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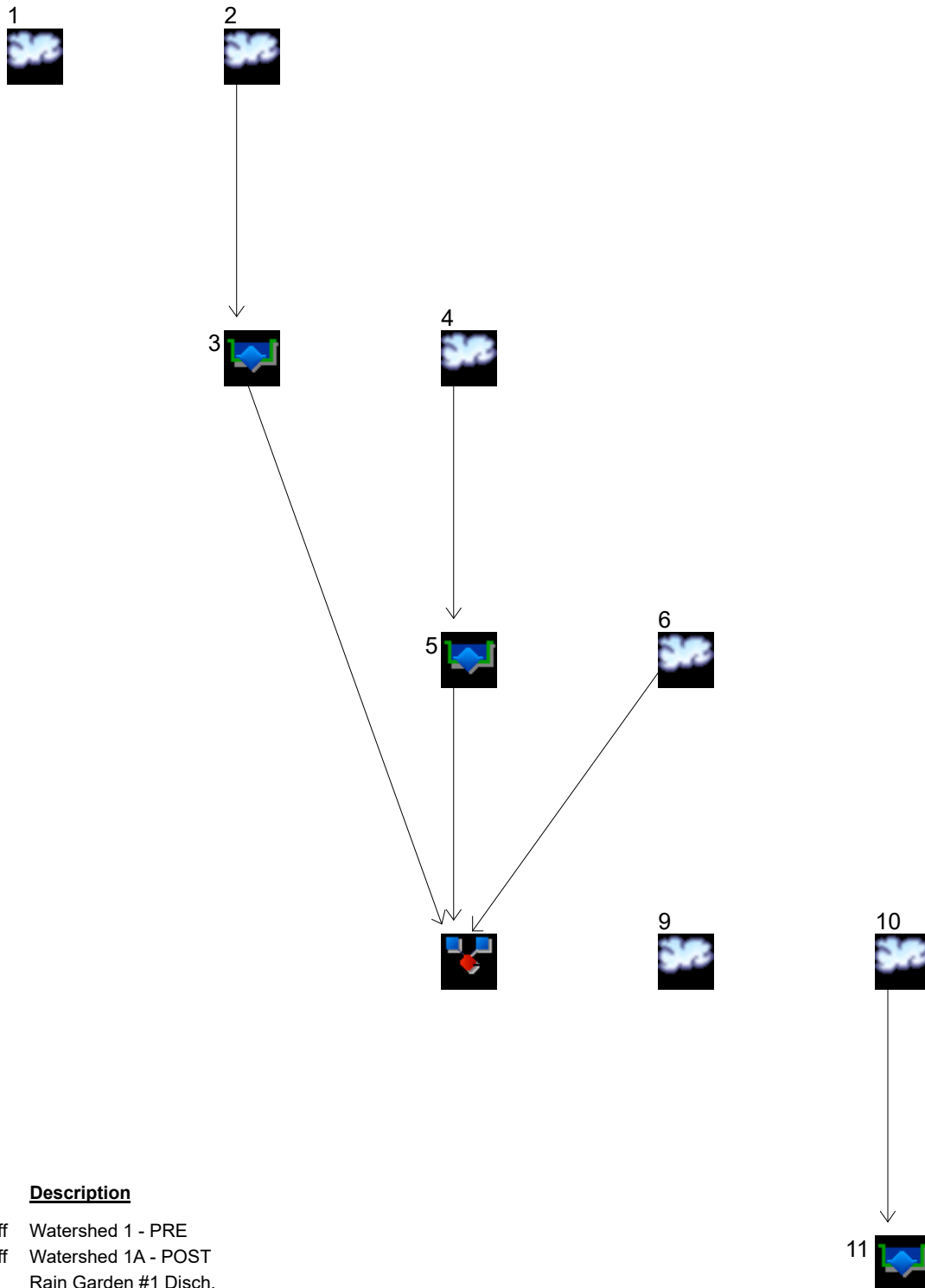
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Watershed Model Schematic

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066



Legend

Hyd.	Origin	Description
1	SCS Runoff	Watershed 1 - PRE
2	SCS Runoff	Watershed 1A - POST
3	Reservoir	Rain Garden #1 Disch.
4	SCS Runoff	Watershed 1B - POST
5	Reservoir	Rain Garden #2 Disch.
6	SCS Runoff	Watershed 1C - POST
7	Combine	Watershed 1 - POST Combined
9	SCS Runoff	Watershed 2 - PRE
10	SCS Runoff	Watershed 2 - POST
11	Reservoir	Rain Garden #3 Disch.

Hydrograph Return Period Recap

Hydroflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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	-----	-----	2.369	-----	4.778	7.104	10.63	13.47	16.64	Watershed 1 - PRE
2	SCS Runoff	-----	-----	0.981	-----	1.879	2.730	4.003	5.012	6.141	Watershed 1A - POST
3	Reservoir	2	-----	0.000	-----	0.134	0.434	2.432	4.183	5.775	Rain Garden #1 Disch.
4	SCS Runoff	-----	-----	0.139	-----	0.286	0.427	0.640	0.809	0.998	Watershed 1B - POST
5	Reservoir	4	-----	0.065	-----	0.240	0.411	0.626	0.793	0.981	Rain Garden #2 Disch.
6	SCS Runoff	-----	-----	1.704	-----	3.806	5.866	9.006	11.53	14.39	Watershed 1C - POST
7	Combine	3, 5, 6	-----	1.704	-----	4.027	6.208	9.517	12.20	16.43	Watershed 1 - POST Combined
9	SCS Runoff	-----	-----	0.148	-----	0.272	0.387	0.556	0.688	0.834	Watershed 2 - PRE
10	SCS Runoff	-----	-----	0.198	-----	0.356	0.500	0.712	0.877	1.059	Watershed 2 - POST
11	Reservoir	10	-----	0.000	-----	0.021	0.066	0.288	0.513	0.821	Rain Garden #3 Disch.

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description	
1	SCS Runoff	2.369	1	750	15,996	-----	-----	-----	Watershed 1 - PRE	
2	SCS Runoff	0.981	1	739	5,374	-----	-----	-----	Watershed 1A - POST	
3	Reservoir	0.000	1	787	0	2	107.18	5,008	Rain Garden #1 Disch.	
4	SCS Runoff	0.139	1	726	547	-----	-----	-----	Watershed 1B - POST	
5	Reservoir	0.065	1	744	362	4	115.52	139	Rain Garden #2 Disch.	
6	SCS Runoff	1.704	1	733	8,969	-----	-----	-----	Watershed 1C - POST	
7	Combine	1.704	1	733	9,331	3, 5, 6	-----	-----	Watershed 1 - POST Combined	
9	SCS Runoff	0.148	1	725	523	-----	-----	-----	Watershed 2 - PRE	
10	SCS Runoff	0.198	1	725	686	-----	-----	-----	Watershed 2 - POST	
11	Reservoir	0.000	1	960	0	10	129.81	579	Rain Garden #3 Disch.	
6359 - TR55 REV1.gpw					Return Period: 2 Year			Tuesday, Sep 14, 2021		

Hydrograph Report

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Tuesday, Sep 14, 2021

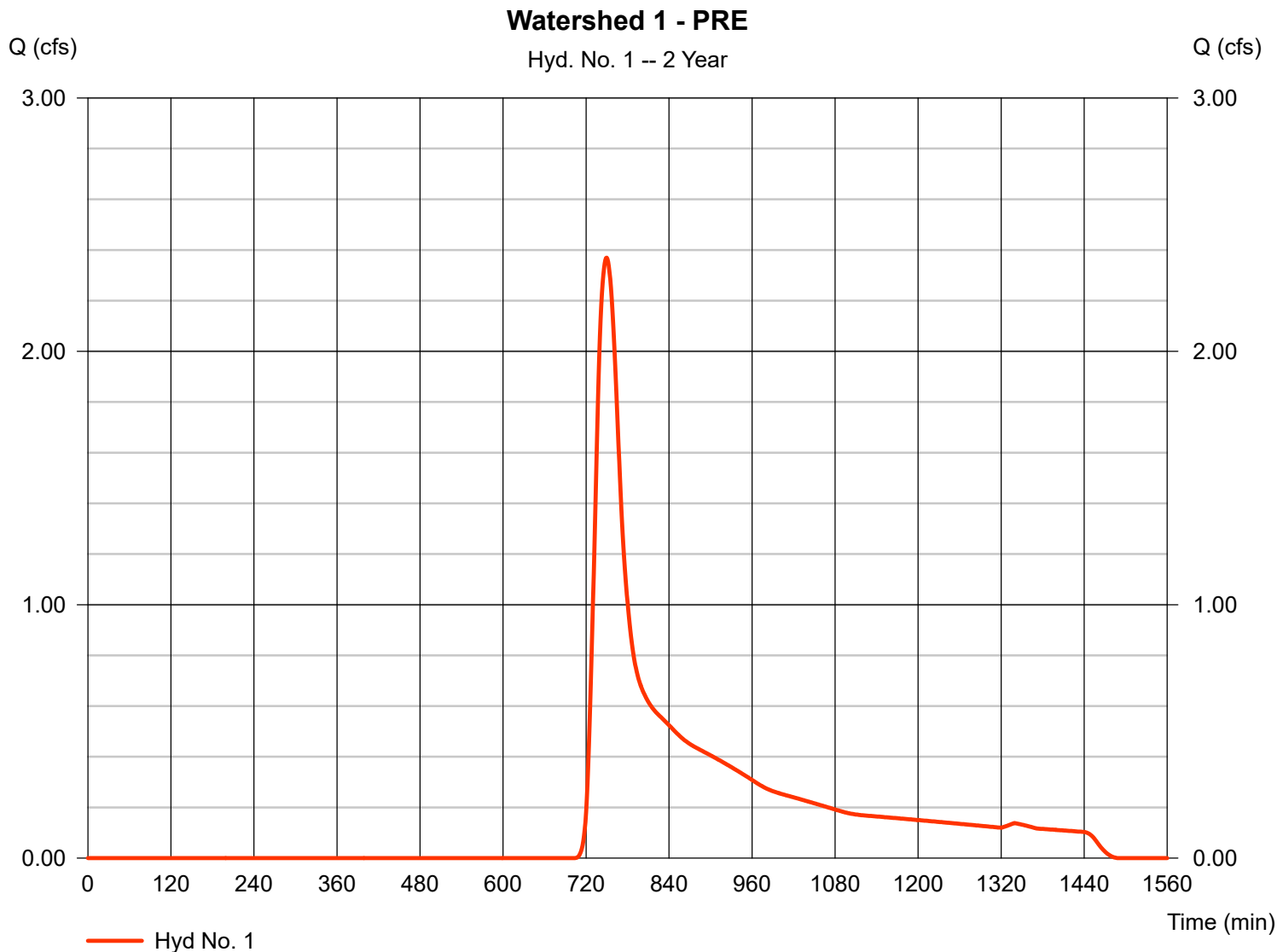
Hyd. No. 1

Watershed 1 - PRE

Hydrograph type = SCS Runoff
Storm frequency = 2 yrs
Time interval = 1 min
Drainage area = 6.890 ac
Basin Slope = 0.0 %
Tc method = TR55
Total precip. = 3.45 in
Storm duration = 24 hrs

Peak discharge = 2.369 cfs
Time to peak = 750 min
Hyd. volume = 15,996 cuft
Curve number = 63*
Hydraulic length = 0 ft
Time of conc. (Tc) = 31.00 min
Distribution = Type III
Shape factor = 484

* Composite (Area/CN) = [(5.190 x 60) + (1.400 x 66) + (0.300 x 98)] / 6.890



TR55 Tc Worksheet

Hyd. No. 1

Watershed 1 - PRE

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
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)	= 3.45	0.00	0.00	
Land slope (%)	= 1.00	0.00	0.00	
Travel Time (min)	= 27.29	+ 0.00	+ 0.00	= 27.29
Shallow Concentrated Flow				
Flow length (ft)	= 175.00	510.00	0.00	
Watercourse slope (%)	= 1.00	7.50	0.00	
Surface description	= Unpaved	Unpaved	Paved	
Average velocity (ft/s)	= 1.61	4.42	0.00	
Travel Time (min)	= 1.81	+ 1.92	+ 0.00	= 3.73
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 0.00	0.00	0.00	
Flow length (ft)	= 0.0	0.0	0.0	
Travel Time (min)	= 0.00	+ 0.00	+ 0.00	= 0.00
Total Travel Time, Tc				31.00 min

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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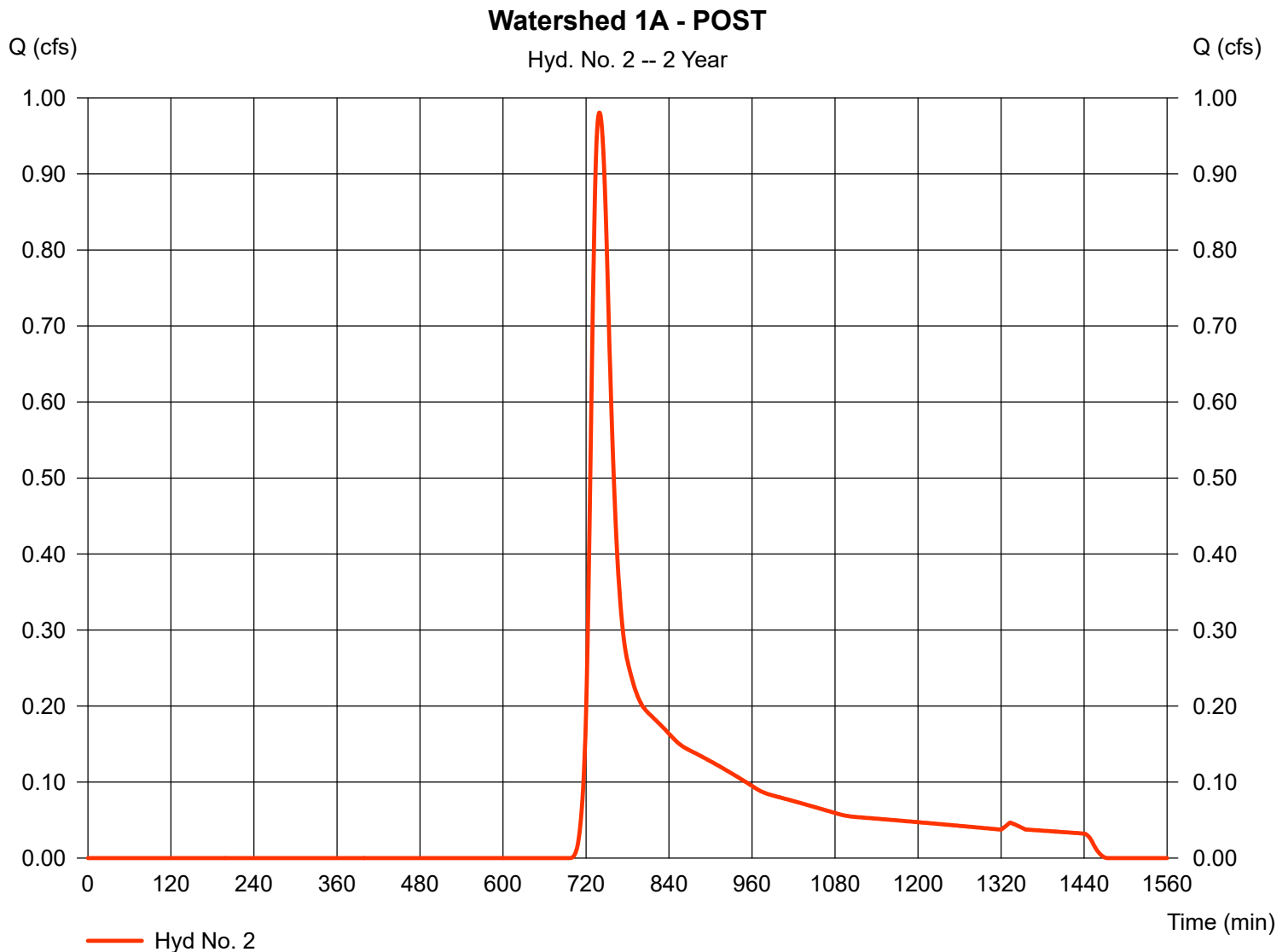
Hyd. No. 2

Watershed 1A - POST

Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 1 min
 Drainage area = 2.020 ac
 Basin Slope = 0.0 %
 Tc method = TR55
 Total precip. = 3.45 in
 Storm duration = 24 hrs

Peak discharge = 0.981 cfs
 Time to peak = 739 min
 Hyd. volume = 5,374 cuft
 Curve number = 65*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 20.40 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = $[(0.150 \times 39) + (0.200 \times 60) + (1.350 \times 61) + (0.320 \times 98)] / 2.020$



TR55 Tc Worksheet

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Hyd. No. 2

Watershed 1A - POST

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 3.45	0.00	0.00	
Land slope (%)	= 1.00	0.00	0.00	
Travel Time (min)	= 18.13	+ 0.00	+ 0.00	= 18.13
Shallow Concentrated Flow				
Flow length (ft)	= 170.00	247.00	0.00	
Watercourse slope (%)	= 1.70	8.00	0.00	
Surface description	= Unpaved	Unpaved	Paved	
Average velocity (ft/s)	= 2.10	4.56	0.00	
Travel Time (min)	= 1.35	+ 0.90	+ 0.00	= 2.25
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 0.00	0.00	0.00	
Flow length (ft)	= 0.0	0.0	0.0	
Travel Time (min)	= 0.00	+ 0.00	+ 0.00	= 0.00
Total Travel Time, Tc				20.40 min

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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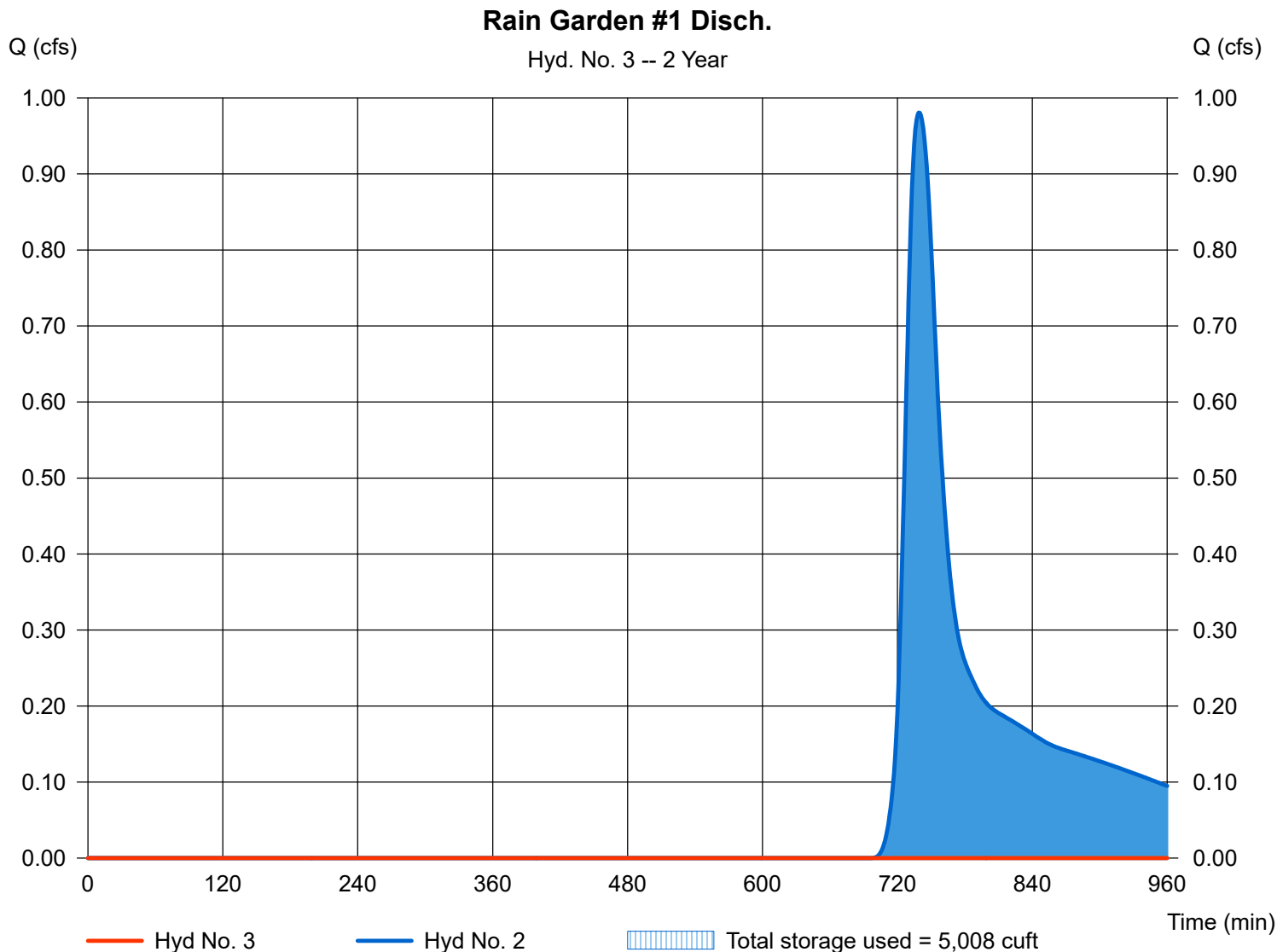
Hyd. No. 3

Rain Garden #1 Disch.

Hydrograph type = Reservoir
Storm frequency = 2 yrs
Time interval = 1 min
Inflow hyd. No. = 2 - Watershed 1A - POST
Reservoir name = Rain Garden #1 REV

Peak discharge = 0.000 cfs
Time to peak = 787 min
Hyd. volume = 0 cuft
Max. Elevation = 107.18 ft
Max. Storage = 5,008 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond No. 5 - Rain Garden #1 REV

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 104.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	104.00	575	0	0
1.00	105.00	1,139	841	841
2.00	106.00	1,808	1,461	2,302
3.00	107.00	2,590	2,187	4,489
3.75	107.75	3,272	2,193	6,682
4.00	108.00	3,809	884	7,566

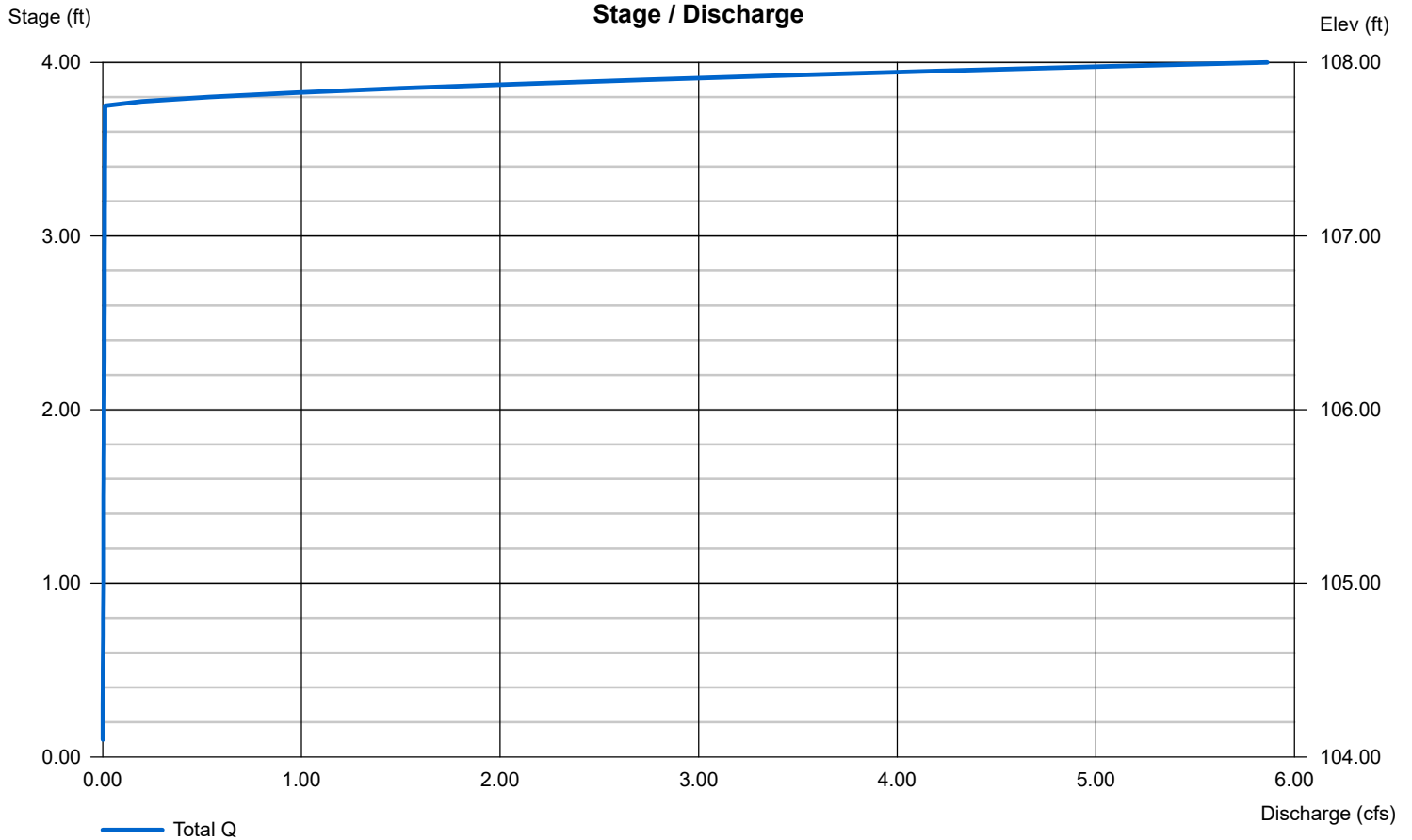
Culvert / Orifice Structures

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

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 18.00	Inactive	Inactive	Inactive
Crest El. (ft)	= 107.75	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No
Exfil.(in/hr)	= 0.150 (by Contour)			
TW Elev. (ft)	= 0.00			

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



Hydrograph Report

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Tuesday, Sep 14, 2021

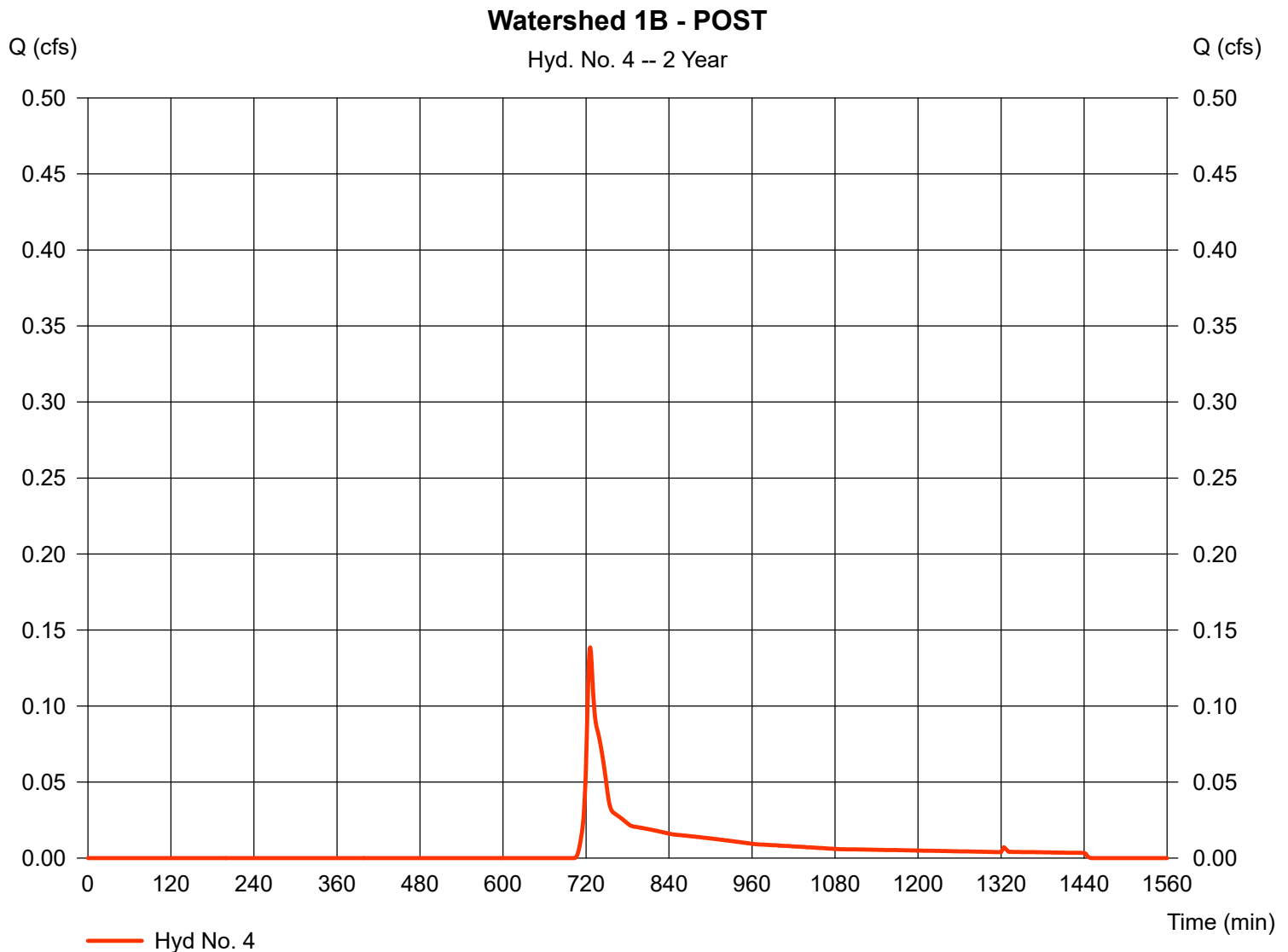
Hyd. No. 4

Watershed 1B - POST

Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 1 min
 Drainage area = 0.230 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.45 in
 Storm duration = 24 hrs

Peak discharge = 0.139 cfs
 Time to peak = 726 min
 Hyd. volume = 547 cuft
 Curve number = 63*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 6.00 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.010 x 39) + (0.060 x 60) + (0.140 x 61) + (0.020 x 98)] / 0.230



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

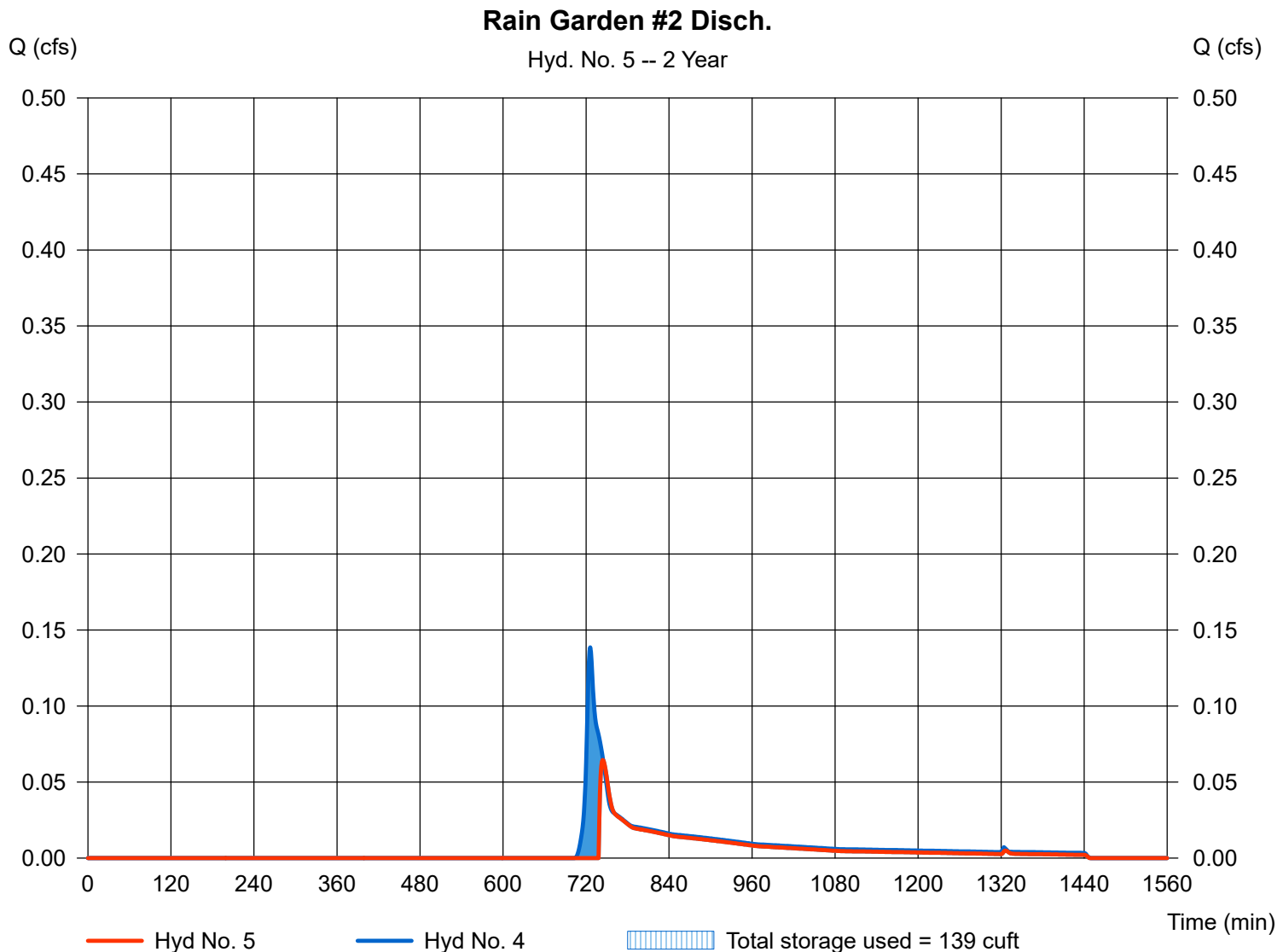
Tuesday, Sep 14, 2021

Hyd. No. 5

Rain Garden #2 Disch.

Hydrograph type	= Reservoir	Peak discharge	= 0.065 cfs
Storm frequency	= 2 yrs	Time to peak	= 744 min
Time interval	= 1 min	Hyd. volume	= 362 cuft
Inflow hyd. No.	= 4 - Watershed 1B - POST	Max. Elevation	= 115.52 ft
Reservoir name	= Rain Garden #2	Max. Storage	= 139 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond No. 3 - Rain Garden #2

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 115.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	115.00	163	0	0
0.50	115.50	371	130	130
1.00	116.00	598	240	370

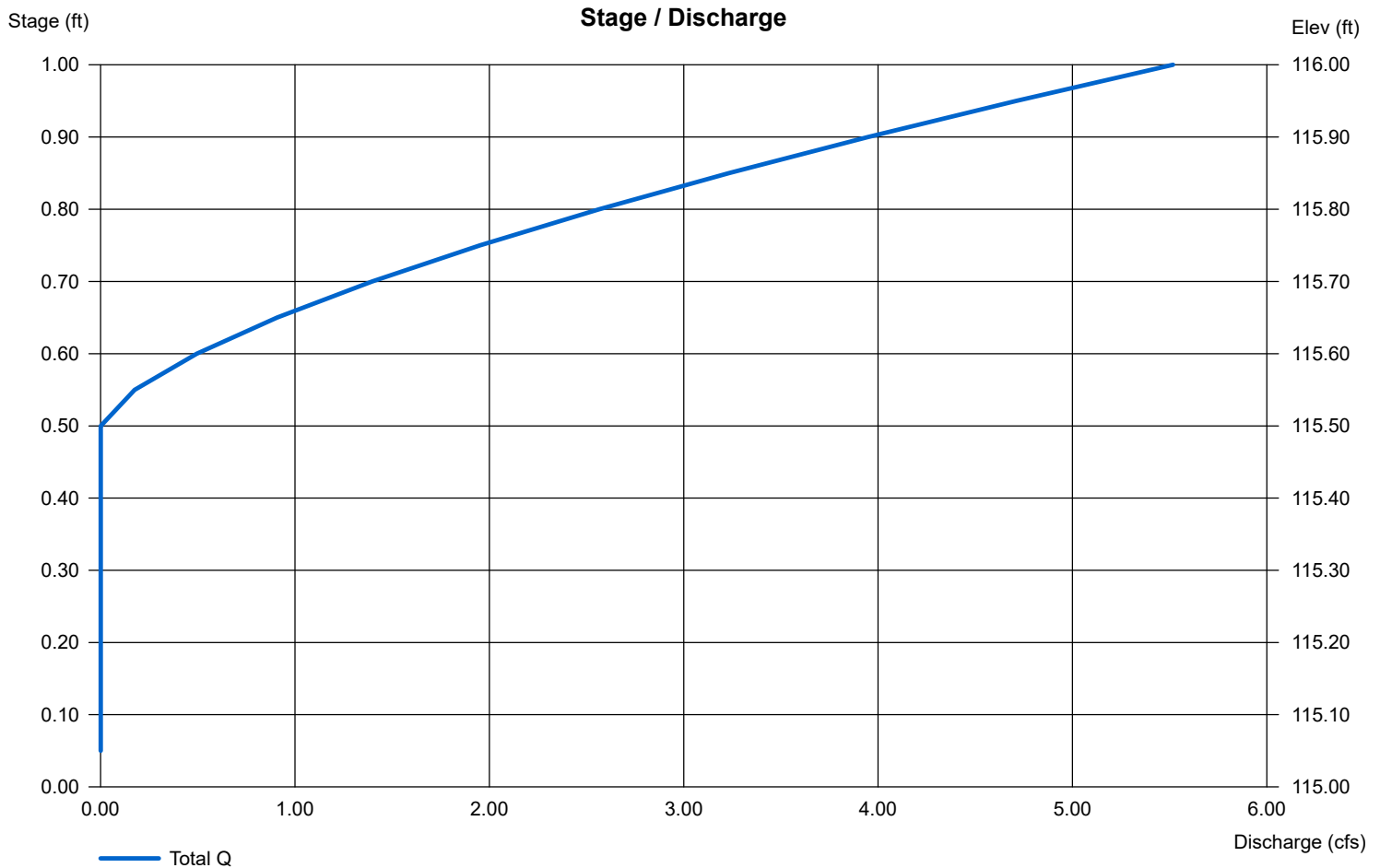
Culvert / Orifice Structures

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

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 6.00	Inactive	Inactive	Inactive
Crest El. (ft)	= 115.50	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No
Exfil.(in/hr)	= 0.150 (by Contour)			
TW Elev. (ft)	= 0.00			

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



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Sep 14, 2021

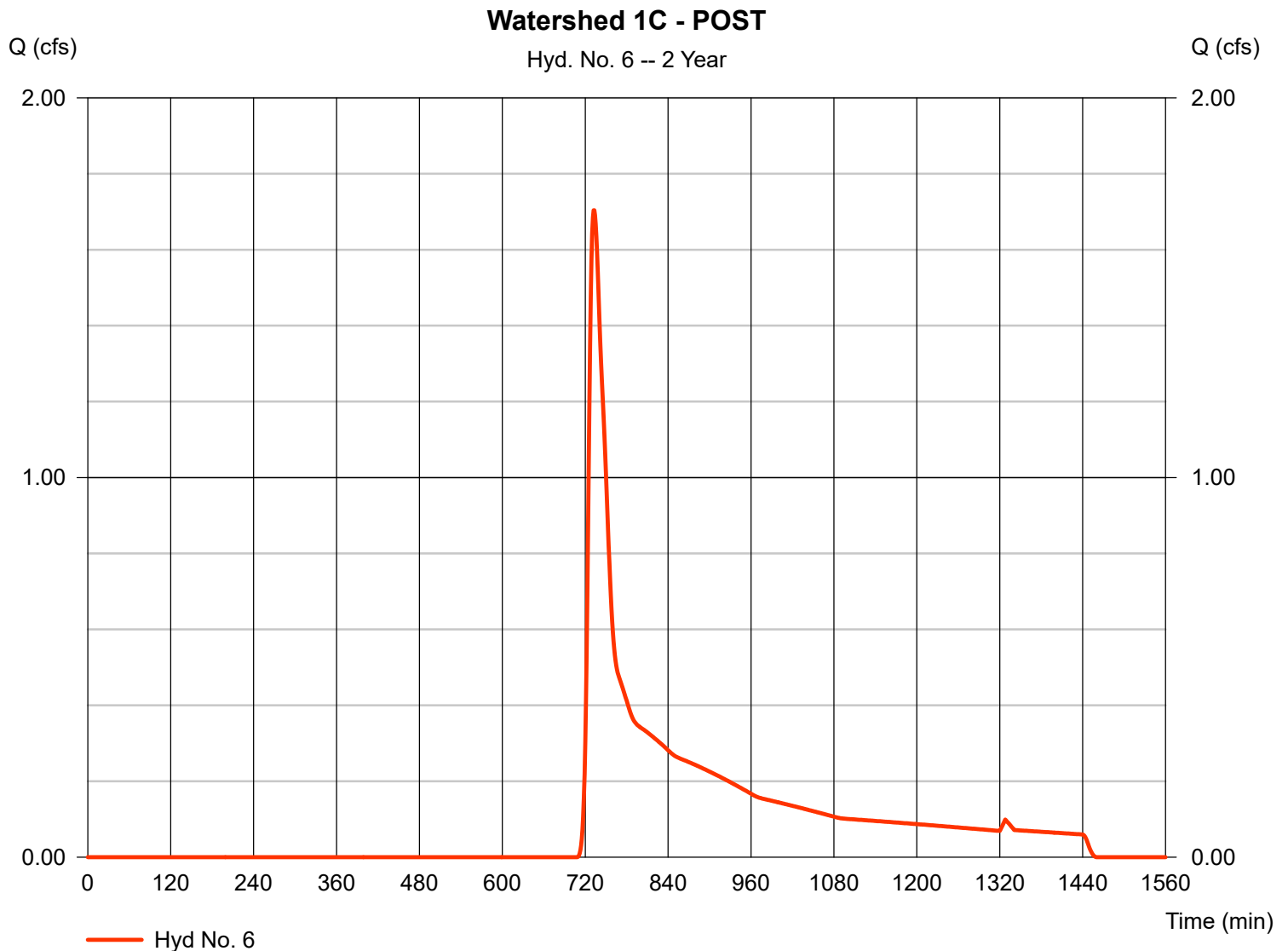
Hyd. No. 6

Watershed 1C - POST

Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 1 min
 Drainage area = 4.560 ac
 Basin Slope = 0.0 %
 Tc method = TR55
 Total precip. = 3.45 in
 Storm duration = 24 hrs

Peak discharge = 1.704 cfs
 Time to peak = 733 min
 Hyd. volume = 8,969 cuft
 Curve number = 61*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 12.30 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.220 x 39) + (2.750 x 60) + (1.430 x 61) + (0.160 x 98)] / 4.560



TR55 Tc Worksheet

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Hyd. No. 6

Watershed 1C - POST

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 3.45	0.00	0.00	
Land slope (%)	= 3.00	0.00	0.00	
Travel Time (min)	= 11.69	+ 0.00	+ 0.00	= 11.69
Shallow Concentrated Flow				
Flow length (ft)	= 165.00	0.00	0.00	
Watercourse slope (%)	= 9.00	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 4.84	0.00	0.00	
Travel Time (min)	= 0.57	+ 0.00	+ 0.00	= 0.57
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 0.00	0.00	0.00	
Flow length (ft)	= 0.0	0.0	0.0	
Travel Time (min)	= 0.00	+ 0.00	+ 0.00	= 0.00
Total Travel Time, Tc				12.30 min

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

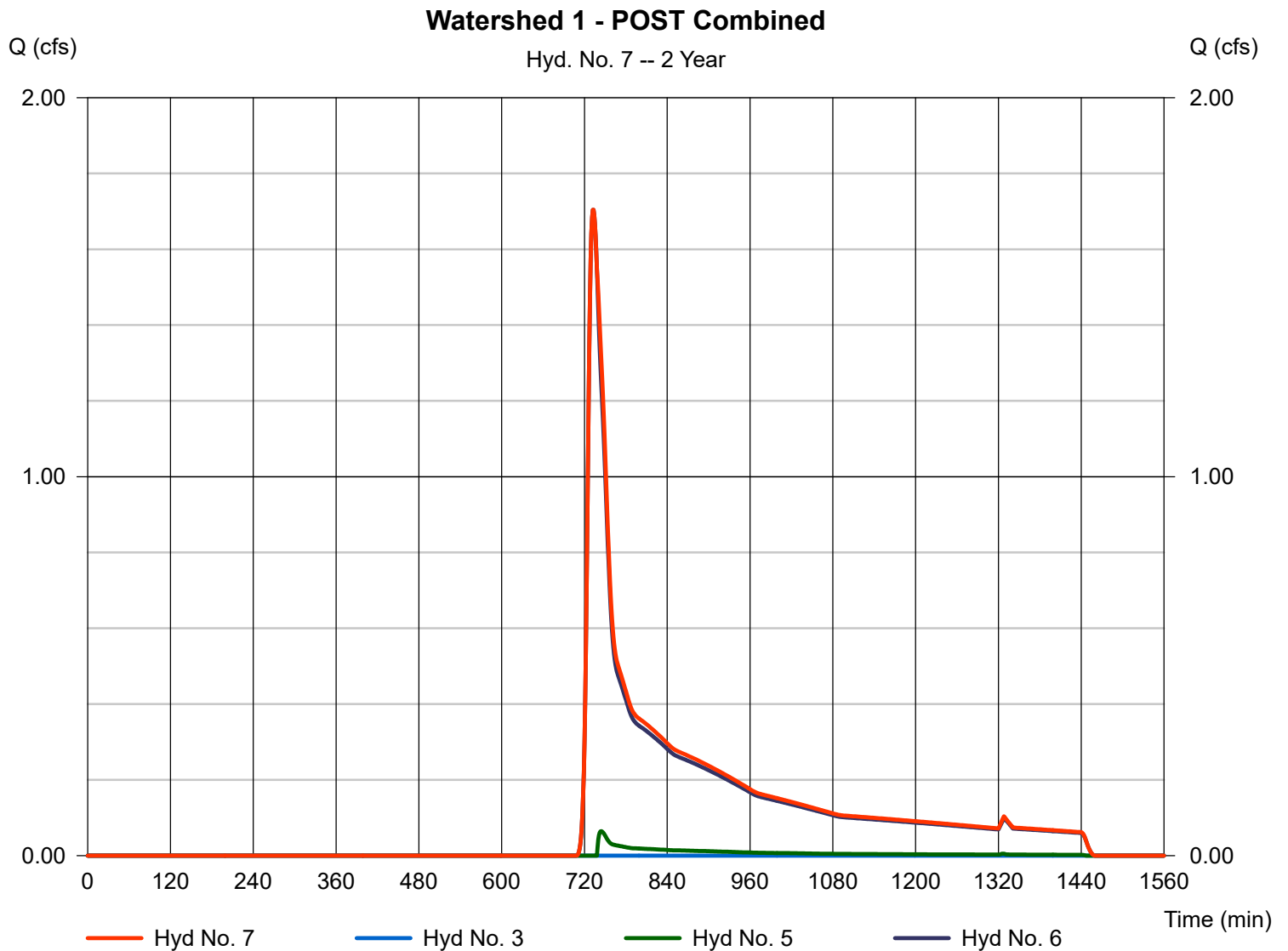
Tuesday, Sep 14, 2021

Hyd. No. 7

Watershed 1 - POST Combined

Hydrograph type = Combine
Storm frequency = 2 yrs
Time interval = 1 min
Inflow hyds. = 3, 5, 6

Peak discharge = 1.704 cfs
Time to peak = 733 min
Hyd. volume = 9,331 cuft
Contrib. drain. area = 4.560 ac



Hydrograph Report

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Tuesday, Sep 14, 2021

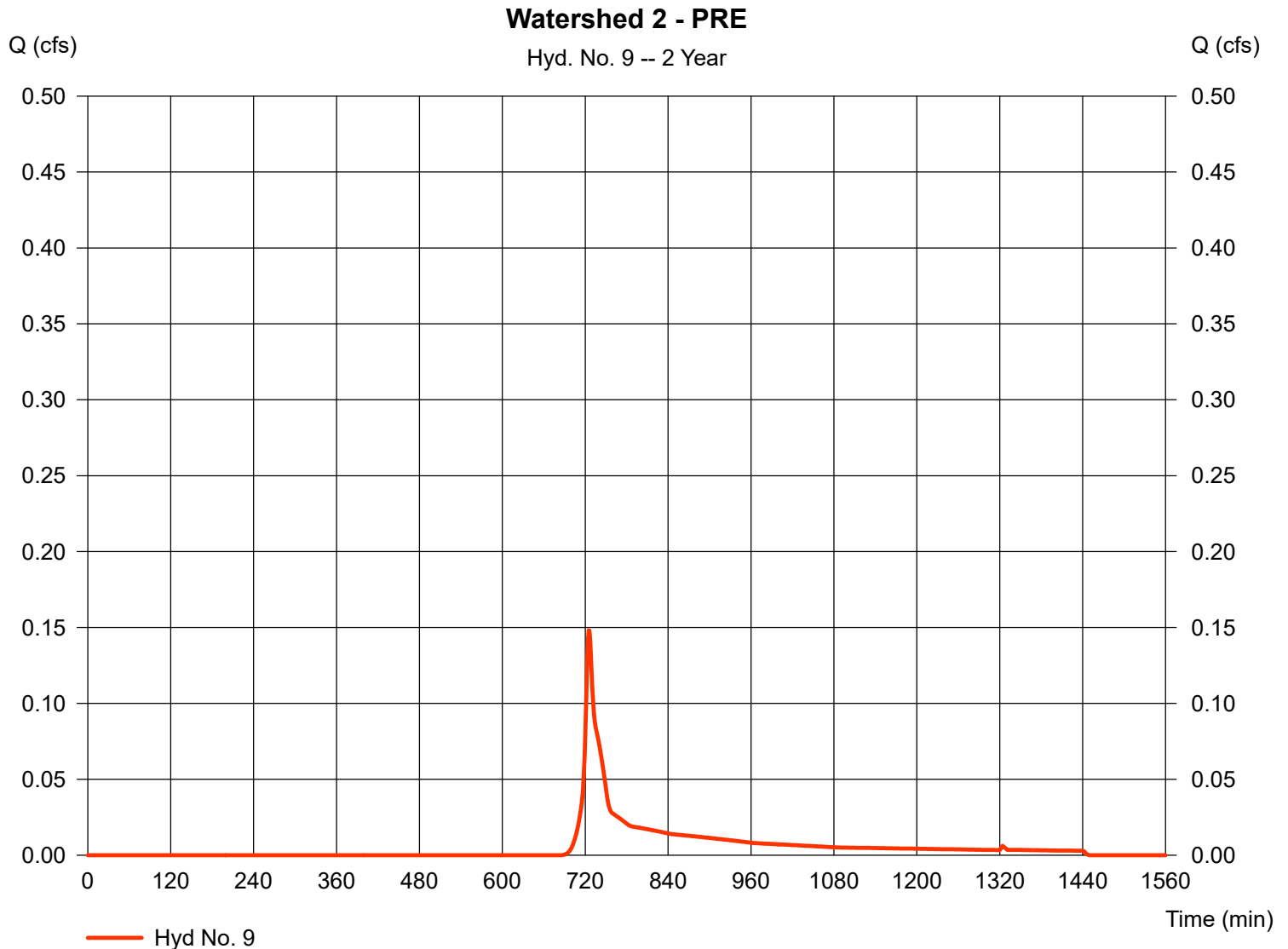
Hyd. No. 9

Watershed 2 - PRE

Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 1 min
 Drainage area = 0.170 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.45 in
 Storm duration = 24 hrs

Peak discharge = 0.148 cfs
 Time to peak = 725 min
 Hyd. volume = 523 cuft
 Curve number = 67*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 6.00 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.140 x 60) + (0.030 x 98)] / 0.170



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Sep 14, 2021

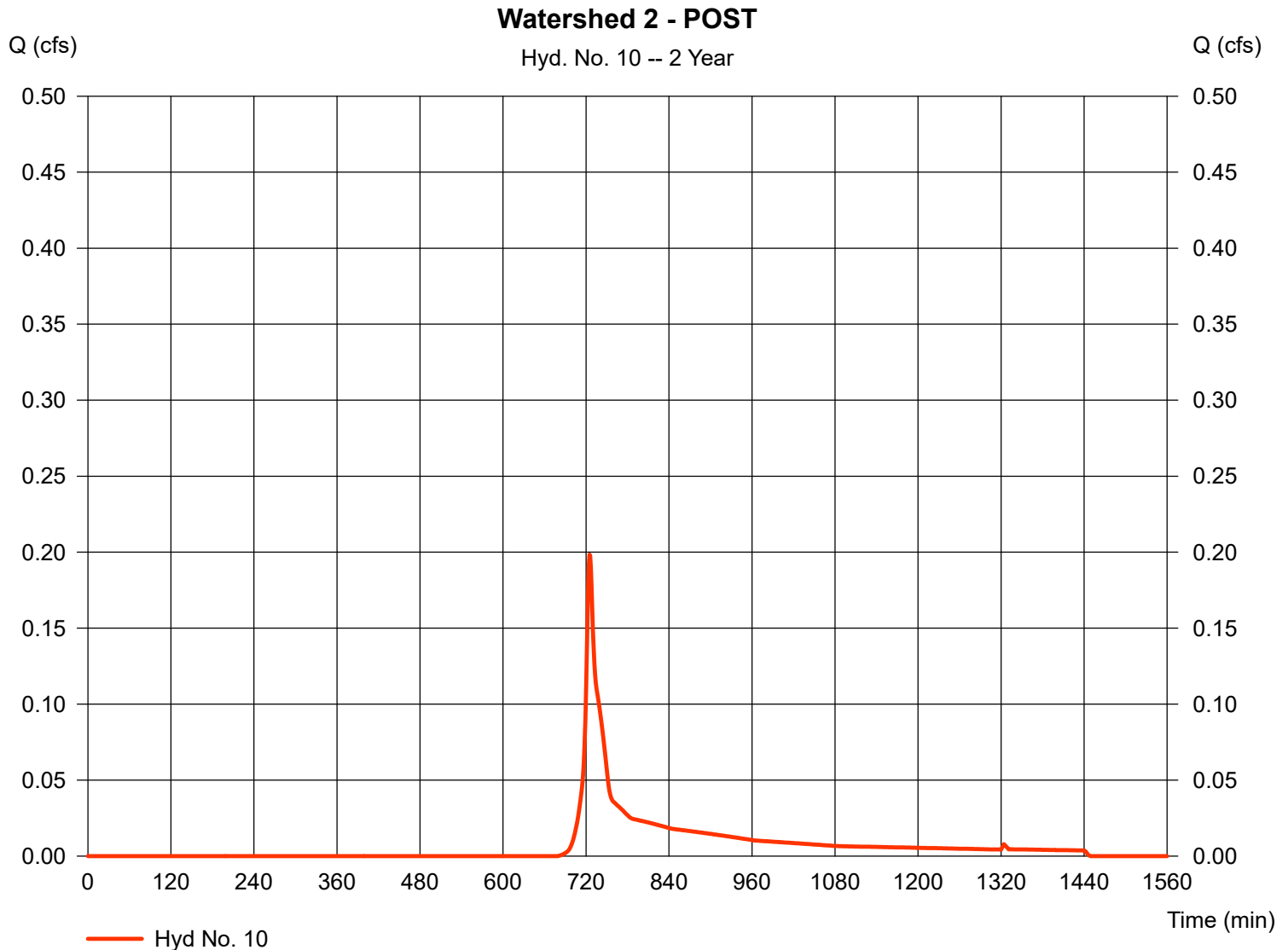
Hyd. No. 10

Watershed 2 - POST

Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 1 min
 Drainage area = 0.210 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.45 in
 Storm duration = 24 hrs

Peak discharge = 0.198 cfs
 Time to peak = 725 min
 Hyd. volume = 686 cuft
 Curve number = 68*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 6.00 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.020 x 39) + (0.140 x 61) + (0.050 x 98)] / 0.210



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

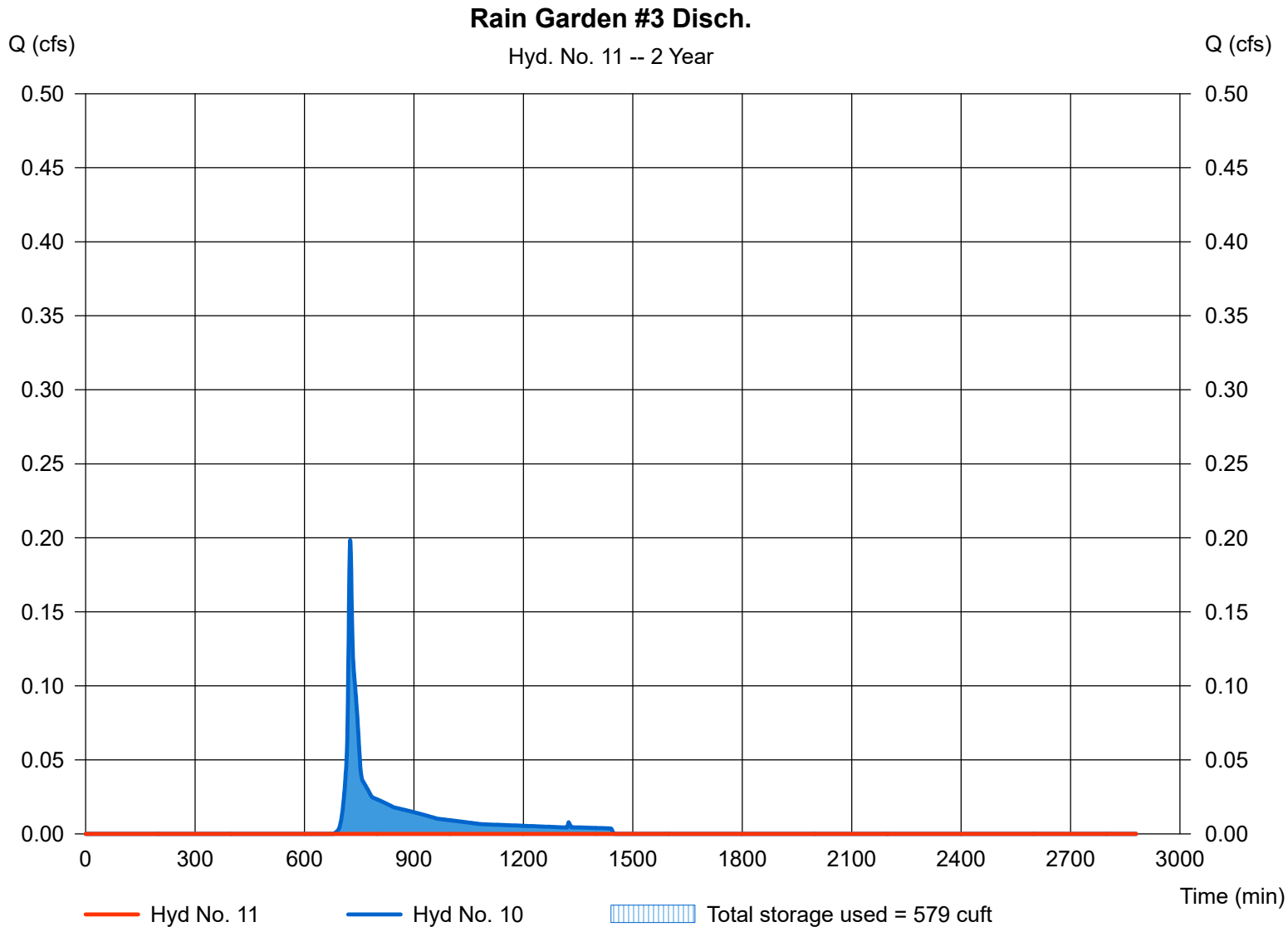
Tuesday, Sep 14, 2021

Hyd. No. 11

Rain Garden #3 Disch.

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= 960 min
Time interval	= 1 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 10 - Watershed 2 - POST	Max. Elevation	= 129.81 ft
Reservoir name	= Rain Garden #3	Max. Storage	= 579 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond No. 1 - Rain Garden #3

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 128.50 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	128.50	177	0	0
0.50	129.00	313	121	121
1.00	129.50	607	226	347
1.50	130.00	890	372	719
1.80	130.30	1,088	296	1,015

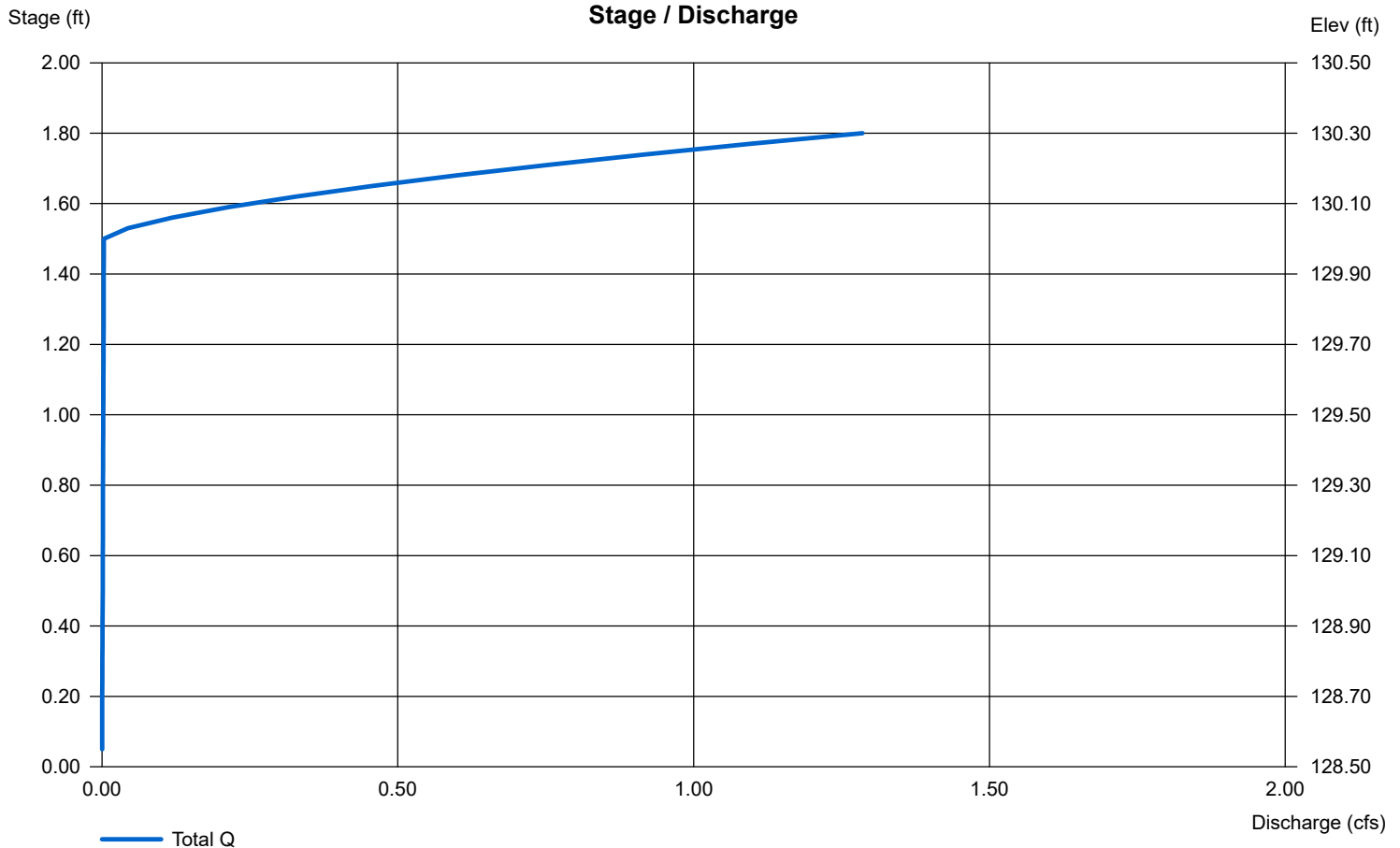
Culvert / Orifice Structures

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

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.00	0.00	0.00	0.00
Crest El. (ft)	= 130.00	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No
Exfil.(in/hr)	= 0.150 (by Contour)			
TW Elev. (ft)	= 0.00			

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



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description	
1	SCS Runoff	4.778	1	746	28,639	-----	-----	-----	Watershed 1 - PRE	
2	SCS Runoff	1.879	1	737	9,343	-----	-----	-----	Watershed 1A - POST	
3	Reservoir	0.134	1	963	2,174	2	107.77	6,746	Rain Garden #1 Disch.	
4	SCS Runoff	0.286	1	725	979	-----	-----	-----	Watershed 1B - POST	
5	Reservoir	0.240	1	729	793	4	115.56	159	Rain Garden #2 Disch.	
6	SCS Runoff	3.806	1	731	16,595	-----	-----	-----	Watershed 1C - POST	
7	Combine	4.027	1	730	19,562	3, 5, 6	-----	-----	Watershed 1 - POST Combined	
9	SCS Runoff	0.272	1	725	886	-----	-----	-----	Watershed 2 - PRE	
10	SCS Runoff	0.356	1	725	1,147	-----	-----	-----	Watershed 2 - POST	
11	Reservoir	0.021	1	884	295	10	130.02	734	Rain Garden #3 Disch.	
6359 - TR55 REV1.gpw					Return Period: 5 Year			Tuesday, Sep 14, 2021		

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Sep 14, 2021

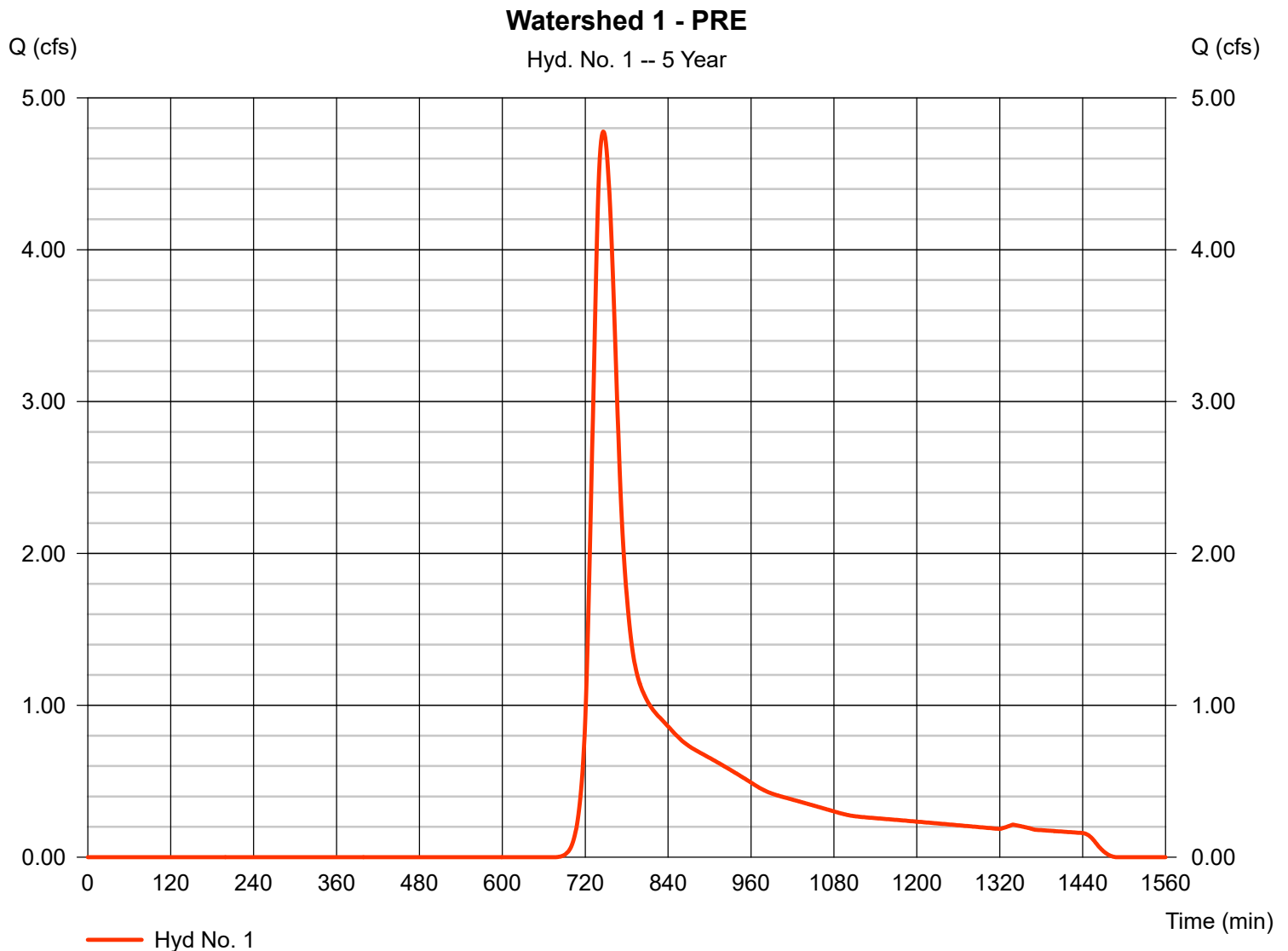
Hyd. No. 1

Watershed 1 - PRE

Hydrograph type = SCS Runoff
 Storm frequency = 5 yrs
 Time interval = 1 min
 Drainage area = 6.890 ac
 Basin Slope = 0.0 %
 Tc method = TR55
 Total precip. = 4.39 in
 Storm duration = 24 hrs

Peak discharge = 4.778 cfs
 Time to peak = 746 min
 Hyd. volume = 28,639 cuft
 Curve number = 63*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 31.00 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(5.190 x 60) + (1.400 x 66) + (0.300 x 98)] / 6.890



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Sep 14, 2021

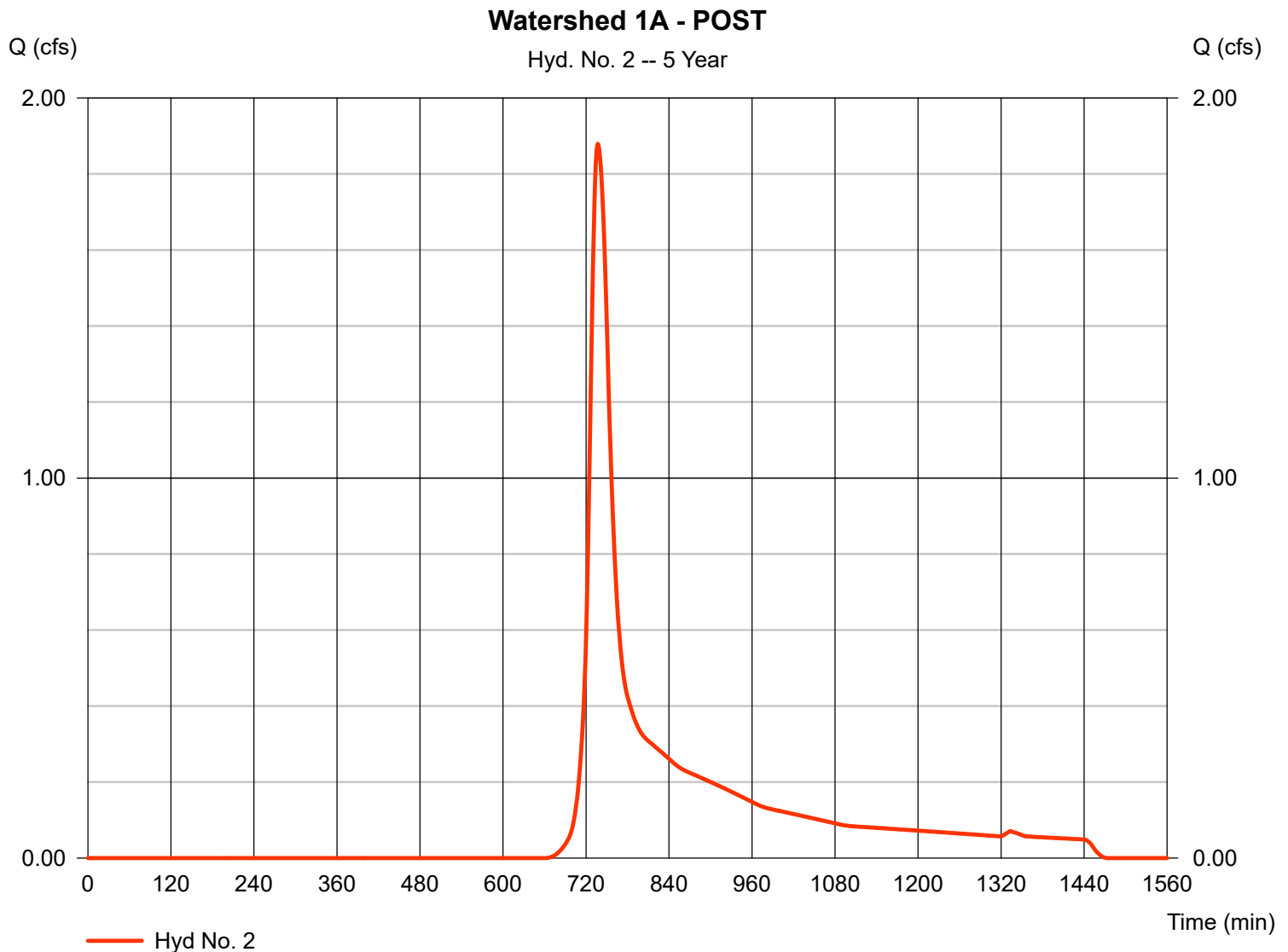
Hyd. No. 2

Watershed 1A - POST

Hydrograph type = SCS Runoff
 Storm frequency = 5 yrs
 Time interval = 1 min
 Drainage area = 2.020 ac
 Basin Slope = 0.0 %
 Tc method = TR55
 Total precip. = 4.39 in
 Storm duration = 24 hrs

Peak discharge = 1.879 cfs
 Time to peak = 737 min
 Hyd. volume = 9,343 cuft
 Curve number = 65*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 20.40 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.150 x 39) + (0.200 x 60) + (1.350 x 61) + (0.320 x 98)] / 2.020



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Sep 14, 2021

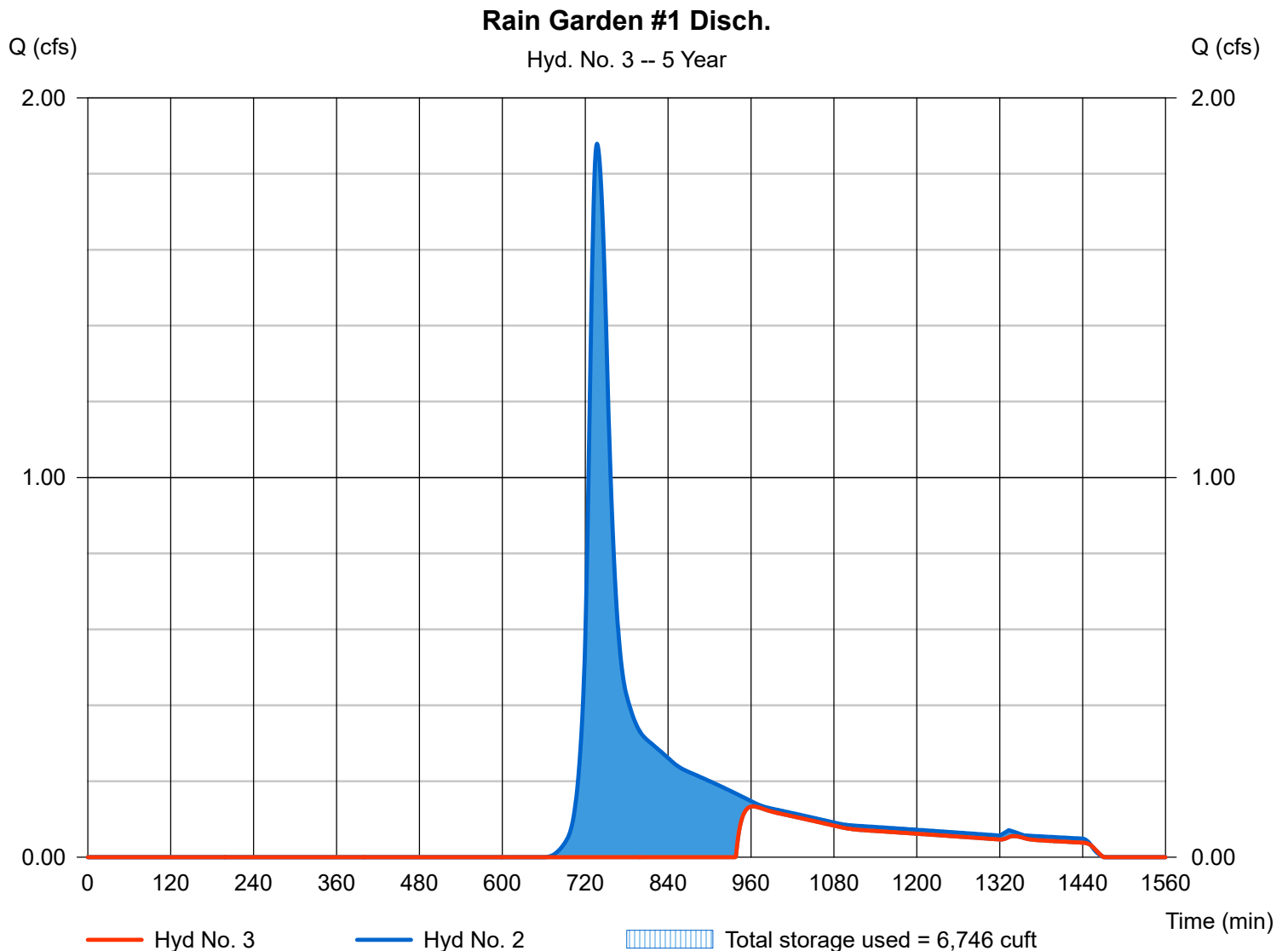
Hyd. No. 3

Rain Garden #1 Disch.

Hydrograph type = Reservoir
 Storm frequency = 5 yrs
 Time interval = 1 min
 Inflow hyd. No. = 2 - Watershed 1A - POST
 Reservoir name = Rain Garden #1 REV

Peak discharge = 0.134 cfs
 Time to peak = 963 min
 Hyd. volume = 2,174 cuft
 Max. Elevation = 107.77 ft
 Max. Storage = 6,746 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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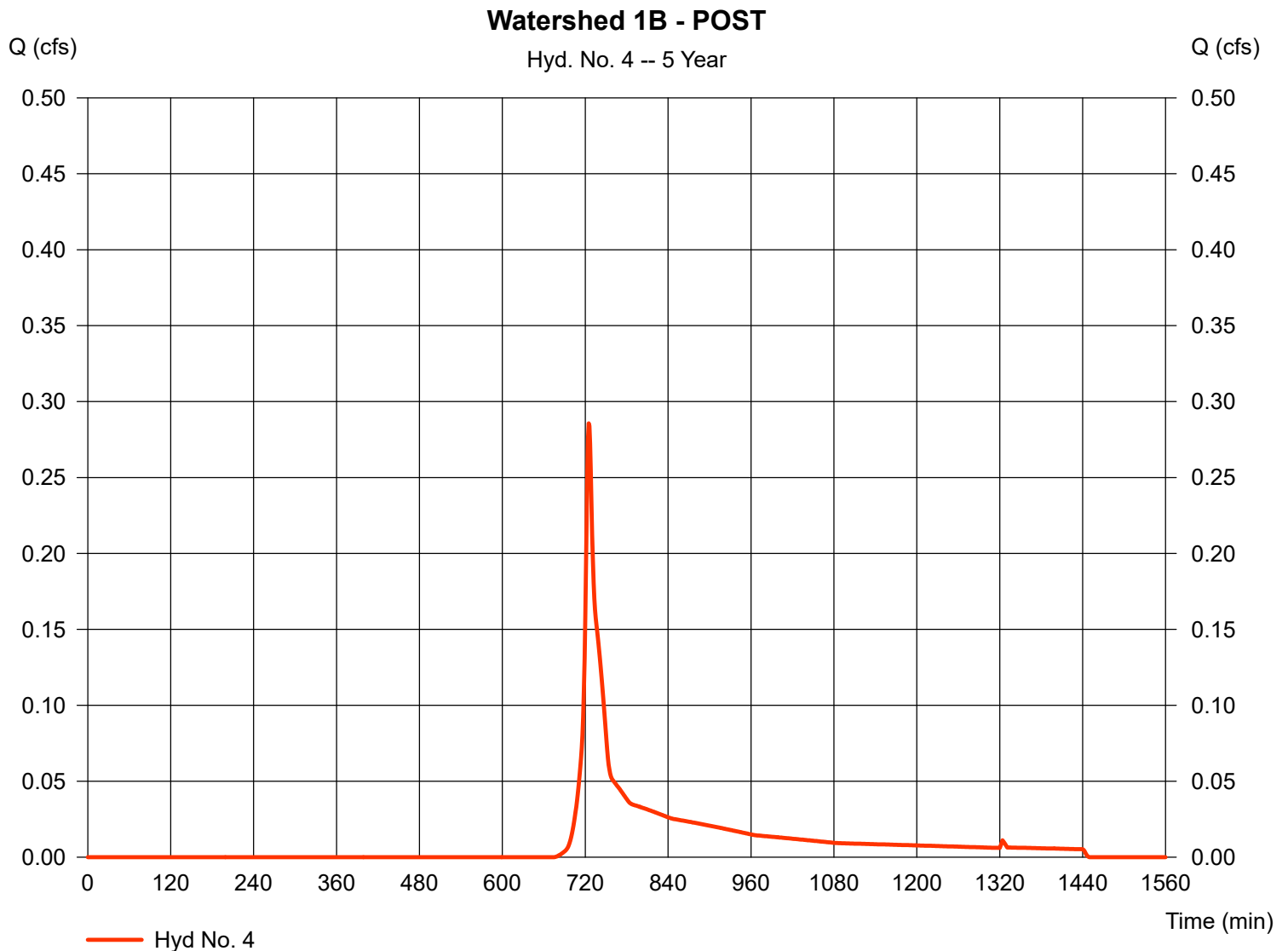
Hyd. No. 4

Watershed 1B - POST

Hydrograph type = SCS Runoff
 Storm frequency = 5 yrs
 Time interval = 1 min
 Drainage area = 0.230 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 4.39 in
 Storm duration = 24 hrs

Peak discharge = 0.286 cfs
 Time to peak = 725 min
 Hyd. volume = 979 cuft
 Curve number = 63*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 6.00 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.010 x 39) + (0.060 x 60) + (0.140 x 61) + (0.020 x 98)] / 0.230



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

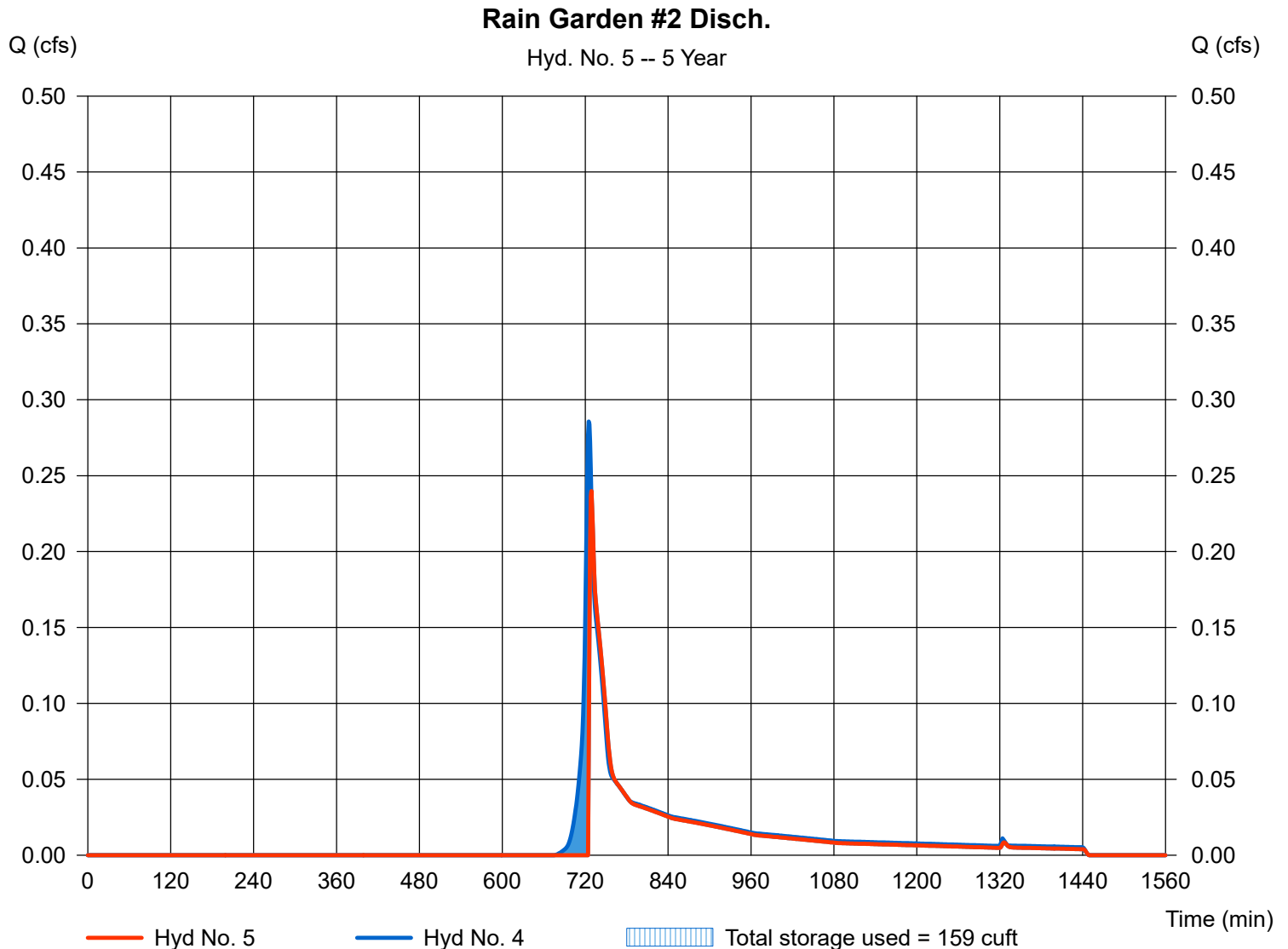
Tuesday, Sep 14, 2021

Hyd. No. 5

Rain Garden #2 Disch.

Hydrograph type	= Reservoir	Peak discharge	= 0.240 cfs
Storm frequency	= 5 yrs	Time to peak	= 729 min
Time interval	= 1 min	Hyd. volume	= 793 cuft
Inflow hyd. No.	= 4 - Watershed 1B - POST	Max. Elevation	= 115.56 ft
Reservoir name	= Rain Garden #2	Max. Storage	= 159 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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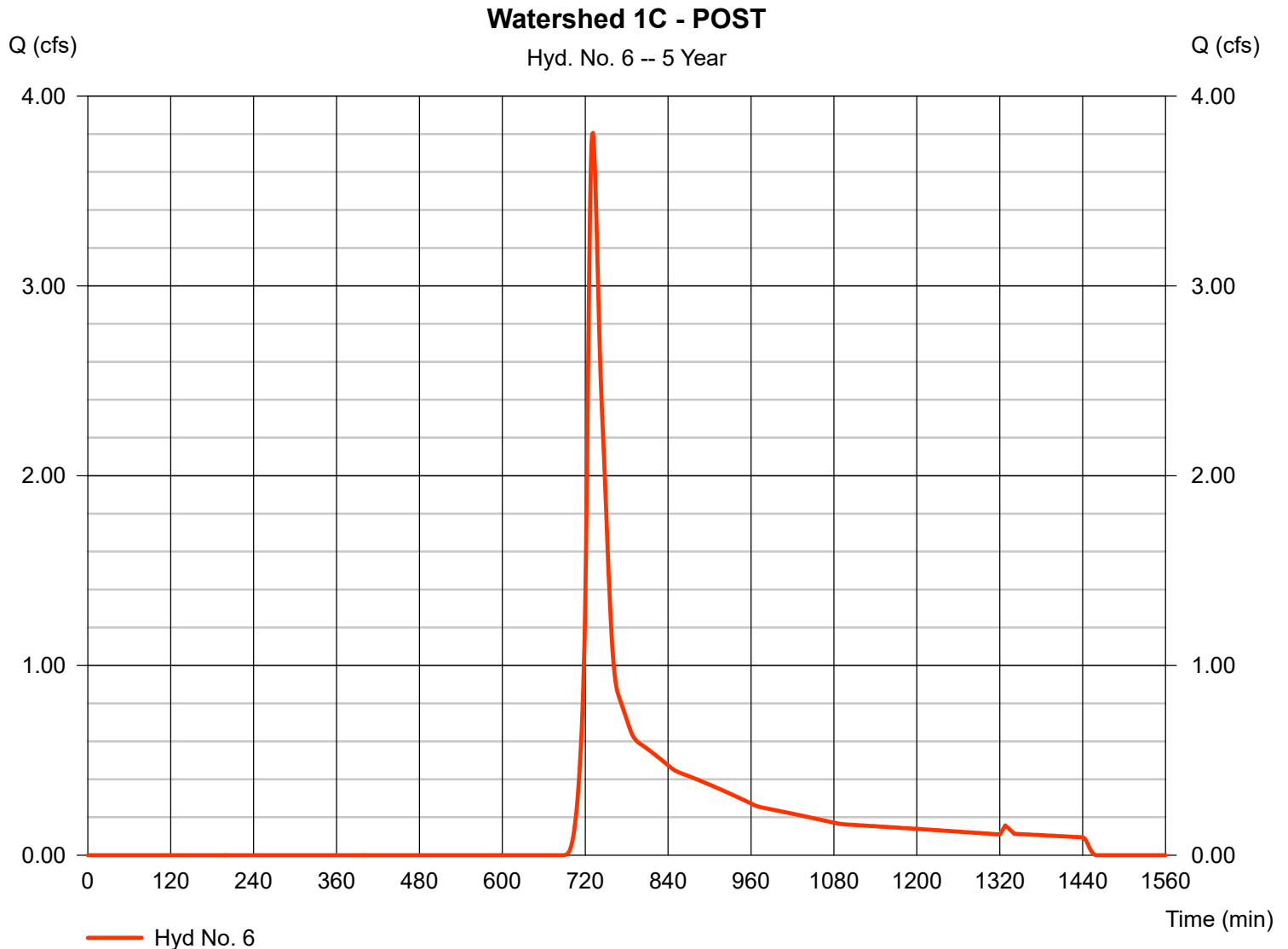
Hyd. No. 6

Watershed 1C - POST

Hydrograph type = SCS Runoff
 Storm frequency = 5 yrs
 Time interval = 1 min
 Drainage area = 4.560 ac
 Basin Slope = 0.0 %
 Tc method = TR55
 Total precip. = 4.39 in
 Storm duration = 24 hrs

Peak discharge = 3.806 cfs
 Time to peak = 731 min
 Hyd. volume = 16,595 cuft
 Curve number = 61*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 12.30 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.220 x 39) + (2.750 x 60) + (1.430 x 61) + (0.160 x 98)] / 4.560



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

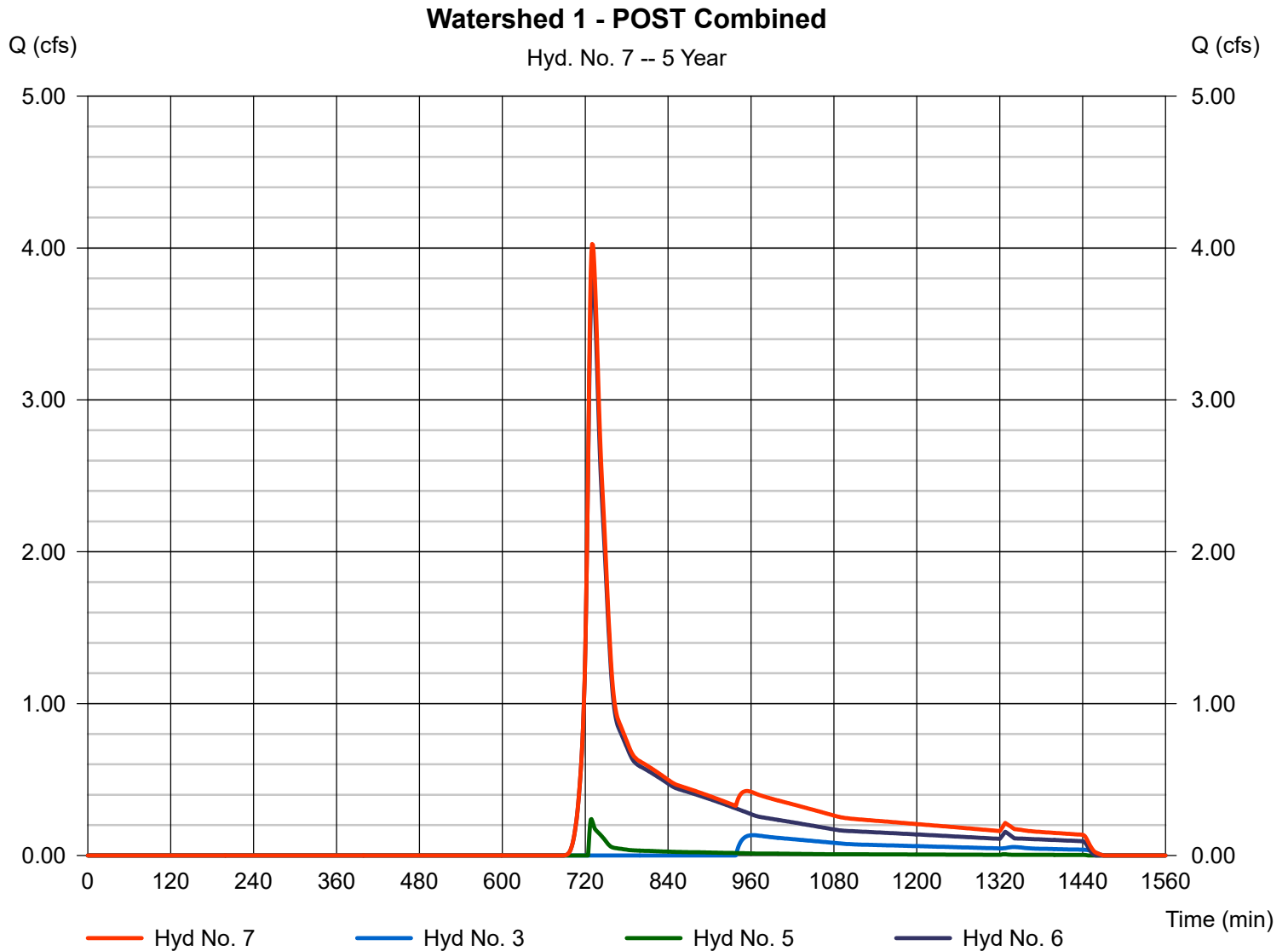
Tuesday, Sep 14, 2021

Hyd. No. 7

Watershed 1 - POST Combined

Hydrograph type = Combine
 Storm frequency = 5 yrs
 Time interval = 1 min
 Inflow hyds. = 3, 5, 6

Peak discharge = 4.027 cfs
 Time to peak = 730 min
 Hyd. volume = 19,562 cuft
 Contrib. drain. area = 4.560 ac



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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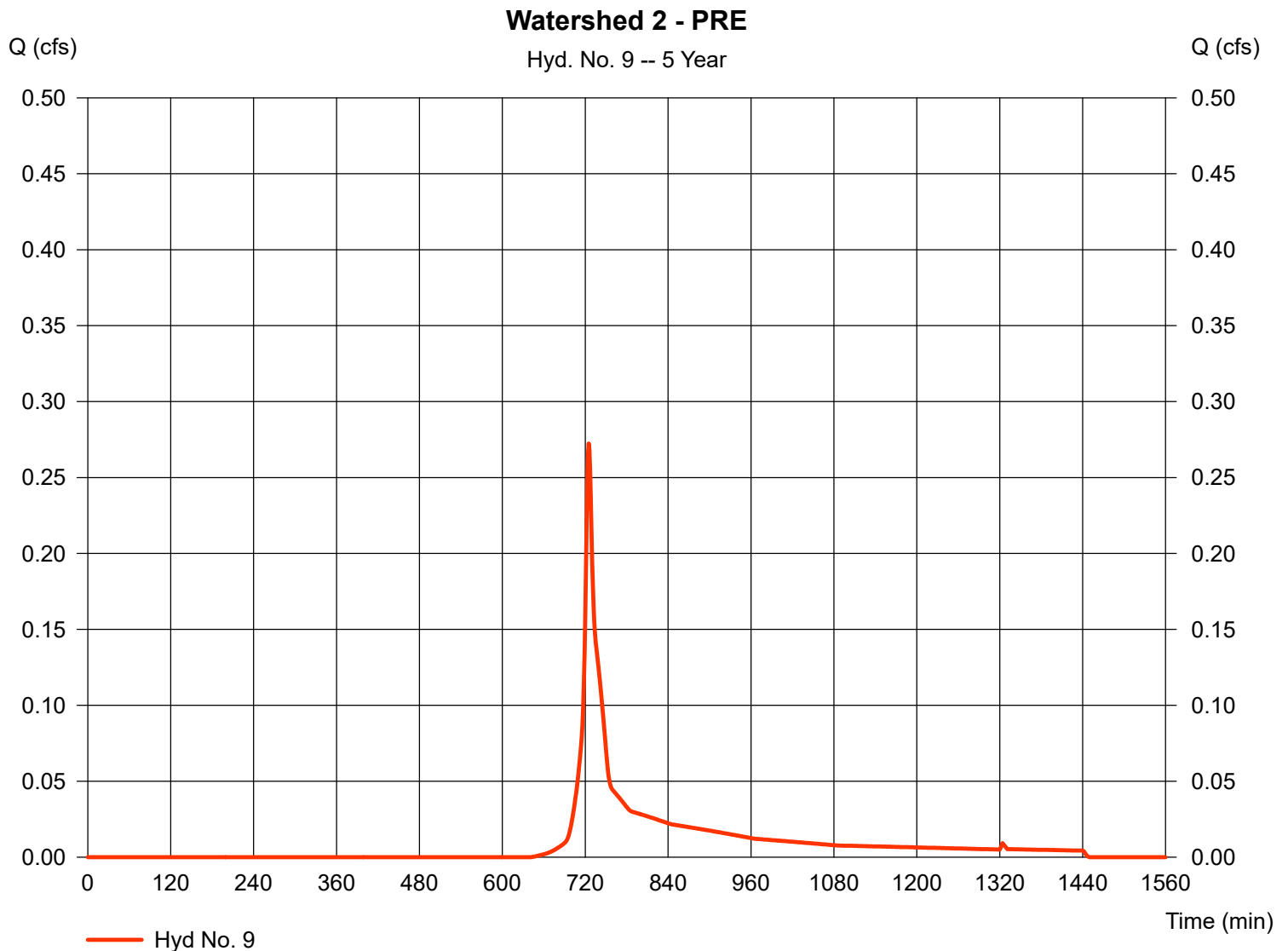
Hyd. No. 9

Watershed 2 - PRE

Hydrograph type = SCS Runoff
 Storm frequency = 5 yrs
 Time interval = 1 min
 Drainage area = 0.170 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 4.39 in
 Storm duration = 24 hrs

Peak discharge = 0.272 cfs
 Time to peak = 725 min
 Hyd. volume = 886 cuft
 Curve number = 67*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 6.00 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.140 x 60) + (0.030 x 98)] / 0.170



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Sep 14, 2021

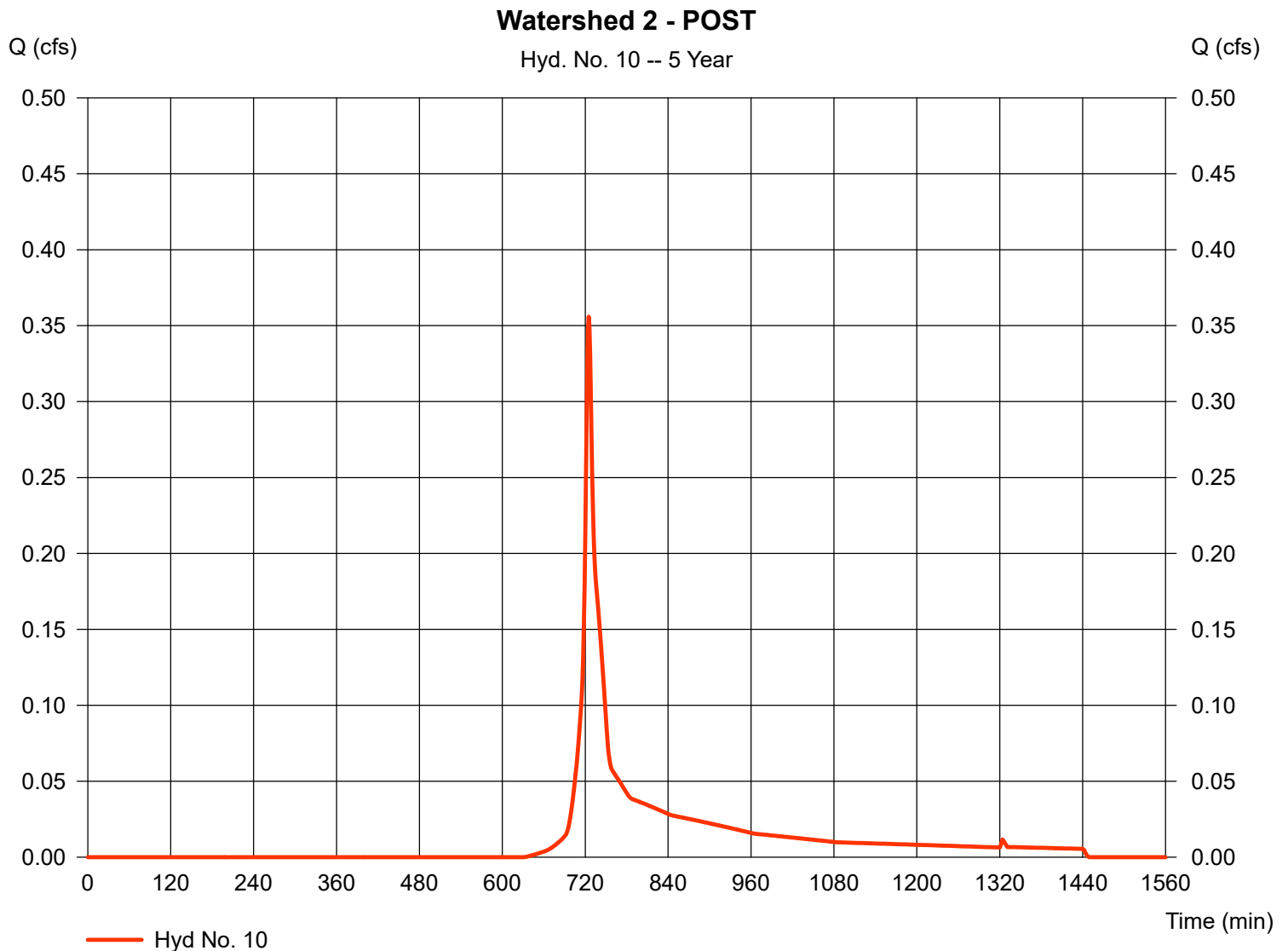
Hyd. No. 10

Watershed 2 - POST

Hydrograph type = SCS Runoff
 Storm frequency = 5 yrs
 Time interval = 1 min
 Drainage area = 0.210 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 4.39 in
 Storm duration = 24 hrs

Peak discharge = 0.356 cfs
 Time to peak = 725 min
 Hyd. volume = 1,147 cuft
 Curve number = 68*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 6.00 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.020 x 39) + (0.140 x 61) + (0.050 x 98)] / 0.210



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Sep 14, 2021

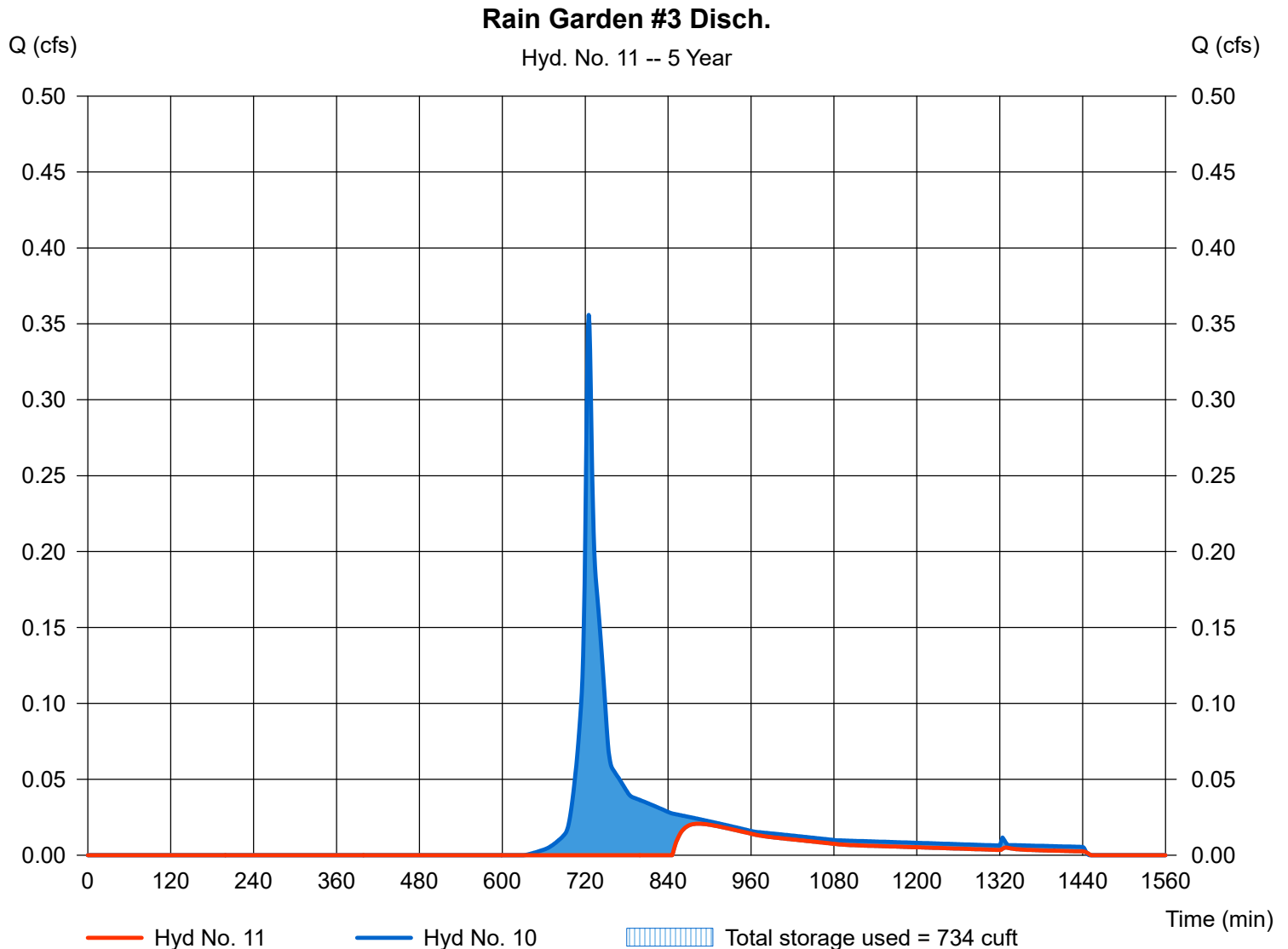
Hyd. No. 11

Rain Garden #3 Disch.

Hydrograph type = Reservoir
 Storm frequency = 5 yrs
 Time interval = 1 min
 Inflow hyd. No. = 10 - Watershed 2 - POST
 Reservoir name = Rain Garden #3

Peak discharge = 0.021 cfs
 Time to peak = 884 min
 Hyd. volume = 295 cuft
 Max. Elevation = 130.02 ft
 Max. Storage = 734 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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	7.104	1	745	40,724	-----	-----	-----	Watershed 1 - PRE	
2	SCS Runoff	2.730	1	736	13,086	-----	-----	-----	Watershed 1A - POST	
3	Reservoir	0.434	1	799	5,894	2	107.79	6,835	Rain Garden #1 Disch.	
4	SCS Runoff	0.427	1	725	1,393	-----	-----	-----	Watershed 1B - POST	
5	Reservoir	0.411	1	726	1,206	4	115.59	172	Rain Garden #2 Disch.	
6	SCS Runoff	5.866	1	730	23,990	-----	-----	-----	Watershed 1C - POST	
7	Combine	6.208	1	730	31,090	3, 5, 6	-----	-----	Watershed 1 - POST Combined	
9	SCS Runoff	0.387	1	725	1,223	-----	-----	-----	Watershed 2 - PRE	
10	SCS Runoff	0.500	1	725	1,573	-----	-----	-----	Watershed 2 - POST	
11	Reservoir	0.066	1	766	717	10	130.04	759	Rain Garden #3 Disch.	
6359 - TR55 REV1.gpw					Return Period: 10 Year			Tuesday, Sep 14, 2021		

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Sep 14, 2021

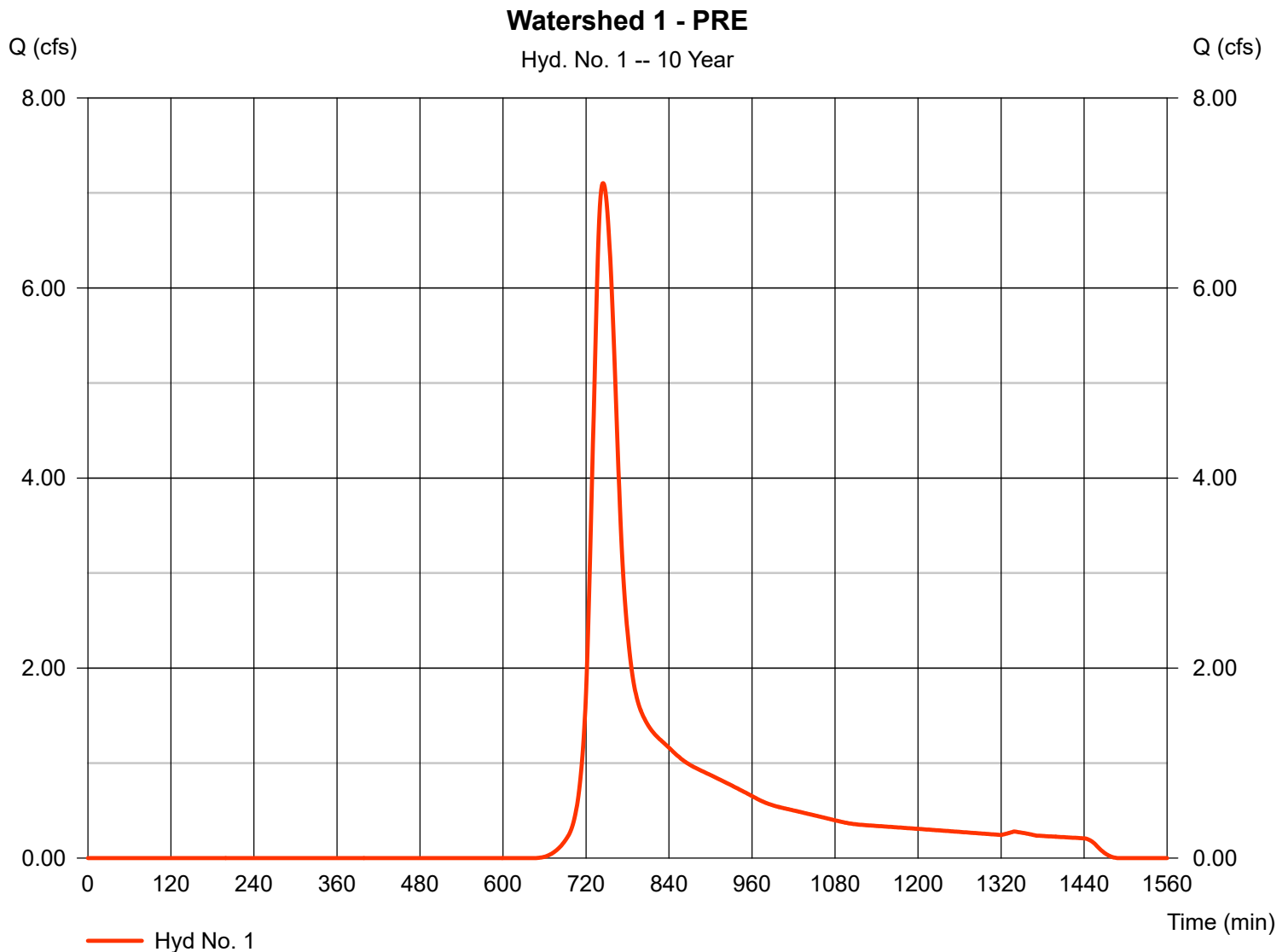
Hyd. No. 1

Watershed 1 - PRE

Hydrograph type = SCS Runoff
 Storm frequency = 10 yrs
 Time interval = 1 min
 Drainage area = 6.890 ac
 Basin Slope = 0.0 %
 Tc method = TR55
 Total precip. = 5.17 in
 Storm duration = 24 hrs

Peak discharge = 7.104 cfs
 Time to peak = 745 min
 Hyd. volume = 40,724 cuft
 Curve number = 63*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 31.00 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(5.190 x 60) + (1.400 x 66) + (0.300 x 98)] / 6.890



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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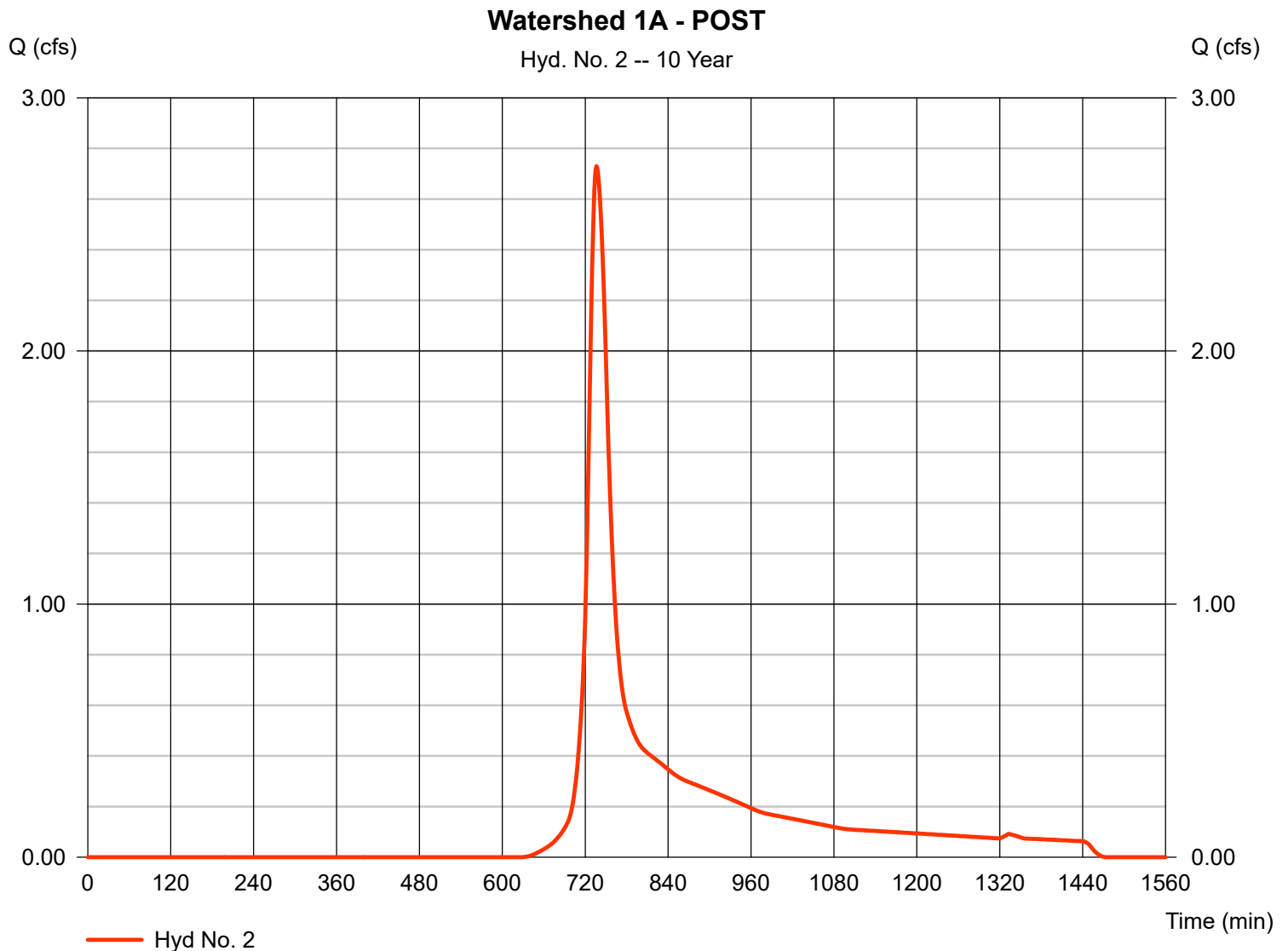
Hyd. No. 2

Watershed 1A - POST

Hydrograph type = SCS Runoff
 Storm frequency = 10 yrs
 Time interval = 1 min
 Drainage area = 2.020 ac
 Basin Slope = 0.0 %
 Tc method = TR55
 Total precip. = 5.17 in
 Storm duration = 24 hrs

Peak discharge = 2.730 cfs
 Time to peak = 736 min
 Hyd. volume = 13,086 cuft
 Curve number = 65*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 20.40 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.150 x 39) + (0.200 x 60) + (1.350 x 61) + (0.320 x 98)] / 2.020



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Sep 14, 2021

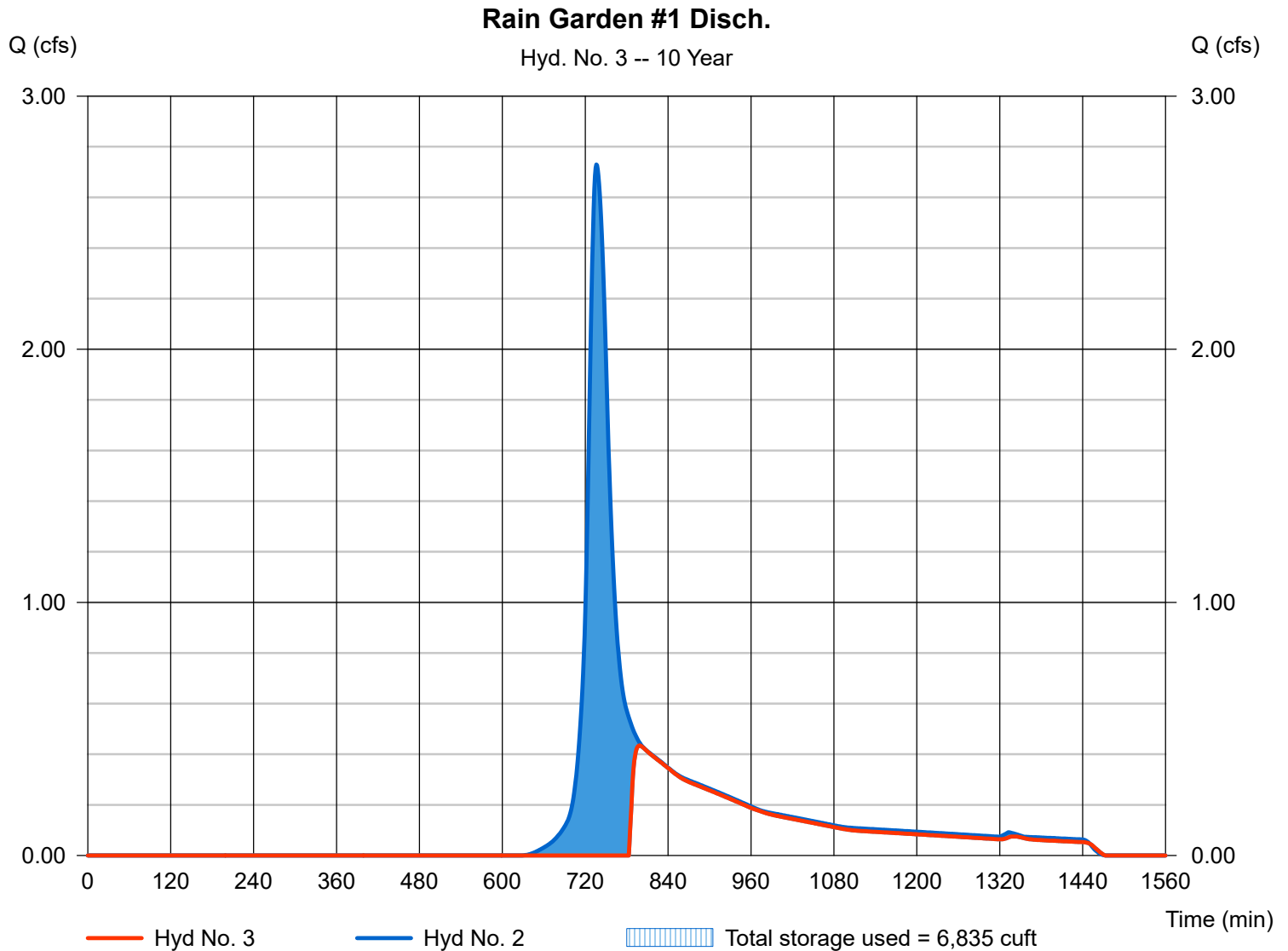
Hyd. No. 3

Rain Garden #1 Disch.

Hydrograph type = Reservoir
 Storm frequency = 10 yrs
 Time interval = 1 min
 Inflow hyd. No. = 2 - Watershed 1A - POST
 Reservoir name = Rain Garden #1 REV

Peak discharge = 0.434 cfs
 Time to peak = 799 min
 Hyd. volume = 5,894 cuft
 Max. Elevation = 107.79 ft
 Max. Storage = 6,835 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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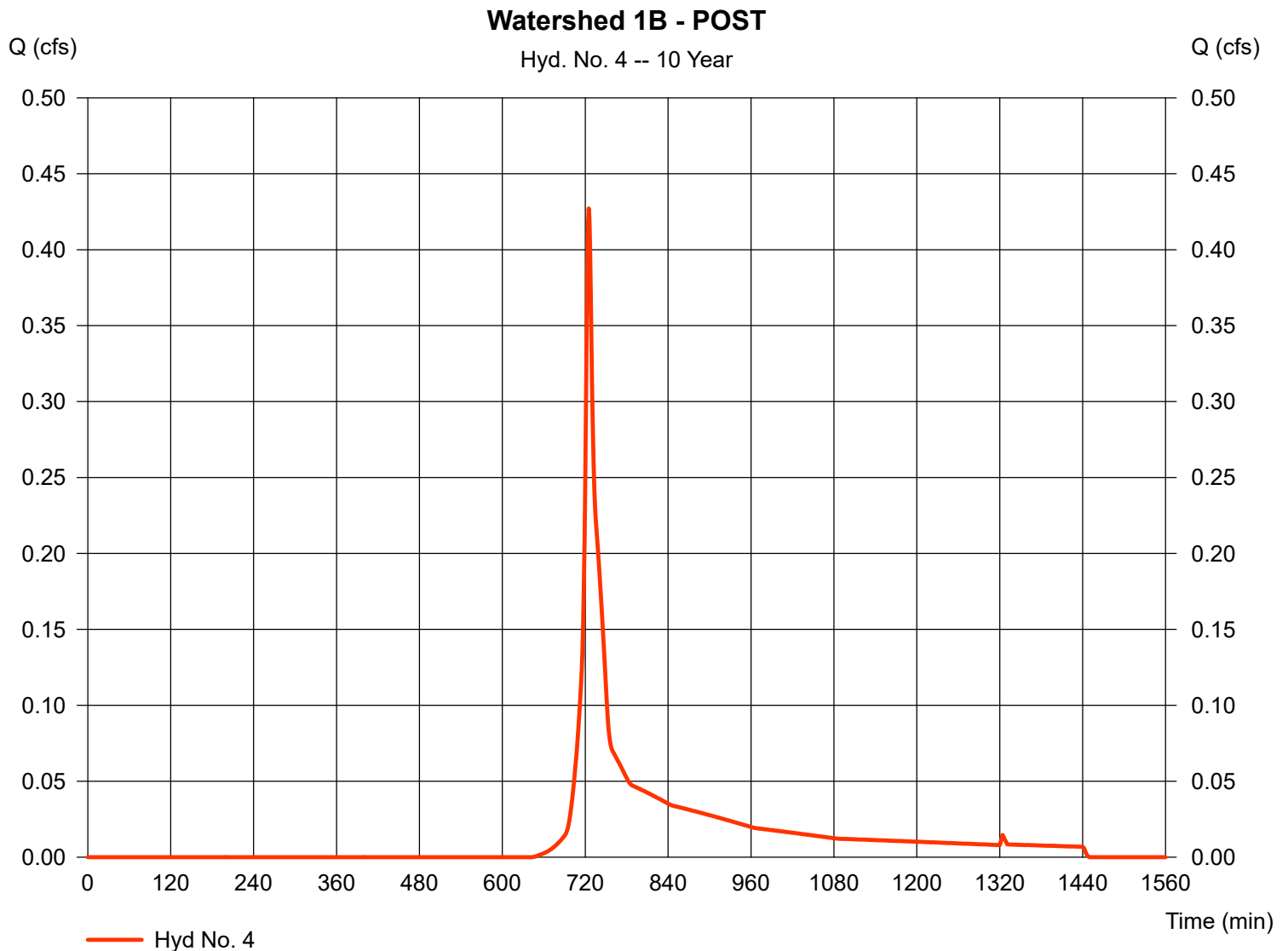
Hyd. No. 4

Watershed 1B - POST

Hydrograph type = SCS Runoff
 Storm frequency = 10 yrs
 Time interval = 1 min
 Drainage area = 0.230 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 5.17 in
 Storm duration = 24 hrs

Peak discharge = 0.427 cfs
 Time to peak = 725 min
 Hyd. volume = 1,393 cuft
 Curve number = 63*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 6.00 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.010 x 39) + (0.060 x 60) + (0.140 x 61) + (0.020 x 98)] / 0.230



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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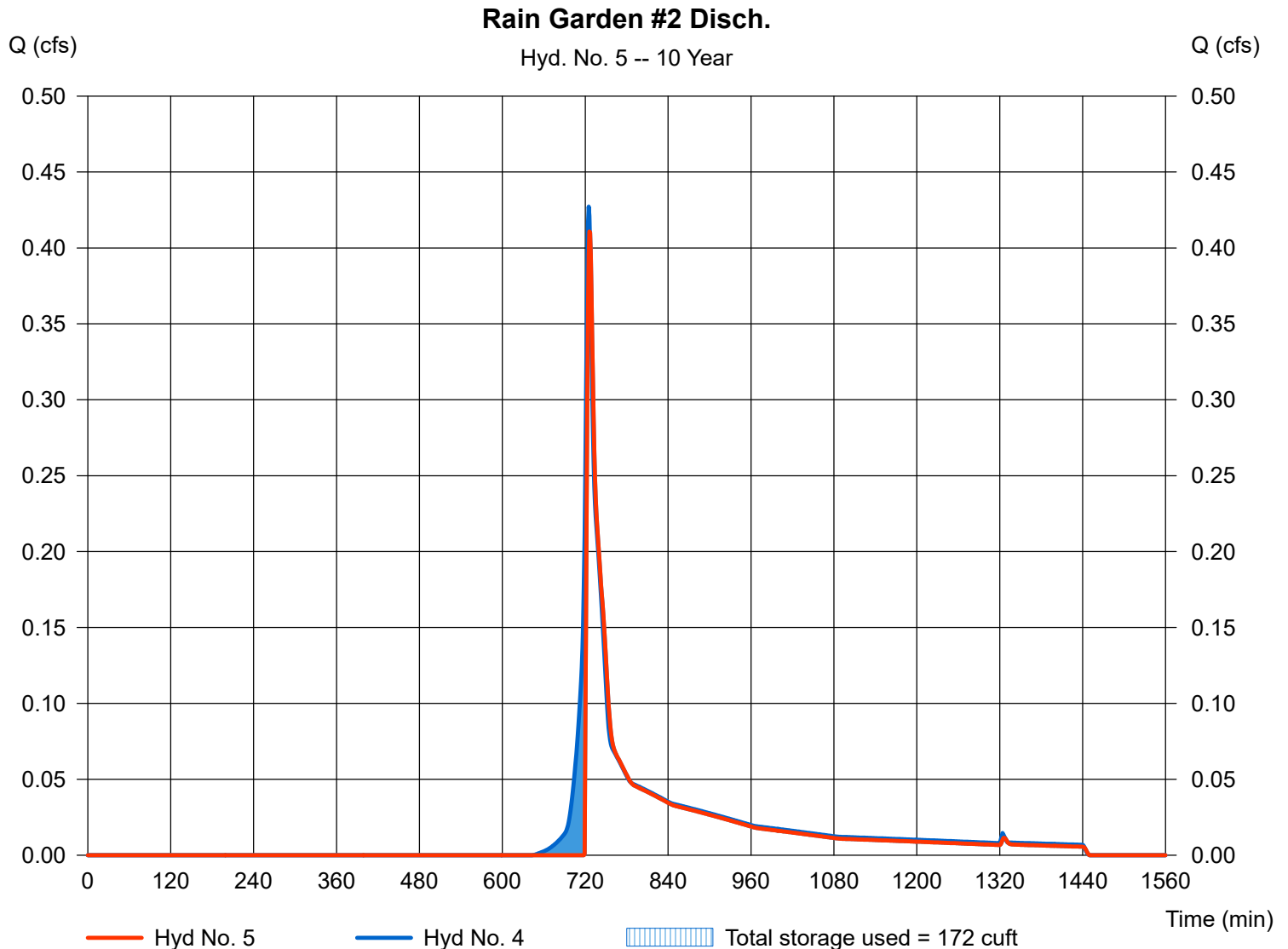
Hyd. No. 5

Rain Garden #2 Disch.

Hydrograph type = Reservoir
 Storm frequency = 10 yrs
 Time interval = 1 min
 Inflow hyd. No. = 4 - Watershed 1B - POST
 Reservoir name = Rain Garden #2

Peak discharge = 0.411 cfs
 Time to peak = 726 min
 Hyd. volume = 1,206 cuft
 Max. Elevation = 115.59 ft
 Max. Storage = 172 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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Hyd. No. 6

Watershed 1C - POST

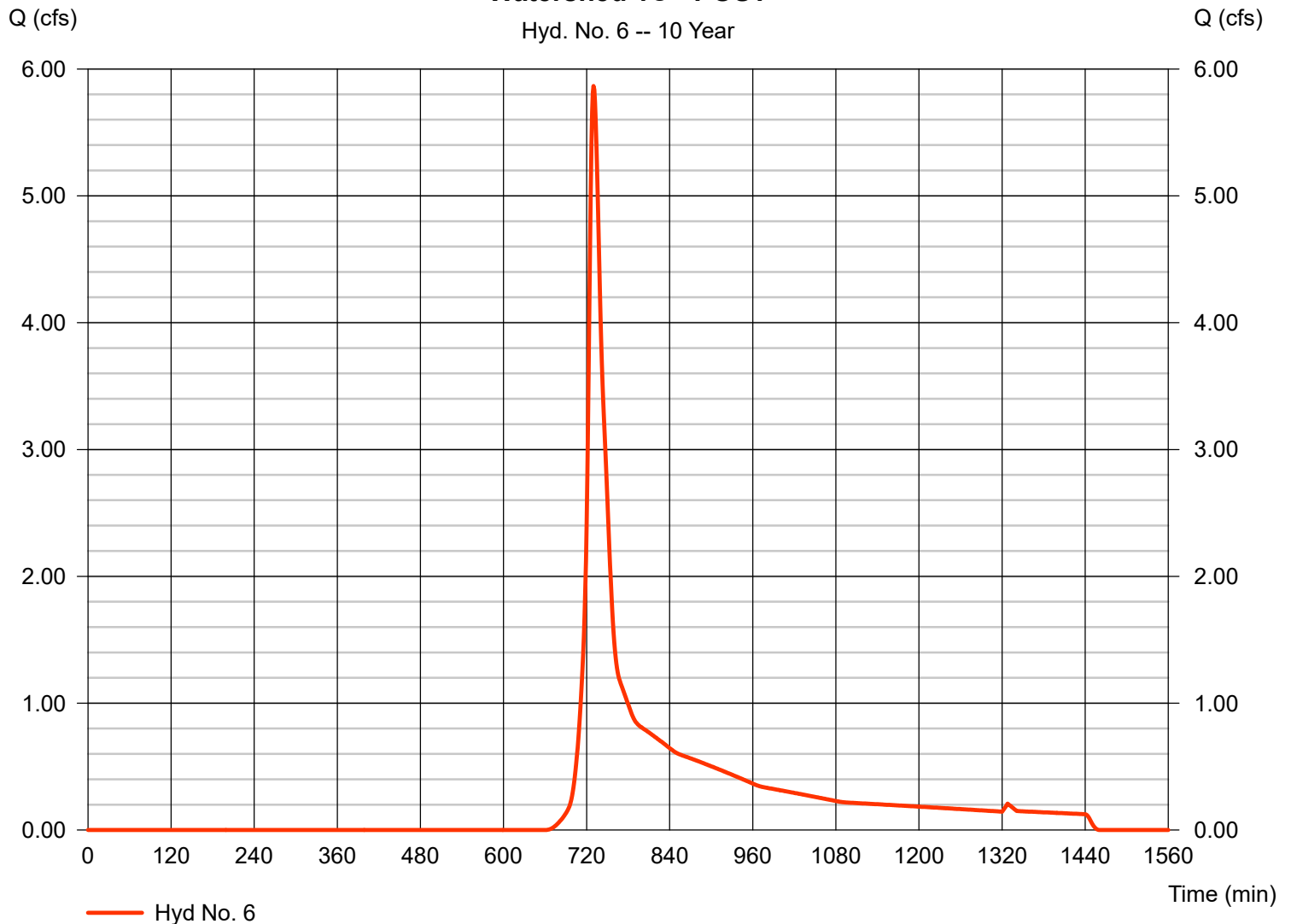
Hydrograph type = SCS Runoff
 Storm frequency = 10 yrs
 Time interval = 1 min
 Drainage area = 4.560 ac
 Basin Slope = 0.0 %
 Tc method = TR55
 Total precip. = 5.17 in
 Storm duration = 24 hrs

Peak discharge = 5.866 cfs
 Time to peak = 730 min
 Hyd. volume = 23,990 cuft
 Curve number = 61*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 12.30 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.220 x 39) + (2.750 x 60) + (1.430 x 61) + (0.160 x 98)] / 4.560

Watershed 1C - POST

Hyd. No. 6 -- 10 Year



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

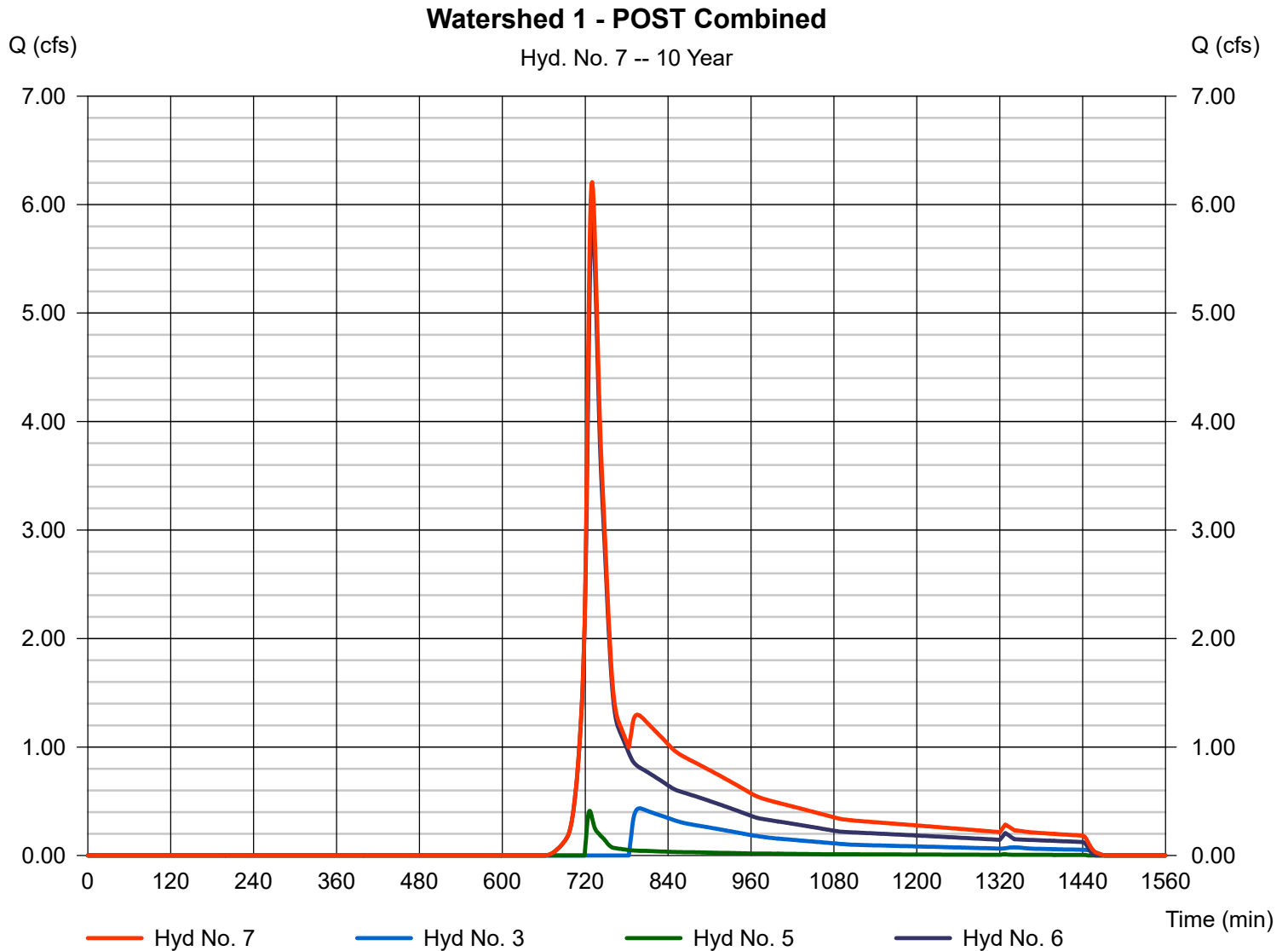
Tuesday, Sep 14, 2021

Hyd. No. 7

Watershed 1 - POST Combined

Hydrograph type = Combine
 Storm frequency = 10 yrs
 Time interval = 1 min
 Inflow hyds. = 3, 5, 6

Peak discharge = 6.208 cfs
 Time to peak = 730 min
 Hyd. volume = 31,090 cuft
 Contrib. drain. area = 4.560 ac



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Sep 14, 2021

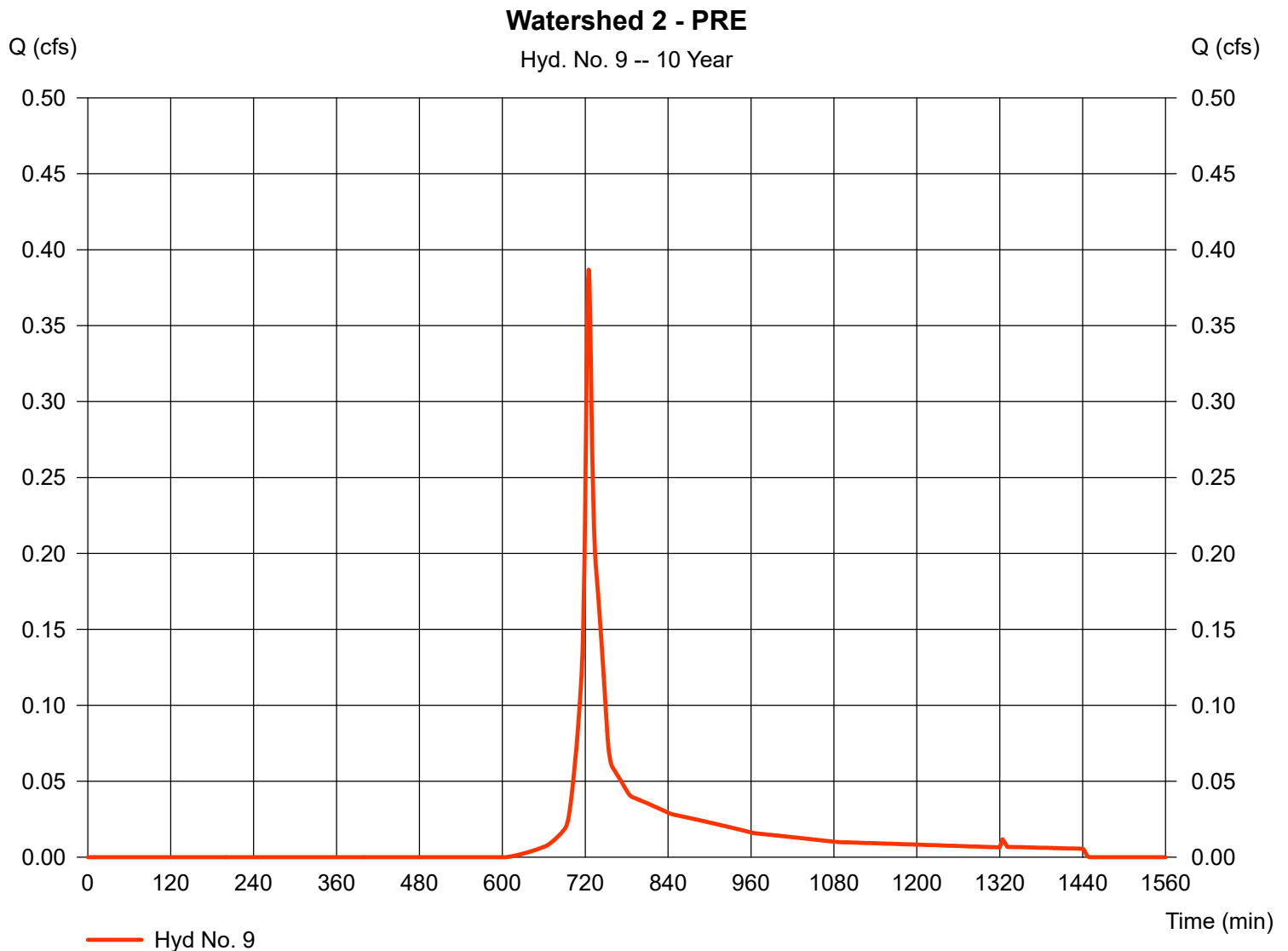
Hyd. No. 9

Watershed 2 - PRE

Hydrograph type = SCS Runoff
 Storm frequency = 10 yrs
 Time interval = 1 min
 Drainage area = 0.170 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 5.17 in
 Storm duration = 24 hrs

Peak discharge = 0.387 cfs
 Time to peak = 725 min
 Hyd. volume = 1,223 cuft
 Curve number = 67*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 6.00 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.140 x 60) + (0.030 x 98)] / 0.170



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Sep 14, 2021

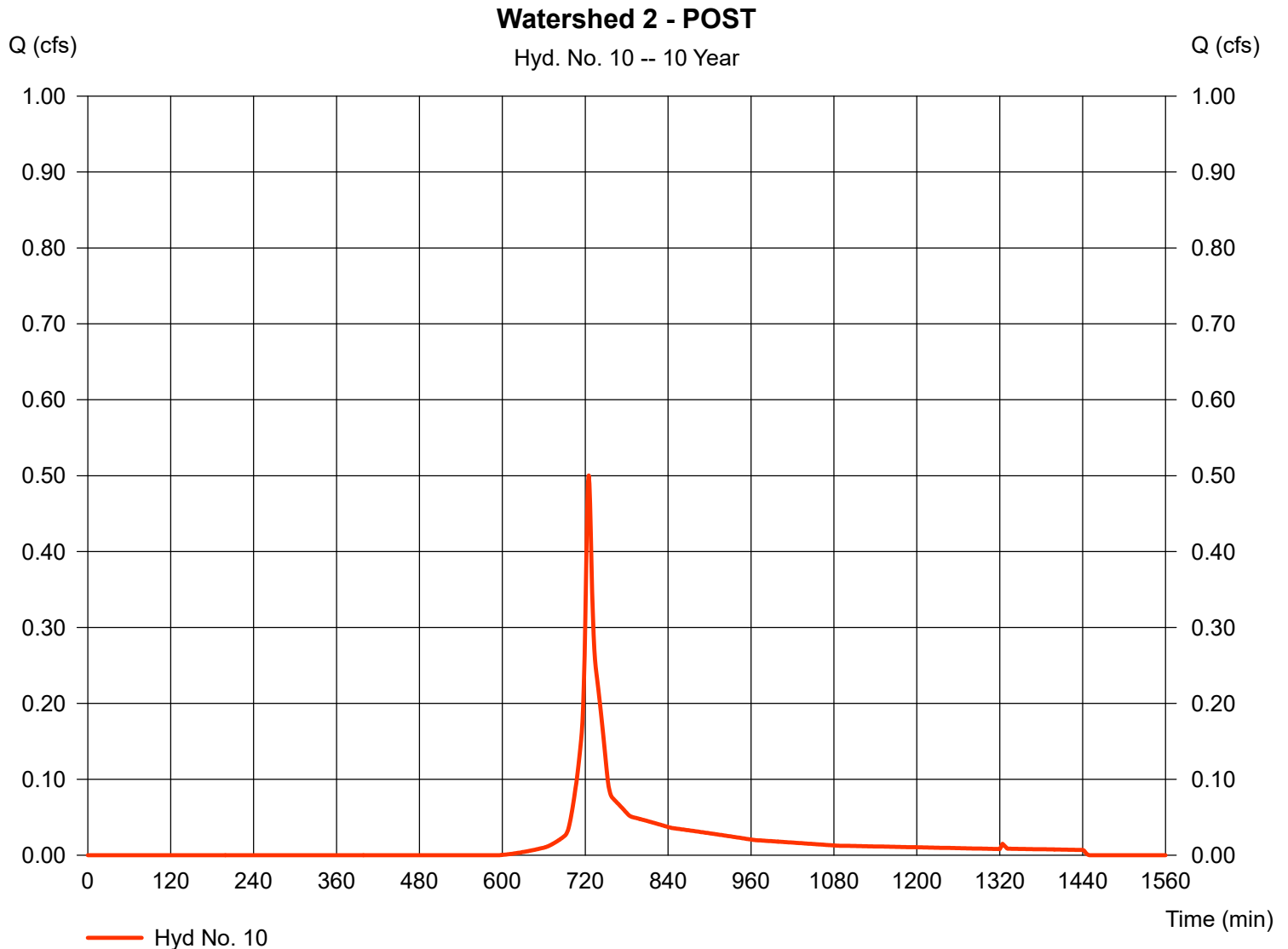
Hyd. No. 10

Watershed 2 - POST

Hydrograph type = SCS Runoff
 Storm frequency = 10 yrs
 Time interval = 1 min
 Drainage area = 0.210 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 5.17 in
 Storm duration = 24 hrs

Peak discharge = 0.500 cfs
 Time to peak = 725 min
 Hyd. volume = 1,573 cuft
 Curve number = 68*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 6.00 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.020 x 39) + (0.140 x 61) + (0.050 x 98)] / 0.210



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

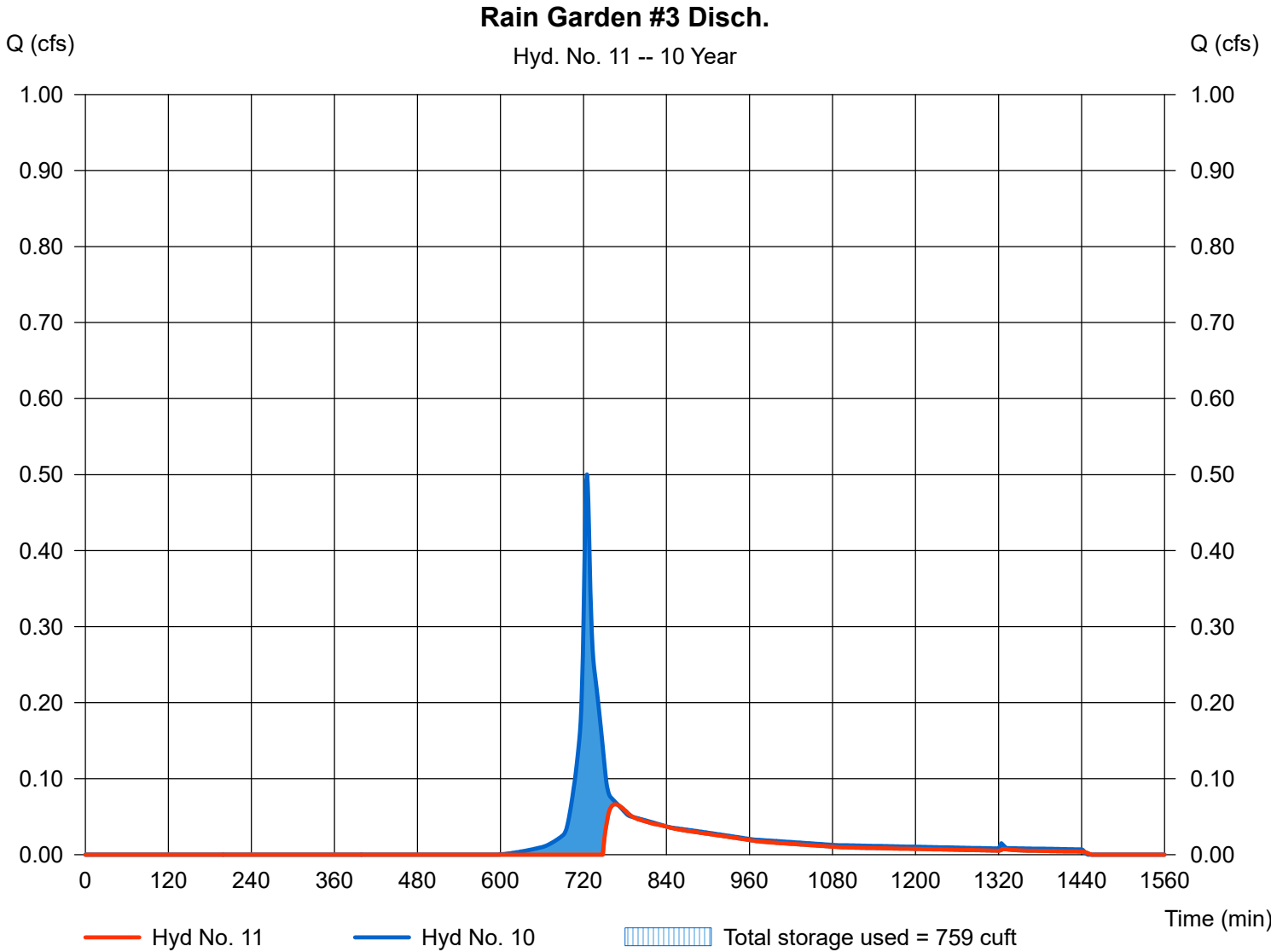
Tuesday, Sep 14, 2021

Hyd. No. 11

Rain Garden #3 Disch.

Hydrograph type	= Reservoir	Peak discharge	= 0.066 cfs
Storm frequency	= 10 yrs	Time to peak	= 766 min
Time interval	= 1 min	Hyd. volume	= 717 cuft
Inflow hyd. No.	= 10 - Watershed 2 - POST	Max. Elevation	= 130.04 ft
Reservoir name	= Rain Garden #3	Max. Storage	= 759 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description	
1	SCS Runoff	10.63	1	744	59,054	-----	-----	-----	Watershed 1 - PRE	
2	SCS Runoff	4.003	1	736	18,710	-----	-----	-----	Watershed 1A - POST	
3	Reservoir	2.432	1	752	11,502	2	107.89	7,173	Rain Garden #1 Disch.	
4	SCS Runoff	0.640	1	725	2,020	-----	-----	-----	Watershed 1B - POST	
5	Reservoir	0.626	1	726	1,831	4	115.62	186	Rain Garden #2 Disch.	
6	SCS Runoff	9.006	1	730	35,322	-----	-----	-----	Watershed 1C - POST	
7	Combine	9.517	1	729	48,655	3, 5, 6	-----	-----	Watershed 1 - POST Combined	
9	SCS Runoff	0.556	1	725	1,726	-----	-----	-----	Watershed 2 - PRE	
10	SCS Runoff	0.712	1	725	2,206	-----	-----	-----	Watershed 2 - POST	
11	Reservoir	0.288	1	740	1,347	10	130.11	828	Rain Garden #3 Disch.	
6359 - TR55 REV1.gpw					Return Period: 25 Year			Tuesday, Sep 14, 2021		

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Sep 14, 2021

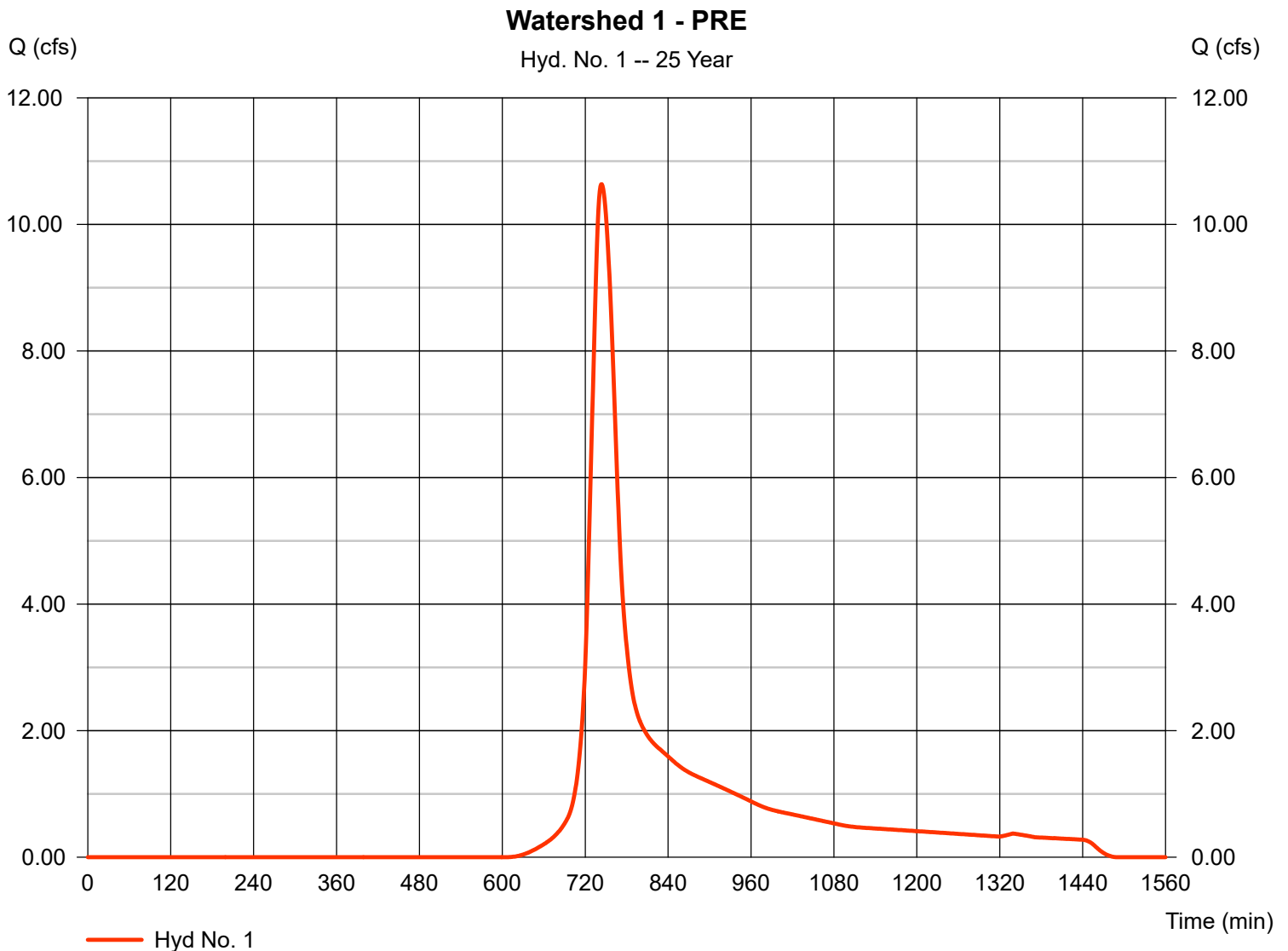
Hyd. No. 1

Watershed 1 - PRE

Hydrograph type = SCS Runoff
 Storm frequency = 25 yrs
 Time interval = 1 min
 Drainage area = 6.890 ac
 Basin Slope = 0.0 %
 Tc method = TR55
 Total precip. = 6.24 in
 Storm duration = 24 hrs

Peak discharge = 10.63 cfs
 Time to peak = 744 min
 Hyd. volume = 59,054 cuft
 Curve number = 63*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 31.00 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(5.190 x 60) + (1.400 x 66) + (0.300 x 98)] / 6.890



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Sep 14, 2021

Hyd. No. 2

Watershed 1A - POST

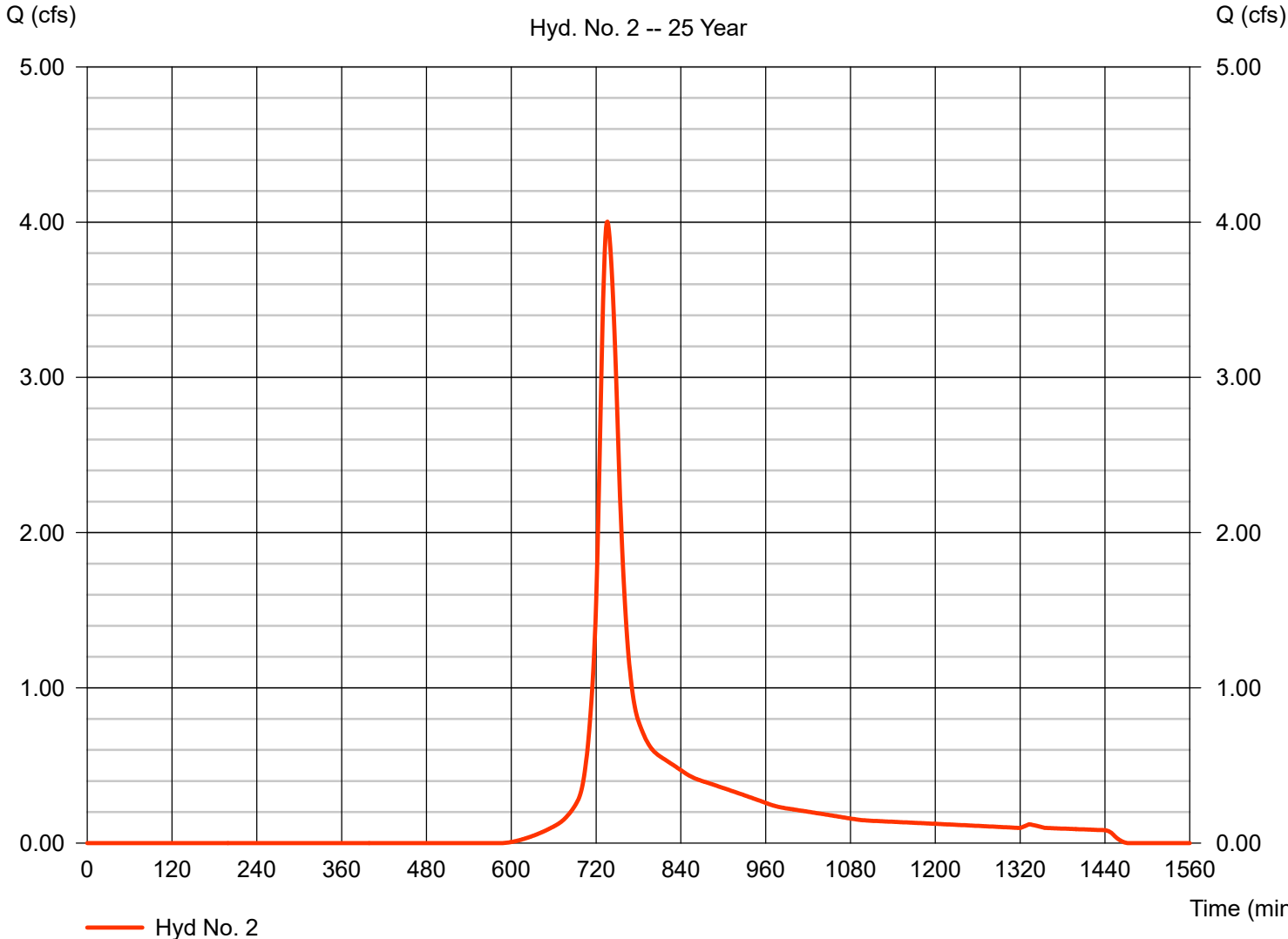
Hydrograph type = SCS Runoff
 Storm frequency = 25 yrs
 Time interval = 1 min
 Drainage area = 2.020 ac
 Basin Slope = 0.0 %
 Tc method = TR55
 Total precip. = 6.24 in
 Storm duration = 24 hrs

Peak discharge = 4.003 cfs
 Time to peak = 736 min
 Hyd. volume = 18,710 cuft
 Curve number = 65*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 20.40 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.150 x 39) + (0.200 x 60) + (1.350 x 61) + (0.320 x 98)] / 2.020

Watershed 1A - POST

Hyd. No. 2 -- 25 Year



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

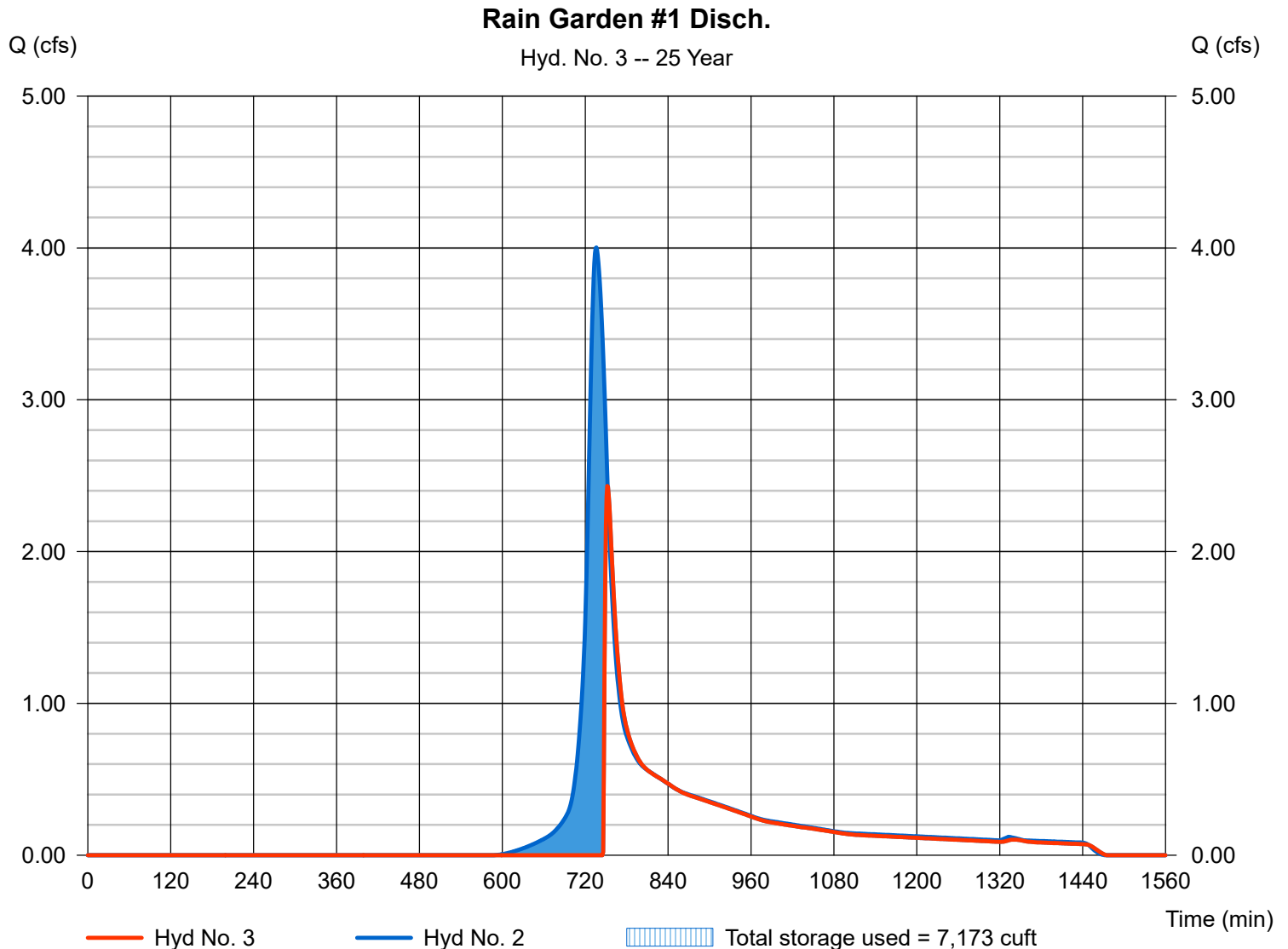
Tuesday, Sep 14, 2021

Hyd. No. 3

Rain Garden #1 Disch.

Hydrograph type	= Reservoir	Peak discharge	= 2.432 cfs
Storm frequency	= 25 yrs	Time to peak	= 752 min
Time interval	= 1 min	Hyd. volume	= 11,502 cuft
Inflow hyd. No.	= 2 - Watershed 1A - POST	Max. Elevation	= 107.89 ft
Reservoir name	= Rain Garden #1 REV	Max. Storage	= 7,173 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Sep 14, 2021

Hyd. No. 4

Watershed 1B - POST

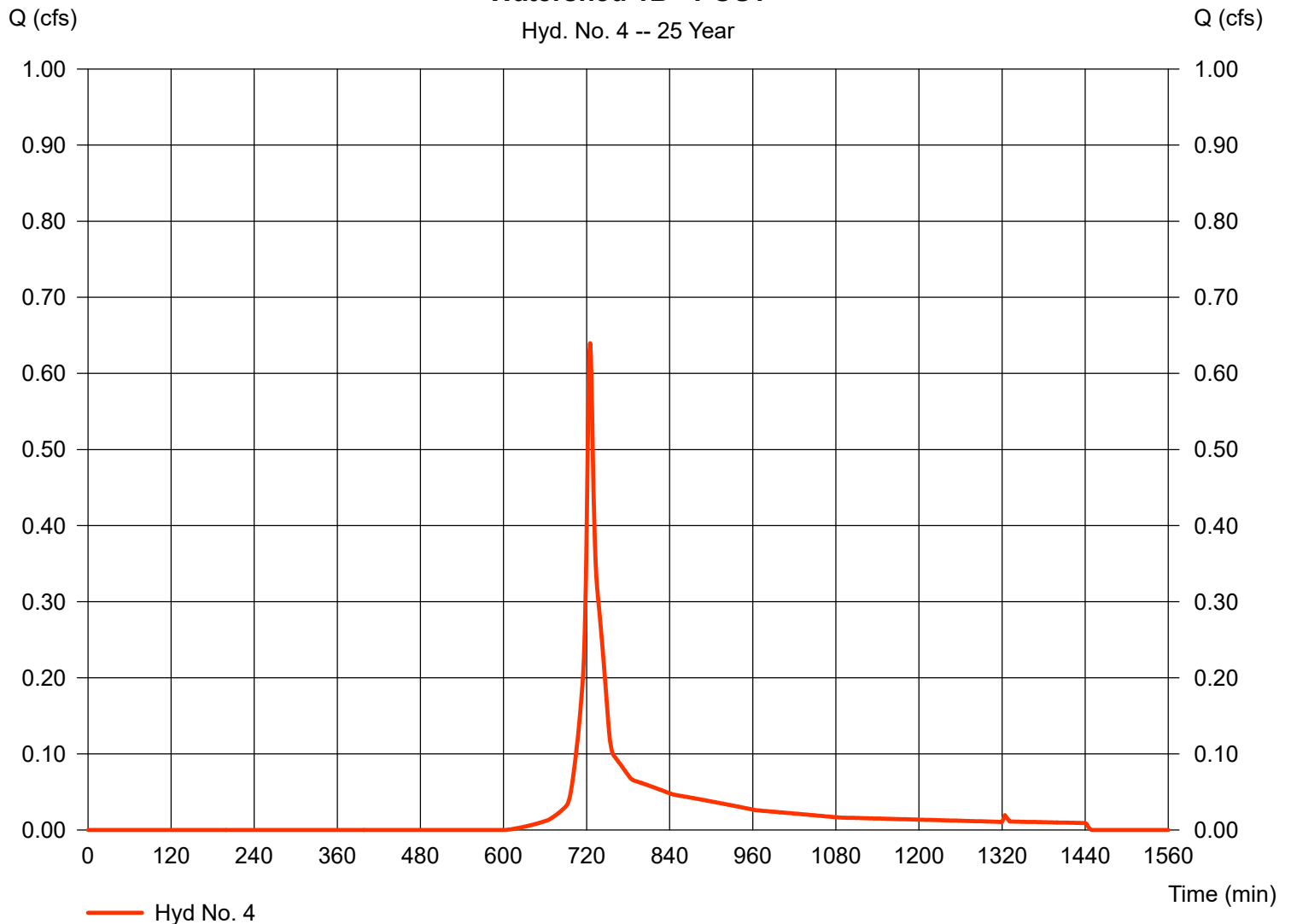
Hydrograph type = SCS Runoff
 Storm frequency = 25 yrs
 Time interval = 1 min
 Drainage area = 0.230 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 6.24 in
 Storm duration = 24 hrs

Peak discharge = 0.640 cfs
 Time to peak = 725 min
 Hyd. volume = 2,020 cuft
 Curve number = 63*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 6.00 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.010 x 39) + (0.060 x 60) + (0.140 x 61) + (0.020 x 98)] / 0.230

Watershed 1B - POST

Hyd. No. 4 -- 25 Year



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Sep 14, 2021

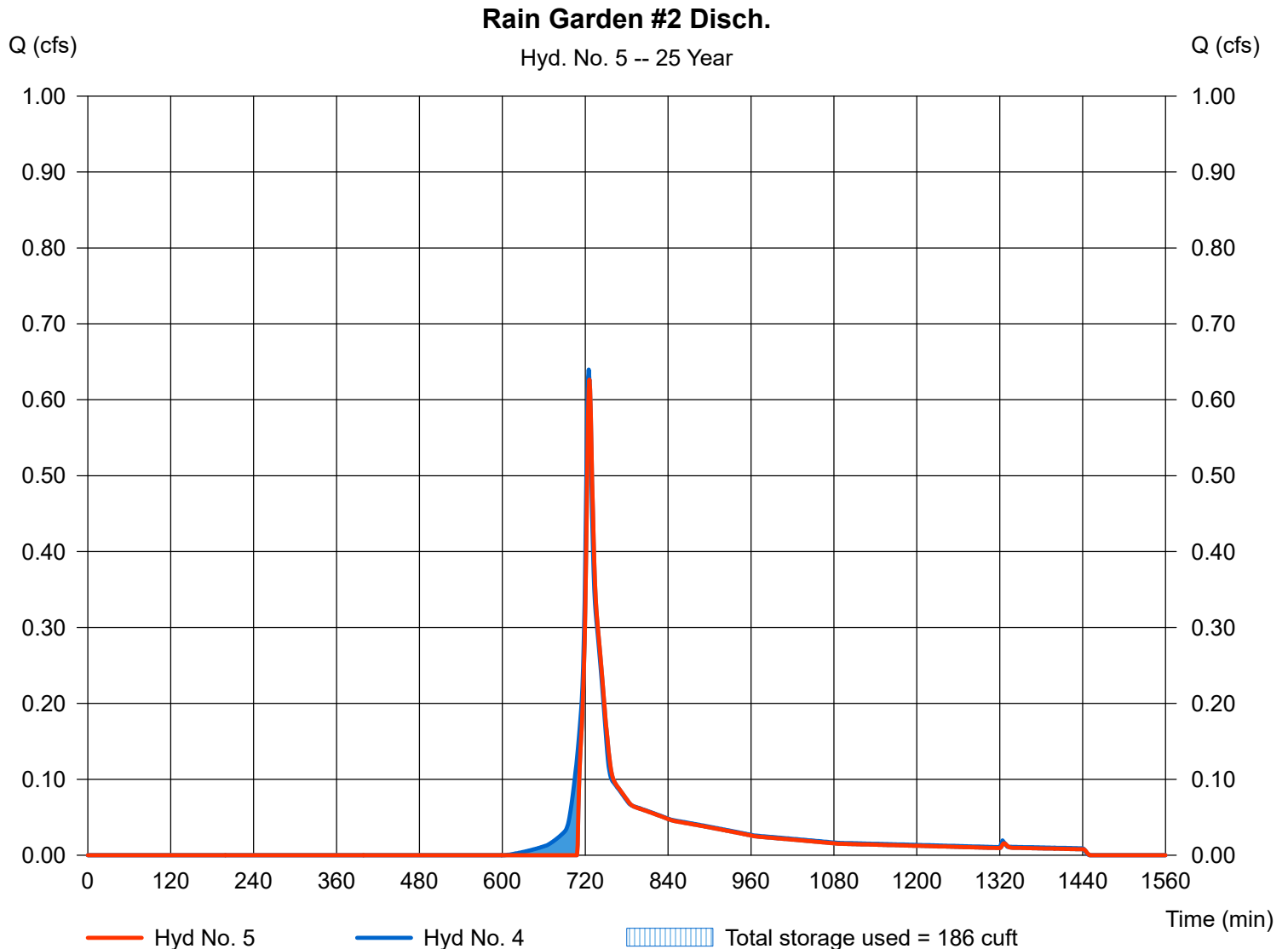
Hyd. No. 5

Rain Garden #2 Disch.

Hydrograph type = Reservoir
 Storm frequency = 25 yrs
 Time interval = 1 min
 Inflow hyd. No. = 4 - Watershed 1B - POST
 Reservoir name = Rain Garden #2

Peak discharge = 0.626 cfs
 Time to peak = 726 min
 Hyd. volume = 1,831 cuft
 Max. Elevation = 115.62 ft
 Max. Storage = 186 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Sep 14, 2021

Hyd. No. 6

Watershed 1C - POST

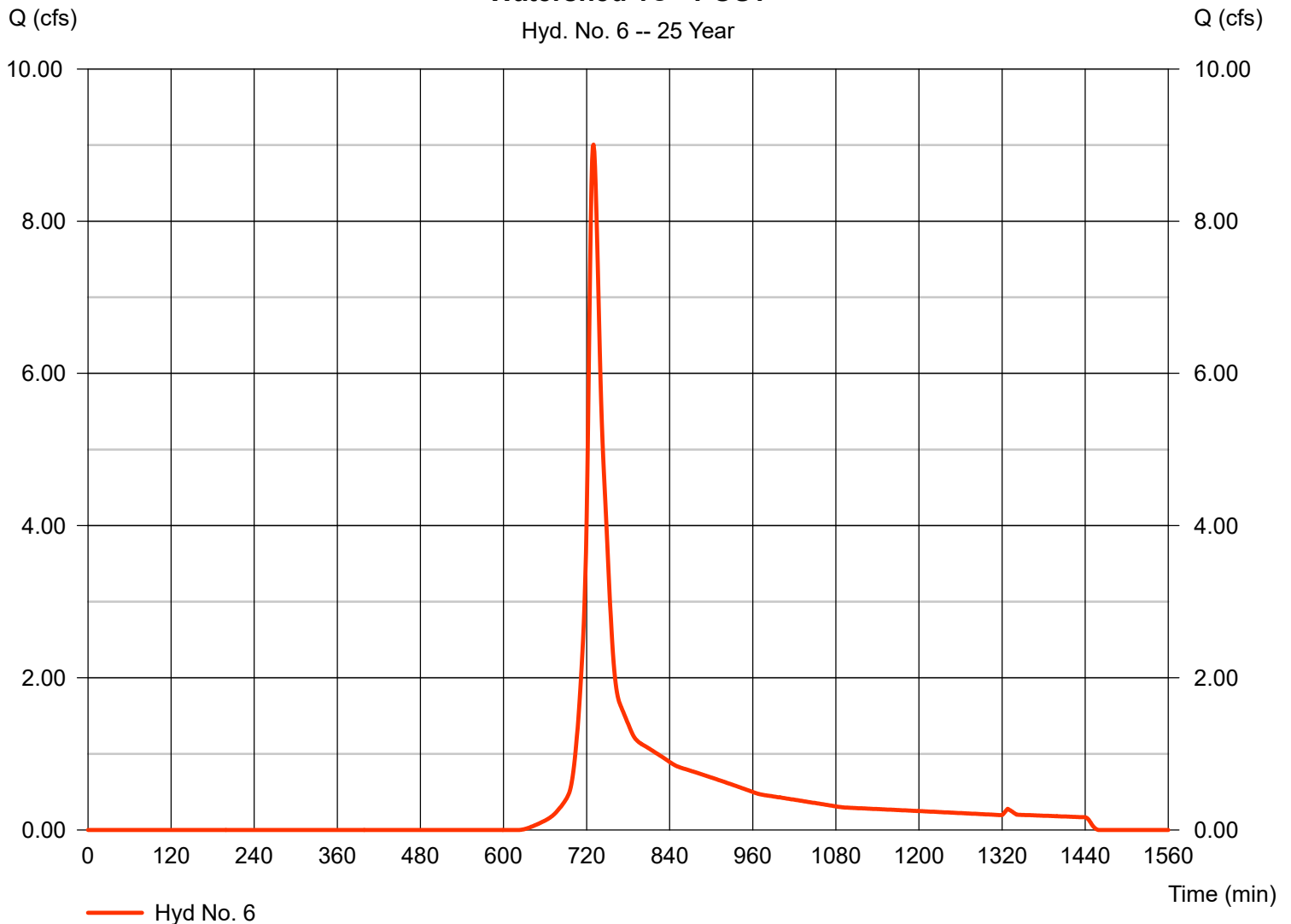
Hydrograph type = SCS Runoff
 Storm frequency = 25 yrs
 Time interval = 1 min
 Drainage area = 4.560 ac
 Basin Slope = 0.0 %
 Tc method = TR55
 Total precip. = 6.24 in
 Storm duration = 24 hrs

Peak discharge = 9.006 cfs
 Time to peak = 730 min
 Hyd. volume = 35,322 cuft
 Curve number = 61*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 12.30 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.220 x 39) + (2.750 x 60) + (1.430 x 61) + (0.160 x 98)] / 4.560

Watershed 1C - POST

Hyd. No. 6 -- 25 Year



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

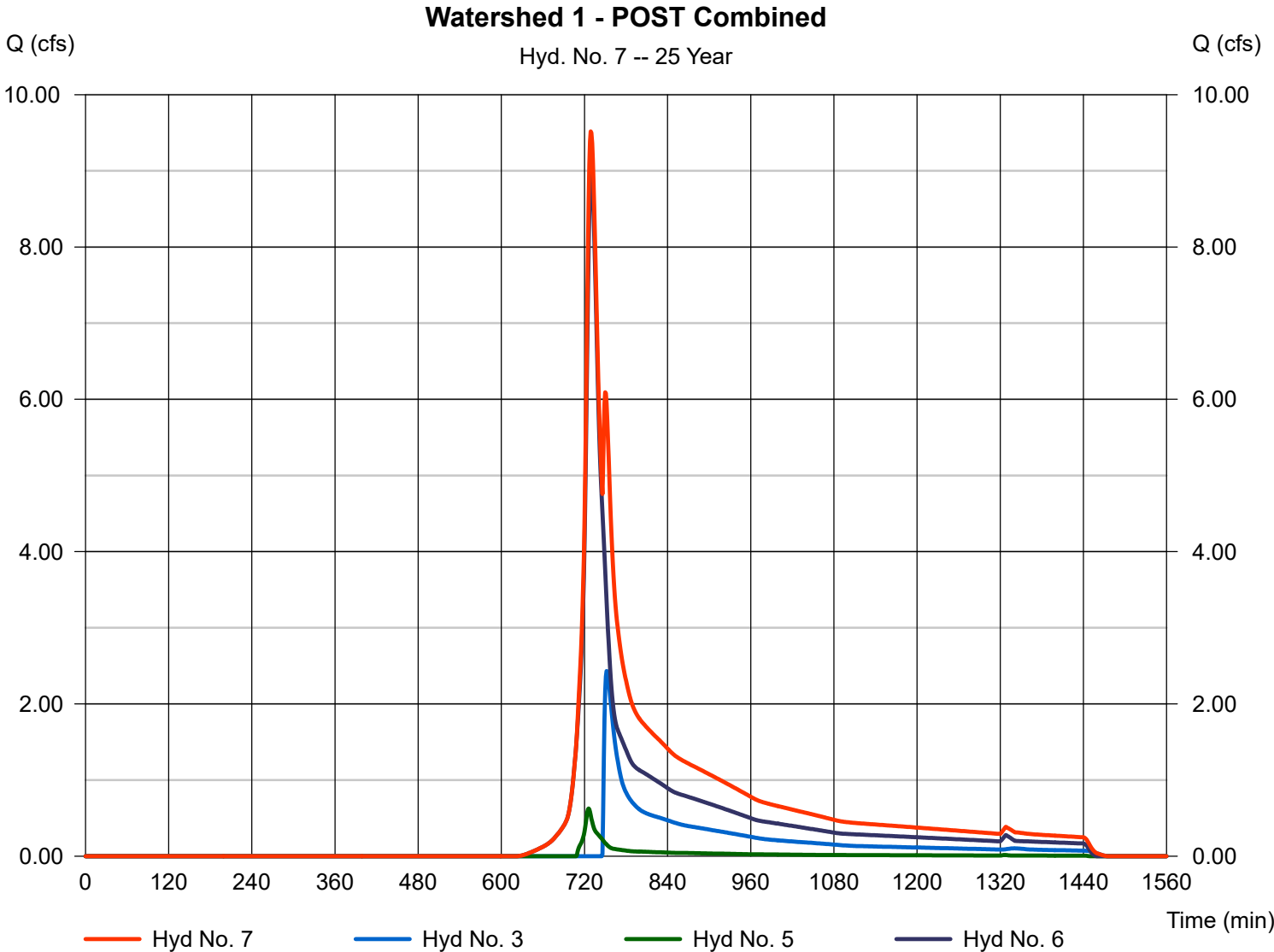
Tuesday, Sep 14, 2021

Hyd. No. 7

Watershed 1 - POST Combined

Hydrograph type = Combine
Storm frequency = 25 yrs
Time interval = 1 min
Inflow hyds. = 3, 5, 6

Peak discharge = 9.517 cfs
Time to peak = 729 min
Hyd. volume = 48,655 cuft
Contrib. drain. area = 4.560 ac



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Sep 14, 2021

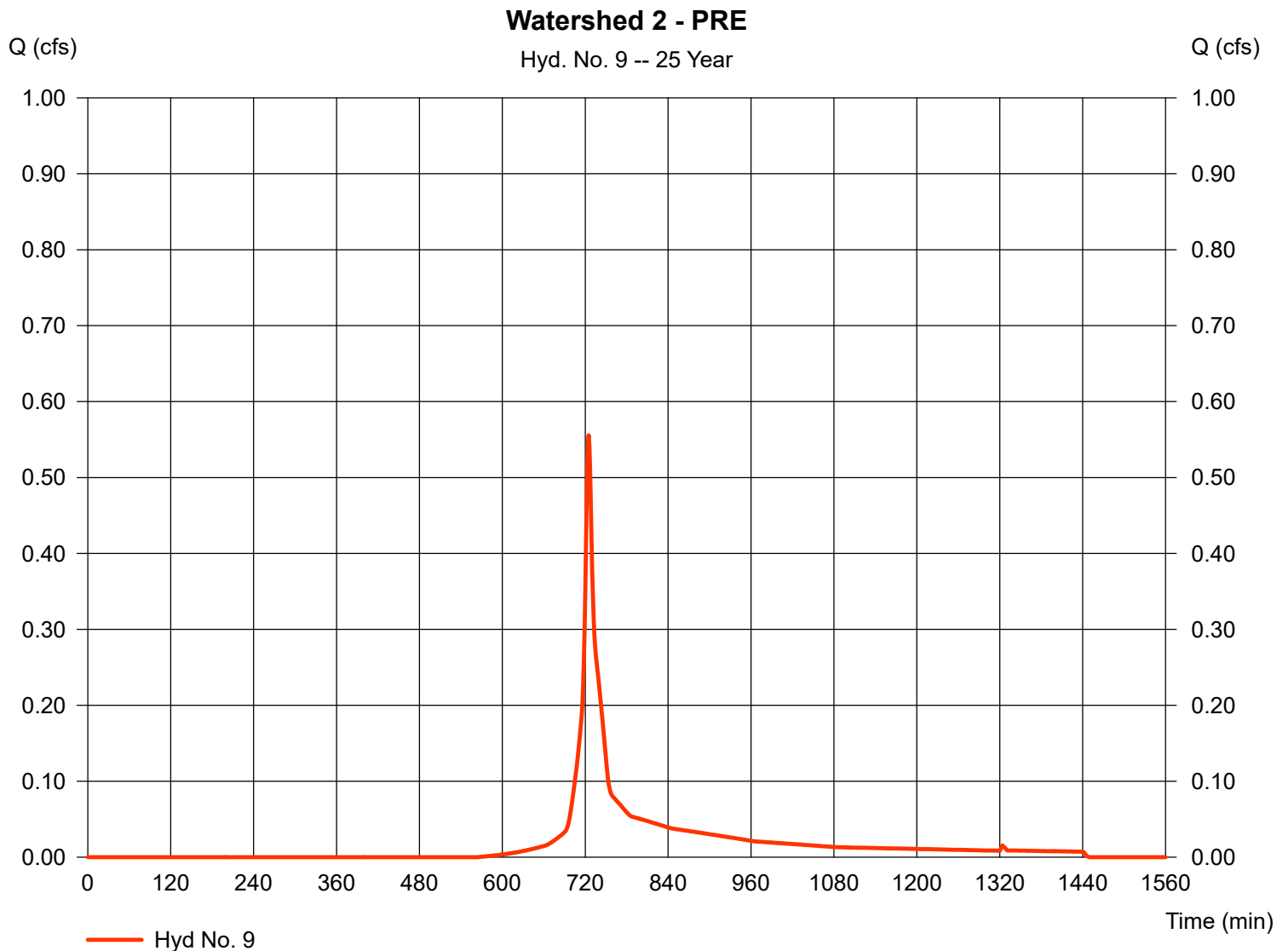
Hyd. No. 9

Watershed 2 - PRE

Hydrograph type = SCS Runoff
 Storm frequency = 25 yrs
 Time interval = 1 min
 Drainage area = 0.170 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 6.24 in
 Storm duration = 24 hrs

Peak discharge = 0.556 cfs
 Time to peak = 725 min
 Hyd. volume = 1,726 cuft
 Curve number = 67*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 6.00 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.140 x 60) + (0.030 x 98)] / 0.170



Hydrograph Report

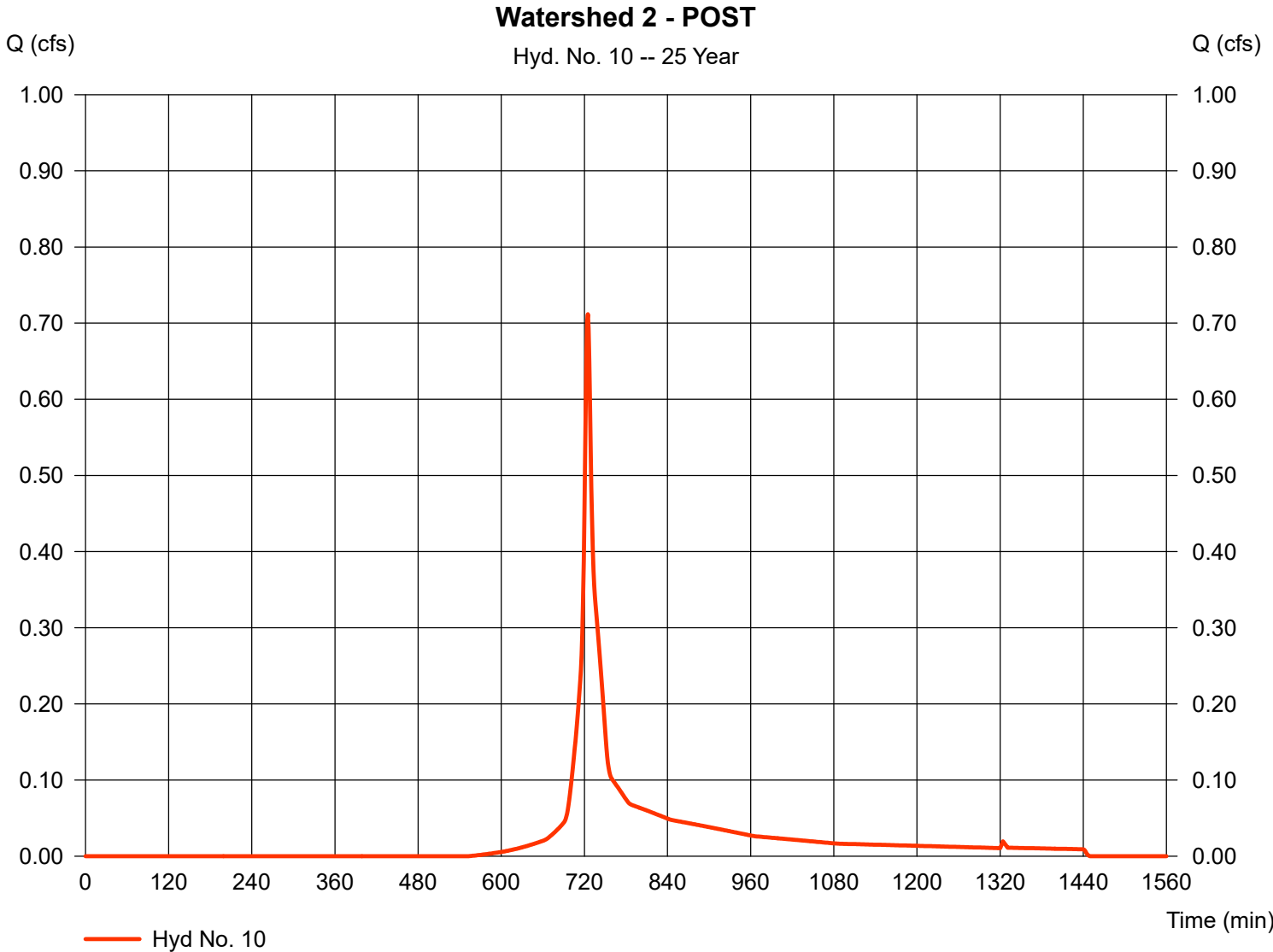
Hyd. No. 10

Watershed 2 - POST

Hydrograph type = SCS Runoff
Storm frequency = 25 yrs
Time interval = 1 min
Drainage area = 0.210 ac
Basin Slope = 0.0 %
Tc method = USER
Total precip. = 6.24 in
Storm duration = 24 hrs

Peak discharge = 0.712 cfs
Time to peak = 725 min
Hyd. volume = 2,206 cuft
Curve number = 68*
Hydraulic length = 0 ft
Time of conc. (Tc) = 6.00 min
Distribution = Type III
Shape factor = 484

* Composite (Area/CN) = [(0.020 x 39) + (0.140 x 61) + (0.050 x 98)] / 0.210



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Sep 14, 2021

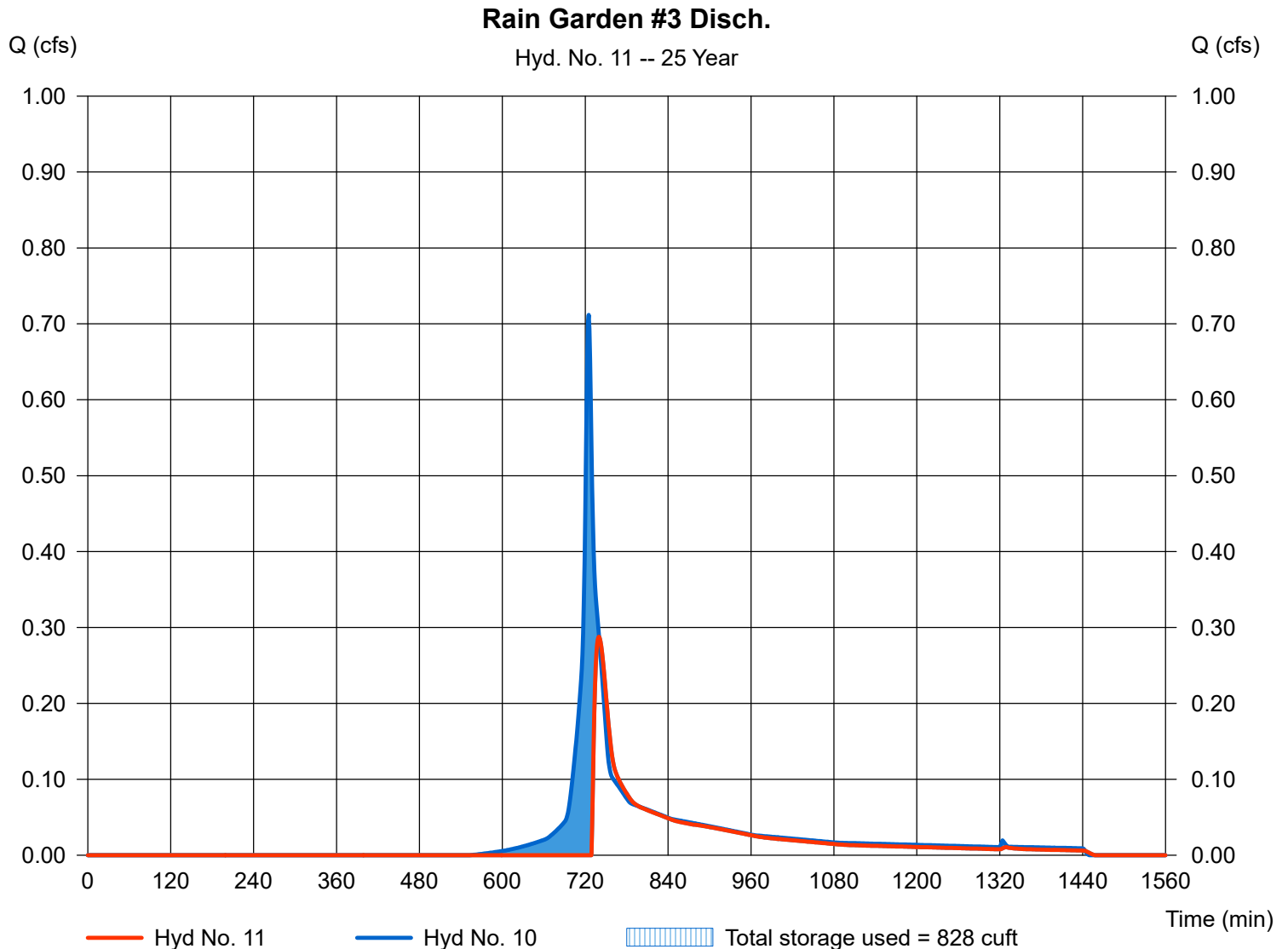
Hyd. No. 11

Rain Garden #3 Disch.

Hydrograph type = Reservoir
 Storm frequency = 25 yrs
 Time interval = 1 min
 Inflow hyd. No. = 10 - Watershed 2 - POST
 Reservoir name = Rain Garden #3

Peak discharge = 0.288 cfs
 Time to peak = 740 min
 Hyd. volume = 1,347 cuft
 Max. Elevation = 130.11 ft
 Max. Storage = 828 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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	13.47	1	743	73,783	-----	-----	-----	Watershed 1 - PRE	
2	SCS Runoff	5.012	1	735	23,198	-----	-----	-----	Watershed 1A - POST	
3	Reservoir	4.183	1	745	15,978	2	107.95	7,389	Rain Garden #1 Disch.	
4	SCS Runoff	0.809	1	725	2,523	-----	-----	-----	Watershed 1B - POST	
5	Reservoir	0.793	1	726	2,334	4	115.64	195	Rain Garden #2 Disch.	
6	SCS Runoff	11.53	1	730	44,497	-----	-----	-----	Watershed 1C - POST	
7	Combine	12.20	1	729	62,809	3, 5, 6	-----	-----	Watershed 1 - POST Combined	
9	SCS Runoff	0.688	1	725	2,125	-----	-----	-----	Watershed 2 - PRE	
10	SCS Runoff	0.877	1	725	2,706	-----	-----	-----	Watershed 2 - POST	
11	Reservoir	0.513	1	731	1,844	10	130.16	879	Rain Garden #3 Disch.	
6359 - TR55 REV1.gpw					Return Period: 50 Year			Tuesday, Sep 14, 2021		

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Sep 14, 2021

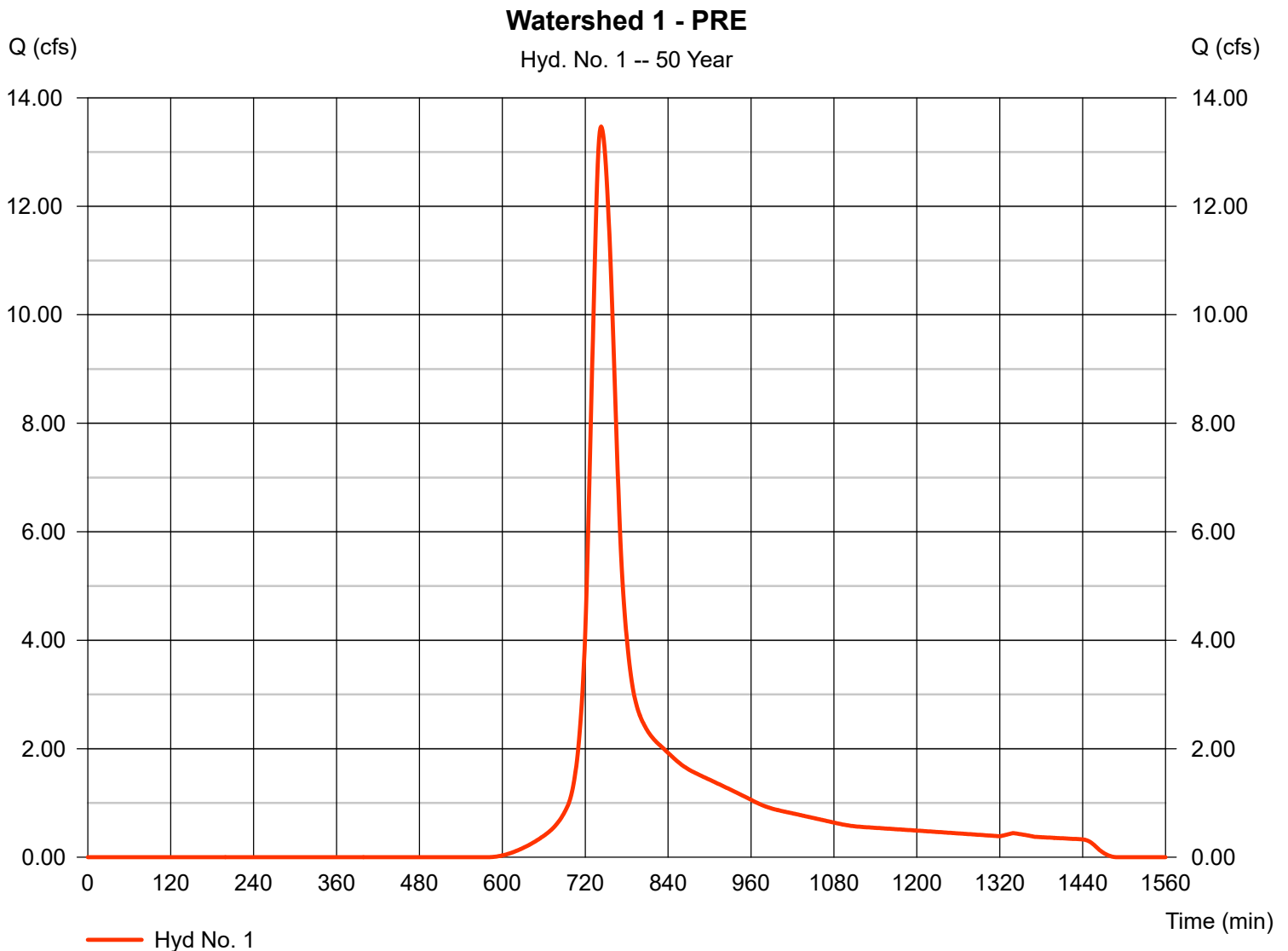
Hyd. No. 1

Watershed 1 - PRE

Hydrograph type = SCS Runoff
 Storm frequency = 50 yrs
 Time interval = 1 min
 Drainage area = 6.890 ac
 Basin Slope = 0.0 %
 Tc method = TR55
 Total precip. = 7.04 in
 Storm duration = 24 hrs

Peak discharge = 13.47 cfs
 Time to peak = 743 min
 Hyd. volume = 73,783 cuft
 Curve number = 63*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 31.00 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(5.190 x 60) + (1.400 x 66) + (0.300 x 98)] / 6.890



Hydrograph Report

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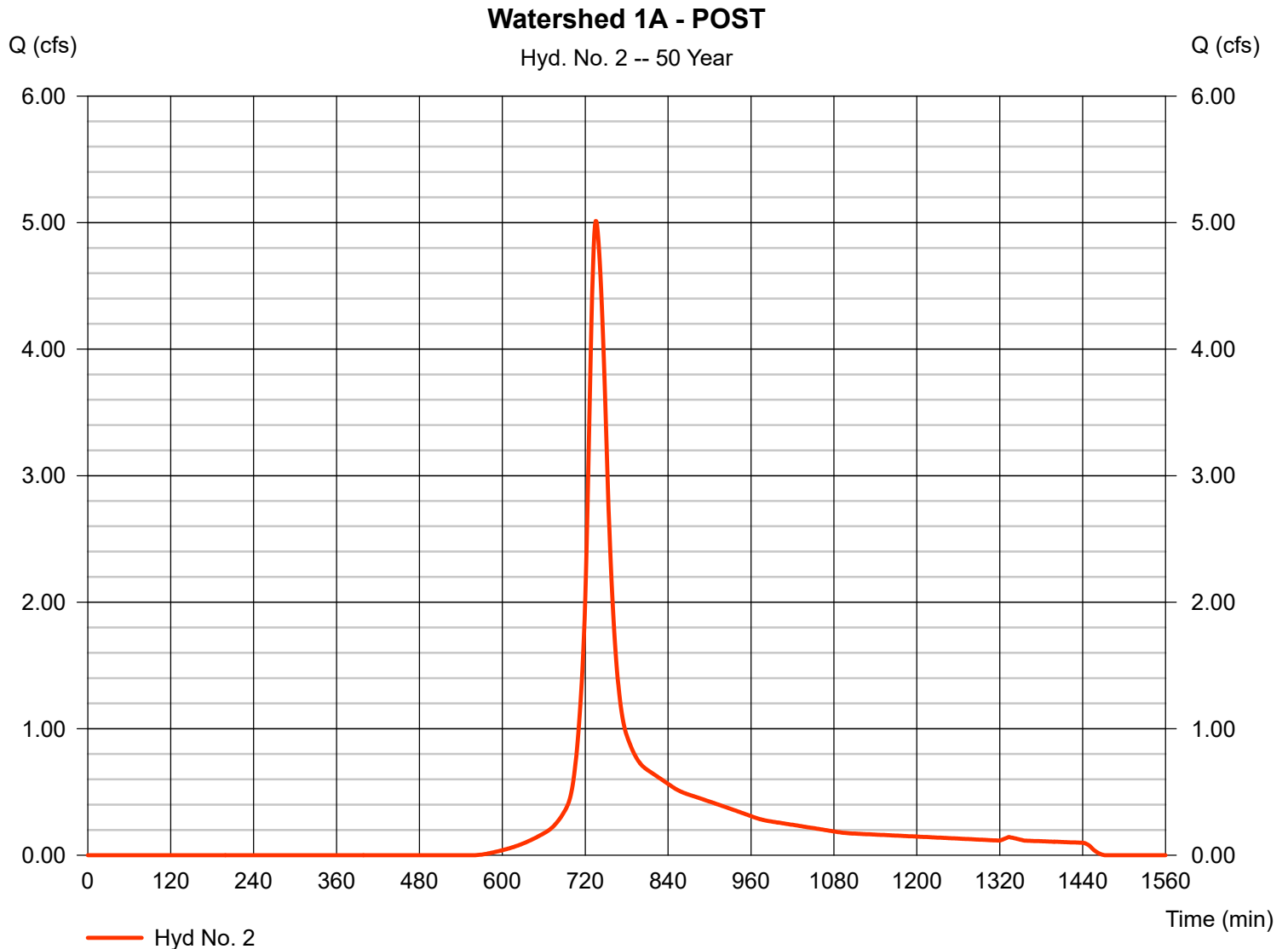
Hyd. No. 2

Watershed 1A - POST

Hydrograph type = SCS Runoff
 Storm frequency = 50 yrs
 Time interval = 1 min
 Drainage area = 2.020 ac
 Basin Slope = 0.0 %
 Tc method = TR55
 Total precip. = 7.04 in
 Storm duration = 24 hrs

Peak discharge = 5.012 cfs
 Time to peak = 735 min
 Hyd. volume = 23,198 cuft
 Curve number = 65*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 20.40 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.150 x 39) + (0.200 x 60) + (1.350 x 61) + (0.320 x 98)] / 2.020



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

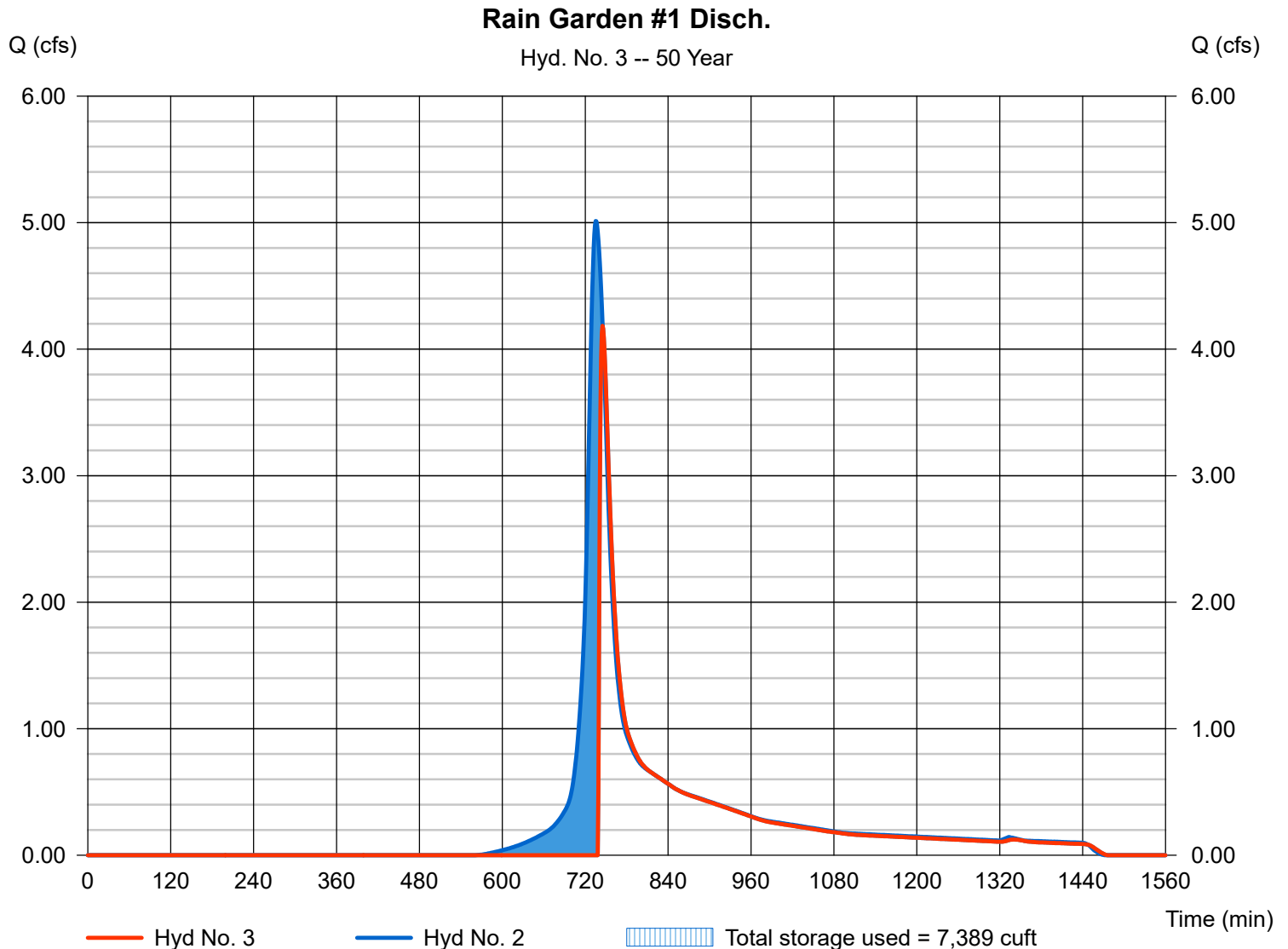
Tuesday, Sep 14, 2021

Hyd. No. 3

Rain Garden #1 Disch.

Hydrograph type	= Reservoir	Peak discharge	= 4.183 cfs
Storm frequency	= 50 yrs	Time to peak	= 745 min
Time interval	= 1 min	Hyd. volume	= 15,978 cuft
Inflow hyd. No.	= 2 - Watershed 1A - POST	Max. Elevation	= 107.95 ft
Reservoir name	= Rain Garden #1 REV	Max. Storage	= 7,389 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Sep 14, 2021

Hyd. No. 4

Watershed 1B - POST

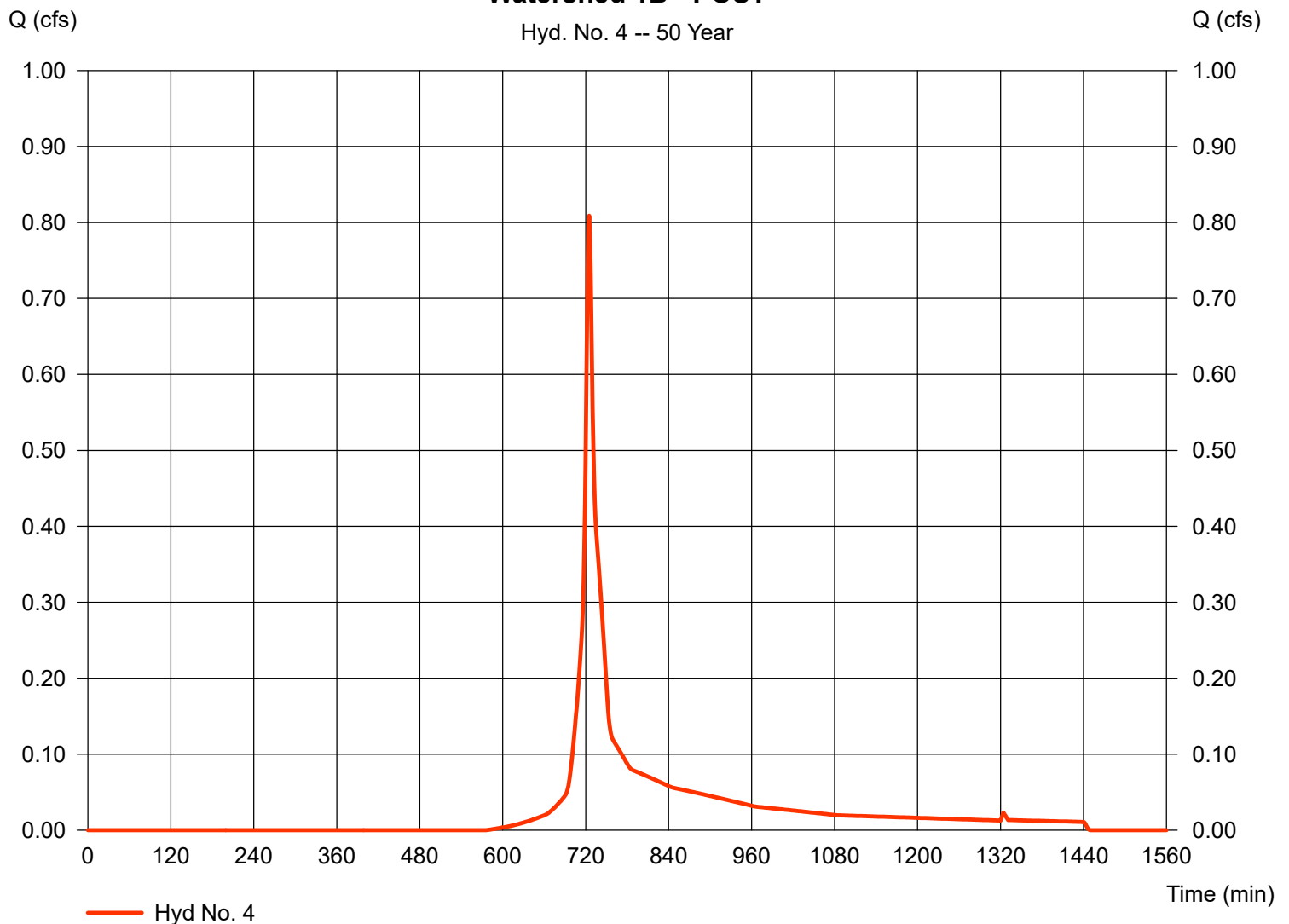
Hydrograph type = SCS Runoff
 Storm frequency = 50 yrs
 Time interval = 1 min
 Drainage area = 0.230 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 7.04 in
 Storm duration = 24 hrs

Peak discharge = 0.809 cfs
 Time to peak = 725 min
 Hyd. volume = 2,523 cuft
 Curve number = 63*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 6.00 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.010 x 39) + (0.060 x 60) + (0.140 x 61) + (0.020 x 98)] / 0.230

Watershed 1B - POST

Hyd. No. 4 -- 50 Year



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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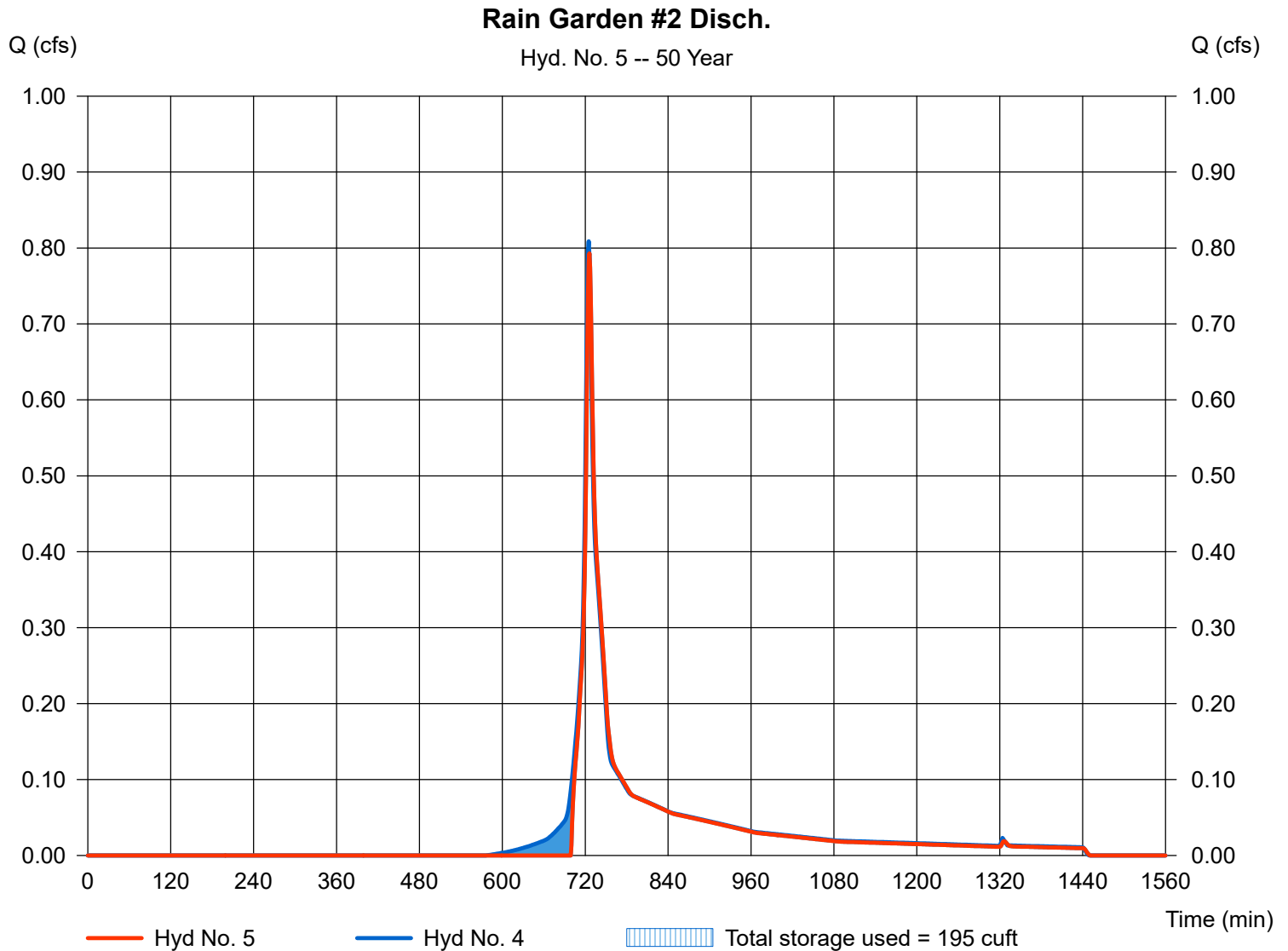
Hyd. No. 5

Rain Garden #2 Disch.

Hydrograph type = Reservoir
 Storm frequency = 50 yrs
 Time interval = 1 min
 Inflow hyd. No. = 4 - Watershed 1B - POST
 Reservoir name = Rain Garden #2

Peak discharge = 0.793 cfs
 Time to peak = 726 min
 Hyd. volume = 2,334 cuft
 Max. Elevation = 115.64 ft
 Max. Storage = 195 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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Hyd. No. 6

Watershed 1C - POST

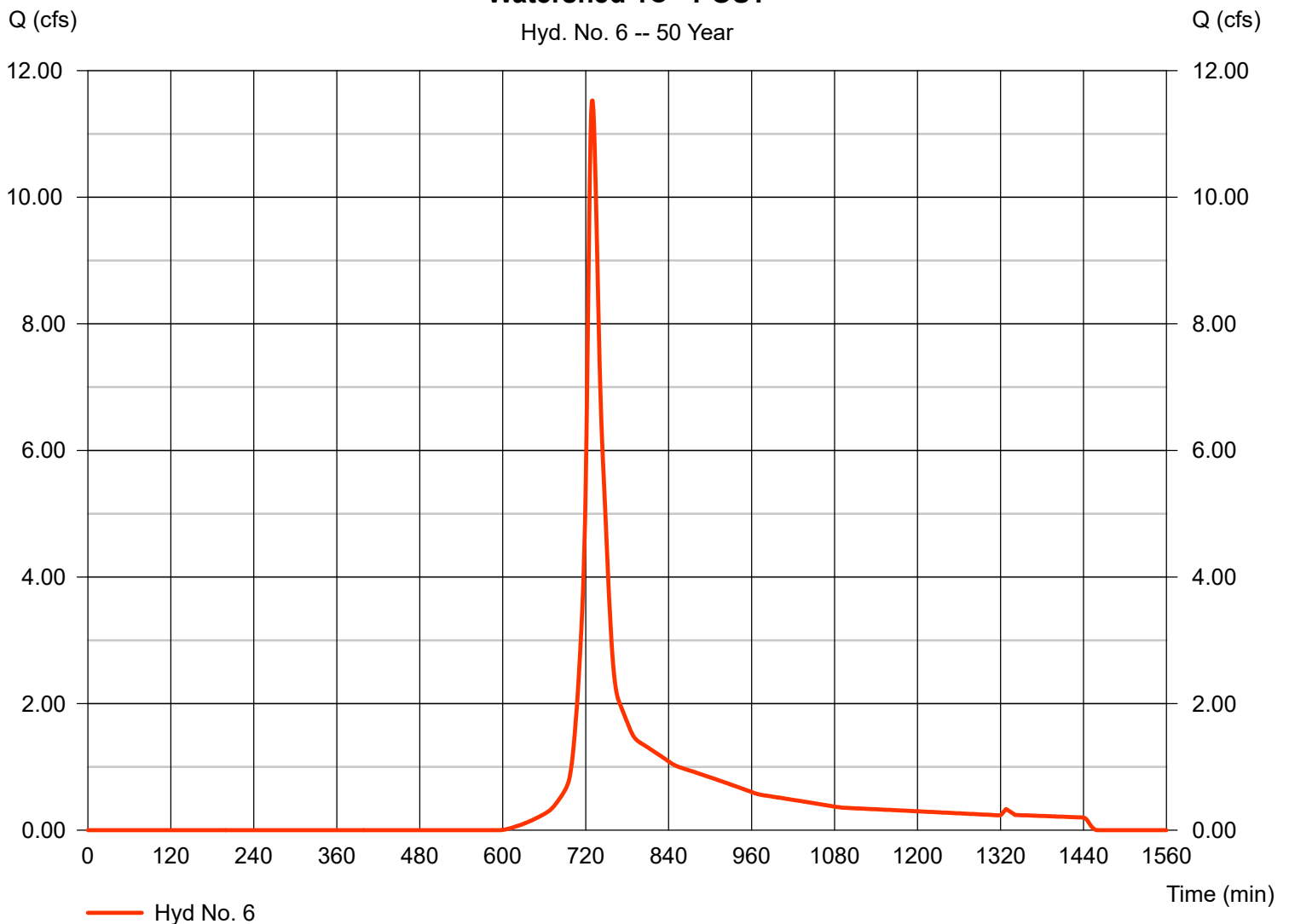
Hydrograph type = SCS Runoff
 Storm frequency = 50 yrs
 Time interval = 1 min
 Drainage area = 4.560 ac
 Basin Slope = 0.0 %
 Tc method = TR55
 Total precip. = 7.04 in
 Storm duration = 24 hrs

Peak discharge = 11.53 cfs
 Time to peak = 730 min
 Hyd. volume = 44,497 cuft
 Curve number = 61*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 12.30 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.220 x 39) + (2.750 x 60) + (1.430 x 61) + (0.160 x 98)] / 4.560

Watershed 1C - POST

Hyd. No. 6 -- 50 Year



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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Hyd. No. 7

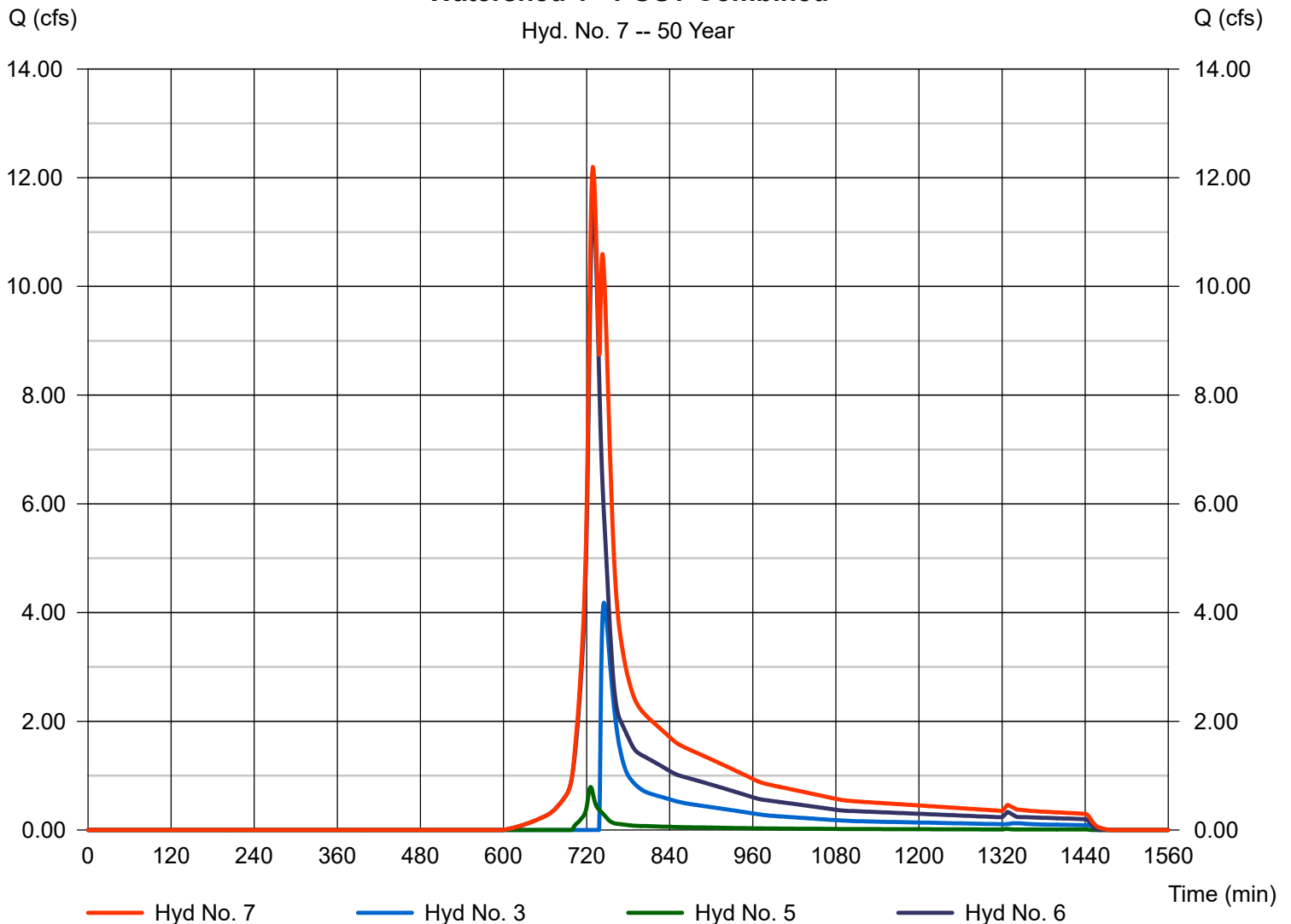
Watershed 1 - POST Combined

Hydrograph type = Combine
 Storm frequency = 50 yrs
 Time interval = 1 min
 Inflow hyds. = 3, 5, 6

Peak discharge = 12.20 cfs
 Time to peak = 729 min
 Hyd. volume = 62,809 cuft
 Contrib. drain. area = 4.560 ac

Watershed 1 - POST Combined

Hyd. No. 7 -- 50 Year



Hydrograph Report

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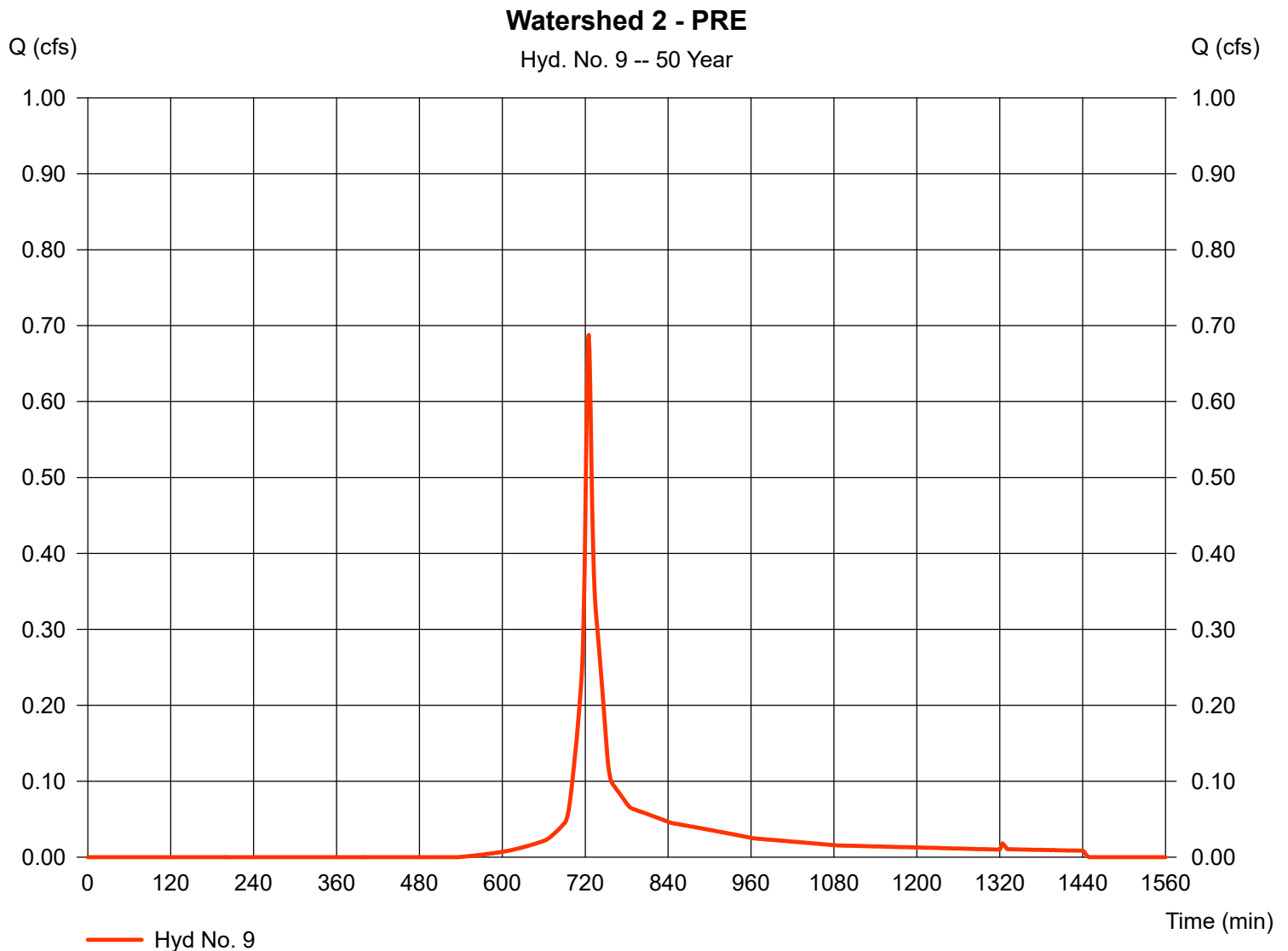
Hyd. No. 9

Watershed 2 - PRE

Hydrograph type = SCS Runoff
 Storm frequency = 50 yrs
 Time interval = 1 min
 Drainage area = 0.170 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 7.04 in
 Storm duration = 24 hrs

Peak discharge = 0.688 cfs
 Time to peak = 725 min
 Hyd. volume = 2,125 cuft
 Curve number = 67*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 6.00 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.140 x 60) + (0.030 x 98)] / 0.170



Hydrograph Report

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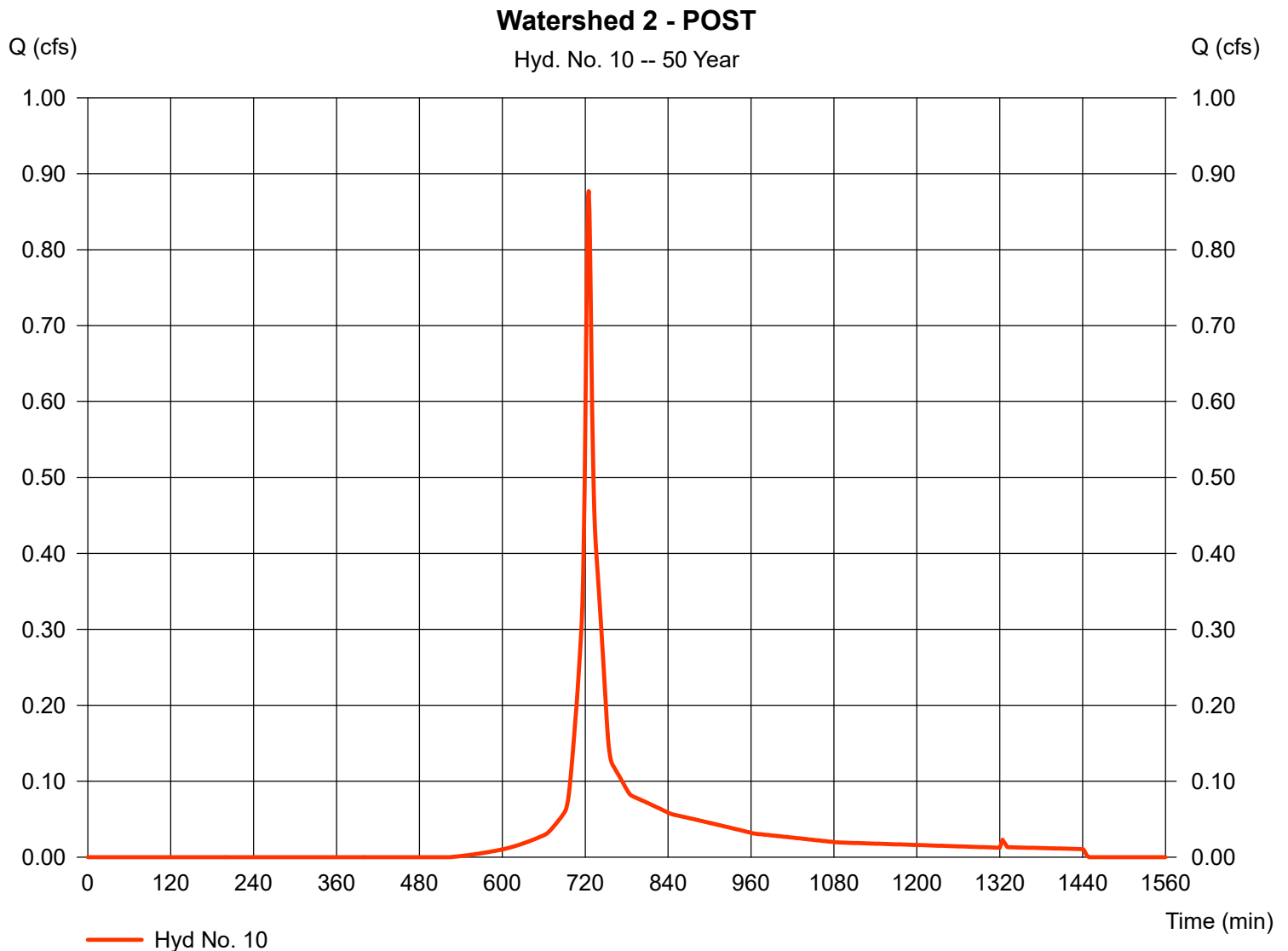
Hyd. No. 10

Watershed 2 - POST

Hydrograph type = SCS Runoff
 Storm frequency = 50 yrs
 Time interval = 1 min
 Drainage area = 0.210 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 7.04 in
 Storm duration = 24 hrs

Peak discharge = 0.877 cfs
 Time to peak = 725 min
 Hyd. volume = 2,706 cuft
 Curve number = 68*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 6.00 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.020 x 39) + (0.140 x 61) + (0.050 x 98)] / 0.210



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Sep 14, 2021

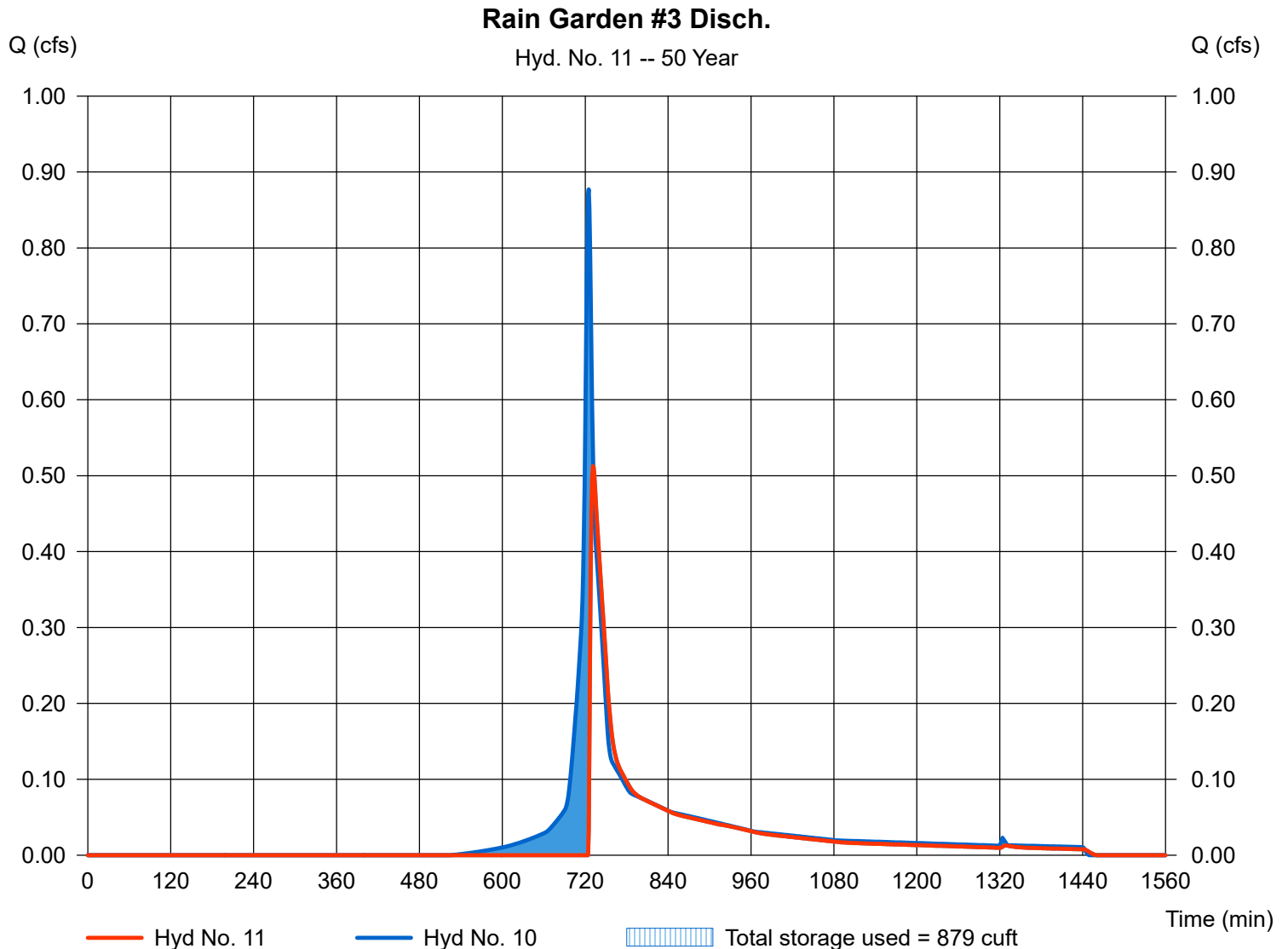
Hyd. No. 11

Rain Garden #3 Disch.

Hydrograph type = Reservoir
 Storm frequency = 50 yrs
 Time interval = 1 min
 Inflow hyd. No. = 10 - Watershed 2 - POST
 Reservoir name = Rain Garden #3

Peak discharge = 0.513 cfs
 Time to peak = 731 min
 Hyd. volume = 1,844 cuft
 Max. Elevation = 130.16 ft
 Max. Storage = 879 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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	16.64	1	743	90,384	-----	-----	-----	Watershed 1 - PRE	
2	SCS Runoff	6.141	1	735	28,232	-----	-----	-----	Watershed 1A - POST	
3	Reservoir	5.775	1	740	21,000	2	108.00	7,558	Rain Garden #1 Disch.	
4	SCS Runoff	0.998	1	725	3,091	-----	-----	-----	Watershed 1B - POST	
5	Reservoir	0.981	1	726	2,900	4	115.66	206	Rain Garden #2 Disch.	
6	SCS Runoff	14.39	1	729	54,889	-----	-----	-----	Watershed 1C - POST	
7	Combine	16.43	1	737	78,789	3, 5, 6	-----	-----	Watershed 1 - POST Combined	
9	SCS Runoff	0.834	1	725	2,570	-----	-----	-----	Watershed 2 - PRE	
10	SCS Runoff	1.059	1	725	3,264	-----	-----	-----	Watershed 2 - POST	
11	Reservoir	0.821	1	729	2,397	10	130.22	939	Rain Garden #3 Disch.	
6359 - TR55 REV1.gpw					Return Period: 100 Year			Tuesday, Sep 14, 2021		

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Sep 14, 2021

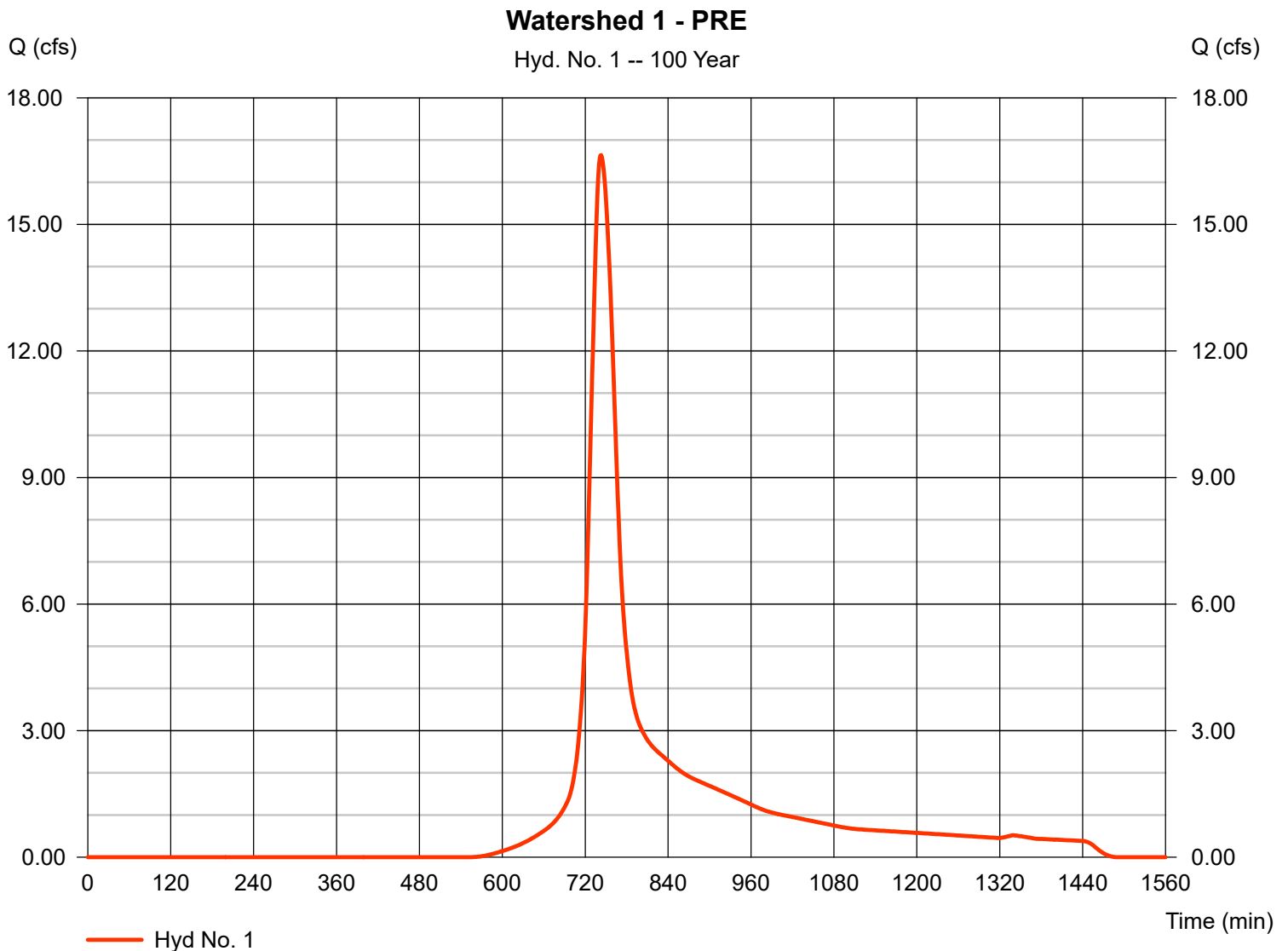
Hyd. No. 1

Watershed 1 - PRE

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 1 min
 Drainage area = 6.890 ac
 Basin Slope = 0.0 %
 Tc method = TR55
 Total precip. = 7.90 in
 Storm duration = 24 hrs

Peak discharge = 16.64 cfs
 Time to peak = 743 min
 Hyd. volume = 90,384 cuft
 Curve number = 63*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 31.00 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(5.190 x 60) + (1.400 x 66) + (0.300 x 98)] / 6.890



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Sep 14, 2021

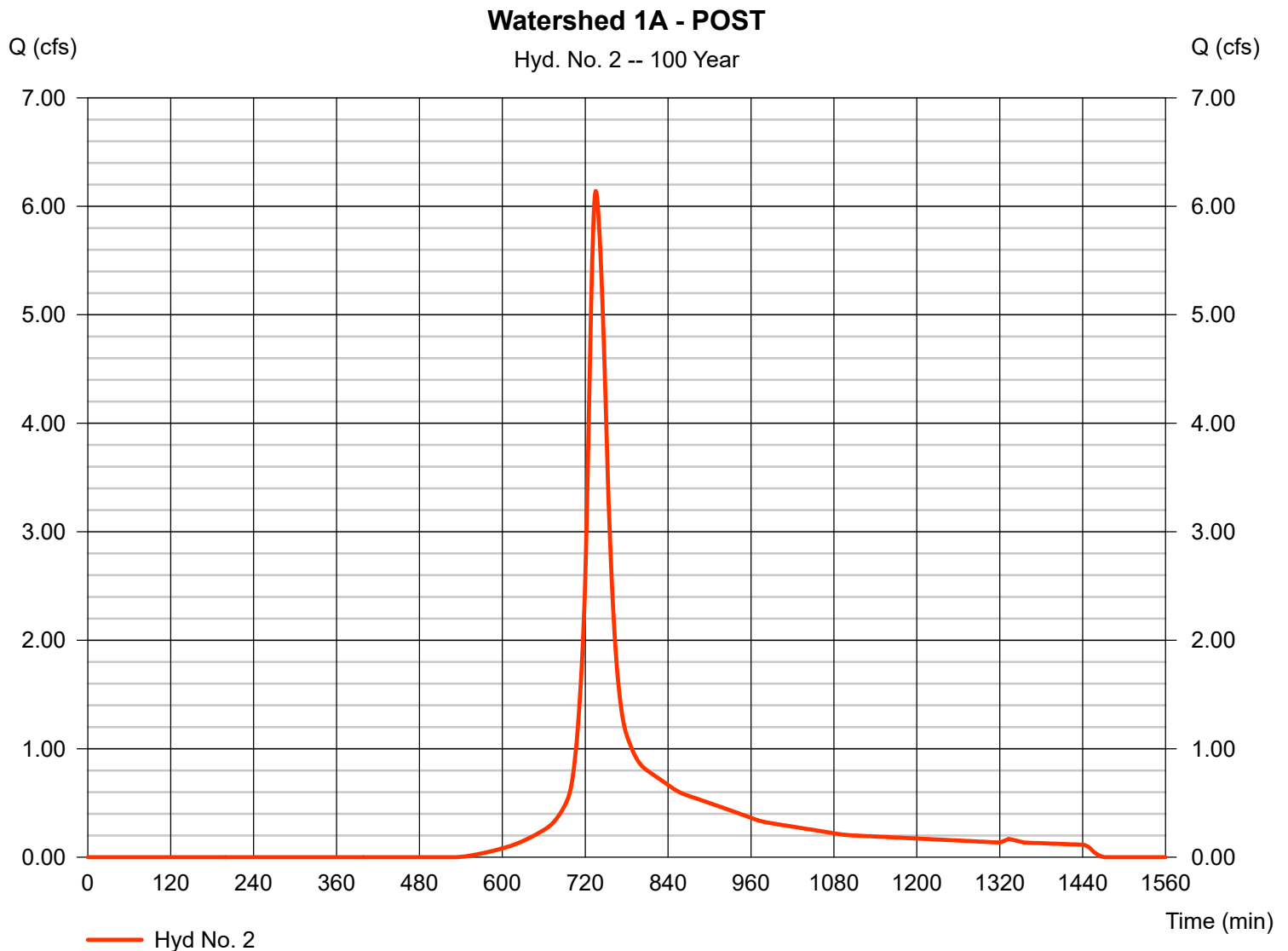
Hyd. No. 2

Watershed 1A - POST

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 1 min
 Drainage area = 2.020 ac
 Basin Slope = 0.0 %
 Tc method = TR55
 Total precip. = 7.90 in
 Storm duration = 24 hrs

Peak discharge = 6.141 cfs
 Time to peak = 735 min
 Hyd. volume = 28,232 cuft
 Curve number = 65*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 20.40 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.150 x 39) + (0.200 x 60) + (1.350 x 61) + (0.320 x 98)] / 2.020



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

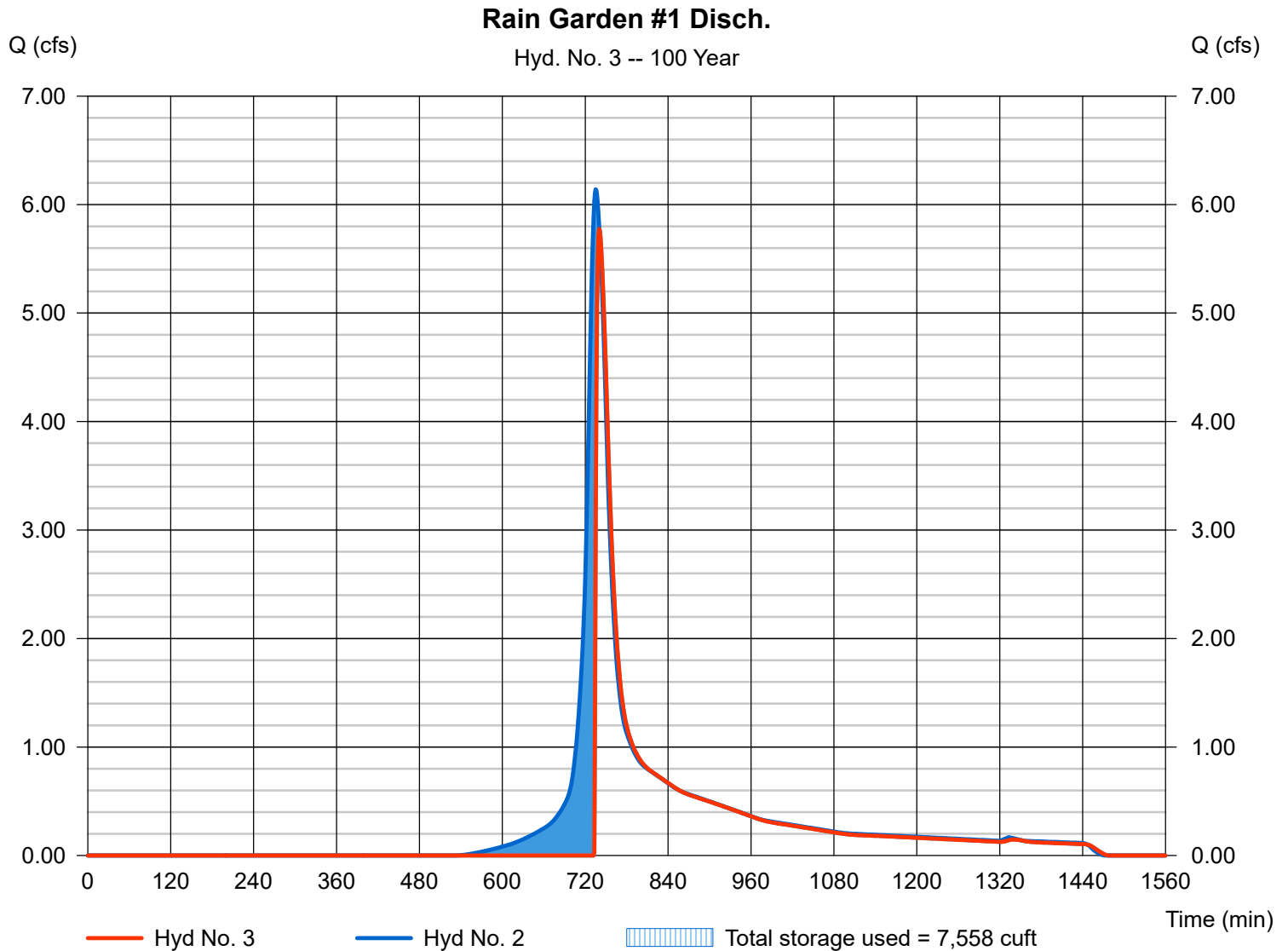
Tuesday, Sep 14, 2021

Hyd. No. 3

Rain Garden #1 Disch.

Hydrograph type	= Reservoir	Peak discharge	= 5.775 cfs
Storm frequency	= 100 yrs	Time to peak	= 740 min
Time interval	= 1 min	Hyd. volume	= 21,000 cuft
Inflow hyd. No.	= 2 - Watershed 1A - POST	Max. Elevation	= 108.00 ft
Reservoir name	= Rain Garden #1 REV	Max. Storage	= 7,558 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

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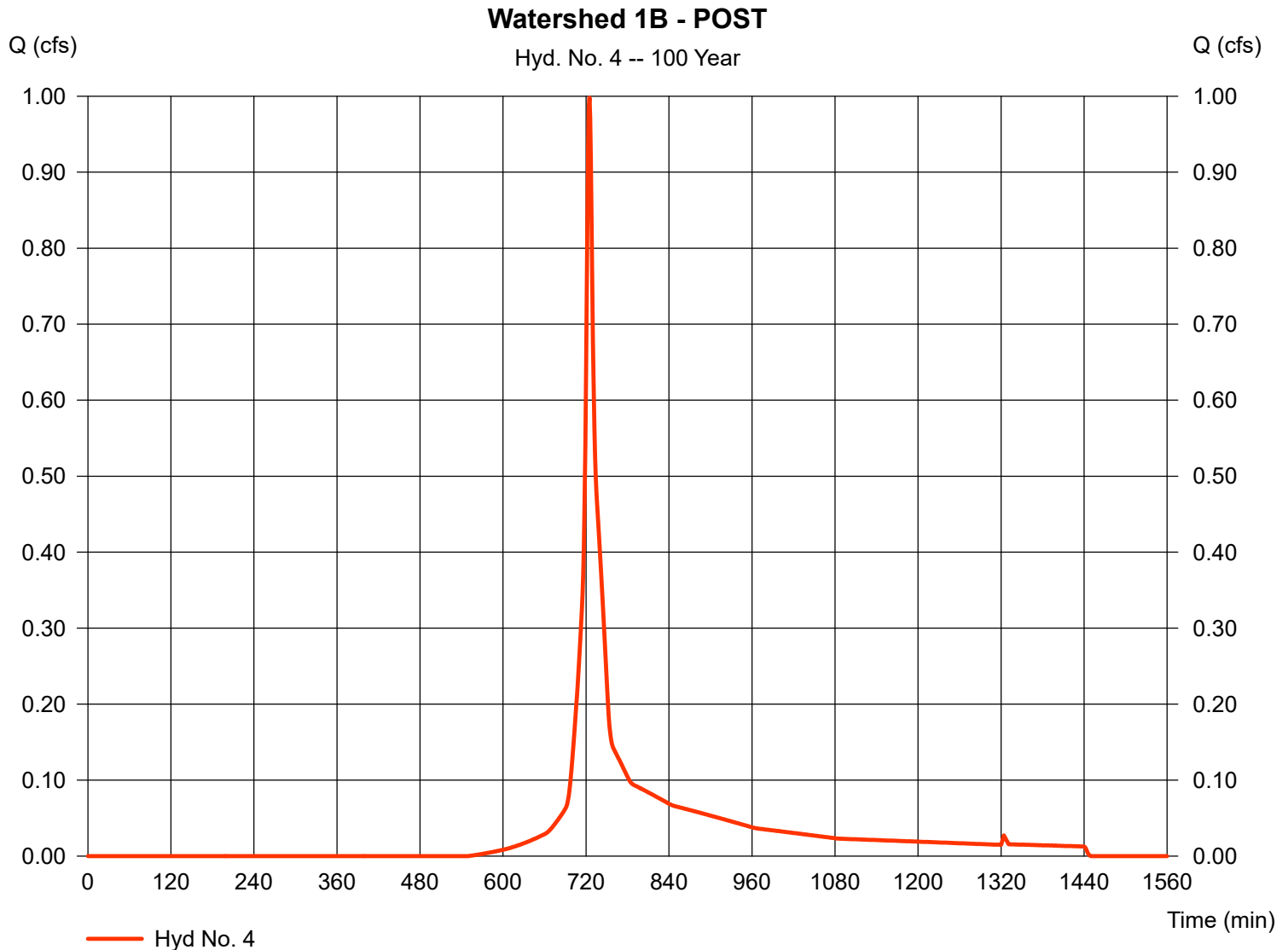
Hyd. No. 4

Watershed 1B - POST

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 1 min
 Drainage area = 0.230 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 7.90 in
 Storm duration = 24 hrs

Peak discharge = 0.998 cfs
 Time to peak = 725 min
 Hyd. volume = 3,091 cuft
 Curve number = 63*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 6.00 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.010 x 39) + (0.060 x 60) + (0.140 x 61) + (0.020 x 98)] / 0.230



Hydrograph Report

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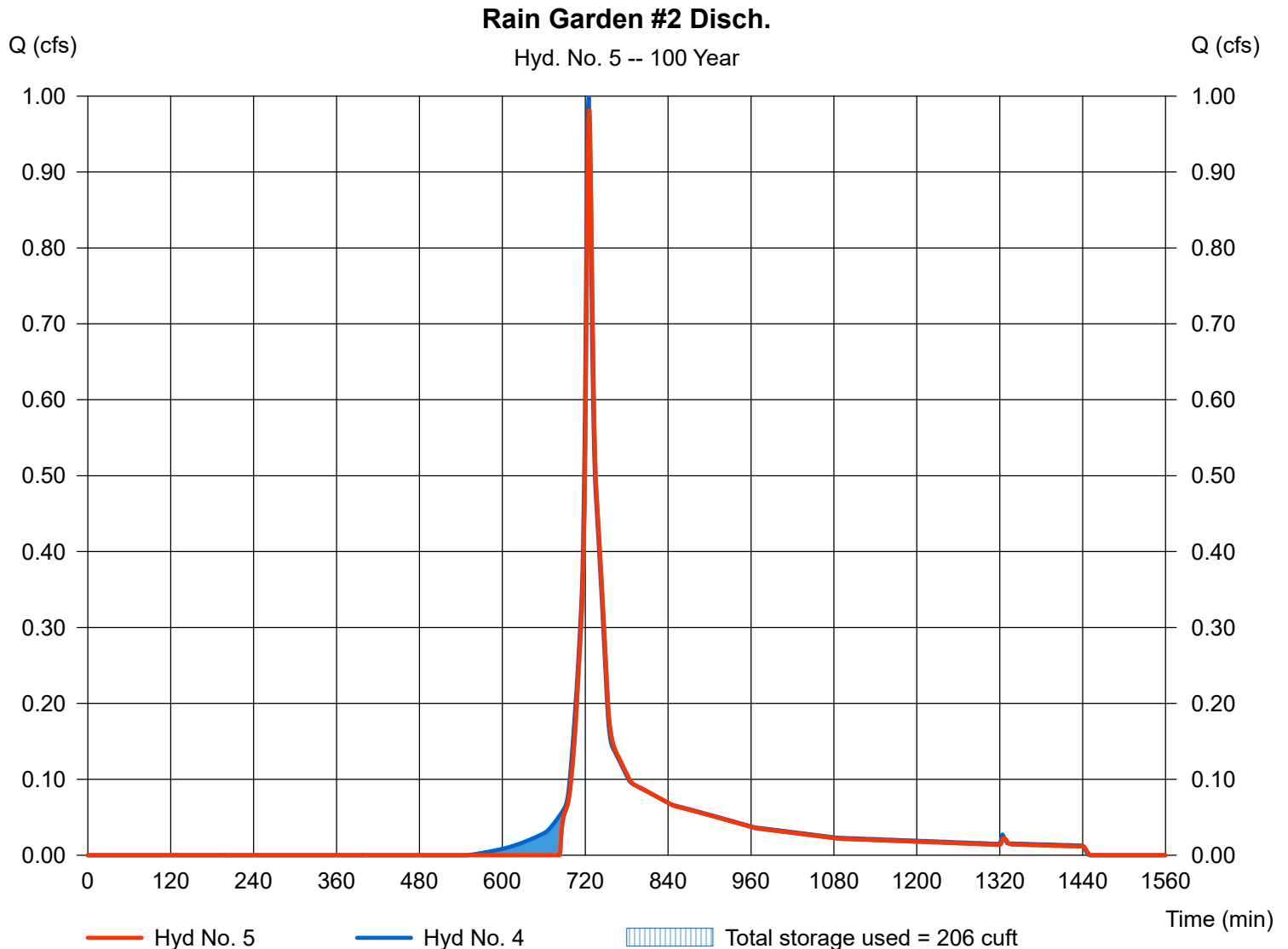
Hyd. No. 5

Rain Garden #2 Disch.

Hydrograph type = Reservoir
 Storm frequency = 100 yrs
 Time interval = 1 min
 Inflow hyd. No. = 4 - Watershed 1B - POST
 Reservoir name = Rain Garden #2

Peak discharge = 0.981 cfs
 Time to peak = 726 min
 Hyd. volume = 2,900 cuft
 Max. Elevation = 115.66 ft
 Max. Storage = 206 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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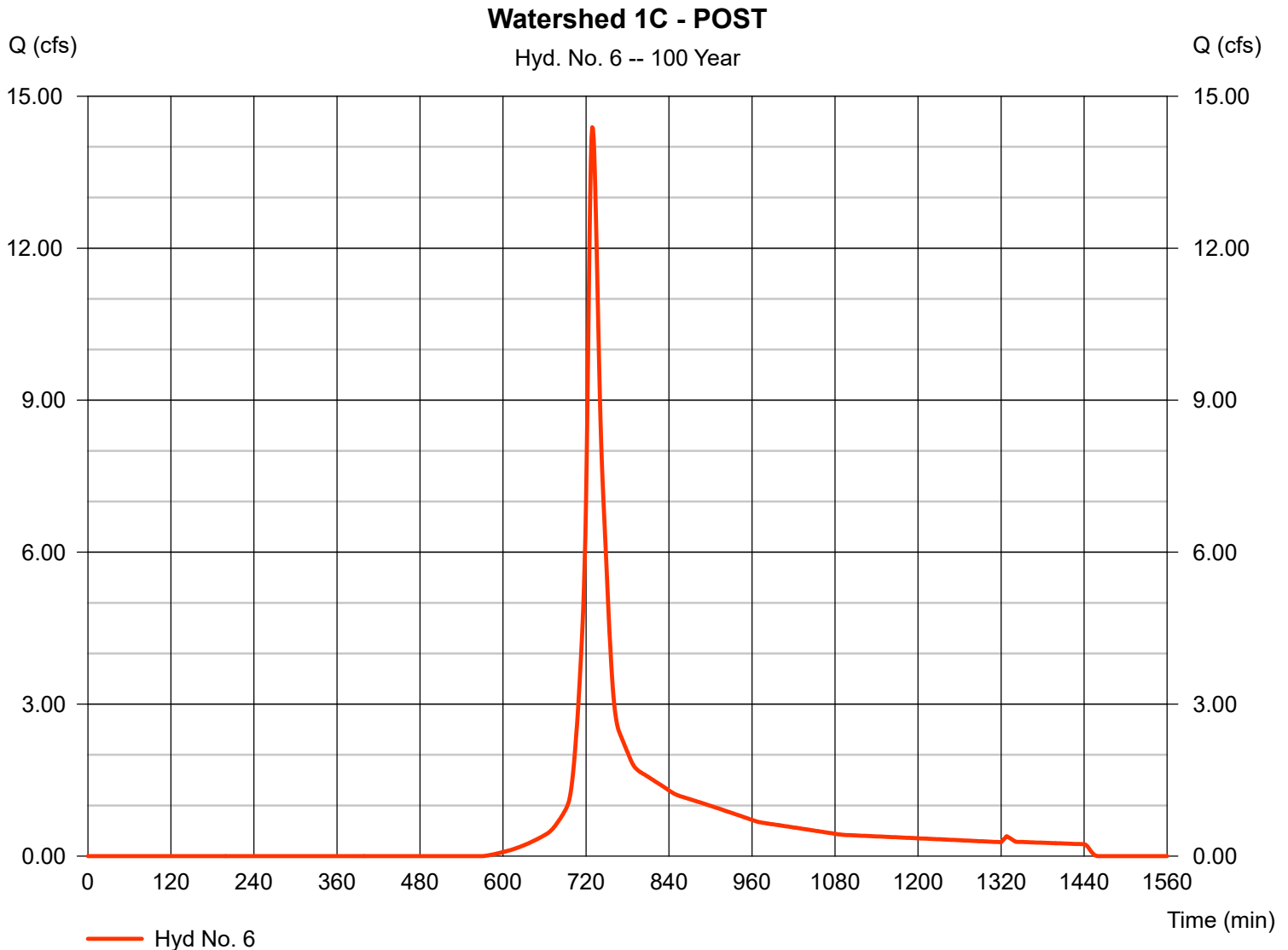
Hyd. No. 6

Watershed 1C - POST

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 1 min
 Drainage area = 4.560 ac
 Basin Slope = 0.0 %
 Tc method = TR55
 Total precip. = 7.90 in
 Storm duration = 24 hrs

Peak discharge = 14.39 cfs
 Time to peak = 729 min
 Hyd. volume = 54,889 cuft
 Curve number = 61*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 12.30 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = $[(0.220 \times 39) + (2.750 \times 60) + (1.430 \times 61) + (0.160 \times 98)] / 4.560$



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

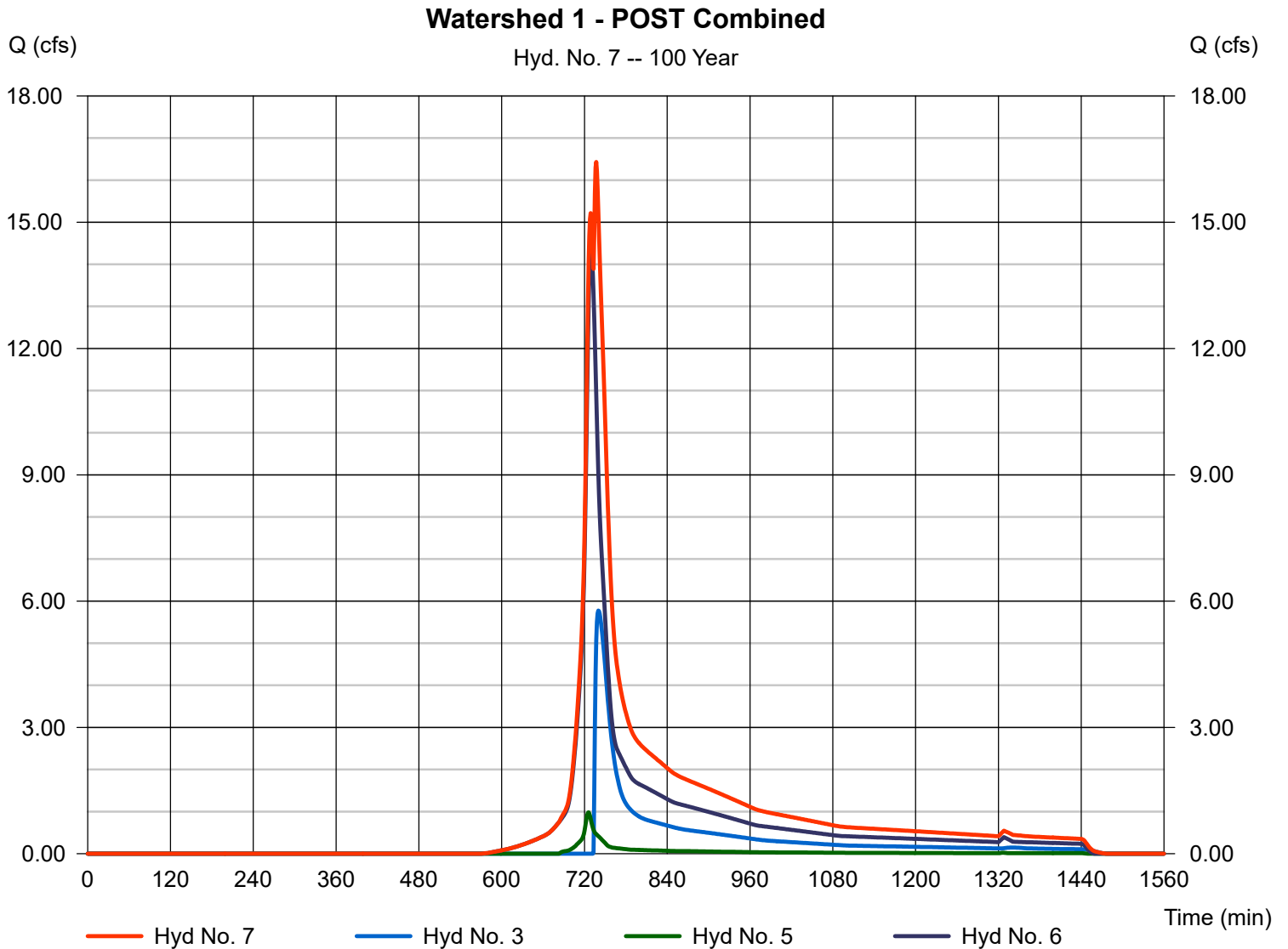
Tuesday, Sep 14, 2021

Hyd. No. 7

Watershed 1 - POST Combined

Hydrograph type = Combine
 Storm frequency = 100 yrs
 Time interval = 1 min
 Inflow hyds. = 3, 5, 6

Peak discharge = 16.43 cfs
 Time to peak = 737 min
 Hyd. volume = 78,789 cuft
 Contrib. drain. area = 4.560 ac



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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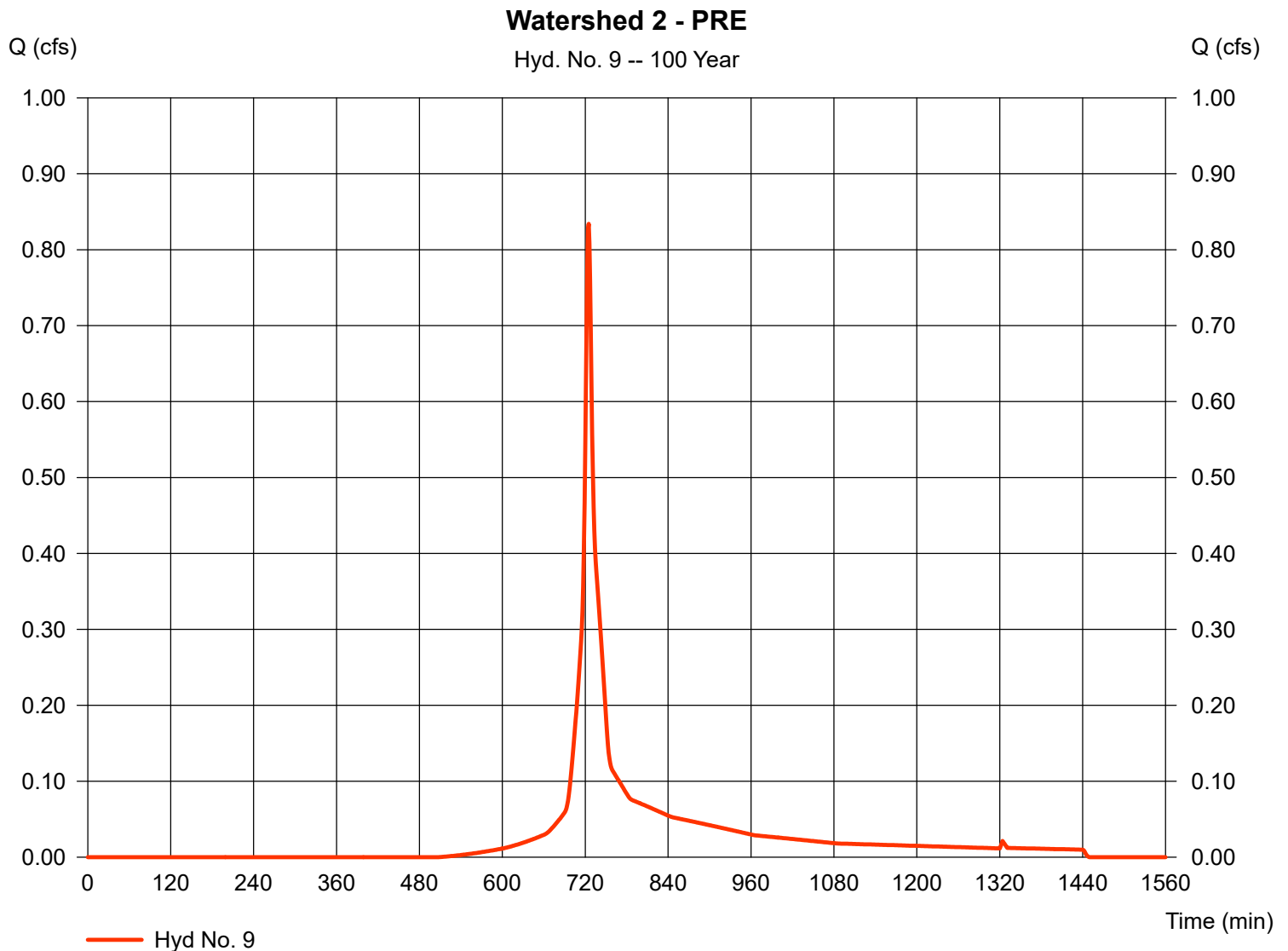
Hyd. No. 9

Watershed 2 - PRE

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 1 min
 Drainage area = 0.170 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 7.90 in
 Storm duration = 24 hrs

Peak discharge = 0.834 cfs
 Time to peak = 725 min
 Hyd. volume = 2,570 cuft
 Curve number = 67*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 6.00 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.140 x 60) + (0.030 x 98)] / 0.170



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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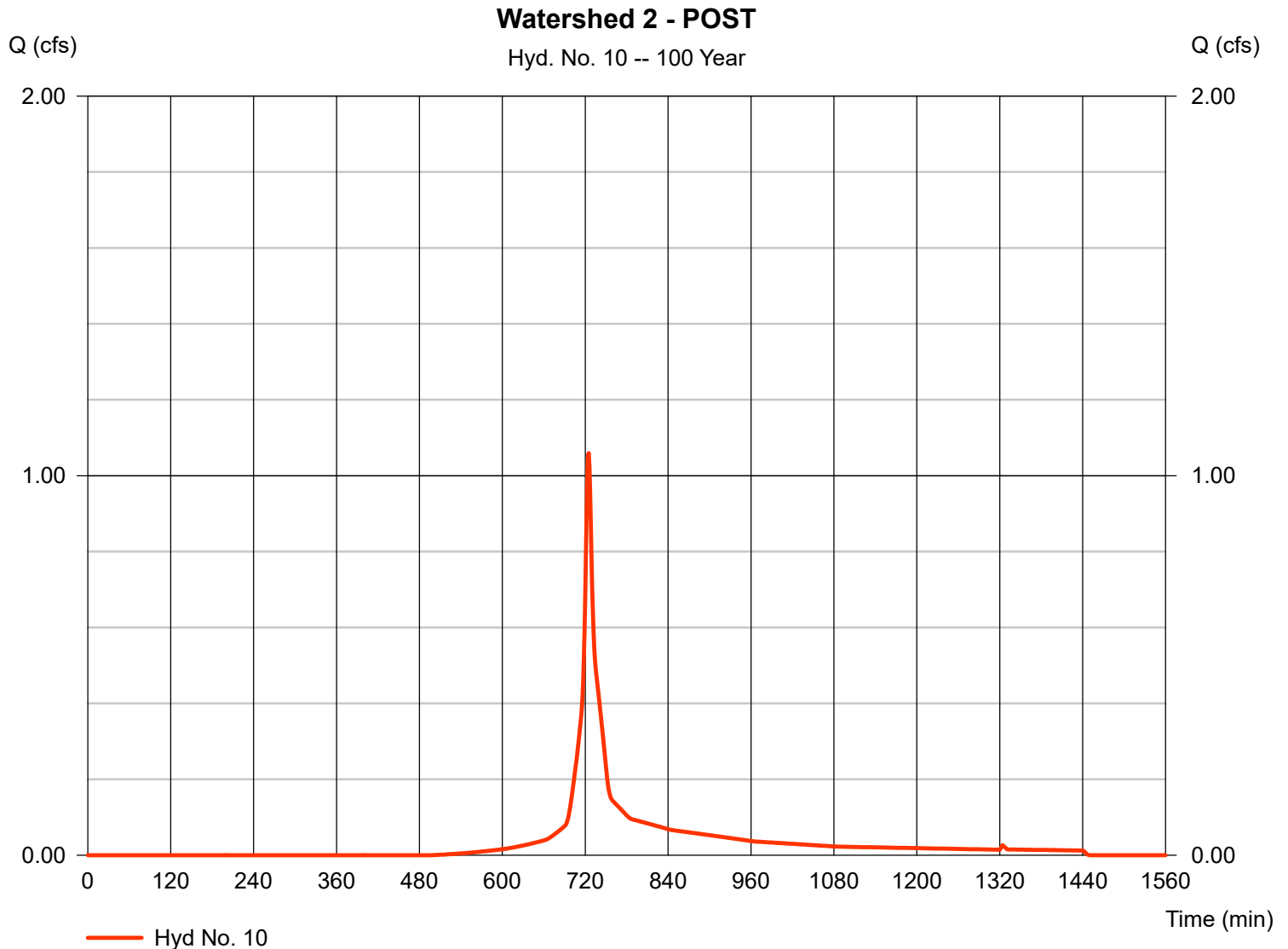
Hyd. No. 10

Watershed 2 - POST

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 1 min
 Drainage area = 0.210 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 7.90 in
 Storm duration = 24 hrs

Peak discharge = 1.059 cfs
 Time to peak = 725 min
 Hyd. volume = 3,264 cuft
 Curve number = 68*
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 6.00 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = [(0.020 x 39) + (0.140 x 61) + (0.050 x 98)] / 0.210



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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Hyd. No. 11

Rain Garden #3 Disch.

Hydrograph type = Reservoir
 Storm frequency = 100 yrs
 Time interval = 1 min
 Inflow hyd. No. = 10 - Watershed 2 - POST
 Reservoir name = Rain Garden #3

Peak discharge = 0.821 cfs
 Time to peak = 729 min
 Hyd. volume = 2,397 cuft
 Max. Elevation = 130.22 ft
 Max. Storage = 939 cuft

Storage Indication method used. Exfiltration extracted from Outflow.

