0.00	---	166.56 s	0.00	---	---	---	---	184.24
8.70	225,380	2029.70	186.44 ic	17.06 ic	0.00	---	169.38 s	0.00	---	---	---	---	186.44
8.80	230,462	2029.80	188.55 ic	16.47 ic	0.00	---	172.07 s	0.00	---	---	---	---	188.54
8.90	235,544	2029.90	190.59 ic	15.92 ic	0.00	---	174.66 s	0.00	---	---	---	---	190.59
9.00	240,625	2030.00	192.57 ic	15.41 ic	0.00	---	177.15 s	0.00	---	---	---	---	192.56
9.10	246,093	2030.10	194.48 ic	14.93 ic	0.00	---	179.55 s	0.00	---	---	---	---	194.47
9.20	251,561	2030.20	196.34 ic	14.47 ic	0.00	---	181.85 s	0.00	---	---	---	---	196.32
9.30	257,029	2030.30	198.15 ic	14.05 ic	0.00	---	184.10 s	0.00	---	---	---	---	198.14
9.40	262,497	2030.40	199.92 ic	13.64 ic	0.00	---	186.25 s	0.00	---	---	---	---	199.89
9.50	267,964	2030.50	201.64 ic	13.26 ic	0.00	---	188.37 s	0.00	---	---	---	---	201.63
9.60	273,432	2030.60	203.34 ic	12.90 ic	0.00	---	190.42 s	0.00	---	---	---	---	203.31
9.70	278,900	2030.70	205.00 ic	12.55 ic	0.00	---	192.42 s	0.00	---	---	---	---	204.97
9.80	284,368	2030.80	206.62 ic	12.23 ic	0.00	---	194.38 s	0.00	---	---	---	---	206.61

Continues on next page...

Pond B-South Detention Pond

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
9.90	289,836	2030.90	208.23 ic	11.92 ic	0.00	---	196.29 s	0.00	---	---	---	---	208.21
10.00	295,304	2031.00	209.81 ic	11.62 ic	0.00	---	198.16 s	0.00	---	---	---	---	209.79
10.10	301,152	2031.10	211.36 ic	11.35 ic	0.00	---	200.00 s	0.00	---	---	---	---	211.34
10.20	307,001	2031.20	212.89 ic	11.08 ic	0.00	---	201.80 s	0.00	---	---	---	---	212.88
10.30	312,850	2031.30	214.40 ic	10.82 ic	0.00	---	203.55 s	0.00	---	---	---	---	214.37
10.40	318,699	2031.40	215.89 ic	10.58 ic	0.00	---	205.27 s	0.00	---	---	---	---	215.85
10.50	324,548	2031.50	217.36 ic	10.35 ic	0.00	---	207.00 s	0.00	---	---	---	---	217.35
10.60	330,397	2031.60	218.81 ic	10.13 ic	0.00	---	208.67 s	0.00	---	---	---	---	218.80
10.70	336,246	2031.70	220.25 ic	9.91 ic	0.00	---	210.31 s	0.00	---	---	---	---	220.23
10.80	342,095	2031.80	221.67 ic	9.71 ic	0.00	---	211.94 s	0.00	---	---	---	---	221.65
10.90	347,944	2031.90	223.07 ic	9.51 ic	0.00	---	213.52 s	0.00	---	---	---	---	223.03
11.00	353,793	2032.00	224.47 ic	9.33 ic	0.00	---	215.12 s	0.00	---	---	---	---	224.44
11.10	360,032	2032.10	225.85 ic	9.15 ic	0.00	---	216.66 s	0.00	---	---	---	---	225.81
11.20	366,272	2032.20	227.22 ic	8.97 ic	0.00	---	218.23 s	0.00	---	---	---	---	227.20
11.30	372,512	2032.30	228.57 ic	8.81 ic	0.00	---	219.75 s	0.00	---	---	---	---	228.56
11.40	378,752	2032.40	229.91 ic	8.65 ic	0.00	---	221.26 s	0.00	---	---	---	---	229.91
11.50	384,992	2032.50	231.24 ic	8.49 ic	0.00	---	222.70 s	0.00	---	---	---	---	231.19
11.60	391,232	2032.60	232.56 ic	8.34 ic	0.00	---	224.22 s	0.00	---	---	---	---	232.56
11.70	397,472	2032.70	233.88 ic	8.20 ic	0.00	---	225.62 s	0.00	---	---	---	---	233.82
11.80	403,712	2032.80	235.18 ic	8.06 ic	0.00	---	227.06 s	0.00	---	---	---	---	235.12
11.90	409,951	2032.90	236.47 ic	7.93 ic	0.00	---	228.49 s	0.00	---	---	---	---	236.41
12.00	416,191	2033.00	237.75 ic	7.79 ic	0.00	---	229.87 s	0.00	---	---	---	---	237.67
12.10	422,832	2033.10	239.02 ic	7.67 ic	0.00	---	231.28 s	0.00	---	---	---	---	238.95
12.20	429,473	2033.20	240.28 ic	7.55 ic	0.00	---	232.72 s	0.00	---	---	---	---	240.27
12.30	436,113	2033.30	241.54 ic	7.43 ic	0.00	---	234.09 s	0.00	---	---	---	---	241.52
12.40	442,754	2033.40	242.79 ic	7.32 ic	0.00	---	235.39 s	0.00	---	---	---	---	242.71
12.50	449,395	2033.50	244.02 ic	7.21 ic	0.00	---	236.74 s	0.00	---	---	---	---	243.95
12.60	456,035	2033.60	245.26 ic	7.10 ic	0.00	---	238.05 s	0.00	---	---	---	---	245.15
12.70	462,676	2033.70	246.48 ic	7.00 ic	0.00	---	239.43 s	0.00	---	---	---	---	246.43
12.80	469,317	2033.80	247.69 ic	6.90 ic	0.00	---	240.79 s	0.00	---	---	---	---	247.69
12.90	475,957	2033.90	248.90 ic	6.80 ic	0.00	---	242.02 s	0.00	---	---	---	---	248.82
13.00	482,598	2034.00	250.11 ic	6.71 ic	0.00	---	243.29 s	0.00	---	---	---	---	250.00
13.10	489,649	2034.10	251.30 ic	6.62 ic	0.00	---	244.61 s	0.00	---	---	---	---	251.23
13.20	496,700	2034.20	252.49 ic	6.53 ic	0.00	---	245.94 s	0.00	---	---	---	---	252.47
13.30	503,752	2034.30	253.67 ic	6.44 ic	0.00	---	247.16 s	0.00	---	---	---	---	253.60
13.40	510,803	2034.40	254.85 ic	6.35 ic	0.00	---	248.38 s	0.00	---	---	---	---	254.74
13.50	517,854	2034.50	256.01 ic	6.28 ic	0.00	---	249.73 s	0.00	---	---	---	---	256.01
13.60	524,905	2034.60	257.18 ic	6.19 ic	0.00	---	250.87 s	0.00	---	---	---	---	257.06
13.70	531,956	2034.70	258.33 ic	6.12 ic	0.00	---	252.18 s	0.00	---	---	---	---	258.30
13.80	539,008	2034.80	259.48 ic	6.04 ic	0.00	---	253.40 s	0.00	---	---	---	---	259.44
13.90	546,059	2034.90	260.63 ic	5.97 ic	0.00	---	254.63 s	0.00	---	---	---	---	260.59
14.00	553,110	2035.00	261.77 ic	5.90 ic	0.00	---	255.87 s	0.00	---	---	---	---	261.77
14.10	560,582	2035.10	262.90 ic	5.82 ic	0.00	---	256.93 s	0.00	---	---	---	---	262.76
14.20	568,053	2035.20	264.03 ic	5.76 ic	0.00	---	258.19 s	0.00	---	---	---	---	263.95
14.30	575,525	2035.30	265.15 ic	5.69 ic	0.00	---	259.39 s	0.00	---	---	---	---	265.09
14.40	582,997	2035.40	266.27 ic	5.62 ic	0.00	---	260.47 s	0.00	---	---	---	---	266.09
14.50	590,468	2035.50	267.38 ic	5.57 ic	0.00	---	261.81 s	0.00	---	---	---	---	267.37
14.60	597,940	2035.60	268.49 ic	5.50 ic	0.00	---	262.88 s	0.00	---	---	---	---	268.38
14.70	605,412	2035.70	269.59 ic	5.44 ic	0.00	---	264.10 s	0.00	---	---	---	---	269.54
14.80	612,883	2035.80	270.69 ic	5.38 ic	0.00	---	265.19 s	0.00	---	---	---	---	270.57
14.90	620,355	2035.90	271.78 ic	5.32 ic	0.00	---	266.40 s	0.00	---	---	---	---	271.72
15.00	627,826	2036.00	272.87 ic	5.27 ic	0.00	---	267.41 s	0.00	---	---	---	---	272.68

...End

Hydrograph Report

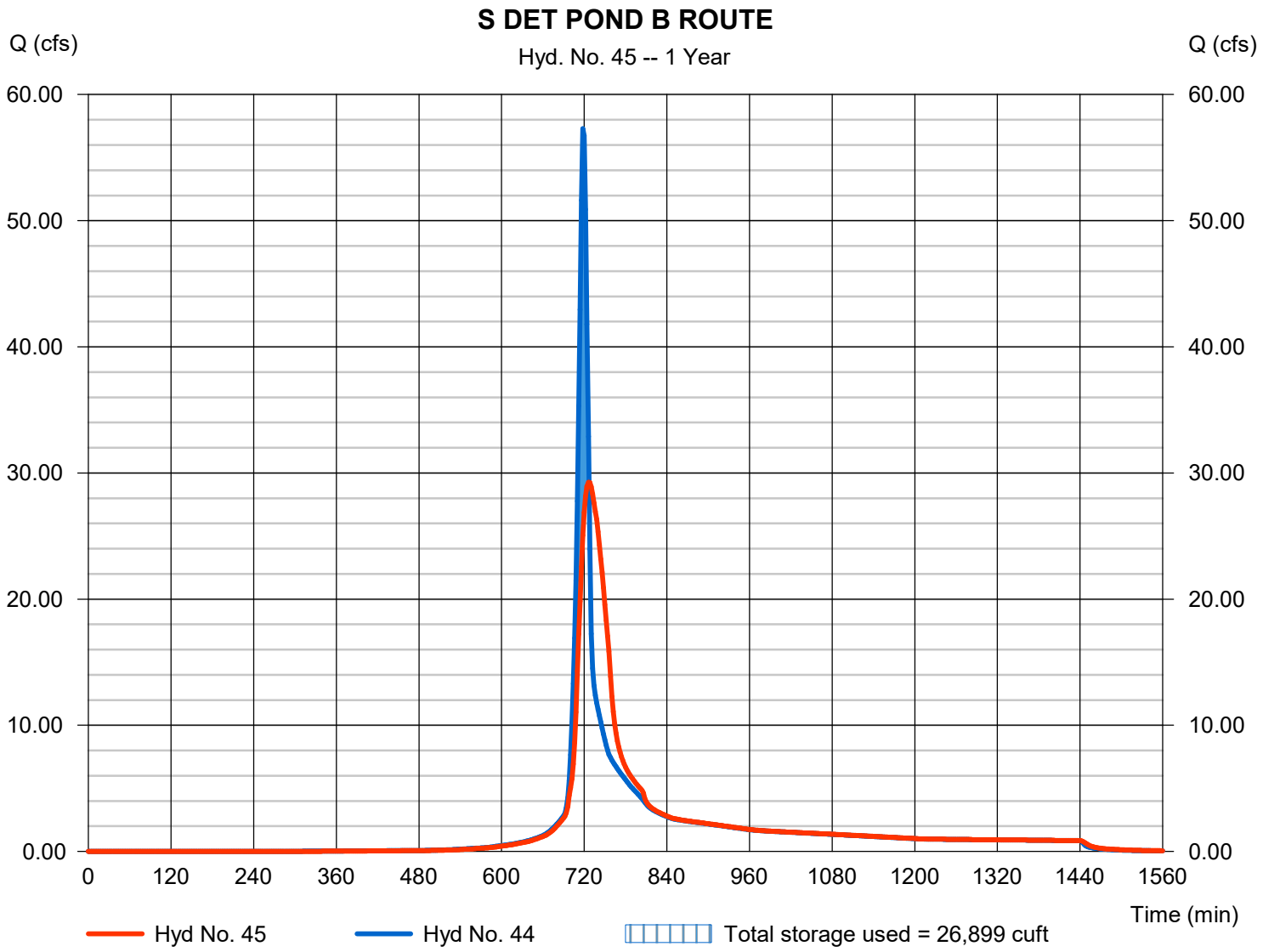
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Tuesday, 11 / 1 / 2022

Hyd. No. 45

S DET POND B ROUTE

Hydrograph type	=	Reservoir	Peak discharge	=	29.27 cfs
Storm frequency	=	1 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	168,708 cuft
Inflow hyd. No.	=	44 - TOTAL TO SOUTH DET POND B	Max. Elevation	=	2024.40 ft
Reservoir name	=	Pond B-South Detention Pond	Max. Storage	=	26,899 cuft

Storage Indication method used.



Hydrograph Report

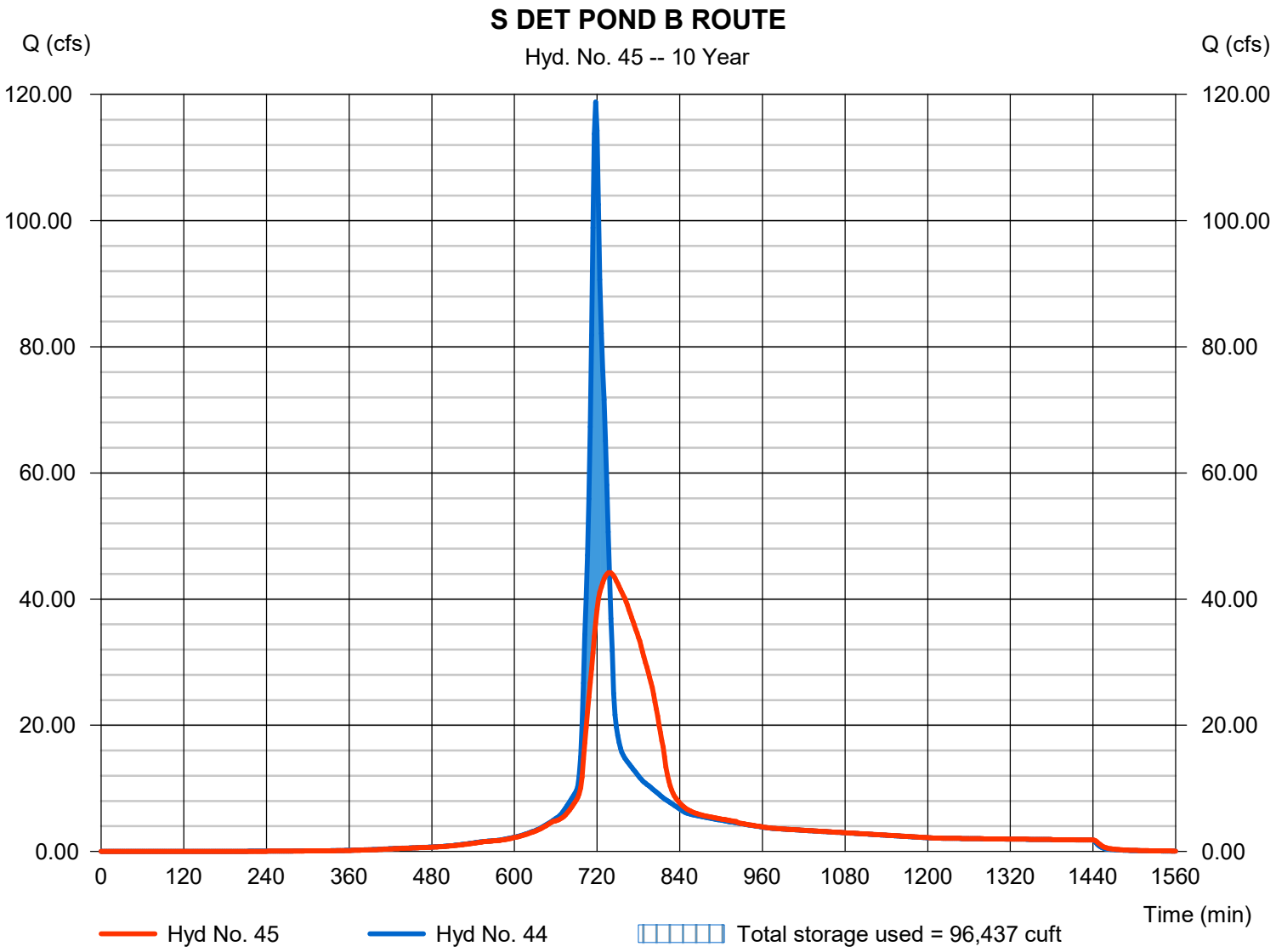
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Tuesday, 11 / 1 / 2022

Hyd. No. 45

S DET POND B ROUTE

Hydrograph type	=	Reservoir	Peak discharge	=	44.22 cfs
Storm frequency	=	10 yrs	Time to peak	=	738 min
Time interval	=	2 min	Hyd. volume	=	412,843 cuft
Inflow hyd. No.	=	44 - TOTAL TO SOUTH DET POND B	Max. Elevation	=	2026.85 ft
Reservoir name	=	Pond B-South Detention Pond	Max. Storage	=	96,437 cuft

Storage Indication method used.



Hydrograph Report

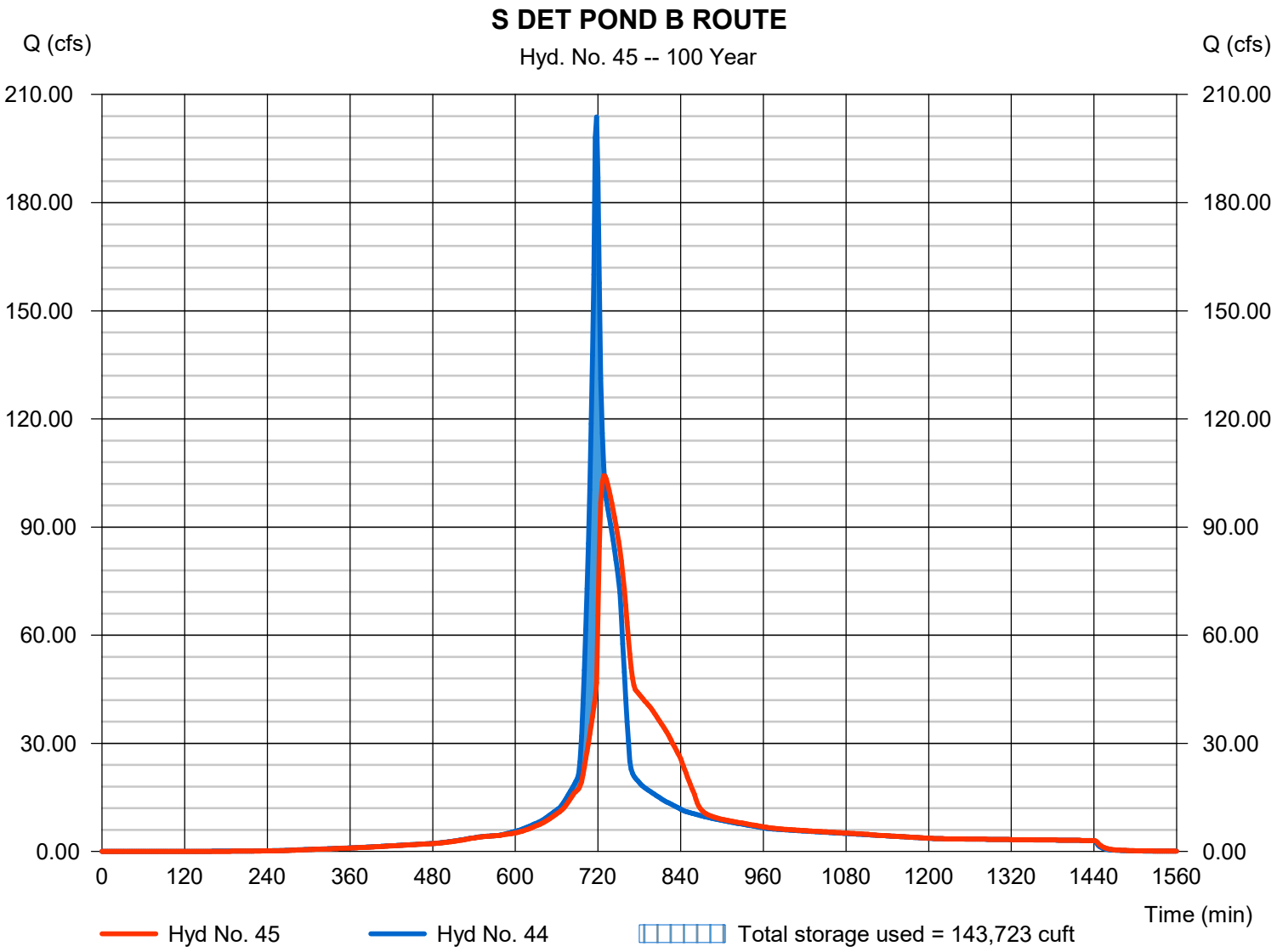
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Tuesday, 11 / 1 / 2022

Hyd. No. 45

S DET POND B ROUTE

Hydrograph type	=	Reservoir	Peak discharge	=	104.21 cfs
Storm frequency	=	100 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	767,232 cuft
Inflow hyd. No.	=	44 - TOTAL TO SOUTH DET POND B	Max. Elevation	=	2028.01 ft
Reservoir name	=	Pond B-South Detention Pond	Max. Storage	=	143,723 cuft

Storage Indication method used.



Drainage Area Runoff and Time of Concentration

Drainage Area: **POSTDEV TO POND C (WETPOND)**
POSTDEVELOPMENT

Composite Curve Number (CN)						Notes:
	Hydrologic Soil Group	Land Cover	CN	Area, A (ac.)	CN*A	1) Impervious lot area calculated on "Typical Lot Impervious Area Estimate" table elsewhere 2) Wet pond normal pool water surface area is counted as impervious area for hydrology
CN_1	B	Open space	61	2.37	144.70	
CN_2	C	Open space	74	4.65	344.43	
CN_3	B	Imperv. (measured)	98	0.24	23.38	
CN_4	C	Imperv. (measured)	98	0.85	83.25	
CN_5	B	Imperv. (est. lots)	98	0.25	24.89	
CN_6	C	Imperv. (est. lots)	98	2.19	214.52	
CN_7	B	Imperv. (water surf.)	98	0.89	87.00	
CN_8					0.00	
CN_9					0.00	
CN_{10}					0.00	
				Total	**11.45**	**922.18**
				Composite CN =		**81**

Time of Concentration, T_c						
2 yr. Precip. (in.) =			2.73			
Flow Segment	Flow Regime	Land Cover	Length (ft)	Roughness Coeff., n	Slope (ft/ft)	Travel Time, T_t (min.)
1	Other Tt	Estimate				5.0
2						
3						
4						
5						
6						
7						
8						
9						
10						
					Total Time of Concentration, T_c (min.) =	**5.0**

Runoff			
	1 Yr.	10 Yr.	100 Yr.
Precipitation (in.), P	2.26	4.06	6.44
Composite CN	81	81	81
Storage (in.) S=1000/CN-10	2.35	2.35	2.35
Initial abstraction (in.), I_a=0.2S	0.47	0.47	0.47
Runoff depth (in.), $Q=(P-0.2S)^2/[(P-I_a)+S]$	0.78	2.17	4.29
Runoff volume (ac-ft), RV = Q/12*A	0.74	2.07	4.09
Flow rate (cfs), q_{peak} from hydrograph	15.10	41.81	80.72

Hydrograph Number: 42

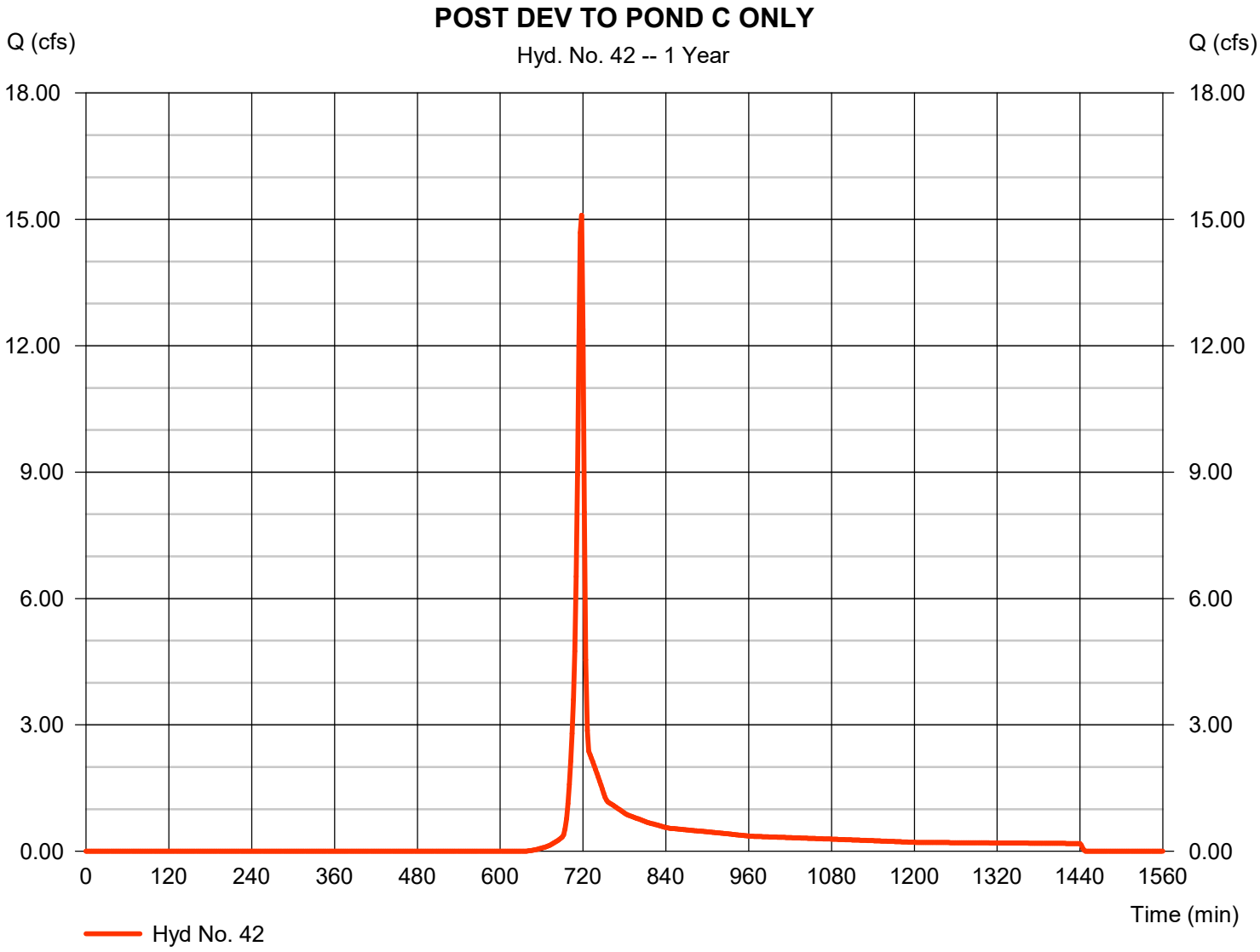
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Tuesday, 11 / 1 / 2022

Hyd. No. 42

POST DEV TO POND C ONLY

Hydrograph type	= SCS Runoff	Peak discharge	= 15.10 cfs
Storm frequency	= 1 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 30,211 cuft
Drainage area	= 11.450 ac	Curve number	= 81
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 2.26 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



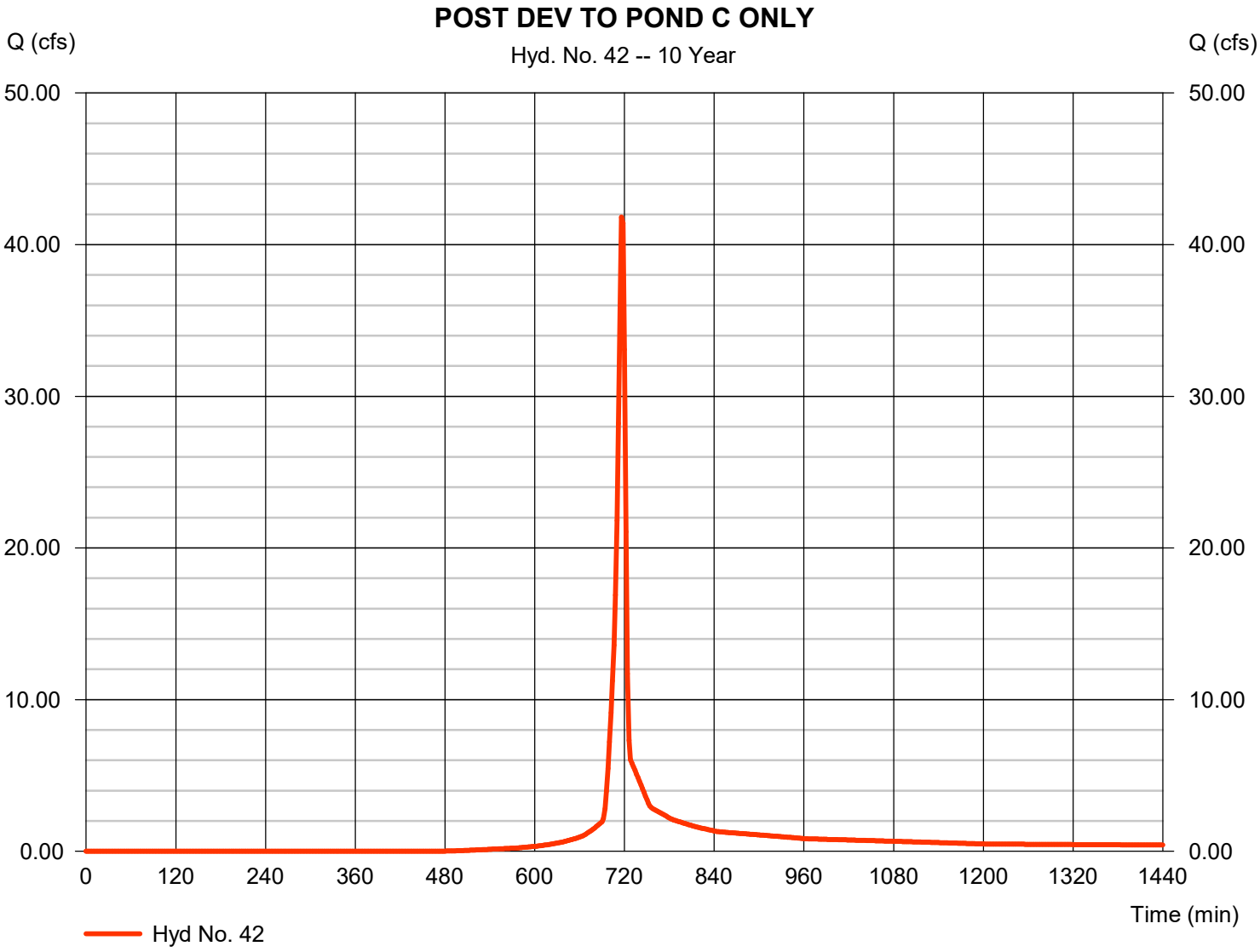
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Tuesday, 11 / 1 / 2022

Hyd. No. 42

POST DEV TO POND C ONLY

Hydrograph type	= SCS Runoff	Peak discharge	= 41.81 cfs
Storm frequency	= 10 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 84,635 cuft
Drainage area	= 11.450 ac	Curve number	= 81
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.06 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

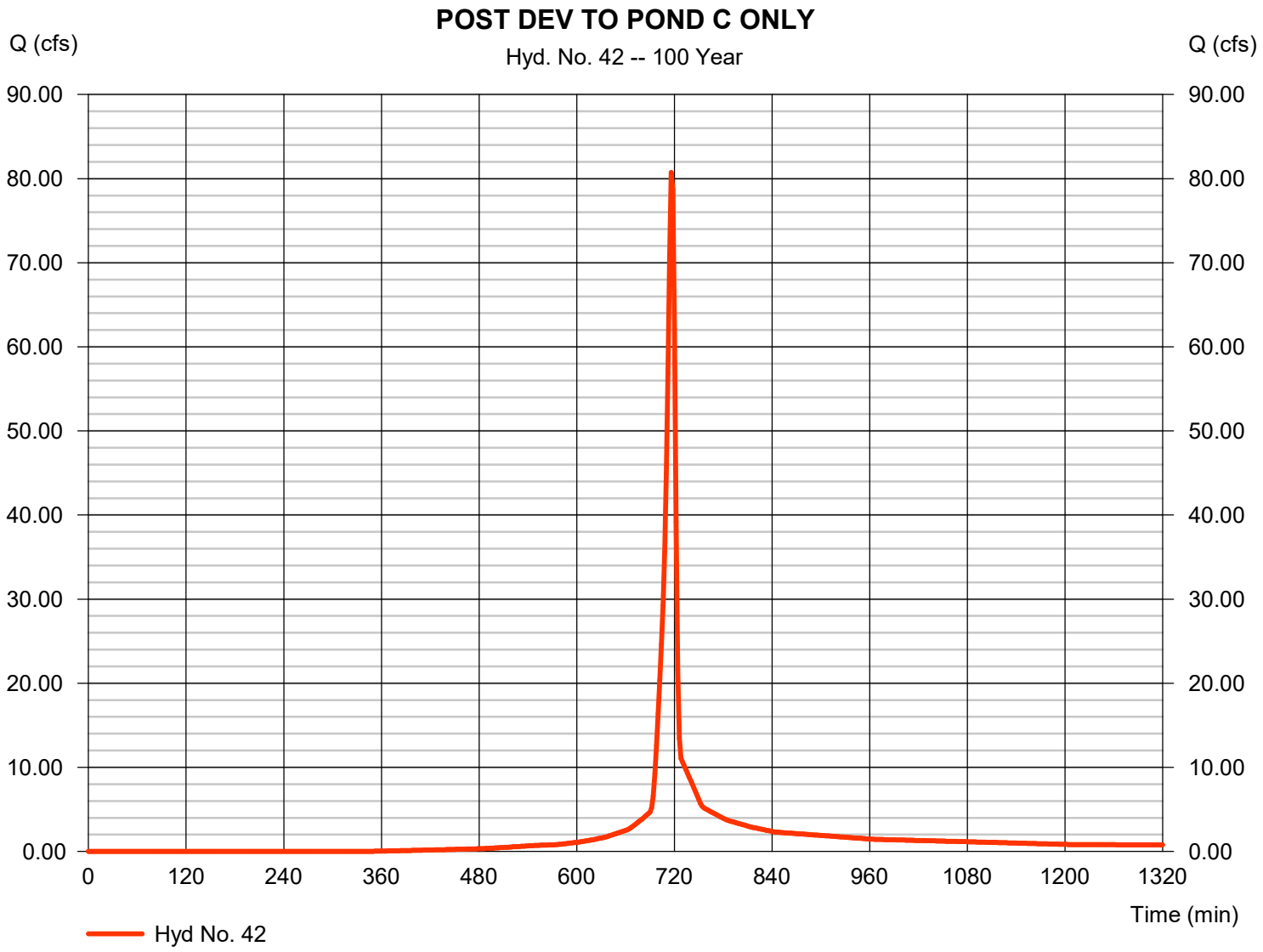


Hydrograph Report

Hyd. No. 42

POST DEV TO POND C ONLY

Hydrograph type	= SCS Runoff	Peak discharge	= 80.72 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 167,038 cuft
Drainage area	= 11.450 ac	Curve number	= 81
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 6.44 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

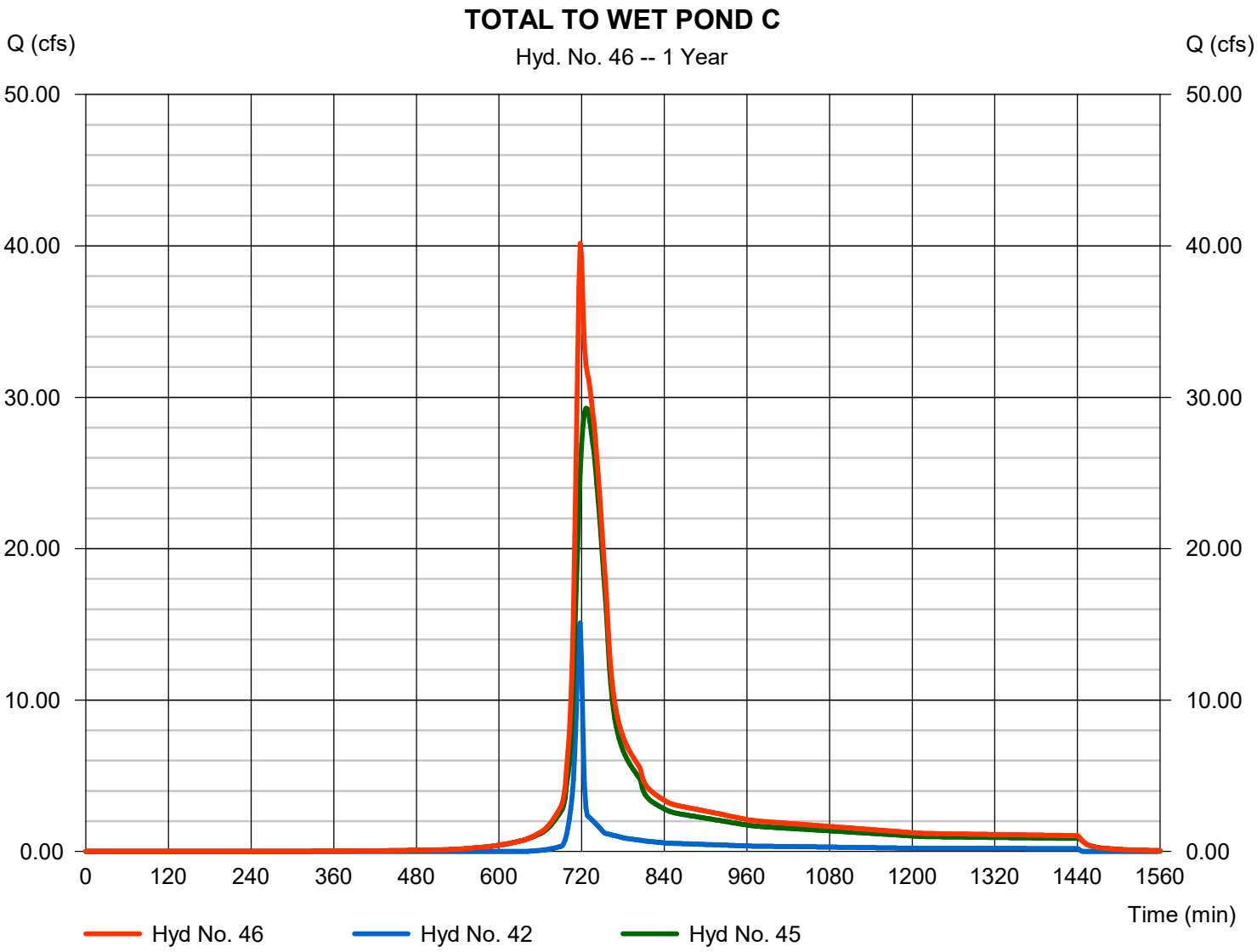


Hydrograph Report

Hyd. No. 46

TOTAL TO WET POND C

Hydrograph type	= Combine	Peak discharge	= 40.16 cfs
Storm frequency	= 1 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 198,919 cuft
Inflow hyds.	= 42, 45	Contrib. drain. area	= 11.450 ac



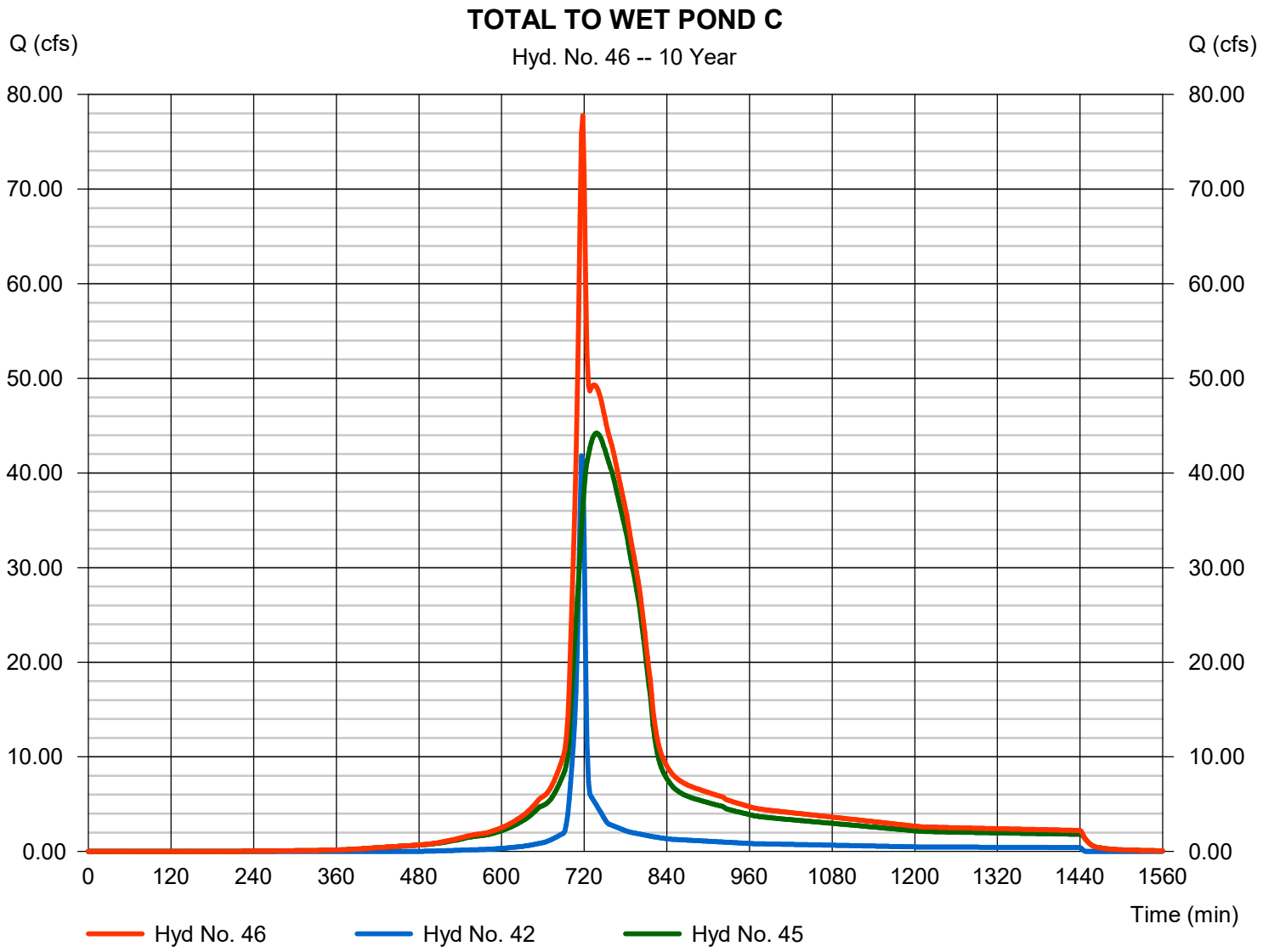
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Tuesday, 11 / 1 / 2022

Hyd. No. 46

TOTAL TO WET POND C

Hydrograph type	= Combine	Peak discharge	= 77.76 cfs
Storm frequency	= 10 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 497,478 cuft
Inflow hyds.	= 42, 45	Contrib. drain. area	= 11.450 ac

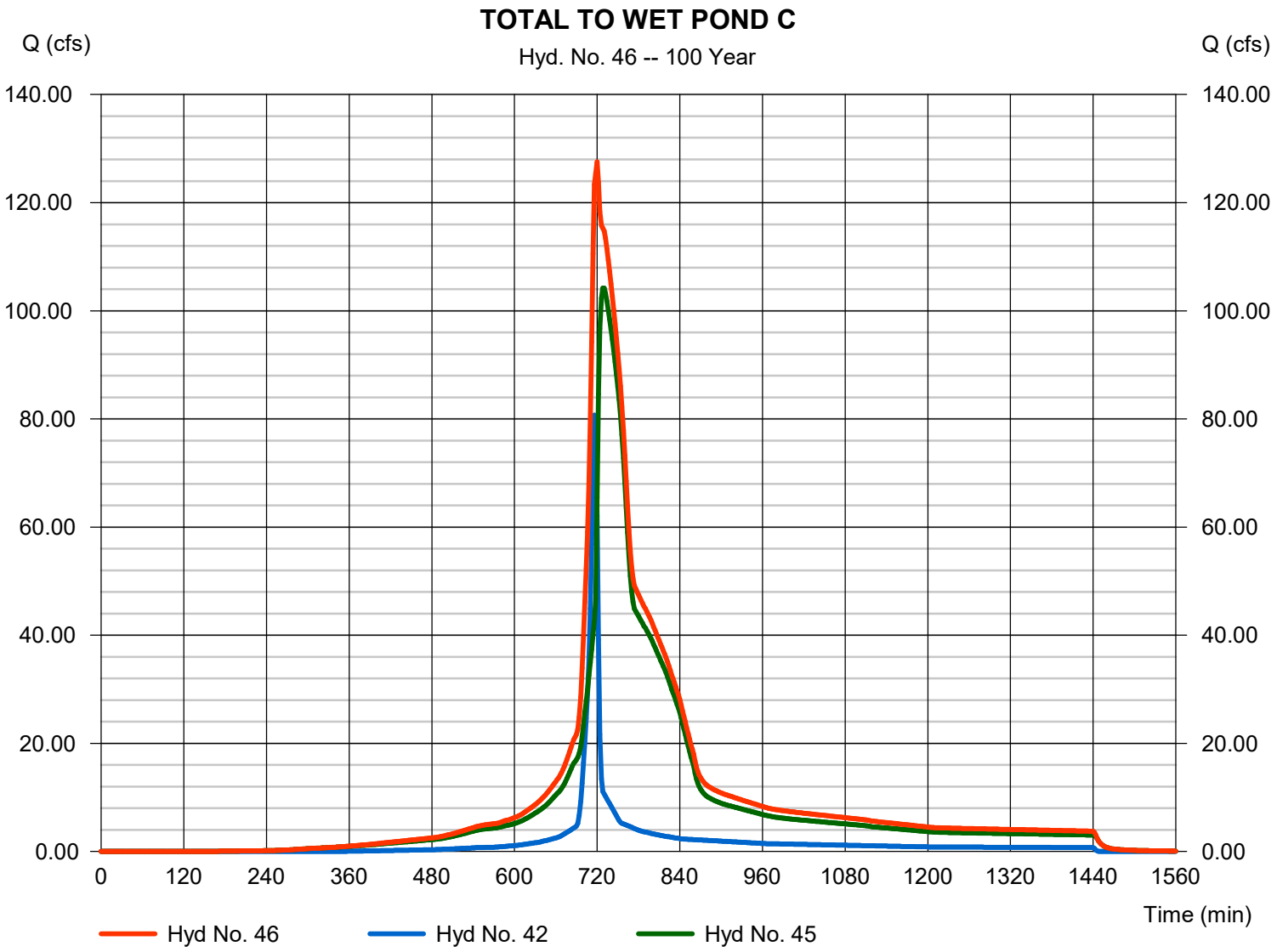


Hydrograph Report

Hyd. No. 46

TOTAL TO WET POND C

Hydrograph type	= Combine	Peak discharge	= 127.53 cfs
Storm frequency	= 100 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 934,271 cuft
Inflow hyds.	= 42, 45	Contrib. drain. area	= 11.450 ac



Pond Report

Pond No. 5 - Pond C-Wet pond

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 2009.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	2009.00	18,345	0	0
1.00	2010.00	20,327	19,326	19,326
2.00	2011.00	22,469	21,387	40,713
3.00	2012.00	24,665	23,556	64,269
4.00	2013.00	26,917	25,780	90,049
5.00	2014.00	29,221	28,058	118,107
6.00	2015.00	34,309	31,728	149,835
7.00	2016.00	49,569	41,702	191,537
8.00	2017.00	52,449	50,997	242,534
9.00	2018.00	55,399	53,912	296,446
10.00	2019.00	58,415	56,895	353,340
11.00	2020.00	61,487	59,938	413,279

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	8.00	0.00	0.00
Span (in)	= 24.00	8.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 2009.00	2015.30	0.00	0.00
Length (ft)	= 65.00	0.50	0.00	0.00
Slope (%)	= 2.00	1.00	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	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.57	20.00	0.00	0.00
Crest El. (ft)	= 2016.50	2017.50	0.00	0.00
Weir Coeff.	= 3.33	2.60	3.33	3.33
Weir Type	= 1	Broad	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

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

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	2009.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.10	1,933	2009.10	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.20	3,865	2009.20	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.30	5,798	2009.30	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.40	7,730	2009.40	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.50	9,663	2009.50	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.60	11,595	2009.60	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.70	13,528	2009.70	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.80	15,460	2009.80	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.90	17,393	2009.90	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.00	19,326	2010.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.10	21,464	2010.10	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.20	23,603	2010.20	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.30	25,742	2010.30	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.40	27,880	2010.40	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.50	30,019	2010.50	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.60	32,158	2010.60	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.70	34,296	2010.70	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.80	36,435	2010.80	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.90	38,574	2010.90	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.00	40,713	2011.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.10	43,068	2011.10	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.20	45,424	2011.20	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.30	47,779	2011.30	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.40	50,135	2011.40	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.50	52,491	2011.50	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.60	54,846	2011.60	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.70	57,202	2011.70	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.80	59,557	2011.80	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.90	61,913	2011.90	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.00	64,269	2012.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000

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Pond C-Wet pond

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
3.10	66,847	2012.10	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.20	69,425	2012.20	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.30	72,003	2012.30	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.40	74,581	2012.40	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.50	77,159	2012.50	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.60	79,737	2012.60	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.70	82,315	2012.70	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.80	84,893	2012.80	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.90	87,471	2012.90	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.00	90,049	2013.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.10	92,855	2013.10	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.20	95,661	2013.20	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.30	98,466	2013.30	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.40	101,272	2013.40	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.50	104,078	2013.50	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.60	106,884	2013.60	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.70	109,690	2013.70	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.80	112,496	2013.80	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.90	115,301	2013.90	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
5.00	118,107	2014.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
5.10	121,280	2014.10	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
5.20	124,453	2014.20	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
5.30	127,626	2014.30	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
5.40	130,798	2014.40	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
5.50	133,971	2014.50	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
5.60	137,144	2014.60	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
5.70	140,317	2014.70	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
5.80	143,489	2014.80	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
5.90	146,662	2014.90	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
6.00	149,835	2015.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
6.10	154,005	2015.10	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
6.20	158,175	2015.20	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
6.30	162,346	2015.30	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
6.40	166,516	2015.40	0.04 ic	0.04 ic	---	---	0.00	0.00	---	---	---	---	0.036
6.50	170,686	2015.50	0.13 ic	0.13 ic	---	---	0.00	0.00	---	---	---	---	0.135
6.60	174,856	2015.60	0.29 ic	0.29 ic	---	---	0.00	0.00	---	---	---	---	0.286
6.70	179,026	2015.70	0.48 ic	0.47 ic	---	---	0.00	0.00	---	---	---	---	0.472
6.80	183,196	2015.80	0.69 ic	0.68 ic	---	---	0.00	0.00	---	---	---	---	0.680
6.90	187,366	2015.90	0.89 ic	0.87 ic	---	---	0.00	0.00	---	---	---	---	0.872
7.00	191,537	2016.00	1.02 ic	1.02 ic	---	---	0.00	0.00	---	---	---	---	1.018
7.10	196,636	2016.10	1.20 ic	1.15 ic	---	---	0.00	0.00	---	---	---	---	1.148
7.20	201,736	2016.20	1.27 ic	1.26 ic	---	---	0.00	0.00	---	---	---	---	1.265
7.30	206,836	2016.30	1.41 ic	1.37 ic	---	---	0.00	0.00	---	---	---	---	1.372
7.40	211,935	2016.40	1.48 ic	1.47 ic	---	---	0.00	0.00	---	---	---	---	1.471
7.50	217,035	2016.50	1.56 ic	1.56 ic	---	---	0.00	0.00	---	---	---	---	1.564
7.60	222,135	2016.60	3.03 ic	1.65 ic	---	---	1.32	0.00	---	---	---	---	2.973
7.70	227,235	2016.70	5.47 ic	1.74 ic	---	---	3.74	0.00	---	---	---	---	5.475
7.80	232,334	2016.80	8.76 ic	1.81 ic	---	---	6.87	0.00	---	---	---	---	8.686
7.90	237,434	2016.90	12.47 ic	1.89 ic	---	---	10.58	0.00	---	---	---	---	12.47
8.00	242,534	2017.00	16.76 ic	1.96 ic	---	---	14.80	0.00	---	---	---	---	16.76
8.10	247,925	2017.10	21.49 ic	2.04 ic	---	---	19.45	0.00	---	---	---	---	21.49
8.20	253,316	2017.20	26.62 ic	2.10 ic	---	---	24.51	0.00	---	---	---	---	26.62
8.30	258,707	2017.30	32.12 ic	2.17 ic	---	---	29.95	0.00	---	---	---	---	32.12
8.40	264,098	2017.40	37.59 ic	1.86 ic	---	---	35.73	0.00	---	---	---	---	37.59
8.50	269,490	2017.50	39.59 ic	1.35 ic	---	---	38.24 s	0.00	---	---	---	---	39.59
8.60	274,881	2017.60	40.35 ic	1.17 ic	---	---	39.17 s	1.64	---	---	---	---	41.98
8.70	280,272	2017.70	40.92 ic	1.03 ic	---	---	39.89 s	4.65	---	---	---	---	45.57
8.80	285,663	2017.80	41.41 ic	0.93 ic	---	---	40.48 s	8.54	---	---	---	---	49.94
8.90	291,054	2017.90	41.83 ic	0.84 ic	---	---	40.99 s	13.14	---	---	---	---	54.98
9.00	296,446	2018.00	42.22 ic	0.77 ic	---	---	41.45 s	18.38	---	---	---	---	60.60
9.10	302,135	2018.10	42.58 ic	0.70 ic	---	---	41.86 s	24.17	---	---	---	---	66.73
9.20	307,825	2018.20	42.91 ic	0.65 ic	---	---	42.26 s	30.45	---	---	---	---	73.36
9.30	313,514	2018.30	43.23 ic	0.61 ic	---	---	42.63 s	37.20	---	---	---	---	80.43
9.40	319,203	2018.40	43.54 ic	0.56 ic	---	---	42.97 s	44.39	---	---	---	---	87.92
9.50	324,893	2018.50	43.84 ic	0.53 ic	---	---	43.30 s	51.99	---	---	---	---	95.82
9.60	330,582	2018.60	44.13 ic	0.50 ic	---	---	43.62 s	59.98	---	---	---	---	104.10
9.70	336,272	2018.70	44.41 ic	0.47 ic	---	---	43.93 s	68.34	---	---	---	---	112.74
9.80	341,961	2018.80	44.69 ic	0.44 ic	---	---	44.24 s	77.06	---	---	---	---	121.74
9.90	347,651	2018.90	44.96 ic	0.42 ic	---	---	44.53 s	86.12	---	---	---	---	131.07
10.00	353,340	2019.00	45.23 ic	0.40 ic	---	---	44.81 s	95.53	---	---	---	---	140.74
10.10	359,334	2019.10	45.50 ic	0.38 ic	---	---	45.11 s	105.24	---	---	---	---	150.73
10.20	365,328	2019.20	45.76 ic	0.36 ic	---	---	45.38 s	115.25	---	---	---	---	161.00

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Pond C-Wet pond

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
10.30	371,322	2019.30	46.02 ic	0.35 ic	---	---	45.65 s	125.57	---	---	---	---	171.57
10.40	377,316	2019.40	46.28 ic	0.33 ic	---	---	45.91 s	136.18	---	---	---	---	182.42
10.50	383,309	2019.50	46.53 ic	0.32 ic	---	---	46.16 s	147.06	---	---	---	---	193.54
10.60	389,303	2019.60	46.78 ic	0.31 ic	---	---	46.43 s	158.23	---	---	---	---	204.97
10.70	395,297	2019.70	47.03 ic	0.29 ic	---	---	46.70 s	169.66	---	---	---	---	216.66
10.80	401,291	2019.80	47.28 ic	0.28 ic	---	---	46.94 s	181.36	---	---	---	---	228.58
10.90	407,285	2019.90	47.53 ic	0.27 ic	---	---	47.20 s	193.31	---	---	---	---	240.78
11.00	413,279	2020.00	47.77 ic	0.26 ic	---	---	47.44 s	205.55	---	---	---	---	253.25

...End

Hydrograph Report

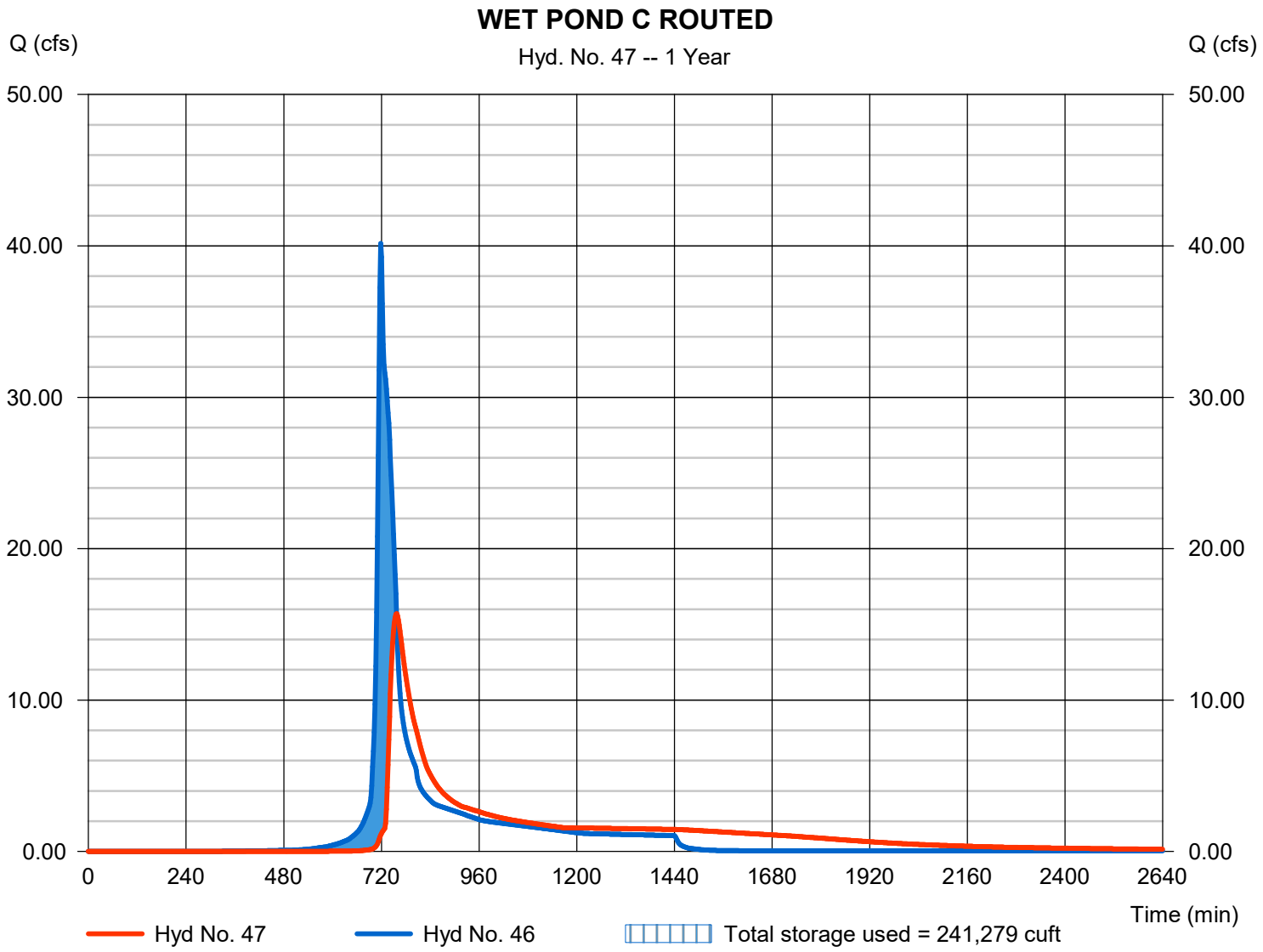
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Tuesday, 11 / 1 / 2022

Hyd. No. 47

WET POND C ROUTED

Hydrograph type	= Reservoir	Peak discharge	= 15.71 cfs
Storm frequency	= 1 yrs	Time to peak	= 758 min
Time interval	= 2 min	Hyd. volume	= 195,247 cuft
Inflow hyd. No.	= 46 - TOTAL TO WET POND C	Max. Elevation	= 2016.98 ft
Reservoir name	= Pond C-Wet pond	Max. Storage	= 241,279 cuft

Storage Indication method used. Wet pond routing start elevation = 2015.30 ft.



Hydrograph Report

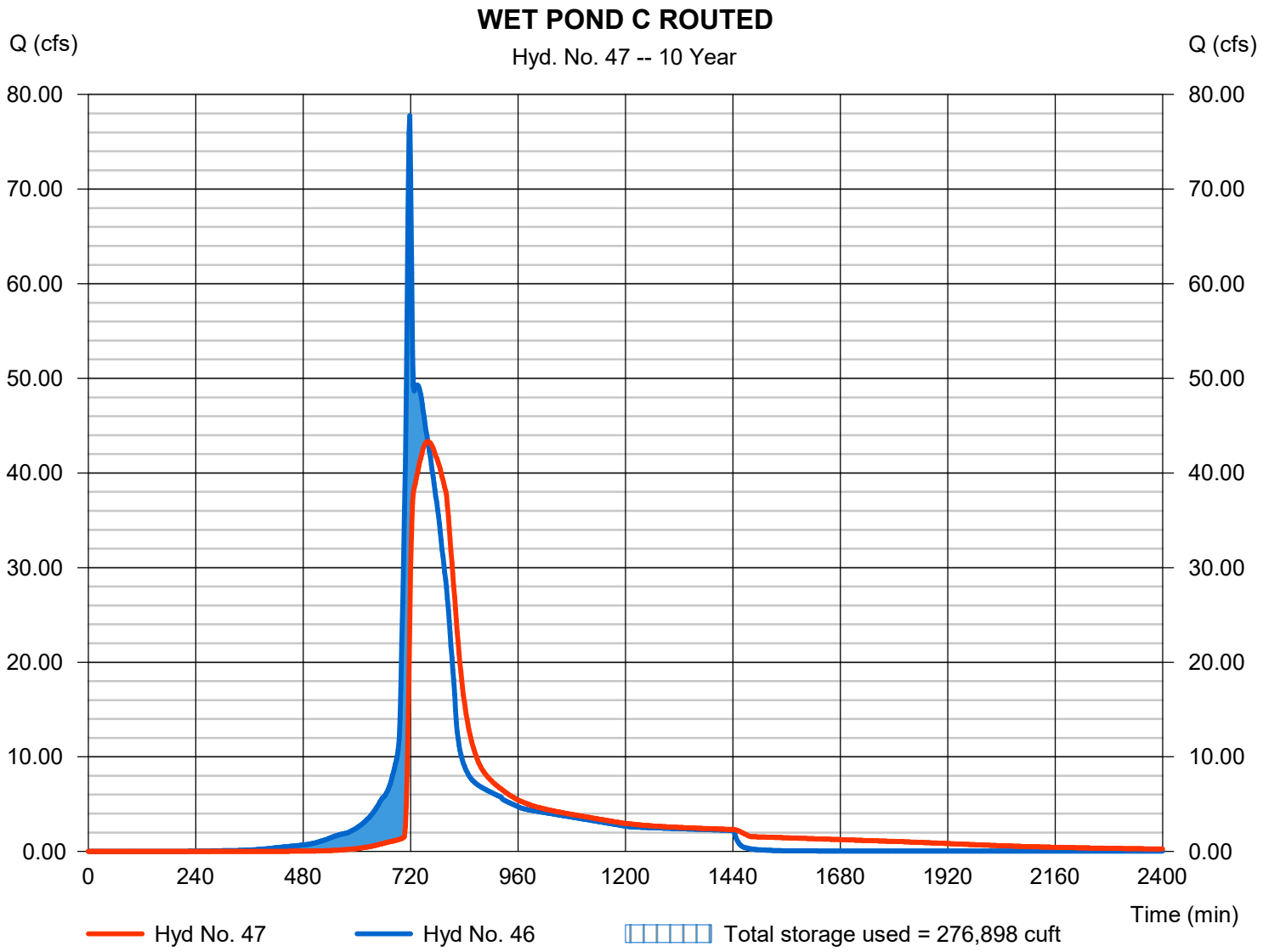
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Tuesday, 11 / 1 / 2022

Hyd. No. 47

WET POND C ROUTED

Hydrograph type	= Reservoir	Peak discharge	= 43.32 cfs
Storm frequency	= 10 yrs	Time to peak	= 758 min
Time interval	= 2 min	Hyd. volume	= 493,592 cuft
Inflow hyd. No.	= 46 - TOTAL TO WET POND C	Max. Elevation	= 2017.64 ft
Reservoir name	= Pond C-Wet pond	Max. Storage	= 276,898 cuft

Storage Indication method used. Wet pond routing start elevation = 2015.30 ft.



Hydrograph Report

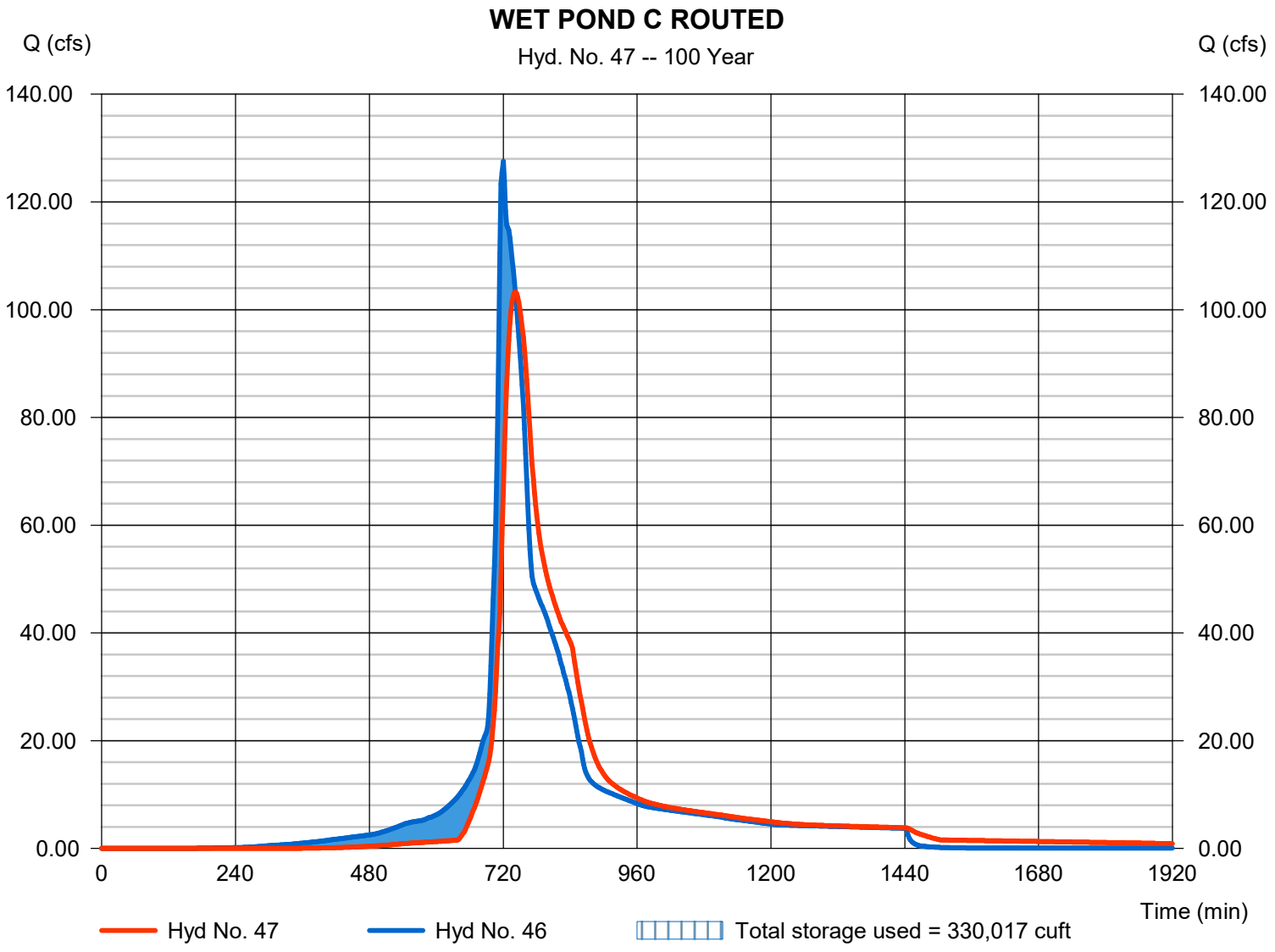
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Tuesday, 11 / 1 / 2022

Hyd. No. 47

WET POND C ROUTED

Hydrograph type	= Reservoir	Peak discharge	= 103.27 cfs
Storm frequency	= 100 yrs	Time to peak	= 742 min
Time interval	= 2 min	Hyd. volume	= 930,375 cuft
Inflow hyd. No.	= 46 - TOTAL TO WET POND C	Max. Elevation	= 2018.59 ft
Reservoir name	= Pond C-Wet pond	Max. Storage	= 330,017 cuft

Storage Indication method used. Wet pond routing start elevation = 2015.30 ft.



Drainage Area Runoff and Time of Concentration

Drainage Area: **POST UNDETAINED CONTRIB. AREA**
POSTDEVELOPMENT

Composite Curve Number (CN)						**Notes:**
	Hydrologic Soil Group	Land Cover	CN	Area, A (ac.)	CN*A	
CN_1	B	Open space	61	11.51	702.02	
CN_2	C	Open space	74	0.97	71.62	
CN_3	B	Imperv. (measured)	98	2.06	201.88	
CN_4	C	Imperv. (measured)	98	0.05	4.74	
CN_5	B	Imperv. (est. lots)	98	2.86	279.79	
CN_6	C	Imperv. (est. lots)	98	0.00	0.00	
CN_7	B	Woods (good)	55	2.34	128.48	
CN_8	C	Woods (good)	70	4.89	342.25	
CN_9					0.00	
CN_{10}					0.00	
			Total	**24.67**	**1730.79**	
				Composite CN =	**70**	

Time of Concentration, T_c						
2 yr. Precip. (in.) =			2.73			
Flow Segment	Flow Regime	Land Cover	Length (ft)	Roughness Coeff., n	Slope (ft/ft)	Travel Time, T_t (min.)
1	Other Tt	Estimate				10.0
2						
3						
4						
5						
6						
7						
8						
9						
10						
					Total Time of Concentration, T_c (min.) =	**10.0**

Runoff			
	1 Yr.	10 Yr.	100 Yr.
Precipitation (in.), P	2.26	4.06	6.44
Composite CN	70	70	70
Storage (in.) S=1000/CN-10	4.29	4.29	4.29
Initial abstraction (in.), I_a=0.2S	0.86	0.86	0.86
Runoff depth (in.), $Q=(P-0.2S)^2/[(P-I_a)+S]$	0.35	1.37	3.16
Runoff volume (ac-ft), RV = Q/12*A	0.71	2.82	6.49
Flow rate (cfs), q_{peak} from hydrograph	9.25	47.55	112.35

Hydrograph Number: 48

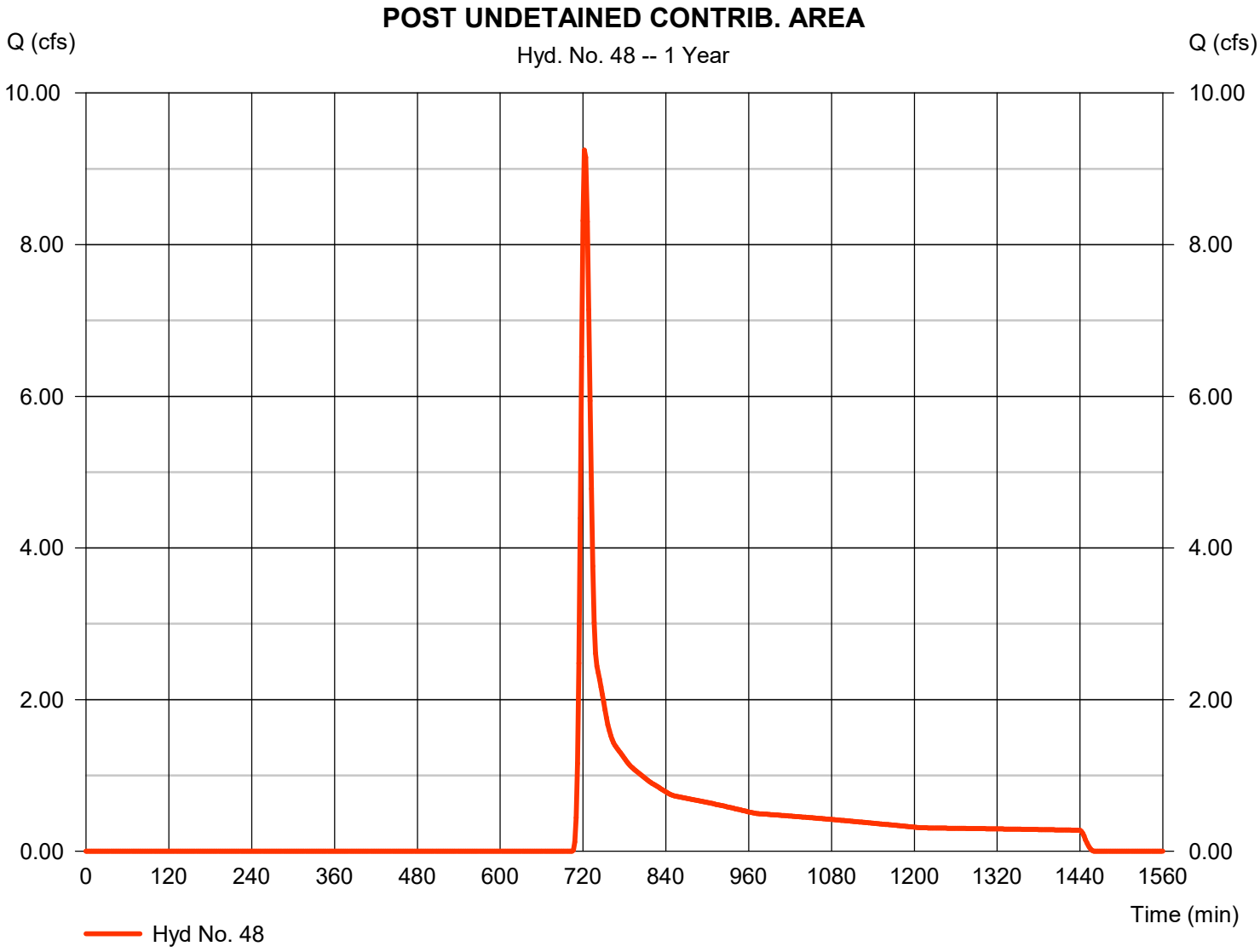
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Tuesday, 11 / 1 / 2022

Hyd. No. 48

POST UNDETAINED CONTRIB. AREA

Hydrograph type	= SCS Runoff	Peak discharge	= 9.246 cfs
Storm frequency	= 1 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 31,948 cuft
Drainage area	= 24.670 ac	Curve number	= 70
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 2.26 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

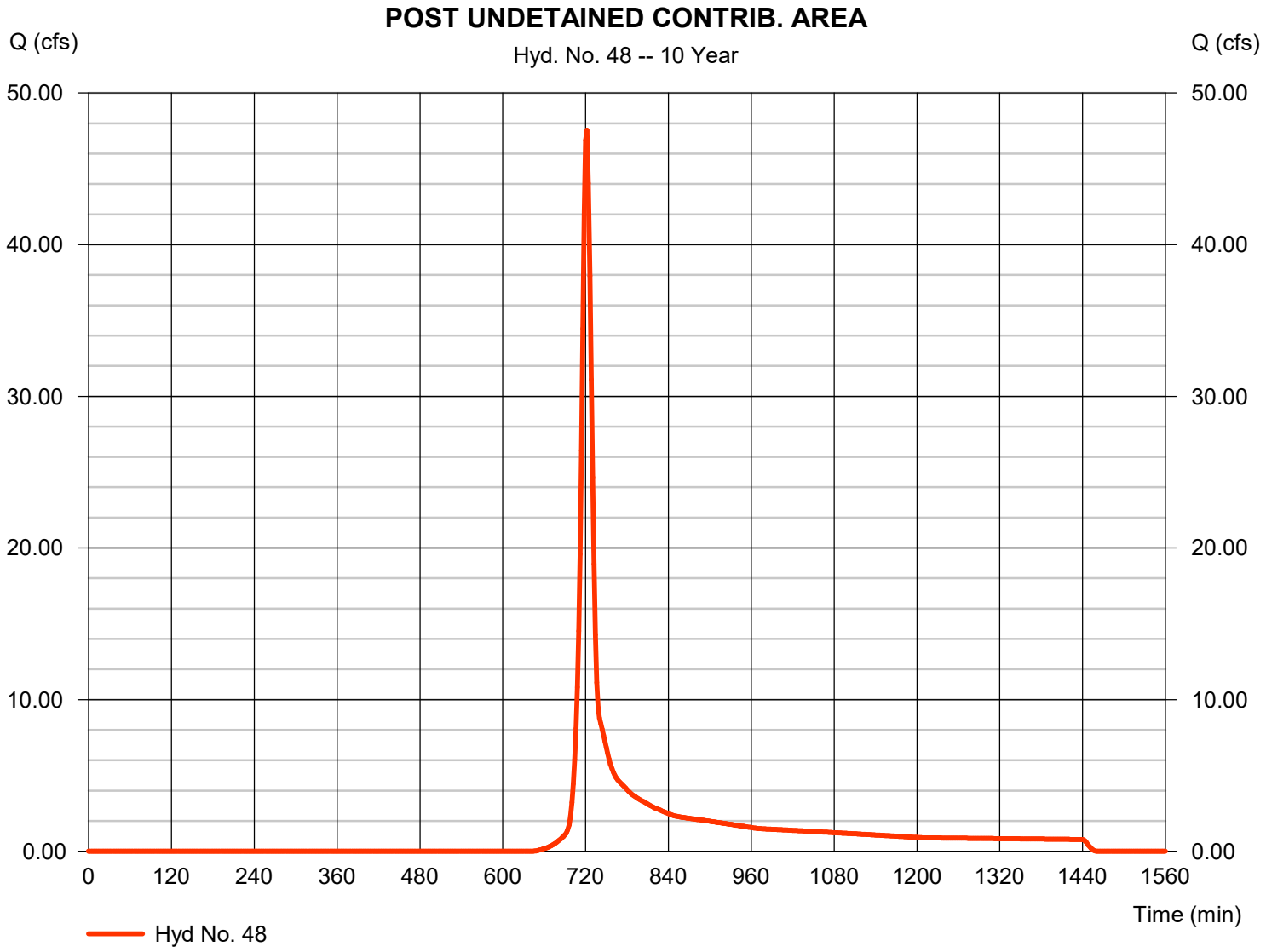


Hydrograph Report

Hyd. No. 48

POST UNDETAINED CONTRIB. AREA

Hydrograph type	= SCS Runoff	Peak discharge	= 47.55 cfs
Storm frequency	= 10 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 126,507 cuft
Drainage area	= 24.670 ac	Curve number	= 70
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 4.06 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

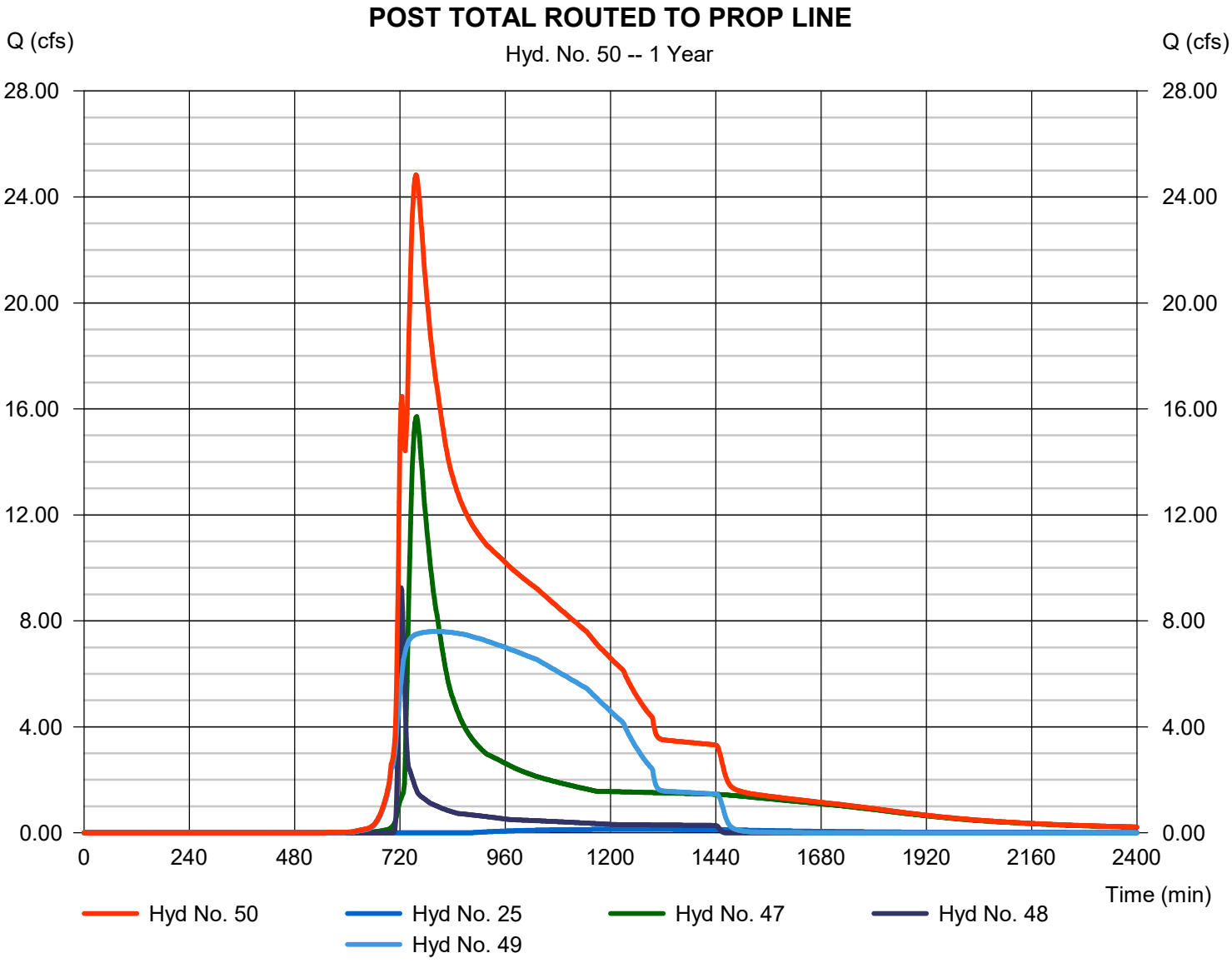


Hydrograph Report

Hyd. No. 50

POST TOTAL ROUTED TO PROP LINE

Hydrograph type	= Combine	Peak discharge	= 24.83 cfs
Storm frequency	= 1 yrs	Time to peak	= 756 min
Time interval	= 2 min	Hyd. volume	= 468,017 cuft
Inflow hyds.	= 25, 47, 48, 49	Contrib. drain. area	= 24.670 ac



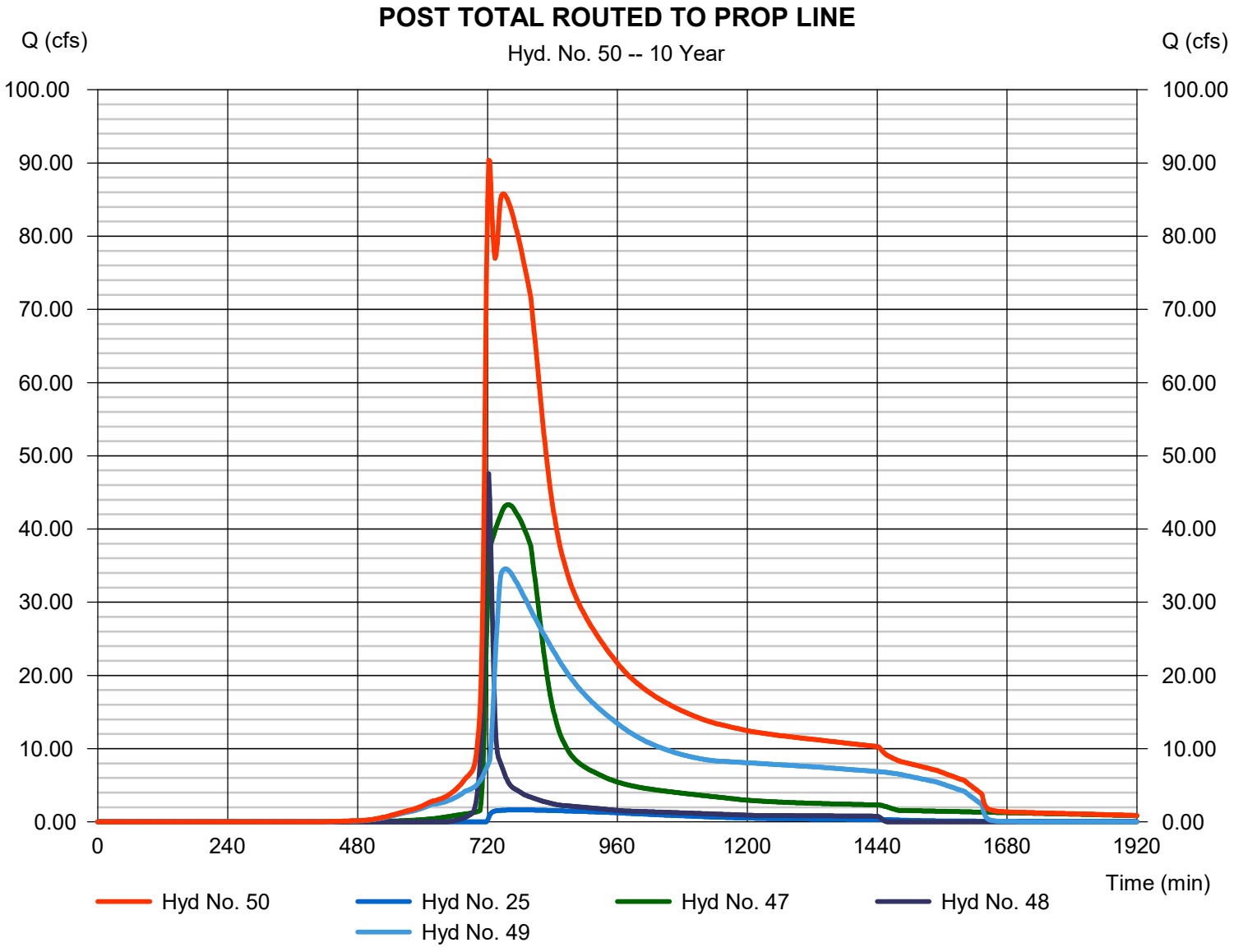
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Tuesday, 11 / 1 / 2022

Hyd. No. 50

POST TOTAL ROUTED TO PROP LINE

Hydrograph type	= Combine	Peak discharge	= 90.38 cfs
Storm frequency	= 10 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 1,333,597 cuft
Inflow hyds.	= 25, 47, 48, 49	Contrib. drain. area	= 24.670 ac



Stormwater Quantity Compliance (9VAC25-870-66)

Drainage Area:	Total at Pt. of Analysis: Downstream Prop. Line	
	Predev.	Postdev.
Area (ac.)	172.91	172.91
T_c (min.)		

Precipitation Data	
Return Frequency	P (in.)
1 Yr.	2.26
10 Yr.	4.06

	1 Yr.		10 Yr.	
	Predev.	Postdev.	Predev.	Postdev.
Runoff volume from hydrograph (cu ft.)	422,747	468,017	1,234,986	1,333,597
Flow rate (cfs), q_{peak} from hydrograph	75.45	24.83	175.77	90.38

1 Year Channel Protection (9VAC25-870-66.B)		
q_allowable <= I.F.* (q_pre * RV_pre)/RV_post)		Addressed by alternative method (if needed):
Improvement Factor (I.F.)	0.8	
q_pre (cfs)	75.45	
RV_pre (cu ft.) from hydrograph	422,747	
RV_post (ac-ft) from hydroraph	453,253	
q_allowable (cfs)	56.30	
q_post (cfs)	24.83	
Check (q_post <= q_allowable)	**OK**	

10 Year Flood Protection (9VAC25-70-66.C)		
q_post <= q_pre		Addressed by alternative method (if needed):
q_pre (cfs)	175.77	
q_post (cfs)	90.38	
Check (q_post <= q_pre)	**OK**	

Other notes: Actual post-development flow rates to be determined in design. See hydrograph 32 for predevelopment runoff volume at the property line. See hydrograph 50 for the post-development runoff volume at the property line.

Drainage Area Runoff and Time of Concentration

Drainage Area: **Onsite Only Total**

PREDEVELOPMENT

Composite Curve Number (CN)						Notes:
	Hydrologic Soil Group	Land Cover	CN	Area, A (ac.)	CN*A	Informational sheet (1 of 7): This sheet is used to demonstrate the required reduction in the 1-year event if the "energy balance" equation were applied ONLY to the project site (i.e. offsite flows were treated as pass-through and added to the allowable rate calculated here). The predev. flow rate assumes no detention onsite and does not include offsite flows.
CN_1	B	Open space	61	29.94	1826.34	
CN_2	C	Open space	74	17.33	1282.42	
CN_3	C	Impervious	98	0.04	3.92	
CN_4					0.00	
CN_5					0.00	
CN_6					0.00	
CN_7					0.00	
CN_8					0.00	
CN_9					0.00	
CN_{10}					0.00	
				Total	**47.31**	**3112.68**
				Composite CN =		**66**

Time of Concentration, T_c						
2 yr. Precip. (in.) =			2.73			
Flow Segment	Flow Regime	Land Cover	Length (ft)	Roughness Coeff., n	Slope (ft/ft)	Travel Time, T_t (min.)
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						18.2
					Total Time of Concentration, T_c (min.) =	**18.2**

Runoff			
	1 Yr.	10 Yr.	100 Yr.
Precipitation (in.), P	2.26	4.06	6.44
Composite CN	66	66	66
Storage (in.) S=1000/CN-10	5.15	5.15	5.15
Initial abstraction (in.), I_a=0.2S	1.03	1.03	1.03
Runoff depth (in.), $Q=(P-0.2S)^2/[(P-I_a)+S]$	0.24	1.12	2.77
Runoff volume (ac-ft), RV = Q/12*A	0.93	4.42	10.92
Flow rate (cfs), q_{peak} from hydrograph	6.80	56.63	

Hydrograph Number: 53

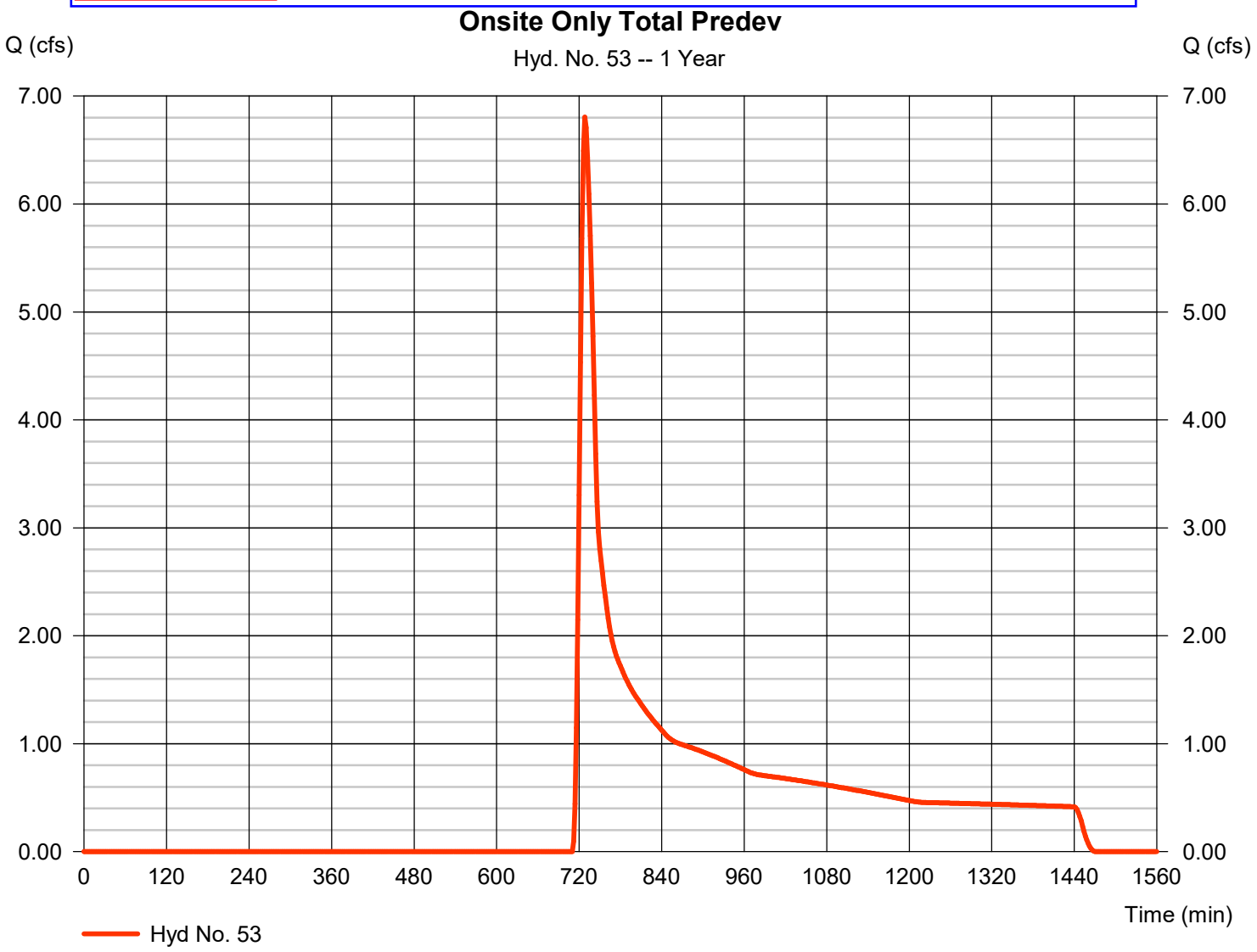
Hydrograph Report

Hyd. No. 53

Onsite Only Total Predev

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.804 cfs
Storm frequency	=	1 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	40,666 cuft
Drainage area	=	47.310 ac	Curve number	=	66
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	18.20 min
Total precip.	=	2.26 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

Informational sheet (2 of 7):
This sheet is used to demonstrate the required reduction in the 1-year event if the "energy balance" equation were applied ONLY to the project site (i.e. offsite flows were treated as pass-through and added to the allowable rate calculated here). The predev. flow rate assumes no detention onsite and does not include offsite flows.



Hydrograph Report

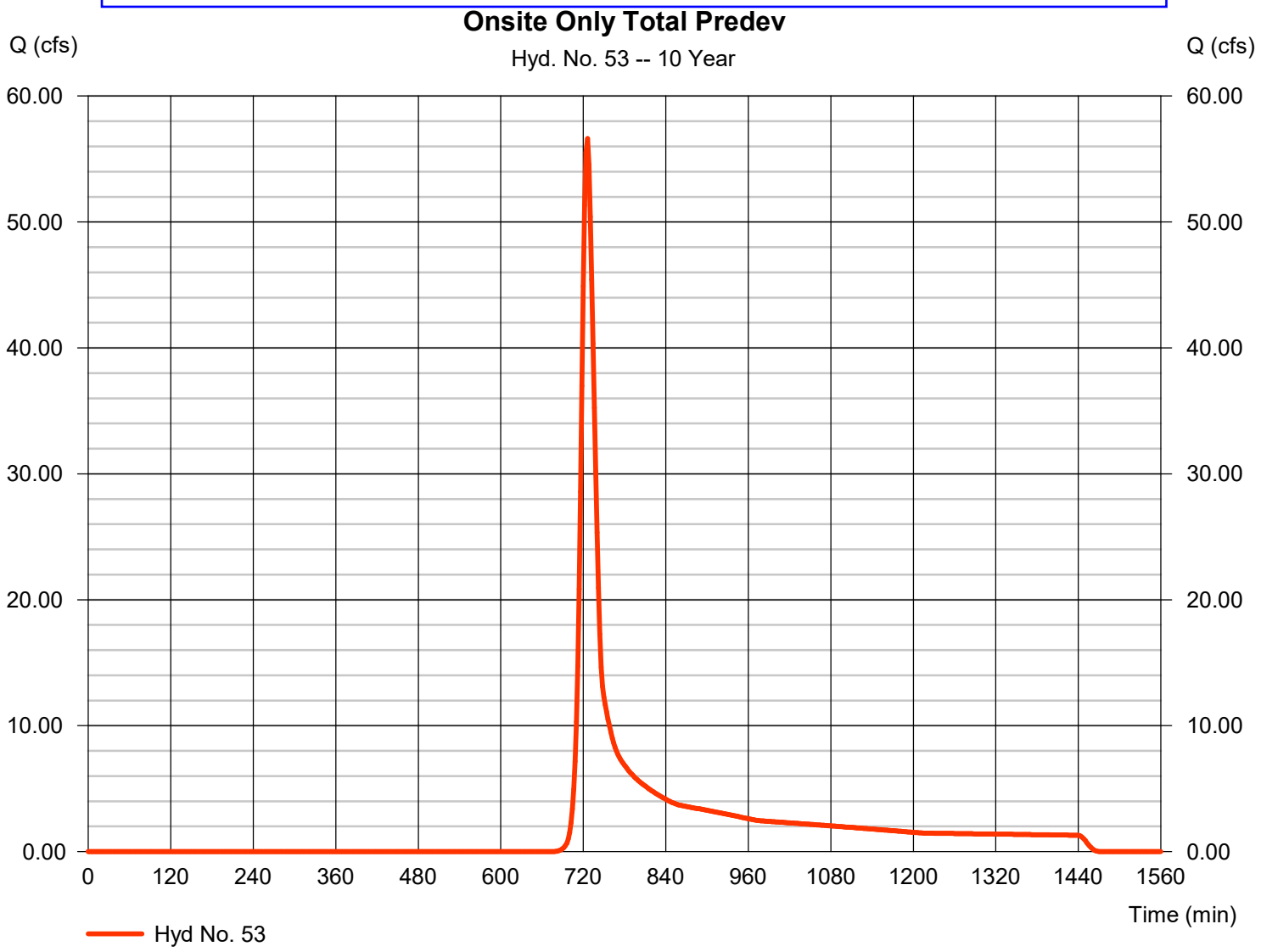
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Thursday, 11 / 3 / 2022

Hyd. No. 53

Onsite Only Total Predev

Hydrograph type	= SCS Runoff	Peak discharge	= 56.63 cfs
Storm frequency	= 10 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 192,681 cuft
Drainage area	= 47.310 ac	Curve number	= 66
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 18.20 min
Total precip.	= 4.06 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Informational sheet (3 of 7):
This sheet is used to determine the 10-year target for ONLY project site runoff (i.e. offsite flows were treated as pass-through and would be added to the allowable rate calculated here). The predev. flow rate assumes no detention onsite and does not include offsite flows.



Drainage Area Runoff and Time of Concentration

Drainage Area: **Onsite Only Total**

POSTDEVELOPMENT

Composite Curve Number (CN)						Notes:
	Hydrologic Soil Group	Land Cover	CN	Area, A (ac.)	CN*A	Informational sheet (4 of 7): This sheet is used to demonstrate the required reduction in the 1-year event if the "energy balance" equation were applied ONLY to the project site (i.e. offsite flows were treated as pass-through and added to the allowable rate calculated here). The predev. flow rate assumes no detention onsite and does not include offsite flows.
CN_1	B	Open space	61	22.61	1379.21	
CN_2	B	Impervious	98	7.33	718.34	
CN_3	C	Open space	74	10.75	795.50	
CN_4	C	Impervious	98	6.62	648.76	
CN_5					0.00	
CN_6					0.00	
CN_7					0.00	
CN_8					0.00	
CN_9					0.00	
CN_{10}					0.00	
				Total	**47.31**	**3541.81**
				Composite CN =		**75**

Time of Concentration, T_c						
2 yr. Precip. (in.) =			2.73			
Flow Segment	Flow Regime	Land Cover	Length (ft)	Roughness Coeff., n	Slope (ft/ft)	Travel Time, T_t (min.)
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						10.0
					Total Time of Concentration, T_c (min.) =	**10.0**

Runoff			
	1 Yr.	10 Yr.	100 Yr.
Precipitation (in.), P	2.26	4.06	6.44
Composite CN	75	75	75
Storage (in.) S=1000/CN-10	3.33	3.33	3.33
Initial abstraction (in.), I_a=0.2S	0.67	0.67	0.67
Runoff depth (in.), $Q=(P-0.2S)^2/[(P-I_a)+S]$	0.52	1.71	3.66
Runoff volume (ac-ft), RV = Q/12*A	2.03	6.75	14.43
Flow rate (cfs), q_{peak} from hydrograph			

Hydrograph Number: 54

Hydrograph Report

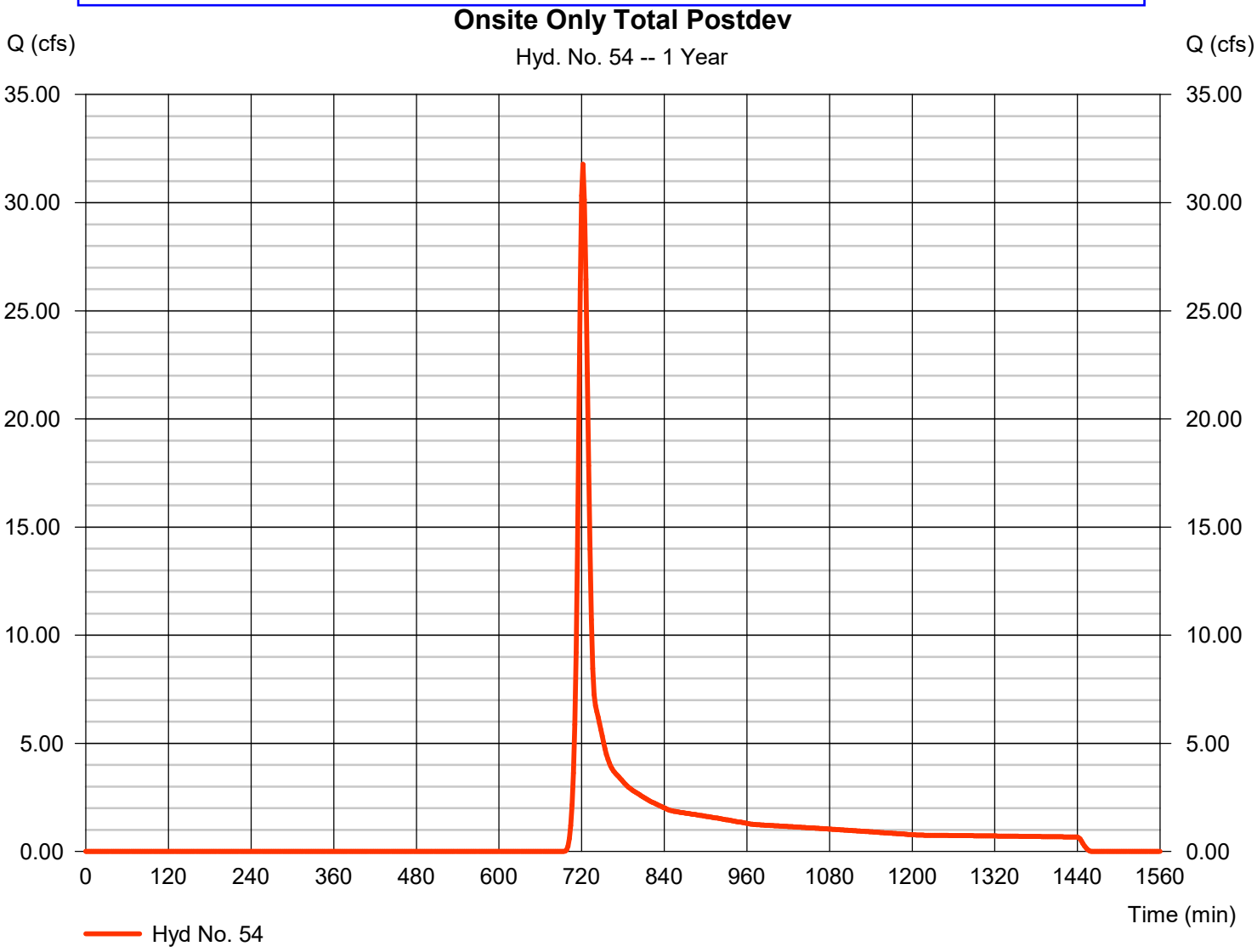
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Thursday, 11 / 3 / 2022

Hyd. No. 54

Onsite Only Total Postdev

Hydrograph type	= SCS Runoff	Peak discharge	= 31.77 cfs
Storm frequency	= 1 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 91,260 cuft
Drainage area	= 47.310 ac	Curve number	= 75
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 2.26 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Informational sheet (5 of 7):
This sheet provides a reference point for the undetained peak flow rate from ONLY the onsite area in the post-developed condition. The flow rate assumes no detention onsite and does not include offsite flows.



Hydrograph Report

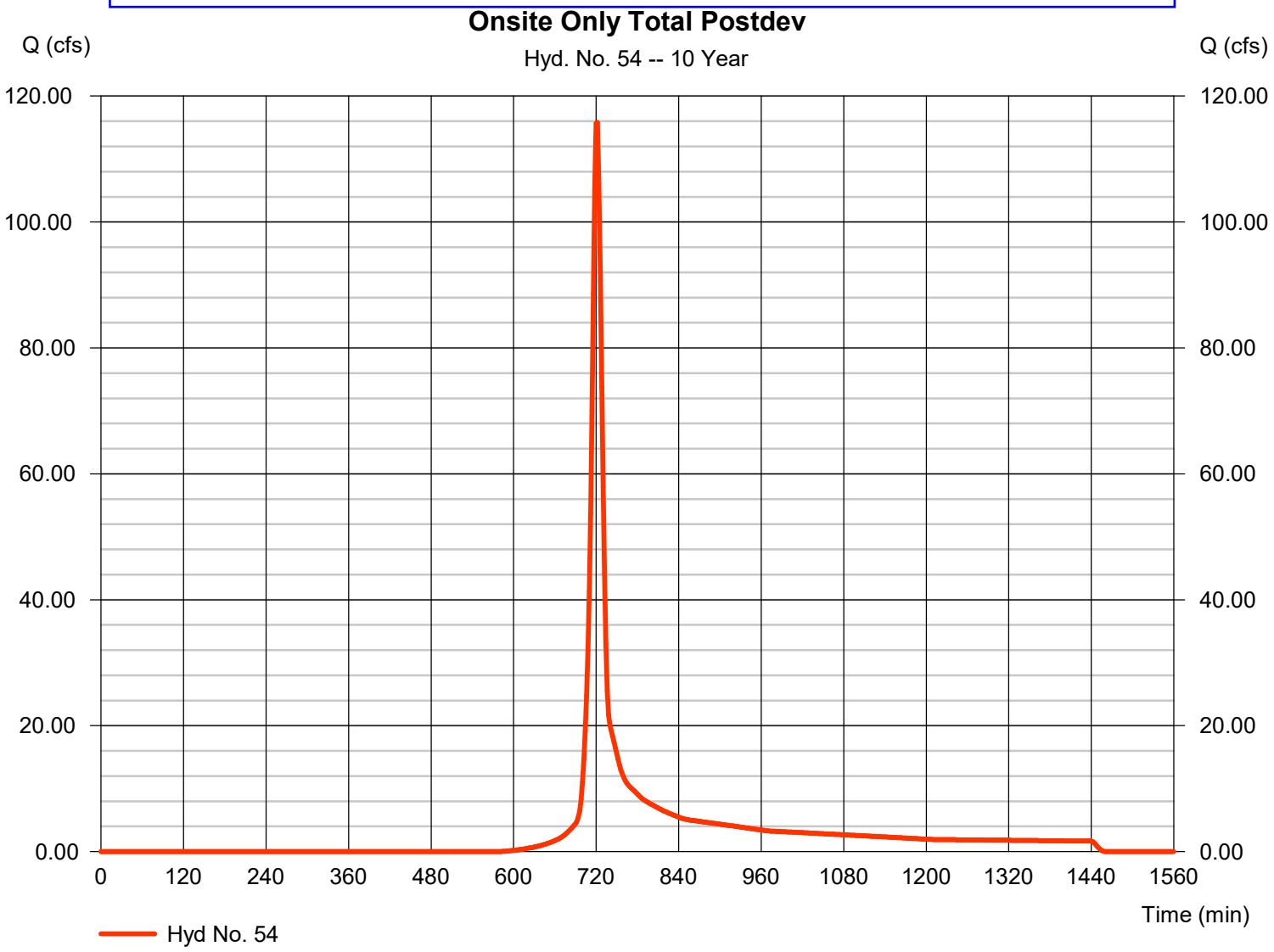
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Thursday, 11 / 3 / 2022

Hyd. No. 54

Onsite Only Total Postdev

Hydrograph type	= SCS Runoff	Peak discharge	= 115.81 cfs
Storm frequency	= 10 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 303,163 cuft
Drainage area	= 47.310 ac	Curve number	= 75
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 4.06 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Informational sheet (6 of 7):
This sheet provides a reference point for the undetained peak flow rate from ONLY the onsite area in the post-developed condition. The flow rate assumes no detention onsite and does not include offsite flows.



Stormwater Quantity Compliance (9VAC25-870-66)

Drainage Area:	Onsite Only Total	
	Predev.	Postdev.
Area (ac.)	47.31	47.31
T_c (min.)	18.2	10.0

Precipitation Data	
Return Frequency	P (in.)
1 Yr.	2.26
10 Yr.	4.06

	1 Yr.		10 Yr.	
	Predev.	Postdev.	Predev.	Postdev.
VRRM CN	66	75	66	75
Storage (in.) S=1000/CN-10	5.15	3.33	5.15	3.33
Initial abstraction (in.), I_a=0.2S	1.03	0.67	1.03	0.67
Runoff depth (in.), $Q=(P-0.2S)^2/[(P-I_a)+S]$	0.24	0.52	1.12	1.71
Runoff volume (ac-ft), RV = Q/12*A	0.93	2.03	4.42	6.75
Flow rate (cfs), q_{peak} from hydrograph	6.8		56.63	

1 Year Channel Protection (9VAC25-870-66.B)		
q_allowable <= I.F.* (q_pre * RV_pre)/RV_post)		Addressed by alternative method (if needed):
Improvement Factor (I.F.)	0.8	
q_pre (cfs)	6.80	
RV_pre (ac-ft)	0.93	
RV_post (with runoff reduction) (ac-ft)	2.03	
q_allowable (cfs)	2.50	
q_post (cfs)		
Check (q_post <= q_allowable)		

10 Year Flood Protection (9VAC25-870-66.C)		
q_post <= q_pre		Addressed by alternative method (if needed):
q_pre (cfs)	56.63	
q_post (cfs)		
Check (q_post <= q_pre)		

Other notes: This sheet is included only to detail the required channel protection reduction in flow rate if the project were evaluated as an individual site (i.e. offsite areas are treated as "bypass/pass-through" flow and only onsite areas are plugged into the "energy balance" equation.

1 year reduction required: 6.80 cfs - 2.50 cfs = 4.30 cfs

4.30 cfs represents the reduction in peak flow rate the project would be required to demonstrate at the point of discharge.

Informational sheet (7 of 7):
This sheet is used to demonstrate the required reduction in the 1-year event if the "energy balance" equation were applied ONLY to the project site (i.e. offsite flows were treated as pass-through and added to the allowable rate calculated here). The predev. flow rate assumes no detention onsite and does not include offsite flows. Undetained post-dev. flows from pages 5 and 6 are omitted because they represent and undetained condition. Those flows would need to reduced via detention facilities to the targets on this sheet if the site were developed without regional detention in mind.

Regional Stormwater Benefit Comparison				
		1 yr	**10 yr**	**Reference**
Subdivision development WITHOUT regional stormwater management	Predevelopment-Onsite area only	6.80 cfs	56.63 cfs	Hyd. 53
	Change required per regulations	Post-dev. peak flow rate must be less than the “energy balance” equation result (1.87 cfs)	Post-dev. peak flow rate must be less than the Predev. peak flow rate above	Quantity Compliance Sheet (Info. Sheet 4 of 4) for "energy balance" solution
	Net change required from predev. peak flow rate to meet 9VAC25-870-66. regulations	2.50 – 6.80 = -4.30 cfs	0 cfs	NA
	Predevelopment-Entire contributing drainage area (flow currently experienced at the downstream property line; includes onsite and offsite areas)	75.45 cfs	175.77 cfs	Hyd. 32
	Max. allowable peak flow rate at property line	75.45 – 4.30 = 71.15 cfs	175.77 cfs	NA
Subdivision development WITH regional stormwater management	Post-development-Entire contributing drainage area (flow experienced at downstream property line after conceptual SWM improvements; includes fully developed onsite and offsite areas)	24.83 cfs	90.38 cfs	Hyd. 50
	Net change achieved	24.83 – 71.15 = -46.32 cfs	90.38 – 175.77 = -85.39 cfs	NA
Comparison of development WITH and WITHOUT regional stormwater management	Net change WITHOUT regional SWM	-4.30 cfs	0 cfs	NA
	Net change WITH regional SWM	-46.32 cfs	-85.39 cfs	NA
	Flow rate reduction achieved beyond requirement	-46.32 – (-4.30) = -42.02 cfs	-85.39 – 0 = -85.39 cfs	NA

NOTE: The data above reflect the impact of construction of the ponds and subdivision depicted in this document. The data is preliminary in nature and subject to change during engineering design.

Point of Analysis B

Drainage Area Runoff and Time of Concentration

Drainage Area: **POA B offsite**

PRE & POST

Composite Curve Number (CN)						Notes:
	Hydrologic Soil Group	Land Cover	CN	Area, A (ac.)	CN*A	
CN_1	B	Open space	61	0.40	24.49	
CN_2	B	Impervious	98	0.08	8.20	
CN_3	C	Open space	74	0.68	50.47	
CN_4	C	Impervious	98	0.13	13.12	
CN_5					0.00	
CN_6					0.00	
CN_7					0.00	
CN_8					0.00	
CN_9					0.00	
CN_{10}					0.00	
			Total	**1.30**	**96.28**	
				Composite CN =	**74**	

Time of Concentration, T_c						
2 yr. Precip. (in.) =			2.73			
Flow Segment	Flow Regime	Land Cover	Length (ft)	Roughness Coeff., n	Slope (ft/ft)	Travel Time, T_t (min.)
1	Sheet Flow	Grass	100	0.24	0.08	8.9
2	Shallow Conc.	Unpaved	332		0.063	1.4
3						
4						
5						
6						
7						
8						
9						
10						
					Total Time of Concentration, T_c (min.) =	**10.2**

Runoff			
	1 Yr.	10 Yr.	100 Yr.
Precipitation (in.), P	2.26	4.06	6.44
Composite CN	74	74	74
Storage (in.) S=1000/CN-10	3.51	3.51	3.51
Initial abstraction (in.), I_a=0.2S	0.70	0.70	0.70
Runoff depth (in.), $Q=(P-0.2S)^2/[(P-I_a)+S]$	0.48	1.64	3.56
Runoff volume (ac-ft), RV = Q/12*A	0.05	0.18	0.39
Flow rate (cfs), q_{peak} from hydrograph	0.79	3.04	

Hydrograph Number: 36

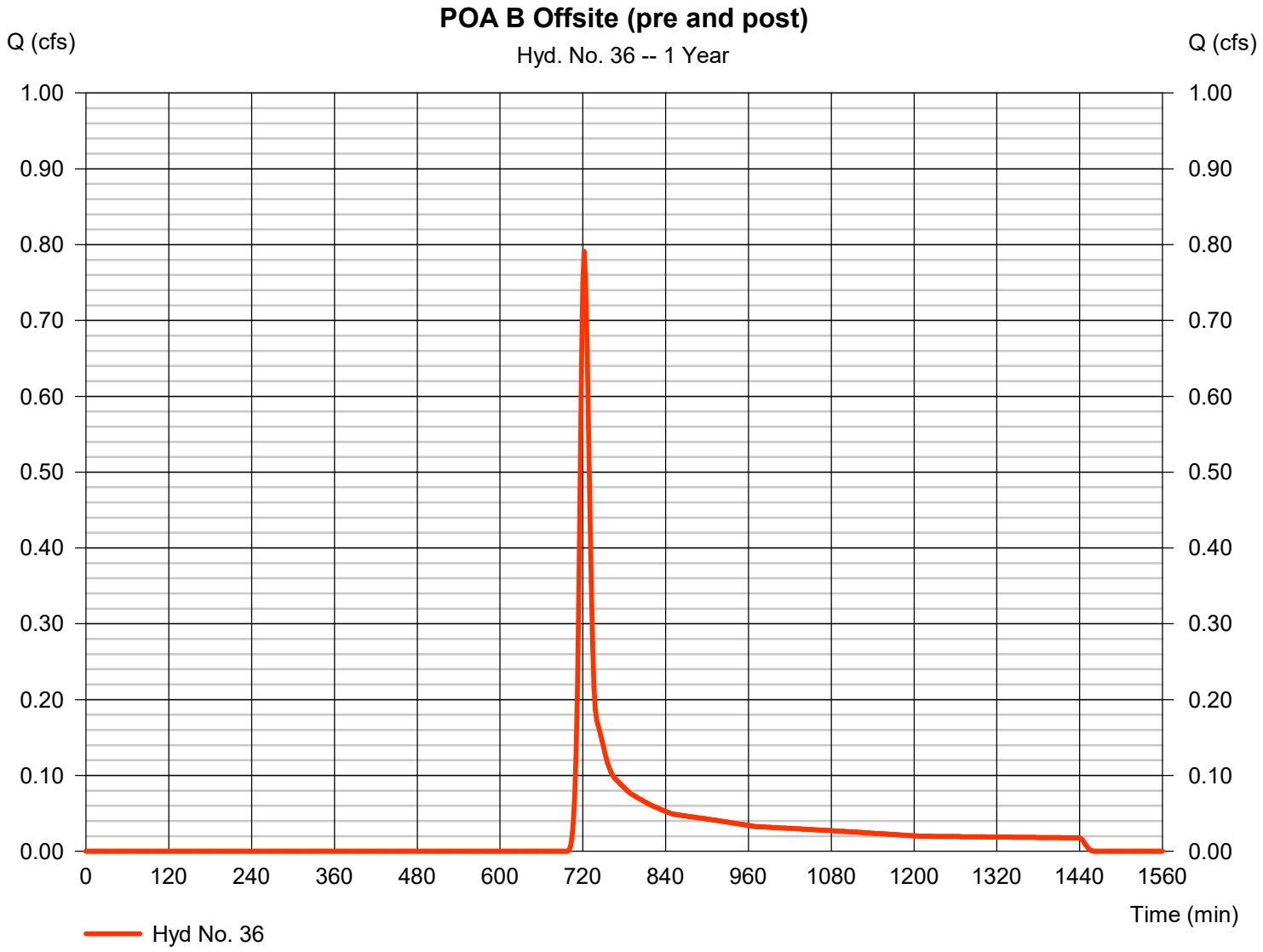
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Monday, 11 / 28 / 2022

Hyd. No. 36

POA B Offsite (pre and post)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.791 cfs
Storm frequency	= 1 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 2,327 cuft
Drainage area	= 1.300 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.20 min
Total precip.	= 2.26 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



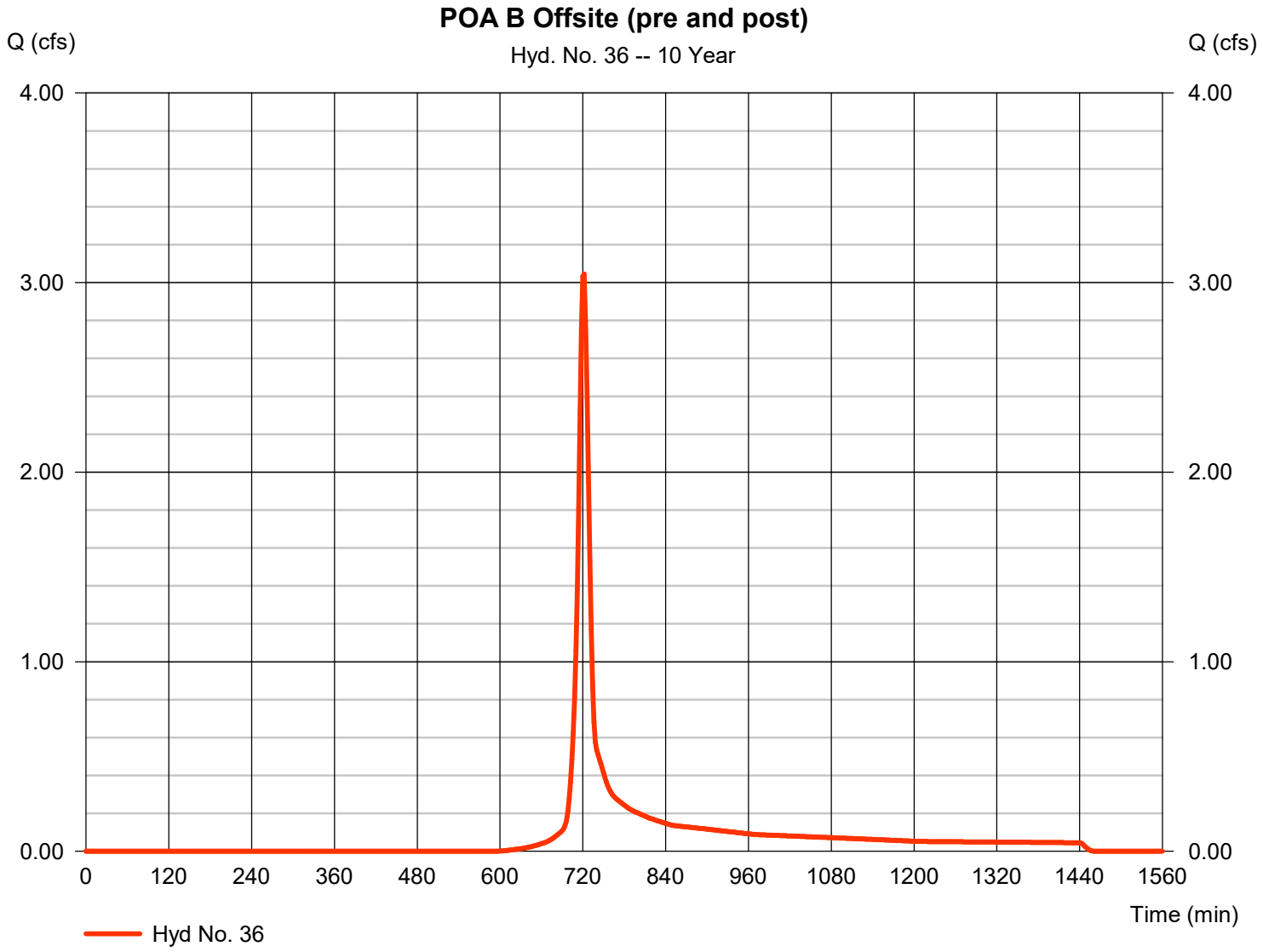
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Monday, 11 / 28 / 2022

Hyd. No. 36

POA B Offsite (pre and post)

Hydrograph type	= SCS Runoff	Peak discharge	= 3.044 cfs
Storm frequency	= 10 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 7,983 cuft
Drainage area	= 1.300 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.20 min
Total precip.	= 4.06 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Drainage Area Runoff and Time of Concentration

Drainage Area: **POA B onsite**

POSTDEVELOPMENT

Composite Curve Number (CN)						**Notes:**
	Hydrologic Soil Group	Land Cover	CN	Area, A (ac.)	CN*A	
CN_1	B	Open space	61	0.22	13.16	
CN_2	B	Impervious	98	0.06	5.64	
CN_3	C	Open space	74	0.30	22.34	
CN_4	C	Impervious	98	0.02	1.70	
CN_5					0.00	
CN_6					0.00	
CN_7					0.00	
CN_8					0.00	
CN_9					0.00	
CN_{10}					0.00	
			Total	**0.59**	**42.83**	
				Composite CN =	**72**	

Time of Concentration, T_c						
2 yr. Precip. (in.) =			2.73			
Flow Segment	Flow Regime	Land Cover	Length (ft)	Roughness Coeff., n	Slope (ft/ft)	Travel Time, T_t (min.)
1	Sheet Flow	Grass	100	0.24	0.07	9.4
2	Shallow Conc.	Unpaved	375		0.067	1.5
3						
4						
5						
6						
7						
8						
9						
10						
					Total Time of Concentration, T_c (min.) =	**10.9**

Runoff			
	1 Yr.	10 Yr.	100 Yr.
Precipitation (in.), P	2.26	4.06	6.44
Composite CN	72	72	72
Storage (in.) S=1000/CN-10	3.89	3.89	3.89
Initial abstraction (in.), I_a=0.2S	0.78	0.78	0.78
Runoff depth (in.), $Q=(P-0.2S)^2/[(P-I_a)+S]$	0.41	1.50	3.36
Runoff volume (ac-ft), RV = Q/12*A	0.02	0.07	0.17
Flow rate (cfs), q_{peak} from hydrograph	0.29	1.26	

Hydrograph Number: 38

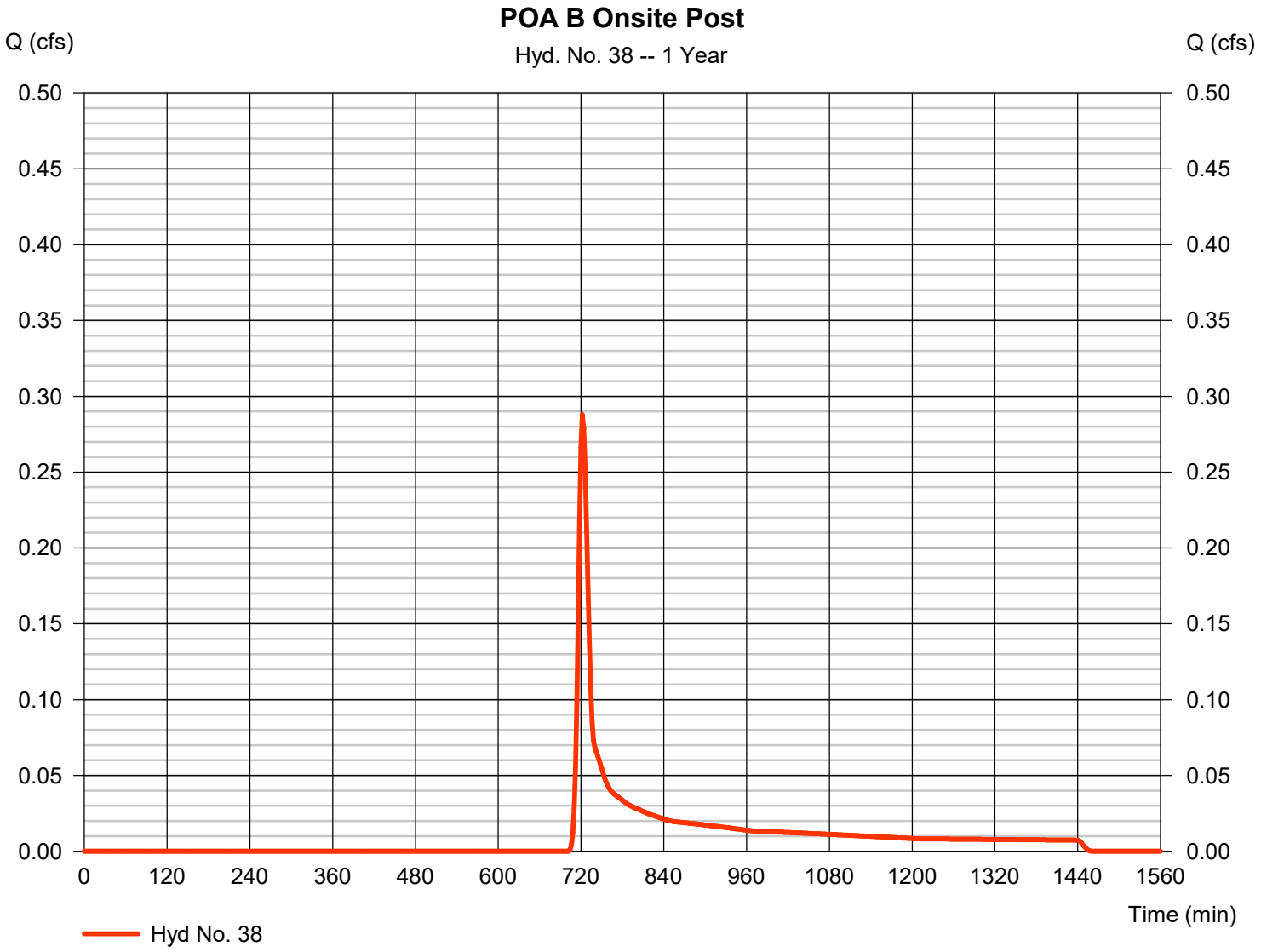
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Monday, 11 / 28 / 2022

Hyd. No. 38

POA B Onsite Post

Hydrograph type	= SCS Runoff	Peak discharge	= 0.288 cfs
Storm frequency	= 1 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 903 cuft
Drainage area	= 0.590 ac	Curve number	= 72
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.90 min
Total precip.	= 2.26 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



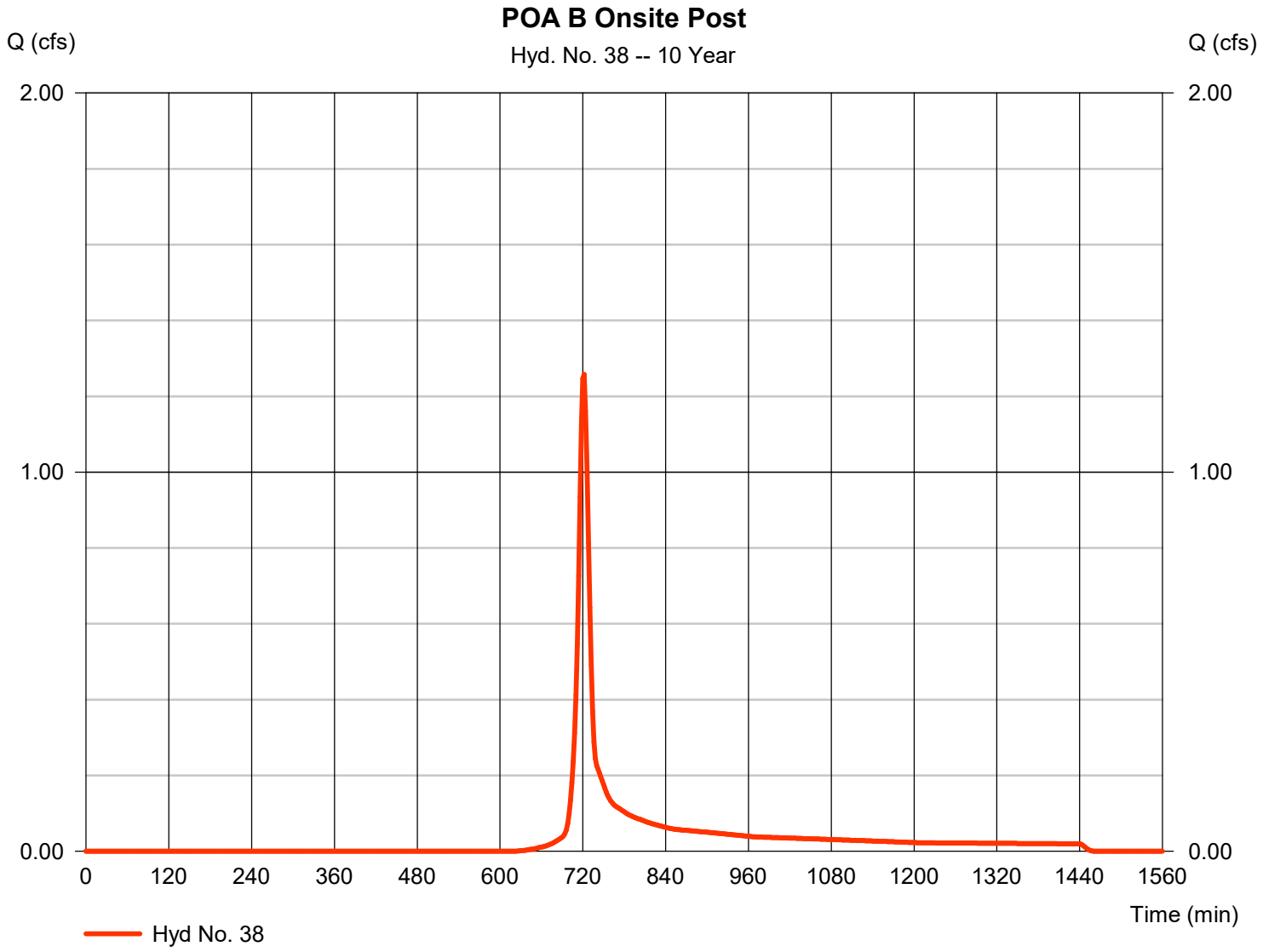
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022 Monday, 11 / 28 / 2022

Hyd. No. 38

POA B Onsite Post

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.258 cfs
Storm frequency	=	10 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	3,318 cuft
Drainage area	=	0.590 ac	Curve number	=	72
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.90 min
Total precip.	=	4.06 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

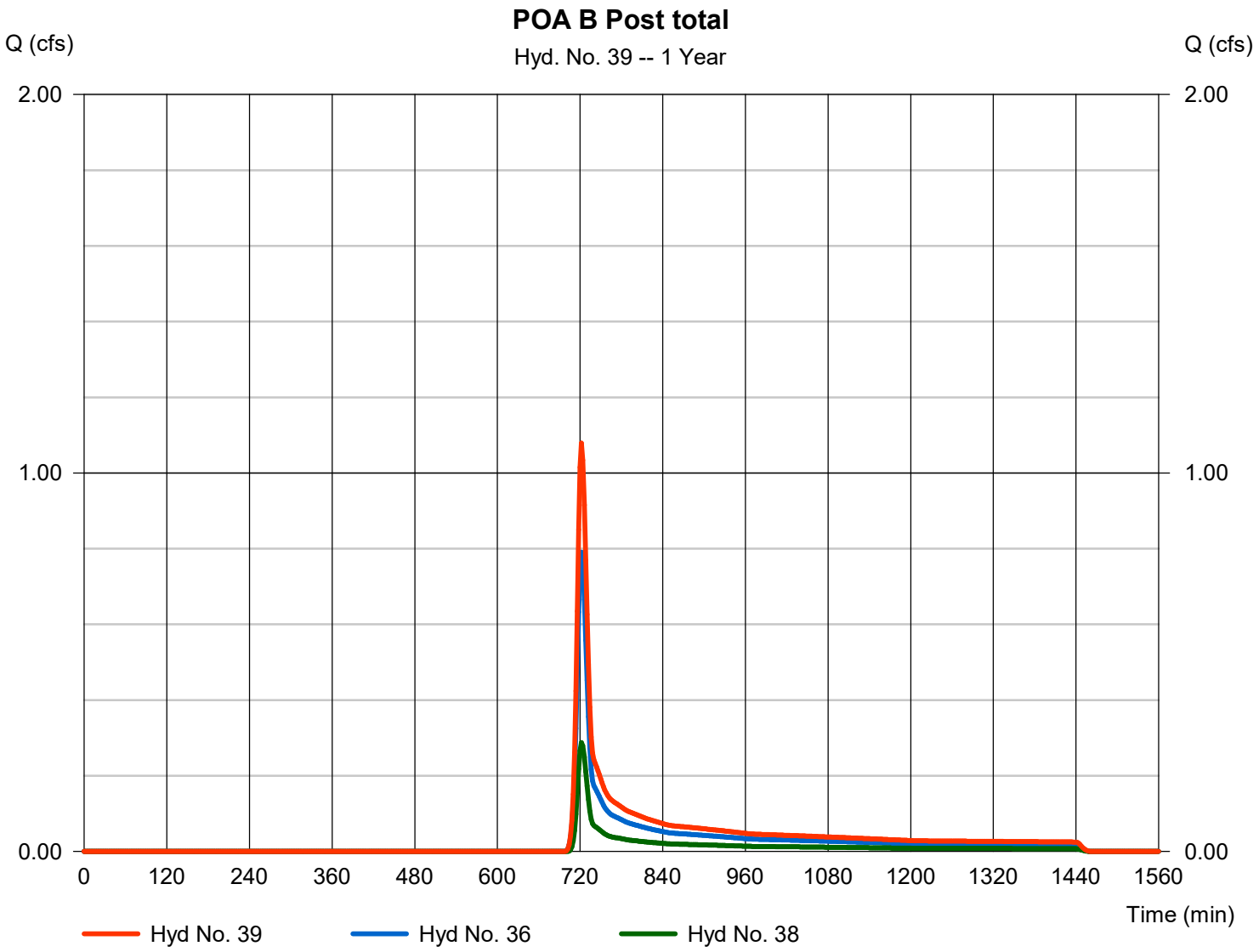


Hydrograph Report

Hyd. No. 39

POA B Post total

Hydrograph type	= Combine	Peak discharge	= 1.079 cfs
Storm frequency	= 1 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 3,231 cuft
Inflow hyds.	= 36, 38	Contrib. drain. area	= 1.890 ac

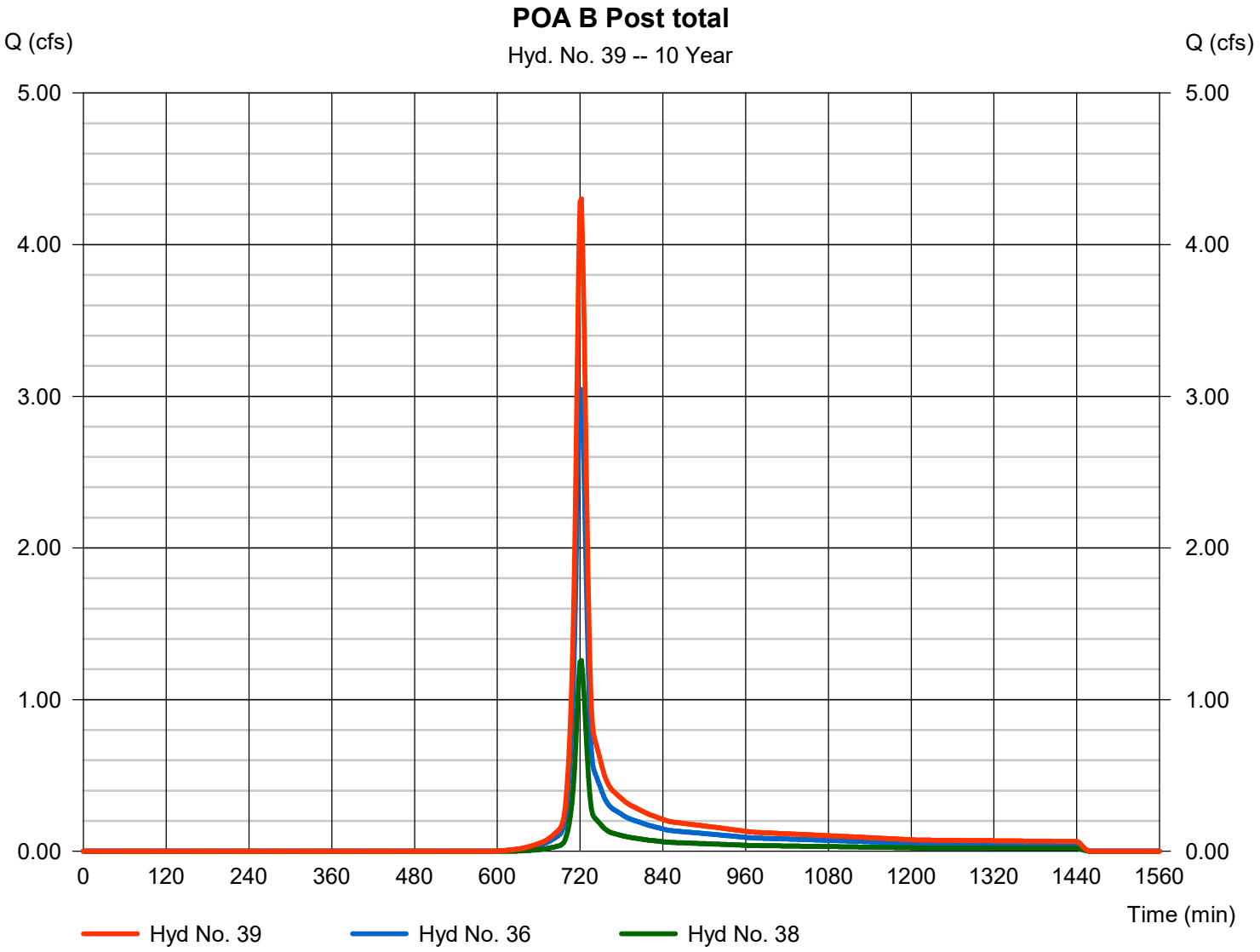


Hydrograph Report

Hyd. No. 39

POA B Post total

Hydrograph type	= Combine	Peak discharge	= 4.302 cfs
Storm frequency	= 10 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 11,301 cuft
Inflow hyds.	= 36, 38	Contrib. drain. area	= 1.890 ac



Stormwater Quantity Compliance (9VAC25-870-66)

Drainage Area:	**POA B onsite**	
	Predev.	Postdev.
Area (ac.)	1.17	0.59
T_c (min.)	11.9	10.9

Precipitation Data	
Return Frequency	P (in.)
1 Yr.	2.26
10 Yr.	4.06

	1 Yr.		10 Yr.	
	Predev.	Postdev.	Predev.	Postdev.
VRRM CN	73	72	73	72
Storage (in.) S=1000/CN-10	3.70	3.89	3.70	3.89
Initial abstraction (in.), I_a=0.2S	0.74	0.78	0.74	0.78
Runoff depth (in.), $Q=(P-0.2S)^2/[(P-I_a)+S]$	0.44	0.41	1.57	1.50
Runoff volume (ac-ft), RV = Q/12*A	0.04	0.02	0.15	0.07
Flow rate (cfs), q_{peak} from hydrograph	0.64	0.288	2.617	1.258

1 Year Channel Protection (9VAC25-870-66.B)		
q_allowable <= I.F.* (q_pre * RV_pre)/RV_post)		Addressed by alternative method (if needed):
Improvement Factor (I.F.)	0.8	
q_pre (cfs)	0.64	Note: energy balance result is less than the predev. peak flow rate, therefore, the allowable peak flow rate = the predev. peak flow rate.
RV_pre (ac-ft)	0.04	
RV_post (with runoff reduction) (ac-ft)	0.02	
q_allowable (cfs)	0.64	
q_post (cfs)	0.288	
Check (q_post <= q_allowable)	**OK**	

10 Year Flood Protection (9VAC25-870-66.C)		
q_post <= q_pre		Addressed by alternative method (if needed):
q_pre (cfs)	2.617	
q_post (cfs)	1.258	
Check (q_post <= q_pre)	**OK**	

Other notes: This sheet is included only to determine the req. reduction with only onsite areas and flow rates being plugged into the "energy balance" equation. This reduction is subtracted from the total combined pre. flow to determine the allowable flow rate at Pt. of Analysis B.

1 year reduction required: 0.64 cfs - 0.64 cfs = 0.00 cfs

0.00 cfs represents the reduction in peak flow rate the project would be required to demonstrate at the point of discharge.

Point of Analysis B Regulatory Req.				
		1 yr	**10 yr**	**Reference**
Predev.	Predevelopment-Onsite area only	0.64 cfs	2.62 cfs	Hyd. 35
	Change required per regulations	Post-dev. peak flow rate must be less than the “energy balance” equation result (0.64 cfs)	Post-dev. peak flow rate must be less than the Predev. peak flow rate above	Quantity Compliance Sheet for "energy balance" solution
	Net change required from predev. peak flow rate to meet 9VAC25-870-66. regulations	0.64 – 0.64 = 0.00 cfs	0 cfs	NA
	Predevelopment-Entire contributing drainage area (includes onsite and offsite areas)	1.43 cfs	5.66 cfs	Hyd. 37
	Max. allowable peak flow rate at property line, Q_allow	1.43 – 0.00 = 1.43 cfs	5.66 cfs	NA
Postdev.	Postdevelopment-Entire contributing drainage area (includes onsite and offsite areas), Q_post	1.08 cfs	4.30 cfs	Hyd. 39
	Regs. Met?	Qpost<Qallow ∴ Yes	Qpost<Qallow ∴ Yes	NA

NOTE: The data above reflect the impact of construction of the ponds and subdivision depicted in this document. The data is preliminary in nature and subject to change during engineering design.

APPENDIX A: PRELMINARY REDRAWN CREEK VALLEY OVERLAY

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PROPOSED DEVELOPMENT OF

GLADE SPRING CROSSING

PROPERTY OF GLADE HGTS, LLC - TAX PARCELS
225-(A)-3, 225-(A)-4, & 224-(A)-57; 45.0976 AC.

TOWN OF BLACKSBURG - PRICES FORK DISTRICT
MONTGOMERY COUNTY, VIRGINIA

PROPOSED CREEK VALLEY OVERLAY MODIFICATION EXHIBIT

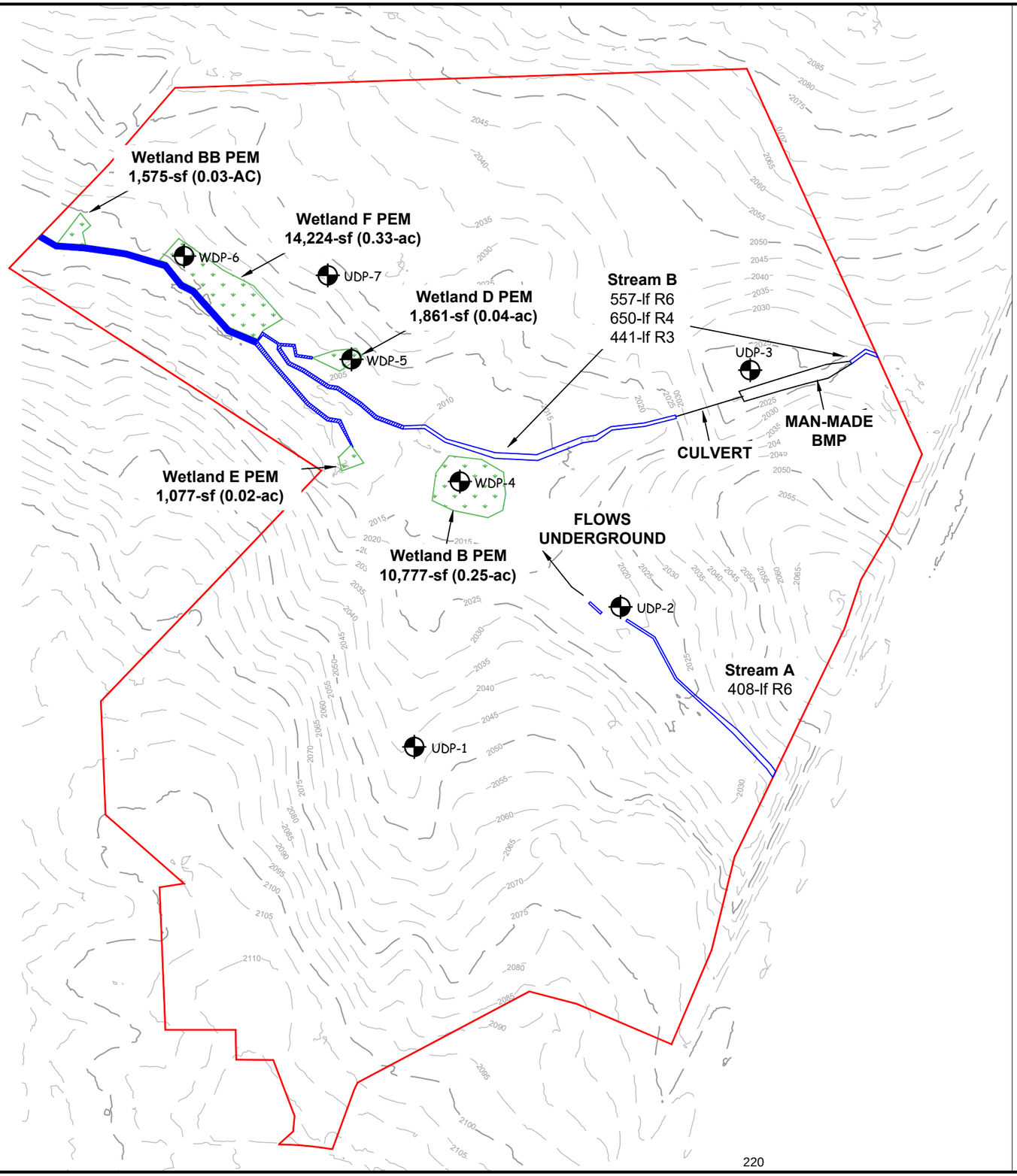
PRELIMINARY

No.	Revision / Issue	Date

Drawn By: MSF
Checked By: ---
Date: 11/15/2022
Scale: AS SHOWN
Sheet No. 1 of 1
1

EDEN & ASSOCIATES
engineering • planning • development
1700 KRAFT DRIVE, SUITE 2350
BLACKSBURG, VIRGINIA 24060
VOICE 276-632-6231
FAX. 276-632-3648

APPENDIX B: PRELMINARY WETLANDS AND JURISDICTIONAL WATERS EVALUATION



LEGEND

- PERENNIAL STREAM CHANNEL (R3)
- INTERMITTENT STREAM CHANNEL (R4)
- EPHEMERAL STREAM CHANNEL (R6)
- PALUSTRINE EMERGENT WETLAND (PEM)
- DP-# APPROXIMATE WETLAND DATAPOINT LOCATION
- STUDY AREA
- MAN-MADE BMP

*WATER FEATURES WERE DELINEATED BY ECS ON FEBRUARY 17, 2022 AND LOCATED USING A SUB-METER ACCURACY GPS UNIT.

**WATER FEATURES DEPICTED HEREIN SHOULD BE CONSIDERED PRELIMINARY UNTIL CONFIRMED BY THE U.S. ARMY CORPS OF ENGINEERS.

N
W E
S

SCALE (IN FEET)

100 200

200 0

GLADE ROAD PROPERTY
1000 GLADE ROAD
BLACKSBURG, VIRGINIA

ECS

WATERS OF THE U.S. DELINEATION MAP
CARY HOPPER

ECS REVISIONS

ENGINEER	DRAFTING
AMM	JMH

SCALE: AS SHOWN

PROJECT NO.: 47:13438-A

SHEET: 1 OF 1

DATE: FEBRUARY 2022

Michael Formica

From: Justin M. Hughes, CHMM, PWS <JHughes@ecslimited.com>
Sent: Thursday, July 14, 2022 5:21 PM
To: Michael Formica; Meredith Jones; caryhopper@msn.com
Cc: Steven S. Hay
Subject: RE: Glade Road Waters of the US Draft Map

Thank you for sending, Michael.

Meredith, I overlaid the wetland/stream features on the proposed grading contours and came up with 537 lf R6 stream impacts and 0.11-ac PEM wetland proposed impacts. Also, for planning purposes if we cannot get that central feature ruled as non-jurisdictional that would add 0.25-ac of PFO wetland impacts. PEM wetland impacts are mitigation on a 1:1 basis and PFO on a 2:1 basis. We talked to some mitigation banks in the area and found credits for $425/linear foot of stream and $50,000/acre of wetland impacts.

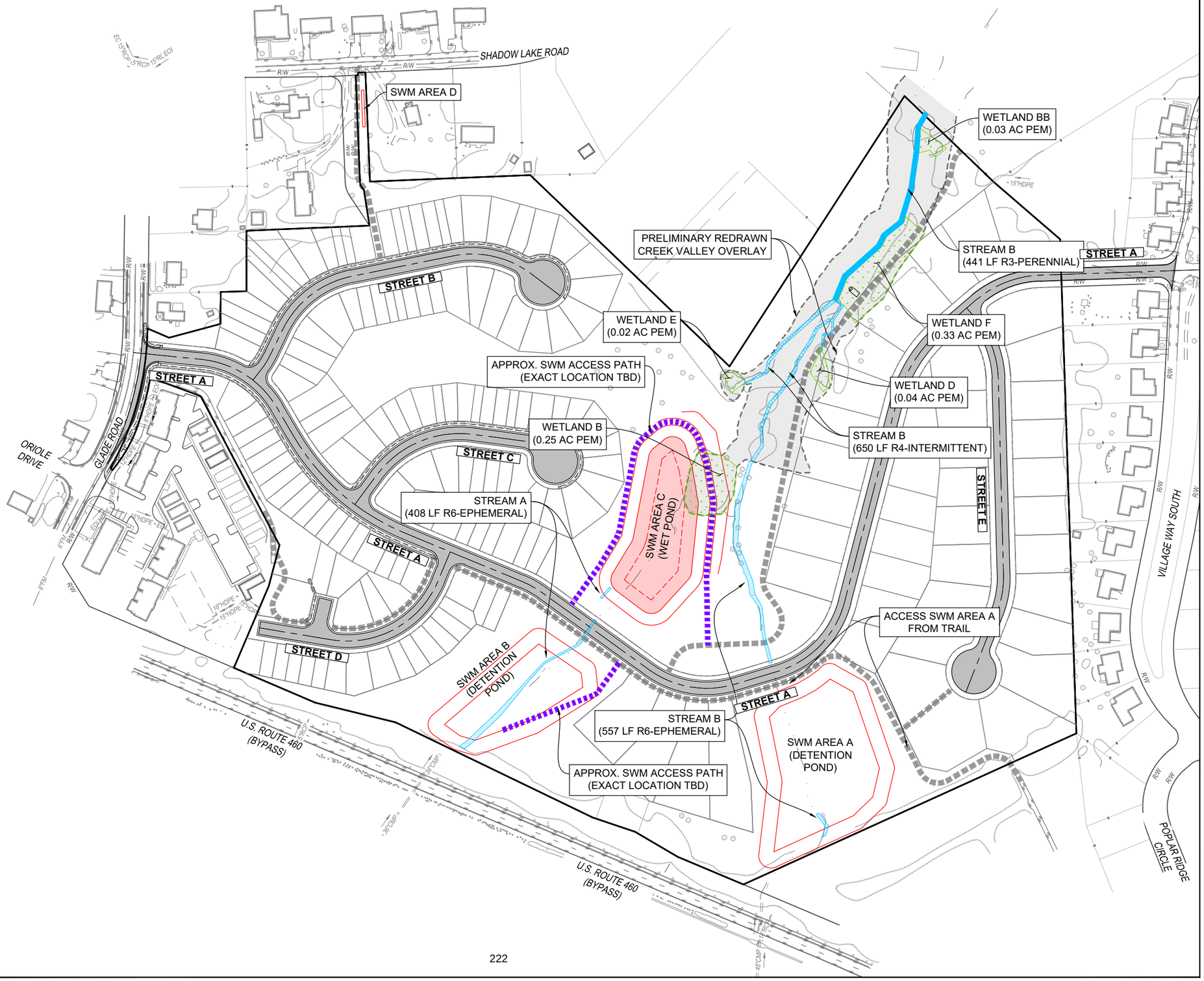
Stream
537 lf x $425=$228,225
Wetland
PEM 0.11-ac x $50k = $5,500
PFO (if needed) 0.5-ac x $50k = $25,000

Total $233,725
Total with PFO $258,725

This is a good ballpark number to use during your meetings with the City but I do think we can get it down some as the streams proposed for impact are not of very good quality so we will likely not have to mitigate for each LF based on their USM scores. Please let me know if you have any questions!

Thanks,

JUSTIN M. HUGHES, CHMM, PWS | Environmental Senior Project Manager
ECS MID-ATLANTIC, LLC | **T** 804.353.6333 **D** 804.299.4880 **C** 804.971.3576
JHughes@ecslimited.com | www.ecslimited.com



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No.	Revision / Issue	Date

STORMWATER MANAGEMENT AREAS EXHIBIT

PROPOSED DEVELOPMENT OF

GLADE SPRING CROSSING

PROPERTY OF GLADE HGTS, LLC - TAX PARCELS 225-(A)-3, 225-(A)-4, & 224-(A)-57; 45.0976 AC.
TOWN OF BLACKSBURG - PRICES FORK DISTRICT
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Drawn By:	Scale:
MSF	AS SHOWN
Checked By:	Date:
PJB	11/15/2022
Sheet No.	
1 of 1	SWM

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