Drainage Report

For

Bryant Pharmacy

Bryant, Saline County, Arkansas



September 5, 2025

Prepared by:

RICHARDSON ENGINEERING, PLLC

325 W. South St.
Benton, AR 72015
501-315-7225

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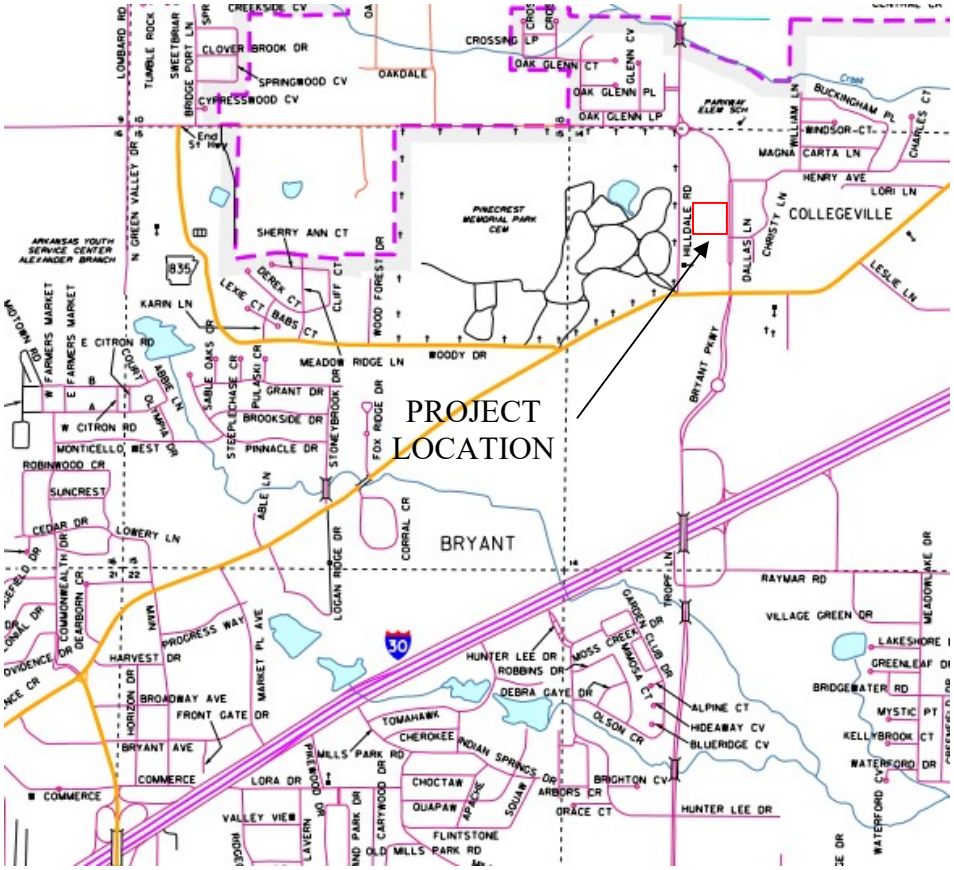
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Project Owner Information

Jon Martin
5501 Lombard Road
Alexander, AR 72002

Project Location and Description

The project is located on West side of the Bryant Parkway, part of the Southeast Quater of the Northwest Quarter, Section 14, Township 1-S, Range 14-W, Saline County, Arkansas.



Vicinity Map – N.T.S

This project is a proposed Commercial Development, located in the City of Bryant, Saline County.

Site Drainage

Pre-Development

The pre-developed runoff for the site flows to the East and West. The pre-development runoff condition is undeveloped/woods.

Post-Development

The site drainage starts on the South side of the project and flows to the North. The drainage is sheet flows across the proposed parking lot and intercepted by the proposed storm sewer system and is discharged into a proposed detention basin on the Northwest corner of the project. The proposed detention basin will utilize a culvert/weir discharge structure. Post-Development Basin A is the drainage basin that discharges water into the proposed detention basin and Post-Development Basin B and C are the grass tie back slopes from the proposed pavement to existing grade. These areas are not routed through the detention basin, so it was calculated by itself. The post-development runoff conditions changed from undeveloped/woods to commercial development.

Runoff Summary

Overall Basin Design Point
Development Drainage Study Area = 1.92 Ac
Post-Development Drainage Study Area = 1.97
Existing Condition runoff Coefficient: C = 0.56
Proposed runoff Coefficient: C = 0.95/0.58/0.51
Tc Undeveloped = 9/12 Minutes (TR55 Method)
Tc Developed = 5/10 Minutes
Detention Basin Required Volume: 7,811 CF
Detention Basin Volume: 12,635 CF
Maximum Storage: 1,163 CF
Discharge Structure: Culvert/Weir

Design Storm	Pre-Development Flow Rate (cfs)	Post-Development Flow Rate (cfs)	Post-Development w/ Detention Flow Rate (cfs)
2-yr	4.39	3.90	9.82
10-yr	5.87	5.25	13.13
25-yr	6.75	5.77	15.08
50-yr	7.38	6.26	16.47
100-yr	8.02	6.79	17.91

Pre- Development Basin “A” Design Point
Drainage Study Area = 1.17 Ac
Existing runoff Coefficient: C = 0.56
Tc Undeveloped = 9 Minutes

Design Storm	Post-Development Flow Rate (cfs)
2-yr	3.08
10-yr	4.13
25-yr	4.75
50-yr	5.19
100-yr	5.64

Pre- Development Basin “B” Design Point
Drainage Study Area = 0.75 Ac
Existing runoff Coefficient: C = 0.56
Tc Undeveloped = 12 Minutes

Design Storm	Post-Development Flow Rate (cfs)
2-yr	1.74
10-yr	2.33
25-yr	2.67
50-yr	2.92
100-yr	3.18

Post- Development Basin “A” Design Point
Drainage Study Area = 1.50 Ac
Proposed runoff Coefficient: C = 0.95
Tc Developed = 5 Minutes

Design Storm	Post-Development Flow Rate (cfs)
2-yr	8.75
10-yr	11.70
25-yr	13.44
50-yr	14.68
100-yr	15.96

Post- Development Basin “B” Design Point
Drainage Study Area = 0.22 Ac
Proposed runoff Coefficient: C = 0.58
Tc Developed = 10 Minutes

Design Storm	Post-Development Flow Rate (cfs)
2-yr	0.57
10-yr	0.77
25-yr	0.88
50-yr	0.96
100-yr	1.05

Post- Development Basin “C” Design Point
Development Drainage Study Area = 0.25 Ac
Proposed runoff Coefficient: C = 0.51
Tc Developed = 5 Minutes

Design Storm	Post-Development Flow Rate (cfs)
2-yr	0.78
10-yr	1.05
25-yr	1.20
50-yr	1.31
100-yr	1.43

Recommendations/Summary

The proposed drainage improvements include a storm sewer system and a detention basin on the Northwest corner of the project. The proposed detention basin releases the post development runoff at a lower rate than the pre-development condition.

Appendices

Runoff Coefficient Calculations
NRCS Soil Report
Site Drainage Map
Pond and Post Development Hydrographs (Hydrology Studio)

Runoff Coefficient Calculations

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Planning ▪ Engineering ▪ Development Consulting

325 West South Street
Benton, AR 72015
(501) 315-7225

(1/2)

PROJECT 025-029 DRAINAGE ANALYSIS DATE 09/04/2025

PRE-DEVELOPMENT

DRAINAGE AREA : 1.92 AC

CLAY SOIL

50% - 2%-7% C = 0.50

50% - >7% C = 0.62

$$C = \frac{(0.960)(0.5) + (0.960)(0.62)}{1.92}$$

$$= 0.56$$

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(2/2)

PROJECT 025-027 DRAINAGE ANALYSIS DATE 09/04/2025

POST - DEVELOPMENT

BASIN "A"

AREA = 1.5 AC

C = 0.75 ✓

BASIN "B"

AREA = 0.22 AC (9661 SF)

PERVIOUS: 8092 SF C = 0.51 (GRASS - GOOD CONDITION > 7%)
IMPERVIOUS: 1569 SF C = 0.95

$$C = \frac{(8092)(0.51) + (1569)(0.95)}{9661} = 0.58$$ ✓

BASIN "C"

AREA = 0.25 AC (11,088 SF)

PERVIOUS: 6,792 SF C = 0.51
IMPERVIOUS: 4,296 SF C = 0.95

$$C = \frac{(6792)(0.51) + (4296)(0.95)}{11082} = 0.68$$ ✓

NRCS Soil Report



Map Scale: 1:748 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 10 20 40 60

Feet: 0 35 70 140 210

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N 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 1:20,000.

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:
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: Saline County, Arkansas
Survey Area Data: Version 21, Sep 10, 2024

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

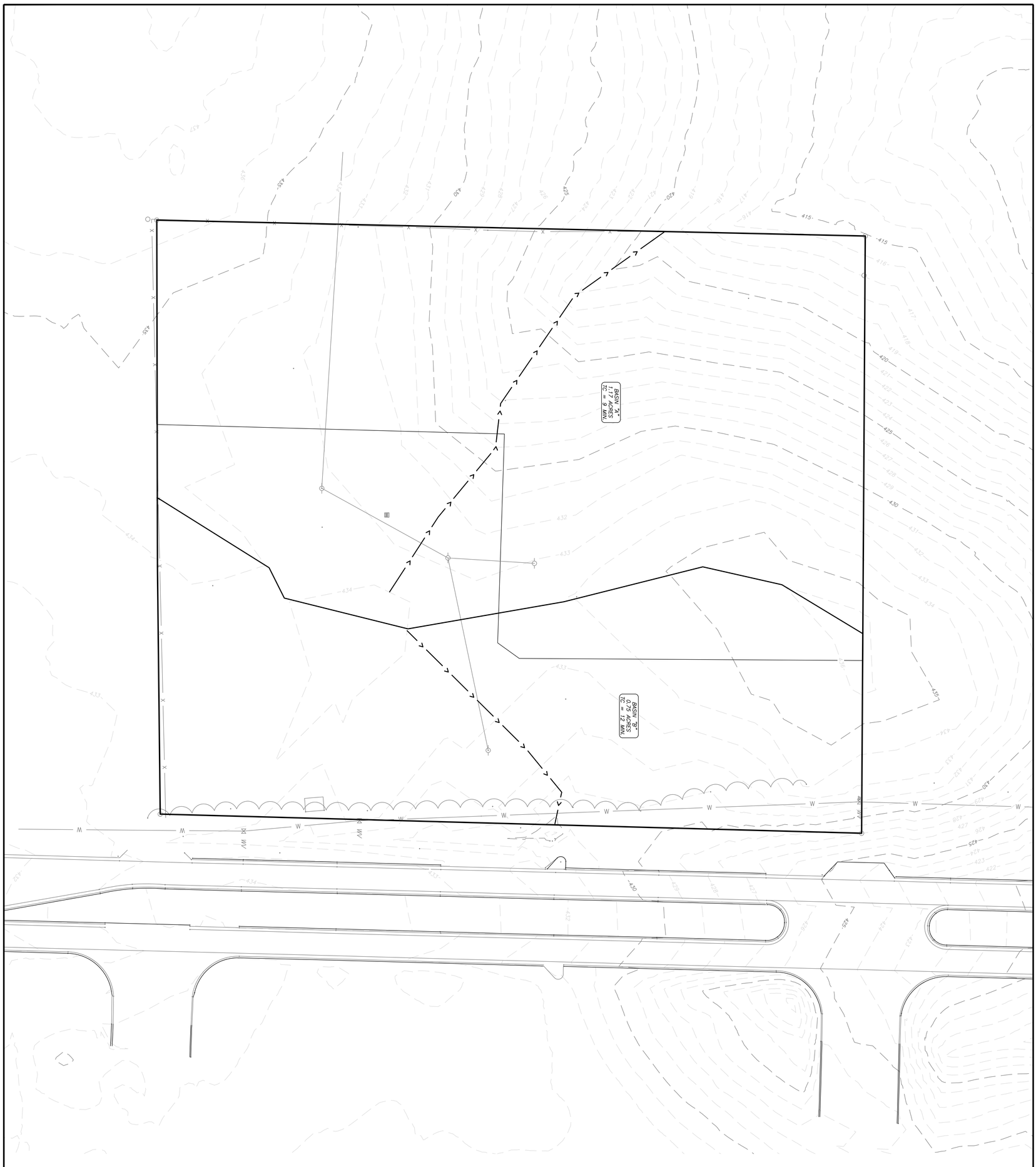
Date(s) aerial images were photographed: May 1, 2022—May 29, 2022

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

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
29	Tiak silt loam, 3 to 8 percent slopes	2.4	100.0%
Totals for Area of Interest		**2.4**	**100.0%**

Site Drainage Basin Maps

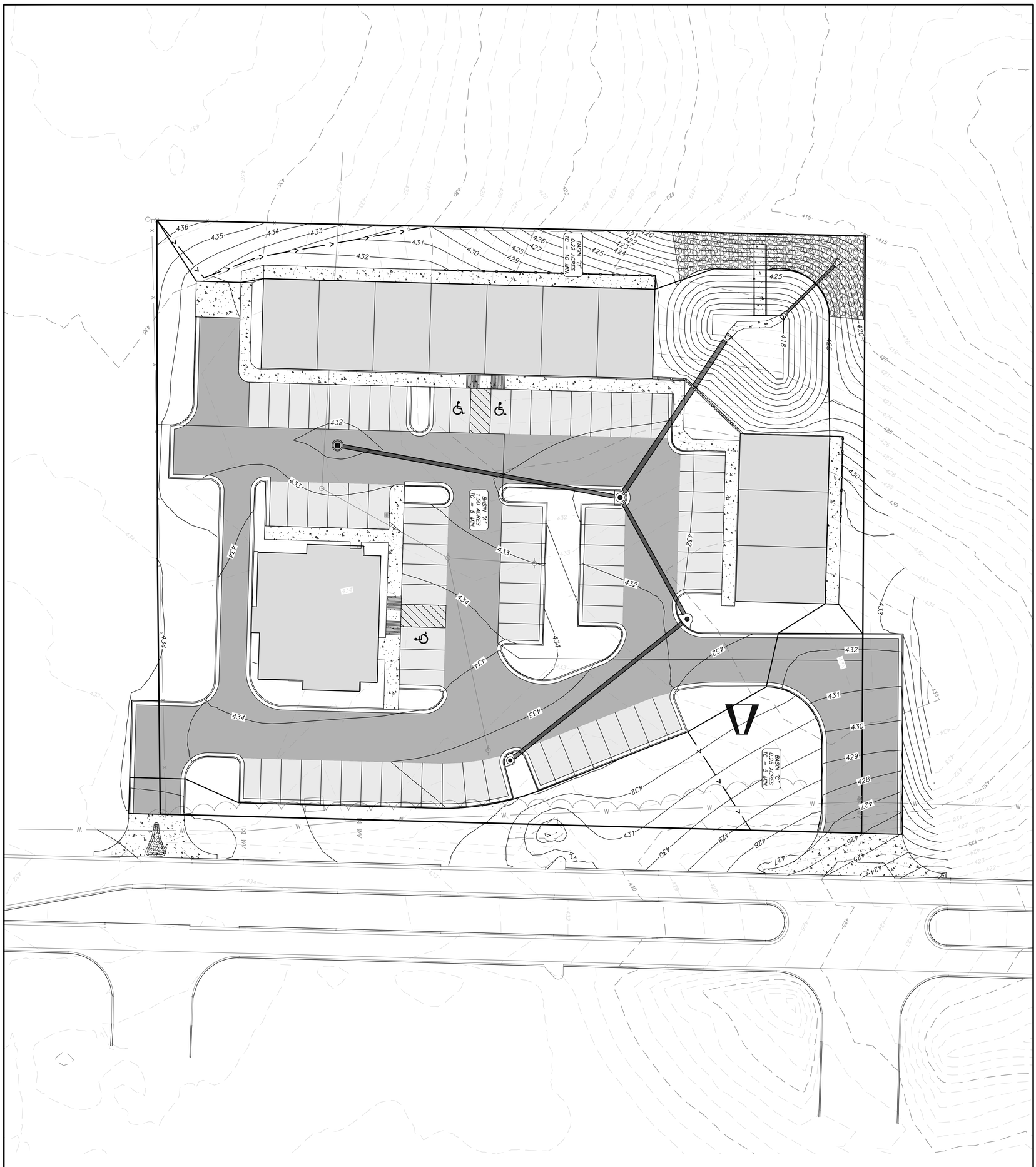


GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft.

PROJECT #: 025-029	No. / Revisions / Date	Prepared For: JON MARTIN, 5501 LOMBARD ROAD, ALEXANDER, AR 72002	PRE-DEVELOPMENT DRAINAGE BASIN MAP SHOPPES AT DOGWOOD SPRINGS RETAIL DEVELOPMENT BRYANT PARKWAY BRYANT, ARKANSAS
Scale: 1" = 20'	Date: 09/05/2025		
Sheet: 1 of 3			

CERTIFICATE OF AUTHORIZATION
Richardson Engineering, PLLC
No. 2519
ARKANSAS

RICHARDSON ENGINEERING
Planning • Engineering • Development Consulting
325 W. SOUTH STREET, BENTON, AR 72015 (501)315-7225



GRAPHIC SCALE

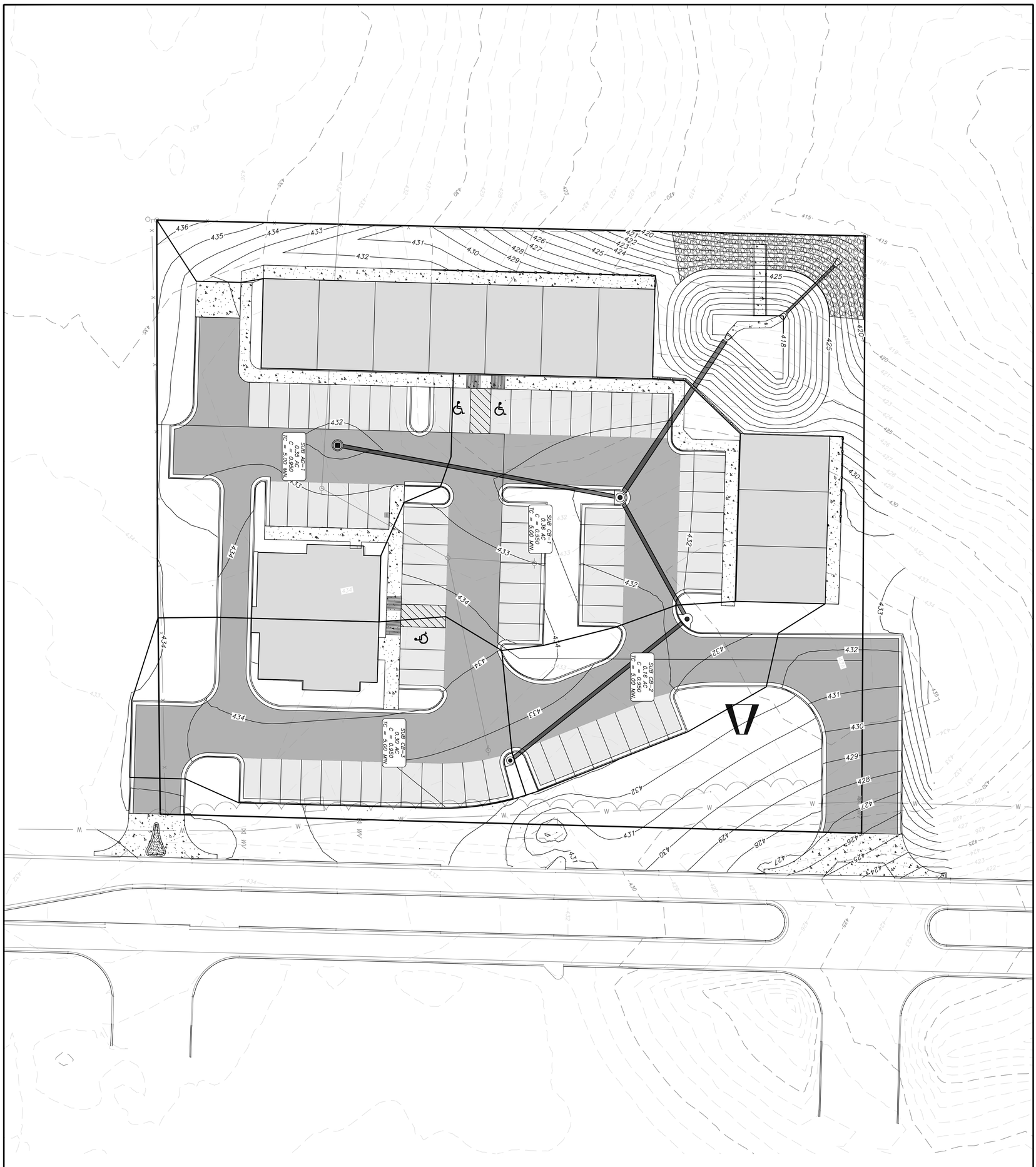
(IN FEET)

1 inch = 20 ft.

PROJECT #: 025-029	No. / Revisions / Date	Prepared For: JON MARTIN, 5501 LOMBARD ROAD, ALEXANDER, AR 72002	POST-DEVELOPMENT DRAINAGE BASIN MAP SHOPPES AT DOGWOOD SPRINGS RETAIL DEVELOPMENT BRYANT PARKWAY BRYANT, ARKANSAS
Scale: 1" = 20'	Date: 09/05/2025		
Sheet: 2 of 3			

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GRAPHIC SCALE

(IN FEET)

1 inch = 20 ft.

PROJECT #: 025-029	No. / Revisions / Date	Prepared For: JON MARTIN, 5501 LOMBARD ROAD, ALEXANDER, AR 72002	POST-DEVELOPMENT DRAINAGE BASIN MAP SHOPPES AT DOGWOOD SPRINGS RETAIL DEVELOPMENT BRYANT PARKWAY BRYANT, ARKANSAS
Scale: 1" = 20' / Date: 09/05/2025			
Sheet: 3 of 3			

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Storm System Design (SSA)

2 Year Design Storm

Project Description

File Name	Bryant Pharmacy Drainage Analysis 9-5-25.SPF

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	Rational
Time of Concentration (TOC) Method	User-Defined
Link Routing Method	Kinematic Wave
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	Sep 05, 2025	00:00:00
End Analysis On	Sep 06, 2025	00:00:00
Start Reporting On	Sep 05, 2025	00:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	0
Subbasins	4
Nodes	5
Junctions	0
Outfalls	1
Flow Diversions	0
Inlets	4
Storage Nodes	0
Links	5
Channels	0
Pipes	5
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

Return Period	2 year(s)

Subbasin Summary

SN	Subbasin ID	Area (ac)	Weighted Runoff Coefficient	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	Sub-AD-4	0.35	0.9500	0.51	0.49	0.17	2.02	0 00:05:00
2	Sub-CB-1	0.36	0.9500	0.51	0.49	0.17	2.09	0 00:05:00
3	Sub-CB-2	0.16	0.9500	0.51	0.49	0.08	0.91	0 00:05:00
4	Sub-CB-3	0.30	0.9500	0.51	0.49	0.15	1.77	0 00:05:00

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft²)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	F
1	Out-1SL - (14)	Outfall	418.00					6.67	418.53		

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak Flow Depth
					(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	(ft)
1	L-SL - (16)	Pipe	CB-3	CB-2	112.54	433.11	432.25	0.7600	0.000	0.0150	0.07	0.00	0.00	0.00	0.00
2	SL - (14)	Pipe	CB-1	Out-1SL - (14)	84.31	422.00	418.00	4.7400	18.000	0.0120	6.67	24.79	0.27	11.93	0.53
3	SL - (15)	Pipe	CB-2	CB-1	62.02	426.00	422.00	6.4500	18.000	0.0120	2.65	28.90	0.09	10.23	0.31
4	SL - (16)	Pipe	CB-3	CB-2	101.17	429.00	426.00	2.9700	18.000	0.0120	1.69	19.60	0.09	9.23	0.30
5	SL - (18)	Pipe	AD-4	CB-1	128.37	427.50	423.00	3.5100	18.000	0.0120	1.99	21.31	0.09	8.25	0.31

Inlet Summary

SN	Element ID	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Initial Water Elevation (ft)	Ponded Area (ft²)	Peak Flow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Allowable Spread (ft)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)
1	AD-4	On Sag	1	427.50	431.80	427.50	10.00	2.02	N/A	N/A	N/A	10.00	8.74	432.16
2	CB-1	On Sag	1	422.00	431.61	422.00	10.00	2.09	N/A	N/A	N/A	10.00	5.00	432.01
3	CB-2	On Sag	1	426.00	432.25	426.00	10.00	0.98	N/A	N/A	N/A	10.00	3.01	432.59
4	CB-3	On Grade	1	429.00	433.11	429.00	N/A	1.77	1.72	0.06	96.77	10.00	6.06	433.28

Subbasin Hydrology

Subbasin : Sub-AD-4

Subbasin : Sub-CB-1

Subbasin : Sub-CB-2

Subbasin : Sub-CB-3

Pipe Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Man Rougl
1	L-SL - (16)	112.54	433.11	4.11	432.25	6.25	0.86	0.7600	Dummy	0.000	0.000	0
2	SL - (14)	84.31	422.00	0.00	418.00	0.00	4.00	4.7400	CIRCULAR	18.000	18.000	0
3	SL - (15)	62.02	426.00	0.00	422.00	0.00	4.00	6.4500	CIRCULAR	18.000	18.000	0
4	SL - (16)	101.17	429.00	0.00	426.00	0.00	3.00	2.9700	CIRCULAR	18.000	18.000	0
5	SL - (18)	128.37	427.50	0.00	423.00	1.00	4.50	3.5100	CIRCULAR	18.000	18.000	0

No. of Barrels
1
1
1
1
1

Pipe Results

SN	Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Tota Surch
1	L-SL - (16)	0.07	0 00:05	0.00	0.00	0.00		0.00	0.00	
2	SL - (14)	6.67	0 00:05	24.79	0.27	11.93	0.12	0.53	0.35	
3	SL - (15)	2.65	0 00:05	28.90	0.09	10.23	0.10	0.31	0.20	
4	SL - (16)	1.69	0 00:05	19.60	0.09	9.23	0.18	0.30	0.20	
5	SL - (18)	1.99	0 00:05	21.31	0.09	8.25	0.26	0.31	0.21	

Inlet Input

SN	Element ID	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Inlet Depth (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Ponded Area (ft^2)	Grate Clogging Factor (%)
1	AD-4	On Sag	1	427.50	431.80	4.30	427.50	0.00	10.00	0.00
2	CB-1	On Sag	1	422.00	431.61	9.61	422.00	0.00	10.00	0.00
3	CB-2	On Sag	1	426.00	432.25	6.25	426.00	0.00	10.00	0.00
4	CB-3	On Grade	1	429.00	433.11	4.11	429.00	0.00	N/A	0.00

Roadway & Gutter Input

SN	Element ID	Roadway Longitudinal Slope (ft/ft)	Roadway Cross Slope (ft/ft)	Roadway Manning's Roughness	Gutter Cross Slope (ft/ft)	Gutter Width (ft)	Gutter Depression (in)	Allowable Spread (ft)
1	AD-4	N/A	0.0300	0.0150	0.0300	1.50	0.1312	10.00
2	CB-1	N/A	0.0300	0.0150	0.0200	1.50	0.1312	10.00
3	CB-2	N/A	0.0300	0.0150	0.0200	1.50	0.1312	10.00
4	CB-3	0.0200	0.0300	0.0150	0.0200	1.50	0.1312	10.00

Inlet Results

SN	Element ID	Peak Flow (cfs)	Peak Lateral Inflow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)	Max Gutter Water Depth during Peak Flow (ft)	T Max Occu (days h
1	AD-4	2.02	2.02	N/A	N/A	N/A	8.74	432.16	0.36	0
2	CB-1	2.09	2.09	N/A	N/A	N/A	5.00	432.01	0.40	0
3	CB-2	0.98	0.91	N/A	N/A	N/A	3.01	432.59	0.34	0
4	CB-3	1.77	1.77	1.72	0.06	96.77	6.06	433.28	0.17	0

10 Year Design Storm

Project Description

File Name	Bryant Pharmacy Drainage Analysis 9-5-25.SPF

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	Rational
Time of Concentration (TOC) Method	User-Defined
Link Routing Method	Kinematic Wave
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	Sep 05, 2025	00:00:00
End Analysis On	Sep 06, 2025	00:00:00
Start Reporting On	Sep 05, 2025	00:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	0
Subbasins	4
Nodes	5
Junctions	0
Outfalls	1
Flow Diversions	0
Inlets	4
Storage Nodes	0
Links	5
Channels	0
Pipes	5
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

Return Period	10 year(s)

Subbasin Summary

SN	Subbasin ID	Area (ac)	Weighted Runoff Coefficient	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	Sub-AD-4	0.35	0.9500	0.68	0.65	0.22	2.70	0 00:05:00
2	Sub-CB-1	0.36	0.9500	0.68	0.65	0.23	2.80	0 00:05:00
3	Sub-CB-2	0.16	0.9500	0.68	0.65	0.10	1.22	0 00:05:00
4	Sub-CB-3	0.30	0.9500	0.68	0.65	0.20	2.37	0 00:05:00

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft²)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	F
1	Out-1SL - (14)	Outfall	418.00					8.93	418.62		

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak Flow Depth
					(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	(ft)
1	L-SL - (16)	Pipe	CB-3	CB-2	112.54	433.11	432.25	0.7600	0.000	0.0150	0.24	0.00	0.00	0.00	0.00
2	SL - (14)	Pipe	CB-1	Out-1SL - (14)	84.31	422.00	418.00	4.7400	18.000	0.0120	8.93	24.79	0.36	12.91	0.62
3	SL - (15)	Pipe	CB-2	CB-1	62.02	426.00	422.00	6.4500	18.000	0.0120	3.54	28.90	0.12	11.11	0.35
4	SL - (16)	Pipe	CB-3	CB-2	101.17	429.00	426.00	2.9700	18.000	0.0120	2.12	19.60	0.11	9.87	0.33
5	SL - (18)	Pipe	AD-4	CB-1	128.37	427.50	423.00	3.5100	18.000	0.0120	2.66	21.31	0.12	8.42	0.36

Inlet Summary

SN	Element ID	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Initial Water Elevation (ft)	Ponded Area (ft²)	Peak Flow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Allowable Spread (ft)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)
1	AD-4	On Sag	1	427.50	431.80	427.50	10.00	2.70	N/A	N/A	N/A	10.00	10.40	432.21
2	CB-1	On Sag	1	422.00	431.61	422.00	10.00	2.80	N/A	N/A	N/A	10.00	6.07	432.04
3	CB-2	On Sag	1	426.00	432.25	426.00	10.00	1.46	N/A	N/A	N/A	10.00	3.92	432.62
4	CB-3	On Grade	1	429.00	433.11	429.00	N/A	2.37	2.14	0.23	90.23	10.00	6.73	433.30

Subbasin Hydrology

Subbasin : Sub-AD-4

Subbasin : Sub-CB-1

Subbasin : Sub-CB-2

Subbasin : Sub-CB-3

Pipe Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Man Rougl
1	L-SL - (16)	112.54	433.11	4.11	432.25	6.25	0.86	0.7600	Dummy	0.000	0.000	0
2	SL - (14)	84.31	422.00	0.00	418.00	0.00	4.00	4.7400	CIRCULAR	18.000	18.000	0
3	SL - (15)	62.02	426.00	0.00	422.00	0.00	4.00	6.4500	CIRCULAR	18.000	18.000	0
4	SL - (16)	101.17	429.00	0.00	426.00	0.00	3.00	2.9700	CIRCULAR	18.000	18.000	0
5	SL - (18)	128.37	427.50	0.00	423.00	1.00	4.50	3.5100	CIRCULAR	18.000	18.000	0

No. of Barrels
1
1
1
1
1

Pipe Results

SN	Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Tota Surch
		(cfs)	(days hh:mm)	(cfs)		(ft/sec)	(min)	(ft)		
1	L-SL - (16)	0.24	0 00:05	0.00	0.00	0.00		0.00	0.00	
2	SL - (14)	8.93	0 00:05	24.79	0.36	12.91	0.11	0.62	0.41	
3	SL - (15)	3.54	0 00:05	28.90	0.12	11.11	0.09	0.35	0.24	
4	SL - (16)	2.12	0 00:05	19.60	0.11	9.87	0.17	0.33	0.22	
5	SL - (18)	2.66	0 00:05	21.31	0.12	8.42	0.25	0.36	0.24	

Inlet Input

SN	Element ID	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Inlet Depth (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Ponded Area (ft^2)	Grate Clogging Factor (%)
1	AD-4	On Sag	1	427.50	431.80	4.30	427.50	0.00	10.00	0.00
2	CB-1	On Sag	1	422.00	431.61	9.61	422.00	0.00	10.00	0.00
3	CB-2	On Sag	1	426.00	432.25	6.25	426.00	0.00	10.00	0.00
4	CB-3	On Grade	1	429.00	433.11	4.11	429.00	0.00	N/A	0.00

Roadway & Gutter Input

SN	Element ID	Roadway Longitudinal Slope (ft/ft)	Roadway Cross Slope (ft/ft)	Roadway Manning's Roughness	Gutter Cross Slope (ft/ft)	Gutter Width (ft)	Gutter Depression (in)	Allowable Spread (ft)
1	AD-4	N/A	0.0300	0.0150	0.0300	1.50	0.1312	10.00
2	CB-1	N/A	0.0300	0.0150	0.0200	1.50	0.1312	10.00
3	CB-2	N/A	0.0300	0.0150	0.0200	1.50	0.1312	10.00
4	CB-3	0.0200	0.0300	0.0150	0.0200	1.50	0.1312	10.00

Inlet Results

SN	Element ID	Peak Flow (cfs)	Peak Lateral Inflow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)	Max Gutter Water Depth during Peak Flow (ft)	T Max Occu (days h
1	AD-4	2.70	2.70	N/A	N/A	N/A	10.40	432.21	0.41	0
2	CB-1	2.80	2.80	N/A	N/A	N/A	6.07	432.04	0.43	0
3	CB-2	1.46	1.22	N/A	N/A	N/A	3.92	432.62	0.37	0
4	CB-3	2.37	2.37	2.14	0.23	90.23	6.73	433.30	0.19	0

25 Year Design Storm

Project Description

File Name	Bryant Pharmacy Drainage Analysis 9-5-25.SPF

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	Rational
Time of Concentration (TOC) Method	User-Defined
Link Routing Method	Kinematic Wave
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	Sep 05, 2025	00:00:00
End Analysis On	Sep 06, 2025	00:00:00
Start Reporting On	Sep 05, 2025	00:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	0
Subbasins	4
Nodes	5
Junctions	0
Outfalls	1
Flow Diversions	0
Inlets	4
Storage Nodes	0
Links	5
Channels	0
Pipes	5
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

Return Period	25 year(s)

Subbasin Summary

SN	Subbasin ID	Area (ac)	Weighted Runoff Coefficient	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	Sub-AD-4	0.35	0.9500	0.79	0.75	0.26	3.10	0 00:05:00
2	Sub-CB-1	0.36	0.9500	0.79	0.75	0.27	3.22	0 00:05:00
3	Sub-CB-2	0.16	0.9500	0.79	0.75	0.12	1.40	0 00:05:00
4	Sub-CB-3	0.30	0.9500	0.79	0.75	0.23	2.72	0 00:05:00

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft²)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	F
1	Out-1SL - (14)	Outfall	418.00					10.27	418.67		

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak Flow Depth
					(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	(ft)
1	L-SL - (16)	Pipe	CB-3	CB-2	112.54	433.11	432.25	0.7600	0.000	0.0150	0.37	0.00	0.00	0.00	0.00
2	SL - (14)	Pipe	CB-1	Out-1SL - (14)	84.31	422.00	418.00	4.7400	18.000	0.0120	10.27	24.79	0.41	13.40	0.67
3	SL - (15)	Pipe	CB-2	CB-1	62.02	426.00	422.00	6.4500	18.000	0.0120	4.07	28.90	0.14	11.57	0.38
4	SL - (16)	Pipe	CB-3	CB-2	101.17	429.00	426.00	2.9700	18.000	0.0120	2.34	19.60	0.12	10.19	0.35
5	SL - (18)	Pipe	AD-4	CB-1	128.37	427.50	423.00	3.5100	18.000	0.0120	3.06	21.31	0.14	8.63	0.38

Inlet Summary

SN	Element ID	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Initial Water Elevation (ft)	Ponded Area (ft²)	Peak Flow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Allowable Spread (ft)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)
1	AD-4	On Sag	1	427.50	431.80	427.50	10.00	3.10	N/A	N/A	N/A	10.00	11.31	432.24
2	CB-1	On Sag	1	422.00	431.61	422.00	10.00	3.22	N/A	N/A	N/A	10.00	6.66	432.06
3	CB-2	On Sag	1	426.00	432.25	426.00	10.00	1.77	N/A	N/A	N/A	10.00	4.47	432.64
4	CB-3	On Grade	1	429.00	433.11	429.00	N/A	2.72	2.36	0.37	86.54	10.00	7.08	433.31

Subbasin Hydrology

Subbasin : Sub-AD-4

Subbasin : Sub-CB-1

Subbasin : Sub-CB-2

Subbasin : Sub-CB-3

Pipe Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Man Rougl
1	L-SL - (16)	112.54	433.11	4.11	432.25	6.25	0.86	0.7600	Dummy	0.000	0.000	0
2	SL - (14)	84.31	422.00	0.00	418.00	0.00	4.00	4.7400	CIRCULAR	18.000	18.000	0
3	SL - (15)	62.02	426.00	0.00	422.00	0.00	4.00	6.4500	CIRCULAR	18.000	18.000	0
4	SL - (16)	101.17	429.00	0.00	426.00	0.00	3.00	2.9700	CIRCULAR	18.000	18.000	0
5	SL - (18)	128.37	427.50	0.00	423.00	1.00	4.50	3.5100	CIRCULAR	18.000	18.000	0

No. of Barrels
1
1
1
1
1

Pipe Results

SN	Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Tota Surc
1	L-SL - (16)	0.37	0 00:05	0.00	0.00	0.00		0.00	0.00	
2	SL - (14)	10.27	0 00:05	24.79	0.41	13.40	0.10	0.67	0.45	
3	SL - (15)	4.07	0 00:05	28.90	0.14	11.57	0.09	0.38	0.25	
4	SL - (16)	2.34	0 00:05	19.60	0.12	10.19	0.17	0.35	0.23	
5	SL - (18)	3.06	0 00:05	21.31	0.14	8.63	0.25	0.38	0.26	

Inlet Input

SN	Element ID	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Inlet Depth (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Ponded Area (ft^2)	Grate Clogging Factor (%)
1	AD-4	On Sag	1	427.50	431.80	4.30	427.50	0.00	10.00	0.00
2	CB-1	On Sag	1	422.00	431.61	9.61	422.00	0.00	10.00	0.00
3	CB-2	On Sag	1	426.00	432.25	6.25	426.00	0.00	10.00	0.00
4	CB-3	On Grade	1	429.00	433.11	4.11	429.00	0.00	N/A	0.00

Roadway & Gutter Input

SN	Element ID	Roadway Longitudinal Slope (ft/ft)	Roadway Cross Slope (ft/ft)	Roadway Manning's Roughness	Gutter Cross Slope (ft/ft)	Gutter Width (ft)	Gutter Depression (in)	Allowable Spread (ft)
1	AD-4	N/A	0.0300	0.0150	0.0300	1.50	0.1312	10.00
2	CB-1	N/A	0.0300	0.0150	0.0200	1.50	0.1312	10.00
3	CB-2	N/A	0.0300	0.0150	0.0200	1.50	0.1312	10.00
4	CB-3	0.0200	0.0300	0.0150	0.0200	1.50	0.1312	10.00

Inlet Results

SN	Element ID	Peak Flow (cfs)	Peak Lateral Inflow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)	Max Gutter Water Depth during Peak Flow (ft)	T Max Occu (days h
1	AD-4	3.10	3.10	N/A	N/A	N/A	11.31	432.24	0.44	0
2	CB-1	3.22	3.22	N/A	N/A	N/A	6.66	432.06	0.45	0
3	CB-2	1.77	1.40	N/A	N/A	N/A	4.47	432.64	0.38	0
4	CB-3	2.72	2.72	2.36	0.37	86.54	7.08	433.31	0.20	0

50 Year Design Storm

Project Description

File Name	Bryant Pharmacy Drainage Analysis 9-5-25.SPF

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	Rational
Time of Concentration (TOC) Method	User-Defined
Link Routing Method	Kinematic Wave
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	Sep 05, 2025	00:00:00
End Analysis On	Sep 06, 2025	00:00:00
Start Reporting On	Sep 05, 2025	00:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	0
Subbasins	4
Nodes	5
Junctions	0
Outfalls	1
Flow Diversions	0
Inlets	4
Storage Nodes	0
Links	5
Channels	0
Pipes	5
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

Return Period	50 year(s)

Subbasin Summary

SN	Subbasin ID	Area (ac)	Weighted Runoff Coefficient	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	Sub-AD-4	0.35	0.9500	0.86	0.82	0.28	3.38	0 00:05:00
2	Sub-CB-1	0.36	0.9500	0.86	0.82	0.29	3.51	0 00:05:00
3	Sub-CB-2	0.16	0.9500	0.86	0.82	0.13	1.53	0 00:05:00
4	Sub-CB-3	0.30	0.9500	0.86	0.82	0.25	2.98	0 00:05:00

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft²)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	F
1	Out-1SL - (14)	Outfall	418.00					11.22	418.71		

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak Flow Depth
					(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	(ft)
1	L-SL - (16)	Pipe	CB-3	CB-2	112.54	433.11	432.25	0.7600	0.000	0.0150	0.47	0.00	0.00	0.00	0.00
2	SL - (14)	Pipe	CB-1	Out-1SL - (14)	84.31	422.00	418.00	4.7400	18.000	0.0120	11.22	24.79	0.45	13.71	0.71
3	SL - (15)	Pipe	CB-2	CB-1	62.02	426.00	422.00	6.4500	18.000	0.0120	4.45	28.90	0.15	11.88	0.40
4	SL - (16)	Pipe	CB-3	CB-2	101.17	429.00	426.00	2.9700	18.000	0.0120	2.48	19.60	0.13	10.41	0.36
5	SL - (18)	Pipe	AD-4	CB-1	128.37	427.50	423.00	3.5100	18.000	0.0120	3.34	21.31	0.16	8.85	0.40

Inlet Summary

SN	Element ID	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Initial Water Elevation (ft)	Ponded Area (ft²)	Peak Flow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Allowable Spread (ft)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)
1	AD-4	On Sag	1	427.50	431.80	427.50	10.00	3.38	N/A	N/A	N/A	10.00	11.93	432.26
2	CB-1	On Sag	1	422.00	431.61	422.00	10.00	3.51	N/A	N/A	N/A	10.00	7.06	432.07
3	CB-2	On Sag	1	426.00	432.25	426.00	10.00	2.01	N/A	N/A	N/A	10.00	4.86	432.65
4	CB-3	On Grade	1	429.00	433.11	429.00	N/A	2.98	2.50	0.47	84.09	10.00	7.31	433.31

Subbasin Hydrology

Subbasin : Sub-AD-4

Subbasin : Sub-CB-1

Subbasin : Sub-CB-2

Subbasin : Sub-CB-3

Pipe Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Man Rougl
1	L-SL - (16)	112.54	433.11	4.11	432.25	6.25	0.86	0.7600	Dummy	0.000	0.000	0
2	SL - (14)	84.31	422.00	0.00	418.00	0.00	4.00	4.7400	CIRCULAR	18.000	18.000	0
3	SL - (15)	62.02	426.00	0.00	422.00	0.00	4.00	6.4500	CIRCULAR	18.000	18.000	0
4	SL - (16)	101.17	429.00	0.00	426.00	0.00	3.00	2.9700	CIRCULAR	18.000	18.000	0
5	SL - (18)	128.37	427.50	0.00	423.00	1.00	4.50	3.5100	CIRCULAR	18.000	18.000	0

No. of Barrels
1
1
1
1
1

Pipe Results

SN	Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Tota Surcl
1	L-SL - (16)	0.47	0 00:05	0.00	0.00	0.00		0.00	0.00	
2	SL - (14)	11.22	0 00:05	24.79	0.45	13.71	0.10	0.71	0.47	
3	SL - (15)	4.45	0 00:05	28.90	0.15	11.88	0.09	0.40	0.27	
4	SL - (16)	2.48	0 00:05	19.60	0.13	10.41	0.16	0.36	0.24	
5	SL - (18)	3.34	0 00:05	21.31	0.16	8.85	0.24	0.40	0.27	

Inlet Input

SN	Element ID	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Inlet Depth (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Ponded Area (ft^2)	Grate Clogging Factor (%)
1	AD-4	On Sag	1	427.50	431.80	4.30	427.50	0.00	10.00	0.00
2	CB-1	On Sag	1	422.00	431.61	9.61	422.00	0.00	10.00	0.00
3	CB-2	On Sag	1	426.00	432.25	6.25	426.00	0.00	10.00	0.00
4	CB-3	On Grade	1	429.00	433.11	4.11	429.00	0.00	N/A	0.00

Roadway & Gutter Input

SN	Element ID	Roadway Longitudinal Slope (ft/ft)	Roadway Cross Slope (ft/ft)	Roadway Manning's Roughness	Gutter Cross Slope (ft/ft)	Gutter Width (ft)	Gutter Depression (in)	Allowable Spread (ft)
1	AD-4	N/A	0.0300	0.0150	0.0300	1.50	0.1312	10.00
2	CB-1	N/A	0.0300	0.0150	0.0200	1.50	0.1312	10.00
3	CB-2	N/A	0.0300	0.0150	0.0200	1.50	0.1312	10.00
4	CB-3	0.0200	0.0300	0.0150	0.0200	1.50	0.1312	10.00

Inlet Results

SN	Element ID	Peak Flow (cfs)	Peak Lateral Inflow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)	Max Gutter Water Depth during Peak Flow (ft)	T Max Occu (days h
1	AD-4	3.38	3.38	N/A	N/A	N/A	11.93	432.26	0.46	0
2	CB-1	3.51	3.51	N/A	N/A	N/A	7.06	432.07	0.46	0
3	CB-2	2.01	1.53	N/A	N/A	N/A	4.86	432.65	0.40	0
4	CB-3	2.98	2.98	2.50	0.47	84.09	7.31	433.31	0.20	0

100 Year Design Storm

Project Description

File Name	Bryant Pharmacy Drainage Analysis 9-5-25.SPF

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	Rational
Time of Concentration (TOC) Method	User-Defined
Link Routing Method	Kinematic Wave
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	Sep 05, 2025	00:00:00
End Analysis On	Sep 06, 2025	00:00:00
Start Reporting On	Sep 05, 2025	00:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	0
Subbasins	4
Nodes	5
Junctions	0
Outfalls	1
Flow Diversions	0
Inlets	4
Storage Nodes	0
Links	5
Channels	0
Pipes	5
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

Return Period	100 year(s)

Subbasin Summary

SN	Subbasin ID	Area (ac)	Weighted Runoff Coefficient	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	Sub-AD-4	0.35	0.9500	0.93	0.89	0.31	3.68	0 00:05:00
2	Sub-CB-1	0.36	0.9500	0.93	0.89	0.32	3.82	0 00:05:00
3	Sub-CB-2	0.16	0.9500	0.93	0.89	0.14	1.67	0 00:05:00
4	Sub-CB-3	0.30	0.9500	0.93	0.89	0.27	3.24	0 00:05:00

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft²)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	F
1	Out-1SL - (14)	Outfall	418.00					12.20	418.74		

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak Flow Depth
					(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	(ft)
1	L-SL - (16)	Pipe	CB-3	CB-2	112.54	433.11	432.25	0.7600	0.000	0.0150	0.60	0.00	0.00	0.00	0.00
2	SL - (14)	Pipe	CB-1	Out-1SL - (14)	84.31	422.00	418.00	4.7400	18.000	0.0120	12.20	24.79	0.49	14.00	0.74
3	SL - (15)	Pipe	CB-2	CB-1	62.02	426.00	422.00	6.4500	18.000	0.0120	4.84	28.90	0.17	12.16	0.41
4	SL - (16)	Pipe	CB-3	CB-2	101.17	429.00	426.00	2.9700	18.000	0.0120	2.62	19.60	0.13	10.61	0.37
5	SL - (18)	Pipe	AD-4	CB-1	128.37	427.50	423.00	3.5100	18.000	0.0120	3.64	21.31	0.17	9.06	0.42

Inlet Summary

SN	Element ID	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Initial Water Elevation (ft)	Ponded Area (ft²)	Peak Flow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Allowable Spread (ft)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)
1	AD-4	On Sag	1	427.50	431.80	427.50	10.00	3.68	N/A	N/A	N/A	10.00	12.56	432.28
2	CB-1	On Sag	1	422.00	431.61	422.00	10.00	3.82	N/A	N/A	N/A	10.00	7.47	432.08
3	CB-2	On Sag	1	426.00	432.25	426.00	10.00	2.26	N/A	N/A	N/A	10.00	5.26	432.66
4	CB-3	On Grade	1	429.00	433.11	429.00	N/A	3.24	2.64	0.59	81.70	10.00	7.54	433.32

Subbasin Hydrology

Subbasin : Sub-AD-4

Subbasin : Sub-CB-1

Subbasin : Sub-CB-2

Subbasin : Sub-CB-3

Pipe Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Man Rougl
1	L-SL - (16)	112.54	433.11	4.11	432.25	6.25	0.86	0.7600	Dummy	0.000	0.000	0
2	SL - (14)	84.31	422.00	0.00	418.00	0.00	4.00	4.7400	CIRCULAR	18.000	18.000	0
3	SL - (15)	62.02	426.00	0.00	422.00	0.00	4.00	6.4500	CIRCULAR	18.000	18.000	0
4	SL - (16)	101.17	429.00	0.00	426.00	0.00	3.00	2.9700	CIRCULAR	18.000	18.000	0
5	SL - (18)	128.37	427.50	0.00	423.00	1.00	4.50	3.5100	CIRCULAR	18.000	18.000	0

No. of Barrels
1
1
1
1
1

Pipe Results

SN	Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Tota Surc
1	L-SL - (16)	0.60	0 00:05	0.00	0.00	0.00		0.00	0.00	
2	SL - (14)	12.20	0 00:05	24.79	0.49	14.00	0.10	0.74	0.50	
3	SL - (15)	4.84	0 00:05	28.90	0.17	12.16	0.09	0.41	0.28	
4	SL - (16)	2.62	0 00:05	19.60	0.13	10.61	0.16	0.37	0.25	
5	SL - (18)	3.64	0 00:05	21.31	0.17	9.06	0.24	0.42	0.28	

Inlet Input

SN	Element ID	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Inlet Depth (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Ponded Area (ft^2)	Grate Clogging Factor (%)
1	AD-4	On Sag	1	427.50	431.80	4.30	427.50	0.00	10.00	0.00
2	CB-1	On Sag	1	422.00	431.61	9.61	422.00	0.00	10.00	0.00
3	CB-2	On Sag	1	426.00	432.25	6.25	426.00	0.00	10.00	0.00
4	CB-3	On Grade	1	429.00	433.11	4.11	429.00	0.00	N/A	0.00

Roadway & Gutter Input

SN	Element ID	Roadway Longitudinal Slope (ft/ft)	Roadway Cross Slope (ft/ft)	Roadway Manning's Roughness	Gutter Cross Slope (ft/ft)	Gutter Width (ft)	Gutter Depression (in)	Allowable Spread (ft)
1	AD-4	N/A	0.0300	0.0150	0.0300	1.50	0.1312	10.00
2	CB-1	N/A	0.0300	0.0150	0.0200	1.50	0.1312	10.00
3	CB-2	N/A	0.0300	0.0150	0.0200	1.50	0.1312	10.00
4	CB-3	0.0200	0.0300	0.0150	0.0200	1.50	0.1312	10.00

Inlet Results

SN	Element ID	Peak Flow (cfs)	Peak Lateral Inflow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)	Max Gutter Water Depth during Peak Flow (ft)	T Max Occu (days h
1	AD-4	3.68	3.68	N/A	N/A	N/A	12.56	432.28	0.48	0
2	CB-1	3.82	3.82	N/A	N/A	N/A	7.47	432.08	0.47	0
3	CB-2	2.26	1.67	N/A	N/A	N/A	5.26	432.66	0.41	0
4	CB-3	3.24	3.24	2.64	0.59	81.70	7.54	433.32	0.21	0

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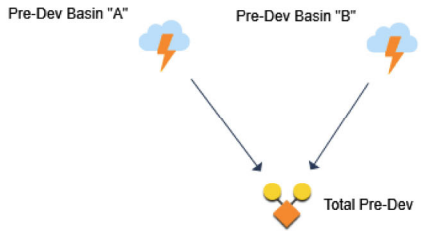
Hydrograph No. 8, Junction, Total Post-Dev 51

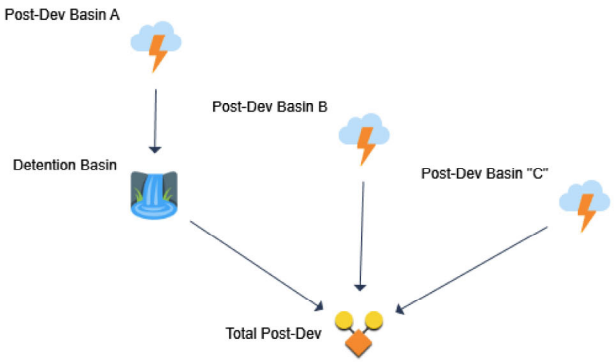
Basin Model

Hydrology Studio v 3.0.0.27

Project Name: Bryant Pharmacy

09-05-2025





Hydrograph by Return Period

Project Name: Bryant Pharmacy

09-05-2025

Hydrology Studio v 3.0.0.27

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Outflow (cfs)							
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
1	Rational	Pre-Dev Basin "A"		3.084			4.131	4.746	5.188	5.636
2	Rational	Pre-Dev Basin "B"		1.736			2.327	2.674	2.924	3.175
3	Junction	Total Pre-Dev		4.385			5.876	6.751	7.381	8.017
4	Mod Rational	Post-Dev Basin A		3.206			4.316	4.964	5.437	5.893
5	Pond Route	Detention Basin		3.206			4.316	4.964	5.437	5.892
6	Rational	Post-Dev Basin B		0.573			0.767	0.882	0.964	1.047
7	Rational	Post-Dev Basin "C"		0.532			0.712	0.818	0.893	0.971
8	Junction	Total Post-Dev		3.810			5.127	5.623	6.097	6.620

Hydrograph 2-yr Summary

Project Name: Bryant Pharmacy

09-05-2025

Hydrology Studio v 3.0.0.27

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	Rational	Pre-Dev Basin "A"	3.084	0.15	2,223	----		
2	Rational	Pre-Dev Basin "B"	1.736	0.20	1,668	----		
3	Junction	Total Pre-Dev	4.385	0.15	3,886	1, 2		
4	Mod Rational	Post-Dev Basin A	3.206	0.08	8,946	----		
5	Pond Route	Detention Basin	3.206	0.63	8,847	4	418.73	558
6	Rational	Post-Dev Basin B	0.573	0.17	459	----		
7	Rational	Post-Dev Basin "C"	0.532	0.08	213	----		
8	Junction	Total Post-Dev	3.810	0.17	9,501	5, 6, 7		

Hydrograph Report

Project Name: Bryant Pharmacy

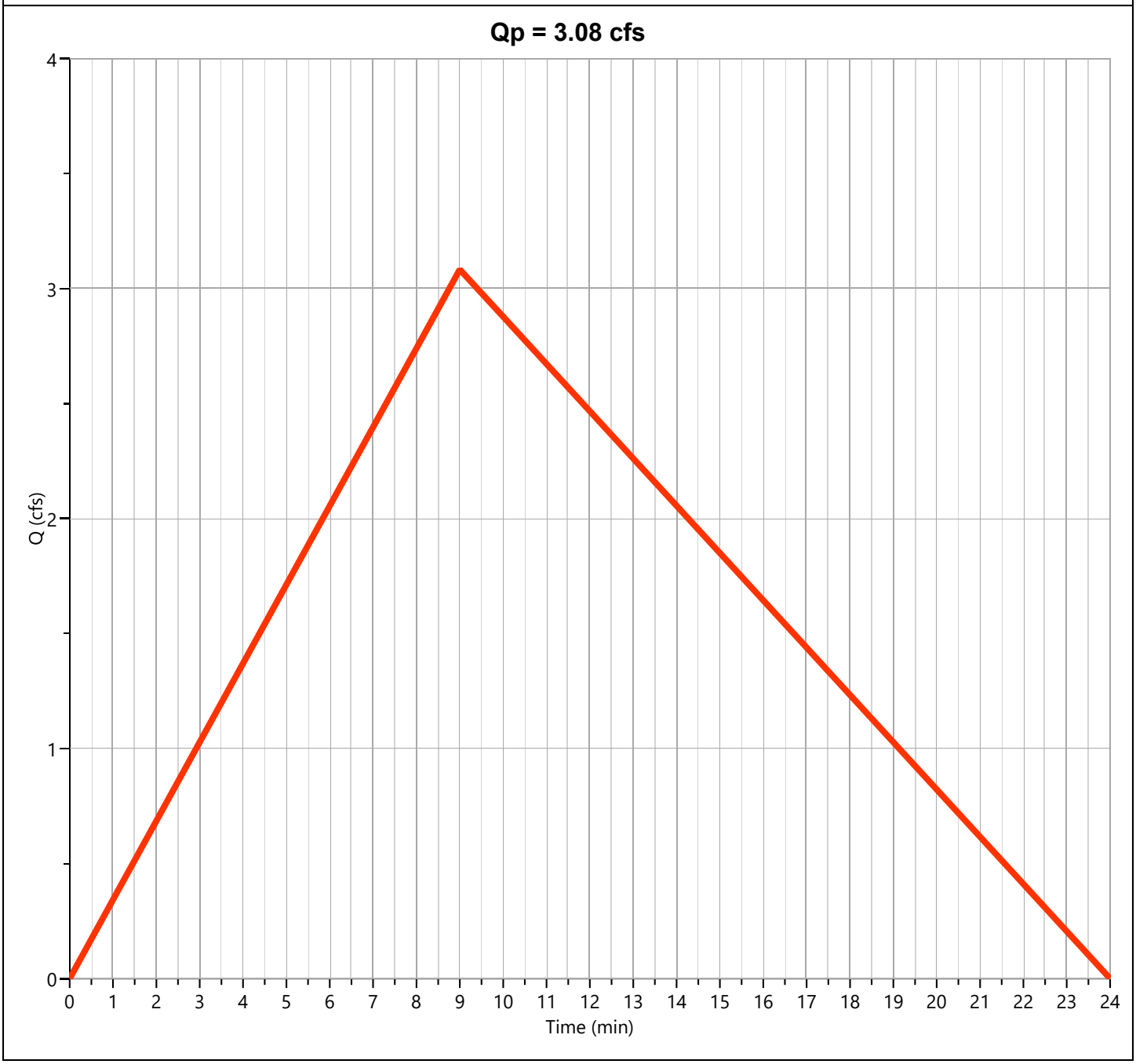
Hydrology Studio v 3.0.0.27

09-05-2025

Pre-Dev Basin "A"

Hyd. No. 1

Hydrograph Type	= Rational	Peak Flow	= 3.084 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.15 hrs
Time Interval	= 1 min	Runoff Volume	= 2,223 cuft
Drainage Area	= 1.17 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55	Time of Conc. (Tc)	= 9.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 4.71 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Hydrograph Report

Project Name: Bryant Pharmacy

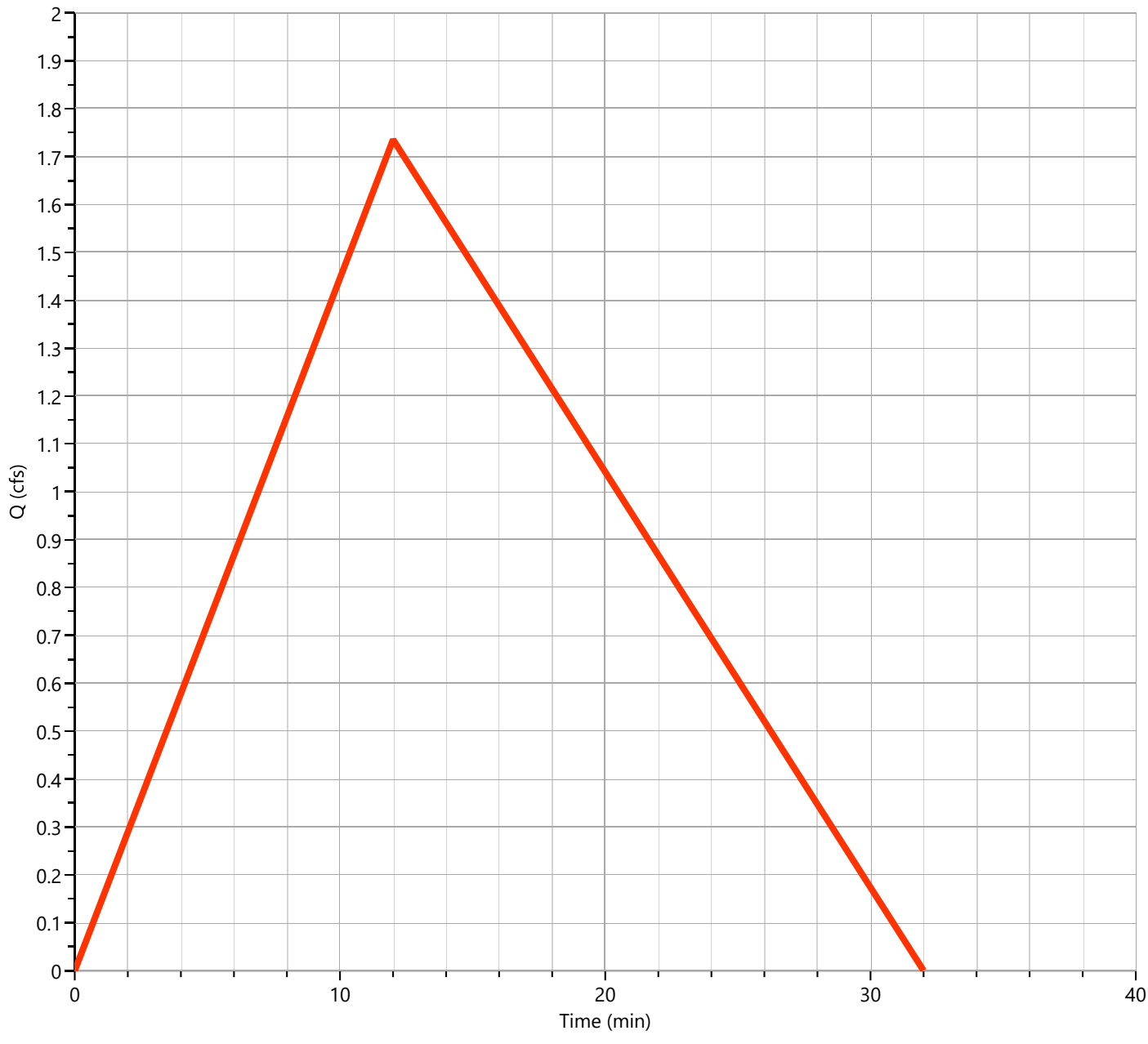
Hydrology Studio v 3.0.0.27

09-05-2025

Pre-Dev Basin "B"

Hyd. No. 2

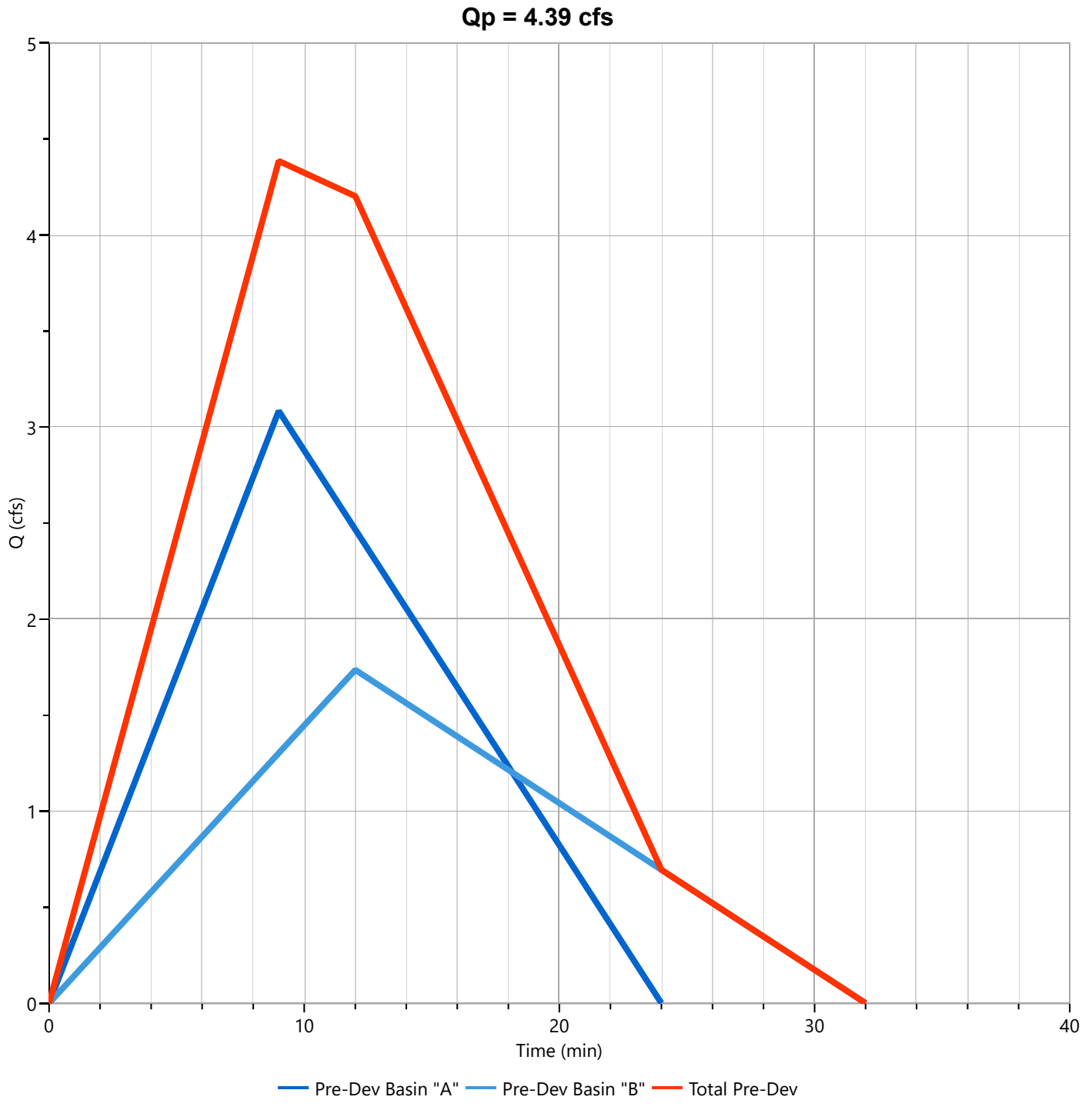
Hydrograph Type	= Rational	Peak Flow	= 1.736 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.20 hrs
Time Interval	= 1 min	Runoff Volume	= 1,668 cuft
Drainage Area	= 0.75 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55	Time of Conc. (Tc)	= 12.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 4.13 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Total Pre-Dev

Hyd. No. 3

Hydrograph Type	= Junction	Peak Flow	= 4.385 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 3,886 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 1.92 ac



Hydrograph Report

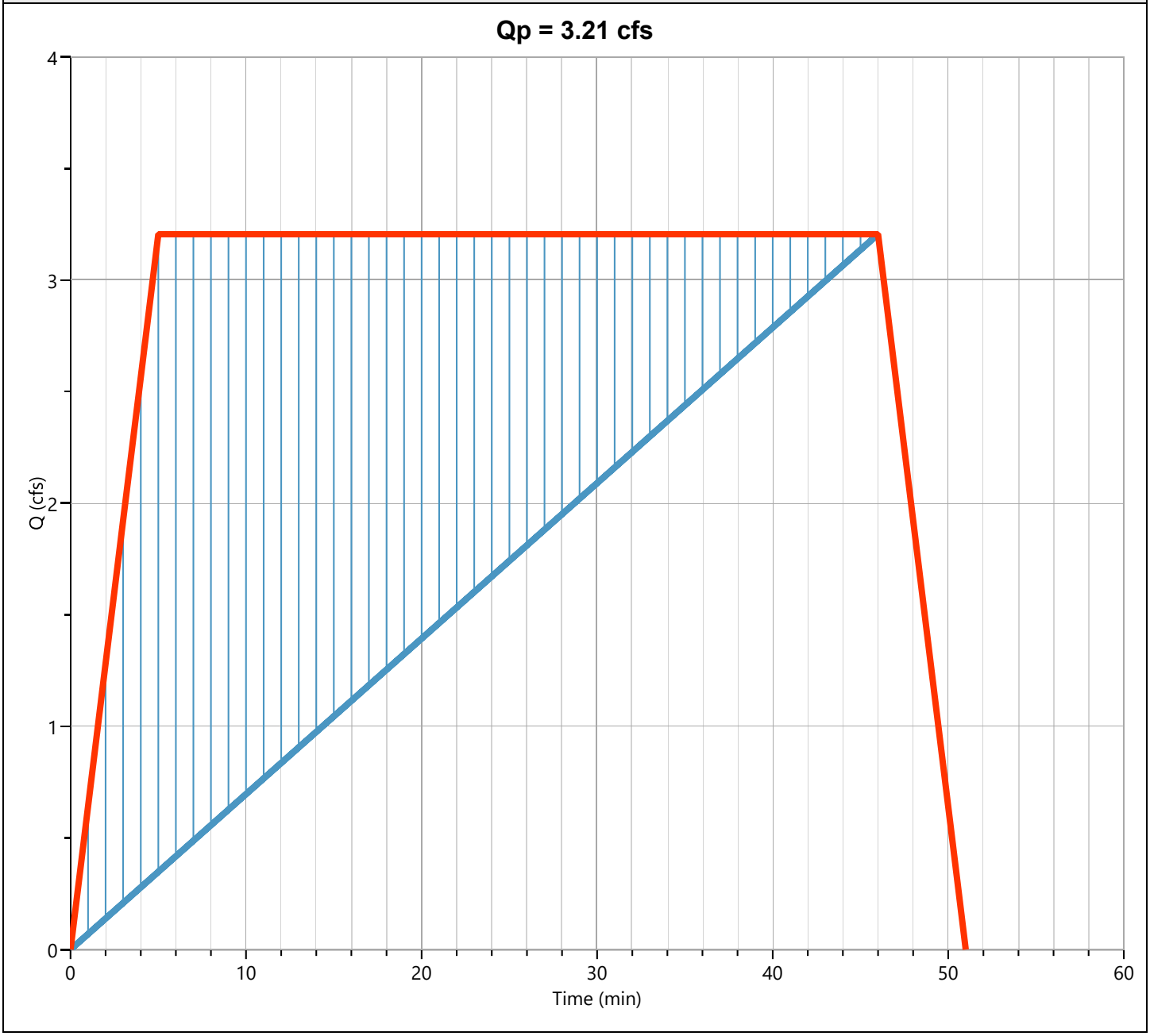
Hydrology Studio v 3.0.0.27

09-05-2025

Post-Dev Basin A

Hyd. No. 4

Hydrograph Type	= Mod Rational	Peak Flow	= 3.206 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.08 hrs
Time Interval	= 1 min	Runoff Volume	= 8,946 cuft
Drainage Area	= 1.5 ac	Runoff Coeff.	= 0.95
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 2.25 in/hr
Freq. Corr. Factor	= 1.00	Storm Duration	= 9.3 x Tc
Target Q	= 3.080 cfs	Required Storage	= 4,233 cuft



Hydrograph Report

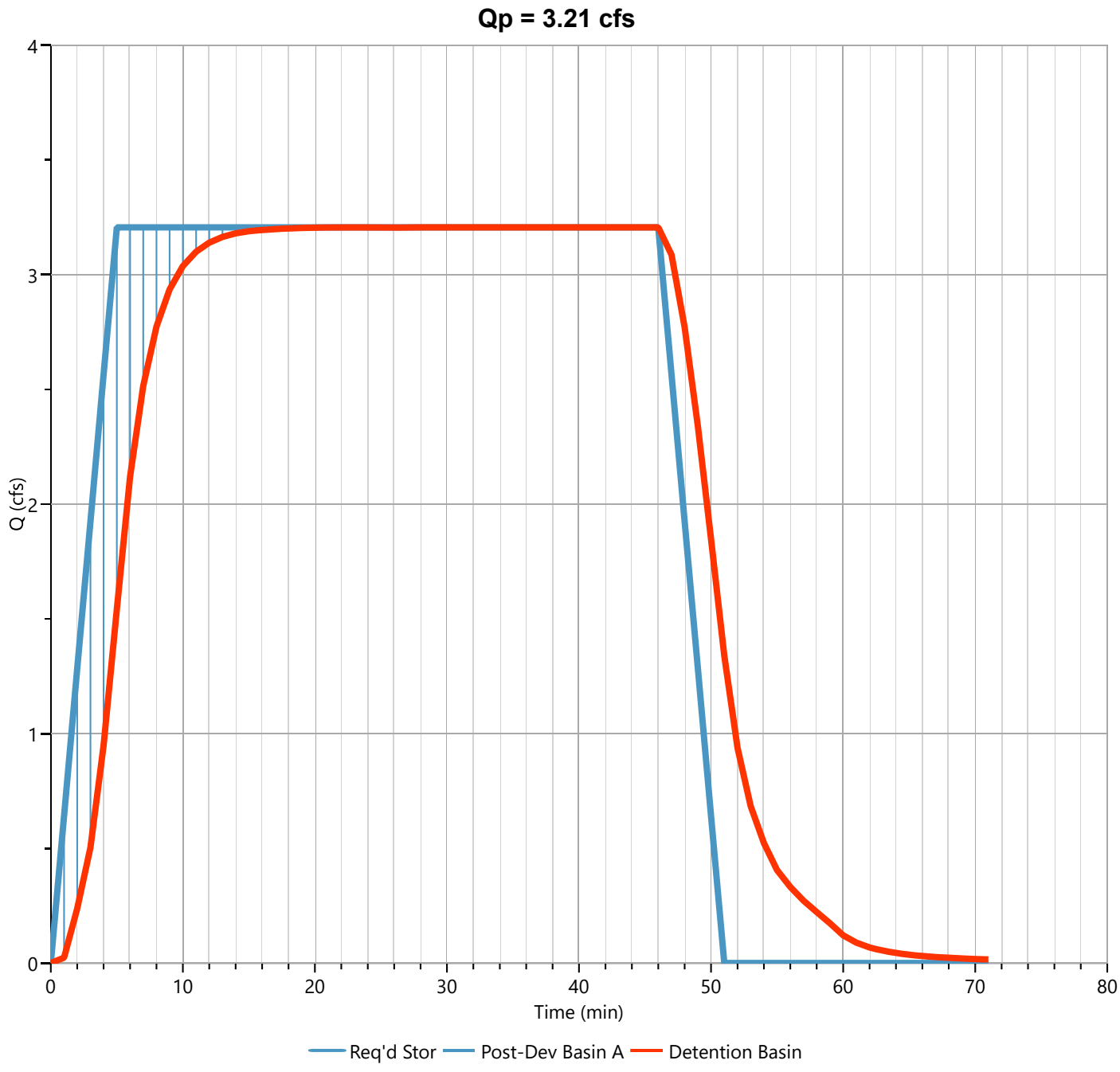
Detention Basin

Hyd. No. 5

Hydrograph Type	= Pond Route	Peak Flow	= 3.206 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.63 hrs
Time Interval	= 1 min	Hydrograph Volume	= 8,847 cuft
Inflow Hydrograph	= 4 - Post-Dev Basin A	Max. Elevation	= 418.73 ft
Pond Name	= Bryant Pharmacy Detention Pond	Max. Storage	= 558 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 3 min



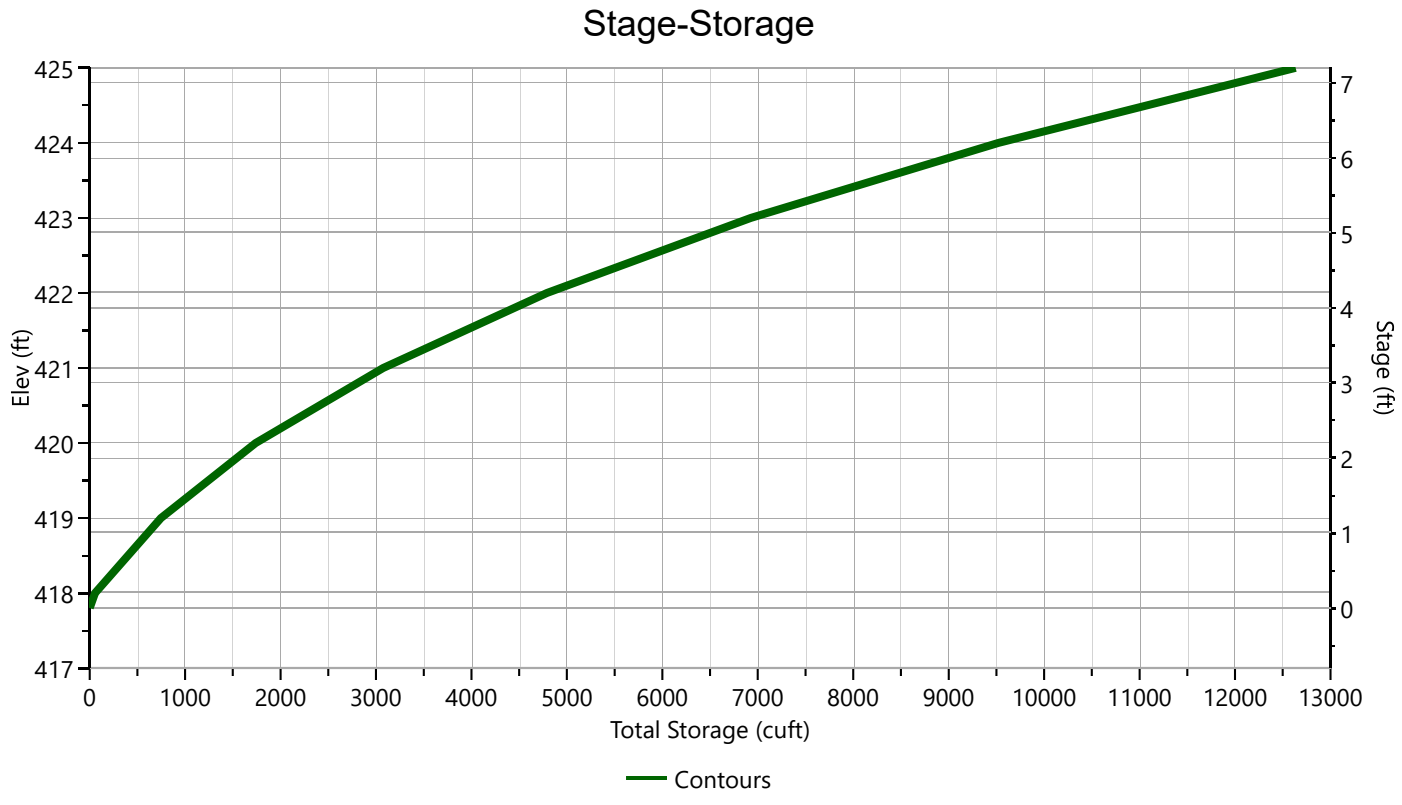
Bryant Pharmacy Detention Pond

Stage-Storage

User Defined Contours	
Description	**Input**
Bottom Elevation, ft	417.80
Voids (%)	100.00
Volume Calc	Ave End Area

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.00	417.80	4	0.000	0.000
0.20	418.00	548	55.2	55.2
1.20	419.00	833	691	746
2.20	420.00	1,155	994	1,740
3.20	421.00	1,516	1,336	3,075
4.20	422.00	1,916	1,716	4,791
5.20	423.00	2,356	2,136	6,927
6.20	424.00	2,835	2,596	9,523
7.20	425.00	3,390	3,113	12,635



Bryant Pharmacy Detention Pond

Stage-Discharge

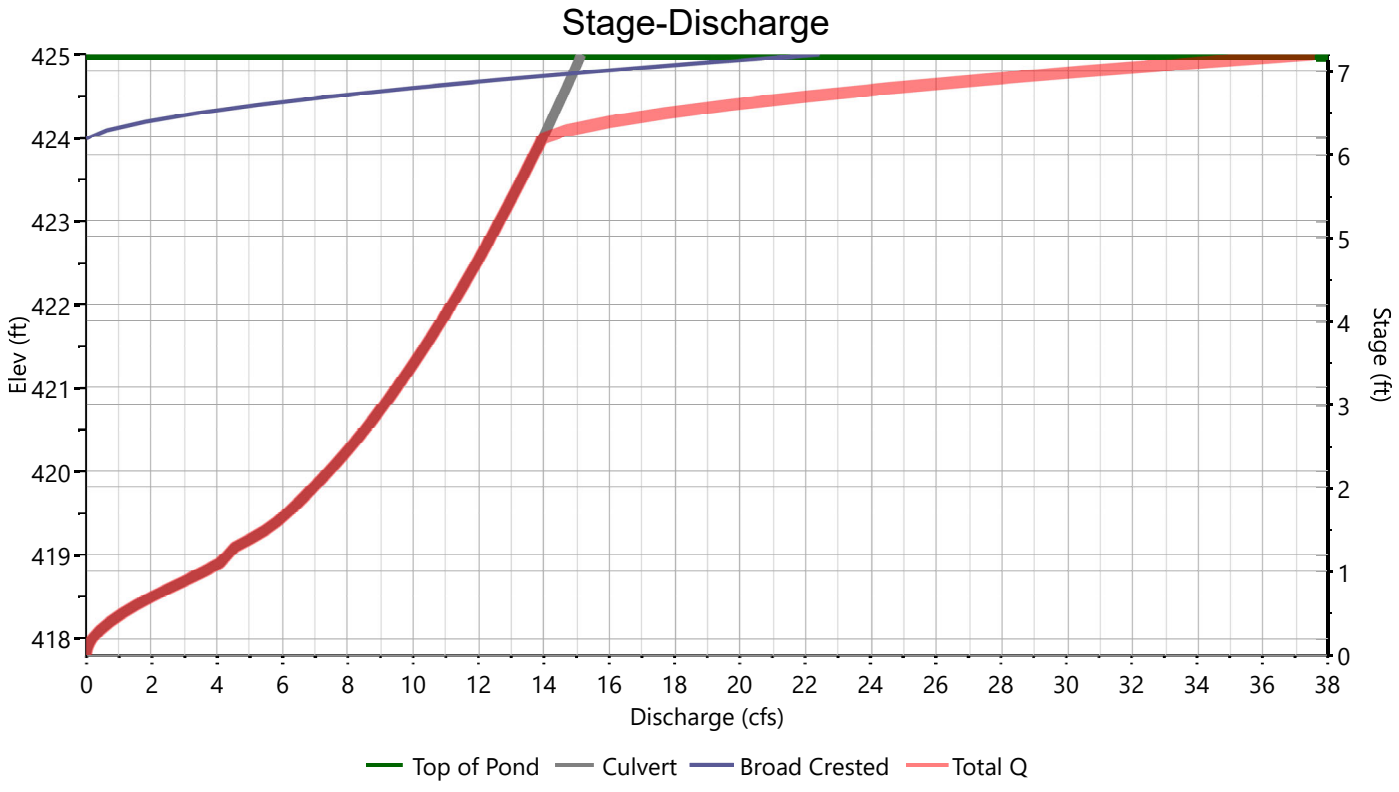
Culvert / Orifices	Culvert	Orifices		
		1	2	3
Rise, in	15			
Span, in	15			
No. Barrels	1			
Invert Elevation, ft	417.80			
Orifice Coefficient, Co	0.60			
Length, ft	30			
Barrel Slope, %	1.32			
N-Value, n	0.012			

Perforated Riser	
Hole Diameter, in	
No. holes	
Invert Elevation, ft	
Height, ft	
Orifice Coefficient, Co	

Weirs	Riser*	Weirs		
		1	2	3
Shape / Type	Circular	Broad Crested		
Crest Elevation, ft		424		
Crest Length, ft		6		
Angle, deg		45 (1:1)		
Weir Coefficient, Cw		3.3		

Ancillary	
Exfiltration, in/hr	

*Routes through Culvert.



Bryant Pharmacy Detention Pond

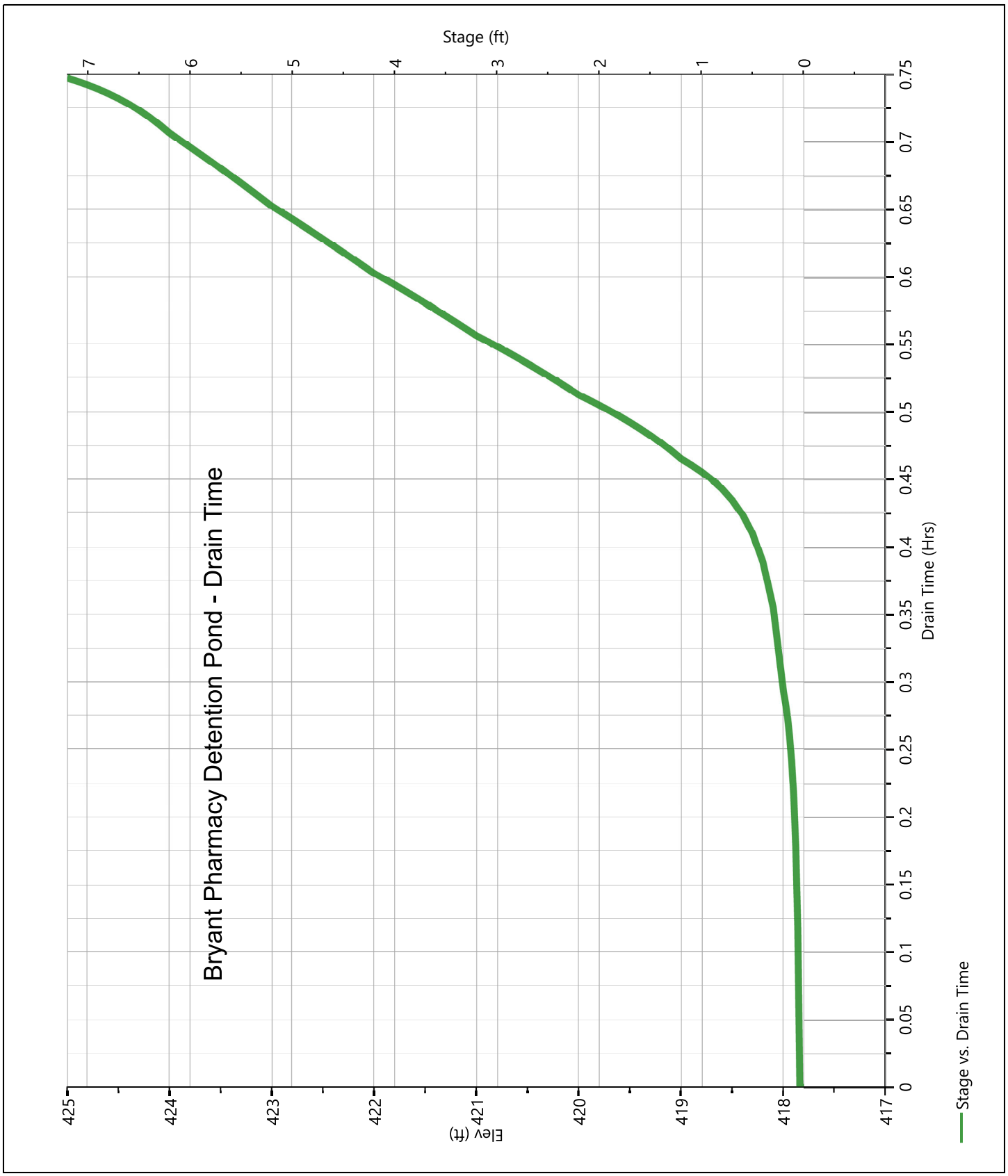
Stage-Storage-Discharge Summary

Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	417.80	0.000	0.000					0.000						0.000
0.20	418.00	55.2	0.193 ic					0.000						0.193
1.20	419.00	746	4.324 oc					0.000						4.324
2.20	420.00	1,740	7.415 ic					0.000						7.415
3.20	421.00	3,075	9.481 ic					0.000						9.481
4.20	422.00	4,791	11.17 ic					0.000						11.17
5.20	423.00	6,927	12.64 ic					0.000						12.64
6.20	424.00	9,523	13.95 ic					0.000						13.95
7.20	425.00	12,635	15.15 ic					22.44						37.59

Suffix key: ic = inlet control, oc = outlet control, s = submerged weir

Bryant Pharmacy Detention Pond

Pond Drawdown

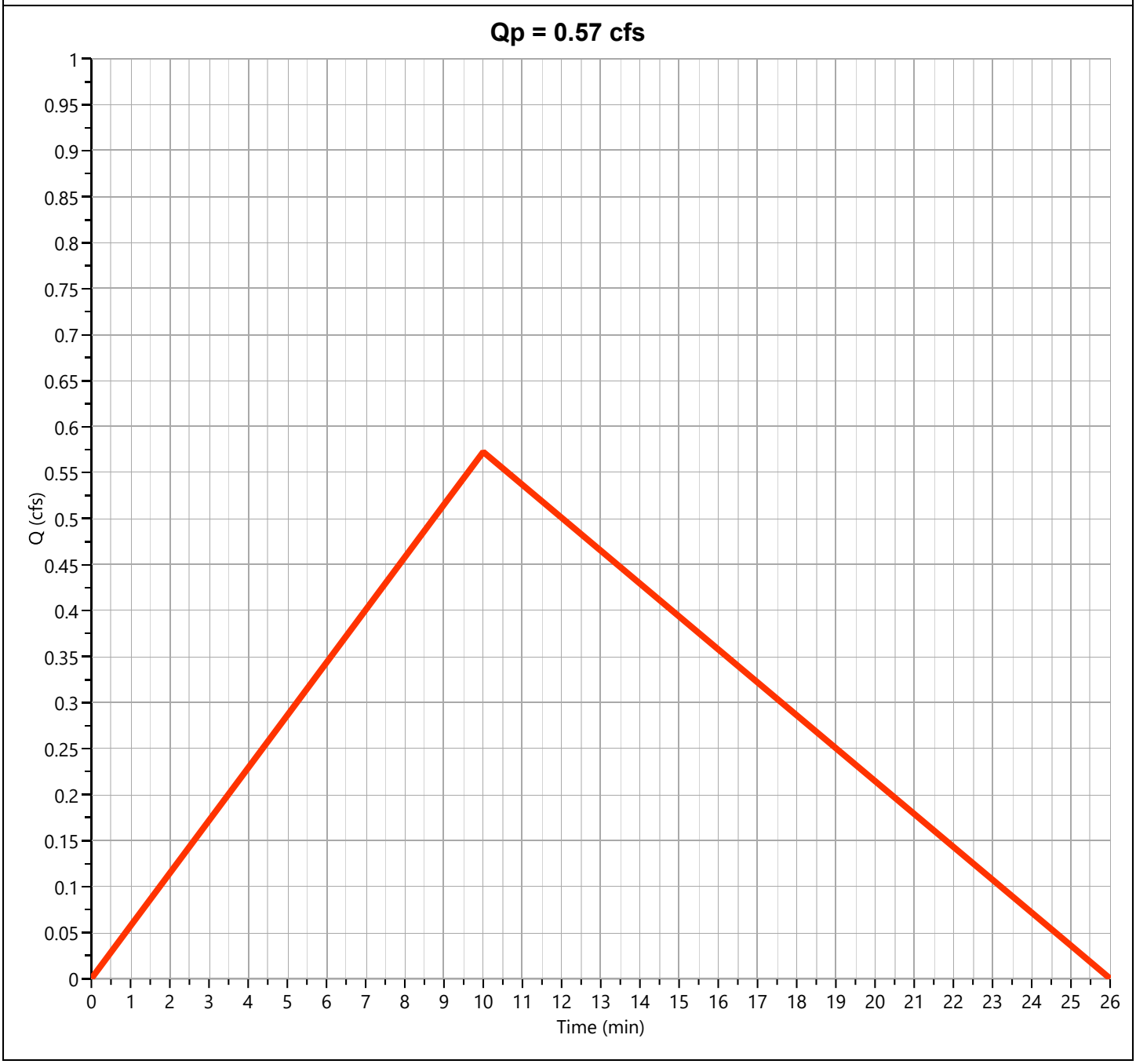


Hydrograph Report

Post-Dev Basin B

Hyd. No. 6

Hydrograph Type	= Rational	Peak Flow	= 0.573 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.17 hrs
Time Interval	= 1 min	Runoff Volume	= 459 cuft
Drainage Area	= 0.22 ac	Runoff Coeff.	= 0.58
Tc Method	= TR55	Time of Conc. (Tc)	= 10.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 4.49 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67

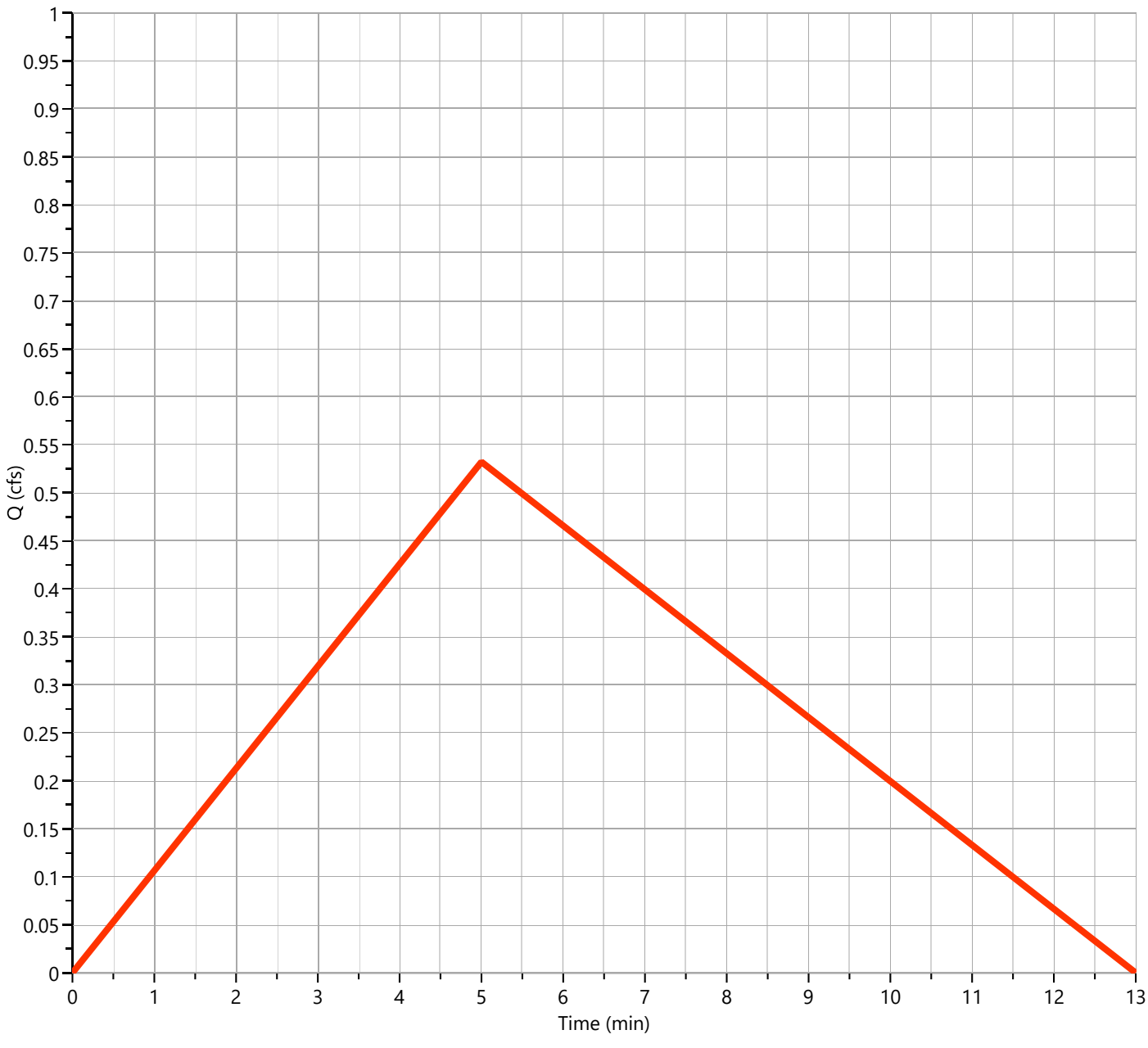


Hydrograph Report

Post-Dev Basin "C"

Hyd. No. 7

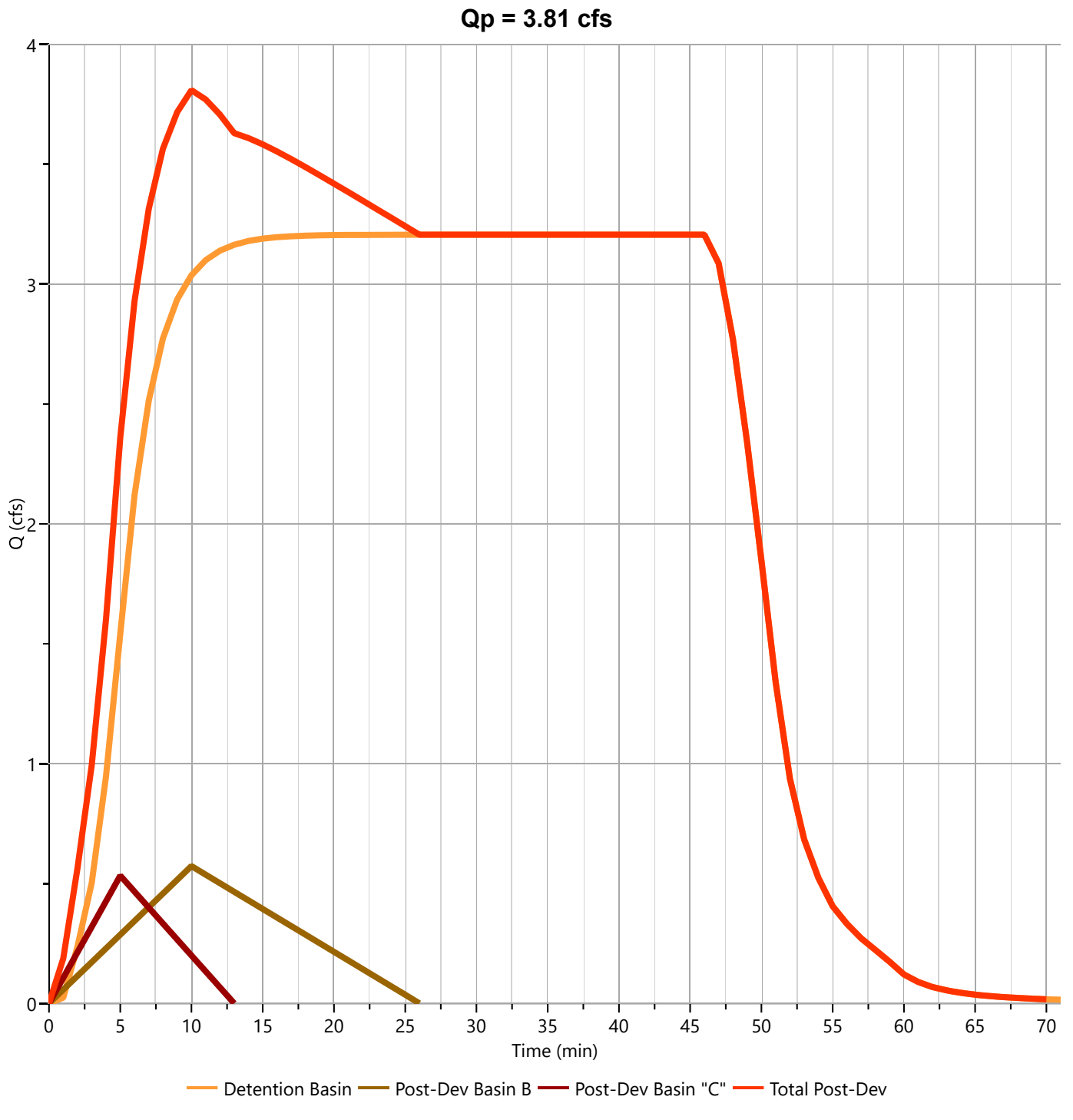
Hydrograph Type	= Rational	Peak Flow	= 0.532 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.08 hrs
Time Interval	= 1 min	Runoff Volume	= 213 cuft
Drainage Area	= 0.17 ac	Runoff Coeff.	= 0.51
Tc Method	= TR55	Time of Conc. (Tc)	= 5.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.14 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Total Post-Dev

Hyd. No. 8

Hydrograph Type	= Junction	Peak Flow	= 3.810 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.17 hrs
Time Interval	= 1 min	Hydrograph Volume	= 9,501 cuft
Inflow Hydrographs	= 5, 6, 7	Total Contrib. Area	= 0.39 ac



Hydrograph 10-yr Summary

Project Name: Bryant Pharmacy

09-05-2025

Hydrology Studio v 3.0.0.27

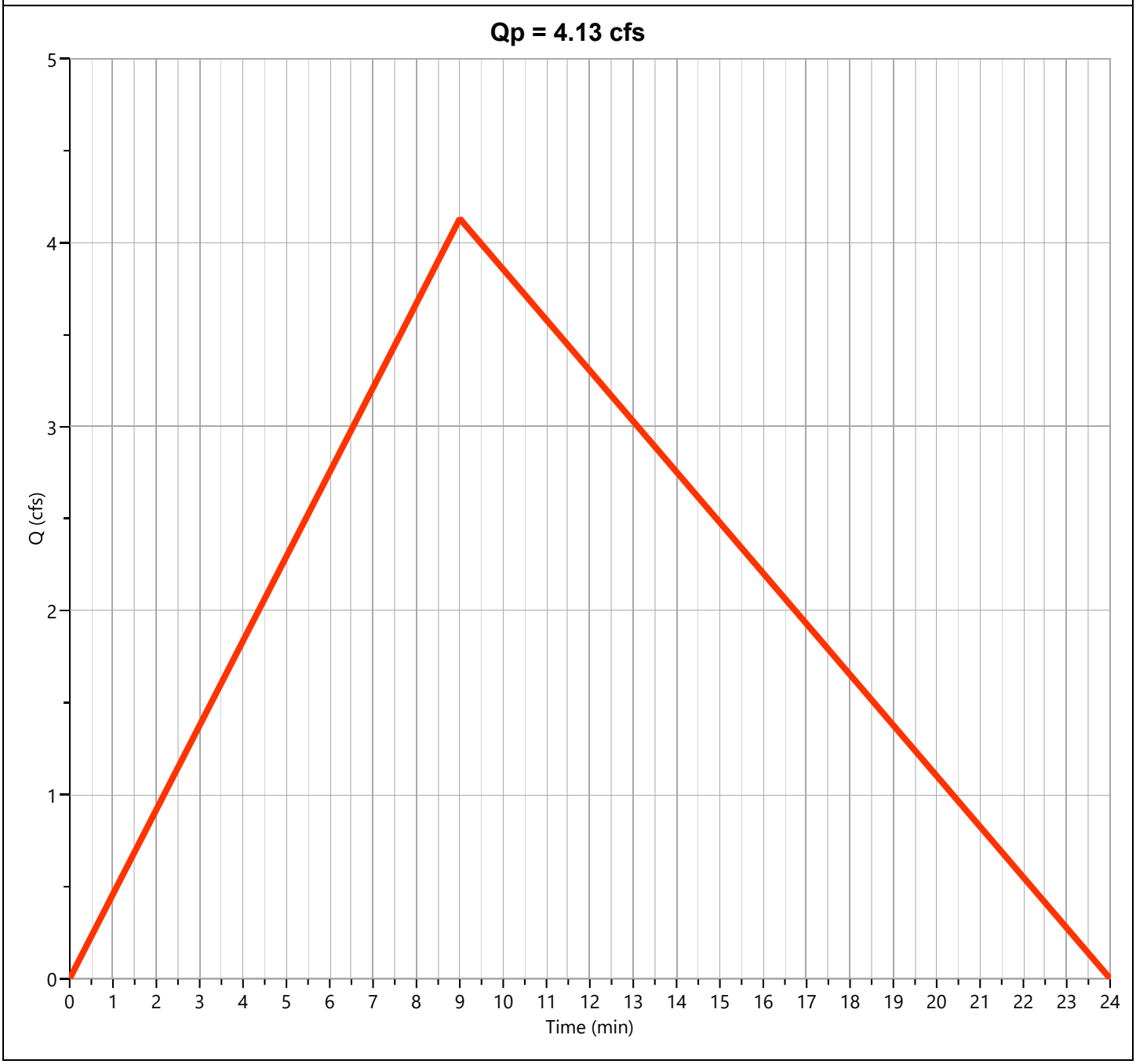
Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	Rational	Pre-Dev Basin "A"	4.131	0.15	2,978	----		
2	Rational	Pre-Dev Basin "B"	2.327	0.20	2,236	----		
3	Junction	Total Pre-Dev	5.876	0.15	5,208	1, 2		
4	Mod Rational	Post-Dev Basin A	4.316	0.08	12,041	----		
5	Pond Route	Detention Basin	4.316	0.77	11,909	4	419.00	743
6	Rational	Post-Dev Basin B	0.767	0.17	615	----		
7	Rational	Post-Dev Basin "C"	0.712	0.08	285	----		
8	Junction	Total Post-Dev	5.127	0.17	12,785	5, 6, 7		

Hydrograph Report

Pre-Dev Basin "A"

Hyd. No. 1

Hydrograph Type	= Rational	Peak Flow	= 4.131 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.15 hrs
Time Interval	= 1 min	Runoff Volume	= 2,978 cuft
Drainage Area	= 1.17 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55	Time of Conc. (Tc)	= 9.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.30 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Hydrograph Report

Project Name: Bryant Pharmacy

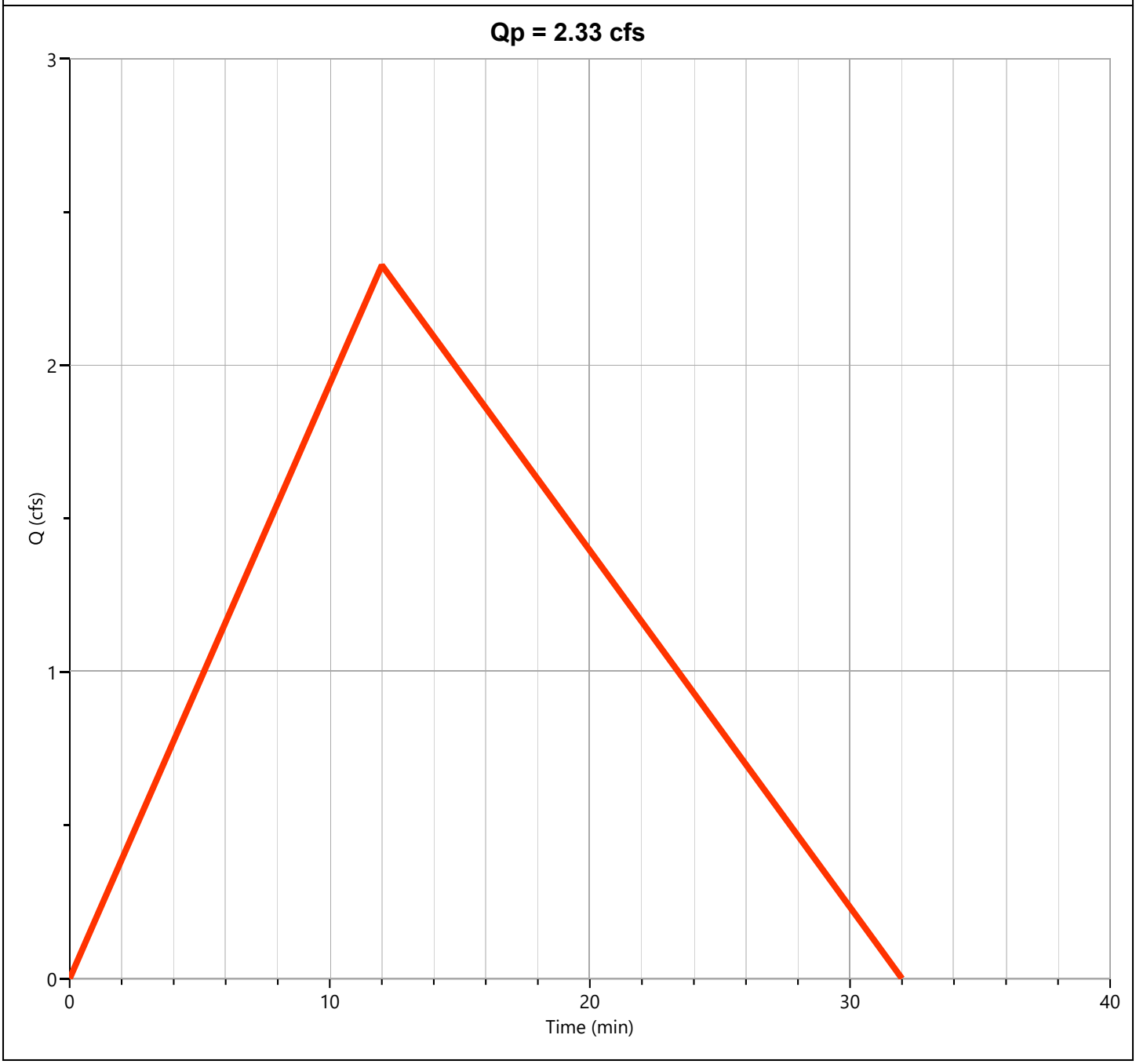
Hydrology Studio v 3.0.0.27

09-05-2025

Pre-Dev Basin "B"

Hyd. No. 2

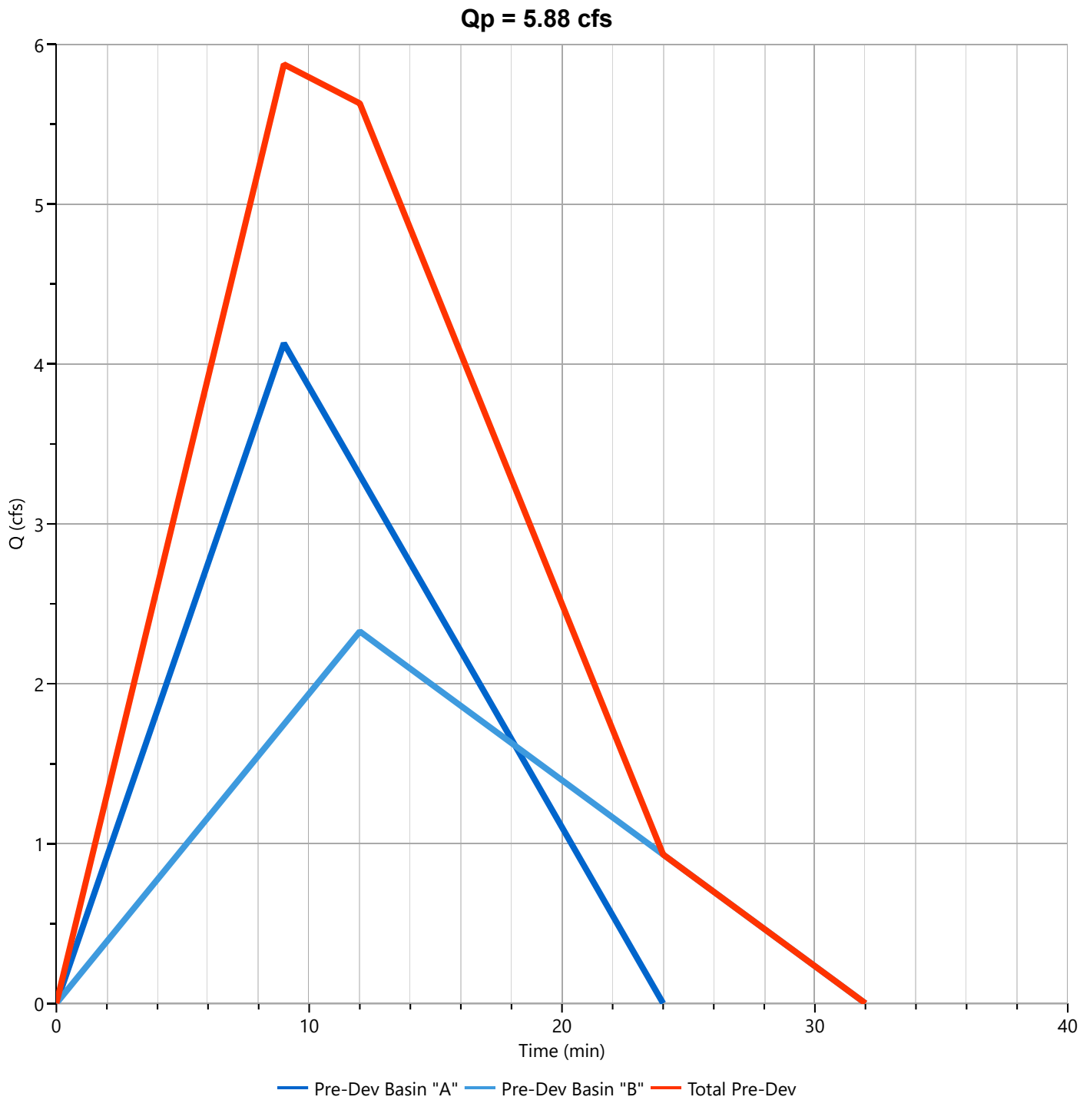
Hydrograph Type	= Rational	Peak Flow	= 2.327 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.20 hrs
Time Interval	= 1 min	Runoff Volume	= 2,236 cuft
Drainage Area	= 0.75 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55	Time of Conc. (Tc)	= 12.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 5.54 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Total Pre-Dev

Hyd. No. 3

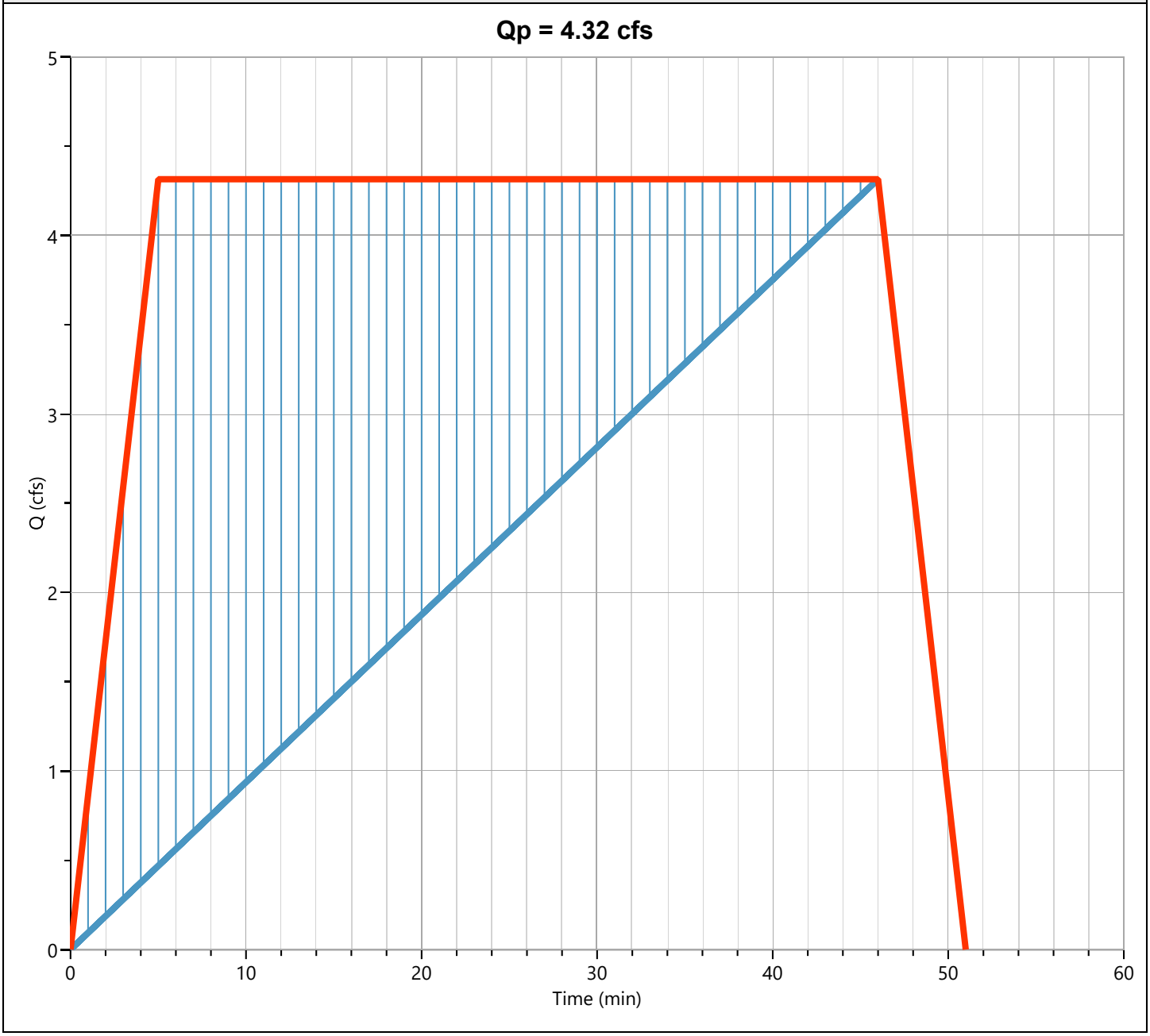
Hydrograph Type	= Junction	Peak Flow	= 5.876 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 5,208 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 1.92 ac



Post-Dev Basin A

Hyd. No. 4

Hydrograph Type	= Mod Rational	Peak Flow	= 4.316 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.08 hrs
Time Interval	= 1 min	Runoff Volume	= 12,041 cuft
Drainage Area	= 1.5 ac	Runoff Coeff.	= 0.95
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 3.03 in/hr
Freq. Corr. Factor	= 1.00	Storm Duration	= 9.3 x Tc
Target Q	= 4.130 cfs	Required Storage	= 5,722 cuft



Hydrograph Report

Hydrology Studio v 3.0.0.27

09-05-2025

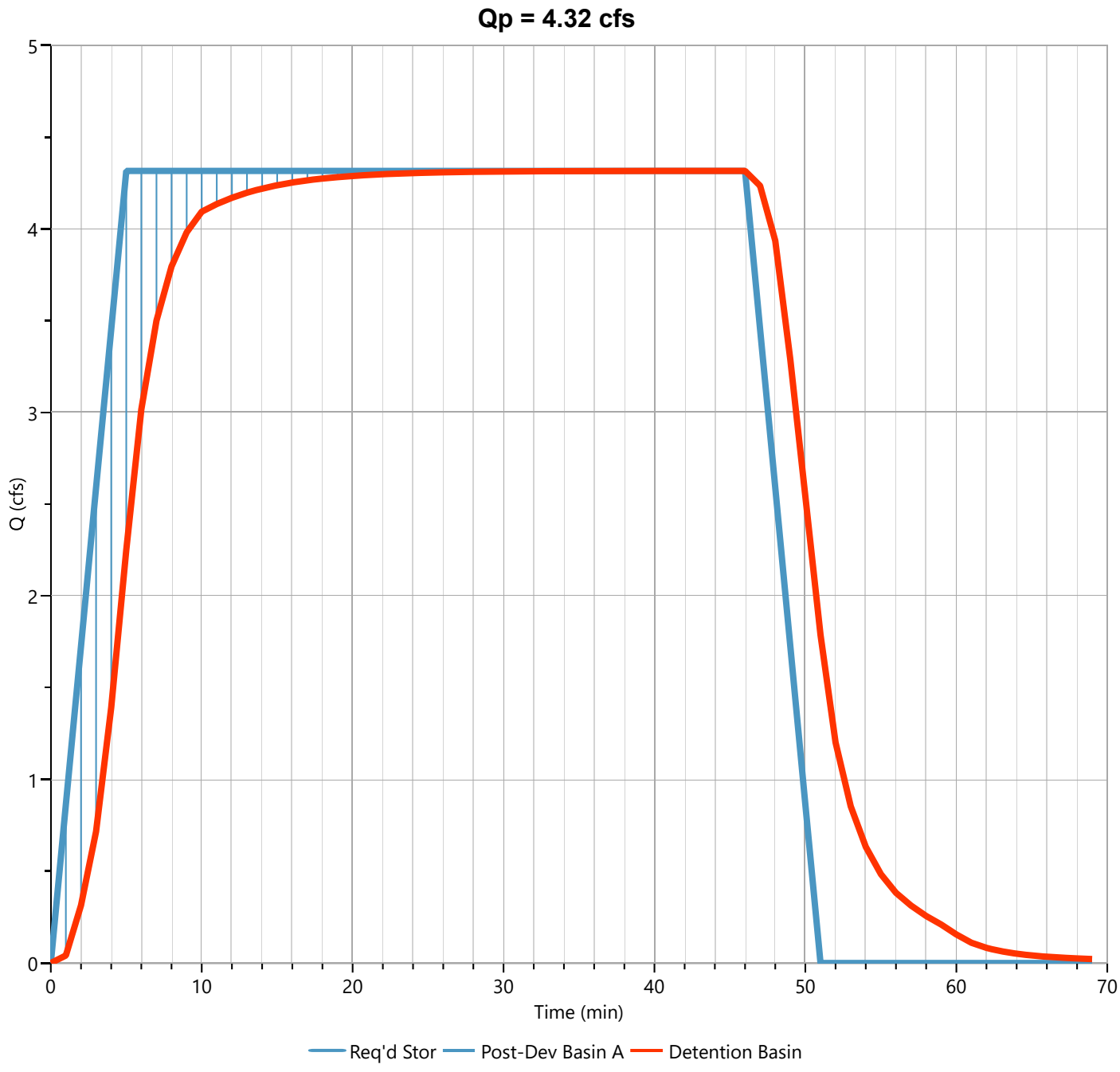
Detention Basin

Hyd. No. 5

Hydrograph Type	= Pond Route	Peak Flow	= 4.316 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.77 hrs
Time Interval	= 1 min	Hydrograph Volume	= 11,909 cuft
Inflow Hydrograph	= 4 - Post-Dev Basin A	Max. Elevation	= 419.00 ft
Pond Name	= Bryant Pharmacy Detention Pond	Max. Storage	= 743 cuft

Pond Routing by Storage Indication Method

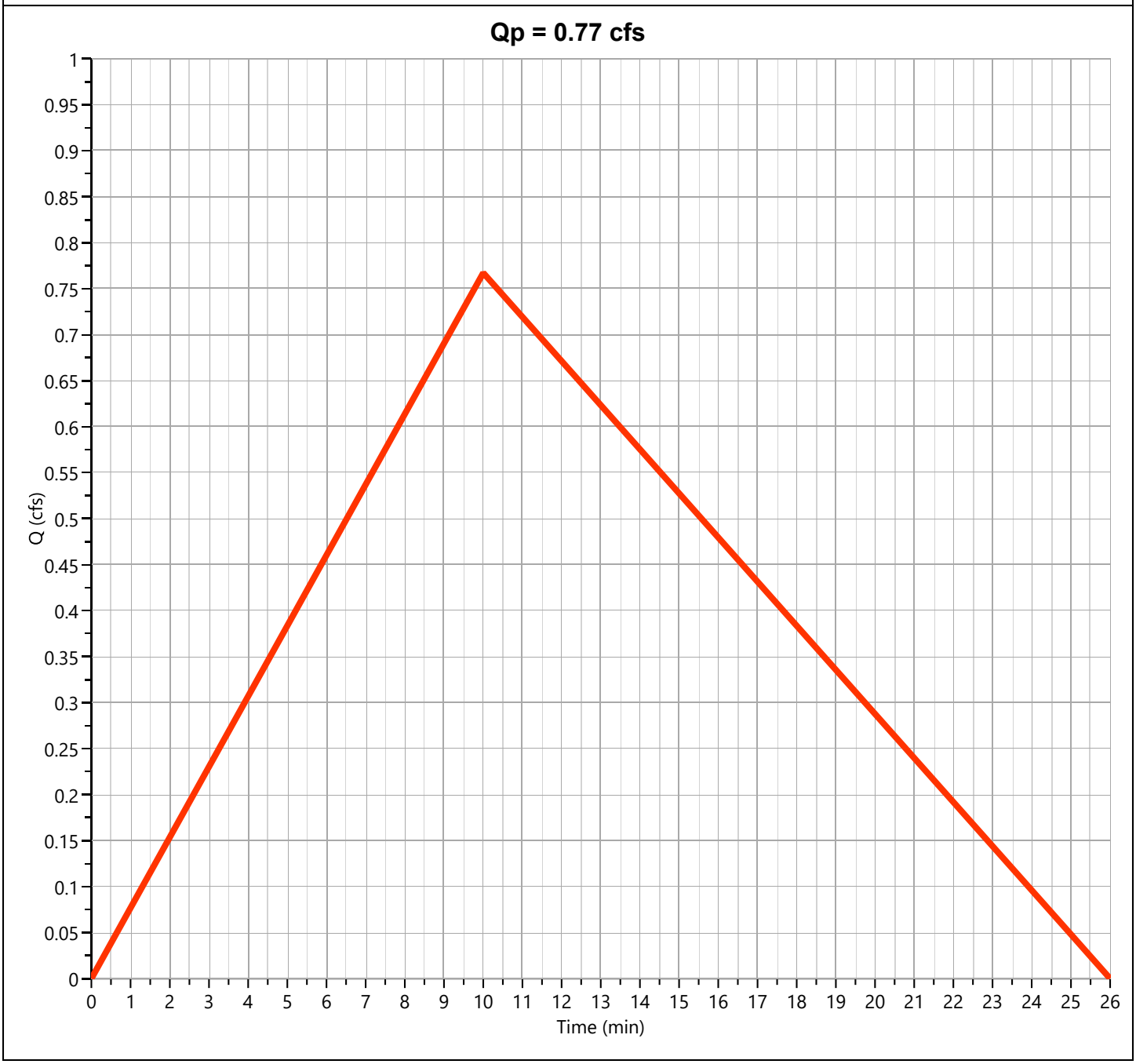
Center of mass detention time = 3 min



Post-Dev Basin B

Hyd. No. 6

Hydrograph Type	= Rational	Peak Flow	= 0.767 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.17 hrs
Time Interval	= 1 min	Runoff Volume	= 615 cuft
Drainage Area	= 0.22 ac	Runoff Coeff.	= 0.58
Tc Method	= TR55	Time of Conc. (Tc)	= 10.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.01 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Hydrograph Report

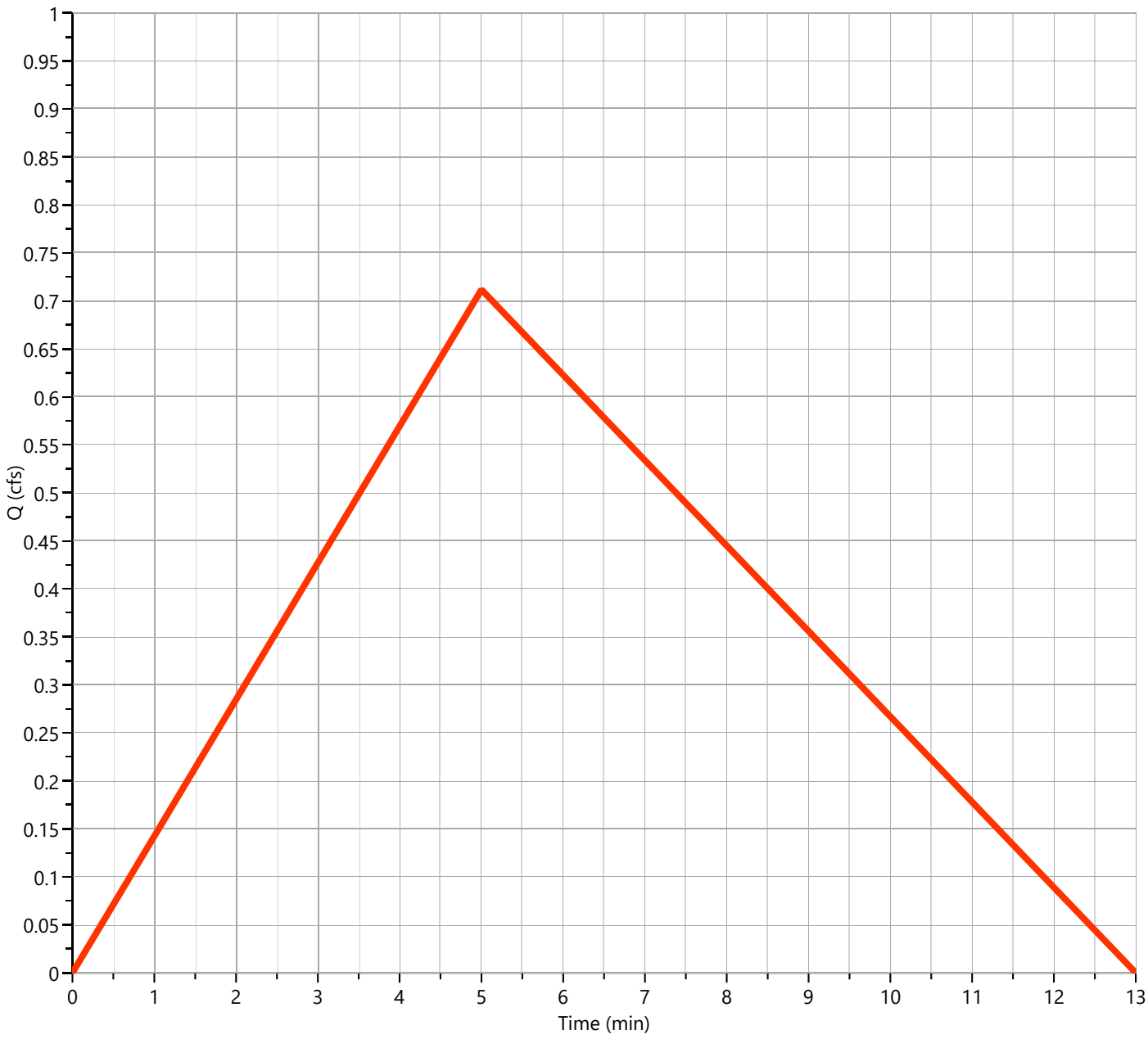
Hydrology Studio v 3.0.0.27

09-05-2025

Post-Dev Basin "C"

Hyd. No. 7

Hydrograph Type	= Rational	Peak Flow	= 0.712 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.08 hrs
Time Interval	= 1 min	Runoff Volume	= 285 cuft
Drainage Area	= 0.17 ac	Runoff Coeff.	= 0.51
Tc Method	= TR55	Time of Conc. (Tc)	= 5.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 8.21 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67

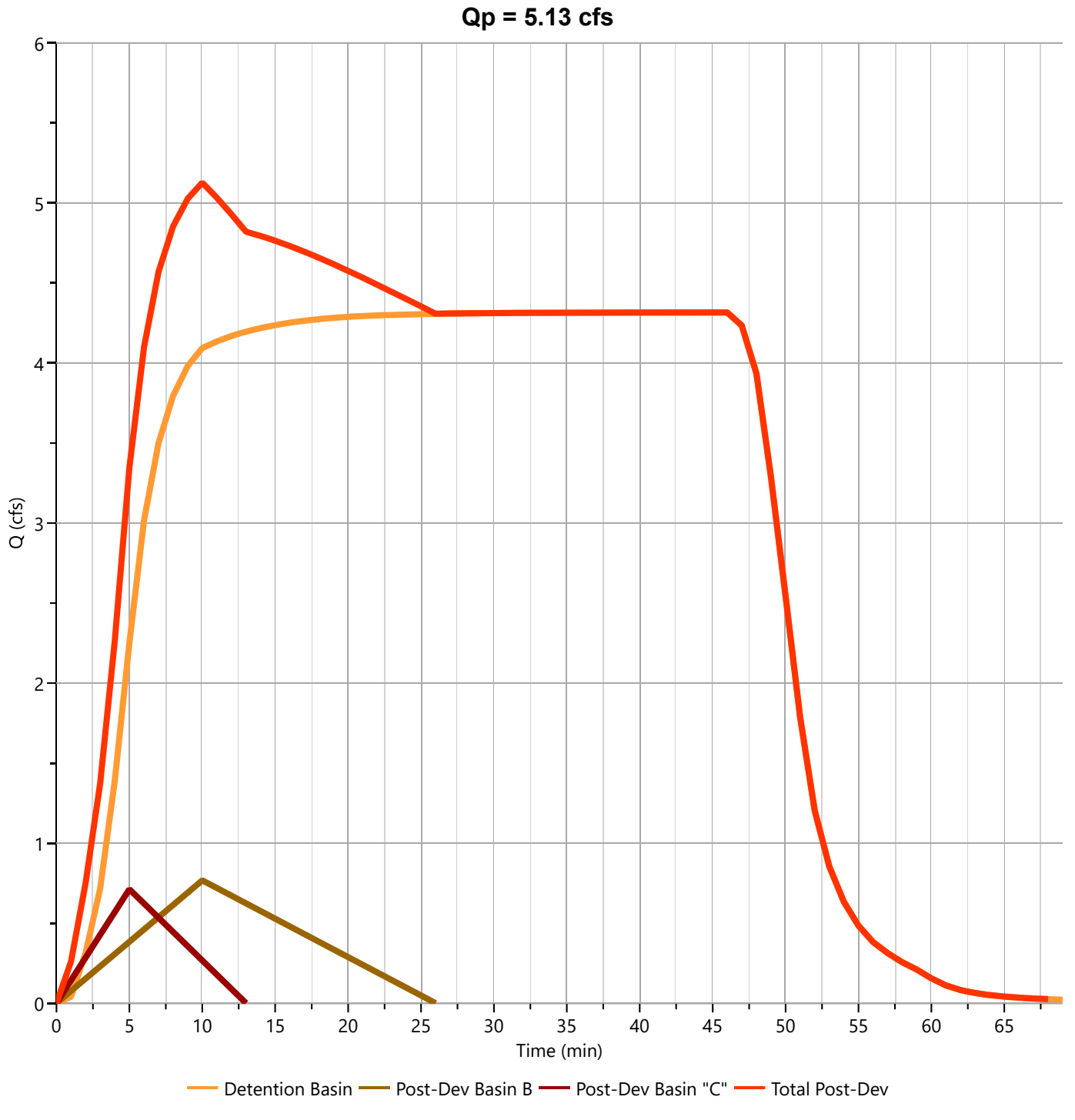


Hydrograph Report

Total Post-Dev

Hyd. No. 8

Hydrograph Type	= Junction	Peak Flow	= 5.127 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.17 hrs
Time Interval	= 1 min	Hydrograph Volume	= 12,785 cuft
Inflow Hydrographs	= 5, 6, 7	Total Contrib. Area	= 0.39 ac



Hydrograph 25-yr Summary

Project Name: Bryant Pharmacy

09-05-2025

Hydrology Studio v 3.0.0.27

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	Rational	Pre-Dev Basin "A"	4.746	0.15	3,421	----		
2	Rational	Pre-Dev Basin "B"	2.674	0.20	2,570	----		
3	Junction	Total Pre-Dev	6.751	0.15	5,984	1, 2		
4	Mod Rational	Post-Dev Basin A	4.964	0.08	13,849	----		
5	Pond Route	Detention Basin	4.964	0.77	13,698	4	419.19	930
6	Rational	Post-Dev Basin B	0.882	0.17	706	----		
7	Rational	Post-Dev Basin "C"	0.818	0.08	327	----		
8	Junction	Total Post-Dev	5.623	0.17	14,704	5, 6, 7		

Hydrograph Report

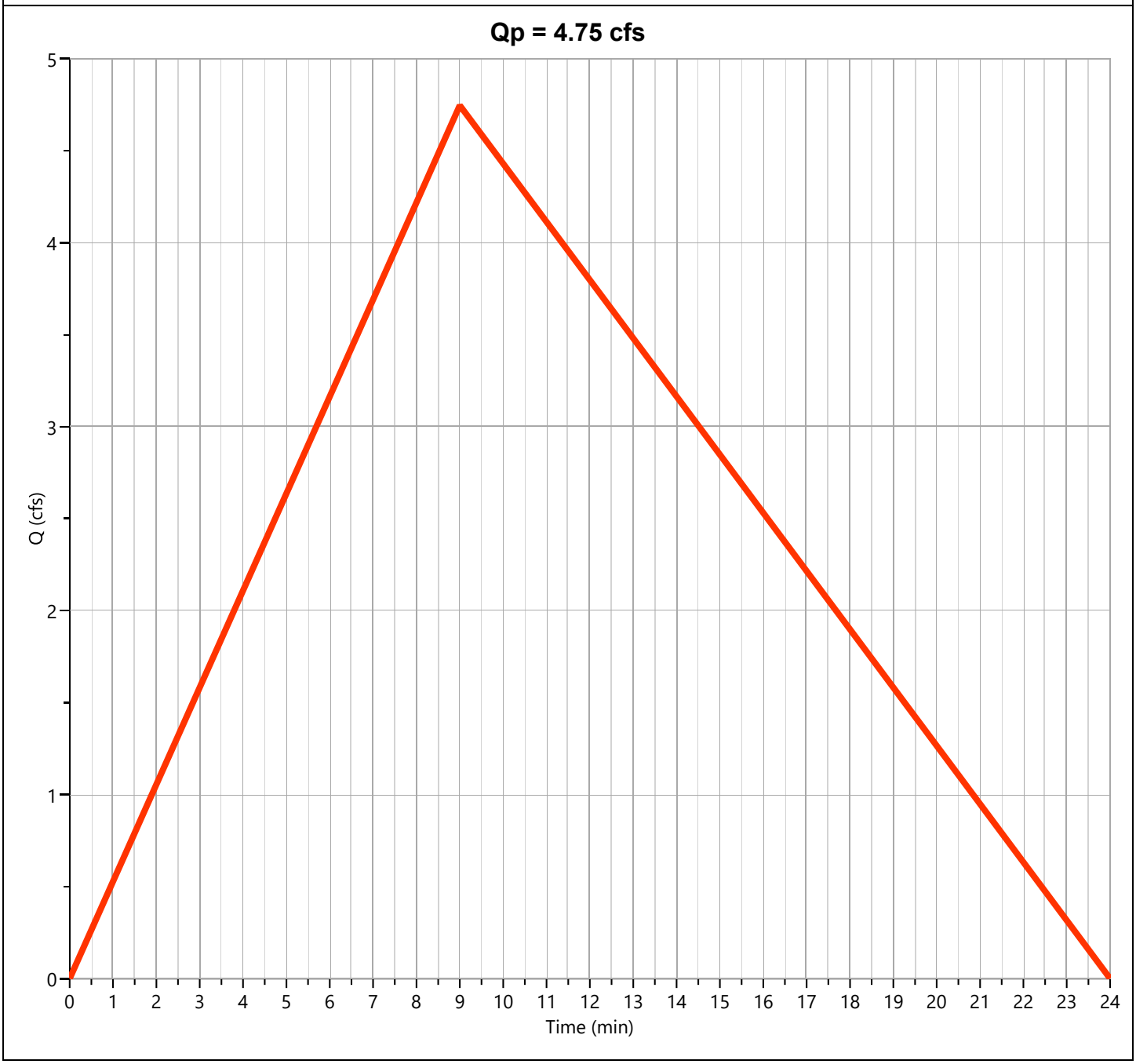
Hydrology Studio v 3.0.0.27

09-05-2025

Pre-Dev Basin "A"

Hyd. No. 1

Hydrograph Type	= Rational	Peak Flow	= 4.746 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.15 hrs
Time Interval	= 1 min	Runoff Volume	= 3,421 cuft
Drainage Area	= 1.17 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55	Time of Conc. (Tc)	= 9.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 7.24 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Hydrograph Report

Project Name: Bryant Pharmacy

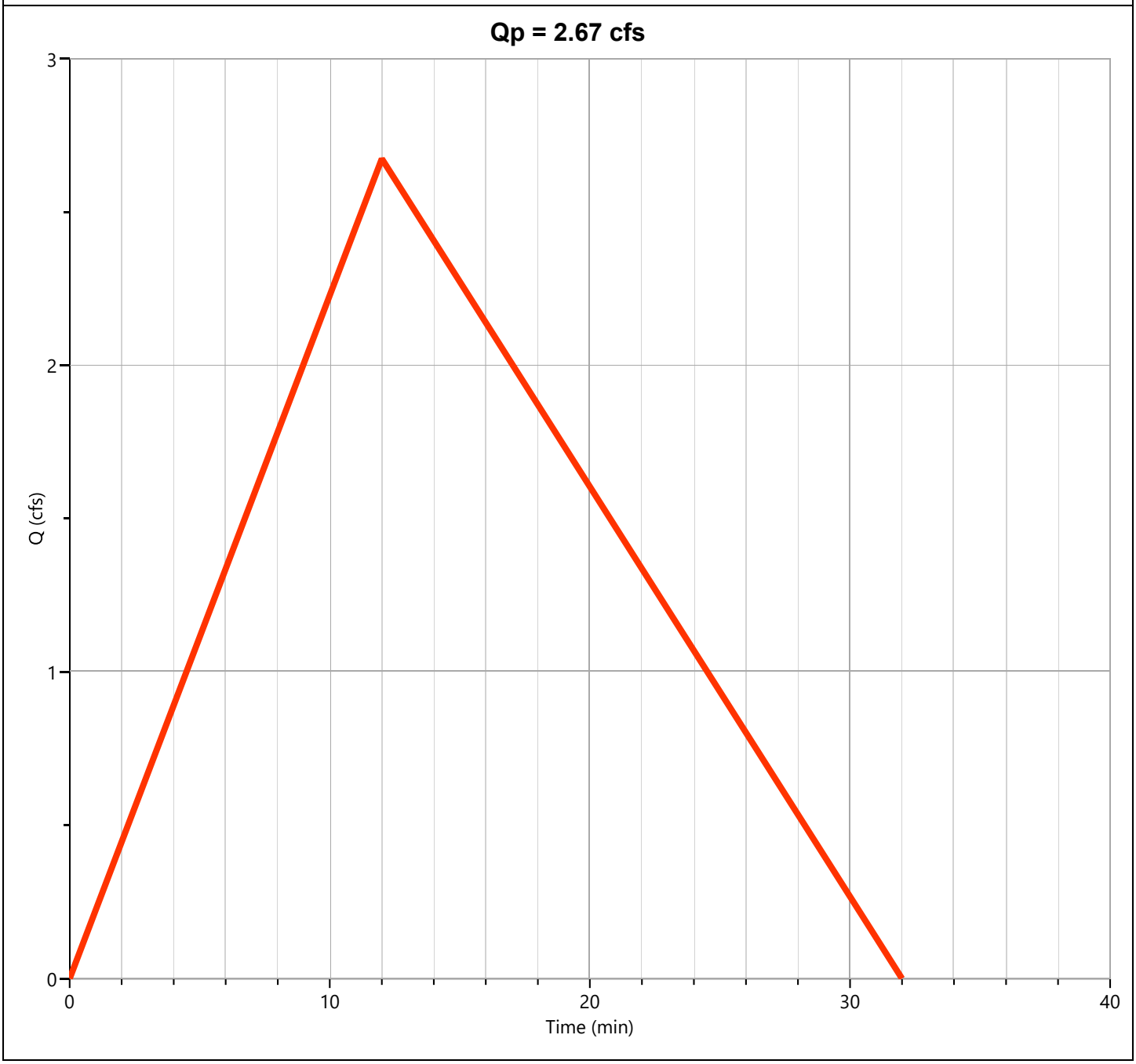
Hydrology Studio v 3.0.0.27

09-05-2025

Pre-Dev Basin "B"

Hyd. No. 2

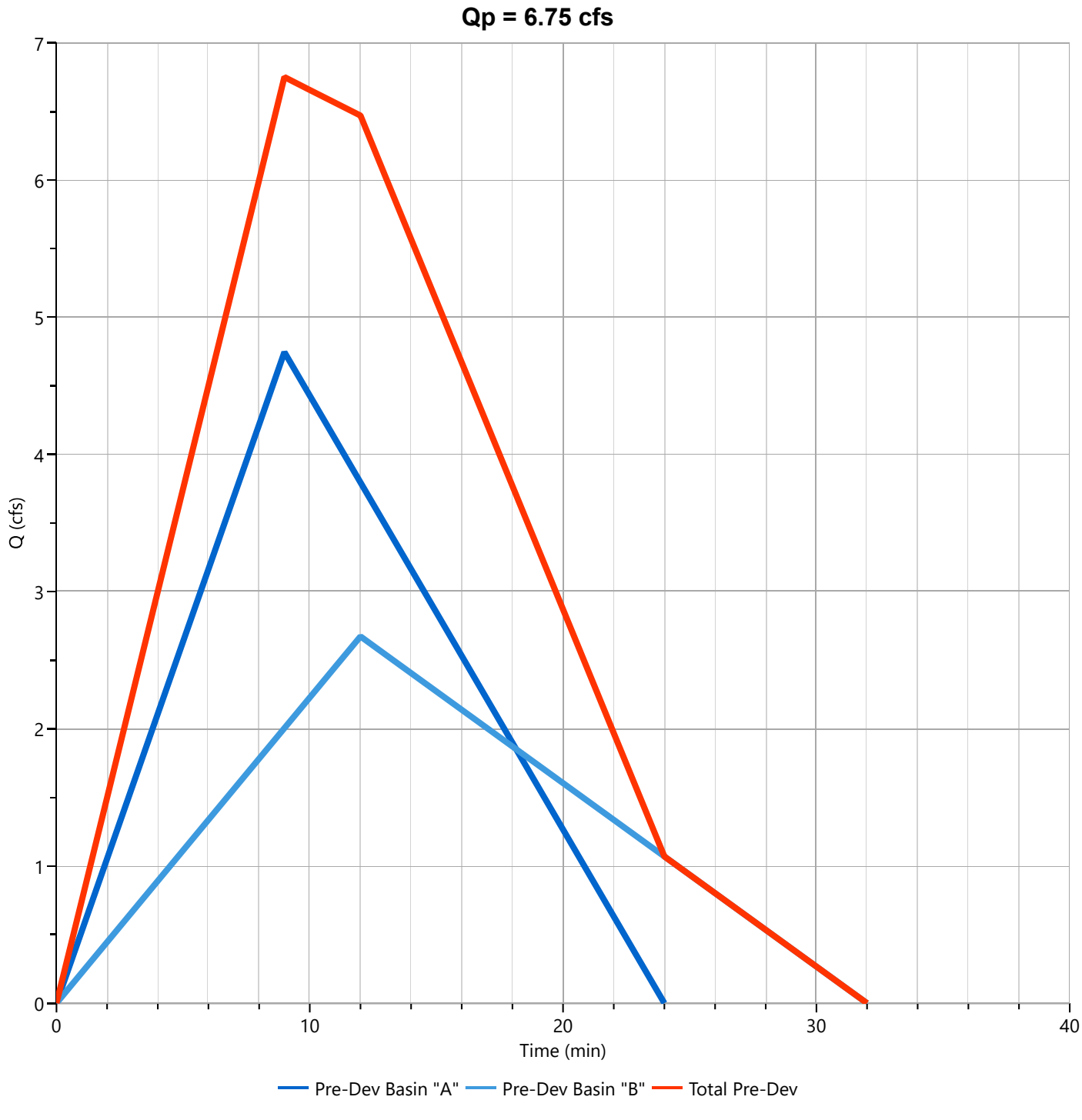
Hydrograph Type	= Rational	Peak Flow	= 2.674 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.20 hrs
Time Interval	= 1 min	Runoff Volume	= 2,570 cuft
Drainage Area	= 0.75 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55	Time of Conc. (Tc)	= 12.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.37 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Total Pre-Dev

Hyd. No. 3

Hydrograph Type	= Junction	Peak Flow	= 6.751 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 5,984 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 1.92 ac



Hydrograph Report

Project Name: Bryant Pharmacy

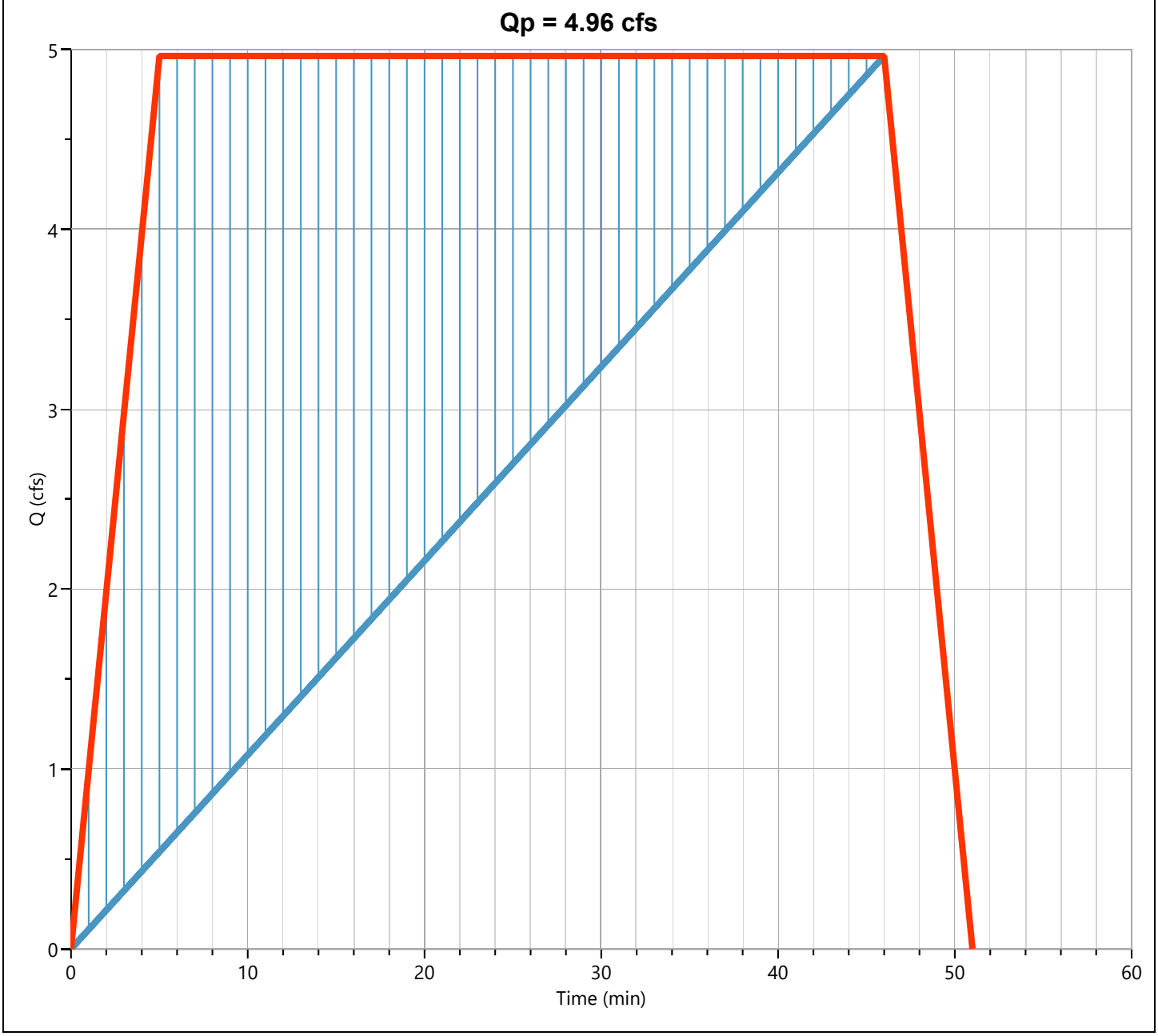
Hydrology Studio v 3.0.0.27

09-05-2025

Post-Dev Basin A

Hyd. No. 4

Hydrograph Type	= Mod Rational	Peak Flow	= 4.964 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.08 hrs
Time Interval	= 1 min	Runoff Volume	= 13,849 cuft
Drainage Area	= 1.5 ac	Runoff Coeff.	= 0.95
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 3.48 in/hr
Freq. Corr. Factor	= 1.00	Storm Duration	= 9.3 x Tc
Target Q	= 4.750 cfs	Required Storage	= 6,582 cuft



Hydrograph Report

Hydrology Studio v 3.0.0.27

09-05-2025

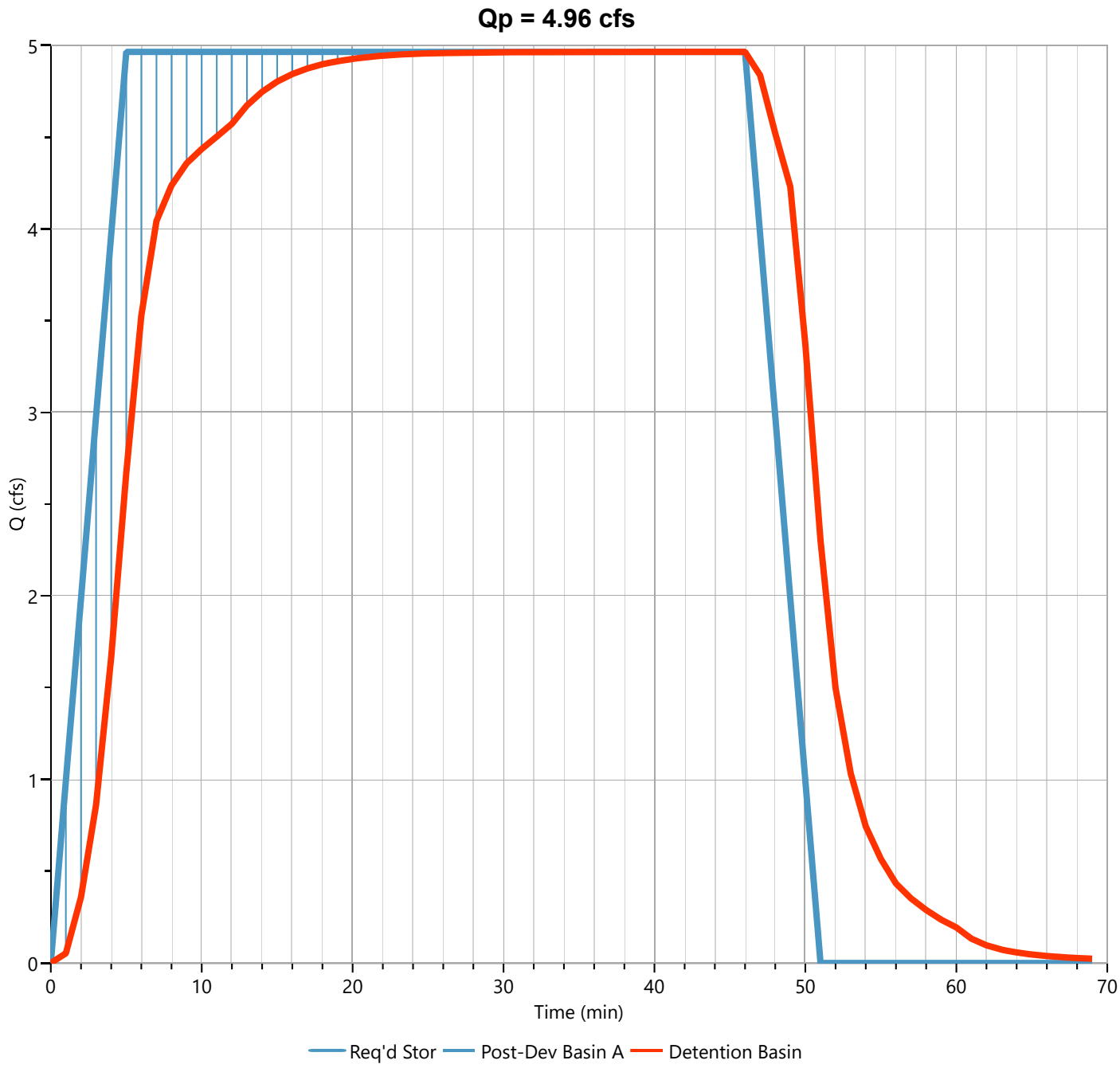
Detention Basin

Hyd. No. 5

Hydrograph Type	= Pond Route	Peak Flow	= 4.964 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.77 hrs
Time Interval	= 1 min	Hydrograph Volume	= 13,698 cuft
Inflow Hydrograph	= 4 - Post-Dev Basin A	Max. Elevation	= 419.19 ft
Pond Name	= Bryant Pharmacy Detention Pond	Max. Storage	= 930 cuft

Pond Routing by Storage Indication Method

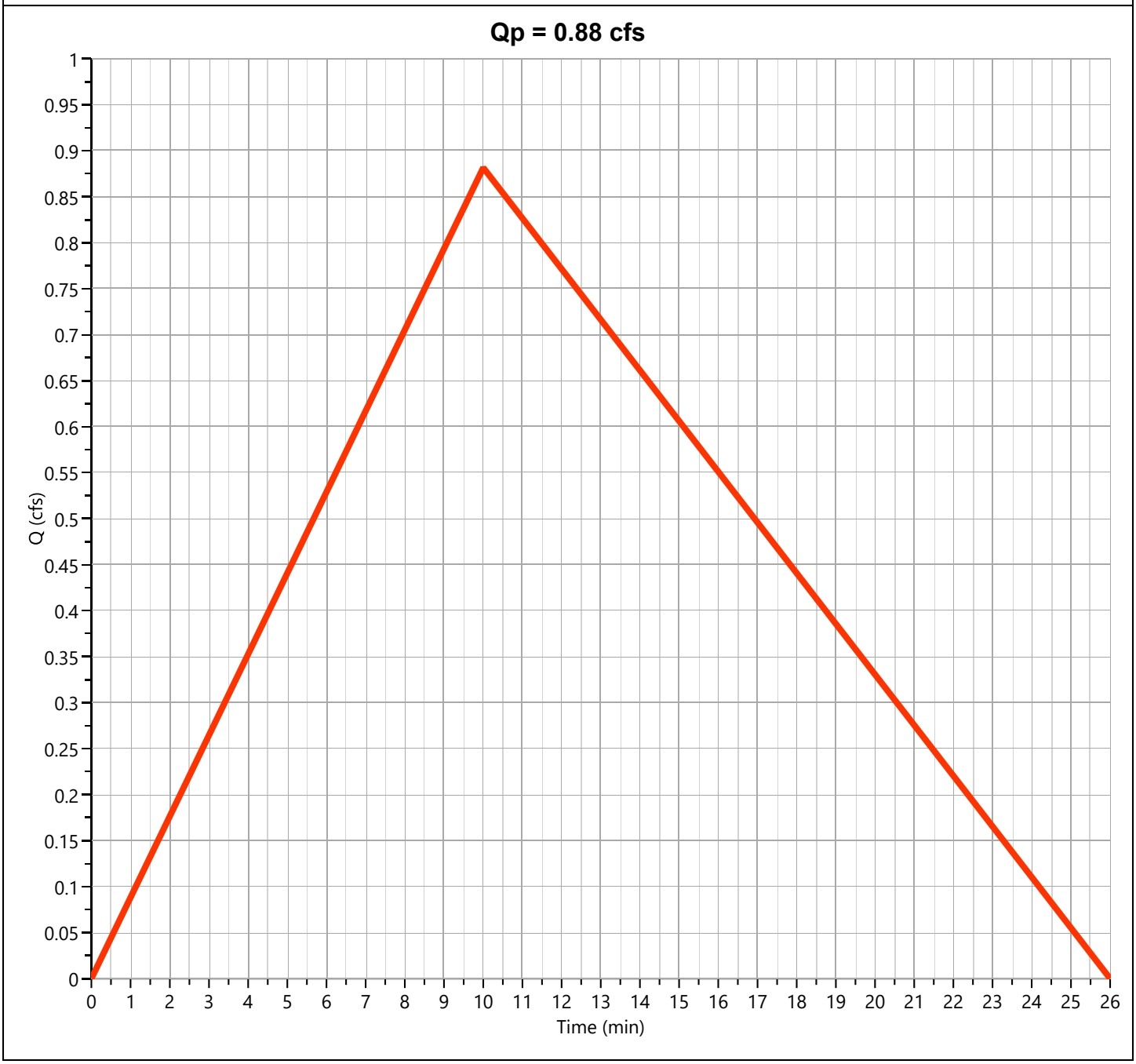
Center of mass detention time = 3 min



Post-Dev Basin B

Hyd. No. 6

Hydrograph Type	= Rational	Peak Flow	= 0.882 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.17 hrs
Time Interval	= 1 min	Runoff Volume	= 706 cuft
Drainage Area	= 0.22 ac	Runoff Coeff.	= 0.58
Tc Method	= TR55	Time of Conc. (Tc)	= 10.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.91 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67

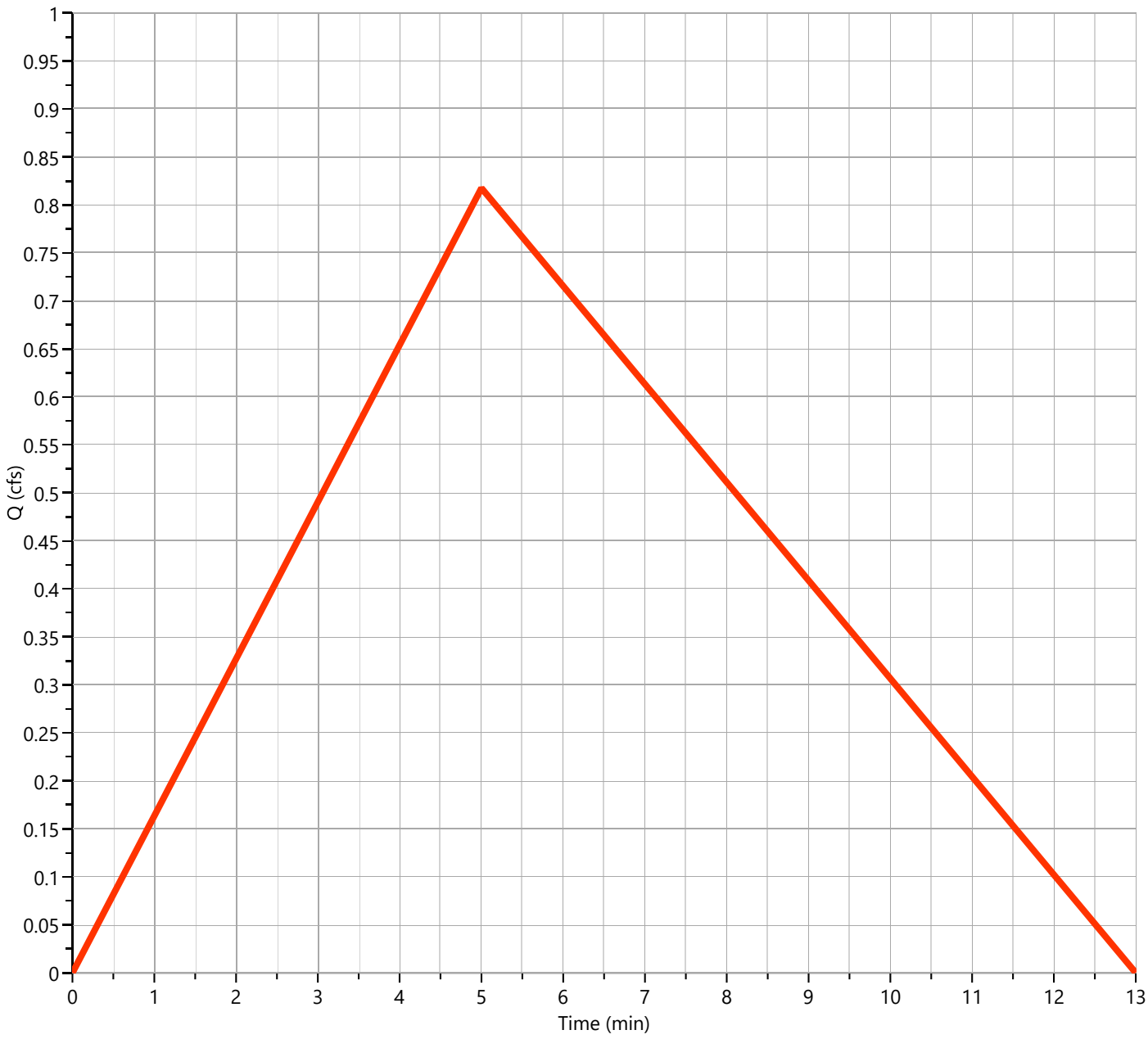


Hydrograph Report

Post-Dev Basin "C"

Hyd. No. 7

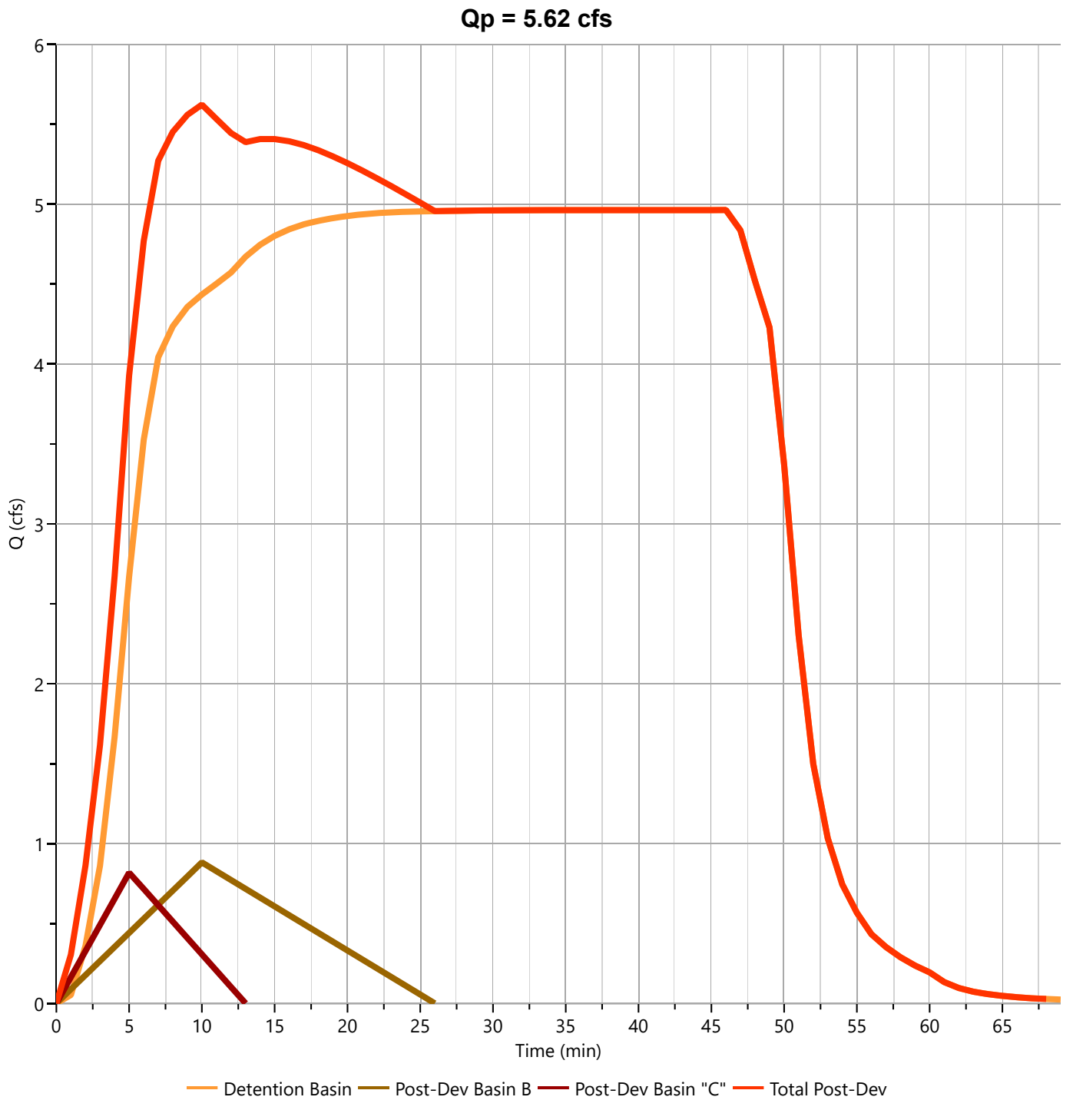
Hydrograph Type	= Rational	Peak Flow	= 0.818 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.08 hrs
Time Interval	= 1 min	Runoff Volume	= 327 cuft
Drainage Area	= 0.17 ac	Runoff Coeff.	= 0.51
Tc Method	= TR55	Time of Conc. (Tc)	= 5.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 9.43 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Total Post-Dev

Hyd. No. 8

Hydrograph Type	= Junction	Peak Flow	= 5.623 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.17 hrs
Time Interval	= 1 min	Hydrograph Volume	= 14,704 cuft
Inflow Hydrographs	= 5, 6, 7	Total Contrib. Area	= 0.39 ac



Hydrograph 50-yr Summary

Project Name: Bryant Pharmacy

09-05-2025

Hydrology Studio v 3.0.0.27

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	Rational	Pre-Dev Basin "A"	5.188	0.15	3,740	----		
2	Rational	Pre-Dev Basin "B"	2.924	0.20	2,810	----		
3	Junction	Total Pre-Dev	7.381	0.15	6,542	1, 2		
4	Mod Rational	Post-Dev Basin A	5.437	0.08	15,170	----		
5	Pond Route	Detention Basin	5.437	0.77	15,005	4	419.29	1,035
6	Rational	Post-Dev Basin B	0.964	0.17	772	----		
7	Rational	Post-Dev Basin "C"	0.893	0.08	358	----		
8	Junction	Total Post-Dev	6.097	0.17	16,105	5, 6, 7		

Hydrograph Report

Project Name: Bryant Pharmacy

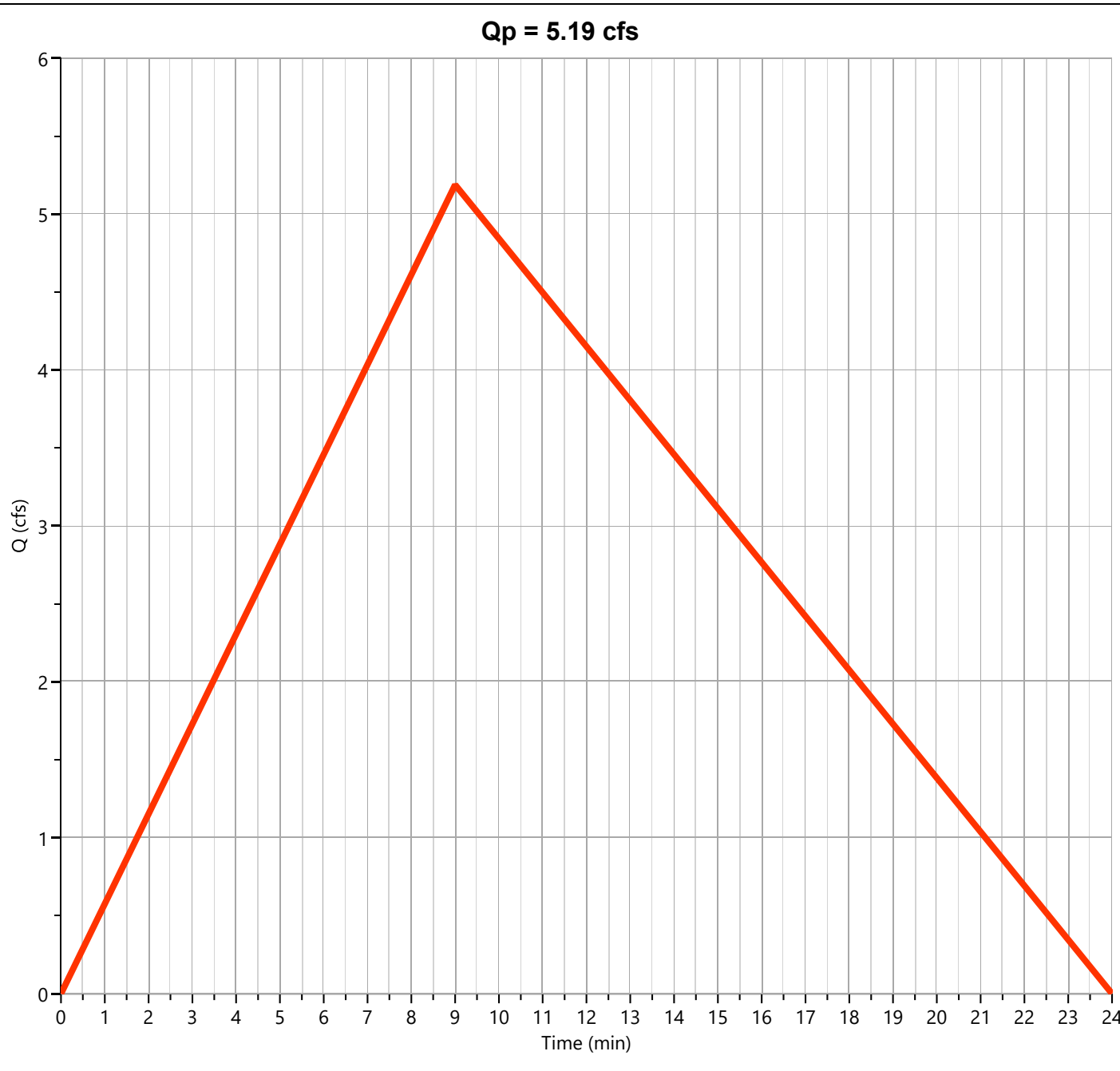
Hydrology Studio v 3.0.0.27

09-05-2025

Pre-Dev Basin "A"

Hyd. No. 1

Hydrograph Type	= Rational	Peak Flow	= 5.188 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.15 hrs
Time Interval	= 1 min	Runoff Volume	= 3,740 cuft
Drainage Area	= 1.17 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55	Time of Conc. (Tc)	= 9.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 7.92 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Hydrograph Report

Project Name: Bryant Pharmacy

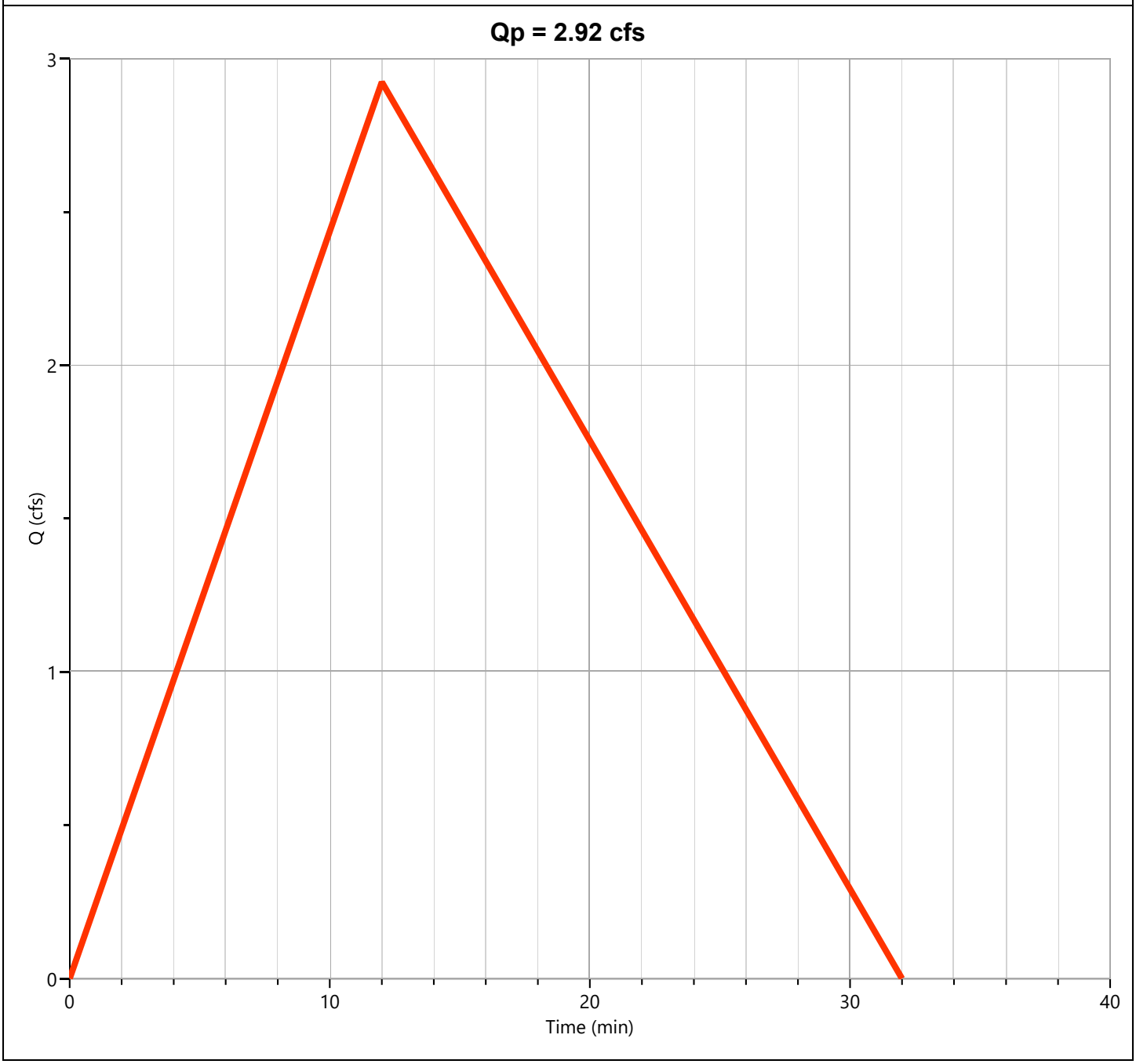
Hydrology Studio v 3.0.0.27

09-05-2025

Pre-Dev Basin "B"

Hyd. No. 2

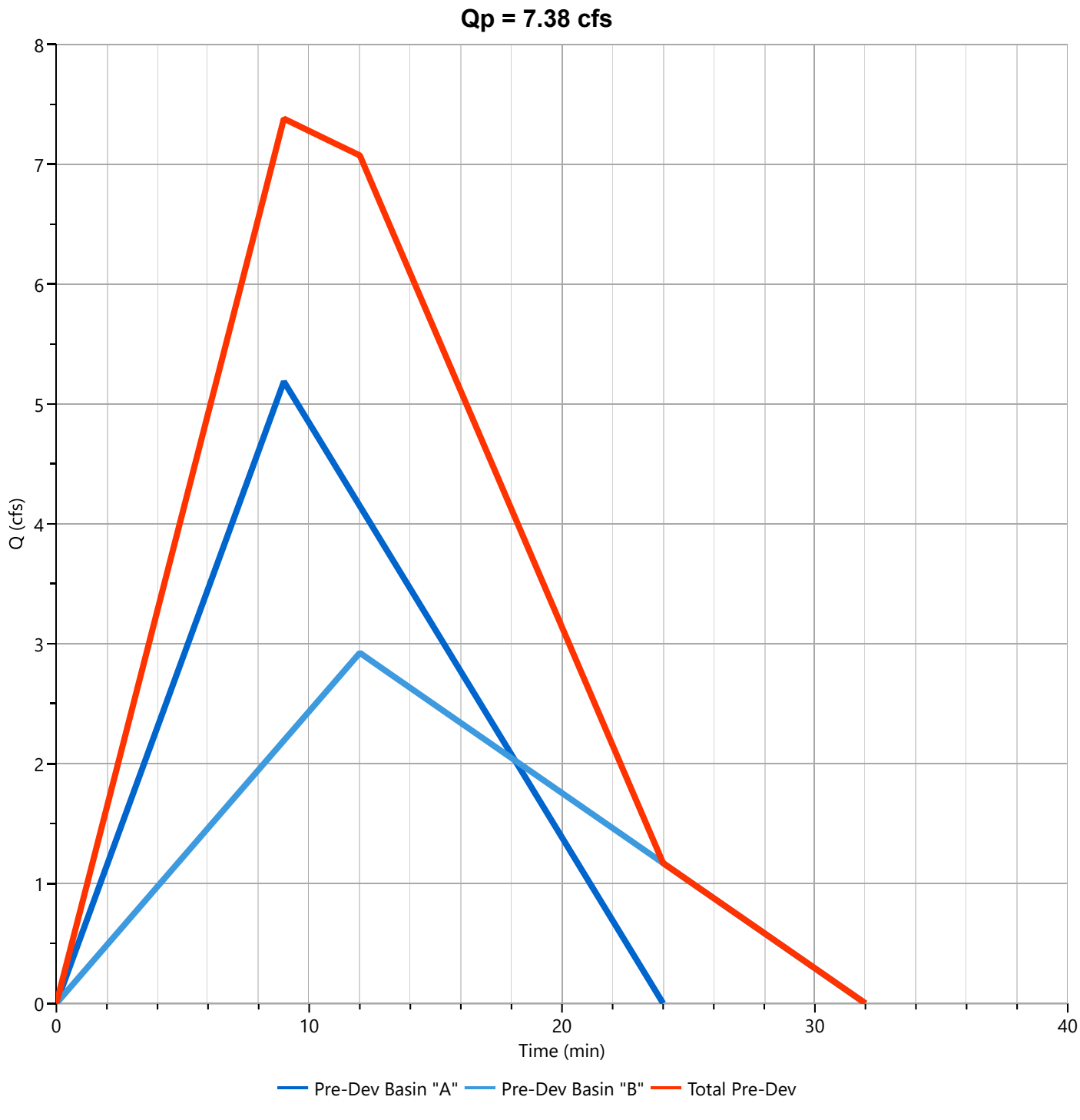
Hydrograph Type	= Rational	Peak Flow	= 2.924 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.20 hrs
Time Interval	= 1 min	Runoff Volume	= 2,810 cuft
Drainage Area	= 0.75 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55	Time of Conc. (Tc)	= 12.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.96 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Total Pre-Dev

Hyd. No. 3

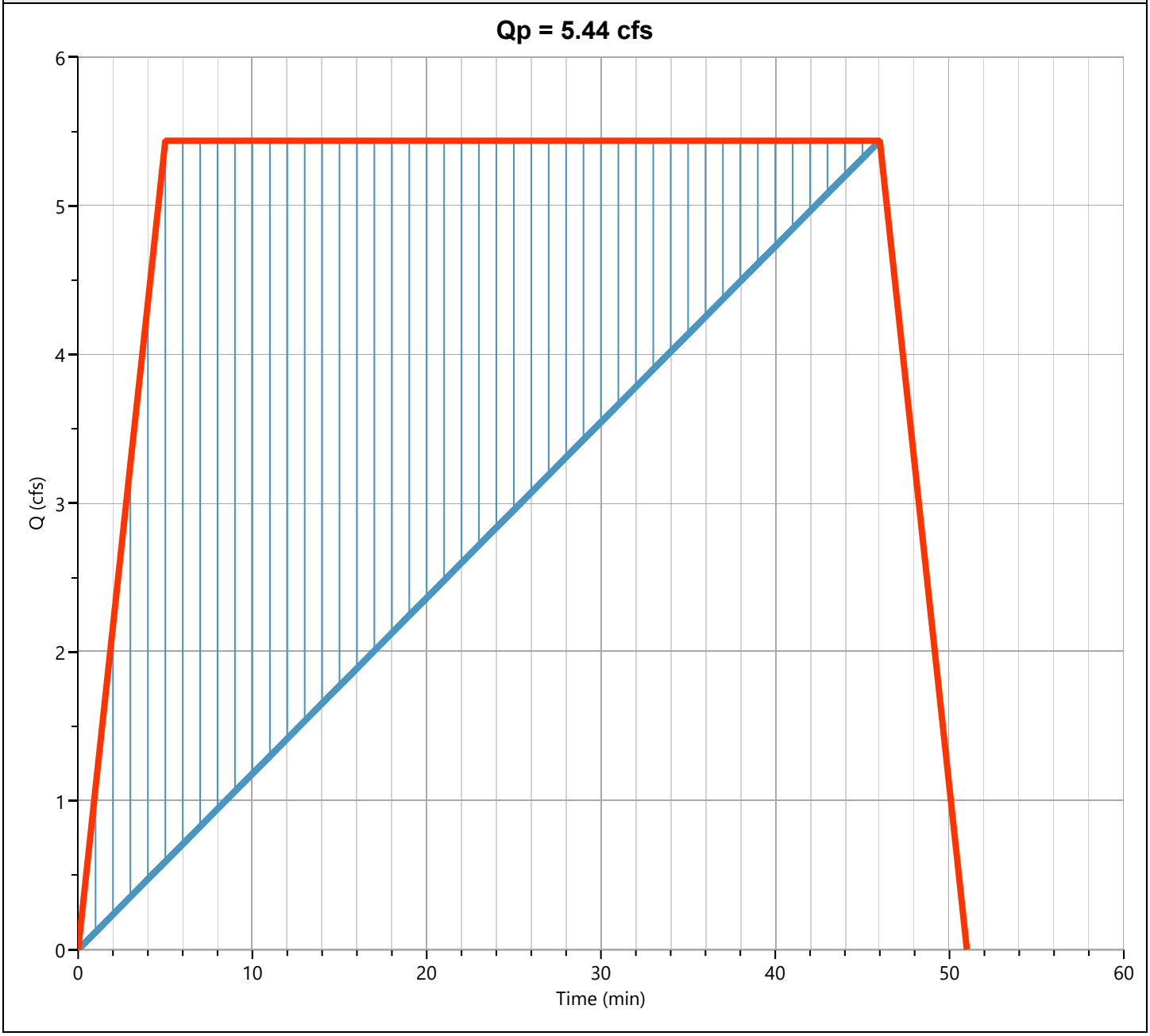
Hydrograph Type	= Junction	Peak Flow	= 7.381 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 6,542 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 1.92 ac



Post-Dev Basin A

Hyd. No. 4

Hydrograph Type	= Mod Rational	Peak Flow	= 5.437 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.08 hrs
Time Interval	= 1 min	Runoff Volume	= 15,170 cuft
Drainage Area	= 1.5 ac	Runoff Coeff.	= 0.95
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 3.82 in/hr
Freq. Corr. Factor	= 1.00	Storm Duration	= 9.3 x Tc
Target Q	= 5.190 cfs	Required Storage	= 7,230 cuft



Hydrograph Report

Hydrology Studio v 3.0.0.27

09-05-2025

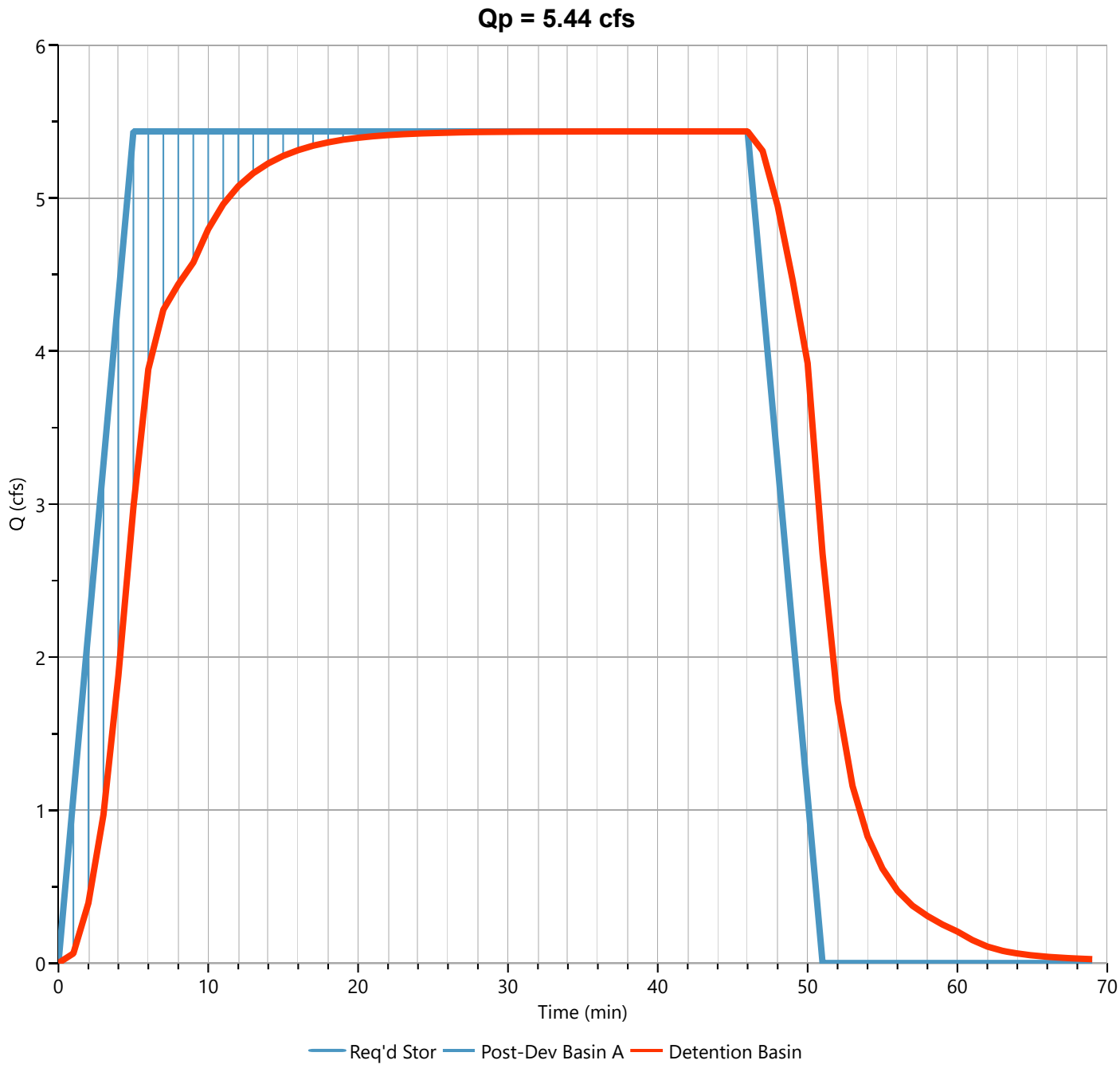
Detention Basin

Hyd. No. 5

Hydrograph Type	= Pond Route	Peak Flow	= 5.437 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.77 hrs
Time Interval	= 1 min	Hydrograph Volume	= 15,005 cuft
Inflow Hydrograph	= 4 - Post-Dev Basin A	Max. Elevation	= 419.29 ft
Pond Name	= Bryant Pharmacy Detention Pond	Max. Storage	= 1,035 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 3 min

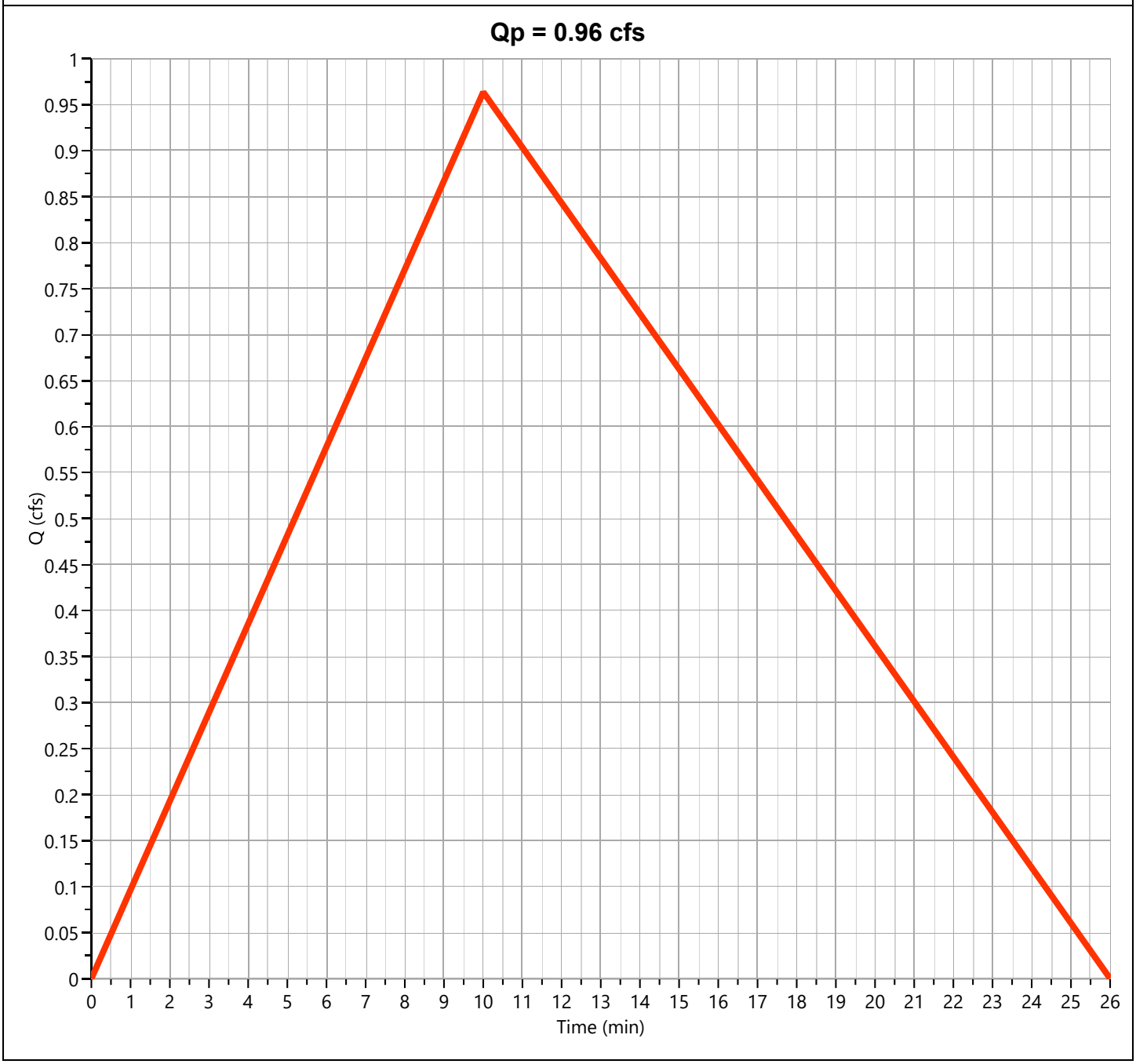


Hydrograph Report

Post-Dev Basin B

Hyd. No. 6

Hydrograph Type	= Rational	Peak Flow	= 0.964 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.17 hrs
Time Interval	= 1 min	Runoff Volume	= 772 cuft
Drainage Area	= 0.22 ac	Runoff Coeff.	= 0.58
Tc Method	= TR55	Time of Conc. (Tc)	= 10.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 7.55 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Hydrograph Report

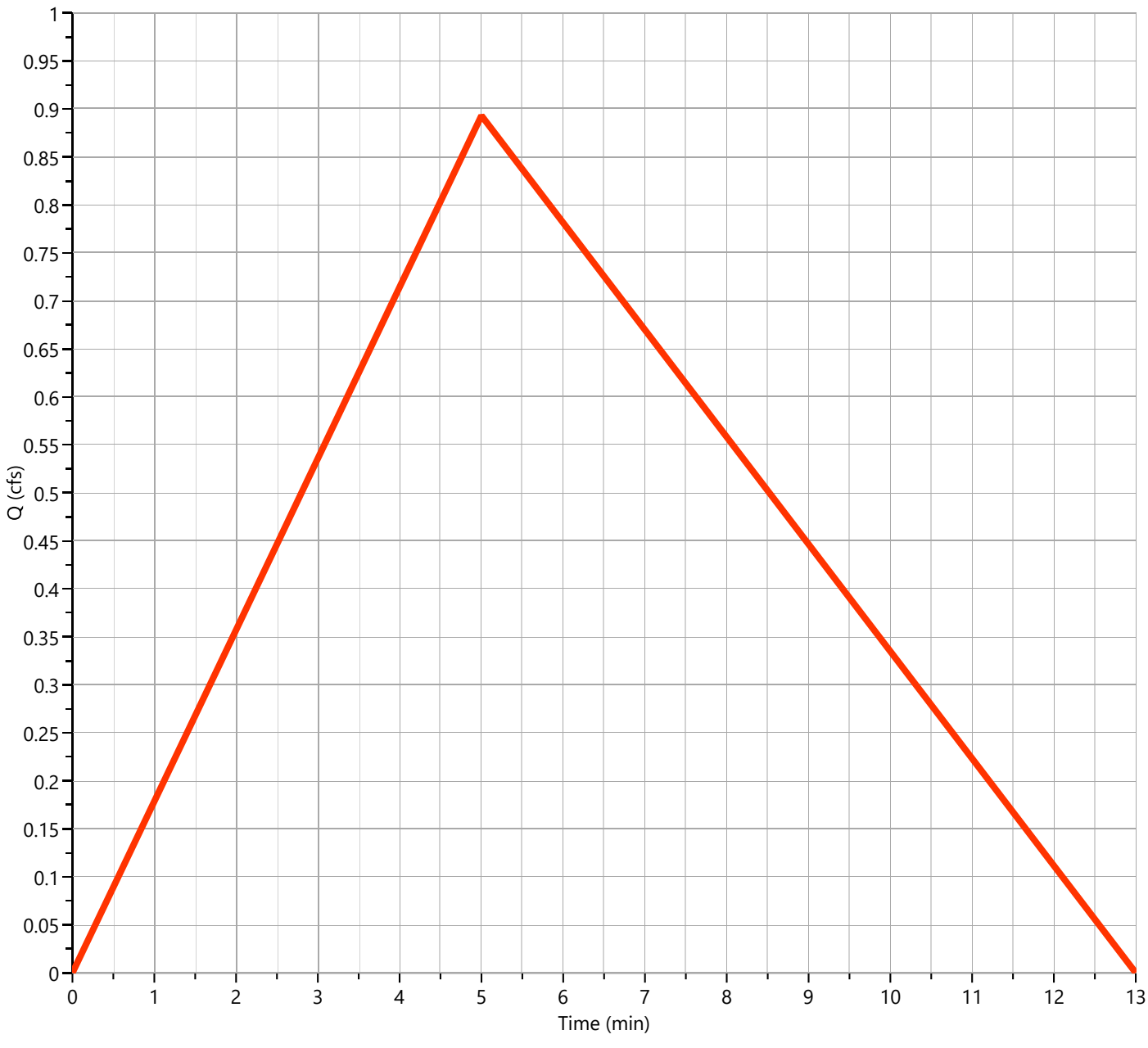
Hydrology Studio v 3.0.0.27

09-05-2025

Post-Dev Basin "C"

Hyd. No. 7

Hydrograph Type	= Rational	Peak Flow	= 0.893 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.08 hrs
Time Interval	= 1 min	Runoff Volume	= 358 cuft
Drainage Area	= 0.17 ac	Runoff Coeff.	= 0.51
Tc Method	= TR55	Time of Conc. (Tc)	= 5.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 10.30 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67

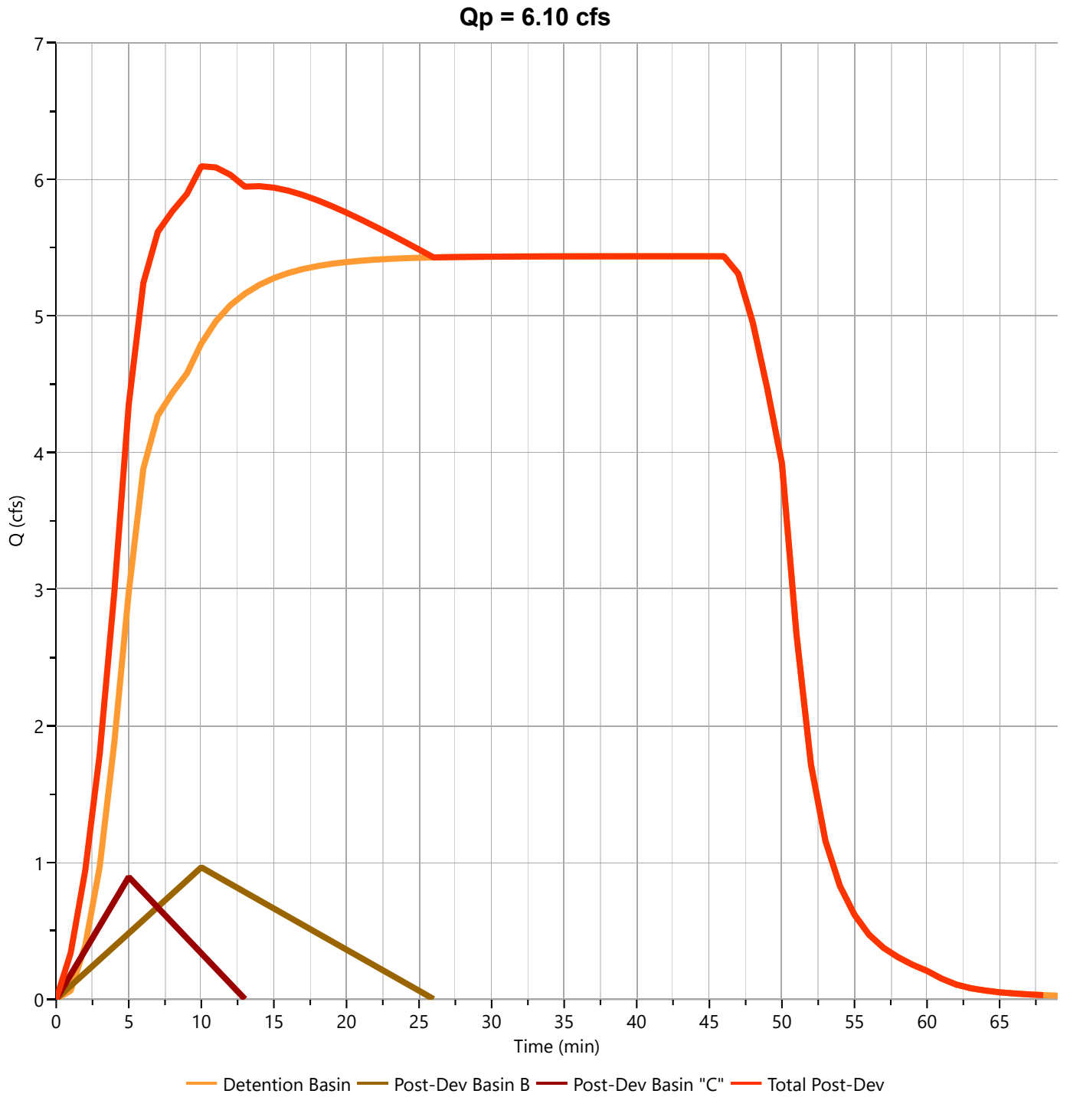


Hydrograph Report

Total Post-Dev

Hyd. No. 8

Hydrograph Type	= Junction	Peak Flow	= 6.097 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.17 hrs
Time Interval	= 1 min	Hydrograph Volume	= 16,105 cuft
Inflow Hydrographs	= 5, 6, 7	Total Contrib. Area	= 0.39 ac



Hydrograph 100-yr Summary

Project Name: Bryant Pharmacy

09-05-2025

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Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	Rational	Pre-Dev Basin "A"	5.636	0.15	4,063	----		
2	Rational	Pre-Dev Basin "B"	3.175	0.20	3,052	----		
3	Junction	Total Pre-Dev	8.017	0.15	7,106	1, 2		
4	Mod Rational	Post-Dev Basin A	5.893	0.08	16,440	----		
5	Pond Route	Detention Basin	5.892	0.77	16,261	4	419.42	1,163
6	Rational	Post-Dev Basin B	1.047	0.17	839	----		
7	Rational	Post-Dev Basin "C"	0.971	0.08	389	----		
8	Junction	Total Post-Dev	6.620	0.17	17,456	5, 6, 7		

Hydrograph Report

Project Name: Bryant Pharmacy

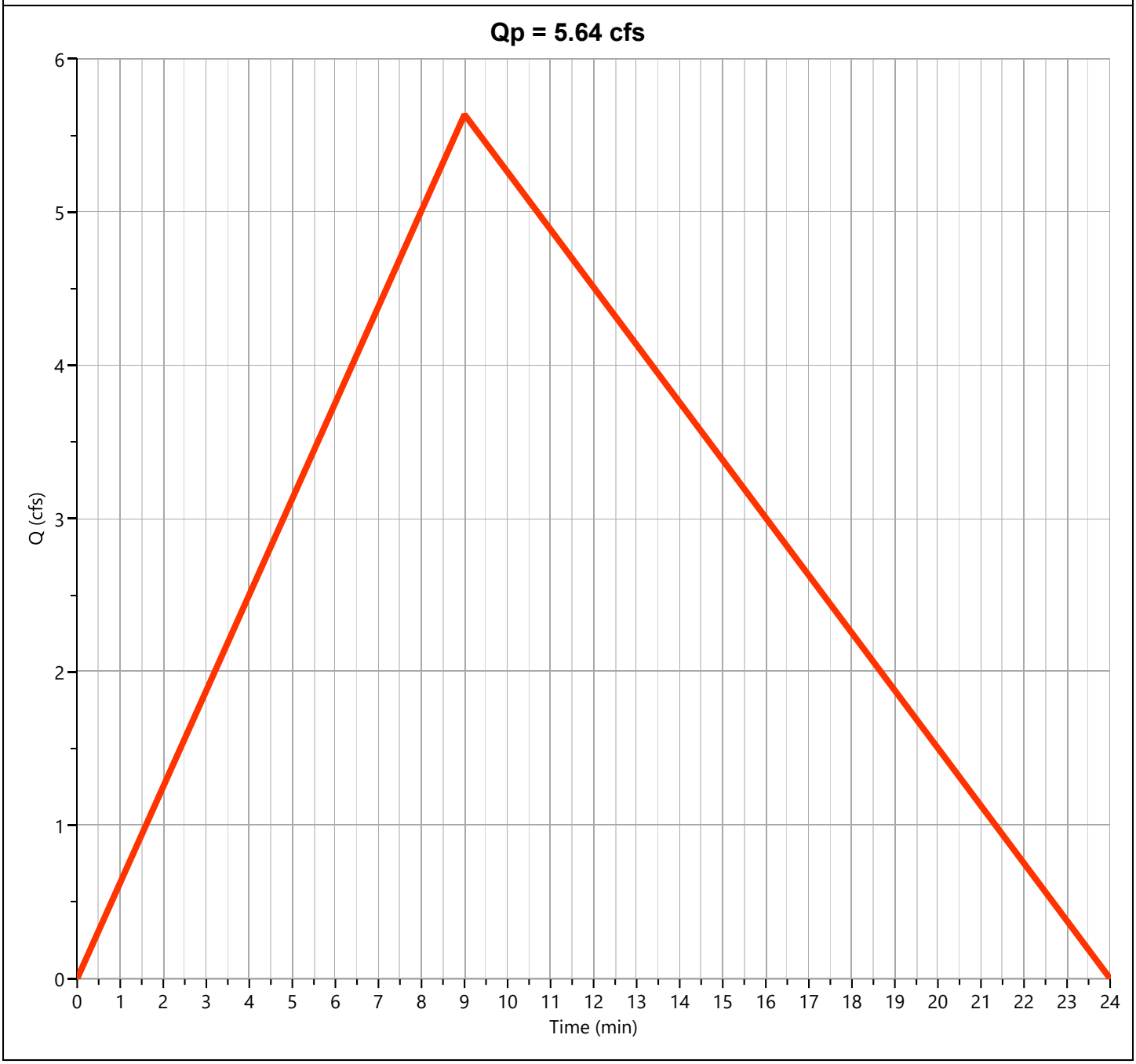
Hydrology Studio v 3.0.0.27

09-05-2025

Pre-Dev Basin "A"

Hyd. No. 1

Hydrograph Type	= Rational	Peak Flow	= 5.636 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.15 hrs
Time Interval	= 1 min	Runoff Volume	= 4,063 cuft
Drainage Area	= 1.17 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55	Time of Conc. (Tc)	= 9.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 8.60 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Hydrograph Report

Project Name: Bryant Pharmacy

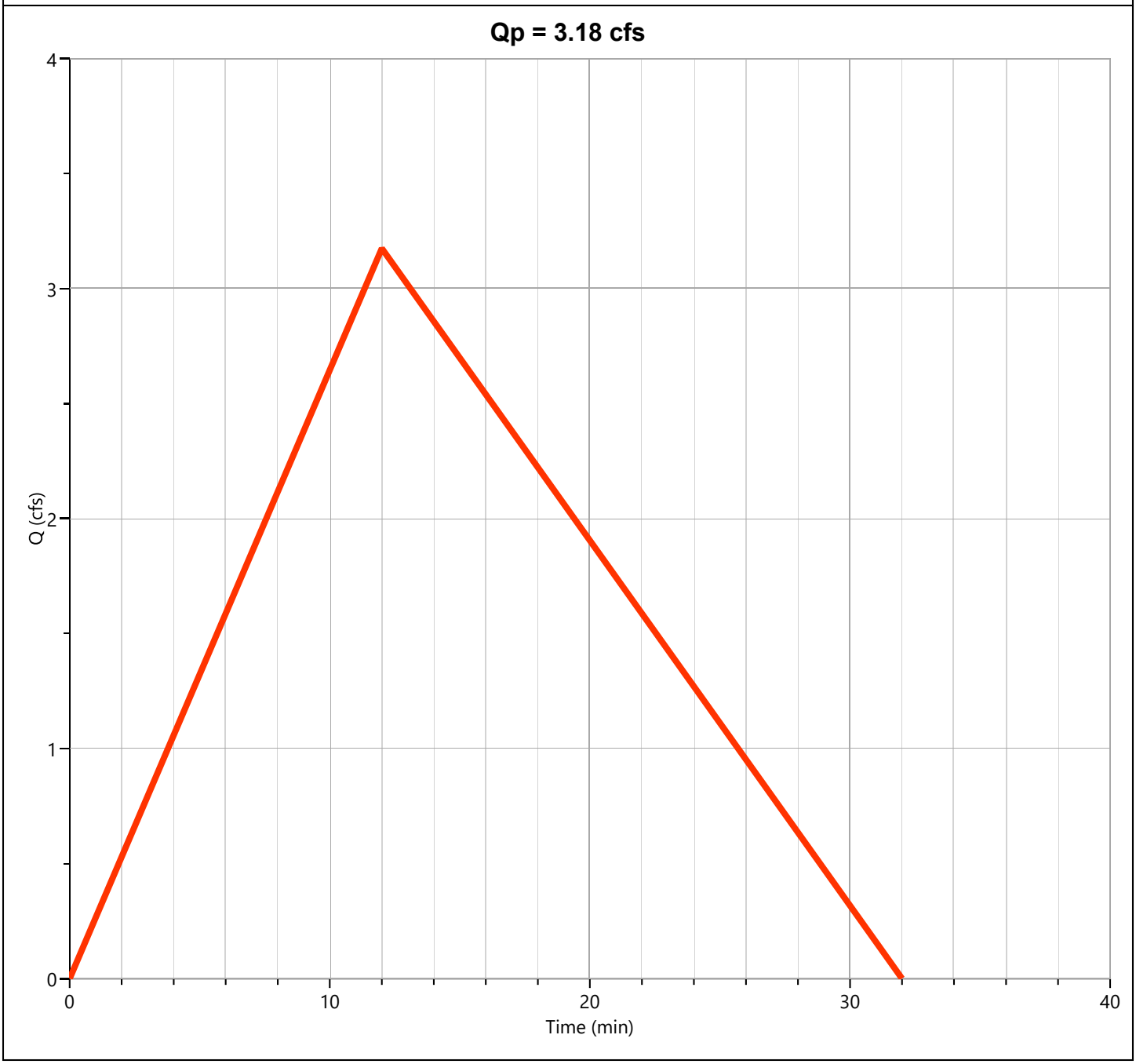
Hydrology Studio v 3.0.0.27

09-05-2025

Pre-Dev Basin "B"

Hyd. No. 2

Hydrograph Type	= Rational	Peak Flow	= 3.175 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.20 hrs
Time Interval	= 1 min	Runoff Volume	= 3,052 cuft
Drainage Area	= 0.75 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55	Time of Conc. (Tc)	= 12.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 7.56 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67

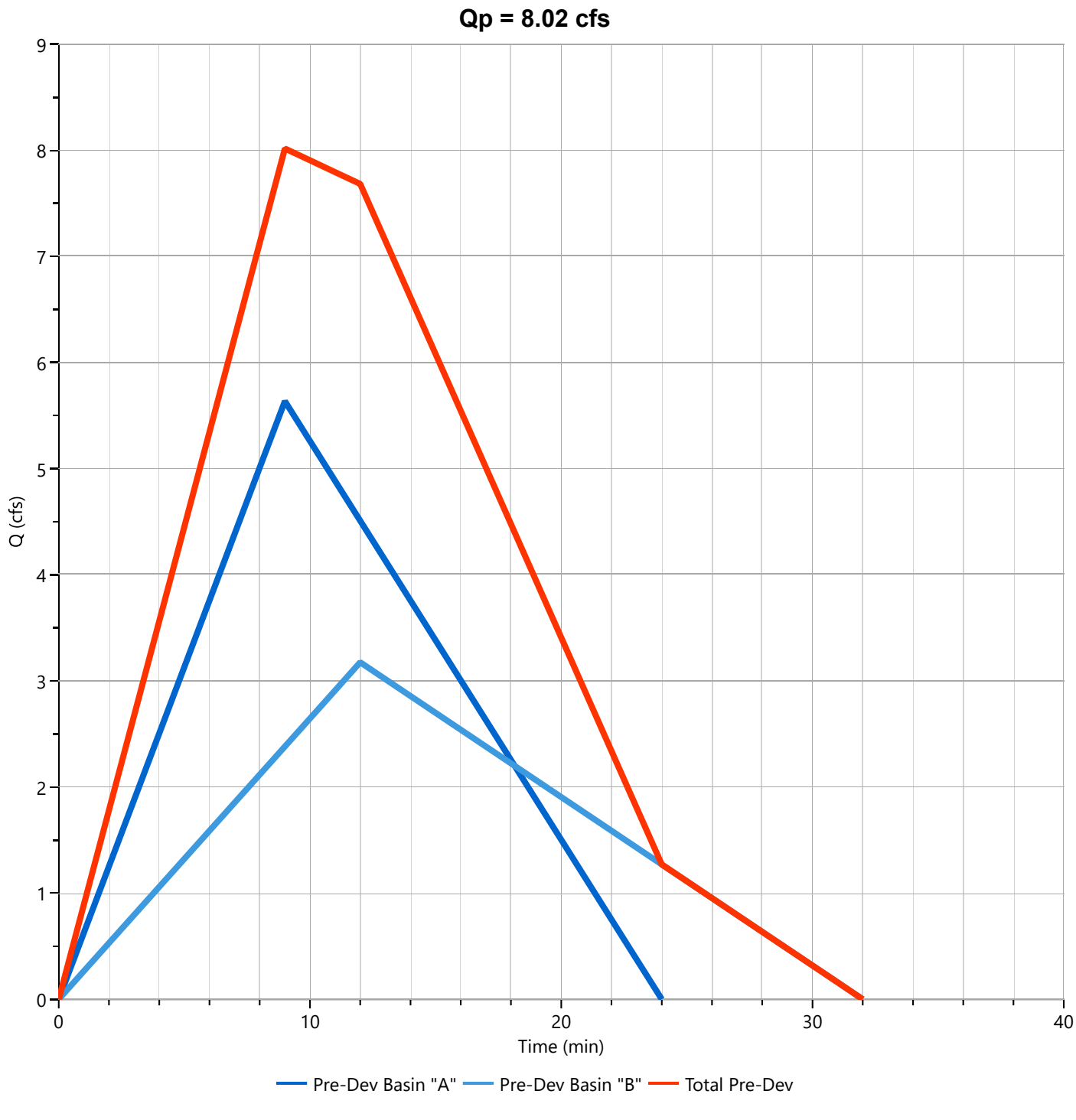


Hydrograph Report

Total Pre-Dev

Hyd. No. 3

Hydrograph Type	= Junction	Peak Flow	= 8.017 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 7,106 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 1.92 ac



Hydrograph Report

Project Name: Bryant Pharmacy

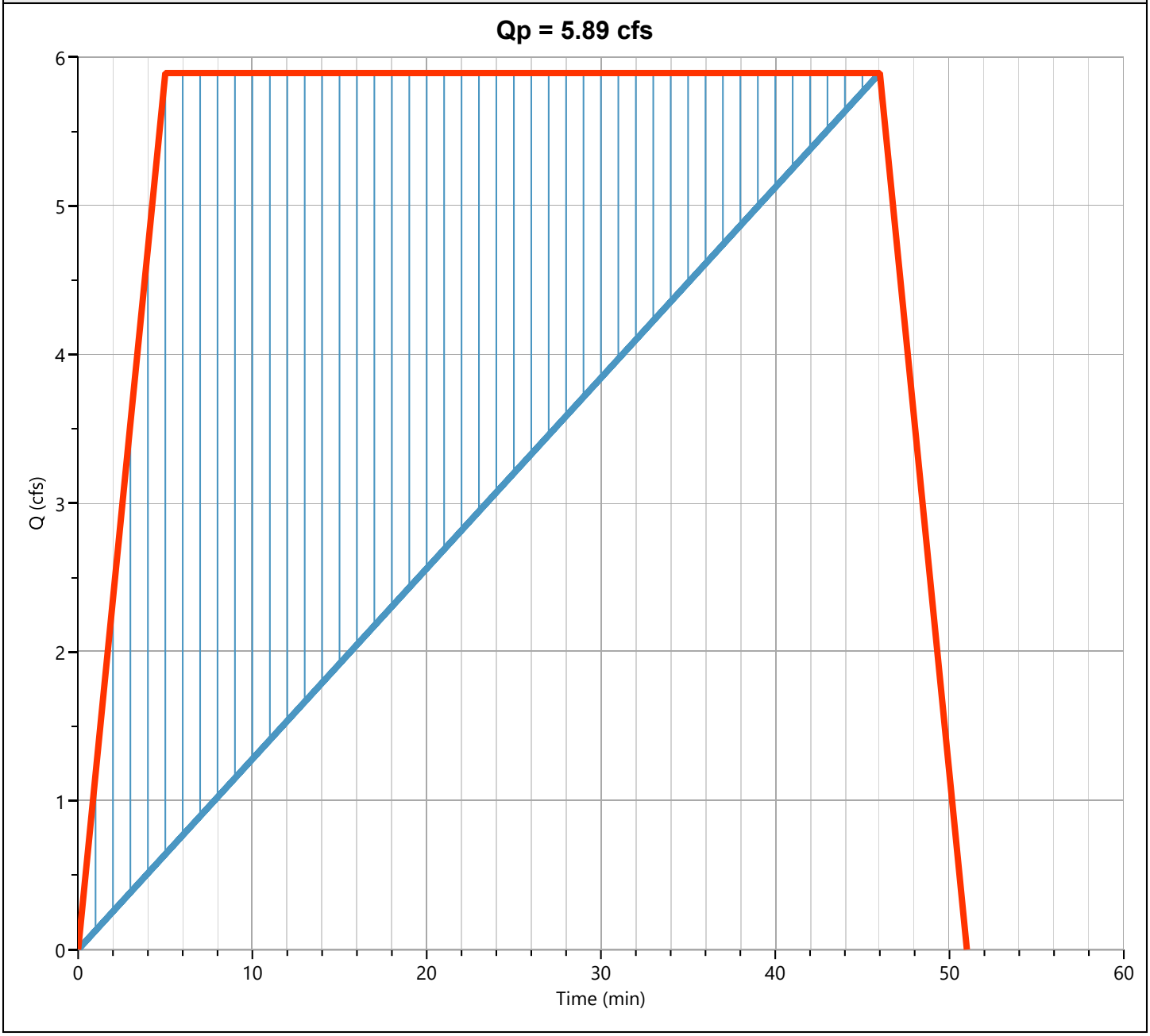
Hydrology Studio v 3.0.0.27

09-05-2025

Post-Dev Basin A

Hyd. No. 4

Hydrograph Type	= Mod Rational	Peak Flow	= 5.893 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.08 hrs
Time Interval	= 1 min	Runoff Volume	= 16,440 cuft
Drainage Area	= 1.5 ac	Runoff Coeff.	= 0.95
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 4.14 in/hr
Freq. Corr. Factor	= 1.00	Storm Duration	= 9.3 x Tc
Target Q	= 5.640 cfs	Required Storage	= 7,811 cuft



Hydrograph Report

Hydrology Studio v 3.0.0.27

09-05-2025

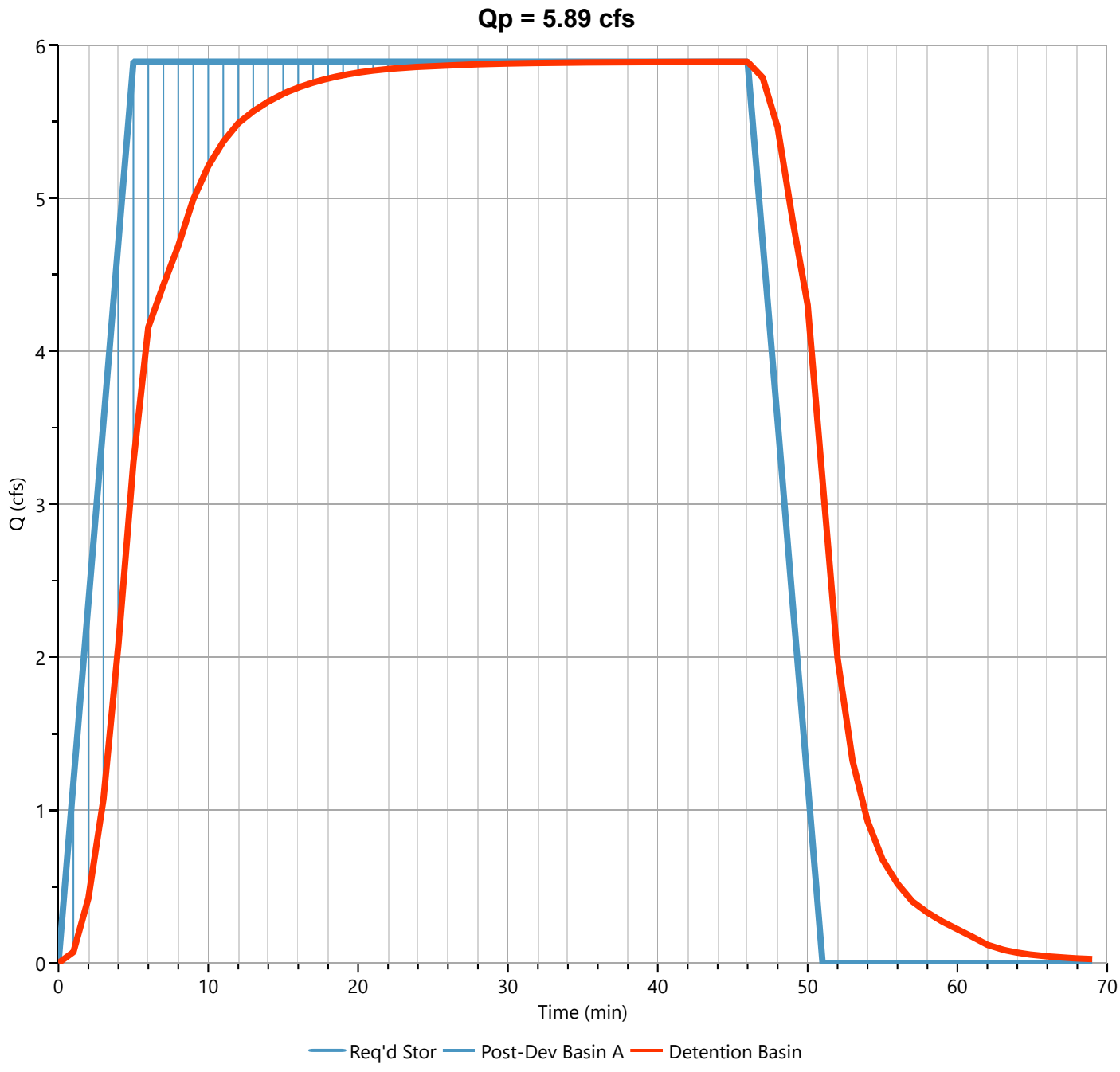
Detention Basin

Hyd. No. 5

Hydrograph Type	= Pond Route	Peak Flow	= 5.892 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.77 hrs
Time Interval	= 1 min	Hydrograph Volume	= 16,261 cuft
Inflow Hydrograph	= 4 - Post-Dev Basin A	Max. Elevation	= 419.42 ft
Pond Name	= Bryant Pharmacy Detention Pond	Max. Storage	= 1,163 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 3 min

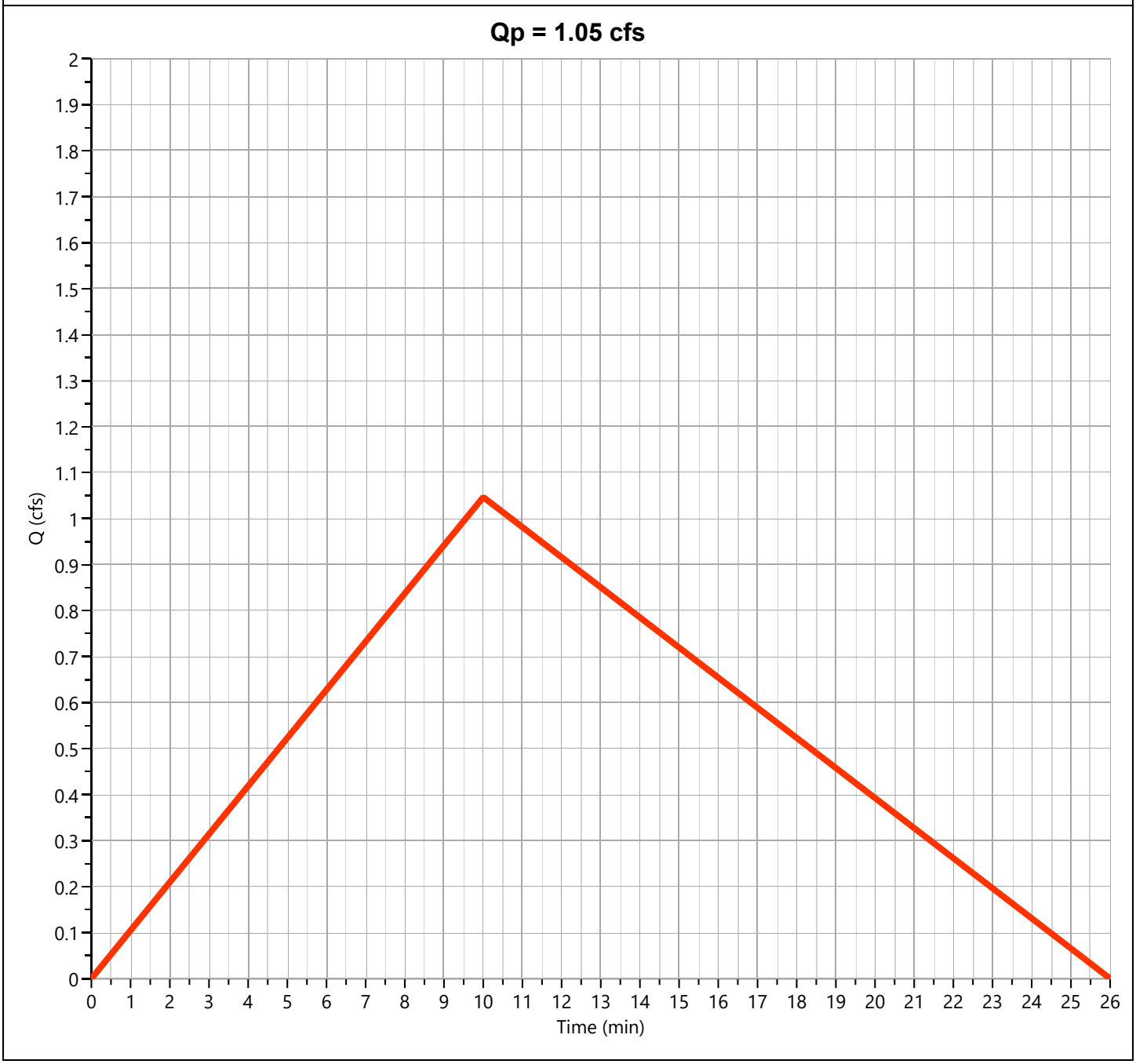


Hydrograph Report

Post-Dev Basin B

Hyd. No. 6

Hydrograph Type	= Rational	Peak Flow	= 1.047 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.17 hrs
Time Interval	= 1 min	Runoff Volume	= 839 cuft
Drainage Area	= 0.22 ac	Runoff Coeff.	= 0.58
Tc Method	= TR55	Time of Conc. (Tc)	= 10.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 8.20 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67

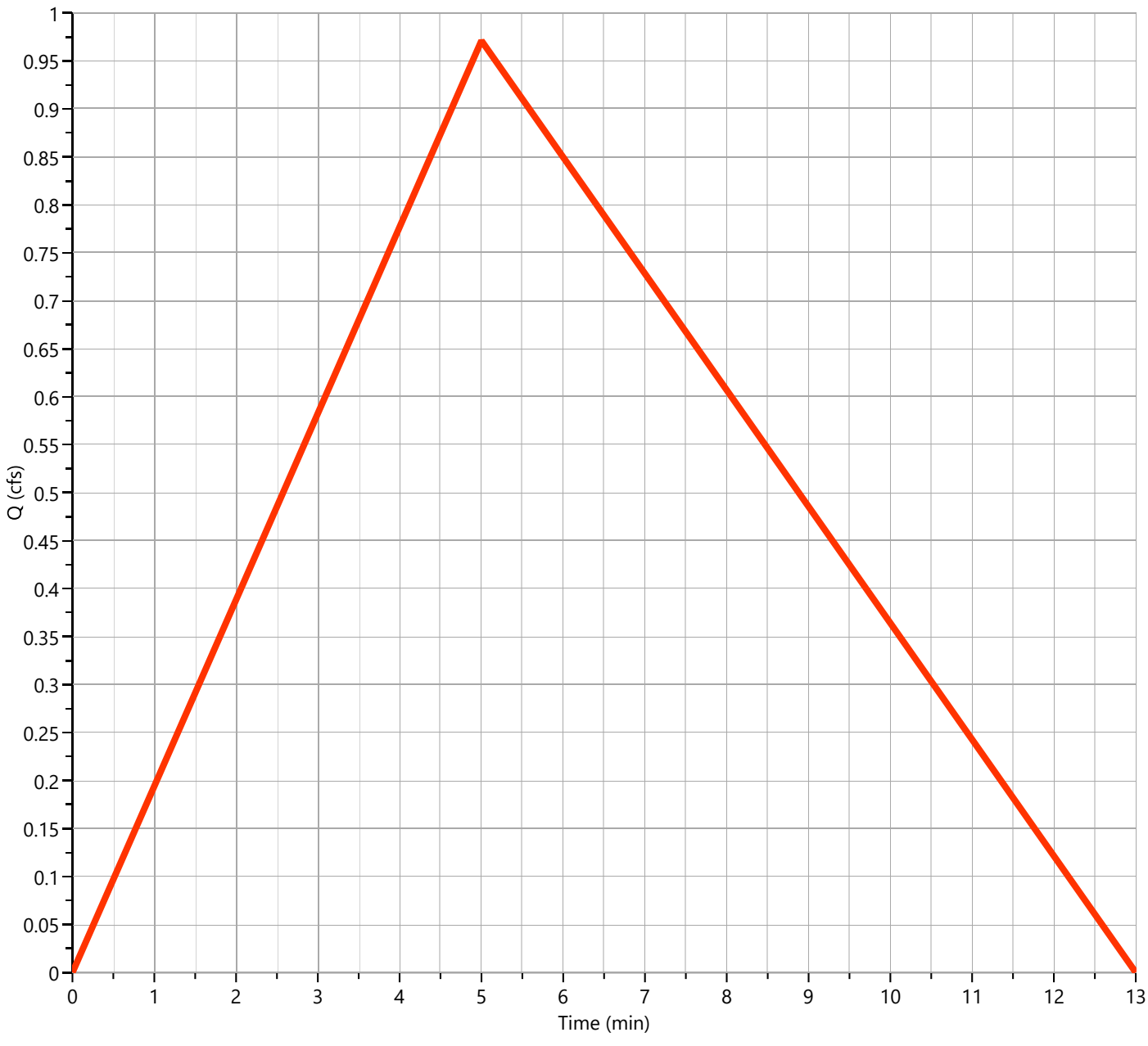


Hydrograph Report

Post-Dev Basin "C"

Hyd. No. 7

Hydrograph Type	= Rational	Peak Flow	= 0.971 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.08 hrs
Time Interval	= 1 min	Runoff Volume	= 389 cuft
Drainage Area	= 0.17 ac	Runoff Coeff.	= 0.51
Tc Method	= TR55	Time of Conc. (Tc)	= 5.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 11.20 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Hydrograph Report

Total Post-Dev

Hyd. No. 8

Hydrograph Type	= Junction	Peak Flow	= 6.620 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.17 hrs
Time Interval	= 1 min	Hydrograph Volume	= 17,456 cuft
Inflow Hydrographs	= 5, 6, 7	Total Contrib. Area	= 0.39 ac

