ALLIANCE
CONSULTING ENGINEERS

August 27, 2020

Mr. Brandon L. Phillips, Engineering Associate
Solid Waste Permitting and Monitoring Section
Division of Mining and Solid Waste Management
Bureau of Land and Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

> RE: Permit Application for the Greenpointe Class
> Two Construction, Demolition, and Land-
> Clearing Debris (C&D) Landfill Expansion
> Permit No.: LF2-00001
> Project No.: 16227-0004

Dear Mr. Phillips:

In response to your comments via email on August 14, 2020 for the referenced project, we have the following comment response. The following items were brought to our attention in the aforementioned email and are listed along with our response to each item:

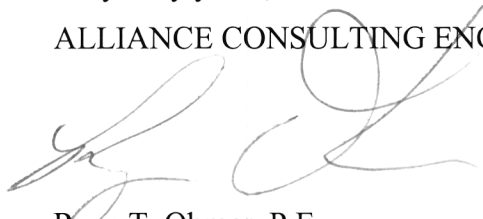**FOLLOW-UP REVIEW COMMENTS BY STORMWATER SECTION:**

1. *Line item 17 from the review comments response letter still needs to be corrected. Basin 1 lists the riser crest length as 16.5' in the hydrology report, Basin 2 lists 16.0' (which is correct with the drawings which also show 16.0'), and Basin 3 15.0' in the hydrology report. The HydroCad report needs to be updated for Basins 1 and 3 to match the Construction Plans.*
   - **The riser crest lengths for Basins 1, 2, & 3 in the Post-Development Hydraflow Report match the Outlet Control Structure Details shown on Sheet C8.1 of the Construction Plans (DWG No. 01,1168-D21 dated August 20, 2020). The Post-Development Hydraflow Report and Sheet C8.1 have been enclosed for your reference.**

2. *Line item 18 the Surface Water Protection Plan needs to be added to the Construction Plans in addition to it being added to the SWPPP.*
   - **Sheet C7.1 of the Construction Plans (DWG No. 01,168-D21 dated August 20, 2020) have been updated to include the Surface Water Protection Plan Construction Sequence.**

Alliance Consulting Engineers, Inc.
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Bluffton, SC | Charleston, SC | Charlotte, NC | Columbia, SC | Greenville, SC

       We trust that this information is to your satisfaction and look forward to your approval. If you have any questions or comments, please contact us at (803) 779-2078.

Very truly yours,

ALLIANCE CONSULTING ENGINEERS, INC.

Ryan T. Ohmer, P.E.
Project Engineer

Enclosures

cc: Mr. Radford Jenkins, Wasteco, Inc.
      Mr. Robert "Ty" Hawkins, Bunnell Lammons Engineering
      Mr. Deepal S. Eliatamby, P.E., SCCED, Alliance Consulting Engineers, Inc.
      Mr. Kyle M. Clampitt, P.E., Alliance Consulting Engineers, Inc.
   Mr. Gregory T. Farrell, P.E., Alliance Consulting Engineers, Inc.

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	-----	------	63.15	------	------	110.65	138.14	------	207.53	DA 1.1
2	Reservoir	1	------	1.068	------	------	1.188	2.475	------	37.79	Thru Detention Basin#1
3	SCS Runoff	-----	------	82.22	------	------	146.12	183.24	------	277.06	DA 2.1
4	SCS Runoff	-----	------	100.56	------	------	176.19	219.96	------	330.44	DA 1.2
5	Reservoir	4	------	1.870	------	------	2.051	3.631	------	36.40	Thru Detention Basin#2
6	SCS Runoff	-----	------	9.445	------	------	31.88	47.26	------	91.39	DA BYPASS 2.1
7	Reservoir	3	------	1.575	------	------	6.338	18.35	------	159.03	Thru Detention Basin#3
8	Combine	6, 7	------	10.95	------	------	33.61	61.80	------	246.41	Outfall 2
9	Combine	2, 5,	------	2.938	------	------	3.541	7.168	------	72.26	Outfall 1

Watershed Model Schematic

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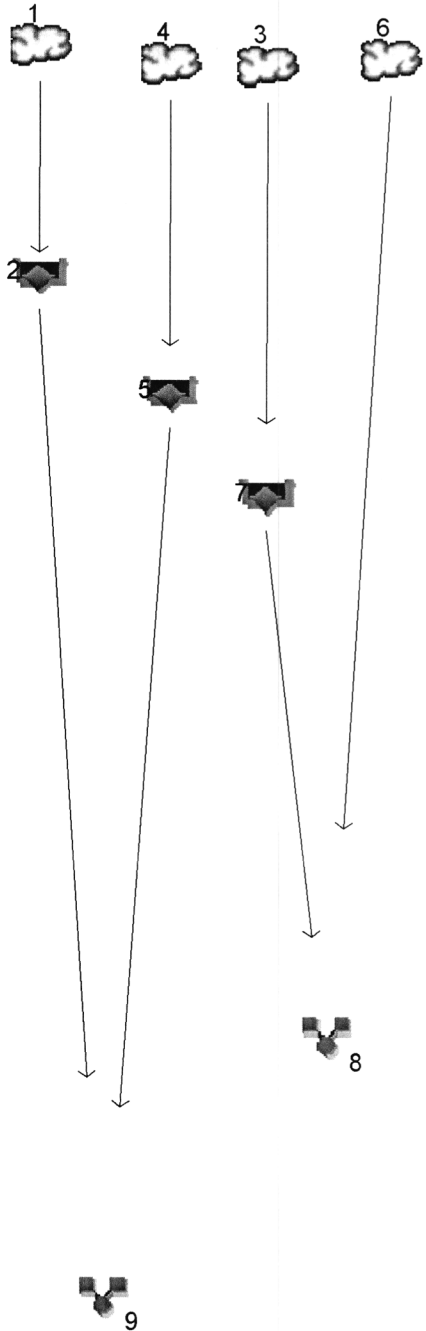
Legend

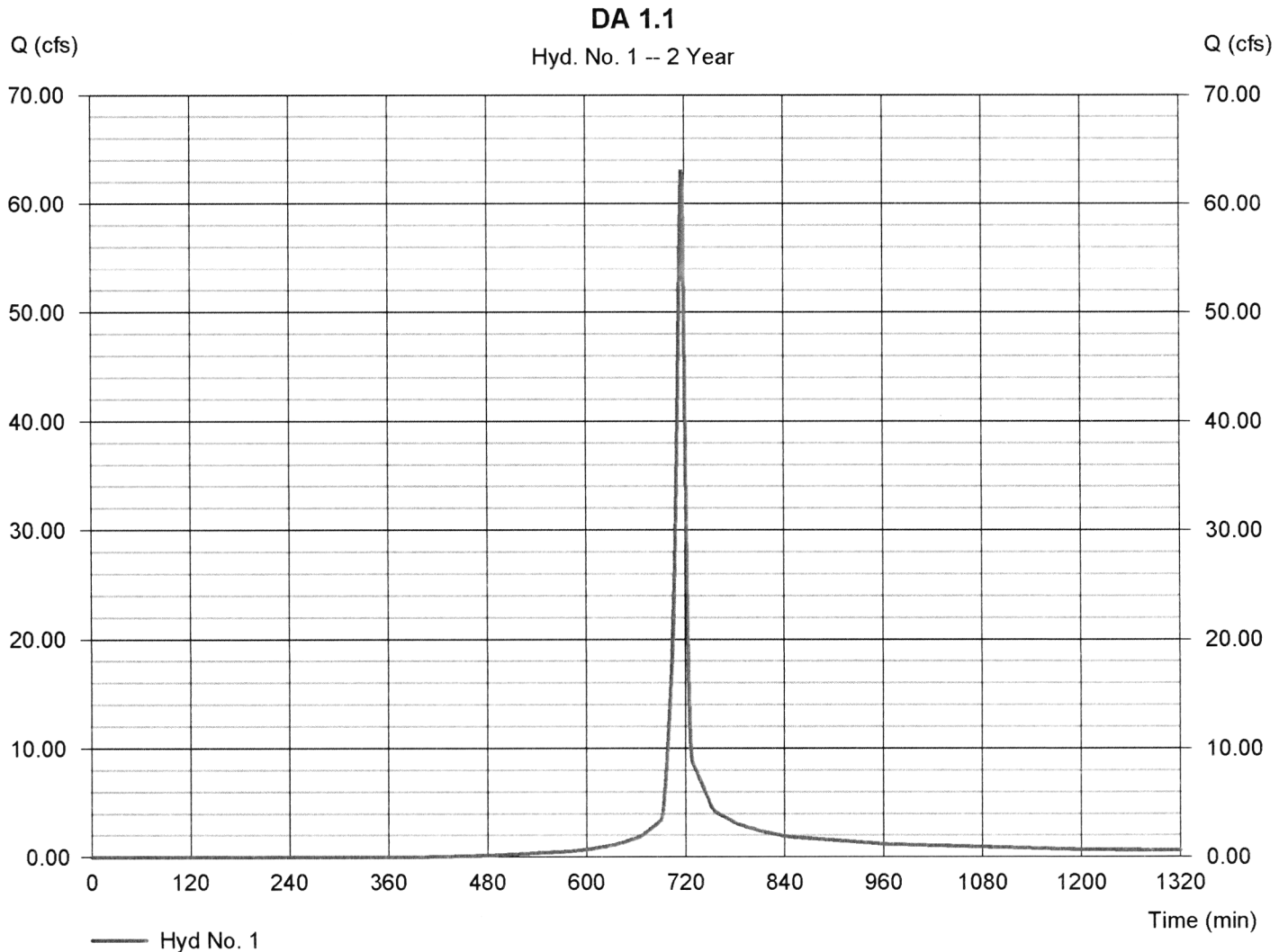| Hyd.	Origin	Description
1	SCS Runoff	DA 1.1
2	Reservoir	Thru Detention Basin#1
3	SCS Runoff	DA 2.1
4	SCS Runoff	DA 1.2
5	Reservoir	Thru Detention Basin#2
6	SCS Runoff	DA BYPASS 2.1
7	Reservoir	Thru Detention Basin#3
8	Combine	Outfall 2
9	Combine	Outfall 1

Project: Post-Development Hydraflow.gpw

Thursday, 06 / 25 / 2020

Hydrograph Report

Hyd. No. 1

DA 1.1

Hydrograph type	= SCS Runoff	Peak discharge	= 63.15 cfs
Storm frequency	= 2 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 129,060 cuft
Drainage area	= 17.340 ac	Curve number	= 86
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.60 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

DA 1.1
Hyd. No. 1 -- 2 Year

Hyd No. 1

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	63.15	2	716	129,060	------	-----	-----	DA 1.1
2	Reservoir	1.068	2	1018	129,090	1	807.19	83,113	Thru Detention Basin#1
3	SCS Runoff	82.22	2	716	167,383	------	-----	-----	DA 2.1
4	SCS Runoff	100.56	2	716	205,499	------	-----	-----	DA 1.2
5	Reservoir	1.870	2	966	205,540	4	802.40	128,308	Thru Detention Basin#2
6	SCS Runoff	9.445	2	726	39,077	------	------	-----	DA BYPASS 2.1
7	Reservoir	1.575	2	962	167,392	3	806.09	104,267	Thru Detention Basin#3
8	Combine	10.95	2	726	206,469	6, 7	-----	-----	Outfall 2
9	Combine	2.938	2	986	334,630	2, 5,	-----	-----	Outfall 1

Post-Development Hydraflow.gpw	Return Period: 2 Year	Thursday, 06 / 25 / 2020

Pond No. 1 - Detention Basin #1

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 803.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	803.00	00	0	0
0.01	803.01	100	0	0
1.00	804.00	13,933	5,020	5,020
2.00	805.00	20,159	16,949	21,969
3.00	806.00	28,637	24,272	46,241
4.00	807.00	32,348	30,471	76,712
5.00	808.00	36,240	34,272	110,984
6.00	809.00	39,890	38,047	149,030
7.00	810.00	43,939	41,894	190,924
8.00	811.00	46,647	45,282	236,206
9.00	812.00	50,386	48,500	284,706
10.00	813.00	54,240	52,296	337,002
11.00	814.00	58,612	56,406	393,408
12.00	815.00	61,880	60,233	453,640

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	3.00	0.00	0.00
Span (in)	= 24.00	3.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 803.00	803.00	0.00	0.00
Length (ft)	= 100.00	0.00	0.00	0.00
Slope (%)	= 1.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 16.50	24.00	1.50	0.00
Crest El. (ft)	= 810.50	811.00	809.92	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 Contour)			
TW Elev. (ft)	= 0.00			

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

Stage / Discharge

Total Q
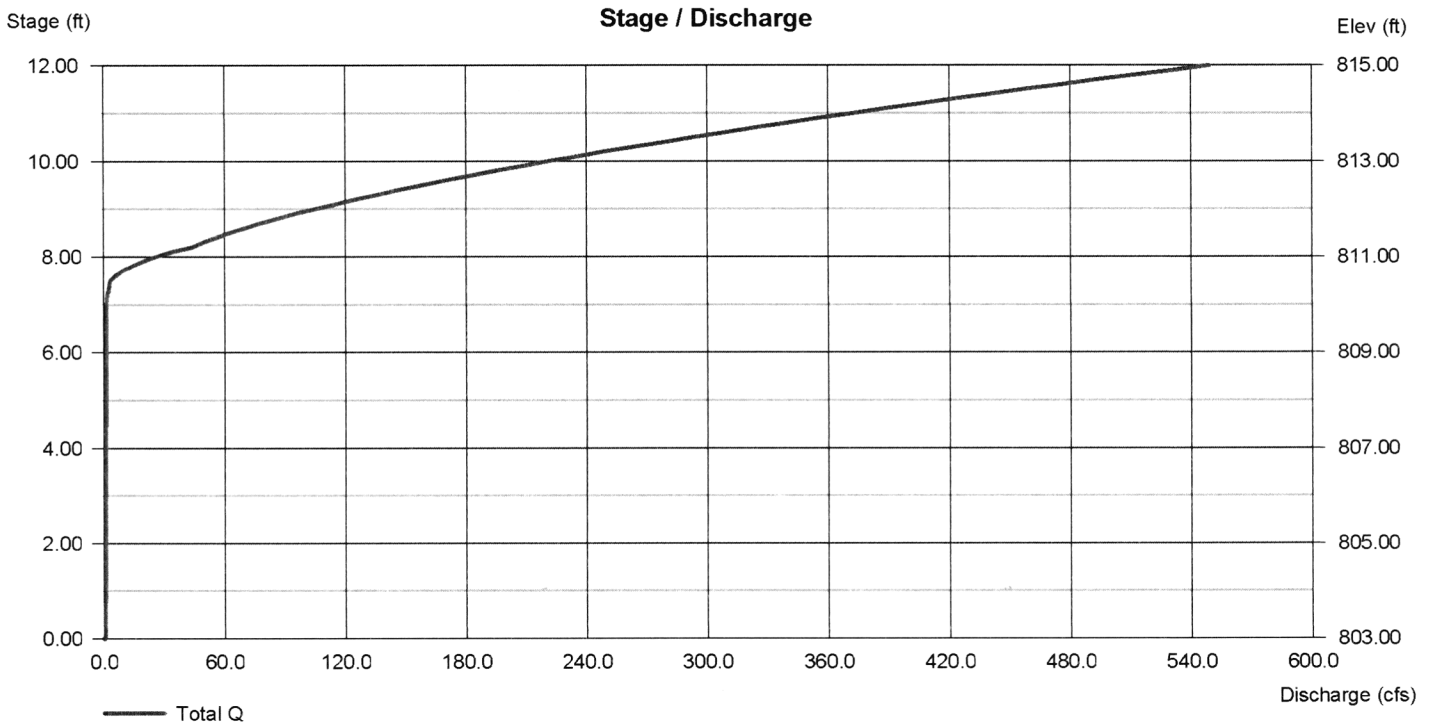
Hydrograph Report

Thursday, 06 / 25 / 2020

Hyd. No. 2

Thru Detention Basin#1

Hydrograph type	= Reservoir		Peak discharge	= 1.068 cfs
Storm frequency	= 2 yrs		Time to peak	= 1018 min
Time interval	= 2 min		Hyd. volume	= 129,090 cuft
Inflow hyd. No.	= 1 - DA 1.1		Max. Elevation	= 807.19 ft
Reservoir name	= Detention Basin #1		Max. Storage	= 83,113 cuft

Storage Indication method used.
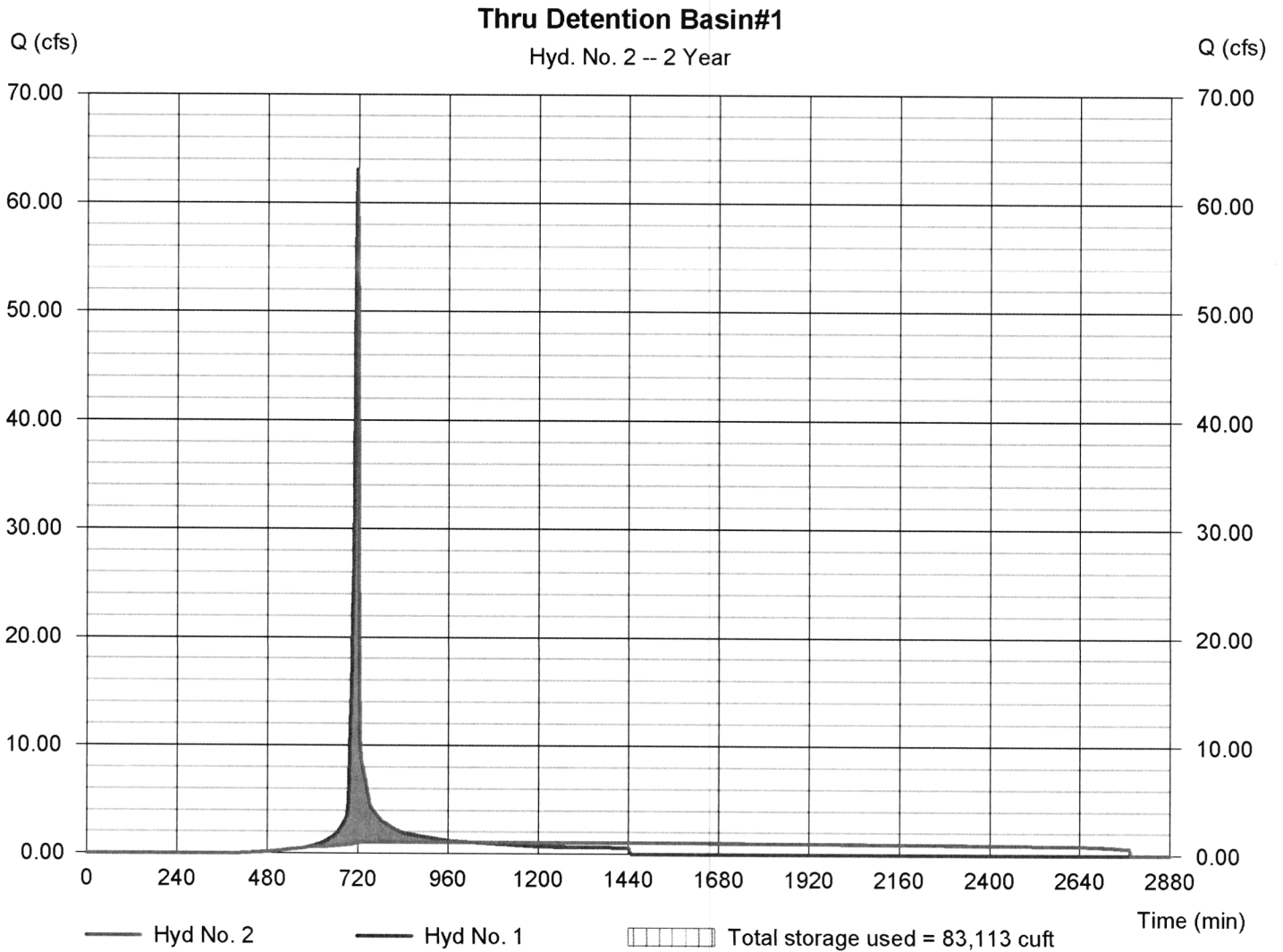
Thru Detention Basin#1

Hyd. No. 2 -- 2 Year

Hyd No. 2 ——— Hyd No. 1 ——— Total storage used = 83,113 cuft

Hydrograph Report

Thursday, 06 / 25 / 2020

Hyd. No. 4

DA 1.2

Hydrograph type	= SCS Runoff	Peak discharge	= 100.56 cfs
Storm frequency	= 2 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 205,499 cuft
Drainage area	= 27.610 ac	Curve number	= 86
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.60 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

DA 1.2
Hyd. No. 4 -- 2 Year
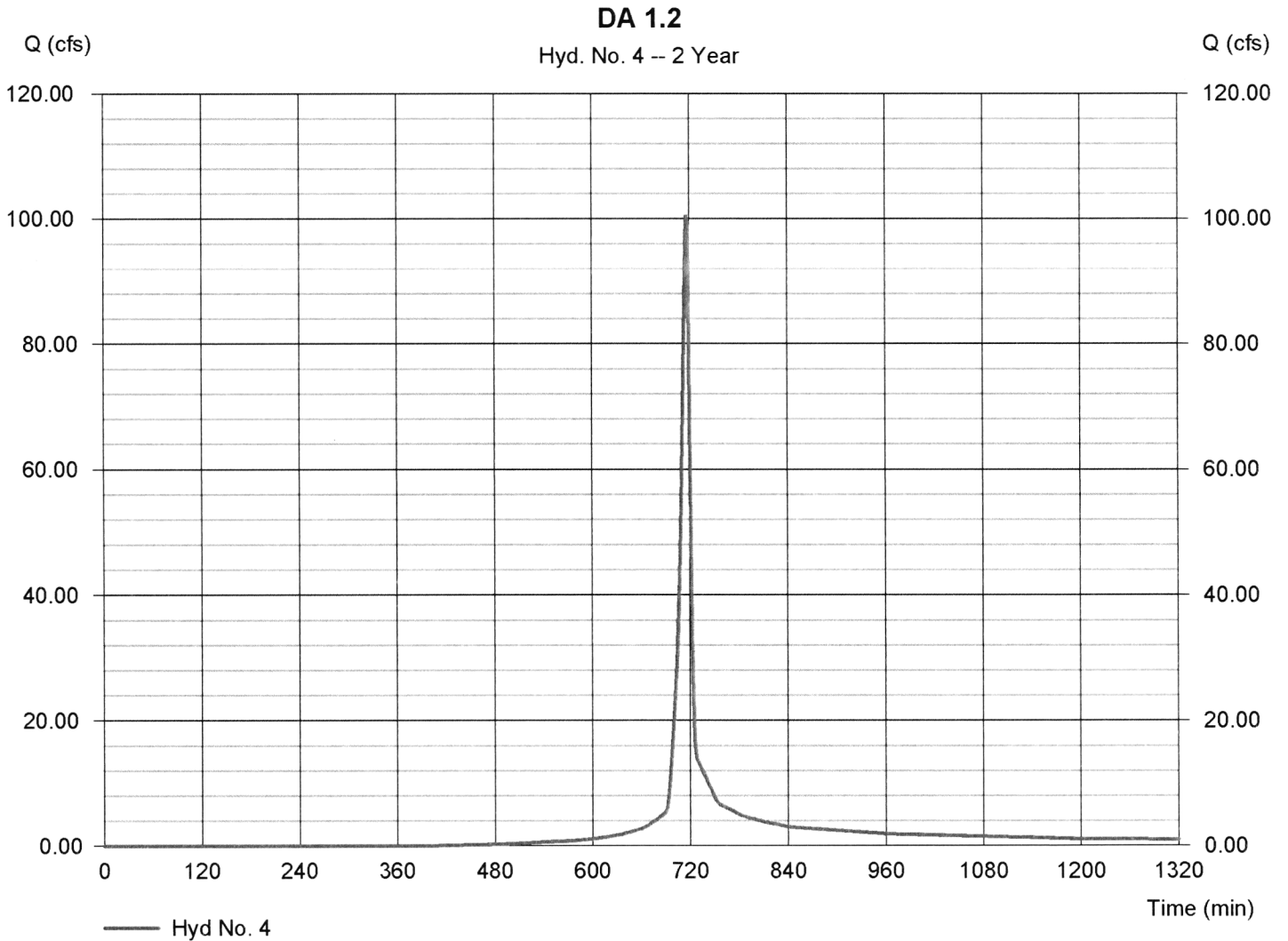
— Hyd No. 4

Hydrograph Report

Hyd. No. 3

DA 2.1

Hydrograph type	= SCS Runoff	Peak discharge	= 82.22 cfs
Storm frequency	= 2 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 167,383 cuft
Drainage area	= 23.380 ac	Curve number	= 85
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.60 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

DA 2.1
Hyd. No. 3 -- 2 Year

Hyd No. 3

Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020   Thursday, 06 / 25 / 2020

Pond No. 3 - Detention Basin #2

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 799.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	799.00	00	0	0
0.01	799.01	100	0	0
1.00	800.00	23,963	8,451	8,451
2.00	801.00	44,503	33,704	42,155
3.00	802.00	70,732	57,108	99,263
4.00	803.00	76,218	73,451	172,713
5.00	804.00	81,851	79,010	251,723
6.00	805.00	87,605	84,703	336,427
7.00	806.00	93,480	90,518	426,944
8.00	807.00	99,469	96,449	523,393

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 42.00	4.00	0.00	0.00
Span (in)	= 42.00	4.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 799.00	799.00	0.00	0.00
Length (ft)	= 100.00	0.00	0.00	0.00
Slope (%)	= 1.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 16.00	25.00	2.00	0.00
Crest El. (ft)	= 805.00	805.75	804.50	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 / Discharge

— Total Q
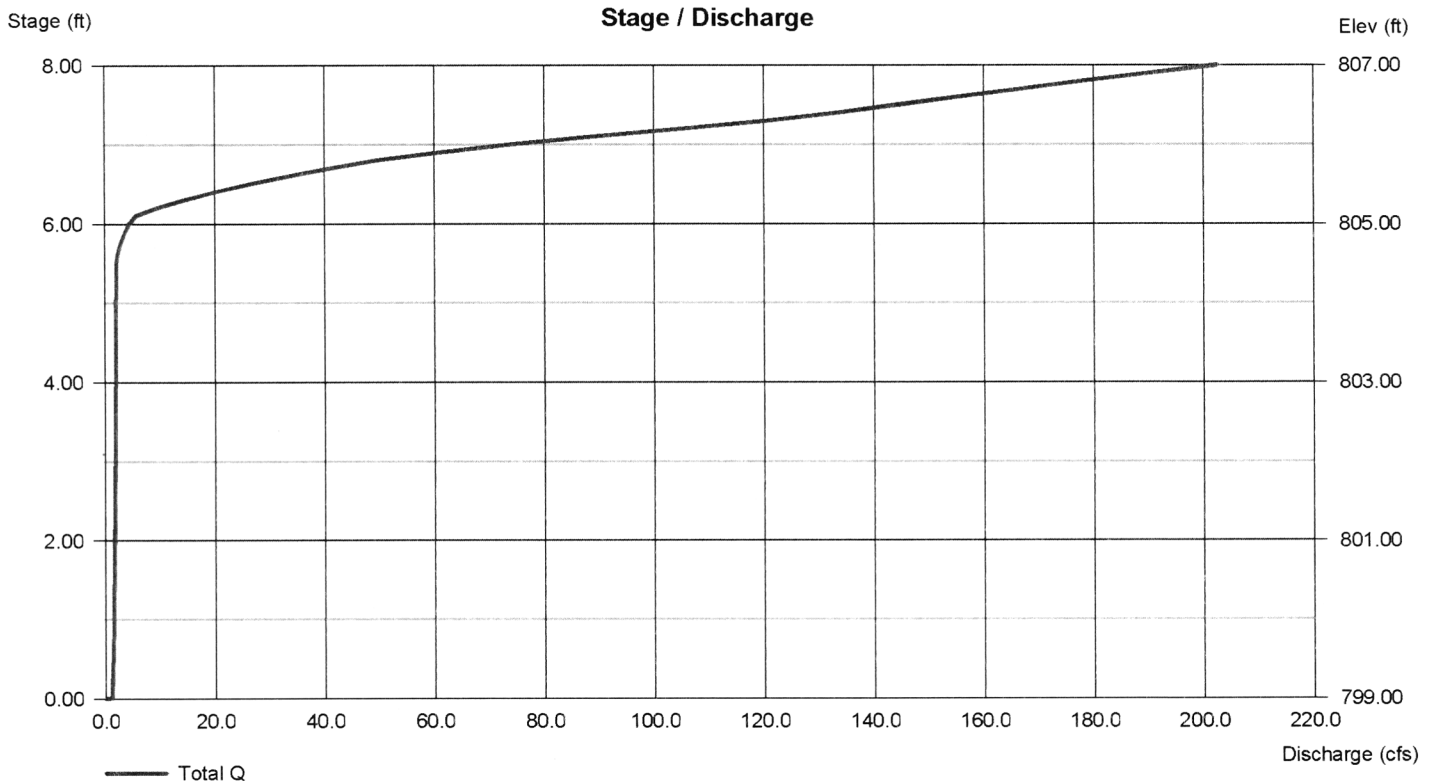
Hydrograph Report

Thursday, 06 / 25 / 2020

Hyd. No. 5

Thru Detention Basin#2

|				
Hydrograph type	= Reservoir	Peak discharge	= 1.870 cfs
Storm frequency	= 2 yrs	Time to peak	= 966 min
Time interval	= 2 min	Hyd. volume	= 205,540 cuft
Inflow hyd. No.	= 4 - DA 1.2	Max. Elevation	= 802.40 ft
Reservoir name	= Detention Basin #2	Max. Storage	= 128,308 cuft

Storage Indication method used.
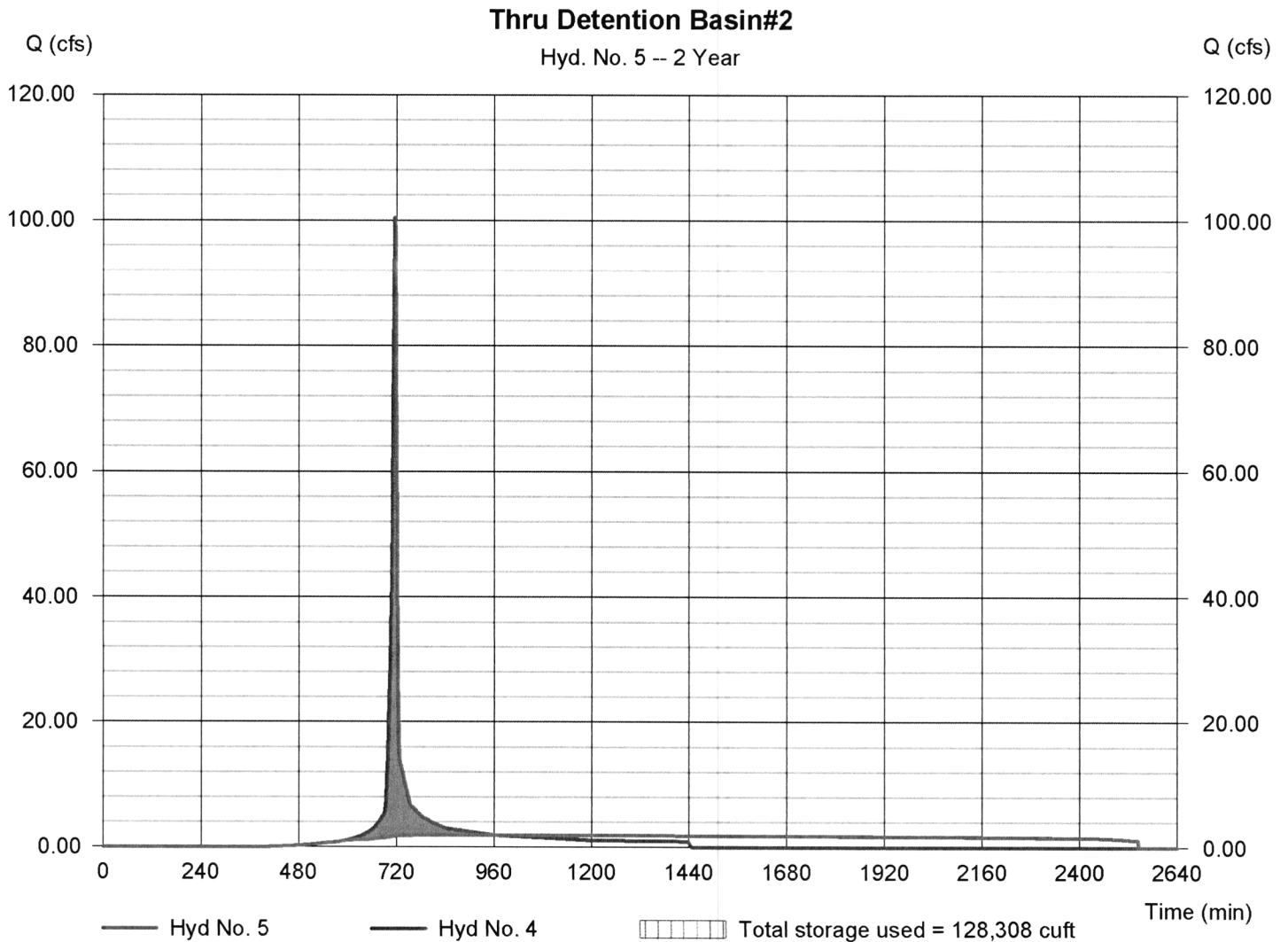
Thru Detention Basin#2
Hyd. No. 5 -- 2 Year

— Hyd No. 5   — Hyd No. 4   ☐☐☐☐☐☐ Total storage used = 128,308 cuft

TR55 Tc Worksheet

Hyd. No. 6

DA BYPASS 2.1

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.400	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 3.60	0.00	0.00	
Land slope (%)	= 5.00	0.00	0.00	
Travel Time (min)	= 14.03 +	0.00 +	0.00 =	14.03
Shallow Concentrated Flow				
Flow length (ft)	= 562.00	0.00	0.00	
Watercourse slope (%)	= 3.02	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=2.80	0.00	0.00	
Travel Time (min)	= 3.34 +	0.00 +	0.00 =	3.34
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	=0.00			
		0.00		
			0.00	
Flow length (ft)	({0})0.0	0.0	0.0	
Travel Time (min)	= 0.00 +	0.00 +	0.00 =	0.00

Total Travel Time, Tc .... **17.40 min**

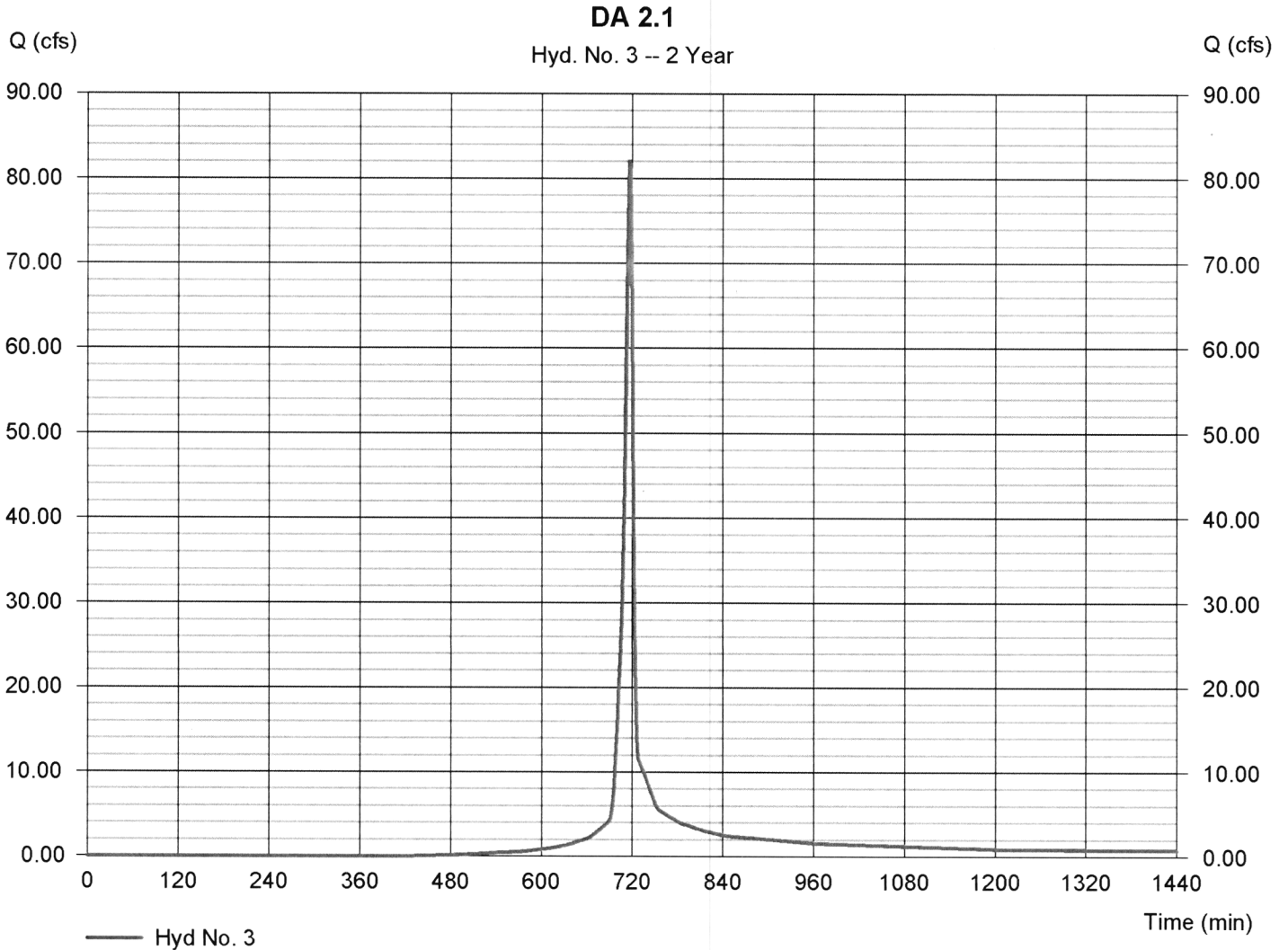# Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020   Thursday, 06 / 25 / 2020

Hyd. No. 6

DA BYPASS 2.1

Hydrograph type	= SCS Runoff	Peak discharge	= 9.445 cfs
Storm frequency	= 2 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 39,077 cuft
Drainage area	= 17.410 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 17.40 min
Total precip.	= 3.60 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

DA BYPASS 2.1
Hyd. No. 6 -- 2 Year

— Hyd No. 6

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020   Thursday, 06 / 25 / 2020

Pond No. 7 - Detention Basin #3

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 802.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	802.00	00	0	0
0.01	802.10	100	0	0
1.00	803.00	10,959	3,995	3,995
2.00	804.00	30,577	19,945	23,940
3.00	805.00	39,703	35,037	58,978
4.00	806.00	42,916	41,295	100,272
5.00	807.00	46,186	44,537	144,809
6.00	808.00	49,513	47,835	192,644
7.00	809.00	52,896	51,190	243,834
8.00	810.00	56,335	54,601	298,434
8.50	810.50	58,076	28,599	327,033

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 36.00	4.00	0.00	0.00
Span (in)	= 36.00	4.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 802.00	802.00	0.00	0.00
Length (ft)	= 92.00	0.00	0.00	0.00
Slope (%)	= 0.54	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 15.00	40.00	3.00	0.00
Crest El. (ft)	= 808.00	808.50	807.00	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 / Discharge chart — Stage (ft) vs Discharge (cfs), with Elev (ft) on right axis. Total Q.
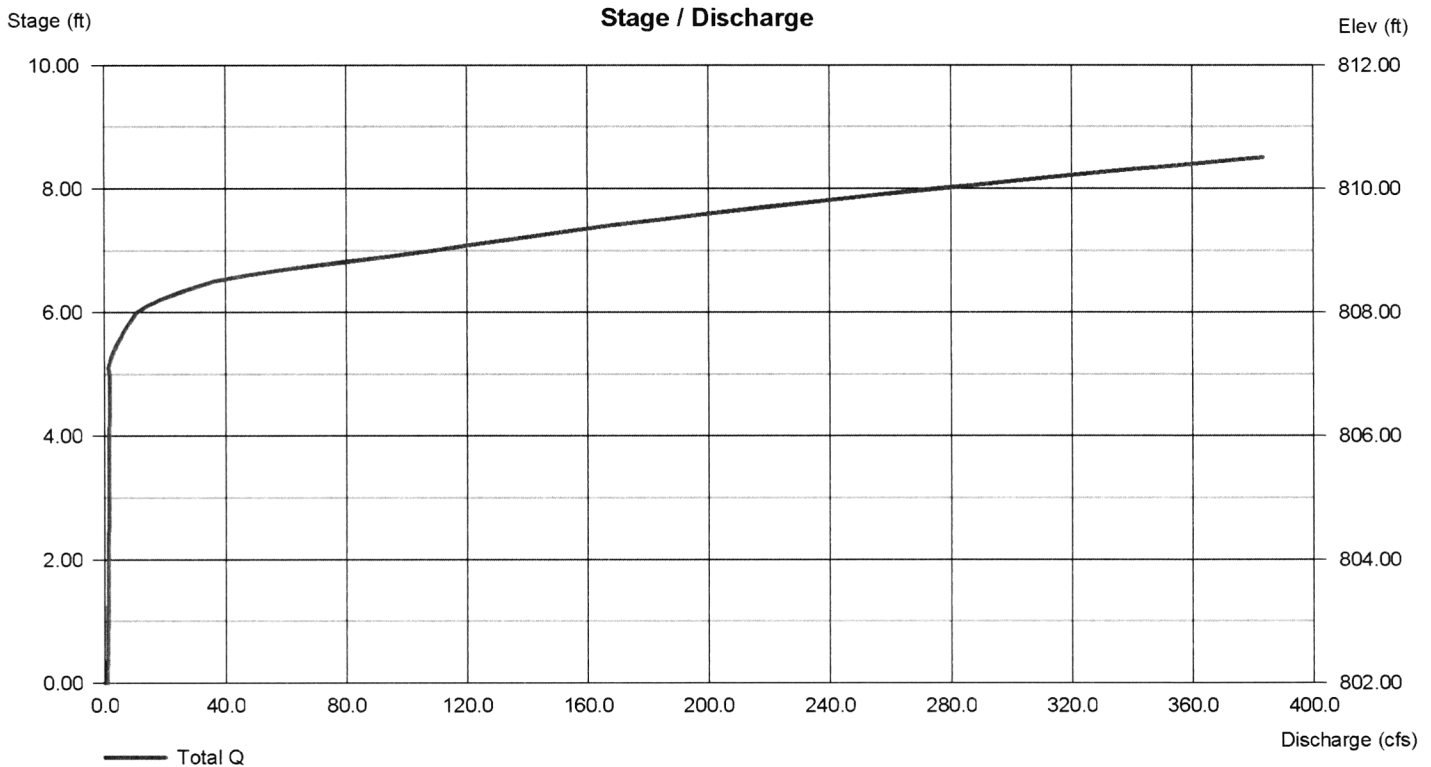
Hydrograph Report

Hyd. No. 7

Thru Detention Basin#3

Hydrograph type	= Reservoir	Peak discharge	= 1.575 cfs
Storm frequency	= 2 yrs	Time to peak	= 962 min
Time interval	= 2 min	Hyd. volume	= 167,392 cuft
Inflow hyd. No.	= 3 - DA 2.1	Max. Elevation	= 806.09 ft
Reservoir name	= Detention Basin #3	Max. Storage	= 104,267 cuft

Storage Indication method used.
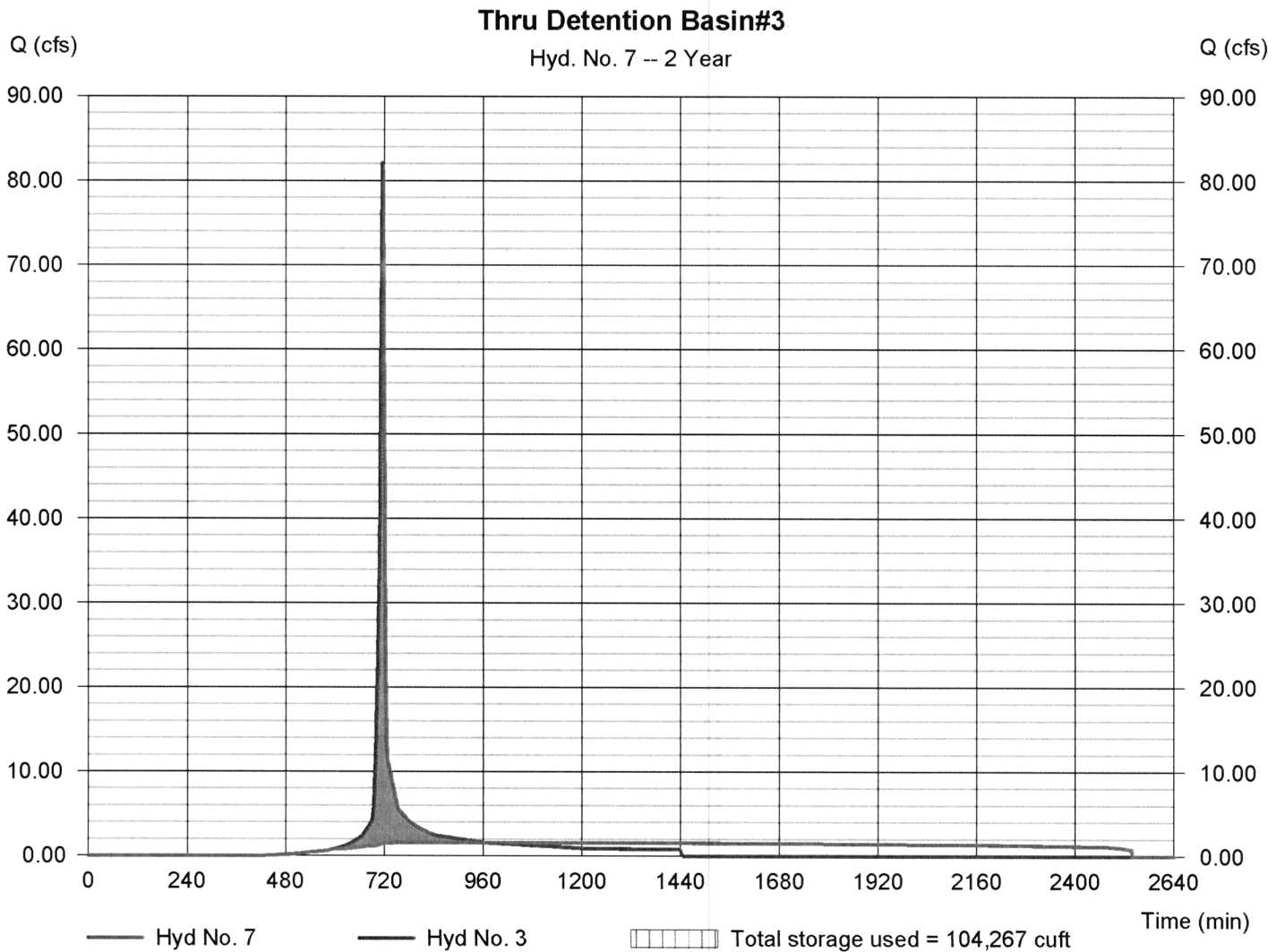
Thru Detention Basin#3

Hyd. No. 7 -- 2 Year

Hyd No. 7   Hyd No. 3   Total storage used = 104,267 cuft

Hydrograph Report

Thursday, 06 / 25 / 2020

Hyd. No. 9

Outfall 1

Hydrograph type	= Combine	Peak discharge	= 2.938 cfs
Storm frequency	= 2 yrs	Time to peak	= 986 min
Time interval	= 2 min	Hyd. volume	= 334,630 cuft
Inflow hyds.	= 2, 5	Contrib. drain. area	= 0.000 ac

Outfall 1
Hyd. No. 9 -- 2 Year

Hydrograph Report

Hyd. No. 8

Outfall 2

Hydrograph type	= Combine	Peak discharge	= 10.95 cfs
Storm frequency	= 2 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 206,469 cuft
Inflow hyds.	= 6, 7	Contrib. drain. area	= 17.410 ac
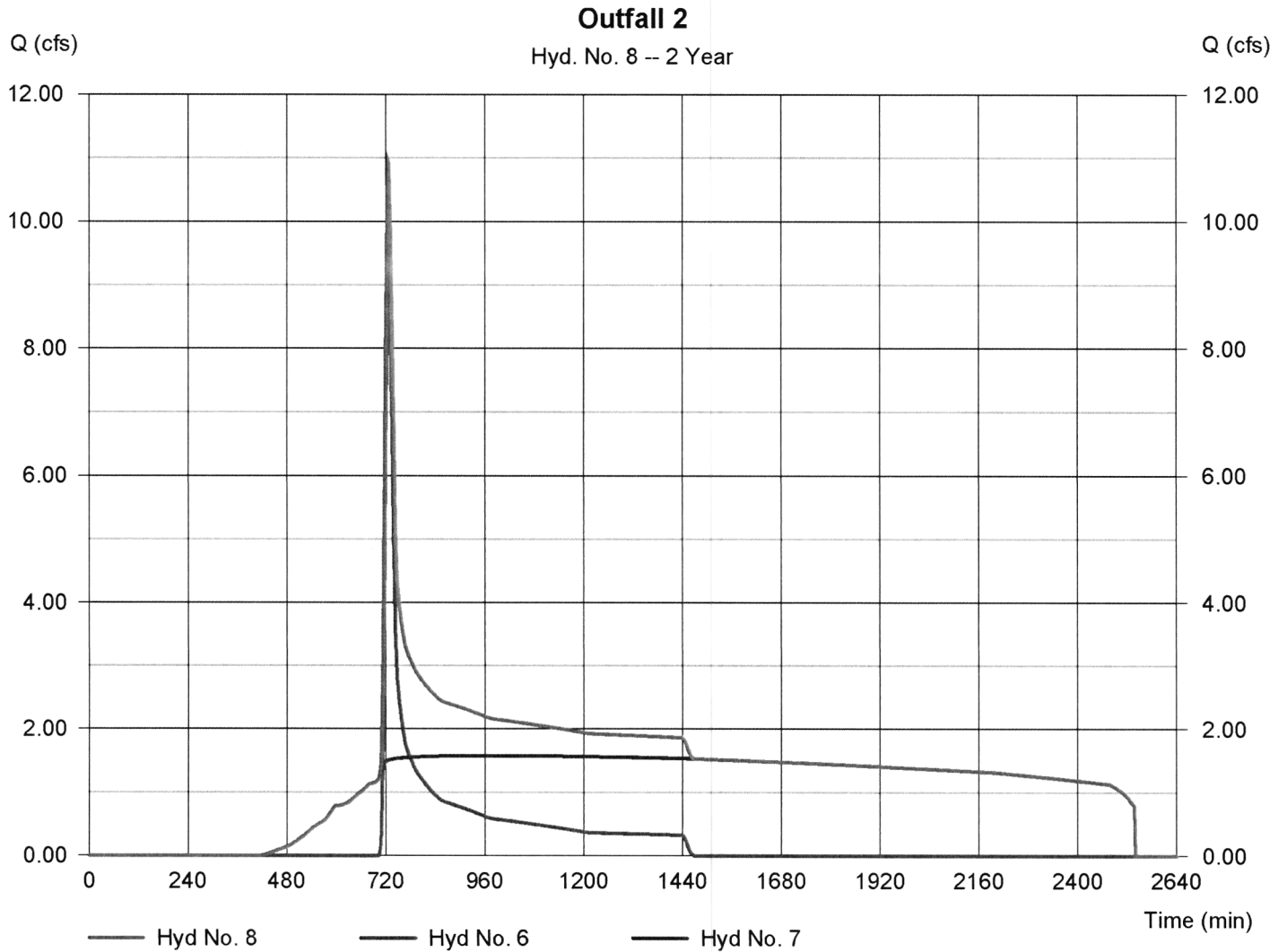
Outfall 2
Hyd. No. 8 -- 2 Year

Legend: Hyd No. 8 — Hyd No. 6 — Hyd No. 7

Hydrograph Report

Hyd. No. 1

DA 1.1

Hydrograph type	= SCS Runoff	Peak discharge	= 110.65 cfs
Storm frequency	= 10 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 232,270 cuft
Drainage area	= 17.340 ac	Curve number	= 86
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 5.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

DA 1.1
Hyd. No. 1 -- 10 Year

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	110.65	2	716	232,270	------	-----	------	DA 1.1
2	Reservoir	1.188	2	1178	232,271	1	809.48	169,351	Thru Detention Basin#1
3	SCS Runoff	146.12	2	716	304,966	------	-----	------	DA 2.1
4	SCS Runoff	176.19	2	716	369,837	------	-----	------	DA 1.2
5	Reservoir	2.051	2	1150	369,880	4	804.13	263,073	Thru Detention Basin#2
6	SCS Runoff	31.88	2	726	106,094	------	-----	------	DA BYPASS 2.1
7	Reservoir	6.338	2	790	305,007	3	807.66	176,611	Thru Detention Basin#3
8	Combine	33.61	2	726	411,102	6, 7	-----	------	Outfall 2
9	Combine	3.541	2	1092	602,168	2, 5,	-----	------	Outfall 1

Post-Development Hydraflow.gpw | Return Period: 10 Year | Thursday, 06 / 25 / 2020

Hydrograph Report

Hyd. No. 3

DA 2.1

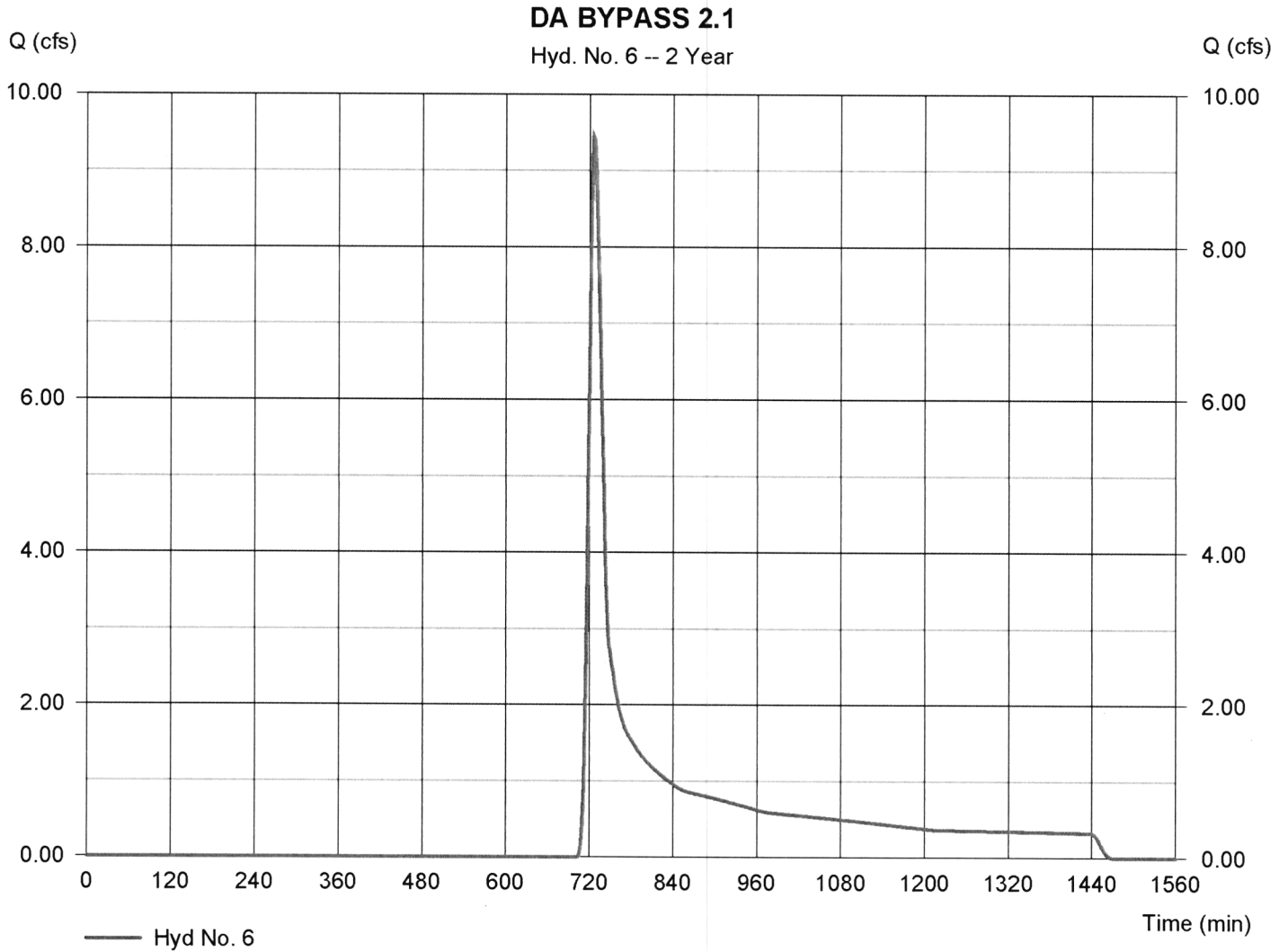|				
Hydrograph type	= SCS Runoff	Peak discharge	= 146.12 cfs
Storm frequency	= 10 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 304,966 cuft
Drainage area	= 23.380 ac	Curve number	= 85
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 5.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

DA 2.1

Hyd. No. 3 -- 10 Year
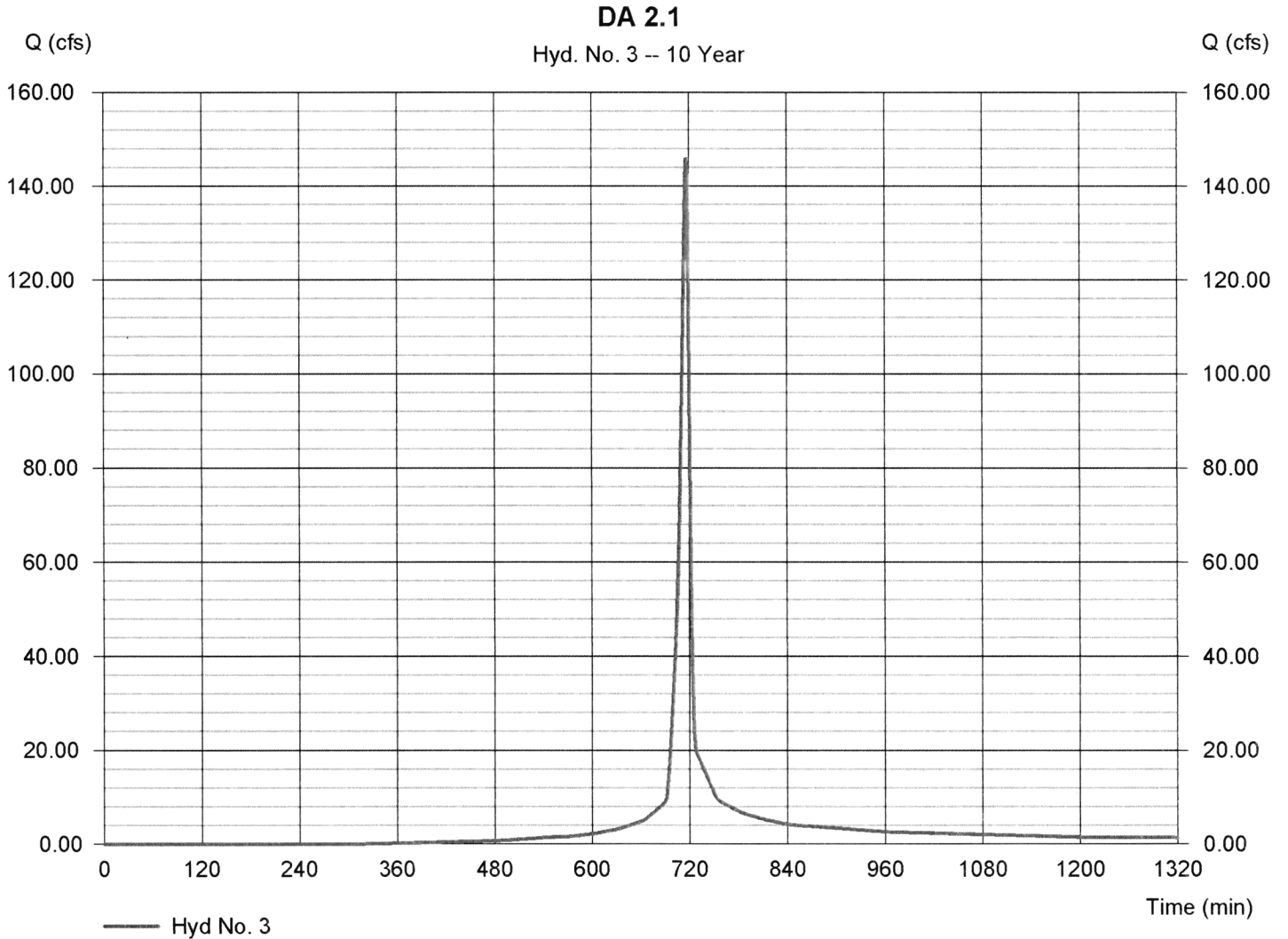
Hyd No. 3

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020   Thursday, 06 / 25 / 2020

Hyd. No. 2

Thru Detention Basin#1

Hydrograph type	= Reservoir	Peak discharge	= 1.188 cfs
Storm frequency	= 10 yrs	Time to peak	= 1178 min
Time interval	= 2 min	Hyd. volume	= 232,271 cuft
Inflow hyd. No.	= 1 - DA 1.1	Max. Elevation	= 809.48 ft
Reservoir name	= Detention Basin #1	Max. Storage	= 169,351 cuft

Storage Indication method used.
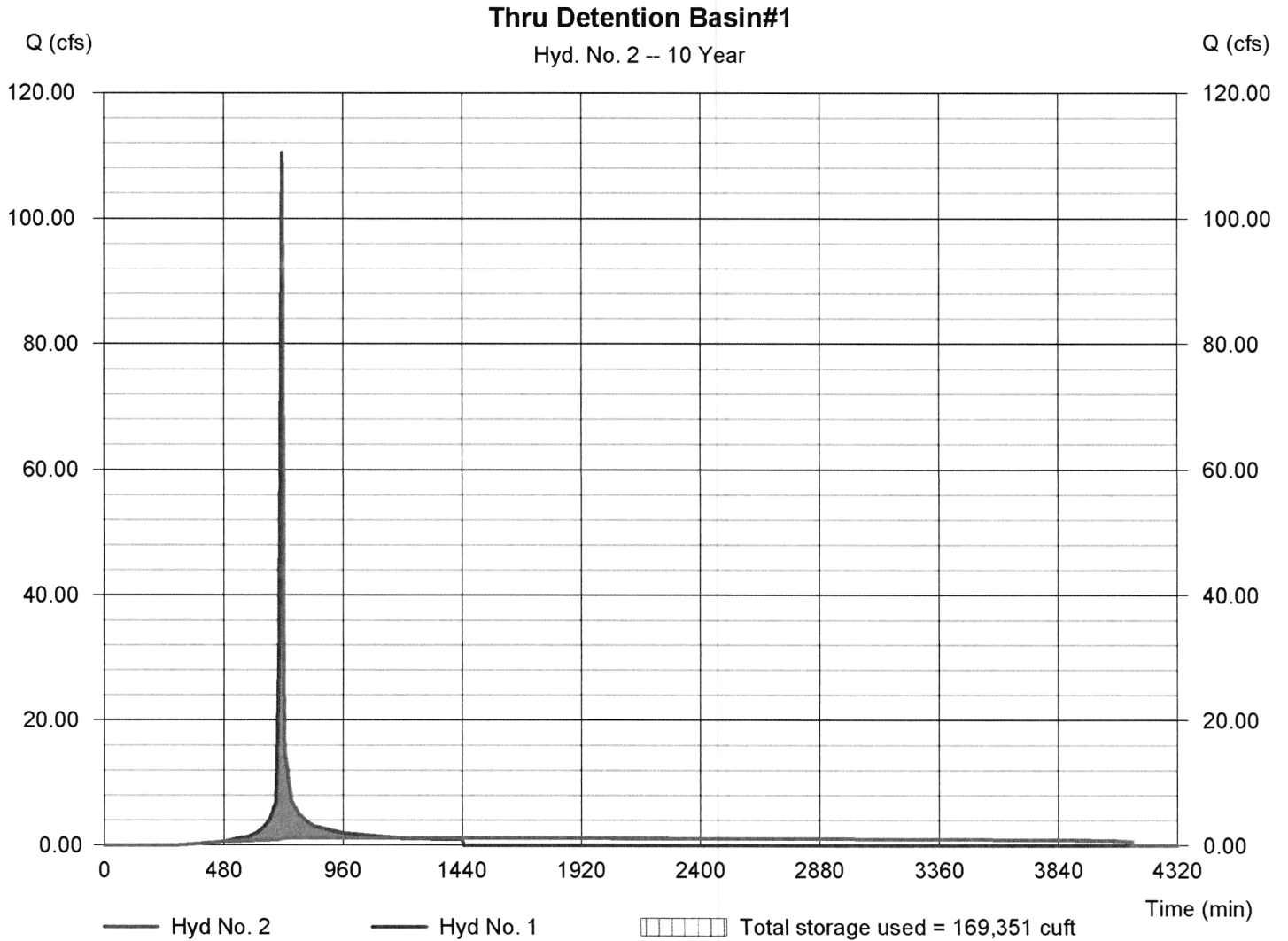
Thru Detention Basin#1

Hyd. No. 2 -- 10 Year

Hyd No. 2   Hyd No. 1   Total storage used = 169,351 cuft

Hydrograph Report

Thursday, 06 / 25 / 2020

Hyd. No. 5

Thru Detention Basin#2

Hydrograph type	= Reservoir	Peak discharge	= 2.051 cfs
Storm frequency	= 10 yrs	Time to peak	= 1150 min
Time interval	= 2 min	Hyd. volume	= 369,880 cuft
Inflow hyd. No.	= 4 - DA 1.2	Max. Elevation	= 804.13 ft
Reservoir name	= Detention Basin #2	Max. Storage	= 263,073 cuft

Storage Indication method used.
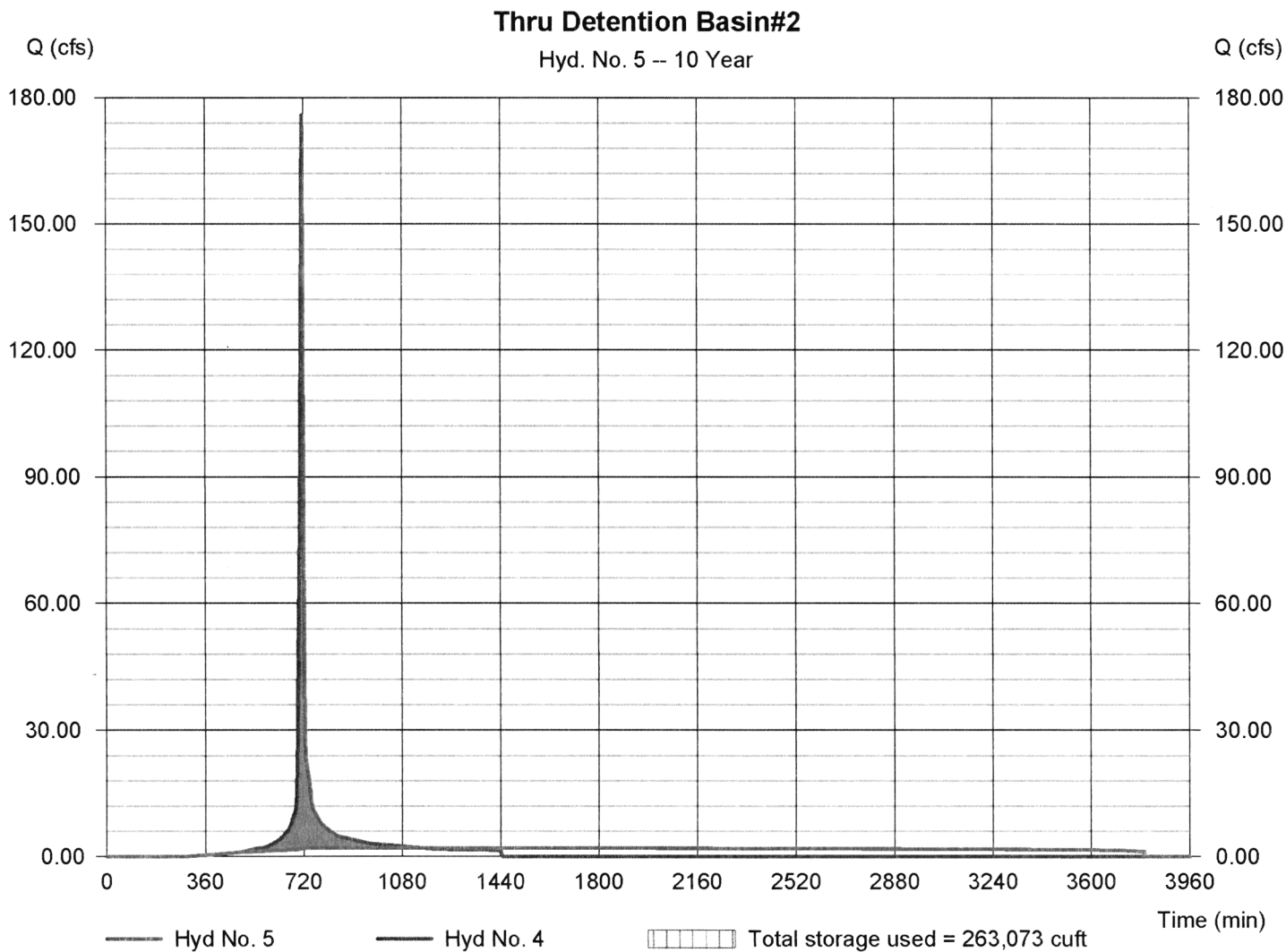
Thru Detention Basin#2

Hyd. No. 5 -- 10 Year

Hyd No. 5   Hyd No. 4   Total storage used = 263,073 cuft

Hydrograph Report

Thursday, 06 / 25 / 2020

Hyd. No. 4

DA 1.2

Hydrograph type	= SCS Runoff	Peak discharge	= 176.19 cfs
Storm frequency	= 10 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 369,837 cuft
Drainage area	= 27.610 ac	Curve number	= 86
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 5.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

DA 1.2

Hyd. No. 4 -- 10 Year
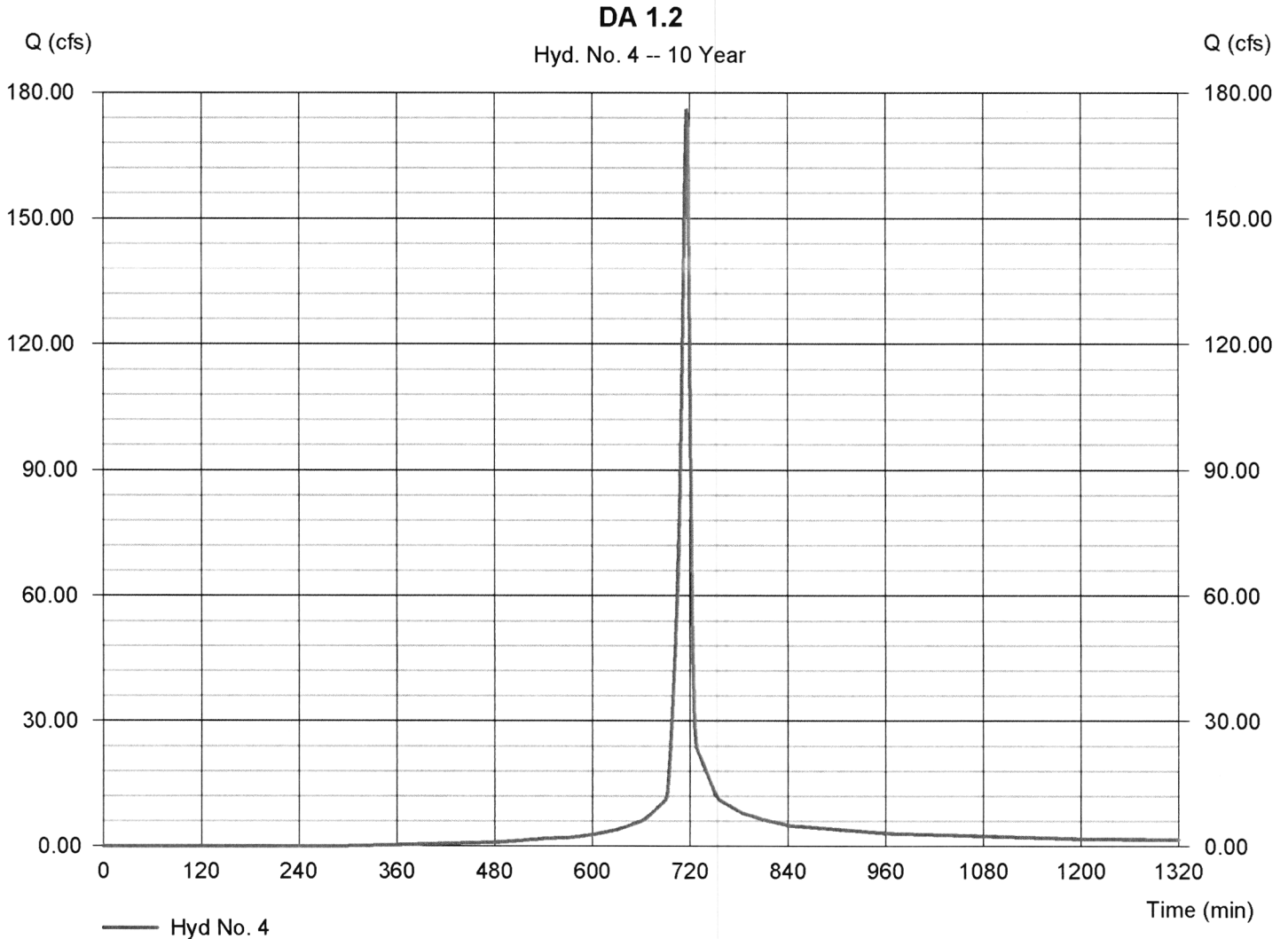
Hyd No. 4

Hydrograph Report

Hyd. No. 7

Thru Detention Basin#3

Hydrograph type	= Reservoir	Peak discharge	= 6.338 cfs
Storm frequency	= 10 yrs	Time to peak	= 790 min
Time interval	= 2 min	Hyd. volume	= 305,007 cuft
Inflow hyd. No.	= 3 - DA 2.1	Max. Elevation	= 807.66 ft
Reservoir name	= Detention Basin #3	Max. Storage	= 176,611 cuft

Storage Indication method used.

Thru Detention Basin#3

Hyd. No. 7 -- 10 Year
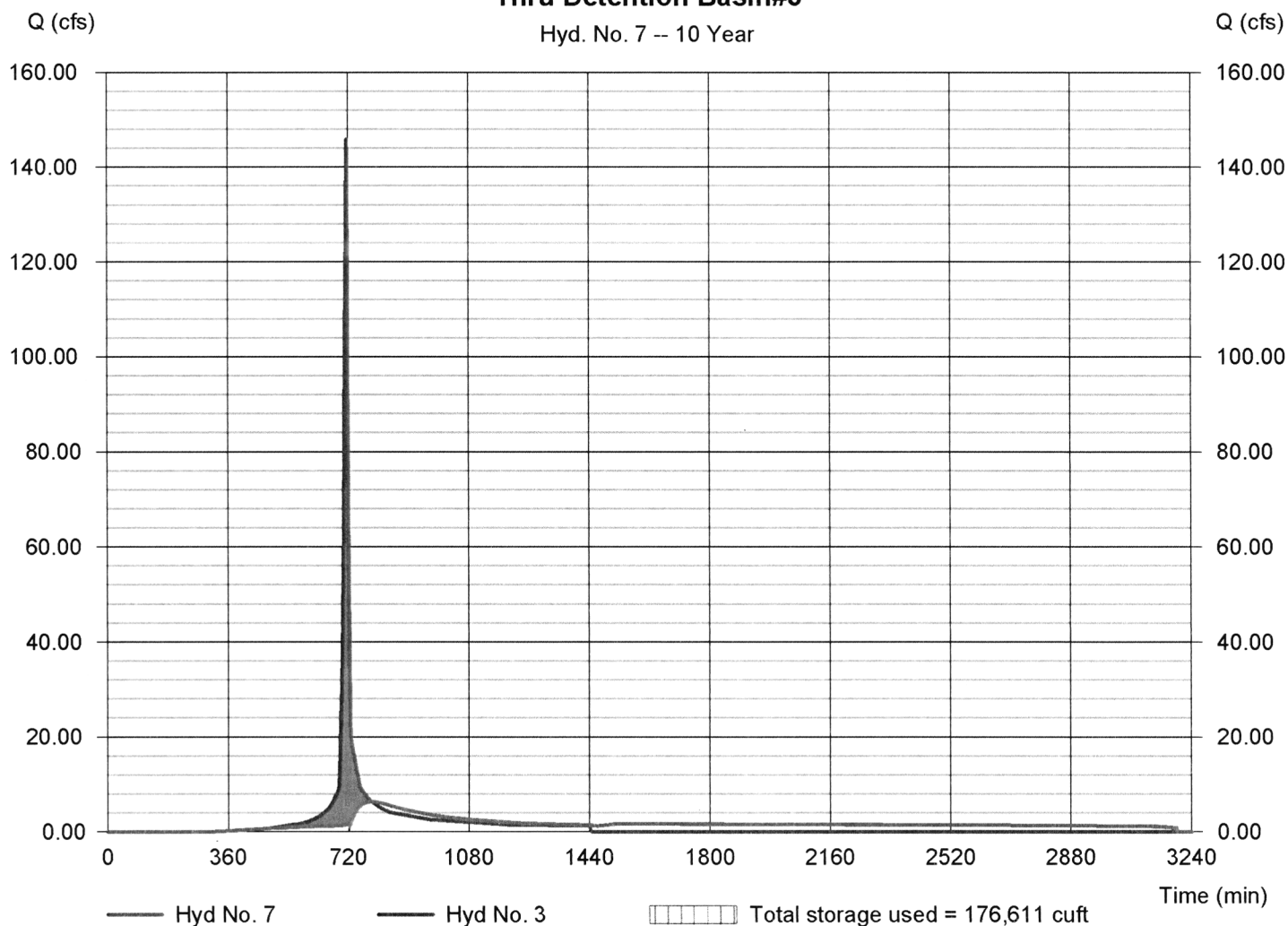
Q (cfs)

Hyd No. 7 ——— Hyd No. 3 ——— [||||||||] Total storage used = 176,611 cuft

Time (min)

Hydrograph Report

Hyd. No. 6

DA BYPASS 2.1

Hydrograph type	= SCS Runoff	Peak discharge	= 31.88 cfs
Storm frequency	= 10 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 106,094 cuft
Drainage area	= 17.410 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 17.40 min
Total precip.	= 5.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

DA BYPASS 2.1

Hyd. No. 6 -- 10 Year

Hyd No. 6

Hydrograph Report

Hyd. No. 9

Outfall 1

Hydrograph type	= Combine	Peak discharge	= 3.541 cfs
Storm frequency	= 10 yrs	Time to peak	= 1092 min
Time interval	= 2 min	Hyd. volume	= 602,168 cuft
Inflow hyds.	= 2, 5	Contrib. drain. area	= 0.000 ac
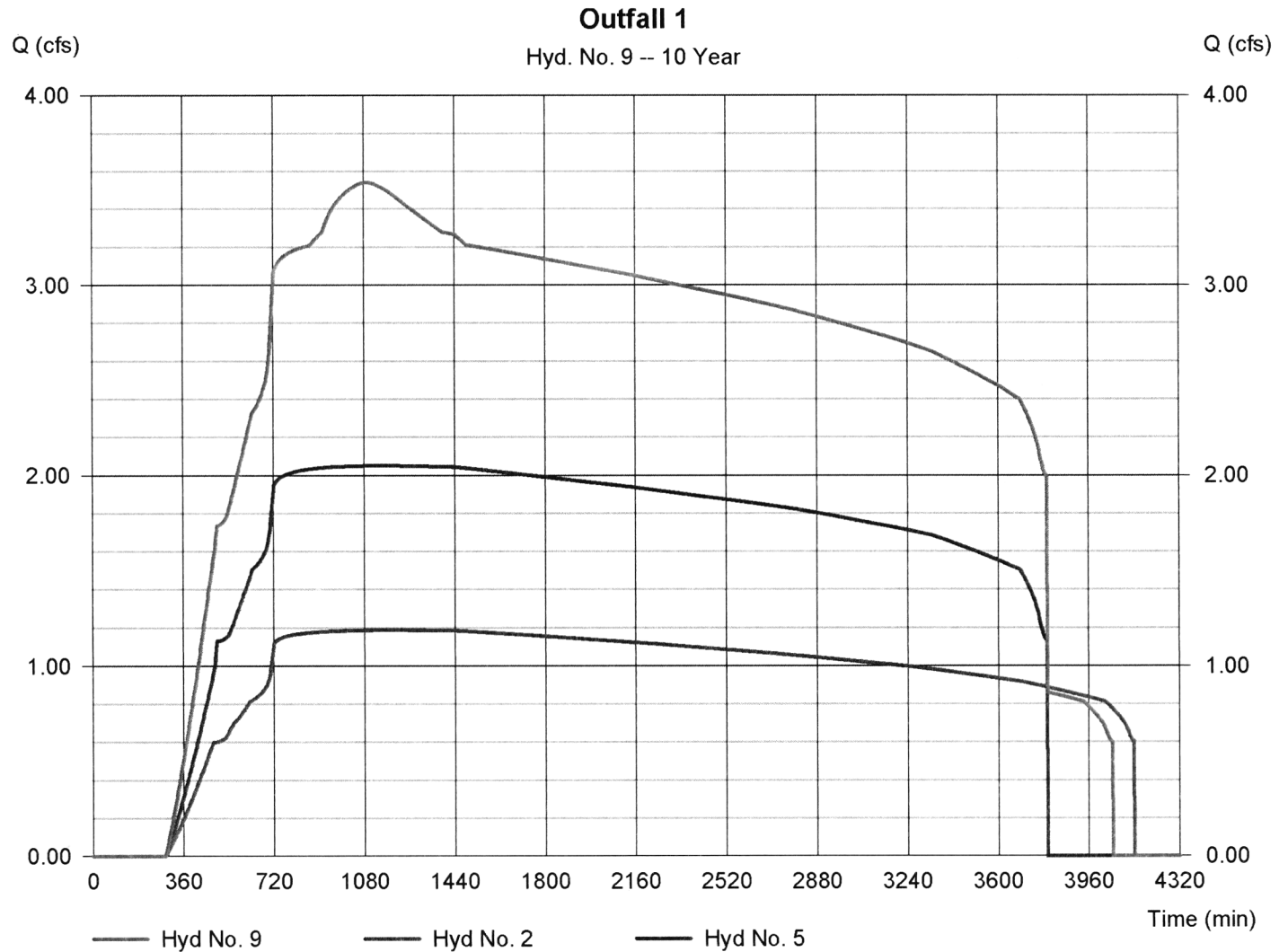
Outfall 1

Hyd. No. 9 -- 10 Year

Hydrograph Report

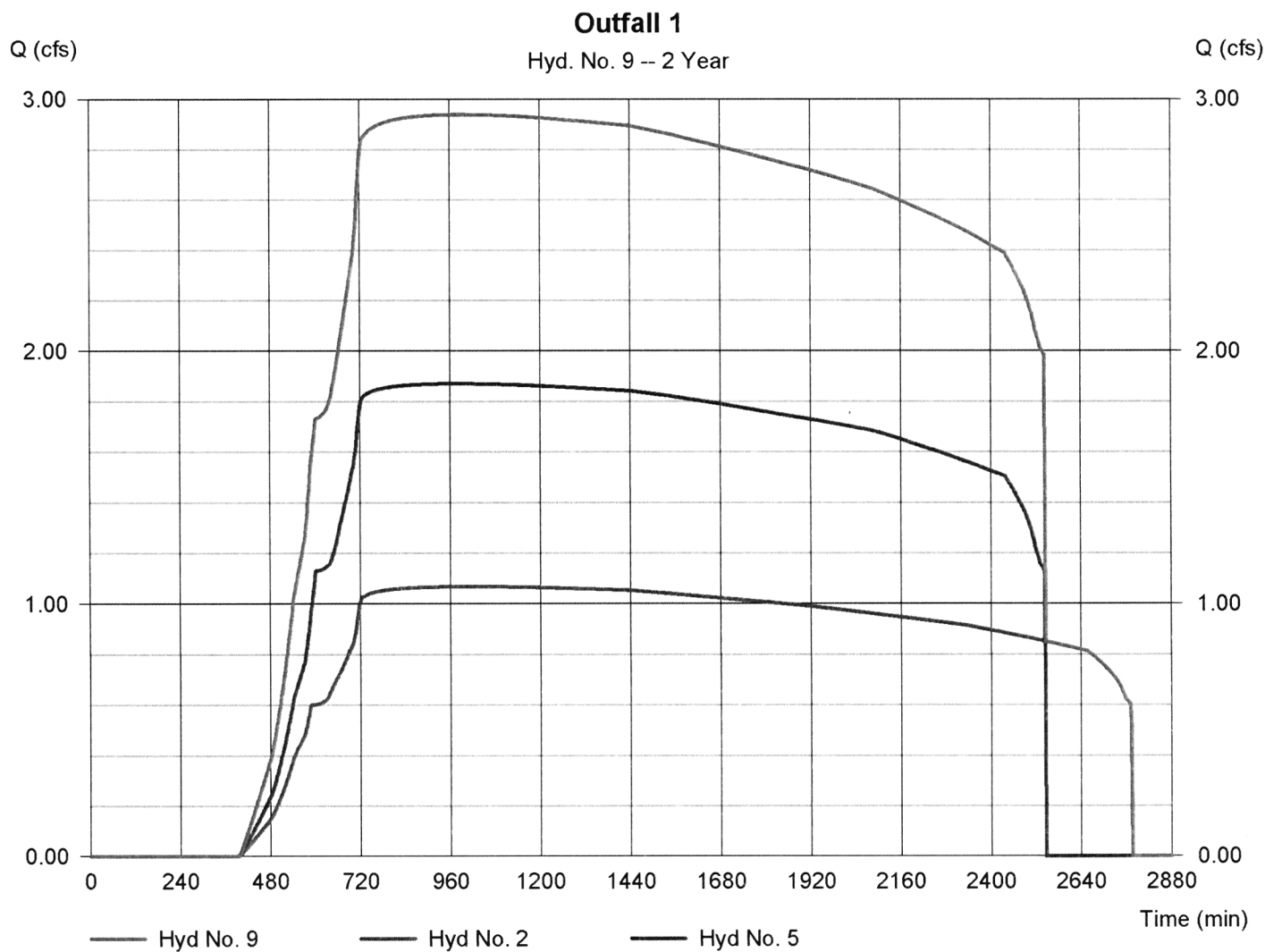Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020   Thursday, 06 / 25 / 2020

Hyd. No. 8

Outfall 2

Hydrograph type	= Combine	Peak discharge	= 33.61 cfs
Storm frequency	= 10 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 411,102 cuft
Inflow hyds.	= 6, 7	Contrib. drain. area	= 17.410 ac
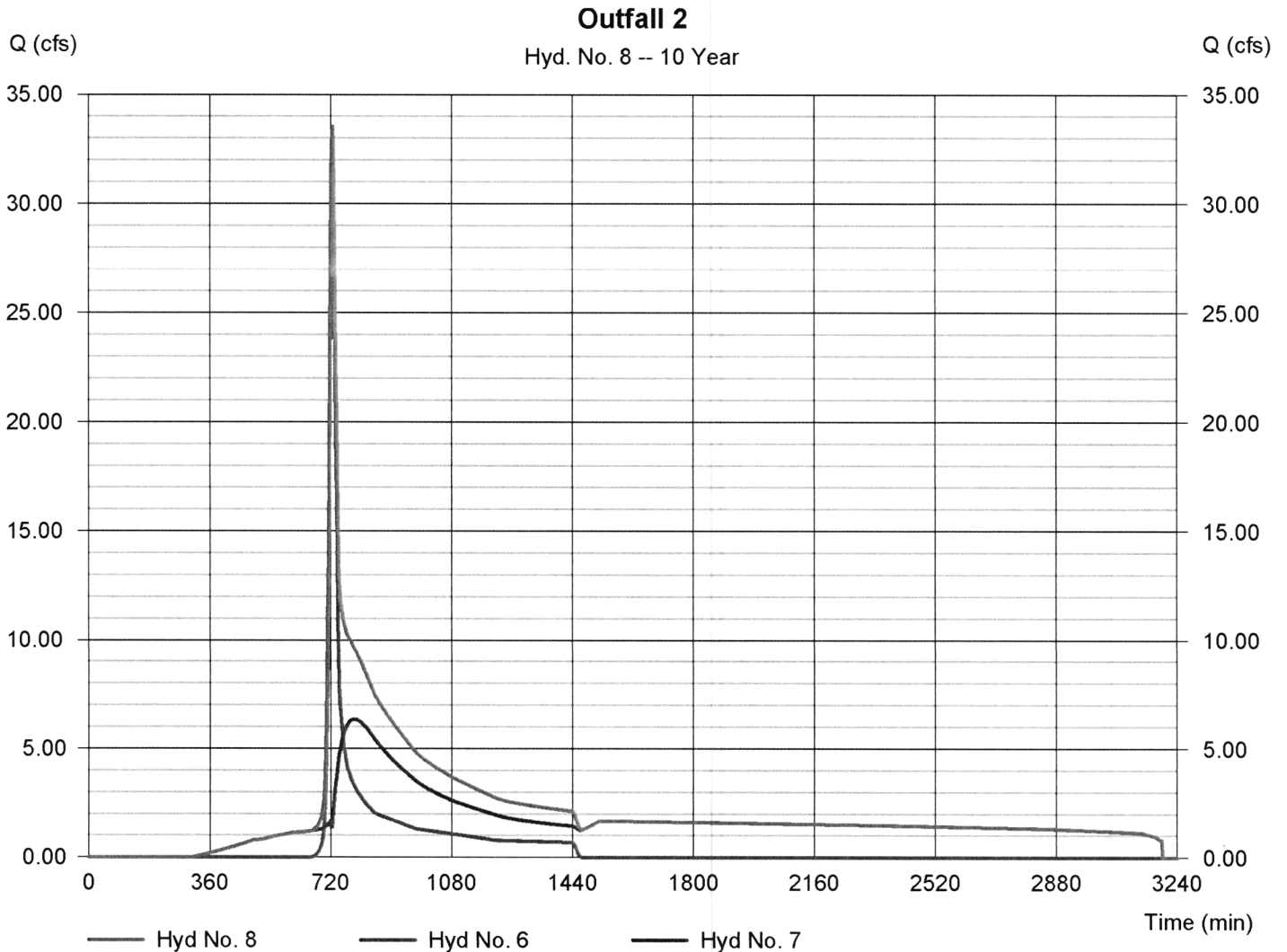
Outfall 2

Hyd. No. 8 -- 10 Year

Q (cfs) vs Time (min) hydrograph plot. Legend: Hyd No. 8, Hyd No. 6, Hyd No. 7

Hydrograph Report

Hyd. No. 1

DA 1.1

Hydrograph type	= SCS Runoff	Peak discharge	= 138.14 cfs
Storm frequency	= 25 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 293,981 cuft
Drainage area	= 17.340 ac	Curve number	= 86
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.60 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

DA 1.1

Hyd. No. 1 -- 25 Year

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

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	138.14	2	716	293,981	------	-----	-----	DA 1.1
2	Reservoir	2.475	2	954	294,007	1	810.32	205,343	Thru Detention Basin#1
3	SCS Runoff	183.24	2	716	387,566	------	-----	-----	DA 2.1
4	SCS Runoff	219.96	2	716	468,098	------	-----	-----	DA 1.2
5	Reservoir	3.631	2	982	468,118	4	804.87	325,781	Thru Detention Basin#2
6	SCS Runoff	47.26	2	726	152,760	-----	-----	-----	DA BYPASS 2.1
7	Reservoir	18.35	2	740	387,585	3	808.20	202,737	Thru Detention Basin#3
8	Combine	61.80	2	726	540,345	6, 7	-----	-----	Outfall 2
9	Combine	7.168	2	908	762,119	2, 5,	-----	-----	Outfall 1

Post-Development Hydraflow.gpw	Return Period: 25 Year	Thursday, 06 / 25 / 2020

Hydrograph Report

Thursday, 06 / 25 / 2020

Hyd. No. 3

DA 2.1

Hydrograph type	= SCS Runoff	Peak discharge	= 183.24 cfs
Storm frequency	= 25 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 387,566 cuft
Drainage area	= 23.380 ac	Curve number	= 85
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.60 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

DA 2.1
Hyd. No. 3 -- 25 Year

Hydrograph Report

Hyd. No. 2

Thru Detention Basin#1

Hydrograph type	= Reservoir	Peak discharge	= 2.475 cfs
Storm frequency	= 25 yrs	Time to peak	= 954 min
Time interval	= 2 min	Hyd. volume	= 294,007 cuft
Inflow hyd. No.	= 1 - DA 1.1	Max. Elevation	= 810.32 ft
Reservoir name	= Detention Basin #1	Max. Storage	= 205,343 cuft

Storage Indication method used.
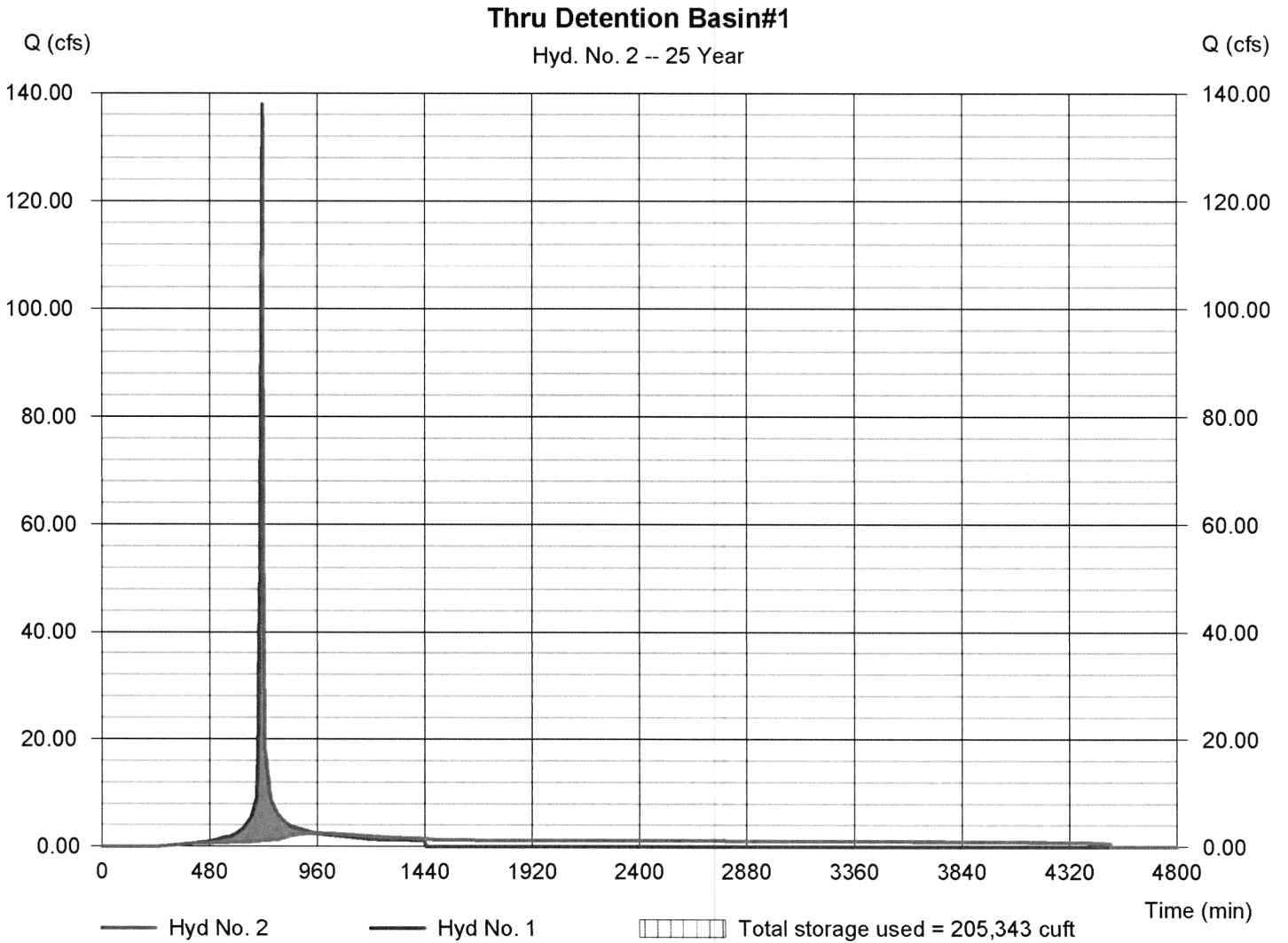
Thru Detention Basin#1

Hyd. No. 2 -- 25 Year

Hyd No. 2   Hyd No. 1   Total storage used = 205,343 cuft

Hydrograph Report

Thursday, 06 / 25 / 2020

Hyd. No. 5

Thru Detention Basin#2

Hydrograph type	= Reservoir	Peak discharge	= 3.631 cfs
Storm frequency	= 25 yrs	Time to peak	= 982 min
Time interval	= 2 min	Hyd. volume	= 468,118 cuft
Inflow hyd. No.	= 4 - DA 1.2	Max. Elevation	= 804.87 ft
Reservoir name	= Detention Basin #2	Max. Storage	= 325,781 cuft

Storage Indication method used.
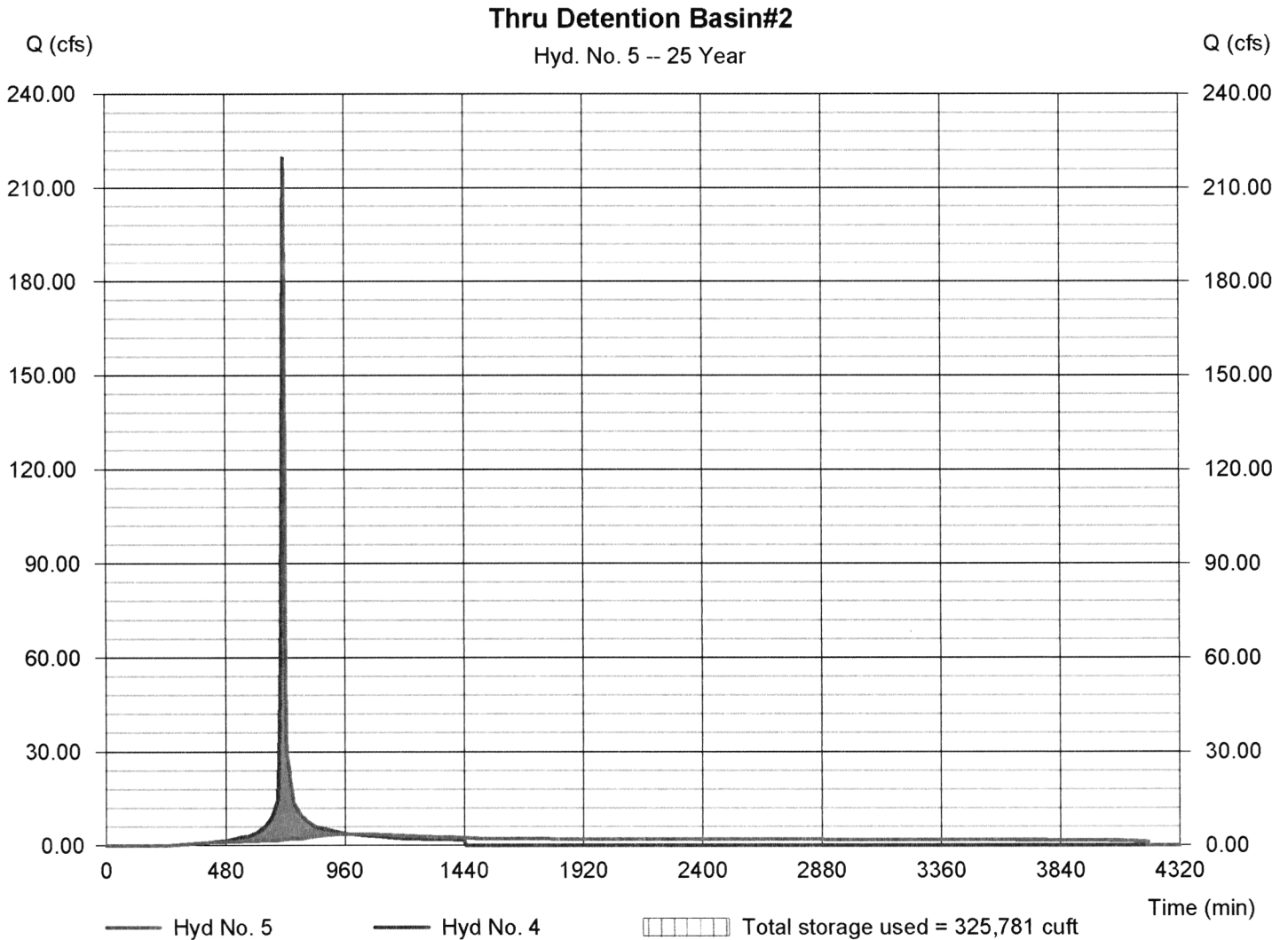
Thru Detention Basin#2

Hyd. No. 5 -- 25 Year

Hyd No. 5 — Hyd No. 4 — Total storage used = 325,781 cuft

Hydrograph Report

Hyd. No. 4

DA 1.2

Hydrograph type	= SCS Runoff		Peak discharge	= 219.96 cfs
Storm frequency	= 25 yrs		Time to peak	= 716 min
Time interval	= 2 min		Hyd. volume	= 468,098 cuft
Drainage area	= 27.610 ac		Curve number	= 86
Basin Slope	= 0.0 %		Hydraulic length	= 0 ft
Tc method	= User		Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.60 in		Distribution	= Type II
Storm duration	= 24 hrs		Shape factor	= 484

DA 1.2

Hyd. No. 4 -- 25 Year
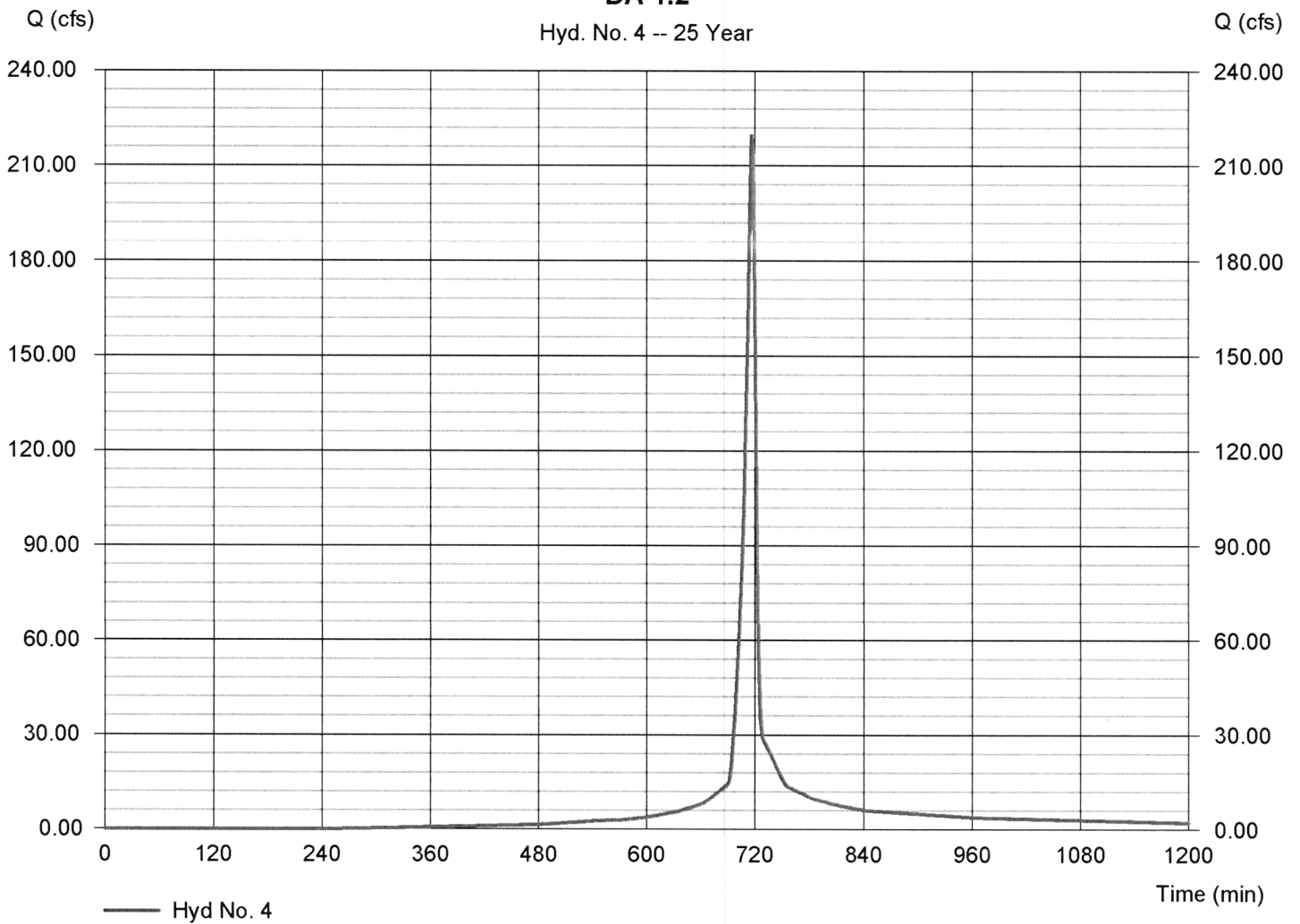
Hyd No. 4

Hydrograph Report

Hyd. No. 7

Thru Detention Basin#3

Hydrograph type	= Reservoir	Peak discharge	= 18.35 cfs
Storm frequency	= 25 yrs	Time to peak	= 740 min
Time interval	= 2 min	Hyd. volume	= 387,585 cuft
Inflow hyd. No.	= 3 - DA 2.1	Max. Elevation	= 808.20 ft
Reservoir name	= Detention Basin #3	Max. Storage	= 202,737 cuft

Storage Indication method used.
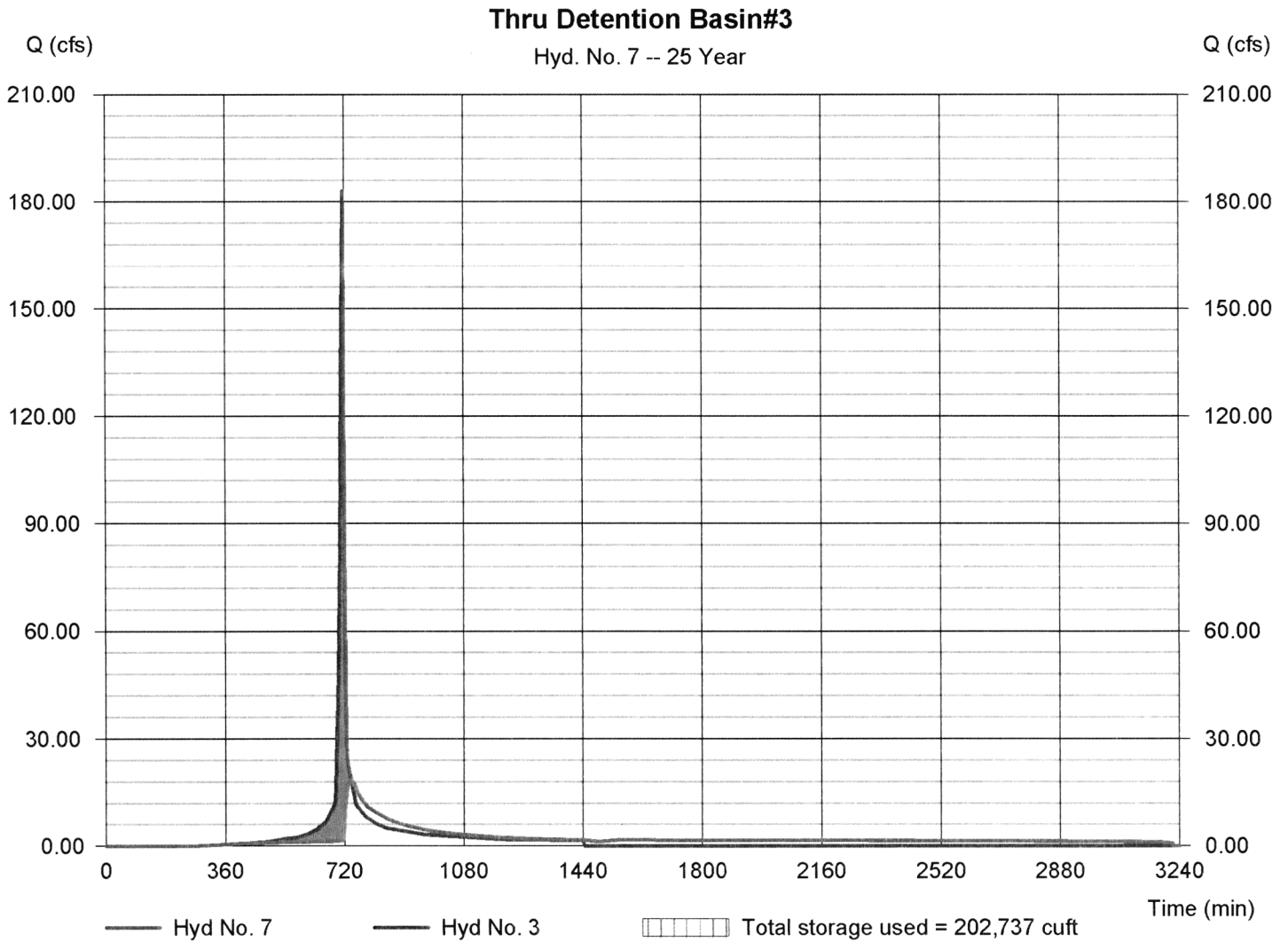
Thru Detention Basin#3

Hyd. No. 7 -- 25 Year

Hyd No. 7   Hyd No. 3   Total storage used = 202,737 cuft

Hydrograph Report

Hyd. No. 6

DA BYPASS 2.1

Hydrograph type	= SCS Runoff	Peak discharge	= 47.26 cfs
Storm frequency	= 25 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 152,760 cuft
Drainage area	= 17.410 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 17.40 min
Total precip.	= 6.60 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

DA BYPASS 2.1

Hyd. No. 6 -- 25 Year
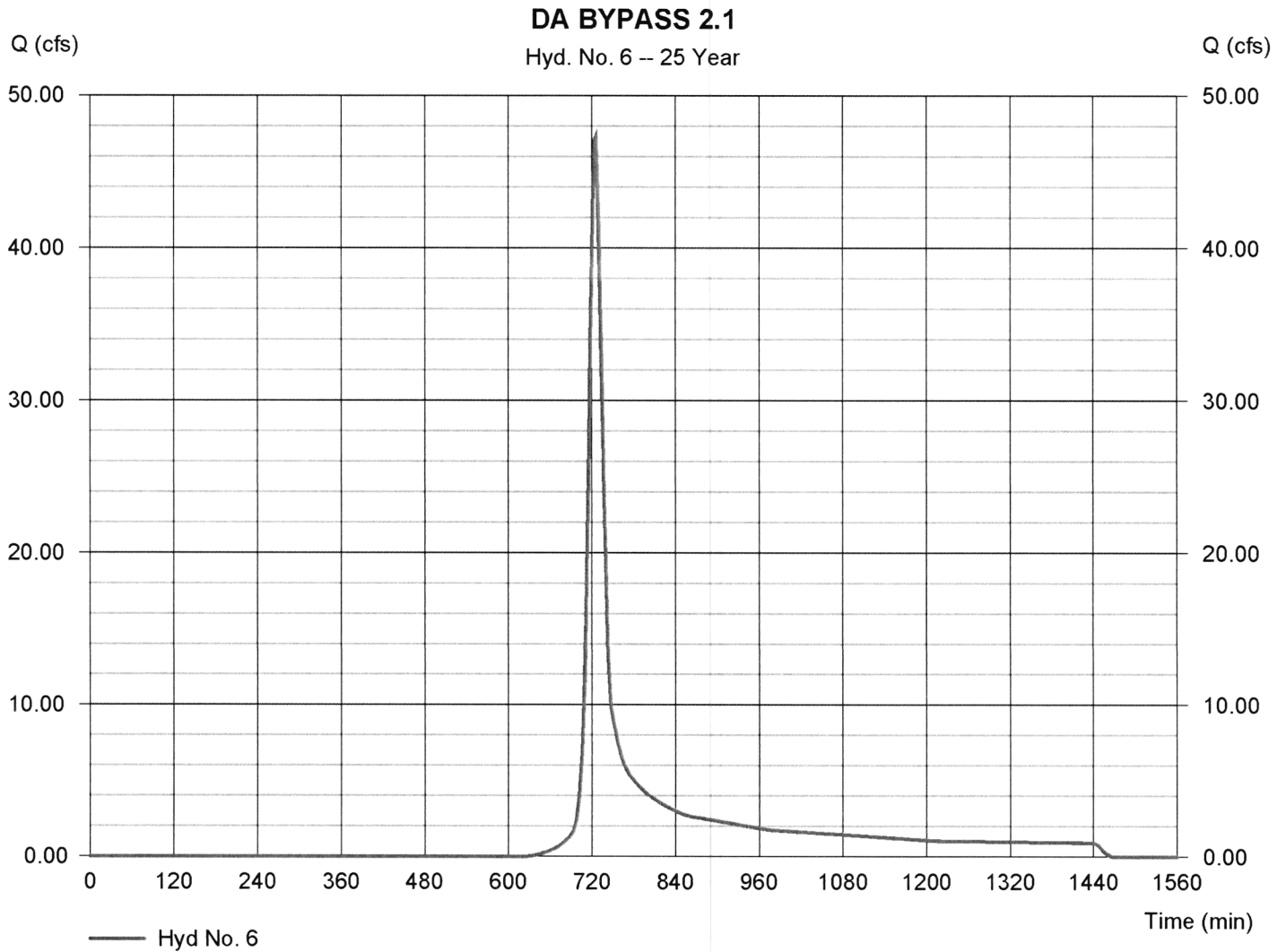
Hyd No. 6

Hydrograph Report

Hyd. No. 9

Outfall 1

Hydrograph type	= Combine	Peak discharge	= 7.168 cfs
Storm frequency	= 25 yrs	Time to peak	= 908 min
Time interval	= 2 min	Hyd. volume	= 762,119 cuft
Inflow hyds.	= 2, 5	Contrib. drain. area	= 0.000 ac
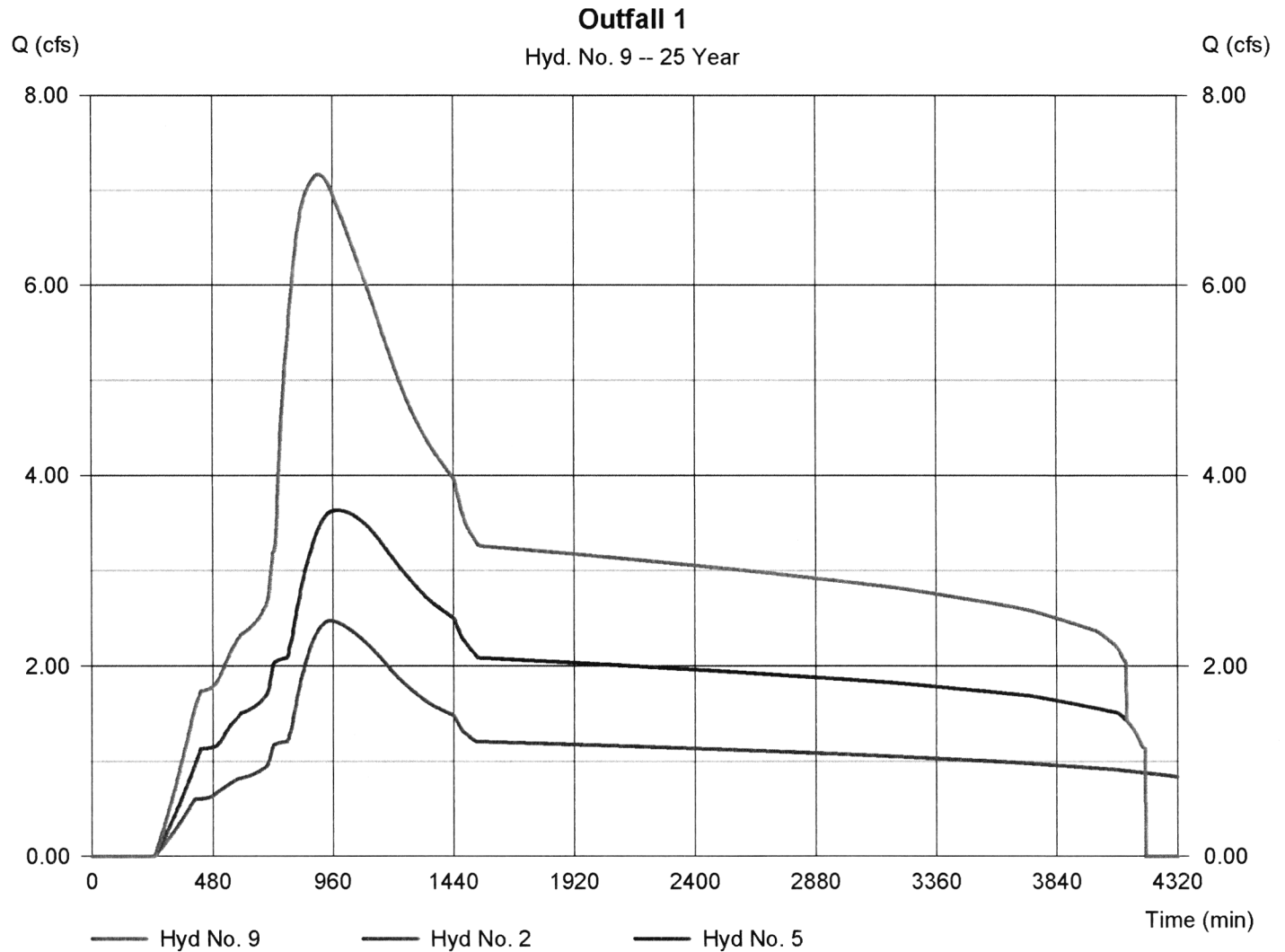
Outfall 1

Hyd. No. 9 -- 25 Year

Hydrograph Report

Hyd. No. 8

Outfall 2

Hydrograph type	= Combine	Peak discharge	= 61.80 cfs
Storm frequency	= 25 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 540,345 cuft
Inflow hyds.	= 6, 7	Contrib. drain. area	= 17.410 ac
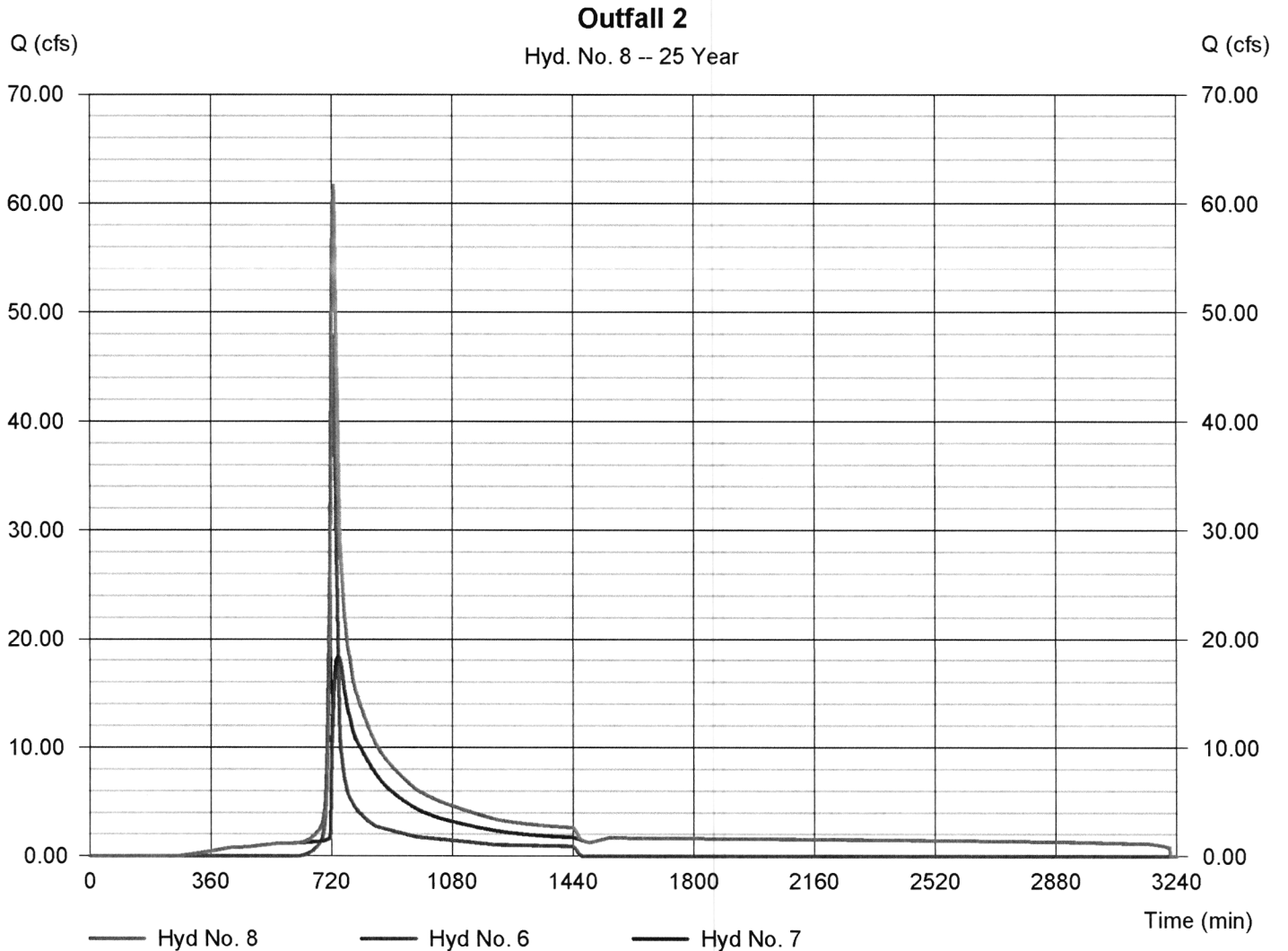
Outfall 2

Hyd. No. 8 -- 25 Year

Q (cfs)

Time (min)

—— Hyd No. 8   —— Hyd No. 6   —— Hyd No. 7

Hydrograph Report

Thursday, 06 / 25 / 2020

Hyd. No. 1

DA 1.1

Hydrograph type	= SCS Runoff	Peak discharge	= 207.53 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 454,032 cuft
Drainage area	= 17.340 ac	Curve number	= 86
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 9.40 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

DA 1.1

Hyd. No. 1 -- 100 Year
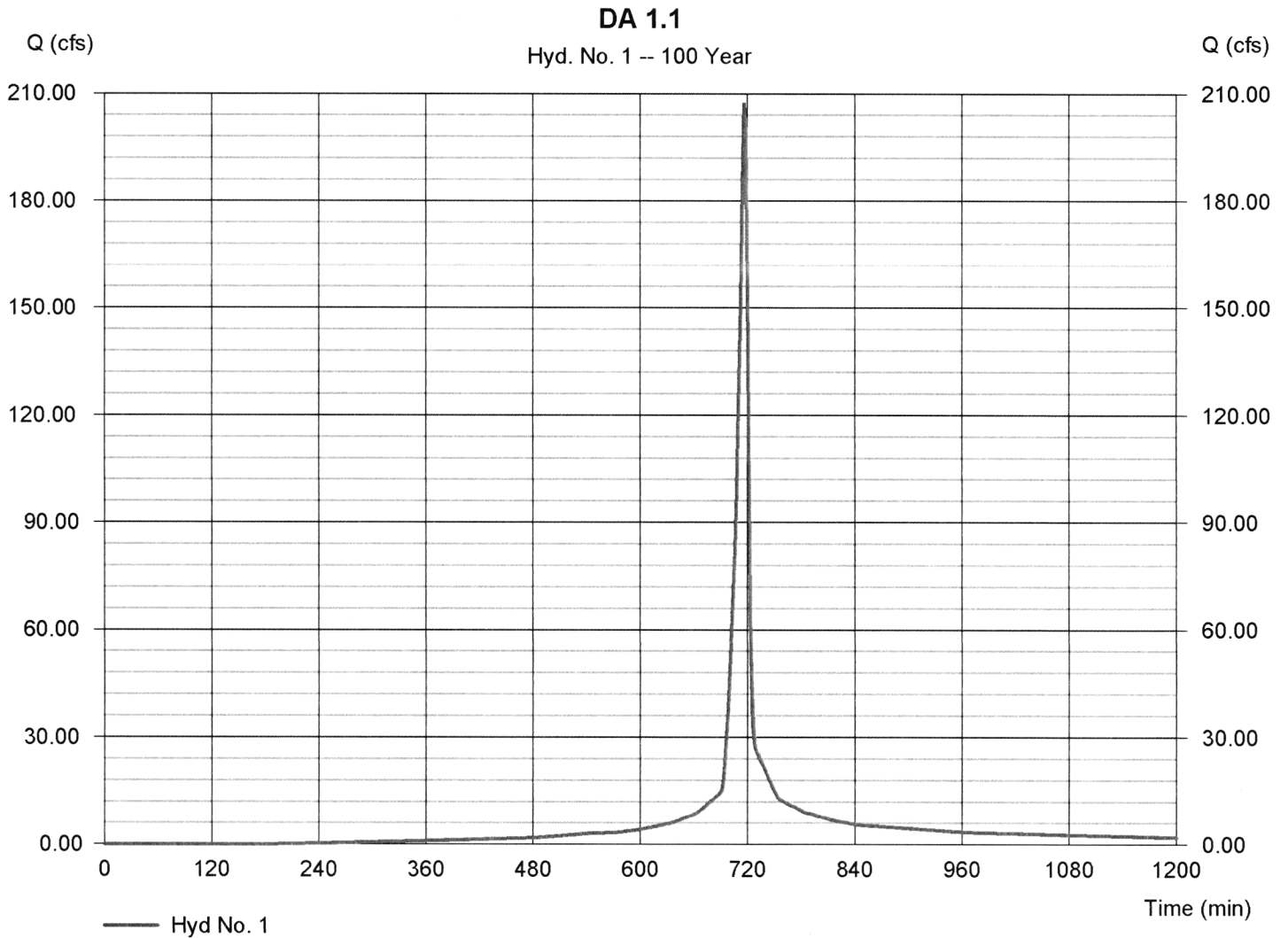
Hyd No. 1

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

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	207.53	2	716	454,032	------	-----	------	DA 1.1
2	Reservoir	37.79	2	726	454,050	1	811.14	242,775	Thru Detention Basin#1
3	SCS Runoff	277.06	2	716	602,339	------	-----	------	DA 2.1
4	SCS Runoff	330.44	2	716	722,942	------	-----	------	DA 1.2
5	Reservoir	36.40	2	736	722,987	4	805.64	394,471	Thru Detention Basin#2
6	SCS Runoff	91.39	2	724	287,176	------	-----	------	DA BYPASS 2.1
7	Reservoir	159.03	2	722	602,348	3	809.37	262,346	Thru Detention Basin#3
8	Combine	246.41	2	722	889,524	6, 7	-----	------	Outfall 2
9	Combine	72.26	2	728	1,177,037	2, 5,	-----	------	Outfall 1

Post-Development Hydraflow.gpw	Return Period: 100 Year	Thursday, 06 / 25 / 2020

Hydrograph Report

Thursday, 06 / 25 / 2020

Hyd. No. 3

DA 2.1

Hydrograph type	= SCS Runoff	Peak discharge	= 277.06 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 602,339 cuft
Drainage area	= 23.380 ac	Curve number	= 85
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 9.40 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

DA 2.1
Hyd. No. 3 -- 100 Year
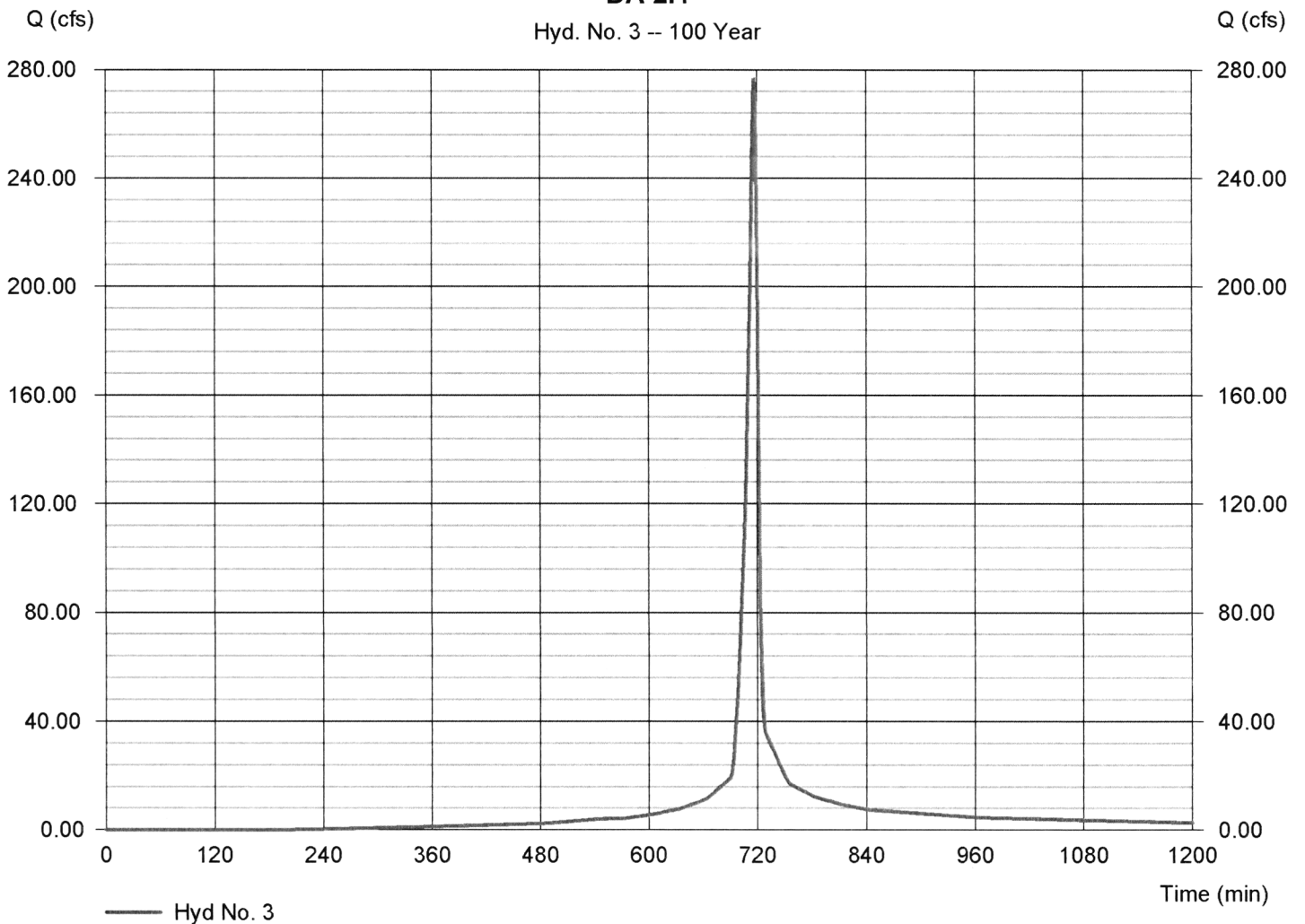
Hyd No. 3

Hydrograph Report

Thursday, 06 / 25 / 2020

Hyd. No. 2

Thru Detention Basin#1

Hydrograph type	= Reservoir		Peak discharge	= 37.79 cfs
Storm frequency	= 100 yrs		Time to peak	= 726 min
Time interval	= 2 min		Hyd. volume	= 454,050 cuft
Inflow hyd. No.	= 1 - DA 1.1		Max. Elevation	= 811.14 ft
Reservoir name	= Detention Basin #1		Max. Storage	= 242,775 cuft

Storage Indication method used.
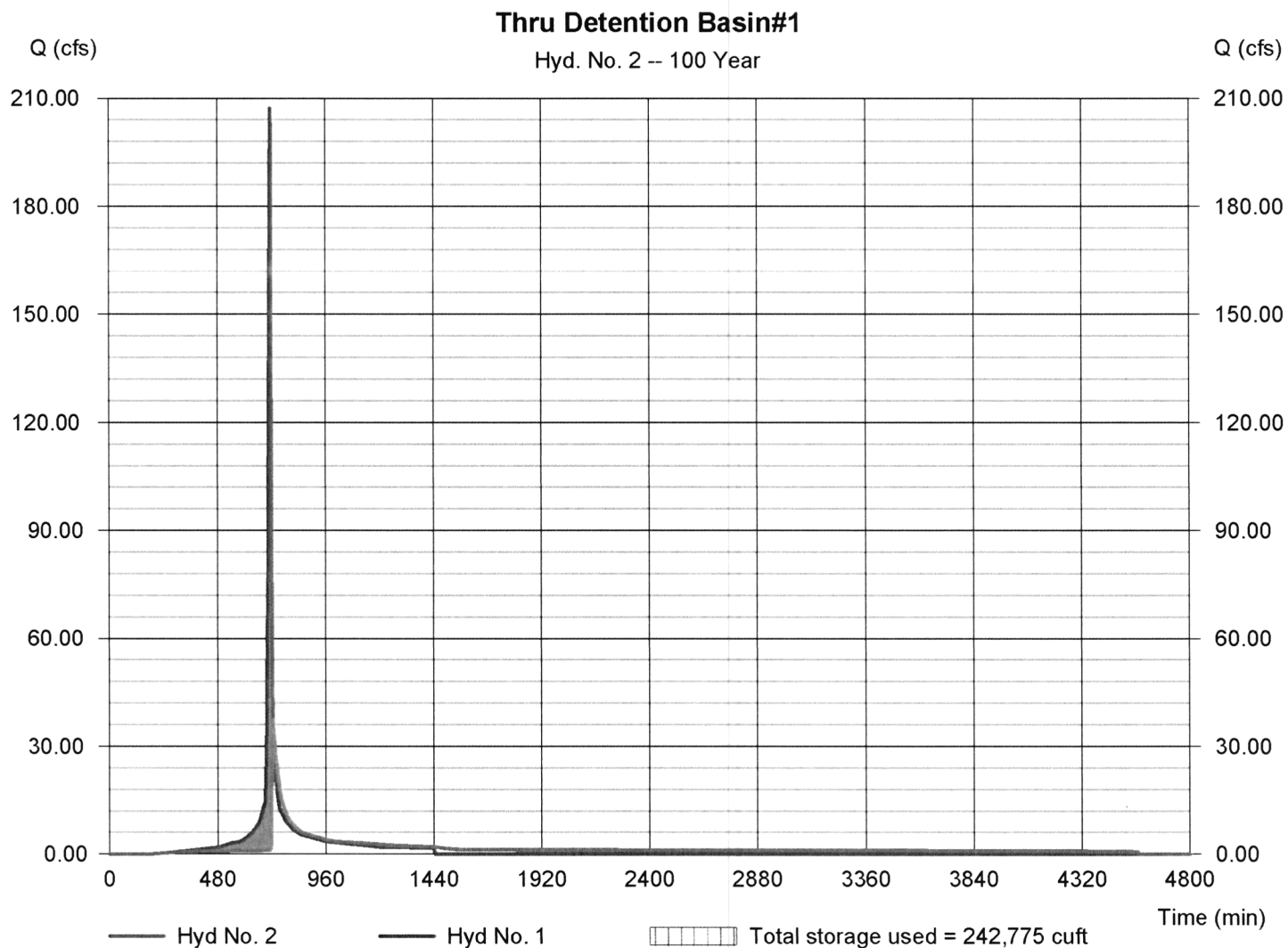
Thru Detention Basin#1
Hyd. No. 2 -- 100 Year

Hyd No. 2   Hyd No. 1   Total storage used = 242,775 cuft

Hydrograph Report
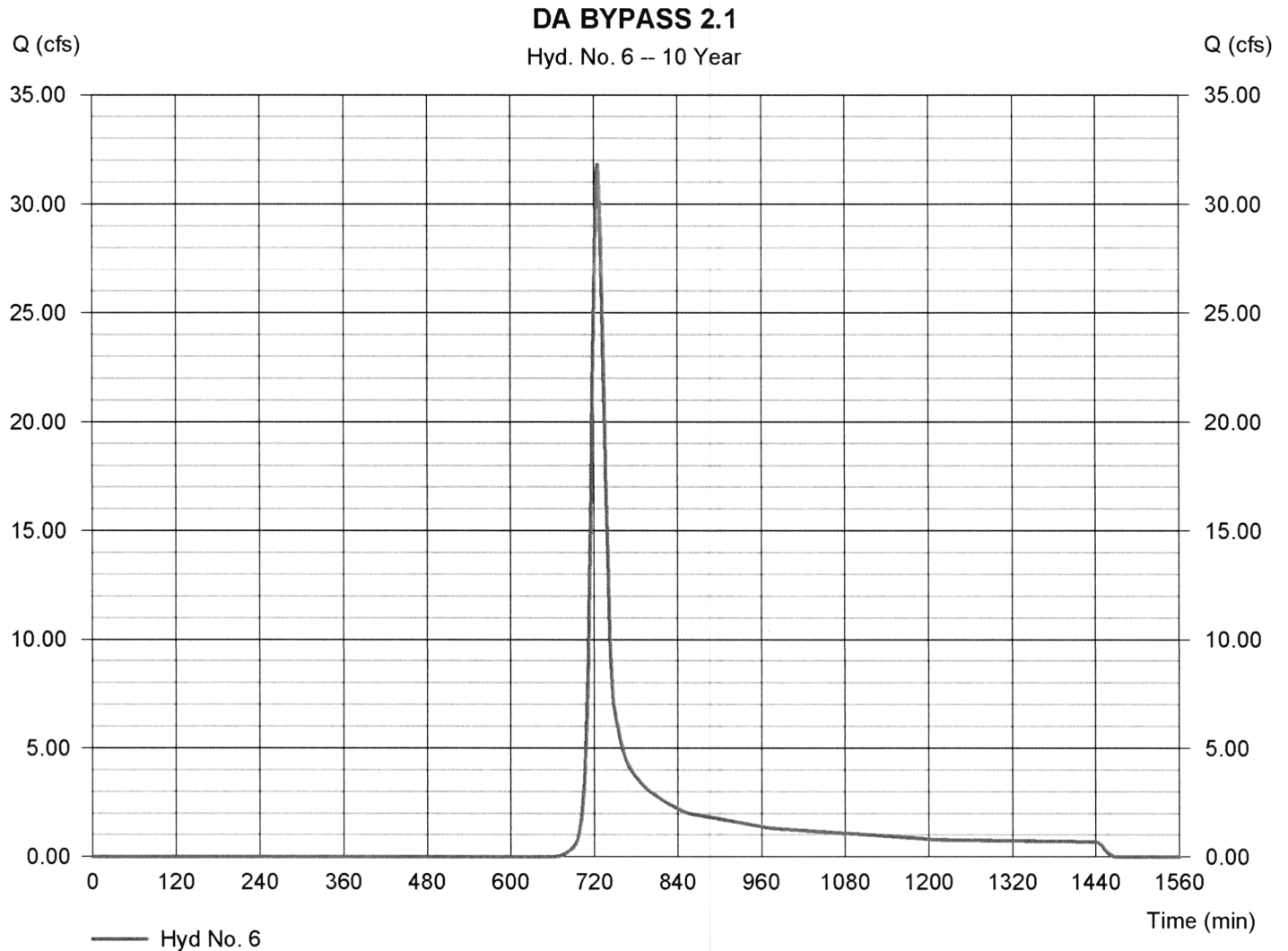
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020   Thursday, 06 / 25 / 2020

Hyd. No. 5

Thru Detention Basin#2

Hydrograph type	= Reservoir	Peak discharge	= 36.40 cfs
Storm frequency	= 100 yrs	Time to peak	= 736 min
Time interval	= 2 min	Hyd. volume	= 722,987 cuft
Inflow hyd. No.	= 4 - DA 1.2	Max. Elevation	= 805.64 ft
Reservoir name	= Detention Basin #2	Max. Storage	= 394,471 cuft

Storage Indication method used.
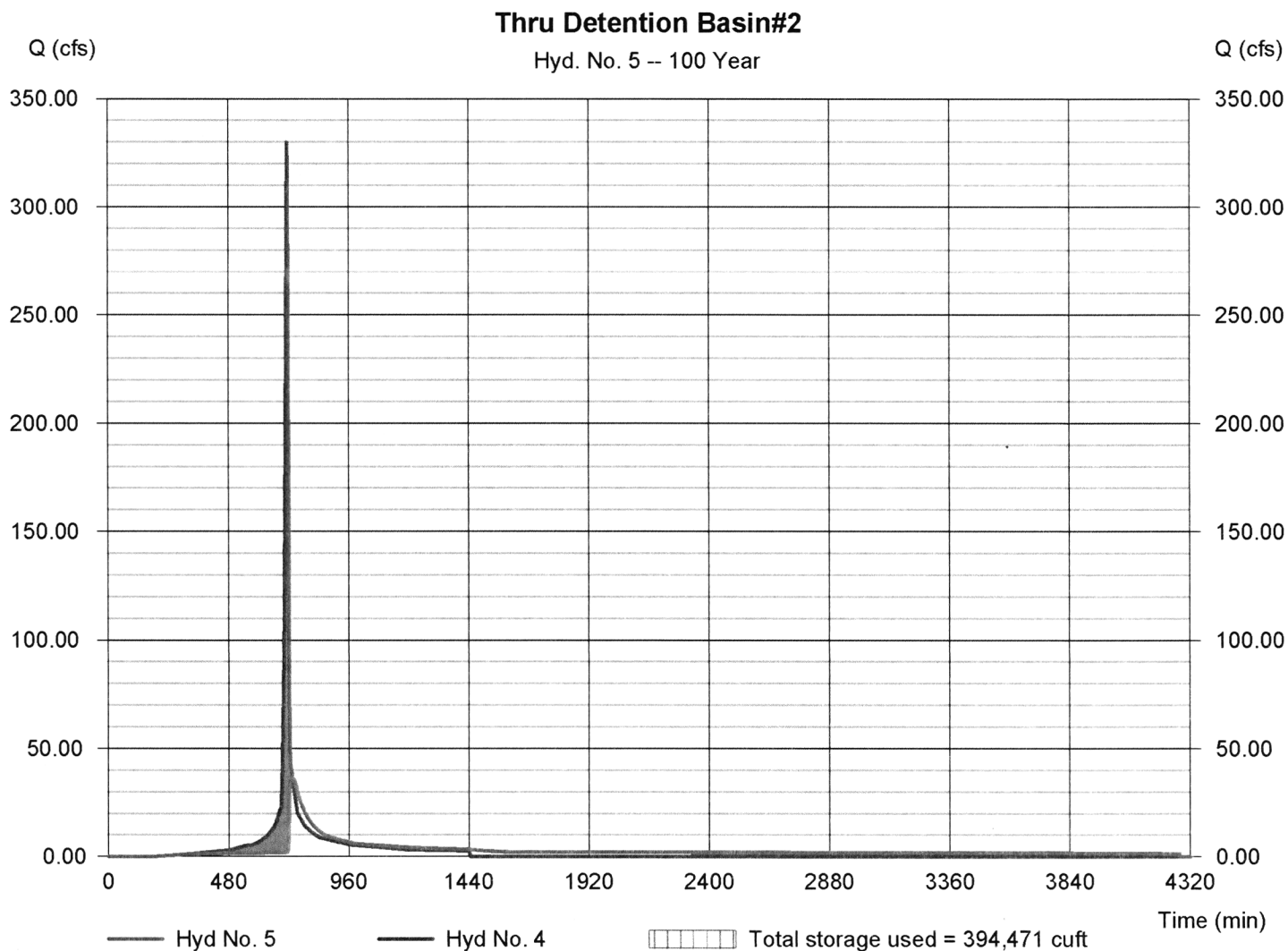
Thru Detention Basin#2

Hyd. No. 5 -- 100 Year

Hyd No. 5   Hyd No. 4   Total storage used = 394,471 cuft

Hydrograph Report

Hyd. No. 4

DA 1.2

|			
Hydrograph type	= SCS Runoff	Peak discharge	= 330.44 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 722,942 cuft
Drainage area	= 27.610 ac	Curve number	= 86
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 9.40 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

DA 1.2

Hyd. No. 4 -- 100 Year
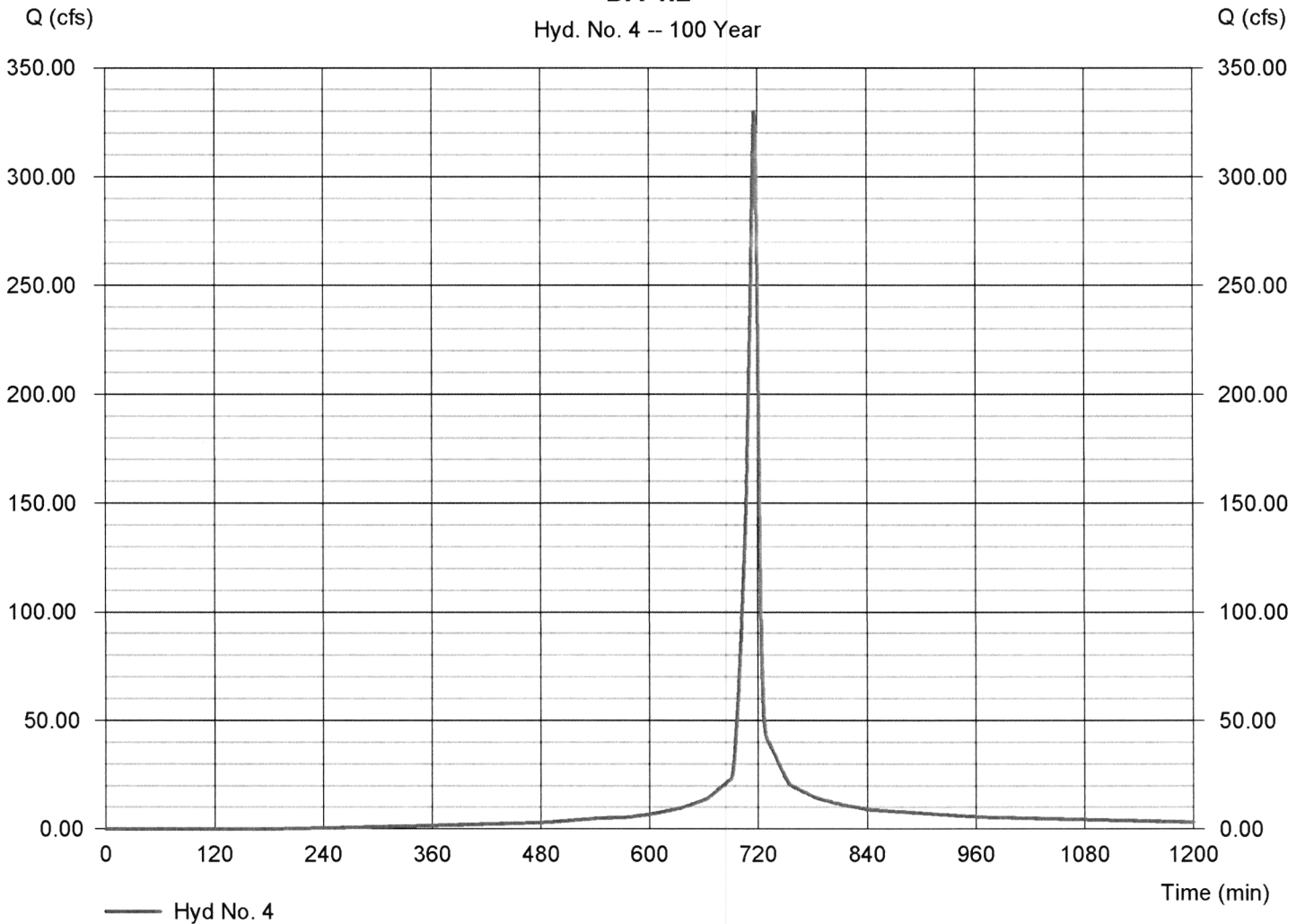
— Hyd No. 4

Hydrograph Report

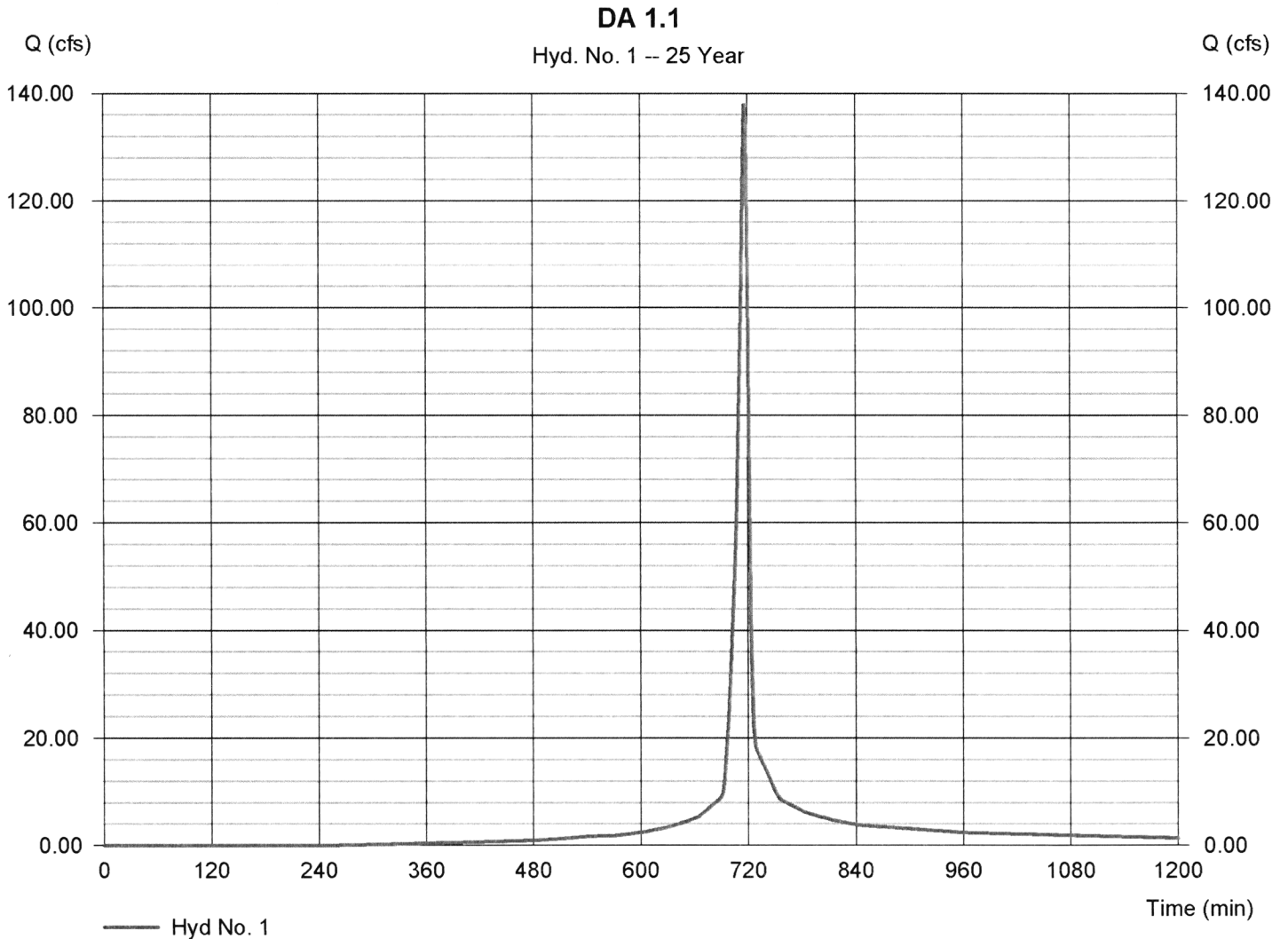Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020   Thursday, 06 / 25 / 2020

Hyd. No. 7

Thru Detention Basin#3

Hydrograph type	= Reservoir	Peak discharge	= 159.03 cfs
Storm frequency	= 100 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 602,348 cuft
Inflow hyd. No.	= 3 - DA 2.1	Max. Elevation	= 809.37 ft
Reservoir name	= Detention Basin #3	Max. Storage	= 262,346 cuft

Storage Indication method used.
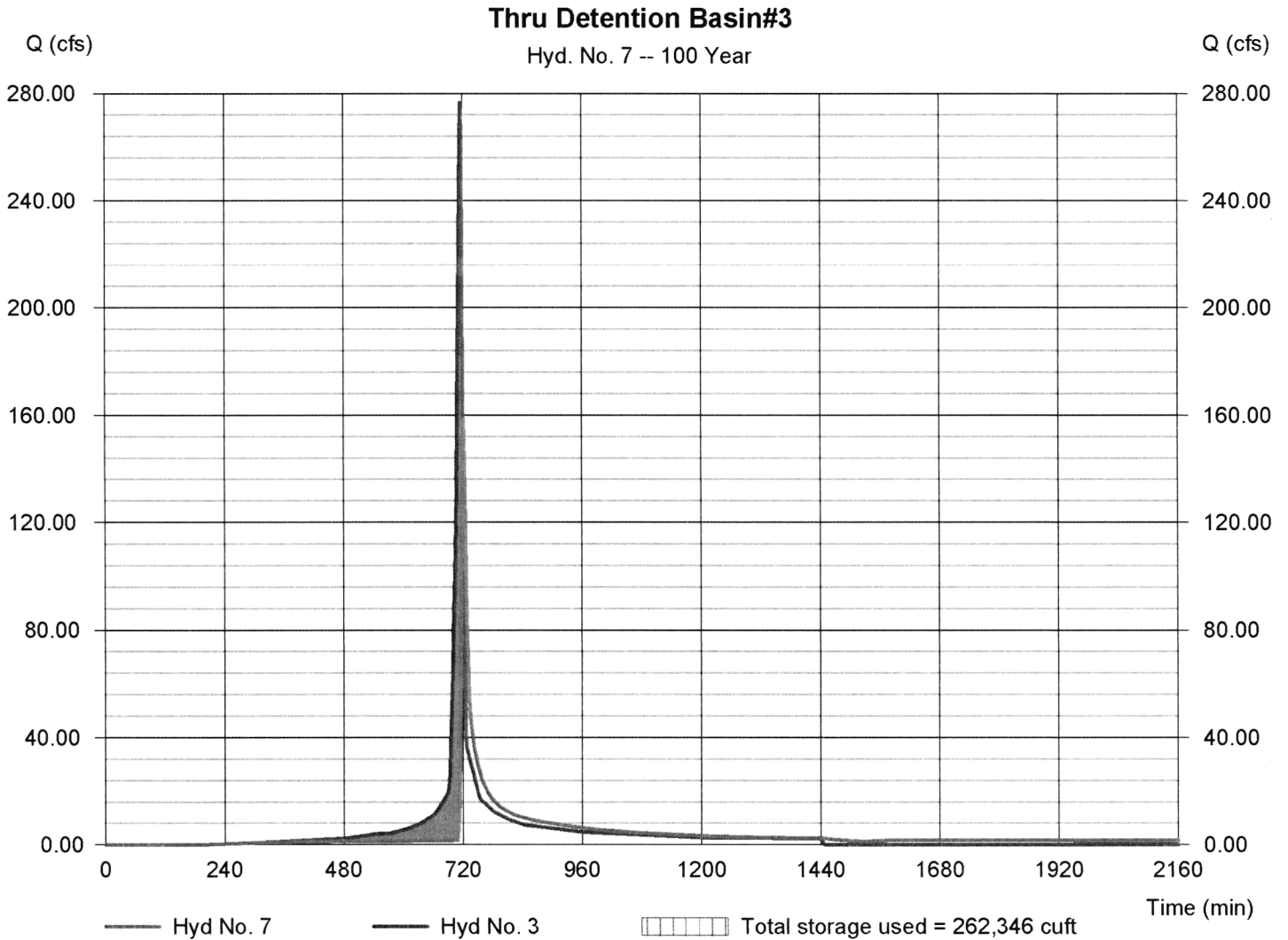
Thru Detention Basin#3
Hyd. No. 7 -- 100 Year

—— Hyd No. 7   —— Hyd No. 3   ▢▢▢▢▢▢ Total storage used = 262,346 cuft

Hydrograph Report

Hyd. No. 6

DA BYPASS 2.1

Hydrograph type	= SCS Runoff	Peak discharge	= 91.39 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 287,176 cuft
Drainage area	= 17.410 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 17.40 min
Total precip.	= 9.40 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

DA BYPASS 2.1
Hyd. No. 6 -- 100 Year
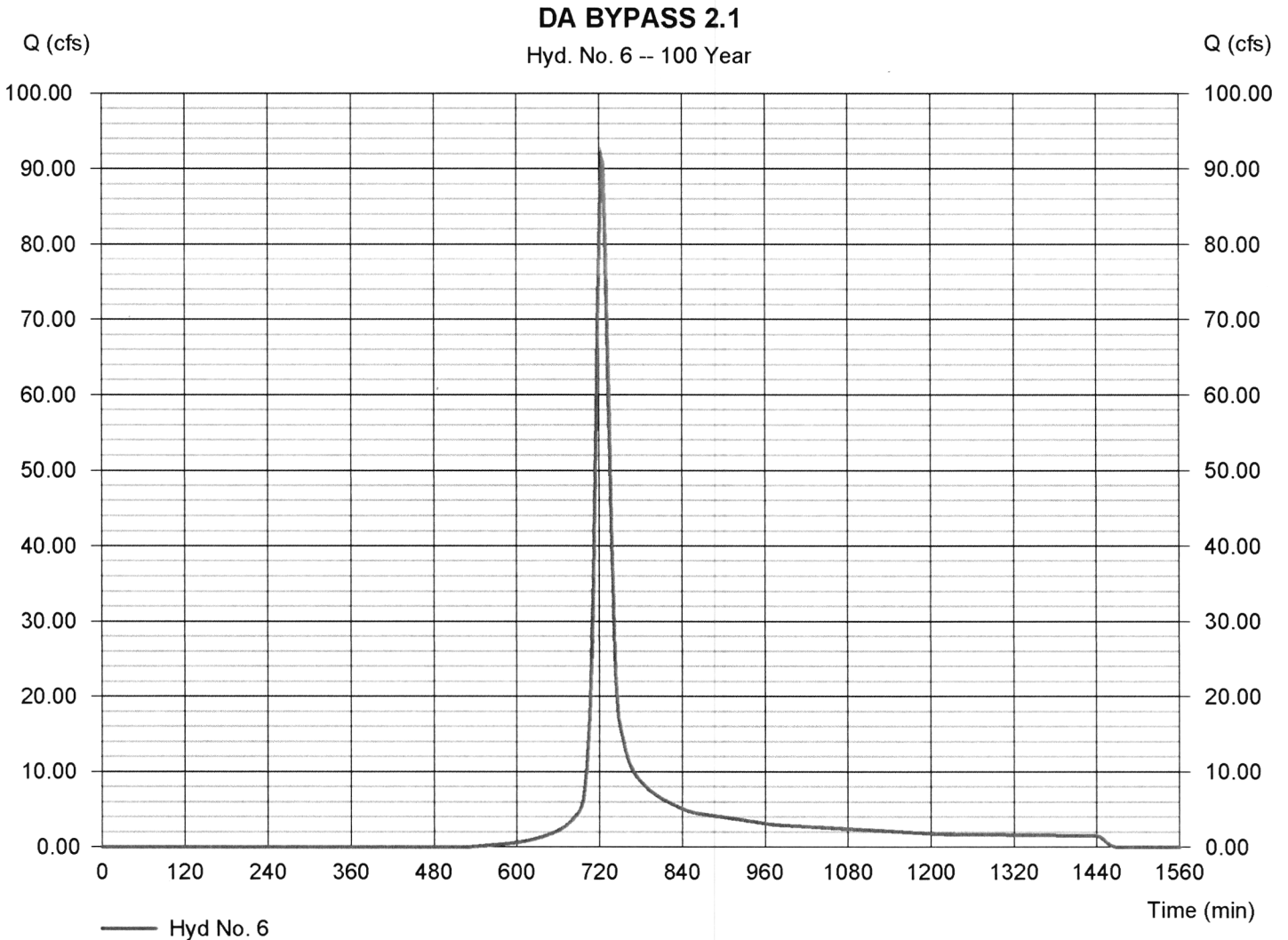
— Hyd No. 6

Hydrograph Report

Hyd. No. 9

Outfall 1

Hydrograph type	= Combine	Peak discharge	= 72.26 cfs
Storm frequency	= 100 yrs	Time to peak	= 728 min
Time interval	= 2 min	Hyd. volume	= 1,177,037 cuft
Inflow hyds.	= 2, 5	Contrib. drain. area	= 0.000 ac

Outfall 1

Hyd. No. 9 -- 100 Year

Hyd No. 9   Hyd No. 2   Hyd No. 5

Hydrograph Report

Hyd. No. 8

Outfall 2

Hydrograph type	= Combine		Peak discharge	= 246.41 cfs
Storm frequency	= 100 yrs		Time to peak	= 722 min
Time interval	= 2 min		Hyd. volume	= 889,524 cuft
Inflow hyds.	= 6, 7		Contrib. drain. area	= 17.410 ac

Outfall 2

Hyd. No. 8 -- 100 Year

Legend: Hyd No. 8 — Hyd No. 6 — Hyd No. 7

Hydraflow Rainfall Report

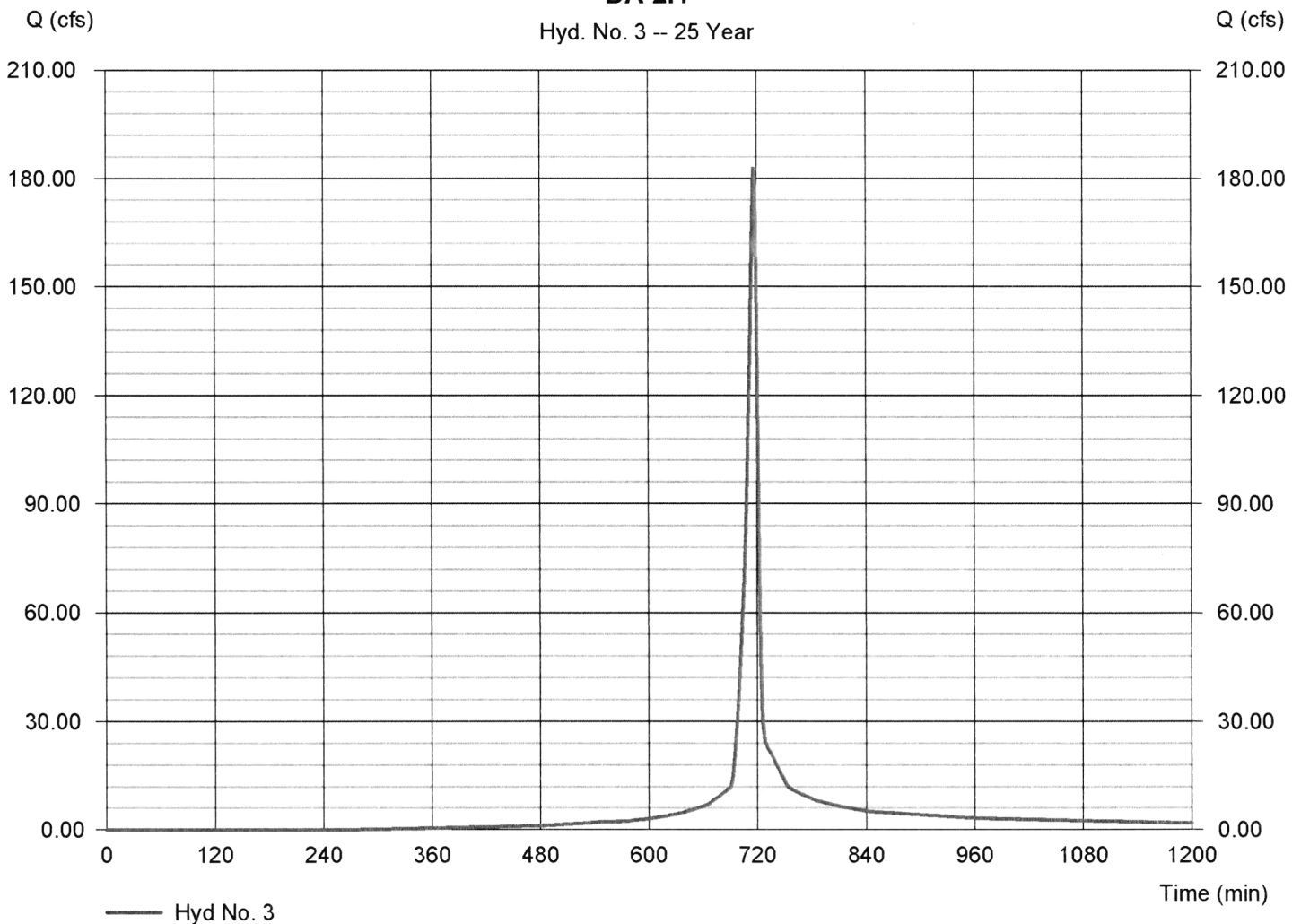Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020   Thursday, 06 / 25 / 2020

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	-------
2	69.8703	13.1000	0.8658	-------
3	0.0000	0.0000	0.0000	-------
5	79.2597	14.6000	0.8369	-------
10	88.2351	15.5000	0.8279	-------
25	102.6072	16.5000	0.8217	-------
50	114.8193	17.2000	0.8199	-------
100	127.1596	17.8000	0.8186	-------

File name: SampleFHA.idf

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	5.69	4.61	3.89	3.38	2.99	2.69	2.44	2.24	2.07	1.93	1.81	1.70
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	6.57	5.43	4.65	4.08	3.65	3.30	3.02	2.79	2.59	2.42	2.27	2.15
10	7.24	6.04	5.21	4.59	4.12	3.74	3.43	3.17	2.95	2.77	2.60	2.46
25	8.25	6.95	6.03	5.34	4.80	4.38	4.02	3.73	3.48	3.26	3.07	2.91
50	9.04	7.65	6.66	5.92	5.34	4.87	4.49	4.16	3.88	3.65	3.44	3.25
100	9.83	8.36	7.30	6.50	5.87	5.36	4.94	4.59	4.29	4.03	3.80	3.60

Tc = time in minutes. Values may exceed 60.

Two C&D Landfill Expansion Anderson Cnty\Engineering Calculations\Stormwater\Anderson County 24 hr Rainfall.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	3.30	3.60	0.00	0.00	5.50	6.60	0.00	9.40
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

PIPE SLOPE DRAIN

WHEN AND WHERE TO USE IT

PIPE SLOPE DRAINS ARE USED WHEN IT IS NECESSARY FOR WATER TO FLOW DOWN A SLOPE WITHOUT CAUSING EROSION, ESPECIALLY BEFORE A SLOPE HAS BEEN STABILIZED OR BEFORE PERMANENT DRAINAGE STRUCTURES ARE INSTALLED.

INSTALLATION:

TYPICAL PIPE SLOPE DRAINS ARE MADE OF NON-PERFORATED CORRUGATED PLASTIC PIPE.

SLOPE DRAIN SECTIONS SHOULD BE SECURELY FASTENED TOGETHER, HAVE GASKET WATERTIGHT FITTINGS, AND BE SECURELY ANCHORED INTO THE SOIL.

DIVERSION BERMS OR DIKES SHOULD DIRECT RUNOFF TO SLOPE DRAINS. THE MINIMUM DEPTH OF THESE DIKES OR BERMS SHOULD BE 1.5-FEET. THE HEIGHT OF THE BERM AROUND THE PIPE INLET SHOULD BE A MINIMUM OF 1.5-FEET HIGH AND AT LEAST 0.5-FEET HIGHER THAN THE TOP OF THE PIPE. THE BERM AT THE PIPE INLET SHALL BE COMPACTED AROUND THE PIPE. THE AREA AROUND THE INLET SHALL BE PROPERLY STABILIZED WITH ECBS, TRMS, RIPRAP OR OTHER APPLICABLE STABILIZATION TECHNIQUES.

THE AREA BELOW THE OUTLET MUST BE PROPERLY STABILIZED WITH ECBS, TRMS, RIPRAP OR OTHER APPLICABLE STABILIZATION TECHNIQUE.

IF THE PIPE SLOPE DRAIN IS CONVEYING SEDIMENT-LADEN WATER, DIRECT ALL FLOWS INTO THE SEDIMENT TRAPPING FACILITY.

PERMANENT SLOPE DRAINS SHOULD BE BURIED BENEATH THE SOIL SURFACE A MINIMUM 1.5-FEET.

INSPECTION AND MAINTENANCE:

INSPECT PIPE SLOPE DRAIN INLET AND OUTLET POINTS EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24-HOURS AFTER EACH RAINFALL EVENT THAT PRODUCES ½-INCHES OR MORE OF PRECIPITATION.

THE INLET SHOULD BE FREE FROM UNDERCUTTING, AND NO WATER SHOULD BE GOING AROUND THE POINT OF ENTRY. IF THERE ARE PROBLEMS, THE HEADWALL SHOULD BE REINFORCED WITH COMPACTED EARTH OR SANDBAGS. THE OUTLET POINT SHOULD BE FREE OF EROSION AND INSTALLED WITH APPROPRIATE OUTLET PROTECTION.

ALL TEMPORARY PIPE SLOPE DRAINS SHOULD BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY BMP IS NO LONGER NEEDED. DISTURBED SOIL AREAS RESULTING FROM REMOVAL SHOULD BE PERMANENTLY STABILIZED.

PIPE SLOPE DRAIN
(SCDHEC DETAIL RC-01, pg 2 of 2)

PERMANENT GRASSING SPECIFICATIONS: (PG)

1. ALL SEED MIXTURES FOR THE VARIOUS SEEDING SCHEDULES SHALL BE WEIGHED AND MIXED TO THE PROPER PROPORTIONS IN THE PRESENCE OF THE OWNER OR THE OWNER'S REPRESENTATIVE.
2. MAT ALL GRASSED SWALES, WATER WAYS, AND EMBANKMENTS FROM TOP OF BANK TO BOTTOM OF BANK ON ALL BANK SLOPES LESS THAN 3:1.

PERMANENT SEEDING

Maintained Turf (High Profile Lawn/Landscaped Areas)	
Planting Dates	Variety	Application Rate
April 1 - September 15	Bermuda Triangle Blend by Pennington Seed, Inc.	125 LBS/ACRE

Slopes 4H:1V or Greater	
Planting Dates	Variety	Application Rate
April 1 - September 15	Slopemaster Spring/Summer Mix by Pennington Seeding, Inc.	75 LBS/ACRE
	Slopemaster Spring/Summer Mix Composition:	
	25% Hulled Sahara Bermudagrass	
	25% Unhulled Sahara Bermudagrass	
	25% Pensacola Bahiagrass	
	10% Durana White Clover	
	10% Brown Top Millet	
	5% Weeping Lovegrass	
September 15 - March 31	Slopemaster Fall/Winter Mix by Pennington Seed, Inc.	100 LBS/ACRE
	Slopemaster Fall/Winter Mix Composition:	
	25% Unhulled Sericea Lespedeza	
	20% Unhulled Sahara Bermudagrass	
	20% Greystone Tall Fescue	
	10% Durana White Clover	
	10% Rye Grain	
	5% Weeping Lovegrass	

Slope 4H:1V or Less	
Planting Dates	Variety	Application Rate
April 1 - September 15	Hulled Sahara Bermudagrass	75 LBS/ACRE
September 15 - March 31	Unhulled Sahara Bermudagrass	100 LBS/ACRE

**Contact - Pennington Seed, Inc - 1236 Eden Street, Columbia, SC 29201

SURFACE WATER PROTECTION PLAN
(CONSTRUCTION SEQUENCE - COMPLIANCE OPTION B)

1. RECEIVE NPDES COVERAGE FROM SCDHEC (AND APPROVAL FROM MS4, IF APPLICABLE).
2. PRE-CONSTRUCTION MEETING (ON-SITE IF MORE THAN 10 DISTURBED ACRES AND NON-LINEAR PROJECT).
3. NOTIFY SCDHEC EQC REGIONAL OFFICE (AND MS4, WHEN APPLICABLE) 48 HOURS PRIOR TO BEGINNING LAND-DISTURBING ACTIVITIES.
4. INSTALLATION OF CONSTRUCTION ENTRANCE(S).
5. FLAGGING OF BUFFER ZONE.
6. CLEARING & GRUBBING ONLY AS NECESSARY FOR INSTALLATION OF PERIMETER CONTROLS.
7. INSTALLATION OF PERIMETER CONTROLS (E.G., SILT FENCE).
8. BEGIN WEEKLY INSPECTIONS OF BUFFER ZONES AND ADJACENT BMPS. CONDUCT ROUTINE MAINTENANCE AS NECESSARY (SEE BMP'S CONSTRUCTION DETAILS).
9. CLEARING AND GRUBBING ONLY IN AREAS OF BASINS/TRAPS/PONDS.
10. INSTALLATION OF BASINS/TRAPS/PONDS AND INSTALLATION OF DIVERSIONS TO THOSE STRUCTURES (OUTLET STRUCTURES MUST BE COMPLETELY INSTALLED AS SHOWN ON THE DETAILS BEFORE PROCEEDING TO THE NEXT STEP. AREAS DRAINING TO THESE STRUCTURES CANNOT BE DISTURBED UNTIL THE STRUCTURES AND DIVERSIONS TO THESE STRUCTURES ARE COMPLETELY INSTALLED).
11. CLEARING AND GRUBBING OF SITE OR DEMOLITION (SEDIMENT AND EROSION CONTROL MEASURES FOR THESE AREAS MUST ALREADY BE INSTALLED).
12. ROUGH GRADING.
13. INSTALLATION OF STORM DRAIN SYSTEM AND PLACEMENT OF INLET PROTECTION AS EACH INLET IS INSTALLED.
14. FINE GRADING, ETC.
15. PERMANENT/FINAL STABILIZATION.
16. CLEAN-OUT OF DETENTION BASINS THAT WERE USED AS SEDIMENT CONTROL STRUCTURES AND RE-GRADING OF DETENTION POND BOTTOMS; IF NECESSARY, MODIFICATION OF SEDIMENT BASIN RISER TO CONVERT TO DETENTION BASIN OUTLET STRUCTURE.
17. REMOVAL OF TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES AFTER ENTIRE AREA DRAINING TO THE STRUCTURE IS FINALLY STABILIZED (THE DEPARTMENT RECOMMENDS THAT THE PROJECT OWNER/OPERATOR HAVE THE SWPPP PREPARED OR REGISTRATION EQUIVALENT APPROVE THE REMOVAL OF TEMPORARY STRUCTURES).
18. BUD BUFFER ZONE INSPECTIONS AND MAINTENANCE.
19. PERFORM AS-BUILT SURVEYS OF ALL DETENTION STRUCTURES AND SUBMIT TO SCDHEC OR MS4 FOR ACCEPTANCE.
20. SUBMIT NOTICE OF TERMINATION (NOT) TO SCDHEC AS APPROPRIATE.

BMP MAINTENANCE NOTES:
- ALL BMPS WHOSE DISCHARGES REACH ADJACENT SURFACE WATERS SHOULD BE MAINTAINED UNTIL FINAL STABILIZATION IS REACHED.
- ALL BMPS DISCHARGING TO A SURFACE WATER MUST BE MAINTAINED TO PREVENT THE DISCHARGE OF SEDIMENT-LADEN STORMWATER TO THE BEST EXTENT POSSIBLE.
- ANY ACCUMULATED SEDIMENT WITHIN BMPS ADJACENT TO SURFACE WATER IS TO BE REMOVED WHEN THE SEDIMENT DEPTH REACHES THE CLEANOUT HEIGHT OF EACH SPECIFIC BMP.
- RECORDS OF MAINTENANCE OF ALL BMPS DISCHARGING TO SURFACE WATERS MUST BE KEPT WITHIN THE SWPPP'S MAINTENANCE LOG.

SLOPE DRAIN DETAIL
N.T.S.

LEVEL SECTION

TYPICAL PIPE SLOPE DRAIN LAYOUT

PLAN VIEW

CHECK DAMS DETAIL
N.T.S.

SIDE VIEW

END VIEW

NOTES:
1. DITCH CHECK SHOULD NEVER BE USED IN LIVE STREAM.
2. DITCH CHECK IS NOT ADEQUATE FOR MORE THAN 2 ACRES OF DRAINAGE.
3. RIP RAP SHALL BE CLASS A.
4. RIP RAP MAP BE HAND PLACED OR MECHANICALLY PLACED AND SHAPED.
5. REMOVAL AND DISPOSAL OF DITCH CHECK IS INCLUDED IN THE BID PRICE OF "DITCH CHECK".
6. SLOPES OF DITCH CHECK SHALL BE NO STEEPER THAN 2:1, BUT MAY BE FLATTENED DUE TO TRAFFIC SAFETY, AS DIRECTED BY THE ENGINEER.
7. HEIGHT OF DITCH CHECK SHALL BE NO MORE THAN 2.0 FEET.
8. REMOVE COLLECTED SEDIMENT IN FRONT OF DITCH CHECK AS DETERMINED BY THE ENGINEER AT NO ADDITIONAL EXPENSE.

ELEVATION OF THE TOE OF DITCH CHECK (A) IS EQUAL TO THE ELEVATION OF THE TOP OF THE NEXT DITCH CHECK (B)

TRM SLOPE REINFORCEMENT MATTING DETAIL
N.T.S.

NOTE:
ADDITIONAL STAPLES MIGHT BE REQUIRED AT IRREGULARITY ELEVATION CHANGES OF THE GROUND SURFACE. ALWAYS SPACE STAPLES AT 1.5 FT. INTERVALS IN CENTER OF THE DITCH (V-SHAPE) AND AT TOE OF (TRAPEZOID-SHAPE) CHANNEL. ENSURE ALL FASTENERS ARE INSTALLED TO MAKE DIRECT CONTACT WITH TRM AND SOIL.

PLUNGE POOL
N.T.S

CHANNEL INSTALLATION DETAIL
(PROVIDED BY NORTH AMERICAN GREEN REVISED JAN. 04)

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED, DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP x 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) ACROSS THE WIDTH OF THE BLANKET.
3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM™, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4"-6" (10cm-15cm) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10cm) APART AND 4" (10cm) ON CENTER TO SECURE BLANKETS.
5. FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN A 6" (15cm) DEEP x 6" (15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 2"-5" (5cm-12.5cm) (DEPENDING ON BLANKET TYPE) AND STAPLED.
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30-40 FOOT (9m-12m) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10cm) APART AND 4" (10cm) ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN A 6" (15cm) DEEP x 6" (15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

NOTES:
IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.
HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

CRITICAL POINTS
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

EROSION CONTROL MATTING DETAIL
N.T.S.

DEFINITION:
A PROTECTIVE COVERING (BLANKET) OR SOIL STABILIZATION MAT USED TO ESTABLISH EXIT VEGETATION ON STEEP SLOPES, CHANNELS, OR SHORELINES.

PURPOSE:
TO PROVIDE A MICROCLIMATE WHICH PROTECTS YOUNG VEGETATION AND PROMOTES ITS ESTABLISHMENT.
TO REINFORCE THE TURF TO RESIST FORCES OF EROSION DURING STORM EVENTS.

CONDITIONS:
MATTING AND BLANKETS CAN BE APPLIED ON STEEP SLOPES WHERE EROSION HAZARD IS HIGH AND PLANTING IS LIKELY TO BE SLOW IN PROVIDING ADEQUATE PROTECTIVE COVER. CONCENTRATED FLOW AREAS, SUCH AS DITCHES AND CUTS AND FILLS WITHIN STREAM BUFFERS, SHALL BE STABILIZED WITH THE APPROPRIATE EROSION CONTROL MATTING OR BLANKETS. ON STREAMBANKS OR TIDAL SHORELINES WHERE MOVING WATER IS PRESENT, MATTING CAN PREVENT NEW PLANTINGS FROM BEING WASHED AWAY.

MATERIALS:
GEOTEXTILE EROSION CONTROL BLANKET SHALL BE SC150 AS MANUFACTURED BY NORTH AMERICAN GREEN OR EQUIVALENT.

TYPICAL SLOPE DRAIN CROSSING LIFT ACCESS ROADS
N.T.S.

TEE SECTION

UPPER LIFT ACCESS ROAD

LOWER LIFT ACCESS ROAD

FLARED END SECTION

PLUNGE POOL (SEE DETAIL)

GEOTEXTILE EROSION CONTROL BLANKET SHALL BE SC150 AS MANUFACTURED BY NORTH AMERICAN GREEN OR EQUIVALENT.

GEOTEXTILE EROSION CONTROL BLANKET SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATION (TYP.)

SLOPE

DETENTION BASIN 1 BERM DETAIL
N.T.S.

CONTRACTOR TO TIE ROPE TO SKIMMER AND STAKE TO TOP OF BERM
CONTRACTOR TO USE EROSION CONTROL MATTING FOR ALL 3:1 SLOPES. NO SUBSTITUTION ALLOW WITHOUT DESIGN PROFESSIONAL APPROVAL.
10' (MIN.)
24' RIP RAP (D₅₀=6") EMERGENCY SPILLWAY ELEV. = 811.00
TOP OF DAM
TOP OF BERM ELEV. = 815.00
PRINCIPAL SPILLWAY ELEV. 810.50
OUTLET CONTROL BOX
6" FAIRCLOTH SKIMMER TO BE REMOVED ONCE SITE HAS REACHED 70% STABILIZATION
3:1 SLOPE
RCP OUTLET PIPE TO BE OUTFITTED WITH O-RING JOINTS
3:1 SLOPE
1:1 SLOPE
CRUSHED STONE OR CONCRETE PAD
CONCRETE FES
24" CLASS III TONGUE & GROOVE RCP @ 1.00%
FLOW
OUTLET PIPE INV. ELEV. = 803.00
ANTI-SEEP COLLARS
EXISITING IMPERVIOUS CORE
FES INV. ELEV. = 802.00
BEDROCK OR OTHER IMPERVIOUS SURFACE
ORIGINAL FLOW LINE
KEY TRENCH
4' 2' 4'

NOTES:
1. EXCAVATE EMERGENCY SPILLWAY IN NATURAL GROUND OR PROVIDE CONCRETE SPILLWAY IN FILL AREA.
2. PROVIDE ANTI-SEEP COLLARS.
3. PROVIDE DOCUMENTATION FOR MUNICIPAL APPROVAL TO JUSTIFY ANY VARIANCES FROM THIS DETAIL.

DETENTION BASIN 2 BERM DETAIL
N.T.S.

CONTRACTOR TO TIE ROPE TO SKIMMER AND STAKE TO TOP OF BERM
CONTRACTOR TO USE EROSION CONTROL MATTING FOR ALL 3:1 SLOPES. NO SUBSTITUTION ALLOW WITHOUT DESIGN PROFESSIONAL APPROVAL.
10' (MIN.)
25' RIP RAP (D₅₀=6") EMERGENCY SPILLWAY ELEV. = 805.75
TOP OF DAM
TOP OF BERM ELEV. = 807.00
PRINCIPAL SPILLWAY ELEV. 805.00
OUTLET CONTROL BOX
8" FAIRCLOTH SKIMMER TO BE REMOVED ONCE SITE HAS REACHED 70% STABILIZATION
3:1 SLOPE
RCP OUTLET PIPE TO BE OUTFITTED WITH O-RING JOINTS
3:1 SLOPE
1:1 SLOPE
CRUSHED STONE OR CONCRETE PAD
CONCRETE FES
42" CLASS III TONGUE & GROOVE RCP @ 1.00%
FLOW
OUTLET PIPE INV. ELEV. = 799.00
ANTI-SEEP COLLARS
IMPERVIOUS CORE
FES INV. ELEV. = 798.00
BEDROCK OR OTHER IMPERVIOUS SURFACE
ORIGINAL FLOW LINE
KEY TRENCH
4' 2' 4'

NOTES:
1. IMPERVIOUS CORE
   1.1. USE CLAY OR OTHER IMPERVIOUS MATERIALS.
   1.2. PLACE MATERIAL IN 6" LAYERS COMPACTED TO 95% STANDARD PROCTOR.
   1.3. DEPTH "D" MUST BE TO IMPERVIOUS MATERIAL, OR TO MINIMUM DEPTH EQUAL TO "H".
2. EXCAVATE EMERGENCY SPILLWAY IN NATURAL GROUND OR PROVIDE CONCRETE SPILLWAY IN FILL AREA.
3. PROVIDE ANTI-SEEP COLLARS.
4. PROVIDE DOCUMENTATION FOR MUNICIPAL APPROVAL TO JUSTIFY ANY VARIANCES FROM THIS DETAIL.

DETENTION BASIN 3 BERM DETAIL
N.T.S.

CONTRACTOR TO TIE ROPE TO SKIMMER AND STAKE TO TOP OF BERM
CONTRACTOR TO USE EROSION CONTROL MATTING FOR ALL 3:1 SLOPES. NO SUBSTITUTION ALLOW WITHOUT DESIGN PROFESSIONAL APPROVAL.
10' (MIN.)
40' RIP RAP (D₅₀=6") EMERGENCY SPILLWAY ELEV. = 808.50
TOP OF DAM
TOP OF BERM ELEV. = 810.50
PRINCIPAL SPILLWAY ELEV. 808.00
OUTLET CONTROL BOX
TWO (2) 5' FAIRCLOTH SKIMMERS TO BE REMOVED ONCE SITE HAS REACHED 70% STABILIZATION
3:1 SLOPE
RCP OUTLET PIPE TO BE OUTFITTED WITH O-RING JOINTS
3:1 SLOPE
1:1 SLOPE
CRUSHED STONE OR CONCRETE PAD
CONCRETE FES
36" CLASS III TONGUE & GROOVE RCP @ 0.54%
FLOW
OUTLET PIPE INV. ELEV. = 802.00
ANTI-SEEP COLLARS
IMPERVIOUS CORE
FES INV. ELEV. = 801.50
BEDROCK OR OTHER IMPERVIOUS SURFACE
ORIGINAL FLOW LINE
KEY TRENCH
4' 2' 4'

NOTES:
1. IMPERVIOUS CORE
   1.1. USE CLAY OR OTHER IMPERVIOUS MATERIALS.
   1.2. PLACE MATERIAL IN 6" LAYERS COMPACTED TO 95% STANDARD PROCTOR.
   1.3. DEPTH "D" MUST BE TO IMPERVIOUS MATERIAL, OR TO MINIMUM DEPTH EQUAL TO "H".
2. EXCAVATE EMERGENCY SPILLWAY IN NATURAL GROUND OR PROVIDE CONCRETE SPILLWAY IN FILL AREA.
3. PROVIDE ANTI-SEEP COLLARS.
4. PROVIDE DOCUMENTATION FOR MUNICIPAL APPROVAL TO JUSTIFY ANY VARIANCES FROM THIS DETAIL.

OUTLET CONTROL STRUCTURE 1 DETAIL
N.T.S.

PRINCIPAL OVERFLOW (TOP OF STR., ALL SIDES)
100-YR ELEVATION EL. = 811.14
25-YR ELEVATION EL. =810.32
10-YR ELEVATION EL. = 809.48
1.5' WIDE X 0.58' TALL WEIR EL. = 809.92
TOP OF RISER EL. = 810.50
5'-0"
4'-0"
0.58
1.50
THE SKIMMER DEVICE SHALL BE REMOVED FROM OUTLET STRUCTURE ONCE SITE IS 70% STABILIZED
100 LF of 24" RCP OUTLET PIPE AT 1.00%
2-YR ELEVATION EL. = 807.19
CONTRACTOR TO CONNECT 6" SKIMMER TO 3" ORIFICE
BOTTOM OF STR INV. EL. = 803.00
POND BOTTOM
OUTLET PIPE INV. EL. = 803.00
2'-0"   6"
7' X 8.5' X 0'-6" THICK FOUNDATION WITH #4 BARS @ 12" O.C.E.W. (3" CL. FROM BOTTOM)
6" THICK CONC. WALLS W/ #5's @ 12" VERTICAL AND #4's @ 12" HORIZONTAL TYPICAL ALL SIDES

NOTES:
1. CONTRACTOR MAY USE PRECAST CONCRETE SECTIONS THAT MEET OR EXCEED THE REQUIREMENTS OF ASTM C478 IN LIEU OF CAST-IN-PLACE CONCRETE.
2. TRASH RACK NOT SHOWN.

EPOXY MORTAR MEETING ASTM C-881, TYPE IV, GRADE 3, CLASS "C" SHALL BE UTILIZED TO ATTACH OUTLET STRUCTURE TO THE FOUNDATION IF NOT POURED MONOLITHICALLY WITH THE FOUNDATION

OUTLET CONTROL STRUCTURE 2 DETAIL
N.T.S.

PRINCIPAL OVERFLOW (TOP OF STR., ALL SIDES)
100-YR ELEVATION EL. = 805.67
25-YR ELEVATION EL. = 804.87
10-YR ELEVATION EL. = 804.13
2' WIDE X 0.5' TALL WEIR EL. = 804.50
TOP OF RISER EL. = 805.00
5'-0"
4'-0"
0.5'
2.0
THE SKIMMER DEVICE SHALL BE REMOVED FROM OUTLET STRUCTURE ONCE SITE IS 70% STABILIZED
100 LF of 42" RCP OUTLET PIPE AT 1.00%
2-YR ELEVATION EL. = 802.40
CONTRACTOR TO CONNECT 8" SKIMMER TO 4" ORIFICE
BOTTOM OF STR INV. EL. = 799.00
POND BOTTOM
OUTLET PIPE INV. EL. = 799.00
2'-0"   6"
7' X 8.5' X 0'-6" THICK FOUNDATION WITH #4 BARS @ 12" O.C.E.W. (3" CL. FROM BOTTOM)
6" THICK CONC. WALLS W/ #5's @ 12" VERTICAL AND #4's @ 12" HORIZONTAL TYPICAL ALL SIDES

NOTES:
1. CONTRACTOR MAY USE PRECAST CONCRETE SECTIONS THAT MEET OR EXCEED THE REQUIREMENTS OF ASTM C478 IN LIEU OF CAST-IN-PLACE CONCRETE.
2. TRASH RACK NOT SHOWN.

EPOXY MORTAR MEETING ASTM C-881, TYPE IV, GRADE 3, CLASS "C" SHALL BE UTILIZED TO ATTACH OUTLET STRUCTURE TO THE FOUNDATION IF NOT POURED MONOLITHICALLY WITH THE FOUNDATION

OUTLET CONTROL STRUCTURE 3 DETAIL
N.T.S.

PRINCIPAL OVERFLOW (TOP OF STR., ALL SIDES)
100-YR ELEVATION EL. = 809.34
25-YR ELEVATION EL. = 808.20
10-YR ELEVATION EL. = 807.66
2-YR ELEVATION EL. = 806.09
3' WIDE X 1' TALL WEIR EL. = 807
TOP OF RISER EL. = 808.00
5'-0"
4'-0"
1'
3.0
THE SKIMMER DEVICE SHALL BE REMOVED FROM OUTLET STRUCTURE ONCE SITE IS 70% STABILIZED
92 LF of 36" RCP OUTLET PIPE AT 0.54%
CONTRACTOR TO CONNECT TWO (2) 5' SKIMMER TO 4" ORIFICE
BOTTOM OF STR INV. EL. = 802.00
POND BOTTOM
OUTLET PIPE INV. EL. = 802.00
2'-0"   6"
7' X 8.5' X 0'-6" THICK FOUNDATION WITH #4 BARS @ 12" O.C.E.W. (3" CL. FROM BOTTOM)
6" THICK CONC. WALLS W/ #5's @ 12" VERTICAL AND #4's @ 12" HORIZONTAL TYPICAL ALL SIDES

NOTES:
1. CONTRACTOR MAY USE PRECAST CONCRETE SECTIONS THAT MEET OR EXCEED THE REQUIREMENTS OF ASTM C478 IN LIEU OF CAST-IN-PLACE CONCRETE.
2. TRASH RACK NOT SHOWN.

EPOXY MORTAR MEETING ASTM C-881, TYPE IV, GRADE 3, CLASS "C" SHALL BE UTILIZED TO ATTACH OUTLET STRUCTURE TO THE FOUNDATION IF NOT POURED MONOLITHICALLY WITH THE FOUNDATION