



GATEWAY ENGINEERS

C-18927-0096

February 2026

Hastings Phase 5

South Fayette Township
Allegheny County, PA

PREPARED FOR

Charter Homes at Hastings, Inc.
322 North Arch Street, First Floor
Lancaster, PA 17603

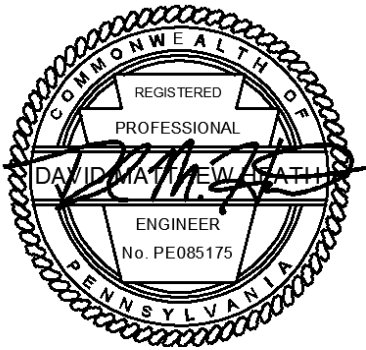
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A FULL-SERVICE CIVIL ENGINEERING FIRM

PCSM REPORT

POST CONSTRUCTION STORMWATER MANAGEMENT REPORT

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PROJECT NARRATIVE

PLAN NAME: **Hastings Phase 5**

LOCATION: **South Fayette Township, Allegheny County, PA**

Introduction & Description

Charter Homes at Hastings, Inc. is proposing Phase 5 of the Hastings development located off of Mayview Road in South Fayette Township, Allegheny County, PA. Phase 5 consists of single family and townhouse style homes, cartways, trails, utilities, stormwater management facilities, and green space. Construction is anticipated to begin in the summer of 2026 and be completed in the spring of 2027. The property is located within the Chartiers Creek watershed, and drains to Chartiers Creek, which is designated as a Warm Water Fishery (WWF) per PaCODE Chapter 93, Water Quality Standards.

The site is located within Point of Analysis (POA) 5 of the Charter Homes at Hastings PCSM Report, latest revision February 2021. For the purposes of this report, revised peak rate, volume and water quality calculations are provided for POA 5 only. The increase in the stormwater rate and volume from the proposed development will be controlled through the installation of an underground detention tank for peak rate control and an above/below ground infiltration basin.

Site Conditions and Calculations

The proposed site was formerly the Mayview Hospital, which consisted of several buildings, access roads, parking areas, athletic fields, and green space. The site has since been razed (in 2009) and the lot is now largely comprised of rubble and impervious areas where buildings and parking areas once existed. Post Construction Stormwater Management SCMs are required to mitigate stormwater runoff in the area of the proposed development which includes an impervious buildings, sidewalks, and access drives.

Methodology

Stormwater runoff from the project site will use structural and non-structural Stormwater Control Measures (SCMs) to adequately protect against adverse impacts at both the site and downstream by addressing peak discharge, stormwater volume storage, and water quality.

Hydraflow Hydrographs Extension for AutoCAD Civil 3D ® 2024, by Autodesk, Inc., was used to develop and analyze the watershed models and hydrographs. The software uses methodologies defined in Technical Release No. 55 (TR-55) to perform routing and develop outflow hydrographs.

Rainfall amounts for the indicated storms can be found in Appendix C. South Fayette Township Stormwater Ordinance § 215-78.E were used to obtain the 24-hr rainfall depth for the project site.

Design Storm	1-Year	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
Precipitation (in)	1.97	2.35	2.88	3.30	3.90	4.40	4.92

Time of concentration (Tc) was based on the Soil Cover Complex Method in accordance with Urban Hydrology for Small Watersheds, Technical Release No. 55 (TR-55) by the USDA, Natural Resources Conservation Service. See Appendix B for the soil series and hydrologic soil group for each soil. Refer to Appendix C for the Tc path and calculations used to determine the value used in the pre-development calculations. The following surface conditions were used for the hydrologic modeling for the pre-developed condition:

Soil Cover	HSG C
Meadow (Good Condition)	71
Woodland	70
Compacted Dirt Drive	87
Impervious	98

The following surface conditions were used in the hydrologic modeling for the post-developed condition:

Soil Cover	HSG C
Open Space	74
Wooded	70
Impervious	98

As stated above, the proposed Phase 5 development will result in an increase in runoff. The existing point of analysis 5 (POA 5) is revised to include the entirety of the Phase 5 development and was determined as the study point for stormwater calculations in the existing and proposed conditions. In the existing conditions, PRE POA-5 is 6.98 acres

(3.26 acres from the most recently approved PCSM Narrative + 3.72 additional acres due to the Phase 5 development). In the proposed conditions, POST DA-5A Detained is 0.36 acres, POST POA-5B Detained is 3.09 acres, and POST POA-5C Undetained is 2.69 acres which gives a total of 6.14 acres in post condition (2.42 acres from the most recently approved PCSM Narrative + 3.72 additional acres due to the Phase 5 development). Please refer to the pre and post drainage area maps in Appendix C. The proposed site is not covered by a release rate map from an approved Act 167 plan. The allowable release rate for the watershed is 100% following the requirements of the South Fayette Township Stormwater Ordinance.

Stormwater Management Facilities

The project will include the construction of permanent residential structures, roads, sidewalks, and impervious driveways. The addition of these impervious surfaces will require stormwater management. The design considered the use of an underground detention tank for peak rate mitigation and an above/below ground infiltration basin to address the increase in stormwater and after soil evaluation and infiltration testing performed at the basin location showed that the infiltration basin was suitable at the preferred location.

Soil evaluation and infiltration testing performed at the infiltration basin location showed the area was suitable for infiltration. TP-1, TP-2, and TP-3 showed a stabilized rate of infiltration of 2.5 inches per hour, 2.6 inches per hour, and 2.4 inches per hour respectively, yielding an average rate of 1.75 inches per hour. Design rates utilize a 2.0 safety factor, a temperature adjustment factor of 1.7, and the resulting geometric mean of 2.13 inches per hour was used. No evidence of seasonal high groundwater table or bedrock was encountered within 24 inches of the testing elevation. **See Appendix F for the summary of the infiltration testing and calculations for the rate used in the design calculations.**

The facilities have been designed and routing calculations performed to ensure the reduction (100% release rate) of post-development flows to levels below those of the pre-development conditions. The above/below ground infiltration basin for POA-5 was designed so that the required 2-year storage volume and structural volume requirement of 7,303 c.f. (PCSM Spreadsheet for POA-5) and at least 1-inch of runoff from the net increase in impervious surfaces (4,881 CF) is achieved using infiltration and storage volume below the lowest orifice from the infiltration basin. See Appendix F for stage storage tables (available SCM volumes) for the proposed facilities.

Each detention facility has an associated outlet structure in order to control the release of stormwater. The table below summarizes the controls of the outlet structures:

SCM #	STORMWATER MANAGEMENT FACILITY	ORIFICE ELEV.	TOP OF OUTLET STRUCTURE ELEV.	OUTLET ELEV.	EMERGENCY SPILLWAY ELEV.
SCM 5.1	UNDERGROUND DETENTION TANK	854.50	859.25 (15-INCH RISER)	854.50 (15" Ø SLCPP)	N/A
SCM 5.2	ABOVE/BELOW GROUND INFILTRATION BASIN	852.00	852.25	846.00 (18" Ø SLCPP)	852.70 (40-FT WIDE EMBANKMENT)

The following tables summarize the results of the watershed modeling.

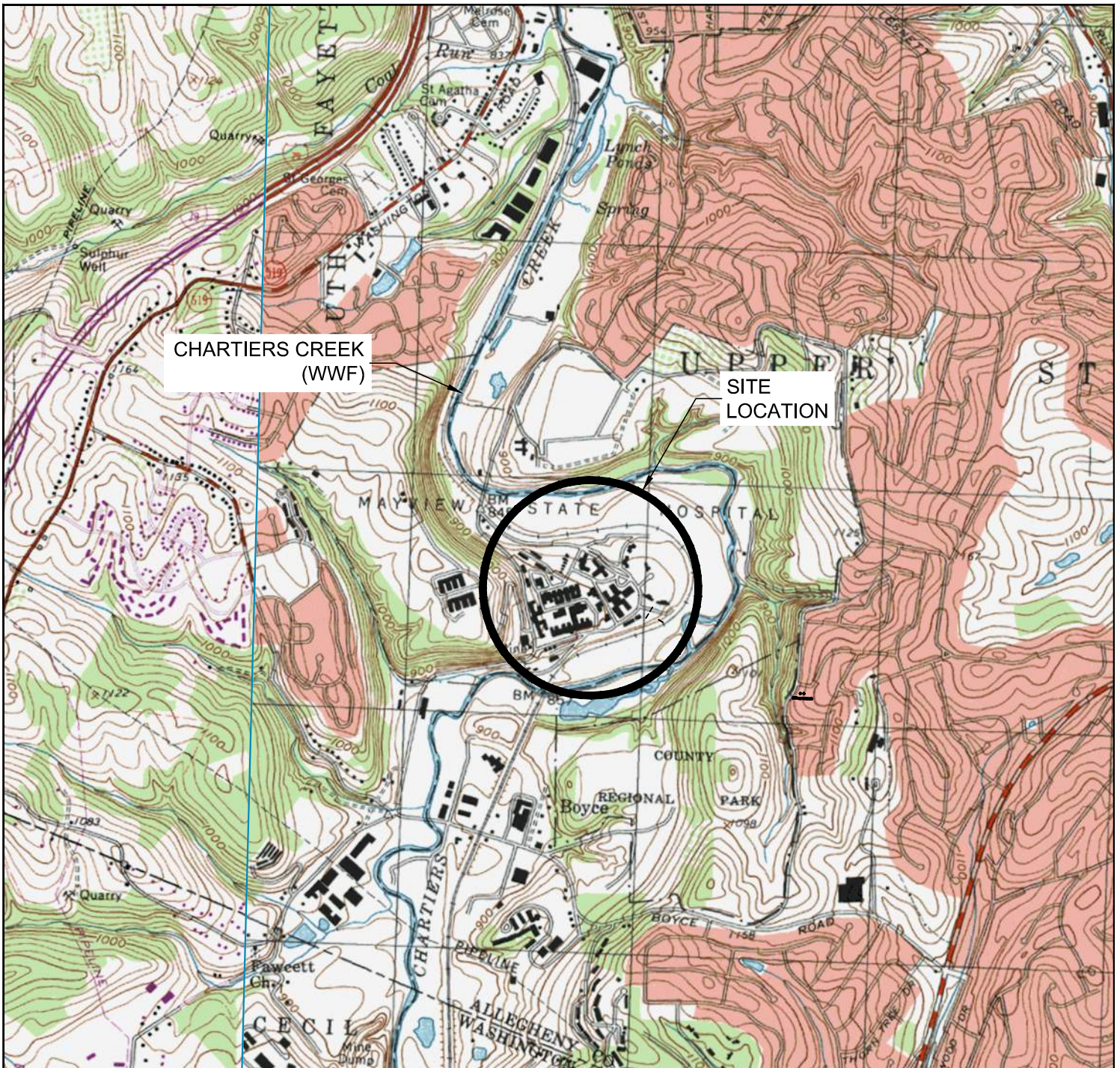
Design Storms (POA-5)							
	1-YR	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
Pre-Development Flow Rates (POA-5)							
PRE POA-5 (CFS) (Hyd 1)	3.17	5.50	9.19	12.40	17.30	21.58	26.19
Post Development Flow Rates (POA-5)							
SCM 5.1 Tank Outflow (CFS) (Hyd 3)	0.28	0.30	0.33	0.36	0.39	0.82	1.72
SCM 5.1 Tank Stage Elevation	856.63	857.00	857.52	857.95	858.64	859.35	859.46
SCM 5.2 Inf Basin Outflow (CFS) (Hyd 7)	0.00	0.00	0.59	1.72	7.26	11.47	14.69
SCM 5.2 Inf Basin Stage Elevation	851.27	851.84	852.14	852.28	852.50	852.61	852.69
POST DA-5C Undetained (CFS) (Hyd 6)	1.38	2.31	3.78	5.04	6.97	8.65	10.44
POST POA-5 Total (CFS) (Hyd 8)	1.38	2.31	3.78	5.05	12.62	18.90	24.97
Peak Rate Net Chage (CFS)	-1.79	-3.19	-5.41	-7.35	-4.68	-2.68	-1.22
Runoff Volumes (2-Year Design Storm - See PCSM Worksheet)							
POA-5	Pre-Development (cuft)		14,000	Post-Development (cuft)			21,303

*Increase in runoff volume from pre-development to post-development is handled by the above/below ground infiltration basin #1, which has the capacity to permanently remove a total of 7,743 cuft. Refer to Appendix C & E for volume calculations and models.

Conclusion

The stormwater analysis contained herein demonstrates that the strategies described in this report will address water quality and quantity, will not increase stormwater peak flow rates or runoff volumes, and will meet the requirements of the PA Department of Environmental Protection Stormwater Best Management Practices as well as the South Fayette Township Stormwater Ordinance.

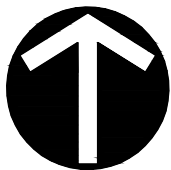
**APPENDIX A
USGS SITE LOCATION MAP**



CHARTIERS CREEK
(WWF)

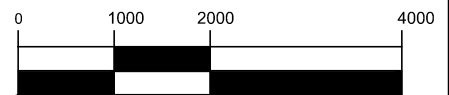
SITE
LOCATION

USGS SITE LOCATION MAP
BRIDGEVILLE QUAD
SCALE 1"=2,000'



NORTH

GRAPHIC SCALE



(IN FEET)

1 inch = 2,000 ft.

SITE LOCATION MAP

Project Number: 18927-0016
Drawing Scale: 1"=2000'
Date Issued: MAY 2016
Index Number: _____
Drawn By: _____
Checked By: DMH
Project Manager: DMH

USGS

HASTINGS MASTER PLAN

MAYVIEW RD,
PITTSBURGH, PA 15241

PREPARED FOR:

CHARTER HOMES & NEIGHBORHOODS
114 FOXSHIRE DRIVE
LANCASTER, PA 17601

Date	No	REVISION RECORD
-	01	-
-	02	-
-	03	-
-	04	-
-	05	-
-	06	-
-	07	-
-	08	-

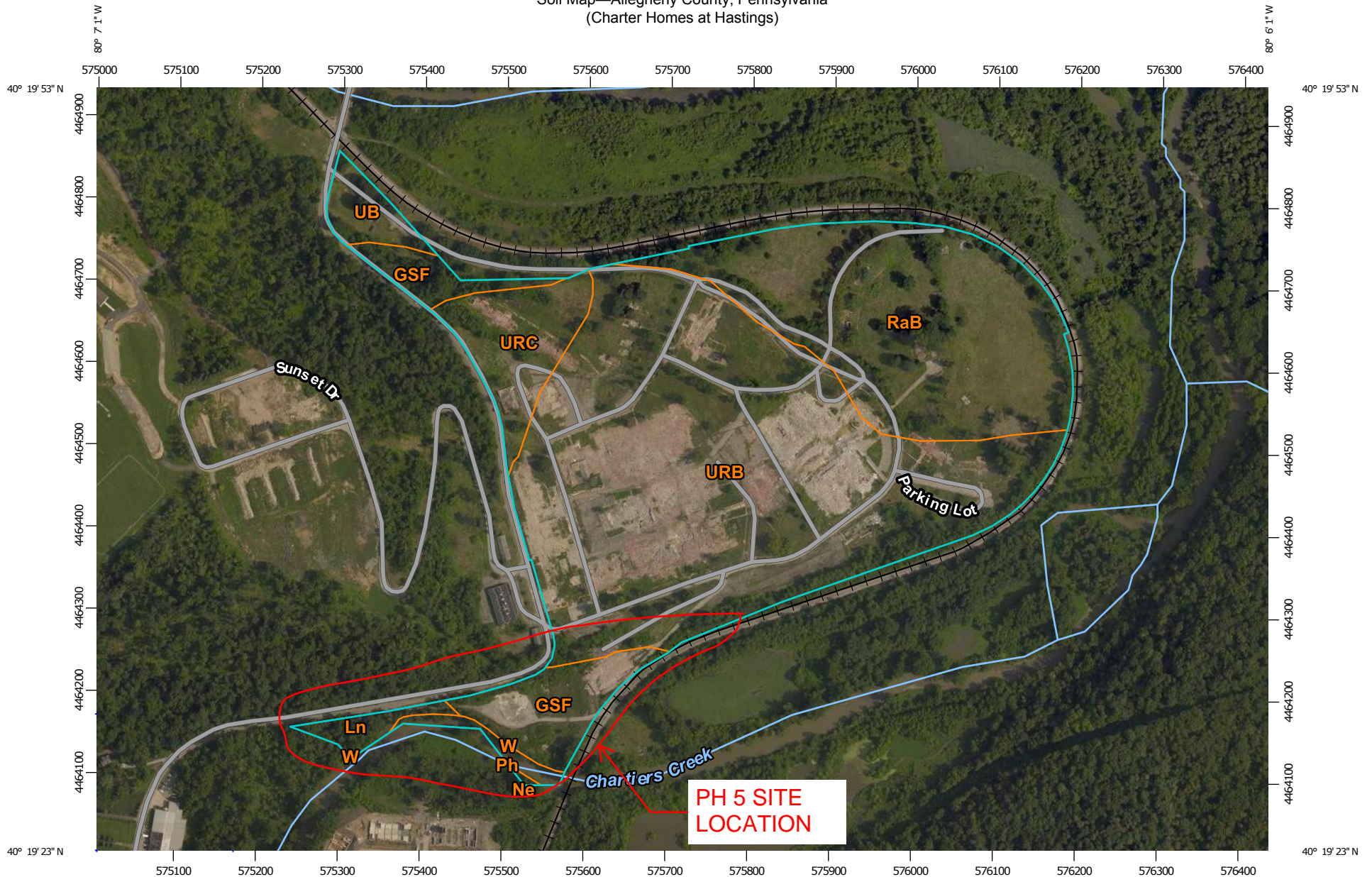


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Full-Service Civil Engineering & Surveying
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APPENDIX B WEB SOIL SURVEY

Soil Map—Allegheny County, Pennsylvania
(Charter Homes at Hastings)



Map Scale: 1:6,540 if printed on A landscape (11" x 8.5") sheet.

0 50 100 200 300 Meters

0 300 600 1200 1800 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84





MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Allegheny County, Pennsylvania
Survey Area Data: Version 9, Nov 16, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

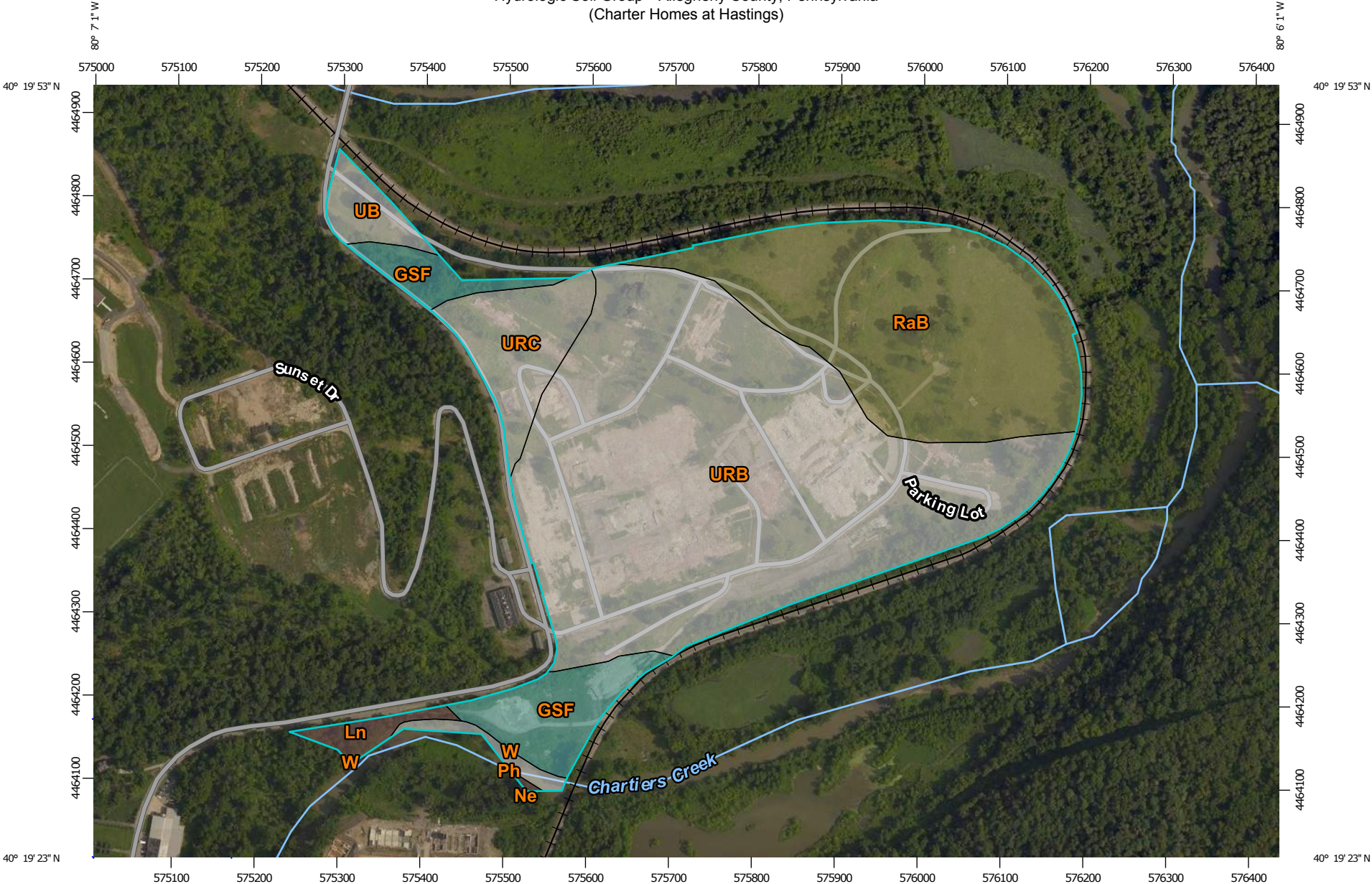
Date(s) aerial images were photographed: Jul 5, 2014—Aug 28, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Allegheny County, Pennsylvania (PA003)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
GSF	Gilpin, Weikert, and Culleoka shaly silt loams, very steep	6.0	7.3%
Ln	Lindside silt loam, 0 to 3 percent slopes, occasionally flooded	1.1	1.4%
Ne	Newark silt loam	0.1	0.1%
Ph	Philo silt loam, 0 to 3 percent slopes, occasionally flooded	0.0	0.0%
RaB	Rainsboro silt loam, 3 to 8 percent slopes	21.4	26.3%
UB	Urban land	1.9	2.3%
URB	Urban land-Rainsboro complex, gently sloping	45.1	55.4%
URC	Urban land-Rainsboro complex, sloping	5.0	6.2%
W	Water	0.8	1.0%
Totals for Area of Interest		81.3	100.0%

Hydrologic Soil Group—Allegheny County, Pennsylvania
(Charter Homes at Hastings)



Map Scale: 1:6,540 if printed on A landscape (11" x 8.5") sheet.

0 50 100 200 300 Meters

0 300 600 1200 1800 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84


































Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

4/28/2016
Page 1 of 4

MAP LEGEND

Area of Interest (AOI)	 C
Area of Interest (AOI)	 C/D
Soils	 D
Soil Rating Polygons	 Not rated or not available
 A	
 A/D	
 B	
 B/D	
 C	
 C/D	
 D	
 Not rated or not available	
Soil Rating Lines	
 A	
 A/D	
 B	
 B/D	
 C	
 C/D	
 D	
 Not rated or not available	
Soil Rating Points	
 A	
 A/D	
 B	
 B/D	
Water Features	 Streams and Canals
Transportation	 Rails
	 Interstate Highways
	 US Routes
	 Major Roads
	 Local Roads
Background	 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

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Soil Survey Area: Allegheny County, Pennsylvania
Survey Area Data: Version 9, Nov 16, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 5, 2014—Aug 28, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Allegheny County, Pennsylvania (PA003)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
GSF	Gilpin, Weikert, and Culleoka shaly silt loams, very steep	C	6.0	7.3%
Ln	Lindside silt loam, 0 to 3 percent slopes, occasionally flooded	B/D	1.1	1.4%
Ne	Newark silt loam	B/D	0.1	0.1%
Ph	Philo silt loam, 0 to 3 percent slopes, occasionally flooded	B/D	0.0	0.0%
RaB	Rainsboro silt loam, 3 to 8 percent slopes	C/D	21.4	26.3%
UB	Urban land		1.9	2.3%
URB	Urban land-Rainsboro complex, gently sloping		45.1	55.4%
URC	Urban land-Rainsboro complex, sloping		5.0	6.2%
W	Water		0.8	1.0%
Totals for Area of Interest			81.3	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Map Unit Description (Brief, Generated)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The Map Unit Description (Brief, Generated) report displays a generated description of the major soils that occur in a map unit. Descriptions of non-soil (miscellaneous areas) and minor map unit components are not included. This description is generated from the underlying soil attribute data.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description (Brief, Generated)

Allegheny County, Pennsylvania

Map Unit: GSF—Gilpin, Weikert, and Culleoka shaly silt loams, very steep

Component: Gilpin (35%)

The Gilpin component makes up 35 percent of the map unit. Slopes are 25 to 60 percent. This component is on hillslopes. The parent material consists of residuum weathered from acid fine-grained sandstone, siltstone, and shale. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria.

Component: Weikert (30%)

The Weikert component makes up 30 percent of the map unit. Slopes are 25 to 80 percent. This component is on hillslopes. The parent material consists of gravelly residuum weathered from shale and siltstone. Depth to a root restrictive layer, bedrock, lithic, is 10 to 20 inches. The natural drainage class is somewhat excessively drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria.

Component: Culleoka (25%)

The Culleoka component makes up 25 percent of the map unit. Slopes are 25 to 35 percent. This component is on hillslopes. The parent material consists of residuum weathered from nonacid siltstone, fine-grained sandstone, and shale. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is very low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria.

Component: Hazleton (5%)

Generated brief soil descriptions are created for major soil components. The Hazleton soil is a minor component.

Component: Wharton (3%)

Generated brief soil descriptions are created for major soil components. The Wharton soil is a minor component.

Component: Dormont (2%)

Generated brief soil descriptions are created for major soil components. The Dormont soil is a minor component.

Map Unit: Ln—Lindside silt loam, 0 to 3 percent slopes, occasionally flooded

Component: Lindside, occasionally flooded (90%)

The Lindside, occasionally flooded component makes up 90 percent of the map unit. Slopes are 0 to 3 percent. This component is on flood plains on hills or valleys. The parent material consists of fine-silty alluvium derived from sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is very high. Shrink-swell potential is low. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 17 inches during January, February, March, April. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria.

Component: Newark, occasionally flooded (5%)

Generated brief soil descriptions are created for major soil components. The Newark soil is a minor component.

Component: Melvin, occasionally flooded (5%)

Generated brief soil descriptions are created for major soil components. The Melvin soil is a minor component.

Map Unit: Ne—Newark silt loam

Component: Newark (85%)

The Newark component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains. The parent material consists of mixed alluvium derived from limestone, sandstone, and shale. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is very high. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during January, February, March, April, May, December. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria.

Component: Clarksburg (5%)

Generated brief soil descriptions are created for major soil components. The Clarksburg soil is a minor component.

Component: Melvin (5%)

Generated brief soil descriptions are created for major soil components. The Melvin soil is a minor component.

Component: Brinkerton (5%)

Generated brief soil descriptions are created for major soil components. The Brinkerton soil is a minor component.

Map Unit: Ph—Philo silt loam, 0 to 3 percent slopes, occasionally flooded

Component: Philo (90%)

The Philo component makes up 90 percent of the map unit. Slopes are 0 to 3 percent. This component is on flood plains on valleys. The parent material consists of recent coarse-loamy alluvium derived from sandstone and shale over old sandy and gravelly alluvium derived from sandstone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 16 inches during January, February, March, April. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria.

Component: Pope (5%)

Generated brief soil descriptions are created for major soil components. The Pope soil is a minor component.

Component: Atkins (5%)

Generated brief soil descriptions are created for major soil components. The Atkins soil is a minor component.

Map Unit: RaB—Rainsboro silt loam, 3 to 8 percent slopes

Component: Rainsboro (90%)

The Rainsboro component makes up 90 percent of the map unit. Slopes are 3 to 8 percent. This component is on terraces. The parent material consists of old alluvium. Depth to a root restrictive layer, fragipan, is 22 to 34 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 21 inches during January, February, March, April, December. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

Component: Ginat (5%)

Generated brief soil descriptions are created for major soil components. The Ginat soil is a minor component.

Component: Allegheny (5%)

Generated brief soil descriptions are created for major soil components. The Allegheny soil is a minor component.

Map Unit: UB—Urban land**Component:** Urban land (90%)

Generated brief soil descriptions are created for major soil components. The Urban land is a miscellaneous area.

Component: Udorthents, steep (10%)

The Udorthents component makes up 90 percent of the map unit. Slopes are 0 to 50 percent. This component is on mountains. The parent material consists of coal extraction mine spoil. Depth to a root restrictive layer, bedrock, lithic, is 20 to 99 inches. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Nonirrigated land capability classification is 8s. This soil does not meet hydric criteria.

Map Unit: URB—Urban land-Rainsboro complex, gently sloping**Component:** Urban land (75%)

Generated brief soil descriptions are created for major soil components. The Urban land is a miscellaneous area.

Component: Rainsboro (20%)

The Rainsboro component makes up 20 percent of the map unit. Slopes are 0 to 8 percent. This component is on terraces. The parent material consists of old alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 26 inches during January, February, March, April. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

Component: Ginat (5%)

Generated brief soil descriptions are created for major soil components. The Ginat soil is a minor component.

Map Unit: URC—Urban land-Rainsboro complex, sloping**Component:** Urban land (75%)

Generated brief soil descriptions are created for major soil components. The Urban land is a miscellaneous area.

Component: Rainsboro (15%)

The Rainsboro component makes up 15 percent of the map unit. Slopes are 8 to 25 percent. This component is on terraces. The parent material consists of old alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 26 inches during January, February, March, April. Organic matter content in the surface horizon is about 2 percent. This soil does not meet hydric criteria.

Component: Allegheny (5%)

Generated brief soil descriptions are created for major soil components. The Allegheny soil is a minor component.

Component: Ernest (5%)

Generated brief soil descriptions are created for major soil components. The Ernest soil is a minor component.

Map Unit: W—Water**Component: Water (100%)**

Generated brief soil descriptions are created for major soil components. The Water is a miscellaneous area.

Data Source Information

Soil Survey Area: Allegheny County, Pennsylvania
Survey Area Data: Version 9, Nov 16, 2015

WORKSHEET 1

List the soils that will be encountered by earthmoving required to construct the drill pad(s), access road(s), pits, impoundments, collector & feeder lines, or other activities associated with the proposed well site(s).

Limiting Soil Characteristics									
Map Symbol	Soil Name	Erodible	Cut Banks Cave	Corrosive to Concrete or Steel	High Water Table	Low Strength	Piping	Poor Topsoil	Potentially Hydric
GSF	Gilpin, Weikert, and Culleoka shaly silt loams, very steep	X	X	C		X	X	X	
Ln	Lindside silt loam, 0 to 3 percent slopes, occasionally flooded		X	S	X	X	X		X
Ne	Newark silt loam	X	X	S	X	X	X	X	X
Ph	Philo silt loam, 0 to 3 percent slopes, occasionally flooded	X	X	C/S	X	X	X	X	X
RaB	Rainsboro silt loam, 3 to 8 percent slopes	X	X	X	X	X			X
UB	Urban land	X	X	C/S	X	X		X	X
URB	Urban land-Rainsboro complex, gently sloping	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
URC	Urban land-Rainsboro complex, sloping	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
W	Water	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

REMEDIAL ACTIONS

Soils susceptible to high water tables and/or piping and seeping:

- Provide pumped water sediment removal facilities
- Use clay embankment cores
- Utilize anti-seep collars or gravel packs

Soils susceptible to moderate or high erosion potential:

- Limit time of exposure
- Utilize erosion control blankets
- Select seed mixtures with rapidly germinating species
- Sodding
- Use of special stabilization products (cellular grids, interlocking concrete blocks, etc.)

Soils susceptible to slips and landslides:

- Prevent saturation of slopes
- Provide anchoring or retaining systems
- Provide benching to catch falling debris

Soils susceptible to cutbanks cave:

- Prevent saturation of slopes
- Provide anchoring or retaining systems
- Provide benching to catch falling debris
- Provide trench boxes for utility installation

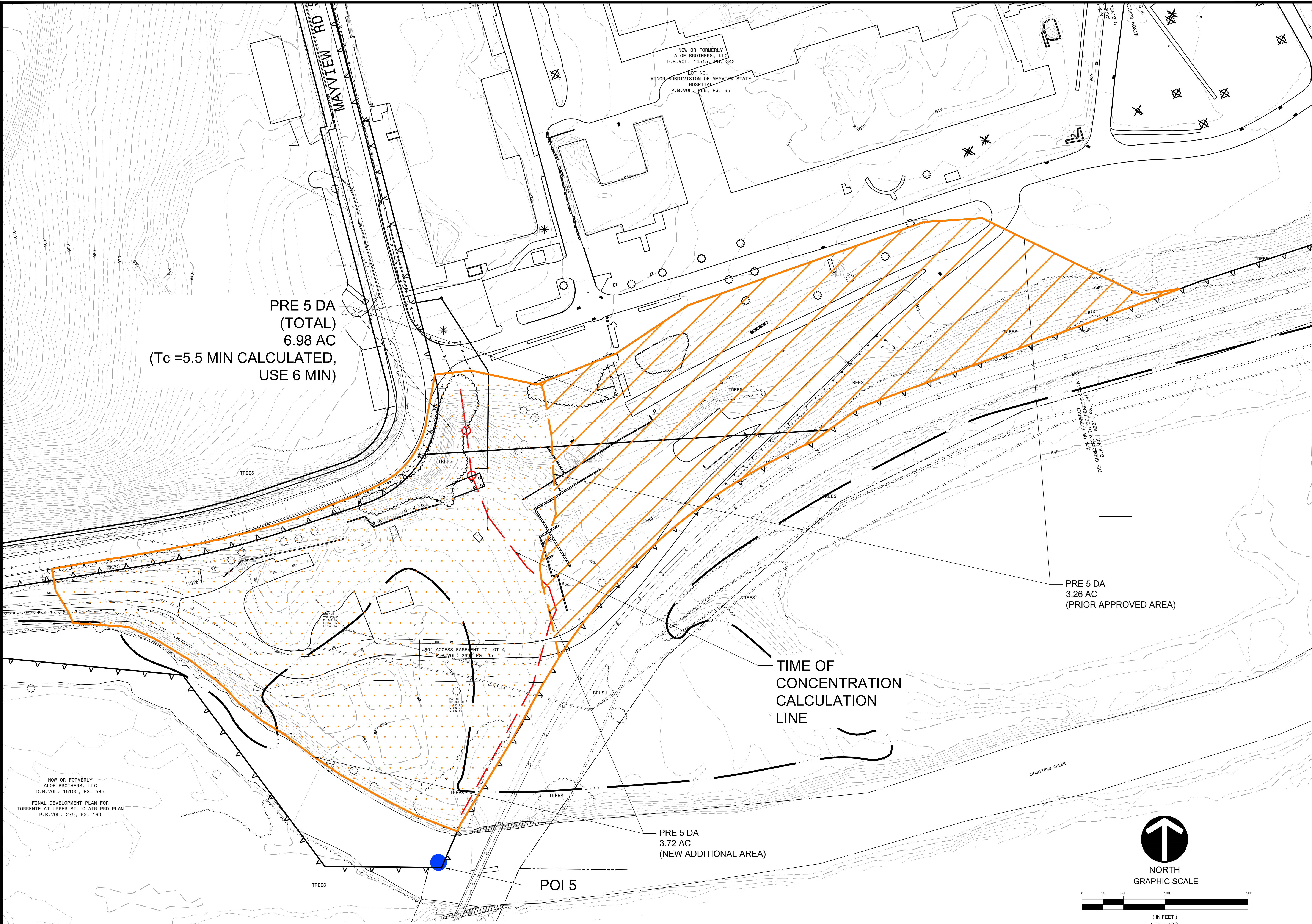
Soils corrosive to concrete/steel:

- Minimize the amount of soil disturbance
- Provide protective coating to concrete and steel
- Provide extra concrete and steel thickness

Soils that are poor sources of topsoil:

- Perform soil tests to determine proper application of soil amendments and to determine the proper moisture content for proposed vegetative cover
- Import topsoil as needed

**APPENDIX C
PRE & POST DEVELOPMENT RUNOFF CALCULATIONS &
MAPS**



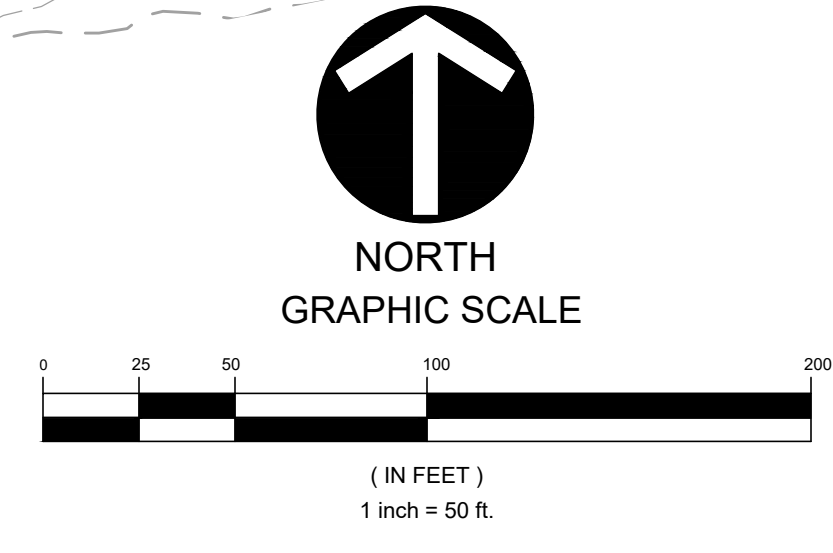
PRE 5 DA
(TOTAL)
6.98 AC
(Tc = 5.5 MIN CALCULATED,
USE 6 MIN)

PRE 5 DA
3.26 AC
(PRIOR APPROVED AREA)

TIME OF
CONCENTRATION
CALCULATION
LINE

PRE 5 DA
3.72 AC
(NEW ADDITIONAL AREA)

POI 5



REVISION RECORD	
No.	Date
01	
02	
03	
04	
05	
06	
07	
08	

HASTINGS
South Fayette Township/Pittsburgh, PA
CHARTER HOMES & NEIGHBORHOODS

HASTINGS PHASE 5
MAYVIEW ROAD
PITTSBURGH, PA 15102
PREPARED FOR:
CHARTER HOMES AT HASTINGS, INC
322 NORTH ARCH STREET, FIRST FLOOR
LANCASTER, PA 17603

PRE DEVELOPMENT
DRAINAGE AREA MAP
Project Number: 18927-0096
Drawing Scale: 1" = 50'
Date Issued: FEB 2026
Index Number:
Drawn By: CRS
Checked By: DMH
Project Manager: DMH
PRE DA

REVISION RECORD	
No.	Date
01	
02	
03	
04	
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07	
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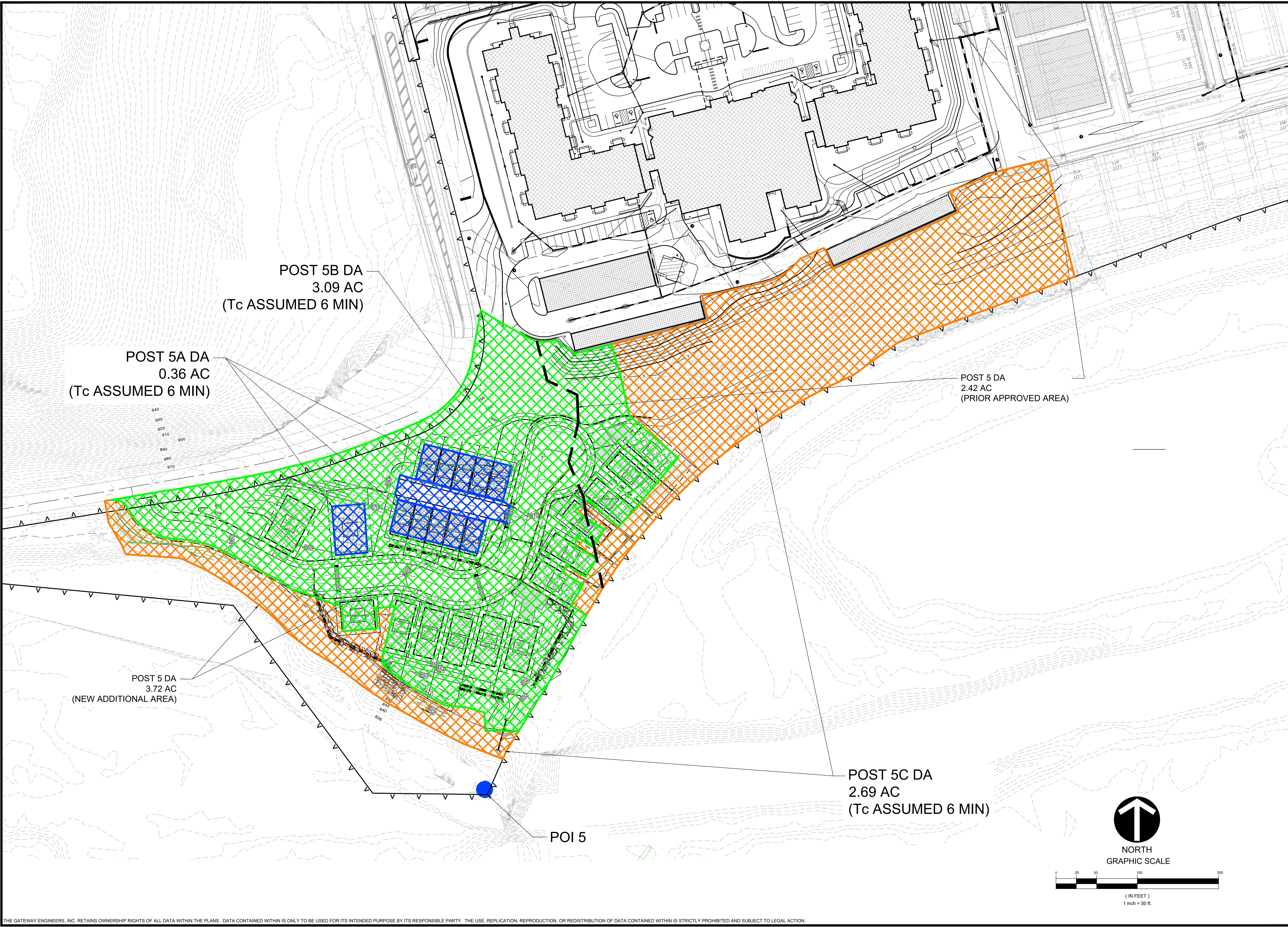
HASTINGS
South Fayette Township/Pittsburgh, PA
CHARTER HOMES & NEIGHBORHOODS

HASTINGS PHASE 5
MAYVIEW ROAD
PITTSBURGH, PA 15102
PREPARED FOR:
CHARTER HOMES AT HASTINGS, INC
322 NORTH ARCH STREET, FIRST FLOOR
LANCASTER, PA 17603

POST DEVELOPMENT
DRAINAGE AREA MAP

Project Number: 18927-0096
Drawing Scale: 1" = 50'
Date Issued: FEB 2026
Index Number: _____
Drawn By: CRS
Checked By: DMH
Project Manager: DMH

POST DA



P:\In & File\name\3\projects\18927-0096 Phase 5\DWG\02-Sheet\K&S\SM\POST DA.dwg
Plot Date: 2/26/26 2:54 PM
User: CR
Printer: HP DesignJet 2600

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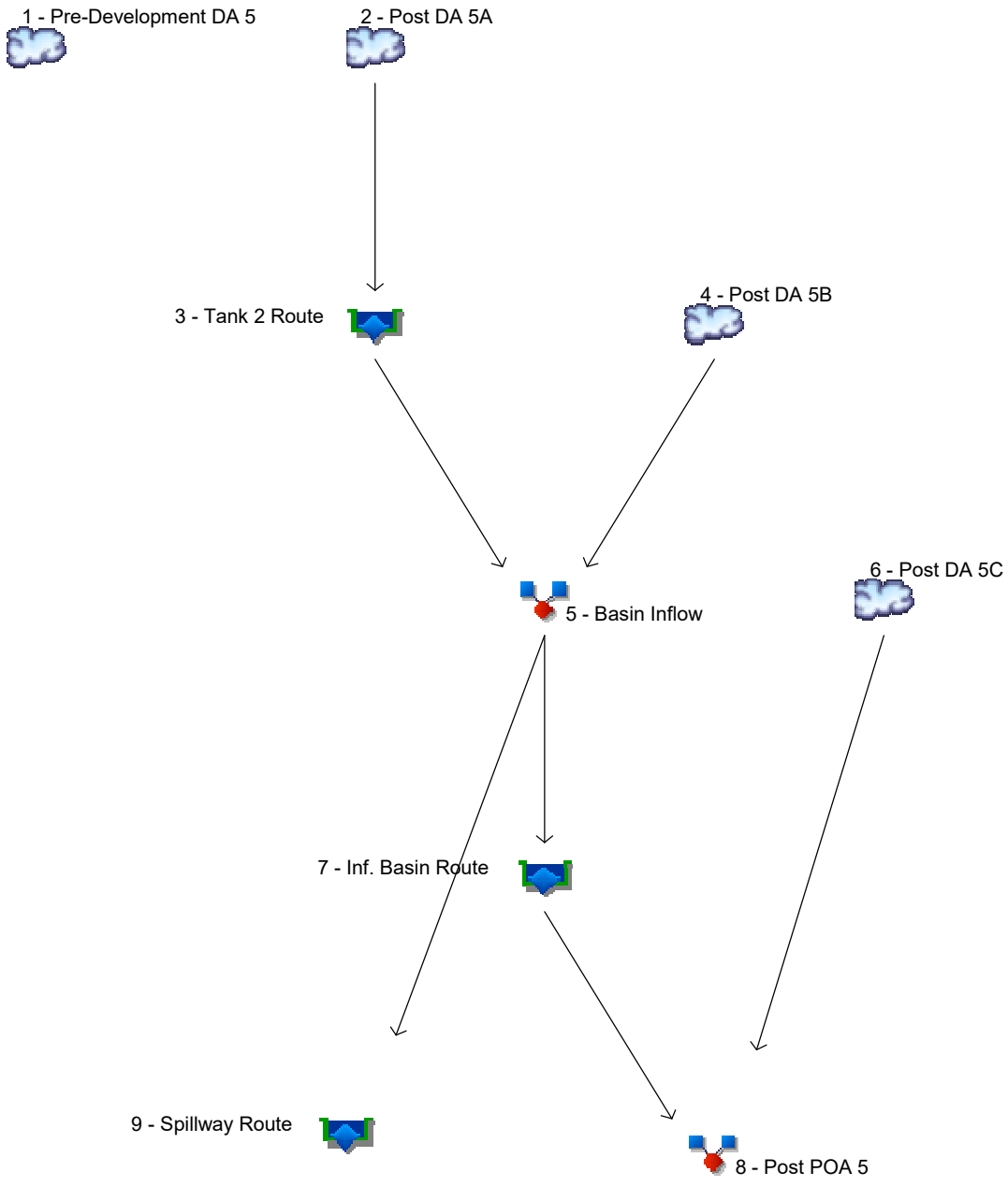
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Watershed Model Schematic

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024



Legend

Hyd.	Origin	Description
1	SCS Runoff	Pre-Development DA 5
2	SCS Runoff	Post DA 5A
3	Reservoir	Tank 2 Route
4	SCS Runoff	Post DA 5B
5	Combine	Basin Inflow
6	SCS Runoff	Post DA 5C
7	Reservoir	Inf. Basin Route
8	Combine	Post POA 5
9	Reservoir	Spillway Route

Hydrograph Return Period Recap

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

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	-----	3.165	5.495	-----	9.192	12.40	17.30	21.58	26.19	Pre-Development DA 5
2	SCS Runoff	-----	0.941	1.131	-----	1.396	1.604	1.902	2.150	2.407	Post DA 5A
3	Reservoir	2	0.276	0.301	-----	0.333	0.357	0.394	0.815	1.719	Tank 2 Route
4	SCS Runoff	-----	3.545	4.958	-----	7.041	8.802	11.39	13.59	15.89	Post DA 5B
5	Combine	3, 4	3.802	5.237	-----	7.347	9.107	11.72	13.94	16.26	Basin Inflow
6	SCS Runoff	-----	1.380	2.313	-----	3.781	5.047	6.970	8.647	10.44	Post DA 5C
7	Reservoir	5	0.000	0.000	-----	0.587	1.719	7.259	11.47	14.69	Inf. Basin Route
8	Combine	6, 7	1.380	2.313	-----	3.781	5.047	12.62	18.90	24.97	Post POA 5
9	Reservoir	5	3.585	5.063	-----	7.231	9.014	11.62	13.82	16.12	Spillway Route

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

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	3.165	2	718	7,294	-----	-----	-----	Pre-Development DA 5	
2	SCS Runoff	0.941	2	716	2,137	-----	-----	-----	Post DA 5A	
3	Reservoir	0.276	2	724	2,136	2	856.63	599	Tank 2 Route	
4	SCS Runoff	3.545	2	718	7,095	-----	-----	-----	Post DA 5B	
5	Combine	3.802	2	718	9,231	3, 4	-----	-----	Basin Inflow	
6	SCS Runoff	1.380	2	718	3,075	-----	-----	-----	Post DA 5C	
7	Reservoir	0.000	2	1472	0	5	851.27	4,932	Inf. Basin Route	
8	Combine	1.380	2	718	3,075	6, 7	-----	-----	Post POA 5	
9	Reservoir	3.585	2	718	9,111	5	852.81	11,403	Spillway Route	
Ph 5 Hydrographs.gpw					Return Period: 1 Year			Monday, 02 / 9 / 2026		

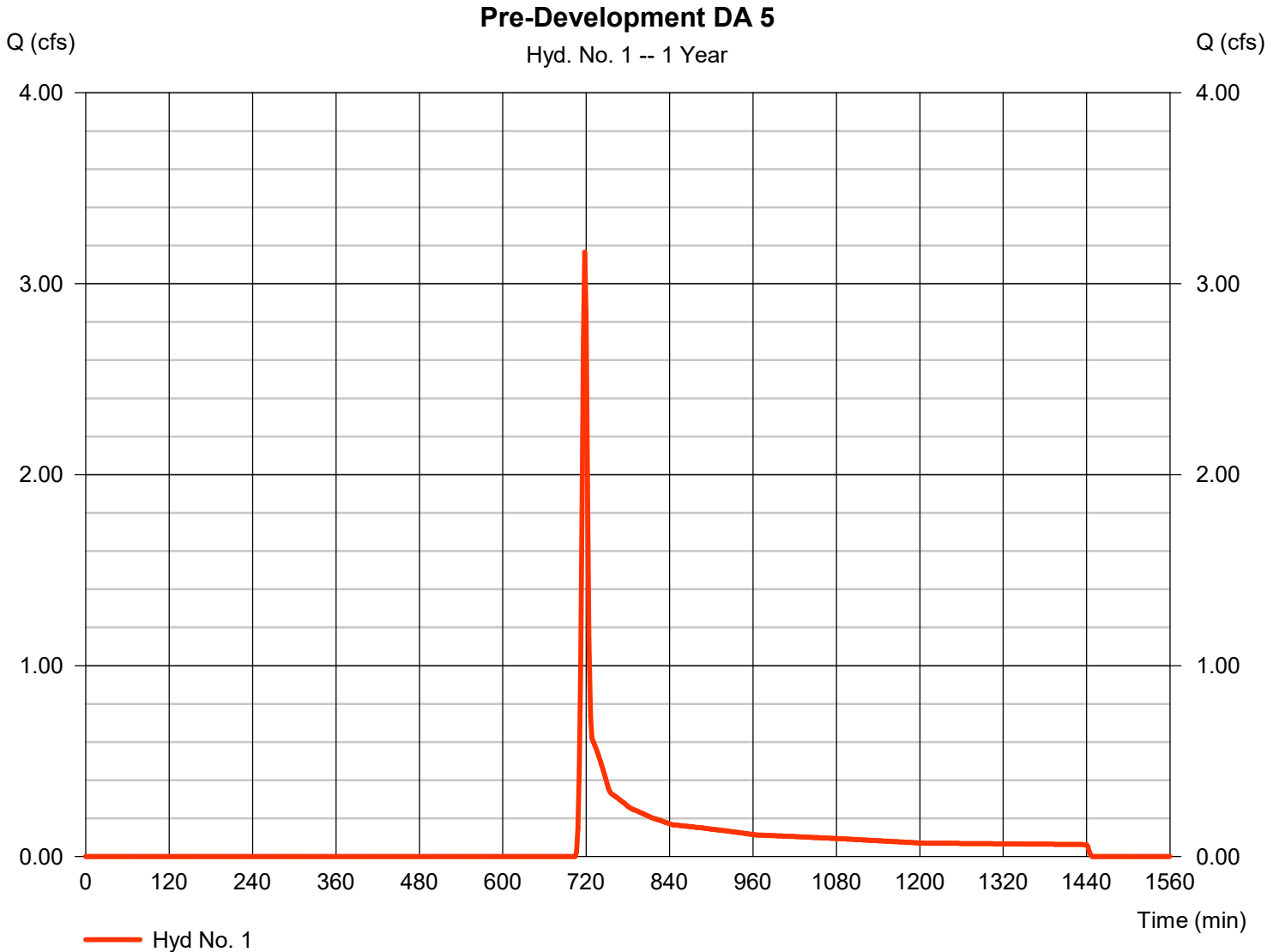
Hydrograph Report

Hyd. No. 1

Pre-Development DA 5

Hydrograph type	= SCS Runoff	Peak discharge	= 3.165 cfs
Storm frequency	= 1 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 7,294 cuft
Drainage area	= 6.980 ac	Curve number	= 73*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 1.97 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.270 x 98) + (0.070 x 71) + (5.290 x 71) + (0.700 x 70) + (0.650 x 87)] / 6.980



TR55 Tc Worksheet

Hyd. No. 1

Pre-Development DA 5

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
Sheet Flow				
Manning's n-value	= 0.150	0.011	0.011	
Flow length (ft)	= 50.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.37	0.00	0.00	
Land slope (%)	= 8.00	0.00	0.00	
Travel Time (min)	= 3.76	+ 0.00	+ 0.00	= 3.76
Shallow Concentrated Flow				
Flow length (ft)	= 55.00	465.00	0.00	
Watercourse slope (%)	= 36.00	8.00	0.00	
Surface description	= Unpaved	Unpaved	Paved	
Average velocity (ft/s)	=9.68	4.56	0.00	
Travel Time (min)	= 0.09	+ 1.70	+ 0.00	= 1.79
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				5.55 min

Use 6.0 Min

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

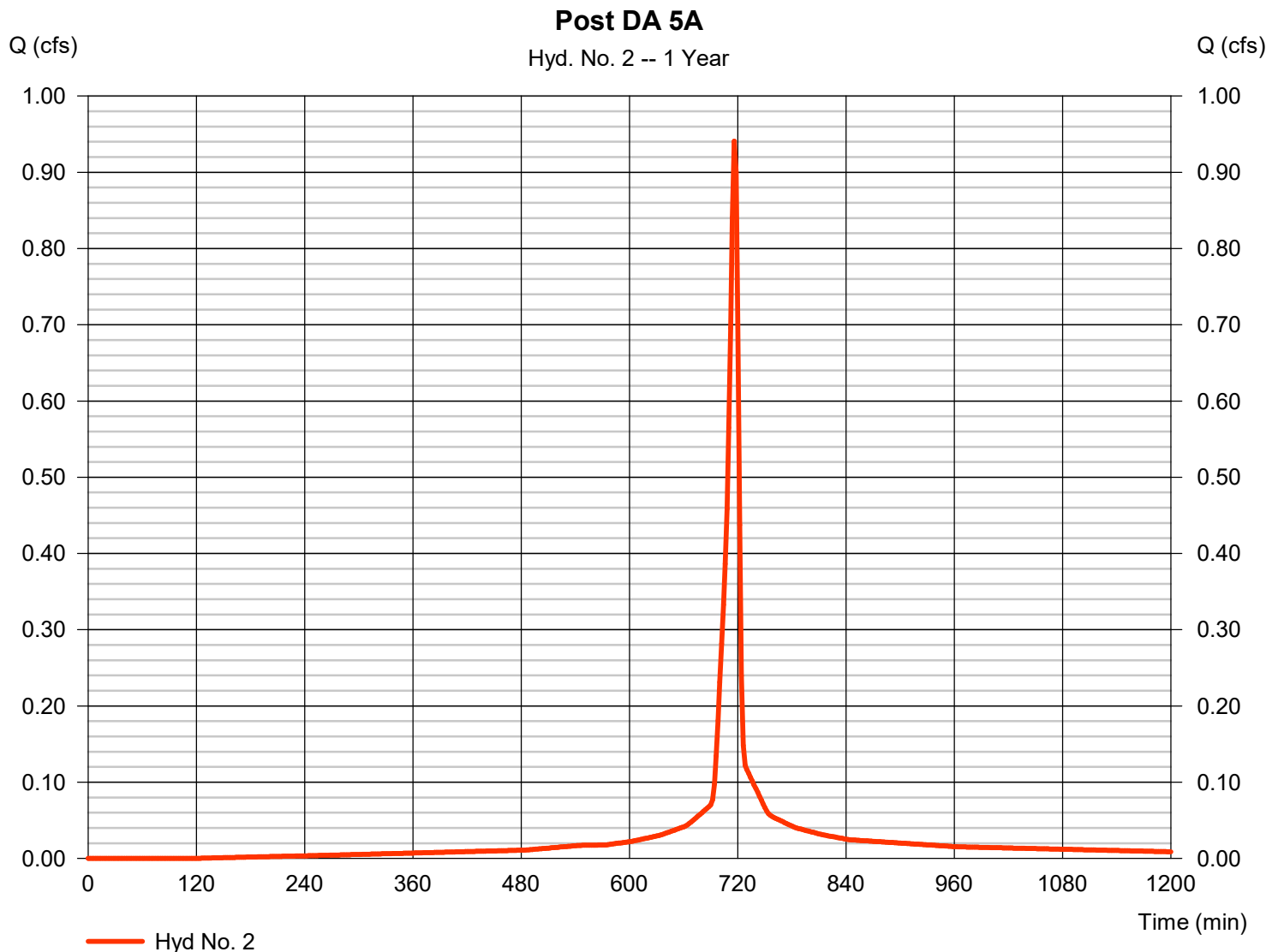
Monday, 02 / 9 / 2026

Hyd. No. 2

Post DA 5A

Hydrograph type	= SCS Runoff	Peak discharge	= 0.941 cfs
Storm frequency	= 1 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 2,137 cuft
Drainage area	= 0.360 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 1.97 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.360 x 98)] / 0.360



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

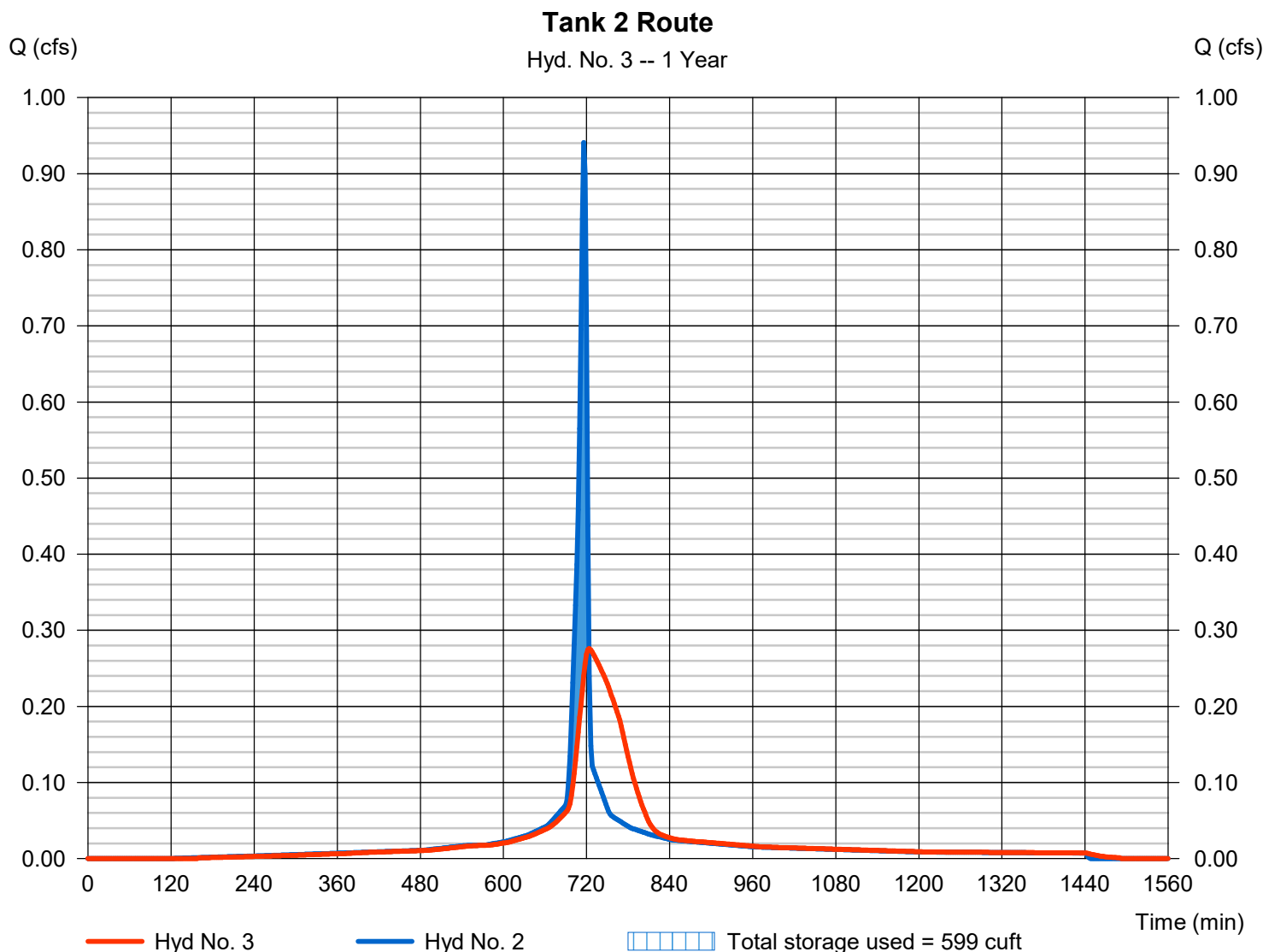
Monday, 02 / 9 / 2026

Hyd. No. 3

Tank 2 Route

Hydrograph type	= Reservoir	Peak discharge	= 0.276 cfs
Storm frequency	= 1 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 2,136 cuft
Inflow hyd. No.	= 2 - Post DA 5A	Max. Elevation	= 856.63 ft
Reservoir name	= SCM 5.1 Det Tank	Max. Storage	= 599 cuft

Storage Indication method used.



Pond Report

Pond No. 3 - SCM 5.1 Det Tank

Pond Data

UG Chambers -Invert elev. = 855.50 ft, Rise x Span = 3.50 x 3.50 ft, Barrel Len = 110.00 ft, No. Barrels = 1, Slope = 0.00%, Headers = No
Encasement -Invert elev. = 854.50 ft, Width = 4.50 ft, Height = 5.00 ft, Voids = 40.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	854.50	n/a	0	0
0.50	855.00	n/a	99	99
1.00	855.50	n/a	99	198
1.50	856.00	n/a	155	353
2.00	856.50	n/a	193	546
2.50	857.00	n/a	209	755
3.00	857.50	n/a	214	969
3.50	858.00	n/a	209	1,179
4.00	858.50	n/a	193	1,372
4.50	859.00	n/a	155	1,526
5.00	859.50	n/a	99	1,625

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	2.00	0.00	0.00
Span (in)	= 15.00	3.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 854.50	854.50	0.00	0.00
Length (ft)	= 69.00	0.00	0.00	0.00
Slope (%)	= 1.45	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)	= 3.93	0.00	0.00	0.00
Crest El. (ft)	= 859.25	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	---	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

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

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	854.50	0.00	0.00	---	---	0.00	---	---	---	---	---	0.000
0.05	10	854.55	0.01 ic	0.01 ic	---	---	0.00	---	---	---	---	---	0.007
0.10	20	854.60	0.02 ic	0.02 ic	---	---	0.00	---	---	---	---	---	0.023
0.15	30	854.65	0.05 ic	0.04 ic	---	---	0.00	---	---	---	---	---	0.043
0.20	40	854.70	0.06 ic	0.06 ic	---	---	0.00	---	---	---	---	---	0.061
0.25	50	854.75	0.08 ic	0.07 ic	---	---	0.00	---	---	---	---	---	0.072
0.30	59	854.80	0.08 ic	0.08 ic	---	---	0.00	---	---	---	---	---	0.083
0.35	69	854.85	0.10 ic	0.09 ic	---	---	0.00	---	---	---	---	---	0.093
0.40	79	854.90	0.11 ic	0.10 ic	---	---	0.00	---	---	---	---	---	0.102
0.45	89	854.95	0.12 ic	0.11 ic	---	---	0.00	---	---	---	---	---	0.110
0.50	99	855.00	0.12 ic	0.12 ic	---	---	0.00	---	---	---	---	---	0.118
0.55	109	855.05	0.13 ic	0.13 ic	---	---	0.00	---	---	---	---	---	0.126
0.60	119	855.10	0.14 ic	0.13 ic	---	---	0.00	---	---	---	---	---	0.133
0.65	129	855.15	0.14 ic	0.14 ic	---	---	0.00	---	---	---	---	---	0.139
0.70	139	855.20	0.15 ic	0.15 ic	---	---	0.00	---	---	---	---	---	0.146
0.75	149	855.25	0.16 ic	0.15 ic	---	---	0.00	---	---	---	---	---	0.152
0.80	158	855.30	0.16 ic	0.16 ic	---	---	0.00	---	---	---	---	---	0.158
0.85	168	855.35	0.17 ic	0.16 ic	---	---	0.00	---	---	---	---	---	0.164
0.90	178	855.40	0.17 ic	0.17 ic	---	---	0.00	---	---	---	---	---	0.170
0.95	188	855.45	0.18 ic	0.17 ic	---	---	0.00	---	---	---	---	---	0.175
1.00	198	855.50	0.18 ic	0.18 ic	---	---	0.00	---	---	---	---	---	0.181
1.05	214	855.55	0.19 ic	0.19 ic	---	---	0.00	---	---	---	---	---	0.186
1.10	229	855.60	0.20 ic	0.19 ic	---	---	0.00	---	---	---	---	---	0.191
1.15	244	855.65	0.20 ic	0.20 ic	---	---	0.00	---	---	---	---	---	0.196
1.20	260	855.70	0.20 ic	0.20 ic	---	---	0.00	---	---	---	---	---	0.200
1.25	275	855.75	0.21 ic	0.21 ic	---	---	0.00	---	---	---	---	---	0.205
1.30	291	855.80	0.21 ic	0.21 ic	---	---	0.00	---	---	---	---	---	0.210
1.35	306	855.85	0.21 ic	0.21 ic	---	---	0.00	---	---	---	---	---	0.214
1.40	322	855.90	0.23 ic	0.22 ic	---	---	0.00	---	---	---	---	---	0.219
1.45	337	855.95	0.23 ic	0.22 ic	---	---	0.00	---	---	---	---	---	0.223
1.50	353	856.00	0.23 ic	0.23 ic	---	---	0.00	---	---	---	---	---	0.228
1.55	372	856.05	0.24 ic	0.23 ic	---	---	0.00	---	---	---	---	---	0.231

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SCM 5.1 Det Tank

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
1.60	391	856.10	0.24 ic	0.24 ic	---	---	0.00	---	---	---	---	---	0.236
1.65	411	856.15	0.24 ic	0.24 ic	---	---	0.00	---	---	---	---	---	0.240
1.70	430	856.20	0.24 ic	0.24 ic	---	---	0.00	---	---	---	---	---	0.244
1.75	449	856.25	0.26 ic	0.25 ic	---	---	0.00	---	---	---	---	---	0.248
1.80	469	856.30	0.26 ic	0.25 ic	---	---	0.00	---	---	---	---	---	0.252
1.85	488	856.35	0.26 ic	0.26 ic	---	---	0.00	---	---	---	---	---	0.256
1.90	507	856.40	0.26 ic	0.26 ic	---	---	0.00	---	---	---	---	---	0.259
1.95	527	856.45	0.27 ic	0.26 ic	---	---	0.00	---	---	---	---	---	0.263
2.00	546	856.50	0.27 ic	0.27 ic	---	---	0.00	---	---	---	---	---	0.267
2.05	567	856.55	0.27 ic	0.27 ic	---	---	0.00	---	---	---	---	---	0.270
2.10	588	856.60	0.27 ic	0.27 ic	---	---	0.00	---	---	---	---	---	0.274
2.15	609	856.65	0.28 ic	0.28 ic	---	---	0.00	---	---	---	---	---	0.277
2.20	630	856.70	0.29 ic	0.28 ic	---	---	0.00	---	---	---	---	---	0.281
2.25	650	856.75	0.29 ic	0.28 ic	---	---	0.00	---	---	---	---	---	0.284
2.30	671	856.80	0.29 ic	0.29 ic	---	---	0.00	---	---	---	---	---	0.288
2.35	692	856.85	0.29 ic	0.29 ic	---	---	0.00	---	---	---	---	---	0.291
2.40	713	856.90	0.29 ic	0.29 ic	---	---	0.00	---	---	---	---	---	0.294
2.45	734	856.95	0.31 ic	0.30 ic	---	---	0.00	---	---	---	---	---	0.298
2.50	755	857.00	0.31 ic	0.30 ic	---	---	0.00	---	---	---	---	---	0.301
2.55	777	857.05	0.31 ic	0.30 ic	---	---	0.00	---	---	---	---	---	0.304
2.60	798	857.10	0.31 ic	0.31 ic	---	---	0.00	---	---	---	---	---	0.308
2.65	819	857.15	0.31 ic	0.31 ic	---	---	0.00	---	---	---	---	---	0.311
2.70	841	857.20	0.31 ic	0.31 ic	---	---	0.00	---	---	---	---	---	0.314
2.75	862	857.25	0.33 ic	0.32 ic	---	---	0.00	---	---	---	---	---	0.317
2.80	884	857.30	0.33 ic	0.32 ic	---	---	0.00	---	---	---	---	---	0.320
2.85	905	857.35	0.33 ic	0.32 ic	---	---	0.00	---	---	---	---	---	0.323
2.90	927	857.40	0.33 ic	0.33 ic	---	---	0.00	---	---	---	---	---	0.326
2.95	948	857.45	0.33 ic	0.33 ic	---	---	0.00	---	---	---	---	---	0.329
3.00	969	857.50	0.33 ic	0.33 ic	---	---	0.00	---	---	---	---	---	0.332
3.05	990	857.55	0.35 ic	0.33 ic	---	---	0.00	---	---	---	---	---	0.335
3.10	1,011	857.60	0.35 ic	0.34 ic	---	---	0.00	---	---	---	---	---	0.338
3.15	1,032	857.65	0.35 ic	0.34 ic	---	---	0.00	---	---	---	---	---	0.341
3.20	1,053	857.70	0.35 ic	0.34 ic	---	---	0.00	---	---	---	---	---	0.344
3.25	1,074	857.75	0.35 ic	0.35 ic	---	---	0.00	---	---	---	---	---	0.347
3.30	1,095	857.80	0.35 ic	0.35 ic	---	---	0.00	---	---	---	---	---	0.349
3.35	1,116	857.85	0.35 ic	0.35 ic	---	---	0.00	---	---	---	---	---	0.352
3.40	1,137	857.90	0.37 ic	0.35 ic	---	---	0.00	---	---	---	---	---	0.355
3.45	1,158	857.95	0.37 ic	0.36 ic	---	---	0.00	---	---	---	---	---	0.358
3.50	1,179	858.00	0.37 ic	0.36 ic	---	---	0.00	---	---	---	---	---	0.360
3.55	1,198	858.05	0.37 ic	0.36 ic	---	---	0.00	---	---	---	---	---	0.363
3.60	1,217	858.10	0.37 ic	0.37 ic	---	---	0.00	---	---	---	---	---	0.366
3.65	1,237	858.15	0.37 ic	0.37 ic	---	---	0.00	---	---	---	---	---	0.369
3.70	1,256	858.20	0.37 ic	0.37 ic	---	---	0.00	---	---	---	---	---	0.371
3.75	1,275	858.25	0.37 ic	0.37 ic	---	---	0.00	---	---	---	---	---	0.374
3.80	1,294	858.30	0.39 ic	0.38 ic	---	---	0.00	---	---	---	---	---	0.376
3.85	1,314	858.35	0.39 ic	0.38 ic	---	---	0.00	---	---	---	---	---	0.379
3.90	1,333	858.40	0.39 ic	0.38 ic	---	---	0.00	---	---	---	---	---	0.382
3.95	1,352	858.45	0.39 ic	0.38 ic	---	---	0.00	---	---	---	---	---	0.384
4.00	1,372	858.50	0.39 ic	0.39 ic	---	---	0.00	---	---	---	---	---	0.387
4.05	1,387	858.55	0.39 ic	0.39 ic	---	---	0.00	---	---	---	---	---	0.389
4.10	1,403	858.60	0.39 ic	0.39 ic	---	---	0.00	---	---	---	---	---	0.392
4.15	1,418	858.65	0.39 ic	0.39 ic	---	---	0.00	---	---	---	---	---	0.394
4.20	1,433	858.70	0.41 ic	0.40 ic	---	---	0.00	---	---	---	---	---	0.397
4.25	1,449	858.75	0.41 ic	0.40 ic	---	---	0.00	---	---	---	---	---	0.399
4.30	1,464	858.80	0.41 ic	0.40 ic	---	---	0.00	---	---	---	---	---	0.402
4.35	1,480	858.85	0.41 ic	0.40 ic	---	---	0.00	---	---	---	---	---	0.404
4.40	1,495	858.90	0.41 ic	0.41 ic	---	---	0.00	---	---	---	---	---	0.407
4.45	1,511	858.95	0.41 ic	0.41 ic	---	---	0.00	---	---	---	---	---	0.409
4.50	1,526	859.00	0.41 ic	0.41 ic	---	---	0.00	---	---	---	---	---	0.412
4.55	1,536	859.05	0.41 ic	0.41 ic	---	---	0.00	---	---	---	---	---	0.414
4.60	1,546	859.10	0.42 ic	0.42 ic	---	---	0.00	---	---	---	---	---	0.416
4.65	1,556	859.15	0.43 ic	0.42 ic	---	---	0.00	---	---	---	---	---	0.419
4.70	1,566	859.20	0.43 ic	0.42 ic	---	---	0.00	---	---	---	---	---	0.421
4.75	1,576	859.25	0.43 ic	0.42 ic	---	---	0.00	---	---	---	---	---	0.423
4.80	1,586	859.30	0.59 ic	0.42 ic	---	---	0.15	---	---	---	---	---	0.569
4.85	1,596	859.35	0.84 ic	0.42 ic	---	---	0.41	---	---	---	---	---	0.835
4.90	1,606	859.40	1.20 ic	0.42 ic	---	---	0.76	---	---	---	---	---	1.180
4.95	1,615	859.45	1.59 ic	0.42 ic	---	---	1.17	---	---	---	---	---	1.588
5.00	1,625	859.50	2.07 ic	0.42 ic	---	---	1.64	---	---	---	---	---	2.052

...End

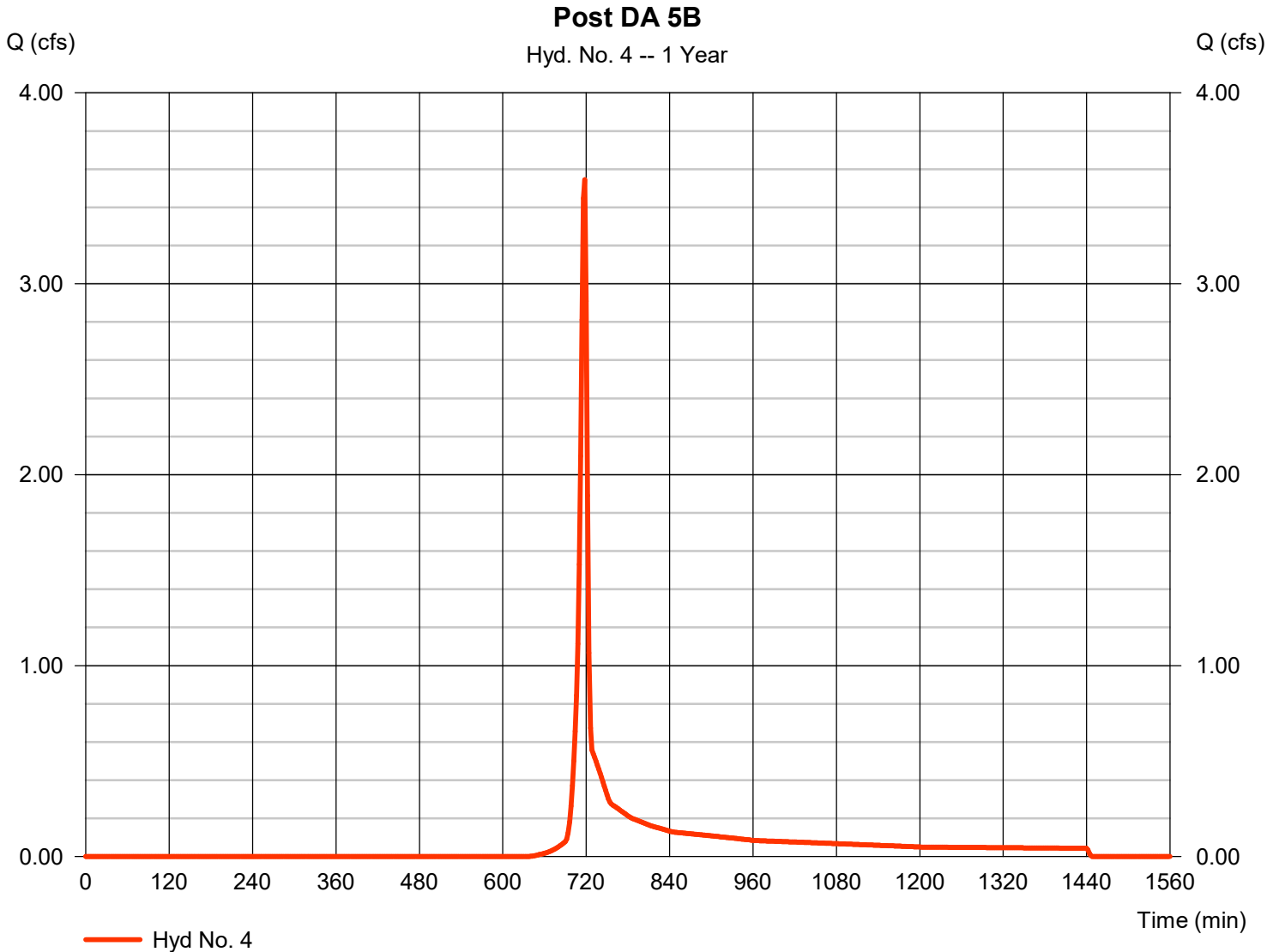
Hydrograph Report

Hyd. No. 4

Post DA 5B

Hydrograph type	= SCS Runoff	Peak discharge	= 3.545 cfs
Storm frequency	= 1 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 7,095 cuft
Drainage area	= 3.090 ac	Curve number	= 83*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 1.97 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.210 x 98) + (1.880 x 74)] / 3.090



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

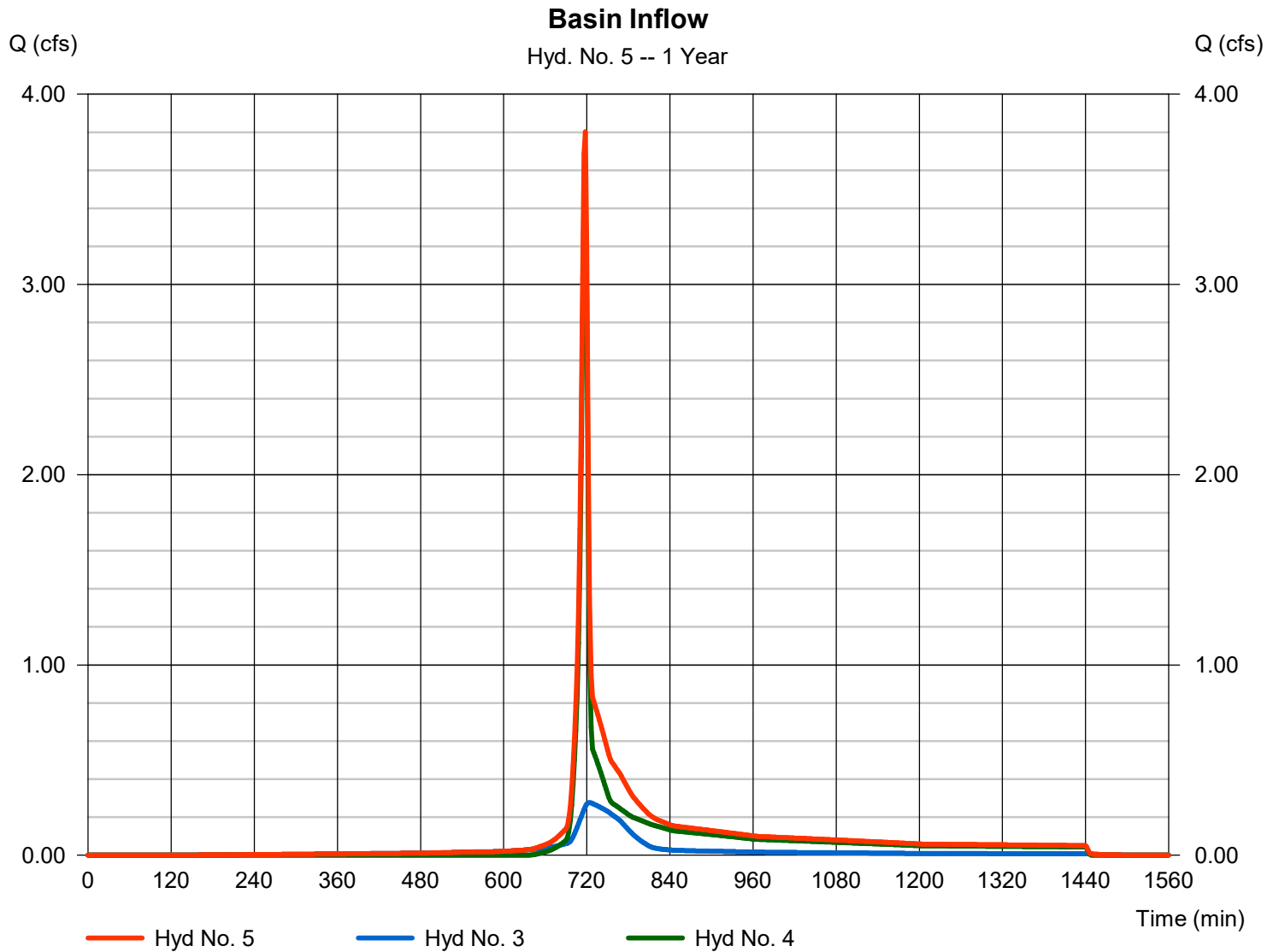
Monday, 02 / 9 / 2026

Hyd. No. 5

Basin Inflow

Hydrograph type = Combine
Storm frequency = 1 yrs
Time interval = 2 min
Inflow hyds. = 3, 4

Peak discharge = 3.802 cfs
Time to peak = 718 min
Hyd. volume = 9,231 cuft
Contrib. drain. area = 3.090 ac



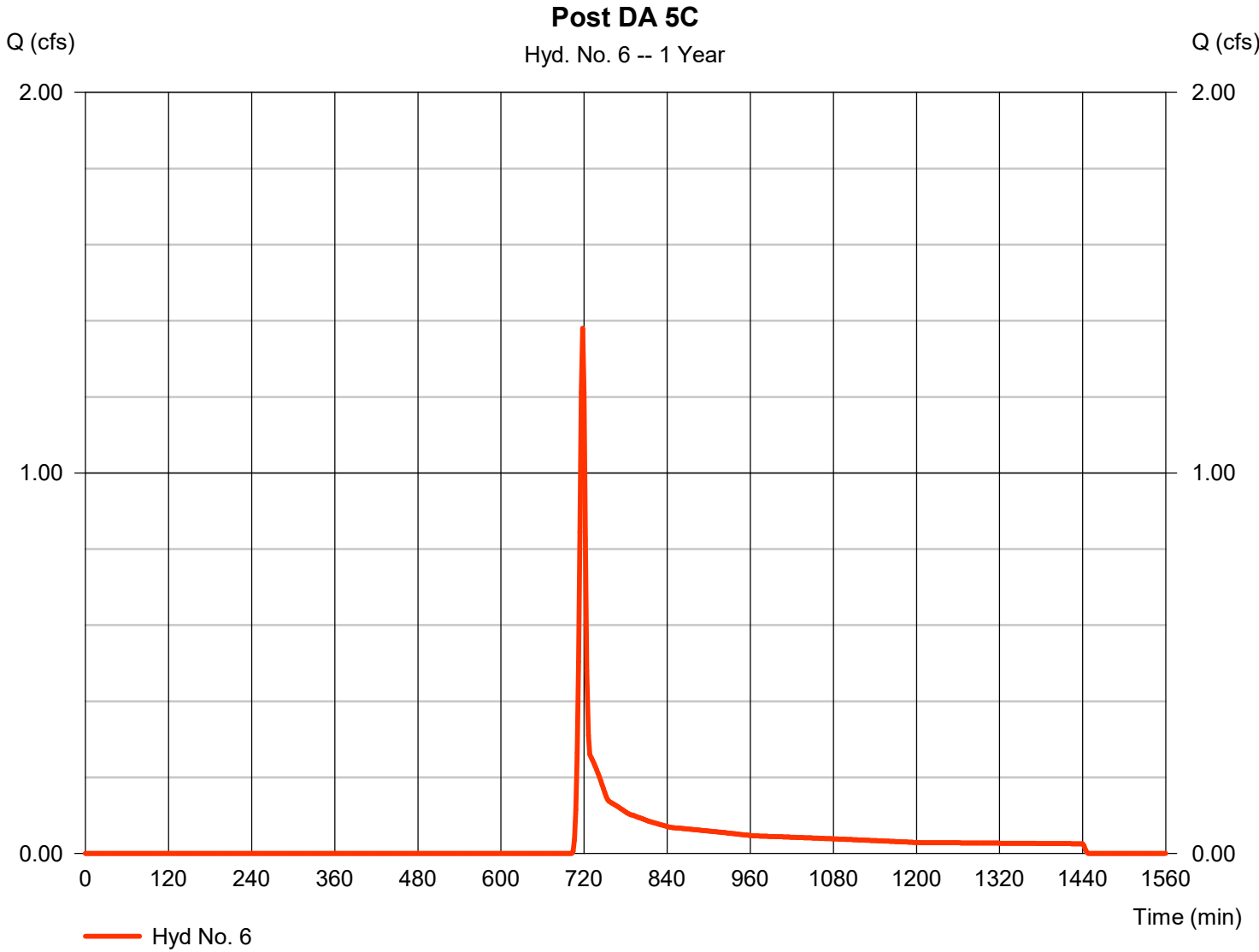
Hydrograph Report

Hyd. No. 6

Post DA 5C

Hydrograph type	= SCS Runoff	Peak discharge	= 1.380 cfs
Storm frequency	= 1 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 3,075 cuft
Drainage area	= 2.690 ac	Curve number	= 74*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 1.97 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.130 x 98) + (2.040 x 74) + (0.520 x 70)] / 2.690



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

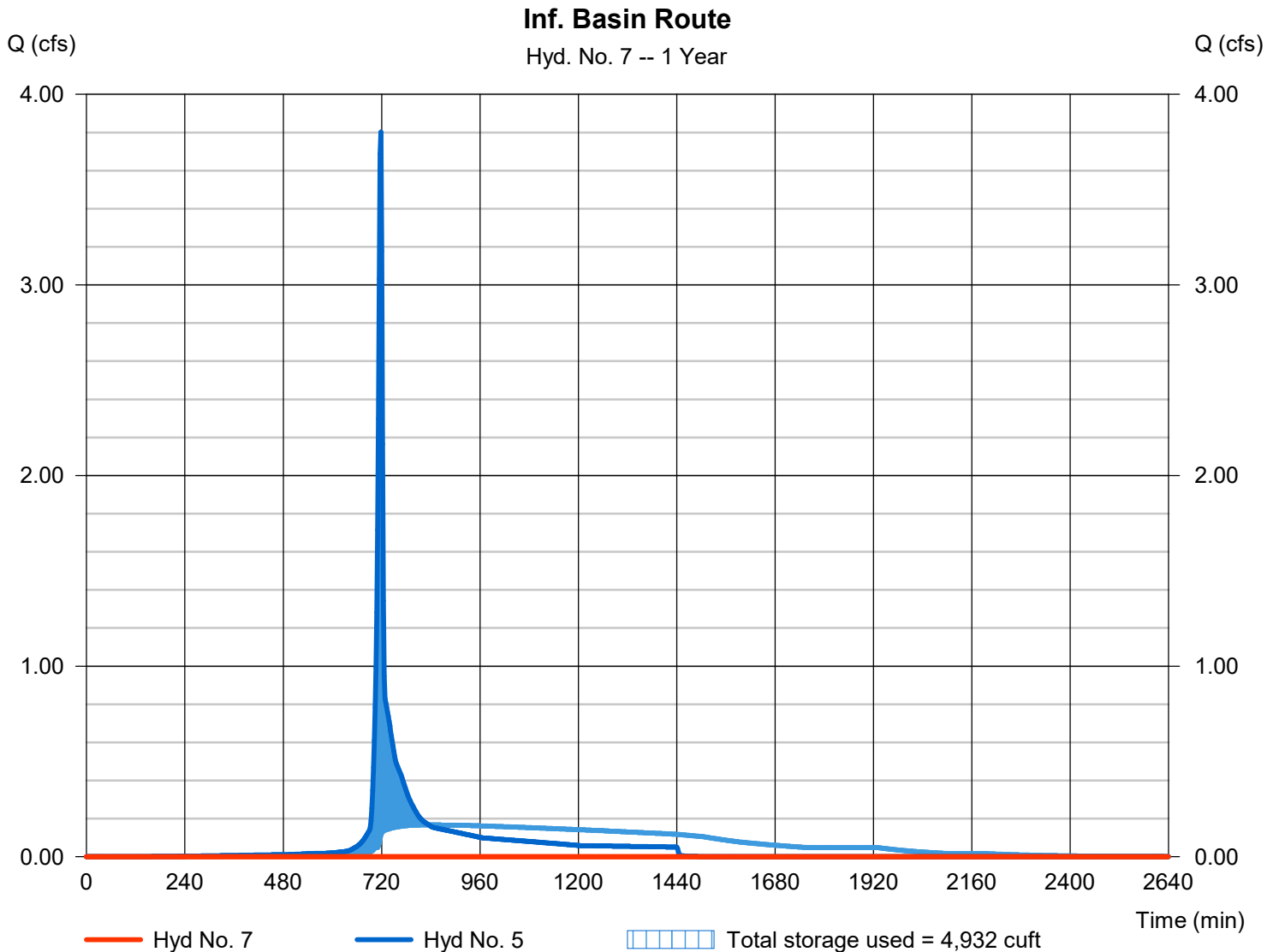
Monday, 02 / 9 / 2026

Hyd. No. 7

Inf. Basin Route

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 1 yrs	Time to peak	= 1472 min
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 5 - Basin Inflow	Max. Elevation	= 851.27 ft
Reservoir name	= SCM 5.2 Inf Basin	Max. Storage	= 4,932 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond No. 2 - SCM 5.2 Inf Basin

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 848.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	848.00	941	0	0
0.25	848.25	329	152	152
0.50	848.50	329	82	234
1.00	849.00	963	309	544
1.50	849.50	963	481	1,025
2.00	850.00	1,575	628	1,653
2.25	850.25	2,123	461	2,114
2.50	850.50	2,466	573	2,687
2.75	850.75	2,768	654	3,341
3.00	851.00	3,046	726	4,067
3.25	851.25	3,359	800	4,867
3.50	851.50	3,655	876	5,744
3.75	851.75	3,935	948	6,692
4.00	852.00	4,200	1,017	7,709
4.25	852.25	4,459	1,082	8,791
4.50	852.50	4,693	1,144	9,934
4.75	852.75	4,886	1,197	11,132
5.00	853.00	4,875	1,220	12,352
5.50	853.50	5,564	2,608	14,959
6.00	854.00	5,620	2,796	17,755

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	3.00	0.00	0.00
Span (in)	= 18.00	38.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 846.00	852.00	0.00	0.00
Length (ft)	= 39.00	0.00	0.00	0.00
Slope (%)	= 5.10	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)	= 12.00	40.00	0.00	0.00
Crest El. (ft)	= 852.25	852.70	0.00	0.00
Weir Coeff.	= 3.33	2.60	3.33	3.33
Weir Type	= 1	Broad	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 2.130 (by Contour)			
TW Elev. (ft)	= 0.00			

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

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	848.00	0.00	0.00	---	---	0.00	0.00	---	---	0.000	---	0.000
0.03	15	848.03	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.002	---	0.002
0.05	30	848.05	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.003	---	0.003
0.08	46	848.08	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.005	---	0.005
0.10	61	848.10	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.006	---	0.006
0.13	76	848.13	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.008	---	0.008
0.15	91	848.15	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.010	---	0.010
0.17	107	848.18	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.011	---	0.011
0.20	122	848.20	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.013	---	0.013
0.22	137	848.23	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.015	---	0.015
0.25	152	848.25	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.016	---	0.016
0.28	160	848.28	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.016	---	0.016
0.30	169	848.30	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.016	---	0.016
0.32	177	848.33	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.016	---	0.016
0.35	185	848.35	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.016	---	0.016
0.38	193	848.38	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.016	---	0.016
0.40	202	848.40	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.016	---	0.016
0.43	210	848.43	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.016	---	0.016
0.45	218	848.45	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.016	---	0.016
0.48	226	848.48	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.016	---	0.016
0.50	234	848.50	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.016	---	0.016
0.55	265	848.55	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.019	---	0.019
0.60	296	848.60	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.022	---	0.022

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SCM 5.2 Inf Basin

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.65	327	848.65	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.026	---	0.026
0.70	358	848.70	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.029	---	0.029
0.75	389	848.75	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.032	---	0.032
0.80	420	848.80	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.035	---	0.035
0.85	451	848.85	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.038	---	0.038
0.90	482	848.90	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.041	---	0.041
0.95	513	848.95	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.044	---	0.044
1.00	544	849.00	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.047	---	0.047
1.05	592	849.05	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.047	---	0.047
1.10	640	849.10	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.047	---	0.047
1.15	688	849.15	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.047	---	0.047
1.20	736	849.20	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.047	---	0.047
1.25	784	849.25	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.047	---	0.047
1.30	832	849.30	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.047	---	0.047
1.35	881	849.35	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.047	---	0.047
1.40	929	849.40	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.047	---	0.047
1.45	977	849.45	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.047	---	0.047
1.50	1,025	849.50	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.047	---	0.047
1.55	1,088	849.55	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.050	---	0.050
1.60	1,151	849.60	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.054	---	0.054
1.65	1,213	849.65	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.057	---	0.057
1.70	1,276	849.70	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.060	---	0.060
1.75	1,339	849.75	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.063	---	0.063
1.80	1,402	849.80	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.066	---	0.066
1.85	1,465	849.85	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.069	---	0.069
1.90	1,528	849.90	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.072	---	0.072
1.95	1,590	849.95	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.075	---	0.075
2.00	1,653	850.00	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.078	---	0.078
2.03	1,699	850.03	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.080	---	0.080
2.05	1,745	850.05	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.083	---	0.083
2.08	1,791	850.08	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.086	---	0.086
2.10	1,837	850.10	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.088	---	0.088
2.13	1,883	850.13	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.091	---	0.091
2.15	1,929	850.15	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.094	---	0.094
2.18	1,976	850.18	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.097	---	0.097
2.20	2,022	850.20	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.099	---	0.099
2.23	2,068	850.23	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.102	---	0.102
2.25	2,114	850.25	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.105	---	0.105
2.28	2,171	850.28	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.106	---	0.106
2.30	2,228	850.30	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.108	---	0.108
2.33	2,286	850.33	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.110	---	0.110
2.35	2,343	850.35	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.111	---	0.111
2.38	2,400	850.38	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.113	---	0.113
2.40	2,458	850.40	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.115	---	0.115
2.43	2,515	850.43	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.117	---	0.117
2.45	2,572	850.45	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.118	---	0.118
2.48	2,629	850.48	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.120	---	0.120
2.50	2,687	850.50	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.122	---	0.122
2.53	2,752	850.53	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.123	---	0.123
2.55	2,817	850.55	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.125	---	0.125
2.58	2,883	850.58	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.126	---	0.126
2.60	2,948	850.60	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.128	---	0.128
2.63	3,014	850.63	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.129	---	0.129
2.65	3,079	850.65	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.131	---	0.131
2.68	3,144	850.68	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.132	---	0.132
2.70	3,210	850.70	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.133	---	0.133
2.73	3,275	850.73	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.135	---	0.135
2.75	3,341	850.75	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.136	---	0.136
2.78	3,413	850.78	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.138	---	0.138
2.80	3,486	850.80	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.139	---	0.139
2.83	3,558	850.83	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.141	---	0.141
2.85	3,631	850.85	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.142	---	0.142
2.88	3,704	850.88	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.143	---	0.143
2.90	3,776	850.90	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.145	---	0.145
2.93	3,849	850.93	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.146	---	0.146
2.95	3,922	850.95	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.147	---	0.147
2.98	3,994	850.98	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.149	---	0.149
3.00	4,067	851.00	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.150	---	0.150
3.03	4,147	851.03	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.152	---	0.152
3.05	4,227	851.05	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.153	---	0.153
3.08	4,307	851.08	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.155	---	0.155
3.10	4,387	851.10	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.156	---	0.156

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SCM 5.2 Inf Basin

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.13	4,467	851.13	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.158	---	0.158
3.15	4,547	851.15	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.159	---	0.159
3.18	4,627	851.18	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.161	---	0.161
3.20	4,707	851.20	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.163	---	0.163
3.23	4,787	851.23	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.164	---	0.164
3.25	4,867	851.25	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.166	---	0.166
3.28	4,955	851.28	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.167	---	0.167
3.30	5,042	851.30	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.169	---	0.169
3.33	5,130	851.33	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.170	---	0.170
3.35	5,218	851.35	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.171	---	0.171
3.38	5,305	851.38	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.173	---	0.173
3.40	5,393	851.40	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.174	---	0.174
3.43	5,481	851.43	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.176	---	0.176
3.45	5,568	851.45	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.177	---	0.177
3.48	5,656	851.48	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.179	---	0.179
3.50	5,744	851.50	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.180	---	0.180
3.53	5,838	851.53	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.182	---	0.182
3.55	5,933	851.55	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.183	---	0.183
3.58	6,028	851.58	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.184	---	0.184
3.60	6,123	851.60	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.186	---	0.186
3.63	6,218	851.63	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.187	---	0.187
3.65	6,313	851.65	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.188	---	0.188
3.68	6,407	851.68	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.190	---	0.190
3.70	6,502	851.70	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.191	---	0.191
3.73	6,597	851.73	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.193	---	0.193
3.75	6,692	851.75	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.194	---	0.194
3.78	6,794	851.78	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.195	---	0.195
3.80	6,895	851.80	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.197	---	0.197
3.83	6,997	851.83	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.198	---	0.198
3.85	7,099	851.85	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.199	---	0.199
3.88	7,200	851.88	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.201	---	0.201
3.90	7,302	851.90	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.202	---	0.202
3.93	7,404	851.93	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.203	---	0.203
3.95	7,505	851.95	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.204	---	0.204
3.98	7,607	851.98	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.206	---	0.206
4.00	7,709	852.00	9.51 ic	0.00	---	---	0.00	0.00	---	---	0.207	---	0.207
4.03	7,817	852.03	9.51 ic	0.04 ic	---	---	0.00	0.00	---	---	0.208	---	0.251
4.05	7,925	852.05	9.51 ic	0.12 ic	---	---	0.00	0.00	---	---	0.210	---	0.330
4.07	8,033	852.08	9.51 ic	0.22 ic	---	---	0.00	0.00	---	---	0.211	---	0.433
4.10	8,141	852.10	9.51 ic	0.34 ic	---	---	0.00	0.00	---	---	0.212	---	0.554
4.13	8,250	852.13	9.51 ic	0.48 ic	---	---	0.00	0.00	---	---	0.213	---	0.691
4.15	8,358	852.15	9.51 ic	0.63 ic	---	---	0.00	0.00	---	---	0.215	---	0.842
4.18	8,466	852.18	9.51 ic	0.79 ic	---	---	0.00	0.00	---	---	0.216	---	1.006
4.20	8,574	852.20	9.51 ic	0.97 ic	---	---	0.00	0.00	---	---	0.217	---	1.183
4.23	8,683	852.23	9.51 ic	1.15 ic	---	---	0.00	0.00	---	---	0.219	---	1.371
4.25	8,791	852.25	9.51 ic	1.35 ic	---	---	0.00	0.00	---	---	0.220	---	1.568
4.28	8,905	852.28	9.51 ic	1.48 ic	---	---	0.16	0.00	---	---	0.221	---	1.856
4.30	9,019	852.30	9.51 ic	1.59 ic	---	---	0.45	0.00	---	---	0.222	---	2.264
4.32	9,134	852.33	9.51 ic	1.71 ic	---	---	0.82	0.00	---	---	0.223	---	2.750
4.35	9,248	852.35	9.51 ic	1.81 ic	---	---	1.27	0.00	---	---	0.224	---	3.298
4.38	9,363	852.38	9.51 ic	1.91 ic	---	---	1.77	0.00	---	---	0.226	---	3.901
4.40	9,477	852.40	9.51 ic	2.00 ic	---	---	2.32	0.00	---	---	0.227	---	4.551
4.43	9,591	852.43	9.51 ic	2.09 ic	---	---	2.93	0.00	---	---	0.228	---	5.246
4.45	9,706	852.45	9.51 ic	2.17 ic	---	---	3.58	0.00	---	---	0.229	---	5.982
4.48	9,820	852.48	9.51 ic	2.26 ic	---	---	4.27	0.00	---	---	0.230	---	6.757
4.50	9,934	852.50	9.51 ic	2.33 ic	---	---	4.99	0.00	---	---	0.231	---	7.561
4.53	10,054	852.53	9.51 ic	2.41 ic	---	---	5.76	0.00	---	---	0.232	---	8.407
4.55	10,174	852.55	9.51 ic	2.49 ic	---	---	6.57	0.00	---	---	0.233	---	9.286
4.57	10,294	852.58	9.96 ic	2.56 ic	---	---	7.41	0.00	---	---	0.234	---	10.20
4.60	10,413	852.60	10.91 ic	2.63 ic	---	---	8.28	0.00	---	---	0.235	---	11.14
4.63	10,533	852.63	11.88 ic	2.70 ic	---	---	9.18	0.00	---	---	0.236	---	12.11
4.65	10,653	852.65	12.88 ic	2.76 ic	---	---	10.11	0.00	---	---	0.237	---	13.11
4.68	10,773	852.68	13.91 ic	2.83 ic	---	---	11.08	0.00	---	---	0.238	---	14.14
4.70	10,892	852.70	14.96 ic	2.89 ic	---	---	12.07	0.00	---	---	0.239	---	15.20
4.73	11,012	852.73	16.04 ic	2.95 ic	---	---	13.09	0.42	---	---	0.240	---	16.70
4.75	11,132	852.75	17.14 ic	3.01 ic	---	---	14.13	1.16	---	---	0.241	---	18.54
4.78	11,254	852.78	18.28 ic	3.07 ic	---	---	15.20	2.14	---	---	0.241	---	20.65
4.80	11,376	852.80	19.43 ic	3.13 ic	---	---	16.30	3.29	---	---	0.241	---	22.96
4.82	11,498	852.83	20.04 ic	2.77 ic	---	---	17.27 s	4.60	---	---	0.241	---	24.88
4.85	11,620	852.85	20.22 ic	2.56 ic	---	---	17.66 s	6.05	---	---	0.241	---	26.51
4.88	11,742	852.88	20.36 ic	2.40 ic	---	---	17.96 s	7.62	---	---	0.241	---	28.22
4.90	11,864	852.90	20.48 ic	2.27 ic	---	---	18.21 s	9.31	---	---	0.241	---	30.03

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SCM 5.2 Inf Basin

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
4.93	11,986	852.93	20.59 ic	2.16 ic	---	---	18.43 s	11.11	---	---	0.241	---	31.94
4.95	12,108	852.95	20.68 ic	2.05 ic	---	---	18.63 s	13.01	---	---	0.240	---	33.94
4.98	12,230	852.98	20.77 ic	1.96 ic	---	---	18.81 s	15.01	---	---	0.240	---	36.02
5.00	12,352	853.00	20.85 ic	1.88 ic	---	---	18.97 s	17.09	---	---	0.240	---	38.18
5.05	12,612	853.05	21.00 ic	1.73 ic	---	---	19.28 s	21.53	---	---	0.244	---	42.78
5.10	12,873	853.10	21.14 ic	1.60 ic	---	---	19.54 s	26.31	---	---	0.247	---	47.69
5.15	13,134	853.15	21.27 ic	1.49 ic	---	---	19.78 s	31.39	---	---	0.251	---	52.90
5.20	13,395	853.20	21.38 ic	1.39 ic	---	---	19.99 s	36.76	---	---	0.254	---	58.40
5.25	13,655	853.25	21.49 ic	1.30 ic	---	---	20.19 s	42.41	---	---	0.257	---	64.16
5.30	13,916	853.30	21.60 ic	1.22 ic	---	---	20.37 s	48.32	---	---	0.261	---	70.18
5.35	14,177	853.35	21.70 ic	1.16 ic	---	---	20.55 s	54.49	---	---	0.264	---	76.45
5.40	14,438	853.40	21.80 ic	1.09 ic	---	---	20.71 s	60.89	---	---	0.268	---	82.96
5.45	14,698	853.45	21.90 ic	1.04 ic	---	---	20.86 s	67.53	---	---	0.271	---	89.70
5.50	14,959	853.50	21.99 ic	0.98 ic	---	---	21.00 s	74.41	---	---	0.274	---	96.67
5.55	15,239	853.55	22.09 ic	0.94 ic	---	---	21.15 s	81.50	---	---	0.275	---	103.86
5.60	15,518	853.60	22.18 ic	0.89 ic	---	---	21.27 s	88.79	---	---	0.275	---	111.23
5.65	15,798	853.65	22.27 ic	0.85 ic	---	---	21.40 s	96.29	---	---	0.275	---	118.82
5.70	16,078	853.70	22.35 ic	0.82 ic	---	---	21.54 s	103.99	---	---	0.275	---	126.62
5.75	16,357	853.75	22.44 ic	0.78 ic	---	---	21.64 s	111.89	---	---	0.276	---	134.59
5.80	16,637	853.80	22.53 ic	0.75 ic	---	---	21.76 s	119.97	---	---	0.276	---	142.76
5.85	16,916	853.85	22.61 ic	0.72 ic	---	---	21.89 s	128.24	---	---	0.276	---	151.13
5.90	17,196	853.90	22.70 ic	0.70 ic	---	---	21.98 s	136.69	---	---	0.277	---	159.65
5.95	17,475	853.95	22.78 ic	0.67 ic	---	---	22.09 s	145.32	---	---	0.277	---	168.36
6.00	17,755	854.00	22.86 ic	0.65 ic	---	---	22.21 s	154.15	---	---	0.277	---	177.28

...End

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

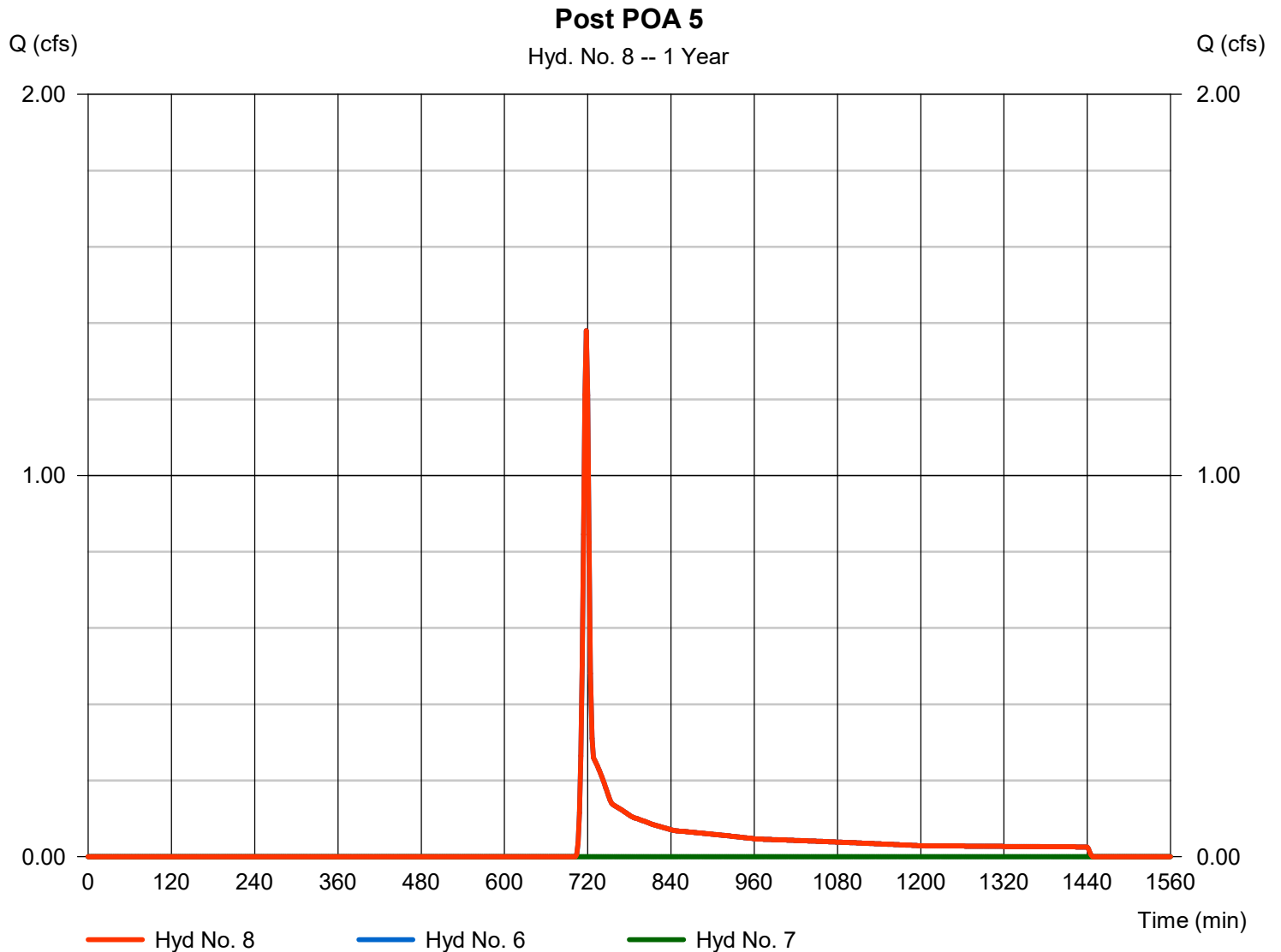
Monday, 02 / 9 / 2026

Hyd. No. 8

Post POA 5

Hydrograph type = Combine
Storm frequency = 1 yrs
Time interval = 2 min
Inflow hyds. = 6, 7

Peak discharge = 1.380 cfs
Time to peak = 718 min
Hyd. volume = 3,075 cuft
Contrib. drain. area = 2.690 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

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	5.495	2	718	11,601	-----	-----	-----	Pre-Development DA 5	
2	SCS Runoff	1.131	2	716	2,599	-----	-----	-----	Post DA 5A	
3	Reservoir	0.301	2	724	2,598	2	857.00	755	Tank 2 Route	
4	SCS Runoff	4.958	2	718	9,926	-----	-----	-----	Post DA 5B	
5	Combine	5.237	2	718	12,524	3, 4	-----	-----	Basin Inflow	
6	SCS Runoff	2.313	2	718	4,813	-----	-----	-----	Post DA 5C	
7	Reservoir	0.000	2	1578	0	5	851.84	7,058	Inf. Basin Route	
8	Combine	2.313	2	718	4,813	6, 7	-----	-----	Post POA 5	
9	Reservoir	5.063	2	718	12,404	5	852.83	11,537	Spillway Route	
Ph 5 Hydrographs.gpw					Return Period: 2 Year			Monday, 02 / 9 / 2026		

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

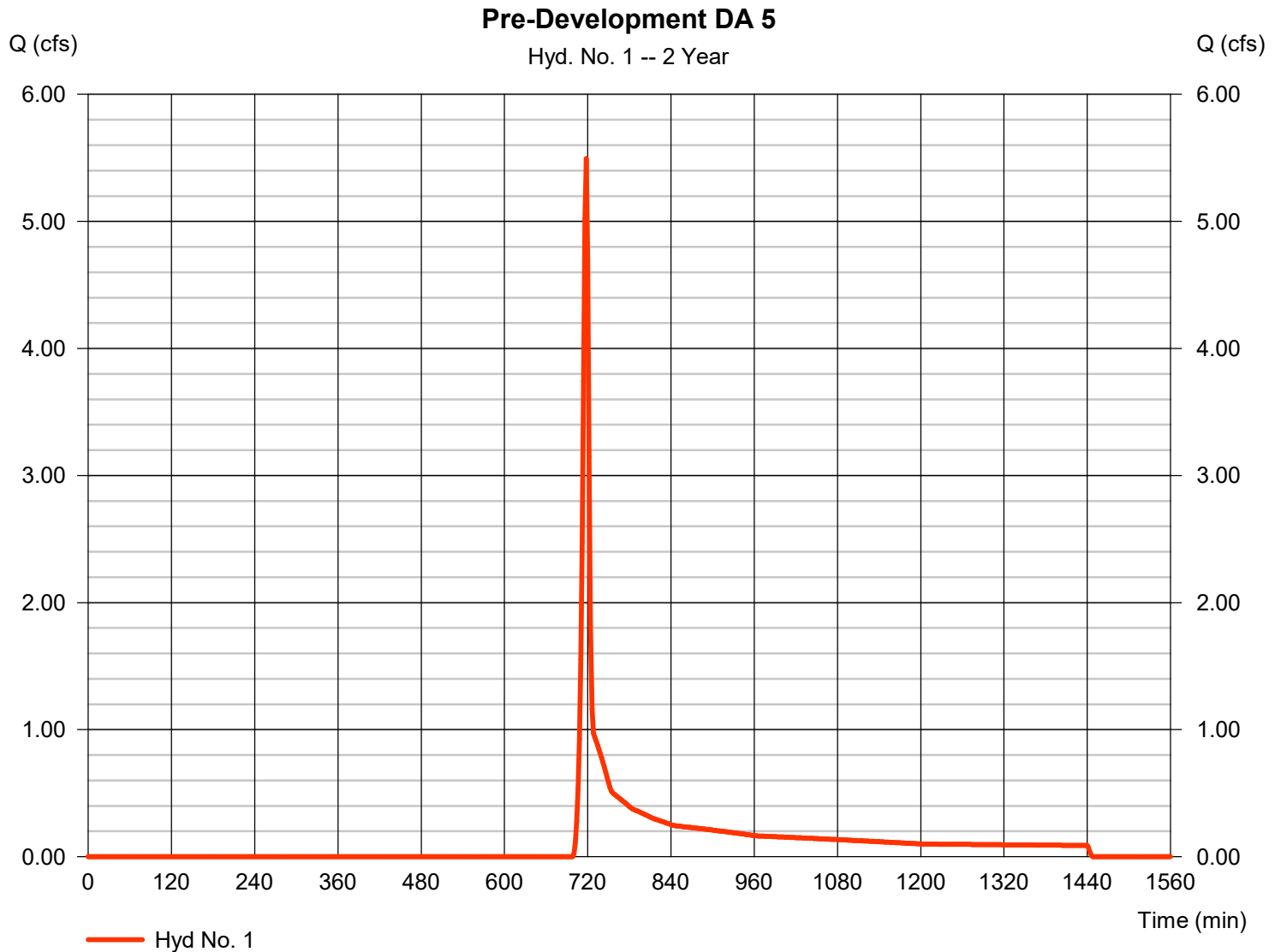
Monday, 02 / 9 / 2026

Hyd. No. 1

Pre-Development DA 5

Hydrograph type	= SCS Runoff	Peak discharge	= 5.495 cfs
Storm frequency	= 2 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 11,601 cuft
Drainage area	= 6.980 ac	Curve number	= 73*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 2.35 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.270 x 98) + (0.070 x 71) + (5.290 x 71) + (0.700 x 70) + (0.650 x 87)] / 6.980



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

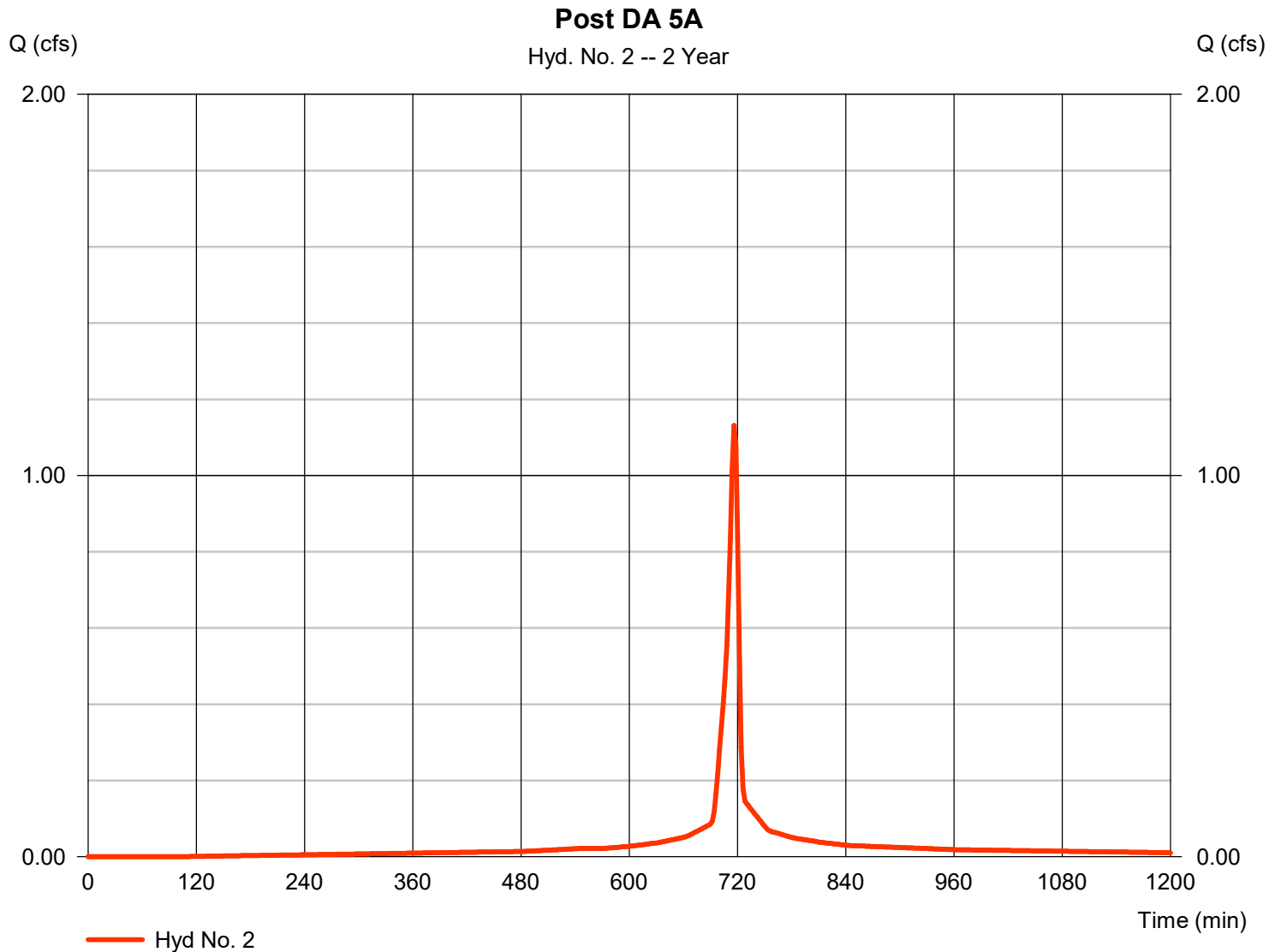
Monday, 02 / 9 / 2026

Hyd. No. 2

Post DA 5A

Hydrograph type	= SCS Runoff	Peak discharge	= 1.131 cfs
Storm frequency	= 2 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 2,599 cuft
Drainage area	= 0.360 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 2.35 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = $[(0.360 \times 98)] / 0.360$



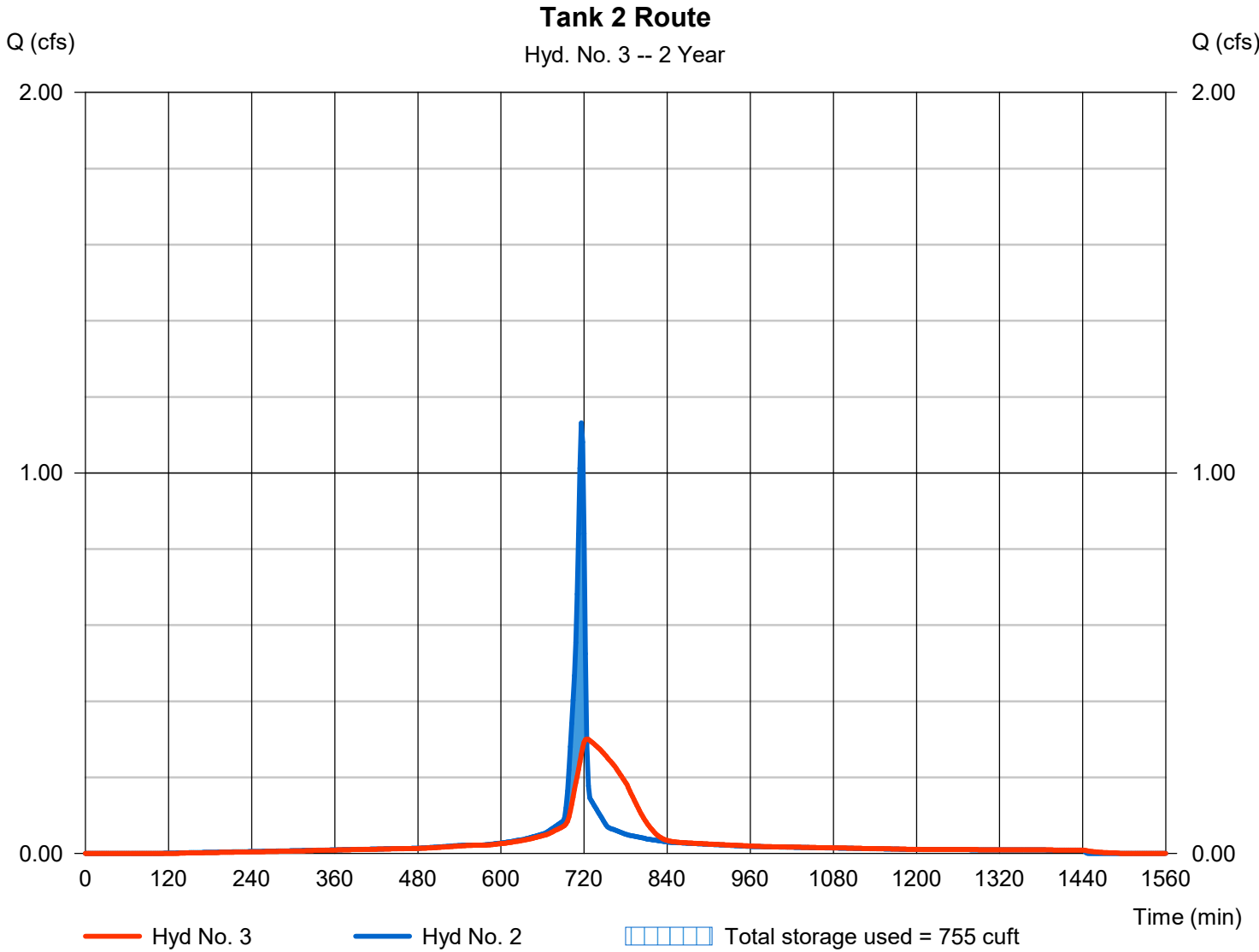
Hydrograph Report

Hyd. No. 3

Tank 2 Route

Hydrograph type	= Reservoir	Peak discharge	= 0.301 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 2,598 cuft
Inflow hyd. No.	= 2 - Post DA 5A	Max. Elevation	= 857.00 ft
Reservoir name	= SCM 5.1 Det Tank	Max. Storage	= 755 cuft

Storage Indication method used.



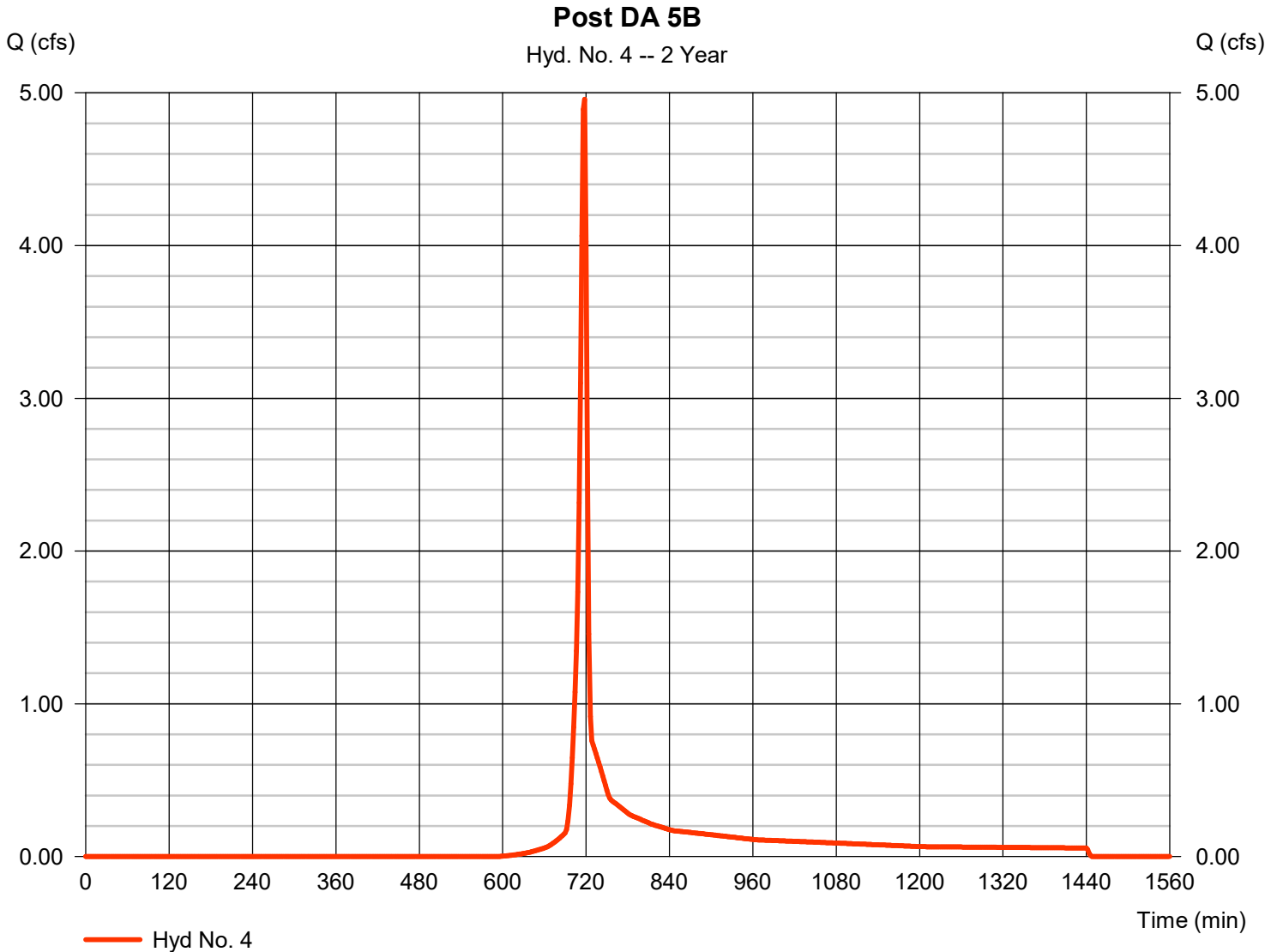
Hydrograph Report

Hyd. No. 4

Post DA 5B

Hydrograph type	= SCS Runoff	Peak discharge	= 4.958 cfs
Storm frequency	= 2 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 9,926 cuft
Drainage area	= 3.090 ac	Curve number	= 83*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 2.35 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.210 x 98) + (1.880 x 74)] / 3.090



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

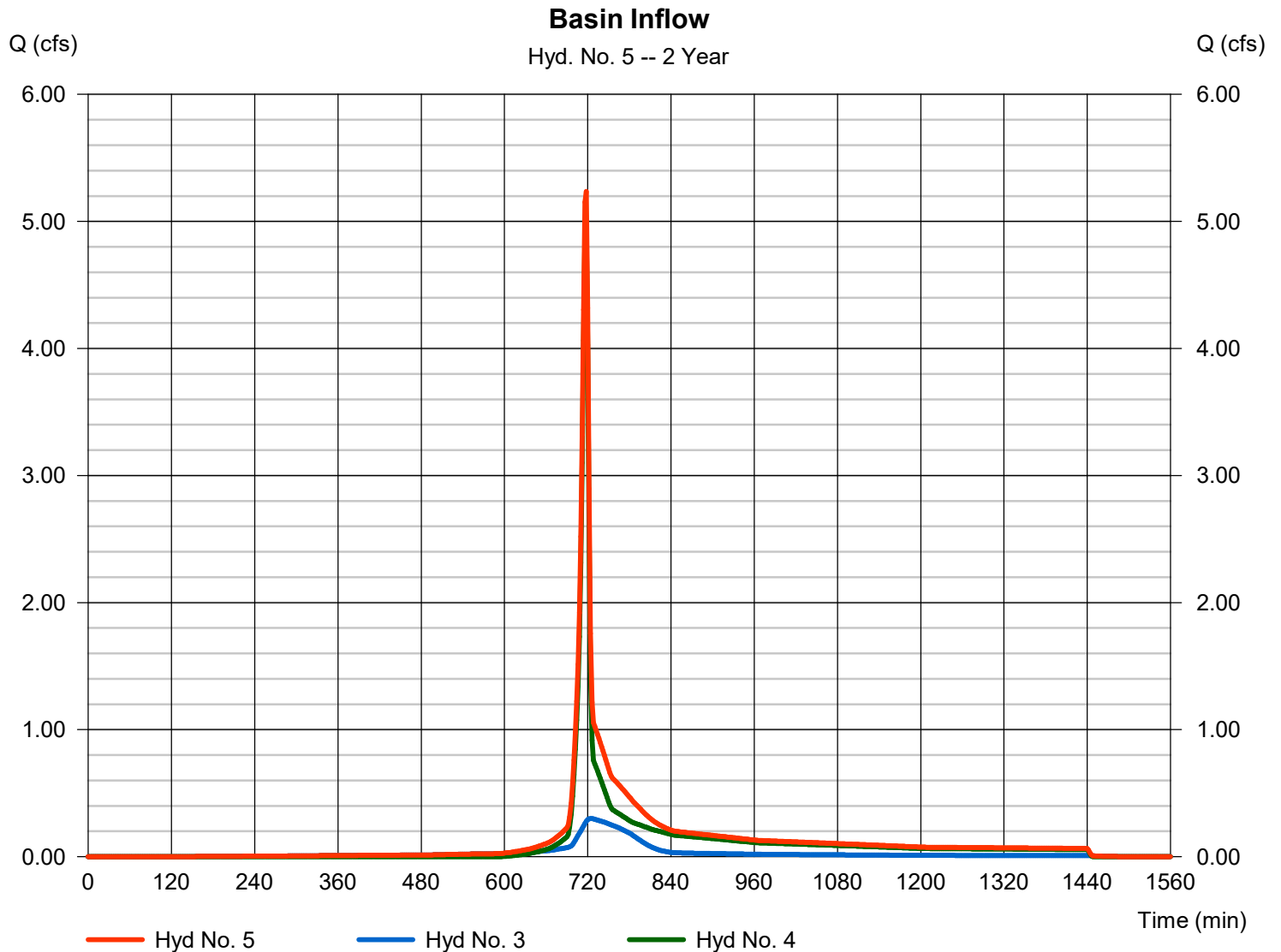
Monday, 02 / 9 / 2026

Hyd. No. 5

Basin Inflow

Hydrograph type = Combine
Storm frequency = 2 yrs
Time interval = 2 min
Inflow hyds. = 3, 4

Peak discharge = 5.237 cfs
Time to peak = 718 min
Hyd. volume = 12,524 cuft
Contrib. drain. area = 3.090 ac



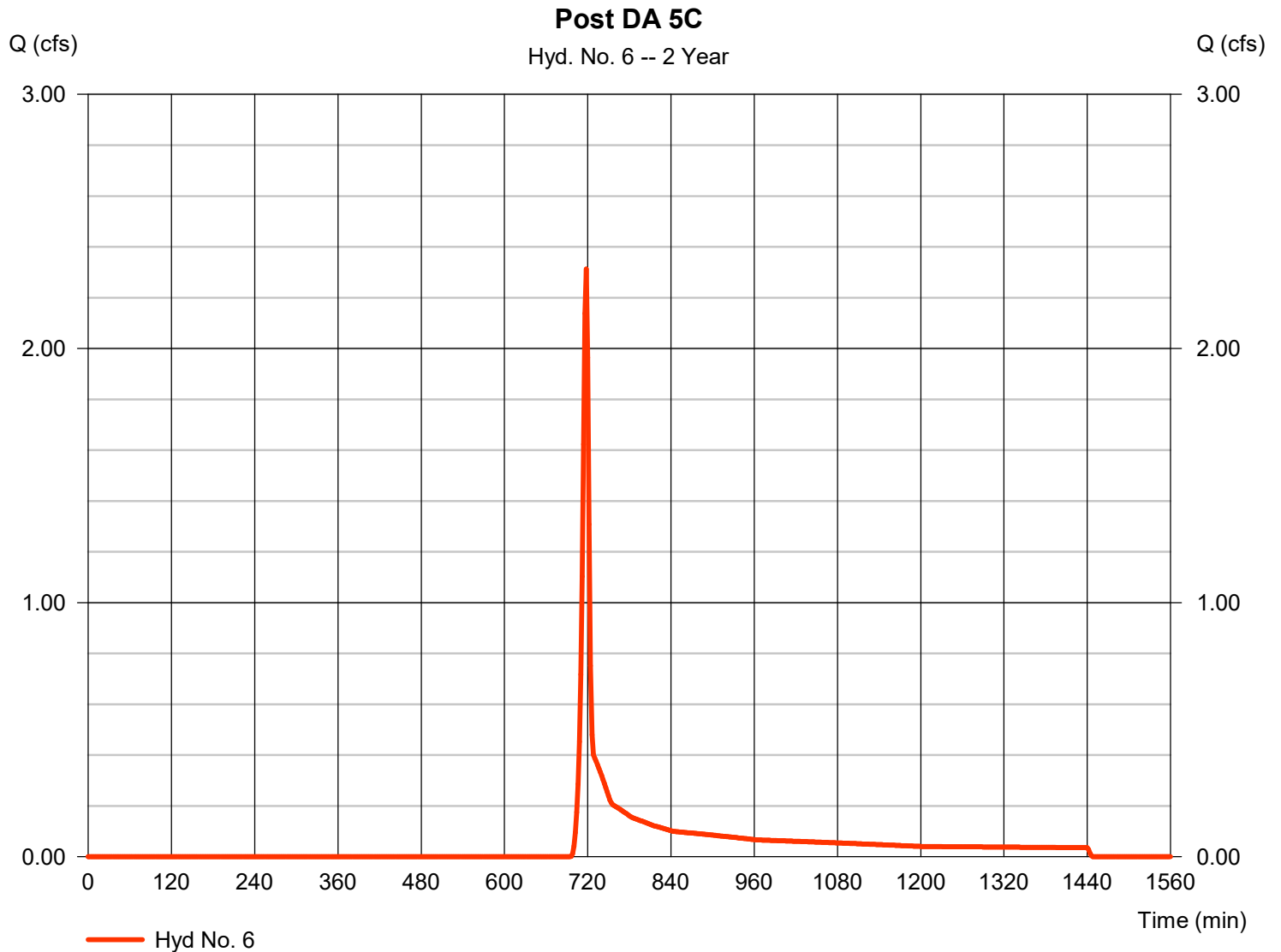
Hydrograph Report

Hyd. No. 6

Post DA 5C

Hydrograph type	= SCS Runoff	Peak discharge	= 2.313 cfs
Storm frequency	= 2 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 4,813 cuft
Drainage area	= 2.690 ac	Curve number	= 74*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 2.35 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.130 x 98) + (2.040 x 74) + (0.520 x 70)] / 2.690



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

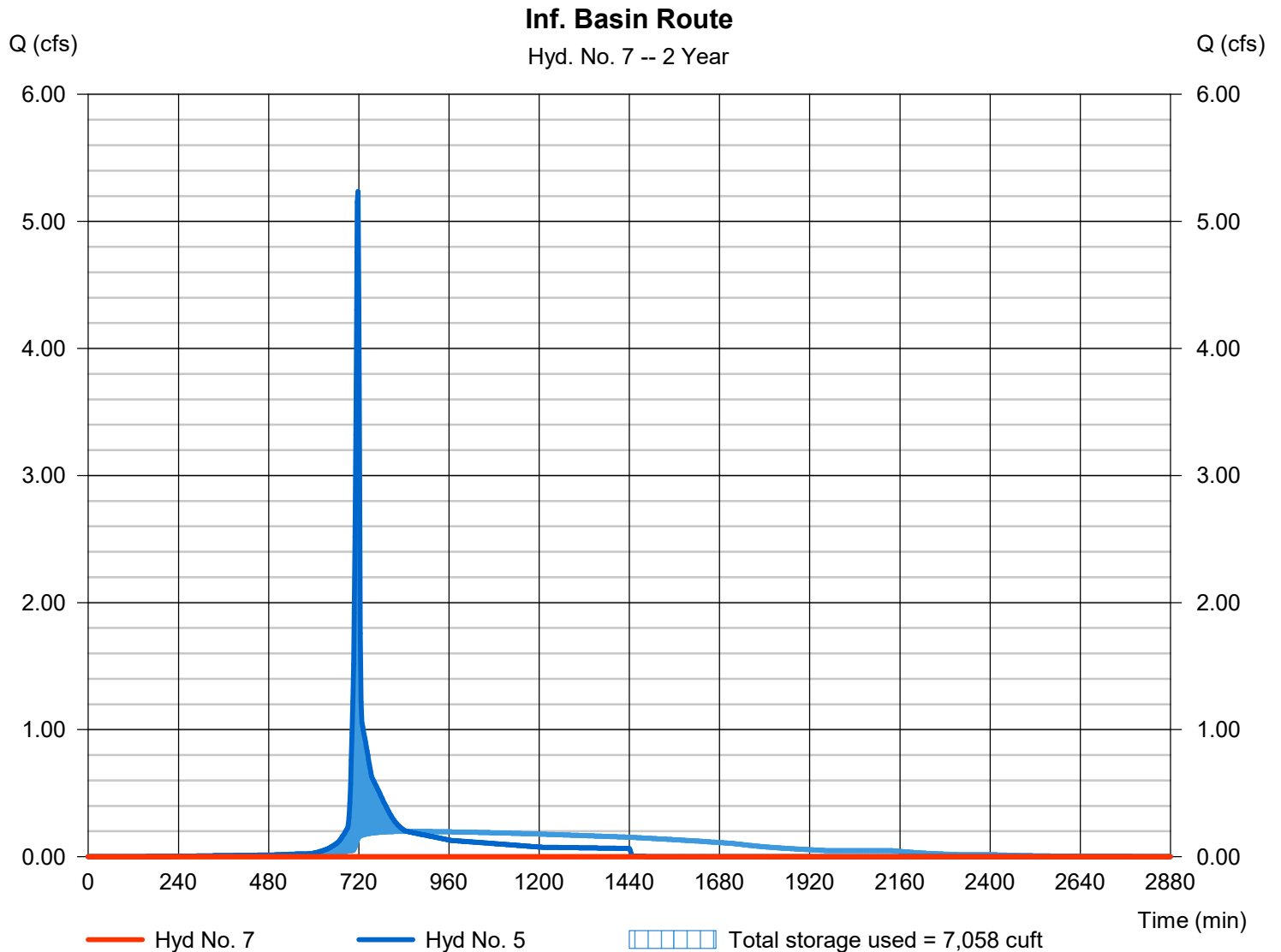
Monday, 02 / 9 / 2026

Hyd. No. 7

Inf. Basin Route

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= 1578 min
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 5 - Basin Inflow	Max. Elevation	= 851.84 ft
Reservoir name	= SCM 5.2 Inf Basin	Max. Storage	= 7,058 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

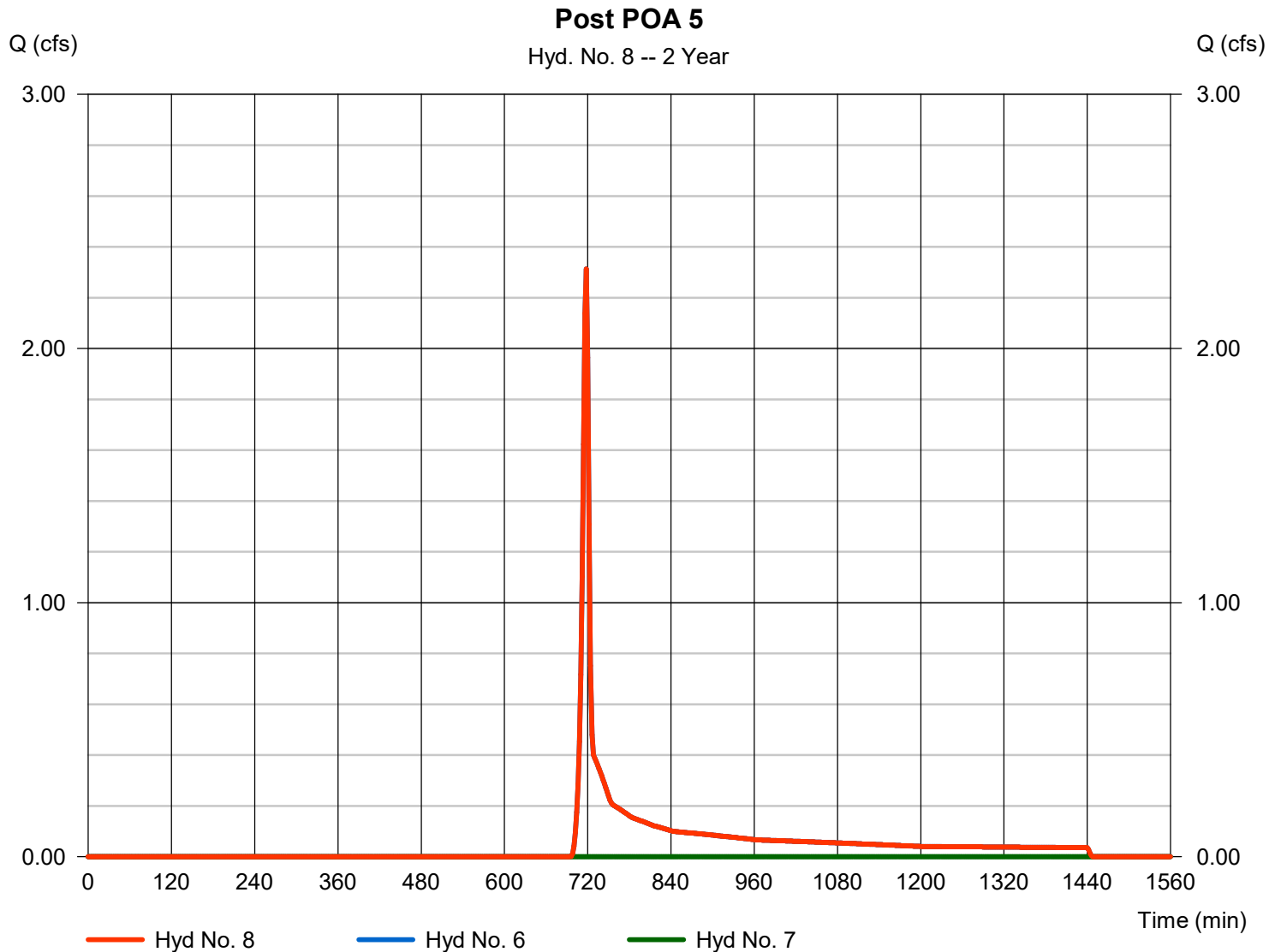
Monday, 02 / 9 / 2026

Hyd. No. 8

Post POA 5

Hydrograph type = Combine
Storm frequency = 2 yrs
Time interval = 2 min
Inflow hyds. = 6, 7

Peak discharge = 2.313 cfs
Time to peak = 718 min
Hyd. volume = 4,813 cuft
Contrib. drain. area = 2.690 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

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	9.192	2	718	18,635	-----	-----	-----	Pre-Development DA 5	
2	SCS Runoff	1.396	2	716	3,245	-----	-----	-----	Post DA 5A	
3	Reservoir	0.333	2	724	3,244	2	857.52	977	Tank 2 Route	
4	SCS Runoff	7.041	2	718	14,202	-----	-----	-----	Post DA 5B	
5	Combine	7.347	2	718	17,446	3, 4	-----	-----	Basin Inflow	
6	SCS Runoff	3.781	2	718	7,626	-----	-----	-----	Post DA 5C	
7	Reservoir	0.587	2	754	2,855	5	852.14	8,329	Inf. Basin Route	
8	Combine	3.781	2	718	10,481	6, 7	-----	-----	Post POA 5	
9	Reservoir	7.231	2	718	17,326	5	852.87	11,711	Spillway Route	
Ph 5 Hydrographs.gpw					Return Period: 5 Year			Monday, 02 / 9 / 2026		

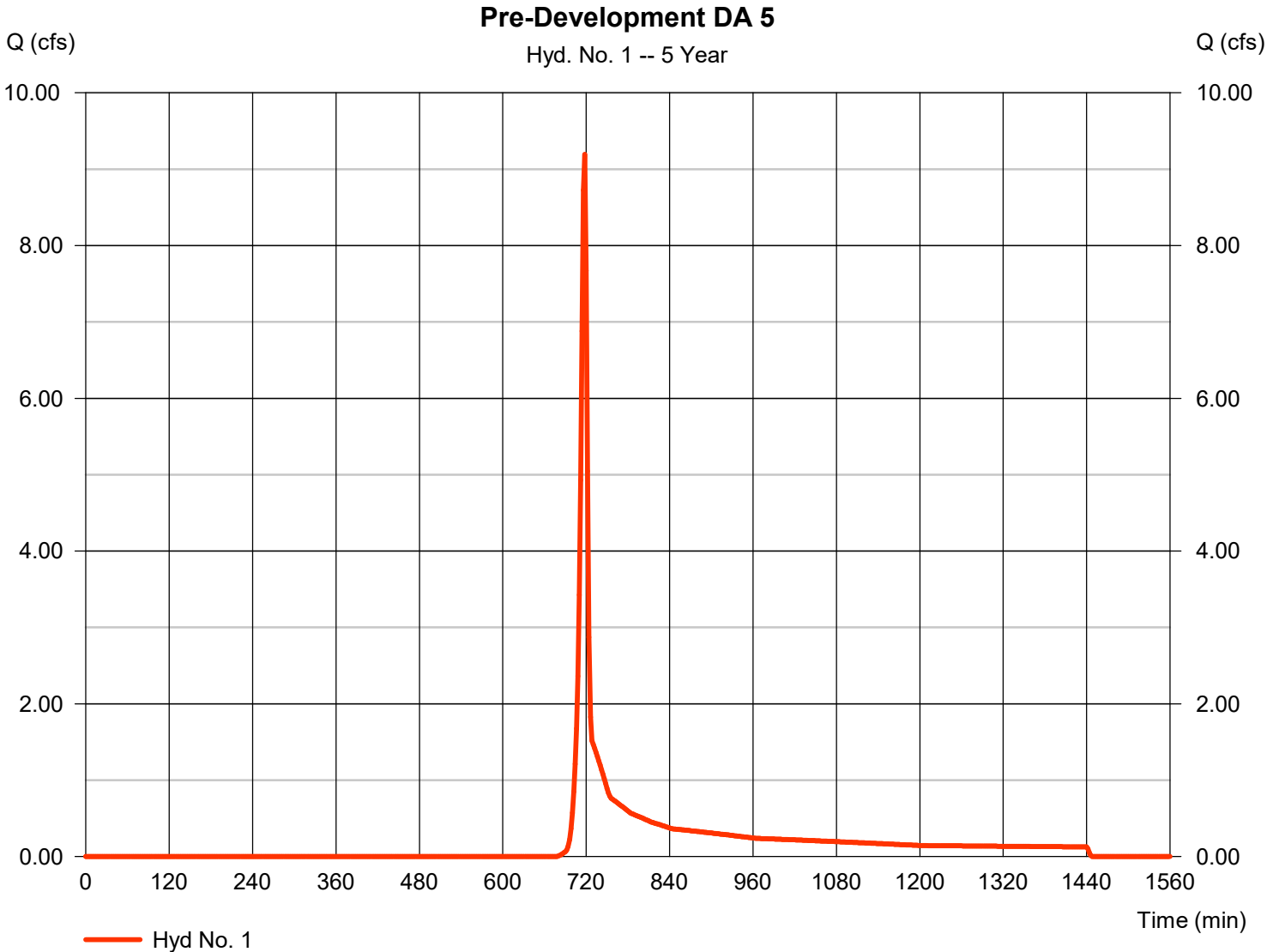
Hydrograph Report

Hyd. No. 1

Pre-Development DA 5

Hydrograph type	= SCS Runoff	Peak discharge	= 9.192 cfs
Storm frequency	= 5 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 18,635 cuft
Drainage area	= 6.980 ac	Curve number	= 73*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 2.88 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.270 x 98) + (0.070 x 71) + (5.290 x 71) + (0.700 x 70) + (0.650 x 87)] / 6.980



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

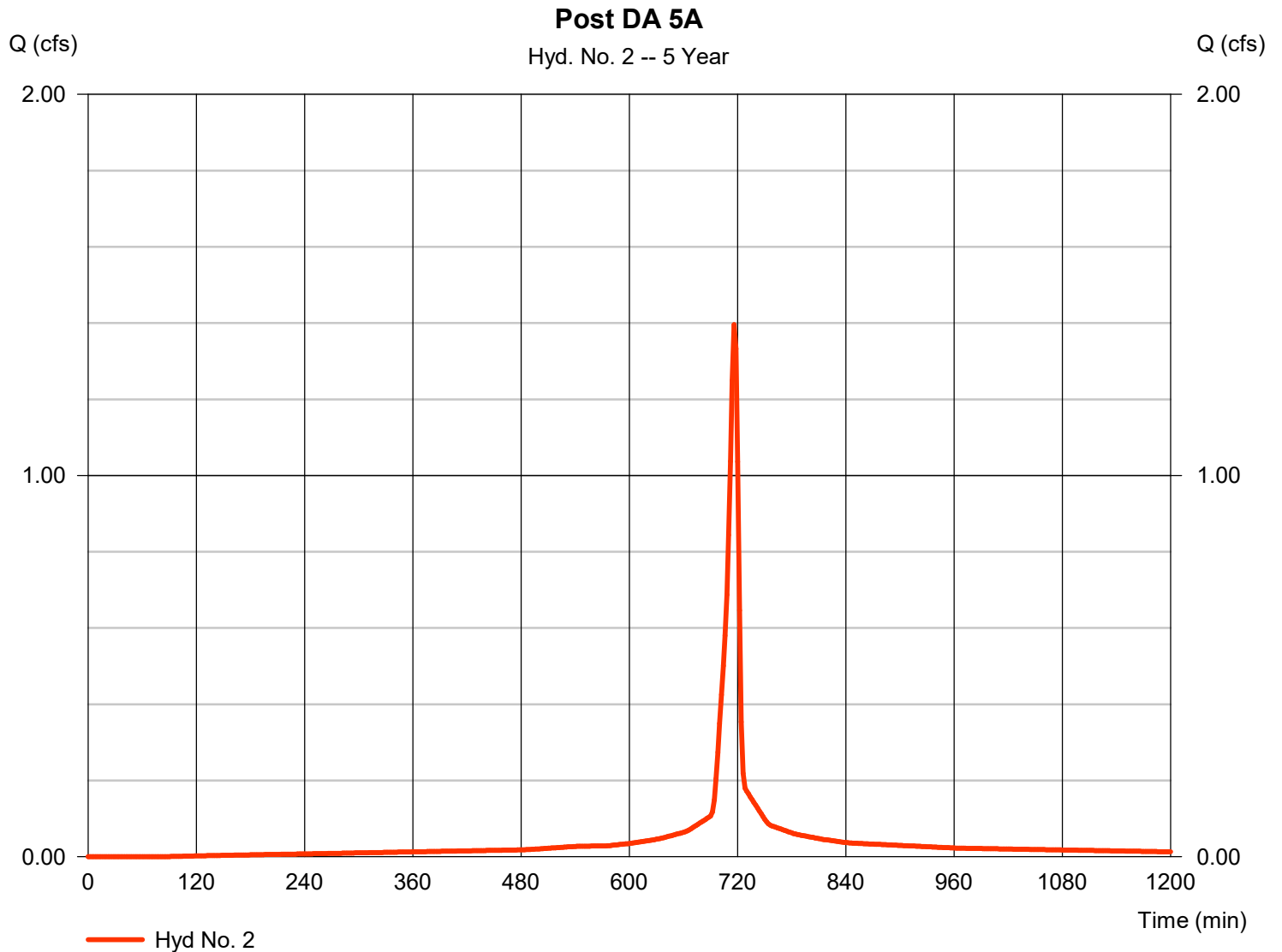
Monday, 02 / 9 / 2026

Hyd. No. 2

Post DA 5A

Hydrograph type	= SCS Runoff	Peak discharge	= 1.396 cfs
Storm frequency	= 5 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 3,245 cuft
Drainage area	= 0.360 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 2.88 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.360 x 98)] / 0.360



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

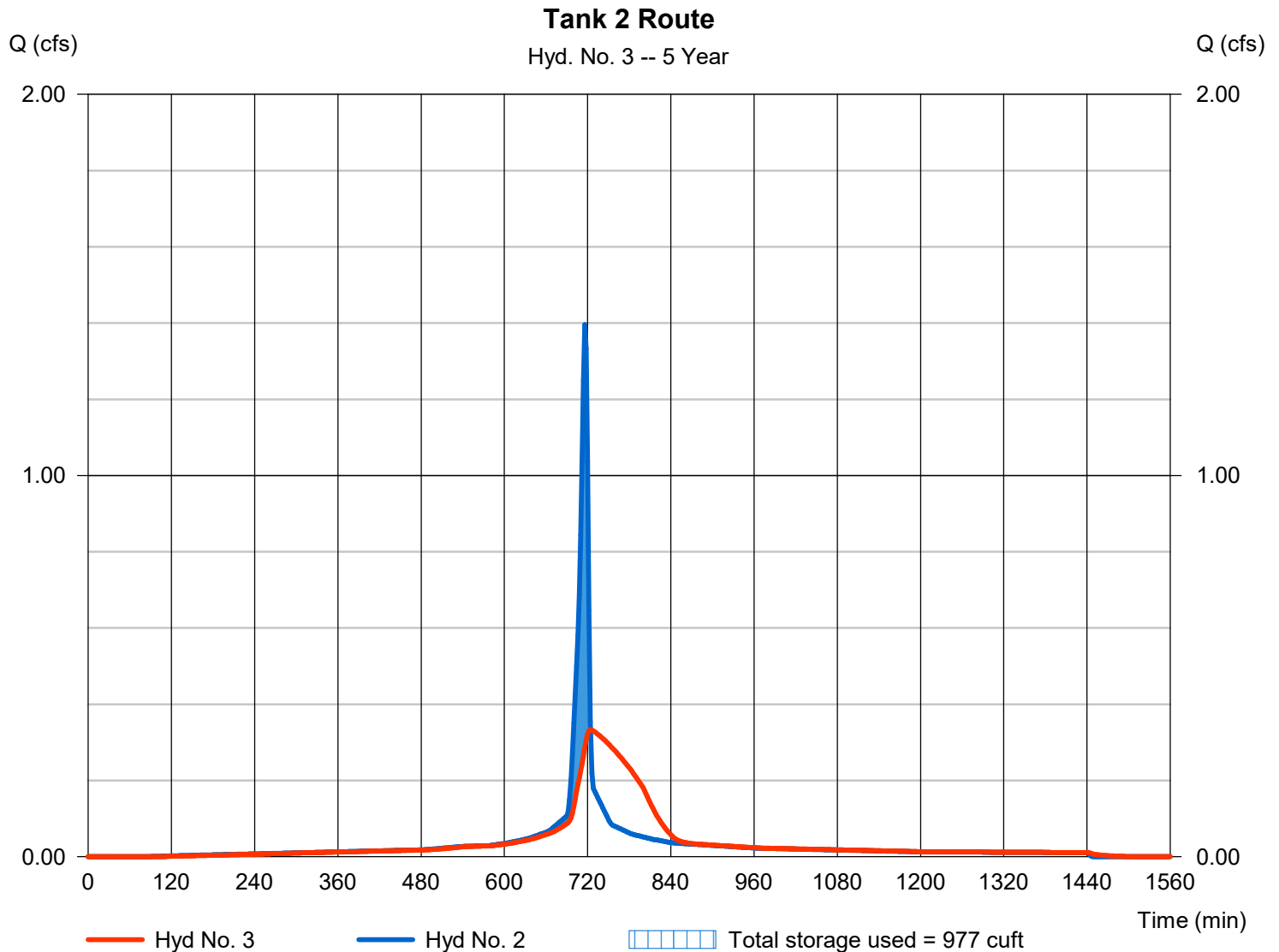
Monday, 02 / 9 / 2026

Hyd. No. 3

Tank 2 Route

Hydrograph type	= Reservoir	Peak discharge	= 0.333 cfs
Storm frequency	= 5 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 3,244 cuft
Inflow hyd. No.	= 2 - Post DA 5A	Max. Elevation	= 857.52 ft
Reservoir name	= SCM 5.1 Det Tank	Max. Storage	= 977 cuft

Storage Indication method used.



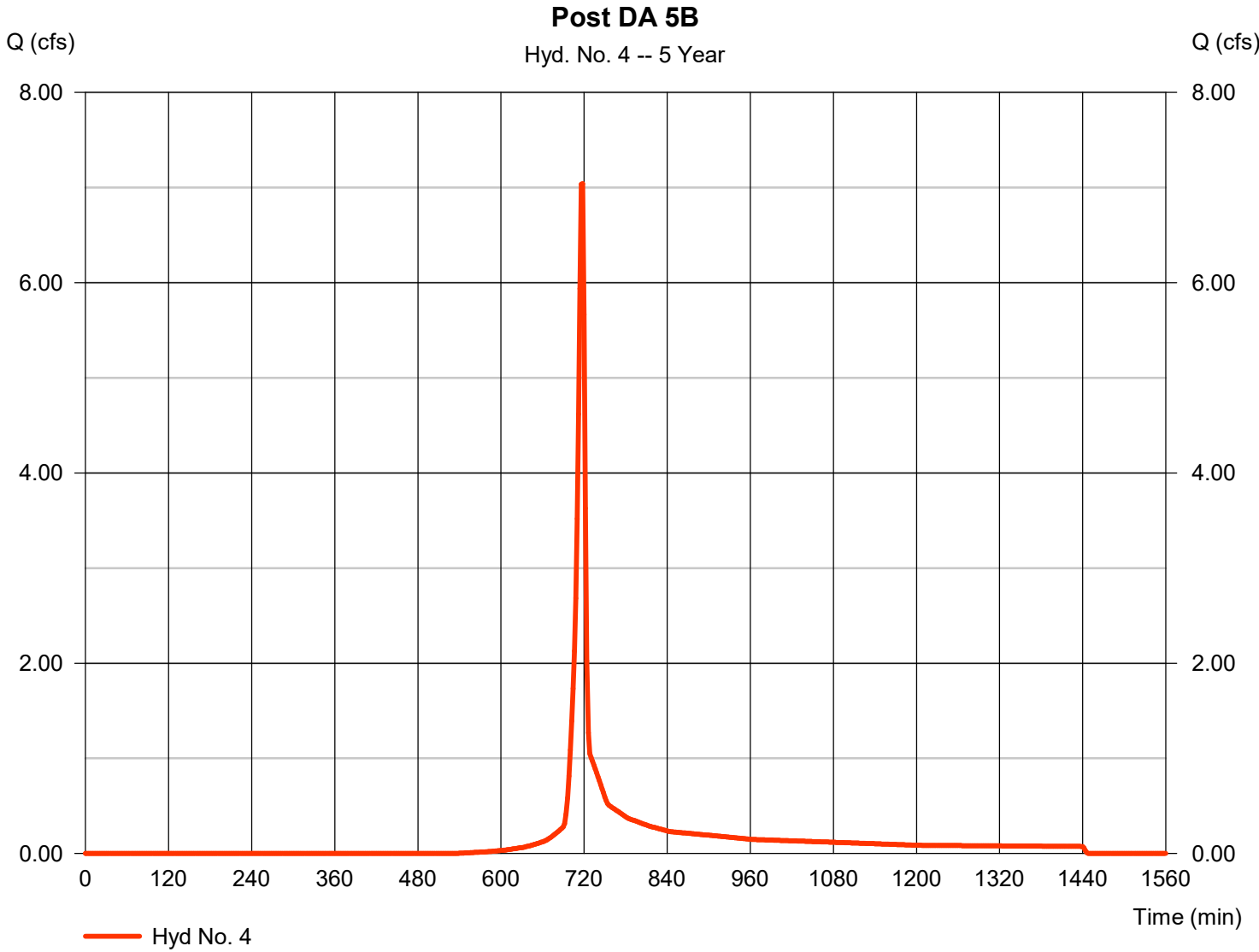
Hydrograph Report

Hyd. No. 4

Post DA 5B

Hydrograph type	= SCS Runoff	Peak discharge	= 7.041 cfs
Storm frequency	= 5 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 14,202 cuft
Drainage area	= 3.090 ac	Curve number	= 83*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 2.88 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.210 x 98) + (1.880 x 74)] / 3.090



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

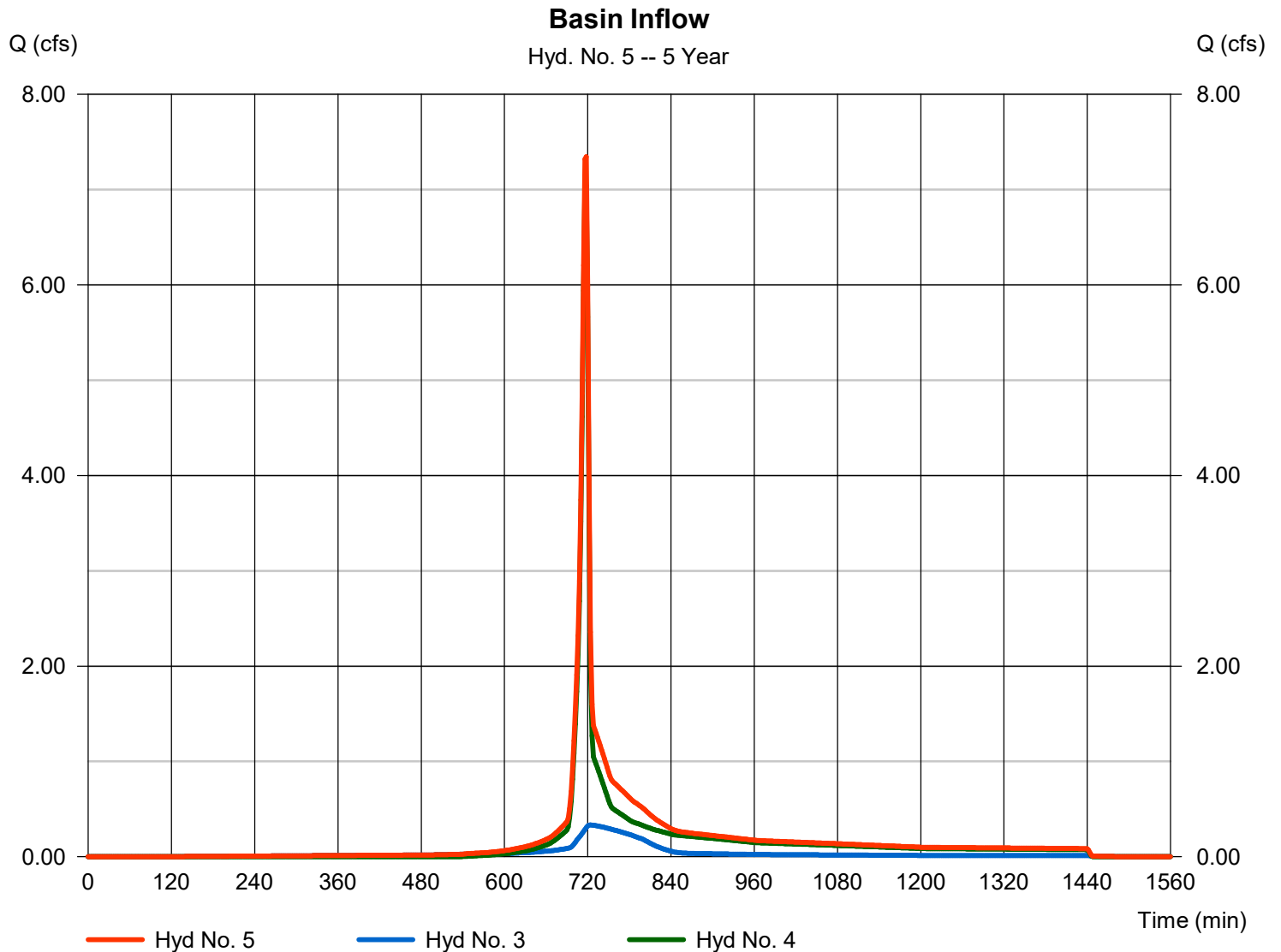
Monday, 02 / 9 / 2026

Hyd. No. 5

Basin Inflow

Hydrograph type = Combine
Storm frequency = 5 yrs
Time interval = 2 min
Inflow hyds. = 3, 4

Peak discharge = 7.347 cfs
Time to peak = 718 min
Hyd. volume = 17,446 cuft
Contrib. drain. area = 3.090 ac



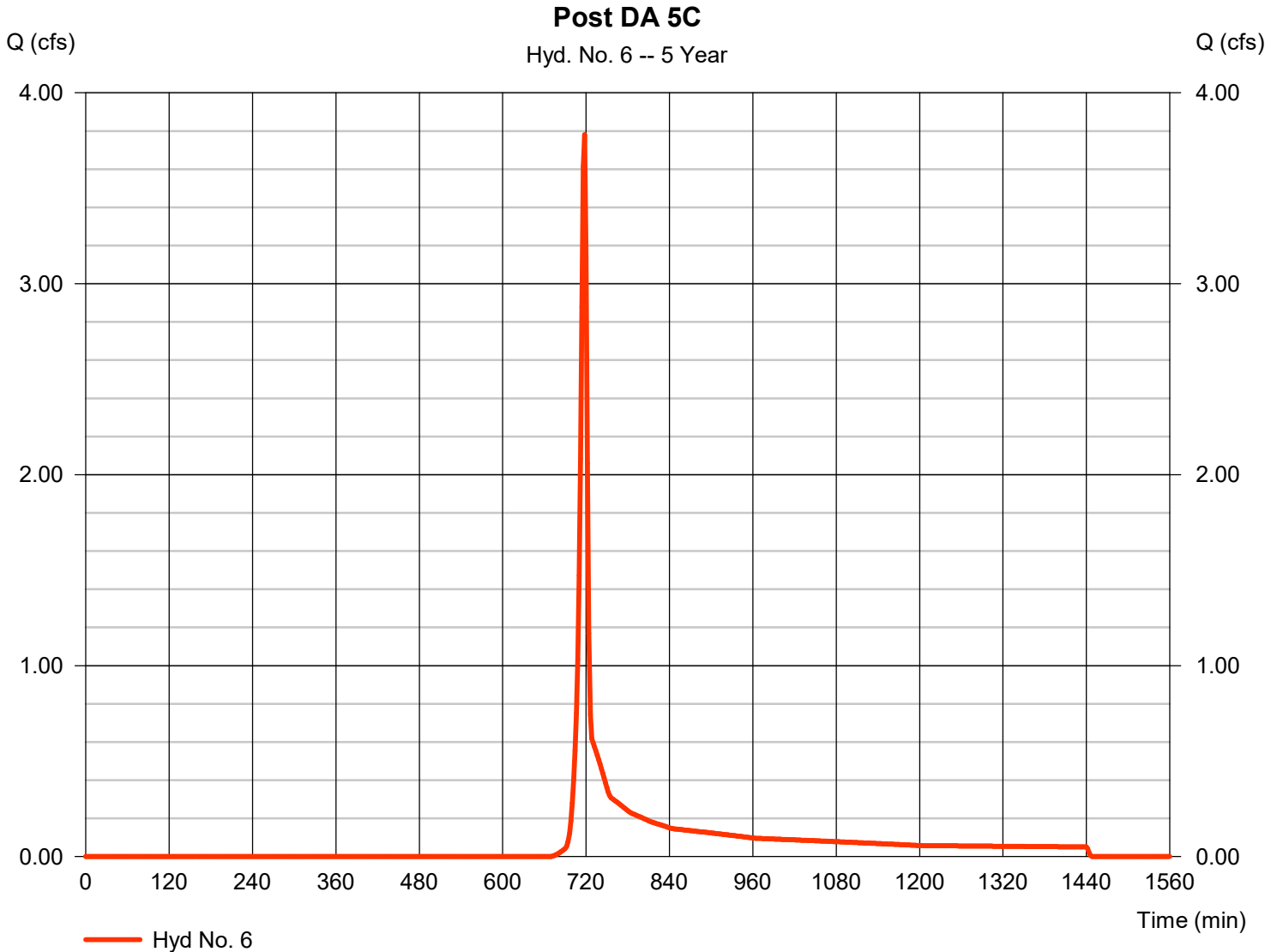
Hydrograph Report

Hyd. No. 6

Post DA 5C

Hydrograph type	= SCS Runoff	Peak discharge	= 3.781 cfs
Storm frequency	= 5 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 7,626 cuft
Drainage area	= 2.690 ac	Curve number	= 74*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 2.88 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.130 x 98) + (2.040 x 74) + (0.520 x 70)] / 2.690



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

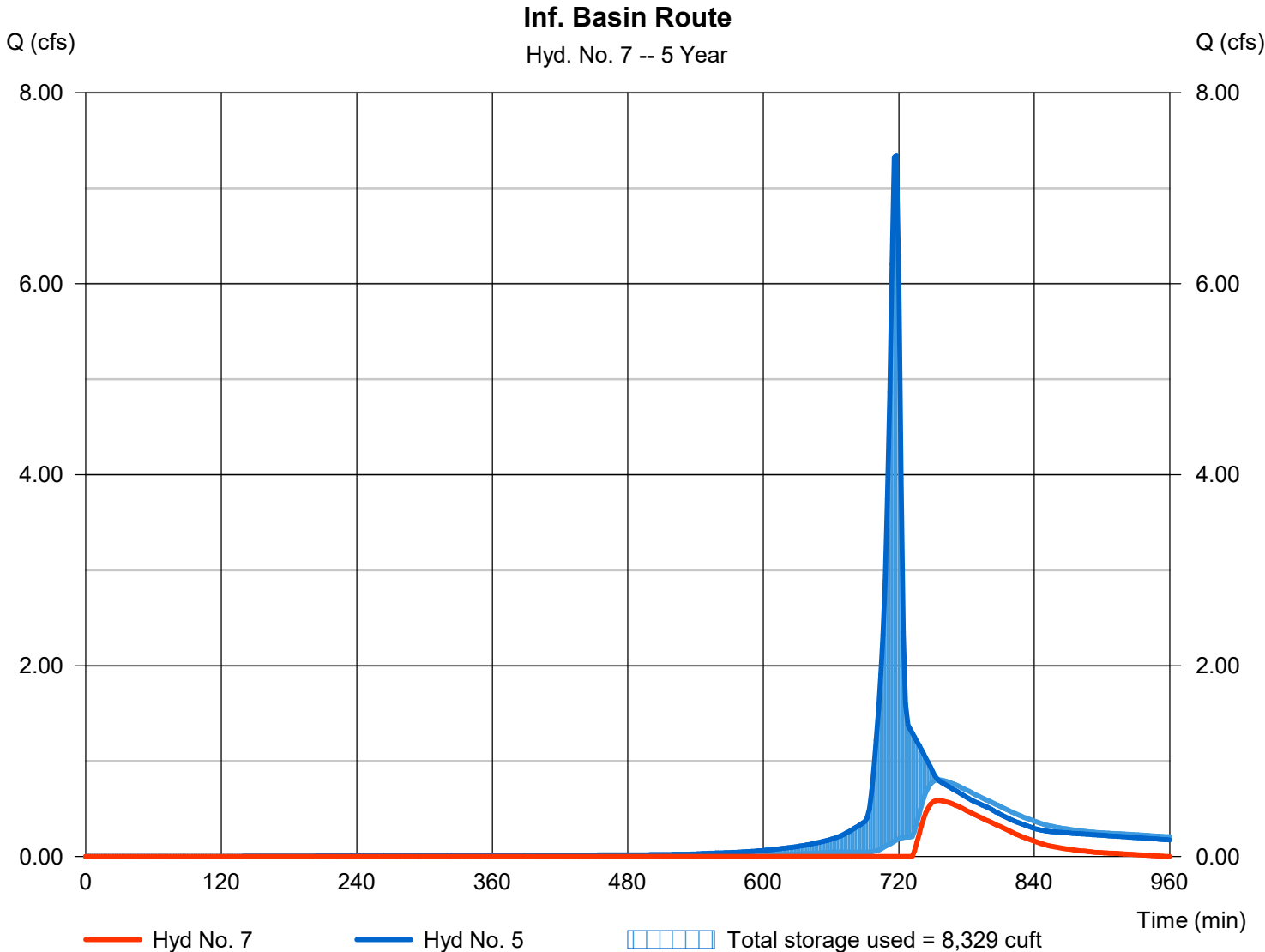
Monday, 02 / 9 / 2026

Hyd. No. 7

Inf. Basin Route

Hydrograph type	= Reservoir	Peak discharge	= 0.587 cfs
Storm frequency	= 5 yrs	Time to peak	= 754 min
Time interval	= 2 min	Hyd. volume	= 2,855 cuft
Inflow hyd. No.	= 5 - Basin Inflow	Max. Elevation	= 852.14 ft
Reservoir name	= SCM 5.2 Inf Basin	Max. Storage	= 8,329 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

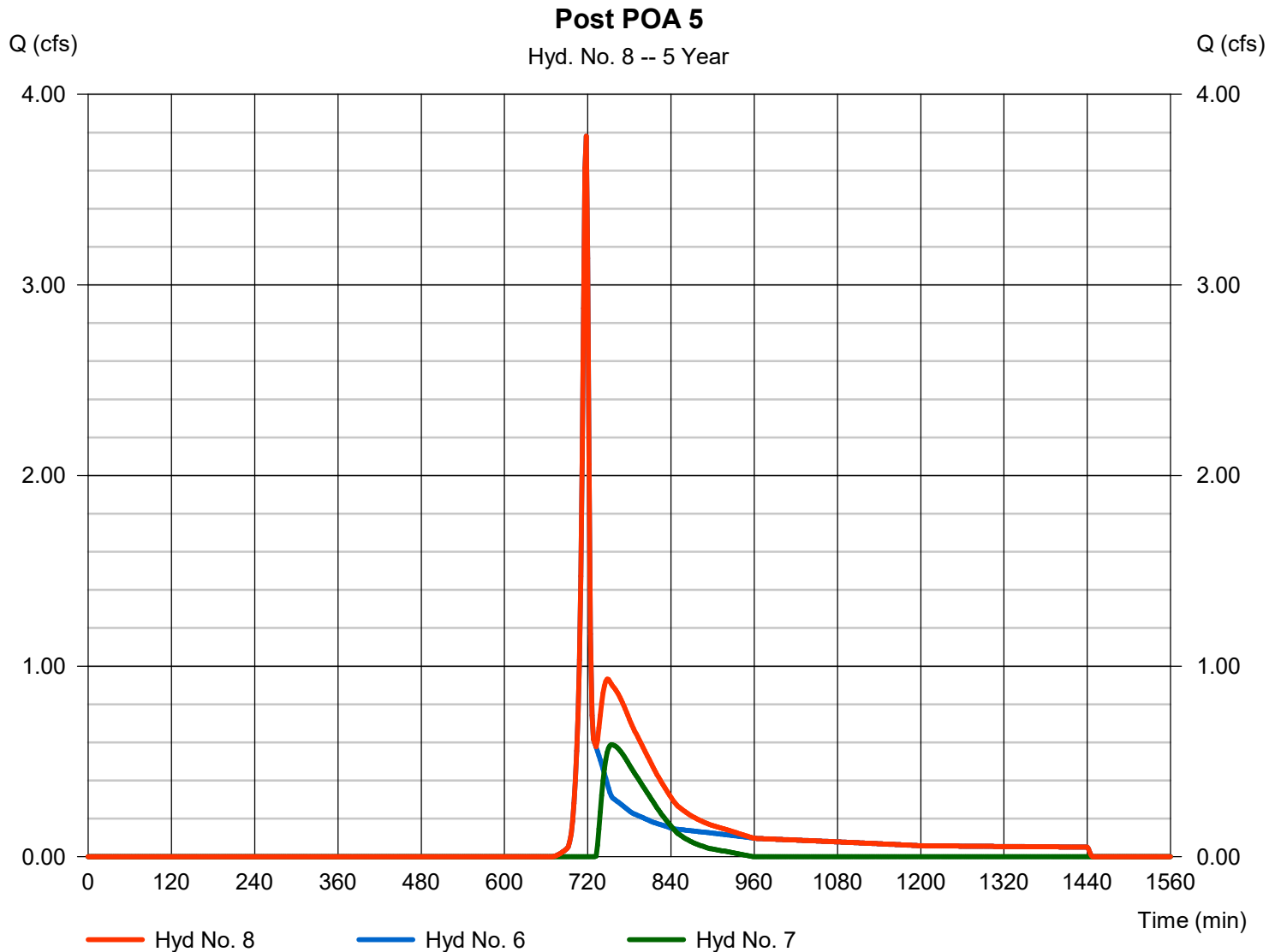
Monday, 02 / 9 / 2026

Hyd. No. 8

Post POA 5

Hydrograph type = Combine
Storm frequency = 5 yrs
Time interval = 2 min
Inflow hyds. = 6, 7

Peak discharge = 3.781 cfs
Time to peak = 718 min
Hyd. volume = 10,481 cuft
Contrib. drain. area = 2.690 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

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	12.40	2	718	24,878	-----	-----	-----	Pre-Development DA 5	
2	SCS Runoff	1.604	2	716	3,758	-----	-----	-----	Post DA 5A	
3	Reservoir	0.357	2	724	3,756	2	857.95	1,156	Tank 2 Route	
4	SCS Runoff	8.802	2	716	17,789	-----	-----	-----	Post DA 5B	
5	Combine	9.107	2	716	21,545	3, 4	-----	-----	Basin Inflow	
6	SCS Runoff	5.047	2	718	10,106	-----	-----	-----	Post DA 5C	
7	Reservoir	1.719	2	726	6,100	5	852.28	8,929	Inf. Basin Route	
8	Combine	5.047	2	718	16,206	6, 7	-----	-----	Post POA 5	
9	Reservoir	9.014	2	718	21,425	5	852.90	11,842	Spillway Route	
Ph 5 Hydrographs.gpw					Return Period: 10 Year			Monday, 02 / 9 / 2026		

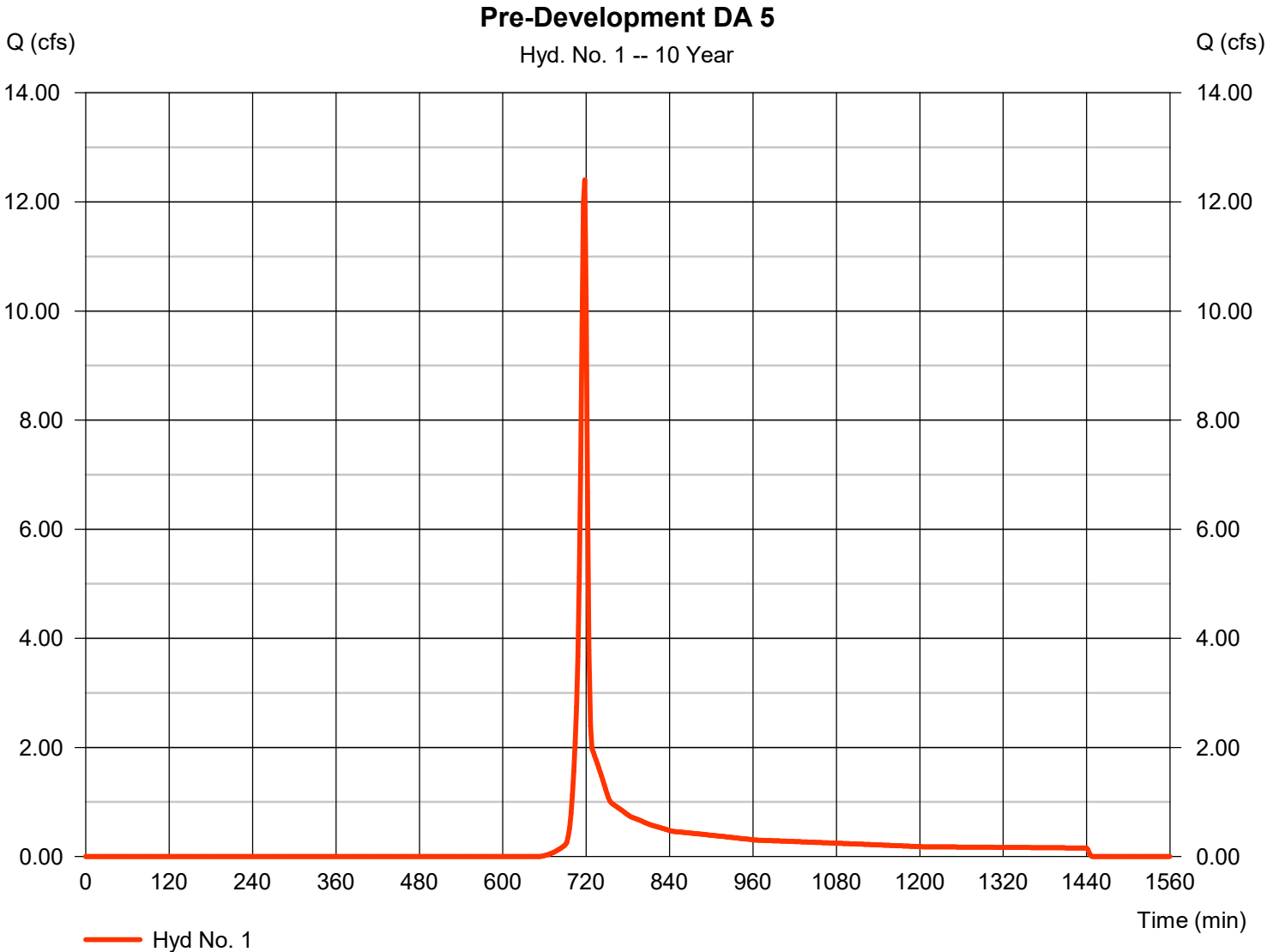
Hydrograph Report

Hyd. No. 1

Pre-Development DA 5

Hydrograph type	= SCS Runoff	Peak discharge	= 12.40 cfs
Storm frequency	= 10 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 24,878 cuft
Drainage area	= 6.980 ac	Curve number	= 73*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.30 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.270 x 98) + (0.070 x 71) + (5.290 x 71) + (0.700 x 70) + (0.650 x 87)] / 6.980



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

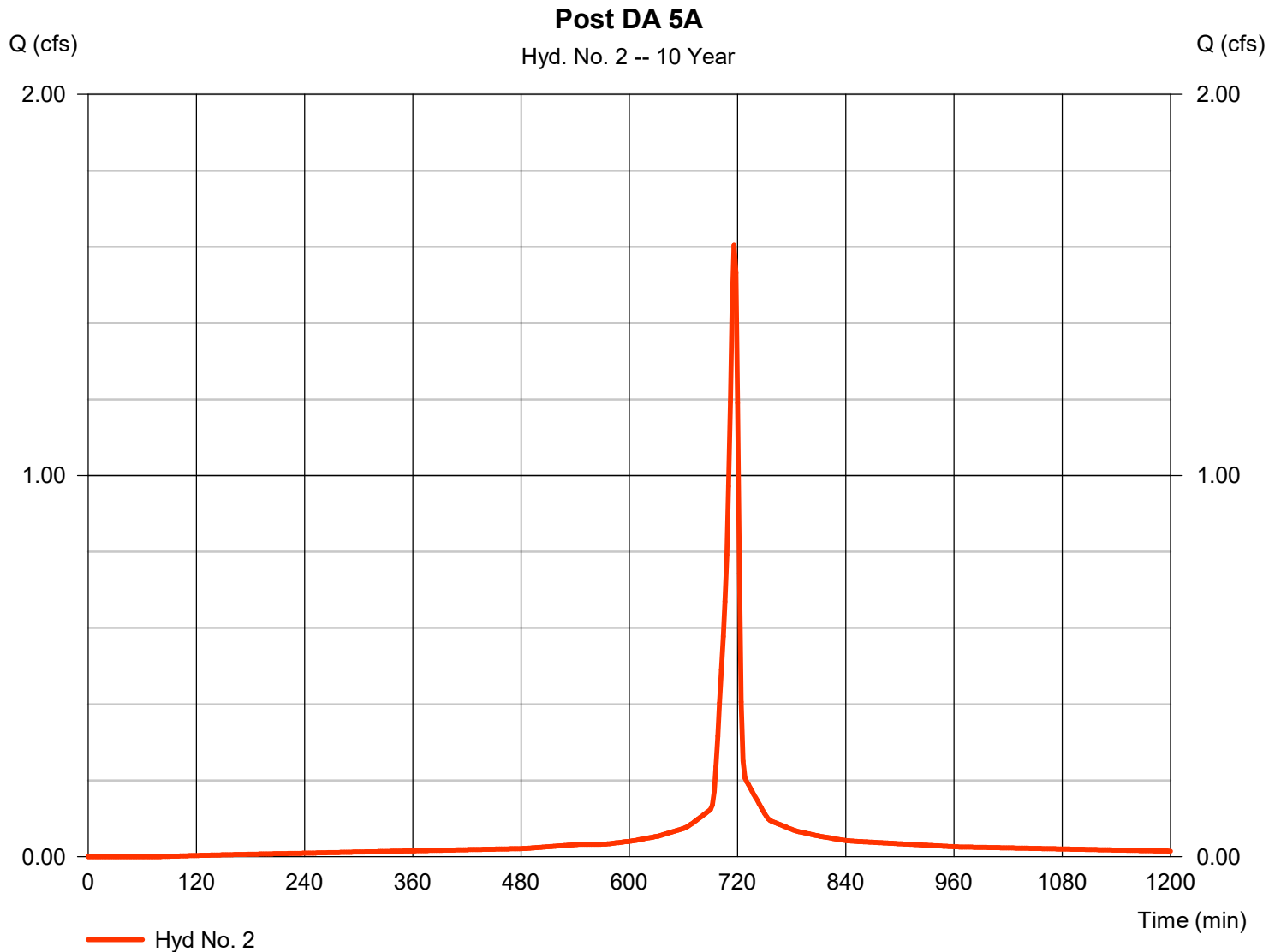
Monday, 02 / 9 / 2026

Hyd. No. 2

Post DA 5A

Hydrograph type	= SCS Runoff	Peak discharge	= 1.604 cfs
Storm frequency	= 10 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 3,758 cuft
Drainage area	= 0.360 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.30 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.360 x 98)] / 0.360



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

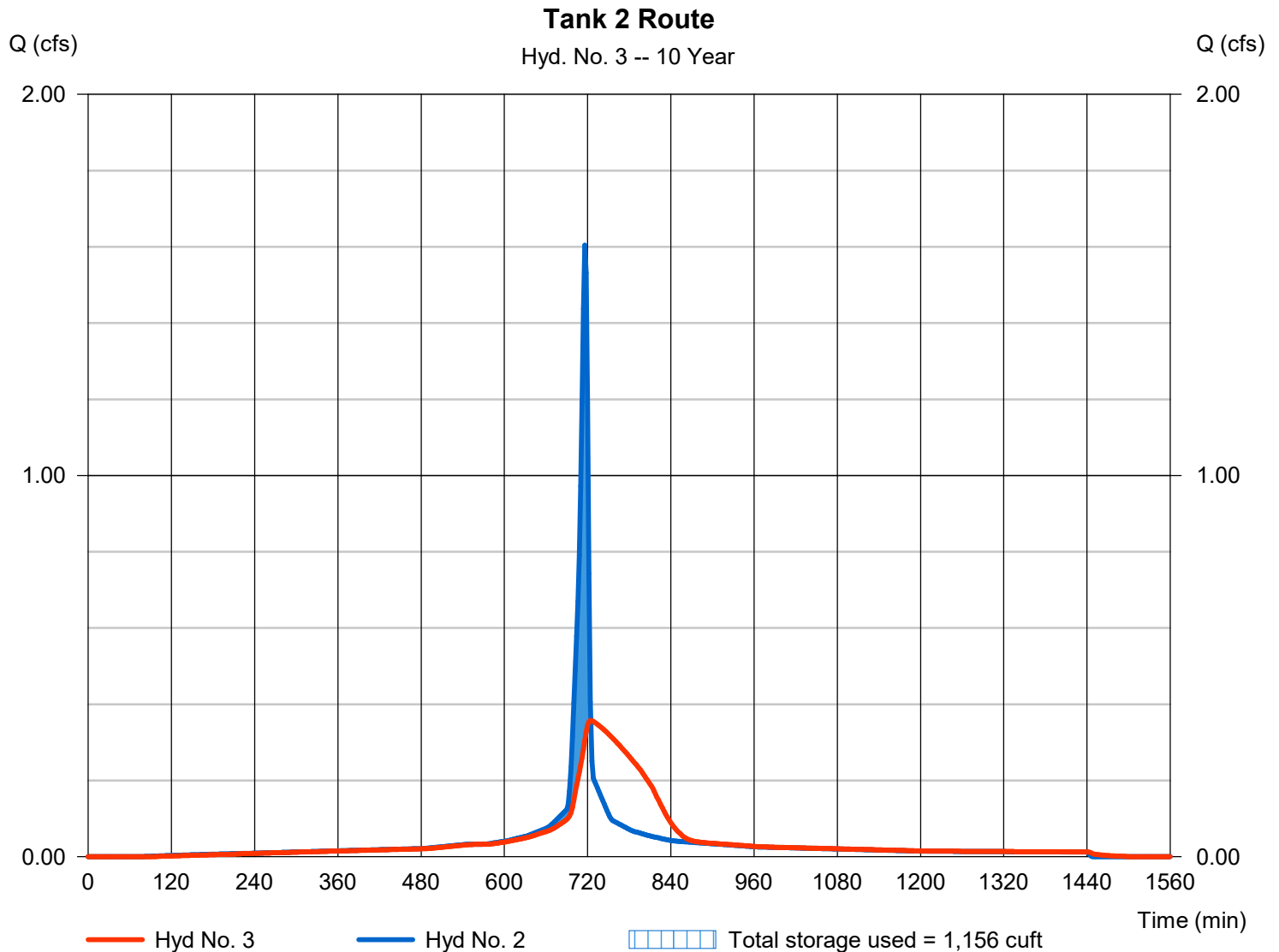
Monday, 02 / 9 / 2026

Hyd. No. 3

Tank 2 Route

Hydrograph type	= Reservoir	Peak discharge	= 0.357 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 3,756 cuft
Inflow hyd. No.	= 2 - Post DA 5A	Max. Elevation	= 857.95 ft
Reservoir name	= SCM 5.1 Det Tank	Max. Storage	= 1,156 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

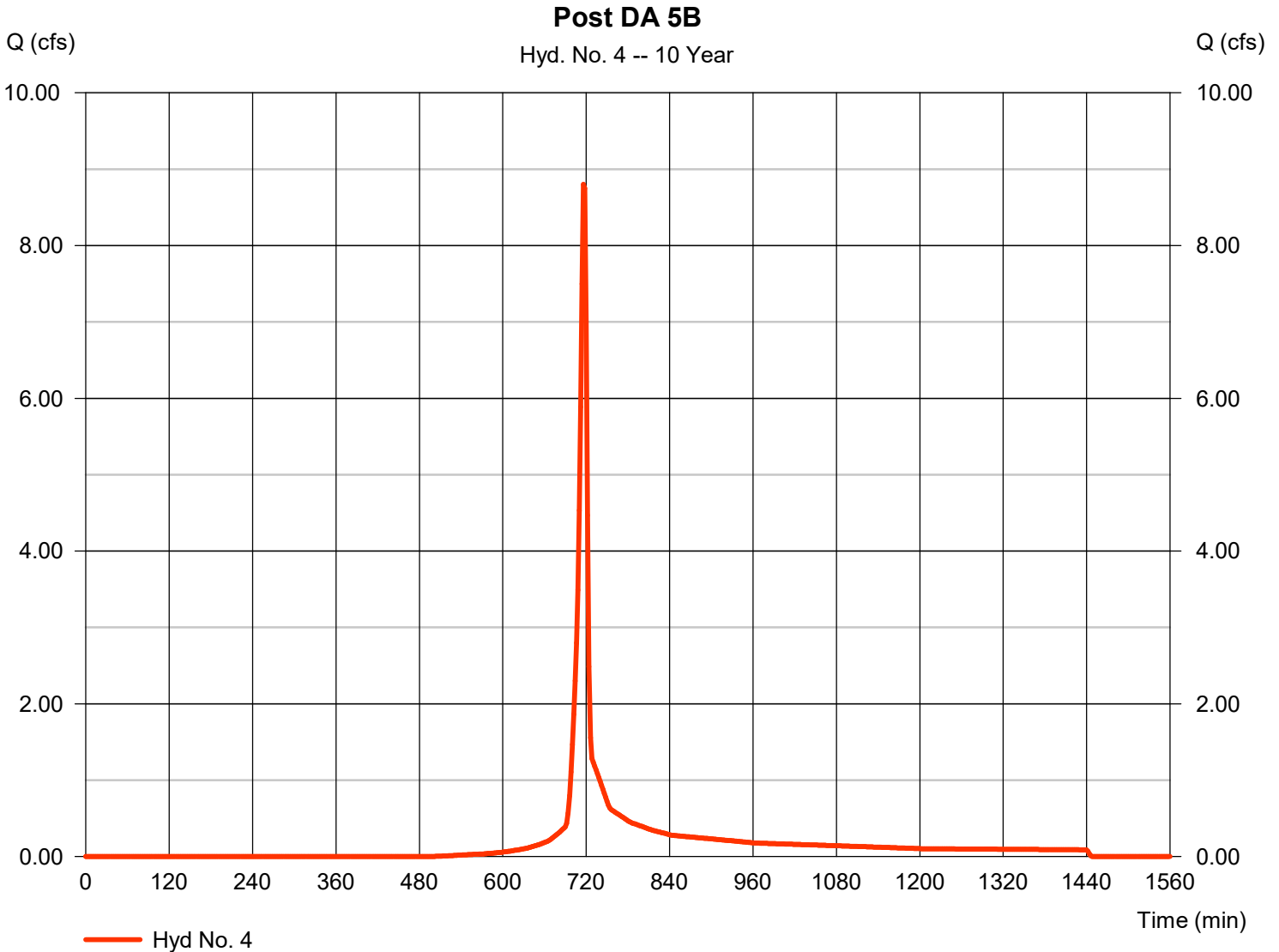
Monday, 02 / 9 / 2026

Hyd. No. 4

Post DA 5B

Hydrograph type	= SCS Runoff	Peak discharge	= 8.802 cfs
Storm frequency	= 10 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 17,789 cuft
Drainage area	= 3.090 ac	Curve number	= 83*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.30 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.210 x 98) + (1.880 x 74)] / 3.090

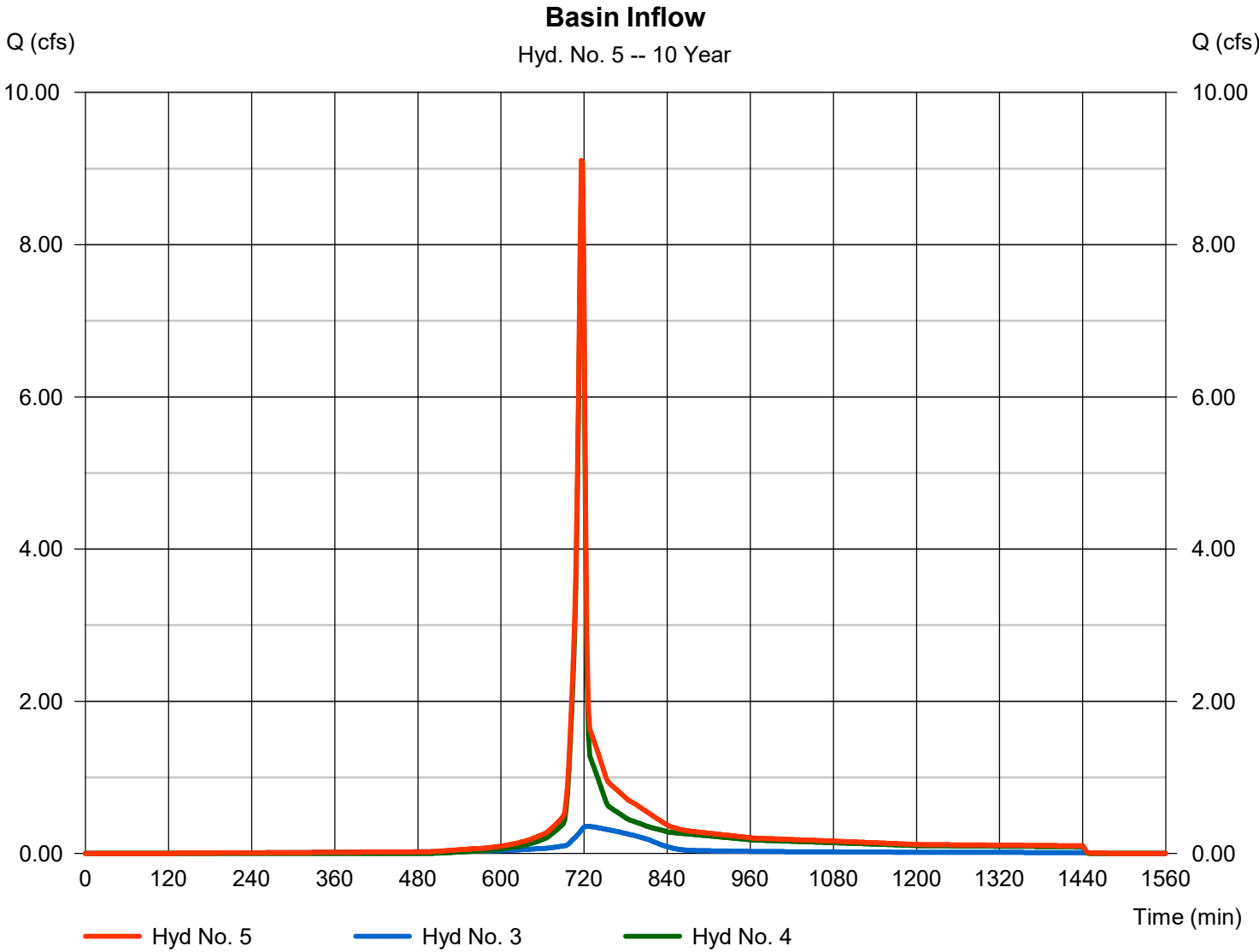


Hydrograph Report

Hyd. No. 5

Basin Inflow

Hydrograph type	= Combine	Peak discharge	= 9.107 cfs
Storm frequency	= 10 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 21,545 cuft
Inflow hyds.	= 3, 4	Contrib. drain. area	= 3.090 ac



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

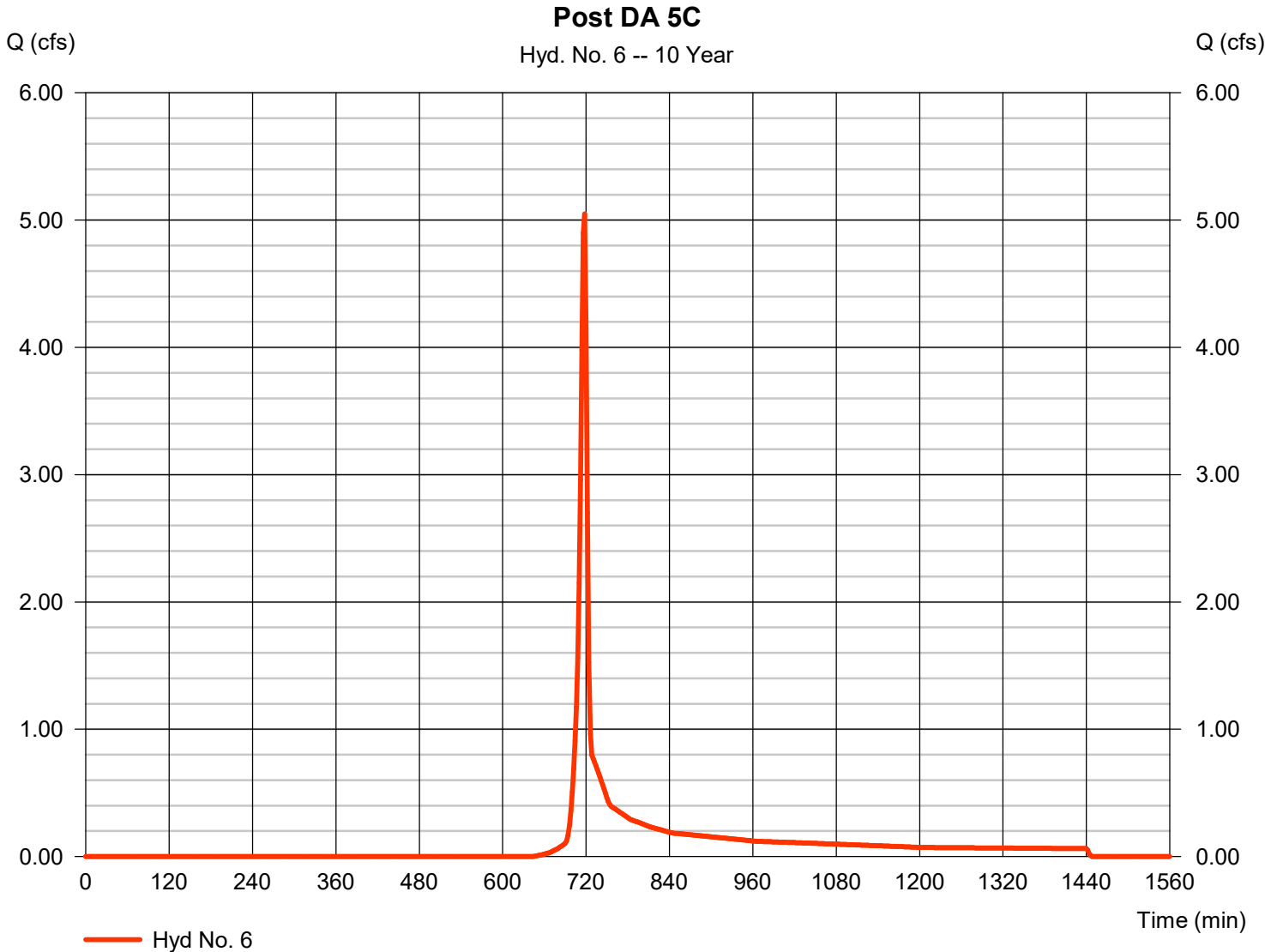
Monday, 02 / 9 / 2026

Hyd. No. 6

Post DA 5C

Hydrograph type	= SCS Runoff	Peak discharge	= 5.047 cfs
Storm frequency	= 10 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 10,106 cuft
Drainage area	= 2.690 ac	Curve number	= 74*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.30 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.130 x 98) + (2.040 x 74) + (0.520 x 70)] / 2.690



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

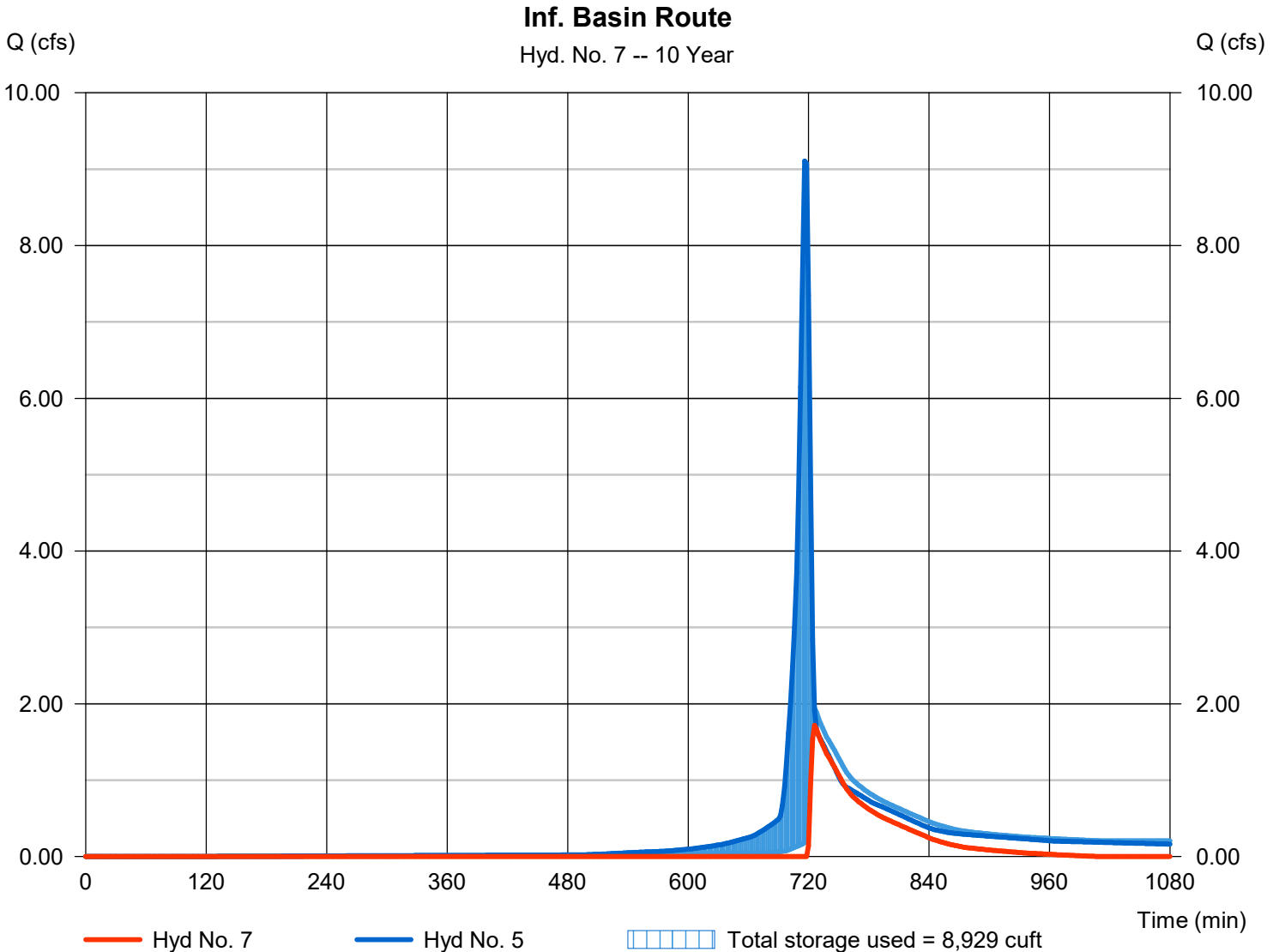
Monday, 02 / 9 / 2026

Hyd. No. 7

Inf. Basin Route

Hydrograph type	= Reservoir	Peak discharge	= 1.719 cfs
Storm frequency	= 10 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 6,100 cuft
Inflow hyd. No.	= 5 - Basin Inflow	Max. Elevation	= 852.28 ft
Reservoir name	= SCM 5.2 Inf Basin	Max. Storage	= 8,929 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

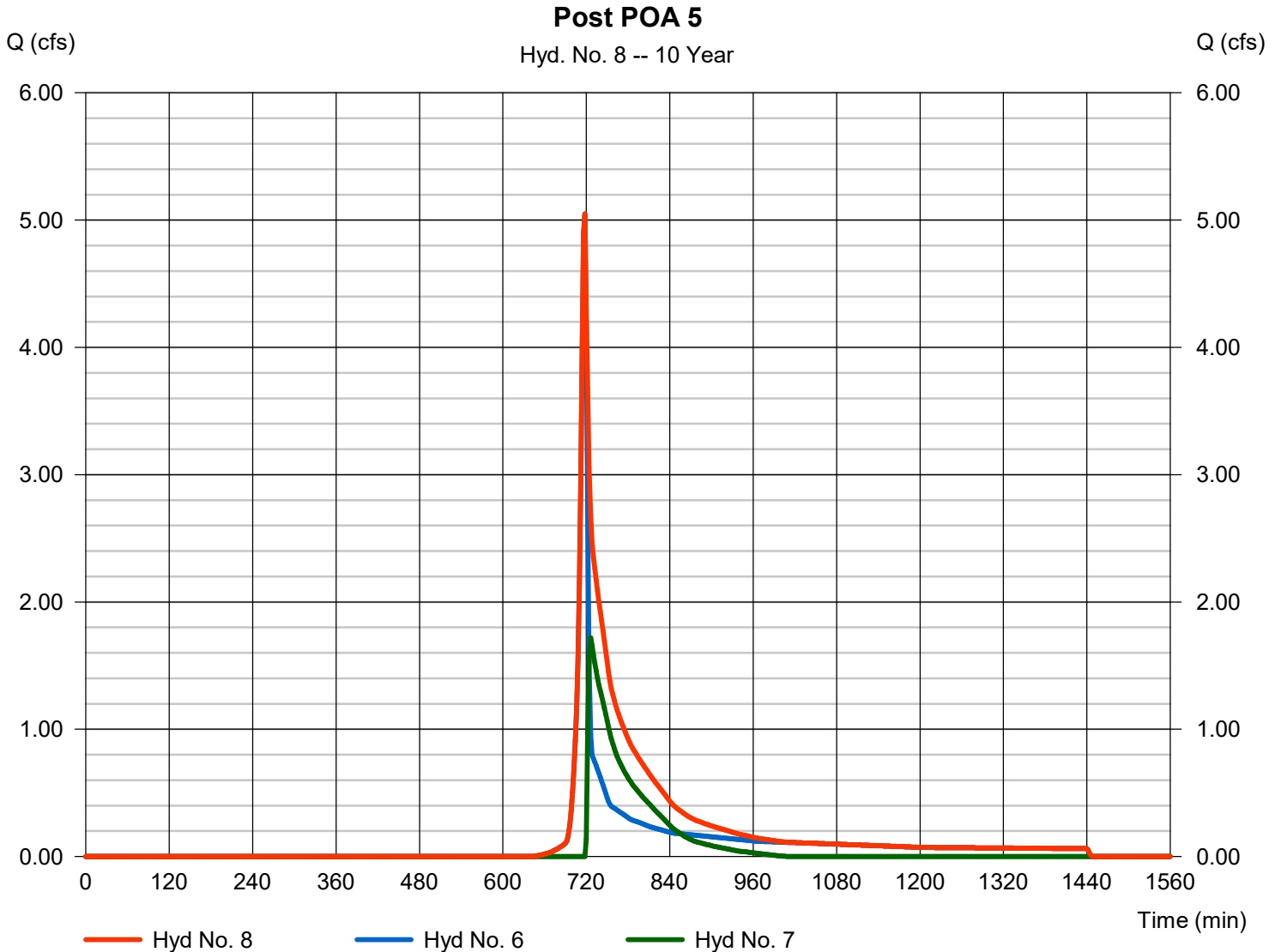
Monday, 02 / 9 / 2026

Hyd. No. 8

Post POA 5

Hydrograph type = Combine
Storm frequency = 10 yrs
Time interval = 2 min
Inflow hyds. = 6, 7

Peak discharge = 5.047 cfs
Time to peak = 718 min
Hyd. volume = 16,206 cuft
Contrib. drain. area = 2.690 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

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	17.30	2	718	34,588	-----	-----	-----	Pre-Development DA 5	
2	SCS Runoff	1.902	2	716	4,491	-----	-----	-----	Post DA 5A	
3	Reservoir	0.394	2	724	4,489	2	858.64	1,416	Tank 2 Route	
4	SCS Runoff	11.39	2	716	23,130	-----	-----	-----	Post DA 5B	
5	Combine	11.72	2	716	27,619	3, 4	-----	-----	Basin Inflow	
6	SCS Runoff	6.970	2	718	13,945	-----	-----	-----	Post DA 5C	
7	Reservoir	7.259	2	722	11,158	5	852.50	9,924	Inf. Basin Route	
8	Combine	12.62	2	720	25,103	6, 7	-----	-----	Post POA 5	
9	Reservoir	11.62	2	718	27,499	5	852.93	12,018	Spillway Route	
Ph 5 Hydrographs.gpw					Return Period: 25 Year			Monday, 02 / 9 / 2026		

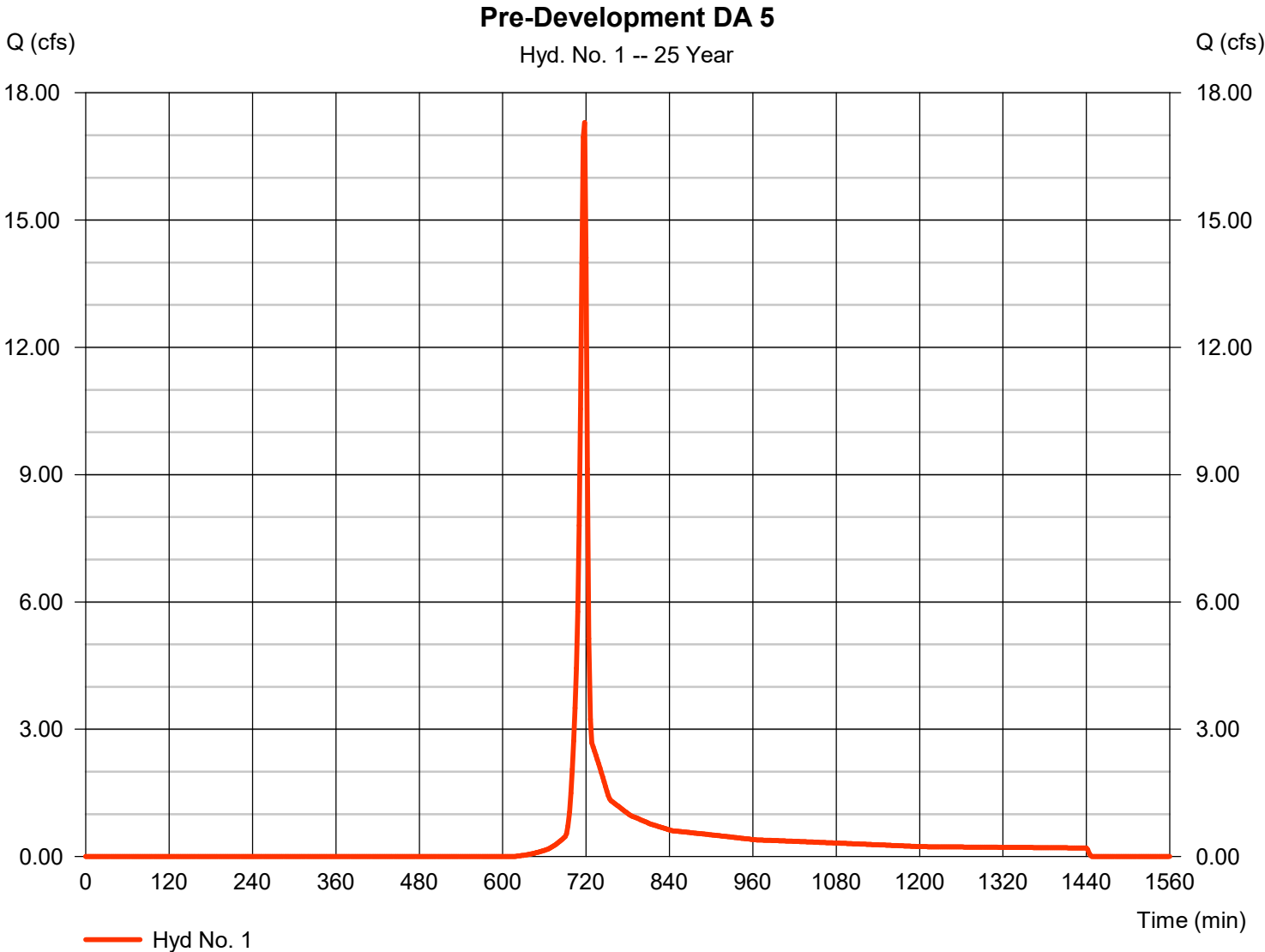
Hydrograph Report

Hyd. No. 1

Pre-Development DA 5

Hydrograph type	= SCS Runoff	Peak discharge	= 17.30 cfs
Storm frequency	= 25 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 34,588 cuft
Drainage area	= 6.980 ac	Curve number	= 73*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.90 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.270 x 98) + (0.070 x 71) + (5.290 x 71) + (0.700 x 70) + (0.650 x 87)] / 6.980



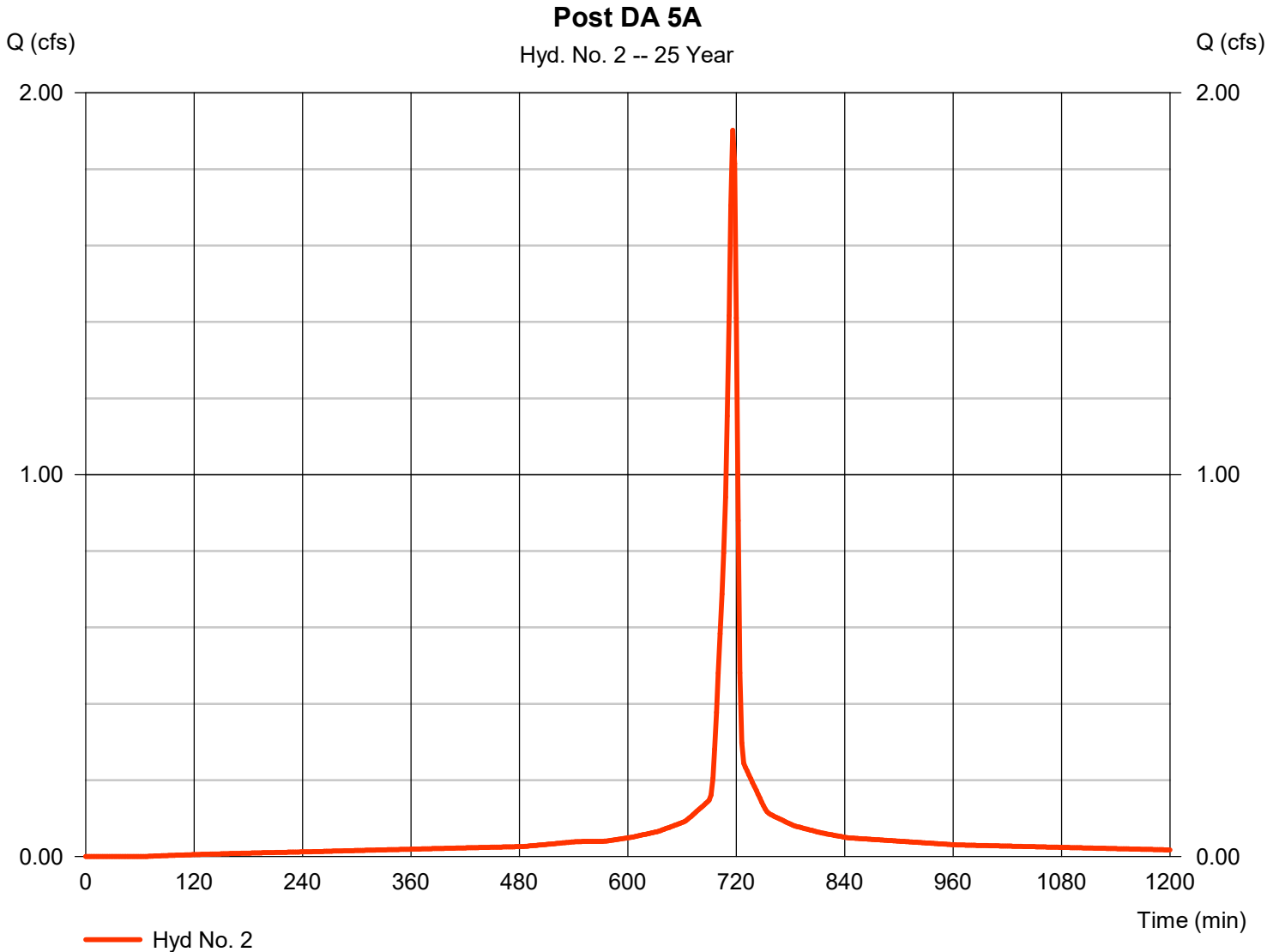
Hydrograph Report

Hyd. No. 2

Post DA 5A

Hydrograph type	= SCS Runoff	Peak discharge	= 1.902 cfs
Storm frequency	= 25 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 4,491 cuft
Drainage area	= 0.360 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.90 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.360 x 98)] / 0.360



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

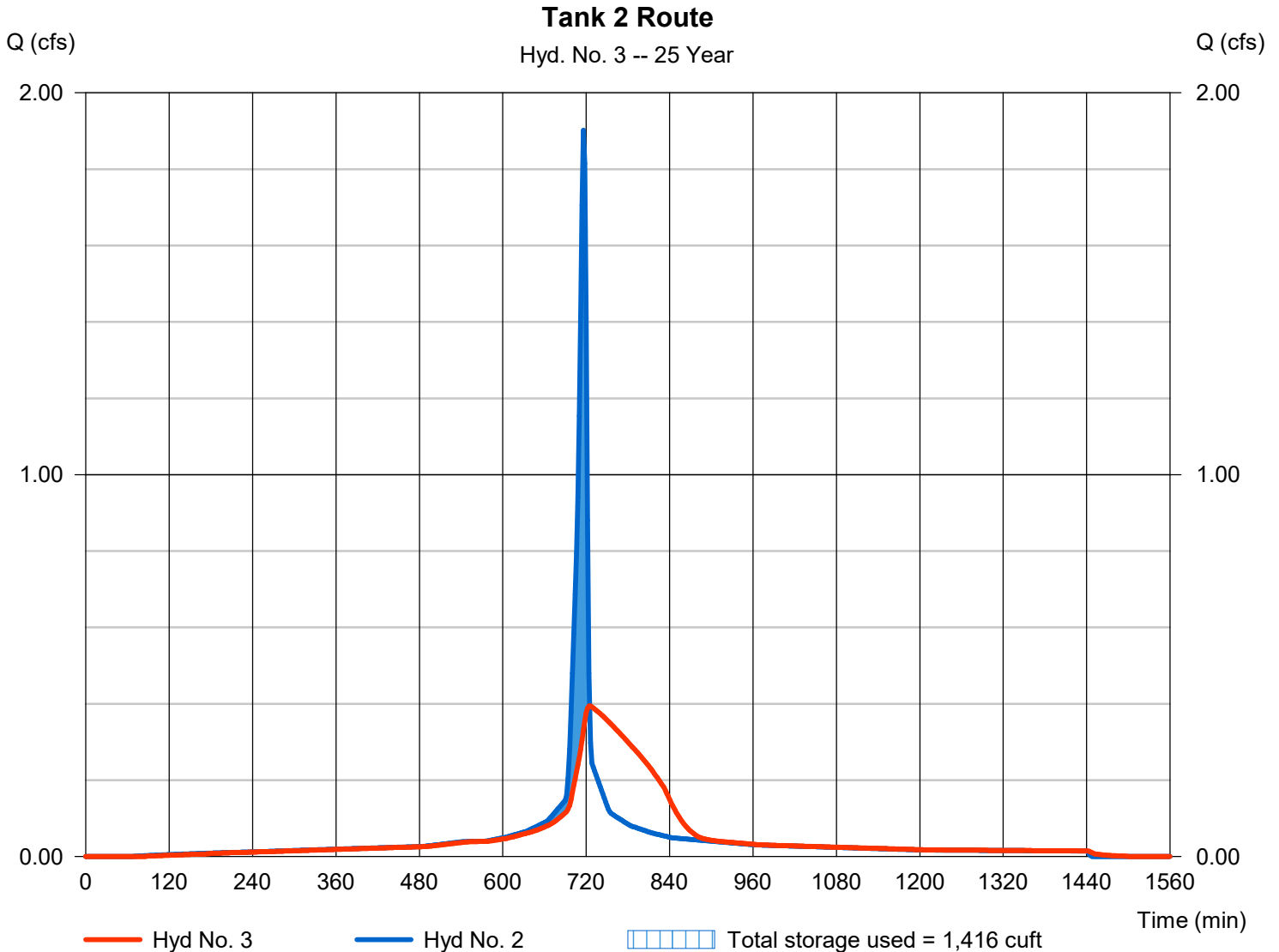
Monday, 02 / 9 / 2026

Hyd. No. 3

Tank 2 Route

Hydrograph type	= Reservoir	Peak discharge	= 0.394 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 4,489 cuft
Inflow hyd. No.	= 2 - Post DA 5A	Max. Elevation	= 858.64 ft
Reservoir name	= SCM 5.1 Det Tank	Max. Storage	= 1,416 cuft

Storage Indication method used.



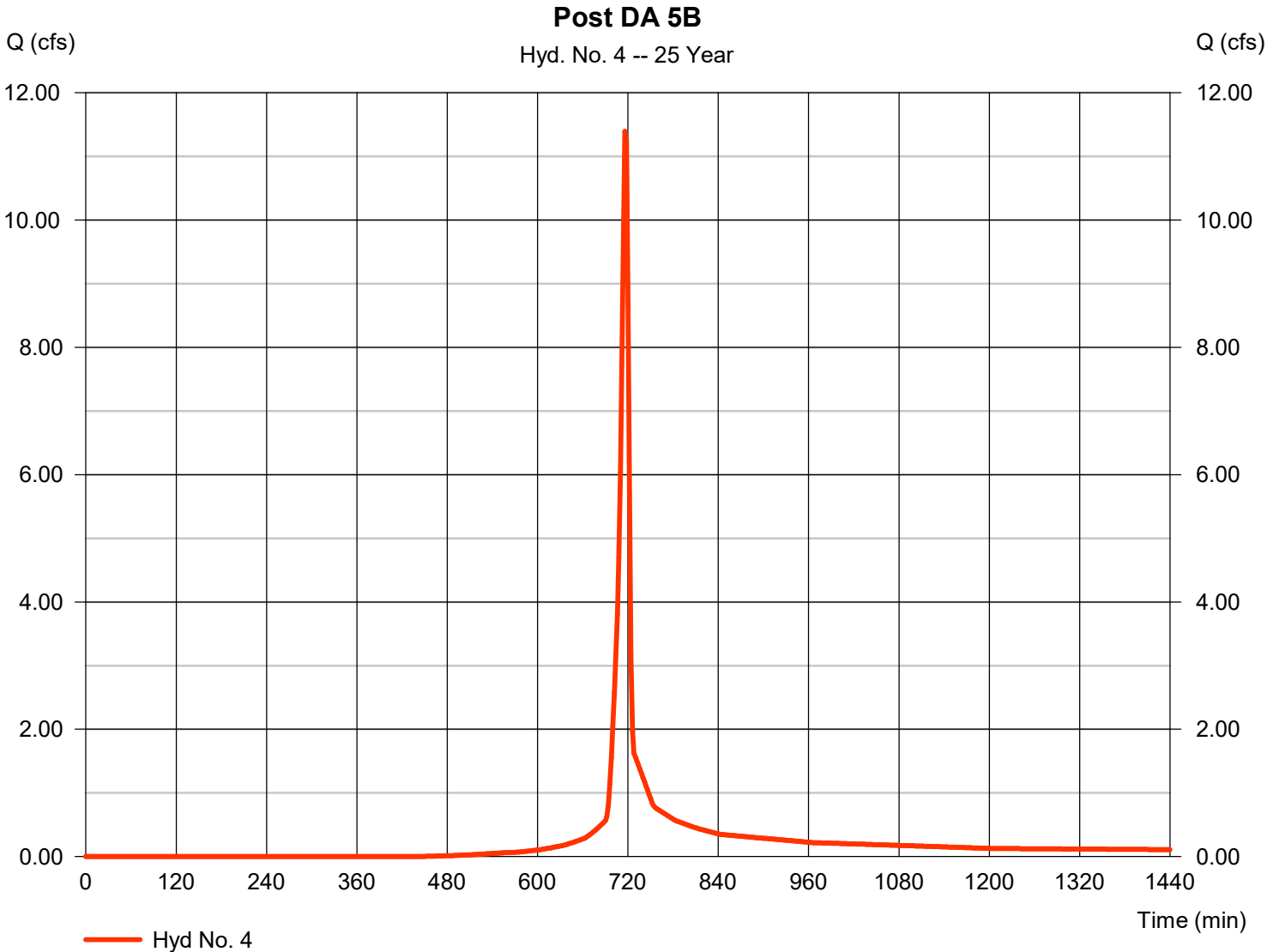
Hydrograph Report

Hyd. No. 4

Post DA 5B

Hydrograph type	= SCS Runoff	Peak discharge	= 11.39 cfs
Storm frequency	= 25 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 23,130 cuft
Drainage area	= 3.090 ac	Curve number	= 83*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.90 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.210 x 98) + (1.880 x 74)] / 3.090



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

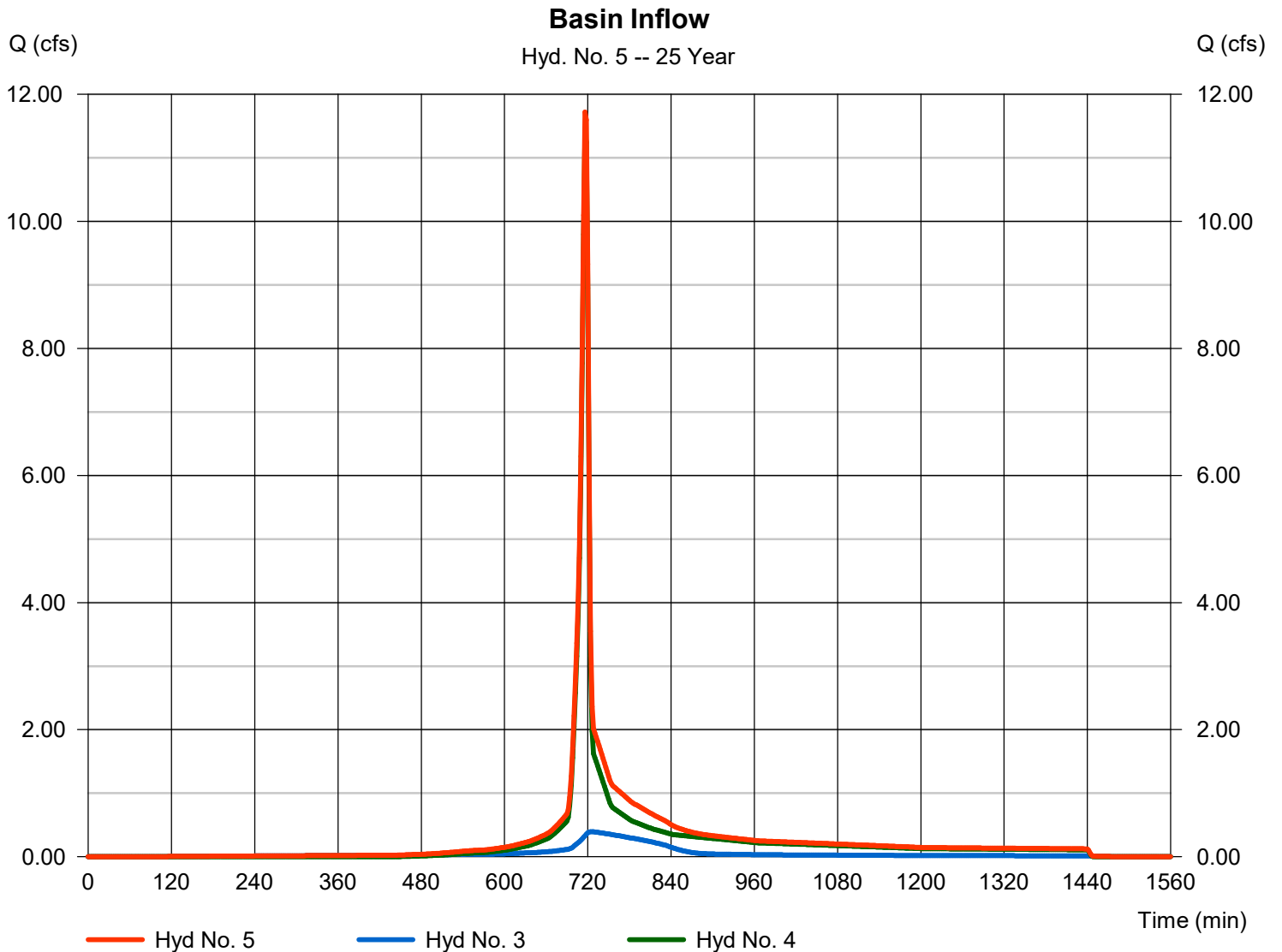
Monday, 02 / 9 / 2026

Hyd. No. 5

Basin Inflow

Hydrograph type = Combine
Storm frequency = 25 yrs
Time interval = 2 min
Inflow hyds. = 3, 4

Peak discharge = 11.72 cfs
Time to peak = 716 min
Hyd. volume = 27,619 cuft
Contrib. drain. area = 3.090 ac



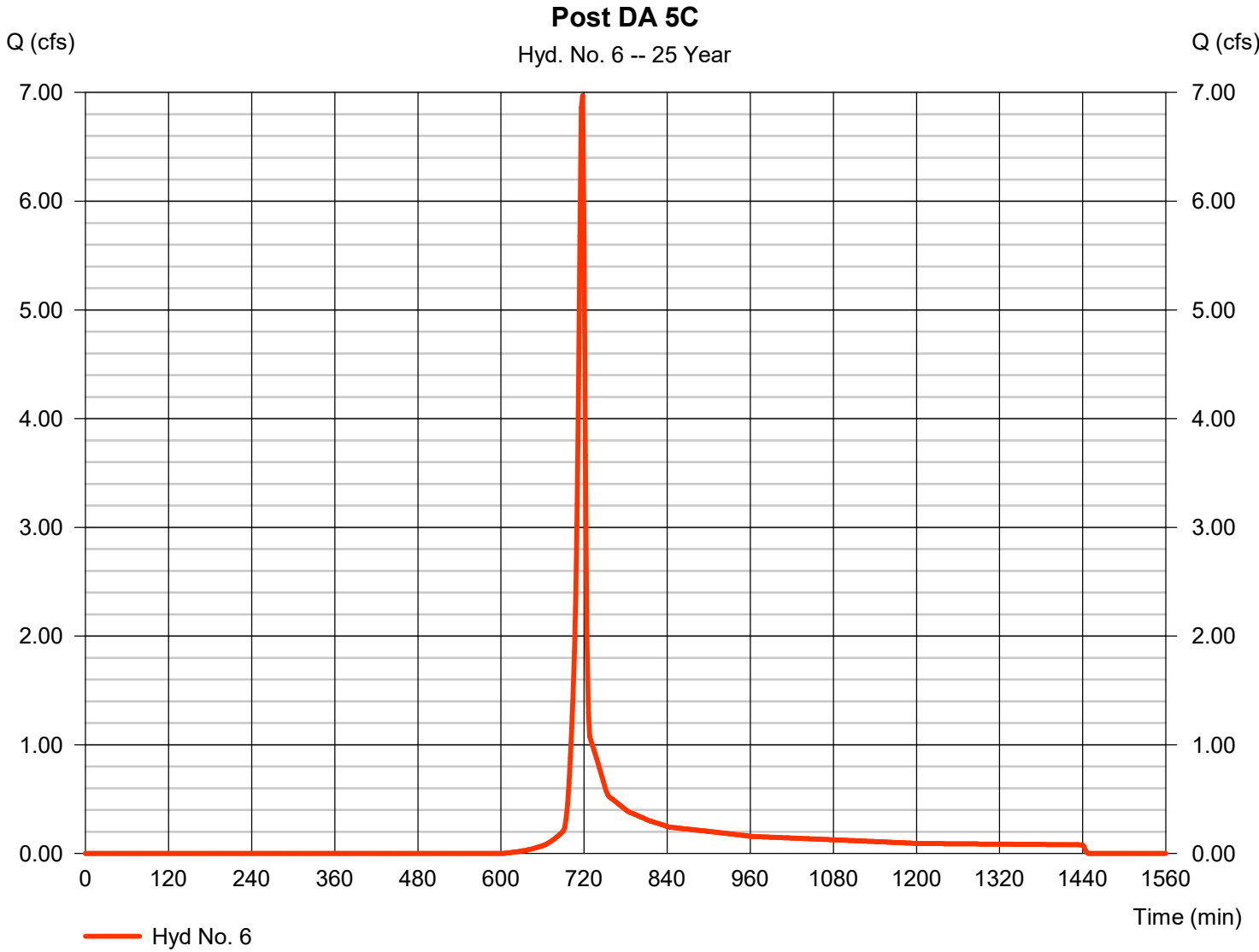
Hydrograph Report

Hyd. No. 6

Post DA 5C

Hydrograph type	= SCS Runoff	Peak discharge	= 6.970 cfs
Storm frequency	= 25 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 13,945 cuft
Drainage area	= 2.690 ac	Curve number	= 74*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.90 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.130 x 98) + (2.040 x 74) + (0.520 x 70)] / 2.690



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

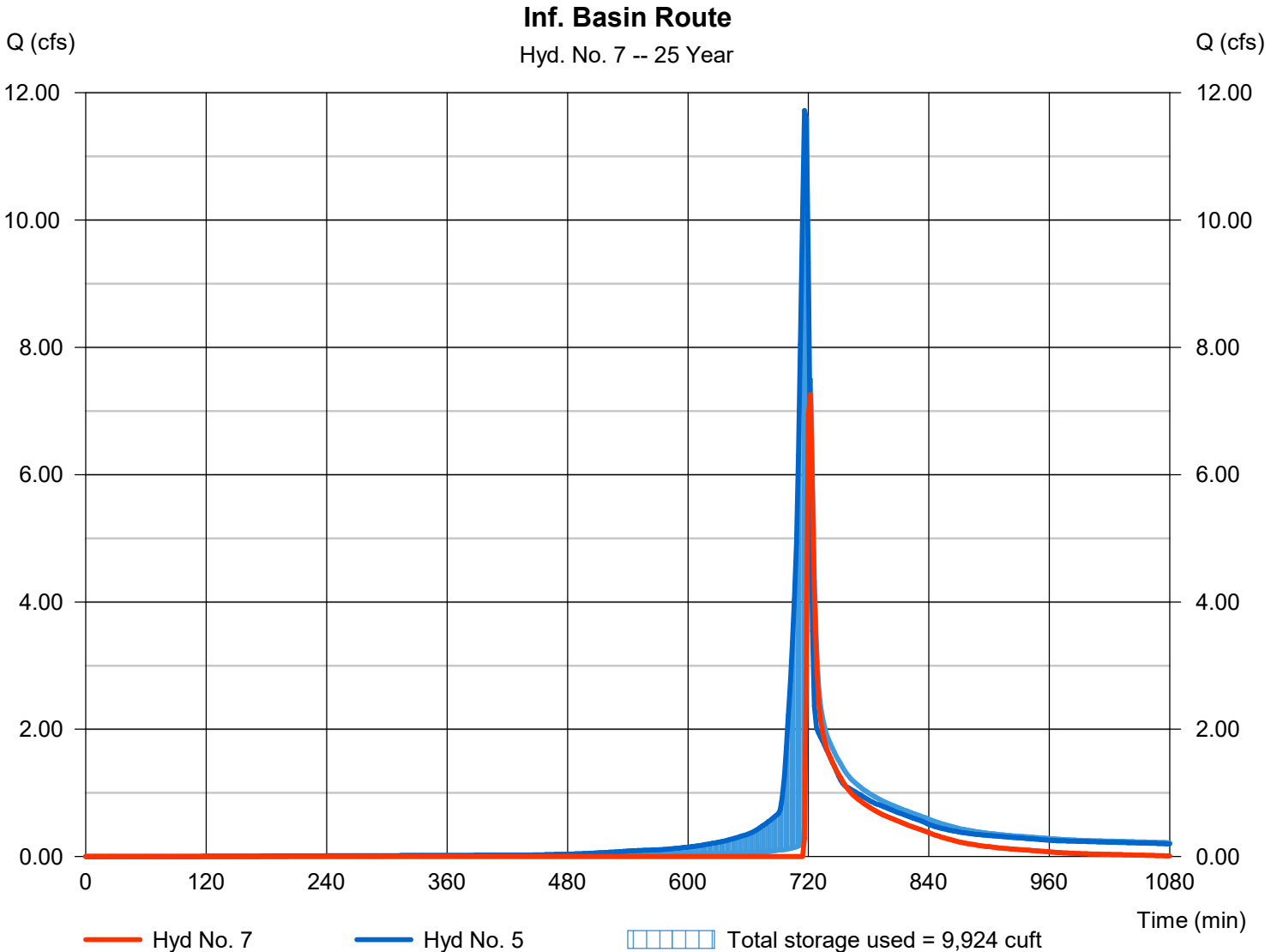
Monday, 02 / 9 / 2026

Hyd. No. 7

Inf. Basin Route

Hydrograph type	= Reservoir	Peak discharge	= 7.259 cfs
Storm frequency	= 25 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 11,158 cuft
Inflow hyd. No.	= 5 - Basin Inflow	Max. Elevation	= 852.50 ft
Reservoir name	= SCM 5.2 Inf Basin	Max. Storage	= 9,924 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

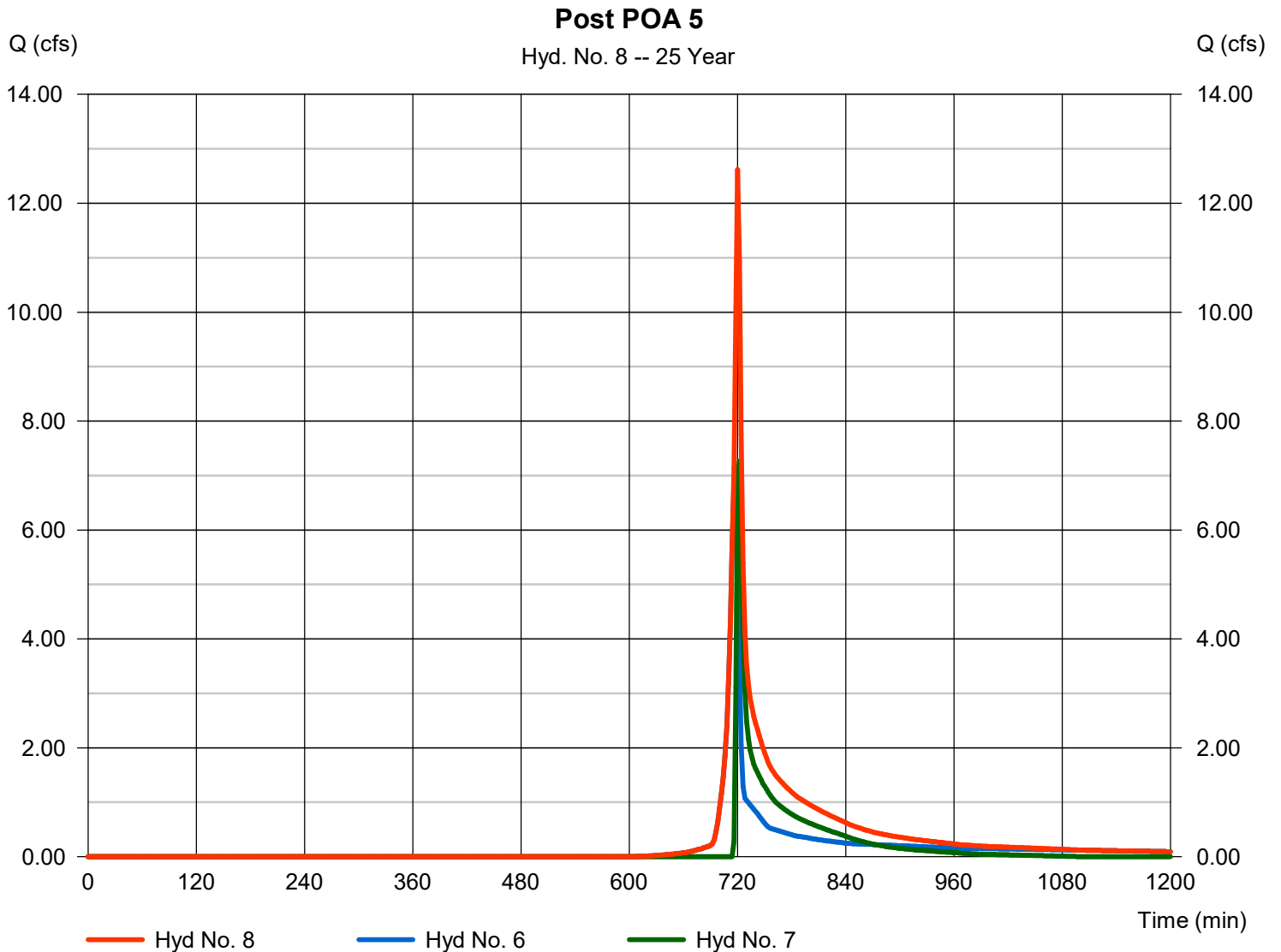
Monday, 02 / 9 / 2026

Hyd. No. 8

Post POA 5

Hydrograph type = Combine
Storm frequency = 25 yrs
Time interval = 2 min
Inflow hyds. = 6, 7

Peak discharge = 12.62 cfs
Time to peak = 720 min
Hyd. volume = 25,103 cuft
Contrib. drain. area = 2.690 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

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	21.58	2	718	43,246	-----	-----	-----	Pre-Development DA 5	
2	SCS Runoff	2.150	2	716	5,102	-----	-----	-----	Post DA 5A	
3	Reservoir	0.815	2	724	5,100	2	859.35	1,595	Tank 2 Route	
4	SCS Runoff	13.59	2	716	27,729	-----	-----	-----	Post DA 5B	
5	Combine	13.94	2	716	32,829	3, 4	-----	-----	Basin Inflow	
6	SCS Runoff	8.647	2	718	17,355	-----	-----	-----	Post DA 5C	
7	Reservoir	11.47	2	720	15,668	5	852.61	10,483	Inf. Basin Route	
8	Combine	18.90	2	718	33,023	6, 7	-----	-----	Post POA 5	
9	Reservoir	13.82	2	718	32,709	5	852.96	12,157	Spillway Route	
Ph 5 Hydrographs.gpw					Return Period: 50 Year			Monday, 02 / 9 / 2026		

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

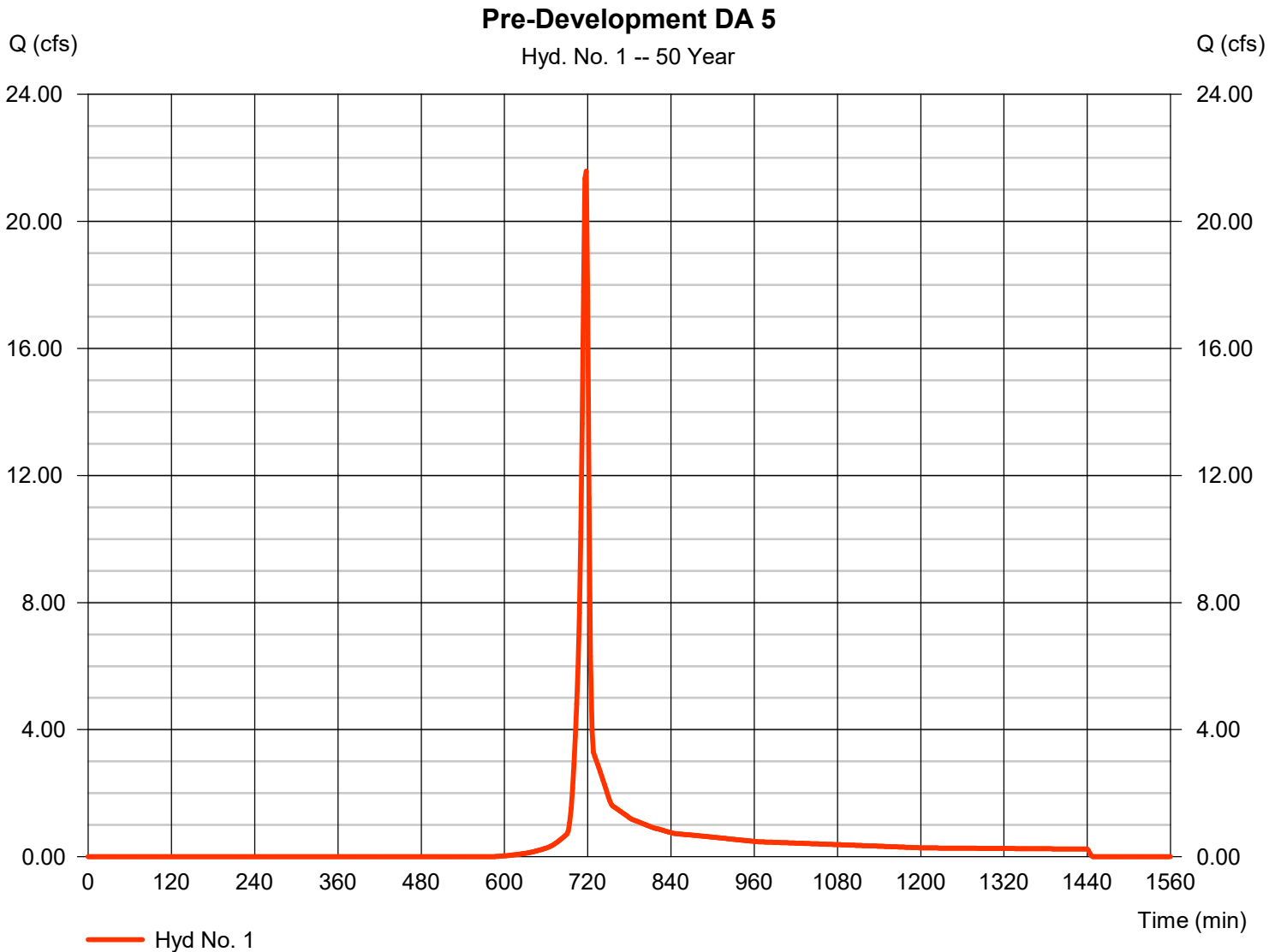
Monday, 02 / 9 / 2026

Hyd. No. 1

Pre-Development DA 5

Hydrograph type	= SCS Runoff	Peak discharge	= 21.58 cfs
Storm frequency	= 50 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 43,246 cuft
Drainage area	= 6.980 ac	Curve number	= 73*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 4.40 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.270 x 98) + (0.070 x 71) + (5.290 x 71) + (0.700 x 70) + (0.650 x 87)] / 6.980



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

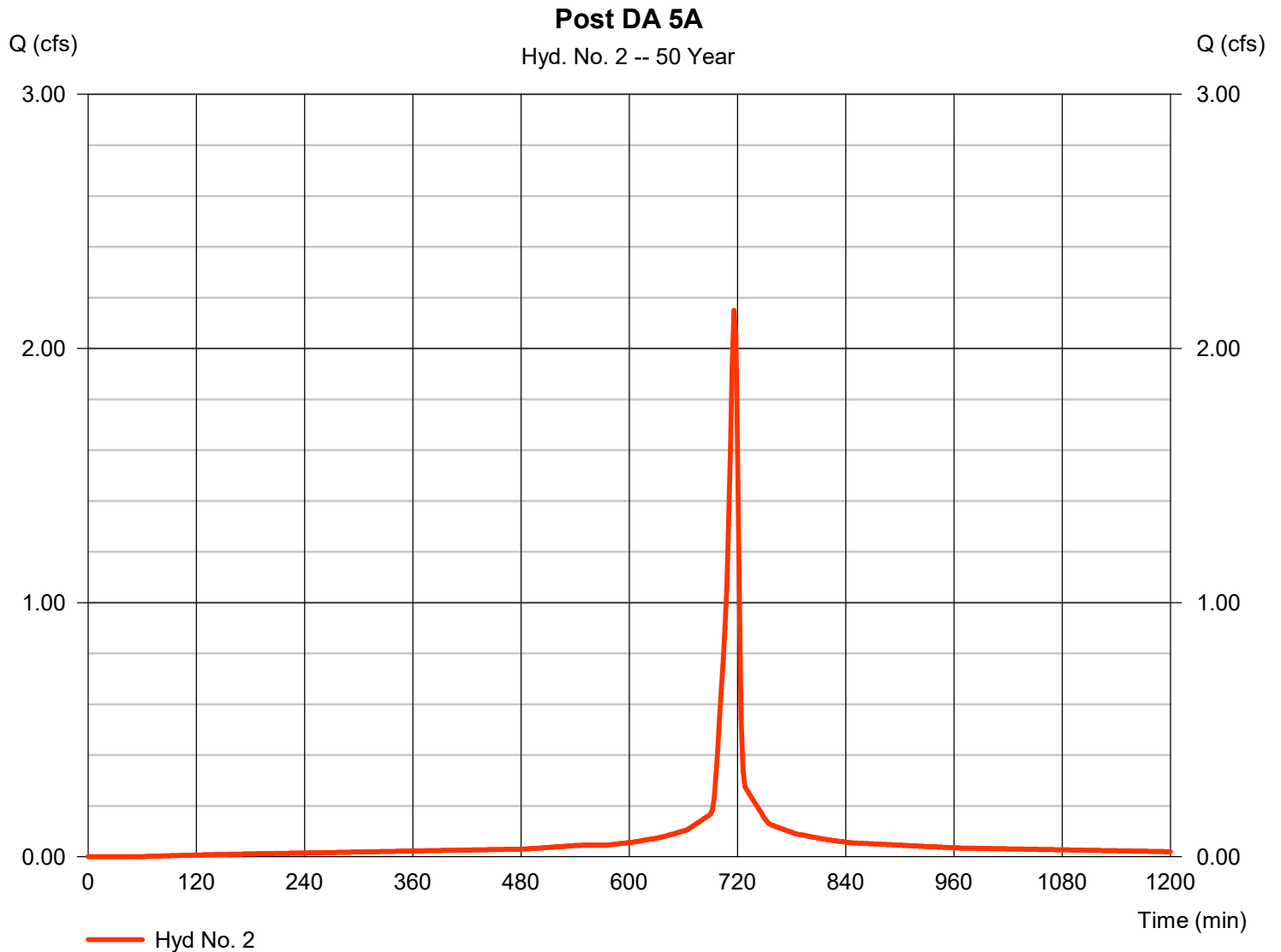
Monday, 02 / 9 / 2026

Hyd. No. 2

Post DA 5A

Hydrograph type	= SCS Runoff	Peak discharge	= 2.150 cfs
Storm frequency	= 50 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 5,102 cuft
Drainage area	= 0.360 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 4.40 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.360 x 98)] / 0.360



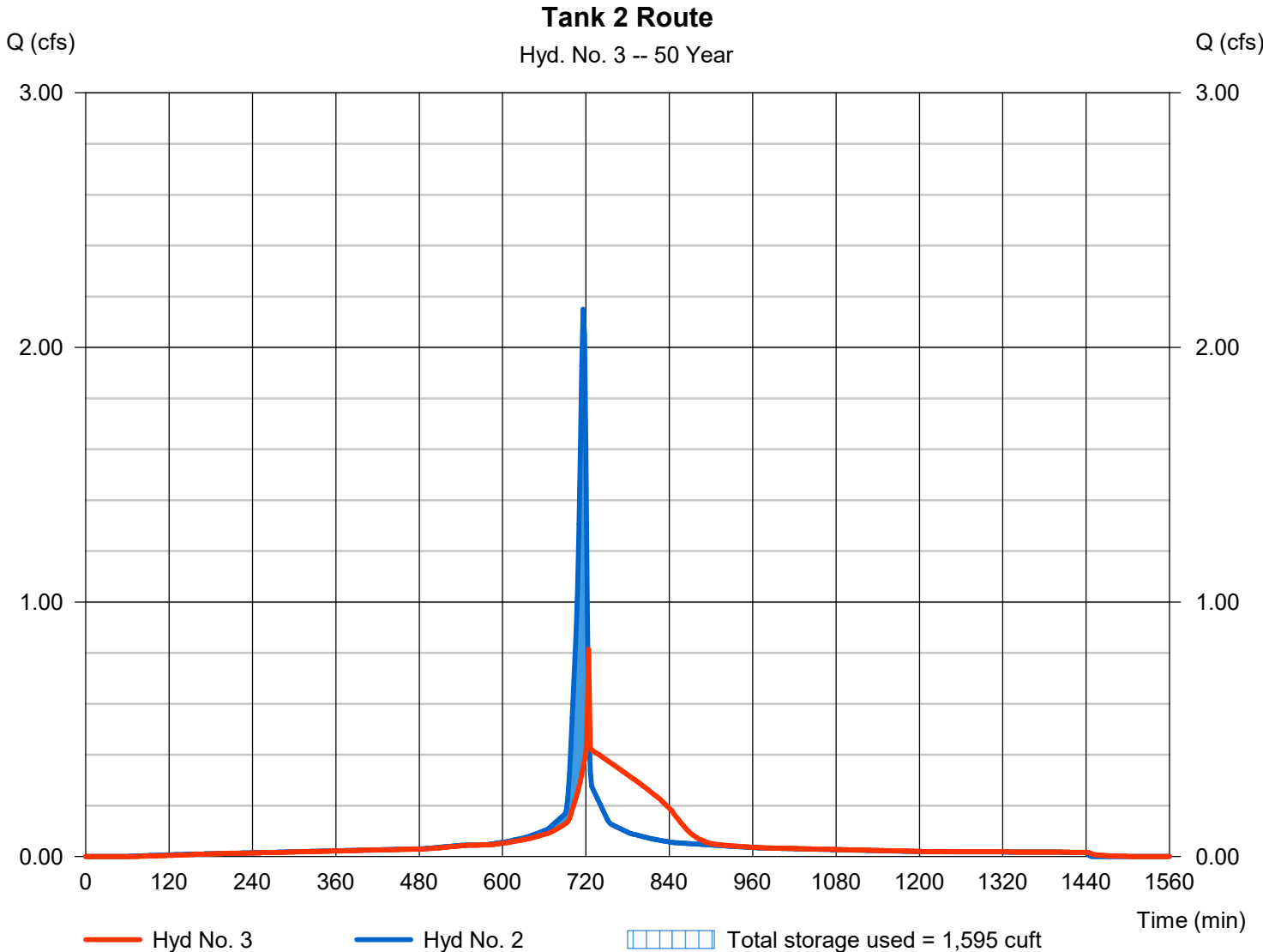
Hydrograph Report

Hyd. No. 3

Tank 2 Route

Hydrograph type	= Reservoir	Peak discharge	= 0.815 cfs
Storm frequency	= 50 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 5,100 cuft
Inflow hyd. No.	= 2 - Post DA 5A	Max. Elevation	= 859.35 ft
Reservoir name	= SCM 5.1 Det Tank	Max. Storage	= 1,595 cuft

Storage Indication method used.



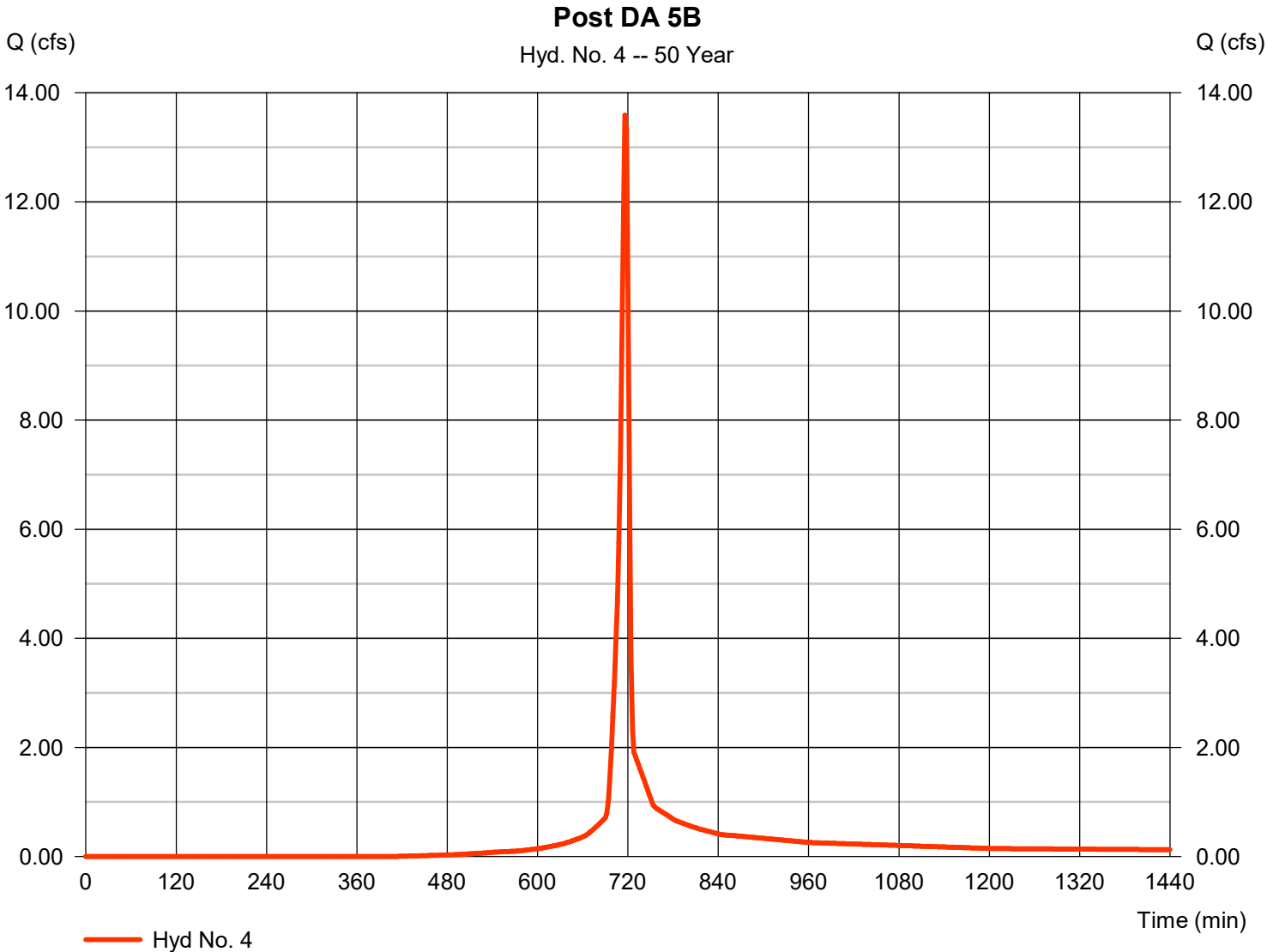
Hydrograph Report

Hyd. No. 4

Post DA 5B

Hydrograph type	= SCS Runoff	Peak discharge	= 13.59 cfs
Storm frequency	= 50 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 27,729 cuft
Drainage area	= 3.090 ac	Curve number	= 83*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 4.40 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.210 x 98) + (1.880 x 74)] / 3.090



Hydrograph Report

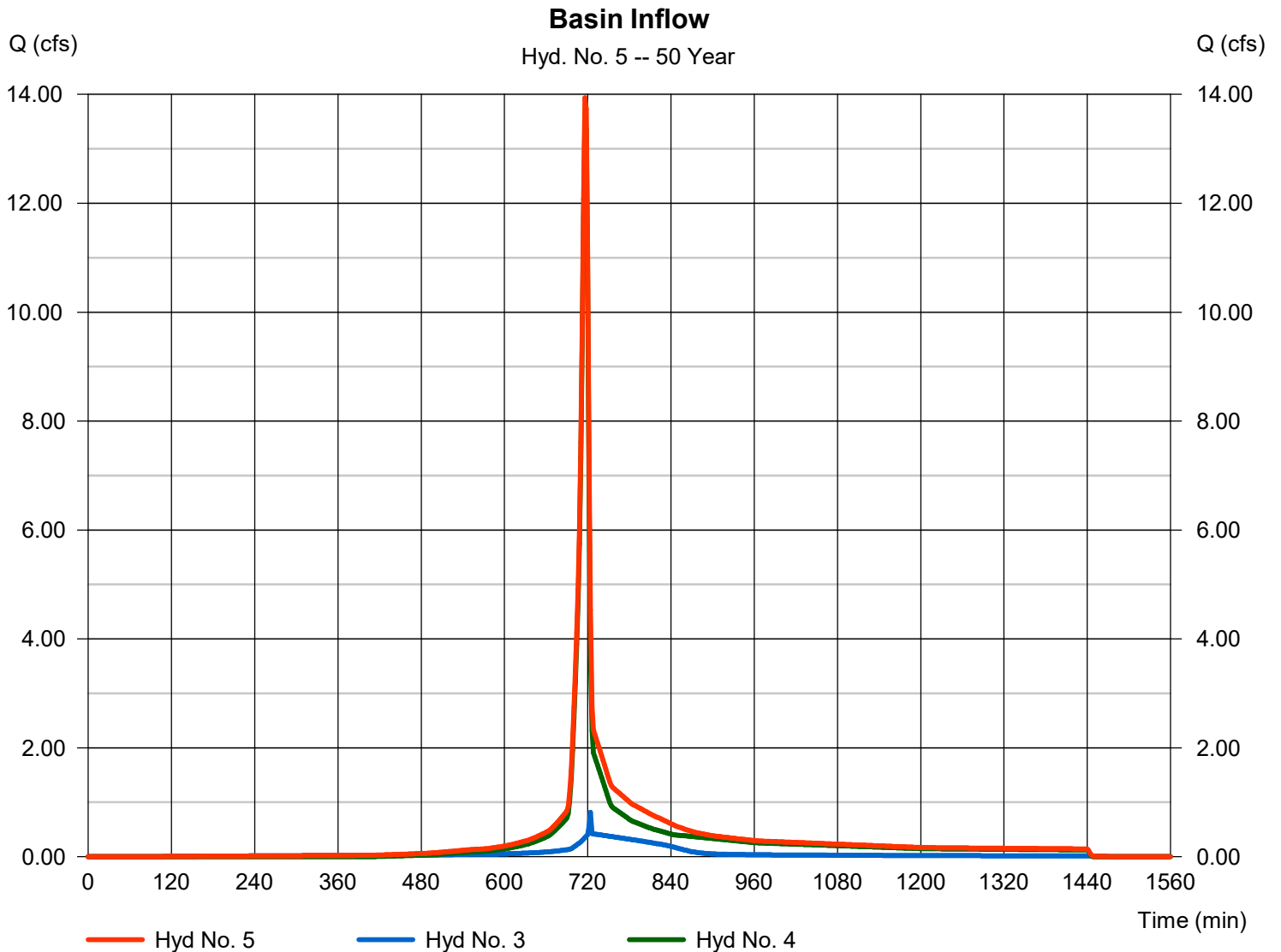
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

Monday, 02 / 9 / 2026

Hyd. No. 5

Basin Inflow

Hydrograph type	= Combine	Peak discharge	= 13.94 cfs
Storm frequency	= 50 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 32,829 cuft
Inflow hyds.	= 3, 4	Contrib. drain. area	= 3.090 ac



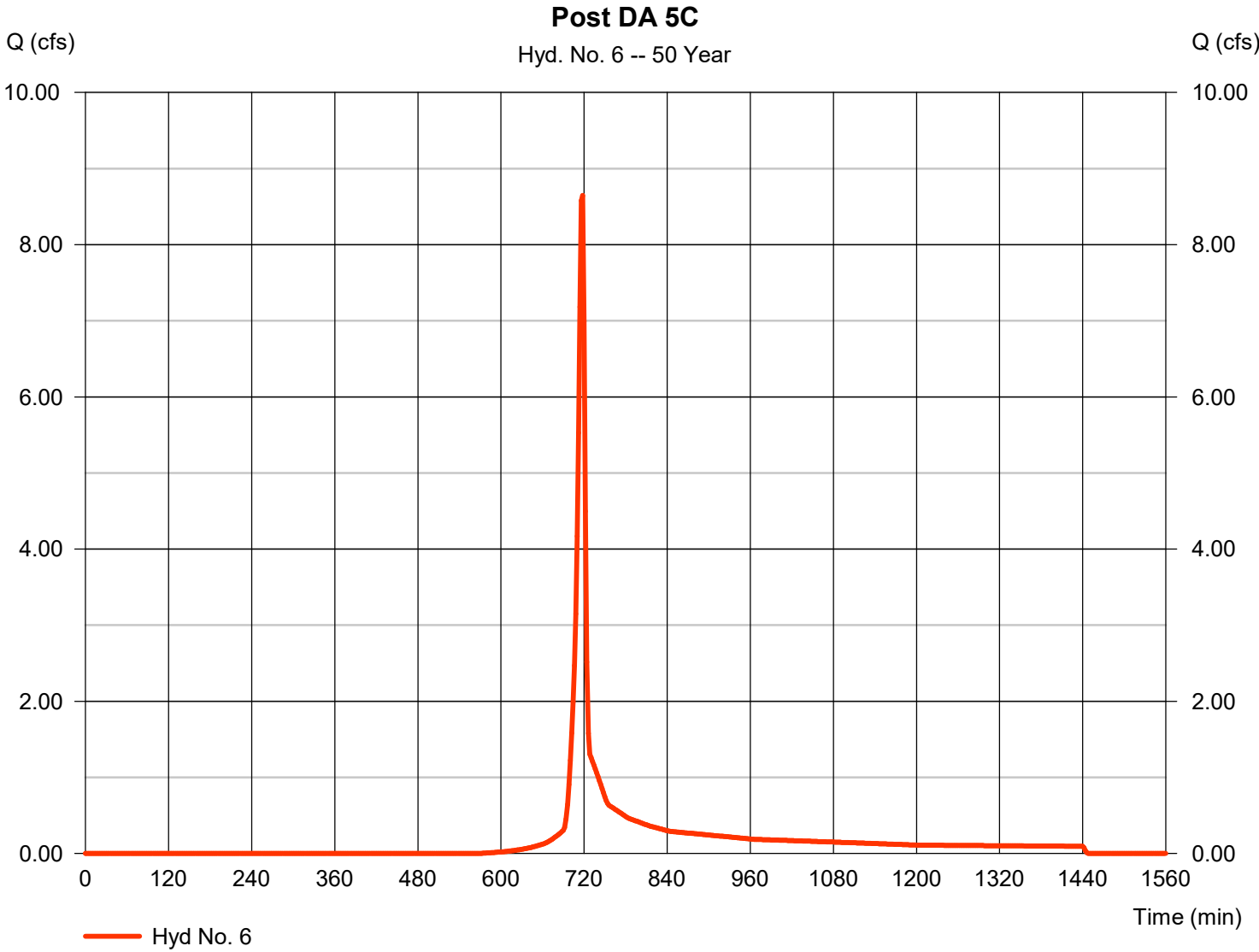
Hydrograph Report

Hyd. No. 6

Post DA 5C

Hydrograph type	= SCS Runoff	Peak discharge	= 8.647 cfs
Storm frequency	= 50 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 17,355 cuft
Drainage area	= 2.690 ac	Curve number	= 74*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 4.40 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.130 x 98) + (2.040 x 74) + (0.520 x 70)] / 2.690



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

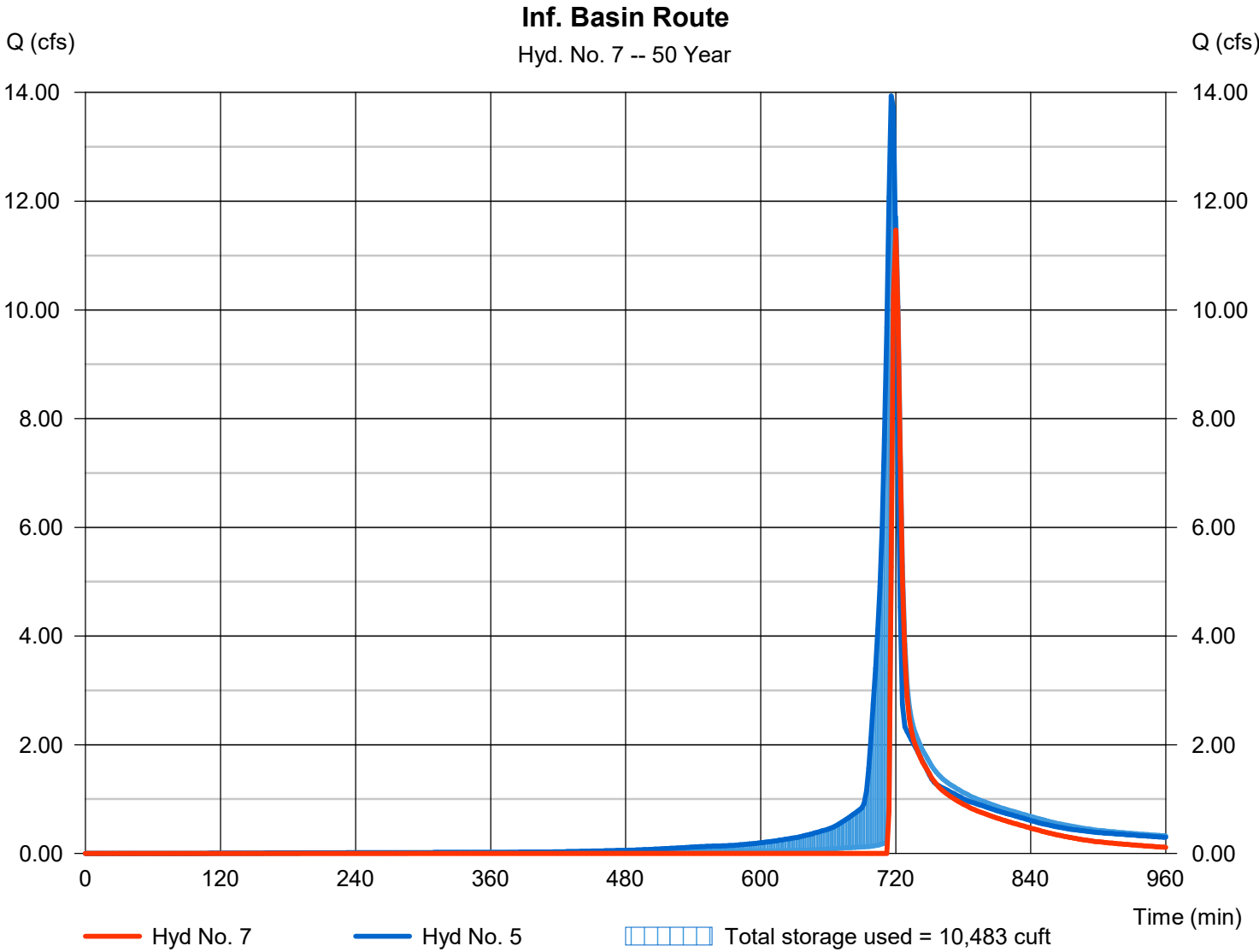
Monday, 02 / 9 / 2026

Hyd. No. 7

Inf. Basin Route

Hydrograph type	= Reservoir	Peak discharge	= 11.47 cfs
Storm frequency	= 50 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 15,668 cuft
Inflow hyd. No.	= 5 - Basin Inflow	Max. Elevation	= 852.61 ft
Reservoir name	= SCM 5.2 Inf Basin	Max. Storage	= 10,483 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

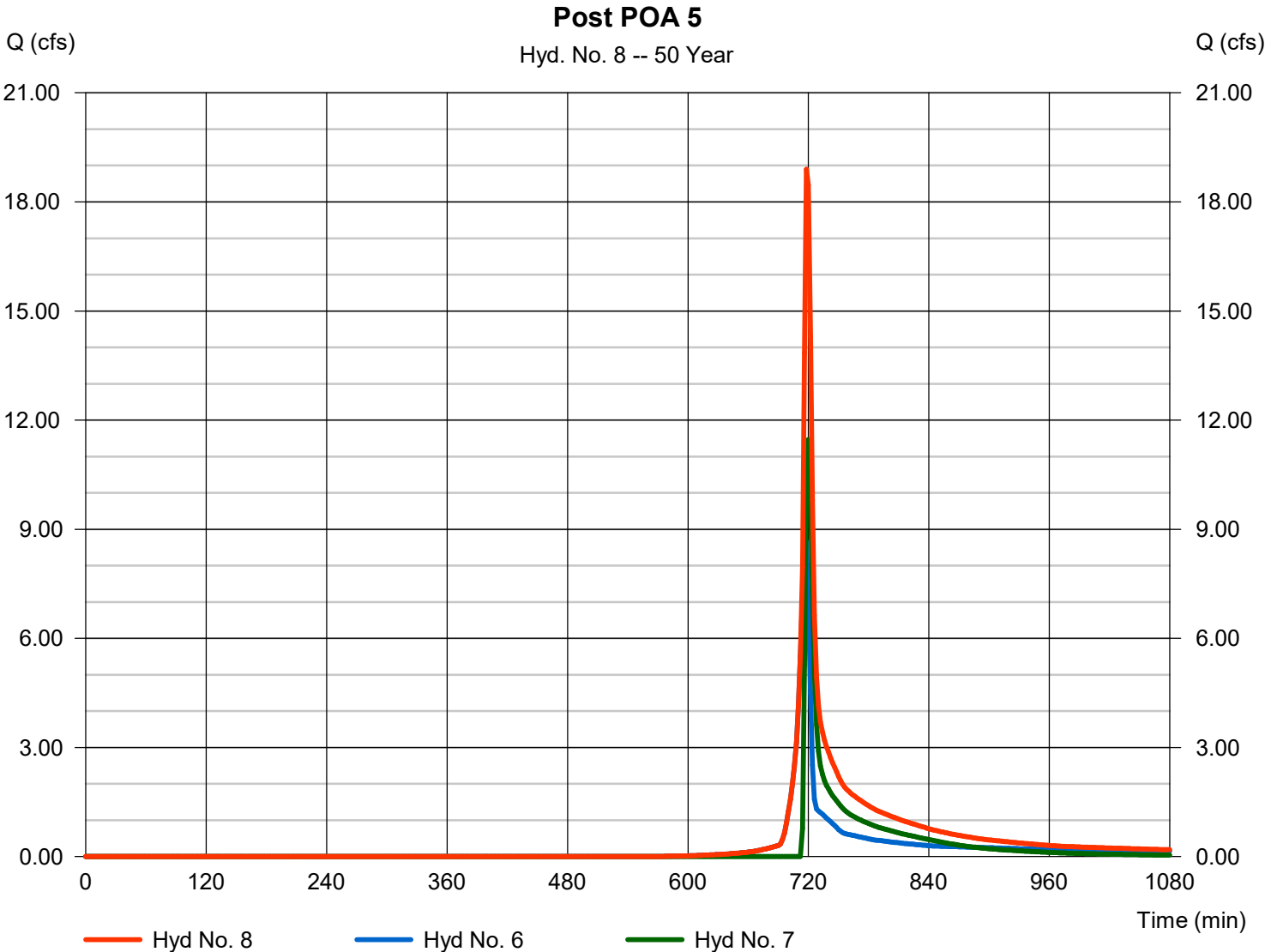
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

Monday, 02 / 9 / 2026

Hyd. No. 8

Post POA 5

Hydrograph type	= Combine	Peak discharge	= 18.90 cfs
Storm frequency	= 50 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 33,023 cuft
Inflow hyds.	= 6, 7	Contrib. drain. area	= 2.690 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

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	26.19	2	718	52,684	-----	-----	-----	Pre-Development DA 5	
2	SCS Runoff	2.407	2	716	5,738	-----	-----	-----	Post DA 5A	
3	Reservoir	1.719	2	720	5,736	2	859.46	1,618	Tank 2 Route	
4	SCS Runoff	15.89	2	716	32,618	-----	-----	-----	Post DA 5B	
5	Combine	16.26	2	716	38,354	3, 4	-----	-----	Basin Inflow	
6	SCS Runoff	10.44	2	718	21,061	-----	-----	-----	Post DA 5C	
7	Reservoir	14.69	2	720	20,558	5	852.69	10,861	Inf. Basin Route	
8	Combine	24.97	2	718	41,618	6, 7	-----	-----	Post POA 5	
9	Reservoir	16.12	2	718	38,234	5	852.99	12,295	Spillway Route	
Ph 5 Hydrographs.gpw					Return Period: 100 Year			Monday, 02 / 9 / 2026		

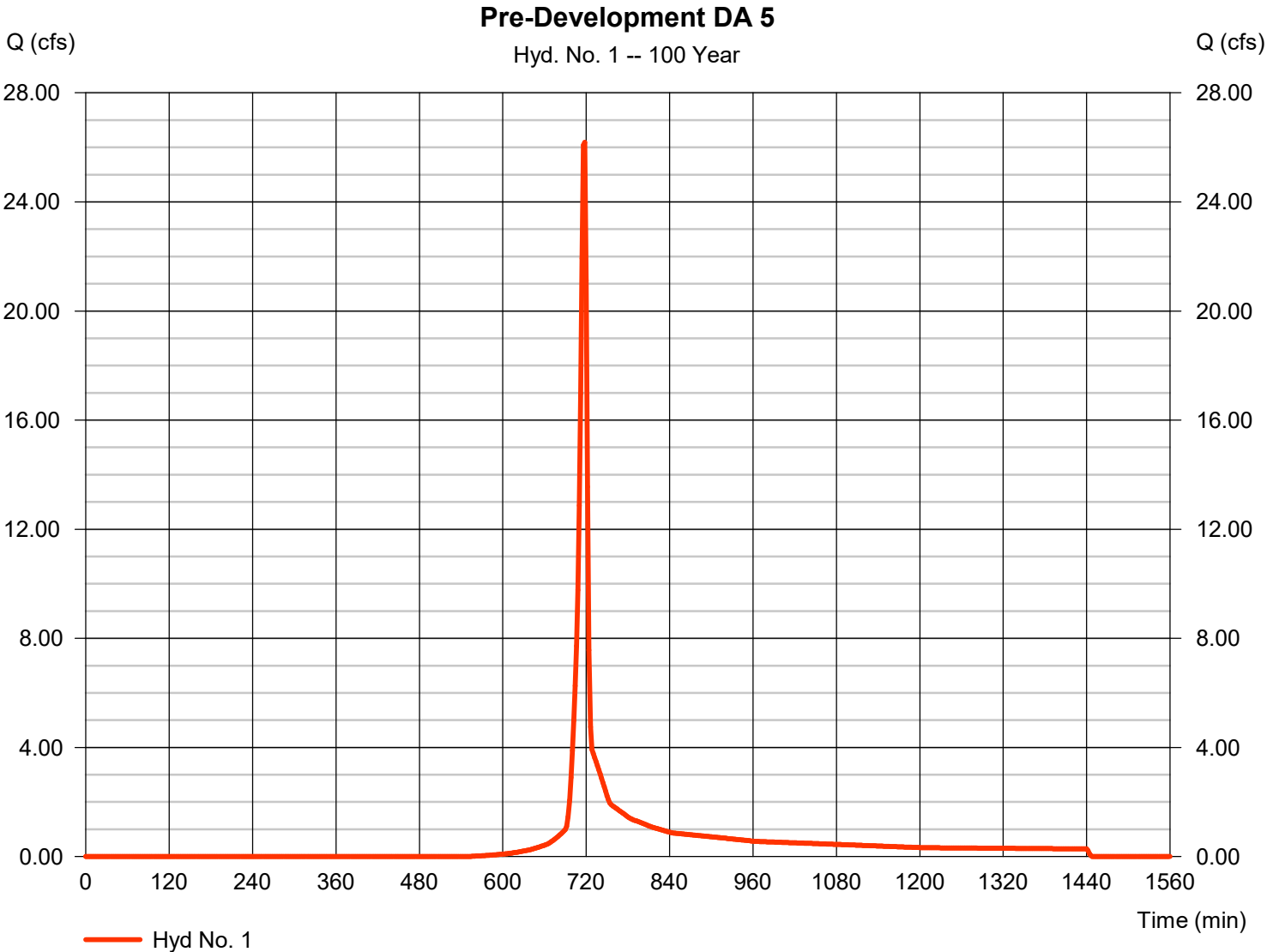
Hydrograph Report

Hyd. No. 1

Pre-Development DA 5

Hydrograph type	= SCS Runoff	Peak discharge	= 26.19 cfs
Storm frequency	= 100 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 52,684 cuft
Drainage area	= 6.980 ac	Curve number	= 73*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 4.92 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.270 x 98) + (0.070 x 71) + (5.290 x 71) + (0.700 x 70) + (0.650 x 87)] / 6.980



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

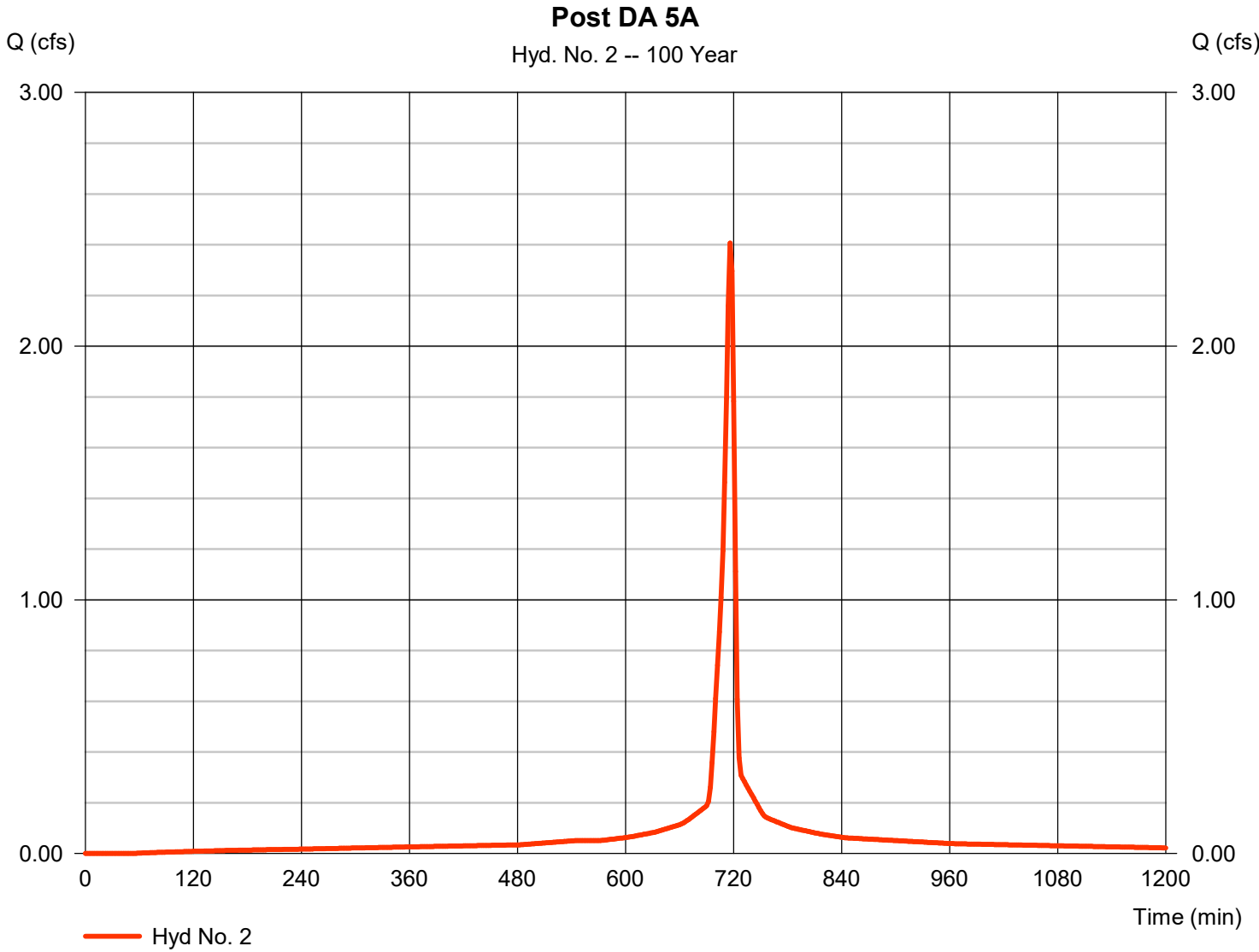
Monday, 02 / 9 / 2026

Hyd. No. 2

Post DA 5A

Hydrograph type	= SCS Runoff	Peak discharge	= 2.407 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 5,738 cuft
Drainage area	= 0.360 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 4.92 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.360 x 98)] / 0.360



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

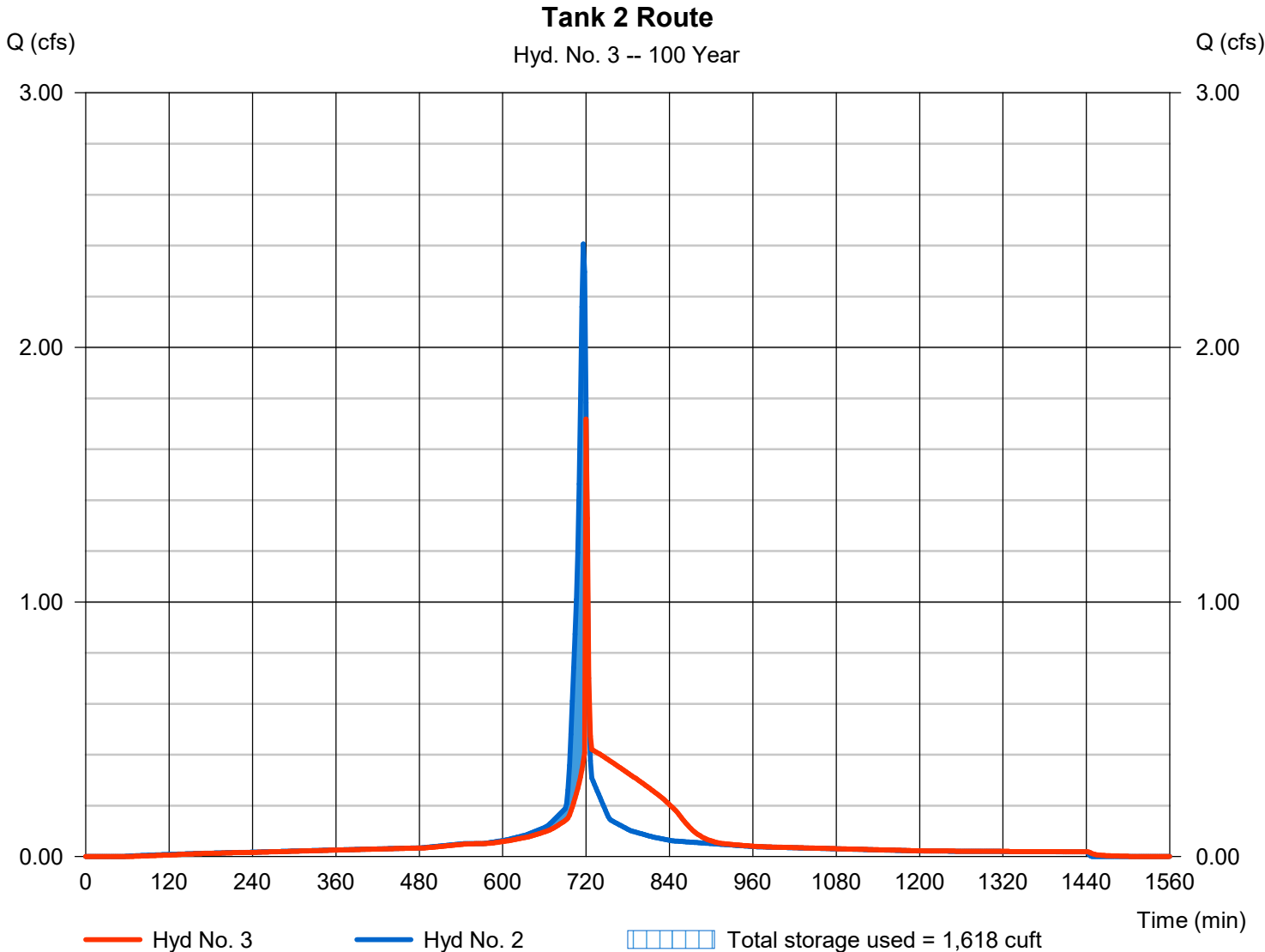
Monday, 02 / 9 / 2026

Hyd. No. 3

Tank 2 Route

Hydrograph type	= Reservoir	Peak discharge	= 1.719 cfs
Storm frequency	= 100 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 5,736 cuft
Inflow hyd. No.	= 2 - Post DA 5A	Max. Elevation	= 859.46 ft
Reservoir name	= SCM 5.1 Det Tank	Max. Storage	= 1,618 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

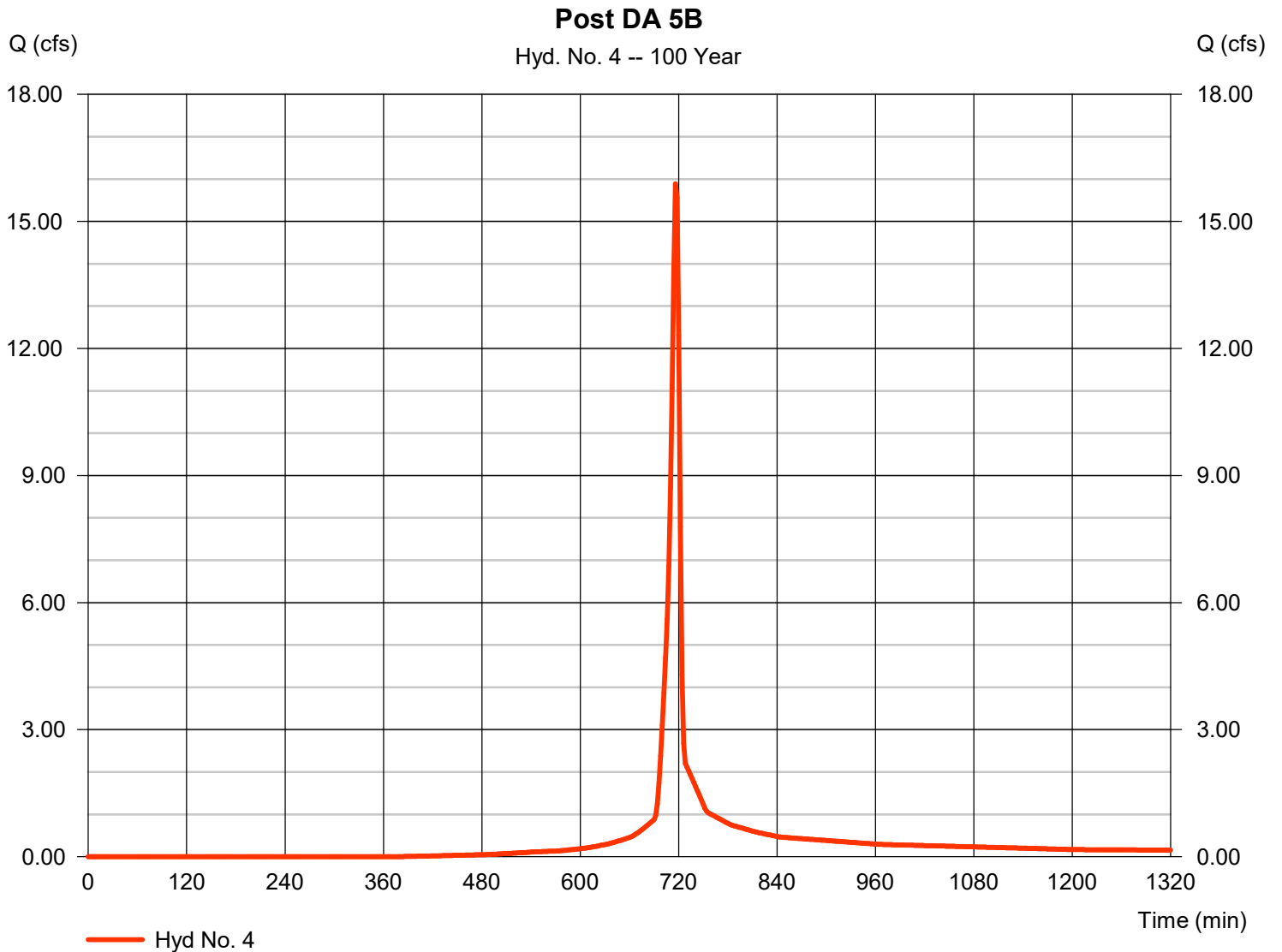
Monday, 02 / 9 / 2026

Hyd. No. 4

Post DA 5B

Hydrograph type	= SCS Runoff	Peak discharge	= 15.89 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 32,618 cuft
Drainage area	= 3.090 ac	Curve number	= 83*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 4.92 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.210 x 98) + (1.880 x 74)] / 3.090



Hydrograph Report

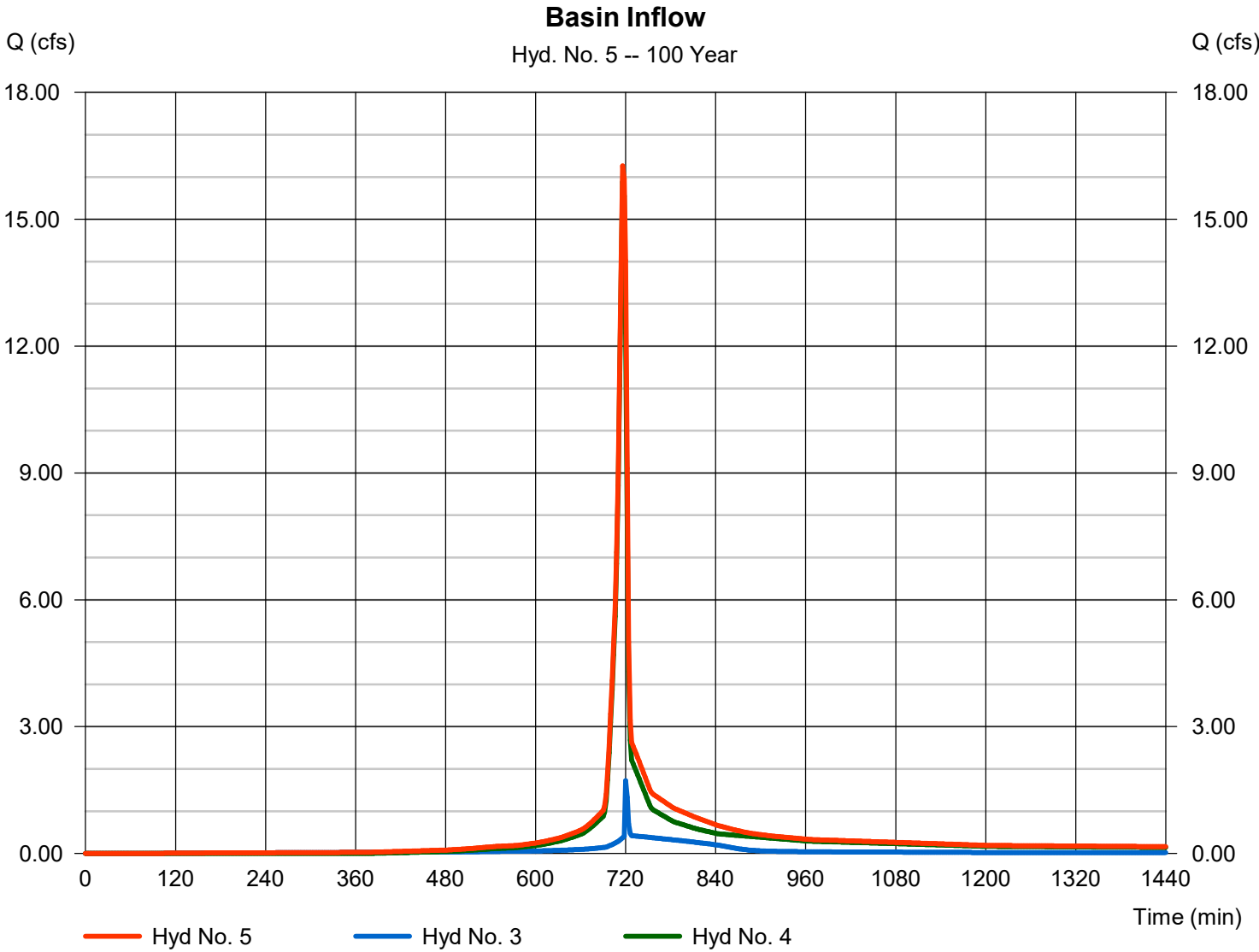
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

Monday, 02 / 9 / 2026

Hyd. No. 5

Basin Inflow

Hydrograph type	= Combine	Peak discharge	= 16.26 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 38,354 cuft
Inflow hyds.	= 3, 4	Contrib. drain. area	= 3.090 ac



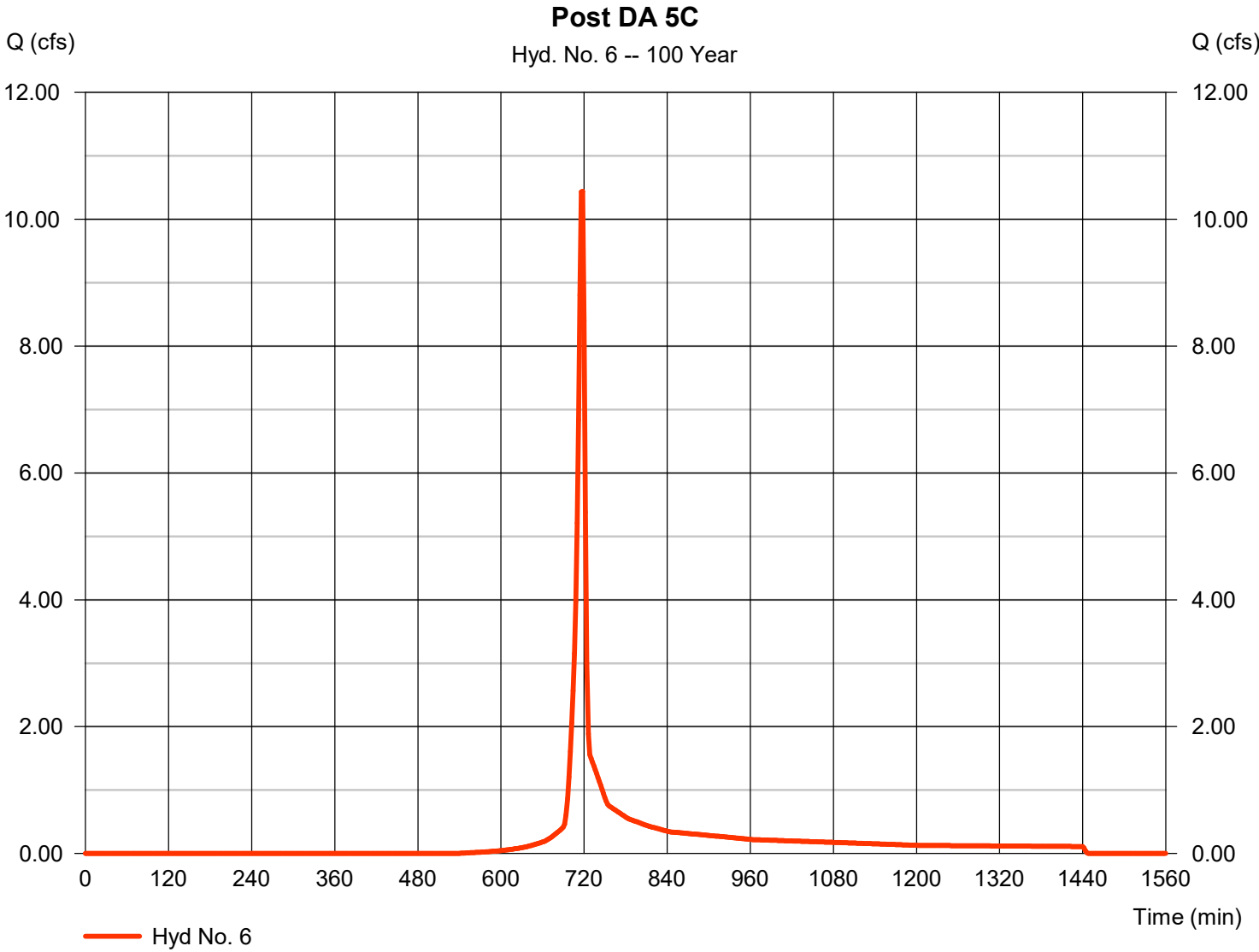
Hydrograph Report

Hyd. No. 6

Post DA 5C

Hydrograph type	= SCS Runoff	Peak discharge	= 10.44 cfs
Storm frequency	= 100 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 21,061 cuft
Drainage area	= 2.690 ac	Curve number	= 74*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 4.92 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.130 x 98) + (2.040 x 74) + (0.520 x 70)] / 2.690



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

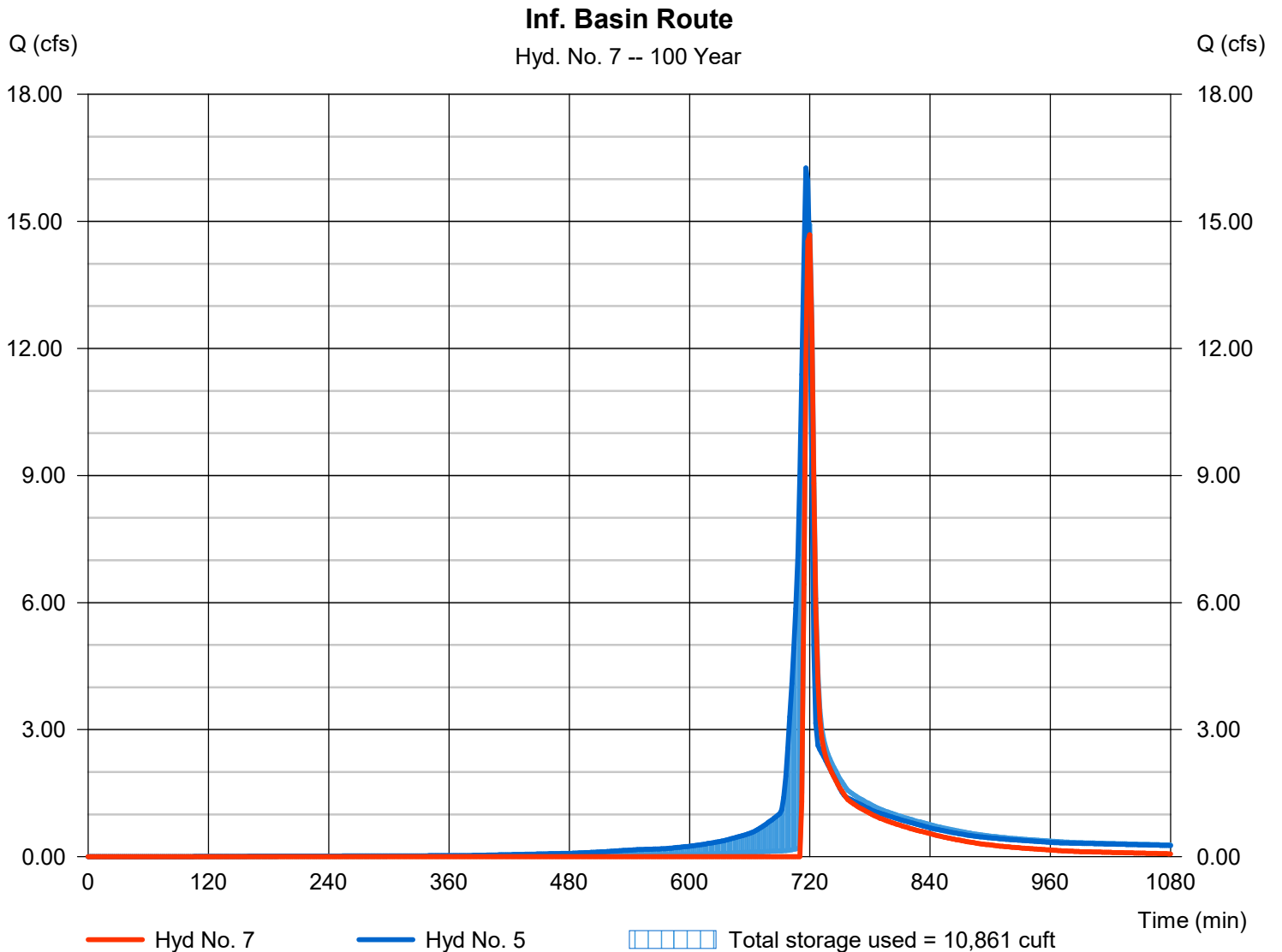
Monday, 02 / 9 / 2026

Hyd. No. 7

Inf. Basin Route

Hydrograph type	= Reservoir	Peak discharge	= 14.69 cfs
Storm frequency	= 100 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 20,558 cuft
Inflow hyd. No.	= 5 - Basin Inflow	Max. Elevation	= 852.69 ft
Reservoir name	= SCM 5.2 Inf Basin	Max. Storage	= 10,861 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



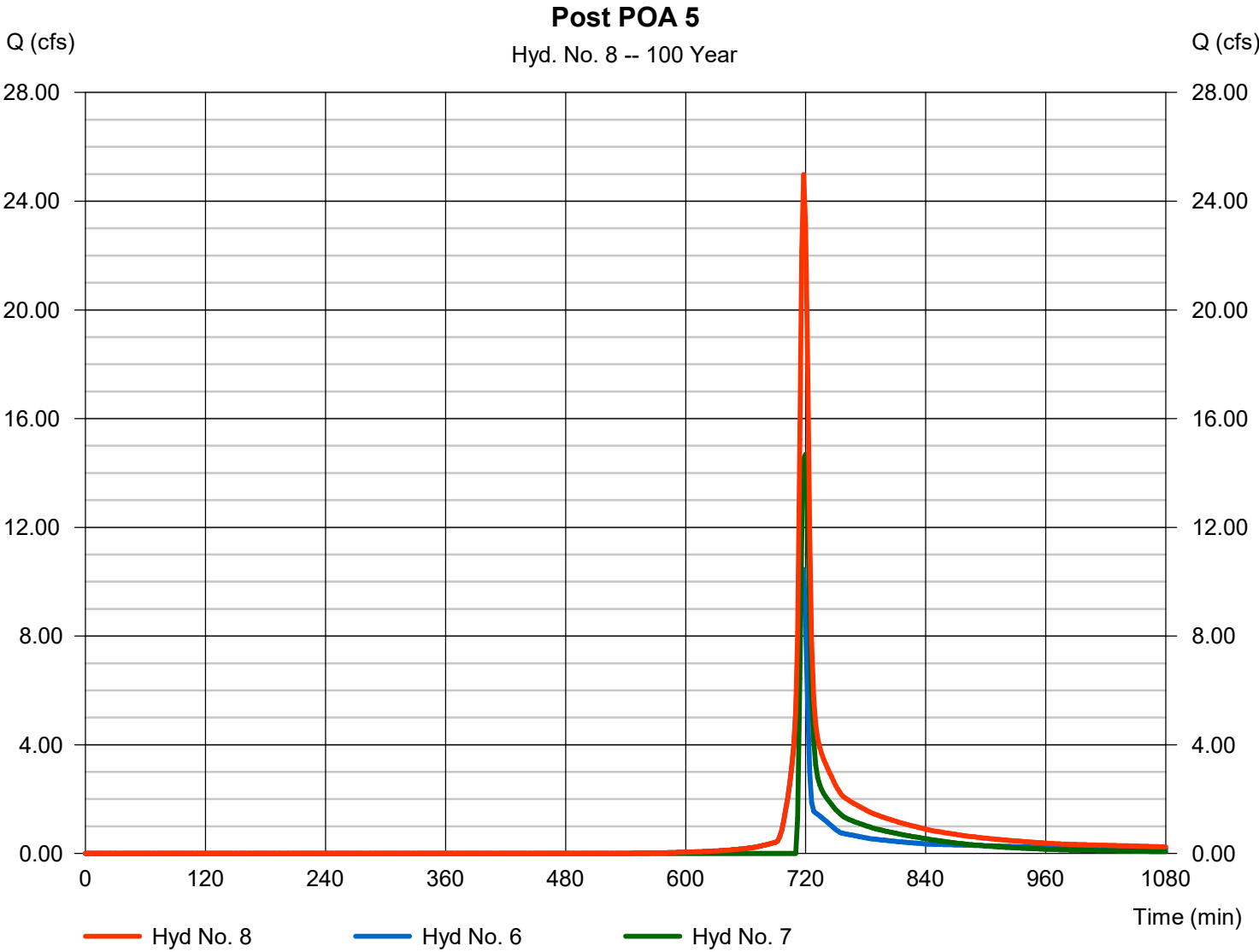
Hydrograph Report

Hyd. No. 8

Post POA 5

Hydrograph type = Combine
Storm frequency = 100 yrs
Time interval = 2 min
Inflow hyds. = 6, 7

Peak discharge = 24.97 cfs
Time to peak = 718 min
Hyd. volume = 41,618 cuft
Contrib. drain. area = 2.690 ac



APPENDIX D FLOOD ROUTING

Hydrograph Report

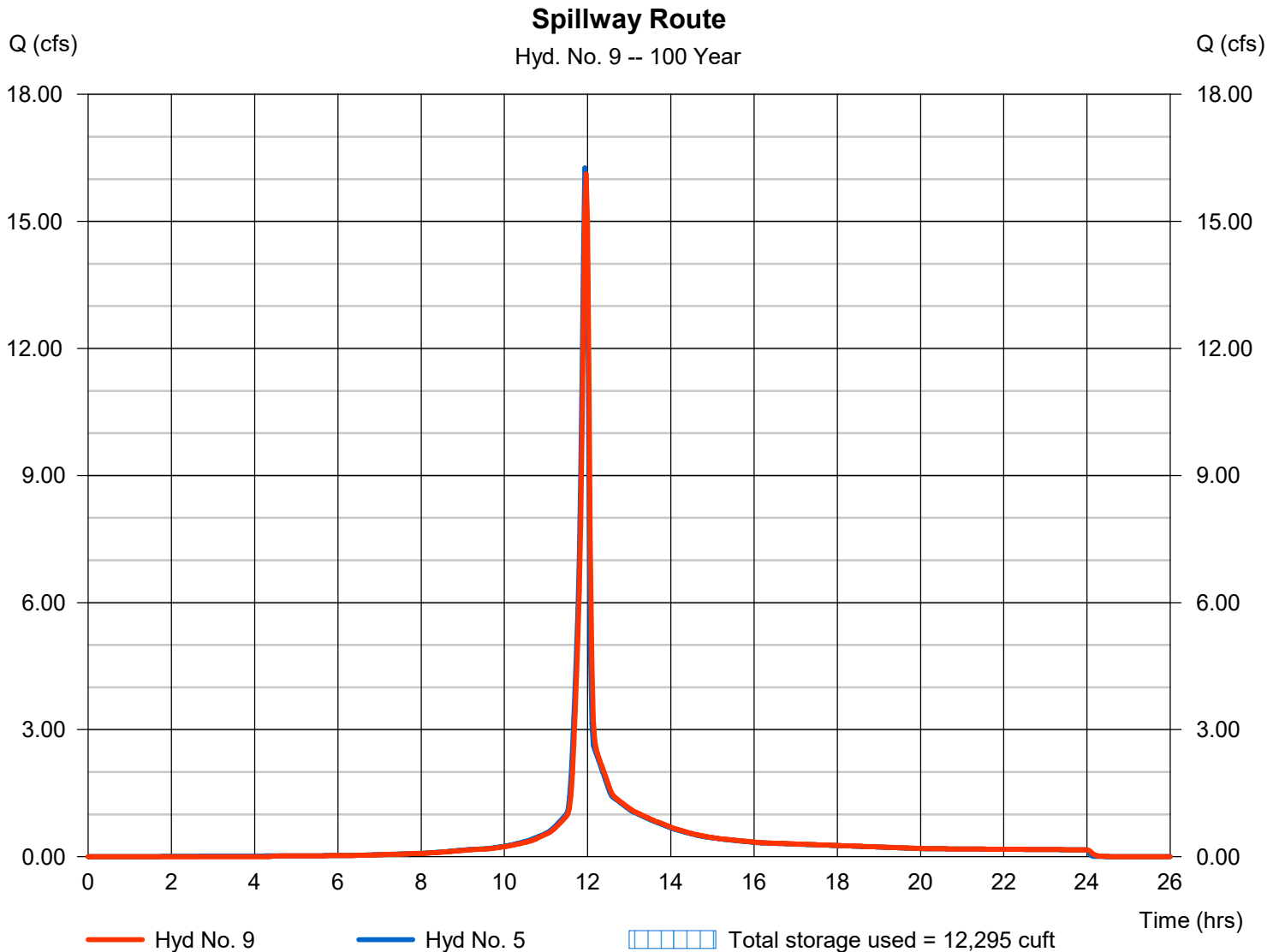
Hyd. No. 9

Spillway Route

Hydrograph type	= Reservoir	Peak discharge	= 16.12 cfs
Storm frequency	= 100 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 38,234 cuft
Inflow hyd. No.	= 5 - Basin Inflow	Max. Elevation	= 852.99 ft
Reservoir name	= SCM 5.2 Embankment Spillway	Max. Storage	= 12,295 cuft

Storage Indication method used. Wet pond routing start elevation = 852.68 ft.

Top of Berm = 854.00
Freeboard = 1.01'



Pond Report

Pond No. 4 - SCM 5.2 Embankment Spillway

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 848.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	848.00	941	0	0
0.25	848.25	329	152	152
0.50	848.50	329	82	234
1.00	849.00	963	309	544
1.50	849.50	963	481	1,025
2.00	850.00	1,575	628	1,653
2.25	850.25	2,123	461	2,114
2.50	850.50	2,466	573	2,687
2.75	850.75	2,768	654	3,341
3.00	851.00	3,046	726	4,067
3.25	851.25	3,359	800	4,867
3.50	851.50	3,655	876	5,744
3.75	851.75	3,935	948	6,692
4.00	852.00	4,200	1,017	7,709
4.25	852.25	4,459	1,082	8,791
4.50	852.50	4,693	1,144	9,934
4.75	852.75	4,886	1,197	11,132
5.00	853.00	4,875	1,220	12,352
5.50	853.50	5,564	2,608	14,959
6.00	854.00	5,620	2,796	17,755

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	Inactive	Inactive	Inactive	0.00
Span (in)	= 18.00	38.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 846.00	852.00	0.00	0.00
Length (ft)	= 39.00	0.00	0.00	0.00
Slope (%)	= 5.10	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)	Inactive	40.00	0.00	0.00
Crest El. (ft)	= 852.25	852.70	0.00	0.00
Weir Coeff.	= 3.33	2.60	3.33	3.33
Weir Type	= 1	Broad	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 0.000 (by Contour)			
TW Elev. (ft)	= 0.00			

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

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	848.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.03	15	848.03	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.05	30	848.05	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.08	46	848.08	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.10	61	848.10	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.13	76	848.13	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.15	91	848.15	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.18	107	848.18	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.20	122	848.20	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.23	137	848.23	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.25	152	848.25	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.28	160	848.28	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.30	169	848.30	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.33	177	848.33	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.35	185	848.35	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.38	193	848.38	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.40	202	848.40	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.43	210	848.43	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.45	218	848.45	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.48	226	848.48	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.50	234	848.50	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.55	265	848.55	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.60	296	848.60	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000

Continues on next page...

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.65	327	848.65	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.70	358	848.70	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.75	389	848.75	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.80	420	848.80	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.85	451	848.85	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.90	482	848.90	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.95	513	848.95	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.00	544	849.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.05	592	849.05	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.10	640	849.10	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.15	688	849.15	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.20	736	849.20	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.25	784	849.25	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.30	832	849.30	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.35	881	849.35	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.40	929	849.40	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.45	977	849.45	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.50	1,025	849.50	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.55	1,088	849.55	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.60	1,151	849.60	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.65	1,213	849.65	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.70	1,276	849.70	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.75	1,339	849.75	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.80	1,402	849.80	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.85	1,465	849.85	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.90	1,528	849.90	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.95	1,590	849.95	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.00	1,653	850.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.03	1,699	850.03	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.05	1,745	850.05	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.08	1,791	850.08	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.10	1,837	850.10	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.13	1,883	850.13	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.15	1,929	850.15	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.18	1,976	850.18	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.20	2,022	850.20	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.23	2,068	850.23	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.25	2,114	850.25	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.28	2,171	850.28	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.30	2,228	850.30	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.33	2,286	850.33	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.35	2,343	850.35	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.38	2,400	850.38	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.40	2,458	850.40	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.43	2,515	850.43	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.45	2,572	850.45	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.48	2,629	850.48	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.50	2,687	850.50	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.53	2,752	850.53	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.55	2,817	850.55	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.58	2,883	850.58	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.60	2,948	850.60	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.63	3,014	850.63	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.65	3,079	850.65	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.68	3,144	850.68	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.70	3,210	850.70	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.73	3,275	850.73	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.75	3,341	850.75	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.78	3,413	850.78	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.80	3,486	850.80	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.83	3,558	850.83	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.85	3,631	850.85	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.88	3,704	850.88	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.90	3,776	850.90	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.93	3,849	850.93	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.95	3,922	850.95	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.98	3,994	850.98	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.00	4,067	851.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.03	4,147	851.03	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.05	4,227	851.05	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.08	4,307	851.08	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.10	4,387	851.10	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.13	4,467	851.13	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.15	4,547	851.15	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.18	4,627	851.18	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.20	4,707	851.20	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.23	4,787	851.23	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.25	4,867	851.25	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.28	4,955	851.28	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.30	5,042	851.30	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.33	5,130	851.33	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.35	5,218	851.35	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.38	5,305	851.38	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.40	5,393	851.40	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.43	5,481	851.43	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.45	5,568	851.45	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.48	5,656	851.48	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.50	5,744	851.50	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.53	5,838	851.53	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.55	5,933	851.55	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.58	6,028	851.58	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.60	6,123	851.60	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.63	6,218	851.63	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.65	6,313	851.65	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.68	6,407	851.68	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.70	6,502	851.70	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.73	6,597	851.73	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.75	6,692	851.75	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.78	6,794	851.78	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.80	6,895	851.80	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.83	6,997	851.83	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.85	7,099	851.85	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.88	7,200	851.88	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.90	7,302	851.90	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.93	7,404	851.93	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.95	7,505	851.95	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.98	7,607	851.98	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.00	7,709	852.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.03	7,817	852.03	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.05	7,925	852.05	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.08	8,033	852.08	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.10	8,141	852.10	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.13	8,250	852.13	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.15	8,358	852.15	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.18	8,466	852.18	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.20	8,574	852.20	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.23	8,683	852.23	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.25	8,791	852.25	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.28	8,905	852.28	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.30	9,019	852.30	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.33	9,134	852.33	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.35	9,248	852.35	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.38	9,363	852.38	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.40	9,477	852.40	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.43	9,591	852.43	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.45	9,706	852.45	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.48	9,820	852.48	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.50	9,934	852.50	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.53	10,054	852.53	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.55	10,174	852.55	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.58	10,294	852.58	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.60	10,413	852.60	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.63	10,533	852.63	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.65	10,653	852.65	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.68	10,772	852.68	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.70	10,892	852.70	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.73	11,012	852.73	0.00	0.00	---	---	0.00	0.42	---	---	---	---	0.416
4.75	11,132	852.75	0.00	0.00	---	---	0.00	1.16	---	---	---	---	1.162
4.78	11,254	852.78	0.00	0.00	---	---	0.00	2.14	---	---	---	---	2.137
4.80	11,376	852.80	0.00	0.00	---	---	0.00	3.29	---	---	---	---	3.291
4.83	11,498	852.83	0.00	0.00	---	---	0.00	4.60	---	---	---	---	4.600
4.85	11,620	852.85	0.00	0.00	---	---	0.00	6.05	---	---	---	---	6.047
4.88	11,742	852.88	0.00	0.00	---	---	0.00	7.62	---	---	---	---	7.621
4.90	11,864	852.90	0.00	0.00	---	---	0.00	9.31	---	---	---	---	9.311

SCM 5.2 Embankment Spillway

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
4.93	11,986	852.93	0.00	0.00	---	---	0.00	11.11	---	---	---	---	11.11
4.95	12,108	852.95	0.00	0.00	---	---	0.00	13.01	---	---	---	---	13.01
4.98	12,230	852.98	0.00	0.00	---	---	0.00	15.01	---	---	---	---	15.01
5.00	12,352	853.00	0.00	0.00	---	---	0.00	17.09	---	---	---	---	17.09
5.05	12,612	853.05	0.00	0.00	---	---	0.00	21.53	---	---	---	---	21.53
5.10	12,873	853.10	0.00	0.00	---	---	0.00	26.31	---	---	---	---	26.31
5.15	13,134	853.15	0.00	0.00	---	---	0.00	31.39	---	---	---	---	31.39
5.20	13,395	853.20	0.00	0.00	---	---	0.00	36.76	---	---	---	---	36.76
5.25	13,655	853.25	0.00	0.00	---	---	0.00	42.41	---	---	---	---	42.41
5.30	13,916	853.30	0.00	0.00	---	---	0.00	48.32	---	---	---	---	48.32
5.35	14,177	853.35	0.00	0.00	---	---	0.00	54.49	---	---	---	---	54.49
5.40	14,438	853.40	0.00	0.00	---	---	0.00	60.89	---	---	---	---	60.89
5.45	14,698	853.45	0.00	0.00	---	---	0.00	67.53	---	---	---	---	67.53
5.50	14,959	853.50	0.00	0.00	---	---	0.00	74.41	---	---	---	---	74.41
5.55	15,239	853.55	0.00	0.00	---	---	0.00	81.50	---	---	---	---	81.50
5.60	15,518	853.60	0.00	0.00	---	---	0.00	88.79	---	---	---	---	88.79
5.65	15,798	853.65	0.00	0.00	---	---	0.00	96.29	---	---	---	---	96.29
5.70	16,078	853.70	0.00	0.00	---	---	0.00	103.99	---	---	---	---	103.99
5.75	16,357	853.75	0.00	0.00	---	---	0.00	111.88	---	---	---	---	111.88
5.80	16,637	853.80	0.00	0.00	---	---	0.00	119.97	---	---	---	---	119.97
5.85	16,916	853.85	0.00	0.00	---	---	0.00	128.24	---	---	---	---	128.24
5.90	17,196	853.90	0.00	0.00	---	---	0.00	136.69	---	---	---	---	136.69
5.95	17,475	853.95	0.00	0.00	---	---	0.00	145.32	---	---	---	---	145.32
6.00	17,755	854.00	0.00	0.00	---	---	0.00	154.15	---	---	---	---	154.15

...End

APPENDIX E PADEP WORKSHEETS

General Information

Instructions
General
Volume
Rate
Quality

<p>Project Name: <input style="width: 90%;" type="text" value="Charter Homes at Hastings - Ph 5"/></p> <p>County: <input style="width: 90%;" type="text" value="Allegheny"/></p> <p>Project Type: <input style="width: 90%;" type="text" value="Single-Family Housing"/></p> <p>Area: <input style="width: 100px;" type="text" value="6.98"/> acres <i>(In Watershed)</i></p> <p>No. of Post-Construction Points of Analysis: <input style="width: 80px;" type="text" value="1"/></p>	<p>Application Type: <input style="width: 90%;" type="text" value="PAG-02 NOI"/></p> <p>Municipality: <input style="width: 90%;" type="text" value="South Fayette Township"/></p> <p> <input type="radio"/> New Project <input checked="" type="radio"/> Minor / Major Amendment </p> <p>Total Earth Disturbance: <input style="width: 100px;" type="text" value="6.98"/> acres <i>(In Watershed)</i></p> <p>at: <input style="width: 80px;" type="text" value="005"/></p>
---	---

Point of Analysis (POA) No.	Drainage Area (DA) (acres)	Earth Disturbance in DA (acres)	Existing Impervious in DA (acres)	Proposed Impervious in DA (acres)	Receiving Waters	Ch. 93 Class	Structural SCM(s)
005	3.45	3.45	0.27	1.57	Chartiers Creek	WWF	Yes
Undetained Areas	2.69	2.69	0.00	0.13	Chartiers Creek	WWF	
Totals:	6.14	6.14	0.27	1.70			

Volume Management

Project: Charter Homes at Hastings - Ph 5

- Instructions
- General
- Volume
- Rate
- Quality

2-Year / 24-Hour Storm Event (NOAA Atlas 14): inches Alternative 2-Year / 24-Hour Storm Event inches

Alternative Source:

Pre-Construction Conditions: No. Rows: Exempt from Meadow in Good Condition Automatically Calculate CN, Ia, Runoff and Volume

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	0.27	N/A	98	0.041	2.12	2,079
Impervious Areas: Streets and Roads - Dirt (Including ROW)	0.65	C	87	0.299	1.19	2,800
Impervious as Meadow	0.07	C	71	0.817	0.42	106
Pervious as Meadow	5.29	C	71	0.817	0.42	8,034
Forested (Good Condition)	0.70	C	70	0.857	0.39	980
TOTAL (ACRES):	6.98				TOTAL (CF):	14,000

Post-Construction Conditions: No. Rows:

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	0.80	N/A	98	0.041	2.12	6,161
Impervious Areas: Streets and Roads - Paved; Curbs and Storm Sewers (Excluding ROW)	0.90	N/A	98	0.041	2.12	6,932
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	3.92	C	74	0.703	0.53	7,482

Woods (Good Condition)	0.52	C	70	0.857	0.39	728
------------------------	------	---	----	-------	------	-----

TOTAL (ACRES): 6.14

TOTAL (CF): 21,303

IET CHANGE IN VOLUME TO MANAGE (CF): **7,303**

Non-Structural SCM Volume Credits:

Tree Planting Credit

Other (attach calculations):

Description:

CREDIT (CF):

Structural SCM Volume Credits:

No. Structural SCMs: **2**

Start SCM Numbering at: **5**

POA No.	SCM No.	SCM Name	MRC?	Discharge	Incremental SCM DA (acres)	Volume Routed to SCM (CF)	Infiltration / Vegetated Area (SF)	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegetated?	Media Depth (ft)	Storage Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)
(SCM 5.2)	005	Infiltration Basin (Tank Component)	-	to SCM No. 5	3.45	12,524	1,585	2.13	12			2,835	3,038	
(SCM 5.2)	005	Infiltration Basin (Basin Component)	-	Off-Site	0.00	9,486	941	2.13	28	Yes	2.0	4,722	4,209	495

Totals: 7,248 495

$(12,524 - 3,038 = 9,486)$

INFILTRATION & ET CREDITS (CF): **7,743**

NET CHANGE IN VOLUME TO MANAGE (CF): **7,303**

TOTAL CREDITS (CF): **7,743**

VOLUME REQUIREMENT SATISFIED

Rate Control

Project: Charter Homes at Hastings - Ph 5

Instructions

General

Volume

Rate

Quality

Precipitation Amounts:

NOAA 2-Year 24-Hour Storm Event (in):

Alternative 2-Year 24-Hour Storm Event (in):

2.35

NOAA 10-Year 24-Hour Storm Event (in):

Alternative 10-Year 24-Hour Storm Event (in):

3.32

NOAA 50-Year 24-Hour Storm Event (in):

Alternative 50-Year 24-Hour Storm Event (in):

4.43

NOAA 100-Year 24-Hour Storm Event (in):

Alternative 100-Year 24-Hour Storm Event (in):

4.96

Report Summary of Peak Rates Only

Attach model input and output data or other calculations to support the rates reported below.

	<i>Peak Discharge Rates (cfs)</i>			
	Pre-Construction	Post-Construction	Net Change	
2-Year Storm:	5.50	2.31	-3.19	<i>Rate Control Satisfied</i>
10-Year Storm:	12.40	5.05	-7.35	<i>Rate Control Satisfied</i>
50-Year Storm:	21.58	18.90	-2.68	<i>Rate Control Satisfied</i>
100-Year Storm:	26.19	24.97	-1.22	<i>Rate Control Satisfied</i>

Water Quality

Project: Charter Homes at Hastings - Ph 5

PRINT

Instructions

General

Volume

Rate

Quality

Pre-Construction Pollutant Loads:

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)			
					TSS	TP	TN	TSS	TP	TN	
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	Residential	0.27	N/A	2,079	65.0	0.29	2.05	8.44	0.04	0.27	
Impervious Areas: Streets and Roads - Dirt (Including ROW)	Highway (general)	0.65	C	2,800	141.0	0.43	2.65	24.65	0.08	0.46	
Impervious as Meadow	Grassland/Herbaceous	0.07	C	106	48.8	0.22	2.30	0.32	0.00	0.02	
Pervious as Meadow	Grassland/Herbaceous	5.29	C	8,034	48.8	0.22	2.30	24.48	0.11	1.15	
Forested (Good Condition)	Deciduous Forest/Evergreen Forest/Mixed Forest	0.70	C	980	45.0	0.13	1.05	2.75	0.01	0.06	
TOTAL (ACRES):		6.98			TOTALS:			60.65	0.23	1.96	

Post-Construction Pollutant Loads (without SCMs):

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN

Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	Residential	0.80	N/A	6,161	65.0	0.29	2.05	25.01	0.11	0.79
Impervious Areas: Streets and Roads - Paved; Curbs and Storm Sewers (Excluding ROW)	Urban Highway	0.90	N/A	6,932	142.0	0.32	3.00	61.46	0.14	1.30
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	Open Space	3.92	C	7,482	78.0	0.25	1.25	36.44	0.12	0.58
Woods (Good Condition)	Deciduous Forest/Evergreen Forest/Mixed Forest	0.52	C	728	45.0	0.13	1.05	2.05	0.01	0.05

TOTAL (ACRES): 6.14

TOTALS: 124.96 0.37 2.72

POLLUTANT LOAD REDUCTION REQUIREMENTS (LBS):

64.30	0.14	0.76
--------------	-------------	-------------

Characterize Undetained Areas (for Untreated Stormwater)

No. Rows:

3

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	0.13	N/A	98	0.041	2.12	1,001
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	2.04	C	74	0.703	0.53	3,894
Woods (Good Condition)	0.52	C	70	0.857	0.39	728

Non-Structural SCM Water Quality Credits:

Pervious Undetained Area Credit

Other (attach calculations)

Description:

TSS	TP	TN

Structural SCM Water Quality Credits:

Use default SCM Outflows and Median SCM Outflow Concentrations

(SCM 5.2)

(SCM 5.2)

POA No.	SCM No.	SCM Name	MRC?	SCM DA (acres)	Vol. Routed to SCM (CF)	Inf. & ET Credits (CF)	Capture & Buffer Credits (CF)	Outflow (CF)	Outflow Conc. (mg/L)			Pollutant Loads (lbs)		
									TSS	TP	TN	TSS	TP	TN
005	5	Infiltration Basin (Tank Component)	-	3.45	12,524	3,038		9,486	-	-	-	-	-	-
005	6	Infiltration Basin (Basin Component)	-	0.00	9,486	4,704		4,782	10.00	0.24	0.96	2.99	0.07	0.29

POLLUTANT LOADS FROM STRUCTURAL SCM (TREATED) OUTFLOWS (LBS):

POLLUTANT LOADS FROM UNTREATED STORMWATER (LBS):

NON-STRUCTURAL SCM WATER QUALITY CREDITS (LBS):

NET POLLUTANT LOADS FROM SITE, POST-CONSTRUCTION (LBS):

POLLUTANT LOADS FROM SITE, PRE-CONSTRUCTION (LBS):

TSS	TP	TN
2.99	0.07	0.29
25.07	0.08	0.48
28.06	0.15	0.77
60.65	0.23	1.96

WATER QUALITY REQUIREMENT SATISFIED

CERTIFICATION

I certify under penalty of law and subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities) that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I further certify that the structure, function, and calculations contained in this spreadsheet have not been modified in comparison to the spreadsheet DEP has posted to its website or, if modifications were made, an explanation of the modifications made is attached to this spreadsheet.

Ben Landin, E.I.T.

Spreadsheet User Name

2/4/2026

Date

Pond Report

Pond No. 7 - Above Ground Infiltraton Basin w Soil

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 848.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	848.00	941	0	0
0.25	848.25	329	152	152
0.50	848.50	329	82	234
1.00	849.00	329	164	399
1.50	849.50	329	164	563
2.00	850.00	941	304	868
2.25	850.25	1,174	264	1,132
2.50	850.50	1,407	322	1,454
2.75	850.75	1,640	380	1,834
3.00	851.00	1,874	439	2,273
3.25	851.25	2,162	504	2,777
3.50	851.50	2,450	576	3,353
3.75	851.75	2,738	648	4,001
4.00	852.00	3,028	720	4,722
4.25	852.25	3,331	794	5,516
4.50	852.50	3,634	870	6,386
4.75	852.75	3,937	946	7,332
5.00	853.00	4,241	1,022	8,354
5.50	853.50	4,930	2,290	10,645
6.00	854.00	5,620	2,635	13,280

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
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	= .000	.000	.000	n/a
Orifice Coeff.	= 0.00	0.00	0.00	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.00	0.00	0.00	0.00
Crest El. (ft)	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 0.00	0.00	0.00	0.00
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No
Exfil.(in/hr)	= 0.000	(by Contour)		
TW Elev. (ft)	= 0.00			

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

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	848.00	---	---	---	---	---	---	---	---	---	---	0.000
0.03	15	848.03	---	---	---	---	---	---	---	---	---	---	0.000
0.05	30	848.05	---	---	---	---	---	---	---	---	---	---	0.000
0.08	46	848.08	---	---	---	---	---	---	---	---	---	---	0.000
0.10	61	848.10	---	---	---	---	---	---	---	---	---	---	0.000
0.13	76	848.13	---	---	---	---	---	---	---	---	---	---	0.000
0.15	91	848.15	---	---	---	---	---	---	---	---	---	---	0.000
0.18	107	848.18	---	---	---	---	---	---	---	---	---	---	0.000
0.20	122	848.20	---	---	---	---	---	---	---	---	---	---	0.000
0.23	137	848.23	---	---	---	---	---	---	---	---	---	---	0.000
0.25	152	848.25	---	---	---	---	---	---	---	---	---	---	0.000
0.28	160	848.28	---	---	---	---	---	---	---	---	---	---	0.000
0.30	169	848.30	---	---	---	---	---	---	---	---	---	---	0.000
0.33	177	848.33	---	---	---	---	---	---	---	---	---	---	0.000
0.35	185	848.35	---	---	---	---	---	---	---	---	---	---	0.000
0.38	193	848.38	---	---	---	---	---	---	---	---	---	---	0.000
0.40	202	848.40	---	---	---	---	---	---	---	---	---	---	0.000
0.43	210	848.43	---	---	---	---	---	---	---	---	---	---	0.000
0.45	218	848.45	---	---	---	---	---	---	---	---	---	---	0.000
0.48	226	848.48	---	---	---	---	---	---	---	---	---	---	0.000
0.50	234	848.50	---	---	---	---	---	---	---	---	---	---	0.000
0.55	251	848.55	---	---	---	---	---	---	---	---	---	---	0.000
0.60	267	848.60	---	---	---	---	---	---	---	---	---	---	0.000

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Pond Report

Pond No. 13 - Infiltration Pipe Volume

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 849.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	849.00	634	0	0
0.25	849.25	634	158	158
0.50	849.50	634	158	317
0.75	849.75	634	158	475
1.00	850.00	634	158	634
1.25	850.25	949	197	830
1.50	850.50	1,059	251	1,081
1.75	850.75	1,128	273	1,355
2.00	851.00	1,172	287	1,642
2.25	851.25	1,197	296	1,938
2.50	851.50	1,205	300	2,238
2.75	851.75	1,197	300	2,539
3.00	852.00	1,172	296	2,835
3.25	852.25	1,128	287	3,122
3.50	852.50	1,059	273	3,395
3.75	852.75	949	251	3,646
4.00	853.00	634	197	3,843
4.25	853.25	634	158	4,001
4.50	853.50	634	158	4,160



Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
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	= .000	.000	.000	n/a
Orifice Coeff.	= 0.00	0.00	0.00	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.00	0.00	0.00	0.00
Crest El. (ft)	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 0.00	0.00	0.00	0.00
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No
Exfil.(in/hr)	= 0.000	(by Wet area)		
TW Elev. (ft)	= 0.00			

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

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	849.00	---	---	---	---	---	---	---	---	---	---	0.000
0.03	16	849.03	---	---	---	---	---	---	---	---	---	---	0.000
0.05	32	849.05	---	---	---	---	---	---	---	---	---	---	0.000
0.08	48	849.08	---	---	---	---	---	---	---	---	---	---	0.000
0.10	63	849.10	---	---	---	---	---	---	---	---	---	---	0.000
0.13	79	849.13	---	---	---	---	---	---	---	---	---	---	0.000
0.15	95	849.15	---	---	---	---	---	---	---	---	---	---	0.000
0.18	111	849.18	---	---	---	---	---	---	---	---	---	---	0.000
0.20	127	849.20	---	---	---	---	---	---	---	---	---	---	0.000
0.23	143	849.23	---	---	---	---	---	---	---	---	---	---	0.000
0.25	158	849.25	---	---	---	---	---	---	---	---	---	---	0.000
0.28	174	849.28	---	---	---	---	---	---	---	---	---	---	0.000
0.30	190	849.30	---	---	---	---	---	---	---	---	---	---	0.000
0.33	206	849.33	---	---	---	---	---	---	---	---	---	---	0.000
0.35	222	849.35	---	---	---	---	---	---	---	---	---	---	0.000
0.38	238	849.38	---	---	---	---	---	---	---	---	---	---	0.000
0.40	254	849.40	---	---	---	---	---	---	---	---	---	---	0.000
0.43	269	849.43	---	---	---	---	---	---	---	---	---	---	0.000
0.45	285	849.45	---	---	---	---	---	---	---	---	---	---	0.000
0.48	301	849.48	---	---	---	---	---	---	---	---	---	---	0.000
0.50	317	849.50	---	---	---	---	---	---	---	---	---	---	0.000
0.52	333	849.53	---	---	---	---	---	---	---	---	---	---	0.000
0.55	349	849.55	---	---	---	---	---	---	---	---	---	---	0.000
0.57	365	849.58	---	---	---	---	---	---	---	---	---	---	0.000

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Below Ground Infiltration Basin

Infiltration Period Calculation

Storage Volume	2835 CF
Surface Area	1585 SF
Volume Routed to SCM*	12524 CF
Infiltration Rate	2.13 in/hr

Infiltration Capacity	281.3375
Infiltration Period	10.076865 Hrs

*Where Storage Volume below lowest orifice is less than volume routed to SCM, use storage volume below lowest orifice

Above Ground Infiltration Basin

Infiltration Period Calculation

Storage Volume	4722 CF
Surface Area	941 SF
Volume Routed to SCM*	9506 CF
Infiltration Rate	2.13 in/hr

Infiltration Capacity	167.0275
Infiltration Period	28.270794 Hrs

*Where Storage Volume below lowest orifice is less than volume routed to SCM, use storage volume below lowest orifice

Project Number: C-18927-0096 Date: 2/4/2026

Prepared By: BRL Page Number: _____

Project Name: Hastings Phase 5



Attendee(s): _____

Purpose / Goal: Design Infiltration Rate Calculation

Bottom of Infiltration Basin Soil Media = 848.00

Tests at Elevation 848

Use FOS = 2 Per Grottech

ITP-1	2.5 in/hr	$\times \frac{1}{2}$	=	1.25 in/hr
ITP-2	2.6 in/hr	$\times \frac{1}{2}$	=	1.3 in/hr
ITP-3	2.4 in/hr	$\times \frac{1}{2}$	=	1.2 in/hr

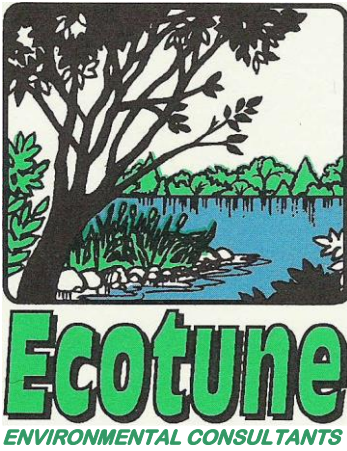
Temperature Adjustment Factor per PCSM Manual App B-Table B-5
(Temp 30° ±)

ITP-1	1.25 in/hr	$\times 1.7$	=	2.13 in/hr
ITP-2	1.3 in/hr	$\times 1.7$	=	2.21 in/hr
ITP-3	1.2 in/hr	$\times 1.7$	=	2.04 in/hr

Geometric Mean

$$(2.13 \times 2.21 \times 2.04)^{1/3} = \boxed{2.13 \text{ in/hr Design Rate}}$$

APPENDIX F
SOIL INFILTRATION TESTING REPORT



Charter Homes
322 N. Arch Street
Lancaster, PA 17603

19 JAN 2026

Attn: Anthony
Re: Hastings Site – Infiltration Testing Report #2
Phase 1.9.3, 1.9.4 and OTB Alternate Area

Dear Anthony:

We have completed the infiltration testing at the Hastings Site (inclusive of the Phase 1.9.3, 1.9.4 and OTB Alternate Areas) as per the design provided by the Gateway Engineers (refer to Figures 1 & 2).

The Gateway Infiltration Test Plans consisted of three (3) infiltration test pit sites (TP-1, TP-2 and TP-3) in the Phase 1.9.3/1.9.4 proposed basin area and an three (3) infiltration test pit sites (TP-7, TP-8, TP-9) in the OTB Alternate Area (TP 1-6 were completed during the initial testing phase at the OTB Area).

We initiated the testing procedure by staking all 6 test sites in the field using the lat./long. information provided by Gateway.

At each TP location, a test pit was then excavated from the existing ground surface down to the depth of proposed testing elevation. The excavations within each TP then proceeded an additional 2' lower that the test elevation to determine the presence/absence of any bearing surface. Test benches were established (one at each test elevation) within each TP based on observed soil conditions, and infiltration testing was then conducted.

A brief profile description of the soil profile within each TP location can be seen in Appendix A and photographs of each TP can be seen in Appendix B.

A bearing surface (clay and solid rock) was encountered in several of the TP locations, but these bearing surfaces were higher in elevation than the prescribed test elevations.

Signs of deposited fill were encountered in a number of the TP locations, but at elevations higher than the proposed test elevations.

A summary of the Test Pits is as follows:

TP#	EGS	Test El.	Test Depth	Pit Depth
1	860.0	848.0	12.0	14.7
1A		846.0	14.0	
2	858.0	848.0	10.0	14.3
2A		846.0	12.0	
3	857.0	848.0	9.0	13.9
3A		846.0	11.0	
7	846.5	842.0	4.5	8.9
7A		840.0	6.5	
8	847.0	842.0	5.0	9.3
8A		840.0	7.0	
9	845.0	842.0	3.0	7.6
9A		840.0	5.0	

TP#	Test Pit number
EGS	Existing Ground Surface elevation
Test El.	Test Elevation
Test Depth	Depth from EGS to infiltration test locations (2/TP)
Pit Depth	Total depth of Test Pit

Following the excavation of each test pit, the soils on each test bench were scarified to remove any soils that were compacted while excavating or working in the Test Pit.

A 12" high double-ring infiltrometer (consisting of an 8" outer ring and a 4" inner ring) was installed in each test pit at the test depths, with approximately 4" being driven into the ground, while 8" remaining above the floor elevation of each test pit.

The infiltration testing was conducted according to the following protocol:

1. Both rings of each infiltrometer were filled with clean water and two, thirty-minute-long preliminary infiltration rate tests were completed in order to determine the appropriate time interval (10- or 30-minute) for monitoring the infiltration tests.

The pre-test periods determined preliminary infiltration rates of greater than 2"/hour in all of the test pits, so each test location was subsequently monitored one time every 10 minutes respectively.

At the conclusion of the pre-testing periods, both rings of each infiltrometer were again filled with clean water to a pre-marked point on the inside of each ring.

2. Each Infiltrometer was monitored one time per 10 minutes for a minimum of 4 readings or until a stabilized rate of drop is obtained (defined as a difference of ¼ inch or less of drop between the highest and the lowest readings of four consecutive readings). During each monitoring, the drop in water surface elevation within the inner ring of each infiltrometer was measured (to the nearest 0.1") and recorded. Both rings of each infiltrometer were again filled with clean water to a pre-marked point on the inside of each ring.

3. At the conclusion of the timed infiltration intervals, the infiltrometers were removed from each Test Pit.

The raw and adjusted (for a factor of safety of 2 based upon the soils observed) results of the infiltration testing conducted at each depth within each test pit can be seen in Table 1.

If you have any questions, please contact me at my office.

Sincerely,



Patrick D. Gavaghan
Senior Ecologist, Owner

Table 1

Infiltration Rates (in Inches/hr.)

ITP	Test Depth	Ave Rate/hr.	Adjusted Rate/Hr.*
1	12.0'	2.50	1.25
1A	14.0'	3.00	1.50
2	10.0'	2.60	1.30
2A	12.0'	2.90	1.45
3	9.0'	2.40	1.20
3A	11.0'	2.80	1.40
7	4.4'	1.60	0.80
7A	6.5'	2.60	1.30
8	5.0'	1.80	0.90
8A	7.0'	2.20	1.10
9	3.0'	1.40	0.70
9A	5.0'	1.70	0.85

* Adjuster rate per hour based upon a Factor of Safety of 2 (based on observed soil conditions).

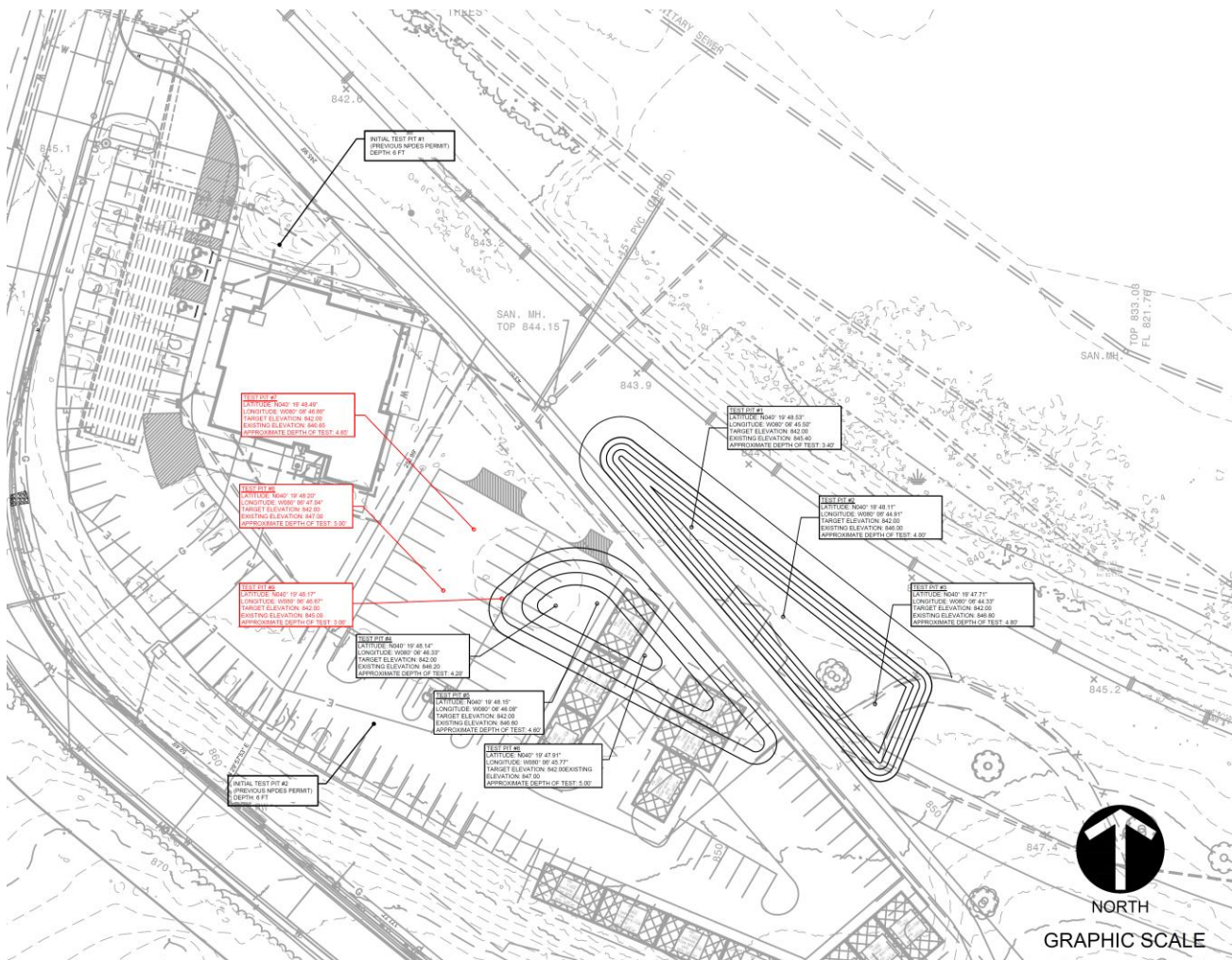


Figure 1 – Infiltration Testing Plan – OTB Alternate Area

Appendix A – Soil Profile Information

TP-1 860.0	Upper Limit (ft.)	Lower Limit (ft.)	Texture Class	Color	Color patterns	Pores, roots, rock, etc.	Depth to rock	Depth to water
	0	2.5	C	10YR4/3	-	Roots Debris (fill)	-	-
	2.5	4.9	C	10YR4/4 10YR4/1	Mottles	Debris (fill)	-	-
	4.9	6.3	SC	10YR5/4 10YR6/4	-	Debris (fill)	-	-
	6.3	9.2	SC	10YR4/6 10YR5/2	-	Debris (fill)	-	-
	9.2	10.0	Rock	-	-	Sandstone	-	-
	10.0	14.7	SC	10YR5/4 10YR4/3	-	rocks	-	-

L – Loam, CS – Course Sandy, SL – Sandy Loam, CL – Clay Loam, SHL – Shale loam, SC – Sandy Clay, C – Clay, SS – Solid Shale, WS – Weathered Shale

TP-2 858.0	Upper Limit (ft.)	Lower Limit (ft.)	Texture Class	Color	Color patterns	Pores, roots, rock, etc.	Depth to rock	Depth to water
	0	1.3	C	10YR4/3 10YR5/3	-	Roots Debris (fill)	-	-
	1.3	3.1	C	10YR5/3 10YR5/4	-	Debris (fill)	-	-
	3.1	7.4	C	10YR5/3 10YR5/4	-	Debris (fill)	-	-
	7.4	8.1	Rock	-	-	Sandstone	-	-
	8.1	14.3	SC	10YR4/6 10YR4/4	-	rocks	-	-

L – Loam, CS – Course Sandy, SL – Sandy Loam, CL – Clay Loam, SHL – Shale loam, SC – Sandy Clay, C – Clay, SS – Solid Shale, WS – Weathered Shale

TP-3 857.0	Upper Limit (ft.)	Lower Limit (ft.)	Texture Class	Color	Color patterns	Pores, roots, rock, etc.	Depth to rock	Depth to water
	0	1.1	C	10YR4/3	-	Roots Debris (fill)	-	-
	1.1	2.8	C	10YR5/5 10YR4/3	-	Debris (fill)	-	-
	2.8	4.4	SC	10YR5/6 10YR5/4	-	Debris (fill)	-	-
	4.4	7.6	SC	10YR3/4 10YR3/2	-	Debris (fill)	-	-
	7.6	9.8	Bricks	-	-	Bricks	-	-
	9.8	13.9	SC	10YR4/5 10YR4/3	-	rocks	-	-

L – Loam, CS – Course Sandy, SL – Sandy Loam, CL – Clay Loam, SHL – Shale loam, SC – Sandy Clay, C – Clay, SS – Solid Shale, WS – Weathered Shale

TP-7 846.5	Upper Limit (ft.)	Lower Limit (ft.)	Texture Class	Color	Color patterns	Pores, roots, rock, etc.	Depth to rock	Depth to water
	0	0.5	CL	10YR4/4 10YR4/3	-	Roots	-	-
	0.5	1.3	SC	10YR4/5 10YR4/2	-	Debris (fill)	-	-
	1.3	4.3	C	10YR5/6 10YR5/3	-	Debris (fill)	-	-
	4.3	4.8	SC	10YR5/5 10YR4/3	-	Debris (fill) Shale	-	-
	4.8	8.9	WS	-	-	Weathered shale	-	-

L – Loam, CS – Course Sandy, SL – Sandy Loam, CL – Clay Loam, SHL – Shale loam, SC – Sandy Clay, C – Clay, SS – Solid Shale, WS – Weathered Shale

TP-8 847.0	Upper Limit (ft.)	Lower Limit (ft.)	Texture Class	Color	Color patterns	Pores, roots, rock, etc.	Depth to rock	Depth to water
	0	0.6	SC	10YR4/4	-	Roots Debris (fill)	-	-
	0.6	1.5	SC	10YR4/6 10YR4/4	-	Debris (fill)	-	-
	1.5	4.1	C	10YR5/6 10YR5/3	-	Debris (fill)	-	-
	4.1	9.3	SC	10YR5/6 10YR4/3	-	Rocks	-	-

L – Loam, CS – Course Sandy, SL – Sandy Loam, CL – Clay Loam, SHL – Shale loam, SC – Sandy Clay, C – Clay, SS – Solid Shale, WS – Weathered Shale

TP-9 845.0	Upper Limit (ft.)	Lower Limit (ft.)	Texture Class	Color	Color patterns	Pores, roots, rock, etc.	Depth to rock	Depth to water
	0	0.8	SC	10YR4/4	-	Roots Debris (fill)	-	-
	0.8	7.6	SC	10YR4/6 10YR4/3	-	rocks	-	-

L – Loam, CS – Course Sandy, SL – Sandy Loam, CL – Clay Loam, SHL – Shale loam, SC – Sandy Clay, C – Clay, SS – Solid Shale, WS – Weathered Shale

Appendix B – Test Pit Photos



TP-1



TP-2



TP-3



TP-7



TP-8



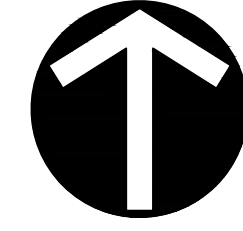
TP-9

APPENDIX G
STORM SEWER & RIPRAP CALCULATIONS

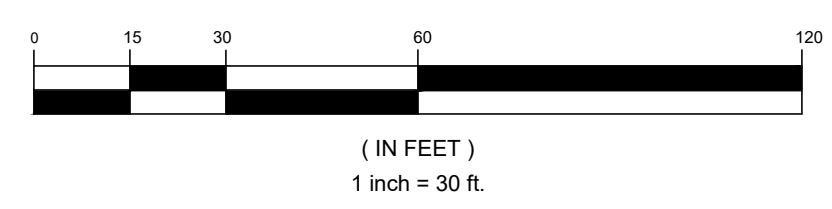
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 Save Date: 12/28/2023 9:54 AM



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NORTH
 GRAPHIC SCALE



REVISION RECORD	
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02	
03	
04	
05	
06	
07	
08	

HASTINGS
 South Fayette Township/Pittsburgh, PA
 CHARTER Homes & Neighborhoods

HASTINGS PHASE 1.9.3 & 1.9.4
 MAYVIEW ROAD
 PITTSBURGH, PA 15102
 PREPARED FOR:
CHARTER HOMES AT HASTINGS, INC.
 322 NORTH ARCH STREET, FIRST FLOOR
 LANCASTER, PA 17603

INLET DRAINAGE AREA MAP

Project Number: 18927-0096
 Drawing Scale: 1" = 30'
 Date Issued: DEC, 2023
 Index Number: -
 Drawn By: DRC
 Checked By: DMH
 Project Manager: DMH

INLET DAS



The Gateway Engineers, Inc.
 100 McMorris Road
 Pittsburgh, Pennsylvania 15205-9401
 Phone: 412-921-4030
 Facsimile: 412-921-9960

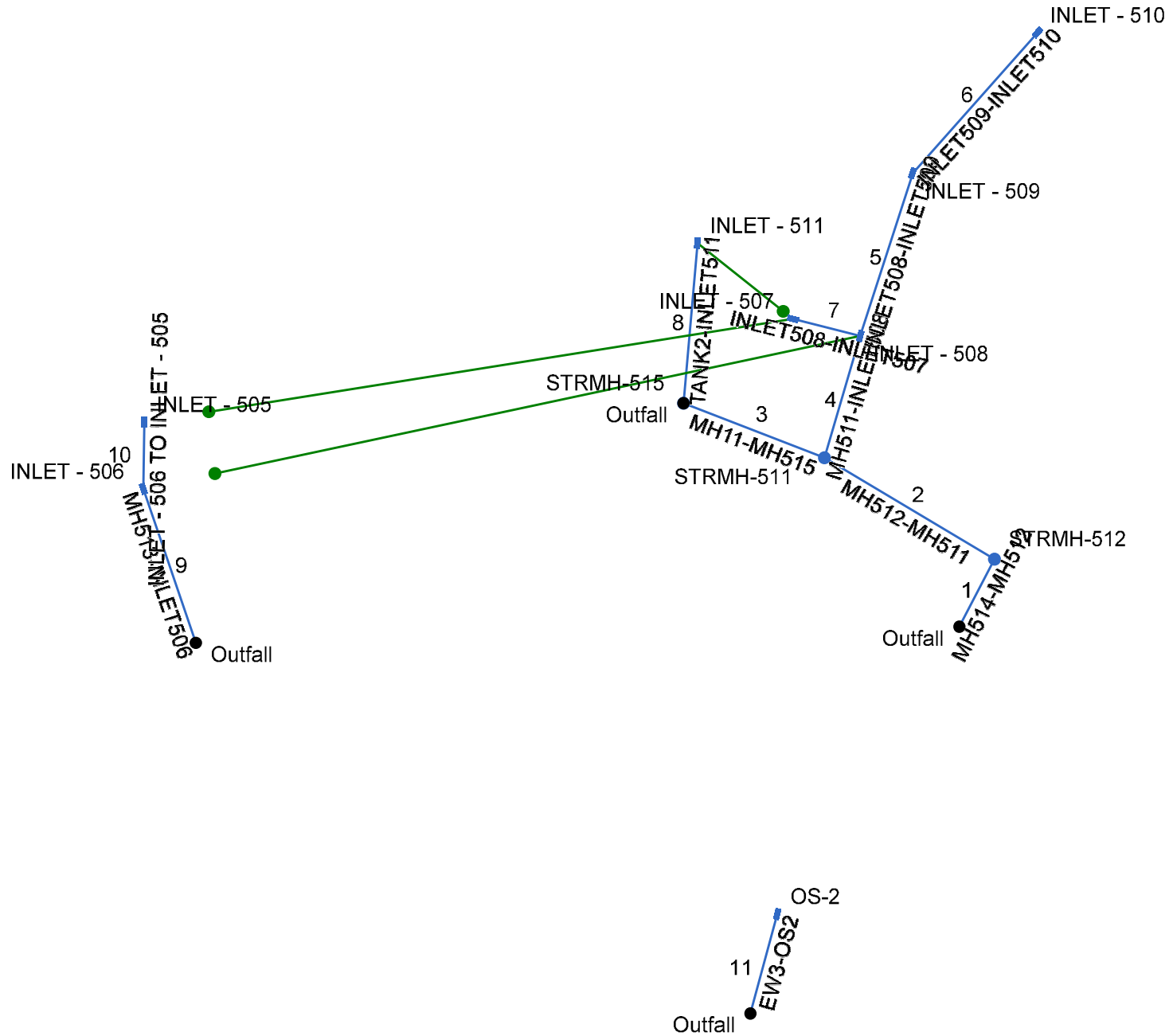
Date: 2026-02-04
 Project: Hastings Phase 5
 Project No: C-18927-0096
 By: BL

Design Storm: 100
 Rainfall Intensity: 8.52 (Tc = 5 min assumed for all inlet drainage areas)
 PennDOT IDF Curve: Region 3

SUB-AREA RUNOFF CALCULATIONS

Receiving Structure	Drainage Area (AC)	Impervious Area (AC)	Impervious 'C' Value	Impervious Runoff (CFS)	Pervious Area (AC)	Pervious 'C' Value	Pervious Runoff (CFS)	Composite 'C' Value	Total Runoff (CFS)
INLET 505	0.95	0.35	0.90	2.68	0.60	0.35	1.79	0.55	4.47
INLET 506	0.32	0.30	0.90	2.30	0.02	0.35	0.06	0.87	2.36
INLET 507	0.45	0.08	0.90	0.61	0.37	0.35	1.10	0.45	1.72
INLET 508	0.13	0.11	0.90	0.84	0.02	0.35	0.06	0.82	0.90
INLET 509	0.32	0.20	0.90	1.53	0.12	0.35	0.36	0.69	1.89
INLET 510	0.19	0.11	0.90	0.84	0.08	0.35	0.24	0.67	1.08
INLET 511	0.09	0.09	0.90	0.69	0.00	0.35	0.00	0.90	0.69
STRMH-511	0.04	0.04	0.90	0.31	0.00	0.35	0.00	0.90	0.31

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	28.521	-62.502	MH	0.00	0.00	0.00	5.0	851.00	1.05	851.30	15	Cir	0.011	1.00	859.11	MH514-MH512
2	1	73.935	-86.573	MH	0.00	0.00	0.00	5.0	851.50	1.76	852.80	15	Cir	0.011	0.97	866.96	MH512-MH511
3	2	56.549	-9.750	MH	1.72	0.00	0.00	5.0	853.00	2.65	854.50	15	Cir	0.011	1.00	865.42	MH11-MH515
4	2	47.552	75.400	Grate	0.00	0.13	0.82	5.0	860.03	2.00	860.98	15	Cir	0.011	1.50	868.21	MH511-INLET508
5	4	64.126	1.401	Grate	0.00	0.32	0.69	5.0	860.98	5.01	864.19	15	Cir	0.011	0.69	871.91	INLET508-INLET509
6	5	70.341	23.835	Grate	0.00	0.19	0.67	5.0	864.19	3.99	867.00	15	Cir	0.011	1.00	875.61	INLET509-INLET510
7	4	26.000	-92.106	Grate	0.00	0.45	0.45	5.0	860.98	1.00	861.24	15	Cir	0.011	1.00	866.99	INLET508-INLET507
8	End	60.238	-85.000	Grate	0.00	0.04	0.90	5.0	855.50	19.51	867.25	15	Cir	0.011	1.00	870.25	TANK2-INLET511
9	End	61.000	-108.837	Grate	0.00	0.32	0.87	5.0	850.00	0.00	850.00	15	Cir	0.011	0.58	857.82	MH513-INLET506
10	9	25.001	19.613	Grate	0.00	0.95	0.55	5.0	853.01	1.00	853.26	15	Cir	0.011	1.00	857.81	INLET - 506 TO INL
11	End	38.606	-74.931	Grate	15.59	0.00	0.00	5.0	844.00	7.77	847.00	18	Cir	0.011	1.00	852.25	EW3-OS2

Project File: storm sewers.stm

Number of lines: 11

Date: 2/9/2026

Structure Report

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
1	STRMH-512	Manhole	859.11	Cir	4.00	4.00	15	Cir	851.30	15	Cir	851.50
2	STRMH-511	Manhole	866.96	Cir	4.00	4.00	15	Cir	852.80	15 15	Cir Cir	853.00 860.03
3	STRMH-515	Manhole	865.42	Cir	4.00	4.00	15	Cir	854.50			
4	INLET - 508	Grate	868.21	Rect	4.00	2.00	15	Cir	860.98	15 15	Cir Cir	860.98 860.98
5	INLET - 509	Grate	871.91	Rect	4.00	2.00	15	Cir	864.19	15	Cir	864.19
6	INLET - 510	Grate	875.61	Rect	4.00	2.00	15	Cir	867.00			
7	INLET - 507	Grate	866.99	Rect	4.00	2.00	15	Cir	861.24			
8	INLET - 511	Grate	870.25	Rect	4.00	2.00	15	Cir	867.25			
9	INLET - 506	Grate	857.82	Rect	4.00	2.00	15	Cir	850.00	15	Cir	853.01
10	INLET - 505	Grate	857.81	Rect	4.00	2.00	15	Cir	853.26			
11	OS-2	Grate	852.25	Rect	4.00	2.00	18	Cir	847.00			

Project File: storm sewers.stm

Number of Structures: 11

Run Date: 2/9/2026

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	MH514-MH512	6.67	15	Cir	28.521	851.00	851.30	1.052	852.04	852.34	0.58	852.34	End	Manhole
2	MH512-MH511	6.72	15	Cir	73.935	851.50	852.80	1.758	852.34	853.84	n/a	853.84	1	Manhole
3	MH11-MH515	1.72	15	Cir	56.549	853.00	854.50	2.653	853.84	855.02	n/a	855.02 j	2	Manhole
4	MH511-INLET508	5.05	15	Cir	47.552	860.03	860.98	1.998	860.63	861.89	0.65	861.89	2	Grate
5	INLET508-INLET509	2.74	15	Cir	64.126	860.98	864.19	5.006	861.89	864.85	n/a	864.85 j	4	Grate
6	INLET509-INLET510	1.08	15	Cir	70.341	864.19	867.00	3.995	864.85	867.41	n/a	867.41 j	5	Grate
7	INLET508-INLET507	1.72	15	Cir	26.000	860.98	861.24	1.000	861.89	861.76	0.20	861.76	4	Grate
8	TANK2-INLET511	0.31	15	Cir	60.238	855.50	867.25	19.506	855.71	867.46	0.07	867.46	End	Grate
9	MH513-INLET506	6.77	15	Cir	61.000	850.00	850.00	0.000	851.04*	851.64*	0.27	851.91	End	Grate
10	INLET - 506 TO INLET - 505	4.45	15	Cir	25.001	853.01	853.26	1.000	853.70	854.11	n/a	854.11	9	Grate
11	EW3-OS2	15.59	18	Cir	38.606	844.00	847.00	7.771	845.42	848.42	1.26	848.42	End	Grate

Project File: storm sewers.stm

Number of lines: 11

Run Date: 2/9/2026

NOTES: Return period = 100 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Storm Sewer Tabulation

Station		Len (ft)	Drng Area		Rnoff coeff (C)	Area x C		Tc		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr (ac)	Total (ac)		Incr	Total	Inlet (min)	Syst (min)					Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	28.521	0.00	1.09	0.00	0.00	0.66	5.0	7.2	7.5	6.67	7.83	6.12	15	1.05	851.00	851.30	852.04	852.34	859.09	859.11	MH514-MH512
2	1	73.935	0.00	1.09	0.00	0.00	0.66	5.0	7.0	7.6	6.72	10.12	6.92	15	1.76	851.50	852.80	852.34	853.84	859.11	866.96	MH512-MH511
3	2	56.549	0.00	0.00	0.00	0.00	0.00	5.0	5.0	0.0	1.72	12.43	2.76	15	2.65	853.00	854.50	853.84	855.02	866.96	865.42	MH11-MH515
4	2	47.552	0.13	1.09	0.82	0.11	0.66	5.0	6.8	7.7	5.05	10.79	6.96	15	2.00	860.03	860.98	860.63	861.89	866.96	868.21	MH511-INLET508
5	4	64.126	0.32	0.51	0.69	0.22	0.35	5.0	6.3	7.9	2.74	17.07	3.50	15	5.01	860.98	864.19	861.89	864.85	868.21	871.91	INLET508-INLET5
6	5	70.341	0.19	0.19	0.67	0.13	0.13	5.0	5.0	8.5	1.08	15.25	2.37	15	3.99	864.19	867.00	864.85	867.41	871.91	875.61	INLET509-INLET5
7	4	26.000	0.45	0.45	0.45	0.20	0.20	5.0	5.0	8.5	1.72	7.63	2.68	15	1.00	860.98	861.24	861.89	861.76	868.21	866.99	INLET508-INLET5
8	End	60.238	0.04	0.04	0.90	0.04	0.04	5.0	5.0	8.5	0.31	33.71	2.19	15	19.51	855.50	867.25	855.71	867.46	865.42	870.25	TANK2-INLET511
9	End	61.000	0.32	1.27	0.87	0.28	0.80	5.0	5.1	8.5	6.77	0.00	5.85	15	0.00	850.00	850.00	851.04	851.64	854.24	857.82	MH513-INLET506
10	9	25.001	0.95	0.95	0.55	0.52	0.52	5.0	5.0	8.5	4.45	7.63	5.72	15	1.00	853.01	853.26	853.70	854.11	857.82	857.81	INLET - 506 TO I
11	End	38.606	0.00	0.00	0.00	0.00	0.00	5.0	5.0	0.0	15.59	34.60	9.02	18	7.77	844.00	847.00	845.42	848.42	849.76	852.25	EW3-OS2

Project File: storm sewers.stm

Number of lines: 11

Run Date: 2/9/2026

NOTES: Intensity = 40.14 / (Inlet time + 5.60) ^ 0.66; Return period = Yrs. 100 ; c = cir e = ellip b = box

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter						Inlet			Byp Line No	
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)		Depr (in)
1	STRMH-512	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
2	STRMH-511	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
3	STRMH-515	1.72*	0.00	0.00	1.72	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
4	INLET - 508	0.91	0.35	1.14	0.12	Grate	0.0	0.00	0.00	4.00	2.00	0.050	2.00	0.050	0.020	0.013	0.15	4.38	0.06	1.26	0.0	9
5	INLET - 509	1.88	0.08	1.61	0.35	Grate	0.0	0.00	0.00	4.00	2.00	0.050	2.00	0.050	0.020	0.013	0.17	5.52	0.09	1.87	0.0	4
6	INLET - 510	1.08	0.00	1.01	0.08	Grate	0.0	0.00	0.00	4.00	2.00	0.050	2.00	0.050	0.020	0.013	0.14	4.03	0.05	1.07	0.0	5
7	INLET - 507	1.72	0.00	1.46	0.26	Grate	0.0	0.00	0.00	4.00	2.00	0.050	2.00	0.050	0.020	0.013	0.16	5.18	0.08	1.69	0.0	10
8	INLET - 511	0.31	0.00	0.31	0.00	Grate	0.0	0.00	0.00	4.00	2.00	0.050	2.00	0.050	0.020	0.013	0.09	1.79	0.00	0.00	0.0	7
9	INLET - 506	2.37	0.12	2.49	0.00	Grate	0.0	0.00	6.14	4.00	2.00	Sag	2.00	0.050	0.020	0.000	0.27	10.53	0.27	10.53	0.0	Off
10	INLET - 505	4.45	0.26	4.71	0.00	Grate	0.0	0.00	6.14	4.00	2.00	Sag	2.00	0.050	0.020	0.000	0.39	16.38	0.39	16.38	0.0	Off
11	OS-2	15.59*	0.00	15.59	0.00	Grate	0.0	0.00	6.14	4.00	2.00	Sag	2.00	0.050	0.020	0.000	0.80	37.00	0.80	37.00	0.0	Off

Project File: storm sewers.stm

Number of lines: 11

Run Date: 2/9/2026

NOTES: Inlet N-Values = 0.016; Intensity = 40.14 / (Inlet time + 5.60) ^ 0.66; Return period = 100 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.

Hydraulic Grade Line Computations

Line	Size (in)	Q (cfs)	Downstream								Len (ft)	Upstream								Check		JL coeff (K)	Minor loss (ft)
			Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)		Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)		
1	15	6.67	851.00	852.04	1.04	1.09	6.12	0.58	852.62	0.000	28.521	851.30	852.34	1.04**	1.09	6.12	0.58	852.92	0.000	0.000	n/a	1.00	0.58
2	15	6.72	851.50	852.34	0.84	0.87	7.69	0.59	852.93	0.000	73.935	852.80	853.84	1.04**	1.09	6.15	0.59	854.43	0.000	0.000	n/a	0.97	n/a
3	15	1.72	853.00	853.84	0.84	0.48	1.96	0.20	854.04	0.000	56.549	854.50	855.02 j	0.52**	0.48	3.56	0.20	855.22	0.000	0.000	n/a	1.00	0.20
4	15	5.05	860.03	860.63	0.60*	0.58	8.64	0.43	861.06	0.000	47.552	860.98	861.89	0.91**	0.96	5.27	0.43	862.32	0.000	0.000	n/a	1.50	0.65
5	15	2.74	860.98	861.89	0.91	0.66	2.86	0.27	862.16	0.000	64.126	864.19	864.85 j	0.66**	0.66	4.14	0.27	865.12	0.000	0.000	n/a	0.69	n/a
6	15	1.08	864.19	864.85	0.66	0.35	1.64	0.15	865.00	0.000	70.341	867.00	867.41 j	0.41**	0.35	3.10	0.15	867.56	0.000	0.000	n/a	1.00	0.15
7	15	1.72	860.98	861.89	0.91	0.48	1.80	0.20	862.09	0.000	26.000	861.24	861.76	0.52**	0.48	3.56	0.20	861.96	0.000	0.000	n/a	1.00	0.20
8	15	0.31	855.50	855.71	0.21*	0.14	2.19	0.07	855.79	0.000	60.238	867.25	867.46	0.21**	0.14	2.19	0.07	867.54	0.000	0.000	n/a	1.00	0.07
9	15	6.77	850.00	851.04	1.04*	1.10	6.18	0.59	851.64	0.761	61.000	850.00	851.64	1.25	1.23	5.52	0.47	852.11	0.787	0.774	0.472	0.58	0.27
10	15	4.45	853.01	853.70	0.69*	0.69	6.45	0.39	854.08	0.000	25.001	853.26	854.11	0.85**	0.89	4.98	0.39	854.50	0.000	0.000	n/a	1.00	n/a
11	18	15.59	844.00	845.42	1.42*	1.73	9.02	1.26	846.68	0.000	38.606	847.00	848.42	1.42**	1.73	9.02	1.26	849.68	0.000	0.000	n/a	1.00	1.26

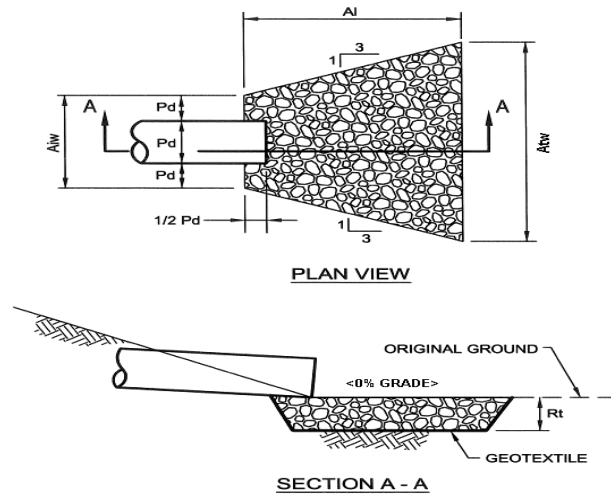
Project File: storm sewers.stm

Number of lines: 11

Run Date: 2/9/2026

Notes: * Normal depth assumed; ** Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

RIPRAP APRON OUTLET PROTECTION



NO.	PIPE DIA. Do (in)	TAIL WATER COND. (Max or Min)	MIN. "n" FOR PIPE	PIPE SLOPE (FT/FT)	Q (CFS)	V* (FPS)	Flow Depth (ft)	Tailwater Condition	RIPRAP SIZE	Rt (in)	Al (ft)	Aiw (ft)	Atw (ft)
EW-1	36	Min	0.011	0	6.36	4.27	0.79	Min	R-4	18	8.00	9.00	17.00
EW-2	36	Min	0.011	0	6.65	4.32	0.81	Min	R-4	18	8.00	9.00	17.00
EW-3	18	Min	0.011	0.0778	15.59	9.02	1.42	Max	R-5	27	25.00	4.50	15.00

*The anticipated velocity (V) should not exceed the maximum permissible shown in Table 6.6 for the proposed riprap protection. Adjust for less than full pipe flow. Use Manning's equation to calculate velocity for pipe slopes ≥ 0.05 ft/ft.

APPENDIX H

LONG TERM OPERATION AND MAINTENANCE SCHEDULE

Stormwater Management Conveyance Maintenance Schedule

Owner and responsible maintenance party: Charter Homes and Neighborhoods

The stormwater management system, which includes inlets, storm sewers, an underground detention tank, and an above/below ground infiltration basin, should be inspected around April 15 and November 15 of each year and after heavy rainfall events. The stormwater management conveyance is a privately owned system, and it is the responsibility of the property owner, to perform these inspections, make all necessary repairs, and keep a record of the findings and results of the inspections available for review.

The following maintenance shall be performed as soon as practical following an inspection:

Manholes/Inlets – The manholes/inlets shall be maintained so as not to allow any sediment or debris to prevent the flow of water into the manholes/inlets. Any obstructions to the pipe should be removed.

Storm Sewer Pipes – All storm sewer piping should be inspected to make sure no sediment or debris build-up has occurred that might restrict the flow of water through them. If build-up has occurred, the pipes should be flushed and cleaned.

Infiltration Basin – Infiltration basins, including basin bottoms, trash racks, outlet structures, riprap and inlet, should be inspected for clogging and excessive debris and sediment accumulation at least four times per year, as well as after every storm greater than 1-inch. Sediment removal should be conducted when the basin is completely dry. Sediment should be disposed of properly and once sediment removed; disturbed areas need to be immediately stabilized and revegetated. Mowing and/or trimming of vegetation should be performed as necessary to sustain the system, but all detritus should be removed from the basin. Vehicles should not be parked or driven on an Infiltration Basin, and care should be taken to avoid excessive compaction by mowers. Vegetated areas should be inspected annually for erosion. Vegetated areas should be inspected annually for unwanted growth of exotic/invasive species. Vegetative cover should be maintained at a minimum of 95 percent. If vegetative cover has been reduced by 10 percent, vegetation should be reestablished. Mulch should be re-spread when erosion is evident and soil media should be replenished as needed. Grasses within the vegetated area may be mowed twice per year to a height no lower than 6 inches (or cut back every year) but not more frequently.

Detention Tanks – The detention tanks should be inspected to make sure there is no buildup of debris or silt in the vessels. Dispose of sediment, debris/trash, and any other waste material removed from the system. The facility should be inspected at least 4 times a year, as well as after every storm exceeding 1 inch.

Primary Spillway Orifices - The primary spillway should be inspected to make sure no obstructions are preventing the orifice opening(s) from passing water into the outlet pipe. Any obstructions preventing the primary spillway from functioning properly must be removed.

Outlet Control Structure – The outlet control structure should be inspected to make sure no obstructions are preventing the orifice opening(s) from passing water into the outlet pipe. Any obstructions preventing the primary spillway from functioning properly must be removed.

Underdrain – The underdrain for the basin shall be in the closed position, except for maintenance purposes. If the underdrain is opened, return it to the closed position once maintenance operations are completed. The underdrain should be inspected and tested 4 times

per year.

Riprap Aprons – Inspect weekly and after every runoff event for sediment accumulation and/or apron washout. Reshape as necessary and replace with larger size riprap if necessary.

In addition to these measures, all maintenance requirements of the South Fayette Township Stormwater Management Ordinance must be followed.

APPENDIX I PLAN PREPARER INFORMATION

**STANDARD WORKSHEET #22: PLAN PREPARER RECORD OF TRAINING AND
EXPERIENCE IN POST CONSTRUCTION STORMWATER MANAGEMENT
METHODS AND TECHNIQUES**

NAME OF PLAN PREPARER: Benjamin R. Landin, E.I.T.

FORMAL EDUCATION:

Name of college or Technical Institute: Penn State University

Curriculum or Program: Civil Engineering

Date of Attendance: **From:** August 2004 **To:** May 2008

Degree(s) Received: Bachelor of Science in Civil Engineering

EMPLOYMENT HISTORY:

Current Employer: The Gateway Engineers, Inc.

Telephone: (412) 921-4030

From: July 2025 **To:** Current

Former Employer: LSSE, Inc.

Telephone: (412) 264-4400

From: June 2008 **To:** June 2025

RECENT POST CONSTRUCTION STORMWATER PLANS PREPARED:

Fox Chapel Estates, L.P.

Indiana Trails Plan of Lots

Erosion and Sedimentation Control – Chapter 102 Individual NPDES Permit

Indiana Township, Allegheny County, PA

Reviewed By: Pennsylvania Department of Environmental Protection Southwest Regional Office

Western Avenue Associates

GetGo Western & Fulton

Erosion and Sedimentation Control – Chapter 102 General NPDES Permit

City of Pittsburgh, Allegheny County, PA

Reviewed By: Allegheny County Conservation District

GetGo Portfolio II, LLC

GetGo South Union – Work Parkway

Erosion and Sedimentation Control – Chapter 102 General NPDES Permit

South Union Township, Fayette County, PA

Reviewed By: Fayette County Conservation District

Bradford Park Borough

Acorn Park Improvements

Erosion and Sedimentation Control – Chapter 102 Individual NPDES Permit

Borough of Bradford Park, Allegheny County, PA

Reviewed By: Pennsylvania Department of Environmental Protection Southwest Regional Office

Imperial Land Corporation

Fort Cherry Development District

Erosion and Sedimentation Control – Chapter 102 General NPDES Permit

Robinson Township, Washington County, PA

Reviewed By: Washington County Conservation District