



Drainage Calculations

November 8, 2017

For: Skyline Chili – Ross Township
3781 Herman Road
Ross Twp., Butler County, OH

By: Evans Engineering
4240 Airport Rd., Suite 211
Cincinnati, Ohio 45226

Project Narrative

This project consists of a new 3545 square foot restaurant building on a currently vacant lot, at the east corner of Hamilton-Cleves Road and Herman Road in Ross Township. The site is an open grass field which will be developed into an area with 85% imperviousness. To provide the necessary storm water detention for this development, underground Stormtech chambers will be used. We have modeled our storm water design on current Butler County Storm Water Regulations.

Existing Conditions

The project site is located at 3781 Herman Road in Butler County, Ohio. The site is approximately 0.9 acre of open grassland. Storm water runoff from this site would drain toward the southwest at a general slope of 2-3% into a roadside ditch along Hamilton-Cleves Road. The time of concentration for the existing conditions was found to be 19 minutes using the overland flow chart found in the Butler County regulations appendix D, table D-4. The predeveloped runoff coefficient used in the calculations was 0.3.

Proposed Drainage

The drainage area to the detention system will be approximately 0.9 acre. Some small grass areas along the perimeter of the site will remain as direct runoff. This development will result in 85% imperviousness of the site.

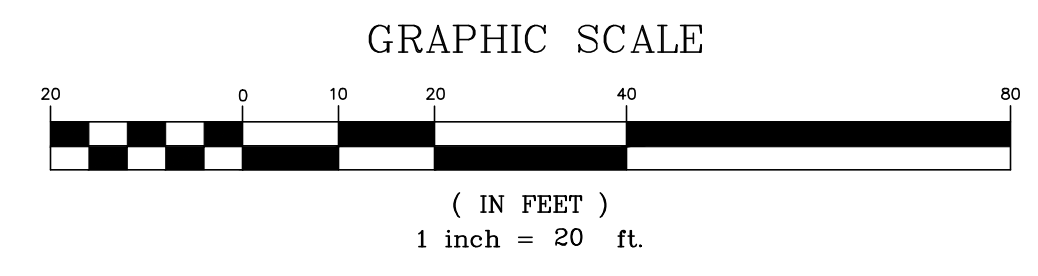
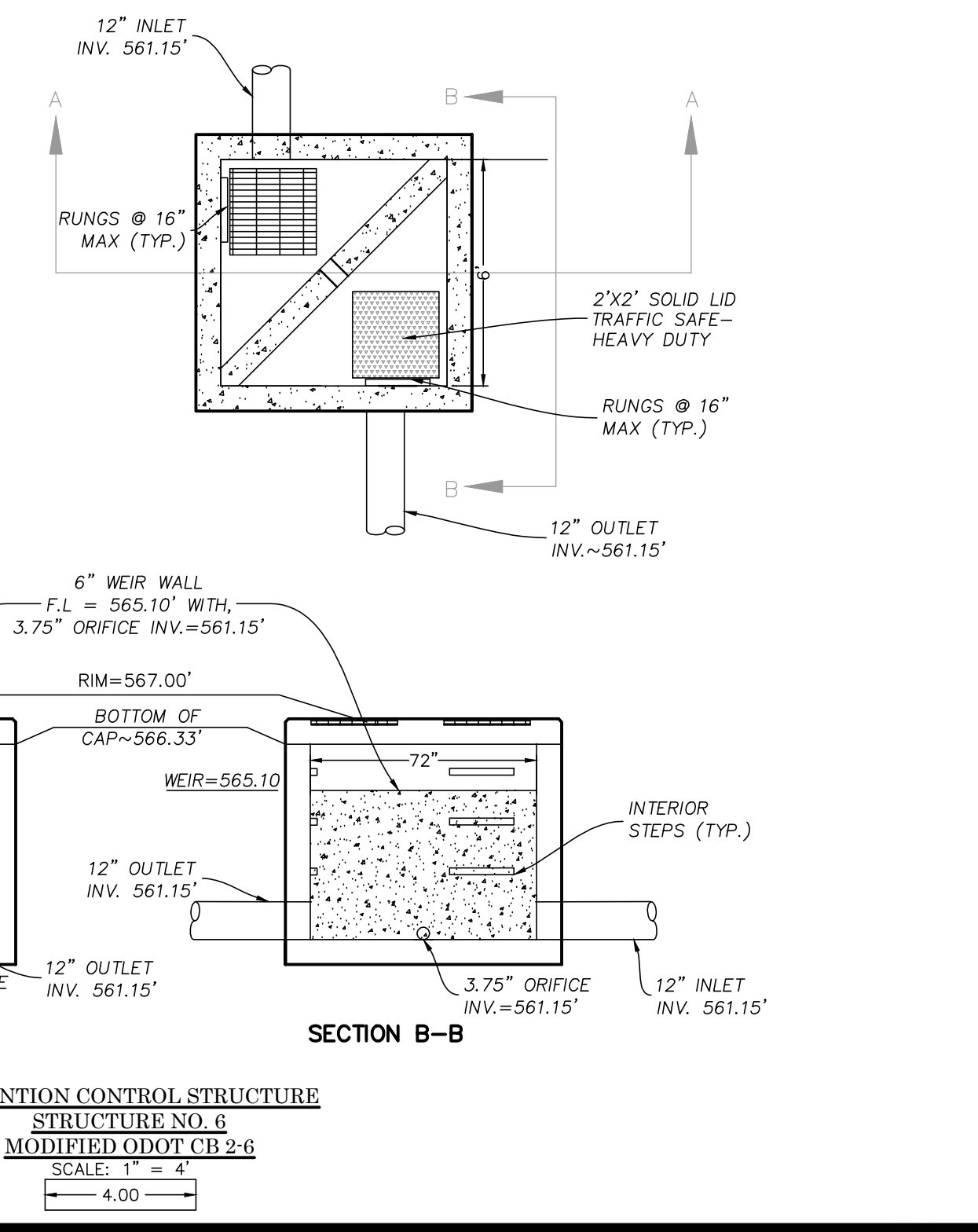
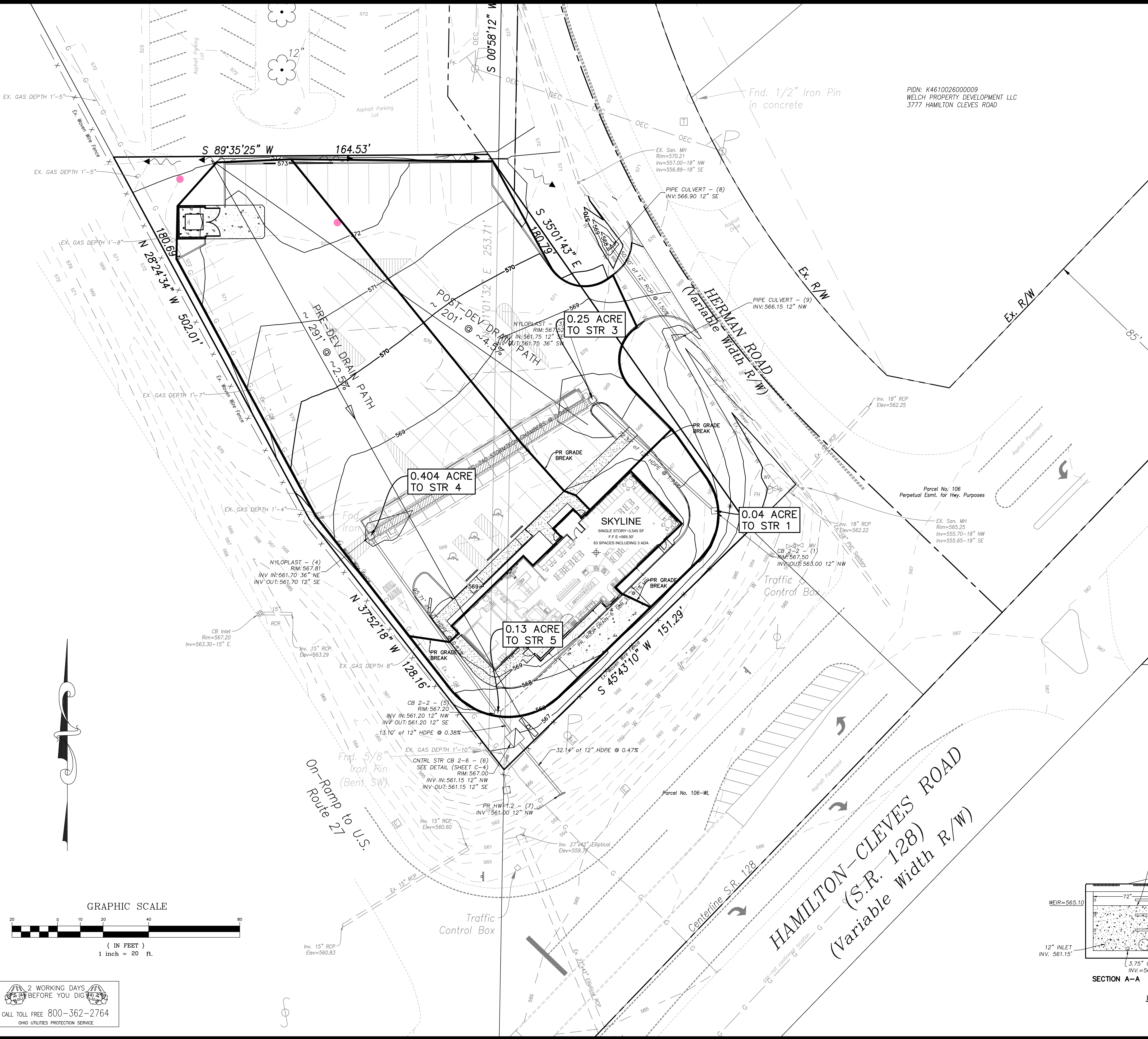
The required storage volume was determined by finding the critical storm and then using Hydraflow to model the detention system. An orifice through a weir wall will control the release rates from the detention structure. The orifice is sized such that the release rate due to the critical storm event in the post-developed condition is restricted to the runoff rate due to a 1-year storm in the pre-developed conditions. Less frequent, more intense storms should be restricted to the pre-developed runoff rate due to one design storm lower (i.e. $Q_{50\text{-year-post}} < Q_{25\text{-year-pre}}$). In this case the critical storm was found to be the 100-year storm.

The pre-developed time of concentration was found to be less than 5 minutes using the overland flow chart, so the minimum value of 10 minutes was used in the calculations. The post-developed runoff coefficient was calculated to be 0.81. Through an iterative process of sizing the underground detention system and controlling orifice to meet the requirements, the required storage volume was found to be 2597 ft³ during the 100-year storm event and the release rates can be controlled by a 3.75" orifice. Hydrographs are attached showing that all design storms are restricted to the peak discharge rate of the 1-year storm in predeveloped conditions.

The storage will be provided by 39 SC-740 Stormtech chambers encased in stone with a porosity of ~20%. "FlexStorm" inlet filters will be added to the 4 catch basins on site to provide a water quality treatment. The Stormtech chambers will also allow for infiltration to occur.

We have designed the erosion and sediment control to minimize sediment loss during construction by using silt fencing, inlet controls, and temporary sediment control. We have included notes to discuss stabilization of ground. Upon completion and stabilization there will be grass and landscaping to be placed around the perimeter of the property. Upon completion, this project should have a good stable buffer around the property which should help water quality and storm water management.

Drainage Map




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STATE OF OHIO
JONATHAN R. EVANS
E-65653
REGISTERED PROFESSIONAL ENGINEER
11/8/2017
REGISTERED ENGINEER No. 65653

REVISIONS	NO. & DESCRIPTION
BY	
DATE	

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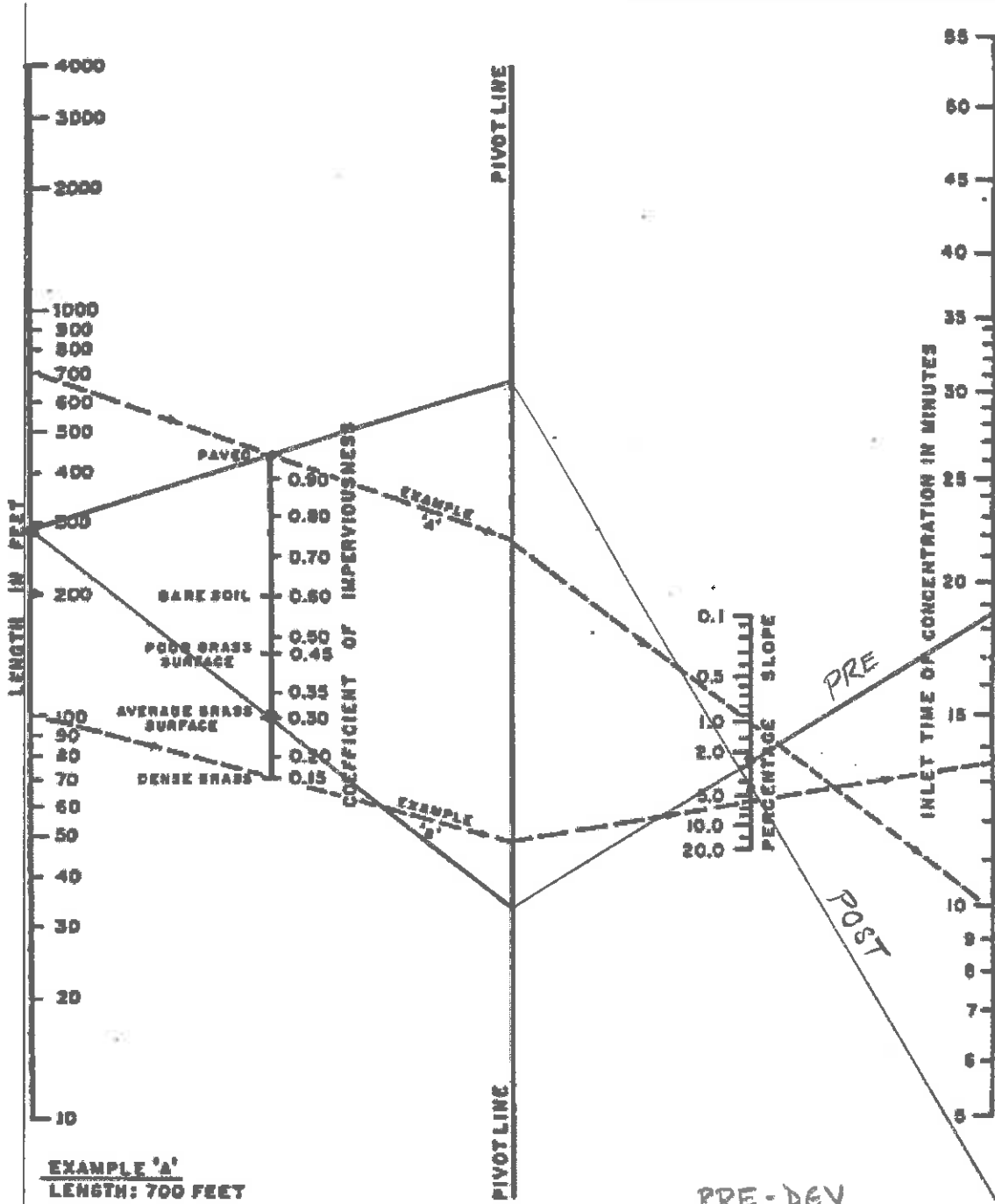
SKYLINE CHILL - ROSS TOWNSHIP
DRAINAGE MAP
3781 HERMAN ROAD,
ROSS TOWNSHIP, BUTLER COUNTY, OHIO

SCALE:	HORIZ.	VERT.
	1"=20'	N/A
JOB NO.	17-110	
DATE	Nov. 8, 2017	

SHEET NO.
DRAINAGE

Overland Flow Chart

APPENDIX D, TABLE D-4



EXAMPLE 'A'
 LENGTH: 700 FEET
 PAVED
 SLOPE: 1.0 %
 TIME: 10 MINUTES

EXAMPLE 'B'
 LENGTH: 100 FEET
 DENSE GRASS
 SLOPE: 6.0 %
 TIME: 13 1/2 MINUTES

SEELYE CHART
 TIME OF CONCENTRATION

PRE-DEV
 291'
 GRASS
 ~ 2.5 %
 $T_c \sim 19 \text{ min}$

POST-DEV
 301'
 PAVED
 ~ 4.5 %
 $T_c \sim 5 \text{ min}$

Critical Storm Determination

Critical Storm Determination Using SCS Method for Runoff Volume Due to 24-hour Storm

$$Q = (P - 0.2S)^2 / (P + 0.8S)$$

$$S = 1000 / CN - 10$$

Drainage Area (ft ²)	39259
P _{1yr-24hr} (in.)	2.4
CN _{pre}	61
CN _{post}	92

CN_{pre} for open space, good condition (grass cover > 75%), Soil Group B

CN_{post} from TR-55 Figure 2-3 with 85% imperviousness

$$S_{pre} = 6.393$$

$$S_{post} = 0.870$$

$$Q_{pre} \text{ (in.)} = 0.17$$

$$Q_{post} \text{ (in.)} = 1.60$$

$$V_{pre} \text{ (ft}^3\text{)} = 547$$

$$V_{post} \text{ (ft}^3\text{)} = 5237$$

Percent Volume Increase 857

Critical Storm (yr) **100**

% Increase in Runoff Volume from a 1-yr, 24 hour Storm		Storm Frequency (Years)
Equal or Greater than (percent)	Less Than (percent)	
-	10	1
10	20	2
20	50	5
50	100	10
100	250	25
250	500	50
500	-	100

Stormtech Volume Spreadsheet

Project: Skyline Ross Twp



Chamber Model -	SC-740	
Units -	Imperial	Click Here for Metric
	6	
Number of chambers -	39	
Voids in the stone (porosity) -	20	%
Base of Stone Elevation -	561.70	ft
Amount of Stone Above Chambers -	6	in
Amount of Stone Below Chambers -	6	in
Area of system -	1781	sf

Min. Area - 1318 sf min. area

 Include Perimeter Stone in Calculations

StormTech SC-740 Cumulative Storage Volumes

Height of System (inches)	Incremental Single Chamber (cubic feet)	Incremental Total Chamber (cubic feet)	Incremental Stone (cubic feet)	Incremental Ch & St (cubic feet)	Cumulative Chamber (cubic feet)	Elevation (feet)
42	0.00	0.00	29.68	29.68	2680.37	565.20
41	0.00	0.00	29.68	29.68	2650.68	565.12
40	0.00	0.00	29.68	29.68	2621.00	565.03
39	0.00	0.00	29.68	29.68	2591.32	564.95
38	0.00	0.00	29.68	29.68	2561.63	564.87
37	0.00	0.00	29.68	29.68	2531.95	564.78
36	0.05	2.14	29.25	31.40	2502.27	564.70
35	0.16	6.35	28.41	34.77	2470.87	564.62
34	0.28	11.00	27.48	38.48	2436.10	564.53
33	0.60	23.55	24.97	48.53	2397.62	564.45
32	0.80	31.27	23.43	54.70	2349.09	564.37
31	0.95	37.08	22.27	59.34	2294.40	564.28
30	1.07	41.91	21.30	63.21	2235.05	564.20
29	1.18	46.04	20.48	66.51	2171.84	564.12
28	1.27	49.36	19.81	69.17	2105.33	564.03
27	1.36	52.85	19.11	71.96	2036.16	563.95
26	1.45	56.71	18.34	75.05	1964.20	563.87
25	1.52	59.46	17.79	77.25	1889.15	563.78
24	1.58	61.71	17.34	79.05	1811.89	563.70
23	1.64	64.05	16.87	80.92	1732.84	563.62
22	1.70	66.28	16.43	82.71	1651.92	563.53
21	1.75	68.36	16.01	84.37	1569.21	563.45
20	1.80	70.31	15.62	85.93	1484.83	563.37
19	1.85	72.34	15.21	87.56	1398.90	563.28
18	1.89	73.83	14.92	88.75	1311.34	563.20
17	1.93	75.43	14.60	90.02	1222.60	563.12
16	1.97	77.02	14.28	91.30	1132.57	563.03
15	2.01	78.39	14.01	92.39	1041.27	562.95
14	2.04	79.75	13.73	93.49	948.88	562.87
13	2.07	80.92	13.50	94.42	855.39	562.78
12	2.10	82.09	13.27	95.36	760.97	562.70
11	2.13	83.14	13.06	96.20	665.61	562.62
10	2.15	84.00	12.88	96.88	569.42	562.53
9	2.18	84.91	12.70	97.61	472.53	562.45
8	2.20	85.74	12.54	98.27	374.92	562.37
7	2.21	86.09	12.47	98.55	276.65	562.28
6	0.00	0.00	29.68	29.68	178.10	562.20
5	0.00	0.00	29.68	29.68	148.42	562.12
4	0.00	0.00	29.68	29.68	118.73	562.03
3	0.00	0.00	29.68	29.68	89.05	561.95
2	0.00	0.00	29.68	29.68	59.37	561.87
1	0.00	0.00	29.68	29.68	29.68	561.78

Hydrographs

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v10.5

Wednesday, 11 / 8 / 2017

Hyd. No. 1

Pre-Developed

Hydrograph type	= Rational	Peak discharge	= 0.655 cfs
Storm frequency	= 1 yrs	Time to peak	= 0.32 hrs
Time interval	= 1 min	Hyd. volume	= 747 cuft
Drainage area	= 0.901 ac	Runoff coeff.	= 0.3
Intensity	= 2.424 in/hr	Tc by User	= 19.00 min
IDF Curve	= butler county.IDF	Asc/Rec limb fact	= 1/1

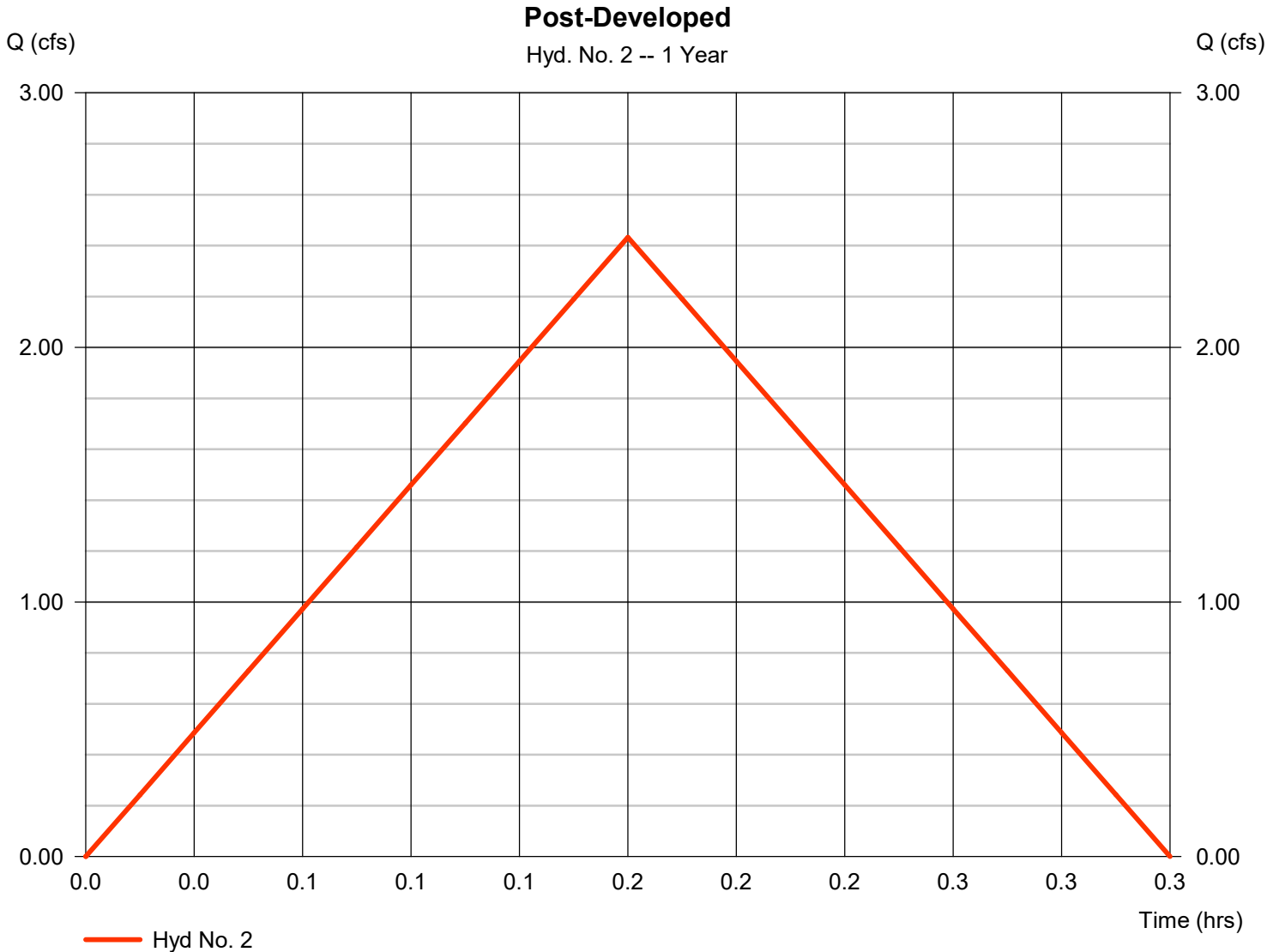


Hydrograph Report

Hyd. No. 2

Post-Developed

Hydrograph type	= Rational	Peak discharge	= 2.433 cfs
Storm frequency	= 1 yrs	Time to peak	= 0.17 hrs
Time interval	= 1 min	Hyd. volume	= 1,460 cuft
Drainage area	= 0.901 ac	Runoff coeff.	= 0.81
Intensity	= 3.333 in/hr	Tc by User	= 10.00 min
IDF Curve	= butler county.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

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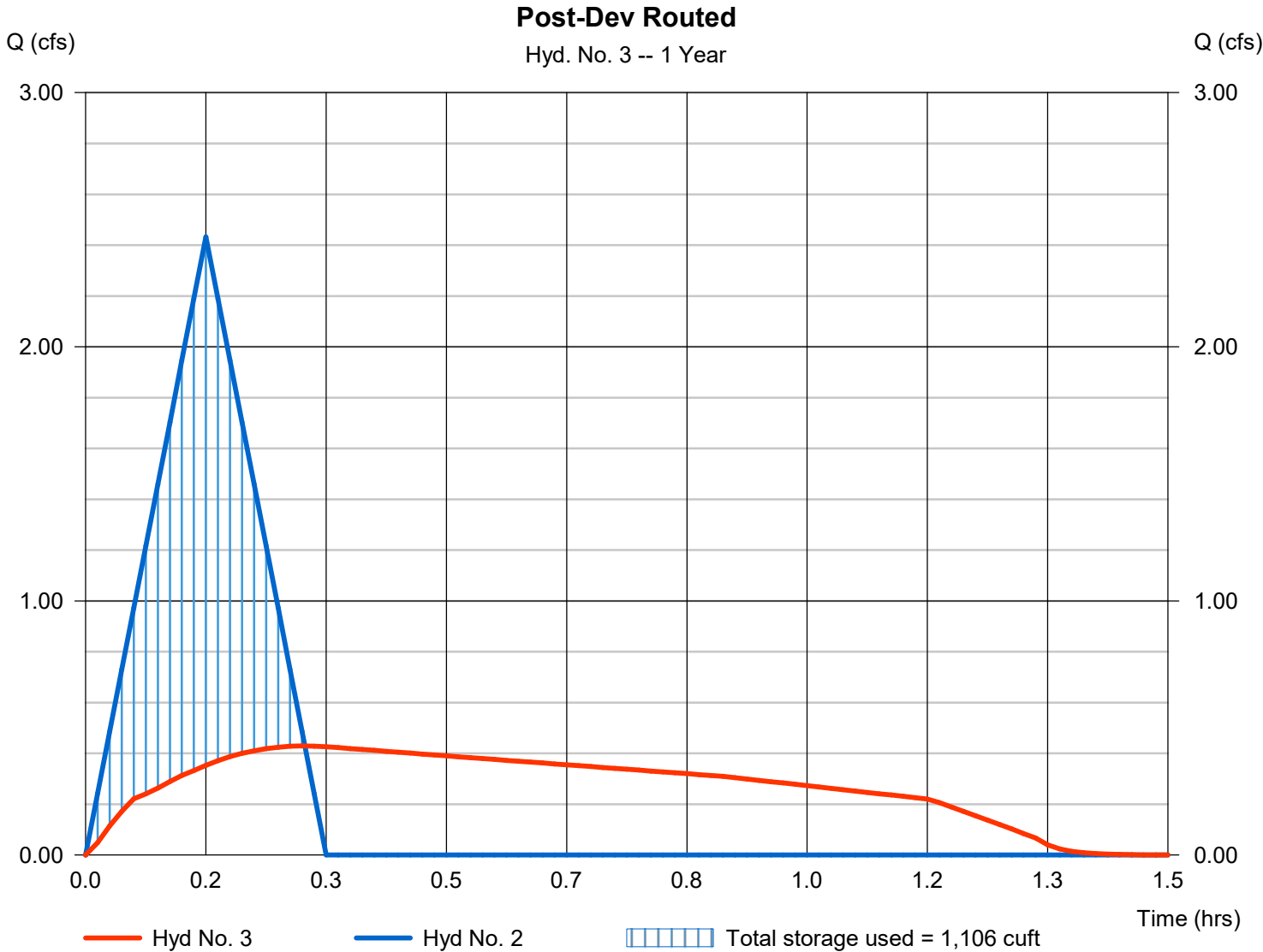
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Hyd. No. 3

Post-Dev Routed

Hydrograph type	= Reservoir	Peak discharge	= 0.429 cfs
Storm frequency	= 1 yrs	Time to peak	= 0.30 hrs
Time interval	= 1 min	Hyd. volume	= 1,460 cuft
Inflow hyd. No.	= 2 - Post-Developed	Max. Elevation	= 563.05 ft
Reservoir name	= UG Chambers	Max. Storage	= 1,106 cuft

Storage Indication method used.



Pond No. 1 - UG Chambers

Pond Data

UG Chambers -Invert elev. = 562.20 ft, Rise x Span = 2.50 x 4.25 ft, Barrel Len = 7.12 ft, No. Barrels = 39, Slope = 0.00%, Headers = No
Encasement -Invert elev. = 561.70 ft, Width = 4.25 ft, Height = 3.50 ft, Voids = 20.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	561.70	n/a	0	0
0.35	562.05	n/a	83	83
0.70	562.40	n/a	271	354
1.05	562.75	n/a	409	763
1.40	563.10	n/a	399	1,162
1.75	563.45	n/a	381	1,542
2.10	563.80	n/a	354	1,896
2.45	564.15	n/a	315	2,211
2.80	564.50	n/a	255	2,465
3.15	564.85	n/a	132	2,598
3.50	565.20	n/a	83	2,680

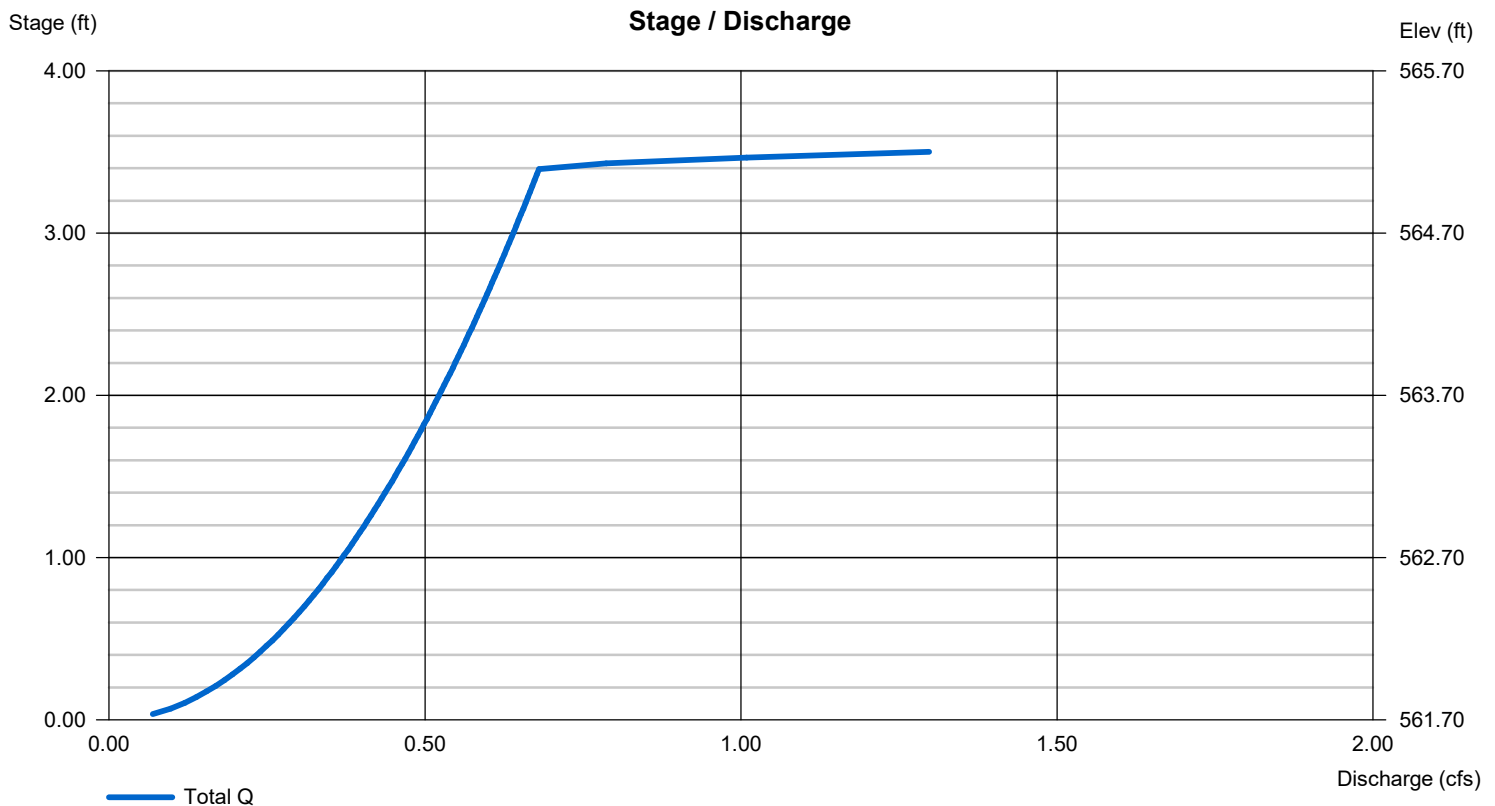
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 12.00	3.75	Inactive	0.00
Span (in)	= 12.00	3.75	0.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 561.15	561.15	0.00	0.00
Length (ft)	= 10.00	0.50	0.50	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)	= 6.00	0.00	0.00	0.00
Crest El. (ft)	= 565.10	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 0.000 (by Contour)			
TW Elev. (ft)	= 0.00			

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



Hydrograph Report

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Wednesday, 11 / 8 / 2017

Hyd. No. 1

Pre-Developed

Hydrograph type	= Rational	Peak discharge	= 0.796 cfs
Storm frequency	= 2 yrs	Time to peak	= 0.32 hrs
Time interval	= 1 min	Hyd. volume	= 907 cuft
Drainage area	= 0.901 ac	Runoff coeff.	= 0.3
Intensity	= 2.944 in/hr	Tc by User	= 19.00 min
IDF Curve	= butler county.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

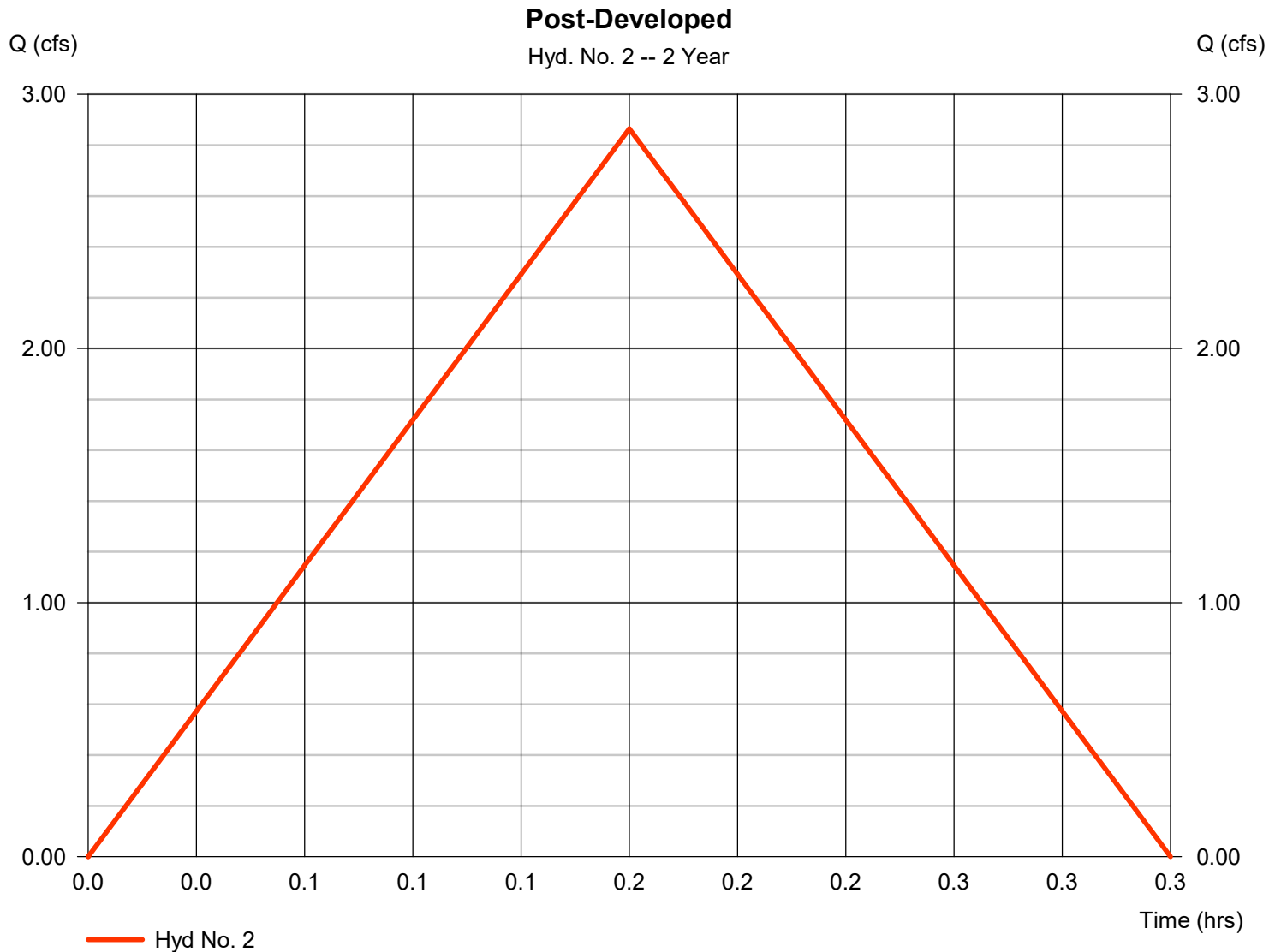
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Hyd. No. 2

Post-Developed

Hydrograph type	= Rational	Peak discharge	= 2.865 cfs
Storm frequency	= 2 yrs	Time to peak	= 0.17 hrs
Time interval	= 1 min	Hyd. volume	= 1,719 cuft
Drainage area	= 0.901 ac	Runoff coeff.	= 0.81
Intensity	= 3.926 in/hr	Tc by User	= 10.00 min
IDF Curve	= butler county.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

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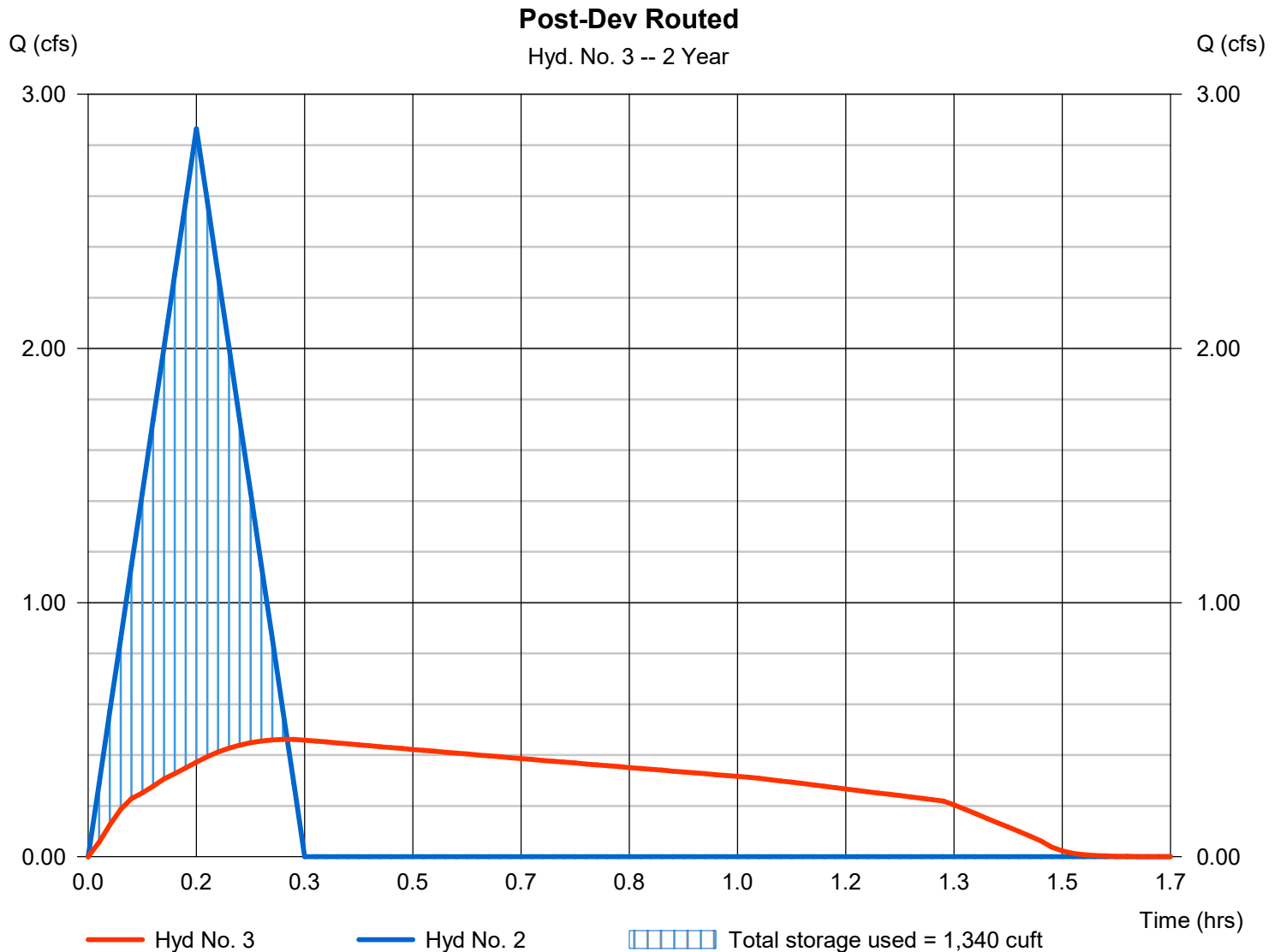
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Hyd. No. 3

Post-Dev Routed

Hydrograph type	= Reservoir	Peak discharge	= 0.462 cfs
Storm frequency	= 2 yrs	Time to peak	= 0.30 hrs
Time interval	= 1 min	Hyd. volume	= 1,719 cuft
Inflow hyd. No.	= 2 - Post-Developed	Max. Elevation	= 563.27 ft
Reservoir name	= UG Chambers	Max. Storage	= 1,340 cuft

Storage Indication method used.



Hydrograph Report

Hyd. No. 1

Pre-Developed

Hydrograph type	= Rational	Peak discharge	= 0.932 cfs
Storm frequency	= 5 yrs	Time to peak	= 0.32 hrs
Time interval	= 1 min	Hyd. volume	= 1,062 cuft
Drainage area	= 0.901 ac	Runoff coeff.	= 0.3
Intensity	= 3.447 in/hr	Tc by User	= 19.00 min
IDF Curve	= butler county.IDF	Asc/Rec limb fact	= 1/1

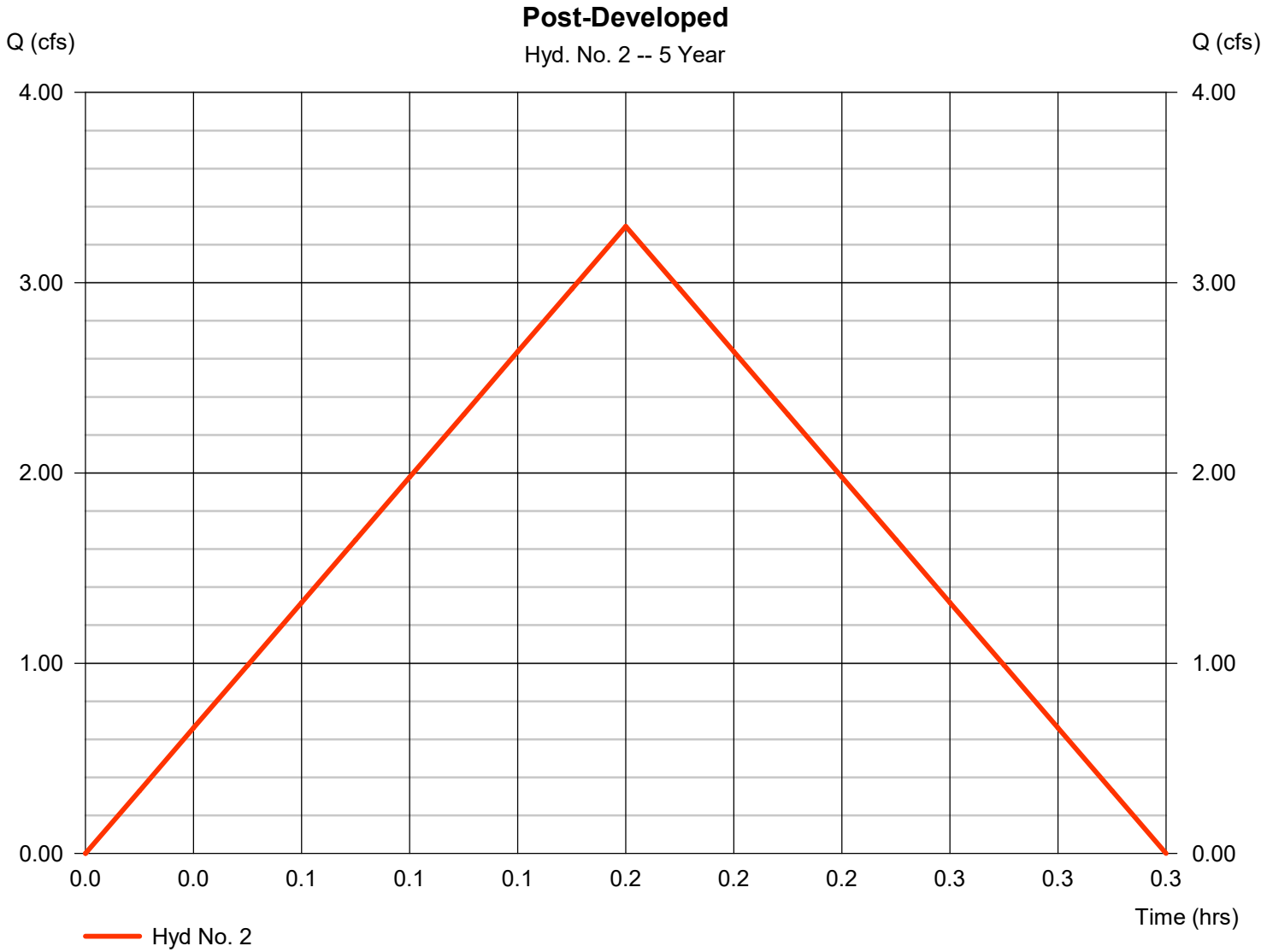


Hydrograph Report

Hyd. No. 2

Post-Developed

Hydrograph type	= Rational	Peak discharge	= 3.297 cfs
Storm frequency	= 5 yrs	Time to peak	= 0.17 hrs
Time interval	= 1 min	Hyd. volume	= 1,978 cuft
Drainage area	= 0.901 ac	Runoff coeff.	= 0.81
Intensity	= 4.517 in/hr	Tc by User	= 10.00 min
IDF Curve	= butler county.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

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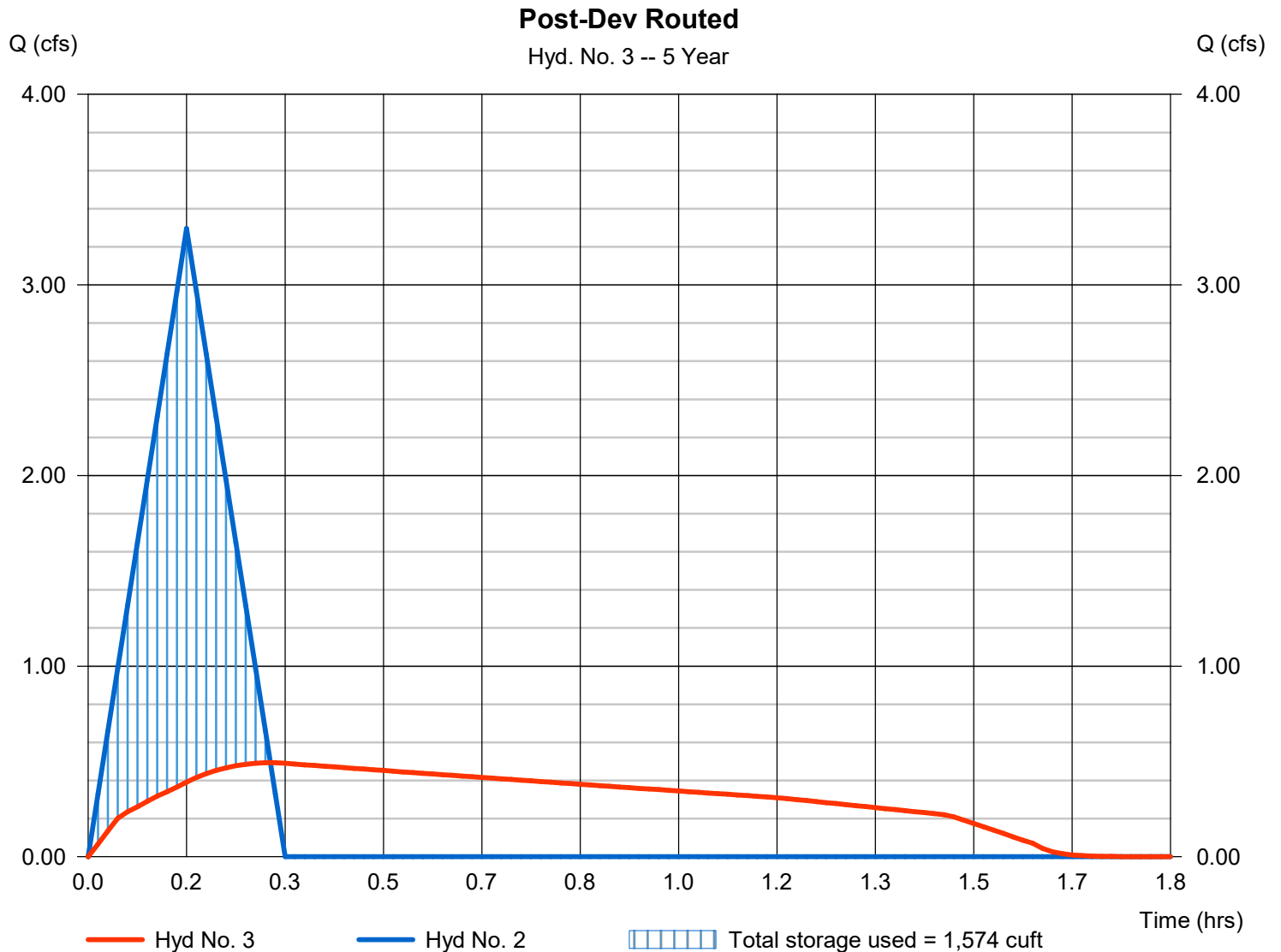
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Hyd. No. 3

Post-Dev Routed

Hydrograph type	= Reservoir	Peak discharge	= 0.493 cfs
Storm frequency	= 5 yrs	Time to peak	= 0.32 hrs
Time interval	= 1 min	Hyd. volume	= 1,978 cuft
Inflow hyd. No.	= 2 - Post-Developed	Max. Elevation	= 563.49 ft
Reservoir name	= UG Chambers	Max. Storage	= 1,574 cuft

Storage Indication method used.



Hydrograph Report

Hyd. No. 1

Pre-Developed

Hydrograph type	= Rational	Peak discharge	= 1.094 cfs
Storm frequency	= 10 yrs	Time to peak	= 0.32 hrs
Time interval	= 1 min	Hyd. volume	= 1,247 cuft
Drainage area	= 0.901 ac	Runoff coeff.	= 0.3
Intensity	= 4.048 in/hr	Tc by User	= 19.00 min
IDF Curve	= butler county.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

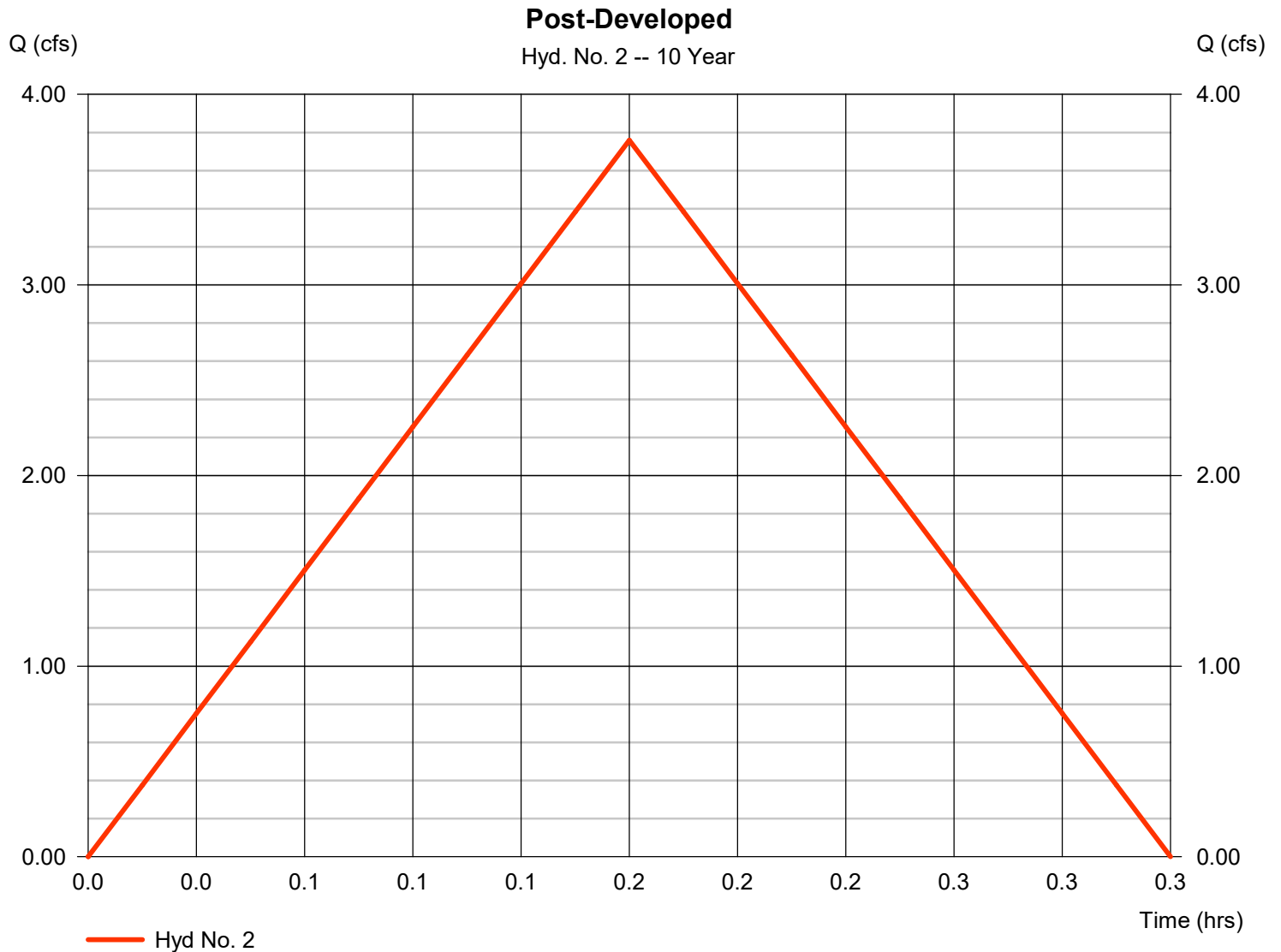
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Hyd. No. 2

Post-Developed

Hydrograph type	= Rational	Peak discharge	= 3.760 cfs
Storm frequency	= 10 yrs	Time to peak	= 0.17 hrs
Time interval	= 1 min	Hyd. volume	= 2,256 cuft
Drainage area	= 0.901 ac	Runoff coeff.	= 0.81
Intensity	= 5.152 in/hr	Tc by User	= 10.00 min
IDF Curve	= butler county.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

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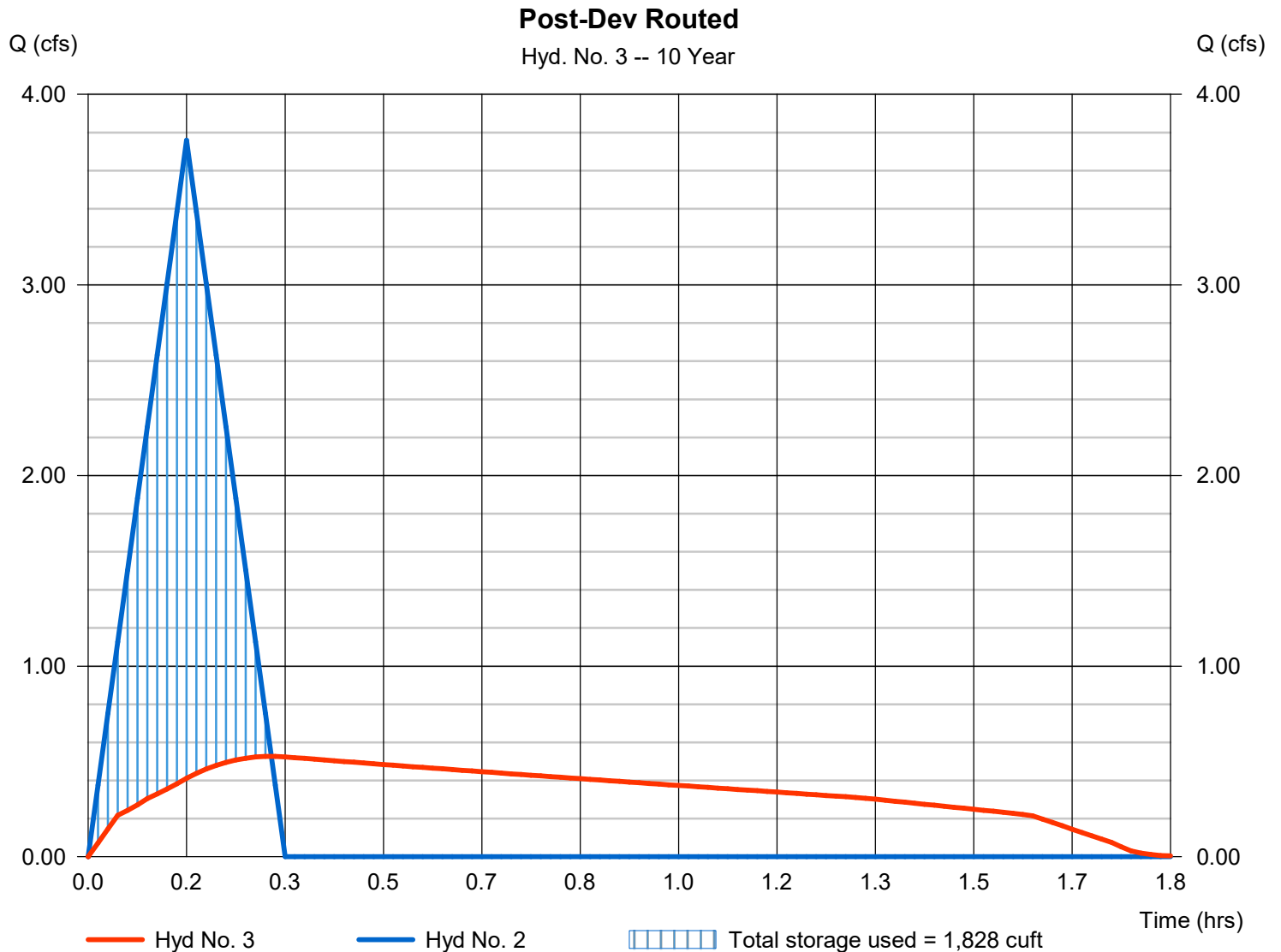
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Hyd. No. 3

Post-Dev Routed

Hydrograph type	= Reservoir	Peak discharge	= 0.526 cfs
Storm frequency	= 10 yrs	Time to peak	= 0.32 hrs
Time interval	= 1 min	Hyd. volume	= 2,256 cuft
Inflow hyd. No.	= 2 - Post-Developed	Max. Elevation	= 563.74 ft
Reservoir name	= UG Chambers	Max. Storage	= 1,828 cuft

Storage Indication method used.



Hydrograph Report

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Hyd. No. 1

Pre-Developed

Hydrograph type	= Rational	Peak discharge	= 1.269 cfs
Storm frequency	= 25 yrs	Time to peak	= 0.32 hrs
Time interval	= 1 min	Hyd. volume	= 1,446 cuft
Drainage area	= 0.901 ac	Runoff coeff.	= 0.3
Intensity	= 4.694 in/hr	Tc by User	= 19.00 min
IDF Curve	= butler county.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

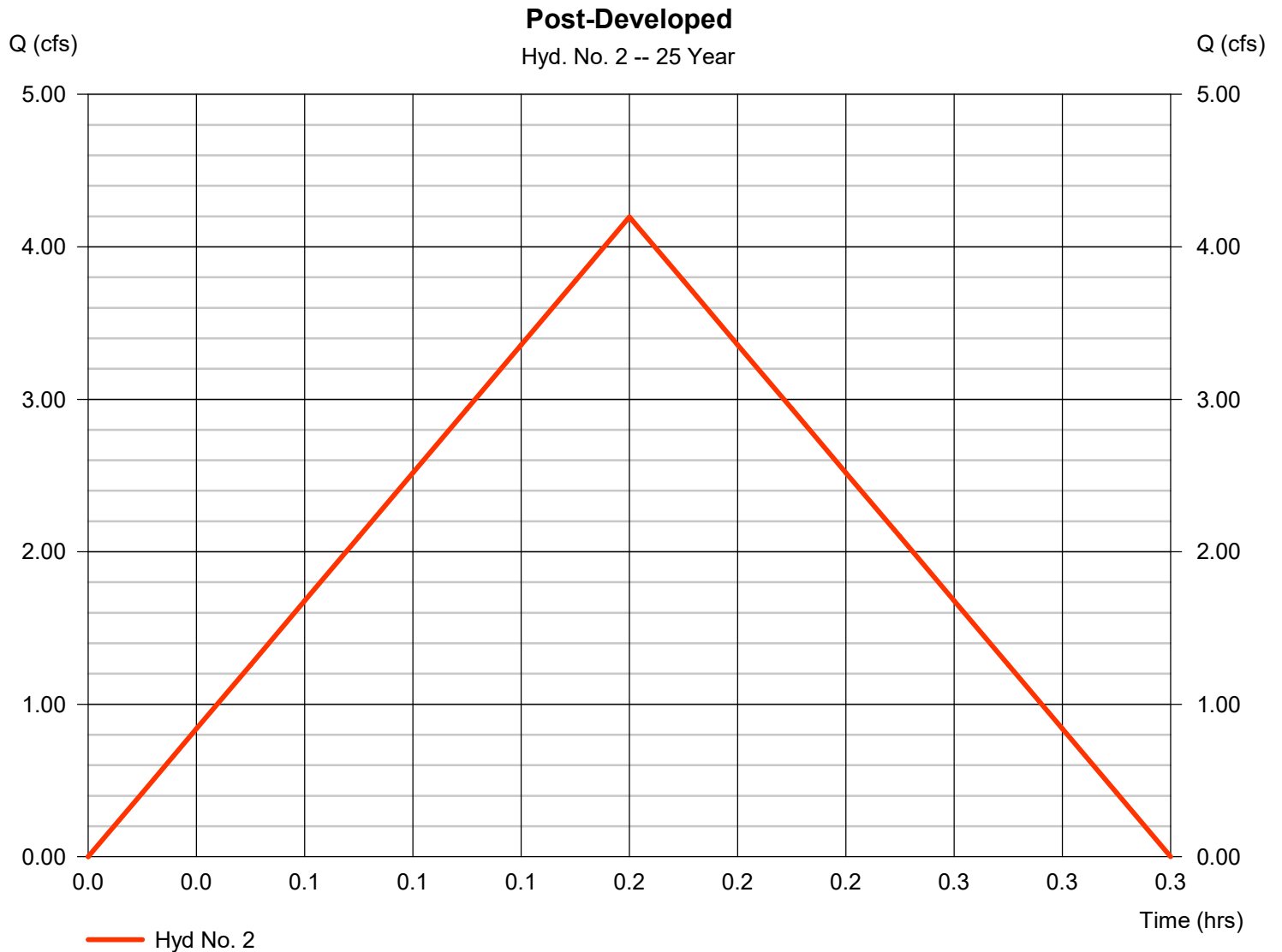
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Hyd. No. 2

Post-Developed

Hydrograph type	= Rational	Peak discharge	= 4.196 cfs
Storm frequency	= 25 yrs	Time to peak	= 0.17 hrs
Time interval	= 1 min	Hyd. volume	= 2,518 cuft
Drainage area	= 0.901 ac	Runoff coeff.	= 0.81
Intensity	= 5.750 in/hr	Tc by User	= 10.00 min
IDF Curve	= butler county.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

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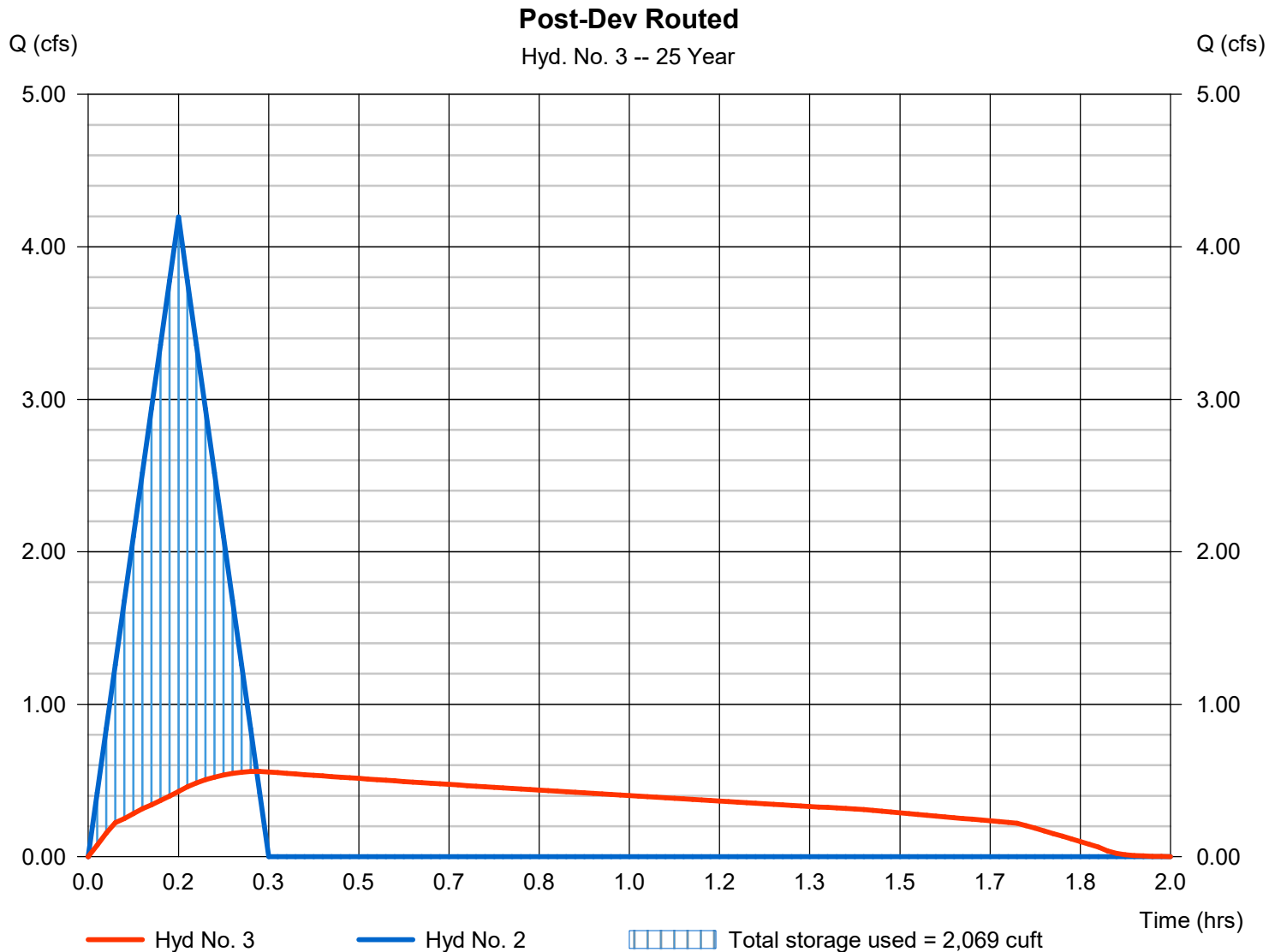
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Hyd. No. 3

Post-Dev Routed

Hydrograph type	= Reservoir	Peak discharge	= 0.559 cfs
Storm frequency	= 25 yrs	Time to peak	= 0.32 hrs
Time interval	= 1 min	Hyd. volume	= 2,518 cuft
Inflow hyd. No.	= 2 - Post-Developed	Max. Elevation	= 564.00 ft
Reservoir name	= UG Chambers	Max. Storage	= 2,069 cuft

Storage Indication method used.



Hydrograph Report

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Hyd. No. 1

Pre-Developed

Hydrograph type	= Rational	Peak discharge	= 1.469 cfs
Storm frequency	= 50 yrs	Time to peak	= 0.32 hrs
Time interval	= 1 min	Hyd. volume	= 1,675 cuft
Drainage area	= 0.901 ac	Runoff coeff.	= 0.3
Intensity	= 5.435 in/hr	Tc by User	= 19.00 min
IDF Curve	= butler county.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

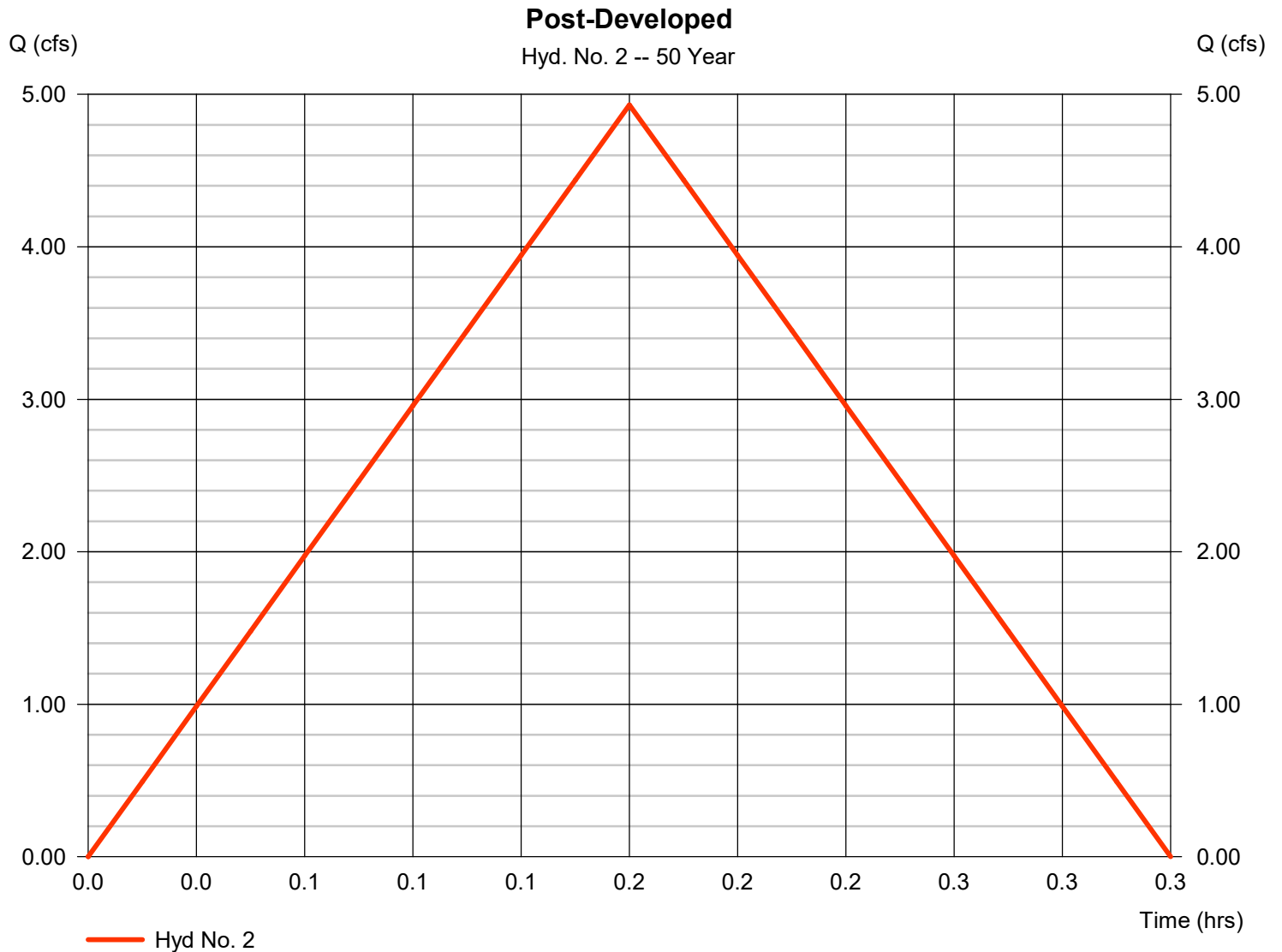
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Hyd. No. 2

Post-Developed

Hydrograph type	= Rational	Peak discharge	= 4.931 cfs
Storm frequency	= 50 yrs	Time to peak	= 0.17 hrs
Time interval	= 1 min	Hyd. volume	= 2,959 cuft
Drainage area	= 0.901 ac	Runoff coeff.	= 0.81
Intensity	= 6.757 in/hr	Tc by User	= 10.00 min
IDF Curve	= butler county.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v10.5

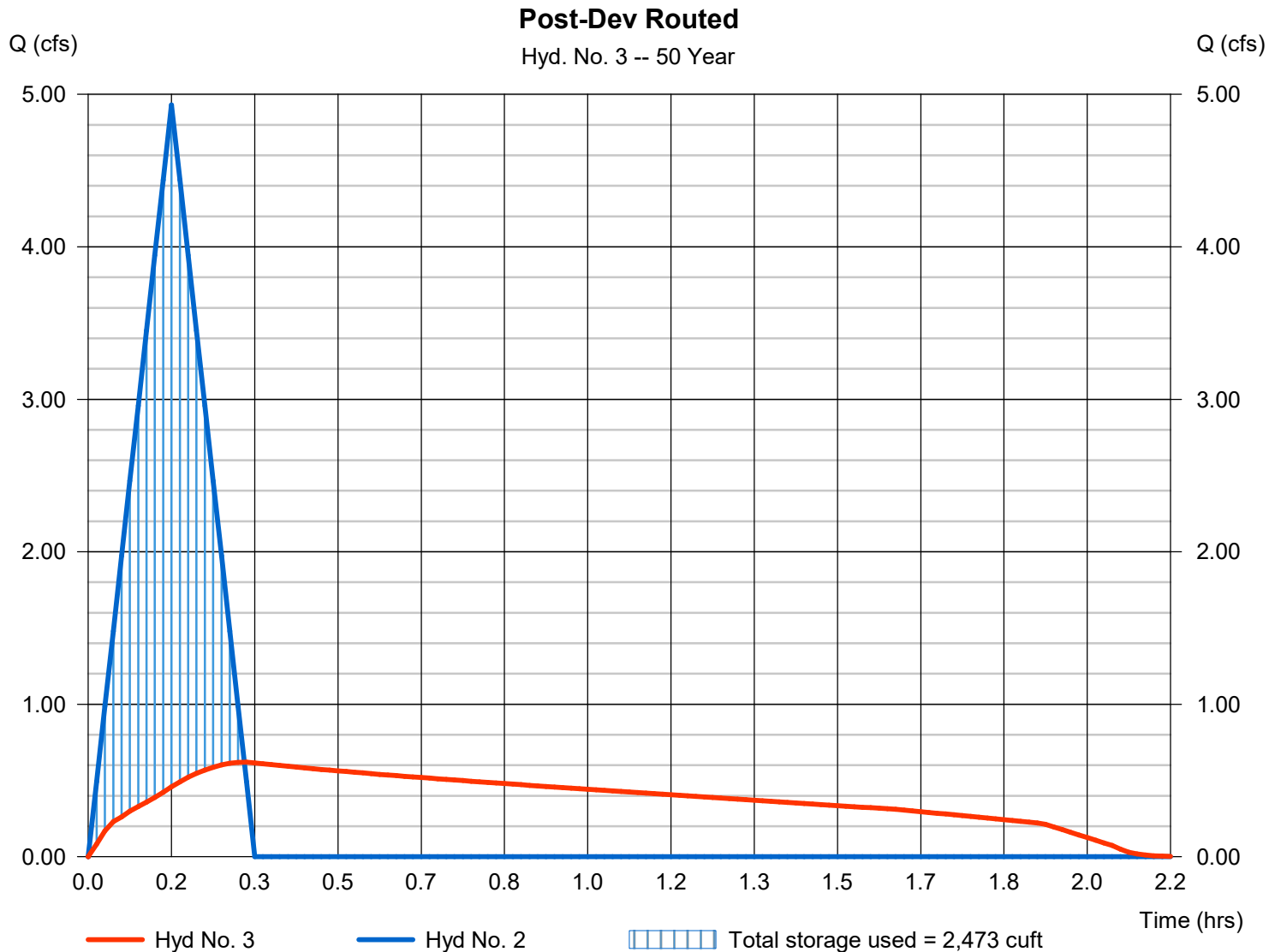
Wednesday, 11 / 8 / 2017

Hyd. No. 3

Post-Dev Routed

Hydrograph type	= Reservoir	Peak discharge	= 0.620 cfs
Storm frequency	= 50 yrs	Time to peak	= 0.32 hrs
Time interval	= 1 min	Hyd. volume	= 2,959 cuft
Inflow hyd. No.	= 2 - Post-Developed	Max. Elevation	= 564.53 ft
Reservoir name	= UG Chambers	Max. Storage	= 2,473 cuft

Storage Indication method used.



Hydrograph Report

Hyd. No. 1

Pre-Developed

Hydrograph type	= Rational	Peak discharge	= 1.568 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.32 hrs
Time interval	= 1 min	Hyd. volume	= 1,787 cuft
Drainage area	= 0.901 ac	Runoff coeff.	= 0.3
Intensity	= 5.800 in/hr	Tc by User	= 19.00 min
IDF Curve	= butler county.IDF	Asc/Rec limb fact	= 1/1

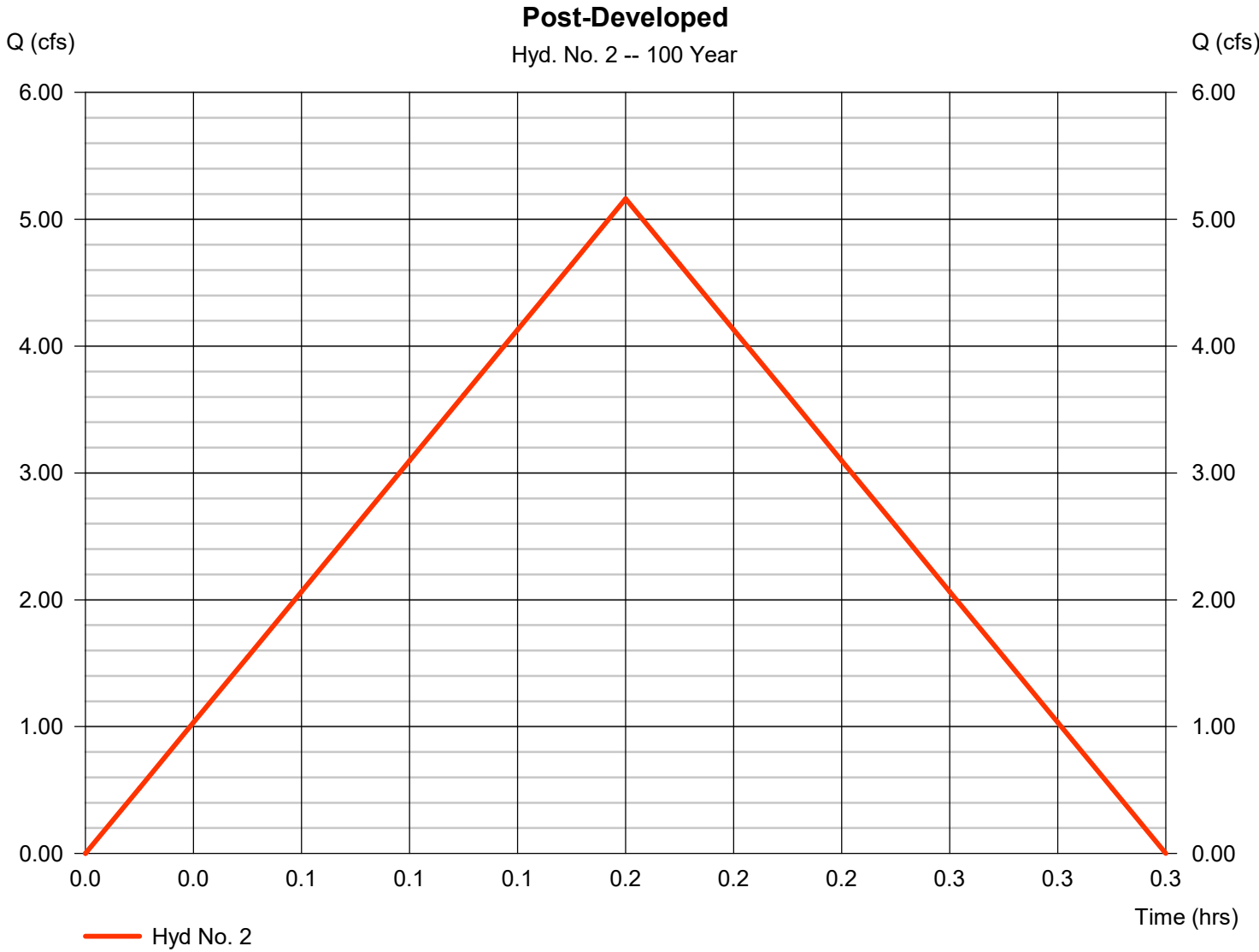


Hydrograph Report

Hyd. No. 2

Post-Developed

Hydrograph type	= Rational	Peak discharge	= 5.162 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.17 hrs
Time interval	= 1 min	Hyd. volume	= 3,097 cuft
Drainage area	= 0.901 ac	Runoff coeff.	= 0.81
Intensity	= 7.073 in/hr	Tc by User	= 10.00 min
IDF Curve	= butler county.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

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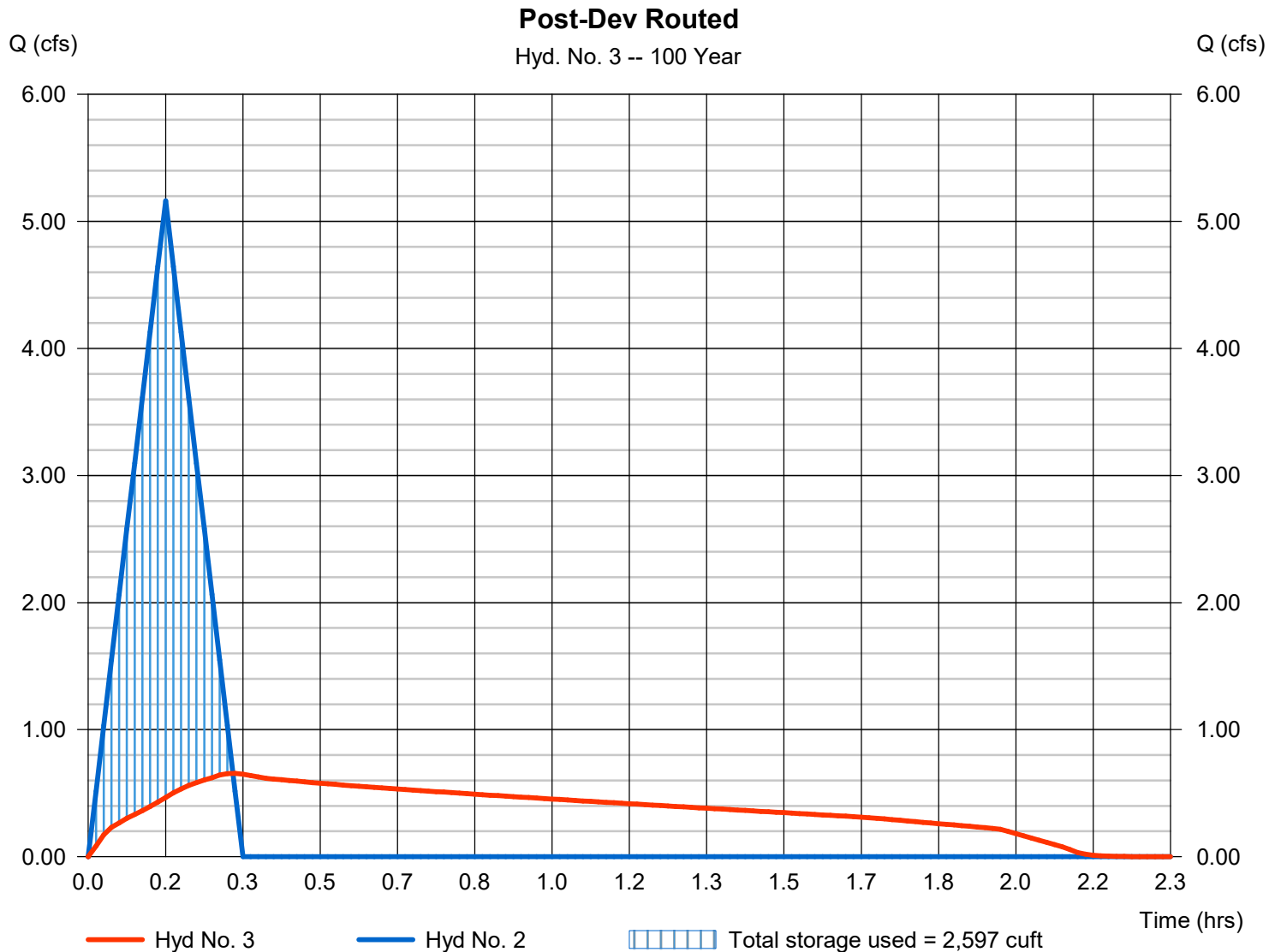
Wednesday, 11 / 8 / 2017

Hyd. No. 3

Post-Dev Routed

Hydrograph type	= Reservoir	Peak discharge	= 0.655 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.32 hrs
Time interval	= 1 min	Hyd. volume	= 3,097 cuft
Inflow hyd. No.	= 2 - Post-Developed	Max. Elevation	= 564.87 ft
Reservoir name	= UG Chambers	Max. Storage	= 2,597 cuft

Storage Indication method used.



Hydraflow Rainfall Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v10.5

Wednesday, 11 / 8 / 2017

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	80.0000	14.0000	1.0000	-----
2	106.0000	17.0000	1.0000	-----
3	0.0000	0.0000	1.0000	-----
5	131.0000	19.0000	1.0000	-----
10	170.0000	23.0000	1.0000	-----
25	230.0000	30.0000	1.0000	-----
50	250.0000	27.0000	1.0000	-----
100	290.0000	31.0000	1.0000	-----

File name: butler county.IDF

$$\text{Intensity} = B / (T_c + D)^E$$

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	4.21	3.33	2.76	2.35	2.05	1.82	1.63	1.48	1.36	1.25	1.16	1.08
2	4.82	3.93	3.31	2.86	2.52	2.26	2.04	1.86	1.71	1.58	1.47	1.38
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	5.46	4.52	3.85	3.36	2.98	2.67	2.43	2.22	2.05	1.90	1.77	1.66
10	6.07	5.15	4.47	3.95	3.54	3.21	2.93	2.70	2.50	2.33	2.18	2.05
25	6.57	5.75	5.11	4.60	4.18	3.83	3.54	3.29	3.07	2.88	2.71	2.56
50	7.81	6.76	5.95	5.32	4.81	4.39	4.03	3.73	3.47	3.25	3.05	2.87
100	8.06	7.07	6.30	5.69	5.18	4.75	4.39	4.08	3.82	3.58	3.37	3.19

T_c = time in minutes. Values may exceed 60.

Precip. file name: S:\Land Projects 2008\Warren County GIS\Hydro\Warren County-total 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	2.40	2.80	0.00	3.30	4.25	5.77	6.80	7.95
SCS 6-Hr	0.00	1.80	0.00	0.00	2.60	0.00	0.00	4.00
Huff-1st	0.00	1.55	0.00	2.75	4.00	5.38	6.50	8.00
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	1.75	0.00	2.80	3.90	5.25	6.00	7.10